Table of Contents

01 01 IN Diagnostic system: reading out fault memory and activating systems - as of MY 2005 1
Tools 1
Performing vehicle handover 1
Reading out and erasing fault memory 2

10 01 TW Technical data, engine - as of MY 2005 5
Technical values 5
M96/05 and M97/01 engines 5
Engine design 6
Engine control 7

13 44 IN Mounting specification for connecting rod bolts - as of MY 2005 10
Tools 10
Securing connecting rod bolts 10
Securing connecting rod bolts 10

17 01 TW Technical data, lubrication system - as of MY 2005 13
Technical values 13
Engine lubrication 13

19 01 TW Technical data, cooling system - as of MY 2005 16
Technical values 16
Engine cooling 16

20 01 AW Basic safety instructions for working with the fuel system - as of MY 2005 19
Information 19
Safety instructions when working on fuel system 19

20 01 TW Technical data, fuel system - as of MY 2005 22
Technical values 22
Fuel supply 22

20 10 EN Emptying and filling the fuel tank - as of MY 2005 25
Tools 25
Preliminary work 25
Preliminary work 25
Emptying the fuel tank 26
Emptying the fuel tank 26
Filling the fuel tank 30
Filling the fuel tank 30
Subsequent work 32
Subsequent work 32

20 15 IN Calibrating fuel-level sensor system - as of MY 2005 34
Warning notes for calibrating fuel-level sensor system 34
Calibrating fuel-level sensor system, C4 35

Table of Contents

20 15 IN Calibrating fuel-level sensor system - as of MY 2005 38
Warning notes for calibrating fuel-level sensor system 38
Calibrating fuel-level sensor system, C2 39

24 46 TW Technical data, intake system - as of MY 2005 42
Technical values 42
Intake system 42
Intake system tightening torques 42

26 01 TW Technical data, exhaust system - as of MY 2005 45
Technical values 45
Exhaust system and emission control 45
Exhaust system tightening torques 45

27 06 IN External power connection, jump lead starting - as of MY 2005 48
Preliminary work 48
Preliminary work for external power connection, jump lead starting 48
General warning notes 49
Warning notes for external power connection, jump lead starting 49
Information 49
External power connection 49
Jump lead starting 50
Subsequent work 51
Rework on external power connection, jump lead starting 51

27 06 IN Work instructions after disconnecting the battery - as of MY 2005 54
Disconnecting and connecting the battery 54
Disconnecting and connecting the battery 54
Effect of disconnection or total discharge of battery on electrical systems in the vehicle and the precautions to be taken 55
Test drive after disconnecting battery 59
Effects of overvoltage on electrical and electronic systems during welding work and the precautions to be taken 59

27 06 IN Electrical emergency release for lid - as of MY 2005 62
Electrical emergency release, front lid 62

34 35 TW Technical data, transmission - as of MY 2005 65
Technical values 65
Technical data 65
Transmission ratios 65
Filling capacities 65

34 35 TW Technical data, transmission - as of MY 2005 68
Technical values 68
Technical data 68
Transmission ratios 68
Filling capacities 68

Table of Contents

37 35 TW Technical data, automatic transmission - as of MY 2005 71
Technical values 71
Technical data 71
Transmission ratios 71
Filling capacities 71

37 35 TW Technical data, automatic transmission - as of MY 2005 74
Technical values 74
Technical data 74
Transmission ratios 74
Filling capacities 74

39 88 TW Technical data on front final drive - as of MY 2006 77
Technical values 77
Technical values 77
Transmission ratio 77
Filling capacities 77

61 01 IN Convertible top service position - as of MY 2005 80
Convertible top service position 80
Move convertible top to service position 80
Ending convertible top service position 81

61 01 IN Overview of convertible-top components - as of MY 2005 85
Overview of convertible-top components 85

61 01 IN Diagram of convertible top - as of MY 2005 88
Diagram of convertible top 88

61 01 K2 Calibrating convertible top - as of MY 2005 91
Preliminary work 91
Preliminary work for calibration 91
General warning notes 91
Warning note on calibration 91
Calibrating convertible top 92

61 02 IN Assembly instructions for hardtop assembly fixture - as of MY 2005 94
Tools 94
Tools and materials 94
Tools and materials 94
Assembly instructions for hardtop assembly fixture 95
Making support cheeks 96
Making swivel arm 96
Fitting swivel and support cheeks on the basic plate 97
Fitting mounting points for the hardtop locking lever on the plate 98
Fitting horizontal banner arm and support on the base plate 99

Table of Contents

61 28 IN Care and cleaning of the convertible top - as of MY 2005 102
Care and cleaning of the convertible top 102
General information 102
Cleaning the convertible top 103
Care of convertible top 103
Care of convertible-top seals 103

64 12 IN Processing of Porsche 2-component window bonding agents - as of MY 2005 106
Pre-treatment of bonding surfaces 106
Pre-treating adhesive flanges on vehicle windows 106
Pre-treating adhesive flanges on vehicle body 107
Handling processing device 107
Double cartridge press 107

69 68 K2 Calibrating AWS control unit - as of MY 2005 113
Tools 113
Calibrating AWS control unit 113
Calibrating AWS control unit 113

87 43 IN Laying compressor/condenser line - as of MY 2005 118
Laying compressor/condenser line 118

87 45 IN Laying compressor/evaporator line - as of MY 2005 122
Laying compressor/evaporator line 122

94 15 IN Converting headlights for left/right-hand driving - as of MY 2005 126
Converting halogen headlights for left/right-hand driving 126
Converting Bi-Xenon headlights for left/right-hand driving 127

94 23 IN Bulb table and installation instructions - as of MY 2005 130
Bulb table 130
Bulb table 130
Installation instructions 131
Installation instructions for bulbs 131

97 72 IN Optical waveguide (LWL) - MOST bus - as of MY 2005 134
Tools 134
Optical waveguide (LWL) - MOST bus 134
Requirements when working with LWL 134
Storage, Packing, Transport 134
Installing the LWL in the vehicle 135
Repair 135
Push-on connector - dust boots 135
Control unit plug connector (wiring harness side) 136
Push-on connector - connection points 136
Optical fiber (LWL) - module 136
Optical waveguide variants 137
Removing and installing optical contacts on connector side 140

Table of Contents

97 72 IN Optical waveguide (LWL) - MOST bus - as of MY 2005
Installing optical contacts on connector side....141
Removing and installing optical contacts on socket side....141
Installing optical contacts on socket side....142

97 97 IN Connector - General information - as of MY 2005....146
Tools....146
Connector - General information....146
Procedure for releasing connectors that are difficult to move....149

01 01 00 Sales check - as of MY 2005....153
Sales check....153

03 24 00 Minor maintenance - as of MY 2005....157
Minor maintenance....157

03 26 00 Major maintenance - as of MY 2005....161
Major maintenance....161

03 35 00 On-board diagnosis (OBD) - as of MY 2005....165
Tools....165
Reading out and erasing fault memory....165
Reading out and erasing fault memory....165

03 60 00 Additional maintenance of drive belt - as of MY 2005....168
Additional maintenance of drive belt....168

03 81 00 Additional maintenance of spark plugs - as of MY 2005....171
Additional maintenance of spark plugs....171
Additional maintenance for spark plugs....171

03 83 00 Additional maintenance every 90,000 km/60.000 mls or every 6 years - as of MY 2005....174
Additional maintenance every 90,000 km/60.000 mls or every 6 years....174

03 88 00 Additional maintenance every 180,000 km/120.000 mls or every 12 years - as of MY 2005...177
Additional maintenance every 180,000 km/120.000 mls or every 12 years....177
Notes....177
Additional maintenance every 180,000 km/120,000 mls or every 12 years....177
Additional maintenance every 180,000 km/120,000 mls or every 12 years....177

03 88 00 Additional maintenance every 180,000 km/120.000 mls or every 12 years - as of MY 2005...180
Additional maintenance every 180,000 km/120.000 mls or every 12 years....180
Notes....180
Additional maintenance every 180,000 km/120,000 mls or every 12 years....180
Additional maintenance every 180,000 km/120,000 mls or every 12 years....180
Additional maintenance every 180,000 km/120,000 mls or every 12 years....181

Table of Contents

10 01 19 Removing and installing engine - as of MY 2005 183
Tools 183
Preliminary work for removing the engine 184
Preparations for removing the engine 185
Removing engine 186
Removing engine 186
Installing engine 201
Installing engine 201
Subsequent work for installation of engine 208
Installing engine - subsequent work 209

10 01 37 Disassembling and assembling engine - as of MY 2005 212
Tools 212
Preliminary work for disassembling engine 214
Preliminary work for disassembling engine 214
Component overview - engine 215
Component overview - engine 215
Disassembling engine - up to crankcase 217
Disassembling engine - up to crankcase 217
Assembling engine - from crankcase 231
Assembling engine - from crankcase 231
Assembling engine, subsequent work 237
Assembling engine, touching up 237

10 30 19 Removing and installing engine carrier - as of MY 2005 240
Preliminary work 240
Preliminary work 240
Removing engine carrier 240
Removing engine carrier 240
Installing engine carrier 242
Installing engine carrier 242
Subsequent work 242
Subsequent work 242

10 55 19 Removing and installing oil separator - as of MY 2005 245
Tools 245
Preliminary work 245
Preliminary work for removing oil separator 245
Removing oil separator 245
Removing oil separator 245
Installing oil separator 249
Installing oil separator 249
Subsequent work 251
Subsequent work for installing oil separator 251

13 10 20 Removing and installing pistons - as of MY 2005 254
Tools 254
Removing pistons, preliminary work 257

Table of Contents

13 10 20 Removing and installing pistons - as of MY 2005
Removing pistons, preliminary work....257
Removing pistons....257
Removing pistons....258
Disassembling pistons/connecting rods, cylinder 1-3....262
Disassembling pistons/connecting rods, cylinder 1-3....262
Assembling pistons/connecting rods, cylinder 1-3....263
Assembling pistons/connecting rods, cylinder 1-3....264
Piston markings....266
Piston markings....266
Installing pistons....267
Installing pistons....267
Installing pistons, touching up....280
Installing pistons, touching up....280

13 48 19 Removing and installing crankshaft - as of MY 2005....283
Tools....283
Removing crankshaft, preliminary work....284
Removing crankshaft, preliminary work....284
Removing crankshaft....287
Removing crankshaft....287
Installing crankshaft....290
Installing crankshaft....290
Installing crankshaft, touching up....294
Installing crankshaft, touching up....294

13 59 19 Removing and installing crankshaft sealing ring - Flywheel side - as of MY 2005....299
Tools....299
Preliminary work for crankshaft sealing ring on flywheel side....300
Preliminary work for crankshaft sealing ring on flywheel side....300
Removing crankshaft sealing ring on flywheel side....301
Removing crankshaft sealing ring on flywheel side....301
Installing crankshaft sealing ring on flywheel side....303
Installing crankshaft sealing ring (PTFE) on flywheel side....303
Subsequent work for crankshaft sealing ring on flywheel side....307
Subsequent work for crankshaft sealing ring on flywheel side....307

13 60 19 Removing and installing double-mass flywheel - as of MY 2005....310
Tools....310
Preliminary work....310
Preliminary work for double-mass flywheel....310
Removing double-mass flywheel - 3.8 l....310
Removing double-mass flywheel - 3.8 l....310
Installing double-mass flywheel....312
Installing double-mass flywheel....312
Subsequent work....312
Subsequent work for double-mass flywheel....312

Table of Contents

13 60 19 Removing and installing double-mass flywheel - as of MY 2005 315
Tools 315
Preliminary work 315
Preliminary work for double-mass flywheel 315
Removing double-mass flywheel - 3.6 l 315
Removing double-mass flywheel - 3.6 l 315
Installing double-mass flywheel 317
Installing double-mass flywheel 317
Subsequent work 317
Subsequent work for double-mass flywheel 317

13 63 19 Removing and installing drive plate for converter - as of MY 2005 320
Tools 320
Preliminary work for drive plate for converter 320
Preliminary work for drive plate for converter 320
Removing drive plate for converter 320
Removing drive plate for converter 320
Installing drive plate for converter 321
Installing drive plate for converter 321
Subsequent work for drive plate for converter 322
Subsequent work for drive plate for converter 322

13 74 19 Removing and installing crankshaft sealing ring - belt pulley side - as of MY 2005 324
Tools 324
Preliminary work for crankshaft sealing ring - belt pulley side 324
Preliminary work for crankshaft sealing ring - belt pulley side 324
Removing crankshaft sealing ring - belt pulley side 324
Removing the crankshaft sealing ring - belt pulley side 324
Installing crankshaft sealing ring - belt pulley side 326
Installing crankshaft sealing ring - belt pulley side 326
Subsequent work for crankshaft sealing ring - belt pulley side 327
Subsequent work for crankshaft sealing ring - belt pulley side 327

13 76 19 Removing and installing belt pulley/vibration damper - engine installed - as of MY 2005 330
Tools 330
Preliminary work - engine installed 330
Preliminary work for removing belt pulley/vibration damper - engine installed 330
Removing belt pulley/vibration damper - engine installed 331
Removing belt pulley (3.6 l) - engine installed 331
Installing belt pulley/vibration damper - engine installed 332
Installing belt pulley - 3.6 l engine installed 332
Subsequent work for installing belt pulley - engine installed 332
Subsequent work for installing belt pulley - engine installed 332

13 76 19 Removing and installing belt pulley/vibration damper - engine installed - as of MY 2005 335
Tools 335
Preliminary work - engine installed 335
Preliminary work for removing belt pulley/vibration damper - engine installed 335

Table of Contents

13 76 19 Removing and installing belt pulley/vibration damper - engine installed - as of MY 2005
Removing belt pulley/vibration damper - engine installed....336
Removing vibration damper (3.8 l) - engine installed....336
Installing belt pulley/vibration damper - engine installed....337
Installing vibration damper - 3.8 l engine installed....337
Subsequent work for installing belt pulley - engine installed....338
Subsequent work for installing belt pulley - engine installed....338

13 78 19 Removing and installing drive belt - as of MY 2005....341
Preliminary work....341
Preliminary work for removing drive belt....341
removing....341
Removing drive belt....341
Installing....342
Installing drive belt....342
Reworking....343
Work subsequent to installing drive belt....343

15 05 20 Removing and installing camshaft, adjusting timing - engine removed - as of MY 2005....345
Tools....345
Camshaft designation M96/05....346
Camshaft designation M96/05....346
Allocation of inlet camshaft adjustment device....347
Allocation of inlet camshaft adjustment device....347
Allocation of chain tensioners....348
Allocation of chain tensioners....348
Preliminary work for removing camshafts....349
Preliminary work for removing camshafts....349
Removing camshaft - engine removed....351
Removing camshafts - engine removed....351
Installing camshaft - engine removed....354
Installing camshafts, adjusting timing - engine removed....354
Subsequent work for installing camshafts....363
Subsequent work for installing camshafts....363

15 05 20 Removing and installing camshaft, adjusting timing - engine removed - as of MY 2005....367
Tools....367
Allocation of inlet camshaft adjustment device....368
Allocation of inlet camshaft adjustment device....368
Allocation of chain tensioners....369
Allocation of chain tensioners....369
Preliminary work for removing camshafts....370
Preliminary work for removing camshafts....370
Removing camshaft - engine removed....372
Removing camshafts - engine removed....372
Installing camshaft - engine removed....375
Installing camshafts, adjusting timing - engine removed....375
Subsequent work for installing camshafts....384

Table of Contents

15 05 20 Removing and installing camshaft, adjusting timing - engine removed - as of MY 2005
Subsequent work for installing camshafts....384

15 05 20 Removing and installing camshaft, adjusting timing - engine removed - as of MY 2005....388
Tools....388
Camshaft designation M97/01....389
Camshaft designation M97/01....389
Allocation of inlet camshaft adjustment device....390
Allocation of inlet camshaft adjustment device....390
Allocation of chain tensioners....391
Allocation of chain tensioners....391
Preliminary work for removing camshafts....392
Preliminary work for removing camshafts....392
Removing camshaft - engine removed....394
Removing camshafts - engine removed....394
Installing camshaft - engine removed....397
Installing camshafts, adjusting timing - engine removed....397
Subsequent work for installing camshafts....406
Subsequent work for installing camshafts....406

15 21 19 Removing and installing bearing cover for intermediate shaft - as of MY 2005....410
Tools....410
Preliminary work for bearing cover for intermediate shaft....411
Preliminary work for bearing cover for intermediate shaft....411
Removing bearing cover for intermediate shaft....411
Removing bearing cover for intermediate shaft....412
Installing bearing cover for intermediate shaft....415
Installing bearing cover for intermediate shaft....415
Subsequent work for bearing cover for intermediate shaft....417
Subsequent work for bearing cover for intermediate shaft....417

15 21 19 Removing and installing bearing cover for intermediate shaft - M97/01 - as of MY 2005....420
Tools....420
Preliminary work for bearing cover for intermediate shaft....421
Preliminary work for bearing cover for intermediate shaft....421
Removing bearing cover for intermediate shaft....422
Removing bearing cover for intermediate shaft - up to engine number 685 09 790....422
Removing bearing cover for intermediate shaft - from engine number 685 09 791....426
Installing bearing cover for intermediate shaft....431
Installing bearing cover for intermediate shaft - up to engine number 685 09 790....432
Installing bearing cover for intermediate shaft - from engine number 685 09 791....434
Subsequent work for bearing cover for intermediate shaft....437
Subsequent work for bearing cover for intermediate shaft....437

15 21 19 Removing and installing bearing cover for intermediate shaft - M96/05 - as of MY 2005....440
Tools....440
Removing bearing cover for intermediate shaft....441
Removing bearing cover for intermediate shaft - up to engine number 695 07 475....441

Table of Contents

15 21 19 Removing and installing bearing cover for intermediate shaft - M96/05 - as of MY 2005
Removing bearing cover for intermediate shaft - from engine number 695 07 476 445
Installing bearing cover for intermediate shaft 451
Installing bearing cover for intermediate shaft - up to engine number 695 07 475 451
Installing bearing cover for intermediate shaft - from engine number 695 07 476 453

15 23 55 Replacing sealing ring for bearing cover for intermediate shaft - as of MY 2005 458
Preliminary work for bearing cover sealing ring 458
Preliminary work for bearing cover sealing ring 458
Replacing sealing ring for bearing cover for intermediate shaft 458
Replacing sealing ring for bearing cover for intermediate shaft 458
Subsequent work for bearing cover sealing ring 459
Subsequent work for bearing cover sealing ring 459

15 37 19 Removing and installing solenoid hydraulic valve (camshaft timing) - as of MY 2005 462
Tools 462
Removing hydraulic valve for camshaft timing 462
Removing hydraulic valve for camshaft timing 462
Installing hydraulic valve for camshaft timing 465
Installing hydraulic valve for camshaft timing 465

15 55 19 Removing and installing solenoid hydraulic valve (valve lift control) - as of MY 2005 470
Removing hydraulic valve for valve lift control 470
Removing hydraulic valve for valve lift control 470
Installing hydraulic valve for valve lift control 472
Installing hydraulic valve for valve lift control 472

15 70 19 Removing and installing cylinder head - engine removed - as of MY 2005 475
Tools 475
Preliminary work for removing cylinder head 475
Preliminary work for removing cylinder head 475
Removing cylinder head 477
Removing cylinder head 477
Installing cylinder head 478
Installing cylinder head 478
Subsequent work for installing cylinder head 480
Subsequent work for installing cylinder head 480

15 70 37 Disassembling and assembling cylinder head - as of MY 2005 484
Tools 484
Preliminary work for disassembling cylinder head 485
Preliminary work for disassembling cylinder head 485
Disassembling cylinder head 485
Disassembling cylinder head 485
Assembling cylinder head 489
Assembling cylinder head 489
Assembling cylinder head, touching up 491
Assembling cylinder head, touching up 491

Table of Contents

15 70 49 Machining the cylinder head - as of MY 2005 493
Preliminary work 493
Preliminary work for machining cylinder head 493
Machining the cylinder head 493
Machining the cylinder head 493
Subsequent work 494
Subsequent work for machining cylinder head 494

15 75 02 Checking valve guide (valve lateral play) - as of MY 2005 497
Tools 497
Preliminary work 497
Preliminary work 497
Checking valve guide (valve lateral play) 498
Checking valve guide (valve lateral play) 498
Subsequent work 499
Subsequent work 499

15 84 19 Removing and installing actuator for inlet camshaft - as of MY 2005 502
Tools 502
Removing actuator - camshaft removed 502
Removing actuator - camshaft removed 502
Installing actuator - camshaft removed 503
Installing actuator - camshaft removed 503

15 91 19 Removing and installing cylinder head cover - engine removed - as of MY 2005 507
Tools 507
Preliminary work for removing cylinder head cover 507
Preliminary work for removing cylinder head cover 507
Removing cylinder head cover - engine removed 507
Removing cylinder head cover - engine removed 507
Installing cylinder head cover - engine removed 510
Installing cylinder head cover - engine removed 511
Touch up for installing cylinder head cover 514
Touch up for installing cylinder head cover 514

17 01 01 Checking engine oil level - as of MY 2005 516
Checking engine oil level 516
Checking engine oil level 516

17 01 55 Engine oil and oil filter change - as of MY 2005 522
Tools 522
Draining engine oil 522
Draining engine oil 522
Changing oil filter 524
Changing oil filter 524
Refilling engine oil 526
Fill in engine oil 526
Reworking 527

Table of Contents

17 01 55 Engine oil and oil filter change - as of MY 2005
Subsequent work - topping up engine oil ... 527

17 04 19 Removing and installing oil-pressure sender - as of MY 2005 ... 529
Tools ... 529
Removing oil-pressure sender ... 529
Removing oil-pressure sender ... 529
Installing oil-pressure sender ... 531
Installing oil-pressure sender ... 531

17 15 19 Removing and installing oil filler neck - as of MY 2005 ... 534
Preliminary work ... 534
Preliminary work ... 534
Removing oil filler neck ... 535
Removing oil filler neck ... 536
Installing oil filler neck ... 536
Installing oil filler neck ... 536
Subsequent work ... 537
Subsequent work ... 537

19 01 01 Checking cooling system - as of MY 2005 ... 541
Tools ... 541
checking ... 541
Coolant - check antifreeze and fluid level ... 541
Checking the cooling system for leaks ... 542
Cleaning the cooling air guides ... 543
Checking the antifreeze content using a refractometer ... 543

19 24 19 Removing and installing air guide - as of MY 2005 ... 548
Preliminary work ... 548
Preliminary work for removing air guide ... 548
Removing air guide ... 548
Removing air guide for middle radiator ... 548
Removing air guide for side radiator ... 549
Installing air guide ... 550
Installing air guide for middle radiator ... 550
Installing air guide for side radiator ... 550
Subsequent work ... 552
Subsequent work for installing air guide ... 552

19 38 17 Draining and filling in coolant - as of MY 2005 ... 554
Tools ... 554
Preliminary work ... 554
Preliminary work ... 554
Draining coolant ... 555
Draining coolant ... 555
Filling with coolant ... 558
Filling coolant (includes bleeding) ... 558

Table of Contents

19 38 17 Draining and filling in coolant - as of MY 2005
Reworking....561
Subsequent work....561

19 40 19 Removing and installing reservoir for coolant - as of MY 2005....564
Tools....564
Preliminary work....564
Preliminary work....564
Removing reservoir for coolant....566
Removing reservoir for coolant....566
Installing reservoir for coolant....569
Installing reservoir for coolant....569
Subsequent work....570
Subsequent work....570

19 50 19 Removing and installing coolant pump - as of MY 2005....573
Preliminary work....573
Preliminary work....573
Removing coolant pump....574
Removing coolant pump....574
Installing coolant pump....575
Installing coolant pump....575
Subsequent work....576
Subsequent work....577

19 58 19 Removing and installing coolant regulator - as of MY 2005....580
Tools....580
Preliminary work....580
Preliminary work....580
Removing coolant regulator....581
Remove coolant regulator....581
Installing coolant regulator....582
Installing coolant regulator....583
Subsequent work....583
Subsequent work....583

19 70 19 Removing and installing radiator - as of MY 2005....586
Preliminary work....586
Preliminary work for removing radiator....586
Removing radiator....586
Removing radiator....586
Installing radiator....590
Installing radiator....590
Subsequent work....593
Subsequent work for installing radiator....594

Table of Contents

19 80 19 Removing and installing middle radiator - as of MY 2005 596
Preliminary work 596
Preliminary work for removing middle radiator 596
Removing middle radiator 596
Removing middle radiator 596
Installing middle radiator 597
Installing middle radiator 597
Subsequent work 598
Subsequent work for installing middle radiator 598

20 02 01 Checking fuel pressure - as of MY 2005 601
Tools 601
Checking fuel pressure 601
Checking fuel pressure 601

20 07 19 Removing and installing filler neck - as of MY 2005 607
Tools 607
Preliminary work 607
Preliminary work 607
Removing filler neck 607
Removing filler neck 608
Installing filler neck 609
Installing filler neck 609
Subsequent work 610
Subsequent work 610

20 10 19 Removing and installing fuel tank - as of MY 2005 613
Tools 613
Preliminary work 613
Preliminary work - Carrera 4 613
Removing fuel tank 617
Removing fuel tank - Carrera 4 618
Installing fuel tank 620
Installing fuel tank - Carrera 4 620
Subsequent work 622
Subsequent work - Carrera 4 622

20 10 19 Removing and installing fuel tank - as of MY 2005 625
Tools 625
Preliminary work 626
Preliminary work - Carrera 2 626
Removing fuel tank 630
Removing fuel tank - Carrera 2 630
Installing fuel tank 633
Installing fuel tank - Carrera 2 633
Subsequent work 633
Subsequent work - Carrera 2 633

Table of Contents

20 25 19 Removing and installing carbon canister - as of MY 2005 637
Tools 637
Preliminary work for carbon canister 637
Preliminary work for carbon canister 637
Removing carbon canister 638
Removing carbon canister - RoW Version 638
Removing carbon canister - USA Version 639
Installing carbon canister 640
Installing carbon canister - RoW Version 640
Installing carbon canister - USA Version 641
Subsequent work for carbon canister 642
Subsequent work for carbon canister 642

20 66 01 Checking quantity delivered by fuel pump - as of MY 2005 646
Tools 646
Preliminary work for quantity delivered by fuel pump 646
Preliminary work for quantity delivered by fuel pump 646
Checking quantity delivered by fuel pump 647
Checking quantity delivered by fuel pump 647
Subsequent work for quantity delivered by fuel pump 650
Subsequent work for quantity delivered by fuel pump 650

20 66 19 Removing and installing fuel pump - as of MY 2005 653
Preliminary work 653
Preliminary work - Carrera 2 653
Removing fuel pump 653
Removing fuel pump - Carrera 2 653
Installing fuel pump 654
Installing fuel pump - Carrera 2 654
Subsequent work 654
Subsequent work - Carrera 2 655

20 66 19 Removing and installing fuel pump - as of MY 2005 657
Preliminary work 657
Preliminary work - Carrera 4 657
Removing fuel pump 657
Removing fuel pump - Carrera 4 657
Installing fuel pump 658
Installing fuel pump - Carrera 2 659
Installing fuel pump - Carrera 4 659
Subsequent work 660
Subsequent work - Carrera 4 660

20 66 19 Removing and installing fuel pump - as of MY 2005 663
Preliminary work 663
Preliminary work - Carrera 4 663
Removing fuel pump 663
Removing fuel pump - Carrera 4 663

Table of Contents

20 66 19 Removing and installing fuel pump - as of MY 2005
Installing fuel pump....664
Installing fuel pump - Carrera 4....665
Subsequent work....665
Subsequent work - Carrera 4....665

24 24 19 Removing and installing air cleaner element - as of MY 2005....668
Preliminary work for removing air-cleaner element....668
Preliminary work for air cleaner element....668
Removing air-cleaner element....668
Removing air cleaner element....668
Installing air cleaner element....669
Installing air cleaner element....669
Subsequent work for installing air-cleaner element....670
Rework on air cleaner element....670

24 25 19 Removing and installing air cleaner housing - as of MY 2005....673
Removing air cleaner housing....673
Removing air cleaner housing....673
Installing air cleaner housing....674
Installing air cleaner housing....674

24 40 19 Removing and installing injection valves - as of MY 2005....678
Preliminary work....678
Preliminary work for removing injection valves....678
General warning notes....678
Danger from fuel....678
Hot engine components....679
Removing injection valves....679
Removing injection valves of cylinder bank 1-3....679
Removing injection valves of cylinder bank 4-6....682
Installing injection valves....684
Installing injection valves of cylinder bank 1-3....684
Installing injection valves of cylinder bank 4-6....686
Subsequent work....687
Work subsequent to installing injection valves....687

24 42 19 Removing and installing throttle body - as of MY 2005....690
Preliminary work....690
Preliminary work for removing throttle body....690
Removing throttle body....690
Removing throttle body....690
Installing throttle body....691
Installing throttle body....691
Subsequent work....691
Work subsequent to installing throttle body....691

Table of Contents

24 46 19 Removing and installing intake distributor - as of MY 2005 694
Tools 694
Preliminary work 694
Preliminary work for removing intake distributor 694
General warning notes 694
Danger from Pentosin 695
Removing intake distributor, cylinder bank 1-3 695
Removing intake distributor, cylinder bank 1-3 695
Removing intake distributor, cylinder bank 1-3 698
Installing intake distributor, cylinder bank 1-3 698
Removing intake distributor, cylinder bank 4-6 701
Removing intake distributor, cylinder bank 4-6 701
Installing intake distributor, cylinder bank 4-6 705
Installing intake distributor, cylinder bank 4-6 705
Subsequent work 709
Subsequent work for installing intake distributor 709

24 69 19 Removing and installing oxygen sensor in front of catalytic converter - as of MY 2005 712
Tools 712
Preliminary work 712
Preliminary work for removing oxygen sensors in front of catalytic converter 712
Removing oxygen sensors in front of catalytic converter 713
Removing oxygen sensor in front of catalytic converter of cylinder bank 1-3 713
Removing oxygen sensor in front of catalytic converter of cylinder bank 4-6 713
Installing oxygen sensors in front of catalytic converter 714
Installing oxygen sensor in front of catalytic converter of cylinder bank 1-3 714
Installing oxygen sensor in front of catalytic converter of cylinder bank 4-6 715
Subsequent work 715
Subsequent work for installing oxygen sensors in front of catalytic converter 715

24 70 19 Removing and installing DME control module - as of MY 2005 718
Tools 718
Preliminary work 718
Preliminary work for DME control module in Cabriolet 718
General warning notes 719
General warning notes for control units 719
Removing DME control module 719
Removing DME control module in Cabriolet 719
Installing DME control module 720
Installing DME control module in cabriolet 720
Subsequent work 721
Subsequent work on DME control unit 721
Subsequent work for DME control module in Cabriolet 721
Programming DME control module 722
Programming new DME control module 722
Programming DME control module 723
Exhaust-gas standard 725

Table of Contents

24 70 19 Removing and installing DME control module - as of MY 2005 728
Tools 728
Preliminary work 728
Subsequent work on DME control unit 728
Preliminary work for DME control module in Cabriolet 729
General warning notes 729
General warning notes for control units 729
Removing DME control module 730
Removing DME control module in Cabriolet 730
Installing DME control module 731
Installing DME control module in cabriolet 731
Subsequent work 731
Subsequent work on DME control unit 732
Subsequent work for DME control module in Cabriolet 732
Programming DME control module 732
Programming new DME control module 732
Programming DME control module 733
Exhaust-gas standard 735

24 70 19 Removing and installing DME control module - as of MY 2005 738
Tools 738
Preliminary work 738
Subsequent work on DME control unit 738
General warning notes 739
General warning notes for control units 739
Removing DME control module 739
Removing DME control module 739
Installing DME control module 741
Installing DME control module 741
Subsequent work 742
Subsequent work on DME control unit 742
Programming DME control module 742
Programming new DME control module 742
Programming DME control module 744
Exhaust-gas standard 745

24 73 19 Removing and installing oxygen sensor behind catalytic converter - as of MY 2005 748
Tools 748
Preliminary work 748
Preliminary work for removing oxygen sensor behind the catalytic converter 748
Removing oxygen sensor behind the catalytic converter 749
Removing oxygen sensor behind catalytic converter of cylinder bank 1-3 749
Removing oxygen sensor behind catalytic converter of cylinder bank 4-6 750
Installing oxygen sensor behind the catalytic converter 750
Installing oxygen sensor behind catalytic converter of cylinder bank 1-3 751
Installing oxygen sensor behind catalytic converter of cylinder bank 4-6 751
Subsequent work 752
Subsequent work for installing oxygen sensor behind the catalytic converter 752

Table of Contents

24 74 19 Removing and installing tuning pipe - as of MY 2005 754
Preliminary work 754
Preliminary work for removing tuning pipe 754
Removing tuning pipe 754
Removing tuning pipe 754
Installing tuning pipe 756
Installing tuning pipe 756
Subsequent work 757
Work subsequent to installing tuning pipe 757

26 10 19 Removing and installing exhaust manifold - as of MY 2005 760
Removing exhaust manifold 760
Removing exhaust manifold 760
Installing exhaust manifold 762
Installing exhaust manifold 762

26 33 19 Removing and installing rear silencer - as of MY 2005 766
Tools 766
Preliminary work 766
Preliminary work 766
Removing rear silencer 767
Removing rear silencer 767
Installing rear silencer 769
Installing rear silencer 769
Subsequent work 770
Subsequent work 770

26 34 19 Removing and installing tailpipe - as of MY 2005 773
Removing tailpipe - 3.6 l 773
Removing tailpipe - M 96/05 (3.6 l) 773
Installing tailpipe - 3.6 l 773
Installing tailpipe - 3.6 l 773

26 34 19 Removing and installing tailpipe - as of MY 2005 777
Removing tailpipe -3.8 l 777
Removing tailpipe - 3.8 l 777
Installing tailpipe -3.8 l 777
Installing tailpipe - 3.8 l 777

26 65 19 Removing and installing secondary air pump - as of MY 2005 781
Preliminary work 781
Preliminary work for removing secondary air pump 781
Removing secondary air pump 781
Removing secondary air pump 781
Installing secondary air pump 782
Installing secondary air pump 783
Subsequent work 784
Work subsequent to installing secondary air pump 784

Table of Contents

26 73 19 Removing and installing catalytic converter - as of MY 2005 787
Preliminary work 787
Preliminary work 787
Removing catalytic converter 788
Removing catalytic converter 788
Installing catalytic converter 790
Installing catalytic converter 790
Subsequent work 791
Subsequent work 791

27 06 01 Battery trickle charge - as of MY 2005 794
Preliminary work 794
General warning notes 794
Tools and materials 794
Checking battery charging condition with battery tester 794
Reworking 795

27 06 19 Removing and installing battery - as of MY 2005 797
Removing battery 797
Removing battery 797
Installing battery 798
Installing battery 798
Subsequent work 799
Subsequent work - battery 800

27 12 19 Removing and installing battery cover - as of MY 2005 802
Removing battery cover 802
Removing battery cover 802
Installing battery cover 802
Installing battery cover 803
Subsequent work 803
Reworking if cowl panel cover deformed 803

27 22 19 Removing and installing three-phase generator - as of MY 2005 807
Preliminary work 807
Preliminary work - three-phase generator 807
Removing three-phase generator 807
Removing three-phase generator 807
Installing three-phase generator 809
Installing three-phase generator 809
Subsequent work 811
Subsequent work - three-phase generator 811

27 60 19 Removing and installing starter - as of MY 2005 814
Preliminary work 814
Preliminary work - starter 814
Removing starter 814
Removing starter 814

Table of Contents

27 60 19 Removing and installing starter - as of MY 2005
Installing starter....816
Installing starter....816
Subsequent work....817
Subsequent work - starter....817

28 04 19 Removing and installing ignition switch - as of MY 2005....820
Tools....820
Removing ignition switch....820
Removing ignition switch....820
Installing ignition switch....821
Installing ignition switch....822
Information....822
Emergency operation of the ignition key lock....822

28 70 20 Removing and installing spark plugs - as of MY 2005....825
Tools....825
Preliminary work....825
Preliminary work....826
Removing....826
Removing spark plugs....826
Installing....827
Installing spark plugs....827
Subsequent work....827
Reworking....828

28 72 19 Removing and installing knock sensor - as of MY 2005....830
Preliminary work....830
Preliminary work for removing knock sensor....830
Removing knock sensor....830
Removing knock sensor, cylinder bank 1-3....830
Removing knock sensor, cylinder bank 4-6....831
Installing knock sensor....831
Installing knock sensor, cylinder bank 1 -3....831
Installing knock sensor, cylinder bank 4 -6....832
Subsequent work....832
Work subsequent to installing knock sensor....832

30 01 07 Bleeding the clutch system - as of MY 2005....835
Information....835
Important notes on bleeding....835
Filling/bleeding....835

30 05 01 Checking clutch pedal (end position) - as of MY 2005....839
Clutch pedal: checking play and pedal end position....839
Checking clutch free play....839
Clutch: Checking pedal end position (pedal return/return force)....839

Table of Contents

30 05 19 Removing and installing the clutch pedal - as of MY 2005 842
- 842
Preliminary work 842
- 843
General warning notes 843
- 843
Technical values 843
- 844
Removing 844
- 845
Installing 845
- 847
Subsequent work 847

30 30 19 Removing and installing clutch slave cylinder - as of MY 2005 850
Removing and installing 850
Removing clutch slave cylinder 850
Installing clutch slave cylinder 850

30 47 19 Removing and installing guide sleeve - as of MY 2005 854
Preliminary work 854
Preliminary work 854
Removing guide sleeve 854
Removing guide sleeve 854
Installing guide sleeve 855
Installing guide sleeve 855
Subsequent work 856
Subsequent work 856

30 50 19 Removing and installing clutch - as of MY 2005 859
Tools 859
Preliminary work 859
Preliminary work 859
Removing clutch 860
Removing clutch 860
Removing clutch 860
Installing clutch 861
Installing clutch 861
Reworking 862
Subsequent work 862

30 56 01 Checking clutch plate for wear - as of MY 2005 865
Preliminary work 865
Preliminary work 865
Checking clutch plate for wear 865
Checking clutch plate for wear 865
Subsequent work 866
Subsequent work 866

Table of Contents

32 43 19 Removing and installing converter housing - as of MY 2005 869
Preliminary work 869
Preliminary work 869
Removing converter housing 870
Removing converter housing 870
Installing converter housing 870
Installing converter housing 870
Subsequent work 872
Subsequent work 872

32 47 19 Removing and installing torque converter sealing ring - as of MY 2005 874
Tools 874
Information 874
Notes 875
Preliminary work 875
Preliminary work 875
Removing the torque converter 875
Removing the torque converter sealing ring 876
Removing the torque-converter sealing ring 876
Installing the torque converter sealing ring 876
Installing the torque-converter sealing ring 877
Subsequent work 877
Installing the torque converter 877
Reworking 878

32 50 19 Removing and installing torque converter - as of MY 2005 881
Tools 881
Information 881
Notes 881
Preliminary work 882
Preliminary work 882
Removing torque converter 882
Removing the torque converter 882
Installing torque converter 883
Installing the torque converter 883
Subsequent work 884
Reworking 884

34 01 35 Checking and topping up transmission oil - as of MY 2005 886
Information 886
Notes 886
Preliminary work 886
Preliminary work 886
Checking and topping up transmission oil 886
Checking and topping up transmission oil 887
Subsequent work 887
Reworking 887

Table of Contents

34 01 55 Changing transmission oil - as of MY 2005 890
Information 890
Notes 890
Technical values 890
Filling capacities 890
Preliminary work 891
Preliminary work 891
Draining transmission oil 891
Draining transmission oil 891
Refilling transmission oil 892
Filling in transmission oil 892
Subsequent work 892
Reworking 892

34 04 19 Removing and installing shift lever knob - as of MY 2005 895
Removing shift lever knob 895
Removing shift-lever knob 895
Installing shift lever knob 896
Installing shift-lever knob 896

34 08 19 Removing and installing shift console - as of MY 2005 900
Tools 900
Preliminary work 900
Preliminary work 900
Removing shift console 901
Removing gearshift bracket 901
Installing shift console 902
Installing gearshift bracket 903
Subsequent work 905
Subsequent work 905

34 12 19 Removing and installing shift and selector cables - as of MY 2005 908
Tools 908
Preliminary work 908
Preliminary work 908
Removing shift and selector cables 908
Detaching shift and selector cables at transmission 908
Detaching shift and selector cables inside vehicle 909
Installing shift and selector cables 910
Fastening shift and select. cables to the transmission 910
Securing shift and selector cables inside vehicle 912
Subsequent work 913
Subsequent work 913

34 35 19 Removing and installing transmission - as of MY 2005 916
Tools 916
Preliminary work 916
Preliminary work 916

Table of Contents

34 35 19 Removing and installing transmission - as of MY 2005
Removing transmission....916
Dismantling....916
Removing transmission....919
Installing transmission....920
Installing transmission....920
Assembly work....923
Subsequent work....925
Subsequent work....925

34 35 19 Removing and installing transmission - as of MY 2005....928
Tools....928
Preliminary work....928
Preliminary work....928
Removing transmission....928
Dismantling....928
Removing transmission....931
Installing transmission....932
Installing transmission....932
Assembly work....935
Subsequent work....937
Subsequent work....937

34 35 27 Removing and refitting transmission - as of MY 2005....940
Preliminary work....940
Preliminary work....940
Removing transmission....940
Removing transmission....940
Refitting transmission....941
Refitting transmission....941
Subsequent work....943
Subsequent work....943

35 50 19 Removing and installing sealing ring for input shaft - as of MY 2005....945
Tools....945
Preliminary work....945
Preliminary work....946
Removing sealing ring for input shaft....946
Removing sealing ring for drive shaft....946
Installing sealing ring for input shaft....947
Installing sealing ring for input shaft....947
Subsequent work....949
Subsequent work....949

37 02 35 Checking and topping up the ATF - as of MY 2005....951
Tools....951
Information....951
Notes....951

Table of Contents

37 02 35 Checking and topping up the ATF - as of MY 2005
Preliminary work....952
Preliminary work....952
Checking and topping up the ATF....953
Checking and topping up the ATF....953
Reworking....954
Reworking....954

37 02 55 Changing ATF - as of MY 2005....956
Tools....956
Information....956
Notes....956
Technical values....957
Filling capacities....957
Preliminary work....957
Preliminary work....957
Changing ATF....957
Draining ATF....957
Topping up ATF....958
Checking and topping up the ATF....960
Subsequent work....960
Reworking....960

37 04 19 Removing and installing selector knob - as of MY 2005....963
Removing selector knob....963
Removing selector knob....963
Installing selector knob....964
Installing selector knob....964

37 08 19 Removing and installing selector support - as of MY 2005....967
Preliminary work....967
Preliminary work....967
Removing selector support....967
Removing selector frame....967
Installing selector support....969
Installing selector frame....969
Subsequent work....971
Subsequent work....971

37 15 19 Removing and installing selector lever cable - as of MY 2005....974
Preliminary work....974
Preliminary work....974
Removing selector lever cable....974
Removing selector lever cable from transmission....974
Detaching selector lever cable inside vehicle....975
Installing selector lever cable....976
Fastening selector lever cable on transmission....976
Securing selector lever cable inside vehicle....978

Table of Contents

37 15 19 Removing and installing selector lever cable - as of MY 2005
Subsequent work ... 979
Subsequent work ... 979

37 18 20 Removing and installing Tiptronic rocker switch - as of MY 2005 ... 982
Preliminary work ... 982
Preliminary work ... 982
Removing Tiptronic rocker switch ... 982
Removing Tiptronic rocker switch ... 982
Installing Tiptronic rocker switch ... 983
Installing Tiptronic rocker switch ... 983
Subsequent work ... 984
Subsequent work ... 984

37 30 19 Removing and installing the Tiptronic control module - as of MY 2005 ... 987
Tools ... 987
Preliminary work ... 987
Preliminary work for Tiptronic control module (also referred to generally as control unit below) ... 987
General warning notes ... 988
General warning notes for control units ... 988
Removing Tiptronic control module ... 988
Removing Tiptronic control module (also referred to generally as control unit below) ... 988
Installing Tiptronic control module ... 991
Installing Tiptronic control unit (also referred to generally as control unit below) ... 991
Subsequent work ... 993
Subsequent work for Tiptronic control module (also referred to generally as control unit below) ... 993
Programming Tiptronic control module ... 993
Reading out from and writing in to the Tiptronic control unit (also referred to generally as control unit below) ... 993
Coding Tiptronic control module ... 994
Coding Tiptronic control unit ... 994

37 35 27 Removing and refitting the automatic transmission - as of MY 2005 ... 998
Tools ... 998
Information ... 999
Notes ... 999
Preliminary work ... 999
Preliminary work ... 999
Removing the automatic transmission ... 999
Disassembly work ... 1000
Releasing torque converter ... 1001
Removing the automatic transmission ... 1002
Refitting the automatic transmission ... 1003
Refitting the automatic transmission ... 1003
Fastening torque converter ... 1003
Assembly work ... 1004

Table of Contents

37 35 27 Removing and refitting the automatic transmission - as of MY 2005
Reworking....1005
Reworking....1006

37 55 19 Removing and installing ATF pan - as of MY 2005....1008
Tools....1008
Information....1008
Notes....1008
Technical values....1009
Filling capacities....1009
Preliminary work....1009
Preliminary work....1009
Draining ATF....1009
Removing ATF pan....1010
Removing ATF pan....1010
Installing ATF pan....1011
Installing ATF pan....1012
Reworking....1012
Topping up ATF....1012
Checking and topping up the ATF....1014
Reworking....1015

37 58 55 Replacing ATF filter - as of MY 2005....1017
Tools....1017
Notes....1017
Notes....1017
Filling capacities....1018
Filling capacities....1018
Preliminary work....1018
Preliminary work....1018
Draining ATF....1018
Removing ATF pan....1019
Removing ATF filter....1020
Removing ATF filter....1020
Installing ATF filter....1021
Installing ATF filter....1021
Subsequent work....1021
Installing ATF pan....1022
Topping up ATF....1022
Checking and topping up the ATF....1024
Reworking....1024

38 60 19 Removing and installing ATF cooler - as of MY 2005....1027
Tools....1027
Preliminary work....1027
Preliminary work....1027
Removing ATF cooler....1028
Removing ATF cooler....1028

Table of Contents

38 60 19 Removing and installing ATF cooler - as of MY 2005
Installing ATF cooler....1029
Installing ATF cooler....1029
Subsequent work....1030
Subsequent work....1030

38 77 19 Removing and installing electrohydraulic control unit - as of MY 2005....1034
Tools....1034
Information....1034
Notes....1035
Technical values....1035
Filling capacities....1035
Preliminary work....1035
Preliminary work....1035
Draining ATF....1036
Removing the electrohydraulic control unit....1036
Dismantling....1036
Removing the electrohydraulic control unit....1038
Installing the electrohydraulic control unit....1039
Installing the electrohydraulic control unit....1040
Assembly work....1041
Subsequent work....1043
Topping up ATF....1043
Checking and topping up the ATF....1045
Reworking....1045

38 77 37 Disassembling and assembling electrohydraulic control unit - as of MY 2005....1048
Preliminary work....1048
Preliminary work....1048
Disassembling electrohydraulic control unit....1048
Overview....1048
Disconnecting hydraulic and electrical control unit....1049
Removing solenoid and control valve....1049
Installing solenoid and control valve....1050
Reassembling the hydraulic and electrical control unit....1050
Subsequent work....1050
Reworking....1050

39 02 19 Removing and installing cardan shaft - as of MY 2006....1053
Tools....1053
Preliminary work....1053
Preliminary work....1053
Removing cardan shaft....1053
Removing cardan shaft....1053
Installing cardan shaft....1055
Installing cardan shaft....1055
Subsequent work....1057
Subsequent work....1058

Table of Contents

39 22 19 Removing and installing sealing ring for right-hand halfshaft flange - as of MY 2005.....1060
Tools.....1060
Preliminary work.....1060
Preliminary work.....1060
Removing sealing ring for halfshaft flange.....1060
Removing sealing ring for halfshaft flange.....1060
Installing sealing ring for halfshaft flange.....1061
Installing sealing ring for halfshaft flange.....1061
Subsequent work.....1062
Subsequent work.....1062

39 22 19 Removing and installing sealing ring for left halfshaft flange - as of MY 2005.....1065
Tools.....1065
Preliminary work.....1065
Preliminary work.....1065
Removing sealing ring for halfshaft flange.....1065
Removing sealing ring for halfshaft flange.....1065
Installing sealing ring for halfshaft flange.....1066
Installing sealing ring for halfshaft flange.....1066
Subsequent work.....1067
Subsequent work.....1067

39 22 19 Removing and installing sealing ring for short halfshaft flange - as of MY 2005.....1070
Tools.....1070
Preliminary work.....1070
Preliminary work.....1071
Removing sealing ring for short halfshaft flange.....1071
Removing sealing ring for short halfshaft flange.....1071
Installing sealing ring for halfshaft flange.....1071
Installing sealing ring for short halfshaft flange.....1071
Subsequent work.....1072
Subsequent work.....1072

39 25 19 Removing and installing right halfshaft flange - as of MY 2005.....1075
Preliminary work.....1075
Preliminary work.....1075
Removing halfshaft flange.....1075
Removing halfshaft flange.....1075
Installing halfshaft flange.....1076
Installing halfshaft flange.....1076
Subsequent work.....1077
Subsequent work.....1077

39 25 19 Removing and installing left halfshaft flange - as of MY 2005.....1080
Preliminary work.....1080
Preliminary work.....1080
Removing halfshaft flange.....1080
Removing halfshaft flange.....1080

Table of Contents

39 25 19 Removing and installing left halfshaft flange - as of MY 2005
Installing halfshaft flange....1081
Installing halfshaft flange....1081
Subsequent work....1082
Subsequent work....1082

39 25 19 Removing and installing short halfshaft flange - as of MY 2005....1084
Preliminary work....1084
Preliminary work....1084
Removing short halfshaft flange....1084
Removing short halfshaft flange....1084
Installing short halfshaft flange....1085
Installing short halfshaft flange....1085
Subsequent work....1087
Subsequent work....1087

39 25 19 Removing and installing long halfshaft flange - as of MY 2005....1090
Tools....1090
Preliminary work....1090
Preliminary work....1090
Removing long halfshaft flange....1090
Removing long halfshaft flange....1090
Installing long halfshaft flange....1091
Installing long halfshaft flange....1091
Subsequent work....1093
Subsequent work....1093

39 58 19 Removing and installing cover for front final drive - as of MY 2006....1095
Tools....1095
Preliminary work....1095
Preliminary work....1095
Removing cover for front final drive....1095
Removing cover for front final drive....1096
Installing cover for front final drive....1096
Installing cover for front final drive....1096
Subsequent work....1097
Subsequent work....1097

39 59 19 Removing and installing sealing ring for front halfshaft flange - as of MY 2006....1100
Tools....1100
Preliminary work....1100
Preliminary work....1100
Removing sealing ring for front halfshaft flange....1100
Removing sealing ring for front halfshaft flange....1100
Installing sealing ring for front halfshaft flange....1101
Installing sealing ring for front halfshaft flange....1101
Subsequent work....1103
Subsequent work....1103

Table of Contents

39 60 01 Checking operation of the viscous clutch - as of MY 2006 1105
Tools 1105
Checking operation of the viscous clutch 1105
Information 1105
Checking operation of the viscous clutch 1106

39 60 19 Removing and installing the viscous clutch - as of MY 2006 1109
Tools 1109
Preliminary work 1109
Preliminary work 1109
Removing the viscous clutch 1110
Removing the viscous clutch 1110
Installing the viscous clutch 1111
Installing the viscous clutch 1111
Subsequent work 1112
Subsequent work 1112

39 62 19 Removing and installing support for front final drive - as of MY 2006 1115
Preliminary work 1115
Preliminary work 1115
Removing support for front final drive 1115
Removing support for front final drive 1115
Installing support for front final drive 1116
Installing support for front final drive 1116
Subsequent work 1116
Preliminary work 1116

39 64 19 Removing and installing cardan flange - as of MY 2006 1119
Tools 1119
Preliminary work 1119
Preliminary work 1120
Removing cardan flange 1120
Removing cardan flange 1120
Removing cardan flange 1121
Installing cardan flange 1121
Installing cardan flange 1121
Installing cardan flange 1122
Subsequent work 1123
Subsequent work 1123
Subsequent work 1123

39 82 19 Removing and installing sealing ring for cardan flange - as of MY 2006 1126
Tools 1126
Preliminary work 1127
Preliminary work 1127
Removing sealing ring for cardan flange 1127
Removing sealing ring for cardan flange 1127
Removing sealing ring for cardan flange 1128

Table of Contents

39 82 19 Removing and installing sealing ring for cardan flange - as of MY 2006
Installing sealing ring for cardan flange....1129
Installing sealing ring for cardan flange....1129
Installing sealing ring for cardan flange....1130
Subsequent work....1131
Subsequent work....1131
Subsequent work....1131

39 88 19 Removing and installing front final drive - as of MY 2006....1134
Preliminary work....1134
Preliminary work....1134
Removing front final drive....1134
Removing front final drive....1134
Installing front final drive....1136
Installing front final drive....1136
Subsequent work....1139
Subsequent work....1139

39 90 35 Checking and topping up oil for front final drive - as of MY 2006....1141
Information....1141
Notes....1141
Preliminary work....1141
Preliminary work....1141
Checking and topping up oil for front final drive....1141
Checking and topping up oil for front-axle final drive....1142
Subsequent work....1142
Subsequent work....1142

39 90 35 Checking and topping up oil for final drive - as of MY 2005....1145
Tools....1145
Information....1145
Notes....1145
Preliminary work....1146
Preliminary work....1146
Checking and topping up oil for final drive....1146
Checking and topping up oil for final drive....1146
Subsequent work....1147
Reworking....1147

39 90 55 Changing oil for front final drive - as of MY 2006....1150
Information....1150
Notes....1150
Technical values....1150
Technical values....1150
Preliminary work....1151
Preliminary work....1151
Draining oil for final drive....1151
Draining oil for final drive....1151

Table of Contents

39 90 55 Changing oil for front final drive - as of MY 2006
Filling in oil for final drive....1152
Filling in oil for final drive....1152
Subsequent work....1153
Subsequent work....1153

39 90 55 Changing oil for final drive - as of MY 2005....1156
Tools....1156
Information....1156
Notes....1156
Technical values....1157
Filling capacities....1157
Preliminary work....1157
Preliminary work....1157
Changing oil for final drive....1157
Draining oil for final drive....1157
Topping up oil for final drive....1159
Subsequent work....1159
Reworking....1159

40 78 19 Removing and installing connecting link (suspension/stabiliser) - as of MY 2005....1162
....1162
Removing front connecting link (suspension/stabiliser)....1162
....1162
Installing front connecting link (suspension/stabiliser)....1163

40 85 19 Removing and installing front spring strut - as of MY 2005....1166
Tools....1166
....1166
Removing and installing spring strut - preliminary work....1166
....1167
Removing front spring strut....1167
....1168
Installing front spring strut....1168
....1168
Removing and installing spring strut - subsequent work....1168

40 85 37 Disassembling and assembling front spring strut - with and without PASM - as of MY 2005....1171
Tools....1171
Information....1172
Component and assembly overview (with and without PASM)....1172
Disassembling and assembling spring strut....1174
Disassembling spring strut....1174
Coil spring/compensating plate allocation....1175
Allocation of vibration dampers....1176
Assembling spring strut....1177

Table of Contents

42 21 19 Removing and installing drive shaft - as of MY 2005 1182
Tools 1182
Preliminary work 1182
Removing 1182
Removing rear drive shaft 1183
Installing 1185
Installing rear drive shaft 1185
Subsequent work 1187
Checking wheel-alignment values 1187

42 71 19 Removing and installing rear spring strut - as of MY 2005 1190
- 1190
Removing and installing spring strut - preliminary work 1190
- 1190
Removing spring strut 1190
- 1191
Installing spring strut 1191
- 1193
Removing and installing spring strut - subsequent work 1193

42 71 37 Disassembling and assembling rear spring strut - with and without PASM - as of MY 2005 1195
Tools 1195
Information 1195
Component and assembly overview (with and without PASM) 1195
Disassembling rear spring strut 1198
Coil spring/compensating plate allocation 1199
Rear vibration damper allocation 1200
Assembling spring strut 1200

42 91 19 Removing and installing connecting link (suspension/stabiliser) - as of MY 2005 1205
- 1205
Removing rear connecting link (suspension/stabiliser) 1205
Installing rear connecting link (suspension/stabiliser) 1205

43 16 19 Removing and installing PASM control unit - as of MY 2005 1208
Tools 1208
Removing PASM control unit 1208
Removing PASM control unit 1208
Installing PASM control unit 1210
Installing PASM control unit 1210
Programming PASM control unit 1210
Reading out and writing values for PASM control unit 1210

44 05 19 Removing and installing wheel - as of MY 2005 1214
Information 1214
Wheel mounting 1214
Removing wheel 1214

Table of Contents

44 05 19 Removing and installing wheel - as of MY 2005
Removing wheel....1214
Installing wheel....1215
Installing wheel....1216

44 05 94 Balancing/optimising wheels - as of MY 2005....1220
Tools....1220
Balancing/optimising wheels....1220
General....1220
Explanation of terms....1221
Balancing/optimising wheels....1222
Further to 1: Fitting the tyre on the rim....1222
Further to 2A: Measuring radial force variations....1223
Further to 2B: Stationary balancing with optimisation of rolling smoothness....1224
Further to 3: Fitting the wheel on the vehicle....1224
Balancing weights....1225
Attaching the balance stick-on weights....1225

44 12 02 Checking disc wheels - as of MY 2005....1228
Checking the radial and lateral runout....1228

44 32 19 Removing and installing wheel electronics - as of MY 2005....1231
Removing wheel electronics....1231
General information on wheel electronics....1231
Removing wheel electronics....1232
Installing wheel electronics....1234

44 34 19 Removing and installing tyre pressure monitoring system control unit - as of MY 2005....1237
Tools....1237
Preliminary work....1237
Preliminary work for tyre pressure monitoring system (RDK) control module....1237
Removing tyre pressure monitoring system (RDK) control unit....1237
Removing tyre pressure monitoring system (RDK) control module....1237
Installing tyre pressure monitoring system (RDK) control unit....1238
Installing tyre pressure monitoring system (RDK) control module....1238
Subsequent work....1239
Rework on tyre pressure monitoring system (RDK) control module....1239
Programming tyre pressure monitoring system (RDK) control unit....1239
Control units - reading and writing replacement values....1239

44 38 19 Removing and installing antenna for tyre pressure monitoring system - as of MY 2005....1243
Preliminary work....1243
Preliminary work....1243
Removing antenna for tyre pressure monitoring system....1243
Removing antenna of front tyre pressure monitoring system....1243
Removing antenna of rear tyre pressure monitoring system....1245
Installing antenna for tyre pressure monitoring system....1246
Installing antenna of front tyre pressure monitoring system....1246

Table of Contents

44 38 19 Removing and installing antenna for tyre pressure monitoring system - as of MY 2005
Installing antenna of rear tyre pressure monitoring system....1246
Subsequent work....1248
Subsequent work....1248

44 40 19 Tyre mounting (removing and installing tyres) - for vehicle with and without tyre pressure monitoring system - as of MY 2005....1250
Notes on removing/mounting tyres....1250
Tools....1250
Notes on removing/mounting tyres....1251
Special notes for tyre pressure monitoring system (RDK)....1252
Removal....1253
Installation....1255

44 95 03 Suspension alignment, complete - as of MY 2005....1258
Tools....1258
Information....1258
General procedure for wheel alignment....1258
Measuring vehicle at front and rear....1259
Vehicle height (height check)....1259
Wheel alignment....1260
Rear axle....1260
Front axle....1262

45 01 01 PSM/ABS check using the PIWIS Tester - as of MY 2005....1267
Tools....1267
-....1267
Test overview....1267
PSM check using the PIWIS Tester....1268

46 36 02 Checking the thickness of the disc brake pads - as of MY 2005....1271
Test....1271

46 36 19 Removing and installing front brake pads - as of MY 2005....1275
Preliminary work....1275
General warning notes....1275
Danger of accidents....1275
Removal....1276
Removing front disc brake pads....1276
Installing....1276
Installing front disc brake pads....1276
Subsequent work....1278

46 38 02 Checking the thickness of the rear disc brake pads - as of MY 2005....1280
Preliminary work....1280
Checking....1280
Subsequent work....1281

Table of Contents

46 38 19 Removing and installing the rear disc brake pads - as of MY 2005 1284
Preliminary work 1284
General warning notes 1284
Danger of accidents 1284
Removal 1285
Removing rear disc brake pads 1285
Installation 1285
Installing rear disc brake pads 1285
Subsequent work 1287

46 50 19 Removing and installing the front brake disc - as of MY 2005 1289
Tools 1289
Preliminary work 1289
General warning notes 1289
Removing front brake disc 1290
Installing 1291
Subsequent work 1292

46 50 19 Removing and installing the front PCCB brake disc - as of MY 2005 1294
Tools 1294
Preliminary work 1294
General warning notes 1294
Removing front brake disc 1295
Installing 1296
Subsequent work 1297
Bedding in the brake pads 1297

46 51 02 Checking front PCCB brake discs (wear assessment) - as of MY 2005 1300
Checking information on PCCB brake discs 1300
Basic information 1300
General information on replacing worn PCCB brake discs 1301
Replacing brake discs (notes/decision-making aid) 1302
Cracks (stress-relief microstructure) in the brake disc friction surface 1302
Note concerning bores (perforations) in the brake disc friction surface 1303
Coating on the PCCB brake discs (potential causes) 1304
Note on bedding in the new brake pads 1304
Checking PCCB brake discs (wear assessment) 1305
Visual inspection of the surfaces of the brake disc friction surfaces (indication of wear) 1305
Evaluating surface roughness (Sr) (max. 80 micrometre permitted) 1306
Checking brake discs for minimum thickness 1310
Checking brake discs for edge damage 1310

46 53 19 Removing and installing rear brake disc - as of MY 2005 1314
Tools 1314
Preliminary work 1314
General warning notes 1314
Removing rear brake disc 1315
Installing rear brake disc 1316

Table of Contents

46 53 19 Removing and installing rear brake disc - as of MY 2005
Subsequent work 1317

46 53 19 Removing and installing rear brake disc - as of MY 2005 1320
Tools 1320
Preliminary work 1320
General warning notes 1320
Removing rear brake disc 1321
Installing rear brake disc 1322
Subsequent work 1323

46 53 19 Removing and installing the rear PCCB brake disc - as of MY 2005 1326
Tools 1326
Preliminary work 1326
General warning notes 1326
Removing rear brake disc 1327
Installing rear brake disc 1328
Subsequent work 1330
Bedding in the brake pads 1330

46 54 02 Checking rear PCCB brake discs (wear assessment) - as of MY 2005 1332
Checking information on PCCB brake discs 1332
Basic information 1332
General information on replacing worn PCCB brake discs 1333
Replacing brake discs (notes/decision-making aid) 1334
Cracks (stress-relief microstructure) in the brake disc friction surface 1334
Note concerning bores (perforations) in the brake disc friction surface 1335
Coating on the PCCB brake discs (potential causes) 1336
Note on bedding in the new brake pads 1336
Checking PCCB brake discs (wear assessment) 1337
Visual inspection of the surfaces of the brake disc friction surfaces (indication of wear) 1337
Evaluating surface roughness (Sr) (max. 80 micrometre permitted) 1338
Checking brake discs for minimum thickness 1342
Checking brake discs for edge damage 1342

46 83 16 Adjusting the parking brake shoes - as of MY 2005 1346
Adjusting the parking brake shoes 1346

47 01 07 Bleeding brake system - as of MY 2005 1349
Notes 1349
Bleeding the brake system 1349
Procedure for bleeding 1349
1. Step: Bleeding (primary circuit) 1349
2nd Step: Bleeding (secondary circuit) 1351

47 08 01 Check brake fluid level - as of MY 2005 1354
Check brake fluid level 1354
Checking brake fluid level 1354

Table of Contents

47 08 55 Replacing brake fluid - as of MY 2005 1357
Replacing brake fluid 1357
Changing brake fluid 1357

48 02 01 Checking the fluid level for the power-assisted steering - as of MY 2005 1361
Checking the fluid level for the power-assisted steering 1361
Notes on power-steering fluid 1361
Checking fluid level for power-assisted steering 1361
Checking the steering system for leaks (visual check) 1362
Bleeding the steering system 1362

48 10 19 Removing and installing steering wheel - as of MY 2005 1365
Preliminary work 1365
Warning notes for removing and installing steering wheel 1365
Removal 1365
Installation 1366

48 15 19 Removing and installing steering column - as of MY 2005 1369
Preliminary work 1369
Preliminary work 1369
Removing the steering column 1370
Installing the steering column 1372
Subsequent work 1375
Subsequent work 1375

48 90 19 Removing and installing power-steering gear - as of MY 2005 1378
Tools 1378
Preliminary work 1378
Preliminary work 1378
General warning notes 1379
General warning notes 1379
Removal 1379
Removing 1379
Installation 1382
Installing 1382
Subsequent work 1383
Subsequent work 1383

50 10 55 Replacing closing panel - as of MY 2005 1386
Tools 1386
General warning notes 1387
Safety instructions for body repairs 1387
Tools and materials 1387
Tools and materials 1387
Preliminary work for body repairs with alignment bench 1388
Preliminary work for body repairs with alignment bench 1388
Preliminary work for body repairs 1388
Preliminary work for body repairs 1388

Table of Contents

50 10 55 Replacing closing panel - as of MY 2005
Removing closing panel....1389
Removing end plate....1389
Preparing connection areas of body for installing end plate....1391
Fitting front closing panel and preparing for installation....1392
Safety instructions for sharp-edged body and unit parts....1392
Fitting front closing panel and preparing for installation....1392
Installing front closing panel....1394
Danger of injury when welding....1394
Safety instructions for flying sparks during grinding and welding work....1394
Installing front closing panel....1395
Reworking....1396
Subsequent work for body repairs....1396

50 14 55 Replacing front panel - as of MY 2005....1399
Tools....1399
General warning notes....1400
Safety instructions for body repairs....1400
Tools and materials....1400
Tools and materials....1400
Preliminary work for body repairs with alignment bench....1401
Preliminary work for body repairs with alignment bench....1401
Preliminary work for body repairs....1401
Removing front panel....1402
Removing front panel....1402
Preparing connection areas of the body for installing the front panel....1404
Safety instructions for flying sparks during grinding and welding work....1404
Preparing connection areas of the body for installing the front panel....1404
Preparing front panel for installation....1406
Safety instructions for sharp-edged body and unit parts....1406
Preparing front panel for installation....1406
Installing front panel....1408
Danger of injury when welding....1408
Installing front panel....1409
Subsequent work....1411
Subsequent work for body repairs....1411

50 20 55 Replacing front floor panel - as of MY 2005....1414
Tools....1414
General warning notes....1415
Safety instructions for body repairs....1415
Tools and materials....1415
Tools and materials....1415
Preliminary work for body repairs....1416
Preliminary work for body repairs with alignment bench....1416
Preliminary work for body repairs....1416
Removing floor front section....1417
Removing floor front section....1417

Table of Contents

50 20 55 Replacing front floor panel - as of MY 2005
Preparing connection areas of the body for installing front floor panel....1419
Safety instructions for flying sparks during grinding and welding work....1419
Preparing connection areas of body for installing floor front section....1419
Safety instructions for sharp-edged body and unit parts....1420
Adjusting floor front section and preparing for installation....1420
Installing front floor panel....1421
Danger of injury when welding....1421
Installing floor front section....1422
Subsequent work....1423
Subsequent work for body repairs....1423

50 55 19 Removing and installing wing - as of MY 2005....1426
Preliminary work....1426
Preliminary work....1426
Removing the wing....1427
Removing fuel tank cap....1427
Releasing tank filler neck....1428
Releasing bottom of wing....1428
Releasing top of wing....1429
Removing retaining strip....1430
Removing protective film....1431
Releasing wing from A-pillar....1432
Removing masking panel....1433
Installing the wing....1434
Installing masking panel....1434
Fastening wing to A-pillar....1435
Fastening top of wing....1436
Fastening bottom of wing....1437
Sticking in the protective film....1438
Installing retaining strip....1439
Fastening tank filler neck....1440
Installing fuel tank cap....1441
Subsequent work....1442
Subsequent work....1442

50 56 19 Removing and installing front wheel housing liner. - as of MY 2005....1446
Preliminary work....1446
Preliminary work....1446
Removing front wheel housing liner....1446
Removing front wheel housing liner - rear section....1446
Remove front wheel housing liner - front section....1447
Installing front wheel housing liner....1448
Install front wheel housing liner - front section....1448
Installing front wheel housing liner - rear section....1449
Subsequent work....1450
Reworking....1450

Table of Contents

50 56 19 Removing and installing front wheel housing liner. - as of MY 2005 1453
Preliminary work 1453
Preliminary work 1453
Removing front wheel housing liner 1453
Remove front wheel housing liner - front section 1453
Installing front wheel housing liner 1454
Install front wheel housing liner - front section 1454
Installing front wheel housing liner - rear section 1455
Subsequent work 1456
Reworking 1456

50 56 19 Removing and installing front wheel housing liner. - as of MY 2005 1459
Preliminary work 1459
Preliminary work 1459
Removing front wheel housing liner 1459
Removing front wheel housing liner - rear section 1459
Remove front wheel housing liner - front section 1460
Installing front wheel housing liner 1461
Install front wheel housing liner - front section 1461
Installing front wheel housing liner - rear section 1462
Subsequent work 1463
Reworking 1463

50 74 55 Replacing front wheel housing - as of MY 2005 1466
Tools 1466
General warning notes 1467
Safety instructions for body repairs 1467
Tools and materials 1467
Tools and materials 1467
Preliminary work for body repairs with alignment bench 1468
Preliminary work for body repairs with alignment bench 1468
Removing front wheel housing 1468
Removing reinforcement for front wheel housing 1468
Removing front wheel housing 1469
Preparing connection areas of body for installation of front wheel housing 1472
Safety instructions for flying sparks during grinding and welding work 1472
Preparing connection areas of body for installing front wheel housing 1472
Fitting front wheel housing and preparing for installation 1473
Safety instructions for sharp-edged body and unit parts 1473
Fitting front wheel housing and preparing for installation 1474
Preparing reinforcement for front wheel housing for installation 1475
Installing front wheel housing 1475
Danger of injury when welding 1475
Installing front wheel housing 1476
Installing reinforcement for front wheel housing 1479
Subsequent work 1479
Subsequent work for body repairs 1480

Table of Contents

50 77 55 Replacing front outer side member - as of MY 2005 1482
Tools 1482
Removing front outer side member 1482
Removing outer front side member 1482
Preparing connection areas of body for installing front outer side member 1485
Preparing connection areas of body for installing outer front side member 1485
Fitting front outer side member and preparing for installation 1486
Fitting outer front side member and preparing for installation 1486
Installing front outer side member 1486
Installing outer front side member 1487

50 79 55 Replacing inner front side member - as of MY 2005 1492
Tools 1492
General warning notes 1493
Safety instructions for body repairs 1493
Tools and materials 1493
Preliminary work for body repairs with alignment bench 1494
Preliminary work for body repairs with alignment bench 1494
Removing inner front side member 1494
Removing inner front side member 1494
Preparing connection areas of body for installation of inner front side member 1497
Safety instructions for flying sparks during grinding and welding work 1497
Preparing connection areas of body for installing inner front side member 1497
Fitting inner front side member and preparing for installation 1498
Safety instructions for sharp-edged body and unit parts 1498
Fitting inner front side member and preparing for installation 1498
Installing inner front side member 1499
Danger of injury when welding 1499
Installing inner front side member 1499
Subsequent work 1501
Subsequent work for body repairs 1501

50 79 55 Replacing front side member (section) - as of MY 2005 1504
Tools 1504
General warning notes 1505
Safety instructions for body repairs 1505
Tools and materials 1505
Preliminary work for body repairs with alignment bench 1505
Preliminary work for body repairs 1506
Possible separation points 1506
Removing front side member (section) 1507
Preparing connection areas of body for installing front side members 1509
Safety instructions for flying sparks during grinding and welding work 1509
Preparing connection areas of body for installing front side members 1510
Fitting front side member and preparing for installation 1510
Safety instructions for sharp-edged body and unit parts 1510
Fitting front side members and preparing for installation 1511
Danger of injury when welding 1513

Table of Contents

50 79 55 Replacing front side member (section) - as of MY 2005
Safety instructions for flying sparks during grinding and welding work....1513
Installing front side members....1514
Subsequent work....1515
Subsequent work for body repairs....1515

50 87 19 Removing and installing cowl panel cover - as of MY 2005....1518
Preliminary work....1518
Preliminary work....1518
Removing cowl panel cover....1518
Removing lateral cap....1518
Removing upper cowl panel cover....1519
Disconnecting plug connection of spray nozzle for windscreen washer system....1520
Disconnecting water line for windscreen washer system....1521
Disconnecting plug connection for GPS antenna....1522
Disconnecting plug connection for radio antenna....1523
Removing lower cowl panel cover....1525
Installing cowl panel cover....1526
Installing cowl panel cover....1526
Locking plug connection for radio antenna....1527
Locking plug connection for GPS antenna....1528
Locking water line for windscreen washer system....1528
Locking plug connection of spray nozzle for windscreen washer system....1529
Fastening upper cowl panel cover....1530
Installing lateral cover cap....1531
Subsequent work....1532
Subsequent work....1532

51 01 41 Repairing threaded bushing for belt connection - as of MY 2005....1535
Tools....1535
General warning notes....1535
Safety instructions for body repairs....1535
Tools and materials....1535
Tools and materials....1535
Repairing threaded bushing for belt connection....1536
Removing thread for belt fastening....1536
Preparing connection areas of the body for installation of the threaded bushing....1537
Safety instructions for flying sparks during grinding and welding work....1537
Preparing connection areas of the body for installation of the threaded bushing....1537
Fitting in threaded bushing and preparing for installation....1538
Safety instructions for sharp-edged body and unit parts....1538
Fitting in threaded bushing and preparing for installation....1538
Installing thread for belt fastening....1540
Danger of injury when welding....1540
Safety instructions for flying sparks during grinding and welding work....1540
Installing thread for belt fastening....1541
Subsequent work....1541
Subsequent work after repair of threaded bushing for belt fastening....1541

Table of Contents

51 03 55 Replacing roof - as of MY 2004 1544
Tools 1544
General warning notes 1545
Safety instructions for body repairs 1545
Tools and materials 1545
Tools and materials 1545
Preliminary work for body repairs 1545
Preliminary work for body repairs with alignment bench 1546
Removing roof 1547
Removing roof 1547
Preparing connection areas of the body for installation of the roof 1548
Safety instructions for flying sparks during grinding and welding work 1548
Preparing connection areas of the body for installation of the roof 1549
Fitting roof and preparing for installation 1549
Safety instructions for sharp-edged body and unit parts 1549
Fitting roof and preparing for installation 1549
Installing roof 1550
Installing roof 1550
Affixing the roof sound absorber 1551
Subsequent work 1552
Subsequent work for body repairs 1552

51 05 55 Replacing roof pillar (pipe) - as of MY 2005 1554
Tools 1554
General warning notes 1555
Safety instructions for body repairs 1555
Tools and materials 1555
Tools and materials 1555
Preliminary work for body repairs with alignment bench 1556
Preliminary work for body repairs with alignment bench 1556
Removing roof pillar (pipe) and roof frame reinforcement 1557
Removing roof pillar (pipe) 1557
Removing roof frame reinforcement 1558
Preparing connection areas of the body for installing the roof pillar (pipe) and roof frame reinforcement 1559
Safety instructions for flying sparks during grinding and welding work 1559
Preparing connection areas of body for installing roof pillar (pipe) 1559
Preparing connection areas of body for installing roof frame reinforcement 1560
Fitting roof pillar (pipe) and roof frame reinforcement and preparing for installation 1560
Safety instructions for sharp-edged body and unit parts 1561
Fitting roof pillar (pipe) and preparing for installation 1561
Fitting roof frame reinforcement and preparing for installation 1561
Installing roof frame reinforcement and roof pillar (pipe) 1562
Danger of injury when welding 1562
Installing roof frame reinforcement 1563
Installing roof pillar (pipe) 1564
Subsequent work 1564
Subsequent work for body repairs 1565

Table of Contents

51 09 55 Replacing rear cross member (side impact reinforcement) - as of MY 2005 1567
Tools 1567
General warning notes 1568
Safety instructions for body repairs 1568
Tools and materials 1568
Tools and materials 1568
Preliminary work for body repairs with alignment bench 1569
Preliminary work for body repairs with alignment bench 1569
Removing rear cross member (side impact reinforcement) 1569
Removing rear cross member 1569
Removing reinforcement plate for rear cross member 1571
Preparing connection areas of the body for installing the rear cross member (side impact reinforcement) 1572
Safety instructions for flying sparks during grinding and welding work 1572
Preparing connection areas of body for installing the rear cross member 1572
Preparing connection areas of body for installing reinforcement plate for rear cross member 1573
Fitting rear cross member (side impact reinforcement) and preparing for installation 1574
Safety instructions for sharp-edged body and unit parts 1574
Fitting rear cross member and preparing for installation 1574
Fitting reinforcement plate for rear cross member and preparing for installation 1575
Installing rear cross member (side impact reinforcement) 1575
Danger of injury when welding 1575
Installing reinforcement plate for rear cross member 1576
Installing rear cross member 1577
Subsequent work 1578
Subsequent work for body repairs 1578

51 11 55 Replacing windscreen frame - as of MY 2005 1581
Tools 1581
General warning notes 1582
Safety instructions for body repairs 1582
Tools and materials 1582
Tools and materials 1582
Preliminary work for body repairs with alignment bench 1583
Preliminary work for body repairs with alignment bench 1583
Removing windscreen frame 1583
Removing windscreen frame 1583
Preparing connection areas of the body for installing the windscreen frame 1586
Safety instructions for flying sparks during grinding and welding work 1586
Preparing connection areas of body for installing the windscreen frame 1586
Fitting in windscreen frame and preparing for installation 1588
Safety instructions for sharp-edged body and unit parts 1588
Fitting in windscreen frame and preparing for installation 1588
Installing windscreen frame 1590
Danger of injury when welding 1590
Installing windscreen frame 1591
Subsequent work 1593

Table of Contents

51 11 55 Replacing windscreen frame - as of MY 2005
Subsequent work for body repairs....1593

51 21 19 Removing and installing rear centre panel - as of MY 2005....1596
Preliminary work....1596
Preliminary work....1596
Removing rear centre panel....1596
Loosening inner rear centre panel....1596
Loosening outer rear centre panel....1597
Disconnecting electric plug connection for auxiliary stop light....1598
Installing rear centre panel....1599
Locking electric plug connection for auxiliary stop light....1599
Installing rear centre panel....1600
Fastening inner rear centre panel....1601
Subsequent work....1603
Subsequent work....1603

51 21 37 Disassembling and assembling rear centre panel - as of MY 2005....1605
Preliminary work....1605
Preliminary work....1605
Disassembling rear centre panel....1605
Removing seal for rear centre panel....1605
Assembling rear centre panel....1606
Installing seal for rear centre panel....1606
Subsequent work....1606
Subsequent work....1606

51 21 55 Replacing rear centre panel reinforcement - as of MY 2005....1609
Tools....1609
General warning notes....1610
Safety instructions for body repairs....1610
Tools and materials....1610
Tools and materials....1610
Preliminary work for body repairs....1611
Preliminary work for body repairs....1611
Removing rear centre panel reinforcement....1611
Removing rear centre panel reinforcement....1612
Preparing connection areas of the body for installing rear centre panel reinforcement....1613
Safety instructions for flying sparks during grinding and welding work....1613
Preparing connection areas of the body for installing rear centre panel reinforcement....1614
Preparing rear centre panel reinforcement for installation....1615
Safety instructions for sharp-edged body and unit parts....1615
Preparing rear centre panel reinforcement for installation....1615
Installing rear centre panel reinforcement....1616
Danger of injury when welding....1616
Installing rear centre panel reinforcement....1616
Subsequent work....1618
Subsequent work for body repairs....1618

Table of Contents

51 48 55 Replacing centre side member - as of MY 2005 1620
General warning notes 1620
Safety instructions for body repairs 1620
Preliminary work for body repairs 1620
Preliminary work for body repairs with alignment bench 1621
Removing centre side member 1621
Removing centre side member 1621
Length offset for part replacement 1622
Removing centre side member 1622
Preparing connection areas of body for installing centre side member 1625
Safety instructions for flying sparks during grinding and welding work 1625
Preparing connection areas of body for installing centre side member 1625
Fitting in centre side member and preparing for installation 1626
Safety instructions for sharp-edged body and unit parts 1626
Fitting in centre side member and preparing for installation 1627
Installing centre side member 1628
Danger of injury when welding 1628
Installing centre side member 1629
Safety instructions for flying sparks during grinding and welding work 1630
Subsequent work 1631
Subsequent work for body repairs 1631

51 49 55 Replacing lower side member reinforcement (support tube) - as of MY 2005 1634
Tools 1634
General warning notes 1635
Safety instructions for body repairs 1635
Tools and materials 1635
Tools and materials 1635
Preliminary work for body repairs with alignment bench 1636
Preliminary work for body repairs with alignment bench 1636
Removing lower side member reinforcement 1636
Removing lower side member reinforcement 1637
Preparing connection areas of the body for installing lower side member reinforcement 1639
Safety instructions for flying sparks during grinding and welding work 1639
Preparing connection area of body for installing lower side member reinforcement 1639
Fitting lower side member reinforcement and preparing for installation 1640
Safety instructions for sharp-edged body and unit parts 1640
Fitting in retaining bracket and preparing for installation 1641
Fitting in support tube and preparing for installation 1642
Installing lower side member reinforcement 1642
Danger of injury when welding 1643
Installing lower side member reinforcement 1643
Subsequent work 1647
Subsequent work for body repairs 1647

51 63 19 Removing and installing deformation element - as of MY 2005 1650
Preliminary work 1650
Preliminary work 1650

Table of Contents

51 63 19 Removing and installing deformation element - as of MY 2005
Removing deformation element....1650
Removing deformation element....1650
Installing deformation element....1651
Installing deformation element....1651
Subsequent work....1652
Reworking....1652

51 92 19 Removing and installing cover for front underbody - as of MY 2005....1654
Preliminary work....1654
Preliminary work....1654
Removing cover for front underbody....1654
Removing cover for front underbody....1654
Installing cover for front underbody....1655
Installing cover for front underbody....1655
Subsequent work....1656
Reworking....1656

51 93 19 Removing and installing cover for centre underbody - as of MY 2005....1659
Preliminary work....1659
Preliminary work....1659
Removing cover for centre underbody....1659
Removing cover for side underbody....1659
Removing cover for centre underbody....1660
Installing cover for centre underbody....1661
Installing cover for centre underbody....1661
Installing cover for side underbody....1662
Subsequent work....1663
Reworking....1663

51 94 19 Removing and installing cover for rear underbody - as of MY 2005....1666
Preliminary work....1666
Preliminary work....1666
Removing cover for rear underbody....1666
Removing cover for rear underbody- rear section....1666
Removing cover for rear underbody - front section....1667
Installing cover for rear underbody....1668
Installing cover for rear underbody- front section....1668
Installing cover for rear underbody- rear section....1669
Subsequent work....1670
Reworking....1670

53 48 55 Replacing rear side member (section) - as of MY 2005....1673
Tools....1673
General warning notes....1674
Safety instructions for body repairs....1674
Tools and materials....1674
Tools and materials....1674

Table of Contents

53 48 55 Replacing rear side member (section) - as of MY 2005
Preliminary work for body repairs with alignment bench....1675
Preliminary work for body repairs with alignment bench....1675
Removing side member....1675
Removing side member....1675
Preparing connection area of body for installing rear side member....1681
Safety instructions for flying sparks during grinding and welding work....1681
Preparing connection areas of body for installing rear side members....1682
Fitting rear side member and preparing for installation....1682
Adjusting rear side members and preparing for installation....1682
Installing rear side member....1684
Danger of injury when welding....1684
Safety instructions for flying sparks during grinding and welding work....1685
Installing side member....1685
Subsequent work....1689
Subsequent work for body repairs....1689

53 55 55 Replacing side section - as of MY 2005....1692
Tools....1692
General warning notes....1693
Safety instructions for body repairs....1693
Tools and materials....1693
Tools and materials....1693
Preliminary work for body repairs....1694
Preliminary work for body repairs with alignment bench....1694
Removing side section....1695
Removing side section....1695
Preparing connection areas of the body for installation of the side section....1697
Safety instructions for flying sparks during grinding and welding work....1697
Preparing connection areas of the body for installation of the side section....1698
Fitting side section and preparing for installation....1698
Safety instructions for sharp-edged body and unit parts....1698
Fitting in side section and preparing for installation....1699
Installing side section....1700
Installing side section....1700
Subsequent work....1703
Subsequent work for body repairs....1703

53 55 55 Replacing side section - as of MY 2005....1706
Tools....1706
General warning notes....1707
Safety instructions for body repairs....1707
Tools and materials....1707
Tools and materials....1707
Preliminary work for body repairs....1708
Preliminary work for body repairs with alignment bench....1708
Removing side section....1709
Removing side section....1709

Table of Contents

53 55 55 Replacing side section - as of MY 2005
Preparing connection areas of the body for installing the side section....1711
Safety instructions for flying sparks during grinding and welding work....1711
Preparing connection areas of the body for installing the side section....1712
Safety instructions for sharp-edged body and unit parts....1712
Fitting side section and preparing for installation....1712
Installing side section....1714
Installing side section....1714
Subsequent work....1719
Subsequent work for body repairs....1719

53 55 55 Replacing side section - as of MY 2005....1722
General warning notes....1722
Safety instructions for body repairs....1722
Tools and materials....1722
Preliminary work for body repairs....1722
Preliminary work for body repairs with alignment bench....1723
Removing side section....1723
Removing side section....1723
Preparing connection areas of the body for installing the side section....1726
Safety instructions for flying sparks during grinding and welding work....1726
Preparing connection areas of the body for installing the side section....1726
Safety instructions for sharp-edged body and unit parts....1727
Fitting side section and preparing for installation....1727
Installing side section....1728
Installing side section....1728

53 68 55 Replacing rear wheel housing - as of MY 2005....1736
Tools....1736
General warning notes....1737
Safety instructions for body repairs....1737
Tools and materials....1737
Tools and materials....1737
Preliminary work for body repairs with alignment bench....1738
Preliminary work for body repairs with alignment bench....1738
Removing rear wheel housing....1738
Removing outer rear wheel housing....1738
Removing inner rear wheel housing....1739
Preparing connection areas of the body for installing the rear wheel housing....1742
Safety instructions for flying sparks during grinding and welding work....1742
Preparing connection areas of the body for installing the inner rear wheel housing....1742
Preparing connection areas of the body for installing the outer rear wheel housing....1742
Preparing rear wheel housing for installation....1743
Safety instructions for sharp-edged body and unit parts....1743
Preparing inner rear wheel housing for installation....1743
Preparing outer rear wheel housing for installation....1745
Installing rear wheel housing....1745
Danger of injury when welding....1745

Table of Contents

53 68 55 Replacing rear wheel housing - as of MY 2005
Installing inner rear wheel housing....1746
Installing outer rear wheel housing....1748
Subsequent work....1748
Subsequent work for body repairs....1748

53 69 19 Removing and installing rear wheel housing liner - as of MY 2005....1751
Preliminary work....1751
Preliminary work....1751
Removing rear wheel housing liner....1751
Removing rear wheel housing liner....1751
Installing rear wheel housing liner....1752
Installing rear wheel housing liner....1752
Subsequent work....1753
Reworking....1753

53 69 19 Removing and installing rear wheel housing liner - as of MY 2005....1756
Preliminary work....1756
Preliminary work....1756
Removing rear wheel housing liner....1756
Removing rear wheel housing liners....1756
Installing rear wheel housing liner....1757
Installing rear wheel housing liner....1757
Subsequent work....1758
Reworking....1759

55 10 19 Removing and installing release for front lid - as of MY 2005....1761
Preliminary work....1761
Preliminary work....1761
Removing release for front lid....1761
Removing release for front lid....1761
Installing release for front lid....1762
Installing release for front lid....1762
Subsequent work....1763
Subsequent work....1763

55 13 19 Removing and installing servo motor for front lid release - as of MY 2005....1766
Preliminary work....1766
Preliminary work for servo motor for hood release....1766
Removing servo motor for front lid release....1766
Removing the servo motor for front lid release....1766
Installing servo motor for front lid release....1768
Installing the servo motor for front lid release....1768
Subsequent work....1769
Subsequent work for servo motor for hood release....1769

Table of Contents

55 17 19 Removing and installing front lower part of lid lock - as of MY 2005 1772
Preliminary work 1772
Preliminary work 1772
Removing front lower part of lid lock 1772
Removing bowden cable for emergency release 1772
Pressing out bowden cable for emergency release 1773
Disconnect electrical plug connection 1774
Removing lower part of lid lock 1774
Removing lid-release cable 1775
Installing front lower part of lid lock 1776
Inserting lid-release cable 1776
Installing lower part of lid lock 1777
Locking electrical plug connection 1778
Installing bowden cable for emergency release 1779
Inserting bowden cable for emergency release 1780
Subsequent work 1781
Reworking 1781

55 18 19 Removing and installing front upper part of lid lock - as of MY 2005 1784
Removing front upper part of lid lock 1784
Removing upper part of front lid lock 1784
Installing front upper part of lid lock 1785
Installing upper part of front lid lock 1785
Checking lid functions 1786

55 22 15 Adjusting front lid - as of MY 2005 1789
Tools 1789
Adjusting front lid 1789
Adjusting lid in X and Y direction 1789
Adjusting lid in Z direction 1790
Adjusting front lid 1791

55 22 19 Removing and installing front cover - as of MY 2005 1794
Removing front lid 1794
Removing front lid 1794
Installing front lid 1795
Installing front lid 1795
Reworking 1796
Reworking 1796

55 22 37 Disassembling and assembling front lid - as of MY 2005 1798
Preliminary work 1798
Preliminary work 1798
Disassembling front lid 1798
Removing rubber pad 1798
Removing self-adhesive label 1799
Assembling front lid 1800
Installing rubber pad 1800

Table of Contents

55 22 37 Disassembling and assembling front lid - as of MY 2005
Installing self-adhesive label....1801
Subsequent work....1802
Reworking....1802

55 25 19 Removing and installing front lid hinge - as of MY 2005....1805
Preliminary work....1805
Preliminary work....1805
Removing front lid hinge....1805
Removing front lid hinge....1805
Install front lid hinge....1806
Installing front lid hinge....1806
Reworking....1807
Reworking....1807

55 31 19 Removing and installing front pneumatic spring - as of MY 2005....1810
Removing front pneumatic spring....1810
Removing front pneumatic spring at lid end....1810
Removing front pneumatic spring on body....1811
Installing front pneumatic spring....1812
Installing front pneumatic spring on the body....1812
Installing front pneumatic spring at lid end....1813
Function test on pneumatic spring....1814

55 33 19 Removing and installing front lid seal - as of MY 2005....1817
Removing front lid seal....1817
Removing front lid seal....1817
Removing front lid seal....1818
Installing front lid seal....1818
Mounting front lid seal....1819
Installing front lid seal....1819

55 37 19 Removing and installing filler flap - as of MY 2005....1823
Tools....1823
Removing filler flap....1823
Removing filler flap....1823
Removing plastic hinge....1824
Installing filler flap....1825
Installing plastic hinge....1825
Installing filler flap....1826

55 38 19 Removing and installing switching element for filler flap - as of MY 2005....1830
Preliminary work....1830
Preliminary work....1830
Removing switching element for filler flap....1830
Removing switching element for filler flap....1830
Installing switching element for filler flap....1832
Installing switching element for filler flap....1832

Table of Contents

55 38 19 Removing and installing switching element for filler flap - as of MY 2005
Subsequent work....1833
Subsequent work....1833

55 57 19 Removing and installing release for rear lid - as of MY 2005....1836
Preliminary work....1836
Preliminary work....1836
Removing release for rear lid....1836
Removing release for rear lid....1836
Installing release for rear lid....1837
Installing release for rear lid....1837
Subsequent work....1838
Subsequent work....1838

55 61 19 Removing and installing servo motor for emergency release - as of MY 2005....1841
Preliminary work....1841
Preliminary work on servo motor for emergency release....1841
Removing servo motor for emergency release....1841
Removing servo motor for emergency release....1841
Installing servo motor for emergency release....1843
Installing servo motor for emergency release....1843
Subsequent work....1844
Subsequent work on servo motor for emergency release....1844

55 62 19 Removing and installing front emergency release - as of MY 2005....1846
Removing front emergency release....1846
Removing front emergency release....1846
Installing front emergency release....1847
Installing support for release handle....1847
Installing front emergency release....1849
Checking inner release of luggage compartment (Trunk Entrapment)....1850
Checking inner release of luggage compartment (Trunk Entrapment)....1850

55 62 19 Removing and installing front emergency release - as of MY 2005....1853
Removing front emergency release....1853
Removing front emergency release....1853
Removing front emergency release....1854
Installing front emergency release....1856
Installing front emergency release....1856
Installing support for release handle....1857
Installing front emergency release....1858
Checking inner release of luggage compartment (Trunk Entrapment)....1860
Checking inner release of luggage compartment (Trunk Entrapment)....1860

55 84 19 Removing and installing motor for rear lid release - as of MY 2005....1863
Preliminary work....1863
Preliminary work....1863
Removing motor for rear lid release....1863

Table of Contents

55 84 19 Removing and installing motor for rear lid release - as of MY 2005
Removing rear lid release motor....1863
Installing motor for rear lid release....1864
Installing rear-lid release motor....1864
Subsequent work....1865
Subsequent work....1865

55 86 19 Removing and installing lower part of lid lock at rear - as of MY 2005....1868
Preliminary work....1868
Preliminary work....1868
Removing lower part of lid lock at rear....1868
Disconnecting electrical plug connection....1868
Removing lower part of lid lock at rear....1869
Disconnecting the emergency release cable....1870
Installing lower part of lid lock at rear....1871
Installing the emergency release cable....1871
Installing lower part of lid lock at rear....1871
Locking electrical plug connection....1872
Subsequent work....1873
Subsequent work....1873

55 87 19 Removing and installing rear upper part of lid lock - as of MY 2005....1876
Removing rear upper part of lid lock....1876
Removing rear upper part of lid lock....1876
Installing rear upper part of lid lock....1877
Installing rear upper part of lid lock....1877
Checking lid functions....1878

55 90 15 Adjusting rear lid - as of MY 2005....1881
Tools....1881
Adjusting rear lid....1881
Adjusting lid in X and Y direction....1881
Adjusting lid in Z direction....1882
Adjusting rear lid....1883
Subsequent work....1884
Reworking....1884

55 90 19 Removing and installing rear lid - as of MY 2005....1886
Removing rear lid....1886
Disconnecting wiring harness on rear lid....1886
Removing rear lid....1887
Installing rear lid....1888
Installing rear lid....1888
Locking wiring harness on rear lid....1889

55 90 37 Disassembling and assembling rear lid - as of MY 2005....1892
Preliminary work....1892
Preliminary work....1892

Table of Contents

55 90 37 Disassembling and assembling rear lid - as of MY 2005
Disassembling rear lid....1892
Removing fan with fan housing....1892
Removing air guide....1893
Remove adjusting element....1894
Remove rubber cover....1895
Removing upper part of spoiler....1896
Removing the folding wall from the upper part of the spoiler....1897
Removing the folding wall from the cover....1898
Removing the lower part of the spoiler....1899
Removing hinge....1900
Removing the mount....1901
Assembling rear lid....1902
Fitting mount....1902
Fitting hinge....1903
Mounting the lower part of the spoiler....1904
Mounting the folding wall on the lid....1905
Mounting the folding wall on the upper part of the spoiler....1906
Mounting upper part of spoiler....1907
Fitting rubber cover....1909
Installing adjusting element....1909
Installing air guide....1910
Fitting fan with fan housing....1911
Reworking....1912
Reworking....1912

55 91 19 Removing and installing rear lid hinge - as of MY 2005....1915
Preliminary work....1915
Preliminary work....1915
Removing rear lid hinge....1915
Removing rear lid hinge....1915
Installing rear lid hinge....1916
Installing rear lid hinge....1917
Subsequent work....1917
Reworking....1917

55 93 19 Removing and installing rear pneumatic spring - as of MY 2005....1920
Removing rear pneumatic spring....1920
Removing rear pneumatic spring at lid end....1920
Removing rear pneumatic spring at the body....1921
Installing rear pneumatic spring....1922
Installing rear pneumatic spring on the body....1922
Installing rear pneumatic spring at lid end....1923
Function test on pneumatic spring....1924

57 08 37 Disassembling and assembling key - as of MY 2005....1927
Disassembling key....1927
Removing cover of hand-held transmitter....1927

Table of Contents

57 08 37 Disassembling and assembling key - as of MY 2005
Removing hand-held transmitter key....1927
Assembling key....1928
Installing hand-held transmitter key....1928
Installing cover of hand-held transmitter....1928

57 11 19 Removing and installing door handle - as of MY 2005....1931
Tools....1931
Preliminary work....1931
Preliminary work....1931
Removing door handle....1931
Unclipping electric wire for micro switches....1931
Disconnect connection piece....1932
Removing door handle and bottom part of door handle....1933
Additional assembly instructions....1935
Locking lock actuation....1935
Installing door handle....1937
Fitting door handle and bottom part of door handle....1937
Fit connection piece....1938
Clipping in the electric wire for micro switches....1939
Subsequent work....1940
Subsequent work....1940
Function test following assembly work....1940

57 11 37 Disassembling and assembling door handle - as of MY 2005....1944
Preliminary work....1944
Preliminary work....1944
Disassembling door handle....1944
Disassembling door handle....1944
Assembling door handle....1945
Assembling door handle....1945
Subsequent work....1945
Subsequent work....1946

57 17 19 Removing and installing door lock - as of MY 2005....1948
Tools....1948
Preliminary work....1948
Preliminary work....1948
Removing door lock....1948
Disconnect connection piece....1948
Removing door lock....1949
Unclipping and disengaging the bowden cable....1950
Additional assembly instructions....1951
Locking lock actuation....1951
Installing door lock....1953
Fitting the bowden cable....1953
Installing door lock....1954
Fit connection piece....1955

Table of Contents

57 17 19 Removing and installing door lock - as of MY 2005
Subsequent work....1956
Subsequent work....1957
Function test following assembly work....1957

57 26 19 Removing and installing striker pin - as of MY 2005....1960
Removing striker pin....1960
Removing striker pin....1960
Installing striker pin....1961
Installing striker pin....1961

57 30 19 Removing and installing door unit carrier - as of MY 2005....1964
Preliminary work....1964
Preliminary work....1964
Removing door unit carrier....1964
Covering door with adhesive tape....1964
Removing seal for mirror triangle....1965
Disconnecting electrical plug connection....1966
Releasing door unit carrier....1967
Disconnecting electrical plug connection on microswitch....1969
Disconnecting the door lock electrical plug connection....1970
Installing door unit carrier....1971
Locking electrical plug connection for door lock....1971
Locking electrical plug connection for microswitch....1972
Fastening door unit carrier....1972
Locking electrical plug connection....1974
Fitting seal for mirror triangle....1975
Removing adhesive tape....1976
Subsequent work....1976
Subsequent work....1976

57 30 37 Disassembling and assembling door unit carrier - as of MY 2005....1979
Preliminary work....1979
Preliminary work....1979
Disassembling door unit carrier....1979
Disassembling door unit carrier....1979
Assembling door unit carrier....1980
Assembling door unit carrier....1980
Subsequent work....1981
Subsequent work....1981

57 45 19 Removing and installing door handle - as of MY 2005....1984
Preliminary work....1984
Preliminary work....1984
Removing door handle....1984
Removing door handle....1984
Installing door handle....1985
Installing door handle....1985

Table of Contents

57 45 19 Removing and installing door handle - as of MY 2005
Subsequent work....1987
Subsequent work....1987

57 48 19 Removing and installing crash support - as of MY 2005....1989
Removing crash support....1989
Removing crash support....1989
Installing crash support....1990
Installing crash support....1990

57 51 15 Adjusting front door - as of MY 2005....1993
Tools....1993
Adjusting front door....1993
Setting the front door....1993
Setting the rear door....1994

57 51 19 Removing and installing door - as of MY 2005....1997
General warning notes....1997
General warning notes....1997
Preliminary work....1997
Preliminary work....1997
Removing door....1997
Releasing hinge joint....1997
Releasing door latch snib on body side....1998
Removing door....1999
Installing door....2000
Installing door....2000
Fastening the hinge joint....2001
Fastening door latch snib on body side....2002
Subsequent work....2003
Reworking....2003

57 51 37 Disassembling and assembling door - as of MY 2005....2006
Tools....2006
Preliminary work....2006
Preliminary work....2006
General warning notes....2007
Safety instructions for door....2007
Tools and materials....2008
Tools and materials....2008
Disassembling door....2008
Removing lid and rubber sleeve....2009
Removing retaining clips....2009
Removing rubber pad....2010
Assembling door....2011
Installing rubber buffer....2011
Installing retaining clips....2012
Fitting lid and rubber sleeves....2013

Table of Contents

57 51 37 Disassembling and assembling door - as of MY 2005
Subsequent work....2014
Subsequent work....2014

57 53 55 Replacing door hinge (on body side) - as of MY 2005....2017
Tools....2017
General warning notes....2018
Safety instructions for body repairs....2018
Tools and materials....2018
Tools and materials....2018
Preliminary work for body repairs with alignment bench....2019
Preliminary work for body repairs....2019
Removing door hinge (on body side)....2019
Removing door hinge (on body side)....2020
Preparing connection areas of the body for installing the door hinge (on body side)....2021
Safety instructions for flying sparks during grinding and welding work....2021
Preparing connection areas of the body for installing the door hinge (on body side)....2021
Preparing door hinge (on body side) for installation....2022
Safety instructions for sharp-edged body and unit parts....2022
Preparing door hinge (on body side) for installation....2022
Installing door hinge (on body side)....2023
Danger of injury when welding....2023
Installing door hinge (on body side)....2023
Subsequent work....2026
Subsequent work for body repairs....2027

57 59 19 Removing and installing door latch snib - as of MY 2005....2029
Preliminary work....2029
Preliminary work....2029
Removing door latch snib....2029
Releasing door latch snib on body side....2029
Removing door latch snib....2030
Installing door latch snib....2032
Installing door latch snib....2032
Fastening door latch snib on body side....2033
Subsequent work....2033
Subsequent work....2033

57 63 19 Removing and installing rubber seal for door - as of MY 2005....2036
Preliminary work....2036
Preliminary work....2036
Removing rubber seal for door....2036
Removing rubber seal for door....2036
Installing rubber seal for door....2037
Installing rubber seal for door....2037
Subsequent work....2038
Subsequent work....2038

Table of Contents

57 63 19 Removing and installing rubber seal for door - Cabriolet - as of MY 2005 2041
Preliminary work 2041
Preliminary work 2041
Removing rubber seal for door 2041
Removing cover of three-point seat belt 2041
Removing rubber seal for door 2042
Installing rubber seal for door 2043
Installing rubber seal for door 2043
Installing cover of three-point seat belt 2045
Subsequent work 2045
Subsequent work 2045

57 65 19 Removing and installing rubber seal for door - as of MY 2005 2048
Preliminary work 2048
Preliminary work 2048
Removing rubber seal for door 2048
Removing rubber seal for door 2048
Installing rubber seal for door 2050
Installing rubber seal for door 2050
Subsequent work 2052
Subsequent work 2052

57 78 19 Removing and installing central locking switch - as of MY 2005 2054
Removing central locking switch 2054
Removing central locking switch 2054
Installing central locking switch 2055
Installing central locking switch 2055

57 89 19 Removing and installing control unit for rear convenience systems - as of MY 2005 2058
Tools 2058
Preliminary work 2058
Preparing control unit for comfort system rear 2058
General warning notes 2058
General warnings for rear convenience systems control unit 2058
Removing control unit for rear convenience systems 2059
Removing control unit for rear convenience systems 2059
Installing control unit for rear convenience systems 2061
Installing control unit for rear convenience systems 2061
Subsequent work 2062
Subsequent work on control unit for rear convenience comfort systems 2062
Programming control unit for rear convenience systems 2063
Reading from and writing to the rear convenience system control unit 2063
Coding control unit for rear convenience systems 2064
Coding the control unit for rear convenience systems 2064

60 12 19 Removing and installing switch for sliding roof - as of MY 2005 2068
Removing switch for sliding roof 2068
Removing cover for motor for sliding roof 2068

Table of Contents

60 12 19 Removing and installing switch for sliding roof - as of MY 2005
Removing switch for sliding roof....2069
Installing switch for sliding roof....2069
Installing switch for sliding roof....2069
Installing cover for sunroof motor....2070

60 14 19 Removing and installing motor for sliding roof - as of MY 2005....2073
Removing motor for sliding roof....2073
Removing cover for motor for sliding roof....2073
Removing motor for sunroof....2074
Installing motor for sliding roof....2075
Installing motor for sunroof....2075
Installing cover for sunroof motor....2077
Information....2078
Emergency operation on motor for sliding roof....2078
Storing end positions of motor for sliding roof....2078

60 28 19 Removing and installing frame for sliding roof - as of MY 2005....2081
Preliminary work....2081
Preliminary work....2081
Removing frame for sliding roof....2081
Removing frame for sliding roof....2081
Installing frame for sliding roof....2083
Installing frame for sliding roof....2083
Subsequent work....2084
Subsequent work....2084

60 28 37 Disassembling and assembling frame for sliding roof - as of MY 2005....2087
Preliminary work....2087
Preliminary work....2087
Disassembling frame for sliding roof....2087
Disassembling frame for sliding roof....2087
Converting frame for sliding roof....2089
Converting frame for sliding roof....2089
Assembling frame for sliding roof....2092
Assembling frame for sliding roof....2092
Subsequent work....2093
Subsequent work....2093

60 33 19 Removing and installing air deflector - as of MY 2005....2096
Preliminary work....2096
Preliminary work....2096
Removing air deflector....2096
Removing air deflector....2096
Installing air deflector....2097
Installing air deflector....2097
Subsequent work....2098
Subsequent work....2098

Table of Contents

60 40 19 Removing and installing cover for sliding roof - as of MY 2005 2101
Removing cover for sliding roof 2101
Removing cover for sliding roof 2101
Installing cover for sliding roof 2103
Installing cover for sliding roof 2103

60 42 19 Removing and installing seal for sliding roof - as of MY 2005 2109
Preliminary work 2109
Preliminary work 2109
Removing seal for sliding roof 2109
Removing seal for sliding roof 2109
Installing seal for sliding roof 2110
Installing seal for sliding roof 2110
Subsequent work 2110
Subsequent work 2110

61 01 15 Adjusting convertible top - as of MY 2005 2113
Adjusting convertible top 2113
Adjusting assembly aids 2113
Adjusting convertible-top peg housing 2114
Checking diagonal dimension of styling edge 2114
Adjusting tension cable on adjusting piece 2115
Adjusting end setting for convertible-top resting position 2115

61 01 19 Removing and installing convertible top - as of MY 2005 2118
Tools 2118
Preliminary work 2118
Preliminary work 2118
Tools and materials 2118
Tools 2118
Removing convertible top 2119
Removing convertible top 2119
Installing convertible top 2121
Installing convertible top 2121
Subsequent work 2124
Subsequent work 2124

61 01 41 Convertible top repair - after emergency operation - as of MY 2005 2127
Preliminary work 2127
Preliminary work 2127
Convertible top repair - after emergency operation 2128
Repairing convertible-top compartment lid drive 2128
Subsequent work 2129
Subsequent work 2129

61 02 15 Adjusting the hardtop - as of MY 2005 2132
Tools 2132
Adjusting the hardtop 2132

Table of Contents

61 02 15 Adjusting the hardtop - as of MY 2005
Adjusting the hardtop....2132

61 02 19 Removing and installing hardtop - as of MY 2005....2138
Removing hardtop....2138
Removing hardtop....2138
Installing hardtop....2140
Installing hardtop....2140

61 02 37 Disassembling and assembling hardtop - as of MY 2005....2146
Preliminary work....2146
Preliminary work....2146
Disassembling hardtop....2146
Disassembling hardtop....2146
Assembling hardtop....2150
Assembling hardtop....2150
Subsequent work....2156
Subsequent work....2156

61 05 19 Removing and installing latch at front - as of MY 2005....2159
Preliminary work....2159
Preliminary work....2159
Removing latch at front....2159
Removing front lock....2159
Installing latch at front....2161
Installing front lock....2161
Subsequent work....2161
Subsequent work....2162

61 09 19 Removing and installing convertible-top inner lining - as of MY 2005....2164
Preliminary work....2164
Preliminary work....2164
Removing convertible-top inner lining....2164
Removing front inner lining of convertible top....2164
Removing inner lining of convertible top at rear....2168
Removing convertible-top inner lining at sides....2172
Installing convertible-top inner lining....2173
Installing convertible-top inner lining at front....2173
Installing convertible-top inner lining at rear....2177
Installing convertible-top inner lining at sides....2180

61 10 19 Removing and installing front convertible-top mount - as of MY 2005....2184
Preliminary work....2184
Preliminary work....2184
Preliminary work....2184
Removing front convertible-top mount....2184
Removing centring journal....2184
Removing centring journal (hardtop)....2185

Table of Contents

61 10 19 Removing and installing front convertible-top mount - as of MY 2005
Removing convertible-top peg mount....2186
Installing front convertible-top mount....2187
Installing centring journal....2187
Installing centring journal (hardtop)....2188
Installing convertible-top peg mount....2189
Subsequent work....2190
Subsequent work....2190
Subsequent work....2191
Subsequent work....2191

61 11 19 Removing and installing the rear hardtop locking element - as of MY 2005....2194
Preliminary work....2194
Preliminary work....2194
Removing the rear hardtop locking element....2194
Removing rear hardtop locking mechanism....2194
Installing the rear hardtop locking element....2197
Installing rear hardtop locking mechanism....2197
Subsequent work....2199
Subsequent work....2199

61 14 19 Removing and installing water drip pan - as of MY 2005....2202
Preliminary work....2202
Preliminary work....2202
Removing water drip pan....2202
Removing water drip pan....2202
Removing water channel....2203
Installing water drip pan....2205
Installing water channel....2205
Installing water drip pan....2207
Subsequent work....2208
Subsequent work....2208

61 17 19 Removing and installing hardtop fastening - as of MY 2005....2210
Preliminary work....2210
Preliminary work....2210
Removing hardtop fastening....2210
Removing bracket for hardtop mount....2210
Installing hardtop fastening....2211
Installing bracket for hardtop mount....2212
Subsequent work....2213
Subsequent work....2213

61 19 19 Removing and installing convertible top lock - as of MY 2005....2215
Removing convertible top lock....2215
Removing cover for convertible top lock....2215
Removing convertible top lock....2216
Installing convertible top lock....2216

Table of Contents

61 19 19 Removing and installing convertible top lock - as of MY 2005
Installing convertible top lock....2216
Installing cover for convertible top lock....2217

61 28 19 Removing and installing convertible top covering - as of MY 2005....2220
Tools....2220
Preliminary work....2220
Preliminary work....2220
Removing convertible-top covering....2220
Removing convertible-top covering....2220
Installing convertible-top covering....2225
Installing convertible-top covering....2225
Subsequent work....2231
Subsequent work....2231

61 30 55 Replacing convertible-top frame - as of MY 2005....2234
Replacing convertible-top frame....2234
Installing convertible top frame....2234
Installing tension strap....2239
Installing plastic panel....2240
Installing styling frame....2241

61 40 19 Removing and installing flap motor - as of MY 2005....2245
Tools....2245
Preliminary work....2245
Preliminary work....2245
Removing flap motor....2245
Removing flap motor....2245
Installing flap motor....2247
Installing flap motor....2247
Subsequent work....2248
Subsequent work....2248

61 41 19 Removing and installing microswitch for flap - as of MY 2005....2251
Tools....2251
Preliminary work....2251
Removing microswitch for flap....2251
Removing microswitch for flap....2251
Installing microswitch for flap....2255
Installing microswitch for flap....2255
Subsequent work....2259
Subsequent work....2259

61 42 19 Removing and installing rear side section flap - as of MY 2005....2262
Tools....2262
Preliminary work....2262
Preliminary work....2262
Removing rear side section flap....2262

Table of Contents

61 42 19 Removing and installing rear side section flap - as of MY 2005
Removing rear side panel flap....2262
Installing rear side section flap....2264
Installing rear side section flap....2264
Subsequent work....2266
Subsequent work....2266

61 43 19 Removing and installing tension cable - as of MY 2005....2269
Preliminary work....2269
Preliminary work....2269
Removing tension cable....2269
Removing tension cable....2269
Installing tension cable....2270
Installing tension cable....2270
Subsequent work....2272
Subsequent work....2272

61 64 19 Removing and installing microswitch for roof - as of MY 2005....2275
Preliminary work....2275
Preliminary work....2275
Removing microswitch for roof....2275
Removing microswitch for roof....2275
Installing microswitch for roof....2276
Installing microswitch for roof....2276
Subsequent work....2277
Subsequent work....2277

61 66 19 Removing and installing potentiometer - as of MY 2006....2280
Tools....2280
Preliminary work....2280
Preliminary work for potentiometer....2280
Removing potentiometer....2280
Removing potentiometer....2280
Installing potentiometer....2281
Installing potentiometer....2281
Subsequent work....2282
Subsequent work on potentiometer....2282

61 70 19 Removing and installing convertible-top compartment lid drive - as of MY 2006....2285
Tools....2285
Preliminary work....2285
Preliminary work....2285
Removing motor for convertible-top compartment lid drive....2286
Removing motor for convertible-top compartment lid drive....2286
Installing motor for convertible-top compartment lid drive....2287
Installing motor for convertible-top compartment lid drive....2287
Subsequent work....2289
Subsequent work....2289

Table of Contents

61 72 19 Removing and installing convertible-top compartment lid drive gear - as of MY 2005 2292
Tools 2292
Preliminary work 2292
Preliminary work 2292
Removing convertible-top compartment lid drive gear 2292
Disengaging cable for locking hook 2292
Removing convertible-top compartment lid drive gear 2293
Installing convertible-top compartment lid drive gear 2295
Installing convertible-top compartment lid drive gear 2295
Engaging cable for locking hook 2296
Subsequent work 2297
Subsequent work 2297

61 74 19 Removing and installing cable for locking hook - as of MY 2005 2300
Preliminary work 2300
Preliminary work 2300
Removing cable for locking hook 2300
Disengaging cable for locking hook 2300
Removing cable for locking hook 2301
Installing cable for locking hook 2303
Installing cable for locking hook 2303
Engaging cable for locking hook 2304
Subsequent work 2305
Subsequent work 2305

61 81 19 Removing and installing microswitch for convertible-top compartment lid drive - as of MY 2006 2307
Preliminary work 2307
Preliminary work 2307
Removing microswitch for convertible-top compartment lid drive 2307
Removing microswitch for convertible-top compartment lid drive. 2307
Installing microswitch for convertible-top compartment lid drive 2308
Installing microswitch for convertible-top compartment lid drive 2308
Subsequent work 2308
Subsequent work 2308

61 84 19 Removing and installing hydraulic pump - as of MY 2005 2311
Preliminary work 2311
Preliminary work 2311
Removing hydraulic mount 2311
Disconnecting electric plug connection for hydraulic pump 2311
Removing hydraulic pump 2312
Removing support for hydraulic pump 2314
Installing hydraulic pump 2315
Installing support for hydraulic pump 2315
Installing hydraulic pump 2315
Locking electric plug connection for hydraulic pump 2317
General information on the hydraulic system 2318

Table of Contents

61 84 19 Removing and installing hydraulic pump - as of MY 2005
Opening and closing hydraulic valve of the hydraulic pump....2318
Access for opening and closing the hydraulic valve....2318
Filling and bleeding the hydraulic system....2319
Filling the hydraulic system....2319
Bleeding the hydraulic system....2320
Subsequent work....2321
Subsequent work....2321

61 86 19 Removing and installing hydraulic cylinder - as of MY 2005....2323
Tools....2323
Preliminary work....2323
Preliminary work....2323
Tools and materials....2323
Tools....2324
Removing hydraulic cylinder....2324
Loosening hydraulic cylinder....2324
Disconnecting electric plug connection for hydraulic pump....2325
Removing hydraulic pump....2326
Installing hydraulic cylinder....2328
Installing hydraulic cylinder....2328
Installing hydraulic pump....2329
Locking electric plug connection for hydraulic pump....2331
Opening and closing hydraulic valve of the hydraulic pump....2332
Access for opening and closing the hydraulic valve....2332
Bleeding the hydraulic system....2333
Subsequent work....2333
Subsequent work....2333

61 90 19 Removing and installing convertible-top compartment lid - as of MY 2005....2336
Preliminary work....2336
Preliminary work....2336
Removing convertible-top compartment lid....2336
Loosening the wire harness for auxiliary stop light on the convertible top compartment lid....2336
Removing convertible top compartment lid....2337
Installing convertible-top compartment lid....2338
Installing convertible top compartment lid....2338
Locking the wire harness for auxiliary stop light on the convertible top compartment lid....2339
Subsequent work....2340
Subsequent work....2340

61 90 37 Disassembling and assembling convertible top compartment lid - as of MY 2005....2343
Preliminary work....2343
Preliminary work....2343
Disassembling convertible top compartment lid....2343
Disassembling convertible-top compartment lid....2343
Assembling convertible top compartment lid....2345
Assembling convertible-top compartment lid....2345

Table of Contents

61 90 37 Disassembling and assembling convertible top compartment lid - as of MY 2005
Subsequent work....2347
Subsequent work....2347

61 91 19 Removing and installing additional flap - as of MY 2005....2350
Preliminary work....2350
Preliminary work....2350
Removing additional flap....2350
Removing additional flap....2350
Installing additional flap....2351
Installing additional flap....2351

61 92 19 Removing and installing hinge for top box cover - as of MY 2005....2355
Preliminary work....2355
Preliminary work....2355
Removing hinge for top box cover....2355
Removing hinge for top box cover....2355
Installing hinge for top box cover....2356
Installing hinge for top box cover....2356
Subsequent work....2359
Subsequent work....2359

61 96 19 Removing and installing control unit for convertible-top - as of MY 2006....2361
Tools....2361
Preliminary work....2361
Preliminary work....2361
Removing control unit for convertible top....2362
Removing control unit for convertible top....2362
Installing control unit for convertible top....2363
Installing control unit for convertible top....2363
Subsequent work....2364
Subsequent work....2364
Programming control unit for convertible top....2364
Reading out and writing values for convertible top control unit....2364
Coding control unit for convertible top....2365
Coding control unit for convertible top....2365
Calibrating the convertible top....2366
Calibrating the convertible top....2366

63 10 19 Removing and installing front bumper - as of MY 2005....2369
Preliminary work....2369
Preliminary work....2369
Removing front bumper....2369
Removing the front bumper....2369
Installing front bumper....2370
Installing the front bumper....2370
Subsequent work....2371
Reworking....2371

Table of Contents

63 15 19 Removing and installing front spoiler - as of MY 2005 2374
Tools 2374
Preliminary work 2374
Preliminary work 2374
Removing front apron 2374
Undoing front spoiler underneath 2374
Undoing front spoiler at the sides 2375
Disconnecting electrical plug connection 2376
Removing hose for headlight cleaning system 2377
Undoing front spoiler at the top 2378
Installing front apron 2380
Securing front spoiler at the top 2380
Securing front spoiler at the sides 2381
Locking hose for headlight cleaning system 2382
Locking electrical plug connection 2383
Securing front spoiler underneath 2383
Reworking 2384
Reworking 2384

63 15 37 Disassembling and assembling front apron - as of MY 2005 2387
Preliminary work 2387
Preliminary work 2387
Disassembling front spoiler 2388
Removing cover cap 2388
Removing side covering frame 2388
Removing fastening clip for wiring harness 2389
Removing expanding nut for licence plate holder 2390
Pulling off joining latch 2391
Assembling front spoiler 2392
Affixing joining latch 2392
Installing expanding nut for licence plate holder 2393
Installing fastening clip for wiring harness 2394
Installing side covering frame 2395
Installing cover cap 2396
Reworking 2397
Subsequent work 2397

63 17 19 Removing and installing front disc brake pad - as of MY 2005 2400
Preliminary work 2400
Preliminary work 2400
Removing front retaining strip 2400
Removing front retaining strip 2400
Installing front retaining strip 2401
Installing front retaining strip 2401
Adjusting front retaining strip 2402
Subsequent work 2403
Subsequent work 2403

Table of Contents

63 33 19 Removing and installing front bracket (impact pipe) - as of MY 2005 2406
Preliminary work 2406
Preliminary work 2406
Removing front bracket (impact pipe) 2406
Removing front impact pipe 2406
Installing front bracket (impact pipe) 2407
Install front impact pipe 2407
Subsequent work 2408
Subsequent work 2408

63 50 19 Removing and installing rear bumper - as of MY 2005 2411
Preliminary work 2411
Preliminary work 2411
General warning notes 2411
Safety instructions for the heat shield 2411
Removing rear bumper 2412
Removing rear bumper 2412
Removing centre retaining strip 2413
Removing centre heat shield 2413
Removing heat shield at the sides 2414
Checking anti-chafing film 2415
Installing rear bumper 2416
Installing heat shield at the sides 2416
Installing centre heat shield 2417
Installing centre retaining strip 2418
Installing rear bumper 2419
Additional assembly instructions for installation of the bumper 2421
Adjustment dimensions of the bumper 2421
Correct assembly of the heat shields 2422
Subsequent work 2423
Subsequent work 2423

63 55 19 Removing and installing rear spoiler - as of MY 2005 2425
General warning notes 2425
General warning notes 2425
Removing rear spoiler 2425
Removing rear spoiler 2425
Installing rear spoiler 2427
Safety instructions for the heat shield 2427
Removing and installing strut for rear apron 2427
Installing rear spoiler 2428
Dimensions of tailpipes 2430
Gap dimensions of tailpipe 2430
Subsequent work 2430
Subsequent work 2431

Table of Contents

63 55 19 Removing and installing rear spoiler - as of MY 2005 2433
General warning notes 2433
General warning notes 2433
Removing rear spoiler 2433
Removing rear spoiler 2433
Installing rear spoiler 2435
Safety instructions for the heat shield 2435
Removing and installing strut for rear apron 2435
Installing rear spoiler 2436
Dimensions of tailpipes 2438
Gap dimensions of tailpipe 2438
Subsequent work 2438
Subsequent work 2439

63 55 37 Disassembling and assembling rear spoiler - as of MY 2005 2441
Preliminary work 2441
Preliminary work 2441
Disassembling rear spoiler 2441
Removing the lower retaining strip 2442
Removing cover cap 2442
Assembling rear spoiler 2443
Installing cover cap 2443
Installing the lower retaining strip 2444
Subsequent work 2445
Subsequent work 2445

63 65 19 Removing and installing rear bumper overrider - as of MY 2005 2448
Preliminary work 2448
Preliminary work 2448
Removing rear bumper overrider 2448
Removing rear bumper horn 2448
Installing rear bumper overrider 2450
Installing the rear bumper horn 2450
Subsequent work 2451
Subsequent work 2451

63 73 19 Removing and installing rear bracket (impact pipe, impact absorber) - as of MY 2005 2454
Preliminary work 2454
Preliminary work 2454
Removing rear bracket (impact pipe, impact absorber) 2454
Removing rear impact pipe 2454
Removing impact absorber 2455
Installing rear bracket (impact pipe, impact absorber) 2456
Install rear impact pipe 2456
Installing impact absorber 2457
Subsequent work 2458
Subsequent work 2458

Table of Contents

63 73 19 Removing and installing rear bracket (impact pipe, impact absorber) - as of MY 2005.....2461
Preliminary work.....2461
Preliminary work.....2461
Removing rear bracket (impact pipe, impact absorber).....2461
Removing rear impact pipe.....2461
Installing rear bracket (impact pipe, impact absorber).....2462
Install rear impact pipe.....2462
Subsequent work.....2463
Subsequent work.....2463

64 12 19 Removing and installing windscreen - as of MY 2005.....2466
Tools.....2466
Preliminary work.....2467
Preliminary work.....2467
General warning notes.....2468
General warning notes.....2468
Tools and materials.....2468
Tools and materials.....2468
Removing windscreen.....2470
Removing spacer blocks.....2470
Removing windscreen.....2470
Preparing window frame for installation.....2471
Removing adhesive from the body.....2471
Cleaning and priming areas that are free of adhesive residue or have paint damage or where there is newly built-up paint in the window aperture of the body.....2471
Preparing windscreen for installation.....2472
Removing windscreen seal.....2472
Removing adhesive from the windscreen.....2473
Fitting windscreen seal.....2473
Marking the bonding area.....2474
Activating the bonding section of the windscreen.....2474
Priming the windscreen.....2475
Installing windscreen.....2475
Preliminary work before windscreen installation.....2475
Fitting windscreen into the body.....2476
Preparing 2-component adhesive for processing.....2476
Applying adhesive to the windscreen.....2477
Pulling off protective film.....2477
Inserting windscreen into the body.....2478
Cleaning fields of vision.....2479
Subsequent work.....2479
Reworking.....2479

64 16 23 Installing seal for windscreen - as of MY 2005.....2482
Installing seal for windscreen.....2482
Fitting seal for windscreen.....2482

Table of Contents

64 37 19 Removing and installing microswitch for window opening controls - as of MY 2005 2485
Preliminary work 2485
Preliminary work 2485
Removing microswitch for window opening controls 2485
Unclipping electric wire for micro switches 2485
Removing microswitch for window opening controls 2486
Installing microswitch for window opening controls 2487
Installing microswitch for window opening controls 2487
Clipping in the electric wire for micro switches 2488
Subsequent work 2489
Subsequent work 2489

64 40 19 Removing and installing front door window - as of MY 2005 2492
Preliminary work 2492
Preliminary work 2492
Removing front door window 2492
Removing front door window 2492
Installing front door window 2494
Installing front door window 2494
Securing front door window 2495
Inserting door trim panel 2497
Standardising the power windows 2498
Blockage detection function 2498
Precondition for operation of the power windows 2498
Adjusting the door window angle in the vehicle's longitudinal direction 2498
Adjusting the door window height 2499
Adjustment of the door window pressing force on the door seal at the top and sides 2501
Subsequent work 2503
Subsequent work 2503

64 40 49 Reworking (coating) front door window - as of MY 2005 2505
General warning notes 2505
Warning note on hydrophobic window 2505
Checking front door window 2505
Preliminary work 2506
Mixing the components 2506
Cleaning the surface 2507
Reworking (coating) front door window 2507

64 48 19 Removing and installing the front window shaft seal - as of MY 2005 2510
Removing the front window shaft seal 2510
Removing the front window shaft seal 2510
Installing the front window shaft seal 2511
Installing the front window shaft seal 2511

64 52 19 Removing and installing front power windows - as of MY 2005 2515
Preliminary work 2515
Preliminary work 2515

Table of Contents

64 52 19 Removing and installing front power windows - as of MY 2005
Removing front power windows....2515
Removing front power windows....2515
Installing front power windows....2517
Adjusting the lower stop of the power window unit....2517
Installing front power windows....2518
Subsequent work....2521
Subsequent work....2521

64 54 19 Removing and installing power window motor - as of MY 2005....2523
Tools....2523
Preliminary work....2523
Preliminary work for power window motor....2523
Removing power window motor....2523
Removing power window motor....2523
Installing power window motor....2525
Installing power window motor....2525
Subsequent work....2526
Subsequent work for window power motor....2526
Programming power window motor (door control unit)....2526
Reading from and writing to the power windows motor (door control unit)....2526
Coding power window motor (door control unit)....2527
Coding the power windows motor (door control unit)....2527

64 58 19 Removing and installing switch for power windows - as of MY 2005....2532
Preliminary work....2532
Preliminary work....2532
Removing switch for power windows....2532
Removing switch for power windows....2532
Installing switch for power windows....2533
Installing switch for power windows....2533
Subsequent work....2534
Subsequent work....2534

64 61 19 Removing and installing rear power window motor - as of MY 2005....2537
Preliminary work....2537
Preliminary work....2537
Removing rear power window motor....2537
Removing rear power window motor....2537
Installing rear power window motor....2538
Installing rear power window motor....2539
Subsequent work....2539
Subsequent work....2539

64 71 19 Removing and installing rear window lifter - as of MY 2005....2542
Tools....2542
Preliminary work....2542
Preliminary work....2543

Table of Contents

64 71 19 Removing and installing rear window lifter - as of MY 2005
Removing rear window lifter....2543
Loosening hydraulic cylinder....2543
Removing rear window lifter....2545
Installing rear window lifter....2548
Installing rear window lifter....2548
Installing hydraulic cylinder....2549
Adjusting rear window lifter....2551
Adjusting rear window lifter....2551
Additional instructions for adjusting or replacing the rear window lifter....2552
Additional instructions for adjusting or replacing the rear window lifter....2552
Subsequent work....2553
Subsequent work....2553

64 75 19 Removing and installing rear side window - as of MY 2005....2556
Preliminary work....2556
Preliminary work....2556
Removing rear side window....2556
Removing side window....2556
Installing rear side window....2557
Installing side window....2557
Subsequent work....2560
Subsequent work....2560

64 75 19 Removing and installing rear side window - as of MY 2005....2563
Tools....2563
Preliminary work....2563
Preliminary work....2563
Removing rear side window....2563
Removing rear side window....2564
Installing rear side window....2565
Adjusting rear side window....2566
Subsequent work....2568
Subsequent work....2568

64 76 19 Removing and installing side window seal - as of MY 2005....2571
Preliminary work....2571
Preliminary work....2571
Removing side window seal....2571
Removing side window seal....2571
Loosening sound absorber....2572
Removing seal for roof frame....2573
Installing side window seal....2573
Installing seal for roof frame....2574
Fastening sound absorber....2574
Installing side window seal....2575
Subsequent work....2576
Subsequent work....2576

Table of Contents

64 86 19 Removing and installing rear window - as of MY 2005 2578
Tools 2578
Preliminary work 2579
Preliminary work 2579
General warning notes 2580
General warning notes 2580
Tools and materials 2580
Tools and materials 2580
Removing rear window 2581
Removing rear window 2581
Preparing window frame for installation 2582
Removing adhesive from the body 2582
Cleaning and priming paint damage or newly built-up paint areas in the window aperture of the body 2583
Preparing rear window for installation 2583
Removing seal for rear window 2583
Removing adhesive from the rear window 2584
Fitting seal for rear window 2585
Applying activator to the bonding section of the rear window 2585
Installing rear window 2586
Aligning rear window 2586
Preparing 2-component adhesive for processing 2586
Applying adhesive on the rear window 2587
Pulling off protective film 2587
Inserting rear window into the body 2588
Cleaning fields of vision 2589
Subsequent work 2589
Subsequent work 2589

64 86 19 Removing and installing rear window - as of MY 2005 2592
Tools 2592
Preliminary work 2593
Preliminary work 2593
General warning notes 2593
General warning notes 2594
Tools and materials 2594
Tools and materials 2594
Removing rear window 2595
Preparing the rear window (hardtop) for removal 2595
Removing rear window 2598
Preparing window frame for installation 2598
Removing adhesive on the hardtop body 2598
Cleaning and priming paint damage or newly built-up paint areas in the window aperture of the hardtop body 2599
Preparing rear window for installation 2599
Removing adhesive from the rear window 2600
Applying activator to the bonding section of the rear window 2600
Fitting cover section 2601

Table of Contents

64 86 19 Removing and installing rear window - as of MY 2005
Installing rear window....2602
Preparing 2-component adhesive for processing....2602
Applying adhesive on the rear window....2602
Inserting rear window into the hardtop body....2603
Cleaning fields of vision....2604
Completing the rear window (hardtop) after installation....2604
Subsequent work....2606
Subsequent work....2606

64 90 23 Installing seal for rear window - as of MY 2005....2608
Installing seal for rear window....2608
Fitting seal for rear window....2608

66 07 19 Removing and installing front logo - as of MY 2005....2611
Removing front logo....2611
Removing front logo....2611
Installing front logo....2612
Installing front logo....2612

66 31 19 Removing and installing sill cover - as of MY 2006....2615
Preliminary work....2615
Preliminary work....2615
Removing sill cover....2615
Removing sill cover....2615
Disassembling and assembling sill cover....2617
Installing sill cover....2618
Installing sill cover....2618
Gap dimensions of sill cover....2620
Gap dimensions of sill cover....2621
Subsequent work....2622
Reworking....2622

66 34 19 Removing and installing side-section trim - as of MY 2005....2625
Preliminary work....2625
Preliminary work....2625
Removing side-section trim....2625
Removing side-section trim....2625
Installing side-section trim....2626
Installing side-section trim....2626
Subsequent work....2627
Reworking....2627

66 36 19 Removing and installing roof joint strip - as of MY 2005....2630
Tools....2630
Removing roof joint strip....2630
Removing roof joint cover strip....2630
Disassembling roof joint cover strip....2631

Table of Contents

66 36 19 Removing and installing roof joint strip - as of MY 2005
Disassembling roof joint cover strip....2631
Assembling roof joint cover strip....2633
Assembling roof joint cover strip....2633
Installing roof joint strip....2634
Installing roof joint cover strip....2635

66 50 55 Replacing rear logo - as of MY 2005....2638
Tools....2638
Replacing rear logo....2638
Removing the rear logo....2638
Replacing model logo....2639
Replacing the Carrera 4S model logo....2640

66 50 55 Replacing rear logo - as of MY 2005....2643
Tools....2643
Replacing rear logo....2643
Removing the rear logo....2643
Replacing model logo....2644
Replacing the Carrera model logo....2645

66 50 55 Replacing rear logo - as of MY 2005....2648
Tools....2648
Replacing rear logo....2648
Removing the rear logo....2648
Replacing model logo....2649
Replacing the Carrera 4 model logo....2650

66 50 55 Replacing rear logo - as of MY 2005....2653
Tools....2653
Replacing rear logo....2653
Removing the rear logo....2653
Replacing model logo....2654
Replacing the Carrera S model logo....2655

66 54 19 Removing and installing switch for rearview mirror - as of MY 2005....2658
Removing switch for rearview mirror....2658
Removing switch for rear-view mirror....2658
Installing switch for rearview mirror....2659
Installing switch for rear-view mirror....2659

66 71 19 Removing and installing engine for rear spoiler - as of MY 2005....2662
Preliminary work....2662
Preliminary work....2662
Removing engine for rear spoiler....2662
Removing engine for rear spoiler....2662
Installing engine for rear spoiler....2663
Installing engine for rear spoiler....2663

Table of Contents

66 71 19 Removing and installing engine for rear spoiler - as of MY 2005
Subsequent work....2664
Subsequent work....2664

66 72 19 Removing and installing spoiler drive - as of MY 2005....2667
Removing spoiler drive....2667
Removing upper part of spoiler....2667
Removing the lower part of the spoiler....2668
Removing spoiler drive....2668
Installing spoiler drive....2670
Installing spoiler drive....2670
Mounting the lower part of the spoiler....2671
Mounting upper part of spoiler....2672

66 77 55 Replacing stone guard film - as of MY 2005....2675
Replacing stone guard film....2675
General affixing regulations for the stone guard film....2675
Affixing the stone guard film....2675

66 82 19 Removing and reinstalling mirror adjuster motor - as of MY 2005....2679
Preliminary work....2679
Preliminary work....2679
Removing mirror adjuster motor....2679
Removing mirror adjusting motor....2679
Installing mirror adjuster motor....2680
Installing mirror adjuster motor....2680
Subsequent work....2681
Subsequent work....2681

66 89 19 Removing and installing rear-view mirror - as of MY 2005....2684
Removing rear-view mirror....2684
Removing trim panel for mirror triangle....2684
Removing seal for mirror triangle....2685
Disconnecting electrical plug connection....2685
Removing rear-view mirror....2686
Installing rear-view mirror....2687
Installing rear-view mirror....2687
Locking electrical plug connection....2687
Fitting seal for mirror triangle....2688
Installing trim panel for mirror triangle....2689

66 92 19 Removing and installing the roof transport system - as of MY 2005....2692
General warning notes....2692
Warning notes....2692
Removing the roof transport system....2693
Removing the Roof Transport System....2693
Removing base plate of roof transport system....2695
Removing base plate of Roof Transport System....2695

Table of Contents

66 92 19 Removing and installing the roof transport system - as of MY 2005
Installing base plate of roof transport system....2697
Installing base plate of Roof Transport System....2697
Installing the roof transport system....2698
Installing the Roof Transport System....2698

68 05 19 Removing and installing inner door sill trim - as of MY 2005....2703
Removing inner door sill trim....2703
Removing inner door sill trim (driver's side)....2703
Removing inner door sill trim (passenger's side)....2704
Installing inner door sill trim....2706
Installing inner door sill trim (driver's side)....2706
Installing inner door sill trim (passenger's side)....2707

68 07 19 Removing and installing cover strip - as of MY 2005....2711
Preliminary work....2711
Preliminary work....2711
Removing cover strip....2711
Removing cover strip....2711
Installing cover strip....2712
Installing cover strip....2712
Subsequent work....2714
Subsequent work....2714

68 11 19 Removing and installing glove compartment lock - as of MY 2005....2716
Removing glove compartment lock....2716
Removing support for glove compartment lid....2716
Removing glove compartment lock....2717
Installing glove compartment lock....2718
Installing glove compartment lock....2718
Installing support for glove compartment lid....2719

68 12 19 Removing and installing lid for glove compartment - as of MY 2005....2722
Preliminary work....2722
Preliminary work....2722
Removing lid for glove compartment....2722
Removing lid for glove compartment....2722
Installing lid for glove compartment....2723
Installing lid for glove compartment....2724
Subsequent work....2725
Subsequent work....2725

68 14 19 Removing and installing centre console cover - as of MY 2005....2728
Preliminary work....2728
Preliminary work....2728
Removing centre console cover....2728
Removing footwell outlet vent cover....2728
Removing centre console cover....2729

Table of Contents

68 14 19 Removing and installing centre console cover - as of MY 2005
Installing centre console cover....2730
Installing centre console cover....2730
Installing footwell outlet vent cover....2731
Subsequent work....2732
Subsequent work....2733

68 15 19 Removing and installing glove compartment - as of MY 2005....2735
Preliminary work....2735
Preliminary work....2735
Removing glove compartment....2735
Removing glove compartment....2735
Installing glove compartment....2737
Installing glove compartment....2737
Subsequent work....2739
Subsequent work....2739

68 16 19 Removing and installing oddments tray. - as of MY 2005....2742
Preliminary work....2742
Preliminary work....2742
Removing oddments tray....2742
Removing shelf....2742
Installing oddments tray....2743
Installing shelf....2743
Subsequent work....2744
Subsequent work....2744

68 17 19 Removing and installing centre console - as of MY 2005....2747
Preliminary work....2747
Preliminary work....2747
Removing centre console....2747
Removing cover for parking-brake lever....2747
Disconnecting wire harness plug connection for centre console....2748
Removing centre console....2749
Installing centre console....2751
Installing centre console....2751
Locking wire harness plug connection for centre console....2752
Installing cover for parking-brake lever....2753
Subsequent work....2754
Subsequent work....2754

68 17 37 Disassembling and assembling the centre console - as of MY 2005....2757
Preliminary work....2757
Preliminary work....2757
Disassembling the centre console....2757
Disassembling centre console....2757
Assembling the centre console....2759
Assembling centre console....2759

Table of Contents

68 17 37 Disassembling and assembling the centre console - as of MY 2005
Subsequent work....2761
Subsequent work....2761

68 19 19 Removing and installing cover for centre console - as of MY 2005....2764
Preliminary work....2764
Preliminary work....2764
Removing cover for centre console....2764
Removing cover for support frame....2764
Removing frame....2765
Removing Tiptronic cover....2766
Installing cover for centre console....2768
Installing Tiptronic cover....2768
Installing frame....2769
Installing cover for support frame....2770
Subsequent work....2770
Subsequent work....2771

68 20 19 Removing and installing front ashtray - as of MY 2005....2773
Removing front ashtray....2773
Removing front ashtray....2773
Installing front ashtray....2773
Installing front ashtray....2773

68 23 19 Removing and installing sun visor - as of MY 2005....2776
Removing sun visors....2776
Removing sun visor....2776
Installing sun visors....2777
Fitting sun visor....2777

68 23 37 Disassembling and assembling sun visor - as of MY 2005....2780
Preliminary work....2780
Preliminary work....2780
Disassembling sun visor....2780
Removing mirror insert....2780
Removing bulb and contact clips....2781
Removing mirror housing....2781
Assembling sun visor....2782
Installing mirror housing....2782
Inserting contact clips and bulb....2783
Installing mirror insert....2783
Subsequent work....2784
Reworking....2784

68 30 19 Removing and installing cup holder - as of MY 2005....2786
Removing cup holder....2786
Removing cup holder....2786
Installing cup holder....2786

Table of Contents

68 30 19 Removing and installing cup holder - as of MY 2005
Installing cup holder....2786

68 31 19 Removing and installing cassette/CD box - as of MY 2005....2789
Preliminary work....2789
Preliminary work....2789
Removing CD box....2789
Removing CD holder....2789
Installing CD box....2790
Installing CD holder....2790
Subsequent work....2791
Subsequent work....2791

69 01 01 Airbag diagnosis - as of MY 2005....2794
Tools....2794
Airbag diagnosis....2794

69 12 19 Removing and installing rear three-point belt - as of MY 2005....2798
Preliminary work....2798
Preliminary work....2798
Removing rear three-point belt....2798
Undoing seat belt and fitting....2798
Removing rear three-point belt....2799
Installing rear three-point belt....2800
Installing rear three-point belt....2800
Fastening seat belt with fitting....2802
Subsequent work....2802
Subsequent work....2802

69 12 19 Removing and installing rear three-point belt - as of MY 2005....2805
Preliminary work....2805
Preliminary work....2805
Removing rear three-point belt....2805
Undoing seat belt and fitting....2805
Removing rear three-point belt....2806
Installing rear three-point belt....2806
Installing rear three-point belt....2806
Fastening seat belt with fitting....2807
Subsequent work....2808
Subsequent work....2808

69 13 01 Checking seat belts - as of MY 2005....2811
General warning notes....2811
Warning note for seat belts....2811
Checking seat belts....2811
Checking procedure for seat belt....2811
Checking belt strap....2812
Checking automatic belt device (locking effect)....2813

Table of Contents

69 13 01 Checking seat belts - as of MY 2005
Checking look and operation of seat-belt buckle....2814
Checking sash guides....2814
Checking mounting elements and mounting points....2815

69 13 19 Removing and installing front three-point belt with seat-belt tensioner - as of MY 2005....2817
Tools....2817
Preliminary work....2817
Preliminary work....2817
General warning notes....2817
Safety instructions for seat-belt tensioner unit....2817
Removing three-point belt with seat-belt tensioner....2818
Removing three-point belt with seat-belt tensioner....2818
Installing three-point belt with seat-belt tensioner....2820
Installing three-point belt with seat-belt tensioner....2820
Subsequent work....2822
Subsequent work....2822

69 13 19 Removing and installing front three-point belt with seat-belt tensioner - as of MY 2005....2825
Tools....2825
Preliminary work....2825
Preliminary work....2825
General warning notes....2825
Safety instructions for seat-belt tensioner unit....2825
Removing three-point belt with seat-belt tensioner....2826
Removing front three-point belt with seat-belt tensioner....2826
Installing three-point belt with seat-belt tensioner....2828
Installing three-point belt with seat-belt tensioner....2828
Subsequent work....2829
Subsequent work....2829

69 24 19 Removing and installing front belt lock - as of MY 2005....2832
Preliminary work....2832
Preliminary work....2832
Removing front belt lock....2832
Removing control unit for memory seat adjustment with support....2832
Removing front belt lock....2833
Installing front belt lock....2836
Installing front belt lock....2836
Installing control unit for memory seat adjustment with support....2838
Subsequent work....2839
Subsequent work....2839

69 25 19 Removing and installing rear belt lock - as of MY 2005....2841
Preliminary work....2841
Preliminary work....2841
Removing rear belt lock....2841
Removing rear belt lock....2841

Table of Contents

69 25 19 Removing and installing rear belt lock - as of MY 2005
Installing rear belt lock....2842
Installing rear belt lock....2842
Subsequent work....2843
Subsequent work....2843

69 36 19 Removing and installing adjustment fitting (seat belt height adjuster) - as of MY 2005....2846
Preliminary work....2846
Preliminary work....2846
Removing adjustment fitting (seat belt height adjuster)....2846
Removing adjustment fitting (seat belt height adjuster)....2846
Installing adjustment fitting (seat belt height adjuster)....2847
Installing adjustment fitting (seat belt height adjuster)....2847
Subsequent work....2848
Subsequent work....2848

69 51 19 Removing and installing airbag sensor - as of MY 2005....2851
Tools....2851
Preliminary work....2851
Preliminary work for front airbag sensor....2851
Preliminary work for centre airbag sensor....2852
General warning notes....2852
Safety instructions for airbag sensor....2852
Tools and materials....2852
Tools....2853
Removing airbag sensor....2853
Removing sensor for front airbag....2853
Removing sensor for centre airbag....2854
Installing airbag sensor....2855
Installing sensor for front airbag....2855
Installing sensor for centre airbag....2856
Reworking....2857
Work in wake of front airbag sensor....2858
Work in wake of centre airbag sensor....2858

69 53 19 Removing and installing triggering unit for airbag - as of MY 2005....2861
Tools....2861
Preliminary work....2861
Preliminary work for triggering unit....2861
General warning notes....2862
General warning notes for airbag triggering unit....2862
Removing triggering unit for airbag....2862
Overview, triggering unit for the airbag....2862
Removing triggering unit for airbag....2863
Installing the triggering unit....2864
Installing triggering unit....2864
Subsequent work....2865
Subsequent work for triggering unit....2865

Table of Contents

69 53 19 Removing and installing triggering unit for airbag - as of MY 2005
Programming triggering unit....2865
Triggering unit - reading out and writing in data....2865
Coding triggering unit....2866
Coding triggering unit....2866

69 54 19 Removing and installing the contact unit - as of MY 2005....2872
Tools....2872
Preliminary work....2872
Preliminary work for contact unit....2872
General warning notes....2872
General warnings for contact unit....2873
Removing contact unit for airbag....2873
Removing contact unit for airbag....2873
Installing airbag contact unit....2874
Installing contact unit for airbag....2874
Reworking....2874
Work in wake of airbag contact unit....2874
Calibrating steering-angle sensor....2875
Calibrating steering-angle sensor....2875

69 58 19 Removing and installing driver's airbag unit - as of MY 2005....2878
Preliminary work for driver's airbag unit....2878
General warning notes....2878
General warnings for driver's airbag unit....2878
Removing driver's airbag unit....2879
Removing driver's airbag unit....2879
Installing driver's airbag unit....2882
Installing driver's airbag unit....2882
Reworking....2883
Work in wake of driver's airbag unit....2883

69 59 19 Removing and installing passenger's airbag unit - as of MY 2005....2886
Preliminary work....2886
Preliminary work - airbag unit, passenger's side....2886
Safety instructions, passenger's airbag unit....2886
Removing passenger's airbag unit....2887
Removing passenger's airbag unit....2887
Installing passenger's airbag unit....2889
Installing passenger's airbag unit....2889
Reworking....2892
Reworking for passenger's airbag unit....2892

69 63 19 Removing and installing side airbag - as of MY 2005....2895
Preliminary work....2895
Preliminary work for side airbag....2895
General warning notes....2895
General warnings for side airbag....2895

Table of Contents

69 63 19 Removing and installing side airbag - as of MY 2005
Removing side airbag ... 2896
Removing side airbag ... 2896
Installing side airbag ... 2897
Installing side airbag ... 2897
Reworking ... 2898
Work in wake of side airbag ... 2898

69 66 19 Removing and installing the head airbag unit - as of MY 2005 ... 2901
Preliminary work ... 2901
Preliminary work ... 2901
General warning notes ... 2901
Safety instructions for head airbag unit ... 2901
Removing head airbag unit ... 2902
Removing head airbag unit ... 2902
Installing head airbag unit ... 2903
Installing head airbag unit ... 2903
Reworking ... 2905
Work in wake ... 2905

69 68 19 Removing and installing AWS control unit - as of MY 2005 ... 2907
Tools ... 2907
Preliminary work ... 2907
Preliminary work for AWS control unit ... 2907
Removing AWS control unit ... 2908
Removing AWS control unit ... 2908
Installing AWS control unit ... 2909
Installing AWS control unit ... 2909
Subsequent work ... 2910
Subsequent work for AWS control unit ... 2910
Programming AWS control unit ... 2911
Reading and writing values for AWS control unit ... 2911

69 72 01 Checking roll-over protection system - as of MY 2005 ... 2914
Tools ... 2914
Preliminary work ... 2914
Preliminary work ... 2914
General warning notes ... 2914
Safety instructions for work on the roll-over protection system ... 2914
Checking roll-over bar ... 2915
Subsequent work ... 2916
Subsequent work ... 2916

69 72 19 Removing and installing roll-over bar - as of MY 2005 ... 2919
Tools ... 2919
Preliminary work ... 2919
Preliminary work ... 2919
General warning notes ... 2919

Table of Contents

69 72 19 Removing and installing roll-over bar - as of MY 2005
Safety instructions for work on the roll-over protection system ... 2920
Removing roll-over bar ... 2920
Mechanical emergency triggering of the roll-over protection system ... 2920
Removing roll-over bar module ... 2921
Installing roll-over bar module ... 2923
Installing roll-over bar module ... 2923
Subsequent work ... 2925
Subsequent work ... 2925

69 72 19 Removing and installing roll-over bar - as of MY 2005 ... 2928
Tools ... 2928
Preliminary work ... 2928
Preliminary work ... 2928
Removing roll-over bar ... 2928
Mechanical emergency triggering of the roll-over protection system ... 2928
Removing roll-over bar module ... 2930
Installing roll-over bar module ... 2931
Installing roll-over bar module ... 2931
Subsequent work ... 2933
Subsequent work ... 2933

69 77 19 Removing and installing frame for roll-over protection system - as of MY 2005 ... 2936
Preliminary work ... 2936
Preliminary work ... 2936
Removing frame for roll-over protection system ... 2937
Removing frame for roll-over protection system ... 2937
Installing frame for roll-over protection system ... 2938
Installing frame for roll-over protection system ... 2938
Diagram of frame for roll-over protection system ... 2940
Subsequent work ... 2941
Subsequent work ... 2941

70 02 19 Removing and installing wing flange cover - as of MY 2005 ... 2944
Removing wing flange cover ... 2944
Removing cover for wing flange ... 2944
Installing wing flange cover ... 2944
Installing cover for wing flange ... 2944
Additional assembly instructions for replacing Velcro fasteners ... 2945

70 08 19 Removing and installing trim panel for convertible top rest - as of MY 2005 ... 2949
Preliminary work ... 2949
Preliminary work ... 2949
Removing trim panel for convertible top rest ... 2949
Removing trim panel for convertible top rest ... 2949
Installing trim panel for convertible top rest ... 2950
Installing trim panel for convertible top rest ... 2950

Table of Contents

70 16 19 Removing and installing instrument panel cover - as of MY 2005 2953
Removing instrument panel cover 2953
Removing instrument panel cover 2953
Installing the instrument panel cover 2954
Installing the instrument panel cover 2954

70 18 19 Removing and installing instrument panel - as of MY 2005 2957
Preliminary work 2957
Preliminary work 2957
Removing instrument panel 2958
Removing the device carrier 2958
Undoing intermediate piece for defroster cover 2959
Removing instrument panel 2959
Installing instrument panel 2961
Checking instrument panel clips 2962
Installing instrument panel 2962
Securing intermediate piece for defroster cover 2964
Installing the device carrier 2965
Subsequent work 2966
Subsequent work 2966

70 19 19 Removing and installing trim under dashboard - as of MY 2005 2969
Preliminary work 2969
Preliminary work 2969
Removing trim under the dashboard on the driver's side 2969
Removing trim under the dashboard on the driver's side 2969
Disconnecting the electrical plug connections 2970
Installing trim under instrument panel on driver's side 2971
Locking electrical plug connections 2971
Installing trim under dashboard on the driver's side 2972
Removing and installing the cover under the instrument panel on the passenger's side 2973
Removing the cover under the instrument panel on the passenger's side 2973
Installing the cover under the instrument panel on the passenger's side 2974
Reworking 2975
Reworking 2975

70 20 19 Removing and installing cover for instrument panel (defroster cover) - as of MY 2005 2978
Preliminary work 2978
Preliminary work 2978
Removing cover for instrument panel (defroster cover) 2978
Removing cover for centre instrument panel (defroster cover) 2978
Removing cover for instrument panel (defroster cover) on right and left 2979
Installing cover for instrument panel (defroster cover) 2980
Installing cover for instrument panel (defroster cover) on right and left 2980
Installing cover for centre instrument panel (defroster cover) 2981
Subsequent work 2982
Reworking 2982

Table of Contents

70 22 19 Removing and installing cover (cold air bulkhead) - as of MY 2005 2985
Removing cover (cold air bulkhead) 2985
Removing cover (cold air bulkhead) 2985
Installing cover (cold air bulkhead) 2986
Installing cover (cold air bulkhead) 2986

70 24 19 Removing and installing front side section trim - as of MY 2005 2989
Removing front side section trim 2989
Removing front side section trim panel (driver's side) 2989
Removing front side section trim panel (passenger's side) 2989
Installing front side section trim 2990
Installing front side section trim panel (passenger's side) 2990
Installing front side section trim panel (driver's side) 2990

70 30 19 Removing and installing front luggage compartment cover - as of MY 2005 2993
Preliminary work 2993
Preliminary work 2993
Removing front luggage compartment cover 2993
Removing luggage compartment cover 2993
Installing front luggage compartment cover 2994
Installing luggage compartment cover 2995
Subsequent work 2996
Subsequent work 2996

70 31 19 Removing and installing rear wall trim panel - as of MY 2005 2998
Removing rear wall trim panel 2998
Removing rear wall trim panel 2998
Installing rear wall trim panel 2999
Installing rear wall trim panel 2999

70 35 19 Removing and installing footrest - as of MY 2005 3002
Removing footrest 3002
Removing footrest 3002
Installing footrest 3003
Installing footrest 3003

70 39 19 Removing and installing cover for front lock mount - as of MY 2005 3006
Removing cover for lock mount 3006
Removing cover for lock support 3006
Installing cover for front lock mount 3007
Installing cover for lock support 3007
Additional assembly instructions for replacing Velcro fasteners 3008

70 53 19 Removing and installing rear cover. - as of MY 2005 3011
Preliminary work 3011
Preliminary work 3011
Removing rear cover 3011
Remove trim for the rear. 3011

Table of Contents

70 53 19 Removing and installing rear cover. - as of MY 2005
Installing rear cover....3013
Installing cover for rear....3013
Subsequent work....3014
Subsequent work....3014

70 57 19 Removing and installing A-pillar trim - as of MY 2005....3017
Preliminary work....3017
Preliminary work....3017
Removing A-pillar trim....3017
Removing A-pillar trim....3017
Installing A-pillar trim....3018
Installing A-pillar trim panel....3018
Subsequent work....3019
Subsequent work....3019

70 57 19 Removing and installing A-pillar trim - as of MY 2005....3022
Preliminary work....3022
Preliminary work....3022
Removing A-pillar trim....3022
Removing convertible-top peg mount....3022
Removing A-pillar trim....3023
Installing A-pillar trim....3025
Installing A-pillar trim....3025
Installing convertible-top peg mount....3026
Subsequent work....3027
Subsequent work....3027

70 59 19 Removing and installing door trim panel - as of MY 2005....3030
Remove door trim panel....3030
Removing trim panel for mirror triangle....3030
Removing lever for door handle....3031
Removing covers for door trim panel....3031
Releasing door trim panel....3032
Disconnecting the electrical plug connections....3033
Removing actuating cable for door lock....3034
Install door trim panel....3035
Checking fastening clips....3035
Installing actuating cable for door lock....3036
Locking electrical plug connections....3037
Installing door trim panel....3038
Installing covers for door trim panel....3039
Installing lever for door handle....3040
Installing trim panel for mirror triangle....3041

70 61 19 Removing and installing cover for door trim panel - as of MY 2005....3045
Tools....3045
Preliminary work....3045

Table of Contents

70 61 19 Removing and installing cover for door trim panel - as of MY 2005
Preliminary work....3045
Removing cover for door trim panel....3045
Installing cover for door trim panel....3046
Subsequent work....3049
Subsequent work....3049

70 63 19 Removing and installing inner door handle - as of MY 2005....3051
Preliminary work....3051
Preliminary work....3051
Removing inner door handle....3051
Removing inner door handle....3051
Installing inner door handle....3052
Installing inner door handle....3052
Subsequent work....3053
Subsequent work....3053

70 65 19 Removing and installing oddments compartment lid - as of MY 2005....3056
Preliminary work....3056
Preliminary work....3056
Removing lid for oddments compartment....3056
Removing lid for oddments compartment....3056
Installing lid for oddments compartment....3058
Installing lid for oddments compartment....3058
Subsequent work....3059
Reworking....3059

70 67 19 Removing and installing B-pillar trim - as of MY 2005....3062
Removing B-pillar trim....3062
Removing B-pillar trim panel....3062
Installing B-pillar trim....3063
Installing B-pillar trim panel....3063

70 68 19 Removing and installing C-pillar trim - as of MY 2005....3067
Preliminary work....3067
Preliminary work....3067
Removing C-pillar trim....3067
Removing C-pillar trim panel....3067
Installing C-pillar trim....3068
Installing C-pillar trim panel....3069
Subsequent work....3070
Subsequent work....3070

70 70 19 Removing and installing trim panel for mirror triangle - as of MY 2005....3072
Removing trim panel for mirror triangle....3072
Removing trim panel for mirror triangle....3072
Installing trim panel for mirror triangle....3073
Installing trim panel for mirror triangle....3073

Table of Contents

70 75 19 Removing and installing rear side-panel lining - as of MY 2005 3076
Preliminary work 3076
Preliminary work 3076
Removing side-panel lining at rear 3076
Removing seat belt and fitting 3076
Removing cover of three-point seat belt 3077
Removing side panel trim at rear 3078
Installing rear side trim panel 3079
Installing cover of three-point seat belt 3080
Installing seat belt and fitting 3081
Subsequent work 3082
Subsequent work 3082

70 75 19 Removing and installing rear side-panel lining - as of MY 2005 3085
Preliminary work 3085
Preliminary work 3085
Removing side-panel lining at rear 3085
Removing side-panel lining at rear 3085
Installing side-panel lining at rear 3087
Installing rear side trim panel 3087
Subsequent work 3090
Subsequent work 3090

70 84 19 Removing and installing roof lining - as of MY 2005 3092
Preliminary work 3092
Preliminary work 3092
Removing roof lining 3092
Removing cover for motor for sliding roof 3092
Disconnecting electric plug connection 3093
Removing mounting saddle and pivot bearing for sun visor 3094
Removing headliner 3095
Installing roof lining 3097
Fitting headliner 3098
Installing mounting saddle and pivot bearing for sun visor 3100
Locking electric plug connection 3101
Installing cover for sunroof motor 3102
Subsequent work 3103
Subsequent work 3103

70 85 19 Removing and installing rear roof lining - as of MY 2005 3106
Removing rear roof lining 3106
Removing rear roof trim panel 3106
Installing rear roof lining 3107
Installing rear roof trim panel 3107

70 86 19 Removing and installing slide/tilt sunroof trim - as of MY 2005 3110
Preliminary work 3110
Preliminary work 3110

Table of Contents

70 86 19 Removing and installing slide/tilt sunroof trim - as of MY 2005
Removing slide/tilt sunroof trim....3110
Removing slide/tilt sunroof trim....3110
Additional instructions for removing the inner panels....3111
Installing slide/tilt sunroof trim....3112
Additional instructions for fitting the inner panels....3113
Installing slide/tilt sunroof trim....3113
Subsequent work....3115
Subsequent work....3115

72 01 19 Removing and installing front seat - as of MY 2005....3118
Removing front seat....3118
Removing seat rail cover....3118
Undoing seat screws at front....3119
Undoing seat screws at rear....3120
Releasing electrical wire....3120
Disconnecting central plug....3121
Disconnecting electrical plug connection (power seat)....3122
Installing front seat....3123
Fastening electric line....3123
Connecting electrical plug connection (power seat)....3125
Locking central plug....3126
Tightening seat screws at rear....3127
Tightening seat screws at the front....3128
Fit seat rail cover....3129

72 01 19 Removing and installing front seat - as of MY 2005....3132
Removing front seat....3132
Removing seat rail cover....3132
Undoing seat screws at front....3133
Undoing seat screws at rear....3134
Releasing electrical wire....3134
Disconnecting central plug....3135
Disconnecting electrical plug connection (power seat)....3136
Disconnecting the electrical plug connection of the AWS control module....3137
Installing front seat....3139
Fastening electric line....3139
Locking the electrical plug connection of the AWS control module....3140
Connecting electrical plug connection (power seat)....3141
Locking central plug....3142
Tightening seat screws at rear....3143
Tightening seat screws at the front....3144
Fit seat rail cover....3145
Subsequent work....3146
Subsequent work....3146

Table of Contents

72 06 19 Removing and installing air cushion switch - as of MY 2005 3149
Preliminary work 3149
Preliminary work 3149
Removing air cushion switch 3149
Removing control unit for memory seat adjustment with support 3149
Removing switch for air cushion 3150
Installing air cushion switch 3151
Installing switch for air cushion 3151
Installing control unit for memory seat adjustment with support 3152
Subsequent work 3153
Subsequent work 3153

72 09 55 Replacing seat frame - as of MY 2005 3155
Preliminary work 3155
Preliminary work 3155
Disassembling seat frame 3156
Removing cover for AWS sensor on left and right 3156
Removing frame for seat surface 3157
Removing backrest frame 3157
Assembling seat frame 3158
Installing backrest frame 3158
Installing frame for seat surface 3158
Installing cover for AWS sensor on left and right 3159
Subsequent work 3160
Subsequent work 3160

72 09 55 Replacing seat frame - as of MY 2005 3164
Preliminary work 3164
Preliminary work 3164
Disassembling seat frame 3165
Removing frame for seat surface 3165
Removing backrest frame 3165
Assembling seat frame 3166
Installing backrest frame 3166
Installing frame for seat surface 3167
Subsequent work 3167
Subsequent work 3167

72 14 19 Removing and installing air cushion for seat - as of MY 2005 3171
Preliminary work 3171
Preliminary work 3171
Removing air cushion for seat 3171
Removing air cushion for seat 3171
Installing air cushion for seat 3173
Installing air cushion for seat 3173
Subsequent work 3175
Subsequent work 3175

Table of Contents

72 16 19 Removing and installing control module trim panel - as of MY 2005 3178
Removing control module trim panel 3178
Preliminary work 3178
Removing control part trim panel 3178
Removing control part trim panel (with mechanical lever) 3180
Installing control module trim panel 3181
Installing control part trim panel 3181
Installing control part trim panel (mechanical) 3182
Subsequent work 3183

72 17 19 Removing and installing air cushion for backrest - as of MY 2005 3186
Tools 3186
Preliminary work 3186
Preliminary work 3186
Removing air cushion for backrest 3187
Removing air cushion for backrest 3187
Removing hose for air cushion control valve 3188
Installing air cushion for backrest 3189
Installing hose for air cushion control valve 3189
Installing air cushion for backrest 3190
Checking seat following removal 3191
Subsequent work 3191
Subsequent work 3191

72 19 55 Replacing backrest frame - as of MY 2005 3194
Preliminary work 3194
Preliminary work 3194
Disassembling backrest frame 3194
Removing foam part 3195
Removing supports for backrest side parts 3195
Removing inner spring on backrest frame 3196
Disconnecting wire harnesses on backrest frame 3196
Removing frame for side airbag 3198
Disassembling backrest frame 3198
Removing backrest frame 3199
Assembling backrest frame 3199
Installing backrest frame 3199
Assembling backrest frame 3200
Installing frame for side airbag 3201
Securing wire harnesses on backrest frame 3201
Installing inner spring on backrest frame 3203
Installing supports for backrest side parts 3203
Fitting foam part 3204
Subsequent work 3205
Subsequent work 3205

Table of Contents

72 24 19 Removing and installing cushion carrier for front backrest - as of MY 2005 3208
Preliminary work 3208
Preliminary work 3208
Preliminary work 3208
Removing cushion carrier for front backrest 3208
Removing cushion carrier for front backrest 3208
Removing cushion carrier for front backrest 3210
Installing cushion carrier for front backrest 3213
Installing cushion carrier for front backrest 3213
Installing cushion carrier for front backrest 3214
Subsequent work 3217
Subsequent work 3217
Subsequent work 3217

72 25 19 Removing and installing bowden cable for backrest release - as of MY 2005 3220
Preliminary work 3220
Preliminary work 3220
Removing bowden cable for backrest release 3220
Removing bowden cable for backrest release 3220
Removing backrest frame release 3221
Installing bowden cable for backrest release 3221
Installing backrest frame release 3222
Installing bowden cable for backrest release 3222
Subsequent work 3223
Reworking 3223

72 26 19 Removing and installing cover for backrest - as of MY 2005 3226
Removing cover for backrest 3226
Preliminary work 3226
Removing cover for outer backrest 3226
Removing cover for inner backrest 3228
Installing cover for backrest 3228
Installing cover for inner backrest 3229
Installing cover for outer backrest 3229
Subsequent work 3230

72 28 19 Removing and installing height adjustment lever - as of MY 2005 3233
Removing height adjustment lever 3233
Removing height adjustment lever 3233
Installing height adjustment lever 3234
Installing height adjustment lever 3234

72 31 19 Removing and installing control button for backrest release - as of MY 2005 3238
Removing control button for backrest release 3238
Removing control button for backrest release 3238
Installing control button for backrest release 3238
Installing control button for backrest release 3239

Table of Contents

72 33 19 Removing and installing control valve for lumbar support adjustment - as of MY 2005.....3241
Tools.....3241
Preliminary work.....3241
Preliminary work.....3241
Removing control valve for lumbar support adjustment.....3242
Taking off foam part.....3242
Removing control valve for lumbar support adjustment.....3242
Installing control valve for lumbar support adjustment.....3243
Installing control valve for lumbar support adjustment.....3243
Checking seat following removal.....3244
Fitting foam part.....3244
Subsequent work.....3245
Reworking.....3245

72 34 19 Removing and installing lumbar support - as of MY 2005.....3247
Tools.....3247
Preliminary work.....3247
Preliminary work.....3247
Removing lumbar support.....3248
Taking off foam part.....3248
Removing lumbar support.....3248
Installing lumbar support.....3250
Installing lumbar support.....3250
Checking seat following removal.....3252
Fitting foam part.....3253
Subsequent work.....3253
Reworking.....3253

72 36 19 Removing and installing motor for lumbar support - as of MY 2005.....3256
Tools.....3256
Preliminary work.....3256
Preliminary work.....3256
Removing motor for lumbar support.....3257
Removing support for left backrest side part.....3257
Taking off foam part.....3258
Removing motor for lumbar support.....3258
Installing motor for lumbar support.....3260
Installing motor for lumbar support.....3260
Checking seat following removal.....3261
Fitting foam part.....3261
Installing support for left backrest side part.....3262
Subsequent work.....3263
Subsequent work.....3263

72 38 19 Removing and installing air cushion control valve - as of MY 2005.....3265
Preliminary work.....3265
Preliminary work.....3265
Removing air cushion control valve.....3265

Table of Contents

72 38 19 Removing and installing air cushion control valve - as of MY 2005
Removing air cushion control valve....3265
Installing air cushion control valve....3267
Installing air cushion control valve....3267
Subsequent work....3268
Subsequent work....3268

72 39 19 Removing and installing air cushion motor - as of MY 2005....3271
Preliminary work....3271
Preliminary work....3271
Removing air cushion motor....3271
Removing air cushion motor....3271
Installing air cushion motor....3273
Installing air cushion motor....3273
Subsequent work....3274
Subsequent work....3274

72 47 19 Removing and installing rear backrest - as of MY 2005....3277
Preliminary work....3277
Preliminary work....3277
Removing rear backrest....3277
Removing rear backrest....3277
Installing rear backrest....3278
Installing rear backrest....3278
Subsequent work....3279
Subsequent work....3279

72 63 19 Removing and installing locking mechanism for rear backrest - as of MY 2005....3282
Preliminary work....3282
Preliminary work....3282
Removing locking mechanism for rear backrest....3282
Removing locking mechanism for rear backrest....3282
Installing locking mechanism for rear backrest....3284
Installing locking mechanism for rear backrest....3284
Subsequent work....3286
Subsequent work....3286

72 86 19 Removing and installing switch for seat adjustment - as of MY 2005....3288
Preliminary work....3288
Preliminary work....3288
Removing switch for seat adjustment....3288
Removing switch for seat adjustment....3288
Installing switch for seat adjustment....3290
Installing switch for seat adjustment....3290
Subsequent work....3291
Subsequent work....3291

Table of Contents

72 87 19 Removing and installing motor for seat adjustment - as of MY 2005 3293
Preliminary work 3293
Preliminary work 3293
Removing motor for seat adjustment 3293
Removing motor for seat adjustment 3293
Installing motor for seat adjustment 3296
Installing motor for seat adjustment 3296
Subsequent work 3298
Subsequent work 3298

72 88 19 Removing and installing motor for front vertical adjustment - as of MY 2005 3300
Preliminary work 3300
Preliminary work 3300
Removing motor for front vertical adjustment 3300
Removing control unit for memory seat adjustment with support 3300
Removing motor for front vertical adjustment 3301
Installing motor for front vertical adjustment 3303
Installing motor for front vertical adjustment 3303
Installing control unit for memory seat adjustment with support 3303
Subsequent work 3304
Subsequent work 3304

72 89 19 Removing and installing motor for backrest adjustment - as of MY 2005 3307
Tools 3307
Preliminary work 3307
Preliminary work 3307
Removing motor for backrest adjustment 3308
Removing backrest side support 3308
Removing motor for backrest adjustment 3309
Installing motor for backrest adjustment 3310
Installing motor for backrest adjustment 3310
Checking seat following removal 3311
Installing backrest side support 3311
Subsequent work 3312
Subsequent work 3312

72 92 19 Removing and installing motor for rear vertical adjustment - as of MY 2005 3315
Preliminary work 3315
Preliminary work 3315
Removing motor for rear vertical adjustment 3315
Removing motor for rear vertical adjustment 3315
Installing motor for rear vertical adjustment 3317
Installing motor for rear vertical adjustment 3317
Subsequent work 3317
Subsequent work 3317

Table of Contents

72 93 19 Removing and installing control unit for memory seat adjustment - as of MY 2005 3320
Tools 3320
Preliminary work 3320
Preliminary work for control unit for memory seat adjustment 3320
Removing control unit for memory seat adjustment 3320
Removing control unit for memory seat adjustment 3320
Installing control unit for memory seat adjustment 3322
Installing control unit for memory seat adjustment 3322
Subsequent work 3323
Subsequent work for control unit for memory seat adjustment 3323
Programming control unit 3323
Reading out and printing out values 3323
Programming control unit 3324

72 94 19 Removing and installing switch for memory seat adjustment - as of MY 2005 3327
Removing switch for memory seat adjustment 3327
Removing switch for memory seat adjustment 3327
Installing switch for memory seat adjustment 3328
Installing switch for memory seat adjustment 3328

74 10 19 Removing and installing padding for front seat - as of MY 2005 3331
Tools 3331
Preliminary work 3331
Preliminary work 3331
Removing padding for front seat 3332
Disconnecting wire harness for heated seats 3332
Removing padding for seat 3334
Installing padding for front seat 3336
Installing padding for seat 3336
Securing wire harness for heated seats 3338
Checking seat following removal 3341
Subsequent work 3342
Subsequent work 3342

74 13 19 Removing and installing cover for front seat - as of MY 2005 3345
Tools 3345
Preliminary work 3345
Preliminary work 3345
Removing cover for front seat 3346
Removing cover for front seat 3346
Installing cover for front seat 3349
Installing cover for front seat 3349
Subsequent work 3352
Removing creases in the cover 3352
Subsequent work 3353

Table of Contents

74 17 19 Removing and installing padding for front backrest - as of MY 2005 3355
Tools 3355
Preliminary work 3355
Preliminary work 3355
Removing padding for front backrest 3356
Releasing wire harness for backrest seat heating 3356
Removing padding for front backrest 3359
Removing padding for front backrest 3360
Installing padding for front backrest 3362
Installing padding for front backrest 3362
Installing padding for front backrest 3364
Securing wire harness for backrest seat heating 3366
Checking seat following removal 3369
Subsequent work 3369
Subsequent work 3369

74 18 19 Removing and installing padding for front middle backrest - as of MY 2005 3372
Tools 3372
Preliminary work 3372
Preliminary work 3372
Removing padding for front middle backrest 3372
Removing padding for front middle backrest 3372
Installing padding for front middle backrest 3374
Installing padding for front middle backrest 3374
Subsequent work 3375
Subsequent work 3375

74 19 19 Removing and installing cover for front backrest - as of MY 2005 3378
Preliminary work 3378
Preliminary work 3378
Preliminary work 3379
Removing cover for front backrest 3379
Removing cover for front backrest 3379
Removing guide for seat belt 3383
Removing cover for front backrest 3384
Installing cover for front backrest 3387
Installing cover for backrest 3387
Installing cover for backrest 3391
Installing guide for seat belt 3394
Subsequent work 3395
Removing creases in the cover 3395
Subsequent work 3395
Subsequent work 3396

74 19 19 Removing and installing cover for front backrest - as of MY 2005 3398
Preliminary work 3398
Preliminary work 3398
Preliminary work 3399

Table of Contents

74 19 19 Removing and installing cover for front backrest - as of MY 2005
Removing cover for front backrest 3399
Removing cover for front backrest 3399
Removing cover for front backrest 3403
Installing cover for front backrest 3406
Installing cover for backrest 3406
Installing cover for backrest 3410
Subsequent work 3413
Removing creases in the cover 3413
Subsequent work 3413
Subsequent work 3413

74 20 19 Removing and installing cover for front middle backrest - as of MY 2005 3416
Removing cover for front middle backrest 3416
Removing cover for front middle backrest 3416
Installing cover for front middle backrest 3418
Installing cover for front middle backrest 3419

74 23 19 Removing and installing backrest pocket - as of MY 2005 3423
Removing backrest pocket 3423
Removing cover for front middle backrest 3423
Removing backrest pocket 3425
Replacing cover for backrest pocket 3427
Installing backrest pocket 3429
Installing backrest pocket 3429
Installing cover for front middle backrest 3431

74 28 19 Removing and installing heating element for front seat - as of MY 2005 3436
Information 3436
Spare parts information 3436

74 29 19 Removing and installing heating element for backrest - as of MY 2005 3439
Information 3439
Spare parts information 3439

74 57 19 Removing and installing rear seat cushion - as of MY 2005 3442
Removing rear seat cushion 3442
Removing back seat cushion 3442
Removing back seat cushion 3442
Installing rear seat cushion 3443
Installing back seat cushion 3443
Installing back seat cushion 3443

74 57 19 Removing and installing rear seat cushion - as of MY 2005 3446
Removing rear seat cushion 3446
Removing back seat cushion 3446
Installing rear seat cushion 3446
Installing back seat cushion 3446

Table of Contents

74 57 19 Removing and installing rear seat cushion - as of MY 2005 3449
Removing rear seat cushion 3449
Removing back seat cushion 3449
Installing rear seat cushion 3449
Installing back seat cushion 3449

80 23 19 Removing and installing heat exchanger - as of MY 2005 3452
Preliminary work 3452
Preliminary work for heat exchanger 3452
Removing heat exchanger 3452
Removing heat exchanger 3452
Installing heat exchanger 3453
Installing heat exchanger 3453
Subsequent work 3455
Subsequent work for heat exchanger 3455

80 32 19 Removing and installing heat exchanger hose - as of MY 2005 3458
Tools 3458
Preliminary work 3458
Preliminary work for heat exchanger hose 3458
Removing heat exchanger hose 3458
Removing heat exchanger hose 3458
Installing heat exchanger hose 3459
Installing heat exchanger hose 3459
Subsequent work 3460
Subsequent work for heat exchanger hose 3460

80 55 19 Removing and installing front footwell outlet vent - as of MY 2005 3462
Preliminary work 3462
Preliminary work for front footwell outlet vent 3462
Removing front footwell outlet vent 3462
Removing front footwell outlet vent 3462
Installing front footwell outlet vent 3464
Installing front footwell outlet vent 3464
Subsequent work 3465
Subsequent work for front footwell outlet vent 3465

85 15 19 Removing and installing heating/fresh air unit - as of MY 2005 3468
Preliminary work 3468
Preliminary work for heating/fresh air unit 3468
Removing heating/fresh air unit 3468
Removing heating/fresh air unit 3468
Installing heating/fresh air unit 3476
Installing heating/fresh air unit 3476
Subsequent work 3483
Subsequent work for heater/air-conditioning unit 3483

Table of Contents

85 18 19 Removing and installing particle filter - as of MY 2005 3486
Preliminary work 3486
Preliminary work for the particle filter 3486
Removing particle filter 3486
Removing particle filter 3486
Installing particle filter 3487
Installing particle filter 3487
Subsequent work 3488
Work subsequent to installing particle filter 3488

85 22 19 Removing and installing cover - as of MY 2005 3490
Removing cover 3490
Removing cover 3490
Installing cover 3492
Installing cover 3492

85 30 19 Removing and installing heater/fresh-air blower motor - as of MY 2005 3495
Preliminary work 3495
Preliminary work for heating and fresh air blower motor 3495
Removing heater/fresh-air blower motor 3495
Removing heater/fresh-air blower motor 3495
Installing heater/fresh-air blower motor 3496
Installing heater/fresh-air blower motor 3496
Subsequent work 3498
Subsequent work for heater blower motor 3498

85 34 19 Removing and installing air guide - as of MY 2005 3500
Overview of air guide 3500
Preliminary work 3500
Preliminary work for defrost air guide 3500
Preliminary work for left air guide 3500
Preliminary work for right air guide 3501
Removing air guide 3501
Removing defrost air guide 3501
Removing left air guide 3501
Removing right air guide 3502
Installing air guide 3503
Installing defrost air guide 3504
Installing left air guide 3504
Installing right air guide 3505
Subsequent work 3506
Subsequent work for defrost air guide 3506
Subsequent work for left air guide 3506
Subsequent work for right air guide 3506

85 53 19 Removing and installing middle air vent - as of MY 2005 3509
Removing middle air vent 3509
Removing middle air vent 3509

Table of Contents

85 53 19 Removing and installing middle air vent - as of MY 2005
Installing middle air vent....3510
Installing middle air vent....3510

85 59 19 Removing and installing air vent at door - as of MY 2005....3513
Removing air vent at door....3513
Removing air vent at door....3513
Installing air vent at door....3514
Installing air vent at door....3514

85 65 19 Removing and installing ventilation cover - as of MY 2005....3517
Preliminary work....3517
Preliminary work for ventilation cover....3517
Removing ventilation cover....3517
Removing ventilation cover....3517
Installing ventilation cover....3518
Installing ventilation cover....3518
Subsequent work....3519
Subsequent work for ventilation cover....3519

85 78 19 Installing and removing fresh/recirc. air servo motor - as of MY 2005....3522
Preliminary work....3522
Preliminary work for fresh/recirc. air servo motor....3522
Removing fresh/recirc. air servo motor....3522
Removing fresh/recirc. air servo motor....3522
Installing fresh/recirc. air servo motor....3524
Installing fresh/recirc. air servo motor....3524
Subsequent work....3526
Subsequent work for fresh/recirc. air servo motor....3526

87 02 19 Removing and installing air-conditioning system regulator - as of MY 2005....3529
Tools....3529
Preliminary work....3529
Preliminary work for removing and installing air-conditioning system regulator....3529
Removing air-conditioning system regulator....3529
Removing air-conditioning system regulator....3529
Installing air-conditioning system regulator....3531
Installing air-conditioning system regulator....3531
Subsequent work....3531
Subsequent work for the air-conditioning system regulator....3531
Coding air-conditioning regulator....3532
Coding the air-conditioning control....3532

87 03 17 Draining and filling in refrigerant - as of MY 2005....3535
Tools....3535
General warning notes....3535
Warning notes for handling refrigerant....3535
Technical values....3535

Table of Contents

87 03 17 Draining and filling in refrigerant - as of MY 2005
Servicing equipment....3535
Draining and filling in refrigerant....3536
Assembly work involving the refrigerant system....3536
General assembly sequence....3536

87 14 19 Removing and installing sun sensor. - as of MY 2005....3541
Removing sun sensor....3541
Remove sun sensor....3541
Installing sun sensor....3542
Installing sun sensor....3542

87 20 19 Removing and installing footwell/defrost (yellow) servo motor - as of MY 2005....3545
Preliminary work....3545
Preliminary work for footwell/defrost servo motor....3545
Removing footwell/defrost servo motor....3545
Removing footwell/defrost servo motor....3545
Installing footwell/defrost servo motor....3547
Installing footwell/defrost servo motor....3547
Subsequent work....3548
Subsequent work for footwell/defrost servo motor....3548

87 20 19 Removing and installing servo motor for temperature mixing flap (pink) - as of MY 2005....3551
Preliminary work....3551
Preliminary work - servo motor for temperature mixing valve....3551
Removing servo motor for temperature mixing flap....3551
Removing servo motor for temperature mixing flap....3551
Installing servo motor for temperature mixing flap....3554
Installing servo motor for temperature mixing flap....3554
Subsequent work....3555
Subsequent work - servo motor for temperature mixing valve....3555

87 20 19 Removing and installing servo motor for central distributor flap (green) - as of MY 2005....3558
Preliminary work....3558
Preliminary work - servo motor for central distributor flap....3558
Removing servo motor for central distributor flap....3558
Removing servo motor for central distributor flap....3558
Installing servo motor for central distributor flap....3561
Installing servo motor for central distributor flap....3561
Subsequent work....3562
Subsequent work - servo motor for central distributor flap....3562

87 27 19 Removing and installing magnetic coupling - as of MY 2005....3565
Preliminary work....3565
Preliminary work for magnetic clutch....3565
Removing the magnetic coupling....3565

Table of Contents

87 27 19 Removing and installing magnetic coupling - as of MY 2005
Removing the magnetic coupling....3565
Installing the magnetic coupling....3569
Installing magnetic clutch....3569
Checking the magnetic coupling....3573
Check air gap of magnetic clutch....3573
Subsequent work....3574
Subsequent work for magnetic clutch....3574

87 34 19 Removing and installing air-conditioning compressor - as of MY 2005....3577
Preliminary work....3577
Preliminary work for air-conditioning compressor....3577
General warning notes....3577
General warning notes for air-conditioning compressor....3577
Tools and materials....3578
Tools for air-conditioning compressor....3578
Removing air-conditioning compressor....3578
Removing the air-conditioning compressor....3578
Installing air-conditioning compressor....3579
Installing the air-conditioning compressor....3579
Subsequent work....3580
Subsequent work for the air-conditioning compressor....3580
Checking refrigerant oil in "new" air-conditioning compressor....3581
Correct the refrigerant oil level in the "new" air-conditioning compressor....3581

87 42 19 Removing and installing condenser-condenser line - as of MY 2005....3585
Preliminary work....3585
Preliminary work for line condenser-condenser....3585
Removing the condenser-condenser line....3585
Removing the condenser-condenser line....3585
Installing the condenser-condenser line....3587
Installing the condenser-condenser line....3587
Subsequent work....3588
Subsequent work for line condenser-condenser....3588

87 43 19 Removing and installing compressor-condenser line at front - as of MY 2005....3591
Preliminary work....3591
Preliminary work on compressor-condenser line....3591
Removing compressor-condenser line....3591
Removing compressor-condenser line....3591
Installing compressor-condenser line....3593
Installing compressor-condenser line....3593
Subsequent work....3594
Subsequent work on compressor-condenser line....3594

87 43 19 Removing and installing compressor-condenser line in area of engine - as of MY 2005....3597
Preliminary work....3597
Preliminary work on compressor-condenser line....3597

Table of Contents

87 43 19 Removing and installing compressor-condenser line in area of engine - as of MY 2005
Removing compressor-condenser line....3597
Removing compressor-condenser line....3597
Installing compressor-condenser line....3599
Installing compressor-condenser line....3599
Subsequent work....3599
Subsequent work on compressor-condenser line....3600

87 45 19 Removing and installing compressor-evaporator line - as of MY 2005....3602
Preliminary work....3602
Preliminary work on compressor-evaporator line....3602
Removing compressor-evaporator line....3602
Removing compressor-evaporator line....3602
Installing compressor-evaporator line....3604
Installing compressor-evaporator line....3604
Subsequent work....3604
Subsequent work on compressor-evaporator line....3605

87 46 19 Removing and installing condenser-fluid tank line - as of MY 2005....3607
Preliminary work....3607
Preliminary work for line condenser-fluid tank....3607
Removing the condenser-fluid tank line....3607
Removing the condenser-fluid tank line....3607
Installing the condenser-fluid tank line....3609
Installing the condenser-fluid tank line....3609
Subsequent work....3611
Subsequent work for line condenser-fluid tank....3611

87 47 19 Removing and installing evaporator-fluid tank line - as of MY 2005....3613
Preliminary work....3613
Preliminary work line condenser-fluid tank....3613
Removing the condenser-fluid tank line....3613
Removing the condenser-fluid tank line....3613
Installing the condenser-fluid tank line....3615
Installing the condenser-fluid tank line....3615
Subsequent work....3616
Subsequent work line condenser-fluid tank....3616

87 50 19 Removing and installing condenser - as of MY 2005....3618
Preliminary work....3618
Preliminary work for condenser....3618
Removing the condenser....3618
Removing the condenser....3618
Installing the condenser....3620
Installing the condenser....3620
Subsequent work....3622
Rework on condenser....3622

Table of Contents

87 55 19 Removing and installing dryer (fluid tank) - as of MY 2005 3625
Preliminary work 3625
Preliminary work for dryer 3625
General warning notes 3625
General safety regulations for work on the air-conditioning systems. 3625
Tools and materials 3626
Tools for air-conditioning compressor 3626
Removing dryer (fluid tank) 3626
Removing desiccator (fluid tank) 3626
Installing dryer (fluid tank) 3627
Installing desiccator (fluid tank) 3627
Subsequent work 3628
Subsequent work for the dryer 3628

87 58 19 Removing and installing temperature sensor - as of MY 2005 3631
Removing temperature sensor 3631
Removing temperature sensor 3631
Installing temperature sensor 3632
Installing temperature sensor 3632

87 59 19 Removing and installing outside temperature sensor - as of MY 2005 3635
Preliminary work 3635
Preliminary work for outside temperature sensor 3635
Removing outside temperature sensor 3635
Removing outside temperature sensor 3635
Installing outside temperature sensor 3637
Installing outside temperature sensor 3637
Subsequent work 3637
Subsequent work for outside temperature sensor 3637

87 70 19 Removing and installing expansion valve - as of MY 2005 3640
Preliminary work 3640
Preliminary work for expansion valve 3640
Removing expansion valve 3640
Removing expansion valve 3640
Installing expansion valve 3641
Installing expansion valve 3641
Subsequent work 3642
Rework on expansion valve 3642

87 78 19 Removing and installing blower regulator - as of MY 2005 3645
Preliminary work 3645
Preliminary work for blower regulator 3645
Removing blower regulator 3645
Removing blower regulator 3645
Installing blower regulator 3647
Installing blower regulator 3647
Subsequent work 3648

Table of Contents

87 78 19 Removing and installing blower regulator - as of MY 2005
Subsequent work for blower regulator....3648

87 83 19 Removing and installing pressure switch - as of MY 2005....3651
Preliminary work....3651
Preliminary work for pressure switch....3651
Removing pressure switch....3651
Removing pressure switch....3651
Installing pressure switch....3652
Installing pressure switch....3652
Subsequent work....3653
Subsequent work for pressure switch....3653

90 03 19 Removing and installing dashboard insert - as of MY 2005....3655
Preliminary work....3655
Preliminary work for the dashboard insert....3655
Removing dashboard insert....3655
Removing dashboard insert....3655
Installing dashboard insert....3656
Installing dashboard insert....3656
Subsequent work....3656
Subsequent work for the dashboard insert....3657

90 22 19 Removing and installing stopwatch - as of MY 2005....3659
Tools....3659
Removing stopwatch....3659
Removing stopwatch....3659
Installing stopwatch....3661
Installing stopwatch....3661
Programming stopwatch....3662
Reading out and writing stopwatch values....3662
Coding stopwatch....3663

90 25 19 Removing and installing instrument cluster - as of MY 2005....3666
Tools....3666
General warning notes....3666
General warnings for instrument cluster....3666
Preliminary work....3667
Preliminary work for instrument cluster....3667
Removing instrument cluster....3667
Removing instrument cluster....3667
Installing instrument cluster....3668
Installing instrument cluster....3668
Subsequent work....3669
Reworking instrument cluster....3669
Programming instrument cluster....3669
Reading and printing values....3670

Table of Contents

90 35 19 Removing and installing gateway control unit - as of MY 2005 3673
Tools 3673
Preliminary work 3673
Preliminary work for gateway control unit 3673
General warning notes 3673
General warnings for gateway control module 3674
Removing gateway control unit 3674
Removing gateway control unit 3674
Installing gateway control unit 3676
Installing gateway control module 3676
Subsequent work 3676
Subsequent work for gateway control unit 3676
Coding gateway control unit 3677
Coding the gateway control unit 3677
Programming gateway control unit 3678

90 50 19 Removing and installing horn - as of MY 2005 3681
Preliminary work 3681
Preliminary work for horn 3681
Removing horn 3681
Removing horn 3681
Installing horn 3682
Installing horn 3683
Subsequent work 3684
Reworking the horn 3684

90 58 19 Installing and removing socket - as of MY 2005 3686
Preliminary work 3686
Preliminary work for passenger's footwell socket 3686
Preliminary work for centre console socket 3686
Removing socket 3686
Removing passenger's footwell socket 3686
Removing centre console socket 3688
Installing socket 3689
Installing passenger's footwell socket 3689
Installing the centre console socket 3689
Subsequent work 3690
Reworking the passenger's footwell socket 3690
Reworking the centre console socket 3690

90 62 19 Removing and installing cigar lighter - as of MY 2005 3693
Preliminary work 3693
Preliminary work for cigar lighter 3693
Removing cigar lighter 3693
Removing cigar lighter 3693
Installing cigar lighter 3694
Installing cigar lighter 3695
Subsequent work 3695

Table of Contents

90 62 19 Removing and installing cigar lighter - as of MY 2005
Reworking the cigar lighter....3695

91 10 19 Removing and installing PCM display and control unit - as of MY 2005....3698
Tools....3698
Preliminary work....3698
Preliminary work for display and PCM operator control unit....3698
Removing PCM display and control unit....3698
Removing display for the PCM operator control unit....3698
Installing PCM display and control unit....3700
Installing display and PCM operator control unit....3700
Subsequent work....3701
Subsequent work for display and PCM operator control unit....3701
Reading out PCM display and control unit....3701
Reading from and writing to the PCM display and operator control unit....3701
Programming PCM display and control unit....3702
Programming the display and operator control unit....3702

91 12 19 Removing and installing navigation unit - as of MY 2005....3709
Tools....3709
Preliminary work....3709
Preliminary work for navigation unit....3710
Removing navigation unit....3710
Removing navigation unit....3710
Removing the navigation unit with retaining bracket....3711
Installing navigation unit....3712
Installing navigation unit....3712
Installing the navigation unit with retaining bracket....3713
Subsequent work....3714
Reworking the navigation unit....3714
Programming navigation unit....3714
Reading out and writing values for navigation unit....3714
Coding navigation unit....3715
Coding navigation unit....3715

91 12 19 Removing and installing navigation unit - as of MY 2005....3719
Tools....3719
Preliminary work....3719
Preliminary work for navigation unit....3720
Removing navigation unit....3720
Removing navigation unit....3720
Removing the navigation unit (US version)....3722
Installing navigation unit....3724
Installing navigation unit....3724
Installing the navigation unit (US version)....3724
Subsequent work....3725
Reworking the navigation unit....3726
Programming navigation unit....3726

Table of Contents

91 12 19 Removing and installing navigation unit - as of MY 2005
Reading out and writing values for navigation unit ... 3726
Coding navigation unit ... 3727
Coding navigation unit ... 3727

91 13 19 Removing and installing GPS antenna - as of MY 2005 ... 3730
Preliminary work ... 3730
Preliminary work GPS antenna ... 3730
Removing GPS antenna ... 3730
Removing GPS antenna ... 3730
Installing GPS antenna ... 3731
Installing GPS antenna ... 3731
Subsequent work ... 3732
Reworking GPS antenna ... 3732

91 24 19 Removing and installing car radio CD player - as of MY 2005 ... 3735
Tools ... 3735
Preliminary work ... 3735
Preliminary work for car radio ... 3735
Removing the car radio ... 3735
Removing the car radio ... 3735
Installing the car radio ... 3737
Installing the car radio ... 3737
Subsequent work ... 3738
Subsequent work for car radio ... 3738
Reading out car radio ... 3738
Reading out and transferring car radio codes ... 3738
Programming car radio ... 3739
Programming the car radio ... 3739

91 28 55 Replacing the antenna leads - as of MY 2005 ... 3744
Preliminary work ... 3744
Preliminary work for PCM/radio antenna lead up to antenna control unit ... 3744
Preliminary work for antenna lead for left antenna amplifier up to right antenna amplifier ... 3744
Preliminary work for antenna lead for left antenna amplifier up to KESSY/PAS control unit ... 3744
Preliminary work for antenna lead for right antenna amplifier up to rod antenna ... 3745
Preliminary work for navigation unit antenna lead up to GPS antenna ... 3745
Installing the antenna leads ... 3745
Installing antenna leads ... 3745
Subsequent work ... 3747
Subsequent work for PCM/radio antenna lead up to antenna control unit ... 3747
Subsequent work for antenna lead for left antenna amplifier up to right antenna amplifier ... 3747
Subsequent work for antenna lead for left antenna amplifier up to KESSY/PAS control unit ... 3748
Subsequent work for antenna lead for right antenna amplifier up to rod antenna ... 3748
Subsequent work for navigation unit antenna lead up to GPS antenna ... 3748

Table of Contents

91 28 55 Replacing the antenna leads - as of MY 2005 3751
Preliminary work 3751
Preliminary work for PCM/radio antenna lead up to antenna control unit 3751
Preliminary work for antenna lead for left antenna amplifier up to right antenna amplifier 3751
Preliminary work for antenna lead for left antenna amplifier up to KESSY/PAS control unit 3751
Preliminary work for antenna lead for right antenna amplifier up to rod antenna 3752
Preliminary work for navigation unit antenna lead up to GPS antenna 3752
Installing the antenna leads 3752
Installing antenna leads 3752
Subsequent work 3754
Subsequent work for PCM/radio antenna lead up to antenna control unit 3754
Subsequent work for antenna lead for left antenna amplifier up to right antenna amplifier 3754
Subsequent work for antenna lead for left antenna amplifier up to KESSY/PAS control unit 3755
Subsequent work for antenna lead for right antenna amplifier up to rod antenna 3755
Subsequent work for navigation unit antenna lead up to GPS antenna 3755

91 28 55 Replacing the antenna leads - as of MY 2005 3758
Preliminary work 3758
Preliminary work for PCM/radio antenna lead up to antenna control unit 3758
Preliminary work for antenna lead for left antenna amplifier up to right antenna amplifier 3758
Preliminary work for antenna lead for left antenna amplifier up to KESSY/PAS control unit 3758
Preliminary work for antenna lead for right antenna amplifier up to rod antenna 3759
Preliminary work for navigation unit antenna lead up to GPS antenna 3759
Installing the antenna leads 3759
Installing antenna leads 3759
Subsequent work 3761
Subsequent work for PCM/radio antenna lead up to antenna control unit 3761
Subsequent work for antenna lead for left antenna amplifier up to right antenna amplifier 3761
Subsequent work for antenna lead for left antenna amplifier up to KESSY/PAS control unit 3762
Subsequent work for antenna lead for right antenna amplifier up to rod antenna 3762
Subsequent work for navigation unit antenna lead up to GPS antenna 3762

91 28 55 Replacing the antenna leads - as of MY 2005 3765
Preliminary work 3765
Preliminary work for PCM/radio antenna lead up to antenna control unit 3765
Preliminary work for antenna lead for left antenna amplifier up to right antenna amplifier 3765
Preliminary work for antenna lead for left antenna amplifier up to KESSY/PAS control unit 3765
Preliminary work for antenna lead for right antenna amplifier up to rod antenna 3766
Preliminary work for navigation unit antenna lead up to GPS antenna 3766
Installing the antenna leads 3766
Installing antenna leads 3766
Subsequent work 3768
Subsequent work for PCM/radio antenna lead up to antenna control unit 3768
Subsequent work for antenna lead for left antenna amplifier up to right antenna amplifier 3768
Subsequent work for antenna lead for left antenna amplifier up to KESSY/PAS control unit 3769

Table of Contents

91 28 55 Replacing the antenna leads - as of MY 2005
Subsequent work for antenna lead for right antenna amplifier up to rod antenna....3769
Subsequent work for navigation unit antenna lead up to GPS antenna....3769

91 36 19 Removing and installing subwoofer - as of MY 2005....3772
Removing subwoofer....3772
Removing subwoofer....3772
Installing subwoofer....3773
Installing subwoofer....3773

91 36 19 Removing and installing subwoofer - as of MY 2005....3777
Removing subwoofer....3777
Removing subwoofer....3777
Installing subwoofer....3778
Installing subwoofer....3778

91 38 19 Removing and installing rod antenna - as of MY 2005....3782
Preliminary work....3782
Preliminary work....3782
Removing rod antenna....3782
Removing rod antenna....3782
Installing rod antenna....3784
Installing rod antenna....3784
Reworking....3786
Subsequent work....3786

91 38 19 Removing and installing rod antenna - as of MY 2005....3788
Preliminary work....3788
Removing rod antenna....3788
Removing rod antenna....3788
Installing rod antenna....3790
Installing rod antenna....3790
Reworking....3791
Subsequent work....3791

91 40 19 Removing and installing front loudspeakers (dashboard) - as of MY 2005....3794
Preliminary work....3794
Preparation for front loudspeakers (dashboard)....3794
Removing front loudspeakers (dashboard)....3794
Removing front loudspeakers (dashboard)....3794
Removing central speaker from dashboard....3795
Installing front loudspeakers (dashboard)....3795
Installing front loudspeakers (dashboard)....3795
Installing the centre speaker into the instrument panel....3796
Subsequent work....3797
Subsequent work for front speakers (dashboard)....3797

Table of Contents

91 41 19 Removing and installing front loudspeakers (door) - as of MY 2005 3799
Preliminary work 3799
Preliminary work - front door speakers 3799
Removing front loudspeakers (door) 3799
Removing bass speaker 3799
Removing mid-tone speaker 3800
Installing front loudspeakers (door) 3800
Installing bass speaker 3800
Installing mid-tone speaker 3801
Subsequent work 3801
Subsequent work - front door speakers 3801

91 42 19 Removing and installing rear loudspeakers - as of MY 2005 3804
Removing rear loudspeakers 3804
Removing rear speakers 3804
Installing rear loudspeakers 3805
Installing rear speakers 3805

91 44 19 Removing and installing loudspeaker amplifier - as of MY 2005 3809
Tools 3809
Preliminary work 3809
Preliminary work for loudspeaker amplifier 3809
Removing loudspeaker amplifier 3809
Removing loudspeaker amplifier 3809
Removing the loudspeaker amplifier (US version) 3811
Installing loudspeaker amplifier 3813
Installing loudspeaker amplifier 3813
Installing the loudspeaker amplifier (US version) 3815
Subsequent work 3816
Subsequent work for loudspeaker amplifier 3816
Programming loudspeaker amplifier 3816
Reading out and writing to the BOSE loudspeaker amplifier 3816
Coding the BOSE loudspeaker amplifier 3817

91 44 19 Removing and installing loudspeaker amplifier - as of MY 2005 3821
Tools 3821
Removing loudspeaker amplifier 3821
Removing loudspeaker amplifier 3821
Installing loudspeaker amplifier 3823
Installing loudspeaker amplifier 3823
Programming loudspeaker amplifier 3825
Reading out and writing to the BOSE loudspeaker amplifier 3825
Coding the BOSE loudspeaker amplifier 3826

91 47 19 Removing and installing radio antenna - as of MY 2005 3829
Preliminary work 3829
Preliminary work - radio antenna 3829
Removing radio antenna 3829

Table of Contents

91 47 19 Removing and installing radio antenna - as of MY 2005
Removing radio antenna....3829
Installing radio antenna....3831
Installing radio antenna....3831
Subsequent work....3832
Subsequent work - radio antenna....3832

91 57 19 Removing and installing microphone for telephone - as of MY 2005....3835
Preliminary work....3835
Preliminary work - microphone....3835
Removing microphone for telephone....3835
Removing microphone for telephone....3835
Installing microphone for telephone....3836
Installing microphone for telephone....3836
Subsequent work....3837
Subsequent work - microphone for telephone....3837

91 60 19 Removing and installing CD changer - as of MY 2005....3839
Preliminary work....3839
Preliminary work - removing CD changer....3839
Removing CD changer....3839
Removing CD changer....3840
Installing CD changer....3841
Installing CD changer....3841
Subsequent work....3842
Subsequent work - CD changer....3842

91 60 19 Removing and installing CD changer - as of MY 2005....3845
Preliminary work....3845
Preliminary work - removing CD changer....3845
Removing CD changer....3845
Removing CD changer....3845
Removing the US version of the CD changer.....3847
Installing CD changer....3849
Installing CD changer....3849
Installing the US version of the CD changer.....3851
Subsequent work....3852
Subsequent work - CD changer....3852
Subsequent work - CD changer....3852

91 61 19 Removing and installing multi-function remote control - as of MY 2005....3855
Preliminary work....3855
Preliminary work for multi-function remote control....3855
Removing multi-function remote control....3855
Removing multi-function remote control....3855
Installing multi-function remote control....3856
Installing multi-function remote control....3856
Subsequent work....3857

Table of Contents

91 61 19 Removing and installing multi-function remote control - as of MY 2005
Subsequent work for multi-function remote control 3857

91 62 19 Removing and installing control unit for steering wheel electronics - as of MY 2005 3860
Tools 3860
Preliminary work 3860
Preliminary work 3860
Removing control unit for steering wheel electronics 3860
Removing control unit for steering wheel electronics 3861
Installing control unit for steering wheel electronics 3862
Installing control unit for steering wheel electronics 3862
Subsequent work 3864
Subsequent work 3864
Reading data out of and writing data into the control unit for steering wheel electronics 3864
Reading and printing values 3864
Coding control unit for steering wheel electronics 3866
Coding control unit for steering wheel electronics 3866
Calibrating steering-angle sensor 3867
Calibrating steering-angle sensor 3867

91 68 19 Removing and installing outside temperature sensor - as of MY 2005 3870
Removing outside temperature sensor 3870
Removing outside temperature sensor 3870
Installing outside temperature sensor 3871
Installing outside temperature sensor 3871

91 74 19 Removing and installing control module for ParkAssist - as of MY 2005 3874
Tools 3874
Preliminary work 3874
Preliminary work - control module for ParkAssist 3874
Removing control module for ParkAssist 3874
Removing control module for ParkAssist 3874
Installing control module for ParkAssist 3877
Installing control module for ParkAssist 3877
Subsequent work 3878
Subsequent work - control module for ParkAssist 3878
Programming control unit for ParkAssist 3878
Reading out and writing values for ParkAssist control unit 3878
Coding control unit for ParkAssist 3879

91 75 19 Removing and installing sensor for ParkAssist - as of MY 2005 3883
Preliminary work 3883
Preliminary work - sensor for ParkAssist 3883
Removing sensor for ParkAssist 3883
Removing sensor for ParkAssist 3883
Installing sensor for ParkAssist 3884
Installing sensor for ParkAssist 3884
Subsequent work 3884

Table of Contents

91 75 19 Removing and installing sensor for ParkAssist - as of MY 2005
Subsequent work - sensor for ParkAssist 3884

91 77 19 Removing and installing multi-function control unit - as of MY 2005 3887
Preliminary work 3887
Preliminary work for multi-function remote control 3887
Removing multi-function control unit 3887
Removing multi-function control unit 3887
Installing multi-function control unit 3888
Installing multi-function control unit 3889
Subsequent work 3890
Subsequent work for multi-function control unit 3890

91 84 19 Removing and installing antenna amplifier - as of MY 2005 3892
Preliminary work 3892
Preliminary work - antenna amplifier 3892
Removing antenna amplifier 3892
Removing antenna amplifier 3892
Installing antenna amplifier 3893
Installing antenna amplifier 3893
Subsequent work - antenna amplifier 3893

91 86 19 Removing and installing control unit for antenna - as of MY 2005 3896
Preliminary work 3896
Preliminary work - antennacontrol unit 3896
Removing control unit for antenna 3896
Removing antenna control unit 3896
Installing control module for antenna 3897
Installing antenna control unit 3898
Subsequent work 3898
Subsequent work - antenna control unit 3898

91 88 19 Removing and installing console for telephone - as of MY 2005 3901
Removing console for telephone 3901
Removing console for telephone 3901
Installing console for telephone 3902
Installing console for telephone 3903

91 90 19 Removing and installing control unit for telephone - as of MY 2005 3906
Preliminary work 3906
Preliminary work - telephone control unit 3906
Technical values 3906
Tightening torques for telephone control unit 3906
Removing control unit for telephone 3906
Removing control unit for telephone 3906
Installing control unit for telephone 3908
Installing control unit for telephone 3908
Subsequent work 3910

Table of Contents

91 90 19 Removing and installing control unit for telephone - as of MY 2005
Subsequent work - telephone control unit ... 3910
Coding control unit for telephone ... 3910
Coding the telephone control unit ... 3910

91 91 19 Installing and removing additional telephone receiver - as of MY 2005 ... 3913
Preliminary work ... 3913
Preliminary work for additional receiver for telephone ... 3913
Removing additional telephone receiver ... 3913
Removing additional receiver for telephone ... 3913
Installing additional telephone receiver ... 3914
Installing additional receiver for telephone ... 3914
Subsequent work ... 3915
Subsequent work for additional receiver for telephone ... 3915

92 12 19 Removing and installing rain sensor - as of MY 2005 ... 3917
Removing rain sensor ... 3917
Removing rain sensor ... 3917
Installing rain sensor ... 3920
Installing rain sensor ... 3920

92 15 19 Removing and installing wiper motor - as of MY 2005 ... 3926
Preliminary work on wiper motor ... 3926
Preliminary work on wiper motor ... 3926
Removing wiper motor ... 3926
Removing wiper motor ... 3926
Installing wiper motor ... 3927
Installing wiper motor ... 3927
Reworking wiper motor ... 3928
Touching up wiper motor ... 3929

92 19 19 Removing and installing wiper link - as of MY 2005 ... 3931
Preliminary work ... 3931
Preliminary work on wiper motor ... 3931
Preliminary work for wiper link ... 3931
Removing wiper link ... 3931
Removing wiper link ... 3931
Installing wiper link ... 3932
Installing wiper link ... 3933
Subsequent work ... 3933
Reworking wiper link ... 3934

92 25 15 Adjusting wiper arm attack angle - as of MY 2005 ... 3936
Tools ... 3936
Preliminary work ... 3936
Preliminary work for adjusting wiper arm attack angle ... 3936
Adjusting wiper arm ... 3936
Adjusting wiper arm attack angle ... 3937

Table of Contents

92 25 15 Adjusting wiper arm attack angle - as of MY 2005
Subsequent work....3939
Subsequent work for adjusting wiper arm attack angle....3939

92 25 19 Removing and installing wiper arm - as of MY 2005....3941
Removing wiper arm....3941
Removing wiper arm....3941
Installing wiper arm....3941
Installing wiper arm....3942

92 27 19 Removing and installing wiper blade - as of MY 2005....3945
Removing wiper blade....3945
Removing wiper blade....3945
Installing wiper blade....3946
Installing wiper blade....3946

92 34 19 Removing and installing wiper motor for rear window washer - as of MY 2005....3949
Preliminary work....3949
Preliminary work for wiper motor for rear window wiper system....3949
Removing wiper motor for rear window washer....3949
Removing wiper arm for rear window wiper system....3949
Installing wiper motor for rear window washer....3951
Installing the wiper motor for rear window wiper system....3951
Subsequent work....3953
Reworking for wiper motor for rear window wiper system....3953

92 41 19 Removing and installing wiper arm for rear window washer - as of MY 2005....3956
Removing wiper arm for rear window washer system....3956
Removing wiper arm for rear window washer system....3956
Installing wiper arm for rear window washer system....3957
Installing wiper arm for rear window washer system....3957

92 43 19 Removing and installing wiper blade for rear window washer - as of MY 2005....3960
Removing wiper blade for rear window washer system....3960
Removing wiper blade for rear window washer system....3960
Installing wiper blade for rear window washer system....3961
Installing wiper blade for rear window washer system....3961

92 56 19 Removing and installing pump for windscreen washer system - as of MY 2005....3964
Tools....3964
Preliminary work....3964
Preliminary work....3964
Removing pump for windscreen washer system....3964
Removing pump for windscreen washer system....3964
Installing pump for windscreen washer system....3966
Installing pump for windscreen washer system....3966
Subsequent work....3967
Subsequent work....3967

Table of Contents

92 60 19 Removing and installing reservoir for windscreen washer system - as of MY 2005 3970
Preliminary work 3970
Preliminary work - tank for windscreen washer system 3970
Removing reservoir for windscreen washer system 3970
Removing tank for windscreen washer system 3970
Installing reservoir for windscreen washer system 3972
Installing tank for windscreen washer system 3972
Subsequent work 3973
Subsequent work - tank for windscreen washer system 3974

92 66 19 Removing and installing spray nozzle for windscreen washer system - as of MY 2005 3976
Preliminary work 3976
Preliminary work for windscreen-washer spray nozzle 3976
Removing spray nozzle for windscreen washer system 3976
Removing spray nozzle for windscreen washer system 3976
Installing spray nozzle for windscreen washer system 3977
Installing spray nozzle for windscreen washer system 3977
Subsequent work 3978
Subsequent work for spray nozzle of windscreen washer system 3978

92 67 19 Removing and installing sensor for fluid level display - as of MY 2005 3981
Tools 3981
Preliminary work 3981
Preliminary work 3981
Removing sensor for fluid level display 3981
Removing sensor for fluid level display 3981
Installing sensor for fluid level display 3983
Installing sensor for fluid level display 3983
Subsequent work 3983
Subsequent work 3983

92 72 19 Removing and installing spray nozzle for headlight washer system - as of MY 2005 3986
Preliminary work 3986
Preliminary work for spray nozzle of headlight washer system 3986
Removing spray nozzle for headlight washer system 3986
Removing spray nozzle for headlight washer system 3986
Installing spray nozzle for headlight washer system 3988
Installing spray nozzle for headlight washer system 3988
Subsequent work 3988
Subsequent work for spray nozzle of headlight washer system 3989
Removing and installing spray nozzle head 3989
Removing spray nozzle head 3989
Installing spray nozzle head 3989

92 77 19 Removing and installing hose for headlight washer system - as of MY 2005 3992
Preliminary work 3992
Preliminary work for removing hose for headlight washer system (front apron) 3992
Preliminary work for removing hose for headlight washer system (at tank) 3992

Table of Contents

92 77 19 Removing and installing hose for headlight washer system - as of MY 2005
Removing hose for headlight washer system ... 3992
Removing hose for headlight washer system (front apron) ... 3992
Removing hose for headlight washer system (at tank) ... 3994
Installing hose for headlight washer system ... 3995
Installing hose for headlight washer system (front apron) ... 3995
Installing hose for headlight washer system (at tank) ... 3996
Subsequent work ... 3997
Subsequent work for installing hose for headlight washer system (front apron) ... 3997
Subsequent work for installing hose for headlight washer system (at tank) ... 3997

92 78 19 Removing and installing pump for headlight washer system - as of MY 2005 ... 4000
Tools ... 4000
Preliminary work ... 4000
Preliminary work ... 4000
Removing pump for headlight washer system ... 4000
Removing pump for headlight washer system ... 4000
Installing pump for headlight washer system ... 4002
Installing pump for headlight washer system ... 4002
Subsequent work ... 4003
Subsequent work ... 4003

94 05 19 Removing and installing main light switch - as of MY 2005 ... 4006
Removing main light switch ... 4006
Removing main light switch ... 4006
Installing main light switch ... 4007
Installing main light switch ... 4007

94 14 19 Removing and installing headlight mounting - as of MY 2005 ... 4010
Preliminary work ... 4010
Preliminary work - headlight mounts ... 4010
Removing headlight mounting ... 4010
Removing headlight mount ... 4010
Installing headlight mounting ... 4011
Installing headlight mount ... 4011
Testing and adjusting headlight mount ... 4012
Subsequent work ... 4013
Subsequent work - headlight mounts ... 4013

94 15 19 Removing and installing main headlight - as of MY 2005 ... 4016
Removing main headlight ... 4016
Removing main headlight ... 4016
Installing main headlight ... 4017
Installing main headlight ... 4017

94 23 19 Removing and installing halogen bulb - as of MY 2005 ... 4021
Preliminary work ... 4021
Preliminary work ... 4021

Table of Contents

94 23 19 Removing and installing halogen bulb - as of MY 2005
Removing halogen bulb....4021
Removing cap of main headlight....4021
Removing halogen bulb....4022
Removing high beam halogen bulb....4023
Installing halogen bulb....4025
Installing halogen bulb....4025
Installing high beam halogen bulb....4026
Installing main headlight cap....4027
Subsequent work....4027
Subsequent work....4027

94 27 19 Removing and installing bulb for parking light - as of MY 2005....4030
Preliminary work....4030
Preliminary work for parking light bulb....4030
Removing bulb for parking light....4030
Removing parking light bulb....4030
Installing bulb for parking light....4031
Installing parking light bulb....4031
Subsequent work....4032
Subsequent work for parking light bulb....4032

94 31 19 Removing and installing tail light - as of MY 2005....4034
Removing tail light....4034
Removing tail light....4034
Installing tail light....4035
Installing tail light....4035
Information....4036
Lamp overview: tail light....4036

94 36 19 Removing and installing stop light switch - as of MY 2005....4039
Removing stop light switch....4039
Removing stop light switch....4039
Installing stop light switch....4040
Installing stop light switch....4040

94 44 19 Removing and installing bulb for number plate light - as of MY 2005....4044
Removing bulb for number plate light....4044
Removing number plate light....4044
Removing bulb for number plate light....4045
Installing bulb for number plate light....4046
Installing bulb for number plate light....4046
Installing number plate light....4046

94 47 19 Removing and installing hazard warning light switch - as of MY 2005....4050
Removing hazard warning light switch....4050
Removing hazard warning light switch....4050
Installing hazard warning light switch....4051

Table of Contents

94 47 19 Removing and installing hazard warning light switch - as of MY 2005
Installing hazard warning light switch....4051

94 49 19 Removing and installing front control unit - as of MY 2005....4054
Tools....4054
Preliminary work....4054
Preliminary work - front control unit....4054
Technical values....4054
Technical values - front control unit....4054
Removing front control unit....4055
Removing front control unit....4055
Installing front control unit....4056
Installing front control unit....4057
Subsequent work....4058
Subsequent work - front control unit....4058
Coding control unit....4058
Reading out and printing out values....4058
Coding the front end control unit....4059

94 50 19 Removing and installing steering-column switch - as of MY 2005....4062
Preliminary work....4062
Preliminary work - steering column switch....4062
Technical values....4062
Technical values - steering column switch....4062
Removing steering-column switch....4062
Removing steering column switch....4062
Installing steering-column switch....4064
Removing steering column switch....4064
Subsequent work....4066
Subsequent work - steering column switch....4066

94 50 37 Disassembling and assembling steering column switch - as of MY 2005....4069
Preliminary work - steering column switch....4069
Preliminary work - steering column switch....4069
Disassembling and assembling steering column switch....4069
Disassembling steering column switch....4069
Assembling steering column switch....4071
Subsequent work - steering column switch....4073
Subsequent work - steering column switch....4073

94 53 19 Removing and installing side direction indicator light - as of MY 2005....4075
Removing side direction indicator light....4075
Removing side direction indicator light....4075
Installing side direction indicator light....4076
Installing side direction indicator light....4076

Table of Contents

94 56 19 Removing and installing bulb for front direction indicator - as of MY 2005 4080
Preliminary work 4080
Preliminary work - bulb for front direction indicator light 4080
Removing bulb for front direction indicator 4080
Removing bulb for front direction indicator light 4080
Installing bulb for front direction indicator 4082
Installing bulb for front direction indicator light 4082
Subsequent work 4083
Subsequent work - bulb for front direction indicator light 4083

94 57 19 Removing and installing control unit for gas discharge - as of MY 2005 4085
Preliminary work 4085
Preliminary work on control unit for gas discharge 4085
Removing control unit for gas discharge 4085
Removing cap of main headlight 4085
Removing control unit for gas discharge 4086
Installing control unit for gas discharge 4087
Installing control unit for gas discharge 4087
Installing main headlight cap 4087
Subsequent work 4088
Subsequent work on control unit for gas discharge 4088

94 59 19 Removing and installing gas discharge lamp - as of MY 2005 4091
Preliminary work 4091
Preliminary work 4091
Removing cap of main headlight 4091
Removing gas discharge lamp 4092
Removing gas discharge lamp 4092
Installing gas discharge lamp 4092
Installing gas discharge lamp 4093
Subsequent work 4094
Installing main headlight cap 4094
Subsequent work 4094

94 67 19 Removing and installing bulb for fog light - as of MY 2005 4097
Preliminary work 4097
Preliminary work 4097
Removing bulb for fog light 4097
Removing bulb for fog light 4097
Installing bulb for fog light 4098
Installing bulb for fog light 4098
Subsequent work 4098
Subsequent work 4098

94 70 19 Removing and installing auxiliary brake light - as of MY 2005 4101
Removing auxiliary stop light in rear centre panel 4101
Preliminary work for auxiliary brake light in rear centre panel 4101
Removing auxiliary brake light in rear centre panel 4101

Table of Contents

94 70 19 Removing and installing auxiliary brake light - as of MY 2005
Removing auxiliary stop light in rear spoiler....4102
Removing auxiliary brake light in rear spoiler....4102
Installing auxiliary stop light in rear centre panel....4103
Installing auxiliary brake light in rear centre panel....4103
Subsequent work for auxiliary brake light in rear centre panel....4104
Installing auxiliary stop light in rear spoiler....4104
Installing auxiliary brake light in rear spoiler....4105

94 70 19 Removing and installing auxiliary brake light - as of MY 2005....4108
Tools....4108
Removing auxiliary stop light in rear spoiler....4108
Removing auxiliary brake light in rear spoiler....4108
Removing auxiliary stop light in convertible top compartment lid....4109
Removing auxiliary stop light in convertible top compartment lid....4109
Installing auxiliary stop light in rear spoiler....4110
Installing auxiliary brake light in rear spoiler....4110
Installing auxiliary stop light in convertible top compartment lid....4111
Installing auxiliary stop light in convertible top compartment lid....4111

94 71 19 Removing and installing auxiliary headlight - as of MY 2005....4114
Removing auxiliary headlight....4114
Removing auxiliary headlamp....4114
Installing auxiliary headlight....4115
Installing auxiliary headlamp....4115
Subsequent work....4116
Reworking auxiliary headlight....4116

94 72 19 Removing and reinstalling switch for reversing light - as of MY 2005....4119
Preliminary work....4119
Preliminary work....4119
Removing switch for reversing light....4119
Removing switch for reversing light....4119
Installing switch for reversing light....4120
Installing switch for reversing light....4120
Subsequent work....4121
Subsequent work....4121

94 78 19 Removing and installing front angle sensor for headlight levelling system - as of MY 2005....4124
Tools....4124
Preliminary work....4124
Preliminary work - front angle sensor for headlight levelling system....4124
Removing front angle sensor for headlight levelling system....4124
Removing front angle sensor for headlight levelling system....4124
Installing front angle sensor for headlight levelling system....4125
Installing front angle sensor for headlight levelling system....4125
Subsequent work....4126

Table of Contents

94 78 19 Removing and installing front angle sensor for headlight levelling system - as of MY 2005
Subsequent work - front angle sensor for headlight levelling system....4126

94 79 19 Removing and installing rear angle sensor for headlight levelling system - as of MY 2005....4129
Tools....4129
Removing rear angle sensor for headlight levelling system....4129
Removing rear angle sensor for headlight levelling system....4129
Installing rear angle sensor for headlight levelling system....4130
Installing rear angle sensor for headlight levelling system....4130
Subsequent work....4130
Subsequent work - rear angle sensor for headlight levelling system....4131

94 94 19 Removing and installing servo motor for headlight levelling system - as of MY 2005....4133
Tools....4133
Preliminary work....4133
Preliminary work - servo motor for headlight levelling system....4133
Removing cap of main headlight....4133
Removing servo motor for headlight levelling system....4134
Removing servo motor for headlight levelling system....4134
Installing servo motor for headlight levelling system....4135
Installing servo motor for headlight levelling system....4135
Subsequent work....4136
Installing main headlight cap....4136
Subsequent work - servo motor for headlight levelling system....4137

96 07 19 Removing and installing contact switch for glove compartment light - as of MY 2005....4140
Preliminary work....4140
Preliminary work....4140
Removing contact switch for glove compartment light....4140
Removing contact switch for glove compartment light....4140
Installing contact switch for glove compartment light....4142
Installing contact switch for glove compartment light....4142
Subsequent work....4142
Subsequent work....4142

96 15 19 Removing and installing footwell light - as of MY 2005....4145
Removing footwell light....4145
Removing footwell light....4145
Installing footwell light....4146
Installing footwell light....4147

96 16 19 Removing and installing door warning light - as of MY 2005....4150
Removing bulb for door warning light....4150
Removing door warning light....4150
Removing bulb for door warning light....4151
Installing bulb for door warning light....4152
Installing bulb for door warning light....4152

Table of Contents

96 16 19 Removing and installing door warning light - as of MY 2005
Installing door warning light....4153

96 22 19 Removing and installing bulb for interior light - as of MY 2005....4156
Removing bulb for interior light....4156
Removing interior light....4156
Removing lens for interior light....4157
Removing bulb for interior light....4158
Installing bulb for interior light....4158
Installing bulb for interior light....4158
Installing lens for interior light....4159
Installing interior light....4159

96 27 19 Removing and installing switch console - as of MY 2005....4163
Preliminary work....4163
Preliminary work for switch console....4163
Remove switch console....4163
Removing switch console....4163
Install switch console....4164
Installing switch console....4164
Subsequent work....4165
Subsequent work for switch console....4165

96 41 19 Removing and installing bulb for luggage compartment light - as of MY 2005....4168
Removing bulb for luggage compartment light....4168
Removing luggage compartment light....4168
Removing bulb for light....4169
Installing bulb for luggage compartment light....4170
Installing bulb for light....4170
Installing luggage compartment light....4170

96 43 19 Removing and installing bulb for engine compartment light - as of MY 2005....4174
Removing bulb for engine compartment light....4174
Removing engine compartment light....4174
Removing bulb for light....4176
Installing bulb for engine compartment light....4176
Installing bulb for light....4176
Installing engine compartment light....4177

96 44 19 Removing and installing glove compartment light - as of MY 2005....4181
Removing glove compartment light....4181
Removing glove compartment light....4181
Installing glove compartment light....4182
Installing glove compartment light....4183

96 47 19 Removing and installing bulb for reading light - as of MY 2005....4186
Removing bulb for reading light....4186
Removing interior light....4186

Table of Contents

96 47 19 Removing and installing bulb for reading light - as of MY 2005
Removing bulb for reading light....4187
Installing bulb for reading light....4188
Installing bulb for reading light....4189
Installing interior light....4190

96 60 21 Removing main switch for power supply - as of MY 2005....4193
Removing main switch for power supply....4193
Removing main power supply switch....4193
Information....4195
Vehicle electrical system - switching on....4195
Vehicle electrical system - switching off....4195

96 62 25 Teaching hand-held transmitter - as of MY 2005....4198
Teaching hand-held transmitter....4198

96 62 55 Replacing hand-held transmitter - as of MY 2005....4201
Disassembling hand-held transmitter....4201
Removing cover of hand-held transmitter....4201
Removing hand-held transmitter key....4201
Removing battery for hand-held transmitter....4202
Assembling hand-held transmitter....4202
Installing battery for hand-held transmitter....4202
Installing hand-held transmitter key....4203
Installing cover of hand-held transmitter....4203

96 63 19 Removing and installing tilt sensor control unit - as of MY 2005....4206
Preliminary work....4206
Preliminary work....4206
Removing tilt sensor control unit....4206
Removing tilt sensor control unit....4206
Installing tilt sensor control unit....4208
Installing tilt sensor control unit....4208
Subsequent work....4209
Subsequent work....4209

96 65 19 Removing and installing the alarm siren - as of MY 2005....4211
Preliminary work....4211
Preliminary work....4211
Removing the alarm siren....4211
Removing alarm horn....4211
Removing alarm siren....4212
Installing the alarm siren....4213
Installing alarm horn....4213
Installing alarm siren....4213
Subsequent work....4214
Subsequent work....4214

Table of Contents

96 66 19 Removing and installing KESSY/PAS control unit - as of MY 2005 4216
Tools 4216
Information 4216
Control unit information for KESSY/PAS 4216
Programming KESSY/PAS control unit 4217
Obtaining read-out and saving vehicle data from control unit 4217
Removing KESSY/PAS control unit 4217
Removing KESSY/PAS control unit 4217
Installing KESSY/PAS control unit 4219
Installing KESSY/PAS control unit 4219
Programming KESSY/PAS control unit 4221
Programming new KESSY/PAS control unit 4221

96 78 19 Removing and installing control unit for garage door opener - as of MY 2005 4225
Removing control unit for garage door opener 4225
Removing control unit for garage door opener 4225
Installing control unit for garage door opener 4226
Installing control unit for garage door opener 4226

96 79 19 Removing and installing control unit for garage door opener/HomeLink - as of MY 2005 4229
Preliminary work 4229
Preliminary work for control unit for garage door opener/HomeLink 4229
Removing control unit for garage door opener/HomeLink 4229
Removing control unit for garage door opener/HomeLink 4229
Installing control unit for garage door opener/HomeLink 4231
Installing control unit for garage door opener/HomeLink 4231
Subsequent work 4231
Subsequent work for control unit for garage door opener/HomeLink 4231
Teaching control unit for garage door opener/HomeLink 4231
HomeLink 4232
Assigning garage door opener/HomeLink signals to buttons 4232
Garage door opener/HomeLink with fixed code system 4233
Garage door opener/HomeLink with variable code system 4234
Re-programming an individual button 4235
Erasing programmed signals on the HomeLink 4236

96 85 19 Removing and installing interior monitoring sensor - as of MY 2005 4239
Preliminary work 4239
Preliminary work for interior monitoring sensor 4239
Removing interior monitoring sensor 4239
Removing interior monitoring sensor 4239
Installing interior monitoring sensor 4240
Installing interior monitoring sensor 4240
Subsequent work 4240
Subsequent work for interior monitoring sensor 4240

Table of Contents

97 09 19 Removing and installing main wire harness - as of MY 2005 4243
Tools 4243
Preliminary work 4243
Preliminary work 4243
Removing main wire harness 4245
Removing main wire harness 4245
Exposing main wire harness in passenger compartment 4251
Removing main wire harness in passenger compartment 4252
Installing main wire harness 4263
Installing main wire harness in passenger compartment 4264
Completing the vehicle 4274
Installing front main wire harness 4275
Subsequent work 4281
Subsequent work 4282

97 10 19 Removing and installing vehicle electrical system control unit - as of MY 2005 4285
Preliminary work 4285
Preliminary work - vehicle electrical system control unit 4285
Removing vehicle electrical system control unit 4285
Removing vehicle electrical system control unit 4285
Installing vehicle electrical system control unit 4287
Installing vehicle electrical system control unit 4287
Subsequent work for vehicle electrical system control unit 4288
Subsequent work - vehicle electrical system control unit 4288
Coding vehicle electrical system control unit 4289
Programming the vehicle electrical system control unit: 4289
Reading out and printing out values 4289
Coding (programming) the control module 4290

97 15 19 Removing and installing front wiring harness - as of MY 2005 4293
Preliminary work 4293
Preliminary work for front wiring harness 4293
Removing front wiring harness 4293
Removing front wiring harness 4293
Installing front wiring harness 4294
Installing front wiring harness 4294
Subsequent work 4295
Subsequent work for front wiring harness 4295

97 16 19 Removing and installing wire harness for front-end - as of MY 2005 4297
Preliminary work 4297
Preliminary work 4297
Removing wire harness for front-end 4297
Removing wire harness for front-end 4297
Installing wire harness for front-end 4302
Installing wire harness for front-end 4302
Subsequent work 4306
Subsequent work 4306

Table of Contents

97 20 19 Removing and installing wiring harness for centre console - as of MY 2005 4308
Preliminary work 4308
Preliminary work for interior monitoring sensor 4308
Removing wiring harness for centre console 4308
Removing wiring harness for centre console 4308
Installing wiring harness for centre console 4309
Installing wiring harness for centre console 4309
Subsequent work 4310
Subsequent work for interior monitoring sensor 4310

97 25 19 Removing and installing rear wire harness - as of MY 2005 4312
Tools 4312
Preliminary work 4312
Preliminary work 4312
Removing rear wire harness 4313
Exposing rear wire harness 4314
Removing rear wire harness 4316
Removing wire harness for auxiliary stop light (Cabriolet) 4319
Removing wire harness for roll-over protection system (cabriolet) 4321
Installing rear wire harness 4322
Installing rear wire harness 4322
Installing wire harness for auxiliary stop light (Cabriolet) 4326
Installing wire harness for roll-over protection system (cabriolet) 4327
Completing the vehicle 4328
Subsequent work 4331
Subsequent work 4331

97 25 19 Removing and installing rear wire harness - as of MY 2005 4334
Tools 4334
Preliminary work 4334
Preliminary work 4334
Removing rear wire harness 4335
Exposing rear wire harness 4336
Removing rear wire harness 4338
Installing rear wire harness 4341
Installing rear wire harness 4341
Completing the vehicle 4345
Subsequent work 4348
Subsequent work 4348

97 32 19 Removing and installing wiring harness for door - as of MY 2005 4351
Preliminary work 4351
Preliminary work for door wiring harness 4351
Preliminary work for wiring harness for door trim panel 4351
Removing wiring harness for door 4351
Removing lateral footwell trim on driver's side 4351
Removing lateral footwell trim on passenger's side 4352
Disconnect wire harness for door (driver's side) at the A-pillar 4353

Table of Contents

97 32 19 Removing and installing wiring harness for door - as of MY 2005
Disconnect wire harness for door (passenger's side) at the A-pillar....4355
Removing wiring harness for door....4357
Removing wiring harness for door trim panel....4358
Installing wiring harness for door....4359
Installing wiring harness for door....4359
Locking wire harness for door (driver's side) at the A-pillar....4361
Locking wire harness for door (passenger's side) at the A-pillar....4362
Installing lateral footwell trim on driver's side....4364
Installing lateral footwell trim on passenger's side....4365
Installing wiring harness for door trim panel....4365
Subsequent work....4367
Subsequent work for door wiring harness....4367
Subsequent work for wiring harness for door trim panel....4367

97 37 55 Replacing wire harness for PASM - as of MY 2005....4370
Tools....4370
Preliminary work....4370
Preliminary work for wire harness for front PASM....4370
Preliminary work for wire harness for rear PASM....4370
Removing wire harness for PASM....4371
Removing wire harness for front PASM....4371
Removing wire harness for rear PASM....4372
Installing wire harness for PASM....4372
Installing wire harness for front PASM....4373
Installing wire harness for rear PASM....4374
Subsequent work....4375
Subsequent work for wire harness for front PASM....4375
Subsequent work for wire harness for rear PASM....4375

97 37 55 Replacing wire harness for PASM - as of MY 2005....4378
Tools....4378
Preliminary work....4378
Preliminary work for wire harness for front PASM....4378
Preliminary work for wire harness for rear PASM....4379
Removing wire harness for PASM....4379
Removing wire harness for front PASM....4379
Removing wire harness for rear PASM....4380
Installing wire harness for PASM....4381
Installing wire harness for front PASM....4381
Installing wire harness for rear PASM....4382
Subsequent work....4383
Subsequent work for wire harness for front PASM....4383
Subsequent work for wire harness for rear PASM....4383

97 45 19 Removing and installing wire harness for battery wiring - as of MY 2005....4386
Tools....4386
Preliminary work....4386

Table of Contents

97 45 19 Removing and installing wire harness for battery wiring - as of MY 2005
Preliminary work for ground strap and B+ line of battery....4386
Preliminary work for B+ line from power distributor to transmission connection point....4386
Preliminary work for B+ line from starter to transmission connection point....4387
Preliminary work for engine ground strap....4387
Removing wire harness for battery wiring....4387
Removing ground strap and B+ line of battery....4387
Remove B+ line from power distributor to transmission connection point....4389
Removing B+ line from starter to transmission connection point....4392
Removing engine ground strap....4394
Installing wire harness for battery wiring....4395
Installing ground strap and B+ line of battery....4395
Install B+ line from power distributor to transmission connection point....4397
Installing B+ line from starter to transmission connection point....4401
Fitting ground strap to engine....4403
Subsequent work....4403
Subsequent work for ground strap and B+ line of battery....4404
Subsequent work for B+ line from power distributor to transmission connection point....4404
Subsequent work for B+ line from starter to transmission connection point....4404
Subsequent work for engine ground strap....4404

97 52 19 Removing and installing wire harness for engine - as of MY 2005....4407
Preliminary work....4407
Preliminary work....4407
Removing wire harness for engine....4407
Removing wire harness for engine....4407
Installing wire harness for engine....4412
Installing wire harness for engine....4412
Subsequent work....4417
Subsequent work....4417

97 53 19 Removing and installing wire harness for seat heater - as of MY 2005....4420
Information....4420
Spare parts information....4420

97 55 19 Removing and installing wire harness for convertible top - as of MY 2005....4423
Preliminary work....4423
Preliminary work for convertible top wiring harness....4423
Preliminary work for wiring harness for roll-over protection system....4423
Removing wire harness for convertible top....4423
Removing plastic panel....4423
Disconnecting wire harness plug connection for convertible top....4424
Removing wire harness for convertible top....4425
Removing wire harness for roll-over protection system....4427
Installing wire harness for convertible top....4428
Installing wire harness for convertible top....4428
Connecting wire harness plug connection for convertible top....4430
Installing plastic panel....4431

Table of Contents

97 55 19 Removing and installing wire harness for convertible top - as of MY 2005
Installing wire harness for roll-over protection system....4431
Subsequent work....4432
Subsequent work for convertible top wiring harness....4433
Subsequent work for wiring harness for roll-over protection system....4433

97 56 19 Removing and installing wire harness for backrest (front seat) - as of MY 2005....4435
Preliminary work....4435
Preliminary work....4435
Removing wire harness for backrest (front seat)....4435
Removing support for left backrest side part....4435
Removing backrest side support....4436
Taking off foam part....4437
Removing wire harness for backrest (front seat)....4438
Installing wire harness for backrest (front seat)....4440
Installing wire harness for backrest (front seat)....4440
Fitting foam part....4442
Installing backrest side support....4442
Installing support for left backrest side part....4443
Subsequent work....4444
Subsequent work....4444

97 57 19 Removing and installing wire harness for electrically adjustable seat - as of MY 2005....4447
Preliminary work....4447
Preliminary work....4447
Removing wire harness for electrically adjustable seat....4447
Removing wire harness for electrically adjustable seat....4447
Installing wire harness for electrically adjustable seat....4449
Installing wire harness for electrically adjustable seat....4449
Subsequent work....4450
Subsequent work....4450

97 65 55 Replacing wire harness for anti-lock brake system (ABS) - as of MY 2005....4453
Tools....4453
Preliminary work....4453
Preliminary work on front ABS wire harness....4453
Preliminary work on rear ABS wire harness....4453
Removing wire harness for anti-lock brake system (ABS)....4454
Removing front ABS wire harness....4454
Removing rear ABS wire harness....4455
Installing wire harness for anti-lock brake system (ABS)....4457
Installing front ABS wire harness....4457
Installing rear ABS wire harness....4460
Subsequent work....4462
Subsequent work on front ABS wire harness....4462
Subsequent work on rear ABS wire harness....4462

Table of Contents

97 65 55 Replacing wire harness for anti-lock brake system (ABS) - as of MY 2005 4465
Tools 4465
Preliminary work 4465
Preliminary work on front ABS wire harness 4465
Preliminary work on rear ABS wire harness 4465
Removing wire harness for anti-lock brake system (ABS) 4466
Removing front ABS wire harness 4466
Removing rear ABS wire harness 4468
Installing wire harness for anti-lock brake system (ABS) 4470
Installing wire harness for front airbag 4470
Installing rear ABS wire harness 4472
Subsequent work 4474
Subsequent work on front ABS wire harness 4474
Subsequent work on rear ABS wire harness 4474

97 66 23 Installing wire harness for airbag - as of MY 2005 4477
Tools 4477
Preliminary work 4477
Preliminary work for wire harness for passenger's airbag unit 4477
Preliminary work for wire harness for left seat-belt tensioner 4477
Preliminary work for wire harness for right seat-belt tensioner 4478
Preliminary work for wire harness for left head airbag (triggering unit to A-pillar connection point) 4479
Preliminary work for wire harness for right head airbag (triggering unit to A-pillar connection point) 4479
Preliminary work for head airbag wire harness (head airbag to A-pillar connection point) 4479
Tools and materials 4480
Tools 4480
Installing wire harness for airbag 4480
Installing components for airbag from triggering unit to passenger's airbag unit or seat-belt tensioner 4480
Installing wire harness for airbag from the triggering unit to the A-pillar connection point 4485
Installing wire harness for airbag from the A-pillar connection point to the head airbag 4493
Subsequent work 4500
Subsequent work for wire harness for passenger's airbag unit 4500
Subsequent work for wire harness for left seat-belt tensioner 4500
Subsequent work for wire harness for right seat-belt tensioner 4501
Subsequent work for wire harness for left head airbag (triggering unit to A-pillar connection point) 4501
Subsequent work for wire harness for right head airbag (triggering unit to A-pillar connection point) 4502
Subsequent work for head airbag wire harness (head airbag to A-pillar connection point) 4502

97 67 19 Removing and installing wiring harness for rear spoiler - as of MY 2005 4505
Information 4505
Note on removing and installing wiring harness for rear spoiler 4505

Table of Contents

97 70 19 Removing and installing wiring harness for number plate light - as of MY 2005 4508
Preliminary work 4508
Preliminary work 4508
Removing wiring harness for number plate light 4508
Removing wiring harness for number plate light 4508
Installing wiring harness for number plate light 4509
Installing wiring harness for number plate light 4509
Subsequent work 4510
Subsequent work 4510

97 72 23 Installing optical waveguide - as of MY 2005 4513
Tools 4513
Preliminary work 4513
Preliminary work 4513
Optical waveguide variants 4513
Optical waveguide variants 4513
Installing optical waveguide 4517
Disconnecting optical waveguide 4517
Removing and installing optical contacts on connector side 4518
Installing optical contacts on connector side 4519
Removing and installing optical contacts on socket side 4519
Installing optical contacts on socket side 4520
Installing optical waveguide 4521
Subsequent work 4522
Subsequent work 4522

97 81 19 Removing and installing wire harness for Tiptronic transmission - as of MY 2005 4525
Preliminary work 4525
Preliminary work 4525
Removing wire harness for Tiptronic transmission 4525
Removing wire harness for Tiptronic transmission 4525
Installing wire harness for Tiptronic transmission 4527
Installing wire harness for Tiptronic transmission 4527
Subsequent work 4529
Subsequent work 4529

97 83 19 Removing and installing relay carrier 1 - as of MY 2005 4532
Preliminary work 4532
Preliminary work for relay carrier 1 4532
Removing relay carrier 1 4532
Removing relay carrier 1 from the retaining frame 4532
Installing relay carrier 1 4534
Installing relay carrier 1 in the retaining frame 4534
Subsequent work 4534
Subsequent work on relay carrier 1 4534

Table of Contents

97 84 09 Undoing and securing fusebox - as of MY 2005 4537
Preliminary work 4537
Preliminary work for fusebox 4537
Undoing fusebox 4537
Undoing fusebox 4537
Securing fusebox 4538
Securing fusebox 4539
Subsequent work 4539
Subsequent work on fusebox 4540

97 89 19 Removing and installing power distributor - as of MY 2005 4542
Preliminary work 4542
Preliminary work for power distributor 4542
Removing power distributor 4542
Removing power distributor 4542
Installing power distributor 4545
Installing the current distributor 4545
Subsequent work 4547
Subsequent work for power distributor 4547

97 90 19 Removing and installing relay carrier - as of MY 2005 4550
Preliminary work 4550
Preliminary work for relay carrier 4550
Removing relay carrier 4550
Removing relay carrier 4550
Removing relay carrier for cabriolet 4552
Installing relay carrier 4553
Installing relay carrier 4553
Installing relay carrier for cabriolet 4554
Subsequent work 4556
Subsequent work for relay carrier 4556

97 90 19 Removing and installing relay carrier - as of MY 2005 4558
Tools 4558
Preliminary work 4558
Preliminary work for relay carrier of cabriolet 4558
Removing relay carrier 4558
Removing relay carrier 4558
Removing relay carrier for cabriolet 4560
Installing relay carrier 4561
Installing relay carrier 4561
Installing relay carrier for cabriolet 4562
Subsequent work 4564
Subsequent work for relay carrier of cabriolet 4564

97 92 55 Replacing fuse element - as of MY 2005 4566
Preliminary work 4566
Preliminary work for fuse element 4566

Table of Contents

97 92 55 Replacing fuse element - as of MY 2005
Replacing fuse element....4566
Replacing fuse element....4566
Subsequent work....4568
Subsequent work for fuse element....4568

64 IN General information on installing and removing car windows - as of MY 2005....4571
Tools....4571
Removing glass with cutting wire separator....4571
Danger of injury when working on car windows....4571
Material damage when removing the glass from car windows....4571
Removing glass with cutting device - wire separator....4572
Applying protective film to the dashboard....4573
Guiding cutting thread into the passenger compartment....4574
Guiding cutting thread into the gap in the glass....4575
Attaching cutting thread to the body....4575
Attaching cutting thread to the spooling device....4576
Installing spooling device and deflection rollers on the glass....4576
Separating glass as far as P1....4576
Repositioning spooling device....4577
Separating glass as far as P2....4577
Separating glass as far as P3....4578
Repositioning spooling device....4579
Separating glass as far as P4....4579
Separating glass as far as P5....4580
Cutting power when removing glass with cutting thread....4580

60 AW Safety instructions - as of MY 2005....4584
Safety instructions for work on car windows....4584
Danger of injury when working on car windows....4584
Material damage when removing the glass from car windows....4584
Material damage when inserting the glass into car windows....4584
Safety instructions for installation work....4585
Safety instructions for airbag system....4585
Safety instructions for sliding roof....4585
Safety instructions for the heat shield....4586

69 Safety regulations for airbag and belt tensioner units - as of MY 2005....4589
Tools....4589
Tools and materials....4589
Materials....4589
General warning notes....4590
General warnings for handling airbag and belt tensioner units....4590
Warnings about assembly and straightening work....4590
Information for airbag and belt tensioner units....4591
Dangers for persons and the environment....4592
Protective measures and rules of behaviour....4592
Behaviour in cases of malfunction or danger....4592

Table of Contents

69 Safety regulations for airbag and belt tensioner units - as of MY 2005
General information....4593
Component exchange after airbag/belt tensioner triggering....4593

50 IN General information and notes on quality - as of MY 2005....4597
Measures for maintaining long-term body protection....4597
Prerequisite for maintaining the long-life guarantee....4597
Electronic control modules....4598
Battery trickle charge....4598
Protection against overvoltage when performing welding work....4598
Replacing control modules....4598

50 IN Diagram - body gap dimensions - as of MY 2005....4601
Tools....4601
Diagram - body front gap dimensions....4601
Gap dimensions, body front....4601
Diagram - body centre gap dimensions....4607
Gap dimensions, body centre....4607
Diagram - body rear gap dimensions....4612
Gap dimensions, body rear....4612
Diagram - Cabriolet gap dimensions....4621
Convertible-top gap dimensions....4621
Gap dimensions, hardtop....4628

50 IN Diagram - body gap dimensions - as of MY 2005....4634
Tools....4634
Diagram - body front gap dimensions....4634
Gap dimensions, body front....4634
Diagram - body centre gap dimensions....4640
Gap dimensions, body centre....4640
Diagram - body rear gap dimensions....4645
Gap dimensions, body rear....4645
Diagram - Cabriolet gap dimensions....4654
Gap dimensions, hardtop....4654

50 IN Diagram - body gap dimensions - as of MY 2005....4659
Tools....4659
Diagram - body front gap dimensions....4659
Gap dimensions, body front....4659
Diagram - body centre gap dimensions....4665
Gap dimensions, body centre....4665
Diagram - body rear gap dimensions....4670
Gap dimensions, body rear....4670
Diagram - Cabriolet gap dimensions....4679
Convertible-top gap dimensions....4679
Gap dimensions, hardtop....4687

Table of Contents

50 IN Diagram - body gap dimensions - as of MY 2005 4692
Tools 4692
Diagram - body front gap dimensions 4692
Gap dimensions, body front 4692
Diagram - body centre gap dimensions 4698
Gap dimensions, body centre 4698
Diagram - Cabriolet gap dimensions 4703
Gap dimensions, hardtop 4703

50 IN Diagram - body gap dimensions - as of MY 2005 4709
Tools 4709
Diagram - body front gap dimensions 4709
Gap dimensions, body front 4709
Diagram - body centre gap dimensions 4715
Gap dimensions, body centre 4715
Diagram - body rear gap dimensions 4720
Gap dimensions, body rear 4720
Diagram - Cabriolet gap dimensions 4729
Gap dimensions, hardtop 4729

50 IN Diagram: Plug plan - as of MY 2005 4734
Diagram: Plug plan 4734
Top of front of vehicle 4734
Bottom of front of vehicle 4734
Side of front of vehicle 4735
Bottom of lower side member and floor 4735
Top of lower side member and floor 4736
Bottom of rear end 4737
Top of rear end 4737
Side of rear end 4738

50 IN Diagram: Plug plan - as of MY 2005 4741
Diagram: Plug plan 4741
Top of front of vehicle 4741
Bottom of front of vehicle 4741
Side of front of vehicle 4742
Bottom of lower side member and floor 4742
Top of lower side member and floor 4743
Bottom of rear end 4744
Top of rear end 4744
Top of rear end 4745
Side of rear end 4745

50 IN Diagram - keys to symbols for welding work - as of MY 2005 4748
Diagram - keys to symbols for welding work 4748
Resistance spot welding 4748
Inert-gas arc welding (MAG procedure) 4748
Gas welding 4749

Table of Contents

50 IN Vehicle identification number - as of MY 2005 4751
Tools 4751
Re-imprinting new vehicle identification number 4751
Vehicle identification number 4751
Spacer for replacing the vehicle identification number 4751
Re-imprinting new vehicle identification number 4752

50 IN Corrosion protection measures during repairs - as of MY 2005 4755
Measures for maintaining long-term body protection 4755
Measures for maintaining long-term body protection 4755
Prerequisite for ensuring validity of the long-life guarantee 4755
Prerequisite for ensuring validity of the long-life guarantee 4756

50 IN Seam seals - as of MY 2005 4758
Accessories 4758
Note on seam seals 4758
Door 4758
Unpainted bodyshell 4759
Top of front of vehicle 4759
Top of front of vehicle, front 4760
Top of front of vehicle, (radiator tank) 4760
Front of vehicle and inside A-pillars 4761
Front of vehicle and outside A-pillars 4761
Side of front of vehicle 4761
Top of inside front of vehicle and floor 4762
Wheel housing and upper rear side section 4762
Wheel housing and upper rear side section 4763
Bottom of front of vehicle 4763
Bottom of lower side member and floor 4764

50 IN Seam seals - as of MY 2005 4767
Accessories 4767
Note on seam seals 4767
Door 4767
Rear lid 4768
Unpainted bodyshell 4768
Top of front of vehicle 4769
Top of front of vehicle, front 4769
Top of front of vehicle, (radiator tank) 4769
Front of vehicle and inside A-pillars 4770
Front of vehicle and outside A-pillars 4770
Side of front of vehicle 4771
Top of inside front of vehicle and floor 4771
Top of lower side member and floor 4772
Wheel housing and upper rear side section 4772
Wheel housing and upper rear side section 4773
Bottom of front of vehicle 4773
Bottom of lower side member and floor 4774

Table of Contents

50 IN Seam seals - as of MY 2005
Top of rear end....4774
Bottom of rear end....4775
Side of rear end....4775

50 IN Seam seals - as of MY 2005....4778
Accessories....4778
Note on seam seals....4778
Door....4778
Rear lid....4779
Unpainted bodyshell....4779
Top of front of vehicle....4780
Top of front of vehicle, front....4780
Top of front of vehicle, (radiator tank)....4780
Front of vehicle and inside A-pillars....4781
Front of vehicle and outside A-pillars....4781
Side of front of vehicle....4782
Top of inside front of vehicle and floor....4782
Top of lower side member and floor....4783
Wheel housing and upper rear side section....4783
Bottom of front of vehicle....4784
Bottom of lower side member and floor....4784
Top of rear end....4785
Bottom of rear end....4785
Side of rear end....4786
Roof....4786

50 IN Seam seals - as of MY 2005....4789
Accessories....4789
Note on seam seals....4789
Door....4789
Rear lid....4790
Unpainted bodyshell....4790
Top of front of vehicle....4791
Top of front of vehicle, front....4791
Top of front of vehicle, (radiator tank)....4791
Front of vehicle and inside A-pillars....4792
Front of vehicle and outside A-pillars....4792
Side of front of vehicle....4793
Top of inside front of vehicle and floor....4793
Top of lower side member and floor....4794
Wheel housing and upper rear side section....4794
Bottom of front of vehicle....4795
Bottom of lower side member and floor....4795
Top of rear end....4796
Bottom of rear end....4796
Side of rear end....4797
Roof....4797

Table of Contents

50 IN Seam seals - as of MY 2005 4800
Accessories 4800
Note on seam seals 4800
Door 4800
Rear lid 4801
Unpainted bodyshell 4801
Top of front of vehicle 4802
Top of front of vehicle, front 4802
Top of front of vehicle, (radiator tank) 4802
Front of vehicle and inside A-pillars 4803
Front of vehicle and outside A-pillars 4803
Side of front of vehicle 4804
Top of inside front of vehicle and floor 4804
Top of lower side member and floor 4805
Wheel housing and upper rear side section 4805
Wheel housing and upper rear side section 4806
Bottom of front of vehicle 4806
Bottom of lower side member and floor 4807
Top of rear end 4807
Bottom of rear end 4808
Side of rear end 4808

50 IN Change identification data plate - as of MY 2005 4811
Change identification data plate 4811
Installation location of identification data plate on the vehicle 4811
Identification data plate RoW 4811
Identification data plate USA 4812
Identification data plate Canada 4812

50 IN Undersealing - as of MY 2005 4815
Tools 4815
Tools and materials 4815
Tools 4815
Materials 4815
Diagram: Undersealing 4815
Overview, undersealing 4816
Bottom of front of vehicle, layout plan 4816
Lower side member and floor, layout plan 4817
Bottom of rear end, layout plan 4818

50 IN Undersealing - as of MY 2005 4821
Tools 4821
Tools and materials 4821
Tools 4821
Materials 4821
Diagram: Undersealing 4821
Overview, undersealing 4822
Bottom of front of vehicle, layout plan 4822

Table of Contents

50 IN Undersealing - as of MY 2005
Lower side member and floor, layout plan....4823
Bottom of rear end, layout plan....4824

50 IN Work sequence for accident repair - as of MY 2005....4827
Work sequence for accident repair....4827
Procedure for accident repairs....4827
Repair....4827
Replacement....4827

50 IN Work sequence for determining scope of damage to vehicles involved in an accident - as of MY 2005....4830
Work sequence for determining scope of damage to vehicles involved in an accident....4830
Notes....4830
Work sequence for determining scope of damage to vehicles involved in an accident....4831
Identifiable deformations on the body structure....4831
No identifiable deformations on the body structure....4831

50 IN Tools and metalworking tools for body repairs - as of MY 2005....4834
Tools....4834
Straightening systems....4834
Straightening systems....4834
Metalworking tools....4835
Electrical equipment....4835
Mechanical equipment....4836
Compressed-air equipment....4837
Welding equipment....4837

01 Test drive - as of MY 2005....4840
Test drive - sales check....4840

03 Test drive - as of MY 2005....4843
Test drive - maintenance....4843

03 Visual inspection : Brake lines/brake pads/brake discs - as of MY 2005....4846
Information....4846
Brake hoses and lines....4846
Brake system: visual inspection of the brake pads and brake discs for wear....4846
Technical values....4847
Technical values....4847

27 TW Technical data, engine electronics - as of MY 2005....4850
Technical values....4850
Engine electronics....4850
Engine electronics tightening torques....4850

Table of Contents

28 TW Technical data, ignition system - as of MY 2005 4853
Technical values 4853
Ignition system 4853
Ignition system tightening torques 4853

47 Tightening torques for brake hydraulics - as of MY 2005 4856
Technical values 4856
Brake pressure line 4856
Master brake cylinder / brake booster 4856
Hydraulic unit 4857
Brake calliper 4857

46 Tightening torques for mechanical brake - as of MY 2005 4860
Technical values 4860
Tightening torques for mechanical brake 4860
Tightening torques for brake pedal/pedal bearing axle 4861

42 Tightening torques for rear axle - as of MY 2005 4864
Tightening torques for rear axle 4864
Tightening torques for carrier side section/cross member 4864
Tightening torques for axle strut 4865
Tightening torques for wheel carrier 4866
Tightening torques for spring strut 4866
Tightening torques for stabilizer 4867
Tightening torques for unit mount 4867
Tightening torques for drive shaft 4868
Tightening torques for plug-in couplings for steering hydraulics 4869
Tightening torques for plug-in couplings for clutch hydraulic system 4869
Tightening torques for wheel mounting 4869

48 Tightening torques for steering - as of MY 2005 4872
Tightening torques for steering 4872
Tightening torques for power-steering gear 4872
Tightening torques for steering train/steering wheel 4873

40 Tightening torques for front axle - as of MY 2005 4876
- 4876
Tightening torques for cross member/side member (one component) 4876
Tightening torques for diagonal brace 4876
Tightening torques for axle strut 4877
Tightening torques for spring strut 4877
Tightening torques for wheel carrier 4878
Tightening torques for stabilizer 4878
Tightening torques for steering 4879
Tightening torques for wheel mounting 4880

Table of Contents

44 Adjustment values for suspension alignment - C2/C2S - as of MY 2005 4882
Vehicle height 4882
Wheel alignment values 4882

69 AW Disposal of airbag and belt tensioner units - as of MY 2005 4886
Tools 4886
General warning notes for airbag and belt tensioner units 4887
Disposal of airbag and belt tensioner units 4887
Safety procedures when igniting airbag units 4887
Tools and materials 4888
Tools for airbag units and belt tensioners 4888
Connecting ignition tool 4891
Driver's side 4891
Passenger's side 4892
Side airbag 4892
Head airbag 4893
Belt tensioner 4893
Triggering of airbag units 4894

40 Lifting the vehicle - as of MY 2005 4897
Preliminary work 4897
Lifting the vehicle 4897

01 Checking vehicle identification number - as of MY 2005 4900
Checking Vehicle Ident. No. for conformity 4900

01 Interior equipment: visual inspection for damage and soiling - as of MY 2005 4902
Check interior equipment 4902
Checking seat belts 4902
Functional Check 4902
Condition inspection 4902

44 Wheels and tyres/tyre pressure - as of MY 2005 4905
- 4905
Wheels, tyres: visual inspection for damage 4905
Checking wheel mounting 4905
Tyre pressure for cold tyres (approx. 20 °C) 4905
Notes on mounting tyres 4906

24 AW Precautionary measures when handling oxygen sensors - as of MY 2005 4909
Precautionary measures when handling oxygen sensors 4909

03 IN Additional maintenance - as of MY 2005 4912
Additional maintenance 4912
Notes 4912
Maintenance every 2 years 4912
Maintenance every 2 years 4912
Maintenance every 4 years 4913

Table of Contents

03 IN Additional maintenance - as of MY 2005
Maintenance after 4 then every 2 years....4913
Maintenance after 4, 8, 10 then every 2 years....4913

03 IN Additional maintenance - as of MY 2005....4916
Additional maintenance....4916
Notes....4916
Maintenance every 2 years....4916
Maintenance every 4 years....4916
Maintenance after 4 then every 2 years....4917
Maintenance after 4, 8, 10 then every 2 years....4917

27 06 Check battery - as of MY 2005....4919
General warning notes....4919
General warning notes for the battery....4919
Battery handling requirements....4921
Battery central venting....4921
Visual inspection of battery....4922
Checking acid level of low-maintenance battery....4922
Checking gravity of electrolyte....4923
Open-circuit voltage measurement....4924
Battery load test....4925
Charging battery....4926

50 AW Safety notes - as of MY 2005....4929
Safety instructions for raising vehicles....4929
Danger of injury when raising vehicles....4929
Damage when raising vehicles....4929
Safety instructions for welding....4930
Danger of injury when welding....4930
Safety instructions for flying sparks during grinding and welding work....4930
Safety instructions for fuel tank....4931
Safety instructions for air conditioning....4931
Safety instructions for adhesive bonding....4932
Danger of poisoning and injury when adhesive bonding....4932
Safety instructions for Teromix-6700 two-component adhesive....4932
Safety instructions for installation work....4933
Safety instructions for sharp-edged body and unit parts....4933
Safety instructions for airbag system....4933
Safety instructions for door....4933
Safety instructions for corrosion protection....4934
Safety instructions for plug location plan (body)....4934
Safety instructions for water drains (body)....4935
Safety instruction for deformation element....4935
Possible separation points on inner side member....4935
Baked hardening....4935

Table of Contents

01 Checking the function of the vehicle's lights - as of MY 2005 4938
Check lighting 4938
Adjusting main headlights 4938
Adjusting the main headlights, USA version 4940
Checking horn function 4940
Check and adjust clock 4940

01 Windscreen washer/headlight cleaning system: Check operation, nozzle settings - as of MY 2005 4943
Windscreen washer/headlight cleaning system: Check operation, nozzle settings 4943
Windscreen washer/headlight cleaning system: Check operation, nozzle settings 4943
Mix ratio of fluids for windscreen washer system 4943
Checking wiper blades 4944

01 IN Alarm system: checking that the control equipment is working - as of MY 2005 4946
check operation of indicators 4946

01 IN Checking electrical equipment such as control and warning lights for functionality. - as of MY 2005 4948
Checking electrical equipment 4948

87 IN Instructions for repairing air-conditioning systems and storing spare parts - as of MY 2005 4950
Instructions for repairing air-conditioning systems and storing spare parts 4950

87 AW Safety regulations for working on air-conditioned vehicles and dealing with refrigerant R134a - as of MY 2005 4953
General safety regulations for refrigerants 4953
Emptying the refrigerant circuit 4954
Working on the refrigerant circuit 4954
Painting work on vehicles with air-conditioning 4955
Notes on general repairs 4955

87 Safety regulations for extraction and filling systems - as of MY 2005 4958
Safety regulations for extraction and filling systems 4958

87 IN Technical data, air-conditioning system - as of MY 2005 4961
Technical data for air-conditioning system 4961
Tightening torques for air-conditioning system 4961

50 Body parts of various sheet-steel strengths - as of MY 2005 4965
High-strength steel plates 4965
Highest-strength steel plates 4966
Tailored blanks 4967
Baked hardening 4968
Straightening body parts 4969
Welding work 4969
Reshaping 4969

Table of Contents

50 Body parts of various sheet-steel strengths - as of MY 2005
Separation points....4969

01 Removing transport lock (spring strut locking devices) - as of MY 2005 - as of MY 2005....4972
General....4972
Removing spring strut locking devices....4973

45 60 Initialising and calibrating steering-angle sensor - as of MY 2005....4976
General warning notes....4976
Checking steering-angle sensor....4977
Initialise steering-angle sensor....4977
Adjusting steering-angle sensor....4977
Calibrating steering-angle sensor....4977

01 Mobile roofs: checking operation - as of MY 2005....4980
Checking sunroof....4980
Checking sliding roof....4980

01 Checking exterior equipment and paintwork - as of MY 2005....4982
Checking exterior equipment and paintwork....4982
Checking exterior equipment....4982
Checking paintwork....4982

01 Checking glazing - as of MY 2005....4985
Check glazing....4985
Check glazing....4985

01 Checking lid and doors - as of MY 2005....4988
Checking lid and doors....4988
Checking lid lock, front and rear....4988
Checking safety hook, front lid....4988
Door lock function test....4988
Functional check of tank cap lock....4988

48 13 Removing and installing trim panel (steering-column switch) - as of MY 2005....4991
Removing and installing....4991
Removing and installing trims....4991

03 IN Running gear maintenance: steering gear - visual inspection of bellows and tie rod joints: - as of MY 2005....4994
Checking....4994
Checking bellows....4994
Tie rod ends: check play and dust bellows....4994

03 IN Running gear maintenance: axle joints/drive shafts - as of MY 2005....4997
Information....4997
Axle joints: checking play and dust boots....4997
Drive shafts: visual inspection of boots....4998

Table of Contents

50 IN Processing structural body adhesive - as of MY 2005 5000
Tools 5000
Tools and materials 5000
Processing structural body adhesive 5000
Information on the use of structural adhesives in vehicle construction 5001
General 5001
Separating body components 5001
Welding in body components 5002
Processing adhesives 5003
Handling primer 5005
General 5005
2-component SIP 5005
Handling processing devices 5008
Processing nozzle 5009

01 Checking vehicle equipment for completeness - as of MY 2005 5015
Checking vehicle equipment for completeness 5015
Ensure that vehicle equipment is complete for Carrera and Carrera S 5015
Tools and materials 5015
Tools 5016

01 Removing transport protection - as of MY 2005 5018
Removing external transport protection 5018
Removing internal transport protection 5018
Removing transport lock (spring strut locking devices) - as of MY 2005 5019
General information on removing the transport arrangement (spring strut locking device) 5019
Removing spring strut locking devices 5020
Removing main switch for power supply 5020
Removing main power supply switch 5020
Information 5022
Vehicle electrical system - switching on 5022
Vehicle electrical system - switching off 5023

97 IN Measurement of closed-circuit current - as of MY 2005 5026
Tools 5026
Tools and materials 5026
Tools 5026
Measurement of closed-circuit current 5027
Preliminary work on vehicle 5027
Testing 5027

70 IN Notes for the care of soft-look paint surfaces - as of MY 2005 5031
Light soiling (e.g. dust) 5031
Information 5031

50 IN Diagram of body bonding points and sealing elements - as of MY 2005 5034
Diagram of body bonding points and sealing elements 5034

Table of Contents

50 IN Diagram of body bonding points and sealing elements - as of MY 2005 5037
Diagram of body bonding points and sealing elements 5037

46 Brake disc measurement sheet - as of MY 2005 5040
Information 5040
Brake disc measurement sheet 5040

44 Adjustment values for suspension alignment - C4/C4S - as of MY 2006 5044
Vehicle height 5044
Wheel alignment values 5044

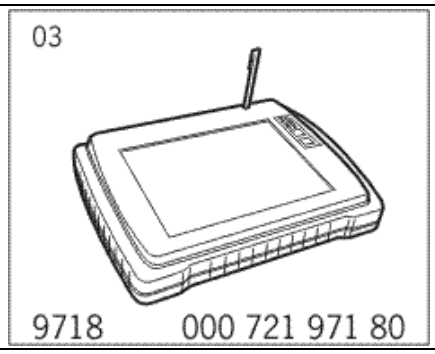
40 09 Removing and installing front-axle cross member - as of MY 2006 5048
Preliminary work 5048
Preliminary work 5048
Removal 5049
Removing front-axle cross member 5049
Installation 5052
Installing front-axle cross member 5052
Subsequent work 5052
Subsequent work 5053

51 87 Repairing threaded bushings for seat cross member - as of MY 2005 5056
Tools 5056
Installing the threaded bushing 5056
Installing repair threaded bushing for seat cross member 5056
Table classification for seat cross member repairs 5059

Preconditions for using workshop documentation for Porsche vehicles 5061

01 01 IN Diagnostic system: reading out fault memory and activating systems - as of MY 2005

Tools

Designation	Type	Number	Explanation	
PIWIS Tester	special tool	9718		

Performing vehicle handover

WARNING

Sudden voltage interruption of the power supply to the control unit.

- **Risk of irreparable damage to the control unit.**

During vehicle handover, it is essential to guarantee the power supply for the Porsche System Tester. A battery charger with a current rating of at least 40 A must be connected to the external power supply.

1. **PIWIS Tester 9718** must be connected to the vehicle, then start the System Tester. **Switch on ignition**. Press >> to continue.
2. Select **vehicle type** using the cursor keys.
3. Select **Control units** and **Special functions** using the cursor keys. Then press >> .
4. Select **Vehicle handover** menu. Then press >> .
5. Follow the instructions on the Tester (vehicle handover log). Press >> to continue.
6. Start function by pressing F8 .
7. The Tester runs the functions and displays the confirmation message **Functions ended**. Press >> to continue.
8. **Enter Vehicle Ident. No.** and press >> . Compare **Vehicle Ident. No.** and if it is OK, confirm with F7 .

8.1. If necessary, **read out all fault memories**.

9. Select **Erase all fault memories** menu. Then press >> .
10. For vehicles with navigation system, insert navigation DVD into the navigation unit (DVD) in the luggage compartment and switch on PCM.

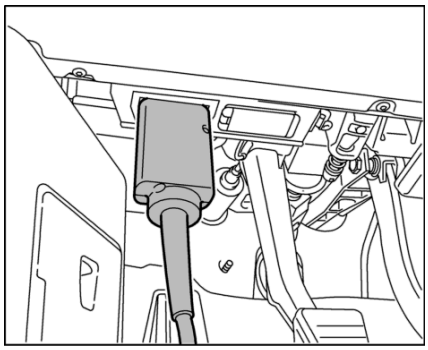
10.1. Switch on the PCM in clear surroundings (to load GPS almanac). The almanac is loaded as soon as four

satellites are identified.

10.2. Message on PCM >>Loading navigation DVD<< - do not interrupt loading operation.

11. Print out vehicle handover log and place it in vehicle documents folder.
12. Test-drive the vehicle and read out the fault memory. Check faults after diagnosis if necessary and erase fault memory before delivering the vehicle.

Reading out and erasing fault memory



Diagnostic socket

The **PIWIS tester 9718** is connected to the vehicle via a diagnostic socket. The diagnosis socket is located inside the vehicle in the vicinity of the driver's A-pillar below the instrument panel.

1. Start the **PIWIS tester 9718** and follow the instructions on the tester.
2. Select vehicle type, press >> and start the automatic control unit search.
3. If an asterisk appears in front of the relevant control unit, read out the fault memory and follow the instructions on the tester.

997110, 997111, 997120, 997121, 997310, 997311, 997320, 997321, 997410, 997411, 997430, 997431, 997610, 997611, 997620, 997621

as of MY 2005
Country C00, C02, C05, C07, C08, C09, C10, C11, C12, C13, C14, C15, C16, C18, C19, C20, C21, C22, C23, C24, C25, C26, C27, C28, C32, C33, C34, C35, C36, C37, C38, C39, C45, C46, C98, C99

WARNUNG

Gefahr des Verlusts der Text-Bild-Zuordnung beim Ausdruck.

- **Aus technischen Gründen kann derzeit nicht ausgeschlossen werden, dass trotz einwandfreier Darstellung auf dem Bildschirm beim Ausdruck der Zusammenhang von Text und zugehörigem Bild verloren geht.**
- **Wird der Fehler nicht bemerkt, besteht die Gefahr, daß Arbeiten nicht korrekt durchgeführt werden und es dadurch zu Personen- und Sachschäden kommt.**

10 01 TW Technical data, engine - as of MY 2005

- Technical values

top of page

Technical values

M96/05 and M97/01 engines

Engine data	997	997 S
Engine type	M96/05	M97/01
No. of cylinders	6	6
Cubic capacity	3,596 cm³	3,824 cm³
Bore	96 mm	99 mm
Stroke	82.8 mm	82.8 mm
Compression ratio	11.3 : 1 (-0.6)	11.8 : 1 (-0.6)
Max. engine power (EU)	239 kW (325 HP)	261 kW (355 HP)
At engine speed	6,800 rpm	6,600 rpm
Max. torque (EU)	370 Nm (274 ftlb.)	400 Nm (296 ftlb.)
At engine speed	4,250 rpm	4,600 rpm
Max. output per litre	66.5 kW/l (90.4 HP/l)	68.3 kW/l (92.9 HP/l)
rpm limitation	via fuel feed interruption and electronic throttle	via fuel feed interruption and electronic throttle
At engine speed	7,300 rpm	7,300 rpm
Idle speed	670 ± 40 rpm	670 ± 40 rpm
Engine weight according to DIN 70020 A	Manual transmission*: 201.7 kg	Manual transmission*: 201.6 kg
	Automatic transmission: 191.5 kg	Automatic transmission: 191 kg

* including double-mass flywheel

Engine design

Designation	997	997 S
Type	6-cylinder aluminium opposed-cylinder engine, water-cooled	
Crankcase	Vertically split light alloy cylinder housing with separate crankshaft bearing housing	
Crankshaft	Forged, supported by 7 bearings	
Crankshaft bearings	Plain bearings, Ø 63 mm, sub groove	
Connecting rods	Forged, l = 142 mm	
Con-rod bearings	Plain bearings	
Pistons	Pressed light alloy	
Cylinders	Lokasil oil running surface	
Cylinder head	Three-part light alloy head	
Valve arrangement	Two input and output valves per cylinder suspended in parallel v-format	
Diameter of inlet valve	40.2 mm	
Diameter of exhaust valve	34.5 mm	
Valve lift of inlet	Large lift: 11.0 mm	
	Small lift: 3.6 mm	
Valve lift of outlet	11.0 mm	
Valve gear	Inlet: via switchable flat-base tappets	
	Outlet: via flat-base tappets	
Camshaft	From the crankshaft via toothed chain to the intermediate shaft and from there via one pulley chain per cylinder bank to the inlet and outlet camshafts	
Camshaft adjustment	Porsche VarioCam Plus with 42° adjustment (vane adjuster and valve travel adjustment)	
Valve clearance	Hydraulic valve clearance compensation	
Timing*: Inlet opens, large lift	9° after top dead centre	11° after top dead centre
Timing*: inlet closes, large lift	61° after bottom dead centre	59° after bottom dead centre
Timing*: inlet opens, small lift	39° after top dead centre	39° after top dead centre
Timing*: inlet closes, small lift	19° after bottom dead centre	19° after bottom dead centre
Timing*: outlet opens	50° before BDC	50° before BDC
Timing*: Outlet closes	4° before TDC	4° before TDC

* Timing in late position with 1 mm valve lift and zero clearance

Engine control

Designation	997	997 S
Engine control module	Bosch ME 7.8	
Ignition	DME, individual spark coils, knock control	
Firing order	1-6-2-4-3-5	
Spark plugs	Bosch FRG 5 KQEO	
Electrode gap	1.6 ± 0.05 mm	
Electronic throttle	Electronic throttle actuator control via DME	
USA-LEV trim	On-Board Diagnosis II (OBDII)	
Euro 4	Euro-On Board Diagnosis (EOBD)	
Euro 2	Customer service - OBD I	

997110, 997111, 997120, 997121, 997310, 997311, 997320, 997321, 997410, 997411, 997430, 997431, 997610, 997611, 997620, 997621

as of MY 2005
Country C00, C02, C05, C07, C08, C09, C10, C11, C12, C13, C14, C15, C16, C18, C19, C20, C21, C22, C23, C24, C25, C26, C27, C28, C32, C33, C34, C35, C36, C37, C38, C39, C45, C46, C98, C99

WARNUNG

Gefahr des Verlusts der Text-Bild-Zuordnung beim Ausdruck.

- **Aus technischen Gründen kann derzeit nicht ausgeschlossen werden, dass trotz einwandfreier Darstellung auf dem Bildschirm beim Ausdruck der Zusammenhang von Text und zugehörigem Bild verloren geht.**
- **Wird der Fehler nicht bemerkt, besteht die Gefahr, daß Arbeiten nicht korrekt durchgeführt werden und es dadurch zu Personen- und Sachschäden kommt.**

Vergleichen Sie deshalb nach dem Druckvorgang unbedingt die Ausdrucke mit der Bildschirmdarstellung. Korrigieren Sie die Ausdrucke im Fehlerfall so, daß der Inhalt der Bildschirmdarstellung zutreffend wiedergegeben wird.

WARNING

Danger of losing text-figure correspondence when printing out.

13 44 IN Mounting specification for connecting rod bolts - as of MY 2005

- Securing connecting rod bolts

Tools

Designation	Type	Number	Explanation	
cover for dust protection when fitting the engine	commercially available tool	NR.165		

top of page

Securing connecting rod bolts

Securing connecting rod bolts

ATTENTION

Risk of damage due to particles of dirt.

- **Oil bores/oil ducts can become blocked up.**

When working on the engine, absolute cleanliness is essential.

Lay removed engine parts on a clean base and cover them without fail.

Use the **cover for dust protection when fitting the engine NR.165** on the engine assembly support.

ATTENTION

Damage to engine caused by refitting of connecting rod bolts that have already been fitted.

Always replace connecting rod bolts.

New connecting rod bolts may be screwed in a maximum of four times during assembly.

1. Position the new connecting rod bolts with the associated connecting rod caps and tighten the screws by hand.

2. Pre-tighten connecting rod bolts to the specified torque and retighten with a torque angle wrench. **Initial tightening: 15 ftlb.** ; **Torque angle: 110 °**
3. Unscrew connecting-rod bolts.
4. Pre-tighten connecting rod bolts to the specified torque and perform the final tightening with a torque angle wrench. **Initial tightening: 15 ftlb.** ; **Final tightening - torque angle: 110 °**

997110, 997111, 997120, 997121, 997310, 997311, 997320, 997321, 997410, 997411, 997430, 997431, 997610, 997611, 997620, 997621

as of MY 2005
Country C00, C02, C05, C07, C08, C09, C10, C11, C12, C13, C14, C15, C16, C18, C19, C20, C21, C22, C23, C24, C25, C26, C27, C28, C32, C33, C34, C35, C36, C37, C38, C39, C45, C46, C98, C99

WARNUNG

Gefahr des Verlusts der Text-Bild-Zuordnung beim Ausdruck.

- **Aus technischen Gründen kann derzeit nicht ausgeschlossen werden, dass trotz einwandfreier Darstellung auf dem Bildschirm beim Ausdruck der Zusammenhang von Text und zugehörigem Bild verloren geht.**
- **Wird der Fehler nicht bemerkt, besteht die Gefahr, daß Arbeiten nicht korrekt durchgeführt werden und es dadurch zu Personen- und Sachschäden kommt.**

Vergleichen Sie deshalb nach dem Druckvorgang unbedingt die Ausdrucke mit der Bildschirmdarstellung. Korrigieren Sie die Ausdrucke im Fehlerfall so, daß der Inhalt der Bildschirmdarstellung zutreffend wiedergegeben wird.

WARNING

Danger of losing text-figure correspondence when printing out.

- **For technical reasons, it can currently not be ruled out that the correspondence between text and associated figure can be lost when it is printed out, even though the display on the screen is correct.**
- **If the fault is not noticed, there is the danger that work will not be performed correctly which can cause injury and damage.**

Therefore, always compare printouts with the screen display after printing them out. Correct the printouts if they are faulty so that the content of the screen display matches that on the printouts.

AVERTISSEMENT

Risque de perte de la correspondance texte-illustration lors de l'impression papier.

- **Pour des raisons techniques, il ne peut pas être exclu à l'heure actuelle que, même en cas d'affichage correct à l'écran, la correspondance entre le texte et l'illustration puisse être erronée sur l'impression papier.**

17 01 TW Technical data, lubrication system - as of MY 2005

- Technical values

top of page

Technical values

Engine lubrication

Designation	997 (M96/05)	997 S (M97/01)
Type	Integrated dry sump lubrication	
Oil cooling	via oil/water heat exchanger	
Installation location of oil filter	on pressure side behind oil pump	
Oil pressure at 5000 rpm and 90°	5 bar	
Oil pressure indicator	Oil pressure indicator with oil pressure warning light plus oil temperature	
Consumption of oil over 1000 km	Max. 500 cm³	
Quantity of oil for new engine	9.9 l	10.3 l
Oil change quantity without oil filter	8.0 l	8.25 l
Oil change quantity with oil filter	8.25 l	8.50 l
Engine oil level check	without dipstick, display in instrument cluster	

997110, 997111, 997120, 997121, 997310, 997311, 997320, 997321, 997410, 997411, 997430, 997431, 997610, 997611, 997620, 997621

as of MY 2005
Country C00, C02, C05, C07, C08, C09, C10, C11, C12, C13, C14, C15, C16, C18, C19, C20, C21, C22, C23, C24, C25, C26, C27, C28, C32, C33, C34, C35, C36, C37, C38, C39, C45, C46, C98, C99

WARNUNG

Gefahr des Verlusts der Text-Bild-Zuordnung beim Ausdruck.

19 01 TW Technical data, cooling system - as of MY 2005

- Technical values

top of page

Technical values

Engine cooling

Designation	997	997 S
Cooling type/installation location	Water cooling; radiators in front of the front wheels	
No. of radiators	Manual transmission: 2 Radiators	
	Automatic transmission: 3 Radiators	
Fans	2 Electric fans, infinitely controllable	
Coolant filling quantity (depending on trim)	31 -33 litres	

997110, 997111, 997120, 997121, 997310, 997311, 997320, 997321, 997410, 997411, 997430, 997431, 997610, 997611, 997620, 997621

as of MY 2005
Country C00, C02, C05, C07, C08, C09, C10, C11, C12, C13, C14, C15, C16, C18, C19, C20, C21, C22, C23, C24, C25, C26, C27, C28, C32, C33, C34, C35, C36, C37, C38, C39, C45, C46, C98, C99

WARNUNG

Gefahr des Verlusts der Text-Bild-Zuordnung beim Ausdruck.

- **Aus technischen Gründen kann derzeit nicht ausgeschlossen werden, dass trotz einwandfreier Darstellung auf dem Bildschirm beim Ausdruck der Zusammenhang von Text und zugehörigem Bild verloren geht.**

20 01 AW Basic safety instructions for working with the fuel system - as of MY 2005

- Information

top of page

Information

Safety instructions when working on fuel system

DANGER

Lethal danger of explosion and fire from escaping fuel and vapours.

Ensure adequate ventilation and extract all fuel vapours.
Do not work on fuel system when engine is hot.
No welding or grinding work when the fuel system is open.
Smoking prohibited and no naked lights.
Secure vehicle clearly, e.g with warning signs.
Wear fuel-resistant protective gloves and goggles.
Wear a breathing mask with active charcoal filter; do not breathe in any fuel vapours.
Pay attention to cleanliness when working on the fuel system.
Before opening fuel lines or fuel hoses, relieve the fuel pressure.
Collect escaping fuel, absorb it if necessary with a suitable binding material and dispose of properly.

WARNING

Skin and eye damage from toxic and caustic effects of fuel.

In case of contact with skin or eyes wash immediately with plenty of warm water and acid-free soap.
Consult a doctor as soon as possible.

997110, 997111, 997120, 997121, 997310, 997311, 997320, 997321, 997410, 997411, 997430, 997431, 997610, 997611, 997620, 997621

as of MY 2005
Country C00, C02, C05, C07, C08, C09, C10, C11, C12, C13, C14, C15, C16, C18, C19, C20, C21, C22, C23, C24, C25, C26, C27, C28, C32, C33, C34, C35, C36, C37, C38, C39, C45, C46, C98, C99

20 01 TW Technical data, fuel system - as of MY 2005

- Technical values

top of page

Technical values

Fuel supply

Designation	997	997 S
Injection	ME 7.8 DME (engine control module ECM); injection valves controlled sequentially, Bosch EV 14	
Fuel delivery	One electrical flow pump (side channel compressor principle)	
Fuel system	Returnless fuel	
Fuel quality/type	ROZ 98, unleaded	
Tank capacity Carrera 2:	64 litres	
Reserve tank capacity	10 litres	

997110, 997111, 997120, 997121, 997310, 997311, 997320, 997321, 997410, 997411, 997430, 997431, 997610, 997611, 997620, 997621

as of MY 2005
Country C00, C02, C05, C07, C08, C09, C10, C11, C12, C13, C14, C15, C16, C18, C19, C20, C21, C22, C23, C24, C25, C26, C27, C28, C32, C33, C34, C35, C36, C37, C38, C39, C45, C46, C98, C99

WARNUNG

Gefahr des Verlusts der Text-Bild-Zuordnung beim Ausdruck.

- **Aus technischen Gründen kann derzeit nicht ausgeschlossen werden, dass trotz einwandfreier Darstellung auf dem Bildschirm beim Ausdruck der Zusammenhang von Text und zugehörigem Bild verloren geht.**
- **Wird der Fehler nicht bemerkt, besteht die Gefahr, daß Arbeiten nicht korrekt durchgeführt werden und es dadurch zu Personen- und Sachschäden kommt.**

Vergleichen Sie deshalb nach dem Druckvorgang unbedingt die Ausdrucke mit der Bildschirmdarstellung. Korrigieren Sie die Ausdrucke im Fehlerfall so, daß der Inhalt der Bildschirmdarstellung zutreffend wiedergegeben wird.

20 10 EN Emptying and filling the fuel tank - as of MY 2005

- Preliminary work
- Emptying the fuel tank
- Filling the fuel tank
- Subsequent work

Tools

Designation	Type	Number	Explanation	
Fuel transfer unit	workshop equipment	WE1262		

top of page

Preliminary work

Preliminary work

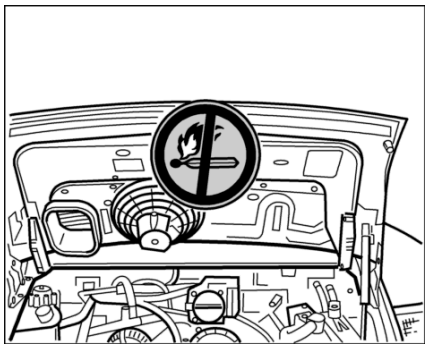
DANGER

Risk of fire from escaping fuel.

- **Danger of fatal injury and damage to property.**

Observe basic safety instruction when working on the fuel system, *201000 Precautionary measures when working on fuel system.*

Secure working area.



Example of a warning sign

1. Attach a clearly visible warning sign to the area of the vehicle on which you are working.
2. Place protective covers on the vehicle.

Carrera 2:

– Disconnect and remove battery 270619 Removing and installing battery - section on "Removing".

Carrier plate for battery

– Remove carrier plate for battery. Unscrew four M8 hexagon collar nuts **-1-** and remove lid. Check seal for damage and replace it if necessary.

Carrera 4:

– Disconnect the battery 2706IN Work instructions after disconnecting the battery.
– Remove luggage compartment cover *700519 21 Removing and installing trim panel for front luggage compartment - section on "Removing"*.

Cover for tank flange

– Remove cover for tank flange. Unscrew four M6 cap nuts **-2-** , remove the four washers and lift off the lid. Check seal for signs of damage.

Note

Watch out for emerging fuel when disconnecting fuel lines. Place a clean cloth on the connection point, then loosen the connection.

3. Remove fuel level sensor *201519 21 Removing and installing fuel level sensor - section on "Removing"*.

top of page

Emptying the fuel tank

Emptying the fuel tank

DANGER

Risk of fire from escaping fuel.

- **Danger of fatal injury and damage to property.**

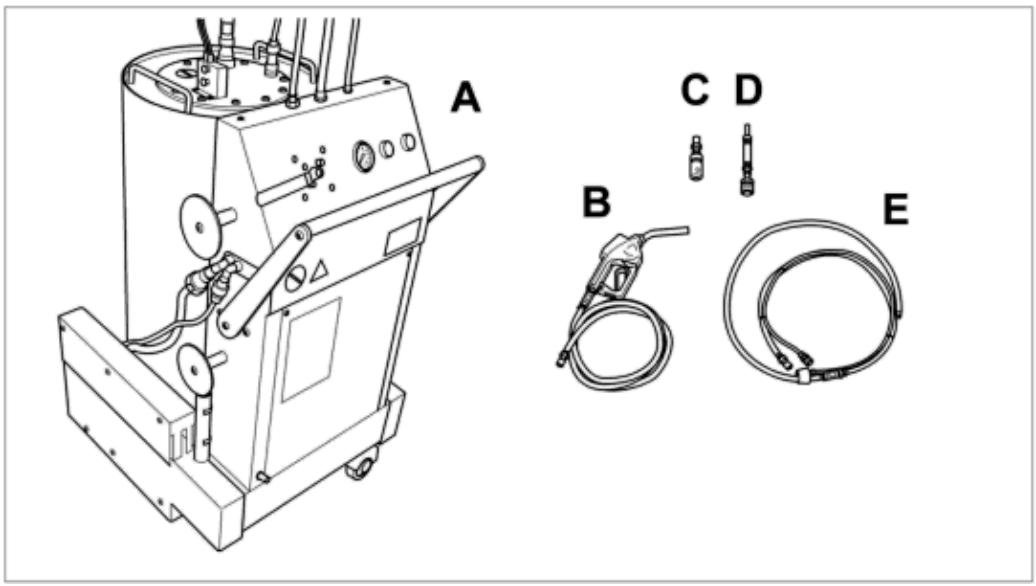
Observe basic safety instruction when working on the fuel system, *201000 Precautionary measures when working on fuel system.*

Secure working area.

Note

Refer to the operating instructions for information on using the fuel transfer unit.

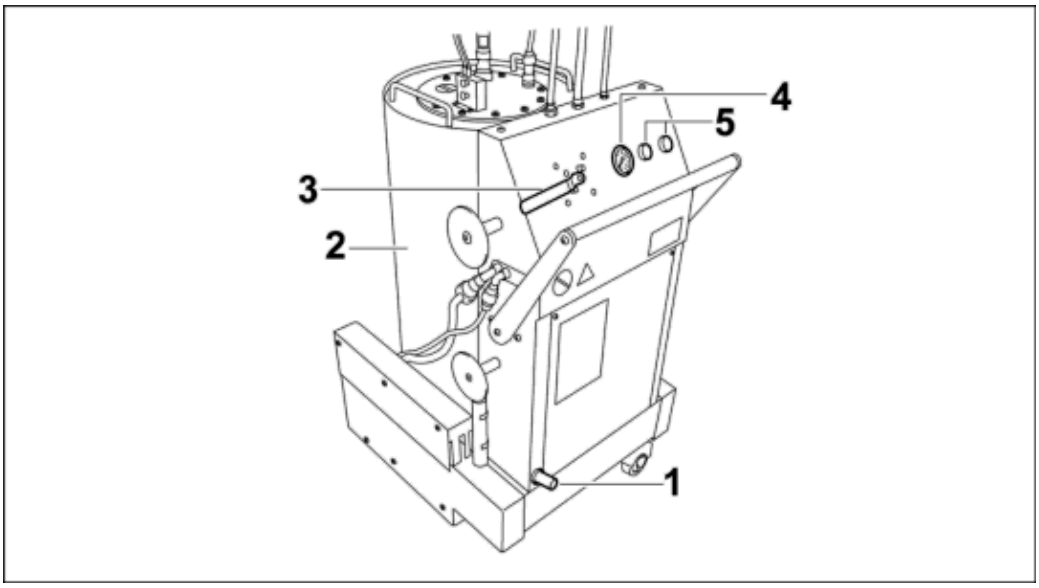
Using the fuel transfer unit WE 1262



Special tool

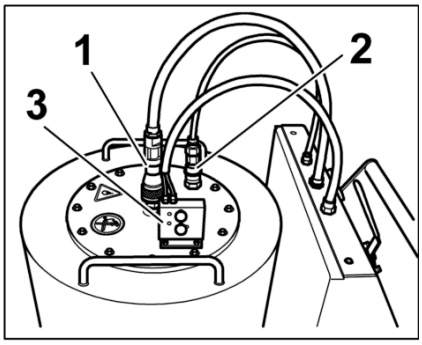
Item	Designation	Source	Explanation
A	**Fuel transfer unit WE1262**	Workshop Equipment Manual, Chapter 3.2.2	This unit has been tested and approved by PORSCHE.
B	Fuel nozzle (special accessory)	Workshop Equipment Manual, Chapter 3.2.2	For refuelling vehicles. The fuel nozzle switches off automatically as soon as the fuel tank is full.
C	Porsche adapter	Workshop Equipment Manual, Chapter 3.2.2	This adapter fits 8-mm to 10-mm fuel lines; Order No. 400 110
E	Connecting piece between Porsche adapter and suction line	Workshop Equipment Manual, Chapter 3.2.2	This is screwed onto the suction line **-E-** and connected to the Porsche adapter.
E	Suction line with venting device	Workshop Equipment Manual, Chapter 3.2.2	Attach venting device (rubber taper with transparent hose) to the fuel filler neck. Minimises emerging fuel vapours.

Device connections



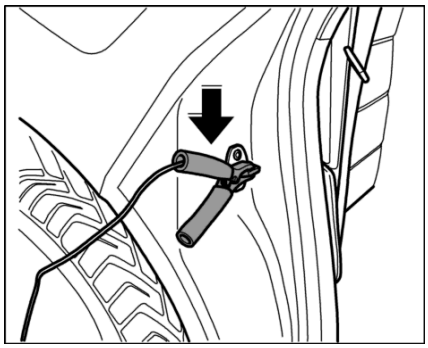
Pump connections

Item	Designation	Explanation
1	Compressed air connection	Connection for unlubricated/oil-free compressed air
2	Fuel tank (capacity: 110 litres)	The scale starts at approx. 10 litres. Other markings are shown in 5-litre steps.
3	Pump activation	Changes the direction of the pump from the fuel feed direction (suction mode - refill mode).
4	Operating pressure display	Displays the operating pressure set for the pump. The value cannot be more than 6.5 bar.
5	On/Off switch	



Connections on tank, top

1. Get the device ready. Connect fuel hose to the tank **-1-** and connect venting device **-2-** . Then attach the pneumatic stop switch to the tank **-3-** and tighten the knurled nuts.

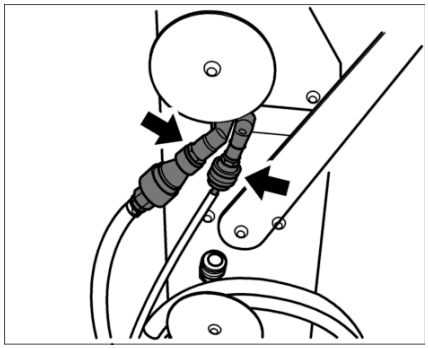


Grounding cable

Note

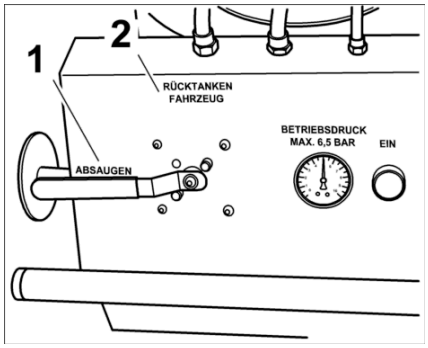
When using the fuel transfer unit, always make sure that the grounding cable is connected to a ground point on the vehicle.

2. Secure grounding terminal of device to an (unpainted) ground point on the vehicle.



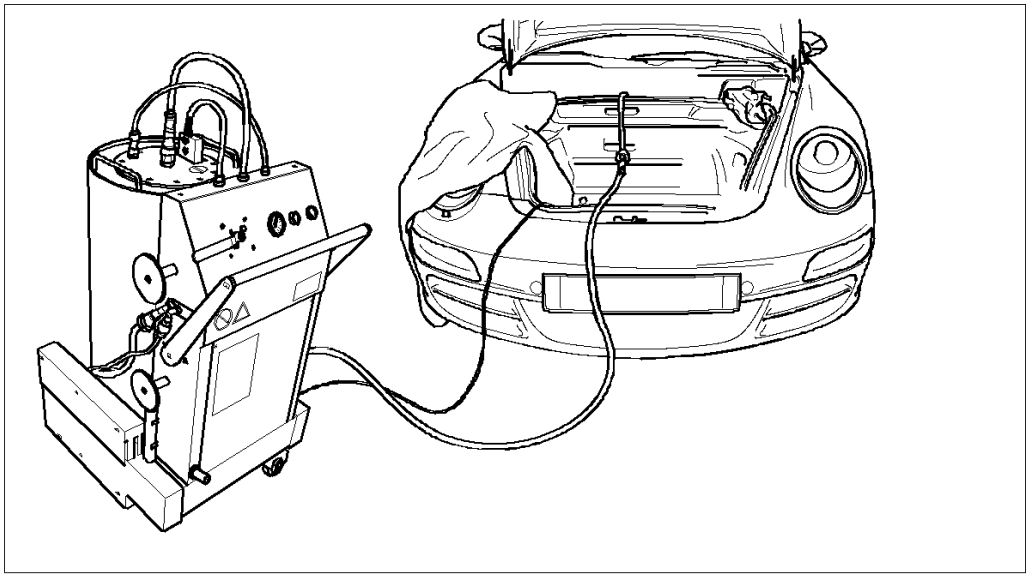
Connections for suction hose and fuel nozzle package

3. Attach the suction hose and venting device to the side connections on the device.
4. Guide suction hose as far as possible into the fuel tank.



Operating lever

5. Set operating lever for pump to **"Suction"** mode **-1-** and switch on the device.
6. Remove the fuel via the tank flange opening.



Fuel transfer unit WE 1262

7. As an alternative to using the fuel transfer unit, you can also use the PIWIS Tester function for fuel pump relay activation 206601 Checking fuel pump electrically.

top of page

Filling the fuel tank

Filling the fuel tank

Filling the fuel tank

DANGER

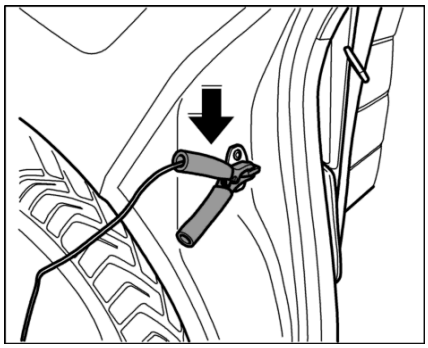
Risk of fire from escaping fuel.

- **Danger of fatal injury and damage to property.**

Observe basic safety instruction when working on the fuel system, *201000 Precautionary measures when working on fuel system.*

Secure working area.

1. Attach fuel nozzle hose package to the side connections on the device.

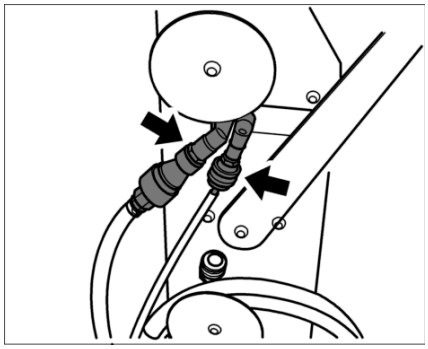


Grounding cable

Note

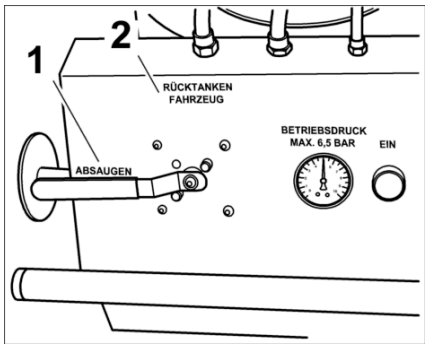
When using the fuel transfer unit, always make sure that the grounding cable is connected to a ground point on the vehicle.

2. Secure grounding terminal of device to an (unpainted) ground point on the vehicle.



Connections for suction hose and fuel nozzle package

3. Insert fuel nozzle at tank filler neck.



Operating lever

4. Set operating lever for pump to **"Refill"** mode **-2-** and switch on the device.
5. Fill the vehicle using the fuel nozzle, then switch off and remove the device.
6. Alternatively, the vehicle must be filled using a canister and a suitable funnel.

top of page

Subsequent work

Subsequent work

1. Install fuel level sensor *201519 23 Removing and installing fuel level sensor - section on "Installing".*

Carrera 2:

– Install carrier plate for battery. Tighten four hexagon nuts. **Tightening torque: 23 (17 ftlb.) Nm** .
– Install battery. 270619 Removing and installing battery - section on "Installing".

Carrera 4:

– Install cover for tank flange. Position and tighten four cap nuts and washers. **Tightening torque: 10 (7.5 ftlb.) Nm** .
– Install luggage compartment cover. *700519 23 Removing and installing trim panel for front luggage compartment - section on "Installing".*
– Connect ground lead to battery.

997110, 997111, 997120, 997121, 997310, 997311, 997320, 997321, 997410, 997411, 997430, 997431, 997610, 997611, 997620, 997621

as of MY 2005
Country C00, C02, C05, C07, C08, C09, C10, C11, C12, C13, C14, C15, C16, C18, C19, C20, C21, C22, C23, C24, C25, C26, C27, C28, C32, C33, C34, C35, C36, C37, C38, C39, C45, C46, C98, C99

WARNUNG

Gefahr des Verlusts der Text-Bild-Zuordnung beim Ausdruck.

- **Aus technischen Gründen kann derzeit nicht ausgeschlossen werden, dass trotz einwandfreier Darstellung auf dem Bildschirm beim Ausdruck der Zusammenhang von Text und zugehörigem Bild verloren geht.**
- **Wird der Fehler nicht bemerkt, besteht die Gefahr, daß Arbeiten nicht korrekt durchgeführt werden und es dadurch zu Personen- und Sachschäden kommt.**

Vergleichen Sie deshalb nach dem Druckvorgang unbedingt die Ausdrucke mit der Bildschirmdarstellung. Korrigieren Sie die Ausdrucke im Fehlerfall so, daß der Inhalt der Bildschirmdarstellung zutreffend wiedergegeben wird.

WARNING

Danger of losing text-figure correspondence when printing out.

- **For technical reasons, it can currently not be ruled out that the correspondence between text and associated figure can be lost when it is printed out, even though the display on the screen is correct.**
- **If the fault is not noticed, there is the danger that work will not be performed correctly which can cause injury and damage.**

20 15 IN Calibrating fuel-level sensor system - as of MY 2005

Warning notes for calibrating fuel-level sensor system

WARNING

Danger of fire and injury!

- **Danger of fire and injury!**

Observe general safety regulations on the fuel system!

Wear protective gloves!

DANGER

Lethal danger of explosion and fire from escaping fuel and vapours.

Ensure adequate ventilation and extract all fuel vapours.

Do not work on fuel system when engine is hot.

No welding or grinding work when the fuel system is open.

Smoking prohibited and no naked lights.

Secure vehicle clearly, e.g with warning signs.

Wear fuel-resistant protective gloves and goggles.

Wear a breathing mask with active charcoal filter; do not breathe in any fuel vapours.

Pay attention to cleanliness when working on the fuel system.

Before opening fuel lines or fuel hoses, relieve the fuel pressure.

Collect escaping fuel, absorb it if necessary with a suitable binding material and dispose of properly.

WARNING

Skin and eye damage from toxic and caustic effects of fuel.

In case of contact with skin or eyes wash immediately with plenty of warm water and acid-free soap.

Consult a doctor as soon as possible.

Calibrating fuel-level sensor system, C4

Note

- *Tank calibration is necessary after replacement of the fuel tank, fuel-level sensor or instrument cluster. Calibrate the fuel-level sensor system - after replacing the instrument cluster - only if the function **Read out values** cannot be performed!*
- *The fuel-level sensor system need not be calibrated if the battery was disconnected or a plug connection on the instrument cluster or fuel-level sensor was removed. The values remain stored in the instrument cluster.*
- *A range on remaining fuel of less than 15 km is not displayed in the instrument cluster.*

Observe warning notes: 2015IN IN Calibrating fuel-level sensor system - section on "General warning notes"
Empty the fuel tank, e.g. see Checking quantity delivered by fuel system. 206601 Checking fuel delivery rate

1. Fill the fuel tank with **28 litres** of fuel, metered by volume.
2. Wait for a short time to allow the tank sensor to settle down to the level.
3. Connect the Porsche System Tester to the vehicle and start the System Tester. Switch on the ignition. >> Continue.
4. Select vehicle type, then go to the list of control units.
5. Select **Instrument cluster** control unit, then press >> .
6. Select the **Special functions** menu, then press >> .
7. Select the **Tank check** menu, then press >> .
8. Carry out the tank calibration; the tester gives a reading in litres, which is then synchronised to **28 litres**.
9. Check position of tank needle in instrument cluster. Tank needle in lower third.
10. Fill vehicle with fuel and check position of tank needle in instrument cluster. Wait for a few minutes. Tank needle shows full.

997410, 997411, 997430, 997431, 997610, 997611, 997620, 997621

as of MY 2005
Country C00, C02, C05, C07, C08, C09, C10, C11, C12, C13, C14, C15, C16, C18, C19, C20, C21, C22, C23, C24, C25, C26, C27, C28, C32, C33, C34, C35, C36, C37, C38, C39, C45, C46, C98, C99

WARNUNG
Gefahr des Verlusts der Text-Bild-Zuordnung beim Ausdruck.

- **Aus technischen Gründen kann derzeit nicht ausgeschlossen werden, dass trotz einwandfreier Darstellung auf dem Bildschirm beim Ausdruck der Zusammenhang von Text und zugehörigem Bild verloren geht.**

20 15 IN Calibrating fuel-level sensor system - as of MY 2005

Warning notes for calibrating fuel-level sensor system

WARNING

Danger of fire and injury!

- **Danger of fire and injury!**

Observe general safety regulations on the fuel system!

Wear protective gloves!

DANGER

Lethal danger of explosion and fire from escaping fuel and vapours.

Ensure adequate ventilation and extract all fuel vapours.

Do not work on fuel system when engine is hot.

No welding or grinding work when the fuel system is open.

Smoking prohibited and no naked lights.

Secure vehicle clearly, e.g with warning signs.

Wear fuel-resistant protective gloves and goggles.

Wear a breathing mask with active charcoal filter; do not breathe in any fuel vapours.

Pay attention to cleanliness when working on the fuel system.

Before opening fuel lines or fuel hoses, relieve the fuel pressure.

Collect escaping fuel, absorb it if necessary with a suitable binding material and dispose of properly.

WARNING

Skin and eye damage from toxic and caustic effects of fuel.

In case of contact with skin or eyes wash immediately with plenty of warm water and acid-free soap.

Consult a doctor as soon as possible.

Calibrating fuel-level sensor system, C2

Note

- *Tank calibration is necessary after replacement of the fuel tank, fuel-level sensor or instrument cluster. Calibrate the fuel-level sensor system - after replacing the instrument cluster - only if the function **Read out values** cannot be performed!*
- *The fuel-level sensor system need not be calibrated if the battery was disconnected or a plug connection on the instrument cluster or fuel-level sensor was removed. The values remain stored in the instrument cluster.*
- *A range on remaining fuel of less than 15 km is not displayed in the instrument cluster.*

Observe warning notes: 2015IN IN Calibrating fuel-level sensor system - section on "General warning notes"
Empty the fuel tank, e.g. see Checking quantity delivered by fuel system. 206601 Checking fuel delivery rate

1. Fill the fuel tank with **13 litres** of fuel, metered by volume.
2. Wait for a short time to allow the tank sensor to settle down to the level.
3. Connect the Porsche System Tester to the vehicle and start the System Tester. Switch on the ignition. >> Continue.
4. Select vehicle type, then go to the list of control units.
5. Select **Instrument cluster** control unit, then press >> .
6. Select the **Special functions** menu, then press >> .
7. Select the **Tank check** menu, then press >> .
8. Carry out the tank calibration; the tester gives a reading in litres, which is then synchronised to **13 litres**.
9. Check position of tank needle in instrument cluster. Tank needle in lower third.
10. Fill vehicle with fuel and check position of tank needle in instrument cluster. Wait for a few minutes. Tank needle shows full.

997110, 997111, 997120, 997121, 997310, 997311, 997320, 997321

as of MY 2005
Country C00, C02, C05, C07, C08, C09, C10, C11, C12, C13, C14, C15, C16, C18, C19, C20, C21, C22, C23, C24, C25, C26, C27, C28, C32, C33, C34, C35, C36, C37, C38, C39, C45, C46, C98, C99

WARNUNG
Gefahr des Verlusts der Text-Bild-Zuordnung beim Ausdruck.

- **Aus technischen Gründen kann derzeit nicht ausgeschlossen werden, dass trotz einwandfreier Darstellung auf dem Bildschirm beim Ausdruck der Zusammenhang von Text und zugehörigem Bild verloren geht.**

24 46 TW Technical data, intake system - as of MY 2005

- Technical values

top of page

Technical values

Intake system

Designation	997	997 S
Intake system	2-stage tuned-intake system (plastic)	
Switching rpm tuning flap	2800-5100 rpm	2500-4900 rpm
Timing	ME 7.8, mass air flow measurement with hot film, electronic throttle	
rpm limitation	Electronic throttle and fuel cutoff	

Intake system tightening torques

Designation	997	997 S
Intake system	**Tightening torque: 9.5 ftlb**	
Throttle body	**Tightening torque: 7.5 ftlb**	

997110, 997111, 997120, 997121, 997310, 997311, 997320, 997321, 997410, 997411, 997430, 997431, 997610, 997611, 997620, 997621

as of MY 2005
Country C00, C02, C05, C07, C08, C09, C10, C11, C12, C13, C14, C15, C16, C18, C19, C20, C21, C22, C23, C24, C25, C26, C27, C28, C32, C33, C34, C35, C36, C37, C38, C39, C45, C46, C98, C99

WARNUNG

26 01 TW Technical data, exhaust system - as of MY 2005

- Technical values

top of page

Technical values

Exhaust system and emission control

Designation	997	997 S
Exhaust system structure	2-pipe, 3-way catalytic converter exhaust system with one rear silencer per cylinder bank	
Emission control:		
Euro 2	Lambda control with 2 pre-catalytic converter probes, 3-way catalytic converter with 2-stage converters left + right.	
Euro 4	Additional secondary air system and post catalytic control (4 probes), EOBD	
USA LEV	as Euro 4 except with OBD II + ORVR	

Exhaust system tightening torques

Designation	997	997 S
Exhaust manifold	**Tightening torque: 17 ftlb**	
Bracket for rear muffler holder	**Tightening torque: 17 ftlb**	
Cap for CO sampling fitting	**Tightening torque: 17 ftlb**	
Catalytic converter fastening clamp	**Tightening torque: 13 ftlb**	
Clamping sleeve	**Tightening torque: 34 ftlb**	

Tailpipe fastening	**Tightening torque: 17 ftlb**

997110, 997111, 997120, 997121, 997310, 997311, 997320, 997321, 997410, 997411, 997430, 997431, 997610, 997611, 997620, 997621

as of MY 2005
Country C00, C02, C05, C07, C08, C09, C10, C11, C12, C13, C14, C15, C16, C18, C19, C20, C21, C22, C23, C24, C25, C26, C27, C28, C32, C33, C34, C35, C36, C37, C38, C39, C45, C46, C98, C99

WARNUNG

Gefahr des Verlusts der Text-Bild-Zuordnung beim Ausdruck.

- **Aus technischen Gründen kann derzeit nicht ausgeschlossen werden, dass trotz einwandfreier Darstellung auf dem Bildschirm beim Ausdruck der Zusammenhang von Text und zugehörigem Bild verloren geht.**
- **Wird der Fehler nicht bemerkt, besteht die Gefahr, daß Arbeiten nicht korrekt durchgeführt werden und es dadurch zu Personen- und Sachschäden kommt.**

Vergleichen Sie deshalb nach dem Druckvorgang unbedingt die Ausdrucke mit der Bildschirmdarstellung. Korrigieren Sie die Ausdrucke im Fehlerfall so, daß der Inhalt der Bildschirmdarstellung zutreffend wiedergegeben wird.

WARNING

Danger of losing text-figure correspondence when printing out.

- **For technical reasons, it can currently not be ruled out that the correspondence between text and associated figure can be lost when it is printed out, even though the display on the screen is correct.**
- **If the fault is not noticed, there is the danger that work will not be performed correctly which can cause injury and damage.**

Therefore, always compare printouts with the screen display after printing them out. Correct the printouts if they are faulty so that the content of the screen display matches that on the printouts.

AVERTISSEMENT

Risque de perte de la correspondance texte-illustration lors de l'impression papier.

- **Pour des raisons techniques, il ne peut pas être exclu à l'heure actuelle que, même en cas d'affichage correct à l'écran, la correspondance entre le texte et l'illustration puisse être erronée sur l'impression papier.**
- **Si l'erreur passe inaperçue, on court le risque d'exécuter certaines opérations de manière incorrecte pouvant conduire à des dommages corporels et matériels.**

27 06 IN External power connection, jump lead starting - as of MY 2005

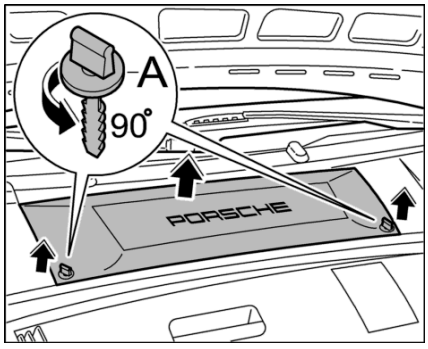
- Preliminary work
- General warning notes
- Information
- Subsequent work

top of page

Preliminary work

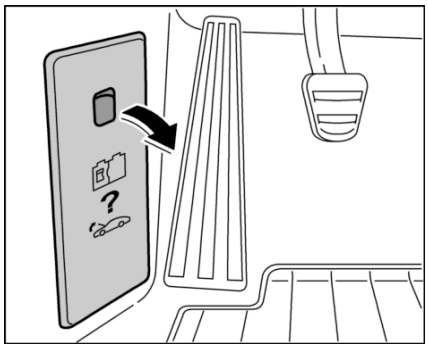
Preliminary work for external power connection, jump lead starting

Jump lead starting:



1. Open the turn-lock fasteners **-A-** of the battery cover and remove cover.

External power connection:



1. Unclipping the cover for the fuse carrier.

top of page

General warning notes

Warning notes for external power connection, jump lead starting

WARNING

Improper handling of jump leads.

- **Risk of explosion as a result of electrolytic gas.**
- **Danger of injury from short circuit.**
- **Risk of damage to the vehicle's electrical system, e.g. control modules.**
- **Risk of causticisation.**

Keep ignition sources away from the battery, e.g. naked flames, lit cigarettes or sparking from wire contact.

A frozen battery must always be thawed before connecting just leads.

Use only standard jump leads with a sufficiently wide cross section and fully insulated terminal clamps. Observe the cable manufacturer's specifications.

Route the jump leads so that they cannot become entangled in moving parts in the engine compartment.

No contact is allowed between the vehicles, otherwise electricity could flow as soon as the positive terminal is connected.

top of page

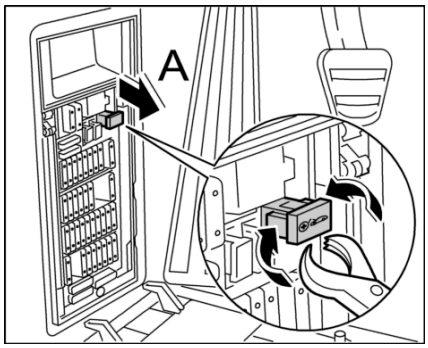
Information

External power connection

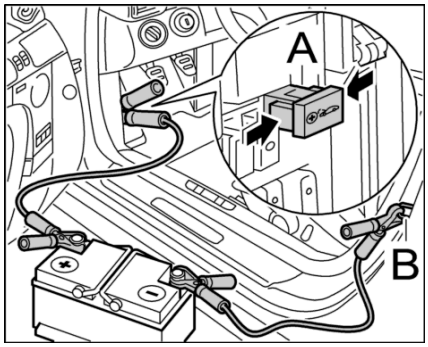
Note

- *If the battery is flat, jump leads can be used together with the battery of another vehicle to start the car or to supply external power to the vehicle.*

Both batteries must be 12 V batteries.
The capacity (Ah) of the battery supplying the power must not be significantly lower than that of the flat battery.
The flat battery must be properly connected to the vehicle electrical system.



1. Pull out the power connection **-A-** on the fuse carrier.



2. First connect the positive cable to the battery, then to the power connection **-A-** on the fuse carrier.
3. First connect the negative cable to the negative terminal of the battery supplying the power, then to the ground point **-B-** .
4. Now the servomotors for the front and rear covers can be operated.

Jump lead starting

Both batteries must be 12 V batteries.
The capacity (Ah) of the battery supplying the power must not be significantly lower than that of the flat battery.
The flat battery must be properly connected to the vehicle electrical system.

1. First connect the positive cable to the positive terminal of the recipient battery, then to the positive terminal of the donor battery.
2. First connect the negative cable to the negative terminal of the donor battery, then to a suitable ground point on the recipient car.

A suitable ground point can be e.g. one specially for jump starts, a solid metal component or the engine block. The ground point should be as far away from the battery as possible.
If a suitable ground point is only present in the donor vehicle, then first connect the negative cable to the negative terminal of the recipient battery and then to the ground point of the donor vehicle.
If neither vehicle has a ground point, first connect the negative cable to the negative terminal of the donor battery, then **carefully** to the negative terminal of the recipient battery.

3. Have the engine of the vehicle supplying the power run at a higher speed.
4. Start engine. Do not spend longer than 15 seconds trying to start the vehicle with the jump leads - after 15 seconds have elapsed, wait for at least one minute.

Before disconnecting the jump leads, switch on high electrical loads in the recipient vehicle, e.g. rear window heater and interior blower, in order to reduce any voltage peaks on disconnection. The light must not be turned on.

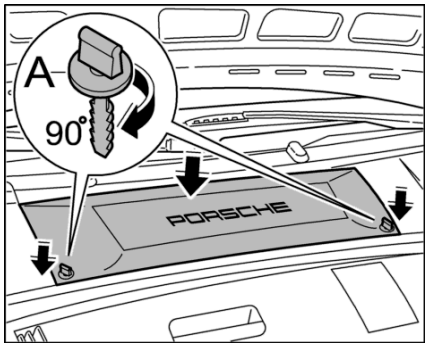
5. Disconnect the two jump leads in reverse sequence when the engine is running.

top of page

Subsequent work

Rework on external power connection, jump lead starting

Jump lead starting:



1. Put on the battery cover and secure by means of the two turn-lock fasteners **-A-** .

External power connection:

1. Clip in the cover for the fuse carrier.

997110, 997111, 997120, 997121, 997310, 997311, 997320, 997321, 997410, 997411, 997430, 997431, 997610, 997611, 997620, 997621

as of MY 2005
Country C00, C02, C05, C07, C08, C09, C10, C11, C12, C13, C14, C15, C16, C18, C19, C20, C21, C22, C23, C24, C25, C26, C27, C28, C32, C33, C34, C35, C36, C37, C38, C39, C45, C46, C98, C99

WARNUNG

Gefahr des Verlusts der Text-Bild-Zuordnung beim Ausdruck.

- **Aus technischen Gründen kann derzeit nicht ausgeschlossen werden, dass trotz einwandfreier Darstellung auf dem Bildschirm beim Ausdruck der Zusammenhang von Text und zugehörigem Bild verloren geht.**
- **Wird der Fehler nicht bemerkt, besteht die Gefahr, daß Arbeiten nicht korrekt durchgeführt werden und es dadurch zu Personen- und Sachschäden kommt.**

Vergleichen Sie deshalb nach dem Druckvorgang unbedingt die Ausdrucke mit der Bildschirmdarstellung. Korrigieren Sie die Ausdrucke im Fehlerfall so, daß der Inhalt der Bildschirmdarstellung zutreffend wiedergegeben wird.

27 06 IN Work instructions after disconnecting the battery - as of MY 2005

- Disconnecting and connecting the battery

top of page

Disconnecting and connecting the battery

Disconnecting and connecting the battery

DANGER

Risk of explosion, injury, short circuit and damage to the generator and electronic control units!

Protective goggles must be worn at all times when working on the battery.

Do not disconnect battery with engine running.

Disconnect and reconnect battery with extreme caution. Risk of short circuit and explosion.

Do not tilt battery when removing it. Risk of acid burns as a result of emerging acid.

Do not rub the battery with a dry cloth. Risk of explosion as a result of static charge.

All loads must be switched off beforehand!

Never start engine without securely connected battery!

Do not use a boost charger to start the engine!

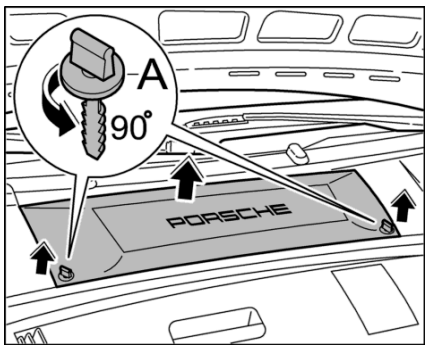
Whenever possible, use jump leads with overvoltage protection!

Always disconnect and cover both battery terminals before carrying out welding work on the vehicle!

For vehicles with auxiliary battery, also disconnect and cover both terminals of this battery before carrying out welding work!

Always pull off or push on the wiring harness plugs of control units or other electronic components when the ignition is switched off.

The battery is located at the front in the radiator tank.

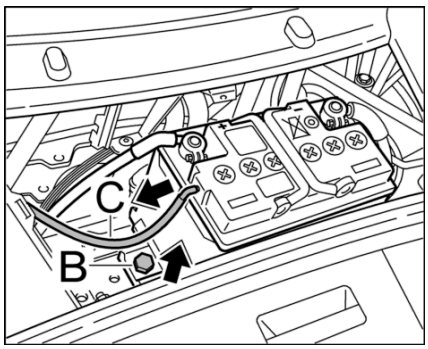


Battery cover

1. Open the turn-lock caps **-A-** of the battery cover and take off the plastic lid.

Note

For vehicles with a Vehicle Tracking System (VTS), please read the *906323 Vehicle Tracking System (VTS)* TI!

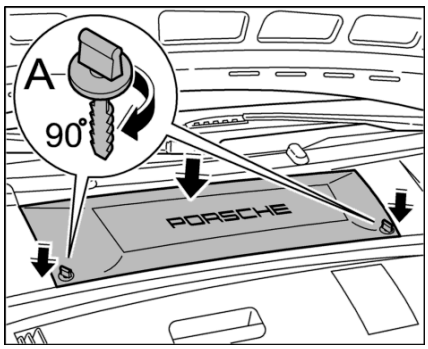


Disconnecting battery

2. Disconnect the negative cable from the battery.
3. Route or isolate negative cable so that all contact with a ground carrier (e.g. body) is avoided.

Screwing ground strap onto battery:

4. Connect the negative cable. **M6: 5 (3.5 ftlb.) Nm**



Battery cover

5. Position the battery cover and secure by means of the two turn-lock caps **-A-** .

Effect of disconnection or total discharge of battery on electrical systems in the vehicle and the precautions to be taken

Note

Control unit memories

Values and faults stored in the control units can be deleted if the battery is disconnected or completely discharged.

- *If possible, all fault memories should be checked and, if necessary, printed out before the battery is disconnected.*

Note

Supply voltage fault entry

The entry "supply voltage" may be stored in various control units if the battery has been completely discharged.

- *Delete the "supply voltage" entry from the control units in question.*

Note

Ready status

In some countries (presently the U.S.A. and Canada), after disconnecting the battery, it is necessary to reach the Ready status by a test drive and/or by using the Porsche System Tester DME control module menu). If in doubt about this, contact the relevant importer.

Note

2470 DME control module

With all DME systems, the engine must run for several minutes before the engine control module can relearn the idle speed and mixture adaptation values!
After disconnection of the power supply, the idle speed might change or fluctuate briefly until the throttle valve adjusting unit has been readapted.
The mixture adaptation is also lost.

After the battery is connected:

With the DME, it is necessary to carry out a learning and adaptation routine as described below:

- *Switch ignition on for 30 seconds without starting the engine.*
- *Do not actuate accelerator pedal.*

This completes the adaptation of the throttle valve adjusting unit.

Note

Tyre pressure monitoring system

When the battery is disconnected and connected, the tyre pressure is first displayed as "- - - ".

- *Once the battery has been disconnected and work is complete, the vehicle must be driven for a short distance.*

The actual pressures will then be displayed again.

Note

4560 Steering angle sensor

The steering angle sensor must be re-initialised when the battery is disconnected and connected.

- *Turn wheels to straight-ahead position.*
- *Switch ignition off and then on again twice.*
- *Start engine.*
- *From the straight-ahead position, turn steering wheel approx. 20° to the right, past the straight-ahead position.*
- *Drive the vehicle straight ahead for at least one second at a speed above 4 km/h (2.5 mph).*

The steering angle sensor segment is recognised again in this process.
Once the sensor has been successfully initialised, the fault code that is stored in the fault memory is documented using the fault deletion counter.
The fault memory erases itself automatically.
The PSM indicator light in the instrument cluster goes out.

Note

Motor for sunroof

The limit positions of the sunroof are deleted from the control unit when the battery is disconnected and connected.

- *Switch on ignition.*
- *Press the rocker switch to open until the sunroof is completely open.*
- *Press the rocker switch to close until the sunroof is completely closed.*
- *Touch the one-touch function and check if the sunroof is in the end position for "optimal noise level". If not, then repeat the process.*

The end positions of the sunroof are now stored in the control unit again.

Note

6452 Power windows

The end positions of the power windows are deleted from the control unit when the battery is disconnected and connected.

Perform the following procedure for all power windows:

- *Actuate rocker switch and fully close window once.*
- *Actuate rocker switch once more to close.*

The upper end position of the window is stored.

- *Actuate rocker switch and fully open window once.*
- *Actuate rocker switch once more to open.*

The lower end position of the window is stored.

Note

9025 Instrument cluster

Clock

The time is deleted when the power supply is disconnected.

- *Press clock control button approx. 1 second on instrument cluster. Hour display flashes.*
- *Press clock control button in the corresponding direction. Hours can be adjusted.*
- *Press the clock control button again, the minute display flashes and can be adjusted by turning the clock control button.*

Trip odometer

- *The trip counter is set to 0 when the power supply is disconnected.*

Note

Airbag control module

If the battery is disconnected for less than 100 seconds when the ignition is switched on, a CAN time fault, which makes diagnosis of the airbag control unit impossible, may be stored in the airbag control unit.

- *The fault is erased by removing the ignition key.*

Note

On-board computer

Disconnection of the vehicle battery deletes the memories for average speed and average consumption. As a result, the displayed range on remaining fuel can be markedly different or even 0. The outside temperature display loses its memory effect. In other words, the indicated outside temperature can be too high due to the heat radiated when the vehicle is hot.

Note

PCM

When the power supply is disconnected, the built-in GPS receiver loses the so-called almanac containing the satellite orbital paths.

- *Switch on PCM when there is a free panoramic view (load GPS almanac); the almanac is reloaded as soon as four satellites have been identifed.*

The date and time are deleted when the battery is disconnected. The summer-/wintertime recognition feature is maintained. The time is lost and is updated again when there is a plausible GPS reception (four satellites).

- *The date and time are also adopted once the GPS almanac has been loaded; it may be necessary to change over to summer time (daylight-saving time). This time is transferred to the instrument cluster. If the time is then manually changed by means of the instrument cluster, this time is adopted by the PCM and synchronised with GPS time.*

If the telephone car had been inserted and the telephone was ready for operation, the telephone is subsequently disabled (only if "Use last PIN" is deactivated).

- *The telephone is enabled again when the telephone PIN code is entered with the SIM telephone card inserted.*

Test drive after disconnecting battery

Note

Depending on the vehicle equipment fitted, all these work steps are carried out during the test drive.
The fault memories of all vehicle control units should be read out again after the test drive!

Effects of overvoltage on electrical and electronic systems during welding work and the precautions to be taken

ATTENTION

Risk of damage to generator and electronic control units.

Disconnect and cover both battery terminals before carrying out welding work on the vehicle! 270619 Removing and reinstalling battery - chapter on "Removing".

Risk of triggering of airbag modules! Before starting welding work, the airbag triggering unit must be disconnected from the vehicle electrical system by pulling off the connector. 695319 Removing and reinstalling airbag triggering unit - chapter on "Removing"

During electric arc welding (e.g. gas shielded arc welding), high currents and voltages flow; these are greater than the vehicle voltage and can lead to the damage or destruction of electric and electronic components. To keep the risk of damage as low as possible, the ground strap must be clamped as near as possible to the welding area.

On completion, first install the airbag triggering unit 695319 Removing and reinstalling airbag triggering unit - chapter on "Installing", then connect the battery 270619 Removing and reinstalling battery - chapter on "Installing" 270619 Removing and reinstalling battery - chapter on "Removing and reinstalling".

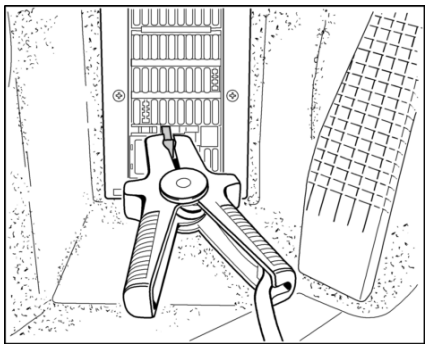
27 06 IN Electrical emergency release for lid - as of MY 2005

Electrical emergency release, front lid

Note

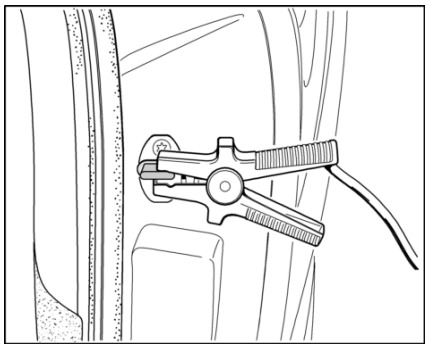
- *In the event of a flat battery, the release motors of both lids can be supplied with power through the power feed via a battery jump lead.*
- *An emergency power contact, coloured red for identification, is located on the fuse box in the driver's footwell.*
- *This emergency power contact, to which the positive jump lead is connected, can be pulled out of the fuse box by approx. 3 cm.*
- *The power supply is switched to the release motors by a change-over relay (mini-relay), located behind the fuse box.*
- *If the vehicle is locked (alarm protected), the alarm will sound if the jumper lead is connected.*
- *Turn off alarm system by locking and then unlocking the door lock.*

1. Unlock the vehicle at the door lock with the key.
2. Remove lid on fuse box and pull emergency power contact out of the fuse box.



Connecting the positive terminal

3. Connect the red jumper lead (positive) to this contact.



Connecting the negative terminal

4. Connect second (negative) jump lead to vehicle ground (e.g. to the lock striker on the B-pillar).
5. Connect jumper leads to an appropriate power source (e.g. separate vehicle battery).
6. Actuate the lid switch on the sill cover and open the lid.
7. Disconnect jumper leads and push the emergency power contact back in.
8. Clip cover back onto the fuse box.

997110, 997111, 997120, 997121, 997310, 997311, 997320, 997321, 997410, 997411, 997430, 997431, 997610, 997611, 997620, 997621

as of MY 2005
Country C00, C02, C05, C07, C08, C09, C10, C11, C12, C13, C14, C15, C16, C18, C19, C20, C21, C22, C23, C24, C25, C26, C27, C28, C32, C33, C34, C35, C36, C37, C38, C39, C45, C46, C98, C99

WARNUNG

Gefahr des Verlusts der Text-Bild-Zuordnung beim Ausdruck.

- **Aus technischen Gründen kann derzeit nicht ausgeschlossen werden, dass trotz einwandfreier Darstellung auf dem Bildschirm beim Ausdruck der Zusammenhang von Text und zugehörigem Bild verloren geht.**
- **Wird der Fehler nicht bemerkt, besteht die Gefahr, daß Arbeiten nicht korrekt durchgeführt werden und es dadurch zu Personen- und Sachschäden kommt.**

Vergleichen Sie deshalb nach dem Druckvorgang unbedingt die Ausdrucke mit der Bildschirmdarstellung. Korrigieren Sie die Ausdrucke im Fehlerfall so, daß der Inhalt der Bildschirmdarstellung zutreffend wiedergegeben wird.

WARNING

Danger of losing text-figure correspondence when printing out.

- **For technical reasons, it can currently not be ruled out that the correspondence between text and associated figure can be lost when it is printed out, even though the display on the screen is correct.**
- **If the fault is not noticed, there is the danger that work will not be performed correctly which can cause injury and damage.**

34 35 TW Technical data, transmission - as of MY 2005

- Technical values

top of page

Technical values

Technical data

Transmission type: G97/01
Equipment: 6-gear
Installed in: Carrera (997) and Carrera S (997)
Model Year: 2005

Transmission ratios

1st gear: 3.91
2nd gear: 2.32
3rd gear: 1.61
4th gear: 1.28
5th gear: 1.08
2nd gear: 0.88
Reverse gear: 3.59
Final drive ratio: 3.44

Filling capacities

Location	Explanation	Type	Basic value	Tolerance 1	Tolerance 2
Manual transmission	Filling capacity for dry transmission with differential	Filling capacity	2.9 litre		
Manual transmission	Change quantity for changing transmission oil	Filling capacity	2.6 litre		

997110, 997111, 997120, 997121, 997310, 997311, 997320, 997321

34 35 TW Technical data, transmission - as of MY 2005

- Technical values

top of page

Technical values

Technical data

Transmission type: G97/31
Equipment: 6-gear
Installed in: Carrera 4 (997) und Carrera 4 S (997)
Model Year: 2005

Transmission ratios

1st gear: 3.91
2nd gear: 2.32
3rd gear: 1.61
4th gear: 1.28
5th gear: 1.08
2nd gear: 0.88
Reverse gear: 3.59
Final drive ratio: 3.44

Filling capacities

Location	Explanation	Type	Basic value	Tolerance 1	Tolerance 2
Manual transmission	Filling capacity for dry transmission with differential	Filling capacity	2.9 litre		
Manual transmission	Change quantity for changing transmission oil	Filling capacity	2.6 litre		

997410, 997411, 997430, 997431, 997610, 997611, 997620, 997621

37 35 TW Technical data, automatic transmission - as of MY 2005

- Technical values

top of page

Technical values

Technical data

Transmission type: A97/01
Equipment: 5-gear
Installed in: Carrera (997) and Carrera S (997)
Model Year: 2005
Type: Fully automatic 5-speed planetary gear set

Transmission ratios

Spur gear: 0.76
1st gear: 3.60
2nd gear: 2.19
3rd gear: 1.41
4th gear: 1.00
5th gear: 0.83
Reverse gear: 1.93 / 3.17
Final drive ratio: 3.56

Filling capacities

Location	Explanation	Type	Basic value	Tolerance 1	Tolerance 2
Automatic transmission	Filling capacity for new transmission with converter	Filling capacity	9 litre		
Automatic transmission	Change quantity for changing ATF	Filling capacity	4.5 litre		
Final drive		Filling capacity	1.2 litre		

37 35 TW Technical data, automatic transmission - as of MY 2005

- Technical values

top of page

Technical values

Technical data

Transmission type: A97/31
Equipment: 5-gear
Installed in: Carrera 4 (997) und Carrera 4 S (997)
Model year: 2006
Type: Fully automatic 5-speed planetary gear set

Transmission ratios

Spur gear: 0.76
1st gear: 3.60
2nd gear: 2.19
3rd gear: 1.41
4th gear: 1.00
5th gear: 0.83
Reverse gear: 1.93 / 3.17
Final drive ratio: 3.56

Filling capacities

Location	Explanation	Type	Basic value	Tolerance 1	Tolerance 2
Automatic transmission	Filling capacity for new transmission with converter	Filling capacity	9 litre		
Automatic transmission	Change quantity for changing ATF	Filling capacity	4.5 litre		
Final drive		Filling capacity	1.2 litre		

39 88 TW Technical data on front final drive - as of MY 2006

- Technical values

top of page

Technical values

Technical values

Transmission type: Z97/00
Equipment: Bevel-gear drive without hypoid offset
Installed in: Carrera 4 (997)
Model year: 2006

Transmission ratio

Final-drive ratio: 3.33

Filling capacities

Location	Explanation	Type	Basic value	Tolerance 1	Tolerance 2
Front-axle final drive	Change quantity for changing transmission oil	Filling capacity	1.5 litre		

997410, 997411, 997430, 997431, 997610, 997611, 997620, 997621

as of MY 2006
Country C00, C02, C05, C07, C08, C09, C10, C11, C12, C13, C14, C15, C16, C18, C19, C20, C21, C22, C23, C24, C25, C26, C27, C28, C32, C33, C34, C35, C36, C37, C38, C39, C45, C46, C98, C99

WARNUNG

Gefahr des Verlusts der Text-Bild-Zuordnung beim Ausdruck.

- **Aus technischen Gründen kann derzeit nicht ausgeschlossen werden, dass trotz einwandfreier Darstellung auf dem Bildschirm beim Ausdruck der**

61 01 IN Convertible top service position - as of MY 2005

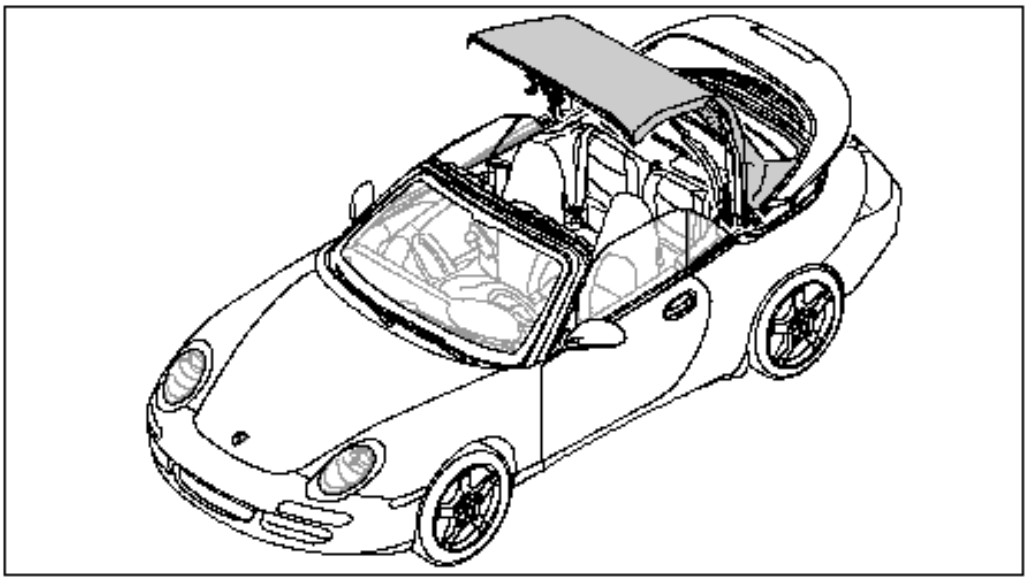
- Convertible top service position

top of page

Convertible top service position

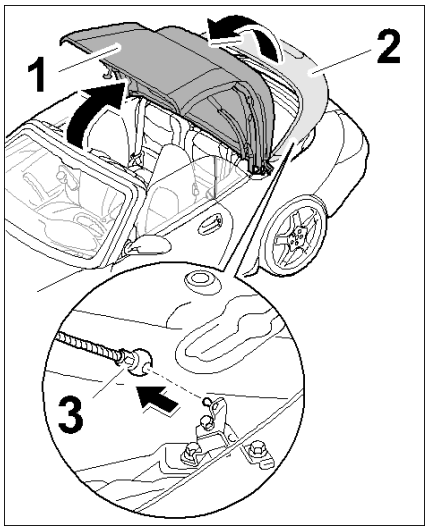
Move convertible top to service position

Installation Location:



Convertible top in service position

1. Switch on ignition.



Moving convertible top to service position

2. Move convertible top **-1-** to the rear electrically until the convertible-top compartment lid **-2-** has reached the rear end position. Move convertible top **-1-** forward electrically until the convertible-top compartment lid **-2-** moves forward, then interrupt closing operation.

ATTENTION

Operation of the convertible top in the service position!

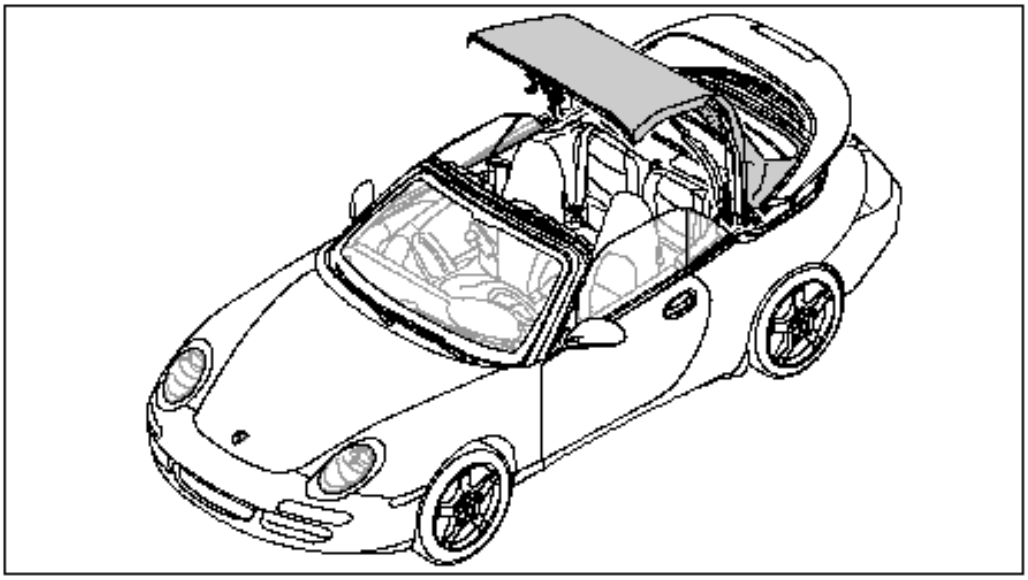
- **Material damage to convertible top frame and rear window!**

When in the service position, the convertible top must not be electrically actuated to the "Close" position.

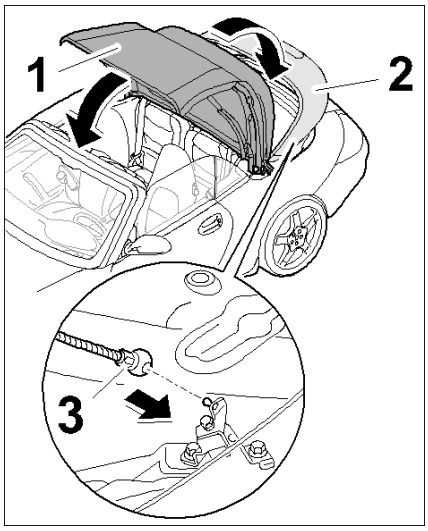
3. Disengage left and right tension cables **-3-** and fold up the tension bow.
4. Switch off the ignition.

Ending convertible top service position

Installation Location:



Convertible top in service position



Ending convertible top service position

1. Fold down tension bow and press ball socket of the left and right tension cables **-3-** into the ball head of the adjusting element.
2. Switch on ignition and move convertible top **-1-** electrically to its original position.
3. Switch off the ignition.

997310, 997311, 997320, 997321, 997610, 997611, 997620, 997621

as of MY 2005
Country C00, C02, C05, C07, C08, C09, C10, C11, C12, C13, C14, C15, C16, C18, C19, C20, C21, C22, C23, C24, C25, C26, C27, C28, C32, C33, C34, C35, C36, C37, C38, C39, C45, C46, C98, C99

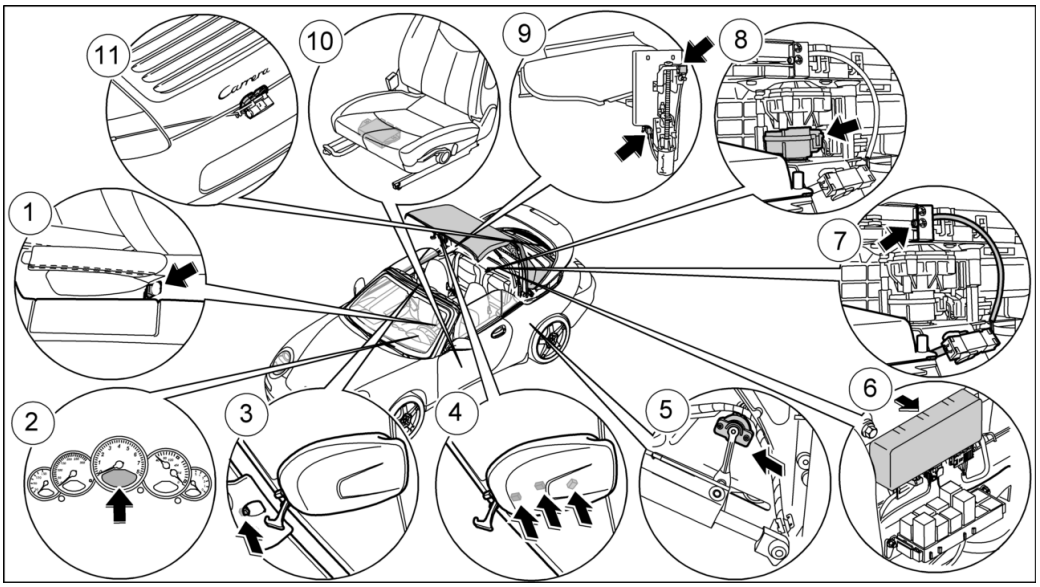
WARNUNG

Gefahr des Verlusts der Text-Bild-Zuordnung beim Ausdruck.

61 01 IN Overview of convertible-top components - as of MY 2005

Overview of convertible-top components

Installation Location:



Overview of convertible-top components

1 - Rocker switch
2 - Display in on-board computer
3 - Microswitch, latching hook (windscreen frame)
4 - Microswitch, convertible-top lock (convertible-top side)
5 - Potentiometer, convertible-top interrogation
6 - Control unit
7 - Microswitch for convertible-top compartment lid (locked)
8 - Potentiometer, convertible-top compartment lid interrogation
9 - Microswitch, left/right rear section flap up and down
10 - Coding, control unit for rear comfort system
11 - Microswitch for lower part of lid lock

The convertible top is activated if:

- Terminal 15 is connected via ignition.
- No speedometer signals greater than 50 km/h (30 mph) are present.
- Engine compartment lid is closed (input not at ground potential).

61 01 IN Diagram of convertible top - as of MY 2005

Diagram of convertible top

Installation Location:

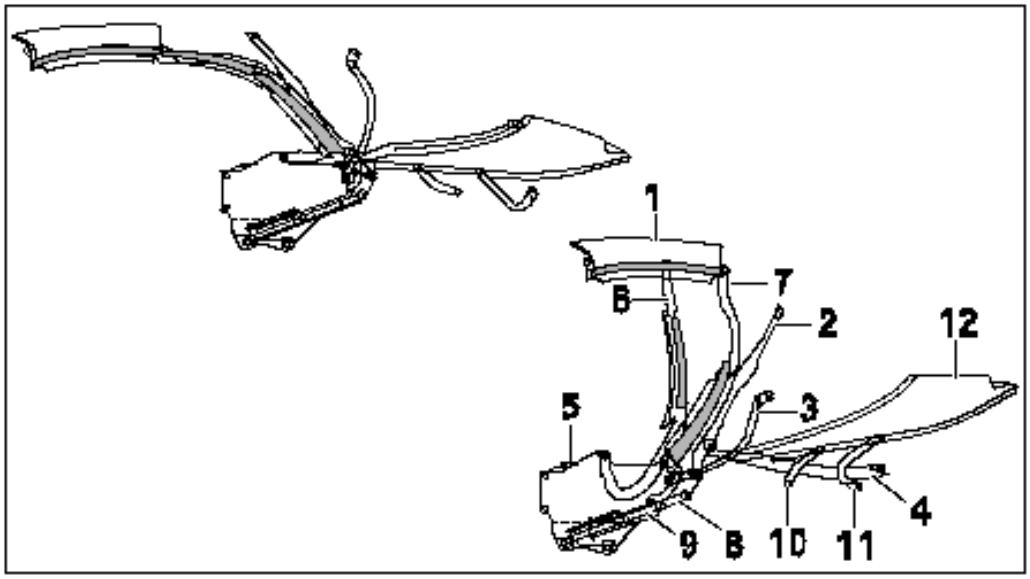


Diagram of convertible top

1 - Roof frame 1
2 - Main bow
3 - Corner bow
4 - Tension bow
5 - Convertible-top support
6 - Roof frame 2
7 - Roof frame
8 - Lever
9 - Hydraulic cylinder (drive)
10 - Front hinge lever
11 - Rear hinge lever
12 - Convertible-top compartment lid

997310, 997311, 997320, 997321, 997610, 997611, 997620, 997621

as of MY 2005
Country C00, C02, C05, C07, C08, C09, C10, C11, C12, C13, C14, C15, C16, C18, C19, C20, C21, C22, C23, C24, C25, C26, C27, C28, C32, C33, C34, C35, C36, C37, C38, C39, C45, C46, C98, C99

61 01 K2 Calibrating convertible top - as of MY 2005

- Preliminary work
- General warning notes

top of page

Preliminary work

Preliminary work for calibration

1. The convertible-top compartment lid drive must be repaired (after an emergency operation).
2. The valve screw of the hydraulic pump must be closed.
3. The engine compartment lid must be closed.
4. The upper microswitches of the left and right rear side section flaps are actuated when the opened convertible top is set down. See under Input signals in the Tester: Side flap top left or side flap top right. Read out fault memory if necessary and proceed according to the guided troubleshooting.
5. The lower microswitches of the left and right rear side section flaps are actuated when the convertible top is closed. See under Input signals in the Tester: Side flap bottom left or side flap bottom right. Read out fault memory if necessary and proceed according to the guided troubleshooting.
6. The convertible top compartment lid microswitch must be unlocked when the convertible top compartment lid is open. See under Input signals in the Tester: Convertible-top compartment lid released. The microswitch must be locked when the convertible top compartment lid is closed. See under Input signals in the Tester: Convertible-top compartment lid locked. Read out fault memory if necessary and proceed according to the guided troubleshooting.

top of page

General warning notes

Warning note on calibration

WARNING

Danger of injury and damage to property!

- **Danger of injury when working on the convertible top**

No tools or other items should be stored within the movement range of the convertible top.

The movement range of the convertible top and side window must be kept clear.

Calibrating convertible top

Calibration of the Cabriolet convertible top and the convertible top compartment lid is carried out via the diagnosis interface in the car and the PIWIS Tester. The respective potentiometer values (convertible top and convertible top compartment lid) are established during calibration. If the potentiometer values are plausible, the values are stored. The calibration values can then be calculated as a percentage by the convertible top control module from the potentiometer values.

1. Connect the Porsche System Tester to the diagnostic socket.
2. Switch on ignition.
3. Select the **Convertible top** menu item, **Drive links**, and select the**Calibrate** menu item in the command line which then appears.
4. Start calibration with the F8 key. Calibration can be started irrespective of whether the convertible top position is open or closed. The latching hook in roof frame 1 does not close during calibration.

The latching hook in roof frame 1 does not close during calibration.
Calibration is not counted as actuation. Calibration can be interrupted at any time with the F8 key on the Tester.

997310, 997311, 997320, 997321, 997610, 997611, 997620, 997621

as of MY 2005
Country C00, C02, C05, C07, C08, C09, C10, C11, C12, C13, C14, C15, C16, C18, C19, C20, C21, C22, C23, C24, C25, C26, C27, C28, C32, C33, C34, C35, C36, C37, C38, C39, C45, C46, C98, C99

WARNUNG

Gefahr des Verlusts der Text-Bild-Zuordnung beim Ausdruck.

- **Aus technischen Gründen kann derzeit nicht ausgeschlossen werden, dass trotz einwandfreier Darstellung auf dem Bildschirm beim Ausdruck der Zusammenhang von Text und zugehörigem Bild verloren geht.**
- **Wird der Fehler nicht bemerkt, besteht die Gefahr, daß Arbeiten nicht korrekt durchgeführt werden und es dadurch zu Personen- und Sachschäden kommt.**

Vergleichen Sie deshalb nach dem Druckvorgang unbedingt die Ausdrucke mit der Bildschirmdarstellung. Korrigieren Sie die Ausdrucke im Fehlerfall so, daß der Inhalt der Bildschirmdarstellung zutreffend wiedergegeben wird.

WARNING

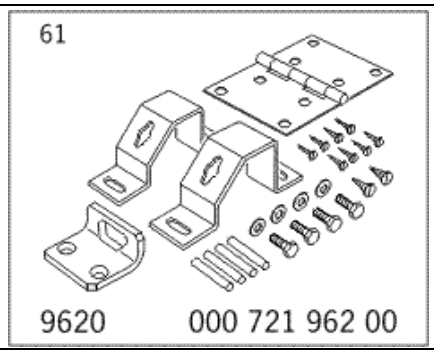
Danger of losing text-figure correspondence when printing out.

- **For technical reasons, it can currently not be ruled out that the correspondence between text and associated figure can be lost when it is printed out, even though**

61 02 IN Assembly instructions for hardtop assembly fixture - as of MY 2005

- Tools and materials
- Assembly instructions for hardtop assembly fixture

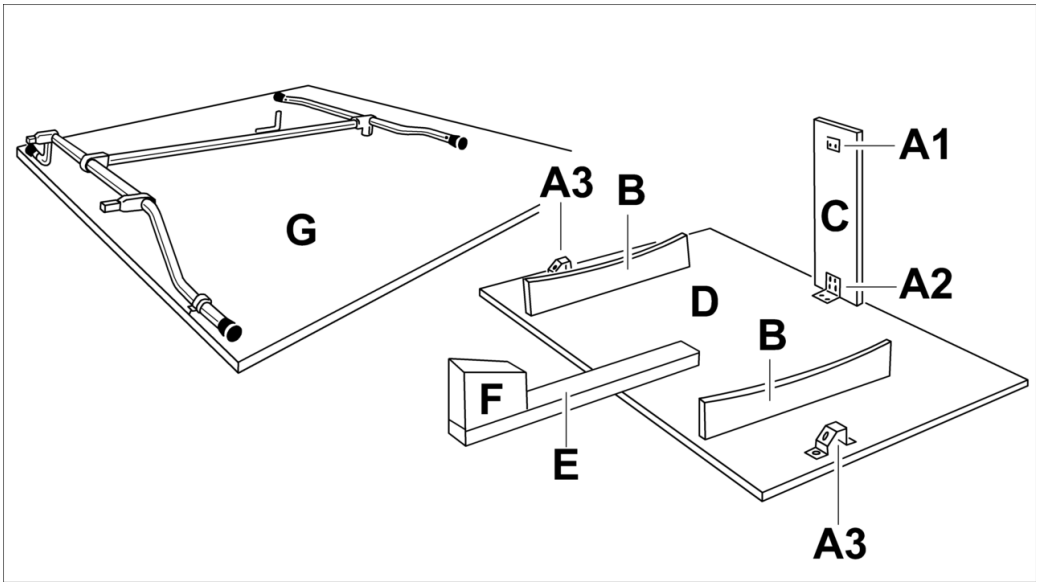
Tools

Designation	Type	Number	Explanation	
Mounting component	commercially available tool	9620		

top of page

Tools and materials

Tools and materials



Hardtop assembly fixture

The following fixture is required for assembly work on the outer area:

Item	Designation	Explanation
G	Wall support for 911 Carrera Cabriolet hardtop	"Special tool Gr. 3.5; Workshop Equipment Manual"

The following tools and materials are required to construct the fixture for work in the inner area:

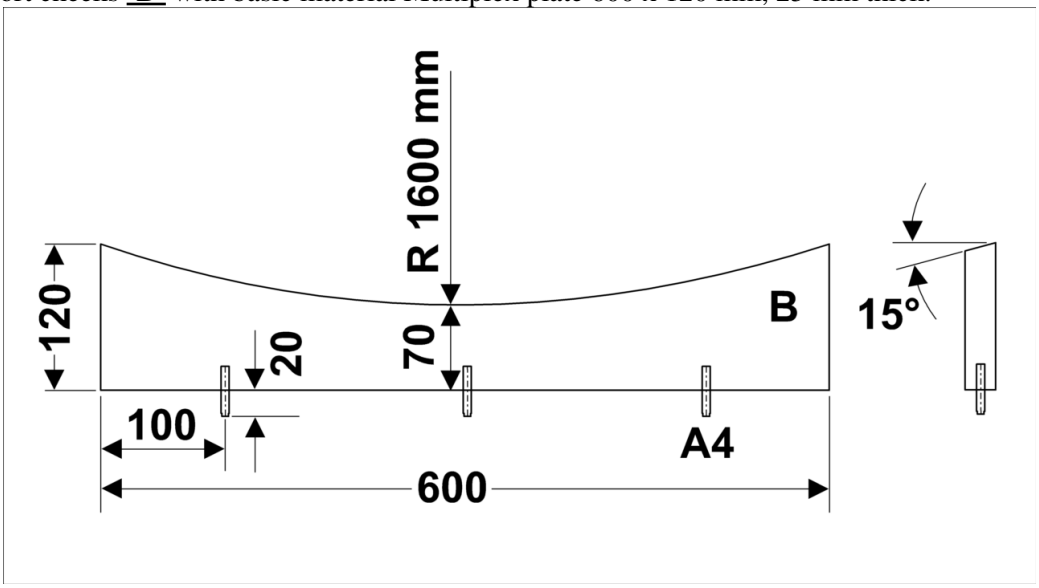
Item	Designation	Explanation
	Drill	
	Drill bit 6 mm	
	Drill bit 3 mm	
	Sabre saw	
	Measuring tape	
B	Support cheek (2x)	Multiplex plate 25 mm thick, 600 x 120 mm
C	Swivel arm 1x)	Multiplex plate 25 mm thick, 550 x 200 mm
D	Base plate (1x)	Wood-core plywood 19 mm thick, 1500 x 900 mm
E	Horizontal banner arm (1x)	Hardwood block 30 mm thick, 650 x 50 mm
F	Base (1x)	Hardwood block 50 mm thick, 90 x 140 x 190 mm
All materials listed are commercially available.		
	Mounting component 9620	"Special tool Gr. 2.2.2; Workshop Equipment Manual"
	Set of fittings includes:	
A1	Retaining bracket (1x)	
A2	Hinge (1x)	
A3	Base (2x)	
A4	Straight pin 6 M6 x 40 (6x)	
A5	Countersunk screw 4.5 x 20 (8x)	
A6	Countersunk screw 6 x 20 (2x)	
A7	Countersunk screw 6 x 20 with disc (4x)	
A8	Countersunk screw 6 x 60 (2x)	
A9	Countersunk screw 6 x 50 (3x)	

top of page

Assembly instructions for hardtop assembly fixture

Making support cheeks

Make support cheeks **-B-** with basic material Multiplex plate 600 x 120 mm, 25 mm thick.



Making support cheeks

A4 = Straight pin 6 M6 x 40 / B = Support cheek

1. **Work procedure:**

1.1. Transfer 160 mm radius to the multiplex plates.

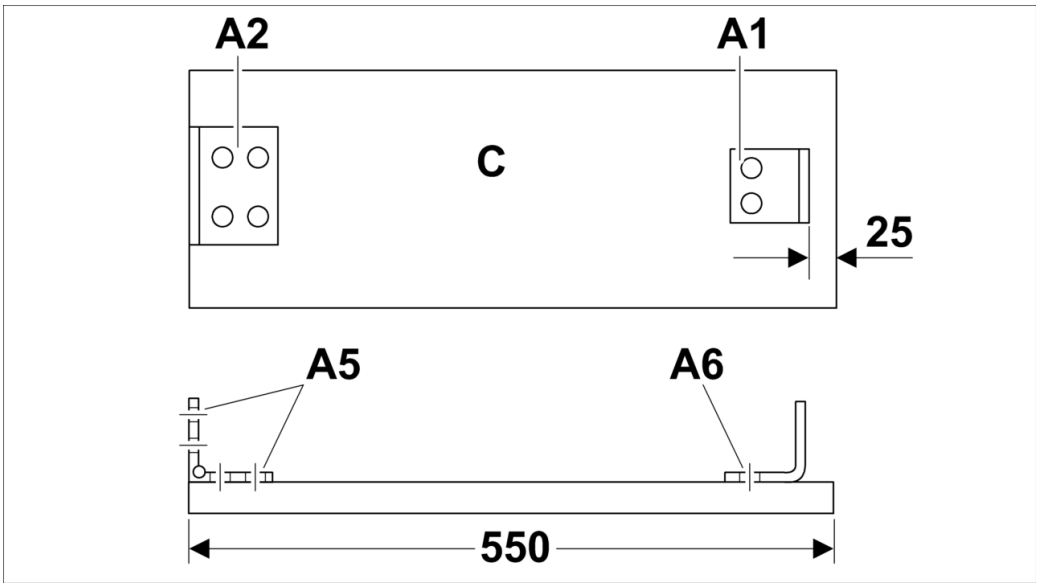
1.2. Saw multiplex plates along the traced radius. The foot of the sabre saw must be tilted by 15° for this purpose.

1.3. Drill four 6 mm holes in the support radii of each support cheek to provide clearance for the Tucker studs on the hardtop body. Obtain the dimensions from the hardtop body.

1.4. Drill three holes, 20 mm deep, 6 mm for each support cheek, to secure the support cheeks **-B-** to the base plate **-D-** with the straight pins contained in the set of fittings **-A4-** 6 m6 x 40 - attach to the support cheeks **-B-** .

Making swivel arm

Make swivel arm **-C-** with basic material Multiplex plate 550 x 200 mm, 25 mm thick.



Making swivel arm

-A1- = Retaining bracket
-A2- = Hinge
-A5- = countersunk screw 4.5 x 20
-A6- = countersunk screw 6 x 20
-C- = Swivel arm

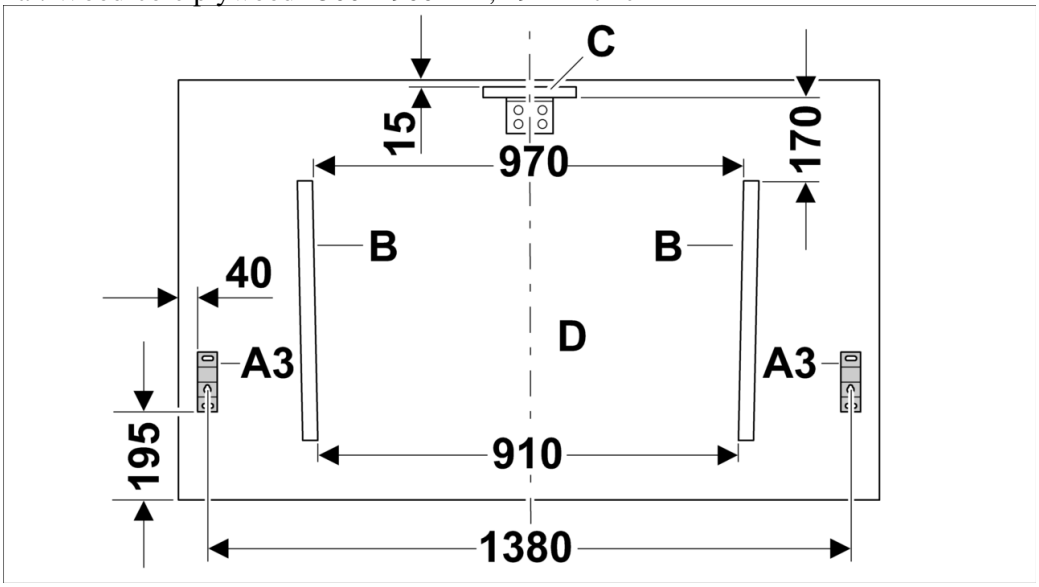
1. **Work procedure:**

1.1. Fit retaining bracket **-A1-** with 2 countersunk screws **-A6-** following the dimensions specified on the swivel arm **-C-** .

1.2. Fit hinge **-A2-** with 4 countersunk screws **-A5-** following the dimensions specified on the swivel arm **-C-** .

Fitting swivel and support cheeks on the basic plate

Basic material: Wood-core plywood 1500 x 900 mm, 19 mm thick



Fitting swivel and support cheeks on the basic plate

-A3- = Base
-B- = Support cheek
-C- = Swivel arm
-D- = Base plate

1. **Work procedure:**

1.1. During assembly, all parts are positioned from the centre!

1.2. Measure and mark the plate **-D-** .

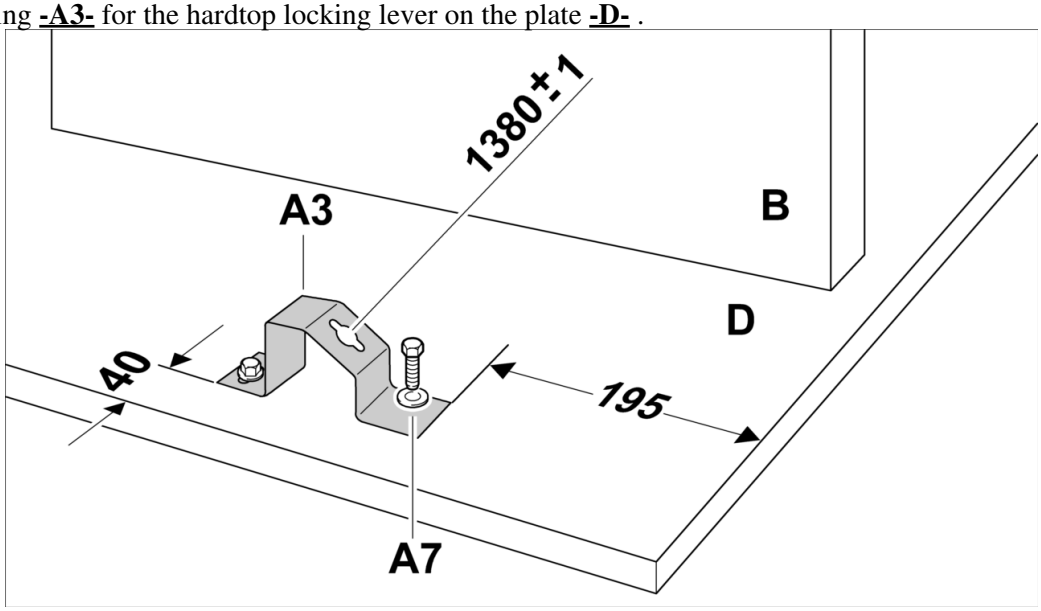
1.3. Fasten completed swivel arm **-C-** on the hinge **-A2-** with four 4.5 x 20 countersunk screws in accordance with the dimensions specified on the plate **-D-** .

1.4. Transfer hole pattern of the support cheeks **-B-** onto the base plate **-D-** in accordance with the specified dimensions, and drill holes using a 6-mm drill bit.

1.5. Fit support cheeks **-B-** over the prefitted straight pins **-A4-** onto the plate **-D-** .

Fitting mounting points for the hardtop locking lever on the plate

Fit. mounting **-A3-** for the hardtop locking lever on the plate **-D-** .



Fitting mounting points for the hardtop locking lever on the plate

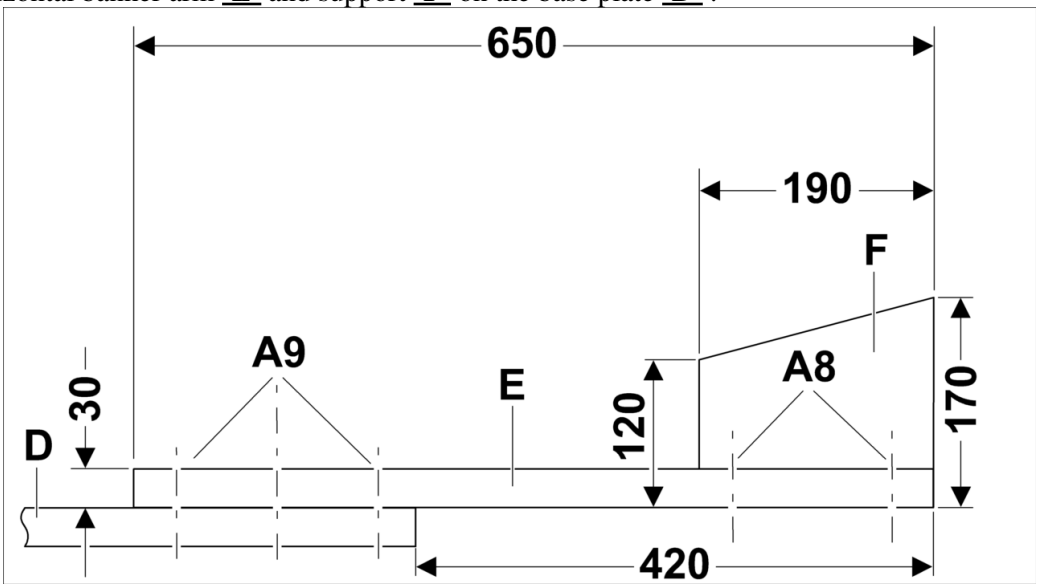
-A3- = Base
-A7- = Hexagon-head bolt 6 x 20 with disc
-B- = Support cheek
-D- = Base plate

1. **Work procedure:**

1.1. Fit mounting points **-A3-** both with hexagon-head bolts **-A7-** according to the dimensions specified on the plate **-D-** .

Fitting horizontal banner arm and support on the base plate

Fitting horizontal banner arm **-E-** and support **-F-** on the base plate **-D-** .



Fitting horizontal banner arm and support on the 'base plate

-D- = Base plate
-E- = Horizontal banner arm
-F- = Base
-A8- = Countersunk screw 6 x 60 (2x)
-A9- = Countersunk screw 6 x 50 (3x)

1. **Work procedure:**

1.1. Measure and mark the plate **-D-** .

1.2. Fit horizontal banner arm **-E-** with 3 countersunk screws **-A9-** according to the measurements on the plate **-D-** .

1.3. Fit support **-F-** with the 2 countersunk screws **-A8-** in accordance with the specified dimensions on the horizontal banner arm **-E-** .

997310, 997311, 997320, 997321, 997610, 997611, 997620, 997621

as of MY 2005
Country C00, C02, C05, C07, C08, C09, C10, C11, C12, C13, C14, C15, C16, C18, C19, C20, C21, C22, C23, C24, C25, C26, C27, C28, C32, C33, C34, C35, C36, C37, C38, C39, C45, C46, C98, C99

WARNUNG

Gefahr des Verlusts der Text-Bild-Zuordnung beim Ausdruck.

- **Aus technischen Gründen kann derzeit nicht ausgeschlossen werden, dass trotz einwandfreier Darstellung auf dem Bildschirm beim Ausdruck der Zusammenhang von Text und zugehörigem Bild verloren geht.**
- **Wird der Fehler nicht bemerkt, besteht die Gefahr, daß Arbeiten nicht korrekt durchgeführt werden und es dadurch zu Personen- und Sachschäden kommt.**

61 28 IN Care and cleaning of the convertible top - as of MY 2005

- Care and cleaning of the convertible top

top of page

Care and cleaning of the convertible top

General information

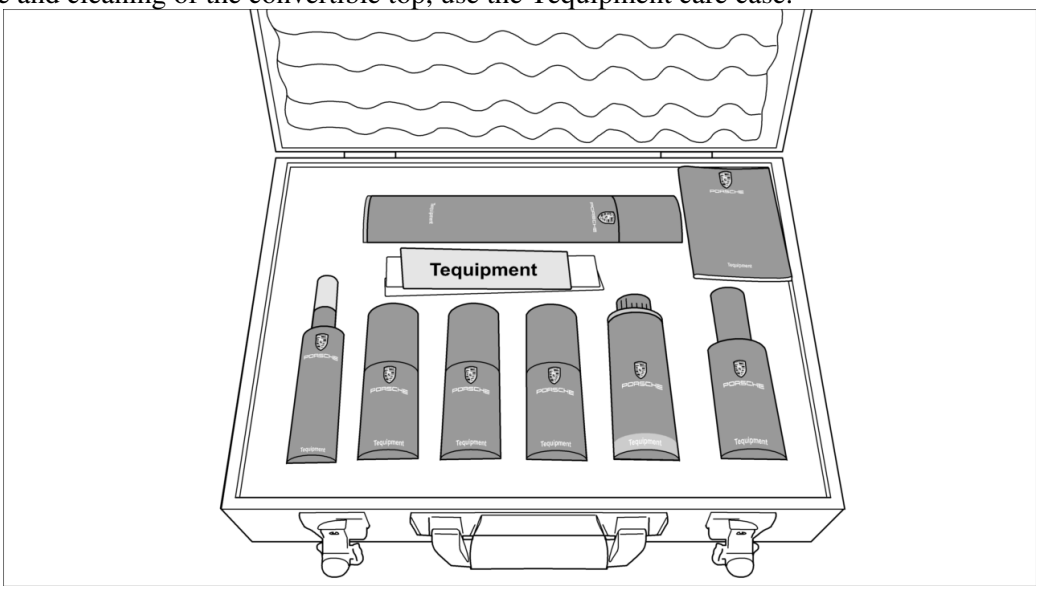
ATTENTION

The convertible top and the flexible rear window may be damaged or discoloured by improper care or handling.

Never remove snow and ice with sharp objects.

Never affix adhesive strips, stickers, etc. to the flexible rear window or cover it with plastic film.

For the care and cleaning of the convertible top, use the Tequipment care case.



Tequipment care case, Cabriolet

- The service life and the appearance of the convertible top are largely dependent on proper care and operation.
- The car should be parked in the shade whenever possible, as the fabric, rubber coating and colour can be harmed by long exposure to sun radiation.

Cleaning the convertible top

- Do not wash the convertible top every time the car is washed. It is normally sufficient to wash or rinse the convertible top with clear water. In the event of heavy soiling, moisten the convertible top with lukewarm water and Porsche Wash-Shampoo & convertible-top cleaner and rub gently with a sponge or soft brush. Then rinse off the convertible top with clear water until no traces of the Porsche Wash-Shampoo & convertible-top cleaner remain.
- Remove bird droppings immediately, because the acids they contain will cause the rubber material to swell and will make the convertible top leak.
- Only open the convertible top when it is completely dry, because otherwise damp stains and abrasions may occur which cannot be removed afterwards.
- In the case of light soiling and always before washing, brush the convertible top with a soft brush or with a strip of convertible-top covering (cut out of an old convertible-top covering) in the direction of the fabric lines of the convertible-top material.
- To prevent scratches on the flexible rear window, first remove all soiling from the exterior with plenty of water.

Care of convertible top

- Light scratches and dull areas on the flexible rear window can be removed with the Porsche Polyglas window cleaner.
- Do not apply Porsche Polyglas window cleaner to the convertible-top material.
- In the case of leaks in the convertible-top covering or seams or in the folded sections, use the Porsche convertible-top care product.
- Do not use the Porsche convertible-top care product on painted surfaces, glass or the flexible rear window; if this is used, remove the product immediately.
- Do not remove stains on the convertible top and on the flexible rear window with petrol, spot remover, benzene, paint thinner or other solvents; they attack the rubber layer between the fabrics and diminish the water-tightness and the service life of the convertible top.
- Recommendation: treat the convertible top with the Porsche convertible-top care product twice a year or before installing the hardtop (winter driving).

Care of convertible-top seals

Note

- *The convertible-top seals have an anti-friction coating or are flocked and do not require any special care.*
- *Never grease or lubricate or spray on gaskets that are flocked or have an anti-friction coating.*

- Clean soiled seals with clear water.

– It is only possible to rinse the convertible top or to use an automatic car wash after the flocked gaskets have dried.

997310, 997311, 997320, 997321, 997610, 997611, 997620, 997621

as of MY 2005
Country C00, C02, C05, C07, C08, C09, C10, C11, C12, C13, C14, C15, C16, C18, C19, C20, C21, C22, C23, C24, C25, C26, C27, C28, C32, C33, C34, C35, C36, C37, C38, C39, C45, C46, C98, C99

WARNUNG

Gefahr des Verlusts der Text-Bild-Zuordnung beim Ausdruck.

- **Aus technischen Gründen kann derzeit nicht ausgeschlossen werden, dass trotz einwandfreier Darstellung auf dem Bildschirm beim Ausdruck der Zusammenhang von Text und zugehörigem Bild verloren geht.**
- **Wird der Fehler nicht bemerkt, besteht die Gefahr, daß Arbeiten nicht korrekt durchgeführt werden und es dadurch zu Personen- und Sachschäden kommt.**

Vergleichen Sie deshalb nach dem Druckvorgang unbedingt die Ausdrucke mit der Bildschirmdarstellung. Korrigieren Sie die Ausdrucke im Fehlerfall so, daß der Inhalt der Bildschirmdarstellung zutreffend wiedergegeben wird.

WARNING

Danger of losing text-figure correspondence when printing out.

- **For technical reasons, it can currently not be ruled out that the correspondence between text and associated figure can be lost when it is printed out, even though the display on the screen is correct.**
- **If the fault is not noticed, there is the danger that work will not be performed correctly which can cause injury and damage.**

Therefore, always compare printouts with the screen display after printing them out. Correct the printouts if they are faulty so that the content of the screen display matches that on the printouts.

AVERTISSEMENT

Risque de perte de la correspondance texte-illustration lors de l'impression papier.

- **Pour des raisons techniques, il ne peut pas être exclu à l'heure actuelle que, même en cas d'affichage correct à l'écran, la correspondance entre le texte et l'illustration puisse être erronée sur l'impression papier.**
- **Si l'erreur passe inaperçue, on court le risque d'exécuter certaines opérations de manière incorrecte pouvant conduire à des dommages corporels et matériels.**

Comparez impérativement pour cette raison les impressions papier avec l'affichage à l'écran. Corrigez-les en cas d'erreur de manière à reproduire correctement l'affichage à l'écran.

64 12 IN Processing of Porsche 2-component window bonding agents - as of MY 2005

- Pre-treatment of bonding surfaces
- Handling processing device

top of page

Pre-treatment of bonding surfaces

Pre-treating adhesive flanges on vehicle windows

Note

- *The table below shows how to use cleaners, primers and activators when preparing the adhesive surface.*

Preparing the body glass for installation	
Old glass	New glass
(window removed)	with preliminary coat (durable primer)
Cut back adhesive bead ?	**Cleaner** ?
	Clean rim (ceramic layer and durable primer) ?
Activator ?	**Primer** ?
Activate adhesive bead (only necessary after idle periods > 24 h) ?	Apply primer from the adhesive kit over the durable primer on the spare part ?
Apply adhesive	
Install glass	

Pre-treating adhesive flanges on vehicle body

Note

- *The table below shows how to use cleaners, primers and activators when preparing the adhesive surface.*

Preparing the window flange for installation		
Old flange (old paint job)		New flange (new paint job)
Cut back adhesive bead ?		**Cleaner** ?
		Clean flange surface ?
Activator ?		**Primer** ?
Activate adhesive bead (only necessary after idle periods > 24 h) ?		Prime flange surface ?
Apply adhesive		
Install glass		

top of page

Handling processing device

Double cartridge press

ATTENTION

Danger of poisoning and injury when handling adhesive!

- **Danger of poisoning from breathing in vapours or from swallowing adhesive.**
- **Risk of injury due to contact with skin or eyes.**

Ventilate the work area well.

Do not eat, drink, or smoke while carrying out work.

Avoid direct contact with eyes and skin. Wear suitable protective equipment, such as protective clothing, gloves, and if necessary, a protective mask.

If clothing is soiled with adhesive, change clothing immediately and only use again after they have been cleaned.

Also observe the product-specific processing and safety instructions on the packing container and packing container imprints.

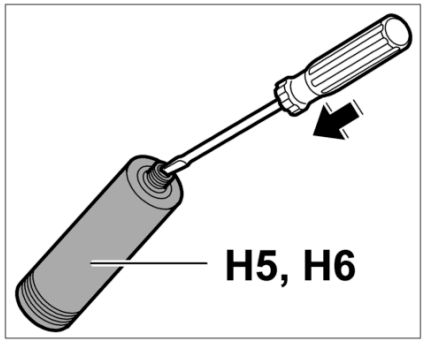
In case of eye contact: Rinse eyes immediately and thoroughly with lukewarm running water and consult an eye doctor.

In case of skin contact: Rinse contacted skin areas immediately with lukewarm running water and soap.

If adhesive is swallowed: Rinse mouth and consult a doctor.

Note

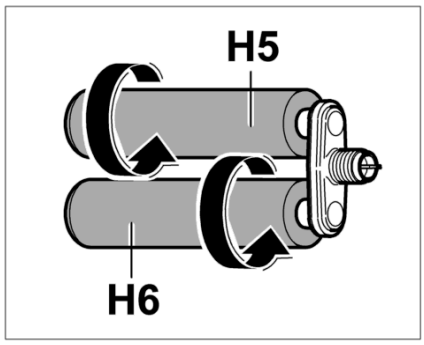
- *In addition to this manual, observe the relevant job descriptions for installing car windows!*



1. Preparing cartridge components A and B

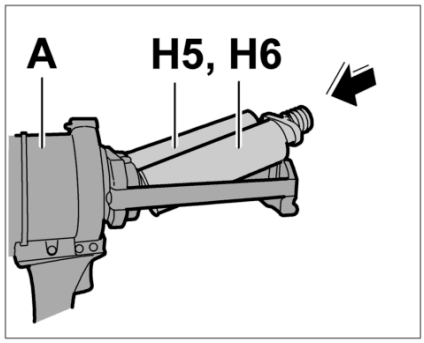
1.1. Pierce the membrane in the nozzle connection of components A and B (aluminium cartridge) **-H5, H6-** with a screwdriver and extend the opening.

1.2. Remove flanged cover on end of cartridge.



2. Screw on mixing nozzle.

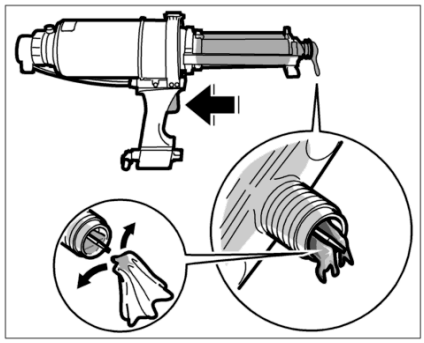
2.1. Screw both cartridges **-H5, H6-** onto the mixing nozzle.



3. Placing cartridges in the double cartridge gun

3.1. Move pressure piston back fully.

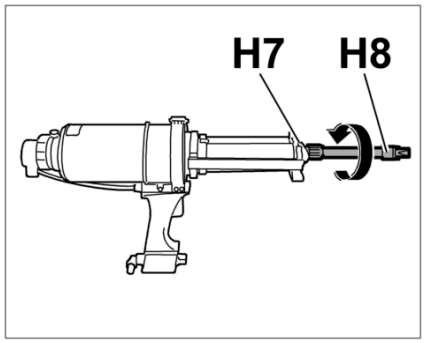
3.2. Insert the double cartridges **-H5, H6-** into the bonding gun **-A-** .



4. Press out the adhesive

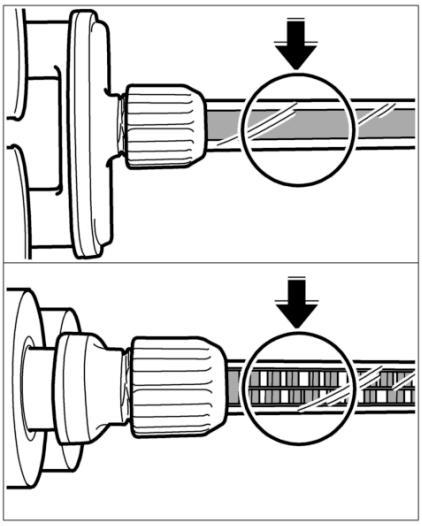
4.1. By activating the valve **-arrow-** allow the pressure piston to move out slowly until both components of the adhesive are visible at the mixing nozzle.

4.2. Wipe off the emerging adhesive.



5. Screwing on processing nozzle

5.1. Screw processing nozzle **-H8-** onto the mixing nozzle **-H7-** .

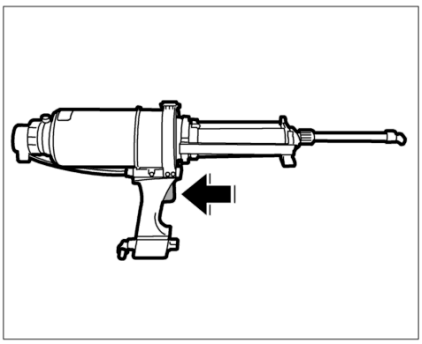


6. Align processing nozzle

6.1. Turn the processing nozzle on the mixing nozzle until the illustrated position is reached.

7. Mixing adhesive components

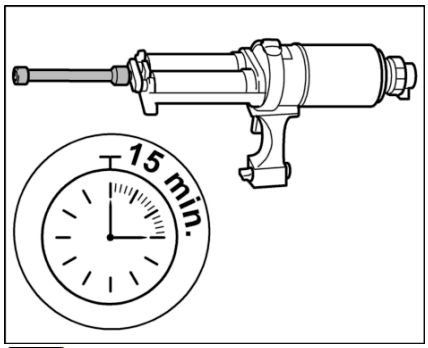
7.1. By activating the valve **-arrow-** allow the pressure piston to move out slowly until the adhesive is visible in the processing pipe.



Note

In this position, when the mixing nozzle is horizontal, the closed surfaces must be visible on the processing nozzle from above and below and the mixer insert's mixing plates must be visible from the sides.

8. Affixing car window



Note

- *The bonding material has an open time of **15 min**, which means that the bonding material must be applied and the car window must be assembled within this period of time.*

- *In order to ensure that the substance is completely mixed, apply a 30 mm long adhesive bead of fresh adhesive to a piece of cardboard before processing.*

997110, 997111, 997120, 997121, 997310, 997311, 997320, 997321, 997410, 997411, 997430, 997431, 997610, 997611, 997620, 997621

as of MY 2005
Country C00, C02, C05, C07, C08, C09, C10, C11, C12, C13, C14, C15, C16, C18, C19, C20, C21, C22, C23, C24, C25, C26, C27, C28, C32, C33, C34, C35, C36, C37, C38, C39, C45, C46, C98, C99

WARNUNG

Gefahr des Verlusts der Text-Bild-Zuordnung beim Ausdruck.

- **Aus technischen Gründen kann derzeit nicht ausgeschlossen werden, dass trotz einwandfreier Darstellung auf dem Bildschirm beim Ausdruck der Zusammenhang von Text und zugehörigem Bild verloren geht.**
- **Wird der Fehler nicht bemerkt, besteht die Gefahr, daß Arbeiten nicht korrekt durchgeführt werden und es dadurch zu Personen- und Sachschäden kommt.**

Vergleichen Sie deshalb nach dem Druckvorgang unbedingt die Ausdrucke mit der Bildschirmdarstellung. Korrigieren Sie die Ausdrucke im Fehlerfall so, daß der Inhalt der Bildschirmdarstellung zutreffend wiedergegeben wird.

WARNING

Danger of losing text-figure correspondence when printing out.

- **For technical reasons, it can currently not be ruled out that the correspondence between text and associated figure can be lost when it is printed out, even though the display on the screen is correct.**
- **If the fault is not noticed, there is the danger that work will not be performed correctly which can cause injury and damage.**

Therefore, always compare printouts with the screen display after printing them out. Correct the printouts if they are faulty so that the content of the screen display matches that on the printouts.

AVERTISSEMENT

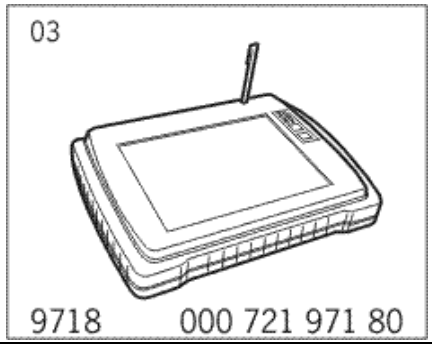
Risque de perte de la correspondance texte-illustration lors de l'impression papier.

- **Pour des raisons techniques, il ne peut pas être exclu à l'heure actuelle que, même en cas d'affichage correct à l'écran, la correspondance entre le texte et l'illustration puisse être erronée sur l'impression papier.**

69 68 K2 Calibrating AWS control unit - as of MY 2005

- Calibrating AWS control unit

Tools

Designation	Type	Number	Explanation	
PIWIS Tester	special tool	9718		
test weight	special tool	P 9742		

top of page

Calibrating AWS control unit

Calibrating AWS control unit

Note

Calibration applies to vehicles as of MY '06 with country equipment (USA, Canada, Mexico).

Note

Follow the instructions on the Tester.
Later versions of the software may display slightly different text or require a slightly different procedure. The instructions you receive from the tester itself take precedence over this description.

DANGER

Incorrect information for AWS control module.

- **Passenger's airbag is triggered differently.**

If the passenger's seat was removed and re-installed, the AWS control module must be calibrated.

If the seat bracket was replaced, the AWS control module must be calibrated.

If the AWS control module was replaced, the AWS control module must be calibrated.

WARNING

Sudden voltage interruption of the power supply to the control module.

- **Destruction of the control module.**

During programming, it is essential to guarantee the power supply for the Porsche System tester. It is essential to connect a battery charger with a current rating of at least 40 A to the vehicle battery.

Prior to disconnecting the control module, switch off the ignition and remove the ignition key.

1. Connect battery charger to the vehicle. Move passenger's seat longitudinally until flush with the seat rails and to its lowest position.
2. Connect the Porsche System Tester **PIWIS Tester 9718** to the vehicle and start the System Tester. Switch on ignition. Press >> to continue.
3. Select vehicle type.
4. Switch from the vehicle type to the list of control units >> .
5. Select **AWS** control unit and press the >> key.
6. Select the **Calibration** menu. Press >> .
7. The Tester displays several messages and instructions relating to the individual work steps until the message **Test step was completed successfully** appears. Press >> .

Note

A system test can only be performed successfully if:

- *The AWS control unit has been taught on the airbag control unit.*
- *There are no faults in the AWS and airbag control unit.*

8. Select the **System test** menu in the **AWS** control unit.
9. Follow the instructions on the Tester. Press >> and perform the test using the default sequence.

9.1. **Seat empty** - the passenger's seat must be empty. The Passenger Airbag Off indicator light in the centre console **must not** come on. To determine the status, press F7 or F8 . Then press >> .

9.2. **Child** - place the special tool **test weight P 9742** on the passenger's seat. The Passenger Airbag Off indicator light in the centre console **must** come on. To determine the status, press F7 or F8 . Then press >> .

9.3. **Adult** - get an assistant, for example, to sit on the passenger's seat. The Passenger Airbag Off indicator light in the centre console **must not** come on. To determine the status, press F7 or F8 . Then press >> .

9.4. **Seat jammed** - the passenger's seat must be empty. The seat must also be relieved of any pressure, e.g. by lifting the seat up with your hand. The Passenger Airbag Off indicator light in the centre console **must** come on. In addition to the Airbag Off indicator light, a message is displayed in the instrument cluster: **Check passenger seat adjustment**. To determine the status, press F7 or F8 . Then press >> .

10. To check the system, select the **Actual values** menu under the **AWS** control unit. Then press >> .

10.1. Select the **Weight group (0-4)** and **Gross weight calibrated** options.

10.1.1. If there is **no weight** on the passenger's seat, compare values (see table below) using the PIWIS Tester. The Passenger Airbag Off indicator light in the centre console **must not** come on.

10.1.2. Place the special tool **test weight P 9742** on the passenger's seat. The Passenger Airbag Off indicator light in the centre console **must** come on. Compare values (see table below) using the PIWIS Tester.

10.1.3. Get an assistant, for example, to sit on the passenger's seat. The Passenger Airbag Off indicator light in the centre console **must not** come on. Compare values (see table below) using the PIWIS Tester.

Test state	Weight group (0-4)	Gross weight calibrated
No weight on the passenger's seat.	0	**Control value: 0 kg +/-1 kg**
Special tool **test weight P 9742** on passenger's seat	1	**Control value: 6.7 kg +/-1 kg**
Get a person weighing at least 65 - 85 kg to sit on the passenger's seat.	2, 3 or 4	**Control value: Weight of test person kg +/-1 kg**

11. Read out and erase the fault memories in the **Airbag** and **AWS** control unit, perform a test drive and then read out the fault memories again. If faults are found, determine the cause using the PIWIS Tester and correct the faults.

997110, 997111, 997120, 997121, 997310, 997311, 997320, 997321, 997410, 997411, 997430, 997431, 997610, 997611, 997620, 997621

as of MY 2005
Country C00, C02, C05, C07, C08, C09, C10, C11, C12, C13, C14, C15, C16, C18, C19, C20, C21, C22, C23, C24, C25, C26, C27, C28, C32, C33, C34, C35, C36, C37, C38, C39, C45, C46, C98, C99

WARNUNG

Gefahr des Verlusts der Text-Bild-Zuordnung beim Ausdruck.

- **Aus technischen Gründen kann derzeit nicht ausgeschlossen werden, dass trotz einwandfreier Darstellung auf dem Bildschirm beim Ausdruck der Zusammenhang von Text und zugehörigem Bild verloren geht.**
- **Wird der Fehler nicht bemerkt, besteht die Gefahr, daß Arbeiten nicht korrekt durchgeführt werden und es dadurch zu Personen- und Sachschäden kommt.**

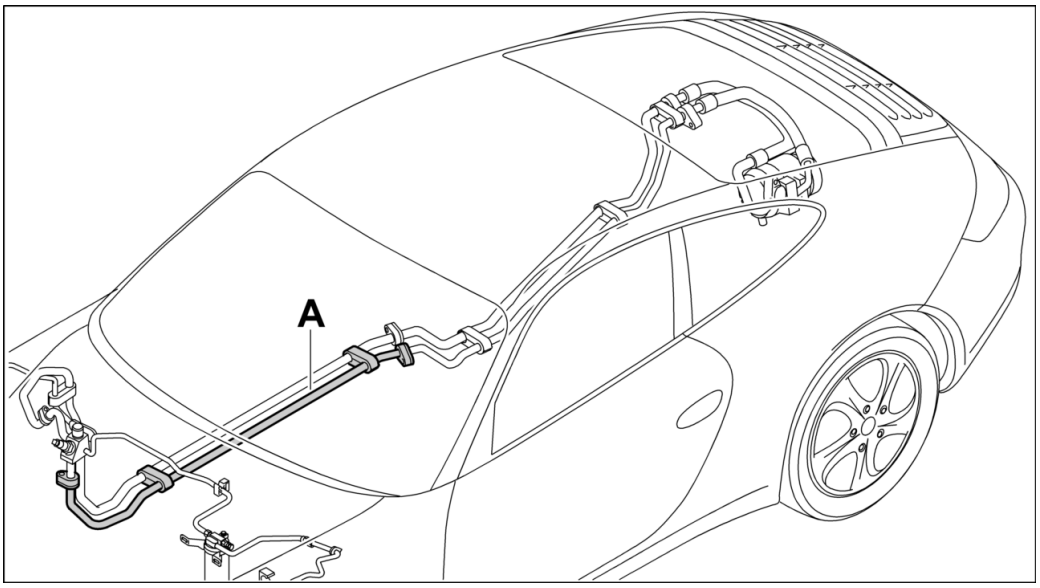
87 43 IN Laying compressor/condenser line - as of MY 2005

Laying compressor/condenser line

Note

Close off all lines and connections using suitable plugs during removal.
Before re-installing the component, check the O-rings of the refrigerant lines for damage and replaced them if necessary.

Installation Location:

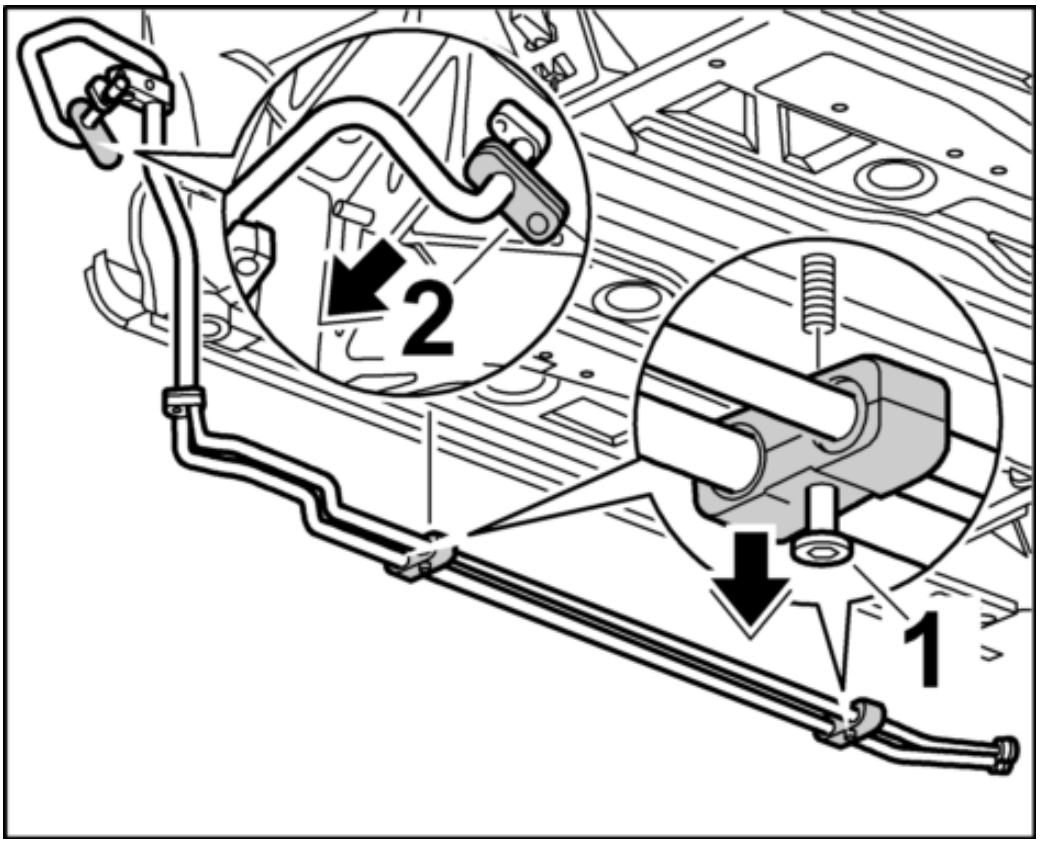


Installation position shown on the 911

A - Compressor/condenser line

Remove the compressor/condenser line and the compressor/evaporator line together.

Installation Location:



Laying and securing the compressor/condenser line

1 - Fastening nut for both holders

2 - Grommet for continuity to plenum panel

997110, 997111, 997120, 997121, 997310, 997311, 997320, 997321, 997410, 997411, 997430, 997431, 997610, 997611, 997620, 997621

as of MY 2005
Country C00, C02, C05, C07, C08, C09, C10, C11, C12, C13, C14, C15, C16, C18, C19, C20, C21, C22, C23, C24, C25, C26, C27, C28, C32, C33, C34, C35, C36, C37, C38, C39, C45, C46, C98, C99

WARNUNG

Gefahr des Verlusts der Text-Bild-Zuordnung beim Ausdruck.

- **Aus technischen Gründen kann derzeit nicht ausgeschlossen werden, dass trotz einwandfreier Darstellung auf dem Bildschirm beim Ausdruck der Zusammenhang von Text und zugehörigem Bild verloren geht.**
- **Wird der Fehler nicht bemerkt, besteht die Gefahr, daß Arbeiten nicht korrekt durchgeführt werden und es dadurch zu Personen- und Sachschäden kommt.**

Vergleichen Sie deshalb nach dem Druckvorgang unbedingt die Ausdrucke mit der Bildschirmdarstellung. Korrigieren Sie die Ausdrucke im Fehlerfall so, daß der Inhalt der Bildschirmdarstellung zutreffend wiedergegeben wird.

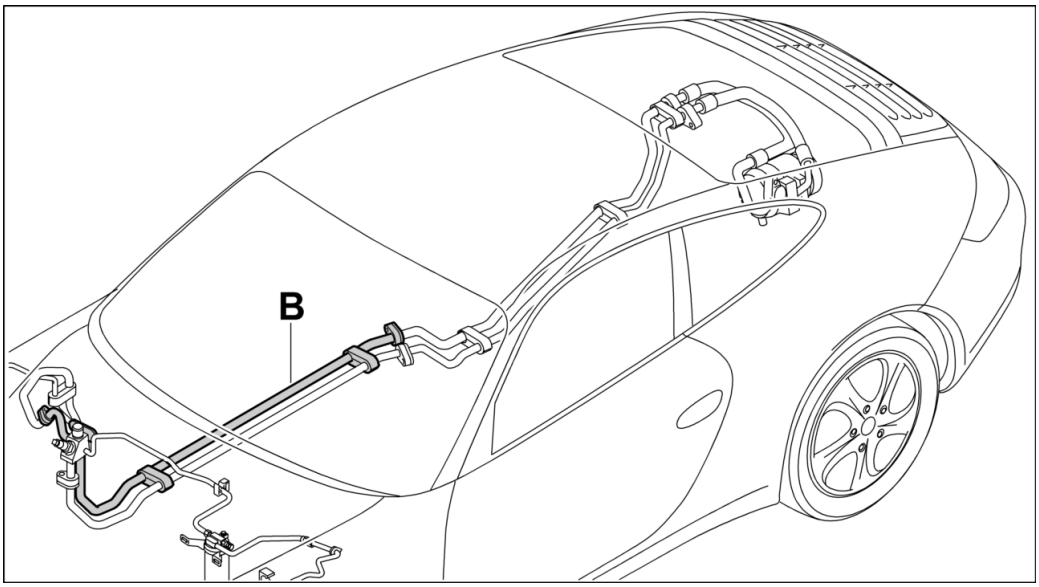
87 45 IN Laying compressor/evaporator line - as of MY 2005

Laying compressor/evaporator line

Note

Close off all lines and connections using suitable plugs during removal.
Before re-installing the component, check the O-rings of the refrigerant lines for damage and replaced them if necessary.

Installation Location:

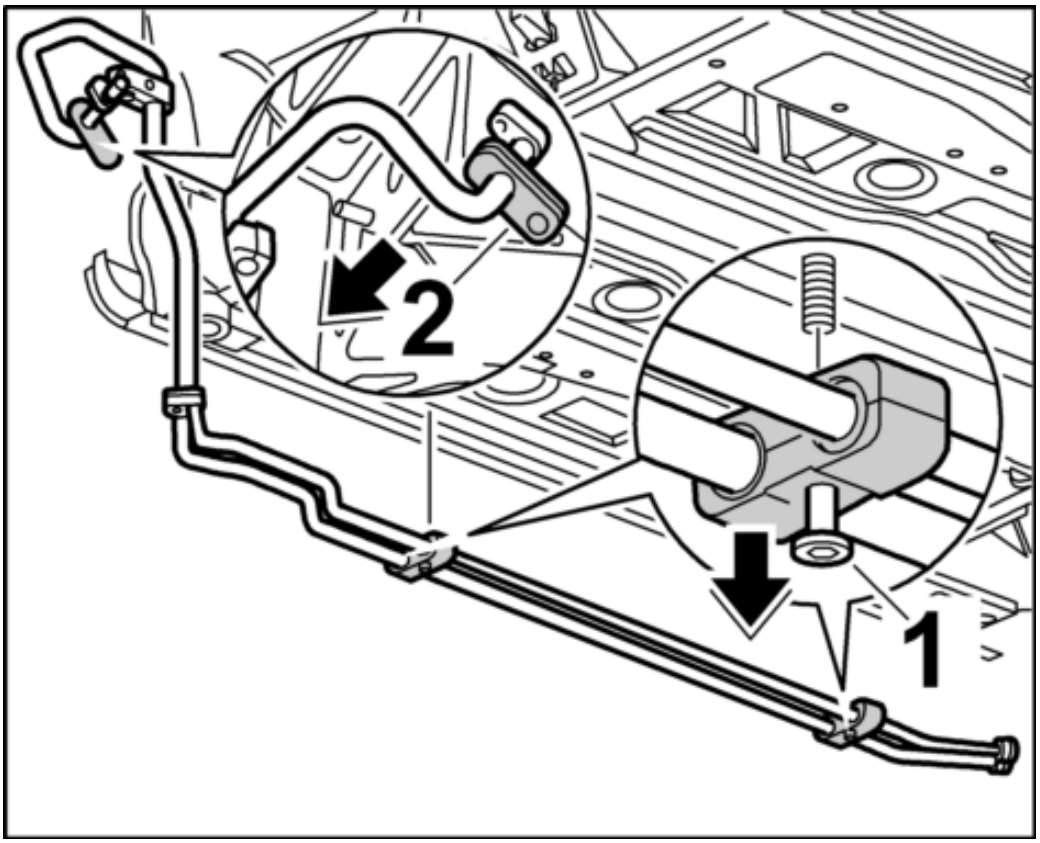


Installation position shown on the 911

B - Compressor/evaporator line

Remove the compressor/evaporator line and the compressor/condenser line together.

Installation Location:



Laying and securing the compressor/condenser line

1 - Fastening nut for both holders

2 - Grommet for continuity to plenum panel

997110, 997111, 997120, 997121, 997310, 997311, 997320, 997321, 997410, 997411, 997430, 997431, 997610, 997611, 997620, 997621

as of MY 2005
Country C00, C02, C05, C07, C08, C09, C10, C11, C12, C13, C14, C15, C16, C18, C19, C20, C21, C22, C23, C24, C25, C26, C27, C28, C32, C33, C34, C35, C36, C37, C38, C39, C45, C46, C98, C99

WARNUNG

Gefahr des Verlusts der Text-Bild-Zuordnung beim Ausdruck.

- **Aus technischen Gründen kann derzeit nicht ausgeschlossen werden, dass trotz einwandfreier Darstellung auf dem Bildschirm beim Ausdruck der Zusammenhang von Text und zugehörigem Bild verloren geht.**
- **Wird der Fehler nicht bemerkt, besteht die Gefahr, daß Arbeiten nicht korrekt durchgeführt werden und es dadurch zu Personen- und Sachschäden kommt.**

Vergleichen Sie deshalb nach dem Druckvorgang unbedingt die Ausdrucke mit der Bildschirmdarstellung. Korrigieren Sie die Ausdrucke im Fehlerfall so, daß der Inhalt der Bildschirmdarstellung zutreffend wiedergegeben wird.

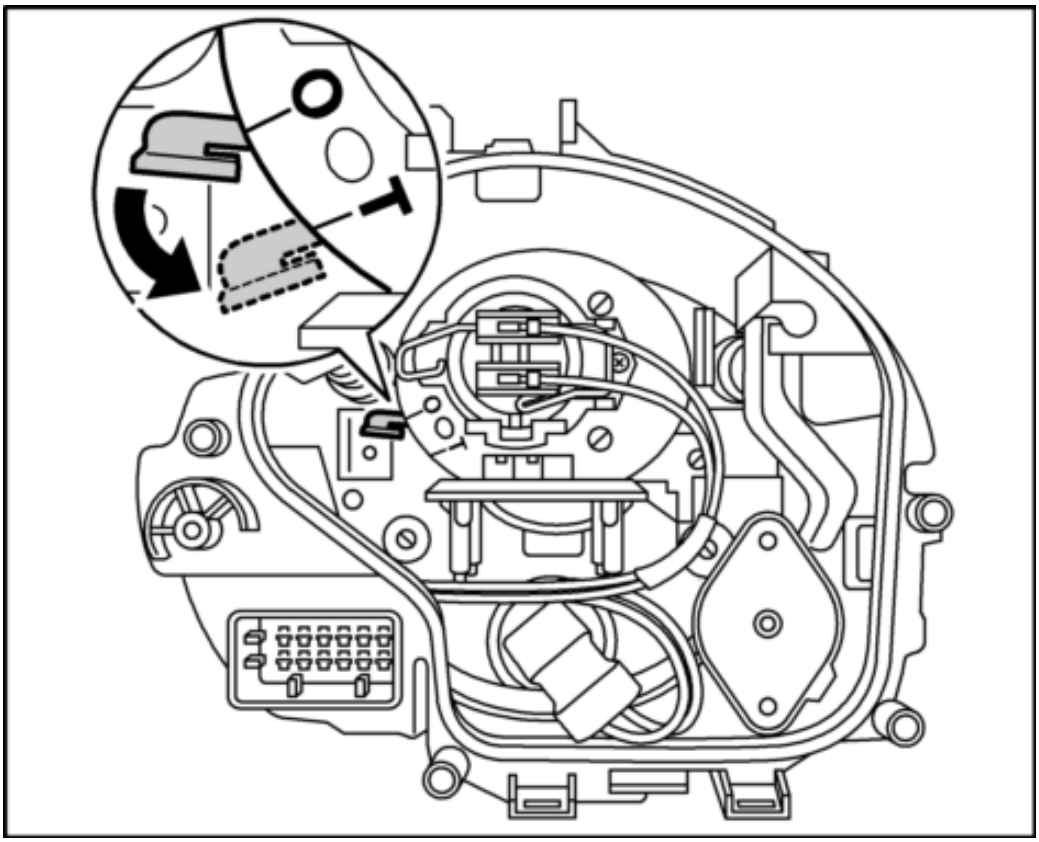
94 15 IN Converting headlights for left/right-hand driving - as of MY 2005

Converting halogen headlights for left/right-hand driving

Note

For driving in countries in which vehicles drive on the other side of the road, it is important to convert the headlights as soon as you cross the border.
The dipped beam headlight then lights symmetrically so that oncoming traffic is not dazzled.
When you return to your own country, reset the headlights to **0**.

Installation Location:



Halogen headlight

1. Remove the headlight. 9415IN IN - Converting headlights for left/right-hand driving - section on "Removing"
2. Open the housing cover.
3. Set lever to position **-T-** .
4. Close headlight housing cover and install headlight. 941519 Removing and installing headlights - section on "Installing"

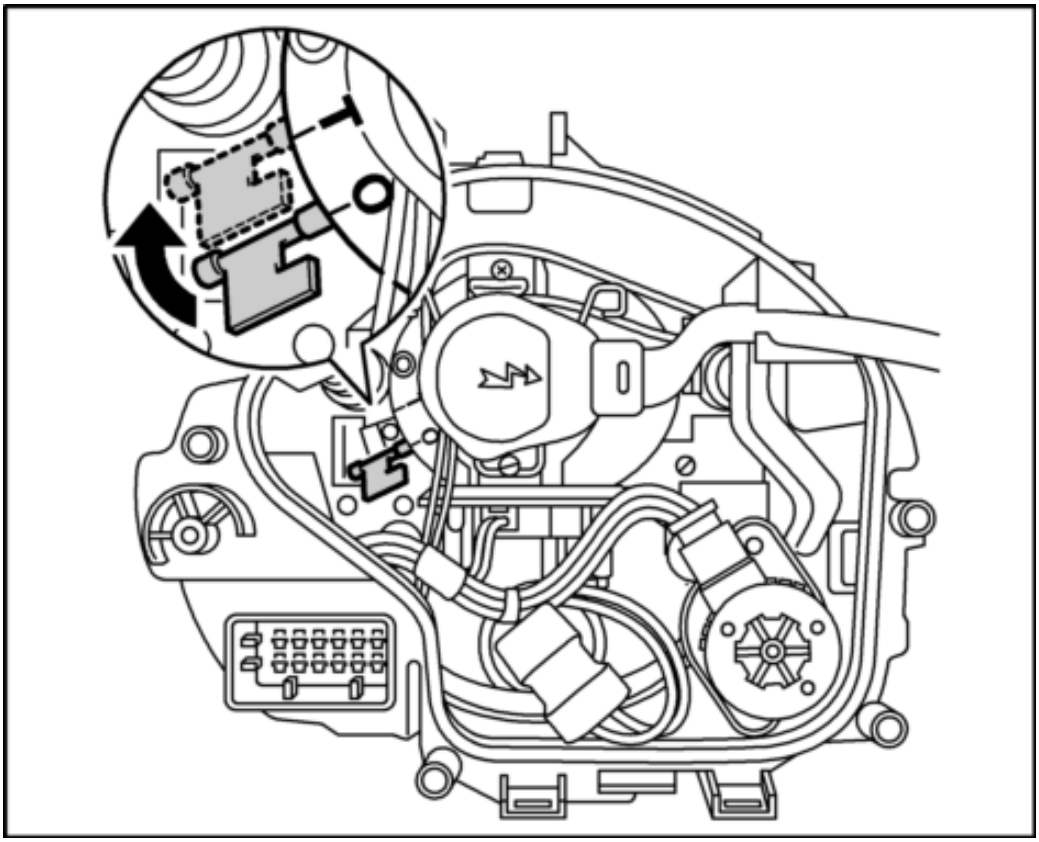
5. Repeat conversion for other headlight.

Converting Bi-Xenon headlights for left/right-hand driving

Note

For driving in countries in which vehicles drive on the other side of the road, it is important to convert the headlights as soon as you cross the border.
The dipped beam headlight then lights symmetrically so that oncoming traffic is not dazzled.
When you return to your own country, reset the headlights to **0**.

Installation Location:



Bi-Xenon headlight

1. Remove the headlight. 9415IN IN - Converting headlights for left/right-hand driving - section on "Removing"
2. Open the housing cover.
3. Set lever to position **-T-** .
4. Close headlight housing cover and install headlight. 941519 Removing and installing headlights - section on "Installing"
5. Repeat conversion for other headlight.

94 23 IN Bulb table and installation instructions - as of MY 2005

- Bulb table
- Installation instructions

top of page

Bulb table

Bulb table

	Shape, wattage
Dipped beam, halogen	H7, 55 W
Dipped beam for Bi-Xenon headlight	Philips, D2S, 35 W
High beam, halogen	H9, 65 W
Auxiliary main beam for Bi-Xenon headlight	H11, 55 W
Fog light	H8, 55 W
Parking light, front	W, 5 W
Right tail light, rear fog light	P, 21/4 W
Brake/tail light.	P, 21/4 W BV
Rear tail light, reflector	P, 21/5 W
Reverse light	P, 21 W
Number plate light	C, 5 W
Direction indicator, front and rear	PY, 21 W
Direction indicator light, side	WY, 5 W
Door warning light	W, 5 W
Luggage compartment light	K, 10 W
Engine compartment light	K, 10 W
Interior light	K, 10 W
Footwell light	K, 10 W
Glove compartment light	K, 10 W
Reading light	6 W Xenon

top of page

Installation instructions

Installation instructions for bulbs

WARNING

Risk of injury due to high voltage to built-in Bi-Xenon headlights.

Switch ignition off, remove ignition key and turn off light switch.

ATTENTION

Danger of damage to property if bulbs are used or handled incorrectly!

- **Risk of damage to bulbs and bulb housing.**

Switch off ignition and remove ignition key.

To prevent short circuits, the load in question must be switched off while changing bulbs.

Only bulbs specified in the bulb table may be used.

Bulbs with a higher wattage may damage the bulb housing.

New bulbs must be clean and free of grease. Therefore, never touch the bulbs with your bare hands. Use a cloth or soft paper when changing bulbs.

In certain states, it is compulsory to carry spare light bulbs.

997110, 997111, 997120, 997121, 997310, 997311, 997320, 997321, 997410, 997411, 997430, 997431, 997610, 997611, 997620, 997621

as of MY 2005
Country C00, C02, C05, C07, C08, C09, C10, C11, C12, C13, C14, C15, C16, C18, C19, C20, C21, C22, C23, C24, C25, C26, C27, C28, C32, C33, C34, C35, C36, C37, C38, C39, C45, C46, C98, C99

WARNUNG

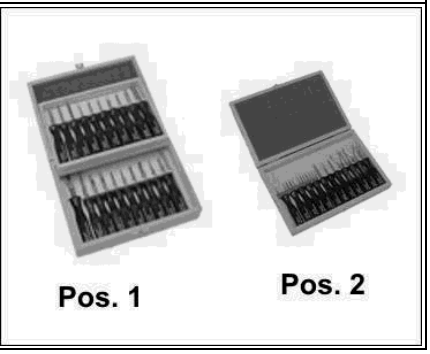
Gefahr des Verlusts der Text-Bild-Zuordnung beim Ausdruck.

- **Aus technischen Gründen kann derzeit nicht ausgeschlossen werden, dass trotz einwandfreier Darstellung auf dem Bildschirm beim Ausdruck der Zusammenhang von Text und zugehörigem Bild verloren geht.**

97 72 IN Optical waveguide (LWL) - MOST bus - as of MY 2005

- Optical waveguide (LWL) - MOST bus

Tools

Designation	Type	Number	Explanation	
press-out and unlocking tools for tab and round plug connectors of all sizes	commercially available tool	NR.155		

top of page

Optical waveguide (LWL) - MOST bus

Requirements when working with LWL

The plug connections must not be plugged or separated with tools.
The LWL and the plug connections must not come into contact with fluids such as water, creeping compound, preservative, anti-freeze protection, cleaning agent. They will impair the MOST system function or cause complete system failure. Even plug connectors with plugged-in protective caps must not come into contact with the fluids listed.
If the optical contacts, plug connections, or sockets are not plugged in, or if there are no protective caps installed on the plug, contact with dust and other solid materials (lubricants) must also be avoided.
The optical contacts, plug connectors, or sockets must not be cleaned.

Storage, Packing, Transport

The LWL must not be stored outside.
The LWL must be protected from direct sunlight during storage.
The LWL must be protected from high humidity during storage. Recommended storage conditions:
Temperature - between -20 °C and +40 °C, humidity - between 40% and 60%.
The LWL must be stored in a box made of cardboard, or in a plastic bag.
Force must not be applied to the stored LWL which could deform or damage it.
The LWL must be stored with the dust boot attached.
While storing, the bending radius must not be smaller than 300 mm.
LWL with damaged surfaces must be replaced.

Installing the LWL in the vehicle

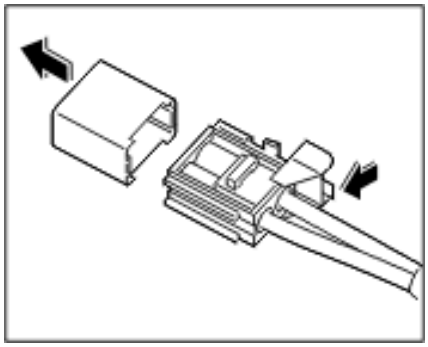
The following limit values listed must not be exceeded when installing a LWL in the vehicle.
Maximum permissible tensile load: 60 N (45 ftlb.)
Minimum bending radius after and during installation in the vehicle: 25 mm
Maximum number of torsions: 10 torsions per m
The following points must be observed when fitting the LWL and fitting wiring harnesses containing LWL:
Damaged LWL must not be installed.
Before installing the LWL or wiring harness with LWL in the vehicle, it must be checked if the dust boots have been attached properly. If this is not the case, the LWL set must not be installed.
After and during the installation of LWL in the vehicle, the bending radius must not be smaller than 25 mm.
During installation of the optical waveguide into the vehicle, the optical guide must not be pulled to set the length of the wiring harness (max. tensile load 60 N) and the optical guide must not be twisted or coiled up.
After installing the LWL in the vehicle, the twisted LWL must be straightened out.
External forces on the LWL are to be avoided when installing the LWL in the vehicle.

Repair

The defective LWL must be replaced. The LWL will not be repaired.
When exchanging the LWL, the optical contacts from the plug connection must be removed.

Push-on connector - dust boots

Dust boot for optical contacts:
If a LWL is stored, transported, or installed in a vehicle, then the dust boot must only be removed right before the LWL is used in the connector.
When testing the LWL, the dust boot must be put back on.
The dust boots can be removed without the use of a locking mechanism.
Do not touch the exposed contact surfaces while or after removing the dust boot, as otherwise the optical contacts could become damaged or dirty.
Dust boot for connector (wiring harness side):
If a pre-assembled wiring harness is installed, there is a dust boot on the connector for the LWL.



Dust boot for connector (wiring harness side)

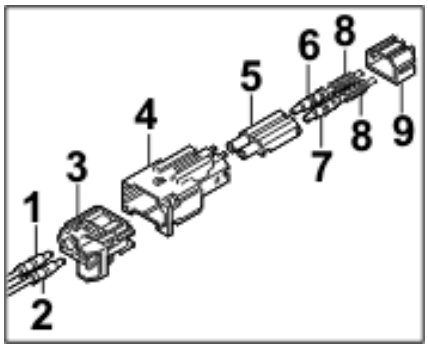
The dust boots can be removed by activating the locking mechanism **-arrow-** .
When testing the LWL, the dust boot must be put back on.

Do not touch the exposed contact surfaces while or after removing the dust boot, as otherwise the optical contacts could become damaged or dirty.

Control unit plug connector (wiring harness side)

The LWL is delivered with affixed plastic contacts. These contacts are latched in the connector housing in the case of repairs. Grey and black contacts with identical mechanical dimensions are used.
Grey contacts are used in the wiring harness >> control unit junction (optical input).
Black contacts are used in the control unit >> wiring harness junction.

Push-on connector - connection points



Structure of a LWL joint

Structure of a LWL joint:

1 - Optical contact, black
2 - Optical contact, grey
3 - Joint connector side
4 - Joint socket side
5 - Socket side LWL module
6 - Optical contact, grey
7 - Optical contact, black
8 - Springs
9 - Spring cap

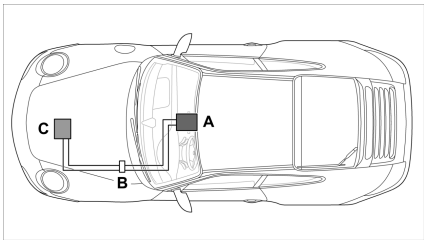
Optical fiber (LWL) - module

In all MOST control units, at least one sending diode and one receiver diode are installed. The sending diode of a MOST device is connected to a receiver diode of a 2nd MOST device. This results in a ring where the light signal is reinforced in each control unit (in each control unit, the light signal is transformed into an electrical signal).
The graphic clarifies the cabling of the individual MOST control units which vary according to their equipment.

Optical waveguide variants

Note

Depending on the equipment I No., the installation positions of the audio components in the front luggage compartment differ.



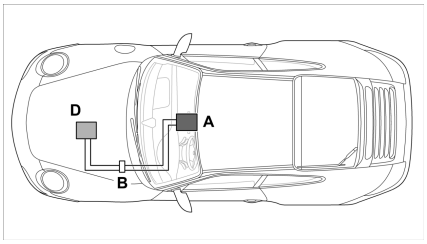
MOST control units, variant A - B - C, shown on the 911

MOST control units, variant A - B - C

A - Radio/PCM

B - Connection point interior/luggage compartment

C - Loudspeaker amplifier



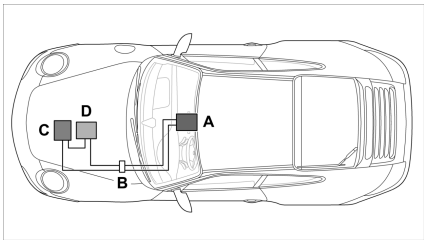
MOST control units, variant A - B - D, shown on the 911

MOST control units, variant A - B - D

A - Radio/PCM

B - Connection point interior/luggage compartment

D - CD changer



MOST control units, variant A - B - C - D, shown on the 911

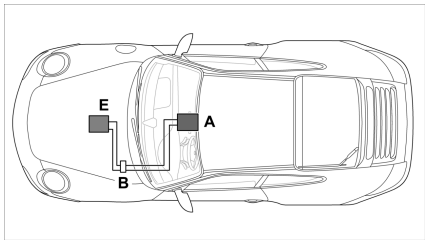
MOST control units, variant A - B - C - D

A - Radio/PCM

B - Connection point interior/luggage compartment

C - Loudspeaker amplifier

D - CD changer



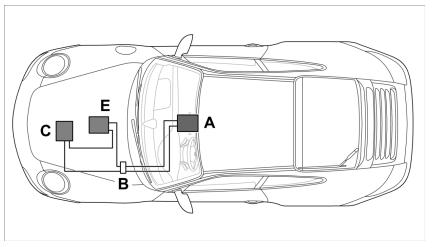
MOST control units, variant A - B - E, shown on the 911

MOST control units, variant A - B - E

A - Radio/PCM

B - Connection point interior/luggage compartment

E - Navigation unit



MOST control units, variant A - B - C - E, shown on the 911

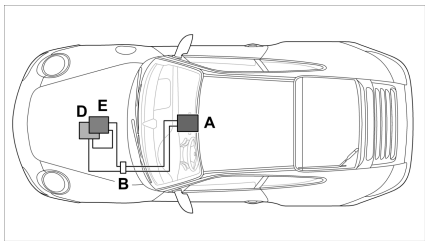
MOST control units, variant A - B - C - E

A - Radio/PCM

B - Connection point interior/luggage compartment

C - Loudspeaker amplifier

E - Navigation unit



MOST control units, variant A - B - D - E, shown on the 911

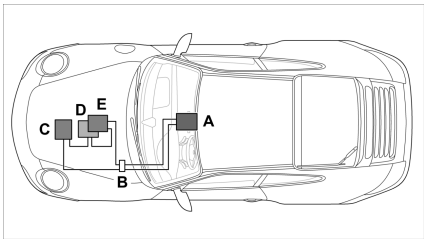
MOST control units, variant A - B - D - E

A - Radio/PCM

B - Connection point interior/luggage compartment

D - CD changer

E - Navigation unit



MOST control units, variant A - B C - D - E, shown on the 911

MOST control units, variant A - B - C - D - E

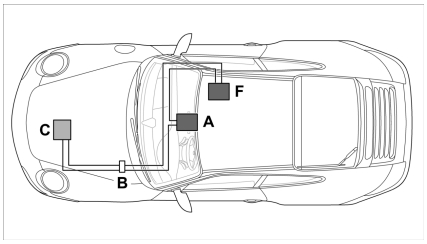
A - Radio/PCM

B - Connection point interior/luggage compartment

C - Loudspeaker amplifier

D - CD changer

E - Navigation unit



MOST control units, variant A - B - C - F, shown on the 911

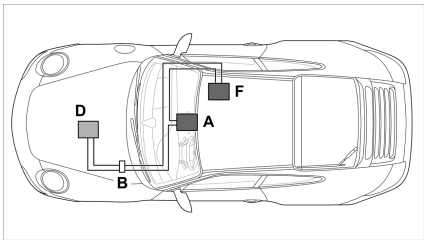
MOST control units, variant A - B - C - F

A - Radio/PCM

B - Connection point interior/luggage compartment

C - Loudspeaker amplifier

F - Telephone control module



MOST control units, variant A - B - D - F, shown on the 911

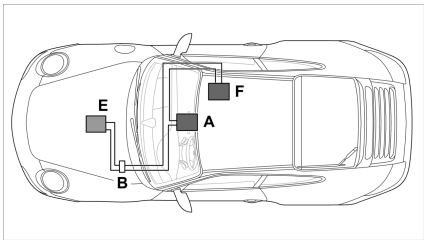
MOST control units, variant A - B - D - F

A - Radio/PCM

B - Connection point interior/luggage compartment

D - CD changer

F - Telephone control module



MOST control units, variant A - B - E - F, shown on the 911

MOST control units, variant A - B - E - F

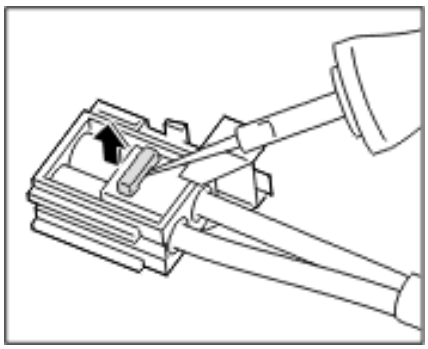
A - Radio/PCM

B - Connection point interior/luggage compartment

E - Navigation unit

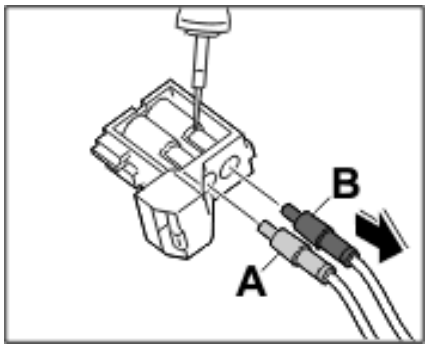
F - Telephone control module

Removing and installing optical contacts on connector side



Unlocking secondary locking of the optical contacts (connector side)

1. Open the secondary locking mechanism using the **press-out and unlocking tools for tab and round plug connectors of all sizes NR.155**. Insert the tool in the opening provided and lift the locking mechanism. The locking mechanism engages in the upper position.



Unlocking primary locking of the optical contacts (connector side)

2. Position the **press-out and unlocking tools for tab and round plug connectors of all sizes NR.155** on the primary locking mechanism and lift the locking mechanism.

A - Optical contact, grey

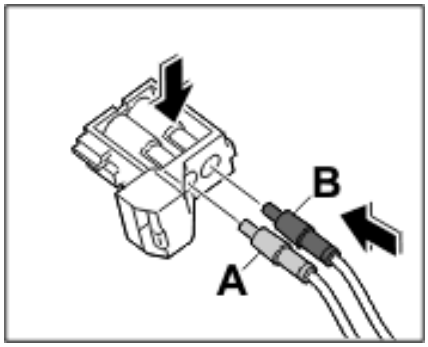
B - Optical contact, black

3. Carefully pull on the optical waveguide **-A and B-** in **-direction of arrow-** . If it is not possible to pull out the optical waveguide, check again if the secondary locking mechanism is completely released and if the primary locking mechanism is raised sufficiently.

Perform visual inspection of locking mechanisms, connector housings and contacts for possible damage, and exchange the damaged parts, if necessary.

Installing optical contacts on connector side

Remove the dust boot right before plugging.
Check the proper condition of the contacts.

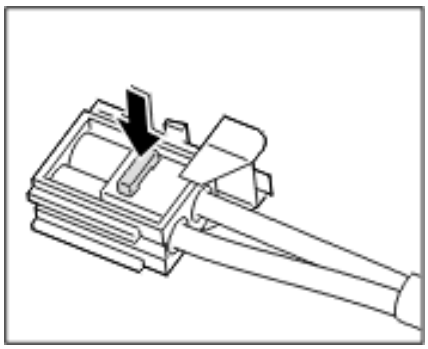


Locking primary locking of the optical contacts (connector side)

1. Insert the optical contact **-A and B-** in the connector until it engages audibly.

A - Optical contact, grey

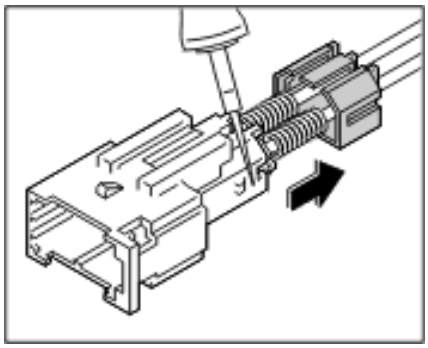
B - Optical contact, black



Locking secondary locking of the optical contacts (connector side)

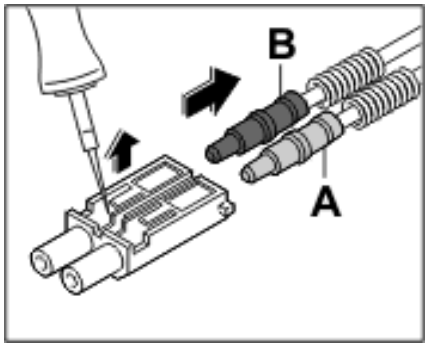
2. Lock the secondary locking and check the optical contacts for tightness.

Removing and installing optical contacts on socket side



Unlocking spring cap of the optical contacts (on the socket side)

1. Release the spring cap on both sides using the **press-out and unlocking tools for tab and round plug connectors of all sizes NR.155** and remove it.
2. Remove optical waveguide module from connector.



Unlocking contact locking of the optical contacts (on the socket side)

3. Position the **press-out and unlocking tools for flat-type and round plug connectors of all sizes NR.155** for releasing the contact locking mechanism of the optical waveguide module and lift up the locking mechanism.

A - Optical contact, grey

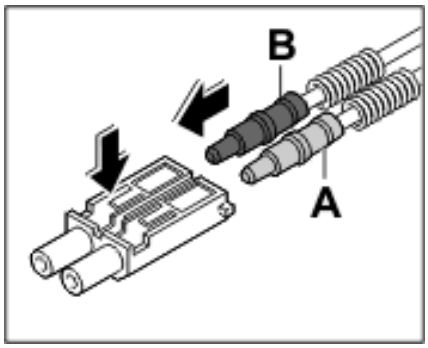
B - Optical contact, black

4. Carefully pull on the optical waveguide **-A and B-** in **-direction of arrow-** . If it is not possible to pull out the optical waveguide, check again if the locking mechanism is completely released.

Perform visual inspection of locking mechanisms, connector housings and contacts for possible damage, and exchange the damaged parts, if necessary.

Installing optical contacts on socket side

Remove the dust boot right before plugging.
Check the proper condition of the contact.
At a force of 10 N (7.5 lb.) the springs installed in the connection point will be compressed. This leads to an increase in attenuation, which could lead to system impairment and system failure. Therefore a maximum force of 10 N (7.5 lb.) may be used to pull on optical waveguides at connection points.



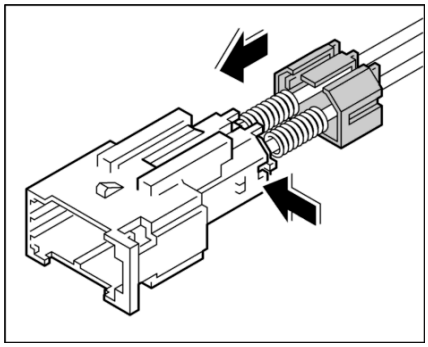
Locking contact locking of the optical contacts (on the socket side)

1. Insert optical contact **-B-** into the optical waveguide module until it is felt to engage, and check the optical contact is seated securely.

A - Optical contact, grey

B - Optical contact, black

2. Insert optical waveguide module into the connection point on the socket side.



Locking spring cap of the optical contacts (on the socket side)

3. Slide the spring cap on the connection point until it can be felt to engage **-arrow-** .

997110, 997111, 997120, 997121, 997310, 997311, 997320, 997321, 997410, 997411, 997430, 997431, 997610, 997611, 997620, 997621

as of MY 2005
Country C00, C02, C05, C07, C08, C09, C10, C11, C12, C13, C14, C15, C16, C18, C19, C20, C21, C22, C23, C24, C25, C26, C27, C28, C32, C33, C34, C35, C36, C37, C38, C39, C45, C46, C98, C99

WARNUNG

Gefahr des Verlusts der Text-Bild-Zuordnung beim Ausdruck.

- **Aus technischen Gründen kann derzeit nicht ausgeschlossen werden, dass trotz einwandfreier Darstellung auf dem Bildschirm beim Ausdruck der Zusammenhang von Text und zugehörigem Bild verloren geht.**
- **Wird der Fehler nicht bemerkt, besteht die Gefahr, daß Arbeiten nicht korrekt durchgeführt werden und es dadurch zu Personen- und Sachschäden kommt.**

97 97 IN Connector - General information - as of MY 2005

Tools

Designation	Type	Number	Explanation	
Repair kit for harnesses	commercially available tool	NR.155-1		
PIWIS tester	special tool	P 9718		

Connector - General information

Note

For repairing wire harnesses, the wire harnesses listed in step 1 are only offered as complete units, without exchanging individual connectors.
For repairing or replacing connectors on wire harnesses which do not have to be completely replaced, the correct procedure is listed under Step 2 and 3.

1. **Wire harnesses which are replaced only as a complete unit.**

1.1. Wire harness for door and wire harness for door trim panel 973219 Removing and installing wiring harness for door

1.2. Wire harness for centre console 972019 Removing and installing wire harness for centre console

1.3. Wire harness for number plate light 977019 Removing and installing wire harness for number plate light

1.4. Wire harness for rear spoiler 976719 Removing and installing wire harness for rear spoiler

1.5. Wire harness for glove compartment 960719 Removing and installing contact switch for glove compartment light

1.6. Wire harness for engine 975219 Removing and installing wire harness for engine

1.7. Wire harness for Tiptronic 978119 Removing and installing wire harness for Tiptronic

1.8. Wire harness for battery wiring 974519 Removing and installing wire harness for starter battery

1.9. Antenna leads 912855 Replacing the antenna leads [997110 997111 997120 997121] 912855 Replacing the antenna leads [997310 997311 997320 997321] 912855 Replacing the antenna leads [997410 997411 997430 997431] 912855 Replacing the antenna leads [997610 997611 997620 997621]

Note

Only in the cabriolet.

1.10. Wire harness for roll-over protection system 975519 Removing and installing wire harness for convertible top [997310 997311 997320 997321 997610 997611 997620 997621] *975519 Removing and installing wire harness for convertible top [997110 997111 997120 997121 997410 997411 997430 997431]*

Note

Only in the cabriolet.

1.11. Wire harness for auxiliary stop light. 970919 Removing and installing main wiring harness

2. **Connectors contained in the Repair kit for harnesses NR.155-1 and can be replaced individually.**

WARNING

Danger of material damage by using plug-in contacts made of different materials.

- **Using plug-in contacts made of different materials can lead to oxidation of the plug-in contacts.**

Only use the plug-in contacts listed in the wiring diagram for the corresponding plug connection. Make sure that gold contacts are always plugged together with gold contacts, for example.

The wiring diagrams can be displayed with the **PIWIS tester P 9718**.

For repairing wire harnesses individual connectors are offered in a **Repair kit for harnesses NR.155-1**. In this **Repair kit for harnesses NR.155-1**, connectors are contained primarily that are installed in crash and external areas.

The **Repair kit for harnesses NR.155-1** contains detailed descriptions about removing and installing individual plug-in contacts.

3. **Connectors not contained in the Repair kit for harnesses NR.155-1.**

Connectors not contained in the **Repair kit for harnesses NR.155-1** can be ordered from the CARTOOL company.

Note

Ordering connectors refers to the model **911 Carrera as of model year 98**.

The order must contain the following specifications.

3.1. Version 1 for identifying the required connector:

3.1.1. Legible specifications of the manufacturer on the connector, e.g., complete item number, number of pins, housing colour, and whether pin or socket housing.

3.1.2. If the data mentioned in Version 1 is not legible, is incomplete, or not present, Version 2 is also possible for ordering.

3.2. Version 2 for identifying the required connector:

3.2.1. Vehicle type

3.2.2. Model year

3.2.3. PORSCHE part number from the parts catalogue

3.2.4. Which wire harness (e.g. main wire harness, wire harness for engine, etc.)

3.2.5. Specifications from the wiring diagram

a) Page number

b) Field

c) Component (for components with multiple connectors e.g. instrument cluster, please specify connector 1, 2, 3 etc.)

d) Connection point (e.g. X11, X12 etc.)

3.3. Version 3 for identifying the required connector:

3.3.1. Call up corresponding wiring diagram in **PIWIS tester P 9718**.

3.3.2. Click on the plug-in contact of the required connector with the mouse.

Note

The specifications displayed are subject to a constant updating process. For this reason, it can happen that specifications are incomplete or not available. If this is the case, use one of the other versions for ordering connectors if possible.

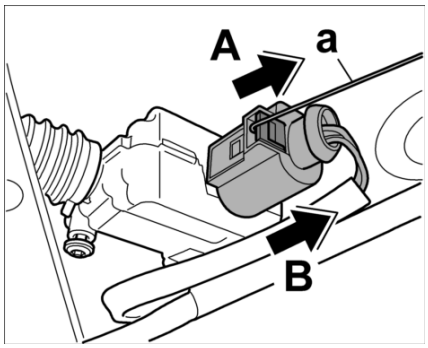
3.3.3. Note all displayed specifications for this connector and specify when ordering the connector.

3.4. If the data listed under Version 1 to Version 3 is included and complete, the CARTOOL company can identify the correct connector.

3.5. Ordering address:

CARTOOL company, GmbH
Straußenlettenstr. 15
85053 Ingolstadt
Tel. (0841) 96 500-70 (in Germany)
Tel. (0841) 96 500-80 (outside of Germany)
Fax (0841) 96 500-90

Procedure for releasing connectors that are difficult to move

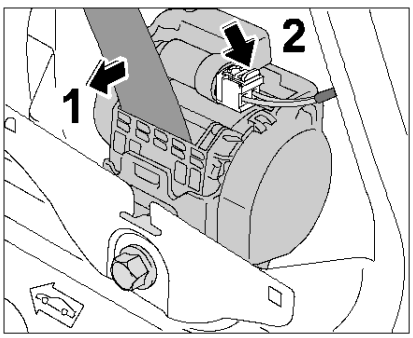


Pulling connector off lid-release motor from rear

1. Pull connector off lid-release motor.

1.1. Release connector on motor for lid-release with suitable auxiliary materials (e.g.. angled piece of wire with diameter of approx. 1mm) **-a-** **-arrow A-** and pull off **-arrow B-** .

Engage wire at the release. Pulling on the wire in direction of arrow releases the connector and can be pulled off.

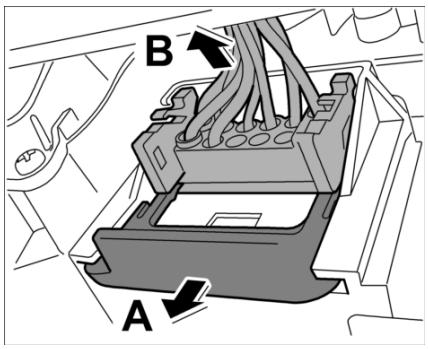


Releasing connector for seat-belt tensioner

2. Pull off connector on seat belt tensioner.

2.1. Release connector **-2-** on seat-belt tensioner with a screw driver in **-direction of arrow-** .

2.2. Pull off connector on seat belt tensioner.

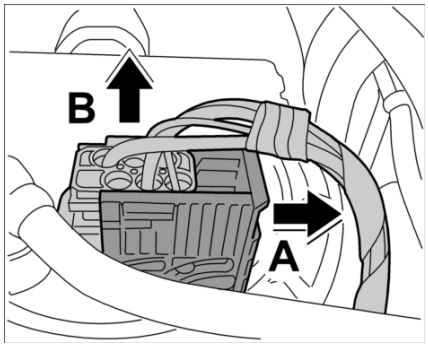


Pulling off connector on headlight

3. Pull off connector on headlight.

3.1. Pull securing clip completely down and out **-arrow A-** .

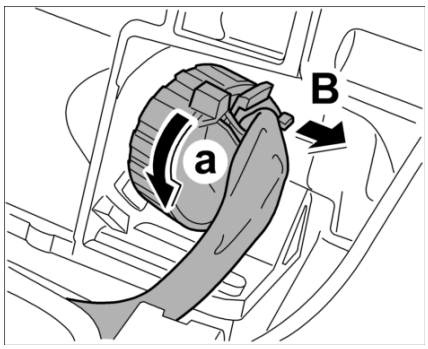
3.2. Pull off connector on headlight **-arrow B-** .



Pulling connector off sensor for fuel level

4. Pull connector off sensor for fuel level.

4.1. Release connector completely on fuel level sensor **-arrow A-** and pull it off **-arrow B-** .



Pulling off connector on Tiptronic transmission

5. Pull off connector on Tiptronic transmission.

5.1. Release connector on Tiptronic transmission by turning anti-clockwise **-arrow a-** and remove **-arrow B-** .

997110, 997111, 997120, 997121, 997310, 997311, 997320, 997321, 997410, 997411, 997430, 997431, 997610, 997611, 997620, 997621

as of MY 2005
Country C00, C02, C05, C07, C08, C09, C10, C11, C12, C13, C14, C15, C16, C18, C19, C20, C21, C22, C23, C24, C25, C26, C27, C28, C32, C33, C34, C35, C36, C37, C38, C39, C45, C46, C98, C99

WARNUNG

Gefahr des Verlusts der Text-Bild-Zuordnung beim Ausdruck.

- **Aus technischen Gründen kann derzeit nicht ausgeschlossen werden, dass trotz einwandfreier Darstellung auf dem Bildschirm beim Ausdruck der Zusammenhang von Text und zugehörigem Bild verloren geht.**
- **Wird der Fehler nicht bemerkt, besteht die Gefahr, daß Arbeiten nicht korrekt durchgeführt werden und es dadurch zu Personen- und Sachschäden kommt.**

01 01 00 Sales check - as of MY 2005

- Sales check

top of page

Sales check

Note

- *The terms "inspect" and "check" include all necessary subsequent work such as adjustments, readjustments, corrections and replenishment. They do not include the repair, replacement or overhaul of components or assemblies.*

Work instruction for order no.								
Workshop no.								

Vehicle Ident. No.

	OK 1)	Not OK 2)
Check conformity of Vehicle Ident. No. on vehicle, data bank, vehicle registration documents and on-board documentation Checking Vehicle Ident. No.		
Remove transport locks, transport protection Removing transport protection		
Battery: check battery charge state (bear in mind transport and idle period) 270601 Checking battery		
Diagnostic system: read out and erase fault memory, activate systems Diagnostic system: reading out fault memory and activating systems		
Windscreen washer/headlight washer system: check operation, fluid level and nozzle settings, pay attention to antifreeze protection in winter months; check wiper blades Windscreen washer/headlight cleaning system: check operation, nozzle settings		

Vehicle lights: check operation All headlights: check adjustment Horn and clock: check operation Checking the function of the vehicle's lights		
Electrical equipment, indicators and warning devices: check function Checking the function of electrical equipment, as well as the indicator and warning lights		
Mobile roofs: check operation Mobile roofs: check operation		
Check engine oil level 170101 Checking engine oil level		
Check tyre pressure Wheels and tyres/tyre pressure		
Wheels, tyres: visual inspection for damage Wheels and tyres/tyre pressure		
Check wheel mounting Wheels and tyres/tyre pressure		
Brake hoses and lines: visual inspection for damage in wheel area Check brake fluid level 470801 Checking brake fluid level		
Visual inspection for leaks: oils, fluids		
Exterior equipment and paintwork: visual inspection for damage Checking exterior equipment and paintwork		
Glazing: visual inspection for damage Checking glazing		
Interior equipment: visual inspection for damage and soiling Interior equipment: visual inspection for damage and soiling *011000 Interior equipment: visual inspection for damage and soiling*		
Door and lid locks: check operation Checking lids and doors		
Alarm system: check operation of indicators Alarm system: checking that the control equipment is working		
Complete vehicle and check that all equipment is present Checking vehicle equipment for completeness [997110 997111 997120 997121] *Checking vehicle equipment for completeness [997310 997311 997320 997321 997410 997411 997430 997431 997610 997611 997620 997621]*		

Test drive	OK 1)	Not OK 2)

Foot and parking brakes, clutch, steering, cruise control, ParkAssist, heating, air-conditioning system and instruments: check operation Test drive		
Transmission: check operation		
Check vehicle for unusual handling behaviour, vibration and noise		
Diagnostic system: Read out and erase fault memory 033500 Reading out fault memory		

1) OK = functioning correctly
2) Not OK = not functioning correctly

Stamp of Official Porsche Centre

997110, 997111, 997120, 997121, 997310, 997311, 997320, 997321, 997410, 997411, 997430, 997431, 997610, 997611, 997620, 997621

as of MY 2005
Country C00, C02, C05, C07, C08, C09, C10, C11, C12, C13, C14, C15, C16, C18, C19, C20, C21, C22, C23, C24, C25, C26, C27, C28, C32, C33, C34, C35, C36, C37, C38, C39, C45, C46, C98, C99

WARNUNG

Gefahr des Verlusts der Text-Bild-Zuordnung beim Ausdruck.

- **Aus technischen Gründen kann derzeit nicht ausgeschlossen werden, dass trotz einwandfreier Darstellung auf dem Bildschirm beim Ausdruck der Zusammenhang von Text und zugehörigem Bild verloren geht.**
- **Wird der Fehler nicht bemerkt, besteht die Gefahr, daß Arbeiten nicht korrekt durchgeführt werden und es dadurch zu Personen- und Sachschäden kommt.**

Vergleichen Sie deshalb nach dem Druckvorgang unbedingt die Ausdrucke mit der Bildschirmdarstellung. Korrigieren Sie die Ausdrucke im Fehlerfall so, daß der Inhalt der Bildschirmdarstellung zutreffend wiedergegeben wird.

WARNING

Danger of losing text-figure correspondence when printing out.

- **For technical reasons, it can currently not be ruled out that the correspondence between text and associated figure can be lost when it is printed out, even though the display on the screen is correct.**
- **If the fault is not noticed, there is the danger that work will not be performed correctly which can cause injury and damage.**

03 24 00 Minor maintenance - as of MY 2005

- Minor maintenance

top of page

Minor maintenance

Note

- *The engine oil and oil filter must be changed every 10,000 km (6,000 mls) in vehicles which are operated in countries where leaded fuel is used.*
- *If the mileage for scheduled maintenance is not reached, minor maintenance must be carried out after 2, 6, 10..... years.*
- *The terms "inspect" and "check" include all necessary subsequent work such as adjustment, readjustment, corrections and replenishment. They do not include the repair, replacement or overhaul of components or assemblies.*
- *Maintenance item > Check drive belt< must always be performed 60,000 km (40,000 mls) after replacement of the drive belt. Observe the chapter on additional maintenance for this purpose.*

Minor maintenance at: 30,000, 90,000, 150,000, 210,000 km etc./ 20,000, 60,000, 100,000, 140,000 mls etc.	OK
Diagnosis system: read out fault memory 033500 On-board diagnosis .	
Change engine oil and oil filter 170155 Engine oil and oil filter change	
Vehicle underside and engine compartment: Visual inspection for leaks (oils and fluids) and abrasion (lines and hoses) Underbody panel: visual inspection for completeness, installation and damage	
Coolant hoses: check condition Radiators and air inlets: visual inspection for external contamination and blockage	

Coolant: check the level and antifreeze protection → 190101 Checking cooling system	
Particle filter: replace filter element → 851819 Removing and installing particle filter	
Brake system: visual inspection of the brake pads and brake discs for wear → Visual inspection: brake lines/brake pads/brake discs	
Brake hoses and lines: visual inspection for leaks, damage, routing and corrosion → Visual inspection: brake lines/brake pads/brake discs	
Drive shafts: visual inspection of the boots for leaks and damage → Running gear maintenance: axle joints/drive shafts	
Tyres: check condition and tyre pressure → Wheels and tyres/tyre pressure	
Check the door locks, lid locks and safety hooks of the front lid to ensure that they are secure and function properly → Checking lids and doors	
Vehicle lighting: check operation All headlights: check adjustment Horn: check operation → Checking the function of the vehicle's lights	
Windscreen wiper/washer system, headlight washer system: check fluids and nozzle settings; pay attention to antifreeze protection in winter months; check wiper blades → Windscreen washer/headlight cleaning system: check operation, nozzle settings	
Electrical equipment, warning and indicator lights: check function → Checking the function of electrical equipment, as well as the indicator and warning lights	
Test drive: Remote control, front seats, foot and parking brakes (also actuation travel), engine, clutch, steering, transmission, ParkAssist, cruise control, PSM switch, PASM switch, heating, air-conditioning system and instruments: check operation → Test drive	
Oils, fluids: visual inspection for leaks	

997110, 997111, 997120, 997121, 997310, 997311, 997320, 997321, 997410, 997411, 997430, 997431, 997610, 997611, 997620, 997621

as of MY 2005
Country C00, C02, C05, C07, C08, C09, C10, C11, C12, C13, C14, C15, C16, C18, C19, C20, C21, C22, C23, C24, C25, C26, C27, C28, C32, C33, C34, C35, C36, C37, C38, C39, C45, C46, C98, C99

03 26 00 Major maintenance - as of MY 2005

- Major maintenance

top of page

Major maintenance

Note

- *The engine oil and oil filter must be changed every 10,000 km (6,000 mls) in vehicles which are operated in countries where leaded fuel is used.*
- *If the mileage for scheduled maintenance is not reached, major maintenance must be carried out after 4, 8, 12..... years.*
- *The terms "inspect" and "check" include all necessary subsequent work such as adjustments, readjustments, corrections and replenishment. They do not include the repair, replacement or overhaul of components or assemblies.*
- *Maintenance item > Check drive belt< must always be performed 60,000 km (40,000 mls) after replacement of the drive belt. Observe the chapter on additional maintenance for this purpose.*

Major maintenance at 60,000, 120,000, 180,000, 240,000 km etc./ 40,000, 80,000, 120,000, 160,000 mls etc.	OK
Diagnostic system: read out fault memory 033500 On-board diagnosis (OBD)	
Change engine oil and oil filter 170155 Engine oil and oil filter change	
Vehicle underside and engine compartment: visual inspection for leaks (oils and fluids) and abrasion (lines and hoses) Underbody panels: visual inspection for completeness, installation and damage	
Coolant hoses: check condition Radiators and air inlets: visual inspection for external contamination and blockage Coolant: check the level and antifreeze protection 190101 Checking cooling system	
Air cleaner: replace air cleaner element 242419 Removing and installing air cleaner element	
Particle filter: replace filter element 851819 Removing and installing particle filter	
Fuel system: visual inspection for damage, routing and secure fit of line connections	

Handbrake: check the free play of the parking-brake lever → 468316 Adjusting parking brake shoes	
Brake system: visual inspection of the brake pads and brake discs for wear → Visual inspection: brake lines/brake pads/brake discs	
Brake hoses and lines: visual inspection for leaks, damage, routing and corrosion → Visual inspection: brake lines/brake pads/brake discs	
Clutch: check pedal end position → Checking clutch pedal (end position)	
Steering gear: visual inspection of bellows for damage Tie rod ends: check the play and dust bellows → Running gear maintenance: steering gear - visual inspection of bellows and tie rod joints	
Axle joints: check the play and visually inspect the dust bellows for damage → Running gear maintenance: axle joints/drive shafts	
Check that the threaded connections of the running gear adjustment at the front and rear are secure	
Drive shafts: visual inspection of the boots for leaks and damage → Running gear maintenance: axle joints/drive shafts	
Exhaust system: visual inspection for leaks and damage, check mounts	
Tyres: check condition and tyre pressure → Wheels and tyres/tyre pressure	
Check the door locks, lid locks and safety hooks of the front lid to ensure that they are secure and functioning properly → Checking doors and lids	
Seat belts: check operation and condition → Checking seat belts	
Vehicle lighting: check operation All headlights: check adjustment Horn: check operation → Checking the function of the vehicle's lights	
Windscreen wiper/washer system, headlight washer system: check operation, fluid level and nozzle settings, pay attention to antifreeze protection in winter months; check wiper blades → Windscreen washer/headlight cleaning system: checking operation, nozzle settings	
Electrical equipment, warning and indicator lights: check function → Checking the function of electrical equipment, as well as the indicator and warning lights	
Test drive: Remote control, front seats, foot and parking brakes (also actuation travel), engine, clutch, steering, transmission, ParkAssist, cruise control, PSM switch, PASM switch, heating, air-conditioning system and instruments: check operation → Test drive	
Oils, fluids: visual inspection for leaks	

997110, 997111, 997120, 997121, 997310, 997311, 997320, 997321, 997410, 997411, 997430, 997431, 997610, 997611, 997620, 997621

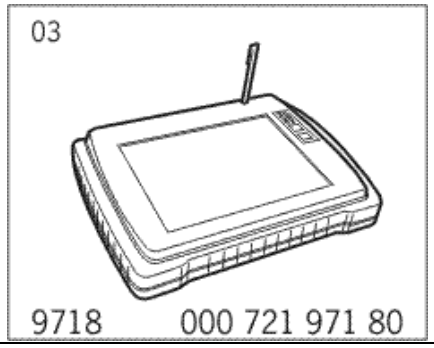
as of MY 2005
Country C00, C02, C05, C07, C08, C09, C10, C11, C12, C13, C14, C15, C16, C18, C19, C20, C21, C22, C23, C24, C25, C26, C27, C28, C32, C33, C34, C35, C36, C37, C38, C39, C45, C46, C98, C99

WARNUNG

03 35 00 On-board diagnosis (OBD) - as of MY 2005

- Reading out and erasing fault memory

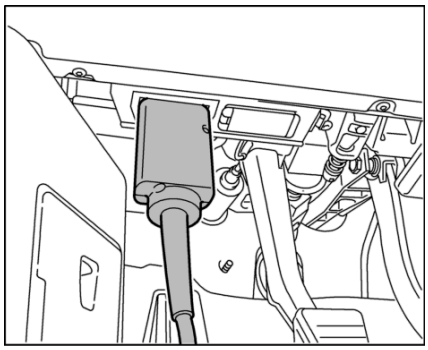
Tools

Designation	Type	Number	Explanation	
PIWIS tester	special tool	9718		

top of page

Reading out and erasing fault memory

Reading out and erasing fault memory



Diagnostic socket

The **PIWIS tester 9718** is connected to the vehicle via a diagnostic socket. The diagnosis socket is located inside the vehicle in the vicinity of the driver's A-pillar below the instrument panel.

1. Start the **PIWIS tester 9718** and follow the instructions on the tester.
2. Select vehicle type, press >> and start the automatic control unit search.
3. If an asterisk appears in front of the relevant control unit, read out the fault memory and follow the instructions on the tester.

03 60 00 Additional maintenance of drive belt - as of MY 2005

- Additional maintenance of drive belt

top of page

Additional maintenance of drive belt

Note

- *The engine oil and oil filter must be changed every 10,000 km (6,000 mls) in vehicles which are operated in countries where leaded fuel is used.*
- *Maintenance item > Check drive belt< must always be performed 60,000 km (40,000 mls) after replacement of the drive belt.*

Additional maintenance - checking drive belt	OK
Check drive belt at 60,000 km/40,000 mls or every 4 years 137819 Removing and installing drive belt	
Check drive belt at 150,000 km/100,000 mls or every 10 years 137819 Removing and installing drive belt	
Check drive belt at 240,000 km/160,000 mls or every 16 years 137819 Removing and installing drive belt	

997110, 997111, 997120, 997121, 997310, 997311, 997320, 997321, 997410, 997411, 997430, 997431, 997610, 997611, 997620, 997621

as of MY 2005
Country C00, C02, C05, C07, C08, C09, C10, C11, C12, C13, C14, C15, C16, C18, C19, C20, C21, C22, C23, C24, C25, C26, C27, C28, C32, C33, C34, C35, C36, C37, C38, C39, C45, C46, C98, C99

WARNUNG

03 81 00 Additional maintenance of spark plugs - as of MY 2005

- Additional maintenance of spark plugs

top of page

Additional maintenance of spark plugs

Additional maintenance for spark plugs

Note

- *The engine oil and oil filter must be changed every 10,000 km (6,000 mls) in vehicles which are operated in countries where leaded fuel is used.*
- *Maintenance item > Check drive belt< must always be performed 60,000 km (40,000 mls) after replacement of the drive belt.*

Additional maintenance, replacing spark plugs	OK
Replace spark plugs every 90,000 km/60,000 mls or every 4 years 287020 Removing and installing spark plugs	

997110, 997111, 997120, 997121, 997310, 997311, 997320, 997321, 997410, 997411, 997430, 997431, 997610, 997611, 997620, 997621

as of MY 2005
Country C00, C02, C05, C07, C08, C09, C10, C11, C12, C13, C14, C15, C16, C18, C19, C20, C21, C22, C23, C24, C25, C26, C27, C28, C32, C33, C34, C35, C36, C37, C38, C39, C45, C46, C98, C99

WARNUNG
Gefahr des Verlusts der Text-Bild-Zuordnung beim Ausdruck.

03 83 00 Additional maintenance every 90,000 km/60.000 mls or every 6 years - as of MY 2005

- Additional maintenance every 90,000 km/60.000 mls or every 6 years

top of page

Additional maintenance every 90,000 km/60.000 mls or every 6 years

Note

- *The engine oil and oil filter must be changed every 10,000 km (6,000 mls) in vehicles which are operated in countries where leaded fuel is used.*
- *Maintenance item > Check drive belt< must always be performed 60,000 km (40,000 mls) after replacement of the drive belt.*

Additional maintenance every 90,000 km/60,000 mls or every 6 years	OK
Replace drive belt __ 137819 Removing and installing drive belt	

997110, 997111, 997120, 997121, 997310, 997311, 997320, 997321, 997410, 997411, 997430, 997431, 997610, 997611, 997620, 997621

as of MY 2005
Country C00, C02, C05, C07, C08, C09, C10, C11, C12, C13, C14, C15, C16, C18, C19, C20, C21, C22, C23, C24, C25, C26, C27, C28, C32, C33, C34, C35, C36, C37, C38, C39, C45, C46, C98, C99

WARNUNG

Gefahr des Verlusts der Text-Bild-Zuordnung beim Ausdruck.

- **Aus technischen Gründen kann derzeit nicht ausgeschlossen werden, dass trotz einwandfreier Darstellung auf dem Bildschirm beim Ausdruck der Zusammenhang von Text und zugehörigem Bild verloren geht.**
- **Wird der Fehler nicht bemerkt, besteht die Gefahr, daß Arbeiten nicht korrekt durchgeführt werden und es dadurch zu Personen- und Sachschäden kommt.**

03 88 00 Additional maintenance every 180,000 km/120.000 mls or every 12 years - as of MY 2005

- Additional maintenance every 180,000 km/120.000 mls or every 12 years

top of page

Additional maintenance every 180,000 km/120.000 mls or every 12 years

Notes

Note

- *The engine oil and oil filter must be changed every 10,000 km (6,000 mls) in vehicles which are operated in countries where leaded fuel is used.*
- *Maintenance item > Check drive belt< must always be performed 60,000 km (40,000 mls) after replacement of the drive belt.*

Additional maintenance every 180,000 km/120,000 mls or every 12 years

Additional maintenance every 180,000 km/120,000 mls or every 12 years	OK
Manual transmission: change oil _ 340155 Changing transmission oil	

Additional maintenance every 180,000 km/120,000 mls or every 12 years

Additional maintenance every 180,000 km/120,000 mls or every 12 years	OK

Automatic transmission: change ATF and ATF filter 370255 Changing ATF 375855 Changing ATF filter	
Automatic transmission: change oil in final drive 399055 Changing oil for final drive	

997110, 997111, 997120, 997121, 997310, 997311, 997320, 997321

as of MY 2005
Country C00, C02, C05, C07, C08, C09, C10, C11, C12, C13, C14, C15, C16, C18, C19, C20, C21, C22, C23, C24, C25, C26, C27, C28, C32, C33, C34, C35, C36, C37, C38, C39, C45, C46, C98, C99

WARNUNG
Gefahr des Verlusts der Text-Bild-Zuordnung beim Ausdruck.

- **Aus technischen Gründen kann derzeit nicht ausgeschlossen werden, dass trotz einwandfreier Darstellung auf dem Bildschirm beim Ausdruck der Zusammenhang von Text und zugehörigem Bild verloren geht.**
- **Wird der Fehler nicht bemerkt, besteht die Gefahr, daß Arbeiten nicht korrekt durchgeführt werden und es dadurch zu Personen- und Sachschäden kommt.**

Vergleichen Sie deshalb nach dem Druckvorgang unbedingt die Ausdrucke mit der Bildschirmdarstellung. Korrigieren Sie die Ausdrucke im Fehlerfall so, daß der Inhalt der Bildschirmdarstellung zutreffend wiedergegeben wird.

WARNING
Danger of losing text-figure correspondence when printing out.

- **For technical reasons, it can currently not be ruled out that the correspondence between text and associated figure can be lost when it is printed out, even though the display on the screen is correct.**
- **If the fault is not noticed, there is the danger that work will not be performed correctly which can cause injury and damage.**

Therefore, always compare printouts with the screen display after printing them out. Correct the printouts if they are faulty so that the content of the screen display matches that on the printouts.

AVERTISSEMENT
Risque de perte de la correspondance texte-illustration lors de l'impression papier.

- **Pour des raisons techniques, il ne peut pas être exclu à l'heure actuelle que, même en cas d'affichage correct à l'écran, la correspondance entre le texte et l'illustration puisse être erronée sur l'impression papier.**

03 88 00 Additional maintenance every 180,000 km/120.000 mls or every 12 years - as of MY 2005

- Additional maintenance every 180,000 km/120.000 mls or every 12 years

top of page

Additional maintenance every 180,000 km/120.000 mls or every 12 years

Notes

Note

- *The engine oil and oil filter must be changed every 10,000 km (6,000 mls) in vehicles which are operated in countries where leaded fuel is used.*
- *Maintenance item > Check drive belt< must always be performed 60,000 km (40,000 mls) after replacement of the drive belt.*

Additional maintenance every 180,000 km/120,000 mls or every 12 years

Additional maintenance every 180,000 km/120,000 mls or every 12 years	OK
Manual transmission: change oil _ 340155 Changing transmission oil	

Additional maintenance every 180,000 km/120,000 mls or every 12 years

Additional maintenance every 180,000 km/120,000 mls or every 12 years	OK

Automatic transmission: change ATF and ATF filter 370255 Changing ATF 375855 Changing ATF filter	
Automatic transmission: change oil in final drive 399055 Changing oil for final drive	

Additional maintenance every 180,000 km/120,000 mls or every 12 years

Additional maintenance every 180,000 km/120,000 mls or every 12 years	OK
All-wheel final drive: change oil 399055 Changing oil for front final drive	

997410, 997411, 997430, 997431, 997610, 997611, 997620, 997621

as of MY 2005
Country C00, C02, C05, C07, C08, C09, C10, C11, C12, C13, C14, C15, C16, C18, C19, C20, C21, C22, C23, C24, C25, C26, C27, C28, C32, C33, C34, C35, C36, C37, C38, C39, C45, C46, C98, C99

WARNUNG

Gefahr des Verlusts der Text-Bild-Zuordnung beim Ausdruck.

- **Aus technischen Gründen kann derzeit nicht ausgeschlossen werden, dass trotz einwandfreier Darstellung auf dem Bildschirm beim Ausdruck der Zusammenhang von Text und zugehörigem Bild verloren geht.**
- **Wird der Fehler nicht bemerkt, besteht die Gefahr, daß Arbeiten nicht korrekt durchgeführt werden und es dadurch zu Personen- und Sachschäden kommt.**

Vergleichen Sie deshalb nach dem Druckvorgang unbedingt die Ausdrucke mit der Bildschirmdarstellung. Korrigieren Sie die Ausdrucke im Fehlerfall so, daß der Inhalt der Bildschirmdarstellung zutreffend wiedergegeben wird.

WARNING

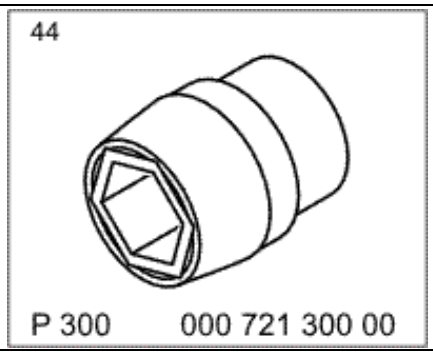
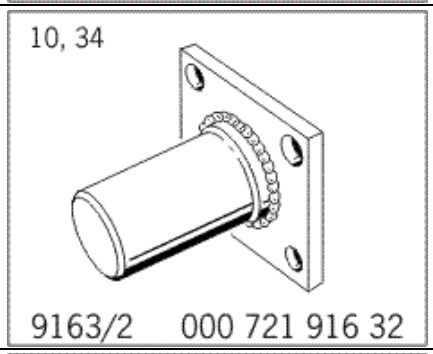
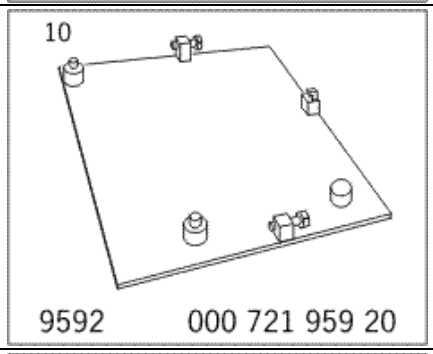
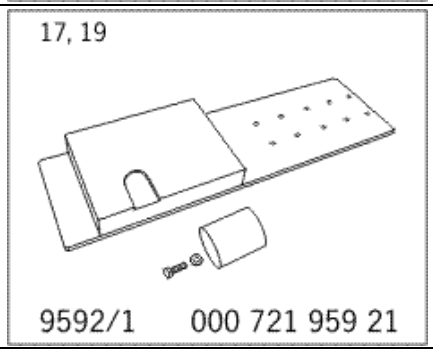
Danger of losing text-figure correspondence when printing out.

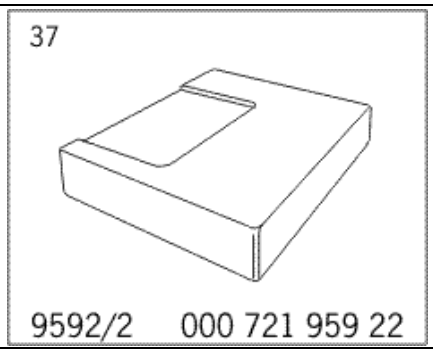
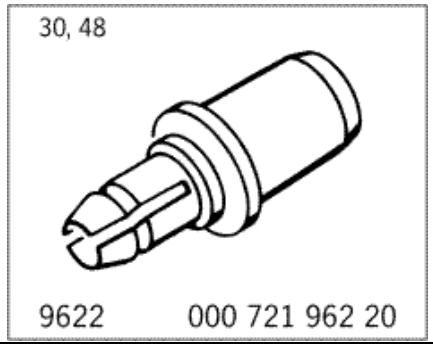
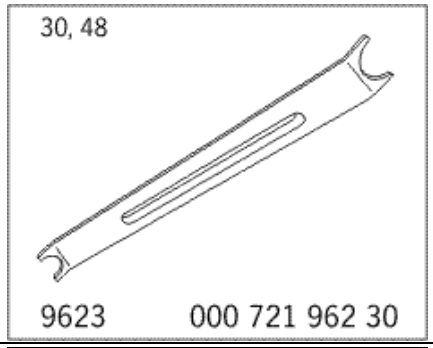
- **For technical reasons, it can currently not be ruled out that the correspondence between text and associated figure can be lost when it is printed out, even though the display on the screen is correct.**

10 01 19 Removing and installing engine - as of MY 2005

- Preliminary work for removing the engine
- Removing engine
- Installing engine
- Subsequent work for installation of engine

Tools

Designation	Type	Number	Explanation	
socket wrench insert	special tool	300		
mounting peg	special tool	9163/2		
retainer plate	special tool	9592		
support plate	special tool	9592/1		

support plate	special tool	9592/2		
assembly aid	special tool	9622		
test tool	special tool	9623		
3/8" extension, 16° movable	commercially available tool	NR.15		

top of page

Preliminary work for removing the engine

Preparations for removing the engine

Note

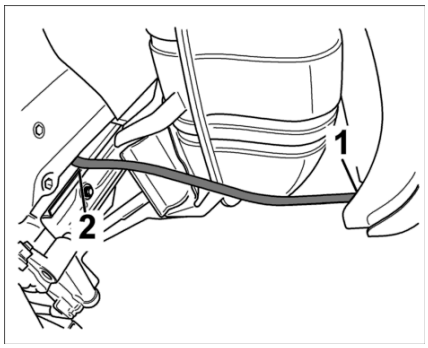
- *Take care to maintain access to the screws for the diagonal struts in the vicinity of the rear jacking points.*

DANGER
Incorrect raising of the vehicle

- **Damage to person or property caused by the car falling down**

Raise the vehicle at the prescribed jacking points.

1. Place jacks under the vehicle at the prescribed jacking points. Raise the vehicle.
2. Use PIWIS tester to read out error memory *Self diagnosis*.
3. Position protective supports on the body to avoid damage.
4. Disconnect battery and cover up battery or contacts Work instructions for disconnecting battery.
5. Remove both rear wheels. Use the specified special tool **socket wrench insert 300** to avoid damage to the wheel rims *440520 21 Removing and installing wheel - removing*.
6. Remove rear apron *21 Removing and installing rear apron - removing*.
7. Removing side retaining frames (heat shields), left and right *21 Removing and installing rear bumper - removal*.



Rear spoiler support

8. Undo support holding rear spoiler to body **-2-** . Turn the support towards the brake disc.
9. Remove cover for rear and centre underbody *5190 21 Removing and installing underside panel - removal*.

top of page

Removing engine

Removing engine

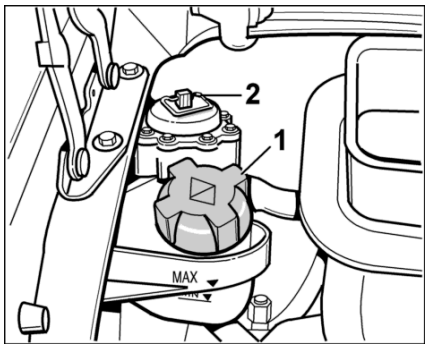
WARNING

Danger of injury from hot engine parts.

- **Risk of burns, damage to skin, injury to the eyes.**

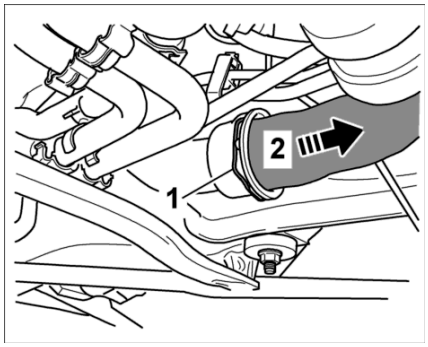
Do not work on the engine while it is hot.

1. Remove the air cleaner housing completely *Removing air cleaner housing*.



Reservoir cap for coolant expansion tank

2. Open reservoir cap on coolant expansion tank **-1-** , fold up bleeder valve **-2-** .



coolant feed line (Henn coupling) to engine

WARNING

Coolant is hazardous to health

- **Irration of skin**

Wear protective gloves and goggles

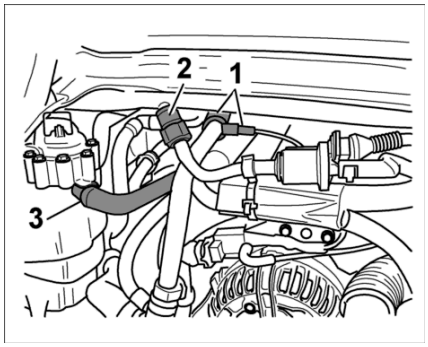
In case of contact with the skin or eyes, wash immediately with plenty of water!

3. Drain coolant *AC Draining and filling coolant - filling*.

3.1. Open coolant drain plug and refit with new sealing ring **Tightening torque: 10 (7.5 ftlb.) Nm**

3.2. Open coolant feed line (Henn coupling) to engine at underbody and reconnect.

3.3. Heating supply and return lines (open spring band clamps in direction of radiator)



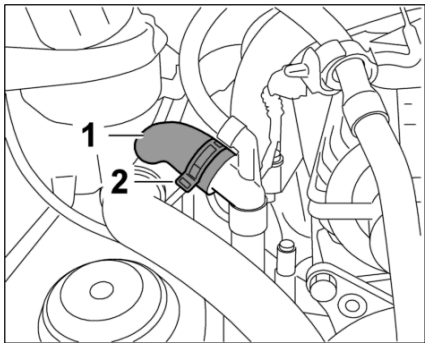
Left engine compartment line connections

4. Open line connections in engine compartment.

4.1. Loosen the vacuum lines for the brake booster **-1-** . For the tandem pump feed line, remove the plastic protection, push the holder forward and pull off the line. Immediately put plastic protection back in place.

4.2. Disconnect tank vent line **-2-** . In order to do this, press the lugs of the rapid-action coupling and pull off the line.

4.3. Disconnect bleeder hose from coolant expansion tank **-3-** .



Coolant pump coolant feeder hose

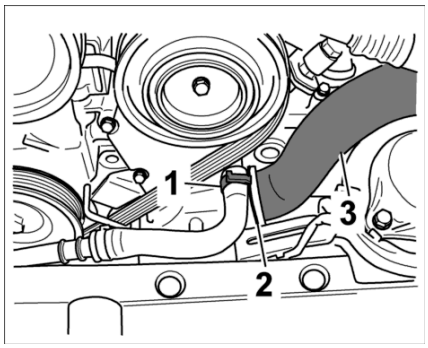
Note

- *The spring band clamp is vulcanised on the coolant supply hose of the coolant expansion tank to the engine! The vulcanisation diminishes after the clamp has been opened and tightened several times. Therefore do not pull off as this could damage the hose.*

5. Disconnect coolant pump feeder hose **-1-** . Open spring band clamp **-2-** and pull off the hose.

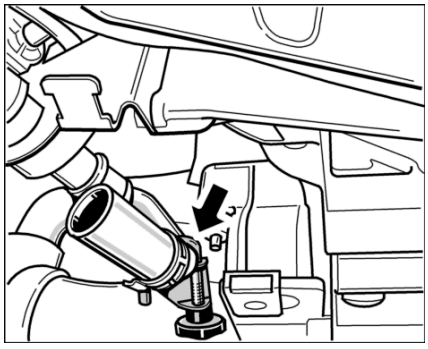
Coolant pipe feeder hose

6. Pull off hose from coolant pipe under coolant expansion tank **-1-** . In order to do this, lift the safety clip on the Henn coupling out of the lock **-Arrow-** using a screwdriver and pull out the hose. Plug the opening with a clean cloth. Put the safety clip back in place after removing the engine



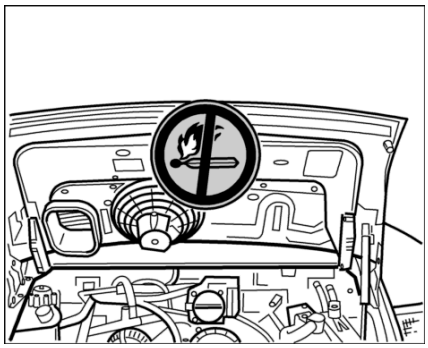
Right coolant pipe hose

7. Pull off tandem pump feeder line **-1-** and right coolant pipe feeder hose **-3-** . Open and remove spring band clamp on vacuum line. After that, lift safety clip on Henn coupling out of the lock **-2-** , pull off coolant hose. Plug the opening with a clean cloth. Put the safety clip back in place after removing the engine



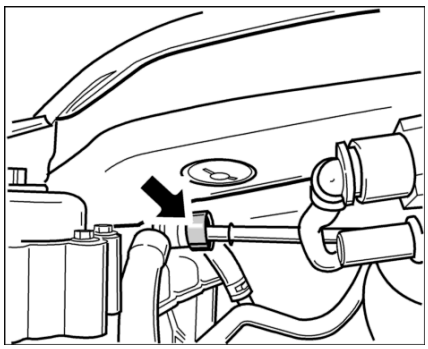
Coolant hose to flat-seat valve

8. In Tiptronic vehicles, pull the coolant hose to the flat-seat valve off the transmission. Clamp shut hose **-Arrow-** , open the spring band clamp and pull off the hose. Collect escaping coolant, close off hose and flat-seat valve with plugs.



Warning sign

9. Before opening the fuel lines, put up or attach to vehicle a warning sign in a clearly visible position *Warning sign* .



Fuel line rapid-action coupling

DANGER

Fuel can escape when fuel line is disconnected.

- **Risk of fatal injury!**
- **Damage to skin**

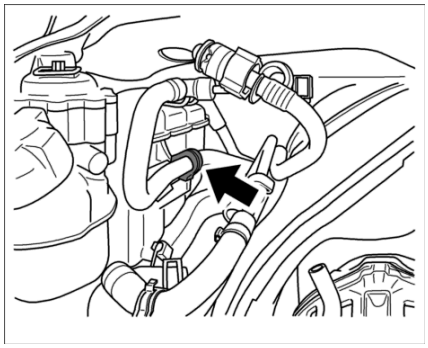
Do not work on fuel system if engine is hot!

Do not smoke, avoid fire and naked flames!

Wear fuel-resistant protective gloves and goggles.

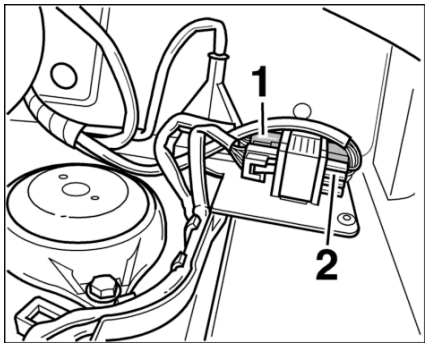
Attach warning sign to vehicle in a clearly visible position.

10. Open fuel supply line. Press the lugs on the rapid-action coupling and pull off the line. Collect escaping fuel with a cloth.



Holder for fuel line

11. Unclip fuel line from holder on coolant expansion tank **-Arrow-** .



Oxygen sensor connector in the engine compartment

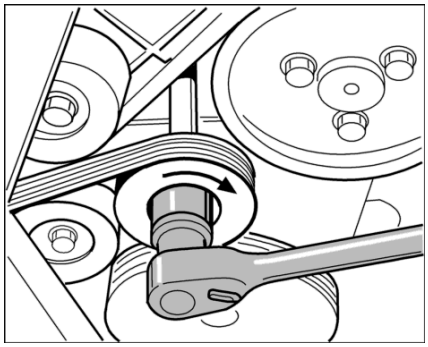
ATTENTION

Trapping of oxygen sensor cables when lowering the engine

- **Material damage!**

place between engine and engine strut

12. Unclip the oxygen sensor plug connections **-1,2-** from the holders on the right and left in the engine compartment. Push the red lugs upward with a small screwdriver and unplug the connector. The connectors are colour-coded to prevent confusing them.



Drive belt tensioning pulley

13. Loosen drive belt. Mark the running direction of the belt with a coloured pen. Slacken belt by turning the tensioning pulley (wrench size 24) clockwise **-Arrow-** , hold tightly and simultaneously take the drive belt off the deflection pulley. Carefully allow the tensioning roller to turn back into tensioning position.

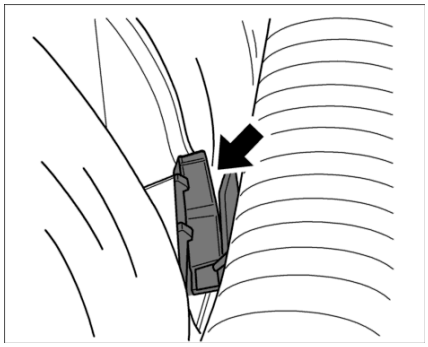
Note

The air-conditioning lines on the compressor do not have to be disconnected in order to remove engine/transmission unit.

Note

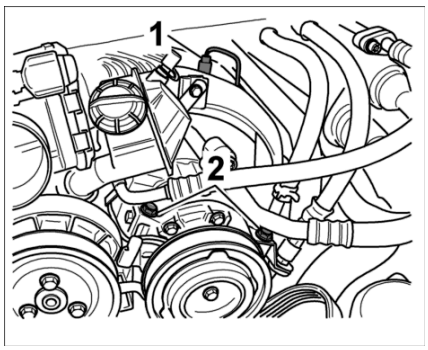
- *After removal, place the air-conditioning compressor on a suitable protective support (e.g. foam, neoprene, etc.).*

14. Remove air-conditioning compressor *873409 11 Detaching and fastening compressor - detaching*.



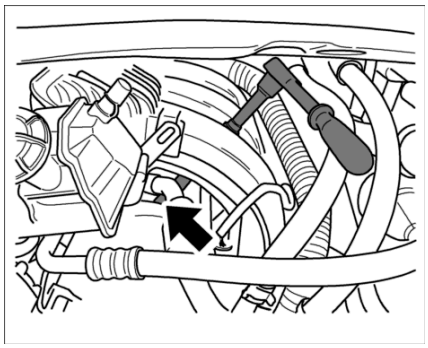
Air-conditioning compressor ground line

15. Disconnect ground connector from intake distributor side 4-6 **-Arrow-** .



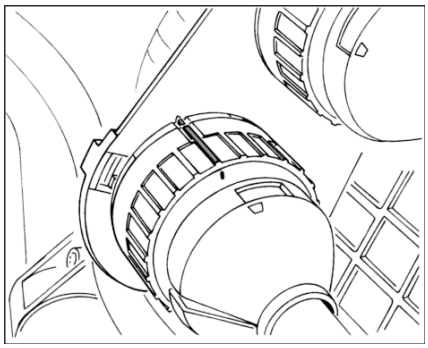
Rear fastening of the air-conditioing compressor

16. Pull the engine comaprtment temperature sensor out of the intake distributor 4-6 together with the rubber sleeve **-1-** and unscrew the rear fastening screws **-2-** of the air-conditioing compressor.



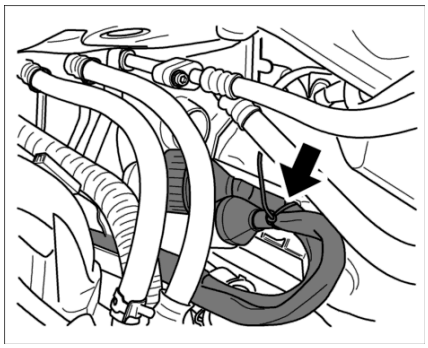
Front fastening screw of the air-conditioning compressor

17. Unscrew the front fastening screw **-Arrow-** of the air-conditioning compressor. Due to the restricted accessibility, the use of a **3/8" extension, 16° movable NR.15** with a long Torx E10 socket wrench is recommended. To lift out the air-conditioning compressor, the screw must be pulled upwards and held in position.
18. Remove the holder for the servo lines, lift out the air-conditioning compressor with the connected lines and place on its side on a protective support. Secure additionally with a tie-wrap.



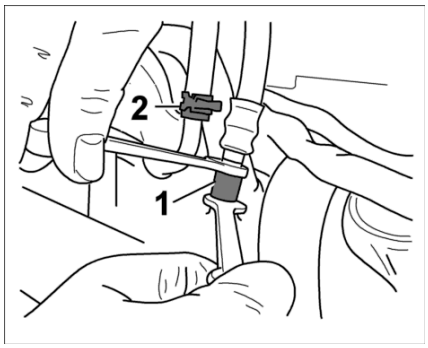
Engine wiring harness round connectors

19. Disconnect engine wiring harness (2 round connectors with bayonet locks) from the plug connections in the right of the engine compartment. In order to do this, open the bayonet locks by turning them anti-clockwise.



Engine wiring harness fastening

20. Open tie-wrap **-Arrow-** on engine wiring harness cable guide and lay wiring harness on engine.



Servo lines in engine compartment

WARNING

Danger of injury and damage to material through Pentosin

- **Irritation and damage to skin**
- **Damage to hoses and wiring**

Wear protective gloves and goggles

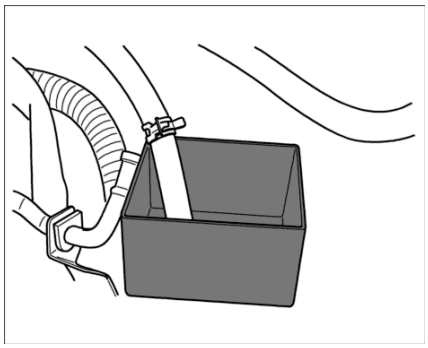
If the eyes or skin come into contact with the fluid, wash immediately with water!

Collect escaping Pentosin

Use caps to protect the wiring against soiling and damage!

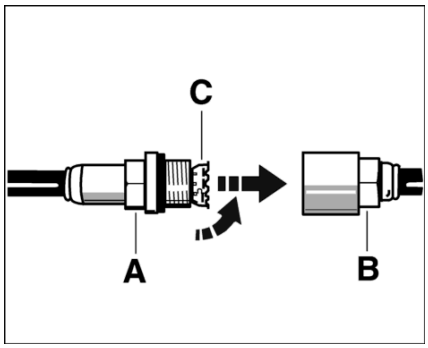
Immediately clean hoses and wiring thoroughly

21. Open power steering pressure pipe and return line. Loosen screws on pressure line (counter) **-1-** . Open spring band clamp on return line (hose).



Collecting the Pentosin.

22. Pull off return hose and open pressure pipe. Collect escaping Pentosin in a small container and then close off the return line again.

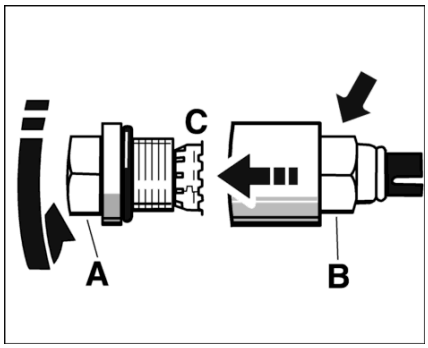


Removing pressure pipe holder

Note

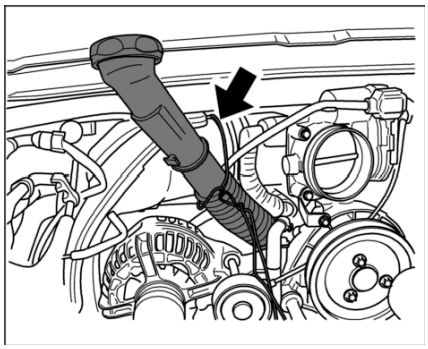
- *If the holder on the servo line's plug-in coupling needs to be replaced, the special tool **assembly aid 9622** is already contained in the parts set.*

23. Loosen pressure pipe nipple **-A-** on the pipe. Tilt holder on one side **-C, Arrow-** and simultaneously pull to disengage. Detach nipple from the pipe and remove the old O-ring. Close off line.



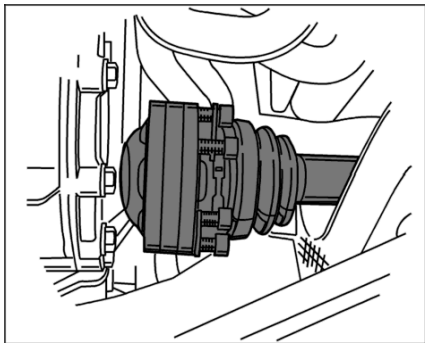
Servo line plug-in coupling

24. Place holder **-C-** into threaded part **-A-** and, if necessary, fasten using **assembly aid 9622**. Screw threaded part with new O-ring into the screw coupling **-B-** and tighten. Always counter when tightening.
    Tightening torque: 30 (22 ftlb.) Nm



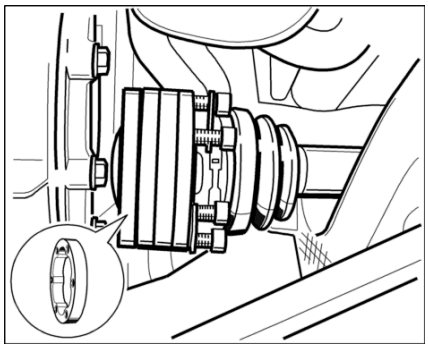
Tying up oil filler neck

25. Tie up oil filler neck with welding wire, string or tie-wrap.



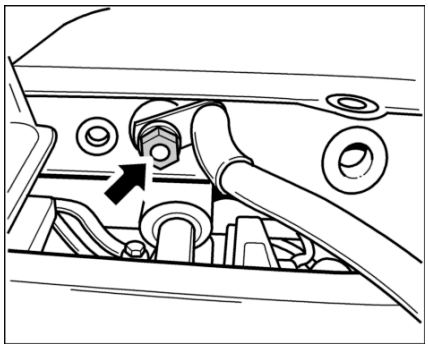
Manual transmission drive shaft

26. Release drive shafts from transmission (a second person should actuate the brake pedal to hold it). Slide suitable protection (e.g. an open plastic pipe, an old coolant hose with a diameter of about 30 mm) over the shaft in the area of the rear axle or place foam padding underneath it *422120 12 Removing and installing drive shaft - removing.*



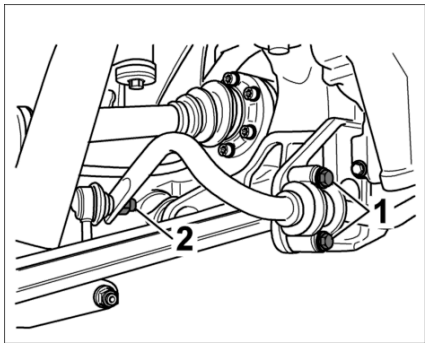
Spacer ring on Tiptronic drive shaft

27. In Tiptronic vehicles, an aluminium spacer ring is installed between the drive shaft and the transmission flange. These rings must be removed.



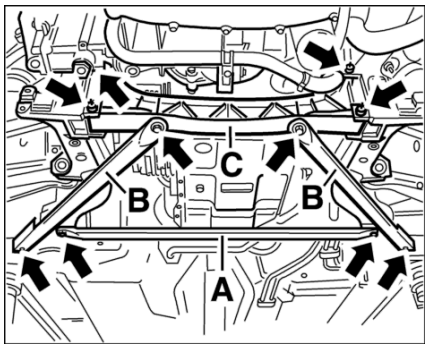
Engine ground strap

28. Disconnect the ground strap on the underside between the engine and the body. Unscrew one M8 hexagon nut **-Arrow-** , remove ground strap from threaded pin.



Rear fastening of the stabiliser

29. Remove the rear stabiliser. Unscrew two M8x40 hexagon-head bolts **-1-** on the left and right. Remove the M10 hexagon nuts on the connecting rod while holding the internal Torx **-2-** to counter. Remove stabiliser *429019 21 Removing and installing stabiliser - removing*.



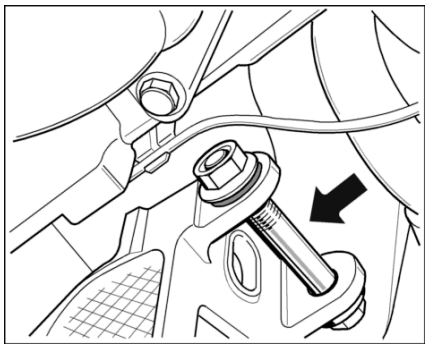
Cross member with accessories

30. Remove the front transverse strut, both the diagonal braces and the rear cross member.

30.1. Front transverse strut **-A-** : unscrew two M10x40 hexagon-head bolts .

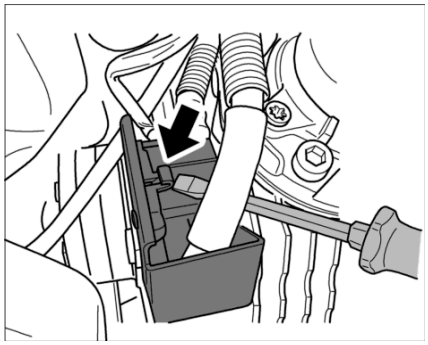
30.2. Diagonal braces **-B-** : Unscrew two M12x30 hexagon-head bolts on the rear cross member, two M10x40 hexagon-head bolts at the front and two M10 hexagon nuts on the rubber mounts.

30.3. Rear cross member, lower fastening **-C-** : unscrew two M12 hexagon nuts while holding the M12x80 hexagon-head bolts to counter, pull both screws out of drillings.



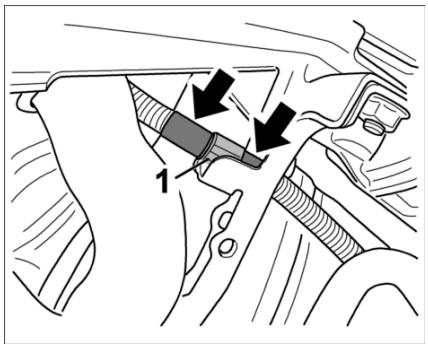
Top fastening of rear cross member

31. Rear cross member, top fastening: Loosen (do not remove) two M12 hexagon nuts (long slots on cross member), take off cross member downwards.



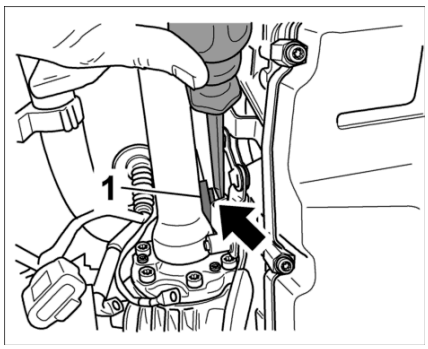
B-Plus box on Tiptronic transmission

32. Open B-Plus box on transmission **-Arrow-** , unscrew hexagon nut and disconnect the cables.



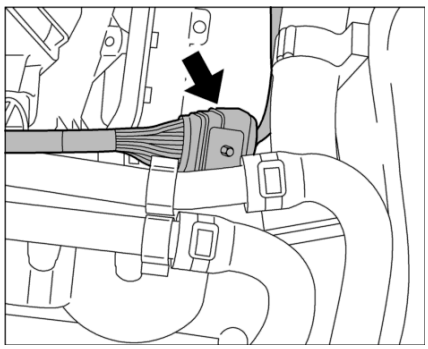
Manual transmission B-Plus line

33. Manual transmission: Unclip B-Plus line from shift console **-1-** and pull through in direction of travel.



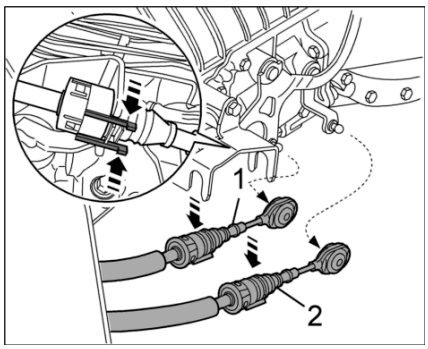
Connection of Tiptronic selector cable

34. Tiptronic transmission: Detach selector cable. Lever out selector cable end piece **-1-** at the ball head of the selector lever **-Arrow-** using a screwdriver.



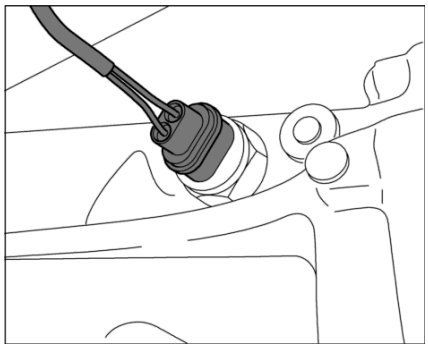
Tiptronic cable plug

35. Unclip Tiptronic transmission cable plug and then disconnect plug connection.



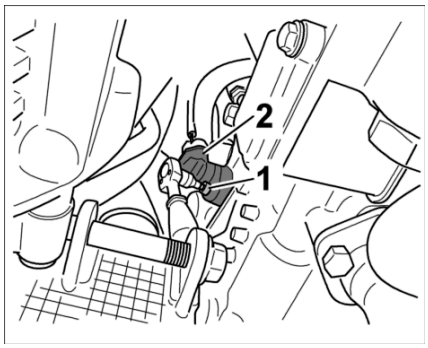
Shift cable connection of manual transmission

36. Manual transmission: detach shift cables from the support bracket. Lever off the end pieces from the ball heads of the external shift mechanism. Press the retaining clips together and pull the cable sleeves out of the support bracket.



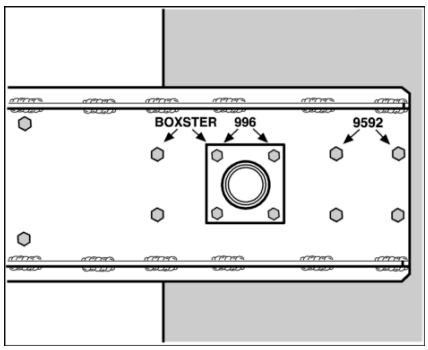
Cable plug for reverse gear switch of manual transmission

37. Manual transmission: disconnect cable plug for reverse gear switch and unclip from cable guide.



Hall sender cylinder side 4-6

38. Remove the hall sender from cylinder bank 4-6. Unscrew one M6 hexagon socket head bolt (micro-encapsulated) **-1-** pull hall sender **-2-** out of the drilling and hang to one side.
39. Attach special tool **retainer plate 9592** to engine.

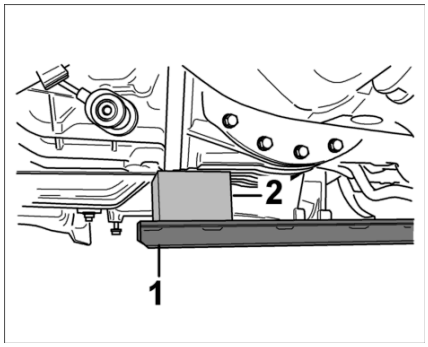


Support plate 9592/1 with adapter 9163/2 on retainer plate

40. Screw special tool **support plate 9592/1** to retainer plate in position **-9592-** using four M8x20 hexagon bolts.

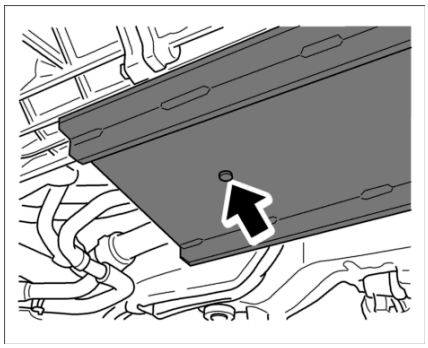
40.1. Screw special tool **mounting peg 9163/2** to the support plate in the marked position **-996-** using four M8x25 hexagon bolts.

41. Tiptronic vehicles: Attach special tool **support plate 9592/2** to the **support plate 9592/1** using three fastening screws.



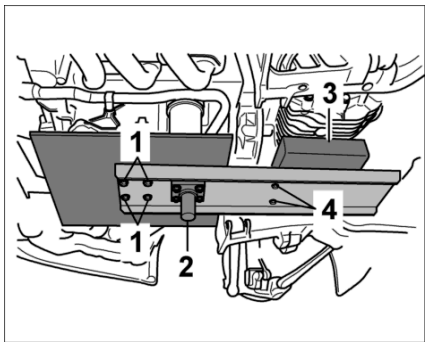
Support for manual transmission

42. Manual transmission: to support the manual transmission, attach scantling (approx. 6.5 cm) **-2-** to **support plate 9592/1** **-1-** using a wooden bolt.



Scantling bolting

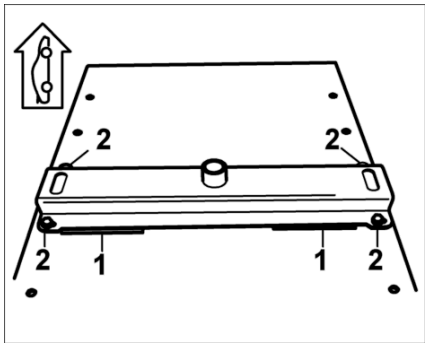
43. Attachment of scantling **-Arrow-** to support plate 9592/1



Engine retainer plate fully attached to engine (Tiptronic).

44. Engine retainer plate fully attached to engine.

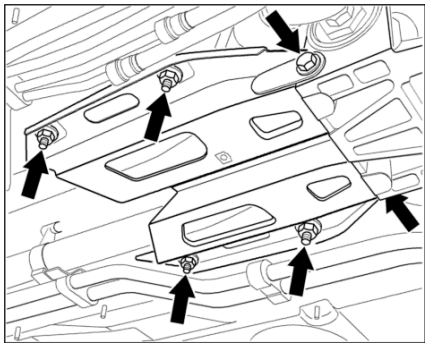
    - 1 - support plate on retainer plate: position 9592
    - 2 - mounting plate 9163/2 on retainer plate: position 996
    - 3 - support plate 9592/2 for Tiptronic transmission
    - 4 - fastening for support plate 9592/2



Mounting plate on Master Gear

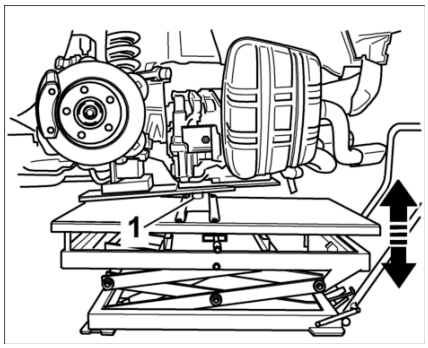
45. Fasten mounting plate for sports cars **-2-** to the Master Gear unit lifting platform (see figure) using four screws and nuts. To counter the tilt of the engine within the vehicle, the plate must be raised by 6 mm on one side in the opposite direction to the direction of travel. This can be achieved for example by using two sheet steel panels **-1-** or thick washers for the rear screws.

see Workshop Equipment Manual gr. 3.0.13 Unit lifting platform (+ sports cars mounting accessory)



Transmission support

46. Remove the transmission support. Unscrew four M10 hexagon nuts and two M10x55 hexagon-head bolts and remove the transmission support.
47. Undo the screw connection of the transmission bracket. Loosen two M10 hexagon-collar nuts on the transmission bracket (do not unscrew completely!)



Unit lifting platform engine mounting

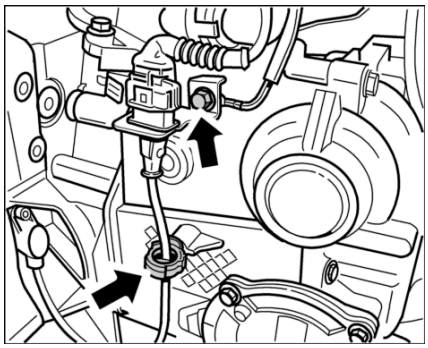
48. Position unit lifting platform under the vehicle and position the take-up bore of the mounting peg **-1-** with a slight degree of pre-tension.
49. Unscrew two M10 hexagon-collar nuts from the transmission bracket.
50. Loosen two M12 hexagon-collar nuts on the engine carrier (wrench size 18) and unscrew.

ATTENTION

Material damage when lowering engine

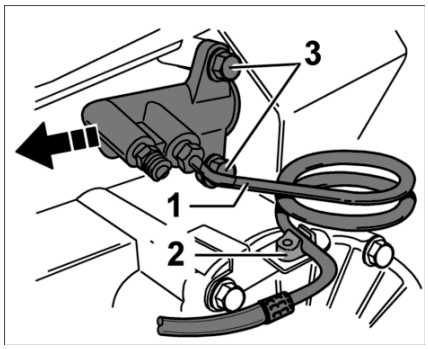
Enlist assistance of second and, if necessary, third person

51. Slowly lower the engine/transmission unit about halfway with the unit lifting platform.



Pulse sender holder and connector

52. Remove wire retainer and sheetmetal bracket for the plug connection of the pulse sender. Unscrew one M6x12 hexagon-head bolt, unclip cable from the wire retainer and unscrew it. Put plug connection with cable to one side.



Clutch slave cylinder

53. Manual transmission: remove clutch slave cylinder 303019 Removing and installing clutch slave cylinder - removing. Unclip line **-2-** , unscrew two fastening screws **-3-** and remove cylinder.

ATTENTION

Material damage when lowering engine

Enlist assistance of second and, if necessary, third person

Note

- *If the vehicle is placed on its wheels or moved in the workshop, the rear cross member must be refitted under all circumstances to maintain the structural strength.*

54. Completely lower the engine/transmission unit using the unit lifting platform.

top of page

Installing engine

Installing engine

Note

- *The engine/transmission unit is installed in the reverse order of its removal. The following work steps are specially repeated here to avoid faulty installation or damage.*

Note

- *The ground cable on the holder of the plug connection of the impulse sender must always also be screwed on !*

Coolant pipe feeder hose

1. Attach safety clip of **-arrow-** Henn coupling for coolant hose to coolant expansion tank.

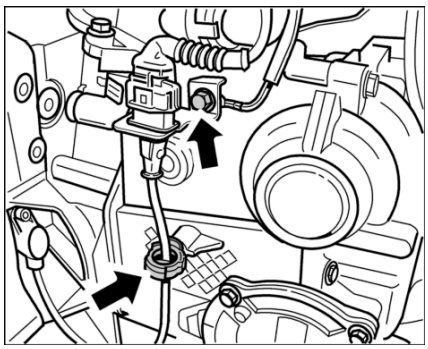
ATTENTION

Risk of damage when inserting the engine/transmission unit into the vehicle

- **Material damage!**

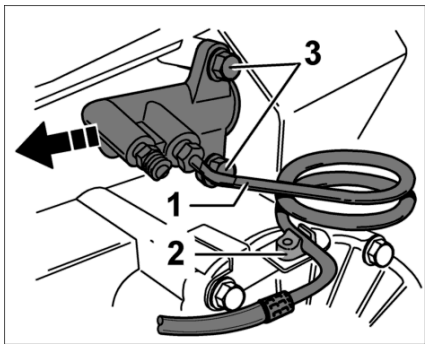
Enlist assistance of second and, if necessary, third person

2. Lift engine/transmission unit about half the run-in of the engine using the unit lifting platform.



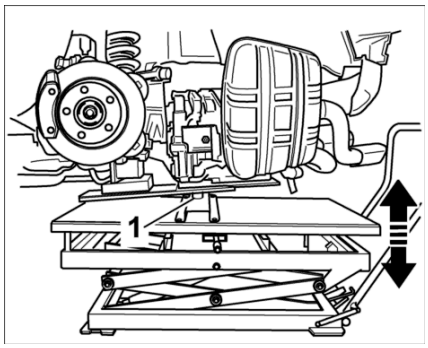
Pulse sender holder and connector

3. Fit sheetmetal holder for the plug connection of the pulse sender and the plastic wire retainer. Position and tighten one M6x12 hexagon-head bolt **Tightening torque: 7.5 ftlb.** . Screw in wire retainer and clip in cable.



Clutch slave cylinder

4. Manual transmission: install clutch slave cylinder 303019 Removing and installing clutch slave cylinder - installing. Insert cylinder and push in. Position both screws by hand and tighten. Clip line into holder. **Tightening torque: 17 ftlb.**



Unit lifting platform engine mounting

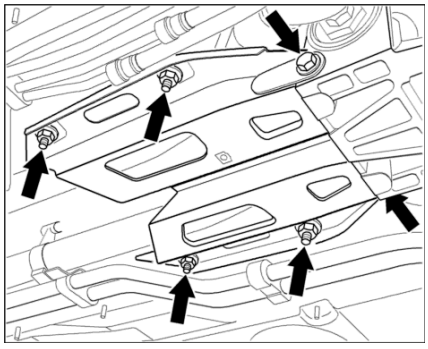
ATTENTION

Risk of damage when inserting the engine/transmission unit into the vehicle

- **Material damage!**

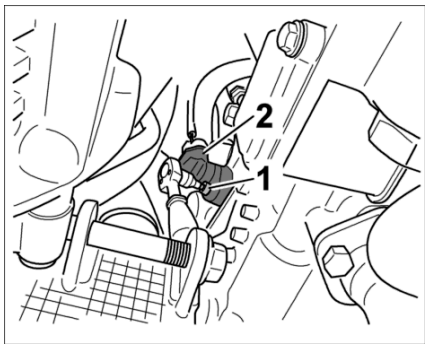
Enlist assistance of second and, if necessary, third person

5. Lift engine/transmission unit to installation position and tighten the collar nuts of the engine and transmission mounts. **Tightening torque: 63 ftlb.** **Tightening torque: 48 ftlb.**



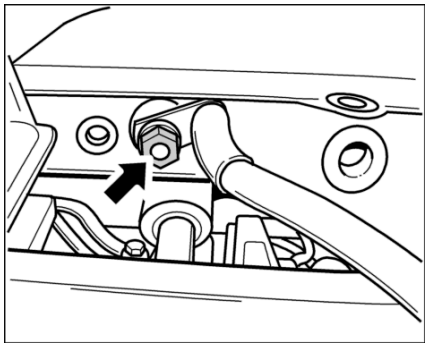
Transmission support

6. Fit transmission support. **Tightening torque: 48 ftlb.**
7. Enlisting the assistance of a second person, completely detach the engine retainer plate.



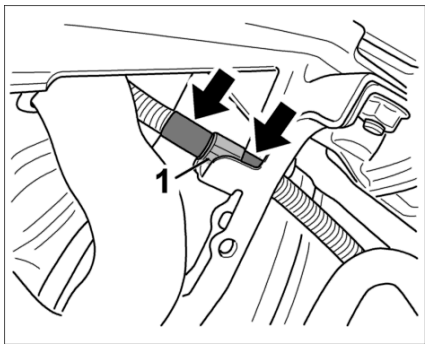
Hall sender cylinder side 4-6

8. Install the hall sender in cylinder bank 4-6. Insert hall sender and fasten using a new M6 hexagon socket head bolt (micro-encapsulated) **-1-** . **Tightening torque: 7.5 ftlb.**



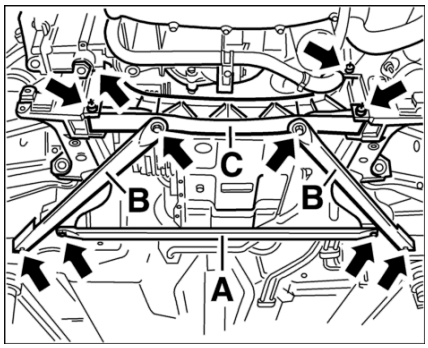
Engine ground strap

9. Attach engine ground cable to body. **Tightening torque: 17 ftlb.**
10. Fasten drive shafts to transmission flange. In Tiptronic vehicles, insert the spacer rings. **Tightening torque: 60 ftlb.**
11. Attach B-Plus line to transmission. Connect lines to B-Plus box and fasten using collar nuts. **Tightening torque: 17 ftlb.**



Manual transmission B-Plus line

12. Manual transmission: clip the B-Plus lines into the cable guide on the transmission bracket between the yellow markings **-arrows-** .
13. Connect and clip in cable plug of reversing switch (manual transmission)/connector for Tiptronic transmission.



Cross member with accessories

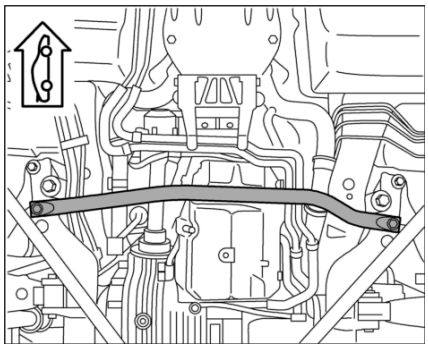
14. Install chassis components:

14.1. Rear cross member: M12 hexagon-collar nuts **Tightening torque: 74 ftlb.**

14.2. Diagonal braces on rear cross member: hexagon-head bolt **Tightening torque: 74 ftlb.**

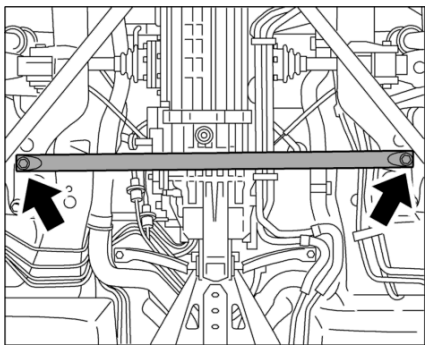
14.3. Diagonal brace on rear-axle support: collar nut **Tightening torque: 48 ftlb.**

14.4. Diagonal brace to body: hexagon-head bolt **Tightening torque: 48 ftlb.**



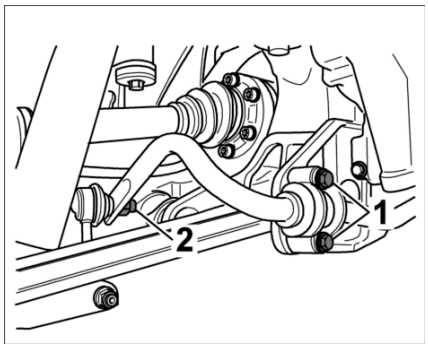
Transverse strut, Tiptronic

15. Front transverse strut, Tiptronic transmission: hexagon-head bolt **Tightening torque: 48 ftlb.**



Transverse strut, manual transmission

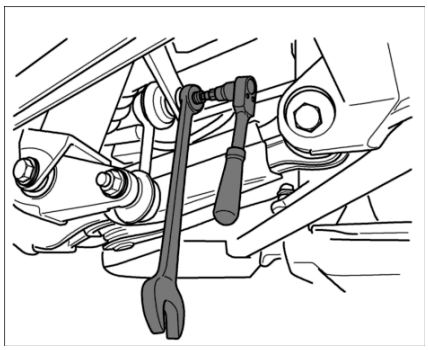
16. Transverse strut, manual transmission: hexagon-head bolt **Tightening torque: 48 ftlb.**



Rear fastening of the stabiliser

17. Installing rear stabiliser *429019 23 Removing and installing rear stabiliser - installing*.

17.1. Engage stabiliser in connecting rod and then fasten to rear-axle support using two hexagonal-head bolts respectively. **Tightening torque: 17 ftlb.**

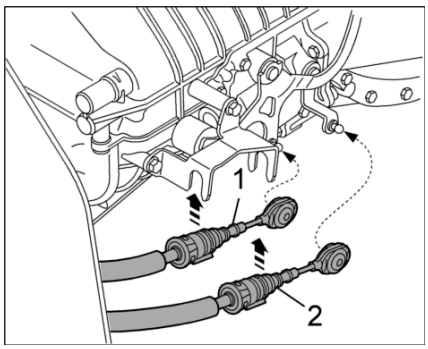


Stabiliser to connecting rod

18. Position new M10 collar nuts on the connections to the connecting rod. Make sure to counter with a Torx socket wrench insert when tightening *Stabiliser to connecting rod* . **Tightening torque initial tightening: 37 ftlb.**

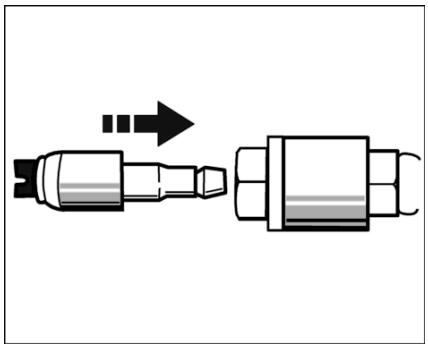
18.1. Loosen collar nuts and tighten them again. **Tightening torque final tightening: 37 ftlb.**

19. Install Tiptronic selector cable 371519 Removing and installing selector lever cable - installing.



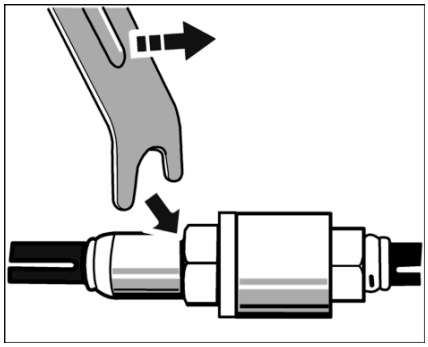
Shift cables for manual transmission

20. Install shift cables for manual transmission 341219 Removing and installing shift lever cable - installing.



Connecting servo pressure pipe

21. Connect servo pressure pipe. Push plug into the plug-in coupling in a straight line. The plug must audibly engage in the holder.



Test tool 9623

Note

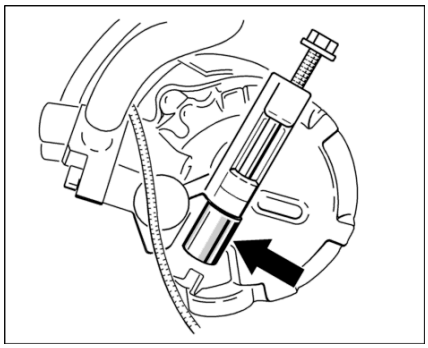
- *The servo line plug-in coupling is designed so that there is an axial play of approx. 1 mm in the coupling.*

22. Inspect correct engagement of the plug coupling with special tool **test tool 9623**. Insert special tool into the groove and check that the plug is seated correctly in the coupling by applying slight pressure. The plug must not slide out.
23. Attach servo return hose to the line using the spring band clamp.

Note

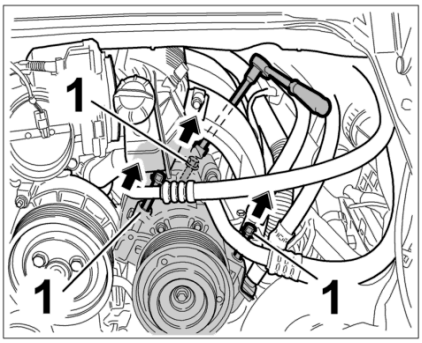
- *Allocation of the engine wiring harness round connectors:*
- *Lower plug - grey inner ring*
- *Upper plug - black inner ring*

24. Fit engine wiring harness. Turn bayonet lock in clockwise direction (approx. 90°), until the markings of the round connector and the housing correspond. Fix the wiring harness onto the holder with a new tie-wrap.



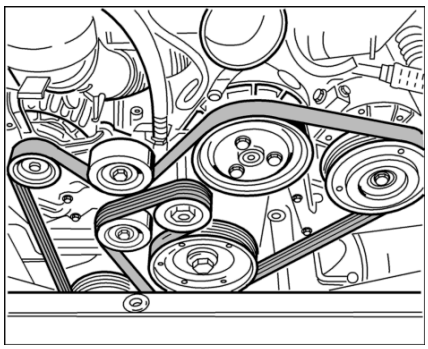
Front air-conditioning compressor fastening screw and sleeve

25. Installing air-conditioning compressor: before installing the compressor check whether the aluminium spacer sleeve **-arrow-** is inserted. Grease and fit sleeve. Also connect ground cable before installation.



Fastening of the air-conditioning compressor

26. Fit air-conditioning compressor and fasten using three M8 Torx screws (two short ones at the rear, one long one at the front) **-1-** . **Tightening torque: 17 ftlb.**



Drive belt

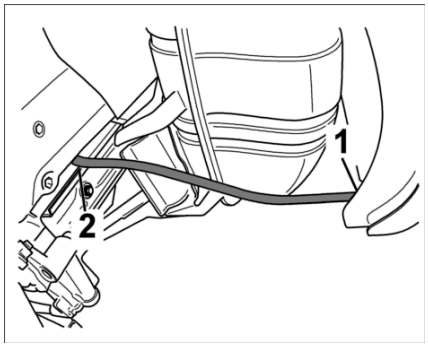
27. Fit drive belt. Pay attention to operating direction of used belts. Double-check that the position of the belt on the belt pulleys is correct.

top of page

Subsequent work for installation of engine

Installing engine - subsequent work

1. Top up coolant and bleed cooling system *A8 Draining and topping up coolant - topping up .*



Support for rear spoiler

2. Position rear spoiler support with M6 hexagon-head bolt on the body **-2-** , do not tighten until after fitting the rear spoiler. **Tightening torque: 7.5 ftlb.**
3. Install lateral retaining brackets (heat shields) of rear spoiler *23 Removing and installing bumper - installing*.
4. Install rear spoiler *23 Removing and installing rear spoiler -installing .*
5. Fit rear wheels, to tighten the wheel bolts use special tool **socket wrench insert 300** . 440519 Removing and installing wheel - installing. **Tightening torque: 96 ftlb.**
6. Connect the battery *A6 Work instructions after disconnecting the battery - reconnecting .*
7. Warm up engine to operating temperature and recheck the coolant level. Inspect all cooling system connections that were opened during removal for leaks.
8. Check power steering fluid level (Pentosin) and top up if necessary *01 Checking power steering fluid level - checking*.
9. Check engine oil level and top up if necessary *01 Checking engine oil level - checking*.
10. Remove protective covers.

997110, 997111, 997120, 997121, 997310, 997311, 997320, 997321, 997410, 997411, 997430, 997431, 997610, 997611, 997620, 997621

as of MY 2005
Country C02, C05, C07, C08, C09, C10, C11, C12, C13, C14, C15, C16, C18, C19, C20, C21, C22, C23, C24, C25, C26, C27, C28, C32, C33, C34, C35, C36, C37, C38, C39, C45, C46, C98, C99

WARNUNG

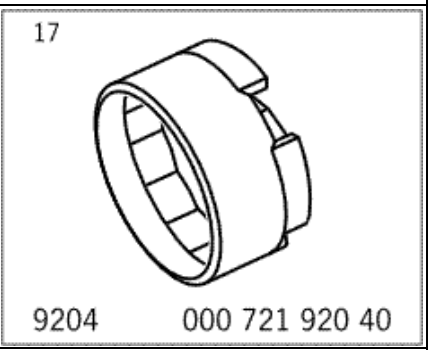
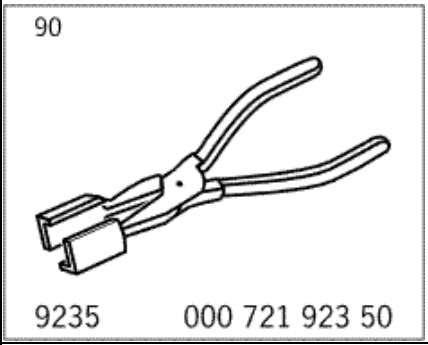
Gefahr des Verlusts der Text-Bild-Zuordnung beim Ausdruck.

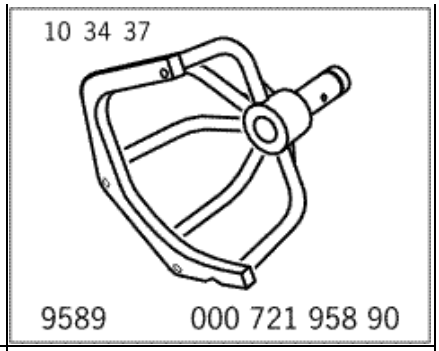
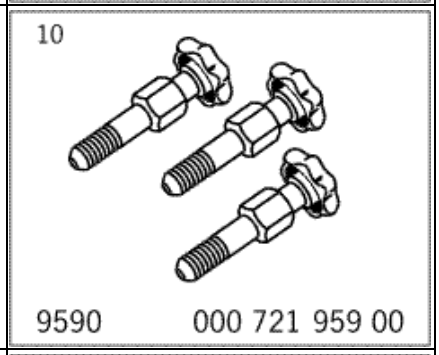
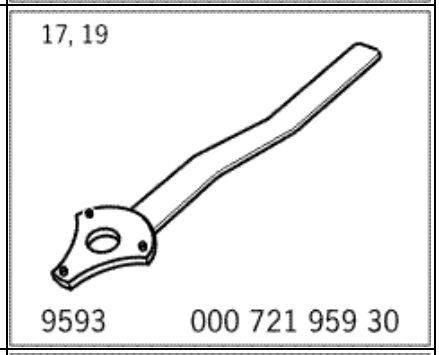
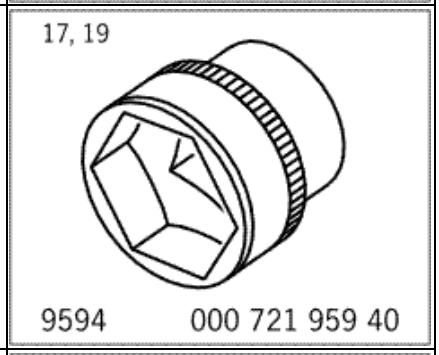
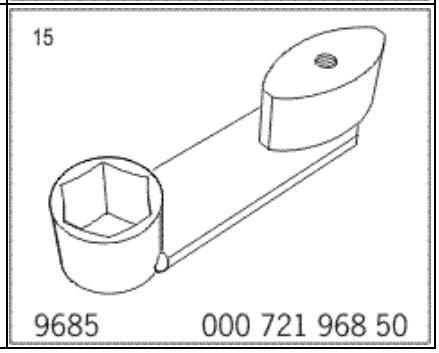
- **Aus technischen Gründen kann derzeit nicht ausgeschlossen werden, dass trotz einwandfreier Darstellung auf dem Bildschirm beim Ausdruck der Zusammenhang von Text und zugehörigem Bild verloren geht.**
- **Wird der Fehler nicht bemerkt, besteht die Gefahr, daß Arbeiten nicht korrekt durchgeführt werden und es dadurch zu Personen- und Sachschäden kommt.**

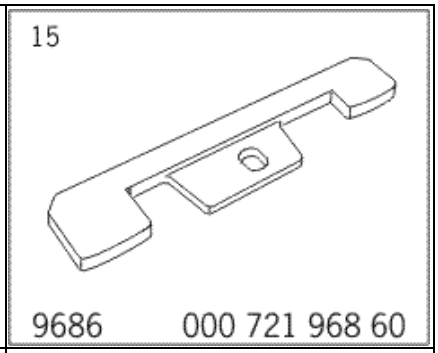
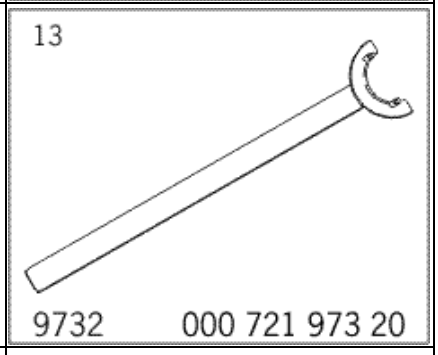
10 01 37 Disassembling and assembling engine - as of MY 2005

- Preliminary work for disassembling engine
- Component overview - engine
- Disassembling engine - up to crankcase
- Assembling engine - from crankcase
- Assembling engine, subsequent work

Tools

Designation	Type	Number	Explanation	
spark plug socket wrench	commercially available tool	14		
release key	commercially available tool	9204		
relay puller	special tool	9235		
engine support	commercially available tool	9589		

				
mounting elements	commercially available tool	9590		
retaining device	commercially available tool	9593		
socket wrench insert	commercially available tool	9594		
retaining tool	special tool	9685		

adjusting gauge	special tool	9686		
holding wrench	special tool	9732		
cover for dust protection when fitting the engine	commercially available tool	NR.165		

top of page

Preliminary work for disassembling engine

Preliminary work for disassembling engine

Preliminary work for disassembling engine

1. Remove engine *101019 21 Removing and installing engine - section on "Removing".*
2. Remove transmission 373527 Removing and refitting automatic transmission - section on "Removing" [997110 997111 997120 997121 997310 997311 997320 997321] *373527 A3 Removing and refitting automatic transmission - section on "Removing" [997410 997411 997430 997431 997610 997611 997620 997621]* or 343527 Removing and refitting transmission - section on "Removing".

Tiptronic transmission:

3. Remove converter housing 324319 Removing and installing converter housing - section on "Removing".
4. Remove drive plate for converter 136319 Removing and installing drive plate for converter - section on "Removing".

Manual transmission:

5. Remove clutch 305019 Removing and installing clutch - section on "Removing".
6. Remove double-mass flywheel 136019 Removing and installing double-mass flywheel - section on "Removing" [997110 997111 997310 997311 997410 997411 997610 997611] 136019 Removing and installing double-mass flywheel - section on "Removing" [997120 997121 997320 997321 997430 997431 997620 997621].
7. Remove rear silencer and catalytic converters.

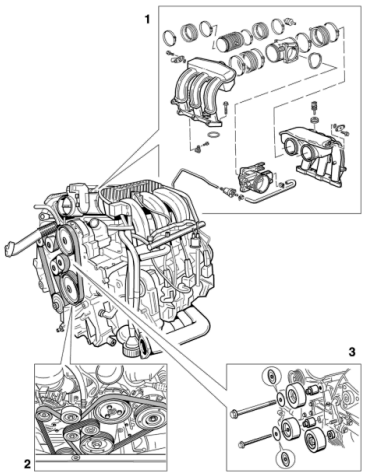
top of page

Component overview - engine

Component overview - engine

Note

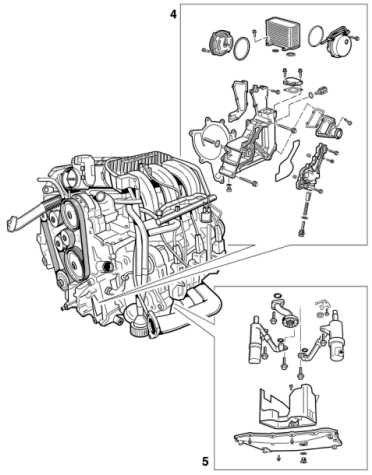
The overview graphics are shown schematically and may be slightly different to how the components actually look.



Peripheral engine component 1

Intake system, belt drive

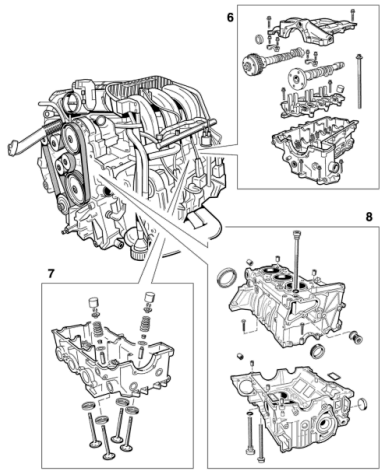
- 1 - Intake distributor
- 2 - Belt drive
- 3 - Belt guide and belt tensioner



Engine - lubrication

Engine - lubrication

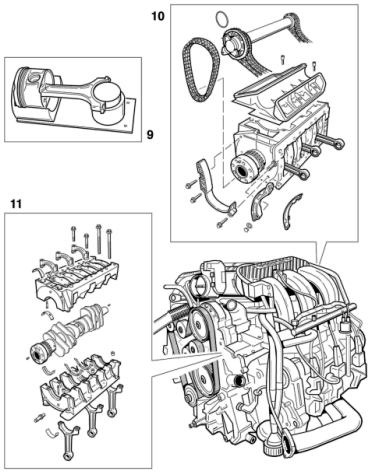
- 4 - Oil pumps, heat exchanger, coolant guide housing
- 5 - Oil pan, oil separator



Cylinder head, crankcase

Cylinder head, crankcase

- 6 - Cylinder-head cover, camshafts, flat-base tappet housing, cylinder head
- 7 - Cylinder head, flat-base tappets
- 8 - Crankcase halves



Crank drive, pistons

Crank drive, pistons

- 9 - Pistons, connecting rods
- 10 - Bearing housing with intermediate shaft
- 11 - Bearing housing halves with crankshaft

top of page

Disassembling engine - up to crankcase

Disassembling engine - up to crankcase

ATTENTION
Risk of damage due to particles of dirt.

- **Oil bores/oil ducts can become blocked up.**

When working on the engine, absolute cleanliness is essential.
Lay removed engine parts on a clean base and cover them without fail.
Use the **cover for dust protection when fitting the engine NR.165** on the engine assembly support.

WARNING
Coolant is corrosive and hazardous to health.

- **Skin and eye irritation**

Wear protective gloves and goggles.

If you come into contact with coolant, wash off immediately with plenty of warm water.

WARNING

Pentosin is hazardous to health

- **Danger of material damage and injury**

Wear protective gloves and goggles.

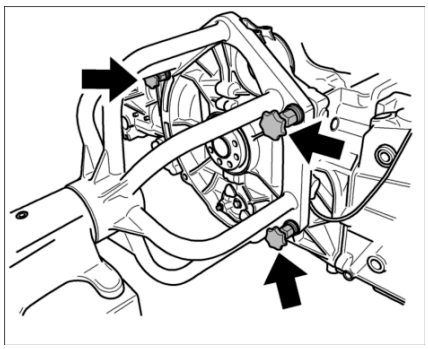
If the eyes or skin come into contact with the fluid, wash immediately with water.

Collect emerging Pentosin. Clean hoses which come into contact with Pentosin thoroughly.

Use caps to protect the wiring against soiling and damage.

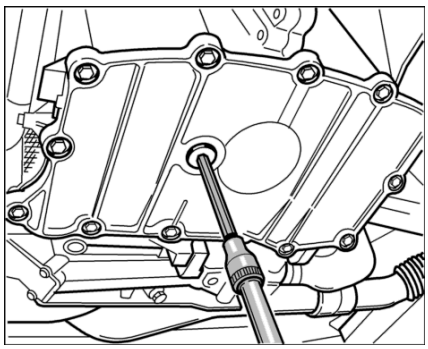
Note

- *The bearing housing remains screwed to the retaining device when the bearing housing and intermediate shaft are disassembled.*



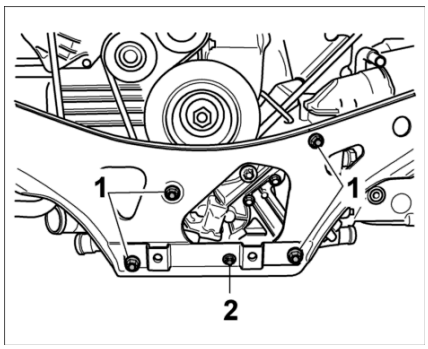
Engine support

1. Fasten the **engine support 9589** to the crankcase using special tool **mounting elements 9590**. Refit engine with support on the engine assembly support.



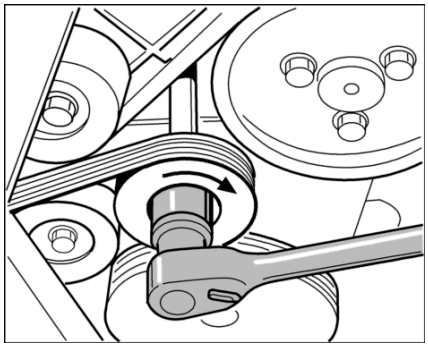
Oil drain plug

2. Drain engine oil. Unscrew the oil drain plug (hexagon socket a/f 8) 170155 Engine oil and oil filter change - section on "Draining" .



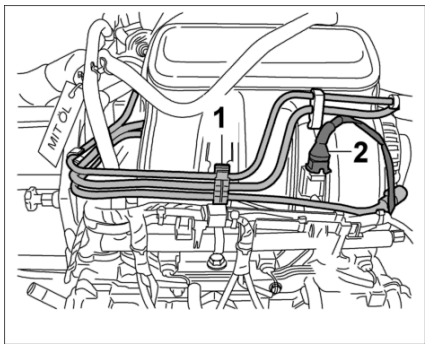
Engine carrier

3. Remove engine carrier. Unscrew 4 M10 collar nuts and 1 M6 x 20 Torx screw.
4. Undo 3 M8 x 12 fastening screws on the belt pulley for the servo pump (do not remove).



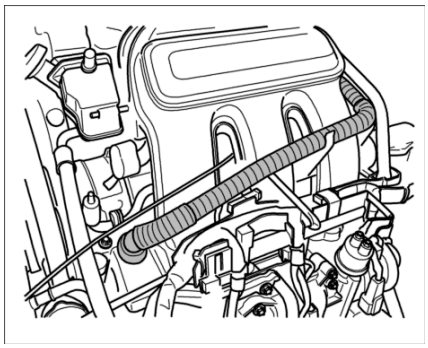
Belt tensioner

5. Remove drive belt . Mark the running direction with a coloured pen, turn the tensioning roller (a/f 24) clockwise, hold still and simultaneously remove the belt from the drive pulleys. Check the belt for damage, replace if necessary. 137819 Removing and installing drive belt - section on "Removing".
6. Only for Tiptronic: remove guide for drive belt, to do this, unscrew two M6 x 20 Torx screws.



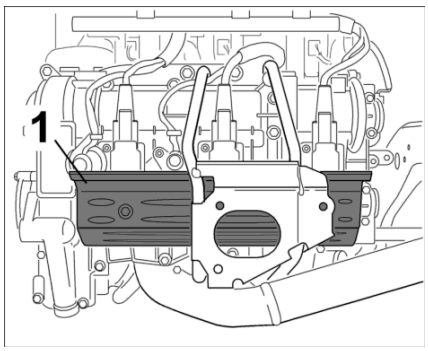
Vacuum lines

7. Unclip hose assembly on the intake distributor, cylinder side 1 - 3:



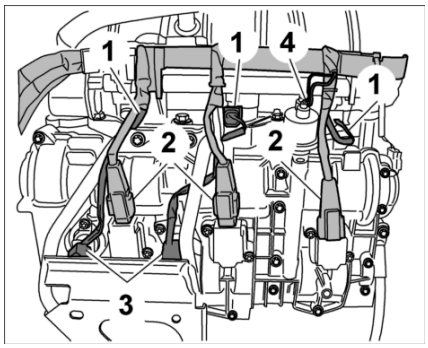
View of engine, side 4-6

8. Unplug crankcase ventilation line on pre-separator, cylinder 4-6.



Ignition coil shield

9. Remove shields for ignition coils on the left and the right, unscrew 2 M6 x 16 fastening screws.



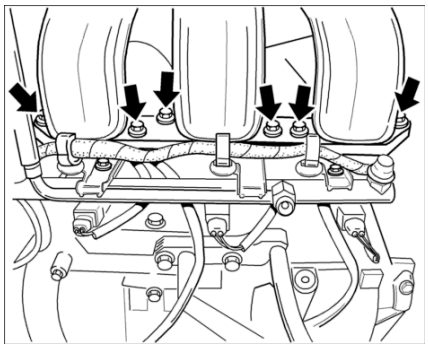
View of engine, side 1-3

10. Disconnect electrical plug connections (engine wiring harness) on engine and unclip wiring harness on the fuel collection pipes.

- Three injection valve plugs per cylinder side **-1-**
- Three ignition coil plugs per cylinder side **-2-**
- Two plugs for camshaft adjustment hydraulic valves, two for valve lift adjustment hydraulic valves **-3-**
- Plug forengine coolant temperature sensor, two plugs for oil pressure sensor on cylinder head cover 4 - 6 **-4-**
- Two hall sender connectors
- Plugs for speed sender
- Plug for electrical switch-over valve (intake distributor 1-3)
- Ground cable for front face of cylinder 4-6 (one M6 x 12 Torx screw)

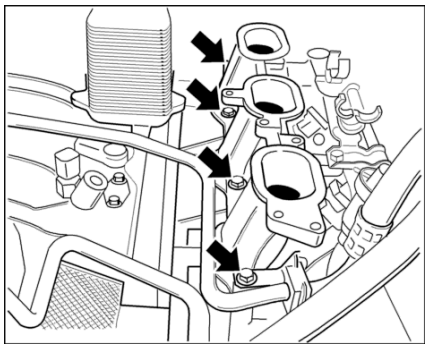
- Plug for engine compartment temperature sensor (intake distributor 4-6)

11. Unclip fuel ring pipe on the engine eyelet and unscrew two M6 x 16 Torx screws, remove engine eyelet.
12. Detach holder for the throttle body on the servo pump. To do so, unscrew an M6 hexagon nut. Unplug cable plug for potentiometer and line for crankcase venting.
13. Undo holder for servo supply tank on intake distributor 4-6.



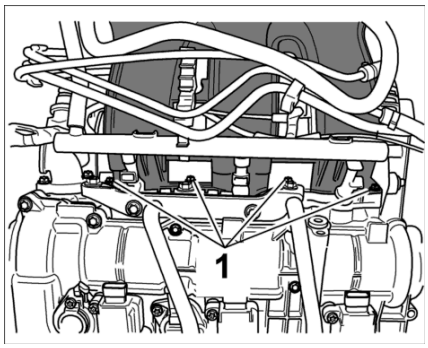
3.6l intake distributor

14. **Only for 3.6l engine:** Remove the relevant six M6 x 35 (micro-encapsulated) fastening screws for the intake distributor on the intake pipe supports on the left and the right. Pull off one vacuum line and remove the intake distributor completely.



Intake pipe support

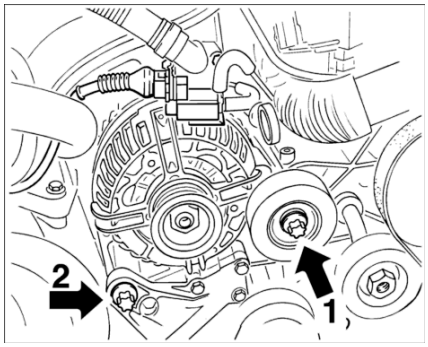
15. **Only for 3.6l engine:** Remove intake pipe support. Unscrew four M6 x 35 screws, unscrew one M6 x 12 screw for ground strap on cylinder bank 4 - 6. Take off intake pipe support, seal intake openings on cylinder head (e.g. with adhesive tape).



Intake distributor screw connection

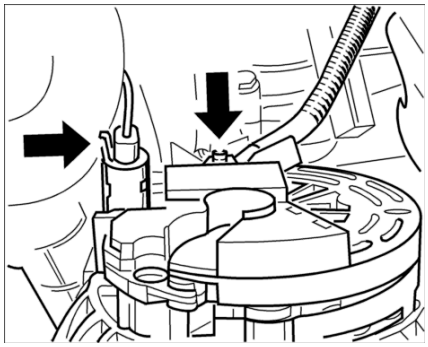
16. **Only for 3.8l engine:** Unscrew the four M6 x 35 Torx screws. Completely remove the intake distributor. Seal intake openings on cylinder head (e.g. with adhesive tape).

17. Remove belt pulley from servo pump. Unscrew three fastening screws and remove belt pulley.



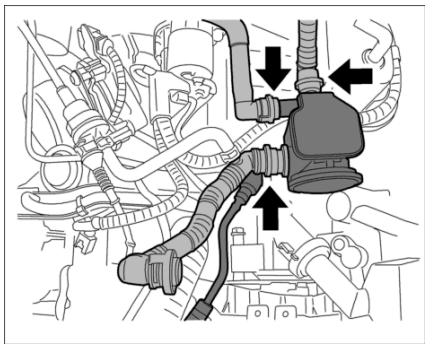
Three-phase generator

18. Remove generator . Undo the fastening screw on the deflection roller **-1-** and unscrew approx. three turns. Using an aluminium mandrel, tap lightly on the screw head to undo the pilot bushing in the generator swivel arm. Unscrew the screw and remove with the deflection roller. Unscrew the second screw **-2-** and carefully take out the generator.



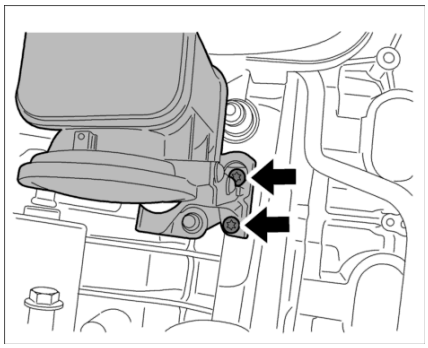
Electrical connections on generator

19. Lift the generator out of the bracket and disconnect the two electrical connecting leads **-Arrows-** .
20. Remove mount for the coolant vent line. Unscrew one M6 x 16 (micro-encapsulated), remove mount, replace screw.



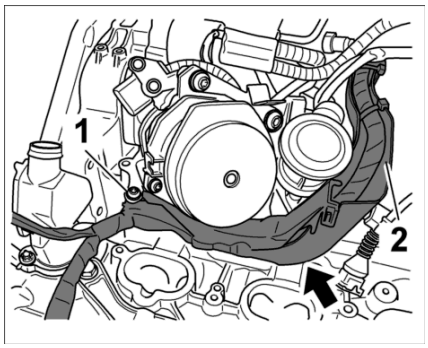
Oil mist collector - line connections

21. Unplug all vent lines for oil mist collector.



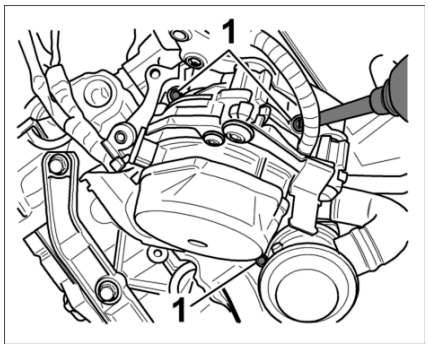
Oil mist collector screw connection

22. Unscrew the two M6 x 20 Torx screws on the oil mist collector mount and pull off collector. Replace two O-rings during installation. The screws tighten the secondary-air line on the cylinder head 4-6 at the same time.



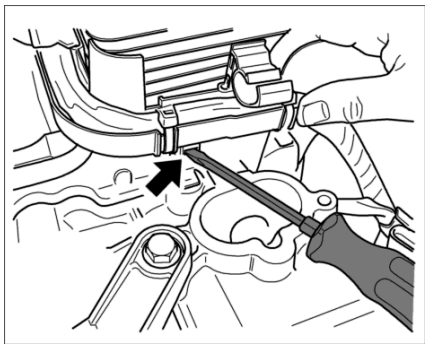
Wiring harness on secondary air pump

23. Unscrew one fastening screw for the wiring harness guide on the bracket for the secondary-air pump **-1-** and unclip the guide **-2-** on the bracket **-Arrow-** .



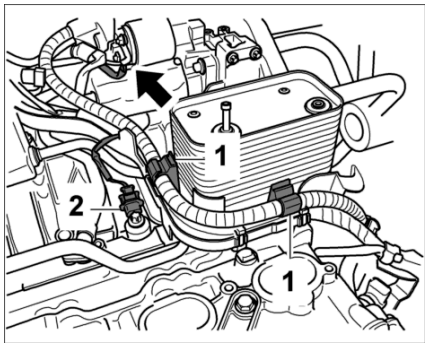
Secondary air pump with bracket

24. Remove the secondary air pump. Unplug cable plug, usncrew three M6 x 20 Torx screws on the bracket **-1-** and completely take out the pump with bracket and line. Use new seals when installing.



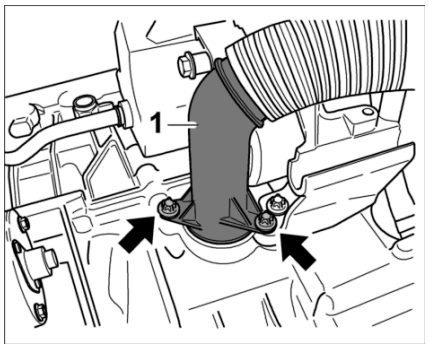
Wiring harness on the heat exchanger

25. Release the wiring harness on the holder before the heat exchanger. Then unscrew the plastic holder.



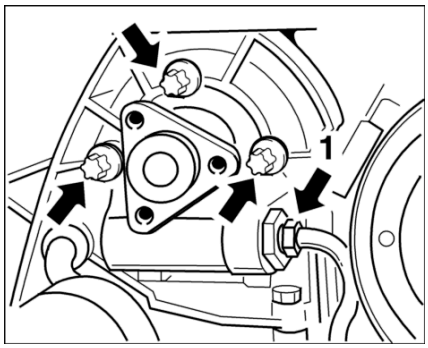
Releasing wiring harness

26. Undo the wiring harness on the centre of engine (connections to starter) **-Arrow-** and unclip on the heat exchanger **-1-** . Unplug cable plug for knock sensors **-2-** and oil-level sensor. Then completely remove the engine wiring harness.



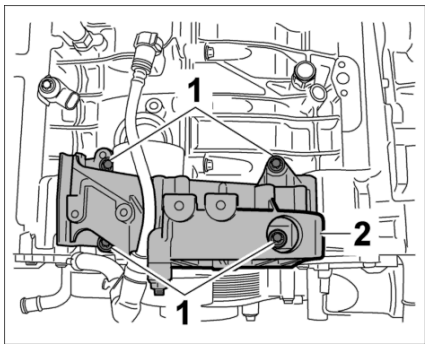
Oil filler neck

27. Remove the oil filler neck. Unscrew 2 M6 x 16 Torx screws (micro-encapsulated), pull out oil filler neck, check the O-ring and replace if necessary.
28. Remove oil/water heat exchanger. Unscrew the four inner M6 x 16 Torx screws, take off heat exchanger. Replace O-rings during installation.



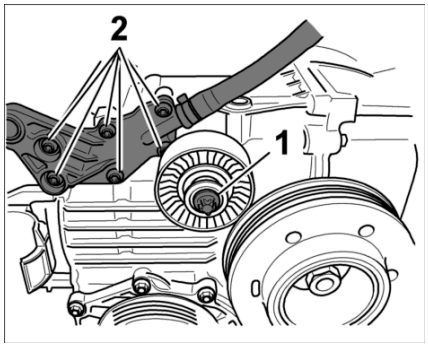
Servo pump

29. Remove hydraulic pump with servo line and supply tank. Undo servo line (a/f 16) **-1-** , counter on large hexagon when doing this (a/f 27). Unscrew four Torx screws (3 M8 x 30 at the front **-Arrows-** , one M8 x 12 at the back), take the servo pump with line and supply tank out of the bracket.



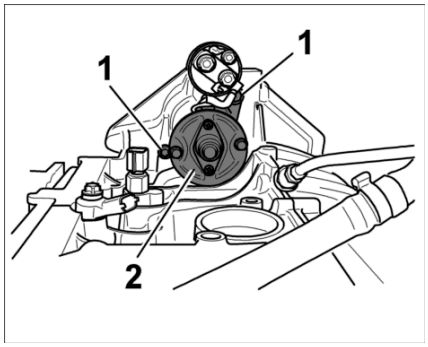
Bracket for servo pump

30. Remove bracket for servo pump. Unscrew 4 M8 x 35 Torx screws, remove bracket.



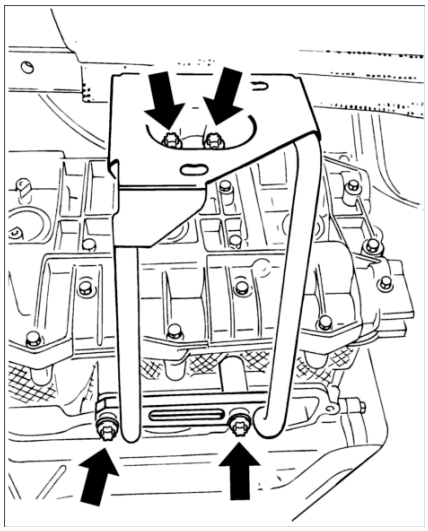
Deflection roller and closure cap for coolant

31. Remove one M8 x 60 screw for deflection roller **-1-** and six M6 x 20 Torx screws for closure cap **-2-** with bleeder lines for coolant system.



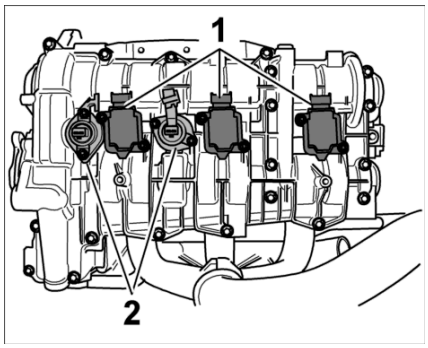
Starter

32. Only in manual transmissions: Remove the starter. Unscrew two M10 x 35 Torx screws **-1-** , take off starter **-2-** .
33. Remove oil-level sensor (a/f 19), remove knock sensor, to do this, mark the installation position with a paint marker, then unscrew one M8 x 35 Torx screw each and take off the sensors.
34. Remove canister for additional volumes of crankcase venting to the cylinder heads 1-3 and 4-6. Unscrew two M6 x 25 Torx screws each, take off canister. Use new O-rings when installing.



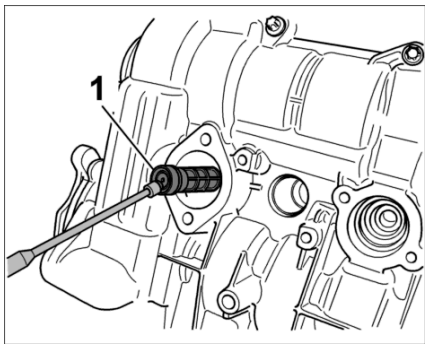
NSD mount

35. Remove the holder for the main muffler on the left and right. Unscrew two M8 x 30 Torx screws each on the intake side and two M8 x 25 each on the exhaust side and take off mount.



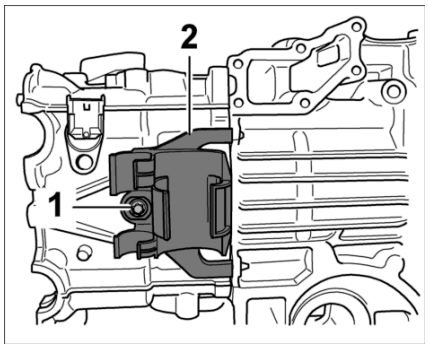
Hydraulic valves for camshaft adjustment \

36. Remove mount and sealing cap for hydraulic valves for camshaft adjustment **-2-** . Unscrew two M6 x 20 Torx screws each, take off mount and sealing cap.
37. Remove three ignition coils per cylinder side **-1-** . Unscrew 12 M6 x 25 Torx screws, pull off ignition coils.
38. Remove six spark plugs. Use only approved tool **spark plug socket wrench 14** from Snap-On (in case ceramic body breaks) 287020 Removing and installing spark plugs - section on "Removing".



Oil strainer hydraulic valve NVS

39. Pull off hydraulic valves for camshaft and valve lift adjustment. To do this, the special tool **relay puller 9235** can be used. Pull the oil strainer for the camshaft adjustment valve out of the valve bore **-1-** with a magnet, replace the oil strainer.
40. Remove the exhaust manifold. Unscrew six M8 x 28 screws each, remove manifold and seal.
41. Remove coolant pipe for heating. Side 1-3: unscrew two M6 x 12 Torx screws, side 4-6: unscrew three M6 x 12 Torx screws, remove coolant pipe.
42. Remove oil pressure sensor on cylinder head cover 4 - 6 (a/f 19).
43. Remove the mount for the air conditioning compressor. Unscrew two M8 fastening screws, and remove bracket.
44. Remove hall sender. Unscrew 1 M6 x 16 pan-head screw (hexagon socket a/f 5, micro-encapsulated) and pull off hall sender, replace screws.
45. Remove knock sensors. Mark installation position (plug connection) with a paint marker, unscrew one M8 x 35 Torx screw each, pull sensors out of crankcase.
46. Remove speed sender, unscrew one M6 x 16 pan-head screw (hexagon socket a/f 5, micro-encapsulated), remove sender, replace screw.

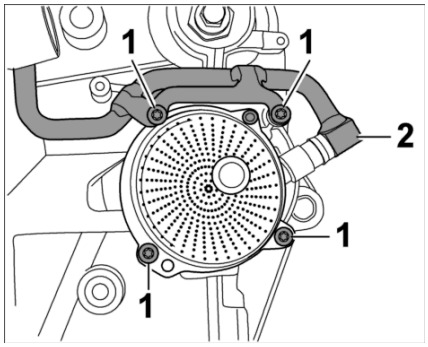


Mount for coolant hoses

47. Pull coolant hose assembly out of plastic holder on crankcase. Undo spring band clamps on water pump and thermostat and take off hoses. Remove mount, to do this, unscrew one M6 x 16 Torx screw (micro-encapsulated), replace screw.
48. Remove all plastic closure caps on the cylinder heads, and replace closure caps.
49. Turn engine on the belt pulley of the crankshaft clockwise to the overlapping TDC of cylinder bank 1 - 3. To check cylinder 1-3, insert the special tool **adjusting gauge 9686** in the camshaft slots. If the gauge cannot be inserted, the engine must be turned an additional 360°.

Figure

50. Remove oil extraction pump cylinders 1-3. Unscrew four M6 x 20Torx screws (micro-encapsulated), carefully pull the oil extraction pumps out of the fitting bore. Replace screws.



Tandem pump side 4 -6

51. Remove tandem pump on cylinder side 4-6. Unscrew four M6 x 30 fastening screws **-1-** , pull vacuum line **-2-** out of the connection fitting on the pump, take out the pump. Replace O-rings.

Removing camshafts, cylinder bank 1 - 3

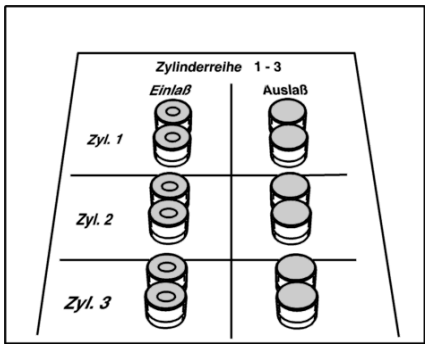
Note

- *The central screws of the camshaft adjustment elements must be undone before removing the cylinder head cover.*

52. The central screws of the camshaft adjuster must be undone before removing the cylinder head covers. To do this, place special tool **retaining tool 9685** on the large hexagon of the central screw and cylinder head cover and undo the screws.

Figure

53. Remove cylinder head cover 159119 Removing and installing cylinder head cover - section on "Removing".
54. Remove all chain tensioners, replace aluminium sealing rings.
55. Remove upper M6 screw (hexagon socket a/f 5) for guide rail cylinder 4-6.
56. Remove camshaft side 1-3 150520 Removing and installing camshaft - section on "Removing" [997430 997431] 150520 Removing and installing camshaft - section on "Removing" [997110 997111 997310 997311 997410 997411 997610 997611] 150520 Removing and installing camshaft - section on "Removing" [997120 997121 997320 997321 997620 997621].



Example of laying aside flat-base tappets

ATTENTION

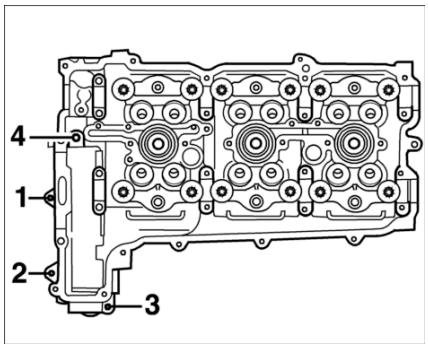
Interchanged or dirty flat-base tappets.

- **Damage to engine components**

The components have been run in in the fitting bores in the housing, therefore do not interchange them.

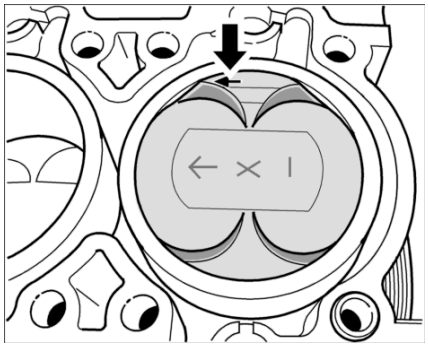
Pay attention to cleanliness.

57. Remove the flat-based tappets. Pull the components out with a strong magnet out of theflat-base tappets housing. To avoid confusing the individual flat-based tappets, lay them on a labelled, clean surface (see example) and cover.
58. Unscrew the top M6 guide rail screw (hexagon socket a/f 5) on cylinder 4-6.
59. Remove camshaft side 4-6 150520 Removing and installing camshaft - section on "Removing" [997430 997431] 150520 Removing and installing camshaft - section on "Removing" [997110 997111 997310 997311 997410 997411 997610 997611] 150520 Removing and installing camshaft - section on "Removing" [997120 997121 997320 997321 997620 997621].
60. Remove flat-base tappet housing. Unscrew 11 M6 x 35 Torx screws per housing, one 1/4-inch E10 socket is necessary for this. Take flat-base tappet housing out of the cylinder head. It is absolutely necessary to replace O-rings for spark-plug recesses when installing.
61. Unscrew the top M6 guide rail screw (hexagon socket a/f 5) on cylinder 1-3.



External cylinder head screwed connection

62. Unscrew four M6 x 30 Torx screws **-Pos 1 - 4-** per cylinder bank.
63. Remove cylinder head. Undo and unscrew 12 M10 x 230 Torx screws from inside to outside on each cylinder head. Lift the cylinder header and seal off the crankcase.

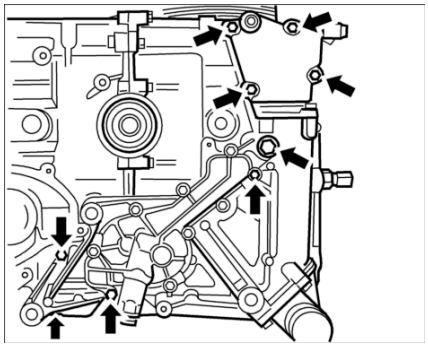


Installation position of the pistons

64. Remove all carbon deposits and other residues on all six pistons with a brass brush, which will make the engraved markings **-Arrow facing flywheel side-** visible. Before removing, number and mark the pistons in the installation position.
65. Unscrew M27 aluminium screw plug for the assembly bore (piston pin).
66. Remove coolant closure cap (with connection for coolant ventilation). Unscrew six M6 x 20 inner Torx screws, remove cover, and replace the seal.
67.

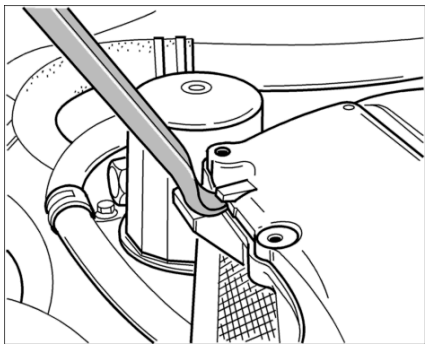
Remove connection supports for coolant hose on the top of the coolant guide housing. Unscrew two M6 x 20 Torx screws and remove cover.

68. Remove coolant temperature sensor (a/f 22).
69. Remove coolant closure cap at the bottom of the coolant guide housing. Unscrew four M6 x 20 Torx screws and remove cover.
70. Remove coolant pump. Unscrew seven hexagon-head bolts (two M6 x 30 and five M6 x 25) and remove pump.
71. Remove thermostat housing. Unscrew four M6 x 20 Torx screws and remove housing, including thermostat.



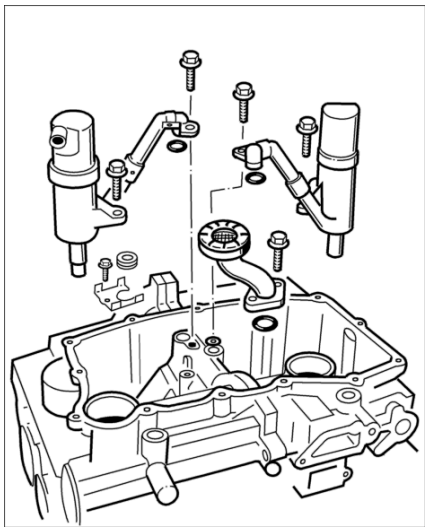
Coolant guide housing screw connection

72. Remove coolant guide housing and oil pump. Unscrew ten Torx screws, from those, eight M6 x 20 and two M6 x 70, and carefully lift housing with seal (if needed, press lightly with a assembly lever). Pull out the driver for the oil pump. Remove the drive belt guide in Tiptronic vehicles.
73. Remove lower M6 guide and tensioning rail screws (hexagon socket a/f 5), remove the guide and tensioning rails from the chain spaces.
74. Remove oil filter with special tool **release key 9204**.



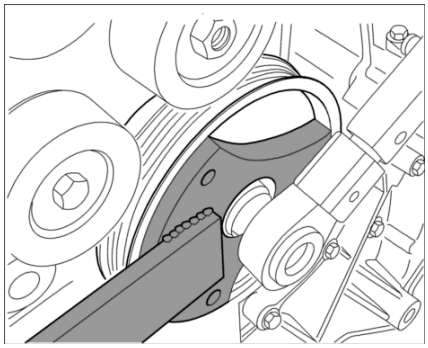
Lifting the oil pan cover

75. Unscrew 13 M6 x 20 Torx screws on the oil pan cover. Tap cover gently on the sides using a plastic hammer, then carefully lift it at the leverage bar **-see Figure-** using a plastic-coated mounting lever and remove the oil pan.



Components in the oil pan

76. Remove air/oil separator (swirl pots) and oil suction pipe. To remove the separator, unscrew two M6 x 20 Torx screws and pull out the separator. Unscrew two M6 x 20 Torx screws on the oil suction pipe and remove the oil suction pipe.
77. Remove bearing cover for intermediate shaft 152119 Removing and installing bearing cover for intermediate shaft - section on "Removing" [997110 997111 997310 997311 997410 997411 997610 997611] 152119 Removing and installing bearing cover for intermediate shaft - section on "Removing" [997120 997121 997320 997321 997430 997431 997620 997621].



Screw on belt pulley- 3.6l engine

78. Undo M16 x 1.5 x 60 hexagon-head bolt for belt pulley or vibration damper with special tool **socket wrench insert 9594**, while countering with special tool **retaining device 9593** *Screw on belt pulley- 3.6l engine* or **holding wrench 9732**. Do not unscrew the screw.

top of page

Assembling engine - from crankcase

Assembling engine - from crankcase

ATTENTION

Risk of damage due to particles of dirt.

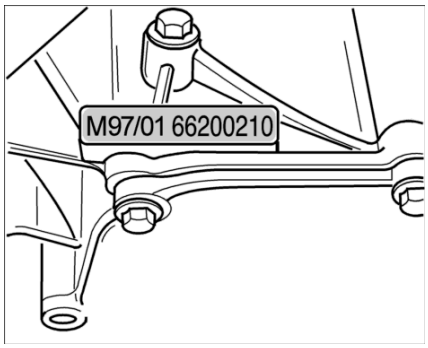
- **Oil bores/oil ducts can become blocked up.**

When working on the engine, absolute cleanliness is essential.
Lay removed engine parts on a clean base and cover them without fail.
Use the **cover for dust protection when fitting the engine NR.165** on the engine assembly support.

Note

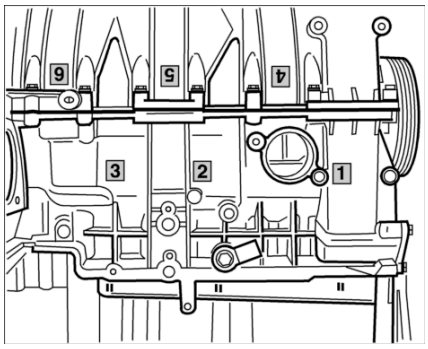
- *All O-rings and seals (shaft seals) and micro-encapsulated screws or lock nuts must be replaced.*

The engine is assembled in reverse order to the disassembly. Components that are not replaced must be cleaned.
Markings on crankcase:



Engine number, e.g. 3.8l

Engine number



Cylinder arrangement

Cylinder arrangement

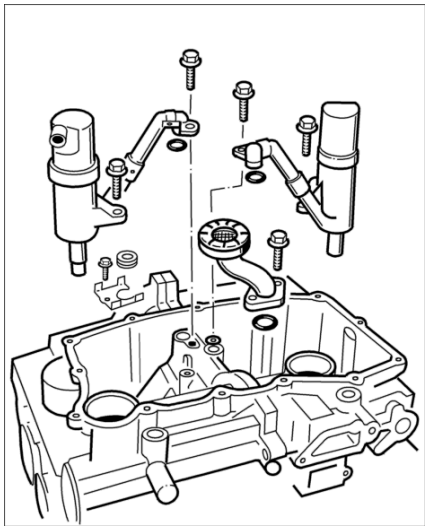
Note

- *Replace M6 microencapsulated screws and M8 hexagon collar nut for intermediate shaft bearing cap.*

1.

Fit bearing cover for intermediate shaft with new sealing ring 152119 Removing and installing bearing cover for intermediate shaft - section on "Installing" [997110 997111 997310 997311 997410 997411 997610 997611] 152119 Removing and installing bearing cover for intermediate shaft - section on "Installing" [997120 997121 997320 997321 997430 997431 997620 997621].

2. Install guide rail for cylinder 4-6. Insert guide rail with slot into the crankcase. Fit screw with new O-ring, grease the O-ring with Optimol MP3. **Tightening torque: 10 (7.5 ftlb.) Nm**
3. Install tensioning rail for cylinder 4-6. Fit screw with new O-ring, grease the O-ring with Optimol MP3. **Tightening torque: 10 (7.5 ftlb.) Nm**
4. Remove auxiliary screw for gear carrier.



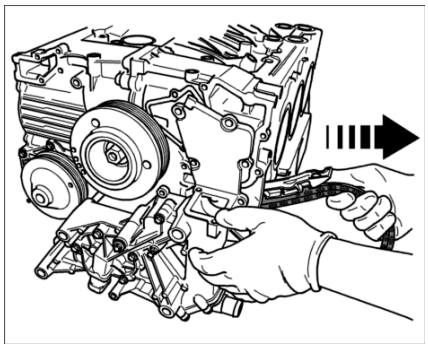
Components in the oil pan

5. Fit air/oil separator (swirl pots) and suction pipe. Replace two microencapsulated M6 x 20 Torx screws and O-rings for the suction tube. **Tightening torque: 10 (7.5 ftlb.) Nm**
6. Install oil pan. Apply a bead of sealant, **Loctite 5900**, to the cleaned and greased oil pan and secure with 13 M6 x 20 Torx screws from the inside out. **Tightening torque: 10 (7.5 ftlb.) Nm**
7. Fit oil filter, grease new O-ring with Optimol MP3. **Tightening torque: 25 (19 ftlb.) Nm**
8. Fit thermostat with new seal. Tighten four M6 x 20 Torx screws. **Tightening torque: 10 (7.5 ftlb.) Nm**
9. Fit tensioning rail for cylinder 1-3. Fit screw with new O-ring, grease the O-ring with Optimol MP3. **Tightening torque: 10 (7.5 ftlb.) Nm**

Note

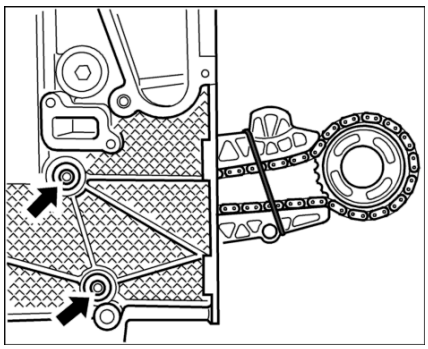
- *Replace O-rings for the oil pump and sealing rings for coolant guide housing.*

10. Install water pump. Position water pump with the new seal (a single part in conjunction with the seal for the oil pump housing). Position and tighten seven M6 Torx screws (two M6 x 30 screws on the dowel sleeves, five M6 x 25 screws). **Tightening torque: 10 (7.5 ftlb.) Nm**



Tension timing chain 4-6

11. Remove centring mandrel for intermediate shaft. Position oil pump with new seal and two new O-rings. Grease the O-rings with Optimol MP3. Pull timing chain 4-6 outward so that the intermediate shaft is centred. Align driver for the oil pump and then push the housing together with the oil pump into the bearing seat. It is advisable to get a second person to assist to make the assembly easier.
12. Coat the thread of two M6 x 70 Torx screws with Loctite 574 and position on oil pump housing. Position the remaining eight M6 x 20 Torx screws, tighten all screws. **Tightening torque: 10 (7.5 ftlb.) Nm**
13. Fit coolant neck with new seal and two M6 x 20 inner Torx screws. **Tightening torque: 10 (7.5 ftlb.) Nm**
14. Fit coolant breather adapter with new seal and six M6 x 20 inner Torx screws. **Tightening torque: 10 (7.5 ftlb.) Nm**
15. Fit pulse sender with new, microencapsulated M6 cheese head bolt. **Tightening torque: 10 (7.5 ftlb.) Nm**
16. Fit belt pulley/vibration balancer 137619 Removing and installing belt pulley/vibration balancer - section on "Installing" [997120 997121 997320 997321 997430 997431 997620 997621] 137619 Removing and installing belt pulley/vibration balancer - section on "Installing" [997110 997111 997310 997311 997410 997411 997610 997611].



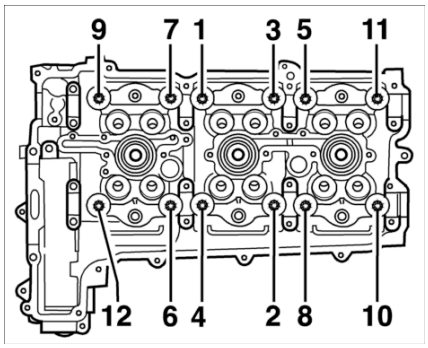
Fixing timing chains

17. Fix timing chains with chain sprockets, e.g. with the old O-rings from the oil suction pumps.
18. Install temperature sensor for coolant (M14 a/f 22). **Tightening torque: 25 (19 ftlb.) Nm +/-5 (3.5 ftlb.) Nm**

Note

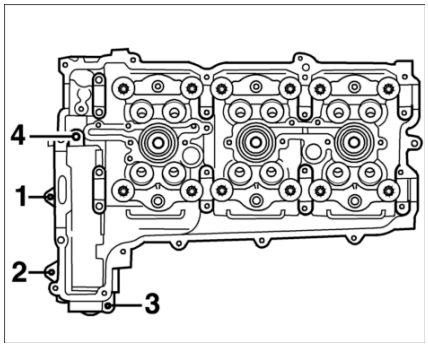
- *Cylinder-head gaskets are identical parts, lay them down with the TOP identification facing upwards.*

19. Fit new cylinder-head gaskets, the **TOP** inscription is legible from above.



Tightening sequence for cylinder head

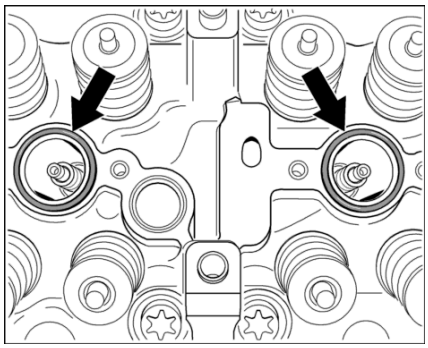
20. Fit cylinder heads 157019 Removing and installing cylinder heads - section on "Installing". Observe tightening sequence and tightening specification of cylinder-head screws. **Initial tightening: 30 (22 ftlb.) Nm** , loosen all screws, **2nd initial tightening: 20 (15 ftlb.) Nm** ; **2 x torque angle (final tightening): 70 °**



External cylinder head screwed connection

21. Tighten external M6 (Torx) cylinder-head screws. **Tightening torque: 13 (9.5 ftlb.) Nm**
22. Install guide rail for cylinder 1-3. The slot is positioned in the crankcase, the sealing lip towards the outside. Fit screw with new O-ring, grease the O-ring with Optimol MP3. **Tightening torque: 10 (7.5 ftlb.) Nm**

The threaded pin for guide rail 4 - 6 (belt pulley side) on the cylinder head is inserted only after the timing chain has been fitted on the camshaft wheels.



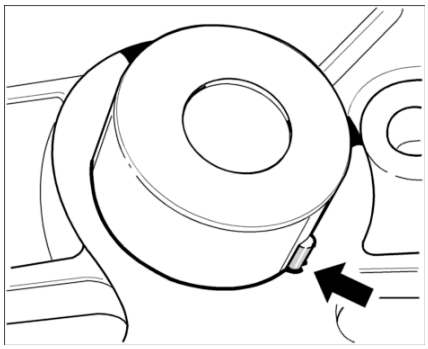
O-rings for spark-plug recess

Note

- *The O-rings for the spark-plug recesses must be replaced.*

23.

Insert three new O-rings in the spark-plug recesses, lightly coat with high pressure grease. Fit flat-base tappet housing with 11 M6 x 35 Torx screws and tighten screws from the inside out. **Tightening torque: 10 (7.5 ftlb.) Nm**

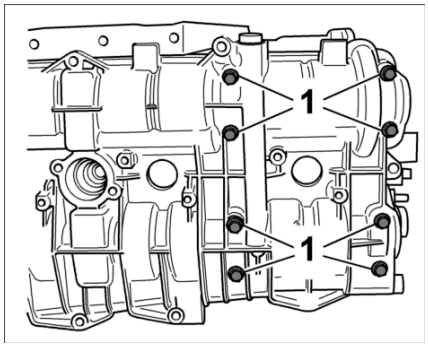


Switchable tappet

Note

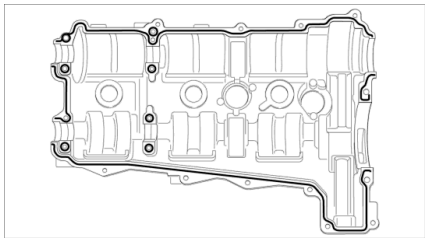
- *Re-insert flat-base tappets in the fitted bores in which they were positioned before the disassembly. The flat-base tappets have been run in in the fitting bores in the housing and therefore may not be switched.*

24. Coat flat-base tappets with new engine oil and insert in the fitted bores in the flat-base tappet housing (operating plunger with dowel pin on the inlet side).
25. Install camshafts and adjust controls as for engine type M96/03-3, 6l as of model year 2002. *150519 24 Removing and installing camshaft - section on "Installing".*



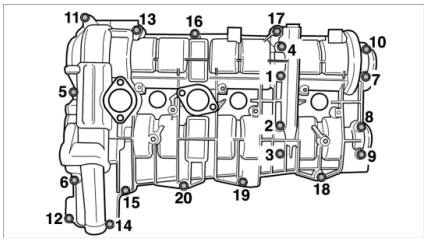
Screws for camshaft bearing surface

26. Fit cylinder head cover. Eight new, coated screws **-1-** must be used for the threaded joints on the camshaft bearing surfaces. For each one, tighten 20 M6 fastening screws according to the tightening sequence. Of each of the sets of 20 screws, only position two screws on the oil suction side (or tandem pump) and only perform the final tightening after fitting the pumps. **Tightening torque: 13 (9.5 ftlb.) Nm** 159119 Removing and installing cover for camshaft housing - section on "Installing".



Sealant application on cylinder head cover

Sealant application on cylinder head cover



Tightening sequence for cylinder head cover

Tightening sequence for cylinder head cover

27. Install tandem pump and oil suction pump with new, microencapsulated screws and new O-rings. Fit the line on the tandem pump with two new O-rings. Grease O-rings with Optimol MP3 **Tightening torque: 10 (7.5 ftlb.) Nm**

Install engine accessories in the reverse sequence to that in which they were removed. Some additional instructions follow.

- Install six spark plugs: **Tightening torque: 30 (22 ftlb.) Nm** ; **Tightening torque: 25 (19 ftlb.) Nm**
- Six ignition coils: tighten two M6 inner Torx screws for each of them. **Tightening torque: 10 (7.5 ftlb.) Nm**
- Hall sender: use two new M6 microencapsulated screws. **Tightening torque: 10 (7.5 ftlb.) Nm +/-0.5 (0.5 ftlb.) Nm**
- Exhaust manifold: use new M8 x 28 hexagon-head bolts. **Tightening torque: 23 (17 ftlb.) Nm**
- Support for coolant ventilation: replace one M6 x 16 (micro-encapsulated). **Tightening torque: 10 (7.5 ftlb.) Nm**
- Install secondary air pump three M6 x 20 Torx screws on the bracket **Tightening torque: 10 (7.5 ftlb.) Nm**
- Intake pipe support in the 3.6 l: install with four M6 x 35 Torx screws and new seals. **Tightening torque: 10 (7.5 ftlb.) Nm**
- Intake-air distributor in the 3.6 l: install with six M6 x 35 Torx screws and new moulded seals on intake pipe support. **Tightening torque: 10 (7.5 ftlb.) Nm**
- Intake-air distributor in the 3.8 l: four M6 Torx screws. **Tightening torque: 10 (7.5 ftlb.) Nm**
- Install generator: tighten M8 hexagon nut for B+ cable to the specified torque. **Tightening torque: 15 (11 ftlb.) Nm** 272219 Removing and installing generator - section on "Installing".

top of page

Assembling engine, subsequent work

Assembling engine, touching up

1. Fit flywheel 136019 Removing and installing flywheel - section on "Installing" [997110 997111 997310 997311 997410 997411 997610 997611] 136019 Removing and installing flywheel - section on "Installing" [997120 997121 997320 997321 997430 997431 997620 997621].

2. Fit clutch 305019 Removing and installing clutch - section on "Installing".

or

3. Fit converter housing 324319 Removing and installing converter housing - section on "Installing".
4. Fit drive plate for converter 136319 Removing and installing drive plate for converter - section on "Installing".
5. Mount transmission 373527 Removing and mounting automatic transmission - section on "Mounting" [997110 997111 997120 997121 997310 997311 997320 9973211] *373527 AG Removing and mounting automatic transmission - section on "Mounting" [997410 997411 997430 997431 997610 997611 997620 997621]* or 343527 Removing and mounting transmission - section on "Mounting".
6. Install engine 100119 Removing and installing engine - section on "Installing".

997110, 997111, 997120, 997121, 997310, 997311, 997320, 997321, 997410, 997411, 997430, 997431, 997610, 997611, 997620, 997621

as of MY 2005
Country C00, C02, C05, C07, C08, C09, C10, C11, C12, C13, C14, C15, C16, C18, C19, C20, C21, C22, C23, C24, C25, C26, C27, C28, C32, C33, C34, C35, C36, C37, C38, C39, C45, C46, C98, C99

WARNUNG

Gefahr des Verlusts der Text-Bild-Zuordnung beim Ausdruck.

- **Aus technischen Gründen kann derzeit nicht ausgeschlossen werden, dass trotz einwandfreier Darstellung auf dem Bildschirm beim Ausdruck der Zusammenhang von Text und zugehörigem Bild verloren geht.**
- **Wird der Fehler nicht bemerkt, besteht die Gefahr, daß Arbeiten nicht korrekt durchgeführt werden und es dadurch zu Personen- und Sachschäden kommt.**

Vergleichen Sie deshalb nach dem Druckvorgang unbedingt die Ausdrucke mit der Bildschirmdarstellung. Korrigieren Sie die Ausdrucke im Fehlerfall so, daß der Inhalt der Bildschirmdarstellung zutreffend wiedergegeben wird.

WARNING

Danger of losing text-figure correspondence when printing out.

- **For technical reasons, it can currently not be ruled out that the correspondence between text and associated figure can be lost when it is printed out, even though the display on the screen is correct.**
- **If the fault is not noticed, there is the danger that work will not be performed correctly which can cause injury and damage.**

Therefore, always compare printouts with the screen display after printing them out. Correct the printouts if they are faulty so that the content of the screen display matches that on the printouts.

10 30 19 Removing and installing engine carrier - as of MY 2005

- Preliminary work
- Removing engine carrier
- Installing engine carrier
- Subsequent work

top of page

Preliminary work

Preliminary work

WARNING
Danger of injury from hot engine parts.

- **Risk of burns, damage to skin, injury to the eyes.**

Do not work on the engine while it is hot.

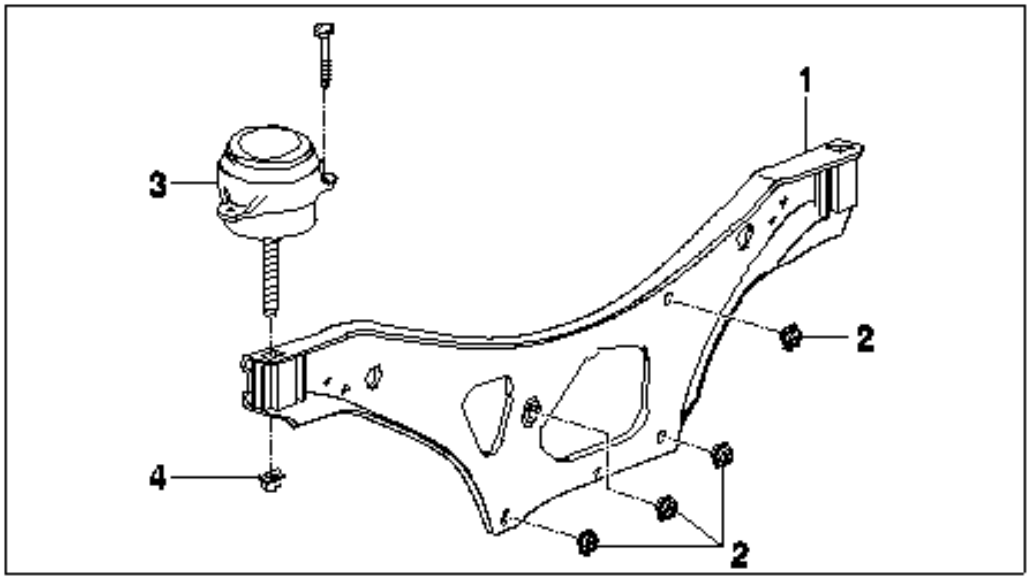
1. Remove air cleaner housing 242519 Removing and installing air cleaner housing - chapter on "Removing".
2. Remove both catalytic converters 267319 Removing and installing catalytic converter - chapter on "Removing".

top of page

Removing engine carrier

Removing engine carrier

Engine carrier components



Overview of engine carrier

Item	Designation	Explanation
1	Engine carrier	Clean after removal and check for damage
2	M10 collar nut	
3	Hydraulic mount	Check for leaks and damage
4	M12 collar nut	

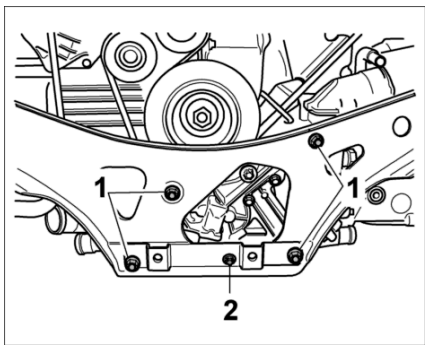
WARNING

Risk of falling engine.

- **Danger of material damage and injury.**

Support engine at all times.

1. Support engine in installation position with a transmission jack. .



Engine carrier

2. Remove engine carrier. Unscrew four M10 collar nuts **-1-** and one M6 Torx screw **-2-** .

3. Unscrew M12 collar nuts on engine mounting (hydraulic mount).
4. Carefully lower engine and move engine carrier out of threaded bolts, remove carrier.
5. Carefully clean engine carrier using solvent naphtha and check for damage (e.g. cracks).
6. The engine carrier must be replaced if it is damaged.

top of page

Installing engine carrier

Installing engine carrier

1. Insert engine carrier in threaded bolts. Screw on four M10 collar nuts and one M6 Torx screw.
2. Raise engine in installation position using transmission jack, screw in two M12 collar nuts on engine mounting.
3. Tighten the four M10 collar nuts and the M6 Torx screw. **Tightening torque: 65 (48 ftlb.) Nm** ; **Tightening torque: 10 (7.5 ftlb.) Nm**
4. Tighten M12 collar nuts on left and right engine mountings. **Tightening torque: 85 (63 ftlb.) Nm** .

top of page

Subsequent work

Subsequent work

1. Install catalytic converters 267319 Removing and installing catalytic converter - chapter on "Installing".
2. Install air cleaner housing 242519 Removing and installing air cleaner housing - chapter on "Installing".

997110, 997111, 997120, 997121, 997310, 997311, 997320, 997321, 997410, 997411, 997430, 997431, 997610, 997611, 997620, 997621

as of MY 2005
Country C00, C02, C05, C07, C08, C09, C10, C11, C12, C13, C14, C15, C16, C18, C19, C20, C21, C22, C23, C24, C25, C26, C27, C28, C32, C33, C34, C35, C36, C37, C38, C39, C45, C46, C98, C99

WARNUNG

Gefahr des Verlusts der Text-Bild-Zuordnung beim Ausdruck.

10 55 19 Removing and installing oil separator - as of MY 2005

- Preliminary work
- Removing oil separator
- Installing oil separator
- Subsequent work

Tools

Designation	Type	Number	Explanation	
3/8" extension, 16° movable	commercially available tool	NR.15		

top of page

Preliminary work

Preliminary work for removing oil separator

1. Remove air cleaner housing 242519 Removing and installing air cleaner housing - chapter on "removing".

top of page

Removing oil separator

Removing oil separator

Note

Cover engine openings (e.g. intake openings, crankcase, oil lines, open reservoirs etc.) cover with a cloth to avoid dirt and foreign bodies falling in.

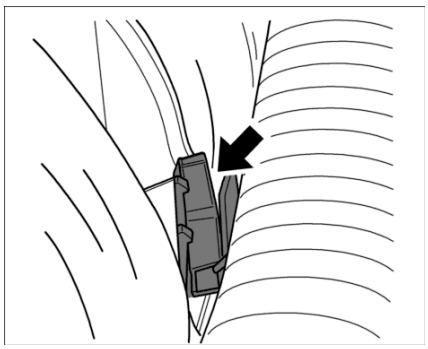
Note

- *After removal, place the air-conditioning compressor on a suitable protective support (e.g. foam, neoprene, etc.).*

Note

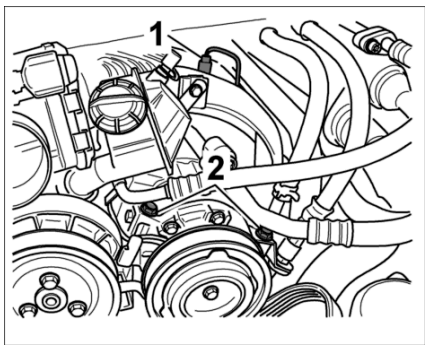
The air-conditioning lines on the compressor do not have to be disconnected in order to remove engine/transmission unit.

1. Detach air-conditioning compressor without disconnecting the air-conditioning lines *873409 11 Detaching and fastening compressor - detaching*.



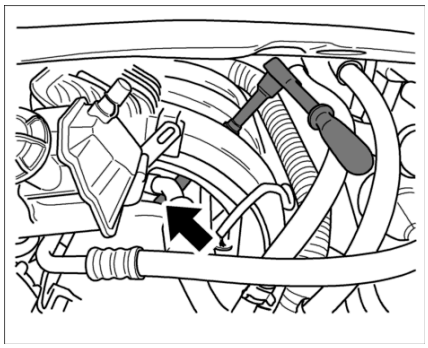
Air-conditioning compressor ground line

2. Disconnect ground connector from intake distributor side 4-6 **-arrow-** .



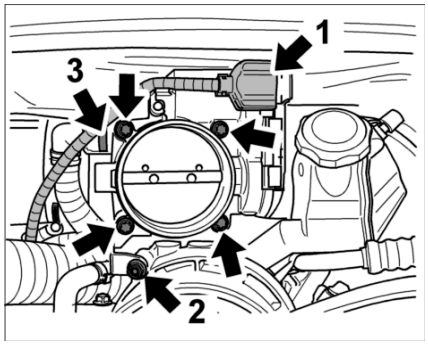
Rear fastening of the air-conditioning compressor

3. Pull the engine compartment temperature sensor out of the intake distributor 4-6 together with the rubber sleeve **-1-** and unscrew the rear fastening screws **-2-** of the air-conditioning compressor.



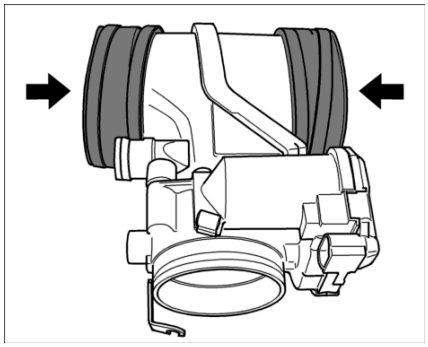
Front fastening screw of the air-conditioning compressor

4. Unscrew the front fastening screw **-arrow-** of the air-conditioning compressor. Due to the restricted accessibility, the use of a **3/8" extension, 16° movable NR.15** with a long Torx E10 socket wrench is recommended. To lift out the air-conditioning compressor, the screw must be pulled upwards and held in position.
5. Lift out the air-conditioning compressor with the leads connected and lay to one side on a protective support. Secure additionally with a tie-wrap.



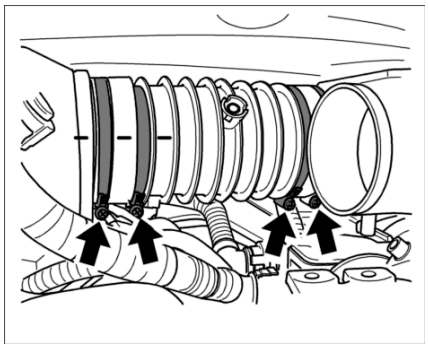
Throttle body

6. Remove distributor pipe. To do this, remove the fastening nut M6 of the throttle body from the rubber mount of the servo pump **-2-** .
7. Release cable plug on throttle body, and pull out and release cable **-1-** .
8. Release crankcase venting pipe connection from distributor pipe and remove **-3-** .



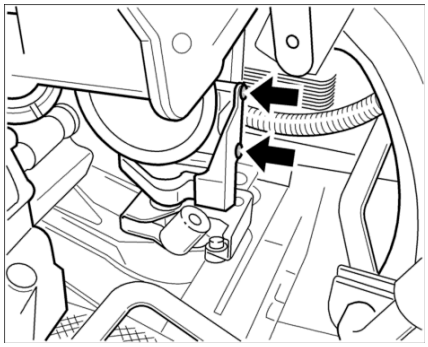
Distributor pipe

9. Loosen the four screw-type hose clamps on the rubber sleeves to the side intake distributors and push the rubber sleeves onto the distributor pipe. Remove distributor pipe together with mounted throttle body. Remove distributor pipe from the engine compartment.



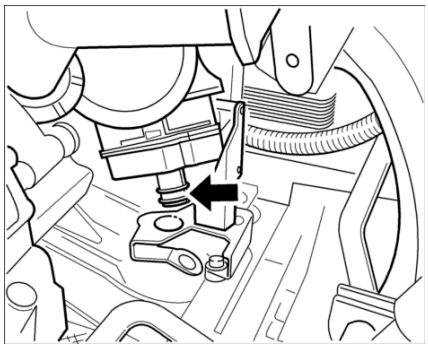
Tuning pipe

10. Release tuning pipe. To do this, mark the installation position of the tuning pipe and loosen screw-type hose clamps **-arrows-** .



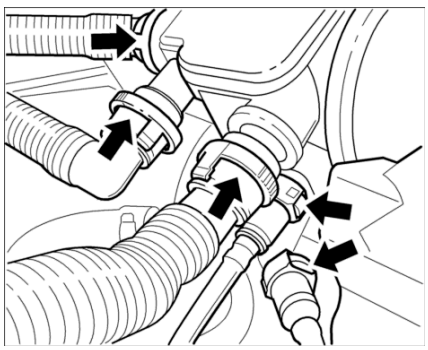
Mounting of oil mist separator

11. Remove both side fastening screws **-arrows-** .



Oil mist separator sealing rings

12. Carefully turn the oil separator and pull it out of the bore. Check sealing rings and replace if necessary **-arrow-** .



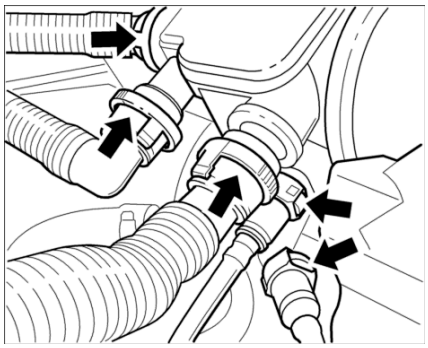
Oil mist separator connections

13. Remove connections to the oil separator . For this purpose, place a cloth underneath as coolant emerges from the bottom vent line. Press and remove the connections **-arrows-** . Remove oil separator from the engine compartment.

top of page

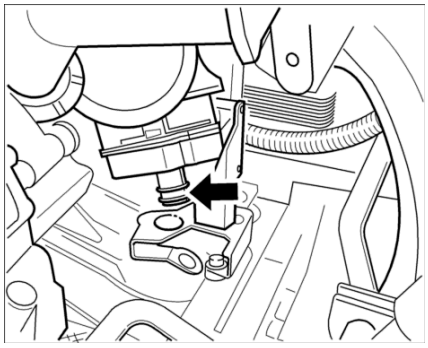
Installing oil separator

Installing oil separator



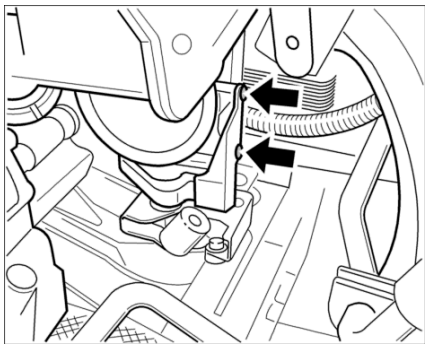
Oil mist separator connections

1. Check seals of oil separator and replace if necessary. Place oil separator in the installation position and make all connections **-arrows-** .



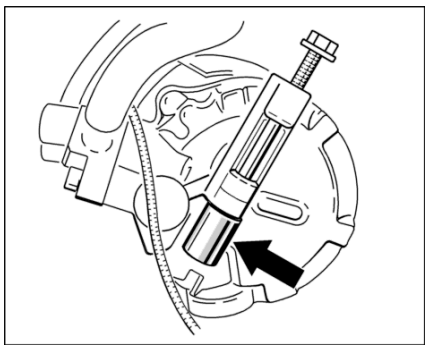
Oil mist separator sealing rings

2. Lightly coat the sealing rings to the crankcase with Optimol MP3 **-arrow-** . Carefully turn the oil separator and press it into the bore of the crankcase.



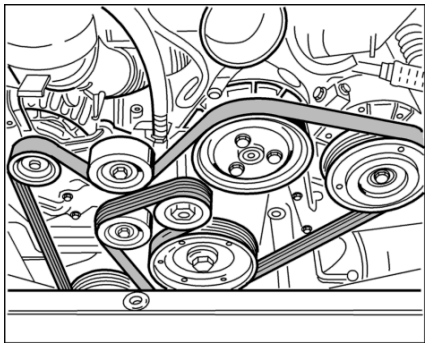
Mounting of oil mist separator

3. Fit both side fastening screws **-arrows-** .



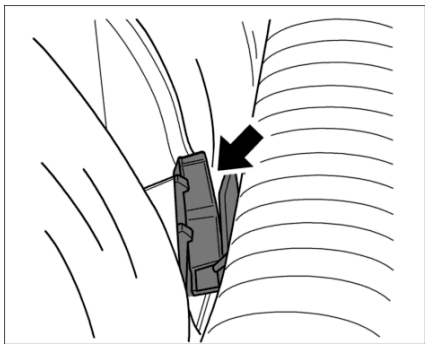
Front air-conditioning compressor fastening screw and sleeve

4. Fit air-conditioning compressor: before installing the compressor check whether the aluminium spacer sleeve **-arrow-** is inserted. Grease and fit sleeve. Also guide through ground cable before installation.
5. Fit air-conditioning compressor and fasten using three M8 Torx screws (two short ones at the rear, one long one at the front). See details and tightening torques 873419 Removing and installing compressor - chapter on "installing".



Drive belt

6. Fit drive belt. Pay attention to operating direction of used belts. Double-check that the position of the belt on the belt pulleys is correct.
7. Fit engine compartment temperature sensor with the rubber sleeve in the intake distributor 4-6.



Air-conditioning compressor ground line

8. Connect ground connector to intake distributor side 4-6 **-arrow-** .

top of page

Subsequent work

Subsequent work for installing oil separator

1. Install air cleaner housing 242519 Removing and installing air cleaner housing - chapter on "installing".

997110, 997111, 997120, 997121, 997310, 997311, 997320, 997321, 997410, 997411, 997430, 997431, 997610, 997611, 997620, 997621

as of MY 2005
Country C00, C02, C05, C07, C08, C09, C10, C11, C12, C13, C14, C15, C16, C18, C19, C20, C21, C22, C23, C24, C25, C26, C27, C28, C32, C33, C34, C35, C36, C37, C38, C39, C45, C46, C98, C99

WARNUNG

Gefahr des Verlusts der Text-Bild-Zuordnung beim Ausdruck.

- **Aus technischen Gründen kann derzeit nicht ausgeschlossen werden, dass trotz einwandfreier Darstellung auf dem Bildschirm beim Ausdruck der Zusammenhang von Text und zugehörigem Bild verloren geht.**
- **Wird der Fehler nicht bemerkt, besteht die Gefahr, daß Arbeiten nicht korrekt durchgeführt werden und es dadurch zu Personen- und Sachschäden kommt.**

Vergleichen Sie deshalb nach dem Druckvorgang unbedingt die Ausdrucke mit der Bildschirmdarstellung. Korrigieren Sie die Ausdrucke im Fehlerfall so, daß der Inhalt der Bildschirmdarstellung zutreffend wiedergegeben wird.

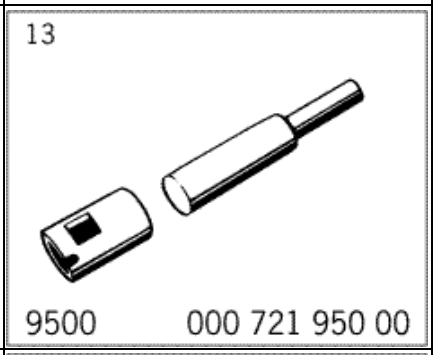
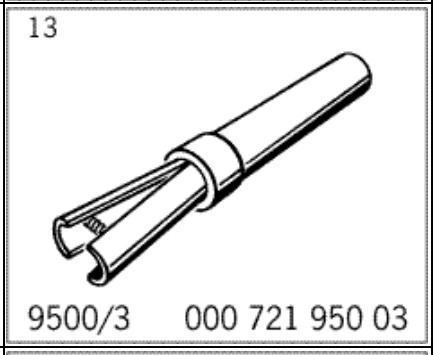
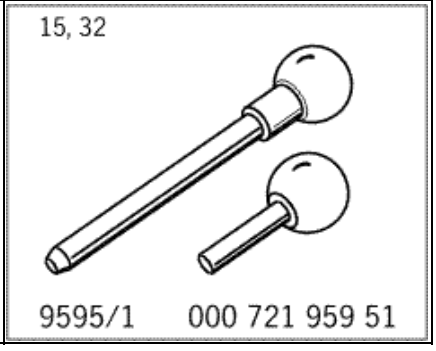
WARNING

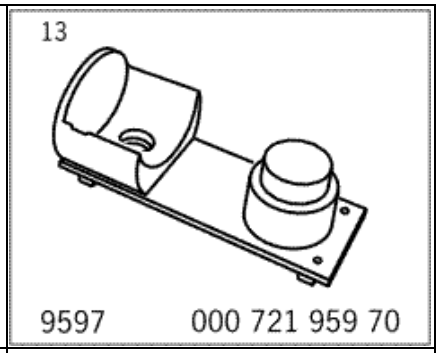
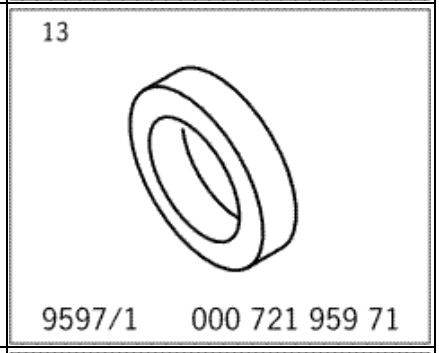
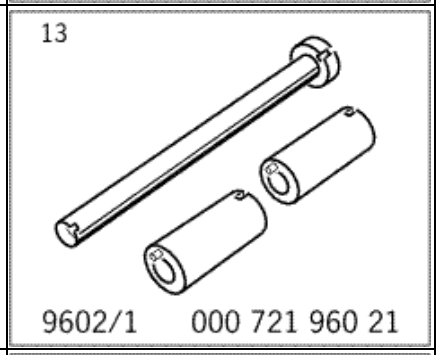
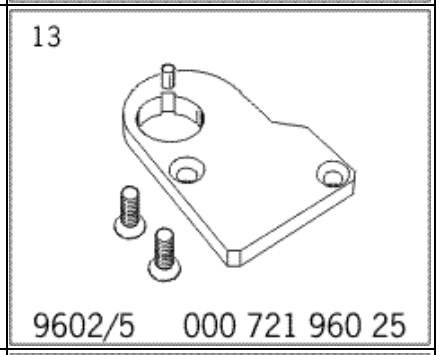
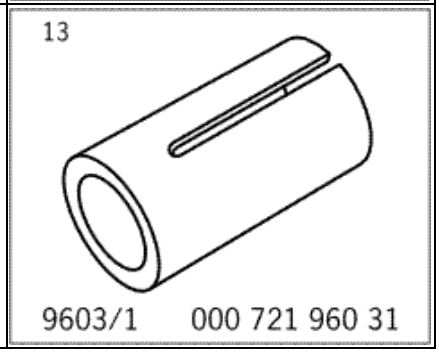
Danger of losing text-figure correspondence when printing out.

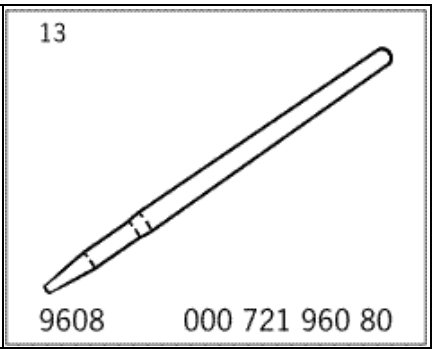
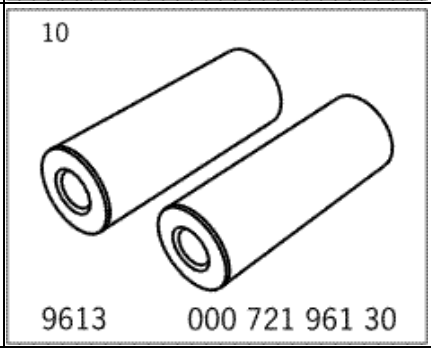
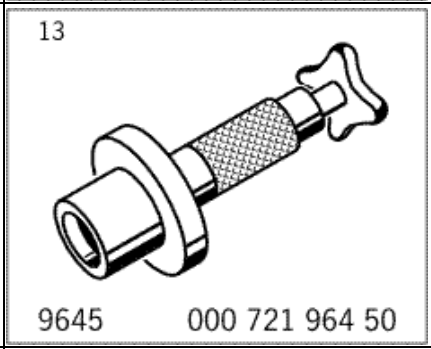
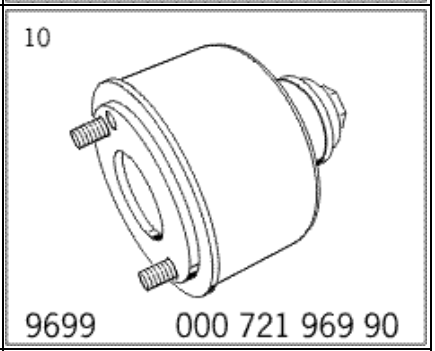
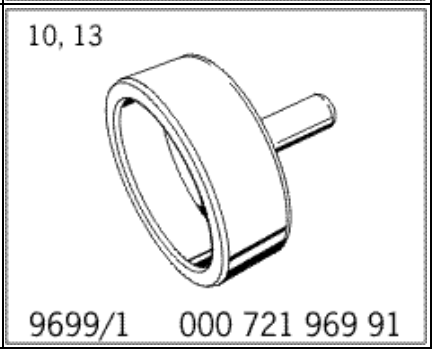
13 10 20 Removing and installing pistons - as of MY 2005

- Removing pistons, preliminary work
- Removing pistons
- Disassembling pistons/connecting rods, cylinder 1-3
- Assembling pistons/connecting rods, cylinder 1-3
- Piston markings
- Installing pistons
- Installing pistons, touching up

Tools

Designation	Type	Number	Explanation	
assembly tool	special tool	9500		
assembly aid	special tool	9500/3		
fixing pin	special tool	9595/1		

retaining device	special tool	9597		
spacer ring	special tool	9597/1		
assembly tool	special tool	9602/1		
centring aid	special tool	9602/5		
assembly aid	special tool	9603/1		

centring mandrel	special tool	9608		
spacer sleeves	commercially available tool	9613		
centring mandrel	special tool	9645		
insertion device	special tool	9699		
measuring mandrel	special tool	9699/1		

cover for dust protection when fitting the engine	commercially available tool	NR.165		
universal piston ring restraining strap, 75 - 125 mm	commercially available tool	NR.55		
piston ring pliers Gr. 1	commercially available tool	NR.58		

top of page

Removing pistons, preliminary work

Removing pistons, preliminary work

1. Disassemble engine to crankcase 100137 Disassembling and assembling engine - "Disassembling" section.

top of page

Removing pistons

Removing pistons

ATTENTION

Risk of damage due to particles of dirt.

- **Oil bores/oil ducts can become blocked up.**

When working on the engine, absolute cleanliness is essential.

Lay removed engine parts on a clean base and cover them without fail.

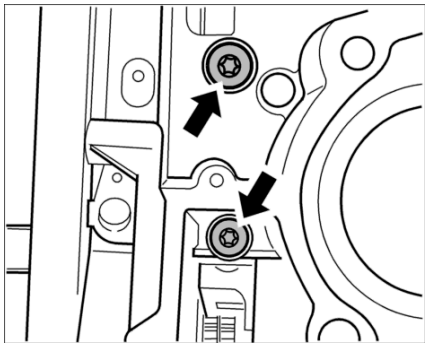
Use the **cover for dust protection when fitting the engine NR.165** on the engine assembly support.

Note

- *Fix the gear carrier for removing the pistons with two auxiliary screws to crankcase half 1-3.*

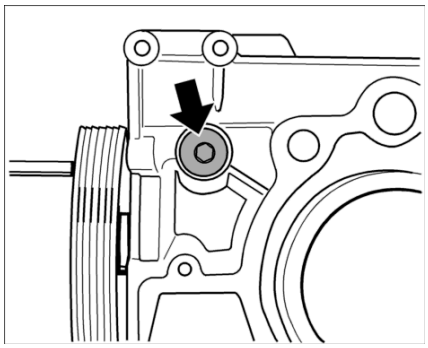
Note

- *Mark pistons in installation position before removal. Combustion residues (carbon desposits) can be removed with a brass brush.*
- *Hard to remove residues can be removed in the ultrasound bath following disassembly.*



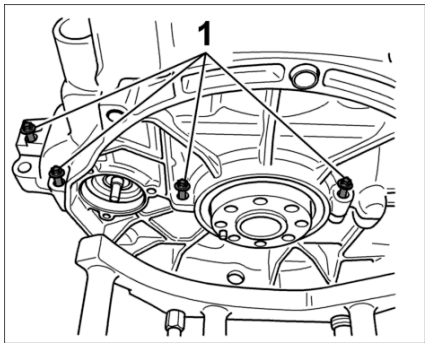
Additional screws for gear carrier, side 1-3

1. Unscrew inner Torx screws with O-ring (M9 x 94 inside and M9 x 84 outside) for gear carrier **-arrows-** on crankcase half 1-3.



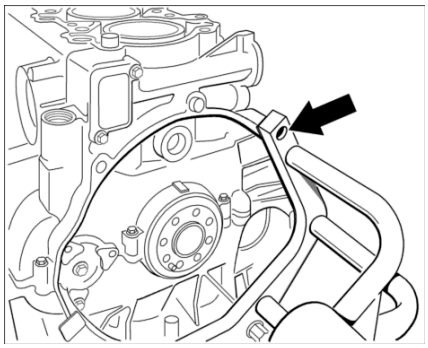
Additional screw for gear carrier, side 4-6

2. Unscrew inner Torx screw with O-ring M9 x 140 for gear carrier **-arrow-** on crankcase half 4-6.
3. Turn crankcase at assembly support until crankcase half 4-6 stands vertically upwards.



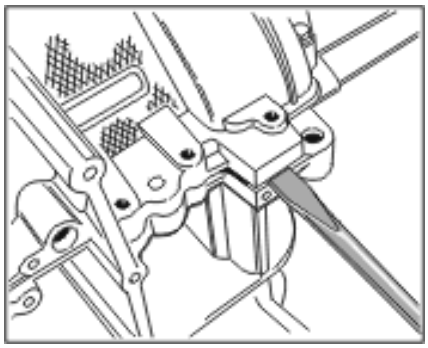
Coated screws for cross bolt connection

4. Unscrew four coated M6 x 35 Torx screws **-1-** on crankcase half 4-6 on flywheel side. Replace screws during assembly.
5. Unscrew 20 remaining M6 x 35 Torx screws in the crankcase cross bolt connection.



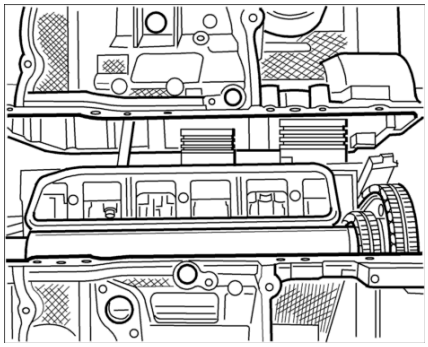
Mount for crankcase half 4-6 on engine support

6. Unscrew the star screw that fixes crankcase half 4-6 to the engine support **-arrow-** .



Separating the crankcase half

7. Tap the crankcase halves gently with a plastic hammer. Carefully lever the various cast lugs with a screwdriver to separate the crankcase halves from one another.



Levering off crankcase half 4-6

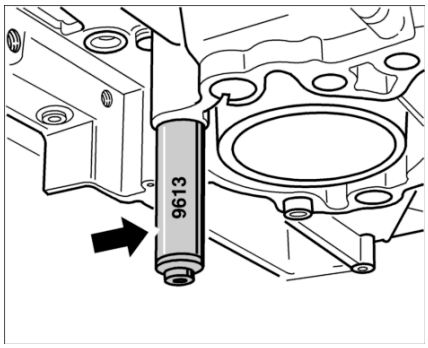
ATTENTION

Crankcase half 4-6 incorrectly levered off

- **Damage to pistons, piston rings**

Lever off crankcase half 4-6 only with the help of a second person.

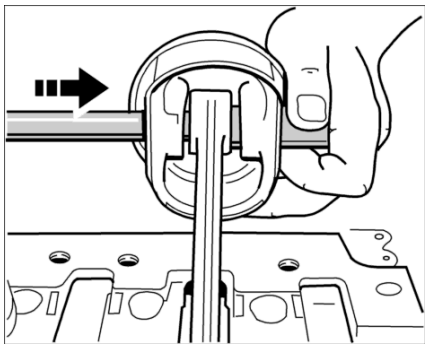
8. Carefully lever off crankcase half 4-6 with the help of a second person to avoid damaging the pistons (e.g. by tilting). Remove old shaft seals.



Auxiliary screws for securing gear carrier

9. For the following steps, fasten the gear carrier to crankcase housing half 1-3 with two cylinder-head screws using **spacer sleeves 9613**. **Tightening torque: 15 ftlb.**

Removing pistons, side 4-6



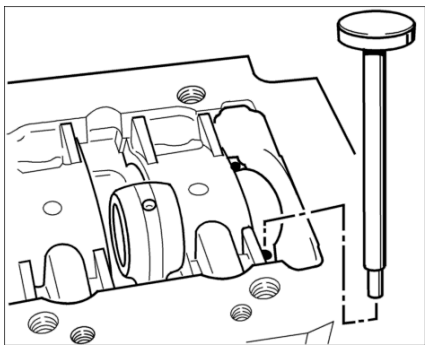
Removing piston pins

10. Lever off the front piston-pin circlips of marked pistons 4-6 (from the viewpoint of the drive belt side) using a small screwdriver, push out the piston pin **-arrow-** and remove the pistons one by one. Assign the piston pins again to the appropriate pistons.

Removing pistons and connecting rods, side 1-3

Connecting rod bolts

11. Remove marked pistons 1-3, including connecting rods. To do this, turn the crankshaft on the belt pulley/vibration balancer until the respective connecting rod bearing cap stands upwards. Undo and remove the connecting rod bolts (twelve-edged socket wrench insert a/f 14), remove connecting rod bearing cap.



Removing connecting rod using plastic mandrel (shop-made)

Note

- *Join connecting rod and connecting rod bearing cap together again immediately after removal.*
- *Connecting rod bolts must be replaced.*

12. Carefully press connecting rod and pistons downwards out of crankcase half 1-3 using a

shop-made plastic mandrel. Allocate a connecting rod cap immediately to the relevant connecting rod and screw on loosely. Pay attention to the bearing shells.

13. Unscrew fastening screw for belt pulley/vibration balancer and remove washer or damper. In the case of the vibration balancer, pay attention to the friction plate.
14. To remove connecting rod 4-6, remove the gear carrier; see 134819 Removing and installing crankshaft - "Preliminary work" section.

top of page

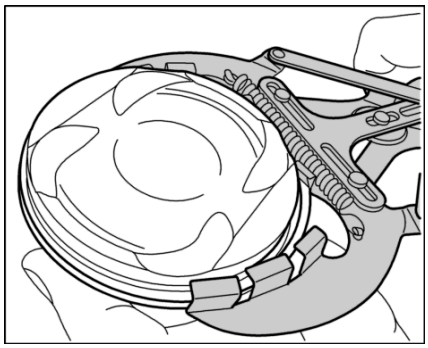
Disassembling pistons/connecting rods, cylinder 1-3

Disassembling pistons/connecting rods, cylinder 1-3

Note

When removing pistons, the piston-pin circlip always remains in the piston, which is installed opposite the large assembly bore (no chamfer) for the piston pin.

1. Remove piston/connecting rod unit. To do this, clamp the connecting rod to a vice with aluminium jaws, for example.



Removing/installing piston rings

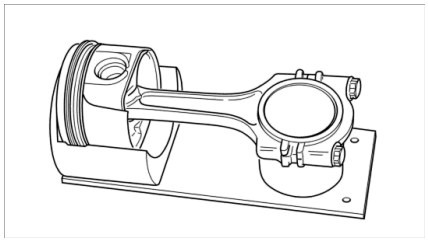
ATTENTION

Over-extension of piston rings

- **Damage or breakage**

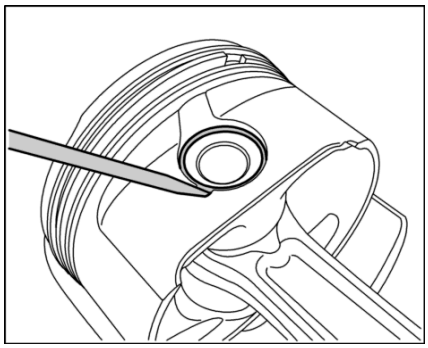
Using the piston ring pliers, spread open the piston rings only far enough so that the rings can be installed or removed (without scratching the piston).

2. Remove piston ring groove 1 and groove 2 separately using a **piston ring pliers Gr. 1 NR.58**. Remove piston ring groove 1 first. The piston rings must not be overstretched.
3. The three-piece oil scraper ring can be removed by hand. First, carefully remove both rings, then remove the springs.



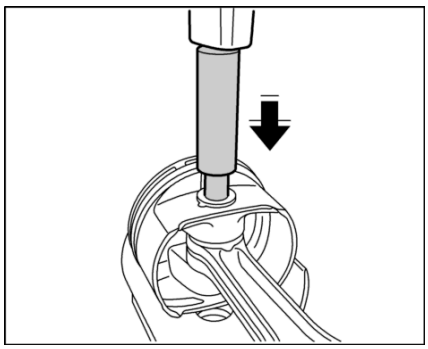
Piston assembly device 9597

4. Insert piston/connecting rod unit into the **retaining device 9597** in such a way that the twist lock in the second piston ring groove faces the observer.



Removing piston pin circlip

5. Carefully press out piston-pin circlip with a screwdriver; while doing so, place a cloth over the piston so that the circlip does not pop out.



Pressing out piston pin

6. Turn piston/connecting rod unit through 180° on the assembly device and press out piston pin with the plunger special tool **assembly tool 9500**.
7. Repeat steps for removing pistons/connecting rods on cylinders 2 and 3.

top of page

Assembling pistons/connecting rods, cylinder 1-3

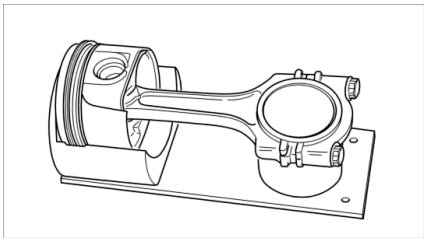
Assembling pistons/connecting rods, cylinder 1-3

Note

When removing pistons, the piston-pin circlip always remains in the piston, which is installed opposite the large assembly bore (no chamfer) for the piston pin.

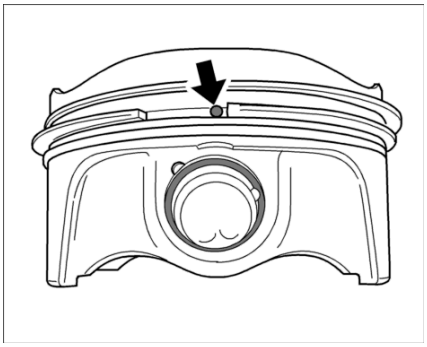
Note

The lug of the piston-pin circlip must always be touching the contact surface facing the oil piston shank.



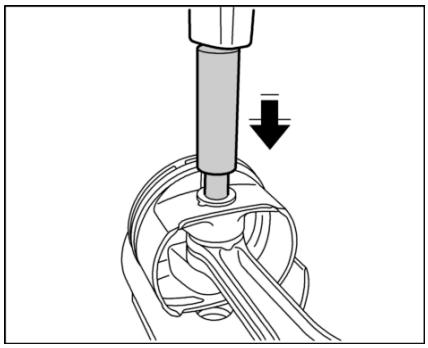
Piston assembly device 9597

Special tool **retaining device 9597** with **spacer ring 9597/1**.



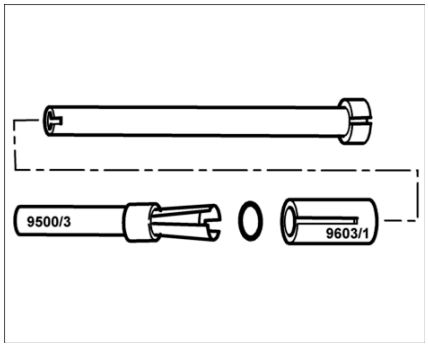
Piston pin assembly bore

1. Insert the piston (without piston rings) into retaining device 9597 so that the deep assembly bore for the piston pin in the piston is facing the observer and the remaining circlip is located underneath (check: twist lock of piston ring, second groove, is also pointing towards the observer **-arrow-** , arrow opposite piston crown).
2. Place connecting rod in piston so that the twist lock of the connecting rod bearing shell is pointing downwards in the connecting rod (i.e. in the direction of the arrow on the piston crown).



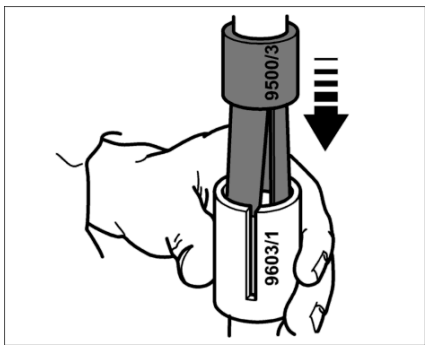
Pressing in piston pin

3. Coat piston pin with new engine oil and press it in manually or using the plunger special tool **assembly tool 9500**.



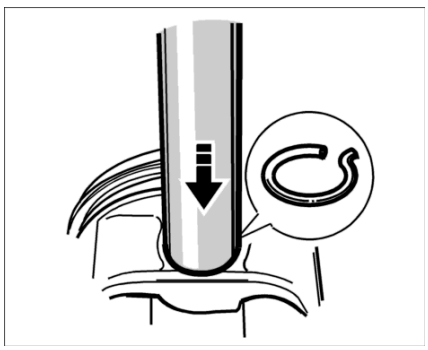
Assembly sequence for piston-pin circlip

4. Insert new piston-pin circlip in the taper of the **assembly aid 9603/1**. Position the cylindrical part on the assembly tube of the special tool **assembly tool 9602/1**.



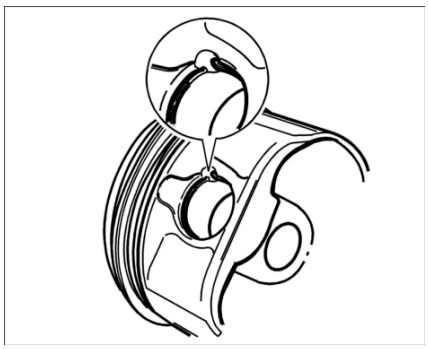
Application of tool 9500/3

5. Press circlip into assembly tube using the **assembly aid 9500/3**.



Assembling piston pin circlip

6. Position assembly tube on piston eye and press piston-pin circlip into the ring groove using the pressure pin **assembly tool 9602/1**. The circlip must audibly engage.



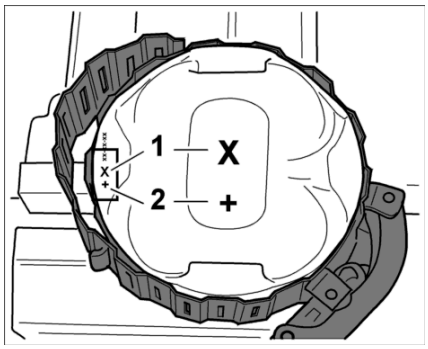
Installation position of circlip

7. Check installation position and secure fit of circlip. The lug of the circlip must always be touching the contact surface running in the direction of the oil piston shank opposite the piston ring grooves.
8. Repeat steps for pistons/connecting rods on **cylinders 2 and 3**.

top of page

Piston markings

Piston markings



Piston marking

Markings on piston crown: Replacement pistons are available from Porsche Parts Service only in dimensional group **'X'** and in two weight groups **'+' and '-'**. The weight groups are listed in the table.

- **Marking X** appears as a large coloured stamp in the middle of the piston crown, small as an engraved feature **-1-** .
- **Marking + or - appears** appears as a large coloured stamp in the middle of the piston crown, small as an engraved feature **-2-** .

Weight group	Full weight in g (with piston rings) 997 3.8l - Ø 99mm	Full weight in g (with piston rings) 997 3.6l - Ø 96mm
-	**536 - 542**	**525 - 530**
+	**542 - 548**	**531 - 536**

top of page

Installing pistons

Installing pistons

ATTENTION

Risk of damage due to particles of dirt.

- **Oil bores/oil ducts can become blocked up.**

When working on the engine, absolute cleanliness is essential.

Lay removed engine parts on a clean base and cover them without fail.

Use the **cover for dust protection when fitting the engine NR.165** on the engine assembly support.

Note

- *If the piston, piston pin or piston-pin circlip are incorrectly assembled, the corresponding piston can be pulled out of the cylinder as follows. Degrease centre of piston crown with acetone. Coat suitable plastic mandrel with instant adhesive, allow adhesive to cure, pull out piston, remove plastic mandrel immediately.*

Note

- *All O-rings and seals (shaft seals) and micro-encapsulated screws or lock nuts must be replaced.*

Note

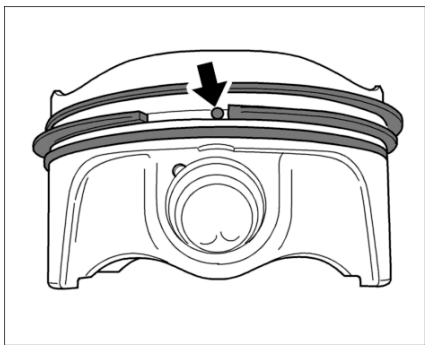
- *Replace M9 x 1.25 connecting rod bolts and the piston-pin circlips that have been removed.*

Note

- *With the help of a second person, carefully place crankcase half 4-6 in position on crankcase half 1-3.*

Piston/connecting rod assembly, cylinder 1-3:

1. Install gear carrier in crankcase half 1-3. 134819 Removing and installing crankshaft - "Touching up" section
2. Screw on belt pulley/vibration balancer with fastening screw. Turn the crankcase at the assembly support so that cylinders 1, 2 and 3 stand vertically upwards.
3. Turn crankshaft on belt pulley/vibration balancer until the connecting-rod bearing from cylinder 1 stands vertically upwards. In doing so, the bore marked **'U4'** can be fixed with the bore in the crankcase using the **fixing pin 9595/1**.



Twist lock of piston ring, second groove

Note

- *Observe information on aligning piston ring gaps at all times.*

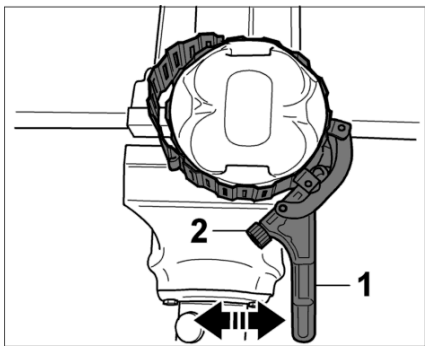
4. Prepare pre-assembled piston/connecting rod unit of **cylinder 1** for installation. To do this, clamp the connecting rod to a vice with aluminium jaws, for example. Align the gaps in the piston rings as follows:

4.1. Align the second groove on the piston ring with the twist lock **-arrow-** .

4.2. Turn gap of piston ring, groove 1, through 180°.

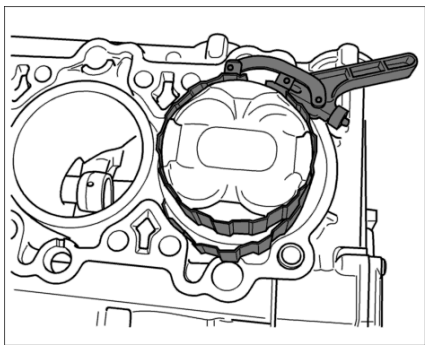
4.3. Turn the gaps of the oil scraper ring so that the gaps are located at the oil piston shank area. When doing so, the gaps of both rings and the springs should not be on top of one another (they should be slightly offset with respect to one another).

5. Coat piston and piston rings with plenty of new engine oil.
6. Insert connecting rod bearing in connecting rod and connecting rod cap. Coat sliding surface with Optimol Optipit (available from Porsche Parts Service: 000.043.204.17).



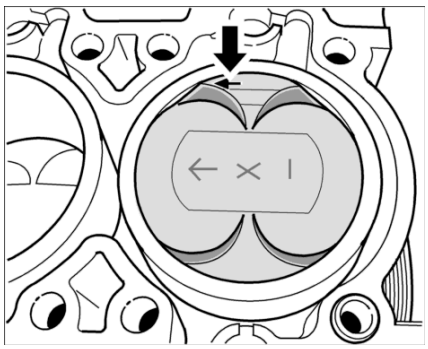
Piston with restraining strap

7. Position clamping tool **universal piston ring restraining strap, 75 - 125 mm NR.55** on the piston; when doing so, ensure that the piston rings are positioned correctly. Adjust restraining strap to piston diameter, use tensioning lever **-1-** and tensioning screw **-2-** to fine-tune the adjustments.
8. Coat cylinder bores 1-3 with plenty of new engine oil.



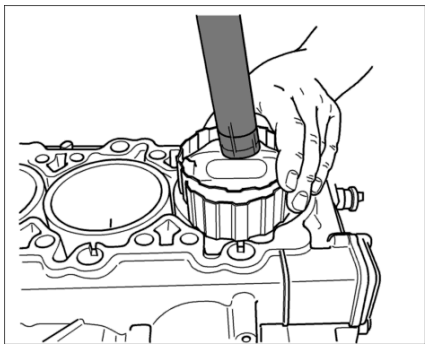
Piston in cylinder bore

9. Insert piston, together with connecting rod, into cylinder bore 1, **universal piston ring restraining strap, 75-125 mm NR.55** must lie evenly on cylinder surface.



Piston - installation position in crankcase

10. **Pay attention to direction of assembly: arrow on piston crown always points to flywheel side**



Pressing piston into cylinder bore

ATTENTION

Incorrect and careless assembly of pistons.

- **Component damage (pistons, piston rings, cylinder line)**

Assemble pistons carefully and gently.

Stop process immediately if there is increased resistance during assembly; eliminate the cause of the problem.

11. Hold the piston ring restraining strap firmly and press piston in a cable into the cylinder bore using a plastic mandrel.
12. **Check installation position of connecting rod:** In the installation position, the recesses of the twist lock in the connecting rod bearing point towards the oil pan.

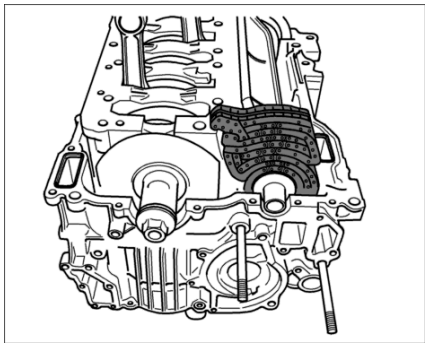
Connecting rod bolts

13. Turn crankcase through 180° on assembly support, position marked connecting rod cap with new, greased bearing shell and screw in two new connecting rod bolts.
14. First, screw in connecting rod bolts to the required torque and tighten to the specified torque angle. Then loosen the bolts again. The final tightening is performed again with an initial tightening per the torque and the concluding tightening is performed with the torque angle wrench. **Initial tightening: 15 ftlb.** ; **Final tightening - torque angle: 110** °
15. Repeat steps 3-14 for the pistons/connecting rods on cylinders 2 and 3. For the assembly of cylinder 2, bore **'U5'** will be fixed with the fixing pin after the crankshaft is turned on the belt pulley/vibration balancer; for the assembly of cylinder 3, bore **'U6'** will be fixed.
16. Remove the cylinder-head screw from crankcase 1-3 using the **spacer sleeve 9613**.

Only the following sealants may be used to seal the engine:

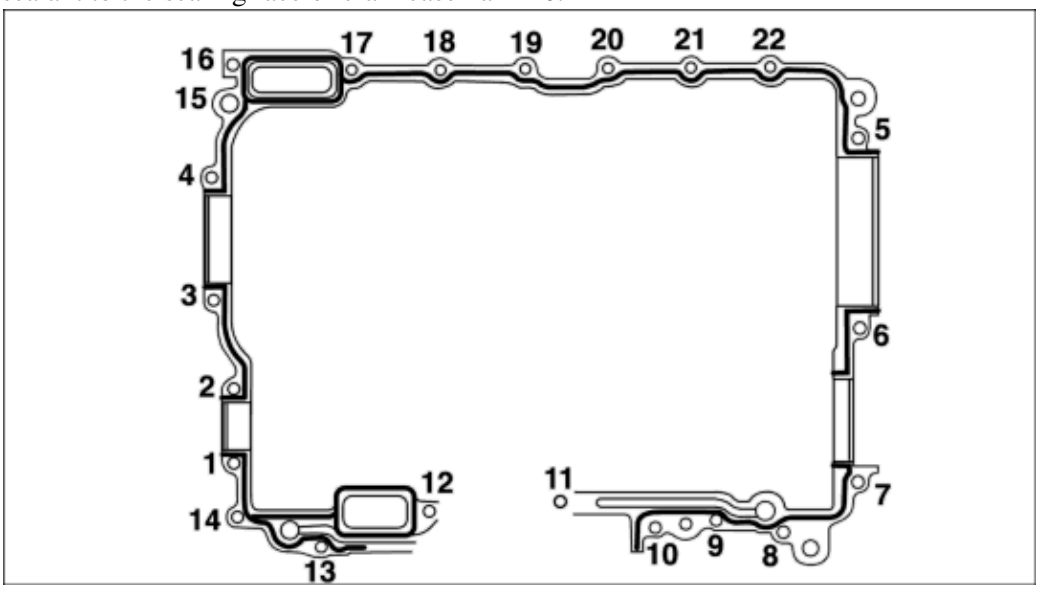
- Loctite 5900

- Drei Bond or Loctite 1209 (optional)



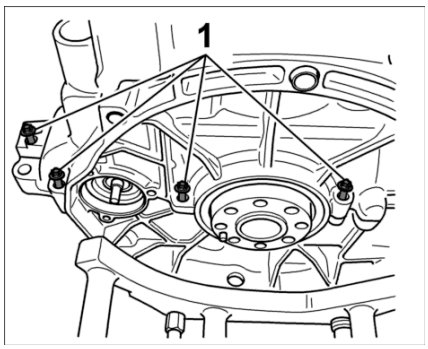
Aligning timing chain and connecting rod

17. Prepare crankcase half 4-6 to fit it onto crankcase half 1-3. Carefully grease sealing faces of both halves with acetone. Align connecting rods 4-6 vertically upwards and fold timing chain.
18. Apply sealant to the sealing face of crankcase half 4-6.



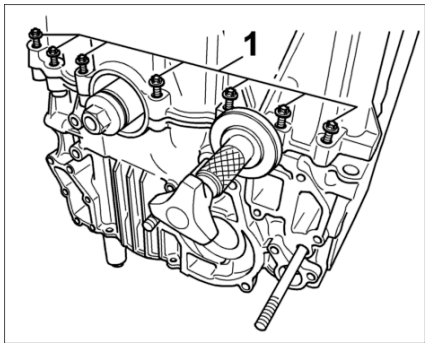
Application of sealant and tightening sequence for crankcase

19. With the help of a second person, place crankcase half 4-6 in position on crankcase half 1-3. Knock gently on crankcase half 4 -6 using a plastic hammer. Pull timing chain out through chain space using a bent welding wire.



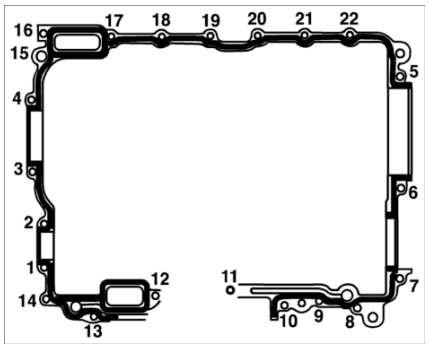
Coated screws for cross bolt connection

20. Position four new, coated M6 x 35 Torx screws **-1-** on flywheel side.



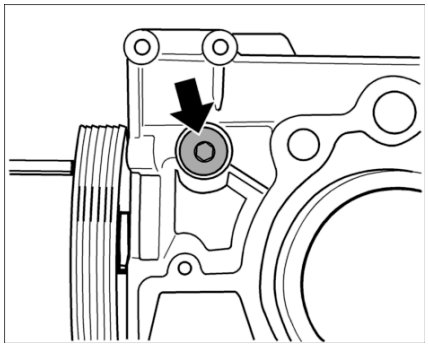
Cross bolt connection on belt side

21. Position seven M6 x 35 Torx screws on belt pulley side **-1-** ; then fit special tool **centring mandrel 9645** for the intermediate shaft. Position centring mandrel on the mounting point of the oil pump and turn the star knob clockwise until it is braced in the crankcase.



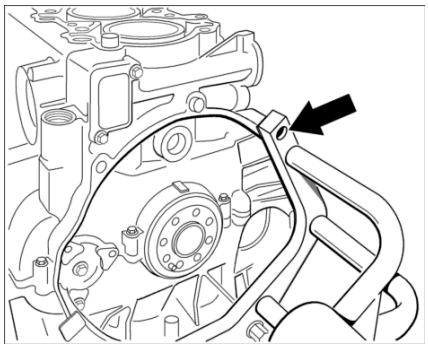
Tightening sequence for crankcase

22. Position the remaining 13 M6 x 35 Torx screws on the crankcase. Tighten all screws in the cross bolt connection to the required torque in accordance with the specified tightening sequence. **Tightening torque: 9.5 ftlb.**
23. Carefully remove any remaining sealant on crankcase (particularly around the oil pan, intermediate-shaft bearing and crankshaft sealing rings).



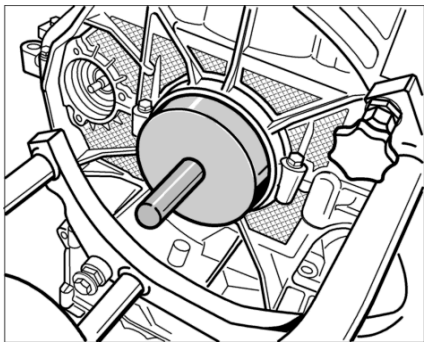
Additional screw for gear carrier, side 4-6

24. Fit inner Torx screw with O-ring M9 x 140 for gear carrier **-arrow-** on crankcase half 4-6. **Tightening torque: 16 ftlb.**



Mount for crankcase half 4-6 on engine support

25. Tighten third star screw for crankcase half 4-6 on engine support.
26. Remove belt pulley/vibration balancer.
27. Fit crankshaft sealing ring on belt pulley side 137419 Removing and installing crankshaft sealing ring - belt pulley side -"Installing" section.
28. Only position belt pulley/vibration balancer with fastening screw (to turn the crankshaft).

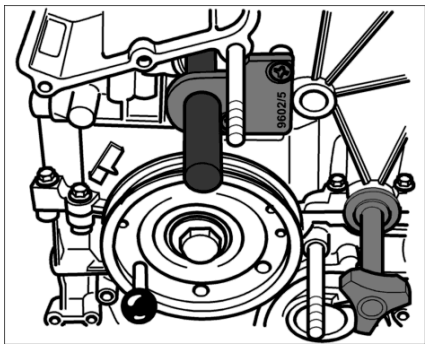


Measuring mandrel 9699/1

29. Check the position of the crankshaft using the **measuring mandrel 9699/1**.
30. Fit crankshaft sealing ring on flywheel side. Use the **insertion device 9699** for the assembly. 135919 Removing and installing crankshaft sealing ring - flywheel side - "Installing" side .

Piston assembly, cylinder side 4-6:

31. Turn the crankcase at the assembly support so that cylinder bank 4-6 stands upwards.
32. Move crankshaft of cylinder 6 to TDC by turning it on the belt pulley/vibration balancer (in a clockwise direction). **Bore U6** on the belt pulley/vibration balancer must be aligned with the fixing bore on the crankcase. Fix the crankshaft using a **fixing pin 9595/1**.



Guide for piston pin assembly

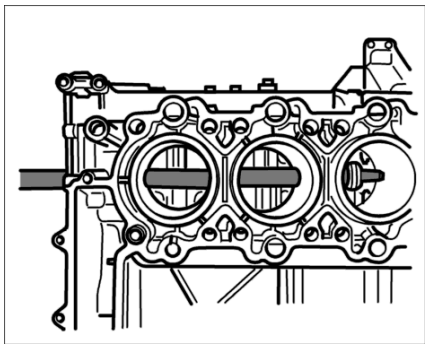
33.

Secure special tool **centring aid 9602/5** to the crankcase using two countersunk crosshead screws.

Note

- *Observe information on aligning piston ring gaps at all times.*

34. Prepare pistons for installation in the same way as cylinder bank 1-3 (piston rings, oiling, piston ring tensioning clamp) .

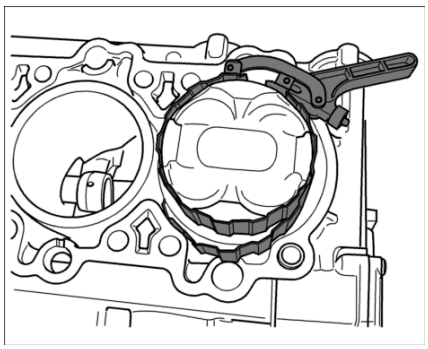


Aligning connecting rod

Note

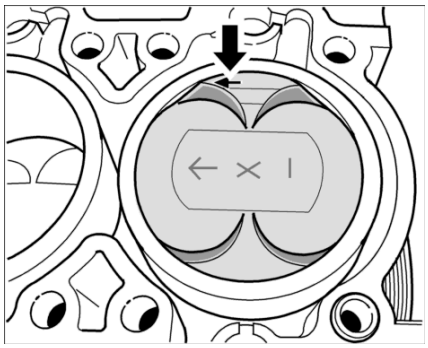
- *Leave the centring mandrel in the eye of the connecting rod until the relevant piston (4-6) contacts the centring mandrel during assembly.*

35. Align connecting rod using the **centring mandrel 9608**



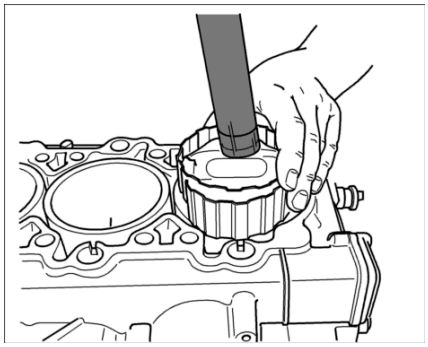
Piston in cylinder bore

36. Coat cylinder bore with new engine oil. Place piston 6 on cylinder bore 6 using the **universal piston ring restraining strap, 75-125 mm NR.55**.



Piston - installation position in crankcase

37. **Pay attention to direction of assembly: arrow on piston crown always points to flywheel side**



Pressing piston into cylinder bore

ATTENTION

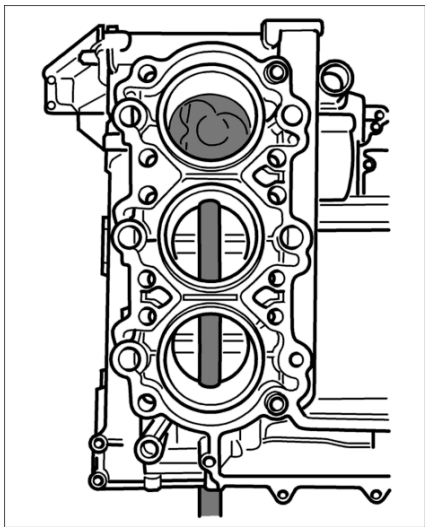
Incorrect and careless assembly of pistons.

- **Component damage (pistons, piston rings, cylinder line)**

Assemble pistons carefully and gently.

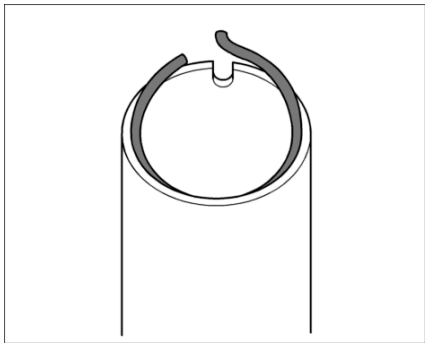
Stop process immediately if there is increased resistance during assembly; eliminate the cause of the problem.

38. Hold the piston ring restraining strap firmly and press piston in one move into the cylinder bore using a plastic mandrel until the piston touches the centring mandrel
39. **Check installation position of connecting rod:** In the installation position, the recesses of the twist lock in the connecting rod bearing point towards the oil pan.



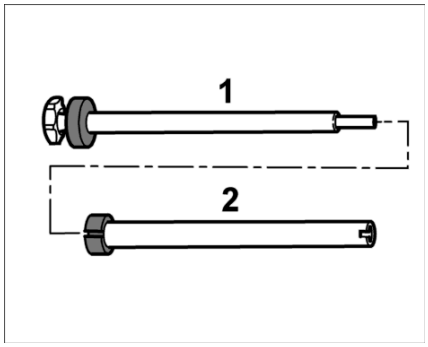
Align piston connecting rod using the centring mandrel.

40. Align piston and connecting rod again using the **centring mandrel 9608** before fitting the piston pins.



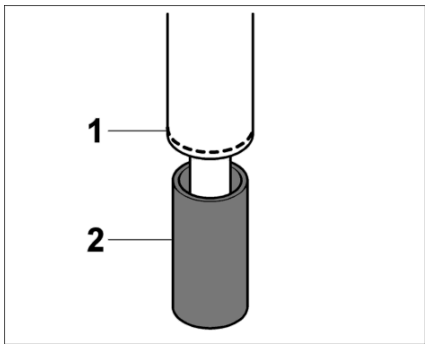
Inserting piston-pin circlip into assembly tube

41. Insert piston-pin circlip into the assembly tube of the special tool **assembly tool 9602/1**. Insert the lug of the circlip so that it is aligned to the right in the groove.



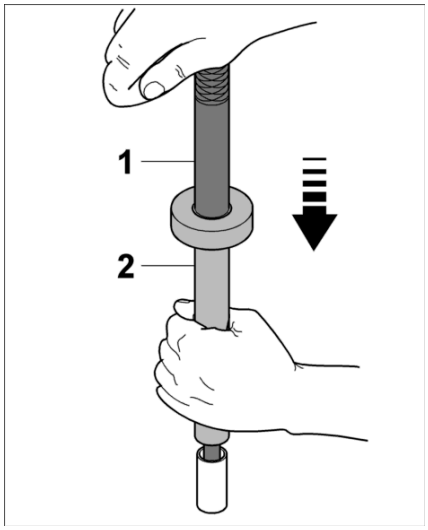
Pressure pin in assembly tool

42. Insert pressure pin **-1-** carefully into assembly tube **-2-** , ensuring that the circlip does not pop out.



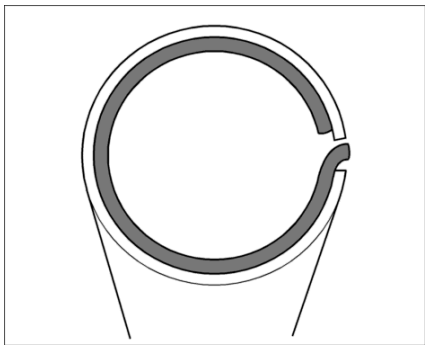
Assembly tool on piston pin

43. Oil piston pin **-3-** with new engine oil and place it in an upright position on a clean surface on the workbench. Position assembly tube with circlip **-1-** and pressure pin on piston pin.



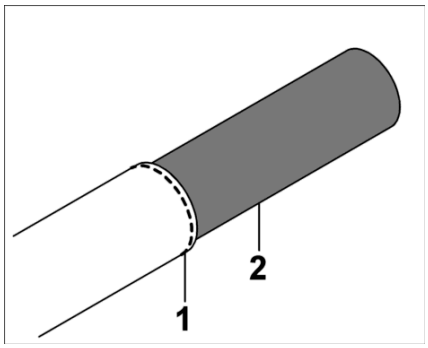
Moving piston-pin circlip into installation position

44. Press piston-pin circlip with pressure pin **-1-** onto piston pin; while doing so, press assembly tube **-2-** firmly onto piston pin. This will move the piston-pin circlip into the correct installation position.



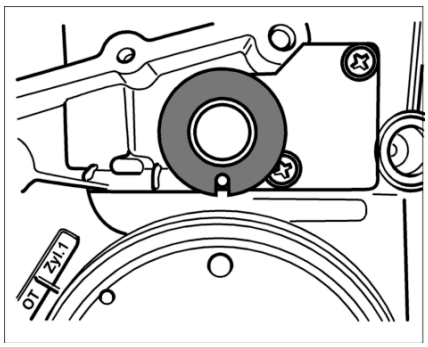
Installation position of piston-pin circlip in assembly tube

45. Check installation position of piston-pin circlip in assembly tube.



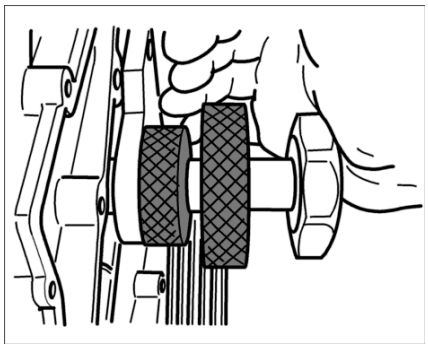
Piston pin and circlip on assembly tool 9602/1

46. Insert **assembly tool 9602/1** with piston pin circlip and piston pin through the **centring aid 9602/5** into the crankcase. Press piston pin into assembly bore of piston/connecting rod eye.



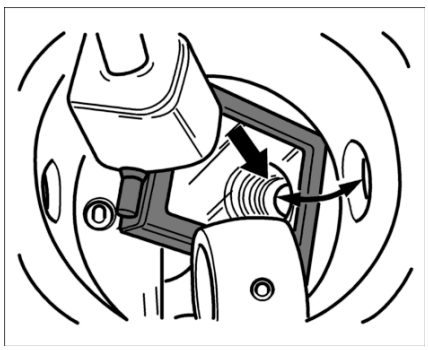
Position of assembly tube on centring aid 9602/5

47. Groove in assembly tube must sit on dowel pin of centring aid 9602/5.



Inserting piston-pin circlip in cylinder 6

48. Push the piston pin circlip to its installation position by briefly and forcefully striking the palm of your hand against the star knob of the pressure pin.



Seating of piston-pin circlip

49. Using a mirror, check that the piston-pin circlip is seated correctly.

ATTENTION

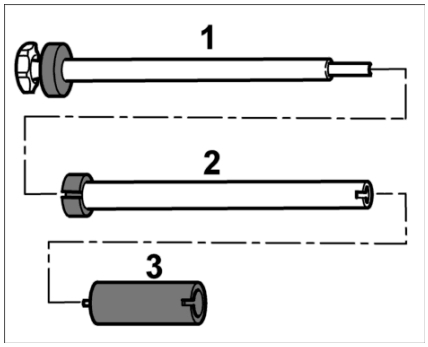
Incorrect and careless assembly of pistons.

- **Component damage (pistons, piston rings, cylinder line)**

Assemble pistons carefully and gently.

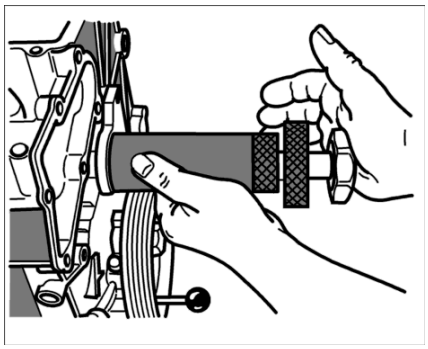
Stop process immediately if there is increased resistance during assembly; eliminate the cause of the problem.

50. Repeat steps 35- 49 carefully to assemble pistons 5 and 4. During this process, the crankshaft is fixed to the crankcase through **bore U5** for cylinder 5 and through **bore U4** to the belt pulley/vibration balancer. Convert the **assembly tool 9602/1** as described below.



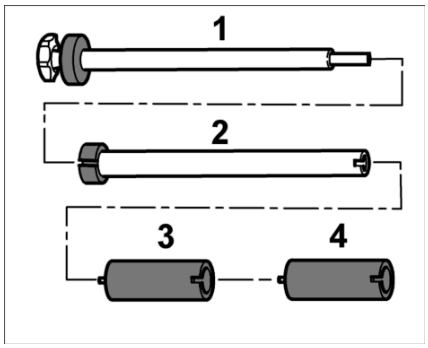
Spacer sleeve for cylinder 5

51. Push a spacer sleeve onto the assembly tube for the assembly of pistons pins and circlip on cylinder 5.



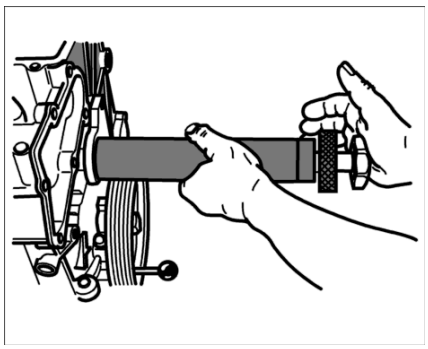
Inserting piston-pin circlip for cylinder 5

52. Fit the piston-pin circlip for cylinder 5 using a sleeve.



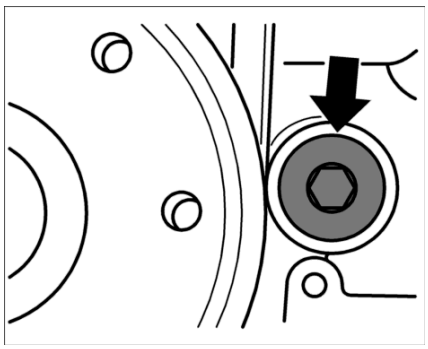
Spacer sleeves for cylinder 4

53. Push two spacer sleeve onto the assembly tube for the assembly of pistons pins and circlip on cylinder 4.



Inserting piston-pin circlip in cylinder 4

54. Fit the piston-pin circlip for cylinder 4 using two sleeves.



Screw plug for assembly bore in crankcase

55. Once the pistons have been installed, seal the bore for the piston pin and circlip assembly on the crankcase using the aluminium screw plug and new sealing ring. **Tightening torque: 59 ftlb.**

top of page

Installing pistons, touching up

Installing pistons, touching up

1. Assemble engine 100137 Disassembling and assembling engine - "Assembling" section.

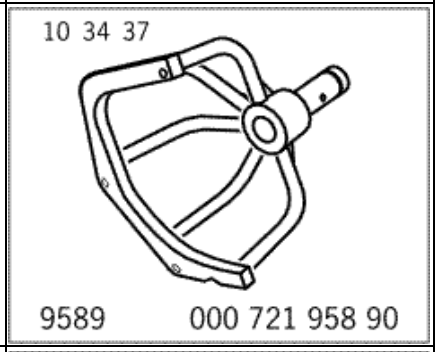
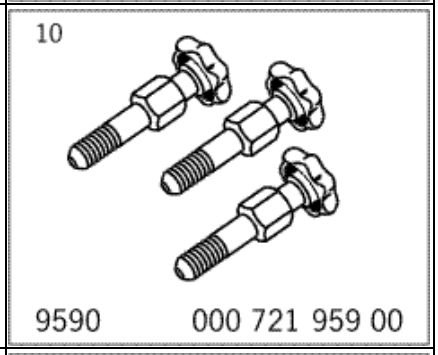
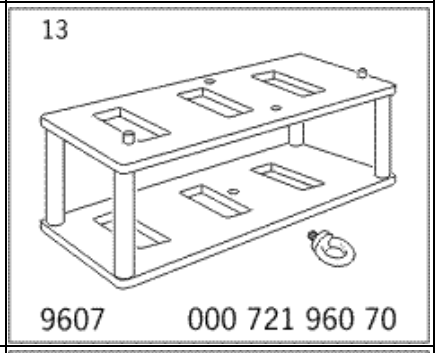
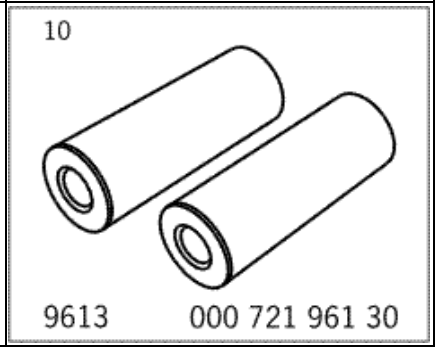
997110, 997111, 997120, 997121, 997310, 997311, 997320, 997321, 997410, 997411, 997430, 997431, 997610, 997611, 997620, 997621

as of MY 2005
Country C00, C02, C05, C07, C08, C09, C10, C11, C12, C13, C14, C15, C16, C18, C19, C20, C21, C22, C23, C24, C25, C26, C27, C28, C32, C33, C34, C35, C36, C37, C38, C39, C45, C46, C98, C99

13 48 19 Removing and installing crankshaft - as of MY 2005

- Removing crankshaft, preliminary work
- Removing crankshaft
- Installing crankshaft
- Installing crankshaft, touching up

Tools

Designation	Type	Number	Explanation	
engine support	special tool	9589		
mounting parts	special tool	9590		
retaining device	special tool	9607		
spacer sleeves	special tool	9613		

cover for dust protection when fitting the engine	commercially available tool	NR.165		PORSCHE siehe Handbuch Werkstattausrüstung Voir le Manuel Equipement d´atelier Refer to the Workshop Equipment manual Vease Manual de Equipamiento de Taller Vedere il Manuale dell´attrezzatura d´officina ワークショップ・イクイップメント・マニュアルを参照

top of page

Removing crankshaft, preliminary work

Removing crankshaft, preliminary work

Removing crankshaft, preliminary work

ATTENTION

Risk of damage due to particles of dirt.

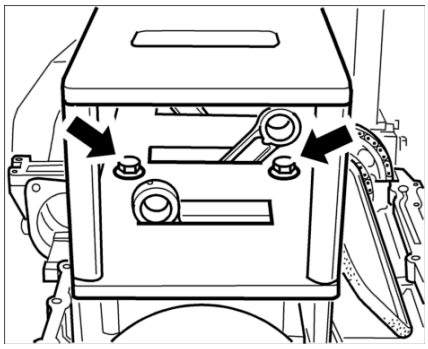
- **Oil bores/oil ducts can become blocked up.**

When working on the engine, absolute cleanliness is essential.

Lay removed engine parts on a clean base and cover them without fail.

Use the **cover for dust protection when fitting the engine NR.165** on the engine assembly support.

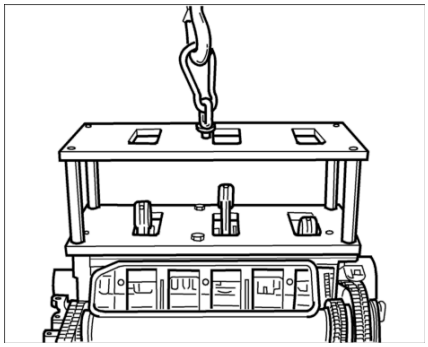
1. Disassemble engine to crankcase 100137 Disassembling and assembling engine - "Disassembling" section.
2. Remove piston 131020 Removing and installing pistons - "Removing" section.



Retaining device, gear carrier

3. Fix special tool **retaining device 9607** to the gear carrier with two M10 x 25 hexagon-head bolts **-arrows-**.

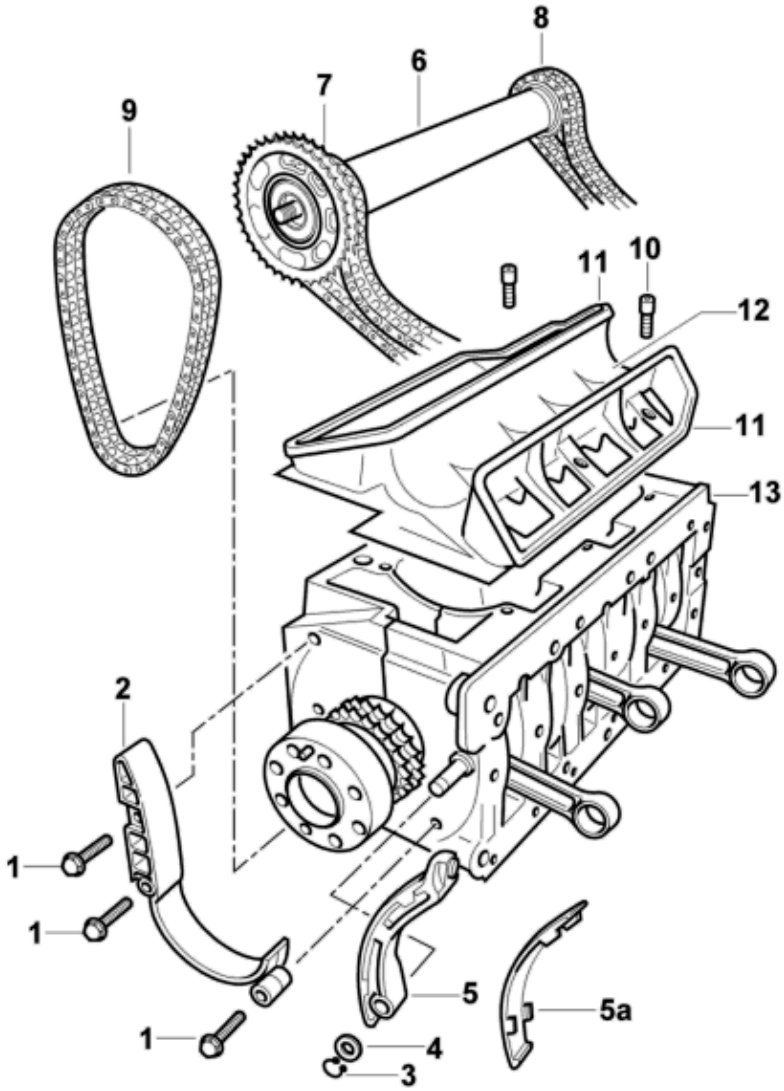
4. Unscrew cylinder-head screws with **spacer sleeves 9613**.



Lifting gear carrier out of crankcase

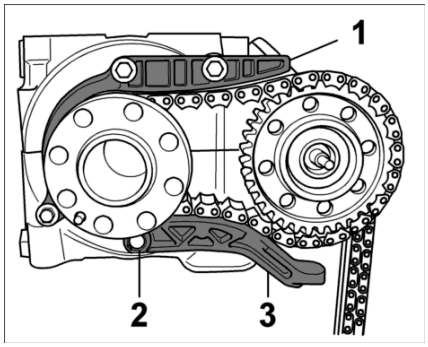
5. Screw in retaining eyes on retaining device, lift gear carrier out of the crankcase half using a workshop crane or engine lifter and secure in a vice.
6. Remove accessories on gear carrier.

Gear carrier components overview with intermediate shaft



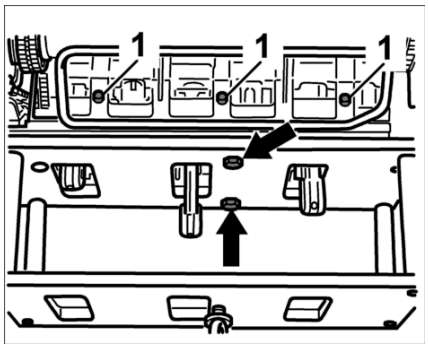
Overview of gear carrier with intermediate shaft

Item No.	Designation	Number	Removal	Fitting
1	M6 x 40 fastening screw with captive washer	3		Tightening torque [Nm] (ftlb.)
2	Guide rail	1	Visually inspect for scoring or damage and replace if necessary	
3	Snap ring	1		Replace
4	Shim 10 x 16 x 1.2	1		
5	Tensioning rail	1		
5a	Lining for tensioning rail	1	Visually inspect for scoring or damage and replace if necessary	
6	Intermediate shaft	1	Check toothing for signs of damage	
7	Chain for camshaft driving mechanism, cylinder 1-3	1	Check for visible damage, replace if necessary	
8	Chain for camshaft driving mechanism, cylinder 4-6	1	Check for visible damage, replace if necessary	
9	Chain for intermediate shaft driving mechanism	1	Check for visible damage, replace if necessary	
10	Oil guide fastening screw (Torx, M6 x 16)	6		Replace micro-encapsulated screws
11	Seal for oil guide	2		Replace
12	Oil guide	1		
13	Gear carrier	1	Fit on **retaining device 9607**	Fit on **retaining device 9607**



Chain guide, intermediate shaft

7. Remove tensioning rail and guide rail. Unscrew three M6 x 40 hexagon-head bolts and remove tensioning rail **-1-** . Remove circlip and washer **-2-** , remove guide rail **-3-** .
8. Remove intermediate shaft with timing chains and place on a clean surface. Check timing chains and toothing on intermediate shaft for signs of damage, replace if necessary.



Oil guide, intermediate shaft

9. Remove oil guide on gear carrier. Unscrew six M6 x 16 Torx screws **-1-** and remove guide with seals.

top of page

Removing crankshaft

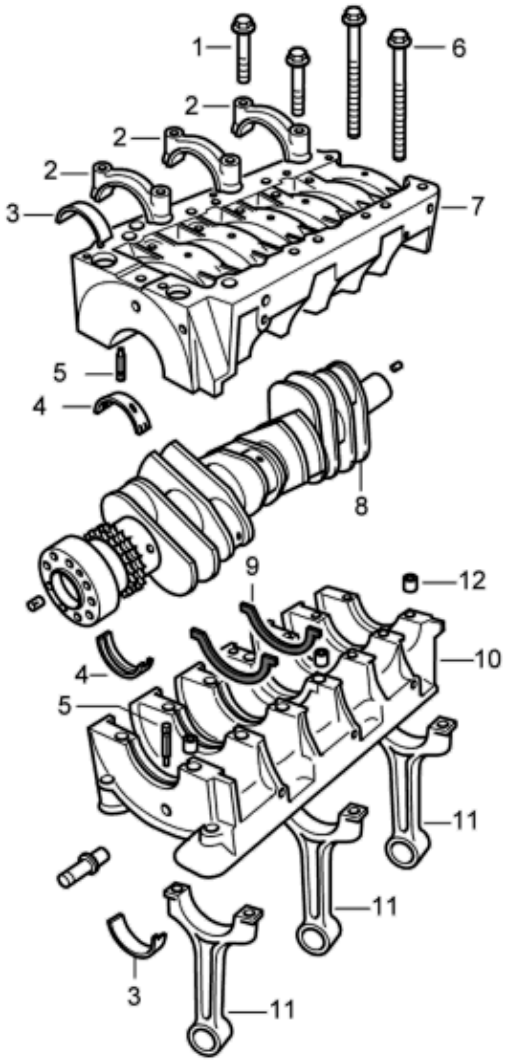
Removing crankshaft

ATTENTION

Engine damage due to incorrect allocation of connecting rod and connecting rod cap

- Remove connecting rods one-by-one
- When disassembling connecting rod cap, allocate it immediately to associated connecting rod
- Mark installation position and cylinder allocation on connecting rod and connecting rod cap, using an electric engraver, for example
- Do not use prick punches or number embossing tools

Gear carrier components overview with crankshaft

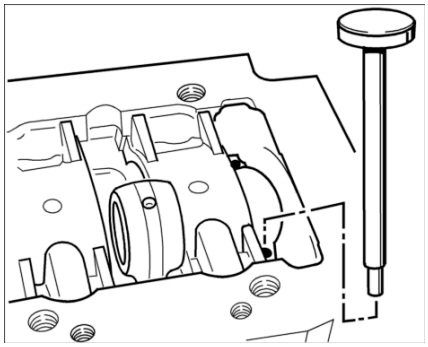


Overview of gear carrier

Item No.	Designation	Number	Removal	Fitting
1	Connecting rod bolt, M9 x 1.25	6		Always replace
2	Connecting rod cap	3	Screw on immediately to associated connecting rod	
3	Connecting rod bearing shell	6		Replace, grease (Optimol Optipit)
4	Crankshaft bearing shell	14		Replace, coat with new engine oil
5	Oil spray jet	6	Clean, replace if damaged	Press in right to the stop using a plastic mandrel (ø 4 mm)

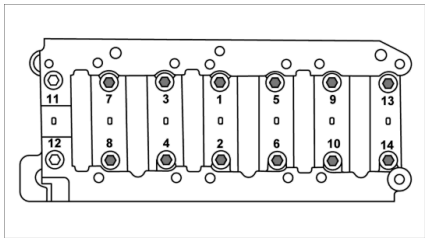
6	Thrust-bearing screw, M9 x 127	14		Tightening torque [Nm] (ftlb.)
7	Gear carrier half, cylinder 1-3	1		
8	Crankshaft	1		
9	Thrust washer	2		Position correctly, oil grooves always point outwards
10	Gear carrier half, cylinder 4-6	1		
11	Connecting rods, cylinder 4-6	3	Immediately join with the associated connecting rod cap after removal	

1. Fasten the special tool **retaining device 9607** onto the workbench using two screw clamps.
2. Mark connecting rod 4-6 in the installation position.



Plastic mandrel

3. Remove connecting rods on cylinder side 4-6 one after another. Loosen the two connecting rod bolts on each connecting rod, remove connecting rod cap. Using a plastic mandrel (possibly an in-house tool) push connecting rod down and out. Immediately after this, screw on loosely to associated connecting rod cap. Place on a clean surface.



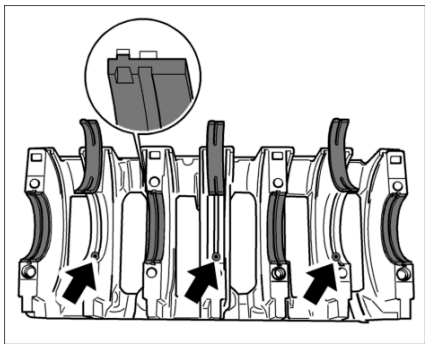
Gear carrier

4. Loosen 14 M9 x 127 screws for the gear carrier in the opposite order to the tightening sequence, from the outside inwards, and unscrew them.

Note

Watch out for bearing shells and oil spray jets that may fall out

5. Remove gear carrier half 1-3, possibly tapping it gently with a plastic hammer.



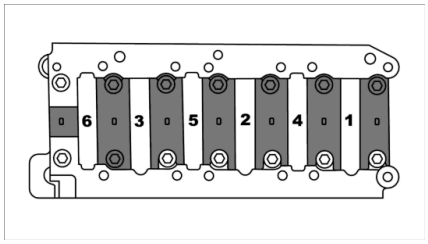
Oil spray jets in gear carrier half 1-3

6. Place gear carrier half on a clean surface, remove seven crankshaft bearing shells and three oil spray jets for piston cooling.
7. Lever out crankshaft with timing chain and place on a soft, clean surface.
8. Remove seven crankshaft bearing shells and oil spray jets for piston cooling from gearing carrier half 4-6. Unscrew gear carrier half from the retaining device and place on a clean surface.

top of page

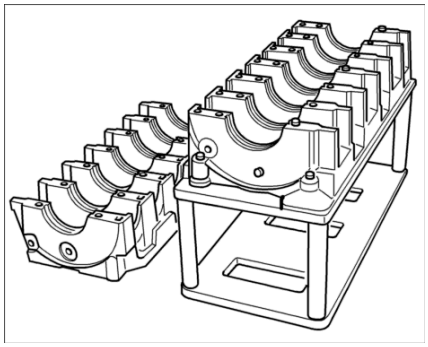
Installing crankshaft

Installing crankshaft



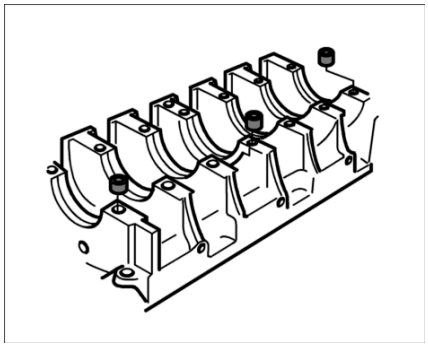
Connecting rod bearing position in gear carrier

Overview of connecting rod bearing position



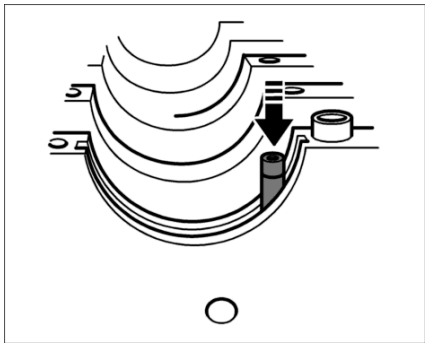
Gear carrier half 4-6 on device

1. Fit gearing carrier half 4-6 on special tool **retaining device 9607** using two M10 x 25 hexagon-head bolts.



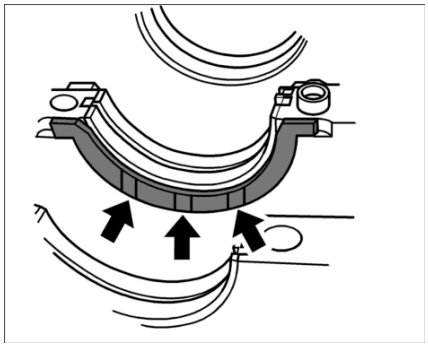
Dowel sleeves, gear carrier 4-6

2. Ensure that the dowel sleeves are seated correctly in gear carrier half 4-6.



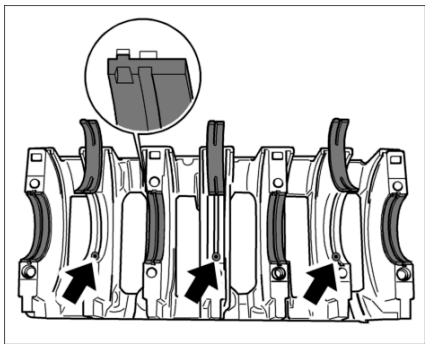
Oil spray jets for piston cooling

3. Insert three oil spray jets in the take-up bores in each of the gear carrier halves, press in gently to the stop using a plastic mandrel (ø 4 mm).



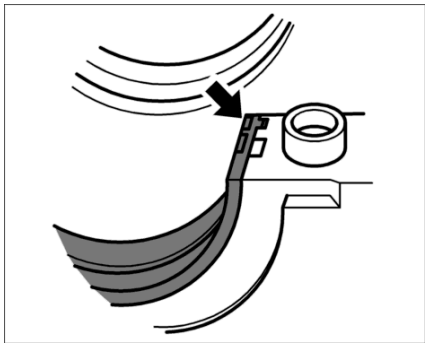
Thrust washer, thrust block

4. Insert two thrust washers onto the centre thrust block (no. 4) of gear carrier half 4-6; when doing so, the oil pockets **-arrows-** must always point outwards (to the belt pulley side or flywheel side).



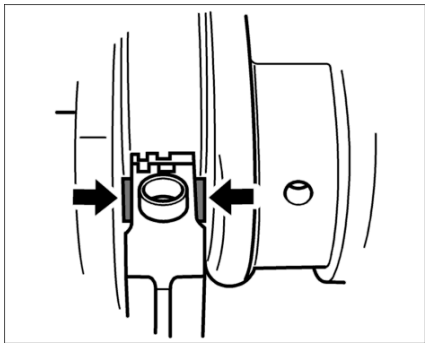
Oil spray jets and bearing shells in gear carrier half 1-3

5. Insert seven new bearing shells for the crankshaft and coat with new engine oil. **Pay attention to the installation position:** the fixing lugs of the bearing shells in gear carrier half 4-6 point towards the dowel sleeve side, the fixing lugs of the bearing shells in gear carrier half 1-3 face the opposite side.



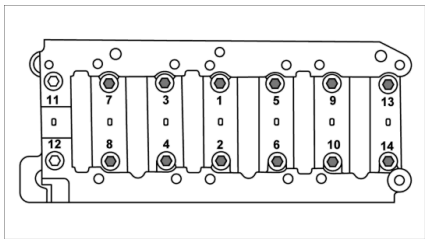
Twist lock of bearing shell in gear carrier half 4-6

Twist lock of bearing shell



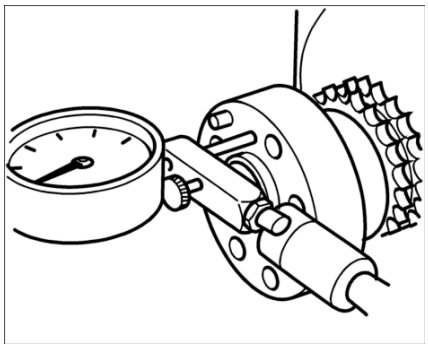
Seating of thrust washer with crankshaft

6. Insert crankshaft. Check that the thrust washers are seated properly.
7. Carefully position gear carrier half 1-3 on the crankshaft and gear carrier half 4-6. Fix the gear carrier halves by tapping them carefully with a plastic hammer.



Tightening sequence for gear carrier

8. Position 14 M9 x 127 thrust-bearing screws manually. Pre-tighten screws to the required tightening torque in accordance with the tightening sequence. Then tighten to the required torque angle. **Initial tightening: 11 ftlb.** ; **Torque angle: 120** °



Dial gauge, crankshaft axial play

9. Check axial play of crankshaft. Fit dial gauge and dial gauge holder on gear carrier (flywheel side) and place against crankshaft flange. Press crankshaft manually against probe of dial gauge and set dial gauge to **'0'**. Press crankshaft away from dial gauge. Repeat process several times and note measured value.

Status	Tolerance range	Wear limit
First fitting	0.05 - 0.24 mm	0.28 mm

10. Insert connecting rod bearing in connecting rod and connecting rod cap. Coat sliding surface with Optimol Optipit (available from Porsche Parts Service: 000.043.204.17).

Note

Connecting rod bolts must always be replaced.

11. Fit each of the connecting rods of cylinder 4-6 with the allocated connecting rod cap at the bearing surfaces of cylinders 4, 5 and 6. Position new screws manually. **Pay attention to the installation position of the connecting rods:** The recesses of the connecting-rod bearing twist lock face the oil pan (when the gear carrier is installed in the crankcase).

Connecting rod bolts

12. First, screw in connecting rod bolts to the required torque and tighten to the specified torque angle. Then loosen the bolts again. The final tightening is performed again with an initial tightening per the torque and the final tightening is performed with the torque angle wrench. **Initial tightening: 15 ftlb.** ; **Torque angle: 110** °

top of page

Installing crankshaft, touching up

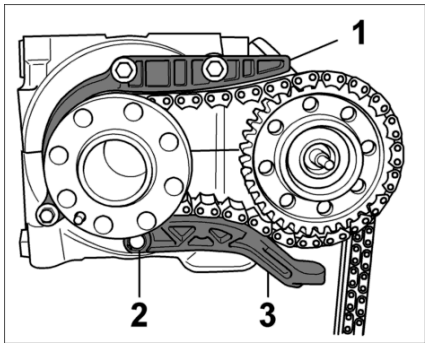
Installing crankshaft, touching up

1. Fit oil guide with new seals. Tighten six new M6 x 16 (micro-encapsulated) Torx screws. **Tightening torque: 7.5 ftlb.**

Note

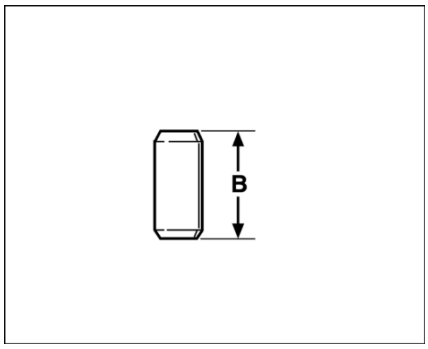
Fix the intermediate shaft to the crankshaft using old O-rings, for example, to secure it.

2. Insert intermediate shaft with timing chains.



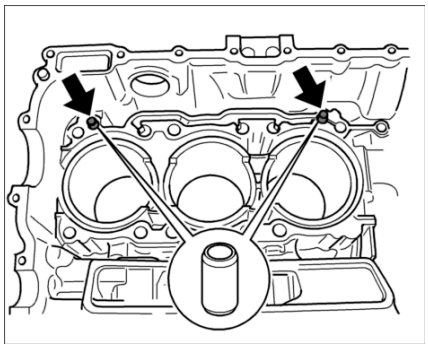
Chain guide, intermediate shaft

3. Install tensioning rail and guide rail. Tighten three M6 x 40 hexagon-head bolts for guide rail **-1-** . Fit tensioning rail **-3-** with new circlip and shim **-2-** . **Tightening torque: 7.5 ftlb.**
4. Secure **engine support 9589** engine assembly support.
5. Fit crankcase half 1-3 with two **mounting parts 9590** to the **engine support 9589**. Check sealing face to gear carrier for damage. Carefully clean sealing face with a clean cloth that has been soaked in solvent naphtha or acetone.



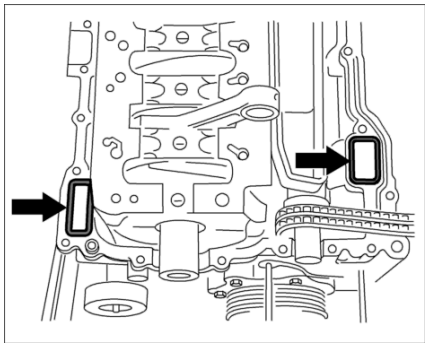
Dowel sleeves for gear carrier in crankcase

Use only dowel sleeves whose dimension **'B' = 26.5 mm** for fixing the gear carrier.



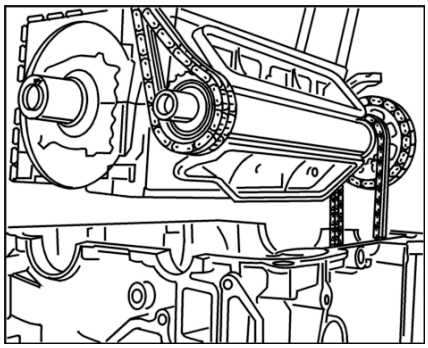
Dowel sleeves, crankcase half 1-3

6. Check dowel sleeves to ensure that they are seated correctly or insert two new dowel sleeves in crankcase **-arrows-** .



Seals for coolant ducts

7. Replace seals for coolant ducts **-arrows-** .

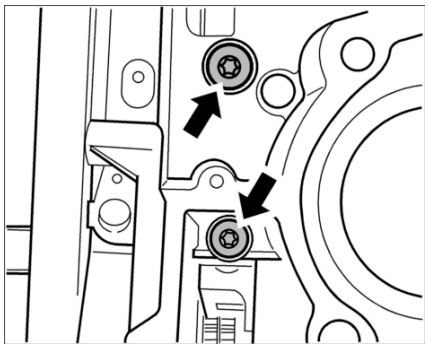


Gear carrier in crankcase half 1-3

Note

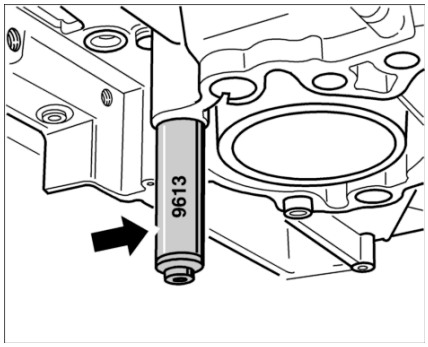
It is advisable to get a second person to assist in inserting the gear carrier into crankcase half 1-3.

8. Insert gear carrier in crankcase half 1-3 with retaining device.



Additional screws for gear carrier 1-3

9. Screw in and tighten two additional screws for fastening the gear carrier to cylinder side 1-3, replace O-ring. **-arrows-** . **Tightening torque: 16 ftlb.**



Auxiliary screw with spacer sleeve 9613

10. Screw in and tighten another cylinder-head screw with **spacer sleeve 9613** **-arrow-** on the belt pulley side. **Tightening torque: 15 ftlb.**
11. Unscrew special tool **retaining device 9607** from gear carrier.
12. Install piston 131020 Removing and installing pistons - "Installing" section.

997110, 997111, 997120, 997121, 997310, 997311, 997320, 997321, 997410, 997411, 997430, 997431, 997610, 997611, 997620, 997621

as of MY 2005
Country C00, C02, C05, C07, C08, C09, C10, C11, C12, C13, C14, C15, C16, C18, C19, C20, C21, C22, C23, C24, C25, C26, C27, C28, C32, C33, C34, C35, C36, C37, C38, C39, C45, C46, C98, C99

WARNUNG

Gefahr des Verlusts der Text-Bild-Zuordnung beim Ausdruck.

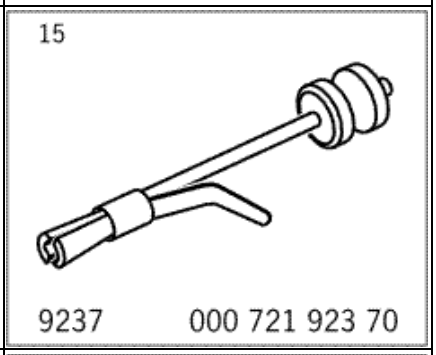
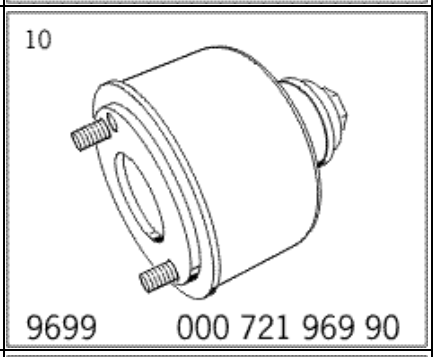
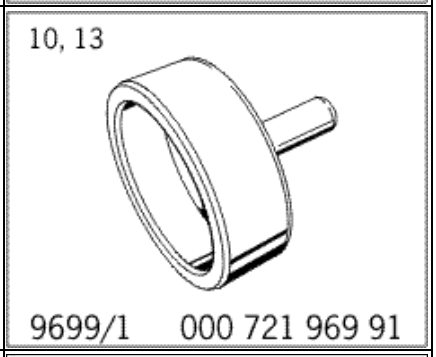
- **Aus technischen Gründen kann derzeit nicht ausgeschlossen werden, dass trotz einwandfreier Darstellung auf dem Bildschirm beim Ausdruck der Zusammenhang von Text und zugehörigem Bild verloren geht.**
- **Wird der Fehler nicht bemerkt, besteht die Gefahr, daß Arbeiten nicht korrekt durchgeführt werden und es dadurch zu Personen- und Sachschäden kommt.**

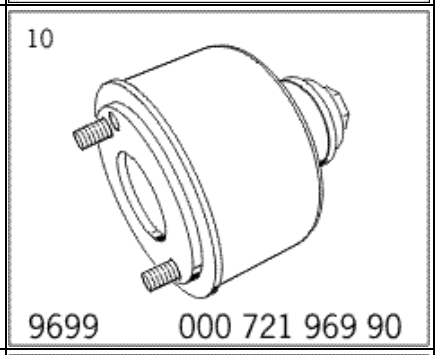
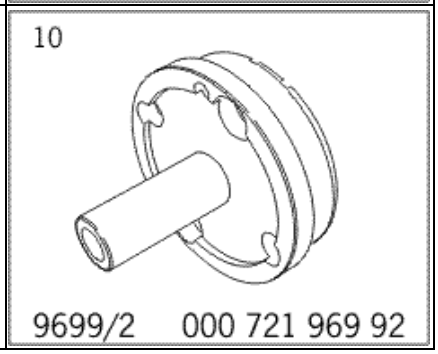
Vergleichen Sie deshalb nach dem Druckvorgang unbedingt die Ausdrucke mit der Bildschirmdarstellung. Korrigieren Sie die Ausdrucke im Fehlerfall so, daß der Inhalt der

13 59 19 Removing and installing crankshaft sealing ring - Flywheel side - as of MY 2005

- Preliminary work for crankshaft sealing ring on flywheel side
- Removing crankshaft sealing ring on flywheel side
- Installing crankshaft sealing ring on flywheel side
- Subsequent work for crankshaft sealing ring on flywheel side

Tools

Designation	Type	Number	Explanation	
puller	special tool	9237	alternative tool to puller Mod. G (No. 168-1)	
insertion tool	commercially available tool	9699		
measuring mandrel	special tool	9699/1		
drift punch (1 mm tip)	commercially available tool	NR.167		

puller, model G for sealing rings	commercially available tool	NR.168-1		
insertion tool	special tool	P 9699		
assembly aid	special tool	P 9699/2	Assembly of PTFE sealing ring	

top of page

Preliminary work for crankshaft sealing ring on flywheel side

Preliminary work for crankshaft sealing ring on flywheel side

Note

- *In Tiptronic vehicles, the complete engine/transmission unit must be removed.*
- *In vehicles with manual transmission, the sealing ring can be changed on the engine, irrespective of whether it is installed or removed.*

Manual transmission:

1.

Remove manual transmission 343519 Removing and installing transmission - chapter on "removing" [997410 997411 997430 997431 997610 997611 997620 997621] 343519 Removing and installing transmission - chapter on "removing" [997110 997111 997120 997121 997310 997311 997320 997321].

2. Remove clutch 305019 Removing and installing clutch - chapter on "removing".
3. Remove double-mass flywheel 136019 Removing and installing double-mass flywheel - chapter on "removing" [997110 997111 997310 997311 997410 997411 997610 997611] 136019 Removing and installing double-mass flywheel - chapter on "removing" [997120 997121 997320 997321 997430 997431 997620 997621].

Tiptronic transmission

4. Remove engine 100119 Removing and installing engine - chapter on "removing".
5. Remove Tiptronic transmission 373527 Removing and refitting automatic transmission - chapter on "removing" [997110 997111 997120 997121 997310 997311 997320 997321] *373527 21 Removing and refitting automatic transmission - chapter on "removing" [997410 997411 997430 997431 997610 997611 997620 997621].*
6. Remove drive plate for converter 136319 Removing and installing drive plate for converter - chapter on "removing".

top of page

Removing crankshaft sealing ring on flywheel side

Removing crankshaft sealing ring on flywheel side

Note

Perform a visual inspection of the crankshaft flange and crankcase bore for damage.

ATTENTION

Ingress of dirt

- **Risk of engine damage.**

When working on the engine, absolute cleanliness is essential.

1. Carefully remove small edges or burrs on the chamfer of the crankshaft flange with an oilstone. Then, carefully remove metal filings and any dirt remaining on the crankshaft journal and crankcase bore (using a clean, lint-free cloth that has been soaked in solvent naphtha or acetone).

ATTENTION

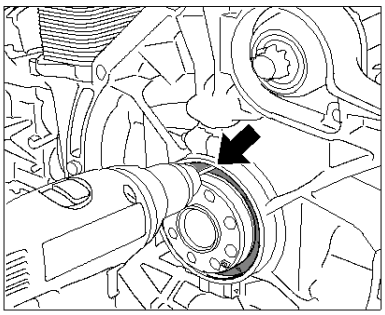
The crankshaft flange can be damaged if not cleaned correctly.

- **Leaks**

Never use an abrasive or polishing cloth or brushes with metal bristles.

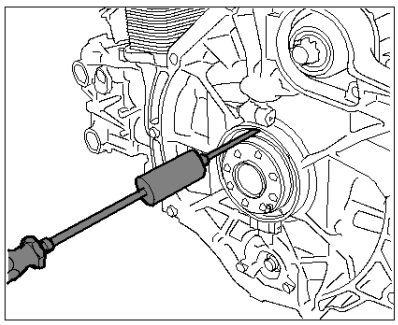
Follow cleaning instructions.

2. If there are corroded spots on the crankshaft flange, clean them off using a metal-polishing pad (e.g. Nevr Dull, available in car and motor bike accessory stores). Then, carefully rub off the flange (using a clean, lint-free cloth that has been soaked in solvent naphtha or acetone).
3. Punch the **installed** sealing ring at a depression (round window in the ring) with a **drift punch (1 mm tip) NR.167**.



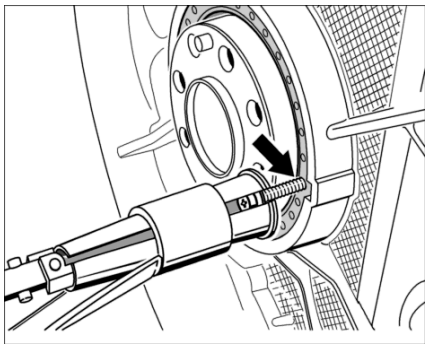
Boring the sealing ring

4. Drill crankshaft sealing ring at the punched position with a greased drill bit (ø 3 mm) and carefully remove the swarf (e.g. with compressed air).



Pulling out sealing ring

5. Screw extractor tip of the tool **puller, model G for sealing rings NR.168-1** into the bore on the sealing ring and pull out the sealing ring.
6. Alternatively, screw a sheetmetal screw with washer approx. 5 mm into the bore.



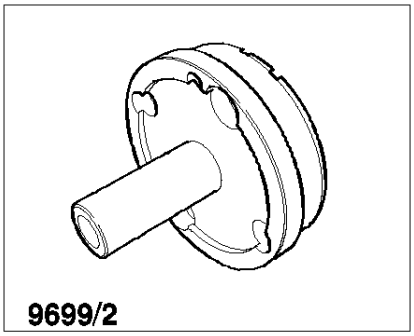
Pulling out sealing ring

7. Pull out sealing ring using **puller 9237** at the tapping screw.
8. Check crankshaft flange and crankcase bore for damage.
9. If necessary, clean the crankshaft flange again using the metal-polishing pad. Then, carefully degrease the flange and crankcase bore using a clean, lint-free cloth that has been soaked in solvent naphtha or acetone. Ventilate this for at least three minutes to prevent the acetone vapours from destroying the new sealing ring.

top of page

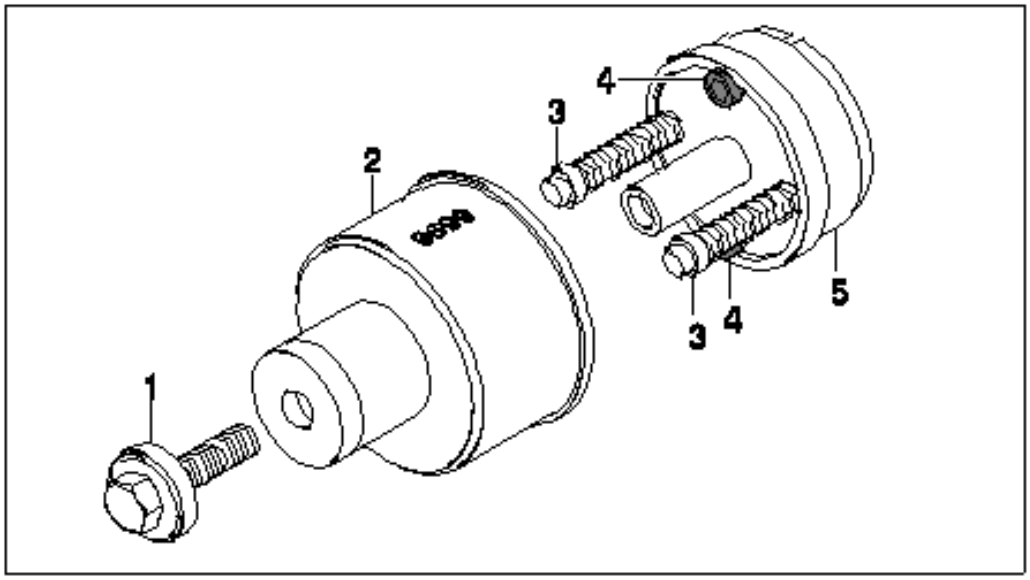
Installing crankshaft sealing ring on flywheel side

Installing crankshaft sealing ring (PTFE) on flywheel side



Insert part 9699/2

New insert part **assembly aid P 9699/2** for special tool **insertion tool P 9699**.
Component overview of insertion tool



Individual parts of insertion tool

Item	Designation	Explanation
1	Screw	For pulling in the sealing ring
2	Sleeve	Body of insertion tool 9699
3	Guide pin	For guiding the insert part **-5-** into the sleeve.
4	Fastening screws	For securing the insertion tool on the crankshaft flange
5	**Assembly aid P 9699/2**	For fitting the PTFE sealing ring with supporting sleeve

1. Fit **assembly aid P 9699/2** into the **insertion tool P 9699**. To do so, unscrew the hexagon-head bolt and replace the insert parts.

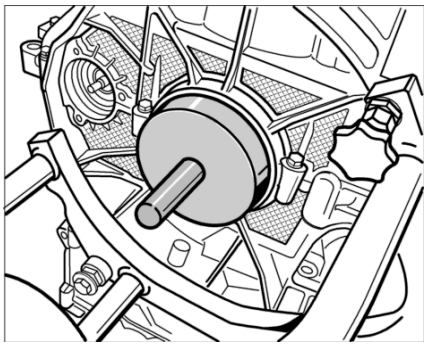
ATTENTION

Sharp tool edges and burrs.

- **Damage to the sealing lip.**

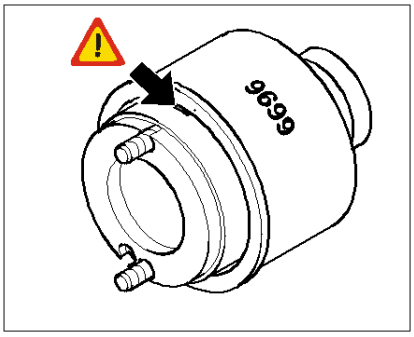
Always examine tools for signs of burrs and sharp edges.

2. Small burred spots or damaged areas on the tools can be eliminated with a nail file; then whet with an oilstone, fine abrasive or polishing cloth. Remove residual dirt on the tools, e.g. using solvent naphtha or acetone.



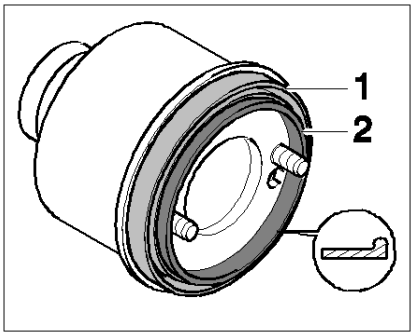
Checking that crankshaft is centred using measuring mandrel 9699/1

3. Check crankshaft installation position. To do this, insert special tool **measuring mandrel 9699/1** across the crankshaft flange into the fitted bore of the crankcase **-figure-** . The measuring mandrel must be placed with slight resistance in the bore. If the measuring mandrel cannot be positioned, the engine must be replaced.



Adjusting insertion part for positioning sealing ring

4. Adjust insertion tool in order to position the supporting sleeve of the sealing ring. Unscrew the hexagon-head bolt until the groove of the **assembly aid P 9699/2** is flush with the contact surface of the sleeve **-arrow-** .



Sliding PTFE sealing ring with supporting sleeve onto tool

ATTENTION

Damage to the sealing lip.

- **Leaks**

The crankshaft flange and tools must be perfectly clean and free of grease.

The sealing ring must be fitted dry, i.e. no oil, grease or other lubricants can be used.

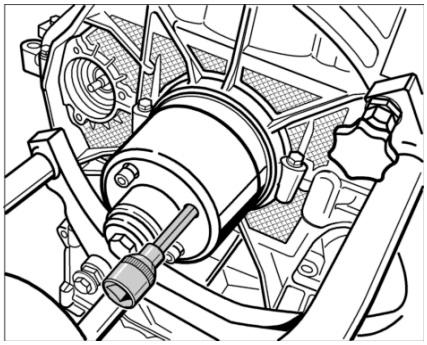
The crankcase bore must not be oiled.

The sealing ring can only be positioned on the assembly tool using the supporting sleeve.

The new crankshaft sealing ring (PTFE) is supplied on a supporting sleeve as a spare part.

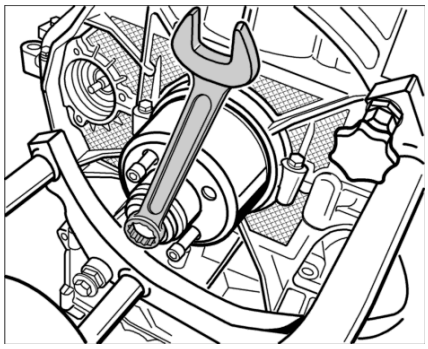
Do not remove the sealing ring from the supporting sleeve.

5. Slide new crankshaft sealing ring **-1-** with supporting sleeve onto the **assembly aid P 9699/2** by pushing only on the sleeve **-2-** . The collar of the sleeve must point away from tool **-inset-** . Make sure sealing ring is dry.



Fit insertion tool on crankshaft flange (shown with engine removed)

6. Fit **insertion tool 9699** between the two internal M8 pan-head screws, (hexagon socket a/f 8) on the crankshaft flange and fasten it. The crankshaft flange's dowel pin must sit in the bore of the device.

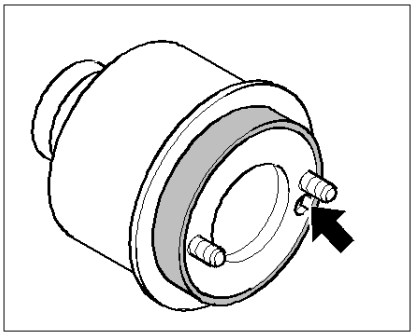


Inserting sealing ring using tool 9699

Note

After pulling in the sealing ring, leave assembly tool 9699 in place for about one minute so that the sealing lip can settle into position on the crankshaft flange.

7. To position the crankshaft sealing ring correctly on the crankshaft flange, turn at the hexagon (a/f 19) of the device in a clockwise direction as far as it will go **-figure-** . Let the tool in place for about one minute.
8. Remove tool. Loosen the large hexagon-head bolt and the two inner hexagon-head bolts alternately on the crankshaft flange until the tool can be removed.
9. Check whether the sealing ring is properly seated and aligned. To do this, measure at four points, offset by 90°, from the flywheel attachment surface on the crankshaft flange to the sealing ring (outer radius).
   Dimension: 13 mm



Support ring on insertion tool

10. Leave supporting sleeve on the tool following assembly to protect the edges of the tool. Carefully lift off the sleeve at the bore with a small screwdriver to remove it.

top of page

Subsequent work for crankshaft sealing ring on flywheel side

Subsequent work for crankshaft sealing ring on flywheel side

Manual transmission:

1. Install double-mass flywheel 136019 Removing and installing double-mass flywheel - chapter on "installing" [997110 997111 997310 997311 997410 997411 997610 997611] 136019 Removing and installing double-mass flywheel - chapter on "installing" [997120 997121 997320 997321 997430 997431 997620 997621].
2. Install clutch 305019 Removing and installing clutch - chapter on "installing".
3. Install manual transmission 343519 Removing and installing transmission - chapter on "installing" [997410 997411 997430 997431 997610 997611 997620 997621] 343519 Removing and installing transmission - chapter on "installing" [997110 997111 997120 997121 997310 997311 997320 997321].

Tiptronic transmission:

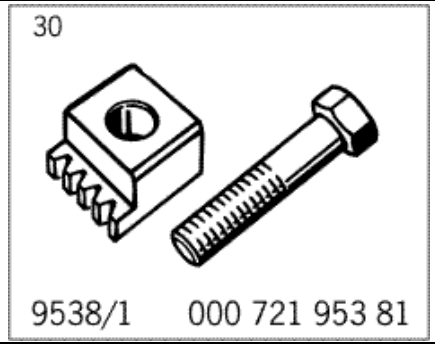
4. Install drive plate for converter 136319 Removing and installing drive plate for converter - chapter on "installing".
5. Refit Tiptronic transmission 373527 Removing and refitting automatic transmission - chapter on "refitting" [997110 997111 997120 997121 997310 997311 997320 997321] *373527 AG Removing and refitting automatic transmission - chapter on "refitting" [997410 997411 997430 997431 997610 997611 997620 997621].*
6. Install engine 100119 Removing and installing engine - chapter on "installing".

997110, 997111, 997120, 997121, 997310, 997311, 997320, 997321, 997410, 997411, 997430, 997431, 997610, 997611, 997620, 997621

13 60 19 Removing and installing double-mass flywheel - as of MY 2005

- Preliminary work
- Removing double-mass flywheel - 3.8 l
- Installing double-mass flywheel
- Subsequent work

Tools

Designation	Type	Number	Explanation	
toothed segment	special tool	9538/1		

top of page

Preliminary work

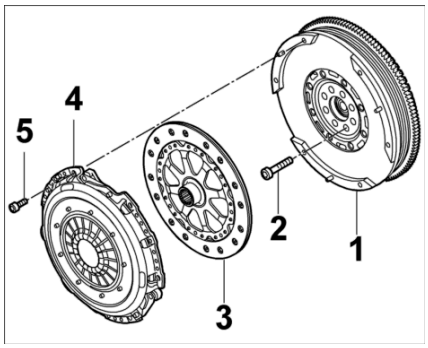
Preliminary work for double-mass flywheel

1. Remove manual transmission 343519 Removing and installing transmission - chapter on "removing" [997430 997431 997620 997621] 343519 Removing and installing transmission - chapter on "removing" [997120 997121 997320 997321].
2. Remove clutch 305019 Removing and installing clutch - chapter on "removing".

top of page

Removing double-mass flywheel - 3.8 l

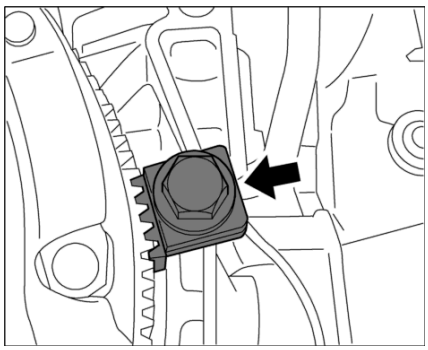
Removing double-mass flywheel - 3.8 l



Overview of double-mass flywheel, 3.8 l

Component overview

- 1 - Double-mass flywheel, 3.8 l
- 2 - Fastening screw for double-mass flywheel, (8 M10 screws)
- 3 - Clutch plate
- 4 - Clutch pressure plate
- 5 - Fastening screw for clutch pressure plate, (6 M8 screws)

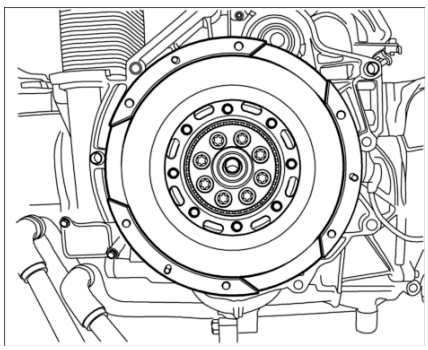


Toothed segment 9538/1

Note

The **toothed segment 9538/1** must be bored to ø 15 mm to guarantee a perfect fit and to avoid damaging the thread in the crankcase.

1. To counter, fit **toothed segment 9538/1** to the crankcase using an M12 x 50 hexagon-head bolt (fine thread).



Flywheel, 3.8 l

2. Loosen and unscrew fastening screws on flywheel. Carefully take off flywheel (watch the thread!). Undo fastening screw for toothed segment.

Note

Check the friction surface of the flywheel. The flywheel must be replaced if it is damaged or discoloured.

3. Inspect the friction surface of the flywheel visually.

top of page

Installing double-mass flywheel

Installing double-mass flywheel

Note

Before re-installation, clean the friction surface of the flywheel with a clean lint-free cloth that has been soaked in solvent naphtha or acetone.

1. Position double-mass flywheel on the crankshaft's dowel pin and press on to the crankshaft flange. Insert all fastening screws (8).
2. Align **toothed segment 9538/1** and tighten fastening screw again.
3. Screw in and tighten fastening screws in diagonally opposite sequence. **Initial tightening: 19 ftlb.** ; **Final tightening - torque angle: 120** °
4. Remove toothed segment.

top of page

Subsequent work

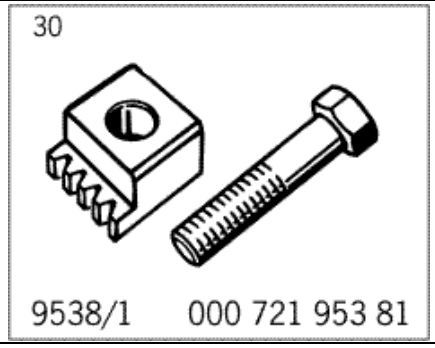
Subsequent work for double-mass flywheel

1. Install clutch 305019 Removing and installing clutch - chapter on "installing".
2. Install manual transmission 343519 Removing and installing transmission - chapter on "installing" [997430 997431 997620 997621] 343519 Removing and installing transmission - chapter on "installing" [997120 997121 997320 997321].

13 60 19 Removing and installing double-mass flywheel - as of MY 2005

- Preliminary work
- Removing double-mass flywheel - 3.6 l
- Installing double-mass flywheel
- Subsequent work

Tools

Designation	Type	Number	Explanation	
toothed segment	special tool	9538/1		

top of page

Preliminary work

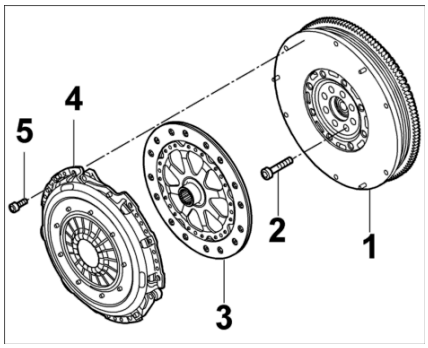
Preliminary work for double-mass flywheel

1. Remove manual transmission 343519 Removing and installing transmission - chapter on "removing" [997410 997411 997610 997611] 343519 Removing and installing transmission - chapter on "removing" [997110 997111 997310 997311].
2. Remove clutch 305019 Removing and installing clutch - chapter on "removing".

top of page

Removing double-mass flywheel - 3.6 l

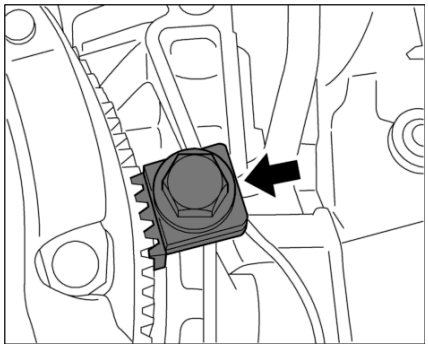
Removing double-mass flywheel - 3.6 l



Overview of double-mass flywheel, 3.6 l

Component overview

- 1 - Double-mass flywheel, 3.6 l
- 2 - Fastening screw for double-mass flywheel, (8 M10 screws)
- 3 - Clutch plate
- 4 - Clutch pressure plate
- 5 - Fastening screw for clutch pressure plate, (6 M8 screws)

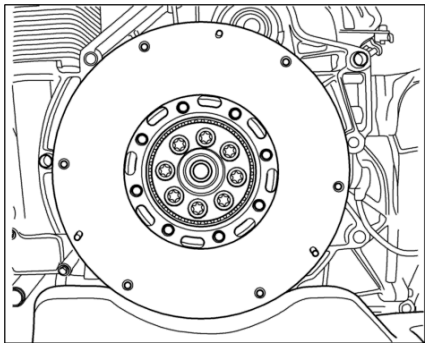


Toothed segment 9538/1

Note

The **toothed segment 9538/1** must be bored to ø 15 mm to guarantee a perfect fit and to avoid damaging the thread in the crankcase.

1. To counter, fit **toothed segment 9538/1** to the crankcase using an M12 x 50 hexagon-head bolt (fine thread).



2. Loosen and unscrew fastening screws on flywheel. Carefully take off flywheel (watch the thread!). Undo fastening screw for toothed segment.

Note

Check the friction surface of the flywheel. The flywheel must be replaced if it is damaged or discoloured.

3. Inspect the friction surface of the flywheel visually.

top of page

Installing double-mass flywheel

Installing double-mass flywheel

Note

Before re-installation, clean the friction surface of the flywheel with a clean lint-free cloth that has been soaked in solvent naphtha or acetone.

1. Position double-mass flywheel on the crankshaft's dowel pin and press on to the crankshaft flange. Insert all fastening screws (8).
2. Align **toothed segment 9538/1** and tighten fastening screw again.
3. Screw in and tighten fastening screws in diagonally opposite sequence. **Initial tightening: 19 ftlb.** ; **Final tightening - torque angle: 120** °
4. Remove toothed segment.

top of page

Subsequent work

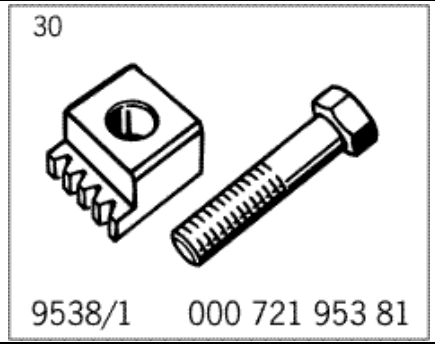
Subsequent work for double-mass flywheel

1. Install clutch 305019 Removing and installing clutch - chapter on "installing".
2. Install manual transmission 343519 Removing and installing transmission - chapter on "installing" [997410 997411 997610 997611] 343519 Removing and installing transmission - chapter on "installing" [997110 997111 997310 997311].

13 63 19 Removing and installing drive plate for converter - as of MY 2005

- Preliminary work for drive plate for converter
- Removing drive plate for converter
- Installing drive plate for converter
- Subsequent work for drive plate for converter

Tools

Designation	Type	Number	Explanation	
toothed segment	special tool	9538/1		

top of page

Preliminary work for drive plate for converter

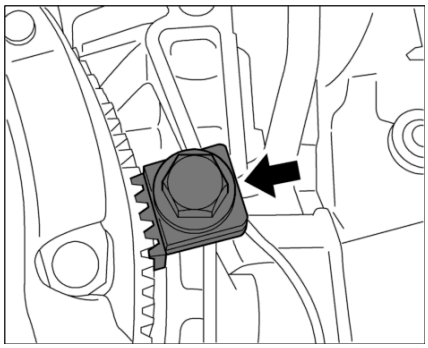
Preliminary work for drive plate for converter

1. Remove engine *101019 21 Removing and installing engine - chapter on "removing".*
2. Remove Tiptronic transmission 373527 Removing and refitting automatic transmission - chapter on "removing" [997110 997111 997120 997121 997310 997311 997320 997321] *373527 A3 Removing and refitting automatic transmission - chapter on "removing" [997410 997411 997430 997431 997610 997611 997620 997621].*

top of page

Removing drive plate for converter

Removing drive plate for converter

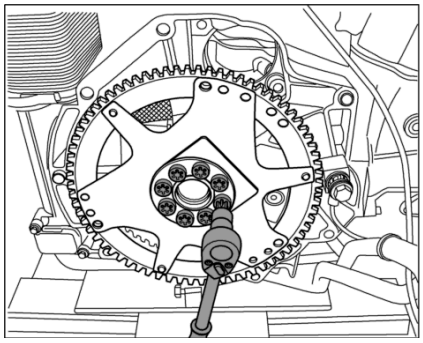


Toothed segment 9538/1

Note

The **toothed segment 9538/1** must be bored to ø 15 mm to guarantee a perfect fit and to avoid damaging the thread in the crankcase.

1. To counter, fit **toothed segment 9538/1** to the crankcase using an M12 x 50 hexagon-head bolt (fine thread).



Detaching drive plate

2. Loosen and unscrew eight M10 x 25 fastening screws on the drive plate. Remove drive plate.
3. Loosen fastening screw for toothed segment.

top of page

Installing drive plate for converter

Installing drive plate for converter

1. Position drive plate on the crankshaft's dowel pin and press on to the crankshaft flange. Insert all M10 x 25 fastening screws (8).
2. Align **toothed segment 9538/1** and tighten fastening screw again.
3. Screw in and tighten fastening screws in diagonally opposite sequence. **Initial tightening: 25 (19) Nm (ftlb.)** ; **Final tightening - torque angle: 120** °
4. Remove toothed segment.

top of page

Subsequent work for drive plate for converter

Subsequent work for drive plate for converter

1. Refit Tiptronic transmission 373527 Removing and refitting automatic transmission - chapter on "refitting" [997110 997111 997120 997121 997310 997311 997320 997321] *373527 AG Removing and refitting automatic transmission - chapter on "refitting" [997410 997411 997430 997431 997610 997611 997620 997621].*
2. Install engine *101019 23 Removing and installing engine - chapter on "installing".*

997110, 997111, 997120, 997121, 997310, 997311, 997320, 997321, 997410, 997411, 997430, 997431, 997610, 997611, 997620, 997621

as of MY 2005
Country C00, C02, C05, C07, C08, C09, C10, C11, C12, C13, C14, C15, C16, C18, C19, C20, C21, C22, C23, C24, C25, C26, C27, C28, C32, C33, C34, C35, C36, C37, C38, C39, C45, C46, C98, C99

WARNUNG

Gefahr des Verlusts der Text-Bild-Zuordnung beim Ausdruck.

- **Aus technischen Gründen kann derzeit nicht ausgeschlossen werden, dass trotz einwandfreier Darstellung auf dem Bildschirm beim Ausdruck der Zusammenhang von Text und zugehörigem Bild verloren geht.**
- **Wird der Fehler nicht bemerkt, besteht die Gefahr, daß Arbeiten nicht korrekt durchgeführt werden und es dadurch zu Personen- und Sachschäden kommt.**

Vergleichen Sie deshalb nach dem Druckvorgang unbedingt die Ausdrucke mit der Bildschirmdarstellung. Korrigieren Sie die Ausdrucke im Fehlerfall so, daß der Inhalt der Bildschirmdarstellung zutreffend wiedergegeben wird.

WARNING

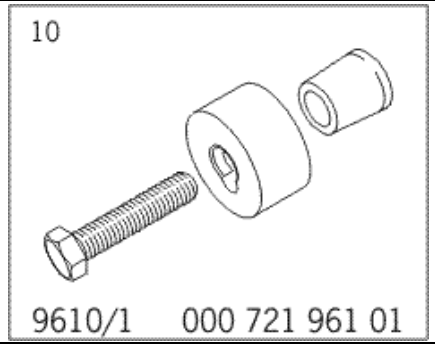
Danger of losing text-figure correspondence when printing out.

- **For technical reasons, it can currently not be ruled out that the correspondence between text and associated figure can be lost when it is printed out, even though the display on the screen is correct.**
- **If the fault is not noticed, there is the danger that work will not be performed correctly which can cause injury and damage.**

13 74 19 Removing and installing crankshaft sealing ring - belt pulley side - as of MY 2005

- Preliminary work for crankshaft sealing ring - belt pulley side
- Removing crankshaft sealing ring - belt pulley side
- Installing crankshaft sealing ring - belt pulley side
- Subsequent work for crankshaft sealing ring - belt pulley side

Tools

Designation	Type	Number	Explanation	
assembly sleeve	special tool	9610/1		

top of page

Preliminary work for crankshaft sealing ring - belt pulley side

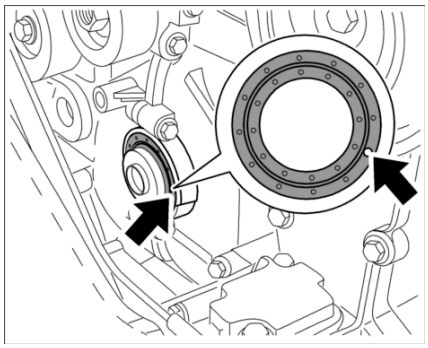
Preliminary work for crankshaft sealing ring - belt pulley side

1. Remove air cleaner housing 242519 Removing and installing air cleaner housing - chapter on "removing".
2. Release drive belt 137819 Removing and installing drive belt - chapter on "removing".
3. Remove belt pulley or vibration damper 137619 Removing and installing belt pulley [997120 997121 997320 997321 997430 997431 997620 997621] 137619 Removing and installing belt pulley [997110 997111 997310 997311 997410 997411 997610 997611].

top of page

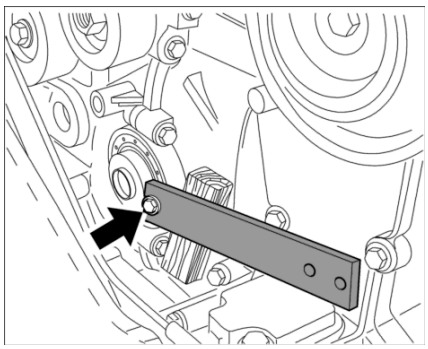
Removing crankshaft sealing ring - belt pulley side

Removing the crankshaft sealing ring - belt pulley side



Boring the sealing ring

1. Make a 3-mm hole at the front of the sealing ring using an angle drill. Grease the drill in order to bind the chips caused by drilling. Screw a sheetmetal screw with a washer approx. 5 mm into the bore hole.



Levering out the sealing ring

ATTENTION

Ingress of dirt

- **Risk of engine damage.**

When working on the engine, absolute cleanliness is essential.

2. Position a lever tool on the sheetmetal screw, place a wooden wedge between the lever tool and the crankcase and lever out the sealing ring. Carefully remove any residual dirt on the crankshaft flange.

ATTENTION

The crankshaft flange can be damaged if not cleaned correctly.

- **Leaks**

Never use an abrasive or polishing cloth or brushes with metal bristles.

Follow cleaning instructions.

3. If there are corroded spots on the crankshaft flange, clean them off using a metal-polishing pad (e.g. Nevr Dull, available in car and motor bike accessory stores). Then, carefully degrease the flange and crankcase bore using a clean, lint-free cloth that has been soaked in solvent naphtha or acetone.

Note

Perform a visual inspection of the crankshaft flange and crankcase bore for damage.

4. Check crankshaft flange and crankcase bore for damage.

top of page

Installing crankshaft sealing ring - belt pulley side

Installing crankshaft sealing ring - belt pulley side

Note

- *The standard shaft seal is pressed 12.5 mm in, measured from the end of the flange. The new sealing ring is pressed 14.5 mm in using the special tool **assembly sleeve 9610/1** in order to generate a new running track.*

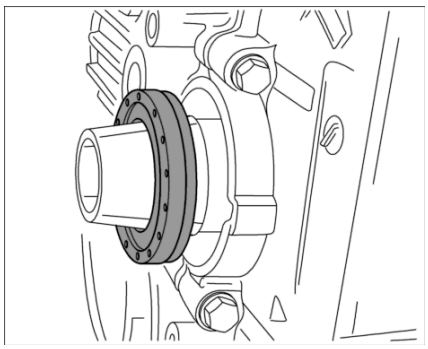
ATTENTION

Sharp tool edges and burrs.

- **Damage to the sealing lip.**

Always examine tools for signs of burrs and sharp edges.

1. Small burred spots or damaged areas on the tools can be eliminated with a nail file, then pull off with a fine abrasive or polishing cloth. Remove residual dirt on the tools, e.g. using solvent naphtha or acetone.



Taper assembly sleeve, sealing ring

ATTENTION

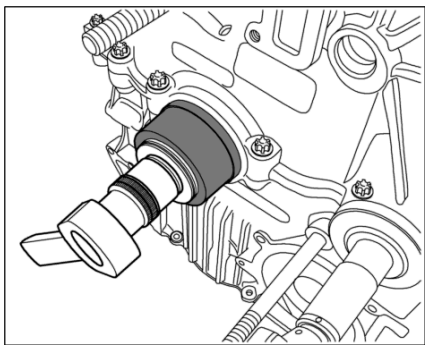
Grease on sealing ring can cause material damage

- **Damage to micro-sealing lip**

Do not oil or grease the crankshaft sealing ring

Only coat the crankshaft housing bore with new engine oil

2. Coat the crankshaft case bore with new engine oil and slide the new crankshaft sealing ring with the taper of the **assembly sleeve 9610/1** special tool over the crankshaft flange.



Insertion device for sealing ring

3. Fit sealing ring with the insertion device of the **assembly sleeve 9610/1**.
4. Check that the sealing ring is seated correctly. To do this, measure at four points, offset by 90°, from the belt pulley attachment surface on the crankshaft flange to the sealing ring (outer radius). **Dimension: 14.5 mm**

top of page

Subsequent work for crankshaft sealing ring - belt pulley side

Subsequent work for crankshaft sealing ring - belt pulley side

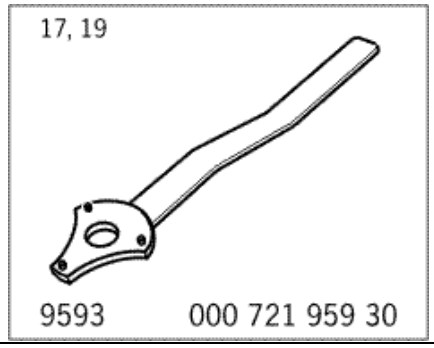
1. Install belt pulley or vibration damper 137619 Removing and installing belt pulley - chapter on "installing" [997120 997121 997320 997321 997430 997431 997620 997621] 137619 Removing and installing belt pulley - chapter on "installing" [997110 997111 997310 997311 997410 997411 997610 997611].
2. Position and tension drive belt 137819 Removing and installing drive belt - chapter on "installing".
3. Install air cleaner housing 242519 Removing and installing air cleaner housing - chapter on "installing".

997110, 997111, 997120, 997121, 997310, 997311, 997320, 997321, 997410, 997411, 997430, 997431, 997610, 997611, 997620, 997621

13 76 19 Removing and installing belt pulley/vibration damper - engine installed - as of MY 2005

- Preliminary work - engine installed
- Removing belt pulley/vibration damper - engine installed
- Installing belt pulley/vibration damper - engine installed
- Subsequent work for installing belt pulley - engine installed

Tools

Designation	Type	Number	Explanation	
retaining device	special tool	9593		

top of page

Preliminary work - engine installed

Preliminary work for removing belt pulley/vibration damper - engine installed

Note

To remove and install the engine lid on the 3.8 l engine, the help of a second person is required.

1. **3.8 l engine only:**Remove engine lid 559019 Removing and installing rear lid - chapter on "removing".
2. Remove air cleaner housing 242519 Removing and installing air cleaner housing - chapter on "removing".
3. Release drive belt 137819 Removing and installing drive belt - chapter on "removing".

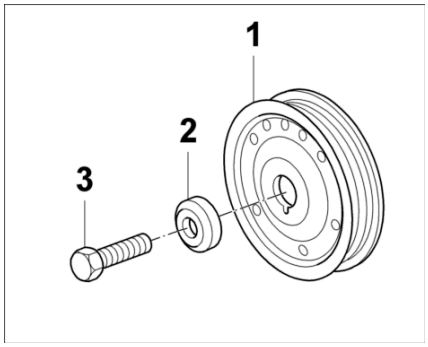
top of page

Removing belt pulley/vibration damper - engine installed

Removing belt pulley (3.6 l) - engine installed

Note

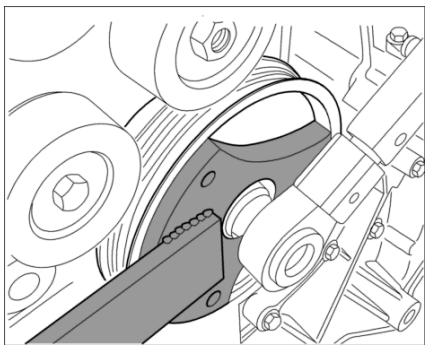
To release and tighten the belt pulley, a second person must counter with the relevant retaining tool.



Belt pulley components

Component overview

- 1 - Belt pulley
- 2 - Washer
- 3 - Fastening screw



Fastening screw for belt pulley

1. Position **retaining device 9593** and a large torque wrench on the belt pulley and loosen the fastening screw. A second person must counter with the retaining tool.
2. Unscrew fastening screw and remove belt pulley.

top of page

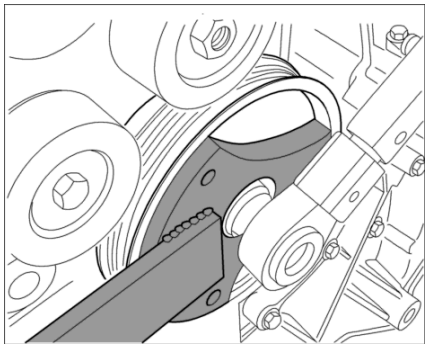
Installing belt pulley/vibration damper - engine installed

Installing belt pulley - 3.6 l engine installed

Note

Degrease the belt pulley before installation on the flange side of the crankshaft using solvent naphtha or acetone.

1. Position belt pulley on crankshaft flange (dowel pin).



Fastening screw for belt pulley

Note

To release and tighten the belt pulley, a second person must counter with the relevant retaining tool.

2. Insert fastening screw and tighten in two stages. Counter at the same time with special tool **retaining device 9593**. **Tightening torque: 37 ftlb.** ; **Torque angle: 90 °**

top of page

Subsequent work for installing belt pulley - engine installed

Subsequent work for installing belt pulley - engine installed

1. Position and tension drive belt 137819 Removing and installing drive belt - chapter on "installing".
2. Install air cleaner housing 242519 Removing and installing air cleaner housing - chapter on "installing".

Note

To remove and install the engine lid on the 3.8 l engine, the help of a second person is required.

3. **3.8 l engine only:**Install engine lid 559019 Removing and installing rear lid - chapter on "installing".

997110, 997111, 997310, 997311, 997410, 997411, 997610, 997611

as of MY 2005
Country C00, C02, C05, C07, C08, C09, C10, C11, C12, C13, C14, C15, C16, C18, C19, C20, C21, C22, C23, C24, C25, C26, C27, C28, C32, C33, C34, C35, C36, C37, C38, C39, C45, C46, C98, C99

WARNUNG

Gefahr des Verlusts der Text-Bild-Zuordnung beim Ausdruck.

- **Aus technischen Gründen kann derzeit nicht ausgeschlossen werden, dass trotz einwandfreier Darstellung auf dem Bildschirm beim Ausdruck der Zusammenhang von Text und zugehörigem Bild verloren geht.**
- **Wird der Fehler nicht bemerkt, besteht die Gefahr, daß Arbeiten nicht korrekt durchgeführt werden und es dadurch zu Personen- und Sachschäden kommt.**

Vergleichen Sie deshalb nach dem Druckvorgang unbedingt die Ausdrucke mit der Bildschirmdarstellung. Korrigieren Sie die Ausdrucke im Fehlerfall so, daß der Inhalt der Bildschirmdarstellung zutreffend wiedergegeben wird.

WARNING

Danger of losing text-figure correspondence when printing out.

- **For technical reasons, it can currently not be ruled out that the correspondence between text and associated figure can be lost when it is printed out, even though the display on the screen is correct.**
- **If the fault is not noticed, there is the danger that work will not be performed correctly which can cause injury and damage.**

Therefore, always compare printouts with the screen display after printing them out. Correct the printouts if they are faulty so that the content of the screen display matches that on the printouts.

AVERTISSEMENT

Risque de perte de la correspondance texte-illustration lors de l'impression papier.

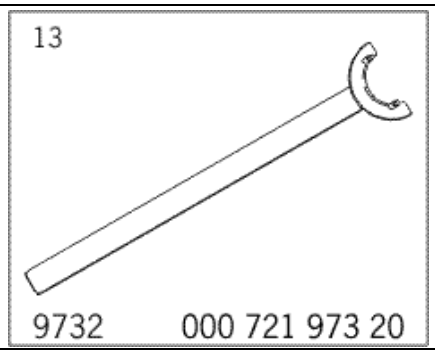
- **Pour des raisons techniques, il ne peut pas être exclu à l'heure actuelle que, même en cas d'affichage correct à l'écran, la correspondance entre le texte et l'illustration puisse être erronée sur l'impression papier.**
- **Si l'erreur passe inaperçue, on court le risque d'exécuter certaines opérations de manière incorrecte pouvant conduire à des dommages corporels et matériels.**

Comparez impérativement pour cette raison les impressions papier avec l'affichage à l'écran. Corrigez-les en cas d'erreur de manière à reproduire correctement l'affichage à l'écran.

13 76 19 Removing and installing belt pulley/vibration damper - engine installed - as of MY 2005

- Preliminary work - engine installed
- Removing belt pulley/vibration damper - engine installed
- Installing belt pulley/vibration damper - engine installed
- Subsequent work for installing belt pulley - engine installed

Tools

Designation	Type	Number	Explanation	
holding wrench	special tool	9732		

top of page

Preliminary work - engine installed

Preliminary work for removing belt pulley/vibration damper - engine installed

Note

To remove and install the engine lid on the 3.8 l engine, the help of a second person is required.

1. **3.8 l engine only:**Remove engine lid 559019 Removing and installing rear lid - chapter on "removing".
2. Remove air cleaner housing 242519 Removing and installing air cleaner housing - chapter on "removing".
3. Release drive belt 137819 Removing and installing drive belt - chapter on "removing".

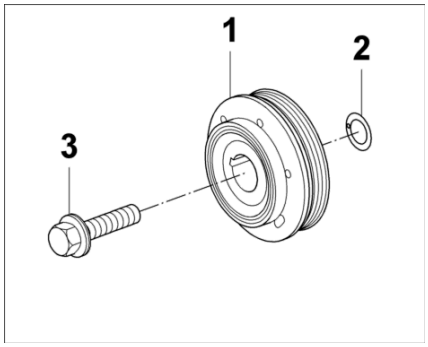
top of page

Removing belt pulley/vibration damper - engine installed

Removing vibration damper (3.8 l) - engine installed

Note

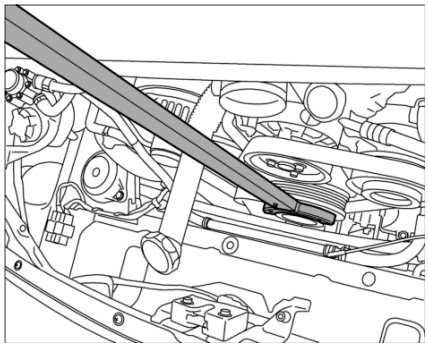
To release and tighten the belt pulley, a second person must counter with the relevant retaining tool.



Vibration damper components

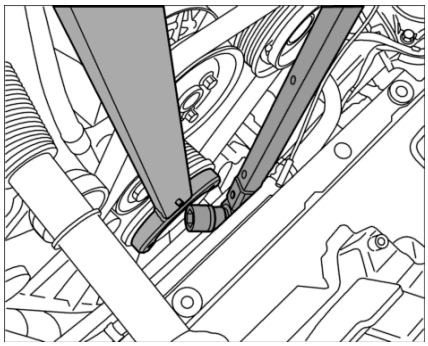
Component overview

- 1 - Vibration damper
- 2 - Friction washer
- 3 - Fastening screw



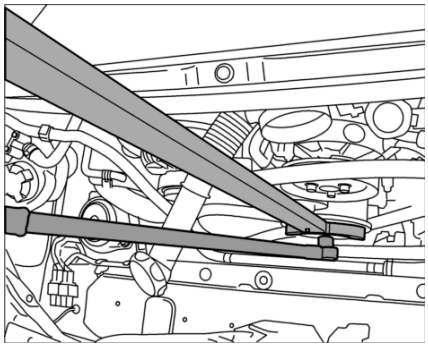
Holding wrench 9732 on damper

1. Keep turning the vibration damper clockwise until the special tool **holding wrench 9732** can be inserted vertically into the fixing bores of the damper.



Torque wrench on damper

2. Position a large torque wrench with a socket wrench insert (a/f 24) on the fastening screw.



Damper screw

3. Loosen the fastening screw while a second person helps by countering with the special tool **holding wrench 9732**.
4. Unscrew fastening screw and remove vibration damper - watch the friction washer between the damper and the crankshaft flange.

top of page

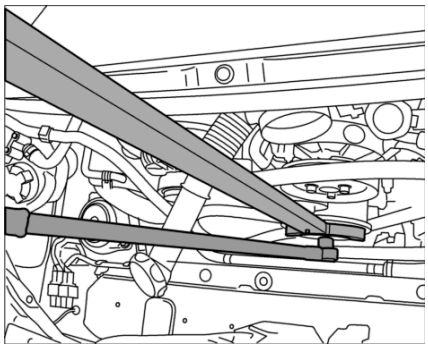
Installing belt pulley/vibration damper - engine installed

Installing vibration damper - 3.8 l engine installed

Note

Degrease the belt pulley before installation on the flange side of the crankshaft using solvent naphtha or acetone.

1. Position new friction washer on dowel pin on crankshaft flange. Position vibration damper (groove for dowel pin).



Damper screw

Note

To release and tighten the belt pulley, a second person must counter with the relevant retaining tool.

2. Insert fastening screw and tighten in two stages. Counter at the same time with special tool **holding wrench 9732**. **Tightening torque: 37 ftlb.** ; **Torque angle: 120 °**

top of page

Subsequent work for installing belt pulley - engine installed

Subsequent work for installing belt pulley - engine installed

1. Position and tension drive belt 137819 Removing and installing drive belt - chapter on "installing".
2. Install air cleaner housing 242519 Removing and installing air cleaner housing - chapter on "installing".

Note

To remove and install the engine lid on the 3.8 l engine, the help of a second person is required.

3. **3.8 l engine only:**Install engine lid 559019 Removing and installing rear lid - chapter on "installing".

997120, 997121, 997320, 997321, 997430, 997431, 997620, 997621

as of MY 2005
Country C00, C02, C05, C07, C08, C09, C10, C11, C12, C13, C14, C15, C16, C18, C19, C20, C21, C22, C23, C24, C25, C26, C27, C28, C32, C33, C34, C35, C36, C37, C38, C39, C45, C46, C98, C99

WARNUNG

Gefahr des Verlusts der Text-Bild-Zuordnung beim Ausdruck.

13 78 19 Removing and installing drive belt - as of MY 2005

- Preliminary work
- removing
- Installing
- Reworking

top of page

Preliminary work

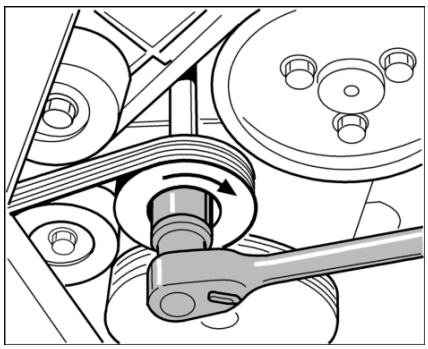
Preliminary work for removing drive belt

1. Remove air cleaner housing . *21 Removing and installing air cleaner housing - removing*.

top of page

removing

Removing drive belt



Tensioning pulley for drive belt

WARNING

Do not remove the drive belt when the engine is warm!

- **Risk of damage or deformation!**

Drive belts should only be removed when they have cooled down.

1. Turn the tensioning pulley on the hexagonal axle clockwise and simultaneously remove the belt from the deflection pulleys.

Note

- *To check drive belt for damage by the naked eye, it needs to have been removed.*
- *Mark running direction of drive belt with a coloured pen.*
- *Even minor damage means that the drive belt must be replaced (even if the maintenance interval has not expired).*

2. Take the drive belt off the belt pulleys and give it a detailed inspection. Examine it to see if it has picked up foreign bodies, cracks or other damage and replace if necessary.

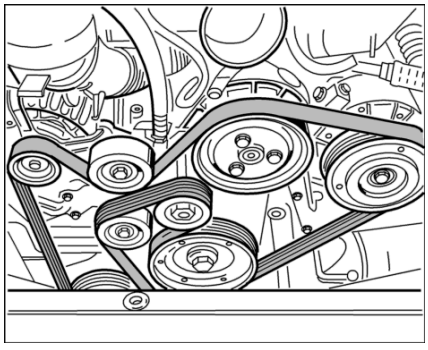
top of page

Installing

Installing drive belt

Note

- *After installing the drive belt you should check again that the individual belt pulleys and rollers are positioned correctly.*



Installed position of drive belt

1. Install the drive belt as shown in the illustration. Position the drive belt by taking the tension off tensioning pulley in a clockwise direction then allow the pulley to slide back to its normal position.

top of page

Reworking

Work subsequent to installing drive belt

1. Install air cleaner housing . *23 Removing and installing air cleaner housing - installing*.

997110, 997111, 997120, 997121, 997310, 997311, 997320, 997321, 997410, 997411, 997430, 997431, 997610, 997611, 997620, 997621

as of MY 2005
Country C00, C02, C05, C07, C08, C09, C10, C11, C12, C13, C14, C15, C16, C18, C19, C20, C21, C22, C23, C24, C25, C26, C27, C28, C32, C33, C34, C35, C36, C37, C38, C39, C45, C46, C98, C99

WARNUNG

Gefahr des Verlusts der Text-Bild-Zuordnung beim Ausdruck.

- **Aus technischen Gründen kann derzeit nicht ausgeschlossen werden, dass trotz einwandfreier Darstellung auf dem Bildschirm beim Ausdruck der Zusammenhang von Text und zugehörigem Bild verloren geht.**
- **Wird der Fehler nicht bemerkt, besteht die Gefahr, daß Arbeiten nicht korrekt durchgeführt werden und es dadurch zu Personen- und Sachschäden kommt.**

Vergleichen Sie deshalb nach dem Druckvorgang unbedingt die Ausdrucke mit der Bildschirmdarstellung. Korrigieren Sie die Ausdrucke im Fehlerfall so, daß der Inhalt der Bildschirmdarstellung zutreffend wiedergegeben wird.

WARNING

Danger of losing text-figure correspondence when printing out.

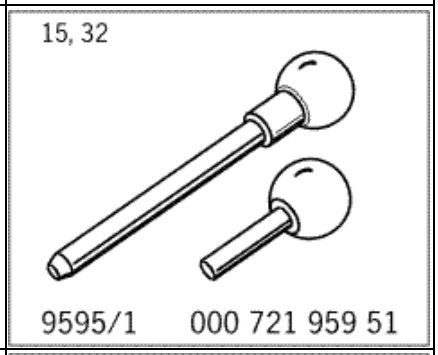
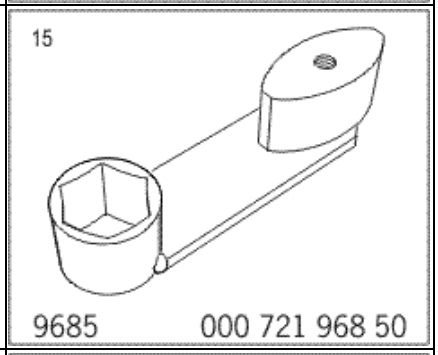
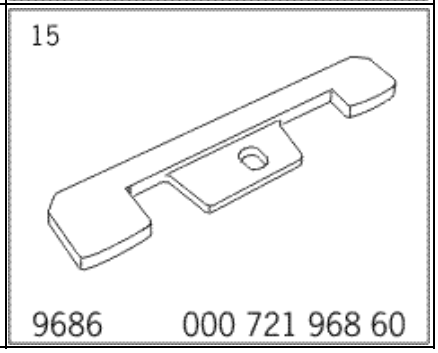
- **For technical reasons, it can currently not be ruled out that the correspondence between text and associated figure can be lost when it is printed out, even though the display on the screen is correct.**
- **If the fault is not noticed, there is the danger that work will not be performed correctly which can cause injury and damage.**

Therefore, always compare printouts with the screen display after printing them out. Correct the printouts if they are faulty so that the content of the screen display matches that on the printouts.

15 05 20 Removing and installing camshaft, adjusting timing - engine removed - as of MY 2005

- Camshaft designation M96/05
- Allocation of inlet camshaft adjustment device
- Allocation of chain tensioners
- Preliminary work for removing camshafts
- Removing camshaft - engine removed
- Installing camshaft - engine removed
- Subsequent work for installing camshafts

Tools

Designation	Type	Number	Explanation	
locating pin	special tool	9595/1		
retaining tool	special tool	9685		
adjusting gauge	special tool	9686		

cover for dust protection when fitting the engine	commercially available tool	NR.165		PORSCHE siehe Handbuch Werkstattausrüstung Voir le Manuel Equipement d´atelier Refer to the Workshop Equipment manual Vease Manual de Equipamiento de Taller Vedere il Manuale dell´attrezzatura d´officina ワークショップ・イクイップメント・マニュアルを参照

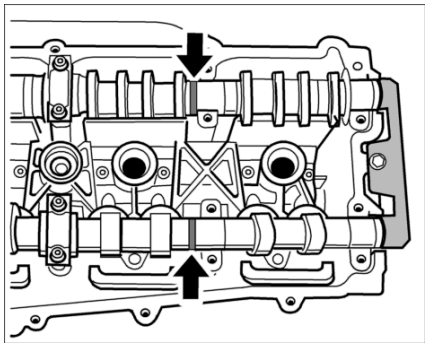
top of page

Camshaft designation M96/05

Camshaft designation M96/05

Note

Between the start of series production in April 2004 and August 2004, the camshaft manufacturer changed the lettering of the camshafts. In order to avoid a mixed installation, particular attention must be paid to the designation of engines installed in standard vehicles during this period.



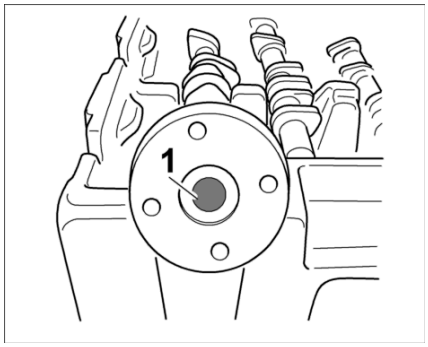
Position of camshaft designation

Position of lettering: -arrows-
Camshafts for cylinders 1 - 3

- Inlet camshaft 261.08 3,6 IN 1-3
- Exhaust camshaft: 262.05 3,6 EX 1-3
- Inlet camshaft (new): 996.105.047.02/03 3,6 IN 1-3
- Exhaust camshaft (new): 996.105.059.01 3,6 EX 1-3

Camshafts for cylinders 4 -6:

- Inlet camshaft: 263.08 3,6 IN 4-6
- Exhaust camshaft: 264.05 3,6 EX 4-6 (with aluminium plugs)
- Inlet camshaft (new): 996.105.048.02/03 3,6 IN 4-6
- Exhaust camshaft (new): 997.105.060.01 3,6 EX 4-6 (with aluminium plugs)



Aluminium plugs in exhaust camshaft 4 - 6

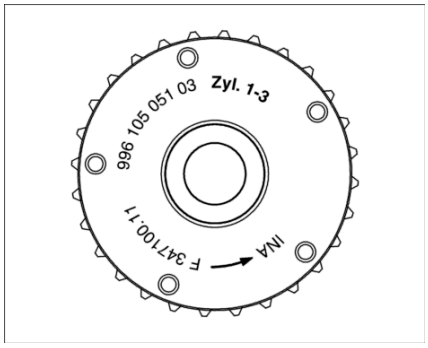
Additional identifying feature for exhaust camshaft 4 - 6: aluminium plugs with lubrication bore for tandem pump

top of page

Allocation of inlet camshaft adjustment device

Allocation of inlet camshaft adjustment device

Camshaft adjustment device on inlet camshaft, cylinder bank 1 - 3



Designation of adjuster 1 - 3

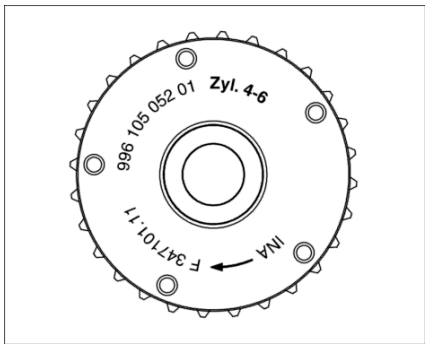
Note

- *Side 1 - 3: the arrow should be attached anti-clockwise*

– Designation, side 1 - 3:

- Part number, cylinder bank, manufacturer information, direction of rotation of engine (arrow), production date.

Camshaft adjustment device on inlet camshaft, cylinder bank 4 - 6



Designation of adjuster 4 -6

Note

- *Side 4 - 6: the arrow should be attached clockwise*

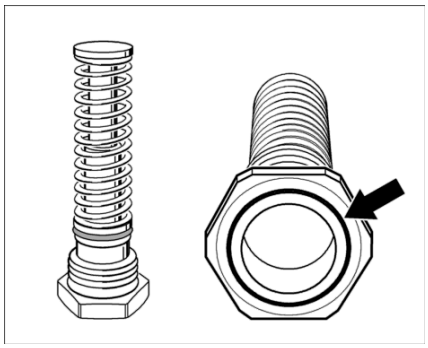
– Designation, side 4 - 6:

- Part number, cylinder bank, manufacturer information, direction of rotation of engine (arrow), production date.

top of page

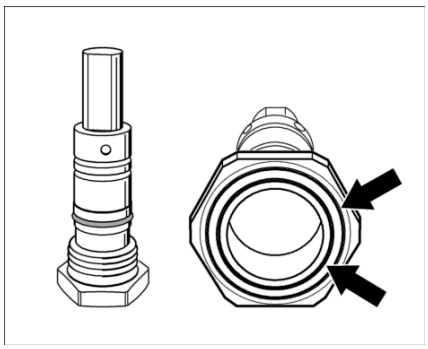
Allocation of chain tensioners

Allocation of chain tensioners



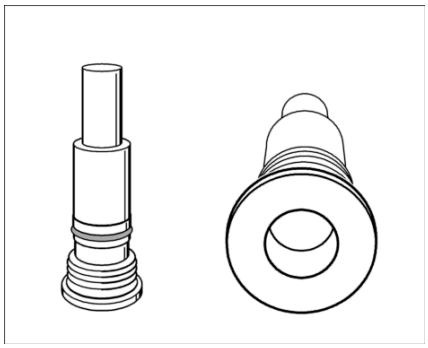
Primary chain tensioner

– Primary chain tensioner on crankcase (oil filter area), identification: **one ring**
-arrow-



Chain tensioner, cylinders 1 - 3

– Chain tensioner on cylinder head, cylinder bank 1 - 3, identification: **two rings**
-arrows-



Chain tensioner 4 - 6

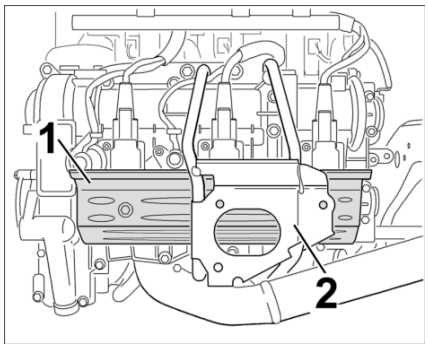
– Chain tensioner on cylinder head, cylinder bank 4 - 6, no identification.

top of page

Preliminary work for removing camshafts

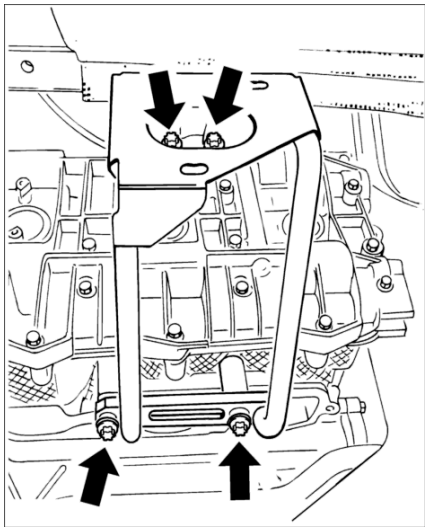
Preliminary work for removing camshafts

1. Remove engine 100119 Removing and installing engine - chapter on "removing".
2. Remove rear muffler 263319 Removing and installing rear muffler - chapter on "removing".



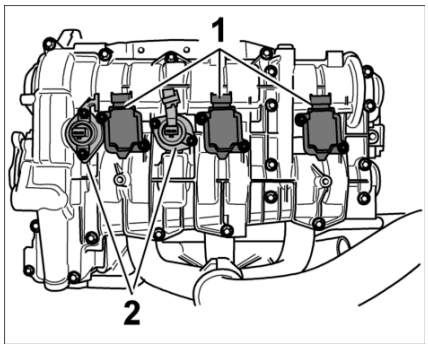
Cover plate and support for rear muffler

3. Remove cover plate for ignition coils **-1-** . Unscrew two M6 x 16 Torx screws and remove cover plate.



Rear muffler support

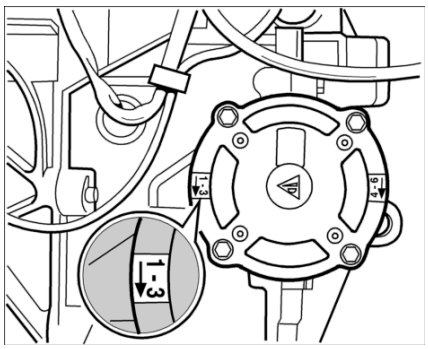
4. Remove support for rear muffler. Disconnect cable plugs of ignition coils and magnetic hydraulic valves. Unscrew four Torx screws: intake side two M8 x 30, exhaust side two M8 x 25, remove support.
5. For disassembling cylinder bank 4 - 6, undo the ground cable on the cylinder head by unscrewing a Torx screw M8 and removing the cable. Disconnect two cable plugs from oil pressure switch.



Hydraulic valves for camshaft adjustment and ignition coils

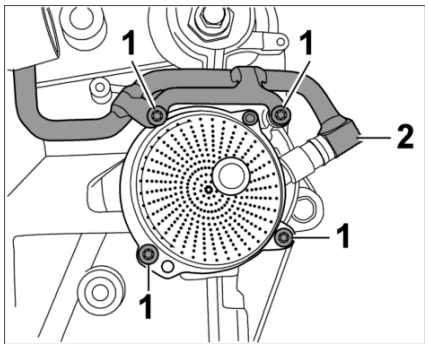
6. Remove ignition coils **-1-** . In each case unscrew two Torx socket screws M6 x 25 and pull the ignition coils out of the spark-plug recess.
7. Remove solenoid hydraulic valves **-2-** (NVS und VHS). 153719 Removing and installing solenoid hydraulic valve NVS - chapter on "removing" and 155519 Removing and installing solenoid hydraulic valve VHS - chapter on "removing".

8. Remove spark plugs. 287020 Removing and installing spark plugs - chapter on "removing".



Oil suction pump for cylinders 1 - 3

9. Remove oil suction pump for cylinders 1 - 3. Unscrew four Torx screws M6 x 20 (micro-self-locking), remove oil suction pump, and replace O-ring and screws.



Tandem pump side 4 - 6

10. Remove tandem pump for cylinders 4 - 6. Unscrew four Torx screws M6 (micro-self-locking) **-1-** . Pull off the vacuum line on pump **-2-** . Remove pump and replace O-rings and micro-self-locking screws.

top of page

Removing camshaft - engine removed

Removing camshafts - engine removed

ATTENTION

Risk of damage due to particles of dirt.

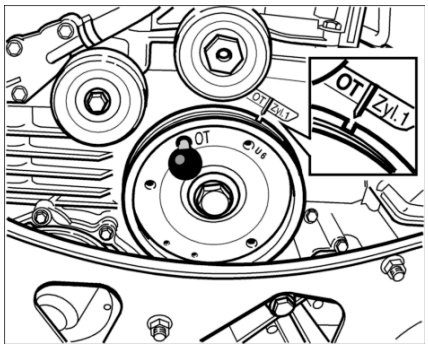
- **Oil bores/oil ducts can become blocked up.**

When working on the engine, absolute cleanliness is essential.

Lay removed engine parts on a clean base and cover them without fail.

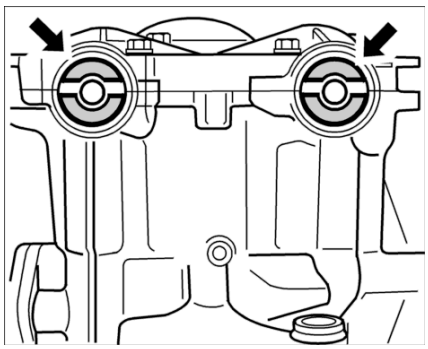
Use the **cover for dust protection when fitting the engine NR.165** on the engine assembly support.

1. Remove the plastic caps on the cylinder head. Press a small screwdriver into the centre of the piercing point of each cap and lever out the cap.



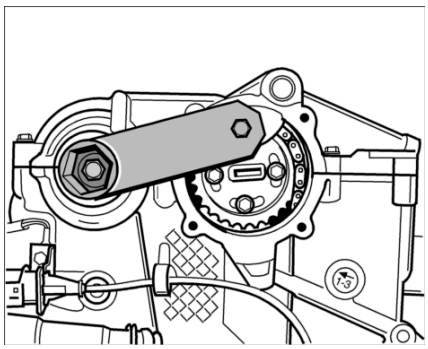
TDC marking on pulley

2. **Disassembling cylinder bank 1 - 3 Turn** crankshaft at the pulley/vibration balancer **clockwise** to the overlapping TDC of cylinder 1. **Disassembling cylinder bank 4 -6** Turn crankshaft to the TDC for cylinder 4. Using a **locating pin 9595/1** fix the pulley or vibration balancer .



Position of the camshafts in overlapping TDC of cylinders 1 or 4

3. If the camshafts of cylinder bank 1 - 3 are removed, the smaller circular cut-outs at the grooves of the inlet and outlet camshafts **-arrows-** of **cylinder 1** must point to the cylinder head cover. For cylinder bank 4-6 the corresponding position is then on **cylinder 4**. Check the position using the **adjusting gauge 9686**.

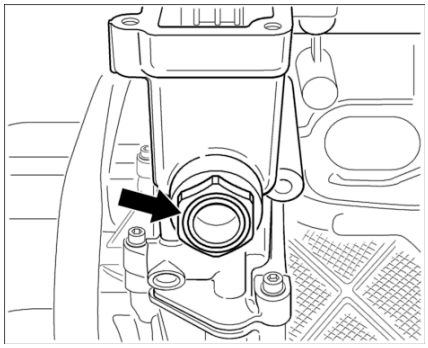


Unscrew the central screw on the camshaft adjuster.

Note

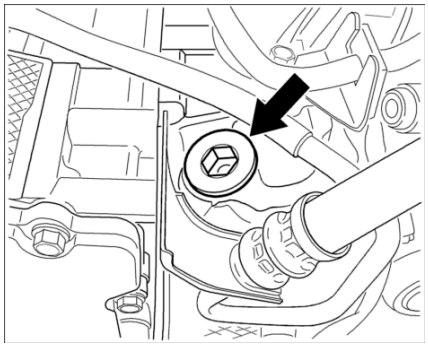
- *Before disassembling the cylinder head cover, it is essential to unscrew the central screw on the camshaft adjustment device.*

4. Unscrew the central screw on the camshaft adjustment device. Position **retaining tool 9685** on the hexagon of the adapter and place the contact block as a counter on the fitting bore of the cylinder head cover for the oil suction pump; if necessary, position the contact block by undoing and tightening the screw. If the special tool cannot be positioned on the hexagon of the adapter in this way, the engine must be turned further in the direction of rotation at the pulley of the crankshaft until the contact block comes into contact with the central screw of the cylinder head cover, ready for unscrewing. Unscrew the central screw.
5. Remove cylinder head cover. 159119 Removing and installing cylinder head cover- chapter on "removing".
6. Release the four Torx screws M6 x 16 on the sprocket of the respective exhaust camshaft. Do not remove the sprocket.



Chain tensioner, cylinders 1 - 3

7. Remove chain tensioner for cylinders 1 - 3 or 4 - 6.



Chain tensioner, cylinders 4 - 6

8. **Cylinder bank 4 - 6** Unscrew guide rail screw M6 on pulley side (hexagon socket a/f 5).
9. Turn the engine at the assembly support so that cylinder bank to be worked on stands vertically upwards.
10. Unscrew four Torx screws for exhaust camshaft sprocket. Lift timing chain off sprocket and remove the sprocket. Lay timing chain on the mounting tab for the sprocket.
11. Remove the four camshaft thrust bearings and the guide rail. Unscrew eight Torx screws, six M6 x 35, two M6 x 40 (screws for guide rail). Lift the thrust bearing and the guide rail carefully off the mounting points or timing chain.
12. Remove the camshafts. Remove exhaust camshaft, lift timing chain off the camshaft adjuster of the inlet camshaft and remove the camshaft. Lay the timing chain in the chain housing in the cylinder head.

top of page

Installing camshaft - engine removed

Installing camshafts, adjusting timing - engine removed

ATTENTION

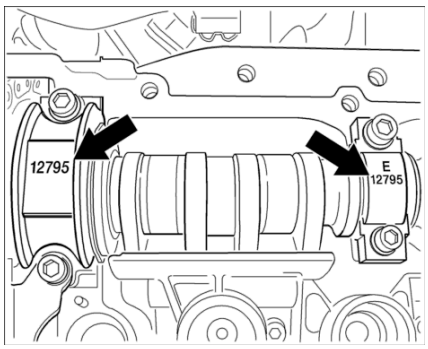
Risk of damage due to particles of dirt.

- **Oil bores/oil ducts can become blocked up.**

When working on the engine, absolute cleanliness is essential.

Lay removed engine parts on a clean base and cover them without fail.

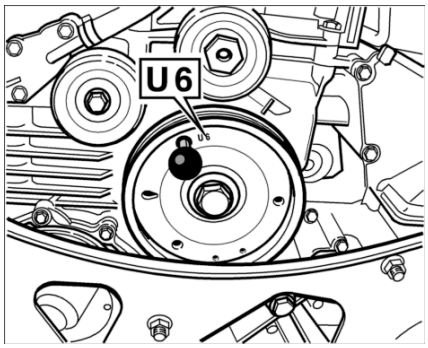
Use the **cover for dust protection when fitting the engine NR.165** on the engine assembly support.



Identification of camshaft housing:

Identification of housings of camshafts:

- **Inlet camshaft:**
- **Thrust bearing:** 'E' and matching number on cylinder head/cylinder head cover
- **Housing of bearing sleeve:** only matching number
- **Outlet camshaft:**
- **Thrust bearing on sprocket:** '1A' and matching number on cylinder head/cylinder head cover
- **2nd Thrust bearing:** '2A' and matching number on cylinder head/cylinder head cover

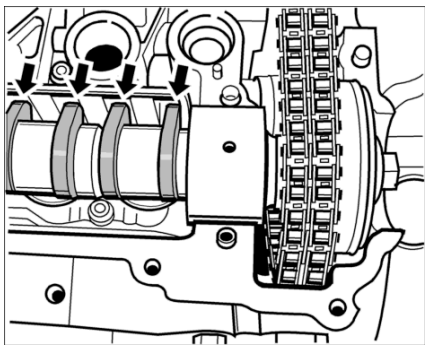


Pulley fixed at 60° before TDC

1. To remove the play from the timing chain drive, turn the crankshaft by means of the pulley or vibration balancer**clockwise (running direction of engine** to 60° before TDC **: marking U6 on pulley or vibration balancer coincides with fixing bore in crankcase**. Fix with **locating pin 9595/1**.

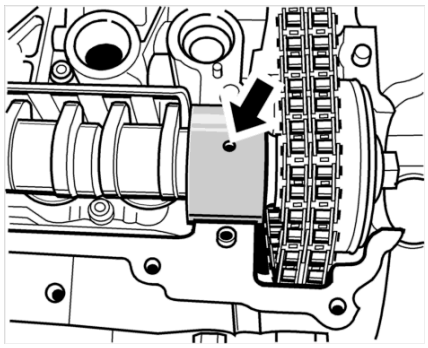
Assembly of cylinder bank 4 - 6

2. Turn the engine on the assembly support until cylinder bank 4 - 6 stands vertically upwards.
3. Oil the bearing surfaces of the camshafts with new engine oil.



Inlet camshaft 4 - 6 in overlap

4. Insert inlet camshaft 4 - 6. Pull the timing chain out of the chain housing of the cylinder head with a welding wire and position on the ring gear of the camshaft adjuster, at the same time inserting the camshaft at overlapping TDC of cylinder 4 (the cams of cylinder 4 point towards the bulkhead of the flat-base tappet housing **-arrows-**).

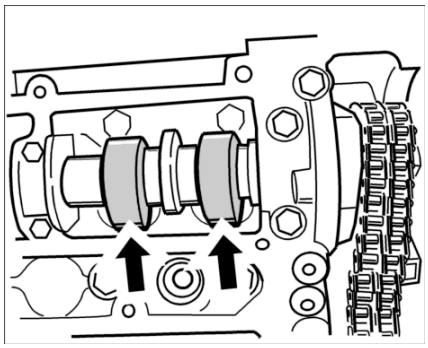


Position of bearing sleeve for inlet camshaft

Note

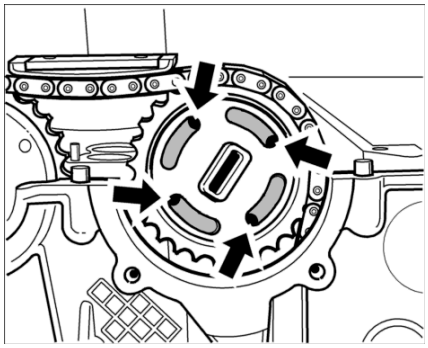
- *Make sure that the bearing sleeve on the inlet camshaft is positioned correctly.*

5. The bearing sleeve of the inlet camshaft must be positioned so that the centrally bored blind hole points vertically upwards **-arrow-** (the rib of the cylinder head should also be at the centre in relation to the bearing sleeve). In this position, the dowel pin in the bearing bore of the cylinder head will fit precisely into the opposite off-centre blind hole bore. Any other bores are through-holes for guiding the oil.



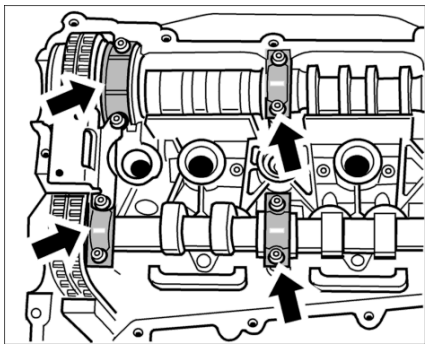
Exhaust camshaft 4 - 6

6. Insert exhaust camshaft 4 - 6. Lay the timing chain on the flange for the sprocket, then insert the camshaft at overlapping TDC of cylinder 4 (the outlet cams of cylinder 4 point towards the cams of the inlet camshaft **-arrows-**).



Position of sprocket 4 - 6 at 60° before TDC

7. Insert exhaust camshaft sprocket in the timing chain and position on camshaft flange. The four threaded bores in the camshaft flange must be covered by the slots of the sprocket **in the clockwise running direction of the engine** approximately half way **-arrows-** .
8. Oil the bearing surfaces of the camshafts with new engine oil.

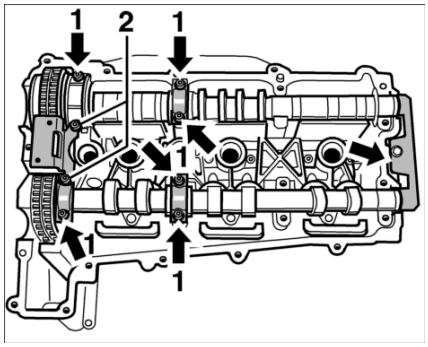


Installation position of housing

Note

- *Do not interchange the thrust bearings of the inlet and exhaust camshafts during assembly; observe identification markings.*

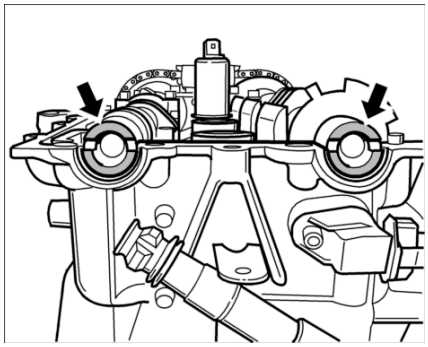
9. Insert three thrust bearings and one housing **-arrows-** for the bearing sleeve of the camshafts together with the guide rail for the timing chain.



Position of housing screws

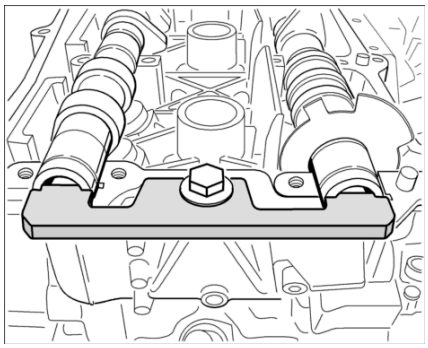
10. Insert eight housing screws (Torx): six M6 x 35 **-1-** and two M6 x 40 **-2-** for camshaft bearing and guide rail. Tighten screws evenly and just finger-tight.

Adjust timing, cylinder bank 4 - 6



Slot position of camshafts at overlap

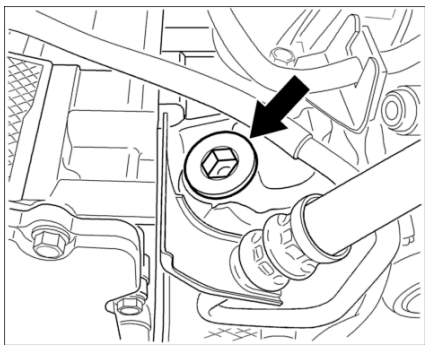
11. Align both camshafts. The small circular cut-outs must point upwards **-arrows-** .



Position of adjusting gauge 9689

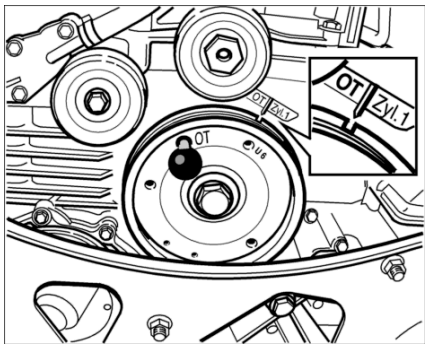
12. Using special tool **adjusting gauge 9686**, fix camshafts (if necessary with the gauge twisted) with an M8 screw (e.g. hexagon-head bolt M8 x 16). The flat tool face points upwards. Screw in fastening screw by hand.
13. Screw the housing screws of the inlet and exhaust camshafts and the auxiliary screw of the adjustment gauge alternately by approx. another 90° until the specified tightening torque is reached. **Tightening torque: 7.5 ftlb.**

14. Insert guide rail screw with a new O-ring and tighten (hexagon socket M6, a/f 5) Grease O-ring with Optimol MP3. **Tightening torque: 7.5 ftlb.**



Chain tensioner, cylinders 4 - 6

15. Fit chain tensioner, side 4 - 6 (hexagon socket a/f 14). Fit chain tensioner with new aluminium sealing ring and tighten. **Tightening torque: 59 ftlb.**

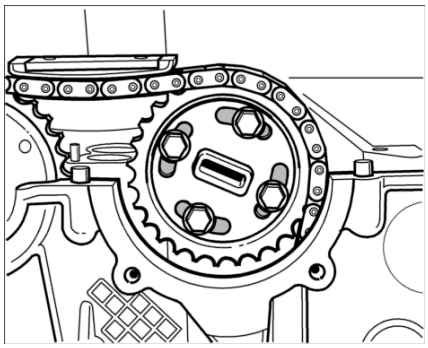


Pulley fixed at TDC marking

Note

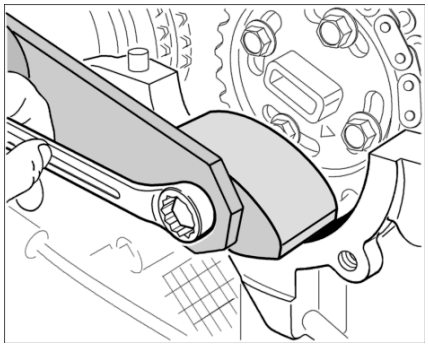
- *Position crankshaft above the pulley or vibration balancer before final adjustment of the timing to the TDC marking.*

16. Turn the crankshaft by means of the pulley or vibration balancer **clockwise (running direction of engine** to TDC mark **: marking U6 on pulley or vibration balancer coincides with fixing bore in crankcase**. Fix with **locating pin 9595/1**.



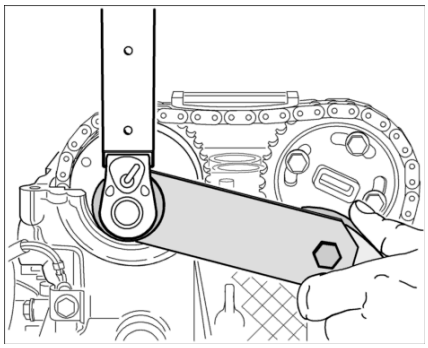
Exhaust camshaft sprocket tightened

17. Insert four Torx screws M6 to sprocket of exhaust camshaft and tighten evenly in diagonally opposite sequence. **Tightening torque: 10.5 ftlb.**



Contact block at the fitting bore of the cylinder head

18. Tighten the central screw of the camshaft adjusting device. Fit special tool **retaining tool 9685** on hexagon of intermediate piece of the central screw. Screw in the central screw gently by hand so that the loose contact block just touches the fitting bore of the oil suction pump. Fix the hexagon-head bolt to the contact block.



Tighten central screw of camshaft adjusting device.

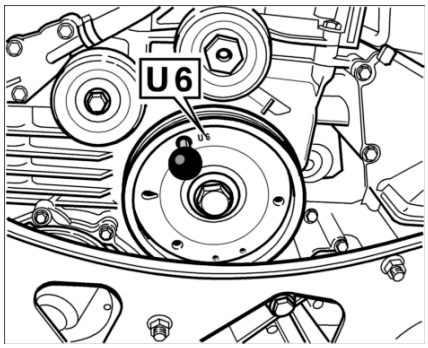
Note

- *Before final tightening (torque angle) of the central screw, the special tool **adjusting gauge 9686** must be removed.*

19. Tighten the central screw in two stages. Initial tightening to the specified toque. **Initial tightening: 37 ftlb.**
20. Remove special tool **adjustment gauge 9686**. Undo the M8 screw and remove gauge.
21. Apply final tightening to central screw with torque angle wrench. **Final tightening torque angle: 110 °**

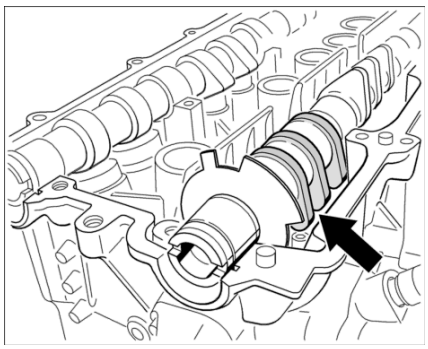
Assembly of cylinder bank 1 -3

22. Turn the engine on the assembly support until cylinder bank 1 - 3 stands vertically upwards.



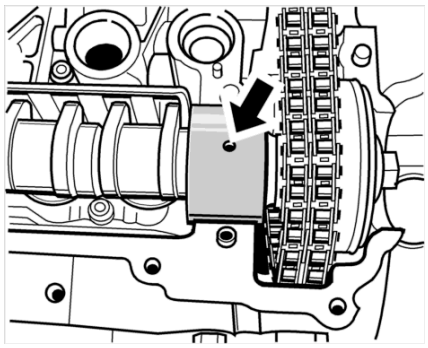
Pulley fixed at 60° before TDC

23. Turn the crankshaft by means of the pulley or vibration balancer **clockwise (running direction of engine** further still until the **marking U6 on pulley or vibration balancer coincides with fixing bore in crankcase** (60° before TDC). Fix with **locating pin 9595/1**.
24. Oil the bearing surfaces of the camshafts with new engine oil.



Inlet camshaft 1-3 in overlap

25. Insert inlet camshaft 1 - 3. Pull the control chain out of the chain housing of the cylinder head with a welding wire and position on the toothed ring of the camshaft adjuster. Then insert the camshaft at overlapping TDC of cylinder 1 (the cams of cylinder 1 point diagonally downwards towards the outside of the cylinder head **-arrow-**).



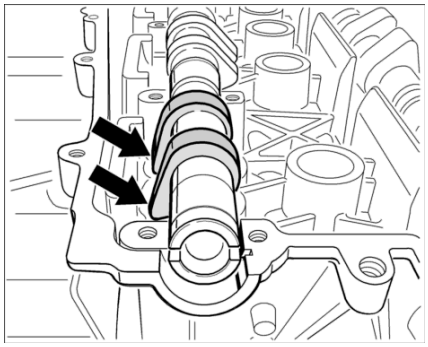
Position of bearing sleeve for inlet camshaft

Note

- *Make sure that the bearing sleeve on the inlet camshaft is positioned correctly.*

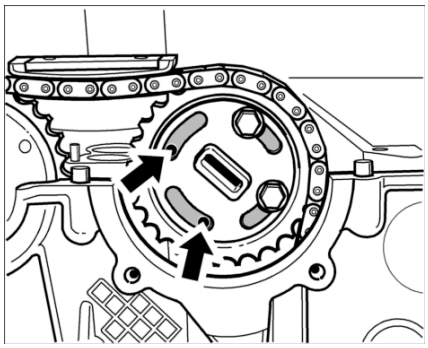
26. The bearing sleeve of the inlet camshaft must be positioned so that the centrally bored blind hole points vertically upwards **-arrow-** (the rib of the cylinder head should also be at the centre in relation to the bearing sleeve). In this position, the dowel pin in the bearing bore of the cylinder head will fit precisely

into the opposite off-centre blind hole bore. Any other bores are through-holes for guiding the oil.



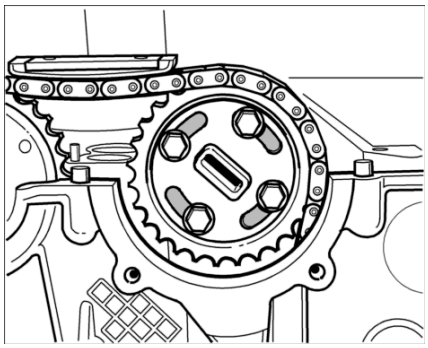
Exhaust camshaft 1-3 in overlap

27. Insert exhaust camshaft 1 - 3. Lay the control chain on the flange for the chain sprocket, then insert the camshaft at overlapping TDC of cylinder 1 (the cams of cylinder 1 point diagonally downwards towards the outside of the cylinder head).

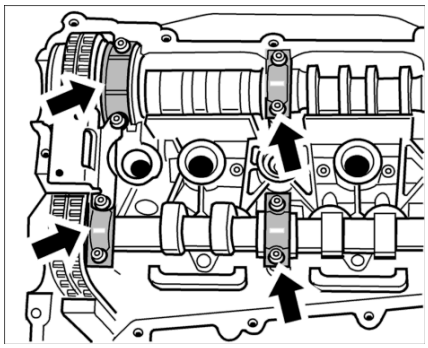


Exhaust sprocket 1 - 3 at 60° before TDC

28. Insert exhaust camshaft sprocket in the timing chain and position on camshaft flange. The four threaded bores in the camshaft flange must be fully visible **on the left at the slotted curves of the sprocket -arrows-** so that the Torx screws M6 x 12 can still be positioned to fasten the sprocket.



Exhaust sprocket 1 - 3, all screws fitted

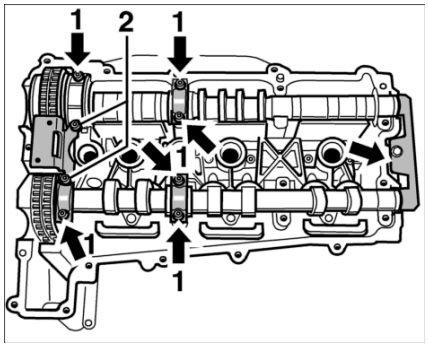


Installation position of housing

Note

- *Do not interchange the thrust bearings of the inlet and exhaust camshafts during assembly; observe identification markings.*

29. Insert three thrust bearings and one housing **-arrows-** for the bearing sleeve of the camshafts together with the guide rail for the timing chain.



Position of housing screws

30. Insert eight housing screws (Torx): six M6 x 35 **-1-** and two M6 x 40 **-2-** for camshaft bearing and guide rail. Tighten screws evenly and just finger-tight.

Timing for side 1 - 3

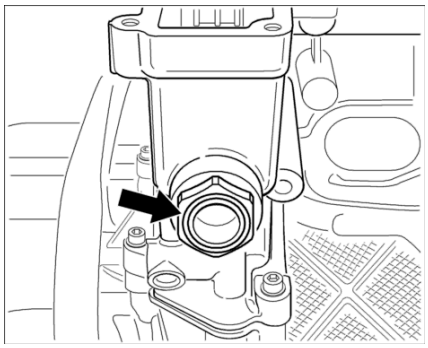
Note

- *Position crankshaft above the pulley or vibration balancer before final adjustment of the timing to the TDC marking.*

Note

- *Before final tightening (torque angle) of the central screw, the special tool **adjusting gauge 9686** must be removed.*

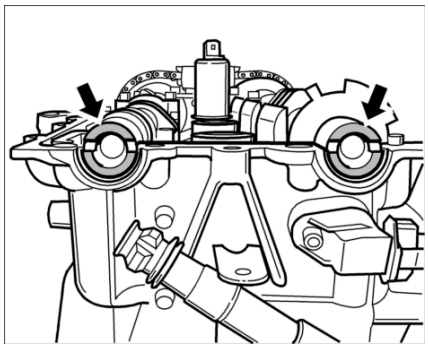
31. Final timing adjustment for cylinder bank 1 - 3 is analogous to that for cylinder bank 4 - 6. ;



Chain tensioner, cylinder 1 - 3

32. Fit chain tensioner for side 1 - 3 (hexagon a/f 32) before turning crankshaft to the TDC mark. Fit chain tensioner with new sealing ring and tighten. **Tightening torque: 59 ftlb.**

After adjusting the timing, this should be re-checked.



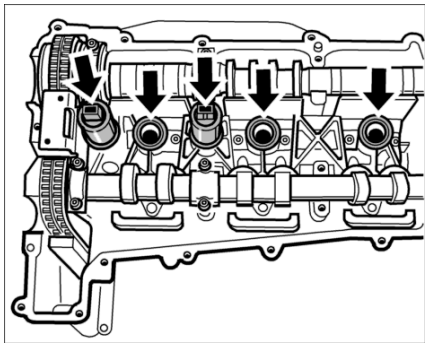
Slot position of camshafts at overlap

33. Turn the engine 360° at the crankshaft and fix at the TDC mark. Check camshaft position of cylinder bank 4 - 6 using the **adjusting gauge 9686**. Then turn a further 360° and check the camshaft position of cylinder bank 1 - 3.

top of page

Subsequent work for installing camshafts

Subsequent work for installing camshafts



Gaskets for spark plug recess and solenoid hydraulic valves

1. Insert solenoid hydraulic valves and new gaskets for the spark-plug recesses. Fit new O-rings into both solenoid hydraulic valves and insert into the bores in the cylinder head. Grease O-rings with Optimol MP3. 153719 Removing and installing solenoid hydraulic valve NVS - chapter on "installing" and 155519 Removing and installing solenoid hydraulic valve VHS - chapter on "installing".
2. Install cylinder head cover 159119 Removing and installing cylinder head cover - chapter on "installing".
3. Fit oil suction pump (1 - 3) and tandem pump (4 - 6) with new, micro-self-locking Torx screws M6. Replace O-rings and grease with Optimol MP3. **Tightening torque: 7.5 ftlb.**
4. Fit new plastic cap dry on cylinder head. Tap in with a plastic hammer.
5. Fit ground strap to cylinder head 4 - 6 with Torx screw M8 x 20 and tighten. **Tightening torque: 17 ftlb.**
6. Insert each ignition coil into its spark plug recess, fit two M6 x 25 Torx socket screws and tighten. **Tightening torque: 7.5 ftlb.**
7. Fit retainer plates and holders for the solenoid hydraulic valves. 153719 Removing and installing solenoid hydraulic valve NVS - chapter on "installing" and 155519 Removing and installing solenoid hydraulic valve VHS - chapter on "installing". **Tightening torque: 7.5 ftlb.**
8. Fit holder for rear muffler. Fit and tighten two Torx screws M8 x 30 intake side and two Torx screws M8 x 25 exhaust side. Fit cable plugs for ignition coils and solenoid hydraulic valves, fixing cable in the sheetmetal clips. **Tightening torque: 17 ftlb.**
9. Fit and tighten cover plate with two Torx screws M6 x 16. **Tightening torque: 7.5 ftlb.**
10. Connect two cable plugs to the oil temperature switch for cylinder bank 4 - 6..

997110, 997111, 997310, 997311, 997410, 997411, 997610, 997611

as of MY 2005
Country C00, C02, C05, C07, C08, C09, C10, C11, C12, C13, C14, C15, C16, C18, C19, C20, C21, C22, C23, C24, C25, C26, C27, C28, C32, C33, C34, C35, C36, C37, C38, C39, C45, C46, C98, C99

WARNUNG

Gefahr des Verlusts der Text-Bild-Zuordnung beim Ausdruck.

- **Aus technischen Gründen kann derzeit nicht ausgeschlossen werden, dass trotz einwandfreier Darstellung auf dem Bildschirm beim Ausdruck der Zusammenhang von Text und zugehörigem Bild verloren geht.**
- **Wird der Fehler nicht bemerkt, besteht die Gefahr, daß Arbeiten nicht korrekt durchgeführt werden und es dadurch zu Personen- und Sachschäden kommt.**

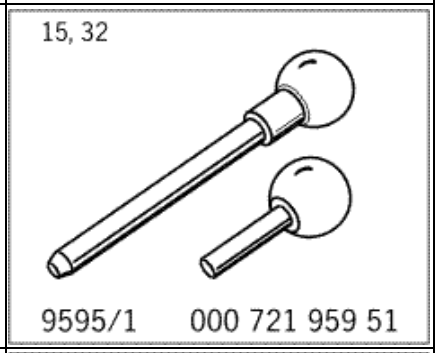
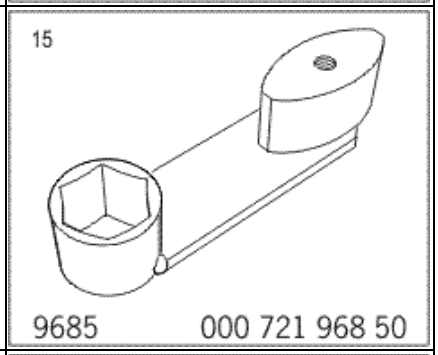
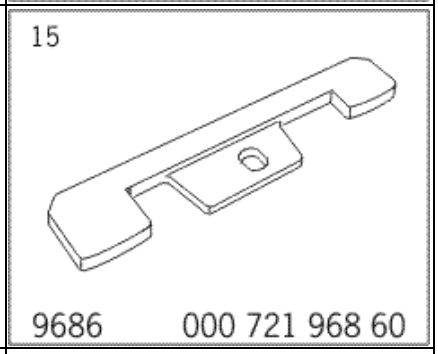
Vergleichen Sie deshalb nach dem Druckvorgang unbedingt die Ausdrucke mit der Bildschirmdarstellung. Korrigieren Sie die Ausdrucke im Fehlerfall so, daß der Inhalt der Bildschirmdarstellung zutreffend wiedergegeben wird.

WARNING

15 05 20 Removing and installing camshaft, adjusting timing - engine removed - as of MY 2005

- Allocation of inlet camshaft adjustment device
- Allocation of chain tensioners
- Preliminary work for removing camshafts
- Removing camshaft - engine removed
- Installing camshaft - engine removed
- Subsequent work for installing camshafts

Tools

Designation	Type	Number	Explanation	
locating pin	special tool	9595/1		
retaining tool	special tool	9685		
adjusting gauge	special tool	9686		
cover for dust protection when fitting the engine	commercially available tool	NR.165		

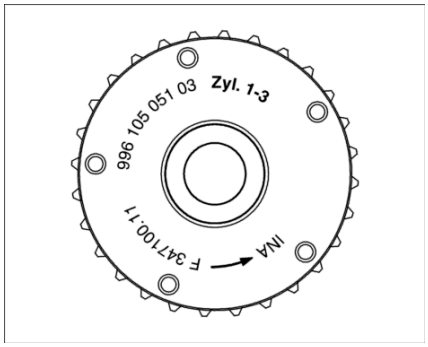
				PORSCHE siehe Handbuch Werkstattausrüstung Voir le Manuel Equipement d´atelier Refer to the Workshop Equipment manual Vease Manual de Equipamiento de Taller Vedere il Manuale dell´attrezzatura d´officina ワークショップ・イクイップメント・マニュアルを参照

top of page

Allocation of inlet camshaft adjustment device

Allocation of inlet camshaft adjustment device

Camshaft adjustment device on inlet camshaft, cylinder bank 1 - 3



Designation of adjuster 1 - 3

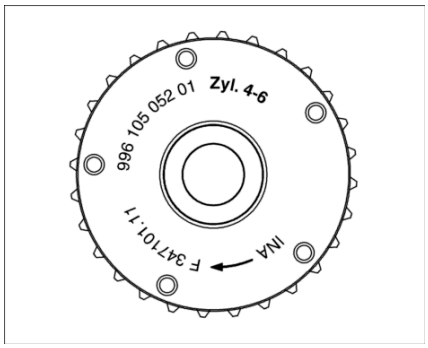
Note

- *Side 1 - 3: the arrow should be attached anti-clockwise*

– Designation, side 1 - 3:

- Part number, cylinder bank, manufacturer information, direction of rotation of engine (arrow), production date.

Camshaft adjustment device on inlet camshaft, cylinder bank 4 - 6



Designation of adjuster 4 -6

Note

- *Side 4 - 6: the arrow should be attached clockwise*

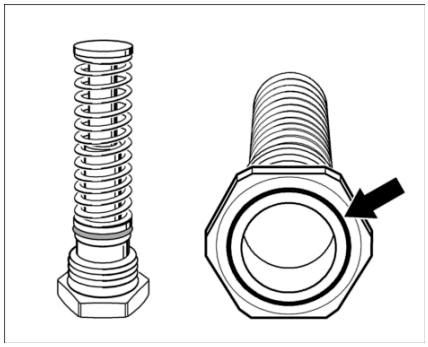
– Designation, side 4 - 6:

  - Part number, cylinder bank, manufacturer information, direction of rotation of engine (arrow), production date.

top of page

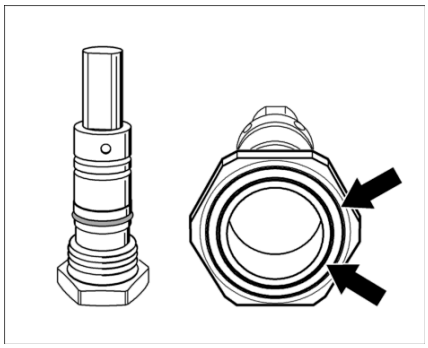
Allocation of chain tensioners

Allocation of chain tensioners



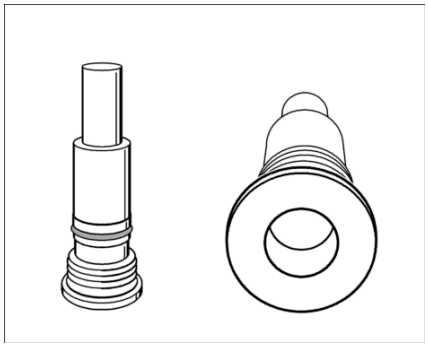
Primary chain tensioner

– Primary chain tensioner on crankcase (oil filter area), identification: **one ring -arrow-**



Chain tensioner, cylinders 1 - 3

– Chain tensioner on cylinder head, cylinder bank 1 - 3, identification: **two rings -arrows-**



Chain tensioner 4 - 6

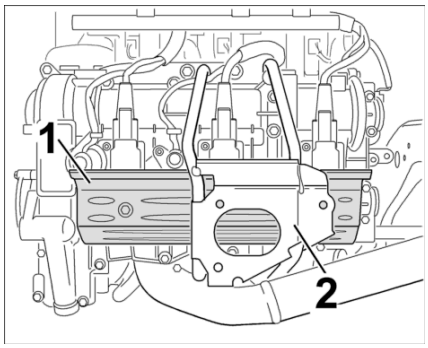
– Chain tensioner on cylinder head, cylinder bank 4 - 6, no identification.

top of page

Preliminary work for removing camshafts

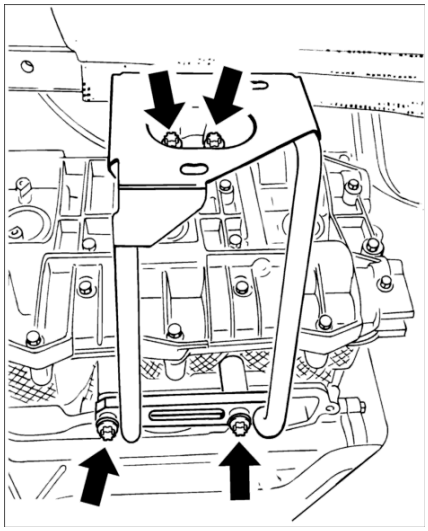
Preliminary work for removing camshafts

1. Remove engine 100119 Removing and installing engine - chapter on "removing".
2. Remove rear muffler 263319 Removing and installing rear muffler - chapter on "removing".



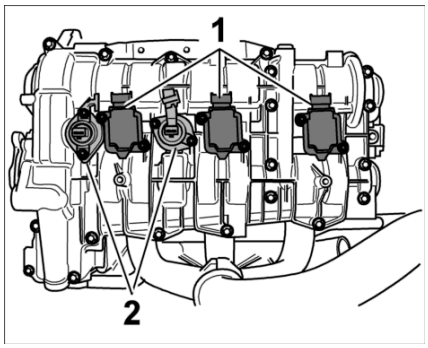
Cover plate and support for rear muffler

3. Remove cover plate for ignition coils **-1-** . Unscrew two M6 x 16 Torx screws and remove cover plate.



Rear muffler support

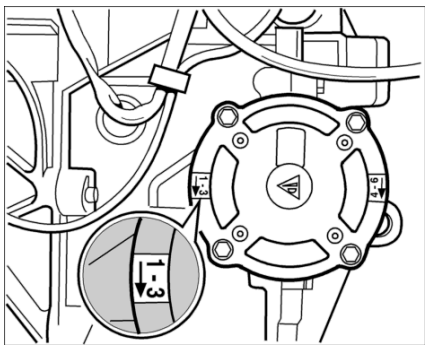
4. Remove support for rear muffler. Disconnect cable plugs of ignition coils and magnetic hydraulic valves. Unscrew four Torx screws: intake side two M8 x 30, exhaust side two M8 x 25, remove support.
5. For disassembling cylinder bank 4 - 6, undo the ground cable on the cylinder head by unscrewing a Torx screw M8 and removing the cable. Disconnect two cable plugs from oil pressure switch.



Hydraulic valves for camshaft adjustment and ignition coils

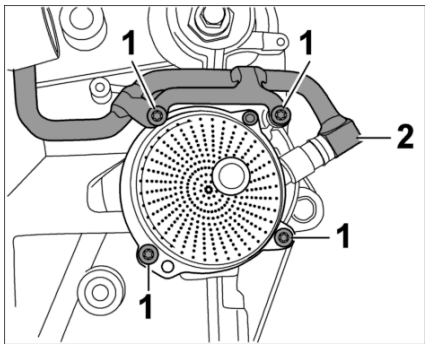
6. Remove ignition coils **-1-** . In each case unscrew two Torx socket screws M6 x 25 and pull the ignition coils out of the spark-plug recess.
7. Remove solenoid hydraulic valves **-2-** (NVS und VHS). 153719 Removing and installing solenoid hydraulic valve NVS - chapter on "removing" and 155519 Removing and installing solenoid hydraulic valve VHS - chapter on "removing".

8. Remove spark plugs. 287020 Removing and installing spark plugs - chapter on "removing".



Oil suction pump for cylinders 1 - 3

9. Remove oil suction pump for cylinders 1 - 3. Unscrew four Torx screws M6 x 20 (micro-self-locking), remove oil suction pump, and replace O-ring and screws.



Tandem pump side 4 - 6

10. Remove tandem pump for cylinders 4 - 6. Unscrew four Torx screws M6 (micro-self-locking) **-1-** . Pull off the vacuum line on pump **-2-** . Remove pump and replace O-rings and micro-self-locking screws.

top of page

Removing camshaft - engine removed

Removing camshafts - engine removed

ATTENTION

Risk of damage due to particles of dirt.

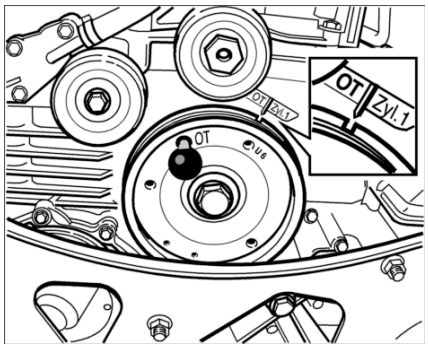
- **Oil bores/oil ducts can become blocked up.**

When working on the engine, absolute cleanliness is essential.

Lay removed engine parts on a clean base and cover them without fail.

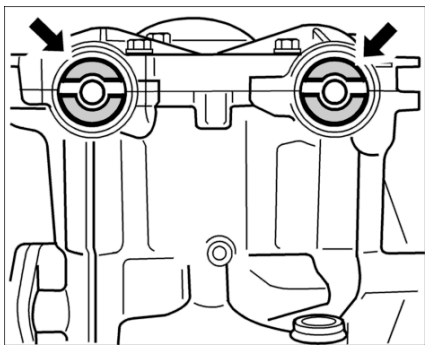
Use the **cover for dust protection when fitting the engine NR.165** on the engine assembly support.

1. Remove the plastic caps on the cylinder head. Press a small screwdriver into the centre of the piercing point of each cap and lever out the cap.



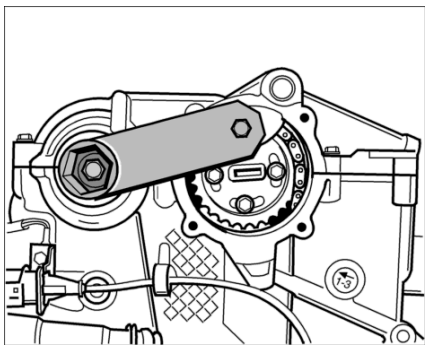
TDC marking on pulley

2. **Disassembling cylinder bank 1 - 3 Turn** crankshaft at the pulley/vibration balancer **clockwise** to the overlapping TDC of cylinder 1. **Disassembling cylinder bank 4 -6** Turn crankshaft to the TDC for cylinder 4. Using a **locating pin 9595/1** fix the pulley or vibration balancer .



Position of the camshafts in overlapping TDC of cylinders 1 or 4

3. If the camshafts of cylinder bank 1 - 3 are removed, the smaller circular cut-outs at the grooves of the inlet and outlet camshafts **-arrows-** of **cylinder 1** must point to the cylinder head cover. For cylinder bank 4-6 the corresponding position is then on **cylinder 4**. Check the position using the **adjusting gauge 9686**.

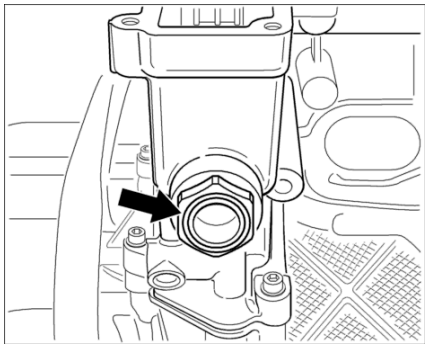


Unscrew the central screw on the camshaft adjuster.

Note

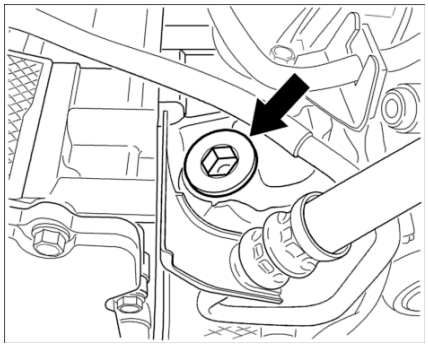
- *Before disassembling the cylinder head cover, it is essential to unscrew the central screw on the camshaft adjustment device.*

4. Unscrew the central screw on the camshaft adjustment device. Position **retaining tool 9685** on the hexagon of the adapter and place the contact block as a counter on the fitting bore of the cylinder head cover for the oil suction pump; if necessary, position the contact block by undoing and tightening the screw. If the special tool cannot be positioned on the hexagon of the adapter in this way, the engine must be turned further in the direction of rotation at the pulley of the crankshaft until the contact block comes into contact with the central screw of the cylinder head cover, ready for unscrewing. Unscrew the central screw.
5. Remove cylinder head cover. 159119 Removing and installing cylinder head cover- chapter on "removing".
6. Release the four Torx screws M6 x 16 on the sprocket of the respective exhaust camshaft. Do not remove the sprocket.



Chain tensioner, cylinders 1 - 3

7. Remove chain tensioner for cylinders 1 - 3 or 4 - 6.



Chain tensioner, cylinders 4 - 6

8. **Cylinder bank 4 - 6** Unscrew guide rail screw M6 on pulley side (hexagon socket a/f 5).
9. Turn the engine at the assembly support so that cylinder bank to be worked on stands vertically upwards.
10. Unscrew four Torx screws for exhaust camshaft sprocket. Lift timing chain off sprocket and remove the sprocket. Lay timing chain on the mounting tab for the sprocket.
11. Remove the four camshaft thrust bearings and the guide rail. Unscrew eight Torx screws, six M6 x 35, two M6 x 40 (screws for guide rail). Lift the thrust bearing and the guide rail carefully off the mounting points or timing chain.
12. Remove the camshafts. Remove exhaust camshaft, lift timing chain off the camshaft adjuster of the inlet camshaft and remove the camshaft. Lay the timing chain in the chain housing in the cylinder head.

top of page

Installing camshaft - engine removed

Installing camshafts, adjusting timing - engine removed

ATTENTION

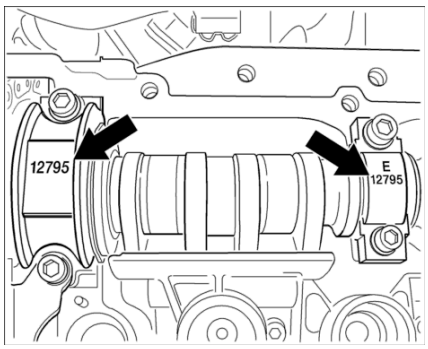
Risk of damage due to particles of dirt.

- **Oil bores/oil ducts can become blocked up.**

When working on the engine, absolute cleanliness is essential.

Lay removed engine parts on a clean base and cover them without fail.

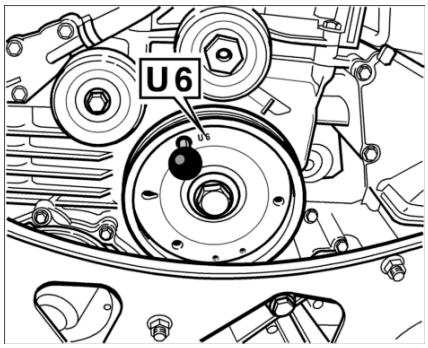
Use the **cover for dust protection when fitting the engine NR.165** on the engine assembly support.



Identification of camshaft housing:

Identification of housings of camshafts:

- **Inlet camshaft:**
- **Thrust bearing:** 'E' and matching number on cylinder head/cylinder head cover
- **Housing of bearing sleeve:** only matching number
- **Outlet camshaft:**
- **Thrust bearing on sprocket:** '1A' and matching number on cylinder head/cylinder head cover
- **2nd Thrust bearing:** '2A' and matching number on cylinder head/cylinder head cover

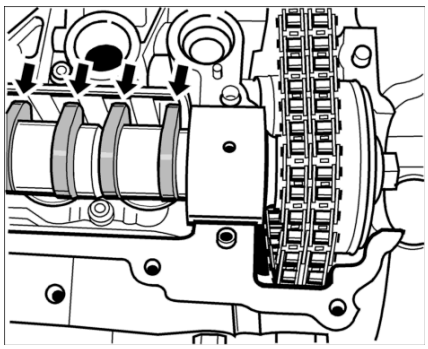


Pulley fixed at 60° before TDC

1. To remove the play from the timing chain drive, turn the crankshaft by means of the pulley or vibration balancer**clockwise (running direction of engine** to 60° before TDC **: marking U6 on pulley or vibration balancer coincides with fixing bore in crankcase**. Fix with **locating pin 9595/1**.

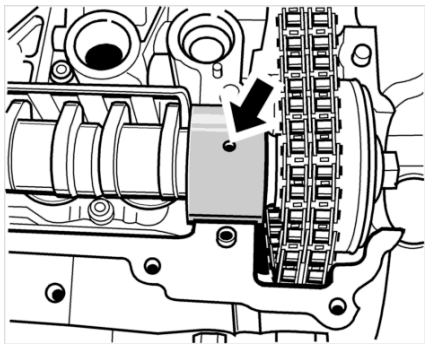
Assembly of cylinder bank 4 - 6

2. Turn the engine on the assembly support until cylinder bank 4 - 6 stands vertically upwards.
3. Oil the bearing surfaces of the camshafts with new engine oil.



Inlet camshaft 4 - 6 in overlap

4. Insert inlet camshaft 4 - 6. Pull the timing chain out of the chain housing of the cylinder head with a welding wire and position on the ring gear of the camshaft adjuster, at the same time inserting the camshaft at overlapping TDC of cylinder 4 (the cams of cylinder 4 point towards the bulkhead of the flat-base tappet housing **-arrows-**).

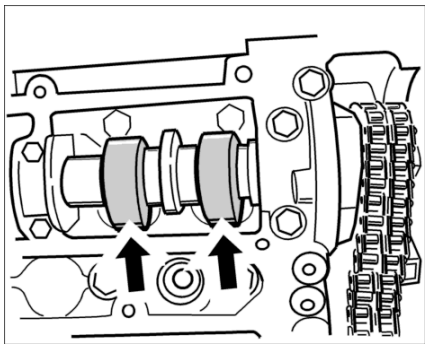


Position of bearing sleeve for inlet camshaft

Note

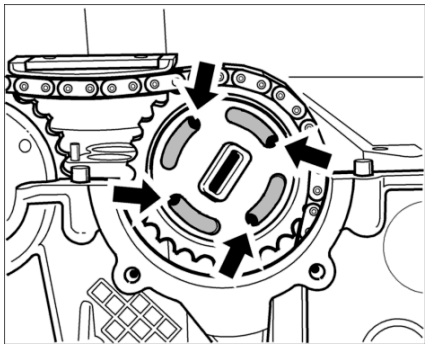
- *Make sure that the bearing sleeve on the inlet camshaft is positioned correctly.*

5. The bearing sleeve of the inlet camshaft must be positioned so that the centrally bored blind hole points vertically upwards **-arrow-** (the rib of the cylinder head should also be at the centre in relation to the bearing sleeve). In this position, the dowel pin in the bearing bore of the cylinder head will fit precisely into the opposite off-centre blind hole bore. Any other bores are through-holes for guiding the oil.



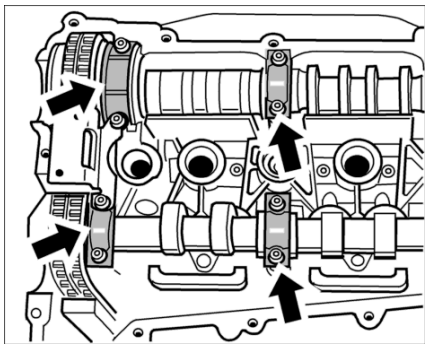
Exhaust camshaft 4 - 6

6. Insert exhaust camshaft 4 - 6. Lay the timing chain on the flange for the sprocket, then insert the camshaft at overlapping TDC of cylinder 4 (the outlet cams of cylinder 4 point towards the cams of the inlet camshaft **-arrows-**).



Position of sprocket 4 - 6 at 60° before TDC

7. Insert exhaust camshaft sprocket in the timing chain and position on camshaft flange. The four threaded bores in the camshaft flange must be covered by the slots of the sprocket **in the clockwise running direction of the engine** approximately half way **-arrows-** .
8. Oil the bearing surfaces of the camshafts with new engine oil.

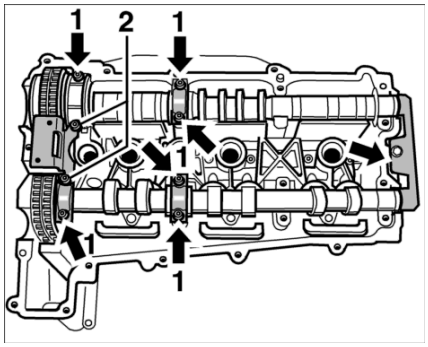


Installation position of housing

Note

- *Do not interchange the thrust bearings of the inlet and exhaust camshafts during assembly; observe identification markings.*

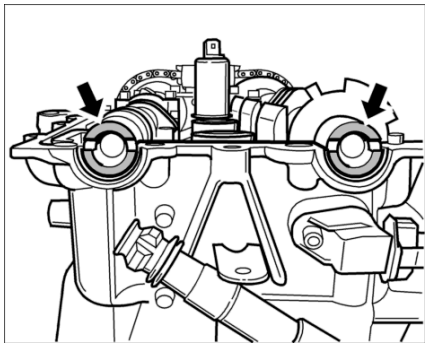
9. Insert three thrust bearings and one housing **-arrows-** for the bearing sleeve of the camshafts together with the guide rail for the timing chain.



Position of housing screws

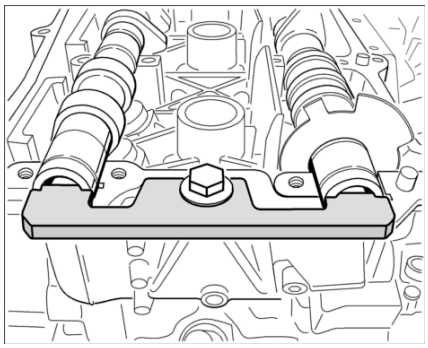
10. Insert eight housing screws (Torx): six M6 x 35 **-1-** and two M6 x 40 **-2-** for camshaft bearing and guide rail. Tighten screws evenly and just finger-tight.

Adjust timing, cylinder bank 4 - 6



Slot position of camshafts at overlap

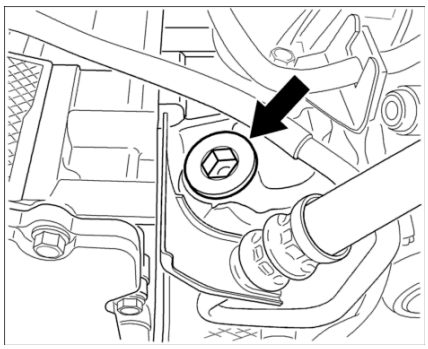
11. Align both camshafts. The small circular cut-outs must point upwards **-arrows-** .



Position of adjusting gauge 9689

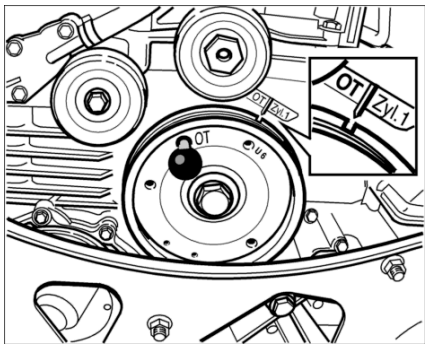
12. Using special tool **adjusting gauge 9686**, fix camshafts (if necessary with the gauge twisted) with an M8 screw (e.g. hexagon-head bolt M8 x 16). The flat tool face points upwards. Screw in fastening screw by hand.
13. Screw the housing screws of the inlet and exhaust camshafts and the auxiliary screw of the adjustment gauge alternately by approx. another 90° until the specified tightening torque is reached. **Tightening torque: 7.5 ftlb.**

14. Insert guide rail screw with a new O-ring and tighten (hexagon socket M6, a/f 5) Grease O-ring with Optimol MP3. **Tightening torque: 7.5 ftlb.**



Chain tensioner, cylinders 4 - 6

15. Fit chain tensioner, side 4 - 6 (hexagon socket a/f 14). Fit chain tensioner with new aluminium sealing ring and tighten. **Tightening torque: 59 ftlb.**

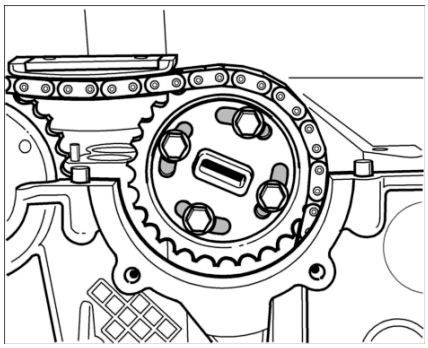


Pulley fixed at TDC marking

Note

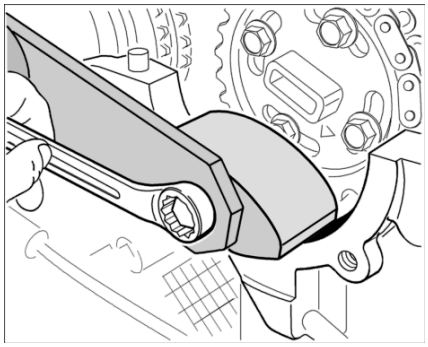
- *Position crankshaft above the pulley or vibration balancer before final adjustment of the timing to the TDC marking.*

16. Turn the crankshaft by means of the pulley or vibration balancer **clockwise (running direction of engine** to TDC mark **: marking U6 on pulley or vibration balancer coincides with fixing bore in crankcase**. Fix with **locating pin 9595/1**.



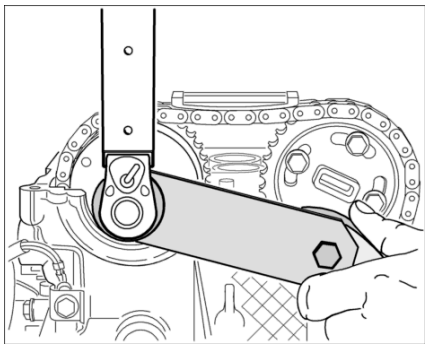
Exhaust camshaft sprocket tightened

17. Insert four Torx screws M6 to sprocket of exhaust camshaft and tighten evenly in diagonally opposite sequence. **Tightening torque: 10.5 ftlb.**



Contact block at the fitting bore of the cylinder head

18. Tighten the central screw of the camshaft adjusting device. Fit special tool **retaining tool 9685** on hexagon of intermediate piece of the central screw. Screw in the central screw gently by hand so that the loose contact block just touches the fitting bore of the oil suction pump. Fix the hexagon-head bolt to the contact block.



Tighten central screw of camshaft adjusting device.

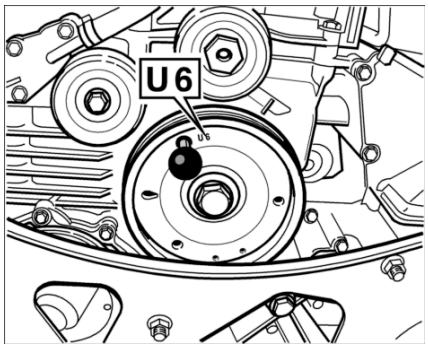
Note

- *Before final tightening (torque angle) of the central screw, the special tool **adjusting gauge 9686** must be removed.*

19. Tighten the central screw in two stages. Initial tightening to the specified toque. **Initial tightening: 37 ftlb.**
20. Remove special tool **adjustment gauge 9686**. Undo the M8 screw and remove gauge.
21. Apply final tightening to central screw with torque angle wrench. **Final tightening torque angle: 110 °**

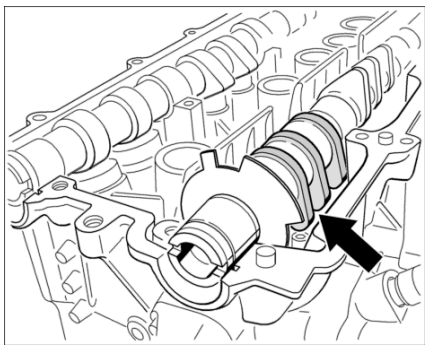
Assembly of cylinder bank 1 -3

22. Turn the engine on the assembly support until cylinder bank 1 - 3 stands vertically upwards.



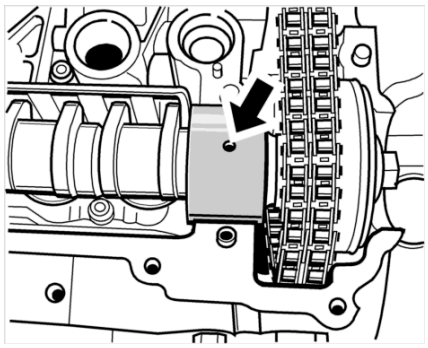
Pulley fixed at 60° before TDC

23. Turn the crankshaft by means of the pulley or vibration balancer **clockwise (running direction of engine** further still until the **marking U6 on pulley or vibration balancer coincides with fixing bore in crankcase** (60° before TDC). Fix with **locating pin 9595/1**.
24. Oil the bearing surfaces of the camshafts with new engine oil.



Inlet camshaft 1-3 in overlap

25. Insert inlet camshaft 1 - 3. Pull the control chain out of the chain housing of the cylinder head with a welding wire and position on the toothed ring of the camshaft adjuster. Then insert the camshaft at overlapping TDC of cylinder 1 (the cams of cylinder 1 point diagonally downwards towards the outside of the cylinder head **-arrow-**).



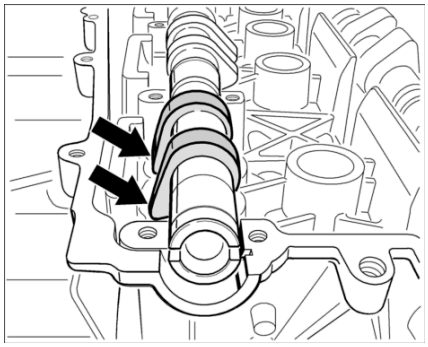
Position of bearing sleeve for inlet camshaft

Note

- *Make sure that the bearing sleeve on the inlet camshaft is positioned correctly.*

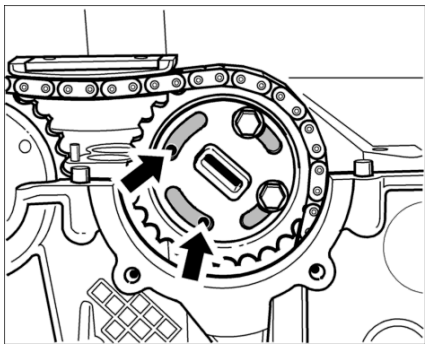
26. The bearing sleeve of the inlet camshaft must be positioned so that the centrally bored blind hole points vertically upwards **-arrow-** (the rib of the cylinder head should also be at the centre in relation to the bearing sleeve). In this position, the dowel pin in the bearing bore of the cylinder head will fit precisely

into the opposite off-centre blind hole bore. Any other bores are through-holes for guiding the oil.



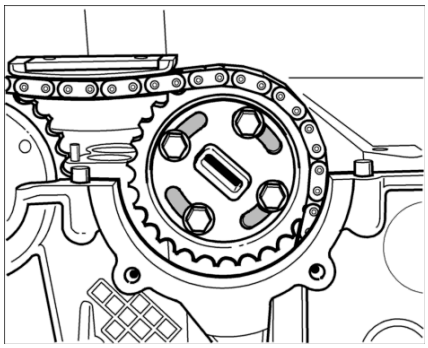
Exhaust camshaft 1-3 in overlap

27. Insert exhaust camshaft 1 - 3. Lay the control chain on the flange for the chain sprocket, then insert the camshaft at overlapping TDC of cylinder 1 (the cams of cylinder 1 point diagonally downwards towards the outside of the cylinder head).

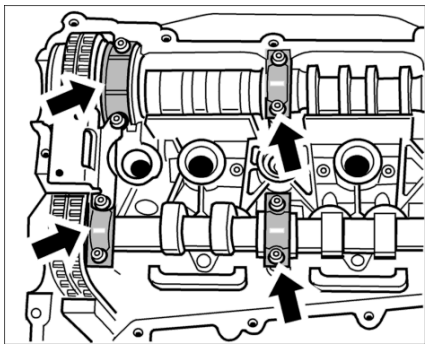


Exhaust sprocket 1 - 3 at 60° before TDC

28. Insert exhaust camshaft sprocket in the timing chain and position on camshaft flange. The four threaded bores in the camshaft flange must be fully visible **on the left at the slotted curves of the sprocket -arrows-** so that the Torx screws M6 x 12 can still be positioned to fasten the sprocket.



Exhaust sprocket 1 - 3, all screws fitted

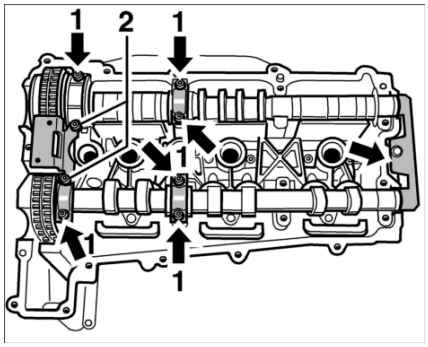


Installation position of housing

Note

- *Do not interchange the thrust bearings of the inlet and exhaust camshafts during assembly; observe identification markings.*

29. Insert three thrust bearings and one housing **-arrows-** for the bearing sleeve of the camshafts together with the guide rail for the timing chain.



Position of housing screws

30. Insert eight housing screws (Torx): six M6 x 35 **-1-** and two M6 x 40 **-2-** for camshaft bearing and guide rail. Tighten screws evenly and just finger-tight.

Timing for side 1 - 3

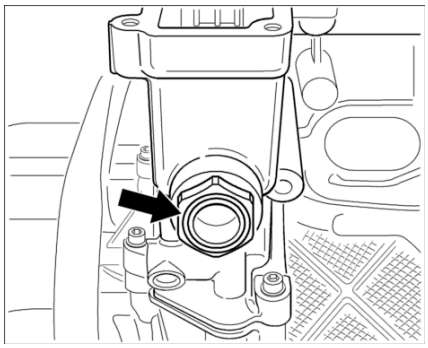
Note

- *Position crankshaft above the pulley or vibration balancer before final adjustment of the timing to the TDC marking.*

Note

- *Before final tightening (torque angle) of the central screw, the special tool **adjusting gauge 9686** must be removed.*

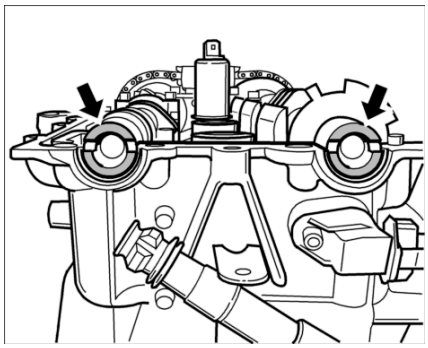
31. Final timing adjustment for cylinder bank 1 - 3 is analogous to that for cylinder bank 4 - 6. ;



Chain tensioner, cylinder 1 - 3

32. Fit chain tensioner for side 1 - 3 (hexagon a/f 32) before turning crankshaft to the TDC mark. Fit chain tensioner with new sealing ring and tighten. **Tightening torque: 59 ftlb.**

After adjusting the timing, this should be re-checked.



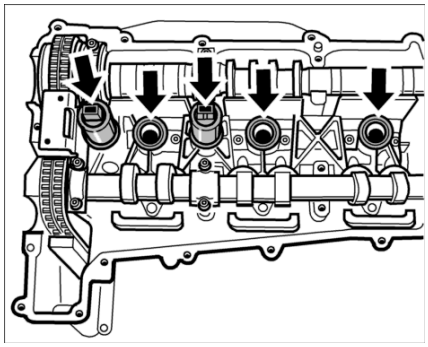
Slot position of camshafts at overlap

33. Turn the engine 360° at the crankshaft and fix at the TDC mark. Check camshaft position of cylinder bank 4 - 6 using the **adjusting gauge 9686**. Then turn a further 360° and check the camshaft position of cylinder bank 1 - 3.

top of page

Subsequent work for installing camshafts

Subsequent work for installing camshafts



Gaskets for spark plug recess and solenoid hydraulic valves

1. Insert solenoid hydraulic valves and new gaskets for the spark-plug recesses. Fit new O-rings into both solenoid hydraulic valves and insert into the bores in the cylinder head. Grease O-rings with Optimol MP3. 153719 Removing and installing solenoid hydraulic valve NVS - chapter on "installing" and 155519 Removing and installing solenoid hydraulic valve VHS - chapter on "installing".
2. Install cylinder head cover 159119 Removing and installing cylinder head cover - chapter on "installing".
3. Fit oil suction pump (1 - 3) and tandem pump (4 - 6) with new, micro-self-locking Torx screws M6. Replace O-rings and grease with Optimol MP3. **Tightening torque: 7.5 ftlb.**
4. Fit new plastic cap dry on cylinder head. Tap in with a plastic hammer.
5. Fit ground strap to cylinder head 4 - 6 with Torx screw M8 x 20 and tighten. **Tightening torque: 17 ftlb.**
6. Insert each ignition coil into its spark plug recess, fit two M6 x 25 Torx socket screws and tighten. **Tightening torque: 7.5 ftlb.**
7. Fit retainer plates and holders for the solenoid hydraulic valves. 153719 Removing and installing solenoid hydraulic valve NVS - chapter on "installing" and 155519 Removing and installing solenoid hydraulic valve VHS - chapter on "installing". **Tightening torque: 7.5 ftlb.**
8. Fit holder for rear muffler. Fit and tighten two Torx screws M8 x 30 intake side and two Torx screws M8 x 25 exhaust side. Fit cable plugs for ignition coils and solenoid hydraulic valves, fixing cable in the sheetmetal clips. **Tightening torque: 17 ftlb.**
9. Fit and tighten cover plate with two Torx screws M6 x 16. **Tightening torque: 7.5 ftlb.**
10. Connect two cable plugs to the oil temperature switch for cylinder bank 4 - 6..

997430, 997431

as of MY 2005
Country C00, C02, C05, C07, C08, C09, C10, C11, C12, C13, C14, C15, C16, C18, C19, C20, C21, C22, C23, C24, C25, C26, C27, C28, C32, C33, C34, C35, C36, C37, C38, C39, C45, C46, C98, C99

WARNUNG

Gefahr des Verlusts der Text-Bild-Zuordnung beim Ausdruck.

- **Aus technischen Gründen kann derzeit nicht ausgeschlossen werden, dass trotz einwandfreier Darstellung auf dem Bildschirm beim Ausdruck der Zusammenhang von Text und zugehörigem Bild verloren geht.**
- **Wird der Fehler nicht bemerkt, besteht die Gefahr, daß Arbeiten nicht korrekt durchgeführt werden und es dadurch zu Personen- und Sachschäden kommt.**

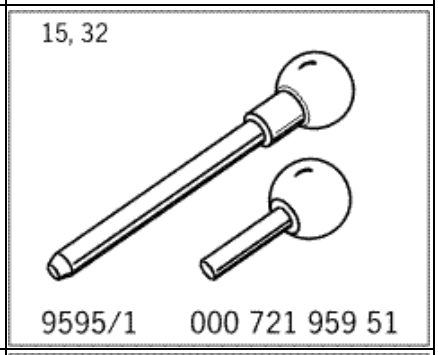
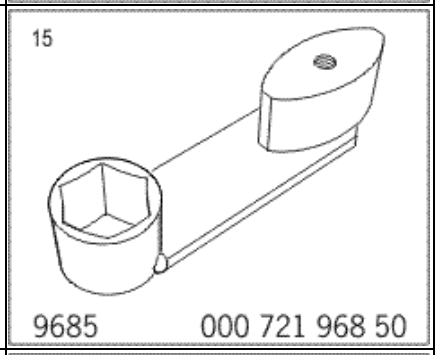
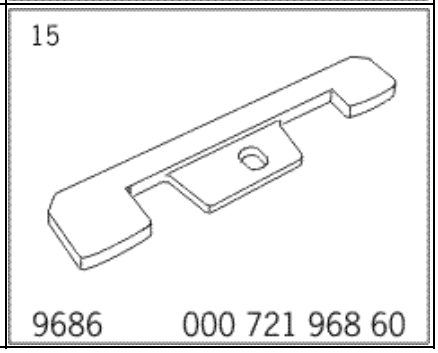
Vergleichen Sie deshalb nach dem Druckvorgang unbedingt die Ausdrucke mit der Bildschirmdarstellung. Korrigieren Sie die Ausdrucke im Fehlerfall so, daß der Inhalt der Bildschirmdarstellung zutreffend wiedergegeben wird.

WARNING

15 05 20 Removing and installing camshaft, adjusting timing - engine removed - as of MY 2005

- Camshaft designation M97/01
- Allocation of inlet camshaft adjustment device
- Allocation of chain tensioners
- Preliminary work for removing camshafts
- Removing camshaft - engine removed
- Installing camshaft - engine removed
- Subsequent work for installing camshafts

Tools

Designation	Type	Number	Explanation	
locating pin	special tool	9595/1		
retaining tool	special tool	9685		
adjusting gauge	special tool	9686		

cover for dust protection when fitting the engine	commercially available tool	NR.165		PORSCHE siehe Handbuch Werkstattausrüstung Voir le Manuel Equipement d´atelier Refer to the Workshop Equipment manual Vease Manual de Equipamiento de Taller Vedere il Manuale dell´attrezzatura d´officina ワークショップ・イクイップメント・マニュアルを参照

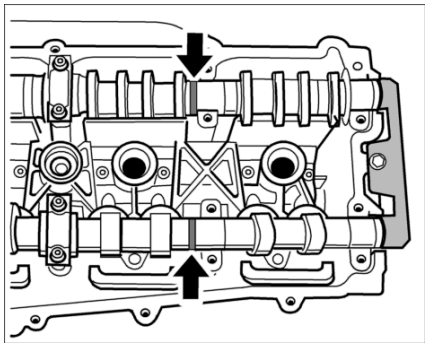
top of page

Camshaft designation M97/01

Camshaft designation M97/01

Note

Between the start of series production in April 2004 and August 2004, the camshaft manufacturer changed the lettering of the camshafts. In order to avoid a mixed installation, particular attention must be paid to the designation of engines installed in standard vehicles during this period.



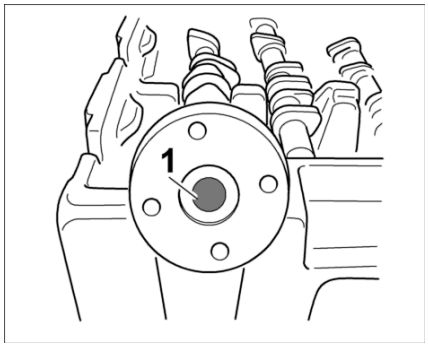
Position of camshaft designation

Position of lettering: -arrows-
Camshafts for cylinders 1 - 3:

- Inlet camshaft: 997.105.211.01
- Exhaust camshaft: 996.105.262.05 3,8 EX 1-3
- Inlet camshaft (new): 997.105.047.00/02
- Exhaust camshaft (new): 996.105.059.01 3.8 EX 1-3

Camshafts for cylinders 4 - 6:

- Inlet camshaft: 997.105.213.01
- Exhaust camshaft: 996.105.264.05 3,8 EX 4-6 (with aluminium plugs)
- Inlet camshaft (new): 997.105.048.00/02
- Exhaust camshaft (new): 996.105.060.01 3,8 EX 4-6 (with aluminium plugs)



Aluminium plugs in exhaust camshaft 4 - 6

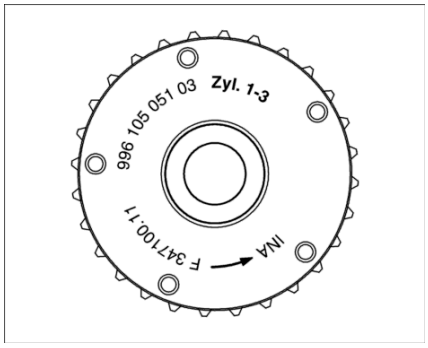
Additional identifying feature for exhaust camshaft 4 - 6: aluminium plugs with lubrication bore for tandem pump

top of page

Allocation of inlet camshaft adjustment device

Allocation of inlet camshaft adjustment device

Camshaft adjustment device on inlet camshaft, cylinder bank 1 - 3



Designation of adjuster 1 - 3

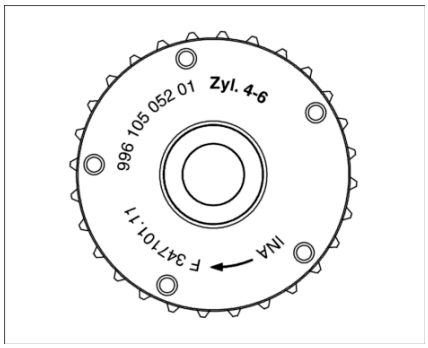
Note

- *Side 1 - 3: the arrow should be attached anti-clockwise*

– Designation, side 1 - 3:

- Part number, cylinder bank, manufacturer information, direction of rotation of engine (arrow), production date.

Camshaft adjustment device on inlet camshaft, cylinder bank 4 - 6



Designation of adjuster 4 -6

Note

- *Side 4 - 6: the arrow should be attached clockwise*

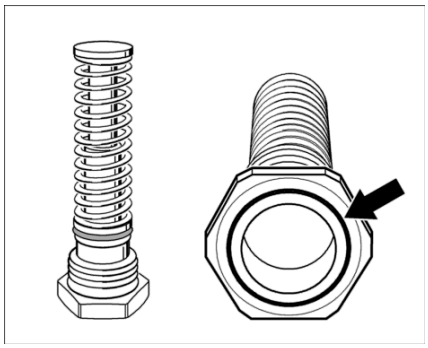
– Designation, side 4 - 6:

- Part number, cylinder bank, manufacturer information, direction of rotation of engine (arrow), production date.

top of page

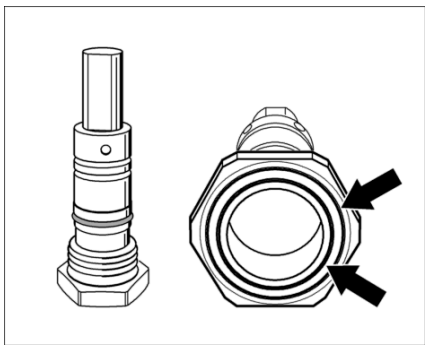
Allocation of chain tensioners

Allocation of chain tensioners



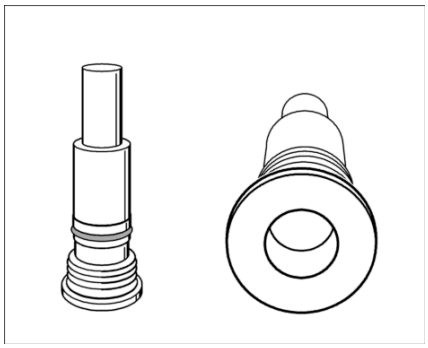
Primary chain tensioner

– Primary chain tensioner on crankcase (oil filter area), identification: **one ring**
-arrow-



Chain tensioner, cylinders 1 - 3

– Chain tensioner on cylinder head, cylinder bank 1 - 3, identification: **two rings**
-arrows-



Chain tensioner 4 - 6

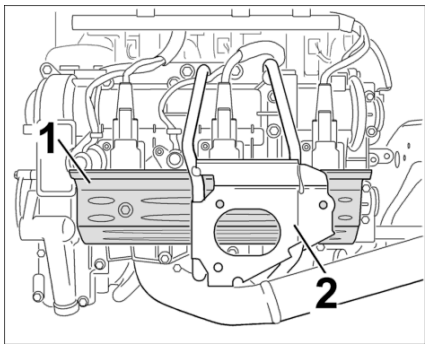
– Chain tensioner on cylinder head, cylinder bank 4 - 6, no identification.

top of page

Preliminary work for removing camshafts

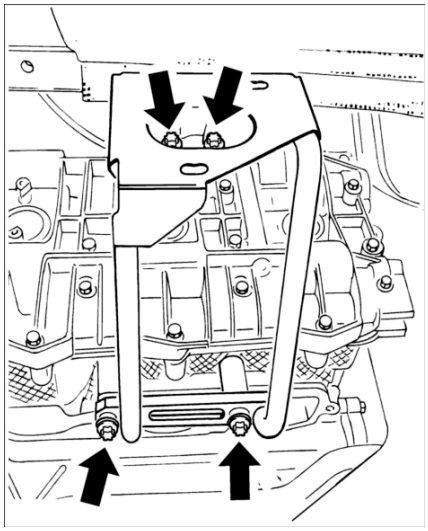
Preliminary work for removing camshafts

1. Remove engine 100119 Removing and installing engine - chapter on "removing".
2. Remove rear muffler 263319 Removing and installing rear muffler - chapter on "removing".



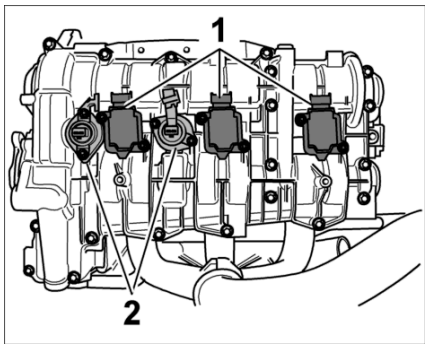
Cover plate and support for rear muffler

3. Remove cover plate for ignition coils **-1-** . Unscrew two M6 x 16 Torx screws and remove cover plate.



Rear muffler support

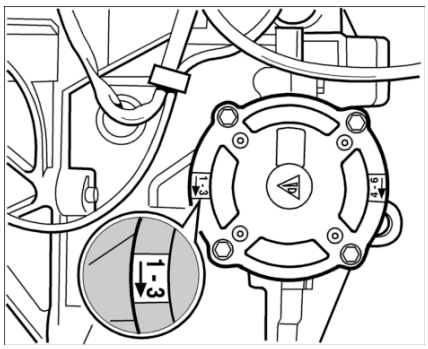
4. Remove support for rear muffler. Disconnect cable plugs of ignition coils and magnetic hydraulic valves. Unscrew four Torx screws: intake side two M8 x 30, exhaust side two M8 x 25, remove support.
5. For disassembling cylinder bank 4 - 6, undo the ground cable on the cylinder head by unscrewing a Torx screw M8 and removing the cable. Disconnect two cable plugs from oil pressure switch.



Hydraulic valves for camshaft adjustment and ignition coils

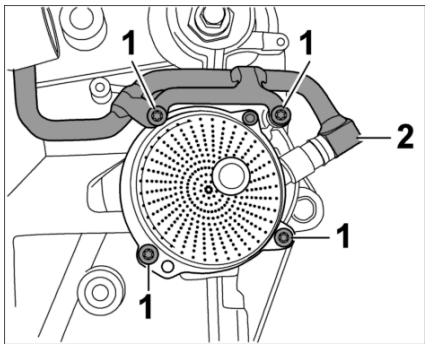
6. Remove ignition coils **-1-** . In each case unscrew two Torx socket screws M6 x 25 and pull the ignition coils out of the spark-plug recess.
7. Remove solenoid hydraulic valves **-2-** (NVS und VHS). 153719 Removing and installing solenoid hydraulic valve NVS - chapter on "removing" and 155519 Removing and installing solenoid hydraulic valve VHS - chapter on "removing".

8. Remove spark plugs. 287020 Removing and installing spark plugs - chapter on "removing".



Oil suction pump for cylinders 1 - 3

9. Remove oil suction pump for cylinders 1 - 3. Unscrew four Torx screws M6 x 20 (micro-self-locking), remove oil suction pump, and replace O-ring and screws.



Tandem pump side 4 - 6

10. Remove tandem pump for cylinders 4 - 6. Unscrew four Torx screws M6 (micro-self-locking) **-1-** . Pull off the vacuum line on pump **-2-** . Remove pump and replace O-rings and micro-self-locking screws.

top of page

Removing camshaft - engine removed

Removing camshafts - engine removed

ATTENTION

Risk of damage due to particles of dirt.

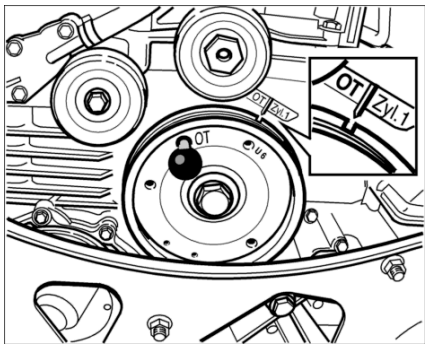
- **Oil bores/oil ducts can become blocked up.**

When working on the engine, absolute cleanliness is essential.

Lay removed engine parts on a clean base and cover them without fail.

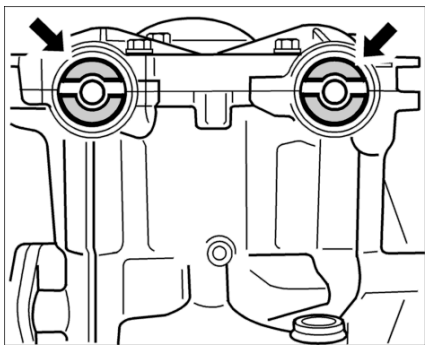
Use the **cover for dust protection when fitting the engine NR.165** on the engine assembly support.

1. Remove the plastic caps on the cylinder head. Press a small screwdriver into the centre of the piercing point of each cap and lever out the cap.



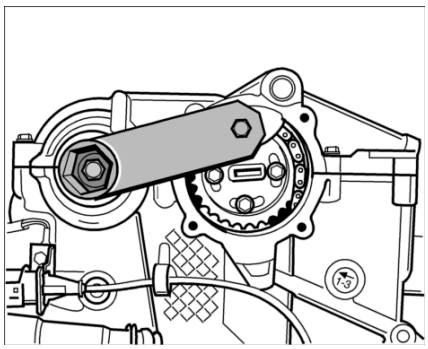
TDC marking on pulley

2. **Disassembling cylinder bank 1 - 3 Turn** crankshaft at the pulley/vibration balancer **clockwise** to the overlapping TDC of cylinder 1. **Disassembling cylinder bank 4 -6** Turn crankshaft to the TDC for cylinder 4. Using a **locating pin 9595/1** fix the pulley or vibration balancer .



Position of the camshafts in overlapping TDC of cylinders 1 or 4

3. If the camshafts of cylinder bank 1 - 3 are removed, the smaller circular cut-outs at the grooves of the inlet and outlet camshafts **-arrows-** of **cylinder 1** must point to the cylinder head cover. For cylinder bank 4-6 the corresponding position is then on **cylinder 4**. Check the position using the **adjusting gauge 9686**.

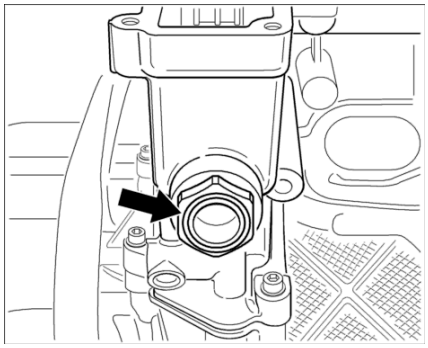


Unscrew the central screw on the camshaft adjuster.

Note

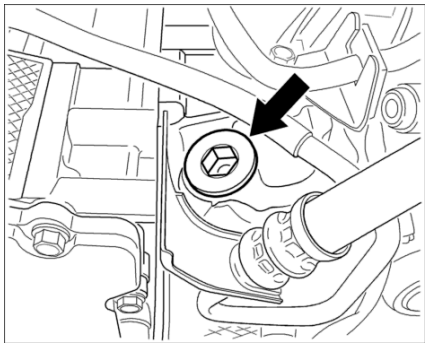
- *Before disassembling the cylinder head cover, it is essential to unscrew the central screw on the camshaft adjustment device.*

4. Unscrew the central screw on the camshaft adjustment device. Position **retaining tool 9685** on the hexagon of the adapter and place the contact block as a counter on the fitting bore of the cylinder head cover for the oil suction pump; if necessary, position the contact block by undoing and tightening the screw. If the special tool cannot be positioned on the hexagon of the adapter in this way, the engine must be turned further in the direction of rotation at the pulley of the crankshaft until the contact block comes into contact with the central screw of the cylinder head cover, ready for unscrewing. Unscrew the central screw.
5. Remove cylinder head cover. 159119 Removing and installing cylinder head cover- chapter on "removing".
6. Release the four Torx screws M6 x 16 on the sprocket of the respective exhaust camshaft. Do not remove the sprocket.



Chain tensioner, cylinders 1 - 3

7. Remove chain tensioner for cylinders 1 - 3 or 4 - 6.



Chain tensioner, cylinders 4 - 6

8. **Cylinder bank 4 - 6** Unscrew guide rail screw M6 on pulley side (hexagon socket a/f 5).
9. Turn the engine at the assembly support so that cylinder bank to be worked on stands vertically upwards.
10. Unscrew four Torx screws for exhaust camshaft sprocket. Lift timing chain off sprocket and remove the sprocket. Lay timing chain on the mounting tab for the sprocket.
11. Remove the four camshaft thrust bearings and the guide rail. Unscrew eight Torx screws, six M6 x 35, two M6 x 40 (screws for guide rail). Lift the thrust bearing and the guide rail carefully off the mounting points or timing chain.
12. Remove the camshafts. Remove exhaust camshaft, lift timing chain off the camshaft adjuster of the inlet camshaft and remove the camshaft. Lay the timing chain in the chain housing in the cylinder head.

top of page

Installing camshaft - engine removed

Installing camshafts, adjusting timing - engine removed

ATTENTION

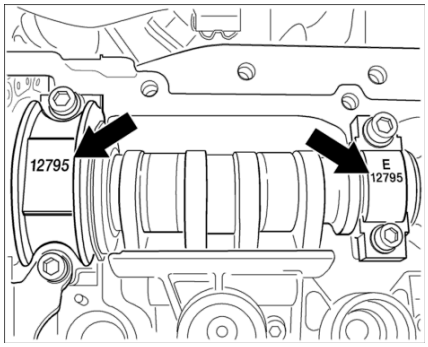
Risk of damage due to particles of dirt.

- **Oil bores/oil ducts can become blocked up.**

When working on the engine, absolute cleanliness is essential.

Lay removed engine parts on a clean base and cover them without fail.

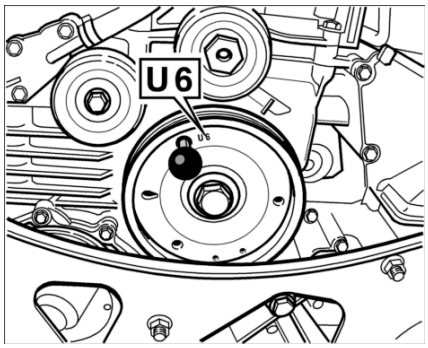
Use the **cover for dust protection when fitting the engine NR.165** on the engine assembly support.



Identification of camshaft housing:

Identification of housings of camshafts:

- **Inlet camshaft:**
- **Thrust bearing:** 'E' and matching number on cylinder head/cylinder head cover
- **Housing of bearing sleeve:** only matching number
- **Outlet camshaft:**
- **Thrust bearing on sprocket:** '1A' and matching number on cylinder head/cylinder head cover
- **2nd Thrust bearing:** '2A' and matching number on cylinder head/cylinder head cover

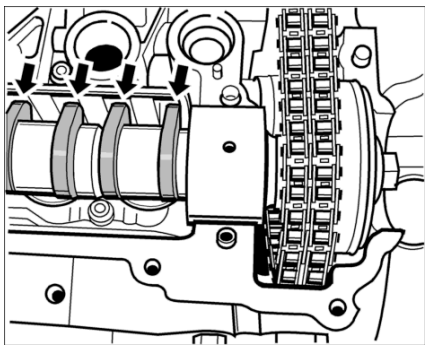


Pulley fixed at 60° before TDC

1. To remove the play from the timing chain drive, turn the crankshaft by means of the pulley or vibration balancer**clockwise (running direction of engine** to 60° before TDC **: marking U6 on pulley or vibration balancer coincides with fixing bore in crankcase**. Fix with **locating pin 9595/1**.

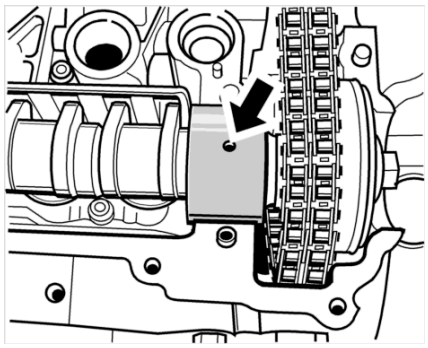
Assembly of cylinder bank 4 - 6

2. Turn the engine on the assembly support until cylinder bank 4 - 6 stands vertically upwards.
3. Oil the bearing surfaces of the camshafts with new engine oil.



Inlet camshaft 4 - 6 in overlap

4. Insert inlet camshaft 4 - 6. Pull the timing chain out of the chain housing of the cylinder head with a welding wire and position on the ring gear of the camshaft adjuster, at the same time inserting the camshaft at overlapping TDC of cylinder 4 (the cams of cylinder 4 point towards the bulkhead of the flat-base tappet housing **-arrows-**).

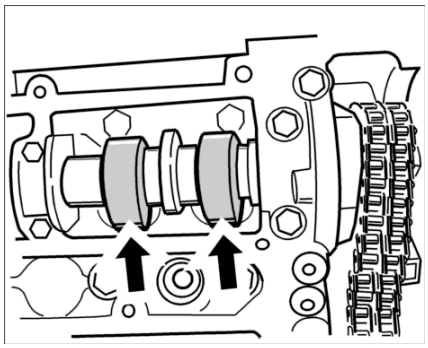


Position of bearing sleeve for inlet camshaft

Note

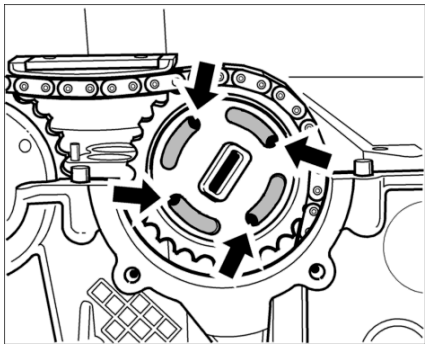
- *Make sure that the bearing sleeve on the inlet camshaft is positioned correctly.*

5. The bearing sleeve of the inlet camshaft must be positioned so that the centrally bored blind hole points vertically upwards **-arrow-** (the rib of the cylinder head should also be at the centre in relation to the bearing sleeve). In this position, the dowel pin in the bearing bore of the cylinder head will fit precisely into the opposite off-centre blind hole bore. Any other bores are through-holes for guiding the oil.



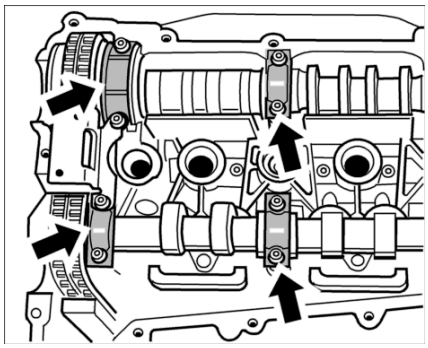
Exhaust camshaft 4 - 6

6. Insert exhaust camshaft 4 - 6. Lay the timing chain on the flange for the sprocket, then insert the camshaft at overlapping TDC of cylinder 4 (the outlet cams of cylinder 4 point towards the cams of the inlet camshaft **-arrows-**).



Position of sprocket 4 - 6 at 60° before TDC

7. Insert exhaust camshaft sprocket in the timing chain and position on camshaft flange. The four threaded bores in the camshaft flange must be covered by the slots of the sprocket **in the clockwise running direction of the engine** approximately half way **-arrows-** .
8. Oil the bearing surfaces of the camshafts with new engine oil.

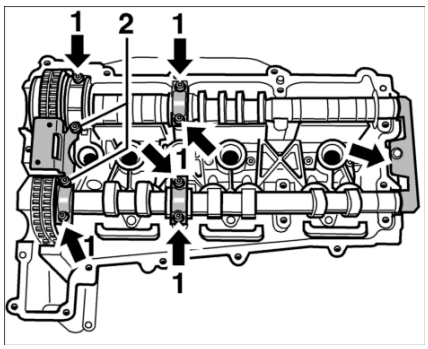


Installation position of housing

Note

- *Do not interchange the thrust bearings of the inlet and exhaust camshafts during assembly; observe identification markings.*

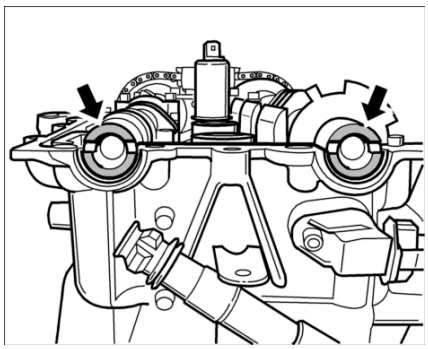
9. Insert three thrust bearings and one housing **-arrows-** for the bearing sleeve of the camshafts together with the guide rail for the timing chain.



Position of housing screws

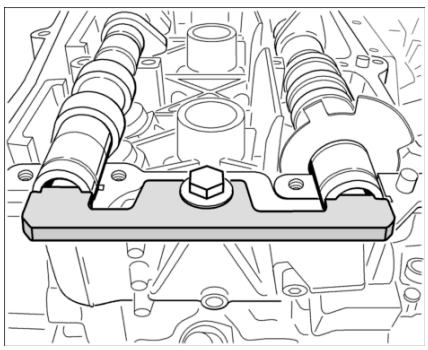
10. Insert eight housing screws (Torx): six M6 x 35 **-1-** and two M6 x 40 **-2-** for camshaft bearing and guide rail. Tighten screws evenly and just finger-tight.

Adjust timing, cylinder bank 4 - 6



Slot position of camshafts at overlap

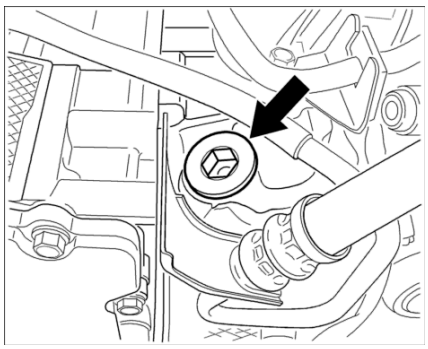
11. Align both camshafts. The small circular cut-outs must point upwards **-arrows-** .



Position of adjusting gauge 9689

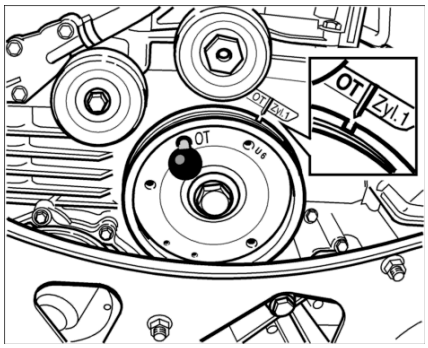
12. Using special tool **adjusting gauge 9686**, fix camshafts (if necessary with the gauge twisted) with an M8 screw (e.g. hexagon-head bolt M8 x 16). The flat tool face points upwards. Screw in fastening screw by hand.
13. Screw the housing screws of the inlet and exhaust camshafts and the auxiliary screw of the adjustment gauge alternately by approx. another 90° until the specified tightening torque is reached. **Tightening torque: 7.5 ftlb.**

14. Insert guide rail screw with a new O-ring and tighten (hexagon socket M6, a/f 5) Grease O-ring with Optimol MP3. **Tightening torque: 7.5 ftlb.**



Chain tensioner, cylinders 4 - 6

15. Fit chain tensioner, side 4 - 6 (hexagon socket a/f 14). Fit chain tensioner with new aluminium sealing ring and tighten. **Tightening torque: 59 ftlb.**

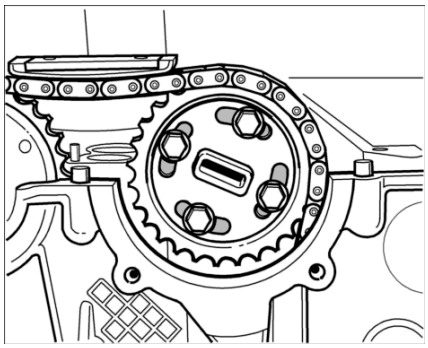


Pulley fixed at TDC marking

Note

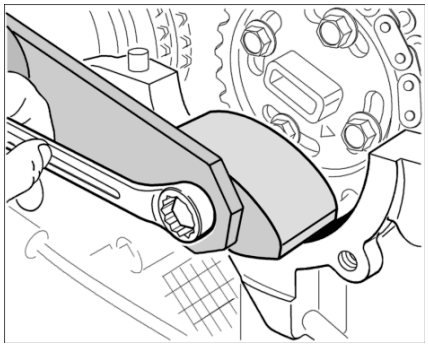
- *Position crankshaft above the pulley or vibration balancer before final adjustment of the timing to the TDC marking.*

16. Turn the crankshaft by means of the pulley or vibration balancer **clockwise (running direction of engine** to TDC mark **: marking U6 on pulley or vibration balancer coincides with fixing bore in crankcase**. Fix with **locating pin 9595/1**.



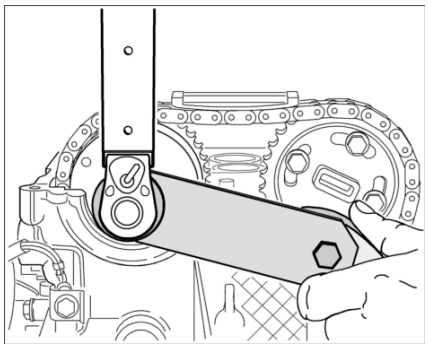
Exhaust camshaft sprocket tightened

17. Insert four Torx screws M6 to sprocket of exhaust camshaft and tighten evenly in diagonally opposite sequence. **Tightening torque: 10.5 ftlb.**



Contact block at the fitting bore of the cylinder head

18. Tighten the central screw of the camshaft adjusting device. Fit special tool **retaining tool 9685** on hexagon of intermediate piece of the central screw. Screw in the central screw gently by hand so that the loose contact block just touches the fitting bore of the oil suction pump. Fix the hexagon-head bolt to the contact block.



Tighten central screw of camshaft adjusting device.

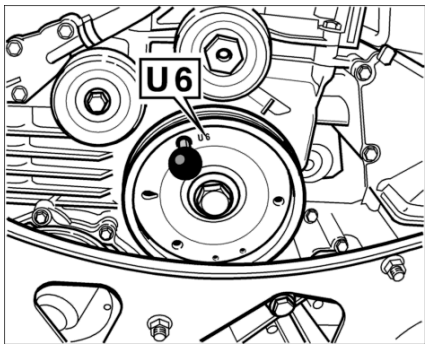
Note

- *Before final tightening (torque angle) of the central screw, the special tool **adjusting gauge 9686** must be removed.*

19. Tighten the central screw in two stages. Initial tightening to the specified toque. **Initial tightening: 37 ftlb.**
20. Remove special tool **adjustment gauge 9686**. Undo the M8 screw and remove gauge.
21. Apply final tightening to central screw with torque angle wrench. **Final tightening torque angle: 110 °**

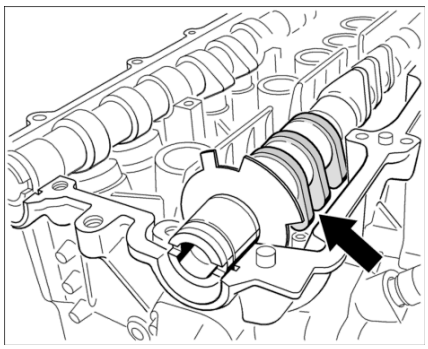
Assembly of cylinder bank 1 -3

22. Turn the engine on the assembly support until cylinder bank 1 - 3 stands vertically upwards.



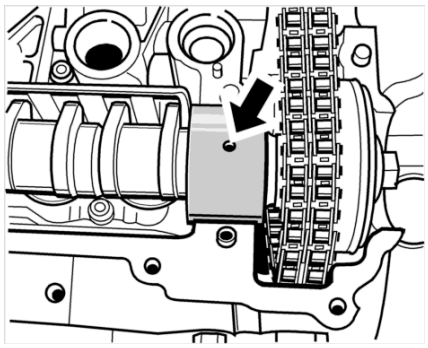
Pulley fixed at 60° before TDC

23. Turn the crankshaft by means of the pulley or vibration balancer **clockwise (running direction of engine** further still until the **marking U6 on pulley or vibration balancer coincides with fixing bore in crankcase** (60° before TDC). Fix with **locating pin 9595/1**.
24. Oil the bearing surfaces of the camshafts with new engine oil.



Inlet camshaft 1-3 in overlap

25. Insert inlet camshaft 1 - 3. Pull the control chain out of the chain housing of the cylinder head with a welding wire and position on the toothed ring of the camshaft adjuster. Then insert the camshaft at overlapping TDC of cylinder 1 (the cams of cylinder 1 point diagonally downwards towards the outside of the cylinder head **-arrow-**).



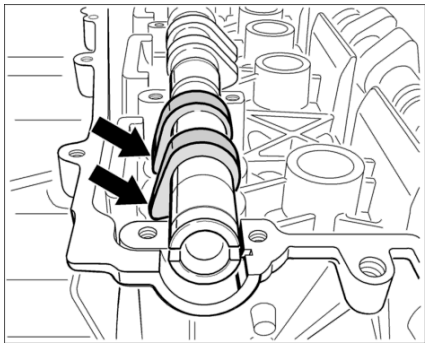
Position of bearing sleeve for inlet camshaft

Note

- *Make sure that the bearing sleeve on the inlet camshaft is positioned correctly.*

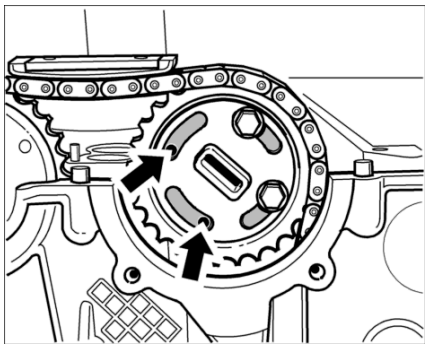
26. The bearing sleeve of the inlet camshaft must be positioned so that the centrally bored blind hole points vertically upwards **-arrow-** (the rib of the cylinder head should also be at the centre in relation to the bearing sleeve). In this position, the dowel pin in the bearing bore of the cylinder head will fit precisely

into the opposite off-centre blind hole bore. Any other bores are through-holes for guiding the oil.



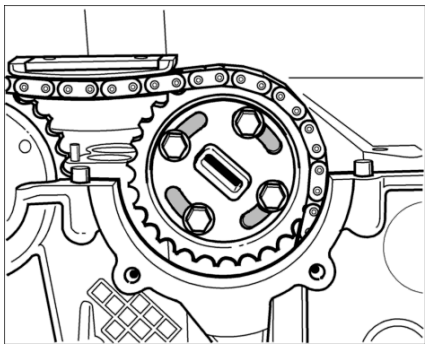
Exhaust camshaft 1-3 in overlap

27. Insert exhaust camshaft 1 - 3. Lay the control chain on the flange for the chain sprocket, then insert the camshaft at overlapping TDC of cylinder 1 (the cams of cylinder 1 point diagonally downwards towards the outside of the cylinder head).

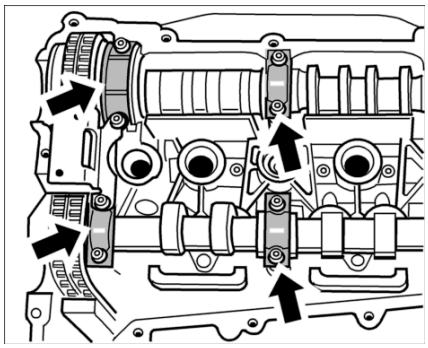


Exhaust sprocket 1 - 3 at 60° before TDC

28. Insert exhaust camshaft sprocket in the timing chain and position on camshaft flange. The four threaded bores in the camshaft flange must be fully visible **on the left at the slotted curves of the sprocket -arrows-** so that the Torx screws M6 x 12 can still be positioned to fasten the sprocket.



Exhaust sprocket 1 - 3, all screws fitted

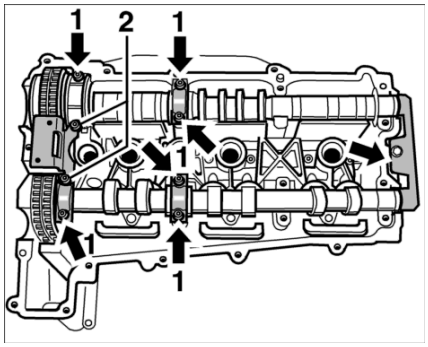


Installation position of housing

Note

- *Do not interchange the thrust bearings of the inlet and exhaust camshafts during assembly; observe identification markings.*

29. Insert three thrust bearings and one housing **-arrows-** for the bearing sleeve of the camshafts together with the guide rail for the timing chain.



Position of housing screws

30. Insert eight housing screws (Torx): six M6 x 35 **-1-** and two M6 x 40 **-2-** for camshaft bearing and guide rail. Tighten screws evenly and just finger-tight.

Timing for side 1 - 3

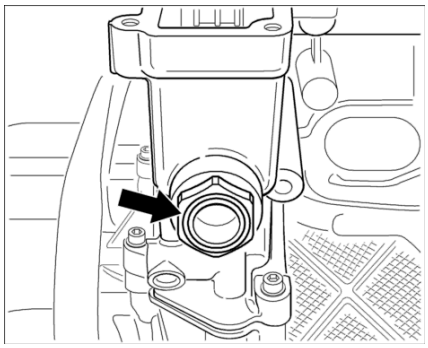
Note

- *Position crankshaft above the pulley or vibration balancer before final adjustment of the timing to the TDC marking.*

Note

- *Before final tightening (torque angle) of the central screw, the special tool **adjusting gauge 9686** must be removed.*

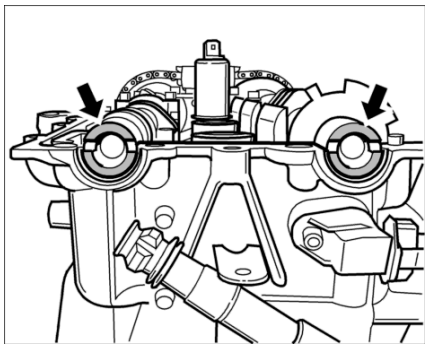
31. Final timing adjustment for cylinder bank 1 - 3 is analogous to that for cylinder bank 4 - 6. ;



Chain tensioner, cylinder 1 - 3

32. Fit chain tensioner for side 1 - 3 (hexagon a/f 32) before turning crankshaft to the TDC mark. Fit chain tensioner with new sealing ring and tighten. **Tightening torque: 59 ftlb.**

After adjusting the timing, this should be re-checked.



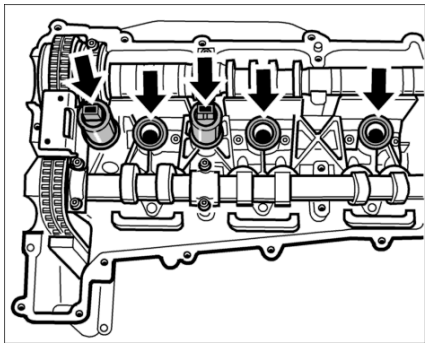
Slot position of camshafts at overlap

33. Turn the engine 360° at the crankshaft and fix at the TDC mark. Check camshaft position of cylinder bank 4 - 6 using the **adjusting gauge 9686**. Then turn a further 360° and check the camshaft position of cylinder bank 1 - 3.

top of page

Subsequent work for installing camshafts

Subsequent work for installing camshafts



Gaskets for spark plug recess and solenoid hydraulic valves

1. Insert solenoid hydraulic valves and new gaskets for the spark-plug recesses. Fit new O-rings into both solenoid hydraulic valves and insert into the bores in the cylinder head. Grease O-rings with Optimol MP3. 153719 Removing and installing solenoid hydraulic valve NVS - chapter on "installing" and 155519 Removing and installing solenoid hydraulic valve VHS - chapter on "installing".
2. Install cylinder head cover 159119 Removing and installing cylinder head cover - chapter on "installing".
3. Fit oil suction pump (1 - 3) and tandem pump (4 - 6) with new, micro-self-locking Torx screws M6. Replace O-rings and grease with Optimol MP3. **Tightening torque: 7.5 ftlb.**
4. Fit new plastic cap dry on cylinder head. Tap in with a plastic hammer.
5. Fit ground strap to cylinder head 4 - 6 with Torx screw M8 x 20 and tighten. **Tightening torque: 17 ftlb.**
6. Insert each ignition coil into its spark plug recess, fit two M6 x 25 Torx socket screws and tighten. **Tightening torque: 7.5 ftlb.**
7. Fit retainer plates and holders for the solenoid hydraulic valves. 153719 Removing and installing solenoid hydraulic valve NVS - chapter on "installing" and 155519 Removing and installing solenoid hydraulic valve VHS - chapter on "installing". **Tightening torque: 7.5 ftlb.**
8. Fit holder for rear muffler. Fit and tighten two Torx screws M8 x 30 intake side and two Torx screws M8 x 25 exhaust side. Fit cable plugs for ignition coils and solenoid hydraulic valves, fixing cable in the sheetmetal clips. **Tightening torque: 17 ftlb.**
9. Fit and tighten cover plate with two Torx screws M6 x 16. **Tightening torque: 7.5 ftlb.**
10. Connect two cable plugs to the oil temperature switch for cylinder bank 4 - 6..

997120, 997121, 997320, 997321, 997620, 997621

as of MY 2005
Country C00, C02, C05, C07, C08, C09, C10, C11, C12, C13, C14, C15, C16, C18, C19, C20, C21, C22, C23, C24, C25, C26, C27, C28, C32, C33, C34, C35, C36, C37, C38, C39, C45, C46, C98, C99

WARNUNG

Gefahr des Verlusts der Text-Bild-Zuordnung beim Ausdruck.

- **Aus technischen Gründen kann derzeit nicht ausgeschlossen werden, dass trotz einwandfreier Darstellung auf dem Bildschirm beim Ausdruck der Zusammenhang von Text und zugehörigem Bild verloren geht.**
- **Wird der Fehler nicht bemerkt, besteht die Gefahr, daß Arbeiten nicht korrekt durchgeführt werden und es dadurch zu Personen- und Sachschäden kommt.**

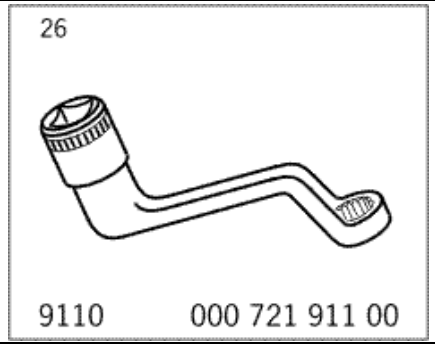
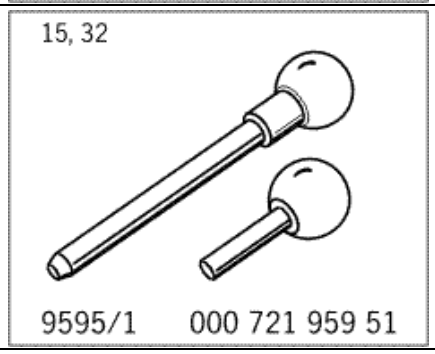
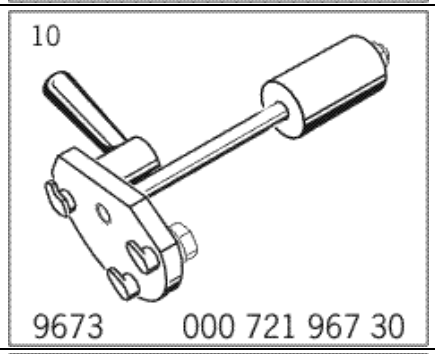
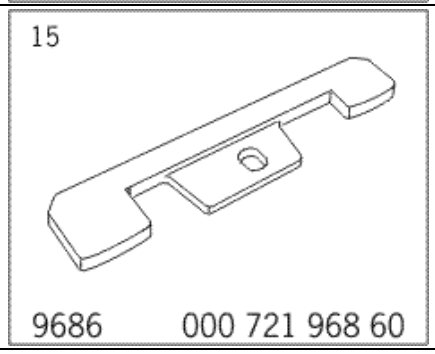
Vergleichen Sie deshalb nach dem Druckvorgang unbedingt die Ausdrucke mit der Bildschirmdarstellung. Korrigieren Sie die Ausdrucke im Fehlerfall so, daß der Inhalt der Bildschirmdarstellung zutreffend wiedergegeben wird.

WARNING

15 21 19 Removing and installing bearing cover for intermediate shaft - as of MY 2005

- Preliminary work for bearing cover for intermediate shaft
- Removing bearing cover for intermediate shaft
- Installing bearing cover for intermediate shaft
- Subsequent work for bearing cover for intermediate shaft

Tools

Designation	Type	Number	Explanation	
socket wrench	special tool	9110		
fixing pins	special tool	9595/1		
puller	special tool	9673		
adjusting gauge	special tool	9686		

top of page

Preliminary work for bearing cover for intermediate shaft

Preliminary work for bearing cover for intermediate shaft

Note

- *Note the work instructions for disconnecting and reconnecting the battery.*

1. Disconnect the battery *271000 Work instructions after disconnecting the battery*.
2. Drain engine oil 170155 Engine oil and oil filter change - chapter on "draining".
3. Remove air cleaner housing 242519 Removing and installing air cleaner housing - chapter on "removing".

Tiptronic transmission:

4. Remove engine *101019 21 Removing and installing engine - chapter on "removing"*.
5. Remove Tiptronic transmission 373527 Removing and refitting automatic transmission - chapter on "removing" [997110 997111 997120 997121 997310 997311 997320 997321] *373527 A3 Removing and refitting automatic transmission - chapter on "removing" [997410 997411 997430 997431 997610 997611 997620 997621].*
6. Remove drive plate for converter 136319 Removing and installing drive plate for converter - chapter on "removing".

Manual transmission:

7. Remove manual transmission 343519 Removing and installing transmission - chapter on "removing" [997410 997411 997430 997431 997610 997611 997620 997621] 343519 Removing and installing transmission - chapter on "removing" [997110 997111 997120 997121 997310 997311 997320 997321].
8. Remove clutch 305019 Removing and installing clutch - chapter on "removing".
9. Remove double-mass flywheel 136019 Removing and installing double-mass flywheel - chapter on "removing" [997110 997111 997310 997311 997410 997411 997610 997611] 136019 Removing and installing double-mass flywheel - chapter on "removing" [997120 997121 997320 997321 997430 997431 997620 997621].

top of page

Removing bearing cover for intermediate shaft

Removing bearing cover for intermediate shaft

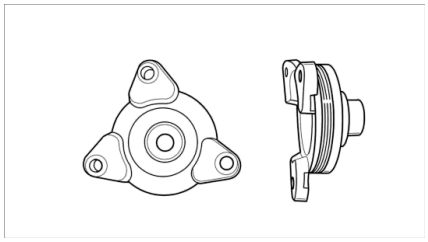
ATTENTION
Timing chain may jump over.

- **Risk of engine damage**

Following removal of the chain tensioner, the crankshaft must not be turned under any circumstances.

Note

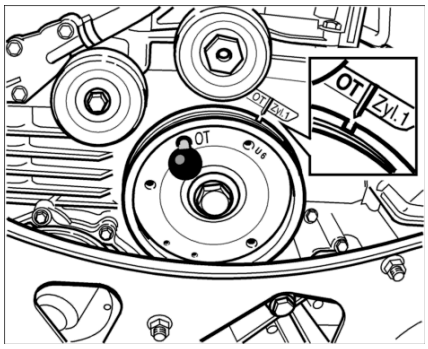
- *It is only possible to remove the bearing cover with the engine installed in vehicles with manual transmission.*
- *In Tiptronic vehicles, the complete engine/transmission unit must be removed.*



Bearing cover with sealing ring

Bearing cover

1. Lever out two green closure caps on pulley side of cylinder bank 1 - 3.



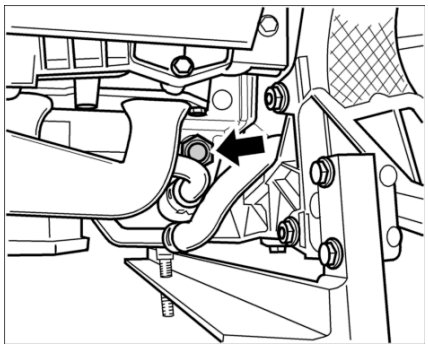
Fixing belt pulley (damper)

2. Turn the engine at the hexagon-head bolt (a/f 24) of the crankshaft belt pulley (or vibration damper) clockwise to overlapping TDC of cylinder bank 1-3 and fix it with special tool **fixing pins 9595/1**.

Note

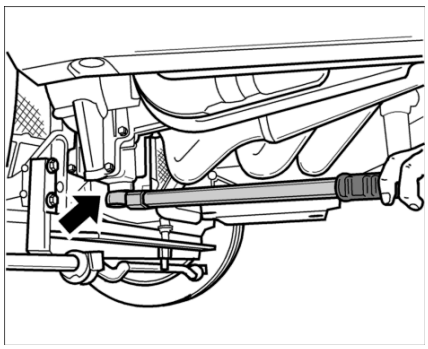
- *For checking with the adjusting gauge, the timing adjustment must be correct.*

3. To check the camshaft adjustment, insert **adjusting gauge 9686** for camshaft into the camshaft slots (pulley side) (inscription on gauge pointing towards cylinder head cover). If the gauge cannot be inserted, rotate the crankshaft a further 360° and secure it again.
4. Unscrew two M6 x 12 hexagon-head bolts on the coolant pipe (heating) at cylinder side 4 - 6.



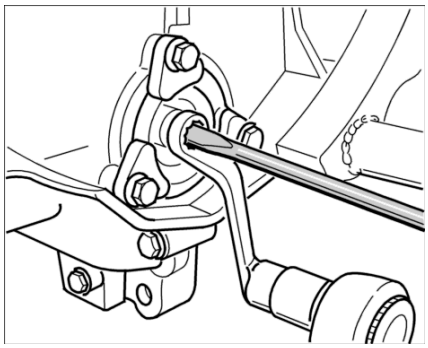
Primary chain tensioner

5. Remove primary chain tensioner (hexagon socket a/f 32).



Chain tensioner, cylinder 1-3

6. Remove chain tensioner, cylinder bank 1 - 3 (hexagon socket a/f 32).



Collar nut for bearing cover

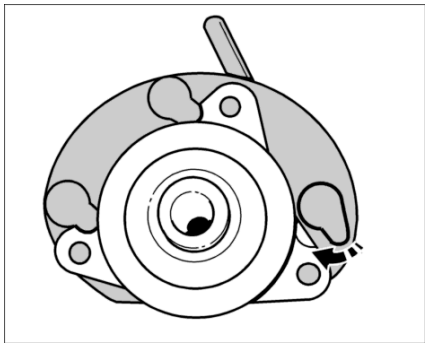
Note

- *To make it easier to remove the bearing cover, spray the sealing surface with anti-rust agent.*

7. Unscrew M8 hexagon collar nut on the bearing cover of the intermediate shaft with special tool **socket wrench 9110**, while at the same time countering the slotted threaded pin on the intermediate shaft with a

screwdriver.

8. Unscrew the three M6 x 20 hexagon-head bolts (coated) on the intermediate-shaft flange. Replace screws during installation and clean thread.

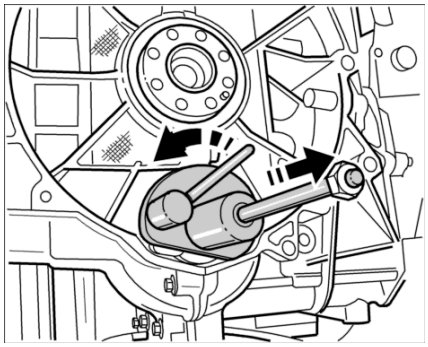


Puller on bearing cover: View from intermediate shaft

Note

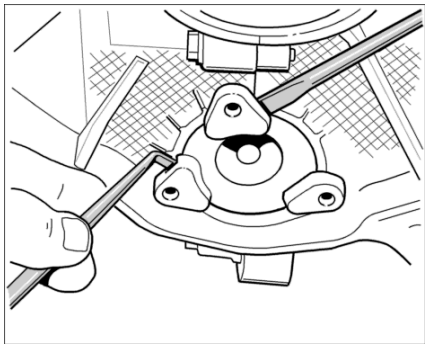
- *Remove bearing cover using special tool **puller 9673**. If this is not available, lever the bearing cover out carefully with two screwdrivers so as not to damage the sealing surfaces. Turning several times to the left and right loosens the bearing cover.*
- *After removing the bearing cover, do not press the threaded bolts of the intermediate shaft.*

9. Position special tool **puller 9673** at the bearing cover grooves and secure by turning the locking lever anti-clockwise.



Removing bearing cover

10. Pull the slide hammer on the puller a number of times against the stop nuts while countering the tool at the same time with the other hand.



Levering out bearing cover

11. If the puller is not available, lever the bearing cover out carefully using two screwdrivers (or angle screwdrivers), for example. Move the bearing cover frequently to the left and right to make the levering easier. Do not damage the sealing surfaces.

top of page

Installing bearing cover for intermediate shaft

Installing bearing cover for intermediate shaft

Installing bearing cover for intermediate shaft

Note

- *Clean working area of bore for bearing cover and crankcase thoroughly using acetone or solvent naphtha.*

Note

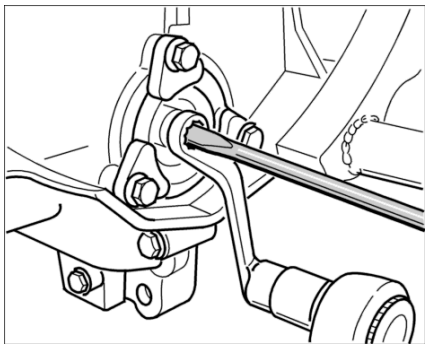
- *Replace bearing cover or sealing ring for bearing cover 152355 Replacing sealing ring for intermediate shaft.*

1. Before installing the new bearing cover, check the fitted bore (axial attachment surface, bore chamfers) on the crankcase for sharp edges and burrs. They should be removed with an oilstone or a polishing cloth. Remove any existing residue and clean the bore with a clean cloth soaked in solvent naphtha or acetone.
2. Grease fitted bore in crankcase and new bearing cover (with new sealing ring) with special grease Optimoly MP3 (available from Porsche Parts Service) and place bearing cover in position.

Note

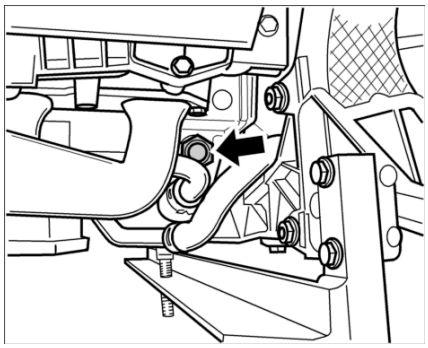
- *Replace collar nut M8 x 1 and coated M6 screws for bearing cover.*

3. Position three new, coated M6 x 20 screws on the crankcase and pull in the bearing cover by screwing in the screws uniformly. Tighten screws **Tightening torque: 7.5 ftlb.** .



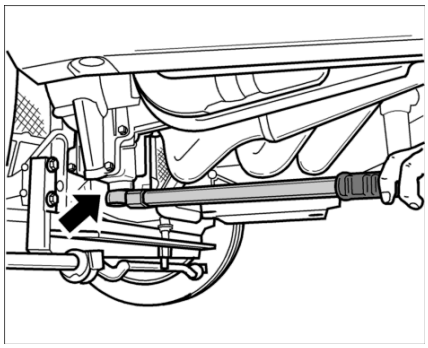
Collar nut for bearing cover

4. Position new M8 x 1 collar nut on the threaded pin of the intermediate shaft. Then tighten the nut using special tool **socket wrench 9110**. At the same time, counter with a screwdriver in the slotted threaded pin of the intermediate shaft. **Tightening torque: 9 ftlb. +0.5 ftlb.**



Primary chain tensioner

5. Insert primary chain tensioner with new aluminium sealing ring (hexagon a/f 32) and tighten to the specified torque. **Tightening torque: 59 ftlb.**



Chain tensioner, cylinder 1-3

6. Insert chain tensioner for cylinder 1 - 3 with new aluminium sealing ring (hexagon a/f 32) and tighten to the specified torque. **Tightening torque: 59 ftlb.**
7. Fasten coolant pipe (heating), cylinder side 4 - 6, with two M6 x 12 hexagon-head bolts. **Tightening torque: 7.5 ftlb.**
8. Fit two new closure caps on cylinder head cover.
9. Pull fixing pin out of the crankshaft belt pulley.

top of page

Subsequent work for bearing cover for intermediate shaft

Subsequent work for bearing cover for intermediate shaft

Tiptronic transmission:

1. Install drive plate for converter 136319 Removing and installing drive plate for converter - chapter on "installing".
2. Refit Tiptronic transmission 373527 Removing and refitting automatic transmission - chapter on "refitting" [997110 997111 997120 997121 997310 997311 997320 997321] *373527 AG Removing and refitting automatic transmission - chapter on "refitting" [997410 997411 997430 997431 997610 997611 997620 997621].*
3. Install engine *101019 23 Removing and installing engine - chapter on "installing".*

Manual transmission:

4. Install clutch 305019 Removing and installing clutch - chapter on "installing".
5. Install double-mass flywheel 136019 Removing and installing double-mass flywheel - chapter on "installing" [997110 997111 997310 997311 997410 997411 997610 997611] 136019 Removing and installing double-mass flywheel - chapter on "installing" [997120 997121 997320 997321 997430 997431 997620 997621].
6. Install transmission 343519 Removing and installing transmission - chapter on "installing" [997410 997411 997430 997431 997610 997611 997620 997621] 343519 Removing and installing transmission - chapter on "installing" [997110 997111 997120 997121 997310 997311 997320 997321].
7. Filling in engine oil 170155 Engine oil and oil filter change - chapter on "filling in".
8. Install air cleaner housing 242519 Removing and installing air cleaner housing - chapter on "installing".

Note

- *Note the work instructions for disconnecting and reconnecting the battery.*

9. Connect the battery *271000 Work instructions after disconnecting the battery.*

997110, 997111, 997120, 997121, 997310, 997311, 997320, 997321, 997410, 997411, 997430, 997431, 997610, 997611, 997620, 997621

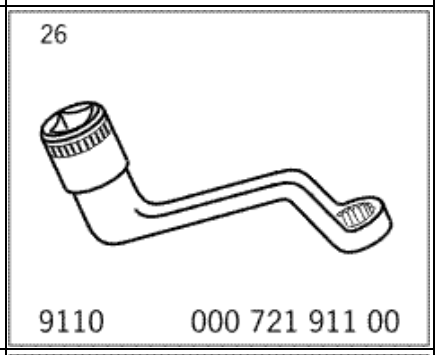
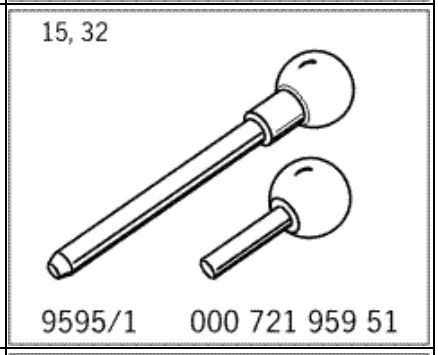
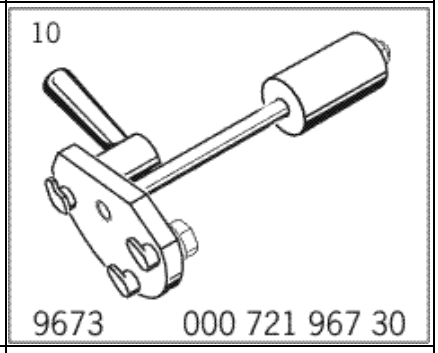
as of MY 2005
Country C00, C02, C05, C07, C08, C09, C10, C11, C12, C13, C14, C15, C16, C18, C19, C20, C21, C22, C23, C24, C25, C26, C27, C28, C32, C33, C34, C35, C36, C37, C38, C39, C45, C46, C98, C99

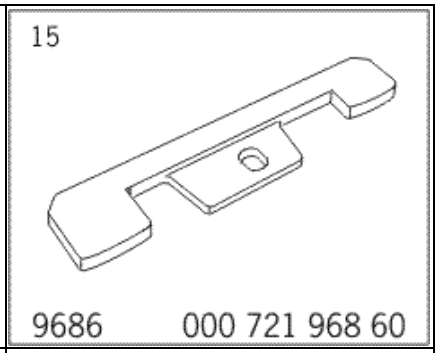
WARNUNG
Gefahr des Verlusts der Text-Bild-Zuordnung beim Ausdruck.

15 21 19 Removing and installing bearing cover for intermediate shaft - M97/01 - as of MY 2005

- Preliminary work for bearing cover for intermediate shaft
- Removing bearing cover for intermediate shaft
- Installing bearing cover for intermediate shaft
- Subsequent work for bearing cover for intermediate shaft

Tools

Designation	Type	Number	Explanation	
socket wrench	special tool	9110		
locating pins	special tool	9595/1		
puller	special tool	9673		
assembly tool	special tool	9673/1		

adjusting gauge	special tool	9686		
cover for dust protection when fitting the engine	commercially available tool	NR.165		

top of page

Preliminary work for bearing cover for intermediate shaft

Preliminary work for bearing cover for intermediate shaft

Note

- *Note the work instructions for disconnecting and reconnecting the battery.*

1. Disconnect the battery *271000 Work instructions after disconnecting the battery*.
2. Drain engine oil 170155 Engine oil and oil filter change - section on "Draining".
3. Remove air cleaner housing 242519 Removing and installing air cleaner housing - section on "Removing".

Tiptronic transmission:

4. Remove engine *101019 21 Removing and installing engine - section on "Removing".*
5. Remove Tiptronic transmission 373527 Removing and refitting automatic transmission - section on "Removing" [997120 997121 997320 997321] *373527 A3 Removing and refitting automatic transmission - section on "Removing" [997430 997431 997620 997621].*
6. Remove drive plate for converter 136319 Removing and installing drive plate for converter - section on "Removing".

Manual transmission:

7. Remove manual transmission __ 343519 Removing and installing transmission - section on "Removing" [997430 997431 997620 997621] __ 343519 Removing and installing transmission - section on "Removing" [997120 997121 997320 997321].
8. Remove clutch __ 305019 Removing and installing clutch - section on "Removing".
9. Remove double-mass flywheel __ 136019 Removing and installing double-mass flywheel - section on "Removing".

top of page

Removing bearing cover for intermediate shaft

Removing bearing cover for intermediate shaft - up to engine number 685 09 790

ATTENTION
Timing chain may jump over.

- **Risk of engine damage**

Following removal of the chain tensioner, the crankshaft must not be turned under any circumstances.

ATTENTION
Risk of damage due to particles of dirt.

- **Oil bores/oil ducts can become blocked up.**

When working on the engine, absolute cleanliness is essential.
Lay removed engine parts on a clean base and cover them without fail.
Use the **cover for dust protection when fitting the engine NR.165** on the engine assembly support.

Note

- *It is only possible to remove the bearing cover with the engine installed in vehicles with manual transmission.*
- *In Tiptronic vehicles, the complete engine/transmission unit must be removed.*

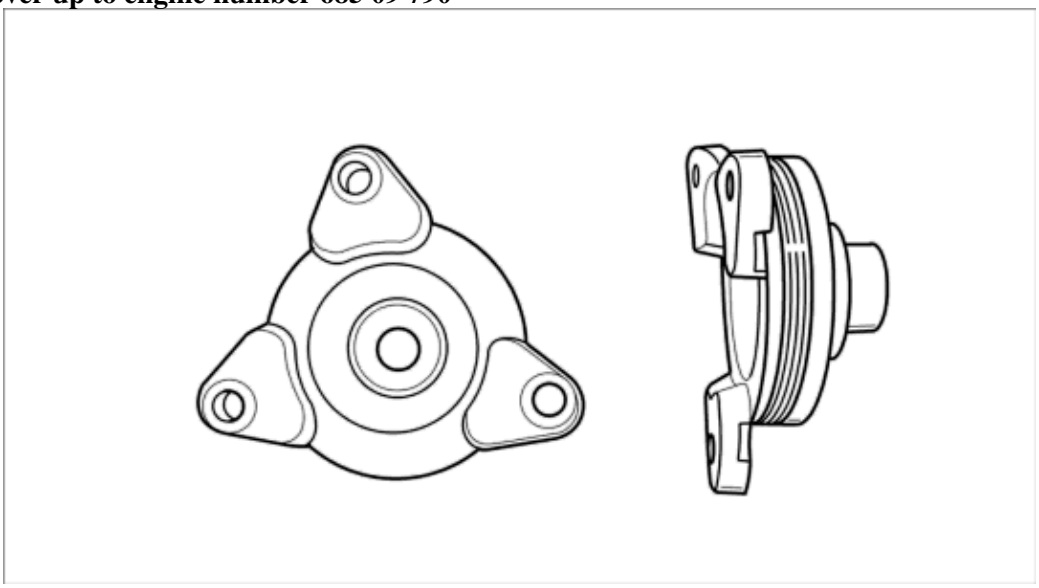
Note

Always observe specified engine number range.

Note

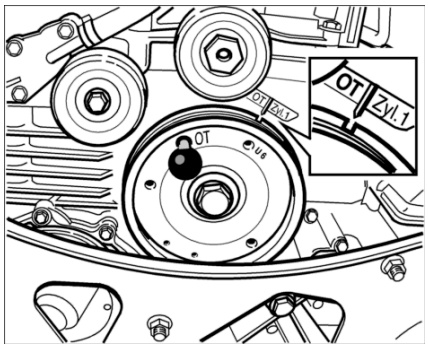
Always observe specified engine number range.

Bearing cover up to engine number 685 09 790



Bearing cover with sealing ring

1. Lever out two green closure caps on pulley side of cylinder bank 1 - 3.



Fixing vibration damper

2. Turn the engine at the hexagon-head bolt (a/f 24) of the crankshaft vibration balancer clockwise to overlapping TDC of cylinder bank 1 - 3 and fix it with special tool **locating pins 9595/1**.

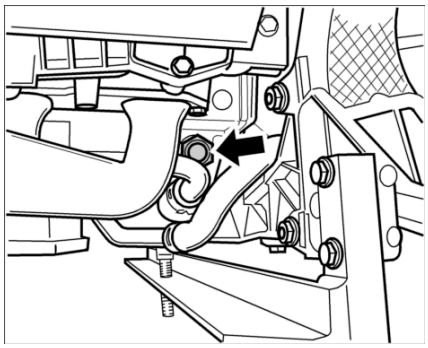
Note

- *For checking with the adjusting gauge, the timing adjustment must be correct.*

Note

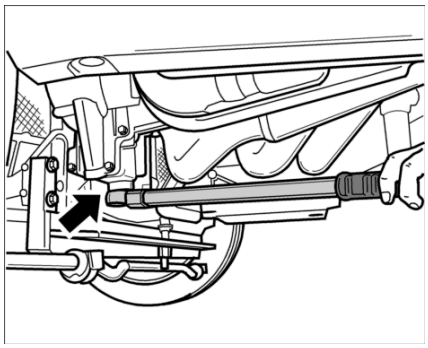
- *For checking with the adjusting gauge, the timing adjustment must be correct.*

3. To check the camshaft adjustment, insert **adjusting gauge 9686** for camshaft into the camshaft slots (pulley side) (inscription on gauge pointing towards cylinder head cover). If the gauge cannot be inserted, rotate the crankshaft a further 360° and secure it again.
4. Unscrew two M6 x 12 hexagon-head bolts on the coolant pipe at cylinder side 4 - 6.



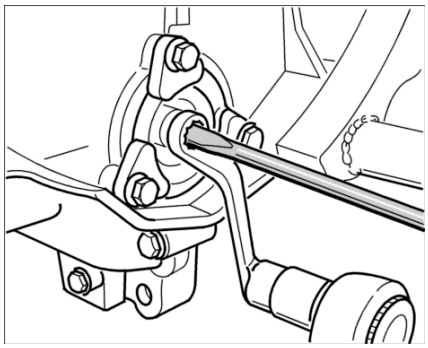
Primary chain tensioner

5. Remove primary chain tensioner (hexagon socket a/f 32).



Chain tensioner, cylinders 1 - 3

6. Remove chain tensioner, cylinder bank 1 - 3 (hexagon socket a/f 32).



Collar nut for bearing cover

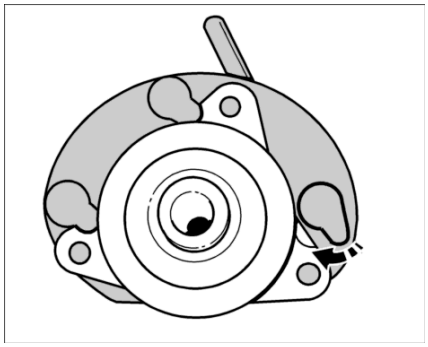
Note

- *To make it easier to remove the bearing cover, spray the sealing surface with anti-rust agent.*

Note

- *To make it easier to remove the bearing cover, spray the sealing surface with anti-rust agent.*

7. Unscrew M8 hexagon collar nut on the bearing cover of the intermediate shaft with special tool **socket wrench 9110**, while at the same time countering the slotted threaded pin on the intermediate shaft with a screwdriver.
8. Unscrew the three M6 x 20 fastening screws (coated) on the intermediate-shaft flange. Replace screws during installation and clean thread in crankcase.



Puller on bearing cover: view when removed

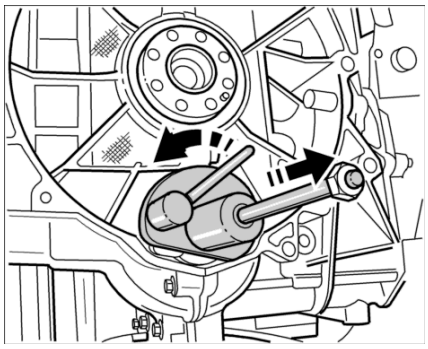
Note

- *Remove bearing cover using special tool **puller 9673**. If this is not available, lever the bearing cover out carefully with two screwdrivers so as not to damage the sealing surfaces. Turning several times to the left and right loosens the bearing cover.*
- *After removing the bearing cover, do not press the threaded bolts of the intermediate shaft.*

Note

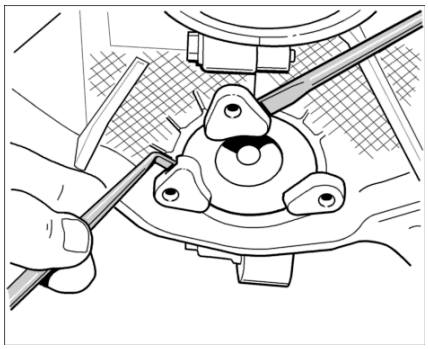
- *Remove bearing cover using special tool **puller 9673**. If this is not available, lever the bearing cover out carefully with two screwdrivers so as not to damage the sealing surfaces. Turning several times to the left and right loosens the bearing cover.*
- *After removing the bearing cover, do not press the threaded bolts of the intermediate shaft.*

9. Position special tool **puller 9673** at the bearing cover grooves and secure by turning the locking lever anti-clockwise.



Removing bearing cover

10. Pull the slide hammer on the puller a number of times against the stop nuts while countering the tool at the same time with the other hand.



Levering out bearing cover

11. If the puller is not available, lever the bearing cover out carefully using two screwdrivers (or angle screwdrivers). Move the bearing cover a number of times to the left and right to make levering easier. Do not damage the sealing surfaces.

Removing bearing cover for intermediate shaft - from engine number 685 09 791

ATTENTION

Timing chain may jump over.

- **Risk of engine damage**

Following removal of the chain tensioner, the crankshaft must not be turned under any circumstances.

ATTENTION

Risk of damage due to particles of dirt.

- **Oil bores/oil ducts can become blocked up.**

When working on the engine, absolute cleanliness is essential.

Lay removed engine parts on a clean base and cover them without fail.

Use the **cover for dust protection when fitting the engine NR.165** on the engine assembly support.

Note

- *It is only possible to remove the bearing cover with the engine installed in vehicles with manual transmission.*

- *In Tiptronic vehicles, the complete engine/transmission unit must be removed.*

Note

Always observe specified engine number range.

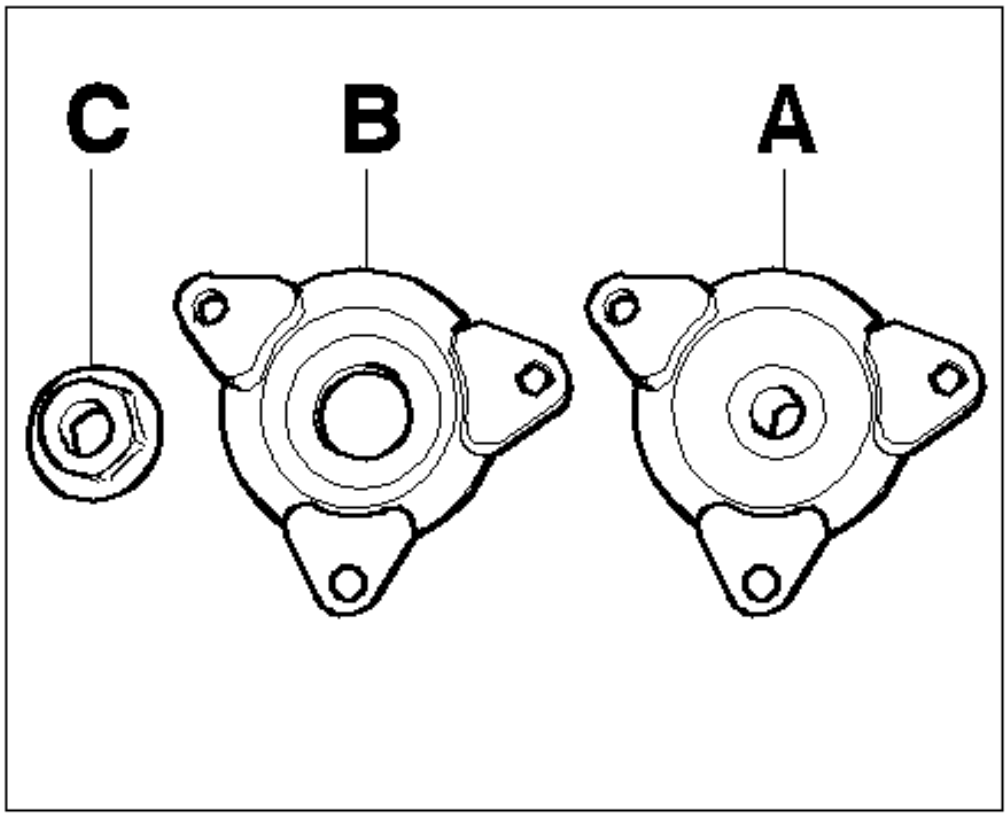
Note

Always observe specified engine number range.

Note

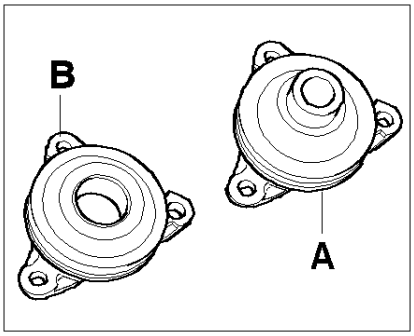
- *The same sealing ring and installation/removal procedure applies as for the "old" bearing cover.*
- *The new bearing cover can only be retrofitted along with the new intermediate shaft up to model year 2002 (M96/03).*

Overview of bearing covers for intermediate shaft



Differentiation of bearing covers for intermediate shaft

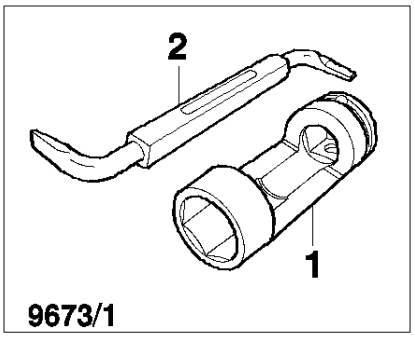
- A - Bearing cover 996.105.024.01
- B - Bearing cover 996.105.024.06
- C - New collar nut, M12 x 1.25



Rear view of bearing cover for intermediate shaft

Rear of bearing cover

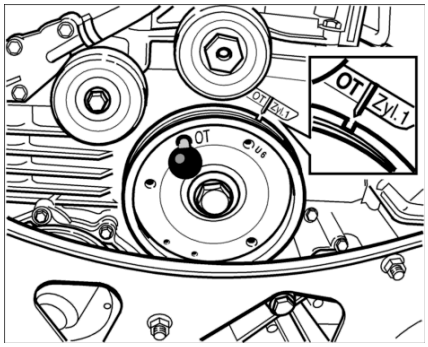
- A - Rear of bearing cover 996.105.024.01
- B - Rear of bearing cover 996.105.024.06



Special tool 9673/1

Use the special tool **assembly tool 9673/1** for bolting the new bearing cover.

1. Lever out two green closure caps on pulley side of cylinder bank 1 - 3.



Fixing vibration damper

2. Turn the engine at the hexagon-head bolt (a/f 24) of the crankshaft vibration balancer clockwise to overlapping TDC of cylinder bank 1 - 3 and fix it with special tool **locating pins 9595/1**.

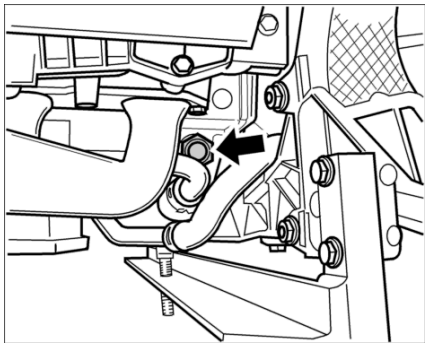
Note

- *For checking with the adjusting gauge, the timing adjustment must be correct.*

Note

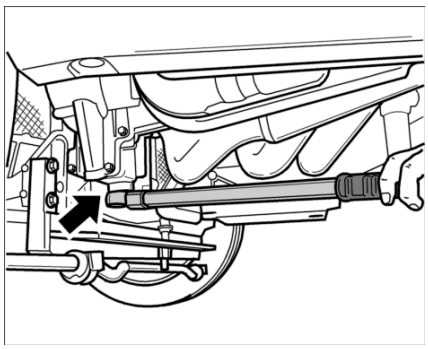
- *For checking with the adjusting gauge, the timing adjustment must be correct.*

3. To check the camshaft adjustment, insert **adjusting gauge 9686** for camshaft into the camshaft slots (pulley side) (inscription on gauge pointing towards cylinder head cover). If the gauge cannot be inserted, rotate the crankshaft a further 360° and secure it again.
4. Unscrew two M6 x 12 hexagon-head bolts on the coolant pipe at cylinder side 4 - 6.



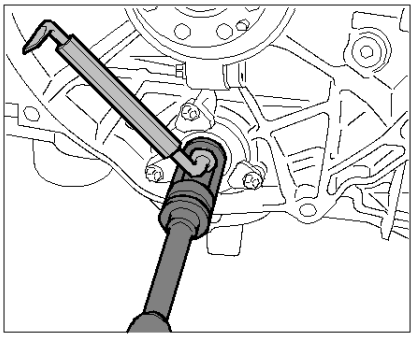
Primary chain tensioner

5. Remove primary chain tensioner (hexagon socket a/f 32).



Chain tensioner, cylinders 1 - 3

6. Remove chain tensioner, cylinder bank 1 - 3 (hexagon socket a/f 32).



Threaded joint with collar nut on bearing cover for intermediate shaft

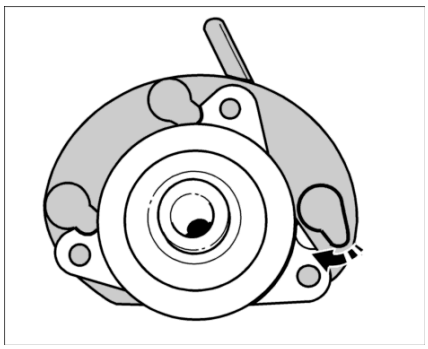
Note

- *To make it easier to remove the bearing cover, spray the sealing surface with anti-rust agent.*

Note

- *To make it easier to remove the bearing cover, spray the sealing surface with anti-rust agent.*

7. Loosen M12 hexagon collar nut (a/f 22) on bearing cover for intermediate shaft with special tool **assembly tool 9673/1** and screw it off *Threaded joint with collar nut on bearing cover for intermediate shaft* .
8. Unscrew the three M6 x 20 fastening screws (coated) on the intermediate-shaft flange. Replace screws during installation and clean thread in crankcase.



Puller on bearing cover: view when removed

Note

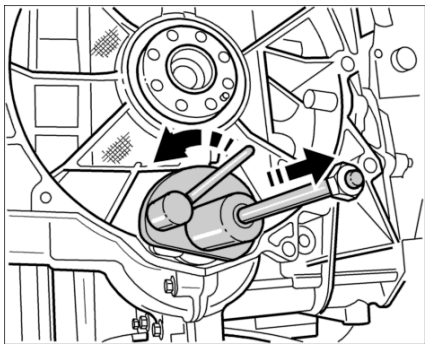
- *Remove bearing cover using special tool **puller 9673**. If this is not available, lever the bearing cover out carefully with two screwdrivers so as not to damage the sealing surfaces. Turning several times to the left and right loosens the bearing cover.*

- *After removing the bearing cover, do not press the threaded bolts of the intermediate shaft.*

Note

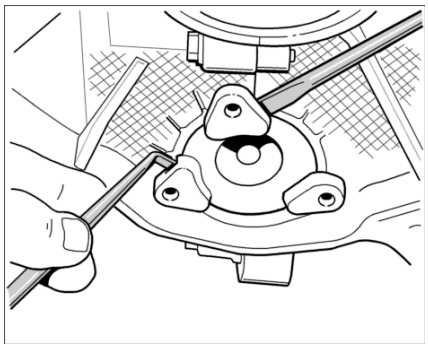
- *Remove bearing cover using special tool **puller 9673**. If this is not available, lever the bearing cover out carefully with two screwdrivers so as not to damage the sealing surfaces. Turning several times to the left and right loosens the bearing cover.*
- *After removing the bearing cover, do not press the threaded bolts of the intermediate shaft.*

9. Position special tool **puller 9673** at the bearing cover grooves and secure by turning the locking lever anti-clockwise.



Removing bearing cover

10. Pull the slide hammer on the puller a number of times against the stop nuts while countering the tool at the same time with the other hand.



Levering out bearing cover

11. If the puller is not available, lever the bearing cover out carefully using two screwdrivers (or angle screwdrivers). Move the bearing cover a number of times to the left and right to make levering easier. Do not damage the sealing surfaces.

top of page

Installing bearing cover for intermediate shaft

Installing bearing cover for intermediate shaft - up to engine number 685 09 790

ATTENTION

Risk of damage due to particles of dirt.

- **Oil bores/oil ducts can become blocked up.**

When working on the engine, absolute cleanliness is essential.

Lay removed engine parts on a clean base and cover them without fail.

Use the **cover for dust protection when fitting the engine NR.165** on the engine assembly support.

Note

- *Clean working area of bore for bearing cover and crankcase thoroughly using acetone or solvent naphtha.*

Note

- *Clean working area of bore for bearing cover and crankcase thoroughly using acetone or solvent naphtha.*

1. Before installing the new bearing cover, check the fitted bore (axial attachment surface, bore chamfers) on the crankcase for sharp edges and burrs. They should be removed with an oilstone or a polishing cloth. Remove any existing residue and clean the bore with a clean cloth soaked in solvent naphtha or acetone.

Note

- *Replace bearing cover or sealing ring for bearing cover 152355 Replacing sealing ring for intermediate shaft.*

Note

- *Replace bearing cover or sealing ring for bearing cover 152355 Replacing sealing ring for intermediate shaft.*

Note

Always observe specified engine number range.

Note

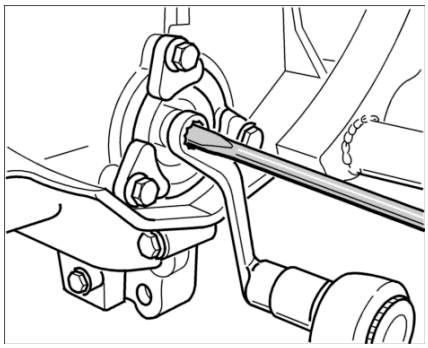
Always observe specified engine number range.

2. Grease fitted bore in crankcase and new bearing cover (with new sealing ring) with special grease Optimoly MP3 (available from Porsche Parts Service) and place bearing cover in position.

Note

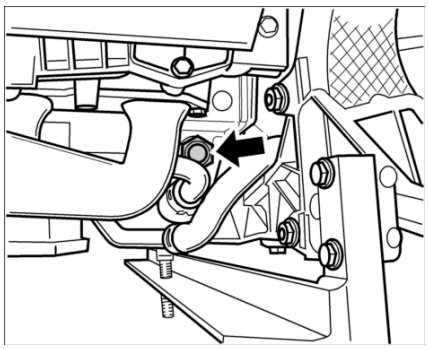
- *Replace collar nut M8 x 1 and coated M6 screws for bearing cover.*

3. Position three new, coated M6 x 20 screws on the crankcase and pull in the bearing cover by screwing in the screws uniformly. Tighten the screws. **Tightening torque: 10 (7.5 ftlb.) Nm**



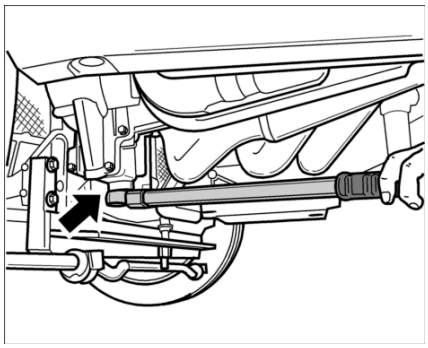
Collar nut for bearing cover

4. Position new M8 x 1 collar nut on the threaded pin of the intermediate shaft. Then tighten the nut using special tool **socket wrench 9110**. At the same time, counter with a screwdriver in the slotted threaded pin of the intermediate shaft. **Tightening torque: 12 (9 ftlb.) Nm +1 (0.5 ftlb.) Nm**



Primary chain tensioner

5. Insert primary chain tensioner with new sealing ring (hexagon a/f 32) and tighten to the specified torque. **Tightening torque: 80 (59 ftlb.) Nm**



Chain tensioner, cylinders 1 - 3

6. Insert chain tensioner for cylinder 1 - 3 with new sealing ring (hexagon a/f 32) and tighten to the specified torque. **Tightening torque: 80 (59 ftlb.) Nm**
7. Secure coolant pipe on cylinder side 4 - 6 with two M6 x 12 hexagon-head bolts. **Tightening torque: 10 (7.5 ftlb.) Nm**
8. Fit new closure caps on cylinder head cover.
9. Pull locating pin out of the crankshaft vibration balancer.

Installing bearing cover for intermediate shaft - from engine number 685 09 791

ATTENTION

Risk of damage due to particles of dirt.

- **Oil bores/oil ducts can become blocked up.**

When working on the engine, absolute cleanliness is essential.

Lay removed engine parts on a clean base and cover them without fail.

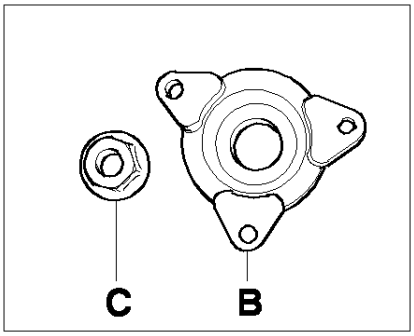
Use the **cover for dust protection when fitting the engine NR.165** on the engine assembly support.

Note

- *The same sealing ring and installation/removal procedure applies as for the "old" bearing cover.*
- *The new bearing cover can only be retrofitted along with the new intermediate shaft up to model year 2002 (M96/03).*

Note

- *Replace collar nut M12 and coated M6 screws for bearing cover.*



New bearing cover for intermediate shaft

Note

Always observe specified engine number range.

Note

Always observe specified engine number range.

New bearing cover.

- B - Bearing cover 996.105.024.06
- C - Collar nut, M12 x 1.25

Note

- *Clean working area of bore for bearing cover and crankcase thoroughly using acetone or solvent naphtha.*

Note

- *Clean working area of bore for bearing cover and crankcase thoroughly using acetone or solvent naphtha.*

1. Before installing the new bearing cover, check the fitted bore (axial attachment surface, bore chamfers) on the crankcase for sharp edges and burrs. They should be removed with an oilstone or a polishing cloth. Remove any existing residue and clean the bore with a clean cloth soaked in solvent naphtha or acetone.

Note

- *Replace bearing cover or sealing ring for bearing cover __152355 Replacing sealing ring for intermediate shaft.*

Note

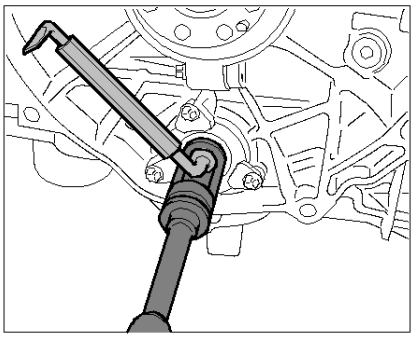
- *Replace bearing cover or sealing ring for bearing cover* *152355 Replacing sealing ring for intermediate shaft*.

2. Grease fitted bore in crankcase and new bearing cover (with new sealing ring) with special grease Optimoly MP3 (available from Porsche Parts Service) and place bearing cover in position.

Note

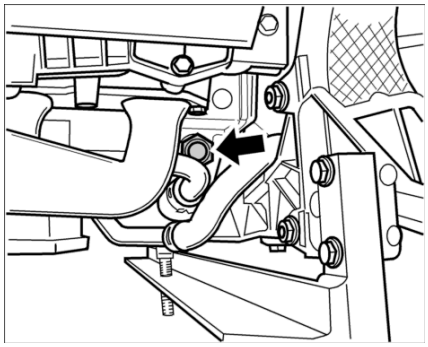
- *Replace collar nut M8 x 1 and coated M6 screws for bearing cover.*

3. Position three new, coated M6 x 20 screws on the crankcase and pull in the bearing cover by screwing in the screws uniformly. Tighten the screws. **Tightening torque: 10 (7.5 ftlb.) Nm**



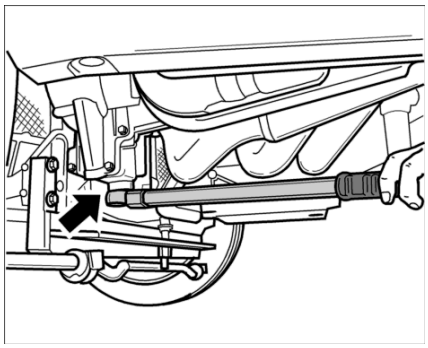
Threaded joint with collar nut on bearing cover for intermediate shaft

4. Position new M12 x 1.25 collar nut on the threaded pin of the intermediate shaft. Then tighten the nut using special tool **assembly tool 9673/1**. At the same time, counter with an angle screwdriver in the slotted threaded pin of the intermediate shaft. **Tightening torque : 20 (15 ftlb.) Nm +/-1 (0.5 ftlb.) Nm**



Primary chain tensioner

5. Insert primary chain tensioner with new sealing ring (hexagon a/f 32) and tighten to the specified torque. **Tightening torque: 80 (59 ftlb.) Nm**



Chain tensioner, cylinders 1 - 3

6. Insert chain tensioner for cylinder 1 - 3 with new sealing ring (hexagon a/f 32) and tighten to the specified torque. **Tightening torque: 80 (59 ftlb.) Nm**
7. Secure coolant pipe on cylinder side 4 - 6 with two M6 x 12 hexagon-head bolts. **Tightening torque: 10 (7.5 ftlb.) Nm**
8. Fit new closure caps on cylinder head cover.
9. Pull locating pin out of the crankshaft vibration balancer.

top of page

Subsequent work for bearing cover for intermediate shaft

Subsequent work for bearing cover for intermediate shaft

Tiptronic transmission:

1. Install drive plate for converter 136319 Removing and installing drive plate for converter - section on "Installing".
2. Refit Tiptronic transmission 373527 Removing and refitting automatic transmission - section on "Refitting" [997120 997121 997320 997321] *373527 AG Removing and refitting automatic transmission - section on "Refitting" [997430 997431 997620 997621].*
3. Install engine *101019 23 Removing and installing engine - section on "Installing".*

Manual transmission:

4. Install double-mass flywheel 136019 Removing and installing double-mass flywheel - section on "Installing".
5. Install clutch 305019 Removing and installing clutch - section on "Installing".
6. Install transmission 343519 Removing and installing transmission - section on "Installing" [997430 997431 997620 997621] 343519 Removing and installing transmission - section on "Installing" [997120 997121 997320 997321].
7. Filling in engine oil 170155 Engine oil and oil filter change - section on "Filling in".
8. Install air cleaner housing 242519 Removing and installing air cleaner housing - section on "Installing".

Note

- *Note the work instructions for disconnecting and reconnecting the battery.*

9. Connect the battery *271000 Work instructions after disconnecting the battery.*

997120, 997121, 997320, 997321, 997430, 997431, 997620, 997621

as of MY 2005
Country C00, C02, C05, C07, C08, C09, C10, C11, C12, C13, C14, C15, C16, C18, C19, C20, C21, C22, C23, C24, C25, C26, C27, C28, C32, C33, C34, C35, C36, C37, C38, C39, C45, C46, C98, C99

WARNUNG

Gefahr des Verlusts der Text-Bild-Zuordnung beim Ausdruck.

- **Aus technischen Gründen kann derzeit nicht ausgeschlossen werden, dass trotz einwandfreier Darstellung auf dem Bildschirm beim Ausdruck der Zusammenhang von Text und zugehörigem Bild verloren geht.**
- **Wird der Fehler nicht bemerkt, besteht die Gefahr, daß Arbeiten nicht korrekt durchgeführt werden und es dadurch zu Personen- und Sachschäden kommt.**

Vergleichen Sie deshalb nach dem Druckvorgang unbedingt die Ausdrucke mit der Bildschirmdarstellung. Korrigieren Sie die Ausdrucke im Fehlerfall so, daß der Inhalt der Bildschirmdarstellung zutreffend wiedergegeben wird.

WARNING

Danger of losing text-figure correspondence when printing out.

- **For technical reasons, it can currently not be ruled out that the correspondence between text and associated figure can be lost when it is printed out, even though the display on the screen is correct.**
- **If the fault is not noticed, there is the danger that work will not be performed correctly which can cause injury and damage.**

Therefore, always compare printouts with the screen display after printing them out. Correct the printouts if they are faulty so that the content of the screen display matches that on the printouts.

AVERTISSEMENT

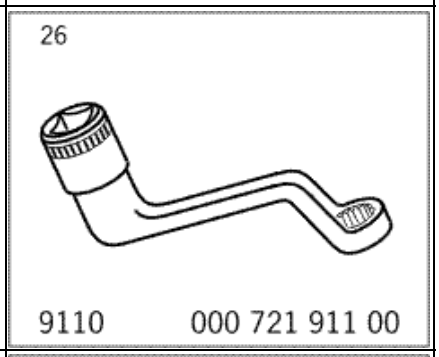
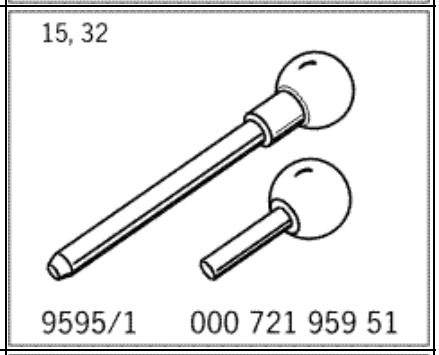
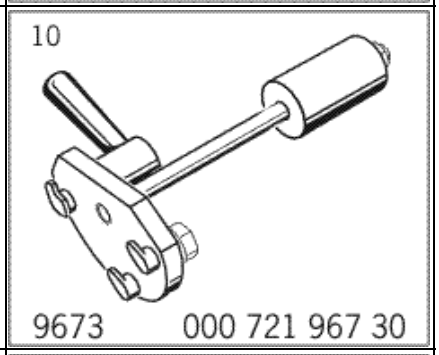
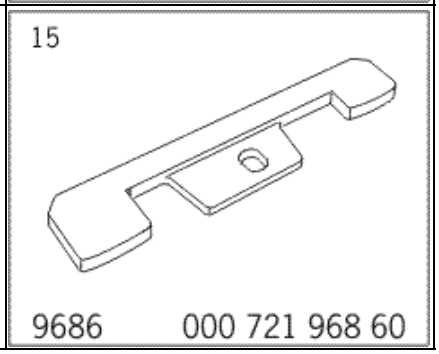
Risque de perte de la correspondance texte-illustration lors de l'impression papier.

- **Pour des raisons techniques, il ne peut pas être exclu à l'heure actuelle que, même en cas d'affichage correct à l'écran, la correspondance entre le texte et l'illustration puisse être erronée sur l'impression papier.**
- **Si l'erreur passe inaperçue, on court le risque d'exécuter certaines opérations de manière incorrecte pouvant conduire à des dommages corporels et matériels.**

15 21 19 Removing and installing bearing cover for intermediate shaft - M96/05 - as of MY 2005

- Removing bearing cover for intermediate shaft
- Installing bearing cover for intermediate shaft

Tools

Designation	Type	Number	Explanation	
socket wrench	special tool	9110		
locating pins	special tool	9595/1		
puller	special tool	9673		
adjusting gauge	special tool	9686		

cover for dust protection when fitting the engine	commercially available tool	NR.165		
assembly tool	special tool	P 9673/1		

top of page

Removing bearing cover for intermediate shaft

Removing bearing cover for intermediate shaft - up to engine number 695 07 475

ATTENTION
Timing chain may jump over.

- **Risk of engine damage**

Following removal of the chain tensioner, the crankshaft must not be turned under any circumstances.

ATTENTION
Risk of damage due to particles of dirt.

- **Oil bores/oil ducts can become blocked up.**

When working on the engine, absolute cleanliness is essential.
Lay removed engine parts on a clean base and cover them without fail.
Use the **cover for dust protection when fitting the engine NR.165** on the engine assembly support.

Note

- *It is only possible to remove the bearing cover with the engine installed in vehicles with manual transmission.*
- *In Tiptronic vehicles, the complete engine/transmission unit must be removed.*

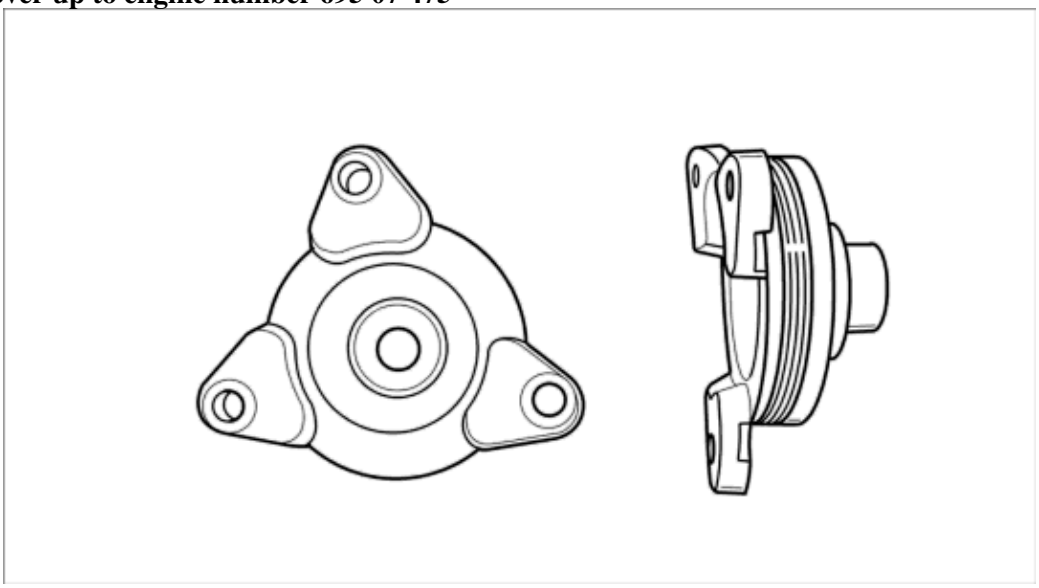
Note

Always observe specified engine number range.

Note

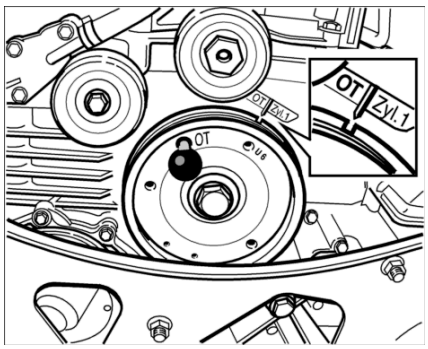
Always observe specified engine number range.

Bearing cover up to engine number 695 07 475



Bearing cover with sealing ring

1. Lever out two green closure caps on pulley side of cylinder bank 1 - 3.



Fixing belt pulley (damper)

2.

Turn the engine at the hexagon-head bolt (a/f 24) of the crankshaft belt pulley clockwise to overlapping TDC of cylinder bank 1 - 3 and fix it with special tool **locating pins 9595/1**.

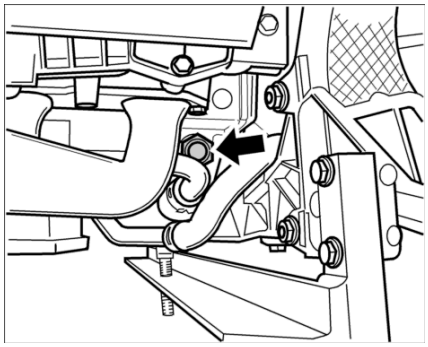
Note

- *For checking with the adjusting gauge, the timing adjustment must be correct.*

Note

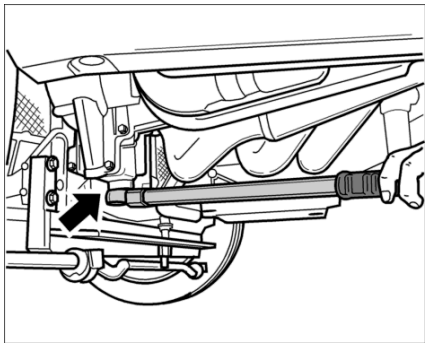
- *For checking with the adjusting gauge, the timing adjustment must be correct.*

3. To check the camshaft adjustment, insert **adjusting gauge 9686** for camshaft into the camshaft slots (pulley side) (inscription on gauge pointing towards cylinder head cover). If the gauge cannot be inserted, rotate the crankshaft a further 360° and secure it again.
4. Unscrew two M6 x 12 hexagon-head bolts on the coolant pipe at cylinder side 4 - 6.



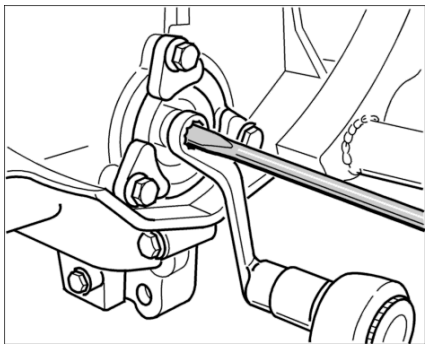
Primary chain tensioner

5. Remove primary chain tensioner (hexagon socket a/f 32).



Chain tensioner, cylinders 1 - 3

6. Remove chain tensioner, cylinder bank 1 - 3 (hexagon socket a/f 32).



Collar nut for bearing cover

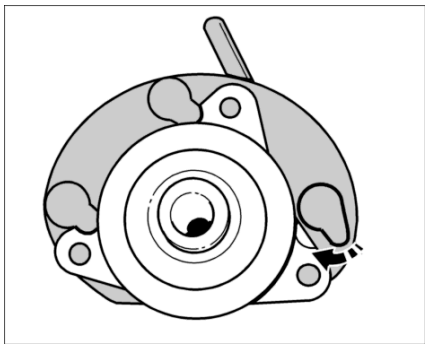
Note

- *To make it easier to remove the bearing cover, spray the sealing surface with anti-rust agent.*

Note

- *To make it easier to remove the bearing cover, spray the sealing surface with anti-rust agent.*

7. Unscrew M8 hexagon collar nut on the bearing cover of the intermediate shaft with special tool **socket wrench 9110**, while at the same time countering the slotted threaded pin on the intermediate shaft with a screwdriver.
8. Unscrew the three M6 x 20 fastening screws (coated) on the intermediate-shaft flange. Replace screws during installation and clean thread in crankcase.



Puller on bearing cover: view when removed

Note

- *Remove bearing cover using special tool **puller 9673**. If this is not available, lever the bearing cover out carefully with two screwdrivers so as not to damage the sealing surfaces. Turning several times to the left and right loosens the bearing cover.*

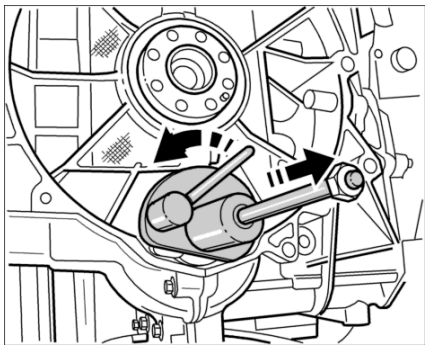
- *After removing the bearing cover, do not press the threaded bolts of the intermediate shaft.*

Note

- *Remove bearing cover using special tool **puller 9673**. If this is not available, lever the bearing cover out carefully with two screwdrivers so as not to damage the sealing surfaces. Turning several times to the left and right loosens the bearing cover.*

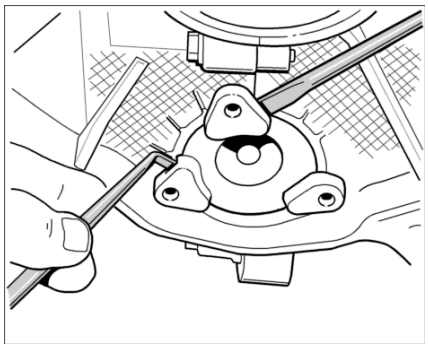
- *After removing the bearing cover, do not press the threaded bolts of the intermediate shaft.*

9. Position special tool **puller 9673** at the bearing cover grooves and secure by turning the locking lever anti-clockwise.



Removing bearing cover

10. Pull the slide hammer on the puller a number of times against the stop nuts while countering the tool at the same time with the other hand.



Levering out bearing cover

11. If the puller is not available, lever the bearing cover out carefully using two screwdrivers (or angle screwdrivers). Move the bearing cover a number of times to the left and right to make levering easier. Do not damage the sealing surfaces.

Removing bearing cover for intermediate shaft - from engine number 695 07 476

ATTENTION

Timing chain may jump over.

- **Risk of engine damage**

Following removal of the chain tensioner, the crankshaft must not be turned under any circumstances.

ATTENTION

Risk of damage due to particles of dirt.

- **Oil bores/oil ducts can become blocked up.**

When working on the engine, absolute cleanliness is essential.

Lay removed engine parts on a clean base and cover them without fail.

Use the **cover for dust protection when fitting the engine NR.165** on the engine assembly support.

Note

- *It is only possible to remove the bearing cover with the engine installed in vehicles with manual transmission.*
- *In Tiptronic vehicles, the complete engine/transmission unit must be removed.*

Note

Always observe specified engine number range.

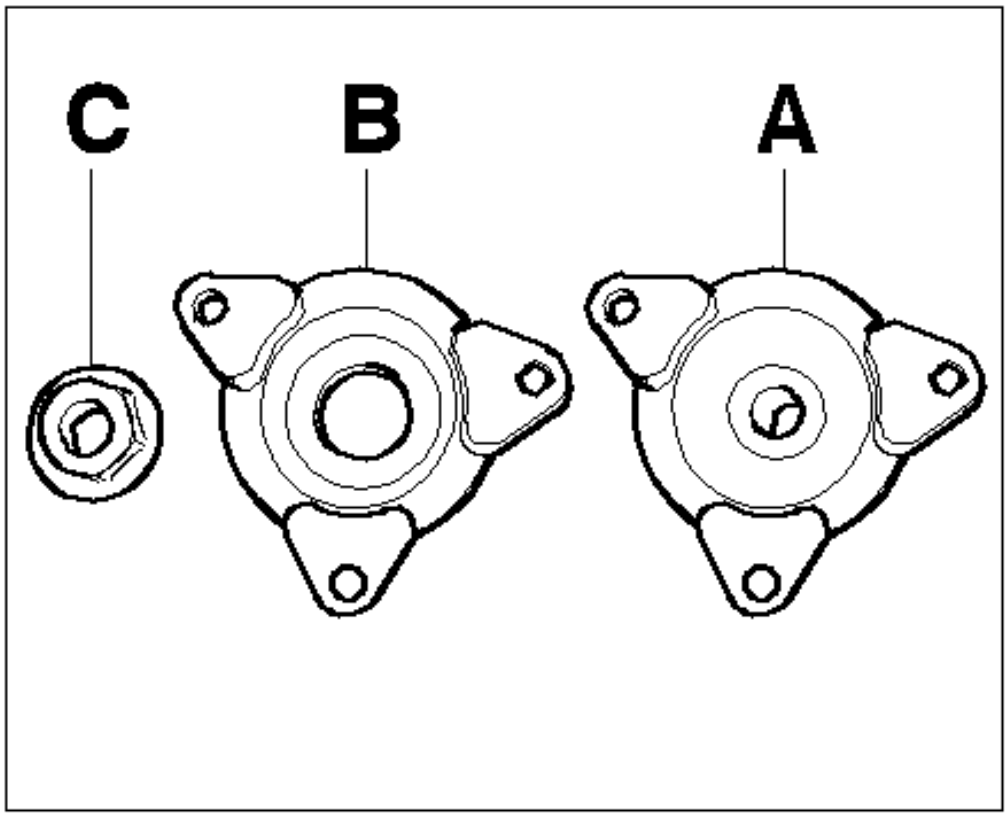
Note

Always observe specified engine number range.

Note

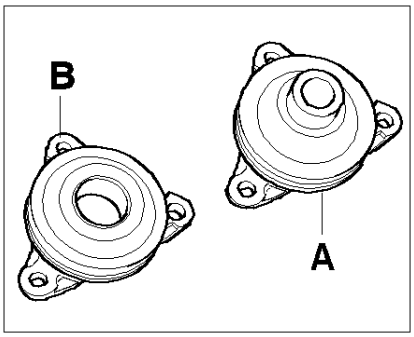
- *The same sealing ring and installation/removal procedure applies as for the "old" bearing cover.*
- *The new bearing cover can only be retrofitted along with the new intermediate shaft up to model year 2002 (M96/03).*

Overview of bearing covers for intermediate shaft.



Differentiation of bearing covers for intermediate shaft

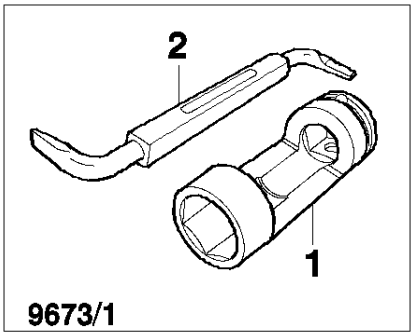
- A - Bearing cover 996.105.024.01
- B - Bearing cover 996.105.024.06
- C - New collar nut, M12 x 1.25



Rear view of bearing cover for intermediate shaft

Rear of bearing cover

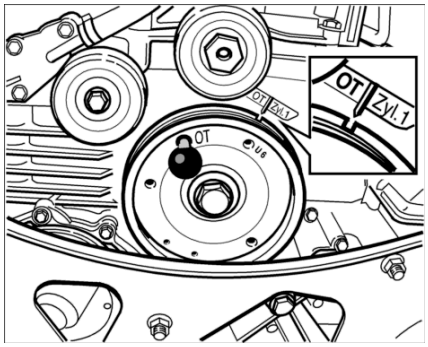
- A - Rear of bearing cover 996.105.024.01
- B - Rear of bearing cover 996.105.024.06



Special tool 9673/1

Use the special tool **assembly tool P 9673/1** for bolting the new bearing cover.

1. Lever out two green closure caps on pulley side of cylinder bank 1 - 3.



Fixing pulley

2. Turn the engine at the hexagon-head bolt (a/f 24) of the crankshaft belt pulley clockwise to overlapping TDC of cylinder bank 1 - 3 and fix it with special tool **locating pins 9595/1**.

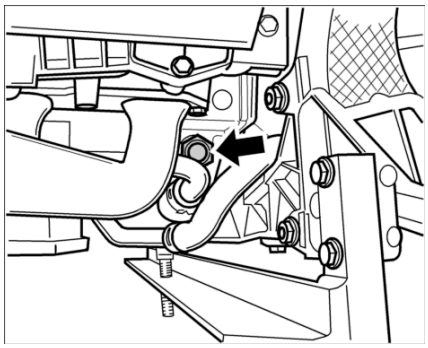
Note

- *For checking with the adjusting gauge, the timing adjustment must be correct.*

Note

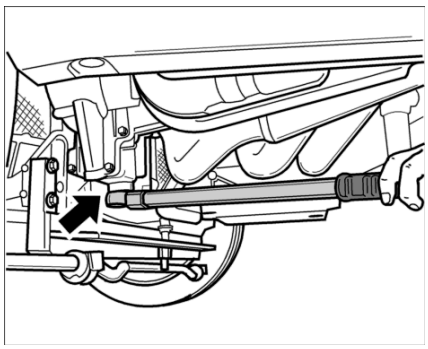
- *For checking with the adjusting gauge, the timing adjustment must be correct.*

3. To check the camshaft adjustment, insert **adjusting gauge 9686** for camshaft into the camshaft slots (pulley side) (inscription on gauge pointing towards cylinder head cover). If the gauge cannot be inserted, rotate the crankshaft a further 360° and secure it again.
4. Unscrew two M6 x 12 hexagon-head bolts on the coolant pipe at cylinder side 4 - 6.



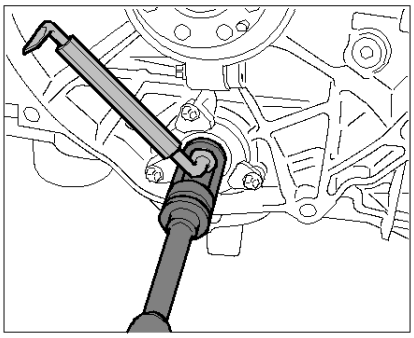
Primary chain tensioner

5. Remove primary chain tensioner (hexagon socket a/f 32).



Chain tensioner, cylinders 1 - 3

6. Remove chain tensioner, cylinder bank 1 - 3 (hexagon socket a/f 32).



Threaded joint with collar nut on bearing cover for intermediate shaft

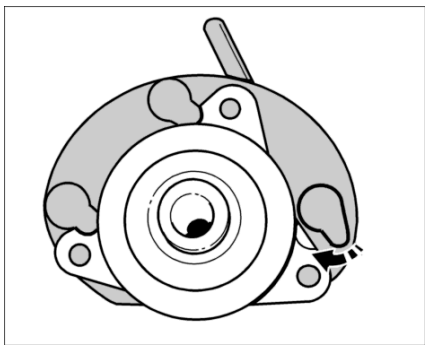
Note

- *To make it easier to remove the bearing cover, spray the sealing surface with anti-rust agent.*

Note

- *To make it easier to remove the bearing cover, spray the sealing surface with anti-rust agent.*

7. Loosen M12 hexagon collar nut (a/f 22) on bearing cover for intermediate shaft with special tool **assembly tool P 9673/1** and screw it off *Threaded joint with collar nut on bearing cover for intermediate shaft* .
8. Unscrew the three M6 x 20 fastening screws (coated) on the intermediate-shaft flange. Replace screws during installation and clean thread in crankcase.



Puller on bearing cover: view when removed

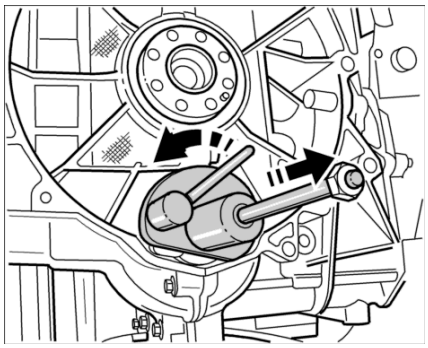
Note

- *Remove bearing cover using special tool **puller 9673**. If this is not available, lever the bearing cover out carefully with two screwdrivers so as not to damage the sealing surfaces. Turning several times to the left and right loosens the bearing cover.*
- *After removing the bearing cover, do not press the threaded bolts of the intermediate shaft.*

Note

- *Remove bearing cover using special tool **puller 9673**. If this is not available, lever the bearing cover out carefully with two screwdrivers so as not to damage the sealing surfaces. Turning several times to the left and right loosens the bearing cover.*
- *After removing the bearing cover, do not press the threaded bolts of the intermediate shaft.*

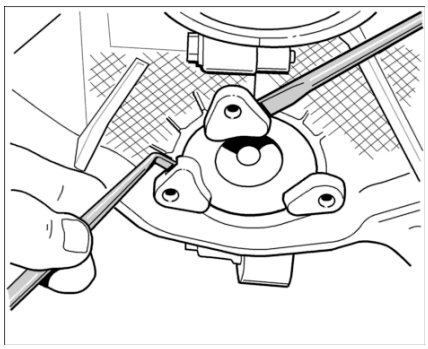
9. Position special tool **puller 9673** at the bearing cover grooves and secure by turning the locking lever anti-clockwise.



Removing bearing cover

10.

Pull the slide hammer on the puller a number of times against the stop nuts while countering the tool at the same time with the other hand.



Levering out bearing cover

11. If the puller is not available, lever the bearing cover out carefully using two screwdrivers (or angle screwdrivers). Move the bearing cover a number of times to the left and right to make levering easier. Do not damage the sealing surfaces.

top of page

Installing bearing cover for intermediate shaft

Installing bearing cover for intermediate shaft - up to engine number 695 07 475

ATTENTION

Risk of damage due to particles of dirt.

- **Oil bores/oil ducts can become blocked up.**

When working on the engine, absolute cleanliness is essential.

Lay removed engine parts on a clean base and cover them without fail.

Use the **cover for dust protection when fitting the engine NR.165** on the engine assembly support.

Note

- *Clean working area of bore for bearing cover and crankcase thoroughly using acetone or solvent naphtha.*

1. Before installing the new bearing cover, check the fitted bore (axial attachment surface, bore chamfers) on the crankcase for sharp edges and burrs. They should be removed with an oilstone or a polishing cloth. Remove any existing residue and clean the bore with a clean cloth soaked in solvent naphtha or acetone.

Note

- *Replace bearing cover or sealing ring for bearing cover* *152355 Replacing sealing ring for intermediate shaft*.

Note

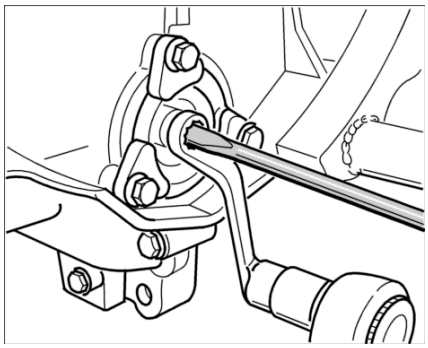
Always observe specified engine number range.

2. Grease fitted bore in crankcase and new bearing cover (with new sealing ring) with special grease Optimoly MP3 (available from Porsche Parts Service) and place bearing cover in position.

Note

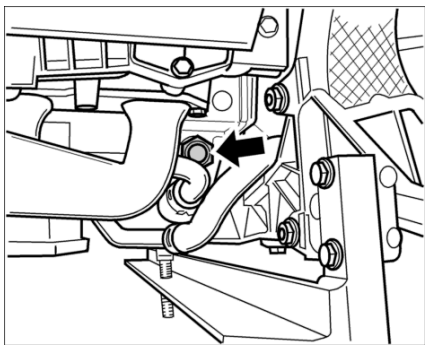
- *Replace collar nut M8 x 1 and coated M6 screws for bearing cover.*

3. Position three new, coated M6 x 20 screws on the crankcase and pull in the bearing cover by screwing in the screws uniformly. Tighten the screws. **Tightening torque: 10 (7.5 ftlb.) Nm**



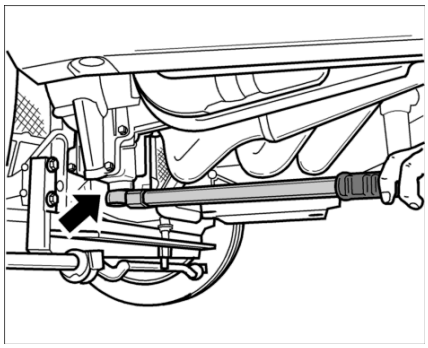
Collar nut for bearing cover

4. Position new M8 x 1 collar nut on the threaded pin of the intermediate shaft. Then tighten the nut using special tool **socket wrench 9110**. At the same time, counter with a screwdriver in the slotted threaded pin of the intermediate shaft. **Tightening torque: 12 (9 ftlb.) Nm +1 (0.5 ftlb.) Nm**



Primary chain tensioner

5. Insert primary chain tensioner with new sealing ring (hexagon a/f 32) and tighten to the specified torque. **Tightening torque: 80 (59 ftlb.) Nm**



Chain tensioner, cylinders 1 - 3

6. Insert chain tensioner for cylinder 1 - 3 with new sealing ring (hexagon a/f 32) and tighten to the specified torque. **Tightening torque: 80 (59 ftlb.) Nm**
7. Secure coolant pipe on cylinder side 4 - 6 with two M6 x 12 hexagon-head bolts. **Tightening torque: 10 (7.5 ftlb.) Nm**
8. Fit new closure caps on cylinder head cover.
9. Pull locating pin out of crankshaft belt pulley.

Installing bearing cover for intermediate shaft - from engine number 695 07 476

ATTENTION

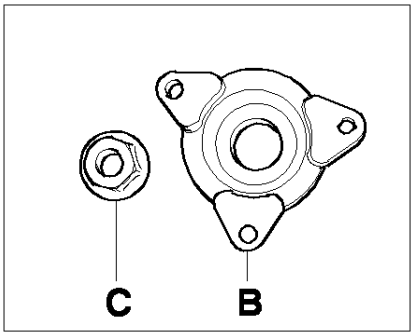
Risk of damage due to particles of dirt.

- **Oil bores/oil ducts can become blocked up.**

When working on the engine, absolute cleanliness is essential.

Lay removed engine parts on a clean base and cover them without fail.

Use the **cover for dust protection when fitting the engine NR.165** on the engine assembly support.



New bearing cover for intermediate shaft

Note

Always observe specified engine number range.

New bearing cover.

- B - Bearing cover 996.105.024.06
- C - Collar nut, M12 x 1.25

Note

- *Clean working area of bore for bearing cover and crankcase thoroughly using acetone or solvent naphtha.*

1. Before installing the new bearing cover, check the fitted bore (axial attachment surface, bore chamfers) on the crankcase for sharp edges and burrs. They should be removed with an oilstone or a polishing cloth. Remove any existing residue and clean the bore with a clean cloth soaked in solvent naphtha or acetone.

Note

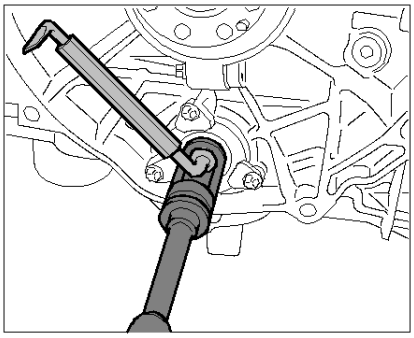
- *Replace bearing cover or sealing ring for bearing cover 152355 Replacing sealing ring for intermediate shaft.*

2. Grease fitted bore in crankcase and new bearing cover (with new sealing ring) with special grease Optimoly MP3 (available from Porsche Parts Service) and place bearing cover in position.

Note

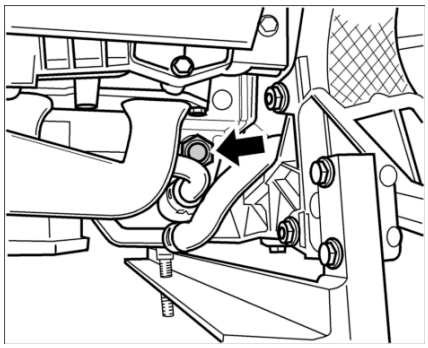
- *Replace collar nut M12 and coated M6 screws for bearing cover.*

3. Position three new, coated M6 x 20 screws on the crankcase and pull in the bearing cover by screwing in the screws uniformly. Tighten the screws. **Tightening torque: 10 (7.5 ftlb.) Nm**



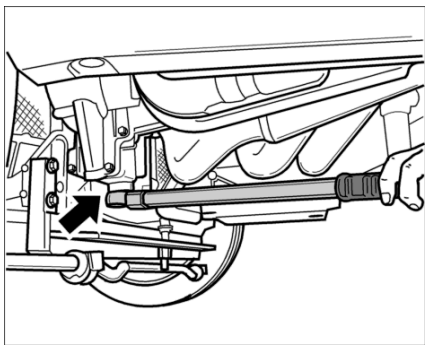
Threaded joint with collar nut on bearing cover for intermediate shaft

4. Position new M12 x 1.25 collar nut on the threaded pin of the intermediate shaft. Then tighten the nut using special tool **assembly tool P 9673/1**. At the same time, counter with an angle screwdriver in the slotted threaded pin of the intermediate shaft. **Tightening torque : 20 (15 ftlb.) Nm +/-1 (0.5 ftlb.) Nm**



Primary chain tensioner

5. Insert primary chain tensioner with new sealing ring (hexagon a/f 32) and tighten to the specified torque. **Tightening torque: 80 (59 ftlb.) Nm**



Chain tensioner, cylinders 1 - 3

6. Insert chain tensioner for cylinder 1 - 3 with new sealing ring (hexagon a/f 32) and tighten to the specified torque. **Tightening torque: 80 (59 ftlb.) Nm**
7. Secure coolant pipe on cylinder side 4 - 6 with two M6 x 12 hexagon-head bolts. **Tightening torque: 10 (7.5 ftlb.) Nm**
8. Fit new closure caps on cylinder head cover.
9. Pull locating pin out of crankshaft belt pulley.

997110, 997111, 997310, 997311, 997410, 997411, 997610, 997611

as of MY 2005
Country C00, C02, C05, C07, C08, C09, C10, C11, C12, C13, C14, C15, C16, C18, C19, C20, C21, C22, C23, C24, C25, C26, C27, C28, C32, C33, C34, C35, C36, C37, C38, C39, C45, C46, C98, C99

WARNUNG

Gefahr des Verlusts der Text-Bild-Zuordnung beim Ausdruck.

- **Aus technischen Gründen kann derzeit nicht ausgeschlossen werden, dass trotz einwandfreier Darstellung auf dem Bildschirm beim Ausdruck der Zusammenhang von Text und zugehörigem Bild verloren geht.**
- **Wird der Fehler nicht bemerkt, besteht die Gefahr, daß Arbeiten nicht korrekt durchgeführt werden und es dadurch zu Personen- und Sachschäden kommt.**

15 23 55 Replacing sealing ring for bearing cover for intermediate shaft - as of MY 2005

- Preliminary work for bearing cover sealing ring
- Replacing sealing ring for bearing cover for intermediate shaft
- Subsequent work for bearing cover sealing ring

top of page

Preliminary work for bearing cover sealing ring

Preliminary work for bearing cover sealing ring

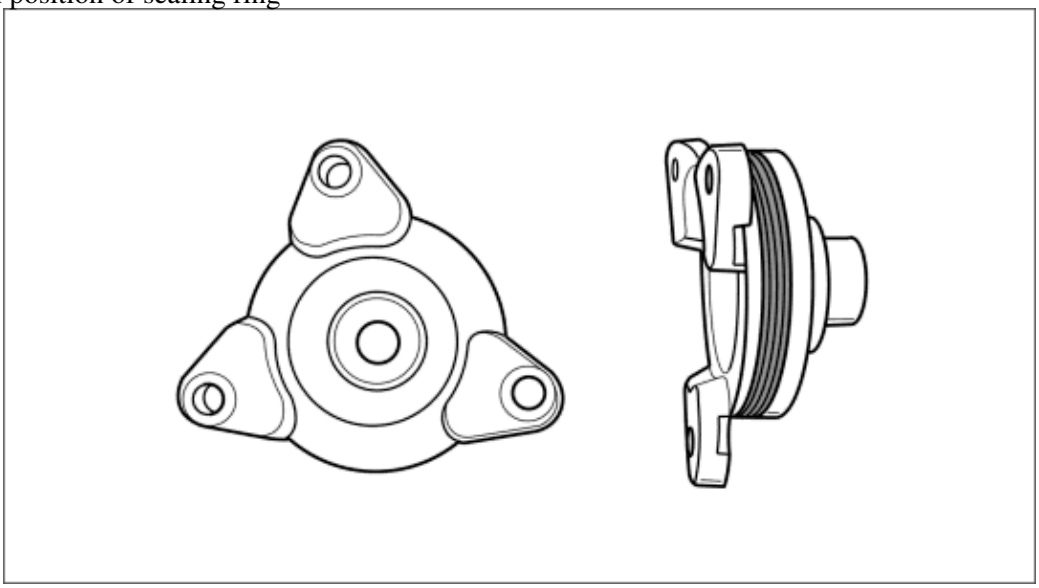
1. Remove bearing cover for intermediate shaft 152119 Removing and installing bearing cover for intermediate shaft - chapter on "removing" [997110 997111 997310 997311 997410 997411 997610 997611] 152119 Removing and installing bearing cover for intermediate shaft - chapter on "removing" [997120 997121 997320 997321 997430 997431 997620 997621].

top of page

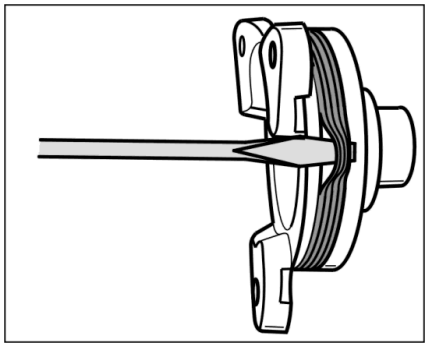
Replacing sealing ring for bearing cover for intermediate shaft

Replacing sealing ring for bearing cover for intermediate shaft

Installation position of sealing ring



Sealing ring on bearing cover



Levering off sealing ring

Note

Do not use a sharp object to lever off the sealing ring.

1. Carefully lever off sealing ring with a small piece of wood or a plastic spatula in order to avoid damaging the groove.

Note

- *Before fitting the new sealing ring, check the edges of the bearing cover for burred spots. Carefully remove these using an oilstone or polishing cloth. Clean bearing cover (without sealing ring) thoroughly using acetone or solvent naphtha.*

2. Insert new sealing ring into the groove on the bearing cover by hand. The sealing ring can be fitted in any direction since the sealing lips are facing vertically upwards and do not therefore have to be fitted in a specific direction.
3. Before installation, grease the new sealing ring on the bearing cover and the fitting bore in the crankcase with special grease Optimoly MP3 (available from Porsche Parts Service).

top of page

Subsequent work for bearing cover sealing ring

Subsequent work for bearing cover sealing ring

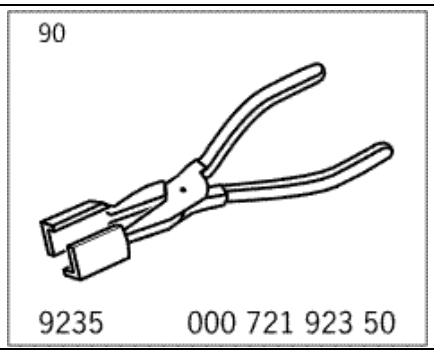
1. Install bearing cover 152119 Removing and installing bearing cover for intermediate shaft - chapter on "installing" [997110 997111 997310 997311 997410 997411 997610 997611] 152119 Removing and installing bearing cover for intermediate shaft - chapter on "installing" [997120 997121 997320 997321 997430 997431 997620 997621].

997110, 997111, 997120, 997121, 997310, 997311, 997320, 997321, 997410, 997411, 997430, 997431, 997610, 997611, 997620, 997621

15 37 19 Removing and installing solenoid hydraulic valve (camshaft timing) - as of MY 2005

- Removing hydraulic valve for camshaft timing
- Installing hydraulic valve for camshaft timing

Tools

Designation	Type	Number	Explanation	
relay puller	special tool	9235		

top of page

Removing hydraulic valve for camshaft timing

Removing hydraulic valve for camshaft timing

ATTENTION

Risk of oil contamination and blocked oil bores

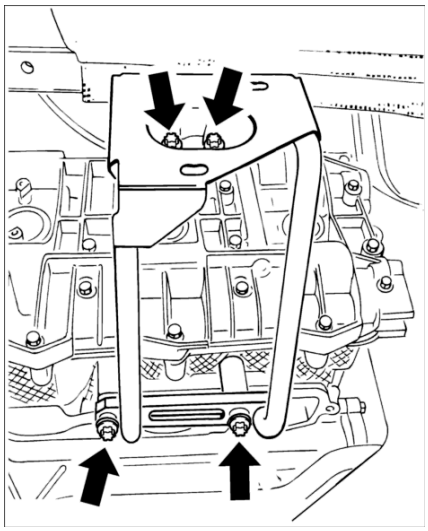
- **Faulty engine parts, engine damage**

Absolute cleanliness is essential when working on hydraulic valves.

Note

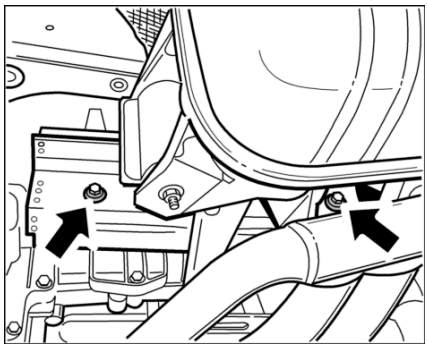
- *The rear silencer must be removed and the holder must be detached before the hydraulic valve on cylinder side 4 - 6 can be removed.*

1. **Cylinder side 4 - 6 only:** Remove rear silencer.



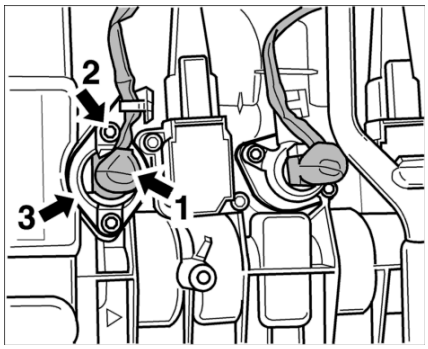
Holder for rear silencer

2. **Cylinder side 4 - 6 only:** Remove holder for rear silencer. Unscrew two M8 x 30 Torx screws on the intake side and two M8 x 25 screws on the exhaust side and remove the holder.



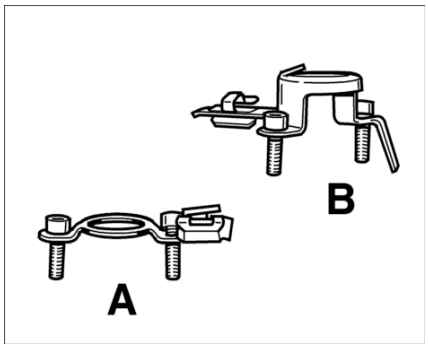
Removing and installing shield

3. Remove the side shield on the relevant side of the engine. To do this, unscrew the two M6 x 16 Torx screws **-arrows-** .



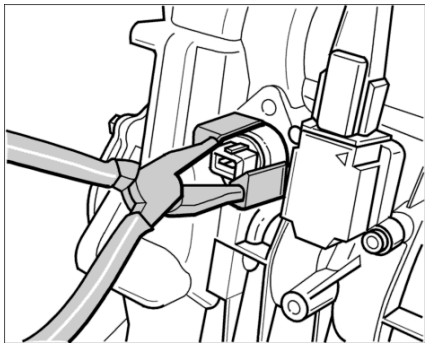
Camshaft timing valve

4. Disconnect cable plug on hydraulic valve **-1-** by pressing the clip and pulling off the cable plug.



Holder for solenoid hydraulic valves

5. Unscrew two M6 x 20 inner Torx screws **-2-** at the valve holder and remove the holder along with the screws **-A-** .

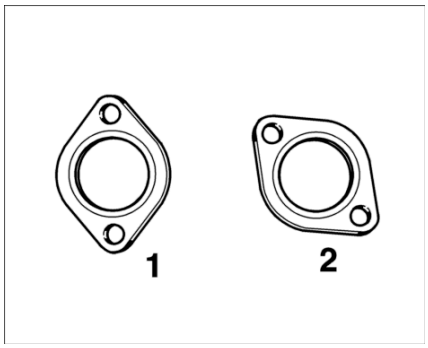


Pulling out hydraulic valve with relay puller

Note

- *Handle the hydraulic valve with care; do not turn it at the valve tip or at the safety contact.*
- *A seal against leaks cannot be ensured if there is damage in the area of the retainer plate, therefore handle the pliers indicated with care.*

6. Carefully pull the hydraulic valve out of the cylinder head using special tool **relay puller 9235**.
   Before using the puller, mask the valve body in fabric tape in order to prevent slippage or damage.



Retainer plate with seal - installation position of valve for camshaft timing and valve lift control

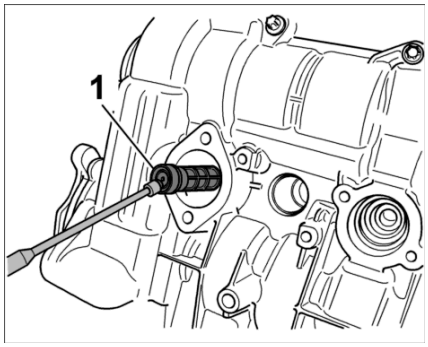
7. Remove retainer plate with integrated seal **-1-** from the valve.

Note

- *Handle the hydraulic valve with care; do not turn it at the valve tip or at the safety contact.*

- *A seal against leaks cannot be ensured if there is damage in the area of the retainer plate, therefore handle the pliers indicated with care.*

8. Check the valve body for damage in the sealing area of the retainer plates. If necessary, the valve must be replaced.



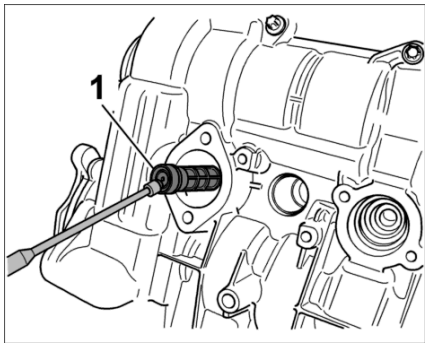
Oil strainer for hydraulic valve for camshaft timing

9. Pull the oil strainer with bar magnet out of the cylinder head bore. Clean using solvent naphtha, check for damage and soiling, replace if necessary. Pay attention to the installation position.

top of page

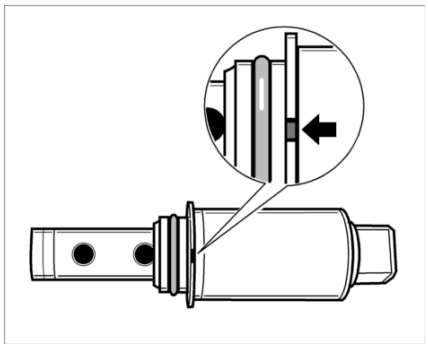
Installing hydraulic valve for camshaft timing

Installing hydraulic valve for camshaft timing



Oil strainer for hydraulic valve for camshaft timing

1. Fit cleaned or new oil strainer with bar magnet into the cylinder bore **-1-** . Pay attention to the installation position.

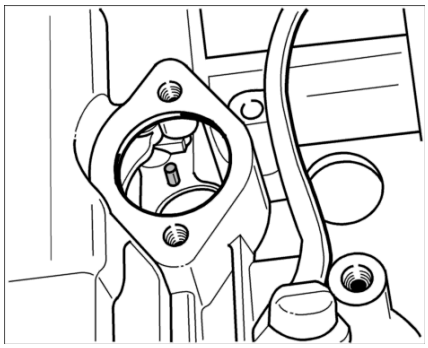


Groove on valve for camshaft timing

Note

- *Replace O-ring on hydraulic valve and retainer plate with seal.*
- *Observe installation position of the hydraulic valve.*

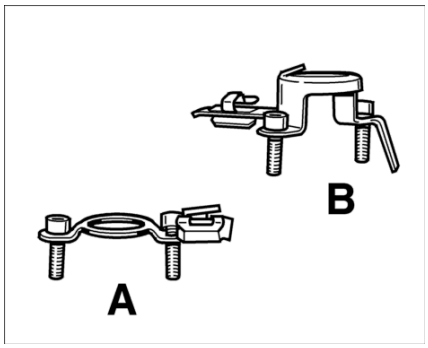
2. Replace the O-ring of the hydraulic valve and coat the new O-ring with engine oil. Insert hydraulic valve into the cylinder head. Pay attention to installation position while doing this. The groove on the valve **-arrow-** points to the dowel pin in the cylinder head.



Dowel pin for valve for camshaft timing

Position of dowel pin in cylinder head

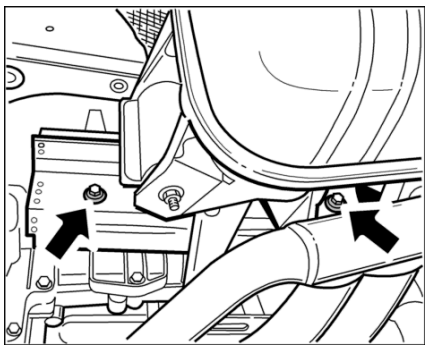
3. Coat seal of the retainer plate with engine oil and slide it over the hydraulic valve.



Holder for solenoid hydraulic valves

4. Position two M6 x 20 inner Torx screws complete with support **-A-** on the valve and tighten the screws. Observe installation position of the cable terminal (to intake distributor). **Tightening torque: 7.5 ftlb.**
5.

Push cable plug onto the hydraulic valve. Make sure that the plug engages audibly.



Removing and installing shield

6. Fit the side shield to the relevant side of the engine. To do this, insert and tighten the two M6 x 16 Torx screws **-arrows-** . **Tightening torque: 7.5 ftlb.**

Note

The clamp between the rear silencer and the catalytic converter must be replaced.

7. On cylinder side 4 - 6, fit the holder for the rear silencer and re-install the rear silencer.
   Tightening torque: 17 ftlb. ; **Tightening torque: 17 ftlb.** ; **Tightening torque: 33 ftlb.** ; **Tightening torque: 17 ftlb.** ; **Tightening torque: 22 ftlb.**

997110, 997111, 997120, 997121, 997310, 997311, 997320, 997321, 997410, 997411, 997430, 997431, 997610, 997611, 997620, 997621

as of MY 2005
Country C00, C02, C05, C07, C08, C09, C10, C11, C12, C13, C14, C15, C16, C18, C19, C20, C21, C22, C23, C24, C25, C26, C27, C28, C32, C33, C34, C35, C36, C37, C38, C39, C45, C46, C98, C99

WARNUNG

Gefahr des Verlusts der Text-Bild-Zuordnung beim Ausdruck.

- **Aus technischen Gründen kann derzeit nicht ausgeschlossen werden, dass trotz einwandfreier Darstellung auf dem Bildschirm beim Ausdruck der Zusammenhang von Text und zugehörigem Bild verloren geht.**
- **Wird der Fehler nicht bemerkt, besteht die Gefahr, daß Arbeiten nicht korrekt durchgeführt werden und es dadurch zu Personen- und Sachschäden kommt.**

Vergleichen Sie deshalb nach dem Druckvorgang unbedingt die Ausdrucke mit der Bildschirmdarstellung. Korrigieren Sie die Ausdrucke im Fehlerfall so, daß der Inhalt der Bildschirmdarstellung zutreffend wiedergegeben wird.

WARNING

Danger of losing text-figure correspondence when printing out.

15 55 19 Removing and installing solenoid hydraulic valve (valve lift control) - as of MY 2005

- Removing hydraulic valve for valve lift control
- Installing hydraulic valve for valve lift control

top of page

Removing hydraulic valve for valve lift control

Removing hydraulic valve for valve lift control

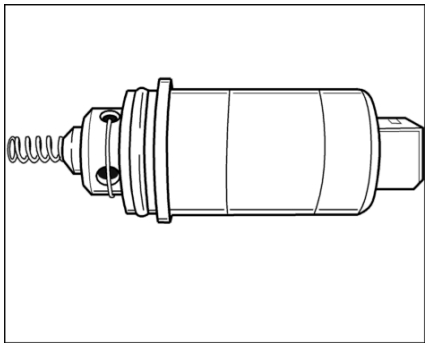
ATTENTION
Risk of oil contamination and blocked oil bores

- **Faulty engine parts, engine damage**

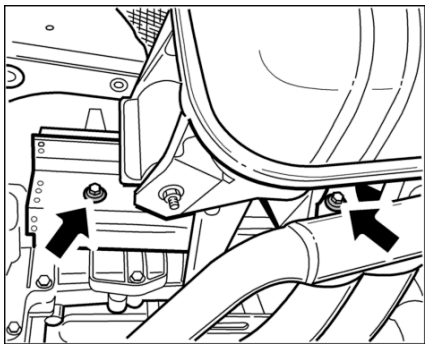
Absolute cleanliness is essential when working on hydraulic valves.

Note

- *Handle the hydraulic valve with care; do not turn it at the valve tip or at the safety contact.*
- *A seal against leaks cannot be ensured if there is damage in the area of the retainer plate, therefore handle the pliers indicated with care.*

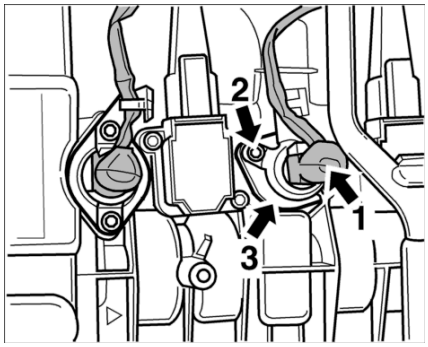


Hydraulic valve for valve lift control
Hydraulic valve for valve lift control



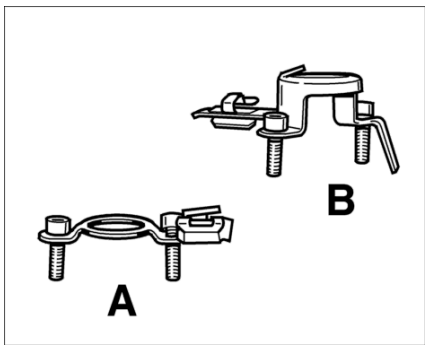
Removing and installing shield

1. Remove the side shield on the relevant side of the engine. To do this, unscrew the two M6 x 16 Torx screws **-arrows-** .



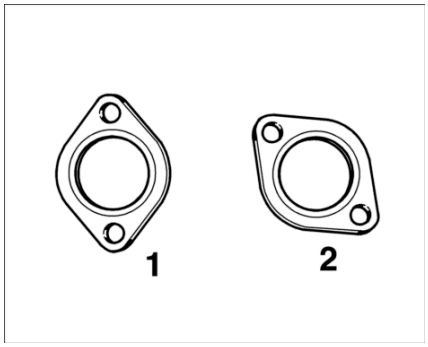
Hydraulic valve for valve lift control

2. Disconnect cable plug on hydraulic valve **-1-** by pressing the clip and pulling off the cable plug.



Holder for solenoid hydraulic valves

3. Unscrew two M6 x 20 inner Torx screws **-2-** at the valve holder and remove the holder **-B-** along with the screws.



Retainer plate with seal - installation position of valve for camshaft timing and valve lift control

4. Carefully pull the hydraulic valve with retainer plate **-2-** out of the cylinder head cover. Make sure that the front spring does not remain in the cylinder head. Observe installation position of the hydraulic valve (position of cable plug connection).

top of page

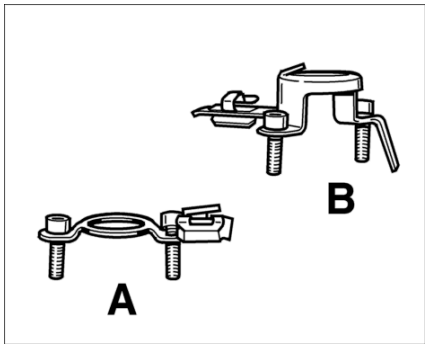
Installing hydraulic valve for valve lift control

Installing hydraulic valve for valve lift control

Note

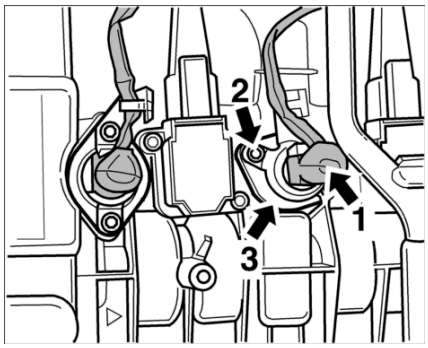
- *Always replace O-ring on hydraulic valve and retainer plate with integrated seal.*
- *Observe installation position of hydraulic valve.*

1. Before installation, coat the O-ring and the retainer plate seal with engine oil. Then carefully fit the hydraulic valve with retainer plate into the cylinder head cover.



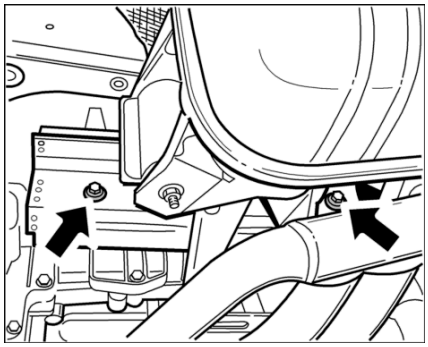
Holder for solenoid hydraulic valves

2. Position two M6 x 20 inner Torx screws complete with holder **-B-** on the valve and tighten the screws. **Tightening torque: 7.5 ftlb.**



Hydraulic valve for valve lift control

3. Attach cable plug **-1-** . Make sure that the plug engages audibly.



Removing and installing shield

4. Fit the side shield to the relevant side of the engine. To do this, insert and tighten the two M6 x 16 Torx screws **-arrows-** . **Tightening torque: 7.5 ftlb.**

997110, 997111, 997120, 997121, 997310, 997311, 997320, 997321, 997410, 997411, 997430, 997431, 997610, 997611, 997620, 997621

as of MY 2005
Country C00, C02, C05, C07, C08, C09, C10, C11, C12, C13, C14, C15, C16, C18, C19, C20, C21, C22, C23, C24, C25, C26, C27, C28, C32, C33, C34, C35, C36, C37, C38, C39, C45, C46, C98, C99

WARNUNG
Gefahr des Verlusts der Text-Bild-Zuordnung beim Ausdruck.

- **Aus technischen Gründen kann derzeit nicht ausgeschlossen werden, dass trotz einwandfreier Darstellung auf dem Bildschirm beim Ausdruck der Zusammenhang von Text und zugehörigem Bild verloren geht.**
- **Wird der Fehler nicht bemerkt, besteht die Gefahr, daß Arbeiten nicht korrekt durchgeführt werden und es dadurch zu Personen- und Sachschäden kommt.**

Vergleichen Sie deshalb nach dem Druckvorgang unbedingt die Ausdrucke mit der Bildschirmdarstellung. Korrigieren Sie die Ausdrucke im Fehlerfall so, daß der Inhalt der Bildschirmdarstellung zutreffend wiedergegeben wird.

WARNING
Danger of losing text-figure correspondence when printing out.

- **For technical reasons, it can currently not be ruled out that the correspondence between text and associated figure can be lost when it is printed out, even though the display on the screen is correct.**
- **If the fault is not noticed, there is the danger that work will not be performed correctly which can cause injury and damage.**

Therefore, always compare printouts with the screen display after printing them out. Correct the printouts if they are faulty so that the content of the screen display matches that on the

15 70 19 Removing and installing cylinder head - engine removed - as of MY 2005

- Preliminary work for removing cylinder head
- Removing cylinder head
- Installing cylinder head
- Subsequent work for installing cylinder head

Tools

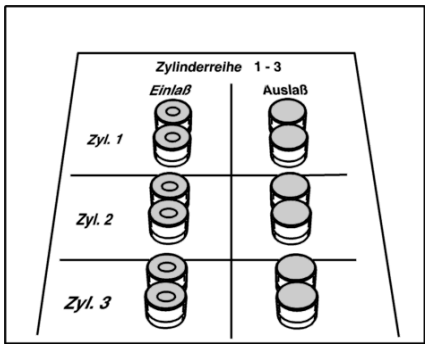
Designation	Type	Number	Explanation	
cover for dust protection when fitting the engine	commercially available tool	NR.165		

top of page

Preliminary work for removing cylinder head

Preliminary work for removing cylinder head

1. Remove exhaust manifold. Remove old seal.
2. Remove cylinder head cover 159119 Removing and installing cylinder head cover - engine removed - chapter on "Removing".
3. Remove camshafts 150520 Removing and installing camshaft - chapter on "Removing" [997430 997431] 150520 Removing and installing camshaft - chapter on "Removing" [997110 997111 997310 997311 997410 997411 997610 997611] 150520 Removing and installing camshaft - chapter on "Removing" [997120 997121 997320 997321 997620 997621].



Example of laying aside flat-base tappets

ATTENTION

Interchanged or dirty flat-base tappets.

- **Damage to engine components**

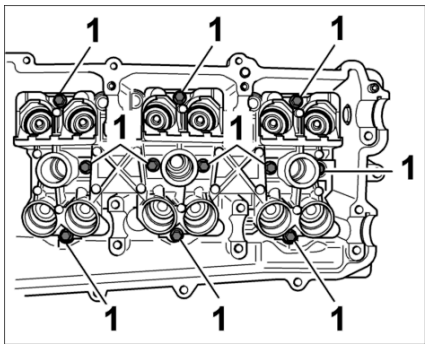
The components have been run in in the fitting bores in the housing, therefore do not interchange them.

Pay attention to cleanliness.

Note

There must be no visible signs of wear on the flat-base tappets and fitting bores of the flat-base tappet housing.

4. Remove the flat-based tappets. Pull each of the components out of the flat-base tappet housing using a strong magnet. Check running surfaces for signs of damage. To avoid confusing the individual flat-based tappets, lay them on a labelled, clean surface *Example of laying aside flat-base tappets* and cover them.



Flat-base tappet housing bolts

5. Remove flat-base tappet housing. Unscrew 11 Torx screws **-1-** from the outside to the inside. Remove housing and check the fitting bores for damage.
6. Remove the old O-rings at the spark-plug recesses.

top of page

Removing cylinder head

Removing cylinder head

ATTENTION

Risk of damage due to particles of dirt.

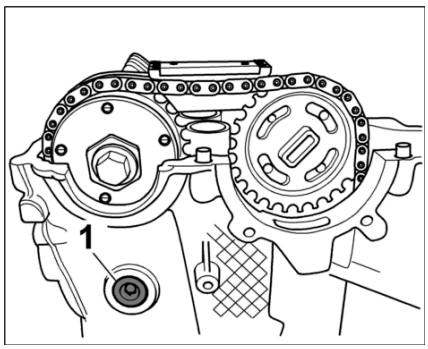
- **Oil bores/oil ducts can become blocked up.**

When working on the engine, absolute cleanliness is essential.

Lay removed engine parts on a clean base and cover them without fail.

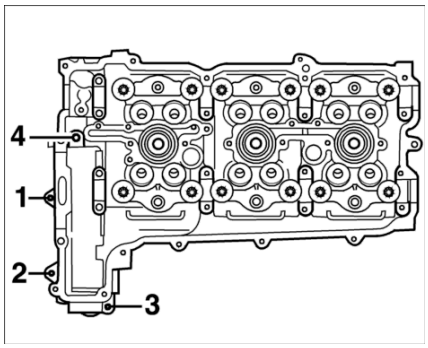
Use the **cover for dust protection when fitting the engine NR.165** on the engine assembly support.

Cylinder head 1-3:



Guide rail screw for cylinders 1-3

1. Unscrew M6 threaded bolt (hexagon socket) for guide rail (flywheel side) **-1-** .



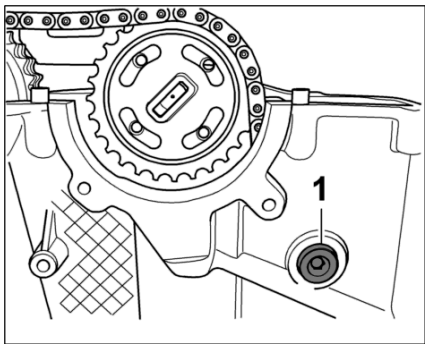
External cylinder head screwed connection

2. Unscrew four Torx screws with M6 x 30 captive washers (10.9) **-1-4-** at the chain slot. Use of a magnetic bit is recommended so that the screw to be fitted in the slot **-item 4-** cannot fall into the crankcase.
3. Loosen and unscrew 12 M10 Torx cylinder-head screws from outside to inside.
4. Carefully lift off the cylinder head and remove the old cylinder-head gasket.
5. Carefully clean the sealing faces on the cylinder head and crankcase (e.g. using a nylon brush and a clean, lint-free cloth soaked in acetone). Check the sealing face from cylinder head to crankcase for damage and

cracks, and rework the flat surface if necessary.

The removal of cylinder head 4-6 is the same as for side 1-3 with the following change

– The threaded bolt for guide rail 4-6 on the cylinder head (belt pulley side) **-1-** is removed even before the camshaft timing gears are removed.



Guide rail screw for cylinders 4-6

top of page

Installing cylinder head

Installing cylinder head

ATTENTION

Risk of damage due to particles of dirt.

- **Oil bores/oil ducts can become blocked up.**

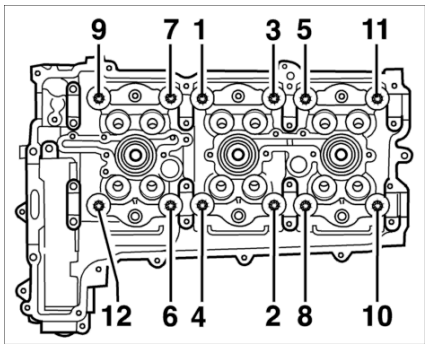
When working on the engine, absolute cleanliness is essential.

Lay removed engine parts on a clean base and cover them without fail.

Use the **cover for dust protection when fitting the engine NR.165** on the engine assembly support.

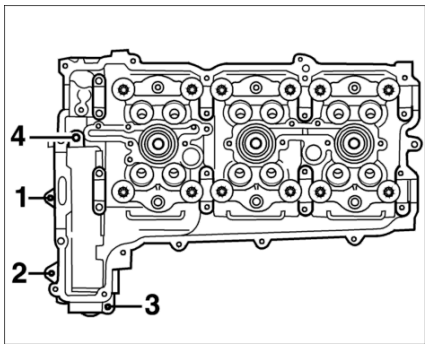
Fitting cylinder head side 1 - 3:

1. Turn the crankcase at the assembly support in such a way that side 1-3 stands vertically upwards.
2. Fit new cylinder-head gasket. The inscription **'OBEN/TOP'** must be clearly visible.
3. Carefully position the cylinder head on the crankcase. Pay attention to the dowel sleeves.



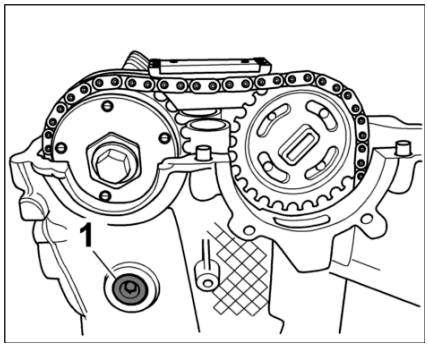
Tightening sequence for cylinder-head screws

4. Screw in 12 M10 Torx screws evenly and tighten according to the prescribed tightening sequence **-1-12-** .
   Initial tightening: 22 ftlb. , loosen all screws in reverse tightening sequence; **Initial tightening: 15 ftlb.** ; **Final tightening, 2 x torque angle: 70** °



External cylinder head screwed connection

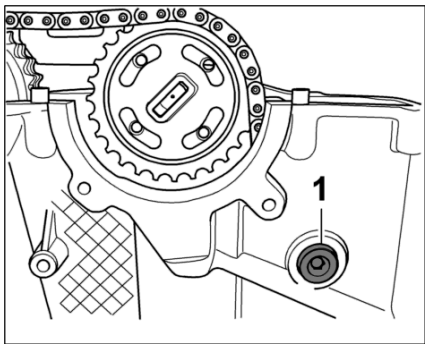
5. Screw in and tighten four Torx screws with M6 x 30 captive washers (10.9) **-1-4-** at the chain slot. Use of a magnetic bit is recommended so that the screw to be fitted in the slot **-item 4-** cannot fall into the crankcase. **Tightening torque: 9.5 ftlb.**



Guide rail screw for cylinders 1-3

6. Fit threaded bolt for guide rail **-1-** with a new O-ring at the cylinder head. **Tightening torque: 7.5 ftlb.**

The installation of cylinder head side 4 -6 is carried out in the same way as the assembly sequence for side 1-3 with the following change:



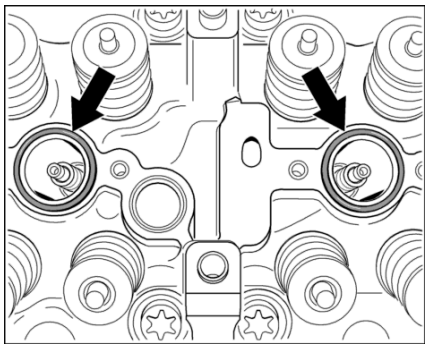
Guide rail screw for cylinders 4-6

– The threaded bolt for guide rail 4-6 on the cylinder head (belt pulley side) **-1-** is inserted only after the timing chain has been fitted on the camshaft timing gears.

top of page

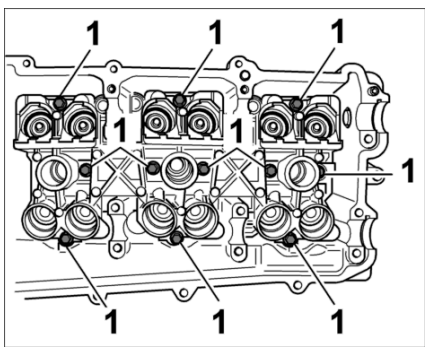
Subsequent work for installing cylinder head

Subsequent work for installing cylinder head



O-rings on spark-plug recess seal

1. Insert three new O-rings at the spark-plug recesses **-arrows-** , lightly coat with high-pressure grease.

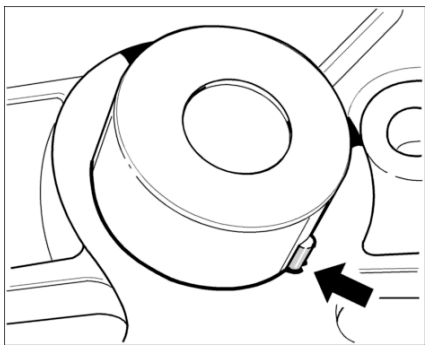


Flat-base tappet housing bolts

Note

There must be no visible signs of wear on the flat-base tappets and fitting bores of the flat-base tappet housing.

2. Fit flat-base tappet housing with 11 M6 x 35 Torx screws **-1-** and tighten screws from the inside out. **Tightening torque: 7.5 ftlb.**



Operating plunger position

ATTENTION

Interchanged or dirty flat-base tappets.

- **Damage to engine components**

The components have been run in in the fitting bores in the housing, therefore do not interchange them. Pay attention to cleanliness.

3. Coat the flat-base tappets with new engine oil and insert them in their original position into the fitting bores in the flat-base tappet housing. The operating plunger position (inlet side) is pre-set by the dowel pin **-arrow-** .
4. Install camshaft and set timing 150520 Removing and installing camshafts - chapter on "Installing" [997430 997431] 150520 Removing and installing camshafts - chapter on "Installing" [997110 997111 997310 997311 997410 997411 997610 997611] 150520 Removing and installing camshafts - chapter on "Installing" [997120 997121 997320 997321 997620 997621].
5. Install cylinder head cover 159119 Removing and installing cylinder head cover - chapter on "Installing".
6. Fit exhaust manifold with new screws M8 x 26. Position new metal seal with the seam towards the cylinder head. Tighten screws from the inside out. . **Tightening torque: 17 ftlb.**

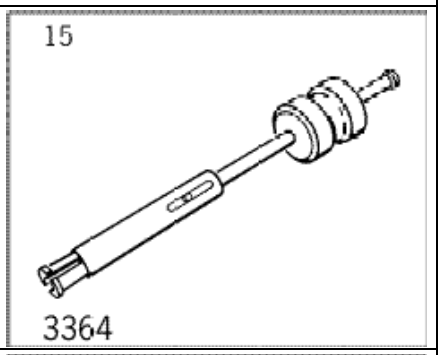
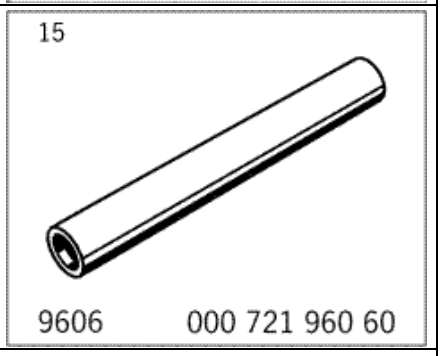
997110, 997111, 997120, 997121, 997310, 997311, 997320, 997321, 997410, 997411, 997430, 997431, 997610, 997611, 997620, 997621

as of MY 2005
Country C00, C02, C05, C07, C08, C09, C10, C11, C12, C13, C14, C15, C16, C18, C19, C20, C21, C22, C23, C24, C25, C26, C27, C28, C32, C33, C34, C35, C36, C37, C38, C39, C45, C46, C98, C99

15 70 37 Disassembling and assembling cylinder head - as of MY 2005

- Preliminary work for disassembling cylinder head
- Disassembling cylinder head
- Assembling cylinder head
- Assembling cylinder head, touching up

Tools

Designation	Type	Number	Explanation	
puller	VW-tool	3364		
assembly driver	special tool	9606		
cover for dust protection when fitting the engine	commercially available tool	NR.165		
Valve keys assembly-disassembly tool for Boxster + Carrera	commercially available tool	NR.54		

top of page

Preliminary work for disassembling cylinder head

Preliminary work for disassembling cylinder head

1. Remove engine 100119 Removing and installing engine - chapter on "removing".
2. Remove transmission 343527 Removing and mounting transmission - chapter on "Removing" or 373527 Removing and mounting automatic transmission - chapter on "Removing" [997110 997111 997120 997121 997310 997311 997320 997321] *373527 A3 Removing and mounting automatic transmission - chapter on "Removing" [997410 997411 997430 997431 997610 997611 997620 997621].*
3. Remove cylinder head 157019 Removing and installing cylinder head - chapter on "Removing".

top of page

Disassembling cylinder head

Disassembling cylinder head

ATTENTION

Risk of damage due to particles of dirt.

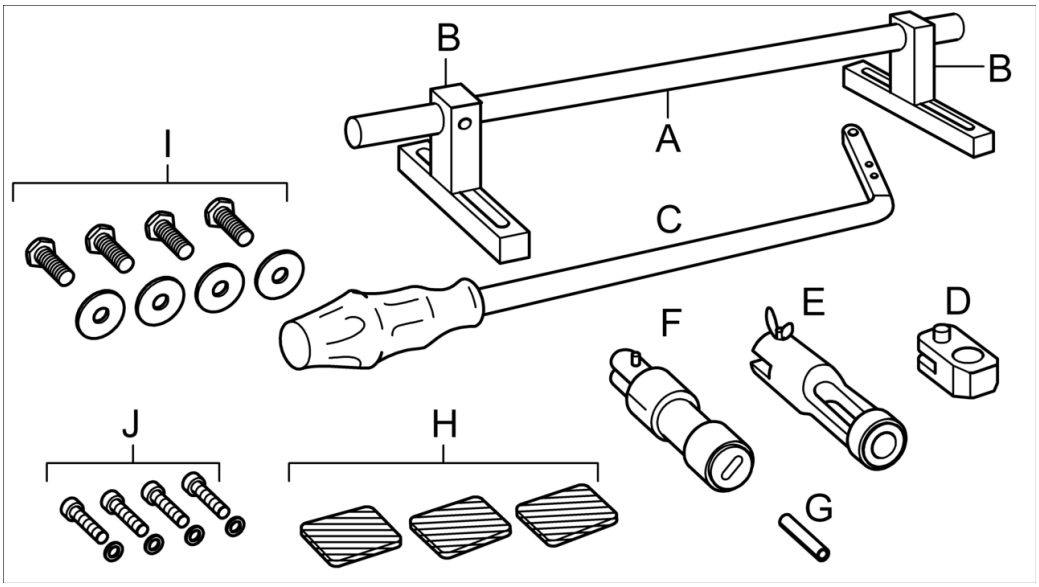
- **Oil bores/oil ducts can become blocked up.**

When working on the engine, absolute cleanliness is essential.

Lay removed engine parts on a clean base and cover them without fail.

Use the **cover for dust protection when fitting the engine NR.165** on the engine assembly support.

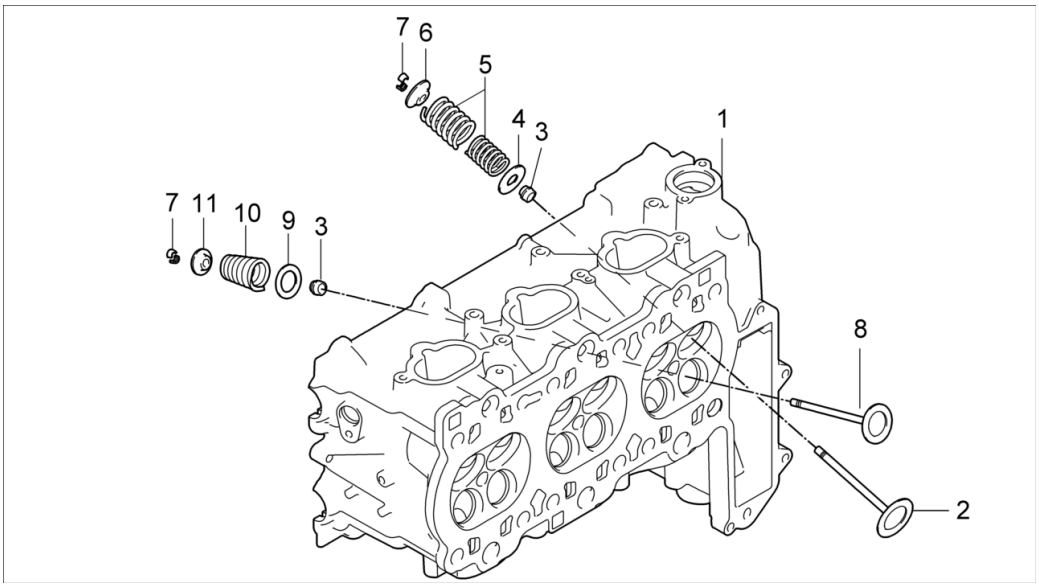
The following tool is used and recommended for the described work: commercially available tool Valve keys assembly- disassembly tool for Boxster + Carrera NR.54 (Sauer Co., Art. No. for standard case 600 50 00).



Disassembling and assembling cylinder head tools

Item	Designation	Explanation
A	Shaft (ø 20 x 450 mm)	Art. No. 602 45 15
B	Aluminium supports, slotted, 2-piece	Art. No. 602 36 20
C	Lever arm	Art. No. 602 35 30
E	Joint with screw	Art. No. 602 45 20
E	Disassembly head with magnet	Art. No. 602 46 50
F	Assembly head 1b (for valve keys)	Art. No. 600 01 02
G	Pressure pieces Gr. 6a, 3-piece	Art. No. 600 60 15
H	Plates, 3-piece	Art. No. 602 56 65
	Additional scope:	Not included in scope of delivery, article 600 50 00
I	Valve locating screws set, 4-piece	Art. No. 609 64 50
J	Screws with washer (4 ea.)	M6 x 40

Component overview of cylinder head



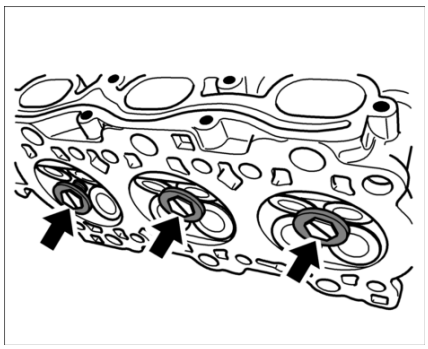
Cylinder head components

Note

Reusable inner parts of the cylinder head must always be cleaned thoroughly and assigned to their original installation location.

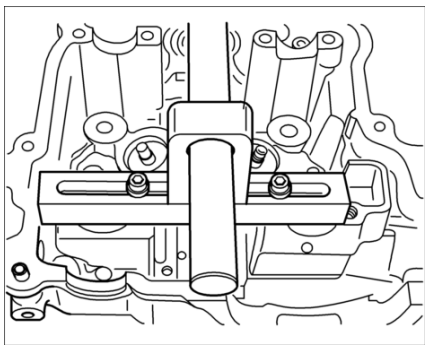
Item	Designation	Removal	Fitting
1	Cylinder head	A second person should help with removing and positioning	Replacing cylinder-head gasket; pay attention to the dowel pins
2	Intake valve	Check tilt play of valve guide if necessary; observe assignment.	Lightly oil valve stem
3	Valve stem seal	Use puller 3364	Replace; use 9606 assembly driver
4	Lower valve-spring plate (intake)		
5	Valve spring set (intake)		
6	Upper valve-spring plate (intake)		
7	Valve collets		
8	Exhaust valve	Check tilt play of valve guide if necessary; observe assignment.	Lightly oil valve stem
9	Lower valve-spring plate (exhaust)		
10	Valve spring (exhaust)		
11	Upper valve-spring plate (exhaust)		

1. Remove spark plugs, if not already done.



Valve locating screws

2. Screw in the three valve locating screws **-arrows-** in the spark plug threads.

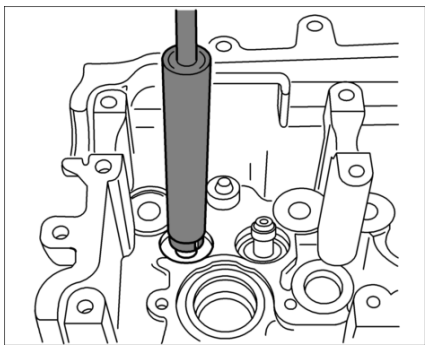


Mounting aluminium supports

Note

Put the screw clamps for fixing the cylinder head only on the aluminium supports, under no circumstances on the sealing surface.

3. Align aluminium supports on the cylinder head with fastening screws. Fix cylinder head to the workbench with screw clamps. Slide on assembly shaft with the joint to the aluminium supports and fasten them.
4. Screw lever arm on joint and the disassembly head on the lever arm.
5. Place disassembly head on upper valve-spring plate and press together the valve springs with the lever arm. The valve keys and the concave washer stick due to the magnetic insert on the disassembly head. Repeat this process by moving the joint at the required valves.



Pulling off the valve-stem seal (VW-special tool 3364)

6. Using the VW special tool **puller 3364** pull off the valve-stem seal.
7. Check valve springs, valves, valve guides, and valve seats for damage.
8.

Thoroughly clean cylinder head and all parts before assembling. Carry out repairs approved by PAG, if necessary.

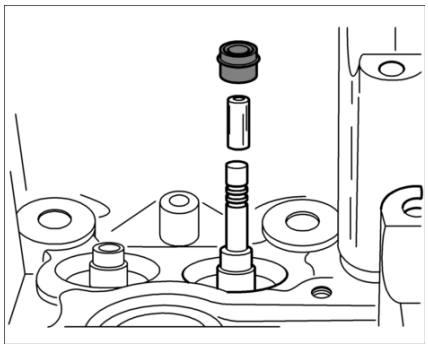
top of page

Assembling cylinder head

Assembling cylinder head

Note

Reusable inner parts of the cylinder head must always be cleaned thoroughly and assigned to their original installation location.

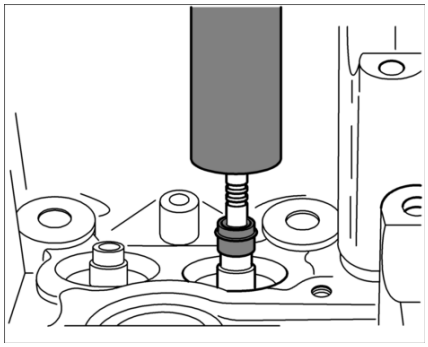


Valve stem seal

Note

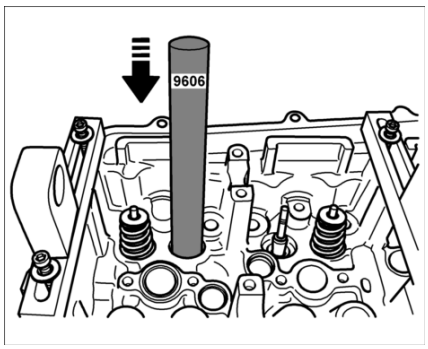
Replace valve-stem seal.

1. Insert lower valve-spring plate, oil valve stem lightly and position assembly sleeve (shim set for valve-stem seals). Either set new valve-stem seal on the assembly sleeve or insert in the **assembly driver 9606**.



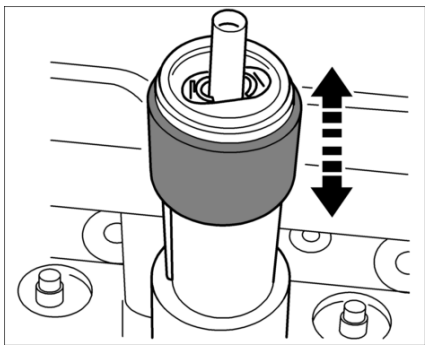
Valve-stem seal on valve stem

2. Press valve-stem seal with the **assembly driver 9606** up to the stop on the valve stem. Take off tool and assembly sleeve.



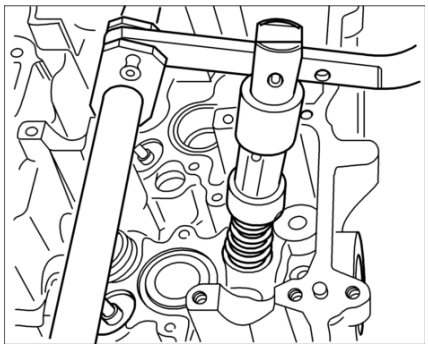
Pressing in valve-stem seal

3. Insert corresponding valve spring(s) and upper valve-spring plate.



Assembly head for valve keys

4. Fasten assembly head to lever arm. Push sliding sleeve downward to the stop and insert the valve keys. In order to ensure correct assembly, the wedges should be centred. Then push the sliding sleeve back again (valve keys fixed).



Mounting the valve keys

5. Position assembly head with the pressure piece over the valve stem and align the assembly head so that it is aligned with the valve. Slowly press the assembly head downwards and guide it with your hand until a clicking sound can be heard. The valve keys are then automatically pressed into the correct installation position.
6. Swivel out the lever with the assembly head and check the seat of the valve keys. Repeat the process if necessary.

top of page

Assembling cylinder head, touching up

Assembling cylinder head, touching up

1. Install cylinder head 157019 Removing and installing side cylinder head - chapter on "Installing".
2. Mount transmission 343527 Removing and mounting transmission - chapter on "Mounting" or 373527 Removing and mounting automatic transmission - chapter on "Mounting" [997110 997111 997120 997121 997310 997311 997320 997321] *373527 AG Removing and mounting automatic transmission - chapter on "Mounting" [997410 997411 997430 997431 997610 997611 997620 997621].*
3. Install engine 100119 Removing and installing engine - chapter on "Installing".

997110, 997111, 997120, 997121, 997310, 997311, 997320, 997321, 997410, 997411, 997430, 997431, 997610, 997611, 997620, 997621

as of MY 2005
Country C00, C02, C05, C07, C08, C09, C10, C11, C12, C13, C14, C15, C16, C18, C19, C20, C21, C22, C23, C24, C25, C26, C27, C28, C32, C33, C34, C35, C36, C37, C38, C39, C45, C46, C98, C99

WARNUNG

Gefahr des Verlusts der Text-Bild-Zuordnung beim Ausdruck.

- **Aus technischen Gründen kann derzeit nicht ausgeschlossen werden, dass trotz einwandfreier Darstellung auf dem Bildschirm beim Ausdruck der Zusammenhang von Text und zugehörigem Bild verloren geht.**
- **Wird der Fehler nicht bemerkt, besteht die Gefahr, daß Arbeiten nicht korrekt durchgeführt werden und es dadurch zu Personen- und Sachschäden kommt.**

Vergleichen Sie deshalb nach dem Druckvorgang unbedingt die Ausdrucke mit der Bildschirmdarstellung. Korrigieren Sie die Ausdrucke im Fehlerfall so, daß der Inhalt der Bildschirmdarstellung zutreffend wiedergegeben wird.

WARNING

Danger of losing text-figure correspondence when printing out.

- **For technical reasons, it can currently not be ruled out that the correspondence between text and associated figure can be lost when it is printed out, even though the display on the screen is correct.**
- **If the fault is not noticed, there is the danger that work will not be performed correctly which can cause injury and damage.**

Therefore, always compare printouts with the screen display after printing them out. Correct the printouts if they are faulty so that the content of the screen display matches that on the printouts.

15 70 49 Machining the cylinder head - as of MY 2005

- Preliminary work
- Machining the cylinder head
- Subsequent work

top of page

Preliminary work

Preliminary work for machining cylinder head

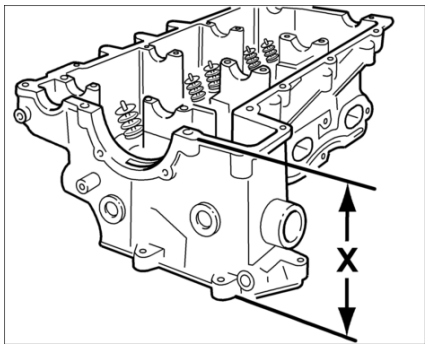
1. Remove cylinder head 157019 Removing and installing cylinder head - chapter on "Removing".
2. Disassemble cylinder head 157037 Disassembling and assembling cylinder head - chapter on "Disassembling".

top of page

Machining the cylinder head

Machining the cylinder head

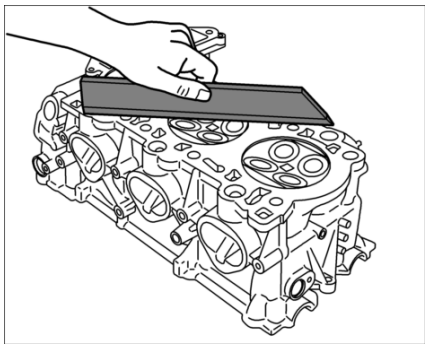
1. Measure cylinder head height on a level surface (surface plate recommended).



Cylinder head height

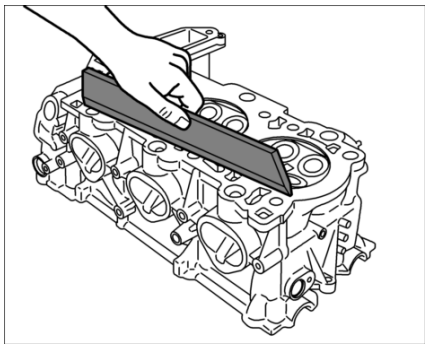
Standard dimension -X- : 142.0 ± 0.1 mm

2. Check combustion chamber sealing face of the cylinder head for distortion (flatness) using a straight-edge and feeler gauge.



Flatness of sealing face of cylinder head (diagonal)

Permissible unevenness of parting surface for used cylinder head: 0.05 mm



Flatness of cylinder head (longitudinal)

3. Cylinder heads with distorted or scored sealing surface can be repaired by plain-milling them. The following machining criteria must be observed.

Permissible unevenness after machining: 0.03 mm
Permissible roughness profile (can be measured with contact stylus procedure): 15pt14
Permissible surface depth from standard dimension: 0.15 ± 0.05 mm

top of page

Subsequent work

Subsequent work for machining cylinder head

1. Assemble cylinder head 157037 Disassembling and assembling cylinder head - chapter on "Assembling".
2. Install cylinder head 157037 Disassembling and assembling cylinder head - chapter on "Installing".

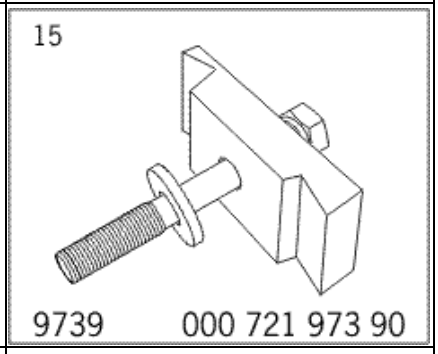
997110, 997111, 997120, 997121, 997310, 997311, 997320, 997321, 997410, 997411, 997430, 997431, 997610, 997611, 997620, 997621

as of MY 2005
Country C00, C02, C05, C07, C08, C09, C10, C11, C12, C13, C14, C15, C16, C18, C19, C20, C21, C22, C23, C24, C25, C26, C27, C28, C32, C33, C34, C35, C36, C37, C38, C39, C45, C46, C98, C99

15 75 02 Checking valve guide (valve lateral play) - as of MY 2005

- Preliminary work
- Checking valve guide (valve lateral play)
- Subsequent work

Tools

Designation	Type	Number	Explanation	
retaining device	special tool	9739		
cover for dust protection when fitting the engine	commercially available tool	NR.165		

top of page

Preliminary work

Preliminary work

ATTENTION

Risk of damage due to particles of dirt.

- **Oil bores/oil ducts can become blocked up.**

When working on the engine, absolute cleanliness is essential.
Lay removed engine parts on a clean base and cover them without fail.

Use the **cover for dust protection when fitting the engine NR.165** on the engine assembly support.

ATTENTION
Incorrect tray.

- **Damaged and scratched sealing face.**

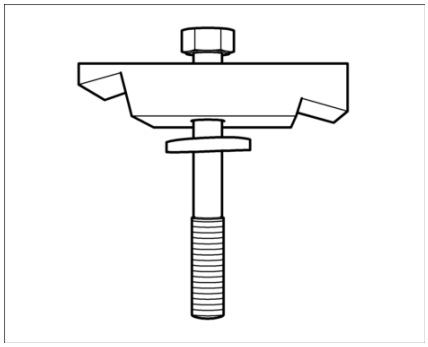
Work on cylinder head only on a clean surface on the work bench.

1. Remove cylinder head 157019 Removing and installing cylinder head - chapter on "Removing".
2. Disassemble cylinder head and clean components 157037 Disassembling and assembling cylinder head - chapter on "Disassembling".

top of page

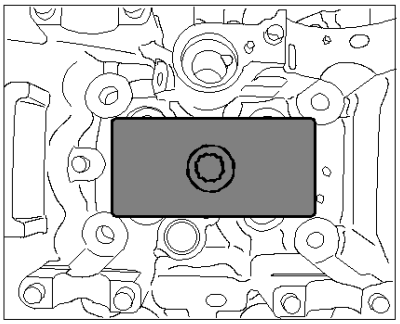
Checking valve guide (valve lateral play)

Checking valve guide (valve lateral play)



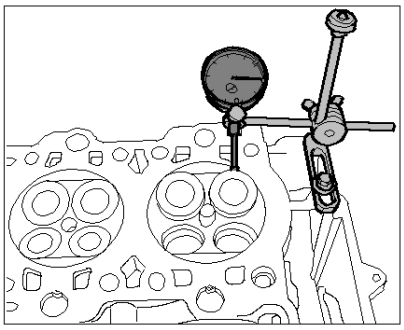
Tool for fixing valve position

Special tool **retaining device 9739**



Special tool 9739 fitted

1. Fit special tool **retaining device 9739** in cylinder head (valve stem side). To do this, screw in the fastening screws by hand into the spark plug thread.

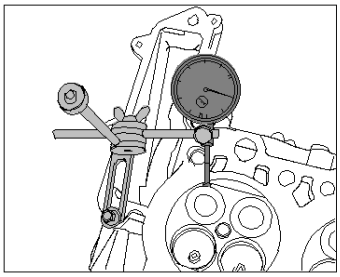


Checking valve tilt play of intake valve

Note

The permitted valve tilt play is 0.25 mm.

2. Check valve tilt play on intake valve. Adjust the dial gauge to the relevant angle of the valve to be checked and set to **'0'** with preload. Press valve disc towards dial gauge and pull it back again. Read off value and note it.



Checking valve tilt play on exhaust valve

3. Check valve tilt play on exhaust valve. Adjust the dial gauge to the relevant angle of the valve to be checked and set to **'0'** with preload. Press valve disc towards dial gauge and pull it back again. Read off value and note it.
4. Check all valves.

top of page

Subsequent work

Subsequent work

1. When all valve guides are within the permitted tolerances, assemble cylinder head again. If the specification is exceeded, the cylinder head must be replaced.

2. Install cylinder head 157019 Removing and installing side cylinder head - chapter on "Installing".

997110, 997111, 997120, 997121, 997310, 997311, 997320, 997321, 997410, 997411, 997430, 997431, 997610, 997611, 997620, 997621

as of MY 2005
Country C00, C02, C05, C07, C08, C09, C10, C11, C12, C13, C14, C15, C16, C18, C19, C20, C21, C22, C23, C24, C25, C26, C27, C28, C32, C33, C34, C35, C36, C37, C38, C39, C45, C46, C98, C99

WARNUNG

Gefahr des Verlusts der Text-Bild-Zuordnung beim Ausdruck.

- **Aus technischen Gründen kann derzeit nicht ausgeschlossen werden, dass trotz einwandfreier Darstellung auf dem Bildschirm beim Ausdruck der Zusammenhang von Text und zugehörigem Bild verloren geht.**
- **Wird der Fehler nicht bemerkt, besteht die Gefahr, daß Arbeiten nicht korrekt durchgeführt werden und es dadurch zu Personen- und Sachschäden kommt.**

Vergleichen Sie deshalb nach dem Druckvorgang unbedingt die Ausdrucke mit der Bildschirmdarstellung. Korrigieren Sie die Ausdrucke im Fehlerfall so, daß der Inhalt der Bildschirmdarstellung zutreffend wiedergegeben wird.

WARNING

Danger of losing text-figure correspondence when printing out.

- **For technical reasons, it can currently not be ruled out that the correspondence between text and associated figure can be lost when it is printed out, even though the display on the screen is correct.**
- **If the fault is not noticed, there is the danger that work will not be performed correctly which can cause injury and damage.**

Therefore, always compare printouts with the screen display after printing them out. Correct the printouts if they are faulty so that the content of the screen display matches that on the printouts.

AVERTISSEMENT

Risque de perte de la correspondance texte-illustration lors de l'impression papier.

- **Pour des raisons techniques, il ne peut pas être exclu à l'heure actuelle que, même en cas d'affichage correct à l'écran, la correspondance entre le texte et l'illustration puisse être erronée sur l'impression papier.**
- **Si l'erreur passe inaperçue, on court le risque d'exécuter certaines opérations de manière incorrecte pouvant conduire à des dommages corporels et matériels.**

Comparez impérativement pour cette raison les impressions papier avec l'affichage à l'écran. Corrigez-les en cas d'erreur de manière à reproduire correctement l'affichage à l'écran.

15 84 19 Removing and installing actuator for inlet camshaft - as of MY 2005

- Removing actuator - camshaft removed
- Installing actuator - camshaft removed

Tools

Designation	Type	Number	Explanation	
pliers for circlips	commercially available tool	NR.70		

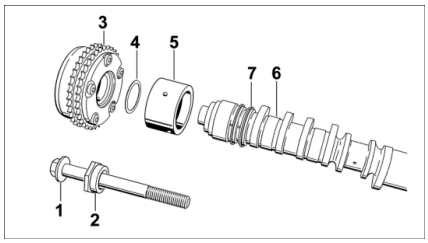
top of page

Removing actuator - camshaft removed

Removing actuator - camshaft removed

Note

- *During assembly and disassembly, absolute cleanliness is essential!*
- *The identification on the bearing sleeve should point towards the camshaft (see illustration).*



Inlet camshaft

Component overview of inlet camshaft

Item	Designation	Qty.	Removal	Fitting
1	Central screw	1		
2	Adapter	1		
3	Camshaft adjustment device	1		
4	Friction washer	1		Replace
5	Bearing sleeve	1		
6	Inlet camshaft	1	Check for visible signs of wear, taking care not to damage rotor trim	replace if necessary
7	Plain compression rings	2	Check for visible signs of wear	replace if necessary

1. Unscrew central screw **-1-** with adapter **-2-** .
2. Remove camshaft adjustment device **-3-** .
3. Remove washer **-4-** .
4. Pull bearing sleeve **-5-** carefully off the camshaft **-6-** .

Note

- *Carry out disassembly and assembly of the plain compression rings carefully and gently.*

5. Check plain compression rings **-7-** for visible and perceptible signs of wear; replace if necessary. To remove and install, use snap-ring pliers, e.g. **pliers for circlips NR.70**.
6. Check plain compression rings for visible and perceptible signs of wear; replace if necessary.

top of page

Installing actuator - camshaft removed

Installing actuator - camshaft removed

Note

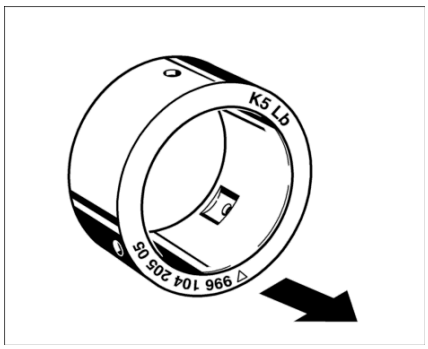
- *During assembly and disassembly, absolute cleanliness is essential!*
- *The identification on the bearing sleeve should point towards the camshaft (see illustration).*

Assemble inlet camshaft before inserting in cylinder head

Note

- *Carry out disassembly and assembly of the plain compression rings carefully and gently.*

1. Insert plain compression rings (if removed) carefully into the rig grooves. To remove and install, use snap-ring pliers, e.g. **pliers for circlips NR.70**.



Direction of installation of bearing sleeve - identification towards camshaft

2. Install bearing sleeve: lightly oil running surface with new engine oil. Press together the first piston ring and carefully push up the bearing sleeve. Proceed in the same way with the second piston ring. Pay attention to direction of installation.

Note

- *Make sure that the new friction washer is inserted.*

3. Position new friction washer and place the camshaft adjustment device in position. Insert the central screw with the adapter and tighten gently by hand.

997110, 997111, 997120, 997121, 997310, 997311, 997320, 997321, 997410, 997411, 997430, 997431, 997610, 997611, 997620, 997621

as of MY 2005
Country C00, C02, C05, C07, C08, C09, C10, C11, C12, C13, C14, C15, C16, C18, C19, C20, C21, C22, C23, C24, C25, C26, C27, C28, C32, C33, C34, C35, C36, C37, C38, C39, C45, C46, C98, C99

WARNUNG

Gefahr des Verlusts der Text-Bild-Zuordnung beim Ausdruck.

- **Aus technischen Gründen kann derzeit nicht ausgeschlossen werden, dass trotz einwandfreier Darstellung auf dem Bildschirm beim Ausdruck der Zusammenhang von Text und zugehörigem Bild verloren geht.**
- **Wird der Fehler nicht bemerkt, besteht die Gefahr, daß Arbeiten nicht korrekt durchgeführt werden und es dadurch zu Personen- und Sachschäden kommt.**

Vergleichen Sie deshalb nach dem Druckvorgang unbedingt die Ausdrucke mit der Bildschirmdarstellung. Korrigieren Sie die Ausdrucke im Fehlerfall so, daß der Inhalt der Bildschirmdarstellung zutreffend wiedergegeben wird.

15 91 19 Removing and installing cylinder head cover - engine removed - as of MY 2005

- Preliminary work for removing cylinder head cover
- Removing cylinder head cover - engine removed
- Installing cylinder head cover - engine removed
- Touch up for installing cylinder head cover

Tools

Designation	Type	Number	Explanation	
cover for dust protection when fitting the engine	commercially available tool	NR.165		

top of page

Preliminary work for removing cylinder head cover

Preliminary work for removing cylinder head cover

1. Remove engine 100119 Removing and installing engine - chapter on "Removing".
2. Remove rear muffler 263319 Removing and installing rear muffler - chapter on "Removing".

top of page

Removing cylinder head cover - engine removed

Removing cylinder head cover - engine removed

ATTENTION

Risk of damage due to particles of dirt.

- **Oil bores/oil ducts can become blocked up.**

When working on the engine, absolute cleanliness is essential.

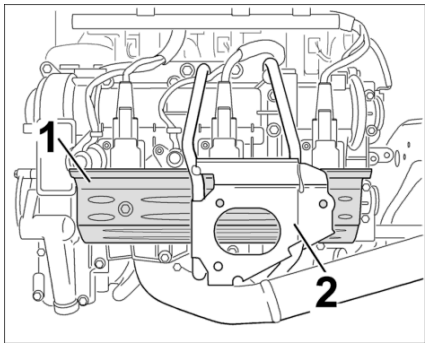
Lay removed engine parts on a clean base and cover them without fail.

Use the **cover for dust protection when fitting the engine NR.165** on the engine assembly support.

Note

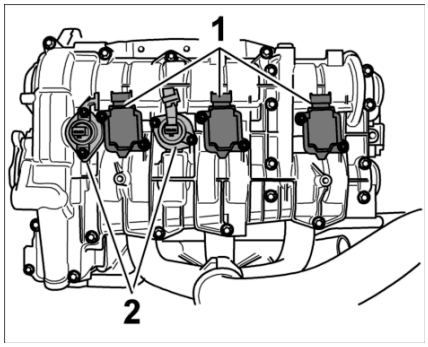
Replace the O-ring on the oil suction pump (tandem pump).

Cylinder row 1-3:



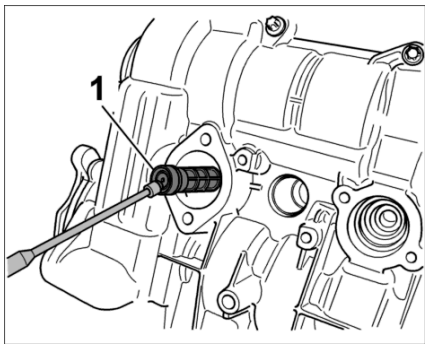
Cover plate and support for rear muffler

1. Remove cover plate for ignition coils **-1-** . Unscrew two M6 x 16 Torx screws and remove cover plate.
2. Remove holder for rear muffler **-2-** . Pull off cable plug for ignition coil cylinder 2 (side 4-6 cylinder 5) and cable plug for solenoid hydraulic valves. Unscrew the four Torx screws: intake side, two M8 x 30, exhaust side, two M8 x 25, remove support.



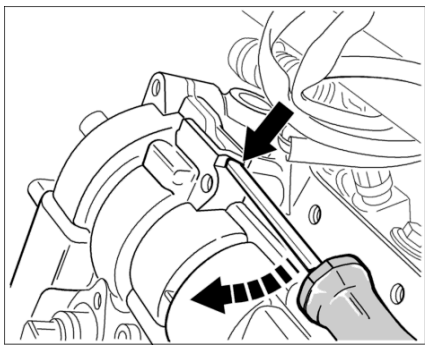
Hydraulic valves for camshaft adjustment and ignition coils

3. Remove ignition coils **-1-** . Pull off remaining ignition coil cable plugs. Unscrew two M6 x 25 Torx socket screws, pull the ignition coils out of the spark-plug recess.
4. Remove support and retainer plates (with integrated seal) for the solenoid hydraulic valves (camshaft timing and valve lift control) **-2-** , 153719 Removing and installing solenoid hydraulic valve (camshaft timing) - chapter on "Removing" und 155519 Removing and installing solenoid hydraulic valve (valve lift control) - chapter on "Removing". If the valves do not have to be replaced, these can remain in the cylinder head (side 1-3 both, side 4-6 camshaft timing only)



Oil strainer hydraulic valve NVS

5. If the solenoid hydraulic valve is removed for camshaft timing, the oil strainer **-1-** must be checked for damage and contamination, and replaced if necessary.
6. Remove oil suction pump. Unscrew four M6 x 20 Torx screws (micro-self-locking), remove oil suction pump, replace O-ring and screws.



Lifting cylinder head cover from above

ATTENTION

Damage when levering off the cylinder head cover

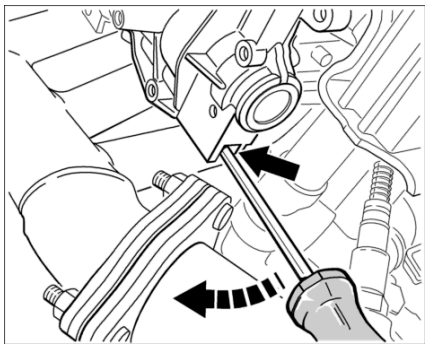
- **Cast lugs could break.**

Perform work steps carefully and gently.

Note

The coated screws for the bearing surfaces of the camshaft in the cylinder head cover must be replaced when installing.

7. Remove the cylinder head cover . Unscrew 20 M6 x 30 Torx screws from the cylinder head cover. To loosen the cylinder head cover, raise the cover carefully at the two protruding cast edges with a screw driver or mounting lever. Remove cylinder head cover.



Lifting cylinder head cover from below

8. Remove the plastic cap.

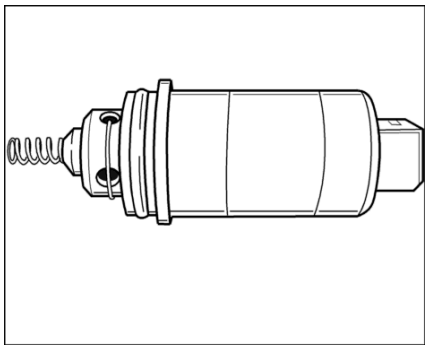
Note

Make sure that it is cleaned thoroughly and that residual sealing compound is removed completely. Even the smallest particles can block up oil bores.

9. Clean the sealing faces on the cylinder head cover and cylinder head thoroughly (use brass - or nylon brush, a clean and lint-free cloth soaked in acetone). All residual sealing compound in the cylinder head and on the cover must be removed before assembling.

Additional work steps on the cylinder row 4-6:

- Loosen ground cable on the cylinder head, to do this, unscrew on M8 Torx screw and remove the cable.
- Unplug two cable plugs for the oil pressure switch.
- A tandem pump is installed on side 4-6 instead of the oil suction pump. Pull off the vacuum line on the pump. Replace O-rings and micro-self-locking screws.



Solenoid hydraulic valve, valve lift control

- Because of the small distance to the exhaust manifold, the valve lift control valve must be removed, so that the cover can be removed and installed without difficulty. 155519 Removing and installing solenoid hydraulic valve, valve lift control - chapter on "Removing". Pay attention to the spring element.

top of page

Installing cylinder head cover - engine removed

Installing cylinder head cover - engine removed

ATTENTION

Risk of damage due to particles of dirt.

- **Oil bores/oil ducts can become blocked up.**

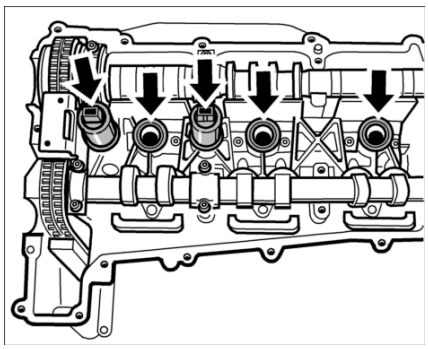
When working on the engine, absolute cleanliness is essential.

Lay removed engine parts on a clean base and cover them without fail.

Use the **cover for dust protection when fitting the engine NR.165** on the engine assembly support.

Note

The coated screws for the bearing surfaces of the camshaft in the cylinder head cover must be replaced when installing.

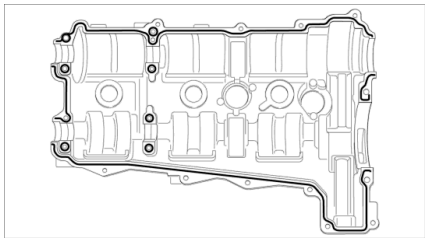


Spark plug slot seals and solenoid hydraulic valves

1. Insert three new seals for the spark-plug recesses.

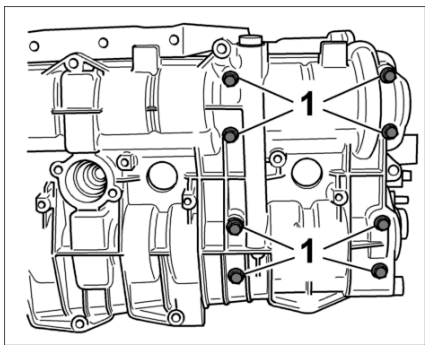
Only the following sealants may be used to seal the cylinder head cover:

- "Drei Bond" silicone - type 1209
- Loctite 5900



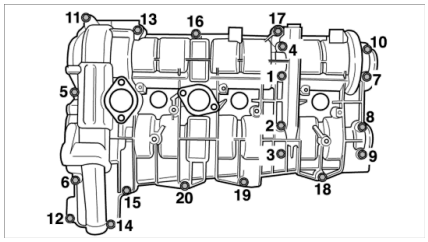
Sealant application cylinder head cover

2. Prepare cylinder head cover for assembly. Apply a thin bead of sealant on the cylinder head cover (not higher than 1.5 mm). *Sealant application cylinder head cover*



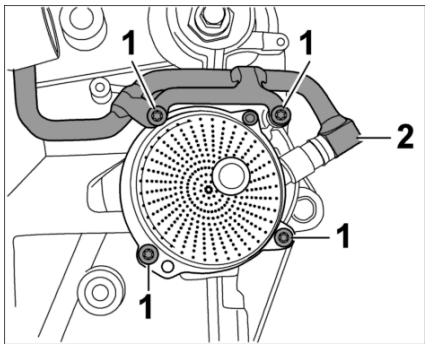
Screws for camshaft bearing surface

3. Coated screws on the camshaft bearing surfaces **-1-** must be replaced.
4. Place the cylinder head cover carefully onto the cylinder head. The bead of sealing compound must not be wiped off or interrupted.



Tightening sequence, cylinder head cover

5. Position 20 Torx screws (eight of these should be new, coated screws) on the cylinder head cover and tighten according to the specified tightening sequence. Only lightly screw in the two screws in the area of the oil suction pump/tandem pump. They will be tightened after the pump is assembled. **Tightening torque: 9.5 ftlb.** *Tightening sequence, cylinder head cover*
6. Position a new cap ø 45 mm (brown) on the bore of the intake camshaft on the pulley side and tap it gently into place with a plastic hammer (dry mount).
7. Insert two new caps (green) into the small bores on the clutch side. Tap it in with a plastic hammer (dry mount).



Tandem pump side 4 -6

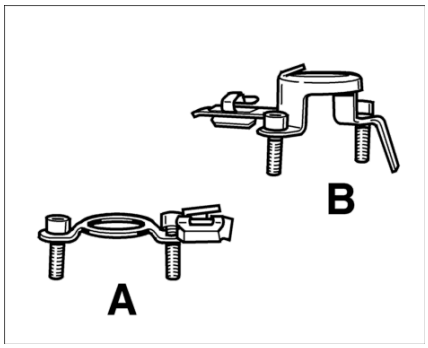
Note

Replace the O-ring on the oil suction pump (tandem pump).

8.

Mount the oil suction pump or tandem pump with four new, micro-self-locking Torx screws **-1-** . Replace O-rings on the pumps and the vacuum line **-2-** . Lightly grease O-rings with Optimol MP3. **Tightening torque: 7.5 ftlb.**

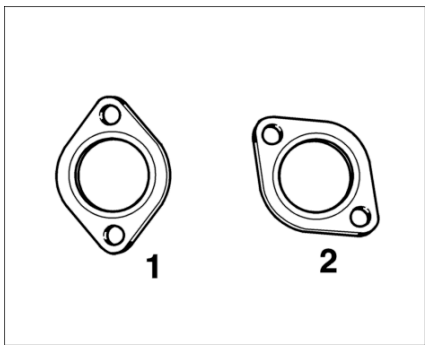
9. Tighten the two screws on cylinder head cover in area of oil suction pump/tandem pump. **Tightening torque: 9.5 ftlb.**
10. Insert the solenoid hydraulic valve, valve lift control on cylinder 4-6 with a new O-ring. 155519 Removing and installing solenoid hydraulic valve, valve lift control - chapter on "Installing". Note installation position (plug connection is horizontal).



Holder for solenoid hydraulic valves

11. Push on two new retainer plates on the solenoid hydraulic valves on each cylinder row *Installation position for solenoid hydraulic valve retainer plates* . Position support and tighten with two M6 x 20 Torx socket screws. **Tightening torque: 7.5 ftlb.**

- A: support for camshaft adjustment valve (camshaft timing)
- B: support for valve lift adjustment valve (valve lift control)



Installation position for solenoid hydraulic valve retainer plates

Retainer plate with integrated gaskets (identical parts)

- 1 - camshaft timing retainer plate
- 2 - valve lift control retainer plate

12. Insert ignition coils into the spark-plug recesses. Position and tighten two M6 x 25 Torx socket screws per ignition coil. **Tightening torque: 7.5 ftlb.**
13. Position support for rear muffler with four Torx screws: intake side, two M8 x 30, exhaust side, two M8 x 25, then tighten to the specified torque. **Tightening torque: 17 ftlb.**

14. Plug in cable plugs for ignition coils and magnetic hydraulic valves. Secure the cables of the hydraulic valves in the sheetmetal clips.
15. Install cover plate, position and tighten two M6 x 16 Torx screws. **Tightening torque: 7.5 ftlb.**

Cylinder side 4-6:

16. Connect the two cable plugs on the oil temperature switch.
17. Fasten ground cable on cylinder head with M8 Torx screw. **Tightening torque: 17 ftlb.**

top of page

Touch up for installing cylinder head cover

Touch up for installing cylinder head cover

1. Fit rear mufflers. 263319 Removing and installing rear muffler - chapter on "Installing".
2. Install engine. 100119 Removing and installing engine - chapter on "Installing".

997110, 997111, 997120, 997121, 997310, 997311, 997320, 997321, 997410, 997411, 997430, 997431, 997610, 997611, 997620, 997621

as of MY 2005
Country C00, C02, C05, C07, C08, C09, C10, C11, C12, C13, C14, C15, C16, C18, C19, C20, C21, C22, C23, C24, C25, C26, C27, C28, C32, C33, C34, C35, C36, C37, C38, C39, C45, C46, C98, C99

WARNUNG

Gefahr des Verlusts der Text-Bild-Zuordnung beim Ausdruck.

- **Aus technischen Gründen kann derzeit nicht ausgeschlossen werden, dass trotz einwandfreier Darstellung auf dem Bildschirm beim Ausdruck der Zusammenhang von Text und zugehörigem Bild verloren geht.**
- **Wird der Fehler nicht bemerkt, besteht die Gefahr, daß Arbeiten nicht korrekt durchgeführt werden und es dadurch zu Personen- und Sachschäden kommt.**

Vergleichen Sie deshalb nach dem Druckvorgang unbedingt die Ausdrucke mit der Bildschirmdarstellung. Korrigieren Sie die Ausdrucke im Fehlerfall so, daß der Inhalt der Bildschirmdarstellung zutreffend wiedergegeben wird.

WARNING

Danger of losing text-figure correspondence when printing out.

- **For technical reasons, it can currently not be ruled out that the correspondence between text and associated figure can be lost when it is printed out, even though**

17 01 01 Checking engine oil level - as of MY 2005

- Checking engine oil level

top of page

Checking engine oil level

Checking engine oil level

WARNING
Incorrect oil level!

- **Engine or catalytic converter damage**

Check oil level regularly (if possible at every refuelling).
Oil level must not fall below the minimum mark or rise above the maximum mark.
Only use engine oils tested and approved by Porsche AG.

Note

- *The engine oil level can only be checked with the display in the instrument cluster.*
- *Any malfunctions in the oil level indicator show up via a warning in the instrument cluster.*
- *Use the Info function to display the requirements for oil level measurement.*

Note

- *If the oil level drops below the minimum mark, the segment below starts flashing!*
- *The difference between the minimum and maximum marks is approx. 1.2 litres, one segmentof the display corresponding to approx. 0.4 litres of oil.*
- *Never fill or top up with engine oil above the maximum mark.*

Requirements for correct oil level measurement (not during refuelling)

- Vehicle is parked horizontally.
- Engine is off.

- Ignition switched on.

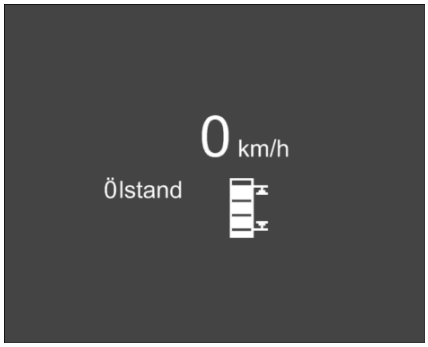
Oil return time: Before measuring the oil level, the engine oil must have returned to the oil pan. The duration depends on the temperature and the time the engine has been stationary.
Starting measurement:

Oil level measurement

Note

- *The waiting time for the oil level measurement is indicated by a countdown time display and cycling segments on the oil level indicator.*
- *Short waiting times when measuring the engine oil level are obtained after the vehicle has been idle for a long period or if the engine is at operating temperature.*

1. Switch on the ignition (do not start the engine). Measurement starts automatically. The display for the oil level measurement appears on the on-board computer.

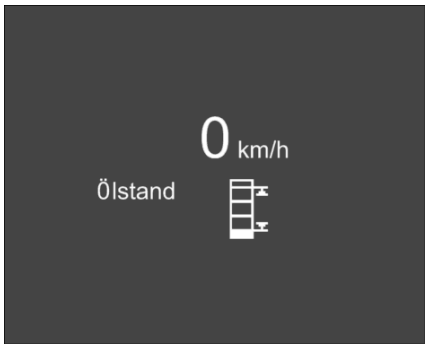


Oil level indicator (maximum mark)

Note

- *The oil level must be between the minimum and maximum marks.*
- *Adjust the engine oil level if necessary (pour engine oil in slowly) and check the level again.*

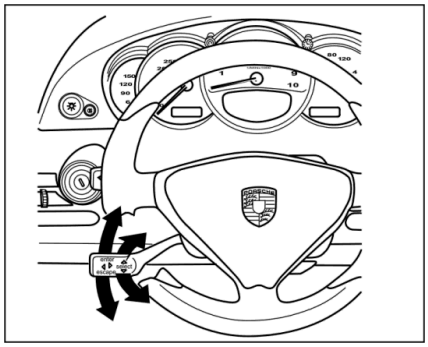
2. The oil level can be read off from the segment display after measurement is completed (at end of waiting time). The permitted oil level lies between the minimum and maximum marks.



Minimum oil level

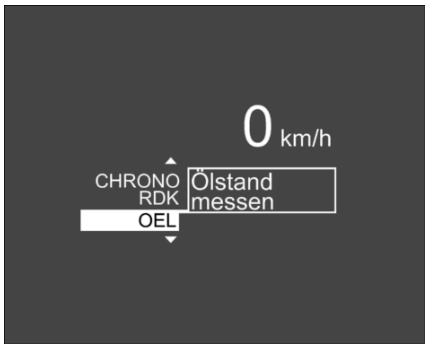
3. If the lowest segment of the oil level indicator is filled *Minimum oil level* , the minimum oil level has been reached and the oil must be topped up immediately *A8 Engine oil and oil filter change - topping up*.

Oil level measurement in the "OIL" menu (requirements as above):



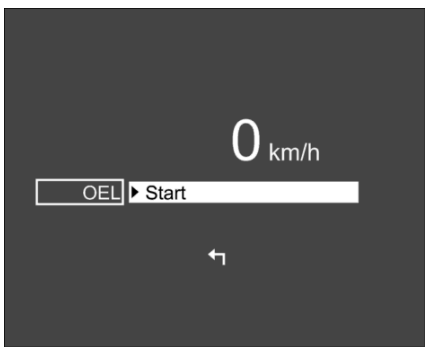
Operating lever for on-board computer (example 986)

4. Switch on selection field **"D"**. Push operating lever forwards.



Menu item" OIL"

5. Use the operating lever to select the menu item **OIL** and press the operating lever.



Starting the oil level measurement

Note

- *The waiting time for the oil level measurement is indicated by a countdown time display and cycling segments on the oil level indicator.*
- *Short waiting times when measuring the engine oil level are obtained after the vehicle has been idle for a long period or if the engine is at operating temperature.*

6. Start measurement by pressing the operating lever.

Oil level measurement during refuelling:

7. The oil level is measured in the background when the vehicle is being refuelled. If the oil level is too low, the message Check oil level appears on the on-board computer display.

Requirements

- Vehicle is parked horizontally.
- Engine is at operating temperature.
- Ignition switched off.
- There must be at least **5 minutes**between switching off and starting the engine.
- Refuelling completed within the last **15 minutes**.

8. If these requirements are not satisfied, the measurement is interrupted.
9. If the oil level measurement cannot be carried out for two refuellings, the message "Check oil level" appears in the display of the instrument cluster.

997110, 997111, 997120, 997121, 997310, 997311, 997320, 997321, 997410, 997411, 997430, 997431, 997610, 997611, 997620, 997621

as of MY 2005
Country C00, C02, C05, C07, C08, C09, C10, C11, C12, C13, C14, C15, C16, C18, C19, C20, C21, C22, C23, C24, C25, C26, C27, C28, C32, C33, C34, C35, C36, C37, C38, C39, C45, C46, C98, C99

WARNUNG

Gefahr des Verlusts der Text-Bild-Zuordnung beim Ausdruck.

- **Aus technischen Gründen kann derzeit nicht ausgeschlossen werden, dass trotz einwandfreier Darstellung auf dem Bildschirm beim Ausdruck der Zusammenhang von Text und zugehörigem Bild verloren geht.**
- **Wird der Fehler nicht bemerkt, besteht die Gefahr, daß Arbeiten nicht korrekt durchgeführt werden und es dadurch zu Personen- und Sachschäden kommt.**

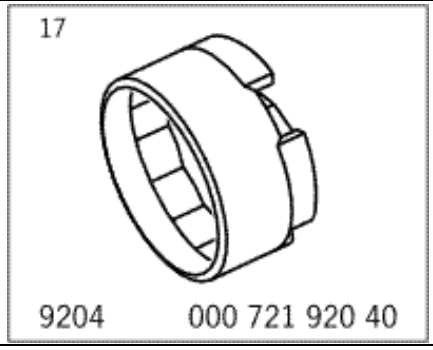
Vergleichen Sie deshalb nach dem Druckvorgang unbedingt die Ausdrucke mit der Bildschirmdarstellung. Korrigieren Sie die Ausdrucke im Fehlerfall so, daß der Inhalt der Bildschirmdarstellung zutreffend wiedergegeben wird.

WARNING

17 01 55 Engine oil and oil filter change - as of MY 2005

- Draining engine oil
- Changing oil filter
- Refilling engine oil
- Reworking

Tools

Designation	Type	Number	Explanation	
Oil filter spanner	special tool	92040		

top of page

Draining engine oil

Draining engine oil

WARNING

Danger due to oil draining out and spraying when the engine is hot!

- **Danger of scalding and injury**

Allow the engine to cool

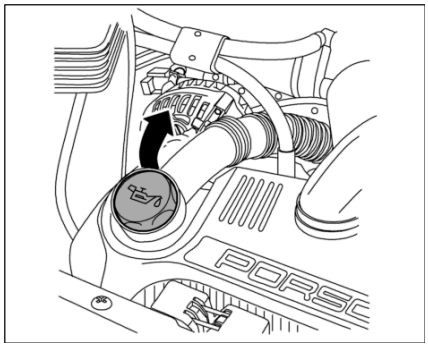
Wear specified protective gear.

Note

Use only engine oils tested and approved by Porsche AG.

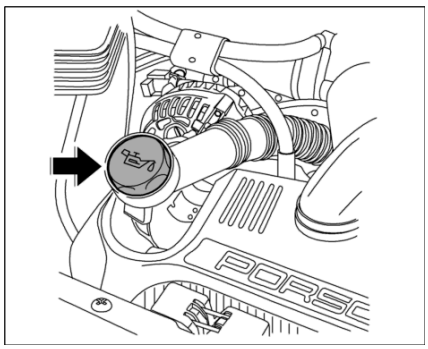
Note

- *Never remove and install O-ring for oil filter with a sharp object!*
- *Do not scratch the sealing surface of the oil filter housing.*



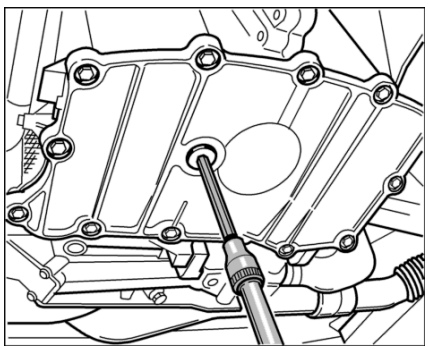
Unclip oil filler neck

1. Unclip the oil filler neck on the oil filter housing upwards.



Cap for oil filler tube

2. Unscrew cap on oil filler neck.



Oil drain plug

Note

- *To be able to fill the correct quantity of oil after draining the old oil, a time of 20 minutes should be allowed for the oil to drip out.*
- *Dispose of waste oil in accordance with legal requirements in your country.*

3. Unscrew oil drain plug on the oil sump (SW 8) and allow the oil to drain into a collecting basin.
4. Clean the oil drain plug and screw it back in with a new aluminium sealing ring. **Tightening torque: 37 ftlb**

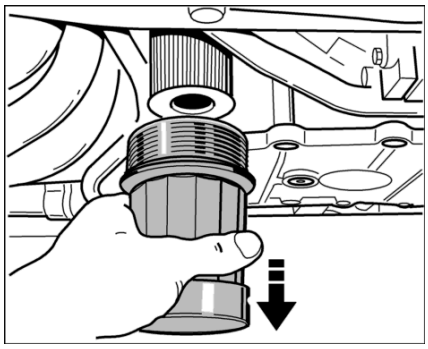
top of page

Changing oil filter

Changing oil filter

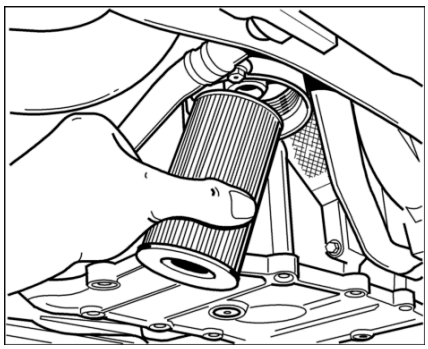
Changing oil filter

1. Loosen oil filter using special tool **Oil filter spanner 92040**.



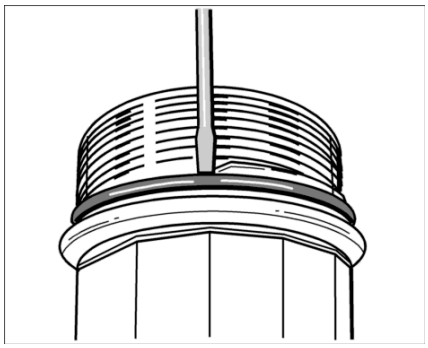
Oil filter housing

2. Remove oil filter housing vertically downwards. Drain remaining oil into an oil collection container. Dispose of waste oil in accordance with legal requirements.



Oil filter cartridge

3. Remove the filter element. Remove the paper filter downwards and dispose of it in accordance with legal requirements.

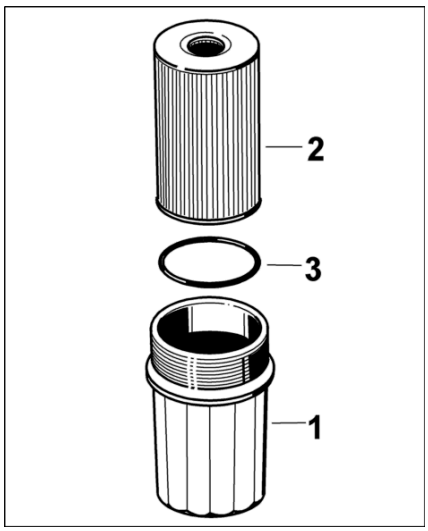


O-ring for oil filter housing

Note

- *Never remove and install O-ring for oil filter with a sharp object!*
- *Do not scratch the sealing surface of the oil filter housing.*

4. Lever off the old O-ring on the housing groove with a screwdriver.



Oil filter components

5. Clean oil filter housing thoroughly both inside and outside. Replace O-ring with a new one and smear gently with white Optimoly MP3 lubricant (available from the Porsche Parts Catalogue).

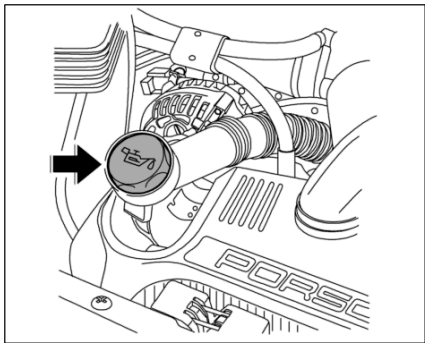
   - 1 - Oil filter housing
   - 2 - Oil filter cartridge
   - 3 - O-ring

6. Insert a new filter element.
7. Screw the oil-filter housing back in and secure it with the **Oil filter spanner 92040**. **Tightening torque: 19 ftlb**

top of page

Refilling engine oil

Fill in engine oil



Closure cap for oil filler neck

ATTENTION
Incorrect oil level

- **Damage to engine and catalytic converter.**

Specification of correct oil level must be adhered to under all circumstances.

Note

- *Lift the oil filler neck slightly in order to fill engine oil.*

Note
Use only engine oils tested and approved by Porsche AG.

1. Fill the engine oil slowly using a suitable filler container in order to avoid the oil overflowing at the filler neck. Don't forget to screw the cap on again tightly.

Engine oil filling capacities: Filling capacity without oil filter: 8.00 litre ; **Filling capacity with oil filter: 8.25 litre** ; **Filling capacity without oil filter: 8.25 litre** ; **Filling capacity with oil filter: 8.50 litre**

2. Clip the oil filler neck into the holding slot on the air cleaner.

top of page

Reworking

Subsequent work - topping up engine oil

1. Check engine oil level via on-board computer (display in instrument cluster) *Check engine oil level.*

997110, 997111, 997120, 997121, 997310, 997311, 997320, 997321, 997410, 997411, 997430, 997431, 997610, 997611, 997620, 997621

as of MY 2005
Country C00, C02, C05, C07, C08, C09, C10, C11, C12, C13, C14, C15, C16, C18, C19, C20, C21, C22, C23, C24, C25, C26, C27, C28, C32, C33, C34, C35, C36, C37, C38, C39, C45, C46, C98, C99

WARNUNG

Gefahr des Verlusts der Text-Bild-Zuordnung beim Ausdruck.

- **Aus technischen Gründen kann derzeit nicht ausgeschlossen werden, dass trotz einwandfreier Darstellung auf dem Bildschirm beim Ausdruck der Zusammenhang von Text und zugehörigem Bild verloren geht.**
- **Wird der Fehler nicht bemerkt, besteht die Gefahr, daß Arbeiten nicht korrekt durchgeführt werden und es dadurch zu Personen- und Sachschäden kommt.**

Vergleichen Sie deshalb nach dem Druckvorgang unbedingt die Ausdrucke mit der Bildschirmdarstellung. Korrigieren Sie die Ausdrucke im Fehlerfall so, daß der Inhalt der Bildschirmdarstellung zutreffend wiedergegeben wird.

WARNING

Danger of losing text-figure correspondence when printing out.

- **For technical reasons, it can currently not be ruled out that the correspondence between text and associated figure can be lost when it is printed out, even though the display on the screen is correct.**
- **If the fault is not noticed, there is the danger that work will not be performed correctly which can cause injury and damage.**

Therefore, always compare printouts with the screen display after printing them out. Correct the printouts if they are faulty so that the content of the screen display matches that on the printouts.

AVERTISSEMENT

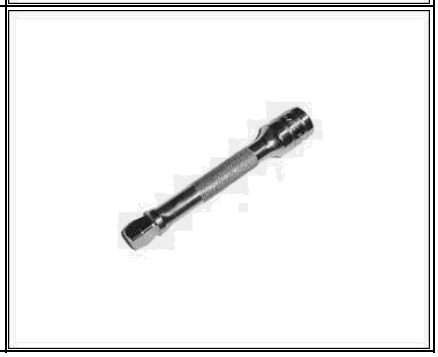
Risque de perte de la correspondance texte-illustration lors de l'impression papier.

- **Pour des raisons techniques, il ne peut pas être exclu à l'heure actuelle que, même en cas d'affichage correct à l'écran, la correspondance entre le texte et l'illustration**

17 04 19 Removing and installing oil-pressure sender - as of MY 2005

- Removing oil-pressure sender
- Installing oil-pressure sender

Tools

Designation	Type	Number	Explanation	
Crowfoot wrench a/f 19	commercially available tool	NR.11-1		
Extension 3/8-inch, 16° moveable	commercially available tool	NR.15		

top of page

Removing oil-pressure sender

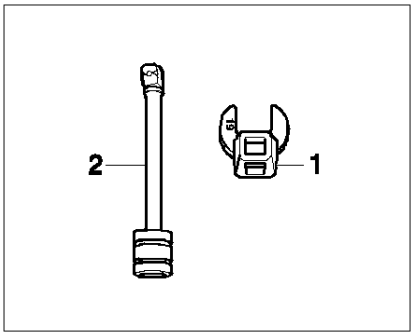
Removing oil-pressure sender

WARNING

Danger of injury from hot engine parts.

- **Risk of burns, damage to skin, injury to the eyes.**

Do not work on the engine while it is hot.

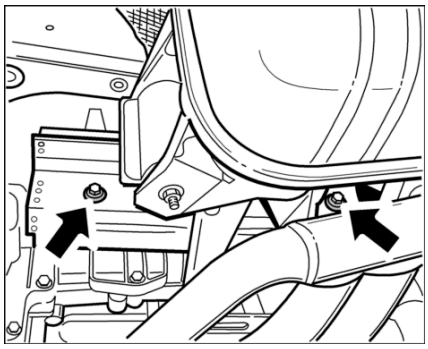


Oil-pressure sender tool

Oil-pressure sender tool

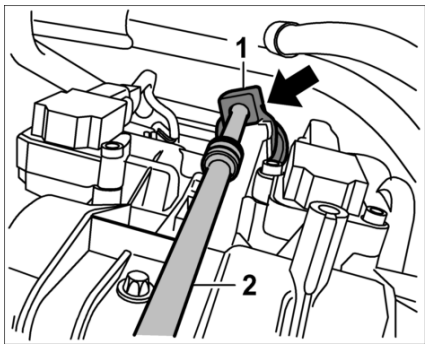
- 1 - **Crowfoot wrench a/f 19 NR.11-1** (snap-on).
- 2 - **Extension 3/8-inch, 16° moveable NR.15**.

1. Remove both cable plugs in engine compartment (cylinder head cover, side 4-6).



Cover plate for ignition coils

2. Remove cover plate for ignition coils. Unscrew two M6 Torx screws and remove plate.



Tool usage - oil-pressure sender

Note

The sender is removed from and fitted onto the underside of the engine, therefore the direction of rotation must be observed.

- ***Undo: in a clockwise direction***.

- ***Tighten: in an anticlockwise direction***.

3. Remove oil-pressure sender with **Extension 3/8-inch, 16° moveable NR.15** and a **crowfoot wrench a/f 19 NR.11-1** **-1-** . Use a long, 3/8-inch extension **-2-** also.

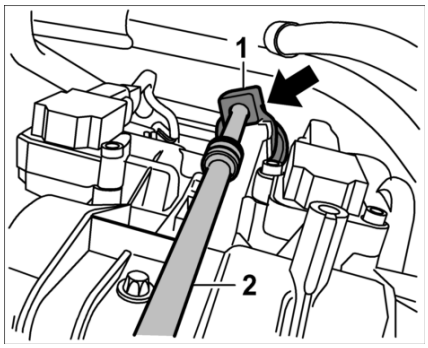
top of page

Installing oil-pressure sender

Installing oil-pressure sender

Installing oil-pressure sender

1. Position oil-pressure sender with new sealing ring on cylinder head cover, side 4-6.



Tool usage - oil-pressure sender

Note

The sender is removed from and fitted onto the underside of the engine, therefore the direction of rotation must be observed.

- ***Undo: in a clockwise direction***.
- ***Tighten: in an anticlockwise direction***.

2. Tighten sender using the specified tools. **Tightening torque: 30 (22 ftlb.) Nm** .
3. Fit cover plate, tighten two M6 Torx screws. **Tightening torque: 10 (7.5 ftlb.) Nm**
4. Insert cable plug in engine compartment.

997110, 997111, 997120, 997121, 997310, 997311, 997320, 997321, 997410, 997411, 997430, 997431, 997610, 997611, 997620, 997621

as of MY 2005
Country C00, C02, C05, C07, C08, C09, C10, C11, C12, C13, C14, C15, C16, C18, C19, C20, C21, C22, C23, C24, C25, C26, C27, C28, C32, C33, C34, C35, C36, C37, C38, C39, C45, C46, C98, C99

WARNUNG

17 15 19 Removing and installing oil filler neck - as of MY 2005

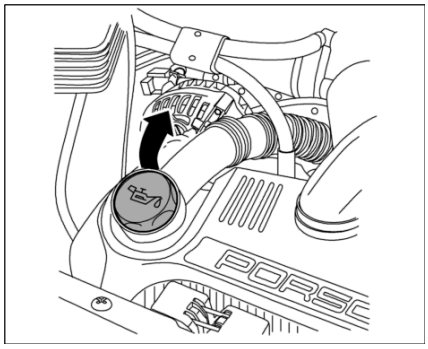
- Preliminary work
- Removing oil filler neck
- Installing oil filler neck
- Subsequent work

top of page

Preliminary work

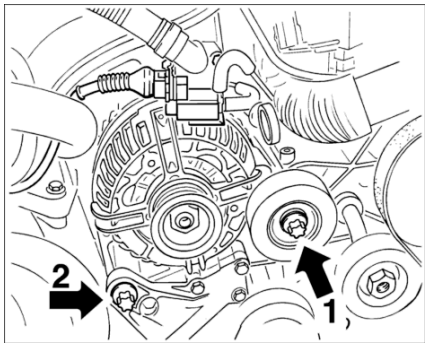
Preliminary work

1. Disconnect battery 2706IN IN -Work instructions after disconnecting the battery.



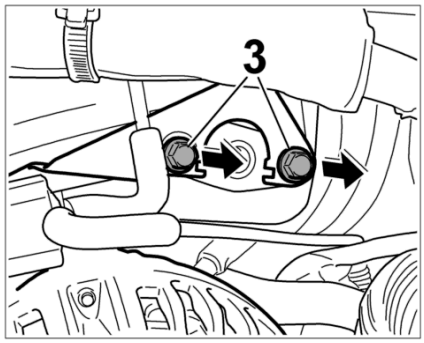
Oil filler neck on air cleaner housing

2. Remove air cleaner housing 242419 Removing and installing air cleaner element - chapter on "Removing". To do this, unclip the oil filler neck upwards out of the air cleaner housing **-arrow-** .
3. Release drive belt 137819 Removing and installing drive belt - chapter on "removing".



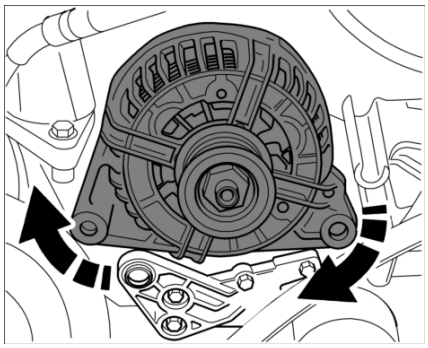
Three-phase generator

4. Detach fastening screws for generator **-arrows-** . Unscrew the longer screw **-1-** by approx. three turns, then undo the front pilot bushing by tapping lightly on the screw head (use a plastic hammer). Unscrew screw and remove with deflection roller.



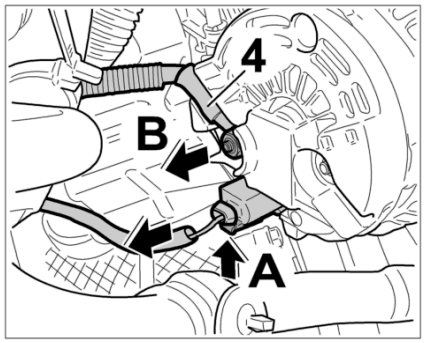
Fastening screws for securing vacuum modulator to intake system

5. Unscrew the fastening screws **-3-** for the vacuum modulator on the intake distributor.



Lifting generator out of mount

6. Remove generator 272219 Removing and installing three-phase generator - chapter on "Removing". Turn generator in a clockwise direction, tilt it in direction of travel and lift it out of the engine over the coolant cap.



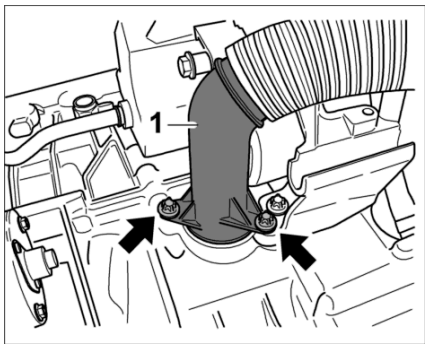
Electrical connections on generator

7. Remove electrical connections.

top of page

Removing oil filler neck

Removing oil filler neck



Oil filler neck

1. Unscrew two M6 x 16 Torx screws (micro-self-locking) **-arrows-** , remove oil filler neck **-1-** from crankcase.
2. Remove "old" O-ring on support.
3. Clean crankcase bore.

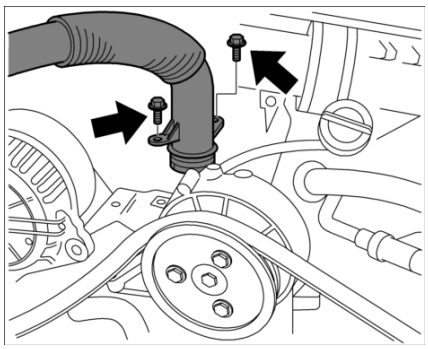
top of page

Installing oil filler neck

Installing oil filler neck

Note

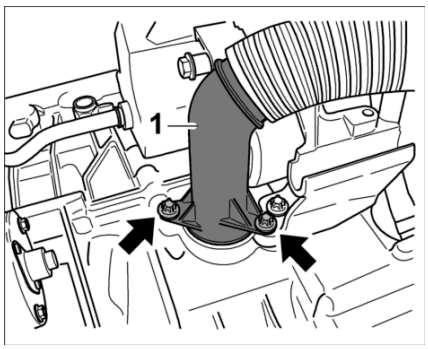
Replace the micro-self-locking screws and the O-ring for the filler neck.



Inserting oil filler neck

1.

Grease the new O-ring with Optimol MP3 (available from Porsche Parts Service) and insert oil filler neck into crankcase bore.



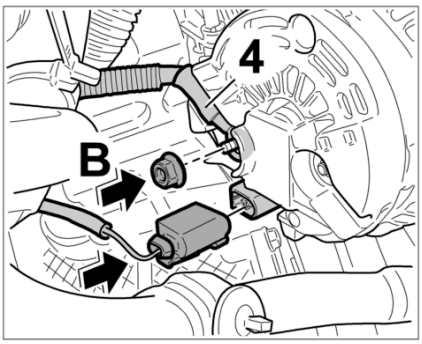
Oil filler neck

2. Insert and tighten two new M6 x 16 Torx screws (micro-self-locking) **-arrows-** . **Tightening torque: 10 (7.5 ftlb.) Nm**

top of page

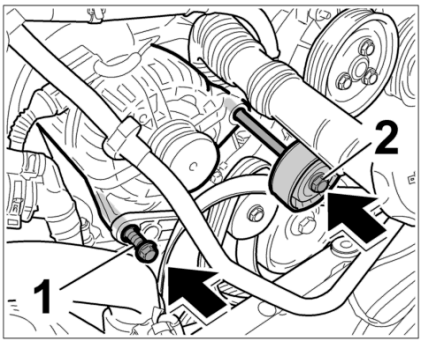
Subsequent work

Subsequent work



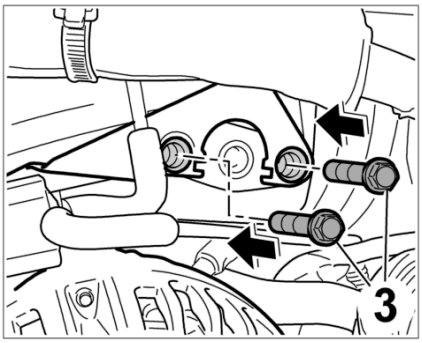
Electrical connections on generator

1. Fit electrical connections on generator. **Tightening torque: 15 (11 ftlb.) Nm**



Fastening screws on generator

2. Insert generator, position fastening screw (screw on pivot bearing with deflection roller **-2-**), screw it in and tighten it. **Tightening torque: 46 (34 ftlb.) Nm**



Securing vacuum unit

3. Position vacuum unit on intake distributor and fit using the fastening screws **-3-** . **Tightening torque: 9 (6.5 ftlb.) Nm**
4. Fit drive belt 137819 Removing and installing drive belt - chapter on "Installing".
5. Install air cleaner housing 242419 Removing and installing air-cleaner element - chapter on "Installing".
6. Connect battery 2706IN IN -Work instructions after disconnecting the battery.

997110, 997111, 997120, 997121, 997310, 997311, 997320, 997321, 997410, 997411, 997430, 997431, 997610, 997611, 997620, 997621

as of MY 2005
Country C00, C02, C05, C07, C08, C09, C10, C11, C12, C13, C14, C15, C16, C18, C19, C20, C21, C22, C23, C24, C25, C26, C27, C28, C32, C33, C34, C35, C36, C37, C38, C39, C45, C46, C98, C99

WARNUNG

Gefahr des Verlusts der Text-Bild-Zuordnung beim Ausdruck.

- **Aus technischen Gründen kann derzeit nicht ausgeschlossen werden, dass trotz einwandfreier Darstellung auf dem Bildschirm beim Ausdruck der Zusammenhang von Text und zugehörigem Bild verloren geht.**
- **Wird der Fehler nicht bemerkt, besteht die Gefahr, daß Arbeiten nicht korrekt durchgeführt werden und es dadurch zu Personen- und Sachschäden kommt.**

19 01 01 Checking cooling system - as of MY 2005

- checking

Tools

Designation	Type	Number	Explanation	
Vacuum cleaner nozzle, long crevice tool for cleaning cooling air inlet shafts	commercially available tool	NR.160		PORSCHE siehe Handbuch Werkstattausrüstung Voir le Manuel Equipement d´atelier Refer to the Workshop Equipment manual Vease Manual de Equipamiento de Taller Vedere il Manuale dell´attrezzatura d´officina ワークショップ・イクイップメント・マニュアルを参照

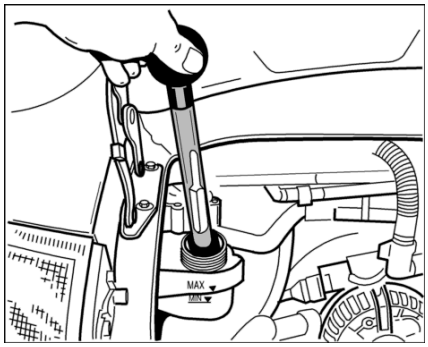
top of page

checking

Coolant - check antifreeze and fluid level

Note

- *The coolant filled in at the factory is intended for lifetime cooling and, thus, need not be changed.*



Use of the anti-freeze testing device

WARNING

Danger of scalding from hot pressurised coolant.

Only work on the coolant system when the engine is "cool".

Wear protective gloves and goggles.

WARNING

Coolant is corrosive and hazardous to health.

- **Skin and eye irritation**

Wear protective gloves and goggles.

If you come into contact with coolant, wash off immediately with plenty of warm water.

ATTENTION

Mixing coolant.

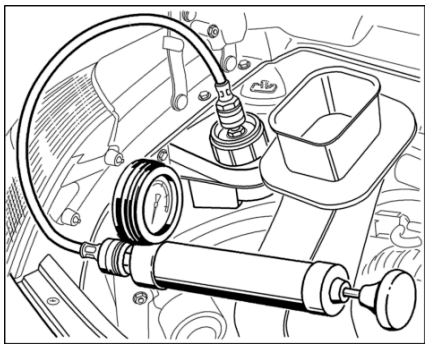
- **Corrosion of components and flocculation of coolant**

Do not mix Porsche coolant with other coolants.

When replacing or topping up coolant, use only original Porsche coolant (see Porsche Parts Catalogue).

1. Check antifreeze content. To do this, open the lid on the coolant expansion tank and check with an anti-freeze testing device. If this is below - 35°C, correct the anti-freeze content by raising the proportion of pure coolant accordingly

Checking the cooling system for leaks



No leaks in the cooling system

WARNING

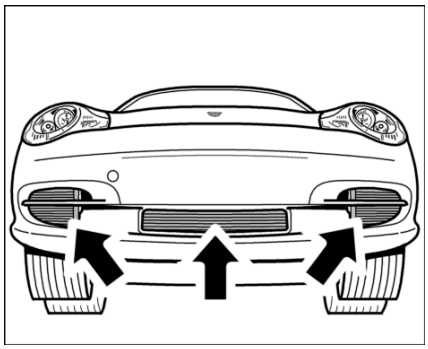
Danger of scalding from hot pressurised coolant.

Only work on the coolant system when the engine is "cool".

Wear protective gloves and goggles.

1. Check the cooling system for leaks. To do this, apply a test pressure of approx. 1 bar and check hose connections for leakage

Cleaning the cooling air guides



Cooling air openings

ATTENTION

Soiling and damage to radiator surface (vanes).

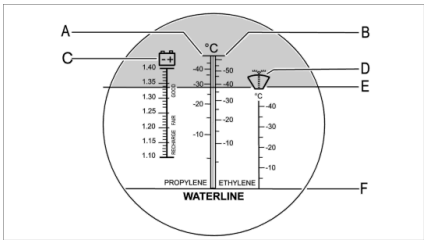
- **Engine overheating due to lack of cooling performance.**

Clean radiator surface regularly.

Do not use a high-pressure steam cleaner to clean it.

1. Check cooling air guides and radiator for foreign bodies such as leaves. If necessary, carefully clean the cooling air guides and radiator surfaces at the front using a vacuum cleaner with a single nozzle, see **Vacuum cleaner nozzle, long crevice tool for cleaning cooling air inlet shafts NR.160**. When using high-pressure steam cleaners, the steam jets can cause additional particles of dirt to attach to the radiator surfaces and the engine can overheat due to reduced cooling performance

Checking the antifreeze content using a refractometer



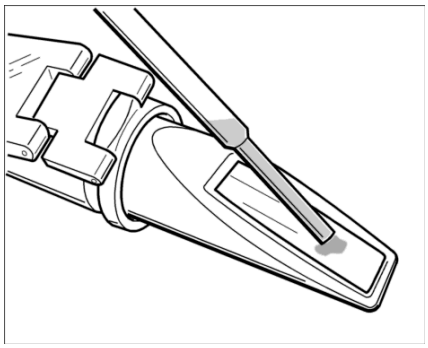
Display scale refractometer

Note

- *The following diagram shows the scale used by Leitenberger*
- *The scales can vary, depending on the manufacturer, observe the operating instructions*
- *Use the "ETHYLENE" scale for Porsche coolant.*

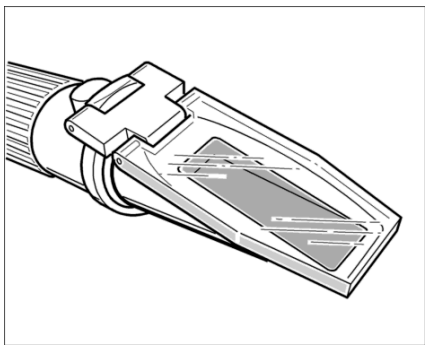
1. The correct antifreeze content can be read off the ETHYLENE scale

Position	Designation	Explanation
-A-	Scale for propylene-based coolant	Do not use the scale for engine types M96/03, M96/05 und M97/01
-B-	Scale for ethylene-based coolant	Use scale for 997 engines
-C-	Scale for battery acid	The charge state of a battery can be checked here. The figures indicate the gravity of electrolyte. The battery must be recharged once the charge drops below 1.20.
-D-	Scale for alcohol-based windscreen cleaner	The freezing point of the windscreen cleaner can be read off here.
-E-	Light/dark limit	In conjunction with the points of intersection of the relevant scales, it specifies the value to be established
-F-	Waterline	The light/dark limit must be located here when sprinkled with distilled water



Coolant sample on refractometer

2. Using a pipette, take a sample from the coolant expansion tank. Sprinkle a few drops on the test surface of the refractometer.



Closed refractometer lens

3. Close the light-diffusing lens. A closed film of liquid must form.

Note

- *The following table specifies how much coolant must be replaced by pure coolant in order to adjust the freezing point to -37 °C.*

4. Hold the refractometer against a bright light source. A clear light/dark limit emerges. The point of intersection between this line and the display scale marks the freezing point of the coolant. A freezing point that is too low must be adjusted according to the following table

Measured antifreeze content in °C	Pure antifreeze quantity to be added (in litres)
- 5	9
- 10	8,5
- 15	7,5
- 20	7,0
- 25	5,0
- 30	3,5
- 35	1,5

19 24 19 Removing and installing air guide - as of MY 2005

- Preliminary work
- Removing air guide
- Installing air guide
- Subsequent work

top of page

Preliminary work

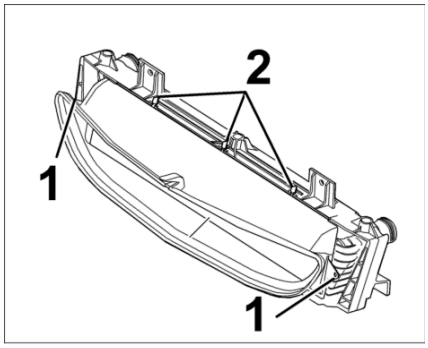
Preliminary work for removing air guide

631519 Removing and installing front apron - chapter on "removing"

top of page

Removing air guide

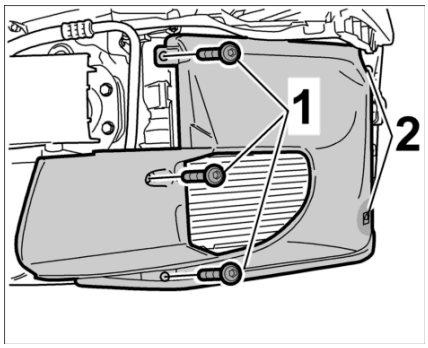
Removing air guide for middle radiator



Air guide

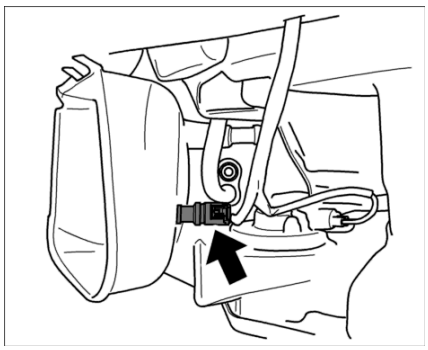
1. Pull off the air guide for the middle radiator. To do this, pull the right and left rubber tabs for the air guide off the radiator **-1-** . Pull the top three rubber tabs up **-2-** and release them. Loosen the air guide around the radiator and remove it.

Removing air guide for side radiator



Air guide for side radiator

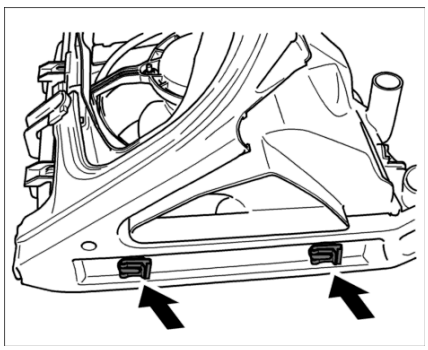
1. Remove the air guide at the left side. To do this, remove the three fastening screws **-1-** and pull the air guide sideways out of the plastic tabs **-2-** .



Temperature sensor

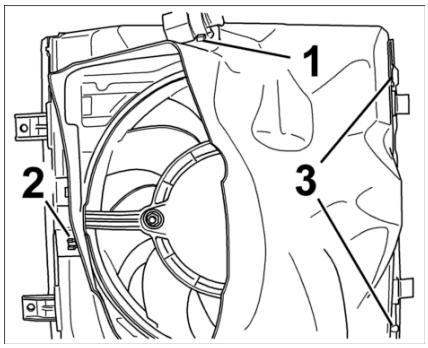
2. Remove the air guide on the right side in the same way as on the left. The temperature sensor must also be pulled out of the air guide from behind **-arrow-** .

The relevant radiator must be removed in order to remove the rear air guide. *197019 21 Removing and installing radiator - section on "Removing"*



Bracket for side radiator

3. Remove the sheetmetal clips and washers under the radiator bracket **-arrows-** . To do this, release the sheetmetal clips using a suitable screwdriver and push them sideways out of the plastic pegs of the radiator. Pull the radiator from the bracket up out of the guide.



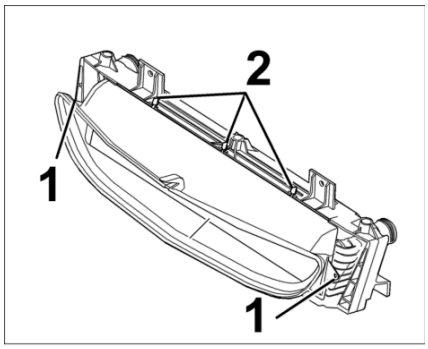
Air guide behind side radiator

4. Disengage the rear air guide from the cooling fan. To do this, disconnect the cable plug **-1-** and press the plastic lock together **-2-** . Then, lift the air guide out of the tabs **-3-** .

top of page

Installing air guide

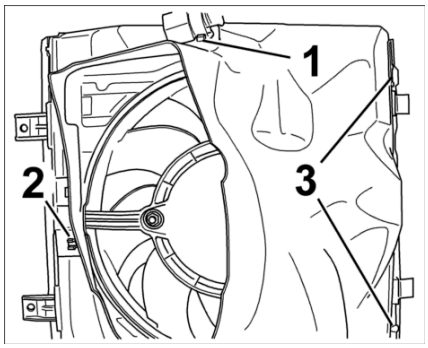
Installing air guide for middle radiator



Air guide

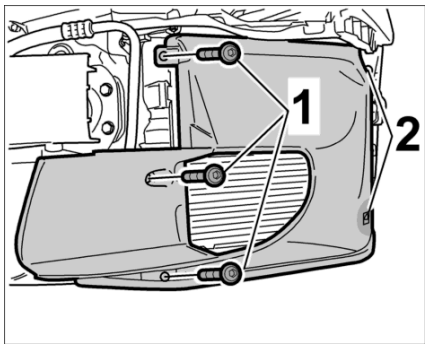
1. Fit air guide for middle radiator. Move air guide on radiator to installation position. To do this, press on the right and left rubber tabs for the air guide on the radiator **-1-** . Push in the top three rubber tabs **-2-** . Press the edge of the air guide around the radiator. Check that it is fitted correctly.

Installing air guide for side radiator



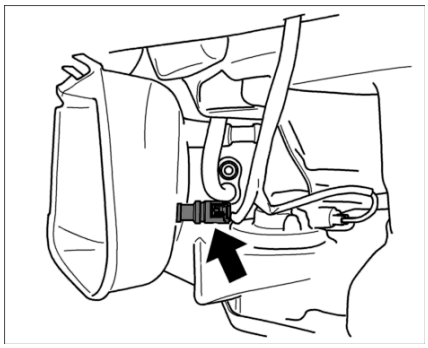
Air duct behind side radiator

1. Fit rear air guide on cooling fan. To do this, push air guide into the tabs **-3-** and press air guide into the lock **-2-** . Fit cable connector **-1-** .
2. Install side radiator *197019 23 Removing and installing radiator - chapter on "installing".*



Air guide for side radiator

3. Fit air guide. To do this, push radiator sideways into the plastic tabs **-2-** and screw in 3 fastening screws **-1-** .



Temperature sensor

4. Fit the air guide on the right side in the same way as on the left side. In addition, push the temperature sensor into the air guide from behind **-arrow-** .

top of page

Subsequent work

Subsequent work for installing air guide

631519 Removing and installing front apron - chapter on "installing"

997110, 997111, 997120, 997121, 997310, 997311, 997320, 997321, 997410, 997411, 997430, 997431, 997610, 997611, 997620, 997621

as of MY 2005
Country C00, C02, C05, C07, C08, C09, C10, C11, C12, C13, C14, C15, C16, C18, C19, C20, C21, C22, C23, C24, C25, C26, C27, C28, C32, C33, C34, C35, C36, C37, C38, C39, C45, C46, C98, C99

WARNUNG

Gefahr des Verlusts der Text-Bild-Zuordnung beim Ausdruck.

- **Aus technischen Gründen kann derzeit nicht ausgeschlossen werden, dass trotz einwandfreier Darstellung auf dem Bildschirm beim Ausdruck der Zusammenhang von Text und zugehörigem Bild verloren geht.**
- **Wird der Fehler nicht bemerkt, besteht die Gefahr, daß Arbeiten nicht korrekt durchgeführt werden und es dadurch zu Personen- und Sachschäden kommt.**

Vergleichen Sie deshalb nach dem Druckvorgang unbedingt die Ausdrucke mit der Bildschirmdarstellung. Korrigieren Sie die Ausdrucke im Fehlerfall so, daß der Inhalt der Bildschirmdarstellung zutreffend wiedergegeben wird.

WARNING

Danger of losing text-figure correspondence when printing out.

- **For technical reasons, it can currently not be ruled out that the correspondence between text and associated figure can be lost when it is printed out, even though the display on the screen is correct.**
- **If the fault is not noticed, there is the danger that work will not be performed correctly which can cause injury and damage.**

Therefore, always compare printouts with the screen display after printing them out. Correct the printouts if they are faulty so that the content of the screen display matches that on the printouts.

AVERTISSEMENT

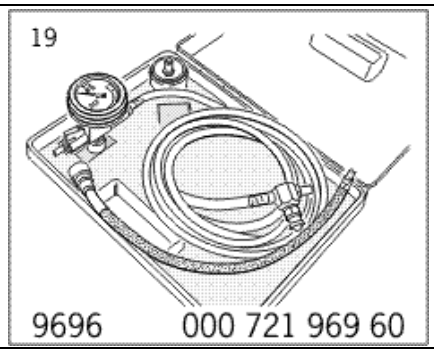
Risque de perte de la correspondance texte-illustration lors de l'impression papier.

- **Pour des raisons techniques, il ne peut pas être exclu à l'heure actuelle que, même en cas d'affichage correct à l'écran, la correspondance entre le texte et l'illustration**

19 38 17 Draining and filling in coolant - as of MY 2005

- Preliminary work
- Draining coolant
- Filling with coolant
- Reworking

Tools

Designation	Type	Number	Explanation	
Radiator filling device	special tool	9696		

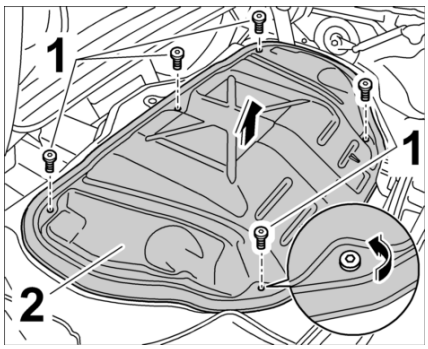
top of page

Preliminary work

Preliminary work

1. Removing rear underside panel 519419 Removing and installing rear underside panel - removing.

Cayman only:



Removing engine compartment lid

2. Remove engine cover *557819 21 Remove and install engine compartment lid - chapter on "Removing".*

top of page

Draining coolant

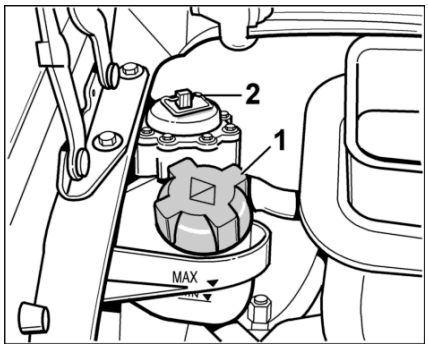
Draining coolant

Note

In order to facilitate assembly of coolant pipes and hoses smear with Klüber Syntheso Glep or alternatively Klüberplus S06-100 assembly gel (available from the Porsche Parts catalogue)

Note

- *Check Henn coupling O-rings and replace if necessary.*
- *Clean push-in connector and coolant hoses before assembly.*



Reservoir cap for coolant expansion tank

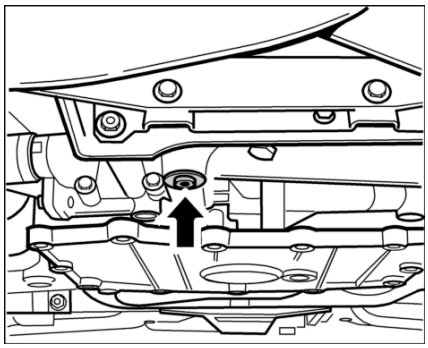
WARNING

Danger of scalding from hot pressurised coolant.

Only work on the coolant system when the engine is "cool".

Wear protective gloves and goggles.

1. Open cap on expansion tank **-1-** and remove. Set steel chamber for bleeder valve to vertical **-2-** .



Coolant drain plug

WARNING

Danger of scalding from hot pressurised coolant.

Only work on the coolant system when the engine is "cool".

Wear protective gloves and goggles.

WARNING

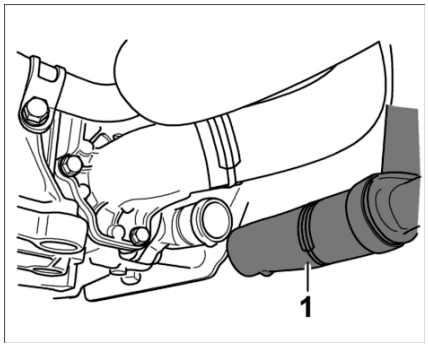
Coolant is corrosive and hazardous to health.

- **Skin and eye irritation**

Wear protective gloves and goggles.

If you come into contact with coolant, wash off immediately with plenty of warm water.

2. Undo internal hexagon socket drain screw from coolant inlet pipe. Open spring clamp on hose at inlet side of the water pump, remove the hose and unscrew the drain plug. Collect coolant in a clean container. Next reassemble the hose and screw the drain plug back with a new sealing ring.
   Tightening torque: 7.5 Ftlb +4 Ftlb



Coolant inlet hose

WARNING

Danger of scalding from hot pressurised coolant.

Only work on the coolant system when the engine is "cool".

Wear protective gloves and goggles.

WARNING

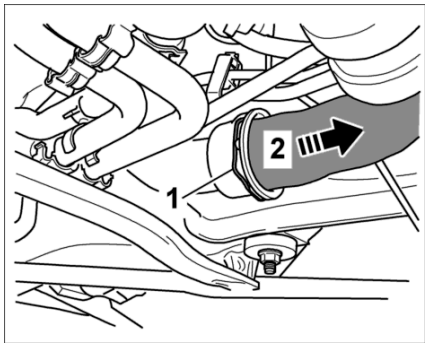
Coolant is corrosive and hazardous to health.

- **Skin and eye irritation**

Wear protective gloves and goggles.

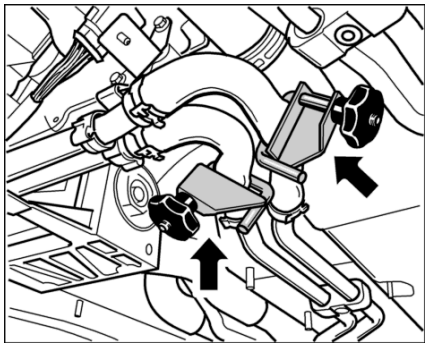
If you come into contact with coolant, wash off immediately with plenty of warm water.

3. Drain any remaining coolant by removing inlet hose to water pump **-1-** . Collect coolant in a clean container. Attach inlet hose again.



Henn coupling for coolant hose inlet

4. Remove inlet and outlet hoses from radiators Do this by pulling off the spring clips for the two Henn couplings **-1-** and pulling the hoses away from the coolant pipes **-2-** . Collect coolant in a clean container. Now reattach the clips in the right position in the couplings and insert the hoses The connection should audibly snap into place. Check correct positioning once again by pulling on the hoses.



Unclipping heating hoses

5. Remove heating hoses on underside of car. Secure the pipes with hose clips and then open the spring clips Remove both hoses and slowly open hose clips. Allow coolant to drain into a clean container. Clean hoses, stick them back and attach the clips. Check that the hoses are firmly in place.

top of page

Filling with coolant

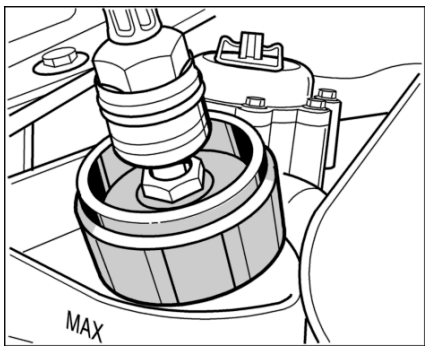
Filling coolant (includes bleeding)

Note

The process of filling and bleeding the cooling system continues to be performed using the special tool **Radiator filling device 9696**.

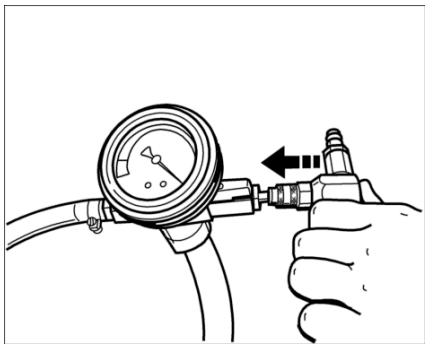
Note

- *If a vacuum does not build up, there is a leaking valve in the coolant circuit.*
- *Deformation of the rubber hoses of the cooling system is normal.*
- *When the pressure gauge pointer is in the green area of the display scale, a sufficient vacuum has been built up.*
- *After both shutoff valves on the vacuum pressure gauge have been closed and the compressed air supply has been disconnected, the vacuum must not drop. If the vacuum drops within approx. 30 seconds, there is a leak in the coolant circuit.*



Adapter K22 on coolant expansion tank

1. Screw cap adapter for coolant expansion tank (K22) onto the tank and attach flexible extension (Fz 100) to the cap.
2. Connect vacuum pressure gauge of bleeder tool to the flexible extension. When doing so, ensure that both shutoff valves are closed (positioned at 90° to flow direction).



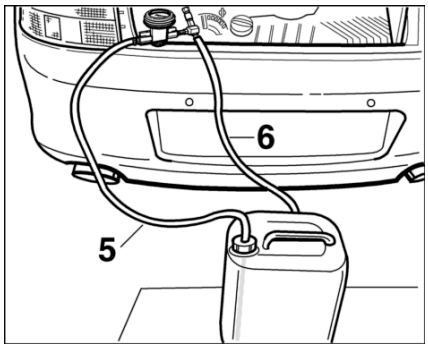
Venturi nozzle on vacuum pressure gauge

3. Connect the Venturi nozzle to the vacuum pressure gauge.

Note

- *The quantity of coolant available should exceed the amount required to fill the system by about two litres in order to prevent air being sucked in.*
- *An antifreeze content of -35 °C corresponds to a mixture of 50:50 (antifreeze: water).*

4. Place a canister with a sufficient amount of coolant and with an antifreeze content for -35 °C behind the vehicle near to the expansion tank

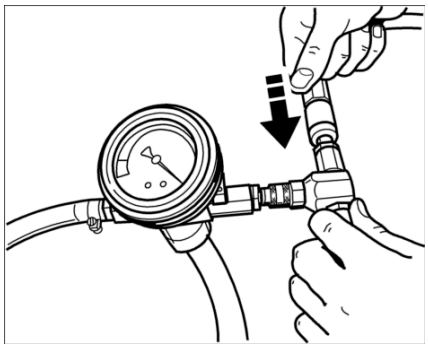


Special canister filling tool

Note

- *The bleeding process is completed more quickly if the canister is positioned at roughly the same height as the coolant expansion tank.*

5. Push the filler hose of the vacuum pressure gauge **-5-** onto the canister connection. Draw off the return line **-6-** of the Venturi nozzle into a second container.

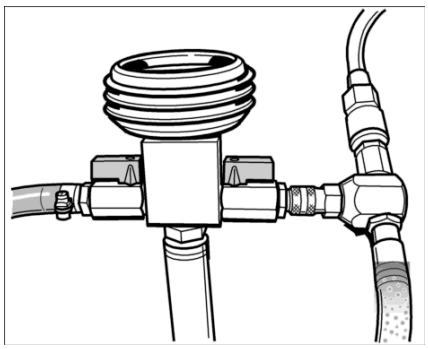


Compressed air supply on Venturi nozzle

Note

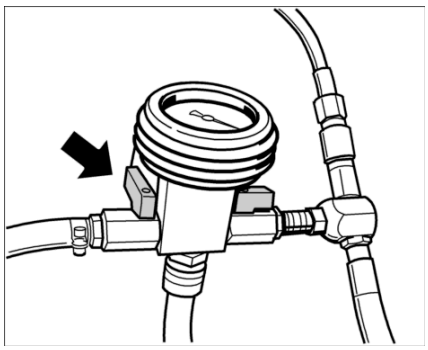
- *A hissing sound after connecting the compressed air supply is usual.*

6. Connect compressed air supply to Venturi nozzle



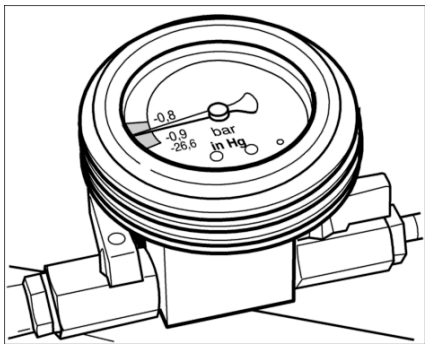
Shutoff valves open

7. Open both shutoff valves on the vacuum pressure gauge until the transparent filler hose has completely filled with coolant.



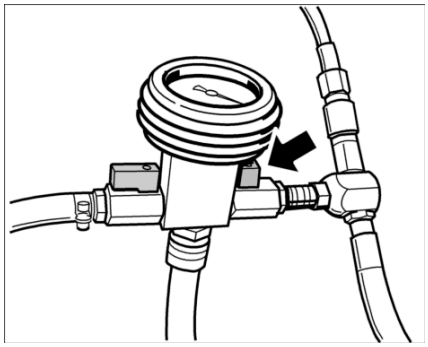
Left-hand shutoff valve closed

8. Close left shutoff valve on the vacuum pressure gauge and allow a vacuum to build up in the coolant circuit.



Vacuum established (pointer in green region)

9. When there is enough vacuum in the cooling system *Vacuum established (pointer in green region)* , close right shutoff valve and subsequently unplug the compressed air supply.



Left-hand shutoff valve open - right-hand valve (arrow) closed

10. Open left-hand shutoff valve to the vacuum pressure gauge (right-hand valve closed **-arrow-**). The cooling system is then filled.
11. When the cooling system no longer contains a vacuum (vacuum pressure gauge shows zero), i.e. no more coolant is being sucked out of the canister, open right-hand shutoff valve.
12. Now remove the complete filling device **filling device 9696** (including cap K 22).
13. If necessary, fill the coolant expansion tank with coolant up to the maximum marking and screw on the cap of the expansion tank (do not tilt).

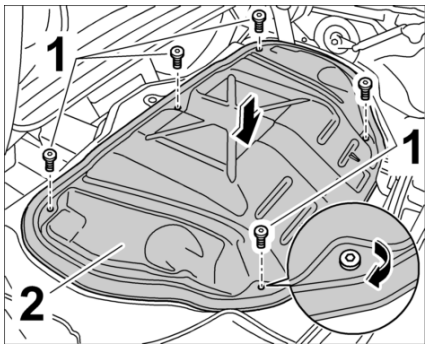
top of page

Reworking

Subsequent work

1. Check coolant line connections and hoses for leaks.
2. Completely install rear underside panel. 519419 Removing and installing rear underside panel - installing

Cayman:



Installing engine compartment lid

3. Install engine cover *557819 23 Remove and install engine compartment lid - chapter on "Installing".*
4. Perform a test drive with the vehicle. Following the test drive and when the engine is still at operating temperature, accelerate briefly to greater than 6,000 rpm a number of times at idle speed in order to fully ventilate the system.
5. Check the fluid level with the aid of the marks on the expansion tank. If necessary, correct the coolant level after the engine has cooled.

997110, 997111, 997120, 997121, 997310, 997311, 997320, 997321, 997410, 997411, 997430, 997431, 997610, 997611, 997620, 997621

as of MY 2005
Country C00, C02, C05, C07, C08, C09, C10, C11, C12, C13, C14, C15, C16, C18, C19, C20, C21, C22, C23, C24, C25, C26, C27, C28, C32, C33, C34, C35, C36, C37, C38, C39, C45, C46, C98, C99

WARNUNG

Gefahr des Verlusts der Text-Bild-Zuordnung beim Ausdruck.

- **Aus technischen Gründen kann derzeit nicht ausgeschlossen werden, dass trotz einwandfreier Darstellung auf dem Bildschirm beim Ausdruck der Zusammenhang von Text und zugehörigem Bild verloren geht.**
- **Wird der Fehler nicht bemerkt, besteht die Gefahr, daß Arbeiten nicht korrekt durchgeführt werden und es dadurch zu Personen- und Sachschäden kommt.**

Vergleichen Sie deshalb nach dem Druckvorgang unbedingt die Ausdrucke mit der Bildschirmdarstellung. Korrigieren Sie die Ausdrucke im Fehlerfall so, daß der Inhalt der Bildschirmdarstellung zutreffend wiedergegeben wird.

WARNING

Danger of losing text-figure correspondence when printing out.

- **For technical reasons, it can currently not be ruled out that the correspondence between text and associated figure can be lost when it is printed out, even though the display on the screen is correct.**
- **If the fault is not noticed, there is the danger that work will not be performed correctly which can cause injury and damage.**

19 40 19 Removing and installing reservoir for coolant - as of MY 2005

- Preliminary work
- Removing reservoir for coolant
- Installing reservoir for coolant
- Subsequent work

Tools

Designation	Type	Number	Explanation	
retainer plate	special tool	P 9592		

top of page

Preliminary work

Preliminary work

DANGER

Fuel can escape when fuel line is disconnected.

- **Risk of fatal injury!**
- **Damage to skin**

Do not work on fuel system if engine is hot!

Do not smoke, avoid fire and naked flames!

Wear fuel-resistant protective gloves and goggles.

Attach warning sign to vehicle in a clearly visible position.

WARNING

Danger of injury from hot engine parts.

- **Risk of burns, damage to skin, injury to the eyes.**

Do not work on the engine while it is hot.

WARNING

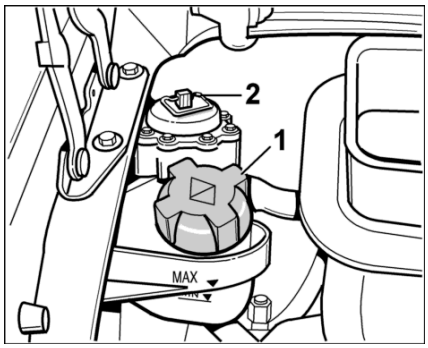
Coolant is hazardous to health

- **Irration of skin**

Wear protective gloves and goggles

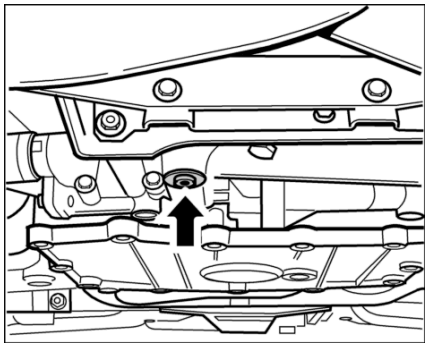
In case of contact with the skin or eyes, wash immediately with plenty of water!

1. Remove air cleaner housing 242519 Removing and installing air cleaner housing - chapter on "Removing".



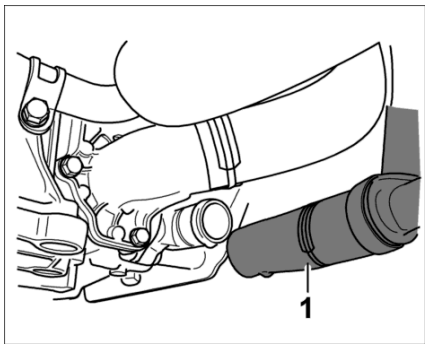
Cap and vent on coolant reservoir

2. Open cap **-1-** on coolant reservoir.
3. Place a clean container under the vehicle.



Draining coolant (plug)

4. Drain coolant. Unscrew coolant drain plug and collect emerging coolant.
5. Re-insert drain plug with a new seal and tighten. **Tightening torque: 15 (11 ftlb.) Nm**



Coolant pump coolant feeder hose

Note

In order to facilitate assembly of coolant pipes and hoses smear with Klüber Syntheso Glep or alternatively Klüberplus S06-100 assembly gel (available from the Porsche Parts catalogue)

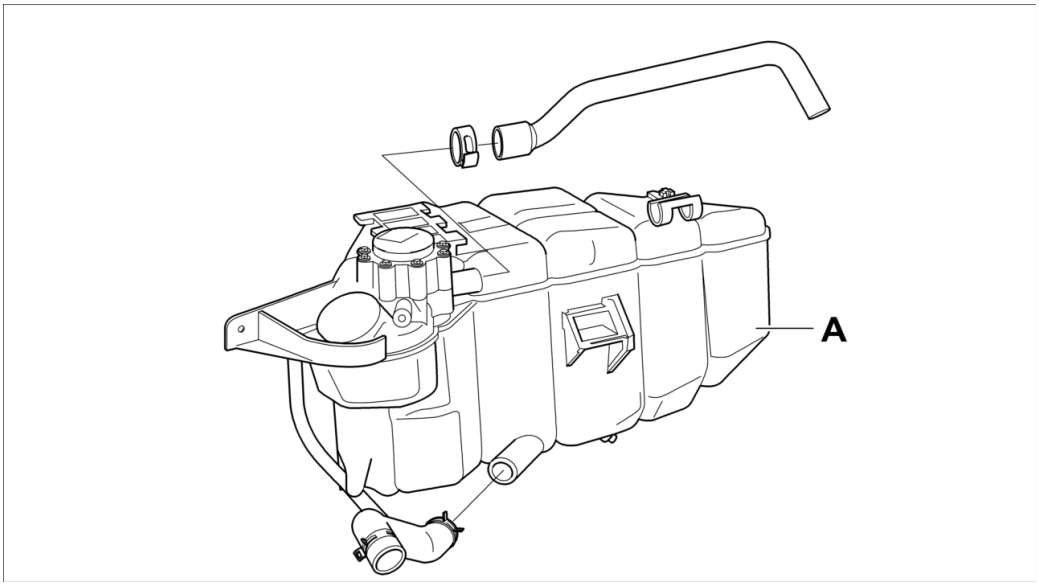
6. Pull off coolant hose to coolant pump **-1-** and collect emerging coolant. Re-fit hose.

top of page

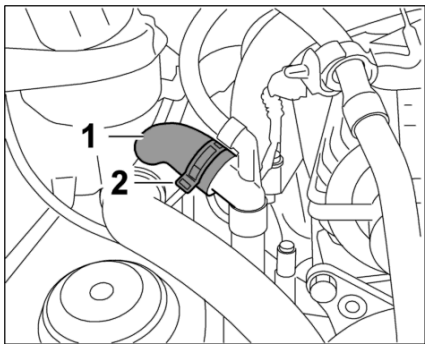
Removing reservoir for coolant

Removing reservoir for coolant

A - Reservoir



Reservoir



Coolant hose on supply tank

WARNING

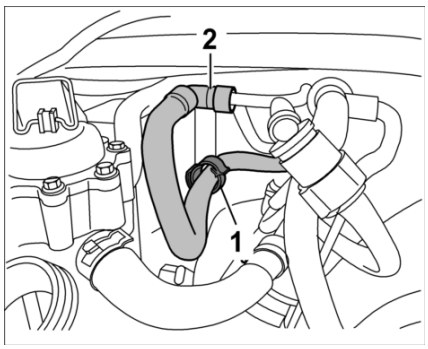
Coolant is hazardous to health

- **Irration of skin**

Wear protective gloves and goggles

In case of contact with the skin or eyes, wash immediately with plenty of water!

1. Pull off coolant hose **-1-** on plastic pipe. To do this, open spring band clamp **-2-** . Collect emerging coolant with a cloth.
2. Remove overflow hose and supply hose from radiator on coolant reservoir. Unclip supply hose from support.



Fuel pressure line

DANGER

Fuel can escape when fuel line is disconnected.

- **Risk of fatal injury!**
- **Damage to skin**

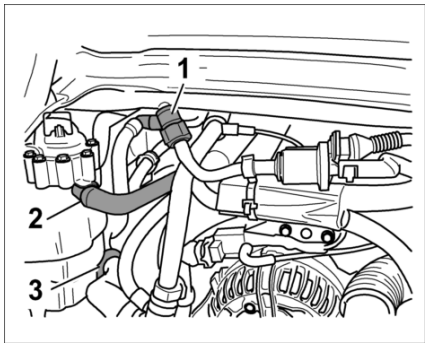
Do not work on fuel system if engine is hot!

Do not smoke, avoid fire and naked flames!

Wear fuel-resistant protective gloves and goggles.

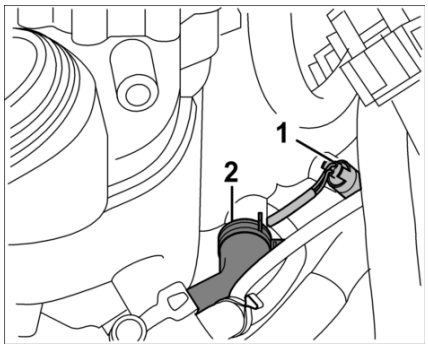
Attach warning sign to vehicle in a clearly visible position.

3. Unclip fuel line on plastic holder **-1-** and disconnect at the rapid-action coupling **-2-** . Absorb emerging fuel with a cloth. Remove plastic holder on coolant reservoir.



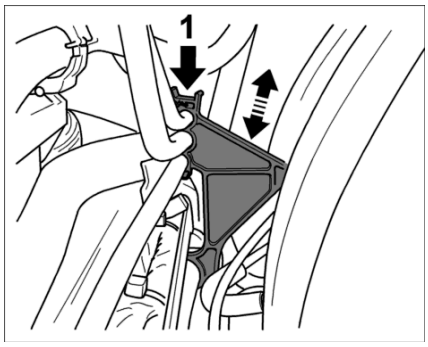
Vacuum line and coolant hoses

4. Disconnect line to carbon-canister line **-1-** . Remove coolant ventilation **-2-** on container.



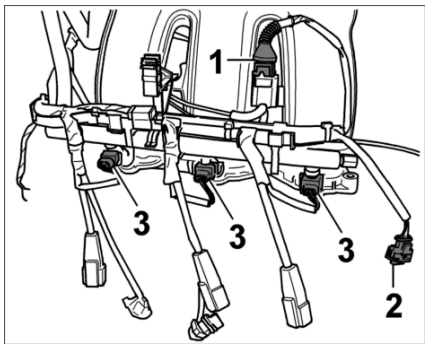
Coolant hose and sensor

5. Remove coolant pump feeder hose on container **-2-** . Collect emerging coolant with a cloth, block flange. Disconnect cable plug for coolant-level indicator sensor, remove sensor carefully from container (bayonet lock).



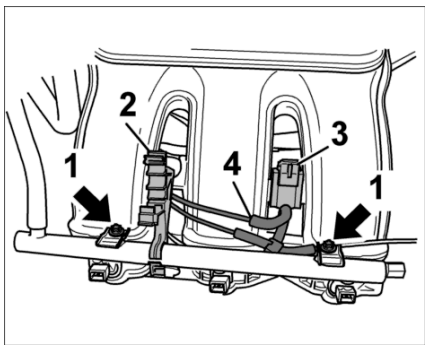
Holder

6. Unclip lines on plastic holder **-1-** , remove holder on fuel collection pipe and intake distributor in an upward direction.



Cable plug for fuel injectors, hall sender, cycle valve

7. Unplug cable plug for cycle valve **-1-** on intake distributor 1-3, hall sender connector **-2-** and fuel injector connector **-3-** . Remove cable duct from fuel collection pipe and lay it down.



Fuel distributor pipe

8. Unscrew both M6 fastening screws **-1-** on fuel collection pipe and position collection pipe diagonally as close as possible on the intake distributor, securing it with tie-wraps if necessary.
9. Lower engine by approx. 40 mm; to do this, support the engine using a jack and **retainer plate P 9592**. Undo and unscrew collar nuts on engine mounting. Lower engine carefully with the jack; if necessary, have a second person assist with this task.
10. Unscrew M6 collar nut for coolant container fastening to body. Pull coolant container out of holder and engine guide until it can be released in a downward direction.
11. Guide container to the rear and at an angle out of the engine compartment.
12. Absorb emerging coolant with a cloth.

top of page

Installing reservoir for coolant

Installing reservoir for coolant

1. Insert container into engine compartment, secure it in holder and guide, position and tighten M6 collar nut. **Tightening torque: 10 (7.5 ftlb.) Nm**
2. Raise engine in installation position with jack, position and tighten collar nuts on pins. Remove retainer plate. **Tightening torque: 85 (63 ftlb.) Nm**
3. Insert sensor for coolant-level indicator in container and engage cable plug.

4. Fit fuel collection pipe, position and tighten two fastening screws. **Tightening torque: 10 (7.5 ftlb.) Nm**
5. Reconnect cable plug for fuel injectors, hall sender and cycle valve. Position wiring harness on fuel collection pipe.
6. Clip holder into intake distributor and fuel collection pipe, secure lines.
7. Connect fuel line rapid-action coupling and clip line into holder on coolant container.
8. Connect rapid-action coupling for carbon-canister line.

Note

In order to facilitate assembly of coolant pipes and hoses smear with Klüber Syntheso Glep or alternatively Klüberplus S06-100 assembly gel (available from the Porsche Parts catalogue)

9. Fit coolant hoses and overflow hose.

top of page

Subsequent work

Subsequent work

1. Fill coolant and bleed system 193817 Draining and filling coolant - chapter on "Filling".
2. Install air cleaner housing 242519 Removing and installing air cleaner housing - chapter on "Installing".
3. Perform a test drive, adjusting the coolant level in the container if necessary (note minimum/maximum marking).

997110, 997111, 997120, 997121, 997310, 997311, 997320, 997321, 997410, 997411, 997430, 997431, 997610, 997611, 997620, 997621

as of MY 2005
Country C00, C02, C05, C07, C08, C09, C10, C11, C12, C13, C14, C15, C16, C18, C19, C20, C21, C22, C23, C24, C25, C26, C27, C28, C32, C33, C34, C35, C36, C37, C38, C39, C45, C46, C98, C99

WARNUNG

Gefahr des Verlusts der Text-Bild-Zuordnung beim Ausdruck.

- **Aus technischen Gründen kann derzeit nicht ausgeschlossen werden, dass trotz einwandfreier Darstellung auf dem Bildschirm beim Ausdruck der Zusammenhang von Text und zugehörigem Bild verloren geht.**
- **Wird der Fehler nicht bemerkt, besteht die Gefahr, daß Arbeiten nicht korrekt durchgeführt werden und es dadurch zu Personen- und Sachschäden kommt.**

19 50 19 Removing and installing coolant pump - as of MY 2005

- Preliminary work
- Removing coolant pump
- Installing coolant pump
- Subsequent work

top of page

Preliminary work

Preliminary work

1. Remove air cleaner housing 242519 Removing and installing air cleaner housing - chapter on "Removing".
2. Relieve and remove drive belt 137819 Removing and installing drive belt - chapter on "Removing".

WARNING

Danger of injury from hot engine parts.

- **Risk of burns, damage to skin, injury to the eyes.**

Do not work on the engine while it is hot.

WARNING

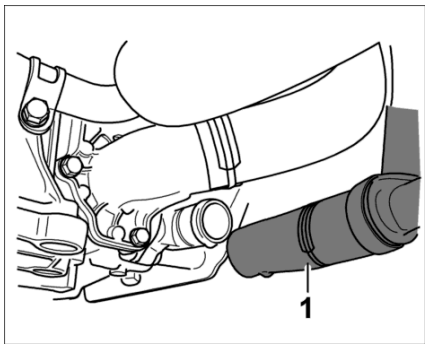
Coolant is hazardous to health

- **Irration of skin**

Wear protective gloves and goggles

In case of contact with the skin or eyes, wash immediately with plenty of water!

3. Drain coolant on engine 193817 Draining and filling coolant - chapter on "Draining"



Coolant pump coolant feeder hose

4. Remove coolant hose from reservoir to coolant pump **-1-** . Collect emerging coolant in a clean container.
5. Remove both catalytic converters 267319 Removing and installing catalytic converter - chapter on "Removing".

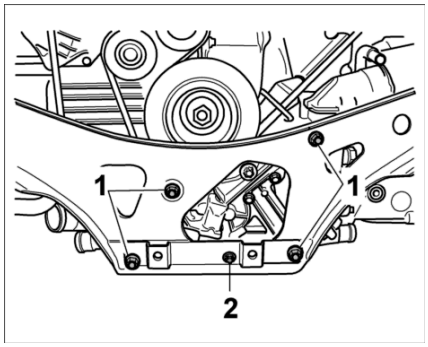
WARNING

Risk of falling engine.

- **Danger of material damage and injury.**

Support engine at all times.

6. Support engine in installation position with a transmission jack.



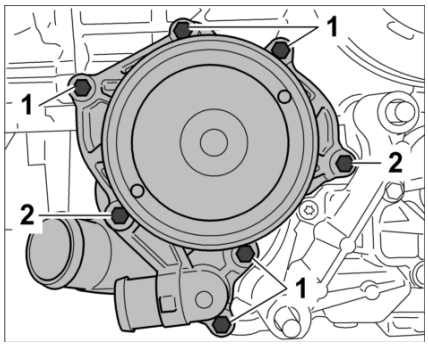
Engine carrier

7. Remove engine carrier 103019 Removing and installing engine carrier - chapter on "Removing".

top of page

Removing coolant pump

Removing coolant pump



Screw arrangement for coolant pump

WARNING

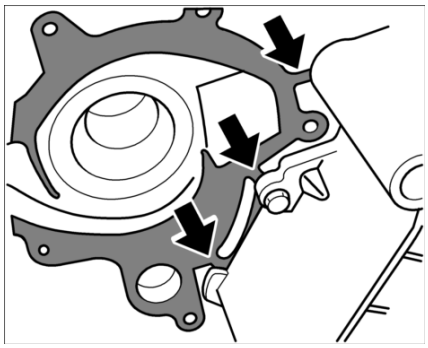
Coolant is hazardous to health

- **Irration of skin**

Wear protective gloves and goggles

In case of contact with the skin or eyes, wash immediately with plenty of water!

1. Unscrew seven fastening screws (two M6 x 30 **-2-** , five M6 x 25 **-1-**) to coolant pump, remove pump.



Connection points for coolant pump combination seal

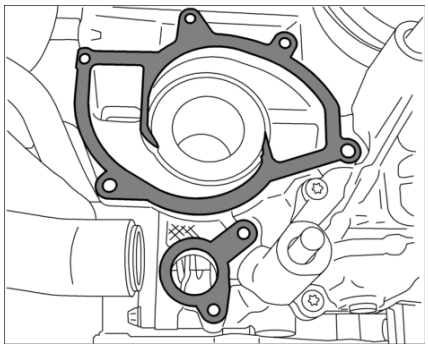
2. Cut through seal webs **-arrows-** in the combination seal, remove old seal.

top of page

Installing coolant pump

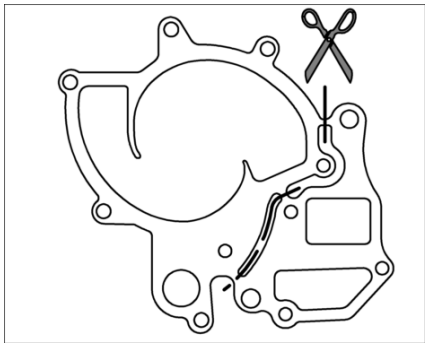
Installing coolant pump

1. Clean sealing face of coolant pump with solvent naphtha or acetone, remove with emery cloth if necessary and then degrease.



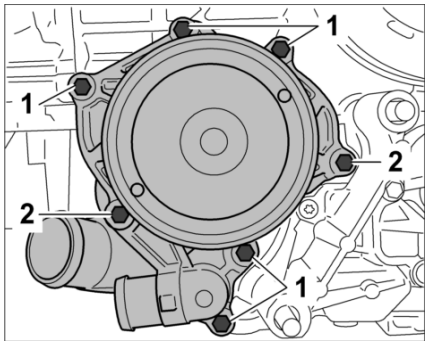
Sealing faces on crankcase

2. Clean sealing face on crankcase with solvent naphtha or acetone. Remove any residues beforehand with an emery cloth.



Separating combination seal for coolant pump

3. Separate new combination seal at the dot-dash line.
4. Position coolant pump with new seal on crankcase using two screws, note position of dowel sleeves.



Screw arrangement for coolant pump

5. Position remaining screws. The longer screws (M6 x 30) **-2-** are installed at the dowel sleeve position.
6. Tighten all screws equally in diagonally opposite sequence. **Tightening torque: 10 (7.5 ftlb.) Nm**
7. Position drive belt on pulley.

top of page

Subsequent work

Subsequent work

WARNING
Coolant is hazardous to health

- **Irration of skin**

Wear protective gloves and goggles
In case of contact with the skin or eyes, wash immediately with plenty of water!

Note
In order to facilitate assembly of coolant pipes and hoses smear with Klüber Syntheso Glep or alternatively Klüberplus S06-100 assembly gel (available from the Porsche Parts catalogue)

1. Fit coolant hose.
2. Install engine carrier 103019 Removing and installing engine carrier - chapter on "Installing".
   Tightening torque: 65 (48 ftlb.) Nm . **Tightening torque: 10 (7.5 ftlb.) Nm**
3. Move transmission jack from work area.
4. Install catalytic converters 267319 Removing and installing catalytic converter - chapter on "Installing".
5. Fit drive belt 137819 Removing and installing drive belt - chapter on "Installing".
6. Install air cleaner housing 242519 Removing and installing air cleaner housing - chapter on "Installing".
7. Fill coolant and bleed system 193817 Draining and filling coolant - chapter on "Filling".
8. Perform a test drive, adjusting the coolant level in the container if necessary (note minimum/maximum marking).

997110, 997111, 997120, 997121, 997310, 997311, 997320, 997321, 997410, 997411, 997430, 997431, 997610, 997611, 997620, 997621

as of MY 2005
Country C00, C02, C05, C07, C08, C09, C10, C11, C12, C13, C14, C15, C16, C18, C19, C20, C21, C22, C23, C24, C25, C26, C27, C28, C32, C33, C34, C35, C36, C37, C38, C39, C45, C46, C98, C99

WARNUNG
Gefahr des Verlusts der Text-Bild-Zuordnung beim Ausdruck.

- **Aus technischen Gründen kann derzeit nicht ausgeschlossen werden, dass trotz einwandfreier Darstellung auf dem Bildschirm beim Ausdruck der Zusammenhang von Text und zugehörigem Bild verloren geht.**
- **Wird der Fehler nicht bemerkt, besteht die Gefahr, daß Arbeiten nicht korrekt durchgeführt werden und es dadurch zu Personen- und Sachschäden kommt.**

19 58 19 Removing and installing coolant regulator - as of MY 2005

- Preliminary work
- Removing coolant regulator
- Installing coolant regulator
- Subsequent work

Tools

Designation	Type	Number	Explanation	
assembly aid	special tool	P 9627		

top of page

Preliminary work

Preliminary work

WARNING

Danger of injury from hot engine parts.

- **Risk of burns, damage to skin, injury to the eyes.**

Do not work on the engine while it is hot.

WARNING

Coolant is hazardous to health

- **Irration of skin**

Wear protective gloves and goggles

In case of contact with the skin or eyes, wash immediately with plenty of water!

1. Place a clean container under the vehicle.
2. Drain coolant 193817 Draining and filling coolant - chapter on "Draining"
3. Remove coolant hoses to coolant pump and thermostat; to do this, first open a spring band clamp for each hose.

top of page

Removing coolant regulator

Remove coolant regulator

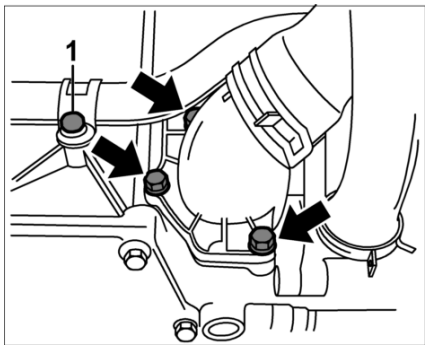
WARNING

Coolant is hazardous to health

- **Irration of skin**

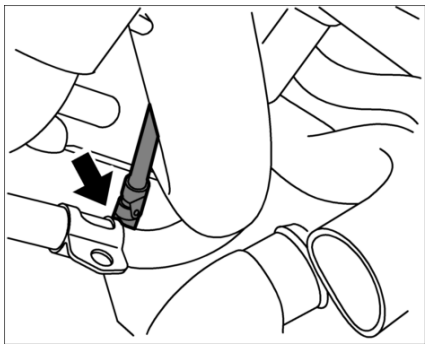
Wear protective gloves and goggles

In case of contact with the skin or eyes, wash immediately with plenty of water!



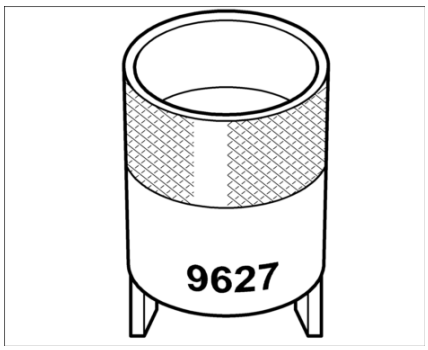
Undoing thermostat housing

1. Remove two M6 fastening screws **-1-** for coolant line on crankcase. Unscrew three M6 screws on coolant regulator housing **-arrow-** .



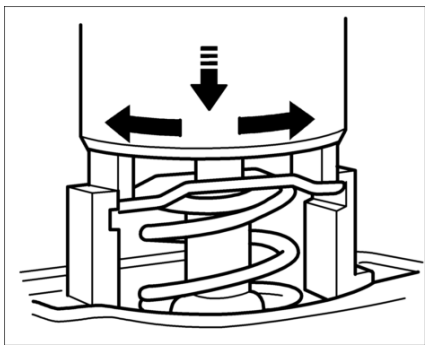
Thermostat housing - top left screw

2. Push coolant line upward and unscrew the top fastening screw **-arrow-** .
3. Remove housing, take out thermostat. Collect the emerging coolant.



Thermostat insert tool

Thermostat insert tool



Removing / fitting thermostat insert

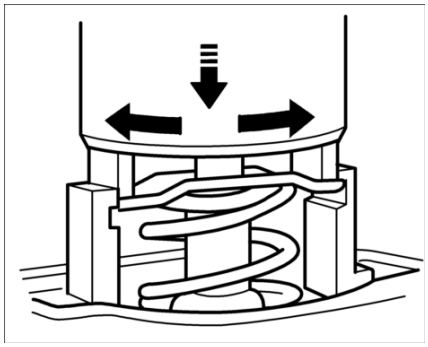
4. Using the **assembly aid P 9627**, push the springs down and twist the sheetmetal tabs out of the holding slots, remove insert.

top of page

Installing coolant regulator

Installing coolant regulator

1. Clean the sealing faces of the housing and crankcase.



Removing / fitting thermostat insert

2. Insert thermostat insert into guide using the **assembly aid P 9627**.
3. Position housing cover with new seal and thermostat on crankcase and position with four M6 fastening screws.
4. Tighten the screws. **Tightening torque: 10 (7.5 ftlb.) Nm**

Note

In order to facilitate assembly of coolant pipes and hoses smear with Klüber Syntheso Glep or alternatively Klüberplus S06-100 assembly gel (available from the Porsche Parts catalogue)

5. Fit coolant hoses.
6. Secure coolant line on crankcase. Tighten two M6 screws. **Tightening torque: 10 (7.5 ftlb.) Nm**

top of page

Subsequent work

Subsequent work

WARNING

Coolant is hazardous to health

- **Irration of skin**

Wear protective gloves and goggles

In case of contact with the skin or eyes, wash immediately with plenty of water!

1. Fill coolant and bleed system 193817 Draining and filling coolant - chapter on "Filling".

2. Perform a test drive, adjusting the coolant level in the container if necessary (note minimum/maximum marking).

997110, 997111, 997120, 997121, 997310, 997311, 997320, 997321, 997410, 997411, 997430, 997431, 997610, 997611, 997620, 997621

as of MY 2005
Country C00, C02, C05, C07, C08, C09, C10, C11, C12, C13, C14, C15, C16, C18, C19, C20, C21, C22, C23, C24, C25, C26, C27, C28, C32, C33, C34, C35, C36, C37, C38, C39, C45, C46, C98, C99

WARNUNG

Gefahr des Verlusts der Text-Bild-Zuordnung beim Ausdruck.

- **Aus technischen Gründen kann derzeit nicht ausgeschlossen werden, dass trotz einwandfreier Darstellung auf dem Bildschirm beim Ausdruck der Zusammenhang von Text und zugehörigem Bild verloren geht.**
- **Wird der Fehler nicht bemerkt, besteht die Gefahr, daß Arbeiten nicht korrekt durchgeführt werden und es dadurch zu Personen- und Sachschäden kommt.**

Vergleichen Sie deshalb nach dem Druckvorgang unbedingt die Ausdrucke mit der Bildschirmdarstellung. Korrigieren Sie die Ausdrucke im Fehlerfall so, daß der Inhalt der Bildschirmdarstellung zutreffend wiedergegeben wird.

WARNING

Danger of losing text-figure correspondence when printing out.

- **For technical reasons, it can currently not be ruled out that the correspondence between text and associated figure can be lost when it is printed out, even though the display on the screen is correct.**
- **If the fault is not noticed, there is the danger that work will not be performed correctly which can cause injury and damage.**

Therefore, always compare printouts with the screen display after printing them out. Correct the printouts if they are faulty so that the content of the screen display matches that on the printouts.

AVERTISSEMENT

Risque de perte de la correspondance texte-illustration lors de l'impression papier.

- **Pour des raisons techniques, il ne peut pas être exclu à l'heure actuelle que, même en cas d'affichage correct à l'écran, la correspondance entre le texte et l'illustration puisse être erronée sur l'impression papier.**
- **Si l'erreur passe inaperçue, on court le risque d'exécuter certaines opérations de manière incorrecte pouvant conduire à des dommages corporels et matériels.**

19 70 19 Removing and installing radiator - as of MY 2005

- Preliminary work
- Removing radiator
- Installing radiator
- Subsequent work

top of page

Preliminary work

Preliminary work for removing radiator

505620 21 Removing and installing front wheel housing liner - chapter on "removing"
631519 Removing and installing front apron - chapter on "removing"
193817 Draining and topping up with coolant - chapter on "draining"

1. Remove air guides in front of radiator 192419 Removing and installing air guide - chapter on "removing".

Note

The air-conditioning condenser remains in the vehicle. The air-conditioning system is not opened.

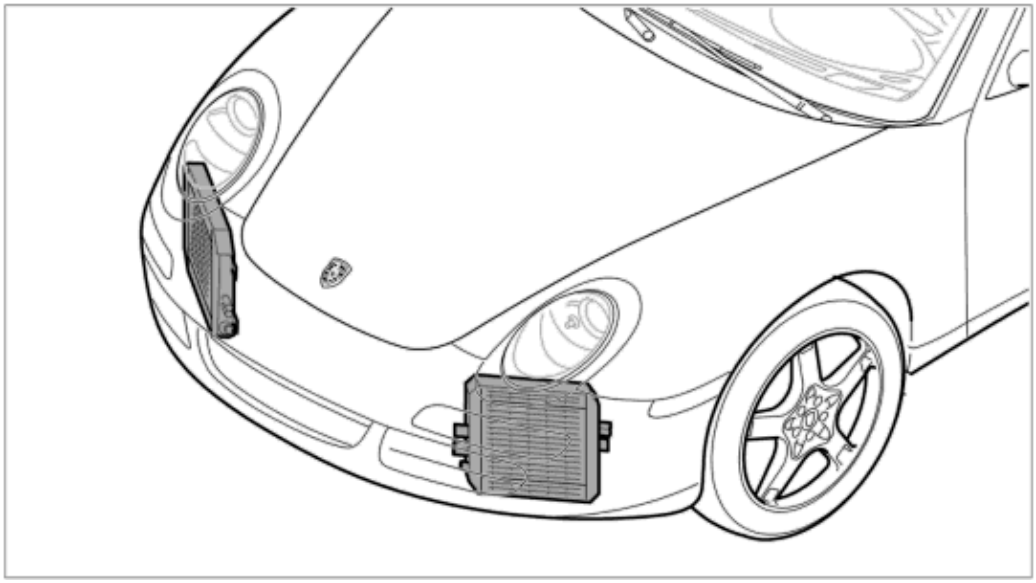
2. Detach air-conditioning condenser from side radiator and allow it to hang freely. To do this, remove hexagon-head sheetmetal screw between air-conditioning condenser and side radiator and pull air-conditioning condenser out of side brackets.

top of page

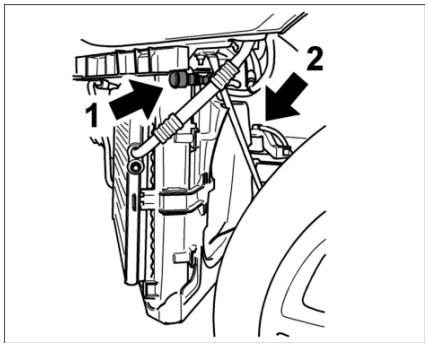
Removing radiator

Removing radiator

Installation Location:

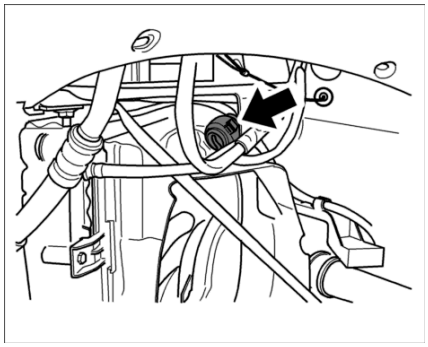


Installation position



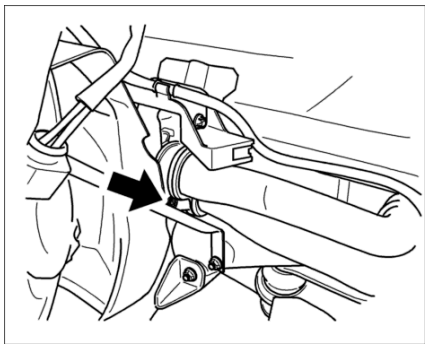
Vent line

1. Remove the vent line at the top of the side radiator. To do this, press the lock and pull the line off the support **-1-** . Pull the vent line out of the holder **-2-** .



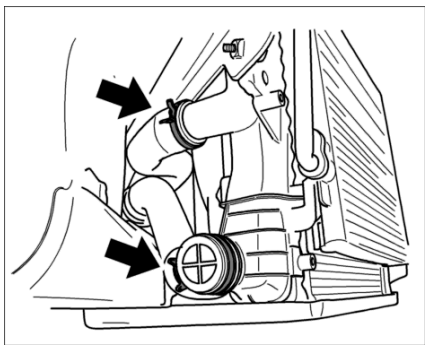
Cable plug

2. Remove cable plug from fan motor **-arrow-** . To do this, press cable plug together (relieve plug), open the release and disconnect the cable plug.



Attachment for hose holder

3. Remove M6 x 16 fastening screw (outer torx) on hose holder **-arrow-** .



Radiator connections

WARNING

Danger of scalding from hot pressurised coolant.

Only work on the coolant system when the engine is "cool".

Wear protective gloves and goggles.

WARNING

Coolant is corrosive and hazardous to health.

- **Skin and eye irritation**

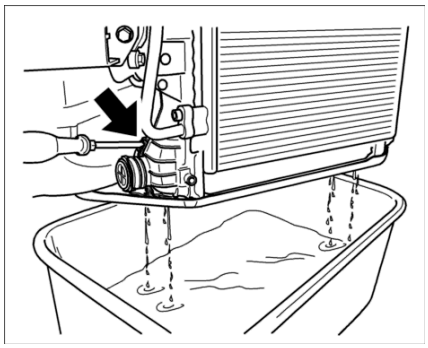
Wear protective gloves and goggles.

If you come into contact with coolant, wash off immediately with plenty of warm water.

Note

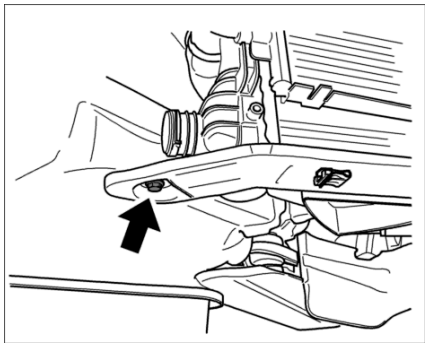
Despite the fact that the coolant has been drained, residual amounts of coolant can still emerge at the joints during removal. Have sufficient collecting containers and cloths to hand.

4. Disconnect the two coolant hoses from the supports for the side radiator **-arrows-** . To do this, loosen the spring-band clamps from the front and push them on to the supports.



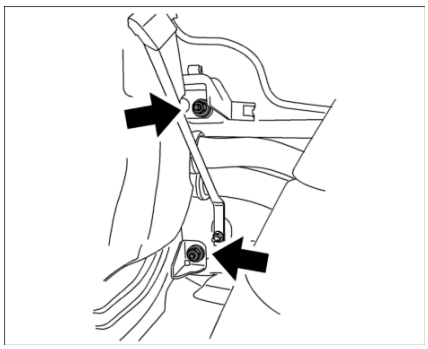
Draining coolant

5. Open up the coolant hoses at the supports using a screwdriver and allow the coolant hoses to drain **-arrow-** . Pull coolant hoses off the supports.



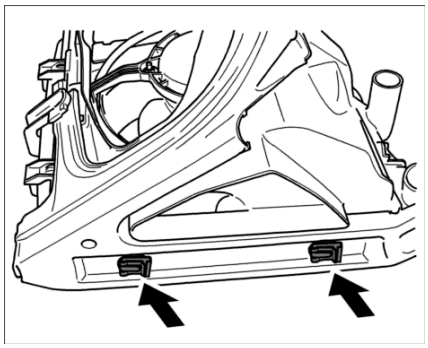
Lower fastening screw

6. Remove M8 x 25 fastening screw on bracket from below at the body **-arrow-** .



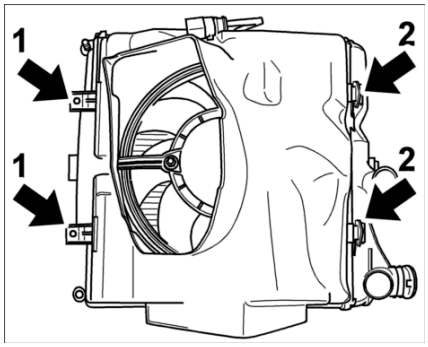
Fastening nuts

7. Undo two M8 fastening nuts on the bracket in the wheel housing at the side wall **-arrows-** . Carefully remove side radiator complete with bracket to the side. Collect remaining coolant from the hoses and side radiator. Air-conditioning condenser remains in installation position.



Bracket for side radiator

8. When the side radiator is removed, remove the sheetmetal clips and washers for the bracket **-arrows-** . Carefully pull the side radiator upwards out of the bracket.



Cooling fan

9. Remove two hexagon-head sheetmetal screws at the side **-1-** and lift cooling fan housing with rear air guide out of the tabs on the side radiator **-2-** .

top of page

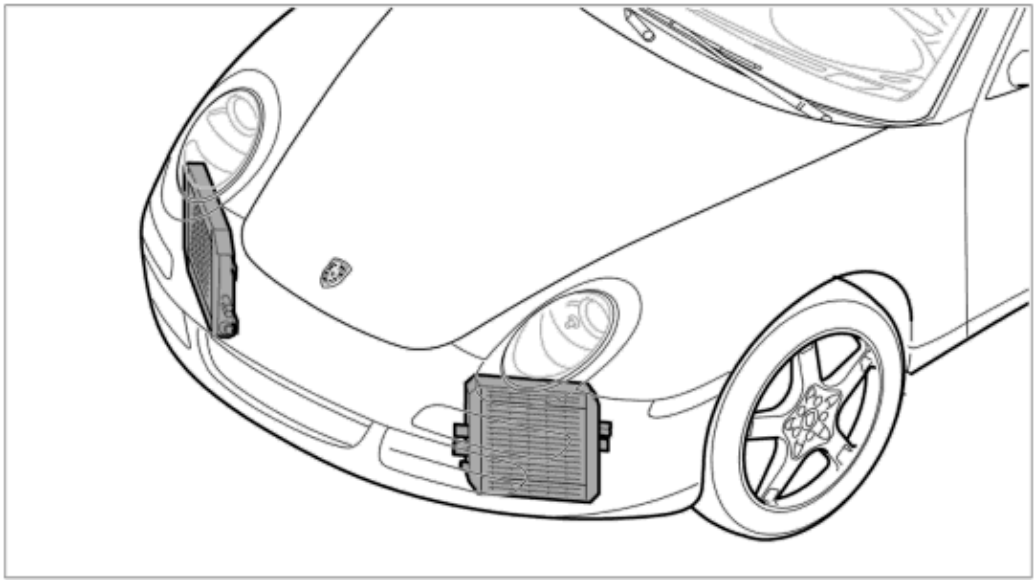
Installing radiator

Installing radiator

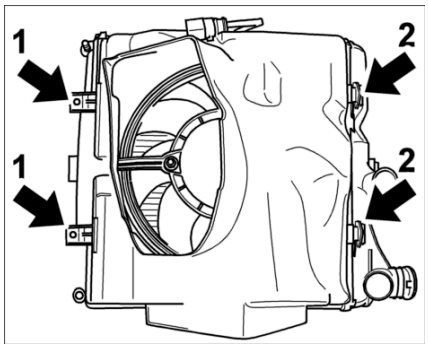
Note

The air-conditioning condenser remains in the vehicle. The air-conditioning system is not opened.

Installation Location:

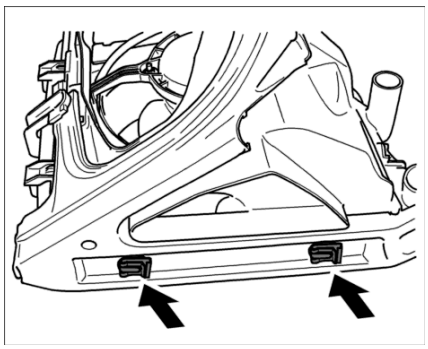


Installation position



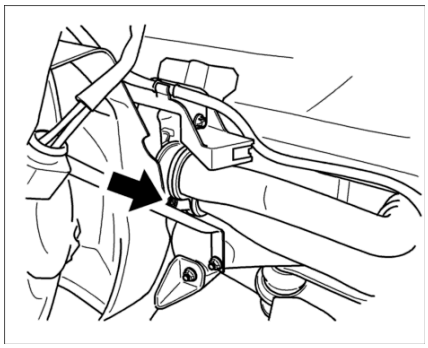
Cooling fan

1. Fit cooling fan housing with rear air guide on side radiator. To do this, push side tabs of cooling fan housing into the brackets for the side radiator **-2-** , move housing into installation position and fit with two fastening screws **-1-** .



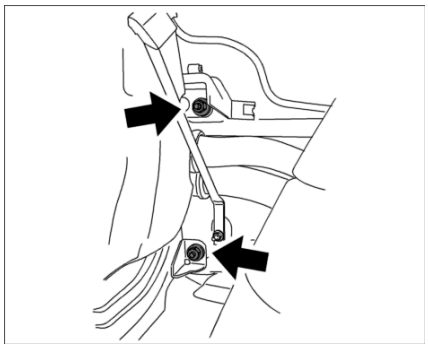
Bracket for side radiator

2. Push radiator module into the radiator bracket. Make sure that the radiator is positioned correctly in the side guide and in the lower bores. Fit washers and sheetmetal clips on the lower fastening pins of the radiator in such a way that the sheetmetal clips engage correctly into the pins **-arrows-** .



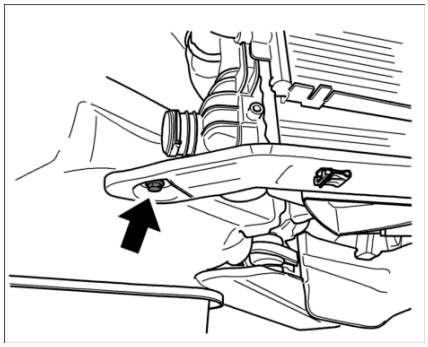
Securing hose holder

3. Move side radiator with bracket into installation position. Make sure that the hose holder for the coolant hoses is inserted correctly into the side bracket. Push side radiator with bracket on to the studs on the side member and insert fastening screw M6 x 16 (outer torx) for the hose holder **-arrow-** .



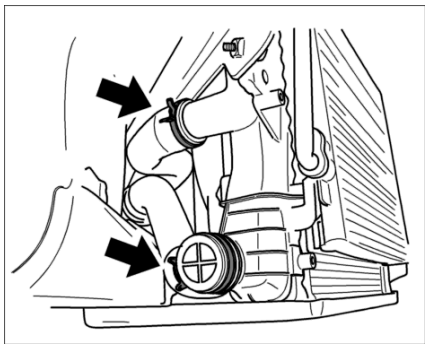
Fastening nuts

4. Position the M8 fastening nuts on the body studs **-arrows-** .



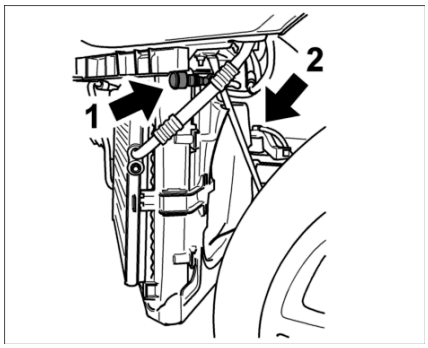
Lower fastening screw

5. Fit fastening screws to the body from below **Tightening torque: 23 (17) Nm (ftlb.) -arrow-** .
6. Tighten the fastening nuts on the body studs **Tightening torque: 23 (17) Nm (ftlb.)** . Tighten fastening screw M6 x 16 (outer torx) for hose holder **Tightening torque: 10 (7.5) Nm (ftlb.)** .



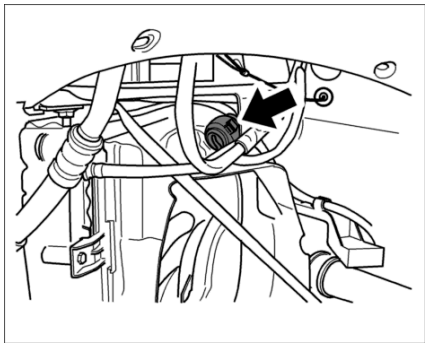
Radiator connections

7. Push spring band clamps on to radiator flanges and fit radiator hoses to the flanges. Move engaged spring band clamps into installation position and loosen using a water-pump pliers (use a screwdriver as well, if necessary) and then fasten again **-arrows-** .



Vent line

8. Fit radiator vent line to the flange **-1-** and clip vent line into the plastic holder **-2-** .



Cable plug

9. Connect cable plug for fan motor **-arrow-** .

top of page

Subsequent work

Subsequent work for installing radiator

1. Fit air guide in front of radiator 192419 Removing and installing air guide - chapter on "installing".

505620 23 Removing and installing front wheel housing liner - chapter on "installing"
 631519 Removing and installing front apron - chapter on "installing"
 193817 Draining and topping up with coolant - chapter on "topping up"

997110, 997111, 997120, 997121, 997310, 997311, 997320, 997321, 997410, 997411, 997430, 997431, 997610, 997611, 997620, 997621

as of MY 2005
Country C00, C02, C05, C07, C08, C09, C10, C11, C12, C13, C14, C15, C16, C18, C19, C20, C21, C22, C23, C24, C25, C26, C27, C28, C32, C33, C34, C35, C36, C37, C38, C39, C45, C46, C98, C99

WARNUNG

Gefahr des Verlusts der Text-Bild-Zuordnung beim Ausdruck.

- **Aus technischen Gründen kann derzeit nicht ausgeschlossen werden, dass trotz einwandfreier Darstellung auf dem Bildschirm beim Ausdruck der Zusammenhang von Text und zugehörigem Bild verloren geht.**
- **Wird der Fehler nicht bemerkt, besteht die Gefahr, daß Arbeiten nicht korrekt durchgeführt werden und es dadurch zu Personen- und Sachschäden kommt.**

Vergleichen Sie deshalb nach dem Druckvorgang unbedingt die Ausdrucke mit der Bildschirmdarstellung. Korrigieren Sie die Ausdrucke im Fehlerfall so, daß der Inhalt der Bildschirmdarstellung zutreffend wiedergegeben wird.

WARNING

Danger of losing text-figure correspondence when printing out.

- **For technical reasons, it can currently not be ruled out that the correspondence between text and associated figure can be lost when it is printed out, even though the display on the screen is correct.**
- **If the fault is not noticed, there is the danger that work will not be performed correctly which can cause injury and damage.**

Therefore, always compare printouts with the screen display after printing them out. Correct the printouts if they are faulty so that the content of the screen display matches that on the printouts.

AVERTISSEMENT

Risque de perte de la correspondance texte-illustration lors de l'impression papier.

- **Pour des raisons techniques, il ne peut pas être exclu à l'heure actuelle que, même en cas d'affichage correct à l'écran, la correspondance entre le texte et l'illustration**

19 80 19 Removing and installing middle radiator - as of MY 2005

- Preliminary work
- Removing middle radiator
- Installing middle radiator
- Subsequent work

top of page

Preliminary work

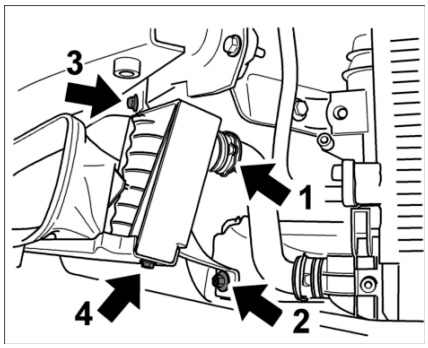
Preliminary work for removing middle radiator

631519 Removing and installing front apron - chapter on "installing"
193817 Draining and topping up with coolant - chapter on "draining"
192419 Removing and installing air guide - chapter on "removing"

top of page

Removing middle radiator

Removing middle radiator



Attachment for middle radiator

WARNING

Danger of scalding from hot pressurised coolant.

Only work on the coolant system when the engine is "cool".

Wear protective gloves and goggles.

WARNING

Coolant is corrosive and hazardous to health.

- **Skin and eye irritation**

Wear protective gloves and goggles.

If you come into contact with coolant, wash off immediately with plenty of warm water.

Note

Despite the fact that the coolant has been drained, residual amounts of coolant can still emerge at the joints during removal. Have sufficient collecting containers and cloths to hand.

1. Open the Henn coupling for the side radiator at the left side **-1-** and drain coolant. Remove the safety clip on the Henn coupling and disconnect the connection. Refit the safety clips immediately.

Note

The help of a second person is required in order to remove and install the middle radiator.

2. Remove the two fastening screws at the top **-3-** and two fastening nuts at the bottom **-2-** of the radiator bracket. Get a second person to help you lift the radiator together with the bracket and remove the Henn coupling for the right side radiator. Refit wire clip immediately. Remove radiator, complete with bracket.
3. Remove the retaining plate under the bracket by unscrewing two fastening screws **-4-** and remove the middle radiator from the bracket.

top of page

Installing middle radiator

Installing middle radiator

1. Insert middle radiator into bracket. Make sure that the rubber sleeves of the radiator are inserted into the corresponding cutout on the bracket or retaining bracket. Screw in two fastening screws on retaining bracket **Tightening torque: 10 (7.5) Nm (ftlb.)** .

Note

The help of a second person is required in order to remove and install the middle radiator.

2. Get a helper to assist in moving the middle radiator into installation position and connect the two side Henn couplings for the coolant hoses until they click into place. Check that the Henn couplings are engaged correctly. Screw two fastening screws at the top **-3-** and two fastening nuts at the bottom **-2-** of the radiator bracket hand-tight.
3. Tighten all fastening screws and fastening nuts on radiator bracket **Tightening torque: 23 (17) Nm (ftlb.)** .
4. Check that middle radiator is in the correct installation position.

top of page

Subsequent work

Subsequent work for installing middle radiator

192419 Removing and installing air guide - chapter on "installing"
631519 Removing and installing front apron - chapter on "installing"
193817 Draining and topping up with coolant - chapter on "topping up"

997110, 997111, 997120, 997121, 997310, 997311, 997320, 997321, 997410, 997411, 997430, 997431, 997610, 997611, 997620, 997621

as of MY 2005
Country C00, C02, C05, C07, C08, C09, C10, C11, C12, C13, C14, C15, C16, C18, C19, C20, C21, C22, C23, C24, C25, C26, C27, C28, C32, C33, C34, C35, C36, C37, C38, C39, C45, C46, C98, C99

WARNUNG

Gefahr des Verlusts der Text-Bild-Zuordnung beim Ausdruck.

- **Aus technischen Gründen kann derzeit nicht ausgeschlossen werden, dass trotz einwandfreier Darstellung auf dem Bildschirm beim Ausdruck der Zusammenhang von Text und zugehörigem Bild verloren geht.**
- **Wird der Fehler nicht bemerkt, besteht die Gefahr, daß Arbeiten nicht korrekt durchgeführt werden und es dadurch zu Personen- und Sachschäden kommt.**

Vergleichen Sie deshalb nach dem Druckvorgang unbedingt die Ausdrucke mit der Bildschirmdarstellung. Korrigieren Sie die Ausdrucke im Fehlerfall so, daß der Inhalt der Bildschirmdarstellung zutreffend wiedergegeben wird.

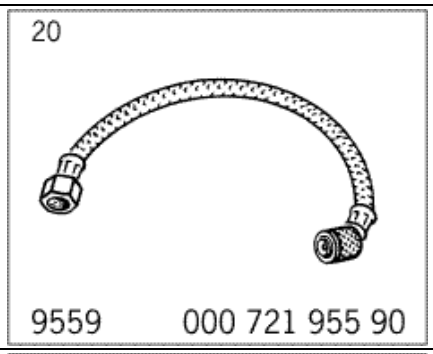
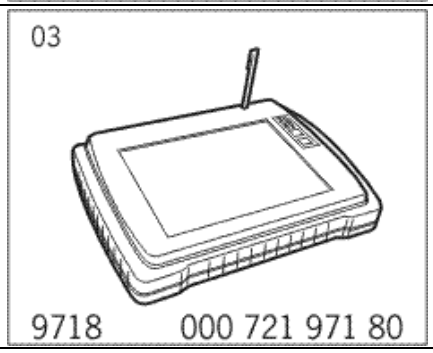
WARNING

Danger of losing text-figure correspondence when printing out.

20 02 01 Checking fuel pressure - as of MY 2005

- Checking fuel pressure

Tools

Designation	Type	Number	Explanation	
pressure gauge	special tool	378a		
connecting cable	special tool	9559		
PIWIS Tester	special tool	9718		

top of page

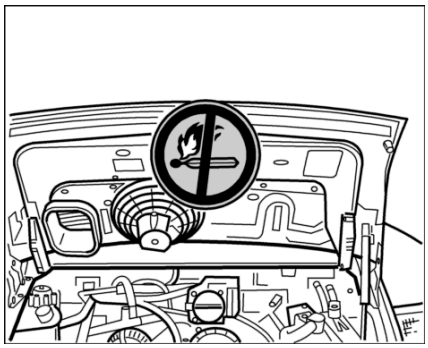
Checking fuel pressure

Checking fuel pressure

Note

- *The battery voltage must not fall below 12 volts during the fuel pressure check.*

1. Check the battery charging condition e.g. using a voltmeter or the Porsche PIWIS Tester. The battery voltage must not fall below 12 volts during the check.



Warning sign for naked flames

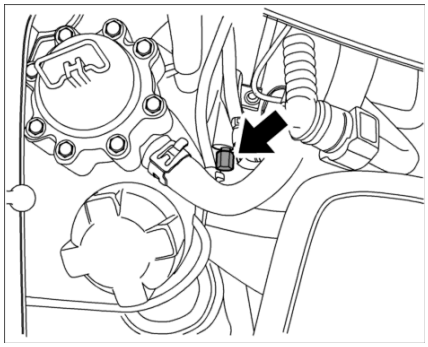
DANGER
Risk of fire from escaping fuel.

- **Danger of fatal injury and damage to property.**

Observe basic safety instruction when working on the fuel system, *201000 Precautionary measures when working on fuel system.*

Secure working area.

2. Attach or mount a warning sign in a clearly visible position on the vehicle.
3. Relieve the fuel pressure 206601 Checking quantity delivered by fuel pump.



Cap on test connection

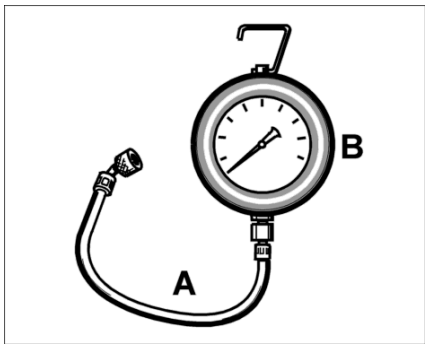
DANGER
Risk of fire from escaping fuel.

- **Danger of fatal injury and damage to property.**

Observe basic safety instruction when working on the fuel system, *201000 Precautionary measures when working on fuel system.*

Secure working area.

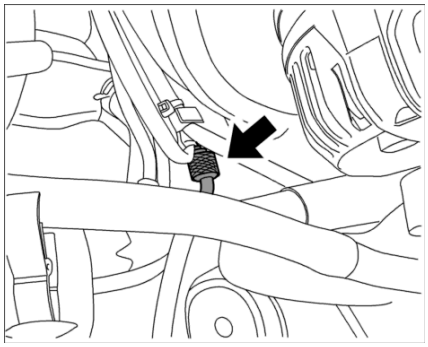
4. Release metal cap on test connection at fuel collection pipe and screw it off by hand (a/f 13 mm). Collect emerging fuel with a cloth.



Pressure gauge for checking fuel pressure

5. Join the **connecting cable 9559** using the **pressure gauge 378a** (union nut a/f 17).

- A - Connecting cable (9559)
- B - Pressure gauge (378a)

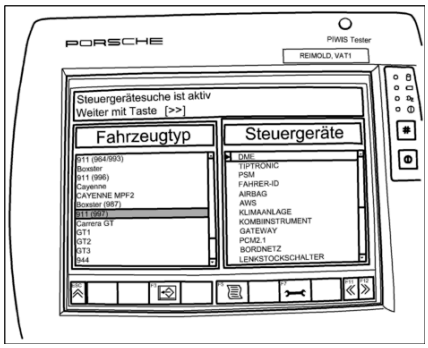


Connecting cable for fuel pressure

6. Tighten the knurled union nuts of the connecting cable by hand on the test connection of the fuel collection pipe **-arrow-** .

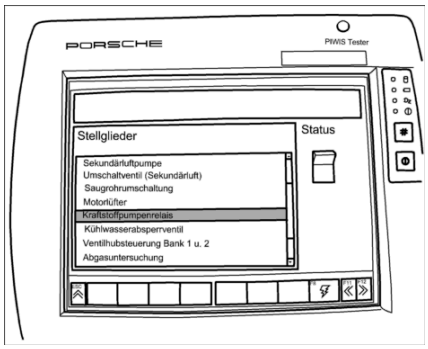
Procedure when engine is not running:

7. Connect the Porsche PIWIS Tester **PIWIS Tester 9718** to the input socket in the vehicle using the adapter lead and switch on the ignition. Switch on the Tester and select the vehicle (option: Diagnostics).



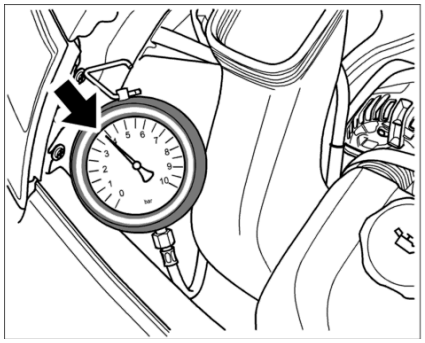
Control unit search on PIWIS Tester

8. Run the individual control unit search for DME using the Porsche PIWIS Tester. To do this, select DME with the tracer pen and press **F12 >>**.



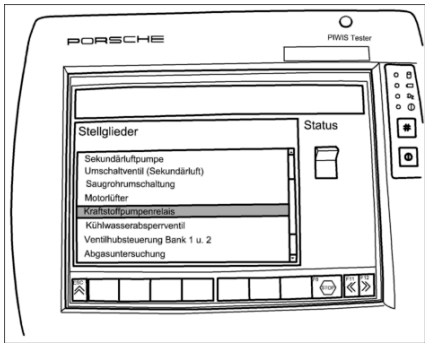
Activating the fuel pump relay

9. Once the individual control unit search for DME is complete, select the Drive links item, then select the fuel pump relay and activate by pressing **F8 - Start**.



Pressure gauge in the vehicle

10. Read value on pressure gauge. **Fuel pressure - engine not running: 3.8 bar +/-0.2 bar**



Deactivating the fuel pump relay

11. Deactivate the fuel pump relay on the PIWIS Tester by pressing **F8 - Stop**. Then, press **F11 <<** to return to the start screen and switch off the Tester.
12. Switch off the ignition and remove PIWIS Tester adapter lead in the vehicle.
13. **To check the engine at idle speed:** connect the **pressure gauge 378a** as described above and start the engine. Switch off the engine after reading the fuel pressure. **Fuel pressure - idle speed: 3.8 bar +/-0.2 bar**
14. Loosen the union nut on the **connecting cable 9559** for the **pressure gauge 378a** on the test connection

and remove special tool. Collect emerging fuel with a cloth.

Note

- *Use the brass cap on the test connection of the fuel supply line only once as the sealing ring cannot be replaced. To avoid possible leaks, the cap must be replaced after removal.*

15. Position new closure cap on test connection and tighten (a/f 13 mm). **Tightening torque: 1.7 ftlb. +/-0.5 ftlb.**

997110, 997111, 997120, 997121, 997310, 997311, 997320, 997321, 997410, 997411, 997430, 997431, 997610, 997611, 997620, 997621

as of MY 2005
Country C00, C02, C05, C07, C08, C09, C10, C11, C12, C13, C14, C15, C16, C18, C19, C20, C21, C22, C23, C24, C25, C26, C27, C28, C32, C33, C34, C35, C36, C37, C38, C39, C45, C46, C98, C99

WARNUNG
Gefahr des Verlusts der Text-Bild-Zuordnung beim Ausdruck.

- **Aus technischen Gründen kann derzeit nicht ausgeschlossen werden, dass trotz einwandfreier Darstellung auf dem Bildschirm beim Ausdruck der Zusammenhang von Text und zugehörigem Bild verloren geht.**
- **Wird der Fehler nicht bemerkt, besteht die Gefahr, daß Arbeiten nicht korrekt durchgeführt werden und es dadurch zu Personen- und Sachschäden kommt.**

Vergleichen Sie deshalb nach dem Druckvorgang unbedingt die Ausdrucke mit der Bildschirmdarstellung. Korrigieren Sie die Ausdrucke im Fehlerfall so, daß der Inhalt der Bildschirmdarstellung zutreffend wiedergegeben wird.

WARNING
Danger of losing text-figure correspondence when printing out.

- **For technical reasons, it can currently not be ruled out that the correspondence between text and associated figure can be lost when it is printed out, even though the display on the screen is correct.**
- **If the fault is not noticed, there is the danger that work will not be performed correctly which can cause injury and damage.**

Therefore, always compare printouts with the screen display after printing them out. Correct the printouts if they are faulty so that the content of the screen display matches that on the printouts.

AVERTISSEMENT
Risque de perte de la correspondance texte-illustration lors de l'impression papier.

20 07 19 Removing and installing filler neck - as of MY 2005

- Preliminary work
- Removing filler neck
- Installing filler neck
- Subsequent work

Tools

Designation	Type	Number	Explanation	
socket wrench insert	special tool	P 300		

top of page

Preliminary work

Preliminary work

1. Place protective covers on the vehicle.
2. Remove right front wheel. Use special tool **socket wrench insert P 300** to avoid damage to the rim.
3. Remove rear part of right front wheel housing liner 505619 Removing and installing front wheel housing liner - section on "Removing" [997110 997111 997120 997121 997310 997311 997320 997321] 505619 Removing and installing front wheel housing liner - section on "Removing" [997621] 505619 Removing and installing front wheel housing liner - section on "Removing" [997410 997411 997430 997431 997610 997611 997620].

top of page

Removing filler neck

Removing filler neck

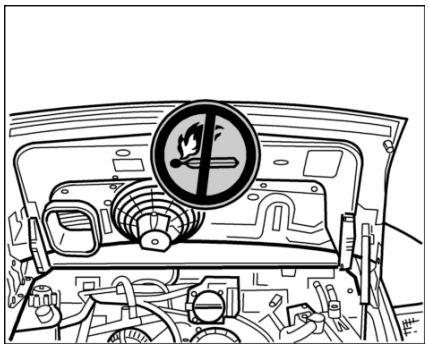
DANGER

Risk of fire from escaping fuel.

- **Danger of fatal injury and damage to property.**

Observe basic safety instruction when working on the fuel system, *201000 Precautionary measures when working on fuel system.*

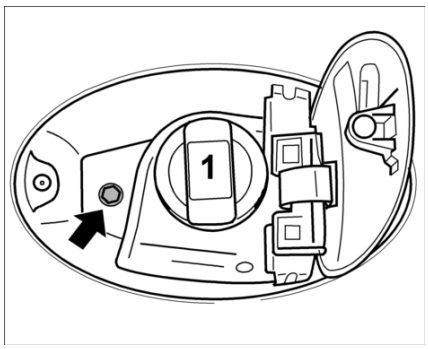
Secure working area.



Example of a warning sign

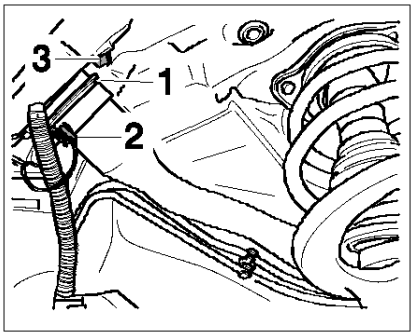
1. Place a warning sign in a clearly visible position in the work area or on the vehicle.

Carrera 2:



Filler neck attachment point on the Carrera 2

2. Unscrew M6 fastening screw for securing filler neck to tank tray **-Arrow-** and remove cap **-1-** .

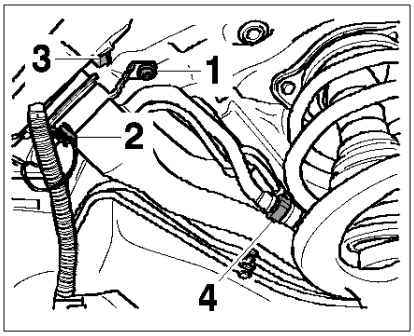


Filler neck in wheel arch

3. Pull off ground strap **-2-** and unclip sleeve for filler neck **-3-** . Unclip overflow hose on sleeve and pull sleeve out of the tank tray.

Carrera 4:

4. Open cap on the filler neck and remove it.



C4 filler neck

5. Unscrew M6 Torx screw for filler neck in wheel arch **-1-** . Pull off ground strap **-2-** , unclip sleeve for filler neck **-3-** and open rapid-action coupling **-4-** .
6. Turn filler neck clockwise and remove it slowly underneath the edge of the wing.

top of page

Installing filler neck

Installing filler neck

Note

Replace seal on filler neck.

1. Coat filler neck lightly with new engine oil in the assembly area in front of the seal.
2. Insert filler neck with new seal into the opening of the tank. Then turn the filler neck anti-clockwise into installation position.

3. Fit sleeve for filler neck and clip overflow hose onto the holder.
4. Attach ground strap and also connect the rapid-action coupling on the Carrera 4.
5. Secure the filler neck at the relevant pick-up point using an M6 fastening screw (see Installation). **Tightening torque: 10 (7.5 ftlb.) Nm** .
6. Close the cap.

top of page

Subsequent work

Subsequent work

1. Install wheel housing liner 505619 Removing and installing front wheel housing liner - section on "Installing" [997110 997111 997120 997121 997310 997311 997320 997321] 505619 Removing and installing front wheel housing liner - section on "Installing" [997621] 505619 Removing and installing front wheel housing liner - section on "Installing" [997410 997411 997430 997431 997610 997611 997620].
2. Mount front wheel. Use special tool **socket wrench insert P 300** to avoid damage to the rim.
3. Remove protective covers.

997110, 997111, 997120, 997121, 997310, 997311, 997320, 997321, 997410, 997411, 997430, 997431, 997610, 997611, 997620, 997621

as of MY 2005
Country C00, C02, C05, C07, C08, C09, C10, C11, C12, C13, C14, C15, C16, C18, C19, C20, C21, C22, C23, C24, C25, C26, C27, C28, C32, C33, C34, C35, C36, C37, C38, C39, C45, C46, C98, C99

WARNUNG

Gefahr des Verlusts der Text-Bild-Zuordnung beim Ausdruck.

- **Aus technischen Gründen kann derzeit nicht ausgeschlossen werden, dass trotz einwandfreier Darstellung auf dem Bildschirm beim Ausdruck der Zusammenhang von Text und zugehörigem Bild verloren geht.**
- **Wird der Fehler nicht bemerkt, besteht die Gefahr, daß Arbeiten nicht korrekt durchgeführt werden und es dadurch zu Personen- und Sachschäden kommt.**

Vergleichen Sie deshalb nach dem Druckvorgang unbedingt die Ausdrucke mit der Bildschirmdarstellung. Korrigieren Sie die Ausdrucke im Fehlerfall so, daß der Inhalt der Bildschirmdarstellung zutreffend wiedergegeben wird.

WARNING

Danger of losing text-figure correspondence when printing out.

20 10 19 Removing and installing fuel tank - as of MY 2005

- Preliminary work
- Removing fuel tank
- Installing fuel tank
- Subsequent work

Tools

Designation	Type	Number	Explanation	
socket wrench insert	special tool	P 300		
fuel transfer unit	workshop equipment	WE1262		

top of page

Preliminary work

Preliminary work - Carrera 4

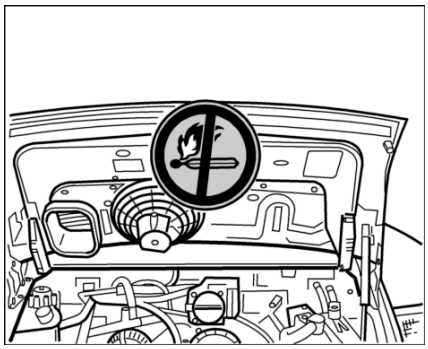
DANGER

Risk of fire from escaping fuel.

- **Danger of fatal injury and damage to property.**

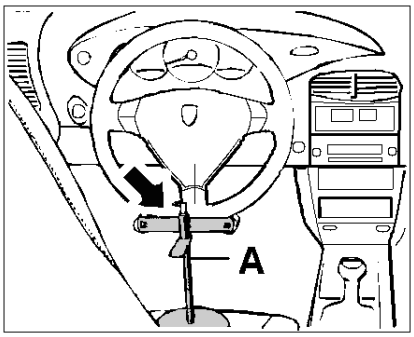
Observe basic safety instruction when working on the fuel system, *201000 Precautionary measures when working on fuel system.*

Secure working area.



Example of warning sign for naked flames

1. Place a warning sign in a clearly visible position in the work area or on the vehicle.
2. Place protective covers on the vehicle.

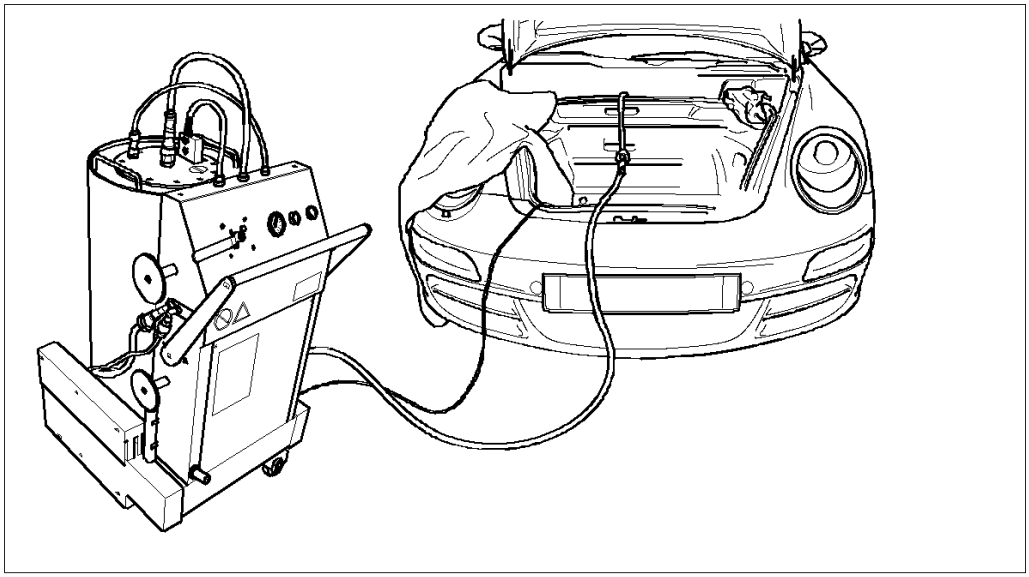


Locking steering wheel in centre position

Note

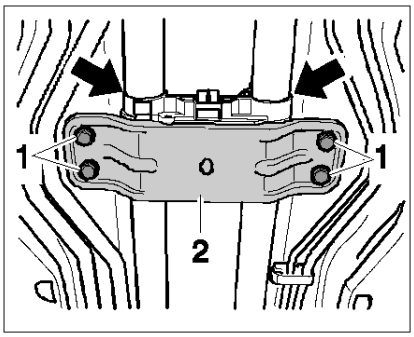
Set the steering wheel with the wheels in straight-ahead position. If this is not done, the airbag contact unit will have to be put in centre position after installation of the steering gear.

3. Move steering wheel to centre position (front wheels straight ahead) and lock it with the steering-wheel holder.
4. Remove the two front wheels. Use special tool **socket wrench insert P 300** to avoid damage to the rims.
5. Disconnect ground cable at the battery 2706IN Work instructions after disconnecting the battery.
6. Remove fuel level sensor *201519 21 Removing and installing fuel level sensor - section on "Removing"*.
7. Empty the fuel tank. Use **fuel transfer unit WE1262** to do this 2010EN Emptying and filling the fuel tank.



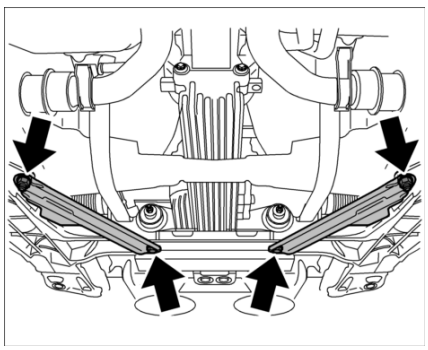
WE1262 fuel transfer unit

8. Remove rear part of right front wheel housing liner 505619 Removing and installing front wheel housing liner - section on "Removing" [997621] 505619 Removing and installing front wheel housing liner - section on "Removing" [997410 997411 997430 997431 997610 997611 997620].
9. Remove filler neck.
10. Remove front and centre underbody cover 519219 Removing and installing the front cover - section on "Removing" and 519319 Removing and installing the middle cover - section on "Removing".



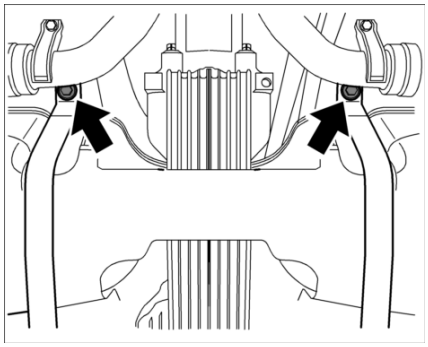
Support for coolant pipes

11. Remove sheetmetal support for coolant pipes **-2-** in the centre tunnel. Unscrew four hexagon-head bolts **-1-** and unclip plastic support on the coolant pipes and vent line **-Arrows-** .



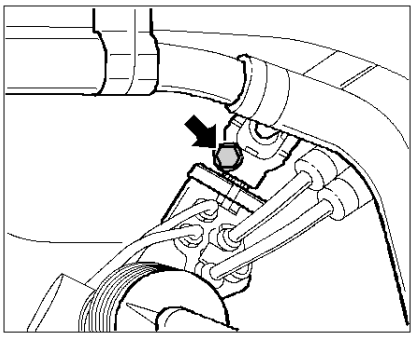
Diagonal braces (shown on Carrera 4)

12. Remove diagonal braces.



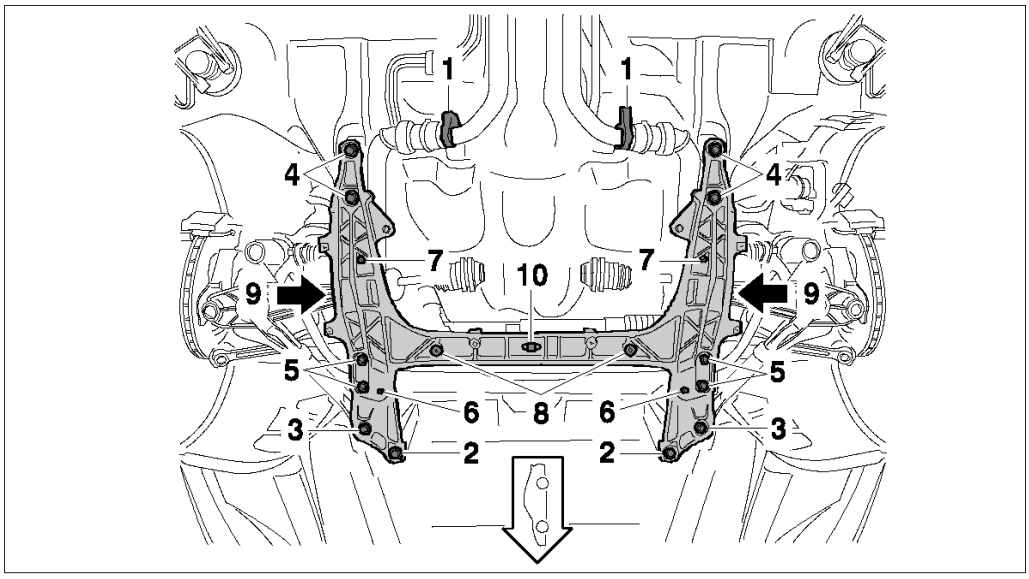
Cover of fuel tank (shown on Carrera 4)

13. Remove longitudinal restraining straps for securing tank and take off cover of fuel tank.
14. Remove front final drive 398819 Removing and installing front final drive - section on "Removing".



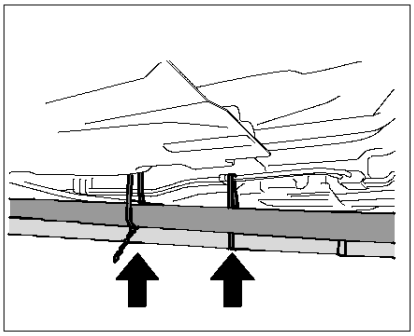
Universal joint

15. Loosen universal joint (steering shaft) at steering gear **-Arrow-** . To do this, take out the clamping screw and slide the joint upwards.
16. Remove front-axle cross member *400919 21 Removing and installing front-axle cross member - section on "Removing"*.



Front-axle cross member

Item	Designation	Number	Bolts	Tightening torque [Nm] (ftlb.)
1	Plastic holder for coolant pipes	2	M6 x 12	10 Nm (7.5 ftlb.)
2	Hexagon-head bolt (carrier to front body)	2	M12 x 1.5 x 30	100 Nm (74 ftlb.)
3	Hexagon-head bolt (carrier to front body)	2	M14 x 1.5 x 120	160 Nm (118 ftlb.)
4	Hexagon-head bolt (carrier to rear body)	4	M14 x 1.5 x 50	160 Nm (118 ftlb.)
5	Hexagon-head bolt with collar nut (anti-roll bar)	4	M10 x 60	65 Nm (48 ftlb.)
6	Support for coolant pipe (sheetmetal)	2	M6 x 25	10 Nm (7.5 ftlb.)
7	Support for coolant pipe (plastic)	2	M6 x 12	10 Nm (7.5 ftlb.)
8	Hexagon-head bolt for steering gear	2	M10 x 45	70 Nm (52 ftlb.)
9	Hexagon-head bolt with collar nut (control arm to centre carrier)	2	M12 x 1.5 x 95	120 Nm (89 ftlb.)
10	Support for coolant pipes	1	is placed on the carrier	



Releasing coolant pipes

17. Secure coolant pipes with a tie-wrap.

top of page

Removing fuel tank

Removing fuel tank - Carrera 4

DANGER

Risk of fire from escaping fuel.

- **Danger of fatal injury and damage to property.**

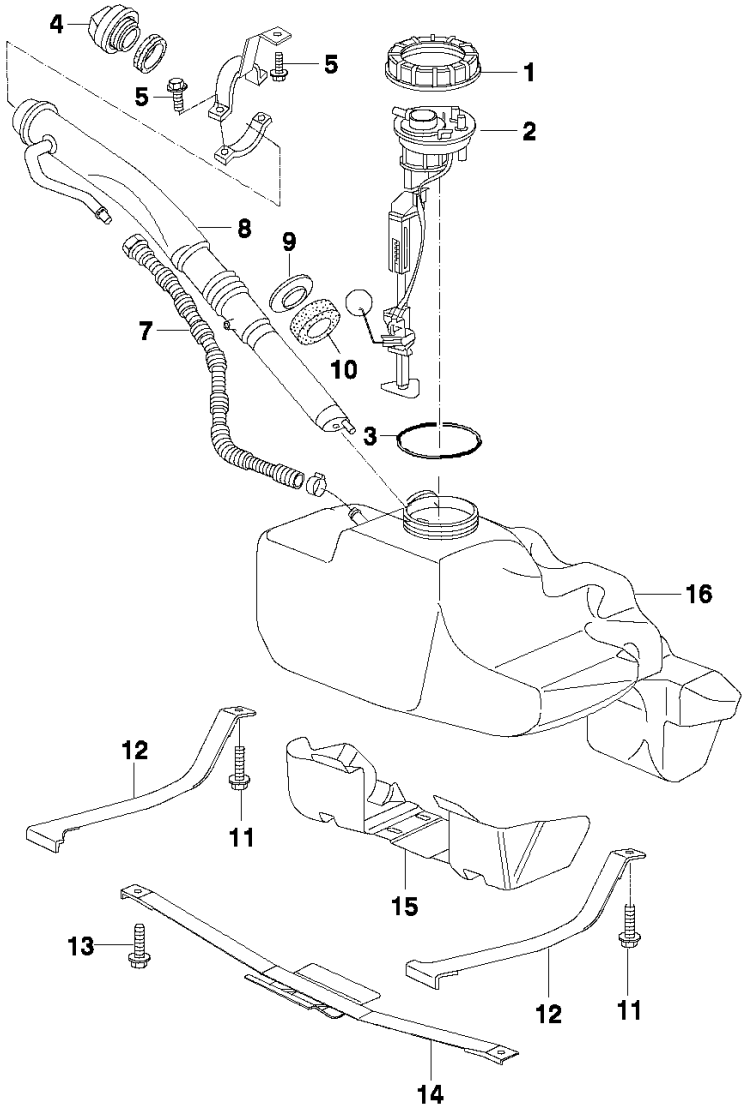
Observe basic safety instruction when working on the fuel system, *201000 Precautionary measures when working on fuel system.*

Secure working area.

Note

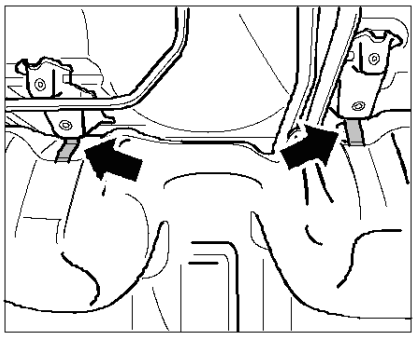
Get another person to help you remove and install the fuel tank.

Overview of the Carrera 4



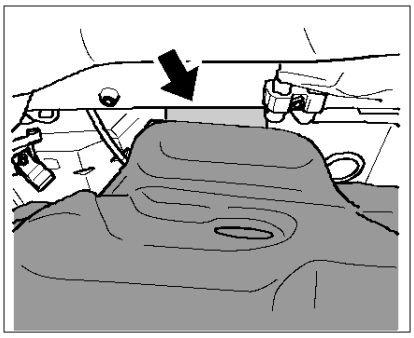
Component overview: C4 fuel tank

1. Move steering gear towards the front (in direction of travel).
2. Unscrew two M8 screws for securing transverse restraining strap to the body at the left and right.



Clips on fuel tank

3. Unclip the two clips on the body **-Arrow-** .



Guiding fuel tank out of the body

ATTENTION
Damage to fuel-level sensor flange.

- **Material damage**

Be particularly careful with the fuel-level sensor flange when levering out or fitting the fuel tank.

4. Get another person to help you lift the fuel tank out of the vehicle. To do this, first tilt the tank towards the rear and carefully guide the tank flange over the edge of the body **-Arrow-** .
5. Check foam parts for damage and replace them if necessary.

top of page

Installing fuel tank

Installing fuel tank - Carrera 4

ATTENTION
Damage to fuel-level sensor flange.

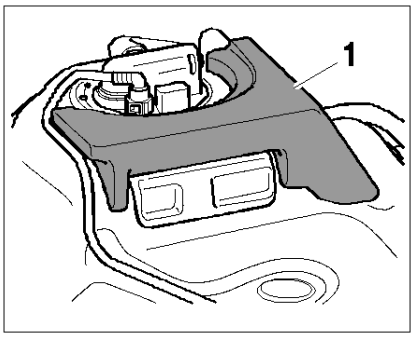
- **Material damage**

Be particularly careful with the fuel-level sensor flange when levering out or fitting the fuel tank.

Note
Get another person to help you remove and install the fuel tank.

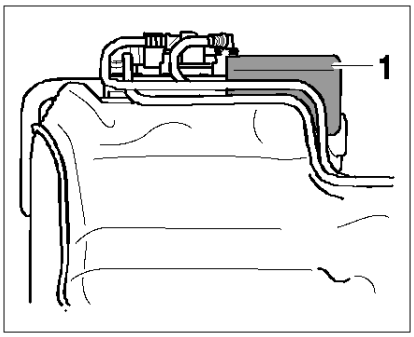
Note

Foam parts must be fitted on the fuel tank. Affix new parts to the specified positions if necessary.



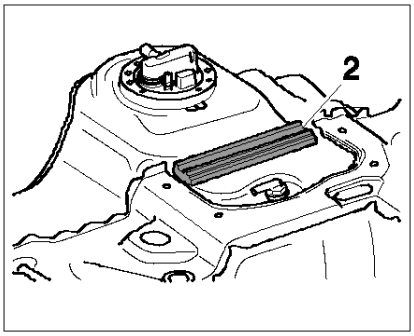
Position of foam part on tank flange

1. Stick foam part **-1-** to the fuel tank flange if necessary.



Side view of foam part on tank flange

Side
view



Foam part for bulkhead

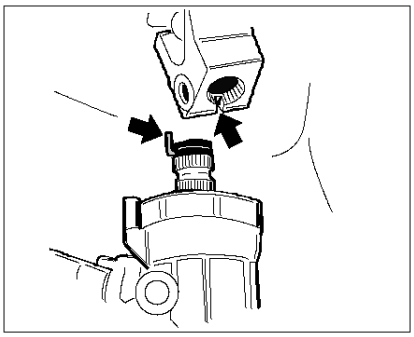
2. Affix foam part for bulkhead if necessary **-2-** .
3. Get another person to help you fit the fuel tank into the body. Clip clips into the body take-up points.
4. Place transverse restraining strap at the correct position on the tank and secure with two M8 screws.
   Tightening torque: 23 (17 ftlb.) Nm

top of page

Subsequent work

Subsequent work - Carrera 4

1. Install front-axle carrier *400919 23 Removing and installing front-axle cross member - section on "Installing".*



Universal joint for steering gear

2. Secure steering gear to front-axle carrier with two screws and connect universal joint to steering gear 489019 Removing and installing power-steering gear - section on "Installing".
3. Install front final drive 398819 Removing and installing front final drive - section on "Installing".
4. Insert tank guard (bottom) and secure using longitudinal restraining straps. Pay attention to the installation position (left-right). **Tightening torque: 23 (17 ftlb.) Nm** .
5. Install diagonal braces. **Tightening torque: 100 (74 ftlb.) Nm**
6. Fit coolant pipes in centre tunnel. Secure sheetmetal holder. **Tightening torque: 65 (48 ftlb.) Nm**
7. Fit plastic holder for coolant pipes. **Tightening torque: 10 (7.5 ftlb.) Nm**
8. Install filler neck 200719 Removing and installing filler neck - section on "Installing".
9. Install fuel level sensor *201519 23 Removing and installing fuel level sensor - section on "Installing".*
10. Slowly refuel vehicle using a canister containing 5 litres of fuel (lead-free according to Porsche specifications).
11. Connect the battery 2706IN Work instructions after disconnecting the battery.
12. Start the vehicle.
13. Check all lines and connections for leaks.
14. Refuel vehicle 2010EN Emptying and filling the fuel tank.
15. Install rear section of front right wheel housing liner 505619 Removing and installing front wheel housing liner - section on "Installing" [997621] 505619 Removing and installing front wheel housing liner - section on "Installing" [997410 997411 997430 997431 997610 997611 997620].
16. Install underbody panels 519319 Removing and installing the middle cover - section on "Installing" and 519219 Removing and installing the rear cover - section on "Installing".
17. Mount front wheels.
18. Remove steering-wheel holder.

19. Perform suspension alignment.
20. Perform a test drive.

997410, 997411, 997430, 997431, 997610, 997611, 997620, 997621

as of MY 2005
Country C00, C02, C05, C07, C08, C09, C10, C11, C12, C13, C14, C15, C16, C18, C19, C20, C21, C22, C23, C24, C25, C26, C27, C28, C32, C33, C34, C35, C36, C37, C38, C39, C45, C46, C98, C99

WARNUNG

Gefahr des Verlusts der Text-Bild-Zuordnung beim Ausdruck.

- **Aus technischen Gründen kann derzeit nicht ausgeschlossen werden, dass trotz einwandfreier Darstellung auf dem Bildschirm beim Ausdruck der Zusammenhang von Text und zugehörigem Bild verloren geht.**
- **Wird der Fehler nicht bemerkt, besteht die Gefahr, daß Arbeiten nicht korrekt durchgeführt werden und es dadurch zu Personen- und Sachschäden kommt.**

Vergleichen Sie deshalb nach dem Druckvorgang unbedingt die Ausdrucke mit der Bildschirmdarstellung. Korrigieren Sie die Ausdrucke im Fehlerfall so, daß der Inhalt der Bildschirmdarstellung zutreffend wiedergegeben wird.

WARNING

Danger of losing text-figure correspondence when printing out.

- **For technical reasons, it can currently not be ruled out that the correspondence between text and associated figure can be lost when it is printed out, even though the display on the screen is correct.**
- **If the fault is not noticed, there is the danger that work will not be performed correctly which can cause injury and damage.**

Therefore, always compare printouts with the screen display after printing them out. Correct the printouts if they are faulty so that the content of the screen display matches that on the printouts.

AVERTISSEMENT

Risque de perte de la correspondance texte-illustration lors de l'impression papier.

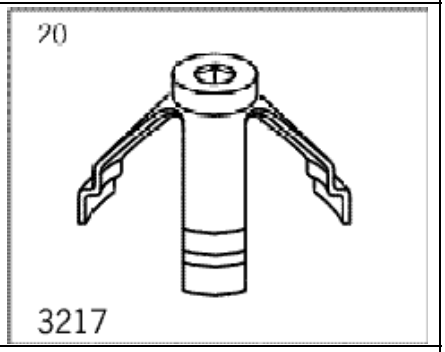
- **Pour des raisons techniques, il ne peut pas être exclu à l'heure actuelle que, même en cas d'affichage correct à l'écran, la correspondance entre le texte et l'illustration puisse être erronée sur l'impression papier.**
- **Si l'erreur passe inaperçue, on court le risque d'exécuter certaines opérations de manière incorrecte pouvant conduire à des dommages corporels et matériels.**

Comparez impérativement pour cette raison les impressions papier avec l'affichage à l'écran. Corrigez-les en cas d'erreur de manière à reproduire correctement l'affichage à l'écran.

20 10 19 Removing and installing fuel tank - as of MY 2005

- Preliminary work
- Removing fuel tank
- Installing fuel tank
- Subsequent work

Tools

Designation	Type	Number	Explanation	
socket wrench	VW-tool	3217		
socket wrench insert	special tool	P 300		
lug wrench	special tool	P 9731		
fuel transfer unit	workshop equipment	WE1262		

top of page

Preliminary work

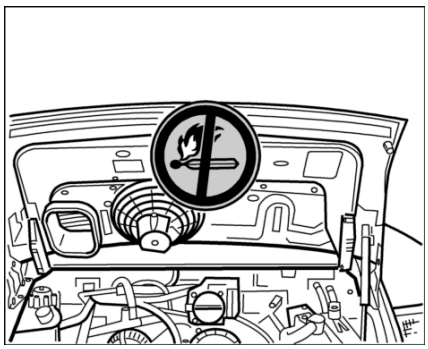
Preliminary work - Carrera 2

DANGER
Risk of fire from escaping fuel.

- **Danger of fatal injury and damage to property.**

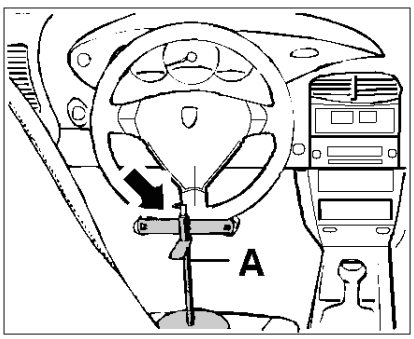
Observe basic safety instruction when working on the fuel system, *201000 Precautionary measures when working on fuel system.*

Secure working area.



Example of a warning sign

1. Place a warning sign in a clearly visible position in the work area or on the vehicle.
2. Place protective covers on the vehicle.

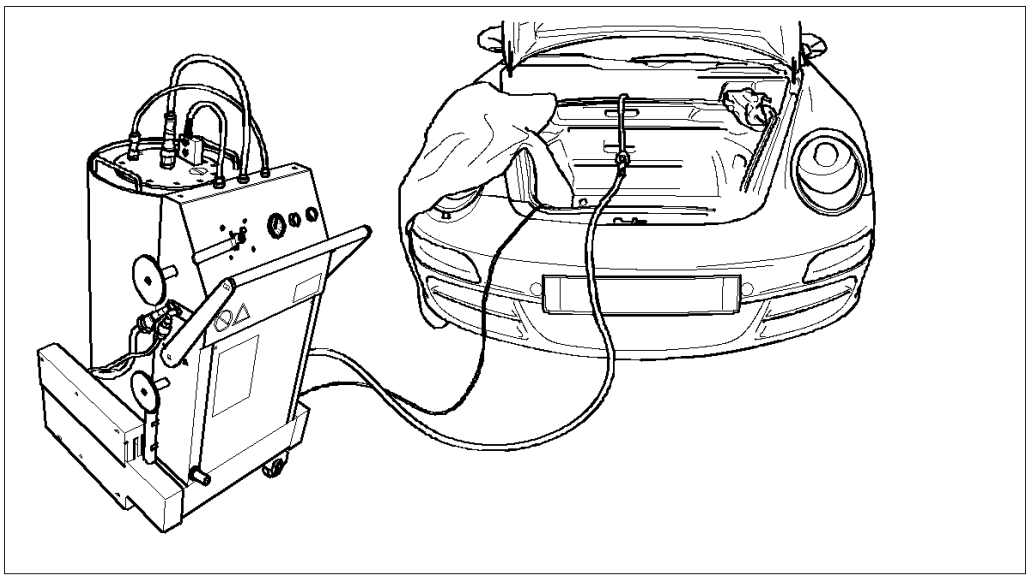


Locking steering wheel in centre position

Note

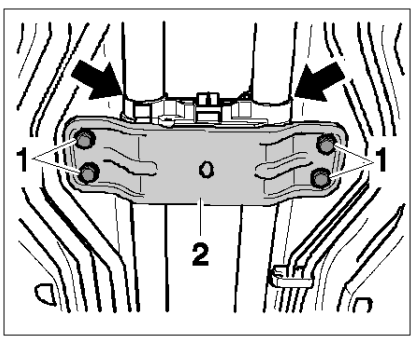
Set the steering wheel with the wheels in straight-ahead position. If this is not done, the airbag contact unit will have to be put in centre position after installation of the steering gear.

3. Move steering wheel to centre position (front wheels straight ahead) and lock it with the steering-wheel holder **-A-** .
4. Remove the two front wheels. Use special tool **socket wrench insert P 300** to avoid damage to the rims.
5. Disconnect and remove battery 270619 Removing and installing battery - section on "Removing".
6. Remove carrier plate for battery. Unscrew four M8 hexagon collar nuts and remove lid. Check seal for damage and replace it if necessary.
7. Remove fuel level sensor *201519 21 Removing and installing fuel level sensor - section on "Removing".*
8. Empty the fuel tank. Use the **fuel transfer unit WE1262** to do this. 2010EN Emptying and filling the fuel tank.



WE1262 fuel transfer unit

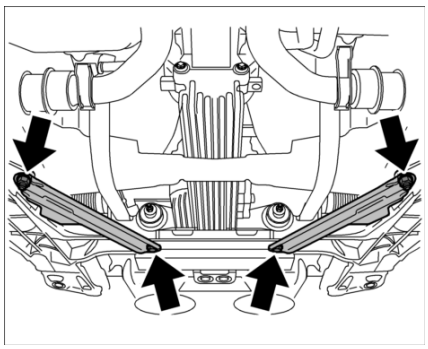
9. Remove rear part of right front wheel housing liner 505619 Removing and installing front wheel housing liner - section on "Removing".
10. Remove filler neck 200719 Removing and installing filler neck - section on "Removing".
11. Remove front and centre underbody cover 519219 Removing and installing the front cover - section on "Removing" and 519319 Removing and installing the middle cover - section on "Removing".



Support for coolant pipes

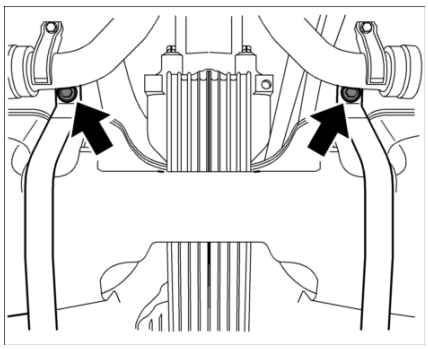
12.

Remove sheetmetal support for coolant pipes **-2-** in the centre tunnel. Unscrew four hexagon-head bolts **-1-** and unclip plastic support on the coolant pipes and vent line **-Arrows-** .



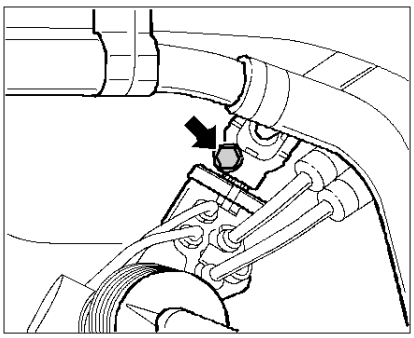
Diagonal braces (shown on Carrera 4)

13. Remove diagonal braces (marked R = Right, L = Left).



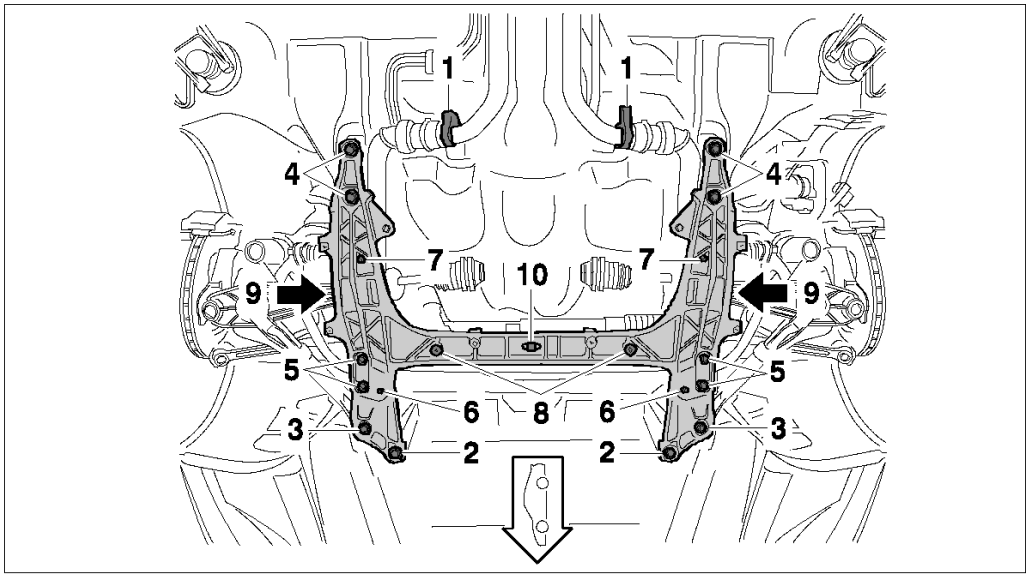
Cover of fuel tank (shown on Carrera 4)

14. Remove longitudinal restraining straps for securing tank and take off cover of fuel tank.



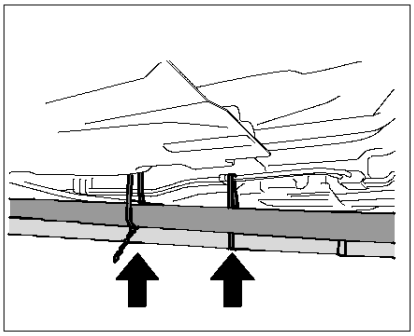
Universal joint

15. Loosen universal joint (steering shaft) at steering gear **-Arrow-** . To do this, take out the clamping screw and slide the joint upwards.
16. Remove front-axle cross member *400919 21 Removing and installing front-axle cross member - section on "Removing".*



Front-axle carrier

Item	Designation	Number	Bolts	Tightening torque [Nm] (ftlb.)
1	Plastic holder for coolant pipes	2	M6 x 12	10 Nm (7.5 ftlb.)
2	Hexagon-head bolt (carrier to front body)	2	M12 x 1.5 x 30	100 Nm (74 ftlb.)
3	Hexagon-head bolt (carrier to front body)	2	M14 x 1.5 x 120	160 Nm (118 ftlb.)
4	Hexagon-head bolt (carrier to rear body)	4	M14 x 1.5 x 50	160 Nm (118 ftlb.)
5	Hexagon-head bolt with collar nut (anti-roll bar)	4	M10 x 60	65 Nm (48 ftlb.)
6	Support for coolant pipe (sheetmetal)	2	M6 x 25	10 Nm (7.5 ftlb.)
7	Support for coolant pipe (plastic)	2	M6 x 12	10 Nm (7.5 ftlb.)
8	Hexagon-head bolt for steering gear	2	M10 x 45	70 Nm (52 ftlb.)
9	Hexagon-head bolt with collar nut (control arm to centre carrier)	2	M12 x 1.5 x 95	120 Nm (89 ftlb.)
10	Support for coolant pipes	1	is placed on the carrier	



Releasing coolant pipes

17. Release coolant pipes and secure with a tie-wrap.

top of page

Removing fuel tank

Removing fuel tank - Carrera 2

DANGER

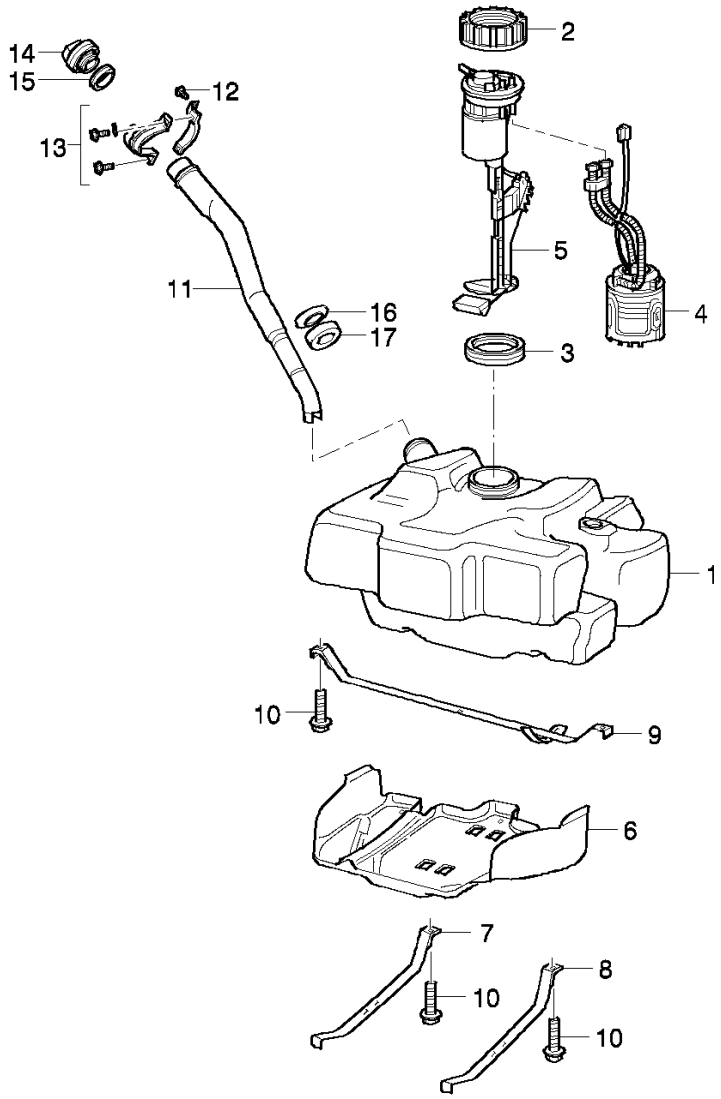
Risk of fire from escaping fuel.

- **Danger of fatal injury and damage to property.**

Observe basic safety instruction when working on the fuel system, *201000 Precautionary measures when working on fuel system.*

Secure working area.

Overview of the Carrera 2

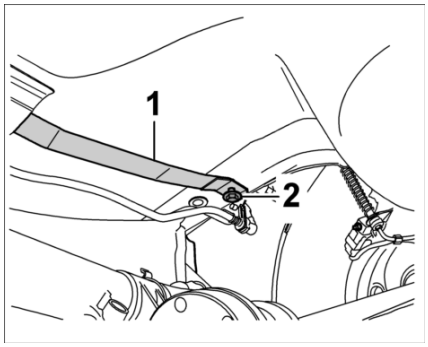


Overview of C2 fuel tank

Item	Designation	Removal	Fitting
1	Fuel tank		
2	Union nut	Special tool **socket wrench 3217** or **lug wrench P 9731**	Special tool **socket wrench 3217** or **lug wrench P 9731**
3	Sealing ring		Replace
4	Electric fuel pump	Pay attention to the installation position	Pay attention to the installation position
5	Tank gauge		Check that linkage can move freely
6	Tank cover (protective plate)		
7	Restraining strap, right		Observe **R** marking
8	Restraining strap, left		Observe **L** marking

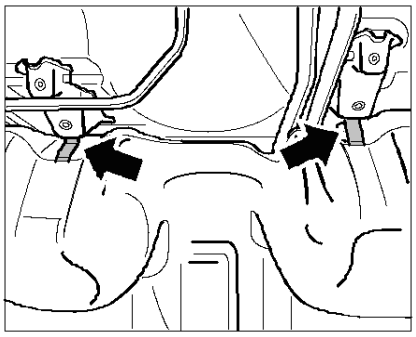
9	Restraining strap, transverse		Pay attention to the installation position
10	Combination screw, M8 x 40		Tightening torque: 23 Nm (17 ftlb.)
11	Filler neck		Apply a thin coat of engine oil in the fitting area (tank fitting)
12	Fastening screw, M6		Tightening torque: 10 Nm (7.5 ftlb.)
13	Holding clamp for filler neck		
14	Closure cap		Grease sealing ring with Vaseline
15	Sealing ring	Check for signs of damage	Replace if necessary
16	Washer		
17	Seal		Replace

1. Turn steering gear and move it towards the front (in direction of travel).



Restraining strap for fuel tank, transverse

2. Unscrew two M8 screws for securing transverse restraining strap to the body at the left and right.



Clips on fuel tank

ATTENTION

Damage to fuel-level sensor flange.

- **Material damage**

Be particularly careful with the fuel-level sensor flange when levering out or fitting the fuel tank.

Note

Get another person to help you remove and install the fuel tank.

3. Unclip both clips on the body and get another person to help you lift the fuel tank out of the vehicle. To do this, first tilt the tank towards the right. Pay attention to the tank flange. ,

top of page

Installing fuel tank

Installing fuel tank - Carrera 2

Note

Get another person to help you remove and install the fuel tank.

ATTENTION

Damage to fuel-level sensor flange.

- **Material damage**

Be particularly careful with the fuel-level sensor flange when levering out or fitting the fuel tank.

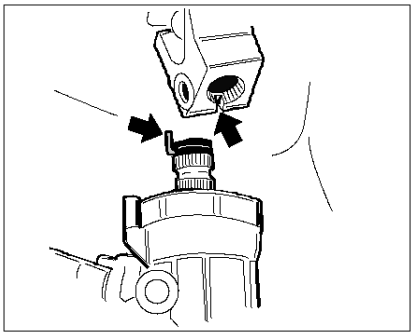
1. Get another person to help you fit the fuel tank into the body. Clip clips into the body take-up points.
2. Place transverse restraining strap at the correct position on the tank and secure with two M8 screws.
   Tightening torque: 23 (17 ftlb.) Nm

top of page

Subsequent work

Subsequent work - Carrera 2

1. Install front-axle carrier *400919 23 Removing and installing front-axle cross member - section on "Installing".*



Universal joint for steering gear

2. Secure steering gear to front-axle carrier with two screws and connect universal joint to steering gear 489019 Removing and installing power-steering gear - section on "Installing".
3. Insert tank guard (bottom) and secure using longitudinal restraining straps. Pay attention to the installation position (left-right). **Tightening torque: 23 (17 ftlb.) Nm** .
4. Install diagonal braces. **Tightening torque: 100 (74 ftlb.) Nm**
5. Fit coolant pipes in centre tunnel. Secure sheetmetal holder. **Tightening torque: 65 (48 ftlb.) Nm**
6. Fit plastic holder for coolant pipes. **Tightening torque: 10 (7.5 ftlb.) Nm**
7. Install filler neck 200719 Removing and installing filler neck - section on "Installing".
8. Install fuel level sensor *201519 23 Removing and installing fuel level sensor - section on "Installing".*
9. Refuel vehicle 2010EN Emptying and filling the fuel tank.
10. Install carrier plate for battery. **Tightening torque: 23 (17 ftlb.) Nm** .
11. Install battery 270619 Removing and installing battery - section on "Installing".
12. Start the vehicle.
13. Check all lines and connections for leaks.
14. Install rear section of front right wheel housing liner 505619 Removing and installing front wheel housing liner - section on "Installing".
15. Install underbody panels 519319 Removing and installing the middle cover - section on "Installing" and 519219 Removing and installing the rear cover - section on "Installing".
16. Mount front wheels.
17. Remove steering-wheel holder.
18. Perform suspension alignment.
19. Perform a test drive.

997110, 997111, 997120, 997121, 997310, 997311, 997320, 997321

as of MY 2005
Country C00, C02, C05, C07, C08, C09, C10, C11, C12, C13, C14, C15, C16, C18, C19, C20, C21, C22, C23, C24, C25, C26, C27, C28, C32, C33, C34, C35, C36, C37, C38, C39, C45, C46, C98, C99

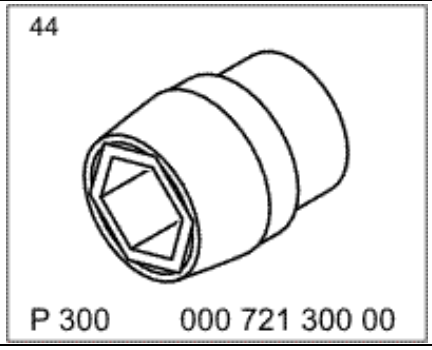
WARNUNG

Gefahr des Verlusts der Text-Bild-Zuordnung beim Ausdruck.

20 25 19 Removing and installing carbon canister - as of MY 2005

- Preliminary work for carbon canister
- Removing carbon canister
- Installing carbon canister
- Subsequent work for carbon canister

Tools

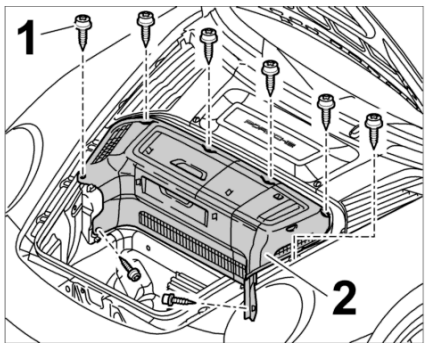
Designation	Type	Number	Explanation	
socket-wrench insert	special tool	300		

top of page

Preliminary work for carbon canister

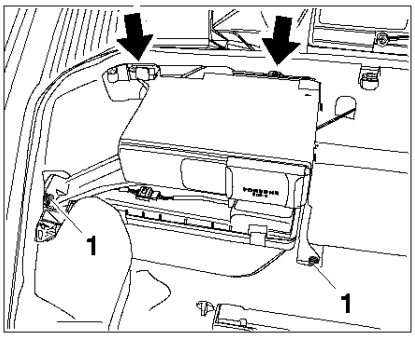
Preliminary work for carbon canister

1. Disconnect ground strap from battery *271000 Work instructions after disconnecting the battery*.



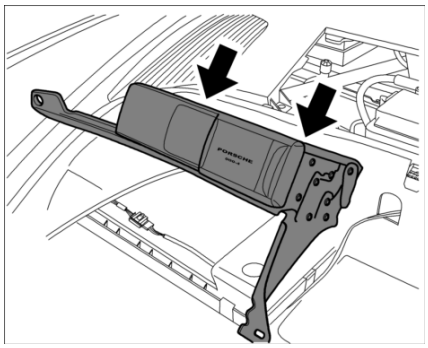
Luggage-compartment cover

2. **USA version: Remove** luggage-compartment lining **-2-** by unscrewing the eight sheetmetal screws **-1-** 703019 Removing and installing luggage-compartment cover - chapter on "Removing" [997110 997111 997120 997121 997310 997311 997320 997321] *703019 21 Removing and installing luggage-compartment cover - chapter on "Removing" [997410 997411 997430 997431 997610 997611 997620 997621].*



CD changer support for USA

3. Unscrew fastening screws for CD changer support **-1-** . The support is also fixed on the body side by two retaining clips **-arrows-** .



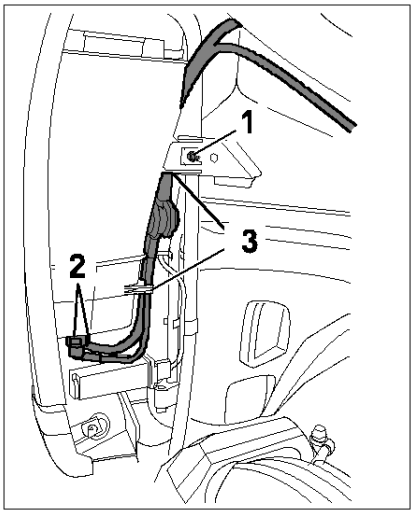
CD changer support at plenum panel

4. Lift up support together with CD changer and disengage retaining clips at the plenum panel **-arrows-** .
5. Disconnect cable plug to CD changer.
6. **RoW Version:** Remove right front wheel using **socket-wrench insert 300**. 440519 Removing and installing wheel - chapter on "Removing".
7. Remove rear part of right front wheel housing liner 505619 Removing and installing front wheel housing liner - chapter on "Removing" [997110 997111 997120 997121 997310 997311 997320 997321] 505619 Removing and installing front wheel housing liner - chapter on "Removing" [997621] 505619 Removing and installing front wheel housing liner - chapter on "Removing" [997410 997411 997430 997431 997610 997611 997620].

top of page

Removing carbon canister

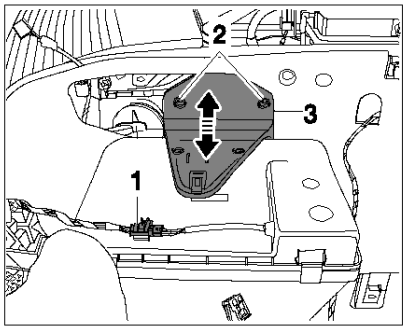
Removing carbon canister - RoW Version



Carbon canister for RoW

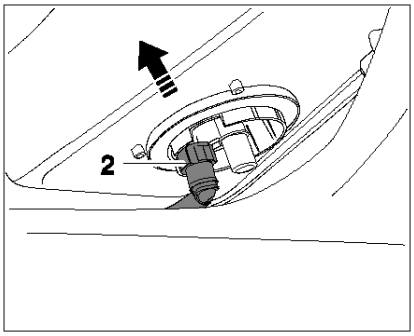
1. Unscrew collar nut M6 **-1-** . Carefully pull carbon canister out of body mounting points in direction of travel.
2. Release and remove plug-in couplings on the underside of the canister **-2-** . Unclip lines from the mountings on the canister **-3-** .

Removing carbon canister - USA Version



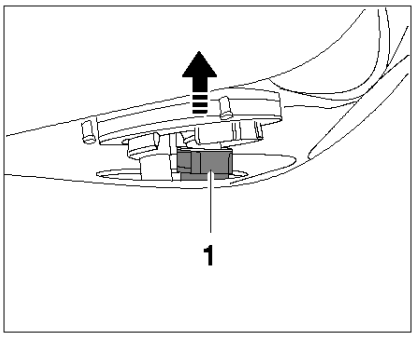
Carbon canister for USA

1. Unclip cable plug from canister **-1-** and then disconnect.
2. Unscrew two Torx screws M6 **-2-** from plastic holder for the carbon canister and press holder **-3-** from guide in direction of travel.



Small plug-in coupling

3. Lift carbon canister, release the small plug-in coupling **-2-** and pull it down and off.



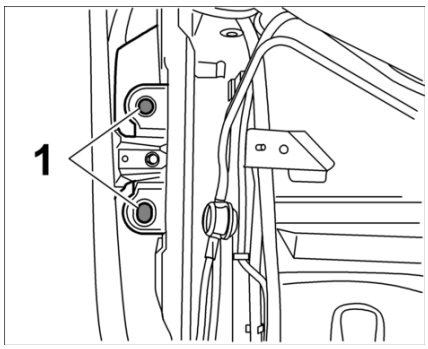
Large plug-in coupling

4. Lift carbon canister, release the large plug-in coupling **-1-** and pull it down and off.

top of page

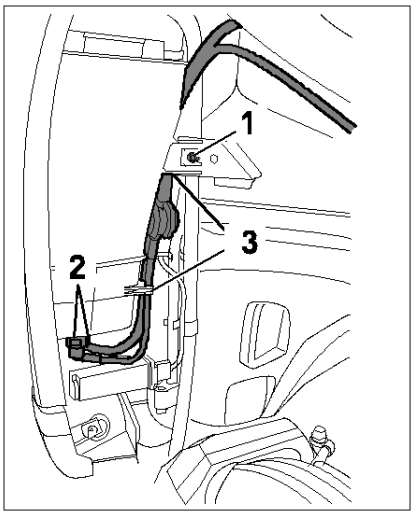
Installing carbon canister

Installing carbon canister - RoW Version



Body mounting point for RoW canister

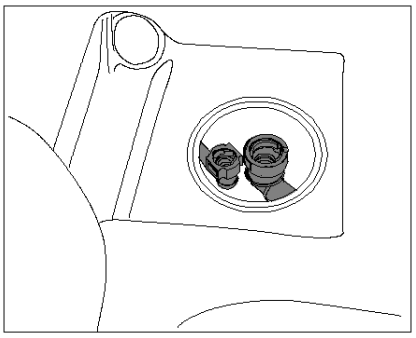
1. Wet rubber sleeves with water. Press canister into the body bores **-1-** .



Carbon canister for RoW

2. Connect plug-in couplings to the underside of the canister and clip in the lines. Screw in collar nut M6 on the holder and tighten. **Tightening torque: 7.5 ftlb.**

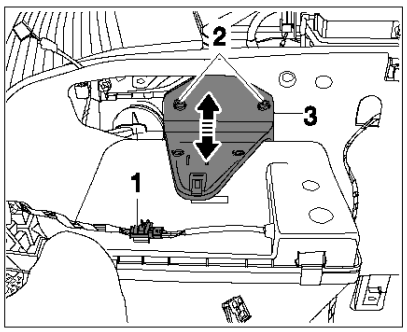
Installing carbon canister - USA Version



View of plug-in couplings

Plug-in couplings in the vehicle

1. Insert canister and connect the plug-in couplings which must engage audibly.



Carbon canister for USA

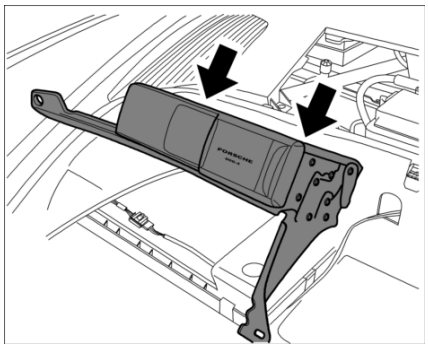
2. Slide plastic holder for the canister **-3-** into the guide and fix to the plenum panel. Screw in two Torx screws M6 **-2-** and tighten. **Tightening torque: 7.5 ftlb.**
3. Connect cable plug and clip into the cable guide on the canister **-1-** .

top of page

Subsequent work for carbon canister

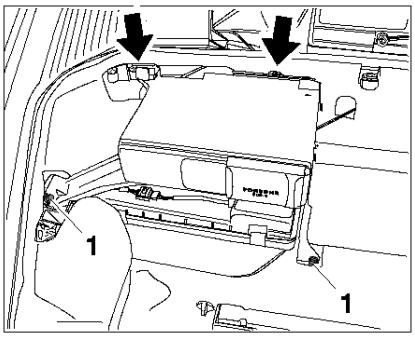
Subsequent work for carbon canister

1. **USA version:** Disconnect cable plug from CD changer.



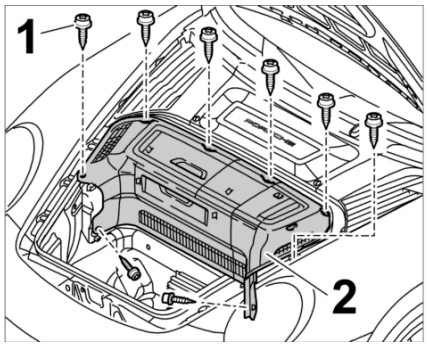
CD changer support at plenum panel

2. Engage support together with CD changer on the plenum panel by means of the retaining clips **-arrows-** .



CD changer support for USA

3. Screw in and tighten fastening screws M6 **-1-** for CD changer support. **Tightening torque: 7.5 ftlb.**



Luggage-compartment cover

4. Install luggage-compartment lining **-2-** by screwing in the eight sheetmetal screws **-1-** 703019 Removing and installing luggage-compartment cover - chapter on "Installing" [997110 997111 997120 997121 997310 997311 997320 997321] *703019 23 Removing and installing luggage-compartment cover - chapter on "Installing" [997410 997411 997430 997431 997610 997611 997620 997621].*
5. **RoW Version:** Remove rear part of right front wheel housing liner 505619 Removing and installing front wheel housing liner - chapter on "Removing" [997110 997111 997120 997121 997310 997311 997320 997321] 505619 Removing and installing front wheel housing liner - chapter on "Removing" [997621] 505619 Removing and installing front wheel housing liner - chapter on "Removing" [997410 997411 997430 997431 997610 997611 997620].
6. Fit right front wheel using **socket-wrench insert 300**. 440519 Removing and installing wheel - chapter on "Installing".
7. Connect ground strap to battery *271000 Work instructions after disconnecting the battery*.

997110, 997111, 997120, 997121, 997310, 997311, 997320, 997321, 997410, 997411, 997430, 997431, 997610, 997611, 997620, 997621

as of MY 2005
Country C00, C02, C05, C07, C08, C09, C10, C11, C12, C13, C14, C15, C16, C18, C19, C20, C21, C22, C23, C24, C25, C26, C27, C28, C32, C33, C34, C35, C36, C37, C38, C39, C45, C46, C98, C99

WARNUNG
Gefahr des Verlusts der Text-Bild-Zuordnung beim Ausdruck.

- **Aus technischen Gründen kann derzeit nicht ausgeschlossen werden, dass trotz einwandfreier Darstellung auf dem Bildschirm beim Ausdruck der Zusammenhang von Text und zugehörigem Bild verloren geht.**
- **Wird der Fehler nicht bemerkt, besteht die Gefahr, daß Arbeiten nicht korrekt durchgeführt werden und es dadurch zu Personen- und Sachschäden kommt.**

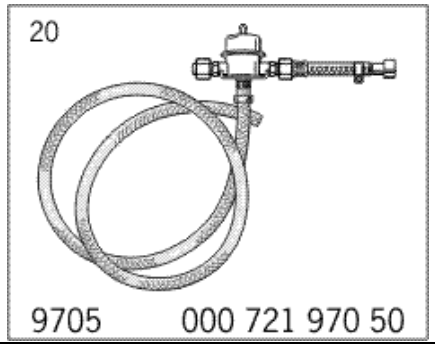
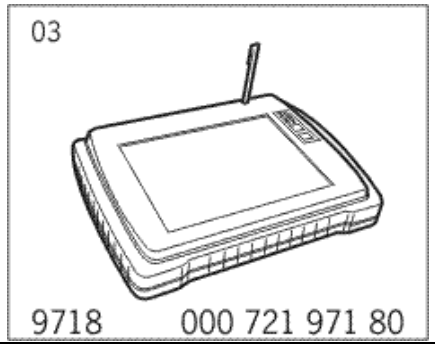
Vergleichen Sie deshalb nach dem Druckvorgang unbedingt die Ausdrucke mit der Bildschirmdarstellung. Korrigieren Sie die Ausdrucke im Fehlerfall so, daß der Inhalt der Bildschirmdarstellung zutreffend wiedergegeben wird.

WARNING
Danger of losing text-figure correspondence when printing out.

20 66 01 Checking quantity delivered by fuel pump - as of MY 2005

- Preliminary work for quantity delivered by fuel pump
- Checking quantity delivered by fuel pump
- Subsequent work for quantity delivered by fuel pump

Tools

Designation	Type	Number	Explanation	
measurement adapter	special tool	9705		
PIWIS Tester	special tool	9718		

top of page

Preliminary work for quantity delivered by fuel pump

Preliminary work for quantity delivered by fuel pump

Note

- *The battery voltage must not fall below 12 volts during the fuel delivery rate check.*

1. Check the battery charging condition e.g. using a voltmeter or the Porsche PIWIS Tester. The battery voltage must not fall below 12 volts during the check.
2. Remove rear cover and middle section of the middle cover on the underbody. 519419 Removing and installing the rear cover - chapter on "removing", 519319 Removing and installing the middle cover -

chapter on "removing"

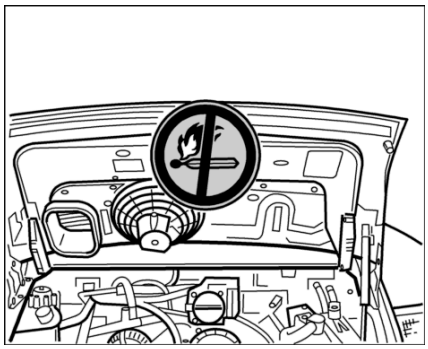
top of page

Checking quantity delivered by fuel pump

Checking quantity delivered by fuel pump

Note

- *The battery voltage must not fall below 12 volts during the fuel delivery rate check.*



Example of warning sign for naked flames

DANGER
Risk of fire from escaping fuel.

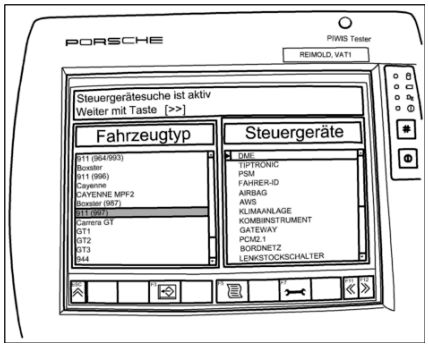
- **Danger of fatal injury and damage to property.**

Observe basic safety instruction when working on the fuel system, *201000 Precautionary measures when working on fuel system.*

Secure working area.

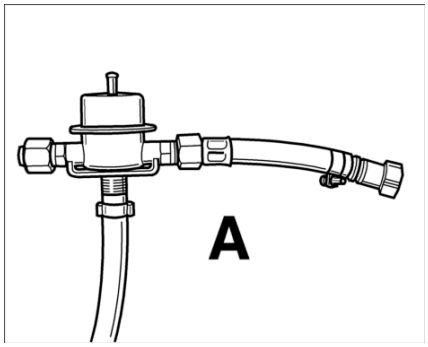
1. Attach or mount a warning sign in a clearly visible position on the vehicle.
2. Reduce fuel pump supply pressure. To do this, remove the cover of the fuse carrier in the left footwell and take out the fuse for the fuel pump **- level D, fuse F1 (1st from left) -**. Then start the engine for several seconds. This procedure does not cause an entry to be made in the fault memory. Insert the fuse again and replace the cover.
3. Connect the Porsche PIWIS Tester **PIWIS Tester 9718** to the input socket in the vehicle using the adapter lead, switch on the ignition and switch off all loads, such as the radio and air conditioning. Switch on the

Tester and select the vehicle (option: Diagnostics).



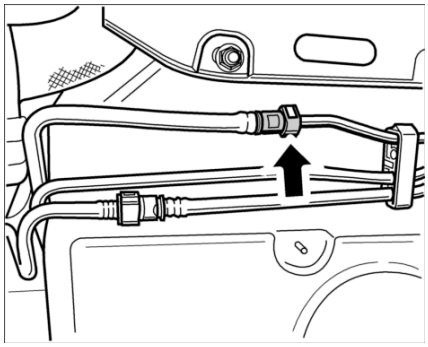
PIWIS Tester 1

4. Run the individual control unit search for DME using the Porsche PIWIS Tester. To do this, select DME with the tracer pen and press **F12 >>**.
5. Select the Drive links item and then select the fuel pump relay.



Measurement adapter 9705

6. Have a **measurement adapter 9705**, a fuel-resistant container, a measuring cup and a stopwatch to hand for measuring.



Rapid-action coupling on fuel pressure line

DANGER

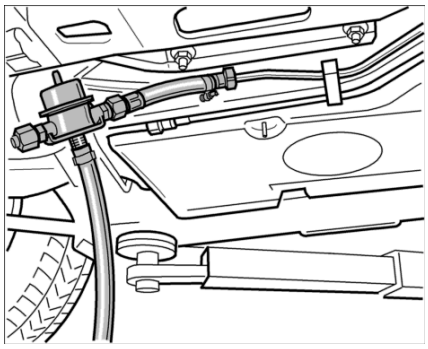
Risk of fire from escaping fuel.

- **Danger of fatal injury and damage to property.**

Observe basic safety instruction when working on the fuel system, *201000 Precautionary measures when working on fuel system.*

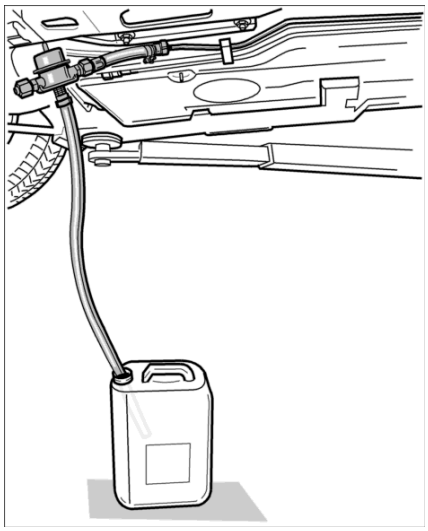
Secure working area.

7. Disconnect rapid-action coupling on the fuel supply line **-arrow-** by pressing in the locking lug and pulling off the coupling. Collect emerging residual fuel with a cloth.



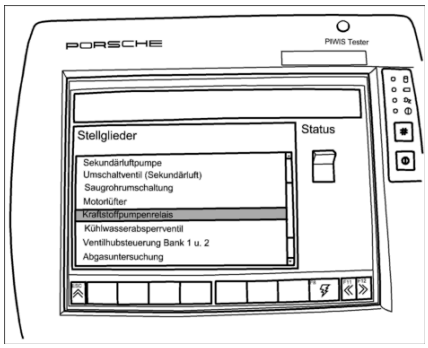
Connecting the measurement adapter

8. Connect the **measurement adapter 9705** to the rapid-action coupling on the fuel line. Make sure that the plug-in coupling is fitted correctly (must engage audibly) by pulling the line apart.



Container

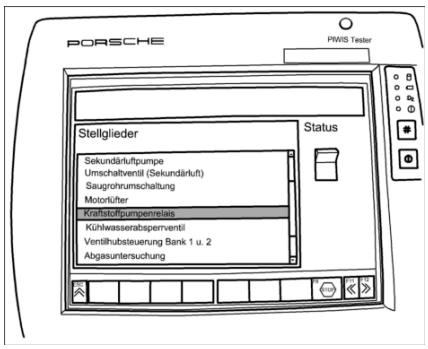
9. Place the drainage hose after the pressure regulator into a petrol-resistant container. Make sure that the container does not tip over.



PIWIS Tester 2

10. Activate the fuel pump relay on the Porsche PIWIS Tester. Press **F8 - Start** until fuel emerges at the drainage hose. Deactivate the fuel pump relay by pressing **F8 - Stop** and pour any leaked fuel

from the container into a petrol-resistant container or into the fuel tank. Keep a stopwatch to hand for the following measurement.



PIWIS Tester 3

11. Then, activate the fuel pump relay again by pressing **F8 - Start** and keep it going for 60 seconds. Start the stopwatch at the same time. Collect emerging fuel in the container you have to hand. Deactivate the fuel pump relay after 60 seconds by pressing **F8 - Stop**.
12. Pour the collected fuel into the measuring cup and compare the quantity with the vehicle-specific nominal values listed below. **Volume: 2.1 l/min** . **Volume: 2.0 l/min** . **Volume: 2.3 l/min** . **Volume: 2.1 l/min**
13. Remove **measurement adapter 9705** and attach rapid-action coupling to fuel supply line. Collect escaping fuel. Make sure that the plug-in coupling is fitted correctly (must engage audibly) by pulling the line apart.
14. Switch off ignition, switch off the Porsche PIWIS Tester and disconnect adapter lead to the vehicle.

top of page

Subsequent work for quantity delivered by fuel pump

Subsequent work for quantity delivered by fuel pump

1. Install underbody covers. 519319 Removing and installing the middle cover - chapter on "installing", 519419 Removing and installing the rear cover - chapter on "installing"

997110, 997111, 997120, 997121, 997310, 997311, 997320, 997321, 997410, 997411, 997430, 997431, 997610, 997611, 997620, 997621

as of MY 2005
Country C00, C02, C05, C07, C08, C09, C10, C11, C12, C13, C14, C15, C16, C18, C19, C20, C21, C22, C23, C24, C25, C26, C27, C28, C32, C33, C34, C35, C36, C37, C38, C39, C45, C46, C98, C99

WARNUNG
Gefahr des Verlusts der Text-Bild-Zuordnung beim Ausdruck.

20 66 19 Removing and installing fuel pump - as of MY 2005

- Preliminary work
- Removing fuel pump
- Installing fuel pump
- Subsequent work

top of page

Preliminary work

Preliminary work - Carrera 2

1. Place protective covers on the vehicle.
2. Disconnect and remove battery 270619 Removing and installing battery - section on "Removing".

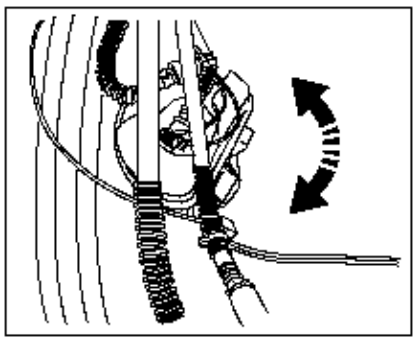
Carrier plate for battery

3. Remove carrier plate for battery. Unscrew four M8 hexagon collar nuts **-1-** and remove lid. Check seal for damage and replace it if necessary.
4. Remove fuel level sensor *201519 21 Removing and installing fuel level sensor - section on "Removing"*.
5. Empty the fuel tank 2010EN Emptying and filling the fuel tank - section on "Emptying".

top of page

Removing fuel pump

Removing fuel pump - Carrera 2



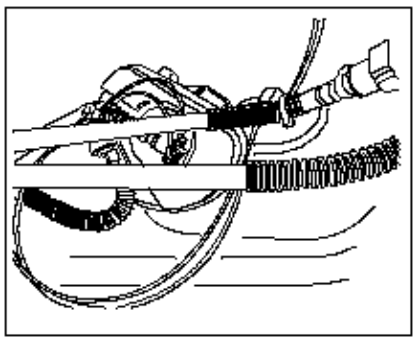
C2 fuel pump

1. Turn fuel pump anti-clockwise (bayonet lock) and guide it carefully out of the opening of the tank (pay attention to installation position).

top of page

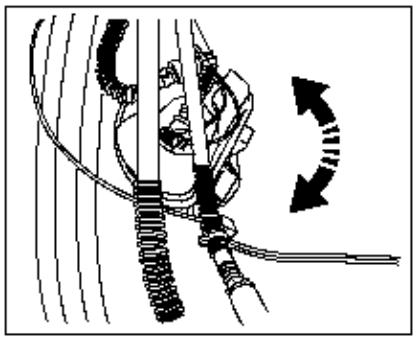
Installing fuel pump

Installing fuel pump - Carrera 2



Fitting fuel pump

1. Fit fuel pump at fuel tank mounting point.



C2 fuel pump

2. Turn fuel pump clockwise as far as it will go.

top of page

Subsequent work

Subsequent work - Carrera 2

1. Install fuel level sensor *201519 23 Removing and installing fuel level sensor - section on "Installing"*.
2. Install carrier plate for battery. Tighten four hexagon nuts. **Tightening torque: 23 (17 ftlb.) Nm** .
3. Install battery. 270619 Removing and installing battery - section on "Installing".
4. Fill the fuel that you removed back into the tank 2010EN Emptying and filling the fuel tank - section on "Filling".
5. Carry out a function test and check the system for leaks.
6. Remove protective covers.

997110, 997111, 997120, 997121, 997310, 997311, 997320, 997321

as of MY 2005
Country C00, C02, C05, C07, C08, C09, C10, C11, C12, C13, C14, C15, C16, C18, C19, C20, C21, C22, C23, C24, C25, C26, C27, C28, C32, C33, C34, C35, C36, C37, C38, C39, C45, C46, C98, C99

WARNUNG

Gefahr des Verlusts der Text-Bild-Zuordnung beim Ausdruck.

- **Aus technischen Gründen kann derzeit nicht ausgeschlossen werden, dass trotz einwandfreier Darstellung auf dem Bildschirm beim Ausdruck der Zusammenhang von Text und zugehörigem Bild verloren geht.**
- **Wird der Fehler nicht bemerkt, besteht die Gefahr, daß Arbeiten nicht korrekt durchgeführt werden und es dadurch zu Personen- und Sachschäden kommt.**

Vergleichen Sie deshalb nach dem Druckvorgang unbedingt die Ausdrucke mit der Bildschirmdarstellung. Korrigieren Sie die Ausdrucke im Fehlerfall so, daß der Inhalt der Bildschirmdarstellung zutreffend wiedergegeben wird.

WARNING

Danger of losing text-figure correspondence when printing out.

- **For technical reasons, it can currently not be ruled out that the correspondence between text and associated figure can be lost when it is printed out, even though the display on the screen is correct.**
- **If the fault is not noticed, there is the danger that work will not be performed correctly which can cause injury and damage.**

Therefore, always compare printouts with the screen display after printing them out. Correct the printouts if they are faulty so that the content of the screen display matches that on the printouts.

AVERTISSEMENT

Risque de perte de la correspondance texte-illustration lors de l'impression papier.

20 66 19 Removing and installing fuel pump - as of MY 2005

- Preliminary work
- Removing fuel pump
- Installing fuel pump
- Subsequent work

top of page

Preliminary work

Preliminary work - Carrera 4

1. Place protective covers on the vehicle.
2. Disconnect the battery 2706IN Work instructions after disconnecting the battery.
3. Remove luggage compartment cover *700519 21 Removing and installing trim panel for front luggage compartment - section on "Removing"*.

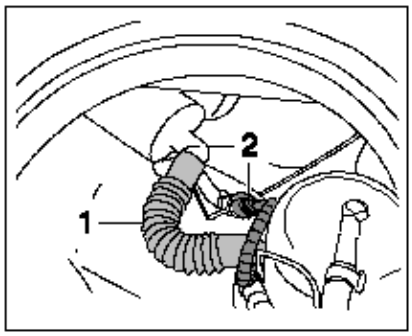
Cover for tank flange

4. Remove cover for tank flange. Unscrew four M6 cap nuts **-2-** , remove the four washers and lift off the lid. Check seal for signs of damage.
5. Remove fuel level sensor *201519 21 Removing and installing fuel level sensor - section on "Removing"*.
6. Empty the fuel tank until the fuel level is below the pump 2010EN Emptying and filling the fuel tank - section on "Emptying".

top of page

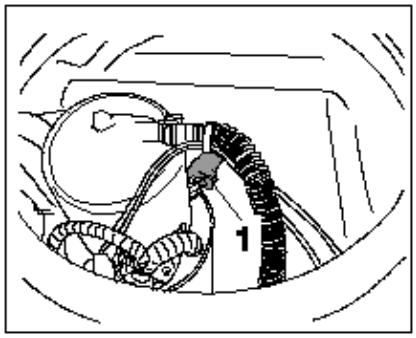
Removing fuel pump

Removing fuel pump - Carrera 4



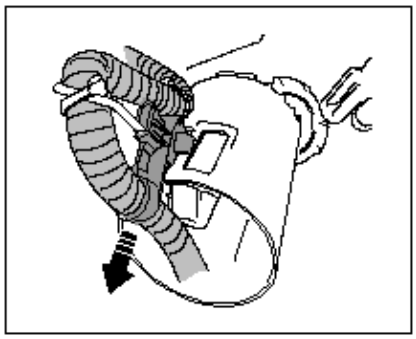
Connections for left fuel pump

1. Pull off flexible breather hose for the filler neck **-1-** and plug connection for left fuel line **-2-** .



Connection for right fuel line

2. Release plug connection for fuel line at the right pump **-1-** and pull off line.
3. Turn fuel pump anti-clockwise (bayonet lock, pay attention to installation position!) and tilt slightly towards the front apron.



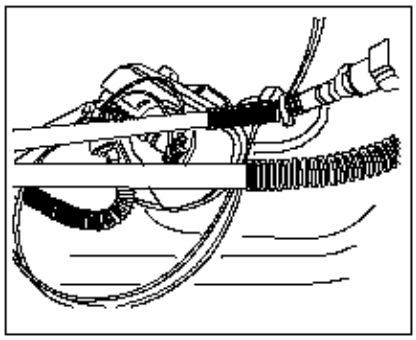
Connection for sucking jet pumps

4. Pull retaining claws of left and right sucking jet pump at the fuel pump **-in direction of arrow-** .

top of page

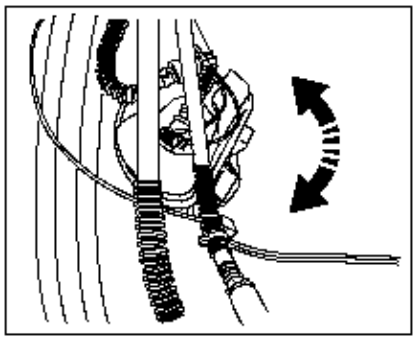
Installing fuel pump

Installing fuel pump - Carrera 2



Fitting fuel pump

1. Fit fuel pump at fuel tank mounting point.

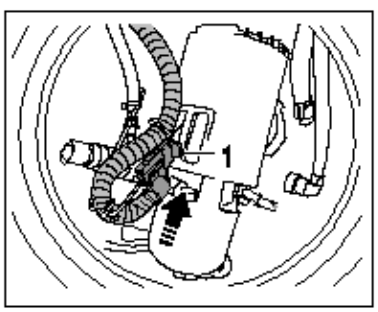


C2 fuel pump

2. Turn fuel pump clockwise as far as it will go.

Installing fuel pump - Carrera 4

1. Insert fuel pump in fuel tank and place it on the floor of the tank for connecting the sucking jet pumps. The connecting grooves must be facing you.



Connecting sucking jet pumps to pump

2. Secure sucking jet pumps in the pump using the retaining claws.
3. Fit fuel pump at mounting point and turn it clockwise as far as it will go.
4. Attach line and hose connections to the pump's peripheral equipment.

top of page

Subsequent work

Subsequent work - Carrera 4

1. Install fuel level sensor *201519 23 Removing and installing fuel level sensor - section on "Installing"*.
2. Install cover for tank flange. Position and tighten four cap nuts and washers. **Tightening torque: 10 (7.5 ftlb.) Nm** .
3. Install luggage compartment cover. *700519 23 Removing and installing trim panel for front luggage compartment - section on "Installing"*.
4. Connect ground lead at the battery 2706IN Work instructions after disconnecting the battery.
5. Fill the fuel that you removed back into the tank 2010EN Emptying and filling the fuel tank - section on "Filling".
6. Carry out a function test and check the system for leaks.
7. Remove protective covers.

997431

as of MY 2005
Country C00, C02, C05, C07, C08, C09, C10, C11, C12, C13, C14, C15, C16, C18, C19, C20, C21, C22, C23, C24, C25, C26, C27, C28, C32, C33, C34, C35, C36, C37, C38, C39, C45, C46, C98, C99

WARNUNG
Gefahr des Verlusts der Text-Bild-Zuordnung beim Ausdruck.

- **Aus technischen Gründen kann derzeit nicht ausgeschlossen werden, dass trotz einwandfreier Darstellung auf dem Bildschirm beim Ausdruck der Zusammenhang von Text und zugehörigem Bild verloren geht.**
- **Wird der Fehler nicht bemerkt, besteht die Gefahr, daß Arbeiten nicht korrekt durchgeführt werden und es dadurch zu Personen- und Sachschäden kommt.**

Vergleichen Sie deshalb nach dem Druckvorgang unbedingt die Ausdrucke mit der Bildschirmdarstellung. Korrigieren Sie die Ausdrucke im Fehlerfall so, daß der Inhalt der Bildschirmdarstellung zutreffend wiedergegeben wird.

20 66 19 Removing and installing fuel pump - as of MY 2005

- Preliminary work
- Removing fuel pump
- Installing fuel pump
- Subsequent work

top of page

Preliminary work

Preliminary work - Carrera 4

1. Place protective covers on the vehicle.
2. Disconnect the battery 2706IN Work instructions after disconnecting the battery.
3. Remove luggage compartment cover *700519 21 Removing and installing trim panel for front luggage compartment - section on "Removing"*.

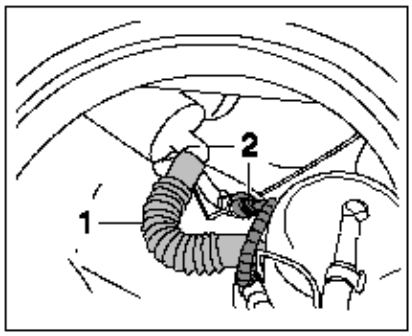
Cover for tank flange

4. Remove cover for tank flange. Unscrew four M6 cap nuts **-2-** , remove the four washers and lift off the lid. Check seal for signs of damage.
5. Remove fuel level sensor *201519 21 Removing and installing fuel level sensor - section on "Removing"*.
6. Empty the fuel tank until the fuel level is below the pump 2010EN Emptying and filling the fuel tank - section on "Emptying".

top of page

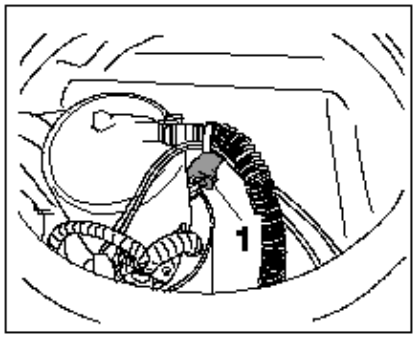
Removing fuel pump

Removing fuel pump - Carrera 4



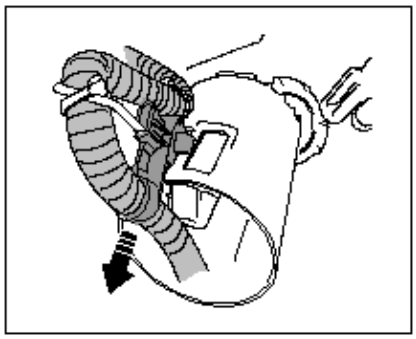
Connections for left fuel pump

1. Pull off flexible breather hose for the filler neck **-1-** and plug connection for left fuel line **-2-** .



Connection for right fuel line

2. Release plug connection for fuel line at the right pump **-1-** and pull off line.
3. Turn fuel pump anti-clockwise (bayonet lock, pay attention to installation position!) and tilt slightly towards the front apron.



Connection for sucking jet pumps

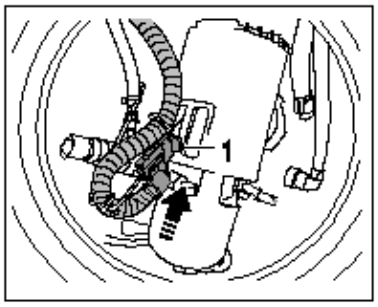
4. Pull retaining claws of left and right sucking jet pump at the fuel pump **-in direction of arrow-** .

top of page

Installing fuel pump

Installing fuel pump - Carrera 4

1. Insert fuel pump in fuel tank and place it on the floor of the tank for connecting the sucking jet pumps. The connecting grooves must be facing you.



Connecting sucking jet pumps to pump

2. Secure sucking jet pumps in the pump using the retaining claws.
3. Fit fuel pump at mounting point and turn it clockwise as far as it will go.
4. Attach line and hose connections to the pump's peripheral equipment.

top of page

Subsequent work

Subsequent work - Carrera 4

1. Install fuel level sensor *201519 23 Removing and installing fuel level sensor - section on "Installing"*.
2. Install cover for tank flange. Position and tighten four cap nuts and washers. **Tightening torque: 10 (7.5 ftlb.) Nm** .
3. Install luggage compartment cover. *700519 23 Removing and installing trim panel for front luggage compartment - section on "Installing"*.
4. Connect ground lead at the battery 2706IN Work instructions after disconnecting the battery.
5. Fill the fuel that you removed back into the tank 2010EN Emptying and filling the fuel tank - section on "Filling".
6. Carry out a function test and check the system for leaks.
7. Remove protective covers.

997410, 997411, 997430, 997610, 997611, 997620, 997621

24 24 19 Removing and installing air cleaner element - as of MY 2005

- Preliminary work for removing air-cleaner element
- Removing air-cleaner element
- Installing air cleaner element
- Subsequent work for installing air-cleaner element

top of page

Preliminary work for removing air-cleaner element

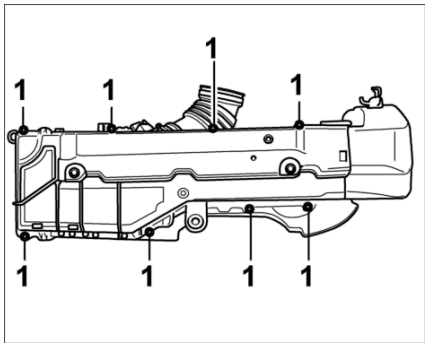
Preliminary work for air cleaner element

1. Remove air cleaner housing *21 Removing and installing air cleaner housing - removing*.

top of page

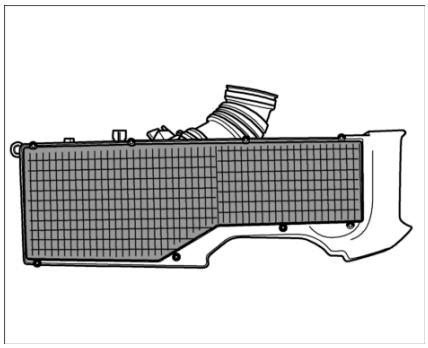
Removing air-cleaner element

Removing air cleaner element



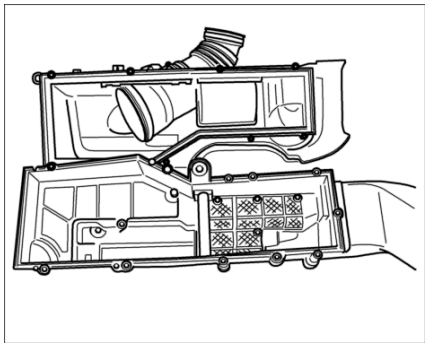
Fastening screws for air cleaner housing shells

1. Unscrew the eight fastening screws on the air cleaner housing **-1-** .



Air cleaner element

2. Remove the air cleaner element from the housing shell.



Air cleaner housing shells

3. Clean the inside of the air cleaner housing shells with a clean lint-free cloth, which has been soaked in solvent naphtha, and then dry it off.

Note

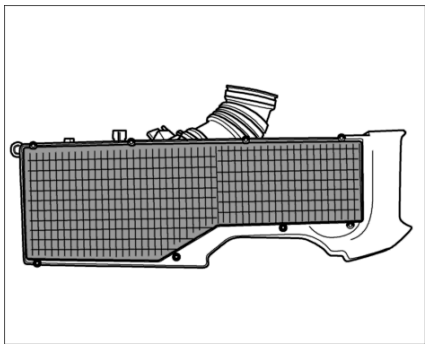
The air cleaner housing should not be cleaned on the outside with strong cleaning agents.

4. If the air cleaner housing shells are dirty on the outside, clean only with a damp cloth and some washing-up liquid.

top of page

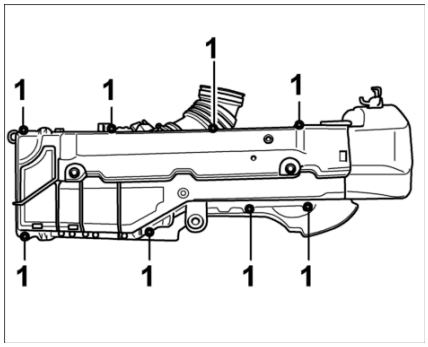
Installing air cleaner element

Installing air cleaner element



Air cleaner element

1. Fit new air cleaner element in the clean-air shell of the air cleaner housing.



Fastening screws for air cleaner housing shells

2. Join the two housing shells, insert the eight fastening screws and tighten **-1-** .

top of page

Subsequent work for installing air-cleaner element

Rework on air cleaner element

1. Install air cleaner housing *23 Removing and installing air cleaner housing - installing*.

997110, 997111, 997120, 997121, 997310, 997311, 997320, 997321, 997410, 997411, 997430, 997431, 997610, 997611, 997620, 997621

as of MY 2005
Country C00, C02, C05, C07, C08, C09, C10, C11, C12, C13, C14, C15, C16, C18, C19, C20, C21, C22, C23, C24, C25, C26, C27, C28, C32, C33, C34, C35, C36, C37, C38, C39, C45, C46, C98, C99

WARNUNG
Gefahr des Verlusts der Text-Bild-Zuordnung beim Ausdruck.

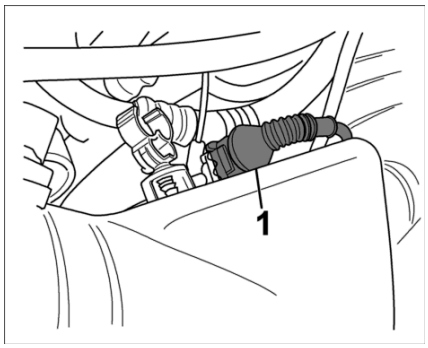
24 25 19 Removing and installing air cleaner housing - as of MY 2005

- Removing air cleaner housing
- Installing air cleaner housing

top of page

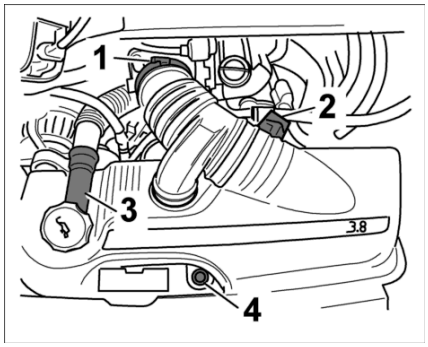
Removing air cleaner housing

Removing air cleaner housing



Cable plug for switch resonator

1. The 3.8 l engine has a switch resonator installed in the air cleaner housing. In order to remove the air cleaner housing, the cable plug must be disconnected from the electric switch-over valve **-1-** .
2. Unclip the tandem pump vacuum line from the air cleaner housing.



Air cleaner housing

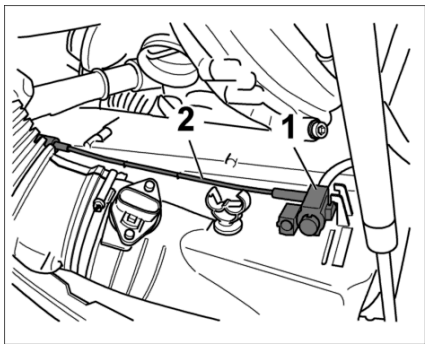
3. Disconnect plug connection on the hot film mass air flow meter **-2-** . Press together the locking lever on the plug and pull the plug off the flange. Unclip the connection lead at the omega clips.

3.1. Undo the threaded sleeve for the rubber moulding of the air cleaner housing from the throttle body **-1-**

Note

- *Note the rubber sleeves for securing the air cleaner housing*

3.2. Unclip the oil filling pipe from the air cleaner housing **-3-** and then lift the air cleaner housing out of the fastening lug **-4-** .



Vacuum line to switch resonator

4. Unclip the switch-over valve for the switch resonator from the housing bracket **-1-** detach the vacuum line from the housing **-2-** and disconnect from the resonator.

Note

The air cleaner housing should not be cleaned on the outside with strong cleaning agents.

5. Lift the air cleaner housing completely out of the engine compartment. If necessary, the outside of the housing can be cleaned using a damp cloth and some washing-up liquid. Then, lay the housing on a soft surface to avoid scratching the painted surface.

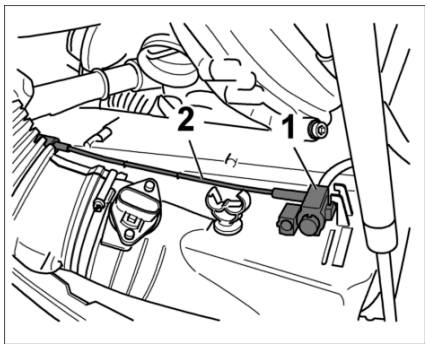
top of page

Installing air cleaner housing

Installing air cleaner housing

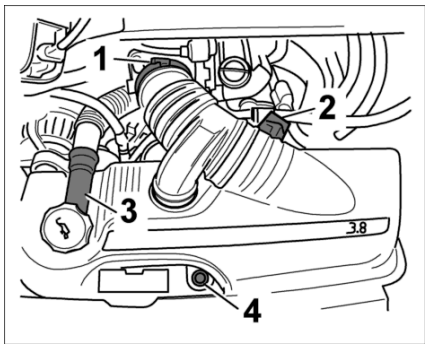
Note

- *Note the rubber sleeves for securing the air cleaner housing*



Vacuum line to switch resonator

1. Route the vacuum line on the housing of the 3.8 l's air cleaner **-2-** and connect it to the resonator. Connect the switch-over valve to the housing bracket **-1-** .



Air cleaner housing

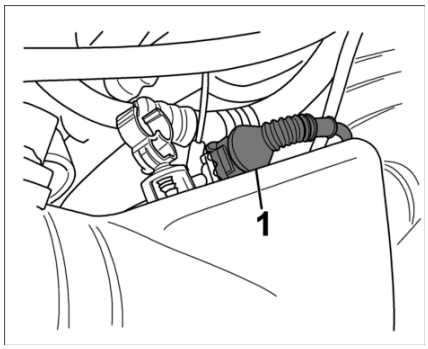
2. Place the air cleaner housing in the engine compartment, placing it on the locating peg **-4-** . Pre-fit the rubber part of the air cleaner on the throttle body. Ensure that both rubber mounts of the air cleaner housing are located in the body.

2.1. Clip the oil filler pipe into the mounting point on the air cleaner housing **-3-** .

2.2. Tighten the hose clamp for the rubber part connecting the air cleaner to the throttle body **-1-** .

2.3. Insert the cable plug for the hot film mass air flow sensor **-2-** and clip the connecting cable into the omega clips on the air cleaner housing.

3. Clip the tandem pump vacuum line onto the air cleaner housing.



Cable plug for switch resonator

4. Connect cable plug for switch resonator to switch-over valve **-1-** .

24 40 19 Removing and installing injection valves - as of MY 2005

- Preliminary work
- General warning notes
- Removing injection valves
- Installing injection valves
- Subsequent work

top of page

Preliminary work

Preliminary work for removing injection valves

1. Disconnect the battery *271000 A5 Work instructions after disconnecting the battery - chapter on "disconnecting"* .
2. Remove air cleaner housing 242519 Removing and installing air cleaner housing - chapter on "removing".

top of page

General warning notes

Danger from fuel

DANGER

Fuel can escape when fuel line is disconnected.

- **Risk of fatal injury!**
- **Damage to skin**

Do not work on fuel system if engine is hot!

Do not smoke, avoid fire and naked flames!

Wear fuel-resistant protective gloves and goggles.

Attach warning sign to vehicle in a clearly visible position.

Hot engine components

WARNING

Danger of injury from hot engine parts.

- **Risk of burns, damage to skin, injury to the eyes.**

Do not work on the engine while it is hot.

top of page

Removing injection valves

Removing injection valves of cylinder bank 1-3

DANGER

Fuel can escape when fuel line is disconnected.

- **Risk of fatal injury!**
- **Damage to skin**

Do not work on fuel system if engine is hot!

Do not smoke, avoid fire and naked flames!

Wear fuel-resistant protective gloves and goggles.

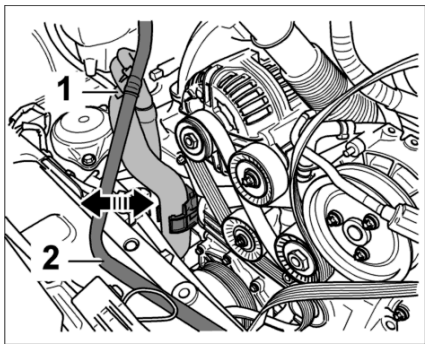
Attach warning sign to vehicle in a clearly visible position.

WARNING

Danger of injury from hot engine parts.

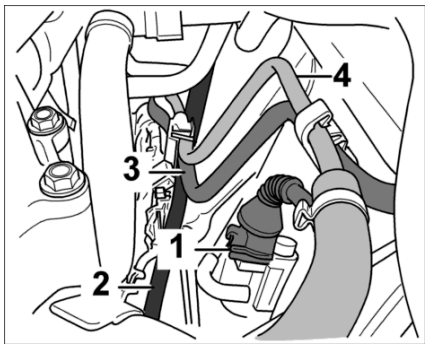
- **Risk of burns, damage to skin, injury to the eyes.**

Do not work on the engine while it is hot.



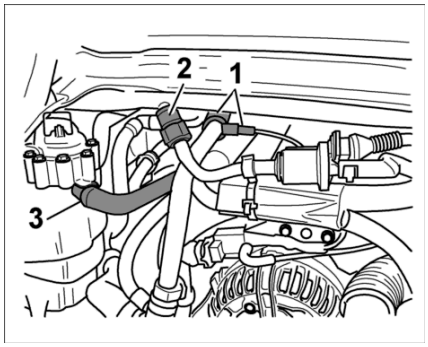
Removing hoses

1. Unclip the two coolant hoses **-1-** and aluminium pipe of the brake booster **-2-** from the holders on the transverse member and carefully lay to one side.



Removing plastic lines

2. Remove plastic lines from holder **-3 und 4-** and pull off cable plug from switch-over valve **-1-** .

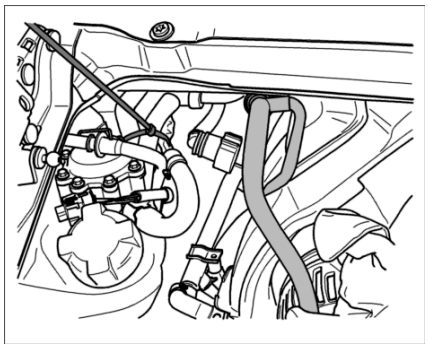


Left engine compartment line connections

3. Open line connections in left of engine compartment.

3.1. Loosen the vacuum lines for the brake booster **-1-** . For the tandem pump feed line, remove the plastic protection, push the holder forward and pull off the line. Immediately put plastic protection back in place.

3.2. Disconnect tank vent line **-2-** . In order to do this, press the lugs of the rapid-action coupling and pull off the line (vent line remains fitted **-3-**).



Plastic lines

4. For better access, secure the lines and hoses to one side with a tie-wrap __ *Plastic lines* .

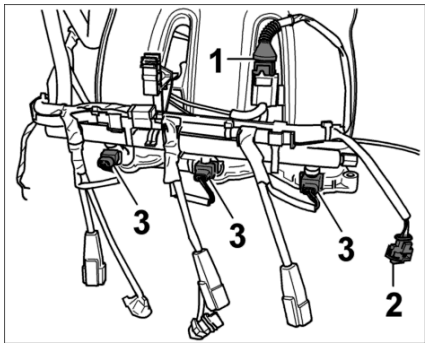
ATTENTION

Material damage through lowering engine

- **Cables and coolant hoses can be stretched and torn**

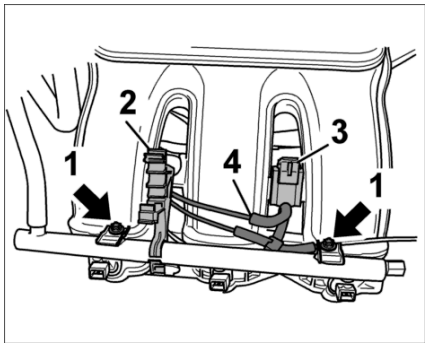
Lower the engine with a jack no more than 40 mm maximum

5. Support the engine with a jack. Unscrew the two collar nuts of the rear engine mounts. Lower the engine by 30 - 40 mm . Should the period between removal and installation be extended, the engine must be lifted back into position and temporarily secured with the collar nuts. Attach an appropriate warning notice.



Cable plug for injection valves

6. Remove cable duct on the fuel distributor pipe. To do this, pull cable plug from camshaft position sensor **-2-** and lift up cable duct.

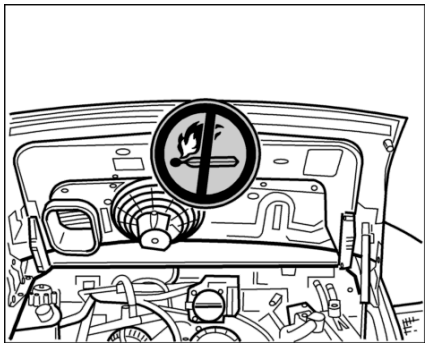


Fuel distributor pipe

7.

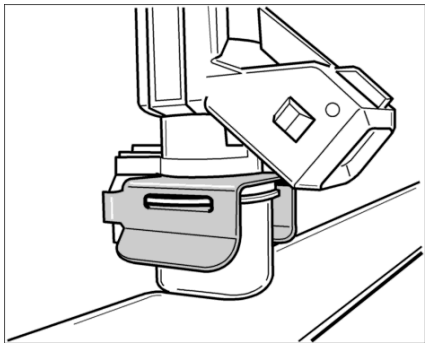
Remove cable holder **-2-** . Remove fastening screws for fuel distributor pipe **-1-** and pull fuel distributor pipe from the intake distributor.

8. Pull off cable plug for injection valves and release fuel distributor pipe. Push the cable duct to one side.



Warning sign

9. Before opening the fuel lines, put up or attach to vehicle a warning sign in a clearly visible position *Warning sign* .



Fitting clip

10. Remove sheetmetal clips of the injection valves *Fitting clip* and remove the injection valves from the fuel distributor pipe. Ensure that the sealing rings are present. Because of emerging fuel, place a cloth underneath.
11. Check sealing rings and replace if necessary.

Removing injection valves of cylinder bank 4-6

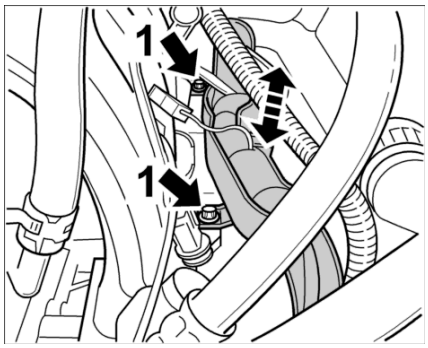
WARNING

Danger of injury from hot engine parts.

- **Risk of burns, damage to skin, injury to the eyes.**

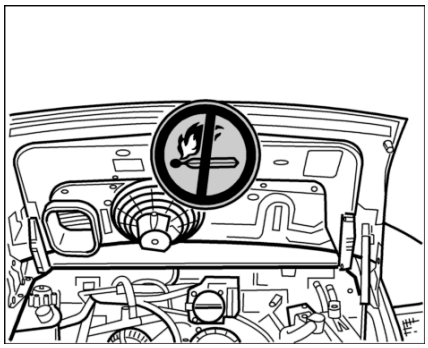
Do not work on the engine while it is hot.

1. Remove cable duct on the fuel distributor pipe. To do this, carefully lift up cable duct **-cable duct-** .
2. Pull off cable plug for injection valves and release fuel distributor pipe. Push the cable duct to one side.



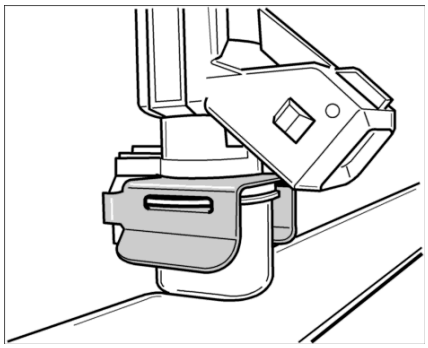
Fuel distributor pipe

3. Remove fastening screws for fuel distributor pipe **-1-** and pull fuel distributor pipe together with fitted injection valves from the intake distributor. Check sealing rings of injection valves and replace if necessary.



Warning sign

4. Before opening the fuel lines, put up or attach to vehicle a warning sign in a clearly visible position *Warning sign* .



Fitting clip

DANGER

Fuel can escape when fuel line is disconnected.

- **Risk of fatal injury!**
- **Damage to skin**

Do not work on fuel system if engine is hot!

Do not smoke, avoid fire and naked flames!

Wear fuel-resistant protective gloves and goggles.

Attach warning sign to vehicle in a clearly visible position.

5. Remove sheetmetal clips of the injection valves and remove the injection valves from the fuel distributor pipe. Ensure that the sealing rings are present. Because of emerging fuel, place a cloth underneath..
6. Check sealing rings and replace if necessary.

top of page

Installing injection valves

Installing injection valves of cylinder bank 1-3

DANGER

Fuel can escape when fuel line is disconnected.

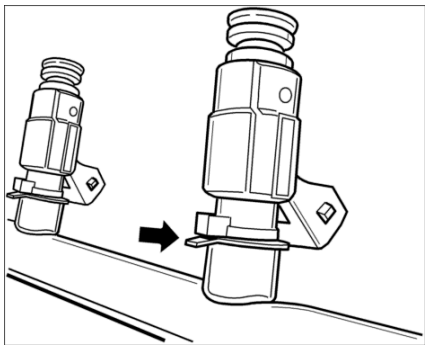
- **Risk of fatal injury!**
- **Damage to skin**

Do not work on fuel system if engine is hot!

Do not smoke, avoid fire and naked flames!

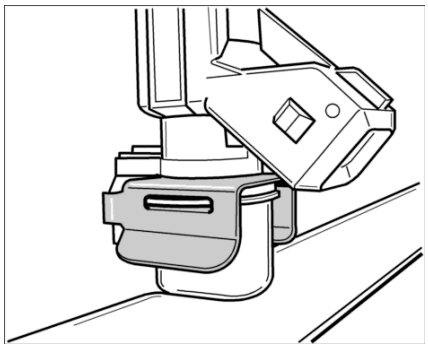
Wear fuel-resistant protective gloves and goggles.

Attach warning sign to vehicle in a clearly visible position.

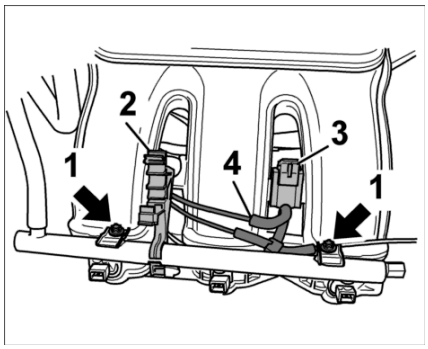


Aligning injection valve

1. Check sealing rings and replace if necessary. Insert injection valves into fuel distributor pipe. Align lugs of injection valves with fuel distributor pipe (pressure pipe) **-arrow-** and fit the sheetmetal clips. Ensure that the sheetmetal clips engage correctly *Fitting clip* .

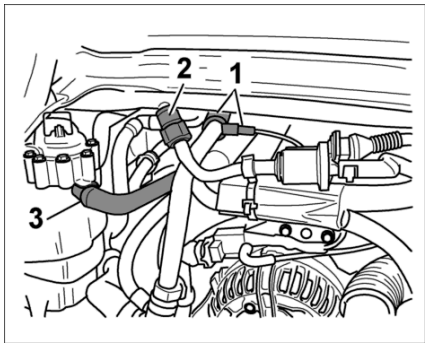


Fitting clip



Fuel distributor pipe

2. Check sealing rings of injection valves, if necessary lubricating with silicone spray or similar to ease fitting. Insert fuel distributor pipe together with fitted injection valves into the appropriate openings of the intake distributor and screw in the fastening screws of the fuel distributor pipe to the intake distributor **-1-** . Tighten screws **Tightening torque: 7.5 ftlb.** .
3. Fit cable holder **-2-** . Move cable duct into position on the fuel distributor pipe and clip in. Push on cable plug.

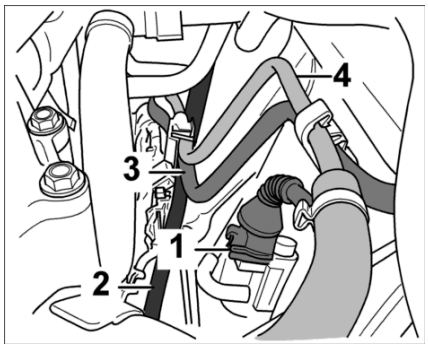


Left engine compartment line connections

4. Fit line connections in left of engine compartment.

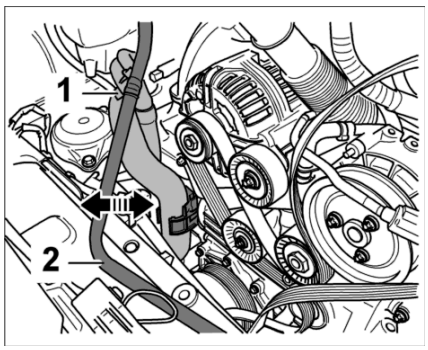
4.1. Fit vacuum lines for the brake booster **-1-** . Press the tandem pump feed line into the holder.

4.2. Connect tank vent line **-2-** , pressing the rapid-action coupling onto the line (vent line fitted **-3-**).



Fitting plastic lines

5. Fit plastic lines into holder **-3 und 4-** and fit cable plug onto switch-over valve **-1-** .
6. Lift engine into position with the car jack and fasten **Tightening torque: 63 ftlb.** .



Fitting the hoses

7. Clip the two coolant hoses and aluminium pipe of the brake booster into the holder **-1 and 2-** .
8. Check that all connections and lines are fitted.

Installing injection valves of cylinder bank 4-6

DANGER

Fuel can escape when fuel line is disconnected.

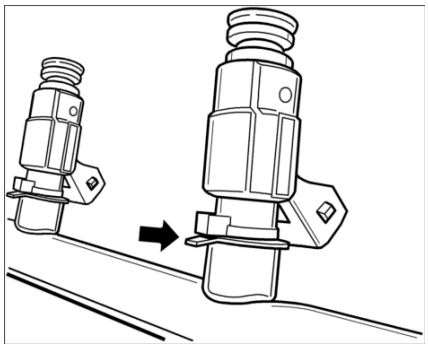
- **Risk of fatal injury!**
- **Damage to skin**

Do not work on fuel system if engine is hot!

Do not smoke, avoid fire and naked flames!

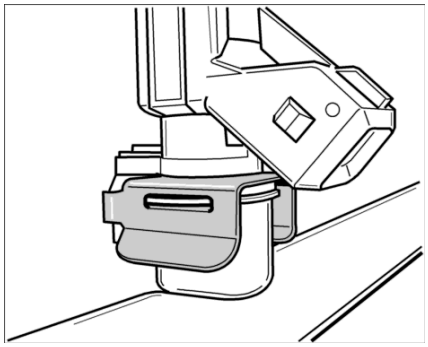
Wear fuel-resistant protective gloves and goggles.

Attach warning sign to vehicle in a clearly visible position.



Aligning injection valve

1. Check sealing rings and replace if necessary. Insert injection valves into fuel distributor pipe. Align lugs of injection valves with fuel distributor pipe (pressure pipe) **-arrow-** and fit the sheetmetal clips. Ensure that the sheetmetal clips engage correctly *Fitting clip* .



Fitting clip

2. Check sealing rings of injection valves, if necessary applying a thin coat of silicone spray or similar to ease fitting. Insert fuel distributor pipe together with fitted injection valves into the appropriate openings of the intake distributor and screw in the fastening screws of the fuel distributor pipe to the intake distributor. Tighten screws **Tightening torque: 7.5 ftlb.** .
3. Move cable duct into position on the fuel distributor pipe and clip in. Push on cable plug.

top of page

Subsequent work

Work subsequent to installing injection valves

1. Install air cleaner housing 242519 Removing and installing air cleaner housing - chapter on "installing".
2. Connect the battery *271000 A6 Work instructions after disconnecting the battery - chapter on "connecting"* .

24 42 19 Removing and installing throttle body - as of MY 2005

- Preliminary work
- Removing throttle body
- Installing throttle body
- Subsequent work

top of page

Preliminary work

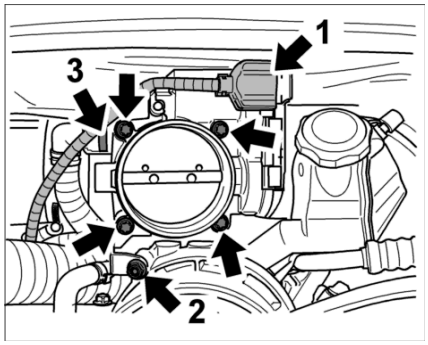
Preliminary work for removing throttle body

Remove air cleaner housing 242519 Removing and installing air cleaner housing - chapter on "removing".

top of page

Removing throttle body

Removing throttle body



Throttle body

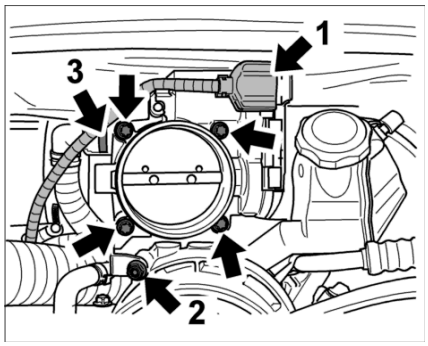
1. Release cable plug on throttle body, and pull out and release cable **-1-** .
2. Unscrew fastening nut M6 on rubber mount of servo pump **-2-** .
3. Remove four M6 x 40 fastening screws (outer torx) and remove throttle body **-arrows without numbers-** .
4. Check moulded seal on flange of distributor pipe for damage, replace if necessary.

top of page

Installing throttle body

Installing throttle body

1. Check moulded seal on flange of distributor pipe for damage, replace if necessary.



Throttle body

2. Position throttle body in the installation position and screw in fastening screws. Make sure that the sheetmetal holder is in correct contact with the rubber mount of the servo pump. Screw on M6 fastening nut **-2-** and tighten **Tightening torque: 7.5 ftlb.** .
3. fit the four fastening screws of the throttle body **-Pfeile ohne Nummern-** **Tightening torque: 7.5 ftlb.** .
4. Connect cable plug to throttle body and clip cable into holder **-1-** .

top of page

Subsequent work

Work subsequent to installing throttle body

Install air cleaner housing 242519 Removing and installing air cleaner housing - chapter on "installing".

997110, 997111, 997120, 997121, 997310, 997311, 997320, 997321, 997410, 997411, 997430, 997431, 997610, 997611, 997620, 997621

as of MY 2005
Country C00, C02, C05, C07, C08, C09, C10, C11, C12, C13, C14, C15, C16, C18, C19, C20, C21, C22, C23, C24, C25, C26, C27, C28, C32, C33, C34, C35, C36, C37, C38, C39, C45, C46, C98, C99

24 46 19 Removing and installing intake distributor - as of MY 2005

- Preliminary work
- General warning notes
- Removing intake distributor, cylinder bank 1-3
- Removing intake distributor, cylinder bank 1-3
- Removing intake distributor, cylinder bank 4-6
- Installing intake distributor, cylinder bank 4-6
- Subsequent work

Tools

Designation	Type	Number	Explanation	
3/8" extension, 16° movable	commercially available tool	NR.15		

top of page

Preliminary work

Preliminary work for removing intake distributor

1. Disconnect the battery *271000 A5 Work instructions after disconnecting the battery - chapter on "disconnecting"* .
2. Remove air cleaner housing 242519 Removing and installing air cleaner housing - chapter on "removing".
3. Remove tuning pipe 247419 Removing and installing tuning pipe - chapter on "removing".

top of page

General warning notes

Danger from Pentosin

WARNING

Danger of injury and damage to material through Pentosin

- **Irritation and damage to skin**
- **Damage to hoses and wiring**

Wear protective gloves and goggles

If the eyes or skin come into contact with the fluid, wash immediately with water!

Collect escaping Pentosin

Use caps to protect the wiring against soiling and damage!

Immediately clean hoses and wiring thoroughly

top of page

Removing intake distributor, cylinder bank 1-3

Removing intake distributor, cylinder bank 1-3

WARNING

Danger of injury and damage to material through Pentosin

- **Irritation and damage to skin**
- **Damage to hoses and wiring**

Wear protective gloves and goggles

If the eyes or skin come into contact with the fluid, wash immediately with water!

Collect escaping Pentosin

Use caps to protect the wiring against soiling and damage!

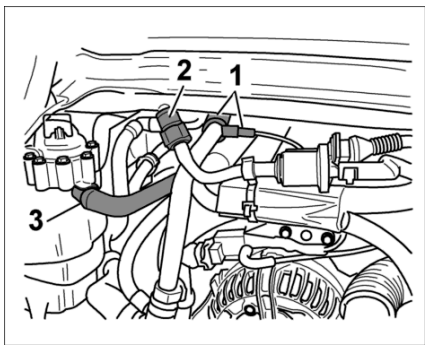
Immediately clean hoses and wiring thoroughly

Note

For better accessibility when removing the intake distributor from cylinder bank 1-3, the three-phase generator should be removed.

1.

Remove three-phase generator 272219 Removing and installing three-phase generator - chapter on "removing".

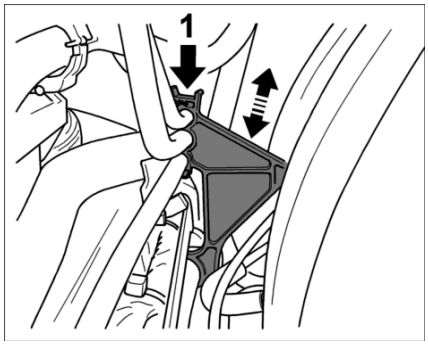


Left engine compartment line connections

2. Open line connections in left of engine compartment.

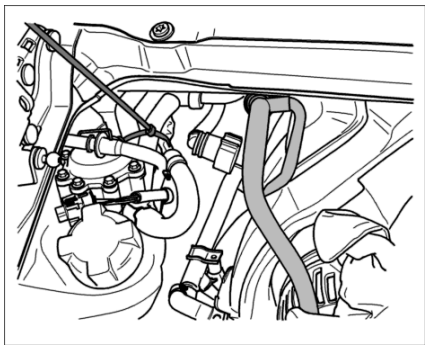
2.1. Loosen the vacuum lines for the brake booster **-1-** . For the tandem pump feed line, remove the plastic protection, push the holder forward and pull off the line. Immediately put plastic protection back in place.

2.2. Disconnect tank vent line **-2-** . In order to do this, press the lugs of the rapid-action coupling and pull off the line (vent line remains fitted **-3-**).



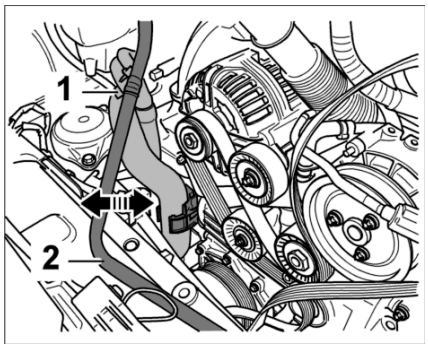
Cable holder

3. Remove plastic lines from cable holder over the fuel distributor pipe **-1-** and pull cable holder up and off *Cable holder* .



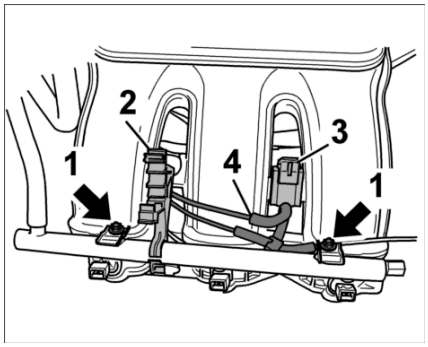
Plastic lines

4. Release lines over the fuel distributor pipe (unclip lines from the holders and secure with a tie-wrap to the coolant expansion tank) *Plastic lines* .



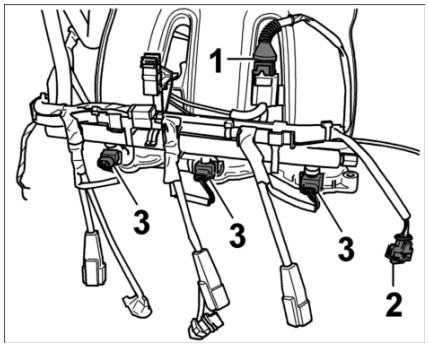
Removing hoses

5. Unclip the two coolant hoses **-1-** and aluminium pipe of the brake booster **-2-** from the holders on the transverse member and carefully lay to one side.



Fuel distributor pipe

6. Remove cable plug from switch-over valve **-3-** . Pull vacuum pipes off the switch-over valve **-4-** .



Cable plug for injection valves

7. Remove cable duct on the fuel distributor pipe. To do this, pull cable plug from camshaft position sensor **-2-** and lift up cable duct.
8. Remove fastening screws for fuel distributor pipe **-1-** and pull fuel distributor pipe together with fitted injection valves from the intake distributor. Check sealing rings of injection valves and replace if necessary.

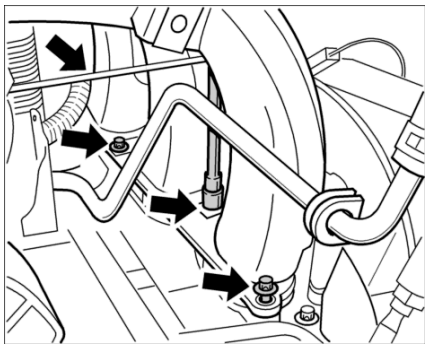
ATTENTION

Material damage through lowering engine

- **Cables and coolant hoses can be stretched and torn**

Lower the engine with a jack no more than 40 mm maximum

9. Support the engine with a jack. Unscrew the two collar nuts of the rear engine mounts. Lower the engine by 30 - 40 mm . Should the period between removal and installation be extended, the engine must be lifted back into position and temporarily secured with the collar nuts. Attach an appropriate warning notice.



Screws for intake distributor

10. Remove the four fastening screws of the intake distributor (illustration shows cylinder bank 4-6) **-arrows-** . If necessary, use a mirror to remove the front-most screw. When removing the intake distributor, leave the fore-most screw in its bore in the intake distributor. Carefully remove the intake distributor from the engine compartment (carefully release vacuum lines to the switch-over valve). Replace seals.

Note

Cover engine openings (e.g. intake openings, crankcase, oil lines, open reservoirs etc.) cover with a cloth to avoid dirt and foreign bodies falling in.

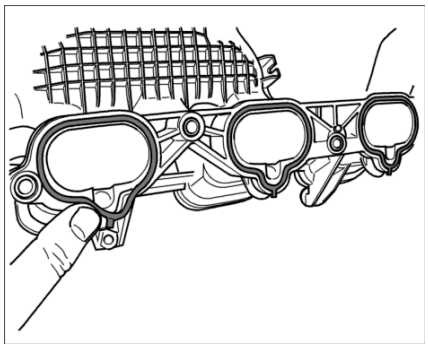
11. Cover engine openings with a cloth.

top of page

Removing intake distributor, cylinder bank 1-3

Installing intake distributor, cylinder bank 1-3

1. Clean the sealing surfaces of the intake distributor and crankcase.



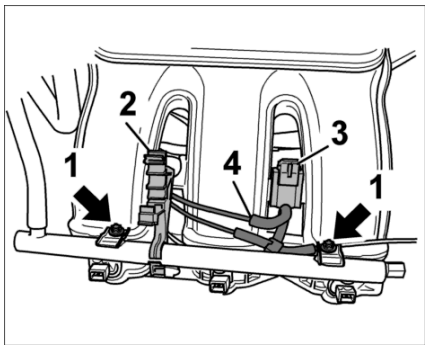
Intake distributor seals

2. Replace the seals in the intake distributor and insert correctly into the grooves of the intake distributor *Intake distributor seals* .
3. Place intake distributor in installation position. At the same time, pull through and lay the vacuum lines to the switch-over valve **-4-** .

Note

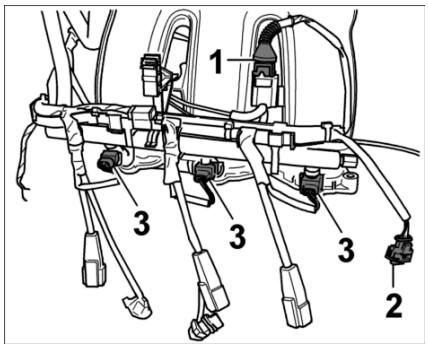
If necessary, to ease installation of the intake distributor, insert the rear fastening screw in its bore in the intake distributor before commencing installation.
The socket for tightening the fastening screws of the intake distributor should be secured with a strip of insulating tape to prevent them falling out.
If necessary, carry out the work using a small mirror.

4. Screw in and tighten fastening screws of the intake distributor, using a magnet if necessary **Tightening torque: 7.5 ftlb.** .



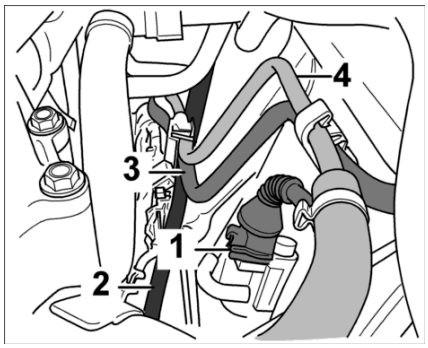
Fuel distributor pipe

5. Check sealing rings of injection valves and replace if necessary. Clean sealing surfaces with a lint-free cloth and apply a thin coat of silicone spray. Insert fuel distributor pipe together with fitted injection valves into the appropriate openings of the intake distributor and screw in the fastening screws of the fuel distributor pipe to the intake distributor **-1-** . Tighten screws **Tightening torque: 7.5 ftlb.** .
6. Lift engine into position with the car jack and fasten **Tightening torque: 63 ftlb.** .



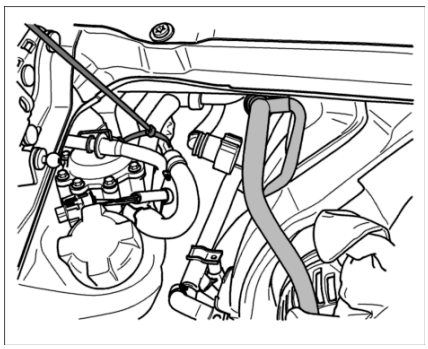
Cable plug for injection valves

7. Move cable duct into position on the fuel distributor pipe and clip in. Connect cable plugs for switch-over valve **-1-** and camshaft position sensor **-2-** .



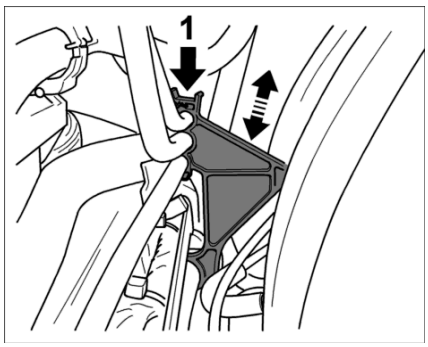
Switch-over valve connections

8. Fit cable plug to switch-over valve **-1-** . Fit vacuum pipes to the switch-over valve **-4-** .



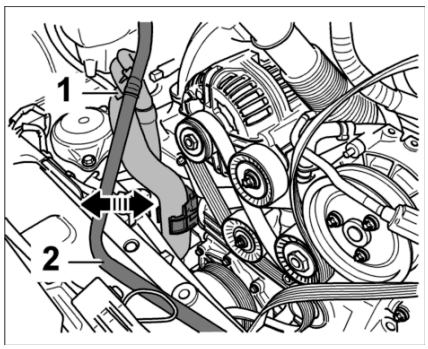
Plastic lines

9. Separate the tie-wraps and move lines into the installation position.



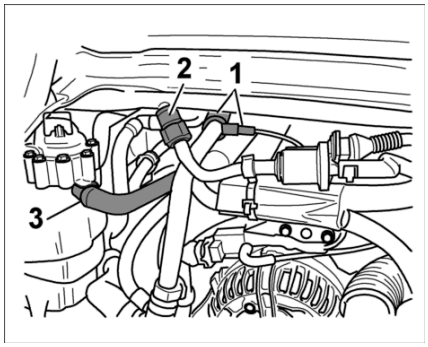
Cable holder

10. Fit cable holders by pushing onto intake distributor and fuel distributor tube. Clip plastic lines into cable holders and connect and secure the remaining lines.



Removing hoses

11. Clip the two coolant hoses and aluminium pipe of the brake booster into the holders on the transverse member *Removing hoses* .



Left engine compartment line connections

12. Fit line connections in left of engine compartment.

12.1. Fit vacuum lines for the brake booster **-1-** . Fit the tandem pump feed line into the holder (plastic protection must be fitted beforehand).

12.2. Connect tank vent line **-2-** , pressing the rapid-action coupling onto the line.

13. Install three-phase generator 272219 Removing and installing three-phase generator - chapter on "installing".

top of page

Removing intake distributor, cylinder bank 4-6

Removing intake distributor, cylinder bank 4-6

ATTENTION

Material damage through lowering engine

- **Cables and coolant hoses can be stretched and torn**

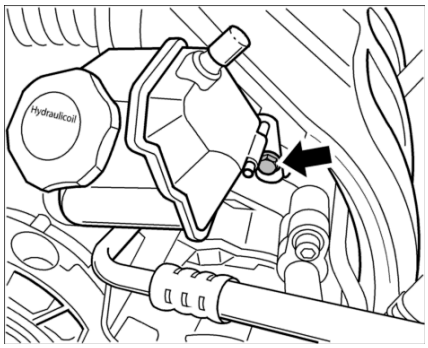
Lower the engine with a jack no more than 40 mm maximum

Note

Cover engine openings (e.g. intake openings, crankcase, oil lines, open reservoirs etc.) cover with a cloth to avoid dirt and foreign bodies falling in.

Note

- *After removal, place the air-conditioning compressor on a suitable protective support (e.g. foam, neoprene, etc.).*



Servo-tank

WARNING

Danger of injury and damage to material through Pentosin

- **Irritation and damage to skin**
- **Damage to hoses and wiring**

Wear protective gloves and goggles

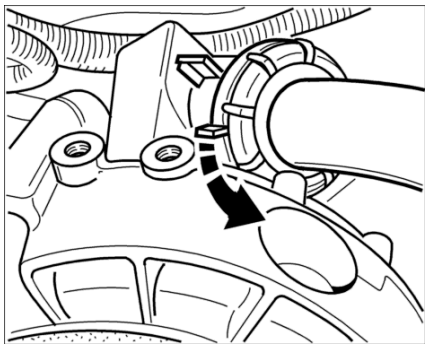
If the eyes or skin come into contact with the fluid, wash immediately with water!

Collect escaping Pentosin

Use caps to protect the wiring against soiling and damage!

Immediately clean hoses and wiring thoroughly

1. Remove fastening screw of servo-tank from intake distributor **-arrow-** . Extract Pentosin fluid from the servo-tank with a pump. Dispose of extracted Pentosin according to the relevant regulations. Lay a cloth under the tank to collect any emerging Pentosin. Open the bayonet lock anti-clockwise and remove the tank *Servo-tank bayonet lock* . Immediately seal the lower tank opening with a suitable plug.

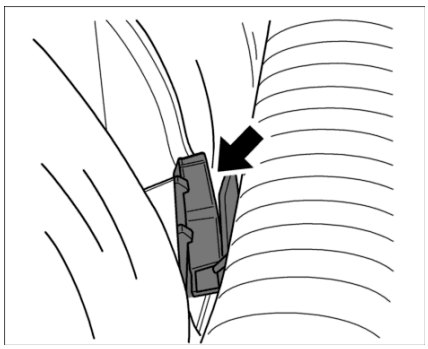


Servo-tank bayonet lock

Note

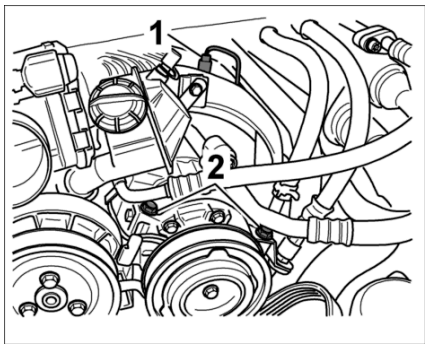
The air-conditioning lines on the compressor do not have to be disconnected in order to remove engine/transmission unit.

2. Detach air-conditioning compressor without disconnecting the air-conditioning lines *873409 11 Detaching and fastening compressor - detaching*.



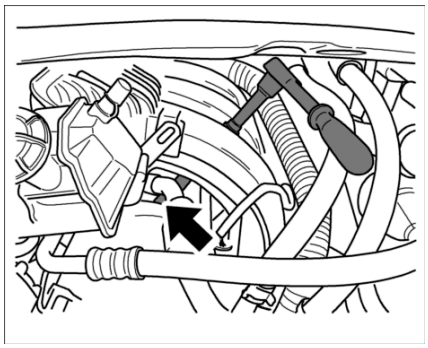
Air-conditioning compressor ground line

3. Disconnect ground connector from intake distributor side 4-6 **-arrow-** .



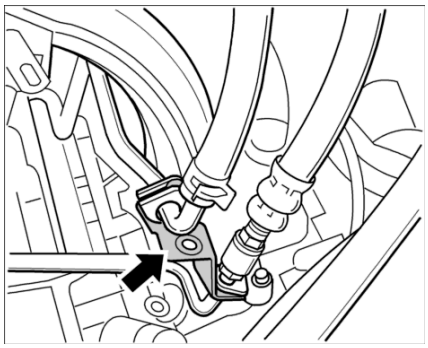
Rear fastening of the air-conditioning compressor

4. Pull the engine compartment temperature sensor out of the intake distributor 4-6 together with the rubber sleeve **-1-** and unscrew the rear fastening screws **-2-** of the air-conditioning compressor.



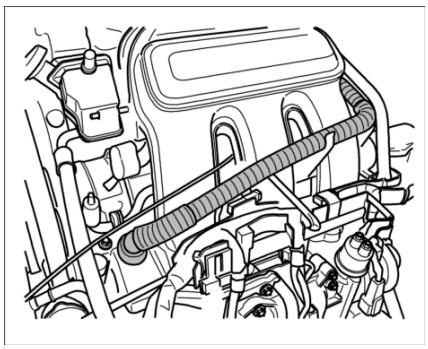
Front fastening screw of the air-conditioning compressor

5. Unscrew the front fastening screw **-arrow-** of the air-conditioning compressor. Due to the restricted accessibility, the use of a **3/8" extension, 16° movable NR.15** with a long Torx E10 socket wrench is recommended. To lift out the air-conditioning compressor, the screw must be pulled upwards and held in position.
6. Lift out the air-conditioning compressor with the leads connected and lay to one side on a protective support. Secure additionally with a tie-wrap.



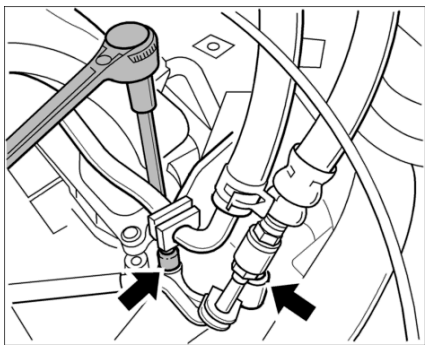
Sheetmetal holder

7. Pull the sheetmetal holder between the servo oil lines out of the rubber mounts and remove **-arrow-** .



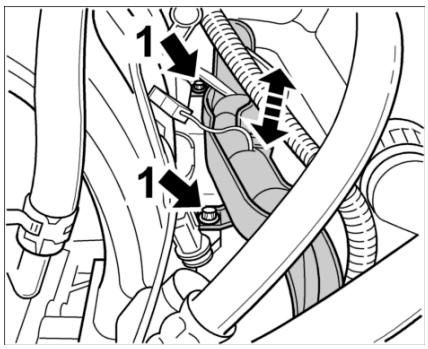
Oil mist line

8. Remove plastic line between oil mist separator and oil flange and lay to one side *Oil mist line* .



Oil flange

9. Unscrew the two fastening screws of the oil flange behind the servo oil lines and remove the oil flange **-arrows-** . Replace seal.



Fuel distributor pipe

10. Remove fastening screws for fuel distributor pipe **-1-** and pull fuel distributor pipe together with fitted injection valves from the intake distributor. Check sealing rings of injection valves and replace if necessary.

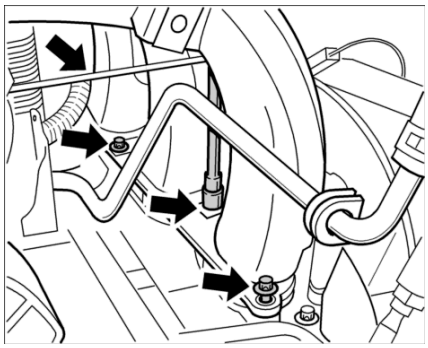
ATTENTION

Material damage through lowering engine

- **Cables and coolant hoses can be stretched and torn**

Lower the engine with a jack no more than 40 mm maximum

11. Support the engine with a jack. Unscrew the two collar nuts of the rear engine mounts. Lower the engine by 30 - 40 mm . Should the period between removal and installation be extended, the engine must be lifted back into position and temporarily secured with the collar nuts. Attach an appropriate warning notice.



Screws for intake distributor

12. Remove the four fastening screws of the intake distributor **-arrows-** . If necessary, use a mirror to remove the front-most screw. When removing the intake distributor, leave the fore-most screw in its bore in the intake distributor. Carefully remove the intake distributor from the engine compartment (carefully release vacuum lines to the switch-over valve). Replace seals.

Note

Cover engine openings (e.g. intake openings, crankcase, oil lines, open reservoirs etc.) cover with a cloth to avoid dirt and foreign bodies falling in.

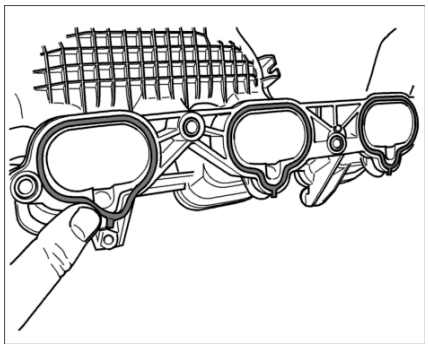
13. Cover engine openings with a cloth.

top of page

Installing intake distributor, cylinder bank 4-6

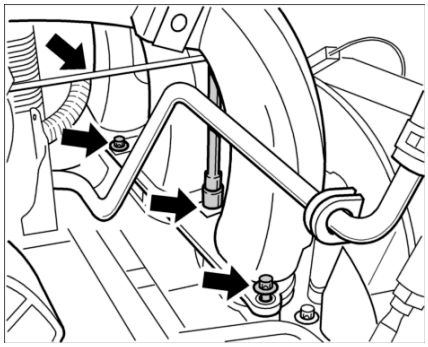
Installing intake distributor, cylinder bank 4-6

1. Clean the sealing surfaces of the intake distributor and crankcase.



Intake distributor seals

2. Replace the seals in the intake distributor and insert correctly into the grooves of the intake distributor *Intake distributor seals* .
3. Place intake distributor in installation position. At the same time, pull through and lay the vacuum lines to the switch-over valve.

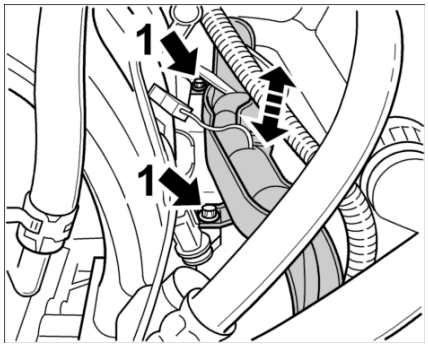


Screws for intake distributor

Note

If necessary, to ease installation of the intake distributor, insert the rear fastening screw in its bore in the intake distributor before commencing installation.
The socket for tightening the fastening screws of the intake distributor should be secured with a strip of insulating tape to prevent them falling out.
If necessary, carry out the work using a small mirror.

4. Screw in and tighten fastening screws of the intake distributor, using a magnet if necessary **Tightening torque: 7.5 ftlb.** .
5. Lift engine into position with the car jack and fasten **Tightening torque: 63 ftlb.** .

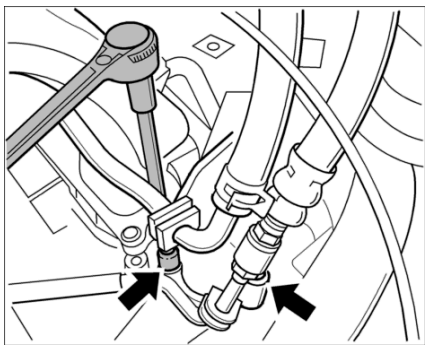


Fuel distributor pipe

6.

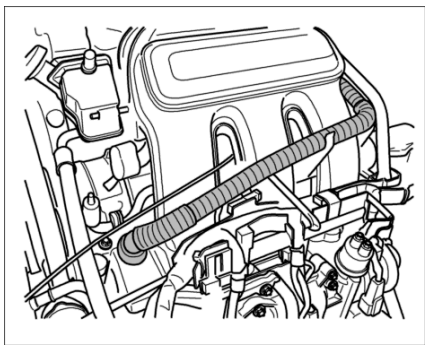
Check sealing rings of injection valves and replace if necessary. Clean sealing surfaces with a lint-free cloth and apply a thin coat of silicone spray. Insert fuel distributor pipe together with fitted injection valves into the appropriate openings of the intake distributor and screw in the fastening screws of the fuel distributor pipe to the intake distributor **-1-** . Tighten screws **Tightening torque: 7.5 ftlb.** .

7. Move cable duct into position on the fuel distributor pipe and clip in *Fuel distributor pipe* .



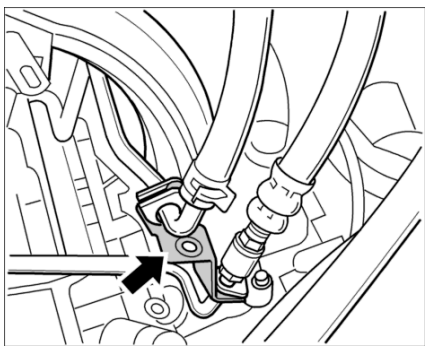
Oil flange

8. Replace oil flange seal. Place oil flange in installation position. Screw in the two fastening screws of the oil flange **-arrows-** and tighten **Tightening torque: 7.5 ftlb.** .



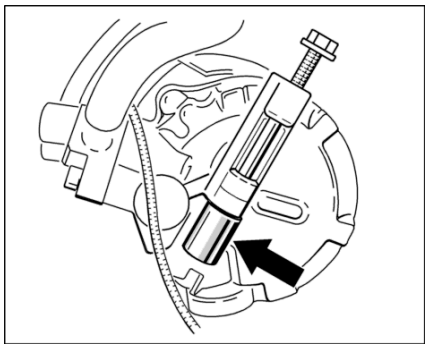
Oil mist line

9. Fit plastic line between oil mist separator and oil flange *Oil mist line* .



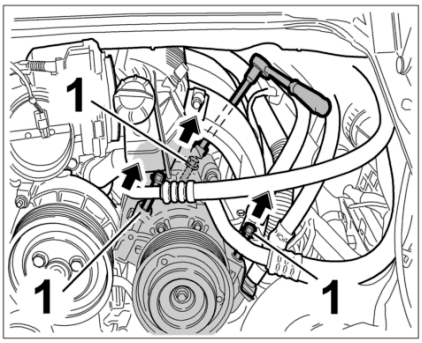
Sheetmetal holder

10. Fit sheetmetal holder between servo lines into rubber mounts **-arrow-** ..



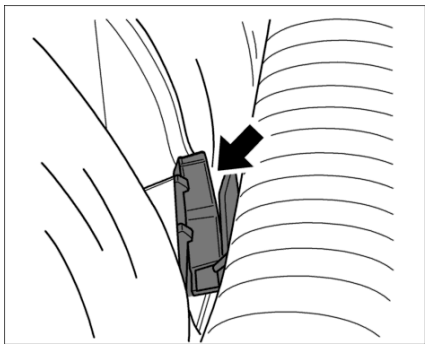
Front air-conditioning compressor fastening screw and sleeve

11. Fit air-conditioning compressor: before installing the compressor check whether the aluminium spacer sleeve **-arrow-** is inserted. Grease and fit sleeve. Also lay the ground cable before installation.



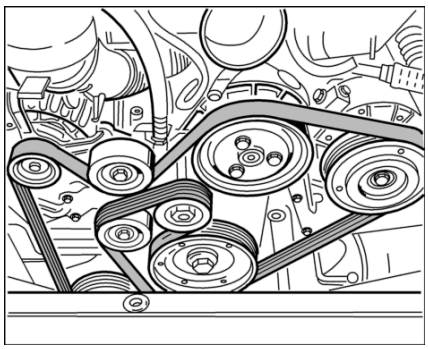
Fastening of the air-conditioning compressor

12. Fit air-conditioning compressor and fasten using three M8 Torx screws (two short ones at the rear, one long one at the front) **-1-** . See details and tightening torques 873419 Removing and installing compressor - chapter on "installing".



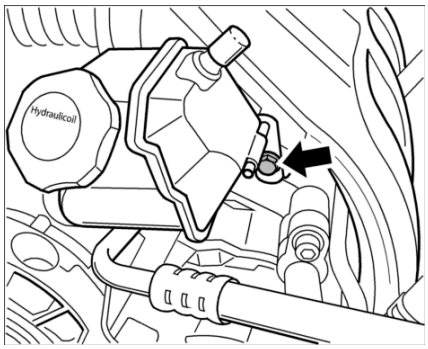
Air-conditioning compressor ground line

13. Connect ground connector to intake distributor side 4-6 **-arrow-** .



Drive belt

14. Fit drive belt. Pay attention to operating direction of used belts. Double-check that the position of the belt on the belt pulleys is correct.



Servo-tank

WARNING

Danger of injury and damage to material through Pentosin

- **Irritation and damage to skin**
- **Damage to hoses and wiring**

Wear protective gloves and goggles

If the eyes or skin come into contact with the fluid, wash immediately with water!

Collect escaping Pentosin

Use caps to protect the wiring against soiling and damage!

Immediately clean hoses and wiring thoroughly

15. Check sealing rings on servo-tank and replace if necessary. Fit servo-tank by carefully inserting the tank into the opening of the servo pump and fastening the bayonet lock in the clockwise direction. Fit fastening screw of servo-tank to intake distributor **Tightening torque: 7.5 ftlb.** . Fill servo-tank with Pentosin fluid and check oil level.

top of page

Subsequent work

Subsequent work for installing intake distributor

1. Install tuning pipe 247419 Removing and installing tuning pipe - chapter on "installing".
2. Install air cleaner housing 242519 Removing and installing air cleaner housing - chapter on "installing".
3. Connect the battery *271000 A6 Work instructions after disconnecting the battery - chapter on "connecting"* .

24 69 19 Removing and installing oxygen sensor in front of catalytic converter - as of MY 2005

- Preliminary work
- Removing oxygen sensors in front of catalytic converter
- Installing oxygen sensors in front of catalytic converter
- Subsequent work

Tools

Designation	Type	Number	Explanation	
Torque wrench, signal-transmitting with changeover ratchet	commercially available tool	NR.90		
accessory for torque wrench. Open ring wrench angled	commercially available tool	NR.96-3		

top of page

Preliminary work

Preliminary work for removing oxygen sensors in front of catalytic converter

1. Remove air cleaner housing 242519 Removing and installing air cleaner housing - chapter on "removing".

top of page

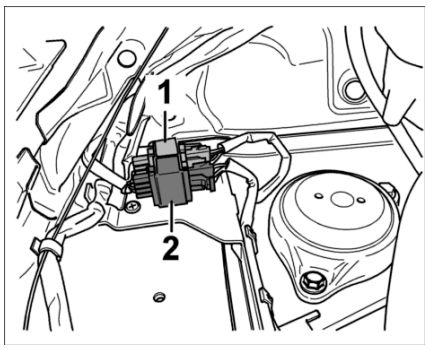
Removing oxygen sensors in front of catalytic converter

Removing oxygen sensor in front of catalytic converter of cylinder bank 1-3

Note

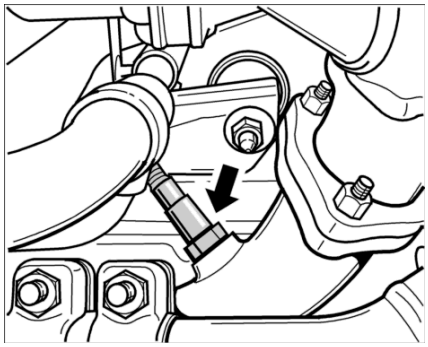
- *Always expose oxygen sensor wire far enough for it to be able to turn when unscrewing the sensor.*

241000 Precautionary measures when handling oxygen sensors



Disconnect plug connection for oxygen sensor:

1. Disconnect plug connection in left of engine compartment for the oxygen sensor in front of catalytic converter. To do this, pull the black connector out of the holder first **-2-** .
2. Release blue cable of the oxygen sensor in front of catalytic converter from the cable holder.



Oxygen sensor in front of catalytic converter

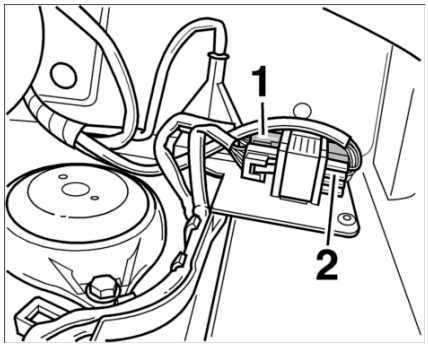
3. Undo oxygen sensor using an open-ended wrench or open ring wrench (a/f 22) and screw it out by hand **-arrow-** .

Removing oxygen sensor in front of catalytic converter of cylinder bank 4-6

Note

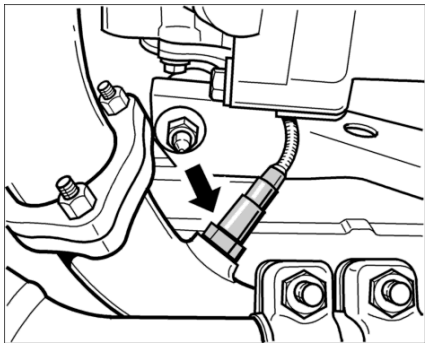
- *Always expose oxygen sensor wire far enough for it to be able to turn when unscrewing the sensor.*

241000 Precautionary measures when handling oxygen sensors



Plug connection for oxygen sensor

1. Disconnect plug connection in right of engine compartment for the oxygen sensor in front of catalytic converter. To do this, pull the black connector out of the holder first **-2-** .
2. Release blue cable of the oxygen sensor in front of catalytic converter from the cable holder.



Oxygen sensor in front of catalytic converter

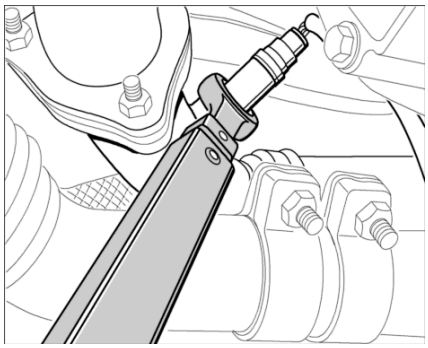
3. Undo oxygen sensor using an open-ended wrench or open ring wrench (a/f 22) and screw it out by hand **-arrow-** .

top of page

Installing oxygen sensors in front of catalytic converter

Installing oxygen sensor in front of catalytic converter of cylinder bank 1-3

1. Route the oxygen sensors so that the cable can be easily routed from the engine compartment side to the exhaust system.
2. Position the oxygen sensor by hand and screw in as far as possible.



Tightening oxygen sensor

3. Tighten oxygen sensor with commercially available open ring wrench **accessory for torque wrench. Open ring wrench angled NR.96-3** and torque wrench **Torque wrench, signal-transmitting with changeover ratchet NR.90** and tighten to the specified tightening torque **Tightening torque: 41 ftlb. +/-3.5 ftlb.** .
4. Route the blue oxygen sensor cable and secure it in the sheetmetal brackets, cable holders, or the cable guide (right side).
5. Connect plug connection (blue cable - black connector) and insert in the holder.

Installing oxygen sensor in front of catalytic converter of cylinder bank 4-6

1. Guide the oxygen sensors through so that the cable can be easily routed from the engine compartment side to the exhaust system.
2. Position the oxygen sensor by hand and screw in as far as possible.
3. Tighten oxygen sensor with commercially available open ring wrench **accessory for torque wrench. Open ring wrench angled NR.96-3** and torque wrench **Torque wrench, signal-transmitting with changeover ratchet NR.90** tighten **Tightening torque: 41 ftlb. +/-3.5 ftlb.** .
4. Route the blue oxygen sensor cable and secure it in the sheetmetal brackets, cable holders, or the cable guide (right side).
5. Connect plug connection (blue cable - black connector) and insert in the holder.

top of page

Subsequent work

Subsequent work for installing oxygen sensors in front of catalytic converter

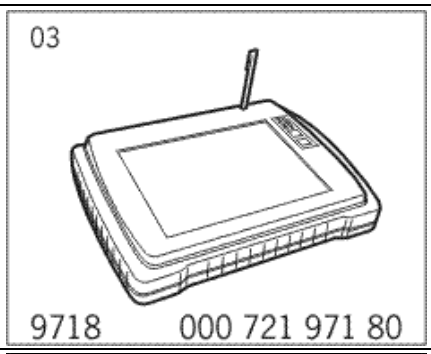
1. Install air cleaner housing 242519 Removing and installing air cleaner housing - chapter on "installing".

997110, 997111, 997120, 997121, 997310, 997311, 997320, 997321, 997410, 997411, 997430, 997431, 997610, 997611, 997620, 997621

24 70 19 Removing and installing DME control module - as of MY 2005

- Preliminary work
- General warning notes
- Removing DME control module
- Installing DME control module
- Subsequent work
- Programming DME control module

Tools

Designation	Type	Number	Explanation	
PIWIS Tester	special tool	9718		
Removal tool, universal	commercially available tool	NR.21		

top of page

Preliminary work

Preliminary work for DME control module in Cabriolet

1. Removing cover over the motor

1.1. To loosen the carpet, pull out the plastic clips with the special tool 21 and take out the carpet.
Removal tool, universal NR.21

If a new DME control unit is installed, then read out the vehicle data from the DME control unit and transfer them to the new one.

2.

Connect the **PIWIS Tester 9718** to the vehicle and start the System Tester. Switch on ignition. Press >> to continue.

3. Select vehicle type and press >> to continue.
4. Carry out automatic search of control units.
5. Select **DME** with the cursor keys and press the >> key.
6. Select **Program control unit** with the cursor keys and press the >> key.
7. Select **Read out vehicle data** (Vehicle data) using the cursor keys and press >> .
8. The message **Reading vehicle data** will appear on the tester screen.
9. After replacement of the DME control unit, the vehicle data is uploaded from the **Program control unit** menu option.

top of page

General warning notes

General warning notes for control units

WARNING

Sudden voltage interruption of the power supply to the control module.

- **Destruction of the control module.**

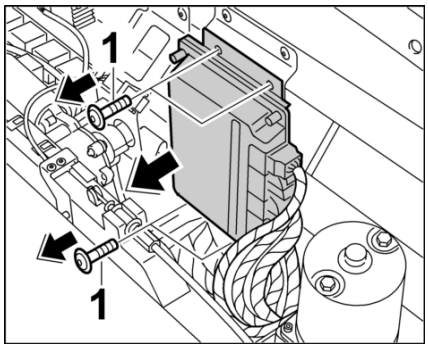
During programming, it is essential to guarantee the power supply for the Porsche System tester. It is essential to connect a battery charger with a current rating of at least 40 A to the vehicle battery.

Prior to disconnecting the control module, switch off the ignition and remove the ignition key.

top of page

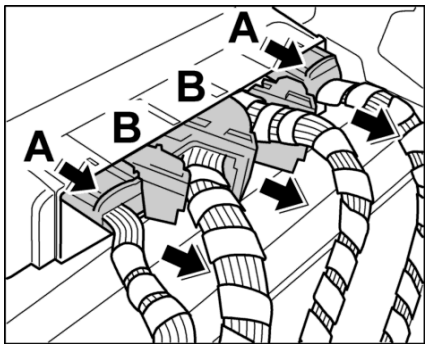
Removing DME control module

Removing DME control module in Cabriolet



Unscrewing fastening screws

1. Unscrew the four fastening screws **-1-** for the control module and lift it out.



Releasing electric connector

WARNING

Risk of damage to electronic control modules.

- **If care is not taken, electrical and electronic components may be destroyed.**

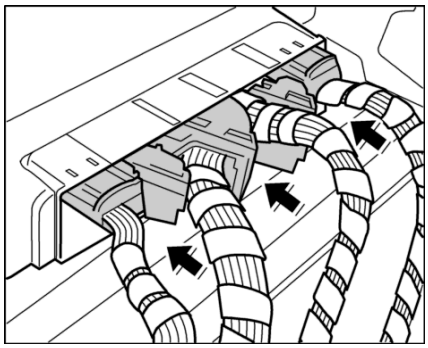
Before removing the control module, switch off the ignition and remove the ignition key.

2. Press in the connector and pull it off the control module **-A-** .
3. Press in connector **-B-** latch and actuate the latching lever.

top of page

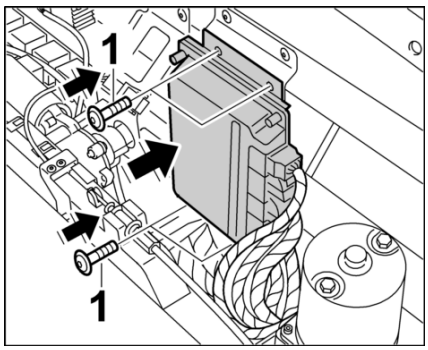
Installing DME control module

Installing DME control module in cabriolet



Inserting the connectors

1. Push in connectors **-B-** for DME control module and lock with the latching lever.
2. Press in connectors **-A-** on the control module they engage.



Tightening fastening screws

3. Fasten control module with the four fastening screws **-1-** to the roll-over protection frame.

top of page

Subsequent work

Subsequent work on DME control unit

1. Place carpet lining in position, paying attention to the fitted shape.
2. The DME control unit can be programmed using the **PIWIS Tester 9718**.

Subsequent work for DME control module in Cabriolet

1. Reinstall the carpet over the motor.
2. The DME control unit can be programmed using the **PIWIS Tester 9718**.

top of page

Programming DME control module

Programming new DME control module

WARNING

Sudden voltage interruption of the power supply to the control module.

- **Destruction of the control module.**

During programming, it is essential to guarantee the power supply for the Porsche System tester. It is essential to connect a battery charger with a current rating of at least 40 A to the vehicle battery.

Prior to disconnecting the control module, switch off the ignition and remove the ignition key.

Note

If a new DME control module is to be installed in a vehicle, the DME code specified in IPAS and the immobiliser code must be entered in the DME control module.
The codes are available from IPAS or via the importer.
Follow the instructions on the Tester.
Later versions of the software may display slightly different text or require a slightly different procedure. The instructions you receive from the tester itself take precedence over this description.

Note

- *During programming, the electric radiator fans may start.*

Note

Depending on the software version of the PIWIS Tester, a new DME control module can be interrogated for the "old DME programming code". In this case, enter the code from IPAS which is also used for the "new DME programming code".

In some countries (currently USA, Canada) the Ready status must be obtained following a test drive or by using the Porsche System Tester after the DME control module has been programmed. If in doubt about this, contact the relevant importer.

1. Connect the **PIWIS Tester 9718** to the vehicle and start the System Tester. Switch on ignition. Press >> to continue.
2. Select vehicle type. Press >> to continue.

Read out vehicle data. 247019 Removing and installing DME control module - "Preliminary work" section

3. Switch to the **Special functions** menu and perform the **vehicle handover** using the F8 key.

4. In the **Special functions** menu, erase **All fault memories** by pressing >> .
5. Carry out automatic search of control units.
6. Select **DME** with the cursor keys and press the >> key.
7. Select **Program control unit** with the cursor keys and press the >> key.
8. Select **Program control module** with the cursor keys and press the >> key. Observe the information displayed by the Tester.
9. Enter **Vehicle Ident. No.**, >> confirm with F7 .
10. Enter the **DME programming code** (IPAS), >> confirm with F7 .
11. Enter the **new immobiliser code** (IPAS), >> confirm with F7 .
12. Specify **vehicle type** >> .
13. Specify **transmission type** >> .
14. Specify **exhaust standard** >> .
15. Start **Programming** with F8 . The data and programming status is then loaded on to the DME control module. Do not interrupt the programming sequence. Observe Tester instructions.
16. For the learning and adaptation routine of the throttle valve (electronic throttle), switch the ignition off, remove ignition key, insert ignition key and switch on ignition for at least 40 seconds without starting the engine. Do not actuate accelerator pedal. This completes the adaptation of the throttle adjusting unit and the programming sequence is complete.
17. In the **DME** menu go to **Coding**, code Cruise control present, not present.
18. Go to **Vehicle data** and, if necessary, enter the vehicle-specific data.
19. Read out the fault memories of all control units and delete the DME control module fault on every control unit connected to the CAN.
20. Start engine.
21. Carry out a test drive and read out fault memory again.

Programming DME control module

WARNING

Sudden voltage interruption of the power supply to the control module.

- **Destruction of the control module.**

During programming, it is essential to guarantee the power supply for the Porsche System tester. It is essential to connect a battery charger with a current rating of at least 40 A to the vehicle battery.

Prior to disconnecting the control module, switch off the ignition and remove the ignition key.

Note

If a new DME control module is to be installed in a vehicle, the DME code specified in IPAS and the immobiliser code must be entered in the DME control module.

The codes are available from IPAS or via the importer.
Follow the instructions on the Tester.
Later versions of the software may display slightly different text or require a slightly different procedure. The instructions you receive from the tester itself take precedence over this description.

Note

- *During programming, the electric radiator fans may start.*

If a DME control module from a different vehicle with ME 7.8 is being used, proceed as follows. As a check, the immobiliser code of the vehicle in which the control module is being installed (NEW) and of the vehicle from which the control module has been removed (OLD) is required.
In some countries (currently USA, Canada) the Ready status must be obtained following a test drive or by using the Porsche System Tester after the DME control module has been programmed. If in doubt about this, contact the relevant importer.

1. Connect the **PIWIS Tester 9718** to the vehicle and start the System Tester. Switch on ignition. Press >> to continue.
2. Select vehicle type. Press >> to continue.
3. Read out vehicle data. 247019 Removing and installing DME control module - "Preliminary work" section
4. Carry out automatic search of control units.
5. Select **DME** with the cursor keys and press the >> key.
6. Select **Program control unit** with the cursor keys and press the >> key.
7. Select **Program control modules** with the cursor keys and press the >> key. Observe the information displayed by the Tester.
8. Enter **Vehicle Ident. No.**, >> confirm with F7 .
9. Enter the **old DME programming code (IPAS)** , >> confirm with F7 .
10. Enter the **new DME programming code (IPAS)** , >> confirm with F7 .
11. Enter the **old immobiliser code (IPAS)** , >> confirm with F7 .
12. Enter the **new immobiliser code (IPAS)** , >> confirm with F7 .
13. Specify **vehicle type** >> .
14. Specify **transmission type** >> .
15. Specify **exhaust standard** >> .
16. Start **Programming** with F8 . The data and programming status is then loaded on to the DME control module. Do not interrupt the programming sequence. Observe Tester instructions.
17. For the learning and adaptation routine of the throttle valve (electronic throttle), switch the ignition off, remove ignition key, insert ignition key and switch on ignition for at least 40 seconds without starting the engine. Do not actuate accelerator pedal. This completes the adaptation of the throttle adjusting unit and the programming sequence is complete.
18. In the **DME** menu go to **Coding**, code Cruise control present, not present.
19. Go to **Vehicle data** and, if necessary, enter the vehicle-specific data.
20. Read out the fault memories of all control units and delete the DME control module fault on every control unit connected to the CAN.

21. Start engine.
22. Carry out a test drive and read out fault memory again.

Exhaust-gas standard

ME 7.8		
Type	Exhaust-gas standard	Explanation
OBD 2	LEV, manual transmission LEV, Tiptronic	Low Emission Vehicle, USA As of model year `03.
RoW	EU2, manual transmission EU2, Tiptronic	Rest of world As of model year `03.
EOBD	EU4, manual transmission EU4, Tiptronic	European On-Board Diagnosis. As of model year `05.
Corea	EU4, manual transmission EU4, Tiptronic	For Corea, as of model year '05.
Japan	EU4, manual transmission EU4, Tiptronic	For Japan, as of model year '05.

997310, 997311, 997320, 997321, 997611, 997620, 997621

as of MY 2005
Country C00, C02, C05, C07, C08, C09, C10, C11, C12, C13, C14, C15, C16, C18, C19, C20, C21, C22, C23, C24, C25, C26, C27, C28, C32, C33, C34, C35, C36, C37, C38, C39, C45, C46, C98, C99

WARNUNG

Gefahr des Verlusts der Text-Bild-Zuordnung beim Ausdruck.

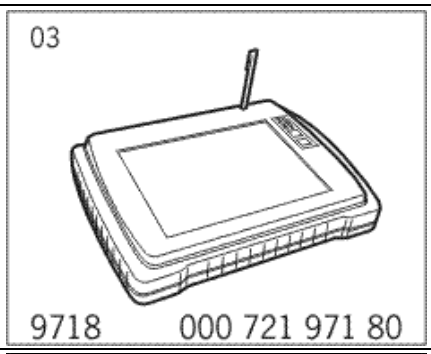
- **Aus technischen Gründen kann derzeit nicht ausgeschlossen werden, dass trotz einwandfreier Darstellung auf dem Bildschirm beim Ausdruck der Zusammenhang von Text und zugehörigem Bild verloren geht.**
- **Wird der Fehler nicht bemerkt, besteht die Gefahr, daß Arbeiten nicht korrekt durchgeführt werden und es dadurch zu Personen- und Sachschäden kommt.**

Vergleichen Sie deshalb nach dem Druckvorgang unbedingt die Ausdrucke mit der Bildschirmdarstellung. Korrigieren Sie die Ausdrucke im Fehlerfall so, daß der Inhalt der Bildschirmdarstellung zutreffend wiedergegeben wird.

24 70 19 Removing and installing DME control module - as of MY 2005

- Preliminary work
- General warning notes
- Removing DME control module
- Installing DME control module
- Subsequent work
- Programming DME control module

Tools

Designation	Type	Number	Explanation	
PIWIS Tester	special tool	9718		
Removal tool, universal	commercially available tool	NR.21		

top of page

Preliminary work

Subsequent work on DME control unit

Remove the cover above the heating/air-conditioning system and fluid tank.
If a new DME control unit is installed, then read out the vehicle data from the DME control unit and transfer them to the new one.

1. Connect the **PIWIS Tester 9718** to the vehicle and start the System Tester. Switch on ignition. Press >> to continue.
2. Select vehicle type. Press >> to continue.

3. Carry out automatic search of control units.
4. Select **DME** with the cursor keys and press the >> key.
5. Select **Program control unit** with the cursor keys and press the >> key.
6. Select **Read out vehicle data** (Vehicle data) with the cursor keys and press the >> key.
7. The message **Reading vehicle data** will appear on the tester screen.
8. After replacement of the DME control unit, the vehicle data is uploaded from the **Program control unit** menu option.

Preliminary work for DME control module in Cabriolet

1. Removing cover over the motor

1.1. To loosen the carpet, pull out the plastic clips with the special tool 21 and take out the carpet.
Removal tool, universal NR.21

If a new DME control unit is installed, then read out the vehicle data from the DME control unit and transfer them to the new one.

2. Connect the **PIWIS Tester 9718** to the vehicle and start the System Tester. Switch on ignition. Press >> to continue.
3. Select vehicle type and press >> to continue.
4. Carry out automatic search of control units.
5. Select **DME** with the cursor keys and press the >> key.
6. Select **Program control unit** with the cursor keys and press the >> key.
7. Select **Read out vehicle data** (Vehicle data) using the cursor keys and press >> .
8. The message **Reading vehicle data** will appear on the tester screen.
9. After replacement of the DME control unit, the vehicle data is uploaded from the **Program control unit** menu option.

top of page

General warning notes

General warning notes for control units

WARNING

Sudden voltage interruption of the power supply to the control module.

- **Destruction of the control module.**

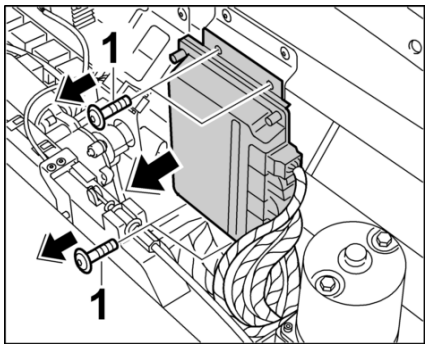
During programming, it is essential to guarantee the power supply for the Porsche System tester. It is essential to connect a battery charger with a current rating of at least 40 A to the vehicle battery.

Prior to disconnecting the control module, switch off the ignition and remove the ignition key.

top of page

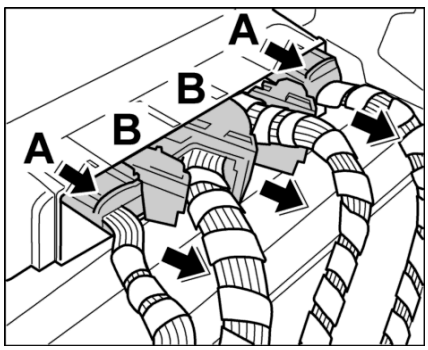
Removing DME control module

Removing DME control module in Cabriolet



Unscrewing fastening screws

1. Unscrew the four fastening screws **-1-** for the control module and lift it out.



Releasing electric connector

WARNING

Risk of damage to electronic control modules.

- **If care is not taken, electrical and electronic components may be destroyed.**

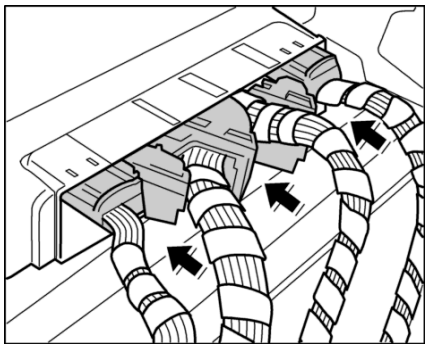
Before removing the control module, switch off the ignition and remove the ignition key.

2. Press in the connector and pull it off the control module **-A-** .
3. Press in connector **-B-** latch and actuate the latching lever.

top of page

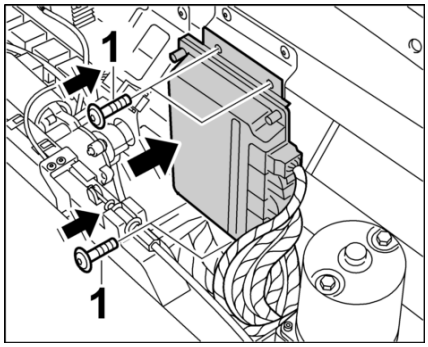
Installing DME control module

Installing DME control module in cabriolet



Inserting the connectors

1. Push in connectors **-B-** for DME control module and lock with the latching lever.
2. Press in connectors **-A-** on the control module they engage.



Tightening fastening screws

3. Fasten control module with the four fastening screws **-1-** to the roll-over protection frame.

top of page

Subsequent work

Subsequent work on DME control unit

1. Place carpet lining in position, paying attention to the fitted shape.
2. The DME control unit can be programmed using the **PIWIS Tester 9718**.

Subsequent work for DME control module in Cabriolet

1. Reinstall the carpet over the motor.
2. The DME control unit can be programmed using the **PIWIS Tester 9718**.

top of page

Programming DME control module

Programming new DME control module

WARNING

Sudden voltage interruption of the power supply to the control module.

- **Destruction of the control module.**

During programming, it is essential to guarantee the power supply for the Porsche System tester. It is essential to connect a battery charger with a current rating of at least 40 A to the vehicle battery.

Prior to disconnecting the control module, switch off the ignition and remove the ignition key.

Note

If a new DME control module is to be installed in a vehicle, the DME code specified in IPAS and the immobiliser code must be entered in the DME control module.
The codes are available from IPAS or via the importer.
Follow the instructions on the Tester.
Later versions of the software may display slightly different text or require a slightly different procedure. The instructions you receive from the tester itself take precedence over this description.

Note

- *During programming, the electric radiator fans may start.*

Note

Depending on the software version of the PIWIS Tester, a new DME control module can be interrogated for the "old DME programming code". In this case, enter the code from IPAS which is also used for the "new DME programming code".

In some countries (currently USA, Canada) the Ready status must be obtained following a test drive or by using the Porsche System Tester after the DME control module has been programmed. If in doubt about this, contact the relevant importer.

1. Connect the **PIWIS Tester 9718** to the vehicle and start the System Tester. Switch on ignition. Press >> to continue.
2. Select vehicle type. Press >> to continue.

Read out vehicle data. 247019 Removing and installing DME control module - "Preliminary work" section

3. Switch to the **Special functions** menu and perform the **vehicle handover** using the F8 key.
4. In the **Special functions** menu, erase **All fault memories** by pressing >> .
5. Carry out automatic search of control units.
6. Select **DME** with the cursor keys and press the >> key.
7. Select **Program control unit** with the cursor keys and press the >> key.
8. Select **Program control module** with the cursor keys and press the >> key. Observe the information displayed by the Tester.
9. Enter **Vehicle Ident. No.**, >> confirm with F7 .
10. Enter the **DME programming code** (IPAS), >> confirm with F7 .
11. Enter the **new immobiliser code** (IPAS), >> confirm with F7 .
12. Specify **vehicle type** >> .
13. Specify **transmission type** >> .
14. Specify **exhaust standard** >> .
15. Start **Programming** with F8 . The data and programming status is then loaded on to the DME control module. Do not interrupt the programming sequence. Observe Tester instructions.
16. For the learning and adaptation routine of the throttle valve (electronic throttle), switch the ignition off, remove ignition key, insert ignition key and switch on ignition for at least 40 seconds without starting the engine. Do not actuate accelerator pedal. This completes the adaptation of the throttle adjusting unit and the programming sequence is complete.
17. In the **DME** menu go to **Coding**, code Cruise control present, not present.
18. Go to **Vehicle data** and, if necessary, enter the vehicle-specific data.
19. Read out the fault memories of all control units and delete the DME control module fault on every control unit connected to the CAN.
20. Start engine.
21. Carry out a test drive and read out fault memory again.

Programming DME control module

WARNING

Sudden voltage interruption of the power supply to the control module.

- **Destruction of the control module.**

During programming, it is essential to guarantee the power supply for the Porsche System tester. It is essential to connect a battery charger with a current rating of at least 40 A to the vehicle battery.

Prior to disconnecting the control module, switch off the ignition and remove the ignition key.

Note

If a new DME control module is to be installed in a vehicle, the DME code specified in IPAS and the immobiliser code must be entered in the DME control module.
The codes are available from IPAS or via the importer.
Follow the instructions on the Tester.
Later versions of the software may display slightly different text or require a slightly different procedure. The instructions you receive from the tester itself take precedence over this description.

Note

- *During programming, the electric radiator fans may start.*

If a DME control module from a different vehicle with ME 7.8 is being used, proceed as follows. As a check, the immobiliser code of the vehicle in which the control module is being installed (NEW) and of the vehicle from which the control module has been removed (OLD) is required.
In some countries (currently USA, Canada) the Ready status must be obtained following a test drive or by using the Porsche System Tester after the DME control module has been programmed. If in doubt about this, contact the relevant importer.

1. Connect the **PIWIS Tester 9718** to the vehicle and start the System Tester. Switch on ignition. Press >> to continue.
2. Select vehicle type. Press >> to continue.
3. Read out vehicle data. 247019 Removing and installing DME control module - "Preliminary work" section
4. Carry out automatic search of control units.
5. Select **DME** with the cursor keys and press the >> key.
6. Select **Program control unit** with the cursor keys and press the >> key.
7. Select **Program control modules** with the cursor keys and press the >> key. Observe the information displayed by the Tester.
8. Enter **Vehicle Ident. No.**, >> confirm with F7 .
9. Enter the **old DME programming code (IPAS)** , >> confirm with F7 .
10. Enter the **new DME programming code (IPAS)** , >> confirm with F7 .
11. Enter the **old immobiliser code (IPAS)** , >> confirm with F7 .
12. Enter the **new immobiliser code (IPAS)** , >> confirm with F7 .
13. Specify **vehicle type** >> .

14. Specify **transmission type** >> .
15. Specify **exhaust standard** >> .
16. Start **Programming** with F8 . The data and programming status is then loaded on to the DME control module. Do not interrupt the programming sequence. Observe Tester instructions.
17. For the learning and adaptation routine of the throttle valve (electronic throttle), switch the ignition off, remove ignition key, insert ignition key and switch on ignition for at least 40 seconds without starting the engine. Do not actuate accelerator pedal. This completes the adaptation of the throttle adjusting unit and the programming sequence is complete.
18. In the **DME** menu go to **Coding**, code Cruise control present, not present.
19. Go to **Vehicle data** and, if necessary, enter the vehicle-specific data.
20. Read out the fault memories of all control units and delete the DME control module fault on every control unit connected to the CAN.
21. Start engine.
22. Carry out a test drive and read out fault memory again.

Exhaust-gas standard

ME 7.8		
Type	Exhaust-gas standard	Explanation
OBD 2	LEV, manual transmission LEV, Tiptronic	Low Emission Vehicle, USA As of model year `03.
RoW	EU2, manual transmission EU2, Tiptronic	Rest of world As of model year `03.
EOBD	EU4, manual transmission EU4, Tiptronic	European On-Board Diagnosis. As of model year `05.
Corea	EU4, manual transmission EU4, Tiptronic	For Corea, as of model year '05.
Japan	EU4, manual transmission EU4, Tiptronic	For Japan, as of model year '05.

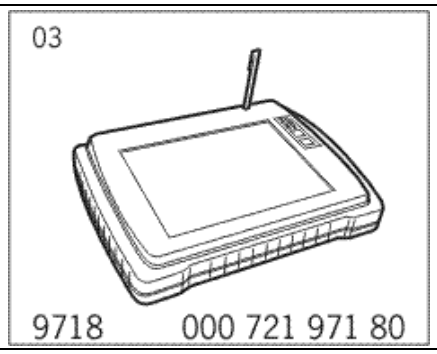
997610

as of MY 2005
Country C00, C02, C05, C07, C08, C09, C10, C11, C12, C13, C14, C15, C16, C18, C19, C20, C21, C22, C23, C24, C25, C26, C27, C28, C32, C33, C34, C35, C36, C37, C38, C39, C45, C46, C98, C99

24 70 19 Removing and installing DME control module - as of MY 2005

- Preliminary work
- General warning notes
- Removing DME control module
- Installing DME control module
- Subsequent work
- Programming DME control module

Tools

Designation	Type	Number	Explanation	
PIWIS Tester	special tool	9718		

top of page

Preliminary work

Subsequent work on DME control unit

Remove the cover above the heating/air-conditioning system and fluid tank.
If a new DME control unit is installed, then read out the vehicle data from the DME control unit and transfer them to the new one.

1. Connect the **PIWIS Tester 9718** to the vehicle and start the System Tester. Switch on ignition. Press >> to continue.
2. Select vehicle type. Press >> to continue.
3. Carry out automatic search of control units.
4. Select **DME** with the cursor keys and press the >> key.
5. Select **Program control unit** with the cursor keys and press the >> key.
6. Select **Read out vehicle data** (Vehicle data) with the cursor keys and press the >> key.
7. The message **Reading vehicle data** will appear on the tester screen.
8. After replacement of the DME control unit, the vehicle data is uploaded from the **Program control unit** menu option.

top of page

General warning notes

General warning notes for control units

WARNING

Sudden voltage interruption of the power supply to the control module.

- **Destruction of the control module.**

During programming, it is essential to guarantee the power supply for the Porsche System tester. It is essential to connect a battery charger with a current rating of at least 40 A to the vehicle battery.

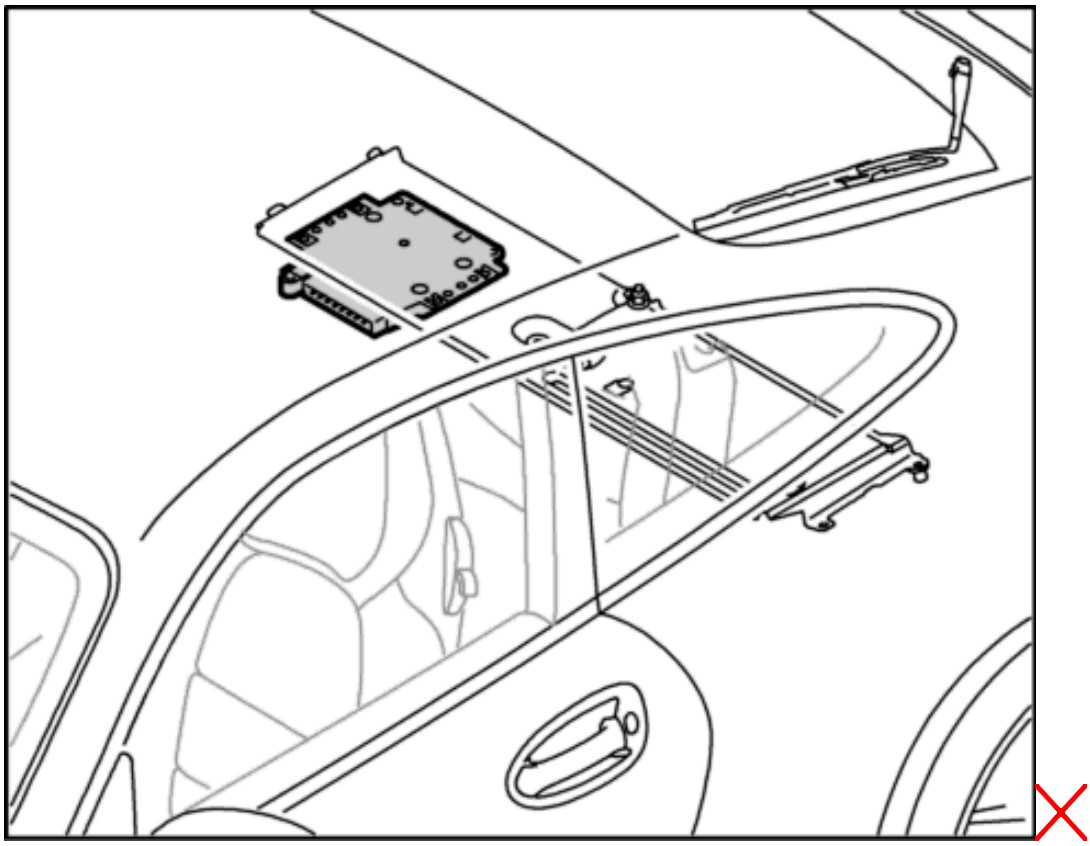
Prior to disconnecting the control module, switch off the ignition and remove the ignition key.

top of page

Removing DME control module

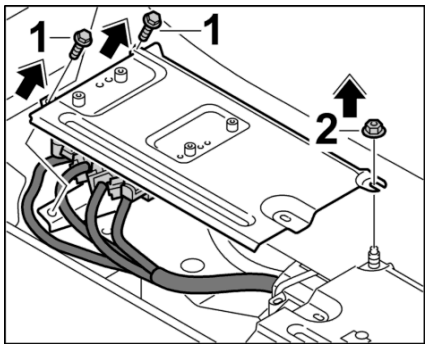
Removing DME control module

Installation Location:



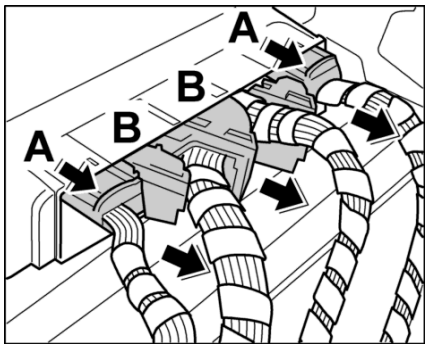
Installation position 911

1. Fold the backrests of the rear seats forward.
2. Lift the carpet lining up and remove.



Unscrewing fastening screws

3. Unscrew fastening screw **-1-** and loosen fixing nut **-2-** .
4. Turn control module holder.



Releasing electric connector

WARNING

Risk of damage to electronic control modules.

- **If care is not taken, electrical and electronic components may be destroyed.**

Before removing the control module, switch off the ignition and remove the ignition key.

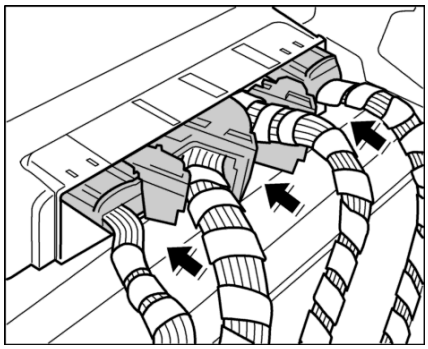
5. Press in the plug and pull it off the control module **-A-** .
6. Push in plugs **-B-** lock and actuate the latching lever.
7. Unscrew the four fastening screws of the holder and remove the control module.

top of page

Installing DME control module

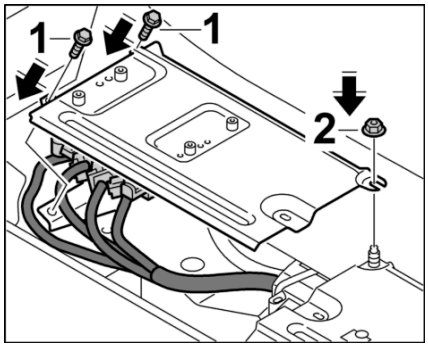
Installing DME control module

1. Fasten the control module to the holder with the four fastening screws. **M6: 10 (7.5 ftlb.) Nm**



Inserting the connectors

2. Push in plug **-B-** for DME control module and secure with the locking bar.
3. Press in plugs **-A-** on the control module, until the connectors engage.



Tightening fastening screws

4. Turn the control module holder and push it in under the fastening nut **-2-** .
5. Tighten both fastening screws **-1-** and the fastening nut **-2-** . **M6: 10 (7.5 ftlb.) Nm** **M6: 10 (7.5 ftlb.) Nm**

top of page

Subsequent work

Subsequent work on DME control unit

1. Place carpet lining in position, paying attention to the fitted shape.
2. The DME control unit can be programmed using the **PIWIS Tester 9718**.

top of page

Programming DME control module

Programming new DME control module

WARNING

Sudden voltage interruption of the power supply to the control module.

- **Destruction of the control module.**

During programming, it is essential to guarantee the power supply for the Porsche System tester. It is essential to connect a battery charger with a current rating of at least 40 A to the vehicle battery.

Prior to disconnecting the control module, switch off the ignition and remove the ignition key.

Note

If a new DME control module is to be installed in a vehicle, the DME code specified in IPAS and the immobiliser code must be entered in the DME control module.
The codes are available from IPAS or via the importer.
Follow the instructions on the Tester.
Later versions of the software may display slightly different text or require a slightly different procedure. The instructions you receive from the tester itself take precedence over this description.

Note

- *During programming, the electric radiator fans may start.*

Note

Depending on the software version of the PIWIS Tester, a new DME control module can be interrogated for the "old DME programming code". In this case, enter the code from IPAS which is also used for the "new DME programming code".

In some countries (currently USA, Canada) the Ready status must be obtained following a test drive or by using the Porsche System Tester after the DME control module has been programmed. If in doubt about this, contact the relevant importer.

1. Connect the **PIWIS Tester 9718** to the vehicle and start the System Tester. Switch on ignition. Press >> to continue.
2. Select vehicle type. Press >> to continue.

Read out vehicle data. 247019 Removing and installing DME control module - "Preliminary work" section

3. Switch to the **Special functions** menu and perform the **vehicle handover** using the F8 key.
4. In the **Special functions** menu, erase **All fault memories** by pressing >> .
5. Carry out automatic search of control units.
6. Select **DME** with the cursor keys and press the >> key.
7. Select **Program control unit** with the cursor keys and press the >> key.
8. Select **Program control module** with the cursor keys and press the >> key. Observe the information displayed by the Tester.
9. Enter **Vehicle Ident. No.**, >> confirm with F7 .
10. Enter the **DME programming code** (IPAS), >> confirm with F7 .
11. Enter the **new immobiliser code** (IPAS), >> confirm with F7 .
12. Specify **vehicle type** >> .
13. Specify **transmission type** >> .
14. Specify **exhaust standard** >> .
15. Start **Programming** with F8 . The data and programming status is then loaded on to the DME control module. Do not interrupt the programming sequence. Observe Tester instructions.
16. For the learning and adaptation routine of the throttle valve (electronic throttle), switch the ignition off, remove ignition key, insert ignition key and switch on ignition for at least 40 seconds without starting the engine. Do not actuate accelerator pedal. This completes the adaptation of the throttle adjusting unit and

the programming sequence is complete.

17. In the **DME** menu go to **Coding**, code Cruise control present, not present.
18. Go to **Vehicle data** and, if necessary, enter the vehicle-specific data.
19. Read out the fault memories of all control units and delete the DME control module fault on every control unit connected to the CAN.
20. Start engine.
21. Carry out a test drive and read out fault memory again.

Programming DME control module

WARNING

Sudden voltage interruption of the power supply to the control module.

- **Destruction of the control module.**

During programming, it is essential to guarantee the power supply for the Porsche System tester. It is essential to connect a battery charger with a current rating of at least 40 A to the vehicle battery.

Prior to disconnecting the control module, switch off the ignition and remove the ignition key.

Note

If a new DME control module is to be installed in a vehicle, the DME code specified in IPAS and the immobiliser code must be entered in the DME control module.
The codes are available from IPAS or via the importer.
Follow the instructions on the Tester.
Later versions of the software may display slightly different text or require a slightly different procedure. The instructions you receive from the tester itself take precedence over this description.

Note

- *During programming, the electric radiator fans may start.*

If a DME control module from a different vehicle with ME 7.8 is being used, proceed as follows. As a check, the immobiliser code of the vehicle in which the control module is being installed (NEW) and of the vehicle from which the control module has been removed (OLD) is required.
In some countries (currently USA, Canada) the Ready status must be obtained following a test drive or by using the Porsche System Tester after the DME control module has been programmed. If in doubt about this, contact the relevant importer.

1. Connect the **PIWIS Tester 9718** to the vehicle and start the System Tester. Switch on ignition. Press >> to continue.
2. Select vehicle type. Press >> to continue.
3.

Read out vehicle data. 247019 Removing and installing DME control module - "Preliminary work" section

4. Carry out automatic search of control units.
5. Select **DME** with the cursor keys and press the >> key.
6. Select **Program control unit** with the cursor keys and press the >> key.
7. Select **Program control modules** with the cursor keys and press the >> key. Observe the information displayed by the Tester.
8. Enter **Vehicle Ident. No.**, >> confirm with F7 .
9. Enter the **old DME programming code (IPAS)** , >> confirm with F7 .
10. Enter the **new DME programming code (IPAS)** , >> confirm with F7 .
11. Enter the **old immobiliser code (IPAS)** , >> confirm with F7 .
12. Enter the **new immobiliser code (IPAS)** , >> confirm with F7 .
13. Specify **vehicle type** >> .
14. Specify **transmission type** >> .
15. Specify **exhaust standard** >> .
16. Start **Programming** with F8 . The data and programming status is then loaded on to the DME control module. Do not interrupt the programming sequence. Observe Tester instructions.
17. For the learning and adaptation routine of the throttle valve (electronic throttle), switch the ignition off, remove ignition key, insert ignition key and switch on ignition for at least 40 seconds without starting the engine. Do not actuate accelerator pedal. This completes the adaptation of the throttle adjusting unit and the programming sequence is complete.
18. In the **DME** menu go to **Coding**, code Cruise control present, not present.
19. Go to **Vehicle data** and, if necessary, enter the vehicle-specific data.
20. Read out the fault memories of all control units and delete the DME control module fault on every control unit connected to the CAN.
21. Start engine.
22. Carry out a test drive and read out fault memory again.

Exhaust-gas standard

ME 7.8		
Type	Exhaust-gas standard	Explanation
OBD 2	LEV, manual transmission LEV, Tiptronic	Low Emission Vehicle, USA As of model year `03.
RoW	EU2, manual transmission EU2, Tiptronic	Rest of world As of model year `03.
EOBD	EU4, manual transmission	European On-Board Diagnosis. As of model year `05.

	EU4, Tiptronic	
Corea	EU4, manual transmission EU4, Tiptronic	For Corea, as of model year '05.
Japan	EU4, manual transmission EU4, Tiptronic	For Japan, as of model year '05.

997110, 997111, 997120, 997121, 997410, 997411, 997430, 997431

as of MY 2005
Country C00, C02, C05, C07, C08, C09, C10, C11, C12, C13, C14, C15, C16, C18, C19, C20, C21, C22, C23, C24, C25, C26, C27, C28, C32, C33, C34, C35, C36, C37, C38, C39, C45, C46, C98, C99

WARNUNG

Gefahr des Verlusts der Text-Bild-Zuordnung beim Ausdruck.

- **Aus technischen Gründen kann derzeit nicht ausgeschlossen werden, dass trotz einwandfreier Darstellung auf dem Bildschirm beim Ausdruck der Zusammenhang von Text und zugehörigem Bild verloren geht.**
- **Wird der Fehler nicht bemerkt, besteht die Gefahr, daß Arbeiten nicht korrekt durchgeführt werden und es dadurch zu Personen- und Sachschäden kommt.**

Vergleichen Sie deshalb nach dem Druckvorgang unbedingt die Ausdrucke mit der Bildschirmdarstellung. Korrigieren Sie die Ausdrucke im Fehlerfall so, daß der Inhalt der Bildschirmdarstellung zutreffend wiedergegeben wird.

WARNING

Danger of losing text-figure correspondence when printing out.

- **For technical reasons, it can currently not be ruled out that the correspondence between text and associated figure can be lost when it is printed out, even though the display on the screen is correct.**
- **If the fault is not noticed, there is the danger that work will not be performed correctly which can cause injury and damage.**

Therefore, always compare printouts with the screen display after printing them out. Correct the printouts if they are faulty so that the content of the screen display matches that on the printouts.

AVERTISSEMENT

Risque de perte de la correspondance texte-illustration lors de l'impression papier.

- **Pour des raisons techniques, il ne peut pas être exclu à l'heure actuelle que, même en cas d'affichage correct à l'écran, la correspondance entre le texte et l'illustration**

24 73 19 Removing and installing oxygen sensor behind catalytic converter - as of MY 2005

- Preliminary work
- Removing oxygen sensor behind the catalytic converter
- Installing oxygen sensor behind the catalytic converter
- Subsequent work

Tools

Designation	Type	Number	Explanation	
Torque wrench, signal-transmitting with changeover ratchet	commercially available tool	NR.90		
accessory for torque wrench. Open ring wrench angled	commercially available tool	NR.96-3		

top of page

Preliminary work

Preliminary work for removing oxygen sensor behind the catalytic converter

1. Remove air cleaner housing 242519 Removing and installing air cleaner housing - chapter on "removing".

top of page

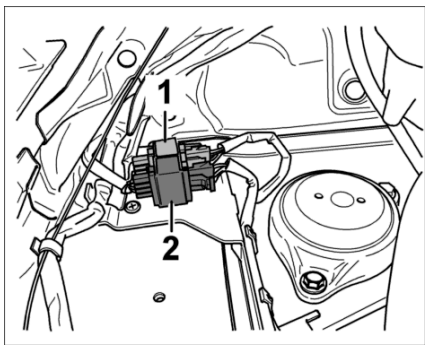
Removing oxygen sensor behind the catalytic converter

Removing oxygen sensor behind catalytic converter of cylinder bank 1-3

Note

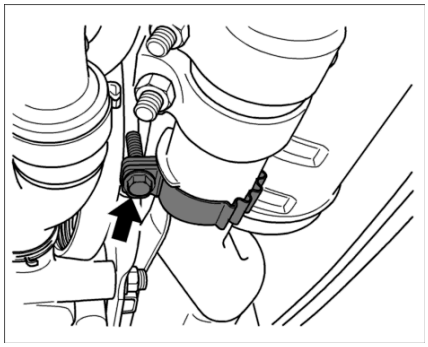
- *Always expose oxygen sensor wire far enough for it to be able to turn when unscrewing the sensor.*

241000 Precautionary measures when handling oxygen sensors



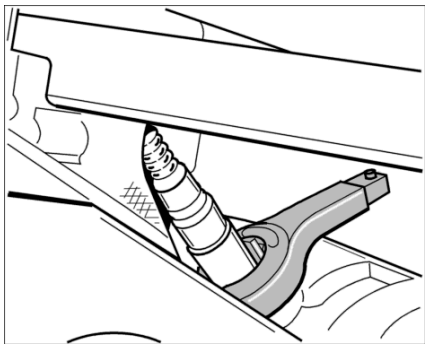
Plug connection for oxygen sensor

1. Disconnect plug connection in left of engine compartment for the oxygen sensor behind catalytic converter. To do this, first remove the grey connector from the holder and pull the red locking element upwards. Disconnect cable plug **-1-** .
2. Release the black cable from the cable guide.



Clamp for holder of catalytic converter

3. For better accessibility, undo the exhaust clamp by unscrewing the fastening screw **-arrow-** and remove the clamp.



Releasing oxygen sensor

4. Release oxygen sensor from the vehicle underside using an open-ended wrench or open ring wrench (a/f 22) and screw it out by hand *Releasing oxygen sensor* .

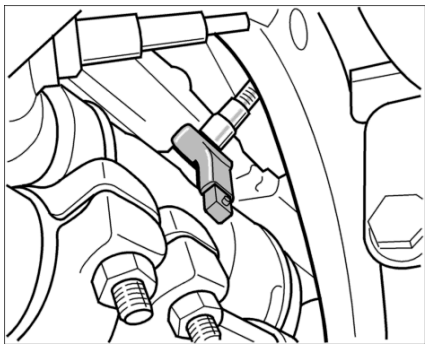
Removing oxygen sensor behind catalytic converter of cylinder bank 4-6

Note

- *Always expose oxygen sensor wire far enough for it to be able to turn when unscrewing the sensor.*

241000 Precautionary measures when handling oxygen sensors

1. Disconnect plug connection in right of engine compartment for the oxygen sensor behind catalytic converter. To do this, first remove the grey connector from the holder and pull the red locking element upwards. Disconnect cable plug.
2. Release black cable of the oxygen sensor behind catalytic converter from the cable holder.



Releasing oxygen sensor

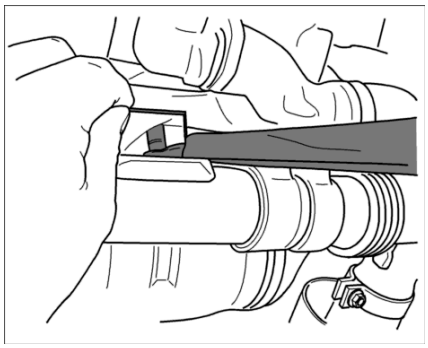
3. Undo oxygen sensor using an open-ended wrench or open ring wrench (a/f 22) and screw it out by hand.

top of page

Installing oxygen sensor behind the catalytic converter

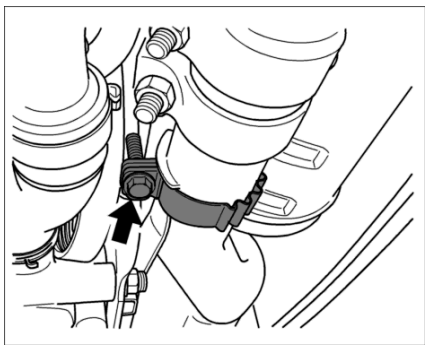
Installing oxygen sensor behind catalytic converter of cylinder bank 1-3

1. Guide the oxygen sensor through so that the cable can be easily routed from the engine compartment side to the exhaust system.
2. Position the oxygen sensor by hand and screw in as far as possible.



Tool on oxygen sensor

3. Tighten oxygen sensor with commercially available open ring wrench **accessory for torque wrench. Open ring wrench angled NR.96-3** and torque wrench **Torque wrench, signal-transmitting with changeover ratchet NR.90** and tighten to the specified tightening torque **Tightening torque: 41 ftlb. +/-3.5 ftlb.** . In order to disengage the torque wrench, actuate catch with a small wire or Allen key *Tool on oxygen sensor* .



Clamp for holder of catalytic converter

4. Re-fit exhaust clamp and fit fastening screw to the specified tightening torque **Tightening torque: 17 ftlb. -arrow-** .
5. Lay black oxygen sensor cable and fix in cable guide. Fit cable plug.

Installing oxygen sensor behind catalytic converter of cylinder bank 4-6

1. Guide the oxygen sensor through so that the cable can be easily routed from the engine compartment side to the exhaust system.
2. Position the oxygen sensor by hand and screw in as far as possible.
3. Tighten oxygen sensor with commercially available open ring wrench **accessory for torque wrench. Open ring wrench angled NR.96-3** and torque wrench **Torque wrench, signal-transmitting with changeover ratchet NR.90** and tighten to the specified tightening

torque **Tightening torque: 41 ftlb. +/-3.5 ftlb.** .

4. Lay black oxygen sensor cable and fix in cable guide. Fit cable plug.

top of page

Subsequent work

Subsequent work for installing oxygen sensor behind the catalytic converter

1. Install air cleaner housing 242519 Removing and installing air cleaner housing - chapter on "installing".

997110, 997111, 997120, 997121, 997310, 997311, 997320, 997321, 997410, 997411, 997430, 997431, 997610, 997611, 997620, 997621

as of MY 2005
Country C00, C02, C05, C07, C08, C09, C10, C11, C12, C13, C14, C15, C16, C18, C19, C20, C21, C22, C23, C24, C25, C26, C27, C28, C32, C33, C34, C35, C36, C37, C38, C39, C45, C46, C98, C99

WARNUNG

Gefahr des Verlusts der Text-Bild-Zuordnung beim Ausdruck.

- **Aus technischen Gründen kann derzeit nicht ausgeschlossen werden, dass trotz einwandfreier Darstellung auf dem Bildschirm beim Ausdruck der Zusammenhang von Text und zugehörigem Bild verloren geht.**
- **Wird der Fehler nicht bemerkt, besteht die Gefahr, daß Arbeiten nicht korrekt durchgeführt werden und es dadurch zu Personen- und Sachschäden kommt.**

Vergleichen Sie deshalb nach dem Druckvorgang unbedingt die Ausdrucke mit der Bildschirmdarstellung. Korrigieren Sie die Ausdrucke im Fehlerfall so, daß der Inhalt der Bildschirmdarstellung zutreffend wiedergegeben wird.

WARNING

Danger of losing text-figure correspondence when printing out.

- **For technical reasons, it can currently not be ruled out that the correspondence between text and associated figure can be lost when it is printed out, even though the display on the screen is correct.**
- **If the fault is not noticed, there is the danger that work will not be performed correctly which can cause injury and damage.**

Therefore, always compare printouts with the screen display after printing them out. Correct the printouts if they are faulty so that the content of the screen display matches that on the

24 74 19 Removing and installing tuning pipe - as of MY 2005

- Preliminary work
- Removing tuning pipe
- Installing tuning pipe
- Subsequent work

top of page

Preliminary work

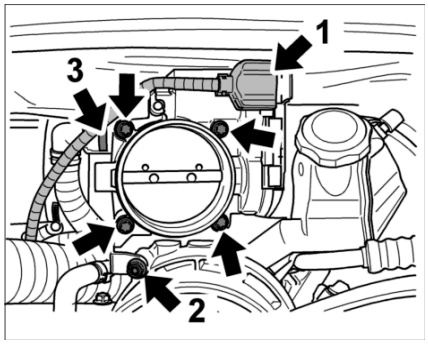
Preliminary work for removing tuning pipe

1. Disconnect the battery *271000 A5 Work instructions after disconnecting the battery - chapter on "disconnecting"* .
2. Remove air cleaner housing 242519 Removing and installing air cleaner housing - chapter on "removing".

top of page

Removing tuning pipe

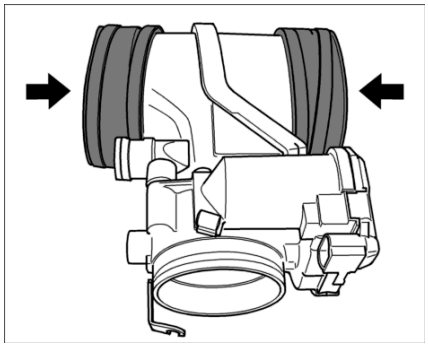
Removing tuning pipe



Throttle body

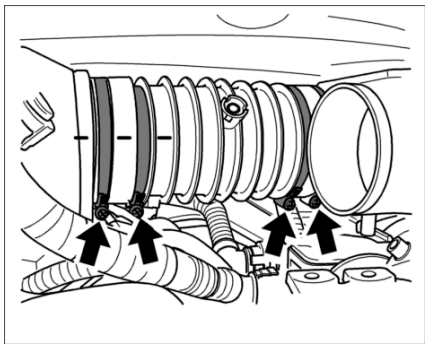
1. Remove distributor pipe. To do this, remove the fastening nut M6 of the throttle body from the rubber mount of the servo pump **-2-** .
2. Release cable plug on throttle body, and pull out and release cable **-1-** .

3. Release crankcase venting pipe connection from distributor pipe and remove **-3-** .



Distributor pipe

4. Loosen the four screw-type hose clamps on the rubber sleeves to the side intake distributors and push the rubber sleeves onto the distributor pipe **-arrows-** . Remove distributor pipe together with mounted throttle body. Remove distributor pipe from the engine compartment.

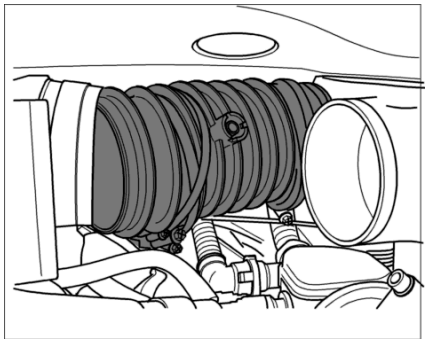


Tuning pipe

Note

Before removing tuning pipe, a mark should be made with a felt-tip pen on the intake distributor, rubber sleeve and tuning pipe so that the position for re-installation is correct.

5. Loosen the four screw-type hose clamps of the tuning pipe on the rubber sleeves to the side intake distributors **-arrows-** and push the rubber sleeves onto the intake distributor pipe as far to the side as possible.



Removing tuning pipe

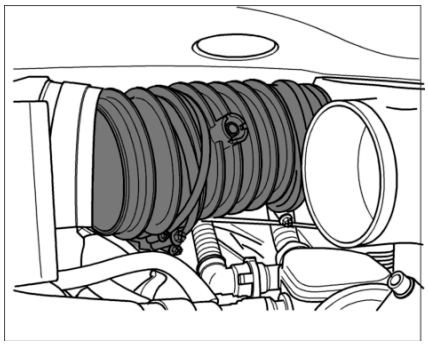
6. Pull tuning pipe out of the rubber sleeves and remove vacuum hose from the rear vacuum modulator of the resonance flap. Remove tuning pipe from the engine compartment.

top of page

Installing tuning pipe

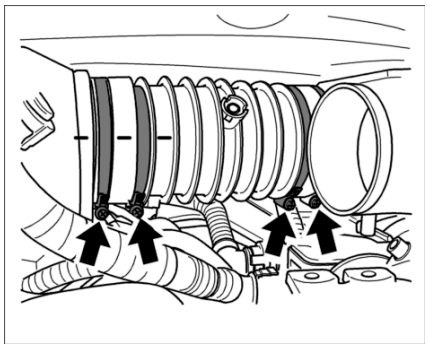
Installing tuning pipe

1. Wipe out engine oil residues in the intake manifolds and sleeves with a cloth.



Removing tuning pipe

2. Loosen the four screw-type hose clamps of the tuning pipe and push the rubber sleeves as far as possible onto the side intake distributors.
3. Guide tuning pipe between the intake distributors of both cylinder banks and connect vacuum line to the vacuum modulator of the tuning pipe. If necessary, clip vacuum line into the rear holder.

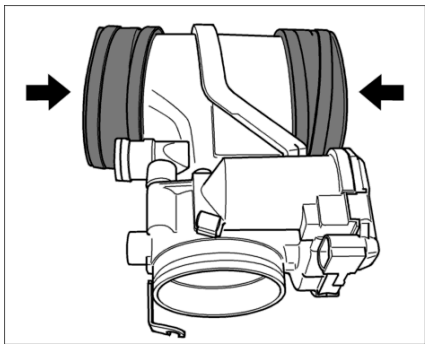


Tuning pipe

Note

Before removing tuning pipe, a mark should be made with a felt-tip pen on the intake distributor, rubber sleeve and tuning pipe so that the position for re-installation is correct.

4. Press tuning pipe between the side rubber sleeves and align with the marking. Make sure that the rubber sleeves and screw-type hose clamps are pushed equally onto the tuning pipe and intake distributors. Tighten screw-type hose clamps **-arrows-** .



Distributor pipe

5. Fit distributor pipe together with throttle body. To do this, push four screw-type hose clamps and the rubber sleeves onto the distributor pipe **-arrows-** . Guide distributor pipe together with mounted throttle body between the intake distributors. Align and tighten the rubber sleeves screw-type hose clamps.
6. Fit the crankcase ventilation line, cable plug and hexagon nut. **Tightening torque: 7.5 ftlb.**

top of page

Subsequent work

Work subsequent to installing tuning pipe

1. Install air cleaner housing 242519 Removing and installing air cleaner housing - chapter on "installing".
2. Connect the battery *271000 A6 Work instructions after disconnecting the battery - chapter on "connecting"* .

997110, 997111, 997120, 997121, 997310, 997311, 997320, 997321, 997410, 997411, 997430, 997431, 997610, 997611, 997620, 997621

as of MY 2005
Country C00, C02, C05, C07, C08, C09, C10, C11, C12, C13, C14, C15, C16, C18, C19, C20, C21, C22, C23, C24, C25, C26, C27, C28, C32, C33, C34, C35, C36, C37, C38, C39, C45, C46, C98, C99

WARNUNG

Gefahr des Verlusts der Text-Bild-Zuordnung beim Ausdruck.

- **Aus technischen Gründen kann derzeit nicht ausgeschlossen werden, dass trotz einwandfreier Darstellung auf dem Bildschirm beim Ausdruck der Zusammenhang von Text und zugehörigem Bild verloren geht.**
- **Wird der Fehler nicht bemerkt, besteht die Gefahr, daß Arbeiten nicht korrekt durchgeführt werden und es dadurch zu Personen- und Sachschäden kommt.**

26 10 19 Removing and installing exhaust manifold - as of MY 2005

- Removing exhaust manifold
- Installing exhaust manifold

top of page

Removing exhaust manifold

Removing exhaust manifold

DANGER

Parts of the exhaust system become extremely hot!

- **Danger of burns**
- **Permanent scarring of the skin**

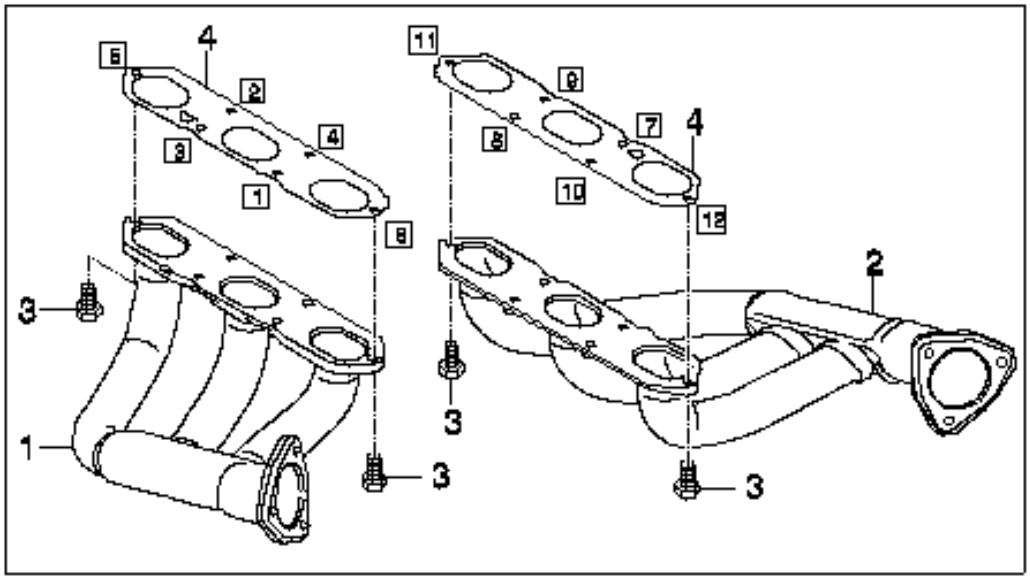
Do not begin work until the exhaust system has cooled down completely.

If it is imperative that you work on the hot exhaust system, ensure that you wear fire-resistant and heat-resistant protective gear.

Note

- *The numbers shown in boxes in the component overviews indicate the tightening sequence. Always follow the specified sequence.*

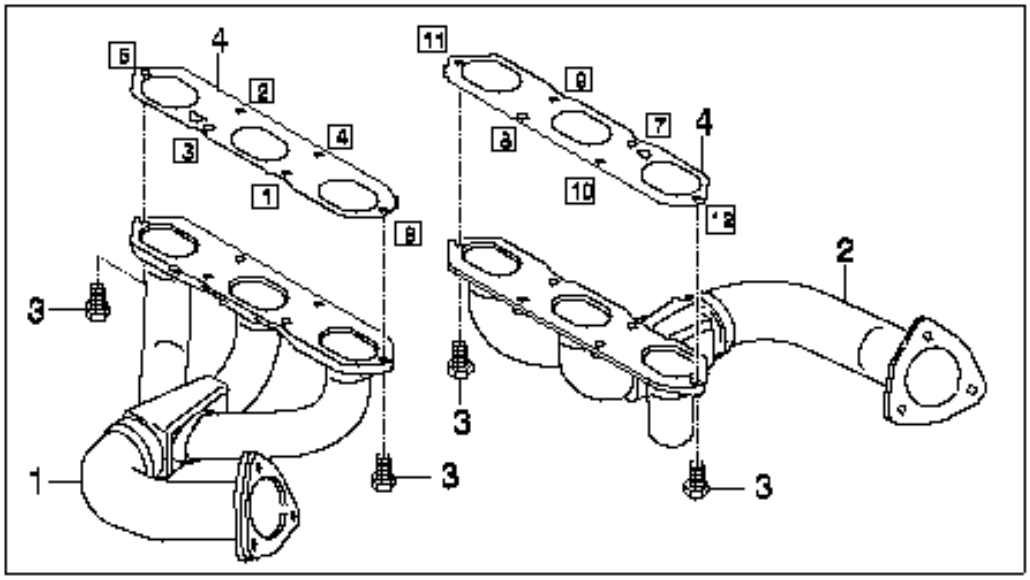
Component overview M 96/05 (3.6 l)



Exhaust manifold, 3.6 l

Item	Designation	Explanation
1	Exhaust manifold, cylinders 1 - 3	Engine M 96/05
2	Exhaust manifold, cylinders 4 - 6	Engine M 96/05
3	Screw, M8 x 26	Replace
4	Exhaust manifold seal	Replace; observe installation position!

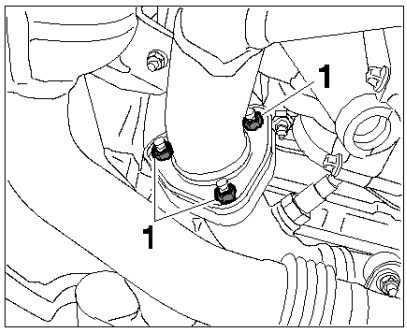
Component overview M 97/01 (3.8 l)



Exhaust manifold, 3.8 l

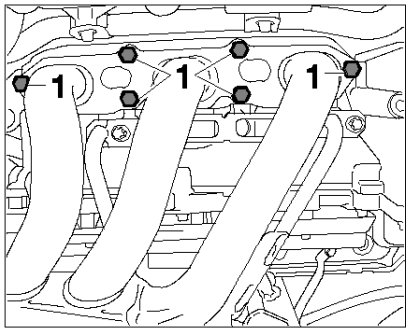
Item	Designation	Explanation
1	Exhaust manifold, cylinders 1 - 3	Engine M 97/01
2	Exhaust manifold, cylinders 4 - 6	Engine M 97/01

3	Screw, M8 x 26	Replace
4	Exhaust manifold seal	Replace; observe installation position!



Catalytic converter flange joint

1. Loosen threaded flange joint to catalytic converter **-1-** . Replace lock nuts.



Manifold flange threaded joint

2. Unscrew hexagon-head bolts (M8 x 26) **-1-** on exhaust manifold and remove manifold. Replace bolts.
3. Remove exhaust manifold seal and carefully clean sealing surfaces on the cylinder head and manifold.
4. Check exhaust manifold for damage and cracks.

top of page

Installing exhaust manifold

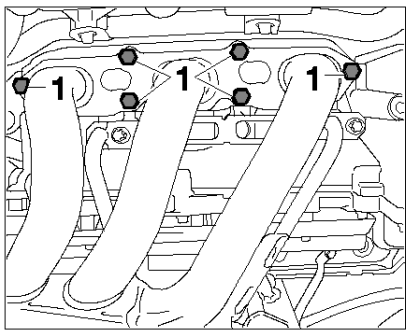
Installing exhaust manifold

1. Position new metal seal on cylinder head. The beading must point to the sealing surface of the cylinder head.

Note

- *Observe installation position of three-hole flange seal. The beading is facing the exhaust manifold and the edges must not project over the contour of the flange.*

2. Insert exhaust manifold on catalytic converter flange with a new seal and secure evenly to the cylinder head with two new screws. Then screw in the remaining (new) screws. Observe installation position of seal on catalytic converter flange .
3. Fit three new lock nuts on catalytic converter flange and screw on slightly.

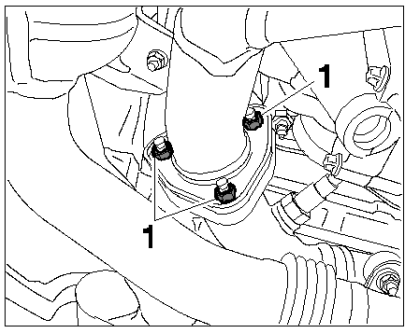


Manifold flange threaded joint

Note

- *The numbers shown in boxes in the component overviews indicate the tightening sequence. Always follow the specified sequence.*

4. Tighten screws for exhaust manifold **-1-** in accordance with the tightening sequence (see relevant component overview). **Tightening torque: 23 (17 ftlb.) Nm**



Catalytic converter flange joint

5. Tighten new lock nuts **-1-** on catalytic converter flange. **Tightening torque: 23 (17 ftlb.) Nm**

997110, 997111, 997120, 997121, 997310, 997311, 997320, 997321, 997410, 997411, 997430, 997431, 997610, 997611, 997620, 997621

as of MY 2005
Country C00, C02, C05, C07, C08, C09, C10, C11, C12, C13, C14, C15, C16, C18, C19, C20, C21, C22, C23, C24, C25, C26, C27, C28, C32, C33, C34, C35, C36, C37, C38, C39, C45, C46, C98, C99

WARNUNG

Gefahr des Verlusts der Text-Bild-Zuordnung beim Ausdruck.

26 33 19 Removing and installing rear silencer - as of MY 2005

- Preliminary work
- Removing rear silencer
- Installing rear silencer
- Subsequent work

Tools

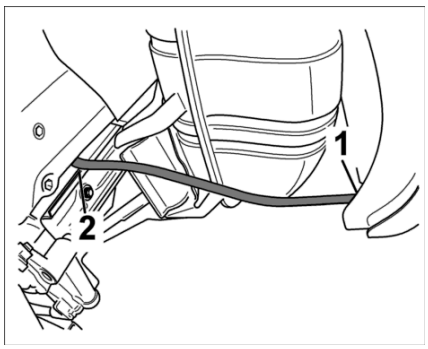
Designation	Type	Number	Explanation	
socket wrench insert	special tool	P 300		PORSCHE siehe Handbuch Werkstattausrüstung Voir le Manuel Equipement d´atelier Refer to the Workshop Equipment manual Vease Manual de Equipamiento de Taller Vedere il Manuale dell´attrezzatura d´officina ワークショップ・イクイップメント・マニュアルを参照

top of page

Preliminary work

Preliminary work

1. Remove rear wheel. Use a **socket wrench insert P 300** to avoid damage to the wheel rims 440519 Removing and installing wheel - section on "Removing".



Rear spoiler support

2. Remove strut for rear apron. Unscrew fastening screws **-1 and 2-** and remove strut.

top of page

Removing rear silencer

Removing rear silencer

DANGER

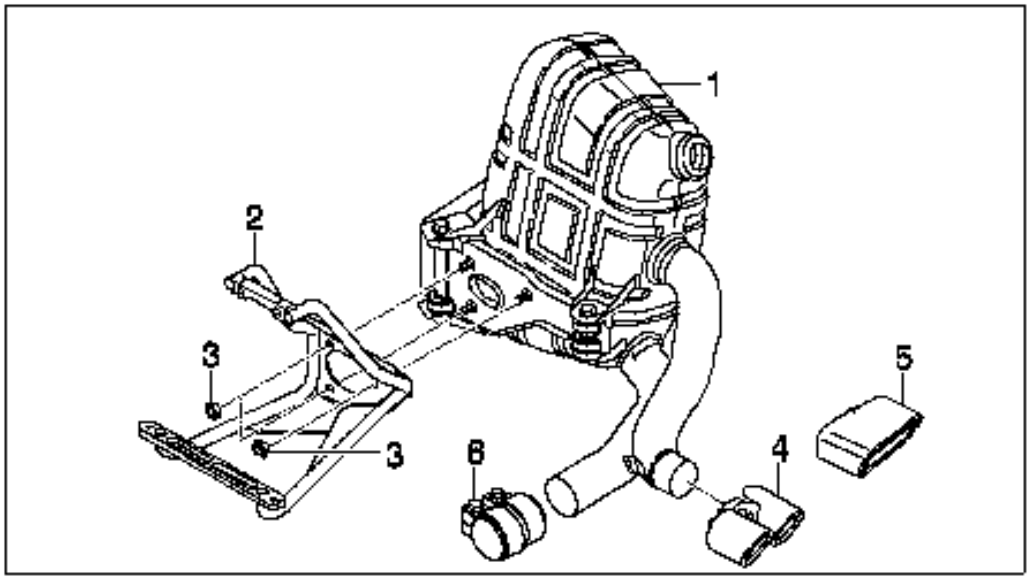
Parts of the exhaust system become extremely hot!

- **Danger of burns**
- **Permanent scarring of the skin**

Do not begin work until the exhaust system has cooled down completely.

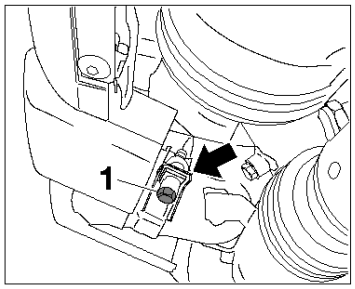
If it is imperative that you work on the hot exhaust system, ensure that you wear fire-resistant and heat-resistant protective gear.

Component overview of silencer



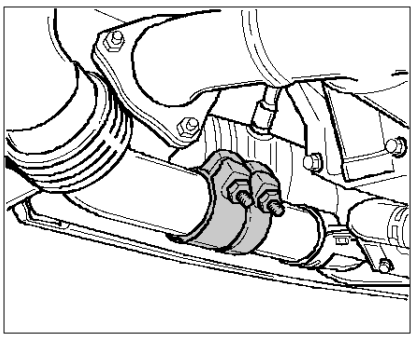
Component overview of rear silencer

Item	Designation	Explanation
1	Rear silencer	Check welding points for cracks
2	Holder	
3	Hexagon nut M8	Replace
4	Tailpipe M 97/01 (3.8 l)	Adjust following assembly
5	Tailpipe M 96/05 (3.6 l)	Adjust following assembly
6	Clamping sleeve	Replace



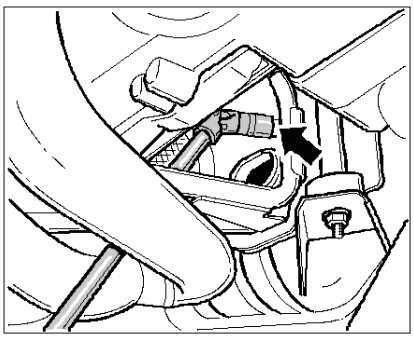
Tailpipe mount

1. Remove tailpipe. Unscrew M8 screw **-1-** on the ball clamp, widen ball clamp **-arrow-** and pull off tailpipe.



Clamping sleeve, rear silencer to catalytic converter

2. Screw off M8 fastening nuts on clamping sleeve. If corroded, spray sleeve with penetrating oil or heat it up.



Screw connection points on holder

3. Unscrew three M8 hexagon nuts on the rear silencer holder **-arrow-** . **Tool recommendation:** commercially available 3/8-inch ratchet wrench with extension, universal joint and socket wrench insert (a/f 13).
4. Push clamping sleeve towards the catalytic converter and lift silencer in the direction of the wheel housing and out of the vehicle.

top of page

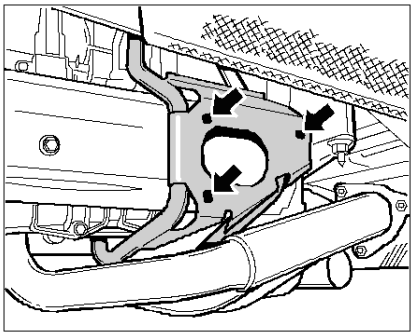
Installing rear silencer

Installing rear silencer

Note

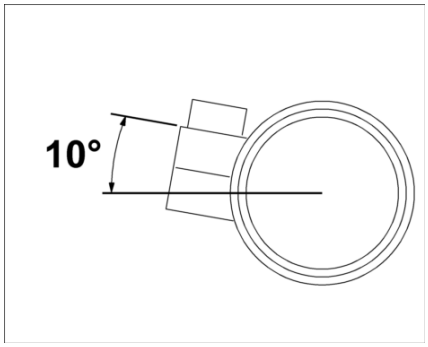
- *Replace clamping sleeve, seal and lock nuts. Apply a light coating of high-temperature grease on the sleeve before installation to facilitate fitting.*

1. Fit new clamping sleeve. To do this, slide the clamping sleeve onto the catalytic-converter pipe.



Position at which rear silencer is screwed to holder

2. Insert the silencer into the vehicle from the wheel side and move it to installation position. Then fit three new hexagon nuts on the screw connection points of the holder and tighten only slightly.



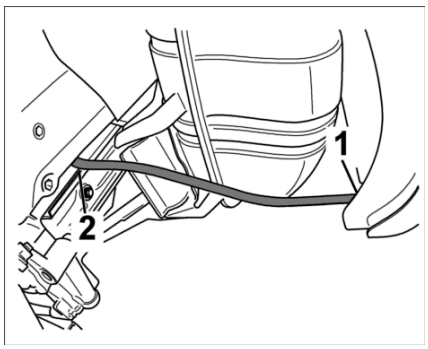
Installation position of clamping sleeve

3. Slide the clamping sleeve over the silencer pipe and move it to installation position *Installation position of clamping sleeve* . Screw down both hexagon nuts and tighten to the prescribed torque. **Tightening torque: 23 (17 ftlb.) Nm**
4. Tighten three hexagon nuts on the rear silencer holder. **Tightening torque: 23 (17 ftlb.) Nm**
5. Fit and adjust tailpipe. **Tightening torque: 30 (22 ftlb.) Nm** 263419 Removing and installing tailpipe - section on "Installing" [997110 997111 997310 997311 997410 997411 997610 997611] 263419 Removing and installing tailpipe - section on "Installing" [997120 997121 997320 997321 997430 997431 997620 997621].

top of page

Subsequent work

Subsequent work



Rear spoiler support

1. Fit strut for rear apron and tighten screws. **Tightening torque: 3 (2 ftlb.) Nm** , **Tightening torque: 10 (7.5 ftlb.) Nm**
2. Mount rear wheel. Use a **socket wrench insert P 300** to avoid damage to the wheel rims 440519 Removing and installing wheel - section on "Installing".

997110, 997111, 997120, 997121, 997310, 997311, 997320, 997321, 997410, 997411, 997430, 997431, 997610, 997611, 997620, 997621

as of MY 2005
Country C00, C02, C05, C07, C08, C09, C10, C11, C12, C13, C14, C15, C16, C18, C19, C20, C21, C22, C23, C24, C25, C26, C27, C28, C32, C33, C34, C35, C36, C37, C38, C39, C45, C46, C98, C99

WARNUNG

Gefahr des Verlusts der Text-Bild-Zuordnung beim Ausdruck.

- **Aus technischen Gründen kann derzeit nicht ausgeschlossen werden, dass trotz einwandfreier Darstellung auf dem Bildschirm beim Ausdruck der Zusammenhang von Text und zugehörigem Bild verloren geht.**
- **Wird der Fehler nicht bemerkt, besteht die Gefahr, daß Arbeiten nicht korrekt durchgeführt werden und es dadurch zu Personen- und Sachschäden kommt.**

Vergleichen Sie deshalb nach dem Druckvorgang unbedingt die Ausdrucke mit der Bildschirmdarstellung. Korrigieren Sie die Ausdrucke im Fehlerfall so, daß der Inhalt der Bildschirmdarstellung zutreffend wiedergegeben wird.

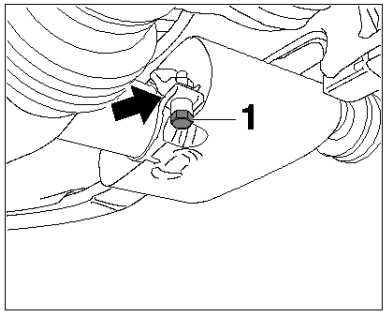
26 34 19 Removing and installing tailpipe - as of MY 2005

- Removing tailpipe - 3.6 l
- Installing tailpipe - 3.6 l

top of page

Removing tailpipe - 3.6 l

Removing tailpipe - M 96/05 (3.6 l)



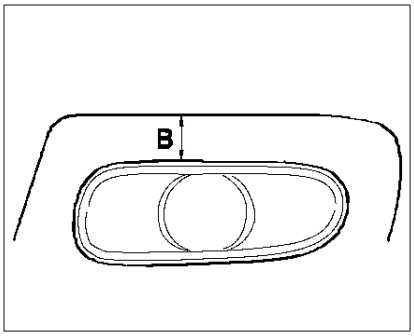
Ball clamp mount

1. Unscrew fastening screw on ball clamp **-1-** .
2. Widen the ball clamp **-arrow-** and pull it off tailpipe.

top of page

Installing tailpipe - 3.6 l

Installing tailpipe - 3.6 l



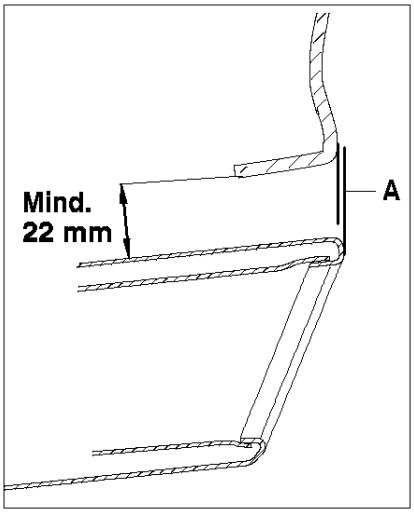
Tailpipe position (height), 3.6 l

Note

Observe specified dimensions for installation position with respect to rear apron.

1. Align tailpipe (installation height) with respect to the rear apron.

   - - Distance from back of rear apron: **28 mm -B-**
   - - Distance from side of rear apron: **Align in the middle**



Tailpipe position with respect to rear apron, 3.6 l (sectional view)

2. Align tailpipe with respect to the rear apron.

   - - Distance from inside of rear apron: **at least 22 mm**
   - - Upper edge of tailpipe flush with rear apron **-A-** .

If the engine mountings (hydraulic mount) are replaced, the installation dimensions will change as follows due to the shifting behaviour of the mountings:

- - Distance from back of rear apron: **25.5 mm**
- - Distance from inside of rear apron: **19.5 mm**

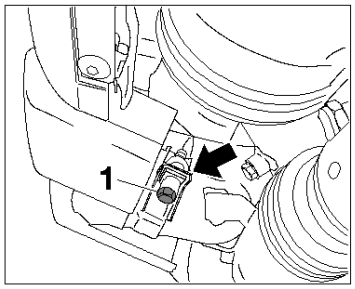
26 34 19 Removing and installing tailpipe - as of MY 2005

- Removing tailpipe -3.8 l
- Installing tailpipe -3.8 l

top of page

Removing tailpipe -3.8 l

Removing tailpipe - 3.8 l



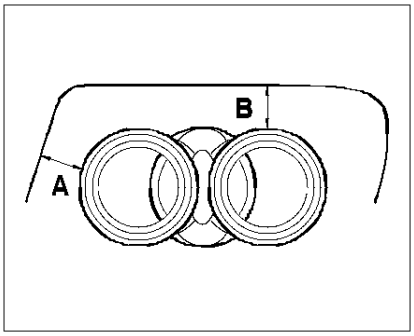
Tailpipe mount

1. Unscrew fastening screw on ball clamp **-1-** .
2. Widen the ball clamp **-arrow-** and pull it off exhaust pipe.

top of page

Installing tailpipe -3.8 l

Installing tailpipe - 3.8 l



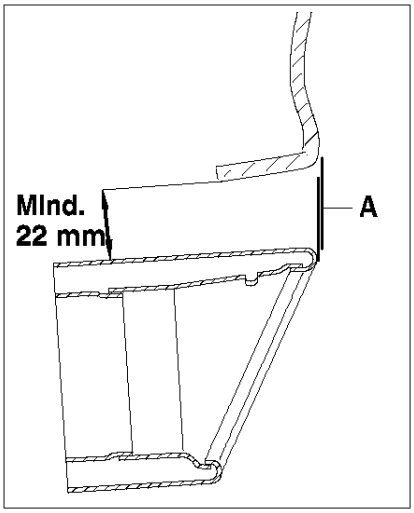
Tailpipe position, 3.8 l

Note

Observe specified dimensions for installation position with respect to rear apron.

1. Align tailpipe with respect to the rear apron.

   - - Distance from back of rear apron: **28 mm -B-**
   - - Distance from side of rear apron: **29 mm -A-**



Tailpipe position with respect to rear apron, 3.8 l (sectional view)

2. Align tailpipe with respect to the inside of the rear apron.

   - - Distance from inside of rear apron: **at least 22 mm**
   - - Upper edge of tailpipe flush with rear apron **-A-** .

If the engine mountings (hydraulic mount) are replaced, the installation dimensions will change as follows due to the shifting behaviour of the mountings:

- - Distance from back of rear apron: **25.5 mm**
- - Distance from inside of rear apron: **19.5 mm**

26 65 19 Removing and installing secondary air pump - as of MY 2005

- Preliminary work
- Removing secondary air pump
- Installing secondary air pump
- Subsequent work

top of page

Preliminary work

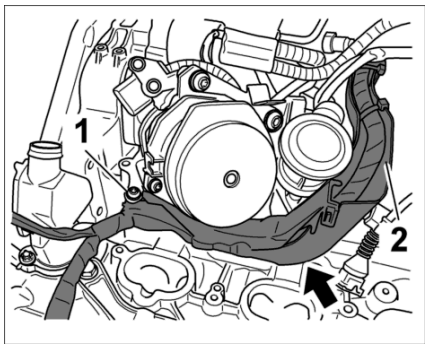
Preliminary work for removing secondary air pump

1. Remove intake distributor, cylinder bank 1-3 __ 244619 Removing and installing intake distributor - chapter on "removing".
2. Pull off cable plug from the knock sensor.

top of page

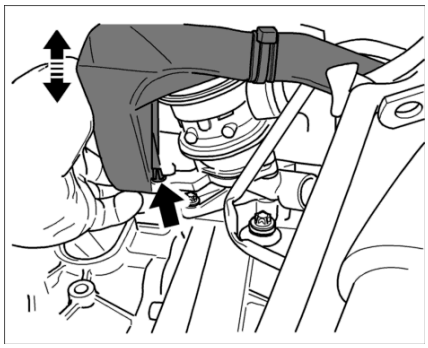
Removing secondary air pump

Removing secondary air pump



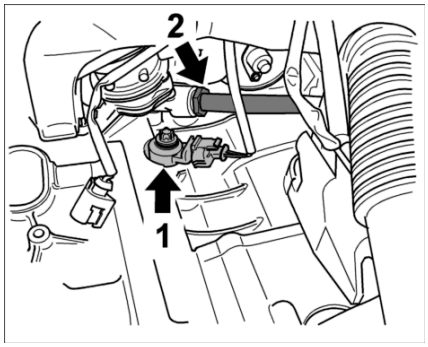
Wiring harness for secondary air pump

1. Remove cable duct from the secondary air pump **-2-** . To do this, remove a fastening screw behind the secondary air pump **-1-** .



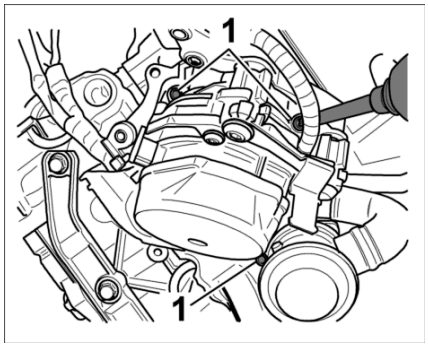
Cable duct for secondary air pump

2. Pull off and release front fastening of cable duct **-arrows-** .
3. Detach cable plug from secondary air pump.



Knock sensor and secondary air pump

4. Remove cable plug from knock sensor **-1-** . Unscrew union nut of pressure line (a/f 22) **-2-** .



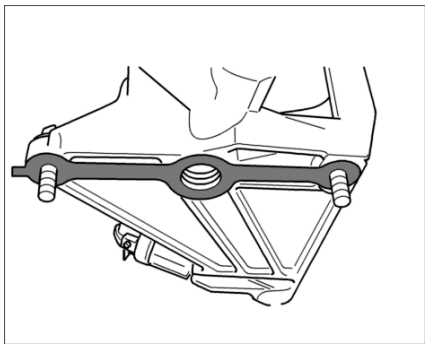
Secondary air pump with bracket

5. Remove fastening screws from the secondary air pump **-1-** .
6. Remove secondary air pump from crankcase and replace seal. Clean sealing surfaces and plug the opening with a cloth.

top of page

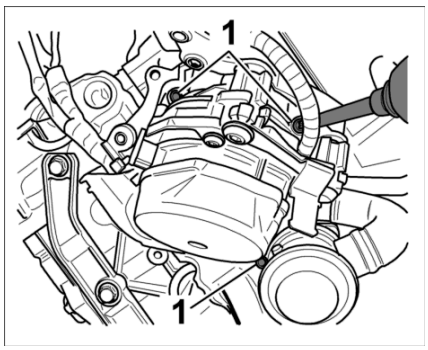
Installing secondary air pump

Installing secondary air pump



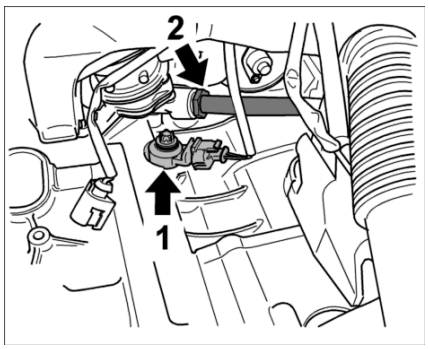
Secondary air pump seal

1. Replace seal between secondary air pump and crankcase, clean the surfaces and turn the seal to fit exactly on two pre-fitted fastening screws __ *Secondary air pump seal* .



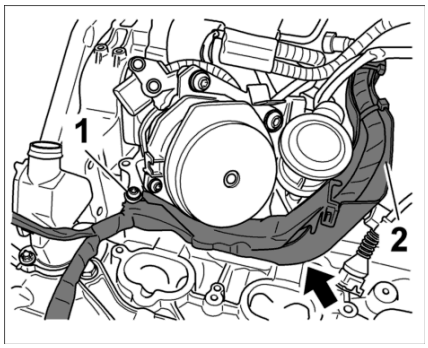
Secondary air pump with bracket

2. Place the secondary air pump with the prefitted screws and the seal in the installation position. Carefully insert the pressure line in the secondary air pump. Position the three fastening screws and tighten them. **Tightening torque: 7.5 ftlb.** . Position and tighten pressure line union nut **-2-** .



Knock sensor and secondary air pump

3. Connect cable plug to knock sensor **-1-** .



Wiring harness for secondary air pump

4. Fit cable plug and cable duct *Wiring harness for secondary air pump* **Tightening torque: 7.5 ftlb.** .
5.

top of page

Subsequent work

Work subsequent to installing secondary air pump

1. Install intake distributor, cylinder bank 1-3 244619 Removing and installing intake distributor - chapter on "installing".

997110, 997111, 997120, 997121, 997310, 997311, 997320, 997321, 997410, 997411, 997430, 997431, 997610, 997611, 997620, 997621

as of MY 2005
Country C00, C02, C05, C07, C08, C09, C10, C11, C12, C13, C14, C15, C16, C18, C19, C20, C21, C22, C23, C24, C25, C26, C27, C28, C32, C33, C34, C35, C36, C37, C38, C39, C45, C46, C98, C99

WARNUNG

Gefahr des Verlusts der Text-Bild-Zuordnung beim Ausdruck.

- **Aus technischen Gründen kann derzeit nicht ausgeschlossen werden, dass trotz einwandfreier Darstellung auf dem Bildschirm beim Ausdruck der Zusammenhang von Text und zugehörigem Bild verloren geht.**
- **Wird der Fehler nicht bemerkt, besteht die Gefahr, daß Arbeiten nicht korrekt durchgeführt werden und es dadurch zu Personen- und Sachschäden kommt.**

Vergleichen Sie deshalb nach dem Druckvorgang unbedingt die Ausdrucke mit der Bildschirmdarstellung. Korrigieren Sie die Ausdrucke im Fehlerfall so, daß der Inhalt der Bildschirmdarstellung zutreffend wiedergegeben wird.

WARNING

26 73 19 Removing and installing catalytic converter - as of MY 2005

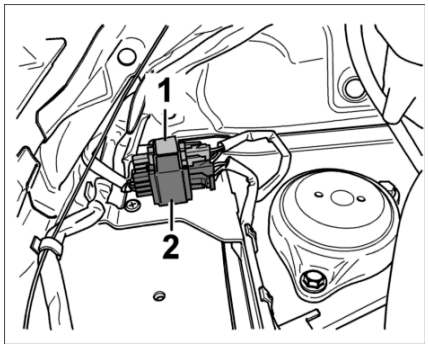
- Preliminary work
- Removing catalytic converter
- Installing catalytic converter
- Subsequent work

top of page

Preliminary work

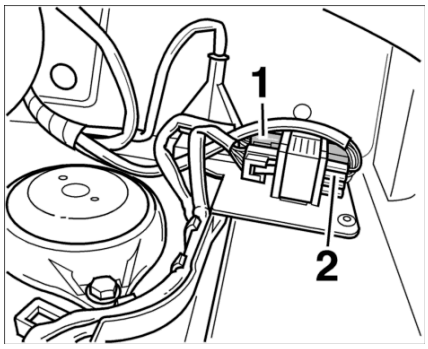
Preliminary work

1. Remove air cleaner housing 242519 Removing and installing air cleaner housing - section on "Removing".



Plug connections for oxygen sensors, page 1-3

2. Disconnect the relevant plug connections for the oxygen sensors in the engine compartment *241000 Precautionary measures when handling oxygen sensors.*



Plug connections for oxygen sensors, page 4-6

Note

- *Always expose oxygen sensor wire far enough for it to be able to turn when unscrewing the sensor.*

3. Expose oxygen sensor cable.

Note

- *If a catalytic converter needs to be replaced, first remove the two oxygen sensors.*

4. Remove oxygen sensor behind catalytic converter so that it is not damaged when you remove the catalytic converter.

top of page

Removing catalytic converter

Removing catalytic converter

DANGER

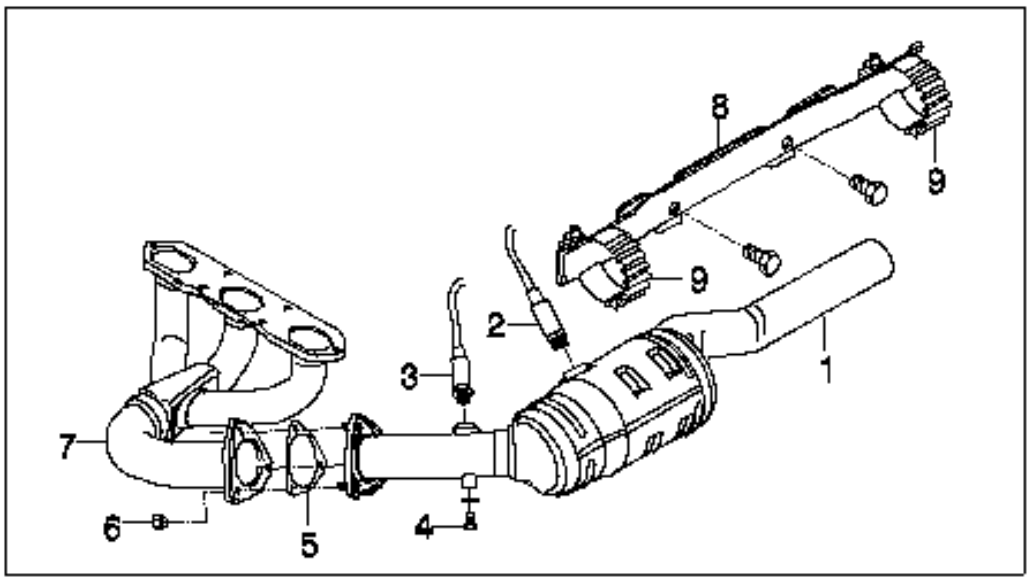
Parts of the exhaust system become extremely hot!

- **Danger of burns**
- **Permanent scarring of the skin**

Do not begin work until the exhaust system has cooled down completely.

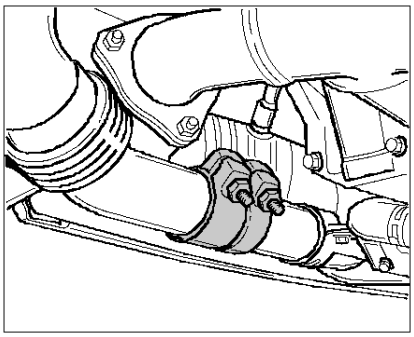
If it is imperative that you work on the hot exhaust system, ensure that you wear fire-resistant and heat-resistant protective gear.

Component overview



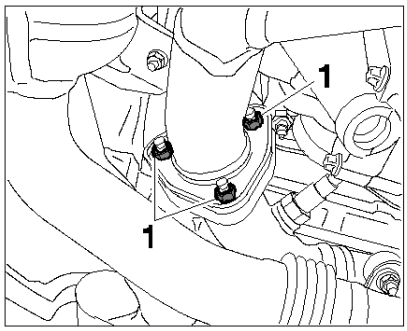
Component overview

Item	Designation	Explanation
1	Catalytic converter	
2	Oxygen sensor behind catalytic converter	Grease threads for re-installation
3	Oxygen sensor ahead of catalytic converter	Grease threads for re-installation
4	CO removal position	Replace seal if opened
5	Flange seal	Replace; observe installation and beading position!
6	Hexagon nut, M8	Replace
7	Exhaust manifold	
8	Catalytic converter holder to engine carrier	
9	Clamps on catalytic converter holder	



Clamping sleeve, rear silencer to catalytic converter

1. Screw off M8 fastening nuts on clamping sleeve and slide sleeve onto the silencer pipe. If corroded, spray sleeve with penetrating oil or heat it up.
2. Loosen clamp on catalytic converter holder.



Catalytic converter flange joint

3. Loosen threaded flange joint to exhaust manifold **-1-** . Replace lock nuts.
4. Lift catalytic converter out of the vehicle.

top of page

Installing catalytic converter

Installing catalytic converter

Note

- *Always expose oxygen sensor wire far enough for it to be able to turn when unscrewing the sensor.*

Note

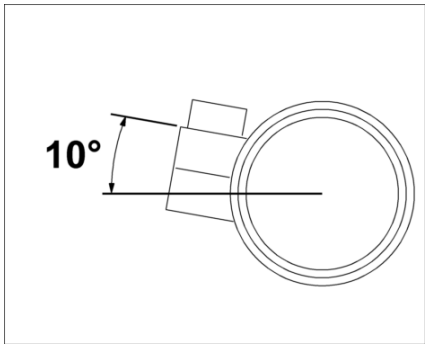
- *Replace clamping sleeve, seal and lock nuts. Apply a light coating of high-temperature grease on the sleeve before installation to facilitate fitting.*

1. Grease new clamping sleeve with high-temperature paste and slide it onto the silencer pipe.
2. Insert catalytic converter into the vehicle. When doing so, watch out for the oxygen sensors and cable.

Note

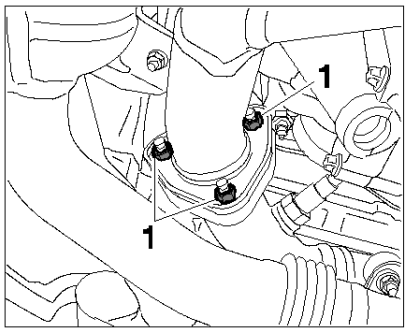
- *Observe installation position of three-hole flange seal. The beading is facing the exhaust manifold and the edges must not project over the contour of the flange.*

3. Fit new seal and new lock nuts on the exhaust manifold flange and screw on slightly.



Installation position of clamping sleeve

4. Slide the clamping sleeve over the silencer pipe and move it to installation position *Installation position of clamping sleeve* , then screw on the two hexagon nuts.



Catalytic converter flange joint

5. Tighten three lock nuts **-1-** on catalytic converter flange. **Tightening torque: 23 (17 ftlb.) Nm**
6. Tighten fastening screws on clamping sleeve. **Tightening torque: 23 (17 ftlb.) Nm**
7. Align clamp on catalytic converter holder and tighten M8 screw. **Tightening torque: 23 (17 ftlb.) Nm**

top of page

Subsequent work

Subsequent work

Note

- *Grease the thread of the oxygen sensors that will be fitted again with Optimol **Optimoly Paste MF**.*
- *Replace sealing ring. If this is not possible, the "old" oxygen sensor must be tightened to **50 Nm (37 ftlb.)**.*

1. Install oxygen sensor behind catalytic converter. If the sensor ahead of the catalytic converter was also removed, install this as well. 247319 Removing and installing oxygen sensor behind catalytic converter - section on "Installing"; 246919 Removing and installing oxygen sensor ahead of catalytic converter - section on "Installing"; *241000 Precautionary measures when handling oxygen sensors*.
2. Lay oxygen sensor cable carefully and connect cable plug.
3. Install air cleaner housing 242519 Removing and installing air cleaner housing - section on "Installing".

997110, 997111, 997120, 997121, 997310, 997311, 997320, 997321, 997410, 997411, 997430, 997431, 997610, 997611, 997620, 997621

as of MY 2005
Country C00, C02, C05, C07, C08, C09, C10, C11, C12, C13, C14, C15, C16, C18, C19, C20, C21, C22,

27 06 01 Battery trickle charge - as of MY 2005

Preliminary work

1. Remove battery cover. 270601 Checking battery - removing.
2. Connect rapid-start battery charger to the vehicle battery.
3. Follow the instructions for the rapid-start battery charger under: "Battery charging condition/operating status".

General warning notes

General warning notes for battery

Tools and materials

Check battery voltage using a rapid-start battery charger.
See Workshop Equipment Manual, Gr. 2.5

Checking battery charging condition with battery tester

1. Check the battery charging condition according to the operating instructions for the relevant rapid-start battery charger.

Evaluating the test results and further procedures:

Open-circuit voltage in volts	Battery charging condition in %	Evaluation and procedure
12.7 - 12.5	100 - 80	Battery charging condition OK
12.5 - 12.2	80 - 50	Battery charging condition reduced, recharge battery and observe an inactive period for two hours after charging. 270601 Checking battery
12.2 - 11.6	50 - 10	Battery flat; recharge battery and observe an inactive period for two hours after charging. 270601 Checking battery
below 11.6	below 10	Battery totally discharged; replace battery. 270619 Removing and installing battery

Reworking

1. Install battery cover. 270601 Checking battery - removing.

997110, 997111, 997120, 997121, 997310, 997311, 997320, 997321, 997410, 997411, 997430, 997431, 997610, 997611, 997620, 997621

as of MY 2005
Country C00, C02, C05, C07, C08, C09, C10, C11, C12, C13, C14, C15, C16, C18, C19, C20, C21, C22, C23, C24, C25, C26, C27, C28, C32, C33, C34, C35, C36, C37, C38, C39, C45, C46, C98, C99

WARNUNG

Gefahr des Verlusts der Text-Bild-Zuordnung beim Ausdruck.

- **Aus technischen Gründen kann derzeit nicht ausgeschlossen werden, dass trotz einwandfreier Darstellung auf dem Bildschirm beim Ausdruck der Zusammenhang von Text und zugehörigem Bild verloren geht.**
- **Wird der Fehler nicht bemerkt, besteht die Gefahr, daß Arbeiten nicht korrekt durchgeführt werden und es dadurch zu Personen- und Sachschäden kommt.**

Vergleichen Sie deshalb nach dem Druckvorgang unbedingt die Ausdrucke mit der Bildschirmdarstellung. Korrigieren Sie die Ausdrucke im Fehlerfall so, daß der Inhalt der Bildschirmdarstellung zutreffend wiedergegeben wird.

WARNING

Danger of losing text-figure correspondence when printing out.

- **For technical reasons, it can currently not be ruled out that the correspondence between text and associated figure can be lost when it is printed out, even though the display on the screen is correct.**
- **If the fault is not noticed, there is the danger that work will not be performed correctly which can cause injury and damage.**

Therefore, always compare printouts with the screen display after printing them out. Correct the printouts if they are faulty so that the content of the screen display matches that on the printouts.

AVERTISSEMENT

Risque de perte de la correspondance texte-illustration lors de l'impression papier.

- **Pour des raisons techniques, il ne peut pas être exclu à l'heure actuelle que, même en cas d'affichage correct à l'écran, la correspondance entre le texte et l'illustration puisse être erronée sur l'impression papier.**

27 06 19 Removing and installing battery - as of MY 2005

- Removing battery
- Installing battery
- Subsequent work

top of page

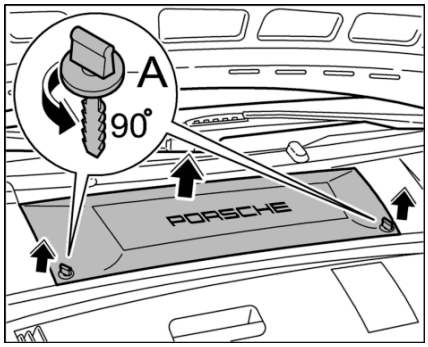
Removing battery

Removing battery

Note

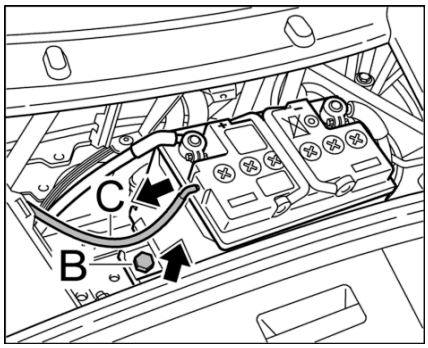
For vehicles with a Vehicle Tracking System (VTS), please read the *906323 Vehicle Tracking System (VTS)* TI!

The battery is located at the front in the radiator tank.
Observe the warning notes and safety regulations for lead-acid batteries. *Safety instructions for handling batteries*



Battery cover

1. Open the turn-lock caps **-A-** of the battery cover and take off the plastic lid.



Disconnecting battery

WARNING

Risk of explosion, injury, short circuit and damage to the generator and electronic control units.

- **Risk of acid burns as a result of emerging acid.**

Do not disconnect battery with engine running.

Switch off all loads and remove ignition key.

Disconnect and reconnect battery with extreme caution. Risk of short circuit and explosion.

Do not tilt battery when removing it. Risk of acid burns as a result of emerging acid.

Do not rub the battery with a dry cloth. Risk of explosion as a result of static charge.

2. First disconnect the negative then the positive leads from the battery.
3. Pull the vent hose **-C-** away from the battery.
4. Unscrew the fastening screw for the battery mount **-B-** and remove the battery mount.

WARNING

Risk of explosion, injury, short circuit and damage to the generator and electronic control units.

- **Risk of acid burns as a result of emerging acid.**

Do not disconnect battery with engine running.

Switch off all loads and remove ignition key.

Disconnect and reconnect battery with extreme caution. Risk of short circuit and explosion.

Do not tilt battery when removing it. Risk of acid burns as a result of emerging acid.

Do not rub the battery with a dry cloth. Risk of explosion as a result of static charge.

5. Risk of contact with corrosive fluid Remove battery from battery case by the folding handles, if at all possible without tilting it.

top of page

Installing battery

Installing battery

Make sure that the vent hose is in good condition. If the hose is deformed or damaged, replace it.

WARNING

Risk of explosion, injury, short circuit and damage to the generator and electronic control units.

- **Risk of acid burns as a result of emerging acid.**

Do not disconnect battery with engine running.

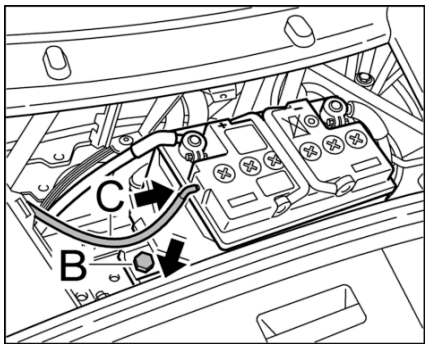
Switch off all loads and remove ignition key.

Disconnect and reconnect battery with extreme caution. Risk of short circuit and explosion.

Do not tilt battery when removing it. Risk of acid burns as a result of emerging acid.

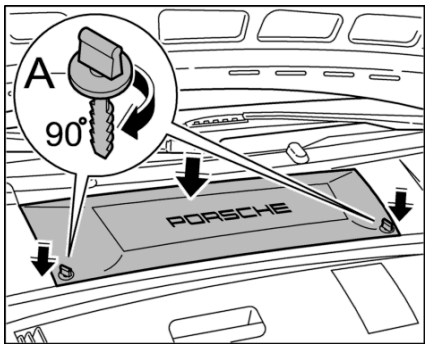
Do not rub the battery with a dry cloth. Risk of explosion as a result of static charge.

1. Risk of contact with corrosive fluid! Position the battery in the battery case below the stops, if at all possible without tilting it.



Battery mount

2. Position the battery mount and tighten with the fastening screw **-B-** . **M8: 23 (17 ftlb.) Nm**
3. Insert the vent hose for the battery.
4. Risk of short circuit! First connect the positive cable then the negative cable. **M6: 5 (3.5 ftlb.) Nm**



Battery cover

5. Position the battery cover and secure using the two twist locks **-A-** . 271219 Removing and installing battery cover - section on "Reworking"

top of page

Subsequent work

Subsequent work - battery

Work instructions after disconnecting the battery

997110, 997111, 997120, 997121, 997310, 997311, 997320, 997321, 997410, 997411, 997430, 997431, 997610, 997611, 997620, 997621

as of MY 2005
Country C00, C02, C05, C07, C08, C09, C10, C11, C12, C13, C14, C15, C16, C18, C19, C20, C21, C22, C23, C24, C25, C26, C27, C28, C32, C33, C34, C35, C36, C37, C38, C39, C45, C46, C98, C99

WARNUNG

Gefahr des Verlusts der Text-Bild-Zuordnung beim Ausdruck.

- **Aus technischen Gründen kann derzeit nicht ausgeschlossen werden, dass trotz einwandfreier Darstellung auf dem Bildschirm beim Ausdruck der Zusammenhang von Text und zugehörigem Bild verloren geht.**
- **Wird der Fehler nicht bemerkt, besteht die Gefahr, daß Arbeiten nicht korrekt durchgeführt werden und es dadurch zu Personen- und Sachschäden kommt.**

Vergleichen Sie deshalb nach dem Druckvorgang unbedingt die Ausdrucke mit der Bildschirmdarstellung. Korrigieren Sie die Ausdrucke im Fehlerfall so, daß der Inhalt der Bildschirmdarstellung zutreffend wiedergegeben wird.

WARNING

Danger of losing text-figure correspondence when printing out.

- **For technical reasons, it can currently not be ruled out that the correspondence between text and associated figure can be lost when it is printed out, even though the display on the screen is correct.**
- **If the fault is not noticed, there is the danger that work will not be performed correctly which can cause injury and damage.**

Therefore, always compare printouts with the screen display after printing them out. Correct the printouts if they are faulty so that the content of the screen display matches that on the printouts.

AVERTISSEMENT

Risque de perte de la correspondance texte-illustration lors de l'impression papier.

- **Pour des raisons techniques, il ne peut pas être exclu à l'heure actuelle que, même en cas d'affichage correct à l'écran, la correspondance entre le texte et l'illustration puisse être erronée sur l'impression papier.**
- **Si l'erreur passe inaperçue, on court le risque d'exécuter certaines opérations de manière incorrecte pouvant conduire à des dommages corporels et matériels.**

27 12 19 Removing and installing battery cover - as of MY 2005

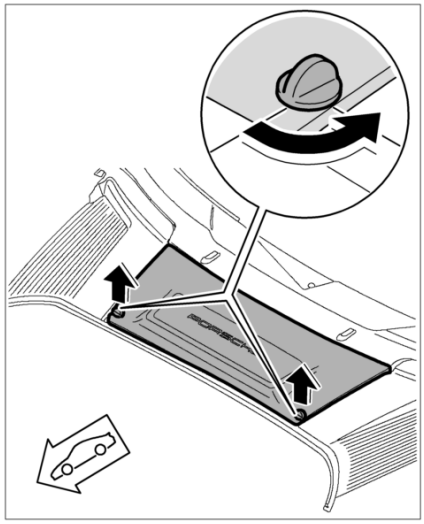
- Removing battery cover
- Installing battery cover
- Subsequent work

top of page

Removing battery cover

Removing battery cover

1. Open luggage compartment.



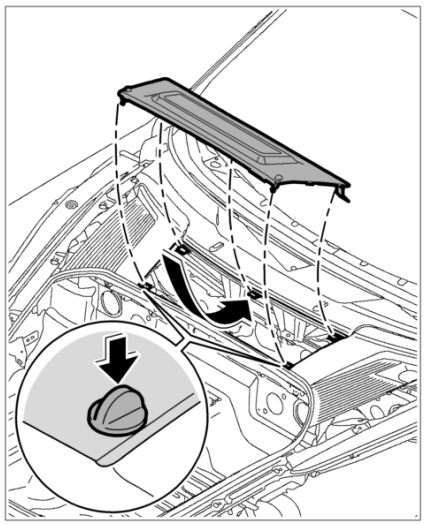
Opening turn-lock fasteners

2. Twist turn-lock fasteners of cover 90° to the right, lift up with cover and disengage from cowl panel cover.
3. Place battery cover on a level surface.

top of page

Installing battery cover

Installing battery cover



Engaging battery cover

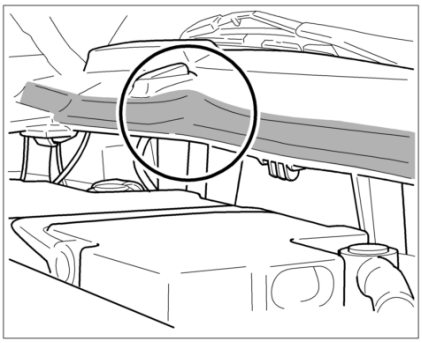
1. Engage battery cover with external hooks in left and right mounting points of cowl panel cover.
2. Insert battery cover as far as it will go by **pivoting it inward** and **applying simultaneous pressure** in direction of windscreen.
3. Align turn-lock fasteners fore-and-aft and engage by pressing down lightly.
4. Locate locking hooks at the connecting flanges with the plenum panel side covers by pressing down lightly.
5. Check gap dimension of battery cover; if necessary, rework the cowl panel covers or adjust the covers of battery, cowl panel, plenum panel so that they mate. 271219 Removing and installing battery cover - chapter on "Reworking"

top of page

Subsequent work

Reworking if cowl panel cover deformed

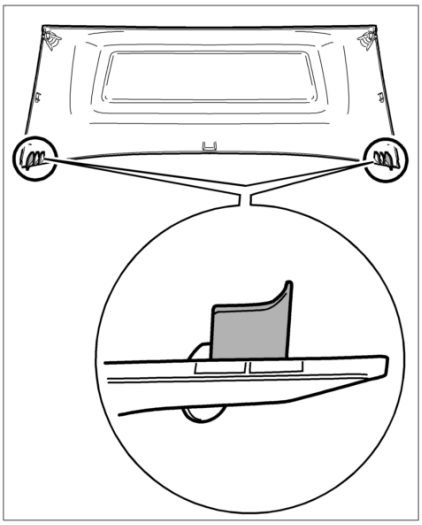
Possible causes for difficulty in fitting battery cover:



Deformation of cowl panel cover

– **A deformed connecting flange on the cowl panel cover or a cowl panel cover installed twisted.**

1. Loosen all threaded joints of cowl panel cover.
   508719 Removing and installing cowl panel cover - chapter on "Removing"
2. Loosen antenna holder fastening screws.
3. Mask off the Velcro connection for plenum panel cover on left and right using commercially available adhesive tape.



Greasing the hook of the battery cover

Note

Lightly grease the hook of the battery cover with the following grease, Part No. 000.043.204.68.

4. Fit the battery cover as follows:

4.1. Engage battery cover with external hooks in left and right mounting points of cowl panel cover.

4.2. Insert battery cover as far as it will go by **screwing in** and **applying simultaneous pressure** in direction of windscreen.

4.3. Do **not** engage turn-lock fasteners.

4.4. Release tension from the entire set of covers (covers: plenum panel, battery, cowl panel) by sideways shifting. **Make sure there is no warping in the area where the plenum panel adjoins the luggage compartment seal.**

4.5. Align turn-lock fasteners fore-and-aft and engage by pressing down lightly.

5. If the battery cover still protrudes at the sides then it is deformed and must be replaced.

6. If the gaps look correct, screw down the cowl panel cover at its three fastening points in the area of the windscreen to the specified tightening torque. **Tightening torque: 4.0 (3.0 ftlb.) Nm Tightening torque: 2.0 (1.5 ftlb.) Nm**
7. Remove battery cover and tighten the two fastening screws of the cowl panel cover (to rear of battery) to the specified tightening torque. **Tightening torque: 2.0 (1.5 ftlb.) Nm**
8. Tighten fastening screws for telephone antenna holder.
9. Fit cowl panel cover and battery cover as described.

997110, 997111, 997120, 997121, 997310, 997311, 997320, 997321, 997410, 997411, 997430, 997431, 997610, 997611, 997620, 997621

as of MY 2005
Country C00, C02, C05, C07, C08, C09, C10, C11, C12, C13, C14, C15, C16, C18, C19, C20, C21, C22, C23, C24, C25, C26, C27, C28, C32, C33, C34, C35, C36, C37, C38, C39, C45, C46, C98, C99

WARNUNG

Gefahr des Verlusts der Text-Bild-Zuordnung beim Ausdruck.

- **Aus technischen Gründen kann derzeit nicht ausgeschlossen werden, dass trotz einwandfreier Darstellung auf dem Bildschirm beim Ausdruck der Zusammenhang von Text und zugehörigem Bild verloren geht.**
- **Wird der Fehler nicht bemerkt, besteht die Gefahr, daß Arbeiten nicht korrekt durchgeführt werden und es dadurch zu Personen- und Sachschäden kommt.**

Vergleichen Sie deshalb nach dem Druckvorgang unbedingt die Ausdrucke mit der Bildschirmdarstellung. Korrigieren Sie die Ausdrucke im Fehlerfall so, daß der Inhalt der Bildschirmdarstellung zutreffend wiedergegeben wird.

WARNING

Danger of losing text-figure correspondence when printing out.

- **For technical reasons, it can currently not be ruled out that the correspondence between text and associated figure can be lost when it is printed out, even though the display on the screen is correct.**
- **If the fault is not noticed, there is the danger that work will not be performed correctly which can cause injury and damage.**

Therefore, always compare printouts with the screen display after printing them out. Correct the printouts if they are faulty so that the content of the screen display matches that on the printouts.

AVERTISSEMENT

Risque de perte de la correspondance texte-illustration lors de l'impression papier.

27 22 19 Removing and installing three-phase generator - as of MY 2005

- Preliminary work
- Removing three-phase generator
- Installing three-phase generator
- Subsequent work

top of page

Preliminary work

Preliminary work - three-phase generator

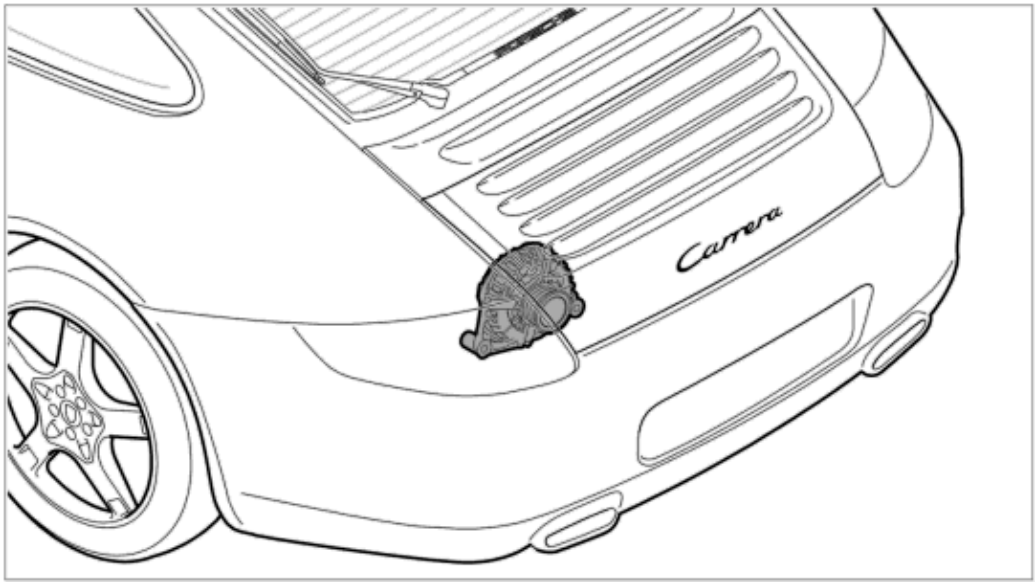
Disconnect battery. *271000 Work instructions after disconnecting the battery*
242519 Removing and installing air cleaner housing - chapter on "removing"
137819 Removing and installing drive belt - chapter on "removing"

top of page

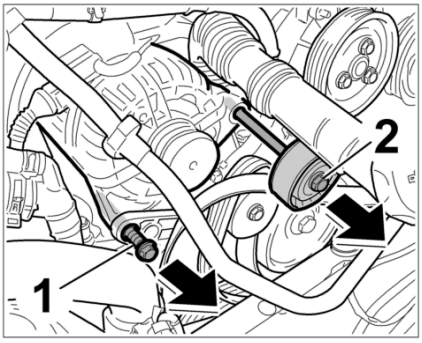
Removing three-phase generator

Removing three-phase generator

Installation Location:

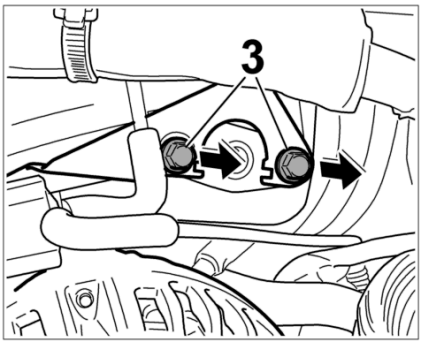


Installation position



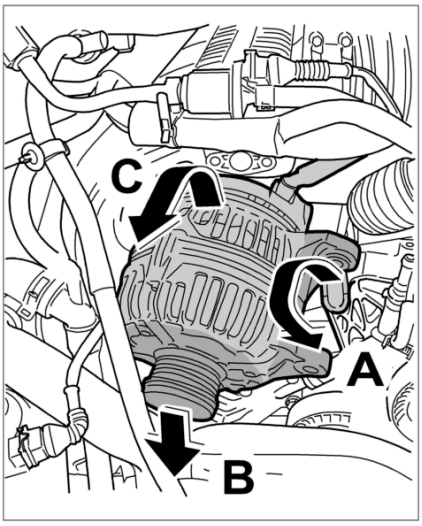
Unscrewing fastening screws

1. Unscrew the two fastening screws **-1, 2-** and remove together with the deflection roller.



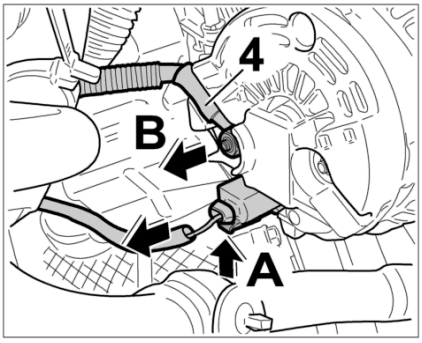
Unscrewing the fastening screws for the vacuum modulator

2. Unscrew the two fastening screws **-3-** for the vacuum modulator.



Removing three-phase generator from the engine.

3. Lift the right generator over the bracket on the engine **-A-** , then pull forwards and down **-B-** and raise clear of the engine from the rear **-C-** .



Disconnecting electrical connections

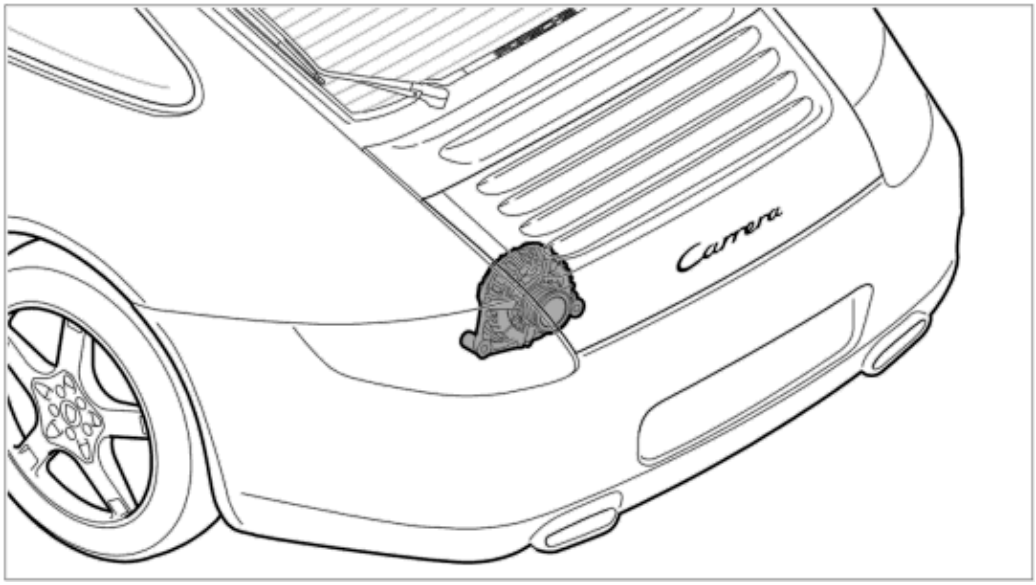
4. Release and unplug the electrical connector **-A-** .
5. Unscrew fastening nut **-B-** for the B+ lead **-4-** and remove the B+ lead.

top of page

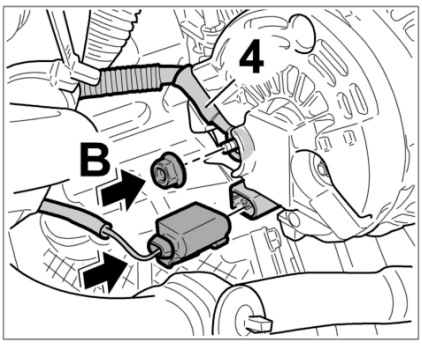
Installing three-phase generator

Installing three-phase generator

Installation Location:

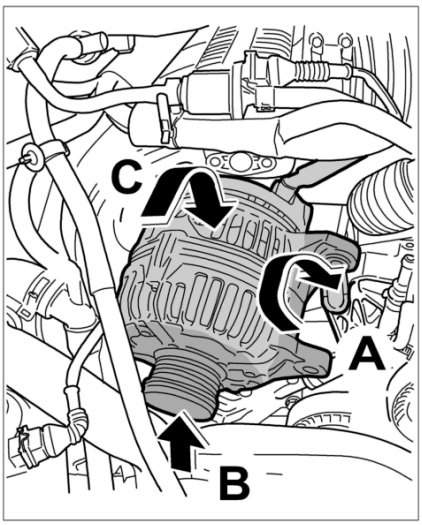


Installation position



Connecting electrical connections

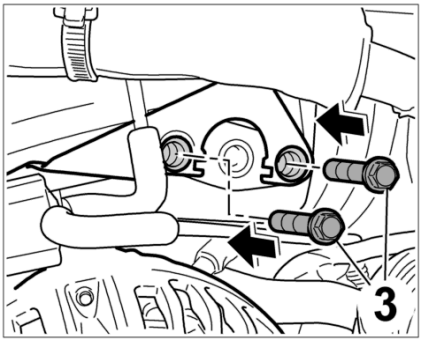
1. Place the three-phase generator on the engine and fit the B+ lead **-4-** , tightening with the fastening nut **-B-** . **Tightening torque: 11 ftlb.**
2. Press in the electric plug until it clicks into place.



Positioning three-phase generator on the engine

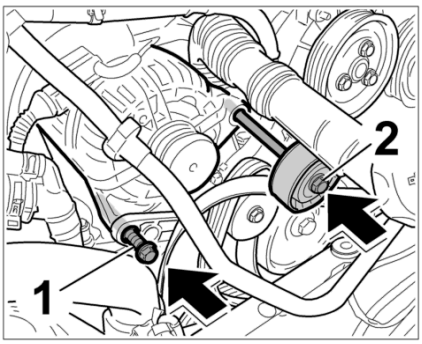
3.

Insert the three-phase generator into the engine area **-C-** , then push upwards **-B-** and lift over the bracket **-A-** .



Screwing down vacuum modulator

4. Position vacuum modulator over the three-phase generator and screw it down with the fastening screws **-3-** . **Tightening torque: 6.5 ftlb.**



Screwing down fastening screws

5. Screw down three-phase generator with the two fastening screws **-1, 2-** . **Tightening torque: 34 ftlb. Tightening torque: 34 ftlb.**

top of page

Subsequent work

Subsequent work - three-phase generator

137819 Removing and installing drive belt - chapter on "installing"
242519 Removing and installing air cleaner housing - chapter on "installing"
Connect battery. *271000 Work instructions after disconnecting the battery*

997110, 997111, 997120, 997121, 997310, 997311, 997320, 997321, 997410, 997411, 997430, 997431, 997610, 997611, 997620, 997621

as of MY 2005
Country C00, C02, C05, C07, C08, C09, C10, C11, C12, C13, C14, C15, C16, C18, C19, C20, C21, C22,

27 60 19 Removing and installing starter - as of MY 2005

- Preliminary work
- Removing starter
- Installing starter
- Subsequent work

top of page

Preliminary work

Preliminary work - starter

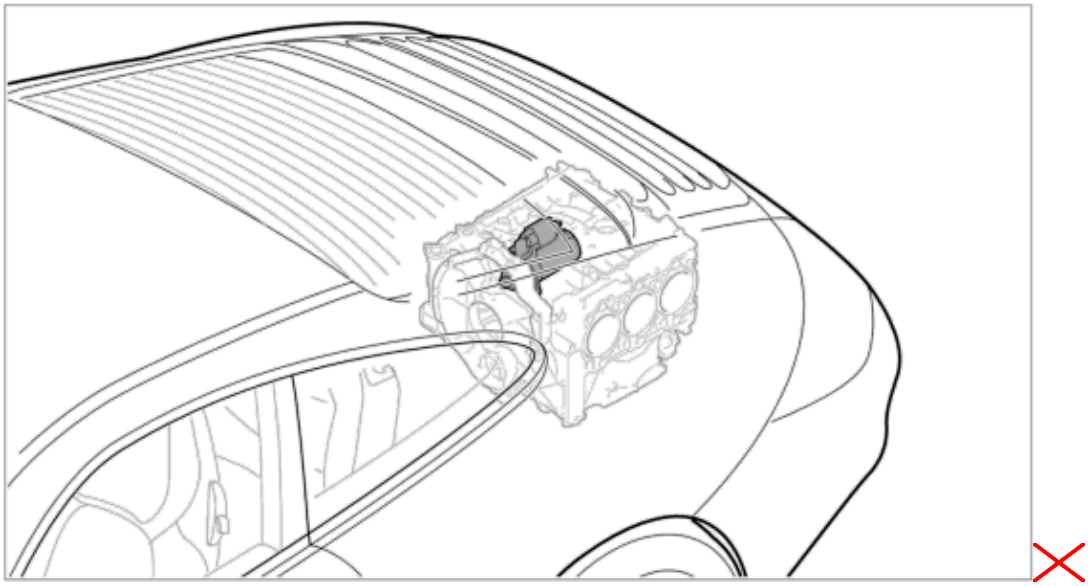
Disconnect battery. *271000 Work instructions after disconnecting the battery*
242519 Removing and installing air cleaner housing - chapter on "removing"
244219 Removing and installing throttle body - chapter on "removing"

top of page

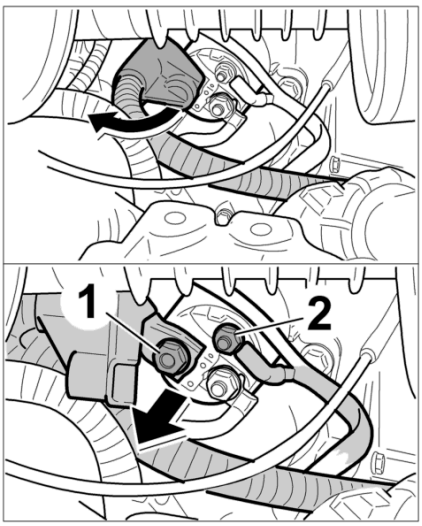
Removing starter

Removing starter

Installation Location:



Installation position



Unscrewing fastening nuts on starter

1. Remove caps from fastening nuts.

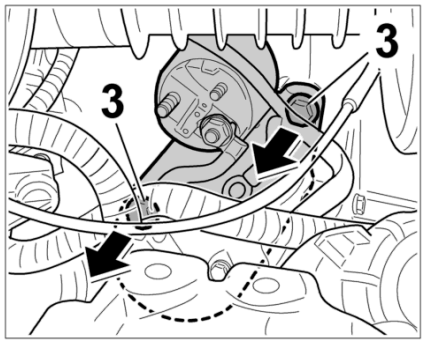
WARNING

If the battery has not been disconnected, battery voltage will be present at the leads during removal and installation.

- **Risk of injury from burns and electric shock.**
- **Damage to electrical leads, control units and components due to accidental contact of leads with ground.**

Disconnect both battery terminals and cover the + terminal.

2. Unscrew fastening nuts **-1, 2-** on the starter, remove the leads and lay them to one side.



Unscrewing fastening screws

3. Undo the two fastening screws **-3-** .
4. Remove the starter rearward from the engine, rotating the starter as necessary.

top of page

Installing starter

Installing starter

Installing starter

WARNING

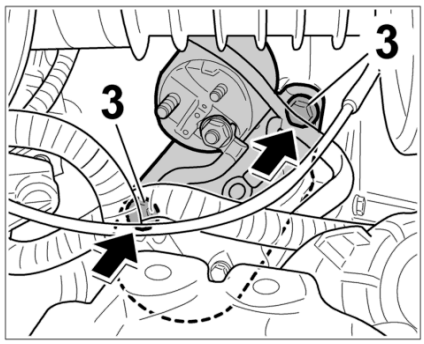
If the battery has not been disconnected, battery voltage will be present at the leads during removal and installation.

- **Risk of injury from burns and electric shock.**
- **Damage to electrical leads, control units and components due to accidental contact of leads with ground.**

Disconnect both battery terminals and cover the + terminal.

1. Insert and position starter into engine compartment, rotating it slightly aufsetzen.

The angled cable lug of terminal 50 (M6) **-1-** faces in driving direction after assembly.



Screwing down starter with fastening screws

2.

Insert fastening screws **-3-** on starter, screw into the engine housing and tighten **Tightening torque: 33 ftlb.**

Tighening electrical leads to starter

3. Position electrical leads on the starter and tighten with fastening nuts **-1, 2-** . **Tightening torque: 13 ftlb. Tightening torque: 5.0 ftlb.**
4. Fit caps on fastening nuts.

top of page

Subsequent work

Subsequent work - starter

244219 Removing and installing throttle body - chapter on "installing"
242519 Removing and installing air cleaner housing - chapter on "installing"
Disconnect battery. *271000 Work instructions after disconnecting the battery*

997110, 997111, 997120, 997121, 997310, 997311, 997320, 997321, 997410, 997411, 997430, 997431, 997610, 997611, 997620, 997621

as of MY 2005
Country C00, C02, C05, C07, C08, C09, C10, C11, C12, C13, C14, C15, C16, C18, C19, C20, C21, C22, C23, C24, C25, C26, C27, C28, C32, C33, C34, C35, C36, C37, C38, C39, C45, C46, C98, C99

WARNUNG

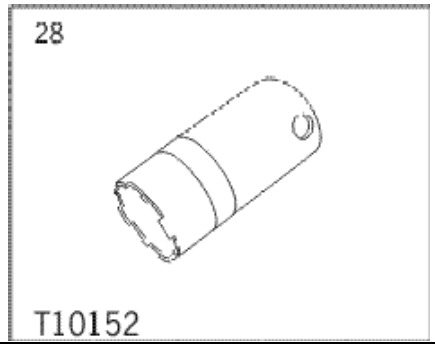
Gefahr des Verlusts der Text-Bild-Zuordnung beim Ausdruck.

- **Aus technischen Gründen kann derzeit nicht ausgeschlossen werden, dass trotz**

28 04 19 Removing and installing ignition switch - as of MY 2005

- Removing ignition switch
- Installing ignition switch
- Information

Tools

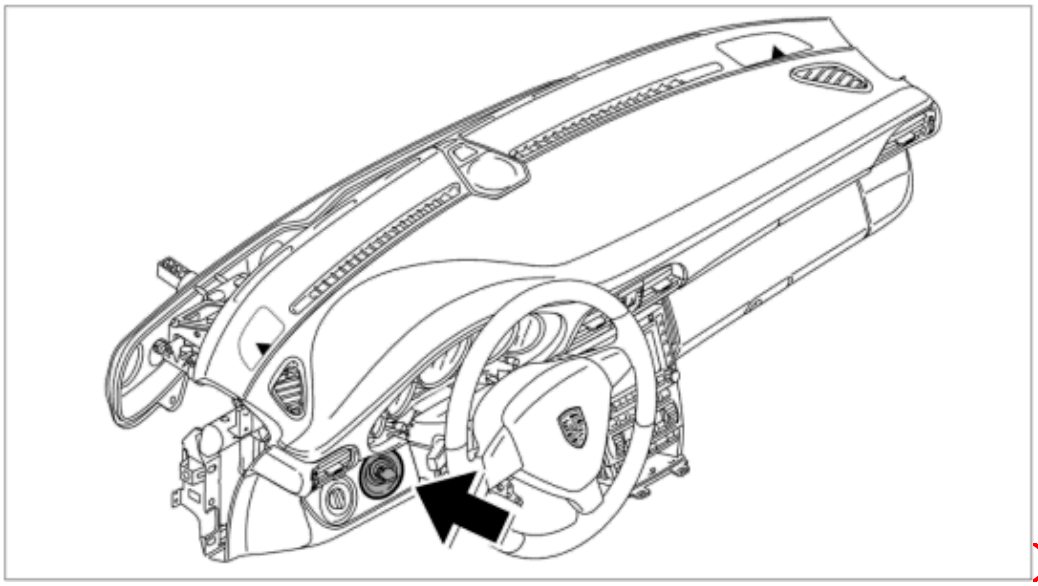
Designation	Type	Number	Explanation	
wrench	VW-tool	T10152		

top of page

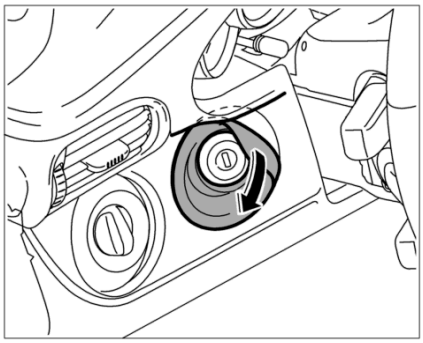
Removing ignition switch

Removing ignition switch

Installation Location:

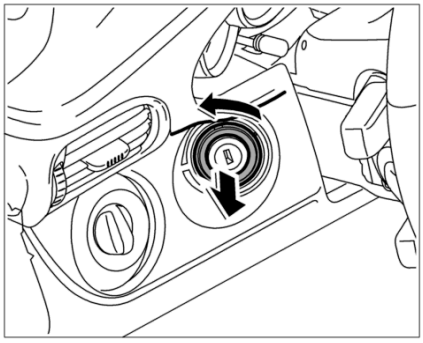


Installation position



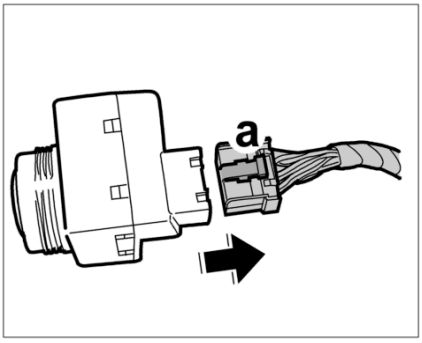
Removing detachable cover

1. Carefully lift up rubber sleeve on the ignition switch using a plastic spatula, for example, and remove it.



Unscrewing union nut from ignition switch

2. Turn union nut using a narrow plastic spatula, for example, or using the special **wrench T10152** tool and unscrew the ring from the ignition switch.
3. Press ignition switch inwards and remove towards the bottom.



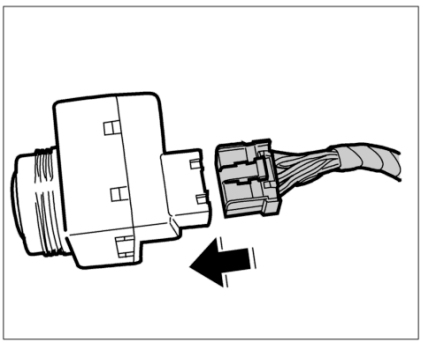
Releasing and pulling off electric plug

4. Release electric plug **-a-** and pull it off the ignition switch.

top of page

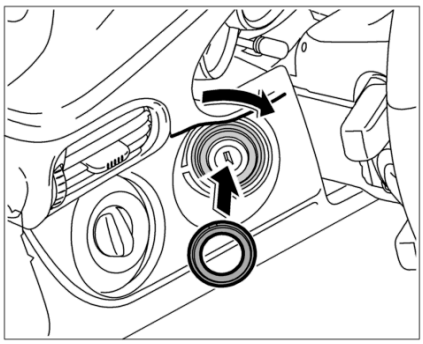
Installing ignition switch

Installing ignition switch



Connecting electric plug

1. Connect plug on ignition switch until it clicks into place.



Turning union nut on ignition switch

2. Position ignition switch in the instrument panel from below. Position union nut, re-adjust switch and tighten union nut using **wrench T10152**. **Tightening torque: 1.1 ftlb.**
3. Place cover in position and slide it over the ignition switch, paying attention to the fitted shape.

top of page

Information

Emergency operation of the ignition key lock

Note

- *In the event of insufficient or non-existent battery positive voltage, the ignition key can be removed using the emergency operation.*

1. Lever out the small cover, at the top right next to the ignition key, at the ignition switch using a screwdriver.
2. Then, push a pen, for example, into the opening next to the key, turn the ignition key to position 0 and pull it out.

997110, 997111, 997120, 997121, 997310, 997311, 997320, 997321, 997410, 997411, 997430, 997431, 997610, 997611, 997620, 997621

as of MY 2005
Country C00, C02, C05, C07, C08, C09, C10, C11, C12, C13, C14, C15, C16, C18, C19, C20, C21, C22, C23, C24, C25, C26, C27, C28, C32, C33, C34, C35, C36, C37, C38, C39, C45, C46, C98, C99

WARNUNG

Gefahr des Verlusts der Text-Bild-Zuordnung beim Ausdruck.

- **Aus technischen Gründen kann derzeit nicht ausgeschlossen werden, dass trotz einwandfreier Darstellung auf dem Bildschirm beim Ausdruck der Zusammenhang von Text und zugehörigem Bild verloren geht.**
- **Wird der Fehler nicht bemerkt, besteht die Gefahr, daß Arbeiten nicht korrekt durchgeführt werden und es dadurch zu Personen- und Sachschäden kommt.**

Vergleichen Sie deshalb nach dem Druckvorgang unbedingt die Ausdrucke mit der Bildschirmdarstellung. Korrigieren Sie die Ausdrucke im Fehlerfall so, daß der Inhalt der Bildschirmdarstellung zutreffend wiedergegeben wird.

WARNING

Danger of losing text-figure correspondence when printing out.

- **For technical reasons, it can currently not be ruled out that the correspondence between text and associated figure can be lost when it is printed out, even though the display on the screen is correct.**
- **If the fault is not noticed, there is the danger that work will not be performed correctly which can cause injury and damage.**

Therefore, always compare printouts with the screen display after printing them out. Correct the printouts if they are faulty so that the content of the screen display matches that on the printouts.

AVERTISSEMENT

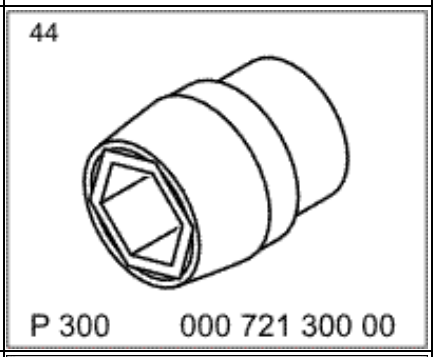
Risque de perte de la correspondance texte-illustration lors de l'impression papier.

- **Pour des raisons techniques, il ne peut pas être exclu à l'heure actuelle que, même en cas d'affichage correct à l'écran, la correspondance entre le texte et l'illustration puisse être erronée sur l'impression papier.**
- **Si l'erreur passe inaperçue, on court le risque d'exécuter certaines opérations de manière incorrecte pouvant conduire à des dommages corporels et matériels.**

28 70 20 Removing and installing spark plugs - as of MY 2005

- Preliminary work
- Removing
- Installing
- Subsequent work

Tools

Designation	Type	Number	Explanation	
socket wrench insert	special tool	300		
spark plug socket wrench	commercially available tool	NR.14		
3/8" extension, 16° moveable	commercially available tool	NR.15		

top of page

Preliminary work

Preliminary work

Note

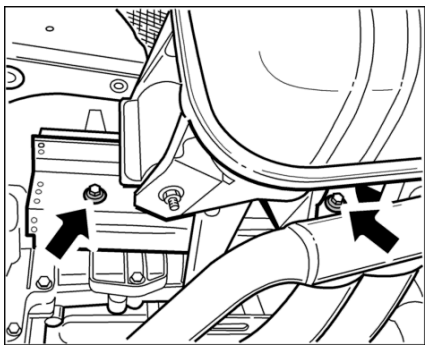
To remove and install the wheel bolts use the prescribed special tool **socket wrench insert 300**.

1. Remove rear wheels. 440519 Removing and installing wheel.

top of page

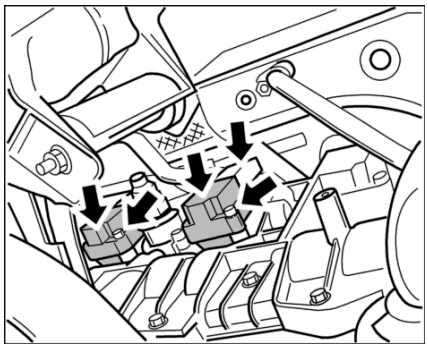
Removing

Removing spark plugs



Shield for ignition coils

1. Remove the 2 M6 x 20 fastening screws **-arrows-** for the shields on both cylinder heads and remove the plates.
2. Unplug cable plug for the ignition coils. To do this, slide the rubber grommets upward first. Press locking tabs on the respective ignition coil and pull off the individual plugs. In the interest of better accessibility, unplug the cable plugs for the solenoid hydraulic valves.



Screws for ignition coils

3.

Loosen two M6 x 25 fastening screws **-arrows-** each per ignition coil and remove the 6 ignition coils individually.

ATTENTION
Incorrect tool for changing the spark plugs!

- **Ceramic body breaks!**

Only use the approved tool **spark plug socket wrench NR.14** and **3/8" extension, 16° moveable NR.15**.

4. Unscrew the spark plugs using the tool **spark plug socket wrench NR.14** with **3/8" extension, 16° movable NR.15**.

top of page

Installing

Installing spark plugs

ATTENTION
Incorrect tool for changing the spark plugs!

- **Ceramic body breaks!**

Only use the approved tool **spark plug socket wrench NR.14** and **3/8" extension, 16° moveable NR.15**.

1. Install spark plug with **spark plug socket wrench NR.14** and **3/8" extension, 16° movable NR.15**. **Tightening torque: 22 ftlb.** If the spark plugs will be removed and installed again for another activity, the tightening torque is reduced. **Tightening torque: 19 ftlb.**
2. Insert ignition coils in the spark-plug recesses and tighten using two M6 x 25 fastening screws each. **Tightening torque: 7.5 ftlb.** . Then connect the cable plug and position the rubber grommet on the coils.
3. Insert the shield again and fit using two fastening screws. **Tightening torque: 7.5 ftlb.** .

top of page

Subsequent work

Reworking

Note

To remove and install the wheel bolts use the prescribed special tool **socket wrench insert 300**.

1. Mount rear wheels. 440519 Removing and installing wheel - installing.

997110, 997111, 997120, 997121, 997310, 997311, 997320, 997321, 997410, 997411, 997430, 997431, 997610, 997611, 997620, 997621

as of MY 2005
Country C00, C02, C05, C07, C08, C09, C10, C11, C12, C13, C14, C15, C16, C18, C19, C20, C21, C22, C23, C24, C25, C26, C27, C28, C32, C33, C34, C35, C36, C37, C38, C39, C45, C46, C98, C99

WARNUNG

Gefahr des Verlusts der Text-Bild-Zuordnung beim Ausdruck.

- **Aus technischen Gründen kann derzeit nicht ausgeschlossen werden, dass trotz einwandfreier Darstellung auf dem Bildschirm beim Ausdruck der Zusammenhang von Text und zugehörigem Bild verloren geht.**
- **Wird der Fehler nicht bemerkt, besteht die Gefahr, daß Arbeiten nicht korrekt durchgeführt werden und es dadurch zu Personen- und Sachschäden kommt.**

Vergleichen Sie deshalb nach dem Druckvorgang unbedingt die Ausdrucke mit der Bildschirmdarstellung. Korrigieren Sie die Ausdrucke im Fehlerfall so, daß der Inhalt der Bildschirmdarstellung zutreffend wiedergegeben wird.

WARNING

Danger of losing text-figure correspondence when printing out.

- **For technical reasons, it can currently not be ruled out that the correspondence between text and associated figure can be lost when it is printed out, even though the display on the screen is correct.**
- **If the fault is not noticed, there is the danger that work will not be performed correctly which can cause injury and damage.**

Therefore, always compare printouts with the screen display after printing them out. Correct the printouts if they are faulty so that the content of the screen display matches that on the printouts.

AVERTISSEMENT

Risque de perte de la correspondance texte-illustration lors de l'impression papier.

28 72 19 Removing and installing knock sensor - as of MY 2005

- Preliminary work
- Removing knock sensor
- Installing knock sensor
- Subsequent work

top of page

Preliminary work

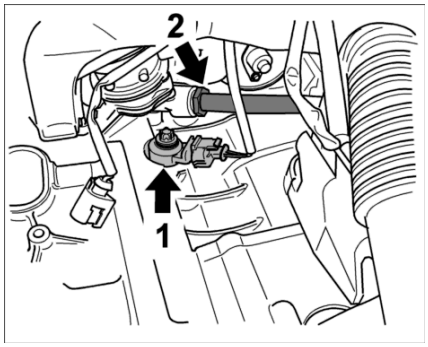
Preliminary work for removing knock sensor

1. On cylinder bank 1-3, the three-phase generator must be removed 272219 Removing and installing three-phase generator - chapter on "removing".
2. On cylinder bank 4-6, the oil separator must be removed without loosening the connection lines. For details see 105519 Removing and installing oil separator - chapter on "removing".

top of page

Removing knock sensor

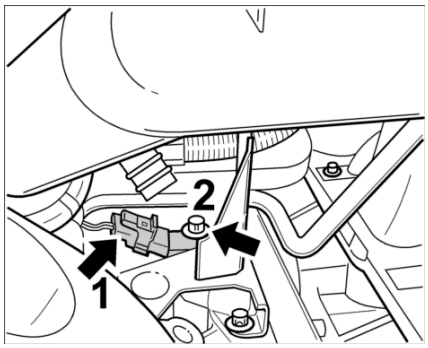
Removing knock sensor, cylinder bank 1-3



Knock sensor and secondary air pump

1. Mark and note the installation position of the knock sensor. Remove cable plug from knock sensor **-1-** . . Unscrew fastening screw and remove knock sensor.

Removing knock sensor, cylinder bank 4-6



Knock sensor

1. Mark and note the installation position of the knock sensor. Remove cable plug from knock sensor **-1-** . Unscrew fastening screw **-2-** and remove knock sensor.

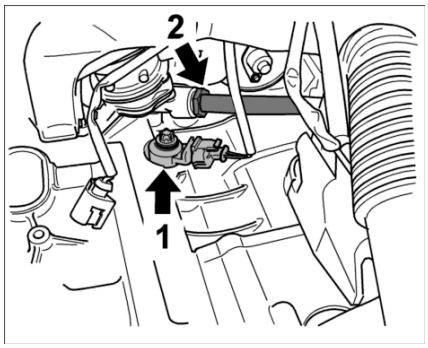
top of page

Installing knock sensor

Installing knock sensor, cylinder bank 1 -3

Note

The precise tightening torque for the knock-sensor screw must be observed, otherwise the knock sensor might not function properly.



Knock sensor and secondary air pump

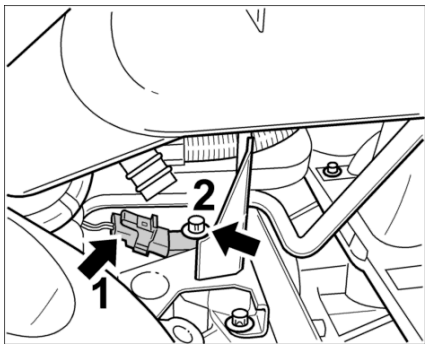
1. Clean contact surface on crankcase and move knock sensor to the installation position, according to removal position. Position and tighten fastening screw **-1-** . **Tightening torque: 17 ftlb.**

2. Push on cable plug.

Installing knock sensor, cylinder bank 4 -6

Note

The precise tightening torque for the knock-sensor screw must be observed, otherwise the knock sensor might not function properly.



Knock sensor

1. Clean contact surface on crankcase and move knock sensor to the installation position, according to removal position. Position and tighten fastening screw **-2-** . **Tightening torque: 17 ftlb.**
2. Push on cable plug.

top of page

Subsequent work

Work subsequent to installing knock sensor

1. Install three-phase generator on cylinder bank 1-3 272219 Removing and installing three-phase generator - chapter on "installing".
2. Install oil separator on cylinder bank 4-6.. For details see 105519 Removing and installing oil separator - chapter on "installing".

997110, 997111, 997120, 997121, 997310, 997311, 997320, 997321, 997410, 997411, 997430, 997431, 997610, 997611, 997620, 997621

as of MY 2005
Country C00, C02, C05, C07, C08, C09, C10, C11, C12, C13, C14, C15, C16, C18, C19, C20, C21, C22,

30 01 07 Bleeding the clutch system - as of MY 2005

- Information

top of page

Information

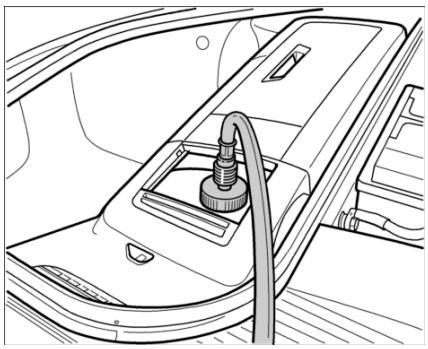
Important notes on bleeding

The clutch hydraulics must always be filled or bled using a bleeding device. Furthermore, the bleeder valve must be opened sufficiently and the gauge pressure at the bleeding device must be approx. 1.3 bar.
Once the filling or bleeding process has started, the clutch pedal must be moved (extremely slowly) into the "Pedal fully depressed" position .
As there is no system pressure, servo kinematic effects will cause the clutch pedal to move forward abruptly. In order to avoid damage, the pedal must be guided manually.
In general, a minimum filling time of 90 seconds must be observed. Once this filling period has elapsed, check that no more bubbles appear at the bleeder valve (use a collecting bottle with transparent hose). Only then close the bleeder valve.

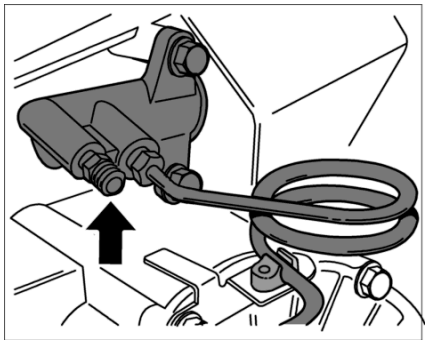
Filling/bleeding

Note
In general, a minimum filling time of 90 seconds must be observed.
Use only new Super DOT 4 class brake fluid. This brake fluid is available under the following part numbers:

- *Container quantity 1 litre = 000.043.203.66*
- *Container quantity 30 litres = 000.043.203.67*



1. Remove the cover over the brake fluid reservoir. Fill reservoir to its top edge with new brake fluid. Connect the bleeding device to the brake fluid reservoir. *see figure*
2. Switch on the bleeding device and set an overpressure of approx. 1.3 bar.



3. Open the bleeder valve **-arrow-** on the clutch slave cylinder.
4. Move pedal extremely slowly to the "Pedal fully depressed" position. When doing so, guide the pedal by hand so that it does not move forward abruptly.
5. Allow the brake fluid to rinse through for 30 seconds.
6. Afterwards, activate complete pedal travel manually very slowly for a further 60 seconds. After about 10 to 15 pedal strokes, leave the pedal in its normal position. Once this filling period has elapsed, check that no more bubbles appear at the bleeder valve (use a collecting bottle with transparent hose). Then close the bleeder valve (tightening torque = 7 + 6 Nm (5 + 4.5 ftlb.).
7. Switch off and disconnect the bleeding device. Check the brake fluid level. It should not be above the MAX. mark.
8. Activate the clutch pedal slowly, five times.
9. Fit the cover over the brake fluid reservoir.

997110, 997111, 997120, 997121, 997310, 997311, 997320, 997321, 997410, 997411, 997430, 997431, 997610, 997611, 997620, 997621

as of MY 2005
Country C00, C02, C05, C07, C08, C09, C10, C11, C12, C13, C14, C15, C16, C18, C19, C20, C21, C22, C23, C24, C25, C26, C27, C28, C32, C33, C34, C35, C36, C37, C38, C39, C45, C46, C98, C99

WARNUNG

Gefahr des Verlusts der Text-Bild-Zuordnung beim Ausdruck.

- **Aus technischen Gründen kann derzeit nicht ausgeschlossen werden, dass trotz einwandfreier Darstellung auf dem Bildschirm beim Ausdruck der Zusammenhang von Text und zugehörigem Bild verloren geht.**
- **Wird der Fehler nicht bemerkt, besteht die Gefahr, daß Arbeiten nicht korrekt durchgeführt werden und es dadurch zu Personen- und Sachschäden kommt.**

Vergleichen Sie deshalb nach dem Druckvorgang unbedingt die Ausdrucke mit der Bildschirmdarstellung. Korrigieren Sie die Ausdrucke im Fehlerfall so, daß der Inhalt der Bildschirmdarstellung zutreffend wiedergegeben wird.

30 05 01 Checking clutch pedal (end position) - as of MY 2005

- Clutch pedal: checking play and pedal end position

top of page

Clutch pedal: checking play and pedal end position

Checking clutch free play

The clutch master cylinder has an inner stop. The push rod and the clutch pedal are always pressed against this stop by the clutch power spring. Due to the automatic hydraulic adjustment of the clutch, it is not possible to determine the clutch play by checking at the clutch pedal.

Clutch: Checking pedal end position (pedal return/return force)

Note

This work step only needs to be performed in the course of maintenance.
The pedal must not give way during the operation.
If it gives way, the fault is in the clutch power spring or in the pedals.

– Check that the pedal is in end position by pulling at the pedal (without the use of force) towards the driver's seat.

The clutch push rod and the clutch power spring are not adjustable. The clutch power spring has two functions, namely to provide pedal force assistance and to return the pedal. The following are some of the points which are requirements for perfect clutch operation:

- Correct bleeding of the clutch hydraulic system.
- No leaks in the hydraulic system
- Pedal return to the starting position
- Installation position of the pedals corresponds to the standard condition

---

997110, 997111, 997120, 997121, 997310, 997311, 997320, 997321, 997410, 997411, 997430, 997431, 997610, 997611, 997620, 997621

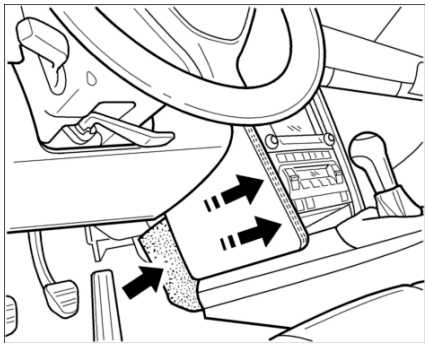
as of MY 2005
Country C00, C02, C05, C07, C08, C09, C10, C11, C12, C13, C14, C15, C16, C18, C19, C20, C21, C22, C23, C24, C25, C26, C27, C28, C32, C33, C34, C35, C36, C37, C38, C39, C45, C46, C98, C99

30 05 19 Removing and installing the clutch pedal - as of MY 2005

-
-
-
-
-
-

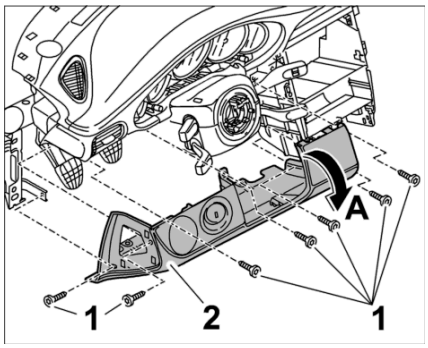
top of page

Preliminary work



Side trim panels, left footwell (centre console)

1. Removing trim panel (lower part of dashboard). To do this, remove the centre console covers *Side trim panels, left footwell (centre console)* 681419 Removing and installing centre console cover.



Removing trim panel (lower part of dashboard)

2. Unscrew the fastening screws **-1-** and swivel the trim panel under the dashboard on the driver's side **-2-** downwards **-arrow A-** 701919 Removing and installing trim under instrument panel.

top of page

General warning notes

ATTENTION

Increased risk of accidents when removing/installing the clutch boost spring.

- **Possible risk of damage and injury (e.g. crushing).**

The boost spring must be secured with a cotter pin when working near the clutch pedal (except for work on the clutch pedal switch and interlock switch).

top of page

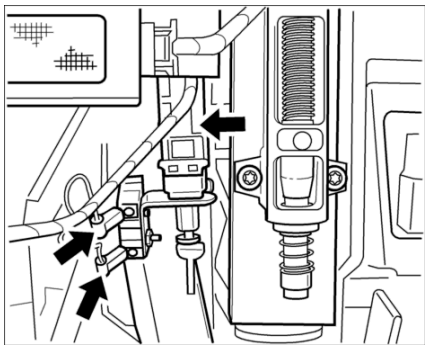
Technical values

Location	Explanation	Type	Basic value	Tolerance 1	Tolerance 2
Master cylinder		Tightening torque	7.5 ftlb.		
Pedal bearing axle		Tightening torque	6 ftlb.	+1.5 ftlb.	
Pedal bearing axle: right lock nut (M8)		Tightening torque	7.5 ftlb.		
Pedal bearing axle: left lock nut (M14)		Tightening torque	34 ftlb.		
Bracket for clutch boost spring		Tightening torque	7.5 ftlb.		

top of page

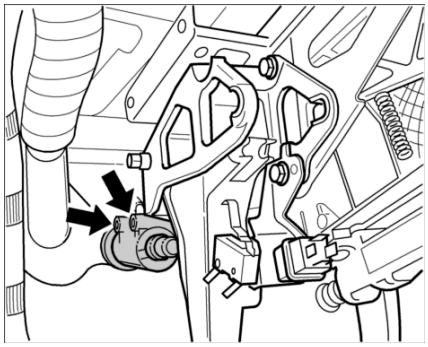
Removing

1. Remove the cover and side trim panel for the fusebox in the left driver's footwell.



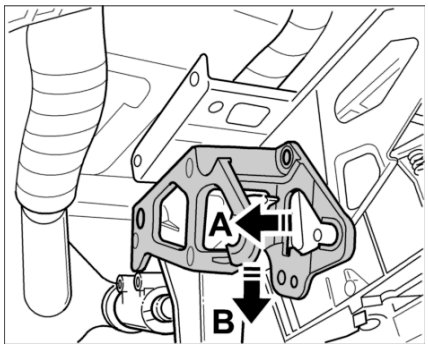
Clutch pedal switch

2. Carefully pull off the connector from the clutch pedal switch (and if necessary, interlock switch). **-arrows-**
3. Remove the relay carrier, vehicle electrical system control unit, and device support on the left above the clutch pedal.
4. Secure clutch power spring with a cotter pin, for example. Press the clutch pedal lightly, unclip the clutch power spring and remove.



Clutch master cylinder

5. Loosen the clutch master cylinder **-arrows-** (do not open the clutch system!) and remove the pin (master cylinder valve pushrod).



Bracket for clutch power spring

6. Loosen bracket for clutch power spring (support for clutch pedal switch and remove interlock switch, if necessary) *Bracket for clutch power spring* . Carefully move bracket for clutch power spring approximately 2-4 mm to the left **-A-** . Carefully turn bracket for clutch power spring clockwise on the pedal bearing axle approximately 10-15 degrees **-B-** .

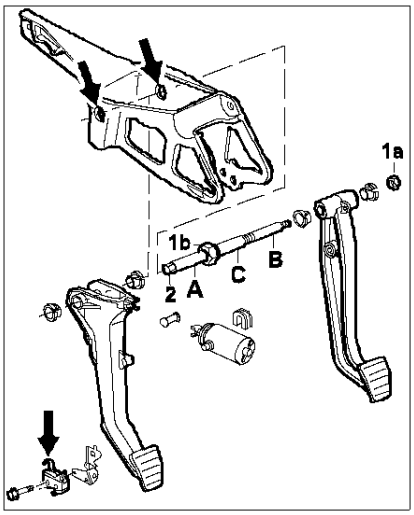
Note

When removing the bracket for the clutch power spring, carefully guide the master cylinder valve pushrod past at the clutch pedal.

7. Pull out bracket for clutch power spring to the left and take out the clutch pedal.

top of page

Installing

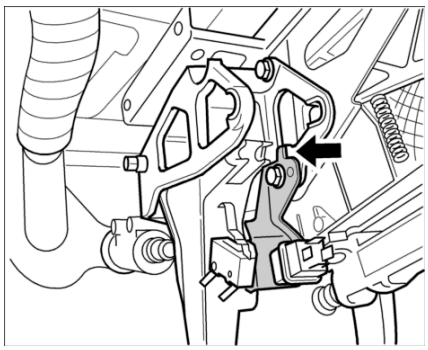


Grease specification

Note

Grease bracket in area of pedal bearing axle **-arrows-** with Renocal (Glissando VW 745). Part number 000.043.206.21 (10 g tube).
Please note: By contrast with previous models, do not grease the pedal bearing axle in the area of the clutch pedal **-A-** (due to plastic-coated bearing sleeves).
Also grease the clutch pedal switch system (interlock switch) **-arrow-** with Renocal (Glissando VW 745) (part number 000.043.206.21).
Observe correct tightening torques.
Use new lock for bolts.
When installing the bracket for clutch power spring, insert the valve pushrod for the master cylinder carefully into the specified position in the clutch pedal.

1. Insert bracket for clutch power spring with clutch pedal.



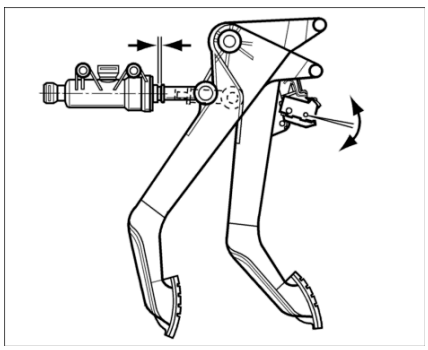
Clutch pedal switch support

2. Position support for clutch pedal switch (and interlock switch, if necessary) in the correct position. Observe the auxiliary bar! **-arrow-** The auxiliary bar must be fitted in the correct position in the groove.
3. Install clutch power spring. Observe the installation position of the bolt for the clutch power spring (hexagon!). After installation, remove the clutch power spring cotter pin.

Note

Insert pin. Screw in the fastening screws slightly so that the master cylinder can still be moved. Have the clutch pedal not actuated at the limit stop. Press the clutch master cylinder in the direction of travel and tighten (make sure the return bore in the clutch master cylinder is not blocked!).

4. Mount the clutch master cylinder.



Adjustment for clutch pedal switch (interlock switch)

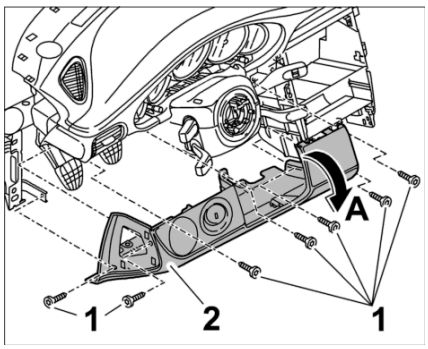
Note

If the clutch pedal switch adjustment (interlock switch) has been changed, the adjustment must be checked or adjusted. The switch must switch when the clutch pedal is actuated approx. 1-2 mm before the limit stop of the clutch master cylinder.

5. Check adjustment for clutch pedal switch (and interlock switch, if necessary). *Adjustment for clutch pedal switch (interlock switch)* Plug in connector.
6. Install device support, vehicle electrical system control unit and relay carrier.
7. Install the side trim panel for the fusebox and cover in the left driver's footwell.

top of page

Subsequent work



Installing trim panel (lower part of dashboard)

1. Screw in the fastening screws **-1-** and swivel the trim panel under the dashboard on the driver's side **-2-** upwards **-arrow A-** 701919 Removing and installing trim under instrument panel.
2. Install covers for centre console 681419 Removing and installing centre console cover.

997110, 997111, 997120, 997121, 997310, 997311, 997320, 997321, 997410, 997411, 997430, 997431, 997610, 997611, 997620, 997621

as of MY 2005
Country C00, C02, C05, C07, C08, C09, C10, C11, C12, C13, C14, C15, C16, C18, C19, C20, C21, C22, C23, C24, C25, C26, C27, C28, C32, C33, C34, C35, C36, C37, C38, C39, C45, C46, C98, C99

WARNUNG

30 30 19 Removing and installing clutch slave cylinder - as of MY 2005

- Removing and installing

top of page

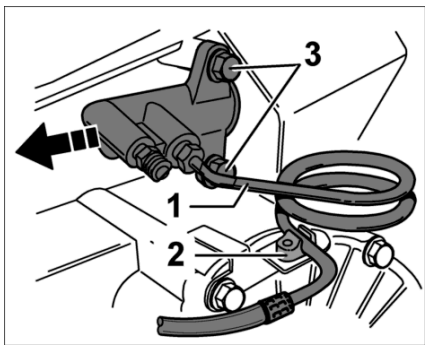
Removing and installing

Removing clutch slave cylinder

Note

The following tools can be used to undo and tighten the fastening screws:

- *For the lower screw, use a 3/8 inch changeover ratchet with an extension of approx. 100 mm and a 13 mm socket wrench insert.*
- *For the upper screw, use a 3/8 inch changeover ratchet with an extension of approx. 250 mm, a universal joint and a 13 mm socket wrench insert.*



Clutch slave cylinder

1. Detach hose **-1-** from the clutch slave cylinder and unclip hose from holder **-2-** . Block up hose **-1-** and the connection hole in the clutch slave cylinder.
2. Undo fastening screws **-3-** and remove the clutch slave cylinder from the transmission housing.

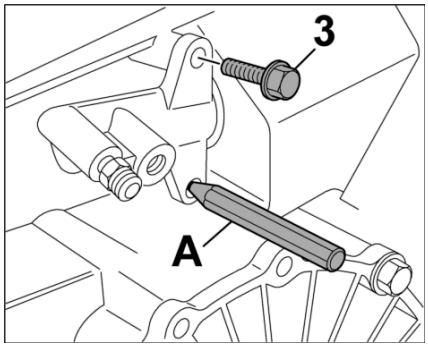
Installing clutch slave cylinder

Note

When inserting clutch slave cylinder, it is necessary to overcome the spring force acting on the push rod whilst fitting a fastening screw.
Observe assembly instructions for inserting the clutch slave cylinder

1. Grease end of the push rod of the clutch slave cylinder -in the area located in the ball socket when installed -with a thin coat of Olista Longtime 3 EP (available as a spare part)
2. Insert the clutch slave cylinder and tighten the fastening screws to 23 Nm (17 ftlb.).

Assembly instructions for inserting the clutch slave cylinder



Clutch slave cylinder in installation position

– Position the clutch slave cylinder and fix it in the installation position using a drift punch 5 x 120 x 10 mm **-A-** .
– Align clutch slave cylinder with the drift punch in place **-A-** so that the upper fastening screw **-3-** can be fitted. If necessary, also open the bleeder valve.
– Insert lower fastening screw. Then tighten the 2 fastening screws (tightening torque 23 Nm (17 ftlb.)).

3. Fit the clutch line to the clutch slave cylinder and clip it into the holder. Tightening torque for the line, 20 Nm (15 ftlb.).
4. Bleed the clutch hydraulic system 300107 Bleeding the clutch system.
5. Check operation of the clutch. Repeat the bleeding process if the clutch does not disengage correctly.

997110, 997111, 997120, 997121, 997310, 997311, 997320, 997321, 997410, 997411, 997430, 997431, 997610, 997611, 997620, 997621

as of MY 2005
Country C00, C02, C05, C07, C08, C09, C10, C11, C12, C13, C14, C15, C16, C18, C19, C20, C21, C22, C23, C24, C25, C26, C27, C28, C32, C33, C34, C35, C36, C37, C38, C39, C45, C46, C98, C99

WARNUNG

Gefahr des Verlusts der Text-Bild-Zuordnung beim Ausdruck.

- **Aus technischen Gründen kann derzeit nicht ausgeschlossen werden, dass trotz einwandfreier Darstellung auf dem Bildschirm beim Ausdruck der Zusammenhang von Text und zugehörigem Bild verloren geht.**

30 47 19 Removing and installing guide sleeve - as of MY 2005

- Preliminary work
- Removing guide sleeve
- Installing guide sleeve
- Subsequent work

top of page

Preliminary work

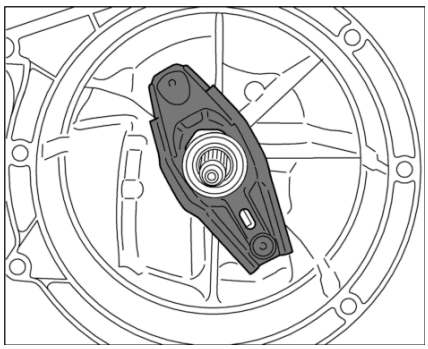
Preliminary work

1. Remove transmission. *21 Removing and installing transmission - Removing*

top of page

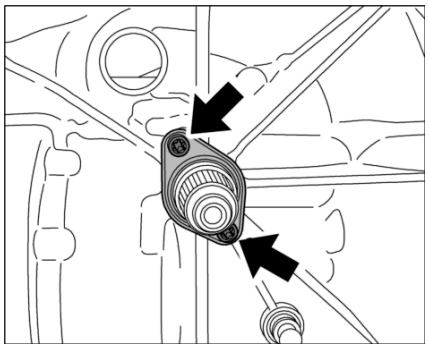
Removing guide sleeve

Removing guide sleeve



Release mechanism

1. Remove release lever and release bearing.



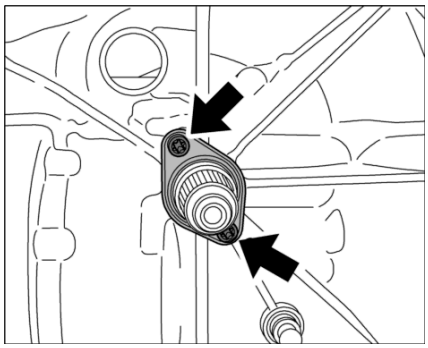
Guide sleeve

2. Unscrew fastening screws for the guide sleeve **-Pfeile-** and pull the guide sleeve off.

top of page

Installing guide sleeve

Installing guide sleeve

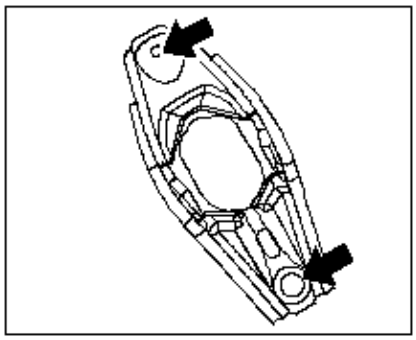


Guide sleeve

1. Fit guide sleeve and apply a thin coat of Klüberalfa HM83-801.

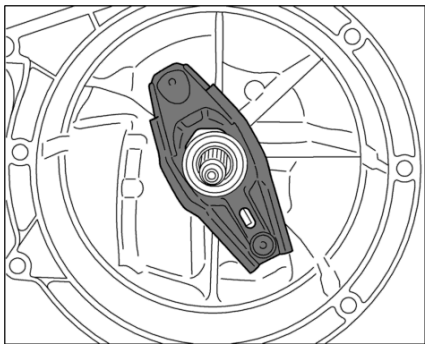
Location	Explanation	Type	Basic value	Tolerance 1	Tolerance 2
Guide sleeve		Tightening torque	24 (18 ftlb.) Nm		

2. Grease splines of the transmission input shaft with Longtime 3 EP.



Lubrication points

3. Coat release lever lightly with Klüberalfa HM83-801 at the contact points.



Release mechanism

4. Fit release lever and release bearing.

top of page

Subsequent work

Subsequent work

1. Install transmission. *23 Removing and installing transmission - Installing*

997110, 997111, 997120, 997121, 997310, 997311, 997320, 997321, 997410, 997411, 997430, 997431, 997610, 997611, 997620, 997621

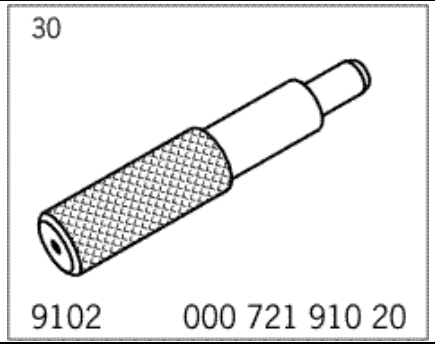
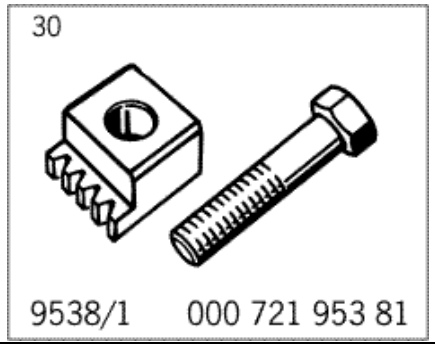
as of MY 2005
Country C00, C02, C05, C07, C08, C09, C10, C11, C12, C13, C14, C15, C16, C18, C19, C20, C21, C22, C23, C24, C25, C26, C27, C28, C32, C33, C34, C35, C36, C37, C38, C39, C45, C46, C98, C99

WARNUNG
Gefahr des Verlusts der Text-Bild-Zuordnung beim Ausdruck.

30 50 19 Removing and installing clutch - as of MY 2005

- Preliminary work
- Removing clutch
- Installing clutch
- Reworking

Tools

Designation	Type	Number	Explanation	
centring mandrel	special tool	9102		
toothed segment	special tool	9538/1		

top of page

Preliminary work

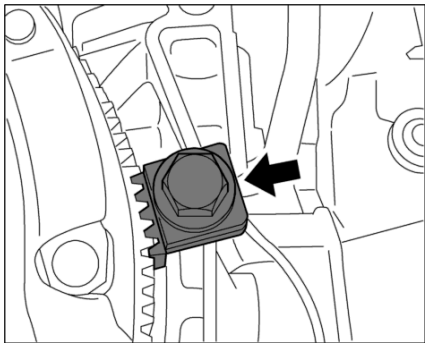
Preliminary work

1. Remove transmission. *21 Removing and installing transmission - Removing*

top of page

Removing clutch

Removing clutch



Toothed segment

Note

The **toothed segment 9538/1** must be bored to ø 15 mm to guarantee a perfect fit and to avoid damaging the thread in the crankcase.

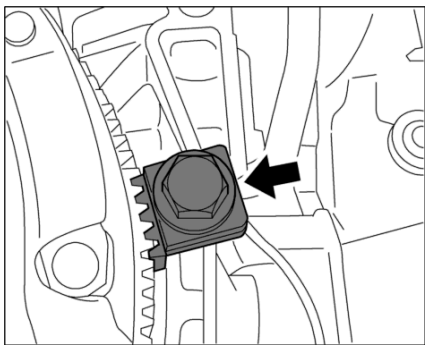
1. Fasten **toothed segment 9538/1** to the crankcase with an M12 x 50 hexagon-head bolt.

Note

To avoid deforming the clutch pressure plate, loosen and tighten the fastening screws in at least five steps in diagonally opposite sequence.

2. Detach thrust plate.
3. Remove thrust plate and drive plate.

Removing clutch



Toothed segment

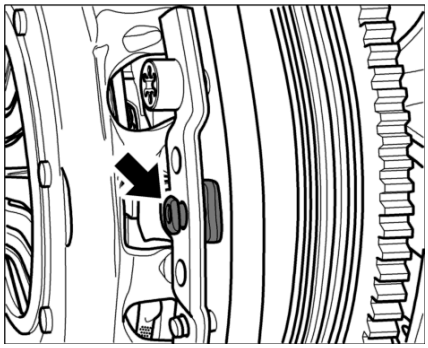
Note

The **toothed segment 9538/1** must be bored to ø 15 mm to guarantee a perfect fit and to avoid damaging the thread in the crankcase.

1. Fasten **toothed segment 9538/1** to the crankcase with an M12 x 50 hexagon-head bolt.

Note

To avoid deforming the clutch pressure plate, loosen and tighten the fastening screws in at least five steps in diagonally opposite sequence.



Stop on adjustment mechanism

Note

When loosening the clutch pressure plate, ensure that the stop on the adjustment mechanism **-arrow-** is detached from the housing. The stop must dip loosely into the housing as far as the block. Press the stop towards the flywheel, if necessary.

2. Detach pressure plate.
3. Remove pressure plate and drive plate.

top of page

Installing clutch

Installing clutch

Note

- *Clean the friction surfaces of the flywheel and pressure plate prior to installation, e.g. with brake cleaner.*

- *Surfaces of friction linings must be free from contamination, especially oil and grease.*

1. Insert **centring mandrel 9102** with drive plate into the guide bearing (needle sleeve).

Note

To avoid deforming the clutch pressure plate, loosen and tighten the fastening screws in at least five steps in diagonally opposite sequence.

2. Fit pressure plate.

Location	Explanation	Type	Basic value	Tolerance 1	Tolerance 2
Clutch pressure plate	Fastening screws between pressure plate and flywheel	Tightening torque	23 (17 ftlb.) Nm		

3. Remove centring mandrel.
4. Remove **toothed segment 9538/1**.

top of page

Reworking

Subsequent work

1. Install transmission. *23 Removing and installing transmission - Installing*

997110, 997111, 997120, 997121, 997310, 997311, 997320, 997321, 997410, 997411, 997430, 997431, 997610, 997611, 997620, 997621

as of MY 2005
Country C00, C02, C05, C07, C08, C09, C10, C11, C12, C13, C14, C15, C16, C18, C19, C20, C21, C22, C23, C24, C25, C26, C27, C28, C32, C33, C34, C35, C36, C37, C38, C39, C45, C46, C98, C99

WARNUNG

Gefahr des Verlusts der Text-Bild-Zuordnung beim Ausdruck.

- **Aus technischen Gründen kann derzeit nicht ausgeschlossen werden, dass trotz einwandfreier Darstellung auf dem Bildschirm beim Ausdruck der Zusammenhang von Text und zugehörigem Bild verloren geht.**
- **Wird der Fehler nicht bemerkt, besteht die Gefahr, daß Arbeiten nicht korrekt durchgeführt werden und es dadurch zu Personen- und Sachschäden kommt.**

Vergleichen Sie deshalb nach dem Druckvorgang unbedingt die Ausdrucke mit der Bildschirmdarstellung. Korrigieren Sie die Ausdrucke im Fehlerfall so, daß der Inhalt der

30 56 01 Checking clutch plate for wear - as of MY 2005

- Preliminary work
- Checking clutch plate for wear
- Subsequent work

top of page

Preliminary work

Preliminary work

1. Remove clutch. 305019 Removing and installing clutch - chapter on "removing"

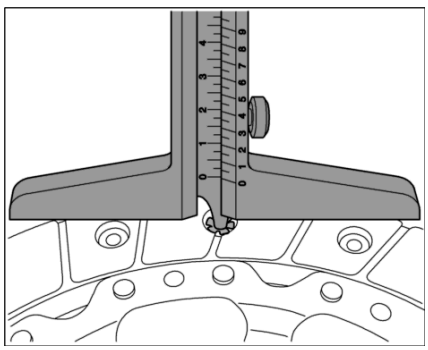
top of page

Checking clutch plate for wear

Checking clutch plate for wear

Note

It should be noted that the clutch lining does not wear linearly over the service life of the clutch. Due to the settling behaviour of the clutch lining, wear can be expected to be greater at the beginning. However, pad thickness wear will become less as mileage increases.

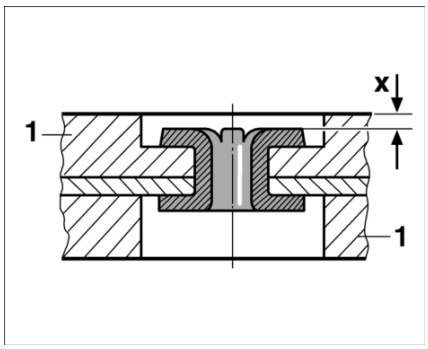


Measuring lining thickness

Note

Pad thickness measurement must only be done on the flanged side of the rivet head.

1. Place a commercially available depth gauge on the clutch lining **-1-** and measure the distance to the rivet head.



Sectional view

The wear dimension **-X-** measures 0.3 mm. If a smaller value is measured, the clutch drive plate must be replaced. When new the measured value is more than 1mm.

top of page

Subsequent work

Subsequent work

1. Install clutch. 305019 Removing and installing clutch - chapter on "installing"

997110, 997111, 997120, 997121, 997310, 997311, 997320, 997321, 997410, 997411, 997430, 997431, 997610, 997611, 997620, 997621

as of MY 2005
Country C00, C02, C05, C07, C08, C09, C10, C11, C12, C13, C14, C15, C16, C18, C19, C20, C21, C22, C23, C24, C25, C26, C27, C28, C32, C33, C34, C35, C36, C37, C38, C39, C45, C46, C98, C99

WARNUNG

Gefahr des Verlusts der Text-Bild-Zuordnung beim Ausdruck.

- **Aus technischen Gründen kann derzeit nicht ausgeschlossen werden, dass trotz einwandfreier Darstellung auf dem Bildschirm beim Ausdruck der Zusammenhang von Text und zugehörigem Bild verloren geht.**

32 43 19 Removing and installing converter housing - as of MY 2005

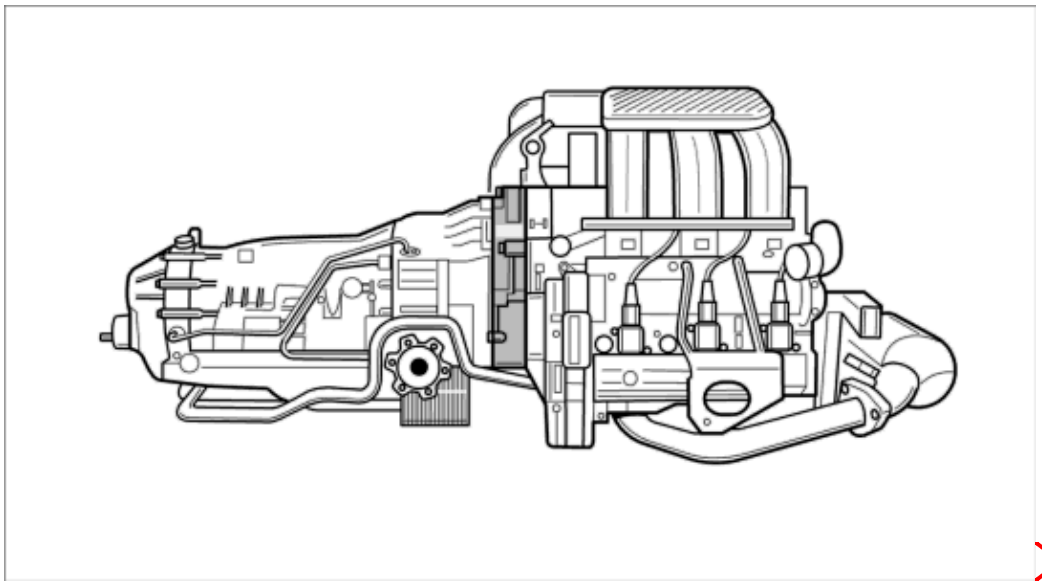
- Preliminary work
- Removing converter housing
- Installing converter housing
- Subsequent work

top of page

Preliminary work

Preliminary work

Installation Location:



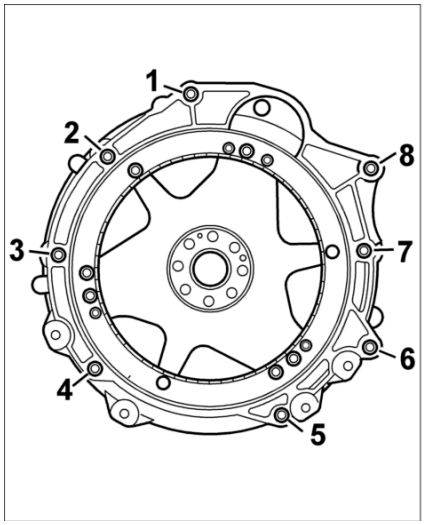
Converter housing

1. Remove automatic transmission. 373527 Removing and refitting the automatic transmission - removing [997110 997111 997120 997121 997310 997311 997320 9973211] *373527 A3 Removing and refitting the automatic transmission - removing [997410 997411 997430 997431 997610 997611 997620 997621]*

top of page

Removing converter housing

Removing converter housing



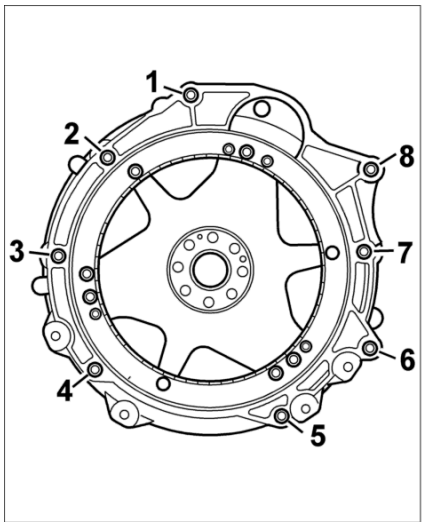
Converter housing threaded joint

1. Unscrew connecting screws between converter housing and engine **-1 to 8-** and remove converter housing.

top of page

Installing converter housing

Installing converter housing



Converter housing screw connections

1. Position converter housing and screw in connecting screws **-1 - 8-** .

Location	Explanation	Type	Basic value	Tolerance 1	Tolerance 2
Converter housing/engine connection	Hexagon-head bolt no. 1 in figure, M12 x 1.5 x 70	Tightening torque	63 ftlb.		
Converter housing/engine connection	Hexagon-head bolt no. 2 in figure, M12 x 1.5 x 70	Tightening torque	63 ftlb.		
Converter housing/engine connection	Hexagon-head bolt no. 3 in figure, M12 x 1.5 x 70	Tightening torque	63 ftlb.		
Converter housing/engine connection	Hexagon-head bolt no. 4 in figure, M10 x 50	Tightening torque	34 ftlb.		
Converter housing/engine connection	Hexagon-head bolt no. 5 in figure, M10 x 50	Tightening torque	34 ftlb.		
Converter housing/engine connection	Hexagon-head bolt no. 6 in figure, M12 x 1.5 x 70	Tightening torque	63 ftlb.		
Converter housing/engine connection	Hexagon-head bolt no. 7 in figure, M12 x 1.5 x 70	Tightening torque	63 ftlb.		
Converter housing/engine connection	Hexagon-head bolt no. 8 in figure, M12 x 1.5 x 70	Tightening torque	63 ftlb.		

top of page

Subsequent work

Subsequent work

1. Refit automatic transmission. 373527 Removing and refitting the automatic transmission - refitting [997110 997111 997120 997121 997310 997311 997320 9973211] *373527 AG Removing and refitting the automatic transmission - refitting [997410 997411 997430 997431 997610 997611 997620 997621]*

997110, 997111, 997120, 997121, 997310, 997311, 997320, 997321, 997410, 997411, 997430, 997431, 997610, 997611, 997620, 997621

as of MY 2005
Country C00, C02, C05, C07, C08, C09, C10, C11, C12, C13, C14, C15, C16, C18, C19, C20, C21, C22, C23, C24, C25, C26, C27, C28, C32, C33, C34, C35, C36, C37, C38, C39, C45, C46, C98, C99

WARNUNG

Gefahr des Verlusts der Text-Bild-Zuordnung beim Ausdruck.

- **Aus technischen Gründen kann derzeit nicht ausgeschlossen werden, dass trotz einwandfreier Darstellung auf dem Bildschirm beim Ausdruck der Zusammenhang von Text und zugehörigem Bild verloren geht.**
- **Wird der Fehler nicht bemerkt, besteht die Gefahr, daß Arbeiten nicht korrekt durchgeführt werden und es dadurch zu Personen- und Sachschäden kommt.**

Vergleichen Sie deshalb nach dem Druckvorgang unbedingt die Ausdrucke mit der Bildschirmdarstellung. Korrigieren Sie die Ausdrucke im Fehlerfall so, daß der Inhalt der Bildschirmdarstellung zutreffend wiedergegeben wird.

WARNING

Danger of losing text-figure correspondence when printing out.

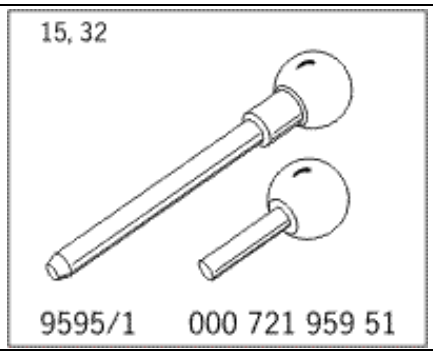
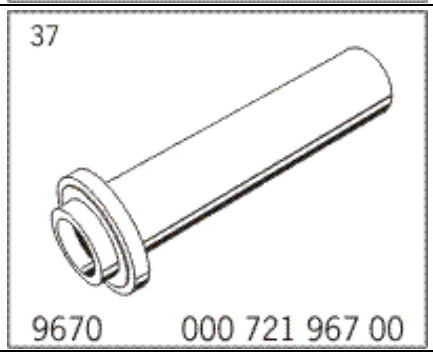
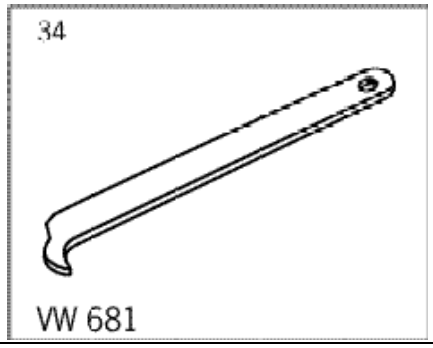
- **For technical reasons, it can currently not be ruled out that the correspondence between text and associated figure can be lost when it is printed out, even though the display on the screen is correct.**
- **If the fault is not noticed, there is the danger that work will not be performed correctly which can cause injury and damage.**

Therefore, always compare printouts with the screen display after printing them out. Correct the printouts if they are faulty so that the content of the screen display matches that on the printouts.

32 47 19 Removing and installing torque converter sealing ring - as of MY 2005

- Information
- Preliminary work
- Removing the torque converter sealing ring
- Installing the torque converter sealing ring
- Subsequent work

Tools

Designation	Type	Number	Explanation	
fixing pin	special tool	95951		
pressure piece	special tool	96700		
hook	VW-tool	VW 681		

top of page

Information

Notes

Note
When pulling out, the torque converter must be kept horizontal, otherwise ATF can emerge.

Note
Before installing the torque converter, check the hub for scoring. If damaged, the converter must be replaced.

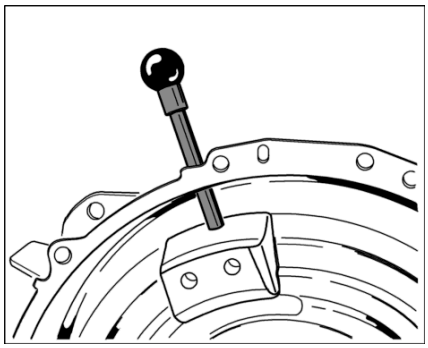
top of page

Preliminary work

Preliminary work

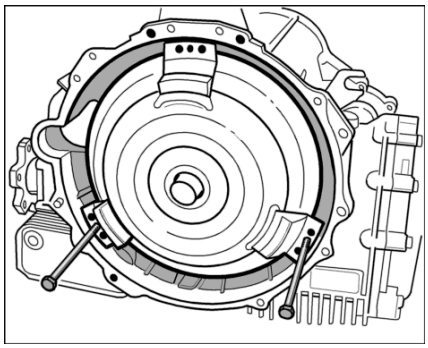
1. Remove transmission 373527 Removing and refitting the automatic transmission - removing [997110 997111 997120 997121 997310 997311 997320 997321] *373527 A3 Removing and refitting the automatic transmission - removing [997410 997411 997430 997431 997610 997611 997620 997621]*
2. Put transmission in horizontal position.

Removing the torque converter



Fixing the torque converter

1. Pull out **fixing pin 95951** (long) from transmission housing.



Pulling out torque converter

Note

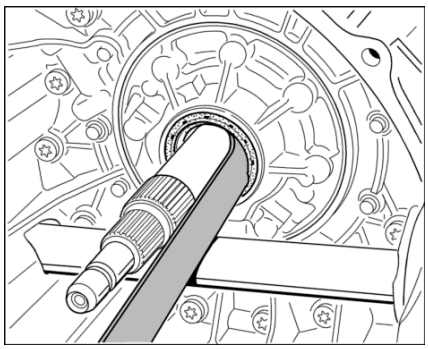
When pulling out, the torque converter must be kept horizontal, otherwise ATF can emerge.

2. Screw two screws (M8) into torque converter and remove torque converter using the screws from transmission input shaft.

top of page

Removing the torque converter sealing ring

Removing the torque-converter sealing ring



Removing sealing ring

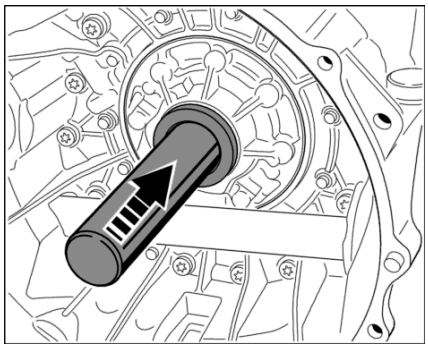
1. Remove sealing ring for torque converter with **hook VW 681**.

top of page

Installing the torque converter sealing ring

Installing the torque-converter sealing ring

1. Thinly coat sealing lip of new sealing ring with Vaseline.



Fitting sealing ring

2. Drive in sealing ring with **pressure piece 96700** as far as the mounting face.

top of page

Subsequent work

Installing the torque converter

Note

Before installing the torque converter, check the hub for scoring. If damaged, the converter must be replaced.

1. Move torque converter up to stop on the transmission input shaft.

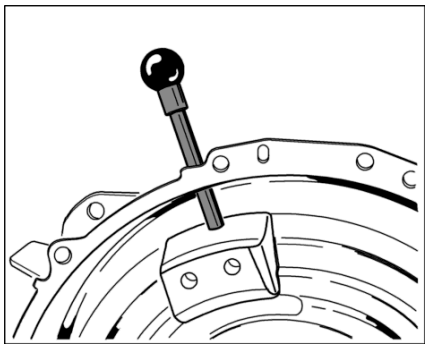
ATTENTION

The ATF pump can be damaged if the torque converter is incorrectly positioned during refitting.

Note the installation position of the torque converter.

Check installation position of torque converter.

2. Press torque converter by hand into the converter bell housing and turn until the cutout of the converter hub clicks into place in the driver of the impeller. The converter must slip inwards until it makes a noise.



Fixing the torque converter

3. Fix torque converter with **fixing pin 95951** (long) into installation position.

Reworking

1. Refit transmission 373527 Removing and refitting the automatic transmission - refitting [997110 997111 997120 997121 997310 997311 997320 9973211] *373527 AG Removing and refitting the automatic transmission - refitting [997410 997411 997430 997431 997610 997611 997620 997621]*
2. After installing the engine-transmission-unit, the ATF level is to be checked, and topped up as necessary.
   35 Checking and topping up ATF - checking and topping up

997110, 997111, 997120, 997121, 997310, 997311, 997320, 997321, 997410, 997411, 997430, 997431, 997610, 997611, 997620, 997621

as of MY 2005
Country C00, C02, C05, C07, C08, C09, C10, C11, C12, C13, C14, C15, C16, C18, C19, C20, C21, C22, C23, C24, C25, C26, C27, C28, C32, C33, C34, C35, C36, C37, C38, C39, C45, C46, C98, C99

WARNUNG

Gefahr des Verlusts der Text-Bild-Zuordnung beim Ausdruck.

- **Aus technischen Gründen kann derzeit nicht ausgeschlossen werden, dass trotz einwandfreier Darstellung auf dem Bildschirm beim Ausdruck der Zusammenhang von Text und zugehörigem Bild verloren geht.**
- **Wird der Fehler nicht bemerkt, besteht die Gefahr, daß Arbeiten nicht korrekt durchgeführt werden und es dadurch zu Personen- und Sachschäden kommt.**

Vergleichen Sie deshalb nach dem Druckvorgang unbedingt die Ausdrucke mit der Bildschirmdarstellung. Korrigieren Sie die Ausdrucke im Fehlerfall so, daß der Inhalt der Bildschirmdarstellung zutreffend wiedergegeben wird.

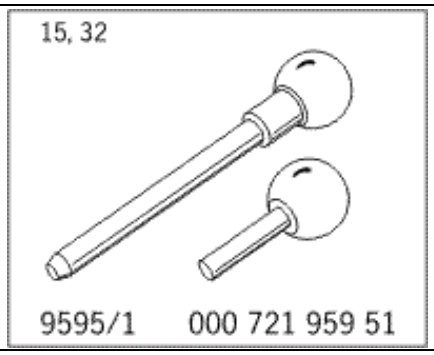
WARNING

Danger of losing text-figure correspondence when printing out.

32 50 19 Removing and installing torque converter - as of MY 2005

- Information
- Preliminary work
- Removing torque converter
- Installing torque converter
- Subsequent work

Tools

Designation	Type	Number	Explanation	
fixing pin	special tool	95951		

top of page

Information

Notes

Note

When pulling out, the torque converter must be kept horizontal, otherwise ATF can emerge.

Note

Before installing the torque converter, check the hub for scoring. If damaged, the converter must be replaced.

top of page

Preliminary work

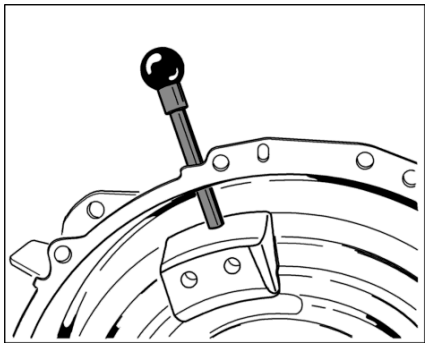
Preliminary work

1. Remove transmission 373527 Removing and refitting the automatic transmission - removing [997110 997111 997120 997121 997310 997311 997320 997321] *373527 A3 Removing and refitting the automatic transmission - removing [997410 997411 997430 997431 997610 997611 997620 997621]*
2. Put transmission in horizontal position.

top of page

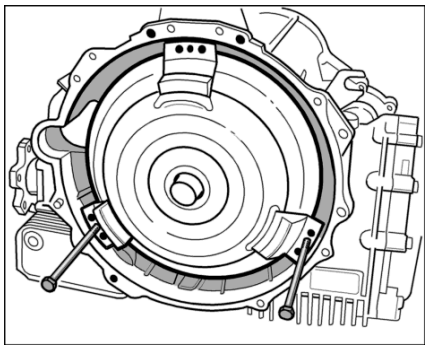
Removing torque converter

Removing the torque converter



Fixing the torque converter

1. Pull out **fixing pin 95951** (long) from transmission housing.



Pulling out torque converter

Note

When pulling out, the torque converter must be kept horizontal, otherwise ATF can emerge.

2. Screw two screws (M8) into torque converter and remove torque converter using the screws from transmission input shaft.

top of page

Installing torque converter

Installing the torque converter

Note

Before installing the torque converter, check the hub for scoring. If damaged, the converter must be replaced.

1. Move torque converter up to stop on the transmission input shaft.

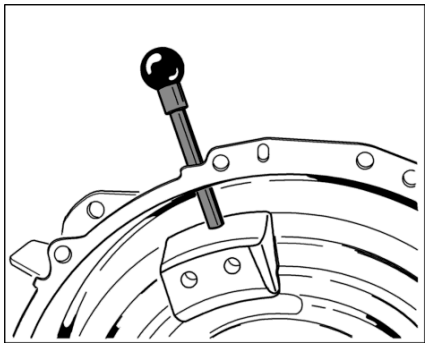
ATTENTION

The ATF pump can be damaged if the torque converter is incorrectly positioned during refitting.

Note the installation position of the torque converter.

Check installation position of torque converter.

2. Press torque converter by hand into the converter bell housing and turn until the cutout of the converter hub clicks into place in the driver of the impeller. The converter must slip inwards until it makes a noise.



Fixing the torque converter

3. Fix torque converter with **fixing pin 95951** (long) into installation position.

top of page

Subsequent work

Reworking

1. Refit transmission 373527 Removing and refitting the automatic transmission - refitting [997110 997111 997120 997121 997310 997311 997320 997321] *373527 AG Removing and refitting the automatic transmission - refitting [997410 997411 997430 997431 997610 997611 997620 997621]*
2. After installing the engine-transmission-unit, the ATF level is to be checked, and topped up as necessary.
   35 Checking and topping up ATF - checking and topping up

997110, 997111, 997120, 997121, 997310, 997311, 997320, 997321, 997410, 997411, 997430, 997431, 997610, 997611, 997620, 997621

as of MY 2005
Country C00, C02, C05, C07, C08, C09, C10, C11, C12, C13, C14, C15, C16, C18, C19, C20, C21, C22, C23, C24, C25, C26, C27, C28, C32, C33, C34, C35, C36, C37, C38, C39, C45, C46, C98, C99

WARNUNG

Gefahr des Verlusts der Text-Bild-Zuordnung beim Ausdruck.

- **Aus technischen Gründen kann derzeit nicht ausgeschlossen werden, dass trotz einwandfreier Darstellung auf dem Bildschirm beim Ausdruck der Zusammenhang von Text und zugehörigem Bild verloren geht.**
- **Wird der Fehler nicht bemerkt, besteht die Gefahr, daß Arbeiten nicht korrekt durchgeführt werden und es dadurch zu Personen- und Sachschäden kommt.**

Vergleichen Sie deshalb nach dem Druckvorgang unbedingt die Ausdrucke mit der Bildschirmdarstellung. Korrigieren Sie die Ausdrucke im Fehlerfall so, daß der Inhalt der Bildschirmdarstellung zutreffend wiedergegeben wird.

WARNING

Danger of losing text-figure correspondence when printing out.

- **For technical reasons, it can currently not be ruled out that the correspondence between text and associated figure can be lost when it is printed out, even though the display on the screen is correct.**
- **If the fault is not noticed, there is the danger that work will not be performed correctly which can cause injury and damage.**

Therefore, always compare printouts with the screen display after printing them out. Correct the printouts if they are faulty so that the content of the screen display matches that on the printouts.

34 01 35 Checking and topping up transmission oil - as of MY 2005

- Information
- Preliminary work
- Checking and topping up transmission oil
- Subsequent work

top of page

Information

Notes

Note
Fill only with oil approved by Porsche. See Spare Parts Catalogue.

top of page

Preliminary work

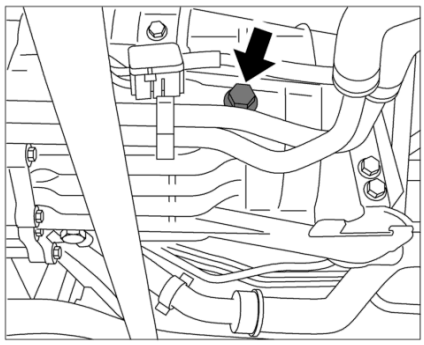
Preliminary work

1. Raise the vehicle at the prescribed jacking points. *Lifting the vehicle*
2. Remove the underbody panels. 519419 Removing and installing rear trim - removing
3. Place oil collection pan under the transmission.

top of page

Checking and topping up transmission oil

Checking and topping up transmission oil



Filler plug

1. Unscrew oil filler plug.

WARNING
Risk of scalding from hot oil

Let the oil cool down
Wear personal protective gear (goggles, gloves)

The oil level is correct if transmission oil emerges. Continue with step 3.
If transmission oil does not flow out, the oil level in the final drive is too low. Continue with step 2.

2. Fill in transmission oil up to the bottom edge of the filler opening.
3. Clean oil filler plug and screw in with a new sealing ring.

Location	Explanation	Type	Basic value	Tolerance 1	Tolerance 2
Oil filler plug on manual transmission		Tightening torque	30 ftlb.		

top of page

Subsequent work

Reworking

1. Fit underbody panels. 519419 Removing and installing rear trim - installing
2. Lower the vehicle.

34 01 55 Changing transmission oil - as of MY 2005

- Information
- Technical values
- Preliminary work
- Draining transmission oil
- Refilling transmission oil
- Subsequent work

top of page

Information

Notes

Note
Fill only with oil approved by Porsche. See Spare Parts Catalogue.

top of page

Technical values

Filling capacities

Location	Explanation	Type	Basic value	Tolerance 1	Tolerance 2
Manual transmission	Filling capacity for dry transmission with differential	Filling capacity	2.9 litre		
Manual transmission	Change quantity for changing transmission oil	Filling capacity	2.6 litre		

top of page

Preliminary work

Preliminary work

1. Raise the vehicle at the prescribed jacking points. *Lifting the vehicle*
2. Remove the underbody panels. 519419 Removing and installing rear trim - removing
3. Place oil collection pan under the transmission.

top of page

Draining transmission oil

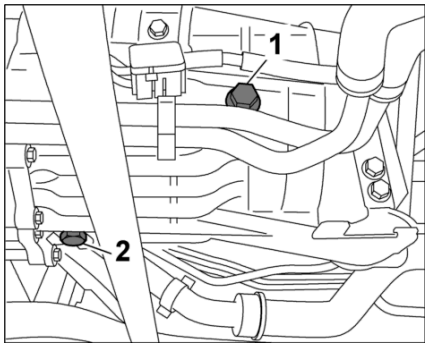
Draining transmission oil

ATTENTION

Transmission cannot be filled, or only insufficiently with ATF.

Do not start engine

Do not tow vehicle



Filler and drain plug

1. Unscrew oil filler plugs **-1-** .

WARNING

Risk of scalding from hot oil

Let the oil cool down

Wear personal protective gear (goggles, gloves)

2. Unscrew oil drain plug **-2-** and drain transmission oil.

top of page

Refilling transmission oil

Filling in transmission oil

ATTENTION

Transmission cannot be filled, or only insufficiently with ATF.

Do not start engine

Do not tow vehicle

1. Clean oil drain plug and screw in with new sealing ring.

Location	Explanation	Type	Basic value	Tolerance 1	Tolerance 2
Oil drain plug on manual transmission		Tightening torque	30 ftlb.		

2. Fill in transmission oil up to the bottom edge of the filler opening.
3. Clean oil filler plug and screw in with a new seal.

Location	Explanation	Type	Basic value	Tolerance 1	Tolerance 2
Oil filler plug on manual transmission		Tightening torque	30 ftlb.		

top of page

Subsequent work

Reworking

1. Fit underbody panels. 519419 Removing and installing rear trim - installing
2. Lower the vehicle.

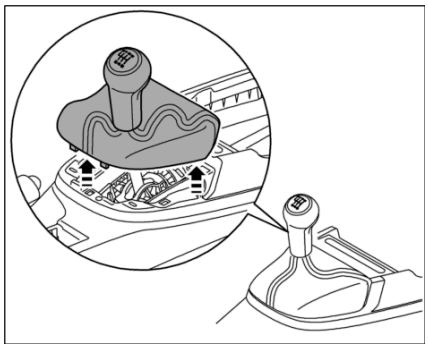
34 04 19 Removing and installing shift lever knob - as of MY 2005

- Removing shift lever knob
- Installing shift lever knob

top of page

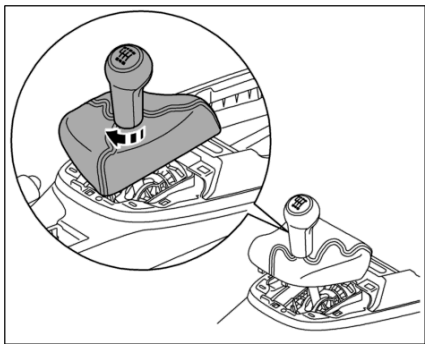
Removing shift lever knob

Removing shift-lever knob



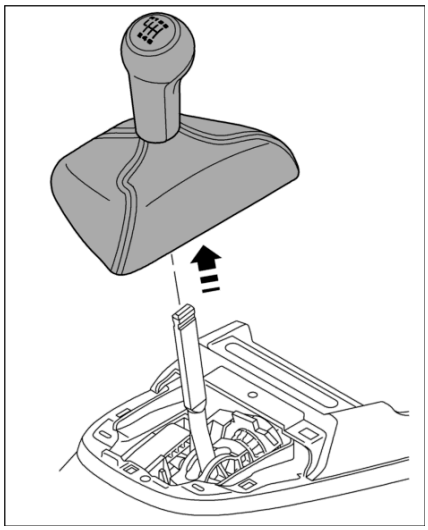
Unclipping leather sleeve

1. Unclip retaining frame of the leather sleeve in upward direction by pulling on the leather.



Turning leather sleeve clockwise

2. Turn leather sleeve clockwise by 90° as far as it will go.



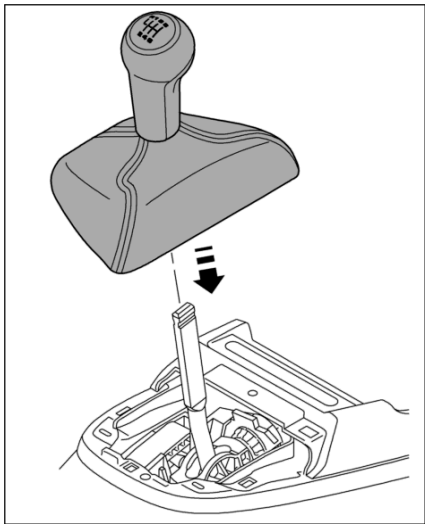
Pulling off shift-lever knob

3. Pull shift-lever knob up and off the shift lever.

top of page

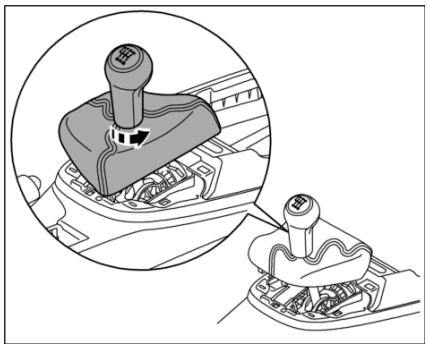
Installing shift lever knob

Installing shift-lever knob



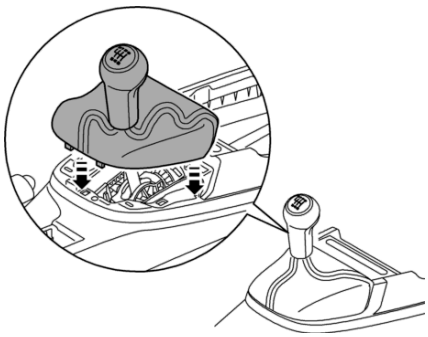
Pushing on shift-lever knob

1. Push shift-lever knob fully onto the shift lever.



Turning leather sleeve anti-clockwise

2. Turn leather sleeve anti-clockwise by 90° as far as it will go.



Clipping in leather sleeve

3. Clip retaining frame of the leather sleeve into the centre console

---

997110, 997111, 997120, 997121, 997310, 997311, 997320, 997321, 997410, 997411, 997430, 997431, 997610, 997611, 997620, 997621

as of MY 2005
Country C00, C02, C05, C07, C08, C09, C10, C11, C12, C13, C14, C15, C16, C18, C19, C20, C21, C22, C23, C24, C25, C26, C27, C28, C32, C33, C34, C35, C36, C37, C38, C39, C45, C46, C98, C99

WARNUNG

Gefahr des Verlusts der Text-Bild-Zuordnung beim Ausdruck.

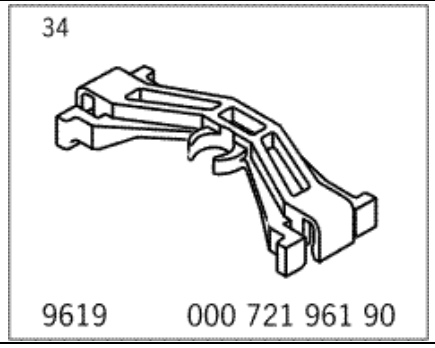
- **Aus technischen Gründen kann derzeit nicht ausgeschlossen werden, dass trotz einwandfreier Darstellung auf dem Bildschirm beim Ausdruck der Zusammenhang von Text und zugehörigem Bild verloren geht.**
- **Wird der Fehler nicht bemerkt, besteht die Gefahr, daß Arbeiten nicht korrekt durchgeführt werden und es dadurch zu Personen- und Sachschäden kommt.**

Vergleichen Sie deshalb nach dem Druckvorgang unbedingt die Ausdrucke mit der Bildschirmdarstellung. Korrigieren Sie die Ausdrucke im Fehlerfall so, daß der Inhalt der Bildschirmdarstellung zutreffend wiedergegeben wird.

34 08 19 Removing and installing shift console - as of MY 2005

- Preliminary work
- Removing shift console
- Installing shift console
- Subsequent work

Tools

Designation	Type	Number	Explanation	
Locking bridge	special tool	9619		
Locking bridge	special tool	P 9619/1		

top of page

Preliminary work

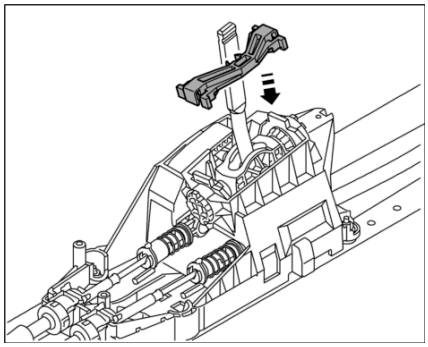
Preliminary work

1. Remove shift-lever knob. 340419 Removing and installing shift-lever knob - removing
2. Remove centre console. 681719 Removing and installing centre console - removing

top of page

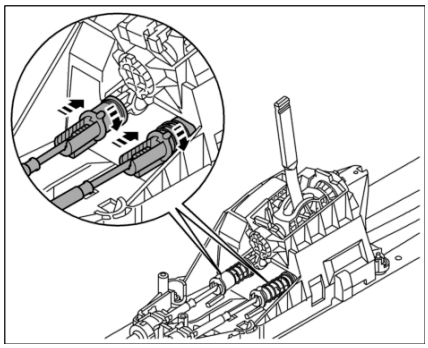
Removing shift console

Removing gearshift bracket



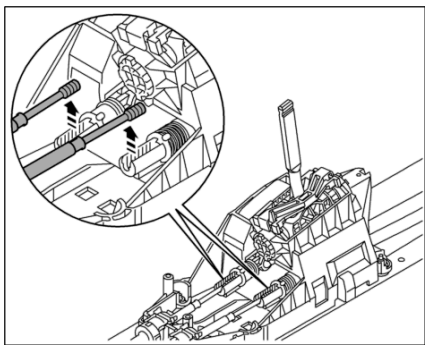
Fitting locking bridge

1. **Locking bridge P 9619/1** must be fitted on the gearshift bracket.



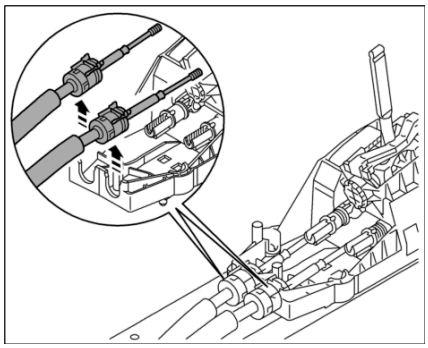
Opening bayonet lock

2. Open bayonet locks on the pre-selector and shifting connections.



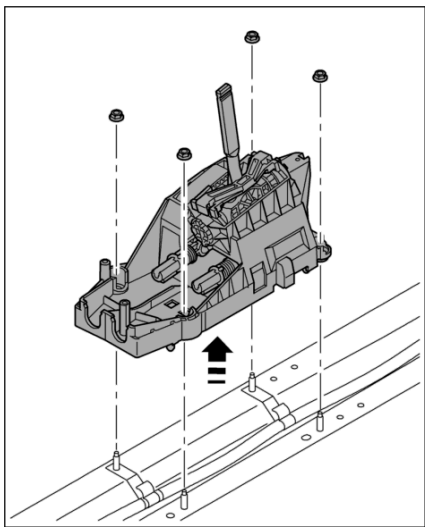
Disengaging shift cables

3. Disengage adjustment pin on pre-selector and shifting connections.



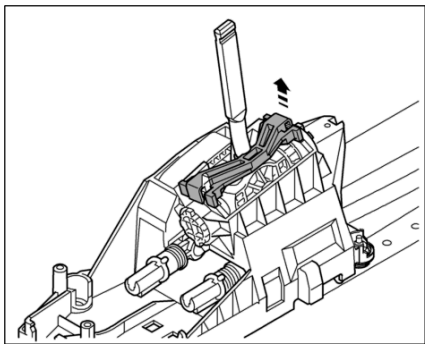
Unclipping supports

4. Unclip supports on the gearshift bracket.



Removing gearshift bracket

5. Unscrew nut and lift gearshift bracket up and off.



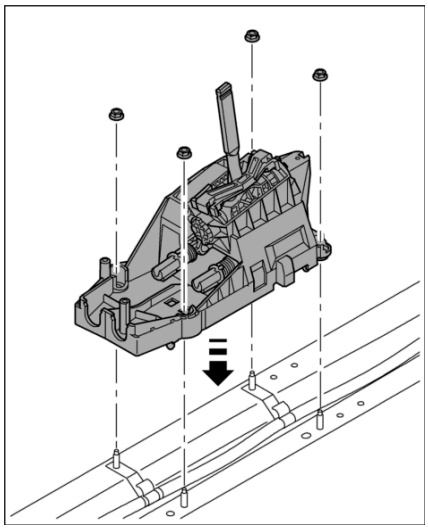
Removing locking bridge

6. Remove locking bridge.

top of page

Installing shift console

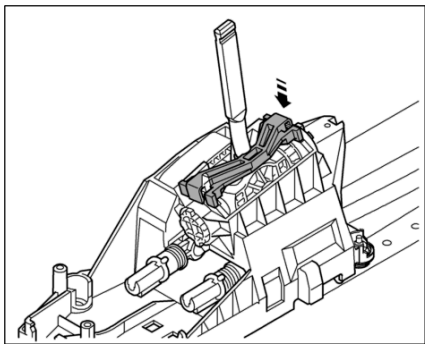
Installing gearshift bracket



Installing gearshift bracket

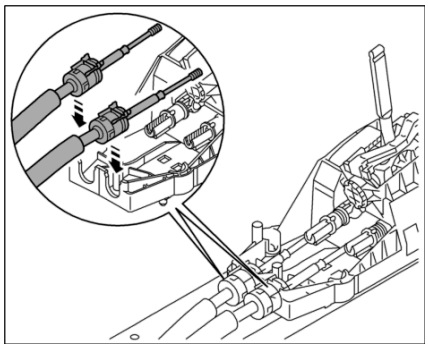
1. Fit gearshift bracket and screw in nuts.

Location	Explanation	Type	Basic value	Tolerance 1	Tolerance 2
Gearshift bracket		Tightening torque	10 (7.5 ftlb.) Nm		



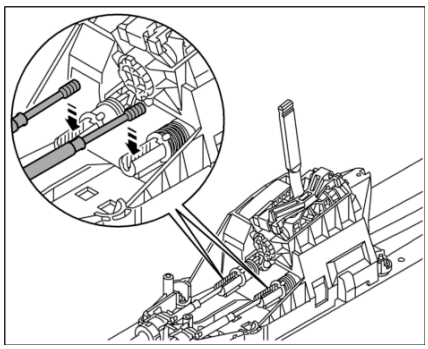
Fitting locking bridge

2. **Locking bridge P 9619/1** must be fitted on the gearshift bracket.



Clipping in supports

3. Clip in supports on the gearshift bracket. The support with the blue hinged tube must be fitted on the left and the support with the black hinged tube must be fitted on the right.

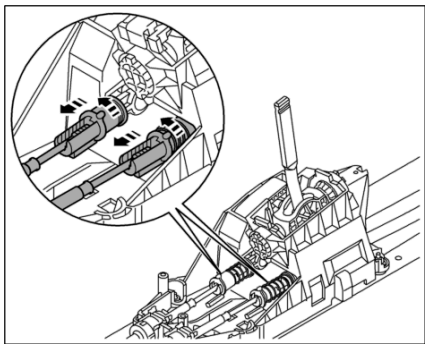


Engaging shift cables

Note

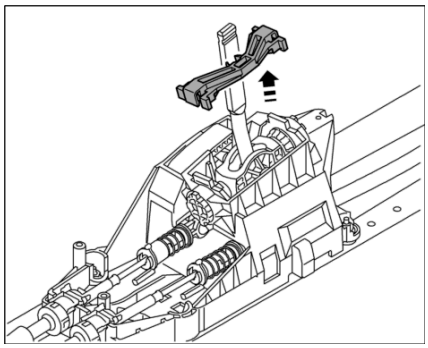
Before starting to install the gearshift bracket, ensure that the transmission is in neutral.

4. Engage adjustment pin on pre-selector and shift connections.



Closing bayonet locks

5. Close bayonet locks on the pre-selector and shift connections.



Removing locking bridge

6. **Locking bridge 9619** must be removed.

top of page

Subsequent work

Subsequent work

1. Install centre console. 681719 Removing and installing centre console - installing
2. Install shift-lever knob. 340419 Removing and installing shift-lever knob - installing

---

997110, 997111, 997120, 997121, 997310, 997311, 997320, 997321, 997410, 997411, 997430, 997431, 997610, 997611, 997620, 997621

as of MY 2005
Country C00, C02, C05, C07, C08, C09, C10, C11, C12, C13, C14, C15, C16, C18, C19, C20, C21, C22, C23, C24, C25, C26, C27, C28, C32, C33, C34, C35, C36, C37, C38, C39, C45, C46, C98, C99

WARNUNG
Gefahr des Verlusts der Text-Bild-Zuordnung beim Ausdruck.

- **Aus technischen Gründen kann derzeit nicht ausgeschlossen werden, dass trotz einwandfreier Darstellung auf dem Bildschirm beim Ausdruck der Zusammenhang von Text und zugehörigem Bild verloren geht.**
- **Wird der Fehler nicht bemerkt, besteht die Gefahr, daß Arbeiten nicht korrekt durchgeführt werden und es dadurch zu Personen- und Sachschäden kommt.**

Vergleichen Sie deshalb nach dem Druckvorgang unbedingt die Ausdrucke mit der Bildschirmdarstellung. Korrigieren Sie die Ausdrucke im Fehlerfall so, daß der Inhalt der Bildschirmdarstellung zutreffend wiedergegeben wird.

WARNING
Danger of losing text-figure correspondence when printing out.

34 12 19 Removing and installing shift and selector cables - as of MY 2005

- Preliminary work
- Removing shift and selector cables
- Installing shift and selector cables
- Subsequent work

Tools

Designation	Type	Number	Explanation	
Locking bridge	special tool	P 9619/1		

top of page

Preliminary work

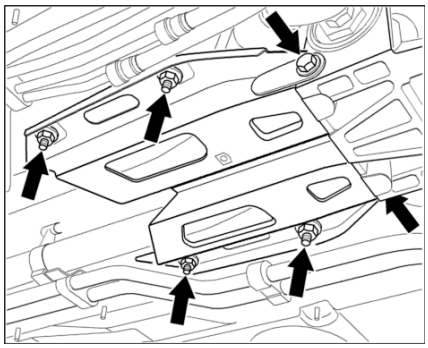
Preliminary work

1. Raise the vehicle at the prescribed jacking points. *Raising the vehicle*
2. Remove underbody panel. 519419 Removing and installing the rear cover - removing *519320 21 Removing and installing the middle cover - removing*

top of page

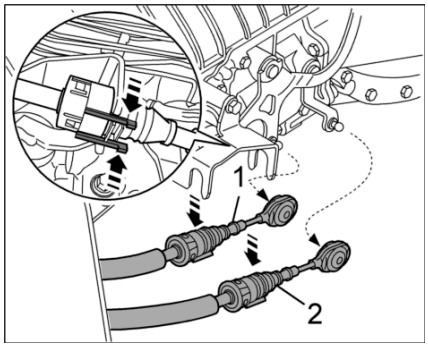
Removing shift and selector cables

Detaching shift and selector cables at transmission



Transmission support

1. Remove transmission support.

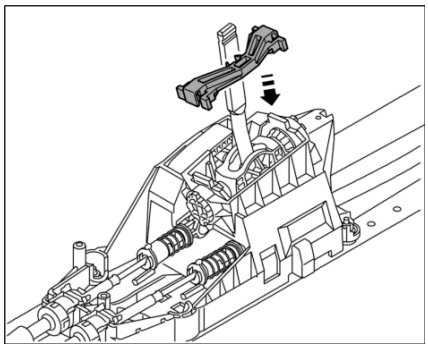


Removing shift and selector cables

2. Lever off shift cable **-1-** and selector cable **-2-** at the transmission external shift mechanism with a screwdriver and detach the shift and selector cables from the support bracket.

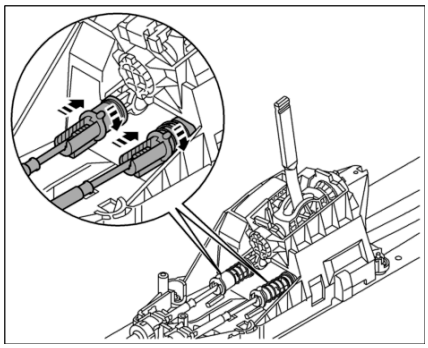
Detaching shift and selector cables inside vehicle

1. Remove shift lever knob. 340419 Removing and installing shift lever knob - section on "Removing"
2. Remove centre console. 681719 Removing and installing centre console - section on "Removing"
3. Loosen parking-brake lever. *466119 21 Removing and installing parking-brake lever - section on "Removing"*



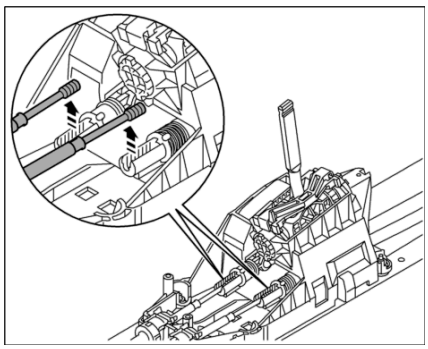
Fitting locking bridge

4. **Locking bridge P 9619/1** must be fitted on the gearshift bracket.



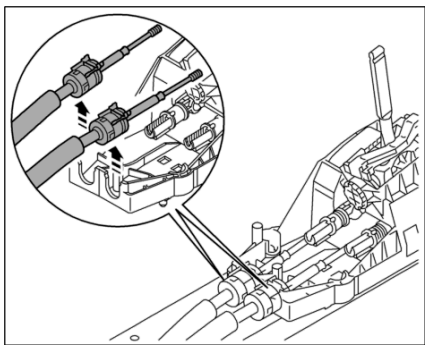
Opening bayonet lock

5. Open bayonet locks at preselector and shift connections.



Detaching shift cables

6. Detach adjustment pins at preselector and shift connections.



Unclipping supports

7. Unclip supports on the gearshift bracket.
8. Push rubber sleeve out through the opening in the body.

top of page

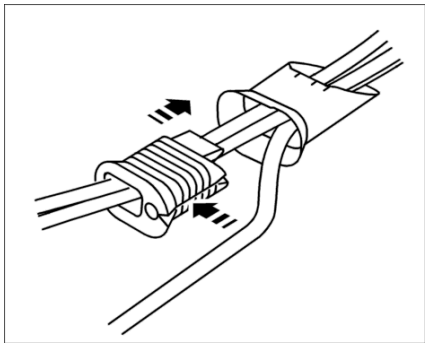
Installing shift and selector cables

Fastening shift and select. cables to the transmission

Note

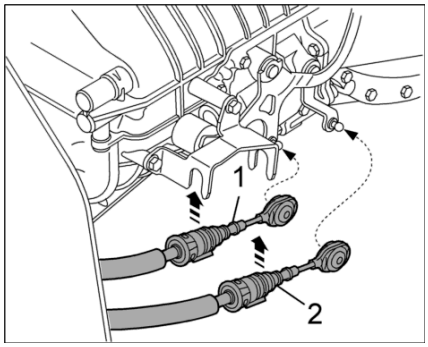
The shift and selector cables must be routed above the transmission support.

1. Press the shift and selector cables through the body opening from below.



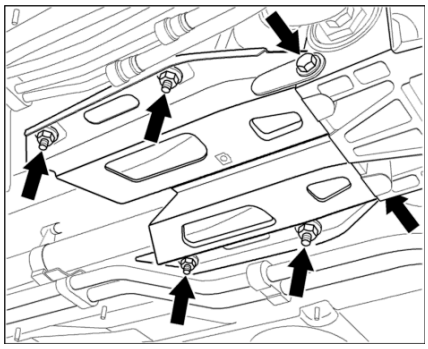
Rubber sleeve in body opening

2. Apply a coating of lubricant (e.g. Contifix tyre mounting paste) on the rubber sleeve and B+ wire in the area of the body opening, insert the B+ wire in the rubber sleeve and press rubber sleeve into the body opening.



Connecting shift cable

3. Engage shift **-1-** (grey end piece) and selector cable **-2-** (blue end piece) into support bracket for transmission and press end pieces onto ball heads.



Transmission support

4. Fit transmission support.

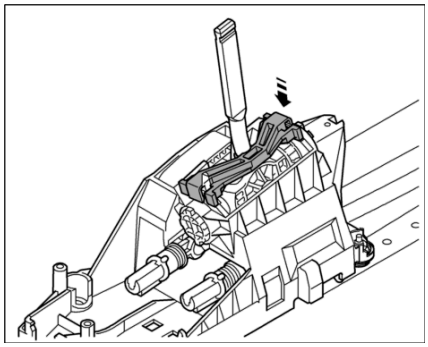
Location	Explanation	Type	Basic value	Tolerance 1	Tolerance 2

Transmission support		Tightening torque	48 ftlb.		

Securing shift and selector cables inside vehicle

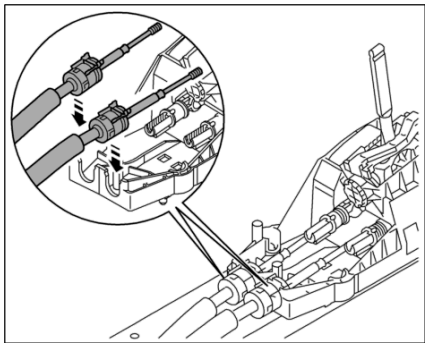
Note

During installation of the shift and selector cables, the transmission must be engaged in neutral.



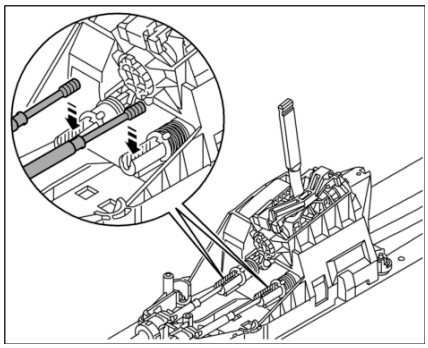
Fitting locking bridge

1. **Locking bridge P 9619/1** must be fitted on the gearshift bracket.



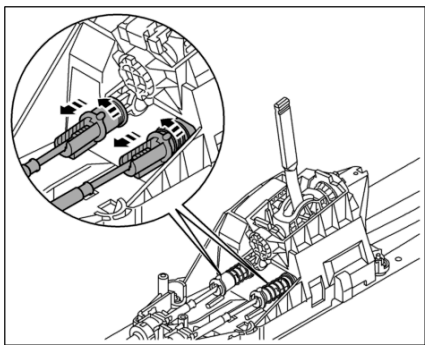
Clipping in supports

2. Clip in supports on the gearshift bracket. The support with the blue hinged tube must be fitted on the left and the support with the black hinged tube must be fitted on the right.



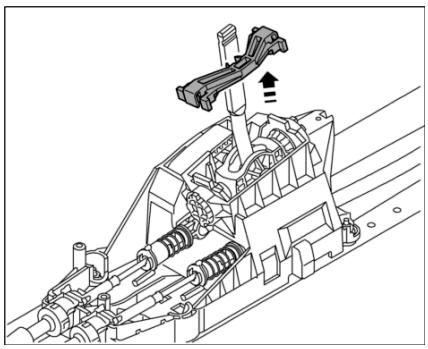
Engaging shift cables

3. Engage adjustment pins at preselector and shift connections.



Closing bayonet locks

4. Close bayonet locks at preselector and shift connections.



Removing locking bridge.

5. **Locking bridge P 9619/1** must be removed.

top of page

Subsequent work

Subsequent work

1. Fasten parking-brake lever. *466119 23 Removing and installing parking-brake lever - chapter on "Installing"*
2. Install centre console. 681719 Removing and installing centre console - chapter on "installing"
3. Install shift lever knob. 340419 Removing and installing shift lever knob - chapter on "installing"
4. Install underbody panel. 519319 Removing and installing centre underbody panel - chapter on "installing" 519419 Removing and installing rear cover - chapter on "installing"
5. Lower the vehicle.
6. Shift through all gears.

34 35 19 Removing and installing transmission - as of MY 2005

- Preliminary work
- Removing transmission
- Installing transmission
- Subsequent work

Tools

Designation	Type	Number	Explanation	
holding device	special tool	P 9624/2		

top of page

Preliminary work

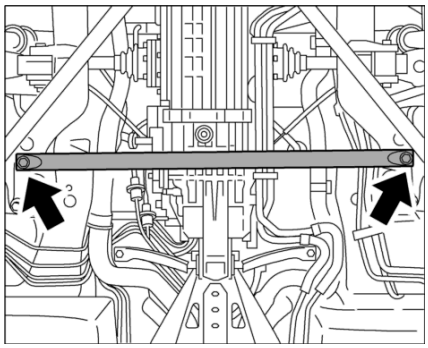
Preliminary work

1. Disconnect battery. *Work instructions after disconnecting the battery*
2. Raise the vehicle at the prescribed jacking points. *Raising the vehicle*
3. Remove underbody panel. 519419 Removing and installing the rear cover - removing *519320 21 Removing and installing the middle cover - removing*
4. Remove cardan shaft. 390219 Removing and installing cardan shaft - chapter on "Removing"

top of page

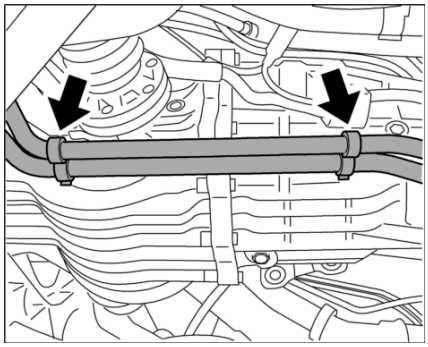
Removing transmission

Dismantling



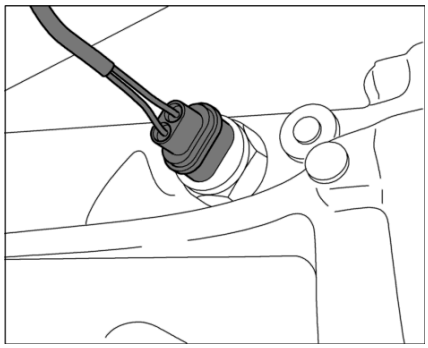
Cross member

1. Remove the cross member



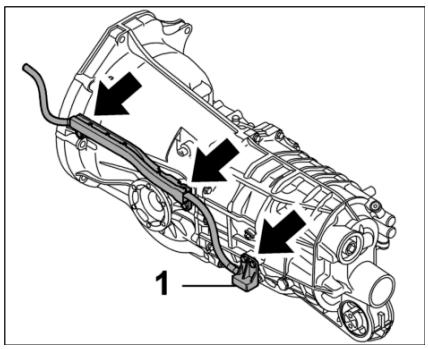
Coolant hose to the transmission

2. Dismantle the coolant hoses and container



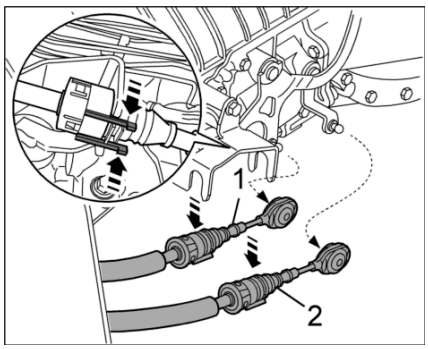
Electric plug for reversing light switch

3. Disconnect the electrical connection for the reversing light switch.



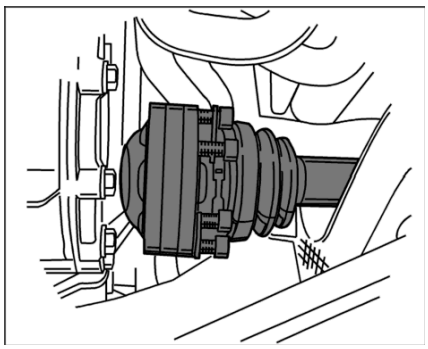
Connection of B+ to the transmission

4. Remove the electric cable (positive lead). Do this by removing the container from the transmission **-arrows-** and disconnecting the lead in the B-Plus box **-1-** .



Removing shift and selector cables

5. Disconnect shift **-1-** and selection cables **-2-** from the transmission.

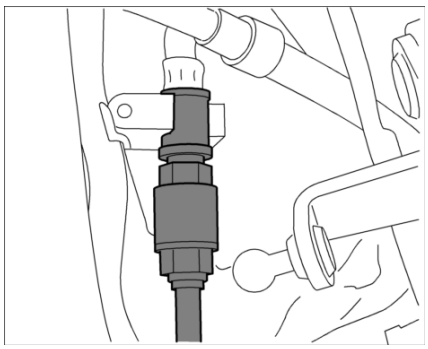


Drive shaft

Note

Protect drive shafts against mechanical damage (e.g. with a rubber hose which has been cut open).

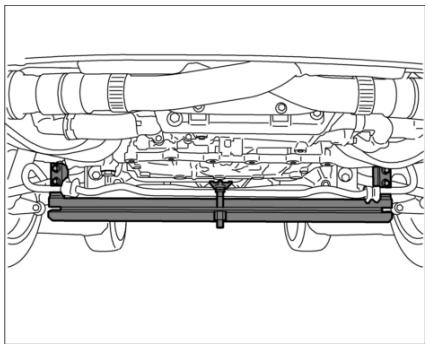
6. Remove drive shafts on transmission side. To do this, unscrew the six Allen screws joining each drive shaft and transmission flange. In order to stop the wheel being pulled round, it should be held still.



Clutch line

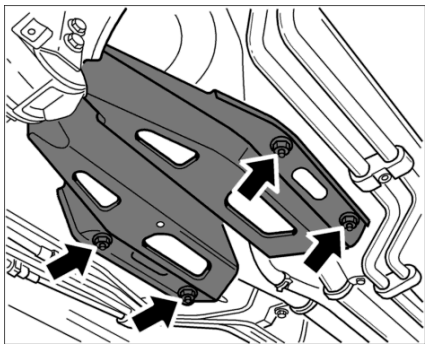
7. Disconnect hydraulic line for clutch control. Collect emerging brake fluid in a suitable container. Seal open lines with suitable plug.

Removing transmission



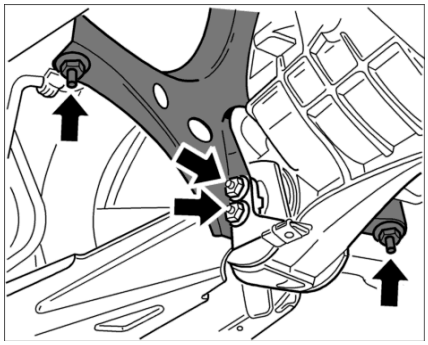
Retaining device

1. Unscrew fastening screws between stabiliser and engine mount, screw **holding device P 9624/2** to stabilizer-engine mount, turn spindle upwards and support engine.
2. Place transmission jack under transmission and fasten fixing strap.



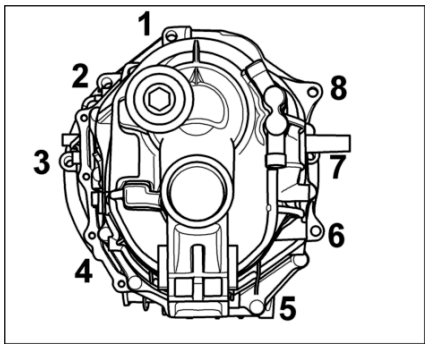
Transmission container

3. Remove transmission container.



Transmission support

4. Remove transmission support.



Connecting screws

Note

The transmission can be lowered by a maximum of 25 mm to improve accessibility.

5. Unscrew fastening screws (8) between engine and transmission.
6. Move the transmission out downwards and towards the front by lowering the transmission jack step by step.

top of page

Installing transmission

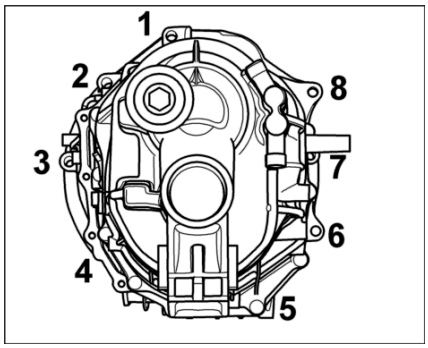
Installing transmission

Note

Before installing the transmission, clean splines of transmission input shaft and grease lightly, e.g. with Olista Longtime 3 EP.

Note

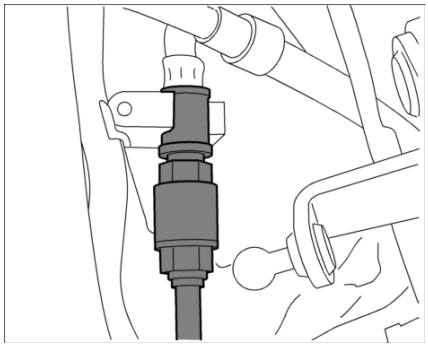
When positioning the transmission, make sure that the dowel sleeves are in the correct position in the crankcase.



Connecting screws

1. Guide in the transmission, and screw in and tighten the fastening screws.

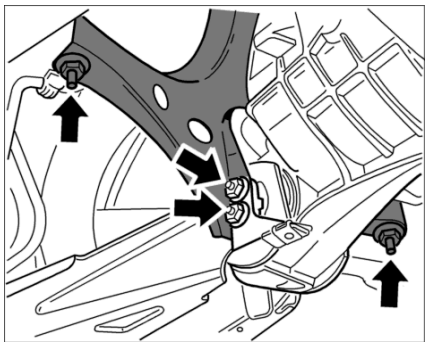
Location	Explanation	Type	Basic value	Tolerance 1	Tolerance 2
Transmission/engine connection	Hexagon-head bolt no. 1 in figure, M12 x 70	Tightening torque	85 (63 ftlb.) Nm		
Transmission/engine connection	Hexagon-head bolt no. 2 in figure, M12 x 100	Tightening torque	85 (63 ftlb.) Nm		
Transmission/engine connection	Hexagon-head bolt no. 3 in figure, M12 x 100	Tightening torque	85 (63 ftlb.) Nm		
Transmission/engine connection	Internal serration screw no. 4 in figure, M10 x 50	Tightening torque	46 (34 ftlb.) Nm		
Transmission/engine connection	Hexagon-head bolt no. 5 in figure, M10 x 50	Tightening torque	46 (34 ftlb.) Nm		
Transmission/engine connection	Hexagon-head bolt no. 6 in figure, M12 x 50	Tightening torque	85 (63 ftlb.) Nm		
Transmission/engine connection	Hexagon-head bolt no. 7 in figure, M12 x 70	Tightening torque	85 (63 ftlb.) Nm		
Transmission/engine connection	Hexagon-head bolt no. 8 in figure, M12 x 70	Tightening torque	85 (63 ftlb.) Nm		



Clutch line

2. Remove plug from hydraulic line of clutch control and fit the line.

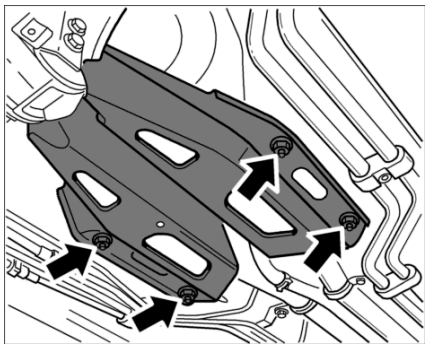
Location	Explanation	Type	Basic value	Tolerance 1	Tolerance 2
Hydraulic line of clutch control		Tightening torque	30 (22 ftlb.) Nm		



Transmission support

3. Fit transmission support.

Location	Explanation	Type	Basic value	Tolerance 1	Tolerance 2
Transmission support		Tightening torque	65 (48 ftlb.) Nm		

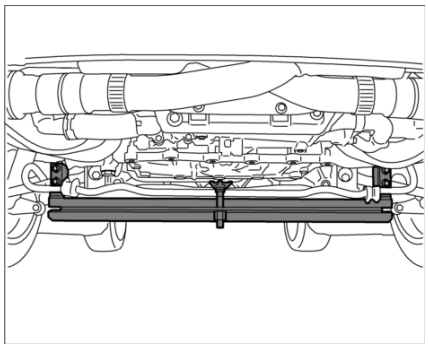


Transmission holder

4. Install transmission holder.

Location	Explanation	Type	Basic value	Tolerance 1	Tolerance 2
Transmission holder		Tightening torque	65 (48 ftlb.) Nm		

5. Release retaining strap and remove transmission jack.

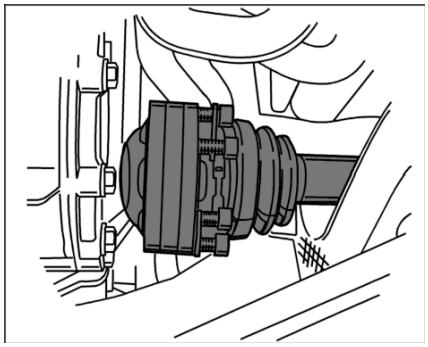


Retaining device

6. **Holding device P 9624/2** is to be removed from stabilizer-engine mount and screw stabilizer onto engine mount.

Location	Explanation	Type	Basic value	Tolerance 1	Tolerance 2
Stabiliser onto stabilizer engine mount		Tightening torque	23 (17 ftlb.) Nm		

Assembly work



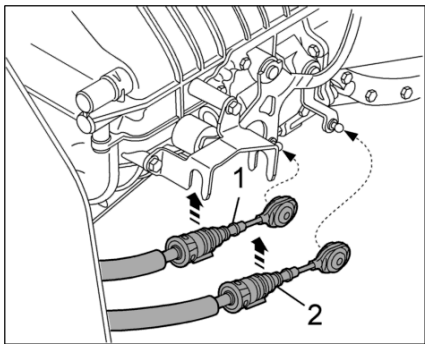
Drive shaft

Note

Protect drive shafts against mechanical damage (e.g. with a rubber hose which has been cut open).

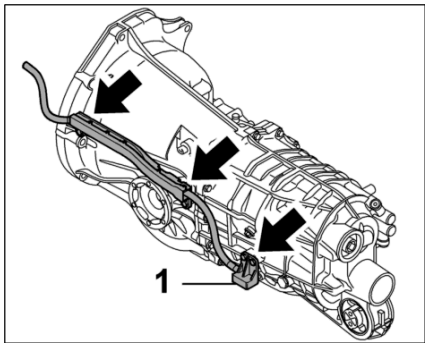
1. Fit drive shafts on the transmission side. To do this, screw in the six Allen screws joining each drive shaft and transmission flange and tighten screws. In order to stop the wheel being pulled round, it should be held still.

Location	Explanation	Type	Basic value	Tolerance 1	Tolerance 2
Drive shafts	Fastening screws between drive shaft and transmission flange	Tightening torque	81 (60 ftlb.) Nm		



Connecting shift cable

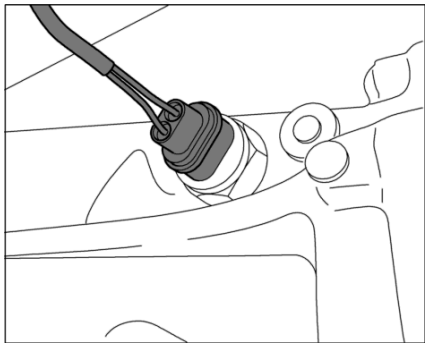
2. Engage shift **-1-** (grey end piece) and selector cable **-2-** (blue end piece) into support bracket for transmission and press end pieces onto ball heads.



Connection of B+ to the transmission

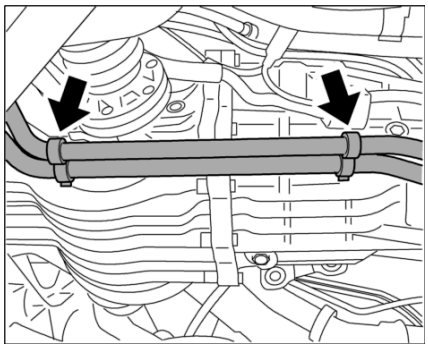
3. Fit the electric cable (positive lead). Do this by fitting the holder on the transmission **-arrows-** and connecting cables in the B-Plus box **-1-** .

Location	Explanation	Type	Basic value	Tolerance 1	Tolerance 2
Cable duct	Fastening screws between cable duct and transmission	Tightening torque	10 (7.5 ftlb.) Nm		
B+ cable	Fastening screws for B+ cable	Tightening torque	10 (7.5 ftlb.) Nm		



Electric plug for reversing light switch

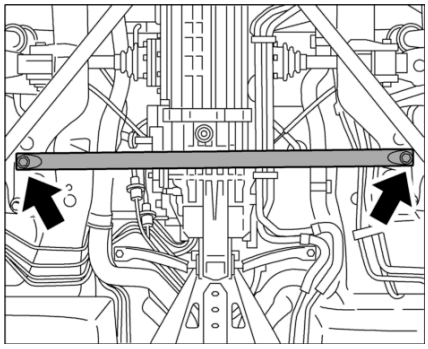
4. Establish electrical connection to the reversing light switch.



Coolant hose to the transmission

5. Fit the coolant hoses and container.

Location	Explanation	Type	Basic value	Tolerance 1	Tolerance 2
Container for coolant hoses	Fastening screws between container and transmission	Tightening torque	10 (7.5 ftlb.) Nm		



Cross member

6. Remove the cross member

Location	Explanation	Type	Basic value	Tolerance 1	Tolerance 2
Cross member	Fastening screws between cross member and carrier side section	Tightening torque	65 (48 ftlb.) Nm		

top of page

Subsequent work

Subsequent work

1. Install cardan shaft. 390219 Removing and installing cardan shaft - chapter on "Installing"
2. Check transmission oil and, if necessary, top up. *340101 Checking transmission oil*

3. Bleed the clutch hydraulic system. 300107 Bleeding the clutch system
4. Fit underbody panels. 519319 Removing and installing centre underbody panel - Installing 519419 Removing and installing rear cover - Installing
5. Lower the vehicle.
6. Connect the battery . *Work instructions after disconnecting the battery*

997410, 997411, 997430, 997431, 997610, 997611, 997620, 997621

as of MY 2005
Country C00, C02, C05, C07, C08, C09, C10, C11, C12, C13, C14, C15, C16, C18, C19, C20, C21, C22, C23, C24, C25, C26, C27, C28, C32, C33, C34, C35, C36, C37, C38, C39, C45, C46, C98, C99

WARNUNG

Gefahr des Verlusts der Text-Bild-Zuordnung beim Ausdruck.

- **Aus technischen Gründen kann derzeit nicht ausgeschlossen werden, dass trotz einwandfreier Darstellung auf dem Bildschirm beim Ausdruck der Zusammenhang von Text und zugehörigem Bild verloren geht.**
- **Wird der Fehler nicht bemerkt, besteht die Gefahr, daß Arbeiten nicht korrekt durchgeführt werden und es dadurch zu Personen- und Sachschäden kommt.**

Vergleichen Sie deshalb nach dem Druckvorgang unbedingt die Ausdrucke mit der Bildschirmdarstellung. Korrigieren Sie die Ausdrucke im Fehlerfall so, daß der Inhalt der Bildschirmdarstellung zutreffend wiedergegeben wird.

WARNING

Danger of losing text-figure correspondence when printing out.

- **For technical reasons, it can currently not be ruled out that the correspondence between text and associated figure can be lost when it is printed out, even though the display on the screen is correct.**
- **If the fault is not noticed, there is the danger that work will not be performed correctly which can cause injury and damage.**

Therefore, always compare printouts with the screen display after printing them out. Correct the printouts if they are faulty so that the content of the screen display matches that on the printouts.

AVERTISSEMENT

Risque de perte de la correspondance texte-illustration lors de l'impression papier.

- **Pour des raisons techniques, il ne peut pas être exclu à l'heure actuelle que, même en cas d'affichage correct à l'écran, la correspondance entre le texte et l'illustration puisse être erronée sur l'impression papier.**

34 35 19 Removing and installing transmission - as of MY 2005

- Preliminary work
- Removing transmission
- Installing transmission
- Subsequent work

Tools

Designation	Type	Number	Explanation	
holding device	special tool	P 9624/2		

top of page

Preliminary work

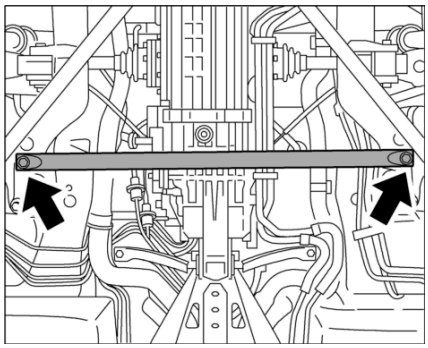
Preliminary work

1. Disconnect battery . *Working instructions after disconnecting the battery*
2. Raise the vehicle at the prescribed jacking points. *Raise the vehicle*
3. Remove underbody panel. 519419 Removing and installing the rear cover - removing *519320 21 Removing and installing the middle cover - removing*

top of page

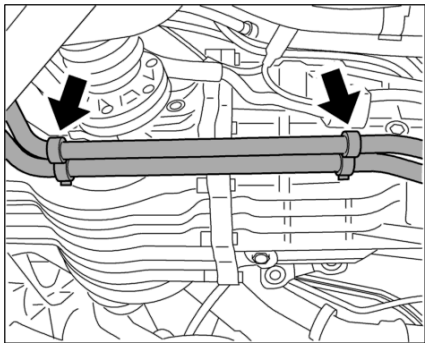
Removing transmission

Dismantling



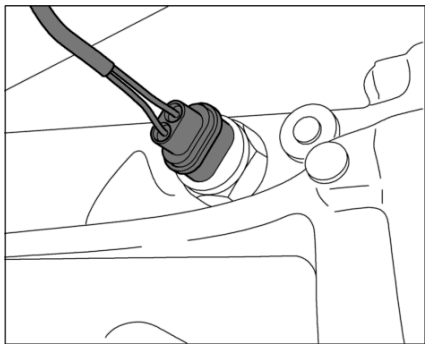
Cross member

1. Remove the cross member



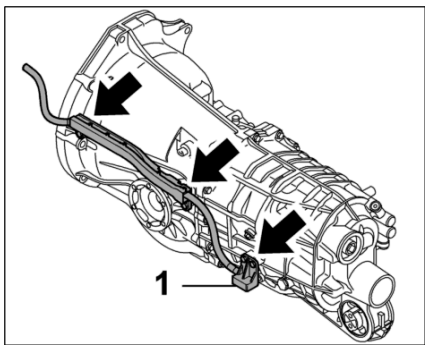
Coolant hose to the transmission

2. Dismantle the coolant hoses and container



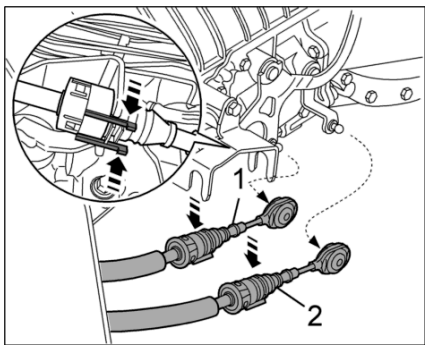
Electric plug for reversing light switch

3. Disconnect the electrical connection for the reversing light switch.



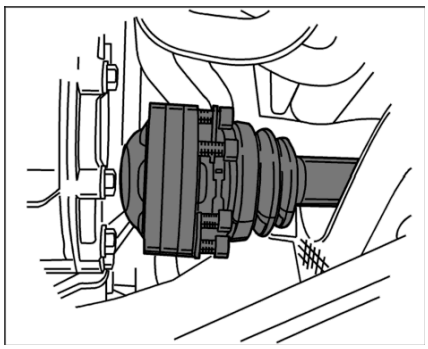
Connection of B+ to the transmission

4. Remove the electric cable (positive lead). Do this by removing the container from the transmission **-arrows-** and disconnecting the lead in the B-Plus box **-1-** .



Removing shift and selector cables

5. Disconnect shift **-1-** and selection cables **-2-** from the transmission.

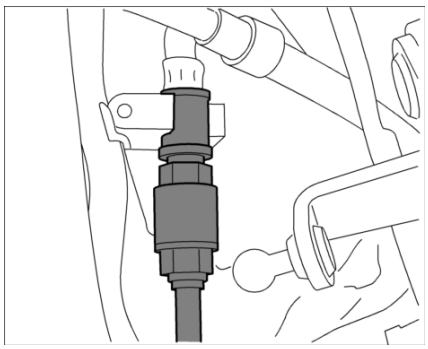


Drive shaft

Note

Protect drive shafts against mechanical damage (e.g. with a rubber hose which has been cut open).

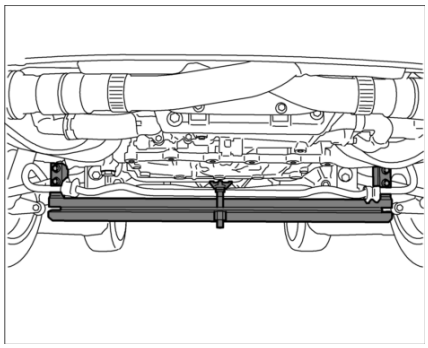
6. Remove drive shafts on transmission side. To do this, unscrew the six Allen screws joining each drive shaft and transmission flange. In order to stop the wheel being pulled round, it should be held still.



Clutch line

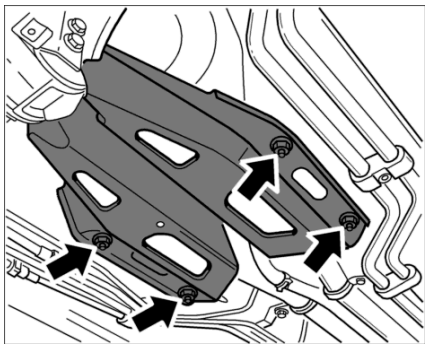
7. Disconnect hydraulic line for clutch control. Collect emerging brake fluid in a suitable container. Seal open lines with suitable plug.

Removing transmission



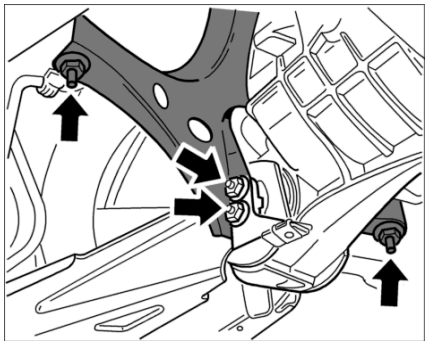
Retaining device

1. Unscrew fastening screws between stabiliser and engine mount, screw **holding device P 9624/2** to stabilizer-engine mount, turn spindle upwards and support engine.
2. Place transmission jack under transmission and fasten fixing strap.



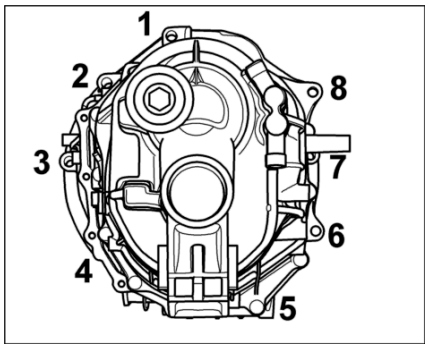
Transmission container

3. Remove transmission container.



Transmission support

4. Remove transmission support.



Connecting screws

Note

The transmission can be lowered by a maximum of 25 mm to improve accessibility.

5. Unscrew fastening screws (8) between engine and transmission.
6. Move the transmission out downwards and towards the front by lowering the transmission jack step by step.

top of page

Installing transmission

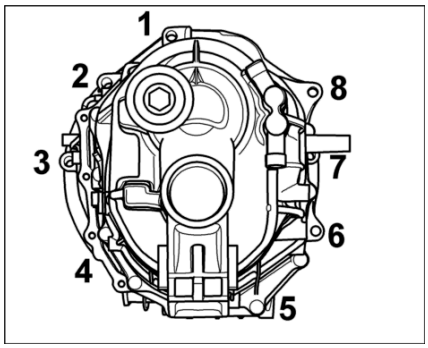
Installing transmission

Note

Before installing the transmission, clean splines of transmission input shaft and grease lightly, e.g. with Olista Longtime 3 EP.

Note

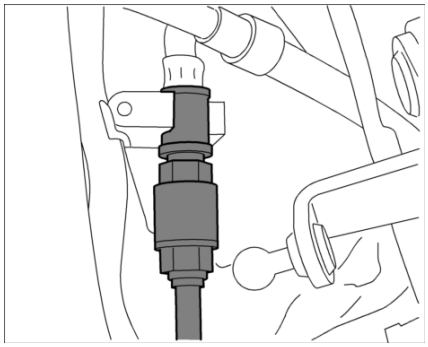
When positioning the transmission, make sure that the dowel sleeves are in the correct position in the crankcase.



Connecting screws

1. Guide in the transmission, and screw in and tighten the fastening screws.

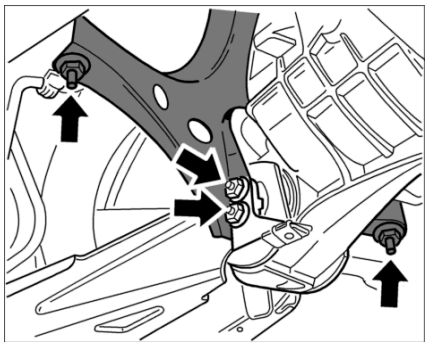
Location	Explanation	Type	Basic value	Tolerance 1	Tolerance 2
Transmission/engine connection	Hexagon-head bolt no. 1 in figure, M12 x 70	Tightening torque	85 (63 ftlb.) Nm		
Transmission/engine connection	Hexagon-head bolt no. 2 in figure, M12 x 100	Tightening torque	85 (63 ftlb.) Nm		
Transmission/engine connection	Hexagon-head bolt no. 3 in figure, M12 x 100	Tightening torque	85 (63 ftlb.) Nm		
Transmission/engine connection	Internal serration screw no. 4 in figure, M10 x 50	Tightening torque	46 (34 ftlb.) Nm		
Transmission/engine connection	Hexagon-head bolt no. 5 in figure, M10 x 50	Tightening torque	46 (34 ftlb.) Nm		
Transmission/engine connection	Hexagon-head bolt no. 6 in figure, M12 x 50	Tightening torque	85 (63 ftlb.) Nm		
Transmission/engine connection	Hexagon-head bolt no. 7 in figure, M12 x 70	Tightening torque	85 (63 ftlb.) Nm		
Transmission/engine connection	Hexagon-head bolt no. 8 in figure, M12 x 70	Tightening torque	85 (63 ftlb.) Nm		



Clutch line

2. Remove plug from hydraulic line of clutch control and fit the line.

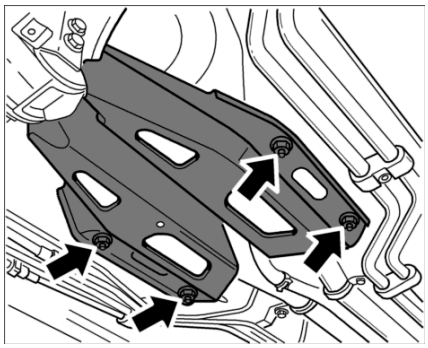
Location	Explanation	Type	Basic value	Tolerance 1	Tolerance 2
Hydraulic line of clutch control		Tightening torque	30 (22 ftlb.) Nm		



Transmission support

3. Fit transmission support.

Location	Explanation	Type	Basic value	Tolerance 1	Tolerance 2
Transmission support		Tightening torque	65 (48 ftlb.) Nm		

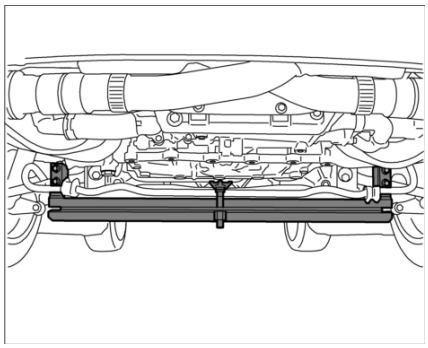


Transmission holder

4. Install transmission holder.

Location	Explanation	Type	Basic value	Tolerance 1	Tolerance 2
Transmission holder		Tightening torque	65 (48 ftlb.) Nm		

5. Release retaining strap and remove transmission jack.

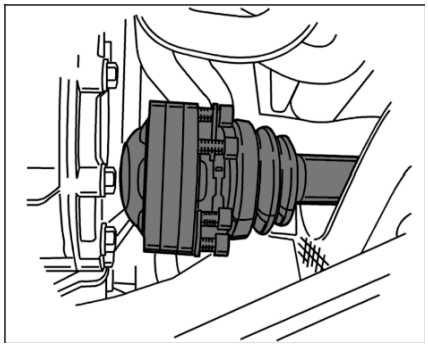


Retaining device

6. **Holding device P 9624/2** is to be removed from stabilizer-engine mount and screw stabilizer onto engine mount.

Location	Explanation	Type	Basic value	Tolerance 1	Tolerance 2
Stabiliser onto stabilizer engine mount		Tightening torque	23 (17 ftlb.) Nm		

Assembly work



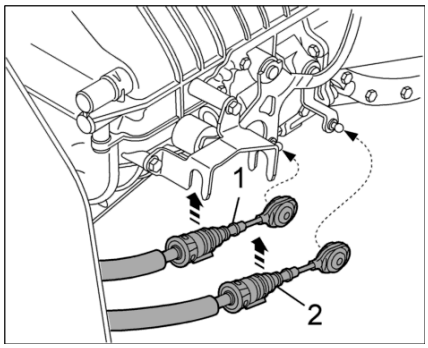
Drive shaft

Note

Protect drive shafts against mechanical damage (e.g. with a rubber hose which has been cut open).

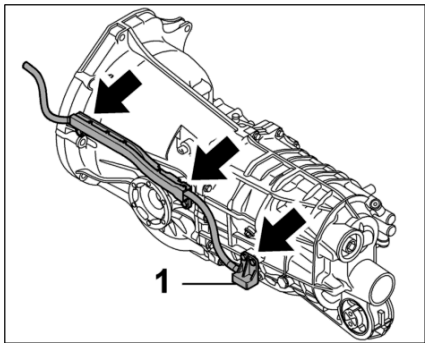
1. Fit drive shafts on the transmission side. To do this, screw in the six Allen screws joining each drive shaft and transmission flange and tighten screws. In order to stop the wheel being pulled round, it should be held still.

Location	Explanation	Type	Basic value	Tolerance 1	Tolerance 2
Drive shafts	Fastening screws between drive shaft and transmission flange	Tightening torque	81 (60 ftlb.) Nm		



Connecting shift cable

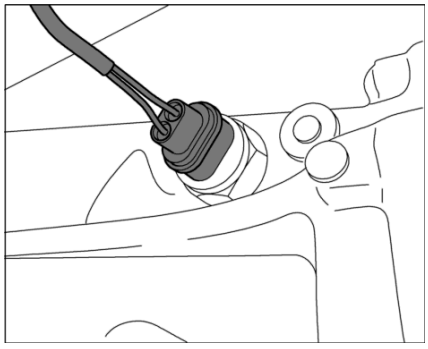
2. Engage shift **-1-** (grey end piece) and selector cable **-2-** (blue end piece) into support bracket for transmission and press end pieces onto ball heads.



Connection of B+ to the transmission

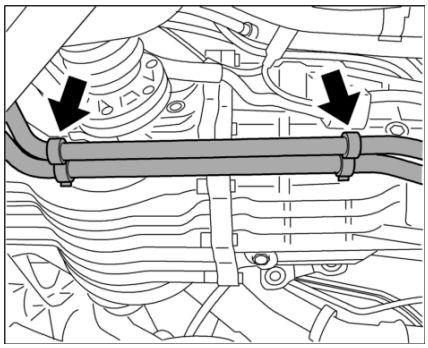
3. Fit the electric cable (positive lead). Do this by fitting the holder on the transmission **-arrows-** and connecting cables in the B-Plus box **-1-** .

Location	Explanation	Type	Basic value	Tolerance 1	Tolerance 2
Cable duct	Fastening screws between cable duct and transmission	Tightening torque	10 (7.5 ftlb.) Nm		
B+ cable	Fastening screws for B+ cable	Tightening torque	10 (7.5 ftlb.) Nm		



Electric plug for reversing light switch

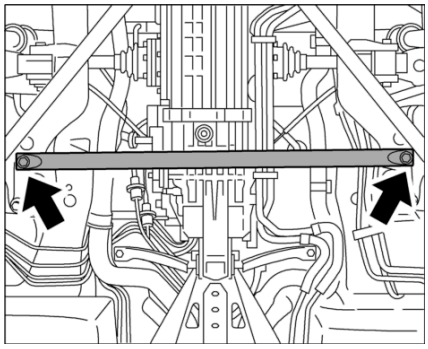
4. Establish electrical connection to the reversing light switch.



Coolant hose to the transmission

5. Fit the coolant hoses and container.

Location	Explanation	Type	Basic value	Tolerance 1	Tolerance 2
Container for coolant hoses	Fastening screws between container and transmission	Tightening torque	10 (7.5 ftlb.) Nm		



Cross member

6. Remove the cross member

Location	Explanation	Type	Basic value	Tolerance 1	Tolerance 2
Cross member	Fastening screws between cross member and carrier side section	Tightening torque	65 (48 ftlb.) Nm		

top of page

Subsequent work

Subsequent work

1. Check transmission oil and, if necessary, top up. *340101 Checking transmission oil*
2. Bleed the clutch hydraulic system. 300107 Bleeding the clutch system

3. Fit underbody panels. 519319 Removing and installing centre underbody panel - Installing 519419 Removing and installing rear cover - Installing
4. Lower the vehicle.
5. Connect the battery . *Work instructions after disconnecting the battery*

997110, 997111, 997120, 997121, 997310, 997311, 997320, 997321

as of MY 2005
Country C00, C02, C05, C07, C08, C09, C10, C11, C12, C13, C14, C15, C16, C18, C19, C20, C21, C22, C23, C24, C25, C26, C27, C28, C32, C33, C34, C35, C36, C37, C38, C39, C45, C46, C98, C99

WARNUNG

Gefahr des Verlusts der Text-Bild-Zuordnung beim Ausdruck.

- **Aus technischen Gründen kann derzeit nicht ausgeschlossen werden, dass trotz einwandfreier Darstellung auf dem Bildschirm beim Ausdruck der Zusammenhang von Text und zugehörigem Bild verloren geht.**
- **Wird der Fehler nicht bemerkt, besteht die Gefahr, daß Arbeiten nicht korrekt durchgeführt werden und es dadurch zu Personen- und Sachschäden kommt.**

Vergleichen Sie deshalb nach dem Druckvorgang unbedingt die Ausdrucke mit der Bildschirmdarstellung. Korrigieren Sie die Ausdrucke im Fehlerfall so, daß der Inhalt der Bildschirmdarstellung zutreffend wiedergegeben wird.

WARNING

Danger of losing text-figure correspondence when printing out.

- **For technical reasons, it can currently not be ruled out that the correspondence between text and associated figure can be lost when it is printed out, even though the display on the screen is correct.**
- **If the fault is not noticed, there is the danger that work will not be performed correctly which can cause injury and damage.**

Therefore, always compare printouts with the screen display after printing them out. Correct the printouts if they are faulty so that the content of the screen display matches that on the printouts.

AVERTISSEMENT

Risque de perte de la correspondance texte-illustration lors de l'impression papier.

- **Pour des raisons techniques, il ne peut pas être exclu à l'heure actuelle que, même en cas d'affichage correct à l'écran, la correspondance entre le texte et l'illustration puisse être erronée sur l'impression papier.**
- **Si l'erreur passe inaperçue, on court le risque d'exécuter certaines opérations de manière incorrecte pouvant conduire à des dommages corporels et matériels.**

34 35 27 Removing and refitting transmission - as of MY 2005

- Preliminary work
- Removing transmission
- Refitting transmission
- Subsequent work

top of page

Preliminary work

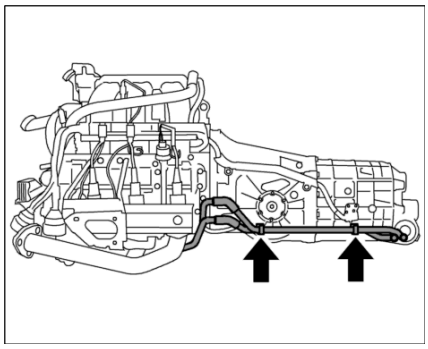
Preliminary work

1. Remove engine-transmission unit. 100119 Removing and installing engine - "Removing" section

top of page

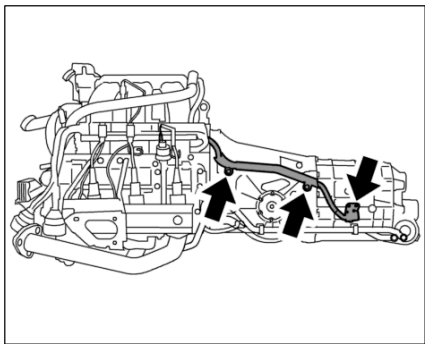
Removing transmission

Removing transmission



Coolant lines

1. Unclip coolant lines from the holders.



Cable duct

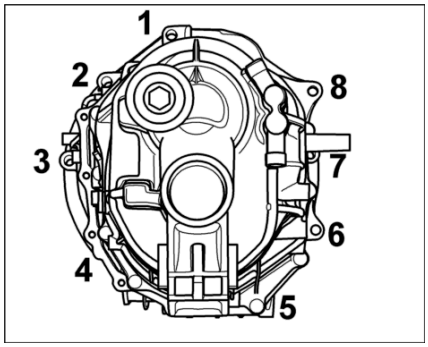
2. Remove cable duct. To do this, undo the screws and move the cable duct towards the engine.
3. Attach transmission to workshop crane.
4. Unscrew eight connecting bolts between the engine and transmission and pull out the transmission to the rear.

top of page

Refitting transmission

Refitting transmission

1. Attach transmission to workshop crane.

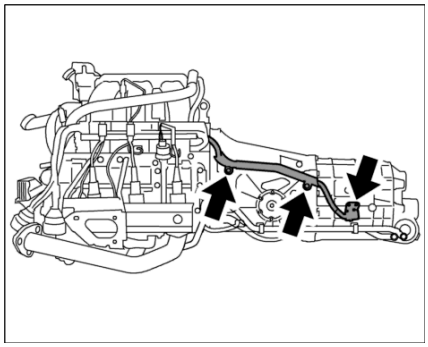


Connecting screws

2. Refit transmission and screw in connecting bolts.

Location	Explanation	Type	Basic value	Tolerance 1	Tolerance 2
Transmission/engine connection	Hexagon-head bolt no. 1 in figure, M12 x 70	Tightening torque	85 (63) Nm (ftlb.)		
Transmission/engine connection	Hexagon-head bolt no. 2 in figure, M12 x 100	Tightening torque	85 (63) Nm (ftlb.)		
Transmission/engine connection	Hexagon-head bolt no. 3 in figure, M12 x 100	Tightening torque	85 (63) Nm (ftlb.)		

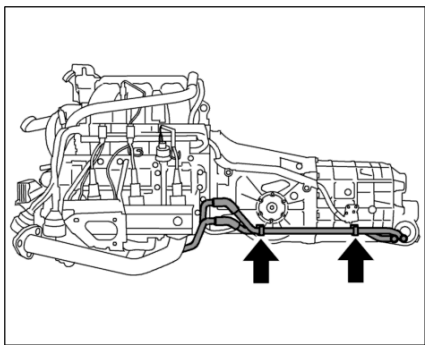
Transmission/engine connection	Internal serration screw no. 4 in figure, M10 x 50	Tightening torque	46 (34) Nm (ftlb.)		
Transmission/engine connection	Hexagon-head bolt no. 5 in figure, M10 x 50	Tightening torque	46 (34) Nm (ftlb.)		
Transmission/engine connection	Hexagon-head bolt no. 6 in figure, M12 x 50	Tightening torque	85 (63) Nm (ftlb.)		
Transmission/engine connection	Hexagon-head bolt no. 7 in figure, M12 x 70	Tightening torque	85 (63) Nm (ftlb.)		
Transmission/engine connection	Hexagon-head bolt no. 8 in figure, M12 x 70	Tightening torque	85 (63) Nm (ftlb.)		



Cable duct

3. Fit cable duct.

Location	Explanation	Type	Basic value	Tolerance 1	Tolerance 2
Cable duct	Fastening screws between cable duct and transmission	Tightening torque	10 (7.5) Nm (ftlb.)		



Coolant lines

4. Engage coolant lines in holder.

top of page

Subsequent work

Subsequent work

1. Install engine-transmission unit. 100119 Removing and installing engine - "Installing" section

---

997110, 997111, 997120, 997121, 997310, 997311, 997320, 997321, 997410, 997411, 997430, 997431, 997610, 997611, 997620, 997621

as of MY 2005
Country C00, C02, C05, C07, C08, C09, C10, C11, C12, C13, C14, C15, C16, C18, C19, C20, C21, C22, C23, C24, C25, C26, C27, C28, C32, C33, C34, C35, C36, C37, C38, C39, C45, C46, C98, C99

WARNUNG

Gefahr des Verlusts der Text-Bild-Zuordnung beim Ausdruck.

- **Aus technischen Gründen kann derzeit nicht ausgeschlossen werden, dass trotz einwandfreier Darstellung auf dem Bildschirm beim Ausdruck der Zusammenhang von Text und zugehörigem Bild verloren geht.**
- **Wird der Fehler nicht bemerkt, besteht die Gefahr, daß Arbeiten nicht korrekt durchgeführt werden und es dadurch zu Personen- und Sachschäden kommt.**

Vergleichen Sie deshalb nach dem Druckvorgang unbedingt die Ausdrucke mit der Bildschirmdarstellung. Korrigieren Sie die Ausdrucke im Fehlerfall so, daß der Inhalt der Bildschirmdarstellung zutreffend wiedergegeben wird.

WARNING

Danger of losing text-figure correspondence when printing out.

- **For technical reasons, it can currently not be ruled out that the correspondence between text and associated figure can be lost when it is printed out, even though the display on the screen is correct.**
- **If the fault is not noticed, there is the danger that work will not be performed correctly which can cause injury and damage.**

Therefore, always compare printouts with the screen display after printing them out. Correct the printouts if they are faulty so that the content of the screen display matches that on the printouts.

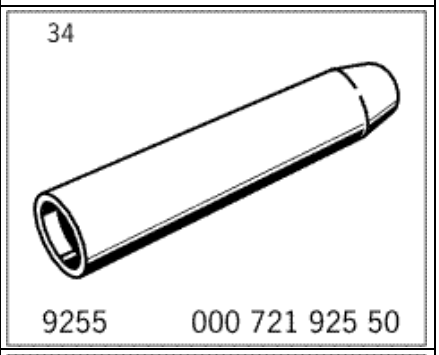
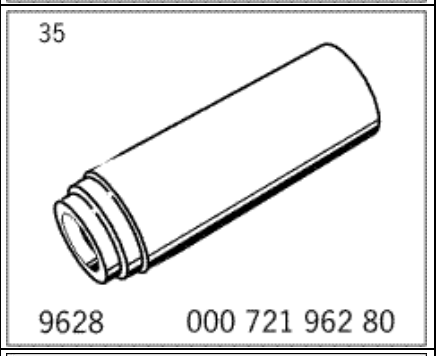
AVERTISSEMENT

Risque de perte de la correspondance texte-illustration lors de l'impression papier.

35 50 19 Removing and installing sealing ring for input shaft - as of MY 2005

- Preliminary work
- Removing sealing ring for input shaft
- Installing sealing ring for input shaft
- Subsequent work

Tools

Designation	Type	Number	Explanation	
assembly sleeve	special tool	9255		
pressure piece	special tool	9628		
slide hammer set	commercially available tool	NR.168		

top of page

Preliminary work

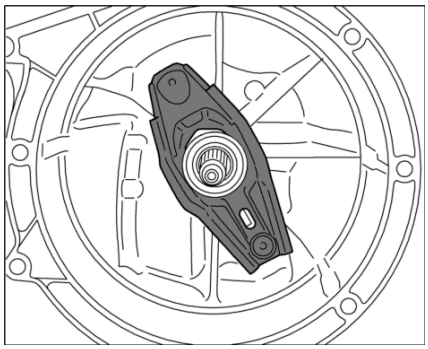
Preliminary work

1. Remove transmission. *21 Removing and installing transmission - Removing*

top of page

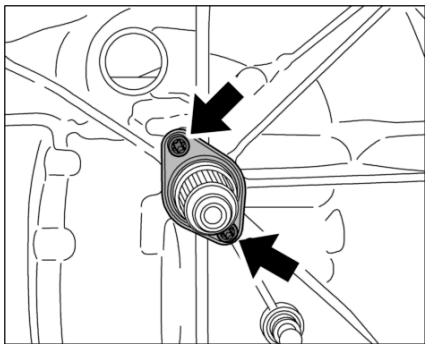
Removing sealing ring for input shaft

Removing sealing ring for drive shaft



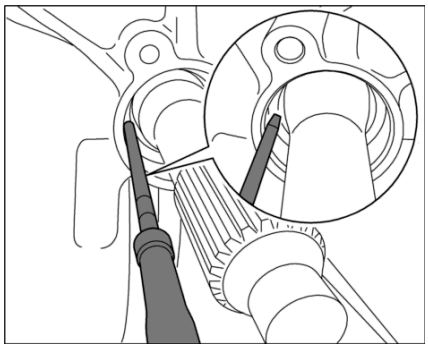
Release mechanism

1. Remove release lever and release bearing.



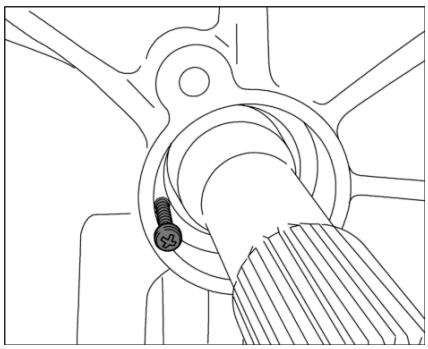
Guide sleeve

2. Unscrew fastening screws for guide sleeve **-arrows-** and pull off guide sleeve.



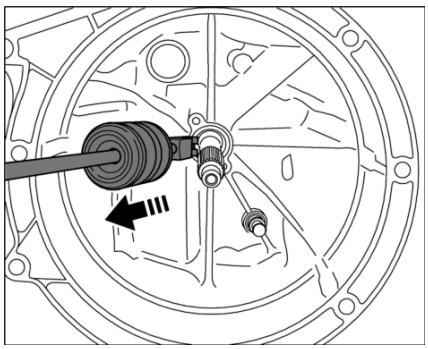
Punching hole

3. Use a pointed object such as a needle or scriber to punch a hole in the sealing ring.



Screwing in screw

4. Screw a sheetmetal screw (approx. 3 mm in diameter) 5 mm into the hole in the sealing ring.



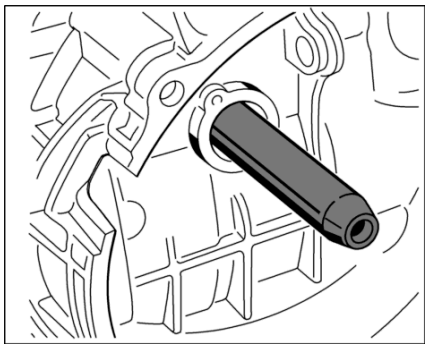
Driving out sealing ring

5. Engage **slide hammer set NR.168** in the sheetmetal screw and drive the sealing ring out.

top of page

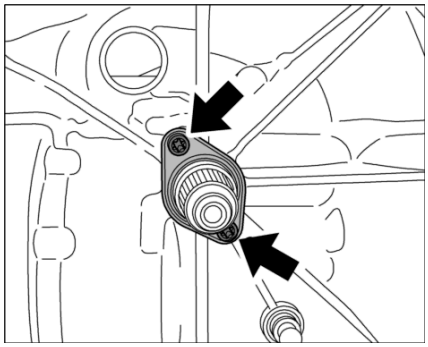
Installing sealing ring for input shaft

Installing sealing ring for input shaft



Assembly sleeve

1. Push **assembly sleeve 9255** onto the toothing of the input shaft.
2. Fill the sealing ring between the dust and sealing lips with grease (e.g. Liqui-Moly).
3. Drive in sealing ring with **pressure piece 9628** as far as the mounting face.

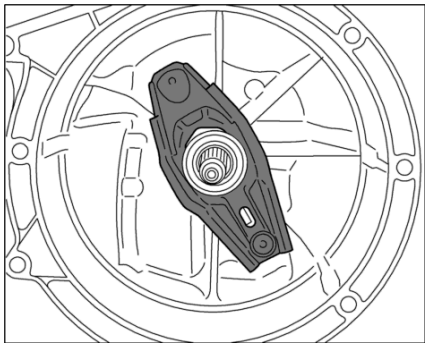


Guide sleeve

4. Fit guide sleeve and apply a thin coat of Optimol MP3.

Location	Explanation	Type	Basic value	Tolerance 1	Tolerance 2
Guide sleeve		Tightening torque	24 (18) ftlb.		

5. Grease splines of the transmission input shaft with Longtime 3 EP.



Release mechanism

6. Fit release lever and release bearing.

top of page

Subsequent work

Subsequent work

1. Install transmission. *23 Removing and installing transmission - Installing*

997110, 997111, 997120, 997121, 997310, 997311, 997320, 997321, 997410, 997411, 997430, 997431, 997610, 997611, 997620, 997621

as of MY 2005
Country C00, C02, C05, C07, C08, C09, C10, C11, C12, C13, C14, C15, C16, C18, C19, C20, C21, C22, C23, C24, C25, C26, C27, C28, C32, C33, C34, C35, C36, C37, C38, C39, C45, C46, C98, C99

WARNUNG

Gefahr des Verlusts der Text-Bild-Zuordnung beim Ausdruck.

- **Aus technischen Gründen kann derzeit nicht ausgeschlossen werden, dass trotz einwandfreier Darstellung auf dem Bildschirm beim Ausdruck der Zusammenhang von Text und zugehörigem Bild verloren geht.**
- **Wird der Fehler nicht bemerkt, besteht die Gefahr, daß Arbeiten nicht korrekt durchgeführt werden und es dadurch zu Personen- und Sachschäden kommt.**

Vergleichen Sie deshalb nach dem Druckvorgang unbedingt die Ausdrucke mit der Bildschirmdarstellung. Korrigieren Sie die Ausdrucke im Fehlerfall so, daß der Inhalt der Bildschirmdarstellung zutreffend wiedergegeben wird.

WARNING

Danger of losing text-figure correspondence when printing out.

- **For technical reasons, it can currently not be ruled out that the correspondence between text and associated figure can be lost when it is printed out, even though the display on the screen is correct.**
- **If the fault is not noticed, there is the danger that work will not be performed correctly which can cause injury and damage.**

Therefore, always compare printouts with the screen display after printing them out. Correct the printouts if they are faulty so that the content of the screen display matches that on the printouts.

AVERTISSEMENT

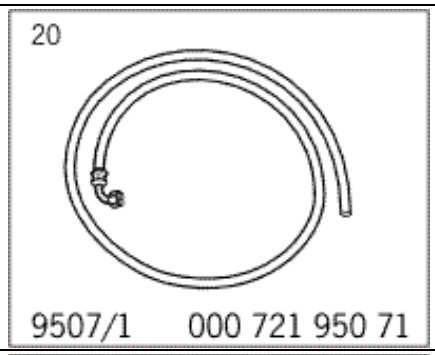
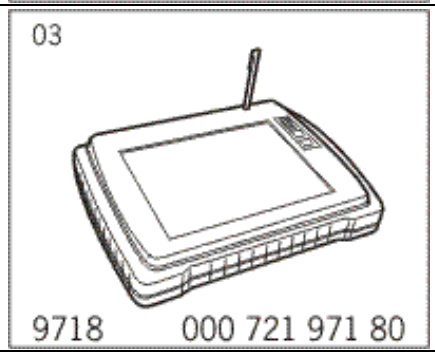
Risque de perte de la correspondance texte-illustration lors de l'impression papier.

- **Pour des raisons techniques, il ne peut pas être exclu à l'heure actuelle que, même en cas d'affichage correct à l'écran, la correspondance entre le texte et l'illustration**

37 02 35 Checking and topping up the ATF - as of MY 2005

- Information
- Preliminary work
- Checking and topping up the ATF
- Reworking

Tools

Designation	Type	Number	Explanation	
Screw connection hose	special tool	95071		
PIWIS Tester	special tool	97180		

top of page

Information

Notes

Note
Fill only with ATF approved by Porsche. See Spare Parts Catalogue.

Note
Hot vehicles should cool down before beginning the activity.

Note

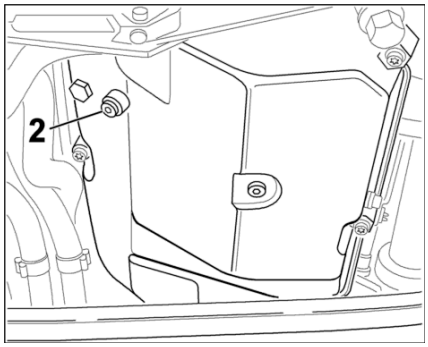
Vehicle must be horizontal in order to be filled and checked.

top of page

Preliminary work

Preliminary work

1. Raise the vehicle at the prescribed jacking points. *Lifting the vehicle*
2. Place oil collection pan under the transmission.
3. Remove the underbody panels. 519419 Removing and installing rear trim - removing

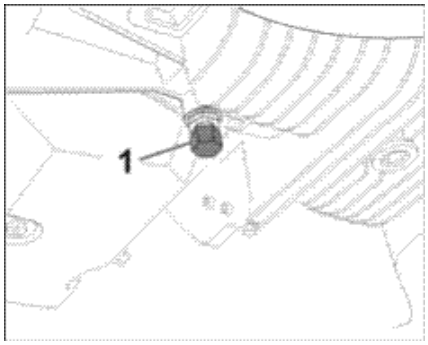


ATF - control screw

4. Unscrew control screw **-2-** .

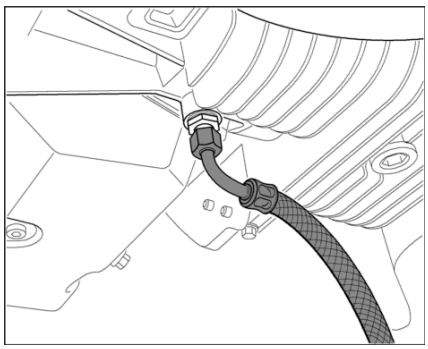
Note

To undo and tighten the cap nut for the charging valve, counter with a ring wrench!



Cap nut for ATF - charging valve

5. Screw off cap nut **-1-** for the charging valve.



Connection hose onto ATF - charging valve

6. **Screw connection hose 95071** onto charging valve.

top of page

Checking and topping up the ATF

Checking and topping up the ATF

Checking and topping up the ATF

The transmission must not be in the reduced driving program. The ATF temperature must be between **ATF temperature: 30 degrees Celsius** and **ATF temperature: 40 degrees Celsius** . An ATF inspection when the temperature is too high causes insufficient filling, while an inspection when the temperature is too low causes over-filling. The selector lever must be in position "P" and the engine must be idling. The air conditioning must be switched off. The vehicle must stand horizontally.

Note

The ATF temperature at the start of testing must not be higher than **ATF temperature: 40 gradCelsius** .

1. Connect the **PIWIS Tester 97180** and call up the ATF temperature.
2. Put selector lever in position "P", start vehicle, and allow engine to idle.
3. Top up ATF via the charging valve until ATF runs out at the control bore.
4. With the brake pedal pressed, change through all selector lever positions, remaining in each position for approximately **Time: 10 s** .

WARNING

Danger of scalding and chemical burns from hot ATF

Allow ATF to cool down

Wear personal protective gear (goggles, gloves)

5. Top up with ATF again via the charging valve until ATF runs out at the control bore.

top of page

Reworking

Reworking

1. **Unscrew connection hose 95071** from ATF - charging valve.
2. Replace sealing ring for cap nut and screw on cap nut. **Tightening torque: 30 ftlb.**
3. Replace sealing ring for ATF control screw and screw in ATF control screw. **Tightening torque: 16 ftlb.**
4. Fit underbody panels. 519419 Removing and installing rear trim - installing
5. Lower the vehicle.

997110, 997111, 997120, 997121, 997310, 997311, 997320, 997321, 997410, 997411, 997430, 997431, 997610, 997611, 997620, 997621

as of MY 2005
Country C00, C02, C05, C07, C08, C09, C10, C11, C12, C13, C14, C15, C16, C18, C19, C20, C21, C22, C23, C24, C25, C26, C27, C28, C32, C33, C34, C35, C36, C37, C38, C39, C45, C46, C98, C99

WARNUNG

Gefahr des Verlusts der Text-Bild-Zuordnung beim Ausdruck.

- **Aus technischen Gründen kann derzeit nicht ausgeschlossen werden, dass trotz einwandfreier Darstellung auf dem Bildschirm beim Ausdruck der Zusammenhang von Text und zugehörigem Bild verloren geht.**
- **Wird der Fehler nicht bemerkt, besteht die Gefahr, daß Arbeiten nicht korrekt durchgeführt werden und es dadurch zu Personen- und Sachschäden kommt.**

Vergleichen Sie deshalb nach dem Druckvorgang unbedingt die Ausdrucke mit der Bildschirmdarstellung. Korrigieren Sie die Ausdrucke im Fehlerfall so, daß der Inhalt der Bildschirmdarstellung zutreffend wiedergegeben wird.

WARNING

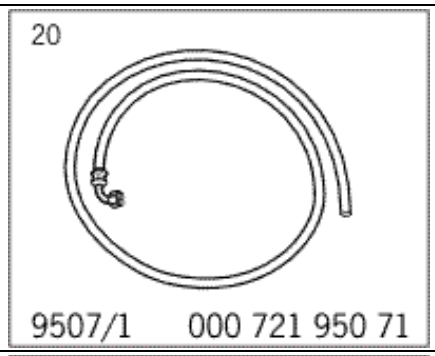
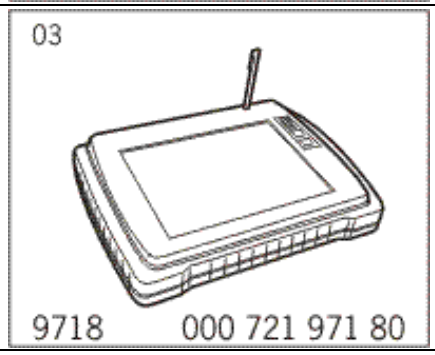
Danger of losing text-figure correspondence when printing out.

- **For technical reasons, it can currently not be ruled out that the correspondence between text and associated figure can be lost when it is printed out, even though the display on the screen is correct.**

37 02 55 Changing ATF - as of MY 2005

- Information
- Technical values
- Preliminary work
- Changing ATF
- Subsequent work

Tools

Designation	Type	Number	Explanation	
Screw connection hose	special tool	95071		
PIWIS Tester	special tool	97180		

top of page

Information

Notes

Note
Fill only with ATF approved by Porsche. See Spare Parts Catalogue.

Note
Hot vehicles should cool down before beginning the activity.

Note
Vehicle must be horizontal in order to be filled and checked.

top of page

Technical values

Filling capacities

Location	Explanation	Type	Basic value	Tolerance 1	Tolerance 2
Automatic transmission		total capacity	9 litre		
Automatic transmission		change quantity	4.5 litre		

top of page

Preliminary work

Preliminary work

1. Raise the vehicle at the prescribed jacking points. *Lifting the vehicle*
2. Remove the underbody panels. 519419 Removing and installing rear trim - removing
3. Place oil collection pan under the transmission.

top of page

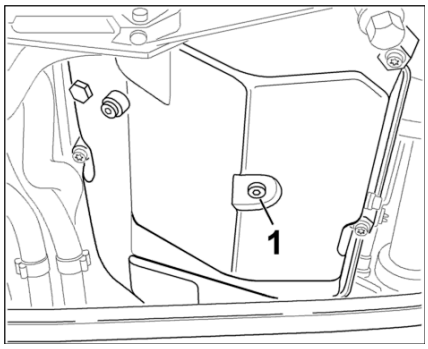
Changing ATF

Draining ATF

ATTENTION
Transmission cannot be filled, or only insufficiently with ATF.

Do not start engine

Do not tow vehicle



ATF - ATF drain screw

WARNING

Danger of scalding and chemical burns from hot ATF

Allow ATF to cool down

Wear personal protective gear (goggles, gloves)

1. Unscrew the drain plug **-1-** and drain the ATF.
2. Replace sealing ring for drain plug and tighten screw. **Tightening torque: 22 (16 ftlb.) Nm** .

Topping up ATF

ATTENTION

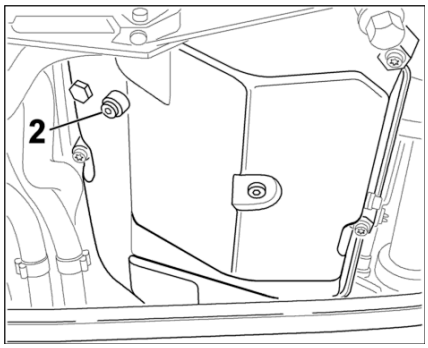
Transmission cannot be filled, or only insufficiently with ATF.

Do not start engine

Do not tow vehicle

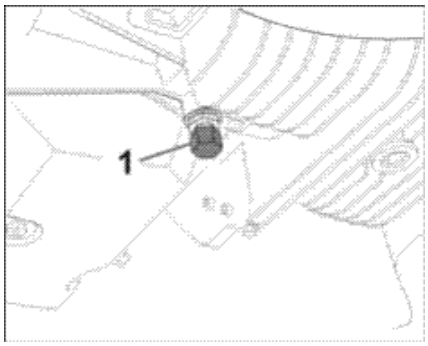
Note

To undo and tighten the cap nut for the charging valve, counter with a ring wrench!



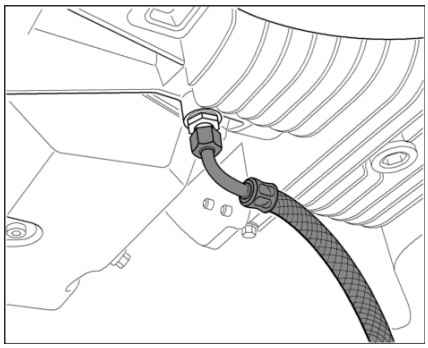
ATF - control screw

1. Unscrew control screw **-2-** .



Cap nut

2. Screw off cap nut **-1-** for the charging valve.



Connection hose onto ATF - charging valve

3. **Screw connection hose 95071** onto charging valve.

WARNING

Danger of scalding and chemical burns from hot ATF

Allow ATF to cool down

Wear personal protective gear (goggles, gloves)

4. Top up ATF via the charging valve until ATF runs out at the control bore.

Checking and topping up the ATF

The transmission must not be in the reduced driving program. The ATF temperature must be between **ATF temperature: 30 degrees Celsius** and **ATF temperature: 40 degrees Celsius** . An ATF inspection when the temperature is too high causes insufficient filling, while an inspection when the temperature is too low causes over-filling. The selector lever must be in position "P" and the engine must be idling. The air conditioning must be switched off. The vehicle must stand horizontally.

Note

The ATF temperature at the start of testing must not be higher than **ATF temperature: 40 gradCelsius** .

1. Connect the **PIWIS Tester 97180** and call up the ATF temperature.
2. Put selector lever in position "P", start vehicle, and allow engine to idle.
3. Top up ATF via the charging valve until ATF runs out at the control bore.
4. With the brake pedal pressed, change through all selector lever positions, remaining in each position for approximately **Time: 10 s** .

WARNING

Danger of scalding and chemical burns from hot ATF

Allow ATF to cool down

Wear personal protective gear (goggles, gloves)

5. Top up with ATF again via the charging valve until ATF runs out at the control bore.

top of page

Subsequent work

Reworking

1. **Unscrew connection hose 95071** from ATF - charging valve.
2. Replace sealing ring for cap nut and screw on cap nut. **Tightening torque: 30 ftlb.**
3. Replace sealing ring for ATF control screw and screw in ATF control screw. **Tightening torque: 16 ftlb.**
4. Fit underbody panels. 519419 Removing and installing rear trim - installing
5. Lower the vehicle.

997110, 997111, 997120, 997121, 997310, 997311, 997320, 997321, 997410, 997411, 997430, 997431,

37 04 19 Removing and installing selector knob - as of MY 2005

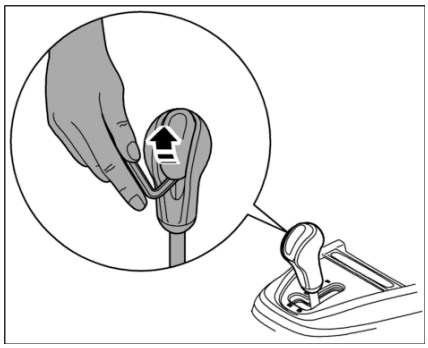
- Removing selector knob
- Installing selector knob

top of page

Removing selector knob

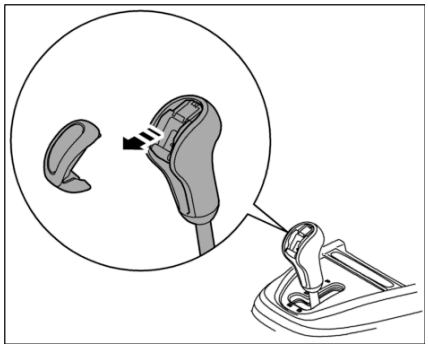
Removing selector knob

Note
The ignition key must be in position 1 before the locking button can be pressed.



Levering locking button off

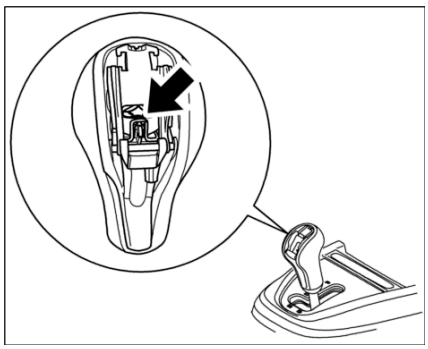
1. Press locking button and release lug under the locking button in direction of travel using an Allen key, for example.



Pulling off locking button

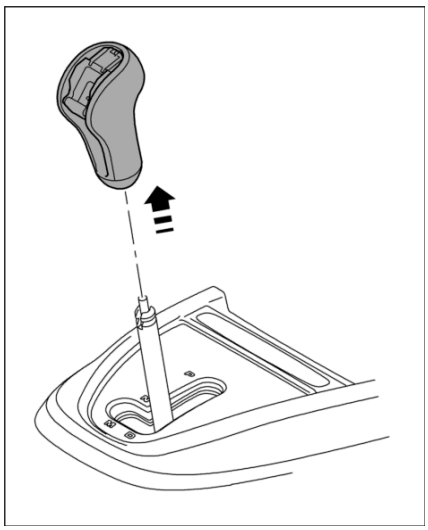
2.

Pull off locking button against the direction of travel.



Detaching spring clip

3. Use a screwdriver to lever the spring clip out of the lock.



Removing selector knob

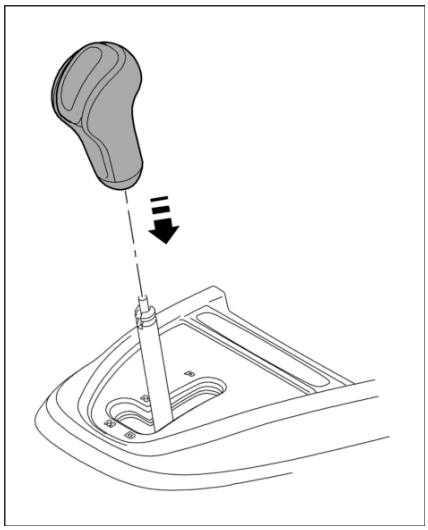
4. Pull selector knob up and off the selector lever.

top of page

Installing selector knob

Installing selector knob

1. Push spring clip all the way back.
2. Fit locking button.



Pushing on selector knob

3. Push complete selector knob over the lock and all the way onto the selector lever.

997110, 997111, 997120, 997121, 997310, 997311, 997320, 997321, 997410, 997411, 997430, 997431, 997610, 997611, 997620, 997621

as of MY 2005
Country C00, C02, C05, C07, C08, C09, C10, C11, C12, C13, C14, C15, C16, C18, C19, C20, C21, C22, C23, C24, C25, C26, C27, C28, C32, C33, C34, C35, C36, C37, C38, C39, C45, C46, C98, C99

WARNUNG

Gefahr des Verlusts der Text-Bild-Zuordnung beim Ausdruck.

- **Aus technischen Gründen kann derzeit nicht ausgeschlossen werden, dass trotz einwandfreier Darstellung auf dem Bildschirm beim Ausdruck der Zusammenhang von Text und zugehörigem Bild verloren geht.**
- **Wird der Fehler nicht bemerkt, besteht die Gefahr, daß Arbeiten nicht korrekt durchgeführt werden und es dadurch zu Personen- und Sachschäden kommt.**

Vergleichen Sie deshalb nach dem Druckvorgang unbedingt die Ausdrucke mit der Bildschirmdarstellung. Korrigieren Sie die Ausdrucke im Fehlerfall so, daß der Inhalt der Bildschirmdarstellung zutreffend wiedergegeben wird.

WARNING

Danger of losing text-figure correspondence when printing out.

- **For technical reasons, it can currently not be ruled out that the correspondence between text and associated figure can be lost when it is printed out, even though the display on the screen is correct.**
- **If the fault is not noticed, there is the danger that work will not be performed correctly which can cause injury and damage.**

37 08 19 Removing and installing selector support - as of MY 2005

- Preliminary work
- Removing selector support
- Installing selector support
- Subsequent work

top of page

Preliminary work

Preliminary work

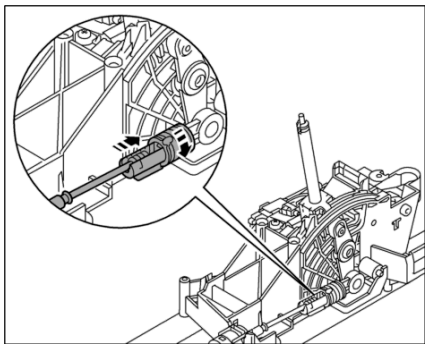
1. Remove selector knob. 370419 Removing and installing selector knob - chapter on "removing"
2. Remove centre console. 681719 Removing and installing centre console - chapter on "removing"

top of page

Removing selector support

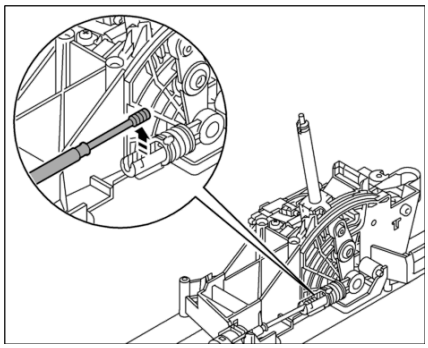
Removing selector frame

1. Move selector lever to position P.



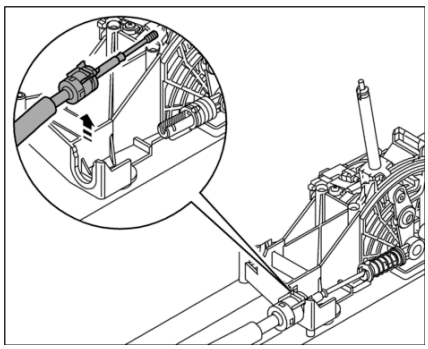
Opening bayonet lock

2. Open bayonet lock.



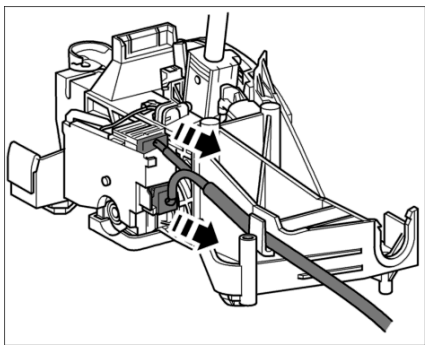
Disengaging the selector cable

3. Detach adjustment pins.



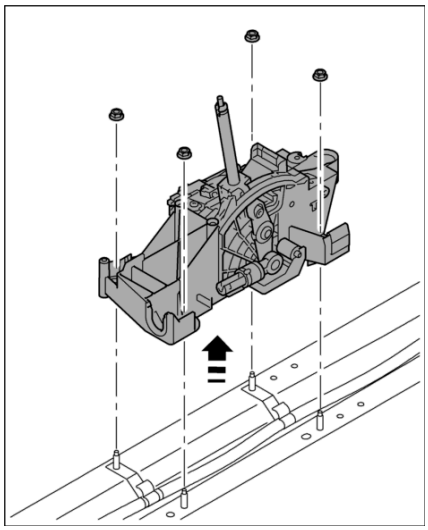
Unclipping support bracket

4. Unclip support bracket at selector frame.



Removing electric plug

5. Disconnect electric plug on selector frame.



Removing selector frame

6. Undo the nuts and lift selector frame up and out.

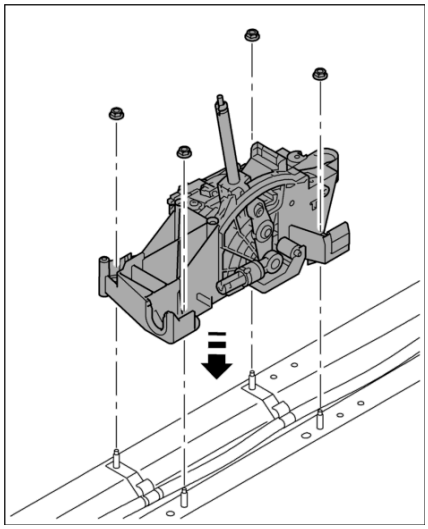
top of page

Installing selector support

Installing selector frame

Note

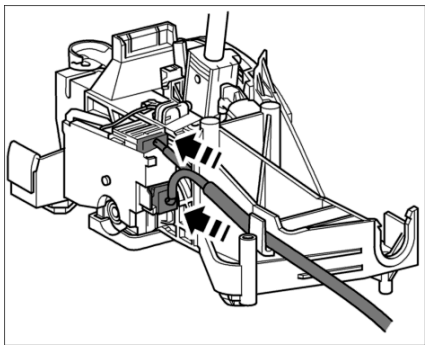
Before starting to install the selector frame, ensure that the transmission and selector frame are in parking position.



Installing selector frame

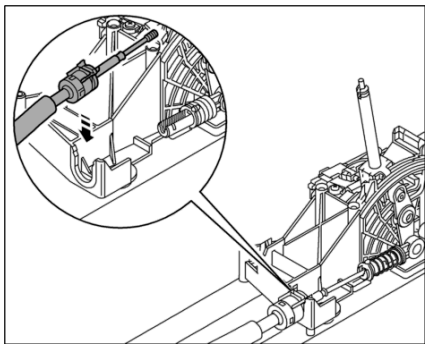
1. Fit selector frame and screw in nuts.

Location	Explanation	Type	Basic value	Tolerance 1	Tolerance 2
Selector frame		Tightening torque	10 (7.5) Nm (ftlb.)		



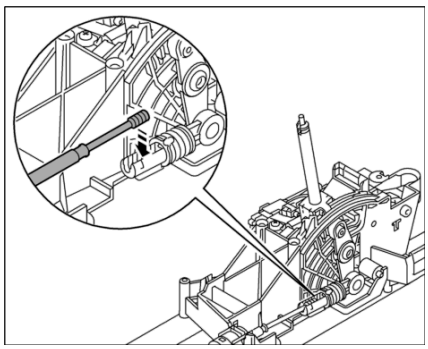
Fitting electric plug

2. Insert electric plug on selector frame.



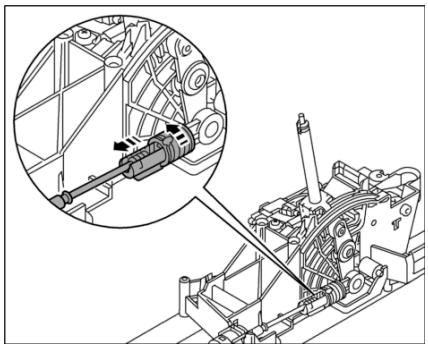
Clipping in support bracket

3. Clip in support bracket at selector frame.



Engaging selector cable

4. Engage adjustment pins.



Closing bayonet lock

5. Close bayonet lock.

top of page

Subsequent work

Subsequent work

1. Install centre console. 681719 Removing and installing centre console - chapter on "installing"
2. Install selector knob. 370419 Removing and installing selector knob - chapter on "installing"

997110, 997111, 997120, 997121, 997310, 997311, 997320, 997321, 997410, 997411, 997430, 997431, 997610, 997611, 997620, 997621

as of MY 2005
Country C00, C02, C05, C07, C08, C09, C10, C11, C12, C13, C14, C15, C16, C18, C19, C20, C21, C22, C23, C24, C25, C26, C27, C28, C32, C33, C34, C35, C36, C37, C38, C39, C45, C46, C98, C99

WARNUNG

Gefahr des Verlusts der Text-Bild-Zuordnung beim Ausdruck.

- **Aus technischen Gründen kann derzeit nicht ausgeschlossen werden, dass trotz einwandfreier Darstellung auf dem Bildschirm beim Ausdruck der Zusammenhang von Text und zugehörigem Bild verloren geht.**
- **Wird der Fehler nicht bemerkt, besteht die Gefahr, daß Arbeiten nicht korrekt durchgeführt werden und es dadurch zu Personen- und Sachschäden kommt.**

Vergleichen Sie deshalb nach dem Druckvorgang unbedingt die Ausdrucke mit der Bildschirmdarstellung. Korrigieren Sie die Ausdrucke im Fehlerfall so, daß der Inhalt der Bildschirmdarstellung zutreffend wiedergegeben wird.

WARNING

37 15 19 Removing and installing selector lever cable - as of MY 2005

- Preliminary work
- Removing selector lever cable
- Installing selector lever cable
- Subsequent work

top of page

Preliminary work

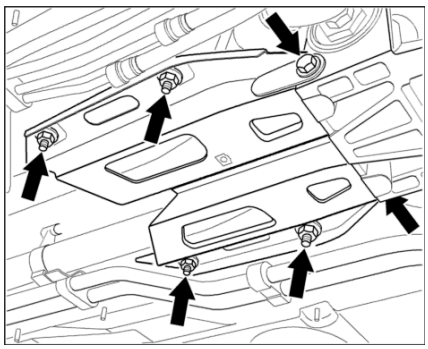
Preliminary work

1. Move selector lever to position P.
2. Raise the vehicle at the prescribed jacking points. *Raising the vehicle*
3. Remove underbody panel. 519419 Removing and installing the rear cover - removing *519320 21 Removing and installing the middle cover - removing*

top of page

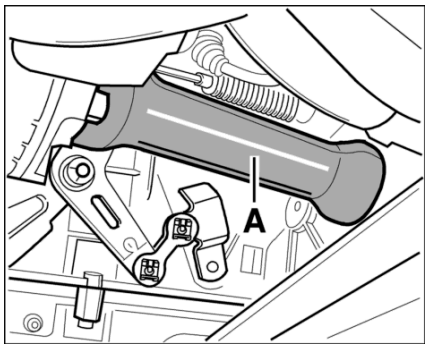
Removing selector lever cable

Removing selector lever cable from transmission



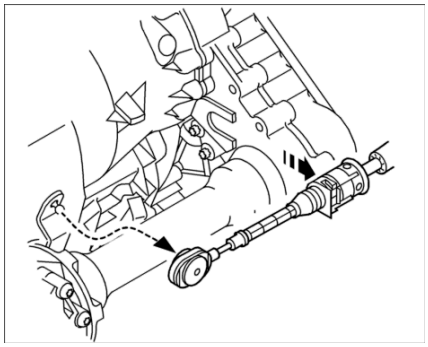
Transmission support

1. Remove transmission support.



Pinion shaft cover

2. Remove plastic cover **-A-** around pinion shaft.

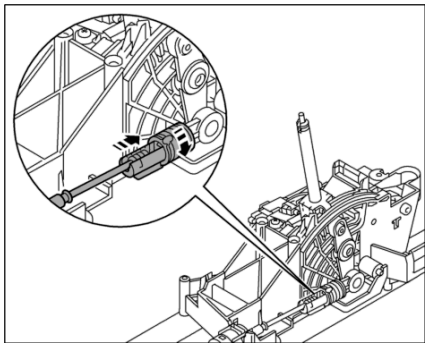


Disengaging selector lever cable

3. Lever off selector lever cable on transmission control with a screwdriver and disengage selector lever cable from support.

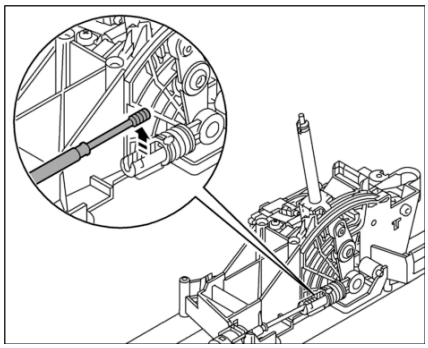
Detaching selector lever cable inside vehicle

1. Remove selector knob. 370419 Removing and installing selector knob - chapter on "removing"
2. Remove centre console. 681719 Removing and installing centre console - chapter on "removing"
3. Loosen parking-brake lever. *466119 21 Removing and installing parking-brake lever - chapter on "Removing"*



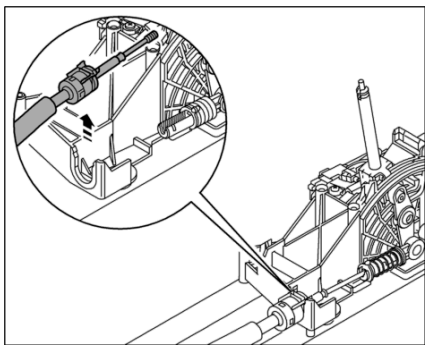
Bajonettverschluss öffnen

4. Open bayonet lock.



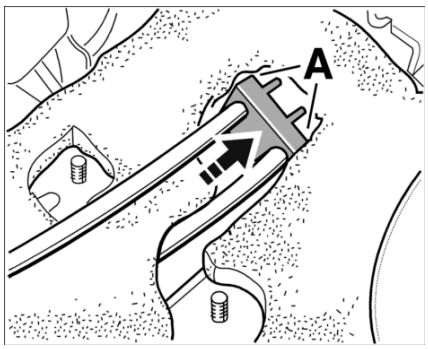
Disengaging the selector cable

5. Detach adjustment pins.



Widerlager ausklipsen

6. Unclip support bracket at selector frame.



Rubber sleeve

7. Bend up the tabs **-A-** at the body opening and push the rubber sleeve outward through the body opening.

top of page

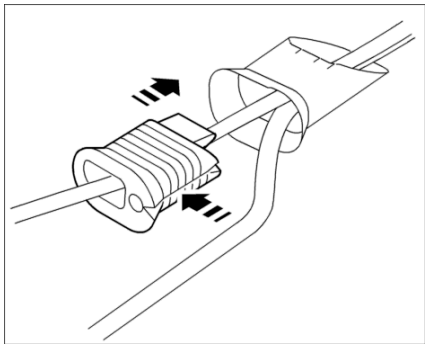
Installing selector lever cable

Fastening selector lever cable on transmission

Note

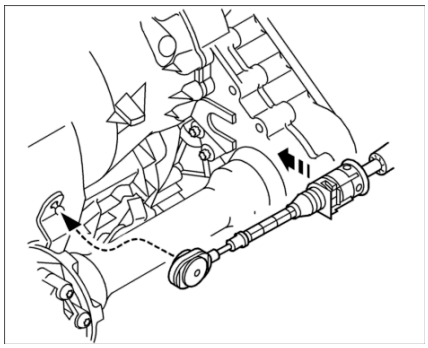
The selector lever cable must be layed above the intermediate carrier.

1. Push cable through the body opening from below.



Rubber sleeve in body opening

2. Apply a coating of lubricant (e.g. Contifix tyre mounting paste) on the rubber sleeve and B+ wiring in the area of the body opening, insert the B+ wiring in the rubber sleeve and press rubber sleeve into the body opening.

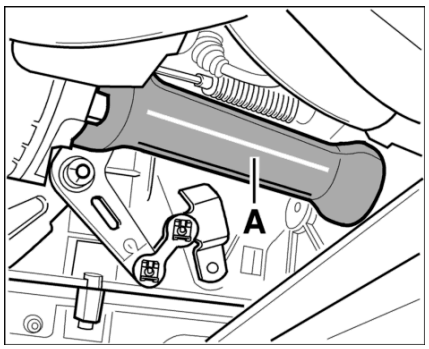


Engaging selector lever cable on transmission

Note

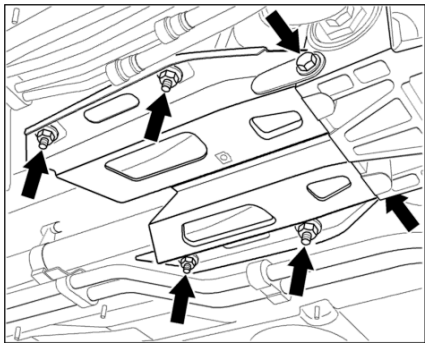
During installation, make sure the selector lever on the transmission is in position P (stop to the rear).

3. Clip selector lever cable into support on transmission and press end piece of selector lever onto transmission.



Pinion shaft cover

4. Fit plastic cover **-A-** around pinion shaft.

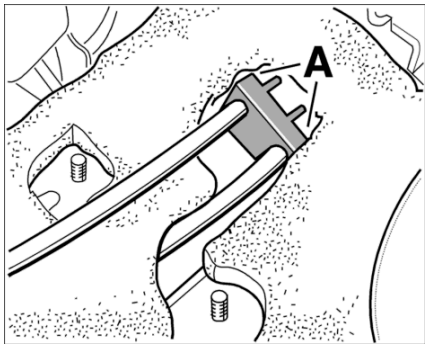


Transmission support

5. Fit transmission support.

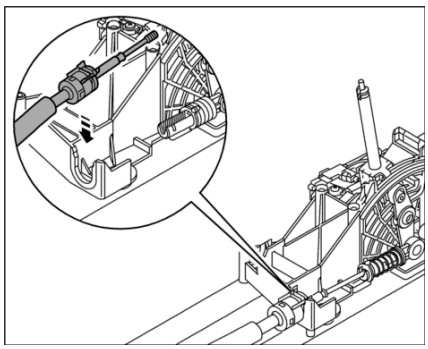
Location	Explanation	Type	Basic value	Tolerance 1	Tolerance 2
Transmission support		Tightening torque	48 ftlb.		

Securing selector lever cable inside vehicle



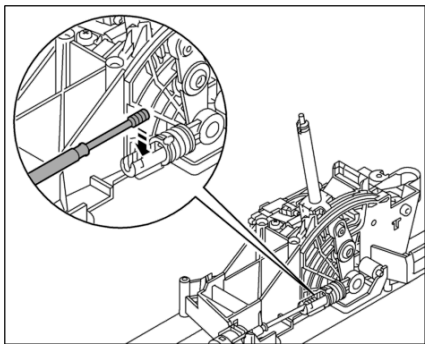
Tab

1. Bend tabs **-A-** at body opening down.



Clipping in support bracket

2. Clip in support bracket at selector frame.

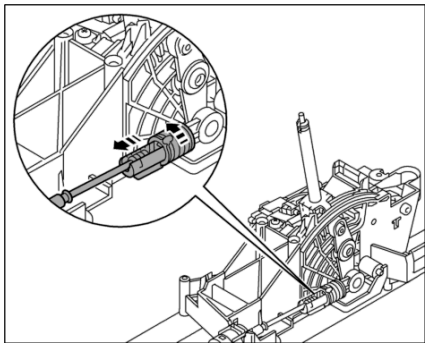


Engaging selector cable

Note

During installation, make sure that the selector lever is in position P on the selector frame and transmission.

3. Engage adjustment pins.



Closing bayonet lock

4. Close bayonet lock.

top of page

Subsequent work

Subsequent work

1. Fasten parking-brake lever. *466119 23 Removing and installing parking-brake lever - chapter on "Installing"*
2. Install centre console. 681719 Removing and installing centre console - chapter on "installing"
3. Install selector knob. 370419 Removing and installing selector knob - chapter on "installing"
4. Install underbody panel. 519319 Removing and installing centre underbody panel - chapter on "installing" 519419 Removing and installing rear cover - chapter on "installing"
5. Lower the vehicle.
6. Switch through all transmission ranges and check operation.

37 18 20 Removing and installing Tiptronic rocker switch - as of MY 2005

- Preliminary work
- Removing Tiptronic rocker switch
- Installing Tiptronic rocker switch
- Subsequent work

top of page

Preliminary work

Preliminary work

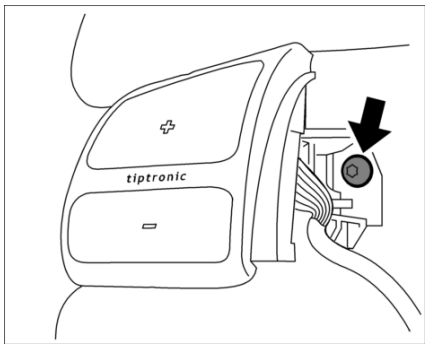
1. Remove driver's airbag unit. 695819 Removing and installing driver's airbag unit - section on "Removing"

top of page

Removing Tiptronic rocker switch

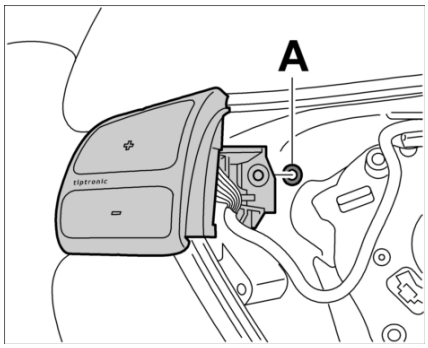
Removing Tiptronic rocker switch

The graphics below show how to remove the left rocker switch. The description also applies for the right rocker switch.



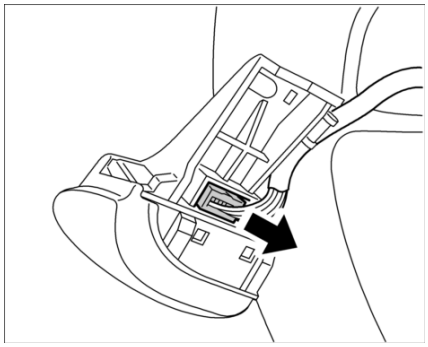
Rocker switch fastening screw

1. Unscrew fastening screw for rocker switch.



Rocker switch

2. Carefully lever out rocker switch using a screwdriver. Watch out for the washer **-A-** when levering out the rocker switch.



Pull out electric plug

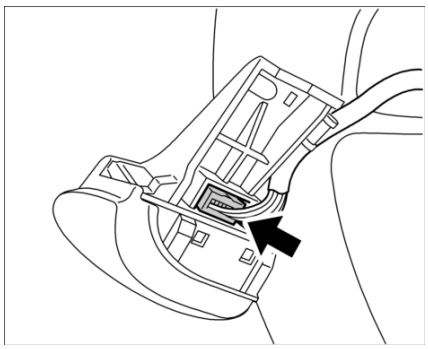
3. Unlock and disconnect the electric plug connection.

top of page

Installing Tiptronic rocker switch

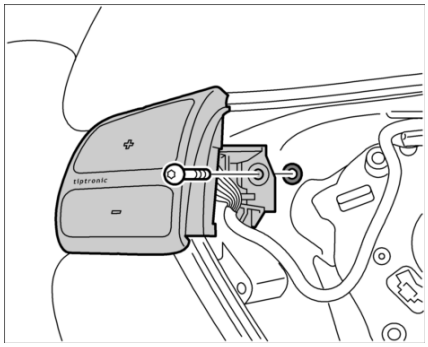
Installing Tiptronic rocker switch

The graphics below show how to install the left rocker switch. The description also applies for the right rocker switch.



Inserting electric plug

1. Insert electric plug connection into rocker switch until the plug engages firmly.



Fitting rocker switch

2. Insert rocker switch and washer into steering wheel and screw in fastening screw.

Location	Explanation	Type	Basic value	Tolerance 1	Tolerance 2
Fastening screw	Fastening screw between rocker switch and steering wheel	Tightening torque	3 (2 ftlb.) Nm		

top of page

Subsequent work

Subsequent work

1. Install driver's airbag unit. 695819 Removing and installing driver's airbag unit - section on "Installing"

997110, 997111, 997120, 997121, 997310, 997311, 997320, 997321, 997410, 997411, 997430, 997431, 997610, 997611, 997620, 997621

as of MY 2005
Country C00, C02, C05, C07, C08, C09, C10, C11, C12, C13, C14, C15, C16, C18, C19, C20, C21, C22, C23, C24, C25, C26, C27, C28, C32, C33, C34, C35, C36, C37, C38, C39, C45, C46, C98, C99

WARNUNG

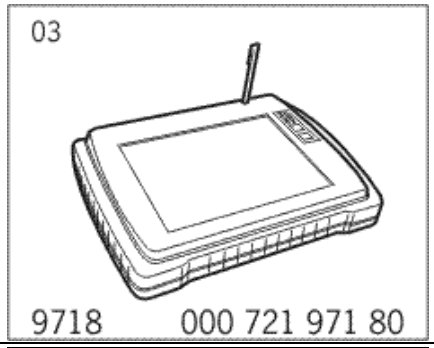
Gefahr des Verlusts der Text-Bild-Zuordnung beim Ausdruck.

- **Aus technischen Gründen kann derzeit nicht ausgeschlossen werden, dass trotz einwandfreier Darstellung auf dem Bildschirm beim Ausdruck der Zusammenhang von Text und zugehörigem Bild verloren geht.**
- **Wird der Fehler nicht bemerkt, besteht die Gefahr, daß Arbeiten nicht korrekt durchgeführt werden und es dadurch zu Personen- und Sachschäden kommt.**

37 30 19 Removing and installing the Tiptronic control module - as of MY 2005

- Preliminary work
- General warning notes
- Removing Tiptronic control module
- Installing Tiptronic control module
- Subsequent work
- Programming Tiptronic control module
- Coding Tiptronic control module

Tools

Designation	Type	Number	Explanation	
PIWIS tester	special tool	9718		
Disassembly tool, universal	commercially available tool	NR.21		

top of page

Preliminary work

Preliminary work for Tiptronic control module (also referred to generally as control unit below)

Remove right front seat. 720119 Removing and installing front seat - chapter on "removing" [997110 997120 997310 997320 997410 997430 997610 997620] 720119 Removing and installing front seat - chapter on "removing" [997111 997121 997311 997321 997411 997431 997611 997621]
Remove rear side trim panel on the right. 707519 Removing and installing rear side trim panel - chapter on "removing" [997310 997311 997320 997321 997610 997611 997620 997621] 707519 Removing and

installing rear side trim panel - chapter on "removing" [997110 997111 997120 997121 997410 997411 997430 997431]
Remove right scuff plate. 680519 Removing and installing inner door sill trim - chapter on "removing"

top of page

General warning notes

General warning notes for control units

WARNING
Sudden voltage interruption of the power supply to the control module.

- **Destruction of the control module.**

During programming, it is essential to guarantee the power supply for the Porsche System tester. It is essential to connect a battery charger with a current rating of at least 40 A to the vehicle battery.
Prior to disconnecting the control module, switch off the ignition and remove the ignition key.

top of page

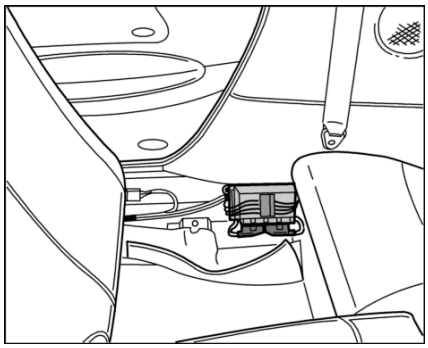
Removing Tiptronic control module

Removing Tiptronic control module (also referred to generally as control unit below)

WARNING
Sudden voltage interruption of the power supply to the control module.

- **Destruction of the control module.**

During programming, it is essential to guarantee the power supply for the Porsche System tester. It is essential to connect a battery charger with a current rating of at least 40 A to the vehicle battery.
Prior to disconnecting the control module, switch off the ignition and remove the ignition key.

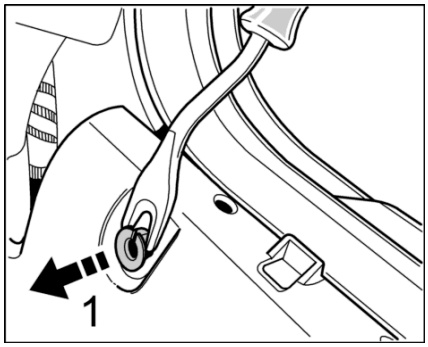


Installation position

Note

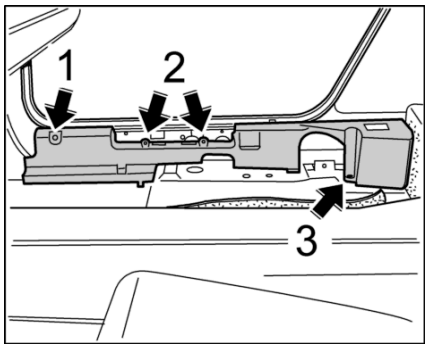
- *The control unit is located in the passenger compartment on the right at the B-pillar in front of the rear seat well.*
- *The ignition key must be removed before starting the assembly work.*
- *If the Tiptronic control module is replaced, observe the points under programming/coding the control unit. 373019 Removing and installing transmission control module - chapter on "programming", 373019 Removing and installing transmission control module - chapter on "coding"*

1. Unscrew lower fastening screw for the seat belt.
2. Disengage floor covering at the support and lay it in the vehicle interior.



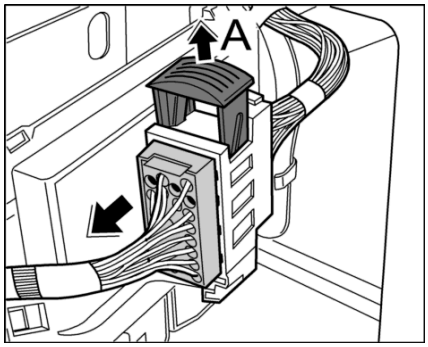
Unlocking locating peg using the removal tool

3. Unlock locating peg **-1-** of the support using the commercially available removal tool **Disassembly tool, universal NR.21**.



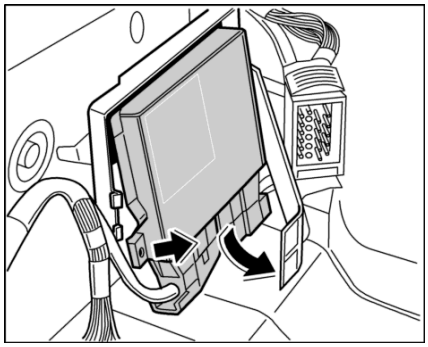
Unscrewing fastening screws

4. Unscrew fastening screws **-2-** and nuts **-3-** and carefully pull the support up and out of the retaining points.



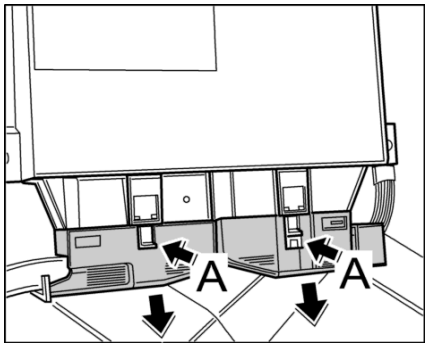
Releasing electrical plug connection

5. Unlock and disconnect the electrical plug connection.



Disengaging retaining clip

6. Disengage retaining clip **-4-** .
7. Pull control unit out of the support and pull it down and out at an angle.



Releasing electrical connector

8. Press locking tabs **-A-** and disconnect plug connections from the control unit.

top of page

Installing Tiptronic control module

Installing Tiptronic control unit (also referred to generally as control unit below)

WARNING

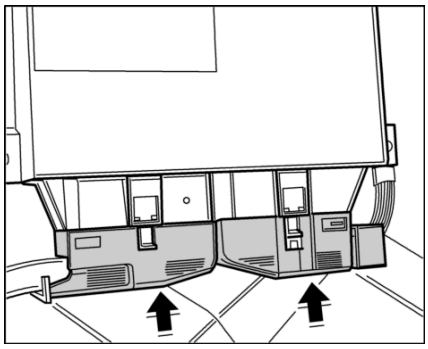
Sudden voltage interruption of the power supply to the control module.

- **Destruction of the control module.**

During programming, it is essential to guarantee the power supply for the Porsche System tester. It is essential to connect a battery charger with a current rating of at least 40 A to the vehicle battery.

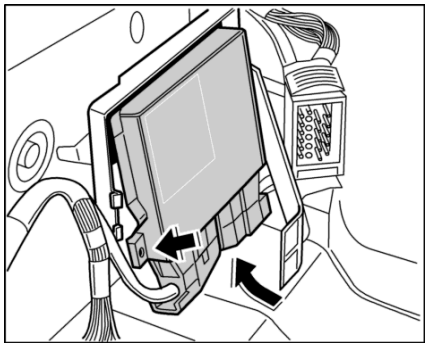
Prior to disconnecting the control module, switch off the ignition and remove the ignition key.

1. Switch ignition off and remove ignition key.



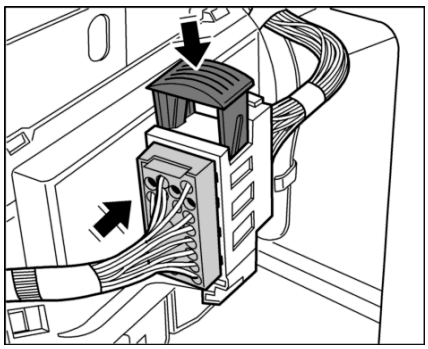
Connecting electrical plug connection

2. Connect the electric plug connection.



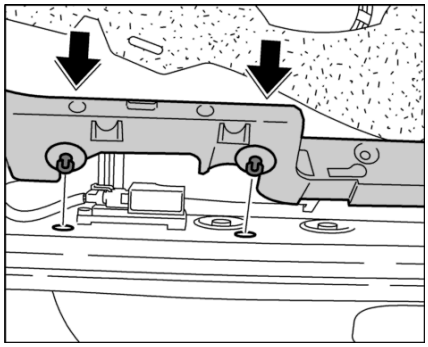
Inserting control unit into support

3. Insert control unit into the support and engage retaining clip.



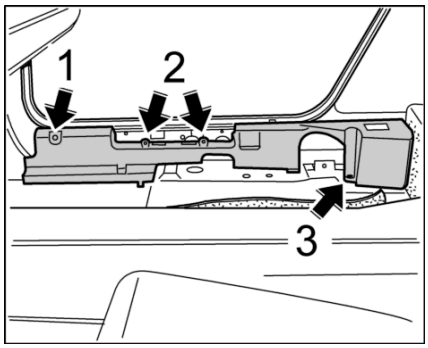
Connecting electric plug connection

4. Connect and lock the electric plug connection.



Engaging the support

5. Position the support and engage in lower side member.



Fastening the support

6. Push in the locating peg **-1-** of the support and check it is seated correctly.
7. Tighten the fastening nut **-3-** and fastening screws **-2-** . **Tightening torque: 5.5 ftlb.**
8. Lay the floor covering over the support and engage.

top of page

Subsequent work

Subsequent work for Tiptronic control module (also referred to generally as control unit below)

If a new control unit has been installed, it must be programmed/coded. 373019 Removing and installing transmission control module - chapter on "programming"; 373019 Removing and installing transmission control module - chapter on "coding"
Insert scuff plate. 680519 Removing and installing inner door sill trim - chapter on "installing"
Install rear side trim panel on the right. 707519 Removing and installing rear side trim panel - chapter on "installing" [997310 997311 997320 997321 997610 997611 997620 997621] 707519 Removing and installing rear side trim panel - chapter on "installing" [997110 997111 997120 997121 997410 997411 997430 997431]
Install front seat. *720123 23 Removing and installing front seat - chapter on "installing"*

top of page

Programming Tiptronic control module

Reading out from and writing in to the Tiptronic control unit (also referred to generally as control unit below)

WARNING
Sudden voltage interruption of the power supply to the control module.

- **Destruction of the control module.**

During programming, it is essential to guarantee the power supply for the Porsche System tester. It is essential to connect a battery charger with a current rating of at least 40 A to the vehicle battery.

Prior to disconnecting the control module, switch off the ignition and remove the ignition key.

Note
The **PIWIS tester 9718** instructions take precedence and in the event of a discrepancy these are the instructions that must be followed. Deviations may occur with later software versions.
The procedure described here has been structured in general terms; different text or additions may appear in the **PIWIS tester 9718**.

1. Connect the Porsche System Tester to the vehicle and start the System Tester. Switch on ignition. >> Continue.

2. Select vehicle type using the cursor keys.
3. Switch from the vehicle type to the list of control units.
4. Select **Tiptronic** with the cursor keys and press the >> key.
5. Select **Control unit replacement** with the cursor keys and press the >> key.
6. Select **Read out values** (codings) with the cursor keys and press >> .
7. The message **Codes successfully read out** appears on the screen of the Porsche System Tester. Press >> .
8. Switch off ignition and replace control module. 373019 Removing and installing transmission control module - chapter on "Removing"
9. Switch on ignition. Switch to the **Special functions** menu and perform the **vehicle handover** using the F8 key.
10. In the **Special functions** menu, erase **All fault memories** by pressing >> .

In the menu **Write in data** >> the data read-out are installed.

11. System Tester displays **Coding write-in complete** >> .
12. If the control module has been installed in another vehicle it will be necessary, as of tester software 8.0, to **Reset adaption values**:

12.1. In the menu **Tiptronic**, select the menu **Reset adaption values** and continue with >> .

12.2. Confirm with F7 for Yes, F8 for No and continue with >> .

12.3. Follow the instructions on the tester.

13. Exit the menu, carry out a test drive and afterwards read out the fault memory.

top of page

Coding Tiptronic control module

Coding Tiptronic control unit

Note

The procedure described must be applied when a control unit has to be replaced and the tester function **Control unit replacement** cannot be used.

Note

- *When the transmission is renewed/replaced, the adaptation values must be reset using the **PIWIS tester 9718**. It is expected that this function will not be implemented until tester software V8.0 is available:*
- ***Resetting adaptation values:***

Reading out from and writing in to the Tiptronic control unit (also referred togenerally as control unit below)

- *In the Tiptronic control module, select menu item **Reset adaptation values** and continue with >> .*
- *Confirm with F7 for Yes, F8 for No and continue with >> .*
- *Follow the instructions on the Tester.*
- *If a new control unit is installed, it must adapt first. Poor shifting quality can therefore be expected in the adaptation phase.*
- *After the test drive, let the engine run for 10 minutes at idle speed. This ensures that all adaptation values are stored in the control unit.*
- *The instructions of the Porsche System Tester have highest priority.*
- *The procedure listed has been structured generally; changes or additions may occur.*

WARNING

Sudden voltage interruption of the power supply to the control module.

- **Destruction of the control module.**

During programming, it is essential to guarantee the power supply for the Porsche System tester. It is essential to connect a battery charger with a current rating of at least 40 A to the vehicle battery.

Prior to disconnecting the control module, switch off the ignition and remove the ignition key.

1. Connect the **PIWIS tester 9718** to the vehicle and start it. Switch on the ignition. >> Continue.
2. Select the **vehicle type**.
3. Switch to the **Special functions** menu and perform the **vehicle handover** using the F8 key.
4. In the **Special functions** menu, erase **All fault memories** by pressing >> .
5. Carry out automatic search of control units.
6. Select **Tiptronic** with the cursor keys and press the >> key.
7. Select **Coding** with the cursor keys and press the >> key.
8. Select Vehicle version and code with the F8 key.

South East Asia
Japan
RoW/USA

9. Tester confirms: "Coding has been changed" .
10. If the control module has been installed in another vehicle it will be necessary, as of tester software 8.0, to **Reset adaption values**:

10.1. In the menu **Tiptronic**, select the menu **Reset adaption values** and continue with >> .

10.2. Confirm with F7 for Yes, F8 for No and continue with >> .

10.3. Follow the instructions on the tester.

11. Quit menu, perform test drive and check fault memory with the system tester.

997110, 997111, 997120, 997121, 997310, 997311, 997320, 997321, 997410, 997411, 997430, 997431, 997610, 997611, 997620, 997621

as of MY 2005
Country C00, C02, C05, C07, C08, C09, C10, C11, C12, C13, C14, C15, C16, C18, C19, C20, C21, C22, C23, C24, C25, C26, C27, C28, C32, C33, C34, C35, C36, C37, C38, C39, C45, C46, C98, C99

WARNUNG

Gefahr des Verlusts der Text-Bild-Zuordnung beim Ausdruck.

- **Aus technischen Gründen kann derzeit nicht ausgeschlossen werden, dass trotz einwandfreier Darstellung auf dem Bildschirm beim Ausdruck der Zusammenhang von Text und zugehörigem Bild verloren geht.**
- **Wird der Fehler nicht bemerkt, besteht die Gefahr, daß Arbeiten nicht korrekt durchgeführt werden und es dadurch zu Personen- und Sachschäden kommt.**

Vergleichen Sie deshalb nach dem Druckvorgang unbedingt die Ausdrucke mit der Bildschirmdarstellung. Korrigieren Sie die Ausdrucke im Fehlerfall so, daß der Inhalt der Bildschirmdarstellung zutreffend wiedergegeben wird.

WARNING

Danger of losing text-figure correspondence when printing out.

- **For technical reasons, it can currently not be ruled out that the correspondence between text and associated figure can be lost when it is printed out, even though the display on the screen is correct.**
- **If the fault is not noticed, there is the danger that work will not be performed correctly which can cause injury and damage.**

Therefore, always compare printouts with the screen display after printing them out. Correct the printouts if they are faulty so that the content of the screen display matches that on the printouts.

AVERTISSEMENT

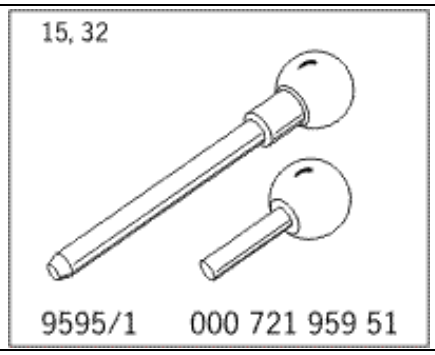
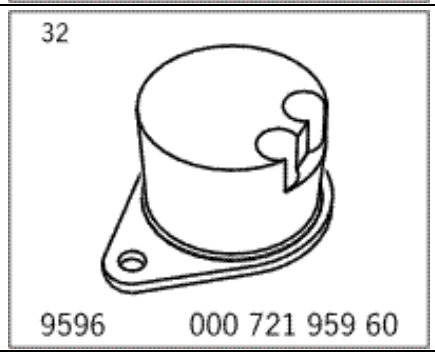
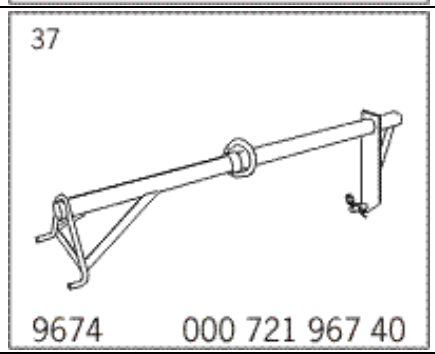
Risque de perte de la correspondance texte-illustration lors de l'impression papier.

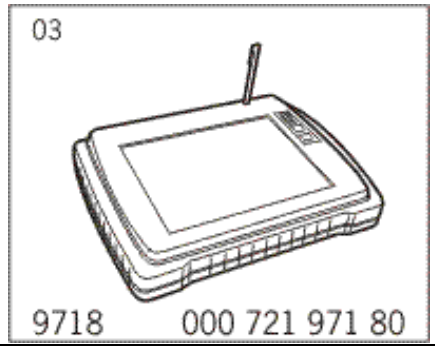
- **Pour des raisons techniques, il ne peut pas être exclu à l'heure actuelle que, même en cas d'affichage correct à l'écran, la correspondance entre le texte et l'illustration puisse être erronée sur l'impression papier.**
- **Si l'erreur passe inaperçue, on court le risque d'exécuter certaines opérations de manière incorrecte pouvant conduire à des dommages corporels et matériels.**

37 35 27 Removing and refitting the automatic transmission - as of MY 2005

- Information
- Preliminary work
- Removing the automatic transmission
- Refitting the automatic transmission
- Reworking

Tools

Designation	Type	Number	Explanation	
fixing pin	special tool	95951		
assembly aid	special tool	95960		
holder	special tool	96740		
PIWIS Tester	special tool	97180		

top of page

Information

Notes

Note
When installing a new or replacement transmission, the adaptation values must be reset with the **PIWIS Tester 97180**. The shifting quality can be affected during the adaptation phase of the transmission control module.

top of page

Preliminary work

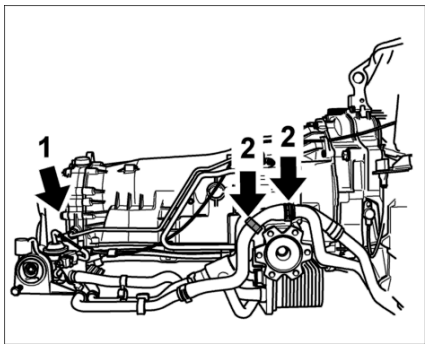
Preliminary work

Remove engine-transmission unit. 100119 Removing and installing engine - "Removing" section
Remove the starter. 276019 Removing and installing starter - removing

top of page

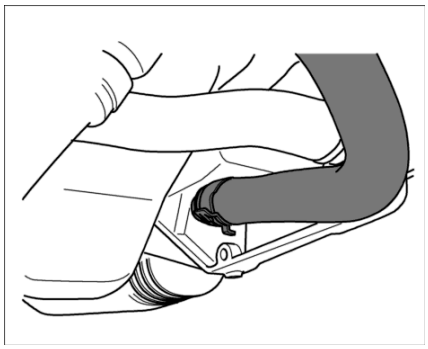
Removing the automatic transmission

Disassembly work



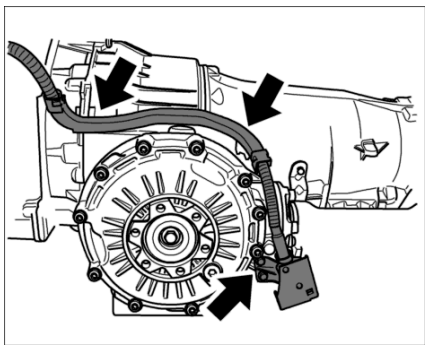
Vacuum and coolant lines

1. Pull off vacuum line from flat-seat valve **-1-** and pull out vacuum line from guides on transmission.
2. Unclip coolant lines from holders **-2-** on transmission.



Coolant hose on ATF cooler

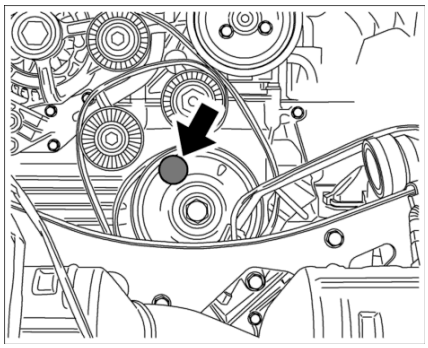
3. Loosen hose clamp and pull off coolant hose from supports on ATF cooler.



Electric cable in cable guide

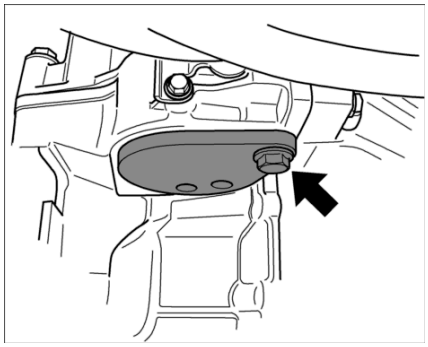
4. Unscrew fastening screws and loosen cable guide from transmission.

Releasing torque converter



Fixing pin for crankshaft

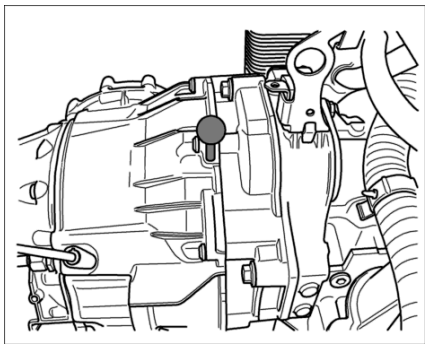
1. Turn engine clockwise until one of the bores (U4, U5, or U6, marked on belt pulley) in the belt pulley is aligned with the centring bore in the crankcase and **fixing pin 95951** (short) can be inserted.



Assembly aid for converter screw

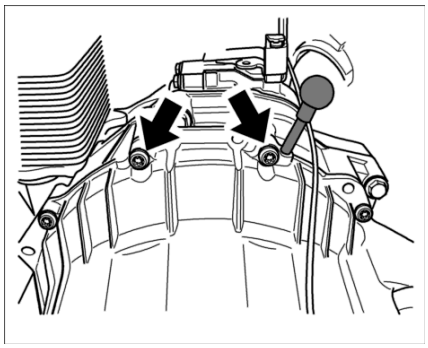
2. Insert **assembly aid 95960** in starter opening and fix with screw.
3. Unscrew 2 screws (hexagon socket 6 mm) of converter screw through openings in **assembly aid 95960**.
4. Remove **fixing pins 95951** (short), continue to turn engine clockwise 120° and insert **fixing pins 95951** (short) again.
5. Unscrew 2 screws (hexagon socket 6 mm) of converter screw through openings in **assembly aid 95960**.
6. Remove **fixing pins 95951** (short), continue to turn engine clockwise 120° and insert **fixing pins 95951** (short) again.
7. Unscrew 2 screws (hexagon socket 6 mm) of converter screw through openings in **assembly aid 95960**.
8. Remove **fixing pins 95951** (short).
9. Remove **assembly aid 95960**.

Removing the automatic transmission



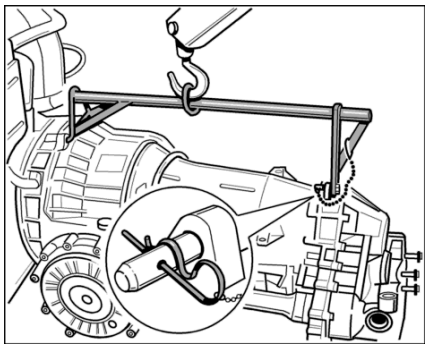
Fixing pin for converter screw

1. Insert **fixing pins 95951** (long) through converter bell housing, fixing converter in its position.



Transmission screws for holder

2. Unscrew 2 fastening screws.



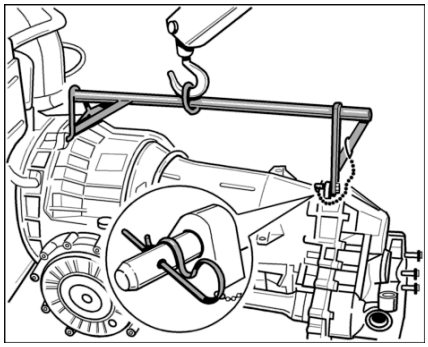
Transmission on holder

3. Fit **holder 96740** on transmission, secure with cotter pin and suspend transmission on workshop crane.
4. Unscrew remaining 6 connecting bolts between transmission and converter housing and remove transmission.

top of page

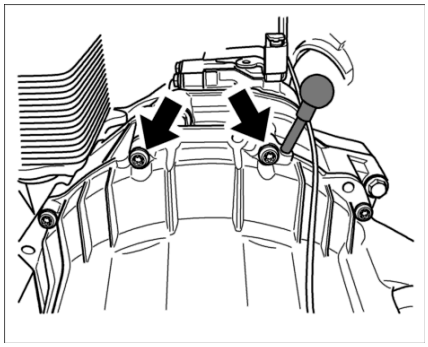
Refitting the automatic transmission

Refitting the automatic transmission



Transmission on holder

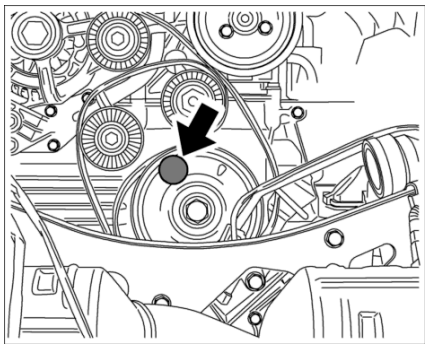
1. Fit **holder 96740** on transmission, secure with cotter pin and suspend transmission on workshop crane.
2. Refit transmission and screw in 6 connecting bolts. **Tightening torque: 17 ftlb.**
3. Disengage **holder 96740** from workshop crane and remove from transmission.



Transmission screws for holder

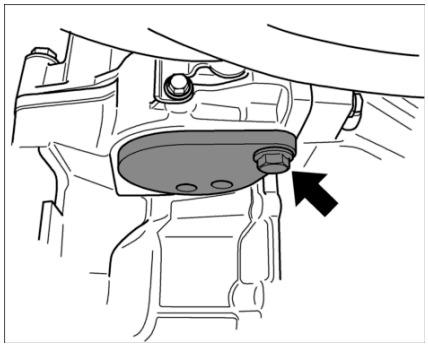
4. Screw in remaining 2 fastening screws. **Tightening torque: 17 ftlb.**
5. Remove **fixing pins 95951** (long) from converter bell housing.

Fastening torque converter



Fixing pin for crankshaft

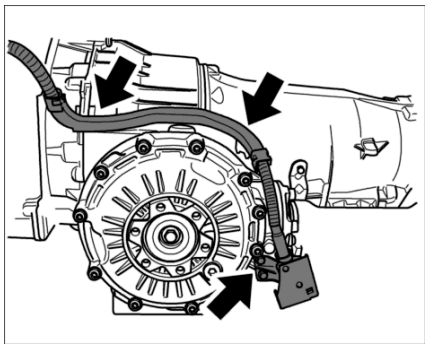
1. Turn engine clockwise until one of the bores (U4, U5, or U6, marked on belt pulley) in the belt pulley is aligned with the centring bore in the crankcase and **fixing pin 95951** (short) can be inserted.



Assembly aid for converter screw

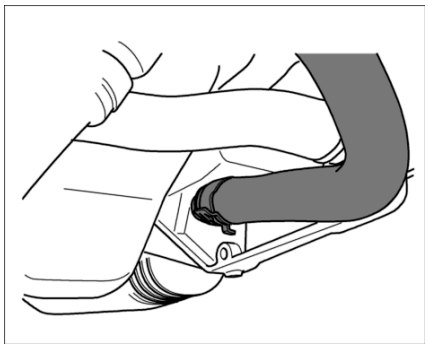
2. Insert **assembly aid 95960** in starter opening and fix with screw.
3. Screw in 2 screws of converter screw through openings in **assembly aid 95960**. Insert **Tightening torque : 29 ftlb.**
4. Remove **fixing pins 95951** (short), continue to turn engine clockwise 120° and insert **fixing pins 95951** (short) again.
5. Screw in 2 screws of converter screw through openings in **assembly aid 95960**. Insert **Tightening torque : 29 ftlb.**
6. Remove **fixing pins 95951** (short), continue to turn engine clockwise 120° and insert **fixing pins 95951** (short) again.
7. Screw in 2 screws of converter screw through openings in **assembly aid 95960**. Insert **Tightening torque : 29 ftlb.**
8. Remove **fixing pins 95951** (short).
9. Remove **assembly aid 95960**.

Assembly work



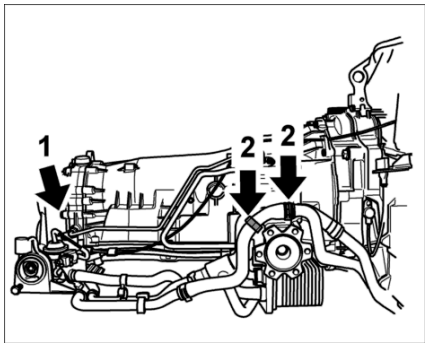
Electric cable in cable guide

1. Screw in fastening screws and clip in cable guide in transmission. **Tightening torque: 7.5 ftlb.**



Coolant hose on ATF cooler

2. Position coolant hose on flanges of ATF cooler and fit hose clamp.



Vacuum and coolant lines

3. Insert vacuum line in guides on transmission and connect vacuum line to flat-seat valve **-1-** .
4. Clip coolant lines in holders **-2-** to transmission.

top of page

Reworking

Reworking

Install the starter. 276019 Removing and installing starter - installing
Install engine-transmission unit. 100119 Removing and installing engine - "Installing" section

---

997110, 997111, 997120, 997121, 997310, 997311, 997320, 997321

as of MY 2005
Country C00, C02, C05, C07, C08, C09, C10, C11, C12, C13, C14, C15, C16, C18, C19, C20, C21, C22, C23, C24, C25, C26, C27, C28, C32, C33, C34, C35, C36, C37, C38, C39, C45, C46, C98, C99

WARNUNG

Gefahr des Verlusts der Text-Bild-Zuordnung beim Ausdruck.

- **Aus technischen Gründen kann derzeit nicht ausgeschlossen werden, dass trotz einwandfreier Darstellung auf dem Bildschirm beim Ausdruck der Zusammenhang von Text und zugehörigem Bild verloren geht.**
- **Wird der Fehler nicht bemerkt, besteht die Gefahr, daß Arbeiten nicht korrekt durchgeführt werden und es dadurch zu Personen- und Sachschäden kommt.**

Vergleichen Sie deshalb nach dem Druckvorgang unbedingt die Ausdrucke mit der Bildschirmdarstellung. Korrigieren Sie die Ausdrucke im Fehlerfall so, daß der Inhalt der Bildschirmdarstellung zutreffend wiedergegeben wird.

WARNING

Danger of losing text-figure correspondence when printing out.

- **For technical reasons, it can currently not be ruled out that the correspondence between text and associated figure can be lost when it is printed out, even though the display on the screen is correct.**
- **If the fault is not noticed, there is the danger that work will not be performed correctly which can cause injury and damage.**

Therefore, always compare printouts with the screen display after printing them out. Correct the printouts if they are faulty so that the content of the screen display matches that on the printouts.

AVERTISSEMENT

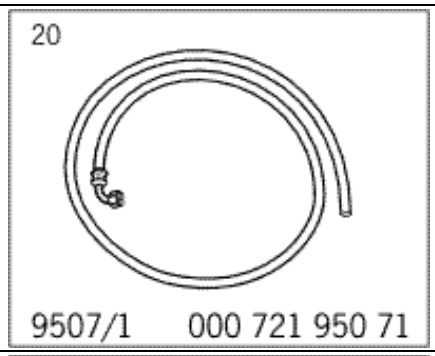
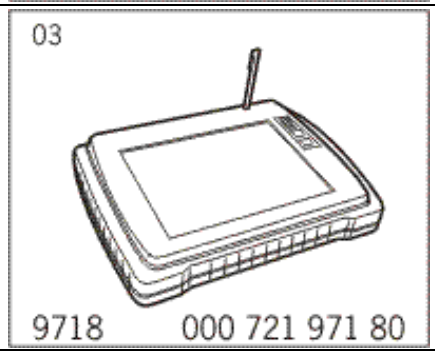
Risque de perte de la correspondance texte-illustration lors de l'impression papier.

- **Pour des raisons techniques, il ne peut pas être exclu à l'heure actuelle que, même en cas d'affichage correct à l'écran, la correspondance entre le texte et l'illustration puisse être erronée sur l'impression papier.**
- **Si l'erreur passe inaperçue, on court le risque d'exécuter certaines opérations de manière incorrecte pouvant conduire à des dommages corporels et matériels.**

37 55 19 Removing and installing ATF pan - as of MY 2005

- Information
- Technical values
- Preliminary work
- Removing ATF pan
- Installing ATF pan
- Reworking

Tools

Designation	Type	Number	Explanation	
Screw connection hose	special tool	95071		
PIWIS Tester	special tool	97180		

top of page

Information

Notes

Note

Fill only with ATF approved by Porsche. See Spare Parts Catalogue.

Note
Hot vehicles should cool down before beginning the activity.

Note
Vehicle must be horizontal in order to be filled and checked.

top of page

Technical values

Filling capacities

Location	Explanation	Type	Basic value	Tolerance 1	Tolerance 2
Automatic transmission		total capacity	9 litre		
Automatic transmission		change quantity	4.5 litre		

top of page

Preliminary work

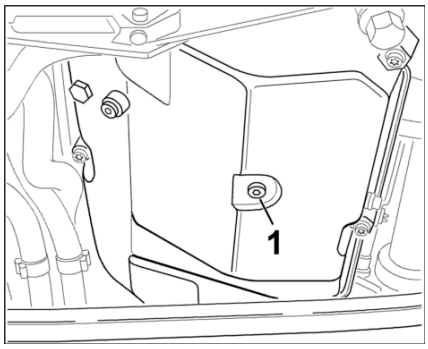
Preliminary work

1. Raise the vehicle at the prescribed jacking points. *Lifting the vehicle*
2. Remove the underbody panels. 519419 Removing and installing rear trim - removing
3. Place oil collection pan under the transmission.

Draining ATF

ATTENTION
Transmission cannot be filled, or only insufficiently with ATF.

Do not start engine
Do not tow vehicle



ATF - ATF drain screw

WARNING
Danger of scalding and chemical burns from hot ATF

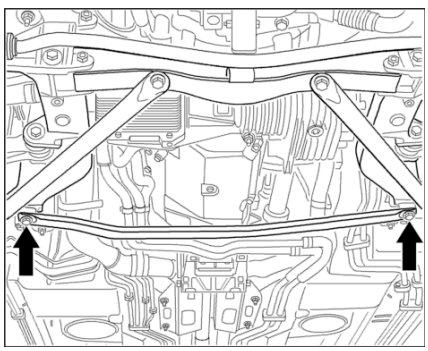
Allow ATF to cool down
Wear personal protective gear (goggles, gloves)

1. Unscrew the drain plug **-1-** and drain the ATF.
2. Replace sealing ring for drain plug and tighten screw. **Tightening torque: 22 (16 ftlb.) Nm** .

top of page

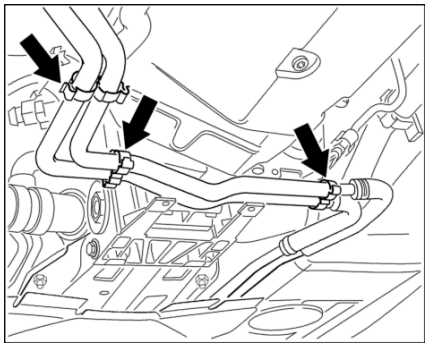
Removing ATF pan

Removing ATF pan



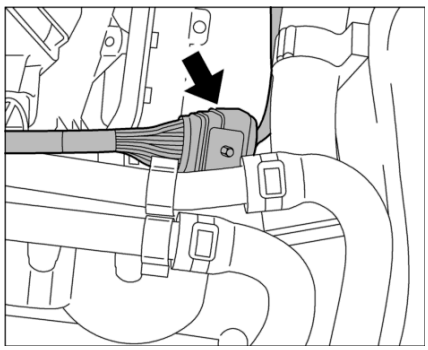
Cross member

1. Remove cross member.



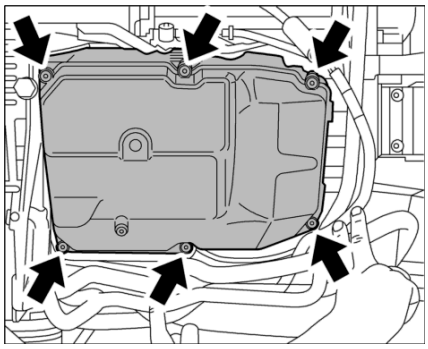
Bracket for coolant lines

2. Disengage coolant lines at the fastening points.



Electric plug

3. Remove electric plug.
4. Disengage cable and vacuum line from the retaining clips of the ATF pan.



Removing ATF pan

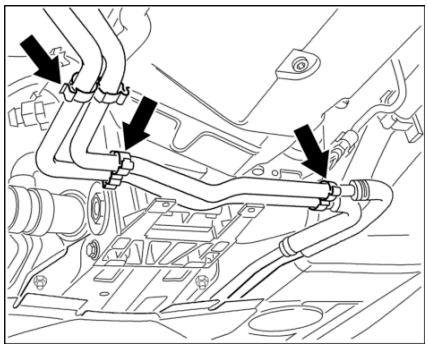
5. Loosen screws crosswise and remove ATF pan.

top of page

Installing ATF pan

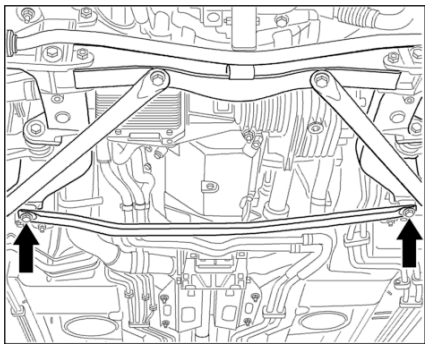
Installing ATF pan

1. Clean ATF pan and place on transmission with new seal.
2. Screw in screws and tighten them crosswise. **Tightening torque: 8 (6 ftlb.) Nm**
3. Engage cable and vacuum line in the retaining clips of the ATF pan.
4. Fit electric plugs.



Bracket for the coolant lines

5. Engage the coolant lines at the fastening points.



Cross member

6. Install cross member.

Location	Explanation	Type	Basic value	Tolerance 1	Tolerance 2
Cross member		Tightening torque	65 (48 ftlb.) Nm		

top of page

Reworking

Topping up ATF

ATTENTION

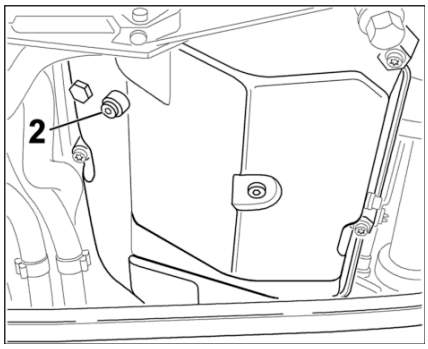
Transmission cannot be filled, or only insufficiently with ATF.

Do not start engine

Do not tow vehicle

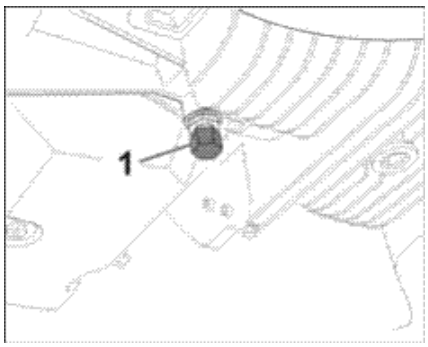
Note

To undo and tighten the cap nut for the charging valve, counter with a ring wrench!



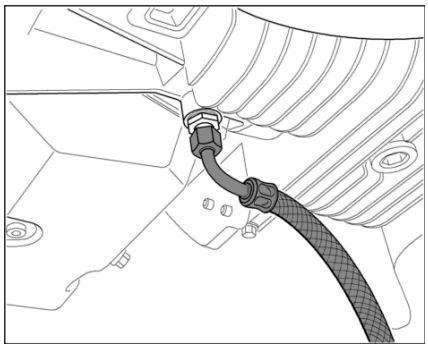
ATF - control screw

1. Unscrew control screw **-2-** .



Cap nut

2. Screw off cap nut **-1-** for the charging valve.



Connection hose onto ATF - charging valve

3. **Screw connection hose 95071** onto charging valve.

WARNING

Danger of scalding and chemical burns from hot ATF

Allow ATF to cool down

Wear personal protective gear (goggles, gloves)

4. Top up ATF via the charging valve until ATF runs out at the control bore.

Checking and topping up the ATF

The transmission must not be in the reduced driving program. The ATF temperature must be between **ATF temperature: 30 degrees Celsius** and **ATF temperature: 40 degrees Celsius** . An ATF inspection when the temperature is too high causes insufficient filling, while an inspection when the temperature is too low causes over-filling. The selector lever must be in position "P" and the engine must be idling. The air conditioning must be switched off. The vehicle must stand horizontally.

Note

The ATF temperature at the start of testing must not be higher than **ATF temperature: 40 gradCelsius** .

1. Connect the **PIWIS Tester 97180** and call up the ATF temperature.
2. Put selector lever in position "P", start vehicle, and allow engine to idle.
3. Top up ATF via the charging valve until ATF runs out at the control bore.
4. With the brake pedal pressed, change through all selector lever positions, remaining in each position for approximately **Time: 10 s** .

WARNING

Danger of scalding and chemical burns from hot ATF

Allow ATF to cool down

Wear personal protective gear (goggles, gloves)

5. Top up with ATF again via the charging valve until ATF runs out at the control bore.

Reworking

1. **Unscrew connection hose 95071** from ATF - charging valve.
2. Replace sealing ring for cap nut and screw on cap nut. **Tightening torque: 30 ftlb.**
3. Replace sealing ring for ATF control screw and screw in ATF control screw. **Tightening torque: 16 ftlb.**
4. Fit underbody panels. 519419 Removing and installing rear trim - installing
5. Lower the vehicle.

997110, 997111, 997120, 997121, 997310, 997311, 997320, 997321, 997410, 997411, 997430, 997431, 997610, 997611, 997620, 997621

as of MY 2005
Country C00, C02, C05, C07, C08, C09, C10, C11, C12, C13, C14, C15, C16, C18, C19, C20, C21, C22, C23, C24, C25, C26, C27, C28, C32, C33, C34, C35, C36, C37, C38, C39, C45, C46, C98, C99

WARNUNG

Gefahr des Verlusts der Text-Bild-Zuordnung beim Ausdruck.

- **Aus technischen Gründen kann derzeit nicht ausgeschlossen werden, dass trotz einwandfreier Darstellung auf dem Bildschirm beim Ausdruck der Zusammenhang von Text und zugehörigem Bild verloren geht.**
- **Wird der Fehler nicht bemerkt, besteht die Gefahr, daß Arbeiten nicht korrekt durchgeführt werden und es dadurch zu Personen- und Sachschäden kommt.**

Vergleichen Sie deshalb nach dem Druckvorgang unbedingt die Ausdrucke mit der Bildschirmdarstellung. Korrigieren Sie die Ausdrucke im Fehlerfall so, daß der Inhalt der Bildschirmdarstellung zutreffend wiedergegeben wird.

WARNING

Danger of losing text-figure correspondence when printing out.

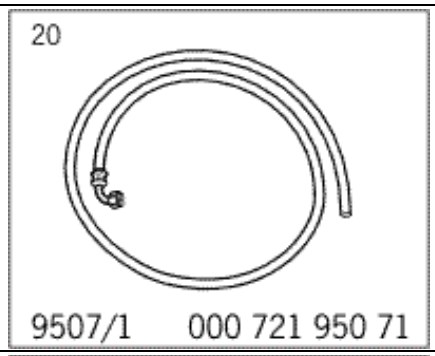
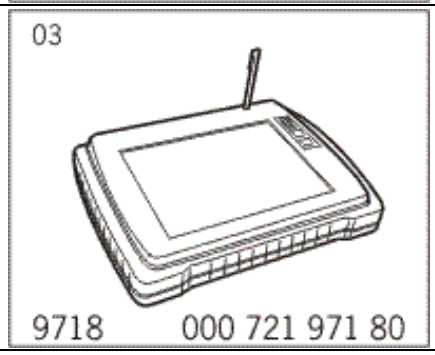
- **For technical reasons, it can currently not be ruled out that the correspondence between text and associated figure can be lost when it is printed out, even though the display on the screen is correct.**
- **If the fault is not noticed, there is the danger that work will not be performed correctly which can cause injury and damage.**

Therefore, always compare printouts with the screen display after printing them out. Correct the printouts if they are faulty so that the content of the screen display matches that on the printouts.

37 58 55 Replacing ATF filter - as of MY 2005

- Notes
- Filling capacities
- Preliminary work
- Removing ATF filter
- Installing ATF filter
- Subsequent work

Tools

Designation	Type	Number	Explanation	
Screw connection hose	special tool	95071		
PIWIS Tester	special tool	97180		

top of page

Notes

Notes

Note

Fill only with ATF approved by Porsche. See Spare Parts Catalogue.

Note

Hot vehicles should cool down before beginning the activity.

Note
Vehicle must be horizontal in order to be filled and checked.

top of page

Filling capacities

Filling capacities

Location	Explanation	Type	Basic value	Tolerance 1	Tolerance 2
Automatic transmission		total capacity	9 litre		
Automatic transmission		change quantity	4.5 litre		

top of page

Preliminary work

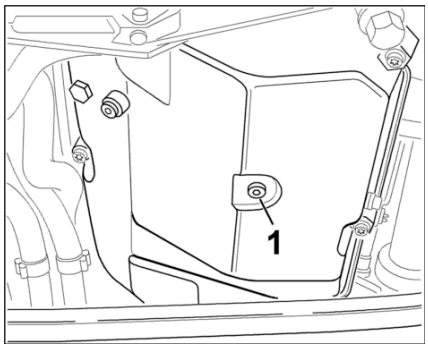
Preliminary work

1. Raise the vehicle at the prescribed jacking points. *Lifting the vehicle*
2. Remove the underbody panels. 519419 Removing and installing rear trim - removing
3. Place oil collection pan under the transmission.

Draining ATF

ATTENTION
Transmission cannot be filled, or only insufficiently with ATF.

Do not start engine
Do not tow vehicle



ATF - ATF drain screw

WARNING

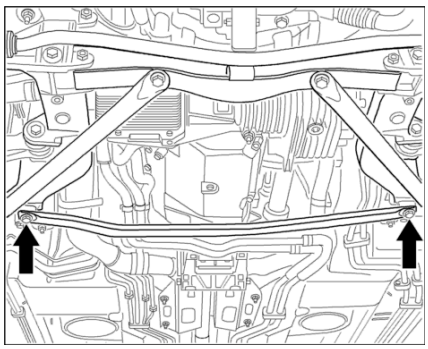
Danger of scalding and chemical burns from hot ATF

Allow ATF to cool down

Wear personal protective gear (goggles, gloves)

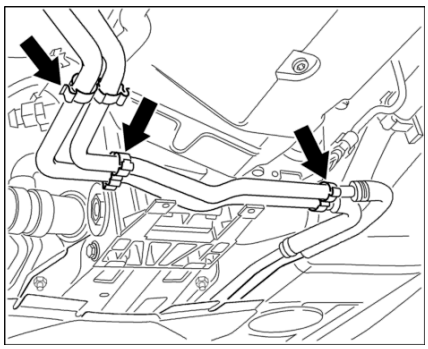
1. Unscrew the drain plug **-1-** and drain the ATF.
2. Replace sealing ring for drain plug and tighten screw. **Tightening torque: 22 (16 ftlb.) Nm** .

Removing ATF pan



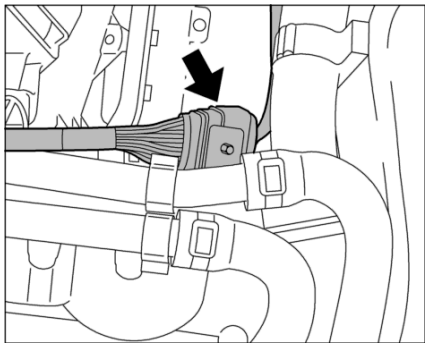
Cross member

1. Remove cross member.



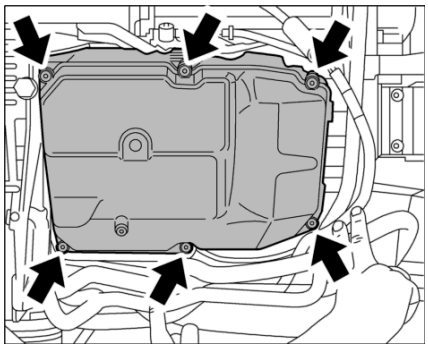
Bracket for coolant lines

2. Disengage coolant lines at the fastening points.



Electric plug

3. Remove electric plug.
4. Disengage cable and vacuum line from the retaining clips of the ATF pan.



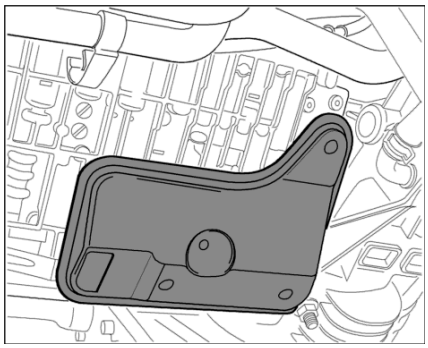
Removing ATF pan

5. Loosen screws crosswise and remove ATF pan.

top of page

Removing ATF filter

Removing ATF filter



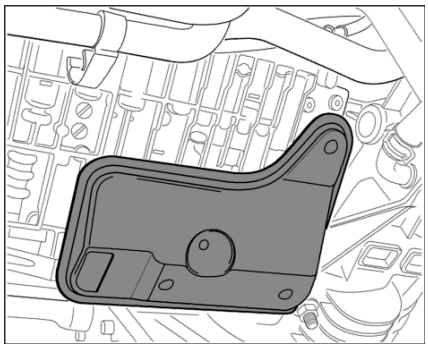
ATF filter

1. Disconnect ATF filter downwards from electromagnetic control unit.

top of page

Installing ATF filter

Installing ATF filter



ATF filter

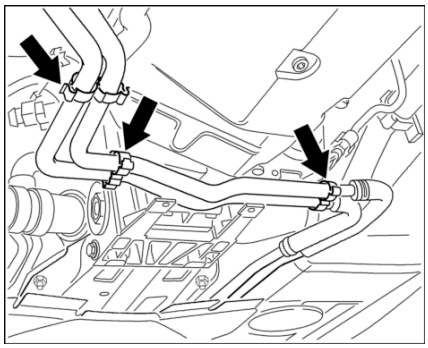
1. Thinly coat gasket on the suction collar of the ATF filter with Vaseline and insert filter from below into electromagnetic control unit.

top of page

Subsequent work

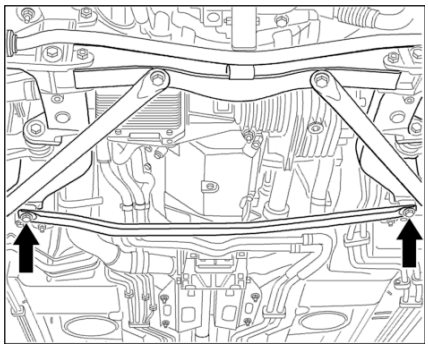
Installing ATF pan

1. Clean ATF pan and place on transmission with new seal.
2. Screw in screws and tighten them crosswise. **Tightening torque: 8 (6 ftlb.) Nm**
3. Engage cable and vacuum line in the retaining clips of the ATF pan.
4. Fit electric plugs.



Bracket for the coolant lines

5. Engage the coolant lines at the fastening points.



Cross member

6. Install cross member.

Location	Explanation	Type	Basic value	Tolerance 1	Tolerance 2
Cross member		Tightening torque	65 (48 ftlb.) Nm		

Topping up ATF

ATTENTION

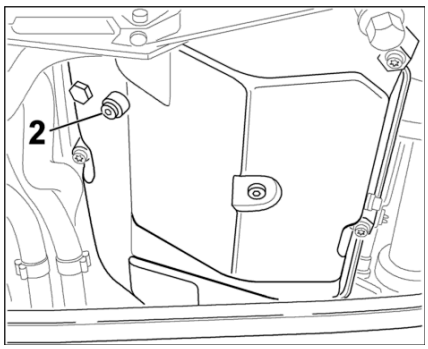
Transmission cannot be filled, or only insufficiently with ATF.

Do not start engine

Do not tow vehicle

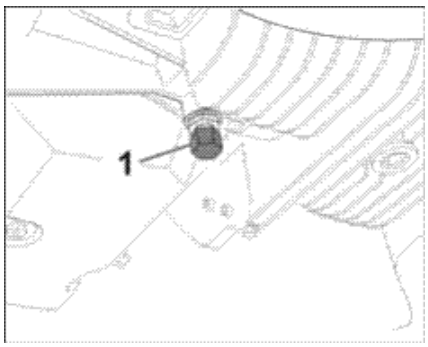
Note

To undo and tighten the cap nut for the charging valve, counter with a ring wrench!



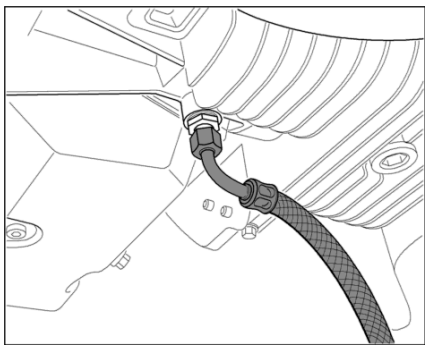
ATF - control screw

1. Unscrew control screw **-2-** .



Cap nut

2. Screw off cap nut **-1-** for the charging valve.



Connection hose onto ATF - charging valve

3. **Screw connection hose 95071** onto charging valve.

WARNING

Danger of scalding and chemical burns from hot ATF

Allow ATF to cool down

Wear personal protective gear (goggles, gloves)

4. Top up ATF via the charging valve until ATF runs out at the control bore.

Checking and topping up the ATF

The transmission must not be in the reduced driving program. The ATF temperature must be between **ATF temperature: 30 degrees Celsius** and **ATF temperature: 40 degrees Celsius** . An ATF inspection when the temperature is too high causes insufficient filling, while an inspection when the temperature is too low causes over-filling. The selector lever must be in position "P" and the engine must be idling. The air conditioning must be switched off. The vehicle must stand horizontally.

Note

The ATF temperature at the start of testing must not be higher than **ATF temperature: 40 gradCelsius** .

1. Connect the **PIWIS Tester 97180** and call up the ATF temperature.
2. Put selector lever in position "P", start vehicle, and allow engine to idle.
3. Top up ATF via the charging valve until ATF runs out at the control bore.
4. With the brake pedal pressed, change through all selector lever positions, remaining in each position for approximately **Time: 10 s** .

WARNING

Danger of scalding and chemical burns from hot ATF

Allow ATF to cool down

Wear personal protective gear (goggles, gloves)

5. Top up with ATF again via the charging valve until ATF runs out at the control bore.

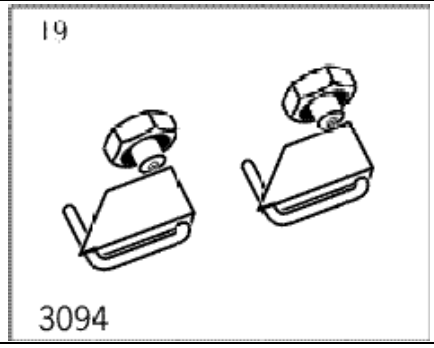
Reworking

1. **Unscrew connection hose 95071** from ATF - charging valve.
2. Replace sealing ring for cap nut and screw on cap nut. **Tightening torque: 30 ftlb.**
3. Replace sealing ring for ATF control screw and screw in ATF control screw. **Tightening torque: 16 ftlb.**
4. Fit underbody panels. 519419 Removing and installing rear trim - installing
5. Lower the vehicle.

38 60 19 Removing and installing ATF cooler - as of MY 2005

- Preliminary work
- Removing ATF cooler
- Installing ATF cooler
- Subsequent work

Tools

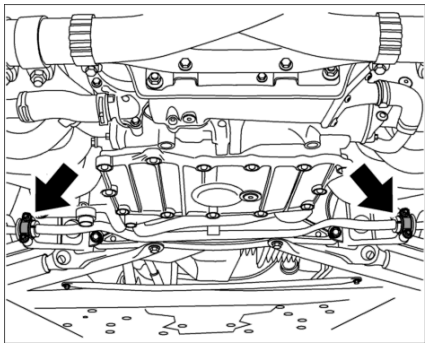
Designation	Type	Number	Explanation	
hose clamps	VW-tool	3094		

top of page

Preliminary work

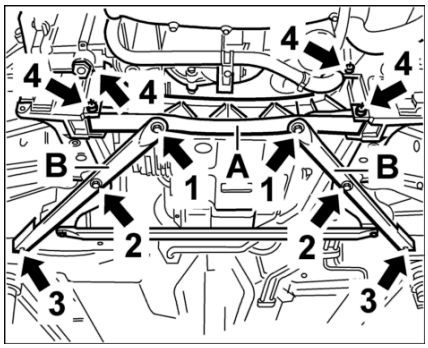
Preliminary work

1. Raise the vehicle at the prescribed jacking points. *Raising the vehicle*
2. Remove the underbody panels. 519419 Removing and installing rear trim - removing



Stabiliser

3. Loosen stabilizer and swivel it downward.



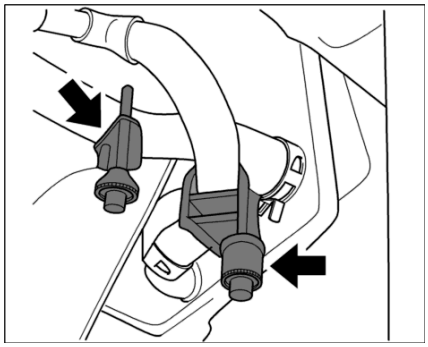
Running gear

4. Remove diagonal braces **-B-** and cross member **-A-** .

top of page

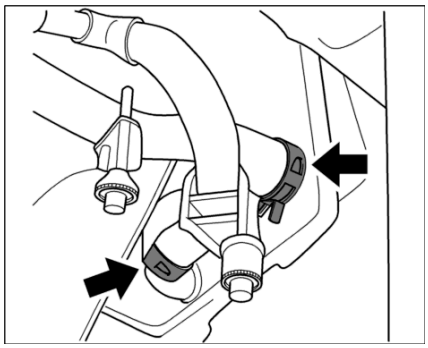
Removing ATF cooler

Removing ATF cooler



Hose clamp

1. Disconnect coolant hoses on ATF cooler using **hose clamps 3094**.



Coolant hoses

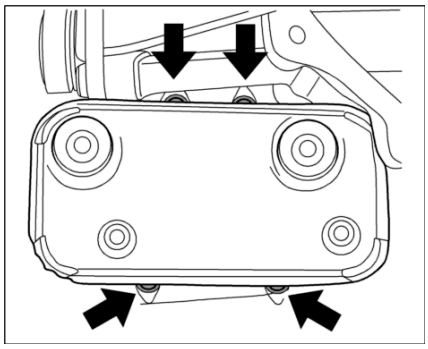
WARNING

Scalding from hot coolant

Let the coolant cool down.

Wear personal protective equipment (goggles, gloves)

2. Loosen hose clamps, pull off coolant hoses from ATF cooler and plug the flanges.



ATF cooler

3. Unscrew fastening screws **-arrows-** between ATF cooler and port plate.

WARNING

Danger of scalding and chemical burns from hot ATF

Allow ATF to cool down

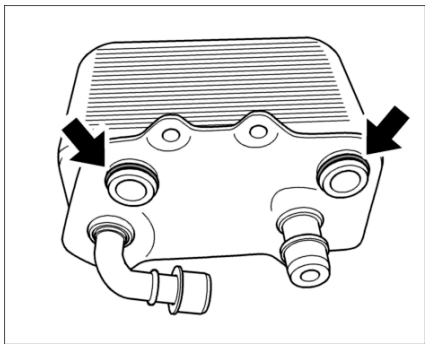
Wear personal protective gear (goggles, gloves)

4. Pull ATF cooler to the rear away from the port plate.

top of page

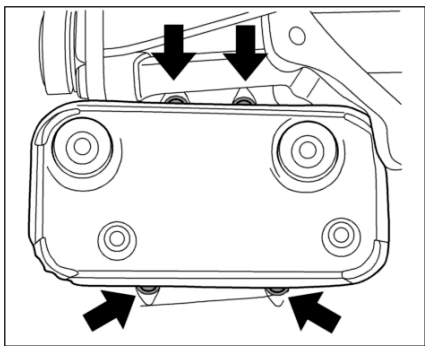
Installing ATF cooler

Installing ATF cooler



O-rings on ATF cooler

1. Always replace O-rings **-arrows-** on the ATF cooler.
2. Position ATF cooler on port plate from behind.



ATF cooler

3. Screw in and tighten fastening screws **-arrows-** between ATF cooler and port plate.

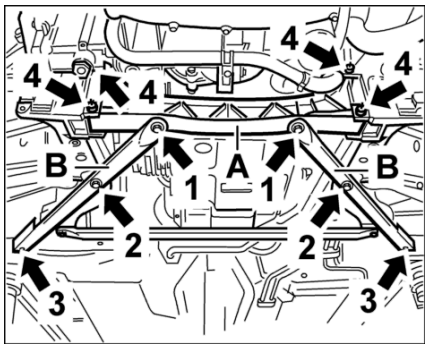
Location	Explanation	Type	Basic value	Tolerance 1	Tolerance 2
ATF cooler		Tightening torque	10 (7.5) Nm (ftlb.)		

4. Remove plugs, connect coolant hoses to flanges and fit hose clamps.
5. Remove **hose clamp 3094**.

top of page

Subsequent work

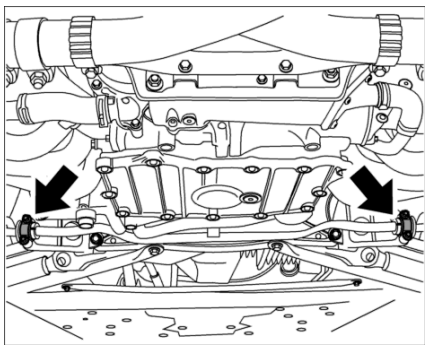
Subsequent work



Running gear

1. Install cross member **-A-** and diagonal braces **-B-** .

Location	Explanation	Type	Basic value	Tolerance 1	Tolerance 2
Diagonal brace to cross member	In Figure 1	Tightening torque	110 (81.5) Nm (ftlb.)		
Diagonal brace to side section	In Figure 2	Tightening torque	23 (17) Nm (ftlb.)		
Diagonal brace to body	In Figure 3	Tightening torque	65 (48) Nm (ftlb.)		
Cross member to side section	In Figure 4	Tightening torque	110 (81.5) Nm (ftlb.)		



Stabiliser

2. Fit stabiliser.

Location	Explanation	Type	Basic value	Tolerance 1	Tolerance 2
Stabiliser to side section		Tightening torque	23 (17) Nm (ftlb.)		

3. Bleed the cooling system. *190107 Bleeding the cooling system*
4. Check and if necessary, top up the ATF. 370235 Checking and topping up the ATF
5. Fit the underbody panel. 519419 Removing and installing rear cover - chapter on "installing"

6. Lower the vehicle.

997110, 997111, 997120, 997121, 997310, 997311, 997320, 997321, 997410, 997411, 997430, 997431, 997610, 997611, 997620, 997621

as of MY 2005
Country C00, C02, C05, C07, C08, C09, C10, C11, C12, C13, C14, C15, C16, C18, C19, C20, C21, C22, C23, C24, C25, C26, C27, C28, C32, C33, C34, C35, C36, C37, C38, C39, C45, C46, C98, C99

WARNUNG

Gefahr des Verlusts der Text-Bild-Zuordnung beim Ausdruck.

- **Aus technischen Gründen kann derzeit nicht ausgeschlossen werden, dass trotz einwandfreier Darstellung auf dem Bildschirm beim Ausdruck der Zusammenhang von Text und zugehörigem Bild verloren geht.**
- **Wird der Fehler nicht bemerkt, besteht die Gefahr, daß Arbeiten nicht korrekt durchgeführt werden und es dadurch zu Personen- und Sachschäden kommt.**

Vergleichen Sie deshalb nach dem Druckvorgang unbedingt die Ausdrucke mit der Bildschirmdarstellung. Korrigieren Sie die Ausdrucke im Fehlerfall so, daß der Inhalt der Bildschirmdarstellung zutreffend wiedergegeben wird.

WARNING

Danger of losing text-figure correspondence when printing out.

- **For technical reasons, it can currently not be ruled out that the correspondence between text and associated figure can be lost when it is printed out, even though the display on the screen is correct.**
- **If the fault is not noticed, there is the danger that work will not be performed correctly which can cause injury and damage.**

Therefore, always compare printouts with the screen display after printing them out. Correct the printouts if they are faulty so that the content of the screen display matches that on the printouts.

AVERTISSEMENT

Risque de perte de la correspondance texte-illustration lors de l'impression papier.

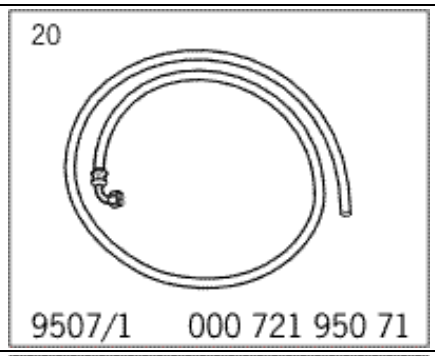
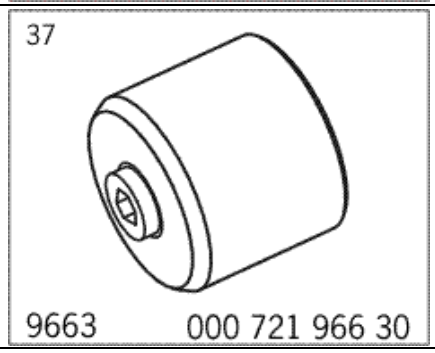
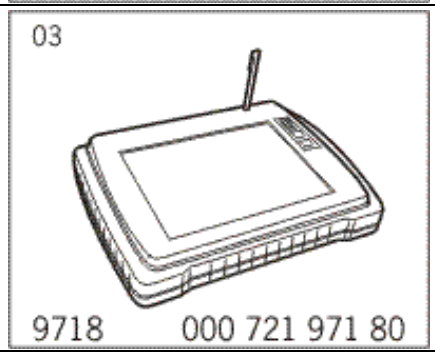
- **Pour des raisons techniques, il ne peut pas être exclu à l'heure actuelle que, même en cas d'affichage correct à l'écran, la correspondance entre le texte et l'illustration puisse être erronée sur l'impression papier.**
- **Si l'erreur passe inaperçue, on court le risque d'exécuter certaines opérations de manière incorrecte pouvant conduire à des dommages corporels et matériels.**

Comparez impérativement pour cette raison les impressions papier avec l'affichage à l'écran. Corrigez-les en cas d'erreur de manière à reproduire correctement l'affichage à l'écran.

38 77 19 Removing and installing electrohydraulic control unit - as of MY 2005

- Information
- Technical values
- Preliminary work
- Removing the electrohydraulic control unit
- Installing the electrohydraulic control unit
- Subsequent work

Tools

Designation	Type	Number	Explanation	
Screw connection hose	special tool	95071		
assembly aid	special tool	9663		
PIWIS Tester	special tool	97180		

top of page

Information

Notes

Note
Fill only with ATF approved by Porsche. See Spare Parts Catalogue.

Note
Hot vehicles should cool down before beginning the activity.

Note
Vehicle must be horizontal in order to be filled and checked.

top of page

Technical values

Filling capacities

Location	Explanation	Type	Basic value	Tolerance 1	Tolerance 2
Automatic transmission		total capacity	9 litre		
Automatic transmission		change quantity	4.5 litre		

top of page

Preliminary work

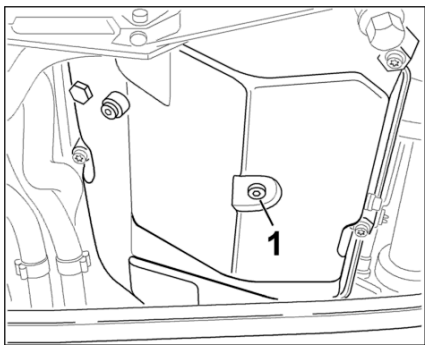
Preliminary work

1. Move selector lever to position P.
2. Raise the vehicle at the prescribed jacking points. *Lifting the vehicle*
3. Remove the underbody panels. 519419 Removing and installing rear trim - removing
4. Place oil collection pan under the transmission.

Draining ATF

ATTENTION
Transmission cannot be filled, or only insufficiently with ATF.

Do not start engine
Do not tow vehicle



ATF - ATF drain screw

WARNING
Danger of scalding and chemical burns from hot ATF

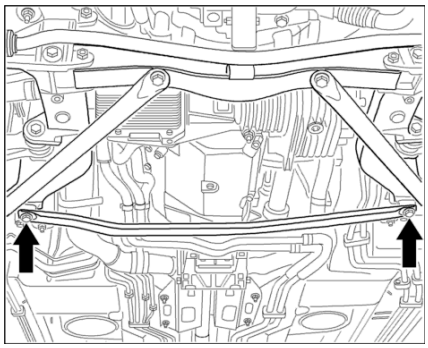
Allow ATF to cool down
Wear personal protective gear (goggles, gloves)

1. Unscrew the drain plug **-1-** and drain the ATF.
2. Replace sealing ring for drain plug and tighten screw. **Tightening torque: 22 (16 ftlb.) Nm** .

top of page

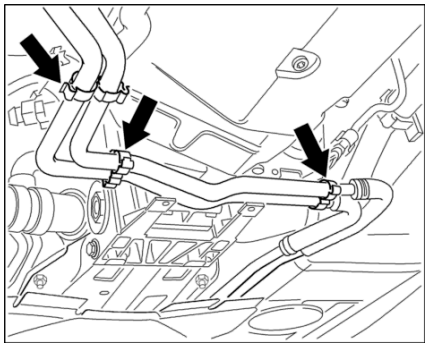
Removing the electrohydraulic control unit

Dismantling



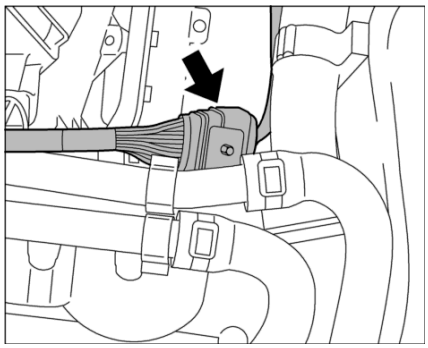
Cross member

1. Remove cross member.



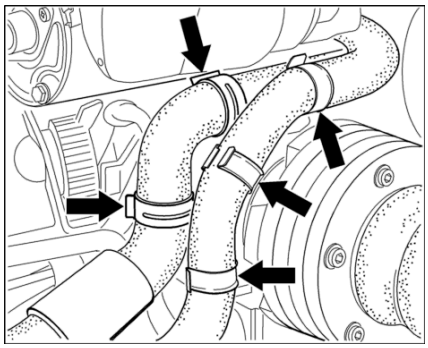
Bracket for the coolant lines

2. Disengage the coolant lines at the fastening points.



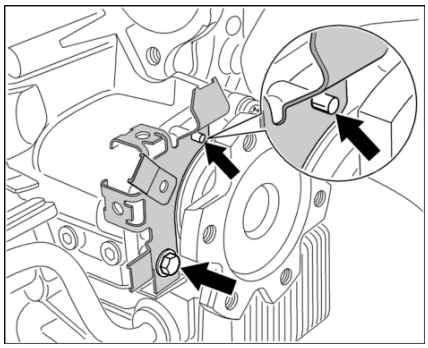
Electric plug

3. Remove electric plug.
4. Disengage cable and vacuum line from the retaining clips of the ATF pan.



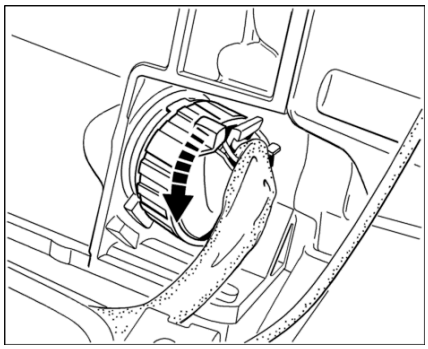
Coolant lines

5. Disengage the coolant hoses in the area of the left drive shaft.
6. Pull vacuum line off the switch-over valve.
7. Undo the left drive shaft on the transmission side.



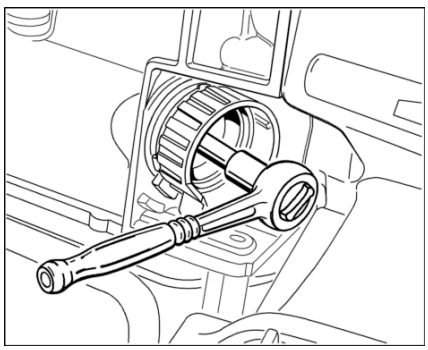
Holder for coolant lines

8. Remove the holder for the coolant hoses.



Disengaging plug connection

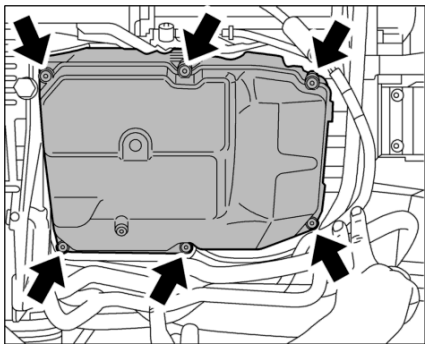
9. Unlock electrical plug connection by turning it counter-clockwise and pull out electrical plug.



Removing bush

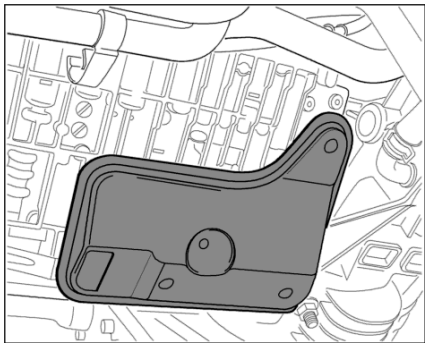
10. Unscrew guide bush fastening screw with **assembly aid 9663** and pull out bush.

Removing the electrohydraulic control unit



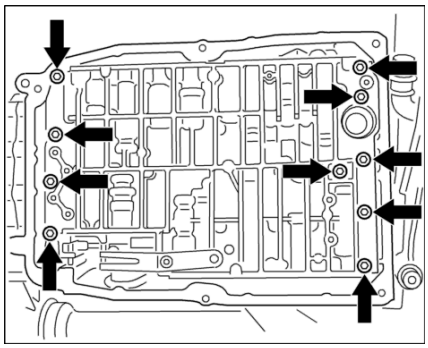
Removing ATF pan

1. Loosen screws crosswise and remove ATF pan.



ATF filter

2. Disconnect ATF filter downwards from electromagnetic control unit.



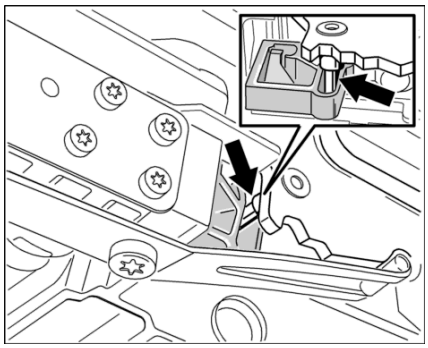
Removing control unit

3. Unscrew fastening screws **-Pfeil-** for electromagnetic control unit and remove control unit.

top of page

Installing the electrohydraulic control unit

Installing the electrohydraulic control unit

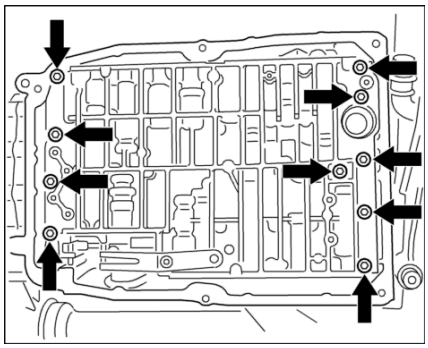


Selector valve and driver

Note

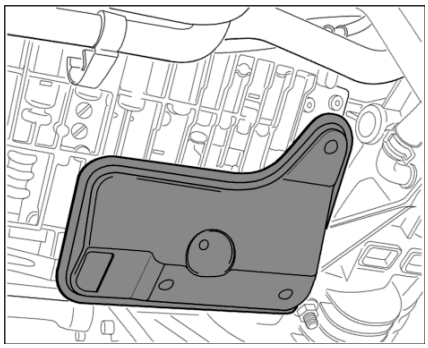
The selector lever must be in position P in order to fit the electrohydraulic control unit.

1. Insert electrohydraulic control unit into the transmission from below. The selector valve must engage in the driver of the notched plate.



2. Screw in fastening screws and tighten hand tight.
3. Tighten fastening screws.

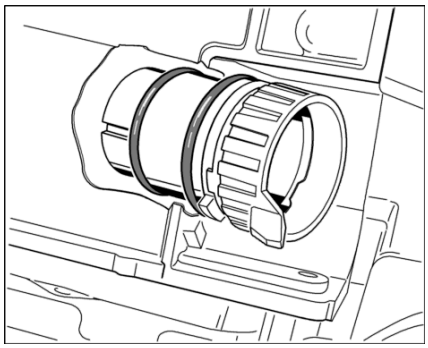
Location	Explanation	Type	Basic value	Tolerance 1	Tolerance 2
Electrohydraulic control unit		Tightening torque	8 (6.0 ftlb.) Nm		



ATF filter

4. Thinly coat gasket on the suction collar of the ATF filter with Vaseline and insert filter from below into electromagnetic control unit.
5. Clean ATF pan and place on transmission with new seal.
6. Screw in screws and tighten them crosswise. **Tightening torque: 8 (6.0 ftlb.) Nm**

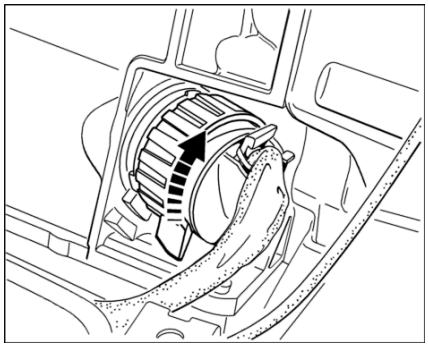
Assembly work



Sealing rings

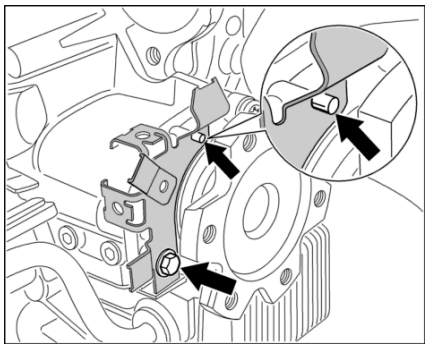
1. Insert the socket with new seals in the correct position and tighten the fastening screw.

Location	Explanation	Type	Basic value	Tolerance 1	Tolerance 2
Socket		Tightening torque	2.0 ftlb.		



Fit plug connection

2. Insert electrical plug into socket and lock by turning clockwise.



Holder for coolant lines

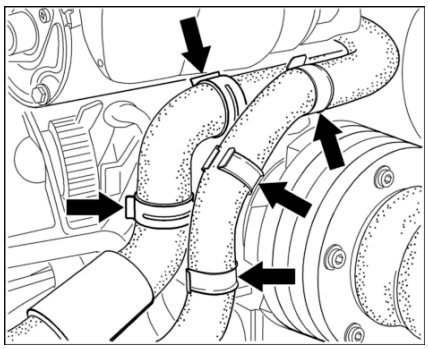
3. Fit the holder for the coolant hoses.

Location	Explanation	Type	Basic value	Tolerance 1	Tolerance 2
Holder for coolant hoses		tightening torque	7.5 ftlb.		

4. Fit left drive shaft on transmission side.

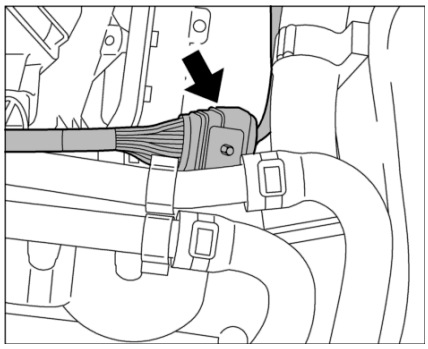
Location	Explanation	Type	Basic value	Tolerance 1	Tolerance 2
Drive shaft		tightening torque	81 ftlb.		

5. Push vacuum line onto switch-over valve.



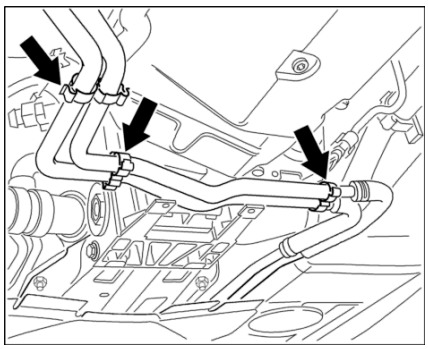
Coolant lines

6. Engage the coolant hoses in the area of the left drive shaft.
7. Engage cable and vacuum line in the retaining clips of the ATF pan.



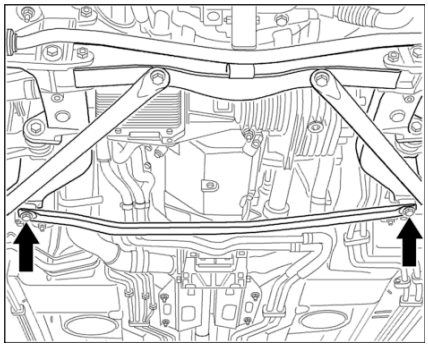
Electric plug

8. Fit electric plugs.



Holder for coolant lines

9. Engage the coolant lines at the fastening points.



Cross member

10. Install cross member.

top of page

Subsequent work

Topping up ATF

ATTENTION

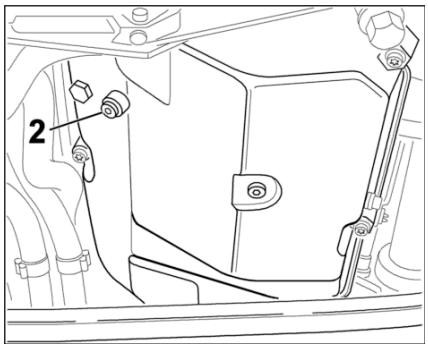
Transmission cannot be filled, or only insufficiently with ATF.

Do not start engine

Do not tow vehicle

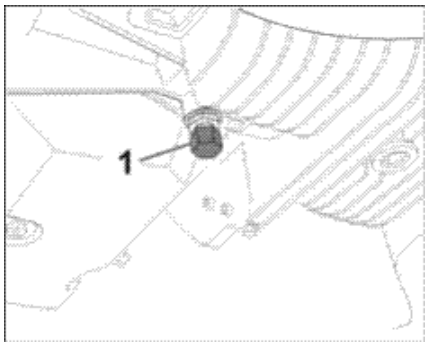
Note

To undo and tighten the cap nut for the charging valve, counter with a ring wrench!



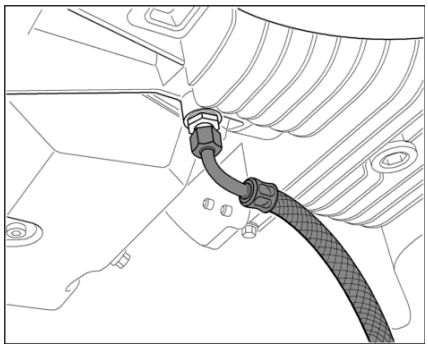
ATF - control screw

1. Unscrew control screw **-2-** .



Cap nut

2. Screw off cap nut **-1-** for the charging valve.



Connection hose onto ATF - charging valve

3. **Screw connection hose 95071** onto charging valve.

WARNING

Danger of scalding and chemical burns from hot ATF

Allow ATF to cool down

Wear personal protective gear (goggles, gloves)

4. Top up ATF via the charging valve until ATF runs out at the control bore.

Checking and topping up the ATF

The transmission must not be in the reduced driving program. The ATF temperature must be between **ATF temperature: 30 degrees Celsius** and **ATF temperature: 40 degrees Celsius** . An ATF inspection when the temperature is too high causes insufficient filling, while an inspection when the temperature is too low causes over-filling. The selector lever must be in position "P" and the engine must be idling. The air conditioning must be switched off. The vehicle must stand horizontally.

Note

The ATF temperature at the start of testing must not be higher than **ATF temperature: 40 gradCelsius** .

1. Connect the **PIWIS Tester 97180** and call up the ATF temperature.
2. Put selector lever in position "P", start vehicle, and allow engine to idle.
3. Top up ATF via the charging valve until ATF runs out at the control bore.
4. With the brake pedal pressed, change through all selector lever positions, remaining in each position for approximately **Time: 10 s** .

WARNING

Danger of scalding and chemical burns from hot ATF

Allow ATF to cool down

Wear personal protective gear (goggles, gloves)

5. Top up with ATF again via the charging valve until ATF runs out at the control bore.

Reworking

1. **Unscrew connection hose 95071** from ATF - charging valve.
2. Replace sealing ring for cap nut and screw on cap nut. **Tightening torque: 30 ftlb.**
3. Replace sealing ring for ATF control screw and screw in ATF control screw. **Tightening torque: 16 ftlb.**
4. Fit underbody panels. 519419 Removing and installing rear trim - installing
5. Lower the vehicle.

997110, 997111, 997120, 997121, 997310, 997311, 997320, 997321, 997410, 997411, 997430, 997431, 997610, 997611, 997620, 997621

as of MY 2005
Country C00, C02, C05, C07, C08, C09, C10, C11, C12, C13, C14, C15, C16, C18, C19, C20, C21, C22, C23, C24, C25, C26, C27, C28, C32, C33, C34, C35, C36, C37, C38, C39, C45, C46, C98, C99

38 77 37 Disassembling and assembling electrohydraulic control unit - as of MY 2005

- Preliminary work
- Disassembling electrohydraulic control unit
- Subsequent work

top of page

Preliminary work

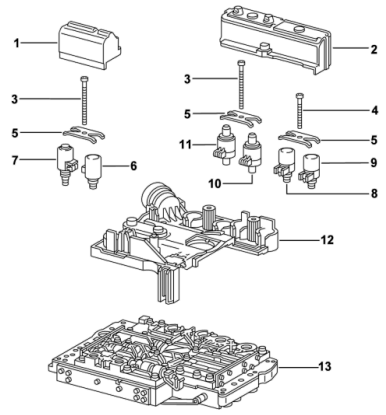
Preliminary work

1. Remove electrohydraulic control unit. 387719 Removing and installing hydraulic control unit - chapter on "removing"

top of page

Disassembling electrohydraulic control unit

Overview

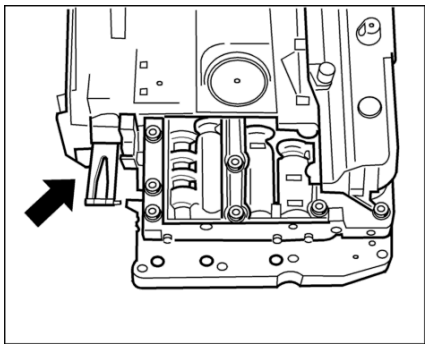


Explosion

1 - Cover
2 - Cover

3 - Screw (6x80)
4 - Screw (6x55)
5 - Leaf springs
6 - Solenoid valve, 2-3 gearshift
7 - Control solenoid valve, converter jumper
8 - Solenoid valve, 1-2 and 4-5 gearshift
9 - Solenoid valve, 3-4 gearshift
10 - Control solenoid valve, shifting pressure
11 - Control solenoid valve, modulating pressure
12 - Electrical control unit
13 - Hydraulic control unit

Disconnecting hydraulic and electrical control unit



Disconnecting control units

1. Remove electrical control unit. To do so, bend back the retaining lug **-arrow-** at the strengthening rib on the oil temperature sensor and remove electrical control unit from hydraulic control unit by pulling it upwards.

Removing solenoid and control valve

1. Pull off plastic cover.
2. Remove
   screw.
3. Remove leaf spring.
4. Pull solenoid and control valve out using pullers, if necessary.

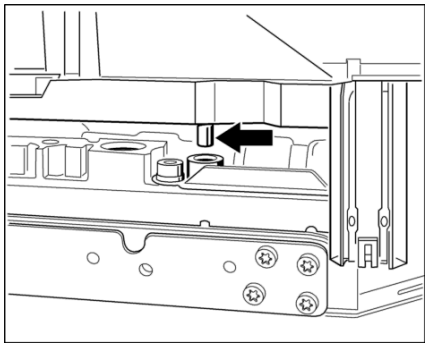
Installing solenoid and control valve

1. Press solenoid and control valve in fully. Ensure that valve sits correctly into position.
2. Position leaf spring and screw in screw.

Location	Explanation	Type	Basic value	Tolerance 1	Tolerance 2
Leaf spring		Tightening torque	8 (6) Nm (ftlb.)		

3. Fit plastic cover.

Reassembling the hydraulic and electrical control unit



Pin and bore

1. Position electrical control unit on hydraulic control unit. The guide pin on the electrical control unit must engage in the guide bore of the hydraulic control unit.

top of page

Subsequent work

Reworking

1. Install electrohydraulic control unit. 387719 Removing and installing hydraulic control unit - chapter on "installing"

997110, 997111, 997120, 997121, 997310, 997311, 997320, 997321, 997410, 997411, 997430, 997431, 997610, 997611, 997620, 997621

as of MY 2005
Country C00, C02, C05, C07, C08, C09, C10, C11, C12, C13, C14, C15, C16, C18, C19, C20, C21, C22, C23, C24, C25, C26, C27, C28, C32, C33, C34, C35, C36, C37, C38, C39, C45, C46, C98, C99

39 02 19 Removing and installing cardan shaft - as of MY 2006

- Preliminary work
- Removing cardan shaft
- Installing cardan shaft
- Subsequent work

Tools

Designation	Type	Number	Explanation	
Assembly sleeve	special tool	P 9255		

top of page

Preliminary work

Preliminary work

1. Raise the vehicle at the specified jacking points. *401000 Lifting the vehicle*
2. Remove underbody panel. 519419 Removing and installing rear cover - removing *519320 21 Removing and installing middle cover - removing*

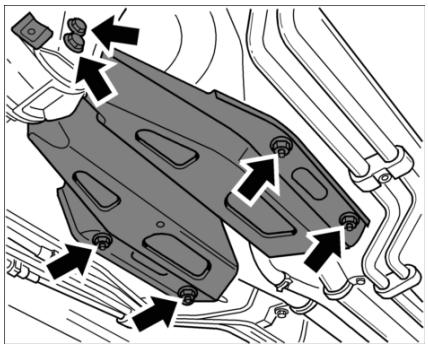
top of page

Removing cardan shaft

Removing cardan shaft

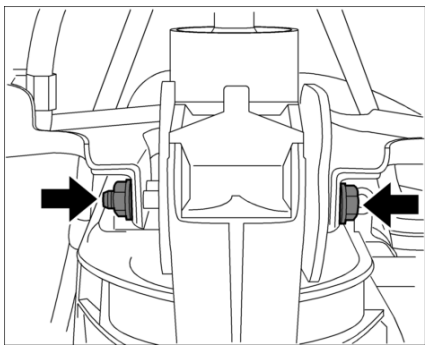
Note

- *Observe max. joint angle of 20° when removing and fitting. Furthermore, the cardan joint must not be loaded at max. deflection (stop).*



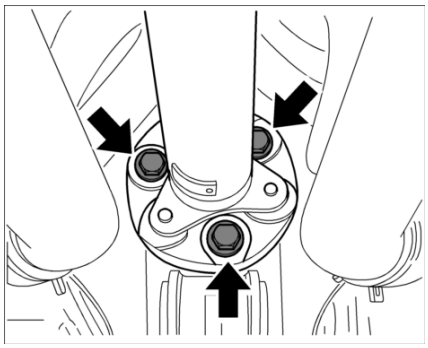
Transmission bracket

1. Support transmission in installation position with the transmission jack and remove transmission bracket.



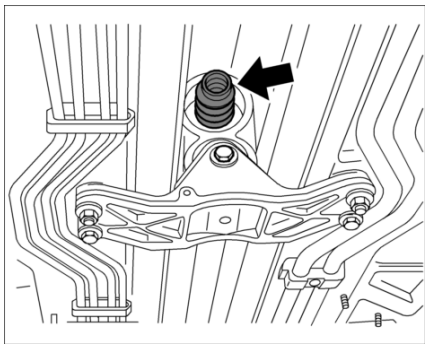
Gear support

2. Secure transmission to gear support with the two fastening screws.
3. Remove transmission jack.



Cardan shaft threaded joint

4. Remove cardan shaft from transmission. Counter at wheel with gear engaged or put on handbrake to prevent it from turning.
5. Press cardan shaft off the transmission flange with two mounting levers if necessary.
6. Pull cardan shaft out of the splines of the central shaft and remove it.



Bellows

7. Remove bellows from the central shaft.

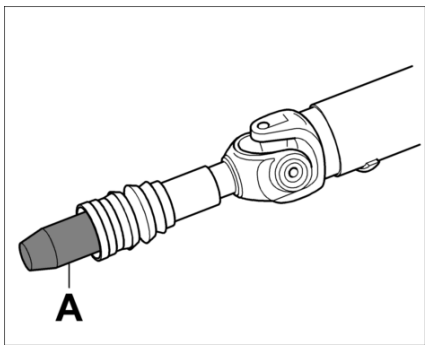
top of page

Installing cardan shaft

Installing cardan shaft

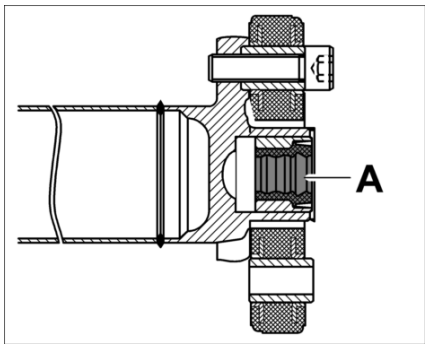
Note

Always replace bellows.



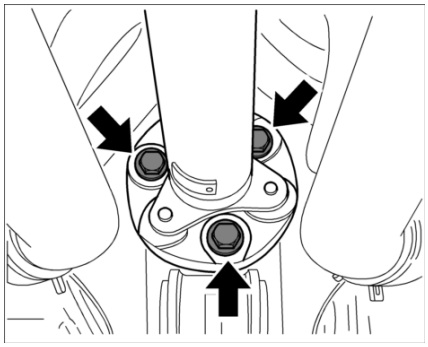
Fitting bellows

1. Slide **Assembly sleeve P 9255 -A-** over the shaft splines, lightly lubricate sleeve with Vaseline and push on bellows as far as it will go.



Bushing

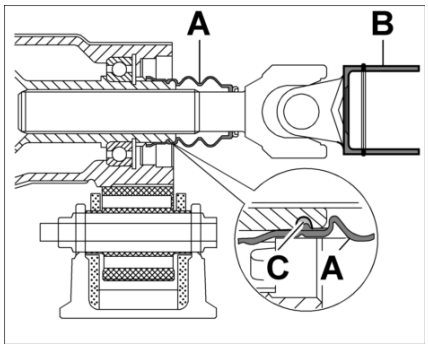
2. Grease bushing **-A-** with approx. 3 g of Olysta Longtime 3EP.
3. Grease splines of the cardan shaft with Olysta Longtime 3EP.
4. Slide cardan shaft into the splines of the central shaft.



Cardan shaft threaded joint

5. Fit cardan shaft on transmission side.

Location	Explanation	Type	Basic value	Tolerance 1	Tolerance 2
Cardan shaft to transmission flange		Tightening torque	45 (33 ftlb.) Nm		



Bellows in central shaft

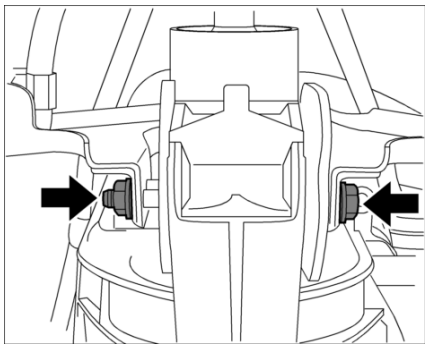
6. Push bellows forward until it engages in the groove of the central shaft.

A - Bellows

B - Cardan shaft

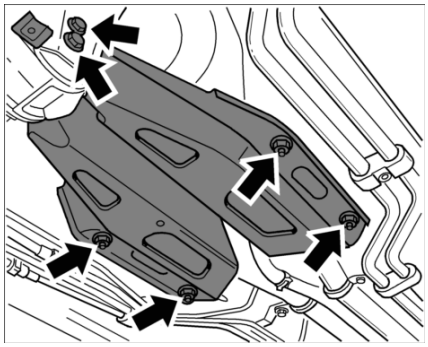
C - Central shaft groove

7. Check that the bellows is seated properly by pulling on it.
8. Support transmission in installation position with transmission jack.



Gear support

9. Unscrew fastening screws on gear support.



Transmission bracket

10. Fit transmission bracket.

Location	Explanation	Type	Basic value	Tolerance 1	Tolerance 2
Transmission bracket to body		Tightening torque	65 (48 ftlb.) Nm		
Transmission bracket/support to transmission mount		Tightening torque	65 (48 ftlb.) Nm		

11. Remove transmission jack.

top of page

Subsequent work

Subsequent work

1. Fit underbody panels. 519319 Removing and installing centre underbody panel - installing 519419 Removing and installing rear cover - installing
2. Lower the vehicle.

997410, 997411, 997430, 997431, 997610, 997611, 997620, 997621

as of MY 2006
Country C00, C02, C05, C07, C08, C09, C10, C11, C12, C13, C14, C15, C16, C18, C19, C20, C21, C22, C23, C24, C25, C26, C27, C28, C32, C33, C34, C35, C36, C37, C38, C39, C45, C46, C98, C99

WARNUNG

Gefahr des Verlusts der Text-Bild-Zuordnung beim Ausdruck.

- **Aus technischen Gründen kann derzeit nicht ausgeschlossen werden, dass trotz einwandfreier Darstellung auf dem Bildschirm beim Ausdruck der Zusammenhang von Text und zugehörigem Bild verloren geht.**
- **Wird der Fehler nicht bemerkt, besteht die Gefahr, daß Arbeiten nicht korrekt durchgeführt werden und es dadurch zu Personen- und Sachschäden kommt.**

Vergleichen Sie deshalb nach dem Druckvorgang unbedingt die Ausdrucke mit der Bildschirmdarstellung. Korrigieren Sie die Ausdrucke im Fehlerfall so, daß der Inhalt der Bildschirmdarstellung zutreffend wiedergegeben wird.

WARNING

Danger of losing text-figure correspondence when printing out.

- **For technical reasons, it can currently not be ruled out that the correspondence between text and associated figure can be lost when it is printed out, even though the display on the screen is correct.**
- **If the fault is not noticed, there is the danger that work will not be performed correctly which can cause injury and damage.**

Therefore, always compare printouts with the screen display after printing them out. Correct the printouts if they are faulty so that the content of the screen display matches that on the printouts.

AVERTISSEMENT

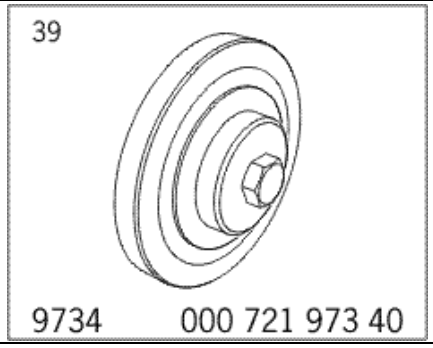
Risque de perte de la correspondance texte-illustration lors de l'impression papier.

- **Pour des raisons techniques, il ne peut pas être exclu à l'heure actuelle que, même en cas d'affichage correct à l'écran, la correspondance entre le texte et l'illustration puisse être erronée sur l'impression papier.**
- **Si l'erreur passe inaperçue, on court le risque d'exécuter certaines opérations de manière incorrecte pouvant conduire à des dommages corporels et matériels.**

39 22 19 Removing and installing sealing ring for right-hand halfshaft flange - as of MY 2005

- Preliminary work
- Removing sealing ring for halfshaft flange
- Installing sealing ring for halfshaft flange
- Subsequent work

Tools

Designation	Type	Number	Explanation	
Pressure piece	special tool	9734		

top of page

Preliminary work

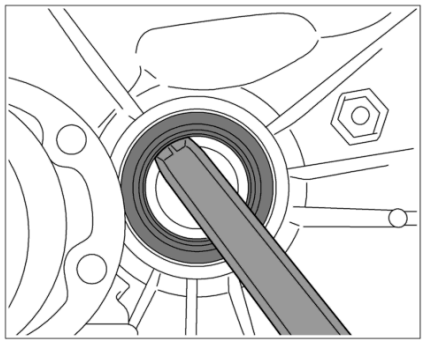
Preliminary work

1. Raise the vehicle at the prescribed jacking points. *Raising the vehicle*
2. Remove the underbody panel. 519419 Removing and installing rear cover - chapter on "removing"
3. Remove right halfshaft flange. *21 Removing and installing halfshaft flange - "Removing" chapter*

top of page

Removing sealing ring for halfshaft flange

Removing sealing ring for halfshaft flange



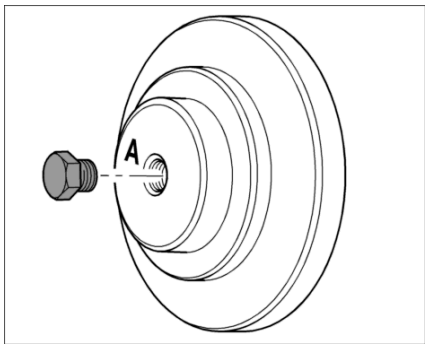
Levering out the sealing ring

1. Lever the sealing ring out of the transmission.

top of page

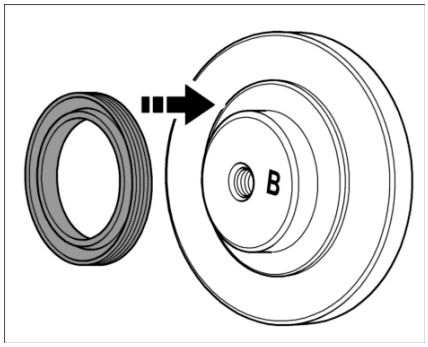
Installing sealing ring for halfshaft flange

Installing sealing ring for halfshaft flange



Screw in special tool

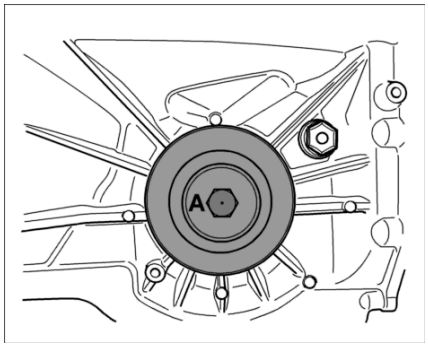
1. Screw M10 x 30 hexagon-head bolt into side A of **Pressure piece 9734**.



Sealing ring on special tool

2.

Thinly coat sealing lip and outer circumference of sealing ring with Vaseline and place the sealing ring on side B of **pressure piece 9734** .



Tapping in sealing ring

3. Hammer the sealing ring along with **pressure piece 9734** completely into the transmission by hitting the hexagon-head bolt.

top of page

Subsequent work

Subsequent work

1. Install the right halfshaft flange. *23 Removing and installing halfshaft flange - "Installing" chapter*
2. Check transmission oil level. *340101 Checking transmission oil*
3. Fit the underbody panel. 519419 Removing and installing rear cover - chapter on "installing"
4. Lower the vehicle.

997110, 997111, 997120, 997121, 997310, 997311, 997320, 997321, 997410, 997411, 997430, 997431, 997610, 997611, 997620, 997621

as of MY 2005
Country C00, C02, C05, C07, C08, C09, C10, C11, C12, C13, C14, C15, C16, C18, C19, C20, C21, C22, C23, C24, C25, C26, C27, C28, C32, C33, C34, C35, C36, C37, C38, C39, C45, C46, C98, C99

WARNUNG

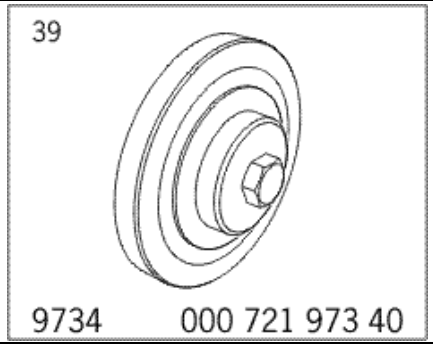
Gefahr des Verlusts der Text-Bild-Zuordnung beim Ausdruck.

- **Aus technischen Gründen kann derzeit nicht ausgeschlossen werden, dass trotz einwandfreier Darstellung auf dem Bildschirm beim Ausdruck der Zusammenhang von Text und zugehörigem Bild verloren geht.**

39 22 19 Removing and installing sealing ring for left halfshaft flange - as of MY 2005

- Preliminary work
- Removing sealing ring for halfshaft flange
- Installing sealing ring for halfshaft flange
- Subsequent work

Tools

Designation	Type	Number	Explanation	
Pressure piece	special tool	9734		

top of page

Preliminary work

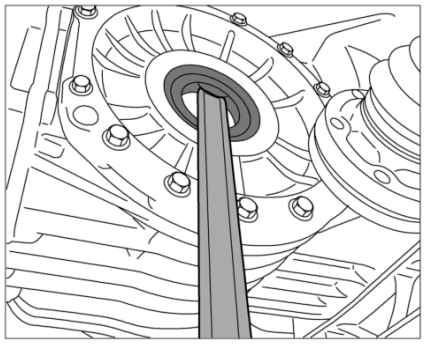
Preliminary work

1. Raise the vehicle at the prescribed jacking points. *Raising the vehicle*
2. Remove the underbody panel. 519419 Removing and installing rear cover - chapter on "removing"
3. Remove left halfshaft flange. 392519 Removing and installing left halfshaft flange - "Removing" chapter

top of page

Removing sealing ring for halfshaft flange

Removing sealing ring for halfshaft flange



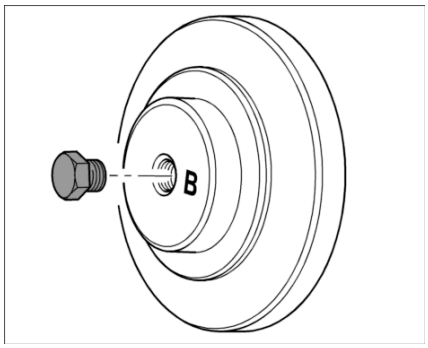
Levering out the sealing ring

1. Lever out the sealing ring from the transmission cover.

top of page

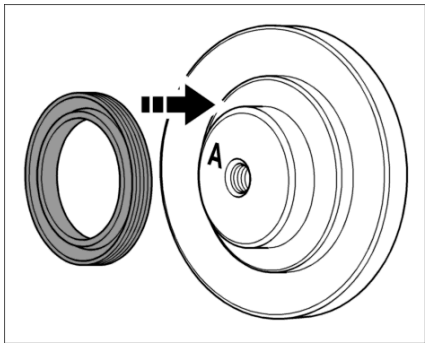
Installing sealing ring for halfshaft flange

Installing sealing ring for halfshaft flange



Screw in special tool

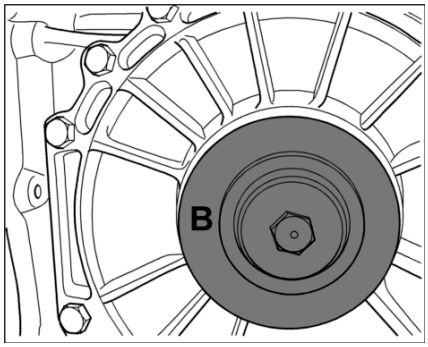
1. Screw M10 x 30 hexagon-head bolt into side B of **Pressure piece 9734**.



Sealing ring on special tool

2.

Thinly coat sealing lip and outer circumference of sealing ring with Vaseline and place the sealing ring on side A of **pressure piece 9734** .



Tapping in sealing ring

3. Hammer the sealing ring along with **pressure piece 9734** completely into the transmission cover by hitting the hexagon-head bolt.

top of page

Subsequent work

Subsequent work

1. Install left halfshaft flange. 392519 Removing and installing left halfshaft flange - "Installing" chapter
2. Check transmission oil level. *340101 Checking transmission oil*
3. Fit the underbody panel. 519419 Removing and installing rear cover - chapter on "installing"
4. Lower the vehicle.

997110, 997111, 997120, 997121, 997310, 997311, 997320, 997321, 997410, 997411, 997430, 997431, 997610, 997611, 997620, 997621

as of MY 2005
Country C00, C02, C05, C07, C08, C09, C10, C11, C12, C13, C14, C15, C16, C18, C19, C20, C21, C22, C23, C24, C25, C26, C27, C28, C32, C33, C34, C35, C36, C37, C38, C39, C45, C46, C98, C99

WARNUNG

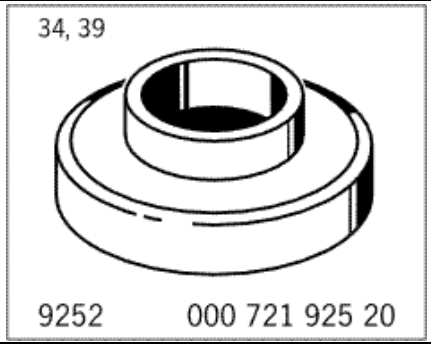
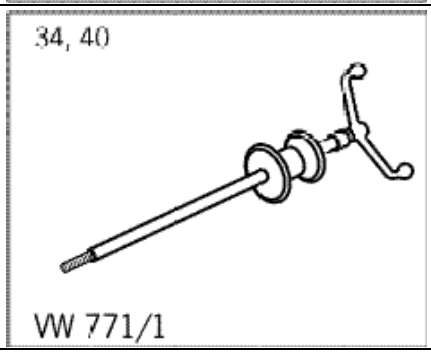
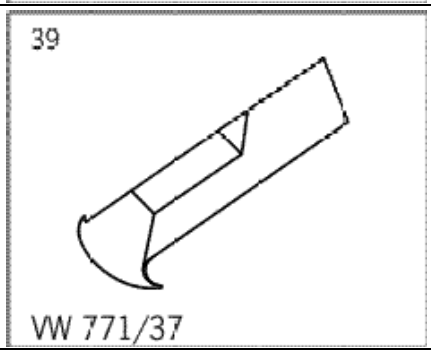
Gefahr des Verlusts der Text-Bild-Zuordnung beim Ausdruck.

- **Aus technischen Gründen kann derzeit nicht ausgeschlossen werden, dass trotz einwandfreier Darstellung auf dem Bildschirm beim Ausdruck der Zusammenhang von Text und zugehörigem Bild verloren geht.**

39 22 19 Removing and installing sealing ring for short halfshaft flange - as of MY 2005

- Preliminary work
- Removing sealing ring for short halfshaft flange
- Installing sealing ring for halfshaft flange
- Subsequent work

Tools

Designation	Type	Number	Explanation	
pressure piece	special tool	9252		
striker	VW-tool	VW 771/1		
extraction tool	VW-tool	VW 771/37		

top of page

Preliminary work

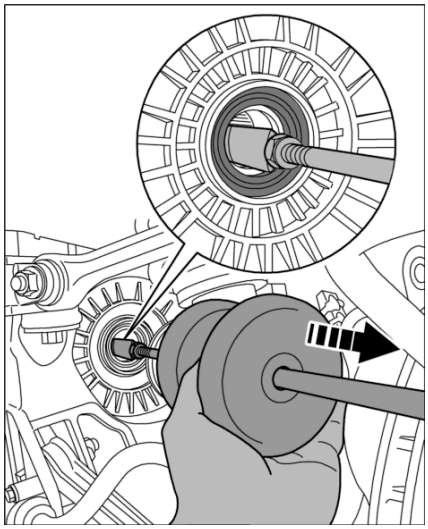
Preliminary work

1. Raise the vehicle at the prescribed jacking points. *Raising the vehicle*
2. Remove right rear wheel. 440519 Removing and installing wheel - removing
3. Remove short halfshaft flange. *21 Removing and installing short halfshaft flange - removing*

top of page

Removing sealing ring for short halfshaft flange

Removing sealing ring for short halfshaft flange



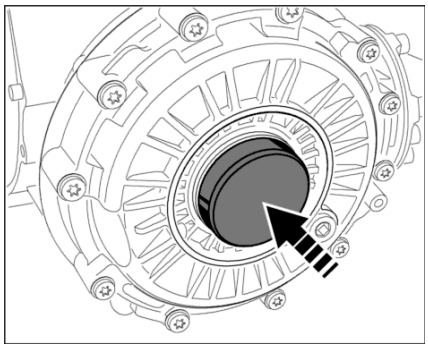
Knocking out sealing ring

1. Remove sealing ring from transmission using **striker VW 771/1** and **extraction tool VW 771/37**.

top of page

Installing sealing ring for halfshaft flange

Installing sealing ring for short halfshaft flange



Tapping in sealing ring

Note

The sealing ring must fit in the transmission housing at the same depth all round.

1. Thinly coat sealing lip and outer circumference of sealing ring with Vaseline and insert sealing ring as far as it will go using **pressure piece 9252**.

top of page

Subsequent work

Subsequent work

1. Install short halfshaft flange. *23 Removing and installing short halfshaft flange - installing*
2. Fit right rear wheel. 440519 Removing and installing wheel - installing
3. Check transmission oil level in the final drive and top up if necessary. 399035 Checking and topping up oil for final drive
4. Lower the vehicle.

997110, 997111, 997120, 997121, 997310, 997311, 997320, 997321, 997410, 997411, 997430, 997431, 997610, 997611, 997620, 997621

as of MY 2005
Country C00, C02, C05, C07, C08, C09, C10, C11, C12, C13, C14, C15, C16, C18, C19, C20, C21, C22, C23, C24, C25, C26, C27, C28, C32, C33, C34, C35, C36, C37, C38, C39, C45, C46, C98, C99

WARNUNG

Gefahr des Verlusts der Text-Bild-Zuordnung beim Ausdruck.

- **Aus technischen Gründen kann derzeit nicht ausgeschlossen werden, dass trotz einwandfreier Darstellung auf dem Bildschirm beim Ausdruck der**

39 25 19 Removing and installing right halfshaft flange - as of MY 2005

- Preliminary work
- Removing halfshaft flange
- Installing halfshaft flange
- Subsequent work

top of page

Preliminary work

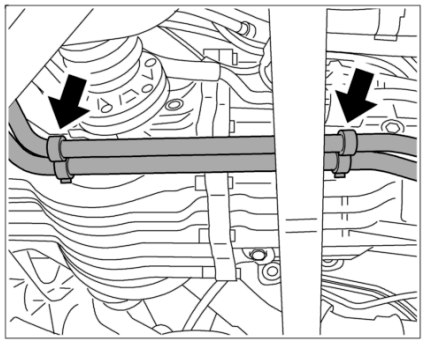
Preliminary work

1. Raise the vehicle at the prescribed jacking points. *Raise the vehicle*
2. Remove the underbody panel. 519419 Removing and installing rear cover - chapter on "removing"

top of page

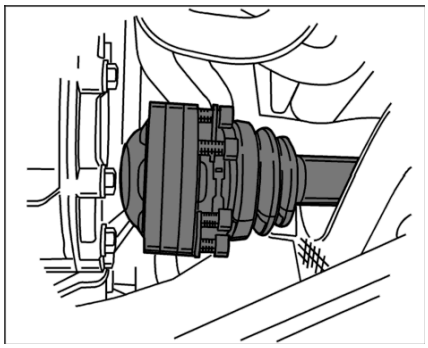
Removing halfshaft flange

Removing halfshaft flange



Coolant line clips

1. Detach coolant lines on the transmission.

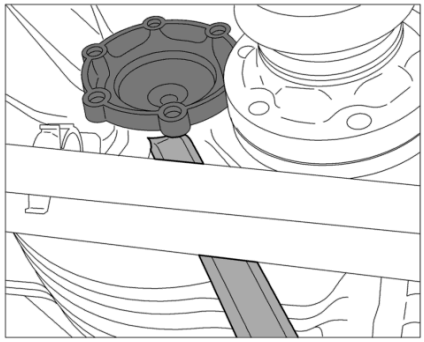


Drive shaft

Note

Protect drive shafts against mechanical damage (e.g. with a rubber hose which has been cut open).

2. Remove drive shaft on transmission side. To do this, unscrew the six hexagon socket head bolts joining the drive shaft and halfshaft flange.



Levering out halfshaft flange

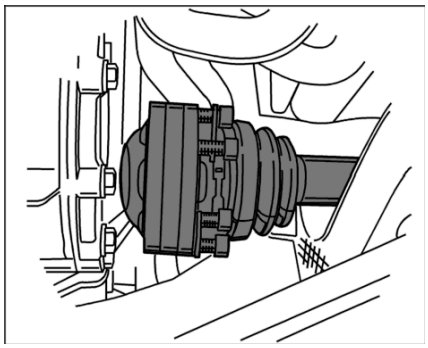
3. Lever out halfshaft flange.

top of page

Installing halfshaft flange

Installing halfshaft flange

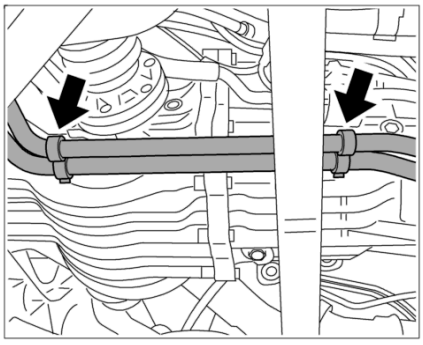
1. Insert halfshaft flange fully into the transmission.



Drive shaft

2. Fit drive shaft on transmission side. To do this, screw in the six Allen screws joining drive shaft and transmission flange and tighten screws.

Location	Explanation	Type	Basic value	Tolerance 1	Tolerance 2
Drive shafts	Fastening screws between drive shaft and halfshaft flange	Tightening torque	81 (60) Nm (ftlb.)		



Coolant line clips

3. Engage coolant lines on the transmission.

top of page

Subsequent work

Subsequent work

1. Fit the underbody panel. 519419 Removing and installing rear cover - chapter on "installing"
2. Lower the vehicle.

997110, 997111, 997120, 997121, 997310, 997311, 997320, 997321, 997410, 997411, 997430, 997431, 997610, 997611, 997620, 997621

39 25 19 Removing and installing left halfshaft flange - as of MY 2005

- Preliminary work
- Removing halfshaft flange
- Installing halfshaft flange
- Subsequent work

top of page

Preliminary work

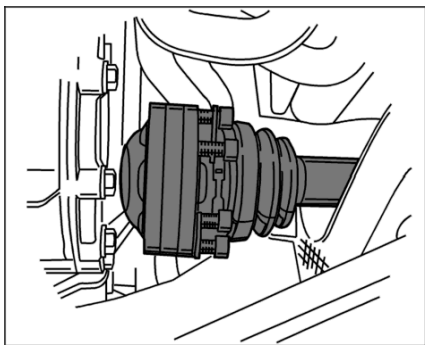
Preliminary work

1. Raise the vehicle at the prescribed jacking points. *Raise the vehicle*
2. Remove the underbody panel. 519419 Removing and installing rear cover - chapter on "removing"

top of page

Removing halfshaft flange

Removing halfshaft flange



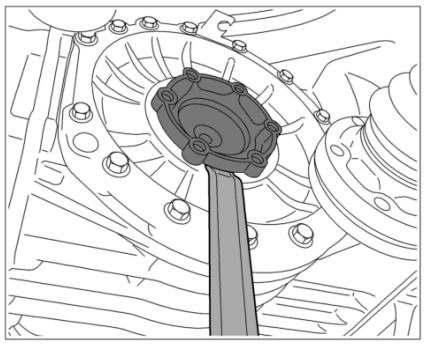
Drive shaft

Note

Protect drive shafts against mechanical damage (e.g. with a rubber hose which has been cut open).

1.

Remove drive shaft on transmission side. To do this, unscrew the six hexagon socket head bolts joining the drive shaft and halfshaft flange.



Levering out halfshaft flange

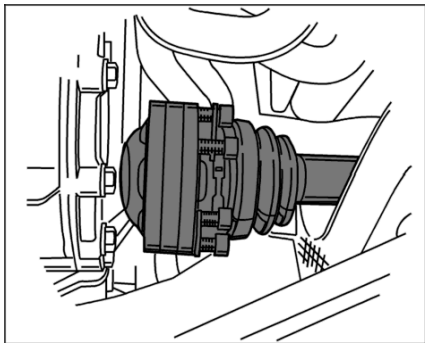
2. Lever out halfshaft flange.

top of page

Installing halfshaft flange

Installing halfshaft flange

1. Insert halfshaft flange fully into the transmission.



Drive shaft

2. Fit drive shaft on transmission side. To do this, screw in the six Allen screws joining drive shaft and transmission flange and tighten screws.

Location	Explanation	Type	Basic value	Tolerance 1	Tolerance 2
Drive shafts	Fastening screws between drive shaft and halfshaft flange	Tightening torque	81 (60) Nm (ftlb.)		

top of page

Subsequent work

Subsequent work

1. Fit the underbody panel. 519419 Removing and installing rear cover - chapter on "installing"
2. Lower the vehicle.

997110, 997111, 997120, 997121, 997310, 997311, 997320, 997321, 997410, 997411, 997430, 997431, 997610, 997611, 997620, 997621

as of MY 2005
Country C00, C02, C05, C07, C08, C09, C10, C11, C12, C13, C14, C15, C16, C18, C19, C20, C21, C22, C23, C24, C25, C26, C27, C28, C32, C33, C34, C35, C36, C37, C38, C39, C45, C46, C98, C99

WARNUNG

Gefahr des Verlusts der Text-Bild-Zuordnung beim Ausdruck.

- **Aus technischen Gründen kann derzeit nicht ausgeschlossen werden, dass trotz einwandfreier Darstellung auf dem Bildschirm beim Ausdruck der Zusammenhang von Text und zugehörigem Bild verloren geht.**
- **Wird der Fehler nicht bemerkt, besteht die Gefahr, daß Arbeiten nicht korrekt durchgeführt werden und es dadurch zu Personen- und Sachschäden kommt.**

Vergleichen Sie deshalb nach dem Druckvorgang unbedingt die Ausdrucke mit der Bildschirmdarstellung. Korrigieren Sie die Ausdrucke im Fehlerfall so, daß der Inhalt der Bildschirmdarstellung zutreffend wiedergegeben wird.

WARNING

Danger of losing text-figure correspondence when printing out.

- **For technical reasons, it can currently not be ruled out that the correspondence between text and associated figure can be lost when it is printed out, even though the display on the screen is correct.**
- **If the fault is not noticed, there is the danger that work will not be performed correctly which can cause injury and damage.**

Therefore, always compare printouts with the screen display after printing them out. Correct the printouts if they are faulty so that the content of the screen display matches that on the printouts.

AVERTISSEMENT

Risque de perte de la correspondance texte-illustration lors de l'impression papier.

39 25 19 Removing and installing short halfshaft flange - as of MY 2005

- Preliminary work
- Removing short halfshaft flange
- Installing short halfshaft flange
- Subsequent work

top of page

Preliminary work

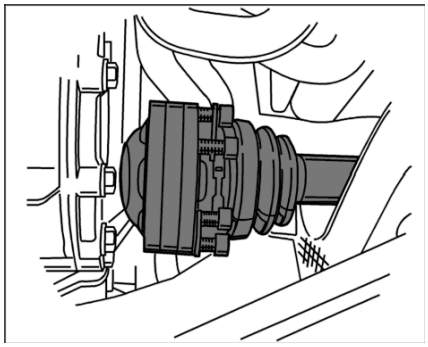
Preliminary work

1. Raise the vehicle at the prescribed jacking points. *Raising the vehicle*
2. Remove right rear wheel. 440519 Removing and installing wheel - removing
3. Remove the underbody panel. 519419 Removing and installing rear cover - chapter on "removing"

top of page

Removing short halfshaft flange

Removing short halfshaft flange

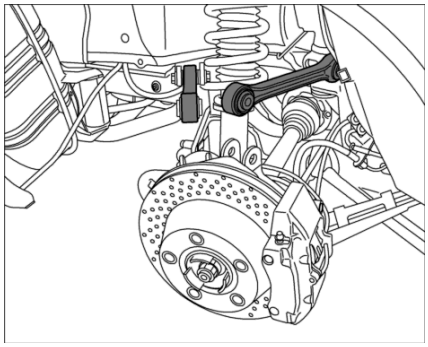


Drive shaft

Note

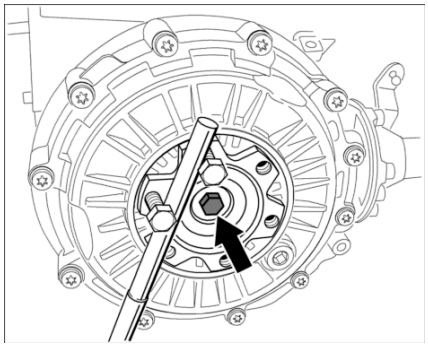
Protect drive shafts against mechanical damage (e.g. with a rubber hose which has been cut open).

1. Remove drive shaft on transmission side. To do this, unscrew the six Allen screws joining the drive shaft and halfshaft flange.
2. Remove spacer ring.



Upper control arms

3. Undo both upper control arms at the outside and remove screws.



Fastening screw for halfshaft flange

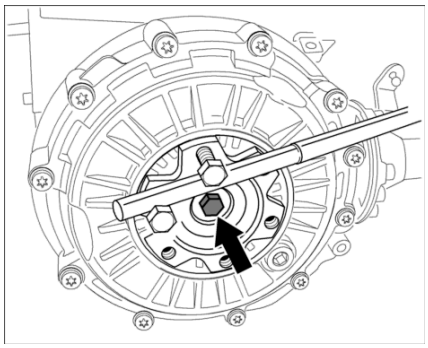
4. Unscrew fastening screw for halfshaft flange. To do this, screw two drive shaft screws into the halfshaft flange for countering purposes and loosen fastening screw.
5. Press wheel carrier downwards and pull out halfshaft flange.

top of page

Installing short halfshaft flange

Installing short halfshaft flange

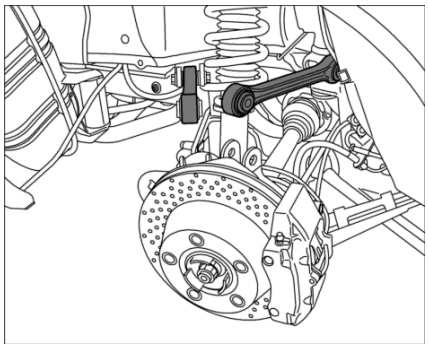
1. Push halfshaft flange into transmission.



Fastening screw for halfshaft flange

2. Screw in fastening screw for halfshaft flange. To do this, screw two drive shaft screws into the halfshaft flange for countering purposes and tighten fastening screw.

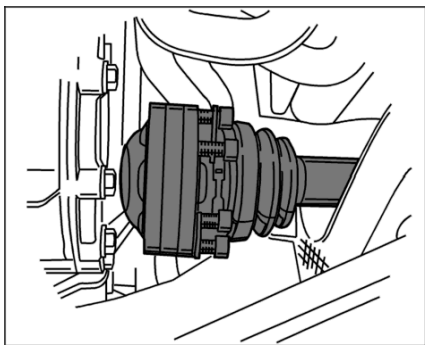
Location	Explanation	Type	Basic value	Tolerance 1	Tolerance 2
Halfshaft flange		Tightening torque	46 (34) Nm (ftlb.)		



Upper control arms

3. Screw in and tighten fastening screws for upper control arms.

Location	Explanation	Type	Basic value	Tolerance 1	Tolerance 2
Upper control arms		Tightening torque	110 (81.5) Nm (ftlb.)		



Drive shaft

Note

Protect drive shafts against mechanical damage (e.g. with a rubber hose which has been cut open).

4.

Fit drive shaft on transmission side. To do this, screw in the six Allen screws joining drive shaft and transmission flange and tighten screws.

Location	Explanation	Type	Basic value	Tolerance 1	Tolerance 2
Drive shafts	Fastening screws between drive shaft and halfshaft flange	Tightening torque	81 (60) Nm (ftlb.)		

top of page

Subsequent work

Subsequent work

1. Fit right rear wheel. 440519 Removing and installing wheel - installing
2. Check transmission oil level in the final drive and top up if necessary. 399035 Checking and topping up oil for final drive
3. Fit the underbody panel. 519419 Removing and installing rear cover - chapter on "installing"
4. Lower the vehicle.

997110, 997111, 997120, 997121, 997310, 997311, 997320, 997321, 997410, 997411, 997430, 997431, 997610, 997611, 997620, 997621

as of MY 2005
Country C00, C02, C05, C07, C08, C09, C10, C11, C12, C13, C14, C15, C16, C18, C19, C20, C21, C22, C23, C24, C25, C26, C27, C28, C32, C33, C34, C35, C36, C37, C38, C39, C45, C46, C98, C99

WARNUNG

Gefahr des Verlusts der Text-Bild-Zuordnung beim Ausdruck.

- **Aus technischen Gründen kann derzeit nicht ausgeschlossen werden, dass trotz einwandfreier Darstellung auf dem Bildschirm beim Ausdruck der Zusammenhang von Text und zugehörigem Bild verloren geht.**
- **Wird der Fehler nicht bemerkt, besteht die Gefahr, daß Arbeiten nicht korrekt durchgeführt werden und es dadurch zu Personen- und Sachschäden kommt.**

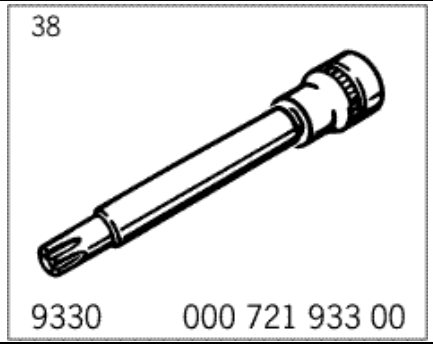
Vergleichen Sie deshalb nach dem Druckvorgang unbedingt die Ausdrucke mit der Bildschirmdarstellung. Korrigieren Sie die Ausdrucke im Fehlerfall so, daß der Inhalt der Bildschirmdarstellung zutreffend wiedergegeben wird.

WARNING

39 25 19 Removing and installing long halfshaft flange - as of MY 2005

- Preliminary work
- Removing long halfshaft flange
- Installing long halfshaft flange
- Subsequent work

Tools

Designation	Type	Number	Explanation	
socket wrench	special tool	9330		

top of page

Preliminary work

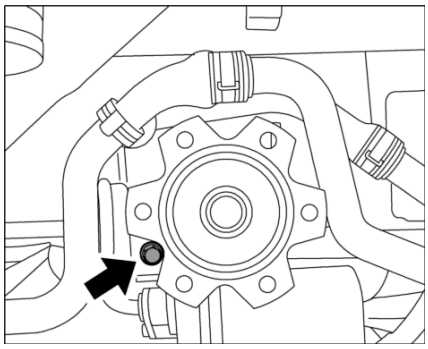
Preliminary work

1. Raise the vehicle at the prescribed jacking points. *Raising the vehicle*
2. Remove left rear wheel. 440519 Removing and installing wheel - removing
3. Remove left drive shaft. 422119 Removing and installing drive shaft - removing

top of page

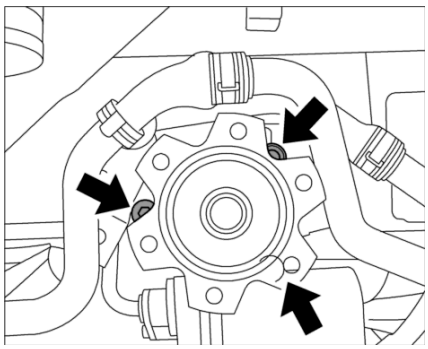
Removing long halfshaft flange

Removing long halfshaft flange



Holder screw

1. Unscrew fastening screw for the coolant hose holder on the mounting saddle.



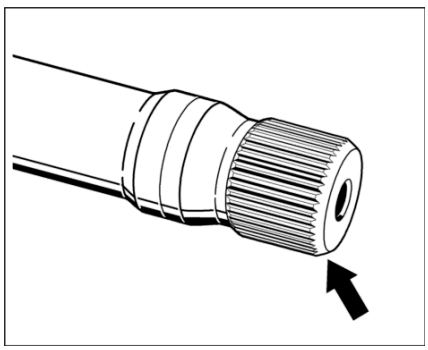
Mounting saddle screws

2. Unscrew fastening screws for the mounting saddle using **socket wrench 9330**.
3. Carefully pull halfshaft flange out of transmission.

top of page

Installing long halfshaft flange

Installing long halfshaft flange



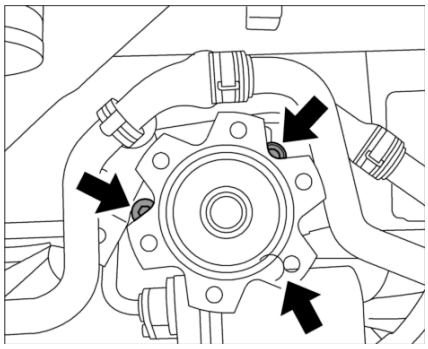
Checking halfshaft flange

1. Check halfshaft flange for burrs and sharp edges on the transmission end of the shaft and deburr if necessary.

Note

To avoid damaging the sealing ring in the transmission, the halfshaft flange must be guided carefully into position by hand.

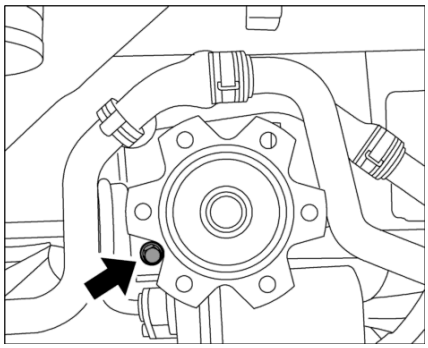
2. Carefully insert halfshaft flange into the transmission.



Mounting saddle screws

3. Screw in and tighten fastening screws for the mounting saddle using **socket wrench 9330**.

Location	Explanation	Type	Basic value	Tolerance 1	Tolerance 2
Mounting saddle		Tightening torque	23 (17) Nm (ftlb.)		



Holder screw

4. Screw in and tighten fastening screw for the coolant hose holder on the mounting saddle.

Location	Explanation	Type	Basic value	Tolerance 1	Tolerance 2
Fastening screw for coolant hose holder		Tightening torque	10 (7.5) Nm (ftlb.)		

top of page

Subsequent work

Subsequent work

1. Install left drive shaft. 422119 Removing and installing drive shaft - installing
2. Mount left rear wheel. 440519 Removing and installing wheel - installing
3. Lower the vehicle.

997110, 997111, 997120, 997121, 997310, 997311, 997320, 997321, 997410, 997411, 997430, 997431, 997610, 997611, 997620, 997621

as of MY 2005
Country C00, C02, C05, C07, C08, C09, C10, C11, C12, C13, C14, C15, C16, C18, C19, C20, C21, C22, C23, C24, C25, C26, C27, C28, C32, C33, C34, C35, C36, C37, C38, C39, C45, C46, C98, C99

WARNUNG

Gefahr des Verlusts der Text-Bild-Zuordnung beim Ausdruck.

- **Aus technischen Gründen kann derzeit nicht ausgeschlossen werden, dass trotz einwandfreier Darstellung auf dem Bildschirm beim Ausdruck der Zusammenhang von Text und zugehörigem Bild verloren geht.**
- **Wird der Fehler nicht bemerkt, besteht die Gefahr, daß Arbeiten nicht korrekt durchgeführt werden und es dadurch zu Personen- und Sachschäden kommt.**

Vergleichen Sie deshalb nach dem Druckvorgang unbedingt die Ausdrucke mit der Bildschirmdarstellung. Korrigieren Sie die Ausdrucke im Fehlerfall so, daß der Inhalt der Bildschirmdarstellung zutreffend wiedergegeben wird.

WARNING

Danger of losing text-figure correspondence when printing out.

- **For technical reasons, it can currently not be ruled out that the correspondence between text and associated figure can be lost when it is printed out, even though the display on the screen is correct.**
- **If the fault is not noticed, there is the danger that work will not be performed correctly which can cause injury and damage.**

Therefore, always compare printouts with the screen display after printing them out. Correct the printouts if they are faulty so that the content of the screen display matches that on the printouts.

AVERTISSEMENT

Risque de perte de la correspondance texte-illustration lors de l'impression papier.

39 58 19 Removing and installing cover for front final drive - as of MY 2006

- Preliminary work
- Removing cover for front final drive
- Installing cover for front final drive
- Subsequent work

Tools

Designation	Type	Number	Explanation	
centring pins	special tool	P 9321		

top of page

Preliminary work

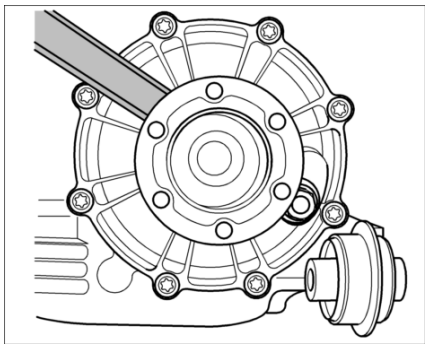
Preliminary work

1. Raise the vehicle at the specified jacking points. *401000 Lifting the vehicle*
2. Remove underbody panel. 519419 Removing and installing rear cover - removing *519320 21 Removing and installing middle cover - removing* 519219 Removing and installing front cover - removing
3. Remove cardan shaft. 390219 Removing and installing cardan shaft - section on "Removing"
4. Remove front final drive. 398819 Removing and installing front final drive - section on "Removing"
5. Drain oil for front final drive. 399055 Changing oil for front final drive - section on "Draining"

top of page

Removing cover for front final drive

Removing cover for front final drive



Halfshaft flange

1. Lever out halfshaft flange with mounting lever.
2. Unscrew fastening screws between the cover and the transmission.
3. Remove cover by tapping lightly with a rubber hammer if necessary.

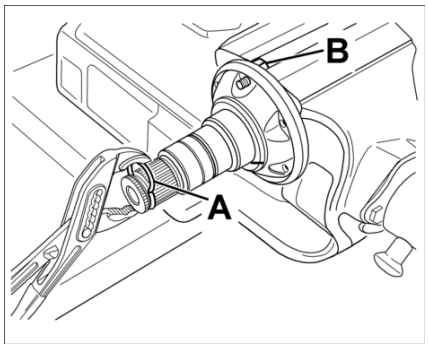
top of page

Installing cover for front final drive

Installing cover for front final drive

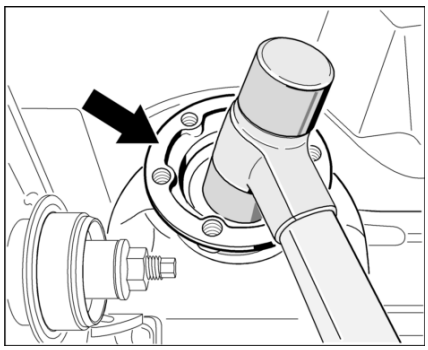
1. Fit untwisted sealing ring on cover.
2. Coat sealing ring with Vaseline.
3. Place cover on transmission and position with **centring pins P 9321**.
4. Screw in fastening screws between the cover and the transmission.

Location	Explanation	Type	Basic value	Tolerance 1	Tolerance 2
Fastening screws securing cover to transmission		Tightening torque	25 (19 ftlb.) Nm		



Replacing circlip

5. Replace circlip for the halfshaft flange. To do this, clamp the flange in the vice with a hexagon-head bolt **-B-** and press out the circlip with the new circlip **-A-** .
6. Grease circlip for easier fitting.



Driving in halfshaft flange

7. Drive halfshaft flange into transmission using a rubber hammer.

top of page

Subsequent work

Subsequent work

1. Install front final drive. 398819 Removing and installing front final drive - section on "Installing"
2. Fill in oil for front final drive. 399055 Changing oil for front final drive - section on "Filling in"
3. Install cardan shaft. 390219 Removing and installing cardan shaft - section on "Installing"
4. Fit underbody panels. 519319 Removing and installing middle cover - installing 519419 Removing and installing rear cover - installing 519219 Removing and installing front cover - installing
5. Lower the vehicle.

997410, 997411, 997430, 997431, 997610, 997611, 997620, 997621

39 59 19 Removing and installing sealing ring for front halfshaft flange - as of MY 2006

- Preliminary work
- Removing sealing ring for front halfshaft flange
- Installing sealing ring for front halfshaft flange
- Subsequent work

Tools

Designation	Type	Number	Explanation	
pressure piece	special tool	P 9537		

top of page

Preliminary work

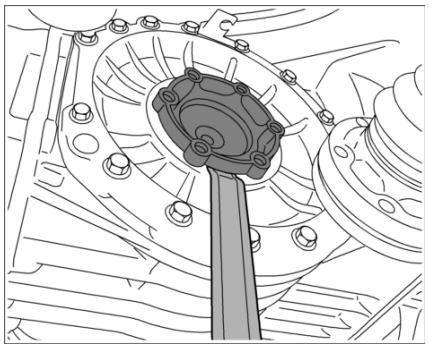
Preliminary work

1. Raise the vehicle at the specified jacking points. *401000 Lifting the vehicle*
2. Remove front underbody panel. 519219 Removing and installing front cover - section on "Removing"
3. Remove front drive shaft. *404119 21 Removing and installing front drive shaft - section on "Removing"*
4. Place oil collection pan under the transmission.

top of page

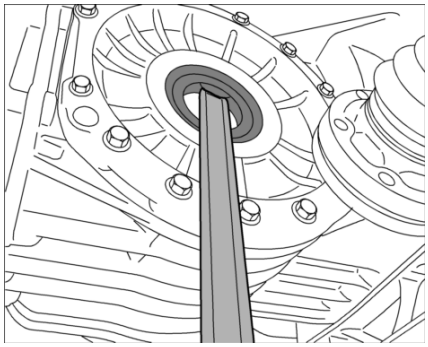
Removing sealing ring for front halfshaft flange

Removing sealing ring for front halfshaft flange



Levering out halfshaft flange

1. Lever out halfshaft flange with mounting lever.



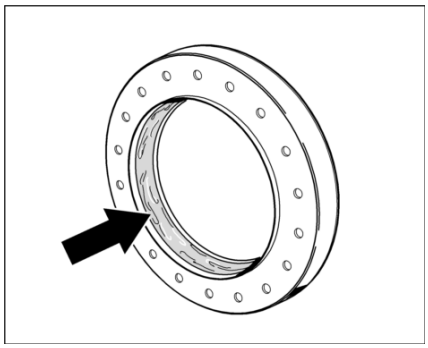
Levering out sealing ring

2. Lever out sealing ring using mounting lever.

top of page

Installing sealing ring for front halfshaft flange

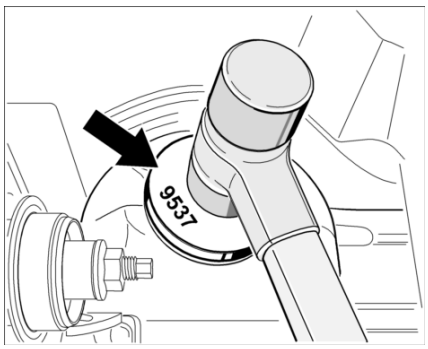
Installing sealing ring for front halfshaft flange



Greasing sealing ring

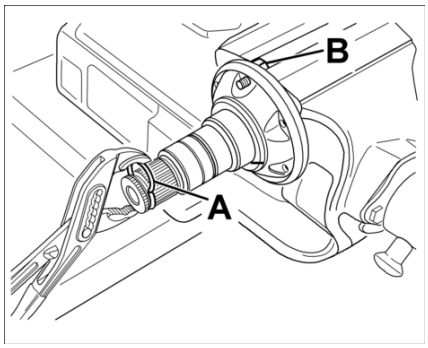
1.

Fill the space between the dust and sealing lips on the new sealing ring with grease, e.g. Liqui-Moly.



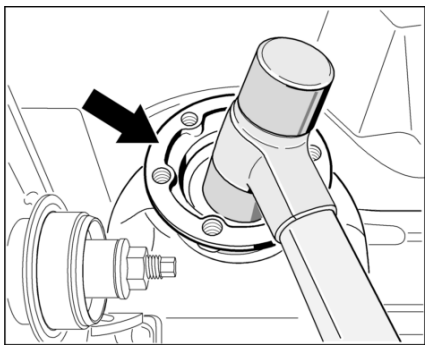
Tapping in sealing ring

2. Drive sealing ring into the transmission using **pressure piece P 9537**.



Replacing circlip

3. Replace circlip for the halfshaft flange. To do this, clamp the flange in the vice with a hexagon-head bolt **-B-** and press out the circlip with the new circlip **-A-** .
4. Grease circlip for easier fitting.



Driving in halfshaft flange

5. Drive halfshaft flange into transmission using a rubber hammer.

top of page

Subsequent work

Subsequent work

1. Install front drive shaft. *404119 23 Removing and installing front drive shaft - section on "Installing"*
2. Check oil for front final drive and top up if necessary. 399035 Checking and topping up oil for front final drive
3. Fit front underbody panel. 519219 Removing and installing front cover - section on "Installing"
4. Lower the vehicle.

997410, 997411, 997430, 997431, 997610, 997611, 997620, 997621

as of MY 2006
Country C00, C02, C05, C07, C08, C09, C10, C11, C12, C13, C14, C15, C16, C18, C19, C20, C21, C22, C23, C24, C25, C26, C27, C28, C32, C33, C34, C35, C36, C37, C38, C39, C45, C46, C98, C99

WARNUNG

Gefahr des Verlusts der Text-Bild-Zuordnung beim Ausdruck.

- **Aus technischen Gründen kann derzeit nicht ausgeschlossen werden, dass trotz einwandfreier Darstellung auf dem Bildschirm beim Ausdruck der Zusammenhang von Text und zugehörigem Bild verloren geht.**
- **Wird der Fehler nicht bemerkt, besteht die Gefahr, daß Arbeiten nicht korrekt durchgeführt werden und es dadurch zu Personen- und Sachschäden kommt.**

Vergleichen Sie deshalb nach dem Druckvorgang unbedingt die Ausdrucke mit der Bildschirmdarstellung. Korrigieren Sie die Ausdrucke im Fehlerfall so, daß der Inhalt der Bildschirmdarstellung zutreffend wiedergegeben wird.

WARNING

Danger of losing text-figure correspondence when printing out.

- **For technical reasons, it can currently not be ruled out that the correspondence between text and associated figure can be lost when it is printed out, even though the display on the screen is correct.**
- **If the fault is not noticed, there is the danger that work will not be performed correctly which can cause injury and damage.**

Therefore, always compare printouts with the screen display after printing them out. Correct the printouts if they are faulty so that the content of the screen display matches that on the printouts.

39 60 01 Checking operation of the viscous clutch - as of MY 2006

- Checking operation of the viscous clutch

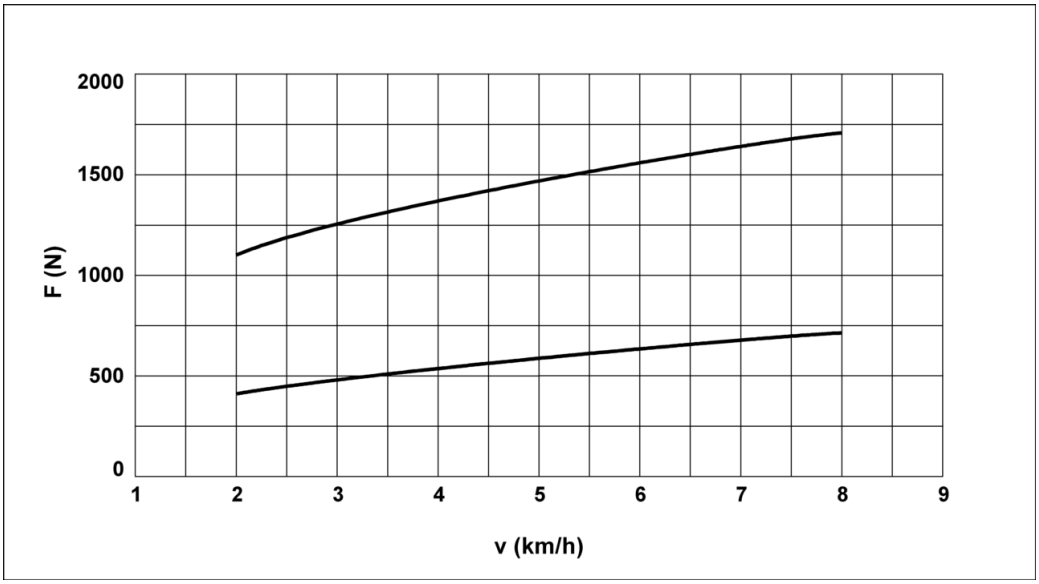
Tools

Designation	Type	Number	Explanation	
PIWIS tester	special tool	P 9718		PORSCHE siehe Handbuch Werkstattausrüstung Voir le Manuel Equipement d´atelier Refer to the Workshop Equipment manual Vease Manual de Equipamiento de Taller Vedere il Manuale dell´attrezzatura d´officina ワークショップ・イクイップメント・マニュアルを参照

top of page

Checking operation of the viscous clutch

Information



Diagram

v - Driving speed on front axle

F - Traction of front wheels

Checking operation of the viscous clutch

The viscous clutch must be at room temperature.The test duration cannot exceed 45 seconds, whereby the measurement is taken after approx. 20 seconds.The measurement can only be repeated after the clutch is allowed to cool down for 60 minutes.

1. Connect the **PIWIS tester P 9718** and check the speed on the front wheels in the "PSM actual values" menu.
2. Drive front wheels of the vehicle onto the roller brake tester.
3. Switch off the engine, put on the handbrake and shift the transmission to idle speed or neutral.

Note

To calculate the traction on the front wheels, the values measured for the individual wheels must be added.

- *The speed on the front axle cannot exceed 8 km/h when the measurement is taken.*
- *To calculate the traction on the front wheels, the values measured for the individual wheels must be added.*

4. Drive front wheels via the rollers on the brake tester and read off the traction and speed on the front wheels after about 20 seconds.

The viscous clutch is working properly if the point of intersection between traction and speed lies within the limit curves in the diagram.
Example: At a speed of 5 km/h, the traction must be between 600 N and 1450 N.

997410, 997411, 997430, 997431, 997610, 997611, 997620, 997621

as of MY 2006
Country C00, C02, C05, C07, C08, C09, C10, C11, C12, C13, C14, C15, C16, C18, C19, C20, C21, C22, C23, C24, C25, C26, C27, C28, C32, C33, C34, C35, C36, C37, C38, C39, C45, C46, C98, C99

WARNUNG

Gefahr des Verlusts der Text-Bild-Zuordnung beim Ausdruck.

- **Aus technischen Gründen kann derzeit nicht ausgeschlossen werden, dass trotz einwandfreier Darstellung auf dem Bildschirm beim Ausdruck der Zusammenhang von Text und zugehörigem Bild verloren geht.**
- **Wird der Fehler nicht bemerkt, besteht die Gefahr, daß Arbeiten nicht korrekt durchgeführt werden und es dadurch zu Personen- und Sachschäden kommt.**

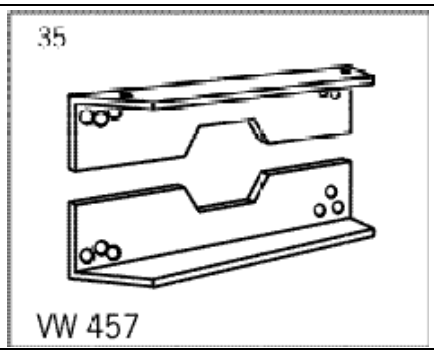
Vergleichen Sie deshalb nach dem Druckvorgang unbedingt die Ausdrucke mit der Bildschirmdarstellung. Korrigieren Sie die Ausdrucke im Fehlerfall so, daß der Inhalt der Bildschirmdarstellung zutreffend wiedergegeben wird.

WARNING

39 60 19 Removing and installing the viscous clutch - as of MY 2006

- Preliminary work
- Removing the viscous clutch
- Installing the viscous clutch
- Subsequent work

Tools

Designation	Type	Number	Explanation	
assembly aid	special tool	P 9638		
holding rails	VW-tool	VW 457		

top of page

Preliminary work

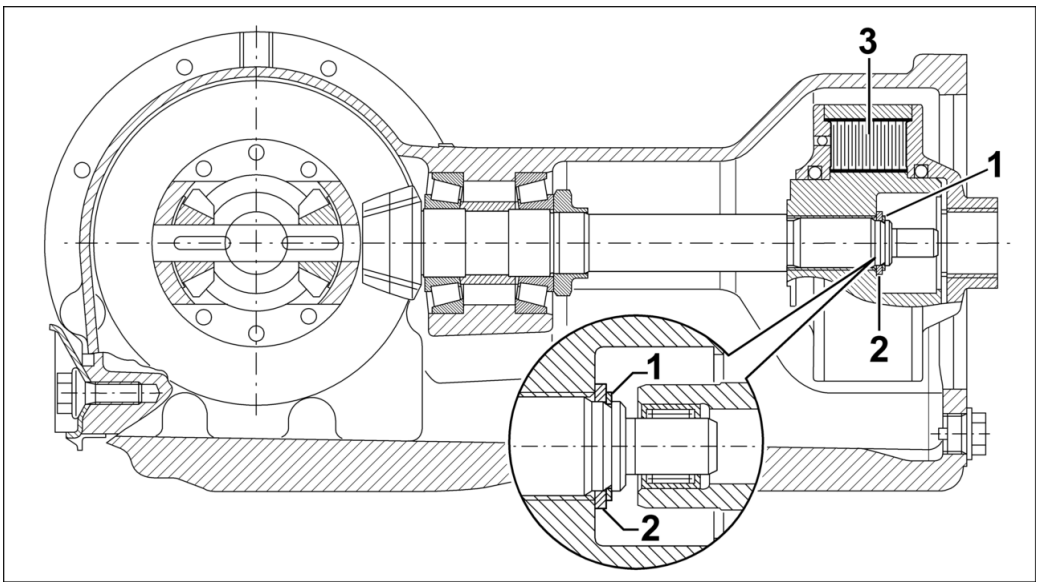
Preliminary work

1. Raise the vehicle at the specified jacking points. *401000 Lifting the vehicle*
2. Remove underbody panel. 519419 Removing and installing rear cover - removing *519320 21 Removing and installing middle cover - removing* 519219 Removing and installing front cover - removing
3. Remove cardan shaft. 390219 Removing and installing cardan shaft - section on "Removing"
4. Remove front final drive. 398819 Removing and installing front final drive - section on "Removing"
5. Drain oil for front final drive. 399055 Changing oil for front final drive - section on "Draining"

top of page

Removing the viscous clutch

Removing the viscous clutch

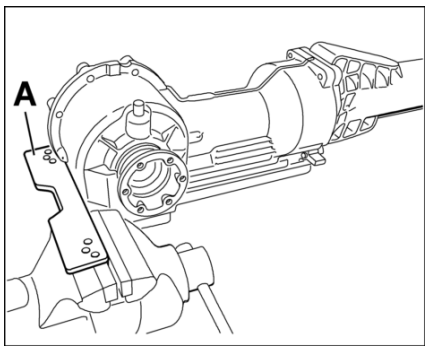


Overview

1 - Circlip

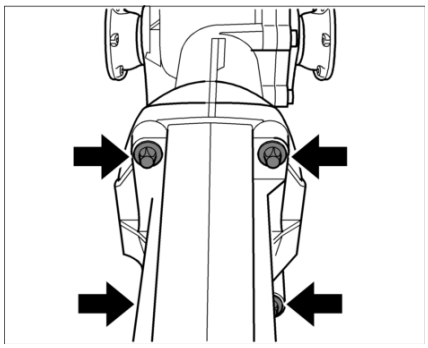
2 - Support washer

3 - Viscous clutch



Clamping final drive

1. Clamp final drive in the vice with **holding rails VW 457** **-A-** .



Long-neck pipe

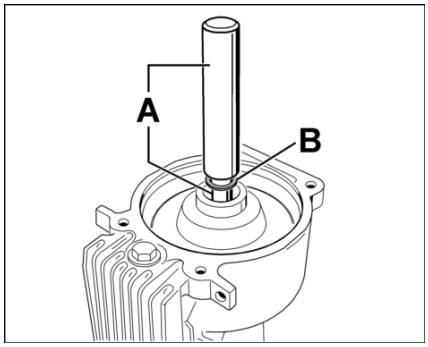
2. Unscrew fastening screws for long-neck pipe and remove long-neck pipe using a rubber hammer if necessary.
3. Take off circlip **-1-** and remove support washer **-2-** .
4. Remove the viscous clutch **-3-** .

top of page

Installing the viscous clutch

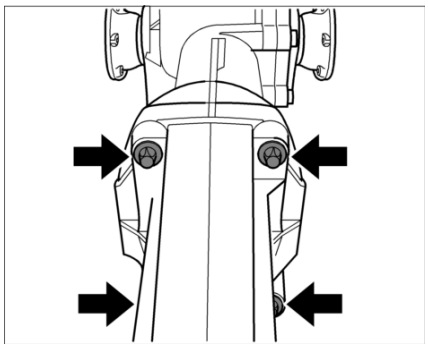
Installing the viscous clutch

1. Insert viscous clutch and fit support washer.



Fitting circlip

2. Position circlip **-B-** and drive into place using **assembly aid P 9638** **-A-** .
3. Use new O-ring for long-neck pipe and coat with Vaseline.



Long-neck pipe

4. Screw in fastening screws for long-neck pipe and tighten uniformly in diagonally opposite sequence.

Location	Explanation	Type	Basic value	Tolerance 1	Tolerance 2
Fastening screw for long-neck pipe		Tightening torque	25 (19 ftlb.) Nm		

5. Remove **holding rails VW 457**.

top of page

Subsequent work

Subsequent work

1. Install front final drive. 398819 Removing and installing front final drive - section on "Installing"
2. Fill in oil for front final drive. 399055 Changing oil for front final drive - section on "Filling in"
3. Install cardan shaft. 390219 Removing and installing cardan shaft - section on "Installing"
4. Fit underbody panels. 519319 Removing and installing middle cover - installing 519419 Removing and installing rear cover - installing 519219 Removing and installing front cover - installing
5. Lower the vehicle.

997410, 997411, 997430, 997431, 997610, 997611, 997620, 997621

as of MY 2006
Country C00, C02, C05, C07, C08, C09, C10, C11, C12, C13, C14, C15, C16, C18, C19, C20, C21, C22, C23, C24, C25, C26, C27, C28, C32, C33, C34, C35, C36, C37, C38, C39, C45, C46, C98, C99

WARNUNG

Gefahr des Verlusts der Text-Bild-Zuordnung beim Ausdruck.

39 62 19 Removing and installing support for front final drive - as of MY 2006

- Preliminary work
- Removing support for front final drive
- Installing support for front final drive
- Subsequent work

top of page

Preliminary work

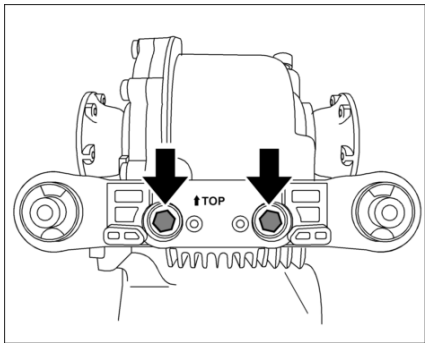
Preliminary work

1. Raise the vehicle at the specified jacking points. *401000 Lifting the vehicle*
2. Remove underbody panel. 519419 Removing and installing rear cover - removing *519320 21 Removing and installing middle cover - removing* 519219 Removing and installing front cover - removing
3. Remove cardan shaft. 390219 Removing and installing cardan shaft - section on "Removing"
4. Remove front final drive. 398819 Removing and installing front final drive - section on "Removing"

top of page

Removing support for front final drive

Removing support for front final drive



Support

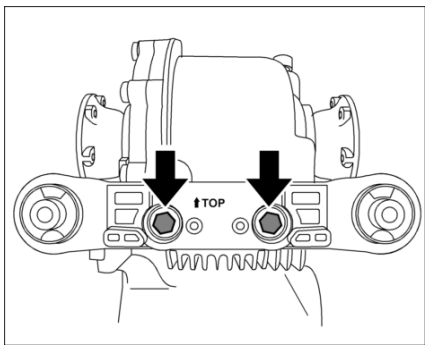
Unscrew fastening screws and remove support.

top of page

Installing support for front final drive

Installing support for front final drive

1. Fit support with angled side facing upwards.



Support

2. Screw in and tighten fastening screws.

Location	Explanation	Type	Basic value	Tolerance 1	Tolerance 2
Fastening screws securing support to transmission	Stage 1	Tightening torque	5 (3.5 ftlb.) Nm		

3. Tighten fastening screws again.

Location	Explanation	Type	Basic value	Tolerance 1	Tolerance 2
Fastening screws securing support to transmission	Stage 2	Tightening torque	65 (48 ftlb.) Nm		

top of page

Subsequent work

Preliminary work

1. Install front final drive. 398819 Removing and installing front final drive - section on "Installing"
2. Install cardan shaft. 390219 Removing and installing cardan shaft - section on "Installing"

3. Fit underbody panels. 519319 Removing and installing middle cover - installing 519419 Removing and installing rear cover - installing 519219 Removing and installing front cover - installing
4. Lower the vehicle.

997410, 997411, 997430, 997431, 997610, 997611, 997620, 997621

as of MY 2006
Country C00, C02, C05, C07, C08, C09, C10, C11, C12, C13, C14, C15, C16, C18, C19, C20, C21, C22, C23, C24, C25, C26, C27, C28, C32, C33, C34, C35, C36, C37, C38, C39, C45, C46, C98, C99

WARNUNG

Gefahr des Verlusts der Text-Bild-Zuordnung beim Ausdruck.

- **Aus technischen Gründen kann derzeit nicht ausgeschlossen werden, dass trotz einwandfreier Darstellung auf dem Bildschirm beim Ausdruck der Zusammenhang von Text und zugehörigem Bild verloren geht.**
- **Wird der Fehler nicht bemerkt, besteht die Gefahr, daß Arbeiten nicht korrekt durchgeführt werden und es dadurch zu Personen- und Sachschäden kommt.**

Vergleichen Sie deshalb nach dem Druckvorgang unbedingt die Ausdrucke mit der Bildschirmdarstellung. Korrigieren Sie die Ausdrucke im Fehlerfall so, daß der Inhalt der Bildschirmdarstellung zutreffend wiedergegeben wird.

WARNING

Danger of losing text-figure correspondence when printing out.

- **For technical reasons, it can currently not be ruled out that the correspondence between text and associated figure can be lost when it is printed out, even though the display on the screen is correct.**
- **If the fault is not noticed, there is the danger that work will not be performed correctly which can cause injury and damage.**

Therefore, always compare printouts with the screen display after printing them out. Correct the printouts if they are faulty so that the content of the screen display matches that on the printouts.

AVERTISSEMENT

Risque de perte de la correspondance texte-illustration lors de l'impression papier.

- **Pour des raisons techniques, il ne peut pas être exclu à l'heure actuelle que, même en cas d'affichage correct à l'écran, la correspondance entre le texte et l'illustration puisse être erronée sur l'impression papier.**
- **Si l'erreur passe inaperçue, on court le risque d'exécuter certaines opérations de manière incorrecte pouvant conduire à des dommages corporels et matériels.**

39 64 19 Removing and installing cardan flange - as of MY 2006

- Preliminary work
- Removing cardan flange
- Installing cardan flange
- Subsequent work

Tools

Designation	Type	Number	Explanation	
three-arm puller: span width 100mm, span depth 100mm	commercially available tool	NR.112-1		
socket-wrench insert a/f 30, 1/2" long	commercially available tool	NR.64		
socket wrench	special tool	P 9669		

top of page

Preliminary work

Preliminary work

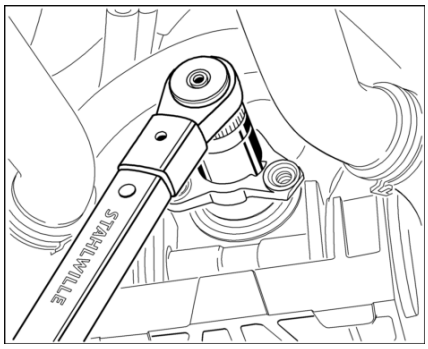
1. Raise the vehicle at the specified jacking points. *401000 Raise the vehicle.*
2. Remove the underbody panel. 519419 Removing and installing rear cover - remove *519320 21 Removing and installing centre cover - remove* 519219 Removing and installing front cover - chapter on "Removing"
3. Remove cardan shaft. 390219 Removing and installing cardan shaft - chapter on "Removing"
4. Place oil collection pan under the transmission.

top of page

Removing cardan flange

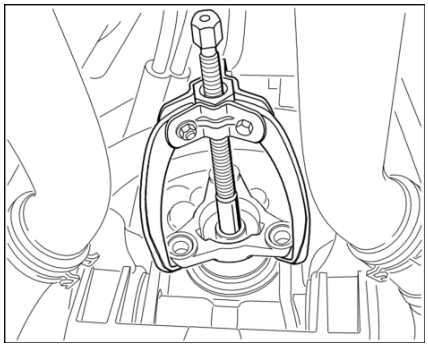
Removing cardan flange

1. Set selector lever to P and firmly set the parking brake.



Loosening nut

2. Loosen collar nut with **socket wrench P 9669** and unscrew.

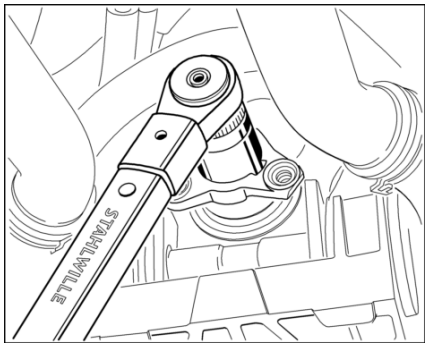


Pulling off flange

3. Remove cardan flange using **three-arm puller: span width 100mm, span depth 100mm NR.112-1**.

Removing cardan flange

1. Engage first gear and firmly set the hand brake.

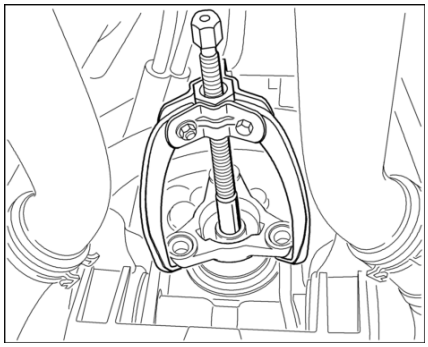


Loosening nut

Note

Transmission shaft and collar nut are connected by a left thread. When loosening and tightening, the direction of rotation of the nut must be observed.

2. Loosen collar nut using **socket-wrench insert a/f 30, 1/2" long NR.64** and unscrew.



Pulling off flange

3. Remove cardan flange using **three-arm puller: span width 100mm, span depth 100mm NR.112-1**.

top of page

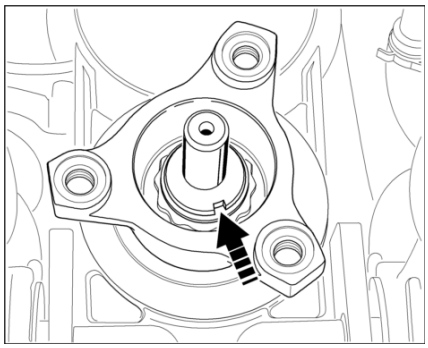
Installing cardan flange

Installing cardan flange

1. Replace O-ring for cardan flange.
2. Screw on new collar nut and tighten using a **socket wrench P 9669**.

Location	Explanation	Type	Basic value	Tolerance 1	Tolerance 2

Collar nut for cardan flange		Tightening torque	160 (118 ftlb.) Nm		



Locking nut

3. Lock nut by pressing in the collar.

Installing cardan flange

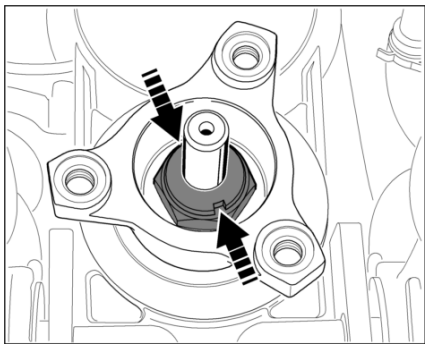
1. Replace O-ring for cardan flange.

Note

Transmission shaft and collar nut are connected by a left thread. When loosening and tightening, the direction of rotation of the nut must be observed.

2. Screw on new collar nut and tighten using **socket-wrench insert a/f 30, 1/2" long NR.64**.

Location	Explanation	Type	Basic value	Tolerance 1	Tolerance 2
Collar nut for cardan flange		Tightening torque	140 (104 ftlb.) Nm		



Locking nut

3. Lock nut by pressing in the collar.

top of page

Subsequent work

Subsequent work

1. Install cardan shaft. 390219 Removing and installing cardan shaft - section on "Installing"
2. Check transmission oil and top it up if necessary. *340101 Checking transmission oil*
3. Fit underbody panels. 519319 Removing and installing centre cover - Installing 519419 Removing and installing rear cover - Installing 519219 Removing and installing front cover - section on "Installing"
4. Lower the vehicle.

Subsequent work

1. Install cardan shaft. 390219 Removing and installing cardan shaft - section on "Installing"
2. Check and if necessary, top up the ATF. 370235 Checking and topping up ATF
3. Fit underbody panels. 519319 Removing and installing centre cover - Installing 519419 Removing and installing rear cover - Installing 519219 Removing and installing front cover - section on "Installing"
4. Lower the vehicle.

997410, 997411, 997430, 997431, 997610, 997611, 997620, 997621

as of MY 2006
Country C00, C02, C05, C07, C08, C09, C10, C11, C12, C13, C14, C15, C16, C18, C19, C20, C21, C22, C23, C24, C25, C26, C27, C28, C32, C33, C34, C35, C36, C37, C38, C39, C45, C46, C98, C99

WARNUNG

Gefahr des Verlusts der Text-Bild-Zuordnung beim Ausdruck.

- **Aus technischen Gründen kann derzeit nicht ausgeschlossen werden, dass trotz einwandfreier Darstellung auf dem Bildschirm beim Ausdruck der Zusammenhang von Text und zugehörigem Bild verloren geht.**
- **Wird der Fehler nicht bemerkt, besteht die Gefahr, daß Arbeiten nicht korrekt durchgeführt werden und es dadurch zu Personen- und Sachschäden kommt.**

Vergleichen Sie deshalb nach dem Druckvorgang unbedingt die Ausdrucke mit der Bildschirmdarstellung. Korrigieren Sie die Ausdrucke im Fehlerfall so, daß der Inhalt der Bildschirmdarstellung zutreffend wiedergegeben wird.

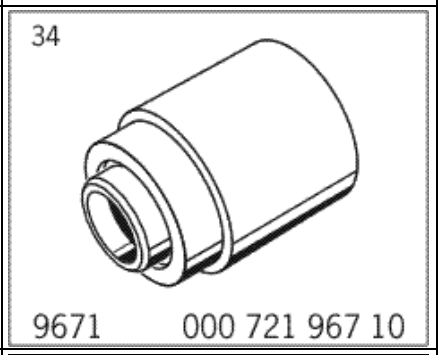
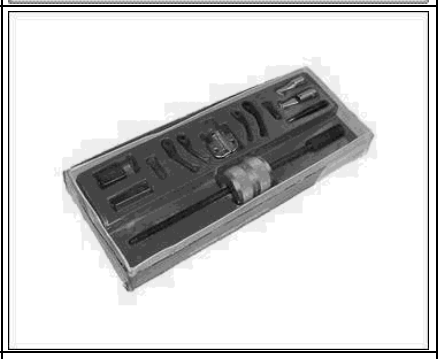
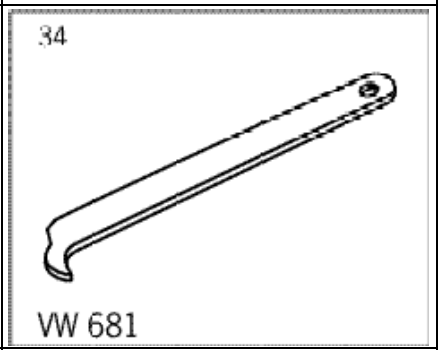
WARNING

Danger of losing text-figure correspondence when printing out.

39 82 19 Removing and installing sealing ring for cardan flange - as of MY 2006

- Preliminary work
- Removing sealing ring for cardan flange
- Installing sealing ring for cardan flange
- Subsequent work

Tools

Designation	Type	Number	Explanation	
pressure piece	commercially available tool	9671		
slide hammer kit	commercially available tool	NR.168		
pressure piece	special tool	P 9668		
hook	VW-tool	VW 681		

top of page

Preliminary work

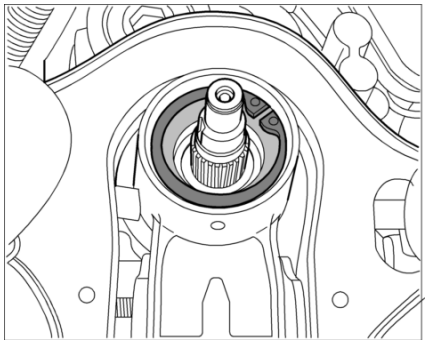
Preliminary work

1. Raise the vehicle at the specified jacking points. *401000 Lifting the vehicle.*
2. Remove underbody panel. 519419 Removing and installing rear cover - Removing *519320 21 Removing and installing middle cover - Removing* 519219 Removing and installing front cover - Removing
3. Remove cardan shaft. 390219 Removing and installing cardan shaft - section on "Removing"
4. Remove cardan flange. 396419 Removing and installing cardan flange - section on "Removing"
5. Place oil collection pan under the transmission.

top of page

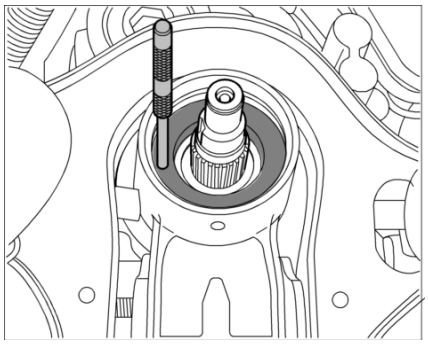
Removing sealing ring for cardan flange

Removing sealing ring for cardan flange



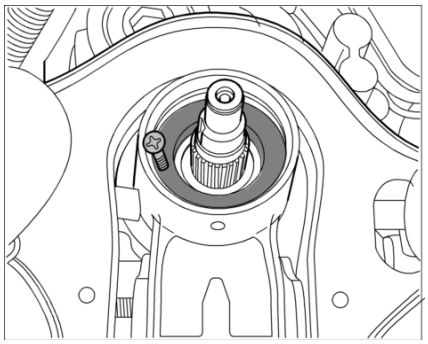
Circlip

1. Remove circlip.
2. Remove washer.



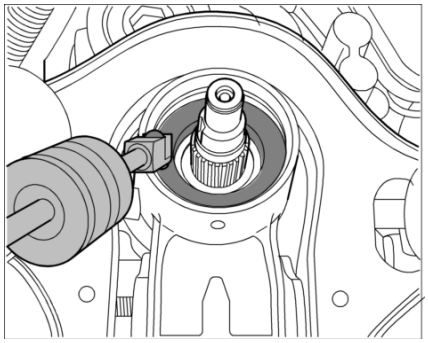
Punching hole

3. Use a suitable tool, e.g. a sharp punch, to make a hole in the sealing ring.



Sheetmetal screw

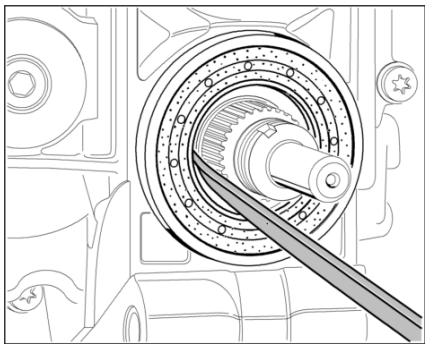
4. Screw sheetmetal screw approx. 1 cm into the sealing ring.



Knocking out sealing ring

5. Knock out sealing ring on screw using **slide hammer kit NR.168**.

Removing sealing ring for cardan flange



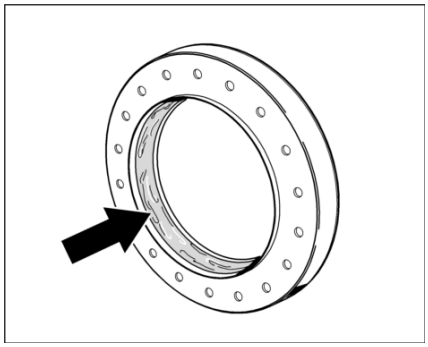
Levering out sealing ring

1. Lever out sealing ring with **hook VW 681**.

top of page

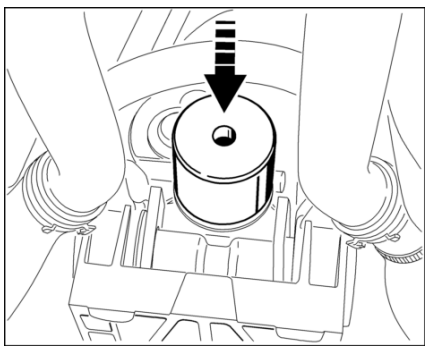
Installing sealing ring for cardan flange

Installing sealing ring for cardan flange



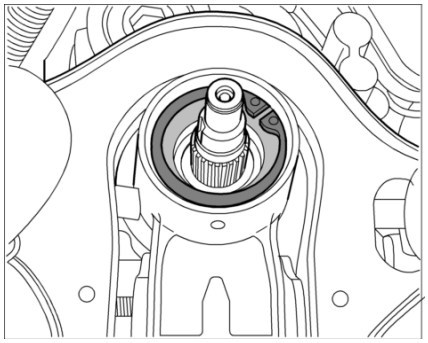
Greasing sealing ring

1. Fill the space between the dust and sealing lips on the new sealing ring with grease, e.g. Liqui-Moly.



Tapping in sealing ring

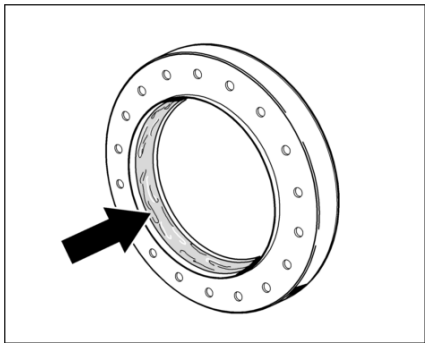
2. Drive sealing ring into the transmission using **pressure piece 9671**.
3. Fit
   washer.



Circlip

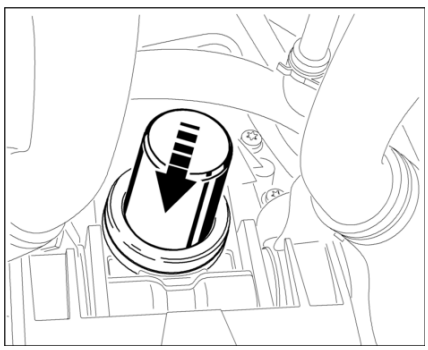
4. Fit
   circlip.

Installing sealing ring for cardan flange



Greasing sealing ring

1. Fill the space between the dust and sealing lips on the new sealing ring with grease, e.g. Liqui-Moly.



Tapping in sealing ring

2.

Drive sealing ring into the transmission using **pressure piece P 9668**.

top of page

Subsequent work

Subsequent work

1. Install cardan flange. 396419 Removing and installing cardan flange - section on "Installing"
2. Install cardan shaft. 390219 Removing and installing cardan shaft - section on "Installing"
3. Check transmission oil and top up if necessary. *340101 Checking transmission oil*
4. Fit underbody panels. 519319 Removing and installing middle cover - Installing 519419 Removing and installing rear cover - Installing 519219 Removing and installing front cover - Installing
5. Lower the vehicle.

Subsequent work

1. Install cardan flange. 396419 Removing and installing cardan flange - section on "Installing"
2. Install cardan shaft. 390219 Removing and installing cardan shaft - section on "Installing"
3. Check and if necessary, top up the ATF. 370235 Checking and topping up ATF
4. Fit underbody panels. 519319 Removing and installing centre cover - Installing 519419 Removing and installing rear cover - Installing 519219 Removing and installing front cover - section on "Installing"
5. Lower the vehicle.

997410, 997411, 997430, 997431, 997610, 997611, 997620, 997621

as of MY 2006
Country C00, C02, C05, C07, C08, C09, C10, C11, C12, C13, C14, C15, C16, C18, C19, C20, C21, C22, C23, C24, C25, C26, C27, C28, C32, C33, C34, C35, C36, C37, C38, C39, C45, C46, C98, C99

WARNUNG

Gefahr des Verlusts der Text-Bild-Zuordnung beim Ausdruck.

- **Aus technischen Gründen kann derzeit nicht ausgeschlossen werden, dass trotz einwandfreier Darstellung auf dem Bildschirm beim Ausdruck der Zusammenhang von Text und zugehörigem Bild verloren geht.**

39 88 19 Removing and installing front final drive - as of MY 2006

- Preliminary work
- Removing front final drive
- Installing front final drive
- Subsequent work

top of page

Preliminary work

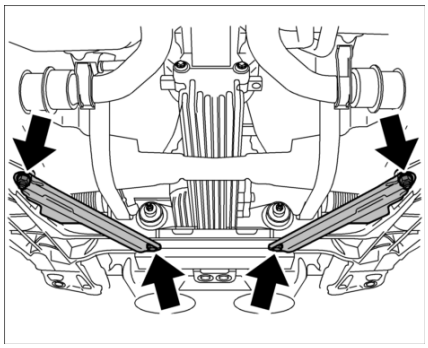
Preliminary work

1. Raise the vehicle at the specified jacking points. *401000 Lifting the vehicle*
2. Remove underbody panel. 519419 Removing and installing rear cover - removing *519320 21 Removing and installing middle cover - removing* 519219 Removing and installing front cover - removing
3. Remove cardan shaft. 390219 Removing and installing cardan shaft - section on "Removing"

top of page

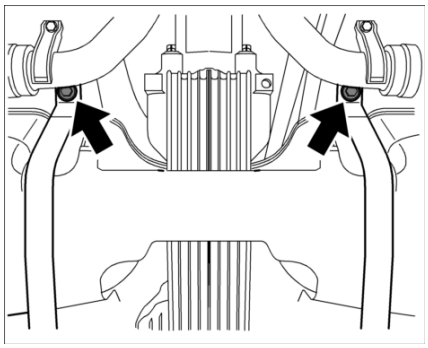
Removing front final drive

Removing front final drive



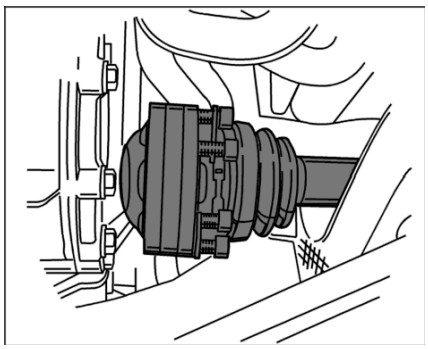
Diagonal braces

1. Remove front diagonal braces.



Cover

2. Remove front cover.

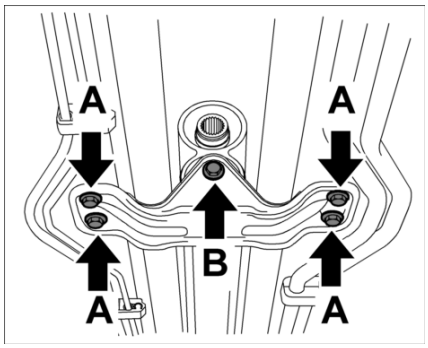


Drive shaft

Note

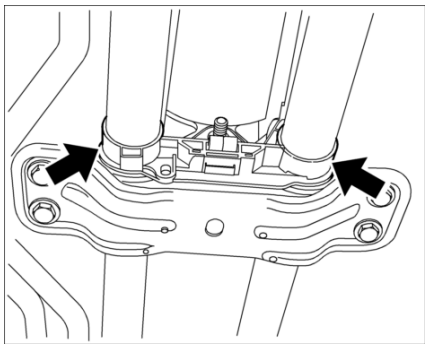
Protect drive shafts against mechanical damage (e.g. with a rubber hose which has been cut open).

3. Remove front drive shafts on transmission side. To do this, unscrew the six hexagon socket head bolts joining each drive shaft and transmission flange. Counter at the wheel to stop it from turning.
4. Place transmission jack under the final drive and fasten retaining strap.



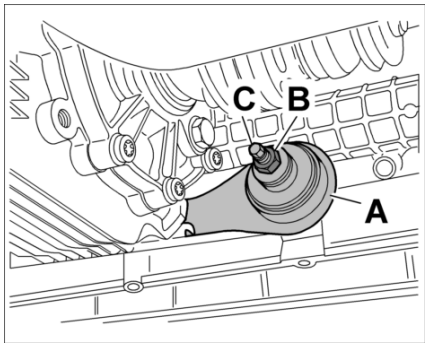
Fastening screws for pipe holder

5. Unscrew fastening screws for pipe holder **-A-** . Never loosen screw between pipe holder and transmission mount **-B-** .



Pipe holder

6. Disengage pipe holder from lines and remove it.



Final drive mount

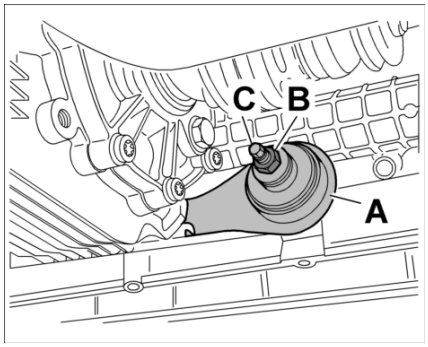
7. Undo fastening nuts **-B-** for front bracket **-A-** and unscrew the studs **-C-** .
8. Carefully lower the final drive out. When doing so, avoid damaging the coolant pipes.

top of page

Installing front final drive

Installing front final drive

1. Carefully guide the final drive into position from below. When doing so, avoid damaging the coolant pipes.



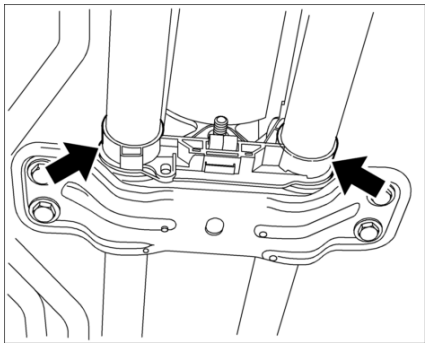
Final drive mount

2. Screw studs **-C-** through the transmission support **-A-** and into the front-axle cross member.

Location	Explanation	Type	Basic value	Tolerance 1	Tolerance 2
Stud on front-axle cross member		Tightening torque	20 (15 ftlb.) Nm		

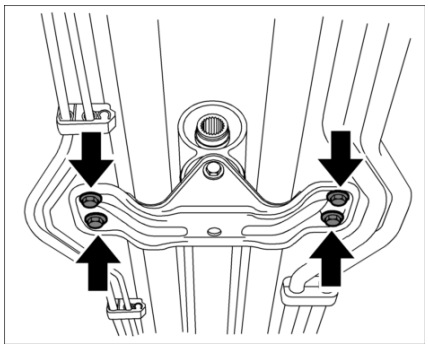
3. Screw fastening nuts **-B-** onto studs and tighten.

Location	Explanation	Type	Basic value	Tolerance 1	Tolerance 2
Fastening nut on stud		Tightening torque	65 (48 ftlb.) Nm		



Pipe holder

4. Engage pipe holder on lines.

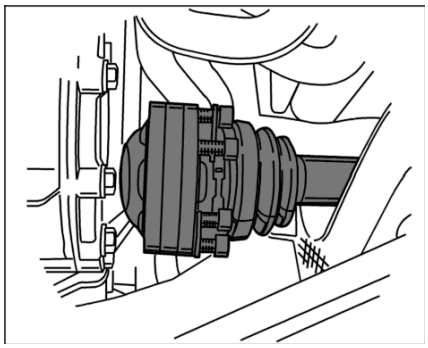


Pipe holder

5. Screw in fastening screws for pipe holder.

Location	Explanation	Type	Basic value	Tolerance 1	Tolerance 2
Fastening screws securing pipe holder to body		Tightening torque	65 (48 ftlb.) Nm		

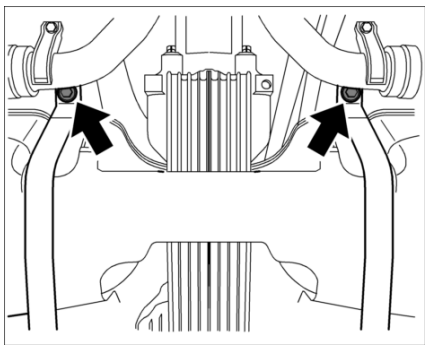
6. Remove transmission jack.



Drive shaft

7. Fit front drive shafts on transmission side. To do this, screw in six hexagon socket head bolts between each drive shaft and the transmission flange and tighten bolts. Counter at the wheel to stop it from turning.

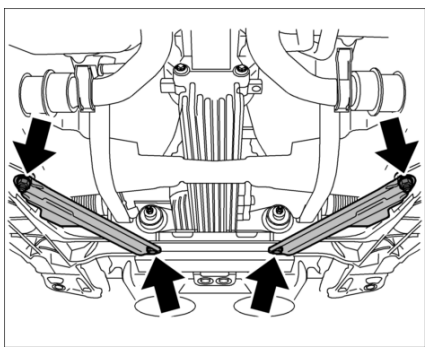
Location	Explanation	Type	Basic value	Tolerance 1	Tolerance 2
Drive shafts	Fastening screws between drive shaft and transmission flange	Tightening torque	39 (29 ftlb.) Nm		



Cover

8. Install front cover.

Location	Explanation	Type	Basic value	Tolerance 1	Tolerance 2
Retaining strap securing cover to body		Tightening torque	23 (17 ftlb.) Nm		



Diagonal braces

9. Install front diagonal braces.

Location	Explanation	Type	Basic value	Tolerance 1	Tolerance 2
Diagonal brace to body		Tightening torque	100 (74 ftlb.) Nm		

top of page

Subsequent work

Subsequent work

1. Install cardan shaft. 390219 Removing and installing cardan shaft - section on "Installing"
2. Check oil for front final drive and top up if necessary. 399035 Checking and topping up oil for front final drive
3. Fit underbody panels. 519319 Removing and installing middle cover - installing 519419 Removing and installing rear cover - installing 519219 Removing and installing front cover - installing
4. Lower the vehicle.

997410, 997411, 997430, 997431, 997610, 997611, 997620, 997621

as of MY 2006
Country C00, C02, C05, C07, C08, C09, C10, C11, C12, C13, C14, C15, C16, C18, C19, C20, C21, C22, C23, C24, C25, C26, C27, C28, C32, C33, C34, C35, C36, C37, C38, C39, C45, C46, C98, C99

WARNUNG

Gefahr des Verlusts der Text-Bild-Zuordnung beim Ausdruck.

- **Aus technischen Gründen kann derzeit nicht ausgeschlossen werden, dass trotz einwandfreier Darstellung auf dem Bildschirm beim Ausdruck der Zusammenhang von Text und zugehörigem Bild verloren geht.**
- **Wird der Fehler nicht bemerkt, besteht die Gefahr, daß Arbeiten nicht korrekt durchgeführt werden und es dadurch zu Personen- und Sachschäden kommt.**

Vergleichen Sie deshalb nach dem Druckvorgang unbedingt die Ausdrucke mit der Bildschirmdarstellung. Korrigieren Sie die Ausdrucke im Fehlerfall so, daß der Inhalt der Bildschirmdarstellung zutreffend wiedergegeben wird.

WARNING

Danger of losing text-figure correspondence when printing out.

- **For technical reasons, it can currently not be ruled out that the correspondence between text and associated figure can be lost when it is printed out, even though**

39 90 35 Checking and topping up oil for front final drive - as of MY 2006

- Information
- Preliminary work
- Checking and topping up oil for front final drive
- Subsequent work

top of page

Information

Notes

Note
Fill only with oil approved by Porsche. See Spare Parts Catalogue.

top of page

Preliminary work

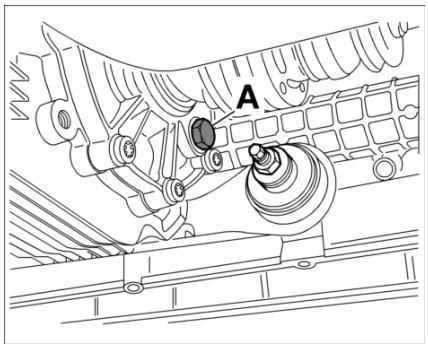
Preliminary work

1. Raise the vehicle at the specified jacking points. *401000 Lifting the vehicle*
2. Remove front underbody panel. 519219 Removing and installing front cover - section on "Removing"
3. Place oil collection pan under the transmission.

top of page

Checking and topping up oil for front final drive

Checking and topping up oil for front-axle final drive



Oil filler screw

1. Unscrew oil filler screw **-A-** .

WARNING
Risk of scalding from hot oil

Let the oil cool down
Wear personal protective gear (goggles, gloves)

The oil level is correct if transmission oil emerges. Continue with step 3.
If transmission oil does not flow out, the oil level in the final drive is too low. Continue with step 2.

2. Fill in transmission oil up to the bottom edge of the filler opening.
3. Clean oil filler plug and screw in with a new sealing ring.

Location	Explanation	Type	Basic value	Tolerance 1	Tolerance 2
Oil filler screw on front-axle final drive		Tightening torque	28 (21 ftlb.) Nm		

top of page

Subsequent work

Subsequent work

1. Fit front underbody panel. 519219 Removing and installing front cover - section on "Installing"
2. Lower the vehicle.

39 90 35 Checking and topping up oil for final drive - as of MY 2005

- Information
- Preliminary work
- Checking and topping up oil for final drive
- Subsequent work

Tools

Designation	Type	Number	Explanation	
ATF filling device for filling transmission	commercially available tool	NR.161		

top of page

Information

Notes

Note
Fill only with oil approved by Porsche. See Spare Parts Catalogue.

Note
Hot vehicles should cool down before beginning the activity.

Note
Vehicle must be horizontal in order to be filled and checked.

top of page

Preliminary work

Preliminary work

1. Raise the vehicle at the prescribed jacking points. *Lifting the vehicle*
2. Remove the underbody panels. 519419 Removing and installing rear trim - removing
3. Place oil collection pan under the transmission.

top of page

Checking and topping up oil for final drive

Checking and topping up oil for final drive

WARNING
Oil for rear final drive can emerge

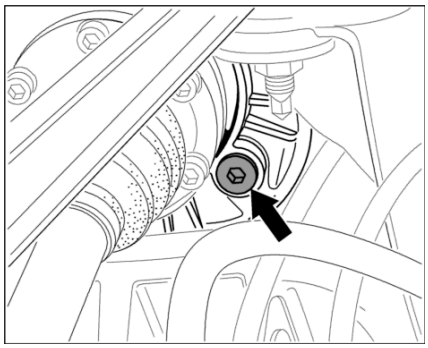
- **Oil for final drive is harmful to the eyes**

Wear personal protective gear (goggles, gloves)

WARNING
Hot oil for rear final drive can emerge

- **Hot oil for final drive is harmful to the eyes and can cause scalding**

Always allow oil for final drive to cool down before starting work
Wear personal protective gear (goggles, gloves)



Oil filler screw on final drive

1. Unscrew oil filler plug.

If oil escapes, the oil level in final drive is Ok. Continue with position 3.
If no oil escapes, the oil level in final drive is too low. Continue with position 2.

2. Fill oil for final drive with **ATF filling device for filling transmission NR.161** until oil escapes at the oil filler opening.
3. Replace sealing ring for filler plug, clean filler plug, and tighten. **Tightening torque: 16 ftlb.**

top of page

Subsequent work

Reworking

1. Fit underbody panels. 519419 Removing and installing rear trim - installing
2. Lower the vehicle.

997110, 997111, 997120, 997121, 997310, 997311, 997320, 997321, 997410, 997411, 997430, 997431, 997610, 997611, 997620, 997621

as of MY 2005
Country C00, C02, C05, C07, C08, C09, C10, C11, C12, C13, C14, C15, C16, C18, C19, C20, C21, C22, C23, C24, C25, C26, C27, C28, C32, C33, C34, C35, C36, C37, C38, C39, C45, C46, C98, C99

WARNUNG

Gefahr des Verlusts der Text-Bild-Zuordnung beim Ausdruck.

- **Aus technischen Gründen kann derzeit nicht ausgeschlossen werden, dass trotz einwandfreier Darstellung auf dem Bildschirm beim Ausdruck der Zusammenhang von Text und zugehörigem Bild verloren geht.**
- **Wird der Fehler nicht bemerkt, besteht die Gefahr, daß Arbeiten nicht korrekt durchgeführt werden und es dadurch zu Personen- und Sachschäden kommt.**

39 90 55 Changing oil for front final drive - as of MY 2006

- Information
- Technical values
- Preliminary work
- Draining oil for final drive
- Filling in oil for final drive
- Subsequent work

top of page

Information

Notes

Note
Fill only with oil approved by Porsche. See Spare Parts Catalogue.

top of page

Technical values

Technical values

Location	Explanation	Type	Basic value	Tolerance 1	Tolerance 2
Front-axle final drive	Change quantity for changing transmission oil	Filling capacity	1.5 litre		

top of page

Preliminary work

Preliminary work

1. Raise the vehicle at the specified jacking points. *401000 Lifting the vehicle*
2. Remove front underbody panel. 519219 Removing and installing front cover - section on "Removing"
3. Place oil collection pan under the transmission.

top of page

Draining oil for final drive

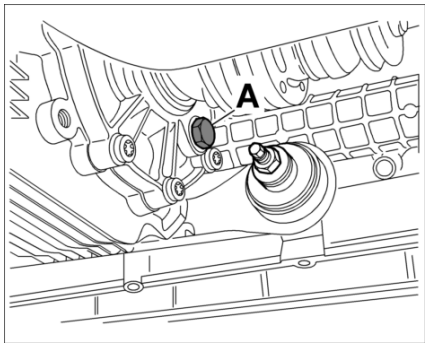
Draining oil for final drive

ATTENTION

Transmission cannot be filled, or only insufficiently with ATF.

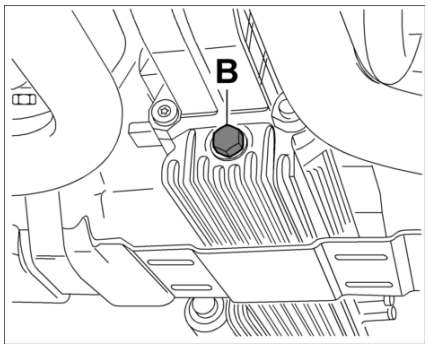
Do not start engine

Do not tow vehicle



Oil filler screw

1. Unscrew oil filler screws **-A-** .



Drain plug

WARNING
Risk of scalding from hot oil

Let the oil cool down
Wear personal protective gear (goggles, gloves)

2. Unscrew oil drain plug **-B-** and drain transmission oil.

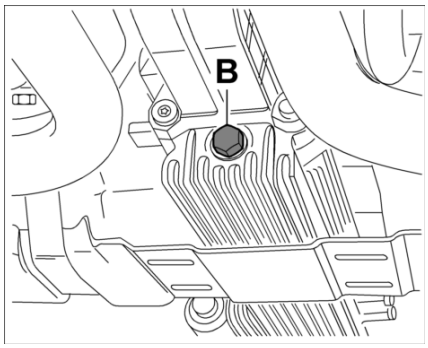
top of page

Filling in oil for final drive

Filling in oil for final drive

ATTENTION
Transmission cannot be filled, or only insufficiently with ATF.

Do not start engine
Do not tow vehicle

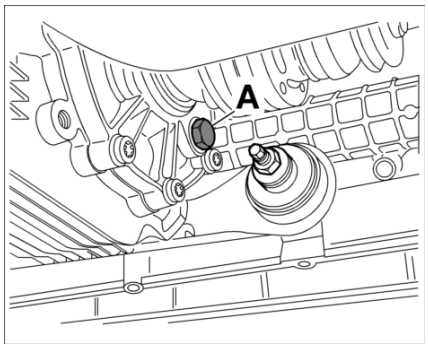


Drain plug

1. Clean oil drain plug **-B-** and fit with new sealing ring.

Location	Explanation	Type	Basic value	Tolerance 1	Tolerance 2
Oil drain plug on front-axle final drive		Tightening torque	28 (21 ftlb.) Nm		

2. Fill in transmission oil up to the bottom edge of the filler opening.



Oil filler screw

3. Clean oil filler screw **-A-** and fit with a new seal.

Location	Explanation	Type	Basic value	Tolerance 1	Tolerance 2
Oil filler screw on front-axle final drive		Tightening torque	28 (21 ftlb.) Nm		

top of page

Subsequent work

Subsequent work

1. Fit front underbody panel. 519219 Removing and installing front cover - section on "Installing"
2. Lower the vehicle.

997410, 997411, 997430, 997431, 997610, 997611, 997620, 997621

as of MY 2006
Country C00, C02, C05, C07, C08, C09, C10, C11, C12, C13, C14, C15, C16, C18, C19, C20, C21, C22, C23, C24, C25, C26, C27, C28, C32, C33, C34, C35, C36, C37, C38, C39, C45, C46, C98, C99

39 90 55 Changing oil for final drive - as of MY 2005

- Information
- Technical values
- Preliminary work
- Changing oil for final drive
- Subsequent work

Tools

Designation	Type	Number	Explanation	
ATF filling device for filling transmission	commercially available tool	NR.161		

top of page

Information

Notes

Note
Fill only with oil approved by Porsche. See Spare Parts Catalogue.

Note
Hot vehicles should cool down before beginning the activity.

Note
Vehicle must be horizontal in order to be filled and checked.

top of page

Technical values

Filling capacities

Location	Explanation	Type	Basic value	Tolerance 1	Tolerance 2
Final drive		Filling capacity	1.2 litre		

top of page

Preliminary work

Preliminary work

1. Raise the vehicle at the prescribed jacking points. *Lifting the vehicle*
2. Remove the underbody panels. 519419 Removing and installing rear trim - removing
3. Place oil collection pan under the transmission.

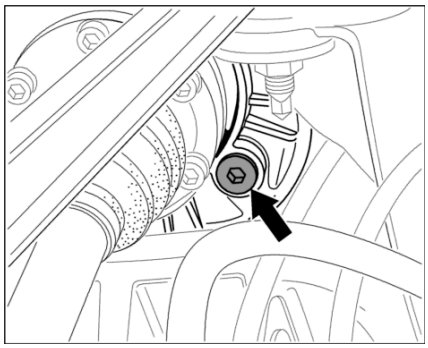
top of page

Changing oil for final drive

Draining oil for final drive

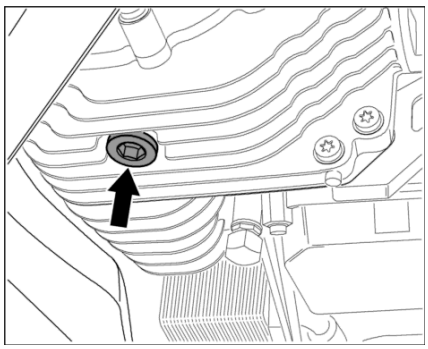
WARNING
Danger of scalding and chemical burns from hot ATF

Allow ATF to cool down
Wear personal protective gear (goggles, gloves)



Oil filler screw on final drive

1. Unscrew oil filler plug.



Oil drain plug for final drive

WARNING
Oil for rear final drive can emerge

- **Oil for final drive is harmful to the eyes**

Wear personal protective gear (goggles, gloves)

WARNING
Hot oil for rear final drive can emerge

- **Hot oil for final drive is harmful to the eyes and can cause scalding**

Always allow oil for final drive to cool down before starting work
Wear personal protective gear (goggles, gloves)

2. Unscrew oil drain plug and drain oil.
3. Replace sealing ring for drain plug, clean drain plug, and tighten. **Tightening torque: 19 ftlb.**

Topping up oil for final drive

WARNING
Oil for rear final drive can emerge

- **Oil for final drive is harmful to the eyes**

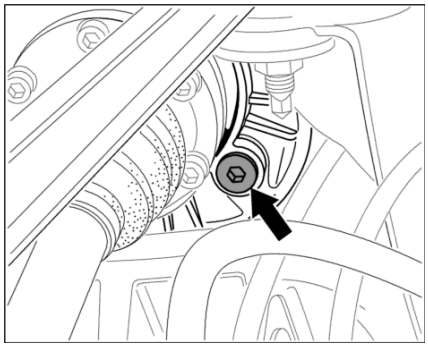
Wear personal protective gear (goggles, gloves)

WARNING
Hot oil for rear final drive can emerge

- **Hot oil for final drive is harmful to the eyes and can cause scalding**

Always allow oil for final drive to cool down before starting work
Wear personal protective gear (goggles, gloves)

1. Fill oil for final drive with **ATF filling device for filling transmission NR.161** until oil escapes at the oil filler opening.



Oil filler screw on final drive

Replace sealing ring for filler plug, clean filler plug, and tighten. **Tightening torque: 16 ftlb.**

2. Fit the underbody panel. 519419 Removing and installing rear trim - installing

top of page

Subsequent work

Reworking

1.

Fit underbody panels. 519419 Removing and installing rear trim - installing

2. Lower the vehicle.

997110, 997111, 997120, 997121, 997310, 997311, 997320, 997321, 997410, 997411, 997430, 997431, 997610, 997611, 997620, 997621

as of MY 2005
Country C00, C02, C05, C07, C08, C09, C10, C11, C12, C13, C14, C15, C16, C18, C19, C20, C21, C22, C23, C24, C25, C26, C27, C28, C32, C33, C34, C35, C36, C37, C38, C39, C45, C46, C98, C99

WARNUNG

Gefahr des Verlusts der Text-Bild-Zuordnung beim Ausdruck.

- **Aus technischen Gründen kann derzeit nicht ausgeschlossen werden, dass trotz einwandfreier Darstellung auf dem Bildschirm beim Ausdruck der Zusammenhang von Text und zugehörigem Bild verloren geht.**
- **Wird der Fehler nicht bemerkt, besteht die Gefahr, daß Arbeiten nicht korrekt durchgeführt werden und es dadurch zu Personen- und Sachschäden kommt.**

Vergleichen Sie deshalb nach dem Druckvorgang unbedingt die Ausdrucke mit der Bildschirmdarstellung. Korrigieren Sie die Ausdrucke im Fehlerfall so, daß der Inhalt der Bildschirmdarstellung zutreffend wiedergegeben wird.

WARNING

Danger of losing text-figure correspondence when printing out.

- **For technical reasons, it can currently not be ruled out that the correspondence between text and associated figure can be lost when it is printed out, even though the display on the screen is correct.**
- **If the fault is not noticed, there is the danger that work will not be performed correctly which can cause injury and damage.**

Therefore, always compare printouts with the screen display after printing them out. Correct the printouts if they are faulty so that the content of the screen display matches that on the printouts.

AVERTISSEMENT

Risque de perte de la correspondance texte-illustration lors de l'impression papier.

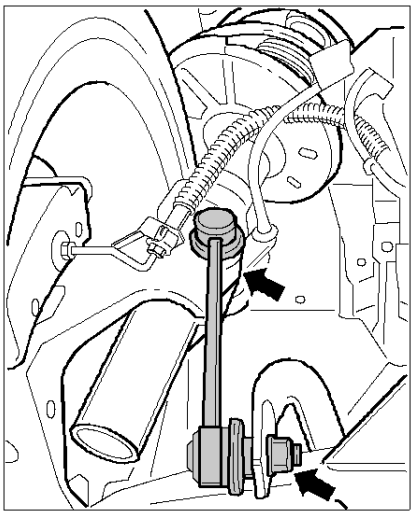
- **Pour des raisons techniques, il ne peut pas être exclu à l'heure actuelle que, même en cas d'affichage correct à l'écran, la correspondance entre le texte et l'illustration puisse être erronée sur l'impression papier.**
- **Si l'erreur passe inaperçue, on court le risque d'exécuter certaines opérations de manière incorrecte pouvant conduire à des dommages corporels et matériels.**

40 78 19 Removing and installing connecting link (suspension/stabiliser) - as of MY 2005

-
-

top of page

Removing front connecting link (suspension/stabiliser)



Connecting link (suspension/stabiliser)

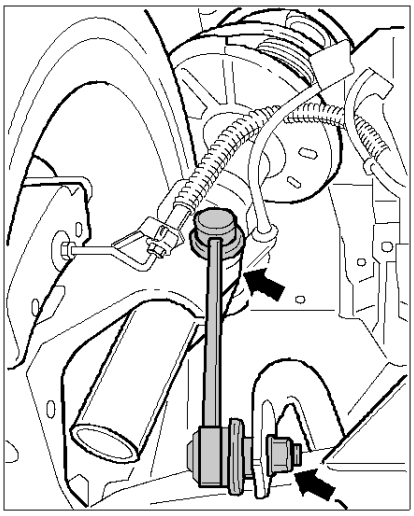
1. Remove wheel. 440519 Removing and installing wheel Then loosen the lock nuts **-arrows-** on the suspension/stabiliser. When loosening, counter with Torx T30 or open-ended wrench.
2. Support wheel suspension on wheel carrier with suitable jack, and remove suspension/stabiliser.

top of page

Installing front connecting link (suspension/stabiliser)

Up to approx. the middle of April 2005 (the exact date can be taken from the Technical Information if necessary), the lock nut can become loose on the threaded connection of the stabilizer/suspension/stabiliser on the front and rear axle due to a loss in preload.Suspension/stabilisers are therefore installed with a pin extended by 10 mm and an appropriately extended hexagon nut on the front and rear axle as of the time mentioned.Suspension/stabilisers with extended pins (extended threads) of the fastening bolt can be installed retroactively.In the event of a claim (noise problem caused by the stabiliser), all 4 suspension/stabilisers are to be replaced by the modified version. On assembly work in the stabiliser area or on the wheel suspension, install the modified version on the right and left side.

1. Install connecting link (suspension/stabiliser).



Connecting link (suspension/stabiliser)

Note

- *Use the new fastening nuts, which are 10 mm longer (Part No. 999.084.123.09), to secure the modified connecting links.*
- *Use the old fastening nuts (Part No. 999.084.643.09) to secure the old connecting links.*
- *The old connecting link (short threaded pin) must not be used together with the new lock nut because the threaded pin is not long enough for the lock nut. If this incorrect combination is used, the safety effect could not be assured or would only be provided conditionally.*

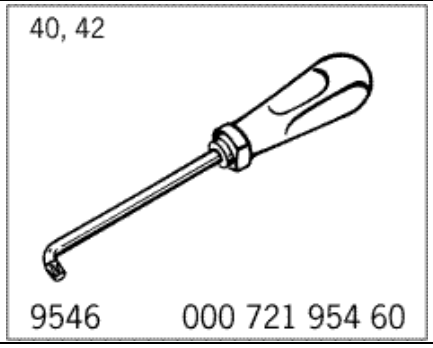
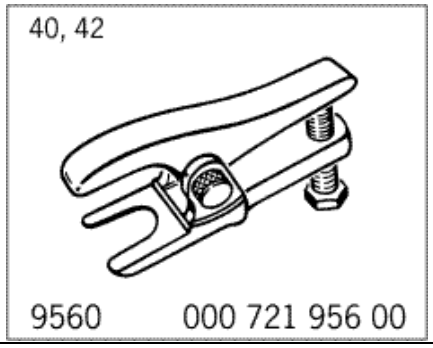
2. Use new fastening nuts. Fit the assigned lock nut **-lower arrow-** to the connection from the suspension/stabiliser to the stabiliser depending on the version (longer or shorter pin).
3. Observe prescribed tightening torques. Tighten the lower lock nut (M10) in a 3-stage tightening procedure *401000 Tightening torques for front axle*.
4. Fit wheel 440519 Removing and installing wheel.

997110, 997111, 997120, 997121, 997310, 997311, 997320, 997321

40 85 19 Removing and installing front spring strut - as of MY 2005

-
-
-
-

Tools

Designation	Type	Number	Explanation	
screwdriver	special tool	9546		
press-out tool	special tool	9560		

top of page

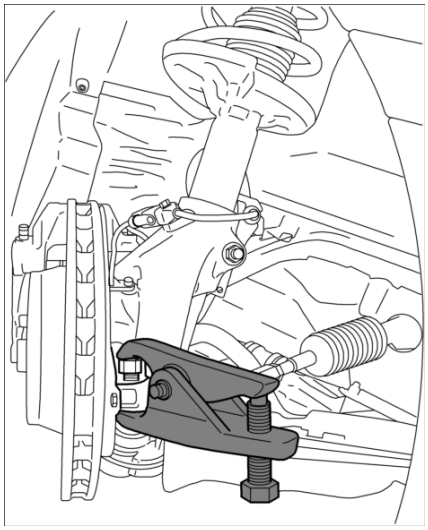
Removing and installing spring strut - preliminary work

1. Raise the vehicle *401000 Lifting the vehicle* and remove front wheel 440519 Removing and installing wheel.

top of page

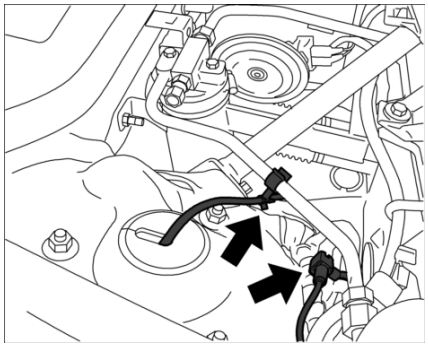
Removing front spring strut

1. Loosen stabiliser mount at stabiliser (counter with Torx T30).



Loosening tie rod

2. Loosen tie rod and control arm at wheel carriers and press off the ball joints with special tool **press-out tool 9560**. When loosening the lock nuts, counter at the ball-joint pins with special tool **screwdriver 9546** (Torx screwdriver).
3. Disconnect plug connection at wheel carrier and pull out plugs. Undo plug connection at wheel carrier and unclip electric wires at the spring strut.
4. Loosen holder for brake line/brake hose at wheel carrier. Loosen brake calliper from wheel carrier and attach in wheel arch.
5. Open luggage compartment and remove the relevant design cover over the spring strut.



PASM bracket and connector

6. Loosen cover over piston rod (at spring strut). For PASM spring struts, carefully disconnect connecting cable at the connector and unclip it from the bracket **-Arrows-** .
7. Mark the installation position of the spring-strut mount (position of the three collar nuts). Loosen fastening nuts (3 ea. M8) at spring-strut mount.
8. Pull out spring strut with wheel carrier.

9. Loosen clamped connection between spring strut/wheel carrier (ball joint of stabiliser mount). Counter with open-ended wrench. Pull spring strut out of wheel carrier.

top of page

Installing front spring strut

Note

- *If assembly work was performed or parts replaced that affect the vehicle height, a complete wheel alignment is necessary.*

1. Install in reverse order. Before installing, do a visual check on the parts. Replace brake calliper fastening screws.
2. Do not grease threaded connections in Dacromet finish - aluminium colour. Observe correct tightening torques.
3. Place the spring-strut/wheel-carrier assembly into the vehicle. Note installation position of the spring-strut mount. The arrow markings must point to the outer side of the vehicle. The shock-absorber piston rod is thereby shifted outwards. Use new lock nuts. Before tightening the lock nuts, align spring-strut mount in accordance with the applied marking (position of the three collar nuts).

top of page

Removing and installing spring strut - subsequent work

1. Fit front wheel 440519 Removing and installing wheel.
2. Check wheel alignment values on front axle and adjust if necessary 449503 Performing front and rear suspension alignment.

997110, 997111, 997120, 997121, 997310, 997311, 997320, 997321, 997410, 997411, 997430, 997431, 997610, 997611, 997620, 997621

as of MY 2005
Country C00, C02, C05, C07, C08, C09, C10, C11, C12, C13, C14, C15, C16, C18, C19, C20, C21, C22, C23, C24, C25, C26, C27, C28, C32, C33, C34, C35, C36, C37, C38, C39, C45, C46, C98, C99

40 85 37 Disassembling and assembling front spring strut - with and without PASM - as of MY 2005

- Information
- Disassembling and assembling spring strut

Tools

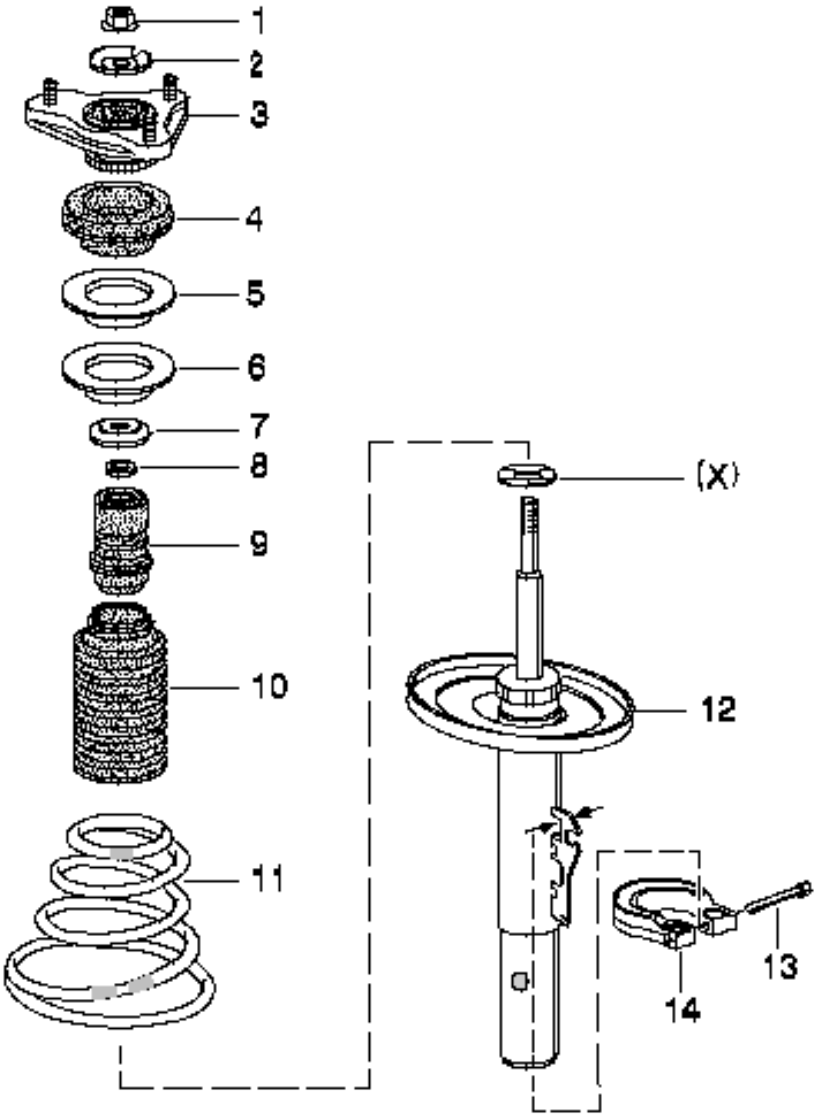
Designation	Type	Number	Explanation	
spring clamp for spring struts	commercially available tool	NR.121		
arm bracket	special tool	P 9630		
retaining tool	special tool	P 9630/1		
socket-wrench insert	special tool	P 9630/2		

top of page

Information

Component and assembly overview (with and without PASM)

There are three different types of running gear: standard running gear, sport-type running gear (Performance) and PASM chassis.
The 911 Carrera S comes with the PASM chassis as standard.



Front spring strut, exploded view

No.	Designation	Qty.	Removal	Installation
-1-	Lock nut M14 x 1.5	1	Tension the coil springs using spring clamp.	Use a new fastening nut. Tighten to 80 Nm (59 ftlb.).

			Then loosen the lock nut using the **socket-wrench insert P 9630/2** . Counter when loosening at the piston rod or stop plate **-2-** . To do this for PASM spring struts, use **retaining tool P 9630/1** and for conventional spring struts **arm bracket P 9630**.	On PASM spring struts, first align the stop plate **-2-** with the supporting mount **-3-** (offset 45° from direction of travel marking).
-2-	Stop plate (2 versions). PASM version: With two grooves (two cut-outs), for countering when loosening and tightening lock nut **-1-** .	1		Fit dome upwards, towards lock nut. On PASM spring struts, align (position) the stop plate with the supporting mount.
-3-	Spring strut mount	1		
-4-	Bearing with housing	1		Make sure it is seated properly in the spring strut mount
-5-	Support ring	1		
-6-	Spring plate (compensating plate)	1		Observe allocation according to the coil spring tolerance range.
-7-	Stop plate	1		Fit dome downwards.
-8-	Cone washer	1		Mount in correct position.
-9-	Additional spring (rubber stop)	1		Observe allocation as per Spare Parts Catalogue. Sport-type running gear (Performance): approx. 52 mm long. Standard and PASM running gear: approx. 80 mm long.
-10-	Bellows	1		If necessary, replace. Fit on additional spring **-9-** .
-11-	Coil spring	1		Observe allocation as per Spare Parts Catalogue. Replace coil springs only in pairs.
-X-	Washer (only present on Performance running gear)	1	Remove from damper tube (not always present).	Only install on sport-type running gear (Performance) (conventional spring struts with -20 mm). Installation position: Ventilation grooves must point to the additional spring **-9-** .
-12-	Vibration damper	1		Observe allocation as per Spare Parts Catalogue. The item number is shown on the

				damper tube.
-13-	Mount for clip (vibration balancer)	1		
-14-	Clip (vibration balancer). Not always present.	1		

top of page

Disassembling and assembling spring strut

Disassembling spring strut

ATTENTION

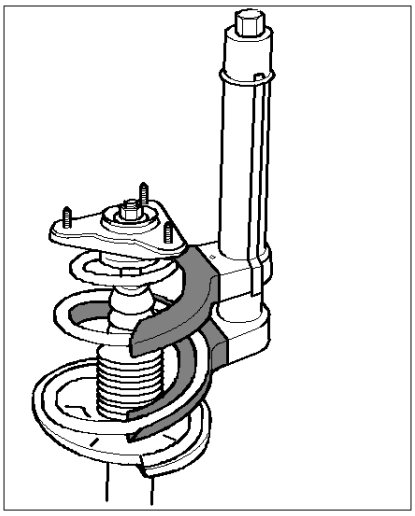
Increased risk of accidents due to spring tensioning.

- **Danger of injury and damage from springs jumping out.**

Never use an impact bolter to loosen or tighten the fastening nut.

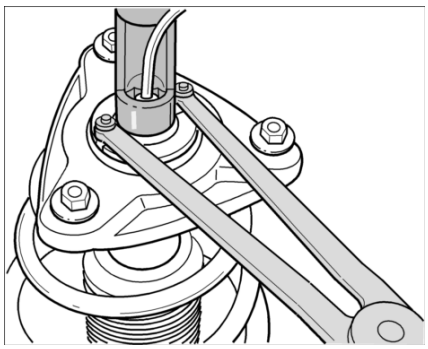
Use a commercially available changeover ratchet.

1. To prevent damage (deformation), clamp the spring strut in a suitable clamping block (tensioning device for MacPherson spring struts). Alternatively, the spring clamp can also be held in a retaining device.



Tensioning front spring

2. Pre-tension the coil spring using **spring clamp for spring struts NR.121** until the piston rod is relieved. The appropriate forks must be inserted into the spring clamp.

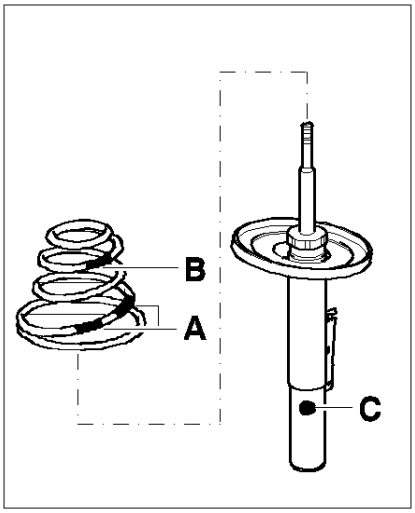


Spring strut supporting mount (PASM version)

3. To loosen the lock nut (piston rod to spring-strut mount) use **socket-wrench insert P 9630/2**.

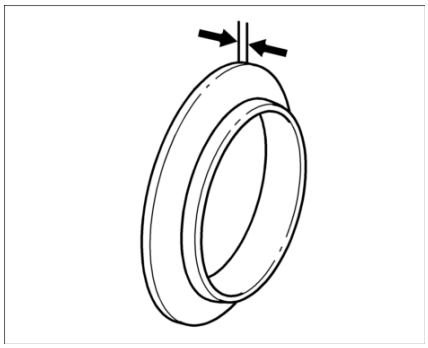
   When loosening the nut, counter it at the piston rod (for conventional spring struts) or at the two grooves (cut-outs) of the stop plate (for PASM spring struts). Tools required: **retaining tool P 9630/1** and for conventional spring struts **arm bracket P 9630**.
4. Remove all parts from the piston rod.

Coil spring/compensating plate allocation



Colour identification of spring/damper

Identification marking **-A-** comprising two coloured lines is for the spring constant and spring length (depending on vehicle version and equipment).
Identification marking **-B-** comprising one coloured line (white or green) is for the coil spring tolerance range (load group) and determines the thickness of the spring plate (compensating plate).



Spring plate (compensating plate)

The spring plate (compensating plate) comes in two thicknesses **-arrows-** .

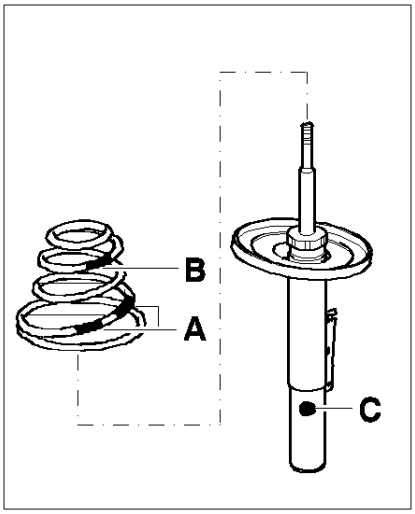
Colour identification A of coil spring	Vehicle version and equipment
Example violet/red	Standard running gear C2 RoW/USA - Coupe with manual transmission
Example red/yellow	PASM running gear C2/C2S RoW/USA - Cabriolet with manual transmission and Tiptronic

Colour identification B of coil spring	Spring plate (compensating plate) 1)
One white line (colour identification B)	Thickness 3.5 mm 2)
One green line (colour identification B)	Thickness 6.5 mm 2)

1) If you are installing new coil springs, then order the 3.5 mm and 6.5 mm spring plates (compensating plate) at the same time. As coil springs of load group 1 or 2 will be supplied, the correct spring plates (compensating plates) will then be present for installation.
2) In production there have been deviations from the general allocation of spring plates (thickness of compensating plate), in some cases different spring plates (compensating plates) have been installed. This was necessary due to the tolerances of the coil springs. This means that in the event of replacement: If the coil spring is to be re-used, then install the spring plate (compensating plate) with the same thickness. If the coil springs are to be replaced (only replace in pairs) then the allocation given above applies.

Allocation of vibration dampers

See allocation in Spare Parts Catalogue.



Colour marking of spring/damper

The marking, item number and colour dot coding **-C-** are shown on the damper tube.

Assembling spring strut

ATTENTION

Increased risk of accidents due to spring tensioning.

- **Danger of injury and damage from springs jumping out.**

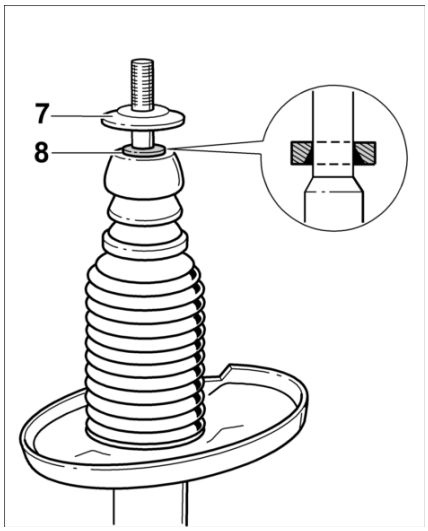
Never use an impact bolter to loosen or tighten the fastening nut.

Use a commercially available changeover ratchet.

Note

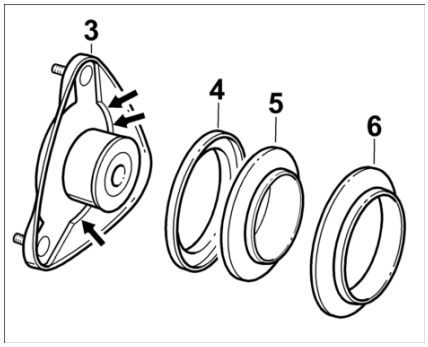
- *Observe the correct allocation (vehicle version and equipment) when installing new coil springs and/or shock absorbers.*
- *Observe allocation of compensating plate according to the coil spring tolerance range.*
- *Coil springs are only available in pairs.*

1. Clamp the spring strut in a suitable clamping block (tensioning device for MacPherson spring struts). Alternatively, the spring clamp can also be held in a retaining device.
2. Slide the bellows/additional spring assembly onto the piston rod.



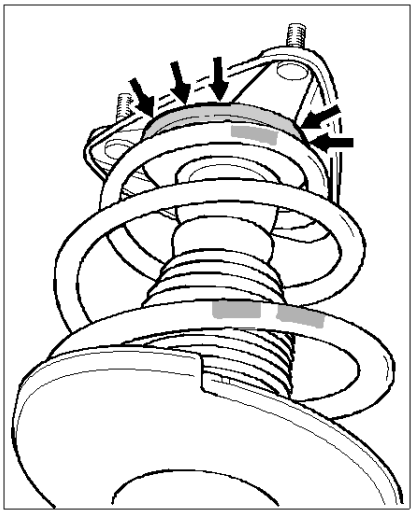
Cone washer

3. Mount cone washer **-8-** and stop plate **-7-** in correct position.
4. Push the pretensioned coil spring onto the vibration damper so that the end of the coil spring rests against the stop of the spring plate.



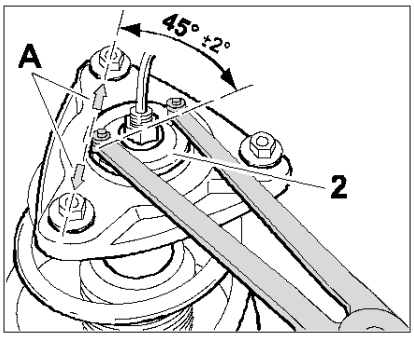
Supporting mount assembly

5. Completely assemble the spring plate (compensating plate) **-6-** , support ring **-5-** and bearing with its housing **-4-** with the spring strut supporting mount **-3-** . Then slide the assembly onto the piston rod.
6. Place spring strut supporting mount assembly onto the piston rod so that the end of the coil spring is located inside the spring plate.



Supporting mount (correct seat)

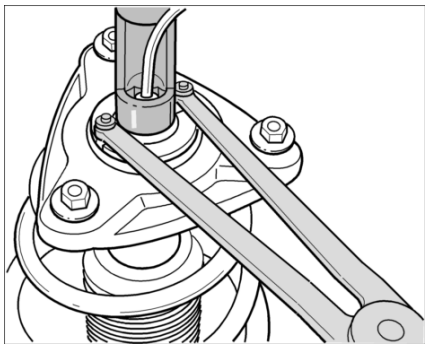
7. Fit stop plate in the correct position (domed side upwards) and screw a new fastening nut onto the piston rod. Important: For PASM spring struts, place the lug of the stop plate (in area of spring strut mount) in the groove of the piston rod (twist lock of piston rod opposite the supporting mount). Make sure that the plastic part of the bearing sits correctly in the recess of the supporting mount **-arrows-** .



Stop plate position (PASM only)

8. On PASM spring struts, before tightening the lock nut, align the stop plate **-2-** offset 45° from direction of travel marking **-Arrows A-** of the supporting mount.

The value: 45° + - 2° is necessary so that the two grooves of the stop plate (cut-outs for countering) are positioned over or between the recesses (pockets in the rubber part) which lie below.



Spring strut mount

9. Tighten fastening nut to the specified tightening torque. For PASM spring struts, counter at the stop plate using **retaining tool P 9630/1**. For conventional spring struts, counter at the hexagon socket of the piston rod using **special tool P 9630**.
10. If present, push on clip (vibration balancer) at damper tube of vibration damper. Final assembly (tightening) only on completion of wheel carrier.

997110, 997111, 997120, 997121, 997310, 997311, 997320, 997321, 997410, 997411, 997430, 997431, 997610, 997611, 997620, 997621

as of MY 2005
Country C00, C02, C05, C07, C08, C09, C10, C11, C12, C13, C14, C15, C16, C18, C19, C20, C21, C22, C23, C24, C25, C26, C27, C28, C32, C33, C34, C35, C36, C37, C38, C39, C45, C46, C98, C99

WARNUNG

Gefahr des Verlusts der Text-Bild-Zuordnung beim Ausdruck.

42 21 19 Removing and installing drive shaft - as of MY 2005

- Preliminary work
- Removing
- Installing
- Subsequent work

Tools

Designation	Type	Number	Explanation	
protective tube (shop-made)	commercially available tool	00000		
universal drive shaft/wheel hub extractor as of model '86	commercially available tool	NR.87-1		

top of page

Preliminary work

1. Release axle nut (vehicle on ground) whilst operating the brake (2 fitters required).
Remove and install wheel. 440519 Removing and installing wheel

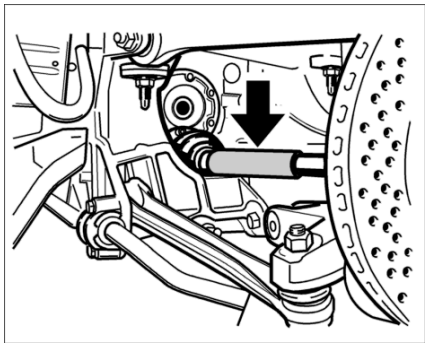
top of page

Removing

Removing rear drive shaft

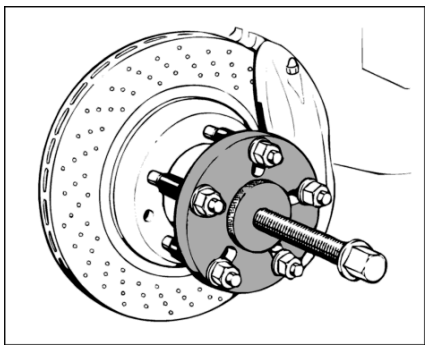
Note

- *To prevent damage to the drive shaft, rear axle support side member or transmission flange, a* ***protective tube (shop-made) 00000*** *must be pushed over the drive shaft or the drive shaft must be secured.*
- *During removal of the drive shaft, the wheel bearing housing remains in the vehicle and is swivelled outwards at the top side.*



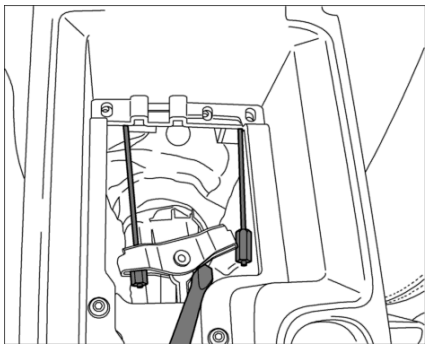
Protection of the drive shaft

1. Fit protection **-arrow-** for drive shaft. Release inner end of drive shaft from the transmission.



Pressing out drive shaft

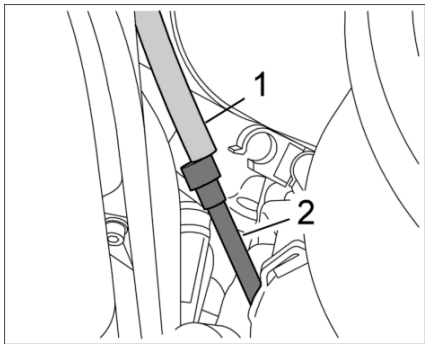
2. Using **universal drive shaft/wheel hub extractor as of model '86 NR.87-1** carefully press out the pin of the drive shaft until the shaft can be moved by hand. *Pressing out drive shaft*



Removing/fitting parking brake cable

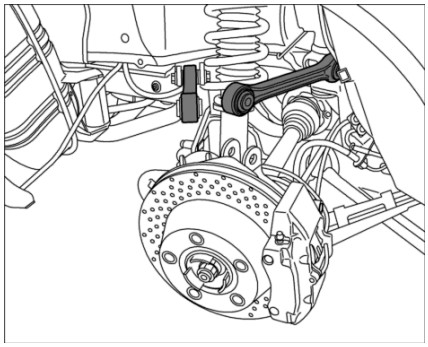
The parking brake cable must be disengaged from the parking brake lever in the passenger compartment before the drive shaft can be removed. *Removing/fitting parking brake cable* Disengaging the parking brake cable includes:

- Undo parking brake lever (do not operate until after fitting! Self-adjusting!)
- Open cover of oddments tray in centre console.
- Remove bottom of oddments tray in centre console.
- Disengage the relevant parking brake cable to the side of the turnbuckle.



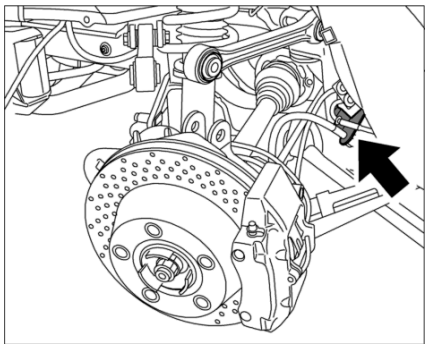
Pulling off protective sleeve

3. Pull protective sleeve of parking brake cable **-2-** from guide tube on underbody **-1-** .



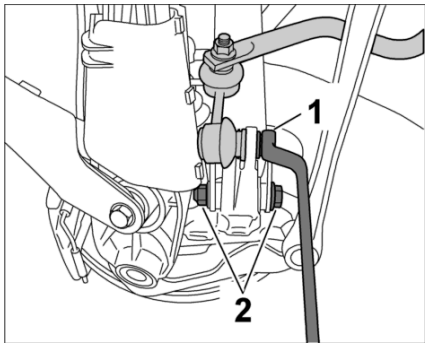
Upper axle struts detached

4. Detach both upper axle struts from the outside of the wheel bearing housing. *Upper axle struts detached*



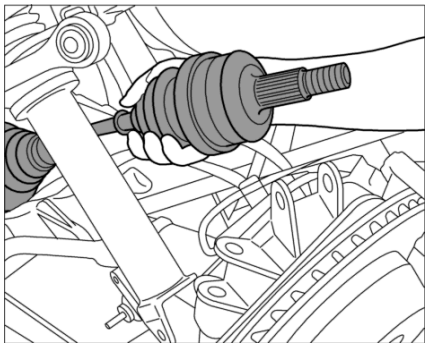
Holder for the brake hose/wear indicator

5. Undo the holder for the brake hose/wear indicator **-arrow-** .



Removing/fitting connecting rod

6. Release connecting rod for stabilizer at bottom **-1-** and spring strut **-2-** .



Removing drive shaft

7. Carefully pull wheel bearing housing outwards. Guide the parking brake cable and remove the drive shaft (assistance of second fitter required). *Removing drive shaft*

top of page

Installing

Installing rear drive shaft

ATTENTION

Increased risk of accidents if the wheel carrier is raised improperly!

- **Injuries and material damage are possible.**

Do not raise the wheel suspension higher than the normal vehicle position (vehicle resting on wheels).

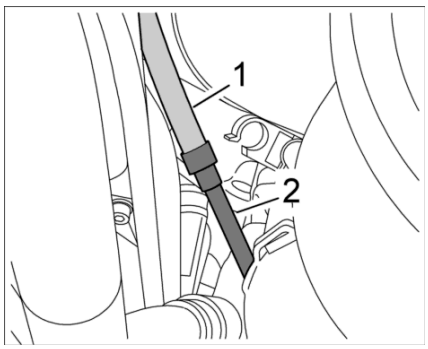
When raising the suspension, use a suitable intermediate layer (hard rubber) .

Do not damage the brake cover plate.

Note

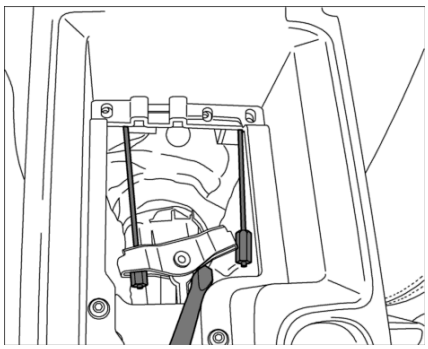
- *Screws are Dacromet-coated and must not be greased.*
- *Grease the thread of the axle nut with Optimoly HT.*
- *Grease the toothing of the drive shaft lightly with Optimoly HT.*
- *To prevent damage to the drive shaft, wheel bearing housing or transmission flange, slide a **protective tube (shop-made) 00000** over the drive shaft.*
- *Use new screws and lock nuts.*
- *Observe correct tightening torques. After tightening, loosen the connecting link for the stabilizer by 90 degrees and retighten (settling behaviour of the ball joint!). 42 Tightening torques for rear axle*
- *The parking brake is self-adjusting. If the basic setting of the parking brake is correct, further adjustment operations on the parking brake lever or on the turnbuckle are not necessary.*
- *Always check the bellows for damage and if necessary, replace them, if continuing to use the drive shaft.*

1. Pull out the wheel bearing housing carefully outwards and run in the drive shaft (2 fitters required). Screw on axle nuts. Use protection for drive shaft.
2. Fit both upper control arms on the external wheel bearing housing.



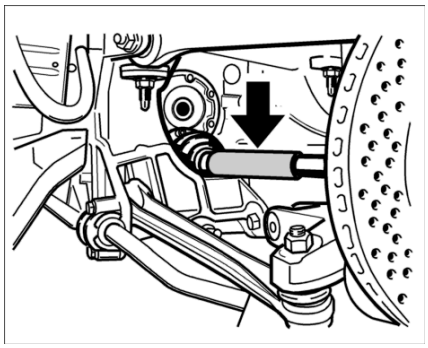
Push on protective sleeve

3. Slide the protective sleeve of the parking brake cable **-2-** on the underbody onto the guide tube **-1-** . Ensure it is seated correctly!



Removing/fitting the parking brake cable

4. Engage brake cable in the turnbuckle at sides. *Removing/fitting the parking brake cable* Fit floor in oddments tray of the centre console.
5. Fit lower spring strut, connecting rod for stabilizer, inner drive shaft on transmission and mount for brake hose/wear indicator.



Protection for drive shaft

6. Remove protection for drive shaft **-arrow-** .
7. Check parking brake adjustment and adjust if necessary. 468316 Adjusting the brake shoe

top of page

Subsequent work

Remove and install wheel. 440519 Removing and installing wheel
Tighten axle nut (vehicle on ground) whilst operating the brake (2 fitters required).

Checking wheel-alignment values

Check wheel alignment values and adjust if necessary. 449503 Performing front and rear suspension alignment

42 71 19 Removing and installing rear spring strut - as of MY 2005

-
-
-
-

top of page

Removing and installing spring strut - preliminary work

1. Raise the vehicle *401000 Raising the vehicle* and remove rear wheel 440519 Removing and installing wheel.
2. On the Coupé, remove cover over spring-strut supporting mount (after-sales service no.: 705319 rear cover).
3. On the Cabriolet, move convertible top to service position and remove trim panel for convertible top rest (access to spring-strut mount) 700819 Removing and installing trim panel for convertible top rest [997310 997311 997320 997321 997610 997611 997620 997621] *700819 Removing and installing trim panel for convertible top rest [997110 997111 997120 997121 997410 997411 997430 997431].*

top of page

Removing spring strut

ATTENTION

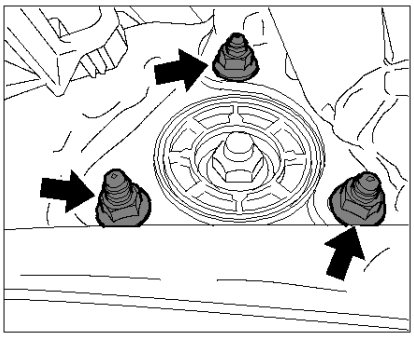
Danger of crushing (damaging) electric lines (cables) at point of exit from piston rod on PASM spring struts.

- **PASM (damping force adjustment) does not function.**

Protect electric lines (cables) when removing and installing the spring strut.

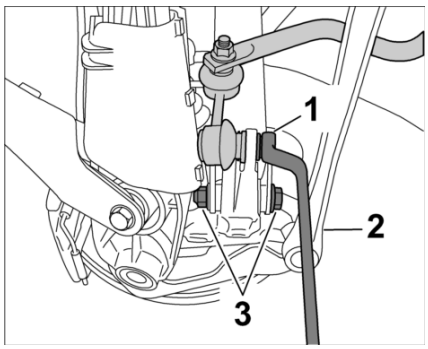
Do not damage electric lines (cables) during transport, unpacking, storage or when disassembling or assembling spring strut.

1. Vehicles with PASM: With ignition switched off, carefully disconnect electric line from the PASM spring strut at the connector and unclip it from the bracket.



Lock nuts on spring-strut mount

2. Loosen M10 lock nuts on the spring-strut mount **-arrows-** (in the vehicle interior).



Anti-roll bar/spring strut/toe control arm

3. Remove anti-roll bar together with the suspension/stabilisers.

   To do this, remove the right **-1-** and left suspension/stabiliser at the wheel carriers and loosen the anti-roll bar at the rear-axle side sections (four M8 screws).

   When loosening the suspension/stabiliser (1), counter with a Torx screwdriver.
4. Loosen toe control arm **-2-** at the wheel carrier.
5. Remove spring strut/wheel carrier threaded connection **-3-** and pull spring strut up (over the upper trailing arms) to remove it.

top of page

Installing spring strut

ATTENTION

Danger of crushing (damaging) electric lines (cables) at point of exit from piston rod on PASM spring struts.

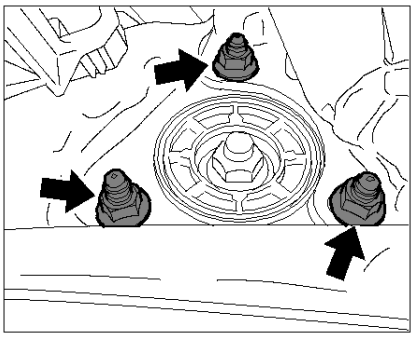
- **PASM (damping force adjustment) does not function.**

Protect electric lines (cables) when removing and installing the spring strut.

Do not damage electric lines (cables) during transport, unpacking, storage or when disassembling or assembling spring strut.

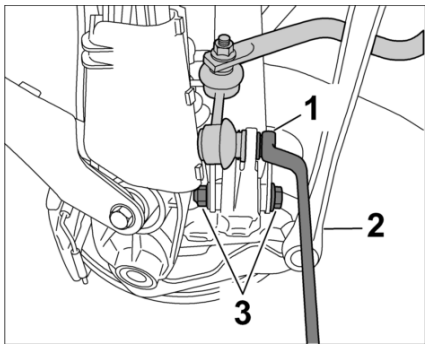
Installation is in reverse order. Before installing, check the various parts carefully. Replace lock nuts. Do not grease threaded connections in Dacromet finish - aluminium colour. Observe correct tightening torques.

1. Insert spring strut into the vehicle from above (over the upper trailing arms).



Lock nuts on spring-strut mount

2. Fit M10 lock nuts (three nuts) **-arrows-** onto the spring strut mount (in the vehicle interior). Tightening torque: 46 Nm (34 ftlb.).
3. Vehicles with PASM: Connect electric line for the PASM spring strut (connector must engage) and clip it into the bracket.



Anti-roll bar/spring strut/toe control arm

4. Fit spring strut to wheel carrier. Tightening torque of fastening screw **-3-** = 110 Nm (81 ftlb.).
5. Fit toe control arm to wheel carrier **-2-** . Tightening torque of lock nut = 75 Nm (56 ftlb.).
6. Install anti-roll bar together with the suspension/stabilisers.

   Tightening torque: Anti-roll bar to rear-axle side section (four M8 screws) = 23 Nm (17 ftlb.).

   Suspension/stabiliser to wheel carriers **-1-** = 65 Nm (48 ftlb.). Please note: Tighten in three steps (step 1: tighten to 50 Nm (37 ftlb.) / step 2: loosen by 90° / step 3: tighten to 65 Nm (48

ftlb.).

top of page

Removing and installing spring strut - subsequent work

Note

If assembly work was performed or parts replaced that affect the vehicle height, the suspension must be aligned (check and adjust wheel alignment values) 449503 Performing front and rear suspension alignment.

1. Fit rear wheel 440519 Removing and installing wheel.
2. Carry out suspension alignment, if necessary.

997110, 997111, 997120, 997121, 997310, 997311, 997320, 997321, 997410, 997411, 997430, 997431, 997610, 997611, 997620, 997621

as of MY 2005
Country C00, C02, C05, C07, C08, C09, C10, C11, C12, C13, C14, C15, C16, C18, C19, C20, C21, C22, C23, C24, C25, C26, C27, C28, C32, C33, C34, C35, C36, C37, C38, C39, C45, C46, C98, C99

WARNUNG

Gefahr des Verlusts der Text-Bild-Zuordnung beim Ausdruck.

- **Aus technischen Gründen kann derzeit nicht ausgeschlossen werden, dass trotz einwandfreier Darstellung auf dem Bildschirm beim Ausdruck der Zusammenhang von Text und zugehörigem Bild verloren geht.**
- **Wird der Fehler nicht bemerkt, besteht die Gefahr, daß Arbeiten nicht korrekt durchgeführt werden und es dadurch zu Personen- und Sachschäden kommt.**

Vergleichen Sie deshalb nach dem Druckvorgang unbedingt die Ausdrucke mit der Bildschirmdarstellung. Korrigieren Sie die Ausdrucke im Fehlerfall so, daß der Inhalt der Bildschirmdarstellung zutreffend wiedergegeben wird.

WARNING

Danger of losing text-figure correspondence when printing out.

- **For technical reasons, it can currently not be ruled out that the correspondence between text and associated figure can be lost when it is printed out, even though the display on the screen is correct.**

42 71 37 Disassembling and assembling rear spring strut - with and without PASM - as of MY 2005

- Information

Tools

Designation	Type	Number	Explanation	
spring clamp for spring struts	commercially available tool	NR.121		PORSCHE siehe Handbuch Werkstattausrüstung Voir le Manuel Equipement d´atelier Refer to the Workshop Equipment manual Vease Manual de Equipamiento de Taller Vedere il Manuale dell´attrezzatura d´officina ワークショップ・イクイップメント・マニュアルを参照
socket wrench insert for ATF temp. switch assembly	commercially available tool	NR.18		
snap-ring pliers	VW-tool	VW 161 A		PORSCHE siehe Handbuch Werkstattausrüstung Voir le Manuel Equipement d´atelier Refer to the Workshop Equipment manual Vease Manual de Equipamiento de Taller Vedere il Manuale dell´attrezzatura d´officina ワークショップ・イクイップメント・マニュアルを参照

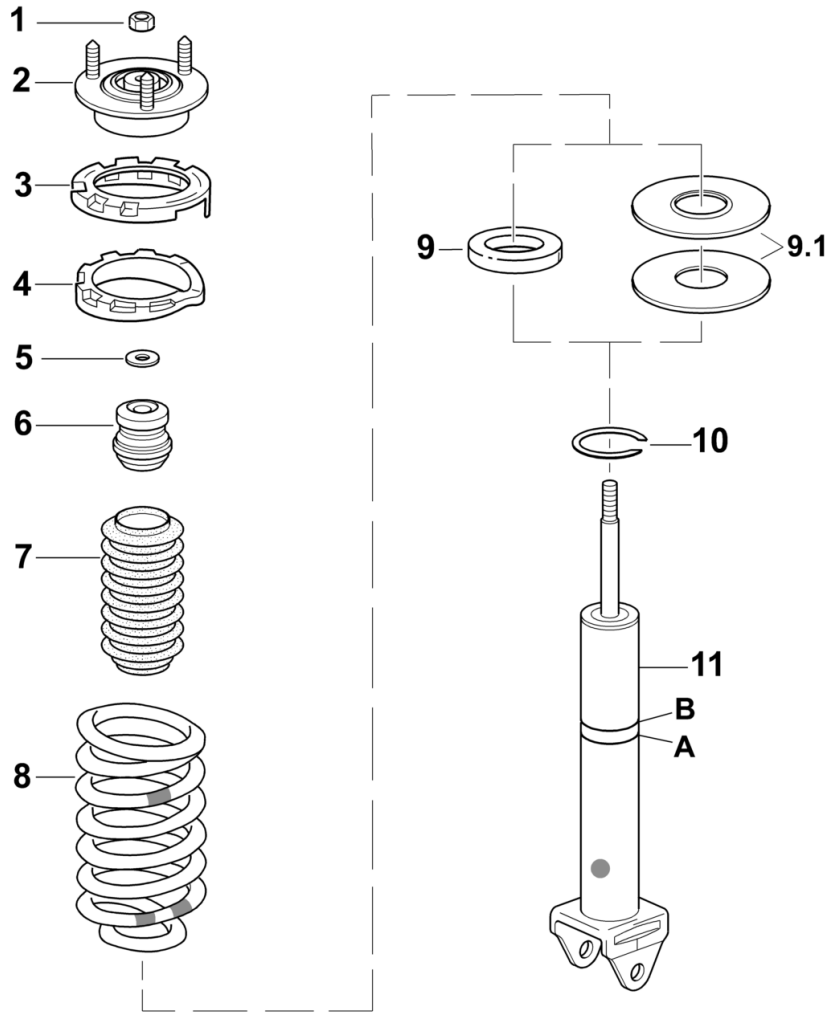
top of page

Information

Component and assembly overview (with and without PASM)

There are three different types of running gear: standard running gear, sport-type running gear (Performance) and PASM chassis.

The 911 Carrera S comes with the PASM chassis as standard.

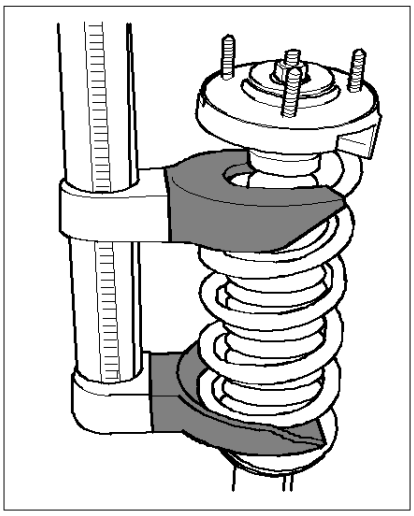


Exploded view of rear spring strut

No.	Designation	Qty.	Removal	Fitting
-1-	Lock nut M12 x 1	1	Pre-tension coil spring using a spring clamp. Then loosen the lock nut. To loosen the lock nut on vehicles with PASM, use a socket wrench insert, e.g. **socket wrench insert for ATF temp. switch assembly NR.18**. Counter with a suitable lever at two bolts (of the three M8 bolts) on the supporting mount. Screw hexagon nuts onto the bolts to avoid damaging the thread.	Use new lock nuts. Position the supporting mount **-2-** and tighten the hexagon nuts to 32 Nm (24 ftlb.). Counter with a suitable lever at two bolts (of the three M8 bolts) on the supporting mount. The tightening torque of 32 Nm (24 ftlb.) applies - even contrary to previously published specifications - for all 997 rear-axle spring struts (conventional and with PASM).

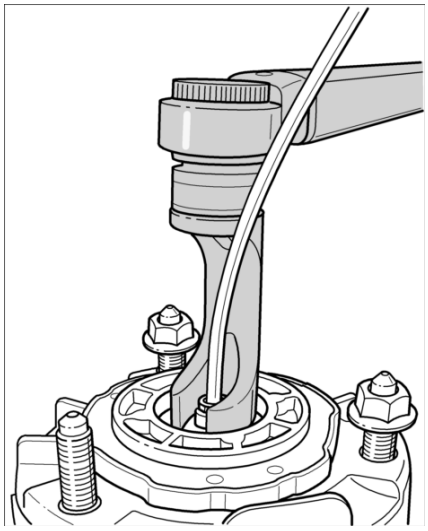
-2-	Spring strut mount	1		Observe allocation as per Spare Parts Catalogue. During fitting, place the lug in the groove on the piston rod (twist lock of piston rod opposite the supporting mount).
-3-	Compensating plate (intermediate part)	1		Observe allocation, depending on coil spring tolerance range (see assembly instructions). Join to spring plate at the correct position **-4-** .
-4-	Spring plate	1		Replace if necessary.
-5-	Washer	1		
-6-	Additional spring	1		Observe allocation as per Spare Parts Catalogue. PASM and sport-type running gear: approx. 53 mm long. Standard running gear: approx. 67 mm long.
-7-	Bellows	1		Replace if necessary. Before installation, assemble with the additional spring **-6-** .
-8-	Coil spring	1		Observe allocation as per Spare Parts Catalogue. Always replace both coil springs at the same time (coil springs are only available in pairs).
-9- or **-9.1-**	Concave washer Variant **-9-** = 78 mm diameter or Variant **-9.1-** = 134 mm diameter (consisting of concave washer and rubber support)	1		Fit groove downwards facing snap ring. Ensure perfect fit on snap ring **-10-** . Observe allocation. Variant **-9-** for standard running gear and PASM chassis. Variant **-9.1-** for sport-type running gear (Performance).
-10-	Snap ring	1	Use snap-ring pliers VW 161a for removal and installation.	Replace. Fit in the specified groove using snap-ring pliers VW 161a **-A or B-** (observe table during assembly). Make sure it fits perfectly in the groove!
-11-	Vibration damper	1		Observe allocation as per Spare Parts Catalogue. The item number is shown on the damper tube.

Disassembling rear spring strut



Tensioning rear spring

1. Pre-tension coil spring using **spring clamp for spring struts NR.121** until the piston rod is relieved. The appropriate forks must be inserted into the spring clamp.



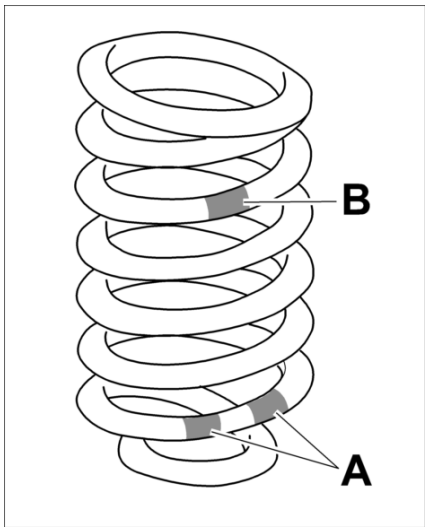
Spring strut mount

2. To loosen the connection between piston rod and spring-strut mount, counter at the bolts on the spring-strut mount (screw hexagon nuts onto the bolts and use a suitable lever).

On PASM spring struts, use a suitable socket wrench insert, e.g. **socket wrench insert for ATF temp. switch assembly NR.18**.

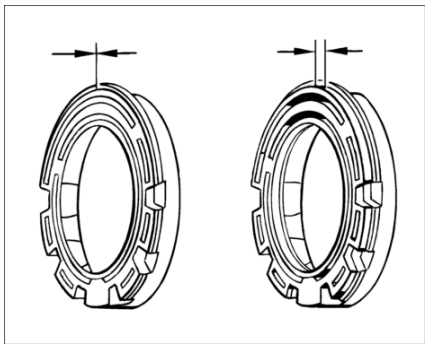
3. Remove all parts from the piston rod.

Coil spring/compensating plate allocation



Colour marking on coil spring

Identification marking **-A-** comprising two coloured lines is for the spring constant and spring length (depending on vehicle version and equipment).



Compensating plate

Identification marking **-B-** comprising one coloured line (white or green) is for the coil spring tolerance range (load group) and determines the thickness of the compensating plate.

Coil spring colour coding **-A-**	Vehicle version and equipment
Example violet/white	Standard running gear RoW/USA - Coupe
Example red/white	PASM RoW - Coupe/Cabriolet with manual transmission

Coil spring colour coding **-B-**	Compensating plate
1 white line **-B-**	Thickness: 0.5 mm Colour: natural
1 green line **-B-**	Thickness: 4.0 mm Colour: black

Rear vibration damper allocation

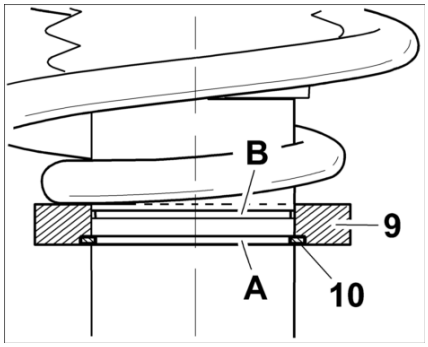
See allocation in Spare Parts Catalogue.
The item number and colour dot coding is shown on the damper tube.

Assembling spring strut

Note

- *Observe the correct allocation (vehicle version and equipment) when installing new coil springs and/or shock absorbers.*
- *Observe allocation of compensating plate according to the coil spring tolerance range.*
- *Coil springs are only available in pairs.*

1. Clamp the spring strut at a suitable place in the vice (use jaw liners).



Snap ring position

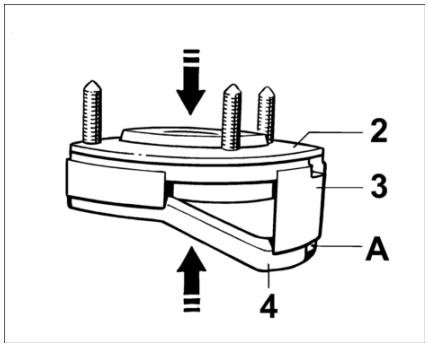
2. When replacing the vibration damper, fit a new snap ring **-10-** - using **snap-ring pliers VW 161 A** - in the relevant groove **-A or B-** (see allocation in next table).

   Fit bottom concave washer **-9-** with the groove downwards facing the snap ring **-10-** . Ensure that the snap ring **-10-** and concave washer **-9-** are seated correctly.

Vehicle version and equipment	System	Snap ring in position
C2 Coupe RoW/USA, manual transmission	Conventional	Groove A

C2 Coupe RoW/USA, Tiptronic	Conventional	Groove B
C2 RoW, manual transmission	Conventional	Groove B
C2 Cabriolet RoW, Tiptronic	Conventional	Groove A
C2 Cabriolet USA, manual transmission	Conventional	Groove A
C2 Cabriolet USA, Tiptronic	Conventional	Groove A
C2 Coupe RoW, manual transmission, Performance (sport-type running gear)	Conventional	Groove A
C2/C2S Coupe RoW/USA, manual transmission	PASM	Groove A
C2/C2S Coupe RoW/USA, Tiptronic	PASM	Groove B
C2/C2S Cabriolet RoW/USA, manual transmission	PASM	Groove B
C2/C2S Cabriolet RoW/USA, Tiptronic	PASM	Groove A

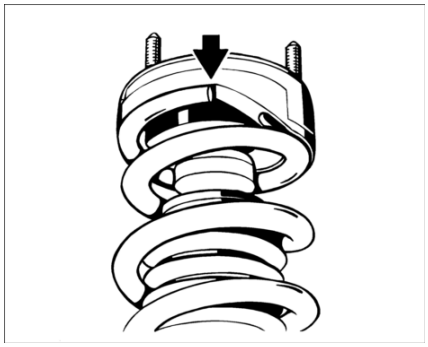
3. Place pre-tensioned coil spring (with the tighter end of the spring) on the vibration damper.
4. Slide the bellows/additional spring assembly onto the piston rod.
5. Fit
   washer.



Supporting mount assembly

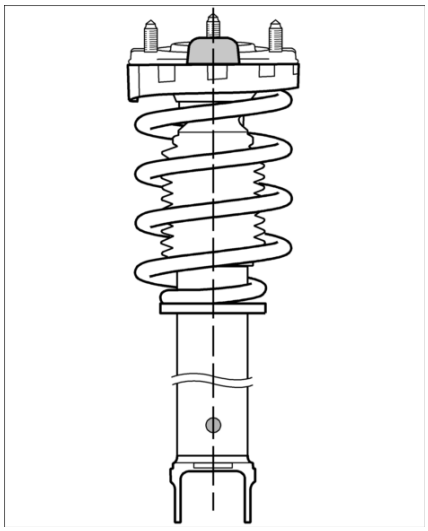
6. Position spring strut mount **-2-** onto the piston rod (with supporting mount **-2-** , compensating part **-3-** and spring support **-4-** assembly in correct position).

   Place the lug on the spring strut mount in the groove of the piston rod (twist lock of piston rod opposite the supporting mount).



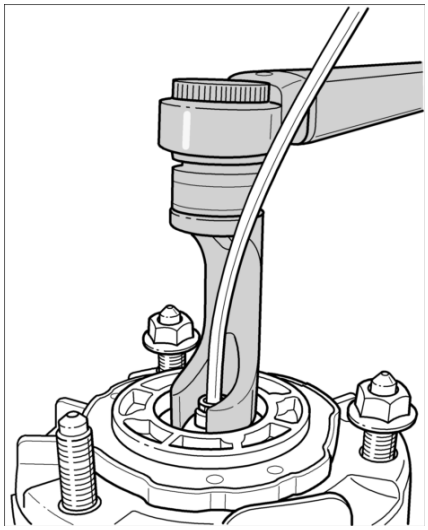
Coil spring

7. Fit new lock nuts on the piston rod. Place the end of the coil spring on the concave washer stop **-arrow-** .



Positioning spring strut mount

8. Align the spring strut mount with the vibration damper. **-Lug-** of spring strut mount must line up with the middle fork of the lower vibration damper.



Spring strut mount

9. Tighten lock nut to 32 Nm (24 ftlb.). Counter at the bolts (M8) on the spring strut mount at the same time.

   There is no need to counter at the piston rod because there is a strong grip between the spring strut mount and piston rod.

   On PASM spring struts, use a suitable socket wrench insert, e.g. **socket wrench insert for ATF temp. switch assembly NR.18**.

   Tightening torque for all 997 rear-axle spring struts: 32 Nm (24 ftlb.).

   The tightening torque of 32 Nm (24 ftlb.) applies - even contrary to previously published specifications - for all 997 rear-axle spring struts (conventional and with PASM)!

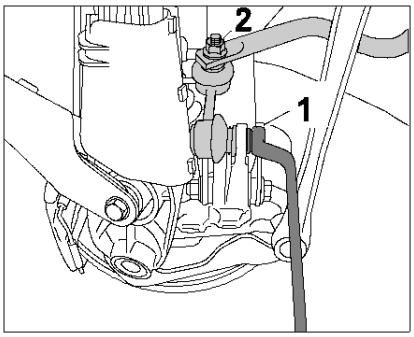
997110, 997111, 997120, 997121, 997310, 997311, 997320, 997321, 997410, 997411, 997430, 997431, 997610, 997611, 997620, 997621

42 91 19 Removing and installing connecting link (suspension/stabiliser) - as of MY 2005

-

top of page

Removing rear connecting link (suspension/stabiliser)



Connecting link (suspension/stabiliser)

1. With the vehicle raised, loosen the lock nuts **-1 and 2-** and remove the suspension/stabiliser.

Installing rear connecting link (suspension/stabiliser)

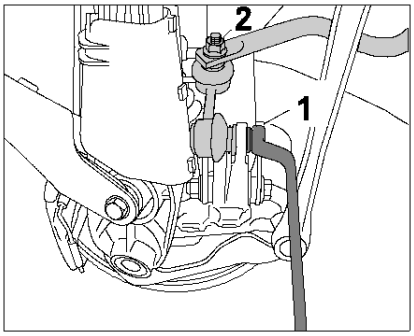
Up to approx. the middle of April 2005 (the exact date can be taken from the Technical Information if necessary), the lock nut can become loose on the threaded connection of the stabilizer/suspension/stabiliser on the front and rear axle due to a loss in preload.Suspension/stabilisers are therefore installed with a pin extended by 10 mm and an appropriately extended hexagon nut on the front and rear axle as of the time mentioned.Suspension/stabilisers with extended pins (extended threads) of the fastening bolt can be installed retroactively.In the event of a claim (noise problem caused by the stabiliser), all 4 suspension/stabilisers are to be replaced by the modified version. On assembly work in the stabiliser area or on the wheel suspension, install the modified version on the right and left side.

Note

- *Use the new fastening nuts, which are 10 mm longer (Part No. 999.084.123.09), to secure the modified connecting links.*
- *Use the old fastening nuts (Part No. 999.084.643.09) to secure the old connecting links.*

- *The old connecting link (short threaded pin) must not be used together with the new lock nut because the threaded pin is not long enough for the lock nut. If this incorrect combination is used, the safety effect could not be assured or would only be provided conditionally.*

1. Install connecting link (suspension/stabiliser).



Connecting link to anti-roll bar

2. Use new lock nuts **-1 and 2-** . Depending on the version, (long or short pin), fasten the assigned lock nuts.
3. Observe prescribed tightening torque. Tighten the lock nuts in a 3-stage tightening procedure *421000 Tightening torques for rear axle*.

997110, 997111, 997120, 997121, 997310, 997311, 997320, 997321, 997410, 997411, 997430, 997431, 997610, 997611, 997620, 997621

as of MY 2005
Country C00, C02, C05, C07, C08, C09, C10, C11, C12, C13, C14, C15, C16, C18, C19, C20, C21, C22, C23, C24, C25, C26, C27, C28, C32, C33, C34, C35, C36, C37, C38, C39, C45, C46, C98, C99

WARNUNG

Gefahr des Verlusts der Text-Bild-Zuordnung beim Ausdruck.

- **Aus technischen Gründen kann derzeit nicht ausgeschlossen werden, dass trotz einwandfreier Darstellung auf dem Bildschirm beim Ausdruck der Zusammenhang von Text und zugehörigem Bild verloren geht.**
- **Wird der Fehler nicht bemerkt, besteht die Gefahr, daß Arbeiten nicht korrekt durchgeführt werden und es dadurch zu Personen- und Sachschäden kommt.**

Vergleichen Sie deshalb nach dem Druckvorgang unbedingt die Ausdrucke mit der Bildschirmdarstellung. Korrigieren Sie die Ausdrucke im Fehlerfall so, daß der Inhalt der Bildschirmdarstellung zutreffend wiedergegeben wird.

WARNING

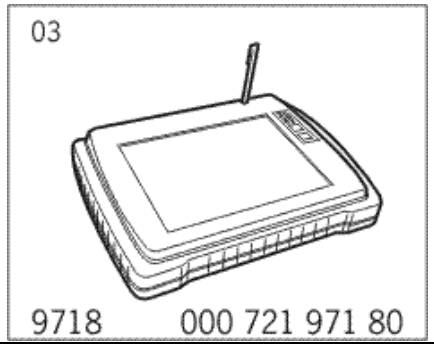
Danger of losing text-figure correspondence when printing out.

- **For technical reasons, it can currently not be ruled out that the correspondence between text and associated figure can be lost when it is printed out, even though the display on the screen is correct.**

43 16 19 Removing and installing PASM control unit - as of MY 2005

- Removing PASM control unit
- Installing PASM control unit
- Programming PASM control unit

Tools

Designation	Type	Number	Explanation	
PIWIS tester	special tool	9718		

top of page

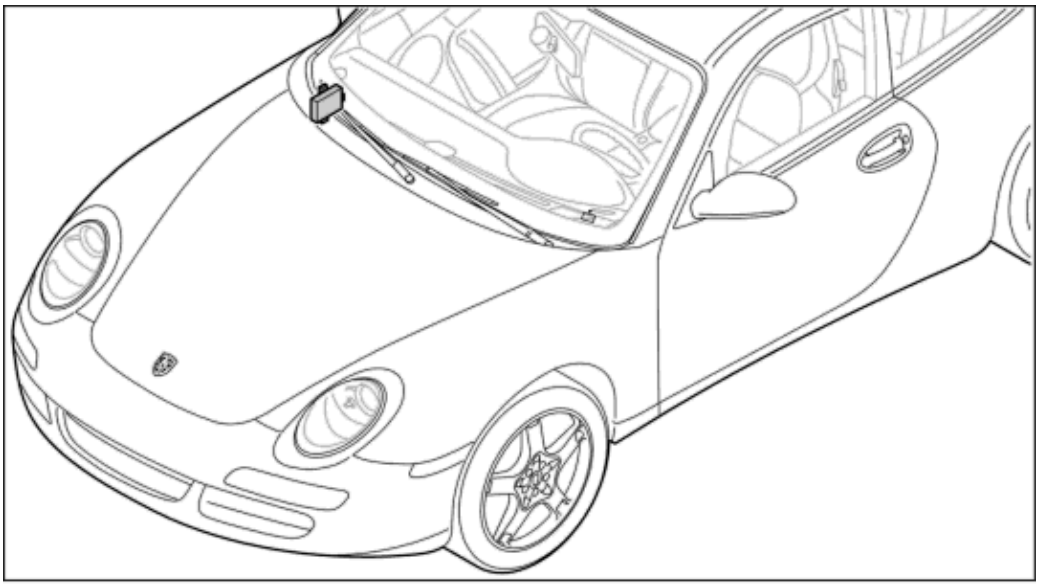
Removing PASM control unit

Removing PASM control unit

Note

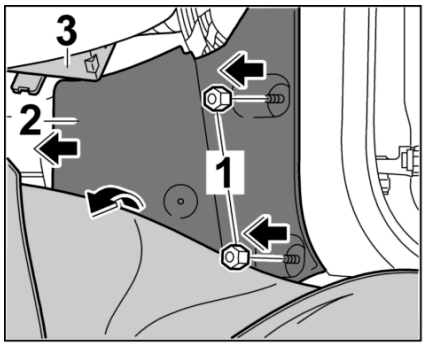
If the control unit has to be replaced, read out the values saved in the control unit before starting the removal.
431619 Removing and installing PASM control unit - chapter on "Programming"

Installation Location:



43 16 1001

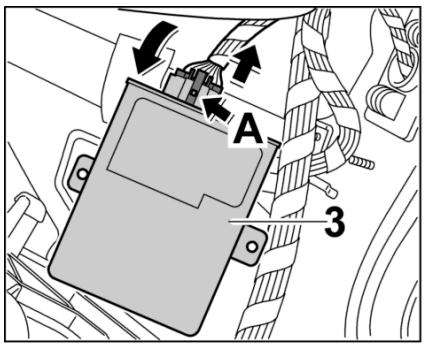
Installation position shown on the 911



43 16 1002

Unscrewing cover for passenger's footwell

1. Pull carpet on right-hand side to the side.
2. Unscrew the two fastening nuts **-1-** and remove the cover **-2-** .



43 16 1003

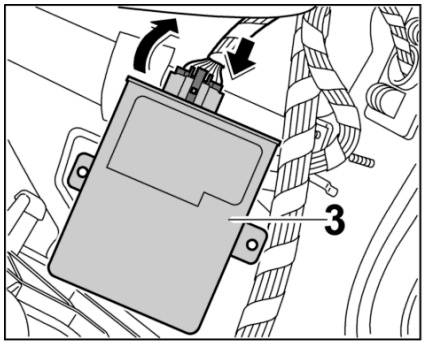
Disconnecting control unit

3. Unclip control unit from the support and pull it out and down.
4. Release **-A-** and pull off electric connector.

top of page

Installing PASM control unit

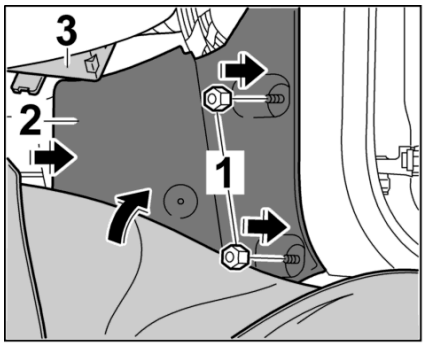
Installing PASM control unit



43 16 1004

Connecting the plug connection

1. Connect the electric plug connection until the plug clicks into place.
2. Push in control unit into the support and clip it in.



43 16 1005

Screwing on cover for passenger's footwell

3. Fit cover **-2-** and secure with the two fastening nuts **-1-** .
4. Stick on carpet at side again onto cover.

top of page

Programming PASM control unit

Reading out and writing values for PASM control unit

Note

- *During coding, there should be a guaranteed power supply for the **PIWIS tester 9718**. It is essential to connect a battery charger with a current rating of at least 40 A to the vehicle battery.*
- *The **PIWIS tester 9718** instructions take precedence and in the event of a discrepancy these are the instructions that must be followed. Deviations may occur with later software versions.*
- *The procedure described here has been structured in general terms; different text or additions may appear in the **PIWIS tester 9718**.*

1. Connect the **PIWIS tester 9718** to the vehicle and start it. Switch on the ignition. >> Continue.
2. Select the vehicle type.
3. Using the >> key, move from the vehicle type to the list of control units.
4. Select **PASM** and press >> .
5. In the **PASM** menu, select **Control unit replacement** and press >> .
6. Select **Read codes** and press >> .
7. On the screen of the PIWIS tester appears the message **Coding read-out complete** >> .
8. Switch off ignition and replace control unit.
9. Switch to the **Special functions** menu and perform the **vehicle handover** using the F8 key.
10. In the **Special functions** menu, erase **All fault memories** by pressing >> .
11. Switch on ignition. Once the control unit has been replaced, the vehicle data is uploaded under the **Write in data** menu (see Section 7). Press >> .
12. PIWIS tester displays **Coding write-in complete** >> .
13. Carry out a test drive and read out fault memory.

997110, 997111, 997120, 997121, 997310, 997311, 997320, 997321, 997410, 997411, 997430, 997431, 997610, 997611, 997620, 997621

as of MY 2005
Country C00, C02, C05, C07, C08, C09, C10, C11, C12, C13, C14, C15, C16, C18, C19, C20, C21, C22, C23, C24, C25, C26, C27, C28, C32, C33, C34, C35, C36, C37, C38, C39, C45, C46, C98, C99

WARNUNG

Gefahr des Verlusts der Text-Bild-Zuordnung beim Ausdruck.

- **Aus technischen Gründen kann derzeit nicht ausgeschlossen werden, dass trotz einwandfreier Darstellung auf dem Bildschirm beim Ausdruck der Zusammenhang von Text und zugehörigem Bild verloren geht.**
- **Wird der Fehler nicht bemerkt, besteht die Gefahr, daß Arbeiten nicht korrekt durchgeführt werden und es dadurch zu Personen- und Sachschäden kommt.**

44 05 19 Removing and installing wheel - as of MY 2005

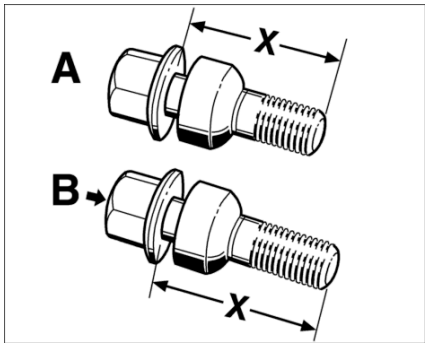
- Information
- Removing wheel
- Installing wheel

top of page

Information

Wheel mounting

The wheels of the 911 Carrera (997) are tightened using the same standard wheel bolts **-A-** (M14 x 1.5) as are used on the 911 Carrera (996). Length: Dimension **-X-** **Screw length: approximately 45 mm** .



Wheel bolt length

The longer wheel bolts **-B-** dimension **-X-** **Screw length: approximately 50 mm** will be used for the 911 GT3 (996) - up to model year 2003. Designation with GT or red colour **-arrow-** .

top of page

Removing wheel

Removing wheel

Note

- *Use suitable commercially available tools (wrench size 19 mm)! Never use an impact bolter to tighten the wheel bolts.*

- *Before the wheel is placed on the wheel hub, re-grease the centring surface of the wheel hub (if required) as necessary with a very thin coat of Optimoly TA (aluminium paste).*

- *The wheel bolt consists of two parts that are permanently joined together. Other wheel bolts must not be used.*

Note

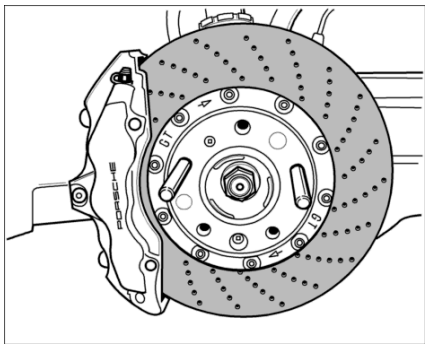
- *The assembly pins for removing / mounting the wheel for vehicles with PCCB can be ordered separately as a spare part. Part No.: 999 571 074 30.*

ATTENTION

Removing/fitting the wheels for vehicles with PCCB (Porsche Ceramic Composite Brake).

- **Risk of damage to the brake discs.**

Use assembly aids (assembly pins) in order to exclude any possibility of heavy contact of the wheel with the brake disc. The assembly aids (2 assembly pins) are located in the luggage compartment.



Assembly pins for vehicle with PCCB brakes

– In the case of vehicles with PCCB (Porsche Ceramic Composite Brake), screw the 2 assembly aids (assembly pins), instead of 2 wheel bolts, into the wheel hub before wheel removal. Only then remove the three remaining wheel bolts and remove the wheel carefully, without touching the brake discs.

top of page

Installing wheel

Installing wheel

Note

- *Use suitable commercially available tools (wrench size 19 mm)! Never use an impact bolter to tighten the wheel bolts.*
- *Before the wheel is placed on the wheel hub, re-grease the centring surface of the wheel hub (if required) as necessary with a very thin coat of Optimoly TA (aluminium paste).*
- *The wheel bolt consists of two parts that are permanently joined together. Other wheel bolts must not be used.*

Note

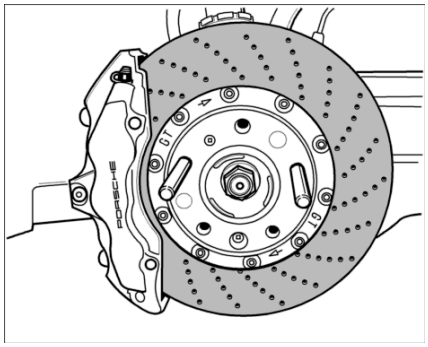
- *The assembly pins for removing / mounting the wheel for vehicles with PCCB can be ordered separately as a spare part. Part No.: 999 571 074 30.*

ATTENTION

Removing/fitting the wheels for vehicles with PCCB (Porsche Ceramic Composite Brake).

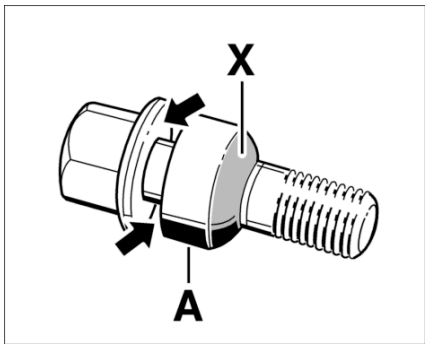
- **Risk of damage to the brake discs.**

Use assembly aids (assembly pins) in order to exclude any possibility of heavy contact of the wheel with the brake disc. The assembly aids (2 assembly pins) are located in the luggage compartment.



Assembly pins for vehicle with PCCB brakes

1. In the case of vehicles with PCCB (Porsche Ceramic Composite Brake), screw the 2 assembly aids (assembly pins) into the wheel hub before mounting wheel.
2. In the case of heavy soiling, clean the wheel bolts and the concavities in the wheel with a lint-free cloth.



Wheel bolt

3. Always apply a thin coat of Optimoly TA (aluminium paste) on the thread of the wheel bolts, on the shank and between the bolt head bearing surface and spherical cap ring (under the head) **-arrows-** . Do not grease the spherical cap bearing surface **-X-** of the wheel bolts that face the wheel.

-A- - Spherical cap ring (permanently connected with the wheel bolt)

-X- - Spherical cap bearing surface facing the wheel (do not grease)

Note

- *Rework on wheel bolts is impermissible.*

4. Always replace damaged wheel bolts.

This damage includes mechanical damage to the thread, the spherical cap and damage resulting from seizure of the bolt head bearing surface and spherical cap ring. It must be possible to rotate the spherical cap ring on the bolt shank and to move it in axial direction.

Note

- *Always observe the specified tightening torque of 130 Nm (96 ftlb.).*

5. Screw in wheel bolts by hand and then tighten evenly. Start at the top when tightening.

997110, 997111, 997120, 997121, 997310, 997311, 997320, 997321, 997410, 997411, 997430, 997431, 997610, 997611, 997620, 997621

as of MY 2005
Country C00, C02, C05, C07, C08, C09, C10, C11, C12, C13, C14, C15, C16, C18, C19, C20, C21, C22, C23, C24, C25, C26, C27, C28, C32, C33, C34, C35, C36, C37, C38, C39, C45, C46, C98, C99

WARNUNG

Gefahr des Verlusts der Text-Bild-Zuordnung beim Ausdruck.

- **Aus technischen Gründen kann derzeit nicht ausgeschlossen werden, dass trotz einwandfreier Darstellung auf dem Bildschirm beim Ausdruck der**

44 05 94 Balancing/optimising wheels - as of MY 2005

- Balancing/optimising wheels

Tools

Designation	Type	Number	Explanation	
measuring gauge	commercially available tool	NR.136		

top of page

Balancing/optimising wheels

General

Excessive wheel imbalance not only produces vibrations and causes the steering wheel to shake, but also results in increased wear on various parts of the running gear.
Even if the wheels are correctly balanced, excessive geometry errors (radial and axial runout) and misshapen tyres, e.g. accumulation of material at one point in the tyre structure (spring action of tyre changes as the tyre rolls), can cause rolling and steering imbalance.

Note

- *Achieving a good result requires utmost care, observance of the instructions and procedure, and attempting to eliminate even the very last gram of imbalance.*

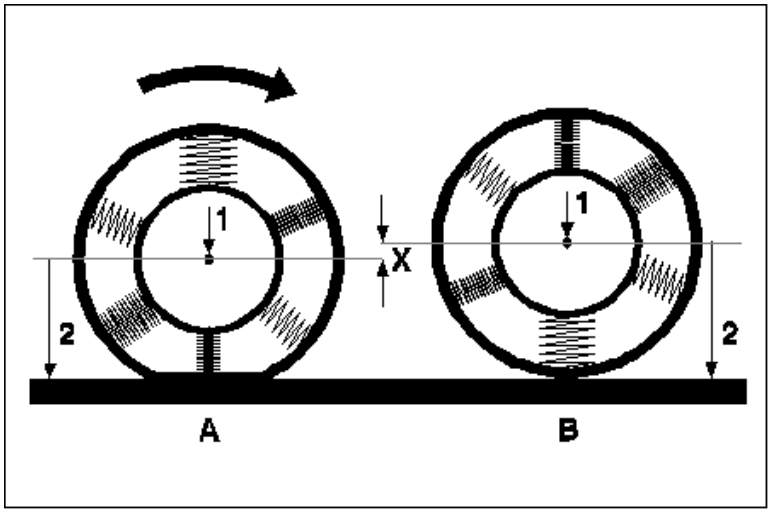
Recommendations/requirements

- Wheel suspension elements must be in good technical order.
- The wheels must be clean with no foreign objects in the tyre.
- Use a tyre measuring gauge, e.g. **measuring gauge NR.136** to check radial and lateral runout values on wheels without flat spots. Values of less than 1.0 mm are desirable - around 0.5 mm would be better.
- To limit the number of radial runout errors and to optimise smoothness of rolling, it is a good idea - and even necessary in individual cases - to match the tyre (i.e. to fit it in a favourable position with respect to the wheel). Follow tips and fitting instructions as well as information on tyre mounting paste for tyres.

- If the rims (wheels without tyres) are perfect but the complete wheels have large axial and radial runout values (due to ply breakage or other damage), it may be necessary to replace the tyre.
- Balance used wheels only after they have been warmed up by driving, otherwise flat spots will simulate imbalance. Never perform matching in the case of flat spots.
- Correct tyre pressure is an important prerequisite.
- Place the balancing weights at the prescribed position.

Explanation of terms

Geometry error (radial and lateral runout)
Radial and lateral runout of the rim and/or rim/tyre assembly.
Flat spots
Flat spots can occur on the tyres if the vehicle is idle for extended periods.
Radial force variations



The radial force is a force that compresses a tyre. Based on its size, a tyre has softer (**-item A-**) and more rigid areas (**-item B-**) due to design and production-related factors. Given this, the tyre compresses to various extents at a constant wheel load (**-arrows 1-**) and a constant tyre pressure (**-arrows 2-**). This varying spring action (**-X-**) in the tyre can cause vibrations in the chassis on even road surfaces and the driver may notice this as shaking in the steering wheel, for example. Measuring the radial force variation involves running the tyre on a wheel balancer that measures radial force variation while applying a constant load to the tyre. This simulates the rolling of the tyre on a driving surface. Variations in radial force occur independently of the direction of rotation of the tyre and are measured as the difference between the maximum and minimum radial force ("peak to peak" value).
1st Harmonic
The changes in radial force variation can be broken down mathematically into individual variations. Porsche uses the value of the 1st Harmonic Variation (basic variation) to assess the tyre from the point of view of rigidity. The 1st Harmonic Variation relates to the changes in radial force that cause the strongest vibrations. Other harmonic variations (2nd - 4th Harmonic) can also be seen in the changes in radial force. These relate to the changes in radial force that cause weaker vibrations.
Uncontrolled matching
Turn the tyre on the wheel by 90° or 180° if necessary in order to achieve an acceptable value with regard to rolling smoothness (true running, imbalance and distribution of balance weights).
Controlled matching

With a balancing machine with matching program. In most cases, this produces an even better result with regard to the rolling smoothness (true running, imbalance and distribution of the balance weights) than can be achieved with uncontrolled matching.

Tyre seating pressure

This is the filling pressure after the tyre has been fitted on the rim at which the tyre bead, coming out of the deep bed, must pop over the hump of the rim bead.

Balancing/optimising wheels

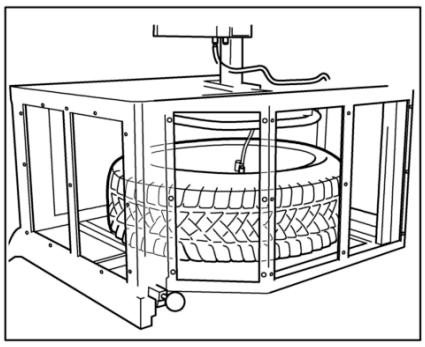
The entire process is divided into three operations.

1. Fitting the tyre on the rim.
2. A - Measure radial force variations and optimise the wheels if necessary. Afterwards, balance the wheels.

   B - As an alternative to item 2 A, if there is no device available to measure radial force variations: Stationary balancing of the wheel (eliminating static and dynamic imbalance) with optimisation of rolling smoothness.
3. Fitting the wheel on the vehicle.

Further to 1: Fitting the tyre on the rim

- Remove rubber residues and dried-on tyre paste from the rim, especially from the rim bead and the hump.
- Examine rim for damage; remove old balancing weights.
- Use the prescribed tyre mounting paste (only TIP TOP Universal, order no. 593 0601, 3.5 kg bucket, or Contifix) so that the tyre does not turn on the rim the first time the car is driven, thereby counteracting all your careful work. If the tyre turns by as little as 20 mm with respect to the rim, this can worsen an optimum balancing result.
- Fit tyre on the rim. When doing so, it is a good idea - and even necessary in individual cases - to fit the tyre in a favourable position with respect to the wheel (matching). Compare Controlled and Uncontrolled matching below.



Tyre filling cage

WARNING

If the tyre seating pressure is too high (max. 4.0 bar permissible), personal injuries are possible in the event of tyre or wheel destruction.

Maximum tyre seating pressure 4 bar! This value must not be exceeded.

For tyre seating pressure over 3.3 bar (possible in the event that several unfavourable factors should occur simultaneously / max. 4.0 bar permissible) use a tyre filling cage.

– Fill tyre. Important: At the latest when the pressure reaches 3.3 bar (max. 4.0 bar in tyre filling cage), the tyre beads (coming out of the deep bed) must pop over the hump of the rim bead in order to avoid fractures of the bead core. If necessary, interrupt the process and generously coat all necessary surfaces with recommended lubricant (tyre mounting paste). Then repeat the process.

  • Important: Damage to the bead core resulting from incorrect tyre assembly/disassembly will cause an increase in fluctuations in power (radial/lateral fluctuation in power). This is apparent when you roll the tyre on the driving surface.

– Uncontrolled matching: Turn the tyre on the wheel by 90° or 180° if necessary in order to achieve an acceptable value with regard to rolling smoothness (true running, imbalance and distribution of balance weights).
– Controlled matching: With a balancing machine with matching program. In most cases, this produces an even better result with regard to the rolling smoothness (true running, imbalance and distribution of the balance weights) than can be achieved with uncontrolled matching.
– Check the fit of the tyre on the rim using the bead centring line.
– Set the prescribed tyre pressure.

Further to 2A: Measuring radial force variations

– Tension wheel on balancing machine with radial force variation measurement (vibration monitoring system).
– Observe the operating instructions of the balancing machine (adjust the machine from time to time).
– The contact surfaces of the wheel on the balancing flange (levelling surface) and the centring surface must be clean.
– The display disabling function must be switched off.
– Adjust tyre air pressure to 2.6 bar (best test pressure) when balancing and measuring radial force variations.
– Particular attention must be paid to the wheel mounting when measuring radial force variations and when balancing. Using the special pressure pieces provided by the manufacturer of the balancing machine will ensure that wheels are balanced accurately and there is the highest possible repeat accuracy. Observe the operating instructions.

Maximum deviations permitted in radial force variation results:

	Front wheels	Rear wheels
Radial force variation (peak to peak vibrations)	max. 170 N	max. 170 N
1st Harmonic (variation)	max. 125 N	max. 150 N

If these values are exceeded, the tyre must be matched on the rim.
If these values are not reached, the wheel must be balanced.

Note

A new tyre must be fitted if the radial force variation cannot be reduced to the values listed in the table.

Further to 2B: Stationary balancing with optimisation of rolling smoothness

- Clamp wheel on stationary balancing machine.
- Observe the operating instructions for the balancing machine. Adjust the machine according to the manufacturer's instructions (if necessary).
- The contact surfaces of the wheel on the balancing flange (levelling surface) and the centring surface must be clean.
- Centre (clamp) the wheel from the inside with centring clamping device - see Workshop Equipment Manual, Chapter 3. This centring clamping device fits all wheel-balancing machines approved by Porsche.

Check radial and lateral runout during the first measuring run. Values of less than 1.0 mm are desirable - around 0.5 mm would be better.
Consider the size of the measured balancing weights and their distribution on the inner and outer planes (inner and outer rim flanges) critically.
A uniform distribution with low values (e.g. 25/35 g) means that the tyre was fitted correctly and the quality of the tyre and rim is good.
A value of 80g/80g (90g/90g using the tyre pressure monitoring system) should not be exceeded with interior balancing behind wheel centre. A considerably different distribution, e.g. 35/90 g is very unfavourable; this usually indicates incorrect fitting. Problem wheels of this kind often have pronounced radial and axial runout values.
This can be remedied by matching (use correct mounting paste). This can be improved with uncontrolled matching (manual); significant improvement is possible in almost all cases using the rolling smoothness optimisation program (controlled matching).
Tyre pressure during balancing at required pressure.
Permissible residual imbalance of less than 3 g, or max. 3 g per plane.

Further to 3: Fitting the wheel on the vehicle

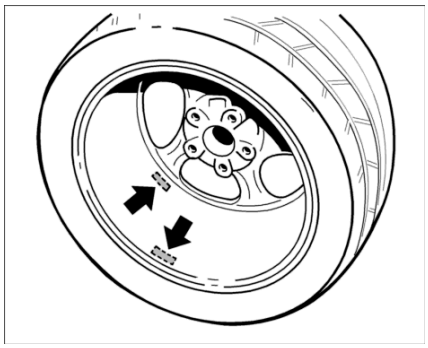
Note

- *Never use an impact bolter.*
- *Observe information on the two-piece wheel bolt. This is described in the chapter on wheel removal and installation (fitting wheel on vehicle) 440519 Removing and installing wheel.*

- Fit wheel using a suitable commercially available tool.
- Screw in wheel bolts by hand and then tighten evenly. Start at the top when tightening. Always observe the specified tightening torque of 130 Nm (96 ftlb.).
- Tyre pressure according to the specifications.

Balancing weights

Balancing weights: Balance stick-on weights (current version is a fine zinc alloy), see Spare Parts Catalogue.



Attach both weights to the inner side.

Note

- *Observe program selection and operating instructions of the balancing machine.*

Attaching the balance stick-on weights

Note

- *Remove the protective film just before sticking on the weight, as prolonged exposure to the air will reduce the bonding strength.*
- *Pay attention to cleanliness.*

– Determine exact position of the balancing weights (if necessary, temporarily stick on the balancing weights with a strip of adhesive tape until the correct position is determined).
– Prepare bonding surface on the rim. The bonding surface must be perfectly clean and free of grease.
– Remove protective paper from the bonding surface of the weight and press the weight firmly into place.
– The balance stick-on weight must be in uniform contact over the entire surface.
– Check the balancing weight is seated firmly. A weight freshly affixed weight must not detach itself from the rim under application of a shear load at right angles to its longitudinal axis.

997110, 997111, 997120, 997121, 997310, 997311, 997320, 997321, 997410, 997411, 997430, 997431, 997610, 997611, 997620, 997621

as of MY 2005
Country C00, C02, C05, C07, C08, C09, C10, C11, C12, C13, C14, C15, C16, C18, C19, C20, C21, C22,

44 12 02 Checking disc wheels - as of MY 2005

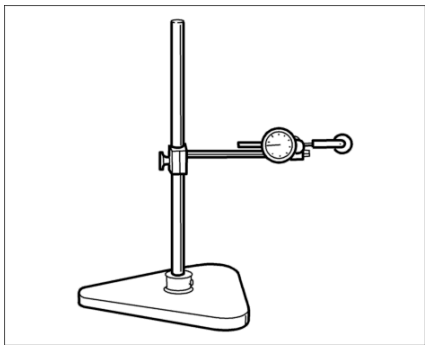
- Checking the radial and lateral runout

top of page

Checking the radial and lateral runout

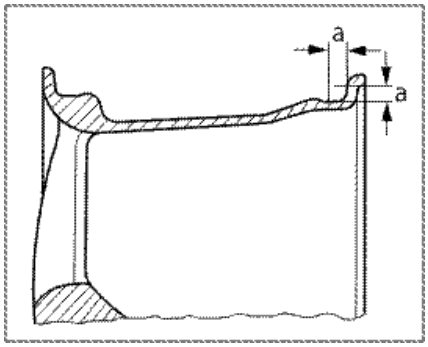
Note

- *Straightening and welding work on light alloy wheels is not permissible.*
- *The work is carried out initially with the wheel mounted on the vehicle.*



- *To measure wheels with tyres and wheels without tyres, use a tyre measuring gauge, e.g. VAG. 1435, see Workshop Equipment Manual, Chapter 3.4.2.*

Maximum permissible radial runout and lateral runout of the wheel with tyre = 1.25 mm. Values less than 1.0 mm - better around 0.5 mm - are desirable. For this purpose, match the tyre (turn the tyre on the rim) if necessary.).



Maximum permissible radial runout and lateral runout **-a-** of the light alloy wheels = 0.7 mm.
If in isolated cases further measurements are necessary, carry out the following procedure.

1.

To measure wheels without tyres, remove the wheel from the vehicle. 440519 Removing and installing wheel

2. Remove tyre from the alloy wheel. *44 Mounting tyres for vehicles with and without tyre pressure monitoring system (RDK)*
3. Clamp the wheel on the balancing machine and measure at the points **-a-** .

997110, 997111, 997120, 997121, 997310, 997311, 997320, 997321, 997410, 997411, 997430, 997431, 997610, 997611, 997620, 997621

as of MY 2005
Country C00, C02, C05, C07, C08, C09, C10, C11, C12, C13, C14, C15, C16, C18, C19, C20, C21, C22, C23, C24, C25, C26, C27, C28, C32, C33, C34, C35, C36, C37, C38, C39, C45, C46, C98, C99

WARNUNG

Gefahr des Verlusts der Text-Bild-Zuordnung beim Ausdruck.

- **Aus technischen Gründen kann derzeit nicht ausgeschlossen werden, dass trotz einwandfreier Darstellung auf dem Bildschirm beim Ausdruck der Zusammenhang von Text und zugehörigem Bild verloren geht.**
- **Wird der Fehler nicht bemerkt, besteht die Gefahr, daß Arbeiten nicht korrekt durchgeführt werden und es dadurch zu Personen- und Sachschäden kommt.**

Vergleichen Sie deshalb nach dem Druckvorgang unbedingt die Ausdrucke mit der Bildschirmdarstellung. Korrigieren Sie die Ausdrucke im Fehlerfall so, daß der Inhalt der Bildschirmdarstellung zutreffend wiedergegeben wird.

WARNING

Danger of losing text-figure correspondence when printing out.

- **For technical reasons, it can currently not be ruled out that the correspondence between text and associated figure can be lost when it is printed out, even though the display on the screen is correct.**
- **If the fault is not noticed, there is the danger that work will not be performed correctly which can cause injury and damage.**

Therefore, always compare printouts with the screen display after printing them out. Correct the printouts if they are faulty so that the content of the screen display matches that on the printouts.

AVERTISSEMENT

Risque de perte de la correspondance texte-illustration lors de l'impression papier.

- **Pour des raisons techniques, il ne peut pas être exclu à l'heure actuelle que, même en cas d'affichage correct à l'écran, la correspondance entre le texte et l'illustration puisse être erronée sur l'impression papier.**

44 32 19 Removing and installing wheel electronics - as of MY 2005

- Removing wheel electronics
- Installing wheel electronics

top of page

Removing wheel electronics

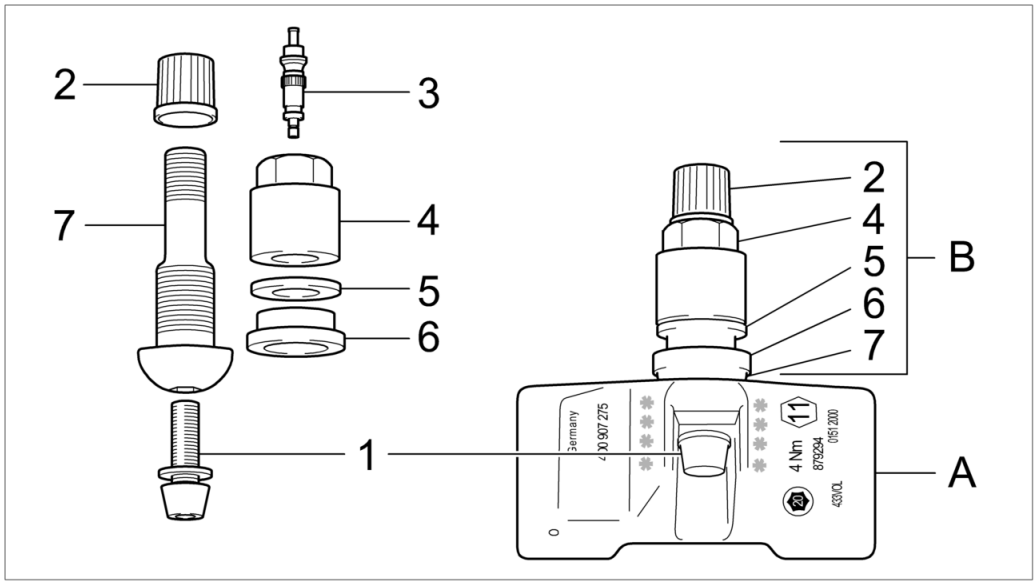
General information on wheel electronics

The tyre pressure monitoring system (RDK) is designed to constantly monitor the tyre pressure during driving and when stationary. One set of electronics **-A-** per tyre is mounted in the rim well base. These measure tyre pressure and temperature at regular intervals and transfer the values to a central control unit via a high-frequency route. The control unit evaluates the information and transfers the data to the instrument cluster if required. In this way, the driver is warned and informed if the tyre pressure has to be corrected. There are two versions of the wheel electronics **-A-** . The standard version, including normal transmission power, is used in the 911 Carrera (997) (in the Cayenne, an amplified transmission power is deployed). These transmit on a high frequency range of:

- 433 MHz or 315 MHz (special wheel electronics with 315 MHz have been developed for the Japanese market).

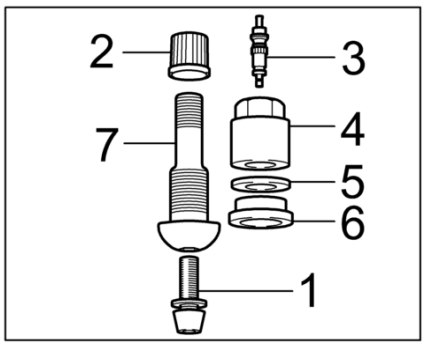
The following points can be used as distinguishing characteristics:

- The labelling, 433 MHz or 315 MHz
- The part number
- Without 8 stars (the illustration shows 8 stars, 4 each to the left and right of the slot, wheel electronics with amplified transmission power from the Cayenne)
- Special 315 MHz wheel electronics for Japan: identification with 14 oblique strokes (slashes)
- And/or the colour (black 433 MHz/grey 315 MHz)



-A- - Wheel electronics
-B- - Valve complete (No. 2 to No. 7)
-1- - Self-locking (Torx) fastening screw
-2- - Valve cap (plastic)
-3- - Valve insert
-4- - Union nut
-5- - Washer chamfered on both sides
-6- - Bead seat sealing ring
-7- - Valve

Removing wheel electronics

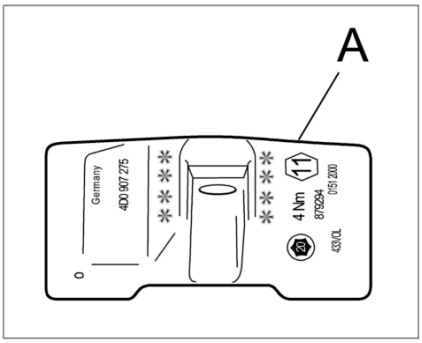


Note

- *For vehicles with a tyre pressure monitoring system, the valve and wheel electronics are only replaced in exceptional cases! The following points can make replacement necessary!*

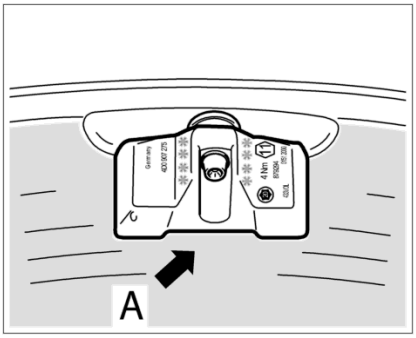
Valve complete with screw **-1 to 7-** has to be replaced if:

- The wheel electronics are removed
- The self-locking **-1-** fastening screw is loose
- The bead seat sealing ring **-6-** is porous or damaged
- The valve body **-7-** is bent
- The union nut **-4-** is loose.



The wheel electronics **-A-** must be replaced if:

- The housing is visibly deformed
- The filter surface (square, porous section on back of wheel electronics) is so badly soiled that it can no longer be cleaned by wiping
- Tyre sealant (tyre sealing liquid) has been used
- The service life of the battery has expired
- There is a fault within the wheel electronics.



After removal of the tyre, the wheel electronics **-A-** can be seen at the valve in the outer rim well base.

1. Release wheel electronics from valve using a Torx socket screwdriver T 20 (if necessary, counter with a suitable assembly pin, e.g. steel pin Ø approx. 1.8 mm in bore at valve foot) and remove.
2. Then unscrew union nut and remove valve.

top of page

Installing wheel electronics

ATTENTION

The wheel electronics must not come into contact with the tyre fitting paste or solvent.

Do not apply compressed air, mounting paste, soap, solvents or any other cleaners to the wheel electronics when fitting/removing tyres.

When replacing the wheel electronics, always use a completely new valve and a new fastening screw!
The tightening torque for wheel electronics/valve is 4 Nm (3 ftlb.)(± 0.5 Nm/0.4 ftlb.)!
Every tyre set or wheel change must be communicated to the control unit. In particular, this includes the case where wheel positions have been interchanged. For this purpose, always select the tyre type and tyre size under Main menu > Tyre pressure > Adjustments in the instrument cluster. The control unit then learns the wheel positions again once the vehicle starts driving.

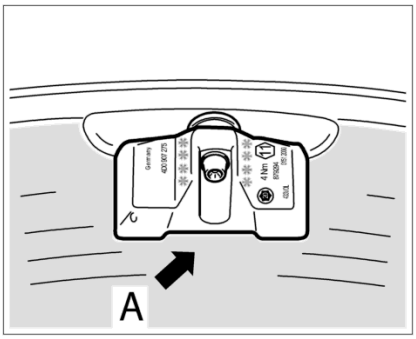
1. Install wheel electronics loosely at valve (do not tighten) and position in valve bore together with valve and bead seat sealing ring.

ATTENTION

Remove assembly pin after installing valve (required to counter). Otherwise the tyre will be damaged during installation.

Carry out the tightening procedure for the valve in one step (tighten without interruption the prescribed tightening torque is reached).

2. Position washer, chamfered on both sides, and screw union nut on as far as the mounting face. Visibly twist bore at valve foot. If necessary, block with suitable assembly pin. The tightening torque is 4 Nm (± 0,5 Nm) (3 ftlb. ± (0.4 ftlb.)).



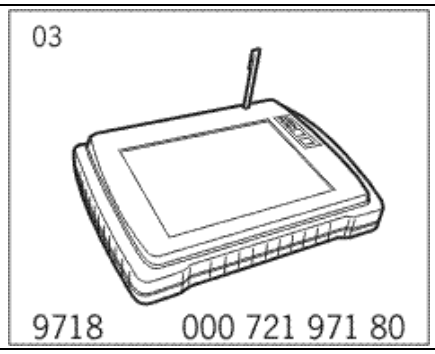
3. Push wheel electronics **-A-** slightly into rim well (this adjusts the angle of inclination of valve to wheel electronics).
4. Carefully tighten self-locking (Torx) fastening screw T 20 to tightening torque 4 Nm (± 0.5 Nm (3 ftlb. (± 0.4 ftlb.)). The wheel electronics should now be lying evenly against the rim.

997110, 997111, 997120, 997121, 997310, 997311, 997320, 997321, 997410, 997411, 997430, 997431, 997610, 997611, 997620, 997621

44 34 19 Removing and installing tyre pressure monitoring system control unit - as of MY 2005

- Preliminary work
- Removing tyre pressure monitoring system (RDK) control unit
- Installing tyre pressure monitoring system (RDK) control unit
- Subsequent work
- Programming tyre pressure monitoring system (RDK) control unit

Tools

Designation	Type	Number	Explanation	
PIWIS Tester	special tool	9718		

top of page

Preliminary work

Preliminary work for tyre pressure monitoring system (RDK) control module

703019 Removing and installing luggage-compartment cover - chapter on "removing" [997110 997111 997120 997121 997310 997311 997320 9973211] *703019 21 Removing and installing luggage-compartment cover - chapter on "removing" [997410 997411 997430 997431 997610 997611 997620 997621]*

top of page

Removing tyre pressure monitoring system (RDK) control unit

Removing tyre pressure monitoring system (RDK) control module

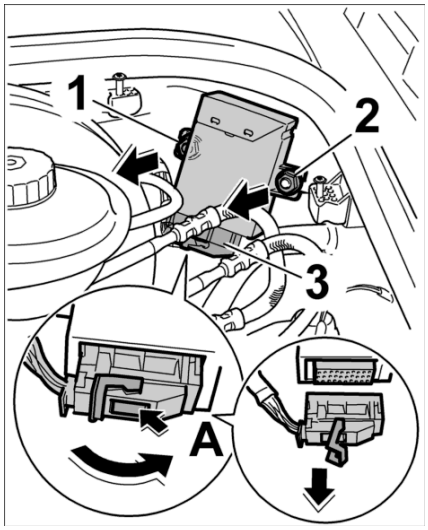
WARNING

Risk of damage to electronic control modules.

- **If care is not taken, electrical and electronic components may be destroyed.**

Before removing the control module, switch off the ignition and remove the ignition key.

The control module is located beside the brake booster in the luggage compartment.



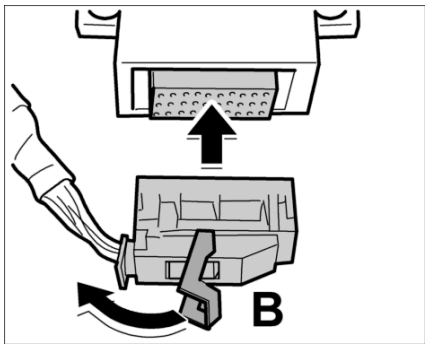
Unscrew fastening nut -1-, loosen fastening nut -2-, release plug -3- and remove it.

1. Unscrew fastening nuts **-1-** .
2. Loosen fastening nut **-2-** and remove the control module.
3. Release the electrical plug **-A-** and fold up lock.
4. Remove control module.

top of page

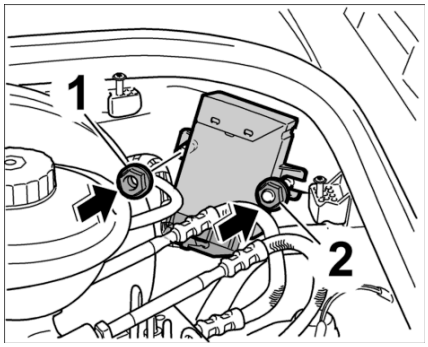
Installing tyre pressure monitoring system (RDK) control unit

Installing tyre pressure monitoring system (RDK) control module



Connecting and locking plug

1. Connect electrical plug to control module and lock plug **-B-** .



Positioning and securing control module

2. Position control module and secure with both fastening nuts.

top of page

Subsequent work

Rework on tyre pressure monitoring system (RDK) control module

703019 Removing and installing luggage compartment cover - chapter on "installing" [997110 997111 997120 997121 997310 997311 997320 997321] *703019 23 Removing and installing luggage compartment cover - chapter on "installing" [997410 997411 997430 997431 997610 997611 997620 997621]*

top of page

Programming tyre pressure monitoring system (RDK) control unit

Control units - reading and writing replacement values

Note

Follow the instructions on the Tester.
Later versions of the software may display slightly different text or require a slightly different procedure. The instructions you receive from the tester itself take precedence over this description.

If the control module for the tyre pressure monitoring system is replaced, it must be programmed using the **PIWIS Tester 9718**. This will ensure that the control module is taught for the relevant vehicle, country version and equipment.

WARNING

Sudden voltage interruption of the power supply to the control module.

- **Destruction of the control module.**

During programming, it is essential to guarantee the power supply for the Porsche System tester. It is essential to connect a battery charger with a current rating of at least 40 A to the vehicle battery.

Prior to disconnecting the control module, switch off the ignition and remove the ignition key.

1. Connect the Porsche System Tester to the vehicle and start the System Tester. Switch on the ignition. Press >> to continue.
2. Select the vehicle type.
3. Switch from the vehicle type to the list of control units.
4. Select **RDK** with the cursor keys and press the >> key.
5. Select **Control unit replacement** with the cursor keys and press the >> key.
6. Select **Read out values** (codings) with the cursor keys and press >> .
7. The message **Codes successfully read out** appears on the screen of the Porsche System Tester. Press >> .
8. Switch off ignition and replace control unit. 443419 Removing and installing control unit for the tyre pressure monitoring system - chapter on "Removing"
9. Switch to the **Special functions** menu and perform the **vehicle handover** using the F8 key.
10. In the **Special functions** menu, erase **All fault memories** by pressing >> .
11. Carry out automatic search of control units.
12. In the menu **Write in data** >> , the data read-out is installed.
13. System Tester displays **Coding write-in complete** >> .
14. Quit menu, carry out a test drive, and read out fault memory.

997110, 997111, 997120, 997121, 997310, 997311, 997320, 997321, 997410, 997411, 997430, 997431, 997610, 997611, 997620, 997621

as of MY 2005
Country C00, C02, C05, C07, C08, C09, C10, C11, C12, C13, C14, C15, C16, C18, C19, C20, C21, C22, C23, C24, C25, C26, C27, C28, C32, C33, C34, C35, C36, C37, C38, C39, C45, C46, C98, C99

WARNUNG

Gefahr des Verlusts der Text-Bild-Zuordnung beim Ausdruck.

- **Aus technischen Gründen kann derzeit nicht ausgeschlossen werden, dass trotz einwandfreier Darstellung auf dem Bildschirm beim Ausdruck der Zusammenhang von Text und zugehörigem Bild verloren geht.**

44 38 19 Removing and installing antenna for tyre pressure monitoring system - as of MY 2005

- Preliminary work
- Removing antenna for tyre pressure monitoring system
- Installing antenna for tyre pressure monitoring system
- Subsequent work

top of page

Preliminary work

Preliminary work

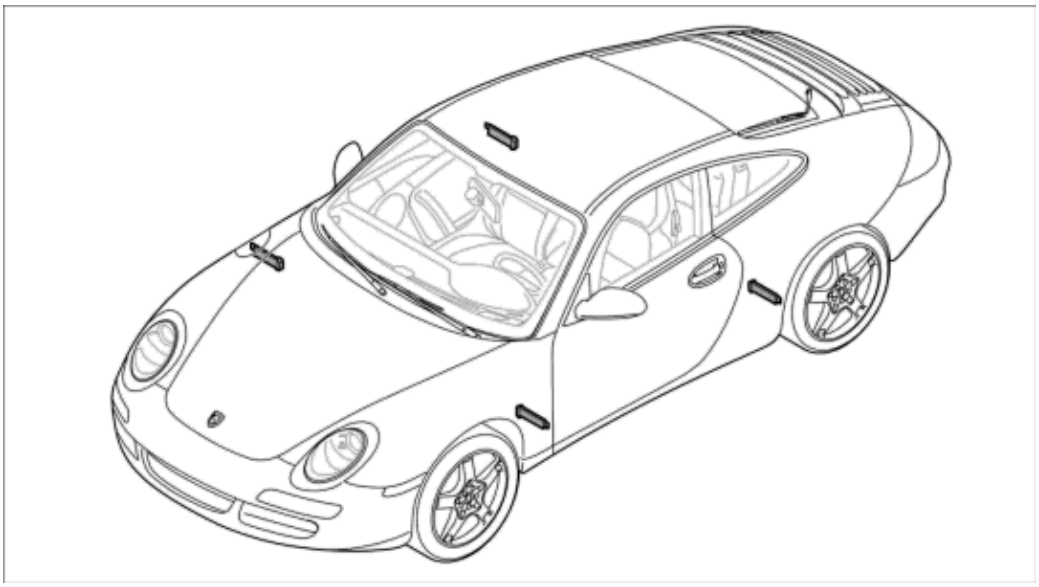
1. Remove front wheel housing liner (Part A). 505619 Removing and installing front wheel housing liner - chapter on "removing" [997110 997111 997120 997121 997310 997311 997320 997321] 505619 Removing and installing front wheel housing liner - chapter on "removing" [997621] 505619 Removing and installing front wheel housing liner - chapter on "removing" [997410 997411 997430 997431 997610 997611 997620]
2. Remove rear wheel housing liner (Part A). 536919 Removing and installing rear wheel housing liner - chapter on "removing" [997410 997411 997430 997431 997610 997611 997620 997621] 536919 Removing and installing rear wheel housing liner - chapter on "removing" [997110 997111 997120 997121 997310 997311 997320 997321]

top of page

Removing antenna for tyre pressure monitoring system

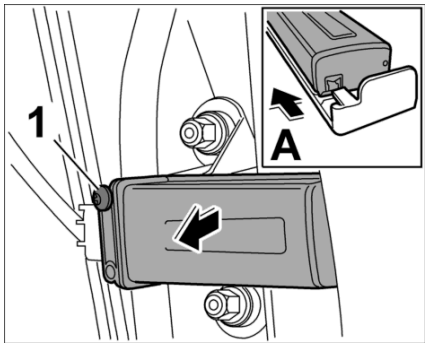
Removing antenna of front tyre pressure monitoring system

Installation Location:



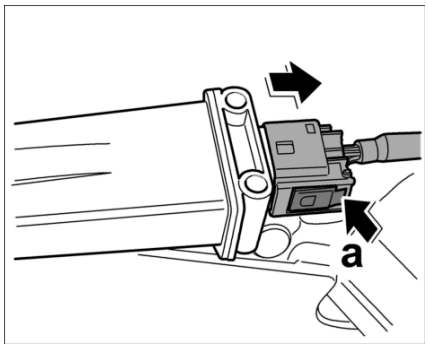
Overview of tyre pressure monitoring system

1. Switch off ignition and remove ignition key.



Unscrewing fastening screw for antenna of front tyre pressure monitoring system

2. Unscrew fastening screw **-1-** .
3. Pull out **-Arrow A-** and remove antenna of tyre pressure monitoring system from holder.

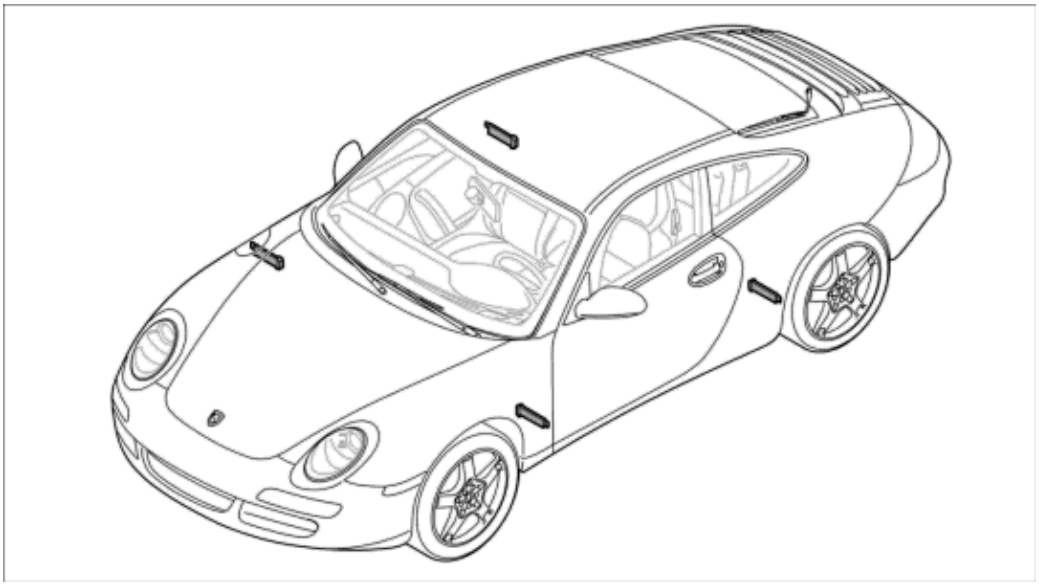


Pulling plug from antenna of tyre pressure monitoring system

4. Release **-Arrow a-** and pull off plug and remove antenna of tyre pressure monitoring system.

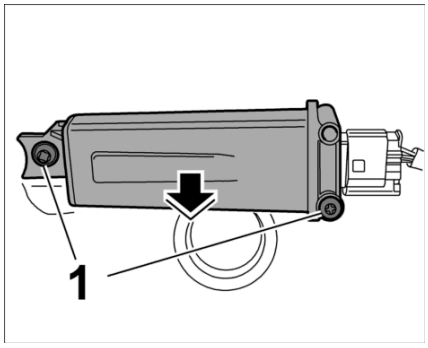
Removing antenna of rear tyre pressure monitoring system

Installation Location:



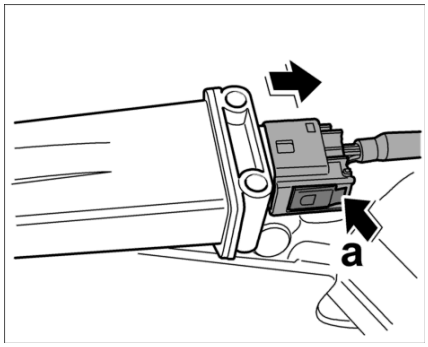
Overview of antennas of tyre pressure monitoring system

1. Switch off ignition and remove ignition key.



Unscrewing fastening screw for antenna of rear tyre pressure monitoring system

2. Unscrew the two fastening nuts **-1-** and remove antenna of tyre pressure monitoring system.



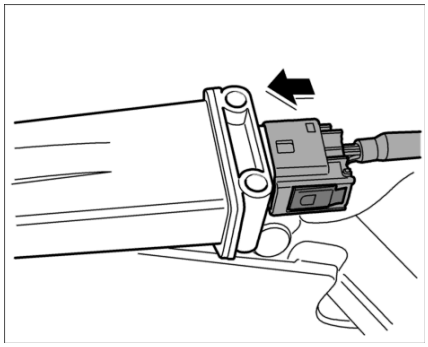
Pulling plug from antenna of tyre pressure monitoring system

3. Release **-Arrow a-** and pull off plug and remove antenna of tyre pressure monitoring system.

top of page

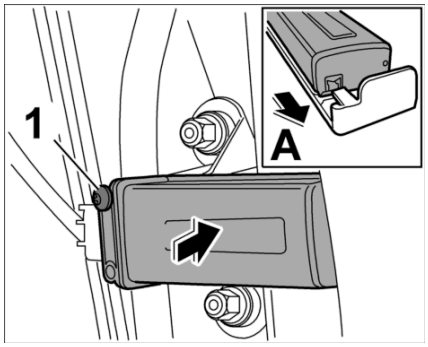
Installing antenna for tyre pressure monitoring system

Installing antenna of front tyre pressure monitoring system



Pushing plug onto antenna of tyre pressure monitoring system

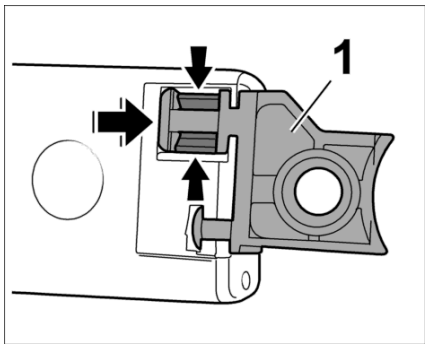
1. Insert plug until it is felt to engage.



Securing antenna of tyre pressure monitoring system with fastening screw

2. Insert antenna of tyre pressure monitoring system into holder **-Arrow A-** and secure with fastening screw **-1-** . **Tightening torque: 1.5 ftlb.**

Installing antenna of rear tyre pressure monitoring system

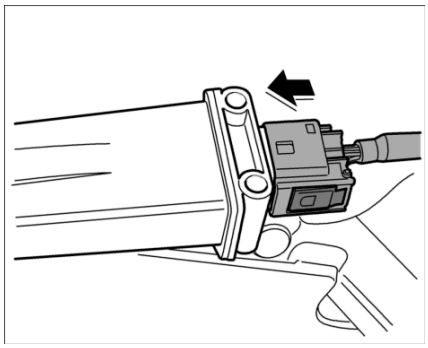


Clipping new holder in antenna of tyre pressure monitoring system

Note

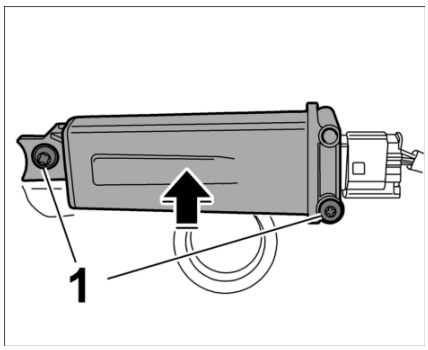
When replacing antenna of rear tyre pressure monitoring system, the holder must also be replaced.

1. Clip new holder **-1-** in antenna of tyre pressure monitoring system until it is felt to engage in the locking tab **-arrows-** .



Pushing plug onto antenna of tyre pressure monitoring system

2. Insert plug until it is felt to engage.



Securing antenna of tyre pressure monitoring system with fastening screws

3. Position antenna of tyre pressure monitoring system and secure with both fastening nuts **-1-** .
   Tightening torque: 1.5 ftlb.

top of page

Subsequent work

Subsequent work

1. Install front wheel housing liner (Part A). 505619 Removing and installing front wheel housing liner - chapter on "installing" [997110 997111 997120 997121 997310 997311 997320 997321] 505619 Removing and installing front wheel housing liner - chapter on "installing" [997621] 505619 Removing and installing front wheel housing liner - chapter on "installing" [997410 997411 997430 997431 997610 997611 997620]
2. Install rear wheel housing liner (Part A). 536919 Removing and installing rear wheel housing liner - chapter on "installing" [997410 997411 997430 997431 997610 997611 997620 997621] 536919 Removing and installing rear wheel housing liner - chapter on "installing" [997110 997111 997120 997121 997310 997311 997320 997321]

997110, 997111, 997120, 997121, 997310, 997311, 997320, 997321, 997410, 997411, 997430, 997431, 997610, 997611, 997620, 997621

as of MY 2005
Country C00, C02, C05, C07, C08, C09, C10, C11, C12, C13, C14, C15, C16, C18, C19, C20, C21, C22, C23, C24, C25, C26, C27, C28, C32, C33, C34, C35, C36, C37, C38, C39, C45, C46, C98, C99

WARNUNG

Gefahr des Verlusts der Text-Bild-Zuordnung beim Ausdruck.

- **Aus technischen Gründen kann derzeit nicht ausgeschlossen werden, dass trotz einwandfreier Darstellung auf dem Bildschirm beim Ausdruck der Zusammenhang von Text und zugehörigem Bild verloren geht.**
- **Wird der Fehler nicht bemerkt, besteht die Gefahr, daß Arbeiten nicht korrekt durchgeführt werden und es dadurch zu Personen- und Sachschäden kommt.**

Vergleichen Sie deshalb nach dem Druckvorgang unbedingt die Ausdrucke mit der Bildschirmdarstellung. Korrigieren Sie die Ausdrucke im Fehlerfall so, daß der Inhalt der Bildschirmdarstellung zutreffend wiedergegeben wird.

WARNING

Danger of losing text-figure correspondence when printing out.

- **For technical reasons, it can currently not be ruled out that the correspondence between text and associated figure can be lost when it is printed out, even though the display on the screen is correct.**
- **If the fault is not noticed, there is the danger that work will not be performed correctly which can cause injury and damage.**

Therefore, always compare printouts with the screen display after printing them out. Correct

44 40 19 Tyre mounting (removing and installing tyres) - for vehicle with and without tyre pressure monitoring system - as of MY 2005

- Notes on removing/mounting tyres

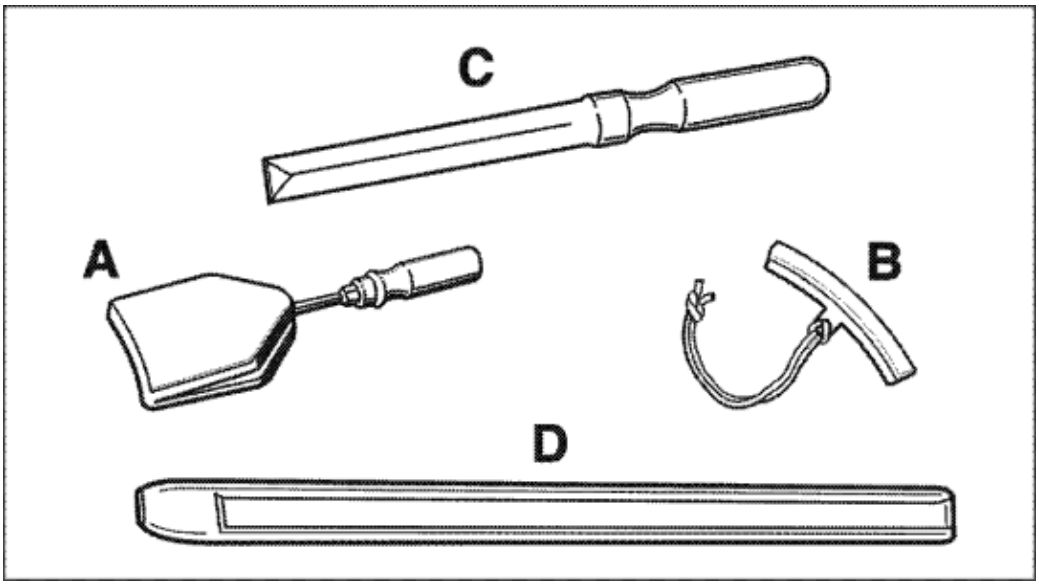
top of page

Notes on removing/mounting tyres

Note

- *Before fitting, it should be established whether a tyre pressure monitoring system is present! The tyre valve serves as the distinguishing characteristic. Without tyre pressure control system: rubber valve, with tyre pressure control system: aluminium valve. If an RDK is present, observe the special notes for the tyre pressure monitoring system. 44 Mounting tyres for vehicles with and without tyre pressure monitoring system (RDK) - see section on "Special notes for tyre pressure monitoring system (RDK)"*
- *The mounting machine described here is particularly suitable for large tyre combinations, such as those used by Porsche.*
- *All parts in contact with the wheel and the tyres are made of plastic.*
- *No large point load for wheel and tyres.*

Tools



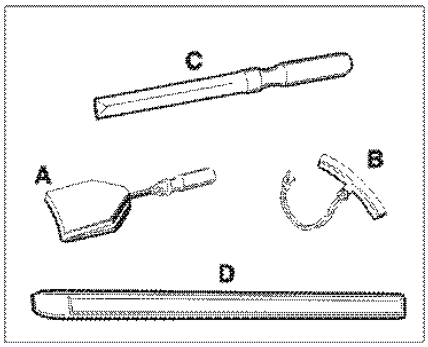
A - Holding-down device 9539 - For holding down tyre bead, see Workshop Equipment Manual, Chapter Special Tools

B - Assembly aid - commercially available; refer to Workshop Equipment Manual, Chapter 2.5

C - Adhesive weight remover - commercially available

D - Mounting lever - commercially available

Notes on removing/mounting tyres



Note

- *When fitting tyres, the direction of rotation and the inner and outer sides should be noted.*
- *Use only TIP TOP Universal, order No. 593 0601 (3.5 kg bucket) or Contifix as the mounting paste.*
- *Ensure that no damage (scoring, soiling) is caused to the assembly head of the fitting machine during fitting. Such damage may result in paint damage and pressure marks on the rim flange.*

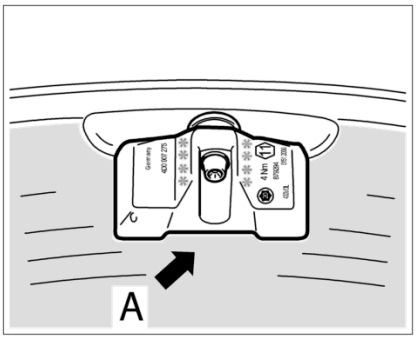
– Avoid slipping on to the rim flange. Use rim flange protection (assembly aid) **-B-** .
– Adhesive tape can be used to protect the rim flange in individual cases, in order to prevent any paint damage during fitting. The mounting lever can also be covered with adhesive tape in order to avoid damaging the area around the spokes during removal.
– The valve must always be replaced when changing a tyre.
– Check the wheel for damage.

Special notes for tyre pressure monitoring system (RDK)

Note

- *If the previous wheels are still in the vicinity after assembly work (for example changing winter tyres and/or wheels from another vehicle with tyre pressure monitoring system), they might still be recognised by the system. If one or more of these wheels has a minimum pressure of more than 0.4 bar below the required pressure, this can trigger a warning in the instrument cluster. In this case, remove the other wheels or use the PIWIS Tester to tune the vehicle to be outside the radio range of these wheels.*

- *The remaining life span can be read out with the PIWIS Tester. Where a tyre change is about to be made, it is advisable to read out the remaining life span of the wheel electronics (based on the battery capacity).*



- *For vehicles with a tyre pressure monitoring system, the valve and wheel electronics **-A-** are only replaced in exceptional cases. The following points can make replacement necessary.*

The valve must be replaced if:

- The wheel electronics are removed
- The self-locking fastening screw is loose
- The union nut is loose
- The valve leaks at valve seat
- And the valve body is bent or broken.

The wheel electronics must be replaced if:

- The housing is visibly deformed
- The filter surface is so soiled that it cannot be cleaned by wiping
- Tyre sealant (tyre sealing liquid) has been used.

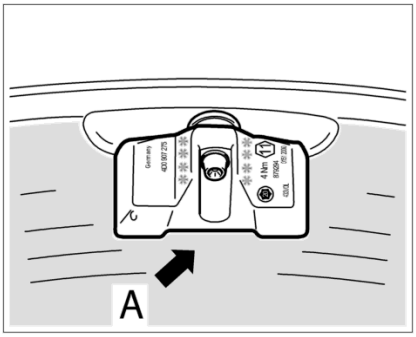
1. Install wheel electronics loosely at valve (do not tighten) and position in valve bore together with valve and bead seat sealing ring.

ATTENTION

Remove assembly pin after installing valve (required to counter). Otherwise the tyre will be damaged during installation.

Carry out the tightening procedure for the valve in one work step (tighten without interruption up to attaining the prescribed tightening torque).

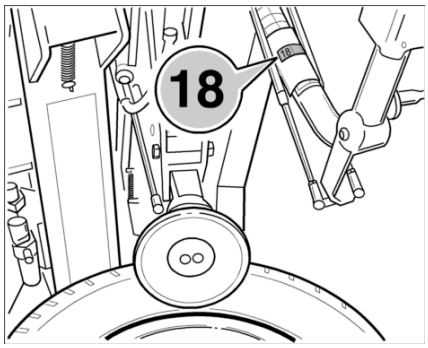
2. Fit washer, chamfered on both sides, and screw on union nut until it seats. Visibly twist bore at valve foot. If necessary, block with suitable assembly pin. The tightening torque is 4 Nm (3 ftlb.) (± 0.5 Nm (0.4 ftlb.)).



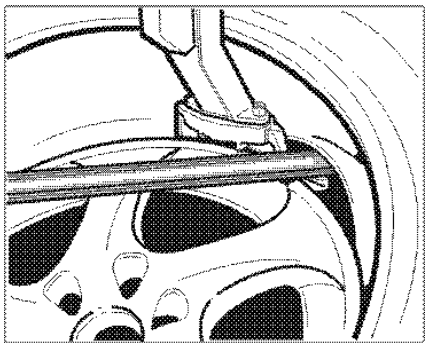
3. Push wheel electronics **-A-** slightly into rim well (this adjusts the angle of inclination of valve to wheel electronics).
4. Carefully tighten self-locking Torx fastening screw T 20 with tightening torque 3 ftlb. (± 0.4 ftlb.). The wheel electronics should now be lying evenly against the rim.

Removal

1. Clamp wheel.



2. When pushing off the tyre, ensure that the bead press-off tool is set to the exact inch graduation. If this is not the case, the rim flange may be damaged by the press-off rollers.
3. The wheel must be turned anti-clockwise when pressing the tyre off the rim. Otherwise, excessive forces occur on the fastening bolts of the machine which can lead to bolt breakage. The tyre beads can be pressed off at the same time or individually.
4. Before removing the tyre, coat the tyre beads with mounting paste to facilitate removal.



Note

- *The mounting lever must be kept at a safe distance from the rim. This prevents damage (scratches, pressure marks) to the rim spokes.*
- *In the case of vehicles with RDK, for the upper tyre bead the mounting head must be positioned about 15 cm behind the valve in order to prevent damage to the wheel electronics.*
- *In the case of vehicles with RDK, for the lower tyre bead the mounting head must be positioned about 5 cm behind the valve.*

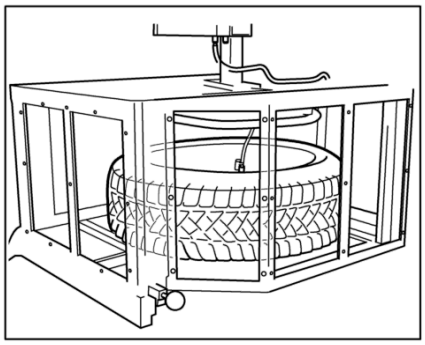
5. Put the assembly head on the rim flange. Position the assembly aid. The mounting lever is pushed into the deep bed underneath the first tyre bead, and then guided over the assembly shoe and pushed down .
6. Lift the tyre bead out of the rim bed by turning the wheel to the right.
7. Position the assembly aid for the second tyre bead approximately 5 - 10 cm to the right of the valve. Pull the tyre upwards and push it into the rim bed underneath the second tyre bead using the mounting lever. Make sure that the mounting lever is guided correctly (see Item 5). Turn the wheel to the right and remove the tyre.

Installation

Note

- *Check the mounting head adjustment (must correspond with rim size).*
- *The wheel electronics must not be treated with compressed air, mounting paste, cleaning agents or any other solvents.*
- *Rims must not be cleaned with high pressure before tyres have been fitted.*
- *Do not scratch filter surface of wheel electronics clear! Remove soiling with a lint-free cloth. The wheel electronics must be free of tyre mounting paste (observe when applying tyre mounting paste to the rim).*
- *During fitting, ensure that the tyre bead is not pressed against the wheel electronics.*

1. Free the wheel from the abraded rubber particles and check for damage .
2. A new valve must always be fitted.
3. Coat the wheel and tyre with tyre mounting paste - TIP TOP Universal, order No. 593 0601 - or Contifix. Make sure that the wheel electronics are free of tyre mounting paste.
4. Place the tyre in the correct position on the wheel. Push in mounting arm and position on top of the rim flange. The assembly head must be offset from valve by 180°.
5. Push the first part of tyre bead (lower tyre bead) partly over rim flange. Adjust mounting head on rim flange and pull lower tyre bead onto the rim.
6. Position mounting head approx. 15 cm to the right of valve and pull the second tyre bead (upper tyre bead) onto rim.



Tyre filling cage

WARNING

If the tyre seating pressure is too high (max. 4 bar permissible), personal injuries due to possible tyre or wheel destruction are possible.

Maximum tyre seating pressure 4 bar! This value must not be exceeded!

For tyre seating pressure over 3.3 bar (possible in the event that several unfavourable factors should occur simultaneously / max. 4.0 bar permissible) use a tyre filling cage.

7. Remove entire wheel from tyre fitting unit. Without valve insert, fill tyre with air until tyre beads slide over hump (to a maximum of 4.0 bar).
8. Screw in new valve insert and fill tyre to specified tyre pressure. Screw on valve cap.

997110, 997111, 997120, 997121, 997310, 997311, 997320, 997321, 997410, 997411, 997430, 997431, 997610, 997611, 997620, 997621

as of MY 2005
Country C00, C02, C05, C07, C08, C09, C10, C11, C12, C13, C14, C15, C16, C18, C19, C20, C21, C22, C23, C24, C25, C26, C27, C28, C32, C33, C34, C35, C36, C37, C38, C39, C45, C46, C98, C99

WARNUNG

Gefahr des Verlusts der Text-Bild-Zuordnung beim Ausdruck.

- **Aus technischen Gründen kann derzeit nicht ausgeschlossen werden, dass trotz einwandfreier Darstellung auf dem Bildschirm beim Ausdruck der Zusammenhang von Text und zugehörigem Bild verloren geht.**
- **Wird der Fehler nicht bemerkt, besteht die Gefahr, daß Arbeiten nicht korrekt durchgeführt werden und es dadurch zu Personen- und Sachschäden kommt.**

Vergleichen Sie deshalb nach dem Druckvorgang unbedingt die Ausdrucke mit der Bildschirmdarstellung. Korrigieren Sie die Ausdrucke im Fehlerfall so, daß der Inhalt der Bildschirmdarstellung zutreffend wiedergegeben wird.

WARNING

Danger of losing text-figure correspondence when printing out.

- **For technical reasons, it can currently not be ruled out that the correspondence between text and associated figure can be lost when it is printed out, even though the display on the screen is correct.**
- **If the fault is not noticed, there is the danger that work will not be performed correctly which can cause injury and damage.**

Therefore, always compare printouts with the screen display after printing them out. Correct the printouts if they are faulty so that the content of the screen display matches that on the printouts.

AVERTISSEMENT

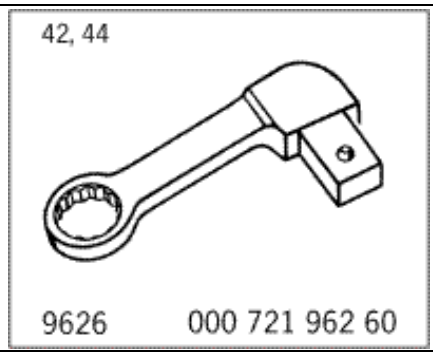
Risque de perte de la correspondance texte-illustration lors de l'impression papier.

- **Pour des raisons techniques, il ne peut pas être exclu à l'heure actuelle que, même en cas d'affichage correct à l'écran, la correspondance entre le texte et l'illustration puisse être erronée sur l'impression papier.**
- **Si l'erreur passe inaperçue, on court le risque d'exécuter certaines opérations de manière incorrecte pouvant conduire à des dommages corporels et matériels.**

44 95 03 Suspension alignment, complete - as of MY 2005

- Information
- Measuring vehicle at front and rear

Tools

Designation	Type	Number	Explanation	
Insert for torque wrench	special tool	96260		
socket wrench insert	special tool	P 9730		

top of page

Information

General procedure for wheel alignment

Performing wheel alignment using an electronic wheel alignment tester. Measurement procedures should be taken from the operating instructions for the wheel alignment tester involved.
In order to exclude erroneous measurements, the following preconditions must be met before alignment and the following points should be given special attention:
Empty weight of vehicle according to DIN 70020, i.e. vehicle in ready-to-drive condition with full tank and including tools but without driver or additional weights.
Ball-joint and wheel-bearing play in order (wheel-bearing play cannot be adjusted).
Tyre pressure in accordance with regulations, fairly uniform tyre tread.
Quick-clamping holder with adapter (for the measured-value pickups) correctly secured to the wheels.
Receiving surfaces for the quick-clamping holder on the wheels and the adapter surfaces must be clean and flat. Always check the levelling surface on the wheels precisely in particular before fitting the quick-clamping

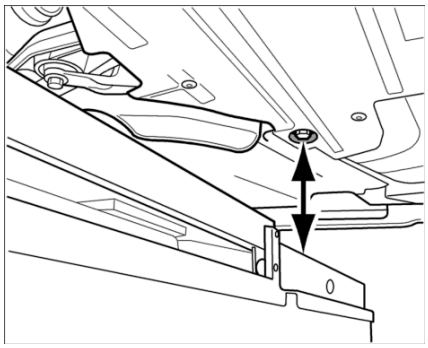
holders.
Strictly comply with maintenance intervals for measuring equipment and measuring platform. If the levelling of the measuring platform or measuring station is done in-house, levelling equipment is required. A hose level gauge is not adequate.
Skilled handling of measuring equipment and measuring platform.
Sliding plates with transverse motion (rotary motion) at the rear axle are advisable.
Observe the Technical Literature of PAG, the manufacturer of the measuring equipment and the manufacturer of the measuring platform.
Do not treat measured values as a whole, but very critically in regard to driving dynamics, high-speed strength of the tyres, tyre wear and cost/benefit effects (time required for correction of insubstantial deviations). The toe values are of decisive significance for driving dynamics and tyre wear.
If the vehicle is measured front and rear, check and adjust the wheel alignment values at the rear axle first.
Camber values at the front axle apply for the straight-ahead position of the wheels. Steering wheel and steering gear in centre position when toe is being adjusted.
Before wheel alignment values are adjusted at front and rear axles, it is recommended that the vehicle height be checked at the DIN empty weight. Conclusions can then be drawn about wheel alignment values in the event of any suspension alignment that becomes necessary later.

top of page

Measuring vehicle at front and rear

Vehicle height (height check)

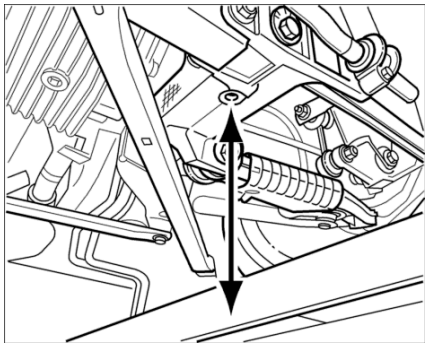
General
The vehicle height at front and rear axle is not adjustable.
Preliminary work
For the height check, place the vehicle on a level surface or on the measuring platform (ready to drive, with a full tank and tools but without driver or additional weights). Compress (push down) vehicle at front and rear axles 2-3 times and allow it to spring back freely.
Front axle



Measuring height of front axle (left-hand side)

From road contact surface to hexagon-head bolt of cross-member screw connection to the body.
Nominal value for front and rear axles Adjustment values for wheel alignment [997110 997111 997120 997121 997310 997311 997320 997321] *Adjustment values for wheel alignment [997410 997411 997430 997431 997610 997611 997620 997621].*

Rear axle



Measuring the height of the rear axle (right-hand side)

Measure from wheel contact surface to the locating bore in the rear-axle side section (between toe and camber eccentrics).

Wheel alignment

WARNING

Risk of accident due to incorrect functioning of steering angle sensor if it is uncalibrated or incorrectly calibrated.

- **There is a risk of accidents causing physical damage to persons or objects in the PSM testing area.**

After working on wheel suspension parts, when replacing the steering-angle sensor and after changing the wheel alignment values, calibrate the steering angle sensor with the front wheels in straight-ahead position using the PIWIS tester.

Check the actual value of the steering angle sensor after a suspension alignment where no changes were made to the wheel alignment values.

Notes

Only check or adjust wheel-alignment values when prescribed preconditions are met. 449503 Suspension alignment complete - chapter on "Information"

If the vehicle is measured front and rear, check and adjust the rear axle first. After adjustment, tighten the appropriate threaded connections with the prescribed tightening torque. See tables in Repair Group 40 *401000 Tightening torques for front axle* and Repair Group 42 *421000 Tightening torques for rear axle*.

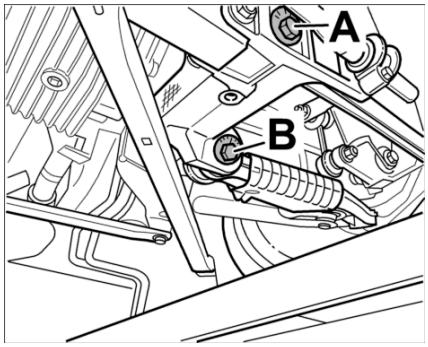
The steering-angle sensor must be calibrated if the previous wheel alignment values (on rear and/or front axle) were changed!

Rear axle

Preliminary work

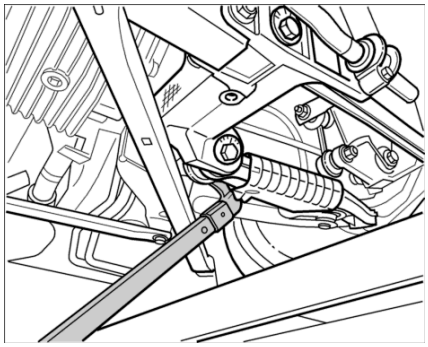
Prepare vehicle for checking and/or adjustment of wheel alignment values. Place front wheels on rotary table and rear wheels on rotary / sliding plates. Compress vehicle at front and rear axles by approximately 25 mm 2-3 times and allow it to spring back freely.

Adjusting camber



Toe and camber eccentrics

Turn the eccentric accordingly **-B-** after releasing the fastening nut using special tool **Insert for torque wrench 96260**.



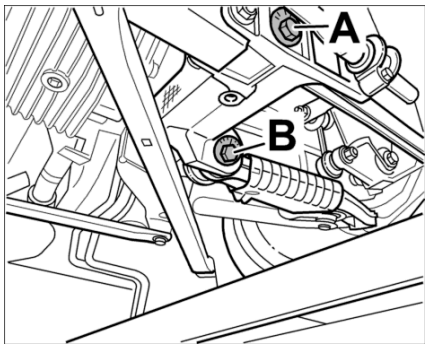
Special tool 96260 (Insert for torque wrench)

Note

- *Use special tool 9626 in combination with a torque wrench to undo and tighten the fastening nuts of the toe and camber eccentrics. The prescribed lock-nut tightening torque of 100 Nm (74 ftlb.) also corresponds to a setting on the torque wrench of approx. 100 Nm (74 ftlb.).*

Tighten fastening nut for camber eccentric to 74 ftlbs using special tool **Insert for torque wrench 96260**, in combination with a torque wrench.

Adjusting toe



Toe and camber eccentrics

Turn the eccentric accordingly **-A-** after releasing the fastening nut using special tool **Insert for torque wrench 96260**.

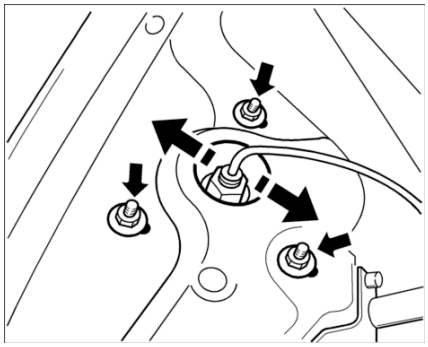
Note

- *Use special tool 9626 in combination with a torque wrench to undo and tighten the fastening nuts of the toe and camber eccentrics. The prescribed lock-nut tightening torque of 100 Nm (74 ftlb.) also corresponds to a setting on the torque wrench of approx. 100 Nm (74 ftlb.).*

Tighten fastening nut for toe eccentric to 74 ftlbs using special tool **Insert for torque wrench 96260**, with a torque wrench.

Front axle

Adjusting camber



Adjusting camber

The camber is adjusted by moving the spring strut transversely. For this purpose, undo the three fastening nuts on the spring-strut mount and, to move the spring strut, remove the covering cap on the piston rod.

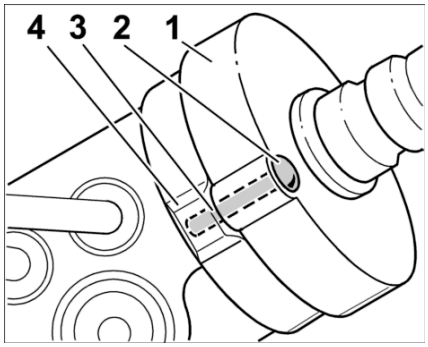
Adjusting caster

The caster is not adjustable on standard vehicles.

Adjusting toe

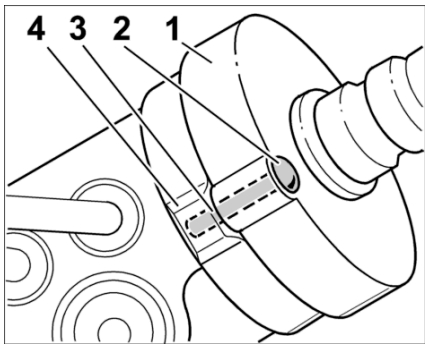
Preliminary work: Check whether the steering wheel is displaced with respect to the steering gear. To do this, centre the steering gear as described below.

Turn wheels to the straight-ahead position.



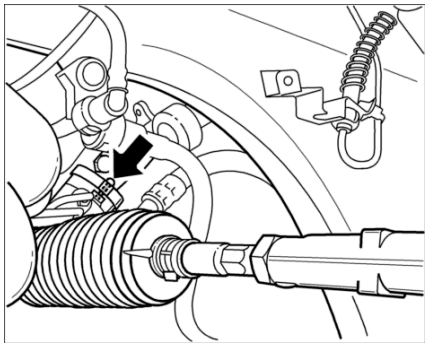
Steering in centre position

Then readjust the front wheel alignment, if necessary, until pin **-2-** in driver **-1-** and lug on steering gear housing **-4-** , line up.



Steering in centre position

No. 3 is the desired breaking point for pins in new steering gears. The (new) pin **-2-** is inserted into driver **-1-** and its underside sits in lug **-4-** . This locks the steering gear in the centre position. After installation of a new steering gear, the lower part of the pin is sheared off at desired breaking point **-3-**) by turning the steering wheel. The upper part of the pin **-2-** remains in the driver.



Mark for the centre steering position

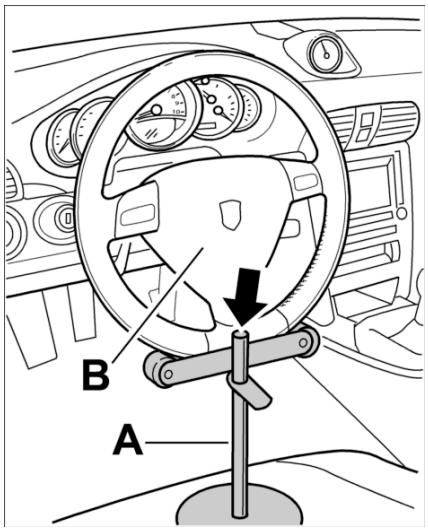
If necessary, reposition the steering wheel. When doing this, seek the best position.

WARNING

A triggering of the airbag (malfunction in the airbag system) caused by improper work on airbag components cannot be ruled out. In the case of such a malfunction, an unsuitable steering wheel holder could cause injury or damage.

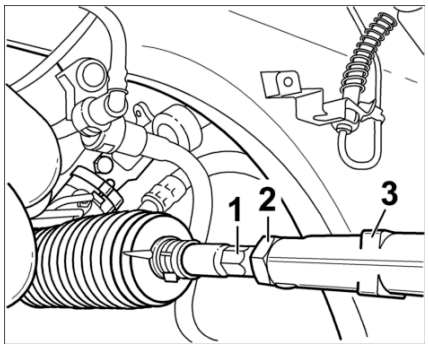
Use only steering wheel holders that do not project into the area of the airbag unit!

Observe safety regulations when working with airbag vehicles (see in Repair Group 69)!



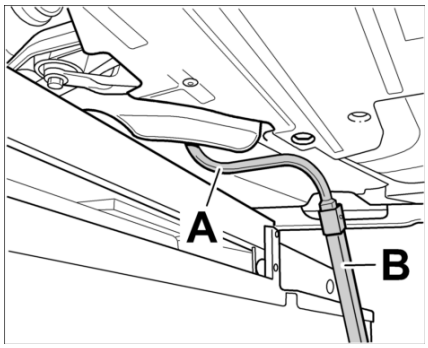
Steering wheel holder

Clamp steering wheel in centre position with steering wheel holder **-A-** . Use only steering wheel holders that do not project into the area of the airbag unit **-B-** . If necessary, shorten guide rod of steering wheel holder at top **-arrow-** .



Adjusting toe

Release tie rod locking nut(s) **-2-** . When undoing or tightening tie rod locking nuts on the square part of the tie rod **-3-** , with a spanner, apply counter-pressure. Next, adjust toe at the hexagonal part **-1-** of the tie rod(s). Then tighten tie rod locking nuts **-2-** with the specified tightening torque.



Loosening and tightening the tie rod-lock nut

To loosen and tighten the tie rod-lock nut(s), use special tool (socket wrench insert) P 9730 **-A-** together with a torque wrench **-B-** . The tightening torque for the tie rod-lock nut(s) of 50 Nm (37 ftlb.), when using a **socket wrench insert P 9730**, corresponds to a value of approx. 32.5 Nm (24 ftlb.) on the torque wrench.

Toe-difference angle

The toe-difference angle is not adjustable.

The steering angle sensor must be calibrated if the previous wheel alignment values (on rear and/or front axle) were changed.

997110, 997111, 997120, 997121, 997310, 997311, 997320, 997321, 997410, 997411, 997430, 997431, 997610, 997611, 997620, 997621

as of MY 2005
Country C00, C02, C05, C07, C08, C09, C10, C11, C12, C13, C14, C15, C16, C18, C19, C20, C21, C22, C23, C24, C25, C26, C27, C28, C32, C33, C34, C35, C36, C37, C38, C39, C45, C46, C98, C99

WARNUNG

Gefahr des Verlusts der Text-Bild-Zuordnung beim Ausdruck.

- **Aus technischen Gründen kann derzeit nicht ausgeschlossen werden, dass trotz einwandfreier Darstellung auf dem Bildschirm beim Ausdruck der Zusammenhang von Text und zugehörigem Bild verloren geht.**
- **Wird der Fehler nicht bemerkt, besteht die Gefahr, daß Arbeiten nicht korrekt durchgeführt werden und es dadurch zu Personen- und Sachschäden kommt.**

Vergleichen Sie deshalb nach dem Druckvorgang unbedingt die Ausdrucke mit der Bildschirmdarstellung. Korrigieren Sie die Ausdrucke im Fehlerfall so, daß der Inhalt der Bildschirmdarstellung zutreffend wiedergegeben wird.

WARNING

Danger of losing text-figure correspondence when printing out.

- **For technical reasons, it can currently not be ruled out that the correspondence between text and associated figure can be lost when it is printed out, even though the display on the screen is correct.**
- **If the fault is not noticed, there is the danger that work will not be performed correctly which can cause injury and damage.**

Therefore, always compare printouts with the screen display after printing them out. Correct the printouts if they are faulty so that the content of the screen display matches that on the printouts.

AVERTISSEMENT

Risque de perte de la correspondance texte-illustration lors de l'impression papier.

- **Pour des raisons techniques, il ne peut pas être exclu à l'heure actuelle que, même en cas d'affichage correct à l'écran, la correspondance entre le texte et l'illustration puisse être erronée sur l'impression papier.**
- **Si l'erreur passe inaperçue, on court le risque d'exécuter certaines opérations de manière incorrecte pouvant conduire à des dommages corporels et matériels.**

Comparez impérativement pour cette raison les impressions papier avec l'affichage à l'écran.

45 01 01 PSM/ABS check using the PIWIS Tester - as of MY 2005

-

Tools

Designation	Type	Number	Explanation	
PIWIS Tester	special tool	P 9718		

top of page

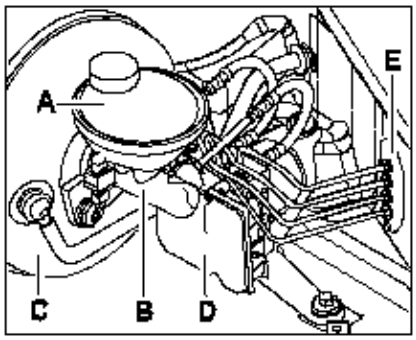
Test overview

Note

- *PSM is installed as standard.*
- *PSM comprises the functions ABS (anti-lock braking system), ABD (automatic brake differential), ASR (anti-slip regulation), EDTC (engine drag torque control), EBD (electronic brake-force distribution) and vehicle dynamic control.*

The ABS/PSM test includes:

- Reading out fault memory.
- Static test.
- Swap testing hydraulics in the Checks/Tests menu. The swap test is menu-driven. Once you start the test, follow the instructions on the PIWIS Tester.
- Checking function and correct allocation of speed sensor in the Actual values menu. Turn all four wheels individually during the test. The speed assigned to the wheel in question must be displayed when you turn the wheel. The non-tested wheel must be held (by a second person) when the test is performed on the driven axle.

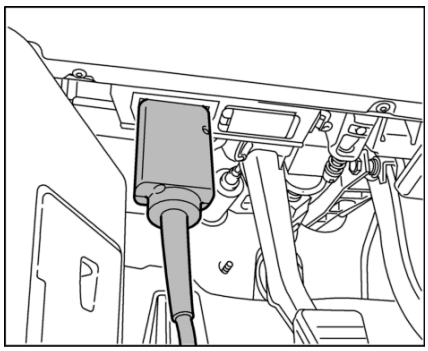


Hydraulic unit

Procedure:
If work has been done on the hydraulic unit **-D-** , the speed sensors and the wire harness or if the hydraulic unit **-D-** is replaced, an ABS/PSM test (system check) must be performed using the PIWIS Tester! This is the case, for example, after accident repairs! This prevents any confusion of electrical or hydraulic lines and ensures faultless operation of the system!
If certain brake lines are replaced, e.g. at the intermediate piece in the front left wheel housing **-E-** , a swap test must also be performed (in the Checks/Tests menu)! Unintentional bending of the brake lines could lead to incorrect hydraulic allocation despite the markings (FL = front left, FR = front right, RL = rear left, RR = rear right)!
If a fault is displayed during operation (when no assembly work was carried out beforehand), diagnosis and fault finding are also carried out using the PIWIS Tester! To do this, select the PSM system and read out the fault memory there! The fault can then be located using the appropriate menus (Drive links, Actual values, Checks/Tests)!

PSM check using the PIWIS Tester

1. **PIWIS Tester P 9718** must be connected to the vehicle, then start it. Switch on ignition and press >> to continue.



Diagnostic socket

   The PIWIS Tester 9718 is connected to the vehicle via a diagnostic socket. The diagnosis socket is located inside the vehicle in the vicinity of the driver's A-pillar below the instrument panel.
2. Select the vehicle type and call up the PSM system.
3. Carry out ABS/PSM test (see Test overview).

46 36 02 Checking the thickness of the disc brake pads - as of MY 2005

- Test

top of page

Test

WARNING

Risk of accidents if brake pads and/or brake discs are not replaced in time.

- **Danger of injury and damage to vehicle if braking effect is impaired.**

The brake pads must be replaced when the brake pad warning indicator lights up, but no later than when there is a residual pad thickness of 2 mm.

ATTENTION

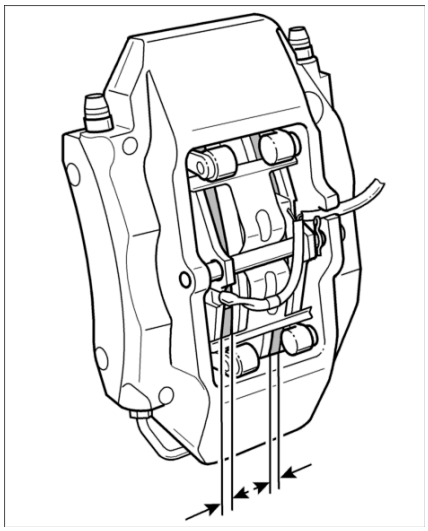
Increased risk of damage to brake discs when mounting/removing wheels.

- **The brake discs can be damaged.**

Use assembly aid (assembly pins) in order to exclude any possibility of heavy contact of the wheel with the brake disc.

Note

- *If brake pad wear is indicated by the warning light, the warning contact (sender including wire and plug connection) must also be replaced.*



Checking brake pads

- *Replacing the warning contact can be avoided by replacing the brake pads no later than when the pad thickness is 2.5 mm* ***-arrows-*** .
- *Warning contacts must be replaced if the core of the wire is worn.*
- *However, if only the plastic part of the warning contact is worn, there is no need to replace it.*

Visually inspect the brake pads for wear.

997110, 997111, 997120, 997121, 997310, 997311, 997320, 997321, 997410, 997411, 997430, 997431, 997610, 997611, 997620, 997621

as of MY 2005
Country C00, C02, C05, C07, C08, C09, C10, C11, C12, C13, C14, C15, C16, C18, C19, C20, C21, C22, C23, C24, C25, C26, C27, C28, C32, C33, C34, C35, C36, C37, C38, C39, C45, C46, C98, C99

WARNUNG
Gefahr des Verlusts der Text-Bild-Zuordnung beim Ausdruck.

- **Aus technischen Gründen kann derzeit nicht ausgeschlossen werden, dass trotz einwandfreier Darstellung auf dem Bildschirm beim Ausdruck der Zusammenhang von Text und zugehörigem Bild verloren geht.**
- **Wird der Fehler nicht bemerkt, besteht die Gefahr, daß Arbeiten nicht korrekt durchgeführt werden und es dadurch zu Personen- und Sachschäden kommt.**

Vergleichen Sie deshalb nach dem Druckvorgang unbedingt die Ausdrucke mit der Bildschirmdarstellung. Korrigieren Sie die Ausdrucke im Fehlerfall so, daß der Inhalt der Bildschirmdarstellung zutreffend wiedergegeben wird.

WARNING

46 36 19 Removing and installing front brake pads - as of MY 2005

- Preliminary work
- General warning notes
- Removal
- Installing
- Subsequent work

top of page

Preliminary work

440519 Removing and installing wheel

top of page

General warning notes

Danger of accidents

WARNING

Risk of accidents if brake pads with the wrong brake pad quality are installed.

- **This can result in longer braking distances and more wear.**

Use only the type-specific brake pads specified in the Porsche Spare Parts Catalogue.

ATTENTION

Increased risk of accidents if old parts are fitted on brake calliper.

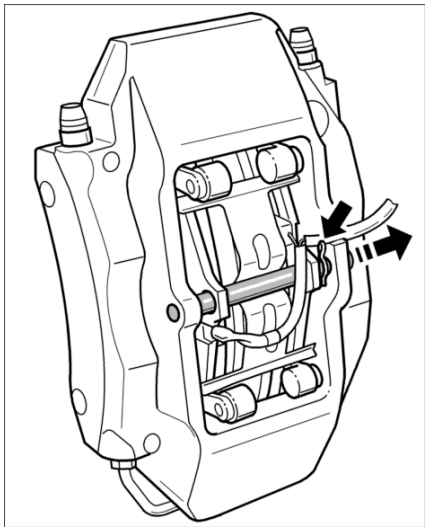
- **This can cause malfunctions.**

Fit new expanding spring, new retainer pin and new retainer on the brake calliper.

top of page

Removal

Removing front disc brake pads



Removing retainer pin

1. Remove the safety bracket and extract the retainer pin inwards.
2. Pull out the warning contact wire on the brake calliper and remove the warning contacts from the brake pad plates.
3. Remove brake pads using the brake pad puller. Always observe the following important points:

Press the brake pads back as far as possible using the piston resetting fixture.
Pull out brake pads together with the vibration dampers. If this is not possible (depending on the amount of wear on the brake pads), use a spatula to detach the vibration dampers from the brake pad backing plate before removing the pads.

top of page

Installing

Installing front disc brake pads

WARNING
Risk of accidents if brake pads with the wrong brake pad quality are installed.

- **This can result in longer braking distances and more wear.**

Use only the type-specific brake pads specified in the Porsche Spare Parts Catalogue.

ATTENTION

Increased risk of accidents if old parts are fitted on brake calliper.

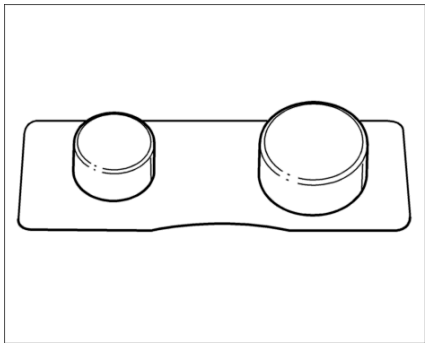
- **This can cause malfunctions.**

Fit new expanding spring, new retainer pin and new retainer on the brake calliper.

Note

The brake pad backing plates (rear side) must not be greased.
Replace vibration dampers each time the pads are changed.
The vibration dampers have an adhesive protective film. The protective film must be removed before installation.
Replace warning contacts if the core of the wire is worn.
The warning contact can still be used if there are only scrape marks on the plastic part of the warning contact.
Remove some brake fluid from the brake fluid reservoir by suction if necessary.

1. Before installing the brake pads, check the amount of wear on the brake discs. For details of the minimum thickness of the brake discs, see Technical data/Brake wear limit in Repair Group 46.
2. If necessary, reset the brake pistons using the piston resetting fixture.



Vibration damper

3. Fit new vibration dampers in the pistons. Remove protective film from the vibration dampers before installation.
4. Insert the brake pads.
5. Fit new expanding spring, new retainer pin and new retainer. These parts are available as a repair set and must be replaced each time the pads are changed.
6. Insert the warning contact wire and the warning contacts.
7. Press the brake pedal several times to position the brake pads on the brake discs.
8. Check and, if necessary, correct the brake fluid level.

Bedding in the brake pads

New brake pads require a bedding-in period of approx. 200 km. Only then do they achieve their best friction and wear coefficient. During this period, the brakes should be subjected to full stress when travelling at high speed only in emergencies.

top of page

Subsequent work

440519 Removing and installing wheel

997110, 997111, 997120, 997121, 997310, 997311, 997320, 997321, 997410, 997411, 997430, 997431, 997610, 997611, 997620, 997621

as of MY 2005
Country C00, C02, C05, C07, C08, C09, C10, C11, C12, C13, C14, C15, C16, C18, C19, C20, C21, C22, C23, C24, C25, C26, C27, C28, C32, C33, C34, C35, C36, C37, C38, C39, C45, C46, C98, C99

WARNUNG

Gefahr des Verlusts der Text-Bild-Zuordnung beim Ausdruck.

- **Aus technischen Gründen kann derzeit nicht ausgeschlossen werden, dass trotz einwandfreier Darstellung auf dem Bildschirm beim Ausdruck der Zusammenhang von Text und zugehörigem Bild verloren geht.**
- **Wird der Fehler nicht bemerkt, besteht die Gefahr, daß Arbeiten nicht korrekt durchgeführt werden und es dadurch zu Personen- und Sachschäden kommt.**

Vergleichen Sie deshalb nach dem Druckvorgang unbedingt die Ausdrucke mit der Bildschirmdarstellung. Korrigieren Sie die Ausdrucke im Fehlerfall so, daß der Inhalt der Bildschirmdarstellung zutreffend wiedergegeben wird.

WARNING

Danger of losing text-figure correspondence when printing out.

- **For technical reasons, it can currently not be ruled out that the correspondence between text and associated figure can be lost when it is printed out, even though the display on the screen is correct.**
- **If the fault is not noticed, there is the danger that work will not be performed correctly which can cause injury and damage.**

Therefore, always compare printouts with the screen display after printing them out. Correct the printouts if they are faulty so that the content of the screen display matches that on the printouts.

AVERTISSEMENT

46 38 02 Checking the thickness of the rear disc brake pads - as of MY 2005

- Preliminary work
- Checking
- Subsequent work

top of page

Preliminary work

440519 Removing and installing wheel

top of page

Checking

WARNING

Risk of accidents if brake pads and/or brake discs are not replaced in time.

- **Danger of injury and damage to vehicle if braking effect is impaired.**

The brake pads must be replaced when the brake pad warning indicator lights up, but no later than when there is a residual pad thickness of 2 mm.

ATTENTION

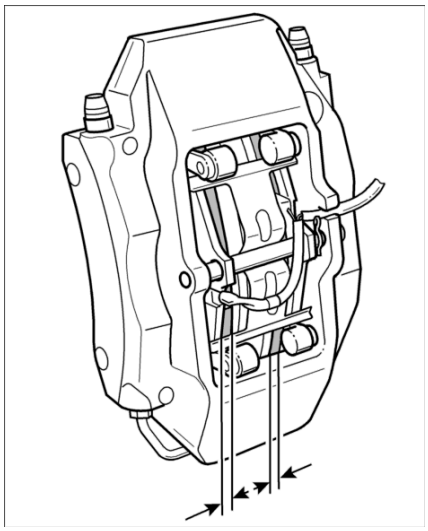
Increased risk of damage to brake discs when mounting/removing wheels.

- **The brake discs can be damaged.**

Use assembly aid (assembly pins) in order to exclude any possibility of heavy contact of the wheel with the brake disc.

Note

- *If brake pad wear is indicated by the warning light, the warning contact (sender including wire and plug connection) must also be replaced.*



Checking brake pads

- *Replacing the warning contact can be avoided by replacing the brake pads no later than when the pad thickness is 2.5 mm* ***-arrows-*** .
- *Warning contacts must be replaced if the core of the wire is worn.*
- *However, if only the plastic part of the warning contact is worn, there is no need to replace it.*

Visually inspect the brake pads for wear.

top of page

Subsequent work

440519 Removing and installing wheel

997110, 997111, 997120, 997121, 997310, 997311, 997320, 997321, 997410, 997411, 997430, 997431, 997610, 997611, 997620, 997621

as of MY 2005
Country C00, C02, C05, C07, C08, C09, C10, C11, C12, C13, C14, C15, C16, C18, C19, C20, C21, C22, C23, C24, C25, C26, C27, C28, C32, C33, C34, C35, C36, C37, C38, C39, C45, C46, C98, C99

WARNUNG
Gefahr des Verlusts der Text-Bild-Zuordnung beim Ausdruck.

- **Aus technischen Gründen kann derzeit nicht ausgeschlossen werden, dass trotz einwandfreier Darstellung auf dem Bildschirm beim Ausdruck der Zusammenhang von Text und zugehörigem Bild verloren geht.**

46 38 19 Removing and installing the rear disc brake pads - as of MY 2005

- Preliminary work
- General warning notes
- Removal
- Installation
- Subsequent work

top of page

Preliminary work

440519 Removing and installing wheel

top of page

General warning notes

Danger of accidents

WARNING

Risk of accidents if brake pads with the wrong brake pad quality are installed.

- **This can result in longer braking distances and more wear.**

Use only the type-specific brake pads specified in the Porsche Spare Parts Catalogue.

ATTENTION

Increased risk of accidents if old parts are fitted on brake calliper.

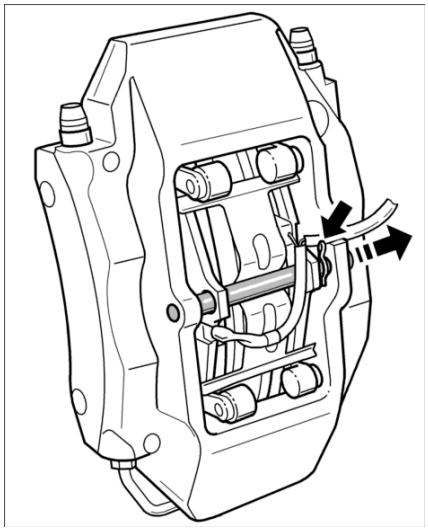
- **This can cause malfunctions.**

Fit new expanding spring, new retainer pin and new retainer on the brake calliper.

top of page

Removal

Removing rear disc brake pads



Removing retainer pin

1. Remove the safety bracket and extract the retainer pin inwards **-arrows-** .
2. Pull out the warning contact wire on the brake calliper and remove the warning contacts from the brake pad plates.
3. Remove brake pads using the brake pad puller. Always observe the following important points:

Press the brake pads back as far as possible using the piston resetting fixture.
Pull out brake pads together with the vibration dampers. If this is not possible (depending on the amount of wear on the brake pads), use a spatula to detach the vibration dampers from the brake pad backing plate.

top of page

Installation

Installing rear disc brake pads

WARNING
Risk of accidents if brake pads with the wrong brake pad quality are installed.

- **This can result in longer braking distances and more wear.**

Use only the type-specific brake pads specified in the Porsche Spare Parts Catalogue.

ATTENTION

Increased risk of accidents if old parts are fitted on brake calliper.

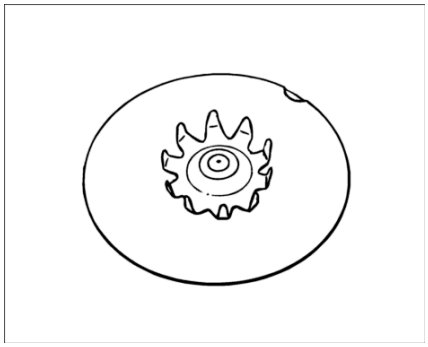
- **This can cause malfunctions.**

Fit new expanding spring, new retainer pin and new retainer on the brake calliper.

Note

The brake pad backing plates (rear side) must not be greased.
Replace vibration dampers each time the pads are changed.
The vibration dampers have an adhesive protective film. The protective film must be removed before installation.
Replace warning contacts if the core of the wire is worn.
The warning contact can still be used if there are only scrape marks on the plastic part of the warning contact.
Remove some brake fluid from the brake fluid reservoir by suction if necessary.

1. Before installing the brake pads, check the amount of wear on the brake discs. For details of the minimum thickness of the brake discs, see Technical data/Brake wear limit in Repair Group 46.
2. If necessary, reset the brake pistons using the piston resetting fixture.



Vibration damper

3. Fit new vibration dampers into the pistons. Since the vibration dampers are covered by a protective film, the protective film must be removed before installation. *Vibration damper*
4. Insert the brake pads.
5. Fit new expanding spring, new retainer pin and new retainer. These parts are available as a repair set and must be replaced each time the pads are changed.
6. Insert the warning contact wire and the warning contacts.
7. Press the brake pedal several times to position the brake pads on the brake discs.
8. Check and, if necessary, correct the brake fluid level.

Bedding in the brake pads
New brake pads require a bedding-in period of approx. 200 km. Only then do they achieve their best friction and wear coefficient. During this period, the brakes should be subjected to full stress when travelling at high

speed only in emergencies.

top of page

Subsequent work

440519 Removing and installing wheel

997110, 997111, 997120, 997121, 997310, 997311, 997320, 997321, 997410, 997411, 997430, 997431, 997610, 997611, 997620, 997621

as of MY 2005
Country C00, C02, C05, C07, C08, C09, C10, C11, C12, C13, C14, C15, C16, C18, C19, C20, C21, C22, C23, C24, C25, C26, C27, C28, C32, C33, C34, C35, C36, C37, C38, C39, C45, C46, C98, C99

WARNUNG

Gefahr des Verlusts der Text-Bild-Zuordnung beim Ausdruck.

- **Aus technischen Gründen kann derzeit nicht ausgeschlossen werden, dass trotz einwandfreier Darstellung auf dem Bildschirm beim Ausdruck der Zusammenhang von Text und zugehörigem Bild verloren geht.**
- **Wird der Fehler nicht bemerkt, besteht die Gefahr, daß Arbeiten nicht korrekt durchgeführt werden und es dadurch zu Personen- und Sachschäden kommt.**

Vergleichen Sie deshalb nach dem Druckvorgang unbedingt die Ausdrucke mit der Bildschirmdarstellung. Korrigieren Sie die Ausdrucke im Fehlerfall so, daß der Inhalt der Bildschirmdarstellung zutreffend wiedergegeben wird.

WARNING

Danger of losing text-figure correspondence when printing out.

- **For technical reasons, it can currently not be ruled out that the correspondence between text and associated figure can be lost when it is printed out, even though the display on the screen is correct.**
- **If the fault is not noticed, there is the danger that work will not be performed correctly which can cause injury and damage.**

Therefore, always compare printouts with the screen display after printing them out. Correct the printouts if they are faulty so that the content of the screen display matches that on the printouts.

AVERTISSEMENT

Risque de perte de la correspondance texte-illustration lors de l'impression papier.

46 50 19 Removing and installing the front brake disc - as of MY 2005

- Preliminary work
- General warning notes
- Removing front brake disc
- Installing
- Subsequent work

Tools

Designation	Type	Number	Explanation	
piston resetting fixture	commercially available tool	NR.144		

top of page

Preliminary work

440519 Removing and installing wheel

top of page

General warning notes

WARNING

Risk of accidents if brake pads and/or brake discs are not replaced in time.

- **Danger of injury and damage to vehicle if braking effect is impaired.**

The brake pads must be replaced when the brake pad warning indicator lights up, but no later than when there is a residual pad thickness of 2 mm.

ATTENTION

Increased risk of damage to brake discs when mounting/removing wheels.

- **The brake discs can be damaged.**

Use assembly aid (assembly pins) in order to exclude any possibility of heavy contact of the wheel with the brake disc.

top of page

Removing front brake disc

WARNING

Risk of accidents if brake pads and/or brake discs are not replaced in time.

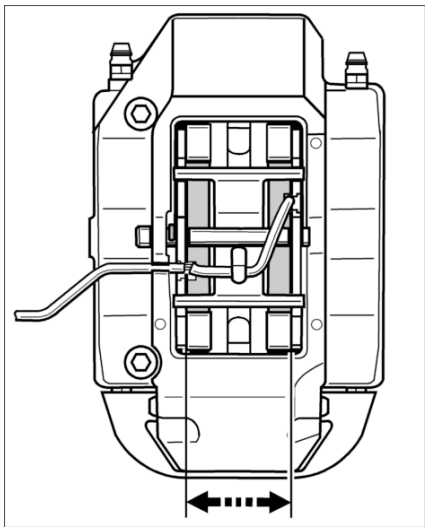
- **Danger of injury and damage to vehicle if braking effect is impaired.**

The brake pads must be replaced when the brake pad warning indicator lights up, but no later than when there is a residual pad thickness of 2 mm.

Note

- *In order to gain better access for removal of the brake calliper, it is beneficial to turn the wheels fully either to the right or the left.*

1. Release retainer for plug of wear indicator on wheel carrier.
2. Disconnect the speed sensor on the ABS sensor.



Pushing back brake pad

3. Push brake pads back slightly and evenly using **piston resetting fixture NR.144**, see Workshop Equipment Manual, Chapter 2.4 **-direction arrow-** . Make sure that no brake fluid runs out of the supply tank - if necessary, remove by suction.
4. Undo brake calliper on wheel carrier and hang it in a suitable place in the wheel well (do not open the brake hydraulics!).
5. Remove brake disc after unscrewing the fastening screw. If necessary, remove the brake disc by tapping it gently with a rubber hammer.

top of page

Installing

WARNING

Risk of accidents if brake pads and/or brake discs are not replaced in time.

- **Danger of injury and damage to vehicle if braking effect is impaired.**

The brake pads must be replaced when the brake pad warning indicator lights up, but no later than when there is a residual pad thickness of 2 mm.

ATTENTION

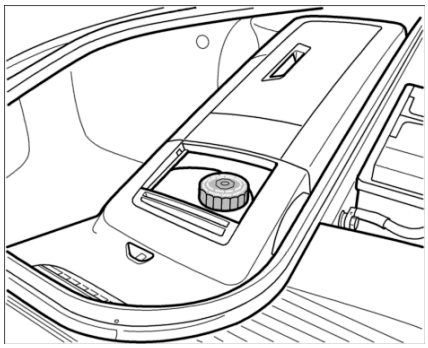
Increased risk of damage to brake discs when mounting/removing wheels.

- **The brake discs can be damaged.**

Use assembly aid (assembly pins) in order to exclude any possibility of heavy contact of the wheel with the brake disc.

Do not confuse right and left brake discs during assembly!
Distinguishing characteristic: Part No.! The flat surface of the brake discs is marked with R = right or L = left.

1. Check that all parts are in perfect condition and replace them if necessary.
2. Clean the levelling and centring surfaces on the brake disc and wheel hub. Then apply a very thin coat of Optimoly TA to the centring surface on the wheel hub.
3. Fit the brake disc. Observe specified tightening torque. *46 TW Tightening torques for brake mechanics - Technical values*
4. Fit the brake calliper. Replace the brake calliper fastening screws each time they are removed. Observe specified tightening torque. *46 TW Tightening torques for brake mechanics - Technical values*
5. Install retainer for plug of wear indicator on wheel carrier.
6. Connect the speed sensor on the ABS sensor.
7. Position disc brake pads by operating the brake several times.



Brake system: checking fluid level

8. Check brake fluid level and correct if necessary. The brake fluid level must be between the MAX-MIN marking. . *Brake system: checking fluid level* 470801 Checking brake fluid level

top of page

Subsequent work

440519 Removing and installing wheel

997110, 997111, 997120, 997121, 997310, 997311, 997320, 997321, 997410, 997411, 997430, 997431, 997610, 997611, 997620, 997621

as of MY 2005
Country C00, C02, C05, C07, C08, C09, C10, C11, C12, C13, C14, C15, C16, C18, C19, C20, C21, C22, C23, C24, C25, C26, C27, C28, C32, C33, C34, C35, C36, C37, C38, C39, C45, C46, C98, C99

WARNUNG

Gefahr des Verlusts der Text-Bild-Zuordnung beim Ausdruck.

- **Aus technischen Gründen kann derzeit nicht ausgeschlossen werden, dass trotz einwandfreier Darstellung auf dem Bildschirm beim Ausdruck der Zusammenhang von Text und zugehörigem Bild verloren geht.**
- **Wird der Fehler nicht bemerkt, besteht die Gefahr, daß Arbeiten nicht korrekt durchgeführt werden und es dadurch zu Personen- und Sachschäden kommt.**

Vergleichen Sie deshalb nach dem Druckvorgang unbedingt die Ausdrucke mit der Bildschirmdarstellung. Korrigieren Sie die Ausdrucke im Fehlerfall so, daß der Inhalt der Bildschirmdarstellung zutreffend wiedergegeben wird.

WARNING

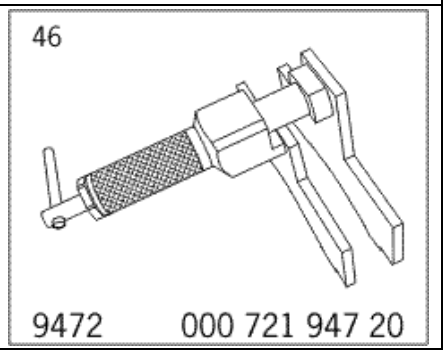
Danger of losing text-figure correspondence when printing out.

- **For technical reasons, it can currently not be ruled out that the correspondence between text and associated figure can be lost when it is printed out, even though**

46 50 19 Removing and installing the front PCCB brake disc - as of MY 2005

- Preliminary work
- General warning notes
- Removing front brake disc
- Installing
- Subsequent work

Tools

Designation	Type	Number	Explanation	
brake piston resetting fixture	special tool	9472		

top of page

Preliminary work

440519 Removing and installing wheel

top of page

General warning notes

WARNING

Risk of accidents if brake pads and/or brake discs are not replaced in time.

- **Danger of injury and damage to vehicle if braking effect is impaired.**

The brake pads must be replaced when the brake pad warning indicator lights up, but no later than when there is a residual pad thickness of 2 mm.

ATTENTION

Increased risk of damage to brake discs when mounting/removing wheels.

- **The brake discs can be damaged.**

Use assembly aid (assembly pins) in order to exclude any possibility of heavy contact of the wheel with the brake disc.

top of page

Removing front brake disc

WARNING

Risk of accidents if brake pads and/or brake discs are not replaced in time.

- **Danger of injury and damage to vehicle if braking effect is impaired.**

The brake pads must be replaced when the brake pad warning indicator lights up, but no later than when there is a residual pad thickness of 2 mm.

ATTENTION

Increased risk of damage to brake discs when mounting/removing wheels.

- **The brake discs can be damaged.**

Use assembly aid (assembly pins) in order to exclude any possibility of heavy contact of the wheel with the brake disc.

Note

- *In order to gain better access for removal of the brake calliper, it is beneficial to turn the wheels fully either to the right or the left.*

1. Release retainer for plug of wear indicator on wheel carrier.
2. Disconnect the speed sensor on the ABS sensor.
3. Push brake pads back slightly and evenly using **brake piston resetting fixture 9472**.
4. Undo brake calliper on wheel carrier and hang it in a suitable place in the wheel well (do not open the brake hydraulics!).
5. Remove brake disc after unscrewing the fastening screw. If necessary, remove the brake disc by tapping it gently with a rubber hammer.

top of page

Installing

WARNING
Risk of accidents if brake pads and/or brake discs are not replaced in time.

- **Danger of injury and damage to vehicle if braking effect is impaired.**

The brake pads must be replaced when the brake pad warning indicator lights up, but no later than when there is a residual pad thickness of 2 mm.

ATTENTION
Increased risk of damage to brake discs when mounting/removing wheels.

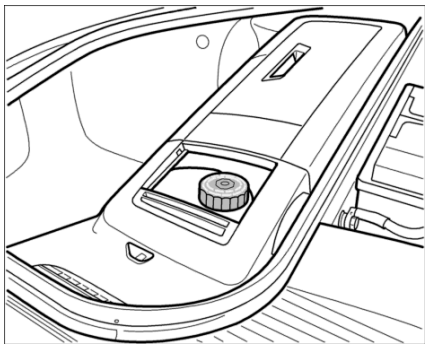
- **The brake discs can be damaged.**

Use assembly aid (assembly pins) in order to exclude any possibility of heavy contact of the wheel with the brake disc.

Do not confuse right and left brake discs during assembly!
Distinguishing characteristic: Part No.! The flat surface of the brake discs is marked with R = right or L = left.

Note
When replacing the brake discs due to wear, the brake discs on one axle must always be replaced. Irrespective of wear, a brake disc change can be necessary on the brake disc friction surfaces due to edge damage. In this case, only one brake disc can be replaced if the friction area surface of the other brake disc is OK.

1. Check that all parts are in perfect condition and replace them if necessary.
2. Clean the levelling and centring surfaces on the brake disc and wheel hub. Then apply a very thin coat of Optimoly TA to the centring surface on the wheel hub.
3. Fit the brake disc. Observe specified tightening torque. *46 TW Tightening torques for brake mechanics - Technical values*
4. Fit the brake calliper. Replace the brake calliper fastening screws each time they are removed. Observe specified tightening torque. *46 TW Tightening torques for brake mechanics - Technical values*
5. Install retainer for plug of wear indicator on wheel carrier.
6. Connect the speed sensor on the ABS sensor.
7. Position disc brake pads by operating the brake several times.



Brake system: checking fluid level

8. Check the brake fluid level and correct if necessary. The brake fluid level must be between the MAX-MIN marking. *Brake system: checking fluid level* 470801 Checking brake fluid level

top of page

Subsequent work

440519 Removing and installing wheel

Bedding in the brake pads

New brake pads require a slightly longer bedding-in period for PCCB brake discs than cast iron brake discs. In general, the following applies: New brake pads must be worn in (bedding-in period), their optimum braking effect is therefore not reached until after a few hundred kilometres. The slightly reduced braking effect must be compensated for by increased pressure on the brake pedal. The same also applies after a brake disc change.

997110, 997111, 997120, 997121, 997310, 997311, 997320, 997321, 997410, 997411, 997430, 997431, 997610, 997611, 997620, 997621

as of MY 2005
Country C00, C02, C05, C07, C08, C09, C10, C11, C12, C13, C14, C15, C16, C18, C19, C20, C21, C22, C23, C24, C25, C26, C27, C28, C32, C33, C34, C35, C36, C37, C38, C39, C45, C46, C98, C99

WARNUNG

Gefahr des Verlusts der Text-Bild-Zuordnung beim Ausdruck.

- **Aus technischen Gründen kann derzeit nicht ausgeschlossen werden, dass trotz einwandfreier Darstellung auf dem Bildschirm beim Ausdruck der Zusammenhang von Text und zugehörigem Bild verloren geht.**
- **Wird der Fehler nicht bemerkt, besteht die Gefahr, daß Arbeiten nicht korrekt durchgeführt werden und es dadurch zu Personen- und Sachschäden kommt.**

Vergleichen Sie deshalb nach dem Druckvorgang unbedingt die Ausdrucke mit der Bildschirmdarstellung. Korrigieren Sie die Ausdrucke im Fehlerfall so, daß der Inhalt der

46 51 02 Checking front PCCB brake discs (wear assessment) - as of MY 2005

- Checking information on PCCB brake discs
- Checking PCCB brake discs (wear assessment)

top of page

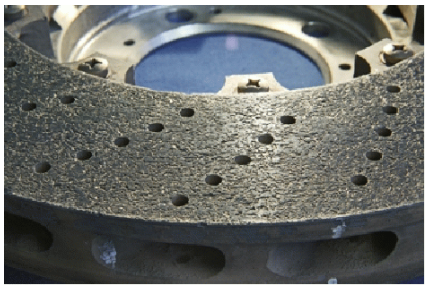
Checking information on PCCB brake discs

Basic information

Checking involves the following:

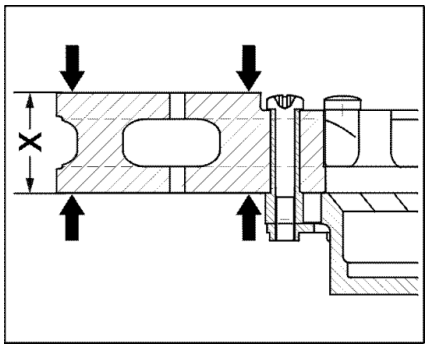
Associated surface fracture

1. Visual inspection for any surface changes to the brake disc friction surfaces Indication of wear: Associated surface fracture > 1 cm^2 **-arrow-** , but no accumulation of smaller fractures Visual inspection of the surfaces of the brake disc friction surfaces (indication of wear) .



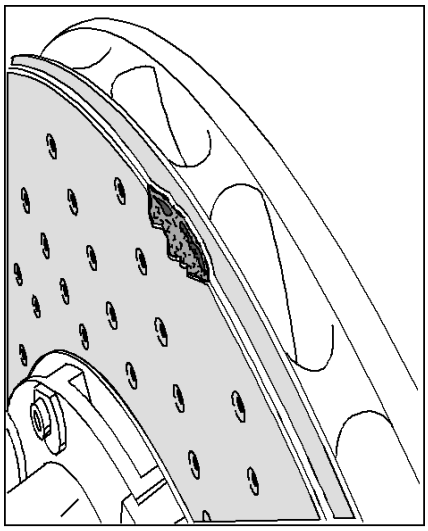
Surface roughness of PCCB brake disc

2. Assess the surface roughness (Sr) of the brake discs (max. 80 µm permitted), since this affects smoothness of braking (noise), braking performance/pedal pressure and brake pad idle time Evaluating surface roughness (Sr) (max. 80 micrometre permitted).



Minimum thickness (x) of the PCCB brake disc

3. Check brake discs for minimum thickness **-x-** . The minimum thickness of the brake disc (example: Min. Th. 33.7 mm) is stamped on the brake disc chamber Checking brake discs for minimum thickness.



Edge damage on PCCB brake disc

4. Check brake discs for edge damage **-see illustration-** (damage caused as a result of improper use) Checking brake discs for edge damage.

General information on replacing worn PCCB brake discs

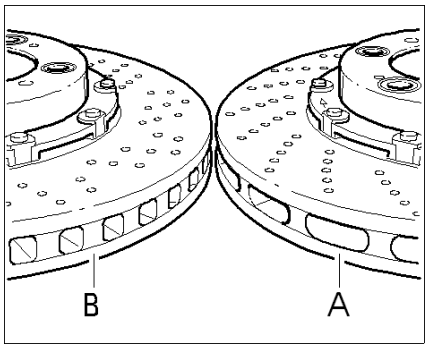
Three criteria governing the condition of the parts can make replacement necessary depending on the wear of PCCB brake discs:

1. Surface changes in the brake disc friction surfaces (material fatigue/wear) at an advanced stage (indication of wear: associated friction surface damage > 1 cm^2).
2. Surface roughness of the brake disc friction surfaces too great (roughness depends on mileage and load).
3. Brake disc minimum thickness is not attained due to wear (material erosion due to friction).

- In practice, all three forms of brake disc erosion usually occur.
- Only in rare cases (in the case of long-term race driving brake loads/very high temperatures on the friction surfaces) does the surface change so quickly that a premature brake disc change has to be performed.
- Blue discs on the brake disc chamber and/or strongly coloured brake calipers indicate a long-term, sustained high load, on a racing circuit, for example.

Replacing brake discs (notes/decision-making aid)

When replacing brake discs as a result of wear (see wear assessment) both brake discs must be replaced on an axle!
Irrespective of wear, a brake disc change can be necessary on the brake disc friction surfaces due to edge damage! In such cases, only one brake disc may need to be replaced if the friction area surface of the other PCCB brake disc is still completely OK Checking brake discs for edge damage.



Original (A) and new (B) technology in brake discs

Ensure that brake discs manufactured using the modified technology **-B-** (used in the 911 Carrera 997 since production began) are not interchanged with the brake discs manufactured using the original technology **-A-** (911 Carrera 4S, 911 Turbo, 911 GT2, 911 GT3 - before model 2005). Distinguishing characteristic: Double the number of ribs between the friction surfaces in brake discs in which the modified technology is used **-B-** and modified perforated bore layout.
In addition, the new technology **-B-** features little wear indicator plates on the friction surfaces (at three points, each arranged at 120° with respect to one another) and the wear limit (brake disc minimum thickness) has also been modified. The brake disc minimum thickness is stamped on the brake disc chamber (example: Min. Th. 33.7 mm).
Install only brake discs that have been manufactured using the new technology in the **-B-** 911 Carrera (997).
In general, the following applies to PCCB brake discs: A combination of the two technologies **-A and B-** on one axle is not permitted! A front axle/rear axle mix of the two technologies **-A and B-** is possible.

Cracks (stress-relief microstructure) in the brake disc friction surface

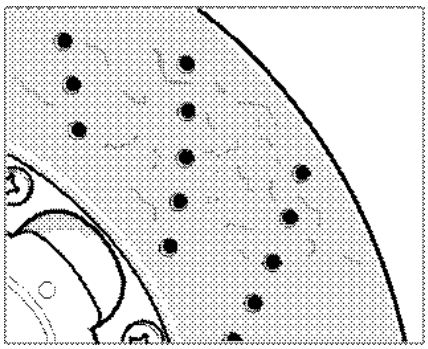
Stress-relief microstructure in PCCB brake disc friction surfaces

Cracks in the brake disc friction surfaces are viewed differently to cracks in cast iron brake discs. Cracks in PCCB brake discs do not constitute a wear criterion but exist already in new brake discs because of the way in which they are manufactured.

Note

- *Due to the composition of different materials in the friction layer and support body, the friction surfaces (even when new) are coated with an uncritical crack pattern (stress-relief microstructure). Individual relaxation cracks sometimes run along the perforated bores.*
- *The stress-relief microstructure results from the way in which the brake disc surface is manufactured and does not pose a risk to safety. There is also no danger of the friction layers flaking off from the support body, since the friction layers are almost free of internal stresses as a result of the stress-relief microstructure.*
- *The stress-relief microstructure is sometimes clearly visible in new brake discs and the brake disc chamber side and the side that is opposite to the chamber can differ significantly from one another.*

Note concerning bores (perforations) in the brake disc friction surface



Cracks (stress-relief microstructure) in the brake disc friction surface

Bores (perforations) in brake disc friction surface

Observe the following warning when cleaning or exposing the bores in the brake disc friction surface!

ATTENTION

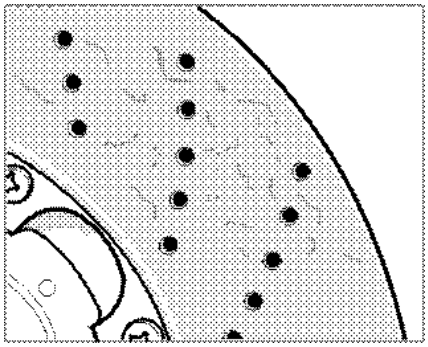
PCCB (Porsche Ceramic Composite Brake): Risk of damage to the brake discs as a result of impermissible work on the bores in the brake disc friction surface.

- **Damage to brake discs**

Clean the bores on PCCB brake discs with high-pressure cleaning equipment (only if necessary). In doing so, observe environmental and safety regulations.

Do not machine (boring or countersinking is not permissible).

Coating on the PCCB brake discs (potential causes)



Bores (perforations) in brake disc friction surface

The coating on the PCCB brake discs arises as a result of a high load and high temperatures, for example on a racing circuit. Check the following in such cases:

- Ventilation (brake cooling): all components are present, secured correctly and undamaged.
- Brake pad quality: use the appropriate brake pads if the vehicle is being used on a racing circuit.
- Perforated bores **-see illustration-** in the brake discs must be free. Expose them if necessary Notes on bores (perforations) in the brake disc friction surface.
- The brake discs can still be used even if there is a coating on them provided that they are OK with respect to all wear criteria General information on replacing worn PCCB brake discs. The perforated bores **-see illustration-** must be free.

Note on bedding in the new brake pads

New brake pads require a slightly longer bedding-in period for PCCB brake discs than cast iron brake discs. In general, the following applies: New brake pads must be broken in (bedding-in period), their optimum braking effect is therefore not reached until after a few hundred kilometres. The slightly reduced braking effect must be compensated for by increased pressure on the brake pedal. The same also applies after a brake

disc change.

top of page

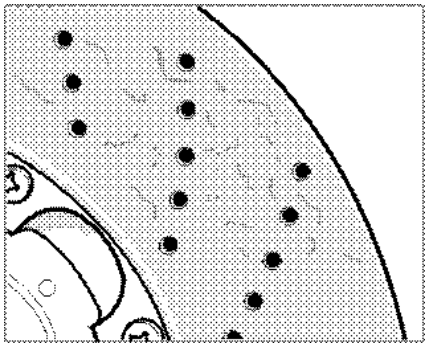
Checking PCCB brake discs (wear assessment)

Visual inspection of the surfaces of the brake disc friction surfaces (indication of wear)

Note

- *The friction surface changes occur due to material fatigue as a result of extremely high thermal load. These disc temperatures, which occur above all in racing conditions, cause a progressive material fatigue.*
- *Effects on driving: The surface change worsens the smoothness of braking, decreases the disc strength and increases the brake pad wear and therefore makes a precautionary parts replacement necessary.*

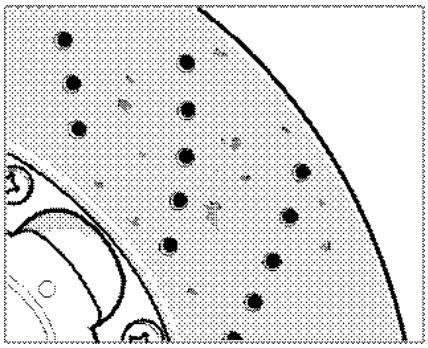
The following illustrations (PCCB brake disc wear appearance) are to be used for damage assessment.
PCCB brake disc wear appearance



PCCB brake discs without surface fractures

1. Friction area surface after normal brake load in road use. No surface fractures.

   No replacement necessary!



PCCB surface fractures

2. Friction area surfaces after a long run and occasional higher load. Isolated surface fractures smaller than 1 cm^2 **-arrow-** .

   No replacement necessary as the associated surface fractures are < 1 cm^2!

PCCB friction surface damage

3. End of service life of friction area surface or after highest load on a racing circuit.

   Replace brake discs if there is associated friction surface damage > 1 cm^2 **-arrow-** . To do this, please observe the relevant information Replacing brake discs (notes/decision-making aid).

Evaluating surface roughness (Sr) (max. 80 micrometre permitted)

Note

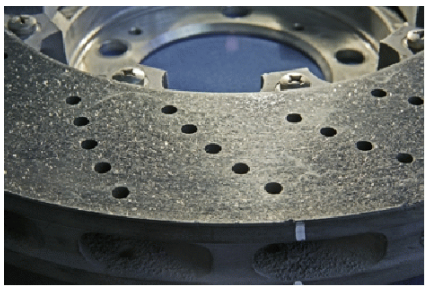
- *An increase in surface roughness impairs smoothness of braking (rubbing, shaking in steering wheel, scraping noises) and increases brake pad wear.*
- *With a roughness (Sr) value of > 80 µm (> 80 micrometre), a precautionary parts replacement is required.*

The assessment is carried out visually, based on the diagram. Two illustrations of the same peak-to valley surface roughness (views 1 and 2) help to make a better assessment.

1. **Brake discs that are OK:**

PCCB surface roughness (Sr) = 6 micrometre (view 1)

1.1. Surface roughness (Sr) = 6 µm **-see illustration-** (view 1)



PCCB surface roughness (Sr) = 6 micrometre (view 2)

Surface roughness (Sr) = 6 µm **-see illustration-** (view 2)

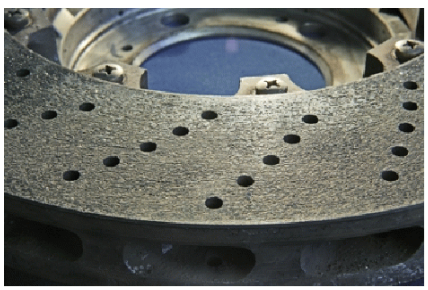
New brake disc. Illustration is used to enable better classification.

The early stages of roughness are indicated by burnt-out carbon fibres on the surface of an otherwise intact, semi-matt surface.

The surface feels smooth.

PCCB surface roughness (Sr) = 56 micrometre (view 1)

1.2. Surface roughness (Sr) = 56 µm **-see illustration-** (view 1)



PCCB surface roughness (Sr) = 56 micrometre (view 2)

Surface roughness (Sr) = 56 µm **-see illustration-** (view 2)

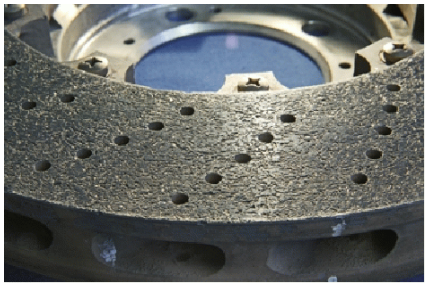
In the advanced stages of fibre burn-out and the initial destruction of the Si and SiC 'matrix', the depressions have become more pronounced. Large sections of the surface are still intact, the depressions form an even, fine-grained pattern.

The surface still feels matt, however, and the roughness is not yet pronounced.

No replacement necessary!

PCCB surface roughness (Sr) = 72 micrometre (view 1)

1.3. Surface roughness (Sr) = 72 µm **-see illustration-** (view 1)



PCCB surface roughness (Sr) = 72 micrometre (view 2)

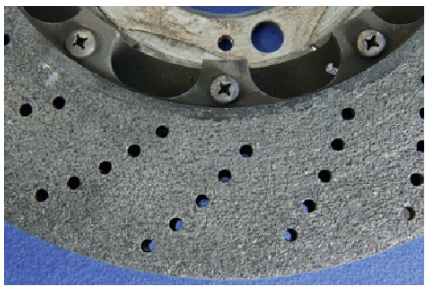
Surface roughness (Sr) = 72 µm **-see arrow-** (view 2)

Borderline disc, which can still just be evaluated as OK. As a result of more advanced damage to the surface, the depressions are larger, and above all deeper, compared with the previous surface condition.

On the one hand, the more extensive roughness is noticeable (only when a comparison is made); on the other hand, however, like before, "only" depressions are observed.

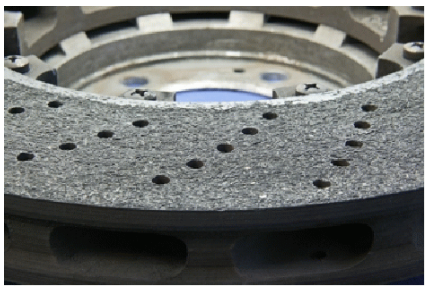
Replacement not yet necessary!

2. **Worn brake discs:**



PCCB surface roughness (Sr) = 108 micrometre (view 1)

2.1. Surface roughness (Sr) = 108 µm **-see illustration-** (view 1)



PCCB surface roughness (Sr) = 108 micrometre (view 2)

Surface roughness (Sr) = 108 µm **-see illustration-** (view 2)

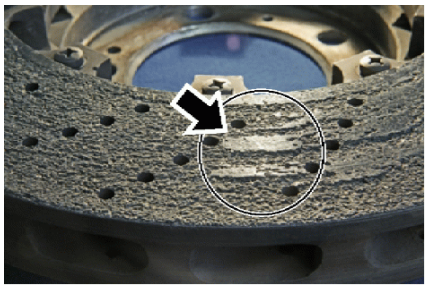
Worn surface. Advanced wear has led to a situation where only the remains of the original surface are left.

It is clear that the roughness is caused not only by depressions but also by bumps.

Replace brake discs! To do this, please observe the relevant information Replacing brake discs (notes/decision-making aid).

In general, the following applies: Brake discs must be replaced if the surface roughness (Sr) is > 80 µm!

3. **Worn brake discs (special cases):**

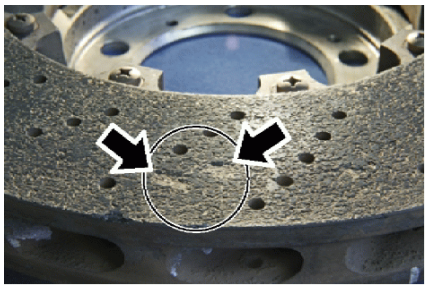


PCCB surface roughness (Sr) = 108 micrometre

3.1. Surface roughness (Sr) = 108 µm, as in the case of the previous disc, but with the remainder of the original friction surface **-arrow-** .

Replace brake discs! To do this, please observe the relevant information Replacing brake discs (notes/decision-making aid).

In general, the following applies: Brake discs must be replaced if the surface roughness (Sr) is > 80 µm!

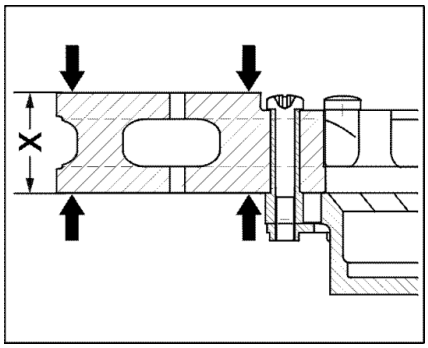


PCCB brake disc

3.2. Surface roughness (Sr) = 72 µm. Borderline disc, identified by the roughness, but also by the indication of wear and associated surface fractures **-arrows-** , > 1 cm^2.

Replace brake discs! To do this, please observe the relevant information Replacing brake discs (notes/decision-making aid).

Checking brake discs for minimum thickness



Minimum thickness of PCCB brake disc

Note

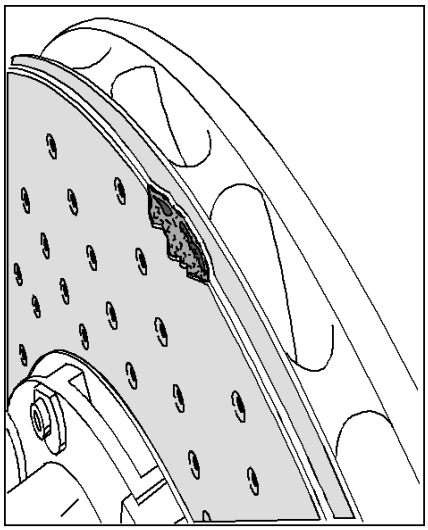
- *For perforated brake discs, the minimum thickness **-x-** must always be measured on the inner or outer friction surface track **-arrows-** .*
- *Wear limit: The brake disc minimum thickness is stamped on the brake disc chamber (example: Min. Th. 33.7 mm).*

– Measure the brake thickness **-x-** with a suitable micrometre screw or a brake disc gauge around the inner or outer friction surface tracks **-arrows-** .

Checking brake discs for edge damage

Note

- *Irrespective of wear, a brake disc change can be necessary on the brake disc friction surfaces due to edge damage.*
- *In such cases, only one brake disc may need to be replaced if the friction area surface of the other PCCB brake disc is still completely OK.*



Edge damage on PCCB brake disc

The following criteria apply to edge damage assessment:

- Max. permissible width/depth = 2 mm
- Max. permissible length = 10mm
- Max. 3 damaged edge areas permissible

997110, 997111, 997120, 997121, 997310, 997311, 997320, 997321, 997410, 997411, 997430, 997431, 997610, 997611, 997620, 997621

as of MY 2005
Country C00, C02, C05, C07, C08, C09, C10, C11, C12, C13, C14, C15, C16, C18, C19, C20, C21, C22, C23, C24, C25, C26, C27, C28, C32, C33, C34, C35, C36, C37, C38, C39, C45, C46, C98, C99

WARNUNG

Gefahr des Verlusts der Text-Bild-Zuordnung beim Ausdruck.

- **Aus technischen Gründen kann derzeit nicht ausgeschlossen werden, dass trotz einwandfreier Darstellung auf dem Bildschirm beim Ausdruck der Zusammenhang von Text und zugehörigem Bild verloren geht.**
- **Wird der Fehler nicht bemerkt, besteht die Gefahr, daß Arbeiten nicht korrekt durchgeführt werden und es dadurch zu Personen- und Sachschäden kommt.**

Vergleichen Sie deshalb nach dem Druckvorgang unbedingt die Ausdrucke mit der Bildschirmdarstellung. Korrigieren Sie die Ausdrucke im Fehlerfall so, daß der Inhalt der Bildschirmdarstellung zutreffend wiedergegeben wird.

WARNING

Danger of losing text-figure correspondence when printing out.

46 53 19 Removing and installing rear brake disc - as of MY 2005

- Preliminary work
- General warning notes
- Removing rear brake disc
- Installing rear brake disc
- Subsequent work

Tools

Designation	Type	Number	Explanation	
piston resetting fixture (replaces P83)	commercially available tool	NR.144		

top of page

Preliminary work

440519 Removing and installing wheel

top of page

General warning notes

WARNING

Risk of accidents if brake pads and/or brake discs are not replaced in time.

- **Danger of injury and damage to vehicle if braking effect is impaired.**

The brake pads must be replaced when the brake pad warning indicator lights up, but no later than when there is a residual pad thickness of 2 mm.

ATTENTION

Increased risk of damage to brake discs when mounting/removing wheels.

- **The brake discs can be damaged.**

Use assembly aid (assembly pins) in order to exclude any possibility of heavy contact of the wheel with the brake disc.

top of page

Removing rear brake disc

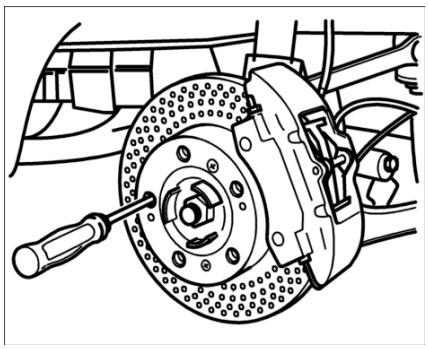
WARNING

Risk of accidents if brake pads and/or brake discs are not replaced in time.

- **Danger of injury and damage to vehicle if braking effect is impaired.**

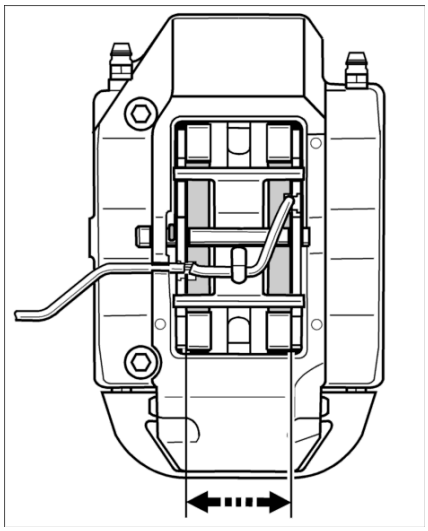
The brake pads must be replaced when the brake pad warning indicator lights up, but no later than when there is a residual pad thickness of 2 mm.

1. The adjustment fixture can be twisted through the bores in the wheel mounting.



Adjusting the parking brake

2. Turn the brake disc in such a way that the adjustment fixture becomes visible. Using a **-screwdriver-** , turn the adjustment fixture towards "release" through the bore. *Adjusting the parking brake*



Pushing back brake pad

3. Push brake pads back slightly and evenly using **piston resetting fixture (replaces P83) NR.144**, see Workshop Equipment Manual, Chapter 2.4 **-arrow-** .
4. Undo brake calliper on wheel carrier and hang it in a suitable place in the wheel well (do not open the brake hydraulics). To do this, separate the holder for the brake hose/wear indicator at the body side.
5. Remove brake disc after unscrewing the fastening screws. If necessary, remove the brake disc by tapping it gently with a rubber hammer.

top of page

Installing rear brake disc

WARNING

Risk of accidents if brake pads and/or brake discs are not replaced in time.

- **Danger of injury and damage to vehicle if braking effect is impaired.**

The brake pads must be replaced when the brake pad warning indicator lights up, but no later than when there is a residual pad thickness of 2 mm.

ATTENTION

Increased risk of damage to brake discs when mounting/removing wheels.

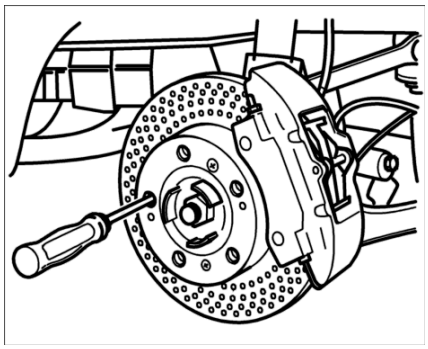
- **The brake discs can be damaged.**

Use assembly aid (assembly pins) in order to exclude any possibility of heavy contact of the wheel with the brake disc.

Do not confuse right and left brake discs during assembly!

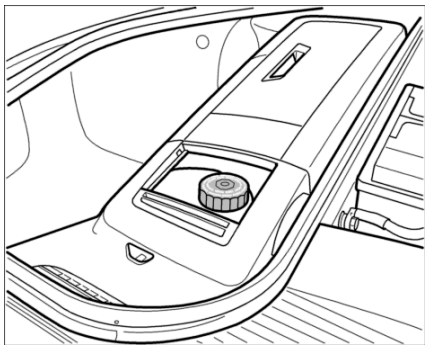
Distinguishing characteristic: Part No.! The flat surface of the brake discs is marked with R = right or L = left.

1. Check that all parts are in perfect condition and replace them if necessary.
2. Clean the levelling and centring surfaces on the brake disc and wheel hub. Then apply a very thin coat of Optimoly TA to the centring surface on the wheel hub.
3. Fit the brake disc. Observe specified tightening torque. *46 TW Tightening torques for brake mechanics - Technical values*



Adjusting the parking brake

4. Adjust brake shoes on the parking brake. 468316 Adjusting brake shoes *Adjusting the parking brake*
5. Fit the brake calliper. Replace the brake calliper fastening screws each time they are removed. Observe specified tightening torque. *46 TW Tightening torques for brake mechanics - Technical values*
6. Position disc brake pads by operating the brake several times.



Brake system: checking fluid level

7. Check brake fluid level and correct if necessary. The brake fluid level must be between the MAX-MIN marking. . *Brake system: checking fluid level* 470801 Checking brake fluid level

top of page

Subsequent work

440519 Removing and installing wheel

997120, 997121, 997310, 997311, 997320, 997321, 997410, 997411, 997430, 997431, 997610, 997611, 997620, 997621

46 53 19 Removing and installing rear brake disc - as of MY 2005

- Preliminary work
- General warning notes
- Removing rear brake disc
- Installing rear brake disc
- Subsequent work

Tools

Designation	Type	Number	Explanation	
piston resetting fixture (replaces P83)	commercially available tool	NR.144		

top of page

Preliminary work

440519 Removing and installing wheel

top of page

General warning notes

WARNING

Risk of accidents if brake pads and/or brake discs are not replaced in time.

- **Danger of injury and damage to vehicle if braking effect is impaired.**

The brake pads must be replaced when the brake pad warning indicator lights up, but no later than when there is a residual pad thickness of 2 mm.

ATTENTION

Increased risk of damage to brake discs when mounting/removing wheels.

- **The brake discs can be damaged.**

Use assembly aid (assembly pins) in order to exclude any possibility of heavy contact of the wheel with the brake disc.

top of page

Removing rear brake disc

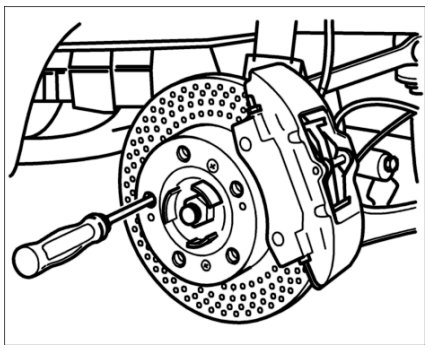
WARNING

Risk of accidents if brake pads and/or brake discs are not replaced in time.

- **Danger of injury and damage to vehicle if braking effect is impaired.**

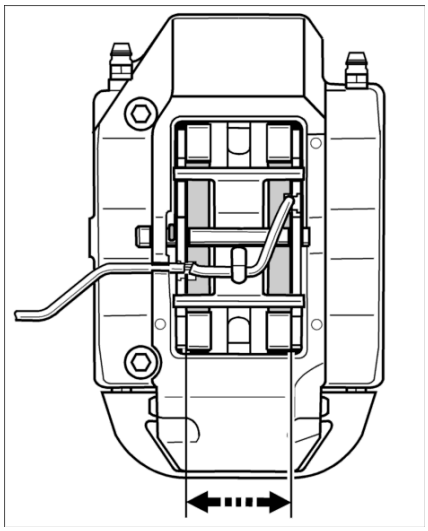
The brake pads must be replaced when the brake pad warning indicator lights up, but no later than when there is a residual pad thickness of 2 mm.

1. The adjustment fixture can be twisted through the bores in the wheel mounting.



Adjusting the parking brake

2. Turn the brake disc in such a way that the adjustment fixture becomes visible. Using a **-screwdriver-** , turn the adjustment fixture towards "release" through the bore. *Adjusting the parking brake*



Pushing back brake pad

3. Push brake pads back slightly and evenly using **piston resetting fixture (replaces P83) NR.144**, see Workshop Equipment Manual, Chapter 2.4 **-arrow-** .
4. Undo brake calliper on wheel carrier and hang it in a suitable place in the wheel well (do not open the brake hydraulics). To do this, separate the holder for the brake hose/wear indicator at the body side.
5. Remove brake disc after unscrewing the fastening screws. If necessary, remove the brake disc by tapping it gently with a rubber hammer.

top of page

Installing rear brake disc

WARNING

Risk of accidents if brake pads and/or brake discs are not replaced in time.

- **Danger of injury and damage to vehicle if braking effect is impaired.**

The brake pads must be replaced when the brake pad warning indicator lights up, but no later than when there is a residual pad thickness of 2 mm.

ATTENTION

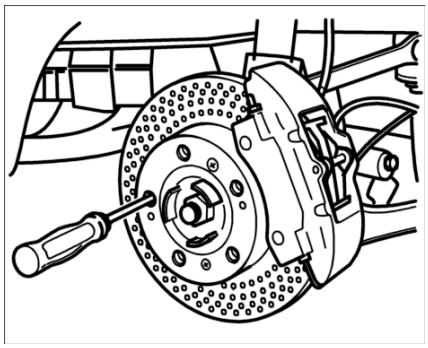
Increased risk of damage to brake discs when mounting/removing wheels.

- **The brake discs can be damaged.**

Use assembly aid (assembly pins) in order to exclude any possibility of heavy contact of the wheel with the brake disc.

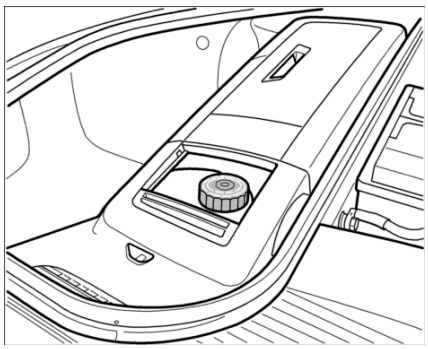
The brake discs have different part numbers (Part No.)!

1. Check that all parts are in perfect condition and replace them if necessary.
2. Clean the levelling and centring surfaces on the brake disc and wheel hub. Then apply a very thin coat of Optimoly TA to the centring surface on the wheel hub.
3. Fit the brake disc. Observe specified tightening torque. *421000 Tightening torques for rear axle*



Adjusting the parking brake

4. Adjust the brake shoes of the foot-operated parking brake with a screwdriver. 468316 Adjusting brake shoes *Adjusting the parking brake*
5. Fit the brake calliper. Replace the brake calliper fastening screws each time they are removed. Observe specified tightening torque. *421000 Tightening torques for rear axle*
6. Position disc brake pads by operating the brake several times.



Brake system: checking fluid level

7. Check the brake fluid level and correct if necessary. The brake fluid level must be between the MAX-MIN marking. *Brake system: checking fluid level* 470801 Checking brake fluid level

top of page

Subsequent work

440519 Removing and installing wheel

997110, 997111

as of MY 2005
Country C00, C02, C05, C07, C08, C09, C10, C11, C12, C13, C14, C15, C16, C18, C19, C20, C21, C22,

46 53 19 Removing and installing the rear PCCB brake disc - as of MY 2005

- Preliminary work
- General warning notes
- Removing rear brake disc
- Installing rear brake disc
- Subsequent work

Tools

Designation	Type	Number	Explanation	
piston resetting fixture (replaces P83)	commercially available tool	NR.144		

top of page

Preliminary work

440519 Removing and installing wheel

top of page

General warning notes

WARNING

Risk of accidents if brake pads and/or brake discs are not replaced in time.

- **Danger of injury and damage to vehicle if braking effect is impaired.**

The brake pads must be replaced when the brake pad warning indicator lights up, but no later than when there is a residual pad thickness of 2 mm.

ATTENTION

Increased risk of damage to brake discs when mounting/removing wheels.

- **The brake discs can be damaged.**

Use assembly aid (assembly pins) in order to exclude any possibility of heavy contact of the wheel with the brake disc.

top of page

Removing rear brake disc

WARNING

Risk of accidents if brake pads and/or brake discs are not replaced in time.

- **Danger of injury and damage to vehicle if braking effect is impaired.**

The brake pads must be replaced when the brake pad warning indicator lights up, but no later than when there is a residual pad thickness of 2 mm.

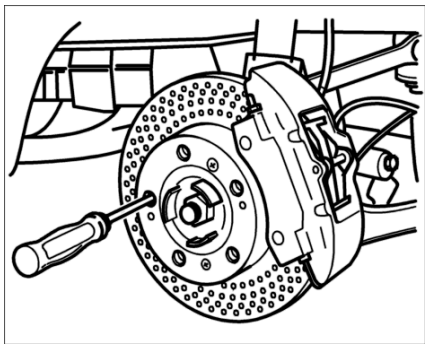
ATTENTION

Increased risk of damage to brake discs when mounting/removing wheels.

- **The brake discs can be damaged.**

Use assembly aid (assembly pins) in order to exclude any possibility of heavy contact of the wheel with the brake disc.

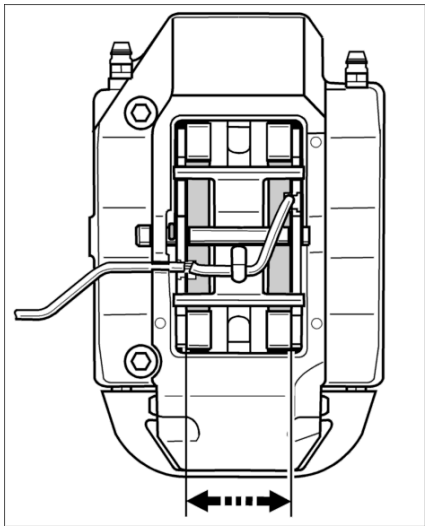
1. The adjustment fixture can be twisted through the bores in the wheel mounting.



Adjusting the parking brake

2.

Turn the brake disc in such a way that the adjustment fixture becomes visible. Using a **-screwdriver-** , turn the adjustment fixture towards "release" through the bore. *Adjusting the parking brake*



Pushing back brake pad

3. Push brake pads back slightly and evenly using **piston resetting fixture (replaces P83) NR.144**, see Workshop Equipment Manual, Chapter 2.4 **-arrow-** .
4. Undo brake calliper on wheel carrier and hang it in a suitable place in the wheel well (do not open the brake hydraulics). To do this, separate the holder for the brake hose/wear indicator at the body side.
5. Remove brake disc after unscrewing the fastening screws. If necessary, remove the brake disc by tapping it gently with a rubber hammer.

top of page

Installing rear brake disc

WARNING

Risk of accidents if brake pads and/or brake discs are not replaced in time.

- **Danger of injury and damage to vehicle if braking effect is impaired.**

The brake pads must be replaced when the brake pad warning indicator lights up, but no later than when there is a residual pad thickness of 2 mm.

ATTENTION

Increased risk of damage to brake discs when mounting/removing wheels.

- **The brake discs can be damaged.**

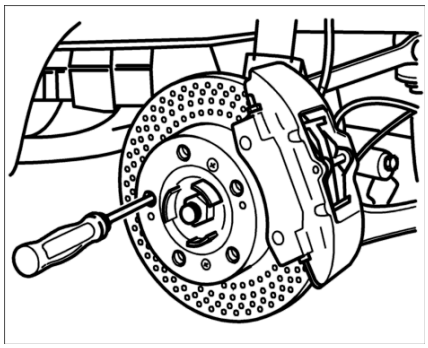
Use assembly aid (assembly pins) in order to exclude any possibility of heavy contact of the wheel with the brake disc.

Do not confuse right and left brake discs during assembly!
Distinguishing characteristic: Part No.! The flat surface of the brake discs is marked with R = right or L = left.

Note

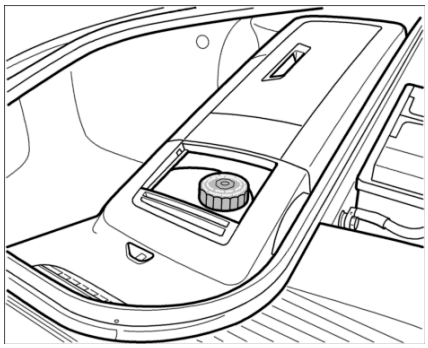
When replacing the brake discs due to wear, the brake discs on one axle must always be replaced. Irrespective of wear, a brake disc change can be necessary on the brake disc friction surfaces due to edge damage. In this case, only one brake disc can be replaced if the friction area surface of the other brake disc is OK.

1. Check that all parts are in perfect condition and replace them if necessary.
2. Clean the levelling and centring surfaces on the brake disc and wheel hub. Then apply a very thin coat of Optimoly TA to the centring surface on the wheel hub.
3. Fit the brake disc. Observe specified tightening torque. *421000 Tightening torques for rear axle*



Adjusting the parking brake

4. Adjust the brake shoes of the foot-operated parking brake with a screwdriver. 468316 Adjusting brake shoes *Adjusting the parking brake*
5. Fit the brake calliper. Replace the brake calliper fastening screws each time they are removed. Observe specified tightening torque. *421000 Tightening torques for rear axle*
6. Position disc brake pads by operating the brake several times.



Brake system: checking fluid level

7. Check the brake fluid level and correct if necessary. The brake fluid level must be between the MAX-MIN marking. *Brake system: checking fluid level* 470801 Checking brake fluid level

top of page

Subsequent work

440519 Removing and installing wheel

Bedding in the brake pads

New brake pads require a slightly longer bedding-in period for PCCB brake discs than cast iron brake discs. In general, the following applies: New brake pads must be worn in (bedding-in period), their optimum braking effect is therefore not reached until after a few hundred kilometres. The slightly reduced braking effect must be compensated for by increased pressure on the brake pedal. The same also applies after a brake disc change.

997110, 997111, 997120, 997121, 997310, 997311, 997320, 997321, 997410, 997411, 997430, 997431, 997610, 997611, 997620, 997621

as of MY 2005
Country C00, C02, C05, C07, C08, C09, C10, C11, C12, C13, C14, C15, C16, C18, C19, C20, C21, C22, C23, C24, C25, C26, C27, C28, C32, C33, C34, C35, C36, C37, C38, C39, C45, C46, C98, C99

WARNUNG

Gefahr des Verlusts der Text-Bild-Zuordnung beim Ausdruck.

- **Aus technischen Gründen kann derzeit nicht ausgeschlossen werden, dass trotz einwandfreier Darstellung auf dem Bildschirm beim Ausdruck der Zusammenhang von Text und zugehörigem Bild verloren geht.**
- **Wird der Fehler nicht bemerkt, besteht die Gefahr, daß Arbeiten nicht korrekt durchgeführt werden und es dadurch zu Personen- und Sachschäden kommt.**

Vergleichen Sie deshalb nach dem Druckvorgang unbedingt die Ausdrucke mit der Bildschirmdarstellung. Korrigieren Sie die Ausdrucke im Fehlerfall so, daß der Inhalt der Bildschirmdarstellung zutreffend wiedergegeben wird.

WARNING

Danger of losing text-figure correspondence when printing out.

- **For technical reasons, it can currently not be ruled out that the correspondence between text and associated figure can be lost when it is printed out, even though the display on the screen is correct.**
- **If the fault is not noticed, there is the danger that work will not be performed correctly which can cause injury and damage.**

Therefore, always compare printouts with the screen display after printing them out. Correct the printouts if they are faulty so that the content of the screen display matches that on the printouts.

46 54 02 Checking rear PCCB brake discs (wear assessment) - as of MY 2005

- Checking information on PCCB brake discs
- Checking PCCB brake discs (wear assessment)

top of page

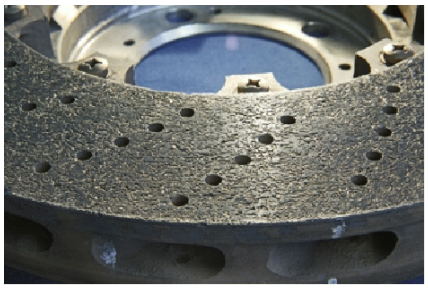
Checking information on PCCB brake discs

Basic information

Checking involves the following:

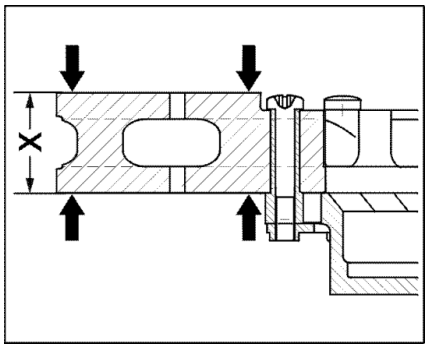
Associated surface fracture

1. Visual inspection for any surface changes to the brake disc friction surfaces Indication of wear: Associated surface fracture > 1 cm^2 **-arrow-** , but no accumulation of smaller fractures Visual inspection of the surfaces of the brake disc friction surfaces (indication of wear) .



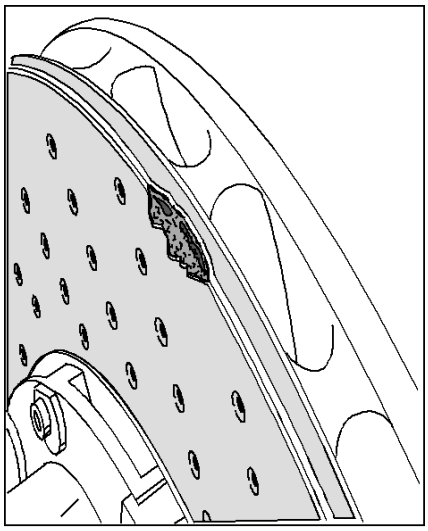
Surface roughness of PCCB brake disc

2. Assess the surface roughness (Sr) of the brake discs (max. 80 µm permitted), since this affects smoothness of braking (noise), braking performance/pedal pressure and brake pad idle time Evaluating surface roughness (Sr) (max. 80 micrometre permitted).



Minimum thickness (x) of the PCCB brake disc

3. Check brake discs for minimum thickness **-x-** . The minimum thickness of the brake disc (example: Min. Th. 33.7 mm) is stamped on the brake disc chamber Checking brake discs for minimum thickness.



Edge damage on PCCB brake disc

4. Check brake discs for edge damage **-see illustration-** (damage caused as a result of improper use) Checking brake discs for edge damage.

General information on replacing worn PCCB brake discs

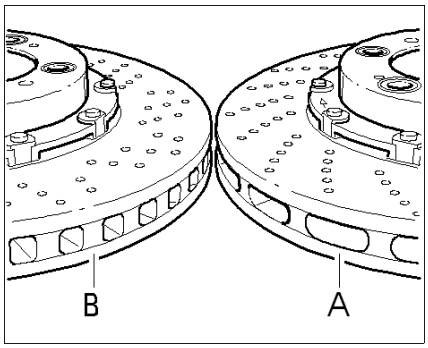
Three criteria governing the condition of the parts can make replacement necessary depending on the wear of PCCB brake discs:

1. Surface changes in the brake disc friction surfaces (material fatigue/wear) at an advanced stage (indication of wear: associated friction surface damage > 1 cm^2).
2. Surface roughness of the brake disc friction surfaces too great (roughness depends on mileage and load).
3. Brake disc minimum thickness is not attained due to wear (material erosion due to friction).

- In practice, all three forms of brake disc erosion usually occur.
- Only in rare cases (in the case of long-term race driving brake loads/very high temperatures on the friction surfaces) does the surface change so quickly that a premature brake disc change has to be performed.
- Blue discs on the brake disc chamber and/or strongly coloured brake calipers indicate a long-term, sustained high load, on a racing circuit, for example.

Replacing brake discs (notes/decision-making aid)

When replacing brake discs as a result of wear (see wear assessment) both brake discs must be replaced on an axle!
Irrespective of wear, a brake disc change can be necessary on the brake disc friction surfaces due to edge damage! In such cases, only one brake disc may need to be replaced if the friction area surface of the other PCCB brake disc is still completely OK Checking brake discs for edge damage.



Original (A) and new (B) technology in brake discs

Ensure that brake discs manufactured using the modified technology **-B-** (used in the 911 Carrera 997 since production began) are not interchanged with the brake discs manufactured using the original technology **-A-** (911 Carrera 4S, 911 Turbo, 911 GT2, 911 GT3 - before model 2005). Distinguishing characteristic: Double the number of ribs between the friction surfaces in brake discs in which the modified technology is used **-B-** and modified perforated bore layout.
In addition, the new technology **-B-** features little wear indicator plates on the friction surfaces (at three points, each arranged at 120° with respect to one another) and the wear limit (brake disc minimum thickness) has also been modified. The brake disc minimum thickness is stamped on the brake disc chamber (example: Min. Th. 33.7 mm).
Install only brake discs that have been manufactured using the new technology in the **-B-** 911 Carrera (997).
In general, the following applies to PCCB brake discs: A combination of the two technologies **-A and B-** on one axle is not permitted! A front axle/rear axle mix of the two technologies **-A and B-** is possible.

Cracks (stress-relief microstructure) in the brake disc friction surface

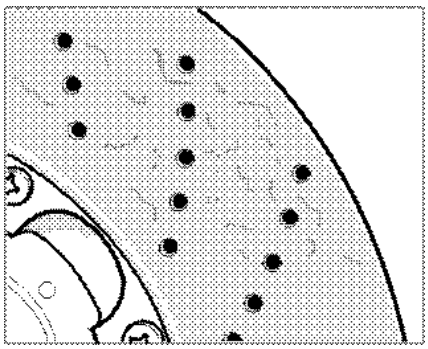
Stress-relief microstructure in PCCB brake disc friction surfaces

Cracks in the brake disc friction surfaces are viewed differently to cracks in cast iron brake discs. Cracks in PCCB brake discs do not constitute a wear criterion but exist already in new brake discs because of the way in which they are manufactured.

Note

- *Due to the composition of different materials in the friction layer and support body, the friction surfaces (even when new) are coated with an uncritical crack pattern (stress-relief microstructure). Individual relaxation cracks sometimes run along the perforated bores.*
- *The stress-relief microstructure results from the way in which the brake disc surface is manufactured and does not pose a risk to safety. There is also no danger of the friction layers flaking off from the support body, since the friction layers are almost free of internal stresses as a result of the stress-relief microstructure.*
- *The stress-relief microstructure is sometimes clearly visible in new brake discs and the brake disc chamber side and the side that is opposite to the chamber can differ significantly from one another.*

Note concerning bores (perforations) in the brake disc friction surface



Cracks (stress-relief microstructure) in the brake disc friction surface

Bores (perforations) in brake disc friction surface

Observe the following warning when cleaning or exposing the bores in the brake disc friction surface!

ATTENTION

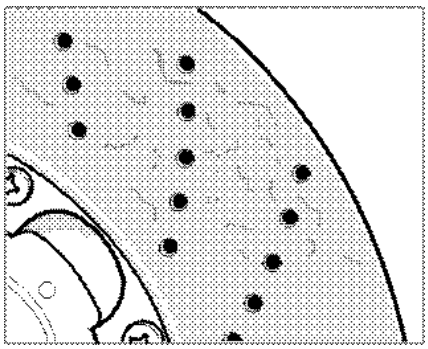
PCCB (Porsche Ceramic Composite Brake): Risk of damage to the brake discs as a result of impermissible work on the bores in the brake disc friction surface.

- **Damage to brake discs**

Clean the bores on PCCB brake discs with high-pressure cleaning equipment (only if necessary). In doing so, observe environmental and safety regulations.

Do not machine (boring or countersinking is not permissible).

Coating on the PCCB brake discs (potential causes)



Bores (perforations) in brake disc friction surface

The coating on the PCCB brake discs arises as a result of a high load and high temperatures, for example on a racing circuit. Check the following in such cases:

- Ventilation (brake cooling): all components are present, secured correctly and undamaged.
- Brake pad quality: use the appropriate brake pads if the vehicle is being used on a racing circuit.
- Perforated bores **-see illustration-** in the brake discs must be free. Expose them if necessary Notes on bores (perforations) in the brake disc friction surface.
- The brake discs can still be used even if there is a coating on them provided that they are OK with respect to all wear criteria General information on replacing worn PCCB brake discs. The perforated bores **-see illustration-** must be free.

Note on bedding in the new brake pads

New brake pads require a slightly longer bedding-in period for PCCB brake discs than cast iron brake discs. In general, the following applies: New brake pads must be broken in (bedding-in period), their optimum braking effect is therefore not reached until after a few hundred kilometres. The slightly reduced braking effect must be compensated for by increased pressure on the brake pedal. The same also applies after a brake

disc change.

top of page

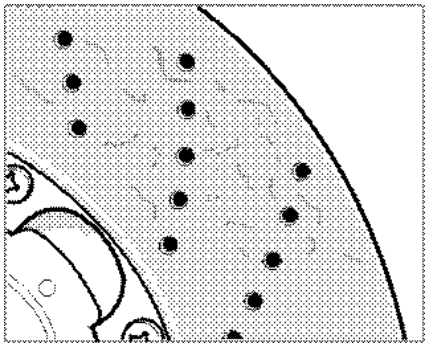
Checking PCCB brake discs (wear assessment)

Visual inspection of the surfaces of the brake disc friction surfaces (indication of wear)

Note

- *The friction surface changes occur due to material fatigue as a result of extremely high thermal load. These disc temperatures, which occur above all in racing conditions, cause a progressive material fatigue.*
- *Effects on driving: The surface change worsens the smoothness of braking, decreases the disc strength and increases the brake pad wear and therefore makes a precautionary parts replacement necessary.*

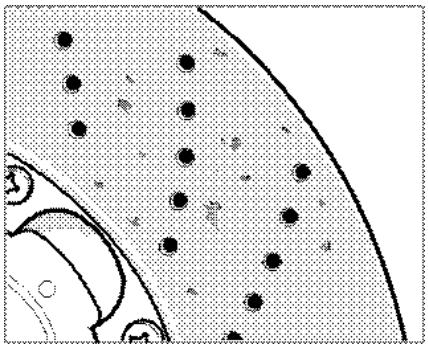
The following illustrations (PCCB brake disc wear appearance) are to be used for damage assessment.
PCCB brake disc wear appearance



PCCB brake discs without surface fractures

1. Friction area surface after normal brake load in road use. No surface fractures.

   No replacement necessary!



PCCB surface fractures

2. Friction area surfaces after a long run and occasional higher load. Isolated surface fractures smaller than 1 cm^2 **-arrow-** .

   No replacement necessary as the associated surface fractures are < 1 cm^2!

PCCB friction surface damage

3. End of service life of friction area surface or after highest load on a racing circuit.

   Replace brake discs if there is associated friction surface damage > 1 cm^2 **-arrow-** . To do this, please observe the relevant information Replacing brake discs (notes/decision-making aid).

Evaluating surface roughness (Sr) (max. 80 micrometre permitted)

Note

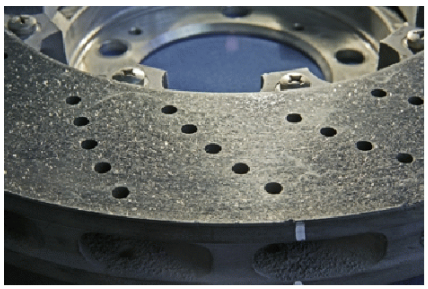
- *An increase in surface roughness impairs smoothness of braking (rubbing, shaking in steering wheel, scraping noises) and increases brake pad wear.*
- *With a roughness (Sr) value of > 80 µm (> 80 micrometre), a precautionary parts replacement is required.*

The assessment is carried out visually, based on the diagram. Two illustrations of the same peak-to valley surface roughness (views 1 and 2) help to make a better assessment.

1. **Brake discs that are OK:**

PCCB surface roughness (Sr) = 6 micrometre (view 1)

1.1. Surface roughness (Sr) = 6 µm **-see illustration-** (view 1)



PCCB surface roughness (Sr) = 6 micrometre (view 2)

Surface roughness (Sr) = 6 µm **-see illustration-** (view 2)

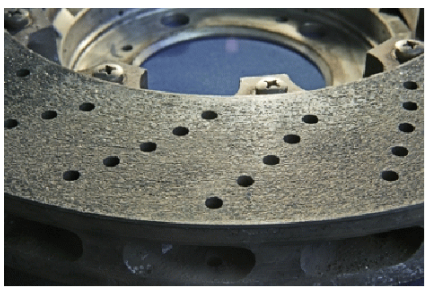
New brake disc. Illustration is used to enable better classification.

The early stages of roughness are indicated by burnt-out carbon fibres on the surface of an otherwise intact, semi-matt surface.

The surface feels smooth.

PCCB surface roughness (Sr) = 56 micrometre (view 1)

1.2. Surface roughness (Sr) = 56 µm **-see illustration-** (view 1)



PCCB surface roughness (Sr) = 56 micrometre (view 2)

Surface roughness (Sr) = 56 µm **-see illustration-** (view 2)

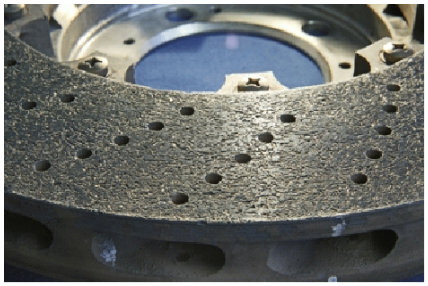
In the advanced stages of fibre burn-out and the initial destruction of the Si and SiC 'matrix', the depressions have become more pronounced. Large sections of the surface are still intact, the depressions form an even, fine-grained pattern.

The surface still feels matt, however, and the roughness is not yet pronounced.

No replacement necessary!

PCCB surface roughness (Sr) = 72 micrometre (view 1)

1.3. Surface roughness (Sr) = 72 µm **-see illustration-** (view 1)



PCCB surface roughness (Sr) = 72 micrometre (view 2)

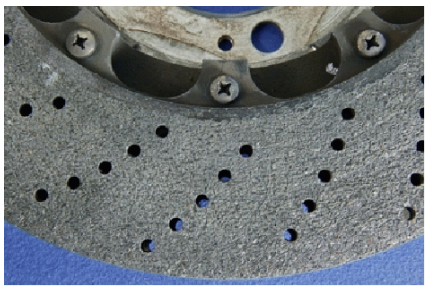
Surface roughness (Sr) = 72 µm **-see arrow-** (view 2)

Borderline disc, which can still just be evaluated as OK. As a result of more advanced damage to the surface, the depressions are larger, and above all deeper, compared with the previous surface condition.

On the one hand, the more extensive roughness is noticeable (only when a comparison is made); on the other hand, however, like before, "only" depressions are observed.

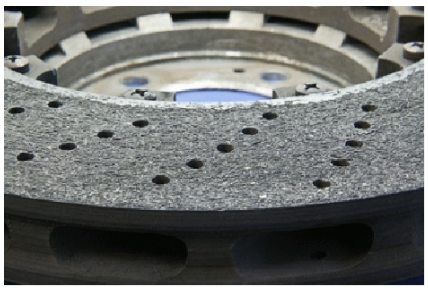
Replacement not yet necessary!

2. **Worn brake discs:**



PCCB surface roughness (Sr) = 108 micrometre (view 1)

2.1. Surface roughness (Sr) = 108 µm **-see illustration-** (view 1)



PCCB surface roughness (Sr) = 108 micrometre (view 2)

Surface roughness (Sr) = 108 µm **-see illustration-** (view 2)

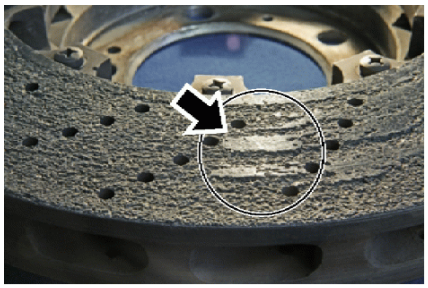
Worn surface. Advanced wear has led to a situation where only the remains of the original surface are left.

It is clear that the roughness is caused not only by depressions but also by bumps.

Replace brake discs! To do this, please observe the relevant information Replacing brake discs (notes/decision-making aid).

In general, the following applies: Brake discs must be replaced if the surface roughness (Sr) is > 80 µm!

3. **Worn brake discs (special cases):**

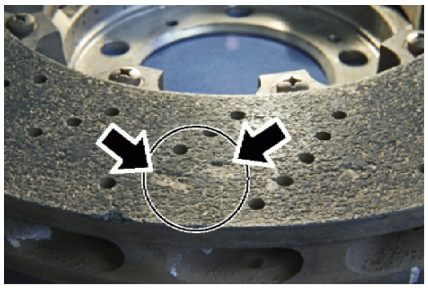


PCCB surface roughness (Sr) = 108 micrometre

3.1. Surface roughness (Sr) = 108 µm, as in the case of the previous disc, but with the remainder of the original friction surface **-arrow-** .

Replace brake discs! To do this, please observe the relevant information Replacing brake discs (notes/decision-making aid).

In general, the following applies: Brake discs must be replaced if the surface roughness (Sr) is > 80 µm!

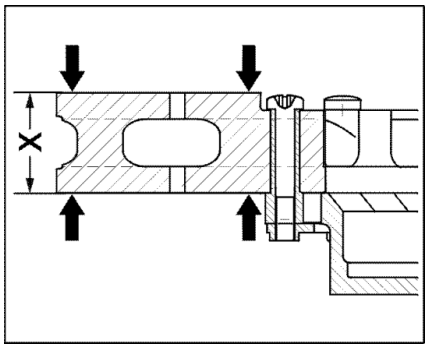


PCCB brake disc

3.2. Surface roughness (Sr) = 72 µm. Borderline disc, identified by the roughness, but also by the indication of wear and associated surface fractures **-arrows-** , > 1 cm^2.

Replace brake discs! To do this, please observe the relevant information Replacing brake discs (notes/decision-making aid).

Checking brake discs for minimum thickness



Minimum thickness of PCCB brake disc

Note

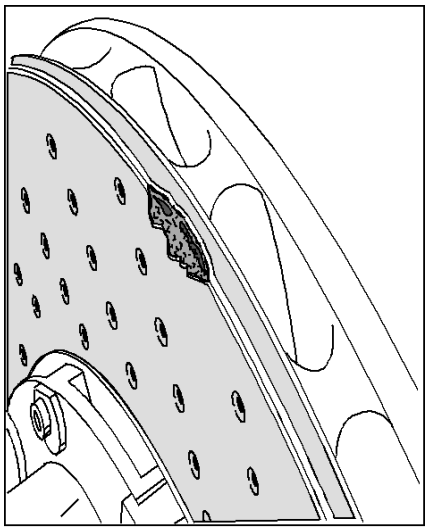
- *For perforated brake discs, the minimum thickness **-x-** must always be measured on the inner or outer friction surface track **-arrows-** .*
- *Wear limit: The brake disc minimum thickness is stamped on the brake disc chamber (example: Min. Th. 33.7 mm).*

– Measure the brake thickness **-x-** with a suitable micrometre screw or a brake disc gauge around the inner or outer friction surface tracks **-arrows-** .

Checking brake discs for edge damage

Note

- *Irrespective of wear, a brake disc change can be necessary on the brake disc friction surfaces due to edge damage.*
- *In such cases, only one brake disc may need to be replaced if the friction area surface of the other PCCB brake disc is still completely OK.*



Edge damage on PCCB brake disc

The following criteria apply to edge damage assessment:

- Max. permissible width/depth = 2 mm
- Max. permissible length = 10mm
- Max. 3 damaged edge areas permissible

997110, 997111, 997120, 997121, 997310, 997311, 997320, 997321, 997410, 997411, 997430, 997431, 997610, 997611, 997620, 997621

as of MY 2005
Country C00, C02, C05, C07, C08, C09, C10, C11, C12, C13, C14, C15, C16, C18, C19, C20, C21, C22, C23, C24, C25, C26, C27, C28, C32, C33, C34, C35, C36, C37, C38, C39, C45, C46, C98, C99

WARNUNG

Gefahr des Verlusts der Text-Bild-Zuordnung beim Ausdruck.

- **Aus technischen Gründen kann derzeit nicht ausgeschlossen werden, dass trotz einwandfreier Darstellung auf dem Bildschirm beim Ausdruck der Zusammenhang von Text und zugehörigem Bild verloren geht.**
- **Wird der Fehler nicht bemerkt, besteht die Gefahr, daß Arbeiten nicht korrekt durchgeführt werden und es dadurch zu Personen- und Sachschäden kommt.**

Vergleichen Sie deshalb nach dem Druckvorgang unbedingt die Ausdrucke mit der Bildschirmdarstellung. Korrigieren Sie die Ausdrucke im Fehlerfall so, daß der Inhalt der Bildschirmdarstellung zutreffend wiedergegeben wird.

WARNING

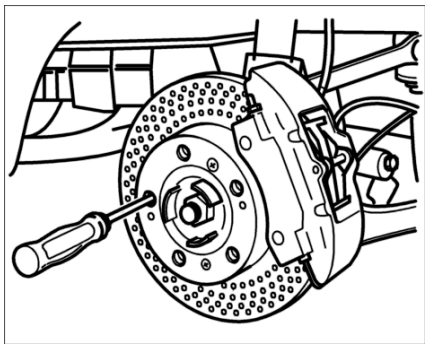
Danger of losing text-figure correspondence when printing out.

46 83 16 Adjusting the parking brake shoes - as of MY 2005

Adjusting the parking brake shoes

This includes: Checking the free play of the handbrake lever and adjusting the parking brake shoes. The parking brake cable cannot be adjusted (automatic cable adjustment).
Checking free play of parking brake lever
The parking brake shoes must be adjusted if the parking brake lever can be pulled up by more than 5 teeth through application of medium force without producing a braking effect.
Adjusting the parking brake shoes

1. Remove the rear wheels.
2. Undo the parking brake lever and push back the disc brake pads of the rear axle until the brake disc can rotate freely.
3. The adjustment fixture can be twisted through the bores in the wheel mounting.



Adjusting the parking brake

4. Turn the brake disc in such a way that the adjustment fixture becomes visible. Using a **-screwdriver-** inserted through the bore, move the adjustment device until the wheel can no longer be turned. To be specific, this means: Put transmission in neutral. Further torque of the brake disc between 50 Nm and 150 Nm (37 ftlb. and 111 ftlb.) (test with torque click wrench on the drive shaft lock nut clockwise). Next, turn the adjustment fixture back again through 4 notches (release approx. 3 notches until the wheel can be turned freely, then release another 1 notch). Repeat the procedure on the other wheel. *Adjusting the parking brake*
5. Pull up the parking brake lever (check free play). If 2 to 4 teeth are engaged, it must be possible to turn both wheels by hand with considerable difficulty.
6. Release the parking brake lever and check whether both wheels can be turned freely.

997110, 997111, 997120, 997121, 997310, 997311, 997320, 997321, 997410, 997411, 997430, 997431, 997610, 997611, 997620, 997621

as of MY 2005
Country C00, C02, C05, C07, C08, C09, C10, C11, C12, C13, C14, C15, C16, C18, C19, C20, C21, C22,

47 01 07 Bleeding brake system - as of MY 2005

- Notes
- Bleeding the brake system

top of page

Notes

Note

- *Observe brake-fluid quality! Use only new DOT 4 brake fluid!*
- *The Super DOT 4 brake fluid must be changed every two years!*
- *This brake fluid is available under the following part numbers: Container quantity 1 litre = 000.043.203.66 Container quantity 30 litres = 000.043.203.67*

top of page

Bleeding the brake system

Procedure for bleeding

1st. Step: Bleed brakes in the normal way (in combination with bleeding device at the brake fluid reservoir and 2.0 bar pressure) (primary circuit).
2nd. Step: In addition, use the Piwis Tester to bleed the brakes (secondary circuit). Only necessary if the hydraulic unit has been replaced and, after bleeding in the normal way (primary circuit), the brake pedal travel is excessive.

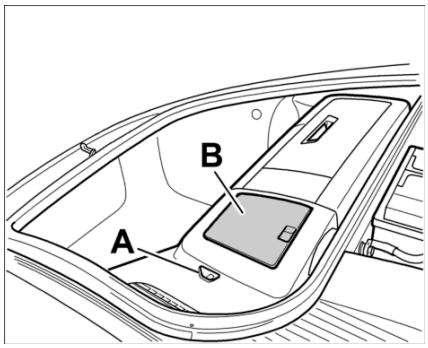
1. Step: Bleeding (primary circuit)

Note

- *Always bleed both bleeder valves on brake caliper!*
- *Bleed the outer bleeder valve first!*

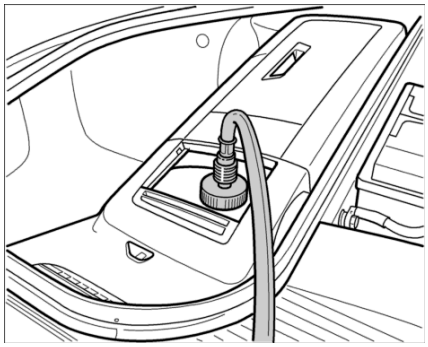
Note

- *If the pedal travel is too long or the pedal feels too soft when applied, carry out bleeding again. Operate (pump) the brake pedal at the same time. A second person is required for this.*
- *Also carry out this procedure if the brake hydraulic system was largely empty.*



Cover over brake fluid reservoir

1. Disengage and remove cover over brake fluid reservoir **-B-** .
2. Open expansion tank.



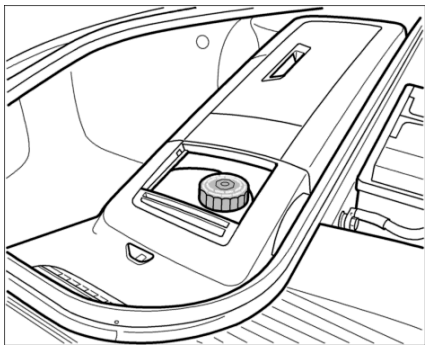
Bleeding brakes

3. Connect a bleeding device to the brake fluid reservoir. Switch on the bleeding device. Bleeding pressure is approx. 2.0 bar.
4. Continue the bleeding procedure at the brake calipers. Do so in the following sequence: rear right/rear left/front right/front left. Bleed the outer bleeder valve first.
5. Use a transparent hose and a collecting bottle to check the escaping brake fluid is clean and free of air bubbles and to determine the amount of brake fluid used.
6. Open each bleeder valve until clear, bubble-free brake fluid emerges.
7. Tighten the bleeder valves to the stipulated tightening torque and remove the bleeder hoses.
8. Generate vacuum in brake booster by starting engine. Check brake-pedal travel and pedal feel.

Check the brake system for residual air by the amount of brake pedal travel. Repeat the bleeding procedure if necessary. Operate (pump) the brake pedal at the same time as described below. This will remove the remaining air bubbles from the primary circuit.

- Open the rear right bleeder valves, then fully rapidly depress the brake pedal hard several times. Hold the brake pedal for 2 to 3 seconds after each depression, then release slowly. Continue bleeding until the brake fluid emerging into the collection bottle is free of bubbles and foam.
- Repeat this procedure in the sequence rear left/front right/front left.

9. If necessary, continue bleeding the secondary circuit (using the Piwis Tester). Only necessary if the hydraulic unit has been replaced and, after bleeding in the normal way (primary circuit), the brake pedal travel is excessive.



Brake fluid level

10. Remove bleeding device from brake fluid reservoir and screw cap on. The brake fluid level in the brake fluid reservoir must be between the MIN and MAX markings once the vehicle has been filled and bled. Adjust the brake fluid level if necessary.

2nd Step: Bleeding (secondary circuit)

Bleeding of the secondary circuit is only necessary if the hydraulic unit has been replaced and, after bleeding in the normal way (primary circuit), the brake pedal travel is excessive.
First bleed brakes as usual (primary circuit). Only then can you carry out bleeding of the secondary circuit with the Piwis Tester. The process is menu-driven. You must observe the specified sequence rear left, front left, front right, rear right.
To bleed the secondary circuit, the bleeding device remains connected to the brake fluid reservoir. Bleeding pressure is approx. 2.0 bar.
Throughout the entire bleeding process, the brake pedal must be operated cyclically (hold depressed for 2 to 3 seconds, then release slowly). After operating pedal for the last time, hold the brake pedal down and close bleeder valve.

997110, 997111, 997120, 997121, 997310, 997311, 997320, 997321, 997410, 997411, 997430, 997431, 997610, 997611, 997620, 997621

as of MY 2005
Country C00, C02, C05, C07, C08, C09, C10, C11, C12, C13, C14, C15, C16, C18, C19, C20, C21, C22, C23, C24, C25, C26, C27, C28, C32, C33, C34, C35, C36, C37, C38, C39, C45, C46, C98, C99

WARNUNG
Gefahr des Verlusts der Text-Bild-Zuordnung beim Ausdruck.

47 08 01 Check brake fluid level - as of MY 2005

- Check brake fluid level

top of page

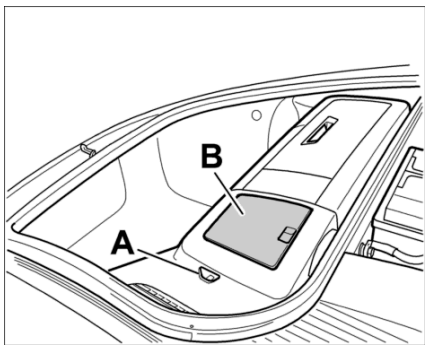
Check brake fluid level

Checking brake fluid level

Note

- *Observe brake fluid quality. Use only new DOT 4 brake fluid.*
- *This brake fluid is available under the following part numbers: Container quantity: 1 litre = 000.043.203.66. 30 litres = 000.043.203.67.*

The brake fluid level in the reservoir must be between the MIN and MAX markings.



Cover over brake fluid reservoir

– Disengage and remove cover over brake fluid reservoir **-B-** . Check brake fluid level.

-A- - Viewing window for brake fluid level (MIN marking only)

-B- - Cover

997110, 997111, 997120, 997121, 997310, 997311, 997320, 997321, 997410, 997411, 997430, 997431, 997610, 997611, 997620, 997621

as of MY 2005
Country C00, C02, C05, C07, C08, C09, C10, C11, C12, C13, C14, C15, C16, C18, C19, C20, C21, C22, C23, C24, C25, C26, C27, C28, C32, C33, C34, C35, C36, C37, C38, C39, C45, C46, C98, C99

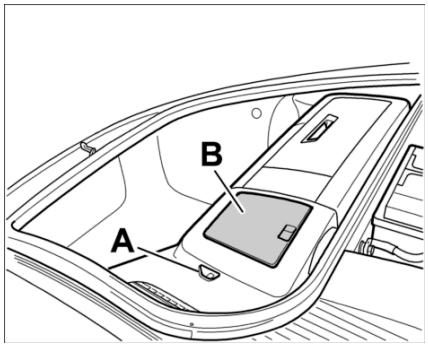
47 08 55 Replacing brake fluid - as of MY 2005

- Replacing brake fluid

top of page

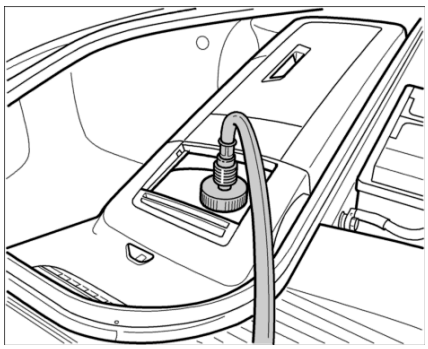
Replacing brake fluid

Changing brake fluid



Cover over brake fluid reservoir

1. Disengage and remove cover over brake fluid reservoir **-B-** .
2. Fill reservoir up to the edge with new brake fluid.



Brakes: changing/bleeding brake fluid

3. Connect a bleeding device to the brake fluid reservoir. Switch on the bleeding device. Bleeding pressure **Changing/bleeding brake fluid: approx. 2.0 bar** .
4. Continue changing the brake fluid at the brake callipers. Do so in the following sequence: rear right/rear left/front right/front left.

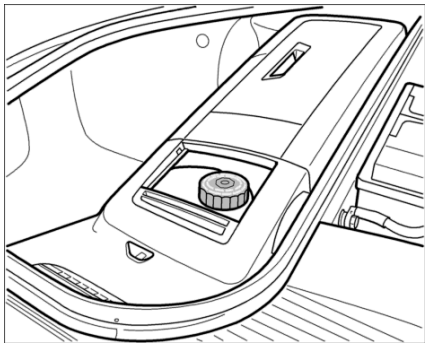
Use a transparent hose and a collecting bottle to check the escaping brake fluid accurately for cleanliness, lack of air bubbles and to determine the brake fluid used.

5. Open every bleeder valve until clear, bubble-free brake fluid emerges and until the corresponding change quantity per brake calliper is reached. Per brake calliper **Changing brake fluid (per**

wheel): approx. 250 cm3 .

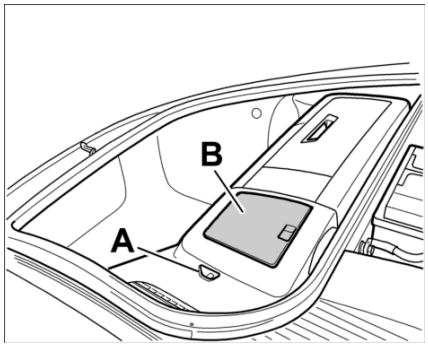
Drain brake fluid on every brake calliper at both bleeder valves.

6. Tighten the bleeder valves to the stipulated tightening torque and remove the bleeder hoses.
7. Also drain off some brake fluid at the bleeder valve of the clutch slave cylinder.



Brake fluid level

8. Remove bleeding device from brake fluid reservoir and screw cap on. The brake fluid level in the brake fluid reservoir must be between the MIN and MAX markings once the vehicle has been filled and bled. Adjust the brake fluid level if necessary.



Cover over brake fluid reservoir

9. Place cover over brake fluid reservoir **-B-** .

997110, 997111, 997120, 997121, 997310, 997311, 997320, 997321, 997410, 997411, 997430, 997431, 997610, 997611, 997620, 997621

as of MY 2005
Country C00, C02, C05, C07, C08, C09, C10, C11, C12, C13, C14, C15, C16, C18, C19, C20, C21, C22, C23, C24, C25, C26, C27, C28, C32, C33, C34, C35, C36, C37, C38, C39, C45, C46, C98, C99

WARNUNG

Gefahr des Verlusts der Text-Bild-Zuordnung beim Ausdruck.

- **Aus technischen Gründen kann derzeit nicht ausgeschlossen werden, dass trotz einwandfreier Darstellung auf dem Bildschirm beim Ausdruck der Zusammenhang von Text und zugehörigem Bild verloren geht.**

48 02 01 Checking the fluid level for the power-assisted steering - as of MY 2005

- Checking the fluid level for the power-assisted steering

top of page

Checking the fluid level for the power-assisted steering

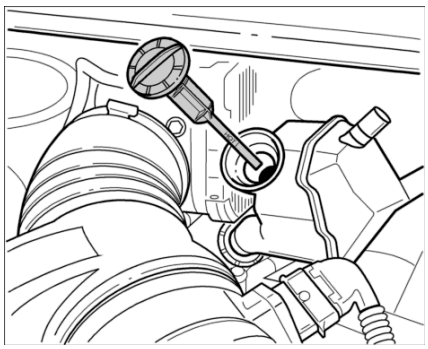
Notes on power-steering fluid

Damage to the power-assisted steering is caused by a shortage of oil in the hydraulic system. Even small leaks can cause the fluid to escape and damage the servo pump as a result of the high oil pressure occurring in the hydraulic circuit.
Grunt-like noises that can be heard when the steering is locked, or foam formation in the reservoir indicate a shortage of oil and/or that air has also been sucked in. Before filling the reservoir, any existing leaks must be eliminated on the suction side. Alternatively, the defective part on the pressure side should be replaced.
Only Pentosin CHF 11 S may be used in the reservoir. Pentosin CHF 11 S can be ordered under the following part number:
Quantity supplied 1 litre = 000.043.203.33.

Checking fluid level for power-assisted steering

Installation Location:

The reservoir is located in the engine compartment.



Checking the level of steering fluid

There are two marks on the dipstick attached to the reservoir cap. One area is marked "Cold" for when the engine is cold **"Cold" mark: approx. 20 °C** and the other is marked "Hot" for when the engine is warmed up **"Hot" mark: approx. 80 °C** .
Check the level of fluid (Pentosin CHF 11 S) when the engine is idling and cold **"Cold" mark: approx. 20 °C** .

1.

Start the engine and let it run for **Period: approx. 20 s** . Switch off engine.

2. Open engine cover. Open reservoir cap.
3. Wipe off the dipstick. Close and then reopen cap. The fluid level should lie in the hatched area beneath the "Cold" mark (mark = maximum level) at **"Cold" mark: approx. 20 °C** . Top up with Pentosin if necessary. The higher mark "Hot" is for a fluid temperature of **"Hot" mark: approx. 80 °C** .

Do not add too much Pentosin! The respective marks are for the maximum fluid level at the "COLD" or "HOT" temperature.
If assembly work was performed previously, check fluid level with the engine idling and without operating the steering.
Multiple steering movements (manoeuvring) with the engine switched off change the fluid level in the reservoir - fluid level rises. In this case, the engine must be run for at least 20 seconds immediately prior to the fluid level check.
When topping up or filling in Pentosin, make sure that it does not come into contact with the coolant hoses! If coolant hoses come into contact with Pentosin, thoroughly clean them with water IMMEDIATELY! Replace visibly swollen coolant hoses!

Checking the steering system for leaks (visual check)

With engine idling, turn steering wheel as far as the stop and hold still. The maximum possible line pressure results in this way.
In this position, check all pipe connections for leaks.
Carry out testing for a maximum of **Period: 10 s** . A longer check should always be interrupted by a brief pause after approximately **Period: 10 s** .

Bleeding the steering system

1. To fill the whole system after the installation of new steering components or lines or after a substantial loss of hydraulic fluid, briefly start the engine a few times and, when it fires, switch it off again immediately. This procedure causes the fluid level in the reservoir to fall rapidly, so constantly add Pentosin CHF 11 S. The reservoir must not be sucked dry.
2. If the fluid level in the reservoir does not fall any further when the engine is briefly turned over, start the engine and let it run at idling speed.
3. Rapidly turn the steering wheel from full-lock to full-lock several times so that the air can escape from the cylinders. At the end positions of the piston, do not pull the steering wheel with more force than is necessary in order to turn the steering (to prevent unnecessary build-up of pressure initially).
4. Observe fluid level during this procedure. If it continues to fall, add fluid until the level in the reservoir remains constant and no more air bubbles rise in the reservoir when the steering wheel is turned.
5. Correct the fluid level with the engine at idling speed and without moving the steering.

997110, 997111, 997120, 997121, 997310, 997311, 997320, 997321, 997410, 997411, 997430, 997431, 997610, 997611, 997620, 997621

48 10 19 Removing and installing steering wheel - as of MY 2005

- Preliminary work
- Removal
- Installation

top of page

Preliminary work

A5 Work instructions after disconnecting the battery - Disconnecting
21 Removing and installing driver's airbag unit - Removing

Warning notes for removing and installing steering wheel

WARNING

Danger of injury and material damage as a result of incorrect handling of airbag units! Always observe the safety regulations for handling airbag units ***Safety regulations for airbag and belt tensioner units*****.**

- **In the case of incorrect handling, system faults may occur resulting in the triggering of the airbag or failure to do so.**

The airbag unit must always be placed so that the airbag opening faces upwards.

If removed for an extended period, the airbag unit must be kept in a locked place.

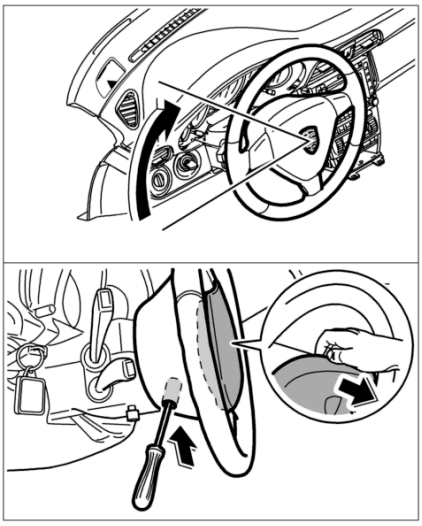
Switch off ignition and leave ignition key inserted (steering must not be locked). Disconnect battery . Route or isolate the ground strap so that all contact with a ground carrier (e.g. body, seat frame) is avoided. *Work instructions after disconnecting the battery*.

After the battery is disconnected, always wait for 1 minute before disconnecting the airbag connectors.

top of page

Removal

1. Disconnect battery . "Rep. Gr. 9 Work instructions after disconnecting the battery."



Releasing driver's airbag unit

2. Remove steering wheel airbag unit "Rep.-Gr. 695819 Removing and installing steering wheel airbag unit.".
3. Turn wheels to straight-ahead position. Before removing steering wheel, put a mark (e.g. colour marking) on steering wheel and steering column (centring of airbag spiral spring).
4. Remove steering wheel by releasing multiple-tooth screw.

top of page

Installation

Note

- *The steering wheel is made of magnesium alloy. The tightening torques must be strictly observed.*
- *Wheels straight ahead and observe the previously-applied marking.*
- *Replace multiple-tooth screw after each removal (micro-encapsulated thread).*
- *Observe tightening torque.* ***Tightening torque: 50 (37 ftlb.) Nm***
- *Airbag unit must lock with an audible click! Check by pulling at airbag unit.*

Installation of the steering wheel takes place in reverse order.

997110, 997111, 997120, 997121, 997310, 997311, 997320, 997321, 997410, 997411, 997430, 997431, 997610, 997611, 997620, 997621

as of MY 2005
Country C00, C02, C05, C07, C08, C09, C10, C11, C12, C13, C14, C15, C16, C18, C19, C20, C21, C22, C23, C24, C25, C26, C27, C28, C32, C33, C34, C35, C36, C37, C38, C39, C45, C46, C98, C99

48 15 19 Removing and installing steering column - as of MY 2005

- Preliminary work
- Removing the steering column
- Installing the steering column
- Subsequent work

top of page

Preliminary work

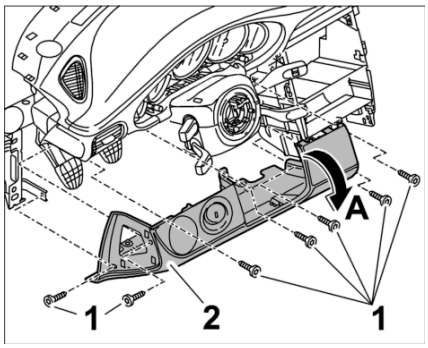
Preliminary work

1. Ignition key in position 1. Then ignition key in position 0 = (switch ignition off but do not remove key so that electronic steering wheel locking does not lock). Then disconnect battery.
2. Remove airbag unit for driver 695819 Removing and installing driver's airbag unit
3. Turn steering wheel to a straight-ahead position and remove it 481019 Removing and installing steering wheel.

Note

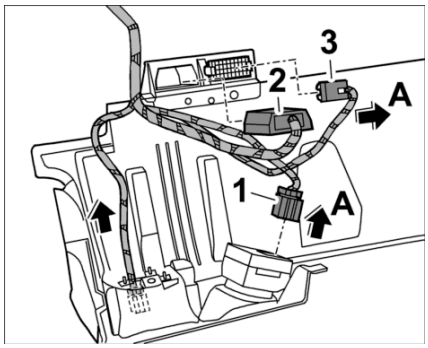
- *For better accessibility, move the height adjustment (steering wheel) of the steering column to the appropriate position and close the locking lever.*

4. Remove main headlight switch. To do this, press in rotary knob on the light switch (not to the stop) and turn the switch clockwise. Pull out the light switch in this position. Release and remove connector.



Removing trim panel (lower part of dashboard)

5. Remove trim panel (lower part of dashboard) *7019 19 Removing and installing trim panel under dashboard*. Unscrew the fastening screws **-1-** and swivel the cover under the dashboard on the driver's side **-2-** downwards **-Arrow A-** .



Disconnecting the electrical plug connections

6. Release plug connections **-1, 2, 3-** and remove **-Arrows A-** .
7. Remove clutch pedal on vehicles with manual transmission 300519 Removing and installing the clutch pedal.

top of page

Removing the steering column

ATTENTION

Increase risk when handling airbag modules.

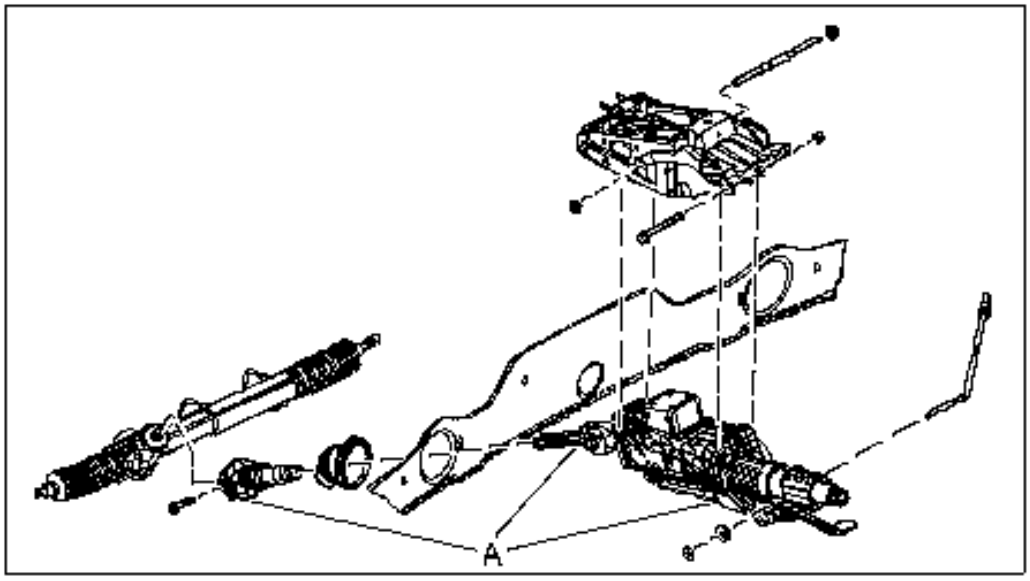
- **Injuries and material damage due to incorrect handling of airbag units are possible** ***69 AW Safety regulations for handling vehicles with airbag and belt tensioner - Chapter "General warning notes".***

Observe safety regulations for handling airbag modules.

Note

- *The height adjustment (steering wheel) of the steering column must be in the lower stop and the locking lever closed.*
- *The electronic locking unit (ELV) must be open (ignition key plugged in, then disconnect battery).*

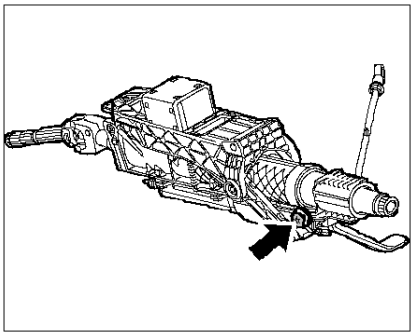
As a spare part, the steering column **-A-** is delivered complete with steering shaft.



Overview, steering column

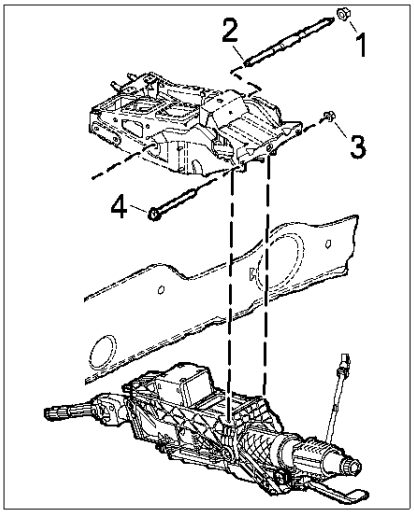
A - Steering column with steering shaft

1. Remove trim panel of steering column switch and remove steering column switch *9450 19 Removing and installing steering column switch.*



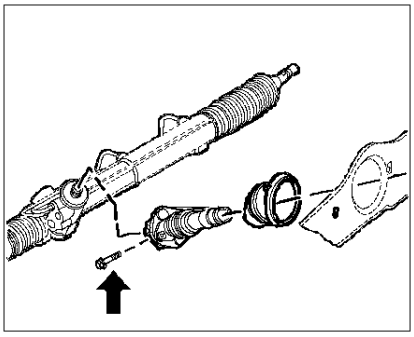
Strut on steering column

2. Loosen strut on retaining frame (arrow shows mount on steering column). *Strut on steering column*
3. Remove KESSY/PAS control unit.



Steering column mounting

4. Loosen lower steering column mount. To do this, loosen the lock nut **-1-** approx. 3 turns. Then unscrew the pedal bearing axle on the hexagon **-2-** approx. 2 turns (anti-clockwise).
5. Loosen upper steering column mount (loosen lock nut **-3-** /remove hexagon-head bolt **-4-**) and extend the steering column.
6. Remove front underbody panel.



Steering shaft to steering gear

7. Loosen fastening screw **-arrow-** and pull off steering shaft (universal joint) on the steering gear.

top of page

Installing the steering column

ATTENTION

Increase risk when handling airbag modules.

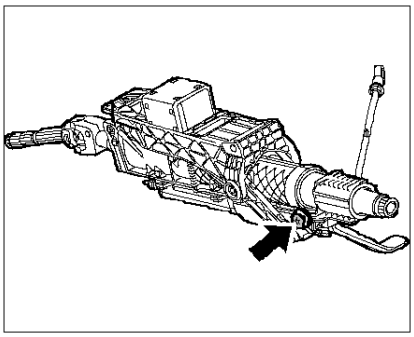
- **Injuries and material damage due to incorrect handling of airbag units are possible** ***69 AW Safety regulations for handling vehicles with airbag and belt tensioner - Chapter "General warning notes".***

Observe safety regulations for handling airbag modules.

Note

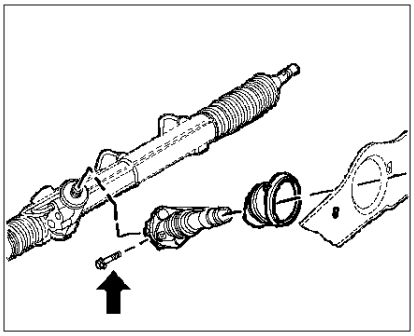
- *Observe the tightening sequence on the mounting bracket.*
- *Once the battery is disconnected, perform the relevant work required to fully restore driving 9 Work instructions after disconnecting the battery.*
- *Calibrate steering-angle sensor 456000 Initialising and calibrating steering-angle sensor - chapter on "Calibrating".*
- *If the steering column is replaced (new steering column), the electric steering column locking mechanism (ELV) must be taught with the Piwis Tester in the PAS system, menu Learning functions* ***>> Teach ELV <<****. You can get the necessary Teach Enable Code (TEC code) from IPAS or from your importer using the vehicle identification number.*
- *Always replace the fastening screw for the universal joint of the steering column.*
- *Replace locking screws and nuts.*
- *Replace the clamping washer (strut mount to steering column).*
- *Carry out a visual inspection of all parts.*
- *Observe correct tightening torques 48 Tightening torques for steering.*

Individual components cannot be disassembled and/or replaced.



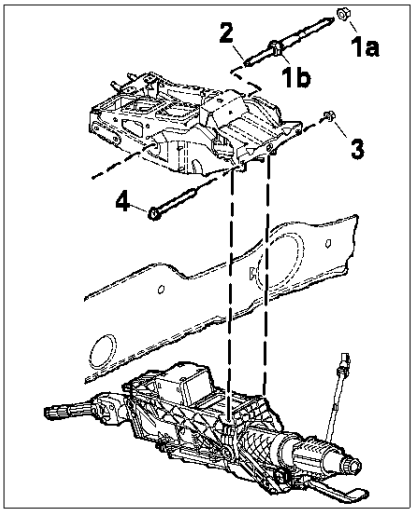
Strut to steering column

1. Before installing the steering column, mount the strut **-arrow-** without play on the steering column.



Steering shaft to steering gear

2. Put steering gear in centre position. Make sure that the clip for steering gear pinion is present (steering shaft assembly aid). Mount the steering shaft (universal joint) to the steering gear in the correct position using new hexagon-head bolt **-arrow-** .



Steering column tightening sequence

3. Insert the steering column and pay attention to the block teeth of the steering shaft (the steering shaft can only paired be in one position! 2. worker required). Tightening sequence for mounting:

1. - Pedal bearing axle on a/f 10 mm hexagon **-2-** (tightening torque 8 + 2 Nm (6 + 1.5 ftlb.))

2. - Lock nut right **-1a-** (tightening torque 10 Nm (7.5 ftlb.)). Then lock nut for steering column **-1b-** (tightening torque 46 Nm (34 ftlb.)).

3. - Lock nut of upper mount **-3-** (tightening torque 46 Nm (34 ftlb.))

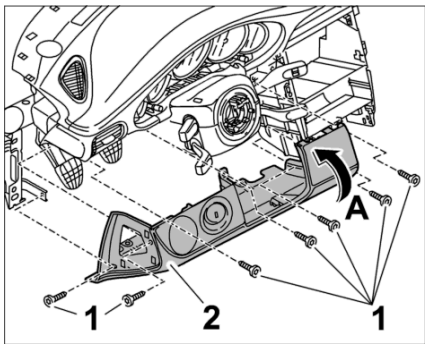
4. Install front underbody panel.
5. Install KESSY/PAS control unit.
6. Put steering column in the lowermost adjustment position and close the locking lever again. In this position, fasten the strut to the structure (this allows the adjustment range to move smoothly in all positions).
7. Install the steering-column switch and the trim panel from the steering-column switch *9450 19 Removing and installing steering-column switch.*

top of page

Subsequent work

Subsequent work

1. Install clutch pedal on vehicles with manual transmission 300519 Removing and installing the clutch pedal.



Installing lining

2. Mount linings under dashboard *7019 19 Removing and installing trim panel under dashboard*.
3. Install main headlight switch. To do this, insert the connector until it is felt to engage. Push in the light switch to the stop and turn the rotary switch anti-clockwise.
4. Install steering wheel *4810 19 Removing and installing the steering wheel*.
5. Install airbag unit for driver *6958 19 Removing and installing driver's airbag unit*
6. Connect the battery *9 Work instructions after disconnecting the battery*.

Note

If the steering column is replaced (new steering column), the electric steering column locking mechanism (ELV) must be taught with the Piwis Tester **in the PAS system**, menu Learning functions **>> Teach ELV <<**. You can get the necessary Teach Enable Code (TEC code) from IPAS or from your importer using the vehicle identification number.

7. Read out all fault memories and delete them, if necessary.
8. Carry out suspension alignment.
9. After the suspension alignment, with the position of the wheels >> straight ahead << calibrate the steering-angle sensor on the measuring platform.
10. Carry out a test drive and check the operation (continuous easy steering movements, steering column adjustment, electronic steering column lock).

997110, 997111, 997120, 997121, 997310, 997311, 997320, 997321, 997410, 997411, 997430, 997431, 997610, 997611, 997620, 997621

48 90 19 Removing and installing power-steering gear - as of MY 2005

- Preliminary work
- General warning notes
- Removal
- Installation
- Subsequent work

Tools

Designation	Type	Number	Explanation	
screwdriver	special tool	P 9546		
press-out tool	special tool	P 9560		

top of page

Preliminary work

Preliminary work

1. Raise the vehicle *401000 Lifting the vehicle*.
2. Remove front wheels 440519 Removing and installing wheel.
3. Remove front underbody panel 519219 Removing and installing front cover.

top of page

General warning notes

General warning notes

ATTENTION

Increased risk of accidents if too much Pentosin is used or if Pentosin comes into contact with the coolant hoses when filling or topping up.

- **Possible danger of injury or damage.**

Multiple steering operations (manoeuvring) with the engine switched off change the fluid level in the reservoir. In this case, the engine must be running immediately prior to the fluid level check.

If coolant hoses come into contact with Pentosin, clean them thoroughly with water IMMEDIATELY.

Replace visibly swollen coolant hoses.

Note

- *Before the feed and return lines are loosened, place a suitable container underneath to collect steering fluid.*
- *Wear protective goggles and gloves.*

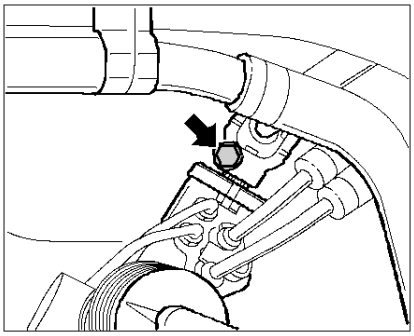
top of page

Removal

Removing

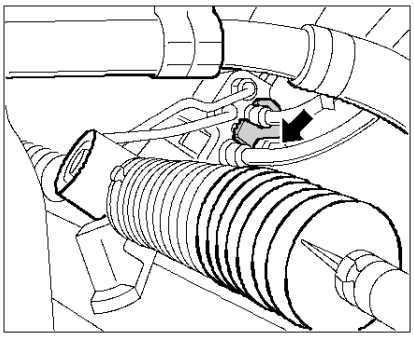
Note

Fix the steering wheel with the wheels in straight-ahead position or remove the steering wheel with the wheels in straight-ahead position. If this is not done, the airbag contact unit will have to be put in centre position after installation of the steering gear.



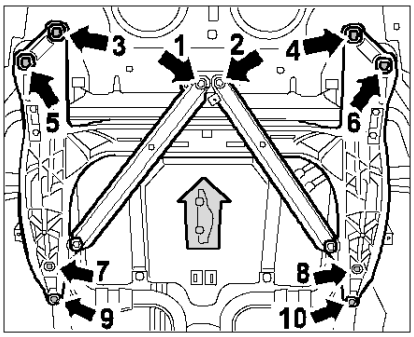
Universal joint

1. Loosen universal joint (steering shaft) at steering gear **-Arrow-** . For this purpose, take out the clamping screw and slide the joint upwards.
2. Press tie-rod end out of steering arm. Use **press-out tool P 9560** (ball-joint extractor). When loosening the lock nut, counter with a **screwdriver P 9546** (Torx screwdriver).
3. Repeat procedure on the other side.



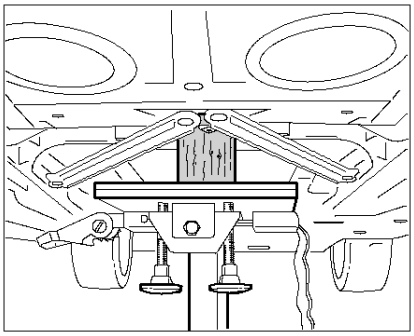
Retainer plate

4. Loosen feed and return lines at the steering gear. To do this, loosen the hexagon socket-head bolt **-Arrow-** and remove the retainer plate. Plug lines or use collecting container. Cover lines if necessary (danger of soiling).
5. Loosen the two steering-gear fastening screws (on the underside of the cross member).



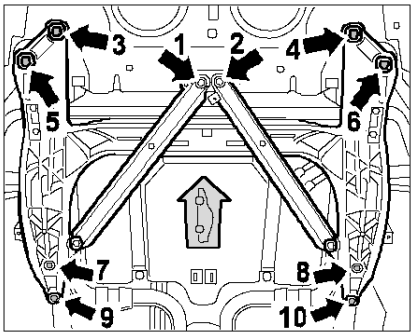
Cross member with diagonal brace to body

6. Loosen screws **-1+2-** on the two (front) diagonal braces.



Supporting cross member

7. Lower vehicle to working height (lower platform lift) and support cross member with a hydraulic lift (use hard rubber base or wooden block: **-see Figure-**).

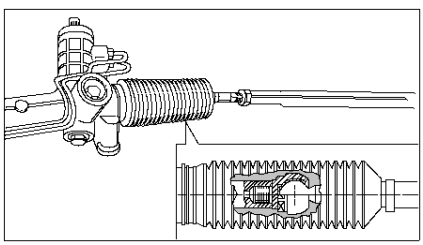


Cross member with diagonal brace to body

8. Loosen threaded connections **-3+4-** securing cross member to body (front) and threaded connections **-5+6-** securing cross member with diagonal arm to body (front) (screws **-1+2-** have already been removed).
9. Loosen threaded connections securing cross member to body (rear) **-7+8-** and screw out **-9+10-** by approx. 10 mm.
10. Lower front cross member slightly (approx. 50 to 60 mm).
11. Pull out steering gear to the left (to the right for right-hand drive vehicles).

Note

Ensure that no damage (scoring) is caused to the steering rack. To loosen and tighten the tie rods, secure the steering gear on a suitable plate.



Tie rod on steering gear

12. If necessary, loosen and remove right and left tie rods at steering gear.

top of page

Installation

Installing

Note

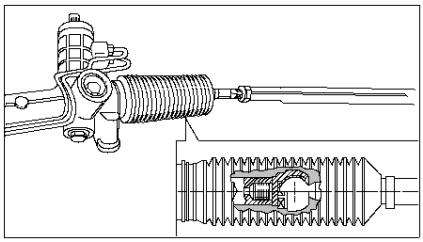
When topping up or filling in Pentosin, make sure that it does not come into contact with the coolant hoses. Observe the specifications in order to avoid overfilling, and thus overflowing.

- *If coolant hoses come into contact with Pentosin, clean them thoroughly with water IMMEDIATELY.*
- *Replace visibly swollen coolant hoses.*
- *Tighten all threaded connections to the specified tightening torque.*

Install in reverse order. It is essential to observe the following points while doing so:

– Replace steering-gear fastening screws, the fit bolt of the steering shaft and the steering-wheel fastening screw whenever they have been removed. Screw threads must be clean and free of grease.

– Ensure that no damage (scoring) is caused to the steering rack.



Tie rod on steering gear

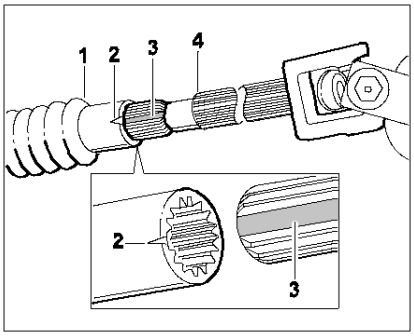
– Mount the tie rods on the steering gear. Then secure the respective bellows with new clamping rings *Tie rod on steering gear* .

– Position red plastic clip on steering-gear pinion. The plastic clip ensures that the fastening screw between the universal joint and steering pinion sits into the groove on the steering pinion.

– Push on universal joint (steering shaft) with the steering gear and steering wheel or airbag contact unit (spring) in centre position. For ease of assembly, just insert steering-gear fastening screws.

– Observe following notes for sliding piece and airbag contact unit!

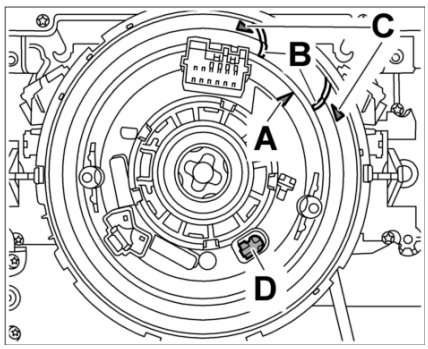
Notes for sliding piece and airbag contact unit



Sliding piece

1. If sliding piece **-1-** was pulled off the steering shaft **-4-** , the notch **-2-** must point towards the tooth gap **-3-** during assembly.
2. If the steering wheel was not fixed before the steering gear was removed, the position of the contact unit (spring) may no longer be correct. In this case, remove steering wheel and move contact unit to centre position because otherwise the spring will be damaged.

Contact unit in centre position



Contact unit

– To position the airbag contact unit in centre position, press the latch **-D-** and turn the rotor **-A-** carefully to the left as far as it will go.
– Then (from the furthest left position) turn the rotor **-A-** carefully to the right, approx. 3.5 to 3.75 turns, until the band printed on one side is visible in the window.

3. Turn front wheels to straight-ahead position before fitting the steering wheel (steering shaft mounted on steering gear).

top of page

Subsequent work

Subsequent work

1. After fitting the pressure lines, fill steering hydraulics with Pentosin and bleed the steering system.
2. Fit front underbody panel 519219 Removing and installing front cover.
3. Fit front wheels 440519 Removing and installing wheel.

4. Adjust toe 449503 Performing front and rear suspension alignment. Calibrate steering-angle sensor if necessary.

997110, 997111, 997120, 997121, 997310, 997311, 997320, 997321, 997410, 997411, 997430, 997431, 997610, 997611, 997620, 997621

as of MY 2005
Country C00, C02, C05, C07, C08, C09, C10, C11, C12, C13, C14, C15, C16, C18, C19, C20, C21, C22, C23, C24, C25, C26, C27, C28, C32, C33, C34, C35, C36, C37, C38, C39, C45, C46, C98, C99

WARNUNG

Gefahr des Verlusts der Text-Bild-Zuordnung beim Ausdruck.

- **Aus technischen Gründen kann derzeit nicht ausgeschlossen werden, dass trotz einwandfreier Darstellung auf dem Bildschirm beim Ausdruck der Zusammenhang von Text und zugehörigem Bild verloren geht.**
- **Wird der Fehler nicht bemerkt, besteht die Gefahr, daß Arbeiten nicht korrekt durchgeführt werden und es dadurch zu Personen- und Sachschäden kommt.**

Vergleichen Sie deshalb nach dem Druckvorgang unbedingt die Ausdrucke mit der Bildschirmdarstellung. Korrigieren Sie die Ausdrucke im Fehlerfall so, daß der Inhalt der Bildschirmdarstellung zutreffend wiedergegeben wird.

WARNING

Danger of losing text-figure correspondence when printing out.

- **For technical reasons, it can currently not be ruled out that the correspondence between text and associated figure can be lost when it is printed out, even though the display on the screen is correct.**
- **If the fault is not noticed, there is the danger that work will not be performed correctly which can cause injury and damage.**

Therefore, always compare printouts with the screen display after printing them out. Correct the printouts if they are faulty so that the content of the screen display matches that on the printouts.

AVERTISSEMENT

Risque de perte de la correspondance texte-illustration lors de l'impression papier.

- **Pour des raisons techniques, il ne peut pas être exclu à l'heure actuelle que, même en cas d'affichage correct à l'écran, la correspondance entre le texte et l'illustration puisse être erronée sur l'impression papier.**
- **Si l'erreur passe inaperçue, on court le risque d'exécuter certaines opérations de manière incorrecte pouvant conduire à des dommages corporels et matériels.**

50 10 55 Replacing closing panel - as of MY 2005

- General warning notes
- Tools and materials
- Preliminary work for body repairs with alignment bench
- Preliminary work for body repairs
- Removing closing panel
- Fitting front closing panel and preparing for installation
- Installing front closing panel
- Reworking

Tools

Designation	Type	Number	Explanation	
Pneumatic body saw No. PS1, see Gr. 3.5; Workshop Equipment Manual	commercially available tool	00000		
Press-out tool	special tool	97290		
Star gauges for body gap dimensions	commercially available tool	NR.127-1		
Spotweld drill	commercially available tool	NR.129		

Inverter welding equipment ATL Inverterspot	workshop equipment	WE1194		

top of page

General warning notes

Safety instructions for body repairs

5 AW Safety instructions - General warning notes

top of page

Tools and materials

Tools and materials

Spotweld drill NR.129 Star gauges for body gap dimensions NR.127-1
Press-out tool 97290
Pneumatic body saw No. PS1, see Gr. 3.5; Workshop Equipment Manual 00000
Angle grinder, see Gr. 3.5; see Workshop Equipment Manual 00000
Oscillating body saw (special electrical cutter), see Gr. 3.5; Workshop Equipment Manual 00000
Rotary brush, see Gr. 3.5; Workshop Equipment Manual 00000
Hole punch, see Gr. 3.5; Workshop Equipment Manual 00000
Leister Elektron hot-air gun, see Gr. 3.5; Workshop Equipment Manual 00000
Inverter welding equipment ATL Inverterspot WE1194

Basic straightening attachments for 911 Carrera (996), see Gr. 3.5; Workshop Equipment Manual 00000
Additional straightening attachments for 911 Carrera (997), see Gr. 3.5; Workshop Equipment Manual 00000
Pneumatic spotweld remover, Vario Drill No. WS 90, see Gr. 3.5; Workshop Equipment Manual 00000

top of page

Preliminary work for body repairs with alignment bench

Preliminary work for body repairs with alignment bench

1. Removing accessories in the repair area
1.1. Remove accessories in the repair area according to the extent of damage to the vehicle.
2. Equipping alignment bench with straightening kit
2.1. Equip alignment bench with the basic straightening attachments according to the plans included with the straightening attachments.
3. Placing vehicle on the alignment bench
3.1. Position vehicle on alignment bench, align according to the reference holes and bolt firmly to the attachment set.
4. Covering accessories adjacent to the vehicle repair area
4.1. Cover all accessories remaining on the vehicle and the neighbouring areas with fire-proof, protective covers.
5. Reshaping connection area of the sheetmetal parts to be replaced
6. Exposing welding areas
6.1. Remove undersealing, paint, etc. from the welding areas of the body with a hot-air gun or rotary brush.

top of page

Preliminary work for body repairs

Preliminary work for body repairs

Note

- *If it can be ensured there has been no deformation of the vehicle structure, the following repair can be carried out without the need of a straightening bench. In this case, the vehicle must not be raised when welding the component; it must stand on its wheels on an even surface.*

1. Removing add-on parts in the repair area

1.1. Remove add-on parts in the repair area according to the extent of damage to the vehicle.

2. Equipping straightening bench with straightening attachments

2.1. Equip straightening bench with the straightening attachments according to the plans included with the straightening attachments.

3. Placing vehicle on the straightening bench

3.1. Position vehicle on the straightening bench, align according to the reference holes and bolt firmly to the attachment set.

4. Covering add-on parts adjacent to the vehicle repair area

4.1. Cover all add-on parts remaining on the vehicle and the neighbouring areas with fire-proof, protective covers.

5. Reshaping connection area of the sheetmetal parts to be replaced

6. Exposing welding areas

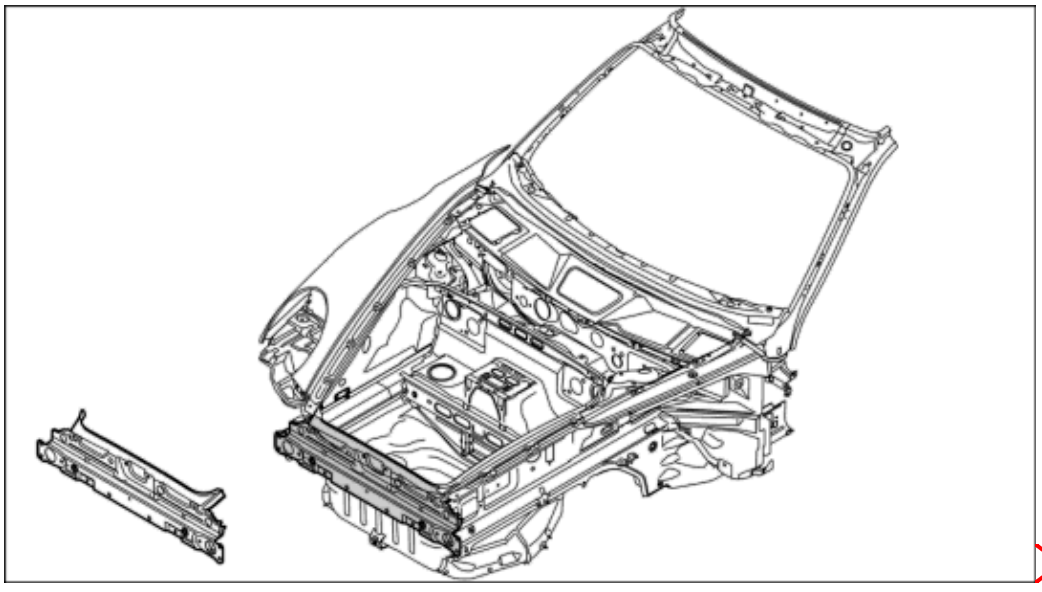
6.1. Remove undersealing, paint, etc. from the welding areas of the body with a hot-air gun or rotary brush.

top of page

Removing closing panel

Removing end plate

Installation Location:

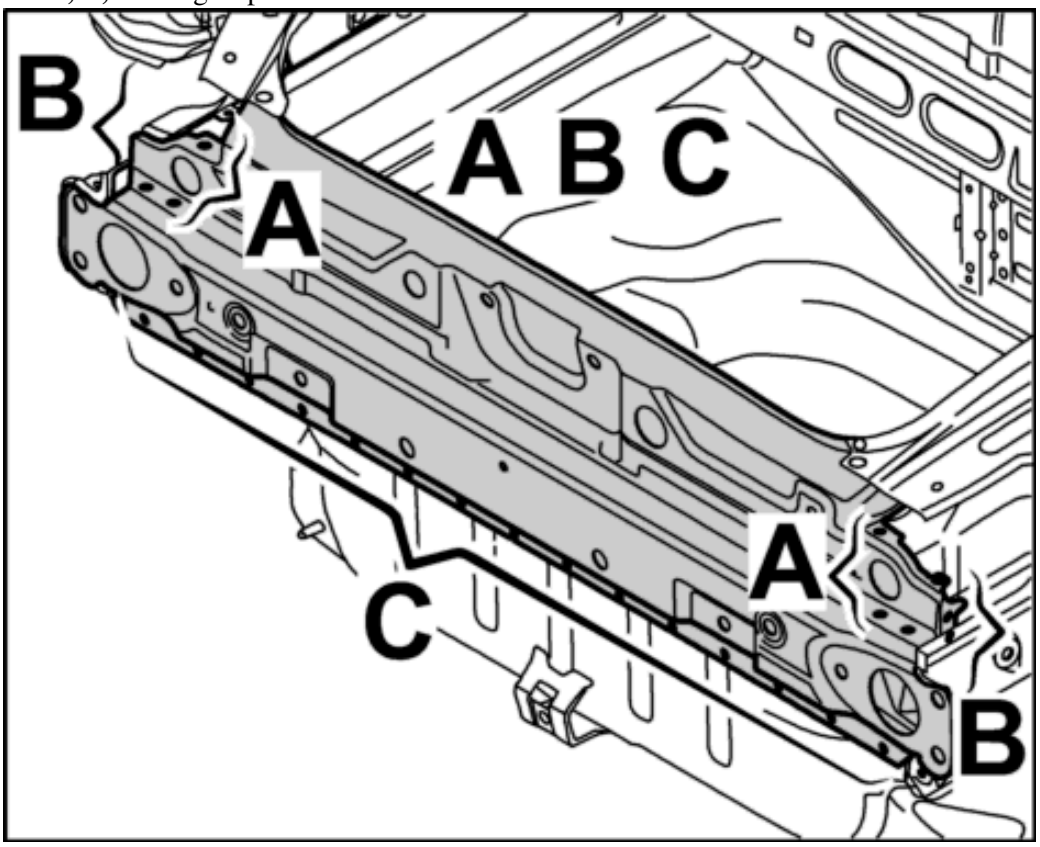


Front closing panel spare part

1. Mill off spotweld in the area of the outer front closing panel using a spotweld cutter.

1.1.

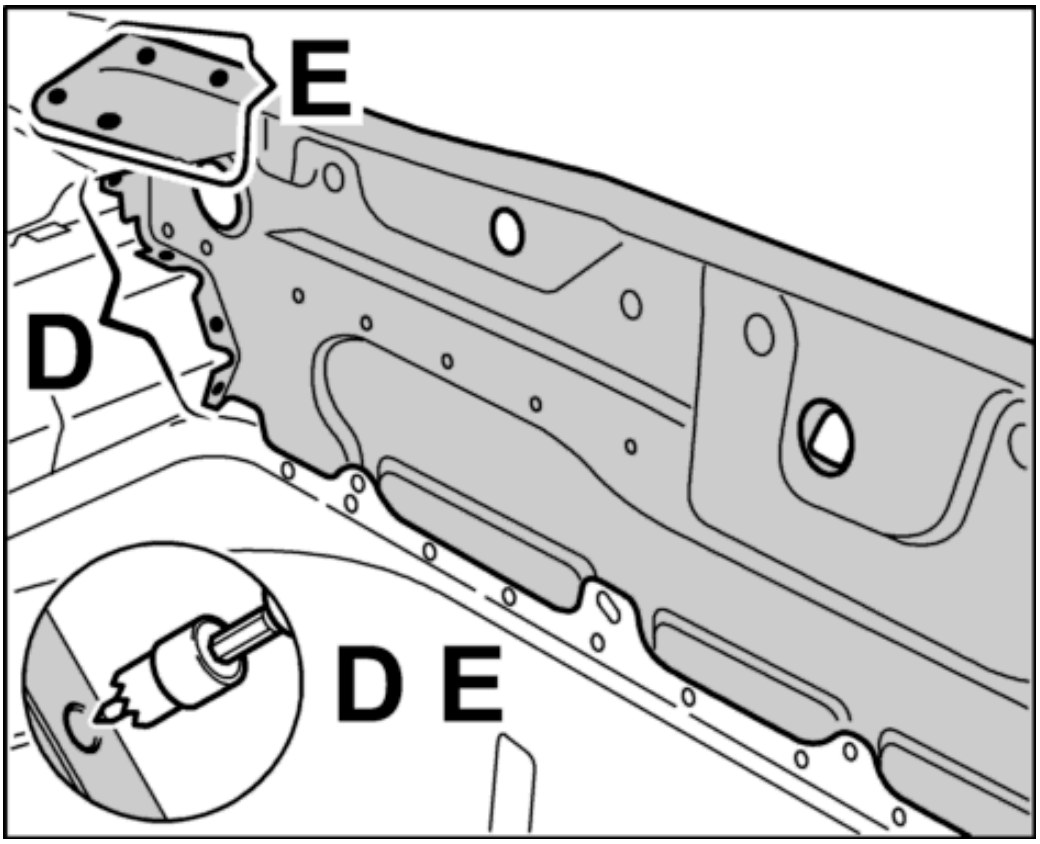
Mill off spotweld in the area where the front closing panel meets the floor front section and side members **A, B, C** using a spotweld cutter.



Milling off spotweld in the area of the outer front closing panel

2. Mill off spotweld in the area of the front closing panel using a spotweld cutter.

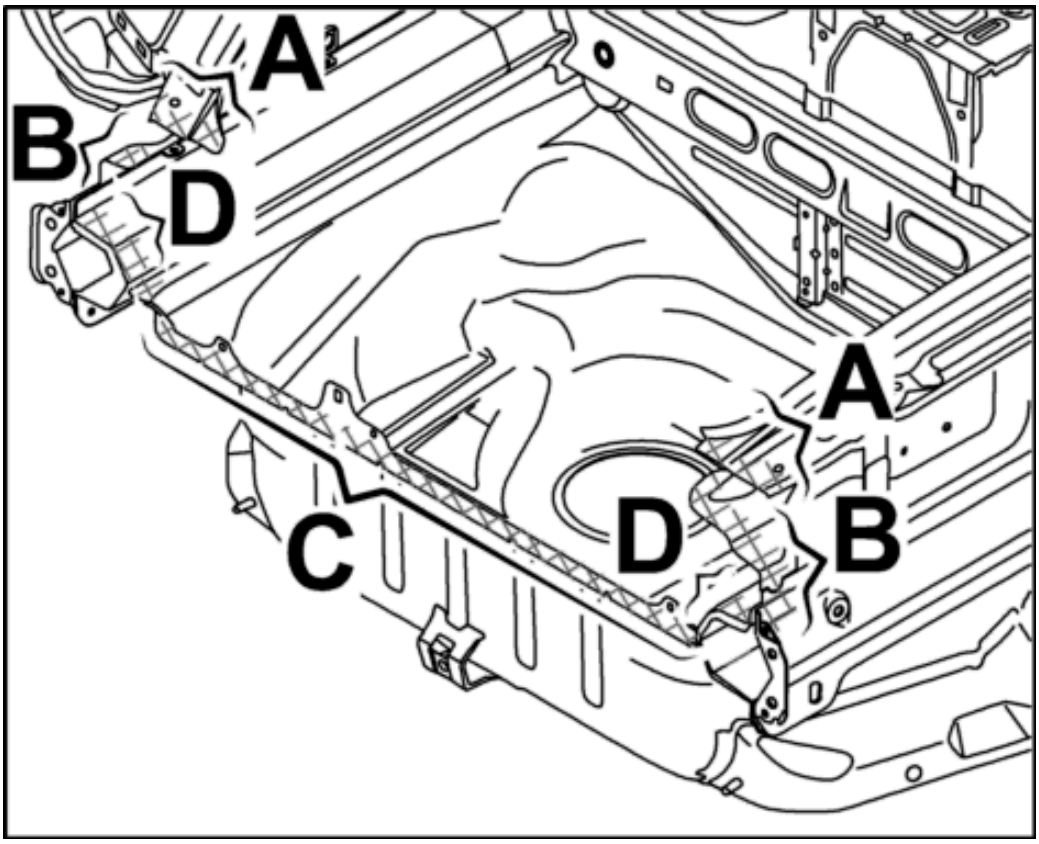
2.1. Mill off spotweld in the area where the front closing panel meets the wheel housings **D** using a spotweld cutter.



Milling off spotweld in the area of the inner front closing panel

Preparing connection areas of body for installing end plate

1. Clean the body connecting flanges of undersealing, adhesive residue and paint in the marked areas using a hot-air gun or rotary brush. Grind the connecting flanges until they are bare. **A, B, C, D**



Preparing connection areas of body for installing end plate

top of page

Fitting front closing panel and preparing for installation

Safety instructions for sharp-edged body and unit parts

ATTENTION

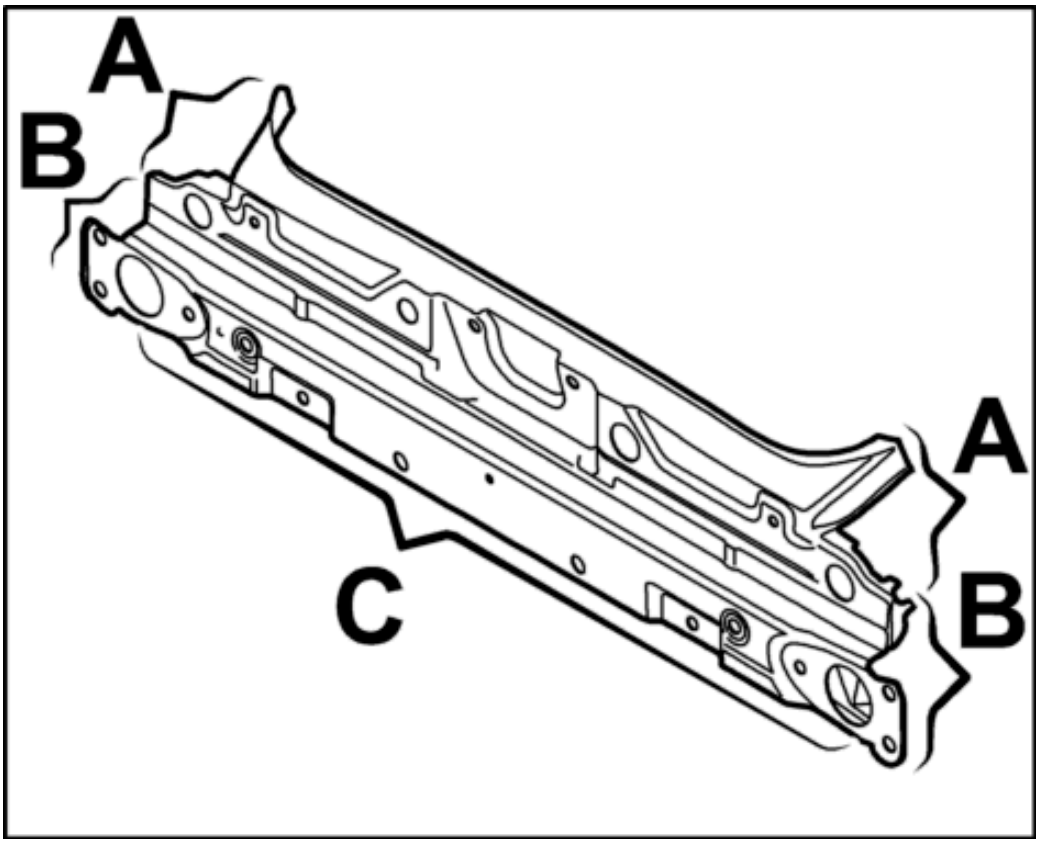
Danger of injury! Sharp-edge burrs on body and unit parts!

- **Injuries from sharp edges on body and unit parts.**

Wear protective gloves when working in the area of sharp-edged body and unit parts!

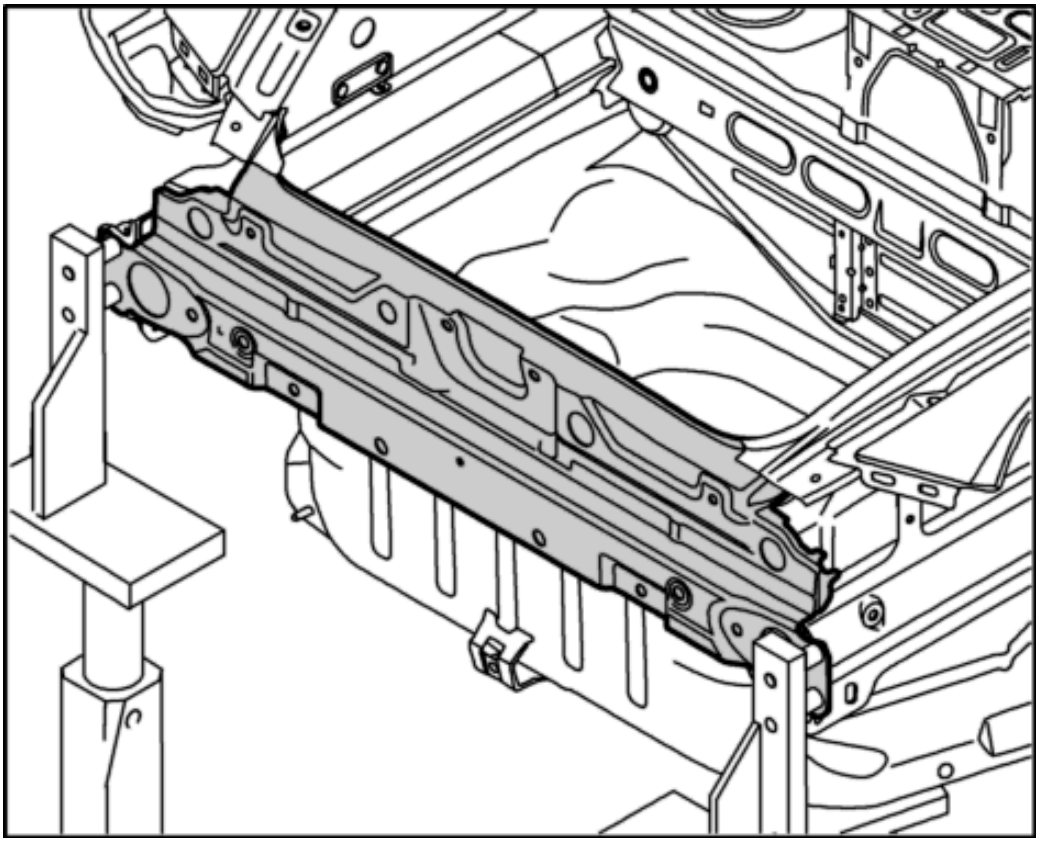
Fitting front closing panel and preparing for installation

1. Remove the factory-applied primer on the welding areas of the spare parts **A, B, C** using the rotary brush.



Preparing front closing panel for installation

2. Fasten front closing panel spare parts to the straightening set for the impact absorbers and adjust as required.



top of page

Installing front closing panel

Danger of injury when welding

DANGER

Risk of fatal injury from high voltage during electric welding!

- **Danger of explosion and fire when welding in the area of highly inflammable materials.**
- **Irritation to respiratory tracts from toxic zinc oxide emitted when welding galvanised steel!**
- **Danger of injury from unintentional triggering of pyrotechnical safety components!**
- **Danger of injury from weld spatters and UV light when welding!**

Do not perform welding work in a damp environment or on wet ground; there is a risk of fatal injury from the voltage being conducted through the human body. Persons with heart pacemakers should not perform welding work. Use insulating underlays.

Remove highly flammable materials from the work area; if necessary, remove units with fuel-carrying parts and protect work areas in the vehicle that are at risk of catching fire using fire-proof covers.

Ventilate the work area well.

Remove smoke gases with a suitable extraction system (refer to Workshop Equipment Manual).

Wear suitable protective equipment, such as protective clothing, gloves, a welding shield and, if necessary, a protective mask.

For welding work, always disconnect both terminals on the battery. In the case of welding work in the immediate vicinity of the control modules for pyrotechnical safety systems, remove the control modules before beginning work.

In addition, the guidelines of the welding equipment manufacturer and the legal accident prevention regulations and those of the mutual indemnity association (BGV D1) must be observed.

Safety instructions for flying sparks during grinding and welding work

ATTENTION

Danger of explosion and fire from flying sparks during grinding and welding work!

- **Danger of injury and danger of damage to vehicle parts and other vehicles due to flying sparks**

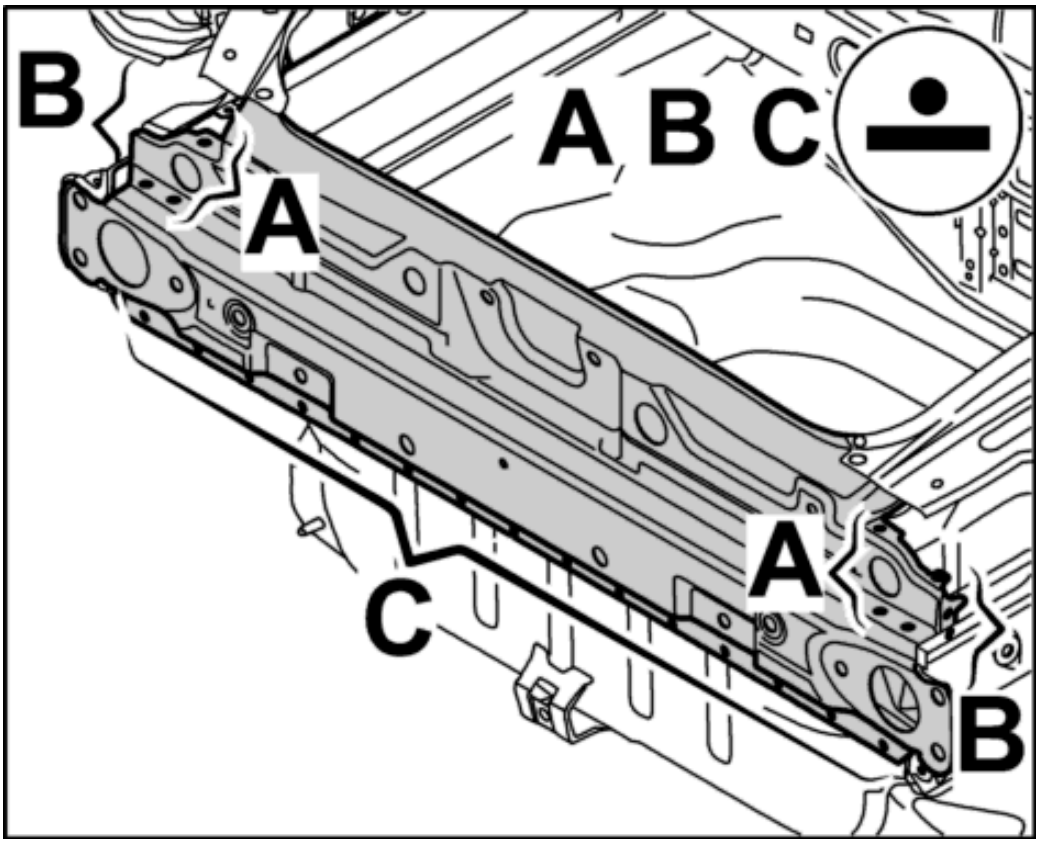
Cover vehicle parts such as battery, fuel system, paintwork, glass and passenger compartment parts with fire-proof covers and, if necessary, remove batteries and fuel-carrying components.

No other vehicles may be left unprotected in areas used for body repair!

Installing front closing panel

1. Spot-welding outer front closing panel

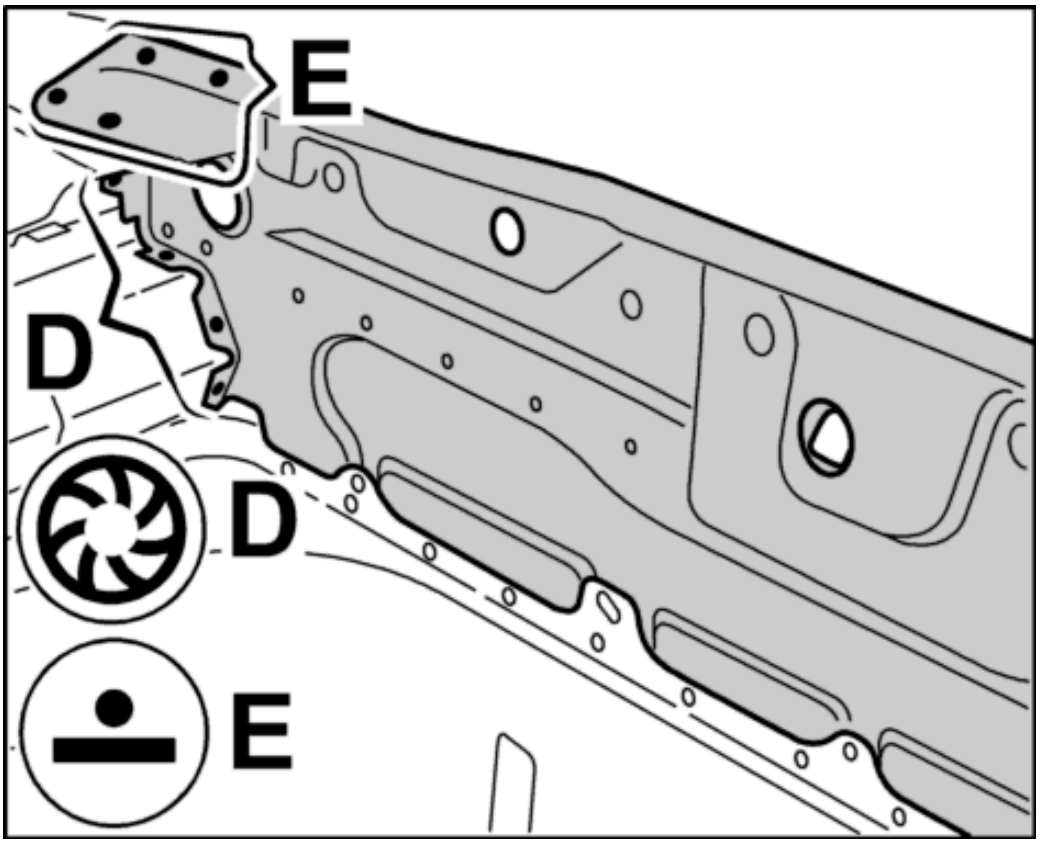
1.1. Spot-weld the front closing panel to the floor front section **C**, side members and wheel housings **A, B**.



Spot-welding outer front closing panel

2. Welding inner front closing panel using inert gas and spot-welding

2.1. Weld the front closing panel to the floor front section **D**, and spot-weld to the wheel housings **E**.



Welding inner front closing panel using inert gas and spot-welding

top of page

Reworking

Subsequent work for body repairs

1. Remove vehicle from the alignment bench.
2. Clean welded joints and sheetmetal flanges with a wire brush.
3. Prime flange areas with 2K primer.
4. Restore standard sealing with body sealant.
   5 Seam sealing
5. Restore standard undersealing with underbody sealant.
   5 Underbody protection
6. Paint repair area and adjacent surfaces, if necessary.
7. Install removed accessories in the repair area.
8. Apply cavity preservation.

50 14 55 Replacing front panel - as of MY 2005

- General warning notes
- Tools and materials
- Preliminary work for body repairs with alignment bench
- Removing front panel
- Preparing connection areas of the body for installing the front panel
- Preparing front panel for installation
- Installing front panel
- Subsequent work

Tools

Designation	Type	Number	Explanation	
Pneumatic body saw No. PS1, see Gr. 3.5; Workshop Equipment Manual	commercially available tool	00000		
Press-out tool	special tool	97290		
Star gauges for body gap dimensions	commercially available tool	NR.127-1		
Spotweld drill	commercially available tool	NR.129		

Inverter welding equipment ATL Inverterspot	workshop equipment	WE1194		

top of page

General warning notes

Safety instructions for body repairs

5 AW Safety instructions - General warning notes

top of page

Tools and materials

Tools and materials

Spotweld drill NR.129 Star gauges for body gap dimensions NR.127-1
Press-out tool 97290
Pneumatic body saw No. PS1, see Gr. 3.5; Workshop Equipment Manual 00000
Angle grinder, see Gr. 3.5; see Workshop Equipment Manual 00000
Oscillating body saw (special electrical cutter), see Gr. 3.5; Workshop Equipment Manual 00000
Rotary brush, see Gr. 3.5; Workshop Equipment Manual 00000
Hole punch, see Gr. 3.5; Workshop Equipment Manual 00000
Leister Elektron hot-air gun, see Gr. 3.5; Workshop Equipment Manual 00000
Inverter welding equipment ATL Inverterspot WE1194

Basic straightening attachments for 911 Carrera (996), see Gr. 3.5; Workshop Equipment Manual 00000
Additional straightening attachments for 911 Carrera (997), see Gr. 3.5; Workshop Equipment Manual 00000
Pneumatic spotweld remover, Vario Drill No. WS 90, see Gr. 3.5; Workshop Equipment Manual 00000

top of page

Preliminary work for body repairs with alignment bench

Preliminary work for body repairs with alignment bench

1. Removing accessories in the repair area
1.1. Remove accessories in the repair area according to the extent of damage to the vehicle.
2. Equipping alignment bench with straightening kit
2.1. Equip alignment bench with the basic straightening attachments according to the plans included with the straightening attachments.
3. Placing vehicle on the alignment bench
3.1. Position vehicle on alignment bench, align according to the reference holes and bolt firmly to the attachment set.
4. Covering accessories adjacent to the vehicle repair area
4.1. Cover all accessories remaining on the vehicle and the neighbouring areas with fire-proof, protective covers.
5. Reshaping connection area of the sheetmetal parts to be replaced
6. Exposing welding areas
6.1. Remove undersealing, paint, etc. from the welding areas of the body with a hot-air gun or rotary brush.

Preliminary work for body repairs

Note

- *If it can be ensured there has been no deformation of the vehicle structure, the following repair can be carried out without the need of a straightening bench. In this case, the vehicle must not be raised when welding the component; it must stand on its wheels on an even surface.*

1. Removing add-on parts in the repair area
1.1. Remove add-on parts in the repair area according to the extent of damage to the vehicle.
2. Equipping straightening bench with straightening attachments
2.1. Equip straightening bench with the straightening attachments according to the plans included with the straightening attachments.

3. Placing vehicle on the straightening bench

3.1. Position vehicle on the straightening bench, align according to the reference holes and bolt firmly to the attachment set.

4. Covering add-on parts adjacent to the vehicle repair area

4.1. Cover all add-on parts remaining on the vehicle and the neighbouring areas with fire-proof, protective covers.

5. Reshaping connection area of the sheetmetal parts to be replaced

6. Exposing welding areas

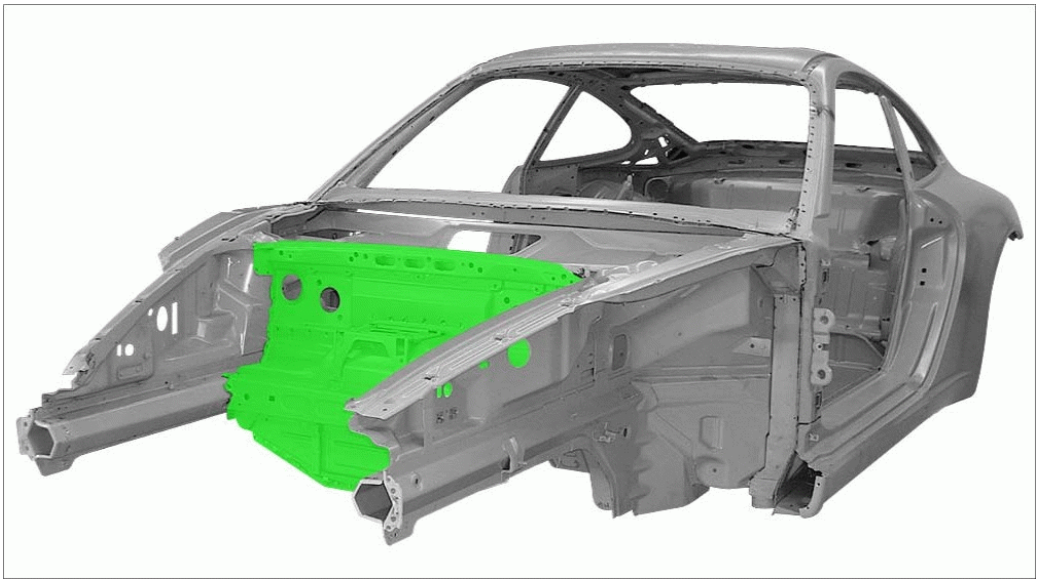
6.1. Remove undersealing, paint, etc. from the welding areas of the body with a hot-air gun or rotary brush.

top of page

Removing front panel

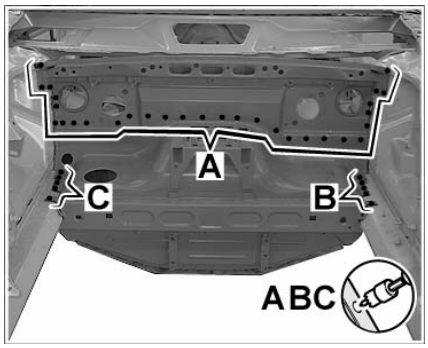
Removing front panel

Installation Location:



Installation position of front panel

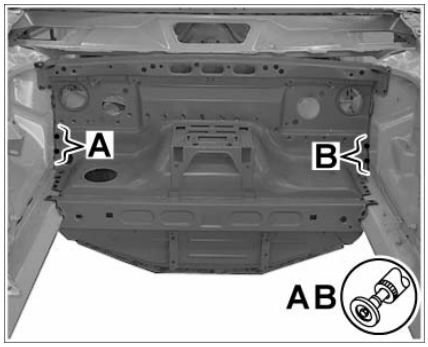
1. Remove end plate. 501055 Replacing end plate - section on "Removing"
2. Remove floor front section. 502055 Replacing floor front section - section on "Removing"



Milling off spotwelds

3. Milling off spotwelds

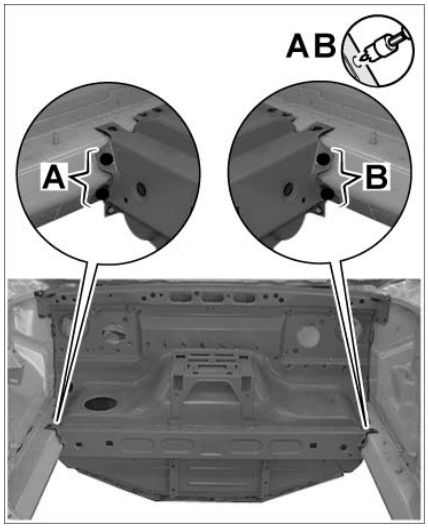
3.1. Mill off spotwelds in areas **-A, B, C-** using a spotweld cutter.



Separating spotwelds

4. Separating spotwelds

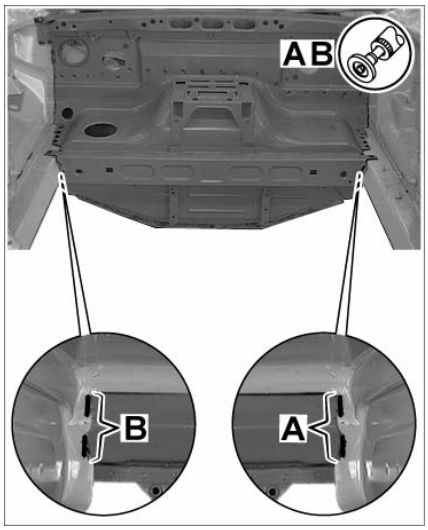
4.1. Separate spotwelds in areas **-A-** and **-B-** using a parting grinder.



Milling off spotwelds

5. Milling off spotwelds

5.1. Mill off spotwelds in areas **-A-** and **-B-** using a spotweld cutter.



Separating spotwelds

6. Separating inert-gas welded seams

6.1. Separate inert-gas welded seams in areas **-A-** and **-B-** using a parting grinder.

top of page

Preparing connection areas of the body for installing the front panel

Safety instructions for flying sparks during grinding and welding work

ATTENTION

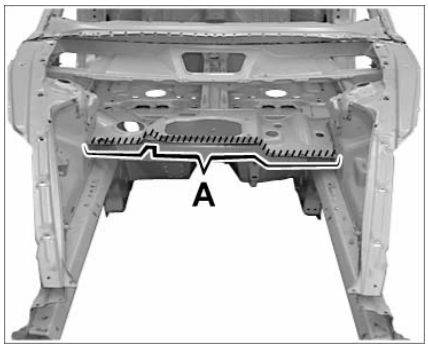
Danger of explosion and fire from flying sparks during grinding and welding work!

- **Danger of injury and danger of damage to vehicle parts and other vehicles due to flying sparks**

Cover vehicle parts such as battery, fuel system, paintwork, glass and passenger compartment parts with fire-proof covers and, if necessary, remove batteries and fuel-carrying components.

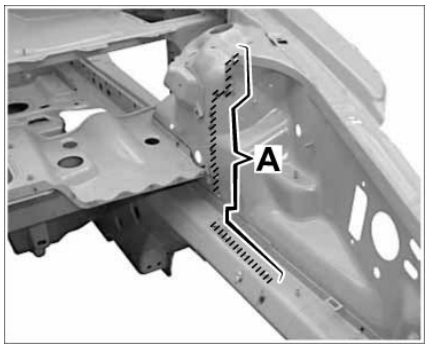
No other vehicles may be left unprotected in areas used for body repair!

Preparing connection areas of the body for installing the front panel



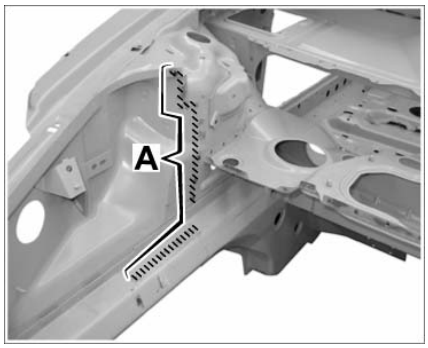
Cleaning the welding areas

1. Clean undersealing, adhesive residue and paint off the body connecting flanges in the marked area **-A-** using a hot-air gun or rotary brush. Grind the connecting flanges until bare.



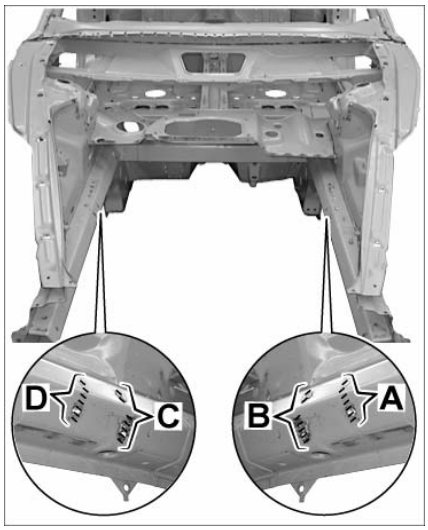
Cleaning the welding areas

2. Clean undersealing, adhesive residue and paint off the body connecting flanges in the marked area **-A-** using a hot-air gun or rotary brush. Grind the connecting flanges until bare.



Cleaning the welding areas

3. Clean undersealing, adhesive residue and paint off the body connecting flanges in the marked area **-A-** using a hot-air gun or rotary brush. Grind the connecting flanges until bare.



Cleaning the welding areas

4. Clean undersealing, adhesive residue and paint off the body connecting flanges in the marked areas **-A, B, C, D-** using a hot-air gun or rotary brush. Grind the connecting flanges until bare.
5. Coating spot-weld flange areas with zinc powder paint

5.1. Coat spot-weld flange areas with zinc powder paint.

top of page

Preparing front panel for installation

Safety instructions for sharp-edged body and unit parts

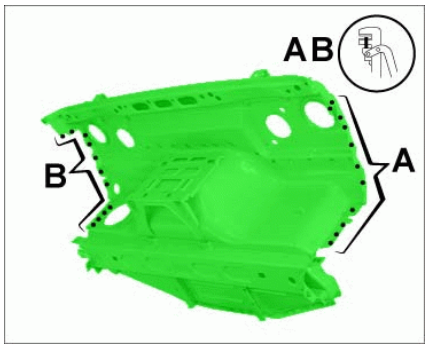
ATTENTION

Danger of injury! Sharp-edge burrs on body and unit parts!

- **Injuries from sharp edges on body and unit parts.**

Wear protective gloves when working in the area of sharp-edged body and unit parts!

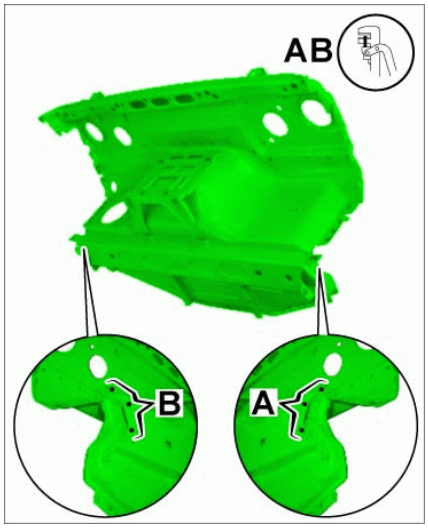
Preparing front panel for installation



Punching holes for plug welding using inert gas

1. Punching holes for plug welding using inert gas

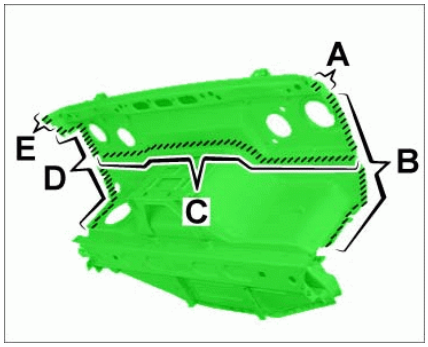
1.1. Punch holes (Ø = 7 mm) in areas **-A-** and **-B-** for plug welding using inert gas. Maintain spacing between the bores as on the old part.



Punching holes for plug welding using inert gas

2. Punching holes for plug welding using inert gas

2.1. Punch holes (Ø = 7 mm) in areas **-A-** and **-B-** for plug welding using inert gas. Maintain spacing between the bores as on the old part.

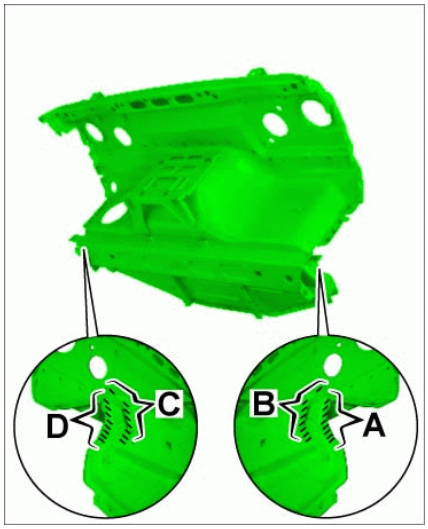


Cleaning the welding areas

3. Cleaning the welding areas

3.1. Grind both sides of the connecting flanges of the front panel in the marked areas **-A, B, C, D, E-** until

bare using a rotary brush.



Cleaning the welding areas

4. Cleaning the welding areas

4.1. Grind both sides of the connecting flanges of the front panel in the marked areas **-A, B, C, D-** until bare using a rotary brush.

5. Coating spot-weld flange areas with zinc powder paint

5.1. Coat spot-weld flange areas with zinc powder paint.

top of page

Installing front panel

Danger of injury when welding

DANGER

Risk of fatal injury from high voltage during electric welding!

- **Danger of explosion and fire when welding in the area of highly inflammable materials.**
- **Irritation to respiratory tracts from toxic zinc oxide emitted when welding galvanised steel!**
- **Danger of injury from unintentional triggering of pyrotechnical safety components!**
- **Danger of injury from weld spatters and UV light when welding!**

Do not perform welding work in a damp environment or on wet ground; there is a risk of fatal injury from the voltage being conducted through the human body. Persons with heart pacemakers should not perform welding work. Use insulating underlays.

Remove highly flammable materials from the work area; if necessary, remove units with fuel-carrying parts and protect work areas in the vehicle that are at risk of catching fire using

fire-proof covers.

Ventilate the work area well.

Remove smoke gases with a suitable extraction system (refer to Workshop Equipment Manual).

Wear suitable protective equipment, such as protective clothing, gloves, a welding shield and, if necessary, a protective mask.

For welding work, always disconnect both terminals on the battery. In the case of welding work in the immediate vicinity of the control modules for pyrotechnical safety systems, remove the control modules before beginning work.

In addition, the guidelines of the welding equipment manufacturer and the legal accident prevention regulations and those of the mutual indemnity association (BGV D1) must be observed.

Installing front panel

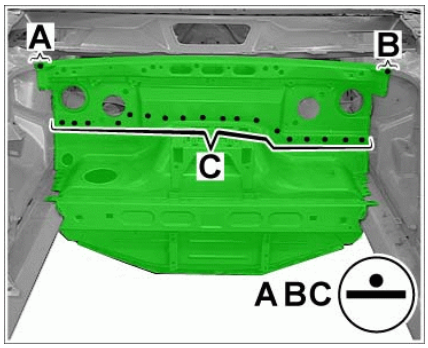
1. Fitting the front panel to the body

1.1. Fit the front panel to the side member and right and left wheel housings and fix in place with tensioning clamps.

1.2. Fit floor front section and end plate to the body and fix in place with tensioning clamps.

1.3. Tack-weld the front panel.

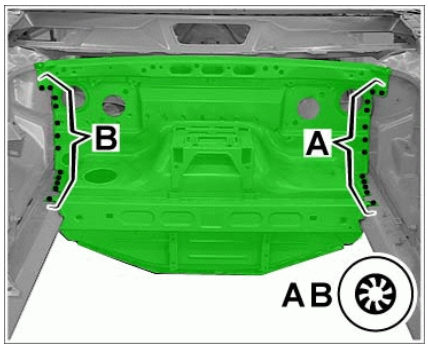
1.4. Remove floor front section and end plate.



Welding in the front panel

2. Welding in the front panel

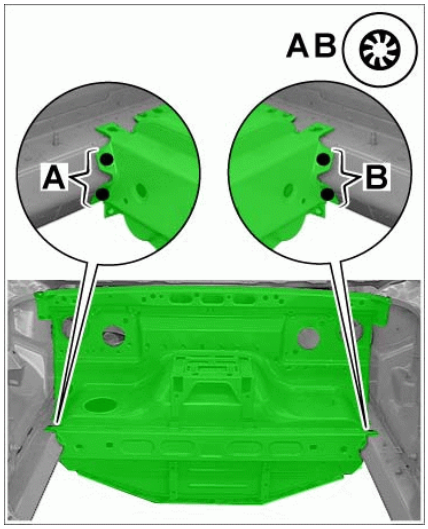
2.1. Resistance spot-weld the front panel in areas **-A, B, C-** .



Welding in the front panel

3. Welding in the front panel

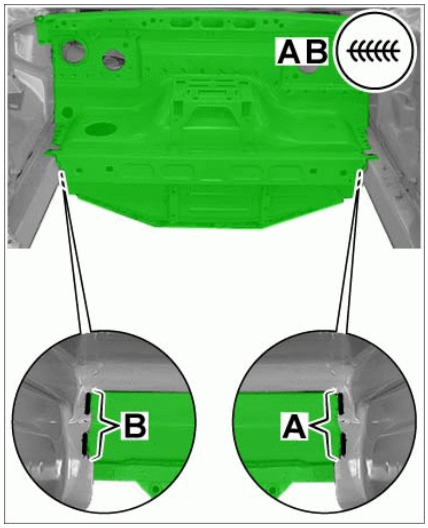
3.1. Plug-weld the front panel in areas **-A-** and **-B-** using inert gas.



Welding in the front panel

4. Welding in the front panel

4.1. Plug-weld the front panel in areas **-A-** and **-B-** using inert gas.



Welding in the front panel

5. Welding in the front panel

5.1. Apply a full weld to the front panel in the marked areas using inert gas.
6. Install floor front section. 502055 Replacing floor front section - section on "Installing"
7. Install end plate. 501055 Replacing end plate - section on "Installing"

top of page

Subsequent work

Subsequent work for body repairs

1. Remove vehicle from the alignment bench.
2. Clean welded joints and sheetmetal flanges with a wire brush.
3. Prime flange areas with 2K primer.
4. Restore standard sealing with body sealant.
   5 Seam sealing
5. Restore standard undersealing with underbody sealant.
   5 Underbody protection
6. Paint repair area and adjacent surfaces, if necessary.
7. Install removed accessories in the repair area.
8. Apply cavity preservation.

997110, 997111, 997120, 997121, 997310, 997311, 997320, 997321

as of MY 2005
Country C00, C02, C05, C07, C08, C09, C10, C11, C12, C13, C14, C15, C16, C18, C19, C20, C21, C22, C23, C24, C25, C26, C27, C28, C32, C33, C34, C35, C36, C37, C38, C39, C45, C46, C98, C99

WARNUNG

Gefahr des Verlusts der Text-Bild-Zuordnung beim Ausdruck.

- **Aus technischen Gründen kann derzeit nicht ausgeschlossen werden, dass trotz einwandfreier Darstellung auf dem Bildschirm beim Ausdruck der Zusammenhang von Text und zugehörigem Bild verloren geht.**
- **Wird der Fehler nicht bemerkt, besteht die Gefahr, daß Arbeiten nicht korrekt durchgeführt werden und es dadurch zu Personen- und Sachschäden kommt.**

Vergleichen Sie deshalb nach dem Druckvorgang unbedingt die Ausdrucke mit der Bildschirmdarstellung. Korrigieren Sie die Ausdrucke im Fehlerfall so, daß der Inhalt der Bildschirmdarstellung zutreffend wiedergegeben wird.

50 20 55 Replacing front floor panel - as of MY 2005

- General warning notes
- Tools and materials
- Preliminary work for body repairs
- Removing floor front section
- Preparing connection areas of the body for installing front floor panel
- Installing front floor panel
- Subsequent work

Tools

Designation	Type	Number	Explanation	
Pneumatic body saw No. PS1, see Gr. 3.5; Workshop Equipment Manual	commercially available tool	00000		
Press-out tool	special tool	97290		
Star gauges for body gap dimensions	commercially available tool	NR.127-1		
Spotweld drill	commercially available tool	NR.129		

Inverter welding equipment ATL Inverterspot	workshop equipment	WE1194		

top of page

General warning notes

Safety instructions for body repairs

5 AW Safety instructions - General warning notes

top of page

Tools and materials

Tools and materials

Spotweld drill NR.129 Star gauges for body gap dimensions NR.127-1
Press-out tool 97290
Pneumatic body saw No. PS1, see Gr. 3.5; Workshop Equipment Manual 00000
Angle grinder, see Gr. 3.5; see Workshop Equipment Manual 00000
Oscillating body saw (special electrical cutter), see Gr. 3.5; Workshop Equipment Manual 00000
Rotary brush, see Gr. 3.5; Workshop Equipment Manual 00000
Hole punch, see Gr. 3.5; Workshop Equipment Manual 00000
Leister Elektron hot-air gun, see Gr. 3.5; Workshop Equipment Manual 00000
Inverter welding equipment ATL Inverterspot WE1194

Basic straightening attachments for 911 Carrera (996), see Gr. 3.5; Workshop Equipment Manual 00000
Additional straightening attachments for 911 Carrera (997), see Gr. 3.5; Workshop Equipment Manual 00000
Pneumatic spotweld remover, Vario Drill No. WS 90, see Gr. 3.5; Workshop Equipment Manual 00000

top of page

Preliminary work for body repairs

Preliminary work for body repairs with alignment bench

1. Removing accessories in the repair area
1.1. Remove accessories in the repair area according to the extent of damage to the vehicle.
2. Equipping alignment bench with straightening kit
2.1. Equip alignment bench with the basic straightening attachments according to the plans included with the straightening attachments.
3. Placing vehicle on the alignment bench
3.1. Position vehicle on alignment bench, align according to the reference holes and bolt firmly to the attachment set.
4. Covering accessories adjacent to the vehicle repair area
4.1. Cover all accessories remaining on the vehicle and the neighbouring areas with fire-proof, protective covers.
5. Reshaping connection area of the sheetmetal parts to be replaced
6. Exposing welding areas
6.1. Remove undersealing, paint, etc. from the welding areas of the body with a hot-air gun or rotary brush.

Preliminary work for body repairs

Note

- *If it can be ensured there has been no deformation of the vehicle structure, the following repair can be carried out without the need of a straightening bench. In this case, the vehicle must not be raised when welding the component; it must stand on its wheels on an even surface.*

1. Removing add-on parts in the repair area
1.1. Remove add-on parts in the repair area according to the extent of damage to the vehicle.
2. Equipping straightening bench with straightening attachments
2.1. Equip straightening bench with the straightening attachments according to the plans included with the straightening attachments.

3. Placing vehicle on the straightening bench

3.1. Position vehicle on the straightening bench, align according to the reference holes and bolt firmly to the attachment set.

4. Covering add-on parts adjacent to the vehicle repair area

4.1. Cover all add-on parts remaining on the vehicle and the neighbouring areas with fire-proof, protective covers.

5. Reshaping connection area of the sheetmetal parts to be replaced

6. Exposing welding areas

6.1. Remove undersealing, paint, etc. from the welding areas of the body with a hot-air gun or rotary brush.

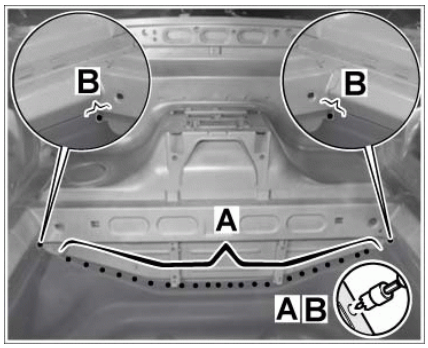
top of page

Removing floor front section

Removing floor front section

Installation Location:

Installation position of floor front section

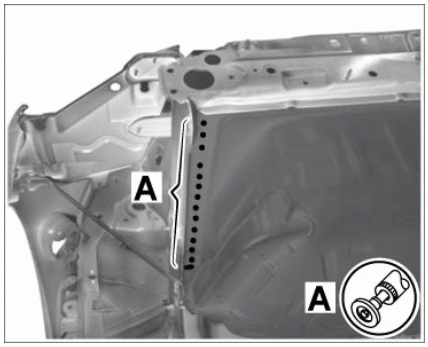


Cutting the spotwelds

1. Mill off spotwelds.

1.1. Mill off spotwelds applied to the front panel in area **-A-** (2 plate thicknesses).

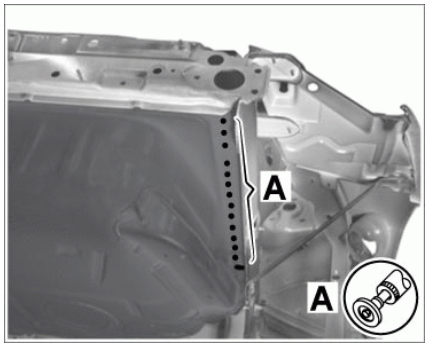
1.2. Mill off spotwelds in area **-B-** (1 plate thickness).



Separating spotwelds

2. Separate spotwelds.

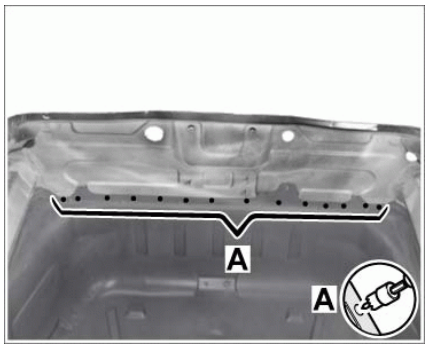
2.1. Separate spotwelds applied to the right side member in area **-A-** from below.



Separating spotwelds

3. Separate spotwelds.

3.1. Separate spotwelds applied to the left side member in area **-A-** from below.



Cutting the spotwelds

4. Mill off spotwelds.

4.1. Mill off spot welds applied to the front closing panel in area **-A-** .

top of page

Preparing connection areas of the body for installing front floor panel

Safety instructions for flying sparks during grinding and welding work

ATTENTION

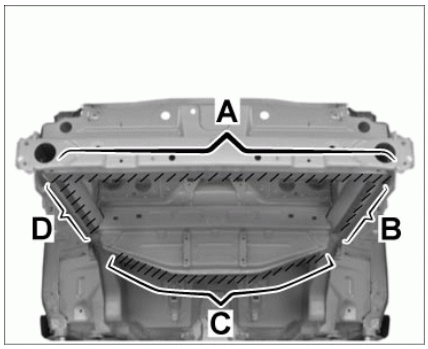
Danger of explosion and fire from flying sparks during grinding and welding work!

- **Danger of injury and danger of damage to vehicle parts and other vehicles due to flying sparks**

Cover vehicle parts such as battery, fuel system, paintwork, glass and passenger compartment parts with fire-proof covers and, if necessary, remove batteries and fuel-carrying components.

No other vehicles may be left unprotected in areas used for body repair!

Preparing connection areas of body for installing floor front section



Cleaning the welding areas

1. Clean undersealing, adhesive residue and paint off the body connecting flanges in the marked areas **-A, B, C, D-** using a hot-air gun or rotary brush. Grind the connecting flanges until bare.
2. Coat spot-weld flange areas with zinc powder paint.

2.1. Coat all spot-weld flange areas with zinc powder paint.

Safety instructions for sharp-edged body and unit parts

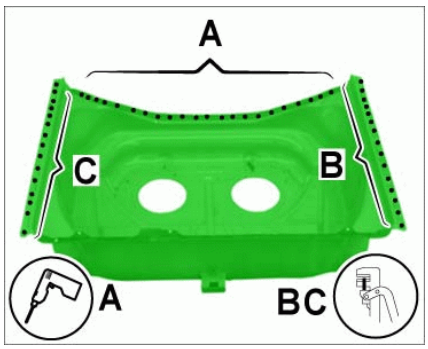
ATTENTION

Danger of injury! Sharp-edge burrs on body and unit parts!

- **Injuries from sharp edges on body and unit parts.**

Wear protective gloves when working in the area of sharp-edged body and unit parts!

Adjusting floor front section and preparing for installation



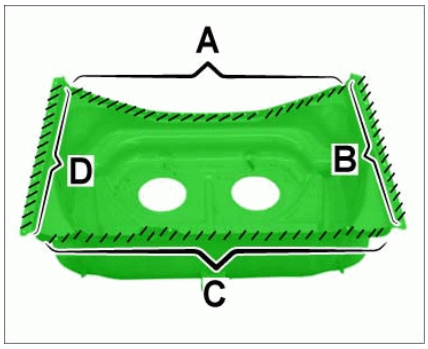
Drilling and punching holes for plug welding using inert gas

1. Drill and punch holes for plug welding using inert gas.

1.1.

Drill holes (Ø = 7 mm) on the fastening flange in area **-A-** for plug welding using inert gas.

1.2. Punch holes (Ø = 7 mm) on the fastening flange in areas **-B-** and **-C-** for plug welding using inert gas.



Cleaning the welding areas

2. Cleaning the welding areas

2.1. Grind both sides of the connecting flanges of the floor front section in the marked areas **-A, B, C, D-** until bare using a rotary brush.

3. Coat spot-weld flange areas with zinc powder paint.

3.1. Coat all spot-weld flange areas with zinc powder paint.

top of page

Installing front floor panel

Danger of injury when welding

DANGER

Risk of fatal injury from high voltage during electric welding!

- **Danger of explosion and fire when welding in the area of highly inflammable materials.**
- **Irritation to respiratory tracts from toxic zinc oxide emitted when welding galvanised steel!**
- **Danger of injury from unintentional triggering of pyrotechnical safety components!**
- **Danger of injury from weld spatters and UV light when welding!**

Do not perform welding work in a damp environment or on wet ground; there is a risk of fatal injury from the voltage being conducted through the human body. Persons with heart pacemakers should not perform welding work. Use insulating underlays.

Remove highly flammable materials from the work area; if necessary, remove units with fuel-carrying parts and protect work areas in the vehicle that are at risk of catching fire using fire-proof covers.

Ventilate the work area well.

Remove smoke gases with a suitable extraction system (refer to Workshop Equipment Manual).

Wear suitable protective equipment, such as protective clothing, gloves, a welding shield and, if necessary, a protective mask.

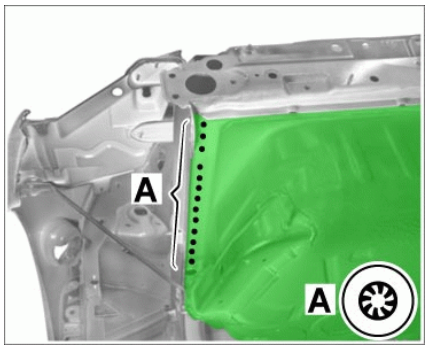
For welding work, always disconnect both terminals on the battery. In the case of welding work in the immediate vicinity of the control modules for pyrotechnical safety systems, remove the control modules before beginning work.

In addition, the guidelines of the welding equipment manufacturer and the legal accident prevention regulations and those of the mutual indemnity association (BGV D1) must be observed.

Installing floor front section

1. Fit the floor front section to the body.

1.1. Place the floor front section against the body and secure to the straightening set.



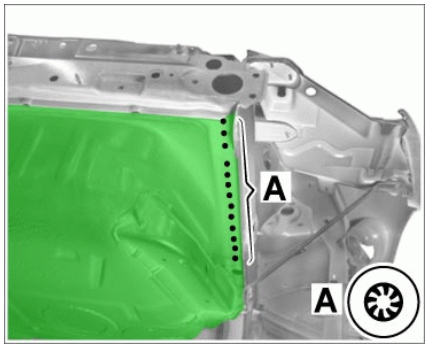
Welding in floor front section

Note

Determine the position of the new part and secure with tensioning clamps.
When butt welding body sheet panels with a sheet thickness of > 1.5 mm, there must be a welding slit width s = 1 x sheet thickness to guarantee the required welding quality (welding through).

2. Weld in floor front section.

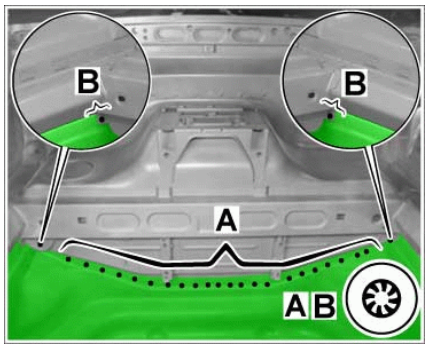
2.1. Plug-weld the floor front section in area **-A-** to the right side member using inert gas.



Welding in floor front section

3. Weld in floor front section.

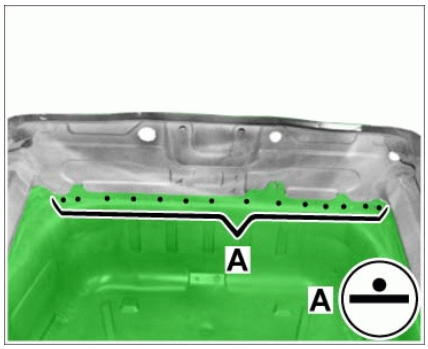
3.1. Plug-weld the floor front section in area **-A-** to the left side member using inert gas.



Welding in floor front section

4. Weld in floor front section.

4.1. Plug-weld the floor front section in areas **-A-** and **-B-** to the front panel using inert gas.



Welding in floor front section

5. Weld in floor front section.

5.1. Resistance spot-weld floor front section in area **-A-** to the front closing panel.

top of page

Subsequent work

Subsequent work for body repairs

1. Remove vehicle from the alignment bench.
2. Clean welded joints and sheetmetal flanges with a wire brush.
3. Prime flange areas with 2K primer.
4. Restore standard sealing with body sealant.
   5 Seam sealing

5. Restore standard undersealing with underbody sealant.
   5 Underbody protection
6. Paint repair area and adjacent surfaces, if necessary.
7. Install removed accessories in the repair area.
8. Apply cavity preservation.

997110, 997111, 997120, 997121, 997310, 997311, 997320, 997321, 997410, 997411, 997430, 997431, 997610, 997611, 997620, 997621

as of MY 2005
Country C00, C02, C05, C07, C08, C09, C10, C11, C12, C13, C14, C15, C16, C18, C19, C20, C21, C22, C23, C24, C25, C26, C27, C28, C32, C33, C34, C35, C36, C37, C38, C39, C45, C46, C98, C99

WARNUNG

Gefahr des Verlusts der Text-Bild-Zuordnung beim Ausdruck.

- **Aus technischen Gründen kann derzeit nicht ausgeschlossen werden, dass trotz einwandfreier Darstellung auf dem Bildschirm beim Ausdruck der Zusammenhang von Text und zugehörigem Bild verloren geht.**
- **Wird der Fehler nicht bemerkt, besteht die Gefahr, daß Arbeiten nicht korrekt durchgeführt werden und es dadurch zu Personen- und Sachschäden kommt.**

Vergleichen Sie deshalb nach dem Druckvorgang unbedingt die Ausdrucke mit der Bildschirmdarstellung. Korrigieren Sie die Ausdrucke im Fehlerfall so, daß der Inhalt der Bildschirmdarstellung zutreffend wiedergegeben wird.

WARNING

Danger of losing text-figure correspondence when printing out.

- **For technical reasons, it can currently not be ruled out that the correspondence between text and associated figure can be lost when it is printed out, even though the display on the screen is correct.**
- **If the fault is not noticed, there is the danger that work will not be performed correctly which can cause injury and damage.**

Therefore, always compare printouts with the screen display after printing them out. Correct the printouts if they are faulty so that the content of the screen display matches that on the printouts.

AVERTISSEMENT

Risque de perte de la correspondance texte-illustration lors de l'impression papier.

- **Pour des raisons techniques, il ne peut pas être exclu à l'heure actuelle que, même en cas d'affichage correct à l'écran, la correspondance entre le texte et l'illustration puisse être erronée sur l'impression papier.**

50 55 19 Removing and installing wing - as of MY 2005

- Preliminary work
- Removing the wing
- Installing the wing
- Subsequent work

top of page

Preliminary work

Preliminary work

1. Disconnect battery. *271000 Work instructions after disconnecting the battery*
2. Remove wheel. 440519 Removing and installing wheel - removing
3. Remove front wheel housing liner. 505619 Removing and installing front wheel housing liner - chapter on "Removing" [997110 997111 997120 997121 997310 997311 997320 997321] 505619 Removing and installing front wheel housing liner - chapter on "Removing" [997621] 505619 Removing and installing front wheel housing liner - chapter on "Removing" [997410 997411 997430 997431 997610 997611 997620]
4. Remove the front apron. 631519 Removing and installing front apron - chapter on "Removing"
5. Remove headlights. 941519 Removing and installing headlights - removing
6. Remove headlight mounting. 941419 Removing and installing headlight mounting - removing
7. Remove airbag sensor. 695119 Removing and installing airbag sensor - removing

Note

Only when removing the right wing.

8. Remove filler flap. 553719 Removing and installing filler flap - chapter on "Removing"

Note

Only when removing the right wing.

9. Remove carbon canister. 202519 Removing and installing carbon canister - chapter on "Removing"

Note

Only when removing the left wing.

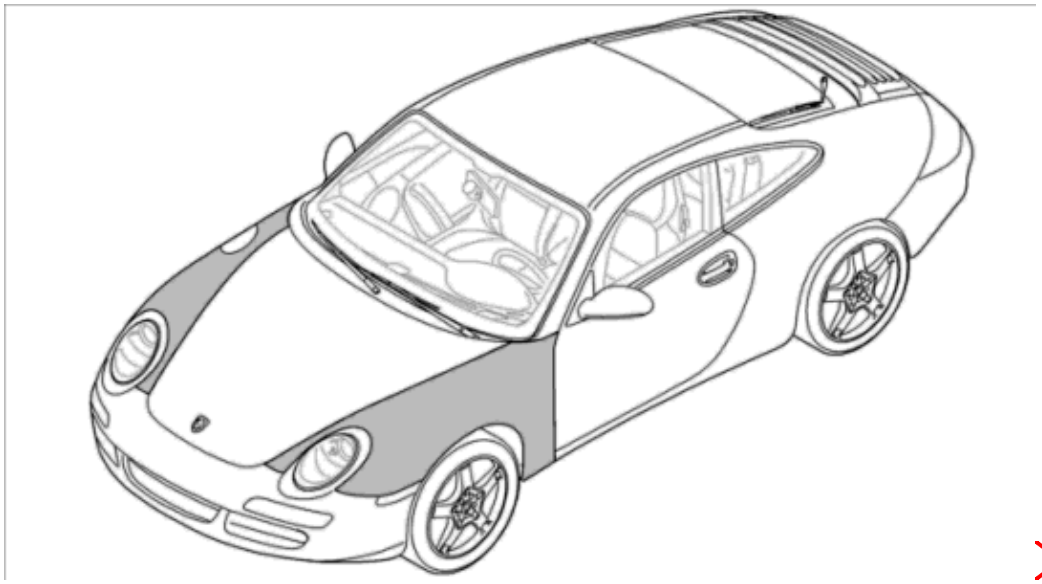
10. Install reservoir for windscreen washer system. 926019 Removing and installing reservoir for windscreen washer system - chapter on "Removing"

top of page

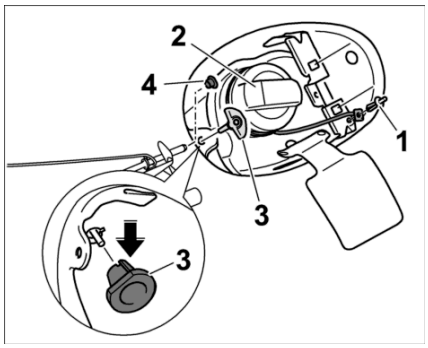
Removing the wing

Removing fuel tank cap

Installation Location:



Main illustration for removing and installing wing



Removing fuel tank cap

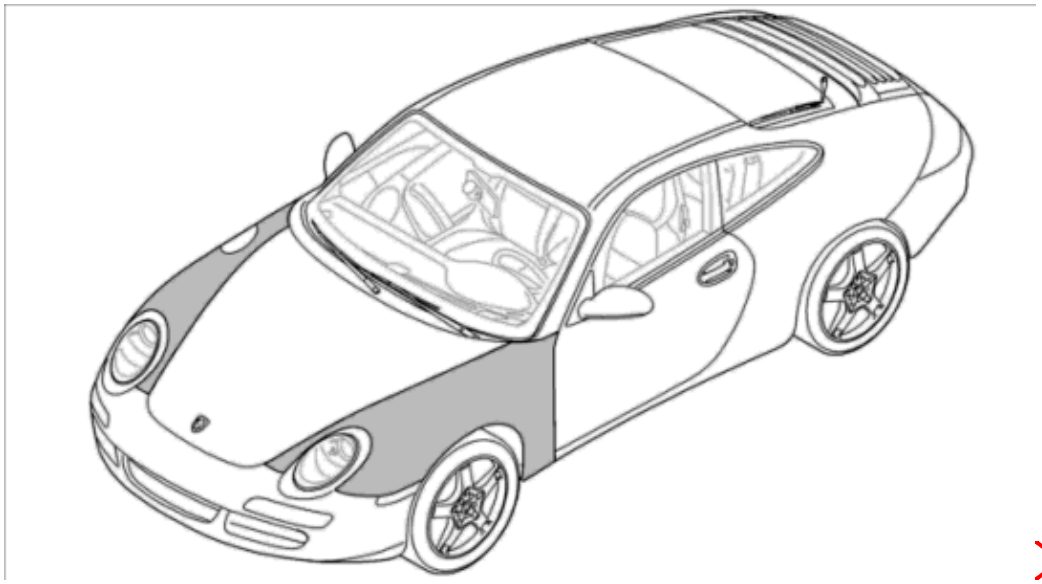
Note

- *The following points apply only to the right wing.*

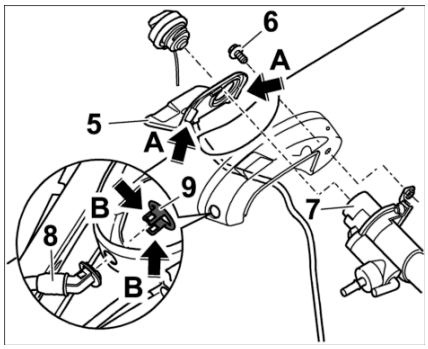
1. Press out plastic pin in centre of rivet head **-1-** and remove fuel tank cap **-2-** . Then unclip rubber stop **-3-** and rubber sleeve **-4-** .

Releasing tank filler neck

Installation Location:



Main illustration for removing and installing wing



Releasing tank filler neck

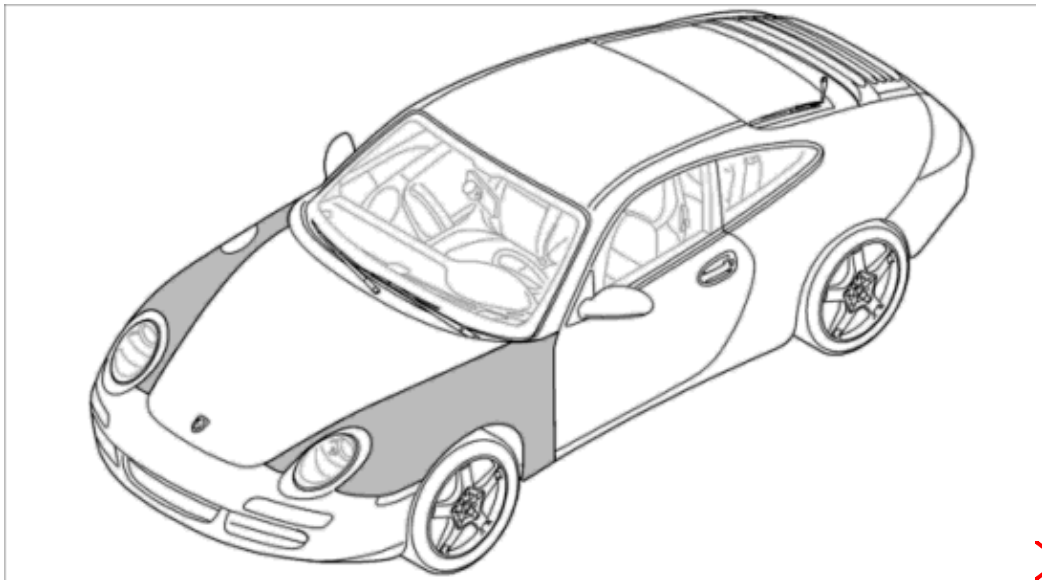
Note

- *The following points apply only to the right wing.*

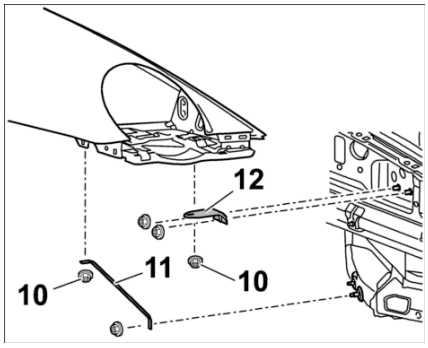
1. Press locking tabs of sleeve **-A-** and unclip **-5-** .
2. Unscrew fastening screw **-6-** of tank filler neck **-7-** .
3. Remove angled pipe **-8-** . To do this, press apart locking tabs **-B-** of plastic clip **-9-** and remove.

Releasing bottom of wing

Installation Location:



Main illustration for removing and installing wing

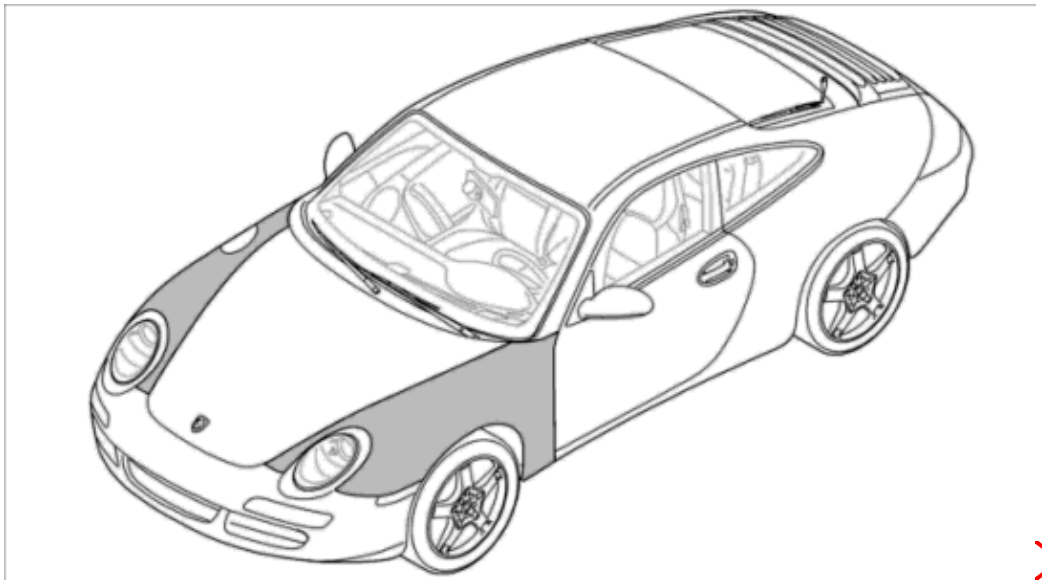


Releasing bottom of wing

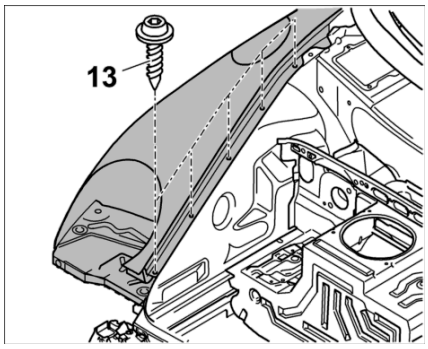
1. Release fastening nut **-10-** from wing strut **-11-** and unscrew bracket **-12-** .

Releasing top of wing

Installation Location:



Main illustration for removing and installing wing

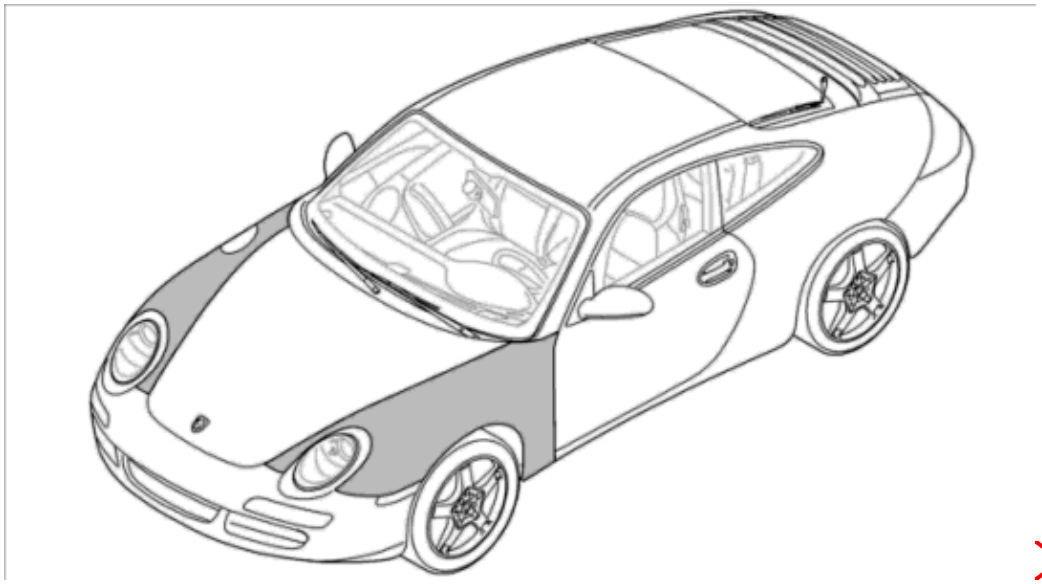


Releasing top of wing

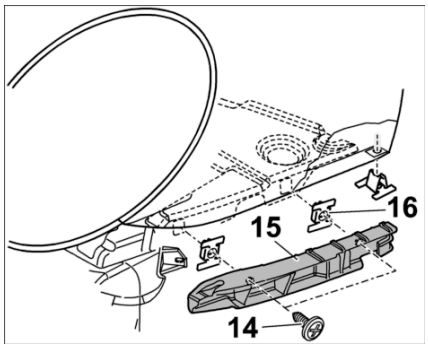
1. Undo fastening screws **-13-** on top flange.

Removing retaining strip

Installation Location:



Main illustration for removing and installing wing

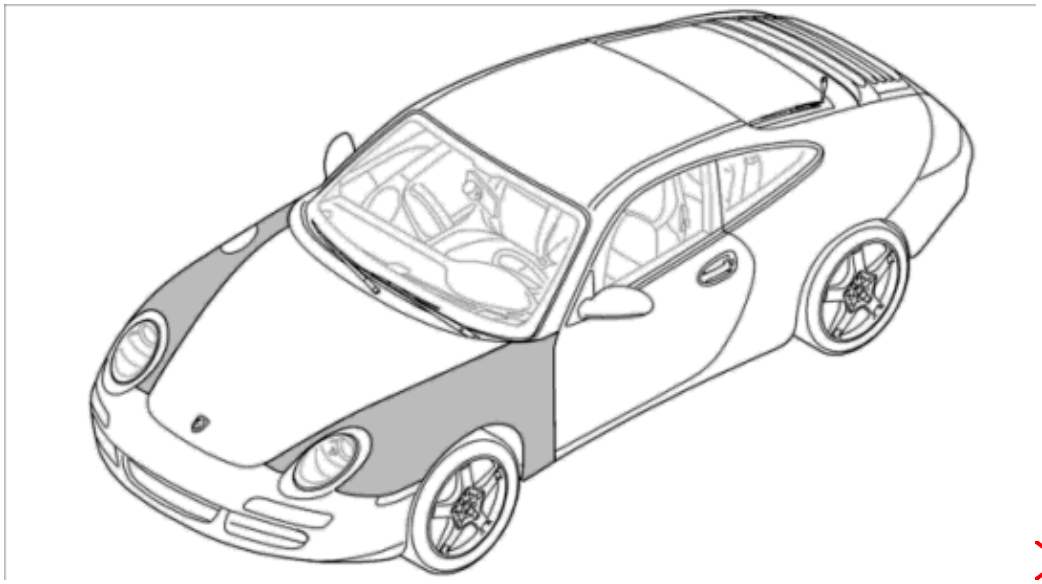


Removing retaining strip

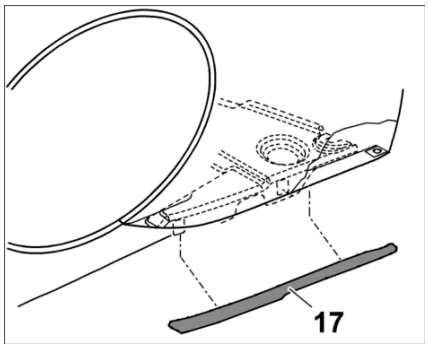
1. Unscrew fastening screw **-14-** from retaining strip **-15-** and remove retaining strip.
2. Unclip fastening nut **-16-** .

Removing protective film

Installation Location:



Main illustration for removing and installing wing

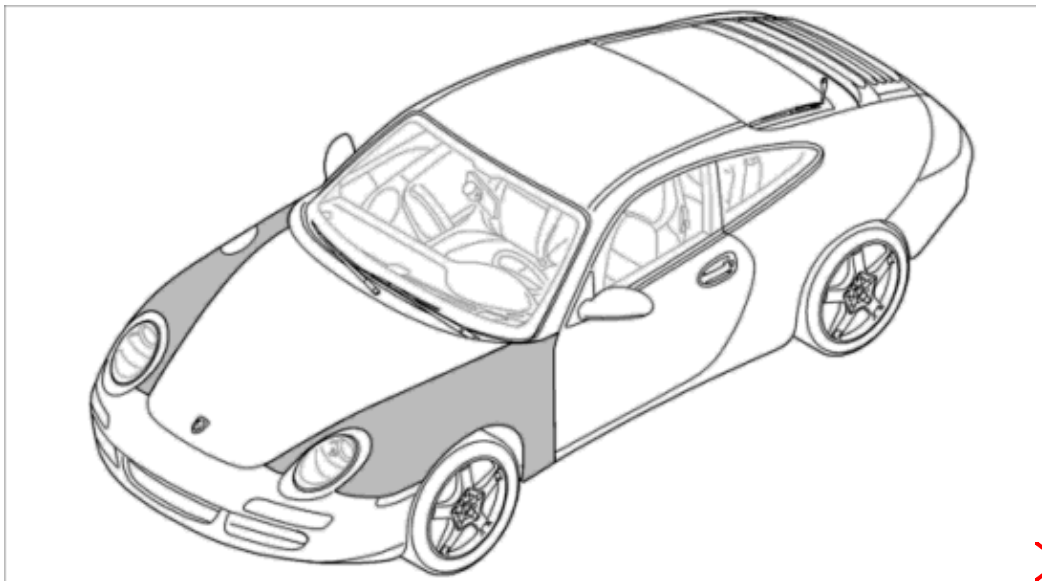


Removing protective film

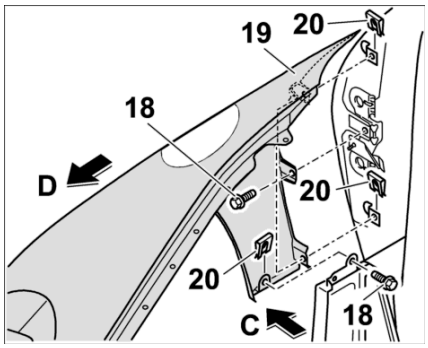
1. Remove protective film **-17-**

Releasing wing from A-pillar

Installation Location:



Main illustration for removing and installing wing

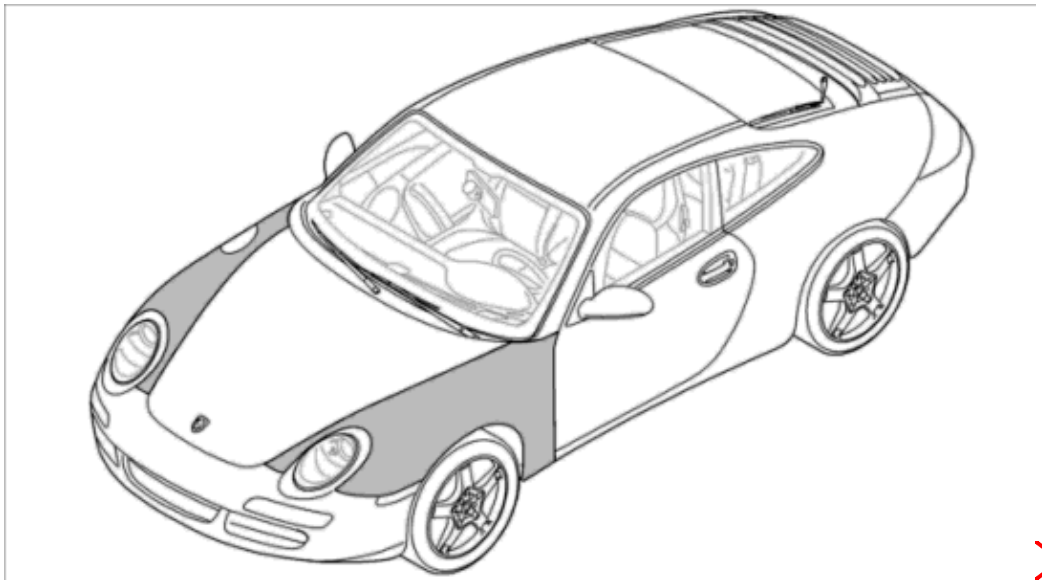


Releasing wing from A-pillar

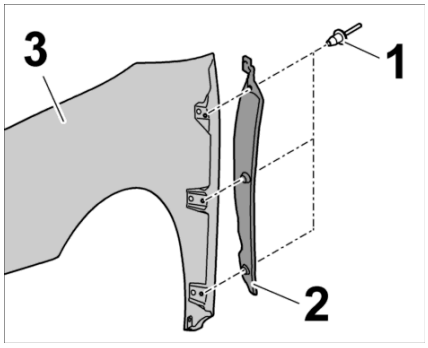
1. Unscrew fastening screws **-18-** at A-pillar and pull wing out **-19-** downwards **-C-** and forwards **-D-** .
2. Check fastening nut **-20-** , replacing if necessary.
3. Remove switching element for filler flap. 553819 Removing and installing switching element for filler flap - chapter on "Removing"

Removing masking panel

Installation Location:



Main illustration for removing and installing wing



Removing masking panel

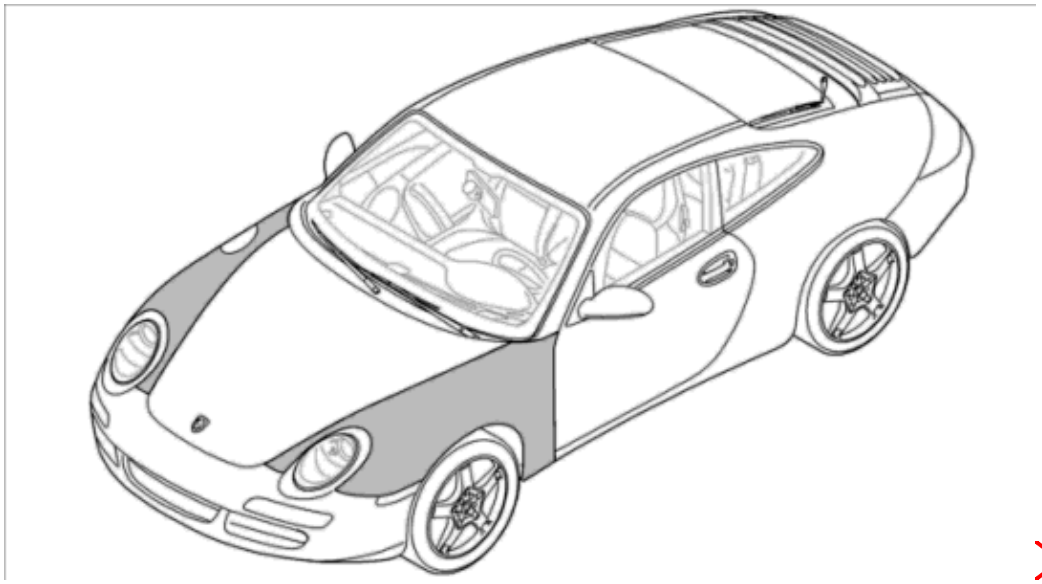
1. Press out pin from plastic expansion rivet **-1-** and remove masking panel **-2-** from wing **-3-** .

top of page

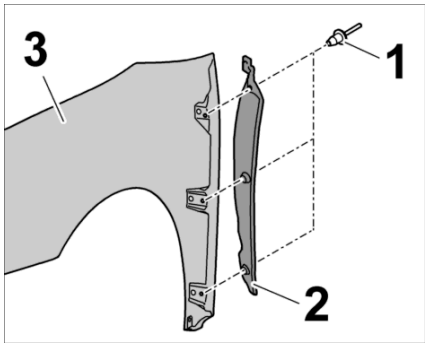
Installing the wing

Installing masking panel

Installation Location:



Main illustration for removing and installing wing

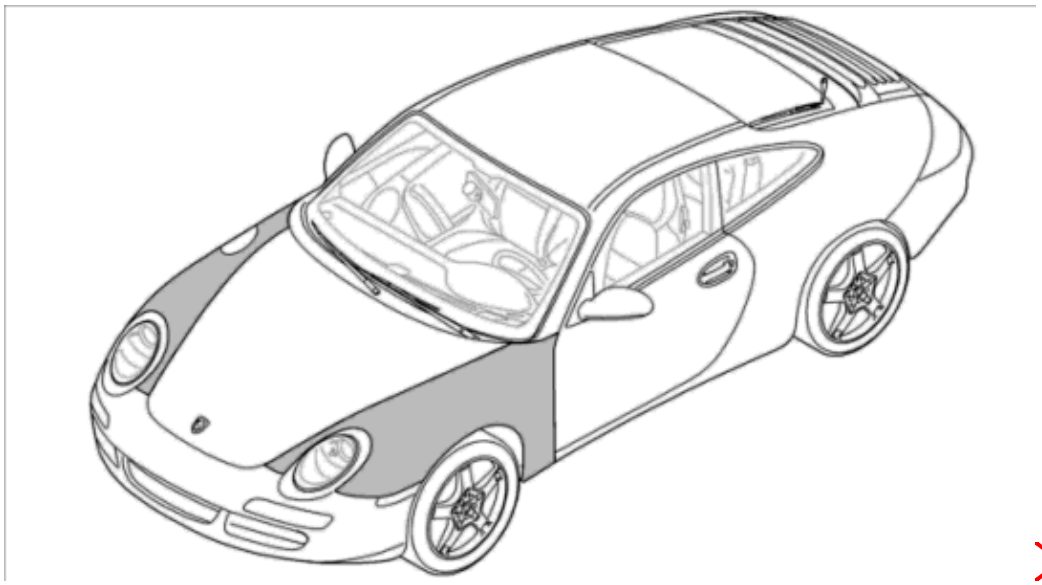


Installing masking panel

1. Position masking panel **-2-** on wing **-3-** .
2. Press in plastic expansion rivet **-1-** and secure with pin.

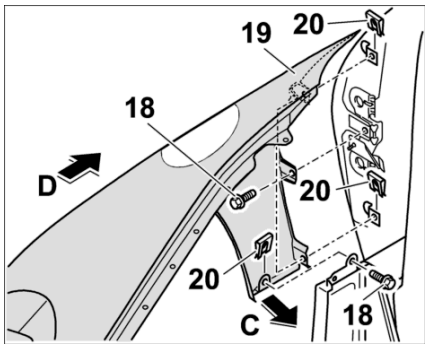
Fastening wing to A-pillar

Installation Location:



Main illustration for removing and installing wing

1. Install switching element for filler flap. 553819 Removing and installing switching element for filler flap - chapter on "Installing"

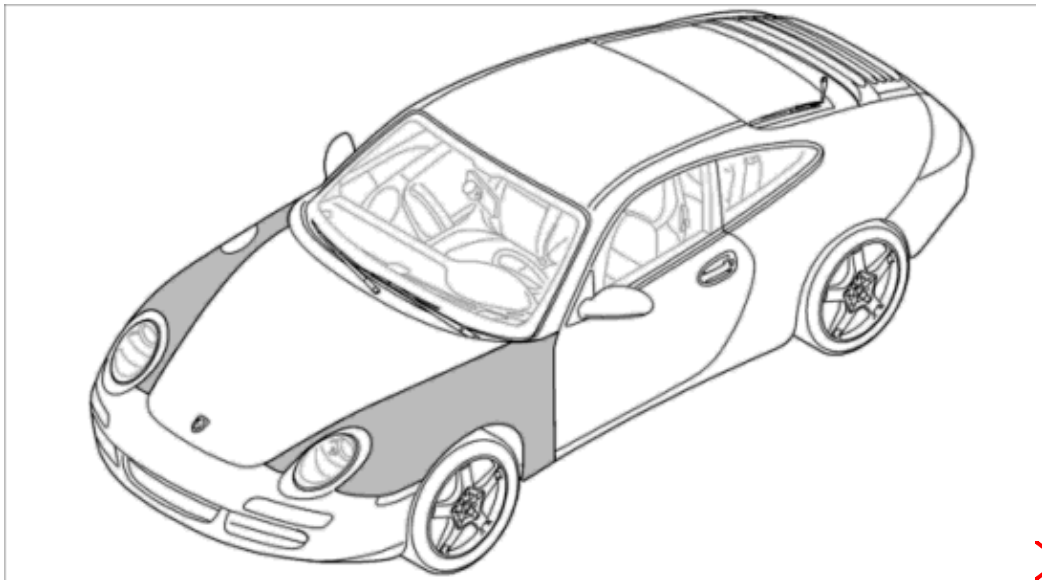


Fastening wing to A-pillar

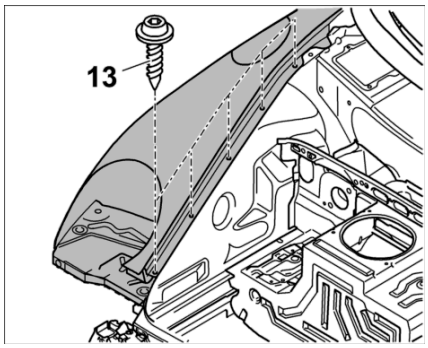
2. Press in fastening nut **-20-** .
3. Position wing **-19-** on the body **-C-** and slide towards A-pillar **-D-** . Screw in fastening screws **-18-** into the A-pillar and tighten lightly.

Fastening top of wing

Installation Location:



Main illustration for removing and installing wing

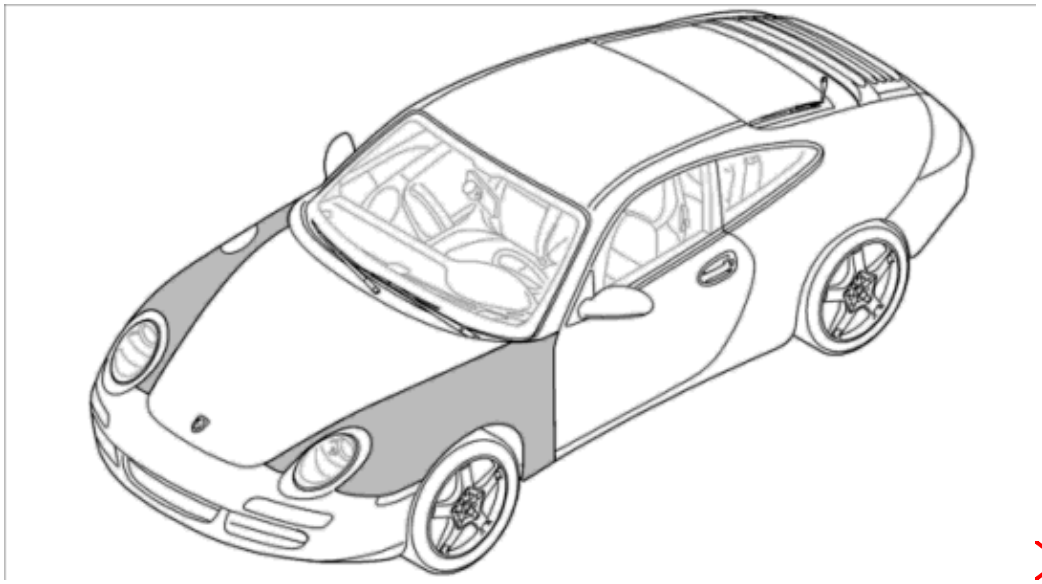


Fastening top of wing

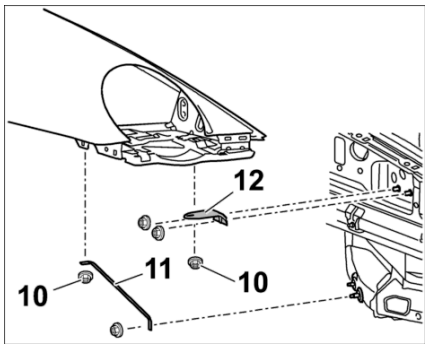
1. Screw in fastening screws **-13-** on top flange and tighten lightly.
2. Adjust the contour and gap dimensions relative to the front door and front lid. *501000 Diagram - body gap dimensions*
3. Tighten fastening screws **-13-** with specified tightening torque **Tightening torque: 3.5 ftlb.** .
4. Tighten fastening screws M6 **-18-** with tightening torque **Tightening torque: 7.0 ftlb.** .

Fastening bottom of wing

Installation Location:



Main illustration for removing and installing wing

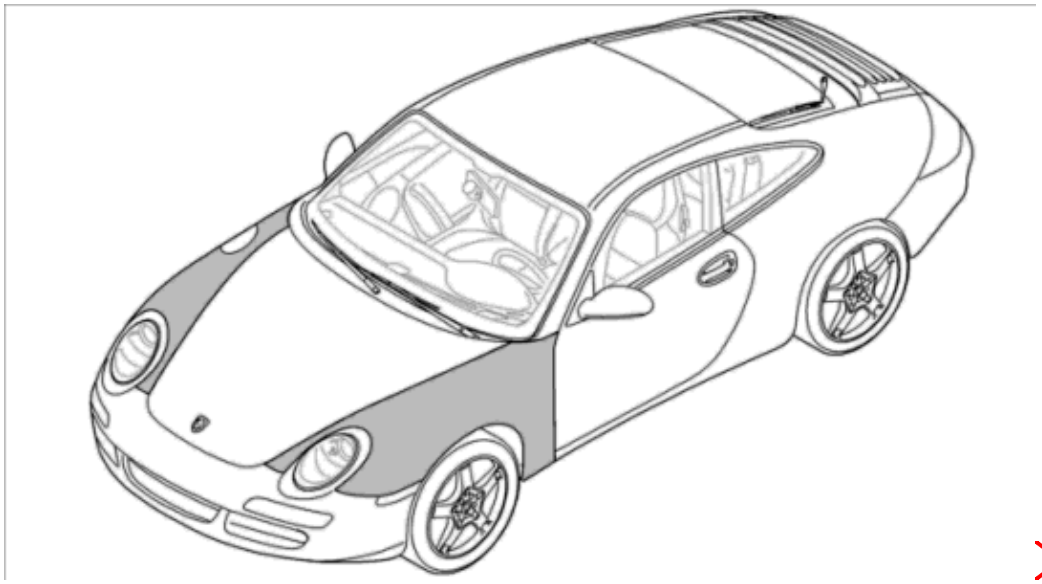


Fastening bottom of wing

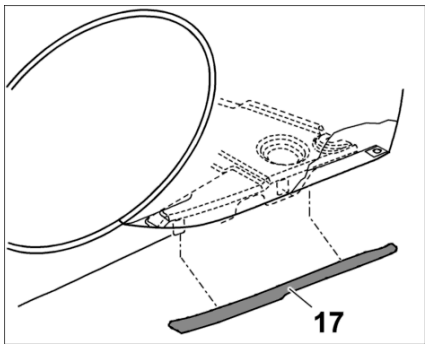
1. Position wing strut **-11-** and bracket **-12-** on the body and tighten with fastening nuts **-10-** .
   Tightening torque **Tightening torque: 7.0 ftlb.**

Sticking in the protective film

Installation Location:



Main illustration for removing and installing wing

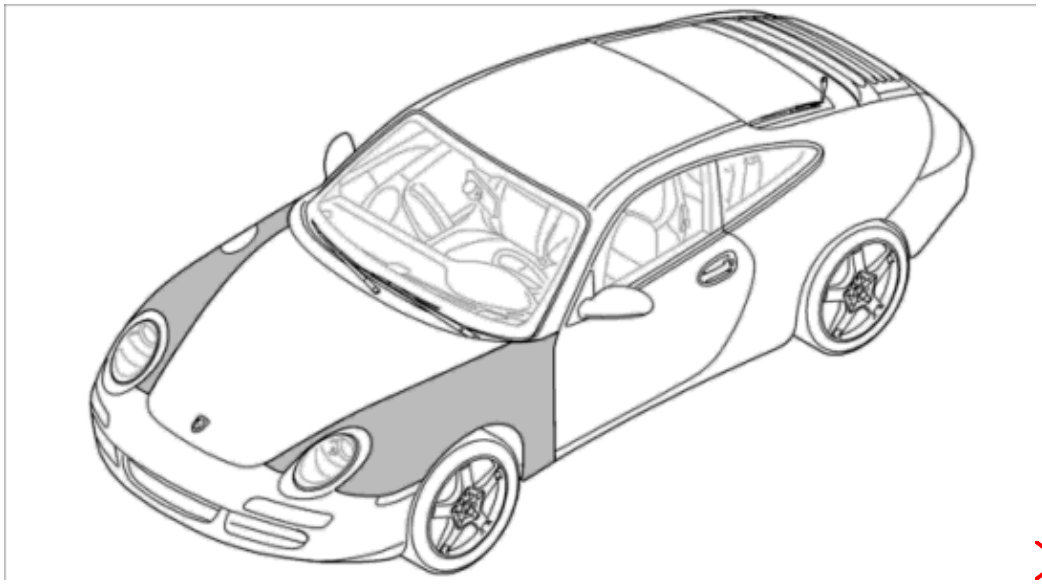


Sticking in the protective film

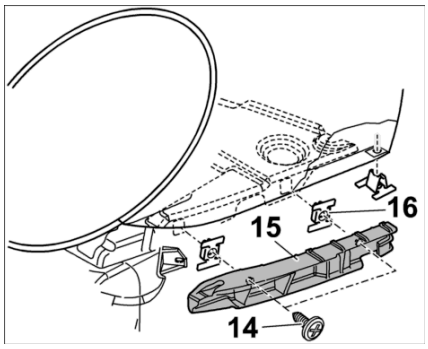
1. Stick in the protective film **-17-** .

Installing retaining strip

Installation Location:



Main illustration for removing and installing wing

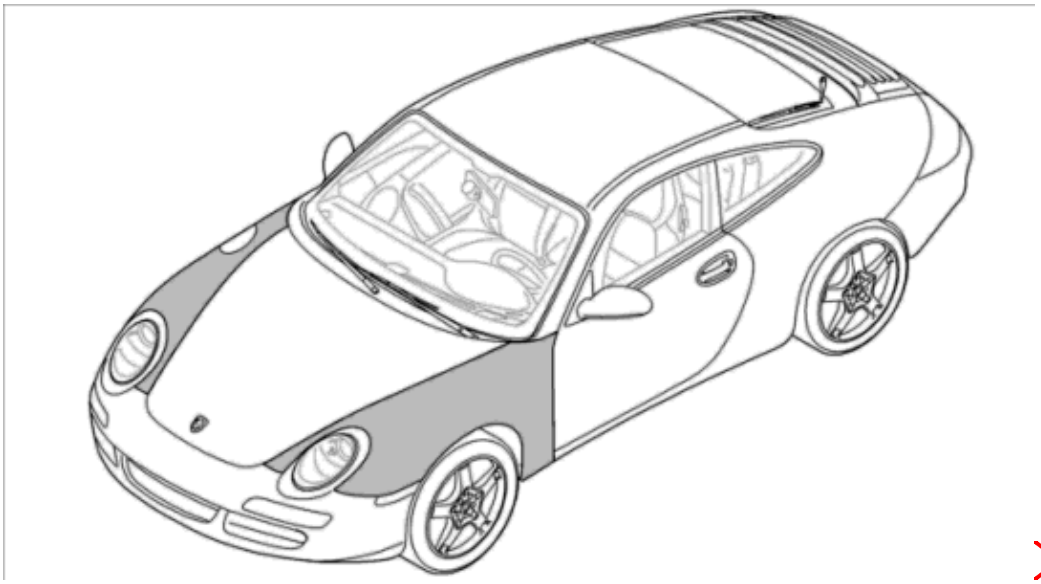


Installing retaining strip

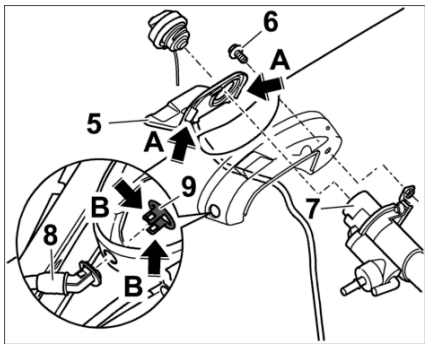
1. Clip fastening nuts **-16-** into place. Fix retaining strip **-15-** on the wing up against the stop and tighten with the fastening nuts **-14-** . Tightening torque **Tightening torque: 2.0 ftlb.**

Fastening tank filler neck

Installation Location:



Main illustration for removing and installing wing



Fastening tank filler neck

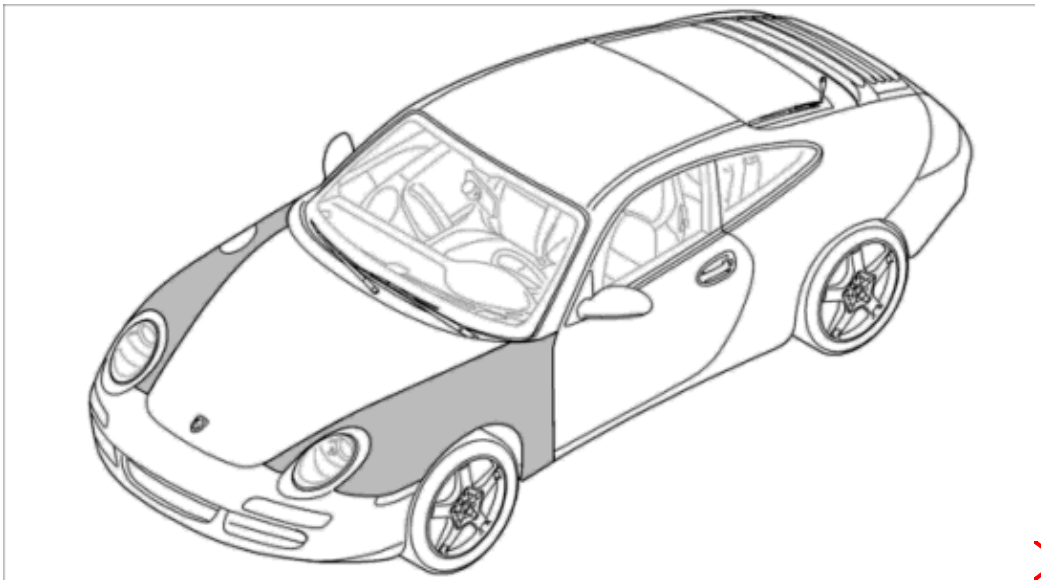
Note

- *The following points apply only to the right wing.*

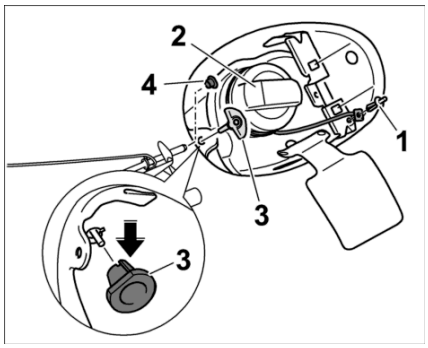
1. Install angled pipe **-8-** . Press in the plastic clip **-9-** until the locking tabs **-B-** engage audibly.
2. Tighten fastening screw **-6-** on tank filler neck **-7-** . Tightening torque **Tightening torque: 7.5 ftlb.**
3. Press in the locking tabs **-A-** of the sleeve **-5-** until they engage audibly.

Installing fuel tank cap

Installation Location:



Main illustration for removing and installing wing



Installing fuel tank cap

Note

- *The following points apply only to the right wing.*

1. Press in plastic expansion rivet **-1-** on fuel tank cap **-2-** . Then clip in rubber stop **-3-** and rubber sleeve **-4-** .

top of page

Subsequent work

Subsequent work

Note

Only when installing the left wing.

1. Install reservoir for windscreen washer system. 926019 Removing and installing reservoir for windscreen washer system - chapter on "Installing"

Note

Only when installing the right wing.

2. Install filler flap. 553719 Removing and installing filler flap - chapter on "Installing"

Note

Only when installing the right wing.

3. Install carbon canister. 202519 Removing and installing carbon canister - chapter on "Installing"
4. Install airbag sensor. 695119 Removing and installing airbag sensor - removing
5. Install headlight mounting. 941419 Removing and installing headlight mounting - removing
6. Install headlights. 941519 Removing and installing headlights - removing
7. Install front apron. 631519 Removing and installing front apron - chapter on "Installing"
8. Install front wheel housing liner. 505619 Removing and installing front wheel housing liner - chapter on "Installing" [997110 997111 997120 997121 997310 997311 997320 997321] 505619 Removing and installing front wheel housing liner - chapter on "Installing" [997621] 505619 Removing and installing front wheel housing liner - chapter on "Installing" [997410 997411 997430 997431 997610 997611 997620]
9. Mount wheel. 440519 Removing and installing wheel - removing
10. Connect battery. *271000 Work instructions after disconnecting the battery*

997110, 997111, 997120, 997121, 997310, 997311, 997320, 997321, 997410, 997411, 997430, 997431, 997610, 997611, 997620, 997621

as of MY 2005
Country C00, C02, C05, C07, C08, C09, C10, C11, C12, C13, C14, C15, C16, C18, C19, C20, C21, C22, C23, C24, C25, C26, C27, C28, C32, C33, C34, C35, C36, C37, C38, C39, C45, C46, C98, C99

WARNUNG

Gefahr des Verlusts der Text-Bild-Zuordnung beim Ausdruck.

- **Aus technischen Gründen kann derzeit nicht ausgeschlossen werden, dass trotz einwandfreier Darstellung auf dem Bildschirm beim Ausdruck der Zusammenhang von Text und zugehörigem Bild verloren geht.**
- **Wird der Fehler nicht bemerkt, besteht die Gefahr, daß Arbeiten nicht korrekt durchgeführt werden und es dadurch zu Personen- und Sachschäden kommt.**

Vergleichen Sie deshalb nach dem Druckvorgang unbedingt die Ausdrucke mit der Bildschirmdarstellung. Korrigieren Sie die Ausdrucke im Fehlerfall so, daß der Inhalt der Bildschirmdarstellung zutreffend wiedergegeben wird.

50 56 19 Removing and installing front wheel housing liner. - as of MY 2005

- Preliminary work
- Removing front wheel housing liner
- Installing front wheel housing liner
- Subsequent work

top of page

Preliminary work

Preliminary work

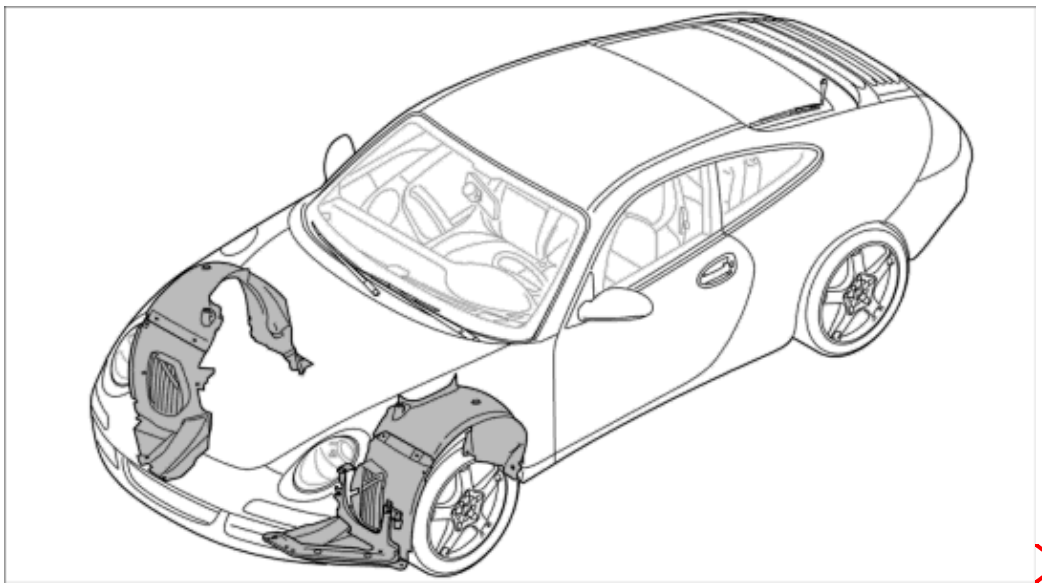
Remove front wheel. 440519 Removing and installing wheel - chapter on "removing"

top of page

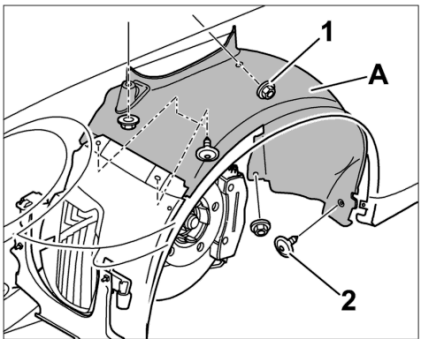
Removing front wheel housing liner

Removing front wheel housing liner - rear section

Installation Location:



Installation position of front wheel housing liner



Releasing wheel housing liner part A

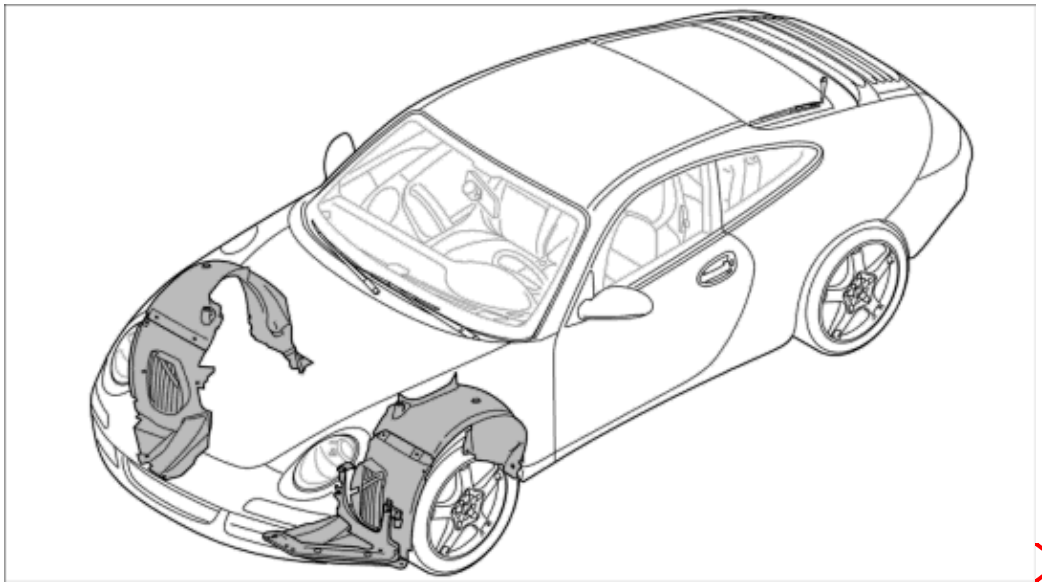
Note

Fastening nuts cannot be used again following removal.

1. Unscrew fastening nuts **-1-** and fastening screws **-2-** .
2. Remove wheel housing liner **-A-** .

Remove front wheel housing liner - front section

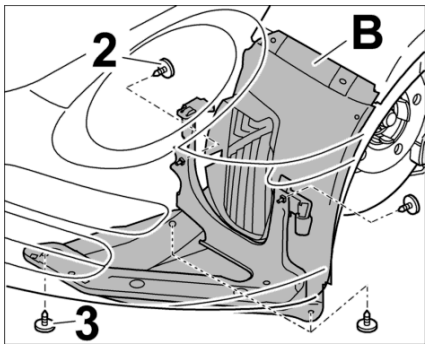
Installation Location:



Installation position of front wheel housing liner

Note

The front part of the wheel housing liner can also be removed without disassembling the front wheels.



Removing wheel housing liner part B

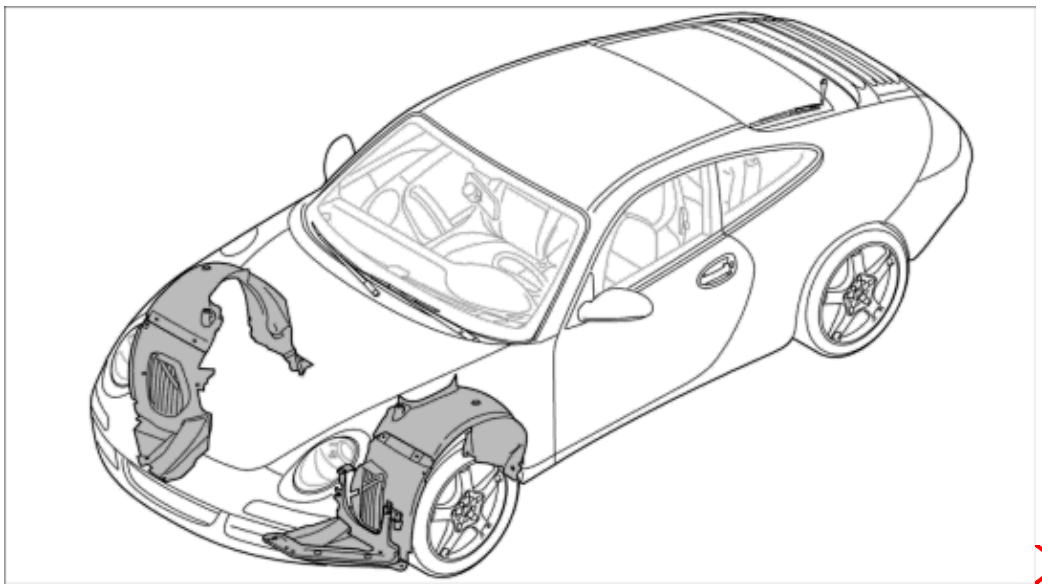
1. Unscrew fastening screws **-2, 3-** and remove wheel housing liner **-B-** .

top of page

Installing front wheel housing liner

Install front wheel housing liner - front section

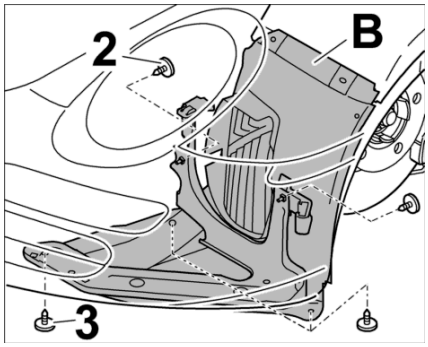
Installation Location:



Installation position of front wheel housing liner

Note

- *Push in wheel housing liner toward the outside up to contact in wing stop position.*
- *Ensure that the right wheel housing liner is guided through the opening on the wheel well.*

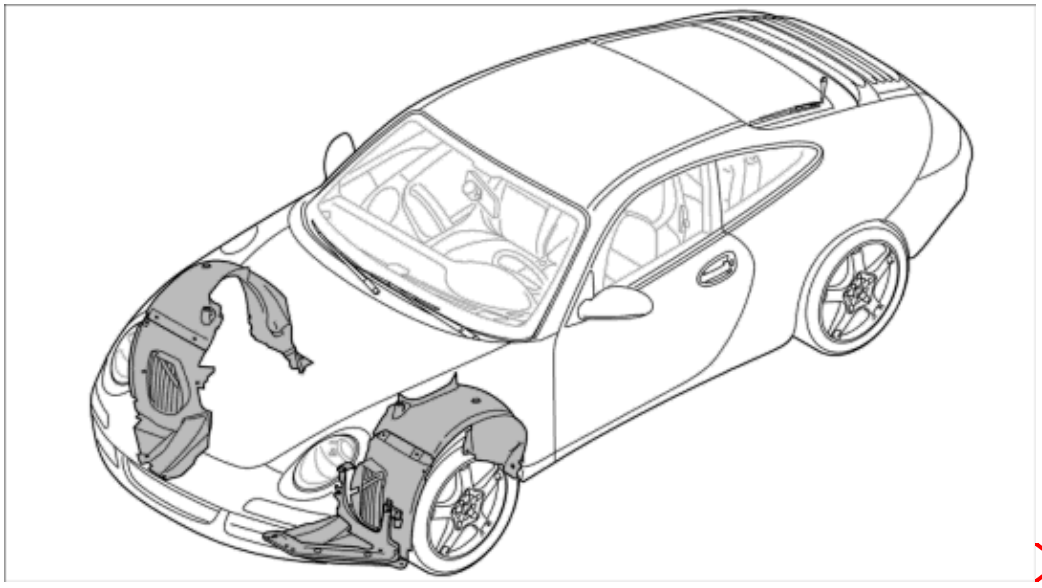


Fasten wheel housing liner part B

1. Insert wheel housing liner **-B-** .
2. Screw in fastening screws **-2-** and tighten **Final tightening: 2 (1.5) Nm (ftlb.)** .
3. Screw in fastening screws **-3-** and tighten **Final tightening: 2.8 (1.8) Nm (ftlb.)** .

Installing front wheel housing liner - rear section

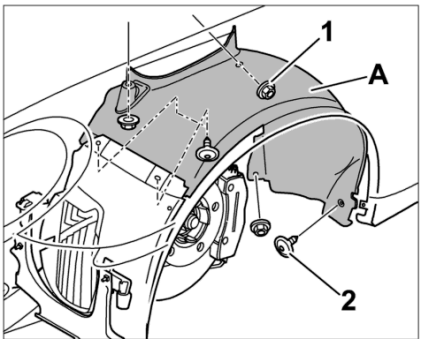
Installation Location:



Installation position of front wheel housing liner

Note

- *Push in wheel housing liner toward the outside up to contact in wing stop position.*
- *Ensure that the right wheel housing liner is guided through the opening on the wheel well.*



Fasten wheel housing liner part A

1. Insert wheel housing liner **-A-** .
2. Screw in fastening nuts **-1-** and tighten **Final tightening: 1.5 (1) Nm (ftlb.)** .
3. Screw in fastening screws **-2-** and tighten **Final tightening: 2 (1.5) Nm (ftlb.)** .

top of page

Subsequent work

Reworking

Fit front wheel. 440519 Removing and installing wheel - chapter on "installing"

997110, 997111, 997120, 997121, 997310, 997311, 997320, 997321

as of MY 2005
Country C00, C02, C05, C07, C08, C09, C10, C11, C12, C13, C14, C15, C16, C18, C19, C20, C21, C22, C23, C24, C25, C26, C27, C28, C32, C33, C34, C35, C36, C37, C38, C39, C45, C46, C98, C99

WARNUNG

Gefahr des Verlusts der Text-Bild-Zuordnung beim Ausdruck.

- **Aus technischen Gründen kann derzeit nicht ausgeschlossen werden, dass trotz einwandfreier Darstellung auf dem Bildschirm beim Ausdruck der Zusammenhang von Text und zugehörigem Bild verloren geht.**
- **Wird der Fehler nicht bemerkt, besteht die Gefahr, daß Arbeiten nicht korrekt durchgeführt werden und es dadurch zu Personen- und Sachschäden kommt.**

Vergleichen Sie deshalb nach dem Druckvorgang unbedingt die Ausdrucke mit der Bildschirmdarstellung. Korrigieren Sie die Ausdrucke im Fehlerfall so, daß der Inhalt der Bildschirmdarstellung zutreffend wiedergegeben wird.

WARNING

50 56 19 Removing and installing front wheel housing liner. - as of MY 2005

- Preliminary work
- Removing front wheel housing liner
- Installing front wheel housing liner
- Subsequent work

top of page

Preliminary work

Preliminary work

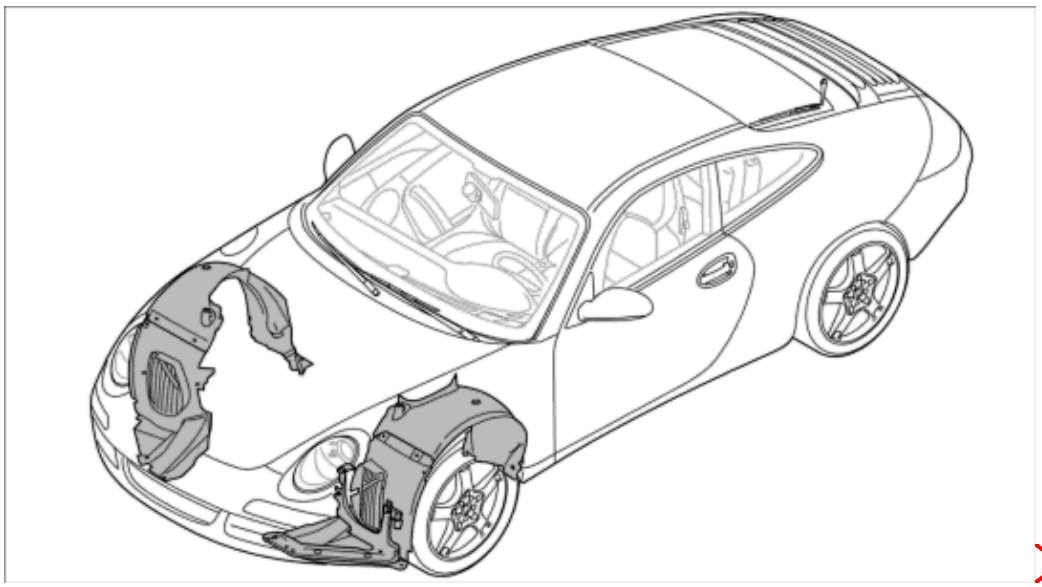
Remove front wheel. 440519 Removing and installing wheel - chapter on "removing"

top of page

Removing front wheel housing liner

Remove front wheel housing liner - front section

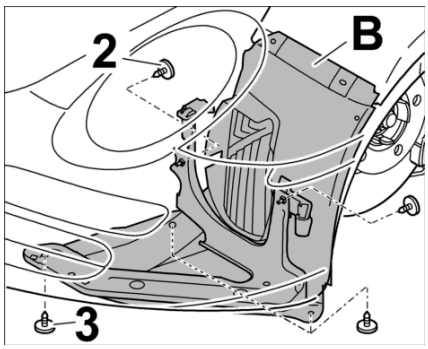
Installation Location:



Installation position of front wheel housing liner

Note

The front part of the wheel housing liner can also be removed without disassembling the front wheels.



Removing wheel housing liner part B

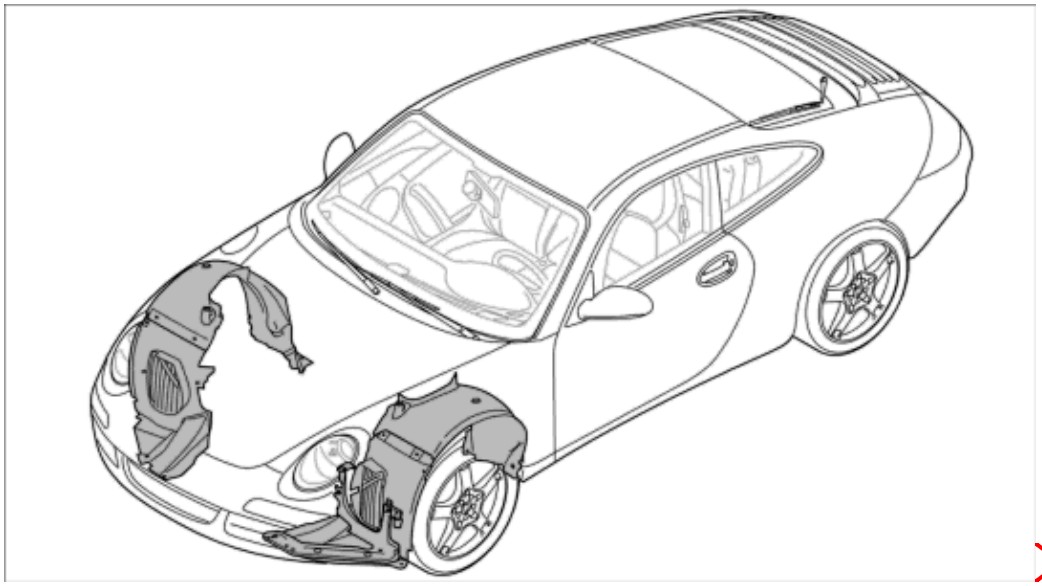
1. Unscrew fastening screws **-2, 3-** and remove wheel housing liner **-B-** .

top of page

Installing front wheel housing liner

Install front wheel housing liner - front section

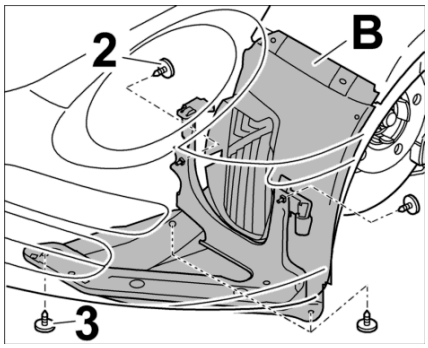
Installation Location:



Installation position of front wheel housing liner

Note

- *Push in wheel housing liner toward the outside up to contact in wing stop position.*
- *Ensure that the right wheel housing liner is guided through the opening on the wheel well.*

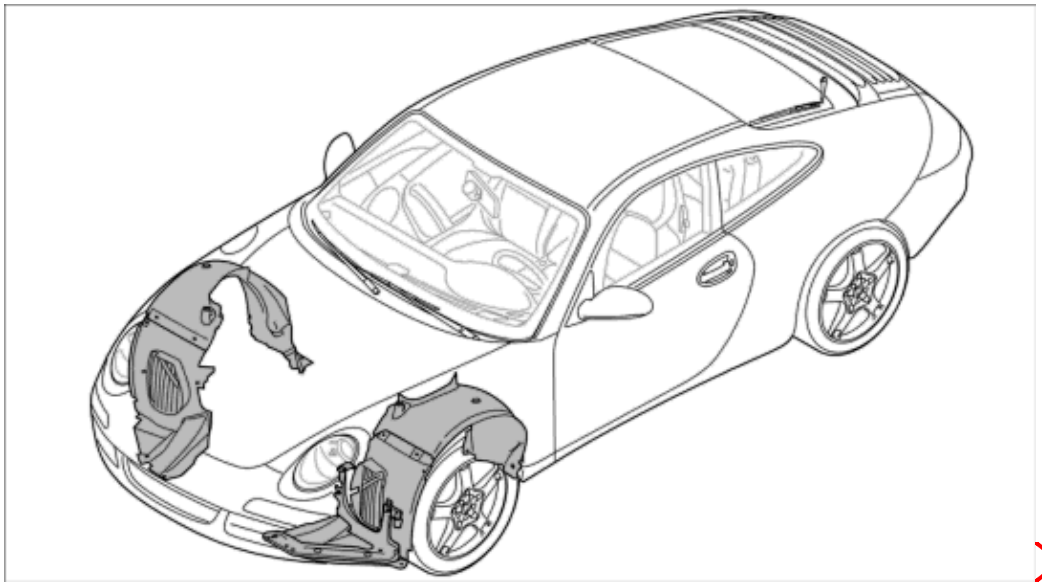


Fasten wheel housing liner part B

1. Insert wheel housing liner **-B-** .
2. Screw in fastening screws **-2-** and tighten **Final tightening: 2 (1.5) Nm (ftlb.)** .
3. Screw in fastening screws **-3-** and tighten **Final tightening: 2.8 (1.8) Nm (ftlb.)** .

Installing front wheel housing liner - rear section

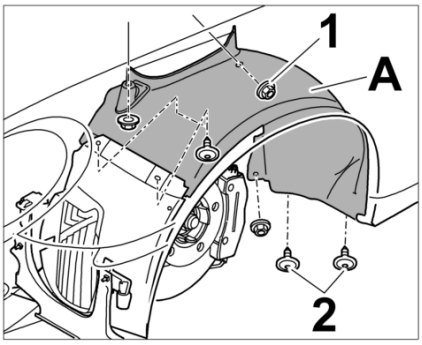
Installation Location:



Installation position of front wheel housing liner

Note

- *Push in wheel housing liner toward the outside up to contact in wing stop position.*
- *Ensure that the right wheel housing liner is guided through the opening on the wheel well.*



Removing front wheel housing liner - rear section

1. Insert wheel housing liner **-A-** .
2. Screw on fastening nuts **-1-** and tighten to the specified tightening torque **Final tightening: 1.5 (1.0 ftlb.) Nm** .
3. Screw in fastening screws **-2-** and tighten to the specified tightening torque **Final tightening: 2 (1.5 ftlb.) Nm** .

top of page

Subsequent work

Reworking

Fit front wheel. 440519 Removing and installing wheel - chapter on "installing"

997621

as of MY 2005
Country C00, C02, C05, C07, C08, C09, C10, C11, C12, C13, C14, C15, C16, C18, C19, C20, C21, C22, C23, C24, C25, C26, C27, C28, C32, C33, C34, C35, C36, C37, C38, C39, C45, C46, C98, C99

WARNUNG

Gefahr des Verlusts der Text-Bild-Zuordnung beim Ausdruck.

- **Aus technischen Gründen kann derzeit nicht ausgeschlossen werden, dass trotz einwandfreier Darstellung auf dem Bildschirm beim Ausdruck der Zusammenhang von Text und zugehörigem Bild verloren geht.**

50 56 19 Removing and installing front wheel housing liner. - as of MY 2005

- Preliminary work
- Removing front wheel housing liner
- Installing front wheel housing liner
- Subsequent work

top of page

Preliminary work

Preliminary work

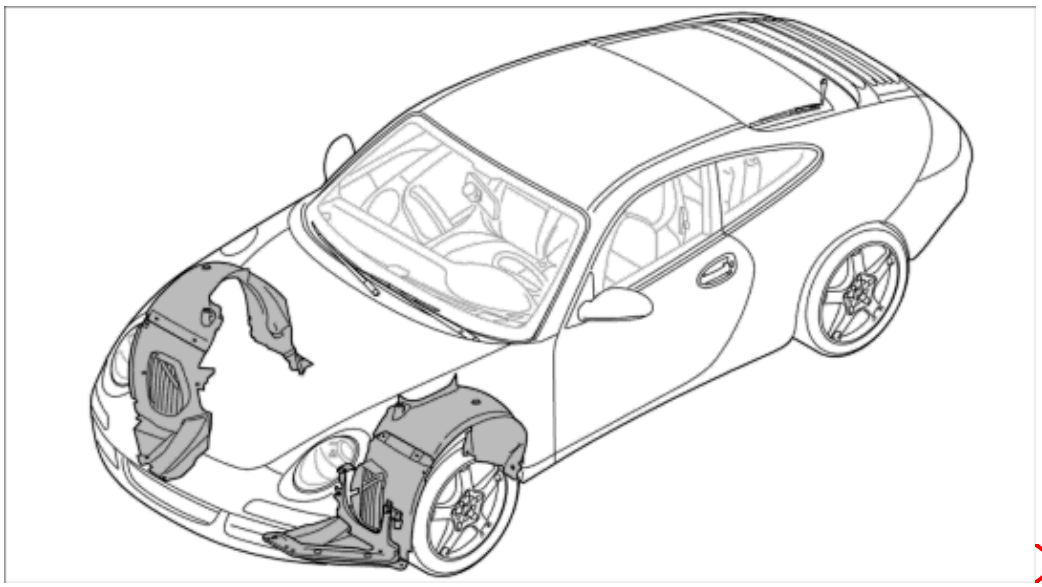
Remove front wheel. 440519 Removing and installing wheel - chapter on "removing"

top of page

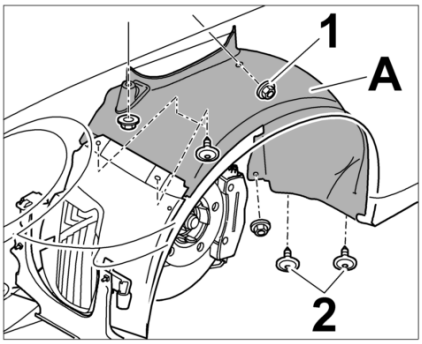
Removing front wheel housing liner

Removing front wheel housing liner - rear section

Installation Location:



Installation position of front wheel housing liner



Removing front wheel housing liner - rear section

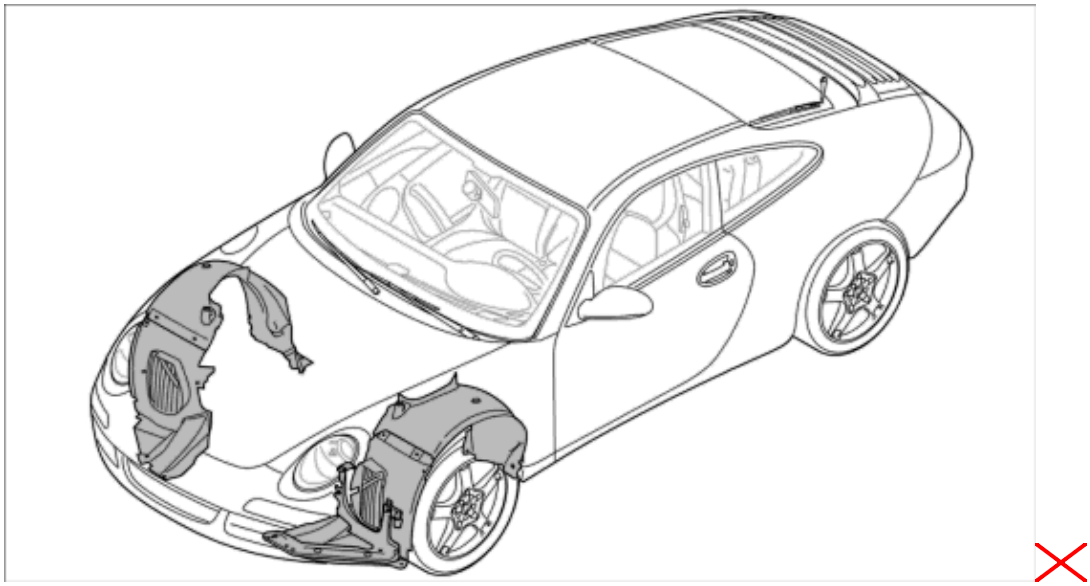
Note

Fastening nuts cannot be used again following removal.

1. Unscrew fastening nuts **-1-** and fastening screws **-2-** .
2. Remove wheel housing liner **-A-** .

Remove front wheel housing liner - front section

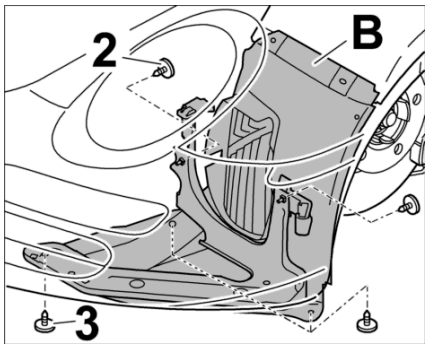
Installation Location:



Installation position of front wheel housing liner

Note

The front part of the wheel housing liner can also be removed without disassembling the front wheels.



Removing wheel housing liner part B

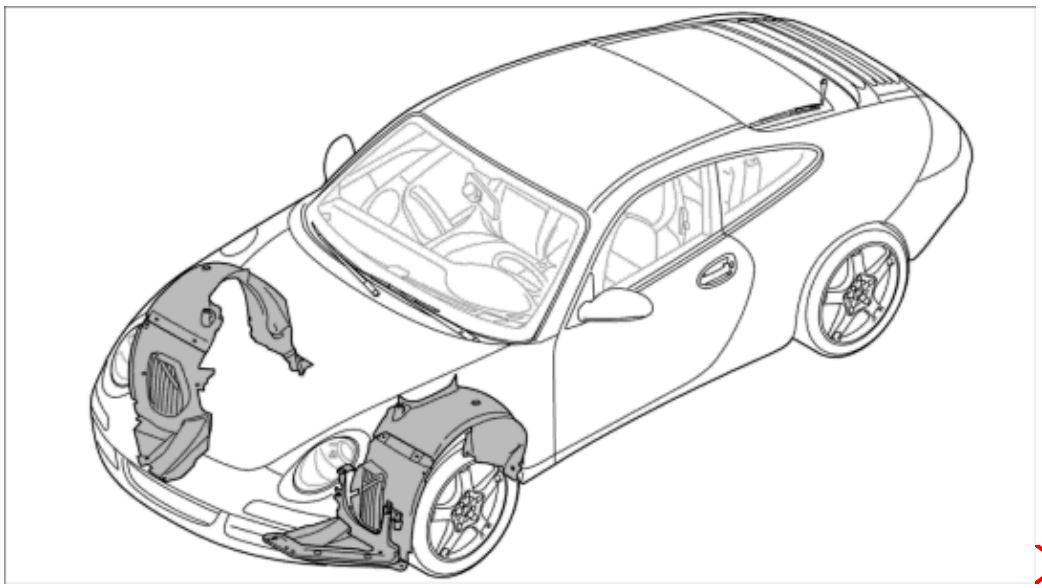
1. Unscrew fastening screws **-2, 3-** and remove wheel housing liner **-B-** .

top of page

Installing front wheel housing liner

Install front wheel housing liner - front section

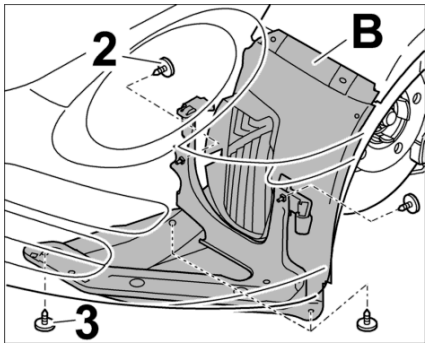
Installation Location:



Installation position of front wheel housing liner

Note

- *Push in wheel housing liner toward the outside up to contact in wing stop position.*
- *Ensure that the right wheel housing liner is guided through the opening on the wheel well.*

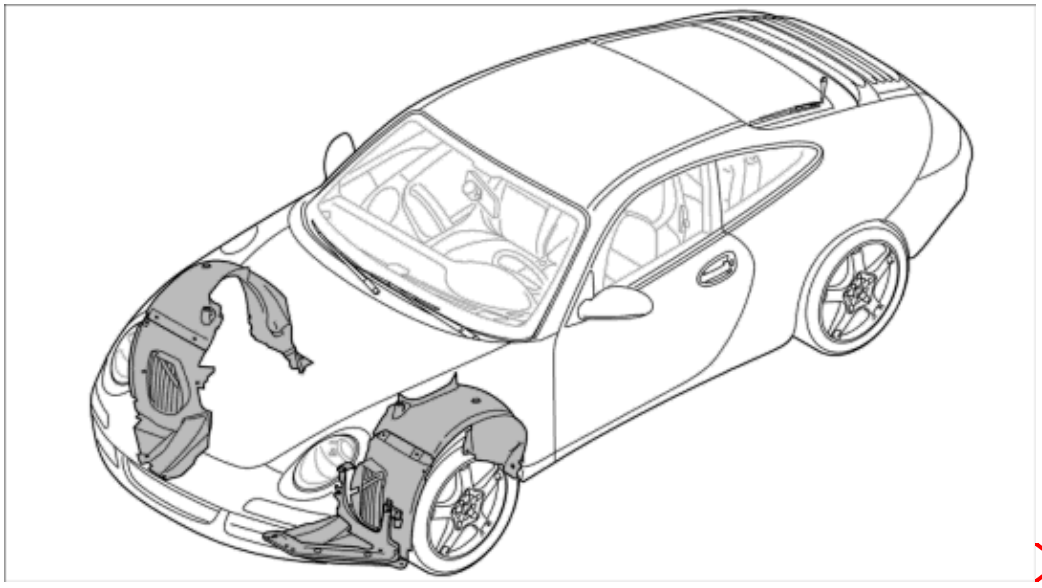


Fasten wheel housing liner part B

1. Insert wheel housing liner **-B-** .
2. Screw in fastening screws **-2-** and tighten **Final tightening: 2 (1.5) Nm (ftlb.)** .
3. Screw in fastening screws **-3-** and tighten **Final tightening: 2.8 (1.8) Nm (ftlb.)** .

Installing front wheel housing liner - rear section

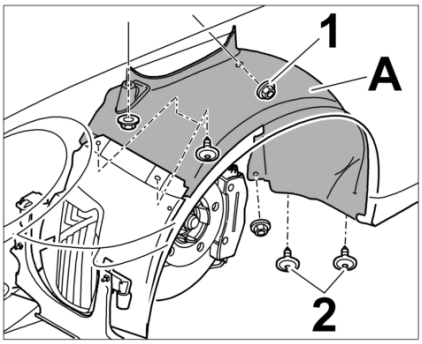
Installation Location:



Installation position of front wheel housing liner

Note

- *Push in wheel housing liner toward the outside up to contact in wing stop position.*
- *Ensure that the right wheel housing liner is guided through the opening on the wheel well.*



Removing front wheel housing liner - rear section

1. Insert wheel housing liner **-A-** .
2. Screw on fastening nuts **-1-** and tighten to the specified tightening torque **Final tightening: 1.5 (1.0 ftlb.) Nm** .
3. Screw in fastening screws **-2-** and tighten to the specified tightening torque **Final tightening: 2 (1.5 ftlb.) Nm** .

top of page

Subsequent work

Reworking

Fit front wheel. 440519 Removing and installing wheel - chapter on "installing"

997410, 997411, 997430, 997431, 997610, 997611, 997620

as of MY 2005
Country C00, C02, C05, C07, C08, C09, C10, C11, C12, C13, C14, C15, C16, C18, C19, C20, C21, C22, C23, C24, C25, C26, C27, C28, C32, C33, C34, C35, C36, C37, C38, C39, C45, C46, C98, C99

WARNUNG

Gefahr des Verlusts der Text-Bild-Zuordnung beim Ausdruck.

- **Aus technischen Gründen kann derzeit nicht ausgeschlossen werden, dass trotz einwandfreier Darstellung auf dem Bildschirm beim Ausdruck der Zusammenhang von Text und zugehörigem Bild verloren geht.**
- **Wird der Fehler nicht bemerkt, besteht die Gefahr, daß Arbeiten nicht korrekt durchgeführt werden und es dadurch zu Personen- und Sachschäden kommt.**

Vergleichen Sie deshalb nach dem Druckvorgang unbedingt die Ausdrucke mit der Bildschirmdarstellung. Korrigieren Sie die Ausdrucke im Fehlerfall so, daß der Inhalt der Bildschirmdarstellung zutreffend wiedergegeben wird.

50 74 55 Replacing front wheel housing - as of MY 2005

- General warning notes
- Tools and materials
- Preliminary work for body repairs with alignment bench
- Removing front wheel housing
- Preparing connection areas of body for installation of front wheel housing
- Fitting front wheel housing and preparing for installation
- Installing front wheel housing
- Subsequent work

Tools

Designation	Type	Number	Explanation	
Pneumatic body saw No. PS1, see Gr. 3.5; Workshop Equipment Manual	commercially available tool	00000		
Press-out tool	special tool	97290		
Star gauges for body gap dimensions	commercially available tool	NR.127-1		

Spotweld drill	commercially available tool	NR.129		
Inverter welding equipment ATL Inverterspot	workshop equipment	WE1194		

top of page

General warning notes

Safety instructions for body repairs

5 AW Safety instructions - General warning notes

top of page

Tools and materials

Tools and materials

Spotweld drill NR.129 Star gauges for body gap dimensions NR.127-1
Press-out tool 97290
Pneumatic body saw No. PS1, see Gr. 3.5; Workshop Equipment Manual 00000
Angle grinder, see Gr. 3.5; see Workshop Equipment Manual 00000
Oscillating body saw (special electrical cutter), see Gr. 3.5; Workshop Equipment Manual 00000
Rotary brush, see Gr. 3.5; Workshop Equipment Manual 00000
Hole punch, see Gr. 3.5; Workshop Equipment Manual 00000
Leister Elektron hot-air gun, see Gr. 3.5; Workshop Equipment Manual 00000
Inverter welding equipment ATL Inverterspot WE1194

Basic straightening attachments for 911 Carrera (996), see Gr. 3.5; Workshop Equipment Manual 00000
Additional straightening attachments for 911 Carrera (997), see Gr. 3.5; Workshop Equipment Manual 00000
Pneumatic spotweld remover, Vario Drill No. WS 90, see Gr. 3.5; Workshop Equipment Manual 00000

top of page

Preliminary work for body repairs with alignment bench

Preliminary work for body repairs with alignment bench

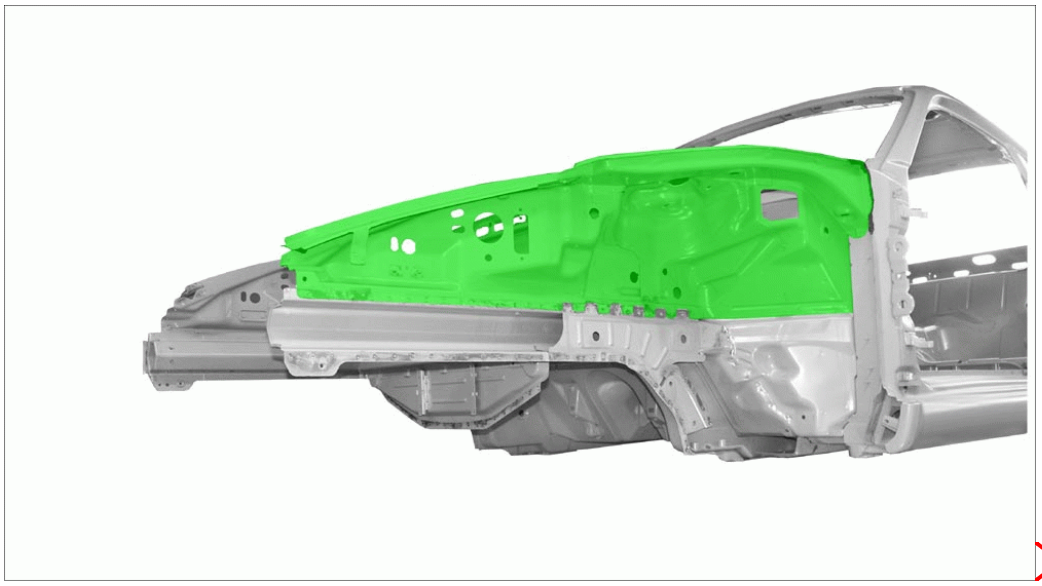
1. Removing accessories in the repair area
1.1. Remove accessories in the repair area according to the extent of damage to the vehicle.
2. Equipping alignment bench with straightening kit
2.1. Equip alignment bench with the basic straightening attachments according to the plans included with the straightening attachments.
3. Placing vehicle on the alignment bench
3.1. Position vehicle on alignment bench, align according to the reference holes and bolt firmly to the attachment set.
4. Covering accessories adjacent to the vehicle repair area
4.1. Cover all accessories remaining on the vehicle and the neighbouring areas with fire-proof, protective covers.
5. Reshaping connection area of the sheetmetal parts to be replaced
6. Exposing welding areas
6.1. Remove undersealing, paint, etc. from the welding areas of the body with a hot-air gun or rotary brush.

top of page

Removing front wheel housing

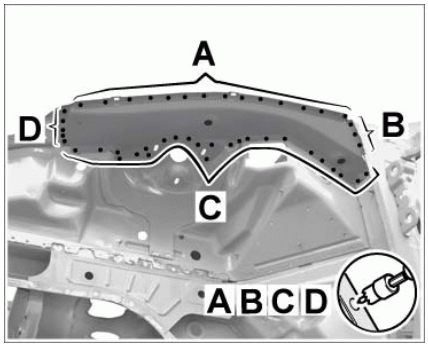
Removing reinforcement for front wheel housing

Installation Location:



Installation position of front wheel housing

1. Remove outer front side member. 507755 Replacing outer front side member - section on "Removing"

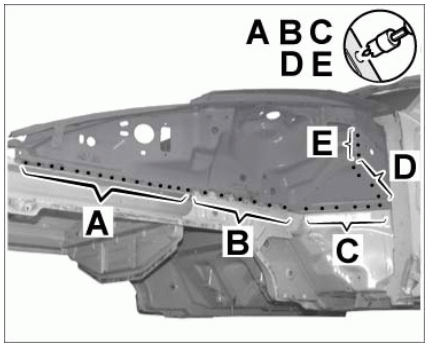


Removing reinforcement for front wheel housing

2. Mill off spotwelds.

2.1. Mill off spotwelds in areas **-A, B, C, D-** using a spotweld cutter.

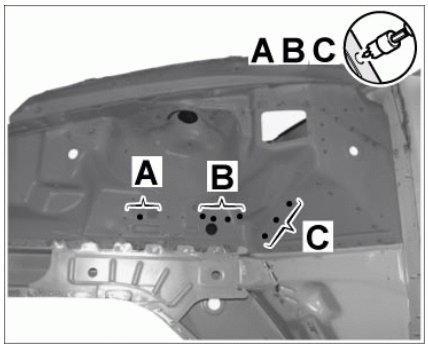
Removing front wheel housing



Cutting the spotwelds

1. Mill off spotwelds.

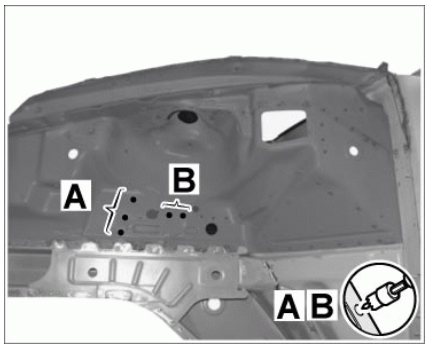
1.1. Mill off spotwelds in areas **-A, B, C, D, E-** using a spotweld cutter.



Cutting the spotwelds

2. Mill off spotwelds.

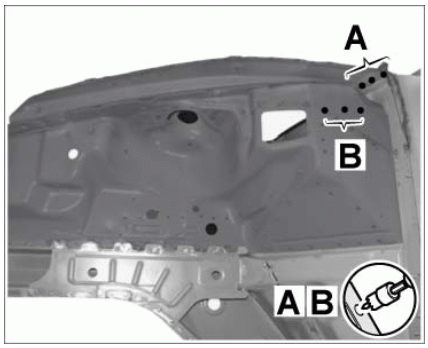
2.1. Mill off spotwelds in areas **-A, B, C-** using a spotweld cutter.



Cutting the spotwelds

3. Mill off spotwelds.

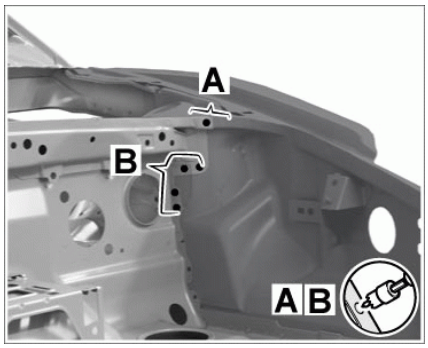
3.1. Mill off spotwelds in areas **-A-** and **-B-** using a spotweld cutter (2 plate thicknesses).



Cutting the spotwelds

4. Mill off spotwelds.

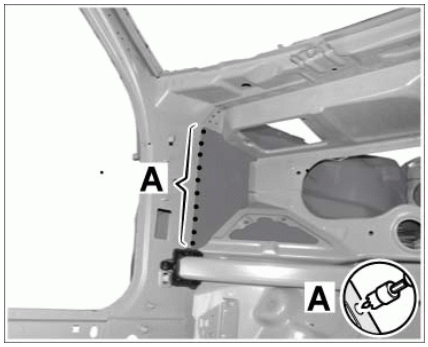
4.1. Mill off spotwelds on reinforcement for wheel housing in areas **-A-** and **-B-** using a spotweld cutter.



Cutting the spotwelds

5. Mill off spotwelds.

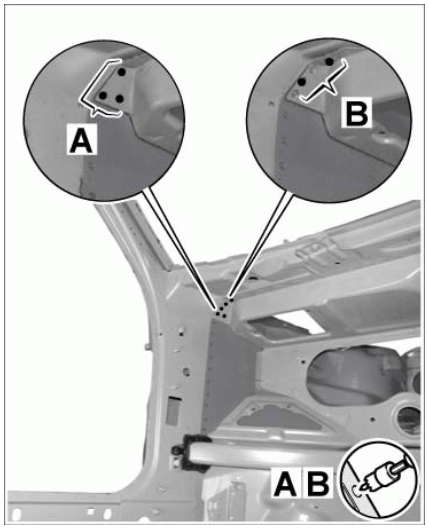
5.1. Mill off spotwelds in areas **-A-** and **-B-** using a spotweld cutter.



Cutting the spotwelds

6. Mill off spotwelds.

6.1. Mill off spot welds in area **-A-** for the hinge pillar using a spotweld cutter.



Cutting the spotwelds

7. Mill off spotwelds.

7.1. Mill off spotwelds in area **-A-** using a spotweld cutter (1 plate thickness).

7.2. Mill off spotwelds in area **-B-** using a spotweld cutter (2 plate thicknesses).

top of page

Preparing connection areas of body for installation of front wheel housing

Safety instructions for flying sparks during grinding and welding work

ATTENTION

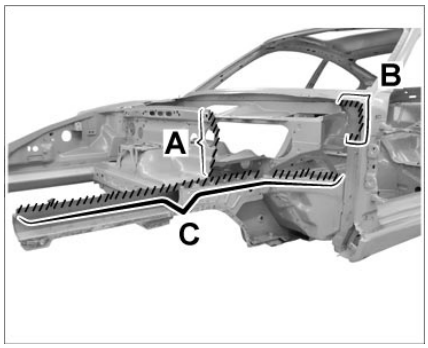
Danger of explosion and fire from flying sparks during grinding and welding work!

- **Danger of injury and danger of damage to vehicle parts and other vehicles due to flying sparks**

Cover vehicle parts such as battery, fuel system, paintwork, glass and passenger compartment parts with fire-proof covers and, if necessary, remove batteries and fuel-carrying components.

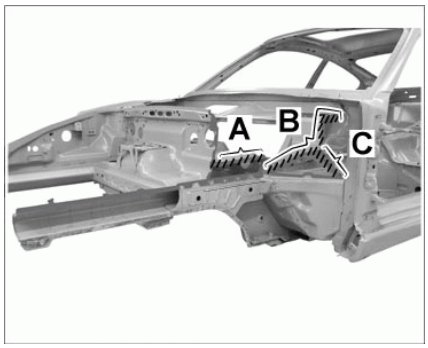
No other vehicles may be left unprotected in areas used for body repair!

Preparing connection areas of body for installing front wheel housing



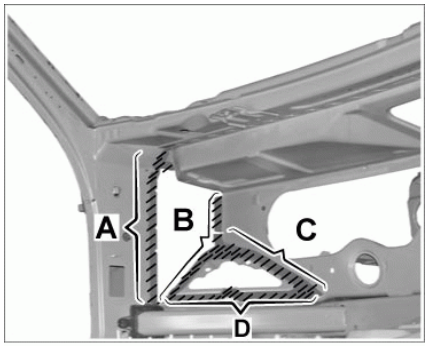
Cleaning connection areas

1. Clean undersealing, adhesive residue and paint off the body connecting flanges in the marked areas **-A, B, C-** using a hot-air gun or rotary brush. Grind the connecting flanges until bare.



Cleaning connection areas

2. Clean undersealing, adhesive residue and paint off the body connecting flanges in the marked areas **-A, B, C-** using a hot-air gun or rotary brush. Grind the connecting flanges until bare.



Cleaning connection areas

3. Clean undersealing, adhesive residue and paint off the body connecting flanges in the marked areas **-A, B, C, D-** using a hot-air gun or rotary brush. Grind the connecting flanges until bare.
4. Coat spot-weld flange areas with zinc powder paint.

4.1. Coat all spot-weld flange areas with zinc powder paint.

top of page

Fitting front wheel housing and preparing for installation

Safety instructions for sharp-edged body and unit parts

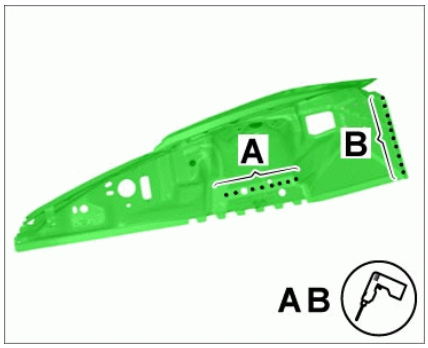
ATTENTION

Danger of injury! Sharp-edge burrs on body and unit parts!

- **Injuries from sharp edges on body and unit parts.**

Wear protective gloves when working in the area of sharp-edged body and unit parts!

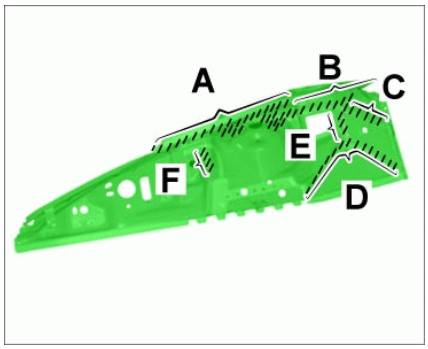
Fitting front wheel housing and preparing for installation



Drilling holes for plug welding using inert gas

1. Drill holes for plug welding using inert gas.

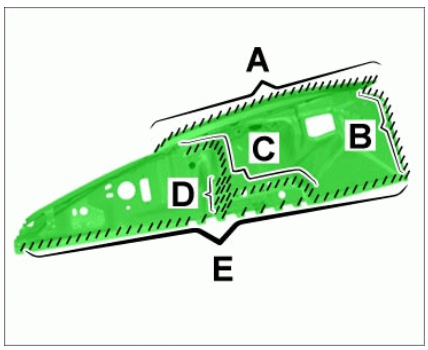
1.1. Drill holes (Ø = 7 mm) in areas **-A-** and **-B-** for plug welding using inert gas. Maintain spacing between the bores as on the old part.



Cleaning the welding areas

2. Clean the welding areas

2.1. Grind both sides of the connecting flanges of the front wheel housing in the marked areas **-A, B, C, D, E, F-** until bare using a rotary brush.



Cleaning the welding areas

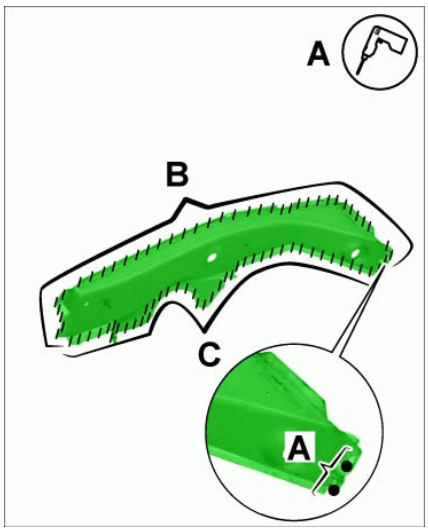
3. Cleaning the welding areas

3.1. Grind both sides of the connecting flanges of the front wheel housing in the marked areas **-A, B, C, D ,E-** until bare using a rotary brush.

4. Coat spot-weld flange areas with zinc powder paint.

4.1. Coat all spot-weld flange areas with zinc powder paint.

Preparing reinforcement for front wheel housing for installation



Preparing reinforcement for front wheel housing

1. Prepare reinforcement for front wheel housing.

1.1. Drill holes (Ø = 7 mm) in area **-A-** for plug welding using inert gas. Maintain spacing between the bores as on the old part.

1.2. Grind both sides of the connecting flanges of the front wheel housing in the marked areas **-B-** and **-C-** until bare using a rotary brush.

2. Coat spot-weld flange areas with zinc powder paint.

2.1. Coat all spot-weld flange areas with zinc powder paint.

top of page

Installing front wheel housing

Danger of injury when welding

DANGER

Risk of fatal injury from high voltage during electric welding!

- **Danger of explosion and fire when welding in the area of highly inflammable materials.**
- **Irritation to respiratory tracts from toxic zinc oxide emitted when welding galvanised steel!**
- **Danger of injury from unintentional triggering of pyrotechnical safety components!**
- **Danger of injury from weld spatters and UV light when welding!**

Do not perform welding work in a damp environment or on wet ground; there is a risk of fatal injury from the voltage being conducted through the human body. Persons with heart pacemakers should not perform welding work. Use insulating underlays.

Remove highly flammable materials from the work area; if necessary, remove units with fuel-carrying parts and protect work areas in the vehicle that are at risk of catching fire using fire-proof covers.

Ventilate the work area well.

Remove smoke gases with a suitable extraction system (refer to Workshop Equipment Manual).

Wear suitable protective equipment, such as protective clothing, gloves, a welding shield and, if necessary, a protective mask.

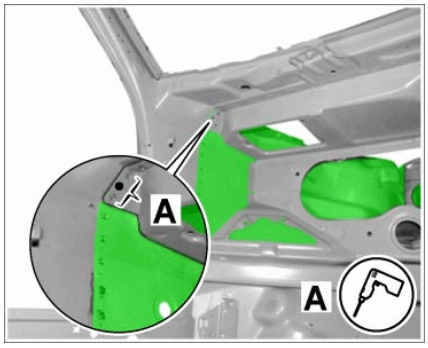
For welding work, always disconnect both terminals on the battery. In the case of welding work in the immediate vicinity of the control modules for pyrotechnical safety systems, remove the control modules before beginning work.

In addition, the guidelines of the welding equipment manufacturer and the legal accident prevention regulations and those of the mutual indemnity association (BGV D1) must be observed.

Installing front wheel housing

1. Fit the front wheel housing to the body.

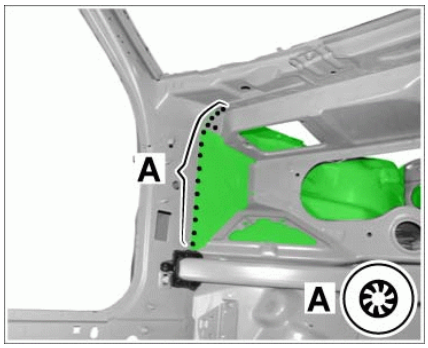
1.1. Place the front wheel housing against the body and secure to the straightening set.



Drilling holes for plug welding using inert gas

2. Drill hole for plug welding using inert gas.

2.1. After fitting in the new part, drill hole in area **-A-** by a further plate thickness.



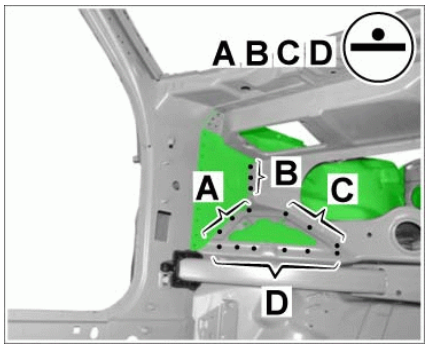
Welding in front wheel housing

Note

Determine the position of the new part and secure with tensioning clamps.
When butt welding body sheet panels with a sheet thickness of > 1.5 mm, there must be a welding slit width s = 1 x sheet thickness to guarantee the required welding quality (welding through).

3. Weld in front wheel housing.

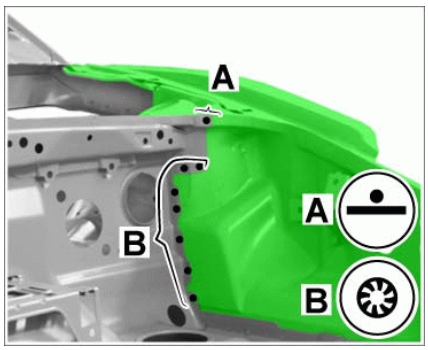
3.1. Plug-weld front wheel housing in area **-A-** using inert gas.



Welding in front wheel housing

4. Weld in front wheel housing.

4.1. Resistance spot-weld front wheel housing in areas **-A, B, C, D-** .

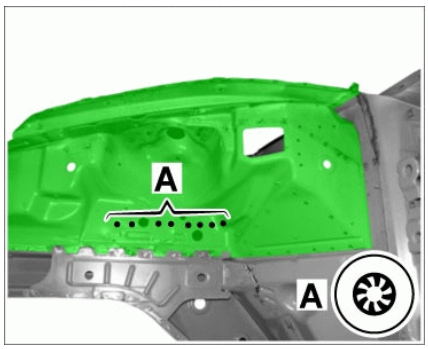


Welding in front wheel housing

5. Weld in front wheel housing.

5.1. Resistance spot-weld front wheel housing in area **-A-** .

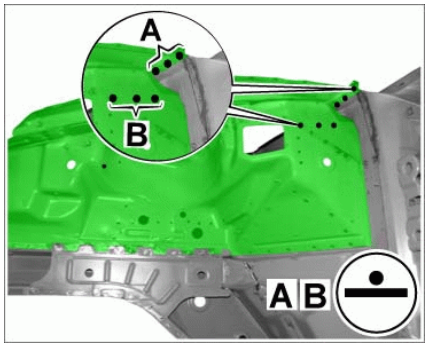
5.2. Plug-weld front wheel housing in area **-B-** using inert gas.



Welding in front wheel housing

6. Weld in front wheel housing.

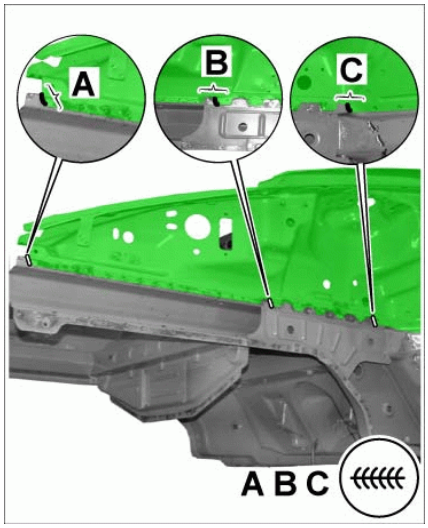
6.1. Plug-weld front wheel housing in area **-A-** using inert gas.



Welding in front wheel housing

7. Weld in front wheel housing.

7.1. Resistance spot-weld front wheel housing in areas **-A-** and **-B-** .

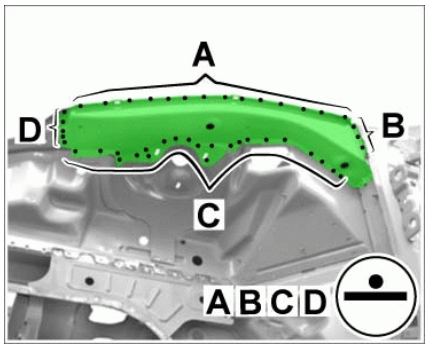


Welding in front wheel housing

8. Weld in front wheel housing.

8.1. Apply a full weld to the front wheel housing in areas **-A, B, C-** using inert gas.

Installing reinforcement for front wheel housing



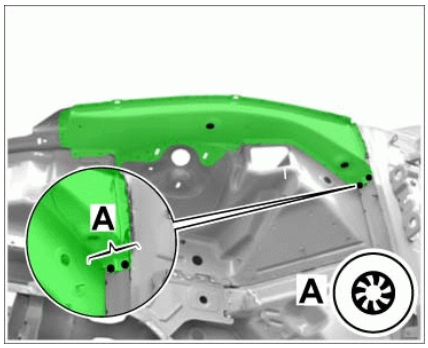
Welding in reinforcement for front wheel housing

Note

Determine the position of the new part and secure with tensioning clamps.
When butt welding body sheet panels with a sheet thickness of > 1.5 mm, there must be a welding slit width s = 1 x sheet thickness to guarantee the required welding quality (welding through).

1. Weld in reinforcement for front wheel housing.

1.1. Resistance spot-weld reinforcement for front wheel housing in areas **-A, B, C, D-** .



Welding in reinforcement for front wheel housing

2. Weld in reinforcement for front wheel housing.

2.1. Plug-weld reinforcement for front wheel housing in area **-A-** using inert gas.

3. Install front outer side member. 507755 Replacing outer front side member - section on "Installing"

top of page

Subsequent work

Subsequent work for body repairs

1. Removing vehicle from straightening bench
2. Cleaning spot-welded joints and sheetmetal flanges with a wire brush
3. Priming flange areas with 2K primer
4. Restore standard sealing with body sealant
   501000 Seam seal
5. Restore standard undersealing with underbody sealant
   501000 Undersealing
6. Painting repair area and adjacent surfaces, if necessary
7. Install removed add-on parts in the repair area
8. Apply cavity preservation.

997110, 997111, 997120, 997121, 997310, 997311, 997320, 997321, 997410, 997411, 997430, 997431, 997610, 997611, 997620, 997621

as of MY 2005
Country C00, C02, C05, C07, C08, C09, C10, C11, C12, C13, C14, C15, C16, C18, C19, C20, C21, C22, C23, C24, C25, C26, C27, C28, C32, C33, C34, C35, C36, C37, C38, C39, C45, C46, C98, C99

WARNUNG

Gefahr des Verlusts der Text-Bild-Zuordnung beim Ausdruck.

- **Aus technischen Gründen kann derzeit nicht ausgeschlossen werden, dass trotz einwandfreier Darstellung auf dem Bildschirm beim Ausdruck der Zusammenhang von Text und zugehörigem Bild verloren geht.**
- **Wird der Fehler nicht bemerkt, besteht die Gefahr, daß Arbeiten nicht korrekt durchgeführt werden und es dadurch zu Personen- und Sachschäden kommt.**

Vergleichen Sie deshalb nach dem Druckvorgang unbedingt die Ausdrucke mit der Bildschirmdarstellung. Korrigieren Sie die Ausdrucke im Fehlerfall so, daß der Inhalt der Bildschirmdarstellung zutreffend wiedergegeben wird.

WARNING

Danger of losing text-figure correspondence when printing out.

- **For technical reasons, it can currently not be ruled out that the correspondence between text and associated figure can be lost when it is printed out, even though the display on the screen is correct.**
- **If the fault is not noticed, there is the danger that work will not be performed correctly which can cause injury and damage.**

Therefore, always compare printouts with the screen display after printing them out. Correct the printouts if they are faulty so that the content of the screen display matches that on the printouts.

50 77 55 Replacing front outer side member - as of MY 2005

- Removing front outer side member
- Preparing connection areas of body for installing front outer side member
- Fitting front outer side member and preparing for installation
- Installing front outer side member

Tools

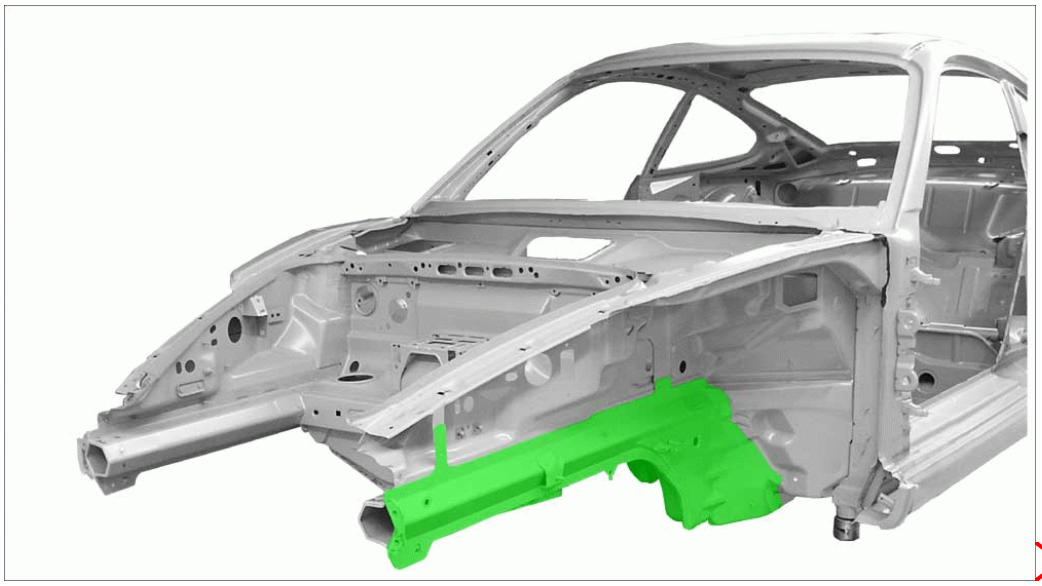
Designation	Type	Number	Explanation	
inverter-welding equipment ATL Inverterspot	workshop equipment	WE1194		

top of page

Removing front outer side member

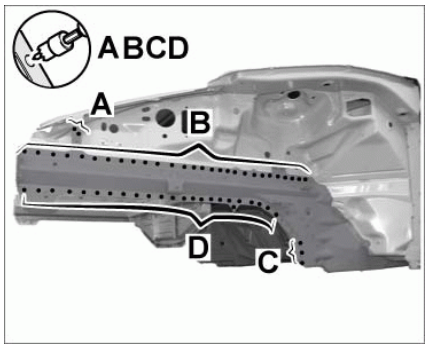
Removing outer front side member

Installation Location:



Installation position of outer front side member

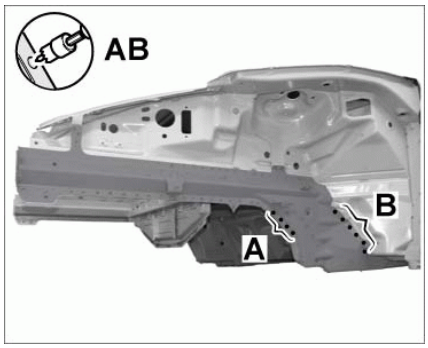
1. Remove the end plate. 501055 Replacing end plate - section on "Removing"
2. Remove floor front section. 502055 Replacing floor front section - section on "Removing"



Cutting the spotwelds

3. Mill off spotwelds.

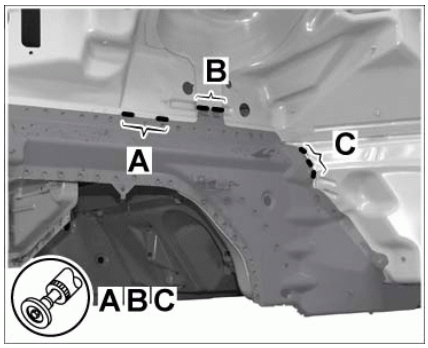
3.1. Mill off spotwelds in areas **-A, B, C, D-** using a spotweld cutter.



Cutting the spotwelds

4. Mill off spotwelds.

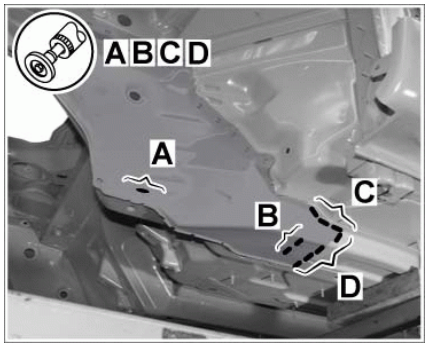
4.1. Mill off spotwelds in areas **-A-** and **-B-** using a spotweld cutter (2 plate thicknesses).



Separating inert-gas welded seams

5. Separate inert-gas welded seams.

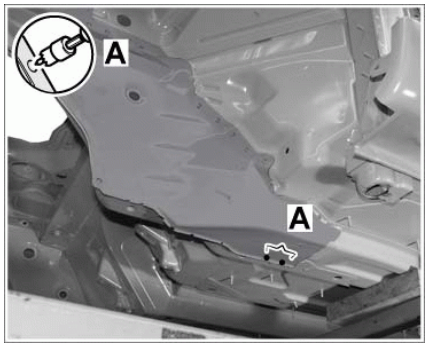
5.1. Separate welded seams applied using inert gas in areas **-A, B, C-** using a parting grinder.



Separating inert-gas welded seams

6. Separate inert-gas welded seams.

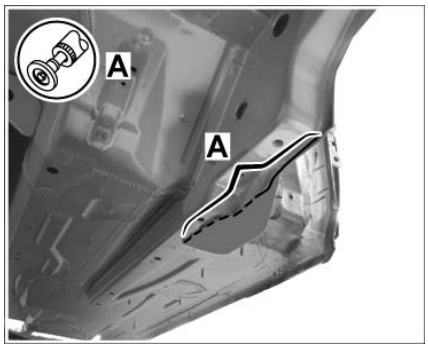
6.1. Separate welded seams applied using inert gas in areas **-A, B, C, D-** using a parting grinder.



Cutting the spotwelds

7. Mill off spotwelds.

7.1. Mill off spotwelds in area **-A-** using a spotweld cutter.



Separating inert-gas welded seams

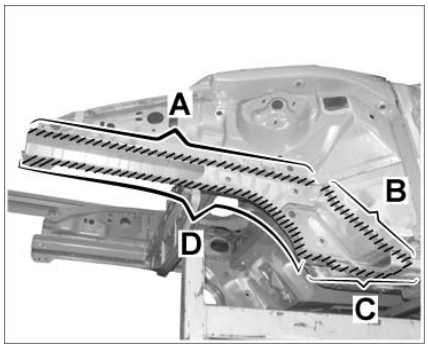
8. Separate inert-gas welded seams.

8.1. Separate welded seams applied using inert gas in area **-A-** from below using a parting grinder.

top of page

Preparing connection areas of body for installing front outer side member

Preparing connection areas of body for installing outer front side member



Preparing connection areas of the body for installing the side members

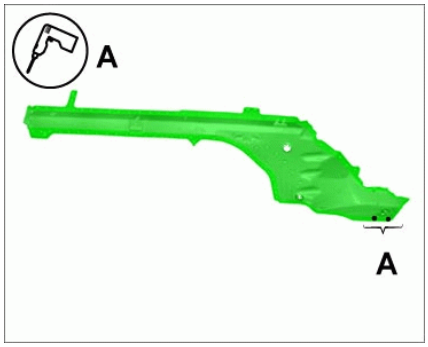
1. Clean undersealing, adhesive residue and paint off the body connecting flanges in the marked areas **-A, B, C, D-** using a hot-air gun or rotary brush. Grind the connecting flanges until bare.
2. Coat spot-weld flange areas with zinc powder paint.

2.1. Coat all spot-weld flange areas with zinc powder paint.

top of page

Fitting front outer side member and preparing for installation

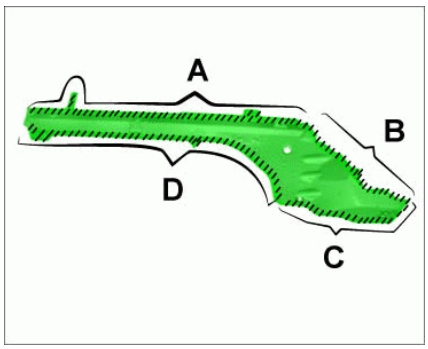
Fitting outer front side member and preparing for installation



Punch holes for plug welding using inert gas.

1. Drill holes for plug welding using inert gas.

1.1. Drill holes in area **-A-** for plug welding using inert gas. Maintain spacing between the bores as on the old part.



Cleaning the welding areas

2. Cleaning the welding areas

2.1. Grind both sides of the connecting flanges of the outer side member in the marked areas **-A, B, C, D-** until bare using a rotary brush.

3. Coat spot-weld flange areas with zinc powder paint.

3.1. Coat all spot-weld flange areas with zinc powder paint.

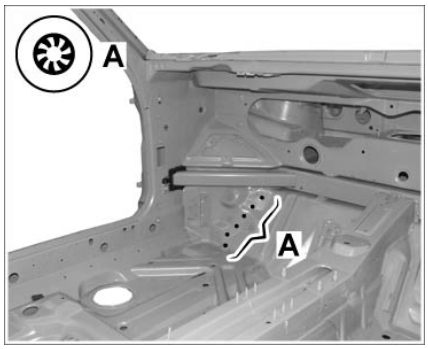
top of page

Installing front outer side member

Installing outer front side member

1. Fit outer front side member to the body.

1.1. Place the outer front side member on the body and secure to the straightening set.



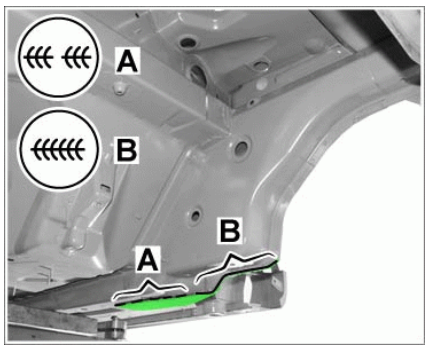
Welding in outer front side member

Note

Determine the position of the new part and secure with tensioning clamps.
When butt welding body sheet panels with a sheet thickness of > 1.5 mm, there must be a welding slit width s = 1 x sheet thickness to guarantee the required welding quality (welding through).

2. Weld in the outer front side member.

2.1. Plug-weld the outer front side member in area **-A-** using inert gas.

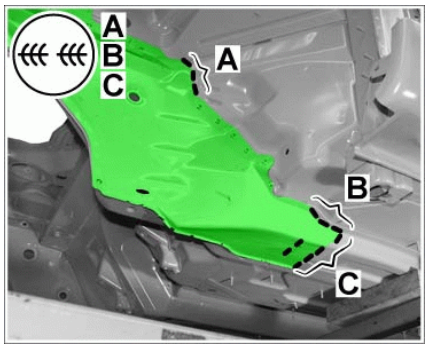


Welding in outer front side member

3. Weld in the outer front side member.

3.1. Apply a full weld to the outer front side member in area **-A-** using inert gas (interrupted).

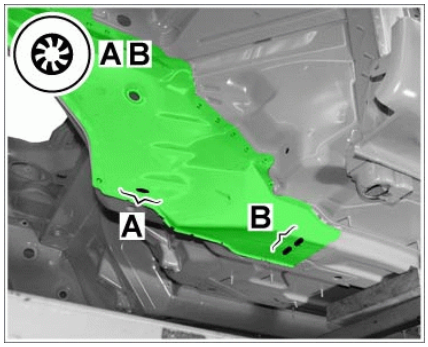
3.2. Apply a full weld to the outer front side member in area **-B-** using inert gas.



Welding in outer front side member

4. Weld in the outer front side member.

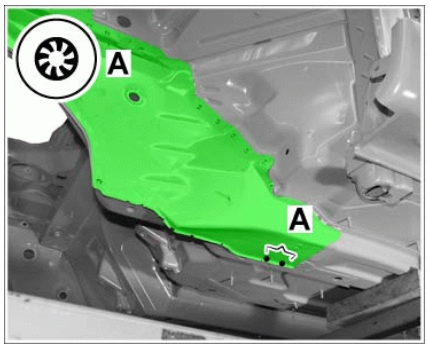
4.1. Apply a full weld to the outer front side member in area **-A, B, C-** using inert gas (interrupted).



Welding in outer front side member

5. Weld in the outer front side member.

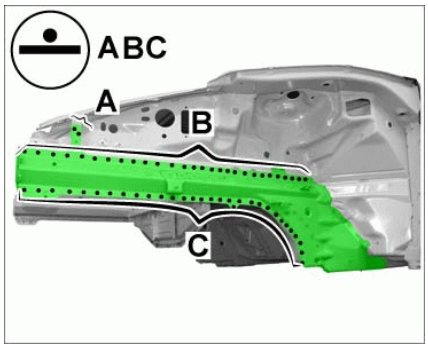
5.1. Plug-weld the outer front side member in areas **-A-** and **-B-** using inert gas (through existing slots).



Welding in outer front side member

6. Weld in the outer front side member.

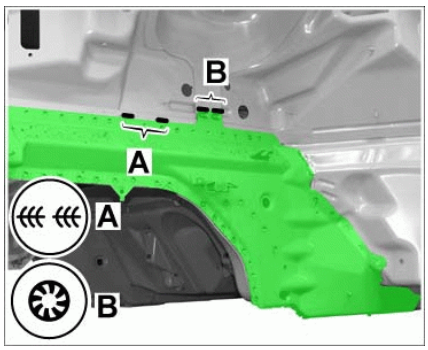
6.1. Plug-weld the outer front side member in area **-A-** using inert gas.



Welding in outer front side member

7. Weld in the outer front side member.

7.1. Resistance spot-weld outer front side member in area **-A, B, C-** using **inverter-welding equipment ATL Inverterspot WE1194**.



Welding in outer front side member

8. Weld in outer front side member.

8.1. Apply a full weld to the outer front side member in area **-A-** using inert gas (interrupted).

8.2. Plug-weld the outer front side member in area **-B-** using inert gas.

9. Install floor front section. 502055 Replacing floor front section - section on "Installing"

10. Install end plate. 501055 Replacing end plate - section on "Installing"

997110, 997111, 997120, 997121, 997310, 997311, 997320, 997321, 997410, 997411, 997430, 997431, 997610, 997611, 997620, 997621

as of MY 2005
Country C00, C02, C05, C07, C08, C09, C10, C11, C12, C13, C14, C15, C16, C18, C19, C20, C21, C22, C23, C24, C25, C26, C27, C28, C32, C33, C34, C35, C36, C37, C38, C39, C45, C46, C98, C99

WARNUNG

Gefahr des Verlusts der Text-Bild-Zuordnung beim Ausdruck.

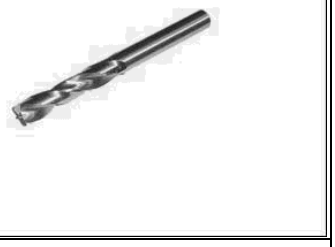
- **Aus technischen Gründen kann derzeit nicht ausgeschlossen werden, dass trotz einwandfreier Darstellung auf dem Bildschirm beim Ausdruck der Zusammenhang von Text und zugehörigem Bild verloren geht.**

50 79 55 Replacing inner front side member - as of MY 2005

- General warning notes
- Preliminary work for body repairs with alignment bench
- Removing inner front side member
- Preparing connection areas of body for installation of inner front side member
- Fitting inner front side member and preparing for installation
- Installing inner front side member
- Subsequent work

Tools

Designation	Type	Number	Explanation	
Pneumatic body saw No. PS1, see Gr. 3.5; Workshop Equipment Manual	commercially available tool	00000		
Press-out tool	special tool	97290		
Star gauges for body gap dimensions	commercially available tool	NR.127-1		

Spotweld drill	commercially available tool	NR.129		
Inverter welding equipment ATL Inverterspot	workshop equipment	WE1194		

top of page

General warning notes

Safety instructions for body repairs

5 AW Safety instructions - General warning notes

Tools and materials

Spotweld drill NR.129 Star gauges for body gap dimensions NR.127-1
Press-out tool 97290
Pneumatic body saw No. PS1, see Gr. 3.5; Workshop Equipment Manual 00000
Angle grinder, see Gr. 3.5; see Workshop Equipment Manual 00000
Oscillating body saw (special electrical cutter), see Gr. 3.5; Workshop Equipment Manual 00000
Rotary brush, see Gr. 3.5; Workshop Equipment Manual 00000
Hole punch, see Gr. 3.5; Workshop Equipment Manual 00000
Leister Elektron hot-air gun, see Gr. 3.5; Workshop Equipment Manual 00000
Inverter welding equipment ATL Inverterspot WE1194
Basic straightening attachments for 911 Carrera (996), see Gr. 3.5; Workshop Equipment Manual 00000
Additional straightening attachments for 911 Carrera (997), see Gr. 3.5; Workshop Equipment Manual 00000
Pneumatic spotweld remover, Vario Drill No. WS 90, see Gr. 3.5; Workshop Equipment Manual 00000

top of page

Preliminary work for body repairs with alignment bench

Preliminary work for body repairs with alignment bench

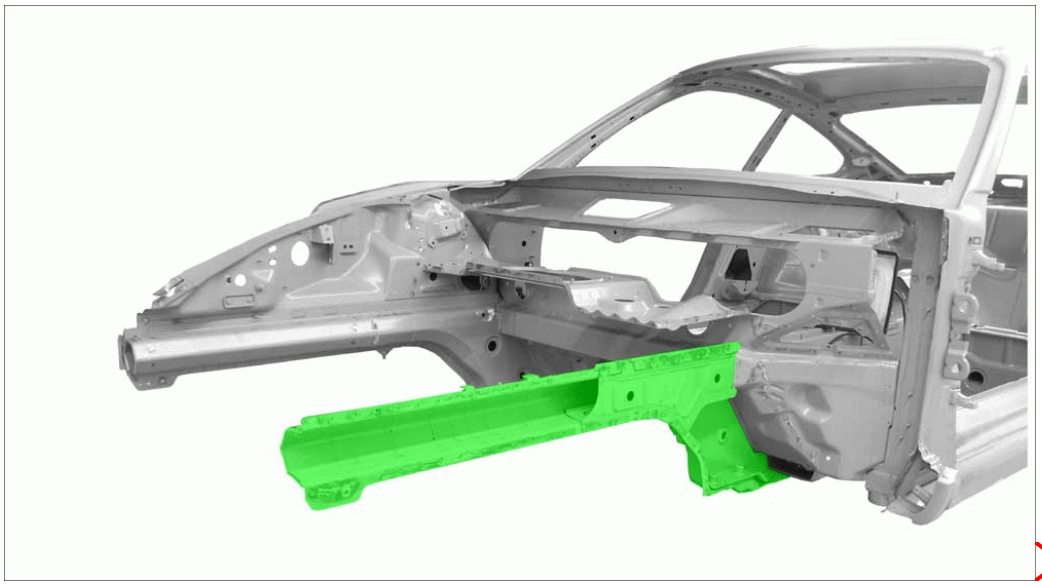
1. Removing accessories in the repair area
1.1. Remove accessories in the repair area according to the extent of damage to the vehicle.
2. Equipping alignment bench with straightening kit
2.1. Equip alignment bench with the basic straightening attachments according to the plans included with the straightening attachments.
3. Placing vehicle on the alignment bench
3.1. Position vehicle on alignment bench, align according to the reference holes and bolt firmly to the attachment set.
4. Covering accessories adjacent to the vehicle repair area
4.1. Cover all accessories remaining on the vehicle and the neighbouring areas with fire-proof, protective covers.
5. Reshaping connection area of the sheetmetal parts to be replaced
6. Exposing welding areas
6.1. Remove undersealing, paint, etc. from the welding areas of the body with a hot-air gun or rotary brush.

top of page

Removing inner front side member

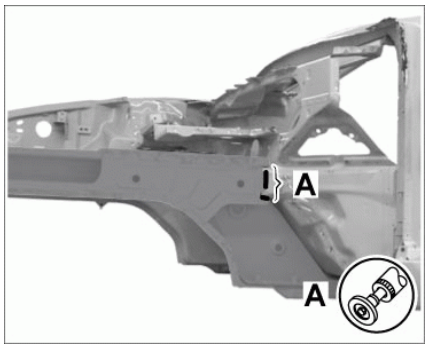
Removing inner front side member

Installation Location:



Installation position of inner front side member

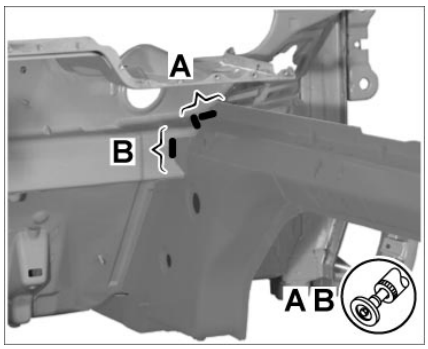
1. Remove the end plate. 501055 Replacing end plate - section on "Removing"
2. Remove floor front section. 502055 Replacing floor front section - section on "Removing"
3. Remove front wheel housing. 507455 Replacing wheel housings and side members - section on "Removing"



Separating welded seams

4. Separate welded seams.

4.1. Separate inert-gas welded seams in area **-A-** using a parting grinder.

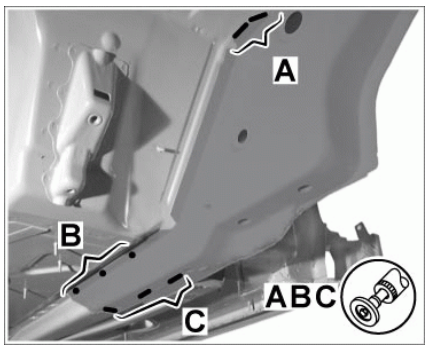


Separating welded seams

5. Separate welded seams.

5.1.

Separate inert-gas welded seams in areas **-A-** and **-B-** using a parting grinder.



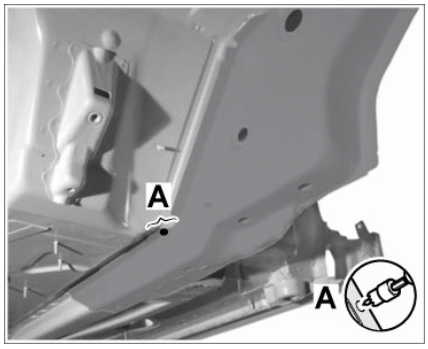
Separating welded seams

6. Separate welded seams.

6.1. Separate inert-gas welded seams in area **-A-** using a parting grinder.

6.2. Separate inert-gas plug welds in area **-B-** using a parting grinder.

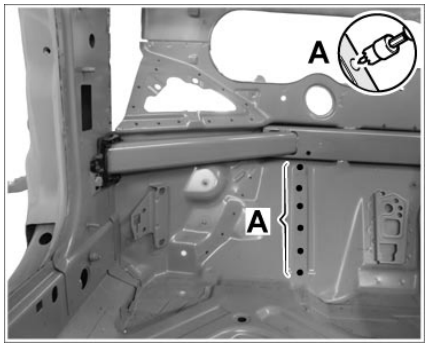
6.3. Separate inert-gas slot welds in area **-C-** using a parting grinder.



Milling off spotweld

7. Mill off spotweld.

7.1. Mill off spotweld in area **-A-** using a spotweld cutter.



Milling off spotwelds

8. Mill off spotwelds.

8.1. Mill off spotwelds in area **-A-** using a spotweld cutter.

top of page

Preparing connection areas of body for installation of inner front side member

Safety instructions for flying sparks during grinding and welding work

ATTENTION

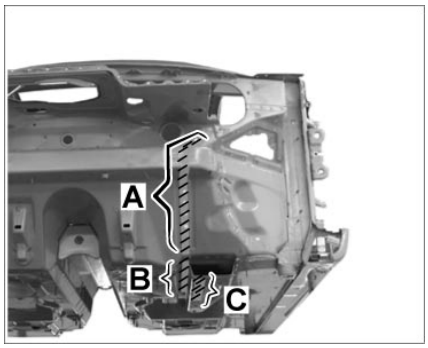
Danger of explosion and fire from flying sparks during grinding and welding work!

- **Danger of injury and danger of damage to vehicle parts and other vehicles due to flying sparks**

Cover vehicle parts such as battery, fuel system, paintwork, glass and passenger compartment parts with fire-proof covers and, if necessary, remove batteries and fuel-carrying components.

No other vehicles may be left unprotected in areas used for body repair!

Preparing connection areas of body for installing inner front side member



Cleaning the welding areas

1. Clean undersealing, adhesive residue and paint off the body connecting flanges in the marked areas **-A, B, C-** using a hot-air gun or rotary brush. Grind the connecting flanges until bare.
2. Coat spot-weld flange areas with zinc powder paint.

2.1. Coat all spot-weld flange areas with zinc powder paint.

top of page

Fitting inner front side member and preparing for installation

Safety instructions for sharp-edged body and unit parts

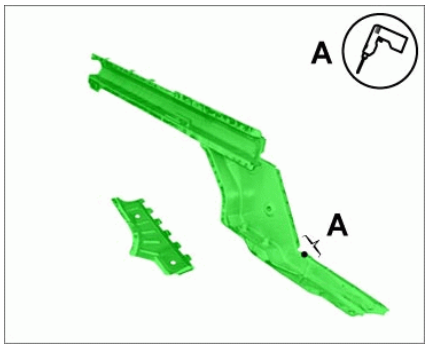
ATTENTION

Danger of injury! Sharp-edge burrs on body and unit parts!

- **Injuries from sharp edges on body and unit parts.**

Wear protective gloves when working in the area of sharp-edged body and unit parts!

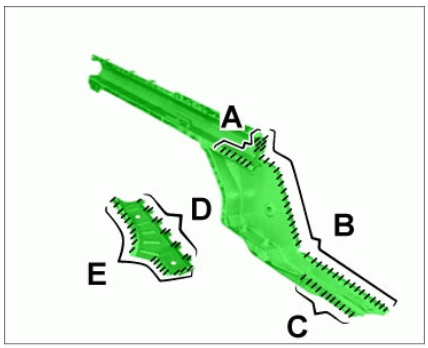
Fitting inner front side member and preparing for installation



Drilling holes for plug welding using inert gas

1. Drill holes for plug welding using inert gas.

1.1. Drill holes (Ø = 7 mm) in the area for plug welding using inert gas.



Cleaning the welding areas

2. Cleaning the welding areas

2.1. Grind both sides of the connecting flanges of the inner side member and the reinforcement plate in the marked areas **-A, B, C, D-** until bare using a rotary brush.

3. Coat spot-weld flange areas with zinc powder paint.

3.1. Coat all spot-weld flange areas with zinc powder paint.

top of page

Installing inner front side member

Danger of injury when welding

DANGER

Risk of fatal injury from high voltage during electric welding!

- **Danger of explosion and fire when welding in the area of highly inflammable materials.**
- **Irritation to respiratory tracts from toxic zinc oxide emitted when welding galvanised steel!**
- **Danger of injury from unintentional triggering of pyrotechnical safety components!**
- **Danger of injury from weld spatters and UV light when welding!**

Do not perform welding work in a damp environment or on wet ground; there is a risk of fatal injury from the voltage being conducted through the human body. Persons with heart pacemakers should not perform welding work. Use insulating underlays.

Remove highly flammable materials from the work area; if necessary, remove units with fuel-carrying parts and protect work areas in the vehicle that are at risk of catching fire using fire-proof covers.

Ventilate the work area well.

Remove smoke gases with a suitable extraction system (refer to Workshop Equipment Manual).

Wear suitable protective equipment, such as protective clothing, gloves, a welding shield and, if necessary, a protective mask.

For welding work, always disconnect both terminals on the battery. In the case of welding work in the immediate vicinity of the control modules for pyrotechnical safety systems, remove the control modules before beginning work.

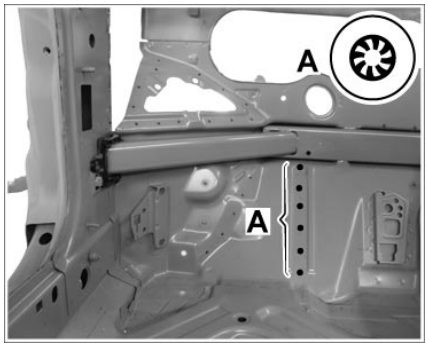
In addition, the guidelines of the welding equipment manufacturer and the legal accident prevention regulations and those of the mutual indemnity association (BGV D1) must be observed.

Installing inner front side member

1. Fit outer front side member to the body.

1.1. Place the outer front side member on the body and secure to the straightening

set.



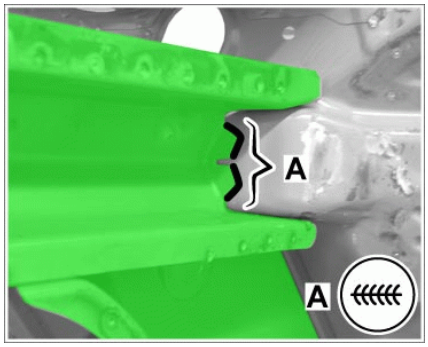
Welding in inner front side member

Note

Determine the position of the new part and secure with tensioning clamps.
When butt welding body sheet panels with a sheet thickness of > 1.5 mm, there must be a welding slit width s = 1 x sheet thickness to guarantee the required welding quality (welding through).

2. Weld in inner front side member.

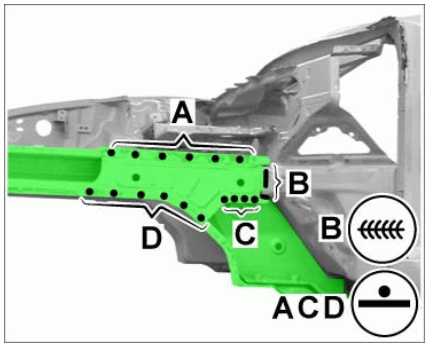
2.1. Plug-weld the inner front side member in area **-A-** using inert gas.



Welding in inner front side member

3. Weld in inner front side member.

3.1. Apply a full weld to the outer front side member in area **-A-** using inert gas.

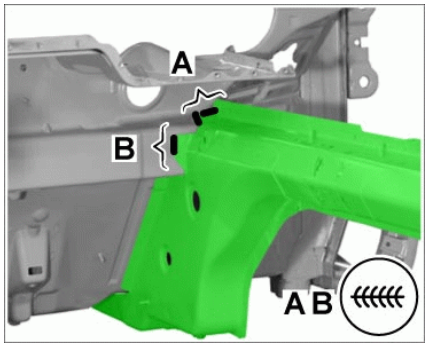


Welding in reinforcement plate

4. Weld in the reinforcement plate.

4.1. Resistance spot-weld the reinforcement plate in areas **-A, C, D-** .

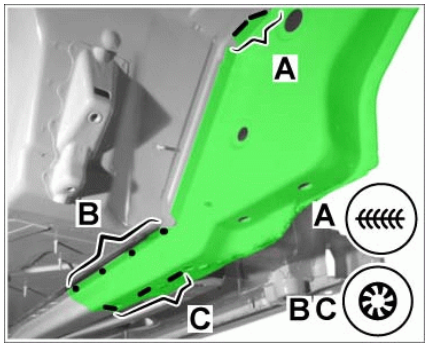
4.2. Apply a full weld to the reinforcement plate in area **-B-** using inert gas.



Welding in inner front side member

5. Weld in inner front side member.

5.1. Apply a full weld to the inner front side member in area **-A, B-** using inert gas.



Welding in inner front side member

6. Weld in inner front side member.

6.1. Apply a full weld to the inner front side member in area **-A-** using inert gas.

6.2. Plug-weld the inner front side member in area **-B-** using inert gas.

6.3. Plug-weld the inner front side member in area **-C-** using inert gas (through existing slots).

7. Install front wheel housing. 507455 Replacing wheel housings and side members - section on "Installing"

8. Install floor front section. 502055 Replacing floor front section - section on "Installing"

9. Install end plate. 501055 Replacing end plate - section on "Installing"

top of page

Subsequent work

Subsequent work for body repairs

1. Remove vehicle from the alignment bench.

2. Clean welded joints and sheetmetal flanges with a wire brush.
3. Prime flange areas with 2K primer.
4. Restore standard sealing with body sealant.
   5 Seam sealing
5. Restore standard undersealing with underbody sealant.
   5 Underbody protection
6. Paint repair area and adjacent surfaces, if necessary.
7. Install removed accessories in the repair area.
8. Apply cavity preservation.

997110, 997111, 997120, 997121, 997310, 997311, 997320, 997321, 997410, 997411, 997430, 997431, 997610, 997611, 997620, 997621

as of MY 2005
Country C00, C02, C05, C07, C08, C09, C10, C11, C12, C13, C14, C15, C16, C18, C19, C20, C21, C22, C23, C24, C25, C26, C27, C28, C32, C33, C34, C35, C36, C37, C38, C39, C45, C46, C98, C99

WARNUNG

Gefahr des Verlusts der Text-Bild-Zuordnung beim Ausdruck.

- **Aus technischen Gründen kann derzeit nicht ausgeschlossen werden, dass trotz einwandfreier Darstellung auf dem Bildschirm beim Ausdruck der Zusammenhang von Text und zugehörigem Bild verloren geht.**
- **Wird der Fehler nicht bemerkt, besteht die Gefahr, daß Arbeiten nicht korrekt durchgeführt werden und es dadurch zu Personen- und Sachschäden kommt.**

Vergleichen Sie deshalb nach dem Druckvorgang unbedingt die Ausdrucke mit der Bildschirmdarstellung. Korrigieren Sie die Ausdrucke im Fehlerfall so, daß der Inhalt der Bildschirmdarstellung zutreffend wiedergegeben wird.

WARNING

Danger of losing text-figure correspondence when printing out.

- **For technical reasons, it can currently not be ruled out that the correspondence between text and associated figure can be lost when it is printed out, even though the display on the screen is correct.**
- **If the fault is not noticed, there is the danger that work will not be performed correctly which can cause injury and damage.**

Therefore, always compare printouts with the screen display after printing them out. Correct the printouts if they are faulty so that the content of the screen display matches that on the printouts.

AVERTISSEMENT

50 79 55 Replacing front side member (section) - as of MY 2005

- General warning notes
- Preparing connection areas of body for installing front side members
- Fitting front side member and preparing for installation
- Subsequent work

Tools

Designation	Type	Number	Explanation	
Pneumatic body saw No. PS1, see Gr. 3.5; Workshop Equipment Manual	commercially available tool	00000		
Press-out tool	special tool	97290		
Star gauges for body gap dimensions	commercially available tool	NR.127-1		
Spotweld drill	commercially available tool	NR.129		

Inverter welding equipment ATL Inverterspot	workshop equipment	WE1194		PORSCHE siehe Handbuch Werkstattausrüstung Voir le Manuel Equipement d´atelier Refer to the Workshop Equipment manual Vease Manual de Equipamiento de Taller Vedere il Manuale dell´attrezzatura d´officina ワークショップ・イクイップメント・マニュアルを参照

top of page

General warning notes

Safety instructions for body repairs

5 AW Safety instructions - General warning notes

Tools and materials

Spotweld drill NR.129 Star gauges for body gap dimensions NR.127-1
Press-out tool 97290
Pneumatic body saw No. PS1, see Gr. 3.5; Workshop Equipment Manual 00000
Angle grinder, see Gr. 3.5; see Workshop Equipment Manual 00000
Oscillating body saw (special electrical cutter), see Gr. 3.5; Workshop Equipment Manual 00000
Rotary brush, see Gr. 3.5; Workshop Equipment Manual 00000
Hole punch, see Gr. 3.5; Workshop Equipment Manual 00000
Leister Elektron hot-air gun, see Gr. 3.5; Workshop Equipment Manual 00000
Inverter welding equipment ATL Inverterspot WE1194
Basic straightening attachments for 911 Carrera (996), see Gr. 3.5; Workshop Equipment Manual 00000
Additional straightening attachments for 911 Carrera (997), see Gr. 3.5; Workshop Equipment Manual 00000
Pneumatic spotweld remover, Vario Drill No. WS 90, see Gr. 3.5; Workshop Equipment Manual 00000

Preliminary work for body repairs with alignment bench

1. Removing accessories in the repair area

1.1. Remove accessories in the repair area according to the extent of damage to the vehicle.

2. Equipping alignment bench with straightening kit

2.1. Equip alignment bench with the basic straightening attachments according to the plans included with the straightening attachments.

3. Placing vehicle on the alignment bench

3.1. Position vehicle on alignment bench, align according to the reference holes and bolt firmly to the attachment set.

4. Covering accessories adjacent to the vehicle repair area

4.1. Cover all accessories remaining on the vehicle and the neighbouring areas with fire-proof, protective covers.

5. Reshaping connection area of the sheetmetal parts to be replaced

6. Exposing welding areas

6.1. Remove undersealing, paint, etc. from the welding areas of the body with a hot-air gun or rotary brush.

Preliminary work for body repairs

Note

- *If it can be ensured there has been no deformation of the vehicle structure, the following repair can be carried out without the need of a straightening bench. In this case, the vehicle must not be raised when welding the component; it must stand on its wheels on an even surface.*

1. Removing add-on parts in the repair area

1.1. Remove add-on parts in the repair area according to the extent of damage to the vehicle.

2. Equipping straightening bench with straightening attachments

2.1. Equip straightening bench with the straightening attachments according to the plans included with the straightening attachments.

3. Placing vehicle on the straightening bench

3.1. Position vehicle on the straightening bench, align according to the reference holes and bolt firmly to the attachment set.

4. Covering add-on parts adjacent to the vehicle repair area

4.1. Cover all add-on parts remaining on the vehicle and the neighbouring areas with fire-proof, protective covers.

5. Reshaping connection area of the sheetmetal parts to be replaced

6. Exposing welding areas

6.1. Remove undersealing, paint, etc. from the welding areas of the body with a hot-air gun or rotary brush.

Possible separation points

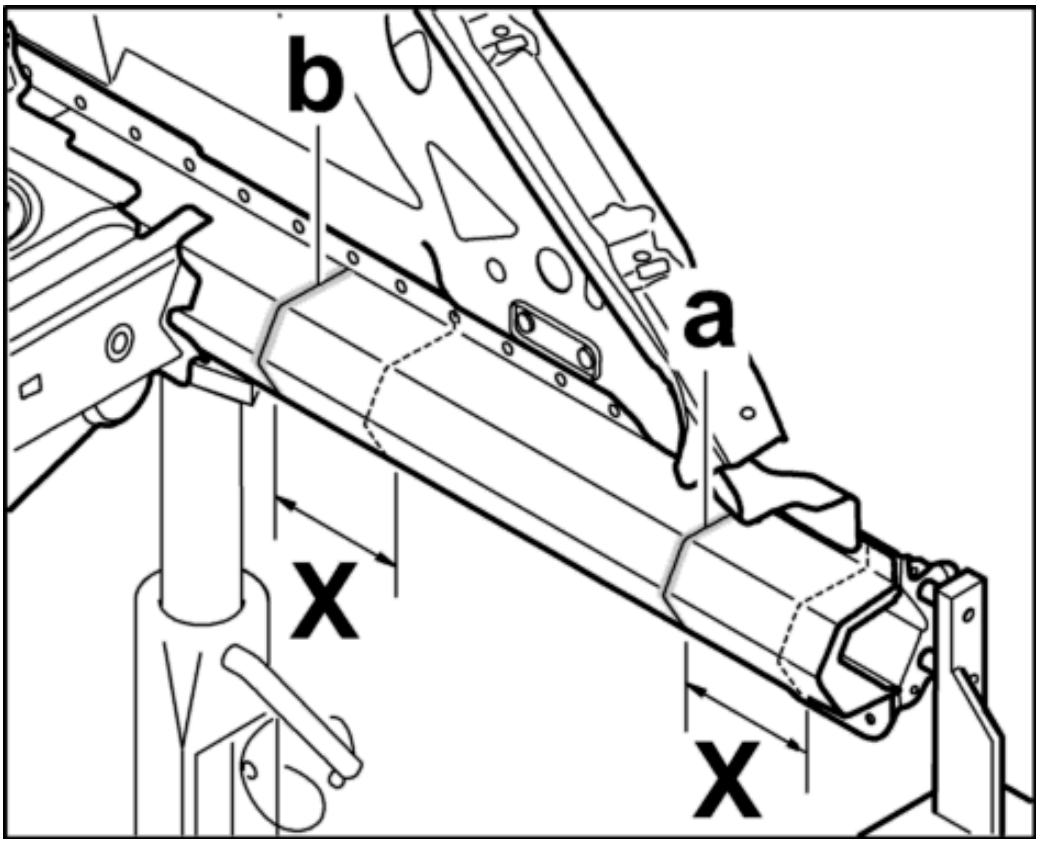
WARNING

Possible separation points on inner side member

- **Danger of material damage and injury**

The possible separation points on the inner side member are **30 mm in front of the tailored blanks (laser weld) against the direction of travel.**

1. Possible separation points
1.1. On front side member
1.2. The separation point on the inner side member must be in front of the tailored blank weld (laser weld) in area **a or b** at **dimension X = 30 mm**.



Possible separation points

Removing front side member (section)

1. Remove wheel housing if necessary. *507441 21 Repairing front wheel housing - removing*
2. Remove end plate. *501019 21 Removing and installing front closing panel - removing*
3. Remove floor front section if necessary. 502055 Replacing floor front section - removing
4. Cutting off inner side member

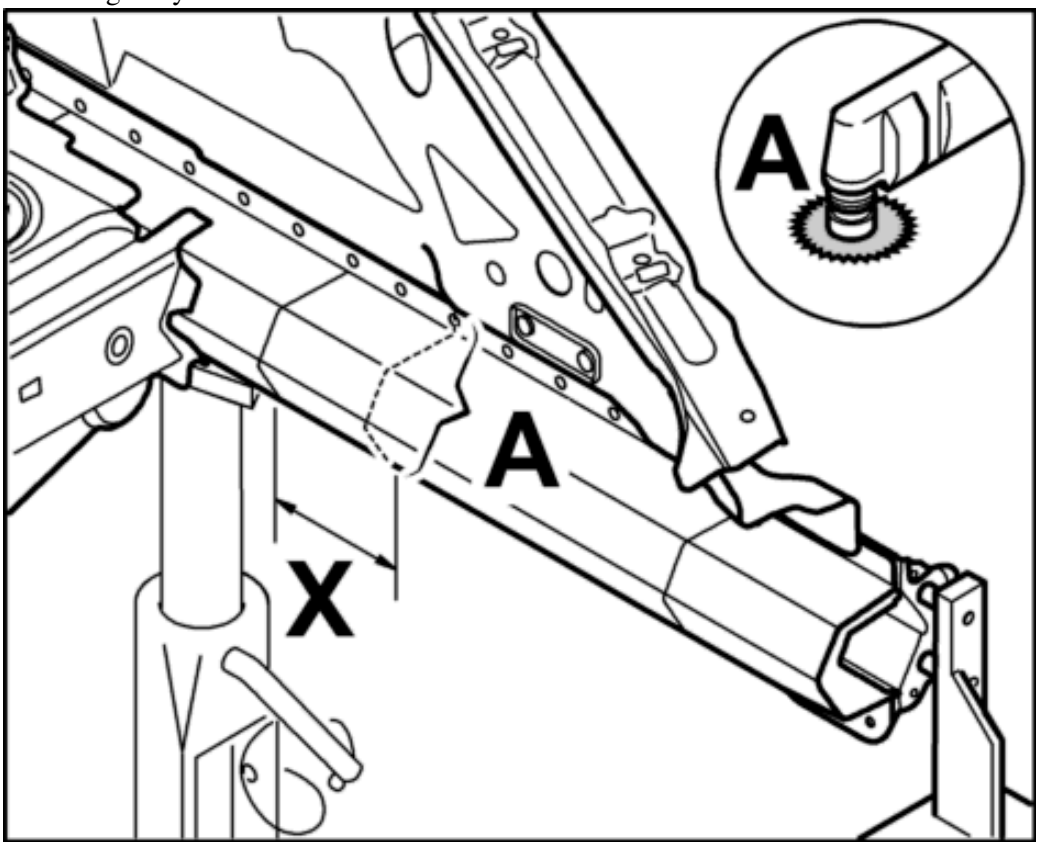
WARNING

Possible separation points on inner side member

- **Danger of material damage and injury**

The possible separation points on the inner side member are **30 mm in front of the tailored blanks (laser weld) against the direction of travel.**

4.1. In damaged area of inner side member **dimension X = 30 mm** in front of tailored blank (laser weld), cut off area **A** using body saw.

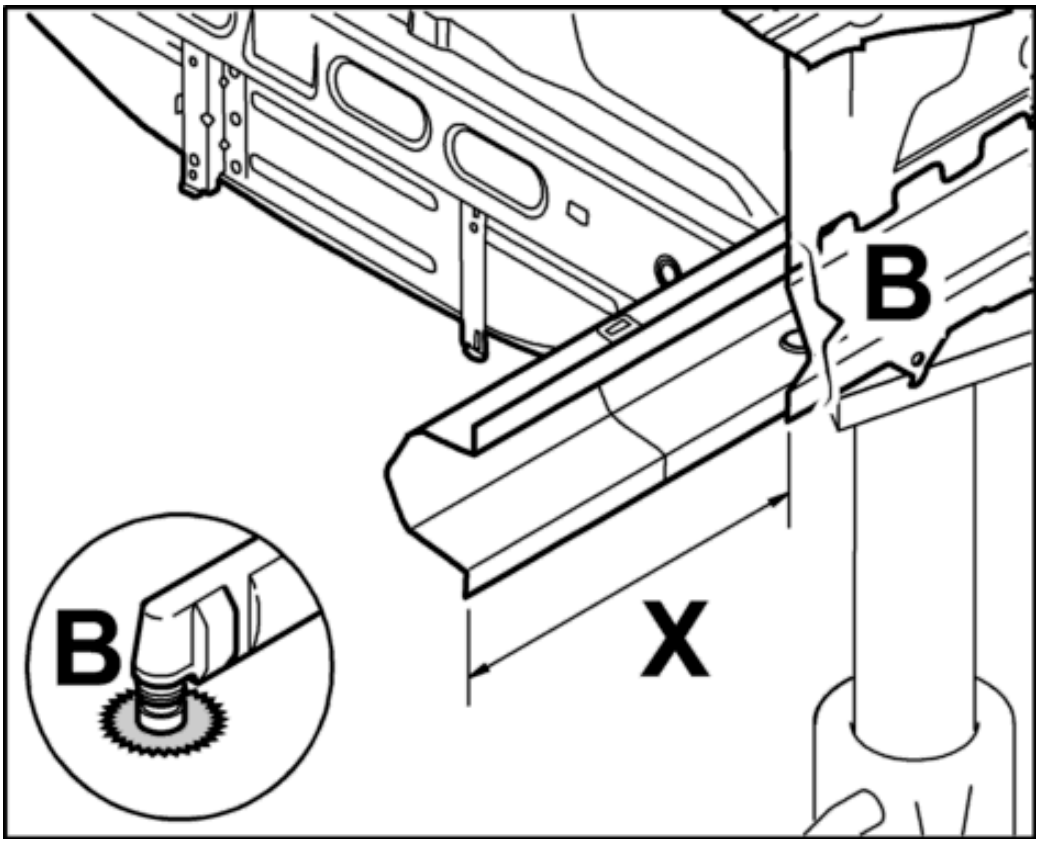


Cutting off inner side member

5. Cut off outer side member.

5.1.

Use the body saw to shorten outer side member in area **B** until there is an offset of **dimension X = 50 mm** between the inner/outer side members.



Cutting off outer side member

top of page

Preparing connection areas of body for installing front side members

Safety instructions for flying sparks during grinding and welding work

ATTENTION

Danger of explosion and fire from flying sparks during grinding and welding work!

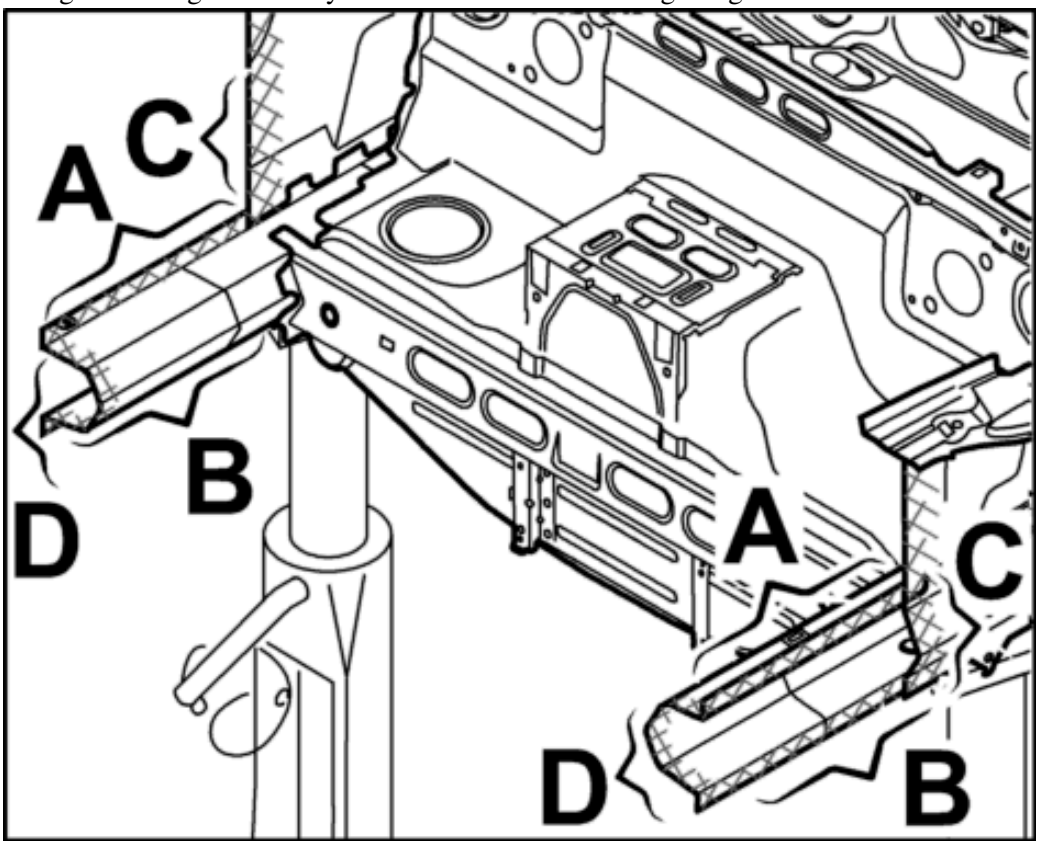
- **Danger of injury and danger of damage to vehicle parts and other vehicles due to flying sparks**

Cover vehicle parts such as battery, fuel system, paintwork, glass and passenger compartment parts with fire-proof covers and, if necessary, remove batteries and fuel-carrying components.

No other vehicles may be left unprotected in areas used for body repair!

Preparing connection areas of body for installing front side members

1. Clean undersealing, adhesive residue and paint off body connecting flanges in the marked areas **A, B, C, D** using a hot-air gun or rotary brush. Grind the connecting flanges until bare.



Grinding the body connecting flanges until bare

top of page

Fitting front side member and preparing for installation

Safety instructions for sharp-edged body and unit parts

ATTENTION

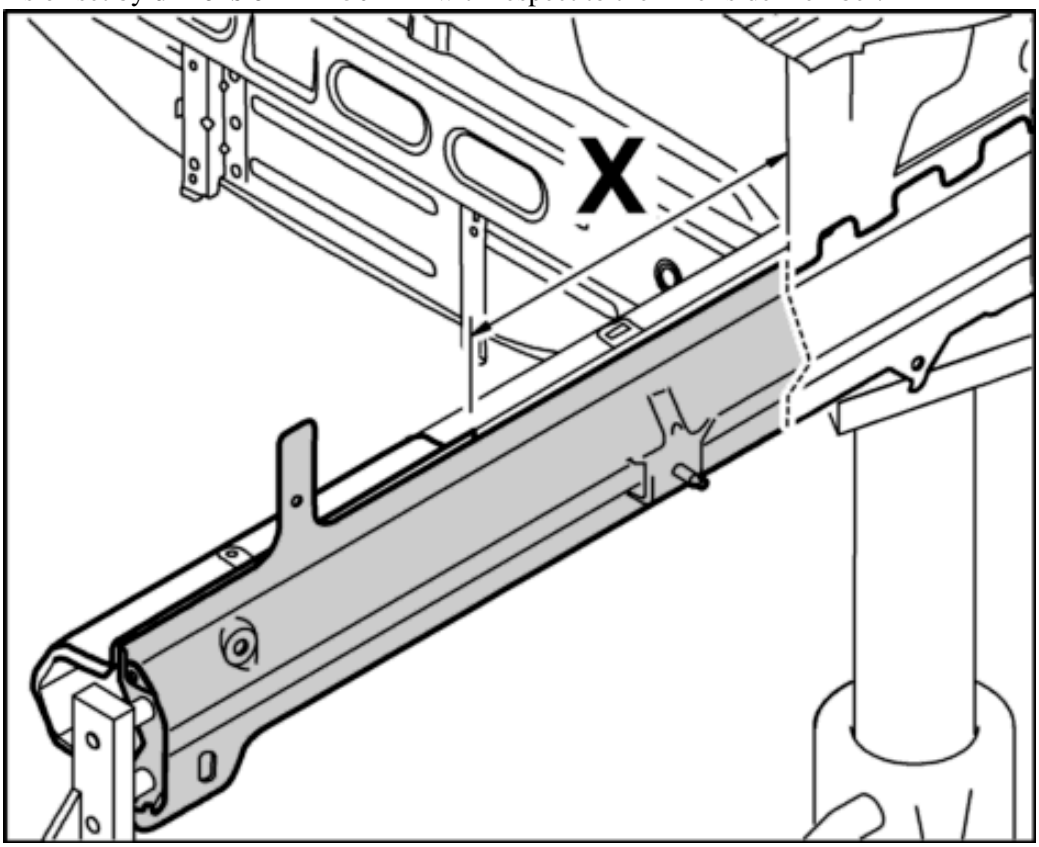
Danger of injury! Sharp-edge burrs on body and unit parts!

- **Injuries from sharp edges on body and unit parts.**

Wear protective gloves when working in the area of sharp-edged body and unit parts!

Fitting front side members and preparing for installation

1. Transfer cut to the front inner side members. Fasten the side member spare parts to the straightening attachments for the impact absorbers and adjust as required. Ensure that the outer side member is offset by **dimension X = 50 mm** with respect to the inner side member.



Adjusting front outer side members

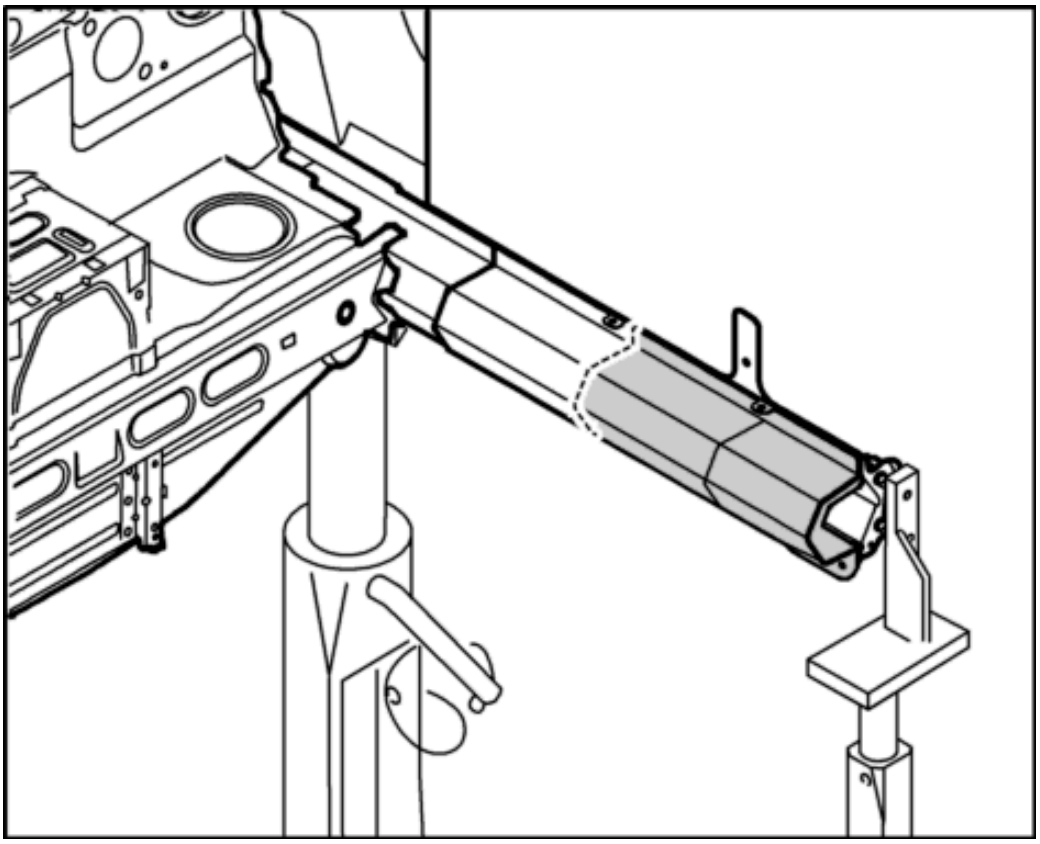
WARNING

Possible separation points on inner side member

- **Danger of material damage and injury**

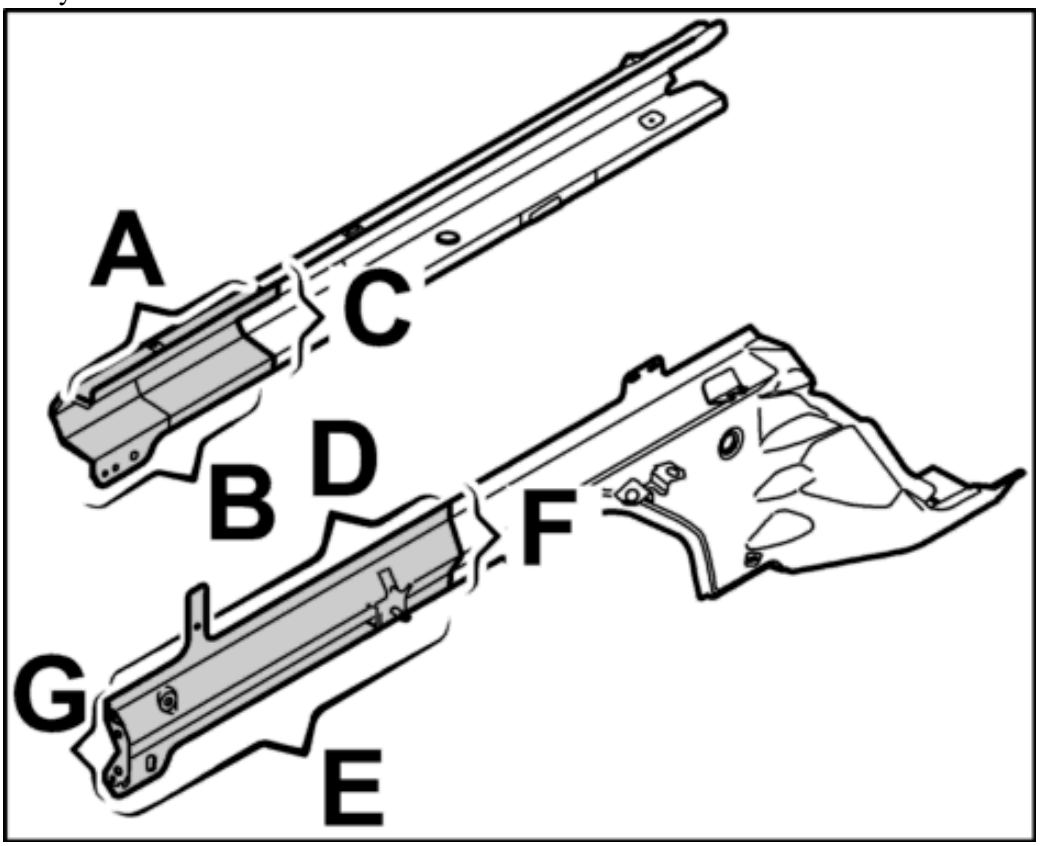
The possible separation points on the inner side member are **30 mm in front of the tailored blanks (laser weld) against the direction of travel.**

2. Transfer cut to the front inner side members.



Adjusting front inner side members

3. Remove the factory-applied primer on the welding areas of the spare parts in areas **A, B, C, D, E, F, G** using a rotary brush.



Danger of injury when welding

DANGER

Risk of fatal injury from high voltage during electric welding!

- **Danger of explosion and fire when welding in the area of highly inflammable materials.**
- **Irritation to respiratory tracts from toxic zinc oxide emitted when welding galvanised steel!**
- **Danger of injury from unintentional triggering of pyrotechnical safety components!**
- **Danger of injury from weld spatters and UV light when welding!**

Do not perform welding work in a damp environment or on wet ground; there is a risk of fatal injury from the voltage being conducted through the human body. Persons with heart pacemakers should not perform welding work. Use insulating underlays.

Remove highly flammable materials from the work area; if necessary, remove units with fuel-carrying parts and protect work areas in the vehicle that are at risk of catching fire using fire-proof covers.

Ventilate the work area well.

Remove smoke gases with a suitable extraction system (refer to Workshop Equipment Manual).

Wear suitable protective equipment, such as protective clothing, gloves, a welding shield and, if necessary, a protective mask.

For welding work, always disconnect both terminals on the battery. In the case of welding work in the immediate vicinity of the control modules for pyrotechnical safety systems, remove the control modules before beginning work.

In addition, the guidelines of the welding equipment manufacturer and the legal accident prevention regulations and those of the mutual indemnity association (BGV D1) must be observed.

Safety instructions for flying sparks during grinding and welding work

ATTENTION

Danger of explosion and fire from flying sparks during grinding and welding work!

- **Danger of injury and danger of damage to vehicle parts and other vehicles due to flying sparks**

Cover vehicle parts such as battery, fuel system, paintwork, glass and passenger compartment parts with fire-proof covers and, if necessary, remove batteries and fuel-carrying components.

No other vehicles may be left unprotected in areas used for body repair!

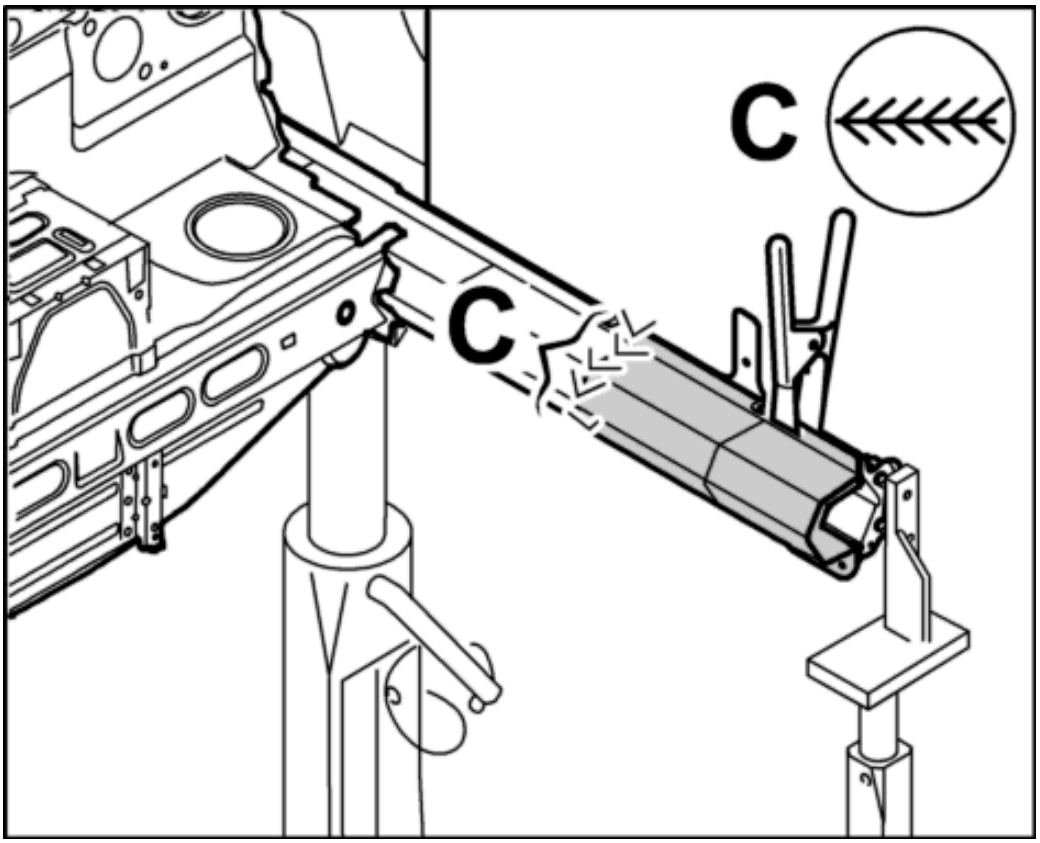
Installing front side members

Note

When butt welding body sheet panels with a sheet thickness of > 1.5 mm, there must be a welding slit width s = 1 x sheet thickness to guarantee the required welding quality (welding through).

1. Weld in the inner side member.

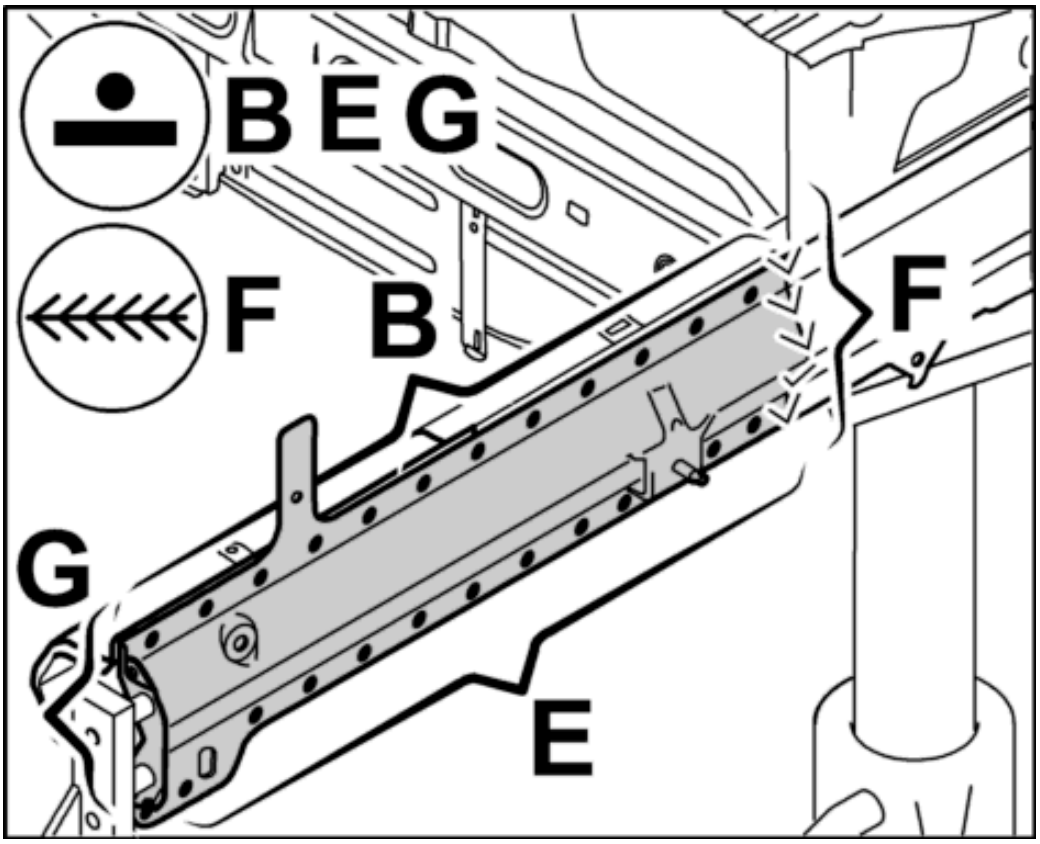
1.1. Weld the inner side member with a full butt weld in area **C** under shielding gas.



Welding in inner side member

2. Weld in outer side member.

2.1. Spot-weld outer side member to inner side member in areas **B, E, G**. Weld the outer side member with a full butt weld in area **F** under shielding gas.



Welding in outer side member

top of page

Subsequent work

Subsequent work for body repairs

1. Remove vehicle from the alignment bench.
2. Clean welded joints and sheetmetal flanges with a wire brush.
3. Prime flange areas with 2K primer.
4. Restore standard sealing with body sealant.
   5 Seam sealing
5. Restore standard undersealing with underbody sealant.
   5 Underbody protection
6. Paint repair area and adjacent surfaces, if necessary.
7. Install removed accessories in the repair area.
8. Apply cavity preservation.

50 87 19 Removing and installing cowl panel cover - as of MY 2005

- Preliminary work
- Removing cowl panel cover
- Installing cowl panel cover
- Subsequent work

top of page

Preliminary work

Preliminary work

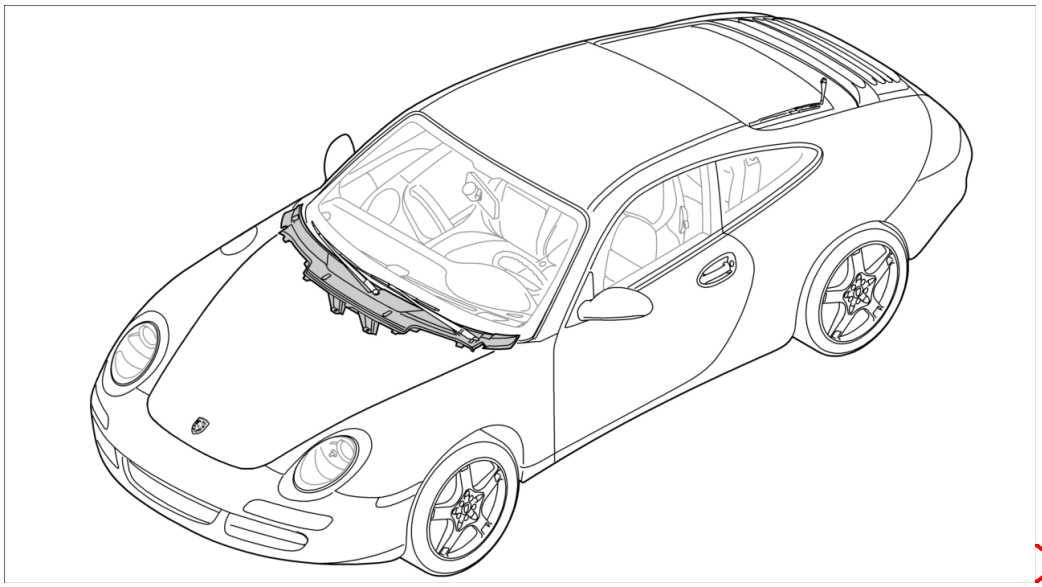
1. Remove right and left wiper arm. 922519 Removing and installing wiper arm - chapter on "Removing"
2. Remove battery cover. 270619 Removing and installing battery - chapter on "Removing"
3. Remove left and right cover 852219 Removing and installing cover - chapter on "removing"

top of page

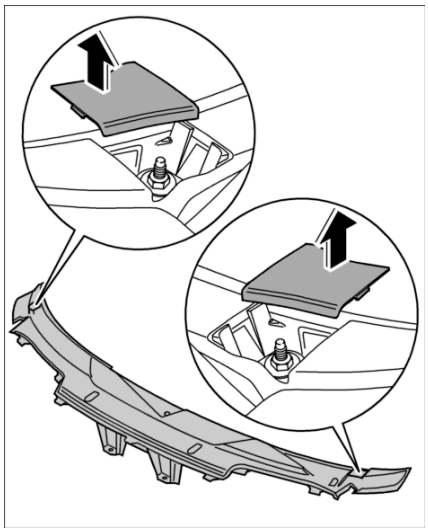
Removing cowl panel cover

Removing lateral cap

Installation Location:



Main illustration for cowl panel cover

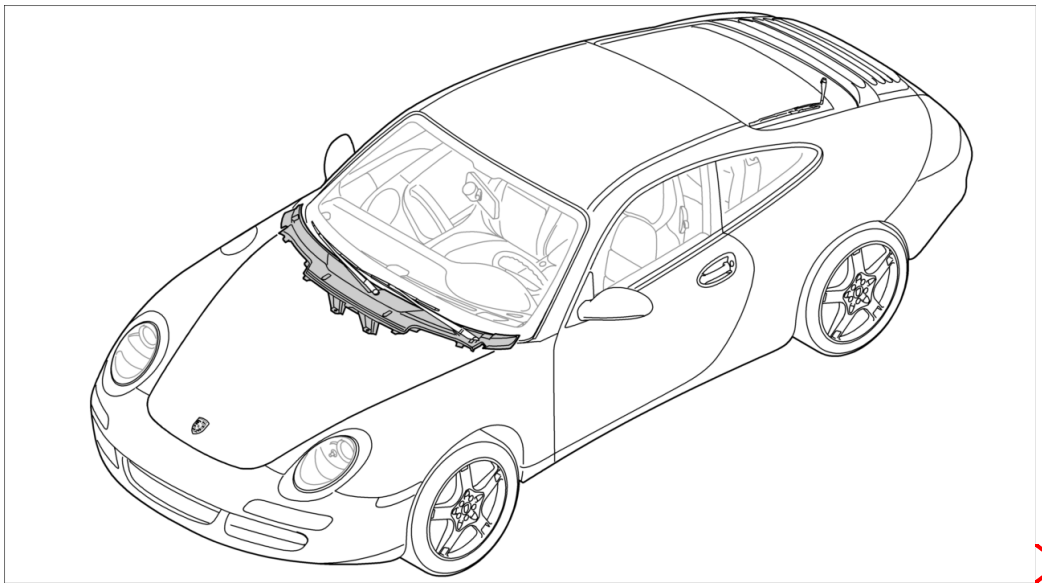


Removing cover cap

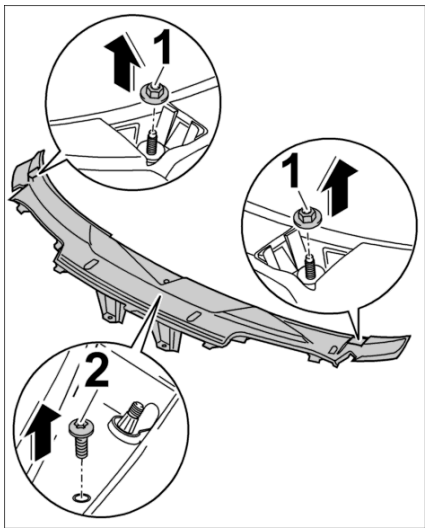
1. Unclip lateral cap.

Removing upper cowl panel cover

Installation Location:



Main illustration for cowl panel cover

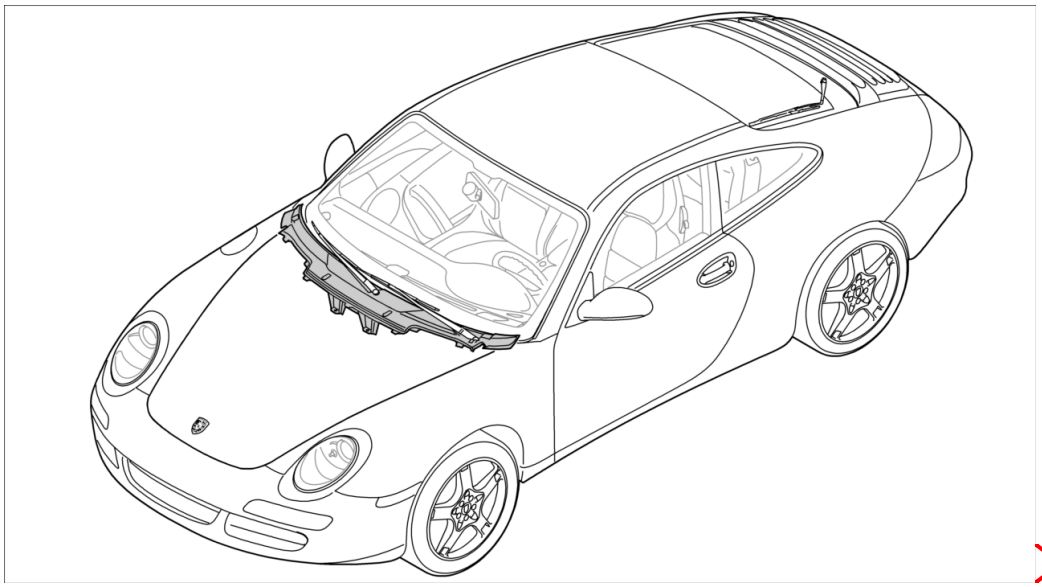


Removing upper cowl panel cover

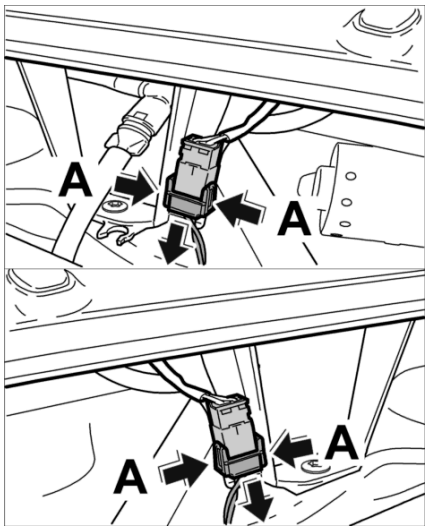
1. Unscrew fastening nuts **-1-** .
2. Unscrew fastening screw **-2-** in the centre.

Disconnecting plug connection of spray nozzle for windscreen washer system

Installation Location:



Main illustration for cowl panel cover

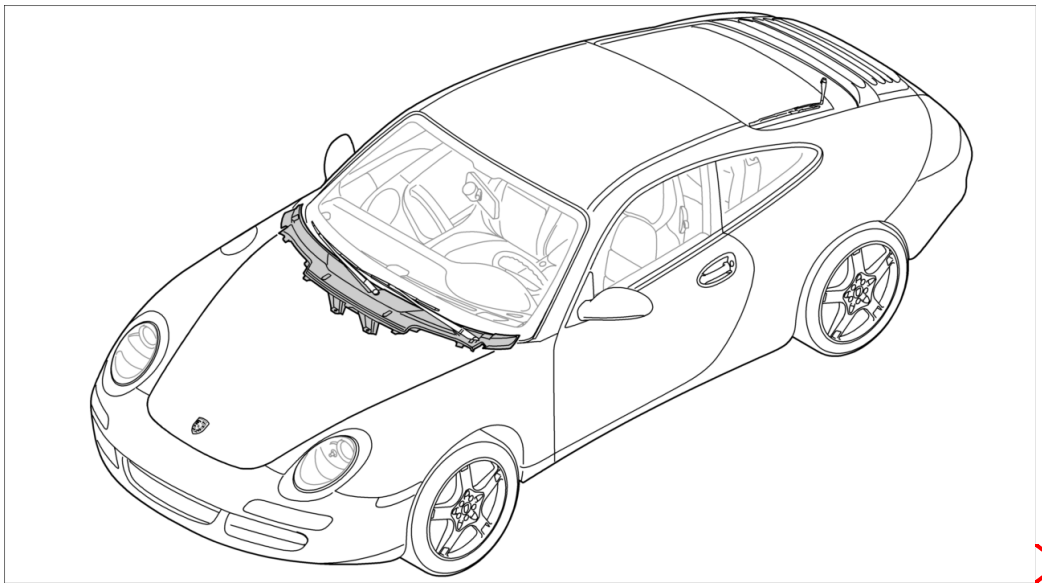


Disconnecting plug connection of spray nozzle

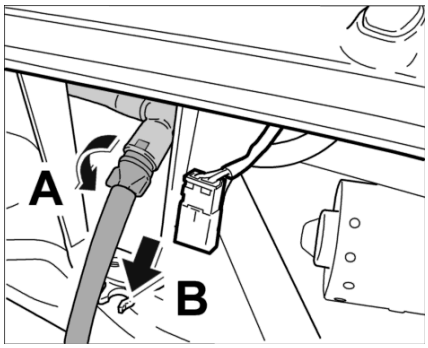
1. Release electric plug connection for right and left spray nozzle **-Arrow A-** and pull apart.

Disconnecting water line for windscreen washer system

Installation Location:



Main illustration for cowl panel cover

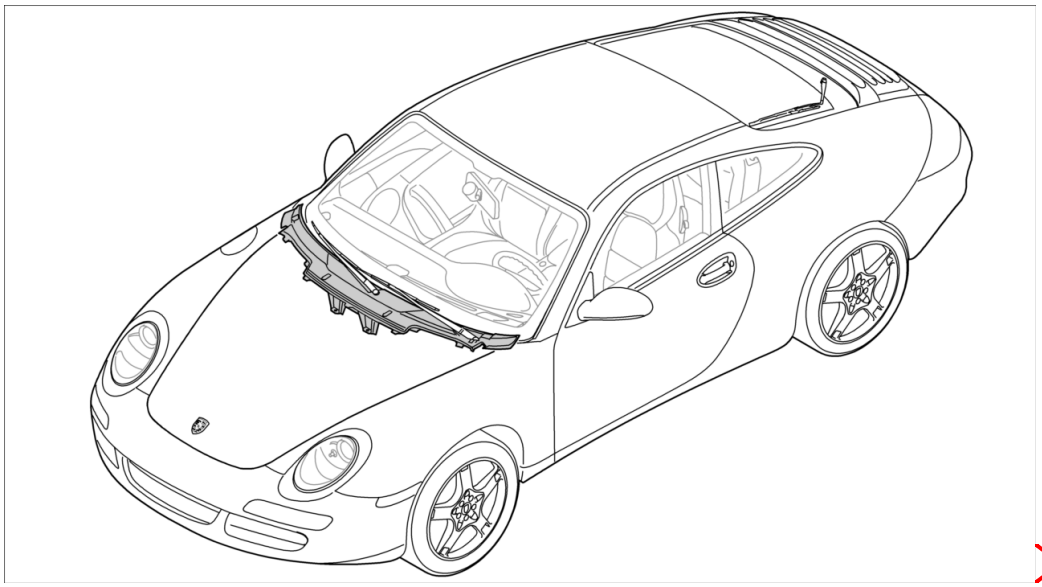


Disconnecting water line for windscreen washer system

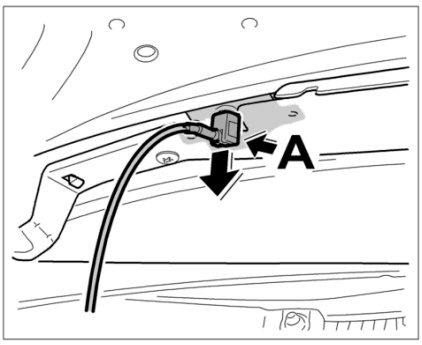
1. Rotate water line in **-direction of arrow A-** and pull off **-Arrow B-** .

Disconnecting plug connection for GPS antenna

Installation Location:



Main illustration for cowl panel cover



GPS plug connection.

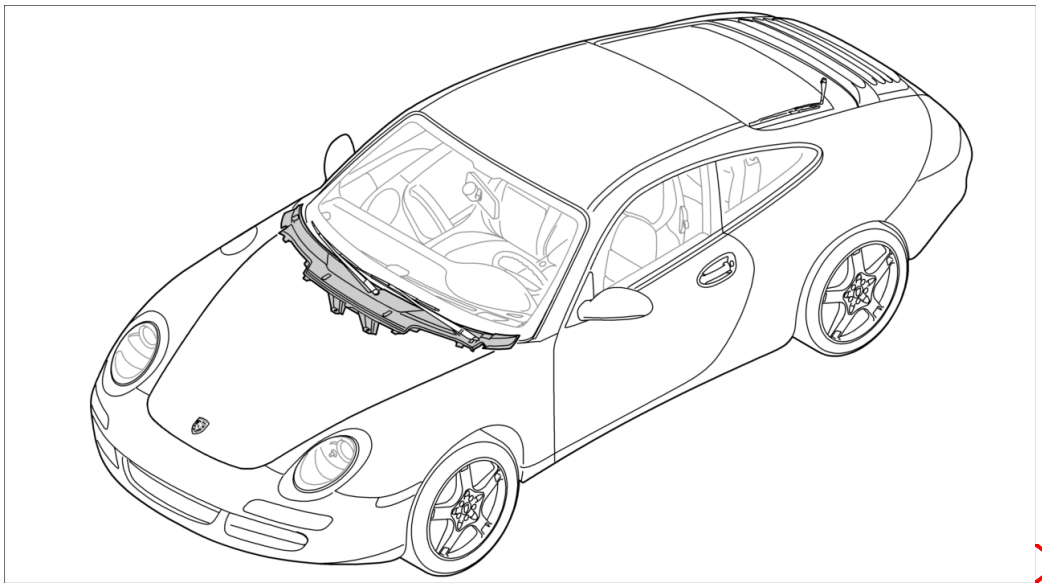
Note

Only for vehicles with GPS antenna.

1. Under the cover for the cowl panel, release the electric plug connection **-A-** and remove.

Disconnecting plug connection for radio antenna

Installation Location:

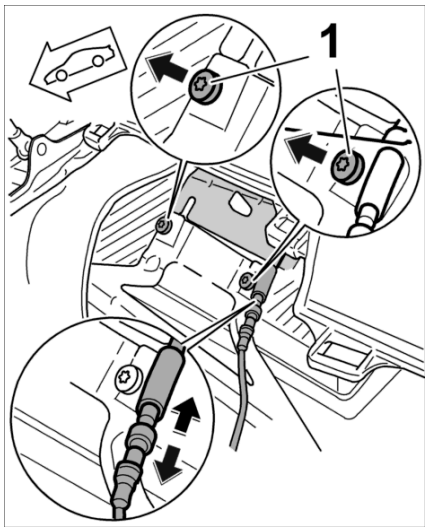


Main illustration for cowl panel cover

ATTENTION

Voltage peaks can damage the audio system.

Before unplugging/removing audio components, remove ignition key and switch off audio system.



Disconnecting plug connection for radio antenna

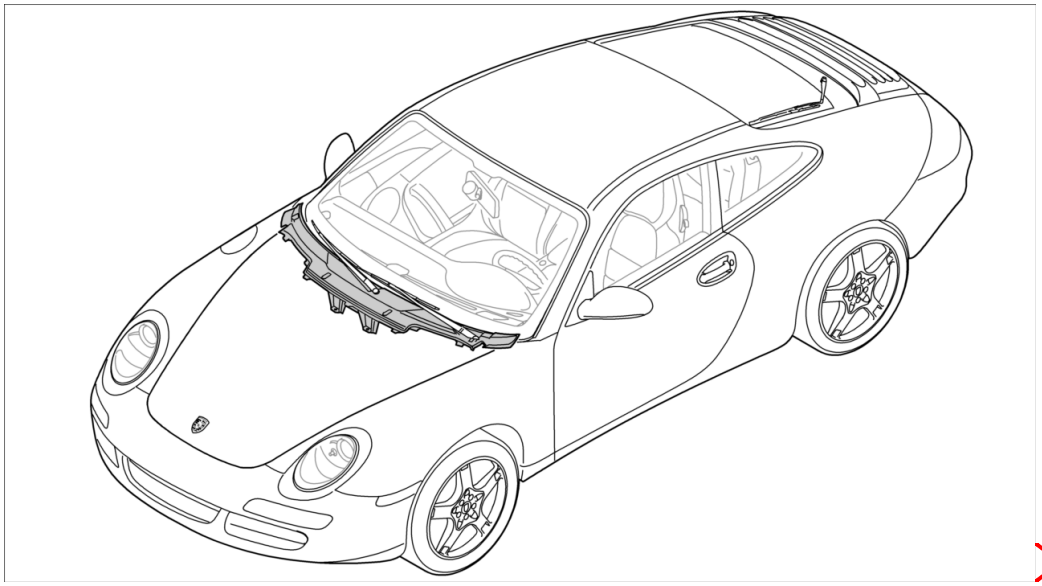
Note

Only for vehicles with radio antenna.

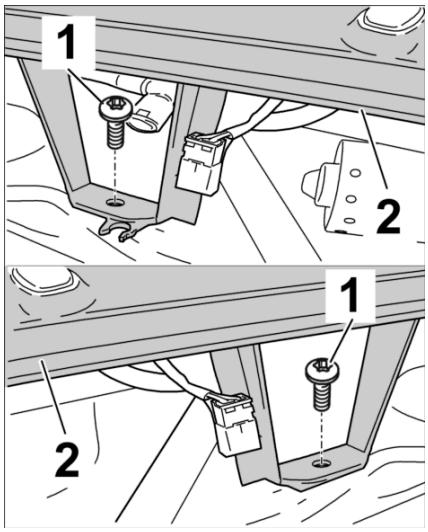
1. Unclip the retaining clamps for the antenna line. Disconnect antenna line and undo the fastening screws **-1-** .

Removing lower cowl panel cover

Installation Location:



Main illustration for cowl panel cover



Removing lower cowl panel cover

Note

Two persons are needed to remove the cowl panel cover!

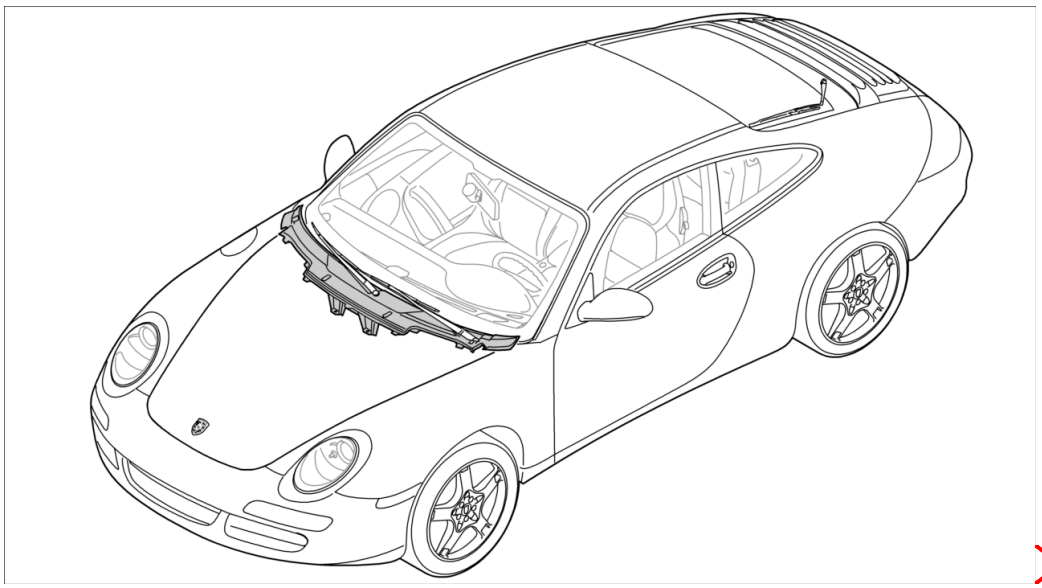
1. Unscrew fastening screws **-1-** and carefully remove cowl panel cover **-2-** upwards.

top of page

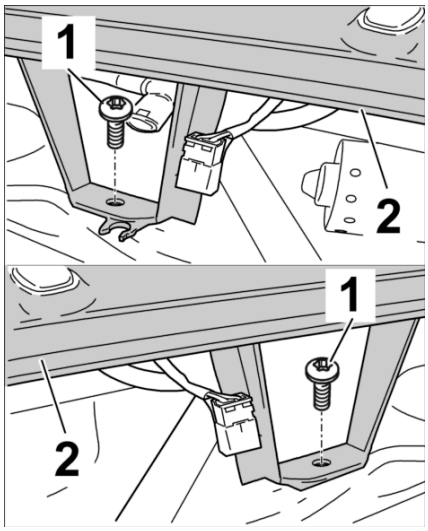
Installing cowl panel cover

Installing cowl panel cover

Installation Location:



Main illustration for cowl panel cover



Installing cowl panel cover

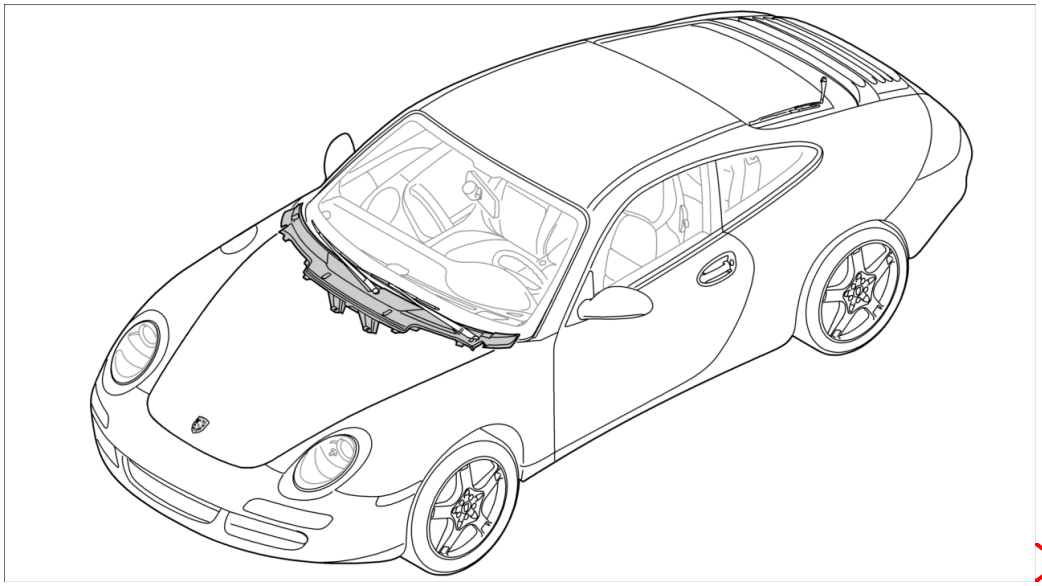
Note

Two persons are needed to remove the cowl panel cover!

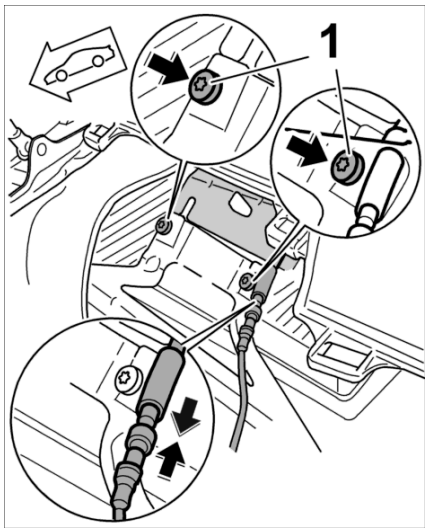
1. Insert cowl panel cover **-2-** in the plenum panel and align.
2. Tighten fastening screws **-1-** . Tightening torque **Tightening torque: 1.5 ftlb.**

Locking plug connection for radio antenna

Installation Location:



Main illustration for cowl panel cover



Disconnecting plug connection for radio antenna

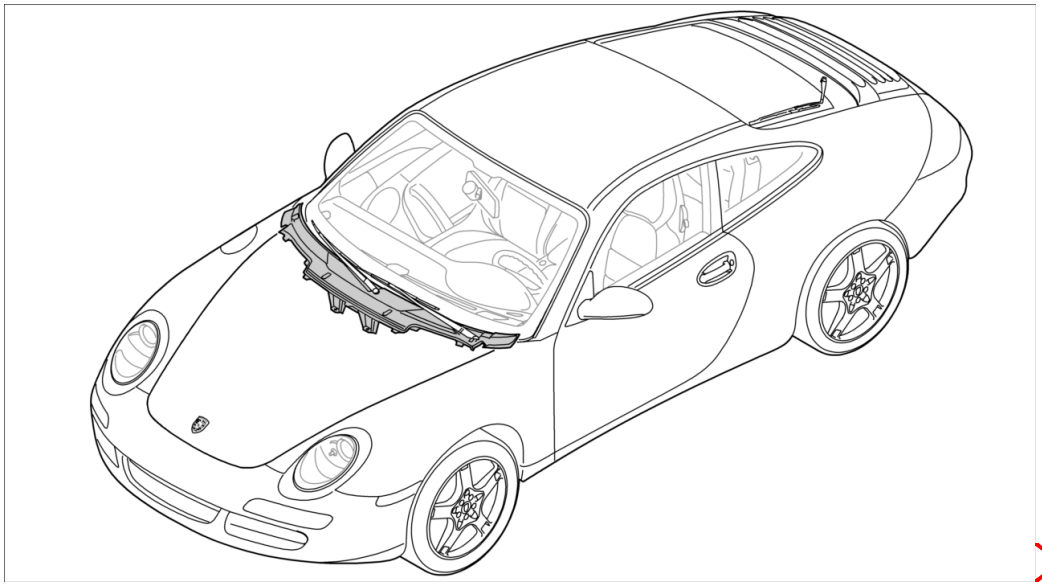
Note

Only for vehicles with radio antenna.

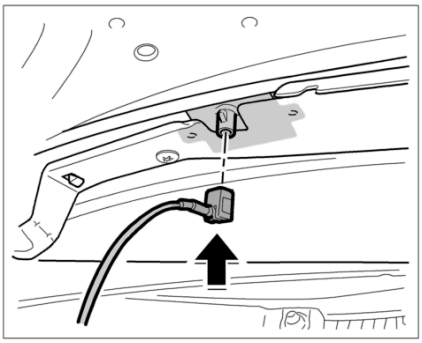
1. Connect the antenna line and clip on the fuse.
2. Slide antenna onto its support and screw it down with the fastening screws **-1-** .

Locking plug connection for GPS antenna

Installation Location:



Main illustration for cowl panel cover



Locking plug connection for GPS

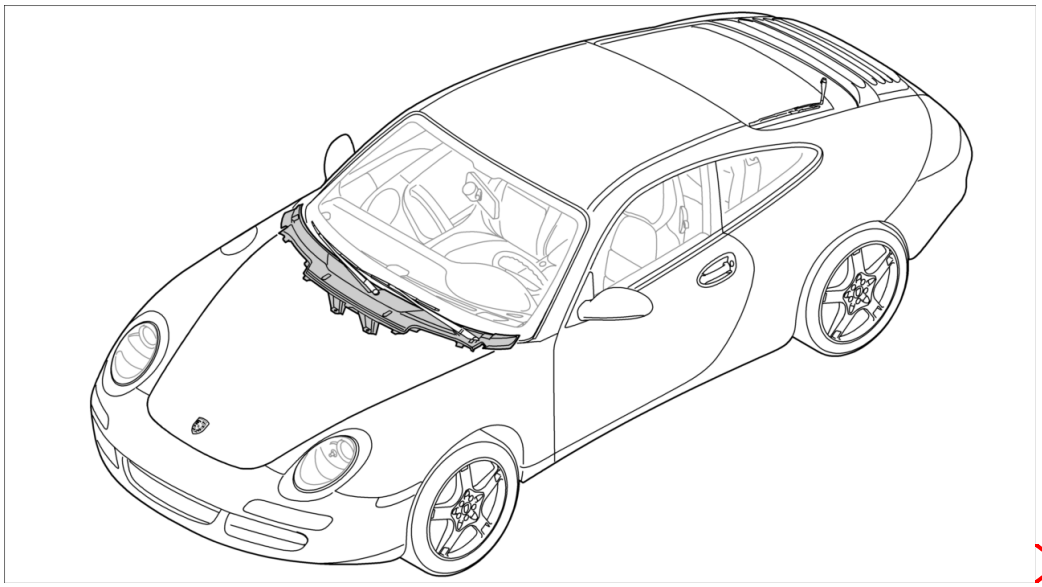
Note

Only for vehicles with GPS antenna.

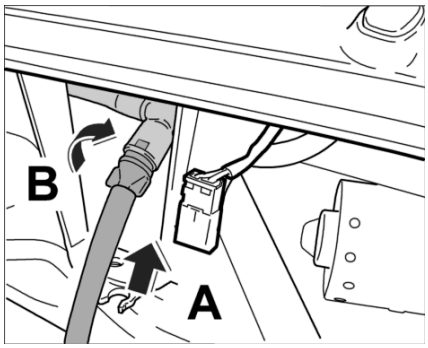
1. Push on the electric plug until it clicks into place.

Locking water line for windscreen washer system

Installation Location:



Main illustration for cowl panel cover

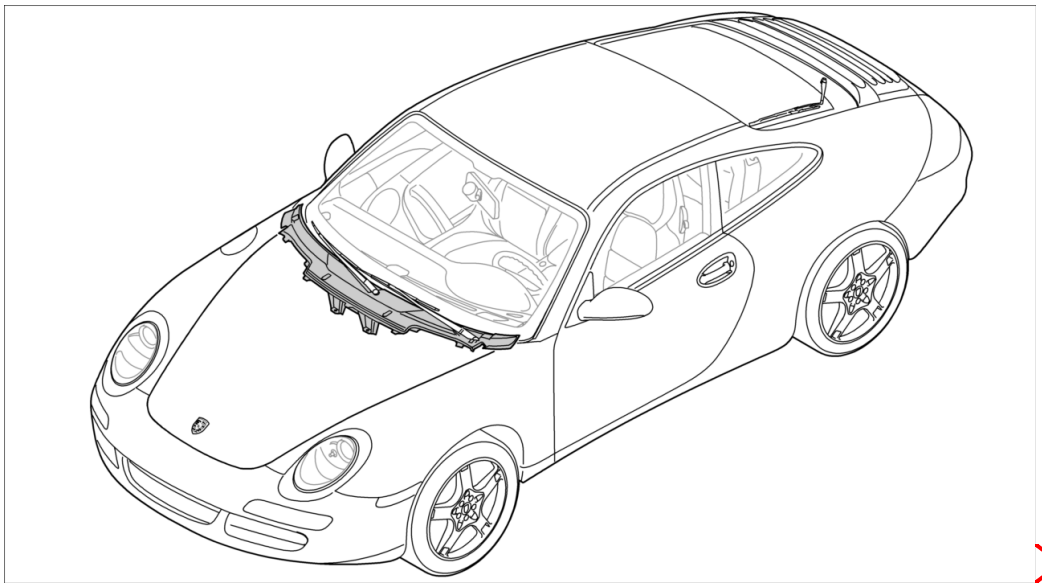


Locking water line for windscreen washer system

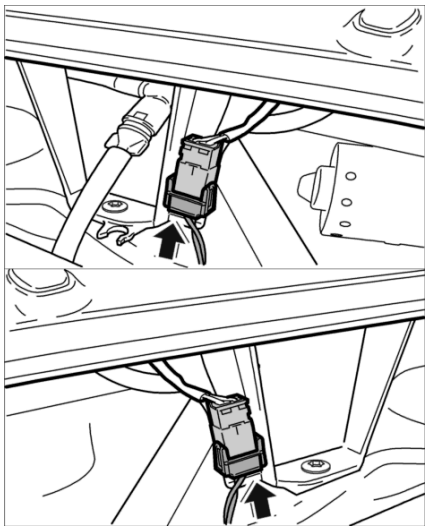
1. Connect water line **-Arrow A-** and rotate in **-direction of arrow B-** .

Locking plug connection of spray nozzle for windscreen washer system

Installation Location:



Main illustration for cowl panel cover

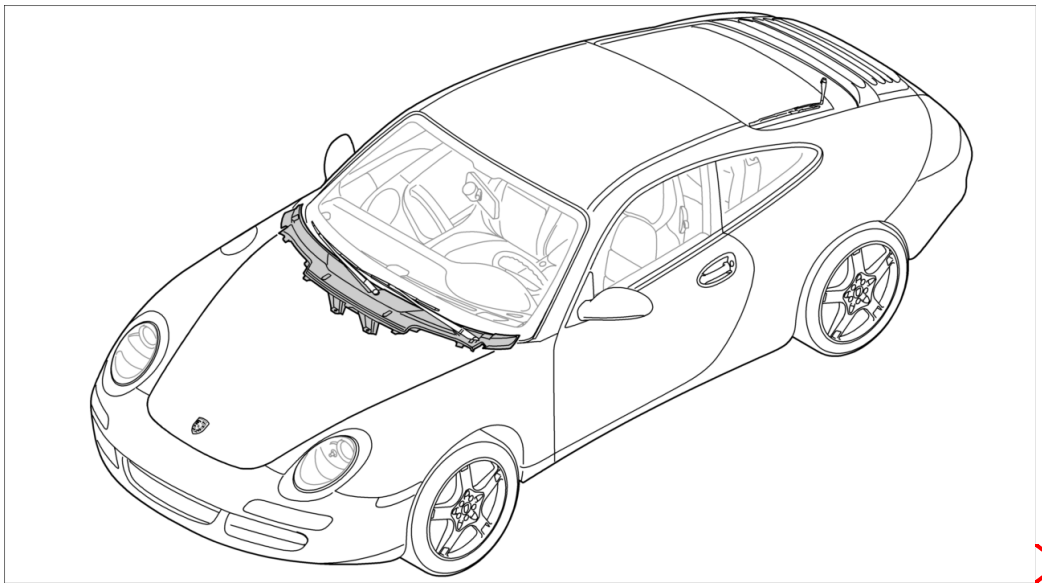


Locking plug connection of spray nozzle for windscreen washer system

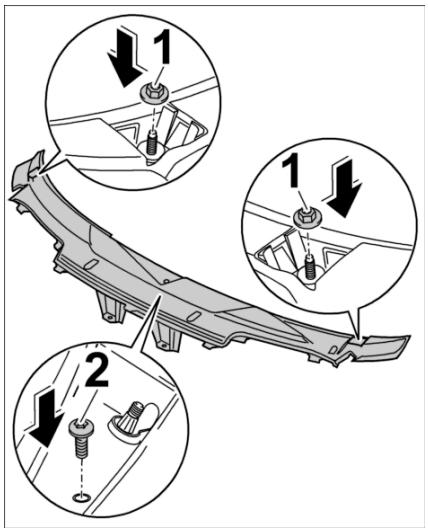
1. Push on electric connector for spray nozzle until it clicks into place.

Fastening upper cowl panel cover

Installation Location:



Main illustration for cowl panel cover

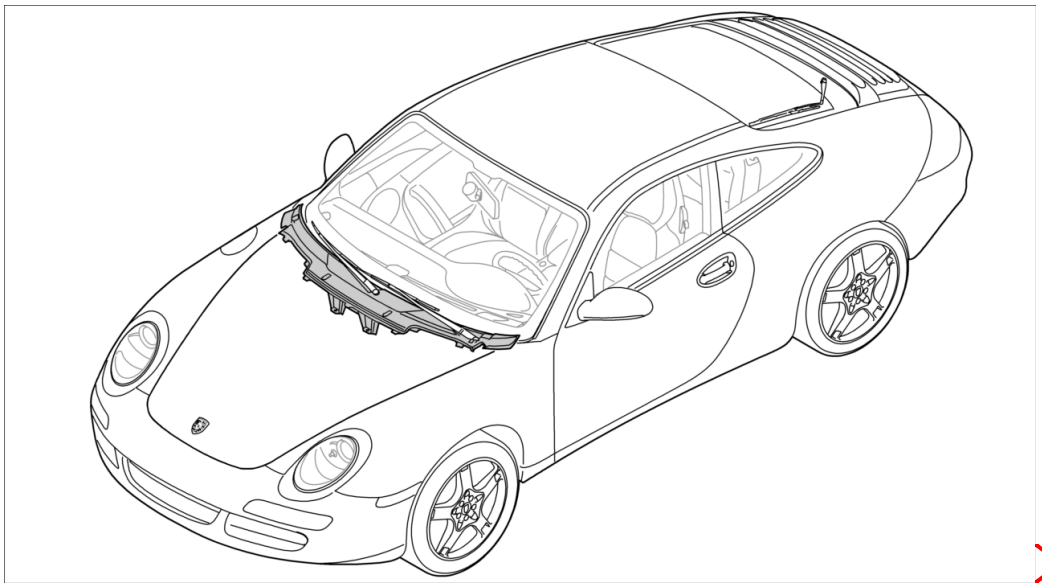


Fastening upper cowl panel cover

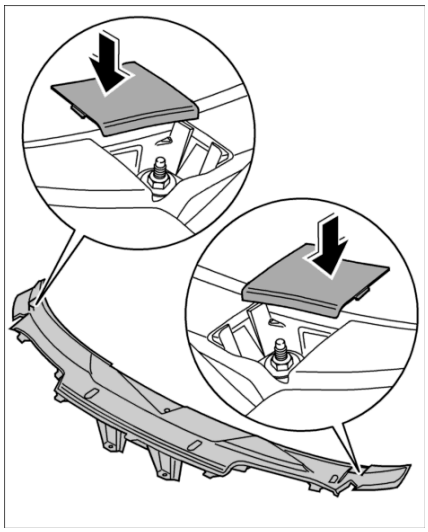
1. Tighten fastening nut **-2-** .
2. Tighten fastening screw **-1-** .

Installing lateral cover cap

Installation Location:



Main illustration for cowl panel cover



Clipping lateral cap into place

1. Clip lateral cap into place.

top of page

Subsequent work

Subsequent work

1. Install right and left wiper arm. 922519 Removing and installing wiper arm - chapter on "Installing"
2. Install right and left cover. 852219 Removing and installing cover - chapter on "Installing"

51 01 41 Repairing threaded bushing for belt connection - as of MY 2005

- General warning notes
- Tools and materials
- Repairing threaded bushing for belt connection
- Preparing connection areas of the body for installation of the threaded bushing
- Fitting in threaded bushing and preparing for installation
- Installing thread for belt fastening
- Subsequent work

Tools

Designation	Type	Number	Explanation	
Pneumatic body saw No. PS1, see Gr. 3.5; Workshop Equipment Manual	commercially available tool	00000		

top of page

General warning notes

Safety instructions for body repairs

5 AW Safety instructions - General warning notes

top of page

Tools and materials

Tools and materials

Pneumatic body saw No. PS1, see Gr. 3.5; Workshop Equipment Manual 00000
Angle grinder, see Gr. 3.5; see workshop equipment 00000
Oscillating body saw (special electrical cutter), see Gr. 3.5; Workshop Equipment Manual 00000
Rotary brush, see Gr. 3.5; Workshop Equipment Manual 00000

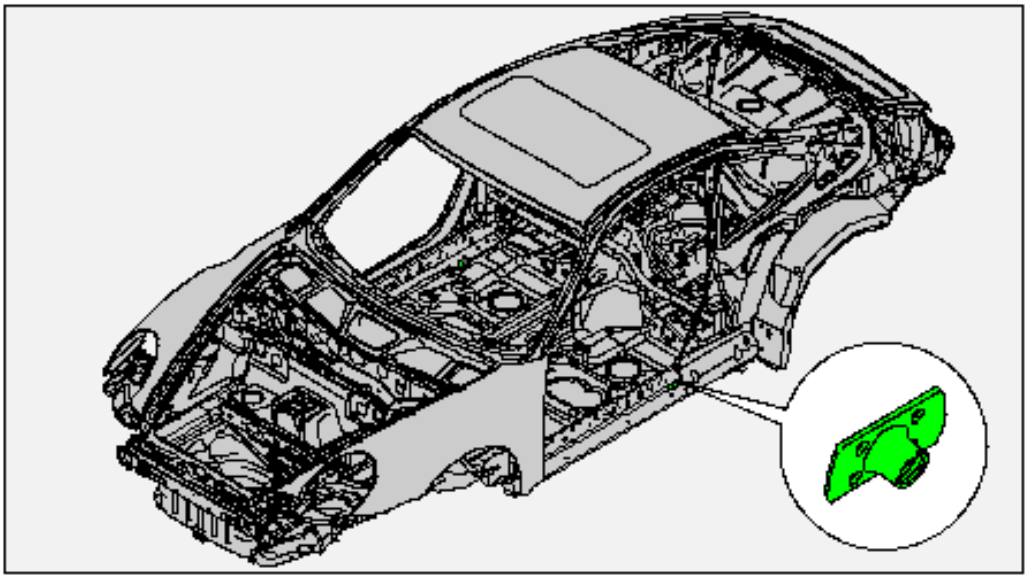
Leister Elektron hot-air gun Gr. 3.5; Workshop Equipment Manual 00000

top of page

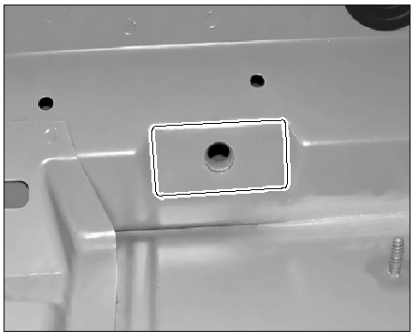
Repairing threaded bushing for belt connection

Removing thread for belt fastening

Installation Location:



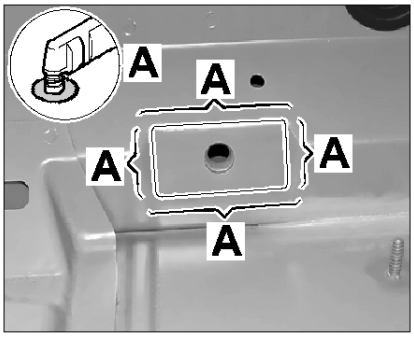
Installation location of threaded bushing for belt fastening: inner lower side member



Marking the cut

1. Mark the cut.

1.1. Mark cut for removal of the threaded bushing on the inner lower side member. To do this, cut out a viewing window measuring 60 x 35 mm in the lower side member.



Cutting out viewing window with the body saw

2. Cut out the viewing window with the body saw

2.1. Cut the marked area **A** out of the inner lower side member using the body saw.

top of page

Preparing connection areas of the body for installation of the threaded bushing

Safety instructions for flying sparks during grinding and welding work

ATTENTION

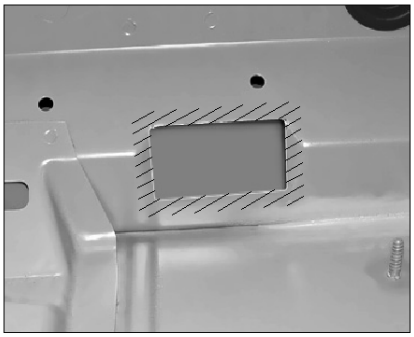
Danger of explosion and fire from flying sparks during grinding and welding work!

- **Danger of injury and danger of damage to vehicle parts and other vehicles due to flying sparks**

Cover vehicle parts such as battery, fuel system, paintwork, glass and passenger compartment parts with fire-proof covers and, if necessary, remove batteries and fuel-carrying components.

No other vehicles may be left unprotected in areas used for body repair!

Preparing connection areas of the body for installation of the threaded bushing



Preparing connection areas of the body for installation of the threaded bushing

1. Clean the body connection flanges of undersealing, adhesive residue and paint in the marked areas using a hot-air gun or rotary brush. Grind the connection flanges until bare.

top of page

Fitting in threaded bushing and preparing for installation

Safety instructions for sharp-edged body and unit parts

ATTENTION

Danger of injury! Sharp-edge burrs on body and unit parts!

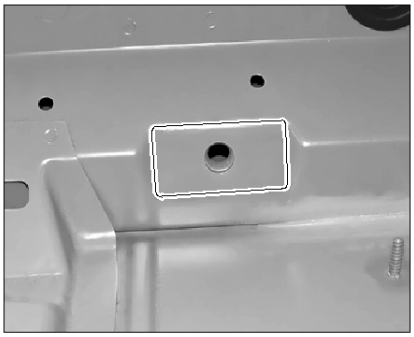
- **Injuries from sharp edges on body and unit parts.**

Wear protective gloves when working in the area of sharp-edged body and unit parts!

Fitting in threaded bushing and preparing for installation

Note

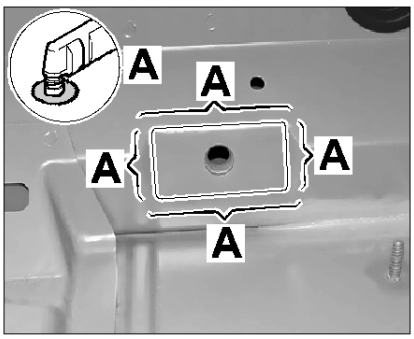
The replacement threaded bushing for belt fastening is cut out of the replacement inner lower side member as a viewing window measuring 60 x 35 mm.



Marking the cut

1. Mark the cut.

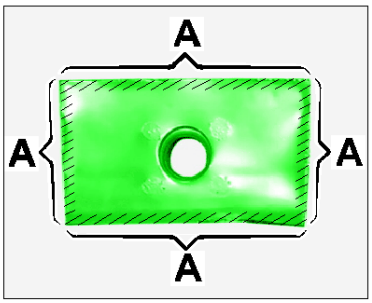
1.1. Mark the cut for removal of the threaded bushing on the inner lower side member. Cut out a viewing window measuring 60 x 35 mm in the lower side member.



Cutting out viewing window with the body saw

2. Cut out viewing window with the body saw

2.1. Cut the marked area **A** out of the inner lower side member using the body saw.



Removing primer on welding areas of the replacement part using a rotary brush

3. Remove the factory-applied primer in area **A** of the replacement parts using the rotary brush.

top of page

Installing thread for belt fastening

Danger of injury when welding

DANGER

Risk of fatal injury from high voltage during electric welding!

- **Danger of explosion and fire when welding in the area of highly inflammable materials.**
- **Irritation to respiratory tracts from toxic zinc oxide emitted when welding galvanised steel!**
- **Danger of injury from unintentional triggering of pyrotechnical safety components!**
- **Danger of injury from weld spatters and UV light when welding!**

Do not perform welding work in a damp environment or on wet ground; there is a risk of fatal injury from the voltage being conducted through the human body. Persons with heart pacemakers should not perform welding work. Use insulating underlays.

Remove highly flammable materials from the work area; if necessary, remove units with fuel-carrying parts and protect work areas in the vehicle that are at risk of catching fire using fire-proof covers.

Ventilate the work area well.

Remove smoke gases with a suitable extraction system (refer to Workshop Equipment Manual).

Wear suitable protective equipment, such as protective clothing, gloves, a welding shield and, if necessary, a protective mask.

For welding work, always disconnect both terminals on the battery. In the case of welding work in the immediate vicinity of the control modules for pyrotechnical safety systems, remove the control modules before beginning work.

In addition, the guidelines of the welding equipment manufacturer and the legal accident prevention regulations and those of the mutual indemnity association (BGV D1) must be observed.

Safety instructions for flying sparks during grinding and welding work

ATTENTION

Danger of explosion and fire from flying sparks during grinding and welding work!

- **Danger of injury and danger of damage to vehicle parts and other vehicles due to flying sparks**

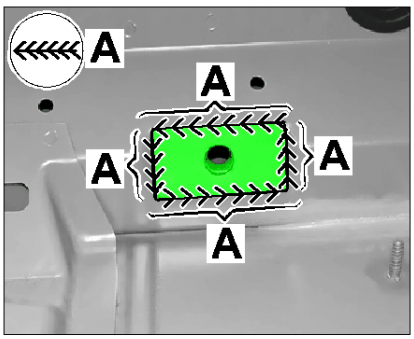
Cover vehicle parts such as battery, fuel system, paintwork, glass and passenger compartment parts with fire-proof covers and, if necessary, remove batteries and fuel-carrying components.

No other vehicles may be left unprotected in areas used for body repair!

Installing thread for belt fastening

Note

When butt welding body sheet panels with a sheet thickness of > 1.5 mm, there must be a welding slit width s = 1 x sheet thickness to guarantee the required welding quality (welding through).



Welding in viewing window

1. Weld in viewing window

1.1. Weld the replacement viewing window into the inner lower side member in area **A** with a continuous butt weld under shielding gas.

top of page

Subsequent work

Subsequent work after repair of threaded bushing for belt fastening

1. Cleaning spot-welded joints and sheetmetal flanges with a wire brush
2. Priming flange areas with 2K primer
3. Painting repair area and adjacent surfaces, if necessary
4. Apply cavity preservation.
5. Install removed accessories in the repair area

997110, 997111, 997120, 997121, 997310, 997311, 997320, 997321, 997410, 997411, 997430, 997431, 997610, 997611, 997620, 997621

as of MY 2005
Country C00, C02, C05, C07, C08, C09, C10, C11, C12, C13, C14, C15, C16, C18, C19, C20, C21, C22, C23, C24, C25, C26, C27, C28, C32, C33, C34, C35, C36, C37, C38, C39, C45, C46, C98, C99

51 03 55 Replacing roof - as of MY 2004

- General warning notes
- Tools and materials
- Removing roof
- Preparing connection areas of the body for installation of the roof
- Fitting roof and preparing for installation
- Installing roof
- Subsequent work

Tools

Designation	Type	Number	Explanation	
Pneumatic body saw No. PS1, see Gr. 3.5; Workshop Equipment Manual	commercially available tool	00000		
Press-out tool	special tool	97290		
Star gauges for body gap dimensions	commercially available tool	NR.127-1		
Spotweld drill	commercially available tool	NR.129		

top of page

General warning notes

Safety instructions for body repairs

5 AW Safety instructions - General warning notes

top of page

Tools and materials

Tools and materials

Spotweld drill NR.129 **Star gauges for body gap dimensions NR.127-1**
Press-out tool 97290
Pneumatic body saw No. PS1, see Gr. 3.5; Workshop Equipment Manual 00000
Angle grinder, see Gr. 3.5; see Workshop Equipment Manual 00000
Oscillating body saw (special electrical cutter), see Gr. 3.5; Workshop Equipment Manual 00000
Rotary brush, see Gr. 3.5; Workshop Equipment Manual 00000
Hole punch, see Gr. 3.5; Workshop Equipment Manual 00000
Elektron hot-air gun from Leister, see Gr. 3.5; Workshop Equipment Manual 00000
Basic straightening attachments for 911 Carrera (996), see Gr. 3.5; Workshop Equipment Manual 00000
Additional straightening attachments for 911 Carrera (997), see Gr. 3.5; Workshop Equipment Manual 00000
Pneumatic spotweld remover, Vario Drill No. WS 90, see Gr. 3.5; Workshop Equipment Manual 00000

Preliminary work for body repairs

Note

- *If it can be ensured there has been no deformation of the vehicle structure, the following repair can be carried out without the need of a straightening bench. In this case, the vehicle must not be raised when welding the component; it must stand on its wheels on an even surface.*

1. Removing add-on parts in the repair area
1.1. Remove add-on parts in the repair area according to the extent of damage to the vehicle.
2. Equipping straightening bench with straightening attachments
2.1. Equip straightening bench with the straightening attachments according to the plans included with the straightening attachments.
3. Placing vehicle on the straightening bench
3.1. Position vehicle on the straightening bench, align according to the reference holes and bolt firmly to the attachment set.
4. Covering add-on parts adjacent to the vehicle repair area
4.1. Cover all add-on parts remaining on the vehicle and the neighbouring areas with fire-proof, protective covers.
5. Reshaping connection area of the sheetmetal parts to be replaced
6. Exposing welding areas
6.1. Remove undersealing, paint, etc. from the welding areas of the body with a hot-air gun or rotary brush.

Preliminary work for body repairs with alignment bench

1. Removing accessories in the repair area
1.1. Remove accessories in the repair area according to the extent of damage to the vehicle.
2. Equipping alignment bench with straightening kit
2.1. Equip alignment bench with the basic straightening attachments according to the plans included with the straightening attachments.
3. Placing vehicle on the alignment bench
3.1. Position vehicle on alignment bench, align according to the reference holes and bolt firmly to the attachment set.
4. Covering accessories adjacent to the vehicle repair area
4.1. Cover all accessories remaining on the vehicle and the neighbouring areas with fire-proof, protective covers.
5. Reshaping connection area of the sheetmetal parts to be replaced
6. Exposing welding areas
6.1. Remove undersealing, paint, etc. from the welding areas of the body with a hot-air gun or rotary brush.

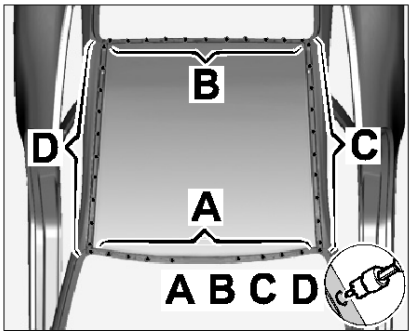
top of page

Removing roof

Removing roof

Installation Location:

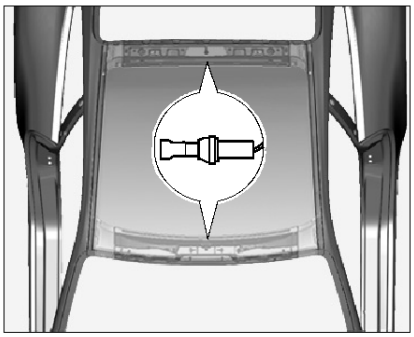
Installation position of roof



Cutting the spotwelds

1. Mill off spotwelds.

1.1. Using a spotweld cutter, mill off spotwelds in areas **A, B, C, D**.



Loosening bonded joint

2. Loosening bonded joint

2.1. Heat up the bonded joint between the roof and the cowl panel frame or the rear roof frame with the hot-air gun. Insert a metal spatula between the bonded joint and separate it. Lift the roof upwards out of the body.

top of page

Preparing connection areas of the body for installation of the roof

Safety instructions for flying sparks during grinding and welding work

ATTENTION

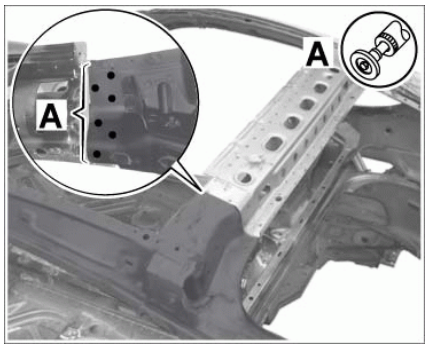
Danger of explosion and fire from flying sparks during grinding and welding work!

- **Danger of injury and danger of damage to vehicle parts and other vehicles due to flying sparks**

Cover vehicle parts such as battery, fuel system, paintwork, glass and passenger compartment parts with fire-proof covers and, if necessary, remove batteries and fuel-carrying components.

No other vehicles may be left unprotected in areas used for body repair!

Preparing connection areas of the body for installation of the roof



Preparing connection areas of the body for installation of the roof

1. Clean the body connection flanges of undersealing, adhesive residue and paint in the marked areas using a hot-air gun or rotary brush. Grind the connection flanges until bare.

top of page

Fitting roof and preparing for installation

Safety instructions for sharp-edged body and unit parts

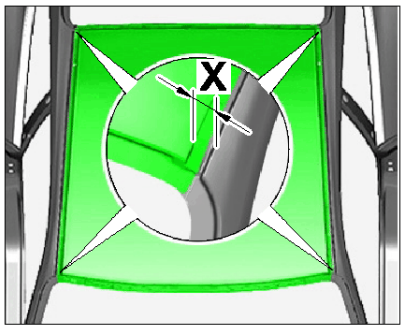
ATTENTION

Danger of injury! Sharp-edge burrs on body and unit parts!

- **Injuries from sharp edges on body and unit parts.**

Wear protective gloves when working in the area of sharp-edged body and unit parts!

Fitting roof and preparing for installation



Fitting the roof to the body

1. Fitting the roof to the body

1.1. Position roof channel on left and right to the dimension **X = 25.2 mm** and secure with tensioning clamps.

1.2. It is important to measure in the dimension **X = 25.2 mm** at the four corner points of the roof where it joins the side panel.

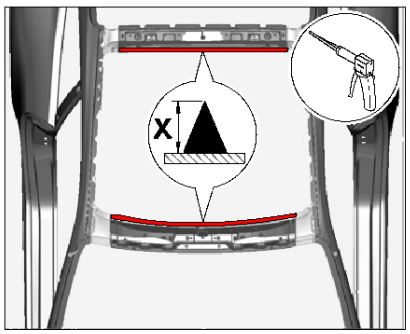
2. Fitting roof joint cover strips

2.1. The roof joint cover strips must be fitted at the left and right. 663619 Removing and installing roof joint cover strip

top of page

Installing roof

Installing roof

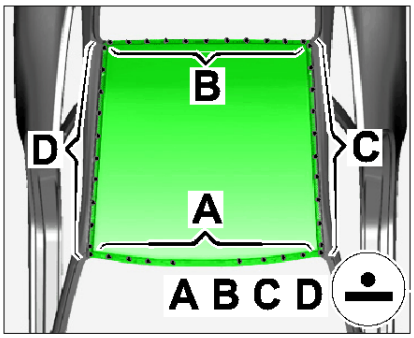


Applying adhesive

1. Applying adhesive

1.1. Apply adhesive evenly to the inside of the cowl panel frame in the form of a triangular bead **Dimension X = 8 mm**. Adhesive from "Würth Klebt und Dichtet" - see Parts Catalogue.

1.2. Apply adhesive evenly to the inside of the roof frame in the form of a triangular bead **Dimension X = 8 mm**. Adhesive from "Würth Klebt und Dichtet" - see Parts Catalogue.



Welding in roof

2. Welding in roof

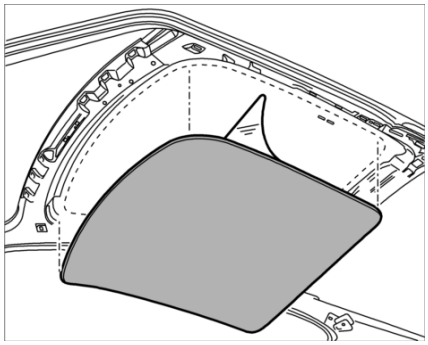
2.1. Secure the roof with tensioning clamps.

2.2. Spot-weld areas **A, B, C, D** of the roof.

Affixing the roof sound absorber

Note

When positioning the sound absorber, the attachment points must be accessible.



Affixing the roof sound absorber

1. Pull of the protective film and affix the roof sound absorber in the marked area.

top of page

Subsequent work

Subsequent work for body repairs

1. Removing vehicle from straightening bench
2. Cleaning spot-welded joints and sheetmetal flanges with a wire brush
3. Priming flange areas with 2K primer
4. Restore standard sealing with body sealant
   501000 Seam seal
5. Restore standard undersealing with underbody sealant
   501000 Undersealing
6. Painting repair area and adjacent surfaces, if necessary
7. Install removed add-on parts in the repair area
8. Apply cavity preservation.

997110, 997111, 997120, 997121

as of MY 2004

WARNUNG

Gefahr des Verlusts der Text-Bild-Zuordnung beim Ausdruck.

- **Aus technischen Gründen kann derzeit nicht ausgeschlossen werden, dass trotz einwandfreier Darstellung auf dem Bildschirm beim Ausdruck der Zusammenhang von Text und zugehörigem Bild verloren geht.**
- **Wird der Fehler nicht bemerkt, besteht die Gefahr, daß Arbeiten nicht korrekt durchgeführt werden und es dadurch zu Personen- und Sachschäden kommt.**

Vergleichen Sie deshalb nach dem Druckvorgang unbedingt die Ausdrucke mit der Bildschirmdarstellung. Korrigieren Sie die Ausdrucke im Fehlerfall so, daß der Inhalt der Bildschirmdarstellung zutreffend wiedergegeben wird.

WARNING

Danger of losing text-figure correspondence when printing out.

- **For technical reasons, it can currently not be ruled out that the correspondence between text and associated figure can be lost when it is printed out, even though the display on the screen is correct.**
- **If the fault is not noticed, there is the danger that work will not be performed correctly which can cause injury and damage.**

51 05 55 Replacing roof pillar (pipe) - as of MY 2005

- General warning notes
- Tools and materials
- Preliminary work for body repairs with alignment bench
- Removing roof pillar (pipe) and roof frame reinforcement
- Preparing connection areas of the body for installing the roof pillar (pipe) and roof frame reinforcement
- Fitting roof pillar (pipe) and roof frame reinforcement and preparing for installation
- Installing roof frame reinforcement and roof pillar (pipe)
- Subsequent work

Tools

Designation	Type	Number	Explanation	
Pneumatic body saw No. PS1, see Gr. 3.5; Workshop Equipment Manual	commercially available tool	00000		
Press-out tool	special tool	97290		
Star gauges for body gap dimensions	commercially available tool	NR.127-1		
Spotweld drill	commercially available tool	NR.129		

Inverter welding equipment ATL Inverterspot	workshop equipment	WE1194		

top of page

General warning notes

Safety instructions for body repairs

5 AW Safety instructions - General warning notes

top of page

Tools and materials

Tools and materials

Spotweld drill NR.129 Star gauges for body gap dimensions NR.127-1
Press-out tool 97290
Pneumatic body saw No. PS1, see Gr. 3.5; Workshop Equipment Manual 00000
Angle grinder, see Gr. 3.5; see Workshop Equipment Manual 00000
Oscillating body saw (special electrical cutter), see Gr. 3.5; Workshop Equipment Manual 00000
Rotary brush, see Gr. 3.5; Workshop Equipment Manual 00000
Hole punch, see Gr. 3.5; Workshop Equipment Manual 00000
Leister Elektron hot-air gun, see Gr. 3.5; Workshop Equipment Manual 00000
Inverter welding equipment ATL Inverterspot WE1194

Basic straightening attachments for 911 Carrera (996), see Gr. 3.5; Workshop Equipment Manual 00000
Additional straightening attachments for 911 Carrera (997), see Gr. 3.5; Workshop Equipment Manual 00000
Pneumatic spotweld remover, Vario Drill No. WS 90, see Gr. 3.5; Workshop Equipment Manual 00000

top of page

Preliminary work for body repairs with alignment bench

Preliminary work for body repairs with alignment bench

WARNING

This affects torsion resistance, resistance to bending and crash safety

- **Danger of injury and material damage**

The roof pillar (pipe), which is made of highest-strength steel plate, cannot be reshaped.

The roof pillar (pipe) cannot be straightened or reshaped.

In the event of damage or deformation, the roof pillar (pipe) must be replaced.

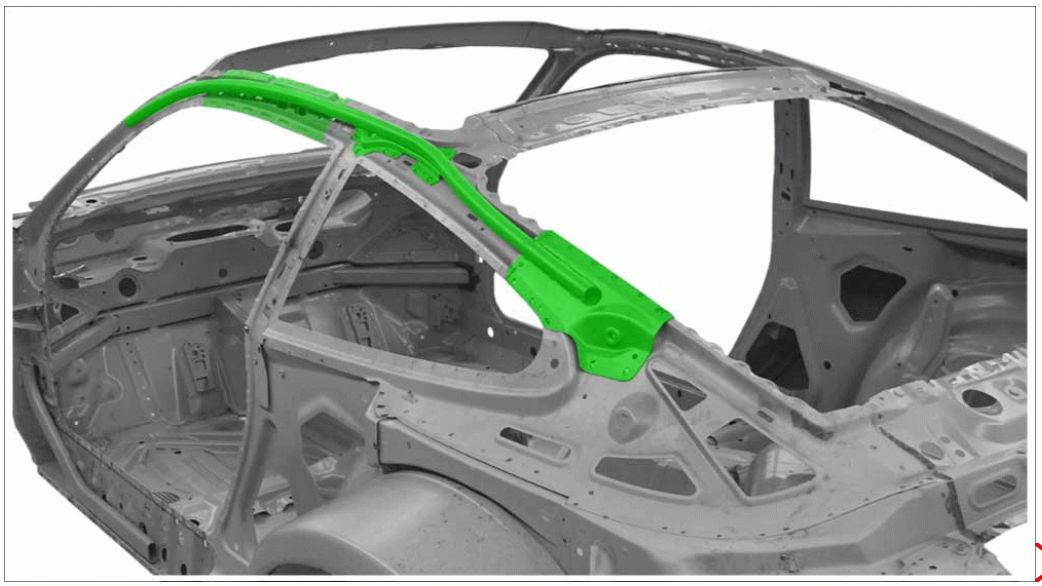
1. Removing accessories in the repair area
1.1. Remove accessories in the repair area according to the extent of damage on the vehicle.
2. Equipping alignment bench with straightening kit
2.1. Set up straightening bench with the straightening set according to the set-up drawings included with the straightening set.
3. Placing vehicle on the alignment bench
3.1. Position vehicle on alignment bench, align according to the reference holes and bolt firmly to the attachment set.
4. Covering accessories adjacent to the vehicle repair area
4.1. Cover all accessories remaining on the vehicle and the neighbouring areas with fire-proof, protective covers.
5. Exposing welding areas
5.1. Remove undersealing, paint, etc. from the welding areas of the body with a hot-air gun or rotary brush.

top of page

Removing roof pillar (pipe) and roof frame reinforcement

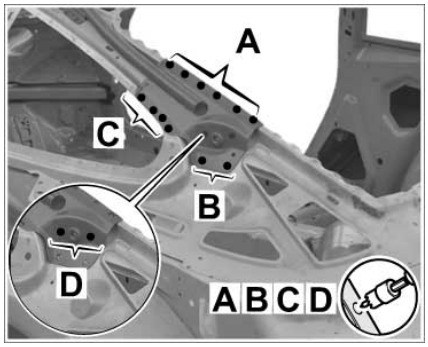
Removing roof pillar (pipe)

Installation Location:



Installation position of roof pillar (pipe)

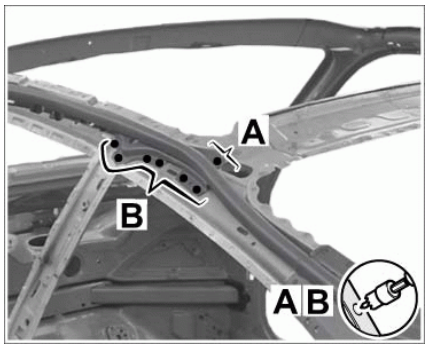
1. Remove hinge pillar reinforcement. *516255 21 Replacing hinge pillar reinforcement - section on "Removing"*
2. Remove side panel. 535555 Replacing side panel - section on "Removing"



Cutting the spotwelds

3. Cutting the spotwelds

3.1. Mill off spotwelds in areas **-A, B, C, D-** using a spotweld cutter.

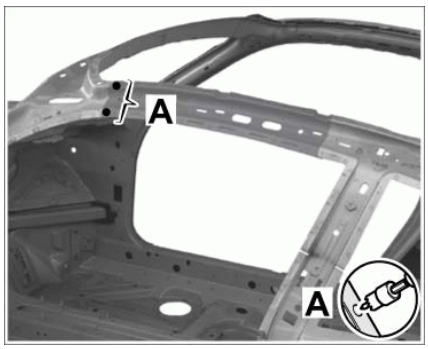


Cutting the spotwelds

4. Cutting the spotwelds

4.1. Mill off spotwelds in areas **-A-** and **-B-** using a spotweld cutter.

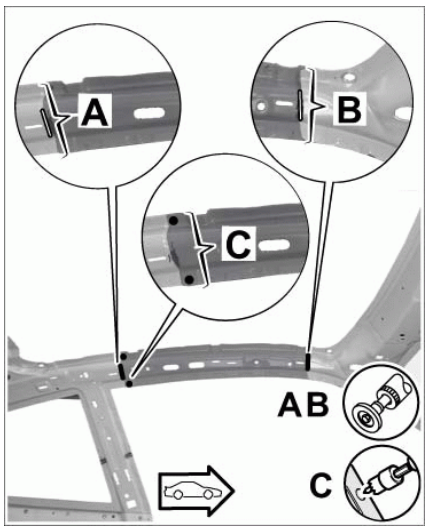
Removing roof frame reinforcement



Cutting the spotwelds

1. Cutting the spotwelds

1.1. Mill off spotwelds in area **-A-** using a spotweld cutter.



Separating welded joints

2. Separating and milling off welded joints

2.1. Separate inert-gas welded seams in areas **-A-** and **-B-** from the inside using a parting grinder.

2.2. Mill off spotwelds in area **-C-** using a spotweld cutter.

top of page

Preparing connection areas of the body for installing the roof pillar (pipe) and roof frame reinforcement

Safety instructions for flying sparks during grinding and welding work

ATTENTION

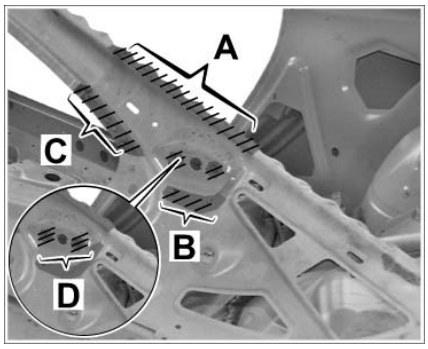
Danger of explosion and fire from flying sparks during grinding and welding work!

- **Danger of injury and danger of damage to vehicle parts and other vehicles due to flying sparks**

Cover vehicle parts such as battery, fuel system, paintwork, glass and passenger compartment parts with fire-proof covers and, if necessary, remove batteries and fuel-carrying components.

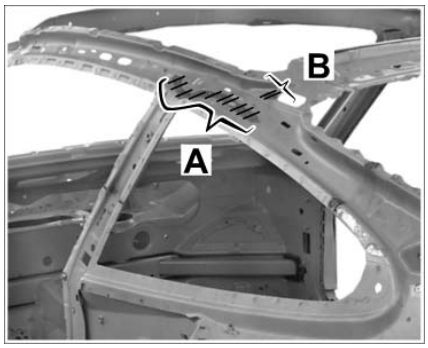
No other vehicles may be left unprotected in areas used for body repair!

Preparing connection areas of body for installing roof pillar (pipe)



Preparing connection areas of body for installing roof pillar (pipe)

1. Clean undersealing, adhesive residue and paint off the body connecting flanges in the marked areas **-A, B, C, D-** using a hot-air gun or rotary brush. Grind the connecting flanges until bare.

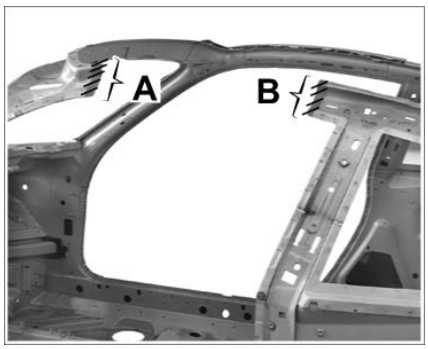


Preparing connection areas of body for installing roof pillar (pipe)

2. Clean undersealing, adhesive residue and paint off the body connecting flanges in the marked areas **-A-** and **-B-** using a hot-air gun or rotary brush. Grind the connecting flanges until bare.
3. Coat spot-weld flange areas with zinc powder paint.

3.1. Coat all spot-weld flange areas with zinc powder paint.

Preparing connection areas of body for installing roof frame reinforcement



Preparing connection areas of body for installing roof frame reinforcement

1. Clean undersealing, adhesive residue and paint off the body connecting flanges for the roof frame in the marked areas **-A-** and **-B-** using a hot-air gun or rotary brush. Grind the connecting flanges until bare.
2. Coat spot-weld flange areas with zinc powder paint.

2.1. Coat all spot-weld flange areas with zinc powder paint.

top of page

Fitting roof pillar (pipe) and roof frame reinforcement and preparing for installation

Safety instructions for sharp-edged body and unit parts

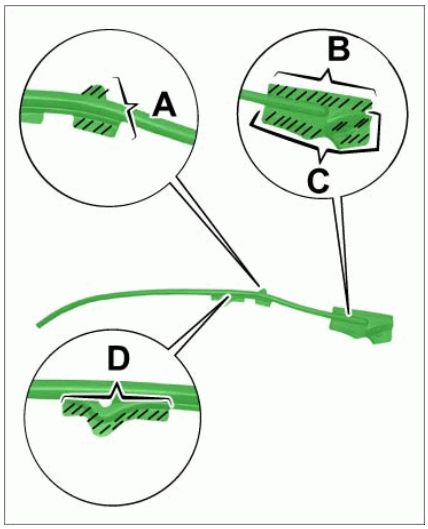
ATTENTION

Danger of injury! Sharp-edge burrs on body and unit parts!

- **Injuries from sharp edges on body and unit parts.**

Wear protective gloves when working in the area of sharp-edged body and unit parts!

Fitting roof pillar (pipe) and preparing for installation



Cleaning the welding areas

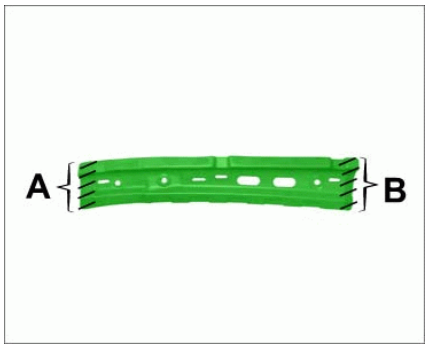
1. Cleaning the welding areas

1.1. Grind both sides of the connecting flanges of the roof pillar (pipe) in the marked areas **-A, B, C, D-** until bare using a rotary brush.

2. Coat spot-weld flange areas with zinc powder paint.

2.1. Coat all spot-weld flange areas with zinc powder paint.

Fitting roof frame reinforcement and preparing for installation



Cleaning the welding areas

1. Cleaning the welding areas

1.1. Grind both sides of the connecting flange of the roof frame reinforcement in the marked areas **-A-** and **-B-** until bare using a rotary brush.

2. Coat spot-weld flange areas with zinc powder paint.

2.1. Coat all spot-weld flange areas with zinc powder paint.

top of page

Installing roof frame reinforcement and roof pillar (pipe)

Danger of injury when welding

DANGER

Risk of fatal injury from high voltage during electric welding!

- **Danger of explosion and fire when welding in the area of highly inflammable materials.**
- **Irritation to respiratory tracts from toxic zinc oxide emitted when welding galvanised steel!**
- **Danger of injury from unintentional triggering of pyrotechnical safety components!**
- **Danger of injury from weld spatters and UV light when welding!**

Do not perform welding work in a damp environment or on wet ground; there is a risk of fatal injury from the voltage being conducted through the human body. Persons with heart pacemakers should not perform welding work. Use insulating underlays.

Remove highly flammable materials from the work area; if necessary, remove units with fuel-carrying parts and protect work areas in the vehicle that are at risk of catching fire using fire-proof covers.

Ventilate the work area well.

Remove smoke gases with a suitable extraction system (refer to Workshop Equipment Manual).

Wear suitable protective equipment, such as protective clothing, gloves, a welding shield and, if necessary, a protective mask.

For welding work, always disconnect both terminals on the battery. In the case of welding work in the immediate vicinity of the control modules for pyrotechnical safety systems, remove the control modules before beginning work.

In addition, the guidelines of the welding equipment manufacturer and the legal accident prevention regulations and those of the mutual indemnity association (BGV D1) must be observed.

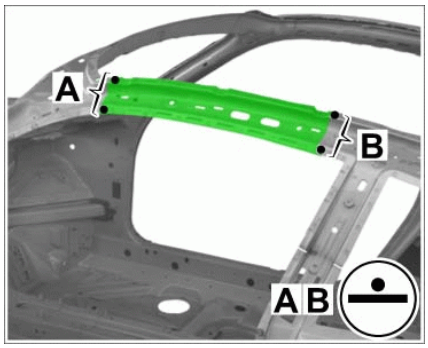
Installing roof frame reinforcement

Note

Determine the position of the new part and secure with tensioning clamps.
When butt welding body sheet panels with a sheet thickness of > 1.5 mm, there must be a welding slit width s = 1 x sheet thickness to guarantee the required welding quality (welding through).

1. Fitting roof frame reinforcement to the body

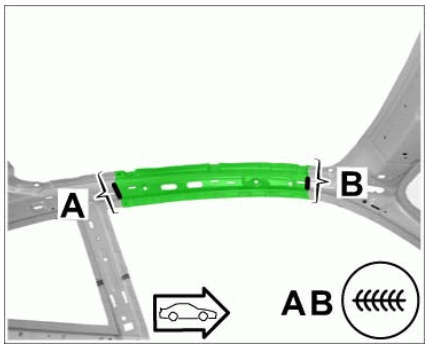
1.1. Position roof frame reinforcement on the body and fix in place with tensioning clamps.



Welding in roof frame reinforcement

2. Welding in roof frame reinforcement

2.1. Resistance spot-weld the roof frame reinforcement in areas **-A-** and **-B-** .



Welding in roof frame reinforcement

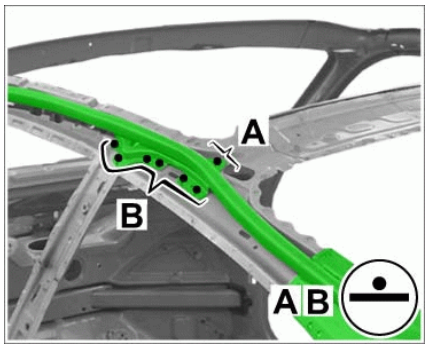
3. Weld in roof frame reinforcement.

3.1. Apply a full weld to the roof frame reinforcement in areas **-A-** and **-B-** using inert gas.

Installing roof pillar (pipe)

1. Fitting roof pillar (pipe) to the body

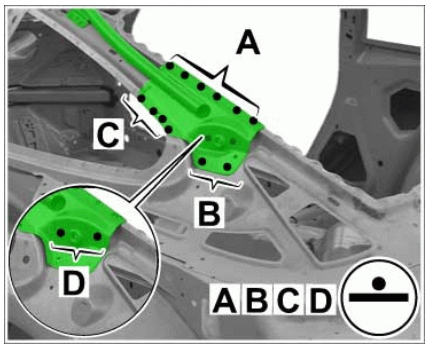
1.1. Position roof pillar (pipe) on the body and fix in place with tensioning clamps.



Welding in roof pillar (pipe)

2. Welding in roof pillar (pipe)

2.1. Resistance spot-weld the roof pillar (pipe) in areas **-A-** and **-B-** .



Welding in roof pillar (pipe)

3. Weld in roof pillar (pipe).

3.1. Resistance spot-weld the roof pillar (pipe) in areas **-A, B, C, D-** .

4. Install side panel. 535555 Replacing side panel - section on "Installing"

5. Install hinge pillar reinforcement. *516255 23 Replacing hinge pillar reinforcement - section on "Installing"*

top of page

Subsequent work

Subsequent work for body repairs

1. Removing vehicle from straightening bench
2. Cleaning spot-welded joints and sheetmetal flanges with a wire brush
3. Priming flange areas with 2K primer
4. Restore standard sealing with body sealant
   501000 Seam seal
5. Restore standard undersealing with underbody sealant
   501000 Undersealing
6. Painting repair area and adjacent surfaces, if necessary
7. Install removed add-on parts in the repair area
8. Apply cavity preservation.

997110, 997111, 997120, 997121, 997410, 997411, 997430, 997431

as of MY 2005
Country C00, C02, C05, C07, C08, C09, C10, C11, C12, C13, C14, C15, C16, C18, C19, C20, C21, C22, C23, C24, C25, C26, C27, C28, C32, C33, C34, C35, C36, C37, C38, C39, C45, C46, C98, C99

WARNUNG

Gefahr des Verlusts der Text-Bild-Zuordnung beim Ausdruck.

- **Aus technischen Gründen kann derzeit nicht ausgeschlossen werden, dass trotz einwandfreier Darstellung auf dem Bildschirm beim Ausdruck der Zusammenhang von Text und zugehörigem Bild verloren geht.**
- **Wird der Fehler nicht bemerkt, besteht die Gefahr, daß Arbeiten nicht korrekt durchgeführt werden und es dadurch zu Personen- und Sachschäden kommt.**

Vergleichen Sie deshalb nach dem Druckvorgang unbedingt die Ausdrucke mit der Bildschirmdarstellung. Korrigieren Sie die Ausdrucke im Fehlerfall so, daß der Inhalt der Bildschirmdarstellung zutreffend wiedergegeben wird.

WARNING

Danger of losing text-figure correspondence when printing out.

- **For technical reasons, it can currently not be ruled out that the correspondence between text and associated figure can be lost when it is printed out, even though the display on the screen is correct.**
- **If the fault is not noticed, there is the danger that work will not be performed correctly which can cause injury and damage.**

Therefore, always compare printouts with the screen display after printing them out. Correct the printouts if they are faulty so that the content of the screen display matches that on the printouts.

51 09 55 Replacing rear cross member (side impact reinforcement) - as of MY 2005

- General warning notes
- Tools and materials
- Preliminary work for body repairs with alignment bench
- Removing rear cross member (side impact reinforcement)
- Preparing connection areas of the body for installing the rear cross member (side impact reinforcement)
- Fitting rear cross member (side impact reinforcement) and preparing for installation
- Installing rear cross member (side impact reinforcement)
- Subsequent work

Tools

Designation	Type	Number	Explanation	
Pneumatic body saw No. PS1, see Gr. 3.5; Workshop Equipment Manual	commercially available tool	00000		
Press-out tool	special tool	97290		
Star gauges for body gap dimensions	commercially available tool	NR.127-1		

Spotweld drill	commercially available tool	NR.129		
Inverter welding equipment ATL Inverterspot	workshop equipment	WE1194		

top of page

General warning notes

Safety instructions for body repairs

5 AW Safety instructions - General warning notes

top of page

Tools and materials

Tools and materials

Spotweld drill NR.129 Star gauges for body gap dimensions NR.127-1
Press-out tool 97290
Pneumatic body saw No. PS1, see Gr. 3.5; Workshop Equipment Manual 00000
Angle grinder, see Gr. 3.5; see Workshop Equipment Manual 00000
Oscillating body saw (special electrical cutter), see Gr. 3.5; Workshop Equipment Manual 00000
Rotary brush, see Gr. 3.5; Workshop Equipment Manual 00000
Hole punch, see Gr. 3.5; Workshop Equipment Manual 00000
Leister Elektron hot-air gun, see Gr. 3.5; Workshop Equipment Manual 00000
Inverter welding equipment ATL Inverterspot WE1194

Basic straightening attachments for 911 Carrera (996), see Gr. 3.5; Workshop Equipment Manual 00000
Additional straightening attachments for 911 Carrera (997), see Gr. 3.5; Workshop Equipment Manual 00000
Pneumatic spotweld remover, Vario Drill No. WS 90, see Gr. 3.5; Workshop Equipment Manual 00000

top of page

Preliminary work for body repairs with alignment bench

Preliminary work for body repairs with alignment bench

1. Removing accessories in the repair area
1.1. Remove accessories in the repair area according to the extent of damage to the vehicle.
2. Equipping alignment bench with straightening kit
2.1. Equip alignment bench with the basic straightening attachments according to the plans included with the straightening attachments.
3. Placing vehicle on the alignment bench
3.1. Position vehicle on alignment bench, align according to the reference holes and bolt firmly to the attachment set.
4. Covering accessories adjacent to the vehicle repair area
4.1. Cover all accessories remaining on the vehicle and the neighbouring areas with fire-proof, protective covers.
5. Reshaping connection area of the sheetmetal parts to be replaced
6. Exposing welding areas
6.1. Remove undersealing, paint, etc. from the welding areas of the body with a hot-air gun or rotary brush.

top of page

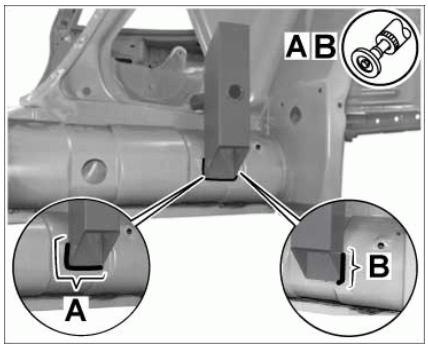
Removing rear cross member (side impact reinforcement)

Removing rear cross member

Installation Location:

Installation position of rear cross member

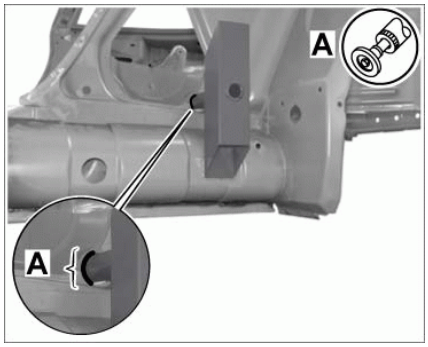
1. Remove side panel. 535555 Replacing side panel - section on "Removing" [997110 997111 997120 997121 997410 997411 997430 997431] 535555 Replacing side panel - section on "Removing" [997310 997311 997320 997321] *535555 21 Replacing side panel - section on "Removing" [997610 997611 997620 997621]*
2. Remove lower side member. *514555 21 Replacing lower side member - section on "Removing"*



Separating inert-gas welded seams

3. Separating inert-gas welded seams

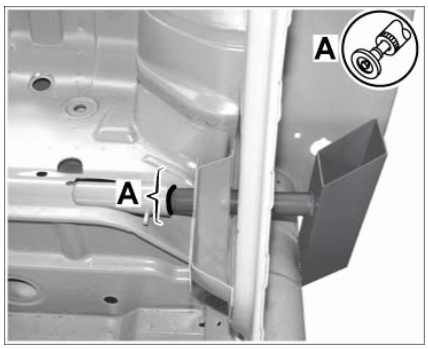
3.1. Separate inert-gas welded seams in areas **-A-** and **-B-** using a parting grinder.



Separating inert-gas welded seams

4. Separating inert-gas welded seams

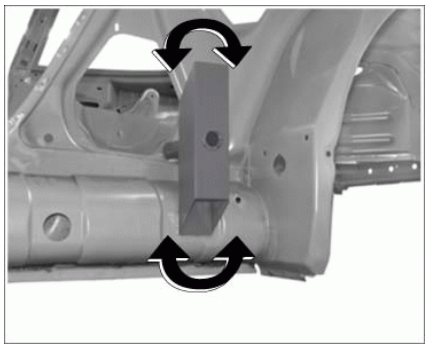
4.1. Separate inert-gas welded seam in area **-A-** using a parting grinder.



Separating inert-gas welded seams

5. Separating inert-gas welded seams

5.1. Separate inert-gas welded seam in area **-A-** using a parting grinder.

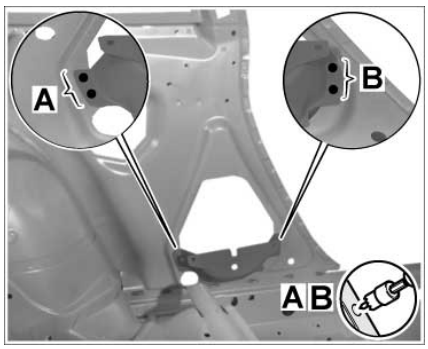


Releasing rear cross member

6. Releasing rear cross member

6.1. Release rear cross member at the welded seams using twisting movements.

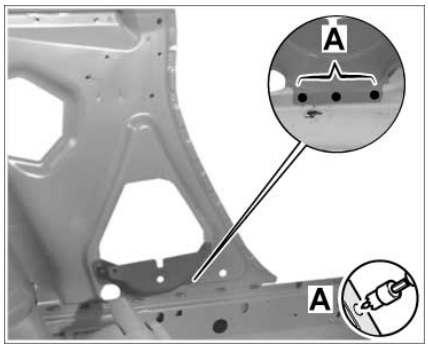
Removing reinforcement plate for rear cross member



Cutting the spotwelds

1. Cutting the spotwelds

1.1. Mill off spotwelds in areas **-A-** and **-B-** using a spotweld cutter.



Cutting the spotwelds

2. Cutting the spotwelds

2.1. Mill off spotwelds in area **-A-** using a spotweld cutter.

top of page

Preparing connection areas of the body for installing the rear cross member (side impact reinforcement)

Safety instructions for flying sparks during grinding and welding work

ATTENTION

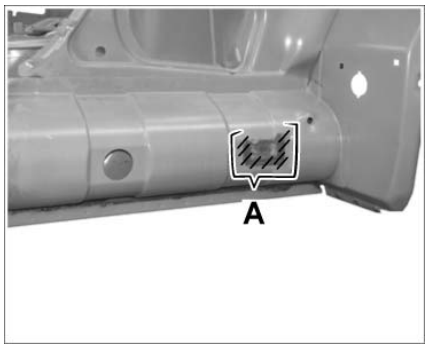
Danger of explosion and fire from flying sparks during grinding and welding work!

- **Danger of injury and danger of damage to vehicle parts and other vehicles due to flying sparks**

Cover vehicle parts such as battery, fuel system, paintwork, glass and passenger compartment parts with fire-proof covers and, if necessary, remove batteries and fuel-carrying components.

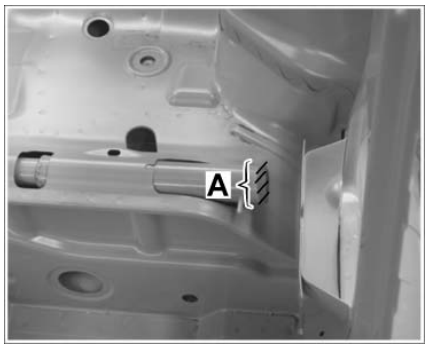
No other vehicles may be left unprotected in areas used for body repair!

Preparing connection areas of body for installing the rear cross member



Preparing connection areas of body for installing the rear cross member

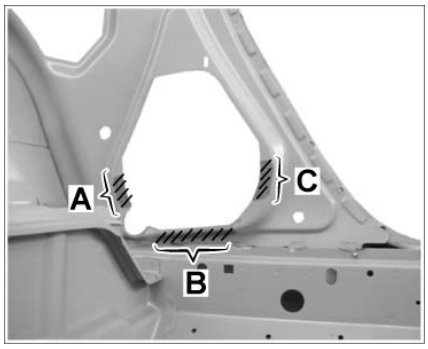
1. Clean undersealing, adhesive residue and paint off the body connecting flanges in the marked area **-A-** using a hot-air gun or rotary brush. Grind the connecting flanges until bare.



Preparing connection areas of body for installing the rear cross member

2. Clean undersealing, adhesive residue and paint off the body connecting flanges in the marked area **-A-** using a hot-air gun or rotary brush. Grind the connecting flanges until bare.

Preparing connection areas of body for installing reinforcement plate for rear cross member



Preparing connection areas of body for installing reinforcement plate for rear cross member

1. Clean undersealing, adhesive residue and paint off the body connecting flanges in the marked areas **-A, B, C-** using a hot-air gun or rotary brush. Grind the connecting flanges until bare.
2. Coating spot-weld flange areas with zinc powder paint

2.1. Coat all spot-weld flange areas with zinc powder paint.

top of page

Fitting rear cross member (side impact reinforcement) and preparing for installation

Safety instructions for sharp-edged body and unit parts

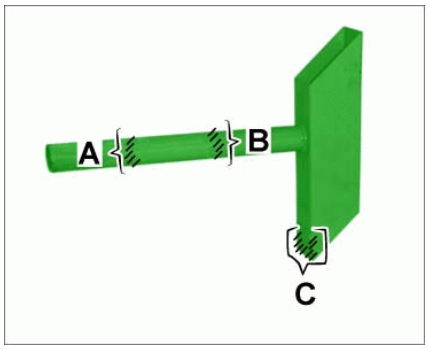
ATTENTION

Danger of injury! Sharp-edge burrs on body and unit parts!

- **Injuries from sharp edges on body and unit parts.**

Wear protective gloves when working in the area of sharp-edged body and unit parts!

Fitting rear cross member and preparing for installation

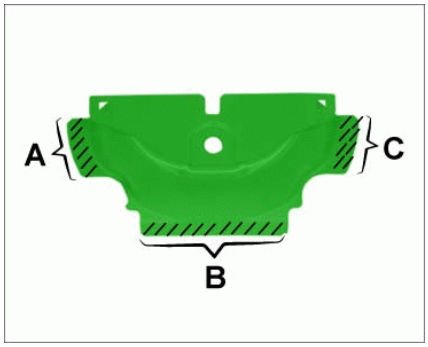


Cleaning the welding areas

1. Cleaning the welding areas

1.1. Grind both sides of the connecting flanges of the rear cross member in the marked areas **-A, B, C-** until bare using a rotary brush.

Fitting reinforcement plate for rear cross member and preparing for installation



Cleaning the welding areas

1. Cleaning the welding areas

1.1. Grind both sides of the connecting flanges of the reinforcement plate for the rear cross member in the marked areas **-A, B, C-** until bare using a rotary brush.

2. Coat spot-weld flange areas with zinc powder paint.

2.1. Coat all spot-weld flange areas with zinc powder paint.

top of page

Installing rear cross member (side impact reinforcement)

Danger of injury when welding

DANGER

Risk of fatal injury from high voltage during electric welding!

- **Danger of explosion and fire when welding in the area of highly inflammable materials.**
- **Irritation to respiratory tracts from toxic zinc oxide emitted when welding galvanised steel!**
- **Danger of injury from unintentional triggering of pyrotechnical safety components!**
- **Danger of injury from weld spatters and UV light when welding!**

Do not perform welding work in a damp environment or on wet ground; there is a risk of fatal injury from the voltage being conducted through the human body. Persons with heart pacemakers should not perform welding work. Use insulating underlays.

Remove highly flammable materials from the work area; if necessary, remove units with fuel-carrying parts and protect work areas in the vehicle that are at risk of catching fire using

fire-proof covers.

Ventilate the work area well.

Remove smoke gases with a suitable extraction system (refer to Workshop Equipment Manual).

Wear suitable protective equipment, such as protective clothing, gloves, a welding shield and, if necessary, a protective mask.

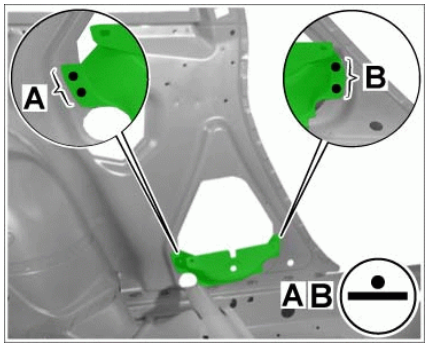
For welding work, always disconnect both terminals on the battery. In the case of welding work in the immediate vicinity of the control modules for pyrotechnical safety systems, remove the control modules before beginning work.

In addition, the guidelines of the welding equipment manufacturer and the legal accident prevention regulations and those of the mutual indemnity association (BGV D1) must be observed.

Installing reinforcement plate for rear cross member

1. Fitting reinforcement plate for rear cross member to the body

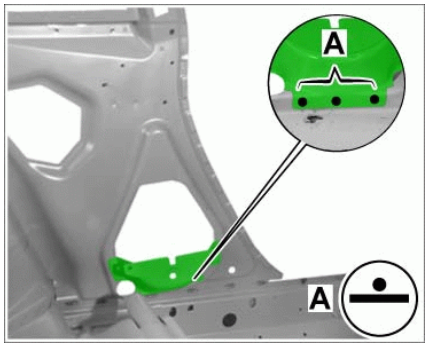
1.1. Position the reinforcement plate for the rear cross member on the body and fix in place with tensioning clamps.



Welding in reinforcement plate for rear cross member

2. Welding in reinforcement plate for rear cross member

2.1. Resistance spot-weld the reinforcement plate for the rear cross member in areas **-A-** and **-B-** .



Welding in reinforcement plate for rear cross member

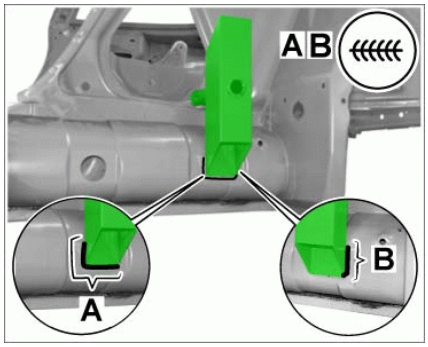
3. Welding in reinforcement plate for rear cross member

3.1. Resistance spot-weld the reinforcement plate for the rear cross member in area **-A-** .

Installing rear cross member

1. Fitting rear cross member to the body

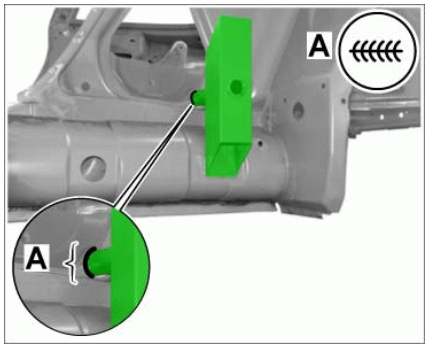
1.1. Position the rear cross member on the body and fix in place with tensioning clamps.



Welding in rear cross member

2. Welding in rear cross member

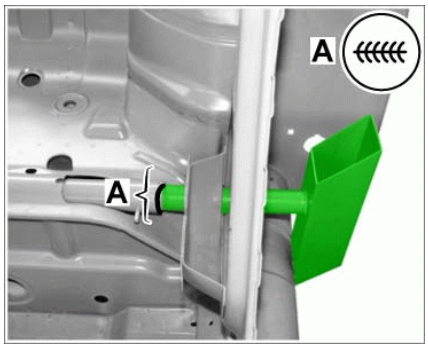
2.1. Apply a full weld to the rear cross member in areas **-A-** and **-B-** using inert gas.



Welding in rear cross member

3. Welding in rear cross member

3.1. Apply a full weld to the rear cross member in area **-2-** using inert gas.



Welding in rear cross member

4. Welding in rear cross member

4.1. Apply a full weld to the rear cross member in area **-A-** using inert gas.

5. Install lower side member. *514555 23 Replacing lower side member - section on "Installing"*

6. Install side panel. 535555 Replacing side panel - section on "Installing" [997110 997111 997120 997121 997410 997411 997430 997431] 535555 Replacing side panel - section on "Installing" [997310 997311 997320 997321] *535555 23 Replacing side panel - section on "Installing" [997610 997611*

997620 9976211]

top of page

Subsequent work

Subsequent work for body repairs

1. Removing vehicle from straightening bench
2. Cleaning spot-welded joints and sheetmetal flanges with a wire brush
3. Priming flange areas with 2K primer
4. Restore standard sealing with body sealant
   501000 Seam seal
5. Restore standard undersealing with underbody sealant
   501000 Undersealing
6. Painting repair area and adjacent surfaces, if necessary
7. Install removed add-on parts in the repair area
8. Apply cavity preservation.

997110, 997111, 997120, 997121, 997310, 997311, 997320, 997321, 997410, 997411, 997430, 997431, 997610, 997611, 997620, 997621

as of MY 2005
Country C00, C02, C05, C07, C08, C09, C10, C11, C12, C13, C14, C15, C16, C18, C19, C20, C21, C22, C23, C24, C25, C26, C27, C28, C32, C33, C34, C35, C36, C37, C38, C39, C45, C46, C98, C99

WARNUNG

Gefahr des Verlusts der Text-Bild-Zuordnung beim Ausdruck.

- **Aus technischen Gründen kann derzeit nicht ausgeschlossen werden, dass trotz einwandfreier Darstellung auf dem Bildschirm beim Ausdruck der Zusammenhang von Text und zugehörigem Bild verloren geht.**
- **Wird der Fehler nicht bemerkt, besteht die Gefahr, daß Arbeiten nicht korrekt durchgeführt werden und es dadurch zu Personen- und Sachschäden kommt.**

Vergleichen Sie deshalb nach dem Druckvorgang unbedingt die Ausdrucke mit der Bildschirmdarstellung. Korrigieren Sie die Ausdrucke im Fehlerfall so, daß der Inhalt der Bildschirmdarstellung zutreffend wiedergegeben wird.

WARNING

Danger of losing text-figure correspondence when printing out.

51 11 55 Replacing windscreen frame - as of MY 2005

- General warning notes
- Tools and materials
- Preliminary work for body repairs with alignment bench
- Removing windscreen frame
- Preparing connection areas of the body for installing the windscreen frame
- Fitting in windscreen frame and preparing for installation
- Installing windscreen frame
- Subsequent work

Tools

Designation	Type	Number	Explanation	
Pneumatic body saw No. PS1, see Gr. 3.5; Workshop Equipment Manual	commercially available tool	00000		
Press-out tool	special tool	97290		
Star gauges for body gap dimensions	commercially available tool	NR.127-1		
Spotweld drill	commercially available tool	NR.129		

Inverter welding equipment ATL Inverterspot	workshop equipment	WE1194		

top of page

General warning notes

Safety instructions for body repairs

5 AW Safety instructions - General warning notes

top of page

Tools and materials

Tools and materials

Spotweld drill NR.129 Star gauges for body gap dimensions NR.127-1
Press-out tool 97290
Pneumatic body saw No. PS1, see Gr. 3.5; Workshop Equipment Manual 00000
Angle grinder, see Gr. 3.5; see Workshop Equipment Manual 00000
Oscillating body saw (special electrical cutter), see Gr. 3.5; Workshop Equipment Manual 00000
Rotary brush, see Gr. 3.5; Workshop Equipment Manual 00000
Hole punch, see Gr. 3.5; Workshop Equipment Manual 00000
Leister Elektron hot-air gun, see Gr. 3.5; Workshop Equipment Manual 00000
Inverter welding equipment ATL Inverterspot WE1194

Basic straightening attachments for 911 Carrera (996), see Gr. 3.5; Workshop Equipment Manual 00000
Additional straightening attachments for 911 Carrera (997), see Gr. 3.5; Workshop Equipment Manual 00000
Pneumatic spotweld remover, Vario Drill No. WS 90, see Gr. 3.5; Workshop Equipment Manual 00000

top of page

Preliminary work for body repairs with alignment bench

Preliminary work for body repairs with alignment bench

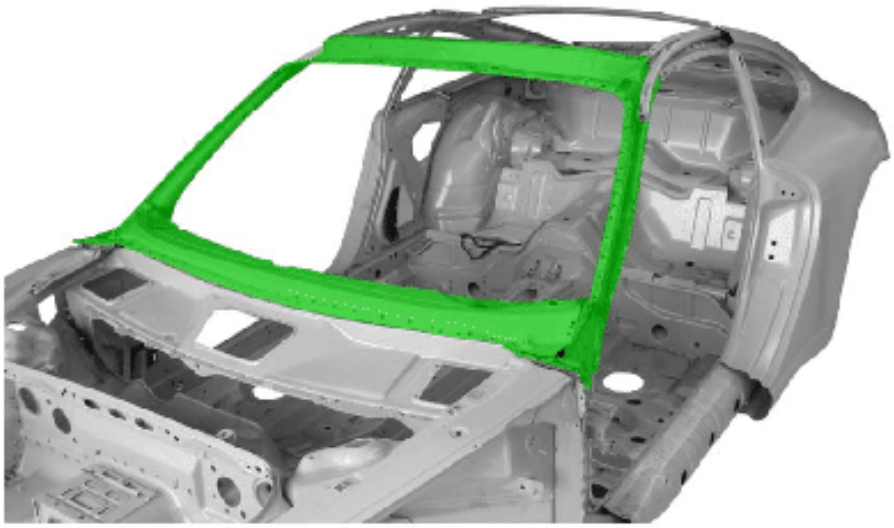
1. Removing accessories in the repair area
1.1. Remove accessories in the repair area according to the extent of damage to the vehicle.
2. Equipping alignment bench with straightening kit
2.1. Equip alignment bench with the basic straightening attachments according to the plans included with the straightening attachments.
3. Placing vehicle on the alignment bench
3.1. Position vehicle on alignment bench, align according to the reference holes and bolt firmly to the attachment set.
4. Covering accessories adjacent to the vehicle repair area
4.1. Cover all accessories remaining on the vehicle and the neighbouring areas with fire-proof, protective covers.
5. Reshaping connection area of the sheetmetal parts to be replaced
6. Exposing welding areas
6.1. Remove undersealing, paint, etc. from the welding areas of the body with a hot-air gun or rotary brush.

top of page

Removing windscreen frame

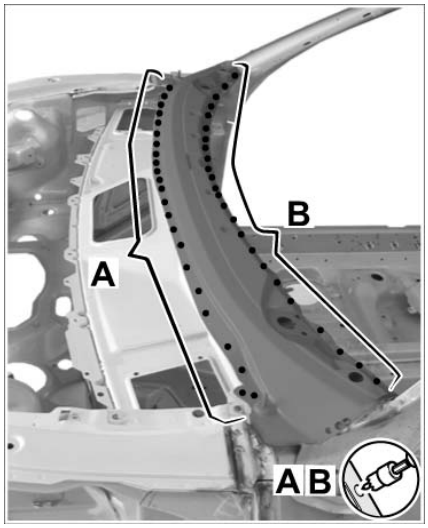
Removing windscreen frame

Installation Location:



Installation position of windscreen frame

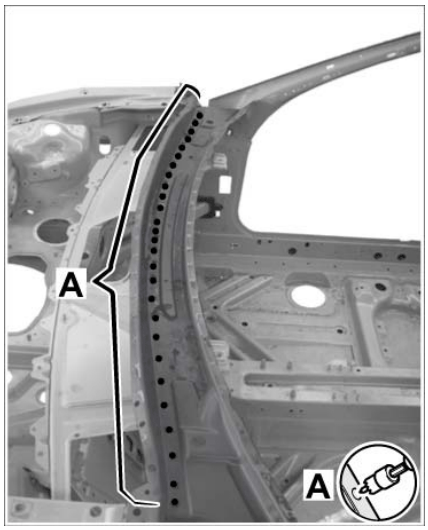
1. Remove roof. 510355 Replacing roof - section on "Removing" [997110 997111 997120 997121] *510355 21 Replacing roof - section on "Removing" [997410 997411]*
2. Remove hinge pillar reinforcement on the left and right. *516255 21 Replacing hinge pillar reinforcement - section on "Removing"*



Cutting the spotwelds

3. Cutting the spotwelds

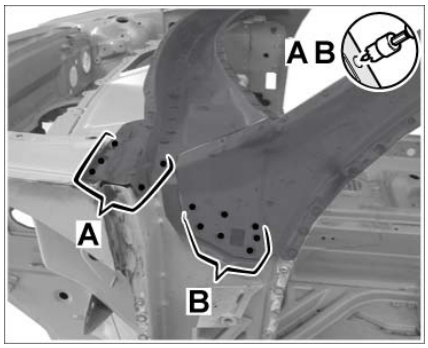
3.1. Mill off spotwelds in areas **-A-** and **-B-** using a spotweld cutter.



Cutting the spotwelds

4. Cutting the spotwelds

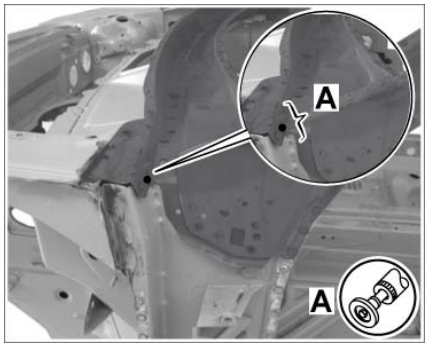
4.1. Mill off spotwelds in area **-A-** using a spotweld cutter.



Cutting spotwelds at the left and right

5. Cutting spotwelds at the left and right

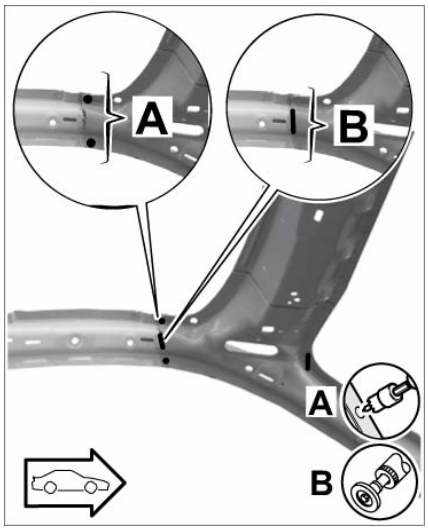
5.1. Mill off spotwelds at the left and right in areas **-A-** and **-B-** using a spotweld cutter (2 plate thicknesses).



Separating spotwelds at the left and right

6. Separating spotwelds at the left and right

6.1. Separate spotwelds at the left and right in area **-A-** using a parting grinder.



Cutting and separating welded joints at the left and right from the inside

7. Cutting and separating welded joints at the left and right from the inside

7.1. Mill off spotwelds at the left and right in area **-A-** from the inside using a spotweld cutter.

7.2. Separate welded seam at the left and right in area **-B-** from the inside using a parting grinder.

top of page

Preparing connection areas of the body for installing the windscreen frame

Safety instructions for flying sparks during grinding and welding work

ATTENTION

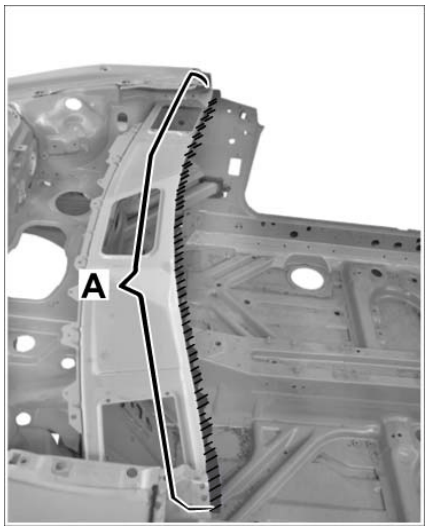
Danger of explosion and fire from flying sparks during grinding and welding work!

- **Danger of injury and danger of damage to vehicle parts and other vehicles due to flying sparks**

Cover vehicle parts such as battery, fuel system, paintwork, glass and passenger compartment parts with fire-proof covers and, if necessary, remove batteries and fuel-carrying components.

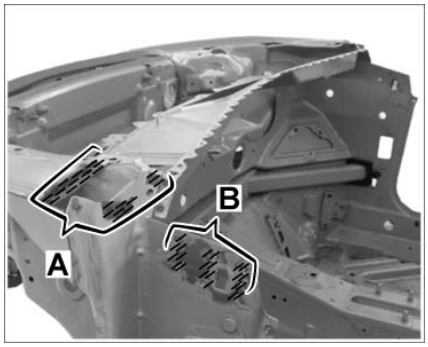
No other vehicles may be left unprotected in areas used for body repair!

Preparing connection areas of body for installing the windscreen frame



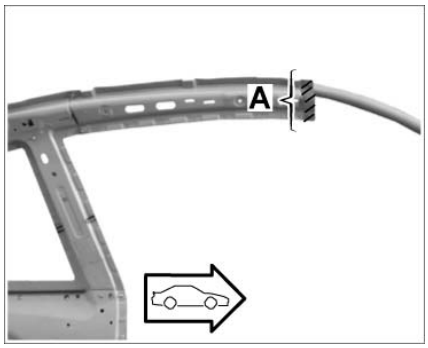
Preparing connection areas of body for installing the windscreen frame

1. Clean undersealing, adhesive residue and paint off the body connecting flanges in the marked area **-A-** using a hot-air gun or rotary brush. Grind the connecting flanges until bare.



Preparing connection areas of body for installing the windscreen frame

2. Clean undersealing, adhesive residue and paint off the body connecting flanges at the left and right in the marked areas **-A-** and **-B-** using a hot-air gun or rotary brush. Grind the connecting flanges until bare.



Preparing connection areas of body for installing the windscreen frame

3. Clean undersealing, adhesive residue and paint off the body connecting flanges at the left and right in the marked area **-A-** using a hot-air gun or rotary brush. Grind the connecting flanges until bare.
4. Coating spot-weld flange areas with zinc powder paint

4.1. Coat all spot-weld flange areas with zinc powder paint.

top of page

Fitting in windscreen frame and preparing for installation

Safety instructions for sharp-edged body and unit parts

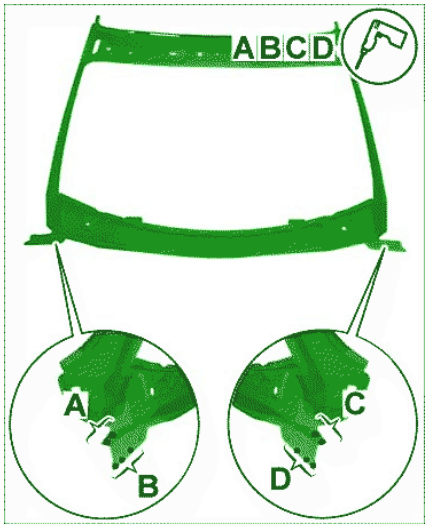
ATTENTION

Danger of injury! Sharp-edge burrs on body and unit parts!

- **Injuries from sharp edges on body and unit parts.**

Wear protective gloves when working in the area of sharp-edged body and unit parts!

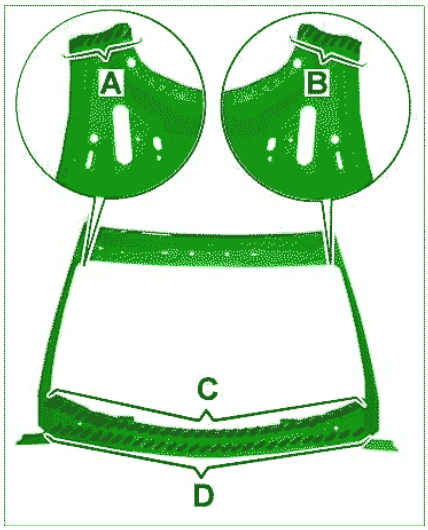
Fitting in windscreen frame and preparing for installation



Drilling holes for plug welding using inert gas

1. Drilling holes for plug welding using inert gas

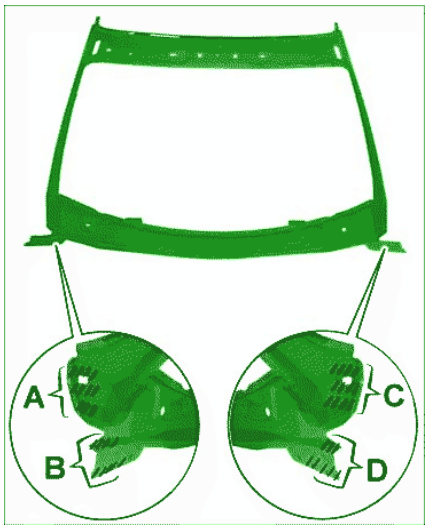
1.1. Drill holes (Ø = 7 mm) in area **-A, B, C, D-** for plug welding using inert gas. Maintain spacing between the bores as on the old part.



Cleaning the welding areas

2. Cleaning the welding areas

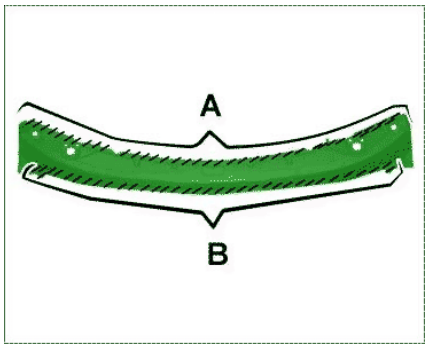
2.1. Grind both sides of the connecting flanges of the windscreen frame in the marked areas **-A, B, C, D-** until bare using a rotary brush.



Cleaning the welding areas

3. Cleaning the welding areas

3.1. Grind both sides of the connecting flanges of the windscreen frame in the marked areas **-A, B, C, D-** until bare using a rotary brush.



Cleaning the welding areas

4. Cleaning the welding areas

4.1. Grind both sides of the connecting flanges of the cowl panel reinforcement in the marked areas **-A-** and **-B-** until bare using a rotary brush.

5. Coat spot-weld flange areas with zinc powder paint.

5.1. Coat all spot-weld flange areas with zinc powder paint.

top of page

Installing windscreen frame

Danger of injury when welding

DANGER

Risk of fatal injury from high voltage during electric welding!

- **Danger of explosion and fire when welding in the area of highly inflammable materials.**
- **Irritation to respiratory tracts from toxic zinc oxide emitted when welding galvanised steel!**
- **Danger of injury from unintentional triggering of pyrotechnical safety components!**
- **Danger of injury from weld spatters and UV light when welding!**

Do not perform welding work in a damp environment or on wet ground; there is a risk of fatal injury from the voltage being conducted through the human body. Persons with heart pacemakers should not perform welding work. Use insulating underlays.

Remove highly flammable materials from the work area; if necessary, remove units with fuel-carrying parts and protect work areas in the vehicle that are at risk of catching fire using fire-proof covers.

Ventilate the work area well.

Remove smoke gases with a suitable extraction system (refer to Workshop Equipment Manual).

Wear suitable protective equipment, such as protective clothing, gloves, a welding shield and, if necessary, a protective mask.

For welding work, always disconnect both terminals on the battery. In the case of welding work in the immediate vicinity of the control modules for pyrotechnical safety systems, remove the control modules before beginning work.

In addition, the guidelines of the welding equipment manufacturer and the legal accident prevention regulations and those of the mutual indemnity association (BGV D1) must be observed.

Installing windscreen frame

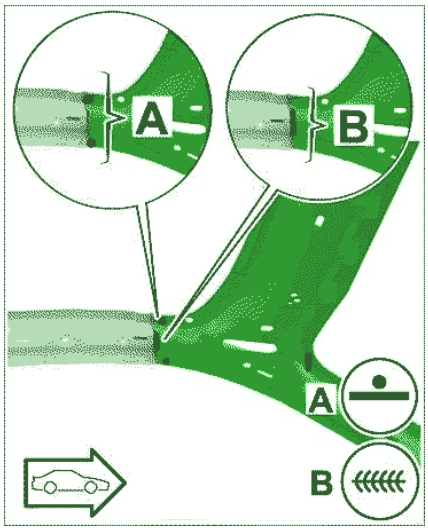
Note

Determine the position of the new part and secure with tensioning clamps.
When butt welding body sheet panels with a sheet thickness of > 1.5 mm, there must be a welding slit width s = 1 x sheet thickness to guarantee the required welding quality (welding through).

1. Fitting windscreen frame to the body

1.1. Place the windscreen frame against the body and secure to the straightening set.

1.2. Secure the windscreen frame with tensioning clamps.

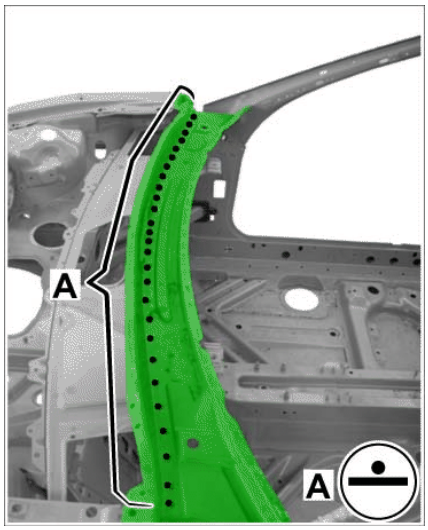


Welding in windscreen frame at the left and right

2. Welding in windscreen frame at the left and right

2.1. Resistance spot-weld the windscreen frame at the left and right in area **-A-** .

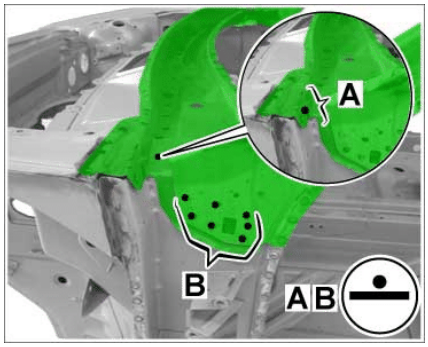
2.2. Apply a full weld to the windscreen frame at the left and right in area **-B-** using inert gas.



Welding in windscreen frame at the left and right

3. Welding in windscreen frame at the left and right

3.1. Resistance spot-weld the windscreen frame at the left and right in area **-A-** .

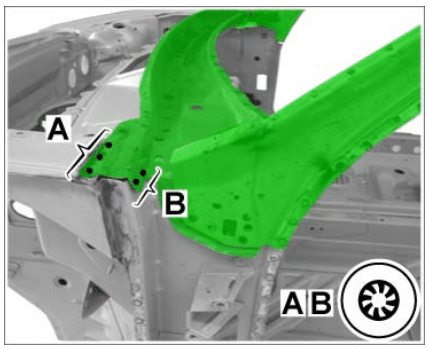


Welding in windscreen frame at the left and right

4. Welding in windscreen frame at the left and right

4.1. Resistance spot-weld the windscreen frame at the left and right in area **-A-** .

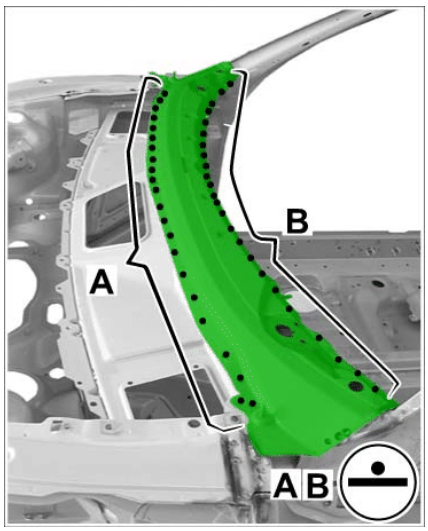
4.2. Resistance spot-weld the windscreen frame at the left and right in area **-B-** .



Welding in windscreen frame at the left and right

5. Welding in windscreen frame at the left and right

5.1. Plug-weld the windscreen frame at the left and right in areas **-A-** and **-B-** using inert gas.



Welding in cowl panel reinforcement

6. Welding in cowl panel reinforcement

6.1. Resistance spot-weld the cowl panel reinforcement in areas **-A-** and **-B-** .

7. Install hinge pillar reinforcement at the left and right. *516255 23 Replacing hinge pillar reinforcement - section on "Installing"*

8. Install roof. 510355 Replacing roof - section on "Installing" [997110 997111 997120 997121] *510355 23 Replacing roof - section on "Installing" [997410 997411]*

top of page

Subsequent work

Subsequent work for body repairs

1. Removing vehicle from straightening bench
2. Cleaning spot-welded joints and sheetmetal flanges with a wire brush
3. Priming flange areas with 2K primer
4. Restore standard sealing with body sealant
   501000 Seam seal
5. Restore standard undersealing with underbody sealant
   501000 Undersealing
6. Painting repair area and adjacent surfaces, if necessary
7. Install removed add-on parts in the repair area
8. Apply cavity preservation.

997110, 997111, 997120, 997121, 997410, 997411

51 21 19 Removing and installing rear centre panel - as of MY 2005

- Preliminary work
- Removing rear centre panel
- Installing rear centre panel
- Subsequent work

top of page

Preliminary work

Preliminary work

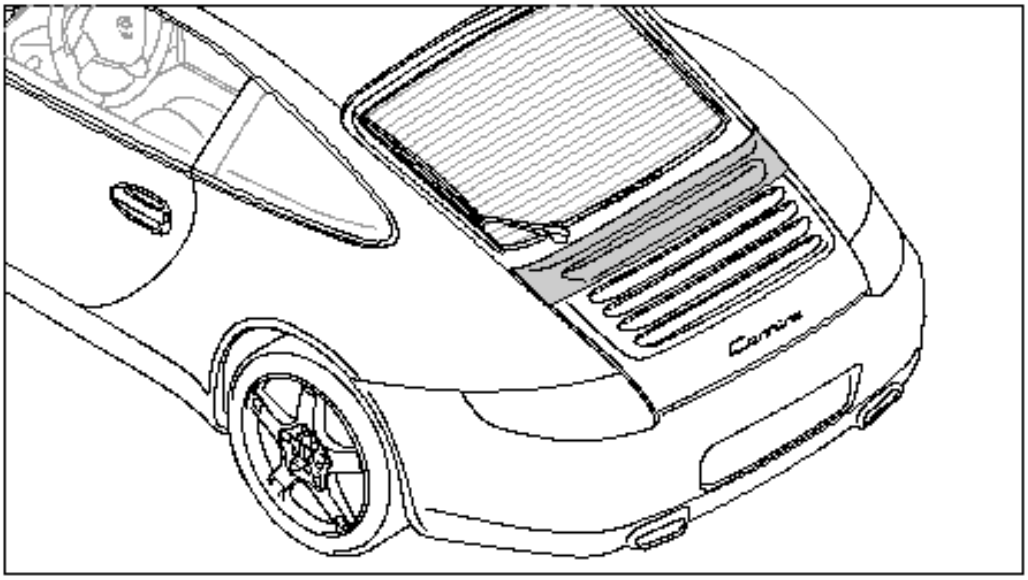
Remove rear roof lining. 708519 Removing and installing rear roof lining - chapter on "Removing" [997110 997111 997120 997121 997410 997411] *708519 21 Removing and installing rear roof lining - chapter on "Removing" [997430 997431]*

top of page

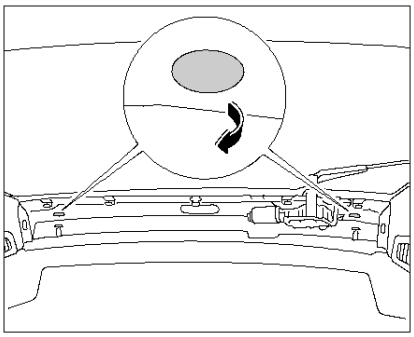
Removing rear centre panel

Loosening inner rear centre panel

Installation Location:

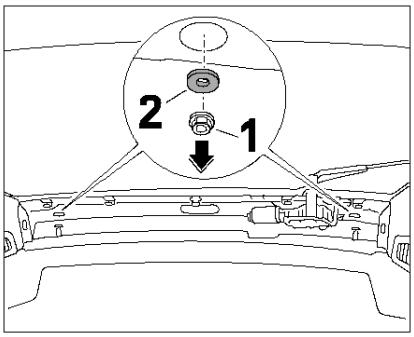


Installation position of rear centre panel



Removing sound absorbent film

1. Remove sound absorbent film.

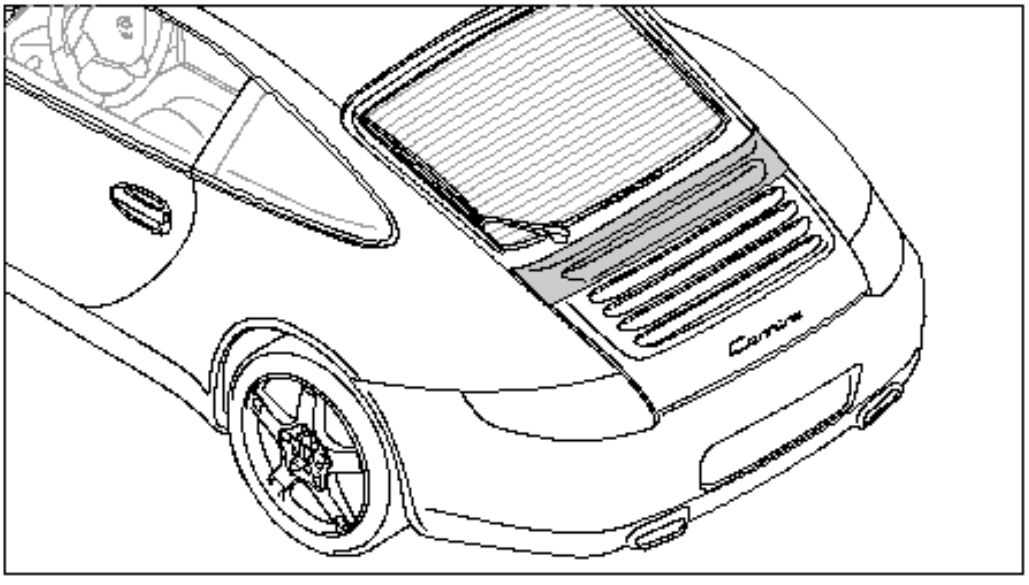


Loosening inner rear centre panel

2. Unscrew fastening nut **-1-** and remove seal **-2-** .

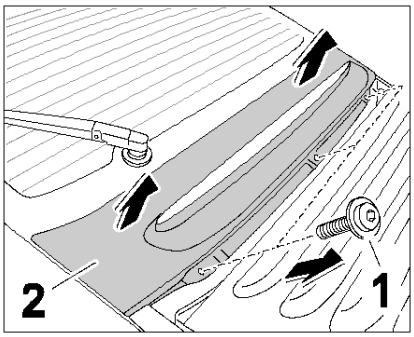
Loosening outer rear centre panel

Installation Location:



Installation position of rear centre panel

1. Extend rear spoiler manually.

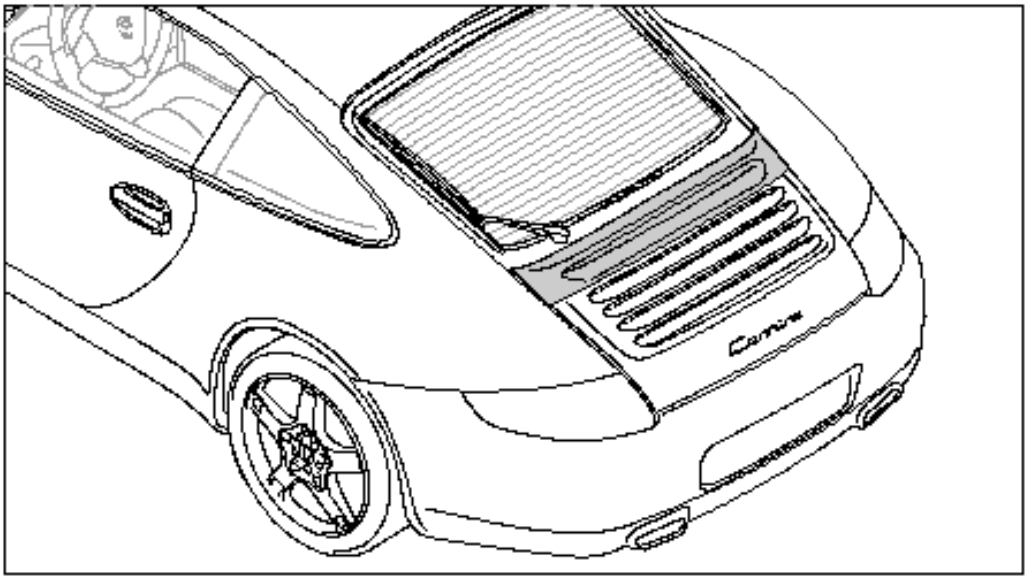


Loosening outer rear centre panel

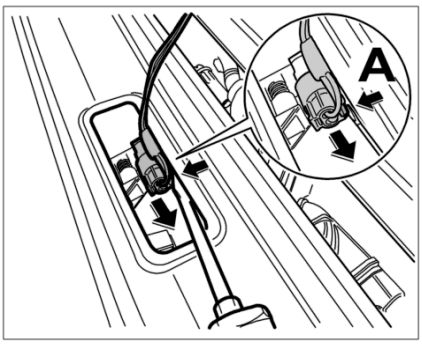
2. Unscrew fastening screws **-1-** and remove rear centre panel **-2-** upwards until the electric plug connection can be released.

Disconnecting electric plug connection for auxiliary stop light

Installation Location:



Installation position of rear centre panel



Releasing electric connector

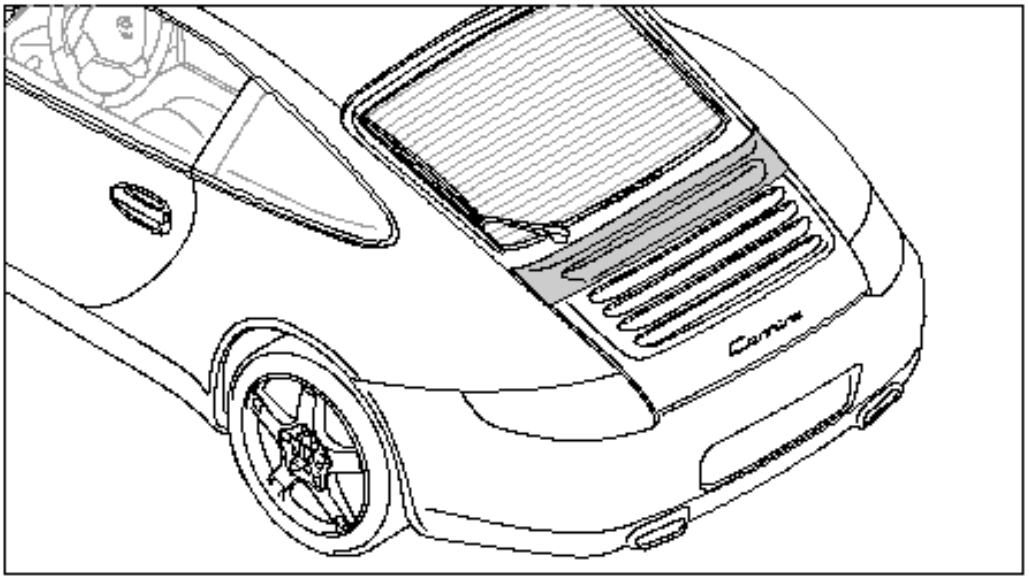
1. Insert a screwdriver from the side and release the locking tab **-Arrow A-** and pull off the connector.

top of page

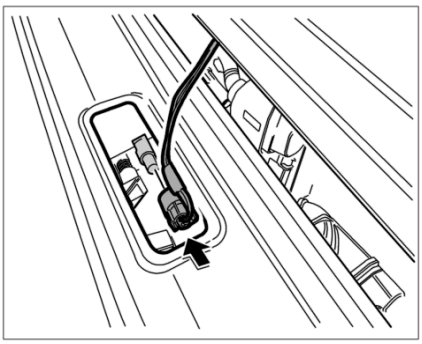
Installing rear centre panel

Locking electric plug connection for auxiliary stop light

Installation Location:



Installation position of rear centre panel

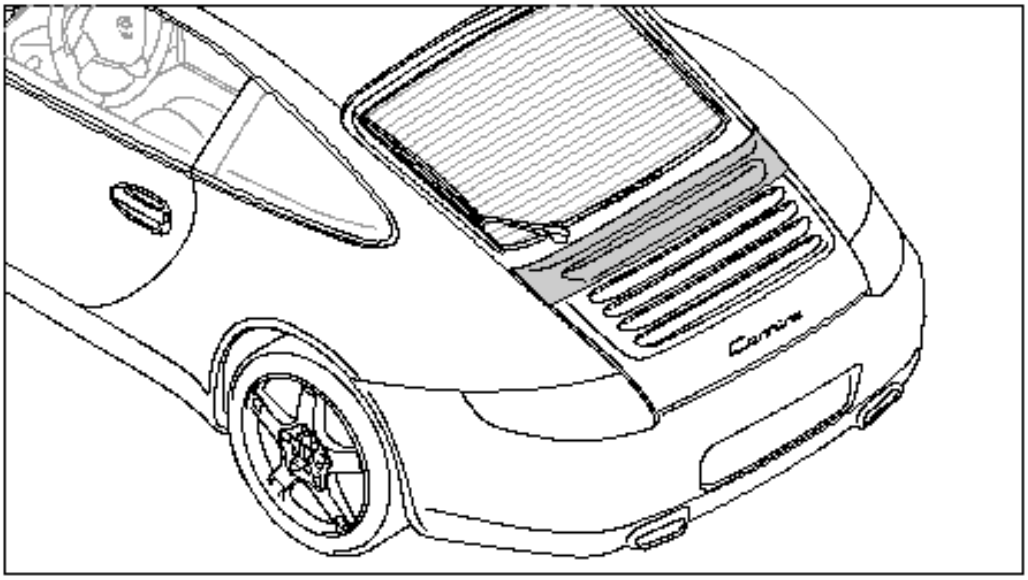


Plugging in connector

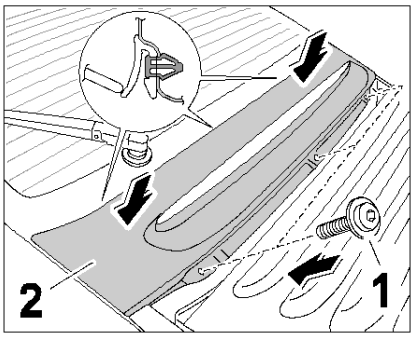
1. Push in electric plug connection **-arrow-** until it engages audibly.

Installing rear centre panel

Installation Location:



Installation position of rear centre panel



Installing rear centre panel

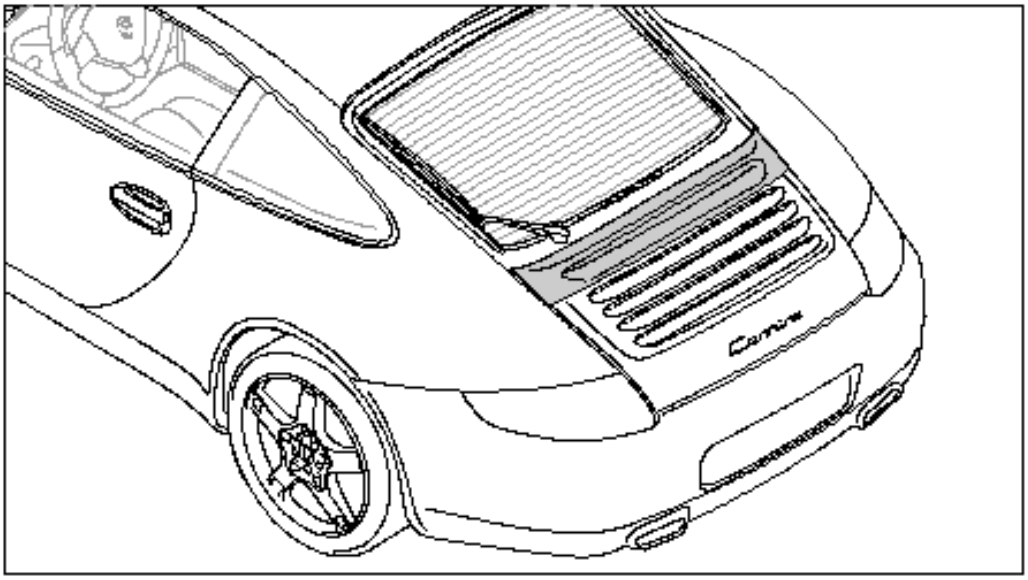
Note

Observe installation position of seal for rear centre panel to rear window.

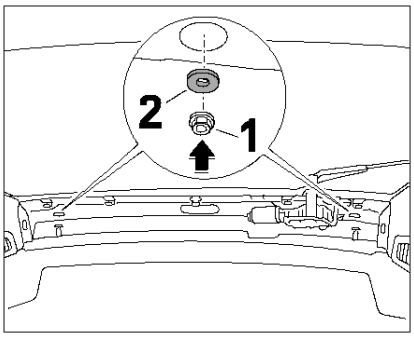
1. Position rear centre panel **-2-** .
2. By shifting the contours in relation to the side panel and rear lid, adjust the gap dimensions as required and tighten with the fastening screws **-1-** . Tightening torque **Tightening torque: 7.5 ftlb.** *501000 Diagram - body gap dimensions*
3. Retract rear spoiler.

Fastening inner rear centre panel

Installation Location:

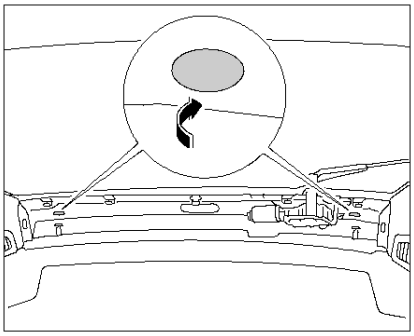


Installation position of rear centre panel



Fastening inner rear centre panel

1. Press in seal **-2-** and tighten fastening nut **-1-** . Tightening torque **Tightening torque: 7.5 ftlb.**



Sticking in sound absorbent film.

2. Stick in sound absorbent film.

top of page

Subsequent work

Subsequent work

Install rear roof trim panel. 708519 Removing and installing rear roof trim panel - chapter on "Installing" [997110 997111 997120 997121 997410 997411] *708519 23 Removing and installing rear roof trim panel - chapter on "Installing" [997430 997431]*

997110, 997111, 997120, 997121, 997410, 997411, 997430, 997431

as of MY 2005
Country C00, C02, C05, C07, C08, C09, C10, C11, C12, C13, C14, C15, C16, C18, C19, C20, C21, C22, C23, C24, C25, C26, C27, C28, C32, C33, C34, C35, C36, C37, C38, C39, C45, C46, C98, C99

WARNUNG

Gefahr des Verlusts der Text-Bild-Zuordnung beim Ausdruck.

- **Aus technischen Gründen kann derzeit nicht ausgeschlossen werden, dass trotz einwandfreier Darstellung auf dem Bildschirm beim Ausdruck der Zusammenhang von Text und zugehörigem Bild verloren geht.**
- **Wird der Fehler nicht bemerkt, besteht die Gefahr, daß Arbeiten nicht korrekt durchgeführt werden und es dadurch zu Personen- und Sachschäden kommt.**

Vergleichen Sie deshalb nach dem Druckvorgang unbedingt die Ausdrucke mit der Bildschirmdarstellung. Korrigieren Sie die Ausdrucke im Fehlerfall so, daß der Inhalt der Bildschirmdarstellung zutreffend wiedergegeben wird.

WARNING

Danger of losing text-figure correspondence when printing out.

- **For technical reasons, it can currently not be ruled out that the correspondence between text and associated figure can be lost when it is printed out, even though the display on the screen is correct.**
- **If the fault is not noticed, there is the danger that work will not be performed correctly which can cause injury and damage.**

Therefore, always compare printouts with the screen display after printing them out. Correct the printouts if they are faulty so that the content of the screen display matches that on the printouts.

AVERTISSEMENT

Risque de perte de la correspondance texte-illustration lors de l'impression papier.

51 21 37 Disassembling and assembling rear centre panel - as of MY 2005

- Preliminary work
- Disassembling rear centre panel
- Assembling rear centre panel
- Subsequent work

top of page

Preliminary work

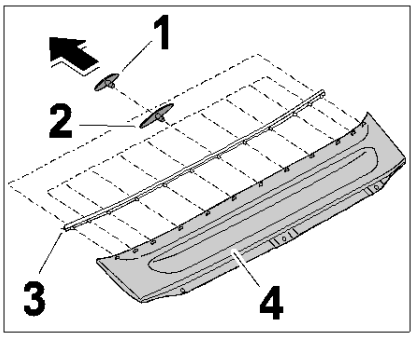
Preliminary work

1. Remove rear centre panel. 512119 Removing and installing rear centre panel - chapter on "Removing"
2. Remove auxiliary stop light. 947019 Removing and installing auxiliary stop light - chapter on "Removing"

top of page

Disassembling rear centre panel

Removing seal for rear centre panel



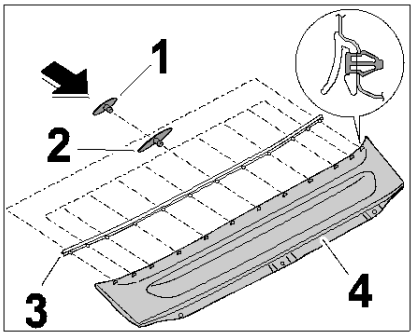
Removing seal for rear centre panel

1. Unclip plug-in mounts **-1, 2-** and remove seal **-3-** from rear centre panel **-4-** .

top of page

Assembling rear centre panel

Installing seal for rear centre panel



Installing seal for rear centre panel

1. Position seal **-3-** on rear centre panel **-4-** and press in plug-in mounts **-1, 2-** .

top of page

Subsequent work

Subsequent work

1. Install auxiliary stop light. 947019 Removing and installing auxiliary stop light - chapter on "Installing"
2. Install rear centre panel. 512119 Removing and installing rear centre panel - chapter on "Installing"

997110, 997111, 997120, 997121, 997410, 997411, 997430, 997431

as of MY 2005
Country C00, C02, C05, C07, C08, C09, C10, C11, C12, C13, C14, C15, C16, C18, C19, C20, C21, C22, C23, C24, C25, C26, C27, C28, C32, C33, C34, C35, C36, C37, C38, C39, C45, C46, C98, C99

WARNUNG

Gefahr des Verlusts der Text-Bild-Zuordnung beim Ausdruck.

- **Aus technischen Gründen kann derzeit nicht ausgeschlossen werden, dass trotz einwandfreier Darstellung auf dem Bildschirm beim Ausdruck der Zusammenhang von Text und zugehörigem Bild verloren geht.**

51 21 55 Replacing rear centre panel reinforcement - as of MY 2005

- General warning notes
- Tools and materials
- Preliminary work for body repairs
- Removing rear centre panel reinforcement
- Preparing connection areas of the body for installing rear centre panel reinforcement
- Preparing rear centre panel reinforcement for installation
- Installing rear centre panel reinforcement
- Subsequent work

Tools

Designation	Type	Number	Explanation	
Pneumatic body saw No. PS1, see Gr. 3.5; Workshop Equipment Manual	commercially available tool	00000		
Press-out tool	special tool	97290		
Star gauges for body gap dimensions	commercially available tool	NR.127-1		

Spotweld drill	commercially available tool	NR.129		
Inverter welding equipment ATL Inverterspot	workshop equipment	WE1194		

top of page

General warning notes

Safety instructions for body repairs

5 AW Safety instructions - General warning notes

top of page

Tools and materials

Tools and materials

Spotweld drill NR.129 Star gauges for body gap dimensions NR.127-1
Press-out tool 97290
Pneumatic body saw No. PS1, see Gr. 3.5; Workshop Equipment Manual 00000
Angle grinder, see Gr. 3.5; see Workshop Equipment Manual 00000
Oscillating body saw (special electrical cutter), see Gr. 3.5; Workshop Equipment Manual 00000
Rotary brush, see Gr. 3.5; Workshop Equipment Manual 00000
Hole punch, see Gr. 3.5; Workshop Equipment Manual 00000
Leister Elektron hot-air gun, see Gr. 3.5; Workshop Equipment Manual 00000
Inverter welding equipment ATL Inverterspot WE1194

Basic straightening attachments for 911 Carrera (996), see Gr. 3.5; Workshop Equipment Manual 00000
Additional straightening attachments for 911 Carrera (997), see Gr. 3.5; Workshop Equipment Manual 00000
Pneumatic spotweld remover, Vario Drill No. WS 90, see Gr. 3.5; Workshop Equipment Manual 00000

top of page

Preliminary work for body repairs

Preliminary work for body repairs

Preliminary work for body repairs

Note

- *If it can be ensured there has been no deformation of the vehicle structure, the following repair can be carried out without the need of a straightening bench. In this case, the vehicle must not be raised when welding the component; it must stand on its wheels on an even surface.*

1. Removing add-on parts in the repair area
1.1. Remove add-on parts in the repair area according to the extent of damage to the vehicle.
2. Equipping straightening bench with straightening attachments
2.1. Equip straightening bench with the straightening attachments according to the plans included with the straightening attachments.
3. Placing vehicle on the straightening bench
3.1. Position vehicle on the straightening bench, align according to the reference holes and bolt firmly to the attachment set.
4. Covering add-on parts adjacent to the vehicle repair area
4.1. Cover all add-on parts remaining on the vehicle and the neighbouring areas with fire-proof, protective covers.
5. Reshaping connection area of the sheetmetal parts to be replaced
6. Exposing welding areas
6.1. Remove undersealing, paint, etc. from the welding areas of the body with a hot-air gun or rotary brush.

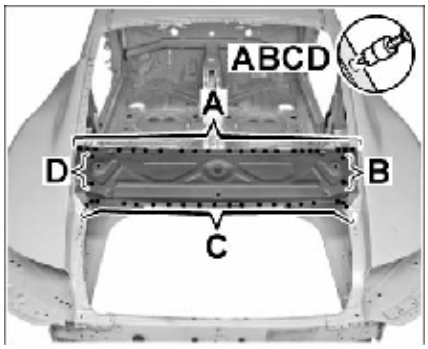
top of page

Removing rear centre panel reinforcement

Removing rear centre panel reinforcement

Installation Location:

Installation position of rear centre panel reinforcement



Milling off spotwelds

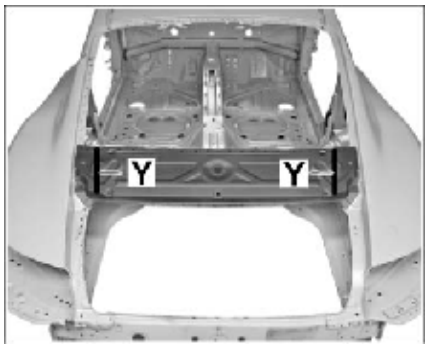
1. Milling off spotwelds

1.1. Mill off spotwelds in areas **-A, B, C, D-** using a spotweld cutter.

Note

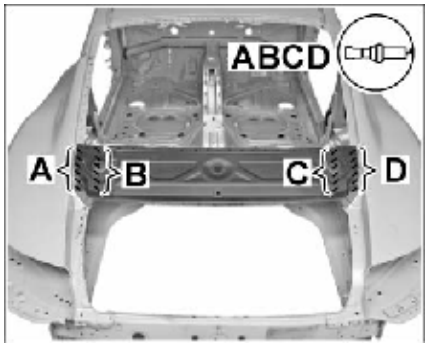
Removing expanded sealant

- *The rear centre panel reinforcement is factory-sealed to the rear cross member with expanded sealant in area* **-Y-** .



Expanded sealant

- *This expanded sealant is destroyed when replacing the rear centre panel reinforcement and must be replaced.*



Separating bonded joints and removing expanded sealant

2. Separating bonded joints and removing expanded sealant

2.1. Heat up bonded joints in the areas **-A, B, C, D-** between the rear centre panel reinforcement and rear cross member using the **Leister Elektron hot-air gun; see Gr. 3.5, Workshop Equipment Manual 00000** and remove rear centre panel reinforcement.

top of page

Preparing connection areas of the body for installing rear centre panel reinforcement

Safety instructions for flying sparks during grinding and welding work

ATTENTION

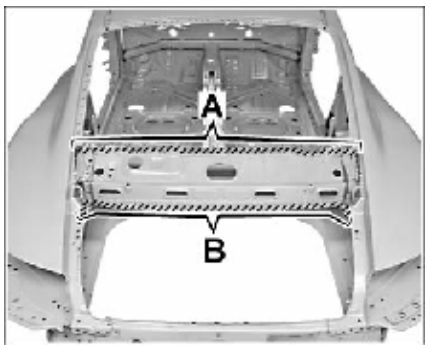
Danger of explosion and fire from flying sparks during grinding and welding work!

- **Danger of injury and danger of damage to vehicle parts and other vehicles due to flying sparks**

Cover vehicle parts such as battery, fuel system, paintwork, glass and passenger compartment parts with fire-proof covers and, if necessary, remove batteries and fuel-carrying components.

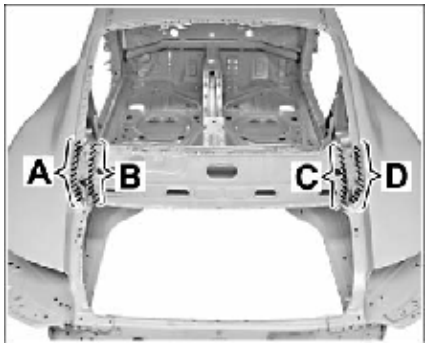
No other vehicles may be left unprotected in areas used for body repair!

Preparing connection areas of the body for installing rear centre panel reinforcement



Preparing connection areas of the body for installing rear centre panel reinforcement

1. Clean undersealing, adhesive residue and paint off the body connecting flanges in the marked areas **-A-** and **-B-** using a hot-air gun or rotary brush. Grind the connecting flanges until bare.



Preparing connection areas of the body for installing rear centre panel reinforcement

2. Clean undersealing, adhesive residue and paint off the body connecting flanges in the marked areas **-A, B, C, D-** using a hot-air gun or rotary brush. Grind the connecting flanges until bare.

Note

- *Keep bonding areas clean and free of grease and do not coat with zinc powder paint.*

3. Coating spot-weld flange areas with zinc powder paint

3.1. Coat all spot-weld flange areas with zinc powder paint.

top of page

Preparing rear centre panel reinforcement for installation

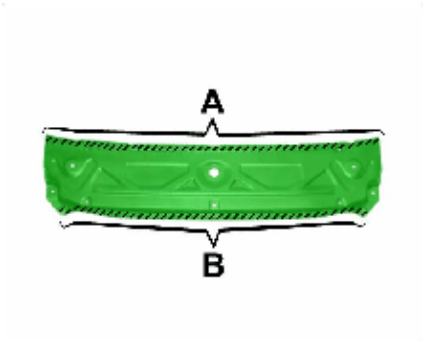
Safety instructions for sharp-edged body and unit parts

ATTENTION
Danger of injury! Sharp-edge burrs on body and unit parts!

- **Injuries from sharp edges on body and unit parts.**

Wear protective gloves when working in the area of sharp-edged body and unit parts!

Preparing rear centre panel reinforcement for installation



Cleaning the welding areas

1. Cleaning the welding areas

1.1. Grind both sides of the connecting flange of the rear centre panel reinforcement in the marked areas **-A-** and **-B-** until bare using a rotary brush.

Note

- *Keep bonding areas clean and free of grease and do not coat with zinc powder paint.*

2. Coating spot-weld flange areas with zinc powder paint

2.1. Coat spot-weld flange areas with zinc powder paint.

top of page

Installing rear centre panel reinforcement

Danger of injury when welding

DANGER

Risk of fatal injury from high voltage during electric welding!

- **Danger of explosion and fire when welding in the area of highly inflammable materials.**
- **Irritation to respiratory tracts from toxic zinc oxide emitted when welding galvanised steel!**
- **Danger of injury from unintentional triggering of pyrotechnical safety components!**
- **Danger of injury from weld spatters and UV light when welding!**

Do not perform welding work in a damp environment or on wet ground; there is a risk of fatal injury from the voltage being conducted through the human body. Persons with heart pacemakers should not perform welding work. Use insulating underlays.

Remove highly flammable materials from the work area; if necessary, remove units with fuel-carrying parts and protect work areas in the vehicle that are at risk of catching fire using fire-proof covers.

Ventilate the work area well.

Remove smoke gases with a suitable extraction system (refer to Workshop Equipment Manual).

Wear suitable protective equipment, such as protective clothing, gloves, a welding shield and, if necessary, a protective mask.

For welding work, always disconnect both terminals on the battery. In the case of welding work in the immediate vicinity of the control modules for pyrotechnical safety systems, remove the control modules before beginning work.

In addition, the guidelines of the welding equipment manufacturer and the legal accident prevention regulations and those of the mutual indemnity association (BGV D1) must be observed.

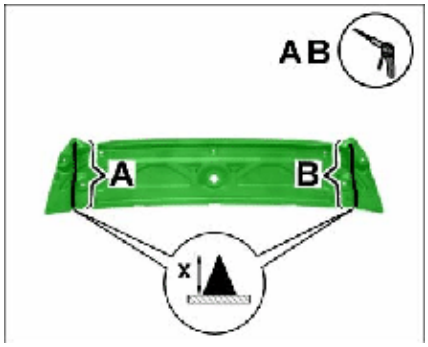
Installing rear centre panel reinforcement

WARNING

Risk of damage if the processing time is not observed!

- **The quality of the joint will be affected if the adhesive processing time is not observed.**

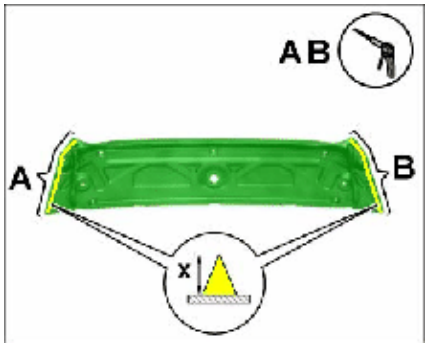
The new part must be welded within 30 minutes in the area of the adhesive, otherwise the adhesion of the adhesive will be affected.



Applying body sealant

1. Applying body sealant to the seal

1.1. In areas **-A-** and **-B-** , apply a triangular bead of body sealant measuring **-dimension X= approx. 12 mm-** high all around the seal.



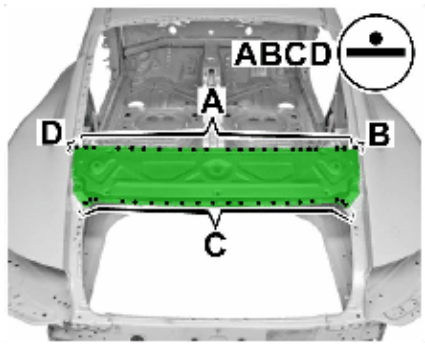
Applying adhesive to the rear centre panel reinforcement

2. Applying adhesive to the rear centre panel reinforcement

2.1. On the inside of the rear centre panel reinforcement in areas **-A-** and **-B-** , apply a triangular bead of adhesive **(Teromix-6700)** measuring **-dimension X= approx. 8 mm-** .

3. Fitting rear centre panel reinforcement to the body

3.1. Fit the rear centre panel reinforcement to the body and fix in place with tensioning clamps.



Welding in the rear centre panel reinforcement

4. Welding in the rear centre panel reinforcement

4.1. Resistance spot-weld the rear centre panel reinforcement in areas **-A, B, C, D-** .

top of page

Subsequent work

Subsequent work for body repairs

1. Removing vehicle from straightening bench
2. Cleaning spot-welded joints and sheetmetal flanges with a wire brush
3. Priming flange areas with 2K primer
4. Restore standard sealing with body sealant
   501000 Seam seal
5. Restore standard undersealing with underbody sealant
   501000 Undersealing
6. Painting repair area and adjacent surfaces, if necessary
7. Install removed add-on parts in the repair area
8. Apply cavity preservation.

997110, 997111, 997120, 997121, 997410, 997411, 997430, 997431

as of MY 2005
Country C00, C02, C05, C07, C08, C09, C10, C11, C12, C13, C14, C15, C16, C18, C19, C20, C21, C22, C23, C24, C25, C26, C27, C28, C32, C33, C34, C35, C36, C37, C38, C39, C45, C46, C98, C99

WARNUNG

Gefahr des Verlusts der Text-Bild-Zuordnung beim Ausdruck.

- **Aus technischen Gründen kann derzeit nicht ausgeschlossen werden, dass trotz einwandfreier Darstellung auf dem Bildschirm beim Ausdruck der Zusammenhang von Text und zugehörigem Bild verloren geht.**
- **Wird der Fehler nicht bemerkt, besteht die Gefahr, daß Arbeiten nicht korrekt durchgeführt werden und es dadurch zu Personen- und Sachschäden kommt.**

Vergleichen Sie deshalb nach dem Druckvorgang unbedingt die Ausdrucke mit der Bildschirmdarstellung. Korrigieren Sie die Ausdrucke im Fehlerfall so, daß der Inhalt der Bildschirmdarstellung zutreffend wiedergegeben wird.

WARNING

Danger of losing text-figure correspondence when printing out.

- **For technical reasons, it can currently not be ruled out that the correspondence between text and associated figure can be lost when it is printed out, even though**

51 48 55 Replacing centre side member - as of MY 2005

- General warning notes
- Removing centre side member
- Preparing connection areas of body for installing centre side member
- Fitting in centre side member and preparing for installation
- Installing centre side member
- Subsequent work

top of page

General warning notes

Safety instructions for body repairs

5 AW Safety instructions - General warning notes

Preliminary work for body repairs

Note

- *If it can be ensured there has been no deformation of the vehicle structure, the following repair can be carried out without the need of a straightening bench. In this case, the vehicle must not be raised when welding the component; it must stand on its wheels on an even surface.*

1. Removing add-on parts in the repair area
1.1. Remove add-on parts in the repair area according to the extent of damage to the vehicle.
2. Equipping straightening bench with straightening attachments
2.1. Equip straightening bench with the straightening attachments according to the plans included with the straightening attachments.
3. Placing vehicle on the straightening bench
3.1. Position vehicle on the straightening bench, align according to the reference holes and bolt firmly to the attachment set.
4. Covering add-on parts adjacent to the vehicle repair area
4.1. Cover all add-on parts remaining on the vehicle and the neighbouring areas with fire-proof, protective covers.
5. Reshaping connection area of the sheetmetal parts to be replaced
6. Exposing welding areas

6.1. Remove undersealing, paint, etc. from the welding areas of the body with a hot-air gun or rotary brush.

Preliminary work for body repairs with alignment bench

1. Removing accessories in the repair area
1.1. Remove accessories in the repair area according to the extent of damage to the vehicle.
2. Equipping alignment bench with straightening kit
2.1. Equip alignment bench with the basic straightening attachments according to the plans included with the straightening attachments.
3. Placing vehicle on the alignment bench
3.1. Position vehicle on alignment bench, align according to the reference holes and bolt firmly to the attachment set.
4. Covering accessories adjacent to the vehicle repair area
4.1. Cover all accessories remaining on the vehicle and the neighbouring areas with fire-proof, protective covers.
5. Reshaping connection area of the sheetmetal parts to be replaced
6. Exposing welding areas
6.1. Remove undersealing, paint, etc. from the welding areas of the body with a hot-air gun or rotary brush.

top of page

Removing centre side member

Removing centre side member

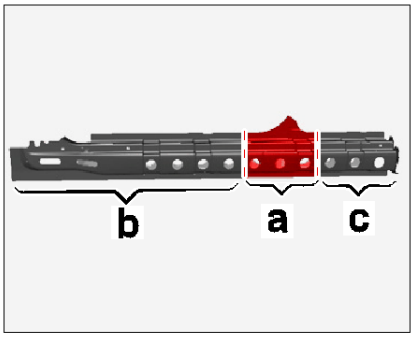
ATTENTION

Possible separation points on centre side member

- **Parts cannot be replaced in the marked area a!**

The possible separation points on the centre side member can **only be at the marked areas b and c.**
Position the separation point between the openings (holes).
The separation point must not obstruct the openings (holes).

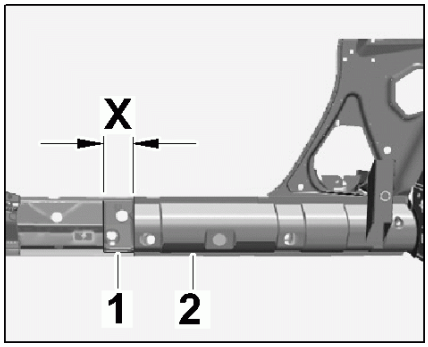
1. Possible separation points



Possible separation points on centre side member

1.1. The possible separation points on the centre side member can only be at the marked areas **b and c**.

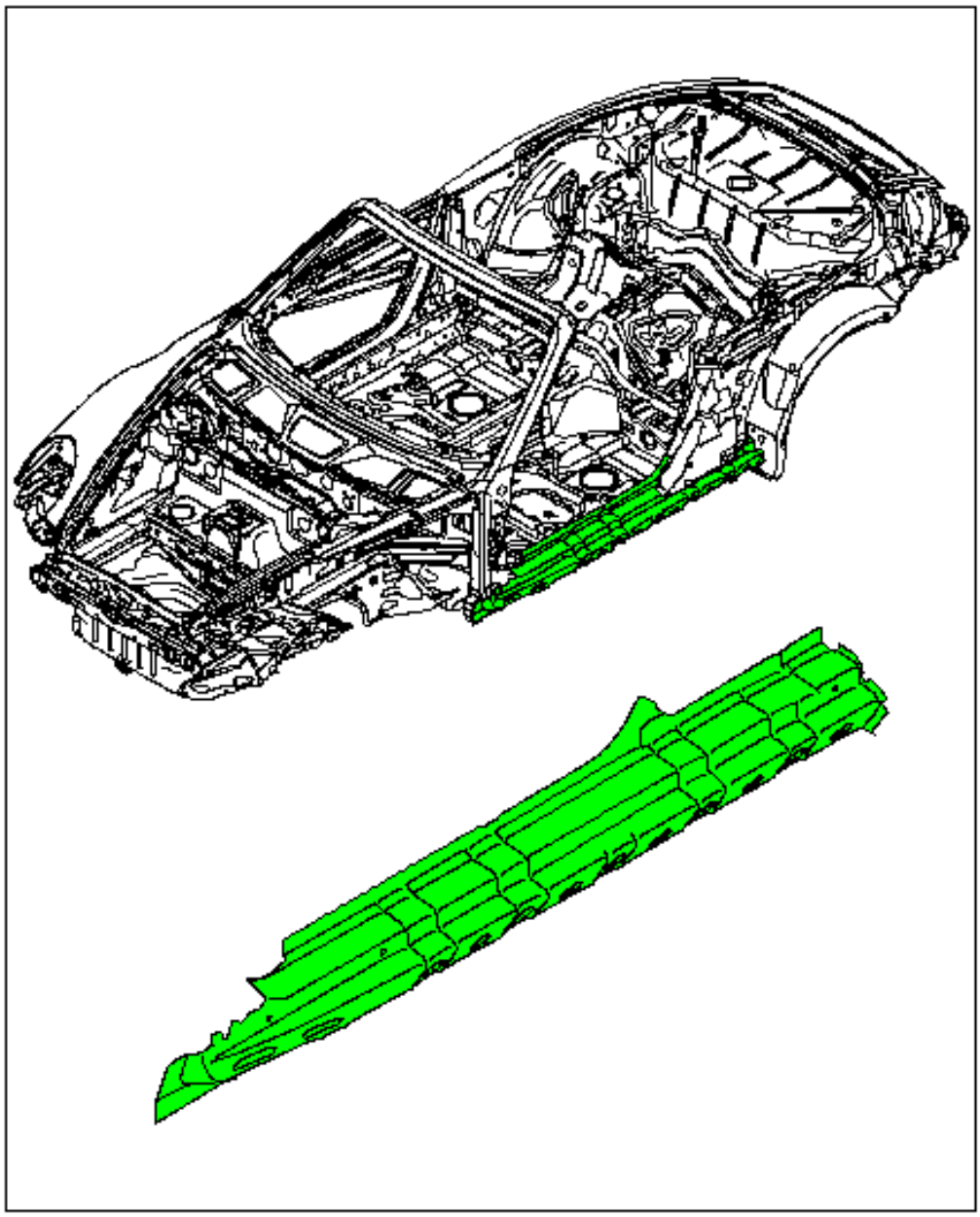
Length offset for part replacement



Length offset on centre side member with respect to retaining bracket

Removing centre side member

Installation Location:



Installation position of centre side member

Note

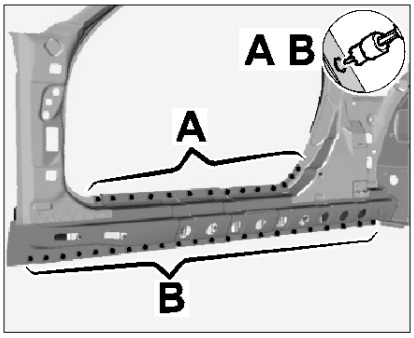
Separating body components

- *In the case of 3-layer spot-welded panel joints with a hardened bonded layer on the outer panel, drill the outer panel in the area of the spotwelds sufficiently well without damaging the spotweld in the second component layer. After removing the loosened body part, old adhesive must be removed and any uneven spots sanded down. The flange area must then be pre-treated for bonding.*

- *For a description of the procedure, see: Information on the use of structural adhesive in vehicle manufacturing 5000IN Working with body structural adhesive - section on "Information" [997310*

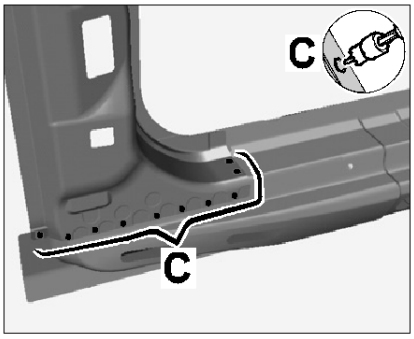
997311 997320 997321] 5000IN Working with body structural adhesive - section on "Information" [997610 997611 997620 997621].

1. Milling off spotwelds



Milling off spotwelds

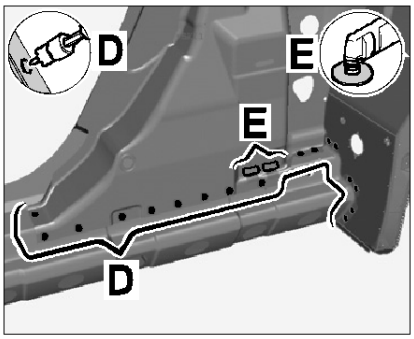
1.1. Mill off spotwelds in areas **A and B** using a spotweld cutter.



Milling off spotwelds

Mill off spotwelds in area **C** using a spotweld cutter.

Mill off spotwelds in area **D** using a spotweld cutter.



Milling off spotwelds

Separate inert-gas welded seam in area **E** using a parting grinder.

top of page

Preparing connection areas of body for installing centre side member

Safety instructions for flying sparks during grinding and welding work

ATTENTION

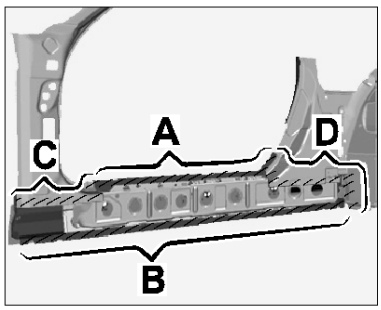
Danger of explosion and fire from flying sparks during grinding and welding work!

- **Danger of injury and danger of damage to vehicle parts and other vehicles due to flying sparks**

Cover vehicle parts such as battery, fuel system, paintwork, glass and passenger compartment parts with fire-proof covers and, if necessary, remove batteries and fuel-carrying components.

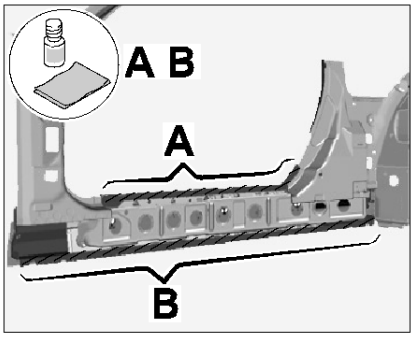
No other vehicles may be left unprotected in areas used for body repair!

Preparing connection areas of body for installing centre side member



Preparing connection areas of body for installing centre side member

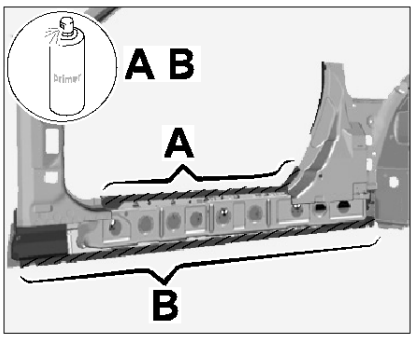
1. Clean undersealing, adhesive residue and paint off body connecting flanges in the marked areas **A, B, C, D** using a hot-air gun or rotary brush. Grind the connecting flanges until bare.



Preparing bonded flange area

2. Preparing bonded flanges

   See: Working with adhesive __5000IN Working with body structural adhesive - section on "Information" [997310 997311 997320 997321]__5000IN Working with body structural adhesive - section on "Information" [997610 997611 997620 997621]



Priming bonded flange area

3. Priming bonded flanges

   See: Working with primer __5000IN Working with body structural adhesive [997310 997311 997320 997321]__5000IN Working with body structural adhesive [997610 997611 997620 997621]

4. Test

top of page

Fitting in centre side member and preparing for installation

Safety instructions for sharp-edged body and unit parts

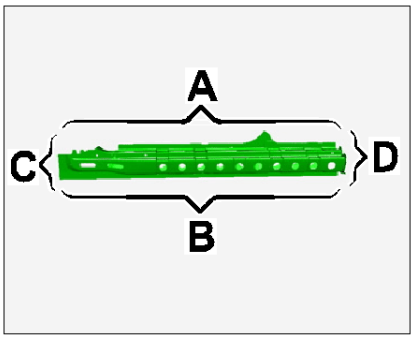
ATTENTION

Danger of injury! Sharp-edge burrs on body and unit parts!

- **Injuries from sharp edges on body and unit parts.**

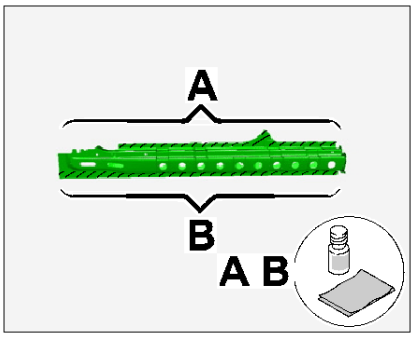
Wear protective gloves when working in the area of sharp-edged body and unit parts!

Fitting in centre side member and preparing for installation



Fitting in centre side member and preparing for installation

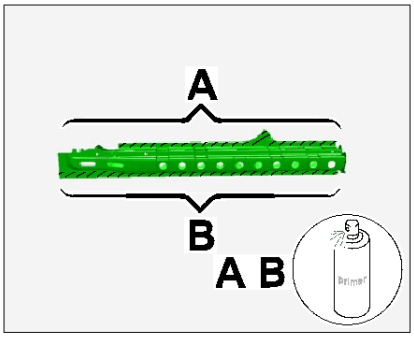
1. Use a rotary brush to remove KTL paint (cathodic dipbath coating) from the connecting flanges on the centre side member in the marked areas **A, B, C, D**. Grind the connecting flanges until bare.



Cleaning bonded flanges on replacement part

2. Cleaning bonded flanges

   See: Working with adhesive 5000IN Working with body structural adhesive - section on "Information" [997310 997311 997320 997321] 5000IN Working with body structural adhesive - section on "Information" [997610 997611 997620 997621]



Priming bonded flanges on replacement part

3. Priming bonded flanges

   See: Working with primer 5000IN Working with body structural adhesive [997310 997311 997320 997321] 5000IN Working with body structural adhesive [997610 997611 997620 997621]

top of page

Installing centre side member

Danger of injury when welding

DANGER

Risk of fatal injury from high voltage during electric welding!

- **Danger of explosion and fire when welding in the area of highly inflammable materials.**
- **Irritation to respiratory tracts from toxic zinc oxide emitted when welding galvanised steel!**
- **Danger of injury from unintentional triggering of pyrotechnical safety components!**
- **Danger of injury from weld spatters and UV light when welding!**

Do not perform welding work in a damp environment or on wet ground; there is a risk of fatal injury from the voltage being conducted through the human body. Persons with heart pacemakers should not perform welding work. Use insulating underlays.

Remove highly flammable materials from the work area; if necessary, remove units with fuel-carrying parts and protect work areas in the vehicle that are at risk of catching fire using fire-proof covers.

Ventilate the work area well.

Remove smoke gases with a suitable extraction system (refer to Workshop Equipment Manual).

Wear suitable protective equipment, such as protective clothing, gloves, a welding shield and, if necessary, a protective mask.

For welding work, always disconnect both terminals on the battery. In the case of welding work in the immediate vicinity of the control modules for pyrotechnical safety systems, remove the control modules before beginning work.

In addition, the guidelines of the welding equipment manufacturer and the legal accident prevention regulations and those of the mutual indemnity association (BGV D1) must be observed.

Installing centre side member

WARNING

Traffic safety warning for bonding structural components with structural adhesive!

- **Danger of material damage and injury**

Join, fix and resistance spot-weld parts within the processing time. The jointing operation must take place directly after application of the adhesive in order to guarantee high-quality and reliable bonding. Otherwise the adhesive bead must be removed and pre-treatment of the surface and application of the adhesive must be repeated.

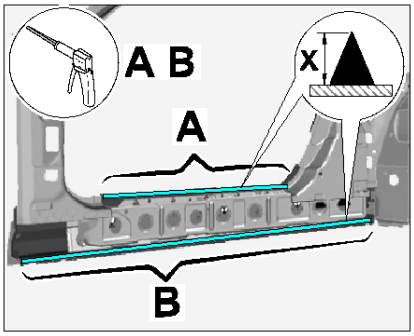
To ensure that the substance is completely mixed, apply a 30 mm long adhesive bead of fresh adhesive to a piece of cardboard before processing.

Process the adhesive within the processing time. The adhesive must be applied and the body part must be jointed within this period. Any resistance welding to be carried out in the area of the bonding must be performed within this period as well. Processing time: 60 min

Do not apply pressure to bonded parts until hardening is complete!

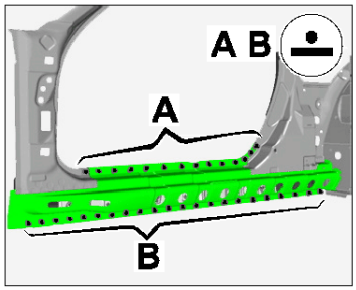
If the contents of the cartridge is not used up completely, the processing nozzle must be kept on the cartridge until the adhesive hardens. If you intend to use the adhesive again later, a new processing nozzle must be used.

1. Apply adhesive to areas **A and B** of the body parts in the form of a triangular bead measuring **X = 3 mm**.



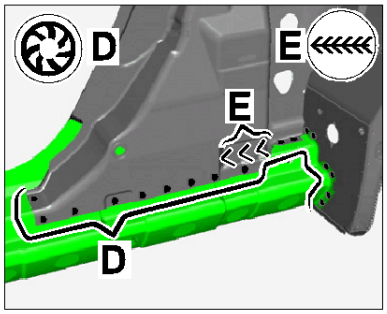
Applying adhesive

See: Working with adhesive 5000IN Working with body structural adhesive [997310 997311 997320 997321] 5000IN Working with body structural adhesive [997610 997611 997620 997621]



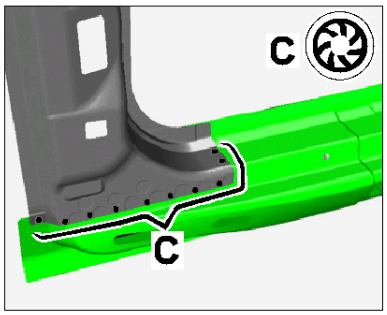
Resistance spot-welding centre side member

2. Resistance spot-weld areas **A, B** on the centre side member.



Welding centre side member using inert gas

3. Weld areas **D, E** on centre side member using inert gas.



Plug welding centre side member using inert gas

Plug weld area **C** on centre side member using inert gas.

Safety instructions for flying sparks during grinding and welding work

ATTENTION

Danger of explosion and fire from flying sparks during grinding and welding work!

- **Danger of injury and danger of damage to vehicle parts and other vehicles due to flying sparks**

Cover vehicle parts such as battery, fuel system, paintwork, glass and passenger compartment parts with fire-proof covers and, if necessary, remove batteries and fuel-carrying components.

No other vehicles may be left unprotected in areas used for body repair!

top of page

Subsequent work

Subsequent work for body repairs

1. Remove vehicle from the alignment bench.
2. Clean welded joints and sheetmetal flanges with a wire brush.
3. Prime flange areas with 2K primer.
4. Restore standard sealing with body sealant.
   5 Seam sealing
5. Restore standard undersealing with underbody sealant.
   5 Underbody protection
6. Paint repair area and adjacent surfaces, if necessary.
7. Install removed accessories in the repair area.
8. Apply cavity preservation.

997310, 997311, 997320, 997321, 997610, 997611, 997620, 997621

as of MY 2005
Country C00, C02, C05, C07, C08, C09, C10, C11, C12, C13, C14, C15, C16, C18, C19, C20, C21, C22, C23, C24, C25, C26, C27, C28, C32, C33, C34, C35, C36, C37, C38, C39, C45, C46, C98, C99

WARNUNG

Gefahr des Verlusts der Text-Bild-Zuordnung beim Ausdruck.

- **Aus technischen Gründen kann derzeit nicht ausgeschlossen werden, dass trotz einwandfreier Darstellung auf dem Bildschirm beim Ausdruck der Zusammenhang von Text und zugehörigem Bild verloren geht.**
- **Wird der Fehler nicht bemerkt, besteht die Gefahr, daß Arbeiten nicht korrekt durchgeführt werden und es dadurch zu Personen- und Sachschäden kommt.**

Vergleichen Sie deshalb nach dem Druckvorgang unbedingt die Ausdrucke mit der Bildschirmdarstellung. Korrigieren Sie die Ausdrucke im Fehlerfall so, daß der Inhalt der Bildschirmdarstellung zutreffend wiedergegeben wird.

WARNING

51 49 55 Replacing lower side member reinforcement (support tube) - as of MY 2005

- General warning notes
- Tools and materials
- Preliminary work for body repairs with alignment bench
- Removing lower side member reinforcement
- Preparing connection areas of the body for installing lower side member reinforcement
- Fitting lower side member reinforcement and preparing for installation
- Installing lower side member reinforcement
- Subsequent work

Tools

Designation	Type	Number	Explanation	
Pneumatic body saw No. PS1, see Gr. 3.5; Workshop Equipment Manual	commercially available tool	00000		
Press-out tool	special tool	97290		
Star gauges for body gap dimensions	commercially available tool	NR.127-1		

Spotweld drill	commercially available tool	NR.129		
Inverter welding equipment ATL Inverterspot	workshop equipment	WE1194		

top of page

General warning notes

Safety instructions for body repairs

5 AW Safety instructions - General warning notes

top of page

Tools and materials

Tools and materials

Spotweld drill NR.129 Star gauges for body gap dimensions NR.127-1
Press-out tool 97290
Pneumatic body saw No. PS1, see Gr. 3.5; Workshop Equipment Manual 00000
Angle grinder, see Gr. 3.5; see Workshop Equipment Manual 00000
Oscillating body saw (special electrical cutter), see Gr. 3.5; Workshop Equipment Manual 00000
Rotary brush, see Gr. 3.5; Workshop Equipment Manual 00000
Hole punch, see Gr. 3.5; Workshop Equipment Manual 00000
Leister Elektron hot-air gun, see Gr. 3.5; Workshop Equipment Manual 00000
Inverter welding equipment ATL Inverterspot WE1194

Basic straightening attachments for 911 Carrera (996), see Gr. 3.5; Workshop Equipment Manual 00000
Additional straightening attachments for 911 Carrera (997), see Gr. 3.5; Workshop Equipment Manual 00000
Pneumatic spotweld remover, Vario Drill No. WS 90, see Gr. 3.5; Workshop Equipment Manual 00000

top of page

Preliminary work for body repairs with alignment bench

Preliminary work for body repairs with alignment bench

WARNING

This affects torsion resistance, resistance to bending and crash safety

- **Danger of injury and material damage**

The support tube, which is made of highest-strength steel plate, cannot be reshaped.
The support tube cannot be straightened or reshaped.
In the event of damage or deformation, the support tube must be replaced.

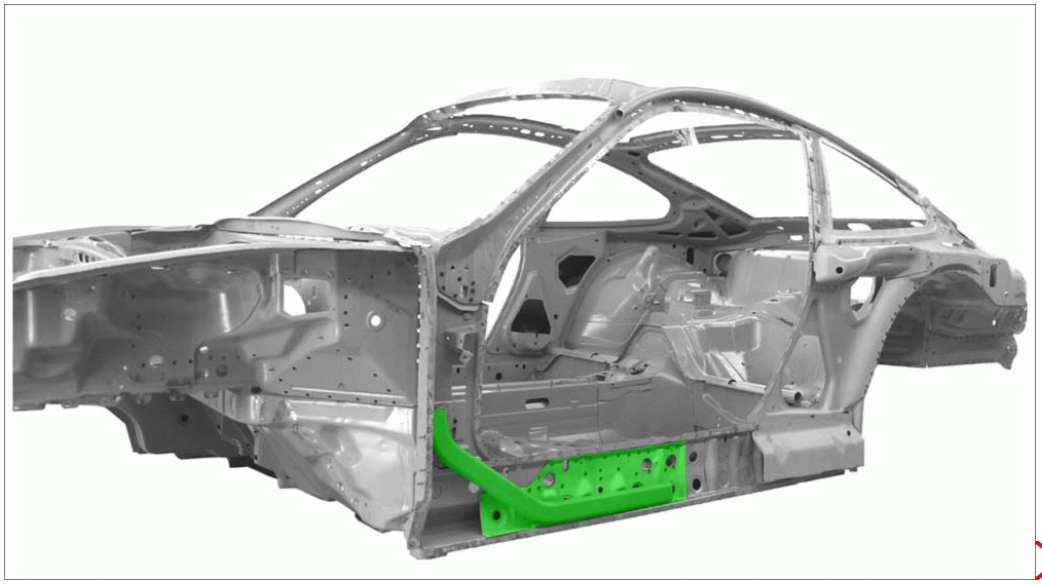
1. Removing accessories in the repair area
1.1. Remove accessories in the repair area according to the extent of damage on the vehicle.
2. Equipping alignment bench with straightening kit
2.1. Set up straightening bench with the straightening set according to the set-up drawings included with the straightening set.
3. Placing vehicle on the alignment bench
3.1. Position vehicle on alignment bench, align according to the reference holes and bolt firmly to the attachment set.
4. Covering accessories adjacent to the vehicle repair area
4.1. Cover all accessories remaining on the vehicle and the neighbouring areas with fire-proof, protective covers.
5. Exposing welding areas
5.1. Remove undersealing, paint, etc. from the welding areas of the body with a hot-air gun or rotary brush.

top of page

Removing lower side member reinforcement

Removing lower side member reinforcement

Installation Location:



Installation position of lower side member reinforcement

1. Remove hinge pillar reinforcement. *516255 21 Replacing hinge pillar reinforcement - section on "Removing"*
2. Remove centre side member. 514855 Replacing centre side member - section on "Removing" [997310 997311 997320 997321 997610 997611 997620 9976211] *514855 21 Replacing centre side member - section on "Removing" [997110 997111 997120 997121 997410 997411 997430 997431]*

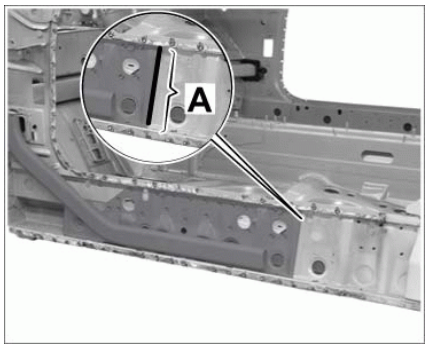
ATTENTION

Cut on retaining bracket for support tube

The cut on the retaining bracket for the support tube can **only be at the marked area A.**

Position the cut between the openings (holes).

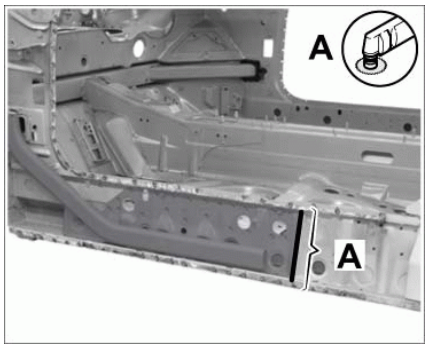
The cut must not obstruct the openings (holes).



Determining the cut

3. Determining the cut

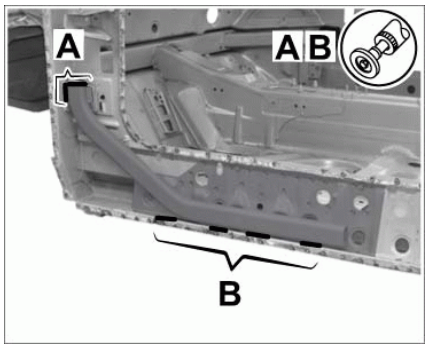
3.1. Determine the position of the cut **-A-** between the openings (holes). Mark the cut.



Cutting through retaining bracket for support tube

4. Cutting through retaining bracket for support tube

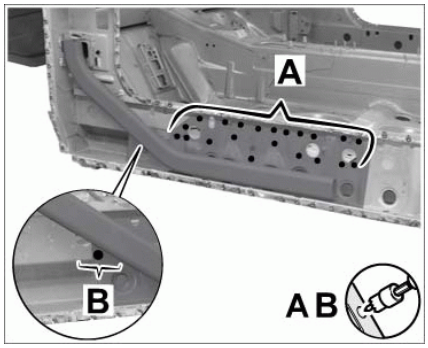
4.1. Cut through retaining bracket for support tube in area **-A-** .



Separating inert-gas welded seams

5. Separating inert-gas welded seams

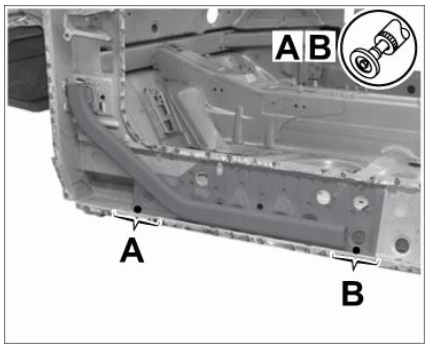
5.1. Separate inert-gas welded seams in areas **-A-** and **-B -** using a parting grinder.



Cutting the spotwelds

6. Cutting the spotwelds

6.1. Mill off spotwelds in areas **-A-** and **-B-** using a spotweld cutter.



Separating spotwelds

7. Separating spotwelds

7.1. Separate spotwelds in areas **-A-** and **-B-** using a parting grinder.

top of page

Preparing connection areas of the body for installing lower side member reinforcement

Safety instructions for flying sparks during grinding and welding work

ATTENTION

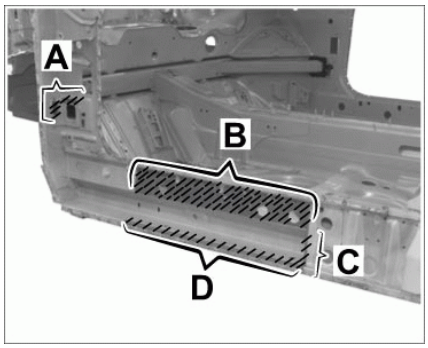
Danger of explosion and fire from flying sparks during grinding and welding work!

- **Danger of injury and danger of damage to vehicle parts and other vehicles due to flying sparks**

Cover vehicle parts such as battery, fuel system, paintwork, glass and passenger compartment parts with fire-proof covers and, if necessary, remove batteries and fuel-carrying components.

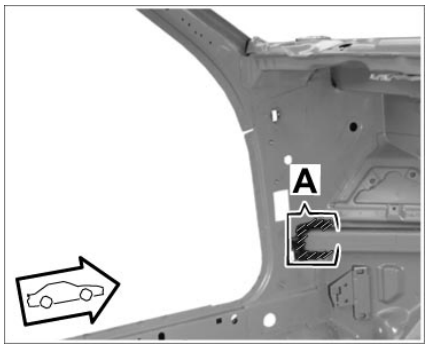
No other vehicles may be left unprotected in areas used for body repair!

Preparing connection area of body for installing lower side member reinforcement



Cleaning the welding areas

1. Clean undersealing, adhesive residue and paint off the body connecting flanges in the marked areas **-A, B, C, D-** using a hot-air gun or rotary brush. Grind the connecting flanges until bare.



Cleaning the welding areas

2. Remove expanded sealant on body in the marked area **-A-** using a hot-air gun or rotary brush.
3. Coat spot-weld flange areas with zinc powder paint.

3.1. Coat all spot-weld flange areas with zinc powder paint.

top of page

Fitting lower side member reinforcement and preparing for installation

Safety instructions for sharp-edged body and unit parts

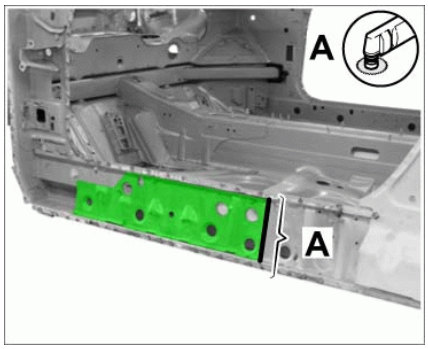
ATTENTION

Danger of injury! Sharp-edge burrs on body and unit parts!

- **Injuries from sharp edges on body and unit parts.**

Wear protective gloves when working in the area of sharp-edged body and unit parts!

Fitting in retaining bracket and preparing for installation

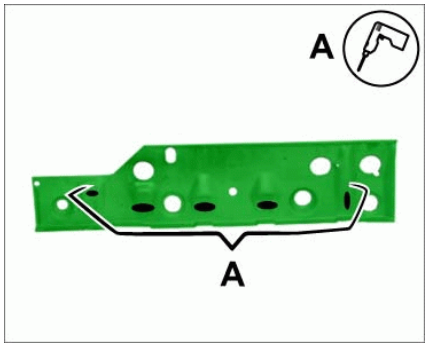


Fitting retaining bracket to the body

1. Fitting retaining bracket to the body

1.1. Separate replacement part in area **-A-** to obtain a welding slit width s = 1 x sheet thickness.

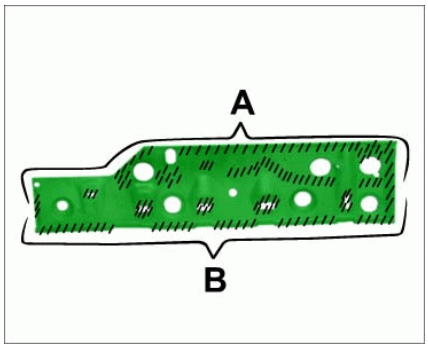
1.2. Fix the retaining bracket with tensioning clamps.



Drilling holes for plug welding using inert gas

2. Drilling holes for plug welding using inert gas

2.1. Drill holes (Ø = 7 mm) in area **-A-** for plug welding using inert gas. Maintain spacing between the bores as on the old part.



Cleaning the welding areas

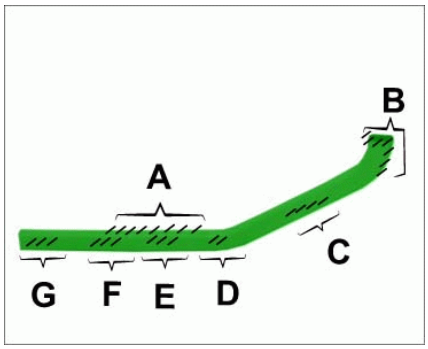
3. Cleaning the welding areas

3.1. Grind both sides of the connecting flanges of the retaining bracket in the marked areas **-A-** and **-B-** until bare using a rotary brush.

4. Coat spot-weld flange areas with zinc powder paint.

4.1. Coat all spot-weld flange areas with zinc powder paint.

Fitting in support tube and preparing for installation



Cleaning the welding areas

1. Cleaning the welding areas

1.1. Grind both sides of the connecting flanges of the support tube in the marked areas **-A, B, C, D, E, F, G-** until bare from the inside using a rotary brush.

top of page

Installing lower side member reinforcement

Danger of injury when welding

DANGER

Risk of fatal injury from high voltage during electric welding!

- **Danger of explosion and fire when welding in the area of highly inflammable materials.**
- **Irritation to respiratory tracts from toxic zinc oxide emitted when welding galvanised steel!**
- **Danger of injury from unintentional triggering of pyrotechnical safety components!**
- **Danger of injury from weld spatters and UV light when welding!**

Do not perform welding work in a damp environment or on wet ground; there is a risk of fatal injury from the voltage being conducted through the human body. Persons with heart pacemakers should not perform welding work. Use insulating underlays.

Remove highly flammable materials from the work area; if necessary, remove units with fuel-carrying parts and protect work areas in the vehicle that are at risk of catching fire using fire-proof covers.

Ventilate the work area well.

Remove smoke gases with a suitable extraction system (refer to Workshop Equipment Manual).

Wear suitable protective equipment, such as protective clothing, gloves, a welding shield and, if necessary, a protective mask.

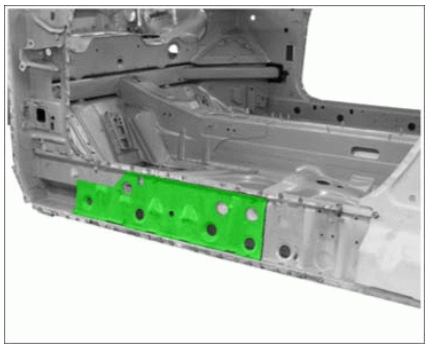
For welding work, always disconnect both terminals on the battery. In the case of welding work in the immediate vicinity of the control modules for pyrotechnical safety systems, remove the control modules before beginning work.

In addition, the guidelines of the welding equipment manufacturer and the legal accident prevention regulations and those of the mutual indemnity association (BGV D1) must be observed.

Installing lower side member reinforcement

Note

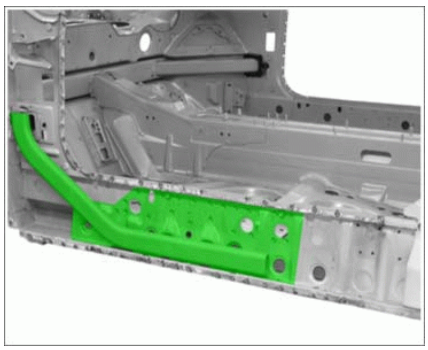
Determine the position of the new part and secure with tensioning clamps.
When butt welding body sheet panels with a sheet thickness of > 1.5 mm, there must be a welding slit width s = 1 x sheet thickness to guarantee the required welding quality (welding through).



Fitting retaining bracket to the body

1. Fitting retaining bracket to the body

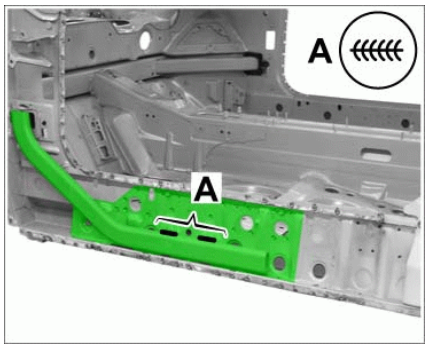
1.1. Fit the retaining bracket to the body and fix in place with tensioning clamps.



Fitting the support tube to the body

2. Fitting the support tube to the body

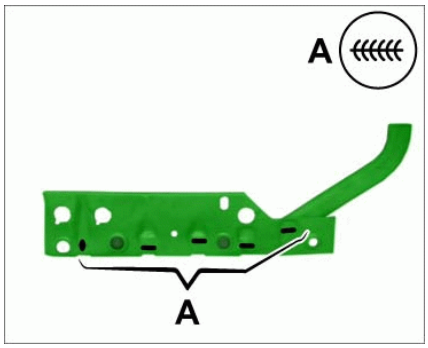
2.1. Fit the support tube to the body and fix in place with tensioning clamps.



Welding in support tube

3. Welding in support tube

3.1. Apply a full weld to secure the support tube in area **-A-** to the retaining bracket using inert gas.

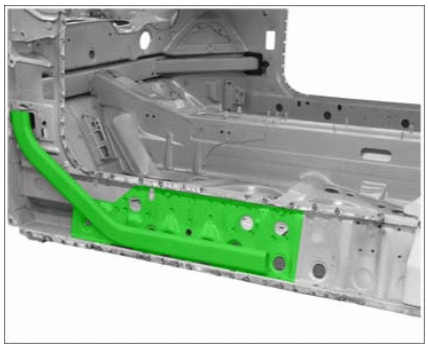


Welding in support tube

4. Welding in support tube

4.1. Detach the support tube together with the retaining bracket from the body.

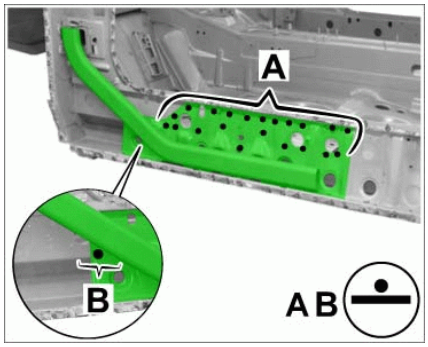
4.2. Apply a full weld to the support tube with retaining bracket in area **-A-** from behind using inert gas (through existing slots).



Fitting support tube with retaining bracket to the body

5. Fitting support tube with retaining bracket to the body

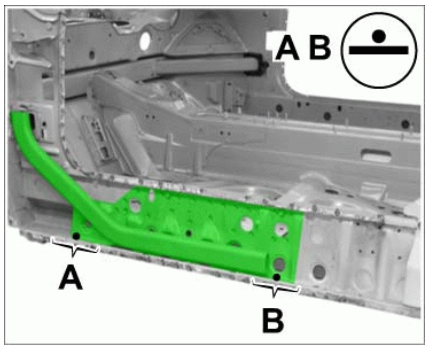
5.1. Fit the support tube with retaining bracket to the body and fix in place with tensioning clamps.



Welding in support tube with retaining bracket

6. Welding in support tube with retaining bracket

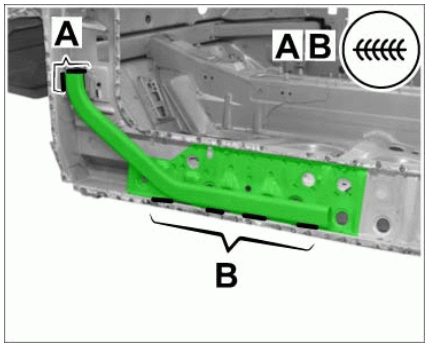
6.1. Resistance spot-weld the support tube with retaining bracket in areas **-A-** and **-B-** .



Welding in support tube with retaining bracket

7. Welding in support tube with retaining bracket

7.1. Resistance spot-weld the support tube with retaining bracket in areas **-A-** and **-B-** .



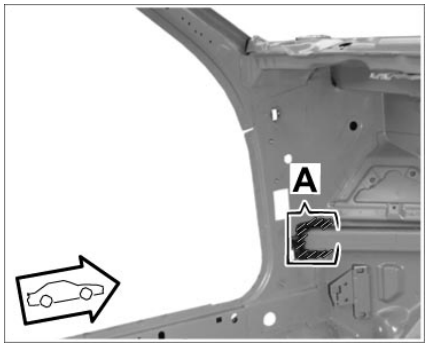
Welding in support tube with retaining bracket

8. Welding in support tube with retaining bracket

8.1. Apply a full weld to the support tube with retaining bracket in areas **-A-** and **-B-** using inert gas.

Note

After the required hardening time has elapsed, cut off excess expanded sealant to a height of more than 25 mm using a knife.



Applying expanded sealant

9. Applying expanded sealant

9.1. Seal inside of A pillar in area **-A-** with AFS-Vario .

9.2. Apply expanded sealant using a spatula.

10. Install centre side member. 514855 Replacing centre side member - section on "Installing" [997310 997311 997320 997321 997610 997611 997620 997621] *514855 23 Replacing centre side member - section on "Installing" [997110 997111 997120 997121 997410 997411 997430 997431]*
11. Install hinge pillar reinforcement. *516255 23 Replacing hinge pillar reinforcement - section on "Installing"*

top of page

Subsequent work

Subsequent work for body repairs

1. Removing vehicle from straightening bench
2. Cleaning spot-welded joints and sheetmetal flanges with a wire brush
3. Priming flange areas with 2K primer
4. Restore standard sealing with body sealant
   501000 Seam seal
5. Restore standard undersealing with underbody sealant
   501000 Undersealing
6. Painting repair area and adjacent surfaces, if necessary
7. Install removed add-on parts in the repair area
8. Apply cavity preservation.

997110, 997111, 997120, 997121, 997310, 997311, 997320, 997321, 997410, 997411, 997430, 997431, 997610, 997611, 997620, 997621

as of MY 2005
Country C00, C02, C05, C07, C08, C09, C10, C11, C12, C13, C14, C15, C16, C18, C19, C20, C21, C22, C23, C24, C25, C26, C27, C28, C32, C33, C34, C35, C36, C37, C38, C39, C45, C46, C98, C99

WARNUNG

Gefahr des Verlusts der Text-Bild-Zuordnung beim Ausdruck.

- **Aus technischen Gründen kann derzeit nicht ausgeschlossen werden, dass trotz einwandfreier Darstellung auf dem Bildschirm beim Ausdruck der Zusammenhang von Text und zugehörigem Bild verloren geht.**
- **Wird der Fehler nicht bemerkt, besteht die Gefahr, daß Arbeiten nicht korrekt durchgeführt werden und es dadurch zu Personen- und Sachschäden kommt.**

Vergleichen Sie deshalb nach dem Druckvorgang unbedingt die Ausdrucke mit der Bildschirmdarstellung. Korrigieren Sie die Ausdrucke im Fehlerfall so, daß der Inhalt der Bildschirmdarstellung zutreffend wiedergegeben wird.

51 63 19 Removing and installing deformation element - as of MY 2005

- Preliminary work
- Removing deformation element
- Installing deformation element
- Subsequent work

top of page

Preliminary work

Preliminary work

Remove A-pillar trim panel. 705719 Removing and installing A-pillar trim - chapter on "Removing" [997310 997311 997320 997321 997610 997611 997620 997621] 705719 Removing and installing A-pillar trim - chapter on "Removing" [997110 997111 997120 997121 997410 997411 997430 997431]

top of page

Removing deformation element

Removing deformation element

ATTENTION

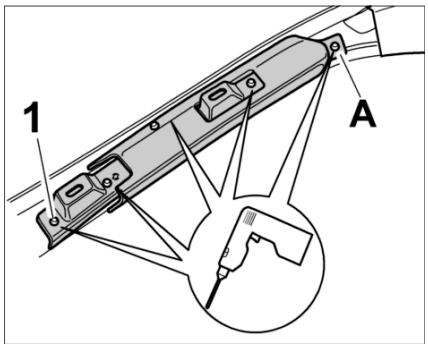
Danger of injury by damaged deformation elements!

- **Danger of injury by damaged deformation elements after an accident!**

It is impermissible to perform repairs on the deformation element.

The deformation elements must be replaced in the event of visible damage or pressure marks.

1. Release electric line slightly upwards.



Removing deformation element

2. Drill out blind rivets **-1-** with a 4 mm drill and remove the deformation element **-A-** .

top of page

Installing deformation element

Installing deformation element

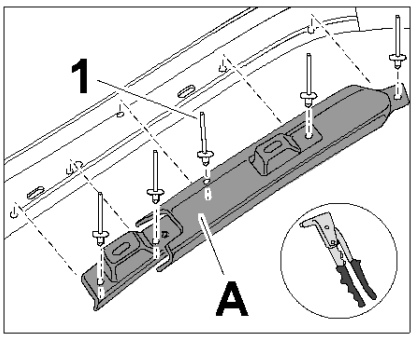
ATTENTION

Danger of injury by damaged deformation elements!

- **Danger of injury by damaged deformation elements after an accident!**

It is impermissible to perform repairs on the deformation element.

The deformation elements must be replaced in the event of visible damage or pressure marks.



Installing deformation element

1. Position deformation element **-A-** on inner cowl panel and rivet down using blind rivets **-1-** .
2. Press in electric line on cowl panel frame.

top of page

Subsequent work

Reworking

Install A-pillar trim panel. 705719 Removing and installing A-pillar trim - chapter on "Installing" [997310 997311 997320 997321 997610 997611 997620 997621] 705719 Removing and installing A-pillar trim - chapter on "Installing" [997110 997111 997120 997121 997410 997411 997430 997431]

997110, 997111, 997120, 997121, 997310, 997311, 997320, 997321, 997410, 997411, 997430, 997431, 997610, 997611, 997620, 997621

as of MY 2005
Country C00, C02, C05, C07, C08, C09, C10, C11, C12, C13, C14, C15, C16, C18, C19, C20, C21, C22, C23, C24, C25, C26, C27, C28, C32, C33, C34, C35, C36, C37, C38, C39, C45, C46, C98, C99

WARNUNG

Gefahr des Verlusts der Text-Bild-Zuordnung beim Ausdruck.

- **Aus technischen Gründen kann derzeit nicht ausgeschlossen werden, dass trotz einwandfreier Darstellung auf dem Bildschirm beim Ausdruck der Zusammenhang von Text und zugehörigem Bild verloren geht.**
- **Wird der Fehler nicht bemerkt, besteht die Gefahr, daß Arbeiten nicht korrekt durchgeführt werden und es dadurch zu Personen- und Sachschäden kommt.**

Vergleichen Sie deshalb nach dem Druckvorgang unbedingt die Ausdrucke mit der Bildschirmdarstellung. Korrigieren Sie die Ausdrucke im Fehlerfall so, daß der Inhalt der Bildschirmdarstellung zutreffend wiedergegeben wird.

WARNING

Danger of losing text-figure correspondence when printing out.

- **For technical reasons, it can currently not be ruled out that the correspondence between text and associated figure can be lost when it is printed out, even though the display on the screen is correct.**
- **If the fault is not noticed, there is the danger that work will not be performed correctly which can cause injury and damage.**

Therefore, always compare printouts with the screen display after printing them out. Correct the printouts if they are faulty so that the content of the screen display matches that on the printouts.

AVERTISSEMENT

51 92 19 Removing and installing cover for front underbody - as of MY 2005

- Preliminary work
- Removing cover for front underbody
- Installing cover for front underbody
- Subsequent work

top of page

Preliminary work

Preliminary work

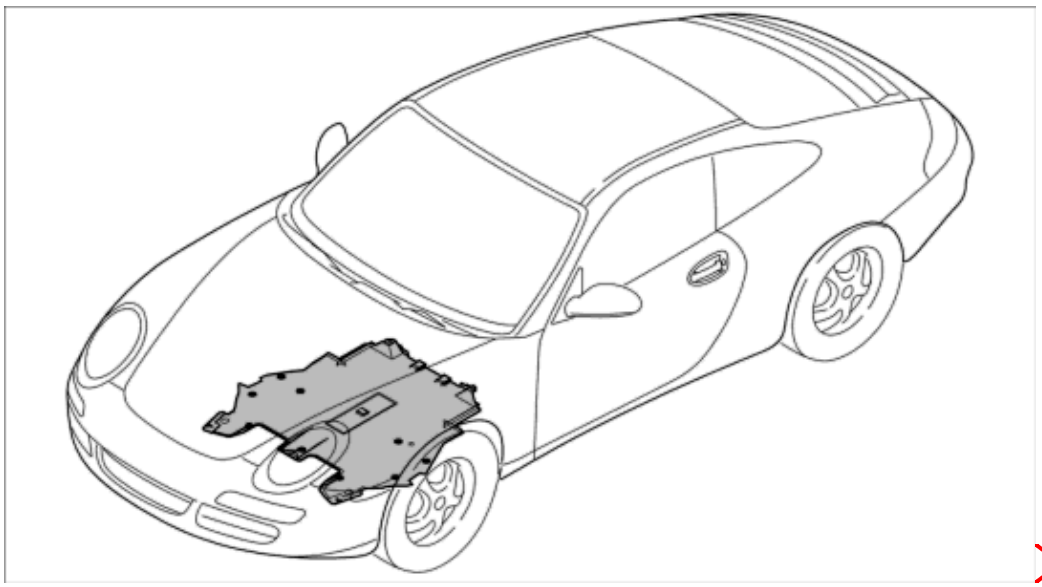
Lift the vehicle. *Lifting the vehicle*

top of page

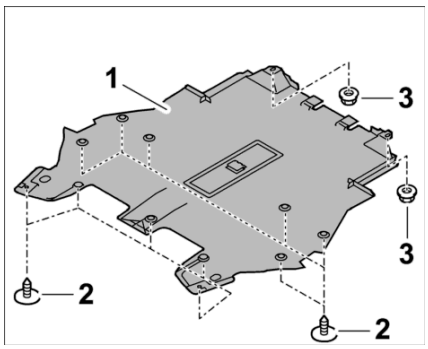
Removing cover for front underbody

Removing cover for front underbody

Installation Location:



Overview, cover for front underbody



Removing cover

Note

Fastening nuts cannot be used again following removal.

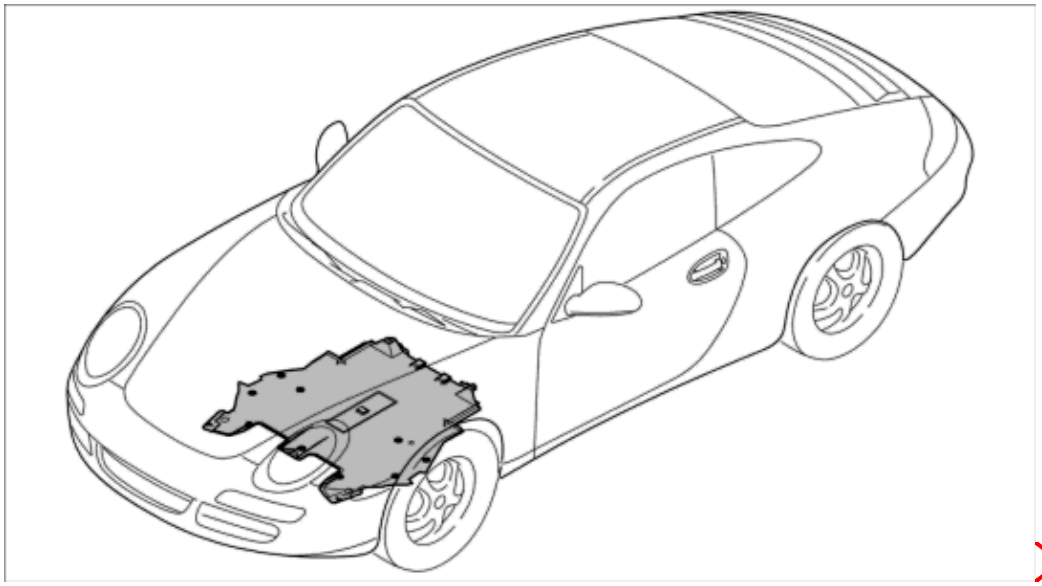
1. Unscrew fastening screws **-2-** and fastening nuts **-3-** .
2. Pull cover for front underbody **-1-** out of the overlap.

top of page

Installing cover for front underbody

Installing cover for front underbody

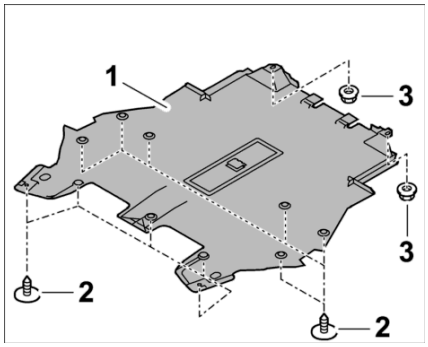
Installation Location:



Overview, cover for front underbody

Note

When pushing in the underside panel, make sure the overlap is correct.



Install cover

1. Insert cover for front underbody **-1-** .
2. Tighten fastening screws **-2-** . Tightening torque **: 1.5 ftlb.**
3. Tighten fastening nuts **-3-** . Tightening torque **: 0.5 ftlb.**

top of page

Subsequent work

Reworking

Lower the vehicle. *Lifting the vehicle*

997110, 997111, 997120, 997121, 997310, 997311, 997320, 997321, 997410, 997411, 997430, 997431, 997610, 997611, 997620, 997621

as of MY 2005
Country C00, C02, C05, C07, C08, C09, C10, C11, C12, C13, C14, C15, C16, C18, C19, C20, C21, C22, C23, C24, C25, C26, C27, C28, C32, C33, C34, C35, C36, C37, C38, C39, C45, C46, C98, C99

WARNUNG

Gefahr des Verlusts der Text-Bild-Zuordnung beim Ausdruck.

- **Aus technischen Gründen kann derzeit nicht ausgeschlossen werden, dass trotz einwandfreier Darstellung auf dem Bildschirm beim Ausdruck der Zusammenhang von Text und zugehörigem Bild verloren geht.**
- **Wird der Fehler nicht bemerkt, besteht die Gefahr, daß Arbeiten nicht korrekt durchgeführt werden und es dadurch zu Personen- und Sachschäden kommt.**

51 93 19 Removing and installing cover for centre underbody - as of MY 2005

- Preliminary work
- Removing cover for centre underbody
- Installing cover for centre underbody
- Subsequent work

top of page

Preliminary work

Preliminary work

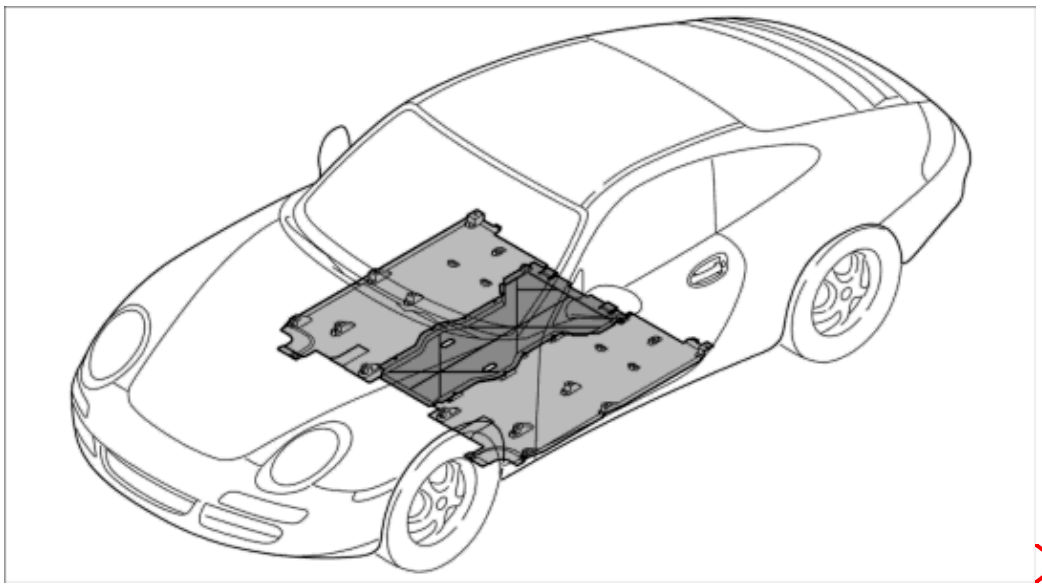
Lift the vehicle. *Lifting the vehicle*

top of page

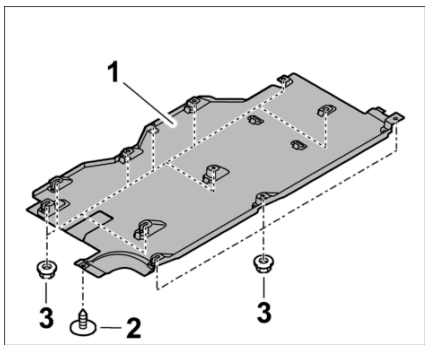
Removing cover for centre underbody

Removing cover for side underbody

Installation Location:



Overview, cover for side underbody



Removing side cover

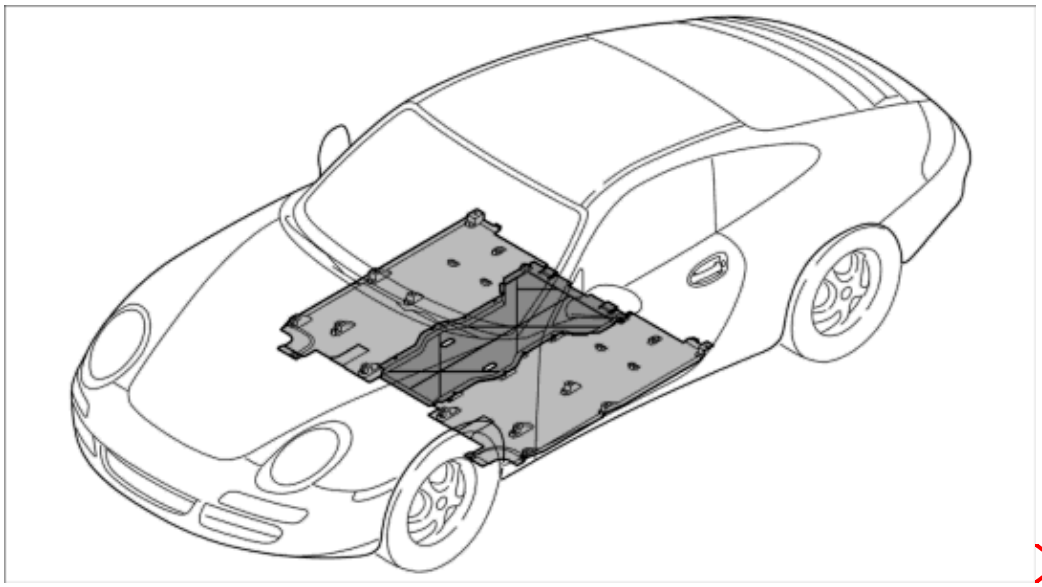
Note

Fastening nuts cannot be used again following removal.

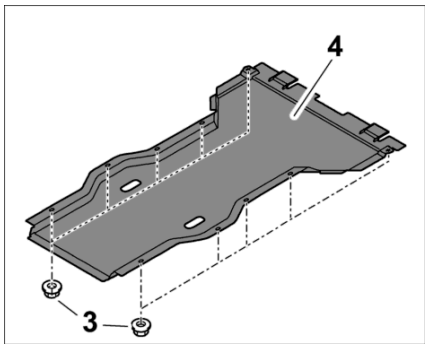
1. Unscrew fastening screws **-2-** and fastening nuts **-3-** .
2. Pull cover for side underbody **-1-** out of the overlaps.

Removing cover for centre underbody

Installation Location:



Overview, cover for centre underbody



Removing middle cover

Note

Fastening nuts cannot be used again following removal.

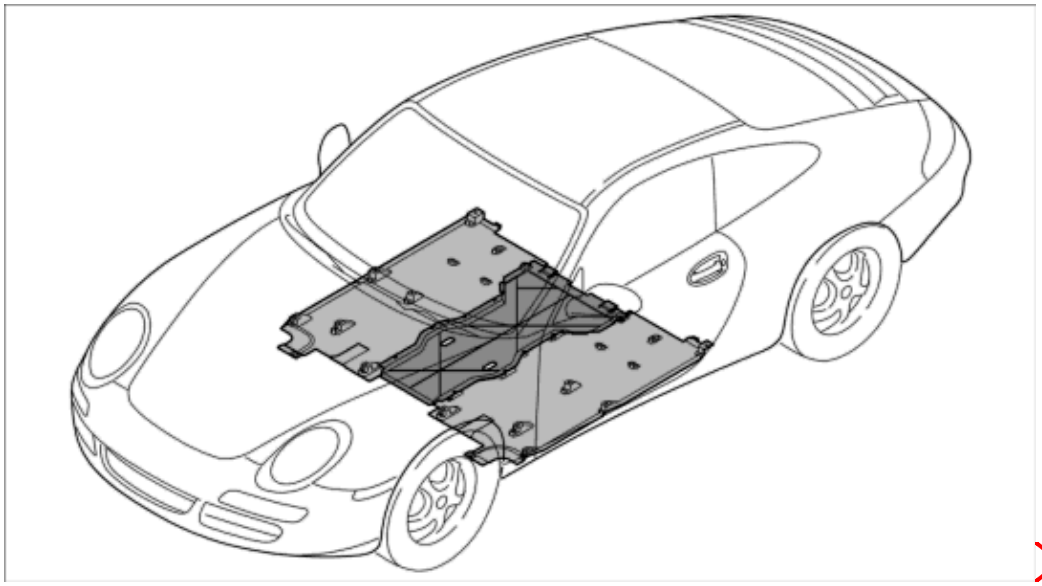
1. Unscrew fastening nuts **-3-** .
2. Press covers for side underbody **-1-** downward slightly and remove cover for centre underbody **-4-** from the overlaps.

top of page

Installing cover for centre underbody

Installing cover for centre underbody

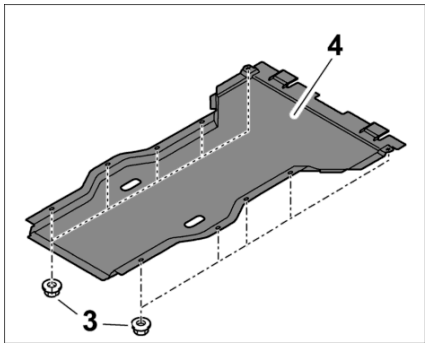
Installation Location:



Overview, cover for centre underbody

Note

When pushing in the underside panel, make sure the overlap is correct.

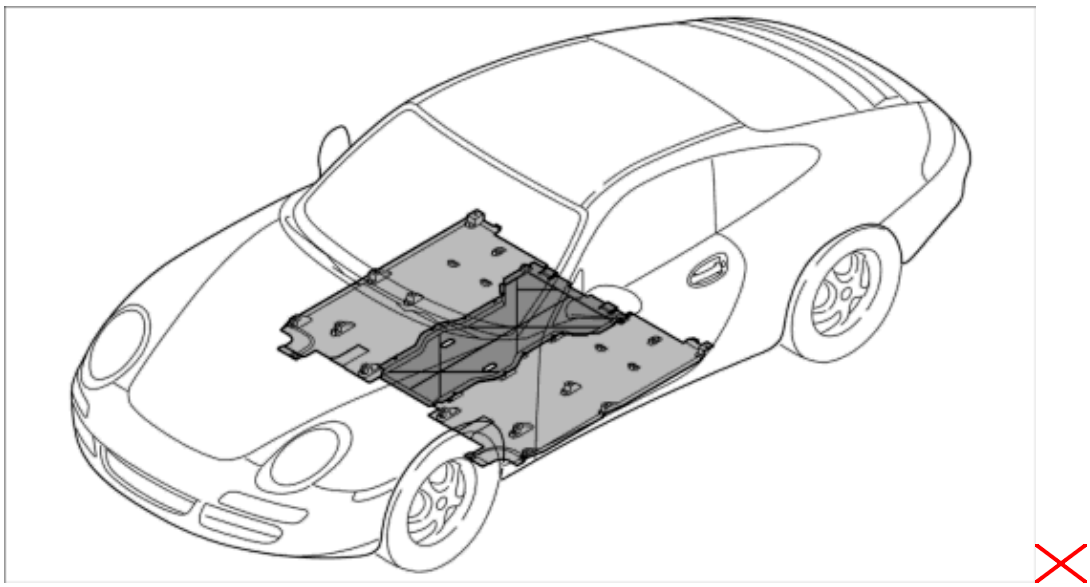


Install middle cover

1. Insert cover for centre underbody **-4-** , while doing this, press cover for side underbody **-1-** slightly downward.
2. Tightening fastening nuts **-3-** . Tightening torque **: 1.5 ftlb.**

Installing cover for side underbody

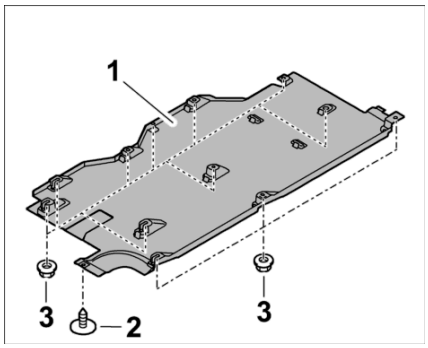
Installation Location:



Overview, cover for centre underbody

Note

When pushing in the underside panel, make sure the overlap is correct.



Installing side cover

1. Insert cover for side underbody **-1-** .
2. Tightening fastening screw **-2-** . Tightening torque **: 1.5 ftlb.**
3. Tightening fastening nuts **-3-** . Tightening torque **: 1.5 ftlb.**

top of page

Subsequent work

Reworking

Lower the vehicle. *Lifting the vehicle*

997110, 997111, 997120, 997121, 997310, 997311, 997320, 997321, 997410, 997411, 997430, 997431, 997610, 997611, 997620, 997621

as of MY 2005
Country C00, C02, C05, C07, C08, C09, C10, C11, C12, C13, C14, C15, C16, C18, C19, C20, C21, C22, C23, C24, C25, C26, C27, C28, C32, C33, C34, C35, C36, C37, C38, C39, C45, C46, C98, C99

WARNUNG
Gefahr des Verlusts der Text-Bild-Zuordnung beim Ausdruck.

- **Aus technischen Gründen kann derzeit nicht ausgeschlossen werden, dass trotz einwandfreier Darstellung auf dem Bildschirm beim Ausdruck der Zusammenhang von Text und zugehörigem Bild verloren geht.**
- **Wird der Fehler nicht bemerkt, besteht die Gefahr, daß Arbeiten nicht korrekt durchgeführt werden und es dadurch zu Personen- und Sachschäden kommt.**

Vergleichen Sie deshalb nach dem Druckvorgang unbedingt die Ausdrucke mit der Bildschirmdarstellung. Korrigieren Sie die Ausdrucke im Fehlerfall so, daß der Inhalt der Bildschirmdarstellung zutreffend wiedergegeben wird.

51 94 19 Removing and installing cover for rear underbody - as of MY 2005

- Preliminary work
- Removing cover for rear underbody
- Installing cover for rear underbody
- Subsequent work

top of page

Preliminary work

Preliminary work

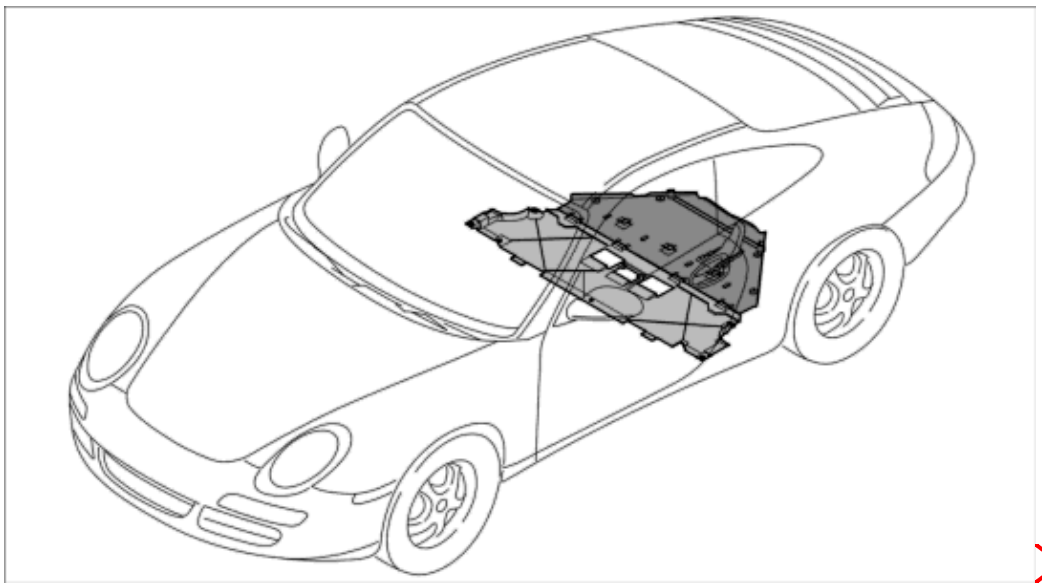
Lift the vehicle. *Lifting the vehicle*

top of page

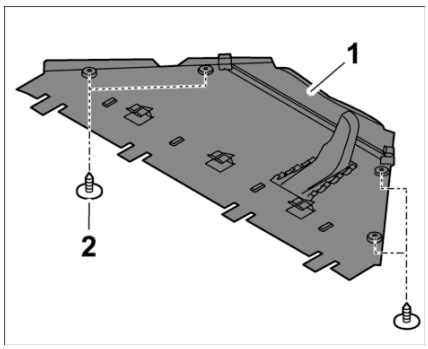
Removing cover for rear underbody

Removing cover for rear underbody- rear section

Installation Location:



Overview, cover for rear underbody

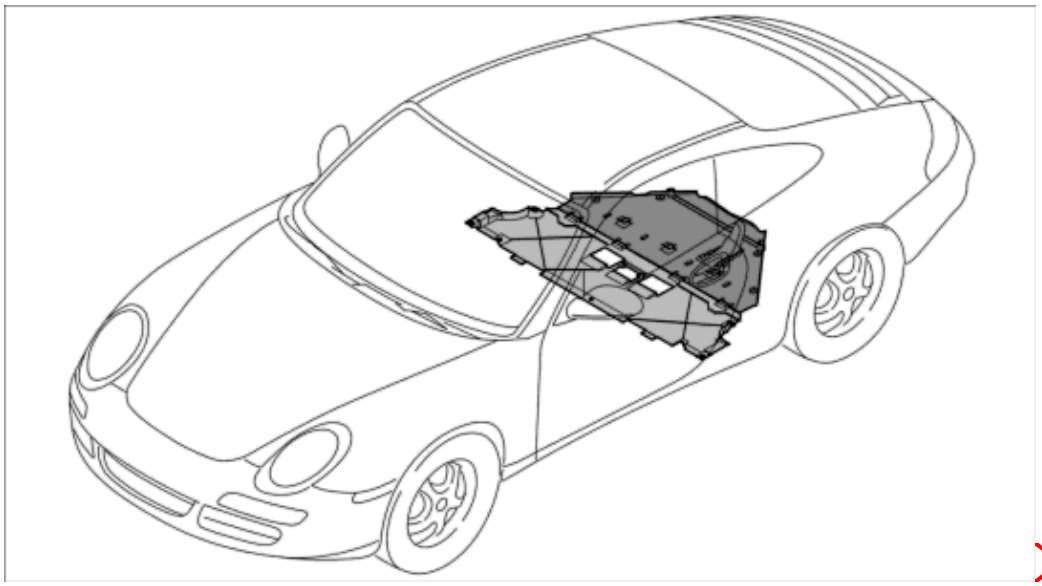


Remove rear cover- rear section

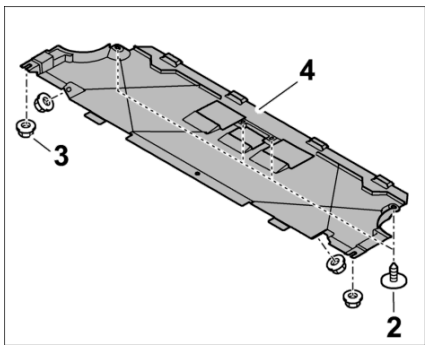
1. Undo fastening screws **-2-** .
2. Remove rear underbody cover **-1-** .

Removing cover for rear underbody - front section

Installation Location:



Overview, cover for rear underbody



Removing rear cover - front section

Note

Fastening nuts cannot be used again following removal.

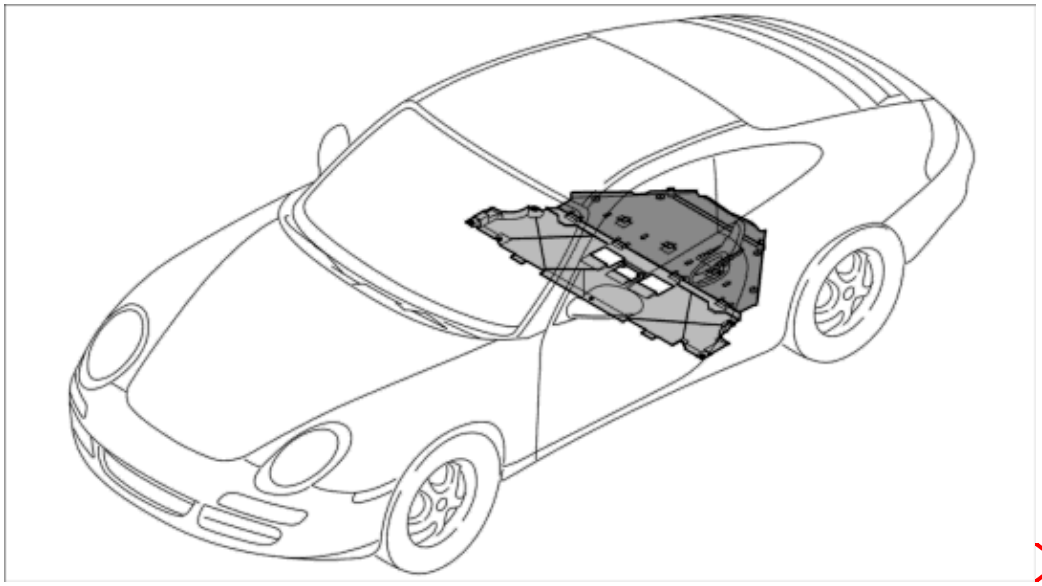
1. Unscrew fastening screws **-2-** and fastening nuts **-3-** .
2. Remove rear underbody cover **-4-** .

top of page

Installing cover for rear underbody

Installing cover for rear underbody- front section

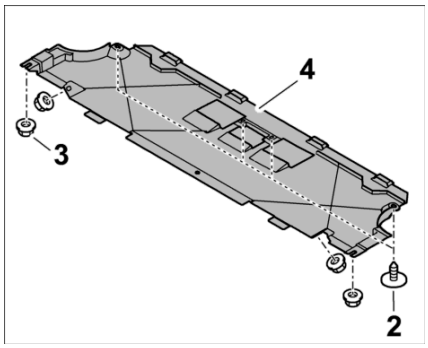
Installation Location:



Overview, cover for rear underbody

Note

When pushing in the underside panel, make sure the overlap is correct.

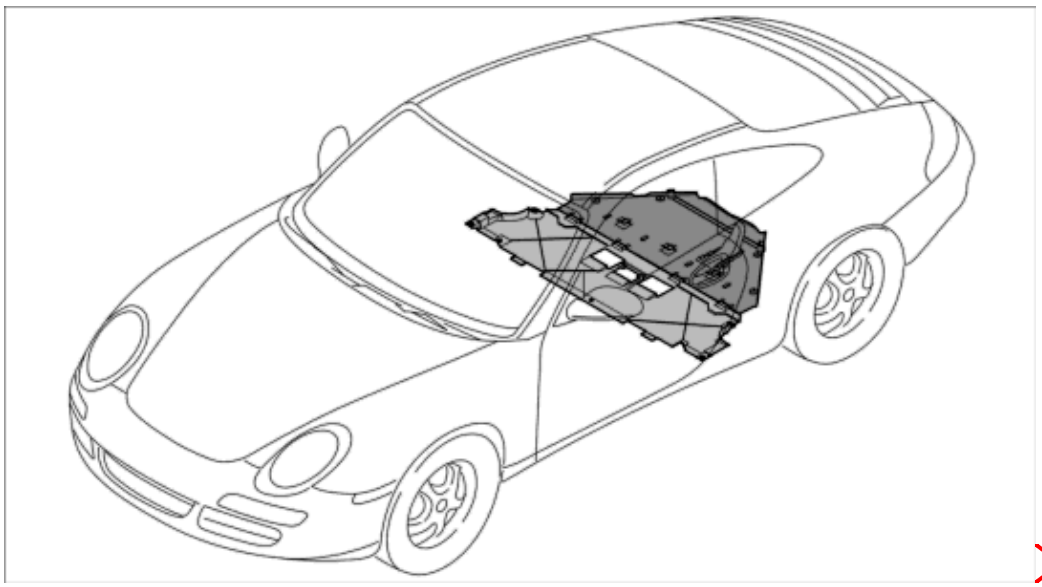


Installing rear cover- front section

1. Insert rear underbody cover **-4-** .
2. Tighten fastening screws **-2-** . Tightening torque **: 1.5 ftlb.**
3. Tighten fastening nuts **-3-** . Tightening torque **: 1.5 ftlb.**

Installing cover for rear underbody- rear section

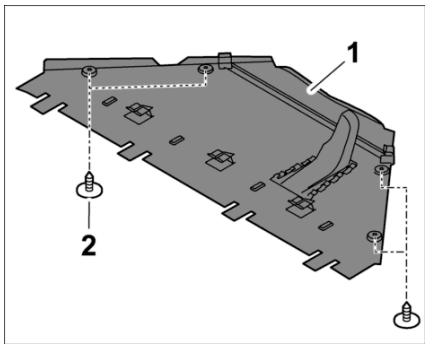
Installation Location:



Overview, cover for rear underbody

Note

When pushing in the underside panel, make sure the overlap is correct.



Install rear cover- rear section

1. Insert rear underbody cover **-1-**
2. Tighten fastening screws **-2-** . Tightening torque **: 1.5 ftlb.**

top of page

Subsequent work

Reworking

Lower the vehicle. *Lifting the vehicle*

997110, 997111, 997120, 997121, 997310, 997311, 997320, 997321, 997410, 997411, 997430, 997431, 997610, 997611, 997620, 997621

as of MY 2005
Country C00, C02, C05, C07, C08, C09, C10, C11, C12, C13, C14, C15, C16, C18, C19, C20, C21, C22, C23, C24, C25, C26, C27, C28, C32, C33, C34, C35, C36, C37, C38, C39, C45, C46, C98, C99

WARNUNG
Gefahr des Verlusts der Text-Bild-Zuordnung beim Ausdruck.

- **Aus technischen Gründen kann derzeit nicht ausgeschlossen werden, dass trotz einwandfreier Darstellung auf dem Bildschirm beim Ausdruck der Zusammenhang von Text und zugehörigem Bild verloren geht.**
- **Wird der Fehler nicht bemerkt, besteht die Gefahr, daß Arbeiten nicht korrekt durchgeführt werden und es dadurch zu Personen- und Sachschäden kommt.**

Vergleichen Sie deshalb nach dem Druckvorgang unbedingt die Ausdrucke mit der Bildschirmdarstellung. Korrigieren Sie die Ausdrucke im Fehlerfall so, daß der Inhalt der Bildschirmdarstellung zutreffend wiedergegeben wird.

WARNING

53 48 55 Replacing rear side member (section) - as of MY 2005

- General warning notes
- Tools and materials
- Preliminary work for body repairs with alignment bench
- Removing side member
- Preparing connection area of body for installing rear side member
- Fitting rear side member and preparing for installation
- Installing rear side member
- Subsequent work

Tools

Designation	Type	Number	Explanation	
Pneumatic body saw No. PS1, see Gr. 3.5; Workshop Equipment Manual	commercially available tool	00000		
Press-out tool	special tool	97290		
Star gauges for body gap dimensions	commercially available tool	NR.127-1		

Spotweld drill	commercially available tool	NR.129		
Inverter welding equipment ATL Inverterspot	workshop equipment	WE1194		

top of page

General warning notes

Safety instructions for body repairs

5 AW Safety instructions - General warning notes

top of page

Tools and materials

Tools and materials

Spotweld drill NR.129 Star gauges for body gap dimensions NR.127-1
Press-out tool 97290
Pneumatic body saw No. PS1, see Gr. 3.5; Workshop Equipment Manual 00000
Angle grinder, see Gr. 3.5; see Workshop Equipment Manual 00000
Oscillating body saw (special electrical cutter), see Gr. 3.5; Workshop Equipment Manual 00000
Rotary brush, see Gr. 3.5; Workshop Equipment Manual 00000
Hole punch, see Gr. 3.5; Workshop Equipment Manual 00000
Leister Elektron hot-air gun, see Gr. 3.5; Workshop Equipment Manual 00000
Inverter welding equipment ATL Inverterspot WE1194

Basic straightening attachments for 911 Carrera (996), see Gr. 3.5; Workshop Equipment Manual 00000
Additional straightening attachments for 911 Carrera (997), see Gr. 3.5; Workshop Equipment Manual 00000
Pneumatic spotweld remover, Vario Drill No. WS 90, see Gr. 3.5; Workshop Equipment Manual 00000

top of page

Preliminary work for body repairs with alignment bench

Preliminary work for body repairs with alignment bench

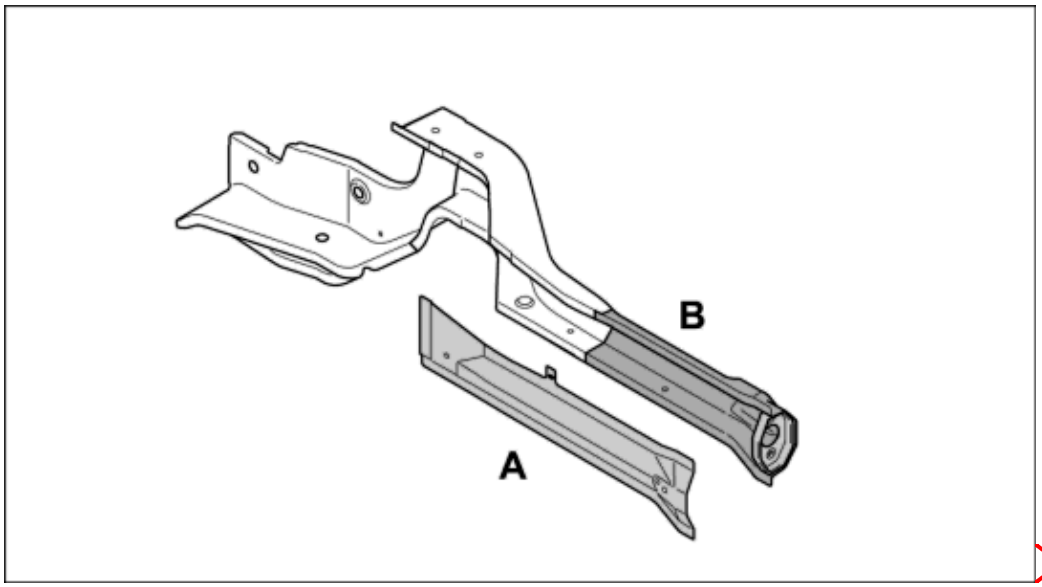
1. Removing accessories in the repair area
1.1. Remove accessories in the repair area according to the extent of damage to the vehicle.
2. Equipping alignment bench with straightening kit
2.1. Equip alignment bench with the basic straightening attachments according to the plans included with the straightening attachments.
3. Placing vehicle on the alignment bench
3.1. Position vehicle on alignment bench, align according to the reference holes and bolt firmly to the attachment set.
4. Covering accessories adjacent to the vehicle repair area
4.1. Cover all accessories remaining on the vehicle and the neighbouring areas with fire-proof, protective covers.
5. Reshaping connection area of the sheetmetal parts to be replaced
6. Exposing welding areas
6.1. Remove undersealing, paint, etc. from the welding areas of the body with a hot-air gun or rotary brush.

top of page

Removing side member

Removing side member

Installation Location:



Side member spare parts

A - Outer side member

B - Inner side member

WARNING

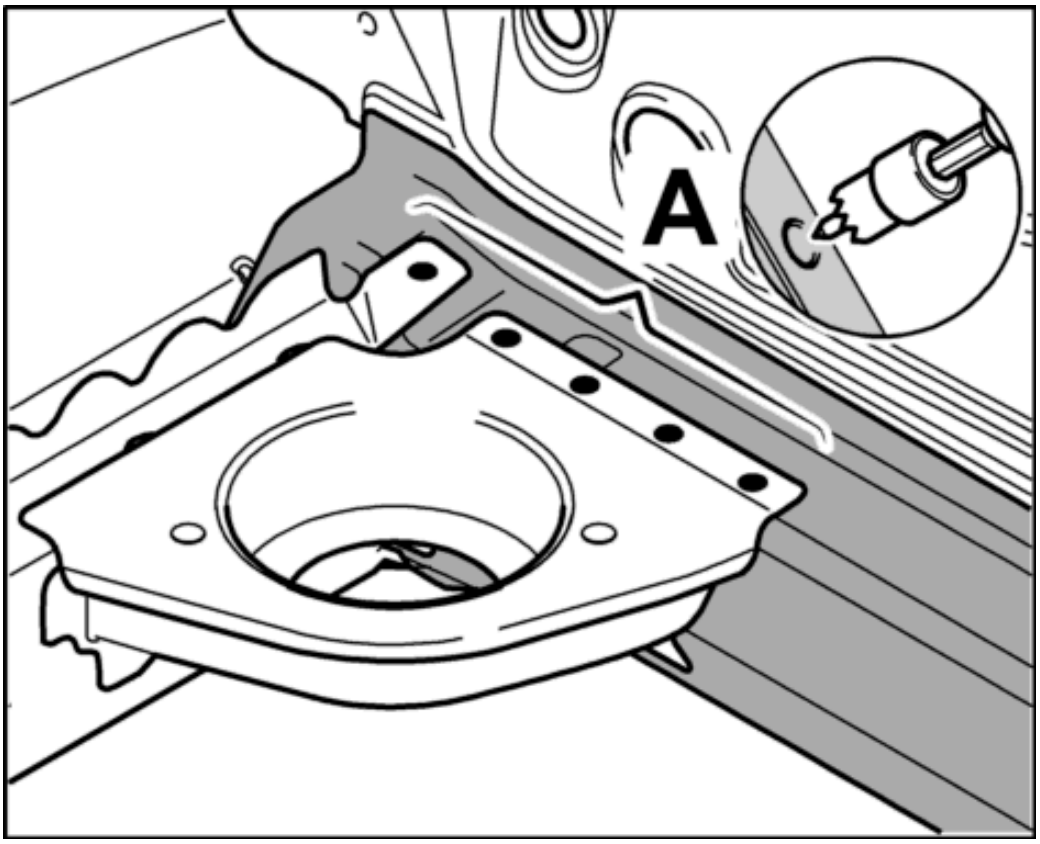
Possible separation points on inner side member

- **Danger of material damage and injury**

The possible separation points on the inner side member are **30 mm in front of the tailored blank (laser weld) starting from the rear of the vehicle in the direction of travel.**

1. Mill off spotwelds on the engine mounting and end plate.

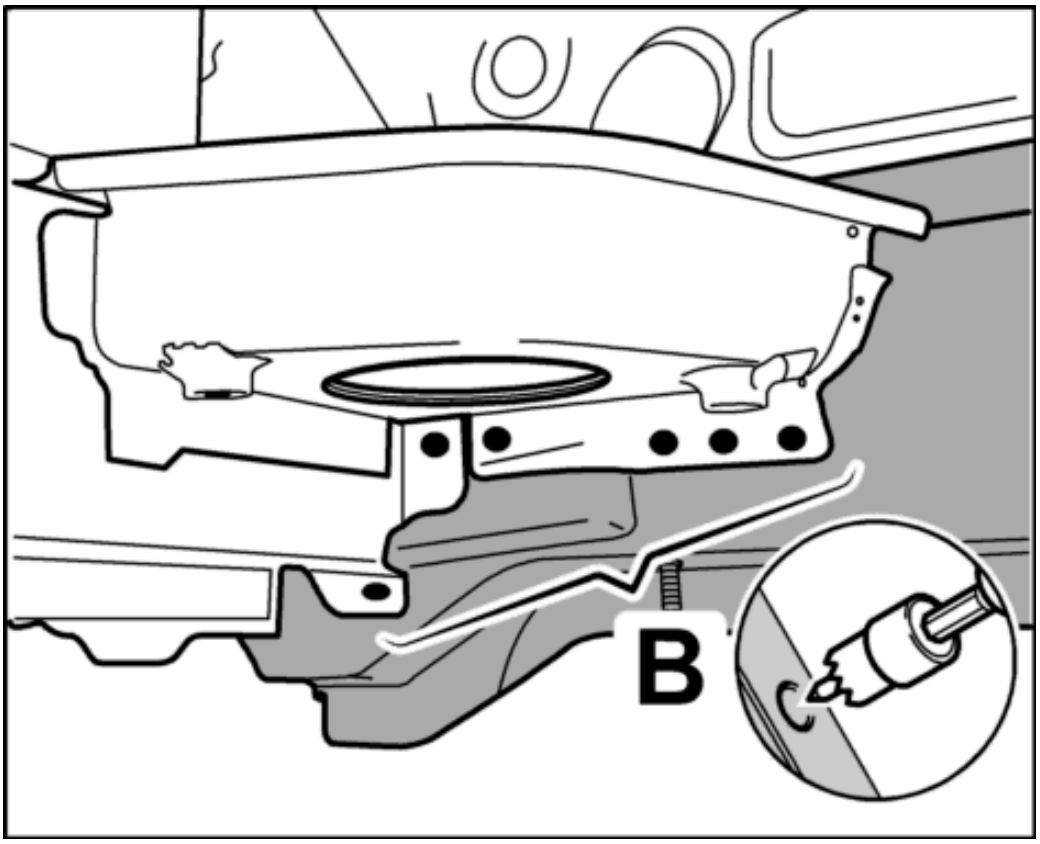
1.1. Mill off spotwelds between the engine mounting, end plate and inner side member in area **A** using a spotweld cutter.



Milling off spotwelds on the engine mounting and end plate

2. Mill off spotwelds on the engine mounting and end plate.

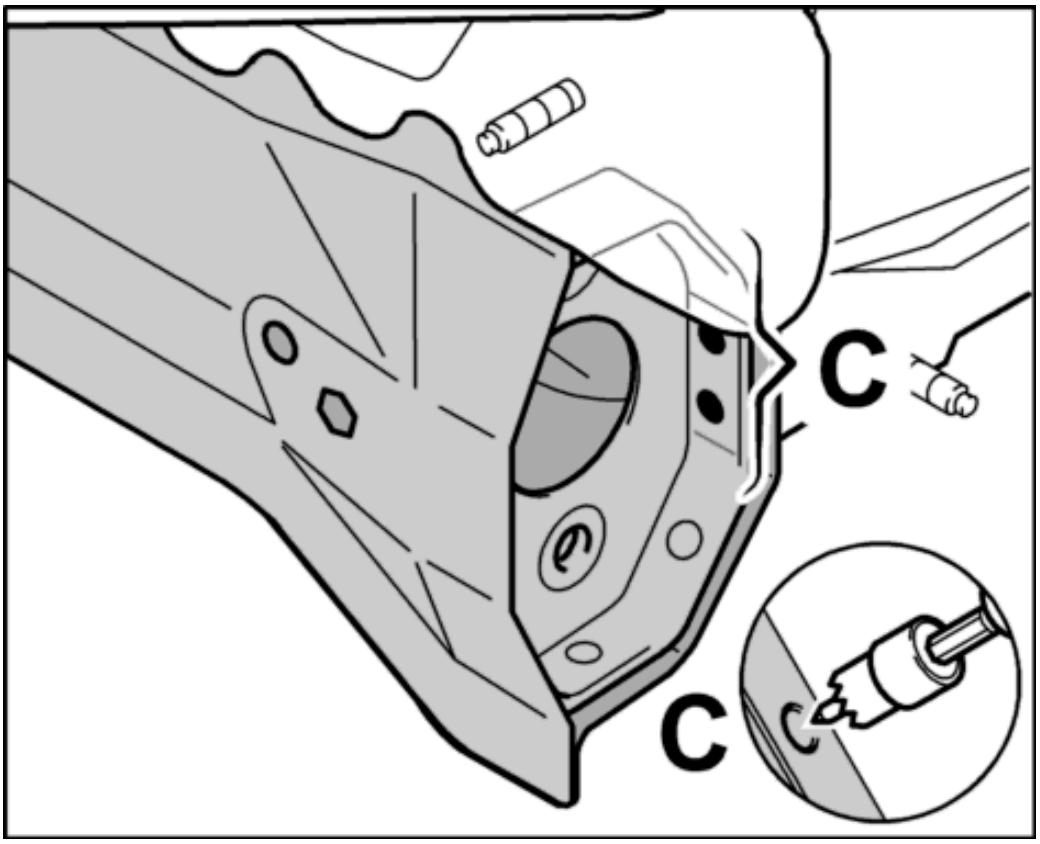
2.1. Mill off spotwelds between the engine mounting, end plate and inner side member in area **B** using a spotweld cutter.



Milling off spotwelds on the engine mounting and end plate

3. Mill off spotwelds on rear closing panel.

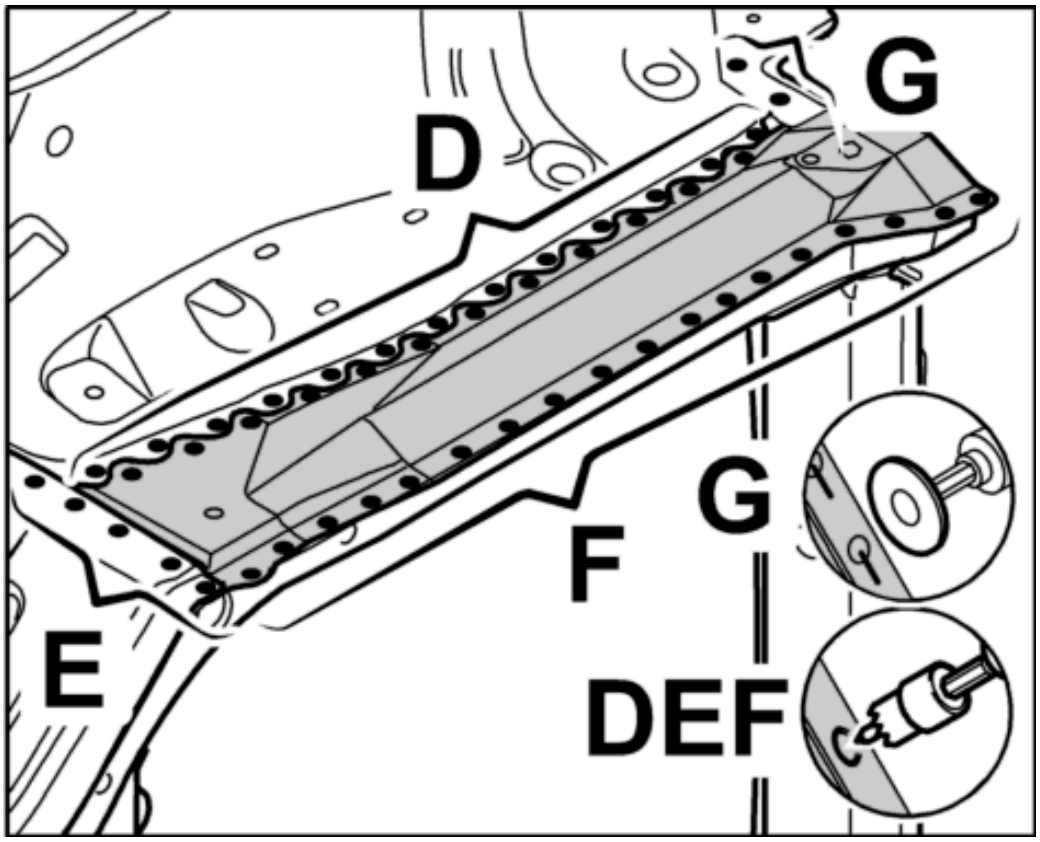
3.1. Mill off spotwelds between the rear closing panel and inner side member in area **C** using a spotweld cutter.



Milling off spotwelds on rear closing panel

4. Mill off spotwelds on outer side member.

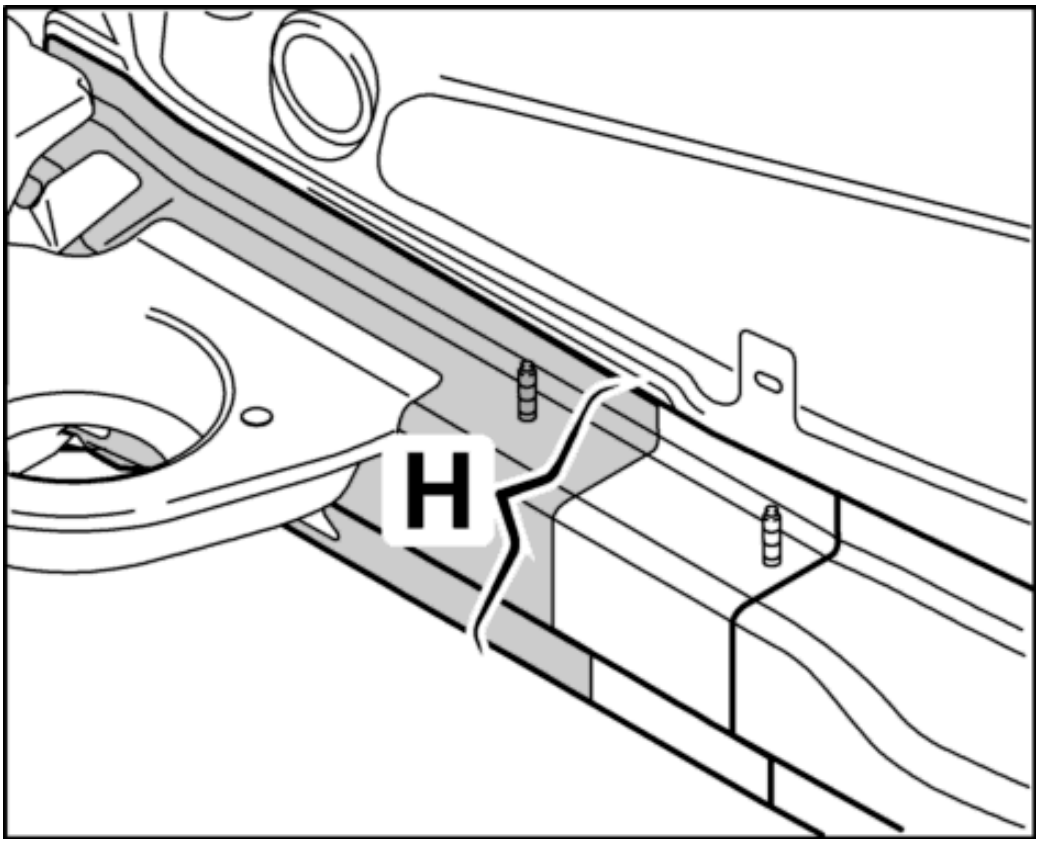
4.1. Mill off spotwelds between the outer side member and inner side member in areas **D, E, F** using a spotweld cutter. Cut through the shielding gas weld in area **G** using the parting grinder.



Milling off spotwelds on outer side member

5. Cutting off inner side member

5.1. Cut off the inner side member in area **H** in front of tailored blank (laser weld) **dimension X = 30 mm** using the body saw.



Cutting off inner side member

top of page

Preparing connection area of body for installing rear side member

Safety instructions for flying sparks during grinding and welding work

ATTENTION

Danger of explosion and fire from flying sparks during grinding and welding work!

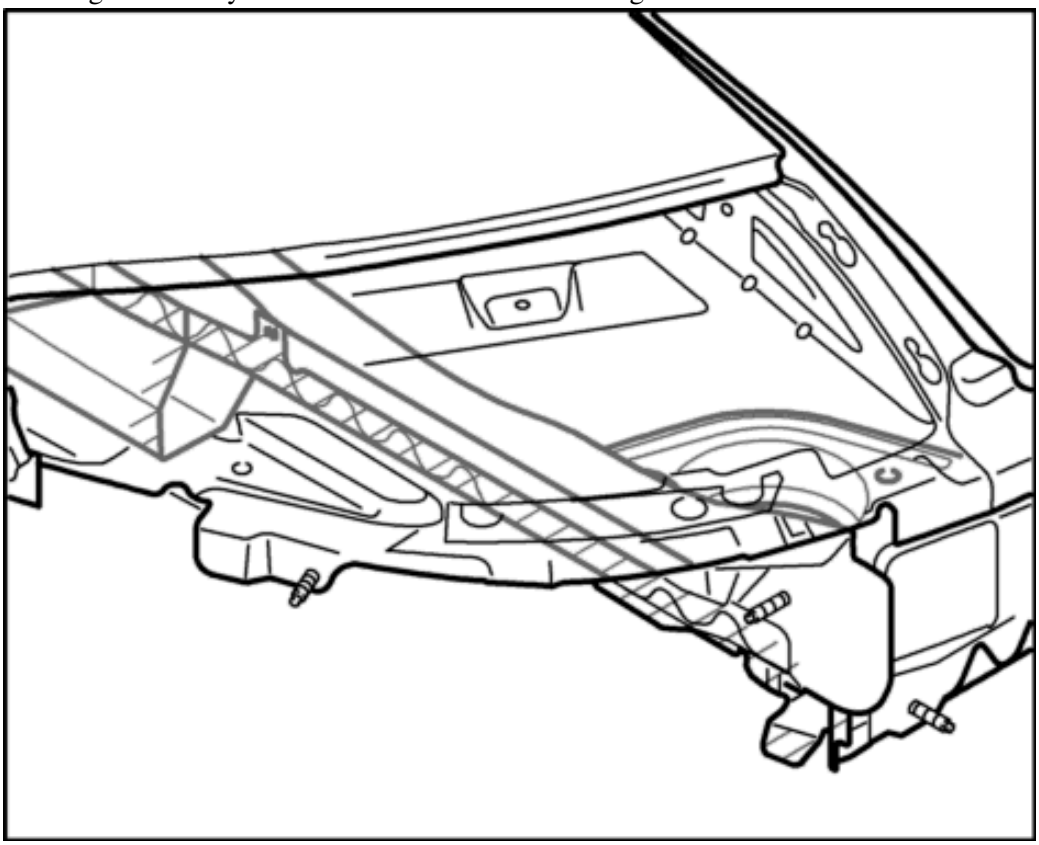
- **Danger of injury and danger of damage to vehicle parts and other vehicles due to flying sparks**

Cover vehicle parts such as battery, fuel system, paintwork, glass and passenger compartment parts with fire-proof covers and, if necessary, remove batteries and fuel-carrying components.

No other vehicles may be left unprotected in areas used for body repair!

Preparing connection areas of body for installing rear side members

1. Clean the body connection flanges of undersealing, adhesive residue and paint in the marked areas using a hot-air gun or rotary brush. Grind the connection flanges until bare.



Preparing connection areas of body for installing rear side members

top of page

Fitting rear side member and preparing for installation

Adjusting rear side members and preparing for installation

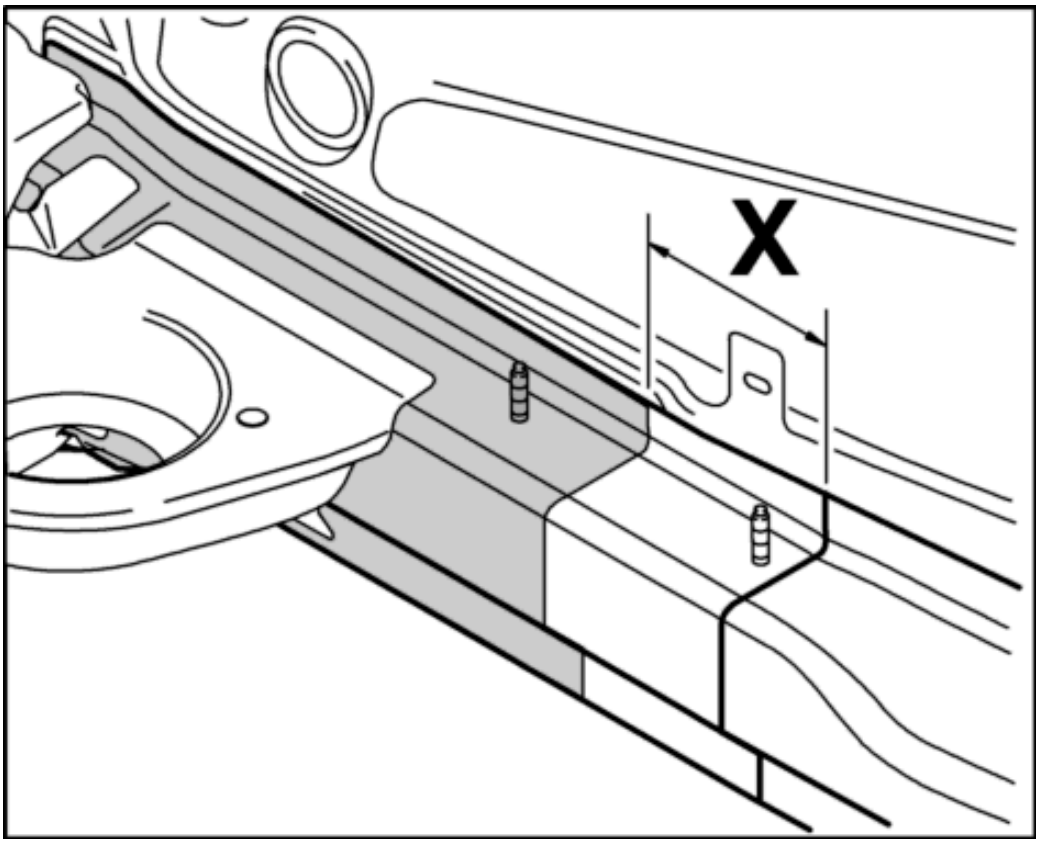
WARNING

Possible separation points on inner side member

- **Danger of material damage and injury**

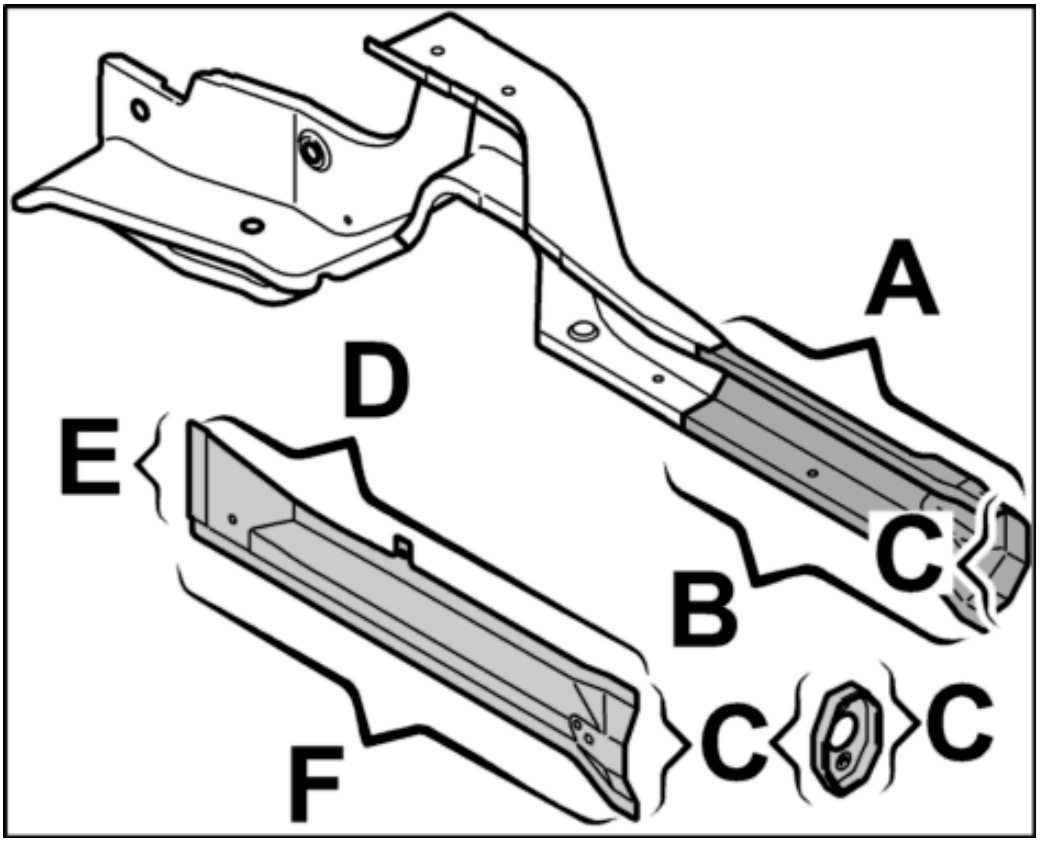
The possible separation points on the inner side member are **30 mm in front of the tailored blank (laser weld) starting from the rear of the vehicle in the direction of travel.**

1. Transfer cut **dimension X** to the inner side members. Observe dimension **X**.



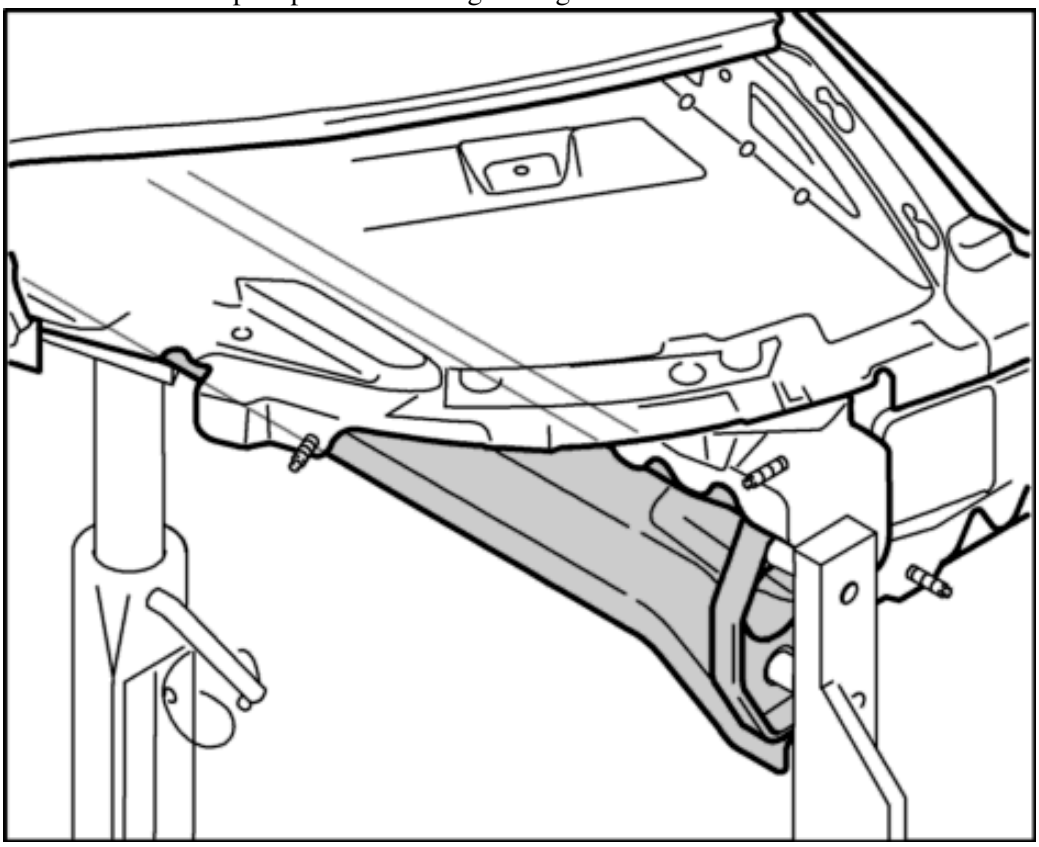
Transferring cut to inner side members

2. Remove the factory-applied primer on the welding areas of the spare parts **A, B, C, D, E, F** using the rotary brush.



Removing primer on welding areas of spare parts using a rotary brush

3. Fasten inner side member spare part to the straightening attachments



Fastening spare part to straightening attachments

top of page

Installing rear side member

Danger of injury when welding

DANGER

Risk of fatal injury from high voltage during electric welding!

- **Danger of explosion and fire when welding in the area of highly inflammable materials.**
- **Irritation to respiratory tracts from toxic zinc oxide emitted when welding galvanised steel!**
- **Danger of injury from unintentional triggering of pyrotechnical safety components!**
- **Danger of injury from weld spatters and UV light when welding!**

Do not perform welding work in a damp environment or on wet ground; there is a risk of fatal injury from the voltage being conducted through the human body. Persons with heart pacemakers should not perform welding work. Use insulating underlays.

Remove highly flammable materials from the work area; if necessary, remove units with fuel-carrying parts and protect work areas in the vehicle that are at risk of catching fire using fire-proof covers.

Ventilate the work area well.

Remove smoke gases with a suitable extraction system (refer to Workshop Equipment Manual).

Wear suitable protective equipment, such as protective clothing, gloves, a welding shield and, if necessary, a protective mask.

For welding work, always disconnect both terminals on the battery. In the case of welding work in the immediate vicinity of the control modules for pyrotechnical safety systems, remove the control modules before beginning work.

In addition, the guidelines of the welding equipment manufacturer and the legal accident prevention regulations and those of the mutual indemnity association (BGV D1) must be observed.

Safety instructions for flying sparks during grinding and welding work

ATTENTION

Danger of explosion and fire from flying sparks during grinding and welding work!

- **Danger of injury and danger of damage to vehicle parts and other vehicles due to flying sparks**

Cover vehicle parts such as battery, fuel system, paintwork, glass and passenger compartment parts with fire-proof covers and, if necessary, remove batteries and fuel-carrying components.

No other vehicles may be left unprotected in areas used for body repair!

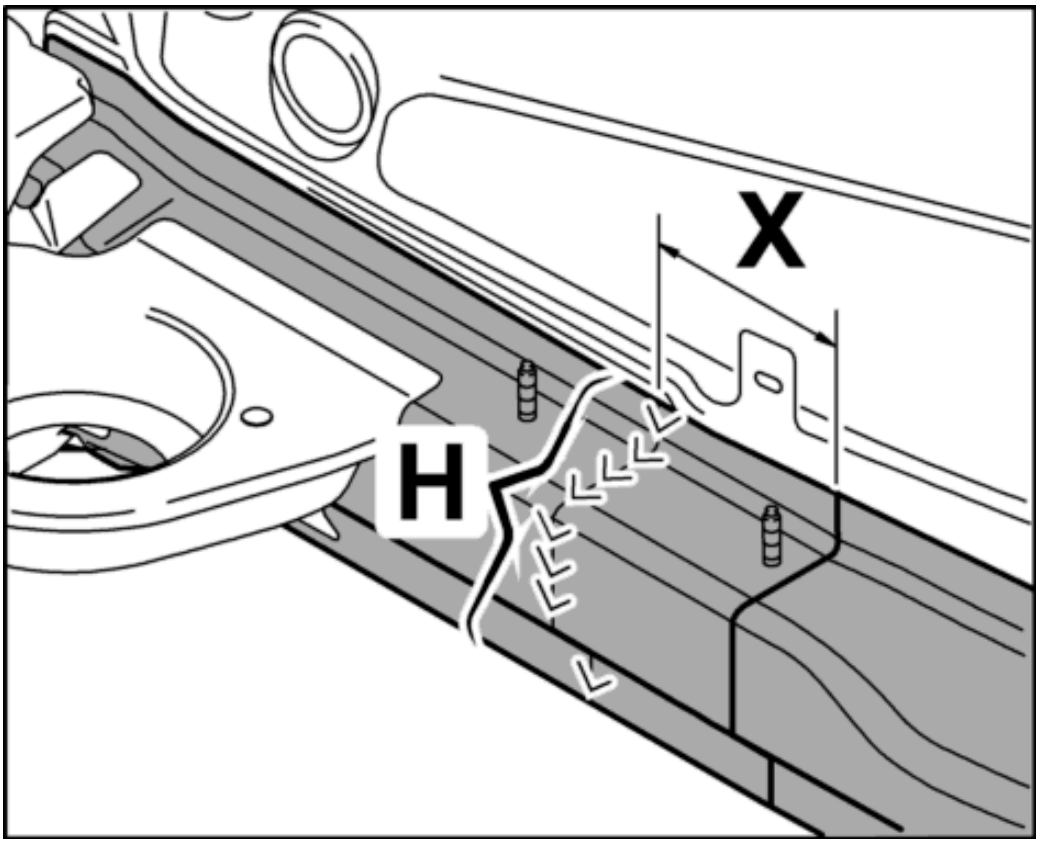
Installing side member

Note

When butt welding body sheet panels with a sheet thickness of > 1.5 mm, there must be a welding slit width s = 1 x sheet thickness to guarantee the required welding quality (welding through).

1. Weld in the inner side member.

1.1. Weld the inner side member with a full butt weld **H** under shielding gas.



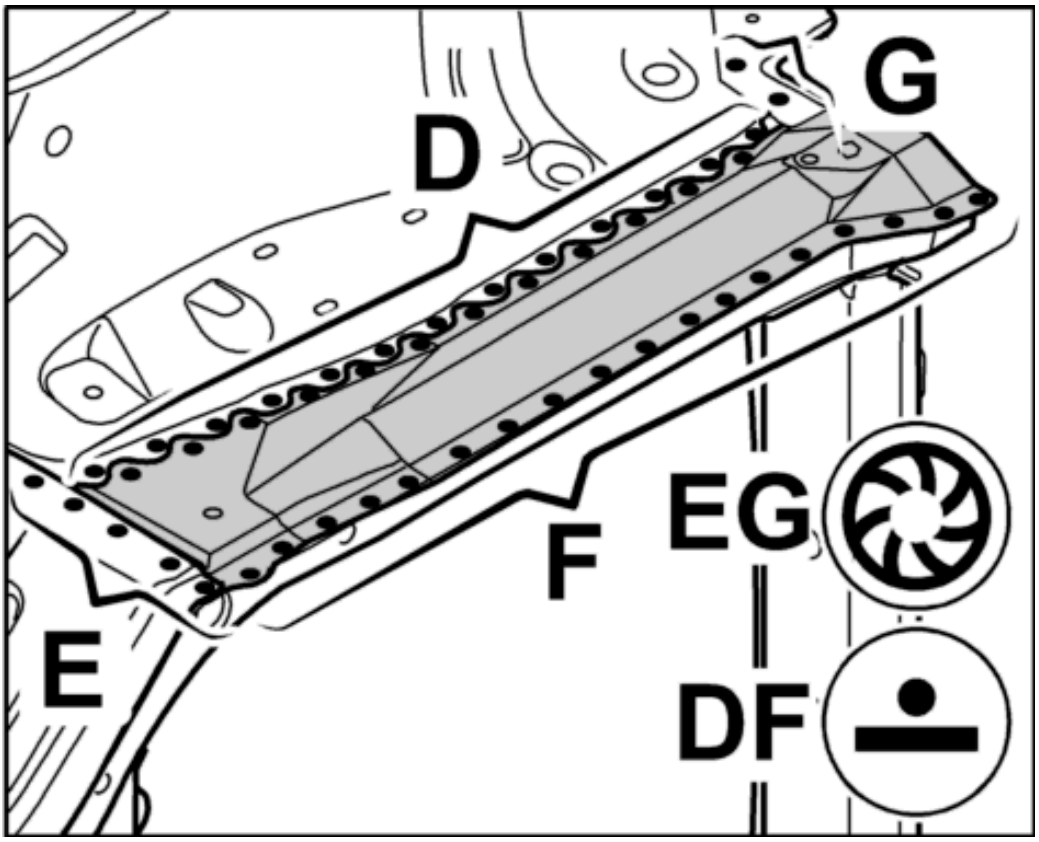
Welding in inner side member

2. Weld in outer side member.

2.1. Spot-weld outer side member to inner side member in areas **D,** **E**.

2.2. Plug-weld the outer side member to the wheel arch in area **F** under shielding gas.

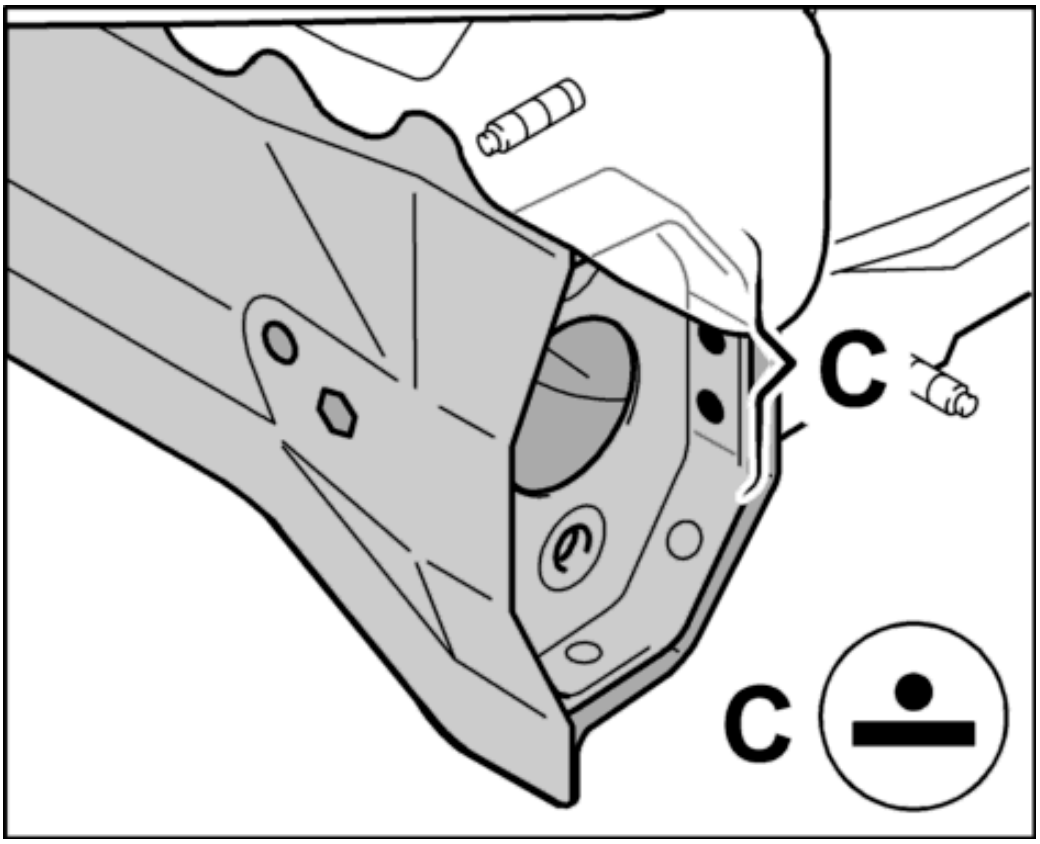
2.3. Plug-weld the outer side member to the wheel arch in area **G** under shielding gas.



Welding in outer side member

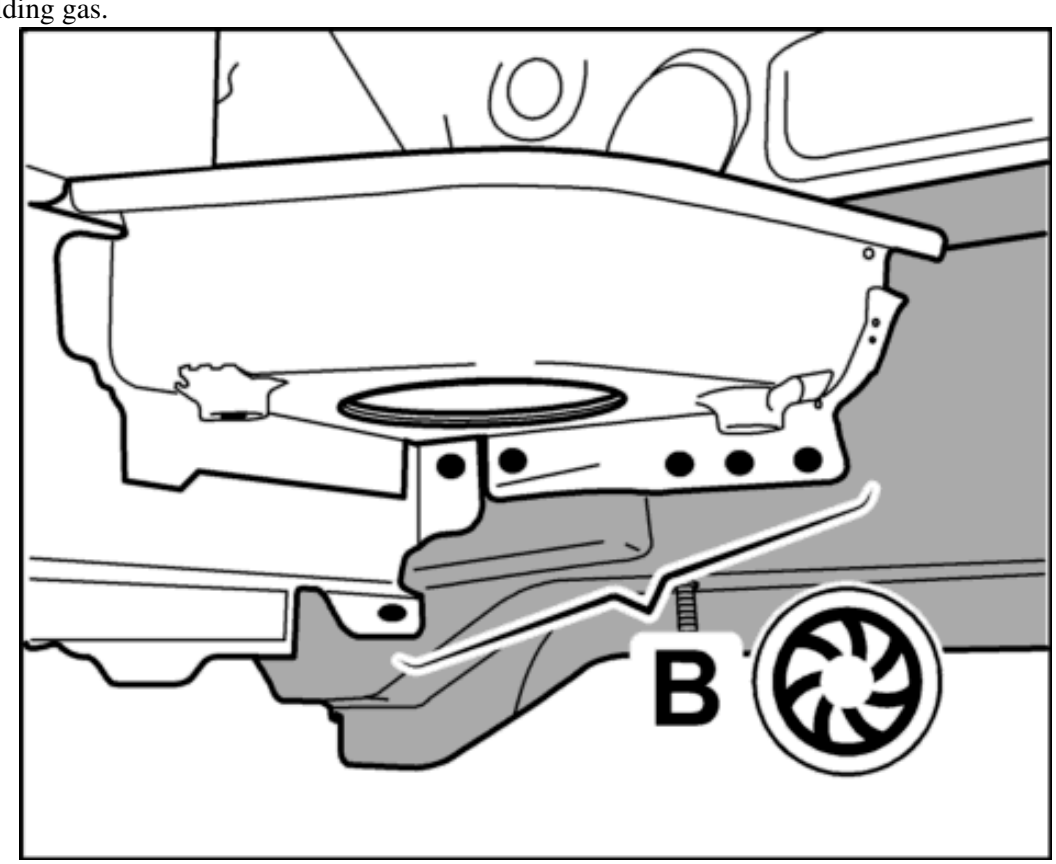
3. Spot-weld inner side member.

3.1. Spot-weld the inner side member to the end plate in area **C**.



4. Weld engine mounting and end plate under shielding gas.

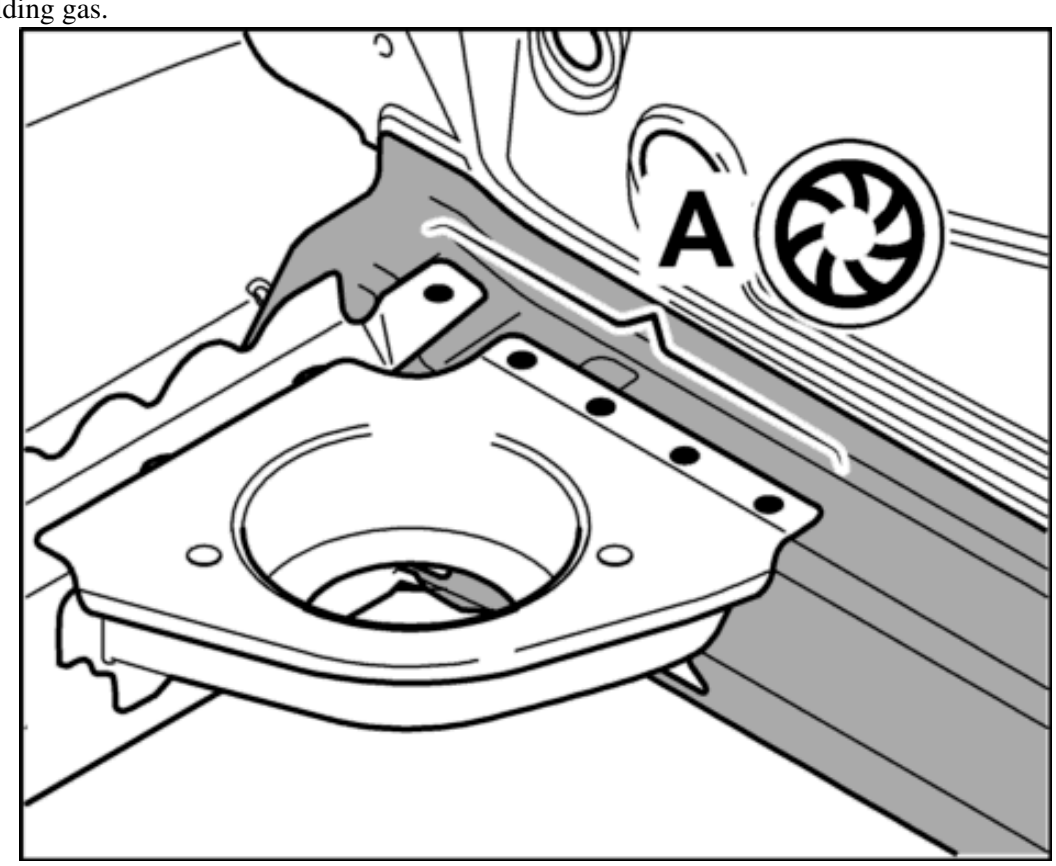
4.1. Plug-weld the top of the engine mounting and the end plate in area **B** to the inner side member under shielding gas.



Welding engine mounting and end plate under shielding gas

5. Weld engine mounting and end plate under shielding gas.

5.1. Plug-weld the bottom of the engine mounting and the end plate in area **A** to the inner side member under shielding gas.



Welding engine mounting and end plate under shielding gas

top of page

Subsequent work

Subsequent work for body repairs

1. Remove vehicle from the alignment bench.
2. Clean welded joints and sheetmetal flanges with a wire brush.
3. Prime flange areas with 2K primer.
4. Restore standard sealing with body sealant.
   5 Seam sealing
5. Restore standard undersealing with underbody sealant.
   5 Underbody protection
6. Paint repair area and adjacent surfaces, if necessary.

7. Install removed accessories in the repair area.
8. Apply cavity preservation.

997110, 997111, 997120, 997121, 997310, 997311, 997320, 997321, 997410, 997411, 997430, 997431, 997610, 997611, 997620, 997621

as of MY 2005
Country C00, C02, C05, C07, C08, C09, C10, C11, C12, C13, C14, C15, C16, C18, C19, C20, C21, C22, C23, C24, C25, C26, C27, C28, C32, C33, C34, C35, C36, C37, C38, C39, C45, C46, C98, C99

WARNUNG

Gefahr des Verlusts der Text-Bild-Zuordnung beim Ausdruck.

- **Aus technischen Gründen kann derzeit nicht ausgeschlossen werden, dass trotz einwandfreier Darstellung auf dem Bildschirm beim Ausdruck der Zusammenhang von Text und zugehörigem Bild verloren geht.**
- **Wird der Fehler nicht bemerkt, besteht die Gefahr, daß Arbeiten nicht korrekt durchgeführt werden und es dadurch zu Personen- und Sachschäden kommt.**

Vergleichen Sie deshalb nach dem Druckvorgang unbedingt die Ausdrucke mit der Bildschirmdarstellung. Korrigieren Sie die Ausdrucke im Fehlerfall so, daß der Inhalt der Bildschirmdarstellung zutreffend wiedergegeben wird.

WARNING

Danger of losing text-figure correspondence when printing out.

- **For technical reasons, it can currently not be ruled out that the correspondence between text and associated figure can be lost when it is printed out, even though the display on the screen is correct.**
- **If the fault is not noticed, there is the danger that work will not be performed correctly which can cause injury and damage.**

Therefore, always compare printouts with the screen display after printing them out. Correct the printouts if they are faulty so that the content of the screen display matches that on the printouts.

AVERTISSEMENT

Risque de perte de la correspondance texte-illustration lors de l'impression papier.

- **Pour des raisons techniques, il ne peut pas être exclu à l'heure actuelle que, même en cas d'affichage correct à l'écran, la correspondance entre le texte et l'illustration puisse être erronée sur l'impression papier.**
- **Si l'erreur passe inaperçue, on court le risque d'exécuter certaines opérations de manière incorrecte pouvant conduire à des dommages corporels et matériels.**

53 55 55 Replacing side section - as of MY 2005

- General warning notes
- Tools and materials
- Removing side section
- Preparing connection areas of the body for installation of the side section
- Fitting side section and preparing for installation
- Installing side section
- Subsequent work

Tools

Designation	Type	Number	Explanation	
Pneumatic body saw No. PS1, see Gr. 3.5; Workshop Equipment Manual	commercially available tool	00000		
Press-out tool	special tool	97290		
Star gauges for body gap dimensions	commercially available tool	NR.127-1		
Spotweld drill	commercially available tool	NR.129		

Inverter welding equipment ATL Inverterspot	workshop equipment	WE1194		

top of page

General warning notes

Safety instructions for body repairs

5 AW Safety instructions - General warning notes

top of page

Tools and materials

Tools and materials

Spotweld drill NR.129 Star gauges for body gap dimensions NR.127-1
Press-out tool 97290
Pneumatic body saw No. PS1, see Gr. 3.5; Workshop Equipment Manual 00000
Angle grinder, see Gr. 3.5; see Workshop Equipment Manual 00000
Oscillating body saw (special electrical cutter), see Gr. 3.5; Workshop Equipment Manual 00000
Rotary brush, see Gr. 3.5; Workshop Equipment Manual 00000
Hole punch, see Gr. 3.5; Workshop Equipment Manual 00000
Leister Elektron hot-air gun, see Gr. 3.5; Workshop Equipment Manual 00000
Inverter welding equipment ATL Inverterspot WE1194

Basic straightening attachments for 911 Carrera (996), see Gr. 3.5; Workshop Equipment Manual 00000
Additional straightening attachments for 911 Carrera (997), see Gr. 3.5; Workshop Equipment Manual 00000
Pneumatic spotweld remover, Vario Drill No. WS 90, see Gr. 3.5; Workshop Equipment Manual 00000

Preliminary work for body repairs

Note

- *If it can be ensured there has been no deformation of the vehicle structure, the following repair can be carried out without the need of a straightening bench. In this case, the vehicle must not be raised when welding the component; it must stand on its wheels on an even surface.*

1. Removing add-on parts in the repair area
1.1. Remove add-on parts in the repair area according to the extent of damage to the vehicle.
2. Equipping straightening bench with straightening attachments
2.1. Equip straightening bench with the straightening attachments according to the plans included with the straightening attachments.
3. Placing vehicle on the straightening bench
3.1. Position vehicle on the straightening bench, align according to the reference holes and bolt firmly to the attachment set.
4. Covering add-on parts adjacent to the vehicle repair area
4.1. Cover all add-on parts remaining on the vehicle and the neighbouring areas with fire-proof, protective covers.
5. Reshaping connection area of the sheetmetal parts to be replaced
6. Exposing welding areas
6.1. Remove undersealing, paint, etc. from the welding areas of the body with a hot-air gun or rotary brush.

Preliminary work for body repairs with alignment bench

1. Removing accessories in the repair area
1.1. Remove accessories in the repair area according to the extent of damage to the vehicle.
2. Equipping alignment bench with straightening kit
2.1. Equip alignment bench with the basic straightening attachments according to the plans included with the straightening attachments.
3. Placing vehicle on the alignment bench
3.1. Position vehicle on alignment bench, align according to the reference holes and bolt firmly to the attachment set.
4. Covering accessories adjacent to the vehicle repair area
4.1. Cover all accessories remaining on the vehicle and the neighbouring areas with fire-proof, protective

covers.

5. Reshaping connection area of the sheetmetal parts to be replaced
6. Exposing welding areas

6.1. Remove undersealing, paint, etc. from the welding areas of the body with a hot-air gun or rotary brush.

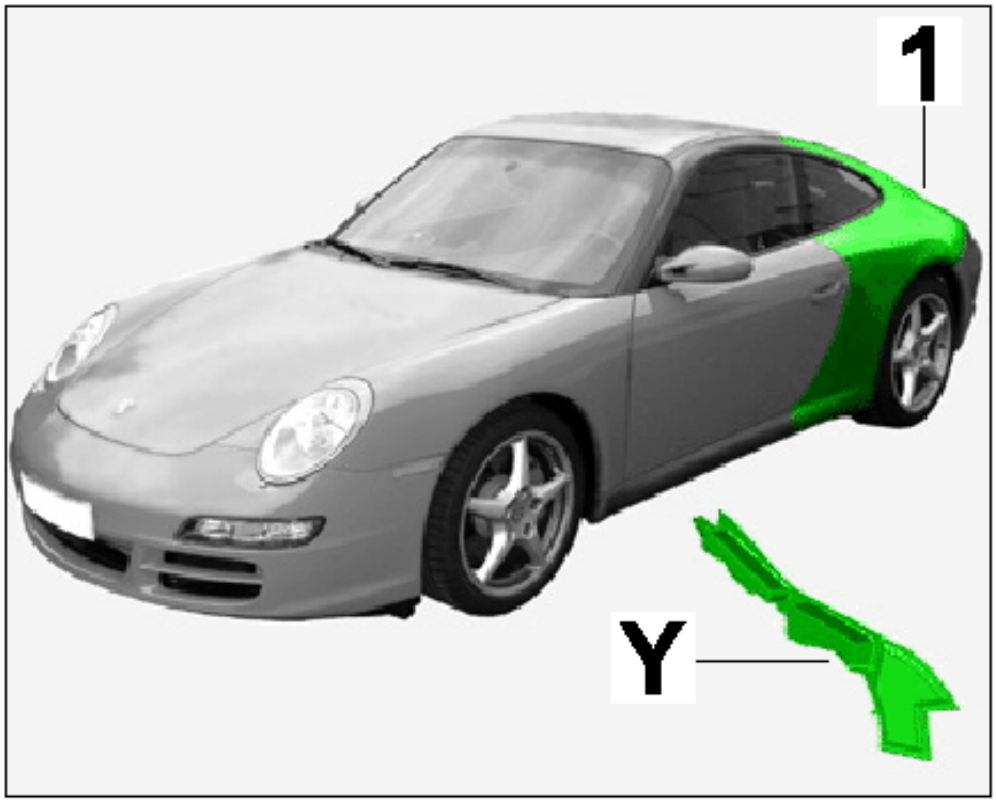
top of page

Removing side section

Removing side section

Removing side section

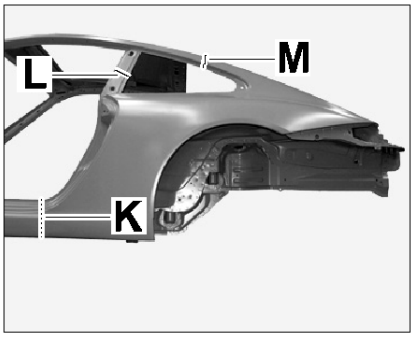
Installation Location:



Side section installation location

1 - Side section

Y - Sealing



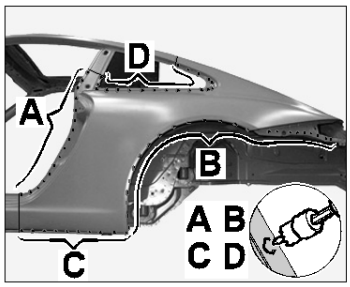
Marking the cut

1. Determine
   cut.

1.1. Position the cut **K** on the lower side member so that the replacement body panel overlaps with the lower side member by approx. 60 mm. Mark the cut.

1.2. Position the cut **L** on the B-pillar so that the replacement body panel overlaps with the B-pillar by approx. 60 mm. Mark the cut.

1.3. Position the cut **M** on the C-pillar so that the replacement body panel overlaps with the C-pillar by approx. 60 mm. Mark the cut.

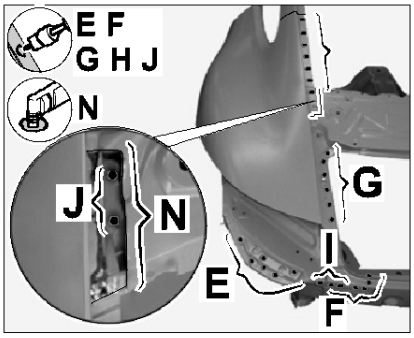


Cutting the spotwelds

2. Mill off spotwelds.

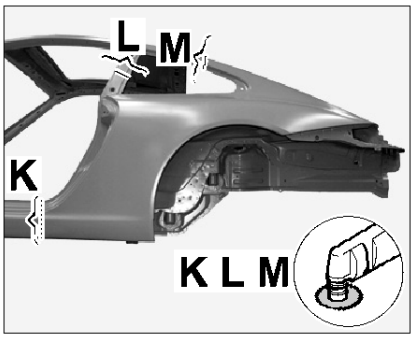
2.1. Using a spotweld cutter, mill off spotwelds in areas **A, B, C, D**.

Mill off spotwelds in areas **E, F, G, H, I** using a spotweld cutter. Use a parting grinder to cut open the gas-shielded arc weld in area **I**.



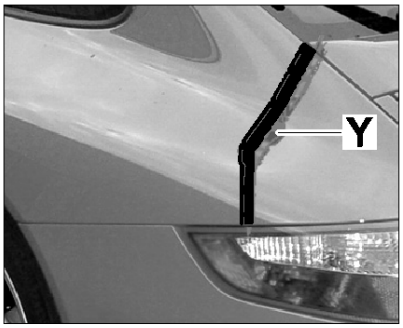
Cutting the spotwelds

Cut out a viewing window from the rear centre section reinforcement **N = dimension 20 x 50 mm** . Using a spotweld cutter, mill off spotwelds in area **J**.



Cutting the side section

3. Cut through the side section at the marked joints **K, L, M**.



Removing expanded sealant

4. Remove expanded sealant

4.1. The side section is factory sealed with expanded sealant **Y** from the light housing to the rear centre section connection. The expanded sealant will be destroyed when replacing the side section and must be replaced.

top of page

Preparing connection areas of the body for installation of the side section

Safety instructions for flying sparks during grinding and welding work

ATTENTION

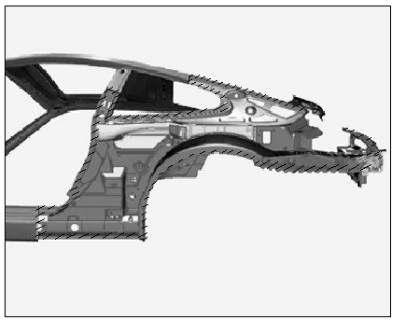
Danger of explosion and fire from flying sparks during grinding and welding work!

- **Danger of injury and danger of damage to vehicle parts and other vehicles due to flying sparks**

Cover vehicle parts such as battery, fuel system, paintwork, glass and passenger compartment parts with fire-proof covers and, if necessary, remove batteries and fuel-carrying components.

No other vehicles may be left unprotected in areas used for body repair!

Preparing connection areas of the body for installation of the side section



Preparing connection areas of the body for installing the side members

1. Clean the body connection flanges of undersealing, adhesive residue and paint in the marked areas using a hot-air gun or rotary brush. Grind the connection flanges until bare.

top of page

Fitting side section and preparing for installation

Safety instructions for sharp-edged body and unit parts

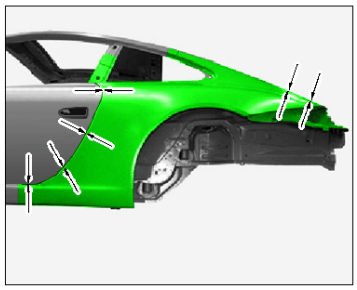
ATTENTION

Danger of injury! Sharp-edge burrs on body and unit parts!

- **Injuries from sharp edges on body and unit parts.**

Wear protective gloves when working in the area of sharp-edged body and unit parts!

Fitting in side section and preparing for installation



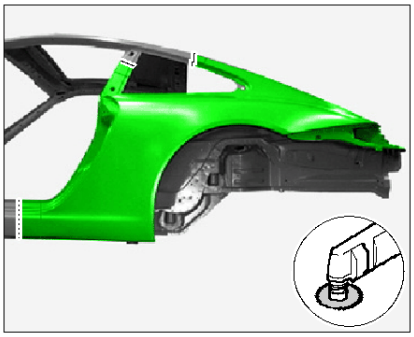
Fit in side section at the rear to the body

1. Fit in side section to the body at the rear

1.1. Cut the replacement part so that there is approx. 60 mm overlap at the joints.

1.2. To complete the fit, install the doors and lid at the rear and set the gap dimensions between the door and lid at the rear and the side section according to the respective adjustment values. *501000 Diagram - body gap dimensions*

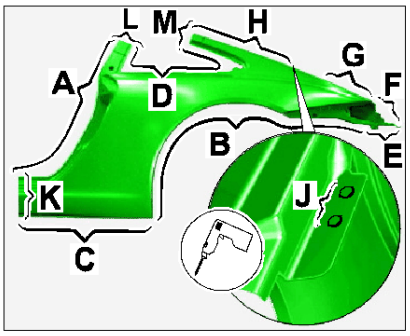
1.3. Fix the side section at the rear with tensioning clamps.



Fitting in side section joints and making the cuts

2. Fit in side section joints and make the cuts

2.1. Use a body saw to cut the two sheetmetal panels in the area of the overlap between the side section and body. Do not damage the internal components when doing this.



Cleaning welding and sealing areas

3. Cleaning welding and sealing areas

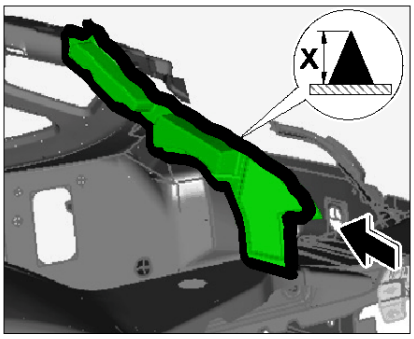
3.1. Grind both sides of the connecting flanges of the side sections in the marked areas A, B, C, D, F, G, H, I, L, J, K, L, M with a rotary brush until they are bright.

3.2. Drill Ø 7 mm holes in area **J** for the plug welds under shielding gas.

top of page

Installing side section

Installing side section

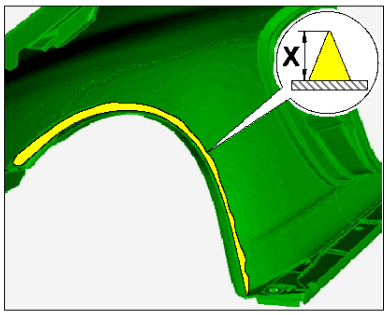


Fitting the seal

1. Install seal

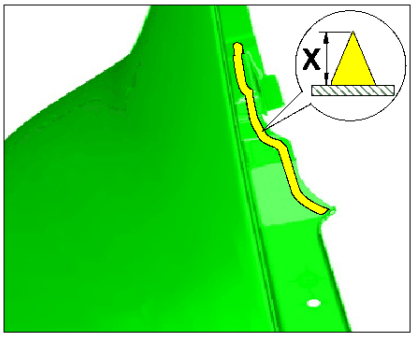
1.1. Apply a triangular bead of body sealant **Y -dimension "X" = approx. 12 mm high** - on all sides of the seal. Apply seal to the prepared holes on the inside of the side section, position the pins of the seal and press into place.

2. Apply adhesive on the side section



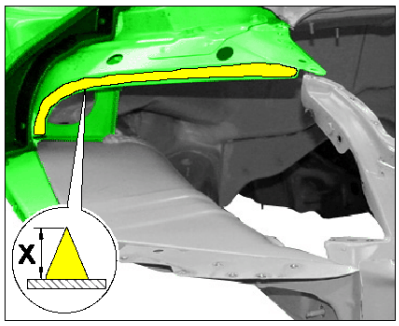
Apply adhesive on the side section

2.1. Apply the adhesive as a triangular bead - dimension "X" = approx. 8 mm - on the inside of the side section, along the wheel arch and up to the start of the sill.



Apply adhesive on the side section

2.2. Apply the adhesive material (replacement part: Klebt und Dichtet from Würth) as a triangular bead - dimension "X" approx. 4 mm. - on the area of the side section at the transition to the rear centre section.



Applying adhesive on the inside of the side section

3. Apply adhesive on the inside of the side section

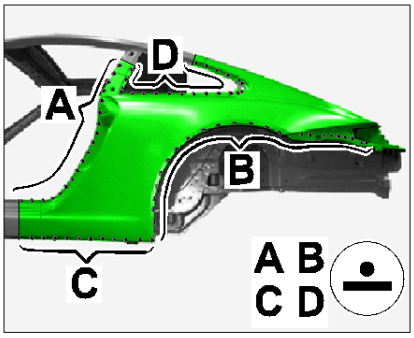
WARNING

Risk of damage if the processing time is not observed!

- **The quality of the joint will be affected if the adhesive processing time is not observed.**

The new part must be welded within 30 minutes in the area of the adhesive, otherwise the adhesion of the adhesive will be affected.

3.1. Apply a triangular bead of adhesive (Teromix-6700) - dimension "X" = approx. 10 mm high - on the connection between the light housing and the inside of the side section. The light housing must lie flush with the inside of the side section.



Welding in the side section

4. Weld in the side section

4.1. Fix the side section at the rear with tensioning clamps.

4.2. Tack-weld the side section at the rear.

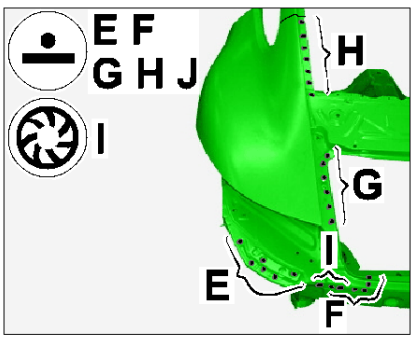
WARNING

Welding in body components

- **Danger of injury and material damage**

Once the spare parts have been attached, repair spotwelds must be placed on the old spotwelds because there is no current flow possible in areas with a hardened bonded layer. Welding procedures other than resistance spot-welding are not permitted since the thermal effect would destroy the bonded joint over a wide area. 5000IN IN - Processing structural body adhesives - section on "Welding in body components" [997410 997411] 5000IN IN - Processing structural body adhesives - section on "Welding in body components" [997430 997431] 5000IN IN - Processing structural body adhesives - section on "Welding in body components" [997110 997111 997120 997121]

4.3. Spot weld areas **A, B, C, D** of the side section.

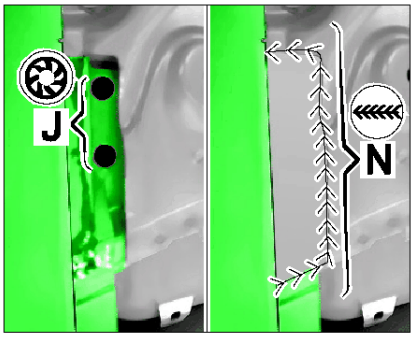


Welding in the side section

5. Weld in the side section

5.1. Spot weld areas **E, F, G, H** of the side section.

5.2. Plug-weld side section in area **I** under shielding gas.

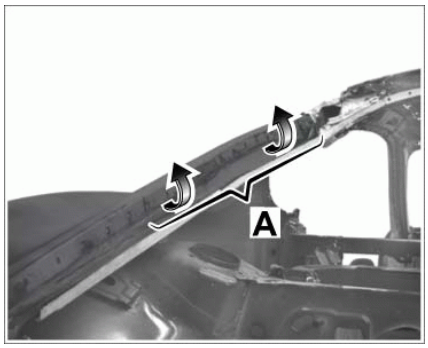


Welding in viewing window

6. Weld in viewing window

6.1. Plug-weld side section in area **J** under shielding gas.

6.2. Weld viewing window **N** of rear centre section reinforcement with a continuous weld under shielding gas.



Welding joints under shielding gas

7. Weld joints under shielding gas

7.1. Weld joints **K, L, M** (lower side member, B-pillar, C-pillar) with a continuous weld under shielding gas.

top of page

Subsequent work

Subsequent work for body repairs

1. Removing vehicle from straightening bench
2. Cleaning spot-welded joints and sheetmetal flanges with a wire brush
3. Priming flange areas with 2K primer
4. Restore standard sealing with body sealant
   501000 Seam seal
5.

Restore standard undersealing with underbody sealant
501000 Undersealing

6. Painting repair area and adjacent surfaces, if necessary
7. Install removed add-on parts in the repair area
8. Apply cavity preservation.

997110, 997111, 997120, 997121, 997410, 997411, 997430, 997431

as of MY 2005
Country C00, C02, C05, C07, C08, C09, C10, C11, C12, C13, C14, C15, C16, C18, C19, C20, C21, C22, C23, C24, C25, C26, C27, C28, C32, C33, C34, C35, C36, C37, C38, C39, C45, C46, C98, C99

WARNUNG

Gefahr des Verlusts der Text-Bild-Zuordnung beim Ausdruck.

- **Aus technischen Gründen kann derzeit nicht ausgeschlossen werden, dass trotz einwandfreier Darstellung auf dem Bildschirm beim Ausdruck der Zusammenhang von Text und zugehörigem Bild verloren geht.**
- **Wird der Fehler nicht bemerkt, besteht die Gefahr, daß Arbeiten nicht korrekt durchgeführt werden und es dadurch zu Personen- und Sachschäden kommt.**

Vergleichen Sie deshalb nach dem Druckvorgang unbedingt die Ausdrucke mit der Bildschirmdarstellung. Korrigieren Sie die Ausdrucke im Fehlerfall so, daß der Inhalt der Bildschirmdarstellung zutreffend wiedergegeben wird.

WARNING

Danger of losing text-figure correspondence when printing out.

- **For technical reasons, it can currently not be ruled out that the correspondence between text and associated figure can be lost when it is printed out, even though the display on the screen is correct.**
- **If the fault is not noticed, there is the danger that work will not be performed correctly which can cause injury and damage.**

Therefore, always compare printouts with the screen display after printing them out. Correct the printouts if they are faulty so that the content of the screen display matches that on the printouts.

AVERTISSEMENT

Risque de perte de la correspondance texte-illustration lors de l'impression papier.

- **Pour des raisons techniques, il ne peut pas être exclu à l'heure actuelle que, même en cas d'affichage correct à l'écran, la correspondance entre le texte et l'illustration puisse être erronée sur l'impression papier.**

53 55 55 Replacing side section - as of MY 2005

- General warning notes
- Tools and materials
- Removing side section
- Preparing connection areas of the body for installing the side section
- Installing side section
- Subsequent work

Tools

Designation	Type	Number	Explanation	
Pneumatic body saw No. PS1, see Gr. 3.5; Workshop Equipment Manual	commercially available tool	00000		
Press-out tool	special tool	97290		
Star gauges for body gap dimensions	commercially available tool	NR.127-1		
Spotweld drill	commercially available tool	NR.129		

Inverter welding equipment ATL Inverterspot	workshop equipment	WE1194		PORSCHE siehe Handbuch Werkstattausrüstung Voir le Manuel Equipement d´atelier Refer to the Workshop Equipment manual Vease Manual de Equipamiento de Taller Vedere il Manuale dell´attrezzatura d´officina ワークショップ・イクイップメント・マニュアルを参照

top of page

General warning notes

Safety instructions for body repairs

5 AW Safety instructions - General warning notes

top of page

Tools and materials

Tools and materials

Spotweld drill NR.129 **Star gauges for body gap dimensions NR.127-1**
Press-out tool 97290
Pneumatic body saw No. PS1, see Gr. 3.5; Workshop Equipment Manual 00000
Angle grinder, see Gr. 3.5; see Workshop Equipment Manual 00000
Oscillating body saw (special electrical cutter), see Gr. 3.5; Workshop Equipment Manual 00000
Rotary brush, see Gr. 3.5; Workshop Equipment Manual 00000
Hole punch, see Gr. 3.5; Workshop Equipment Manual 00000
Leister Elektron hot-air gun, see Gr. 3.5; Workshop Equipment Manual 00000
Inverter welding equipment ATL Inverterspot WE1194
Basic straightening attachments for 911 Carrera (996), see Gr. 3.5; Workshop Equipment Manual 00000
Additional straightening attachments for 911 Carrera (997), see Gr. 3.5; Workshop Equipment Manual 00000
Pneumatic spotweld remover, Vario Drill No. WS 90, see Gr. 3.5; Workshop Equipment Manual 00000

Preliminary work for body repairs

Note

- *If it can be ensured there has been no deformation of the vehicle structure, the following repair can be carried out without the need of a straightening bench. In this case, the vehicle must not be raised when welding the component; it must stand on its wheels on an even surface.*

1. Removing add-on parts in the repair area
1.1. Remove add-on parts in the repair area according to the extent of damage to the vehicle.
2. Equipping straightening bench with straightening attachments
2.1. Equip straightening bench with the straightening attachments according to the plans included with the straightening attachments.
3. Placing vehicle on the straightening bench
3.1. Position vehicle on the straightening bench, align according to the reference holes and bolt firmly to the attachment set.
4. Covering add-on parts adjacent to the vehicle repair area
4.1. Cover all add-on parts remaining on the vehicle and the neighbouring areas with fire-proof, protective covers.
5. Reshaping connection area of the sheetmetal parts to be replaced
6. Exposing welding areas
6.1. Remove undersealing, paint, etc. from the welding areas of the body with a hot-air gun or rotary brush.

Preliminary work for body repairs with alignment bench

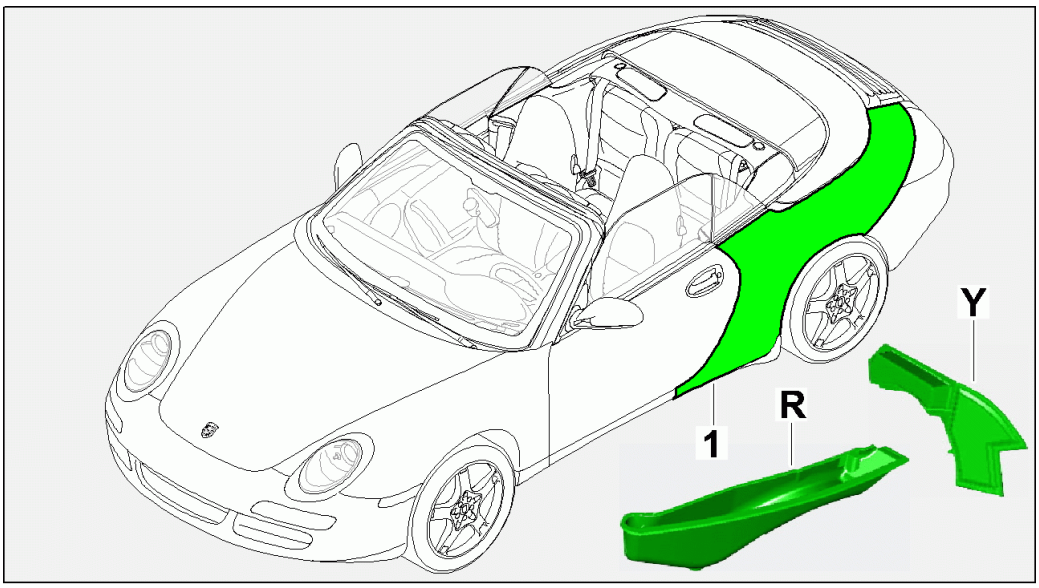
1. Removing accessories in the repair area
1.1. Remove accessories in the repair area according to the extent of damage to the vehicle.
2. Equipping alignment bench with straightening kit
2.1. Equip alignment bench with the basic straightening attachments according to the plans included with the straightening attachments.
3. Placing vehicle on the alignment bench
3.1. Position vehicle on alignment bench, align according to the reference holes and bolt firmly to the attachment set.
4. Covering accessories adjacent to the vehicle repair area
4.1. Cover all accessories remaining on the vehicle and the neighbouring areas with fire-proof, protective covers.
5. Reshaping connection area of the sheetmetal parts to be replaced
6. Exposing welding areas
6.1. Remove undersealing, paint, etc. from the welding areas of the body with a hot-air gun or rotary brush.

top of page

Removing side section

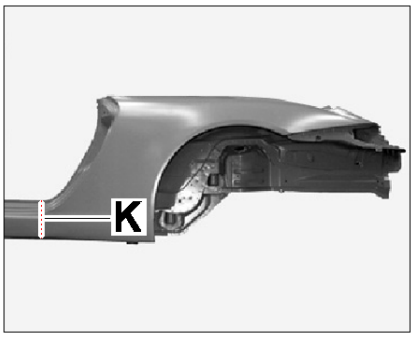
Removing side section

Installation Location:



Installation position for side section

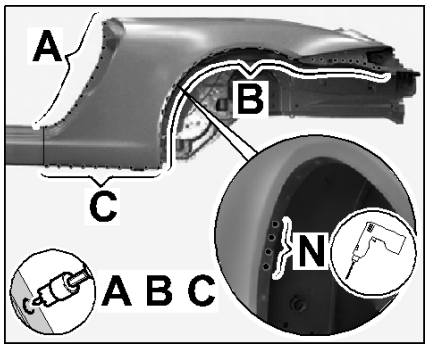
1 - Side section
Y - Seal
R - Water drip pan



Marking the cut

1. Determine cut.

1.1. Position the cut **K** on the lower side member so that the replacement body panel overlaps with the lower side member by approx. 60 mm. Mark the cut.

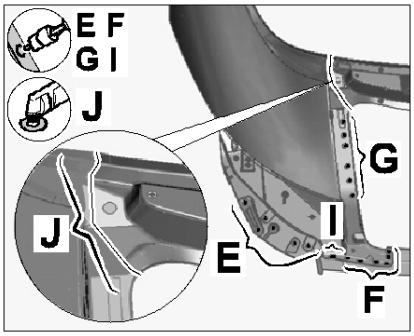


Milling off spotwelds

2. Milling off spotwelds

2.1. Use a spotweld cutter to mill off spotwelds in areas **A, B, C**.

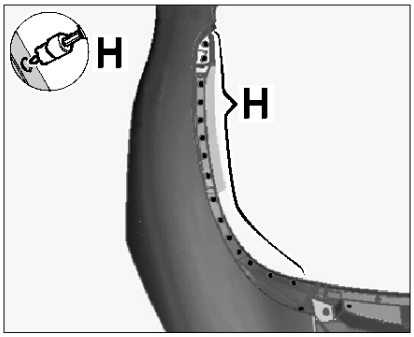
In area **N** (Inset), the underlying reinforcement weld to the side section must be milled off (4 spot-weld connections).



Milling off spotwelds

3. Milling off spotwelds

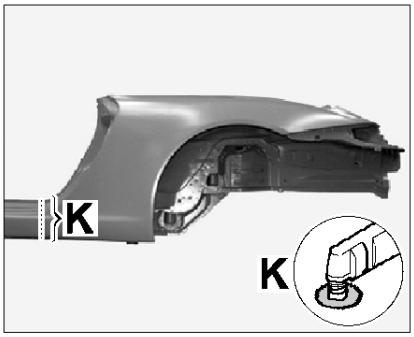
Mill off spotwelds in areas **E, F, G, J** using a spotweld cutter. Separate inert-gas welded seam in area **I** using a parting grinder.



Milling off spotwelds

4. Milling off spotwelds

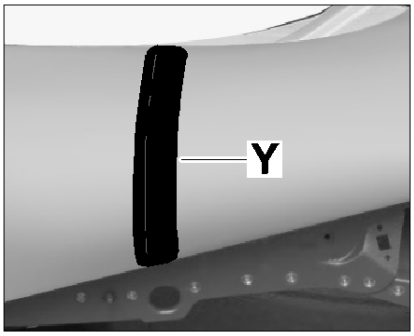
Mill off spot welds in area **H** using a spotweld cutter.



Cutting the side section

5. Cutting the side section

   Cut through the side section at the marked separation point **K** using the oscillating body saw.



Removing expanded sealant

6. Removing expanded sealant

6.1. The side section is factory-sealed with expanded sealant **Y** from the light housing to the rear centre panel joint. The expanded sealant will be destroyed when you change the side section and must be replaced.

top of page

Preparing connection areas of the body for installing the side section

Safety instructions for flying sparks during grinding and welding work

ATTENTION

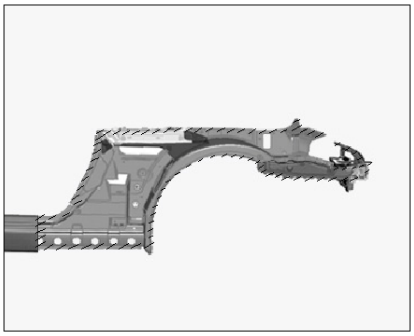
Danger of explosion and fire from flying sparks during grinding and welding work!

- **Danger of injury and danger of damage to vehicle parts and other vehicles due to flying sparks**

Cover vehicle parts such as battery, fuel system, paintwork, glass and passenger compartment parts with fire-proof covers and, if necessary, remove batteries and fuel-carrying components.

No other vehicles may be left unprotected in areas used for body repair!

Preparing connection areas of the body for installing the side section



Preparing connection areas of the body for installing the side members

1. Clean the body connection flanges of undersealing, adhesive residue and paint in the marked areas using a hot-air gun or rotary brush. Grind the connection flanges until bare.

Safety instructions for sharp-edged body and unit parts

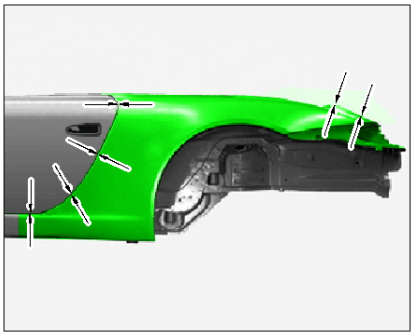
ATTENTION

Danger of injury! Sharp-edge burrs on body and unit parts!

- **Injuries from sharp edges on body and unit parts.**

Wear protective gloves when working in the area of sharp-edged body and unit parts!

Fitting side section and preparing for installation



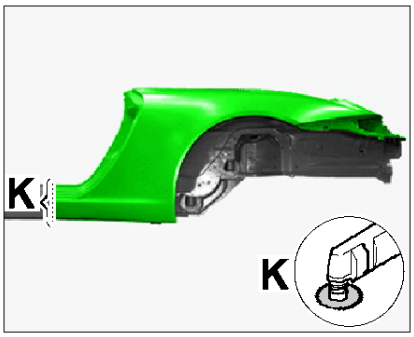
Fitting side section to the body at the rear

1. Fitting side section to the body at the rear

1.1. Cut the replacement part so that there is approx. 60 mm overlap at the joints.

1.2. To complete the fit, install the doors and lid at the rear and set the gap dimensions between the door and lid at the rear and the side section according to the respective adjustment values. *501000 Diagram - body gap dimensions*

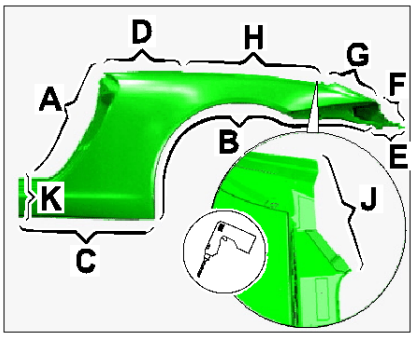
1.3. Secure the side section at the rear with tensioning clamps.



Cutting through side section joint

2. Cutting through side section joints

Cut through the side section at the marked separation point **K** using the oscillating body saw.



Cleaning welding and sealing areas

3. Cleaning welding and sealing areas

3.1. Grind both sides of the connecting flanges of the side section in the marked areas **A, B, C, D, F, G, H, I, J, K, L** until they are bare using a rotary brush.

top of page

Installing side section

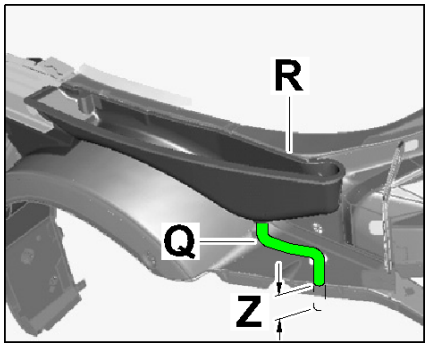
Installing side section

WARNING

Welding in body components

- **Danger of injury and material damage**

Once the spare parts have been attached, repair spotwelds must be placed on the old spotwelds because there is no current flow possible in areas with a hardened bonded layer. Welding procedures other than resistance spot-welding are not permitted since the thermal effect would destroy the bonded joint over a wide area. 5000IN IN - Processing structural body adhesives - section on "Welding in body components"



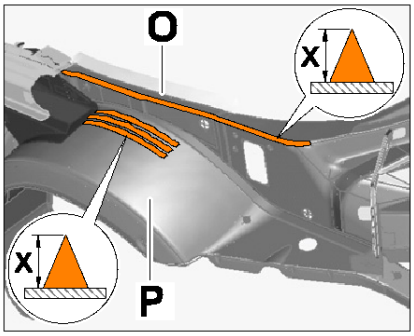
Fitting water drain hose

1. Fitting in water drain hose

   Press water drain hose **Q** through the water drip pan **R**; observe specified marking. The groove of the water drain hose must fit all the way around the hole in the water drip pan. Route water drain hose through the grommet to the wheel housing and cut the hose so that approx. **dimension Z = 35 mm** projects outwards.

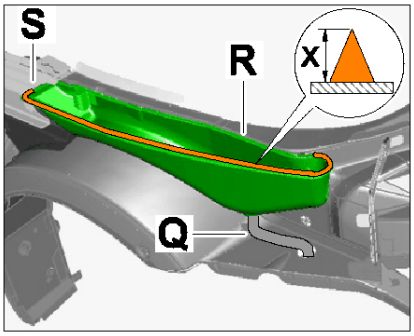
2. Installing water drip pan

2.1. Apply a triangular bead of body sealant **- dimension "X" = approx. 12 mm high -** to the inside of the side section **O**.



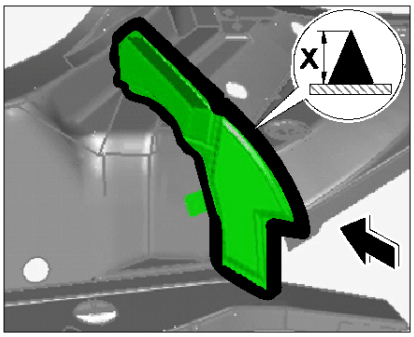
Applying body sealant

Apply a triangular bead of body sealant **- dimension "X" = approx. 12 mm high -** to the wheel housing in area **P**.



Installing water drip pan

Position water drip pan **R** on the inside of the side section and press on firmly. Route the water drain hose **Q**. Apply a triangular bead of body sealant **- dimension "X" = approx. 12 mm high -** to the outside of the side section **S**.



Fitting the seal

3. Installing seal

3.1. Apply a triangular bead of body sealant **Y -dimension "X" = approx. 12 mm high** - to all sides of the seal. Apply seal to the prepared holes on the inside of the side section, position the pins of the seal and press into place.

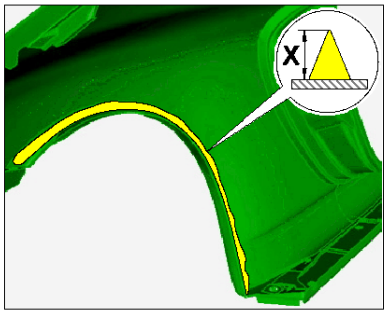
4. Applying adhesive to the side section

WARNING

Risk of damage if the processing time is not observed!

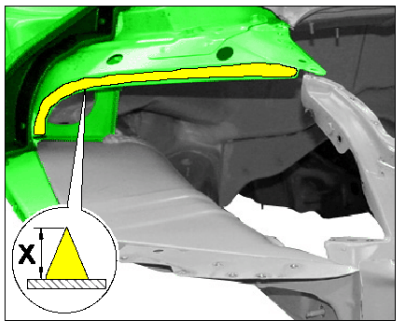
- **The quality of the joint will be affected if the adhesive processing time is not observed.**

The new part must be welded within 30 minutes in the area of the adhesive, otherwise the adhesion of the adhesive will be affected.



Applying adhesive to the side section

4.1. Apply a triangular bead of adhesive measuring **- dimension "X" = approx. 8 mm -** to the inside of the side section, along the edge of the wheel arch and up to the start of the door sill.



Applying adhesive to the inside of the side section

5. Applying adhesive to the inside of the side section

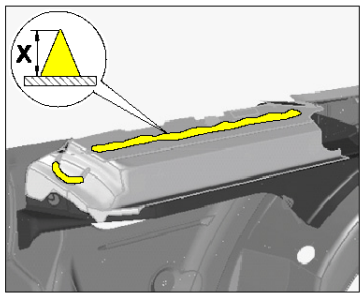
WARNING

Risk of damage if the processing time is not observed!

- **The quality of the joint will be affected if the adhesive processing time is not observed.**

The new part must be welded within 30 minutes in the area of the adhesive, otherwise the adhesion of the adhesive will be affected.

5.1. Apply a triangular bead of adhesive (Teromix-6700) **- dimension "X" = approx. 10 mm high -** to the joint between the light housing and the inside of the side section. The light housing must lie flush with the inside of the side section.



Applying adhesive to the window slot reinforcement

6. Applying adhesive to the window slot reinforcement

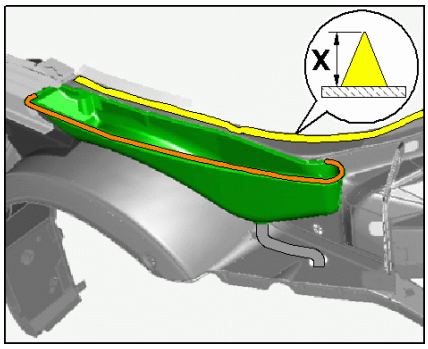
WARNING

Risk of damage if the processing time is not observed!

- **The quality of the joint will be affected if the adhesive processing time is not observed.**

The new part must be welded within 30 minutes in the area of the adhesive, otherwise the adhesion of the adhesive will be affected.

6.1. Apply a triangular bead of adhesive (Teromix-6700) **- dimension "X" = approx. 10 mm high -** to the joint between the window slot reinforcement and the side section.



Applying adhesive to the inside of the side section

7. Applying adhesive to the inside of the side section

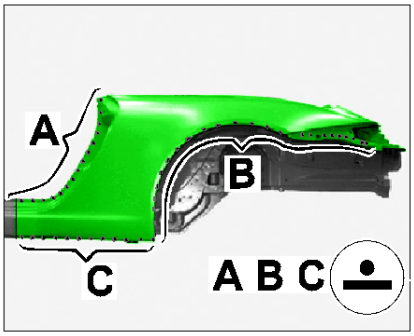
WARNING

Risk of damage if the processing time is not observed!

- **The quality of the joint will be affected if the adhesive processing time is not observed.**

The new part must be welded within 30 minutes in the area of the adhesive, otherwise the adhesion of the adhesive will be affected.

7.1. Apply a triangular bead of adhesive (Teromix-6700) **- dimension "X" = approx. 10 mm high -** to the inside of the side section in area **V**.



Welding in the side section

8. Welding in the side section

8.1. Secure the side section at the rear with tensioning clamps.

8.2. Tack-weld the side section at the rear.

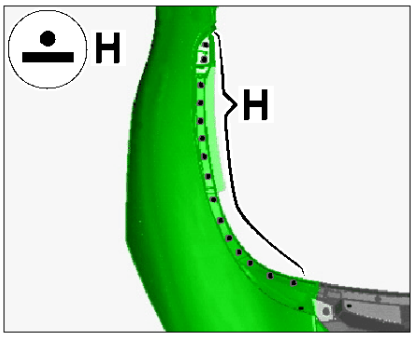
WARNING

Risk of damage if the processing time is not observed!

- **The quality of the joint will be affected if the adhesive processing time is not observed.**

The new part must be welded within 30 minutes in the area of the adhesive, otherwise the adhesion of the adhesive will be affected.

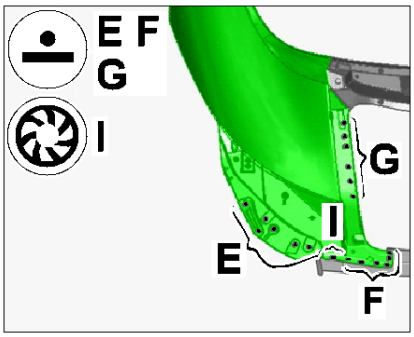
8.3. Resistance spot-weld areas **A, B, C** of the side section.



Welding in the side section

9. Welding in the side section

9.1. Resistance spot-weld area **H** of the side section.

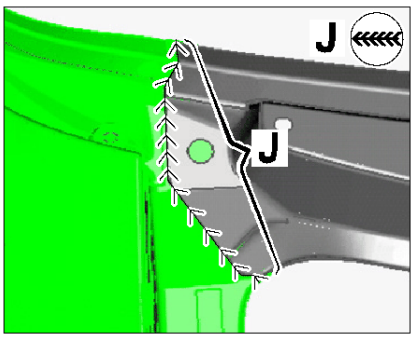


Welding in the side section

10. Welding in the side section

10.1. Resistance spot-weld areas **E, F, G** of the side section.

10.2. Plug-weld the side section in area **I** using inert gas.



Welding joints using inert gas

11. Welding joint using inert gas

11.1. Apply a full weld to joint **J** of lower side member using inert gas.

top of page

Subsequent work

Subsequent work for body repairs

1. Removing vehicle from straightening bench
2. Cleaning spot-welded joints and sheetmetal flanges with a wire brush
3. Priming flange areas with 2K primer
4. Restore standard sealing with body sealant
   501000 Seam seal
5. Restore standard undersealing with underbody sealant
   501000 Undersealing
6. Painting repair area and adjacent surfaces, if necessary
7. Install removed add-on parts in the repair area
8. Apply cavity preservation.

997310, 997311, 997320, 997321

as of MY 2005
Country C00, C02, C05, C07, C08, C09, C10, C11, C12, C13, C14, C15, C16, C18, C19, C20, C21, C22, C23, C24, C25, C26, C27, C28, C32, C33, C34, C35, C36, C37, C38, C39, C45, C46, C98, C99

WARNUNG

53 55 55 Replacing side section - as of MY 2005

- General warning notes
- Tools and materials
- Removing side section
- Preparing connection areas of the body for installing the side section
- Installing side section

top of page

General warning notes

Safety instructions for body repairs

5 AW Safety instructions - General warning notes

top of page

Tools and materials

Preliminary work for body repairs

Note

- *If it can be ensured there has been no deformation of the vehicle structure, the following repair can be carried out without the need of a straightening bench. In this case, the vehicle must not be raised when welding the component; it must stand on its wheels on an even surface.*

1. Removing accessories in the repair area

1.1. Remove accessories in the repair area according to the extent of damage to the vehicle.

2. Equipping alignment bench with straightening kit

2.1. Equip alignment bench with the basic straightening attachments according to the plans included with the straightening attachments.

3. Placing vehicle on the alignment bench

3.1. Position vehicle on straightening bench, align according to the reference holes and firmly bolt to the straightening set.

4. Covering accessories adjacent to the repair area on the vehicle

4.1. Cover all accessories remaining on the vehicle and the neighbouring areas with fire-proof, protective covers.

5. Reshaping connection area of the sheetmetal parts to be replaced
6. Exposing welding areas

6.1. Remove undersealing, paint, etc. from the welding areas of the body with a hot-air gun or rotary brush.

Preliminary work for body repairs with alignment bench

1. Removing accessories in the repair area

1.1. Remove accessories in the repair area according to the extent of damage to the vehicle.

2. Equipping alignment bench with straightening kit

2.1. Equip alignment bench with the basic straightening attachments according to the plans included with the straightening attachments.

3. Placing vehicle on the alignment bench

3.1. Position vehicle on alignment bench, align according to the reference holes and bolt firmly to the attachment set.

4. Covering accessories adjacent to the vehicle repair area

4.1. Cover all accessories remaining on the vehicle and the neighbouring areas with fire-proof, protective covers.

5. Reshaping connection area of the sheetmetal parts to be replaced
6. Exposing welding areas

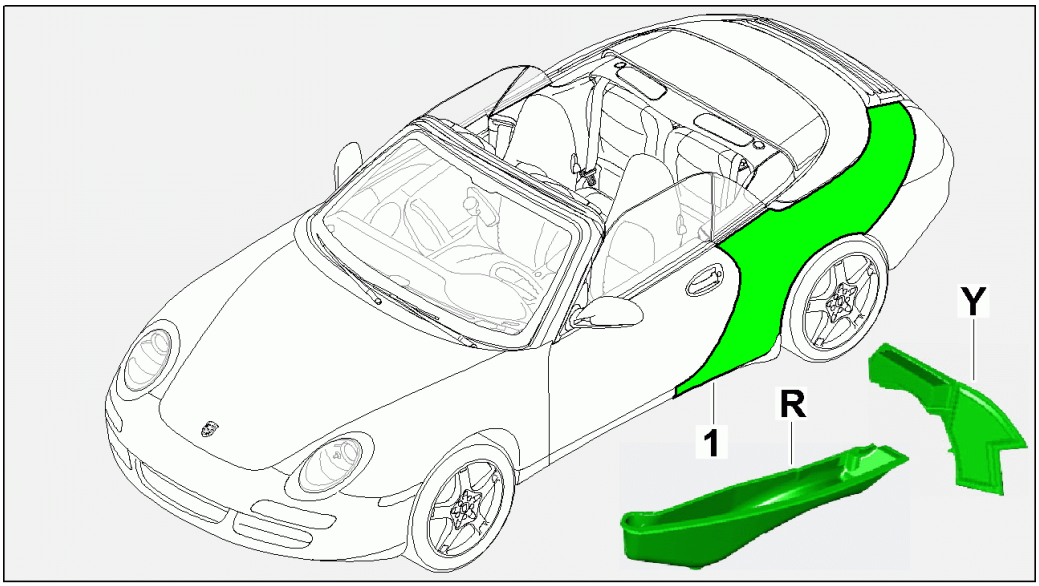
6.1. Remove undersealing, paint, etc. from the welding areas of the body with a hot-air gun or rotary brush.

top of page

Removing side section

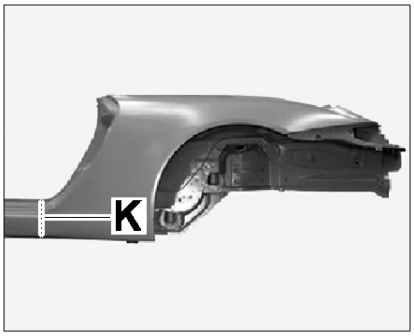
Removing side section

Installation Location:



Installation position for side section

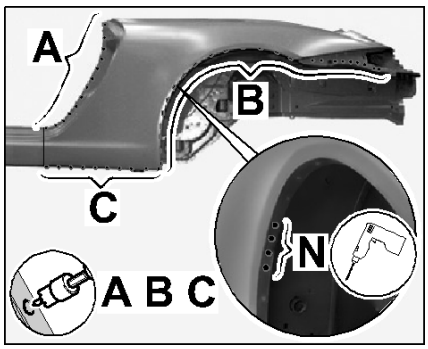
1 - Side section
Y - Seal
R - Water drip pan



Marking the cut

1. Determine cut.

1.1. Position the cut **K** on the lower side member so that the replacement body panel overlaps with the lower side member by approx. 60 mm. Mark the cut.

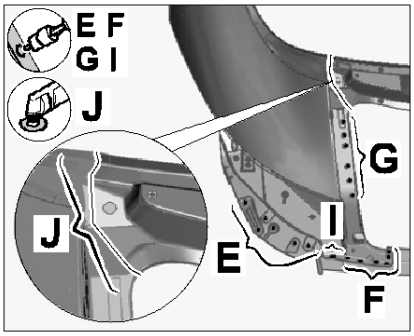


Milling off spotwelds

2. Milling off spotwelds

2.1. Use a spotweld cutter to mill off spotwelds in areas **A, B, C**.

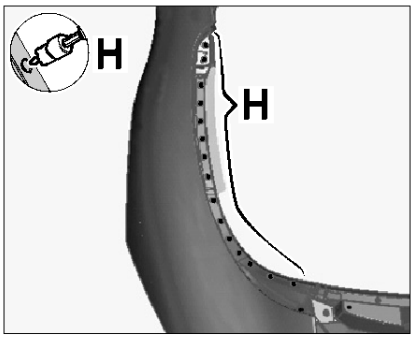
In area **N** (Inset), the underlying reinforcement weld to the side section must be milled off (4 spot-weld connections).



Milling off spotwelds

3. Milling off spotwelds

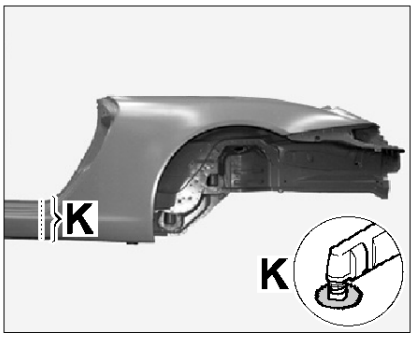
Mill off spotwelds in areas **E, F, G, J** using a spotweld cutter. Separate inert-gas welded seam in area **I** using a parting grinder.



Milling off spotwelds

4. Milling off spotwelds

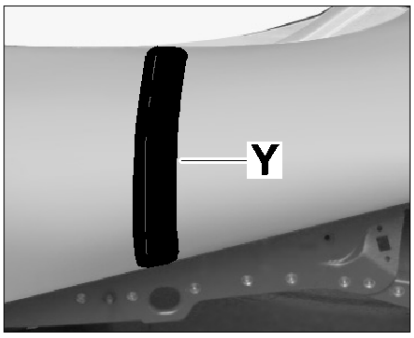
Mill off spot welds in area **H** using a spotweld cutter.



Cutting the side section

5. Cutting the side section

Cut through the side section at the marked separation point **K** using the oscillating body saw.



Removing expanded sealant

6. Removing expanded sealant

6.1. The side section is factory-sealed with expanded sealant **Y** from the light housing to the rear centre panel joint. The expanded sealant will be destroyed when you change the side section and must be replaced.

top of page

Preparing connection areas of the body for installing the side section

Safety instructions for flying sparks during grinding and welding work

ATTENTION

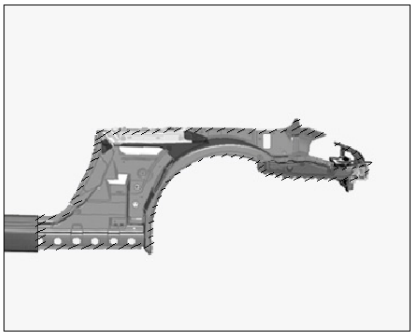
Danger of explosion and fire from flying sparks during grinding and welding work!

- **Danger of injury and danger of damage to vehicle parts and other vehicles due to flying sparks**

Cover vehicle parts such as battery, fuel system, paintwork, glass and passenger compartment parts with fire-proof covers and, if necessary, remove batteries and fuel-carrying components.

No other vehicles may be left unprotected in areas used for body repair!

Preparing connection areas of the body for installing the side section



Preparing connection areas of the body for installing the side members

1. Clean the body connection flanges of undersealing, adhesive residue and paint in the marked areas using a hot-air gun or rotary brush. Grind the connection flanges until bare.

Safety instructions for sharp-edged body and unit parts

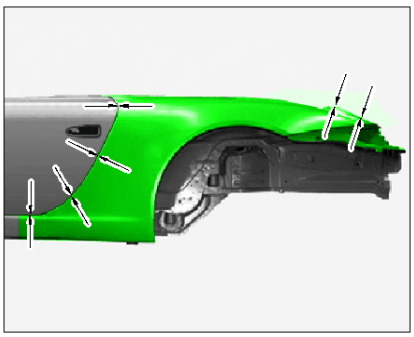
ATTENTION

Danger of injury! Sharp-edge burrs on body and unit parts!

- **Injuries from sharp edges on body and unit parts.**

Wear protective gloves when working in the area of sharp-edged body and unit parts!

Fitting side section and preparing for installation



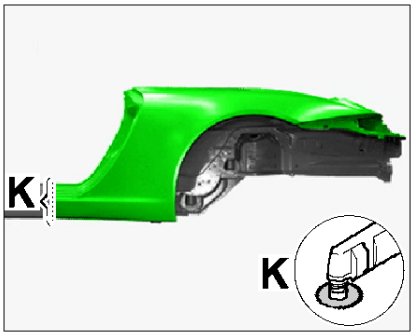
Fitting side section to the body at the rear

1. Fitting side section to the body at the rear

1.1. Cut the replacement part so that there is approx. 60 mm overlap at the joints.

1.2. To complete the fit, install the doors and lid at the rear and set the gap dimensions between the door and lid at the rear and the side section according to the respective adjustment values. *501000 Diagram - body gap dimensions*

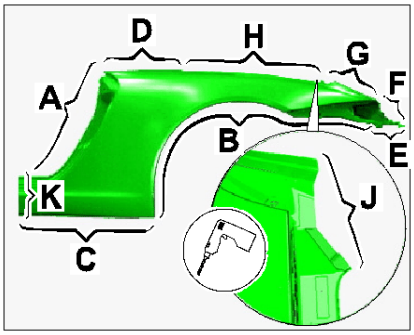
1.3. Secure the side section at the rear with tensioning clamps.



Cutting through side section joint

2. Cutting through side section joints

   Cut through the side section at the marked separation point **K** using the oscillating body saw.



Cleaning welding and sealing areas

3. Cleaning welding and sealing areas

3.1. Grind both sides of the connecting flanges of the side section in the marked areas **A, B, C, D, F, G, H, I, J, K, L** until they are bare using a rotary brush.

top of page

Installing side section

Installing side section

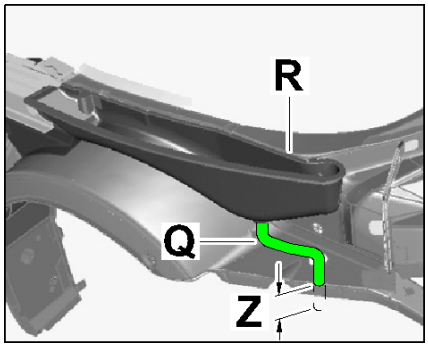
WARNING

Welding in body components

- **Danger of injury and material damage**

Once the spare parts have been attached, repair spotwelds must be placed on the old spotwelds because there is no current flow possible in areas with a hardened bonded layer. Welding procedures other than

resistance spot-welding are not permitted since the thermal effect would destroy the bonded joint over a wide area. 5000IN IN - Processing structural body adhesives - section on "Welding in body components"



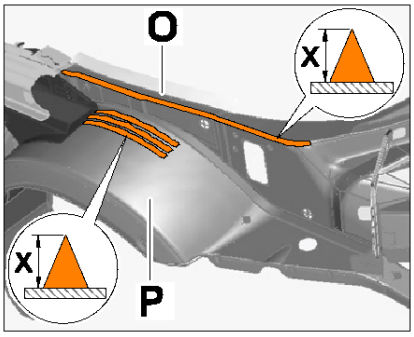
Fitting water drain hose

1. Fitting in water drain hose

   Press water drain hose **Q** through the water drip pan **R**; observe specified marking. The groove of the water drain hose must fit all the way around the hole in the water drip pan. Route water drain hose through the grommet to the wheel housing and cut the hose so that approx. **dimension Z = 35 mm** projects outwards.

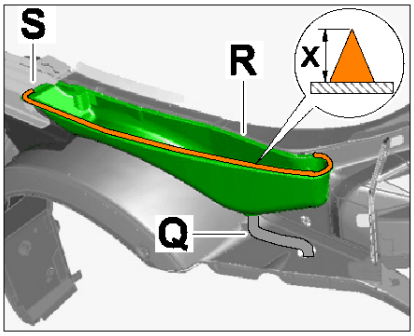
2. Installing water drip pan

2.1. Apply a triangular bead of body sealant **- dimension "X" = approx. 12 mm high -** to the inside of the side section **O**.



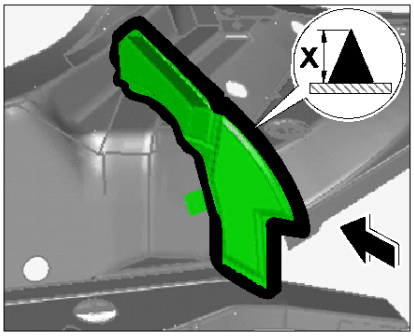
Applying body sealant

Apply a triangular bead of body sealant **- dimension "X" = approx. 12 mm high -** to the wheel housing in area **P**.



Installing water drip pan

Position water drip pan **R** on the inside of the side section and press on firmly. Route the water drain hose **Q**. Apply a triangular bead of body sealant **- dimension "X" = approx. 12 mm high -** to the outside of the side section **S**.



Fitting the seal

3. Installing seal

3.1. Apply a triangular bead of body sealant **Y -dimension "X" = approx. 12 mm high** - to all sides of the seal. Apply seal to the prepared holes on the inside of the side section, position the pins of the seal and press into place.

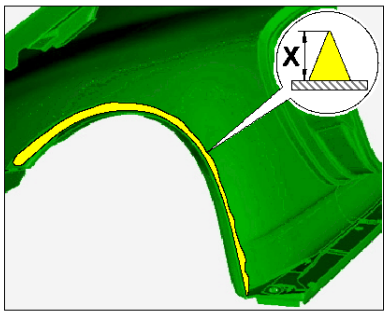
4. Applying adhesive to the side section

WARNING

Risk of damage if the processing time is not observed!

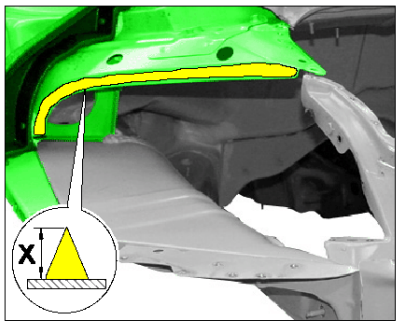
- **The quality of the joint will be affected if the adhesive processing time is not observed.**

The new part must be welded within 30 minutes in the area of the adhesive, otherwise the adhesion of the adhesive will be affected.



Applying adhesive to the side section

4.1. Apply a triangular bead of adhesive measuring **- dimension "X" = approx. 8 mm -** to the inside of the side section, along the edge of the wheel arch and up to the start of the door sill.



Applying adhesive to the inside of the side section

5. Applying adhesive to the inside of the side section

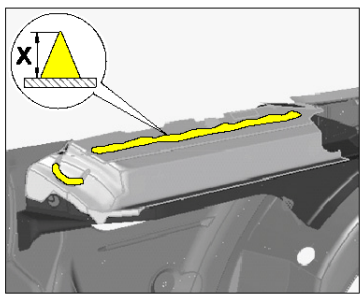
WARNING

Risk of damage if the processing time is not observed!

- **The quality of the joint will be affected if the adhesive processing time is not observed.**

The new part must be welded within 30 minutes in the area of the adhesive, otherwise the adhesion of the adhesive will be affected.

5.1. Apply a triangular bead of adhesive (Teromix-6700) **- dimension "X" = approx. 10 mm high -** to the joint between the light housing and the inside of the side section. The light housing must lie flush with the inside of the side section.



Applying adhesive to the window slot reinforcement

6. Applying adhesive to the window slot reinforcement

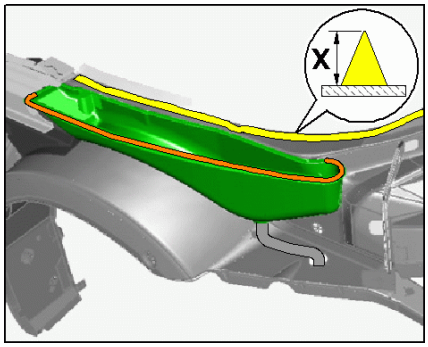
WARNING

Risk of damage if the processing time is not observed!

- **The quality of the joint will be affected if the adhesive processing time is not observed.**

The new part must be welded within 30 minutes in the area of the adhesive, otherwise the adhesion of the adhesive will be affected.

6.1. Apply a triangular bead of adhesive (Teromix-6700) **- dimension "X" = approx. 10 mm high -** to the joint between the window slot reinforcement and the side section.



Applying adhesive to the inside of the side section

7. Applying adhesive to the inside of the side section

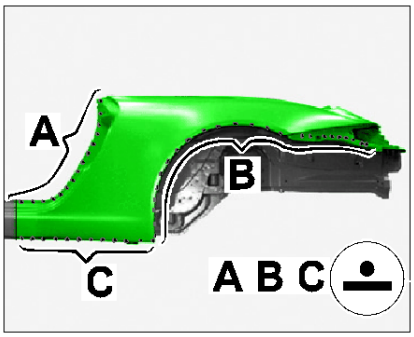
WARNING

Risk of damage if the processing time is not observed!

- **The quality of the joint will be affected if the adhesive processing time is not observed.**

The new part must be welded within 30 minutes in the area of the adhesive, otherwise the adhesion of the adhesive will be affected.

7.1. Apply a triangular bead of adhesive (Teromix-6700) **- dimension "X" = approx. 10 mm high -** to the inside of the side section in area **V**.



Welding in the side section

8. Welding in the side section

8.1. Secure the side section at the rear with tensioning clamps.

8.2. Tack-weld the side section at the rear.

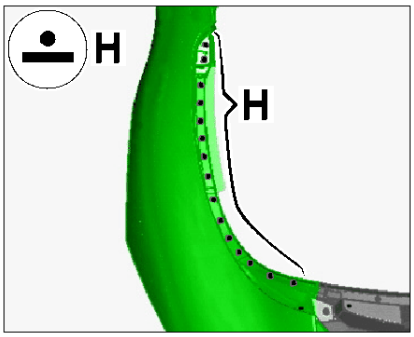
WARNING

Risk of damage if the processing time is not observed!

- **The quality of the joint will be affected if the adhesive processing time is not observed.**

The new part must be welded within 30 minutes in the area of the adhesive, otherwise the adhesion of the adhesive will be affected.

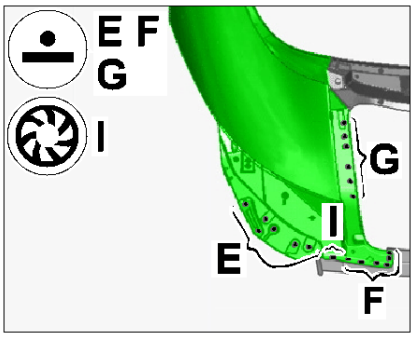
8.3. Resistance spot-weld areas **A, B, C** of the side section.



Welding in the side section

9. Welding in the side section

9.1. Resistance spot-weld area **H** of the side section.

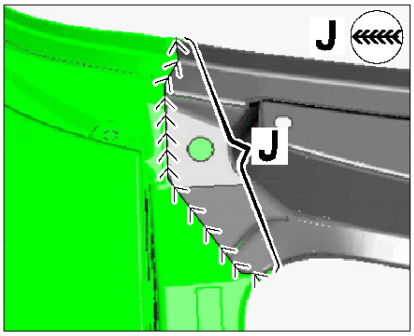


Welding in the side section

10. Welding in the side section

10.1. Resistance spot-weld areas **E, F, G** of the side section.

10.2. Plug-weld the side section in area **I** using inert gas.



Welding joints using inert gas

11. Welding joint using inert gas

11.1. Apply a full weld to joint **J** of lower side member using inert gas.

997310, 997311, 997320, 997321

as of MY 2005
Country C00, C02, C05, C07, C08, C09, C10, C11, C12, C13, C14, C15, C16, C18, C19, C20, C21, C22, C23, C24, C25, C26, C27, C28, C32, C33, C34, C35, C36, C37, C38, C39, C45, C46, C98, C99

WARNUNG

Gefahr des Verlusts der Text-Bild-Zuordnung beim Ausdruck.

- **Aus technischen Gründen kann derzeit nicht ausgeschlossen werden, dass trotz einwandfreier Darstellung auf dem Bildschirm beim Ausdruck der Zusammenhang von Text und zugehörigem Bild verloren geht.**
- **Wird der Fehler nicht bemerkt, besteht die Gefahr, daß Arbeiten nicht korrekt durchgeführt werden und es dadurch zu Personen- und Sachschäden kommt.**

Vergleichen Sie deshalb nach dem Druckvorgang unbedingt die Ausdrucke mit der Bildschirmdarstellung. Korrigieren Sie die Ausdrucke im Fehlerfall so, daß der Inhalt der Bildschirmdarstellung zutreffend wiedergegeben wird.

WARNING

Danger of losing text-figure correspondence when printing out.

- **For technical reasons, it can currently not be ruled out that the correspondence between text and associated figure can be lost when it is printed out, even though the display on the screen is correct.**
- **If the fault is not noticed, there is the danger that work will not be performed correctly which can cause injury and damage.**

Therefore, always compare printouts with the screen display after printing them out. Correct the printouts if they are faulty so that the content of the screen display matches that on the printouts.

AVERTISSEMENT

53 68 55 Replacing rear wheel housing - as of MY 2005

- General warning notes
- Tools and materials
- Preliminary work for body repairs with alignment bench
- Removing rear wheel housing
- Preparing connection areas of the body for installing the rear wheel housing
- Preparing rear wheel housing for installation
- Installing rear wheel housing
- Subsequent work

Tools

Designation	Type	Number	Explanation	
Pneumatic body saw No. PS1, see Gr. 3.5; Workshop Equipment Manual	commercially available tool	00000		
Press-out tool	special tool	97290		
Star gauges for body gap dimensions	commercially available tool	NR.127-1		

Spotweld drill	commercially available tool	NR.129		
Inverter welding equipment ATL Inverterspot	workshop equipment	WE1194		

top of page

General warning notes

Safety instructions for body repairs

5 AW Safety instructions - General warning notes

top of page

Tools and materials

Tools and materials

Spotweld drill NR.129 Star gauges for body gap dimensions NR.127-1
Press-out tool 97290
Pneumatic body saw No. PS1, see Gr. 3.5; Workshop Equipment Manual 00000
Angle grinder, see Gr. 3.5; see Workshop Equipment Manual 00000
Oscillating body saw (special electrical cutter), see Gr. 3.5; Workshop Equipment Manual 00000
Rotary brush, see Gr. 3.5; Workshop Equipment Manual 00000
Hole punch, see Gr. 3.5; Workshop Equipment Manual 00000
Leister Elektron hot-air gun, see Gr. 3.5; Workshop Equipment Manual 00000
Inverter welding equipment ATL Inverterspot WE1194

Basic straightening attachments for 911 Carrera (996), see Gr. 3.5; Workshop Equipment Manual 00000
Additional straightening attachments for 911 Carrera (997), see Gr. 3.5; Workshop Equipment Manual 00000
Pneumatic spotweld remover, Vario Drill No. WS 90, see Gr. 3.5; Workshop Equipment Manual 00000

top of page

Preliminary work for body repairs with alignment bench

Preliminary work for body repairs with alignment bench

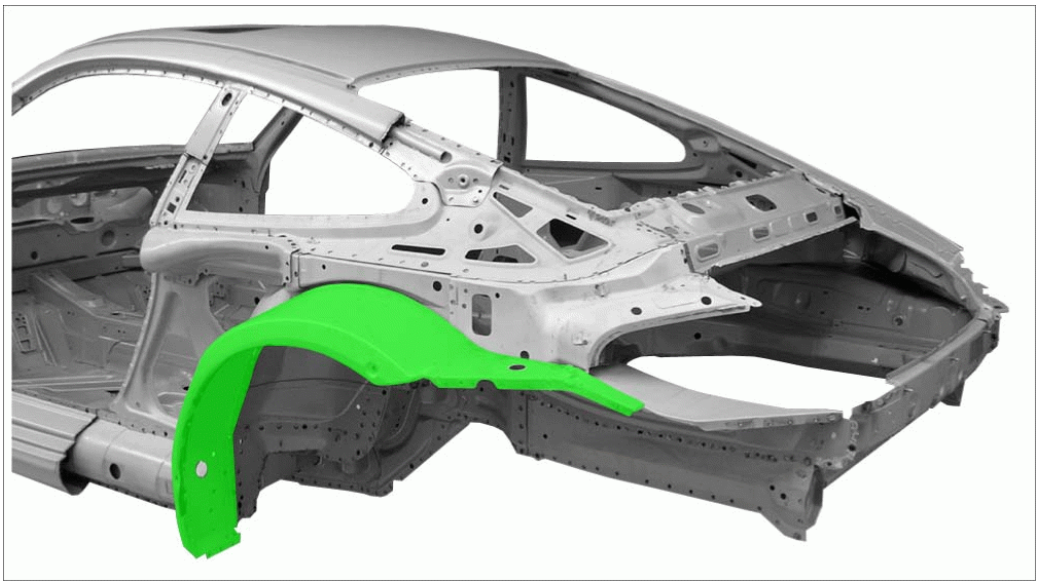
1. Removing accessories in the repair area
1.1. Remove accessories in the repair area according to the extent of damage to the vehicle.
2. Equipping alignment bench with straightening kit
2.1. Equip alignment bench with the basic straightening attachments according to the plans included with the straightening attachments.
3. Placing vehicle on the alignment bench
3.1. Position vehicle on alignment bench, align according to the reference holes and bolt firmly to the attachment set.
4. Covering accessories adjacent to the vehicle repair area
4.1. Cover all accessories remaining on the vehicle and the neighbouring areas with fire-proof, protective covers.
5. Reshaping connection area of the sheetmetal parts to be replaced
6. Exposing welding areas
6.1. Remove undersealing, paint, etc. from the welding areas of the body with a hot-air gun or rotary brush.

top of page

Removing rear wheel housing

Removing outer rear wheel housing

Installation Location:



Installation position of outer rear wheel housing

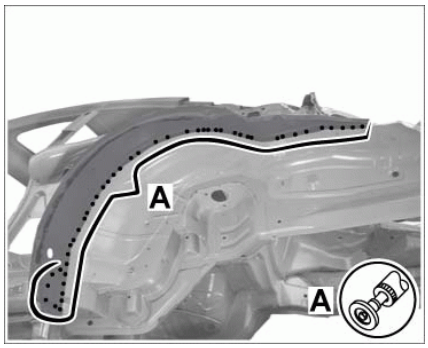
1. Removing side section

1.1. Only on the Coupé

1.1.1. Remove side section. 535555 Replacing side section - section on "Removing" [997110 997111 997120 997121 997410 997411 997430 997431] 535555 Replacing side section - section on "Removing" [997310 997311 997320 997321] *535555 21 Replacing side section - section on "Removing" [997610 997611 997620 997621]*

1.2. Only on the Cabriolet

1.2.1. Remove side section. 535555 Replacing side section - section on "Removing" [997110 997111 997120 997121 997410 997411 997430 997431] 535555 Replacing side section - section on "Removing" [997310 997311 997320 997321] *535555 21 Replacing side section - section on "Removing" [997610 997611 997620 997621]*



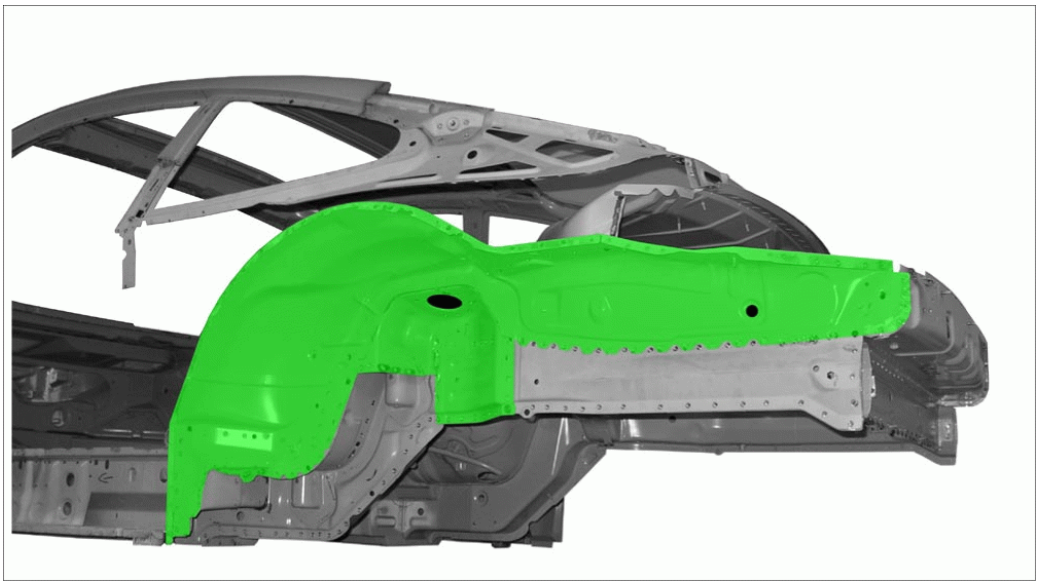
Separating spotwelds

2. Separating spotwelds

2.1. Separate spotwelds in area **-A-** using a parting grinder.

Removing inner rear wheel housing

Installation Location:



Installation position of inner rear wheel housing

1. Removing inner side section

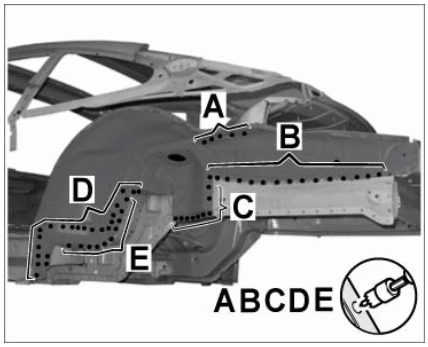
1.1. Only on the Coupé

1.1.1. Remove inner side section (lower part). *536155 21 Replacing inner side section - section on "Removing"*

1.2. Only on the Cabriolet

1.2.1. Remove inner side section. *536155 21 Replacing inner side section - section on "Removing"*

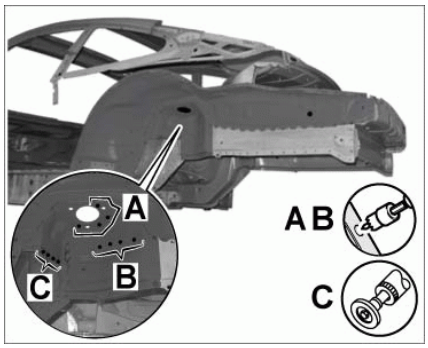
2. Remove side reinforcement (frame for light). *531755 21 Side reinforcement - section on "Removing"*



Milling off spotwelds

3. Milling off spotwelds

3.1. Mill off spotwelds in areas **-A, B, C, D, E-** using a spotweld cutter.

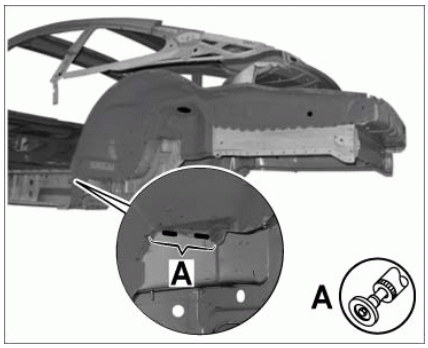


Milling off and separating spotwelds

4. Milling off and separating spotwelds

4.1. Mill off spotwelds in areas **-A-** and **-B-** using a spotweld cutter.

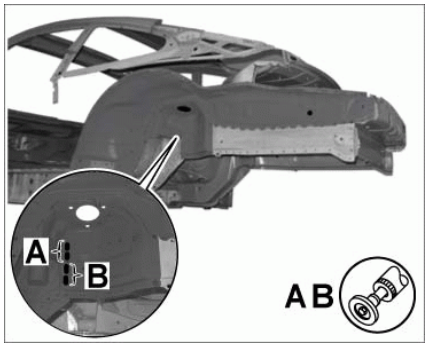
4.2. Separate spotwelds in area **-C-** using a parting grinder.



Separating inert-gas welded seams

5. Separating inert-gas welded seams

5.1. Separate inert-gas welded seams in area **-A-** using a parting grinder.



Separating inert-gas welded seams

6. Separating inert-gas welded seams

6.1. Separate inert-gas welded seams in areas **-A-** and **-B-** using a parting grinder.

top of page

Preparing connection areas of the body for installing the rear wheel housing

Safety instructions for flying sparks during grinding and welding work

ATTENTION

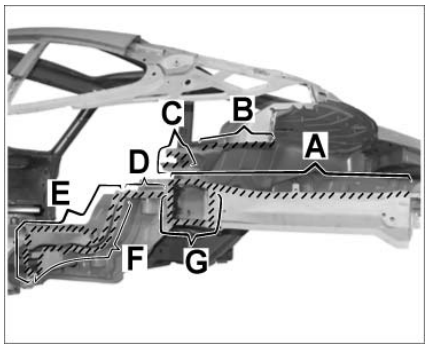
Danger of explosion and fire from flying sparks during grinding and welding work!

- **Danger of injury and danger of damage to vehicle parts and other vehicles due to flying sparks**

Cover vehicle parts such as battery, fuel system, paintwork, glass and passenger compartment parts with fire-proof covers and, if necessary, remove batteries and fuel-carrying components.

No other vehicles may be left unprotected in areas used for body repair!

Preparing connection areas of the body for installing the inner rear wheel housing

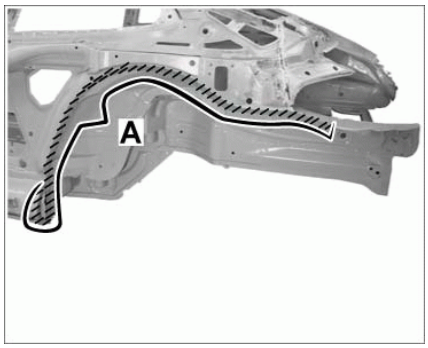


Cleaning the welding areas

1. Clean undersealing, adhesive residue and paint off the body connecting flanges in the marked areas **-A, B, C, D, E, F, G-** using a hot-air gun or rotary brush. Grind the connecting flanges until bare.
2. Coating spot-weld flange areas with zinc powder paint

2.1. Coat spot-weld flange areas with zinc powder paint.

Preparing connection areas of the body for installing the outer rear wheel housing



Cleaning the welding areas

1. Clean undersealing, adhesive residue and paint off the body connecting flanges in the marked area **-A-** using a hot-air gun or rotary brush. Grind the connecting flanges until bare.
2. Coating spot-weld flange areas with zinc powder paint

2.1. Coat spot-weld flange areas with zinc powder paint.

top of page

Preparing rear wheel housing for installation

Safety instructions for sharp-edged body and unit parts

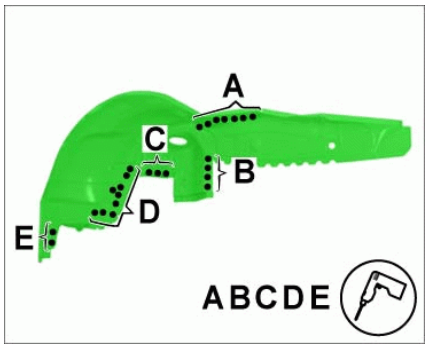
ATTENTION

Danger of injury! Sharp-edge burrs on body and unit parts!

- **Injuries from sharp edges on body and unit parts.**

Wear protective gloves when working in the area of sharp-edged body and unit parts!

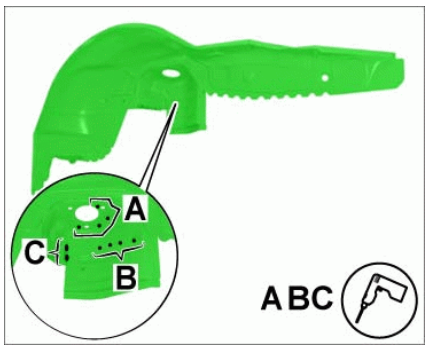
Preparing inner rear wheel housing for installation



Drilling holes for plug welding using inert gas

1. Drilling holes for plug welding using inert gas

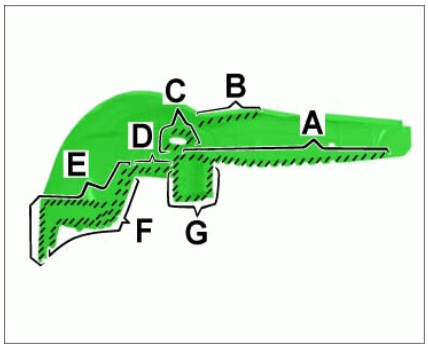
1.1. Drill holes (Ø = 7 mm) in areas **-A, B, C, D, E-** for plug welding using inert gas. Maintain spacing between the bores as on the old part.



Drilling holes for plug welding using inert gas

2. Drilling holes for plug welding using inert gas

2.1. Drill holes (Ø = 7 mm) in areas **-A, B, C-** for plug welding using inert gas. Maintain spacing between the bores as on the old part.



Cleaning the welding areas

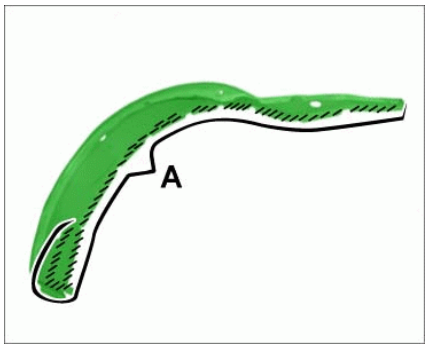
3. Cleaning the welding areas

3.1. Grind both sides of the connecting flanges of the inner rear wheel housing in the marked areas **-A, B, C, D, E, F, G-** until bare using a rotary brush.

4. Coat spot-weld flange areas with zinc powder paint.

4.1. Coat spot-weld flange areas with zinc powder paint.

Preparing outer rear wheel housing for installation



Cleaning the welding areas

1. Cleaning the welding areas

1.1. Grind both sides of the connecting flanges of the outer rear wheel housing in the marked area **-A-** until bare using a rotary brush.

2. Coat spot-weld flange areas with zinc powder paint.

2.1. Coat spot-weld flange areas with zinc powder paint.

top of page

Installing rear wheel housing

Danger of injury when welding

DANGER

Risk of fatal injury from high voltage during electric welding!

- **Danger of explosion and fire when welding in the area of highly inflammable materials.**
- **Irritation to respiratory tracts from toxic zinc oxide emitted when welding galvanised steel!**
- **Danger of injury from unintentional triggering of pyrotechnical safety components!**
- **Danger of injury from weld spatters and UV light when welding!**

Do not perform welding work in a damp environment or on wet ground; there is a risk of fatal injury from the voltage being conducted through the human body. Persons with heart pacemakers should not perform welding work. Use insulating underlays.

Remove highly flammable materials from the work area; if necessary, remove units with fuel-carrying parts and protect work areas in the vehicle that are at risk of catching fire using fire-proof covers.

Ventilate the work area well.

Remove smoke gases with a suitable extraction system (refer to Workshop Equipment Manual).

Wear suitable protective equipment, such as protective clothing, gloves, a welding shield and, if necessary, a protective mask.

For welding work, always disconnect both terminals on the battery. In the case of welding work in the immediate vicinity of the control modules for pyrotechnical safety systems, remove the control modules before beginning work.

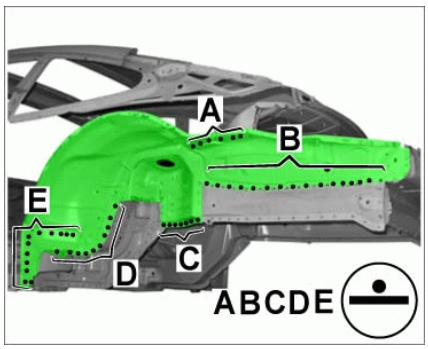
In addition, the guidelines of the welding equipment manufacturer and the legal accident prevention regulations and those of the mutual indemnity association (BGV D1) must be observed.

Installing inner rear wheel housing

1. Fitting inner rear wheel housing to the body

1.1. Place the inner rear wheel housing against the body and secure to the straightening set.

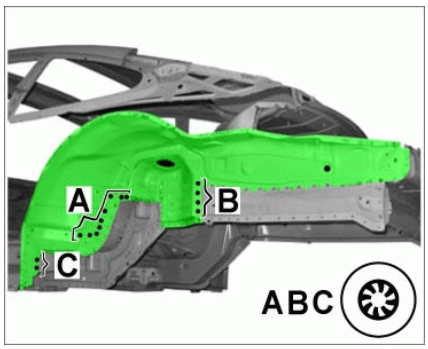
1.2. Fix the inner rear wheel housing in place with tensioning clamps.



Welding in inner rear wheel housing

2. Welding in inner rear wheel housing

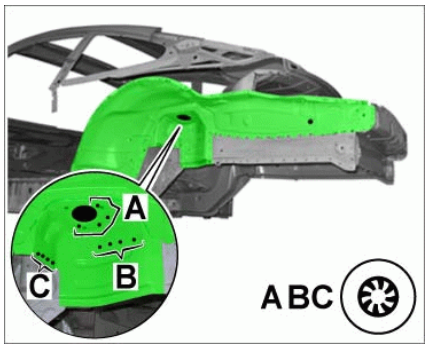
2.1. Resistance spot-weld the inner rear wheel housing in areas **-A, B, C, D, E-** .



Welding in inner rear wheel housing

3. Welding in inner rear wheel housing

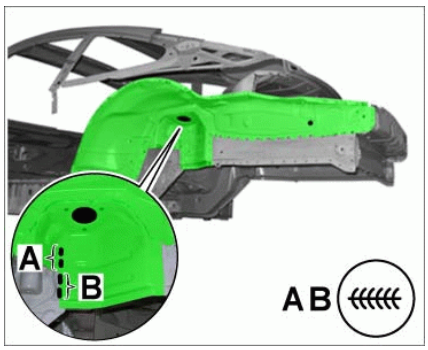
3.1. Plug-weld the inner rear wheel housing in areas **-A, B, C-** using inert gas.



Welding in inner rear wheel housing

4. Welding in inner rear wheel housing

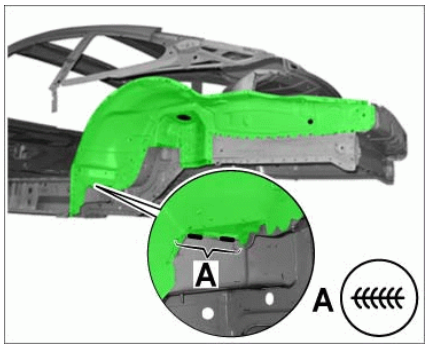
4.1. Plug-weld the inner rear wheel housing in areas **-A, B, C-** using inert gas.



Welding in inner rear wheel housing

5. Welding in inner rear wheel housing

5.1. Apply a full weld to the inner rear wheel housing in areas **-A-** and **-B-** using inert gas.



Welding in inner rear wheel housing

6. Welding in inner rear wheel housing

6.1. Apply a full weld to the inner rear wheel housing in area **-A-** using inert gas.

7. Install side reinforcement (frame for light). *531755 23 Side reinforcement - section on "Installing"*

8. Installing inner side section

8.1. Only on the Coupé

8.1.1. Install inner side section (lower part). *536155 21 Replacing inner side section - section on "Removing"*

8.2. Only on the Cabriolet

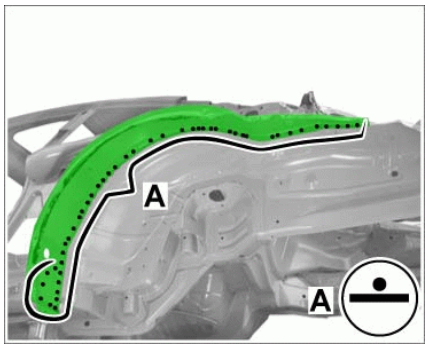
8.2.1. Install inner side section. *536155 23 Replacing inner side section - section on "Installing"*

Installing outer rear wheel housing

1. Fitting outer rear wheel housing to the body

1.1. Place the outer rear wheel housing against the body and secure to the straightening set.

1.2. Fix the outer rear wheel housing in place with tensioning clamps.



Welding in outer rear wheel housing

2. Welding in outer rear wheel housing

2.1. Resistance spot-weld outer rear wheel housing in area **-A-** .

3. Installing side section

3.1. Only on the Coupé

3.1.1. Install side section. 535555 Replacing side section - section on "Installing" [997110 997111 997120 997121 997410 997411 997430 997431] 535555 Replacing side section - section on "Installing" [997310 997311 997320 997321] *535555 23 Replacing side section - section on "Installing" [997610 997611 997620 997621]*

3.2. Only on the Cabriolet

3.2.1. Install side section. 535555 Replacing side section - section on "Installing" [997110 997111 997120 997121 997410 997411 997430 997431] 535555 Replacing side section - section on "Installing" [997310 997311 997320 997321] *535555 23 Replacing side section - section on "Installing" [997610 997611 997620 997621]*

top of page

Subsequent work

Subsequent work for body repairs

1. Removing vehicle from straightening bench
2. Cleaning spot-welded joints and sheetmetal flanges with a wire brush

3. Priming flange areas with 2K primer
4. Restore standard sealing with body sealant
   501000 Seam seal
5. Restore standard undersealing with underbody sealant
   501000 Undersealing
6. Painting repair area and adjacent surfaces, if necessary
7. Install removed add-on parts in the repair area
8. Apply cavity preservation.

997110, 997111, 997120, 997121, 997310, 997311, 997320, 997321, 997410, 997411, 997430, 997431, 997610, 997611, 997620, 997621

as of MY 2005
Country C00, C02, C05, C07, C08, C09, C10, C11, C12, C13, C14, C15, C16, C18, C19, C20, C21, C22, C23, C24, C25, C26, C27, C28, C32, C33, C34, C35, C36, C37, C38, C39, C45, C46, C98, C99

WARNUNG

Gefahr des Verlusts der Text-Bild-Zuordnung beim Ausdruck.

- **Aus technischen Gründen kann derzeit nicht ausgeschlossen werden, dass trotz einwandfreier Darstellung auf dem Bildschirm beim Ausdruck der Zusammenhang von Text und zugehörigem Bild verloren geht.**
- **Wird der Fehler nicht bemerkt, besteht die Gefahr, daß Arbeiten nicht korrekt durchgeführt werden und es dadurch zu Personen- und Sachschäden kommt.**

Vergleichen Sie deshalb nach dem Druckvorgang unbedingt die Ausdrucke mit der Bildschirmdarstellung. Korrigieren Sie die Ausdrucke im Fehlerfall so, daß der Inhalt der Bildschirmdarstellung zutreffend wiedergegeben wird.

WARNING

Danger of losing text-figure correspondence when printing out.

- **For technical reasons, it can currently not be ruled out that the correspondence between text and associated figure can be lost when it is printed out, even though the display on the screen is correct.**
- **If the fault is not noticed, there is the danger that work will not be performed correctly which can cause injury and damage.**

Therefore, always compare printouts with the screen display after printing them out. Correct the printouts if they are faulty so that the content of the screen display matches that on the printouts.

AVERTISSEMENT

Risque de perte de la correspondance texte-illustration lors de l'impression papier.

53 69 19 Removing and installing rear wheel housing liner - as of MY 2005

- Preliminary work
- Removing rear wheel housing liner
- Installing rear wheel housing liner
- Subsequent work

top of page

Preliminary work

Preliminary work

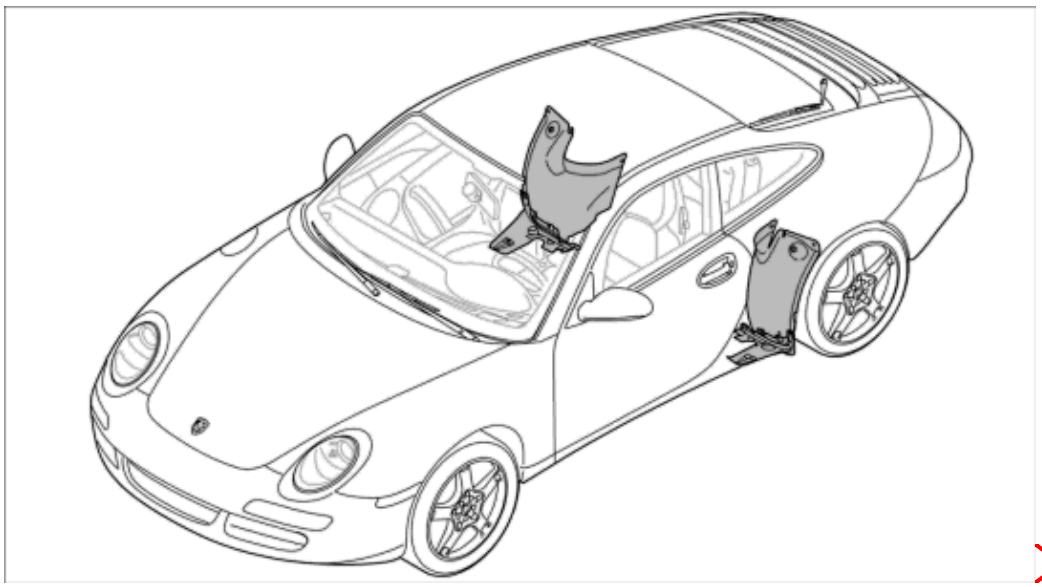
Remove wheel. 440519 Removing and installing wheel - removing

top of page

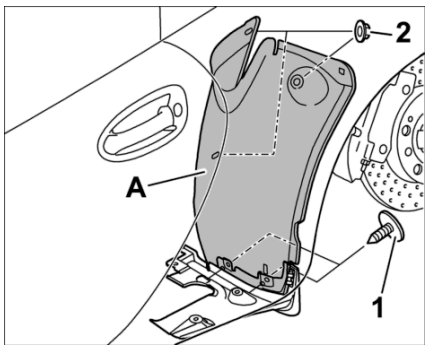
Removing rear wheel housing liner

Removing rear wheel housing liner

Installation Location:



Overview, removing and installing rear wheel housing liner



Releasing wheel housing liner

Note

Fastening nuts cannot be used again following removal.

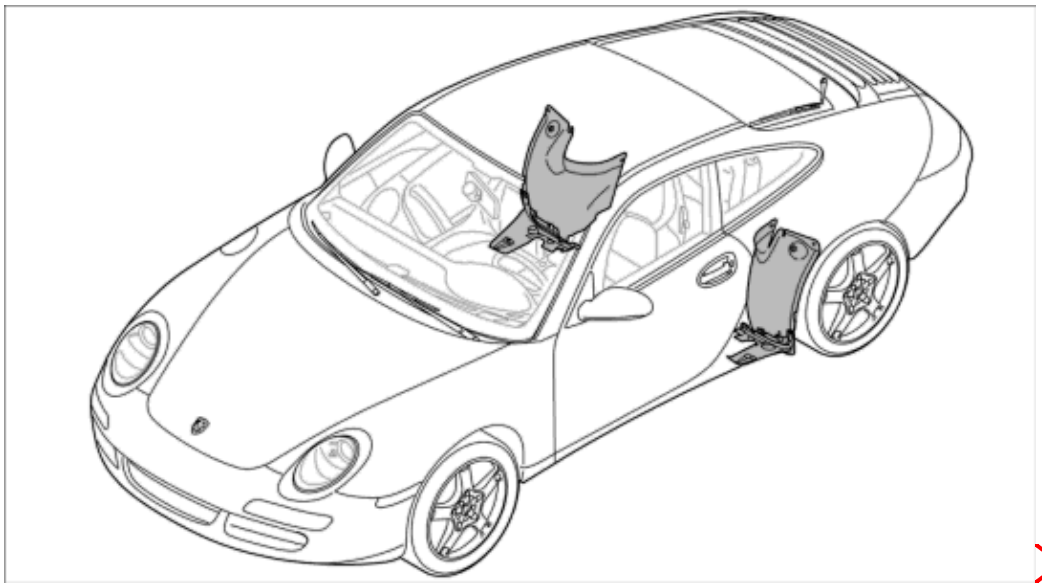
1. Unscrew fastening screws **-1-** and fastening nuts **-2-** .
2. Remove wheel housing liner **-A-** .

top of page

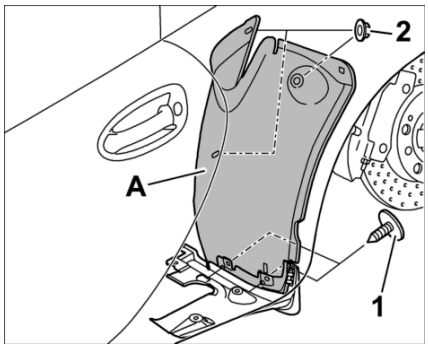
Installing rear wheel housing liner

Installing rear wheel housing liner

Installation Location:



Overview, removing and installing rear wheel housing liners



Install wheel housing liner

1. Insert wheel housing liner **-A-** .
2. Screw in fastening screws **-1-** **-2-** and tighten to the specified tightening torque **Final tightening: 2 (1.5) Nm (ftlb.)** .
3. Screw on fastening nuts **-2-** and tighten to the specified tightening torque **Final tightening: 1.5 (1) Nm (ftlb.)** .

top of page

Subsequent work

Reworking

Install wheel. 440519 Removing and installing wheel - installing

---

997110, 997111, 997120, 997121, 997310, 997311, 997320, 997321

as of MY 2005
Country C00, C02, C05, C07, C08, C09, C10, C11, C12, C13, C14, C15, C16, C18, C19, C20, C21, C22, C23, C24, C25, C26, C27, C28, C32, C33, C34, C35, C36, C37, C38, C39, C45, C46, C98, C99

WARNUNG

Gefahr des Verlusts der Text-Bild-Zuordnung beim Ausdruck.

- **Aus technischen Gründen kann derzeit nicht ausgeschlossen werden, dass trotz einwandfreier Darstellung auf dem Bildschirm beim Ausdruck der Zusammenhang von Text und zugehörigem Bild verloren geht.**
- **Wird der Fehler nicht bemerkt, besteht die Gefahr, daß Arbeiten nicht korrekt durchgeführt werden und es dadurch zu Personen- und Sachschäden kommt.**

Vergleichen Sie deshalb nach dem Druckvorgang unbedingt die Ausdrucke mit der Bildschirmdarstellung. Korrigieren Sie die Ausdrucke im Fehlerfall so, daß der Inhalt der Bildschirmdarstellung zutreffend wiedergegeben wird.

53 69 19 Removing and installing rear wheel housing liner - as of MY 2005

- Preliminary work
- Removing rear wheel housing liner
- Installing rear wheel housing liner
- Subsequent work

top of page

Preliminary work

Preliminary work

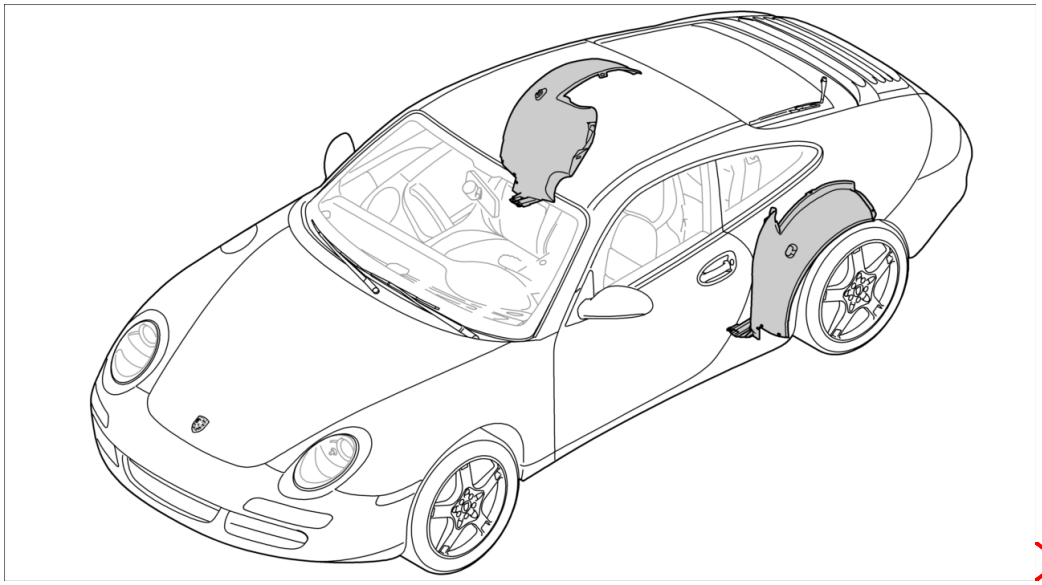
Remove wheel. 440519 Removing and installing wheel - removing

top of page

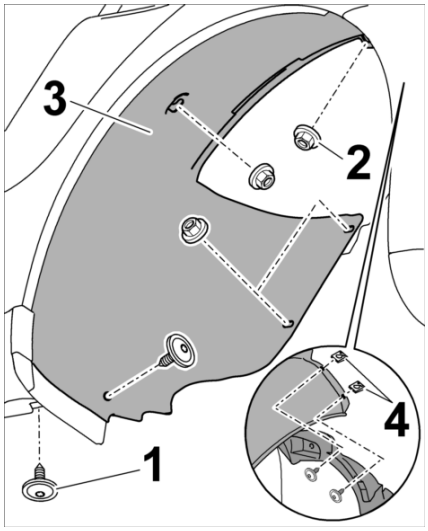
Removing rear wheel housing liner

Removing rear wheel housing liners

Installation Location:



Installation position of rear wheel housing liner



Removing wheel housing liner

Note

Fastening nuts cannot be used again following removal.

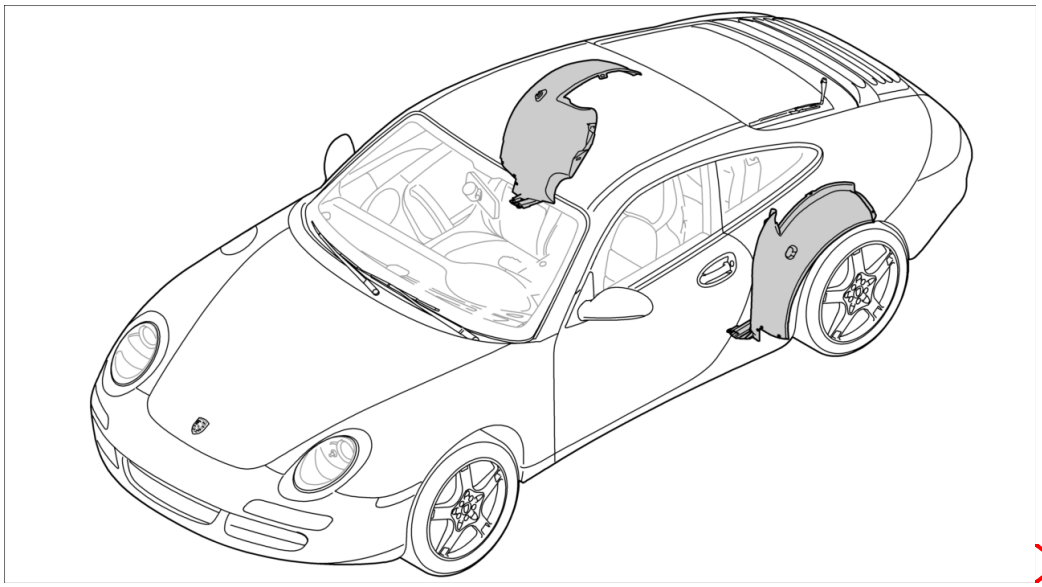
1. Unscrew fastening screws **-1-** and fastening nuts **-2-** .
2. Remove wheel housing liner **-3-** .
3. Check fastening nuts **-4-** and replace if necessary.

top of page

Installing rear wheel housing liner

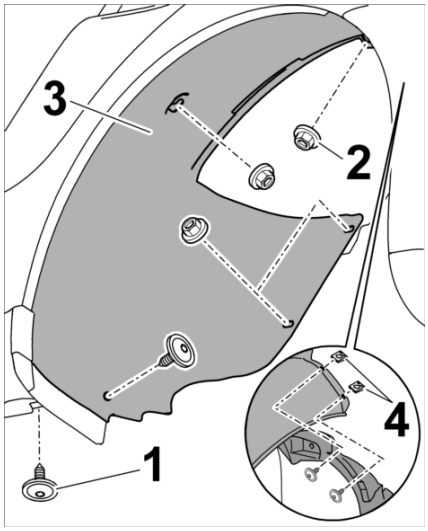
Installing rear wheel housing liner

Installation Location:



Installation location of rear wheel housing liner

1. Press fastening nuts **-4-** into the wheel housing liner **-3-** .



Install wheel housing liner

2. Insert wheel housing liner **-3-** .
3. Screw in fastening screws **-1-** and tighten to the specified tightening torque **Final tightening: 2 (1.5 ftlb.) Nm** .
4. Screw on fastening nuts **-2-** and tighten to the specified tightening torque **Final tightening: 1.5 (1.0 ftlb.) Nm** .

top of page

Subsequent work

Reworking

Install wheel. 440519 Removing and installing wheel - installing

---

997410, 997411, 997430, 997431, 997610, 997611, 997620, 997621

as of MY 2005
Country C00, C02, C05, C07, C08, C09, C10, C11, C12, C13, C14, C15, C16, C18, C19, C20, C21, C22, C23, C24, C25, C26, C27, C28, C32, C33, C34, C35, C36, C37, C38, C39, C45, C46, C98, C99

WARNUNG

Gefahr des Verlusts der Text-Bild-Zuordnung beim Ausdruck.

- **Aus technischen Gründen kann derzeit nicht ausgeschlossen werden, dass trotz einwandfreier Darstellung auf dem Bildschirm beim Ausdruck der Zusammenhang von Text und zugehörigem Bild verloren geht.**
- **Wird der Fehler nicht bemerkt, besteht die Gefahr, daß Arbeiten nicht korrekt durchgeführt werden und es dadurch zu Personen- und Sachschäden kommt.**

Vergleichen Sie deshalb nach dem Druckvorgang unbedingt die Ausdrucke mit der Bildschirmdarstellung. Korrigieren Sie die Ausdrucke im Fehlerfall so, daß der Inhalt der Bildschirmdarstellung zutreffend wiedergegeben wird.

WARNING

Danger of losing text-figure correspondence when printing out.

- **For technical reasons, it can currently not be ruled out that the correspondence between text and associated figure can be lost when it is printed out, even though the display on the screen is correct.**
- **If the fault is not noticed, there is the danger that work will not be performed correctly which can cause injury and damage.**

Therefore, always compare printouts with the screen display after printing them out. Correct the printouts if they are faulty so that the content of the screen display matches that on the printouts.

AVERTISSEMENT

Risque de perte de la correspondance texte-illustration lors de l'impression papier.

- **Pour des raisons techniques, il ne peut pas être exclu à l'heure actuelle que, même en cas d'affichage correct à l'écran, la correspondance entre le texte et l'illustration puisse être erronée sur l'impression papier.**
- **Si l'erreur passe inaperçue, on court le risque d'exécuter certaines opérations de manière incorrecte pouvant conduire à des dommages corporels et matériels.**

55 10 19 Removing and installing release for front lid - as of MY 2005

- Preliminary work
- Removing release for front lid
- Installing release for front lid
- Subsequent work

top of page

Preliminary work

Preliminary work

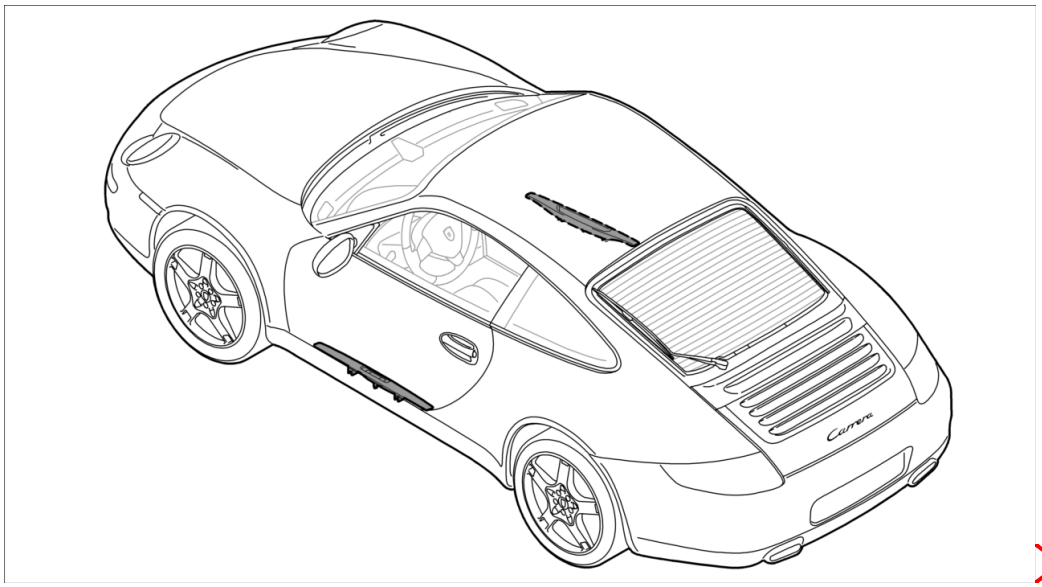
1. Remove inner sill. 680519 Removing and installing inner sill - "Removing" section

top of page

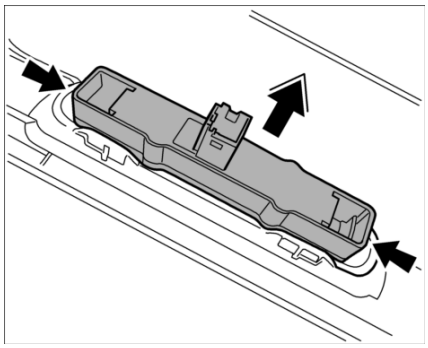
Removing release for front lid

Removing release for front lid

Installation Location:



Installation position of scuff plate



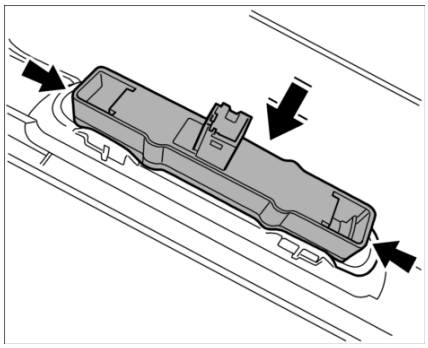
Removing lid release switch

1. Carefully press fastening ribs of scuff plate **-arrows-** outward with a small screwdriver and unclip switch for lid release.

top of page

Installing release for front lid

Installing release for front lid



Installing lid release switch

1. Clip in switch for lid release with the locking tabs in the fastening ribs of the scuff plate **-arrows-** so that they are felt to engage.

top of page

Subsequent work

Subsequent work

1. Install inner sill. 680519 Removing and installing inner sill - "Installing" section

---

997110, 997111, 997120, 997121, 997310, 997311, 997320, 997321, 997410, 997411, 997430, 997431, 997610, 997611, 997620, 997621

as of MY 2005
Country C00, C02, C05, C07, C08, C09, C10, C11, C12, C13, C14, C15, C16, C18, C19, C20, C21, C22, C23, C24, C25, C26, C27, C28, C32, C33, C34, C35, C36, C37, C38, C39, C45, C46, C98, C99

WARNUNG

Gefahr des Verlusts der Text-Bild-Zuordnung beim Ausdruck.

- **Aus technischen Gründen kann derzeit nicht ausgeschlossen werden, dass trotz einwandfreier Darstellung auf dem Bildschirm beim Ausdruck der Zusammenhang von Text und zugehörigem Bild verloren geht.**
- **Wird der Fehler nicht bemerkt, besteht die Gefahr, daß Arbeiten nicht korrekt durchgeführt werden und es dadurch zu Personen- und Sachschäden kommt.**

Vergleichen Sie deshalb nach dem Druckvorgang unbedingt die Ausdrucke mit der Bildschirmdarstellung. Korrigieren Sie die Ausdrucke im Fehlerfall so, daß der Inhalt der Bildschirmdarstellung zutreffend wiedergegeben wird.

55 13 19 Removing and installing servo motor for front lid release - as of MY 2005

- Preliminary work
- Removing servo motor for front lid release
- Installing servo motor for front lid release
- Subsequent work

top of page

Preliminary work

Preliminary work for servo motor for hood release

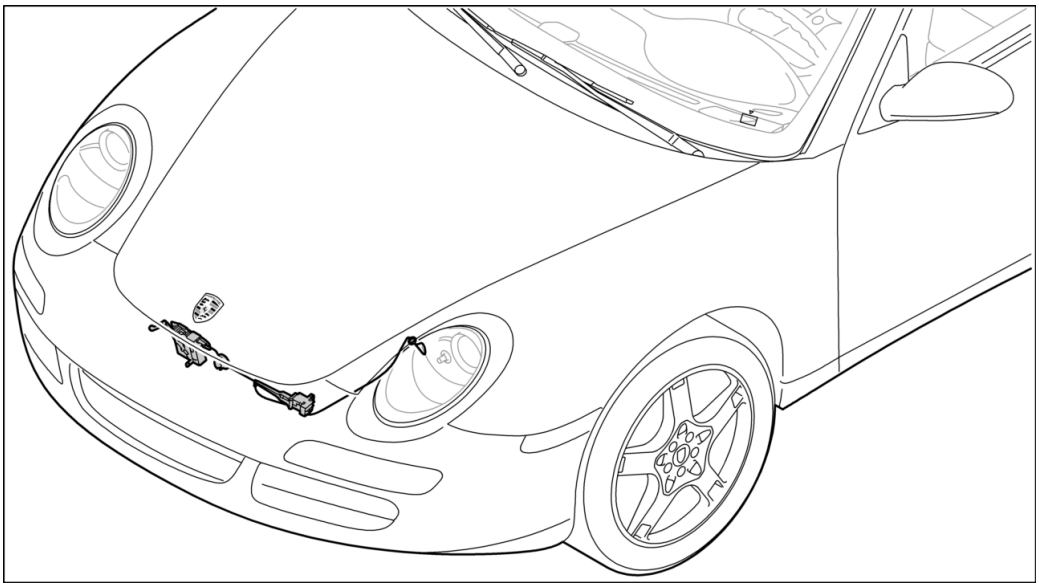
Remove cover for lock support. 703919 Removing and installing lock mount cover - chapter on "Removing"
Remove left wheel housing liner. 505619 Removing and installing front wheel housing liner - chapter on "Removing" [997110 997111 997120 997121 997310 997311 997320 997321] 505619 Removing and installing front wheel housing liner - chapter on "Removing" [997621] 505619 Removing and installing front wheel housing liner - chapter on "Removing" [997410 997411 997430 997431 997610 997611 997620]

top of page

Removing servo motor for front lid release

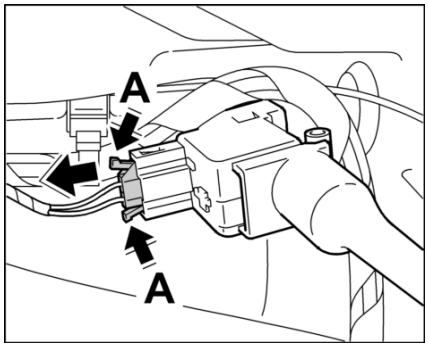
Removing the servo motor for front lid release

Installation Location:



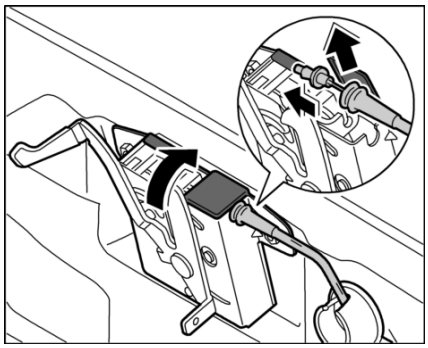
Installation position

1. Switch off ignition and remove ignition key.
2. Lay luggage compartment carpet in front in the direction of travel from left to right..



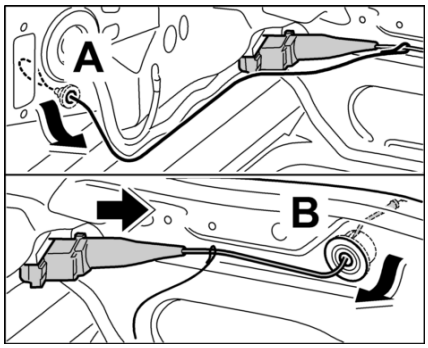
Removing plug

3. Release electric connector **-A-** and unplug it at the servo motor.



Disengaging bowden cable

4. Bend up cover at the lock, pull bowden cable to the left and disengage at lock.



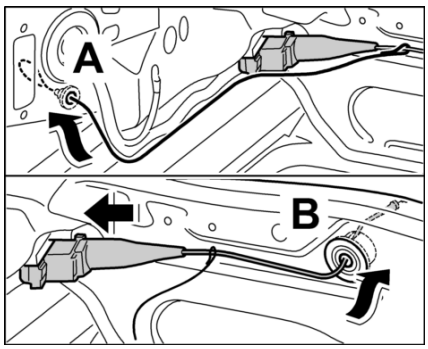
Pulling out the Bowden cable

5. Pull the bowden cable for the lock actuator **-B-** and the emergency operation bowden cable **-A-** inward through the grommets.
6. Remove servo motor.

top of page

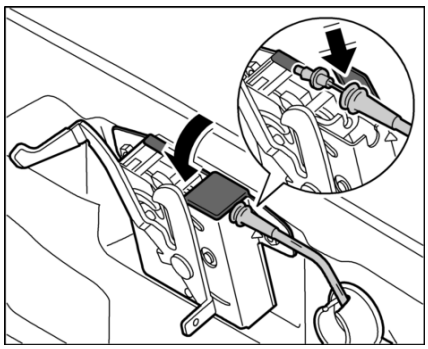
Installing servo motor for front lid release

Installing the servo motor for front lid release



Routing bowden cable

1. Route the bowden cable for the lock actuator **-B-** and the emergency operation bowden cable **-A-** through the grommets.



Engaging bowden cable

2. Engage the bowden cable at the lock and bend down the cover.
3. Push electric plug onto the servo motor until it is felt to engage.
4. Insert the servo motor in the luggage compartment area and replace the carpet correctly.

top of page

Subsequent work

Subsequent work for servo motor for hood release

Install front left wheel housing liner. 505619 Removing and installing front wheel housing liner - chapter on "installing" [997110 997111 997120 997121 997310 997311 997320 997321] 505619 Removing and installing front wheel housing liner - chapter on "installing" [997621] 505619 Removing and installing front wheel housing liner - chapter on "installing" [997410 997411 997430 997431 997610 997611 997620]
Install cover for lock mount. 703919 Removing and installing lock mount cover - chapter on "Installing"

997110, 997111, 997120, 997121, 997310, 997311, 997320, 997321, 997410, 997411, 997430, 997431, 997610, 997611, 997620, 997621

as of MY 2005
Country C00, C02, C05, C07, C08, C09, C10, C11, C12, C13, C14, C15, C16, C18, C19, C20, C21, C22, C23, C24, C25, C26, C27, C28, C32, C33, C34, C35, C36, C37, C38, C39, C45, C46, C98, C99

WARNUNG

Gefahr des Verlusts der Text-Bild-Zuordnung beim Ausdruck.

- **Aus technischen Gründen kann derzeit nicht ausgeschlossen werden, dass trotz einwandfreier Darstellung auf dem Bildschirm beim Ausdruck der Zusammenhang von Text und zugehörigem Bild verloren geht.**
- **Wird der Fehler nicht bemerkt, besteht die Gefahr, daß Arbeiten nicht korrekt durchgeführt werden und es dadurch zu Personen- und Sachschäden kommt.**

Vergleichen Sie deshalb nach dem Druckvorgang unbedingt die Ausdrucke mit der Bildschirmdarstellung. Korrigieren Sie die Ausdrucke im Fehlerfall so, daß der Inhalt der Bildschirmdarstellung zutreffend wiedergegeben wird.

WARNING

Danger of losing text-figure correspondence when printing out.

55 17 19 Removing and installing front lower part of lid lock - as of MY 2005

- Preliminary work
- Removing front lower part of lid lock
- Installing front lower part of lid lock
- Subsequent work

top of page

Preliminary work

Preliminary work

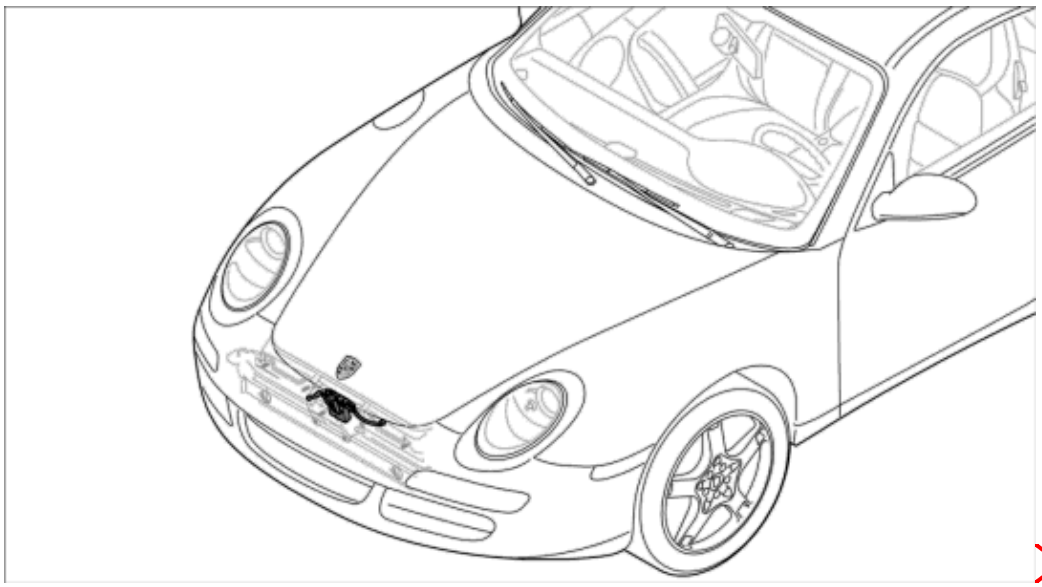
Remove cover for lock mount. *Removing and installing cover for lock support*

top of page

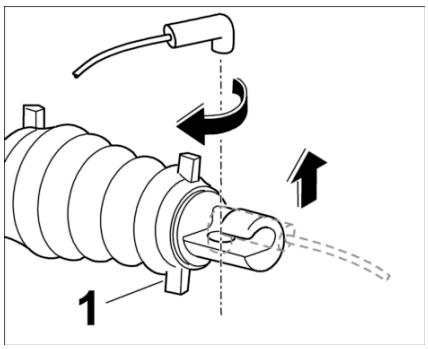
Removing front lower part of lid lock

Removing bowden cable for emergency release

Installation Location:



Overview, front lower part of lid lock

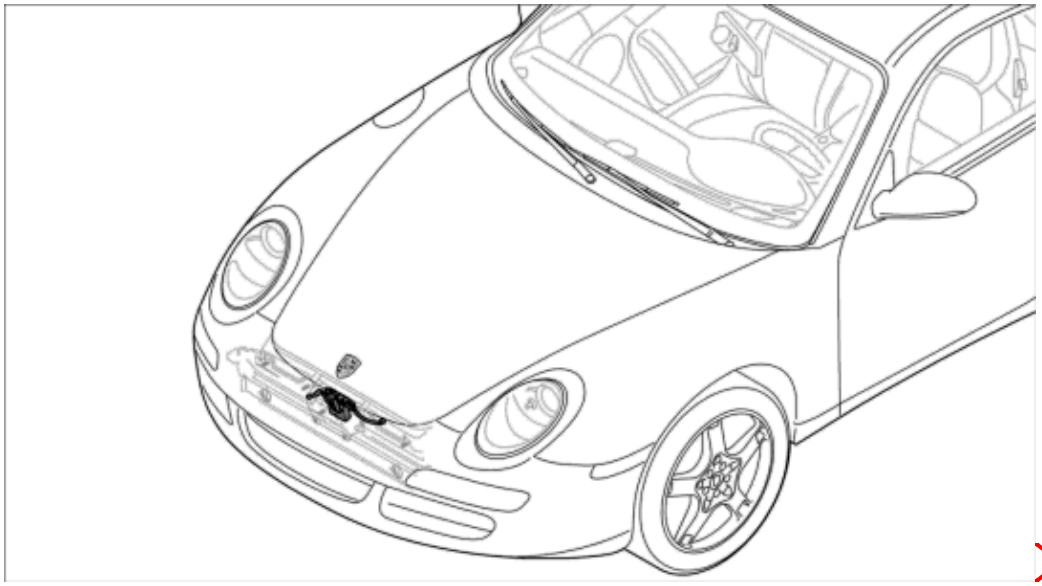


Removing bowden cable for emergency release

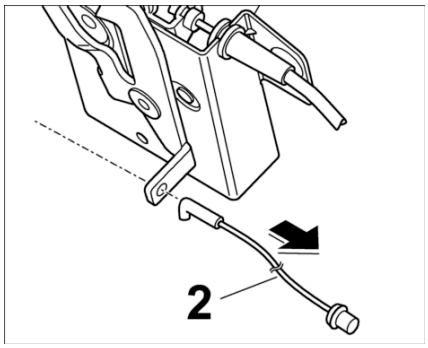
1. Twist the bowden cable **-direction of arrow-** and remove from the servo motor **-1-** .

Pressing out bowden cable for emergency release

Installation Location:



Overview, front lower part of lid lock



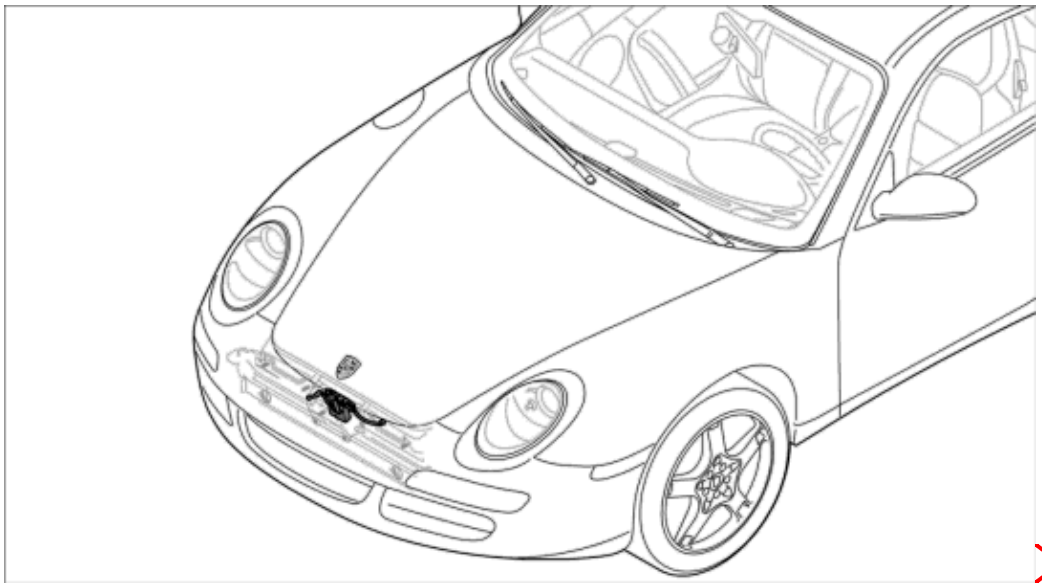
Pressing out bowden cable for emergency release

1. Press out bowden cable **-2-** at lower part of the lid

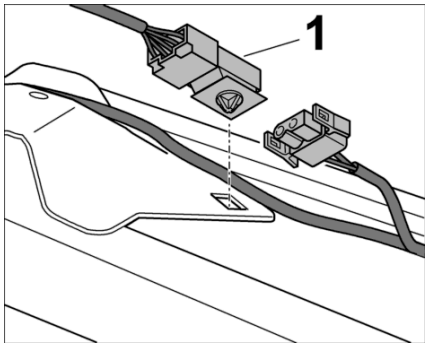
lock.

Disconnect electrical plug connection

Installation Location:



Overview, front lower part of lid lock

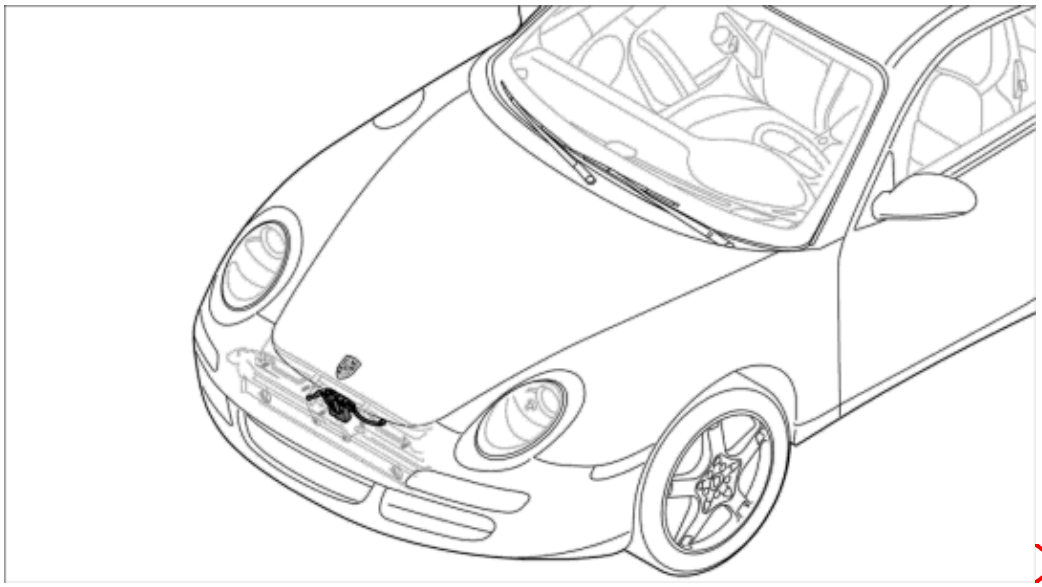


Disconnecting electrical plug connection

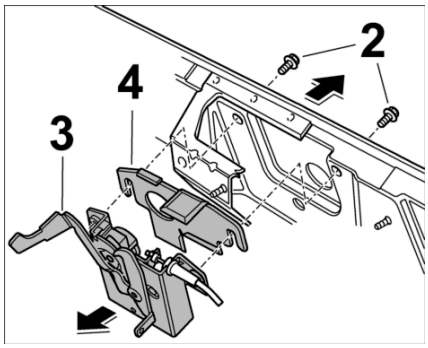
1. Disconnect electrical plug connection **-1-** .

Removing lower part of lid lock

Installation Location:



Overview, front lower part of lid lock

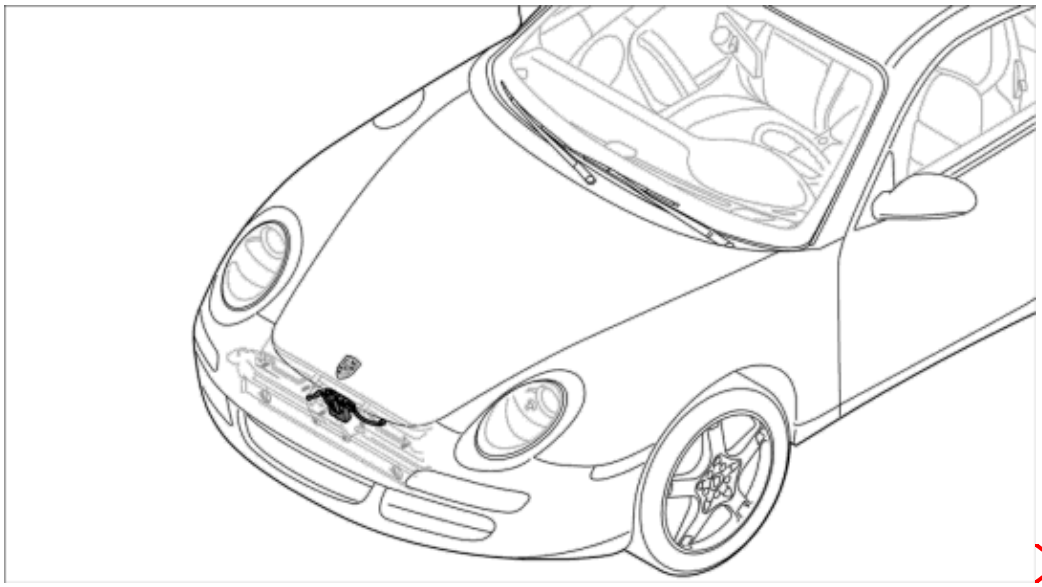


Removing lower part of lid lock

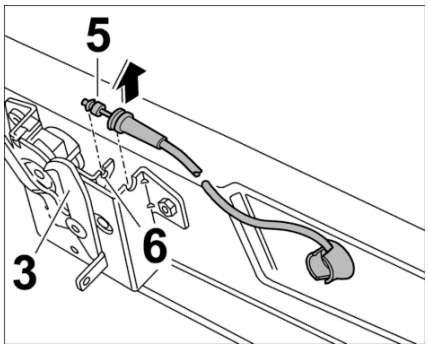
1. Unscrew fastening screws **-2-** on lower part of lid lock **-3-** and remove cover panel **-4-**
   .

Removing lid-release cable

Installation Location:



Overview, front lower part of lid lock



Removing lid-release cable

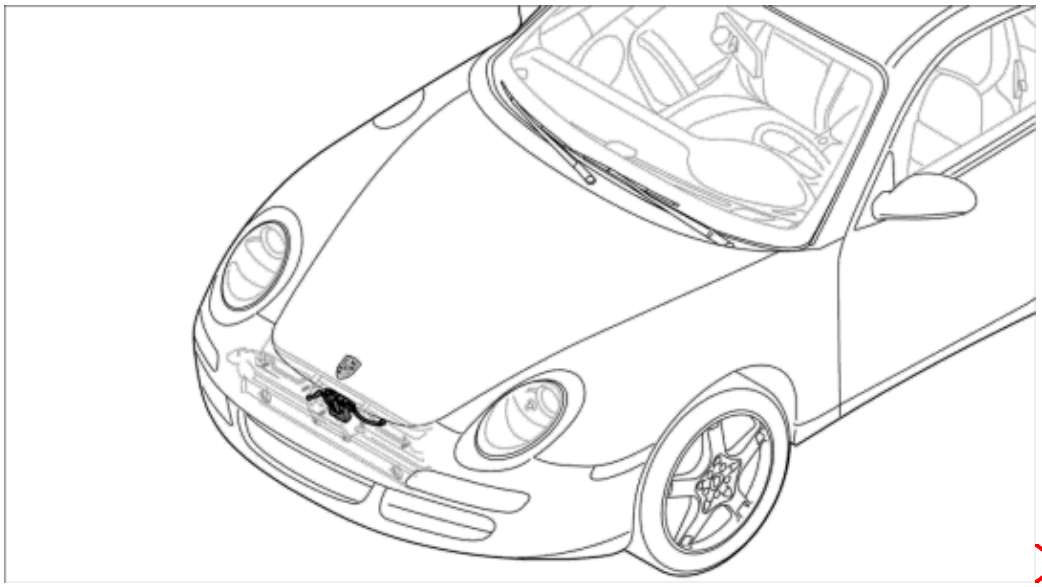
1. Disengage lid-release cable **-5-** by moving release **-6-** in direction of arrow on lower part of lock at the front **-3-** .

top of page

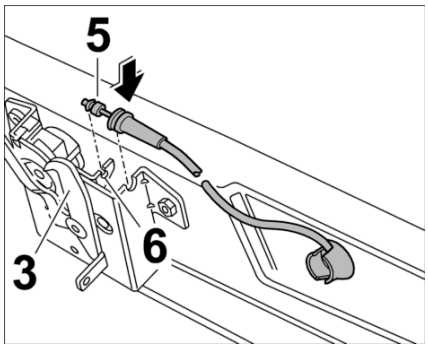
Installing front lower part of lid lock

Inserting lid-release cable

Installation Location:



Overview, front lower part of lid lock

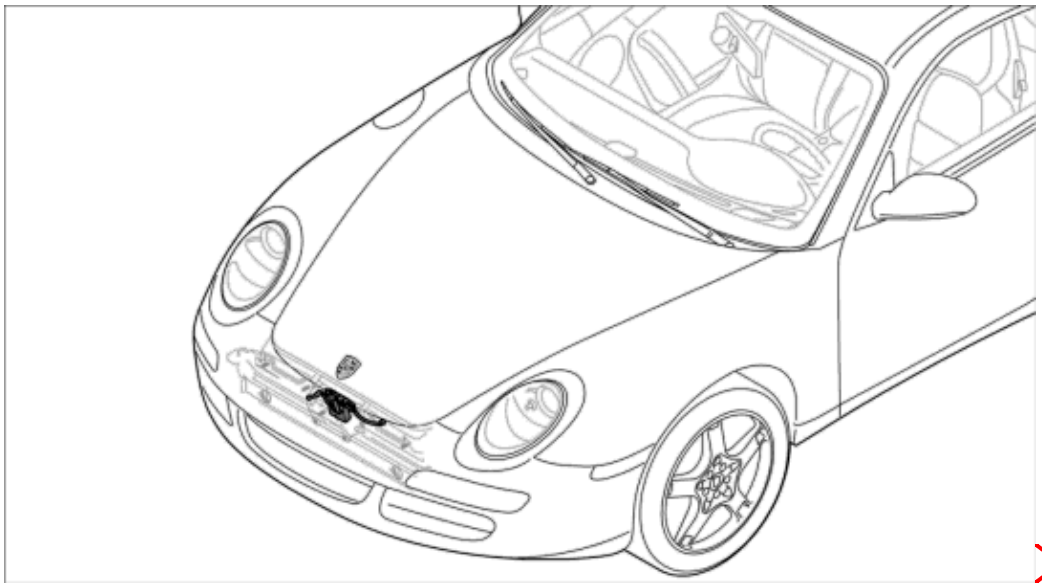


Inserting lid-release cable

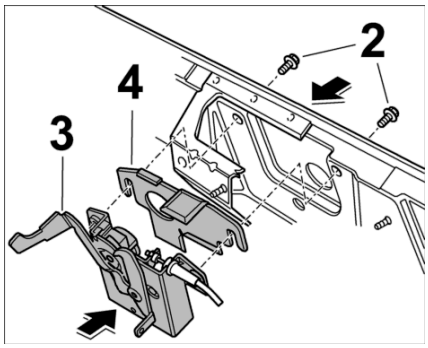
1. Move release **-6-** in direction of arrow; engage lid-release cable **-5-** in lower part of lock at the front **-3-** .

Installing lower part of lid lock

Installation Location:



Overview, front lower part of lid lock

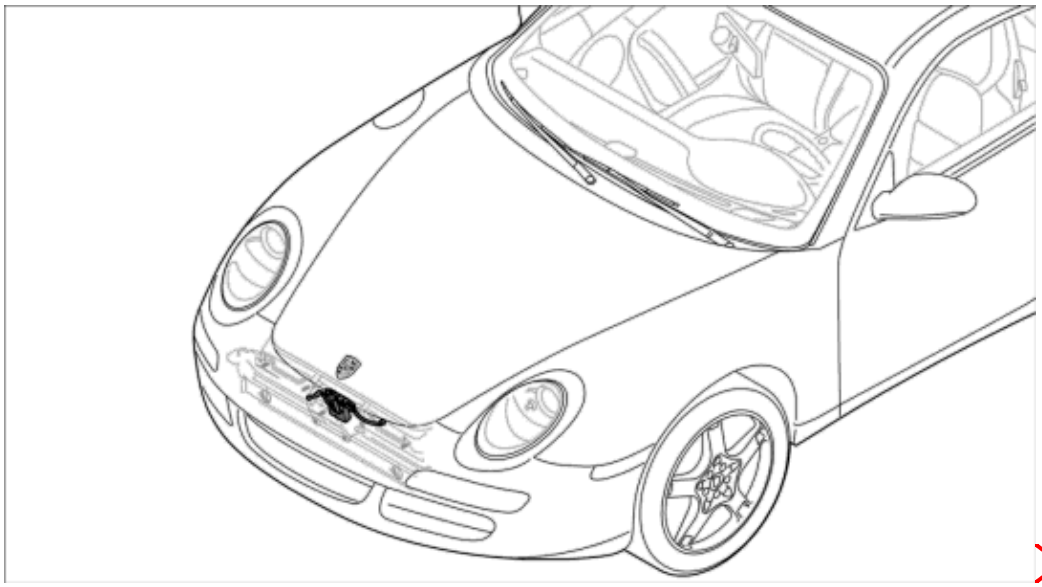


Installing lower part of lid lock

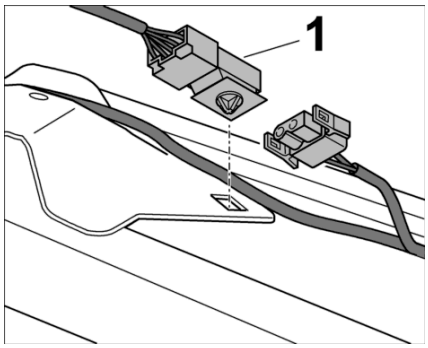
1. Position cover panel **-4-** and lower part of lid lock **-3-** to the body and tighten using the fastening screws M6 x 16 **-2-** . Tightening torque **: 7 ftlb.**

Locking electrical plug connection

Installation Location:



Overview, front lower part of lid lock

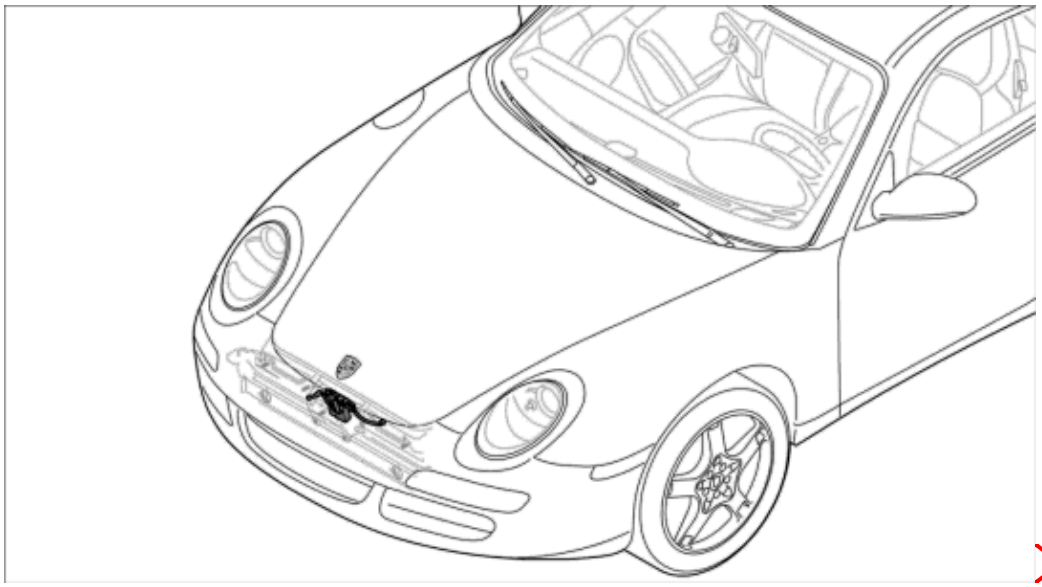


Locking electrical plug connection

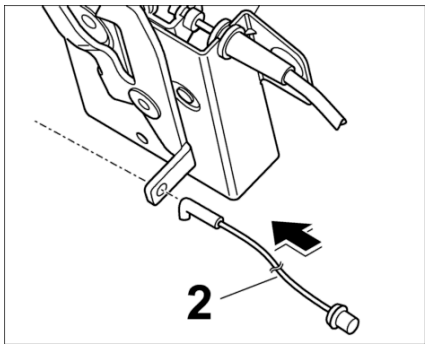
1. Push together electrical plug connection **-1-** until it is felt to engage.

Installing bowden cable for emergency release

Installation Location:



Overview, front lower part of lid lock

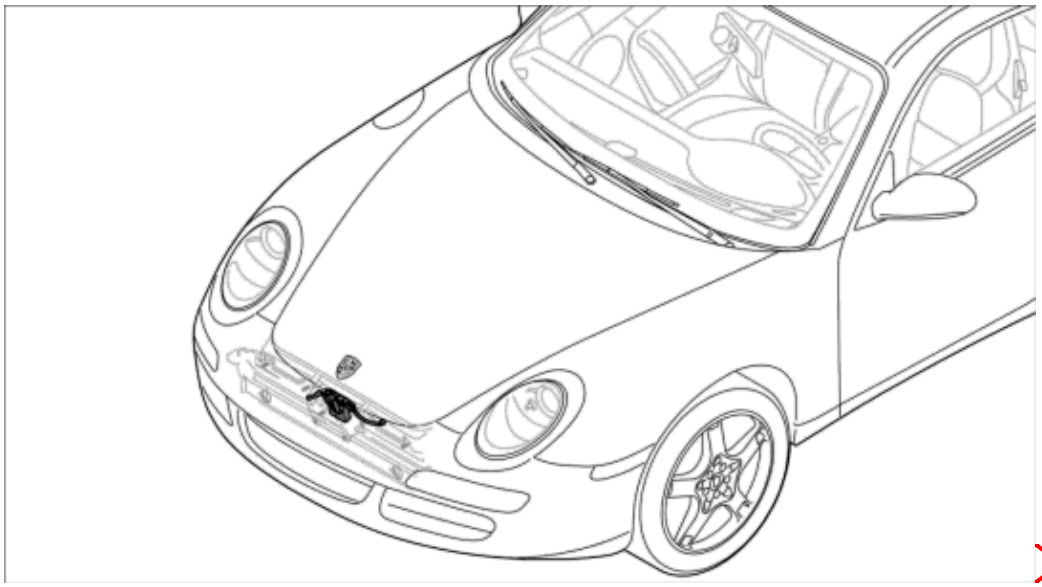


Installing bowden cable for emergency release

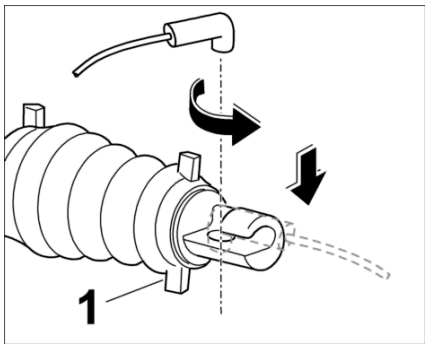
1. Press in bowden cable **-2-** at lower part of the lid lock.

Inserting bowden cable for emergency release

Installation Location:



Overview, front lower part of lid lock



Inserting bowden cable for emergency release

1. Position bowden cable at servomotor **-1-** and twist in **-direction of arrow-** .

top of page

Subsequent work

Reworking

Check gap dimensions on wing and front spoiler. Adjust lower part of lid lock and front lid if necessary. *5 Diagram - body gap dimensions 5522 Adjusting front lid*
Check inner luggage compartment release (Trunk Entrapment). *5562 01 Removing and installing front emergency release - checking*
Install front cover (lock mount). *Removing and installing cover for lock mount*

997110, 997111, 997120, 997121, 997310, 997311, 997320, 997321, 997410, 997411, 997430, 997431, 997610, 997611, 997620, 997621

55 18 19 Removing and installing front upper part of lid lock - as of MY 2005

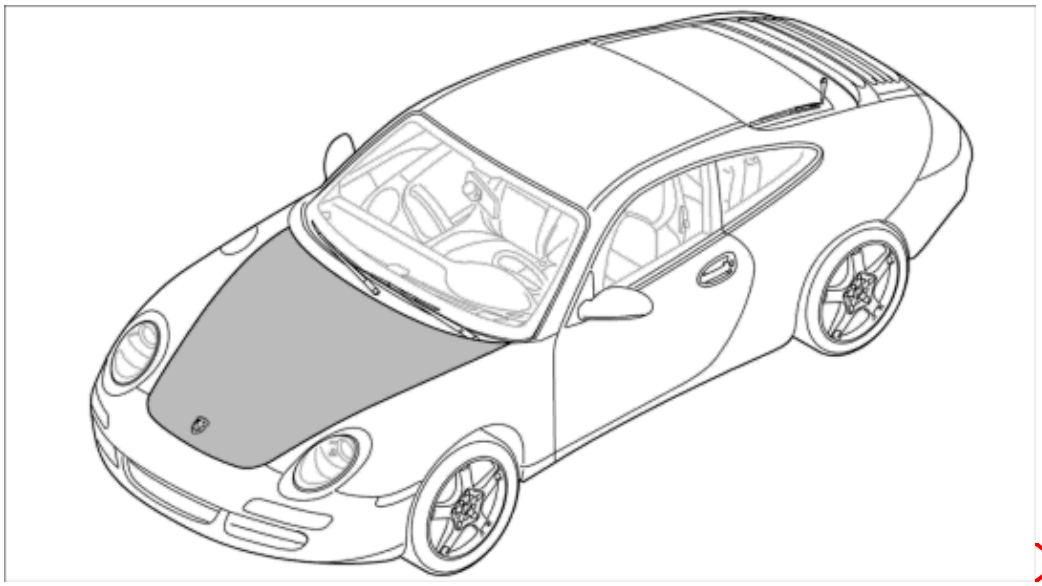
- Removing front upper part of lid lock
- Installing front upper part of lid lock

top of page

Removing front upper part of lid lock

Removing upper part of front lid lock

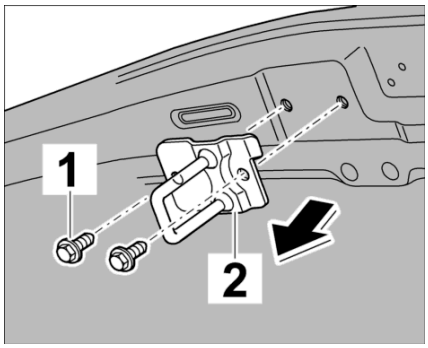
Installation Location:



Installation position of front lid lock upper part

Note

- *Determine the installation position of upper part of lid lock to cover using marking and note down.*



Removing upper part of lid lock

Note

Fastening nuts must not be used again following removal.

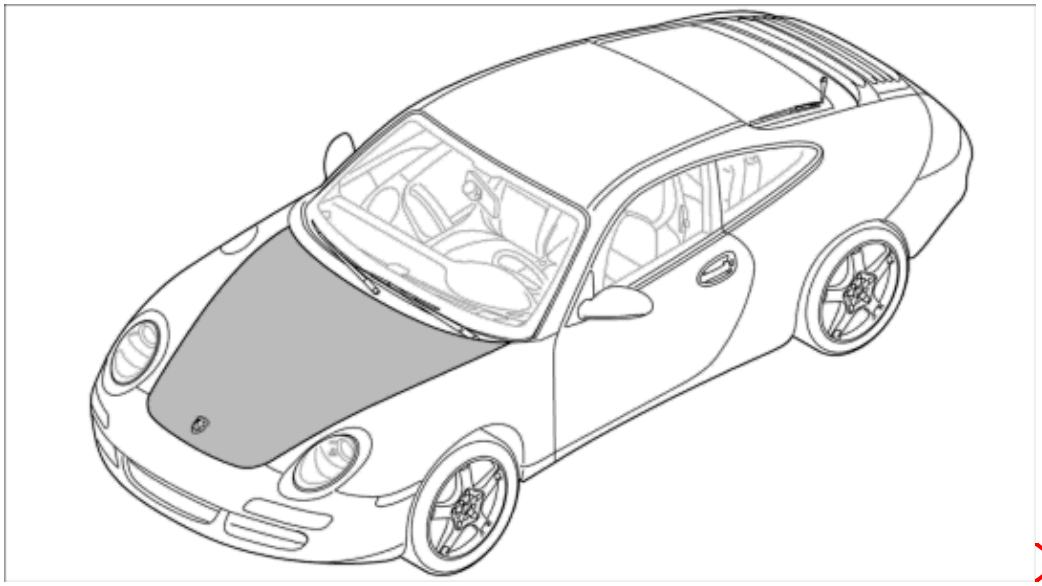
1. Unscrew **-1-** fastening screws and remove upper part of lid lock **-2-** .

top of page

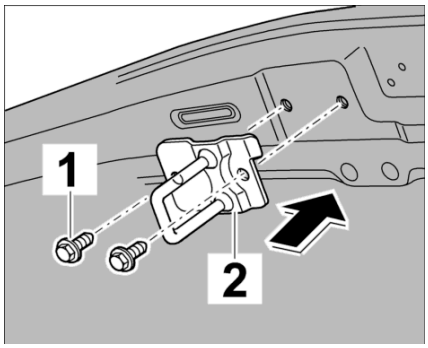
Installing front upper part of lid lock

Installing upper part of front lid lock

Installation Location:



Installation position of front lid lock upper part



Installing upper part of front lid lock

1. Position upper part of front lid lock **-2-** and tighten the fastening screws **-1-** slightly.
2. Adjust the upper part of lid lock **-2-** in relation to the lid according to the noted position; determine gap left to right, if necessary.
3. Tighten fastening screws **-1-** . **: 9.7 (7.0 ftlb.) Nm**
4. Check lid function.

Checking lid functions

1. Close the front lid and lock it.
2. Check that the front lid is held down by the safety hook (locking hook) after the lid lock has been opened.
3. Check return spring on lower part of lock pulls back the safety hook as far as the stop when lid is open.

997110, 997111, 997120, 997121, 997310, 997311, 997320, 997321, 997410, 997411, 997430, 997431, 997610, 997611, 997620, 997621

as of MY 2005
Country C00, C02, C05, C07, C08, C09, C10, C11, C12, C13, C14, C15, C16, C18, C19, C20, C21, C22, C23, C24, C25, C26, C27, C28, C32, C33, C34, C35, C36, C37, C38, C39, C45, C46, C98, C99

WARNUNG

Gefahr des Verlusts der Text-Bild-Zuordnung beim Ausdruck.

- **Aus technischen Gründen kann derzeit nicht ausgeschlossen werden, dass trotz einwandfreier Darstellung auf dem Bildschirm beim Ausdruck der Zusammenhang von Text und zugehörigem Bild verloren geht.**
- **Wird der Fehler nicht bemerkt, besteht die Gefahr, daß Arbeiten nicht korrekt durchgeführt werden und es dadurch zu Personen- und Sachschäden kommt.**

Vergleichen Sie deshalb nach dem Druckvorgang unbedingt die Ausdrucke mit der Bildschirmdarstellung. Korrigieren Sie die Ausdrucke im Fehlerfall so, daß der Inhalt der Bildschirmdarstellung zutreffend wiedergegeben wird.

55 22 15 Adjusting front lid - as of MY 2005

- Adjusting front lid

Tools

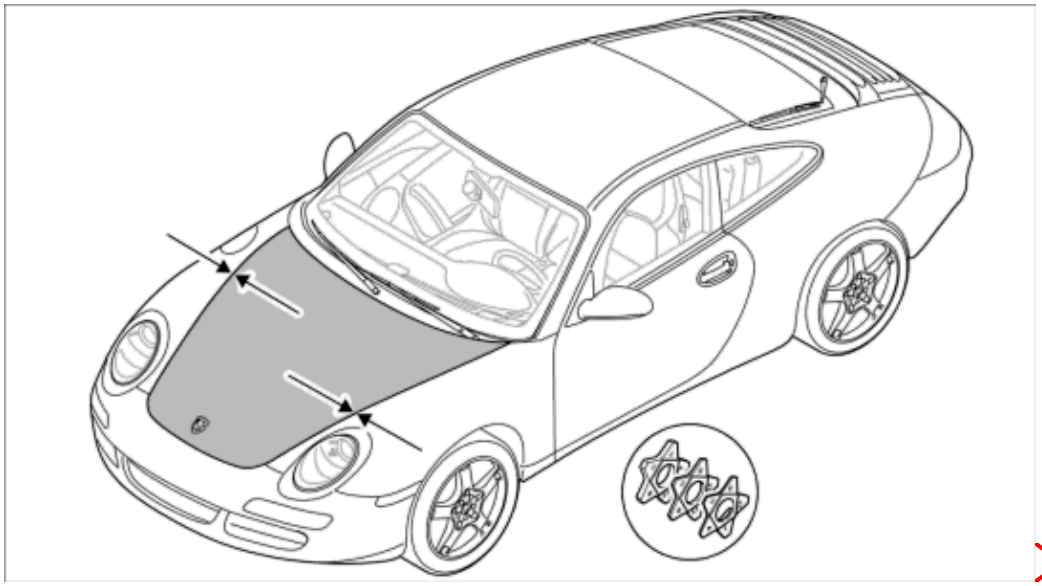
Designation	Type	Number	Explanation	
Star gauges for body gap dimensions	commercially available tool	NR.127-1		PORSCHE siehe Handbuch Werkstattausrüstung Voir le Manuel Equipement d´atelier Refer to the Workshop Equipment manual Vease Manual de Equipamiento de Taller Vedere il Manuale dell´attrezzatura d´officina ワークショップ・イクイップメント・マニュアルを参照

top of page

Adjusting front lid

Adjusting lid in X and Y direction

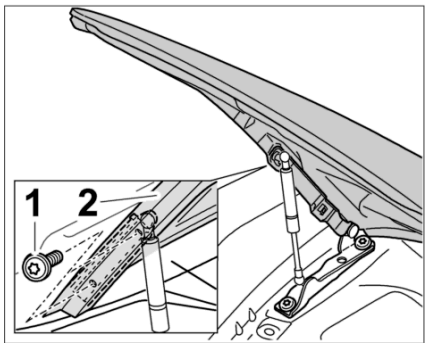
Installation Location:



Overview, adjusting front lid

Note

Use star gauges to set and measure the gap dimensions. **Star gauges for body gap dimensions NR.127-1**

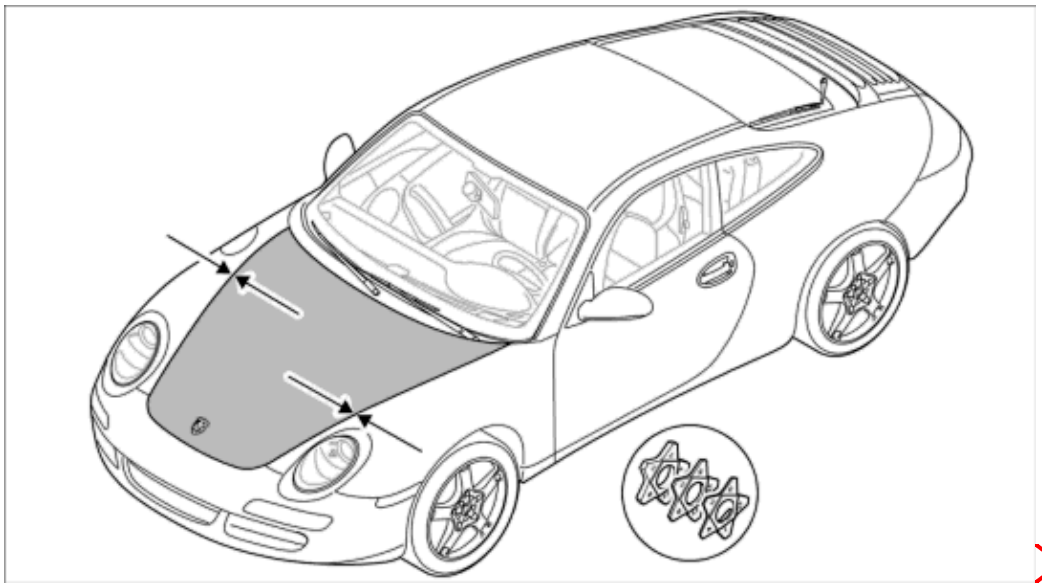


Adjusting lid in X and Y direction

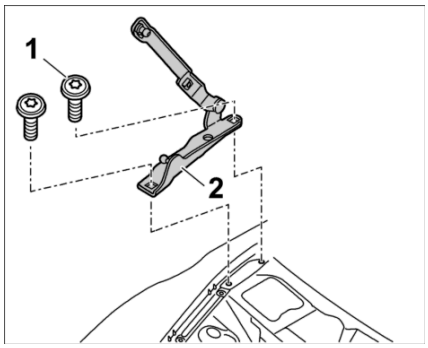
1. Check gap dimensions on body. *501000 Diagram - body gap dimensions*
2. Undo fastening screw **-1-** on both sides on front cover **-2-** .

Adjusting lid in Z direction

Installation Location:



Overview, adjusting front lid

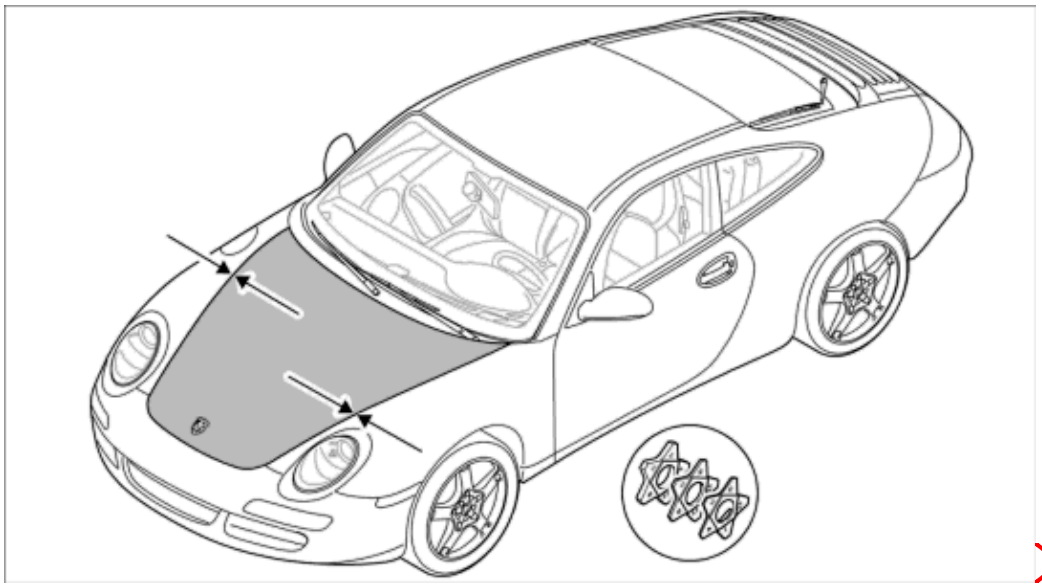


Adjusting lid in Z direction

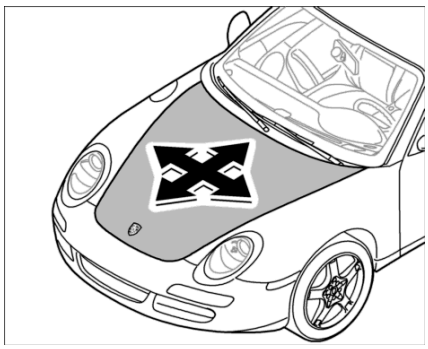
1. Undo fastening screws **-1-** on both front lid hinges **-2-** .

Adjusting front lid

Installation Location:



Overview, adjusting front lid



Adjusting front lid

1. By moving the front lid **-2-** at the hinges **-2-** , adjust the contours according to the wings, main headlights and front spoiler. *501000 Diagram - body gap dimensions*

2. Tighten fastening screws **-1-** . Tightening torque **: 9.7 (7.2) Nm (ftlb.)**
3. Tighten fastening screws **-1-** . Tightening torque **: 9.7 (7.2) Nm (ftlb.)**

997110, 997111, 997120, 997121, 997310, 997311, 997320, 997321, 997410, 997411, 997430, 997431, 997610, 997611, 997620, 997621

as of MY 2005
Country C00, C02, C05, C07, C08, C09, C10, C11, C12, C13, C14, C15, C16, C18, C19, C20, C21, C22, C23, C24, C25, C26, C27, C28, C32, C33, C34, C35, C36, C37, C38, C39, C45, C46, C98, C99

WARNUNG

Gefahr des Verlusts der Text-Bild-Zuordnung beim Ausdruck.

- **Aus technischen Gründen kann derzeit nicht ausgeschlossen werden, dass trotz einwandfreier Darstellung auf dem Bildschirm beim Ausdruck der Zusammenhang von Text und zugehörigem Bild verloren geht.**
- **Wird der Fehler nicht bemerkt, besteht die Gefahr, daß Arbeiten nicht korrekt durchgeführt werden und es dadurch zu Personen- und Sachschäden kommt.**

Vergleichen Sie deshalb nach dem Druckvorgang unbedingt die Ausdrucke mit der Bildschirmdarstellung. Korrigieren Sie die Ausdrucke im Fehlerfall so, daß der Inhalt der Bildschirmdarstellung zutreffend wiedergegeben wird.

WARNING

Danger of losing text-figure correspondence when printing out.

- **For technical reasons, it can currently not be ruled out that the correspondence between text and associated figure can be lost when it is printed out, even though the display on the screen is correct.**
- **If the fault is not noticed, there is the danger that work will not be performed correctly which can cause injury and damage.**

Therefore, always compare printouts with the screen display after printing them out. Correct the printouts if they are faulty so that the content of the screen display matches that on the printouts.

AVERTISSEMENT

Risque de perte de la correspondance texte-illustration lors de l'impression papier.

- **Pour des raisons techniques, il ne peut pas être exclu à l'heure actuelle que, même en cas d'affichage correct à l'écran, la correspondance entre le texte et l'illustration puisse être erronée sur l'impression papier.**
- **Si l'erreur passe inaperçue, on court le risque d'exécuter certaines opérations de manière incorrecte pouvant conduire à des dommages corporels et matériels.**

55 22 19 Removing and installing front cover - as of MY 2005

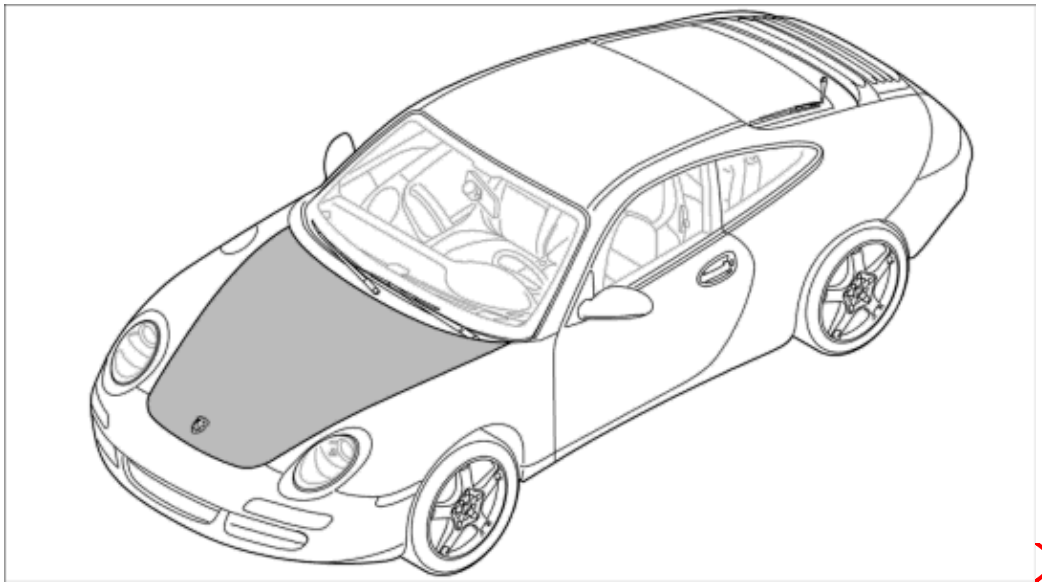
- Removing front lid
- Installing front lid
- Reworking

top of page

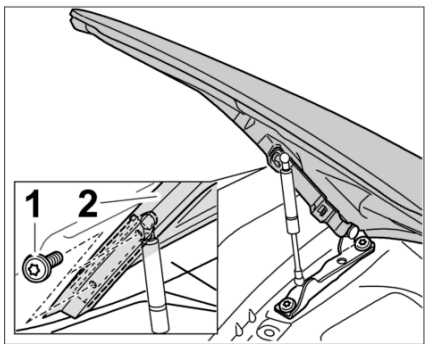
Removing front lid

Removing front lid

Installation Location:



Overview, removing and installing front cover



Removing front lid

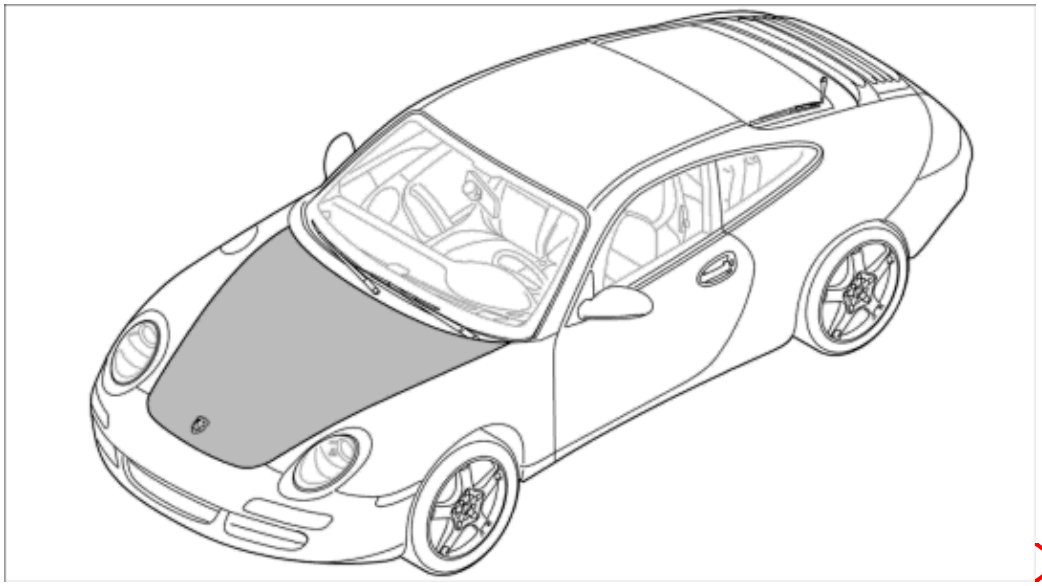
1. Unscrew fastening screws **-1-** from the front lid **-2-** .

top of page

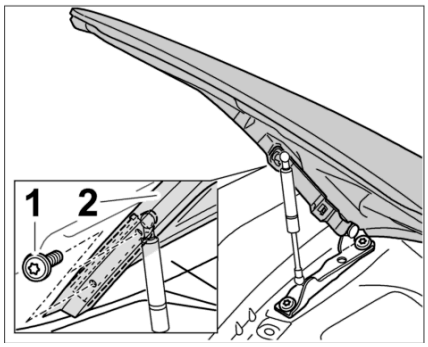
Installing front lid

Installing front lid

Installation Location:



Overview, removing and installing front cover



Installing front lid

1. Position lid **-2-** at the left and right hinges and tighten using the fastening screws **-1-** . Tightening torque **Final tightening: 9.7 (7.2) Nm (ftlb.)**

top of page

Reworking

Reworking

Adjust front lid. 552215 Adjusting front lid - chapter on "adjusting"

997110, 997111, 997120, 997121, 997310, 997311, 997320, 997321, 997410, 997411, 997430, 997431, 997610, 997611, 997620, 997621

as of MY 2005
Country C00, C02, C05, C07, C08, C09, C10, C11, C12, C13, C14, C15, C16, C18, C19, C20, C21, C22, C23, C24, C25, C26, C27, C28, C32, C33, C34, C35, C36, C37, C38, C39, C45, C46, C98, C99

WARNUNG

Gefahr des Verlusts der Text-Bild-Zuordnung beim Ausdruck.

- **Aus technischen Gründen kann derzeit nicht ausgeschlossen werden, dass trotz einwandfreier Darstellung auf dem Bildschirm beim Ausdruck der Zusammenhang von Text und zugehörigem Bild verloren geht.**
- **Wird der Fehler nicht bemerkt, besteht die Gefahr, daß Arbeiten nicht korrekt durchgeführt werden und es dadurch zu Personen- und Sachschäden kommt.**

Vergleichen Sie deshalb nach dem Druckvorgang unbedingt die Ausdrucke mit der Bildschirmdarstellung. Korrigieren Sie die Ausdrucke im Fehlerfall so, daß der Inhalt der Bildschirmdarstellung zutreffend wiedergegeben wird.

WARNING

Danger of losing text-figure correspondence when printing out.

- **For technical reasons, it can currently not be ruled out that the correspondence between text and associated figure can be lost when it is printed out, even though the display on the screen is correct.**
- **If the fault is not noticed, there is the danger that work will not be performed correctly which can cause injury and damage.**

Therefore, always compare printouts with the screen display after printing them out. Correct the printouts if they are faulty so that the content of the screen display matches that on the printouts.

AVERTISSEMENT

Risque de perte de la correspondance texte-illustration lors de l'impression papier.

- **Pour des raisons techniques, il ne peut pas être exclu à l'heure actuelle que, même en cas d'affichage correct à l'écran, la correspondance entre le texte et l'illustration**

55 22 37 Disassembling and assembling front lid - as of MY 2005

- Preliminary work
- Disassembling front lid
- Assembling front lid
- Subsequent work

top of page

Preliminary work

Preliminary work

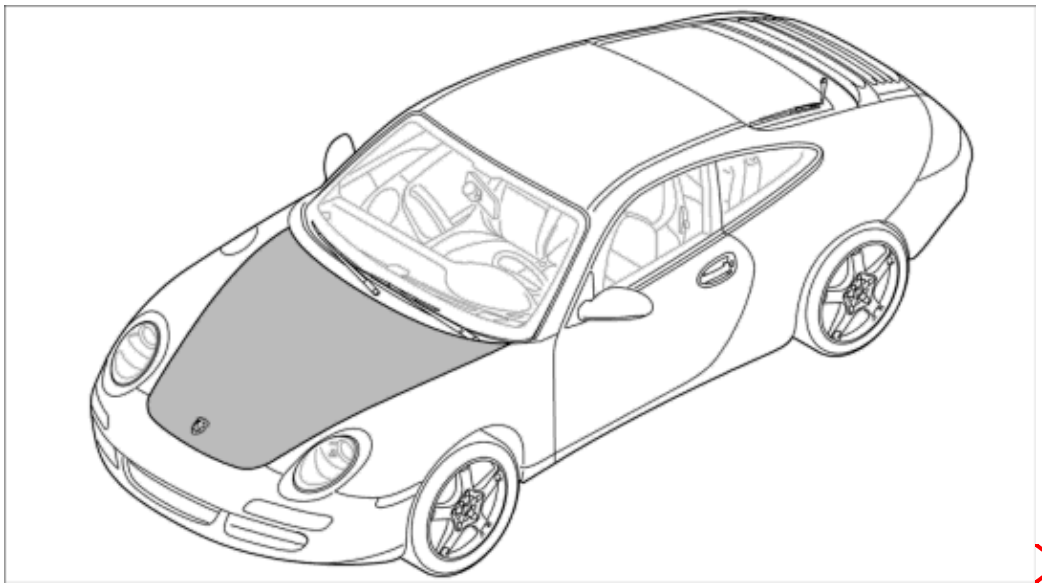
Remove front lid. *5522 21 Removing and installing front lid - removing*
Remove front upper part of lid lock. 551819 Removing and installing front upper part of lock - removing
Remove logo. *21 Removing and installing front logo - removing*

top of page

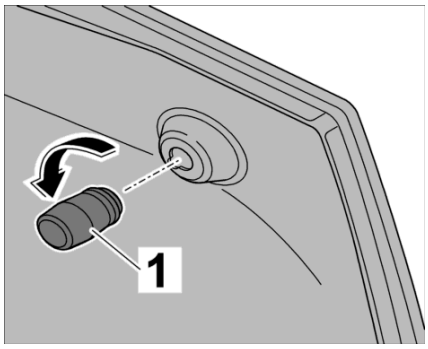
Disassembling front lid

Removing rubber pad

Installation Location:



Overview, front lid

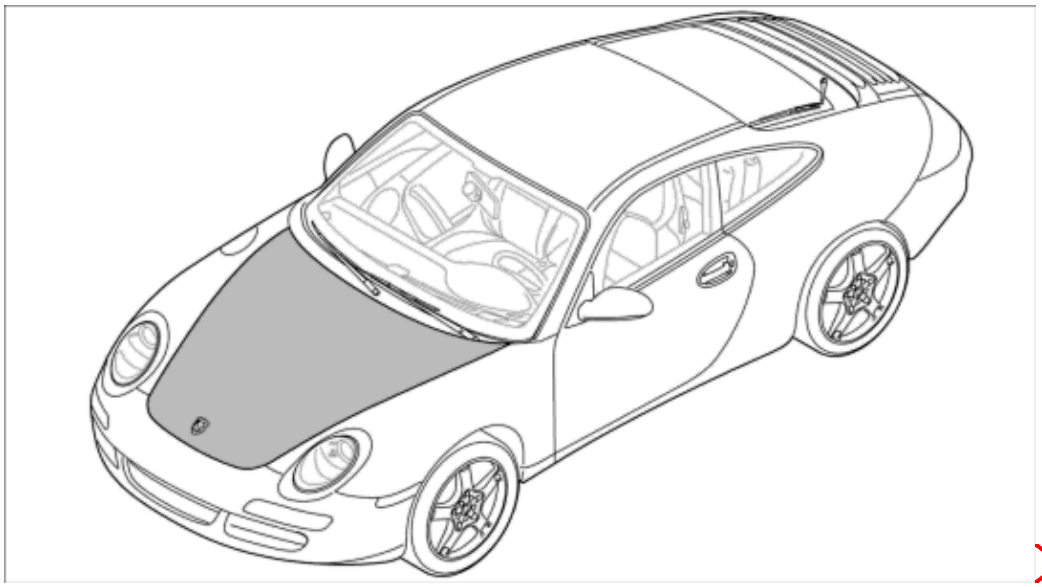


Removing rubber pad

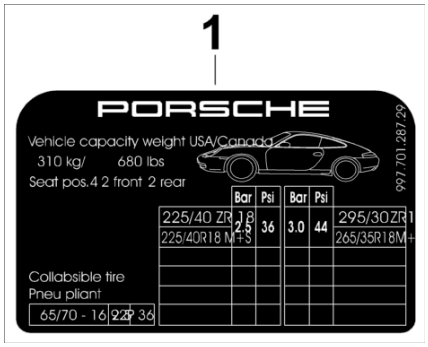
1. Unscrew rubber pad **-1-** .

Removing self-adhesive label

Installation Location:



Overview, front lid



Removing self-adhesive label

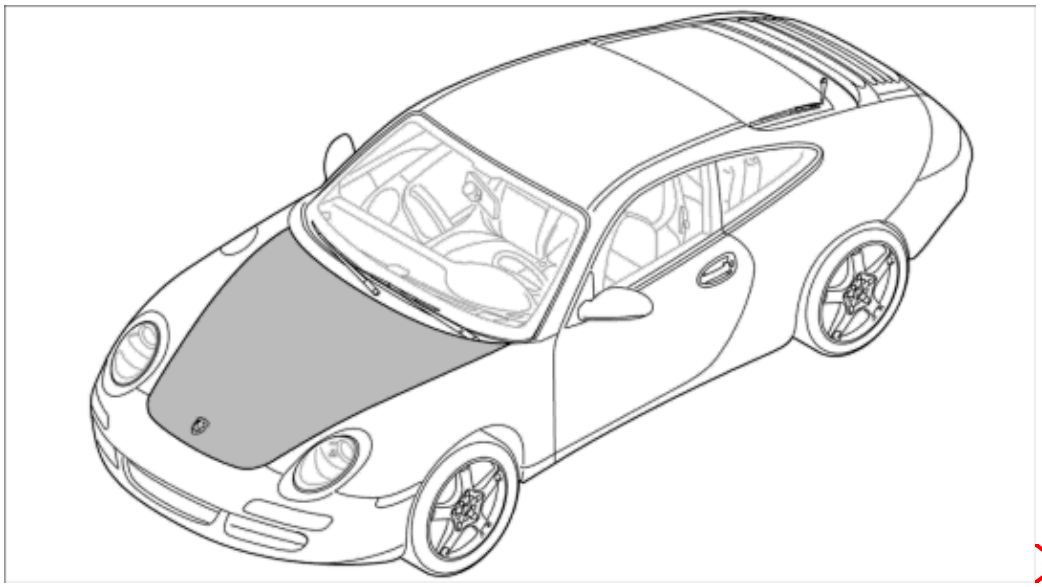
1. Remove self-adhesive label **-1-** .

top of page

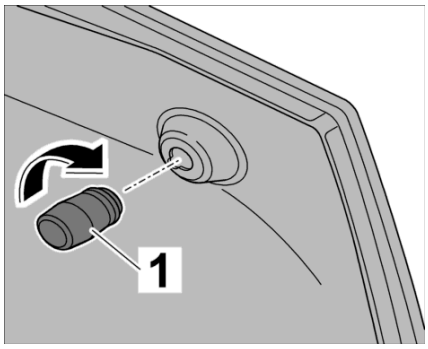
Assembling front lid

Installing rubber pad

Installation Location:



Overview, front lid

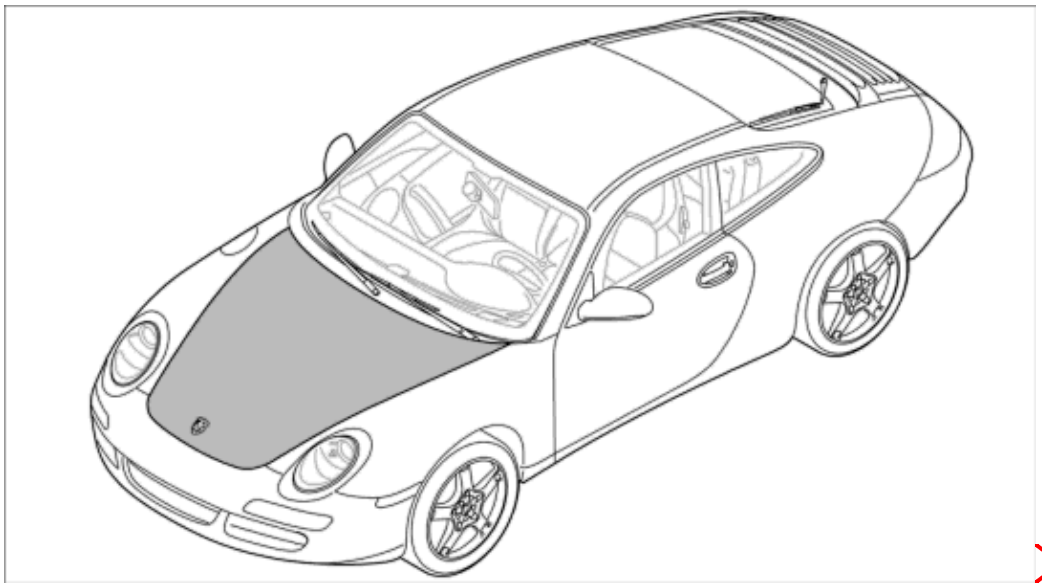


Installing rubber pad

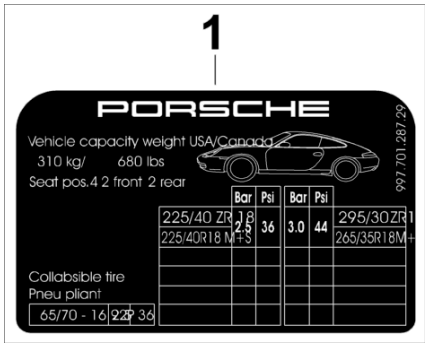
1. Screw in rubber pad **-1-** .

Installing self-adhesive label

Installation Location:



Overview, front lid



Affixing self-adhesive label

1. Affix self-adhesive label **-1-** .

top of page

Subsequent work

Reworking

Install logo. *23 Removing and installing front logo - installing*
Install upper part of lid lock. 551819 Removing and installing front upper part of lock - installing
Install front lid. *5522 23 Removing and installing front lid - installing*

997110, 997111, 997120, 997121, 997310, 997311, 997320, 997321, 997410, 997411, 997430, 997431, 997610, 997611, 997620, 997621

as of MY 2005
Country C00, C02, C05, C07, C08, C09, C10, C11, C12, C13, C14, C15, C16, C18, C19, C20, C21, C22,

55 25 19 Removing and installing front lid hinge - as of MY 2005

- Preliminary work
- Removing front lid hinge
- Install front lid hinge
- Reworking

top of page

Preliminary work

Preliminary work

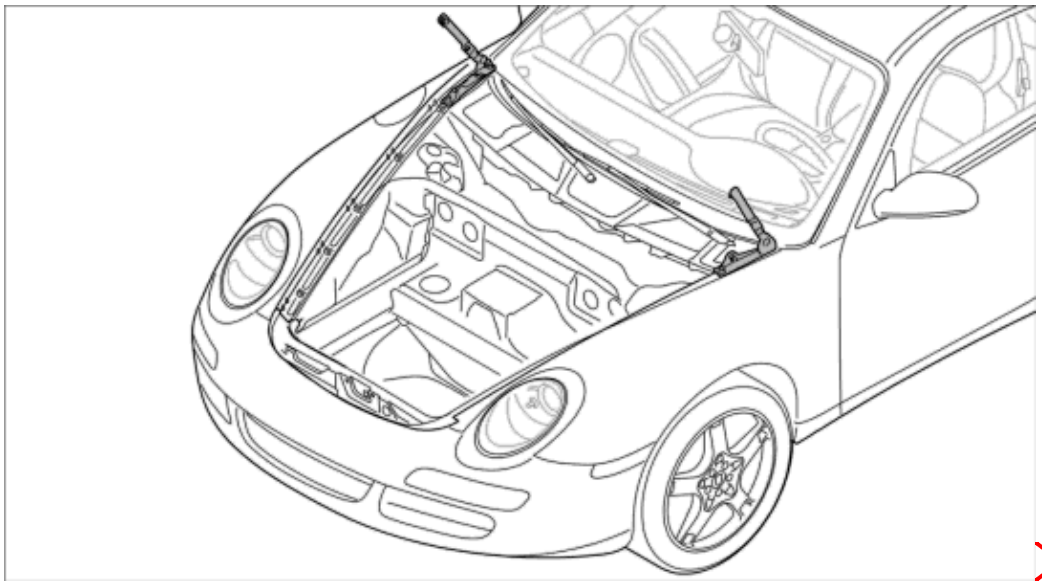
Remove cowl panel cover. 508719 Removing and installing cowl panel cover - chapter on "removing"
Remove pneumatic spring. 553119 Removing and installing front pneumatic spring - chapter on "removing"

top of page

Removing front lid hinge

Removing front lid hinge

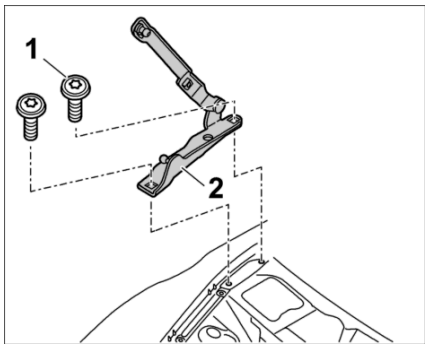
Installation Location:



Overview, removing and installing front lid hinge

Note

- *If a front lid hinge fails to work properly, it can be replaced without having to remove the front lid. In such cases, a second person is required to hold the lid open during the repair process.*



Removing lid hinge

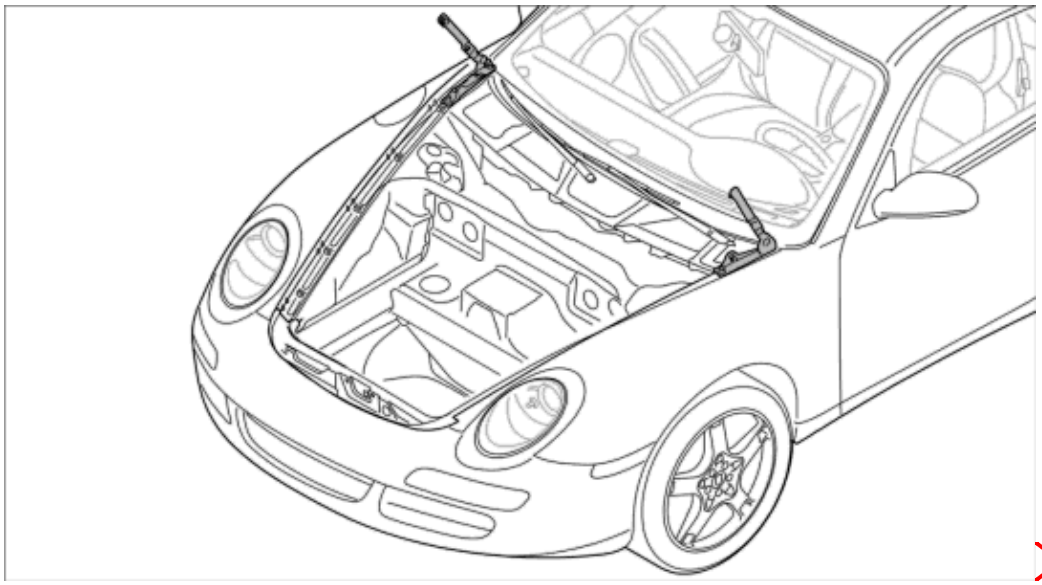
1. Unscrew fastening screws **-1-** of front lid hinge **-2-** and remove lid hinge.

top of page

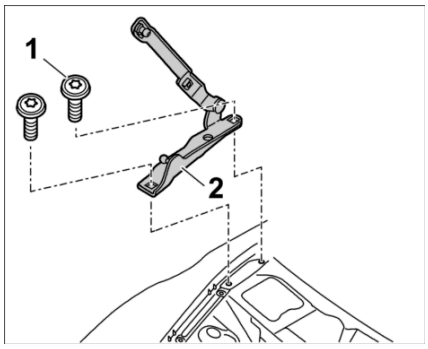
Install front lid hinge

Installing front lid hinge

Installation Location:



Overview, removing and installing front lid hinge



Installing lid hinge

1. Align lid hinge **-2-** roughly to the body according to the old attachment points and tighten using the fastening screws **-1-** . Tightening torque **Final tightening: 9.7 (7.2) Nm (ftlb.)**

top of page

Reworking

Reworking

Install pneumatic spring. 553119 Removing and installing front pneumatic spring - chapter on "installing"
Install cowl panel cover. 508719 Removing and installing cowl panel cover - chapter on "installing"

997110, 997111, 997120, 997121, 997310, 997311, 997320, 997321, 997410, 997411, 997430, 997431, 997610, 997611, 997620, 997621

as of MY 2005
Country C00, C02, C05, C07, C08, C09, C10, C11, C12, C13, C14, C15, C16, C18, C19, C20, C21, C22,

55 31 19 Removing and installing front pneumatic spring - as of MY 2005

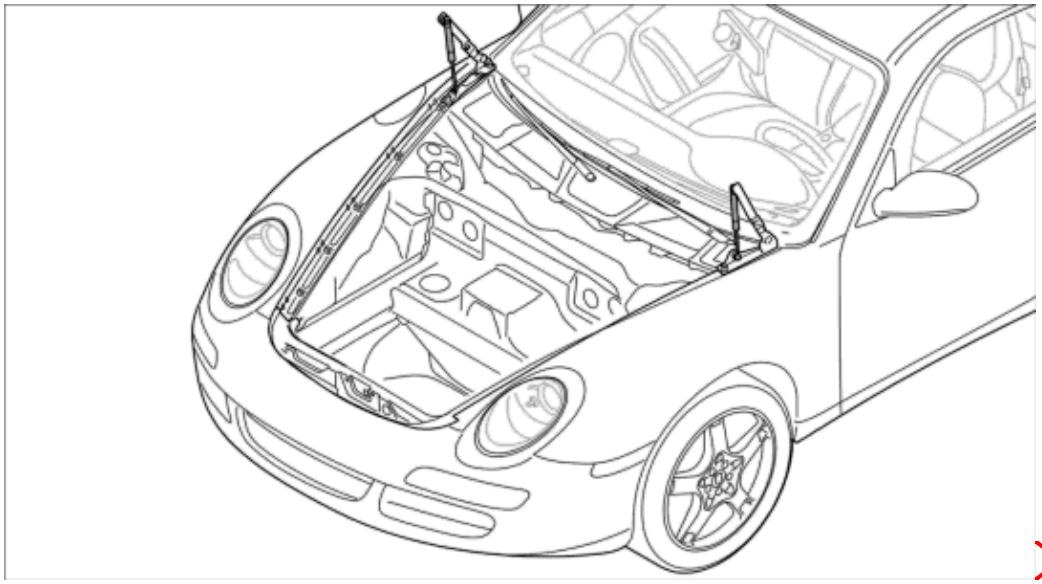
- Removing front pneumatic spring
- Installing front pneumatic spring

top of page

Removing front pneumatic spring

Removing front pneumatic spring at lid end

Installation Location:



Overview, front pneumatic spring

ATTENTION

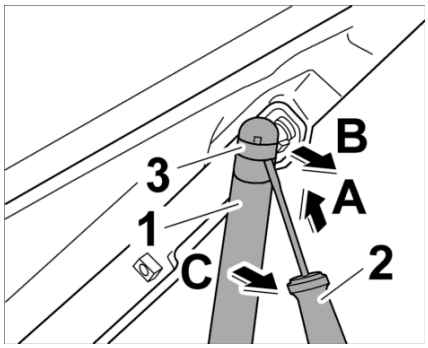
When working on the pneumatic springs of the lid, the following safety measures must be observed, amongst others:

- **Danger of injury if pneumatic springs burst**

To remove the pneumatic springs, they must be in idle state: lid open.

The lid must be secured against accidental closing after removing the pneumatic springs.

Pneumatic springs must not be opened using force - extreme internal pressure.

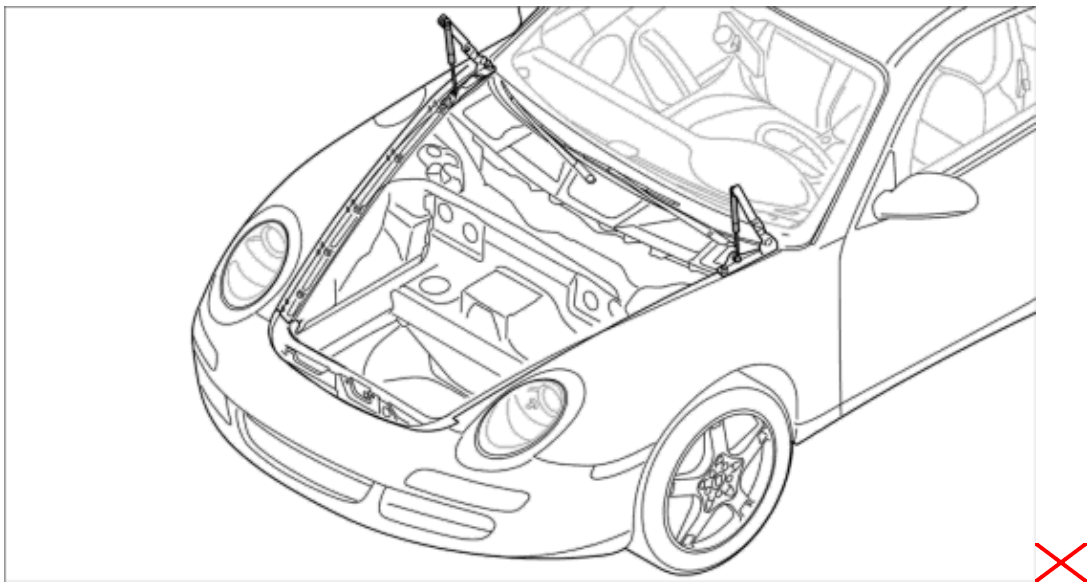


Removing front pneumatic spring at lid end

1. Open front lid.
2. A second person should hold the front lid to prevent it from closing accidentally.
3. Insert a screwdriver **-2-** between the head of the pneumatic spring and the safety clip **-3-** **-A-** .
4. Release the safety clip **-3-** by levering the screwdriver **-2-** towards the pneumatic spring **-B-** . The safety clip remains in the head of the pneumatic spring.
5. Pull the pneumatic spring **-1-** from the ball head **-C-** .
6. Withdraw the screwdriver.
7. Remove pneumatic spring **-1-** .

Removing front pneumatic spring on body

Installation Location:



Overview, front pneumatic spring

ATTENTION

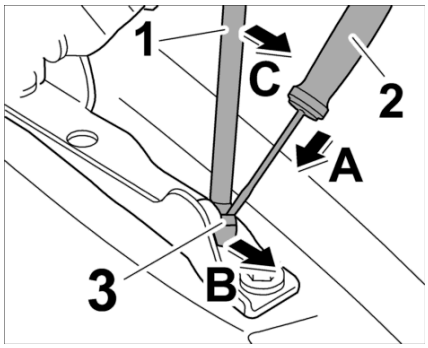
When working on the pneumatic springs of the lid, the following safety measures must be observed, amongst others:

- **Danger of injury if pneumatic springs burst**

To remove the pneumatic springs, they must be in idle state: lid open.

The lid must be secured against accidental closing after removing the pneumatic springs.

Pneumatic springs must not be opened using force - extreme internal pressure.



Removing front pneumatic spring on body

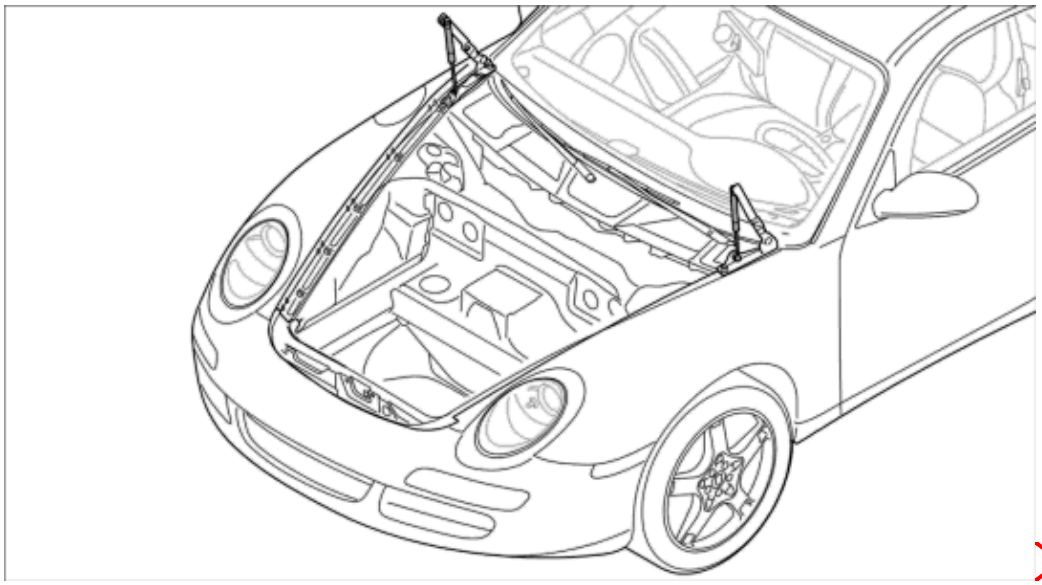
1. Open front lid.
2. A second person should hold the front lid to prevent it from closing accidentally.
3. Insert a screwdriver **-2-** between the head of the pneumatic spring and the safety clip **-3-** **-A-** .
4. Release the safety clip **-3-** by levering the screwdriver **-2-** towards the pneumatic spring **-B-** . The safety clip remains in the head of the pneumatic spring.
5. Pull the pneumatic spring **-1-** from the ball head **-C-** .
6. Withdraw the screwdriver.
7. Remove pneumatic spring **-1-** .

top of page

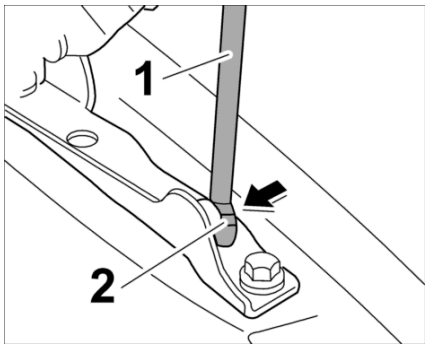
Installing front pneumatic spring

Installing front pneumatic spring on the body

Installation Location:



Overview, front pneumatic spring

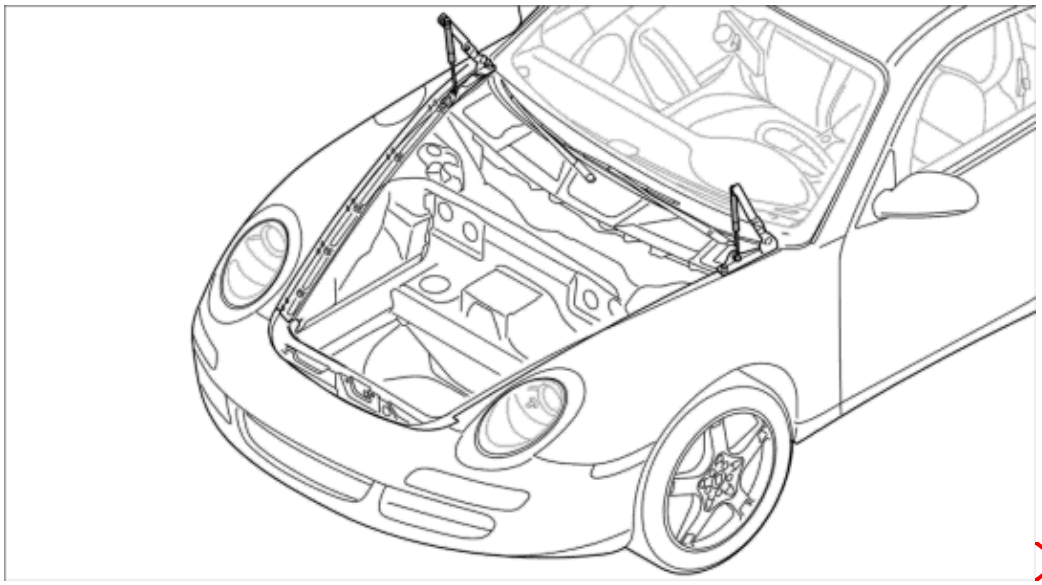


Installing front pneumatic spring on the body

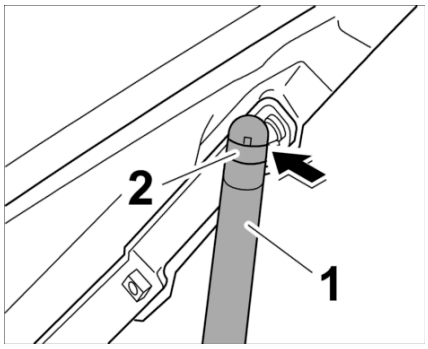
1. Position pneumatic spring.
2. A second person should hold the front lid to prevent it from closing accidentally.
3. Position pneumatic spring **-1-** on the ball head and press on firmly. The pneumatic spring clicks audibly into place.
4. Check that the safety clips **-2-** have engaged correctly; repeat procedure, if necessary.
5. Check pneumatic spring.

Installing front pneumatic spring at lid end

Installation Location:



Overview, front pneumatic spring



Installing front pneumatic spring at lid end

1. Position pneumatic spring.
2. A second person should hold the front lid to prevent it from closing accidentally.
3. Position pneumatic spring **-1-** on the ball head and press on firmly. The pneumatic spring clicks audibly into place.
4. Check that the safety clips **-2-** have engaged correctly; repeat procedure, if necessary.
5. Check pneumatic spring.

Function test on pneumatic spring

1. Open and close the lid several times to check function and assembly of the pneumatic spring.
2. Open the lid fully. The pneumatic spring must hold the lid in its open position.
3. Close the lid.

997110, 997111, 997120, 997121, 997310, 997311, 997320, 997321, 997410, 997411, 997430, 997431, 997610, 997611, 997620, 997621

55 33 19 Removing and installing front lid seal - as of MY 2005

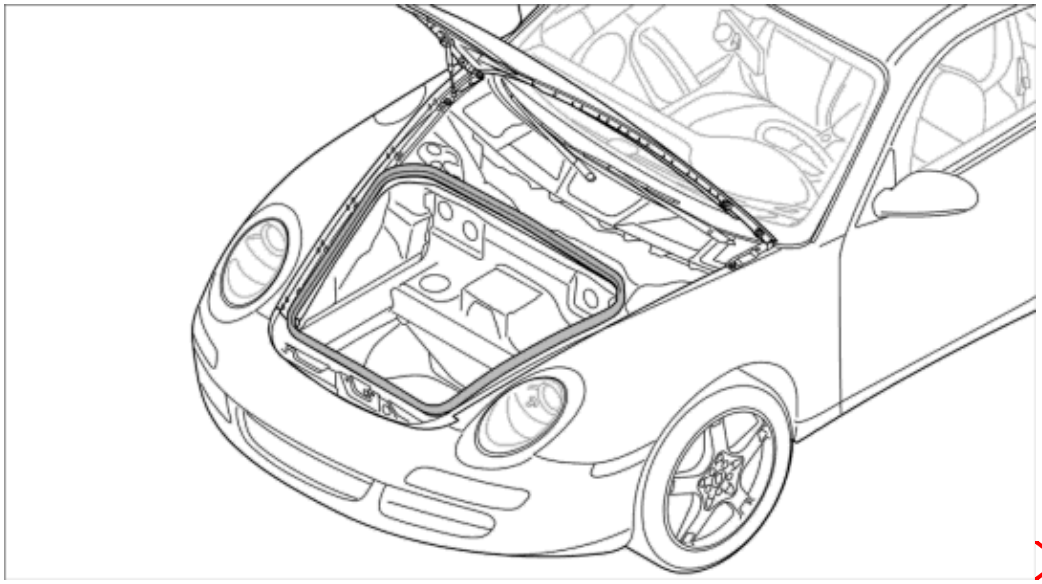
- Removing front lid seal
- Installing front lid seal

top of page

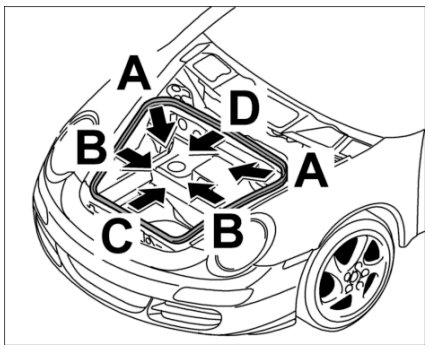
Removing front lid seal

Removing front lid seal

Installation Location:



Overview, removing and installing front lid seal



Removing front lid seal

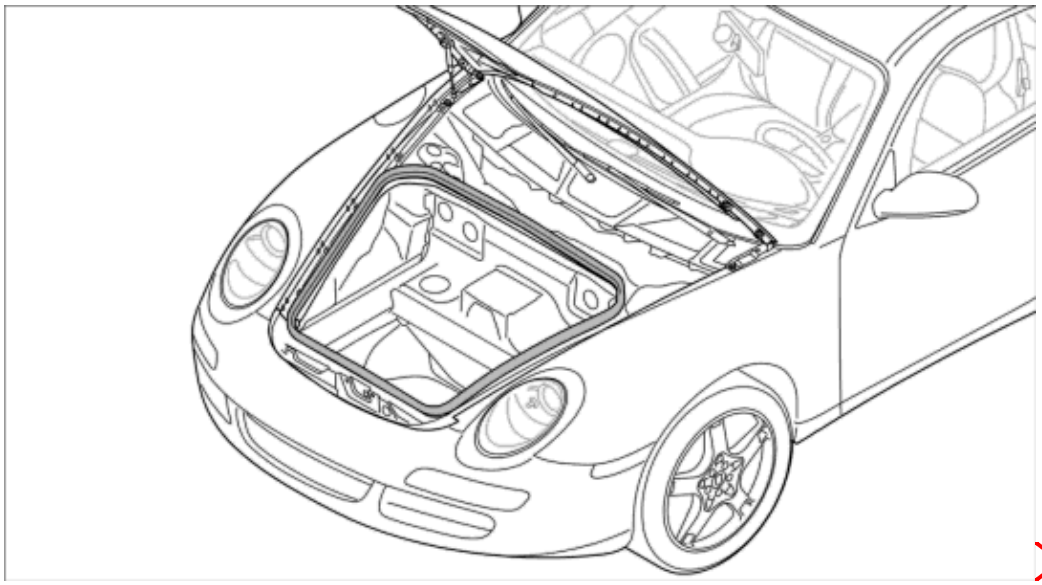
1. Open front

lid.

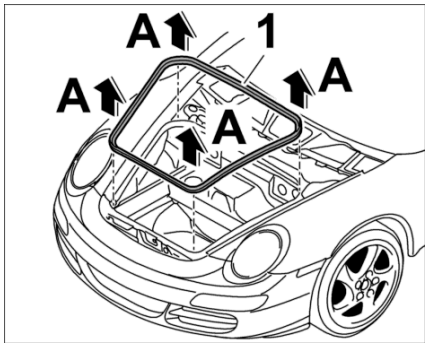
2. Pull the seal from the flanges at the corner pieces **-A-** , wings **-B-** , closing panel **-C-** and plenum chamber cover **-D-** .

Removing front lid seal

Installation Location:



Overview, removing and installing front lid seal



Removing front lid seal

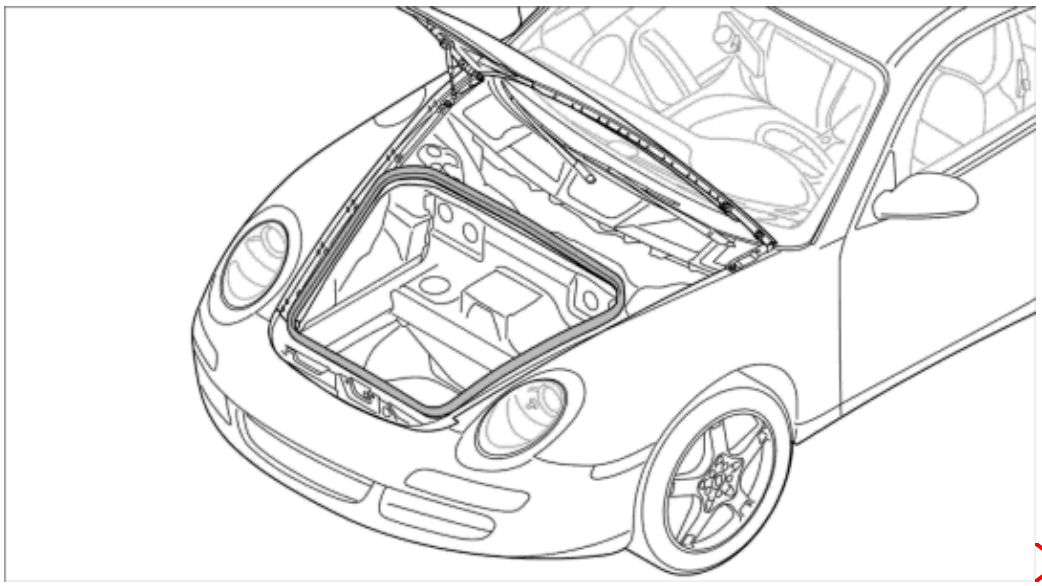
1. Lift the seal **-1-** up and off **-A-** .

top of page

Installing front lid seal

Mounting front lid seal

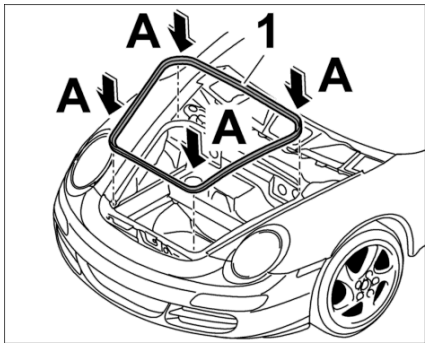
Installation Location:



Overview, removing and installing front lid seal

Note

- *Before replacing, check the existing seal for signs of damage (areas torn, crushed, etc.). If there are signs of damage, the seal must be replaced.*
- *The seal is pressed onto the flange without any additional sealants.*

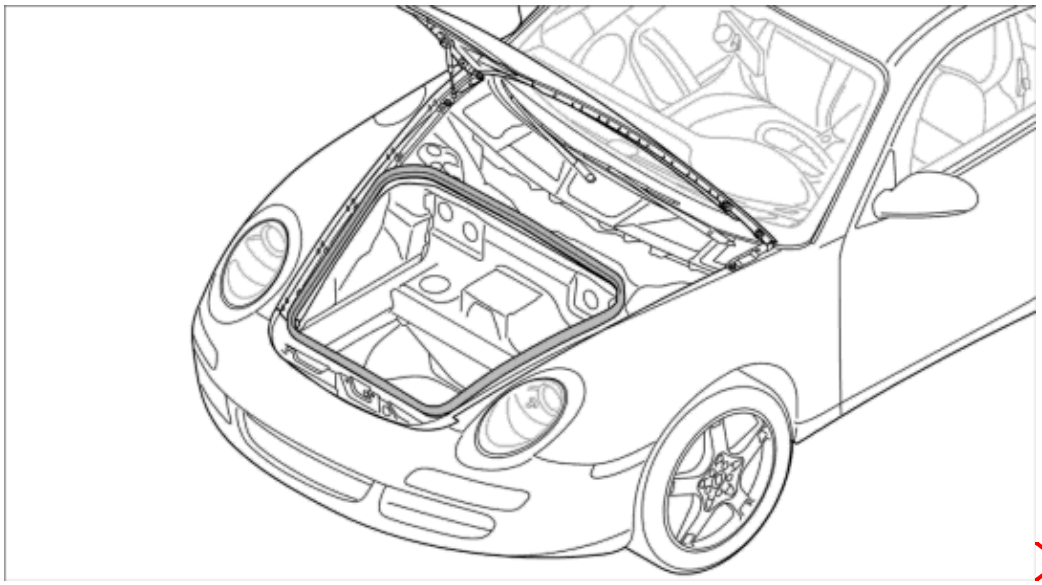


Mounting front lid seal

1. Position the seal **-1-** from above **-A-** .

Installing front lid seal

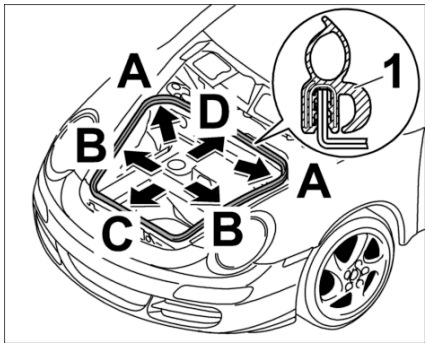
Installation Location:



Overview, removing and installing front lid seal

Note

- *Pay particular attention to the areas near the tight roundings for correct installation; there must be no deformation or stretching.*



Attaching the front lid seal

1. Pre-position the seal **-1-** and press onto the sheetmetal flanges in this area **-A-** .
2. Apply the seal evenly along the flange. Position and press the seal without any tension on the flanges to the wing **-B-** , to the closing panel **-C-** and to the radiator tank cover **-D-** .
3. Check whether the installation is correct.
4. Close front lid.

997110, 997111, 997120, 997121, 997310, 997311, 997320, 997321, 997410, 997411, 997430, 997431, 997610, 997611, 997620, 997621

55 37 19 Removing and installing filler flap - as of MY 2005

- Removing filler flap
- Installing filler flap

Tools

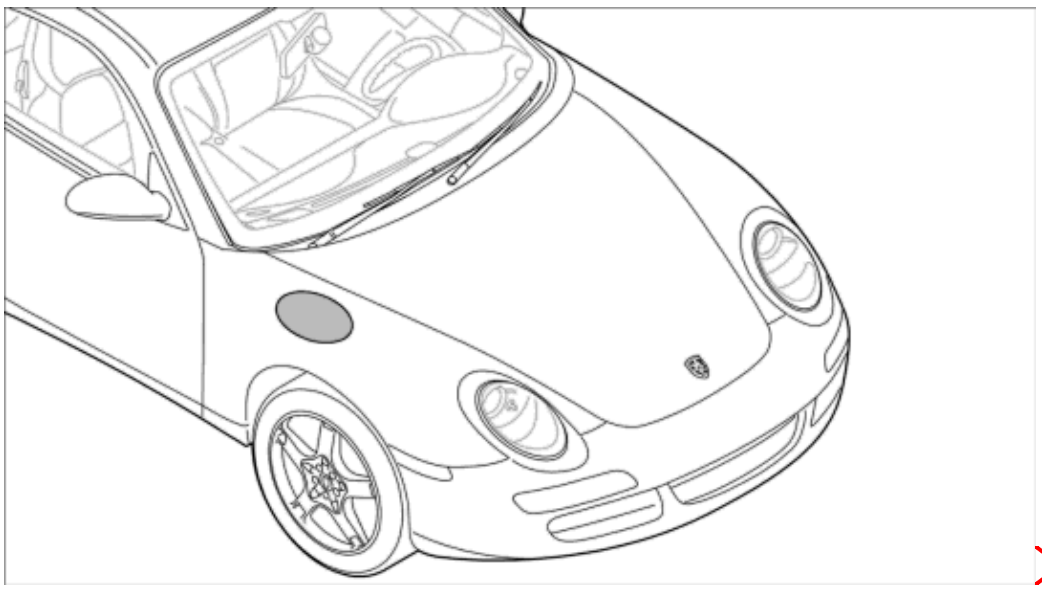
Designation	Type	Number	Explanation	
removal tool, universal	commercially available tool	NR.21		

top of page

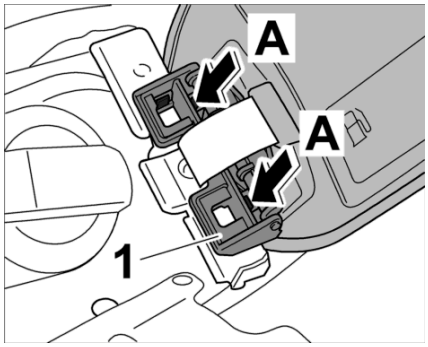
Removing filler flap

Removing filler flap

Installation Location:

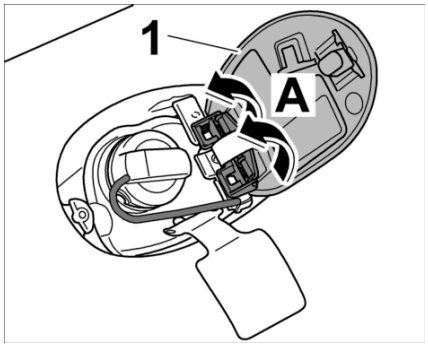


Overview, removing and installing filler flap



Removing filler flap

1. Press the clip **-A-** on forwards from above with a narrow screwdriver.

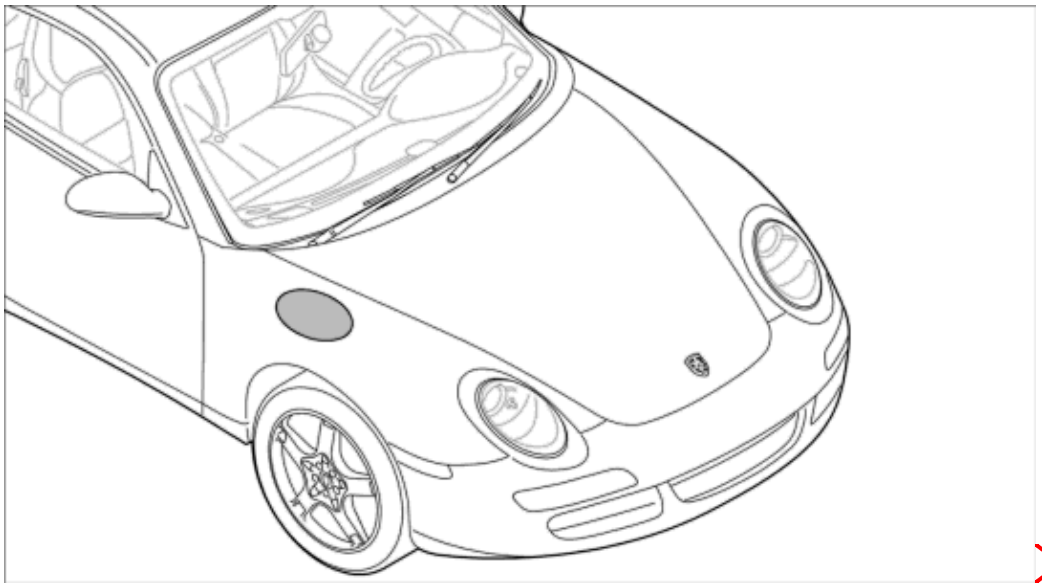


Pulling off filler flap

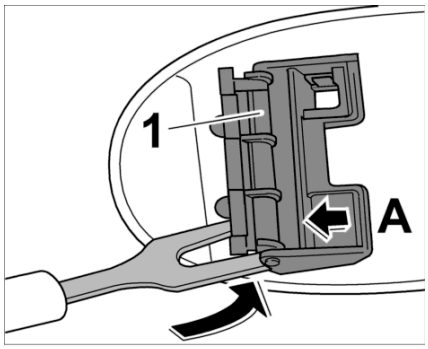
2. Press fastening lug in **-direction of arrow A-** and hold.
3. Pull filler flap **-1-** carefully in an upward direction.

Removing plastic hinge

Installation Location:



Overview, removing and installing filler flap



Removing plastic hinge

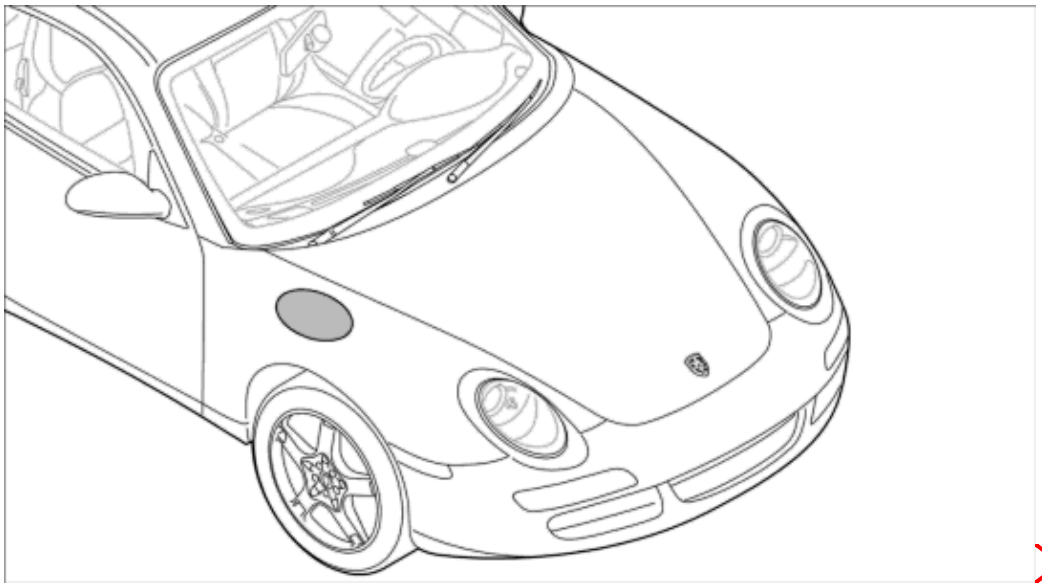
1. Insert the removal tool **removal tool, universal NR.21** at the locking lugs on the left and right and lift via the locking lugs, remove the plastic hinge **-1-** in **-direction of arrow A-** from the filler flap.

top of page

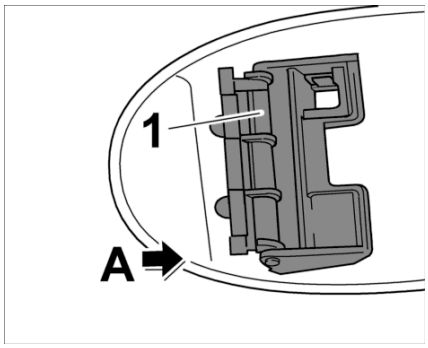
Installing filler flap

Installing plastic hinge

Installation Location:



Overview, removing and installing filler flap

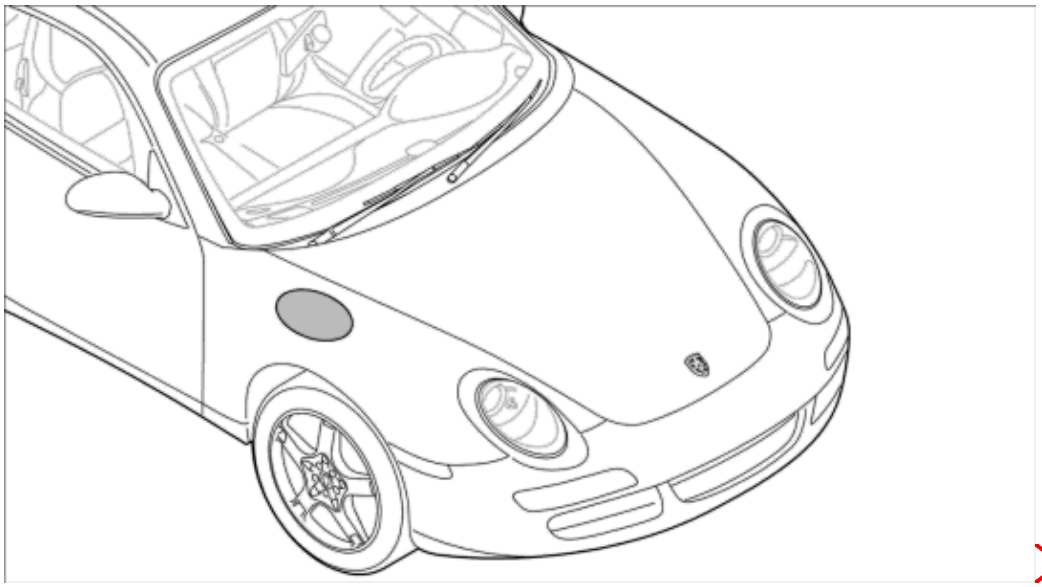


Installing plastic hinge

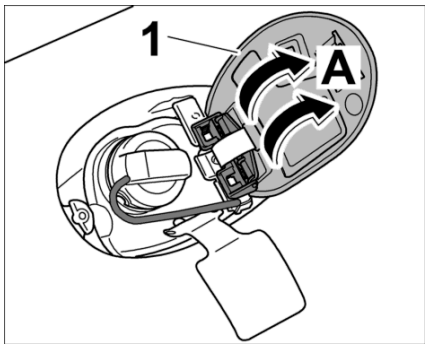
1. Position the plastic hinge **-1-** at the filler flap and push on in **-direction of arrow A-** . The lugs must engage perceptively.

Installing filler flap

Installation Location:



Overview, removing and installing filler flap



Installing filler flap

1. Position the filler flap **-1-** on the wing cut-out and push in in **-direction of arrow A-** . The lugs must engage perceptively.

997110, 997111, 997120, 997121, 997310, 997311, 997320, 997321, 997410, 997411, 997430, 997431, 997610, 997611, 997620, 997621

as of MY 2005
Country C00, C02, C05, C07, C08, C09, C10, C11, C12, C13, C14, C15, C16, C18, C19, C20, C21, C22, C23, C24, C25, C26, C27, C28, C32, C33, C34, C35, C36, C37, C38, C39, C45, C46, C98, C99

WARNUNG

Gefahr des Verlusts der Text-Bild-Zuordnung beim Ausdruck.

- **Aus technischen Gründen kann derzeit nicht ausgeschlossen werden, dass trotz einwandfreier Darstellung auf dem Bildschirm beim Ausdruck der Zusammenhang von Text und zugehörigem Bild verloren geht.**
- **Wird der Fehler nicht bemerkt, besteht die Gefahr, daß Arbeiten nicht korrekt durchgeführt werden und es dadurch zu Personen- und Sachschäden kommt.**

55 38 19 Removing and installing switching element for filler flap - as of MY 2005

- Preliminary work
- Removing switching element for filler flap
- Installing switching element for filler flap
- Subsequent work

top of page

Preliminary work

Preliminary work

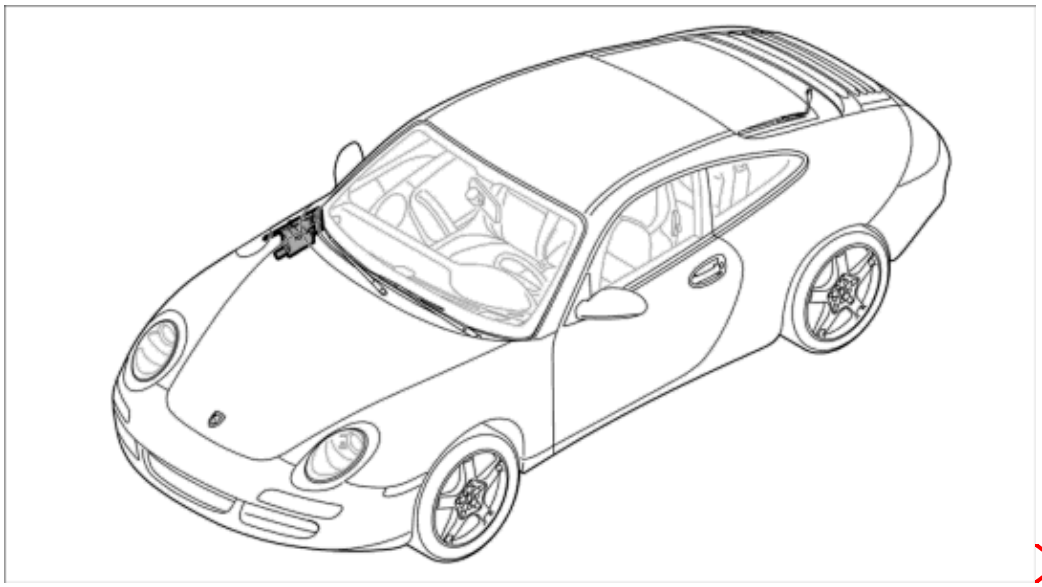
Remove front right wheel housing liner (part A). 505619 Removing and installing front wheel housing liner - chapter on "Removing" [997110 997111 997120 997121 997310 997311 997320 997321] 505619 Removing and installing front wheel housing liner - chapter on "Removing" [997621] 505619 Removing and installing front wheel housing liner - chapter on "Removing" [997410 997411 997430 997431 997610 997611 997620]

top of page

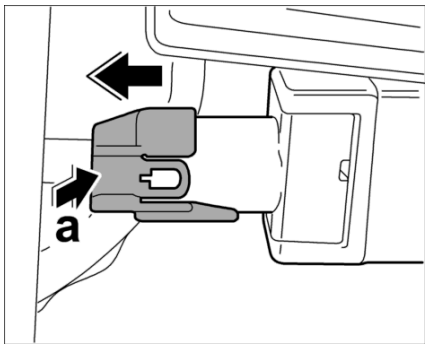
Removing switching element for filler flap

Removing switching element for filler flap

Installation Location:

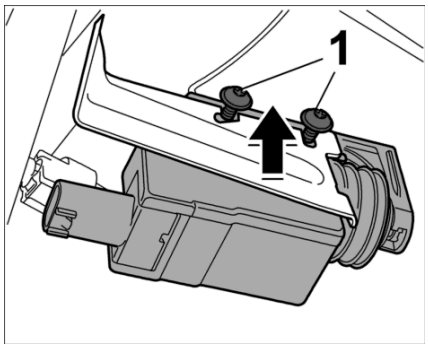


Overview of filler flap switching element



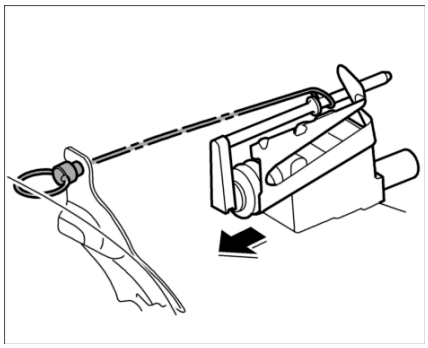
Disconnecting connector for switching element

1. Release **-arrow a-** and pull off connector.



Releasing filler flap switching element from holder

2. Loosen the two fastening screws **-1-** and remove the filler flap switching element from the holder.



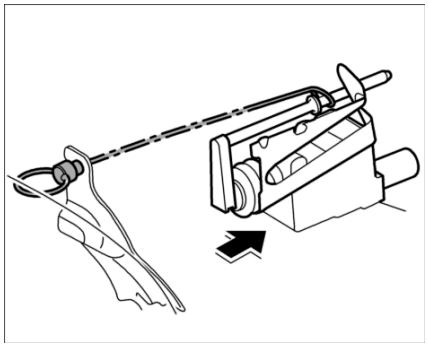
Disengaging switching element for filler flap from emergency operation cable

3. Disengage switching element for filler flap from the emergency operation cable.

top of page

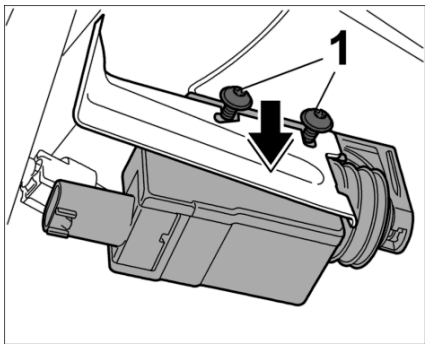
Installing switching element for filler flap

Installing switching element for filler flap



Engaging switching element for filler flap into emergency operation cable

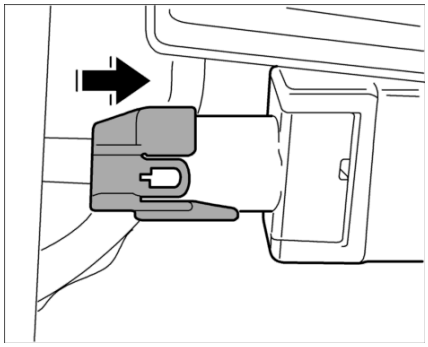
1. Engage switching element for filler flap into the emergency operation cable.



Securing filler flap switching element to holder

2. Insert switching element for filler flap into the slots on the holder. Ensure that the locking bolt of the filler flap switching element is positioned in the opening of the side section.

3. Secure the filler flap switching element with the two fastening screws **-1-** .



Connecting switching element connector

4. Insert the connector until it is felt to engage.
5. Check operation of the filler flap switching element.

top of page

Subsequent work

Subsequent work

Install front right wheel housing liner (part A). 505619 Removing and installing front wheel housing liner - chapter on "Installing" [997110 997111 997120 997121 997310 997311 997320 997321] 505619 Removing and installing front wheel housing liner - chapter on "Installing" [997621] 505619 Removing and installing front wheel housing liner - chapter on "Installing" [997410 997411 997430 997431 997610 997611 997620]

997110, 997111, 997120, 997121, 997310, 997311, 997320, 997321, 997410, 997411, 997430, 997431, 997610, 997611, 997620, 997621

as of MY 2005
Country C00, C02, C05, C07, C08, C09, C10, C11, C12, C13, C14, C15, C16, C18, C19, C20, C21, C22, C23, C24, C25, C26, C27, C28, C32, C33, C34, C35, C36, C37, C38, C39, C45, C46, C98, C99

WARNUNG

Gefahr des Verlusts der Text-Bild-Zuordnung beim Ausdruck.

- **Aus technischen Gründen kann derzeit nicht ausgeschlossen werden, dass trotz einwandfreier Darstellung auf dem Bildschirm beim Ausdruck der Zusammenhang von Text und zugehörigem Bild verloren geht.**
- **Wird der Fehler nicht bemerkt, besteht die Gefahr, daß Arbeiten nicht korrekt durchgeführt werden und es dadurch zu Personen- und Sachschäden kommt.**

55 57 19 Removing and installing release for rear lid - as of MY 2005

- Preliminary work
- Removing release for rear lid
- Installing release for rear lid
- Subsequent work

top of page

Preliminary work

Preliminary work

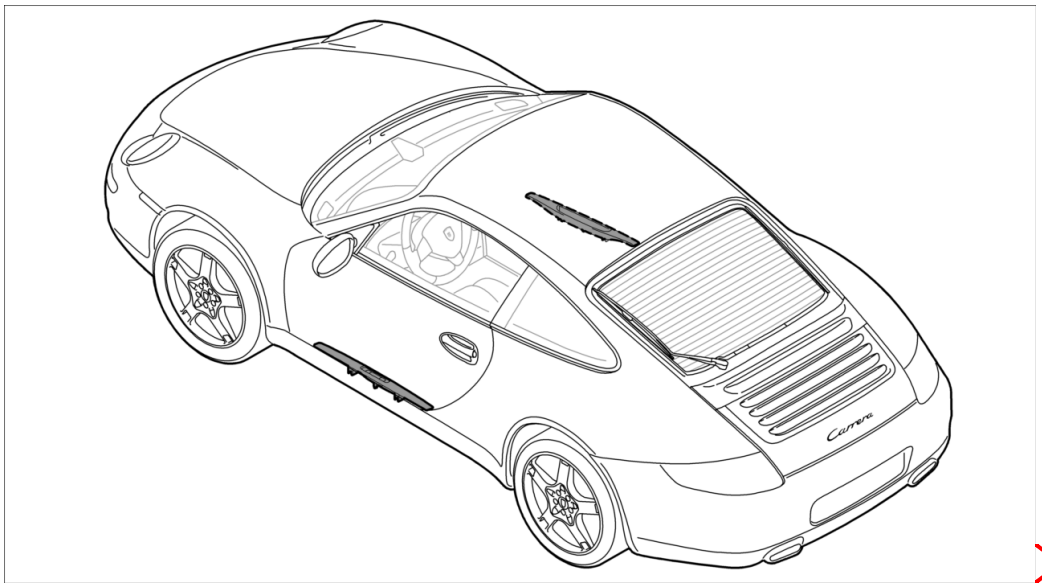
1. Remove inner sill. 680519 Removing and installing inner sill - "Removing" section

top of page

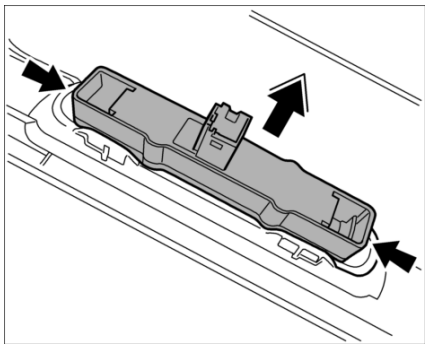
Removing release for rear lid

Removing release for rear lid

Installation Location:



Installation position of scuff plate



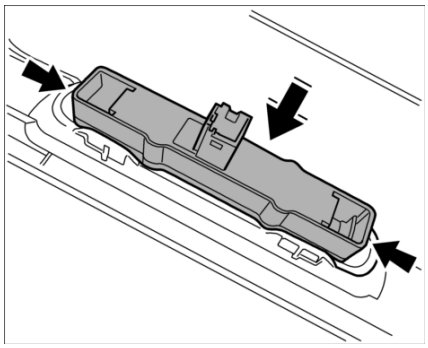
Removing lid release switch

1. Press fastening ribs of scuff plate **-arrows-** outward with a small screwdriver and unclip switch for lid release.

top of page

Installing release for rear lid

Installing release for rear lid



Installing lid release switch

1. Clip in switch for lid release with the locking tabs in the fastening ribs of the scuff plate **-arrows-** so that they are felt to engage.

top of page

Subsequent work

Subsequent work

1. Install inner sill. 680519 Removing and installing inner sill - "Installing" section

---

997110, 997111, 997120, 997121, 997310, 997311, 997320, 997321, 997410, 997411, 997430, 997431, 997610, 997611, 997620, 997621

as of MY 2005
Country C00, C02, C05, C07, C08, C09, C10, C11, C12, C13, C14, C15, C16, C18, C19, C20, C21, C22, C23, C24, C25, C26, C27, C28, C32, C33, C34, C35, C36, C37, C38, C39, C45, C46, C98, C99

WARNUNG

Gefahr des Verlusts der Text-Bild-Zuordnung beim Ausdruck.

- **Aus technischen Gründen kann derzeit nicht ausgeschlossen werden, dass trotz einwandfreier Darstellung auf dem Bildschirm beim Ausdruck der Zusammenhang von Text und zugehörigem Bild verloren geht.**
- **Wird der Fehler nicht bemerkt, besteht die Gefahr, daß Arbeiten nicht korrekt durchgeführt werden und es dadurch zu Personen- und Sachschäden kommt.**

Vergleichen Sie deshalb nach dem Druckvorgang unbedingt die Ausdrucke mit der Bildschirmdarstellung. Korrigieren Sie die Ausdrucke im Fehlerfall so, daß der Inhalt der Bildschirmdarstellung zutreffend wiedergegeben wird.

55 61 19 Removing and installing servo motor for emergency release - as of MY 2005

- Preliminary work
- Removing servo motor for emergency release
- Installing servo motor for emergency release
- Subsequent work

top of page

Preliminary work

Preliminary work on servo motor for emergency release

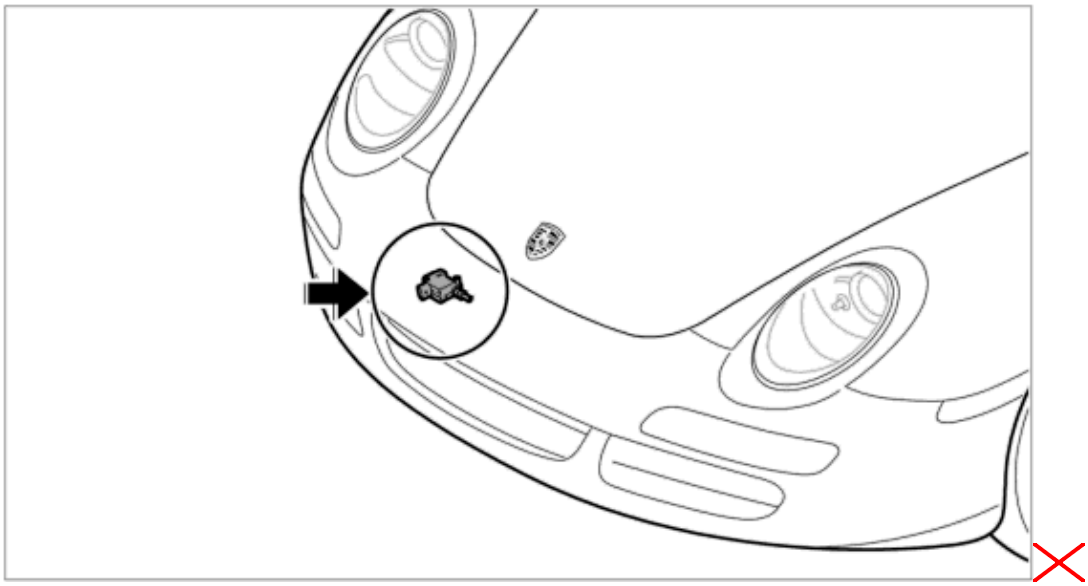
631519 Removing and installing front apron - chapter on "removing"

top of page

Removing servo motor for emergency release

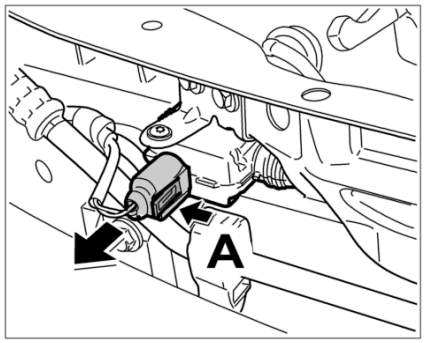
Removing servo motor for emergency release

Installation Location:



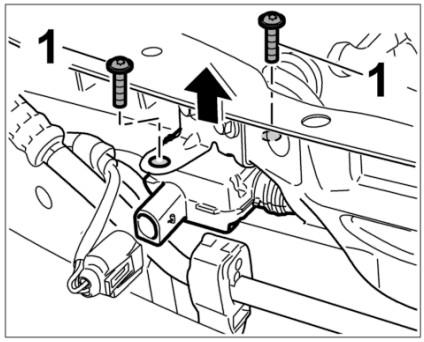
Installation position shown on the 911

1. Switch off ignition and remove ignition key.



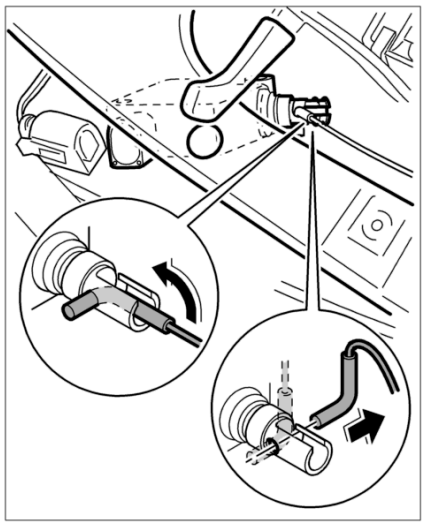
Removing plug

2. Release electric connector **-A-** and unplug it at the servo motor.



Removing screws

3. Unscrew both fastening screws **-1-** .



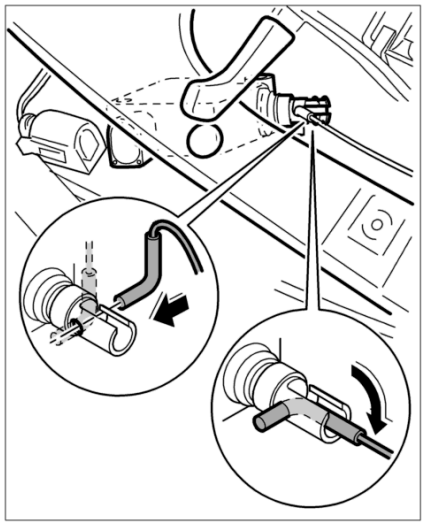
Disengaging cable at actuating element

4. Turn the servo motor and disengage the retaining pin from the cable at the servo motor.
5. Remove servo motor.

top of page

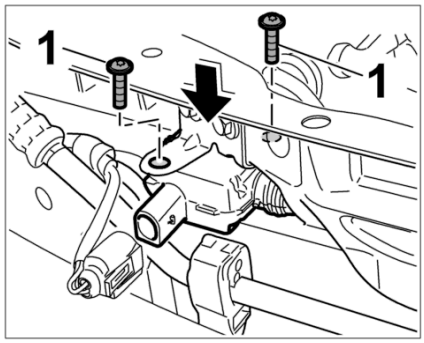
Installing servo motor for emergency release

Installing servo motor for emergency release



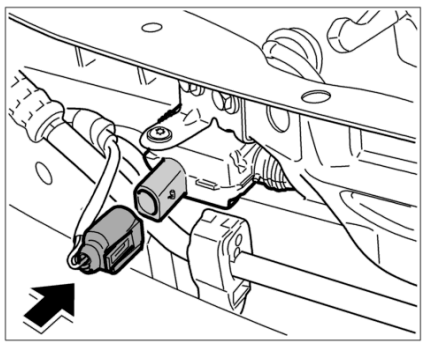
Engaging cable on assembly servo motor

1. Engage the cable retaining pin at the servo motor and clip it in.



Screwing in screws

2. Position servo motor and secure with the fastening screws. **Tightening torque: 9.7 (7.2 ftlb.) Nm**



Plugging in connector

3. Push electric plug onto the servo motor until it is felt to engage.

top of page

Subsequent work

Subsequent work on servo motor for emergency release

631519 Removing and installing front apron - chapter on "installing"

997110, 997111, 997120, 997121, 997310, 997311, 997320, 997321, 997410, 997411, 997430, 997431, 997610, 997611, 997620, 997621

as of MY 2005
Country C00, C02, C05, C07, C08, C09, C10, C11, C12, C13, C14, C15, C16, C18, C19, C20, C21, C22, C23, C24, C25, C26, C27, C28, C32, C33, C34, C35, C36, C37, C38, C39, C45, C46, C98, C99

WARNUNG

Gefahr des Verlusts der Text-Bild-Zuordnung beim Ausdruck.

- **Aus technischen Gründen kann derzeit nicht ausgeschlossen werden, dass trotz einwandfreier Darstellung auf dem Bildschirm beim Ausdruck der Zusammenhang von Text und zugehörigem Bild verloren geht.**
- **Wird der Fehler nicht bemerkt, besteht die Gefahr, daß Arbeiten nicht korrekt durchgeführt werden und es dadurch zu Personen- und Sachschäden kommt.**

Vergleichen Sie deshalb nach dem Druckvorgang unbedingt die Ausdrucke mit der Bildschirmdarstellung. Korrigieren Sie die Ausdrucke im Fehlerfall so, daß der Inhalt der Bildschirmdarstellung zutreffend wiedergegeben wird.

WARNING

Danger of losing text-figure correspondence when printing out.

- **For technical reasons, it can currently not be ruled out that the correspondence between text and associated figure can be lost when it is printed out, even though the display on the screen is correct.**
- **If the fault is not noticed, there is the danger that work will not be performed correctly which can cause injury and damage.**

Therefore, always compare printouts with the screen display after printing them out. Correct the printouts if they are faulty so that the content of the screen display matches that on the printouts.

55 62 19 Removing and installing front emergency release - as of MY 2005

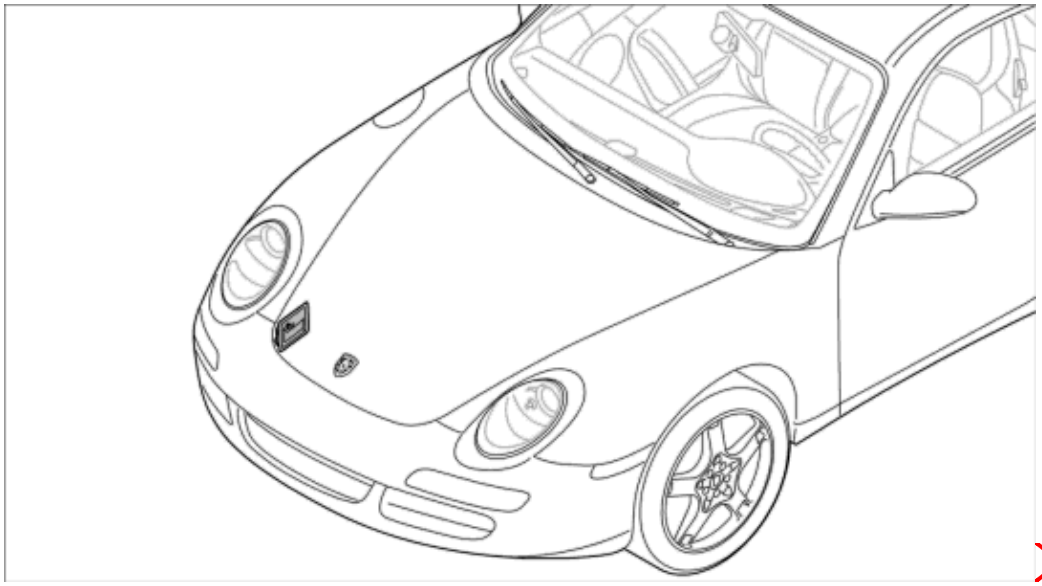
- Removing front emergency release
- Installing front emergency release
- Checking inner release of luggage compartment (Trunk Entrapment)

top of page

Removing front emergency release

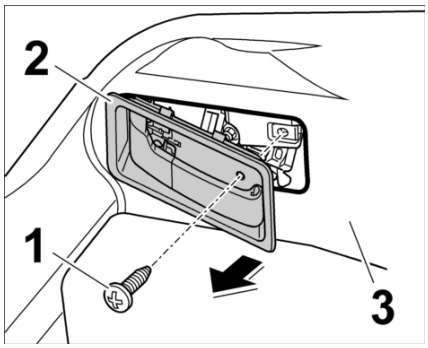
Removing front emergency release

Installation Location:



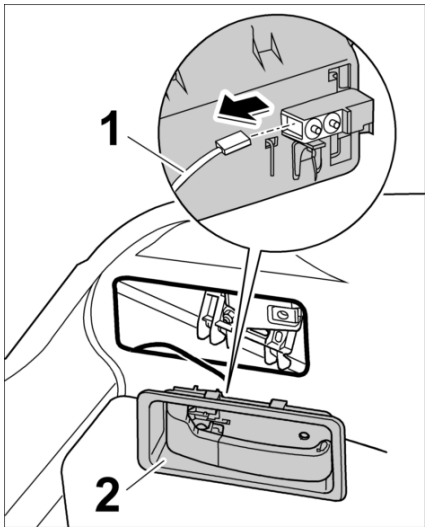
Installation position of front emergency release

1. Open front lid.



Loosening release handle

2. Unscrew fastening screw **-1-** and unclip release handle **-2-** from luggage-compartment lining **-3-** .



Disconnecting plug connection

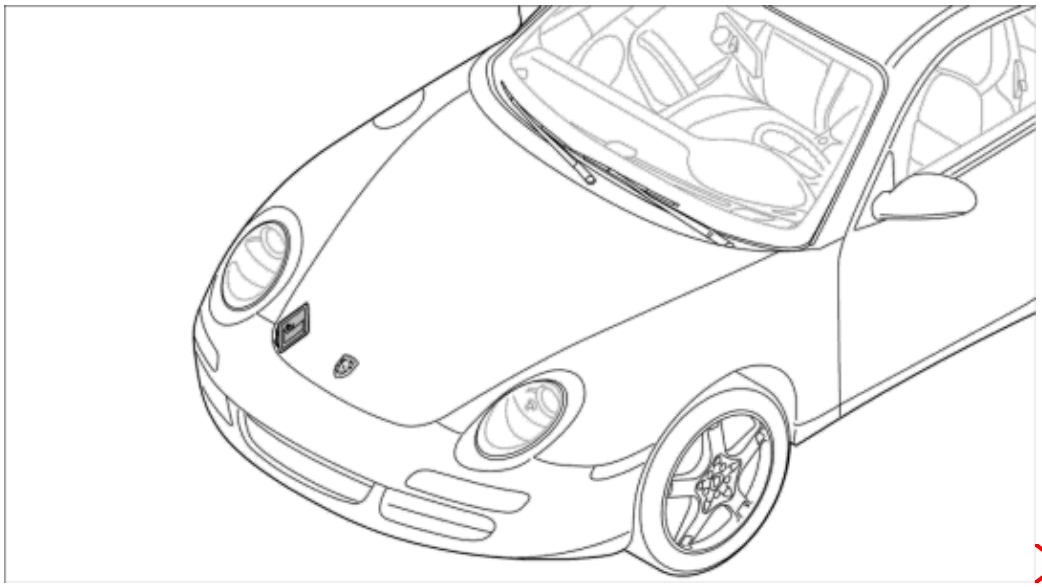
3. Disconnect electric plug connection **-1-** for microswitch and remove release handle **-2-** .

top of page

Installing front emergency release

Installing support for release handle

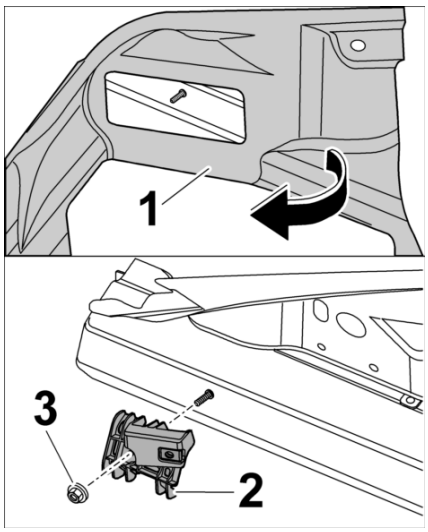
Installation Location:



Installation position for front release handle support

Note

In March 2005 Production introduced a technical modification to the release handle. The modification includes a new release handle support.
For repair or interchangeability of the release handle, vehicles with an old release handle must also have a support fitted on the body.

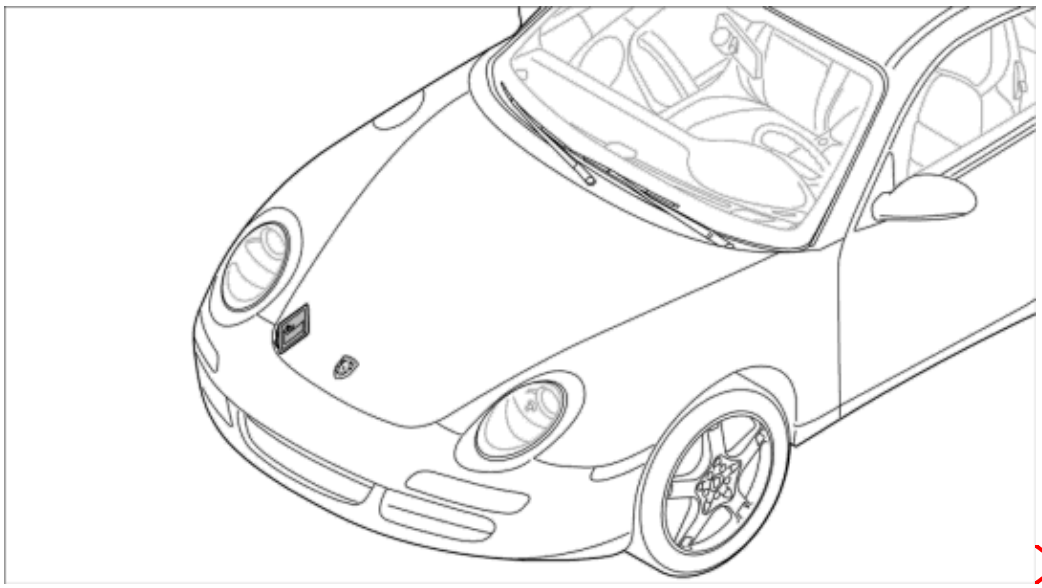


Installing support for release handle

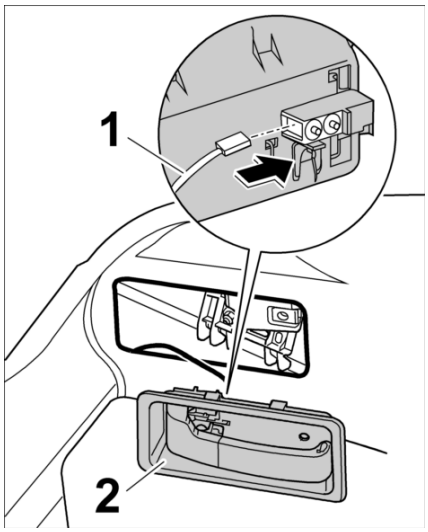
1. Partly loosen luggage-compartment lining **-1-** .
2. Position support for release handle **-2-** on the body and tighten with the fastening nut **-3-** . **Tightening torque: 3 (2 ftlb.) Nm -0.5 (0.5 ftlb.) Nm**
3. Fasten luggage compartment lining **-1-** .

Installing front emergency release

Installation Location:

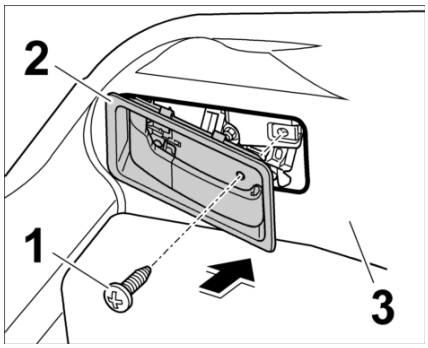


Installation position of front emergency release



Connecting plug connection

1. Connect electric plug connection **-1-** for microswitch.



Fastening release handle

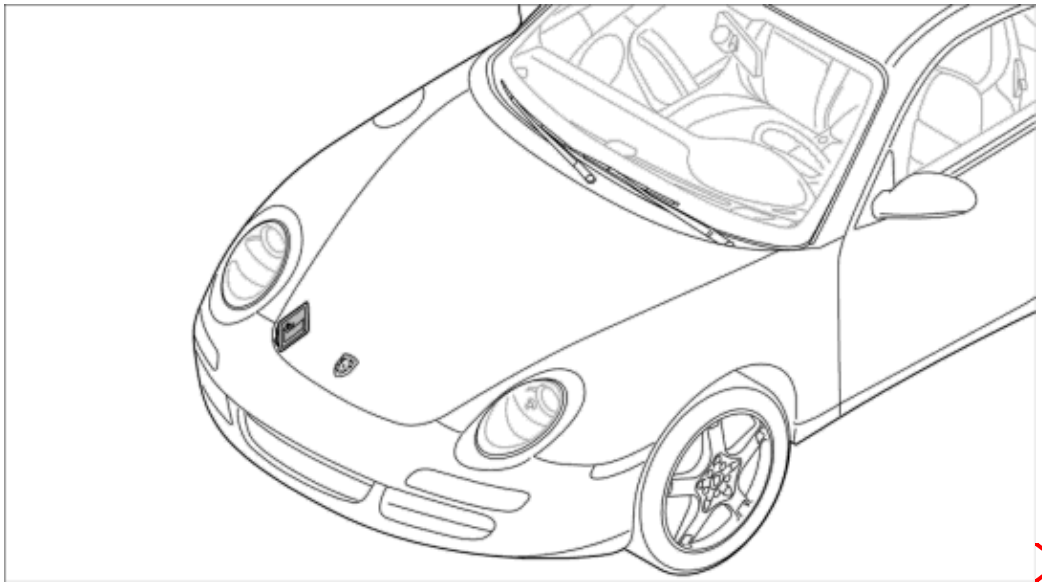
2. Press release handle **-2-** into luggage-compartment lining **-3-** and tighten with the fastening screw **-1-** . **Tightening torque: 2.5 (2.0 ftlb.) Nm +/-0.5 (0.5 ftlb.) Nm**
3. Check inner release of luggage compartment (Trunk Entrapment). 556219 Removing and installing emergency release - "Checking" section

top of page

Checking inner release of luggage compartment (Trunk Entrapment)

Checking inner release of luggage compartment (Trunk Entrapment)

Installation Location:



Overview, emergency release

WARNING

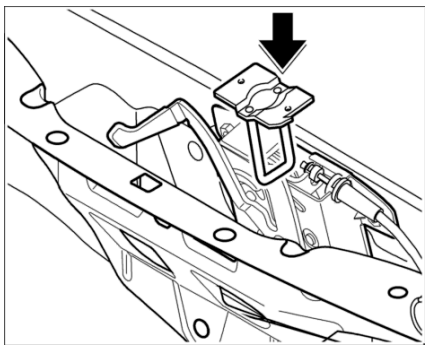
The luggage compartment lid opens when the vehicle is in motion if a person trapped in the luggage

compartment unlocks the lid.

- **The warning light comes on.**

Stop the vehicle immediately when the warning lights light up.

1. Check whether the upper part of the lock automatically disengages from the lower part of the lock.



Checking the release

2. Engage the upper part of the lock = tool (Porsche spare part) in the lower part of the lock **-direction of arrow-** .
3. Unlock unlocking lever in the luggage compartment. Check whether the upper part of the lid lock disengages automatically.

997410, 997430, 997610, 997620

as of MY 2005
Country C02, C36

WARNUNG
Gefahr des Verlusts der Text-Bild-Zuordnung beim Ausdruck.

- **Aus technischen Gründen kann derzeit nicht ausgeschlossen werden, dass trotz einwandfreier Darstellung auf dem Bildschirm beim Ausdruck der Zusammenhang von Text und zugehörigem Bild verloren geht.**
- **Wird der Fehler nicht bemerkt, besteht die Gefahr, daß Arbeiten nicht korrekt durchgeführt werden und es dadurch zu Personen- und Sachschäden kommt.**

Vergleichen Sie deshalb nach dem Druckvorgang unbedingt die Ausdrucke mit der Bildschirmdarstellung. Korrigieren Sie die Ausdrucke im Fehlerfall so, daß der Inhalt der Bildschirmdarstellung zutreffend wiedergegeben wird.

WARNING
Danger of losing text-figure correspondence when printing out.

- **For technical reasons, it can currently not be ruled out that the correspondence between text and associated figure can be lost when it is printed out, even though**

55 62 19 Removing and installing front emergency release - as of MY 2005

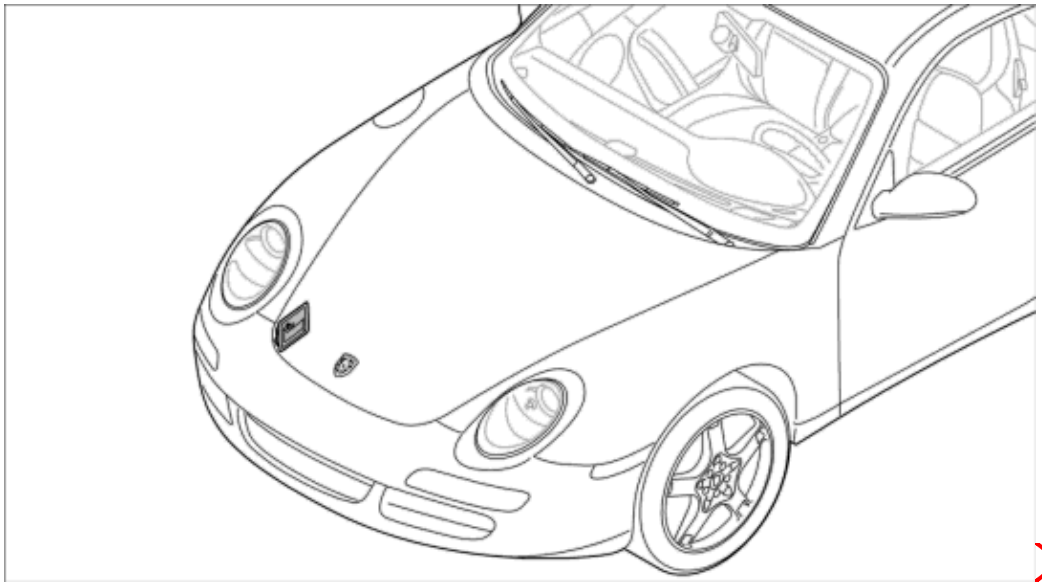
- Removing front emergency release
- Installing front emergency release
- Checking inner release of luggage compartment (Trunk Entrapment)

top of page

Removing front emergency release

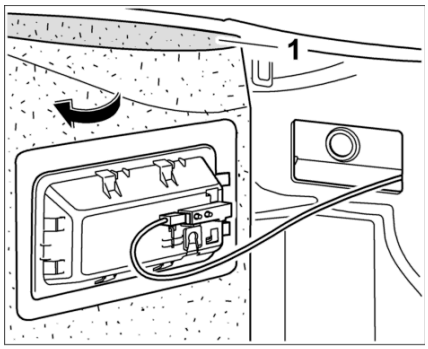
Removing front emergency release

Installation Location:



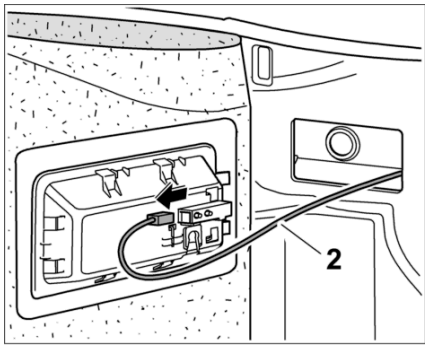
Installation position of front emergency release

1. Open front lid.



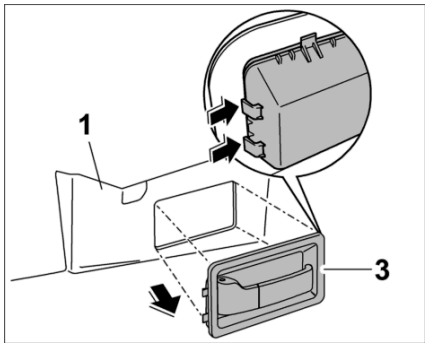
Loosen luggage compartment lining

2. Partly loosen luggage-compartment lining **-1-** .



Disconnecting plug connection

3. Disconnect electric plug connection **-2-** .

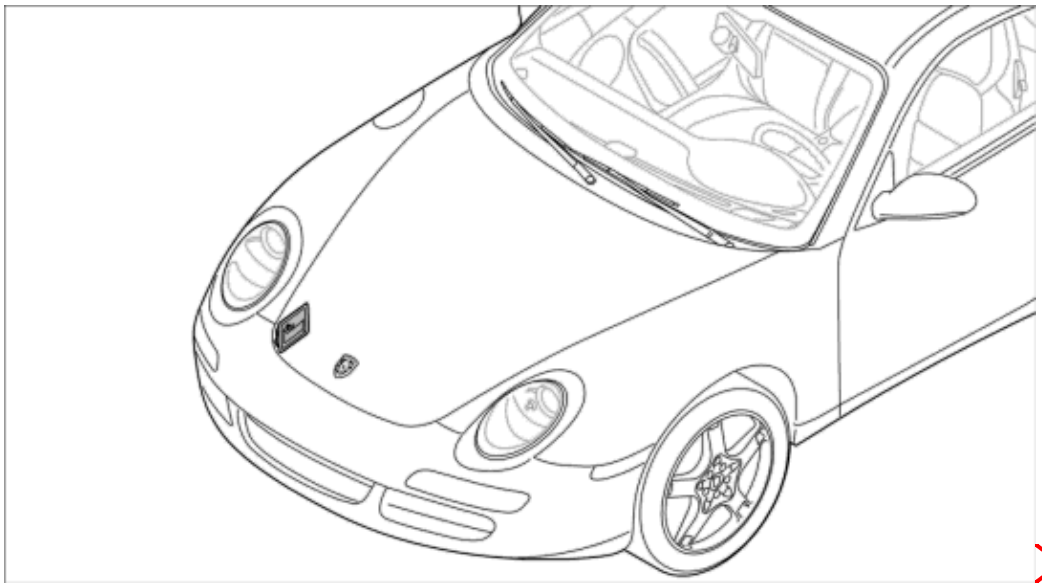


Removing finger plate

4. Unclip finger plate **-3-** out of luggage compartment lining **-1-** . To do this, press in the locking tabs **-arrows-** .

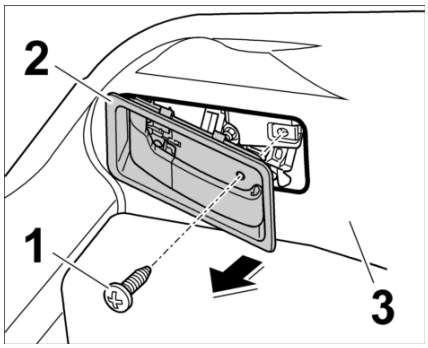
Removing front emergency release

Installation Location:



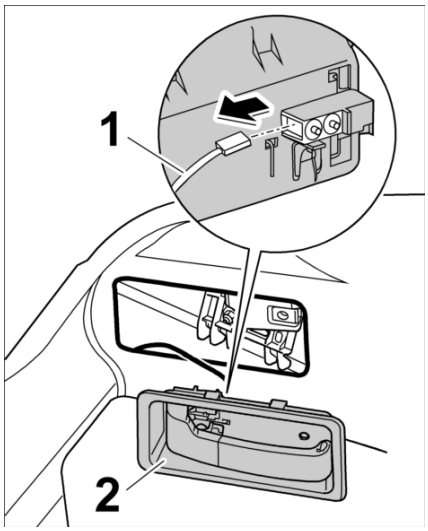
Installation position of front emergency release

1. Open front lid.



Loosening release handle

2. Unscrew fastening screw **-1-** and unclip release handle **-2-** from luggage-compartment lining **-3-** .



Disconnecting plug connection

3.

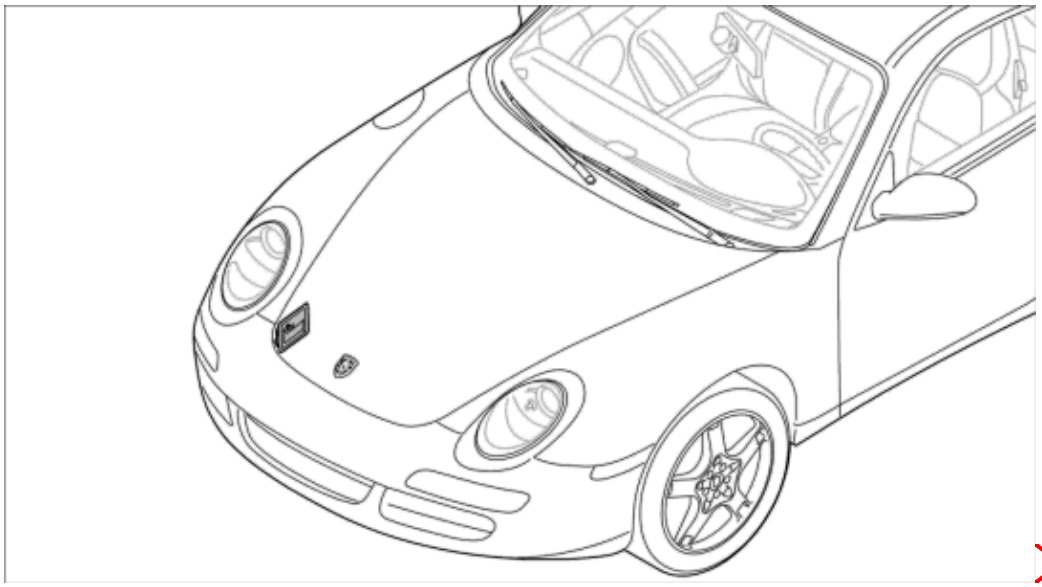
Disconnect electric plug connection **-1-** for microswitch and remove release handle **-2-** .

top of page

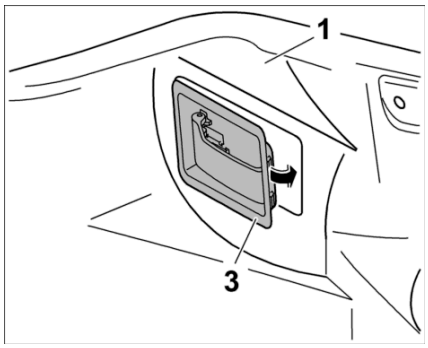
Installing front emergency release

Installing front emergency release

Installation Location:

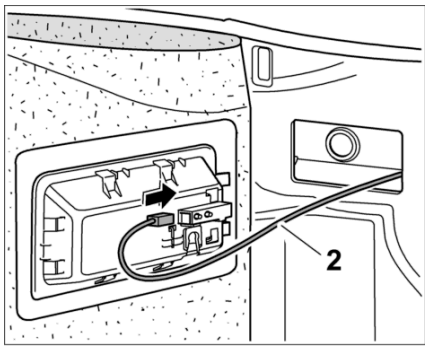


Installation position of front emergency release



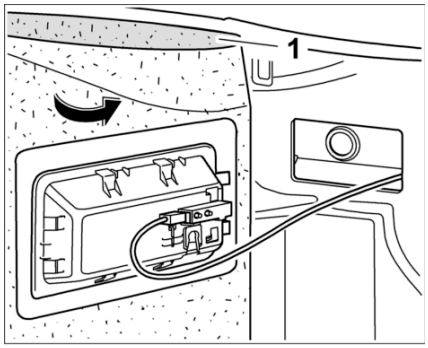
Installing the finger plate

1. Clip finger plate **-3-** into luggage compartment lining **-1-** .



Locking plug connection

2. Lock electric plug connection **-2-** .

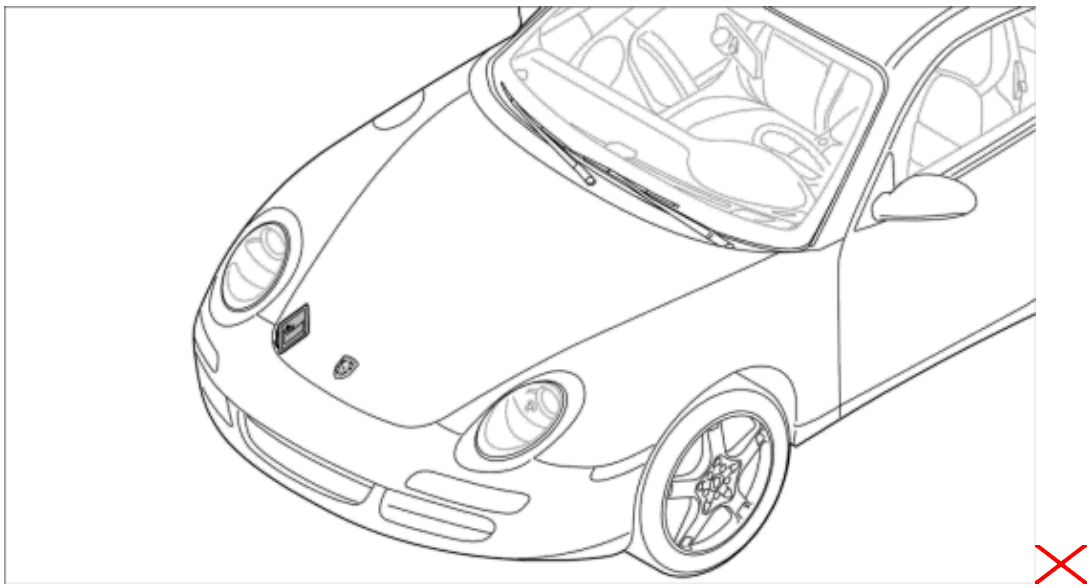


Fastening luggage compartment lining

3. Fasten luggage compartment lining **-1-** .
4. Check inner release of luggage compartment (Trunk Entrapment). 556219 Removing and installing emergency release - "Checking" section

Installing support for release handle

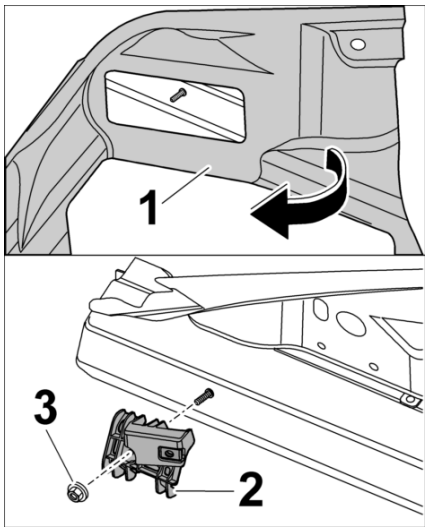
Installation Location:



Installation position for front release handle support

Note

In March 2005 Production introduced a technical modification to the release handle. The modification includes a new release handle support.
For repair or interchangeability of the release handle, vehicles with an old release handle must also have a support fitted on the body.

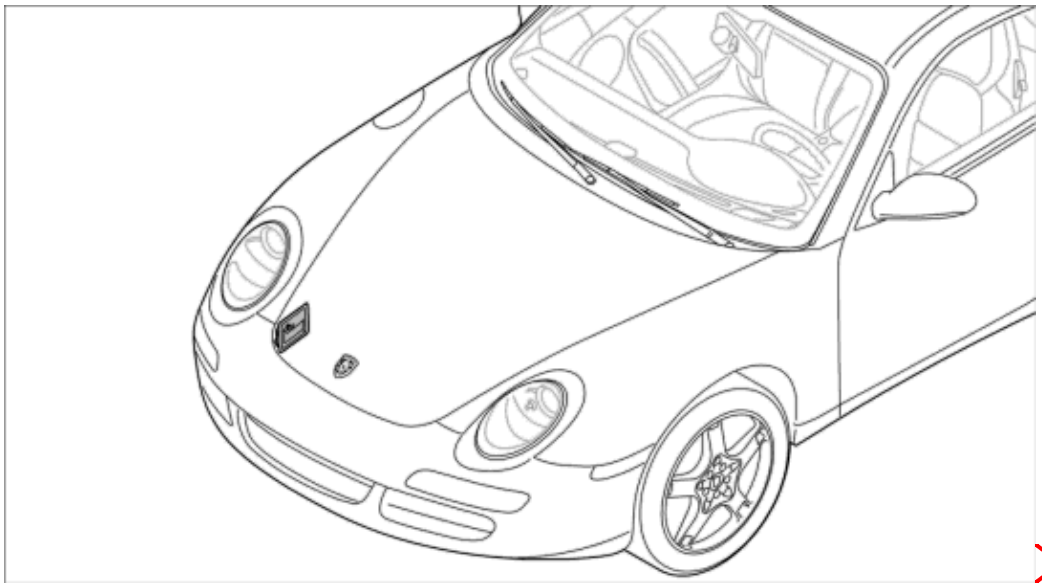


Installing support for release handle

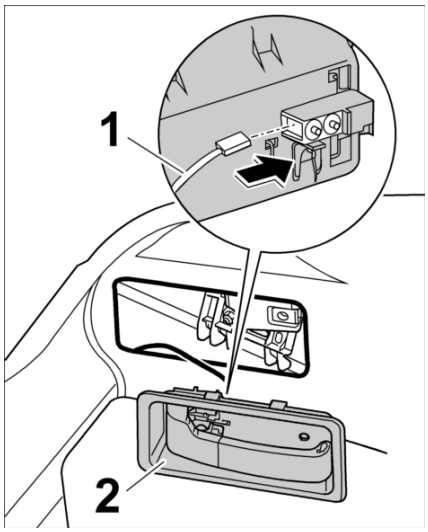
1. Partly loosen luggage-compartment lining **-1-** .
2. Position support for release handle **-2-** on the body and tighten with the fastening nut **-3-** . **Tightening torque: 3 (2 ftlb.) Nm -0.5 (0.5 ftlb.) Nm**
3. Fasten luggage compartment lining **-1-** .

Installing front emergency release

Installation Location:

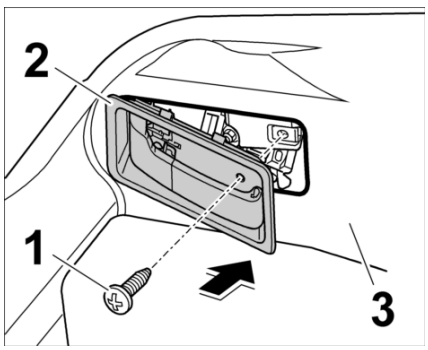


Installation position of front emergency release



Connecting plug connection

1. Connect electric plug connection **-1-** for microswitch.



Fastening release handle

2. Press release handle **-2-** into luggage-compartment lining **-3-** and tighten with the fastening screw **-1-** . **Tightening torque: 2.5 (2.0 ftlb.) Nm +/-0.5 (0.5 ftlb.) Nm**
3.

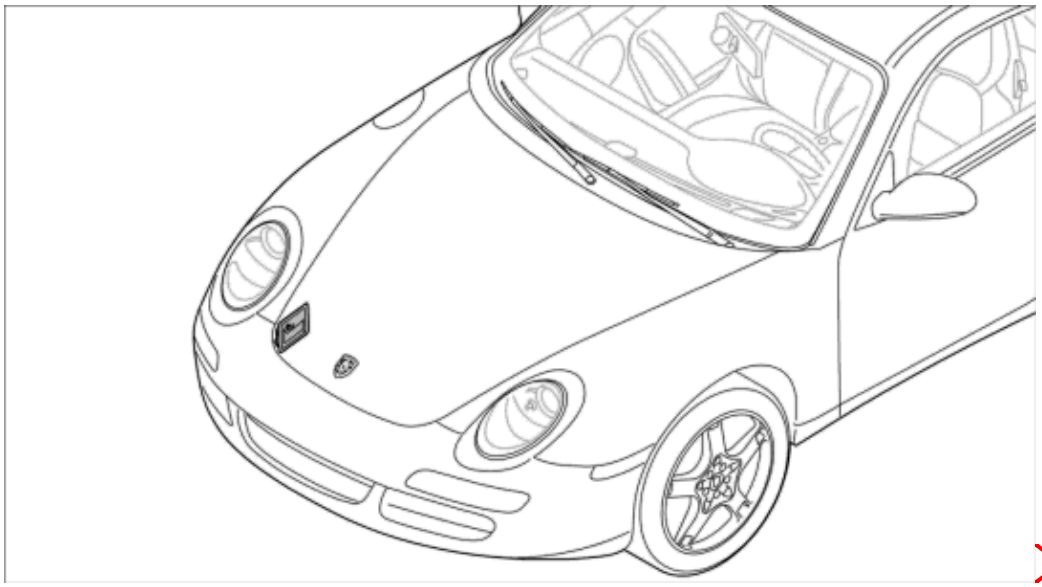
Check inner release of luggage compartment (Trunk Entrapment). 556219 Removing and installing emergency release - "Checking" section

top of page

Checking inner release of luggage compartment (Trunk Entrapment)

Checking inner release of luggage compartment (Trunk Entrapment)

Installation Location:



Overview, emergency release

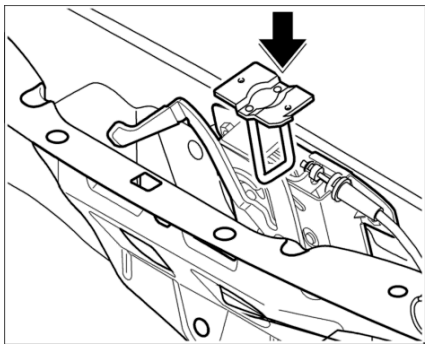
WARNING

The luggage compartment lid opens when the vehicle is in motion if a person trapped in the luggage compartment unlocks the lid.

- **The warning light comes on.**

Stop the vehicle immediately when the warning lights light up.

1. Check whether the upper part of the lock automatically disengages from the lower part of the lock.



Checking the release

2. Engage the upper part of the lock = tool (Porsche spare part) in the lower part of the lock **-direction of arrow-** .
3. Unlock unlocking lever in the luggage compartment. Check whether the upper part of the lid lock disengages automatically.

997110, 997120, 997310, 997320

as of MY 2005
Country C02, C36

WARNUNG

Gefahr des Verlusts der Text-Bild-Zuordnung beim Ausdruck.

- **Aus technischen Gründen kann derzeit nicht ausgeschlossen werden, dass trotz einwandfreier Darstellung auf dem Bildschirm beim Ausdruck der Zusammenhang von Text und zugehörigem Bild verloren geht.**
- **Wird der Fehler nicht bemerkt, besteht die Gefahr, daß Arbeiten nicht korrekt durchgeführt werden und es dadurch zu Personen- und Sachschäden kommt.**

Vergleichen Sie deshalb nach dem Druckvorgang unbedingt die Ausdrucke mit der Bildschirmdarstellung. Korrigieren Sie die Ausdrucke im Fehlerfall so, daß der Inhalt der Bildschirmdarstellung zutreffend wiedergegeben wird.

WARNING

Danger of losing text-figure correspondence when printing out.

- **For technical reasons, it can currently not be ruled out that the correspondence between text and associated figure can be lost when it is printed out, even though the display on the screen is correct.**
- **If the fault is not noticed, there is the danger that work will not be performed correctly which can cause injury and damage.**

Therefore, always compare printouts with the screen display after printing them out. Correct the printouts if they are faulty so that the content of the screen display matches that on the printouts.

55 84 19 Removing and installing motor for rear lid release - as of MY 2005

- Preliminary work
- Removing motor for rear lid release
- Installing motor for rear lid release
- Subsequent work

top of page

Preliminary work

Preliminary work

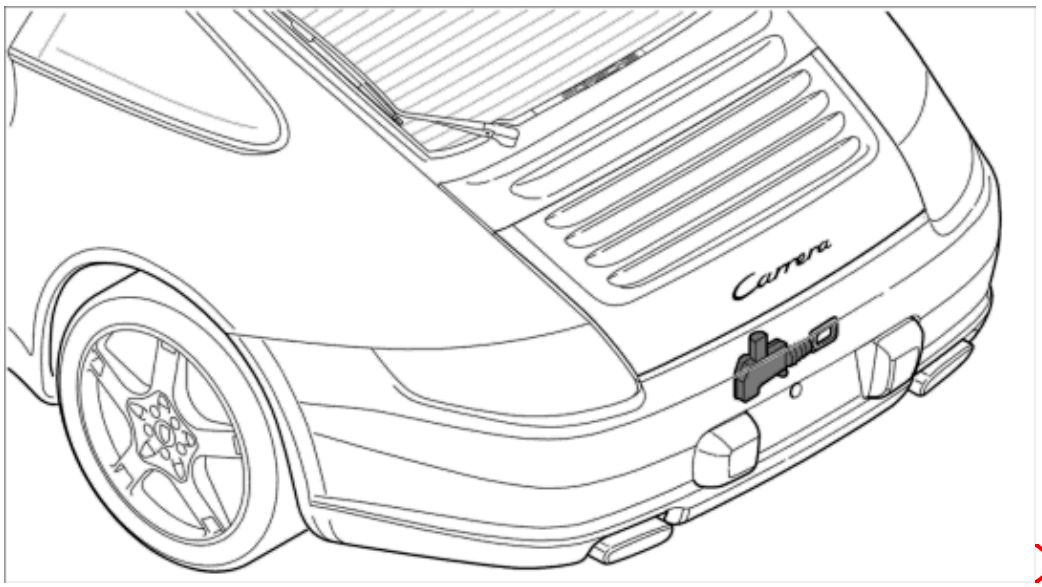
Remove air cleaner housing . *21 Removing and installing air cleaner housing - removing.*

top of page

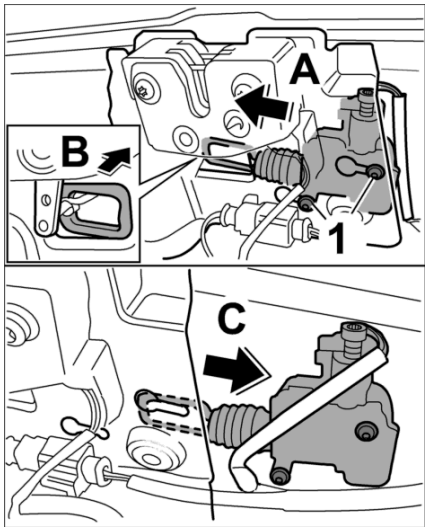
Removing motor for rear lid release

Removing rear lid release motor

Installation Location:

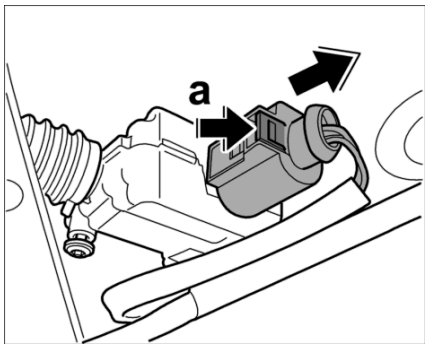


Overview of motor for rear lid release



Unscrewing fastening screws on lid-release switch

1. Unscrew both fastening screws **-1-** .
2. Slide lid-release motor out of the two slots on rear panel **-Arrow A-** and disengage from lock peg **-Arrow B-** .
3. Pull out lid-release motor under the rear panel **-Arrow C-** .



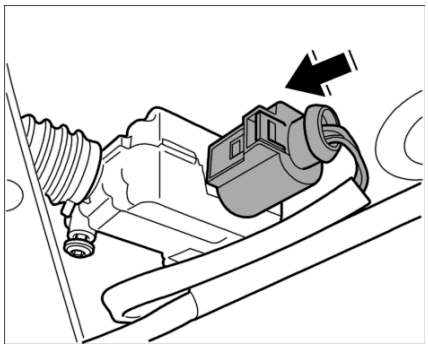
Pulling connector off lid-release motor

4. Release connector **-Arrow a-** and pull off.

top of page

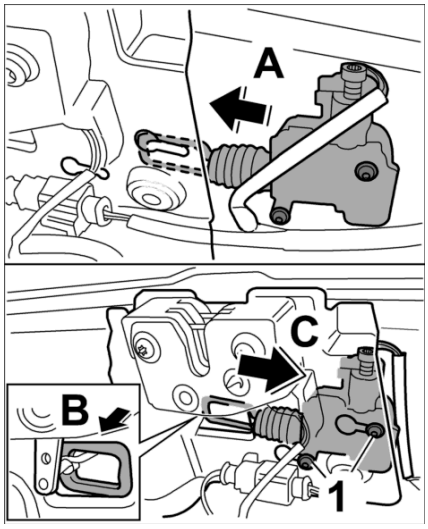
Installing motor for rear lid release

Installing rear-lid release motor



Pushing connector onto lid-release motor

1. Push connector onto lid-release motor until it is felt to engage.



Tightening fastening screws on lid-release switch

2. Push in lid-release motor under the rear panel **-Arrow A-** .
3. Engage lid-release motor on lock peg **-Arrow B-** and slide into the two slots on rear panel **-Arrow C-** .
4. Secure lid-release motor with the two fastening screws **-1-** . **Tightening torque: 1 ftlb.**

top of page

Subsequent work

Subsequent work

Install air cleaner housing . *23 Removing and installing air cleaner housing - installing*

997110, 997111, 997120, 997121, 997310, 997311, 997320, 997321, 997410, 997411, 997430, 997431, 997610, 997611, 997620, 997621

55 86 19 Removing and installing lower part of lid lock at rear - as of MY 2005

- Preliminary work
- Removing lower part of lid lock at rear
- Installing lower part of lid lock at rear
- Subsequent work

top of page

Preliminary work

Preliminary work

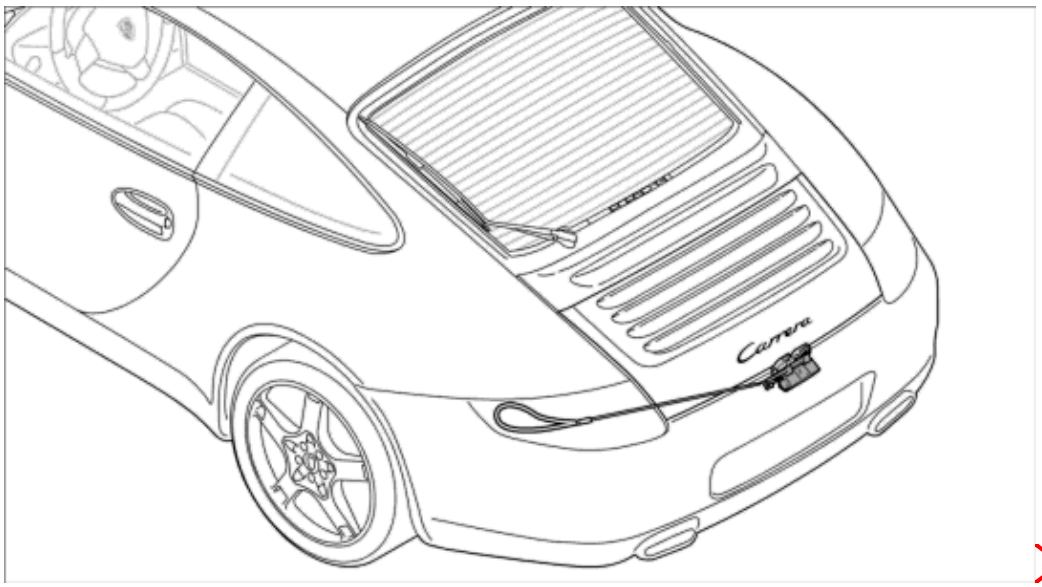
Remove air cleaner housing . *21 Removing and installing air cleaner housing - removing.*

top of page

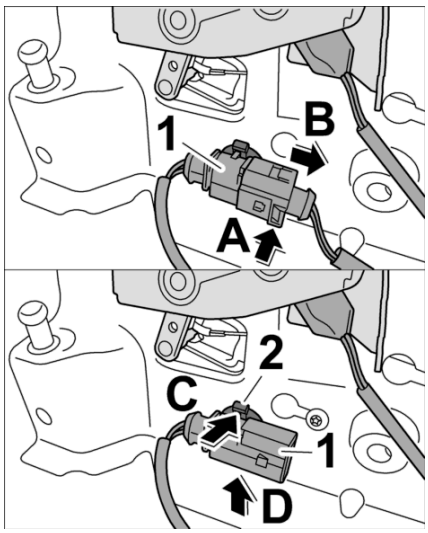
Removing lower part of lid lock at rear

Disconnecting electrical plug connection

Installation Location:



Overview, removing and installing lower part of lid lock at rear

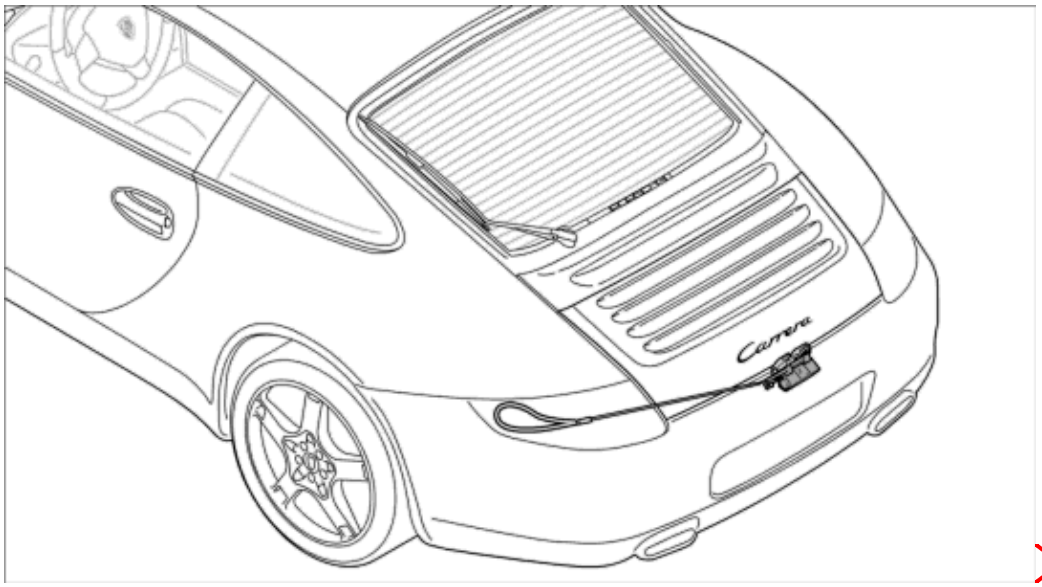


Disconnecting electrical plug connection

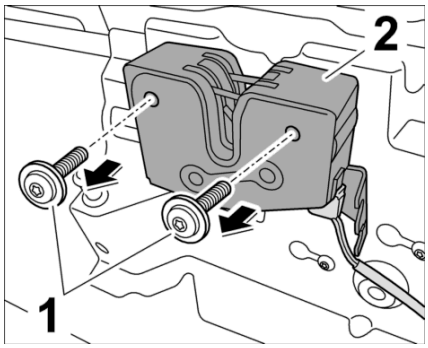
1. Separate electrical plug connection **-1-** for lid release by pressing the locking tab **-Pfeil A-** **-Pfeil B-** .
2. Press locking tab on fastening clip **-2-** **-Pfeil C-** and press plug up and out **-Pfeil D-**
   .

Removing lower part of lid lock at rear

Installation Location:



Overview, removing and installing lower part of lid lock at rear

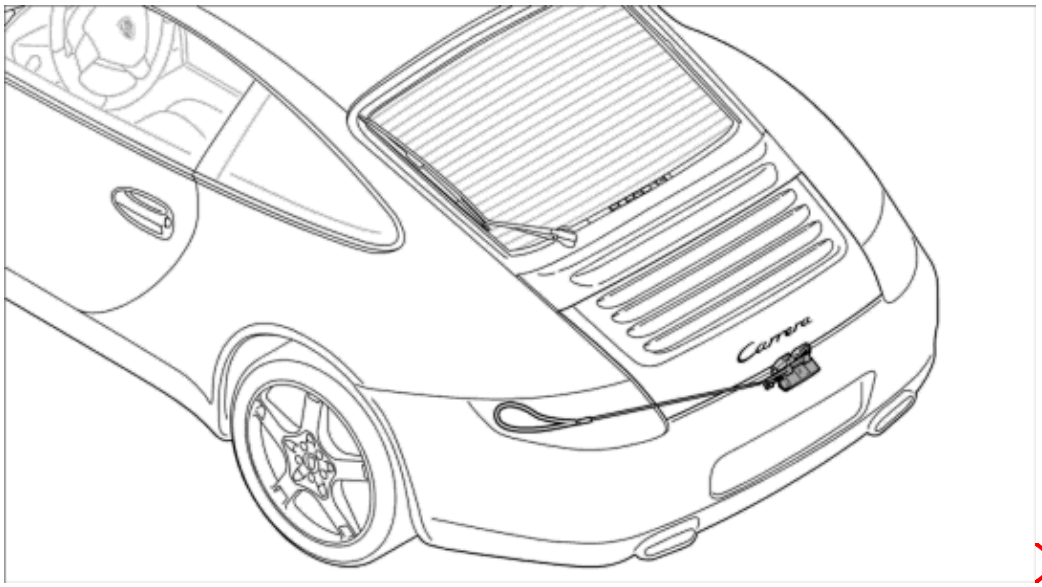


Removing lower part of lid lock at rear

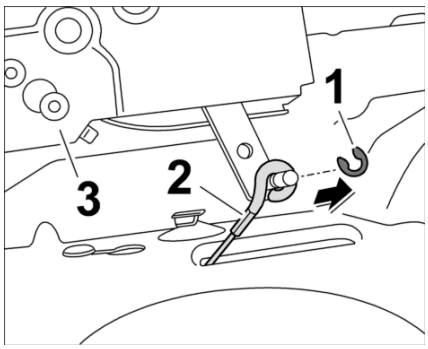
1. Unscrew fastening screws **-1-** from the lower part of lid lock at rear **-2-** .

Disconnecting the emergency release cable

Installation Location:



Overview, removing and installing lower part of lid lock at rear



Disconnecting the emergency release cable

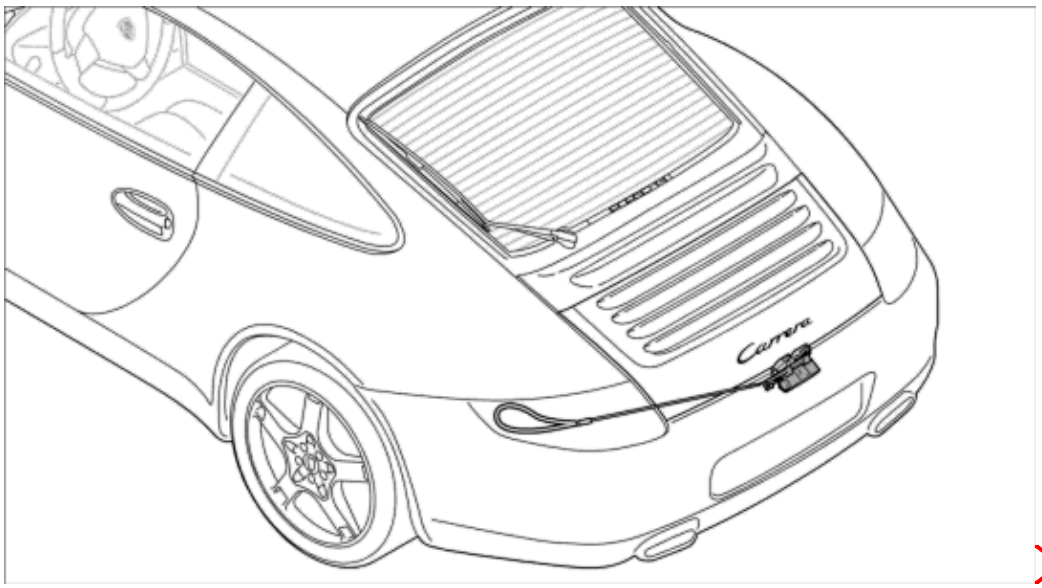
1. Press out circlip **-1-** and pull out emergency release cable **-2-** from lower part of lid lock **-3-** .

top of page

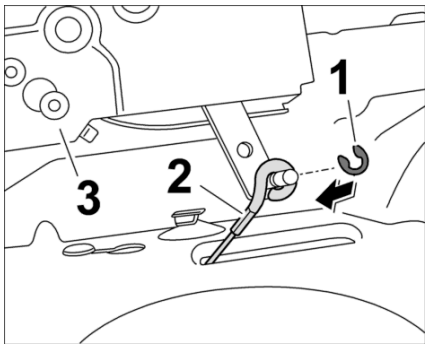
Installing lower part of lid lock at rear

Installing the emergency release cable

Installation Location:



Overview, removing and installing lower part of lid lock at rear

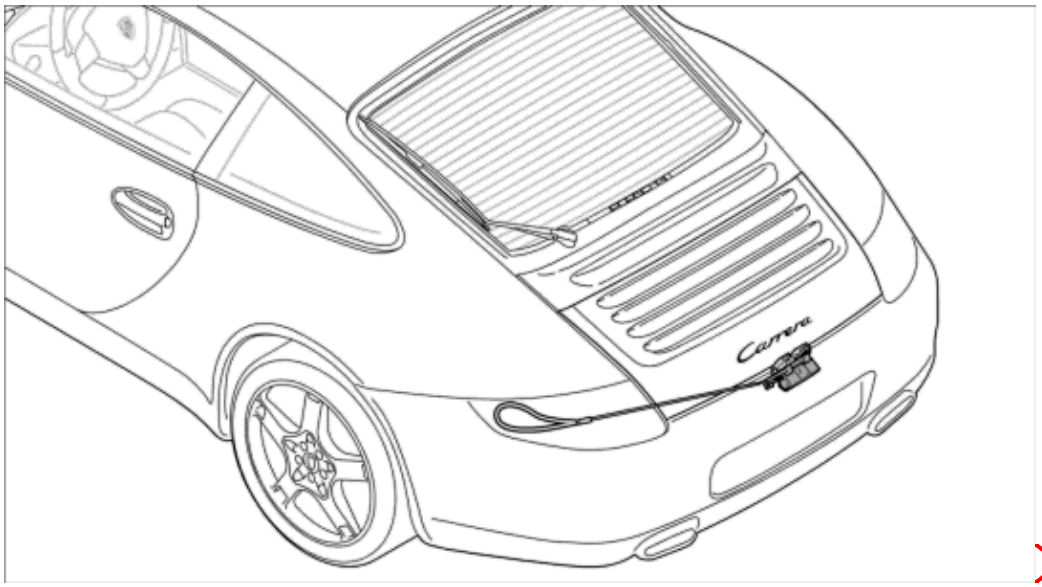


Installing the emergency release cable

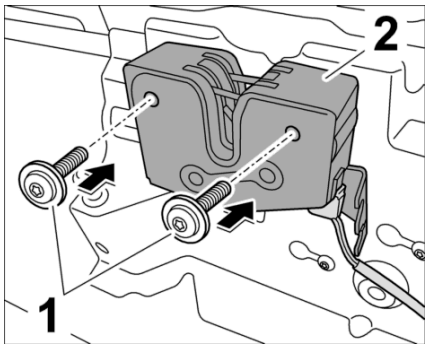
1. Position emergency release cable **-2-** on lower part of lid lock at rear **-3-** and secure using circlip **-1-** .

Installing lower part of lid lock at rear

Installation Location:



Overview, removing and installing lower part of lid lock at rear

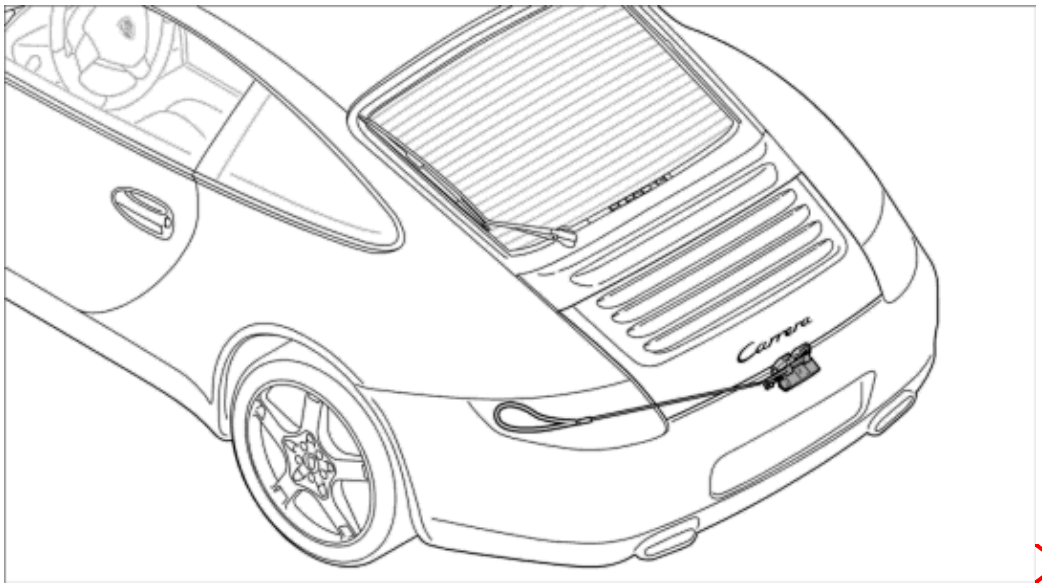


Installing lower part of lid lock at rear

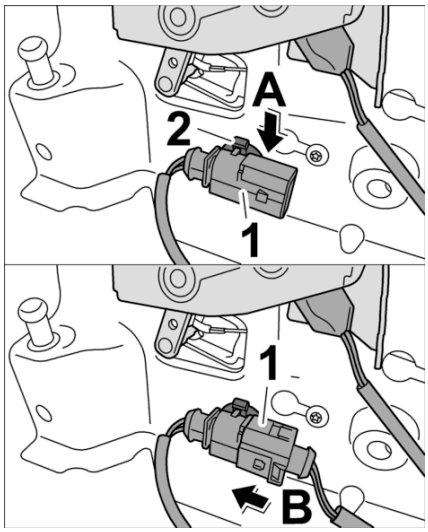
1. Position lower part of lid lock at rear **-2-** on the body and screw down with the fastening screws **-1-** .
   Tightening torque **Final tightening: 7 ftlb.**

Locking electrical plug connection

Installation Location:



Overview, removing and installing lower part of lid lock at rear



Locking electrical plug connection

1. Lock plug **-1-** on fastening clip **-2-** until locking tab is felt to engage **-Pfeil A-** .
2. Lock electrical plug connection **-1-** for lid release until locking tab is felt to engage **-Pfeil B-** .

top of page

Subsequent work

Subsequent work

1. Check adjustment of rear lid and if necessary adjust upper part of lid lock according to the lower part of lid lock. *5590 Adjusting rear lid*

2. Install air cleaner housing . *23 Removing and installing air cleaner housing - installing.*

997110, 997111, 997120, 997121, 997310, 997311, 997320, 997321, 997410, 997411, 997430, 997431, 997610, 997611, 997620, 997621

as of MY 2005
Country C00, C02, C05, C07, C08, C09, C10, C11, C12, C13, C14, C15, C16, C18, C19, C20, C21, C22, C23, C24, C25, C26, C27, C28, C32, C33, C34, C35, C36, C37, C38, C39, C45, C46, C98, C99

WARNUNG

Gefahr des Verlusts der Text-Bild-Zuordnung beim Ausdruck.

- **Aus technischen Gründen kann derzeit nicht ausgeschlossen werden, dass trotz einwandfreier Darstellung auf dem Bildschirm beim Ausdruck der Zusammenhang von Text und zugehörigem Bild verloren geht.**
- **Wird der Fehler nicht bemerkt, besteht die Gefahr, daß Arbeiten nicht korrekt durchgeführt werden und es dadurch zu Personen- und Sachschäden kommt.**

Vergleichen Sie deshalb nach dem Druckvorgang unbedingt die Ausdrucke mit der Bildschirmdarstellung. Korrigieren Sie die Ausdrucke im Fehlerfall so, daß der Inhalt der Bildschirmdarstellung zutreffend wiedergegeben wird.

WARNING

Danger of losing text-figure correspondence when printing out.

- **For technical reasons, it can currently not be ruled out that the correspondence between text and associated figure can be lost when it is printed out, even though the display on the screen is correct.**
- **If the fault is not noticed, there is the danger that work will not be performed correctly which can cause injury and damage.**

Therefore, always compare printouts with the screen display after printing them out. Correct the printouts if they are faulty so that the content of the screen display matches that on the printouts.

AVERTISSEMENT

Risque de perte de la correspondance texte-illustration lors de l'impression papier.

- **Pour des raisons techniques, il ne peut pas être exclu à l'heure actuelle que, même en cas d'affichage correct à l'écran, la correspondance entre le texte et l'illustration puisse être erronée sur l'impression papier.**
- **Si l'erreur passe inaperçue, on court le risque d'exécuter certaines opérations de manière incorrecte pouvant conduire à des dommages corporels et matériels.**

Comparez impérativement pour cette raison les impressions papier avec l'affichage à l'écran. Corrigez-les en cas d'erreur de manière à reproduire correctement l'affichage à l'écran.

55 87 19 Removing and installing rear upper part of lid lock - as of MY 2005

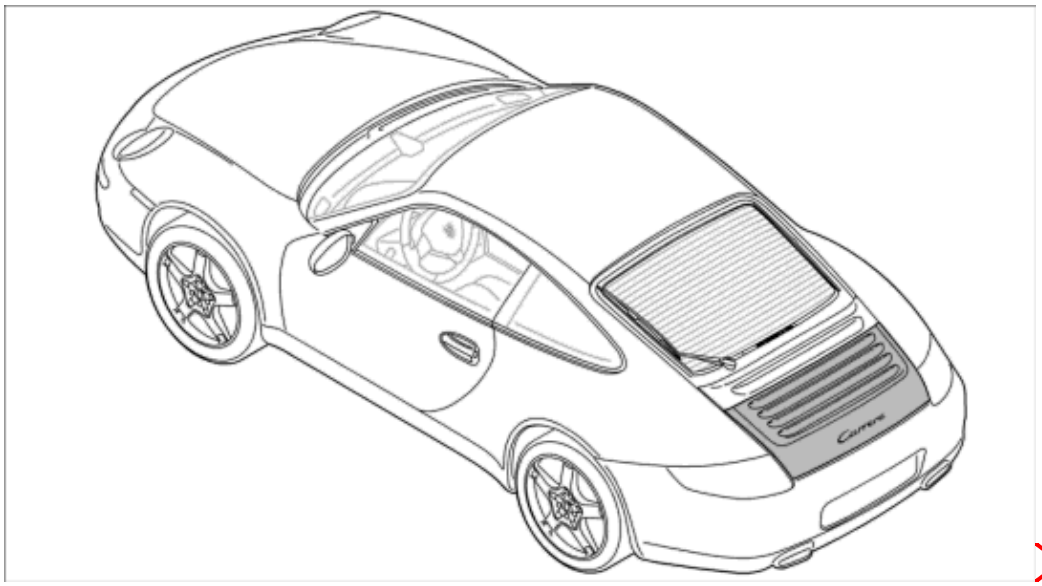
- Removing rear upper part of lid lock
- Installing rear upper part of lid lock

top of page

Removing rear upper part of lid lock

Removing rear upper part of lid lock

Installation Location:

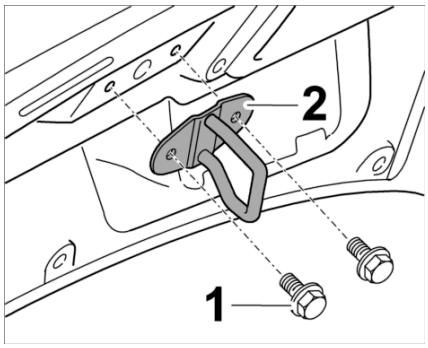


Installation position of upper part of rear lid lock

Note

- *Determine the installation position of upper part of lid lock to cover using marking and note down.*

1. Open the rear lid.



Removing rear upper part of lid lock

Note

Fastening nuts must not be used again following removal.

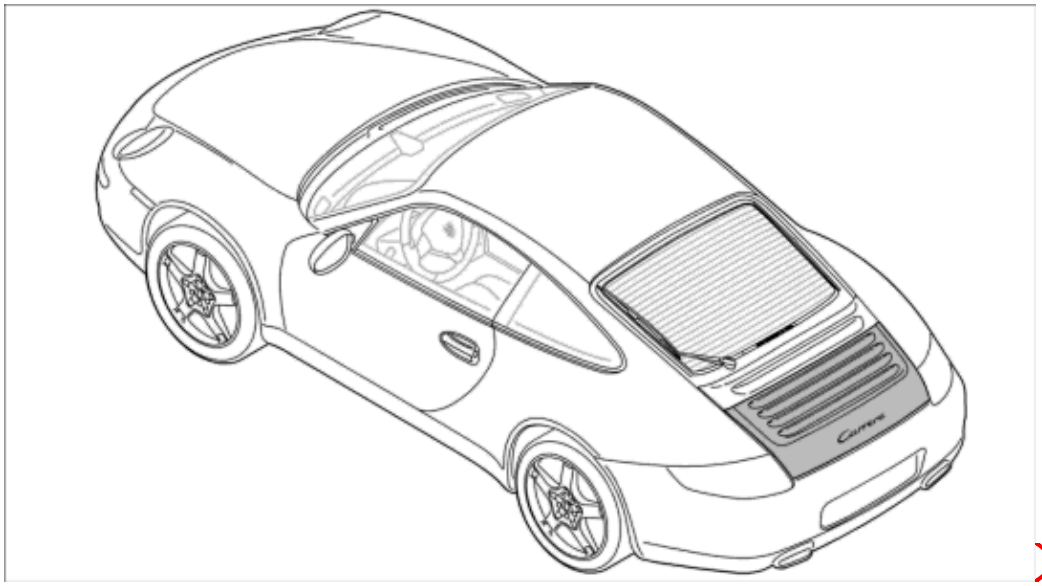
2. Unscrew **-1-** fastening screws and remove upper part of lid lock **-2-** .

top of page

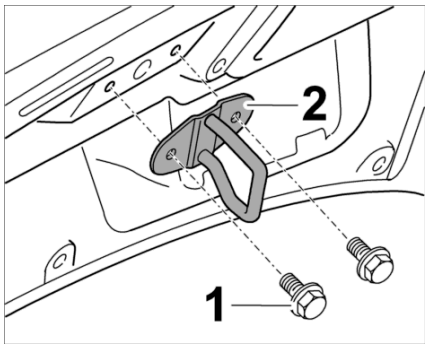
Installing rear upper part of lid lock

Installing rear upper part of lid lock

Installation Location:



Installation position of upper part of rear lid lock



Installing rear upper part of lid lock

1. Position upper part of rear lid lock **-2-** and tighten the fastening screws **-1-** slightly.
2. Adjust upper part of lid lock **-2-** in relation to the lid according to the noted position, if necessary, determine left and right gap.
3. Tighten fastening screws **-1-** . **: 9.7 (7.0 ftlb.) Nm**
4. Check lid function.

Checking lid functions

1. Close the rear lid and lock it.
2. Check that the rear lid is held down by the safety hook (locking hook) after the lid lock has been opened.
3. Check return spring on lower part of lock pulls back the safety hook as far as the stop when lid is open.

997110, 997111, 997120, 997121, 997310, 997311, 997320, 997321, 997410, 997411, 997430, 997431, 997610, 997611, 997620, 997621

as of MY 2005
Country C00, C02, C05, C07, C08, C09, C10, C11, C12, C13, C14, C15, C16, C18, C19, C20, C21, C22, C23, C24, C25, C26, C27, C28, C32, C33, C34, C35, C36, C37, C38, C39, C45, C46, C98, C99

WARNUNG

Gefahr des Verlusts der Text-Bild-Zuordnung beim Ausdruck.

- **Aus technischen Gründen kann derzeit nicht ausgeschlossen werden, dass trotz einwandfreier Darstellung auf dem Bildschirm beim Ausdruck der Zusammenhang von Text und zugehörigem Bild verloren geht.**
- **Wird der Fehler nicht bemerkt, besteht die Gefahr, daß Arbeiten nicht korrekt durchgeführt werden und es dadurch zu Personen- und Sachschäden kommt.**

Vergleichen Sie deshalb nach dem Druckvorgang unbedingt die Ausdrucke mit der Bildschirmdarstellung. Korrigieren Sie die Ausdrucke im Fehlerfall so, daß der Inhalt der Bildschirmdarstellung zutreffend wiedergegeben wird.

WARNING

Danger of losing text-figure correspondence when printing out.

55 90 15 Adjusting rear lid - as of MY 2005

- Adjusting rear lid
- Subsequent work

Tools

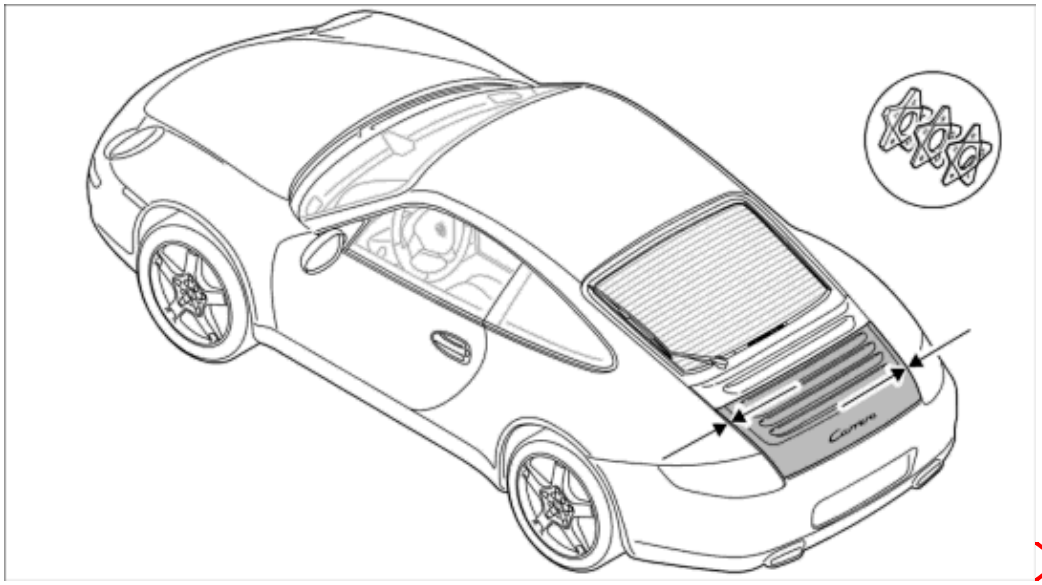
Designation	Type	Number	Explanation	
Star gauges for body gap dimensions	commercially available tool	NR.127-1		PORSCHE siehe Handbuch Werkstattausrüstung Voir le Manuel Equipement d´atelier Refer to the Workshop Equipment manual Vease Manual de Equipamiento de Taller Vedere il Manuale dell´attrezzatura d´officina ワークショップ・イクイップメント・マニュアルを参照

top of page

Adjusting rear lid

Adjusting lid in X and Y direction

Installation Location:

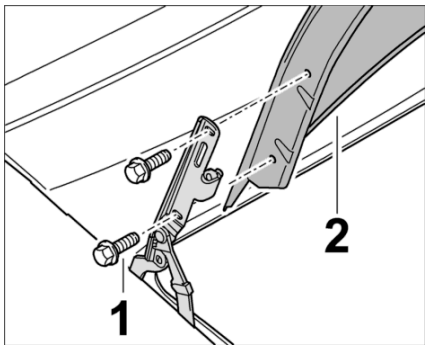


Overview, adjusting rear lid

Note

Use star gauges to set and measure the gap dimensions. **Star gauges for body gap dimensions NR.127-1**

1. Check gap dimensions on body. *5 Diagram - body gap dimensions*

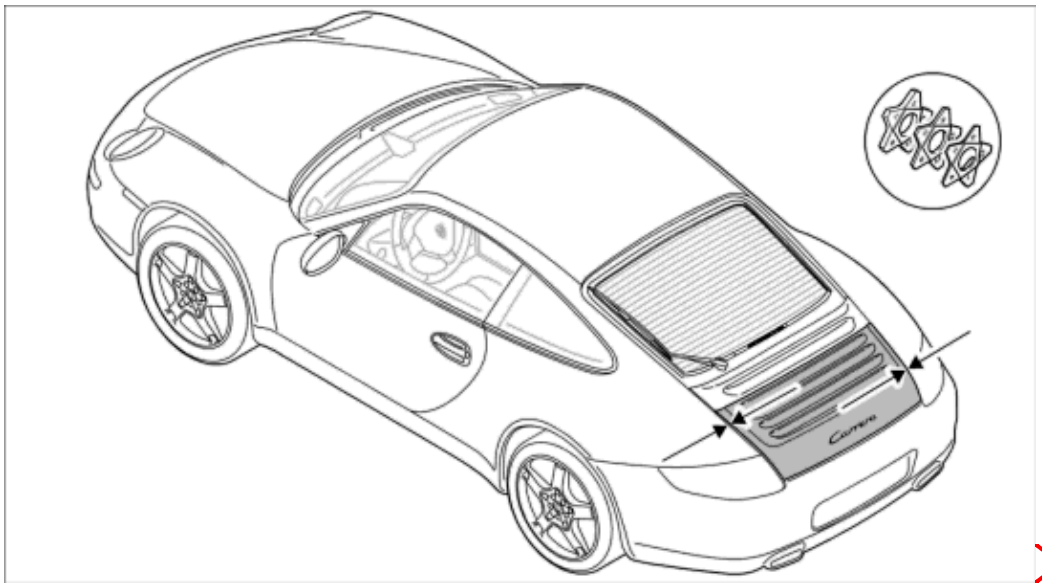


Adjusting lid in X and Y direction

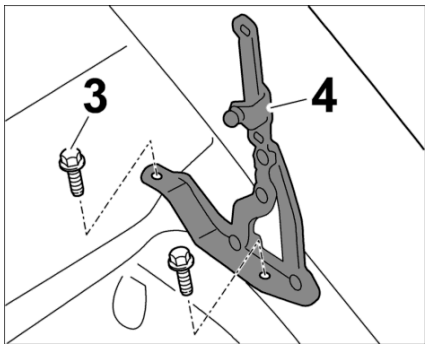
2. Undo fastening screw **-1-** on both sides of the rear lid **-2-** .

Adjusting lid in Z direction

Installation Location:



Overview, adjusting rear lid

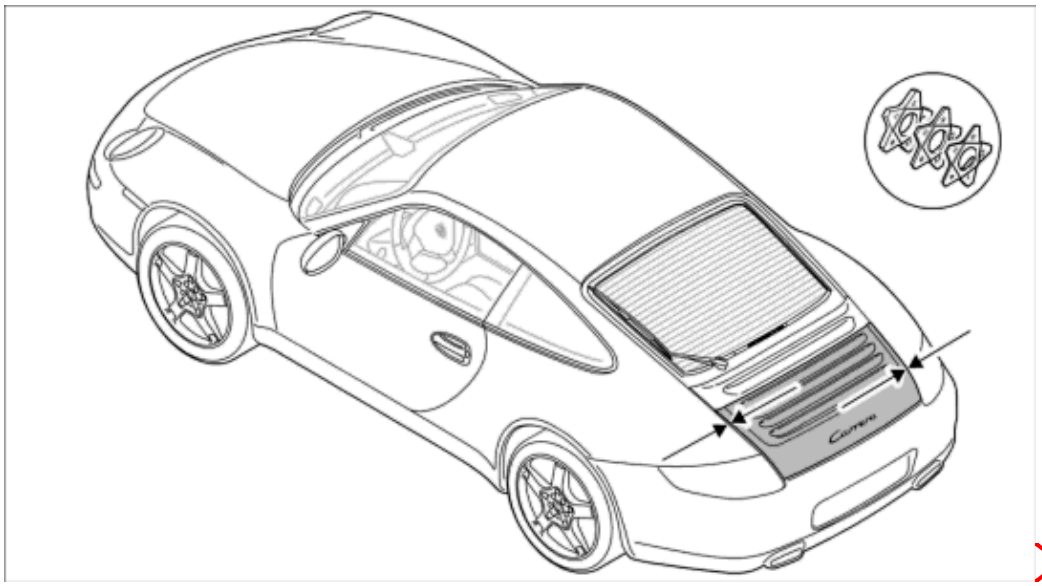


Adjusting lid in Z direction

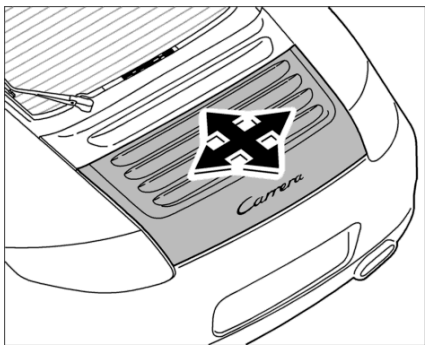
1. Disengage rear pneumatic spring at lid end. *5593 21 Removing and installing rear pneumatic spring - removing*
2. Undo fastening screws **-3-** on both rear lid hinges **-4-** .

Adjusting rear lid

Installation Location:



Overview, adjusting rear lid



Adjusting rear lid

1. By moving the rear lid **-2-** at the hinges **-4-** , adjust the contours according to the side section, tail lights, rear centre panel and front spoiler. *5 Diagram - body gap dimensions*
2. Tighten fastening screws M6 x 16 **-1-** . Tightening torque **: 7.1 ftlb.**
3. Tighten fastening screws M6 x 16 **-3-** . Tightening torque **: 7.1 ftlb.**

top of page

Subsequent work

Reworking

Engage rear pneumatic spring at the lid. *5593 23 Removing and installing rear pneumatic spring - installing*

997110, 997111, 997120, 997121, 997310, 997311, 997320, 997321, 997410, 997411, 997430, 997431, 997610, 997611, 997620, 997621

as of MY 2005
Country C00, C02, C05, C07, C08, C09, C10, C11, C12, C13, C14, C15, C16, C18, C19, C20, C21, C22, C23, C24, C25, C26, C27, C28, C32, C33, C34, C35, C36, C37, C38, C39, C45, C46, C98, C99

WARNUNG

Gefahr des Verlusts der Text-Bild-Zuordnung beim Ausdruck.

- **Aus technischen Gründen kann derzeit nicht ausgeschlossen werden, dass trotz einwandfreier Darstellung auf dem Bildschirm beim Ausdruck der Zusammenhang von Text und zugehörigem Bild verloren geht.**
- **Wird der Fehler nicht bemerkt, besteht die Gefahr, daß Arbeiten nicht korrekt durchgeführt werden und es dadurch zu Personen- und Sachschäden kommt.**

Vergleichen Sie deshalb nach dem Druckvorgang unbedingt die Ausdrucke mit der Bildschirmdarstellung. Korrigieren Sie die Ausdrucke im Fehlerfall so, daß der Inhalt der Bildschirmdarstellung zutreffend wiedergegeben wird.

WARNING

Danger of losing text-figure correspondence when printing out.

- **For technical reasons, it can currently not be ruled out that the correspondence between text and associated figure can be lost when it is printed out, even though the display on the screen is correct.**
- **If the fault is not noticed, there is the danger that work will not be performed correctly which can cause injury and damage.**

55 90 19 Removing and installing rear lid - as of MY 2005

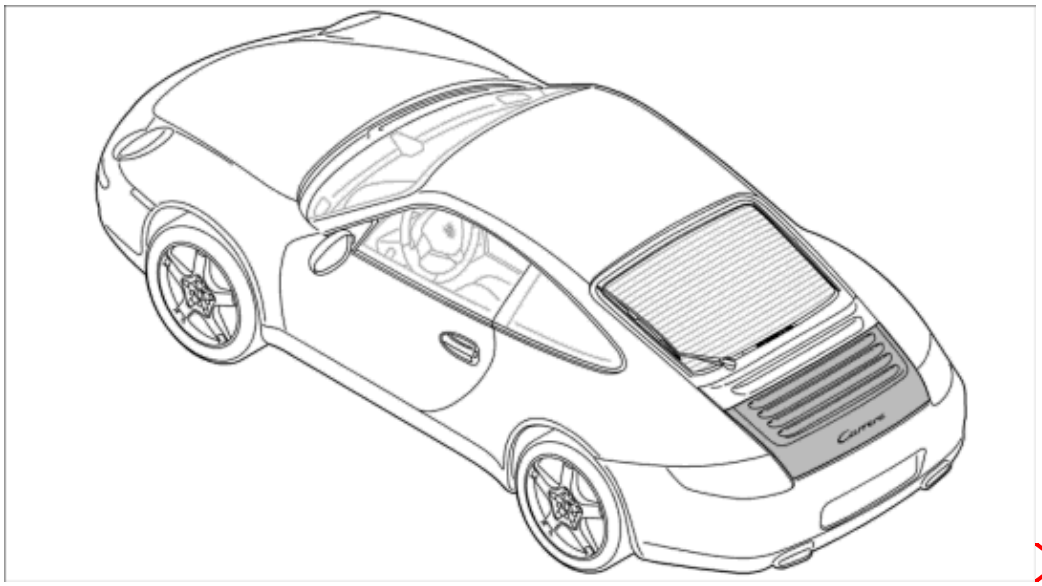
- Removing rear lid
- Installing rear lid

top of page

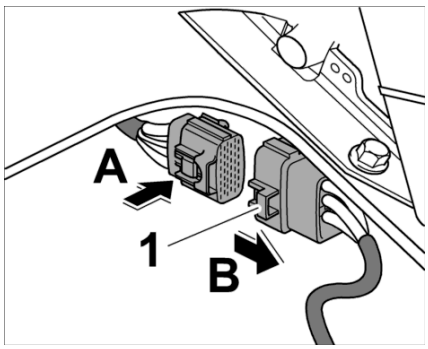
Removing rear lid

Disconnecting wiring harness on rear lid

Installation Location:



Overview, rear lid



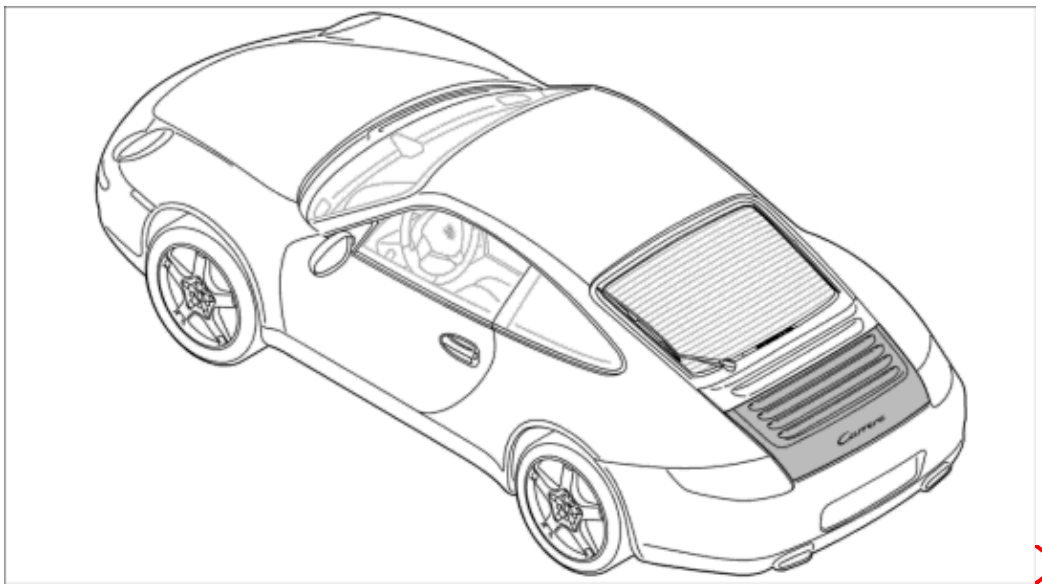
Disconnecting wiring harness on rear lid

1. Open the rear lid.

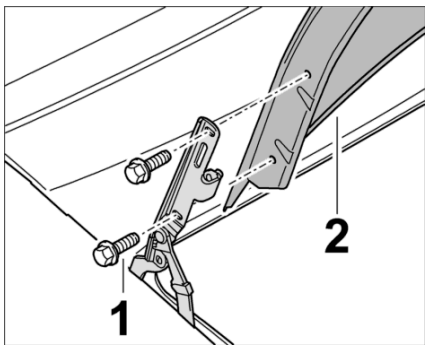
2. Unclip the wiring harness.
3. Press **-arrow A-** the lug of the electrical plug connection **-1-** and separate it **-arrow B-** .

Removing rear lid

Installation Location:



Overview, rear lid



Removing rear lid

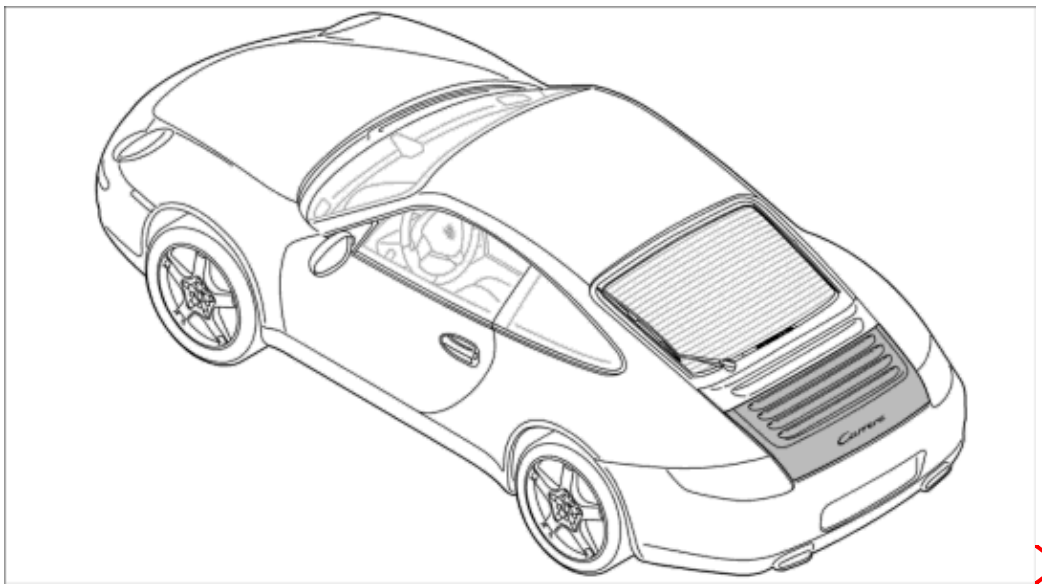
1. A second person should hold the rear lid **-2-** to prevent it falling shut.
2. Undo fastening screws **-1-** .
3. Remove rear lid **-2-** .

top of page

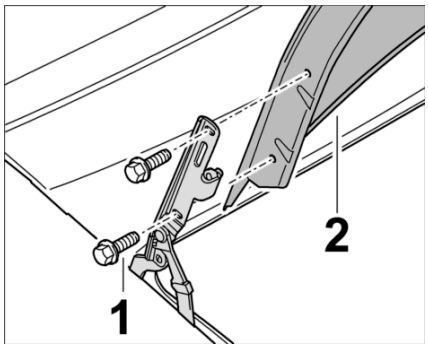
Installing rear lid

Installing rear lid

Installation Location:



Overview, rear lid

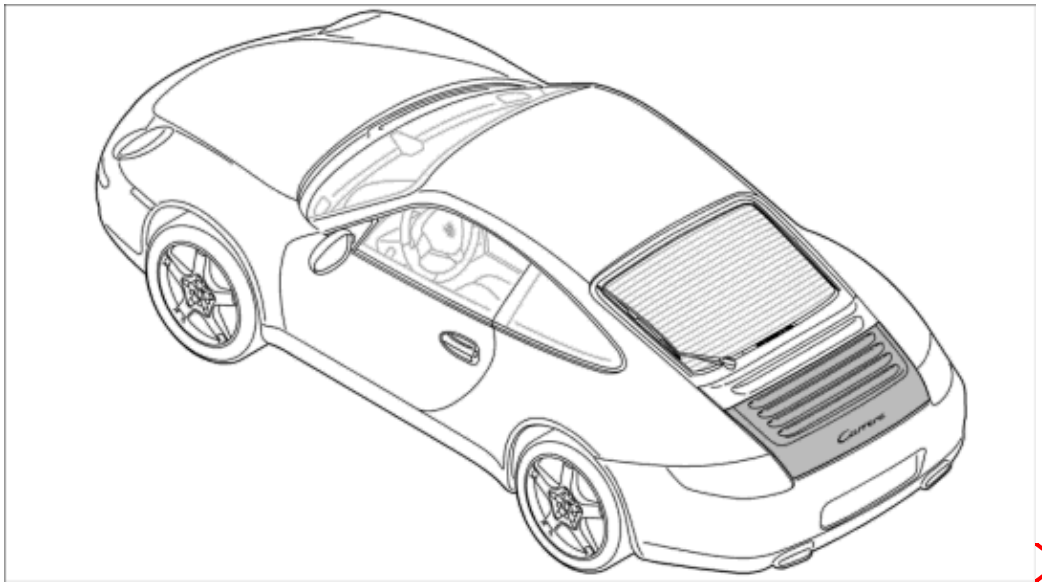


Installing rear lid

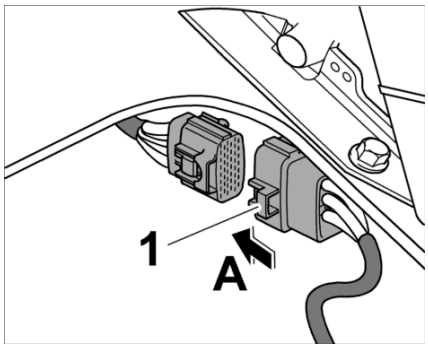
1. Mount the rear lid **-2-** with the help of a second person.
2. Screw in the fastening screws **-1-** until they just make contact.
3. Adjust rear lid. *5590 15 Adjusting rear lid - adjusting*
4. Tighten fastening screws M6 x 16 **-1-** . Tightening torque **: 7.1 ftlb.**

Locking wiring harness on rear lid

Installation Location:



Overview, rear lid



Locking wiring harness on rear lid

1. Push together electrical plug connection **-1-** **-arrow A-** until locking tab is felt to engage.
2. Clipping wiring harness into place

997110, 997111, 997120, 997121, 997310, 997311, 997320, 997321, 997410, 997411, 997430, 997431, 997610, 997611, 997620, 997621

as of MY 2005
Country C00, C02, C05, C07, C08, C09, C10, C11, C12, C13, C14, C15, C16, C18, C19, C20, C21, C22, C23, C24, C25, C26, C27, C28, C32, C33, C34, C35, C36, C37, C38, C39, C45, C46, C98, C99

WARNUNG
Gefahr des Verlusts der Text-Bild-Zuordnung beim Ausdruck.

55 90 37 Disassembling and assembling rear lid - as of MY 2005

- Preliminary work
- Disassembling rear lid
- Assembling rear lid
- Reworking

top of page

Preliminary work

Preliminary work

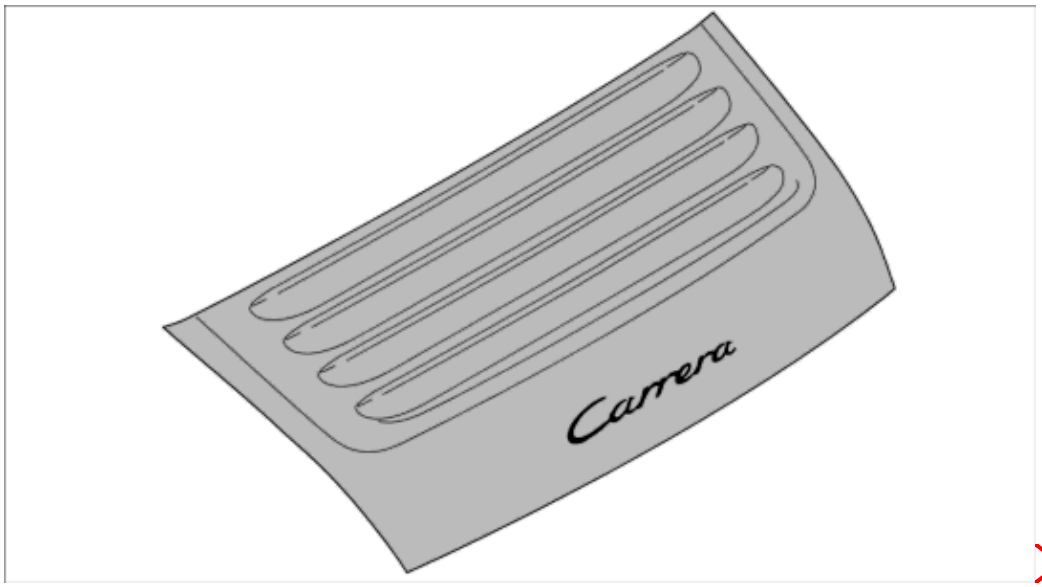
Remove additional brake light. 947019 Removing and installing additional brake light - removing [997110 997111 997120 997121 997410 997411 997430 997431] 947019 Removing and installing additional brake light - removing [997310 997311 997320 997321 997610 997611 997620 997621]
Remove upper part of rear lid lock. 558719 Removing and installing upper part of rear lid lock - removing
Remove the rear logo. *665019 21 Removing and installing rear logo - removing*

top of page

Disassembling rear lid

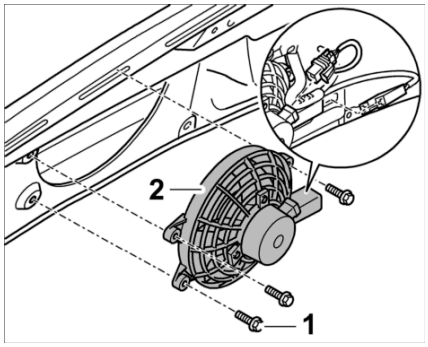
Removing fan with fan housing

Installation Location:



Overview, rear lid

1. Extend spoiler manually.
2. Remove rear lid. *5590 21 Removing and installing rear lid - removing*

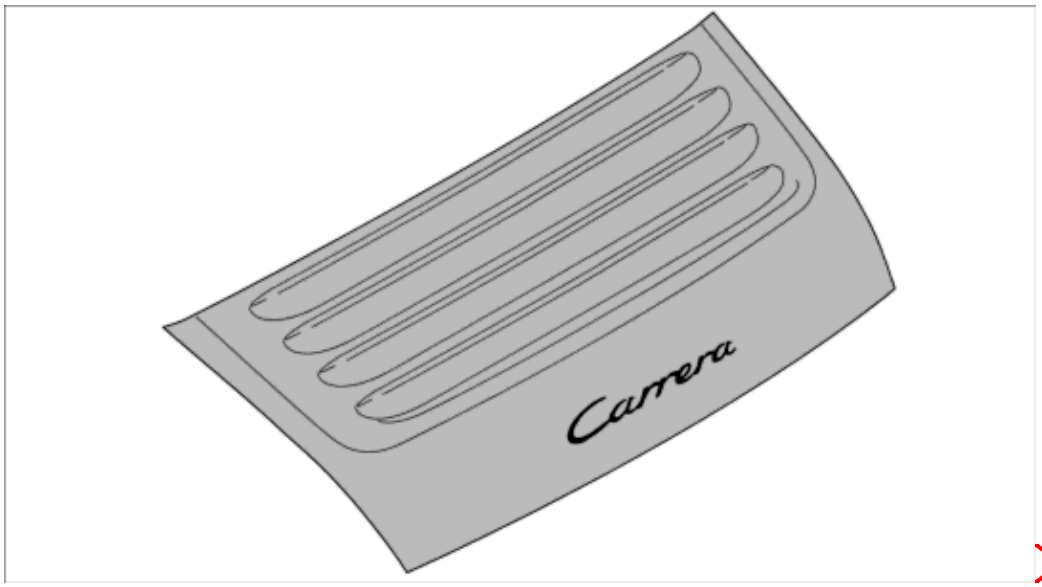


Removing fan with fan housing

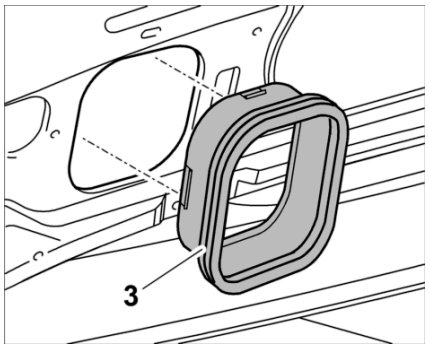
3. Disconnect plug connections for fan and engine compartment lighting on the fan housing **-Lupe-** .
4. Unscrew fastening screws **-1-** and remove fan with fan housing **-2-** .

Removing air guide

Installation Location:



Overview, rear lid

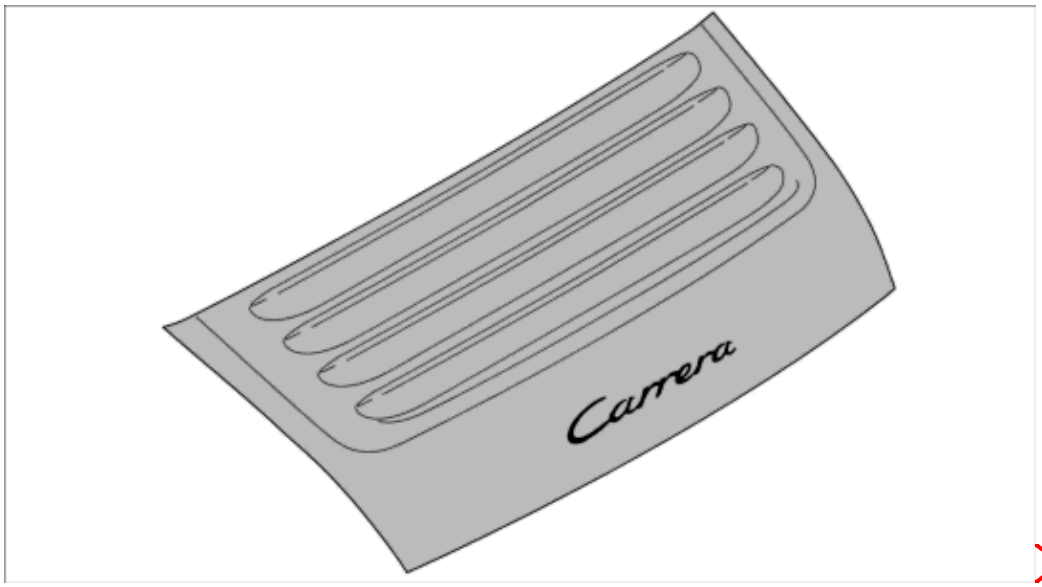


Removing air guide

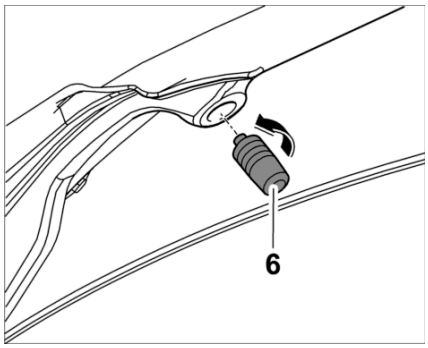
1. Pull air guide **-1-** off the rear lid.

Remove adjusting element

Installation Location:



Overview, rear lid

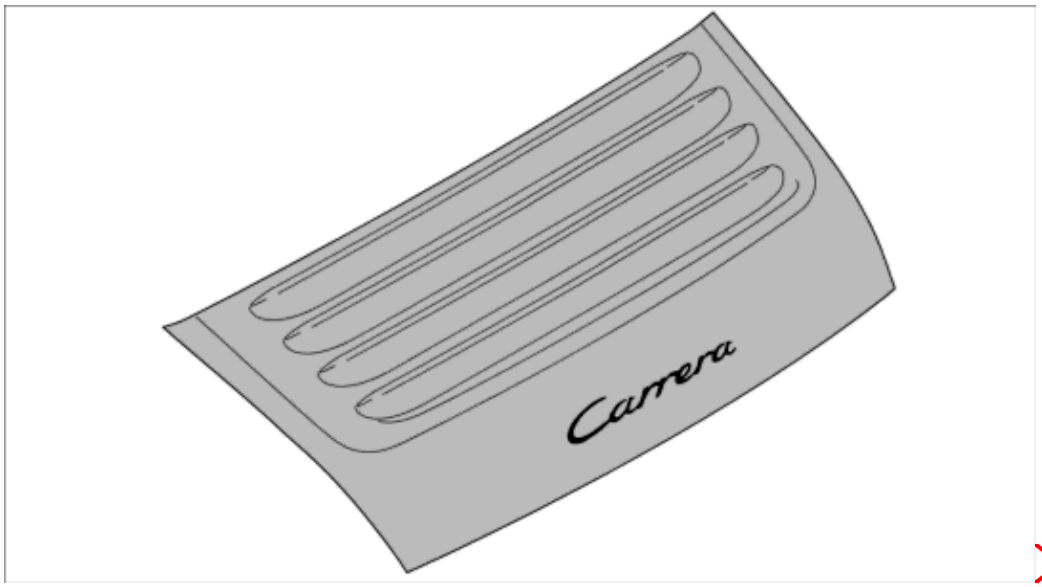


Remove adjusting element

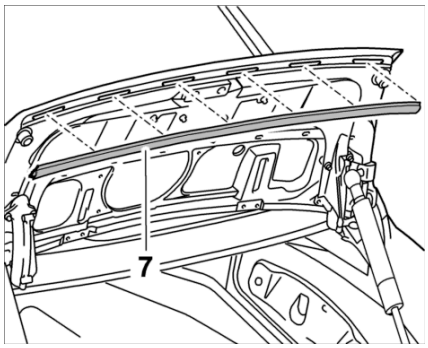
1. Unscrew rubber pad **-6-** .

Remove rubber cover

Installation Location:



Overview, rear lid

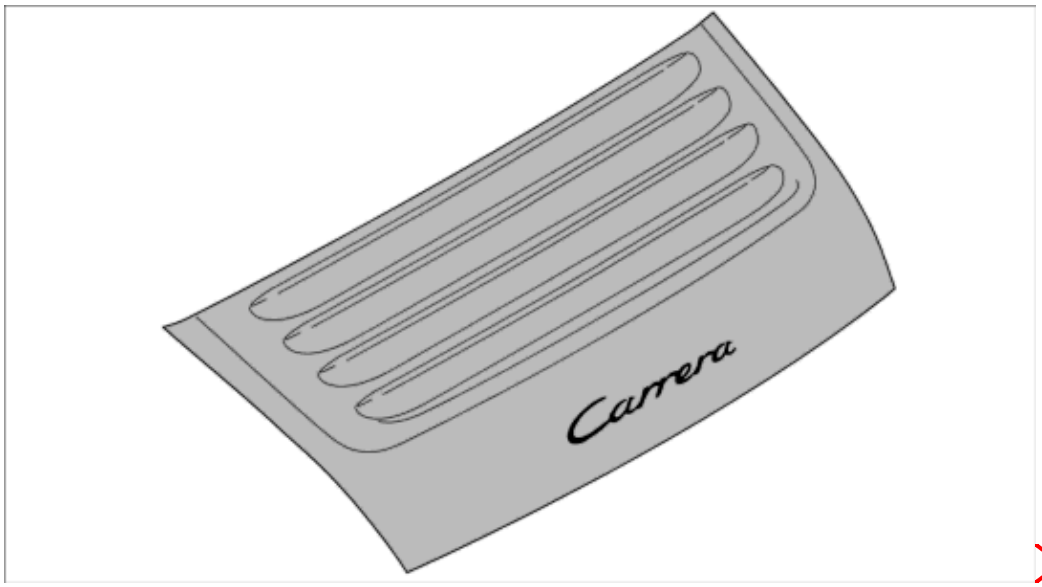


Removing rubber cover

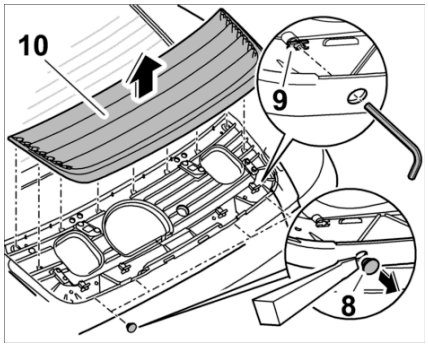
1. Pull rubber cover **-7-** out of the rear lid.

Removing upper part of spoiler

Installation Location:



Overview, rear lid

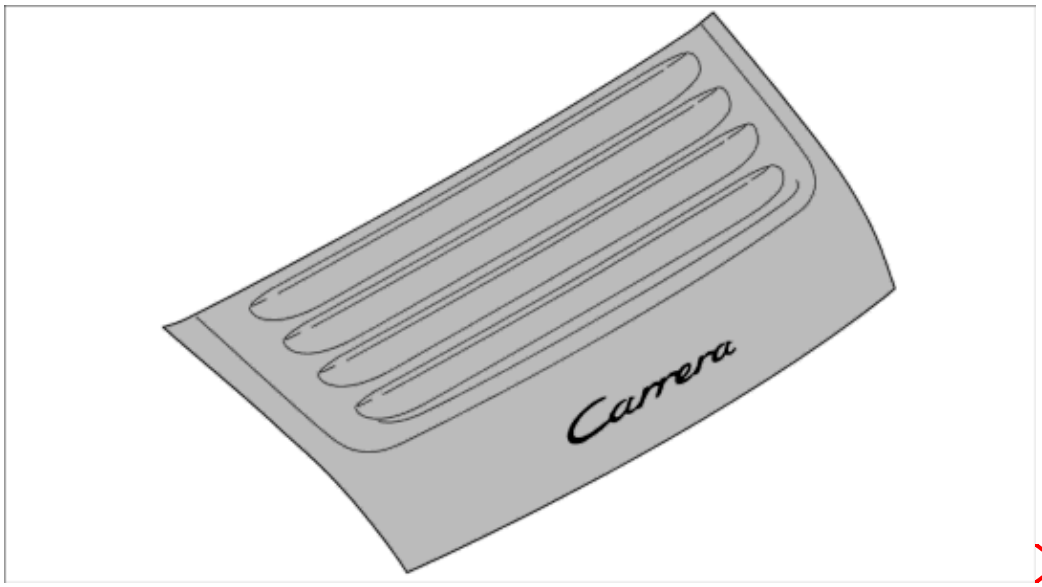


Removing upper part of spoiler

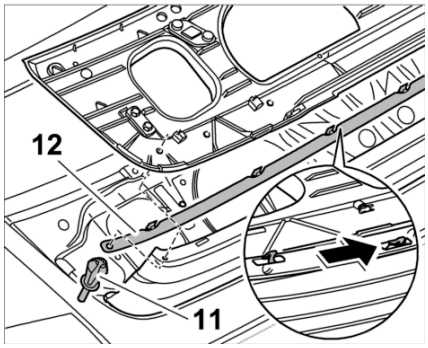
1. Press out plastic plugs **-8-** with a small screwdriver.
2. Unscrew clamping screw **-9-** by 2 to 3 turns and remove spoiler **-10-** by pulling it upwards.

Removing the folding wall from the upper part of the spoiler

Installation Location:



Overview, rear lid

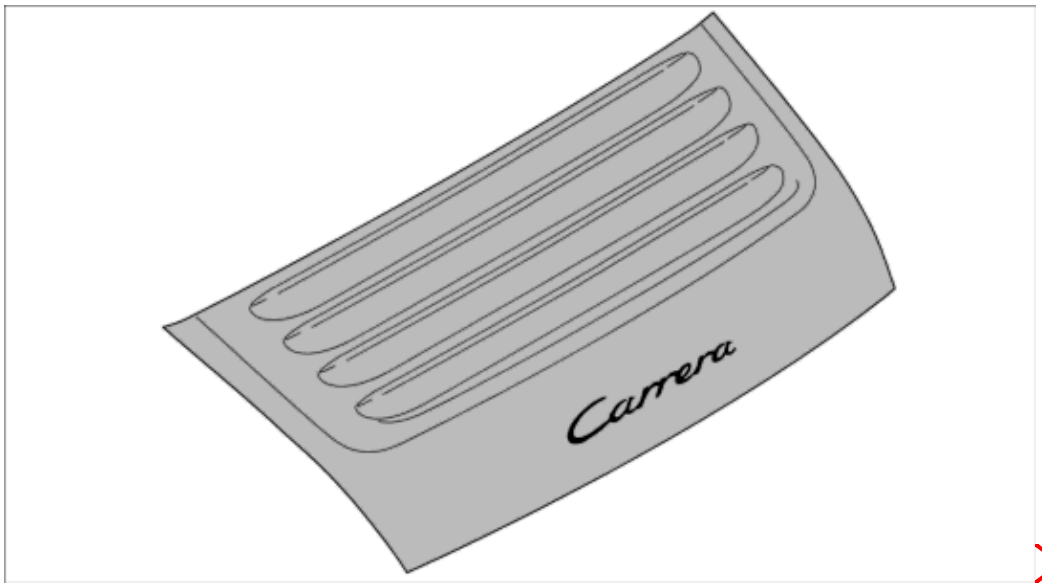


Removing the folding wall from the upper part of the spoiler

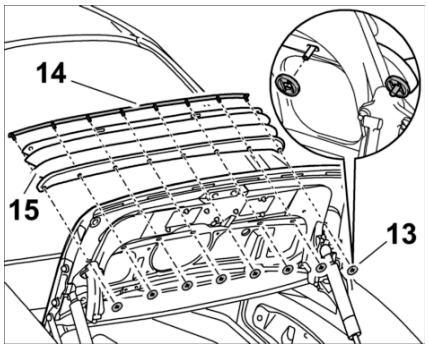
1. Press out the expanding rivet **-11-** .
2. Remove the rails **-12-** from the lower part of the spoiler towards the rear.

Removing the folding wall from the cover

Installation Location:



Overview, rear lid

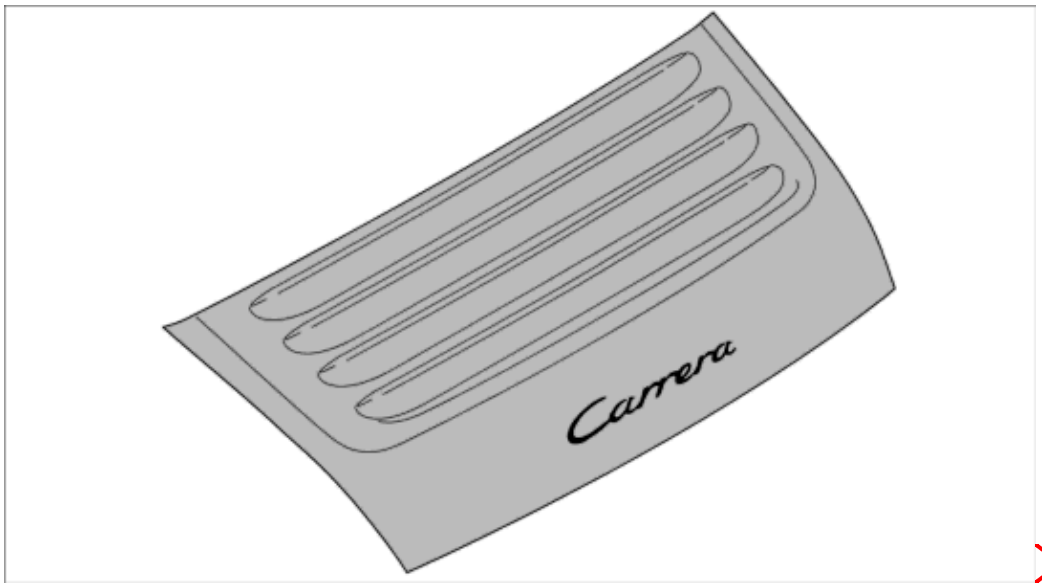


Removing the folding wall from the cover

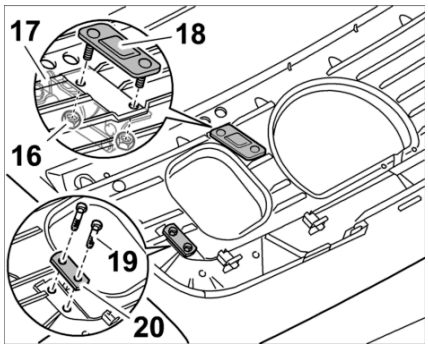
1. Press out the clamping washer **-13-** with a screwdriver. The clamping washers are destroyed by the action of removing them.
2. Remove the fastening rail **-14-** and the folding wall **-15-** from the cover towards the rear.

Removing the lower part of the spoiler

Installation Location:



Overview, rear lid

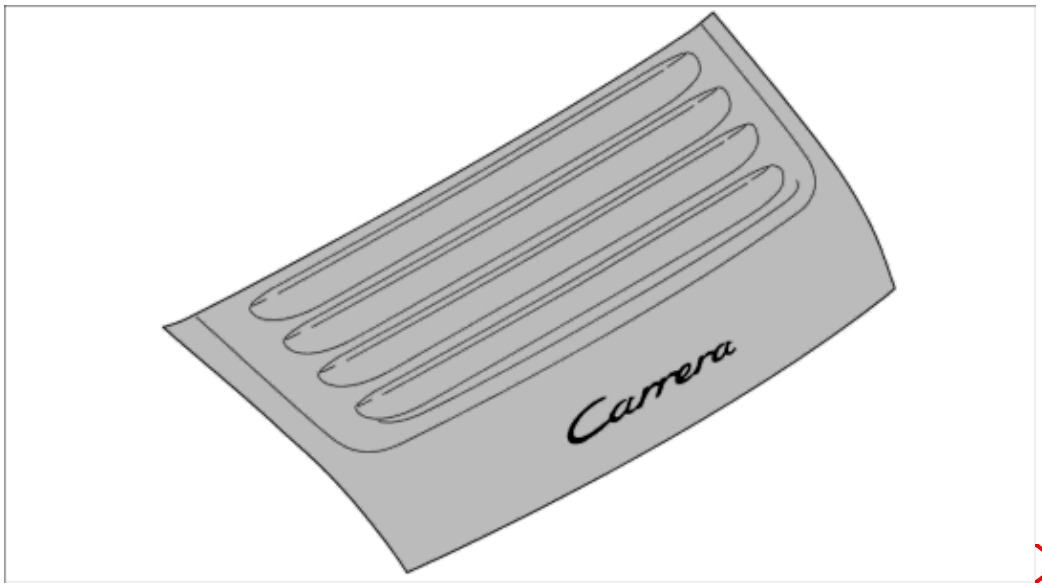


Removing the lower part of the spoiler

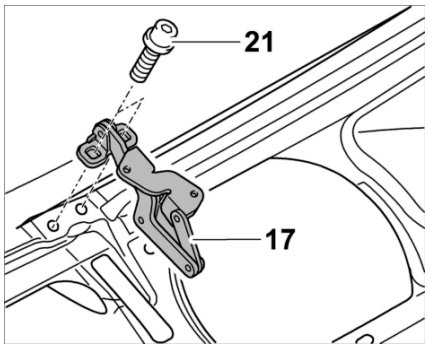
1. Unscrew the fastening nuts **-16-** from the upper part of the spoiler and the hinge **-17-** . Remove the threaded plate **-18-** .
2. Unscrew the fastening screws **-19-** from the lower part of the spoiler and the actuating element. Remove the spacer **-20-** .

Removing hinge

Installation Location:



Overview, rear lid

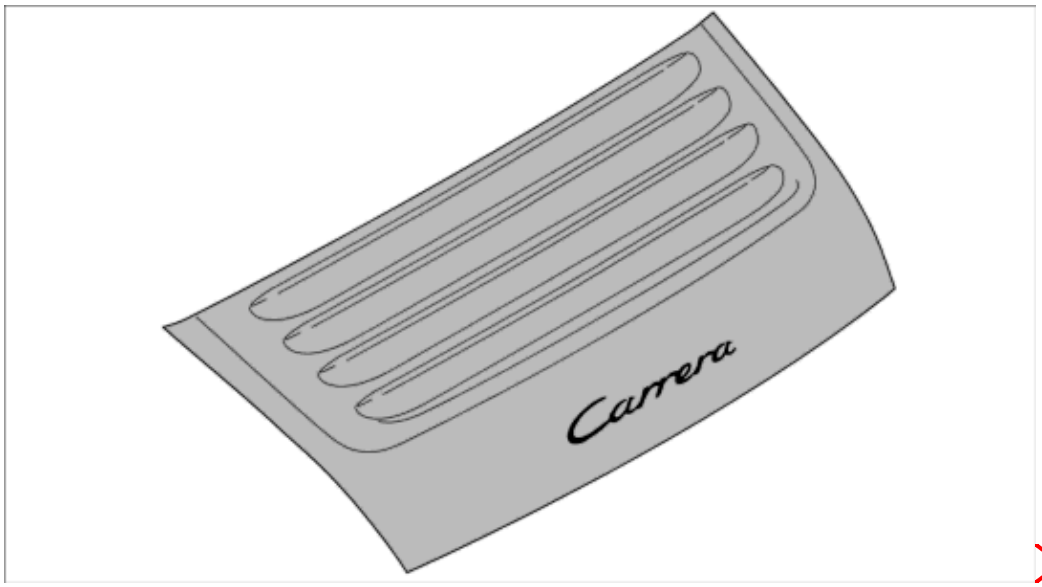


Removing hinge

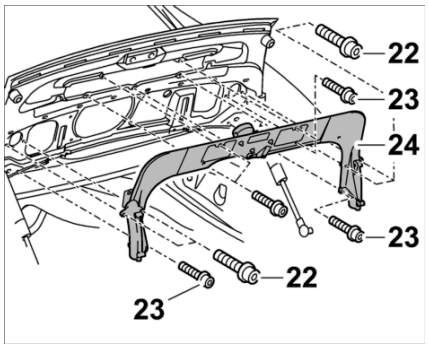
1. Unscrew fastening screws **-21-** from the hinge **-17-** .

Removing the mount

Installation Location:



Overview, rear lid



Removing the mount

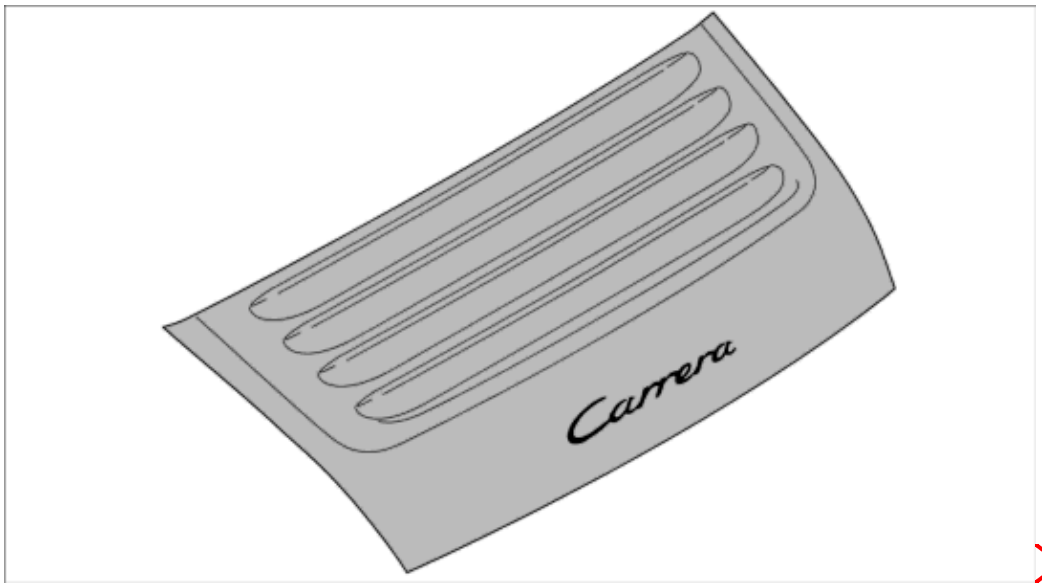
1. Unscrew fastening screws **-22-** and **-23-** from the actuating element **-24-** .
2. Remove wiring harness for rear spoiler. *Removing and installing wiring harness for rear spoiler*

top of page

Assembling rear lid

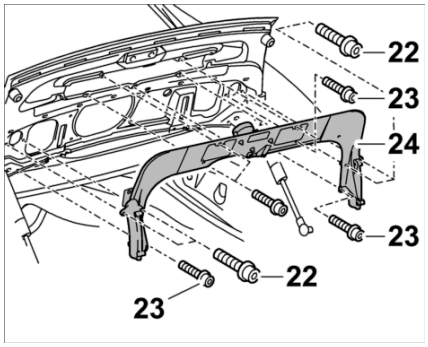
Fitting mount

Installation Location:



Overview, rear lid

1. Install wiring harness for rear spoiler. *Removing and installing wiring harness for rear spoiler*

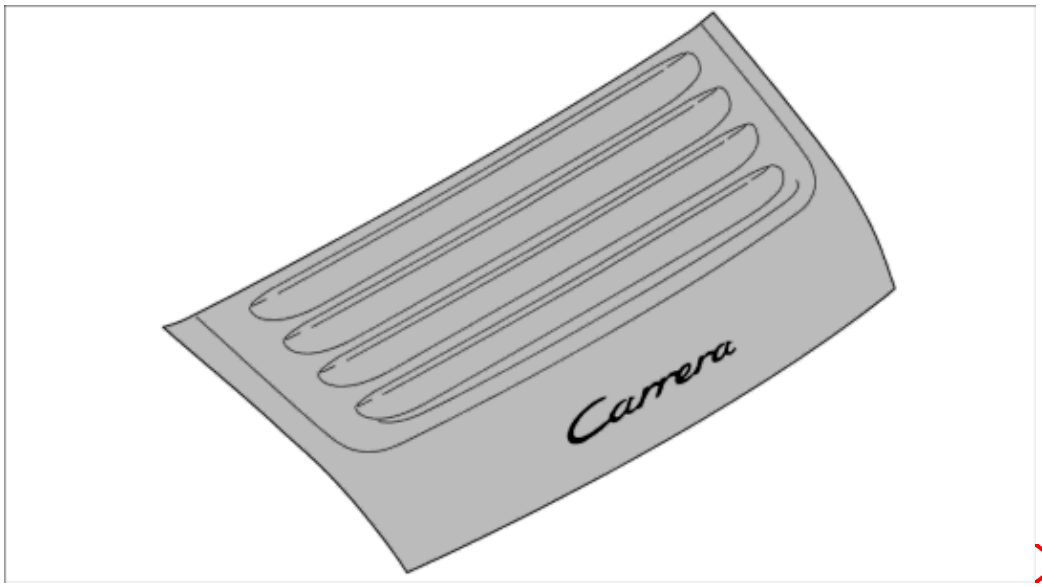


Installing mount

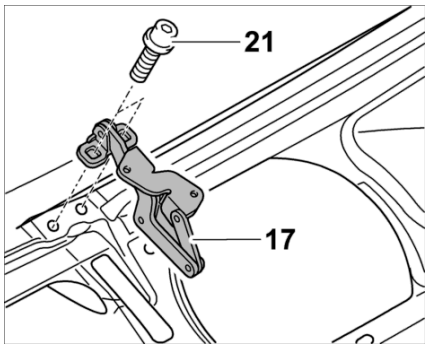
2. Position the mount **-24-** on the rear cover and screw in using the fastening screws M6 **-22, 23-** .
   Tightening torque **: 7 ftlb.**

Fitting hinge

Installation Location:



Overview, rear lid

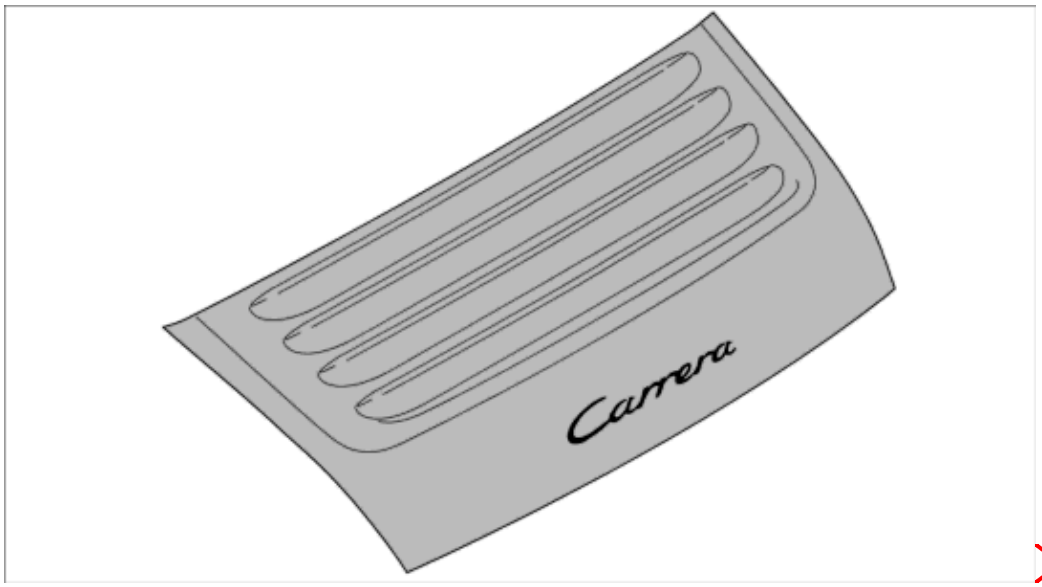


Fitting hinge

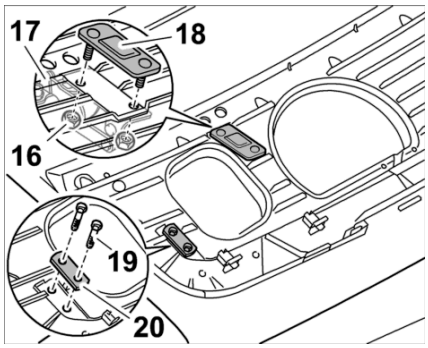
1. Position hinge **-17-** and screw in using the M6 fastening screws **-21-** . Tightening torque **: 7.1 ftlb.**

Mounting the lower part of the spoiler

Installation Location:



Overview, rear lid

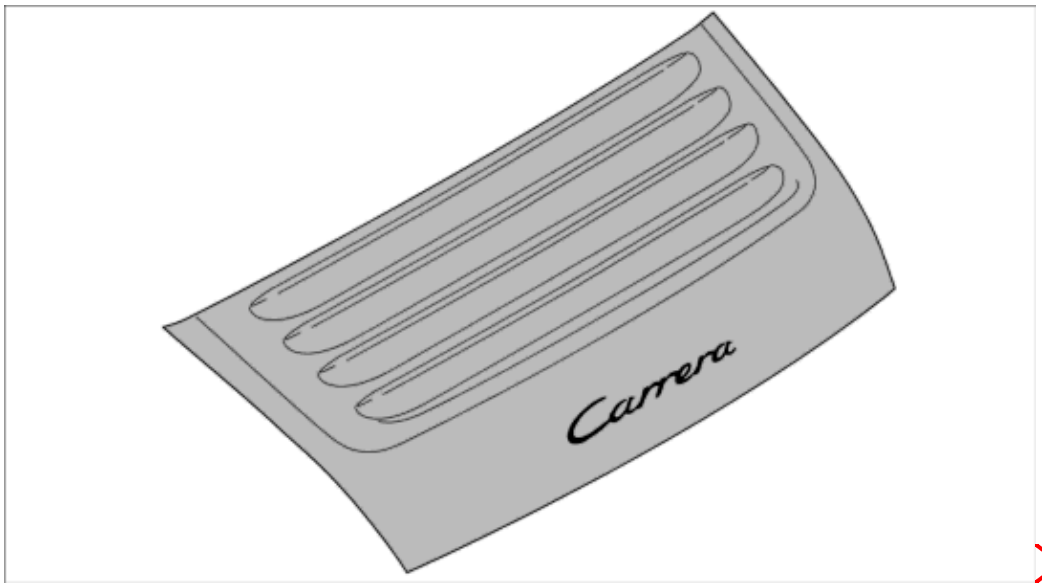


Mounting the lower part of the spoiler

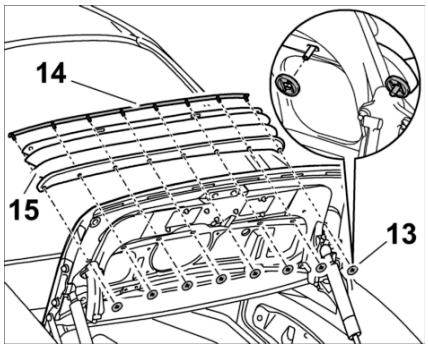
1. Position the spacer **-20-** on the lower part of the spoiler. Tighten M6 fastening screws **-19-** . Tightening torque **: 7 ftlb.**
2. Position the upper part of the spoiler on the hinge **-17-** . Using the threaded plate **-18-** and the M6 fastening nuts **-16-** , screw in the upper part of the spoiler securely. Tightening torque **: 7 ftlb.**

Mounting the folding wall on the lid

Installation Location:



Overview, rear lid

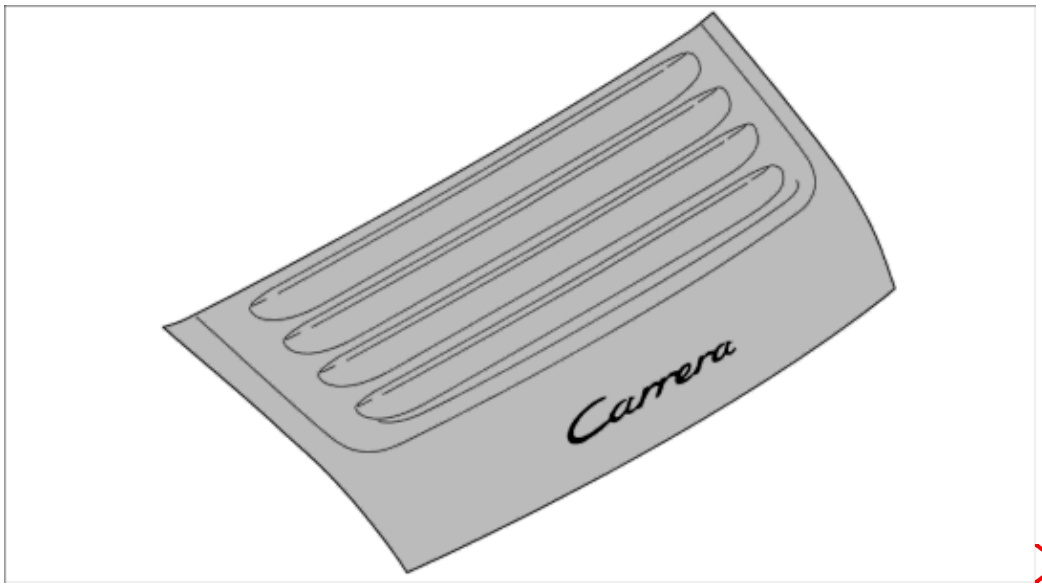


Mounting the folding wall on the lid

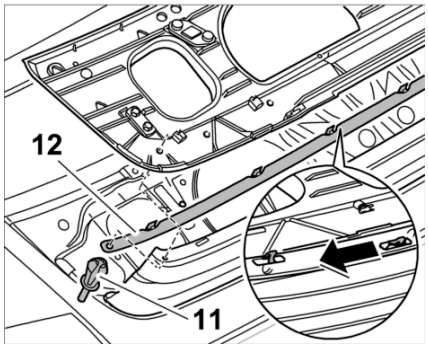
1. Position the fastening rail **-14-** on the folding wall **-15-** and the rear lid.
2. Put new clamping washers **-13-** on the pegs of the fastening rail.

Mounting the folding wall on the upper part of the spoiler

Installation Location:



Overview, rear lid

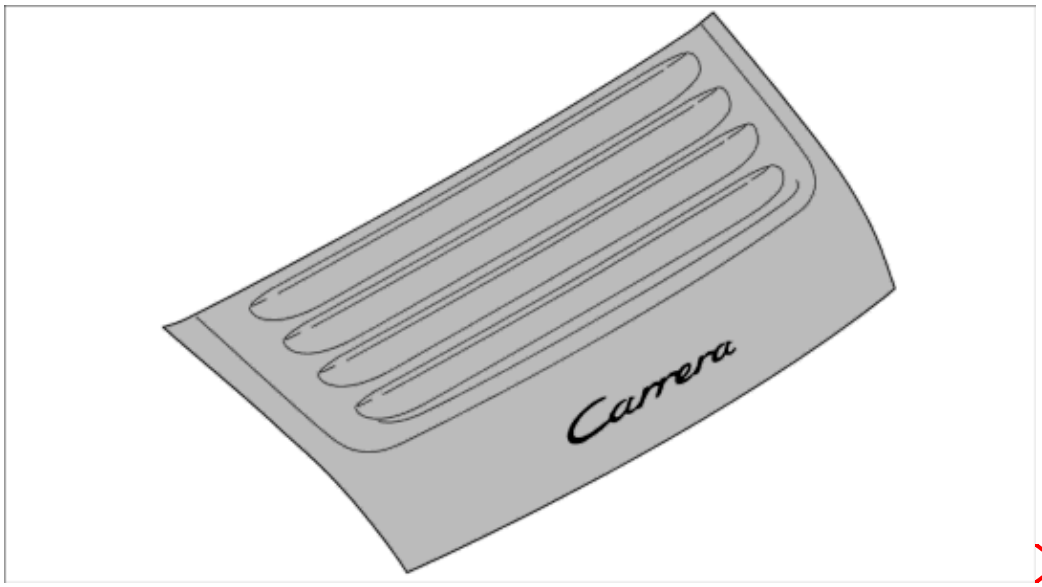


Mounting the folding wall on the upper part of the spoiler

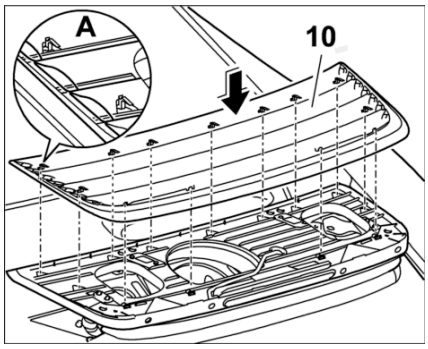
1. Insert the rail **-12-** with the folding wall into the lower part of the spoiler in **-direction of arrow-** .
2. Press in the expanding rivet **-11-** .

Mounting upper part of spoiler

Installation Location:

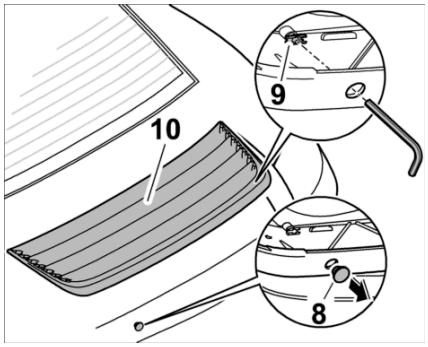


Overview, rear lid



Mounting upper part of spoiler

1. Place the upper part of the spoiler **-10-** on the lower part of the spoiler. Ensure that the locking tabs **-Lupe A-** have engaged.

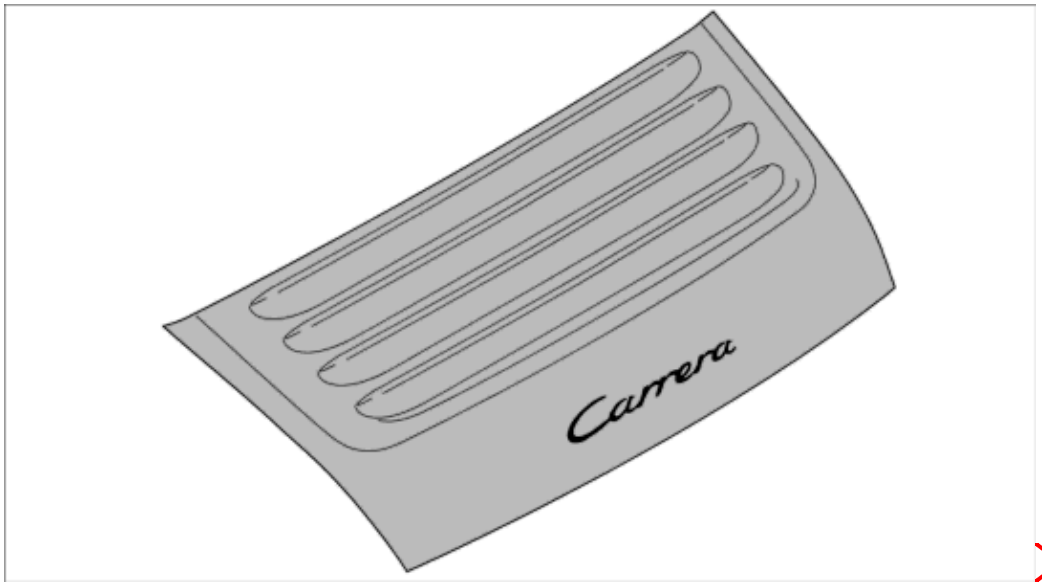


Securing upper part of spoiler

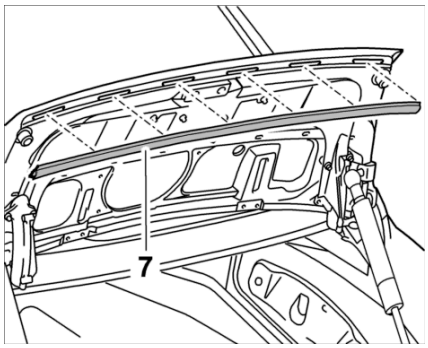
2. Tighten clamping screws **-9-** . Tightening torque **: 2 ftlb. ±1 ftlb.**
3. Push in the plastic plugs **-8-** .

Fitting rubber cover

Installation Location:



Overview, rear lid

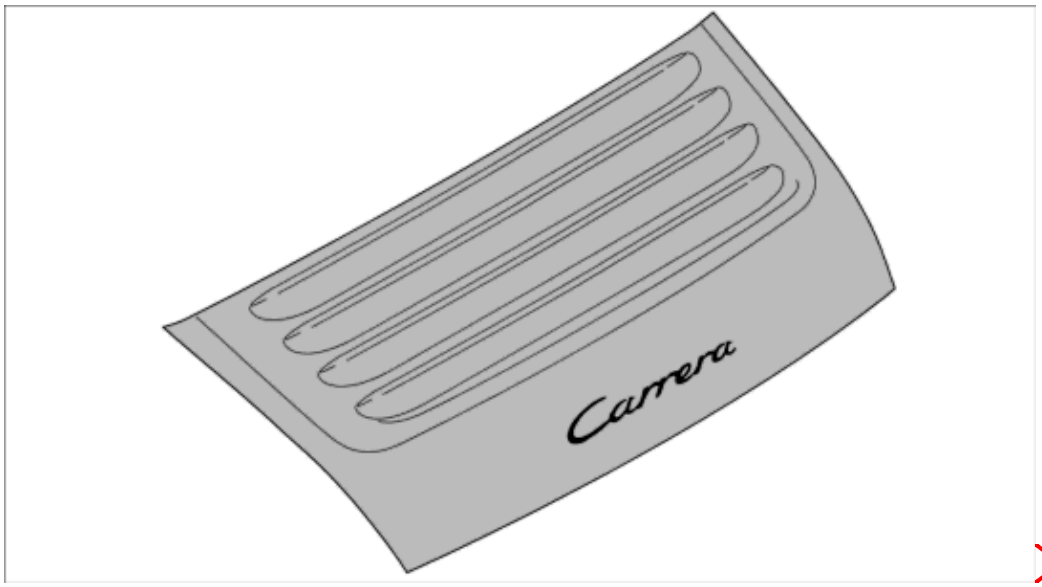


Fitting rubber cover

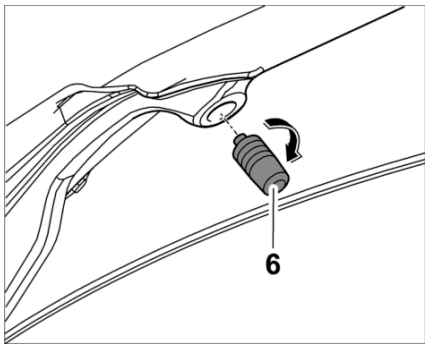
1. Position the rubber cover **-7-** on the rear lid and push in.

Installing adjusting element

Installation Location:



Overview, rear lid

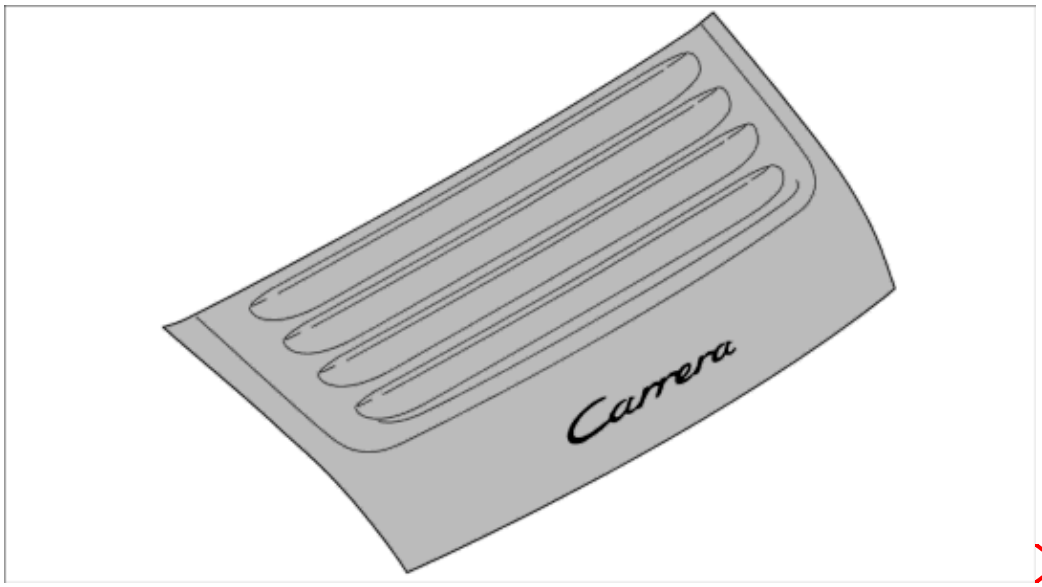


Installing adjusting element

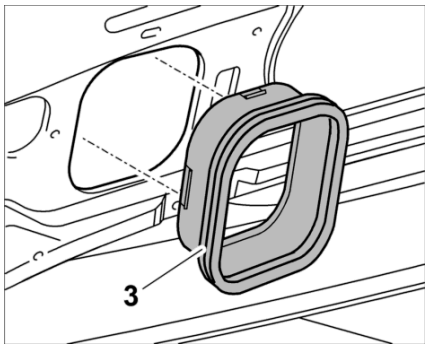
1. Screw in rubber pad **-6-** .

Installing air guide

Installation Location:



Overview, rear lid

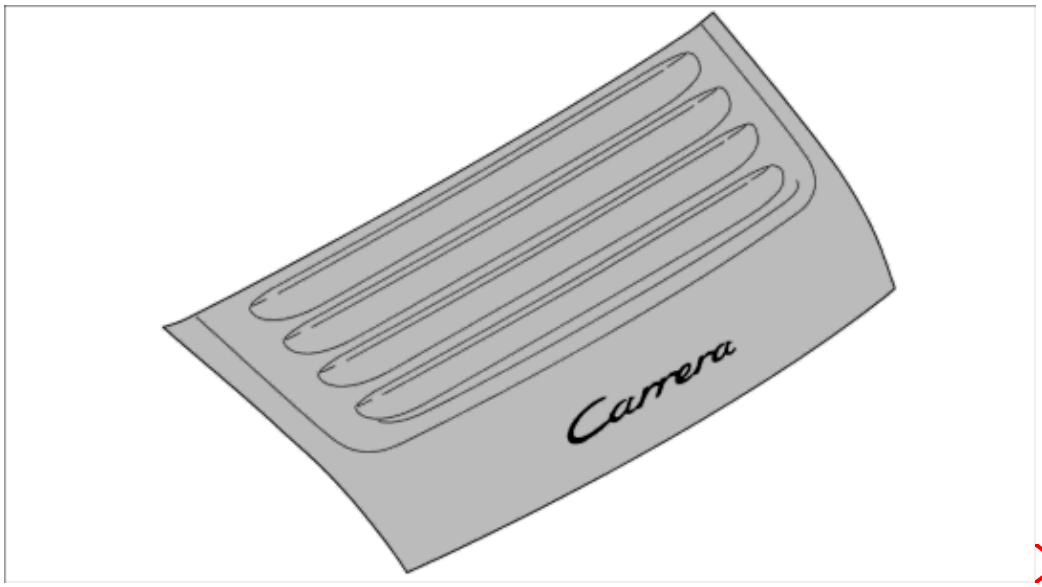


Installing air guide

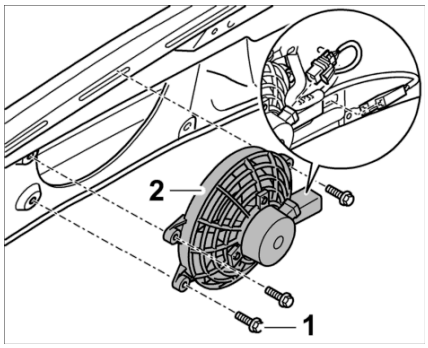
1. Position the air guide **-3-** on the rear lid and insert into position.

Fitting fan with fan housing

Installation Location:



Overview, rear lid



Fitting fan with fan housing

1. Position fan and fan housing **-2-** and tighten with M6 fastening screws **-1-** . Tightening torque **: 7.1 ftlb.**
2. Connect plugs for fan and engine compartment lighting on the fan housing.

top of page

Reworking

Reworking

Install upper part of rear lid lock. 558719 Removing and installing upper part of rear lid lock - installing
Install additional brake light. 947019 Removing and installing additional brake light - installing [997110 997111 997120 997121 997410 997411 997430 997431] 947019 Removing and installing additional brake light - installing [997310 997311 997320 997321 997610 997611 997620 997621]
Install logo. *665019 23 Removing and installing rear logo - installing*
Install rear lid. *5590 23 Removing and installing rear lid - installing*

55 91 19 Removing and installing rear lid hinge - as of MY 2005

- Preliminary work
- Removing rear lid hinge
- Installing rear lid hinge
- Subsequent work

top of page

Preliminary work

Preliminary work

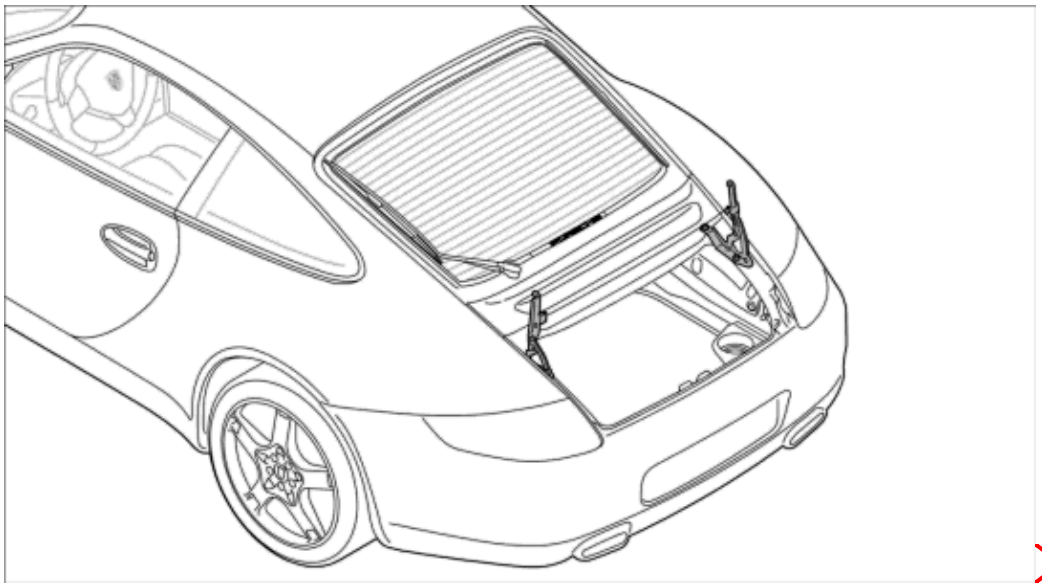
Remove rear lid. *5590 21 Removing and installing rear lid - removing*
Disengage rear pneumatic spring at the lid. *5593 21 Removing and installing rear pneumatic spring - removing*
Removing rear centre panel. *5121 21 Removing and installing rear centre panel - removing*

top of page

Removing rear lid hinge

Removing rear lid hinge

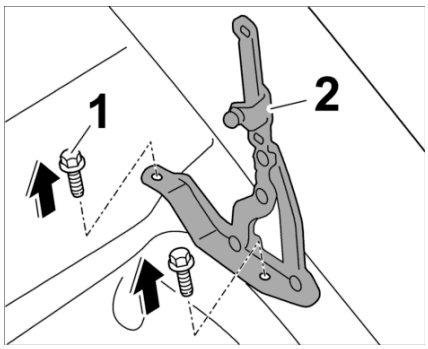
Installation Location:



Overview, removing and installing lid hinge

Note

- *If the rear lid hinge fails to work properly, it can be replaced without having to remove the rear lid. In such cases, a second person is required to hold the lid open during the repair process.*



Removing lid hinge

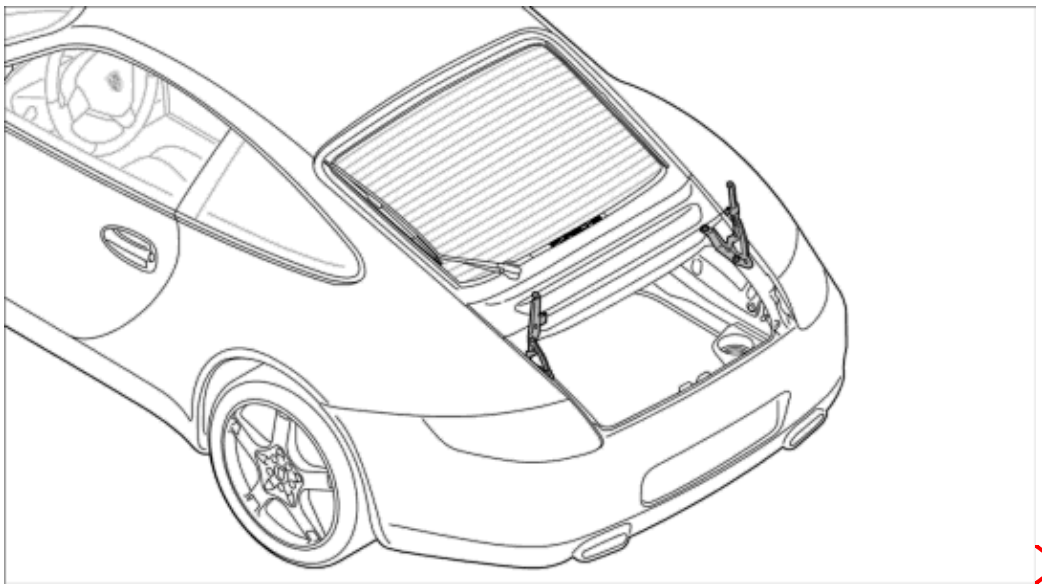
1. Unscrew fastening screws **-1-** .
2. Remove the hinge **-2-** .

top of page

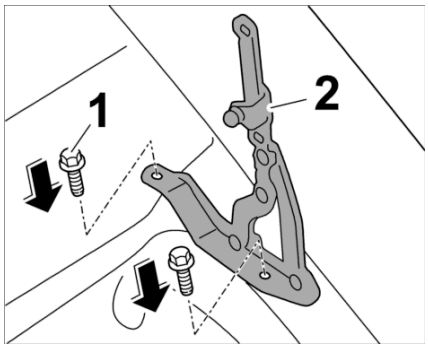
Installing rear lid hinge

Installing rear lid hinge

Installation Location:



Overview, removing and installing lid hinge



Installing lid hinge

1. Roughly align the hinge **-2-** according to the old attachment points.
2. Screw in fastening screws (body side) M6 x 16 **-1-** and tighten **: 7.1 ftlb.** .

top of page

Subsequent work

Reworking

Install rear centre panel. *5121 23 Removing and installing rear centre panel - installing*

Engage rear pneumatic spring at the lid. *5593 23 Removing and installing rear pneumatic spring - installing*
Install rear lid. *5590 23 Removing and installing rear lid - installing*

997110, 997111, 997120, 997121, 997310, 997311, 997320, 997321, 997410, 997411, 997430, 997431, 997610, 997611, 997620, 997621

as of MY 2005
Country C00, C02, C05, C07, C08, C09, C10, C11, C12, C13, C14, C15, C16, C18, C19, C20, C21, C22, C23, C24, C25, C26, C27, C28, C32, C33, C34, C35, C36, C37, C38, C39, C45, C46, C98, C99

WARNUNG

Gefahr des Verlusts der Text-Bild-Zuordnung beim Ausdruck.

- **Aus technischen Gründen kann derzeit nicht ausgeschlossen werden, dass trotz einwandfreier Darstellung auf dem Bildschirm beim Ausdruck der Zusammenhang von Text und zugehörigem Bild verloren geht.**
- **Wird der Fehler nicht bemerkt, besteht die Gefahr, daß Arbeiten nicht korrekt durchgeführt werden und es dadurch zu Personen- und Sachschäden kommt.**

Vergleichen Sie deshalb nach dem Druckvorgang unbedingt die Ausdrucke mit der Bildschirmdarstellung. Korrigieren Sie die Ausdrucke im Fehlerfall so, daß der Inhalt der Bildschirmdarstellung zutreffend wiedergegeben wird.

WARNING

Danger of losing text-figure correspondence when printing out.

- **For technical reasons, it can currently not be ruled out that the correspondence between text and associated figure can be lost when it is printed out, even though the display on the screen is correct.**
- **If the fault is not noticed, there is the danger that work will not be performed correctly which can cause injury and damage.**

Therefore, always compare printouts with the screen display after printing them out. Correct the printouts if they are faulty so that the content of the screen display matches that on the printouts.

AVERTISSEMENT

Risque de perte de la correspondance texte-illustration lors de l'impression papier.

- **Pour des raisons techniques, il ne peut pas être exclu à l'heure actuelle que, même en cas d'affichage correct à l'écran, la correspondance entre le texte et l'illustration puisse être erronée sur l'impression papier.**
- **Si l'erreur passe inaperçue, on court le risque d'exécuter certaines opérations de manière incorrecte pouvant conduire à des dommages corporels et matériels.**

Comparez impérativement pour cette raison les impressions papier avec l'affichage à l'écran.

55 93 19 Removing and installing rear pneumatic spring - as of MY 2005

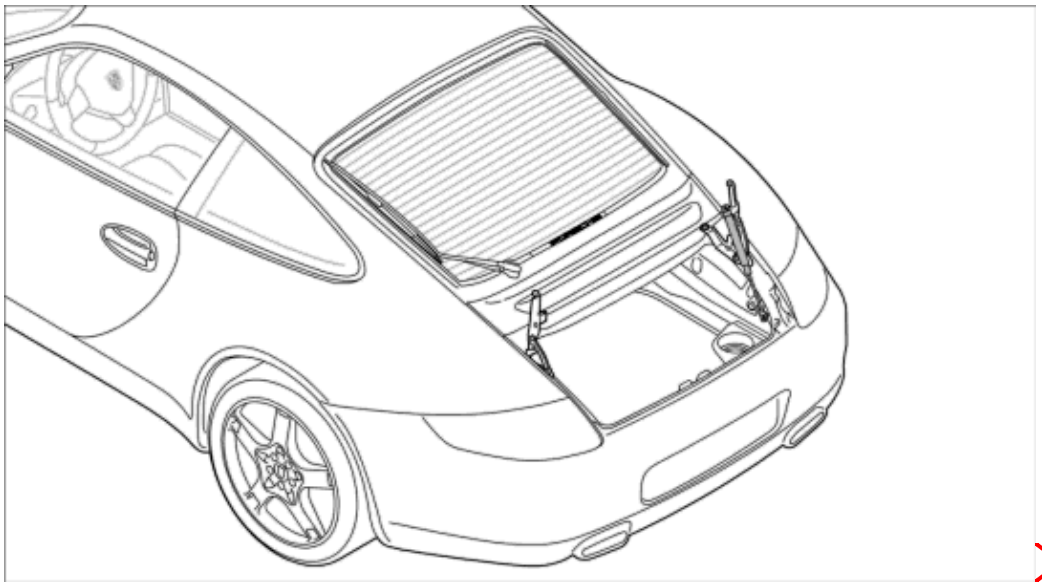
- Removing rear pneumatic spring
- Installing rear pneumatic spring

top of page

Removing rear pneumatic spring

Removing rear pneumatic spring at lid end

Installation Location:



Overview, removing and installing rear pneumatic spring

ATTENTION

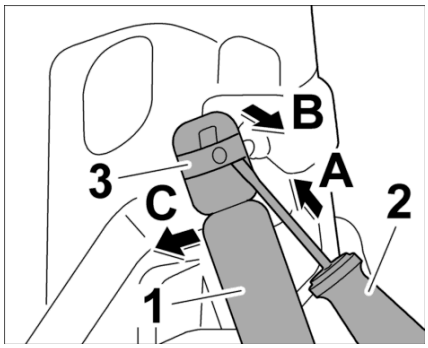
When working on the pneumatic springs of the lid, the following safety measures must be observed, amongst others:

- **Danger of injury if pneumatic springs burst**

To remove the pneumatic springs, they must be in idle state: lid open.

The lid must be secured against accidental closing after removing the pneumatic springs.

Pneumatic springs must not be opened using force - extreme internal pressure.

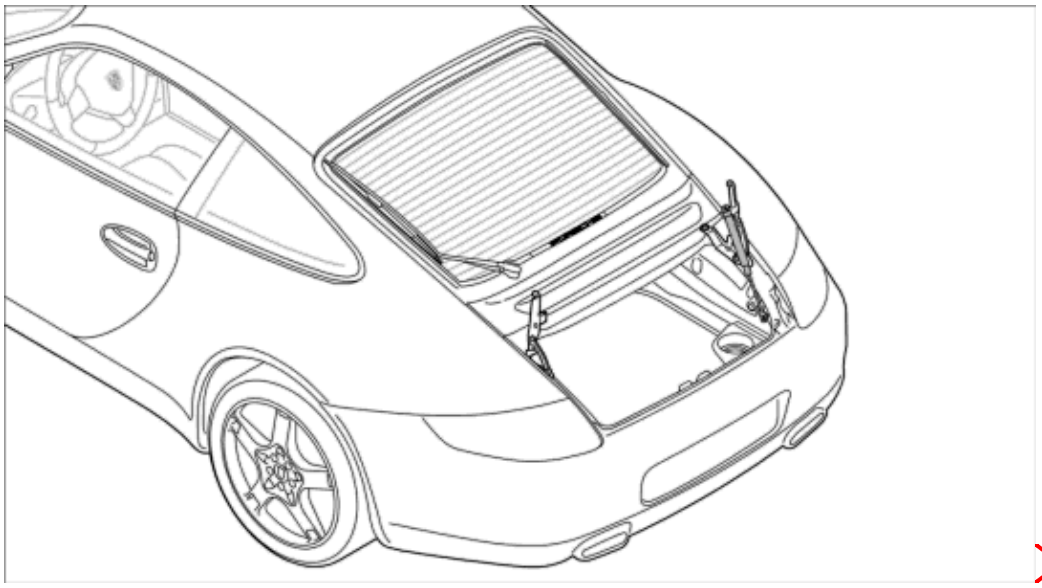


Disengaging rear pneumatic spring at lid end

1. Open the rear lid.
2. A second person should hold the rear lid to prevent it from closing accidentally.
3. Insert a screwdriver **-2-** between the head of the pneumatic spring and the safety clip **-3-** **-A-** .
4. Release the safety clip **-3-** by levering the screwdriver **-2-** towards the pneumatic spring **-B-** . The safety clip remains in the head of the pneumatic spring.
5. Pull the pneumatic spring **-1-** from the ball head **-C-** .
6. Withdraw the screwdriver.
7. Remove pneumatic spring **-1-** .

Removing rear pneumatic spring at the body

Installation Location:



Overview, removing and installing rear pneumatic spring

ATTENTION

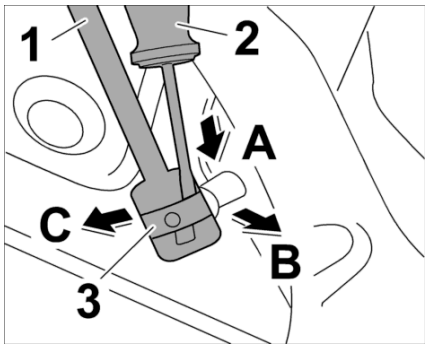
When working on the pneumatic springs of the lid, the following safety measures must be observed, amongst others:

- **Danger of injury if pneumatic springs burst**

To remove the pneumatic springs, they must be in idle state: lid open.

The lid must be secured against accidental closing after removing the pneumatic springs.

Pneumatic springs must not be opened using force - extreme internal pressure.



Disengaging rear pneumatic spring on body

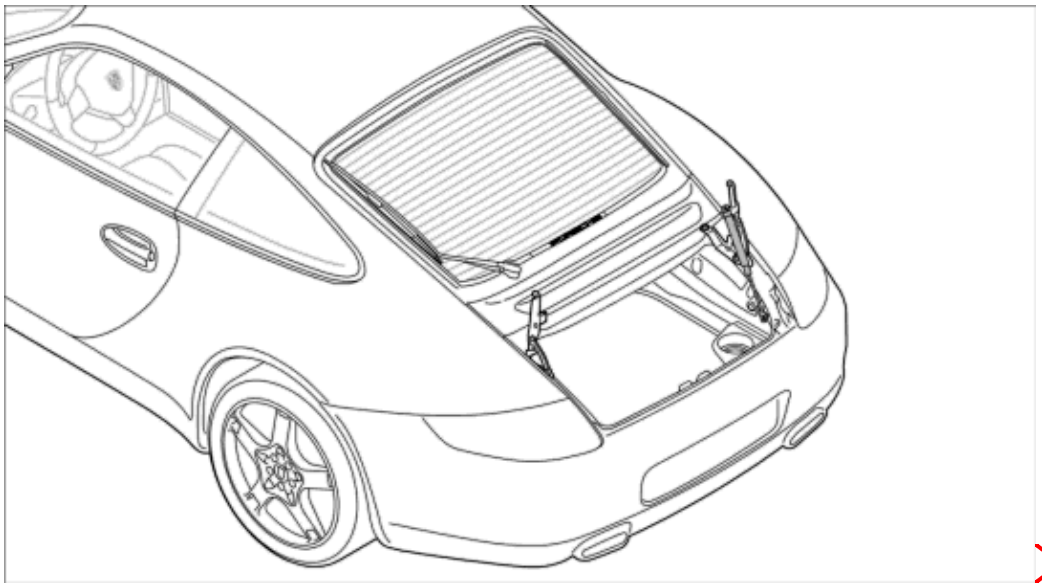
1. Open the rear lid.
2. A second person should hold the rear lid to prevent it from closing accidentally.
3. Insert a screwdriver **-2-** between the head of the pneumatic spring and the safety clip **-3-** **-A-** .
4. Release the safety clip **-3-** by levering the screwdriver **-2-** towards the pneumatic spring **-B-** . The safety clip remains in the head of the pneumatic spring.
5. Pull the pneumatic spring **-1-** from the ball head **-C-** .
6. Withdraw the screwdriver.
7. Remove pneumatic spring **-1-** .

top of page

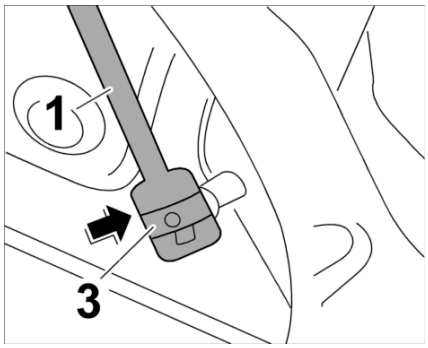
Installing rear pneumatic spring

Installing rear pneumatic spring on the body

Installation Location:



Overview, removing and installing rear pneumatic spring

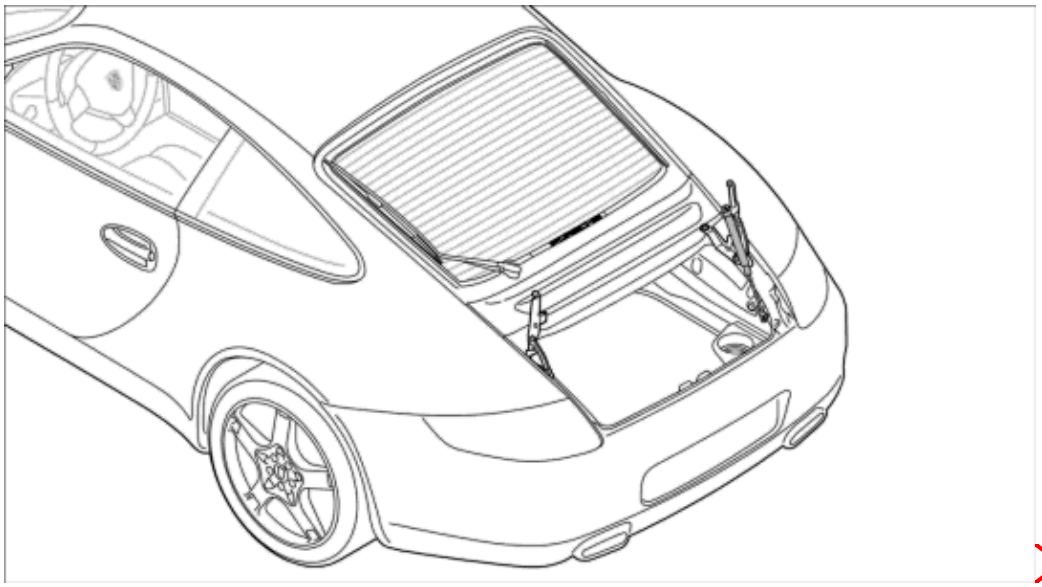


Engaging rear pneumatic spring on body

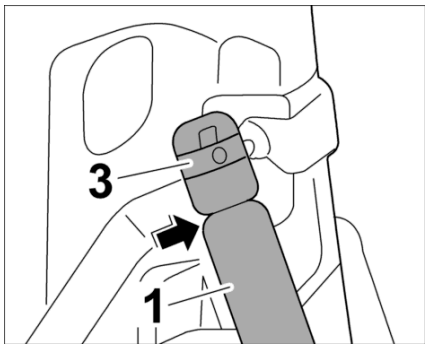
1. Position pneumatic spring.
2. A second person should hold the rear lid to prevent it from closing accidentally.
3. Position pneumatic spring **-1-** on the ball head and press on firmly. The pneumatic spring clicks audibly into place.
4. Check that the safety clips **-3-** have engaged correctly; repeat procedure, if necessary.
5. Check pneumatic spring.

Installing rear pneumatic spring at lid end

Installation Location:



Overview, removing and installing rear pneumatic spring



Engaging rear pneumatic spring at lid end

1. Position pneumatic spring.
2. A second person should hold the rear lid to prevent it from closing accidentally.
3. Position pneumatic spring **-1-** on the ball head and press on firmly. The pneumatic spring clicks audibly into place.
4. Check that the safety clips **-3-** have engaged correctly; repeat procedure, if necessary.
5. Check pneumatic spring.

Function test on pneumatic spring

1. Open and close the lid several times to check function and assembly of the pneumatic spring.
2. Open the lid fully. The pneumatic spring must hold the lid in its open position.
3. Close the lid.

997110, 997111, 997120, 997121, 997310, 997311, 997320, 997321, 997410, 997411, 997430, 997431, 997610, 997611, 997620, 997621

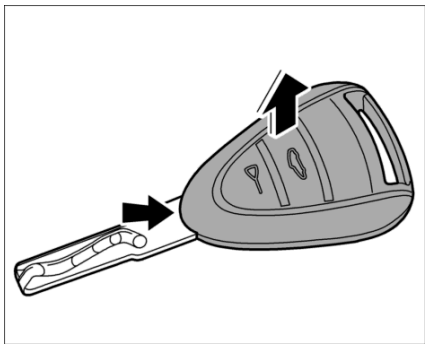
57 08 37 Disassembling and assembling key - as of MY 2005

- Disassembling key
- Assembling key

top of page

Disassembling key

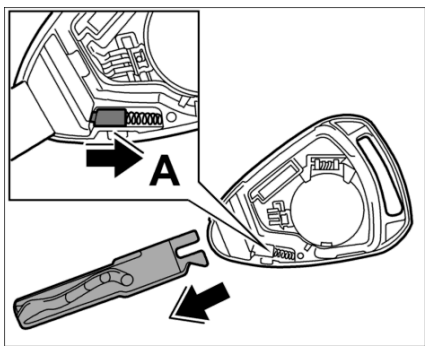
Removing cover of hand-held transmitter



Removing cover of hand-held transmitter

1. Insert a small screwdriver between the cover and the bottom part of the hand-held transmitter **-arrow-** and carefully lift off the cover.

Removing hand-held transmitter key



Removing hand-held transmitter key

1. Push the sliding latch back using a small screwdriver **-arrow A-** and pull the key out of the bottom part.

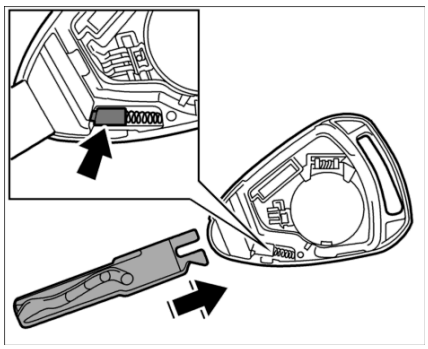
top of page

Assembling key

Installing hand-held transmitter key

Note

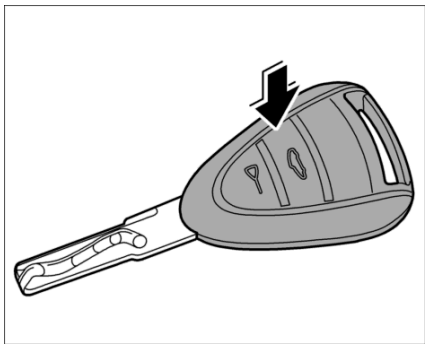
The lock code from IPAS must be specified when ordering a new key.



Installing hand-held transmitter key

1. Push the key into the bottom part until the sliding latch **-arrow-** engages perceptibly.

Installing cover of hand-held transmitter



Installing cover of hand-held transmitter

1. Position the cover on the bottom part of the hand-held transmitter and press together until the cover clicks into place.

997110, 997111, 997120, 997121, 997310, 997311, 997320, 997321, 997410, 997411, 997430, 997431, 997610, 997611, 997620, 997621

as of MY 2005
Country C00, C02, C05, C07, C08, C09, C10, C11, C12, C13, C14, C15, C16, C18, C19, C20, C21, C22, C23, C24, C25, C26, C27, C28, C32, C33, C34, C35, C36, C37, C38, C39, C45, C46, C98, C99

WARNUNG

Gefahr des Verlusts der Text-Bild-Zuordnung beim Ausdruck.

- **Aus technischen Gründen kann derzeit nicht ausgeschlossen werden, dass trotz einwandfreier Darstellung auf dem Bildschirm beim Ausdruck der Zusammenhang von Text und zugehörigem Bild verloren geht.**
- **Wird der Fehler nicht bemerkt, besteht die Gefahr, daß Arbeiten nicht korrekt durchgeführt werden und es dadurch zu Personen- und Sachschäden kommt.**

Vergleichen Sie deshalb nach dem Druckvorgang unbedingt die Ausdrucke mit der Bildschirmdarstellung. Korrigieren Sie die Ausdrucke im Fehlerfall so, daß der Inhalt der Bildschirmdarstellung zutreffend wiedergegeben wird.

WARNING

Danger of losing text-figure correspondence when printing out.

- **For technical reasons, it can currently not be ruled out that the correspondence between text and associated figure can be lost when it is printed out, even though the display on the screen is correct.**
- **If the fault is not noticed, there is the danger that work will not be performed correctly which can cause injury and damage.**

Therefore, always compare printouts with the screen display after printing them out. Correct the printouts if they are faulty so that the content of the screen display matches that on the printouts.

AVERTISSEMENT

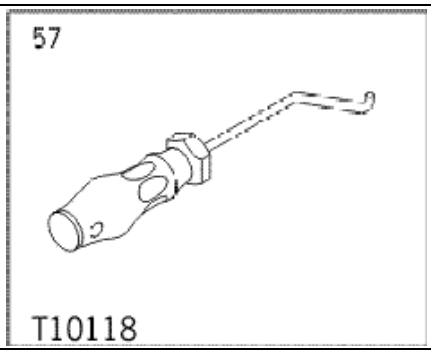
Risque de perte de la correspondance texte-illustration lors de l'impression papier.

- **Pour des raisons techniques, il ne peut pas être exclu à l'heure actuelle que, même en cas d'affichage correct à l'écran, la correspondance entre le texte et l'illustration puisse être erronée sur l'impression papier.**
- **Si l'erreur passe inaperçue, on court le risque d'exécuter certaines opérations de manière incorrecte pouvant conduire à des dommages corporels et matériels.**

57 11 19 Removing and installing door handle - as of MY 2005

- Preliminary work
- Removing door handle
- Additional assembly instructions
- Installing door handle
- Subsequent work

Tools

Designation	Type	Number	Explanation	
assembly tool	VW-tool	T10118		

top of page

Preliminary work

Preliminary work

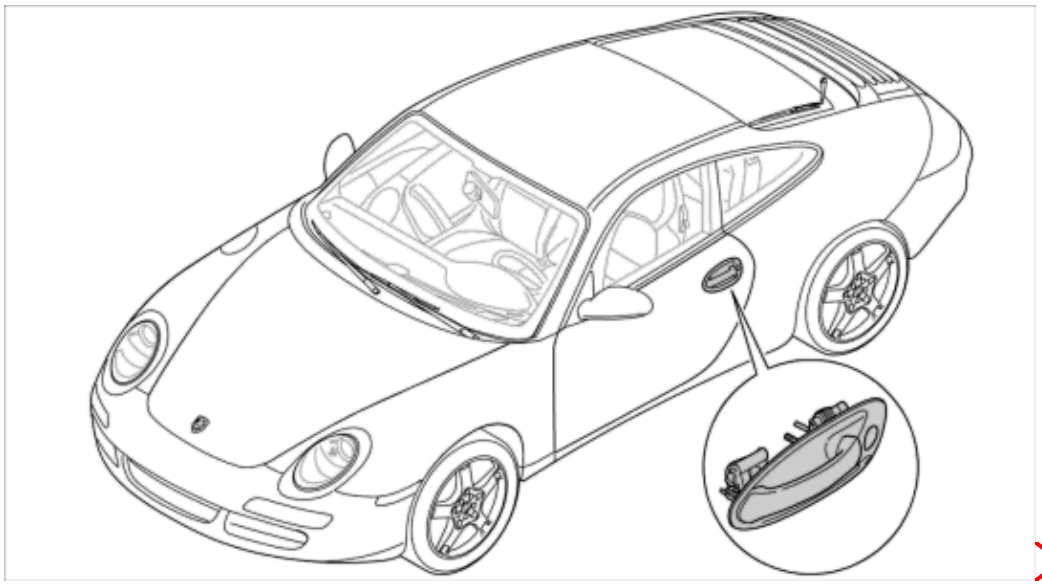
1. Remove door unit carrier. *5730 21 Removing and installing door unit carrier - removing*

top of page

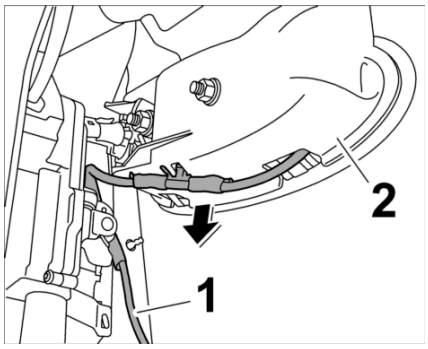
Removing door handle

Unclipping electric wire for micro switches

Installation Location:



Overview, removing and installing door handle

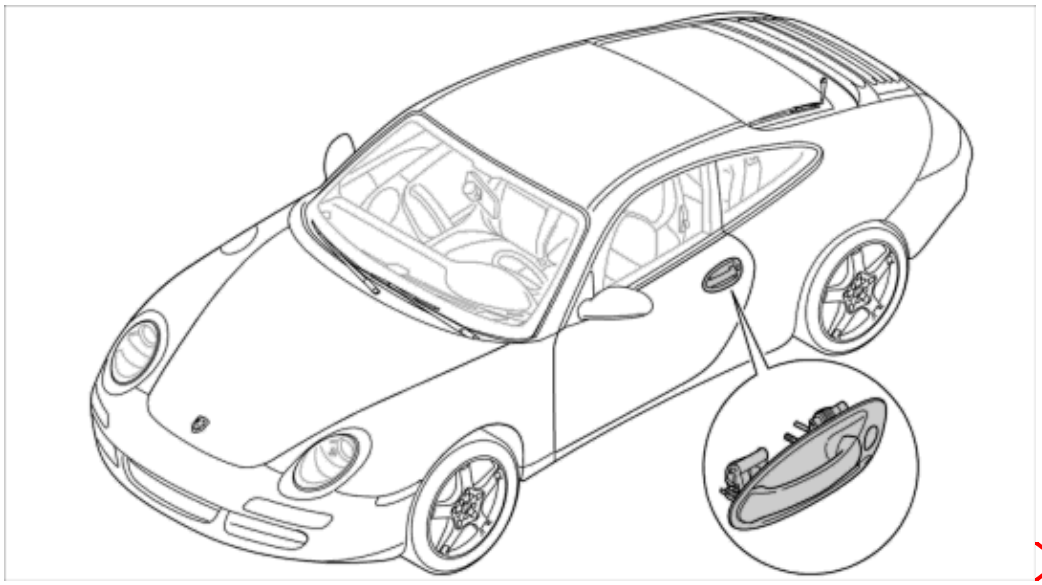


Unclipping wire

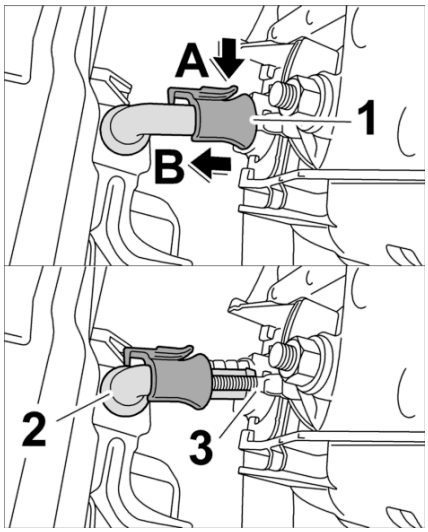
1. Unclip electric wire for microswitch **-1-** from the bottom part of door handle **-2-** .

Disconnect connection piece

Installation Location:



Overview, removing and installing door handle

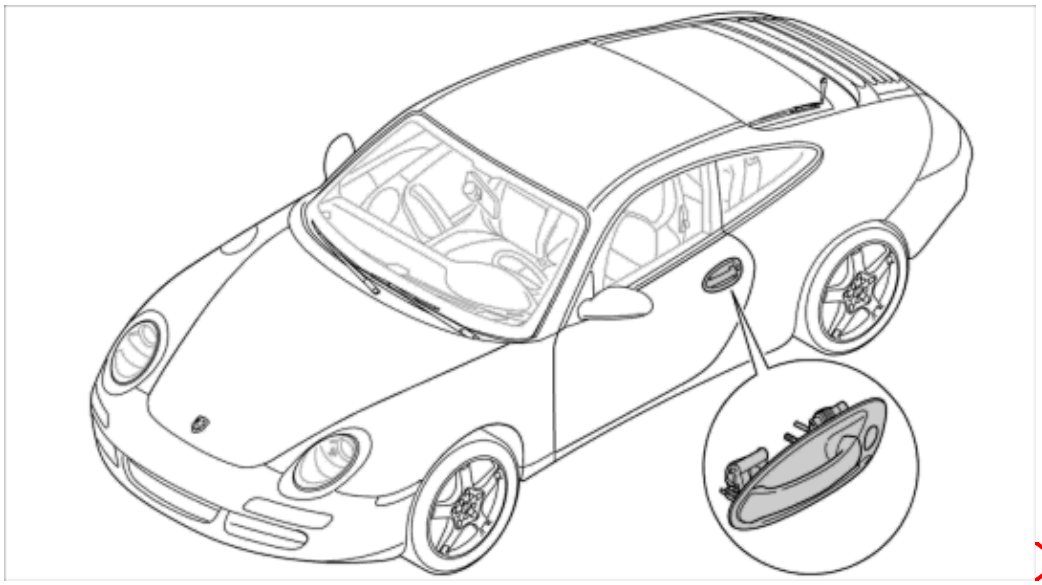


Disconnect connection piece

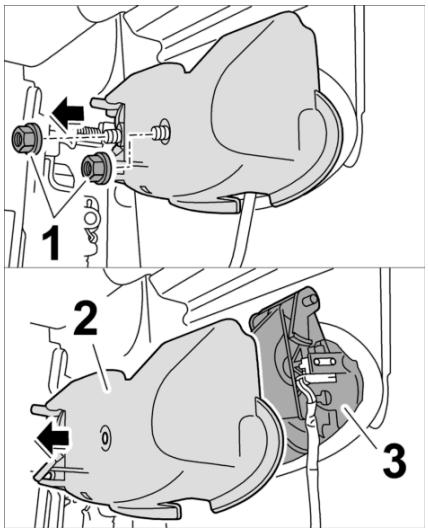
1. Press locking tabs **-Pfeil A-** and move sliding part **-1-** **-Pfeil B-** .
2. Unclip the connection piece **-2-** from the actuating shaft **-3-** .

Removing door handle and bottom part of door handle

Installation Location:

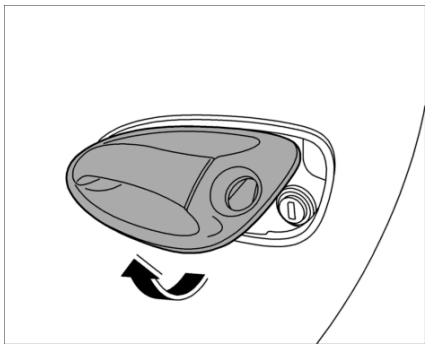


Overview, removing and installing door handle



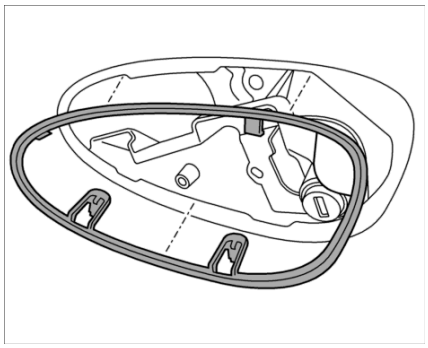
Releasing the door handle

1. Unscrew fastening nuts **-1-** .
2. Separate bottom part of door handle **-2-** from door handle **-3-** .



Removing door handle

3. Pull door handle downward at an angle.



Unclipping support

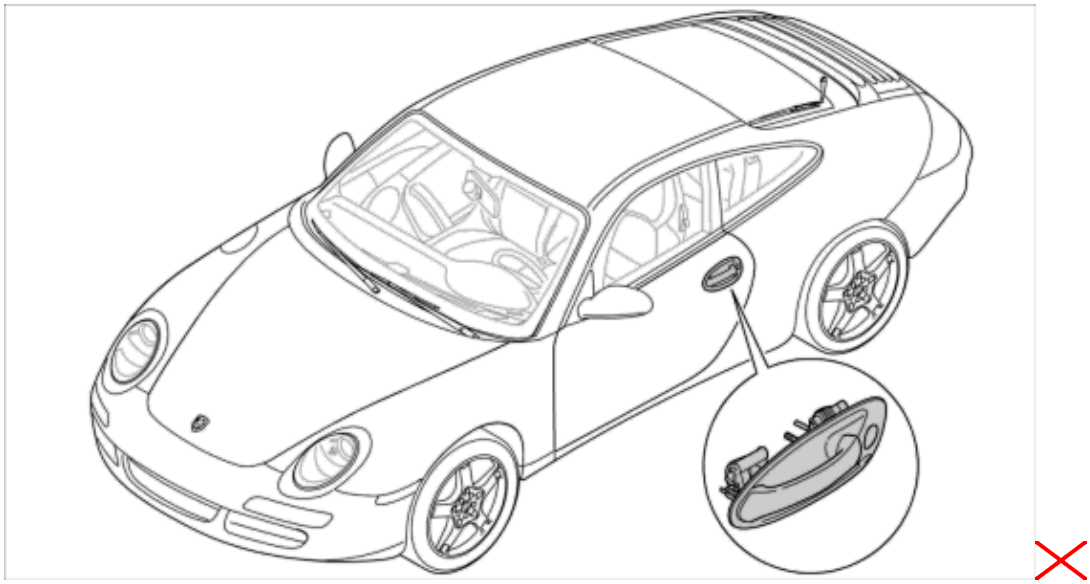
4. Unclip support.

top of page

Additional assembly instructions

Locking lock actuation

Installation Location:



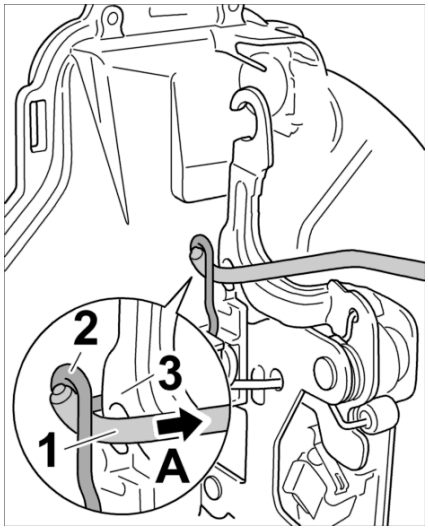
Overview, removing and installing door handle

Note

- *To fit the lock actuation correctly, the securing spring must be hooked into the lock actuation lever before the door lock is installed.*

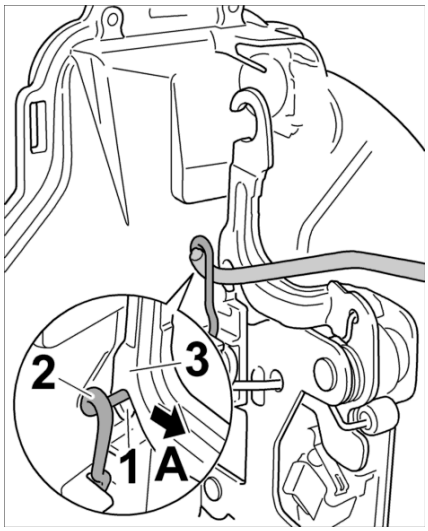
- *The secured position of the lock actuation is released automatically when the door handle is first pressed. A clear clicking sound can be heard when the door handle is first pressed.*

1. Light up inside of door with a lamp.



Locking lock actuation

2. Guide the **assembly tool T10118** **-1-** between the securing spring **-2-** and the lever **-3-** .
3. The securing spring **-2-** hooks on to the tool with a rotary movement.



Lock actuation locked

4. Pull the securing spring **-2-** towards the outside of the door **-Pfeil A-** until the spring engages audibly in the locking lug of the lever **-3-** .
5. Unhook the tool **-1-** and remove it.

Note

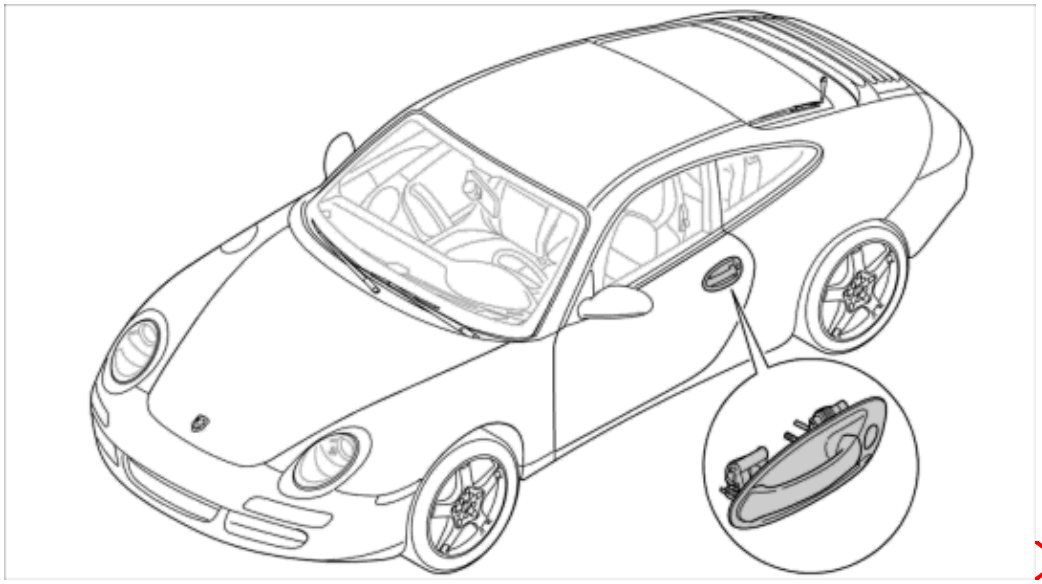
- *Pull carefully on the lock actuation to check that it is secured in installation position. Repeat the steps listed above if necessary.*

top of page

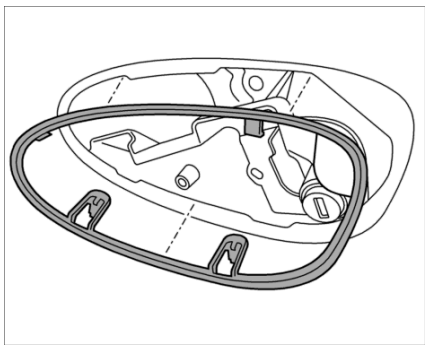
Installing door handle

Fitting door handle and bottom part of door handle

Installation Location:

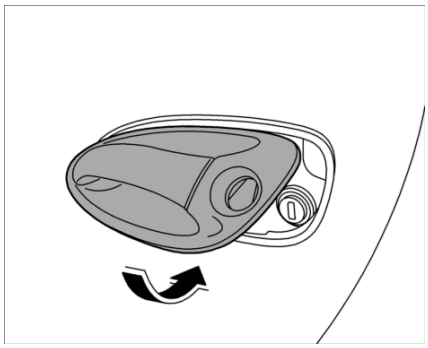


Overview, removing and installing door handle



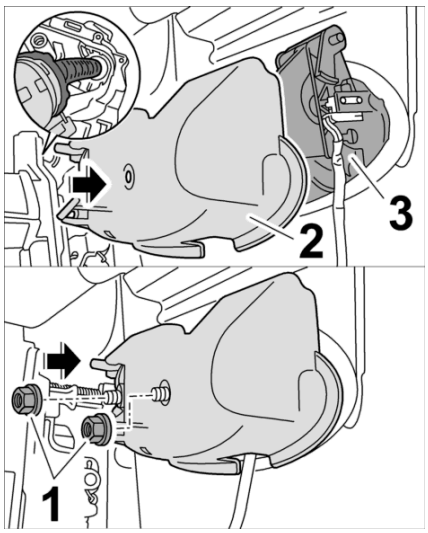
Clipping in support

1. Clip in support.



Installing door handle

2. Insert door handle carefully.



Fastening the door handle

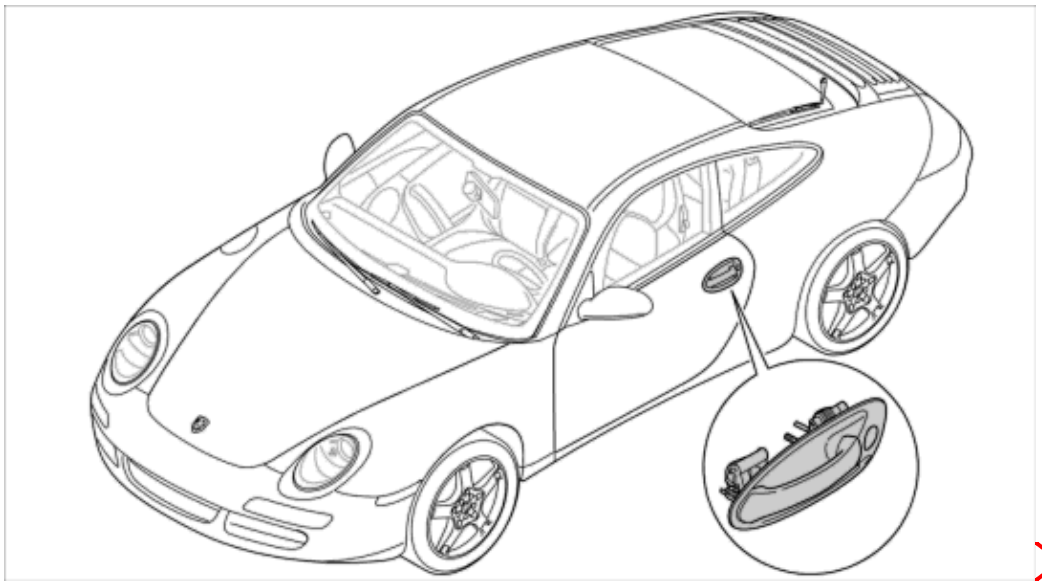
Note

- *Make sure the electrical lead is routed correctly.*
- *To prevent a malfunction in the closing system, make sure that the closing cylinder shaft is fitted correctly in the door lock.*

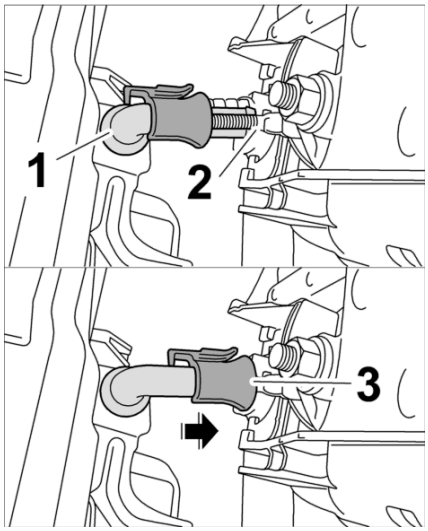
3. Position bottom part of door handle **-2-** from the inside on the door handle **-3-** .
4. Tighten fastening nuts **-1-** . Tightening torque **Final tightening: 7 ftlb.**

Fit connection piece

Installation Location:



Overview, removing and installing door handle

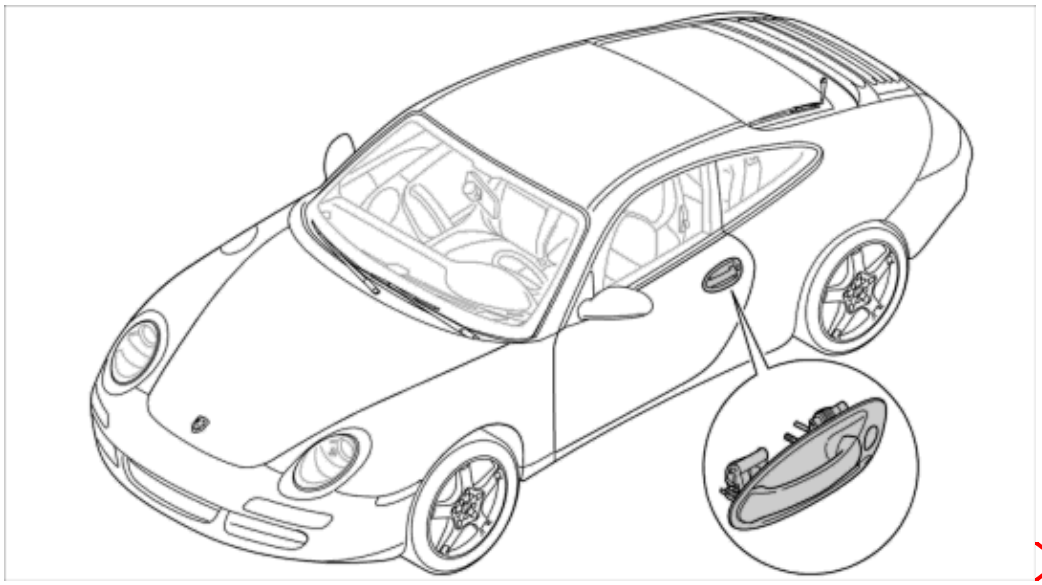


Fitting connection piece

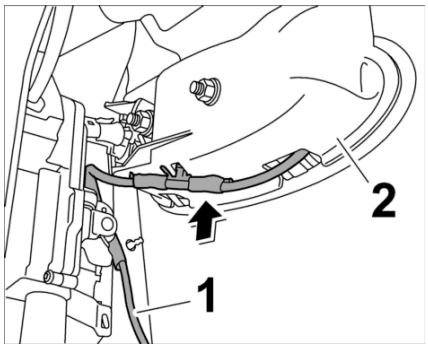
1. Insert the connection piece **-1-** into the actuating shaft **-2-** without play.
2. Push out the sliding piece **-3-** until it can be heard to engage.
3. Actuate the handle to ensure that the handle and door lock function without play.

Clipping in the electric wire for micro switches

Installation Location:



Overview, removing and installing door handle



Clipping in wire

1. On the bottom part of door handle **-2-** clip in the electrical wire **-1-** .

top of page

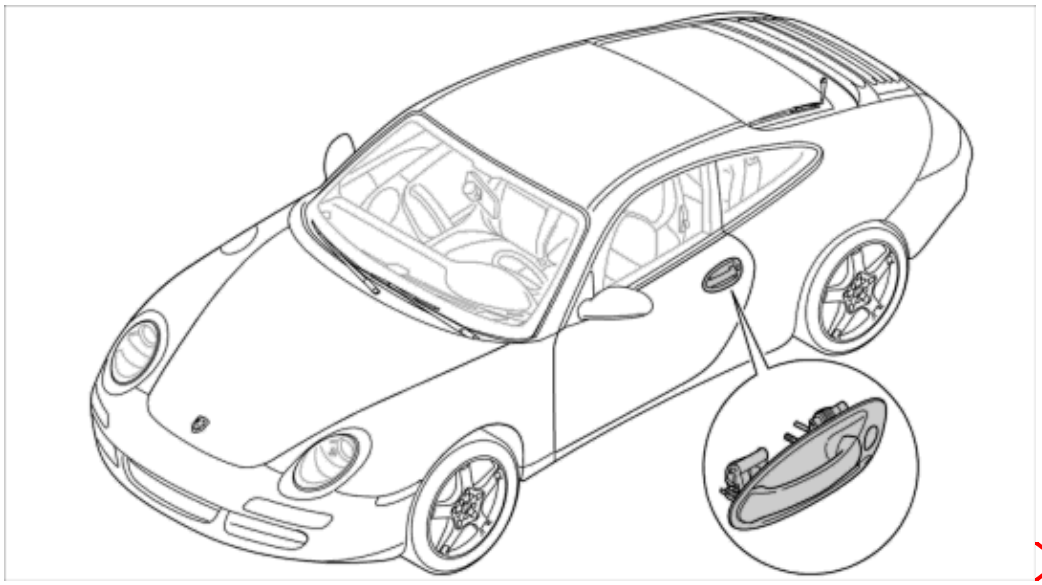
Subsequent work

Subsequent work

1. Install door unit carrier. *5730 23 Removing and installing door unit carrier - installing*

Function test following assembly work

Installation Location:

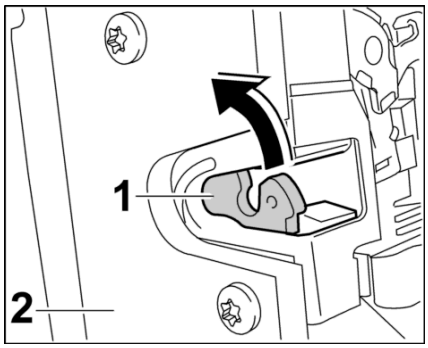


Overview, removing and installing door handle

Note

- *A malfunction occurs only after the vehicle is locked for the first time. In other words: if a door handle was fitted incorrectly, the affected door can be opened and closed without difficulty until the vehicle is locked for the first time. After that, the door cannot be opened either from inside or outside. Given this, it is important to perform a function test before the door is closed.*

1. Do not close vehicle door after installing door handle.



Engaging the bolt

2. With the door open **-2-** , use a screwdriver to engage the bolt in the door lock **-1-** fully in the second notch.
3. Lock vehicle with the remote control.
4. Unlock vehicle with the remote control.
5. Press door handle on open door.

Note

- *If the bolt in the door lock does not open, press the door button to make sure that the individual door opening function is deactivated. If the door lock still does not open, the door lock was assembled incorrectly.*

57 11 37 Disassembling and assembling door handle - as of MY 2005

- Preliminary work
- Disassembling door handle
- Assembling door handle
- Subsequent work

top of page

Preliminary work

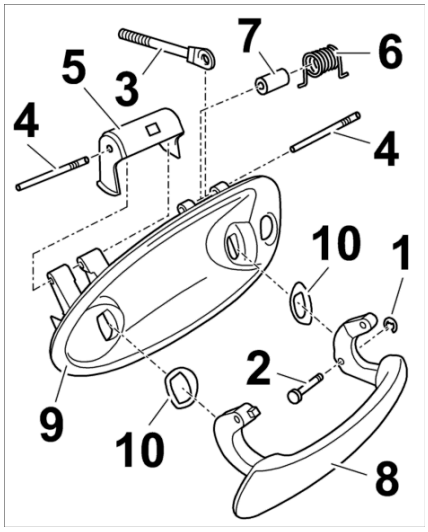
Preliminary work

1. Remove door handle. *5711 21 Removing and installing door handle - removing*
2. Remove microswitch for window opening controls. 643719 Removing and installing microswitch for window opening controls - removing

top of page

Disassembling door handle

Disassembling door handle



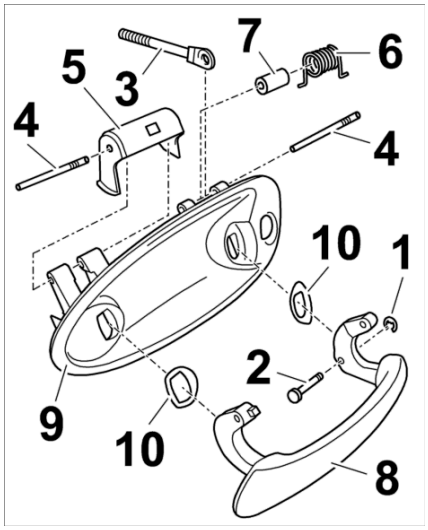
Disassembling door handle

1. Press out circlip **-1-** , pull pin **-2-** out of the handle and remove actuating shaft **-3-** .
2. Pull pin rod **-4-** out of the handle liner **-9-** and separate handle **-8-** from the handle liner.
3. Remove return spring **-6-** , eccentric **-5-** and sleeve **-7-** .
4. Pull buffer **-10-** out of the handle **-8-** , check it and replace if necessary.

top of page

Assembling door handle

Assembling door handle



Assembling door handle

1. Fasten buffer **-10-** to handle **-8-** .
2. Position return spring **-6-** , eccentric **-5-** , sleeve **-7-** and handle **-8-** on the handle liner **-9-** and press in pin rod **-4-** .
3. Position actuating shaft **-3-** on handle. Insert pin **-2-** and secure pin with the circlip **-1-** .

top of page

Subsequent work

Subsequent work

1. Install microswitch for window opening controls. 643719 Removing and installing microswitch for window opening controls - installing
2. Install door handle. *5711 23 Removing and installing door handle - installing*

997110, 997111, 997120, 997121, 997310, 997311, 997320, 997321, 997410, 997411, 997430, 997431, 997610, 997611, 997620, 997621

as of MY 2005
Country C00, C02, C05, C07, C08, C09, C10, C11, C12, C13, C14, C15, C16, C18, C19, C20, C21, C22, C23, C24, C25, C26, C27, C28, C32, C33, C34, C35, C36, C37, C38, C39, C45, C46, C98, C99

WARNUNG

Gefahr des Verlusts der Text-Bild-Zuordnung beim Ausdruck.

- **Aus technischen Gründen kann derzeit nicht ausgeschlossen werden, dass trotz einwandfreier Darstellung auf dem Bildschirm beim Ausdruck der Zusammenhang von Text und zugehörigem Bild verloren geht.**
- **Wird der Fehler nicht bemerkt, besteht die Gefahr, daß Arbeiten nicht korrekt durchgeführt werden und es dadurch zu Personen- und Sachschäden kommt.**

Vergleichen Sie deshalb nach dem Druckvorgang unbedingt die Ausdrucke mit der Bildschirmdarstellung. Korrigieren Sie die Ausdrucke im Fehlerfall so, daß der Inhalt der Bildschirmdarstellung zutreffend wiedergegeben wird.

WARNING

Danger of losing text-figure correspondence when printing out.

- **For technical reasons, it can currently not be ruled out that the correspondence between text and associated figure can be lost when it is printed out, even though the display on the screen is correct.**
- **If the fault is not noticed, there is the danger that work will not be performed correctly which can cause injury and damage.**

Therefore, always compare printouts with the screen display after printing them out. Correct the printouts if they are faulty so that the content of the screen display matches that on the printouts.

AVERTISSEMENT

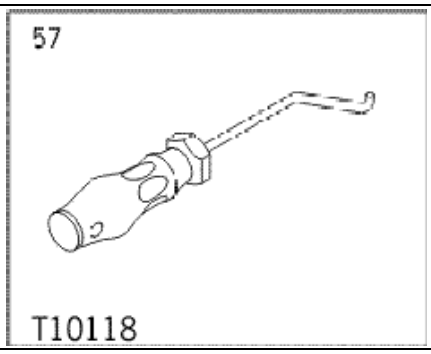
Risque de perte de la correspondance texte-illustration lors de l'impression papier.

- **Pour des raisons techniques, il ne peut pas être exclu à l'heure actuelle que, même en cas d'affichage correct à l'écran, la correspondance entre le texte et l'illustration puisse être erronée sur l'impression papier.**

57 17 19 Removing and installing door lock - as of MY 2005

- Preliminary work
- Removing door lock
- Additional assembly instructions
- Installing door lock
- Subsequent work

Tools

Designation	Type	Number	Explanation	
assembly tool	VW-tool	T10118		

top of page

Preliminary work

Preliminary work

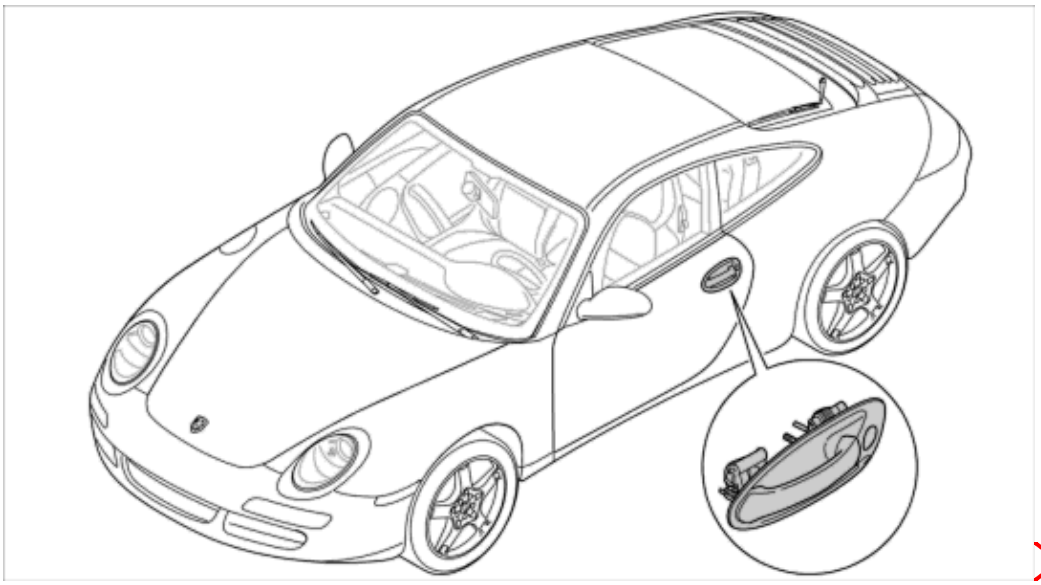
1. Remove door unit carrier. *5730 21 Removing and installing door unit carrier - removing*

top of page

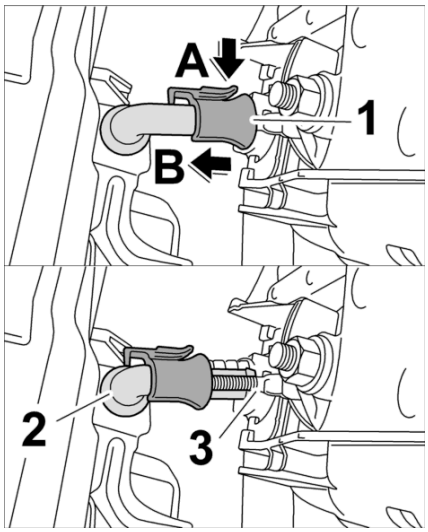
Removing door lock

Disconnect connection piece

Installation Location:



Overview, removing and installing door handle

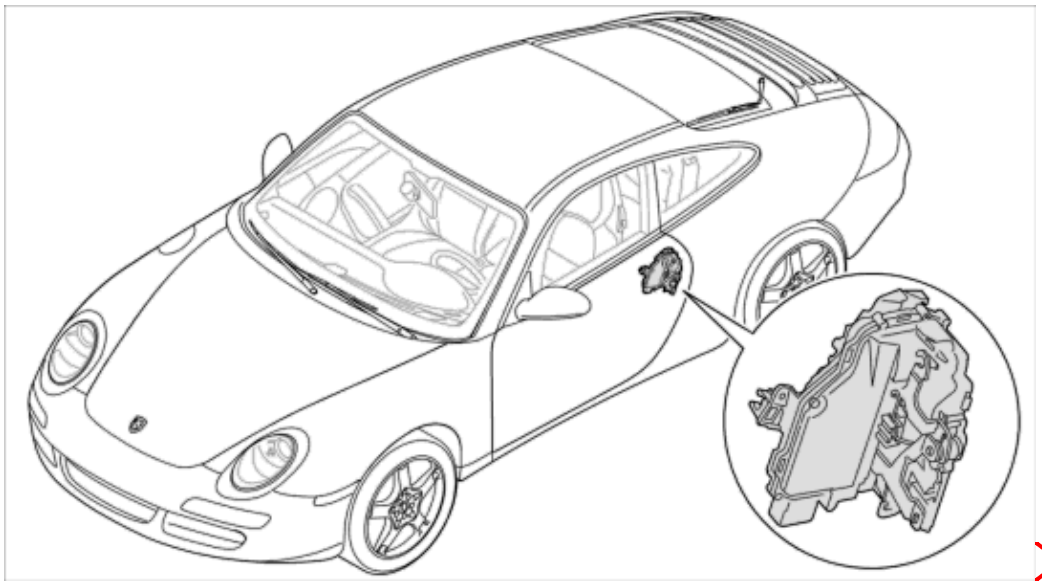


Disconnect connection piece

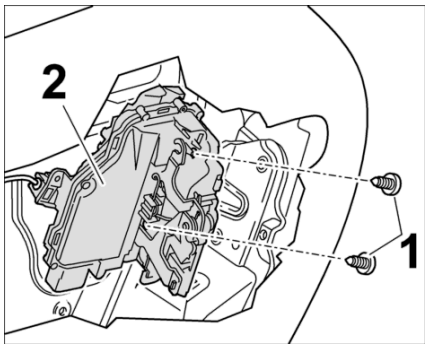
1. Press locking tabs **-Pfeil A-** and move sliding part **-1-** **-Pfeil B-** .
2. Unclip the connection piece **-2-** from the actuating shaft **-3-** .

Removing door lock

Installation Location:



Main illustration for removing and installing door lock

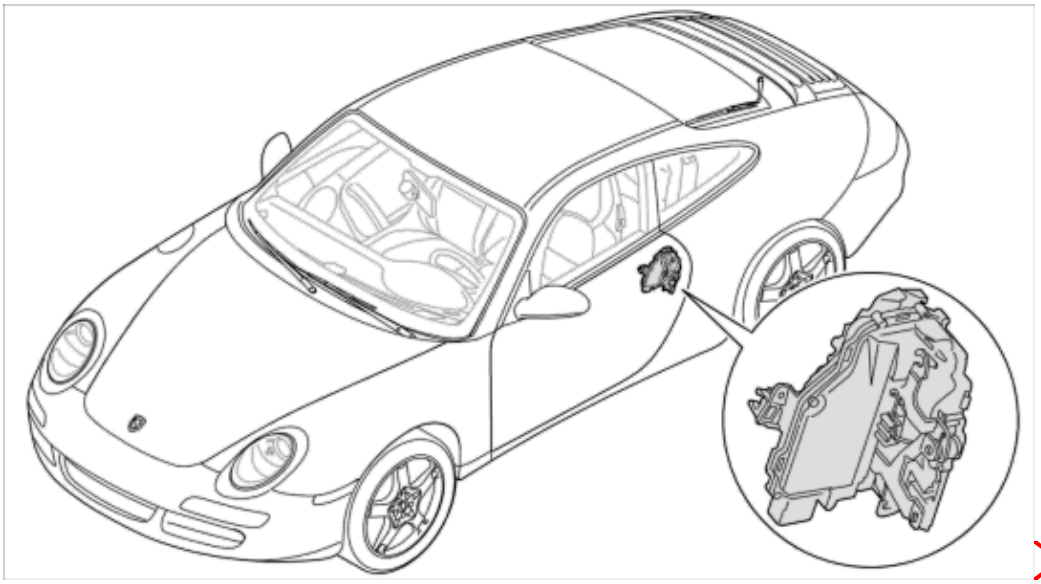


Removing door lock

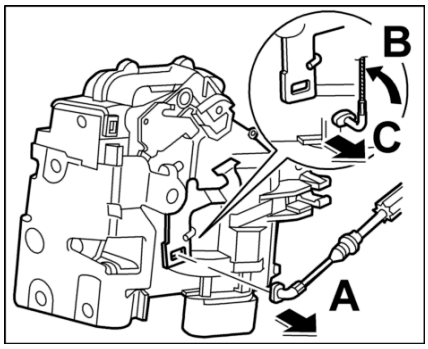
1. Undo fastening screws **-1-** .
2. Pull door lock with actuating motor unit **-2-** out of the door.

Unclipping and disengaging the bowden cable

Installation Location:



Main illustration for removing and installing door lock



Unclipping and disengaging the bowden cable

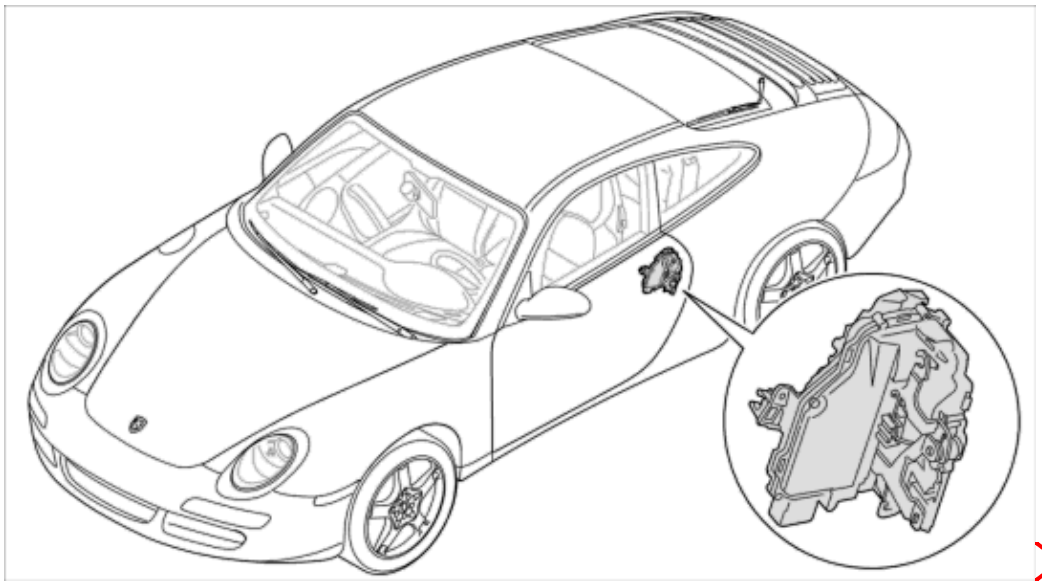
1. Unclip bowden cable from the door lock **-arrow A-** .
2. Swivel bowden cable by 90° **-arrow B-** and pull it out of the actuating lever **-arrow C-** .

top of page

Additional assembly instructions

Locking lock actuation

Installation Location:



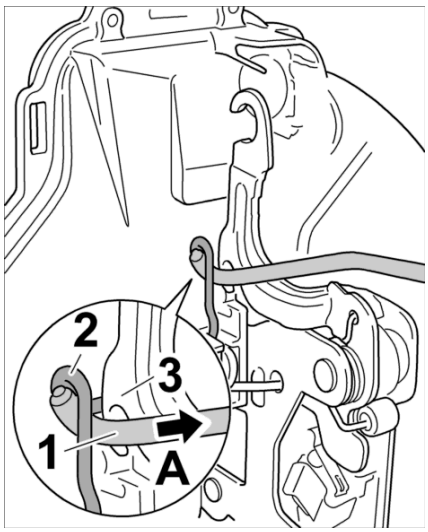
Main illustration for removing and installing door lock

Note

- *To fit the lock actuation correctly, the securing spring must be hooked into the lock actuation lever before the door lock is installed.*
- *The secured position of the lock actuation is released automatically when the door handle is first pressed. A clear clicking sound can be heard when the door handle is first pressed.*

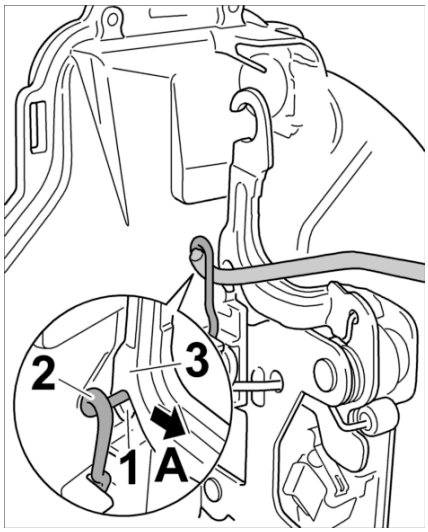
Note

- *Pull carefully on the lock actuation to check that it is secured in installation position. Repeat the steps listed above if necessary.*



Locking lock actuation

1. Guide the **assembly tool T10118** **-1-** between the securing spring **-2-** and the lever **-3-** .
2. The securing spring **-2-** hooks on to the tool with a rotary movement.



Lock actuation locked

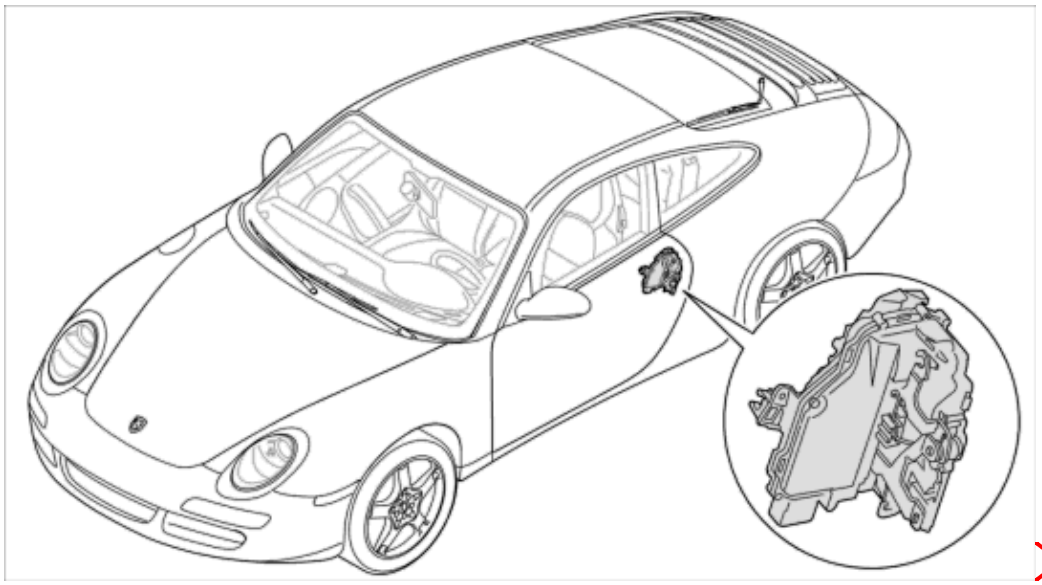
3. Pull the securing spring **-2-** towards the outside of the door (**-arrow A-**) until the spring engages audibly in the locking lug **-1-** of the lever **-3-** .
4. Unhook the tool **-1-** and remove it.

top of page

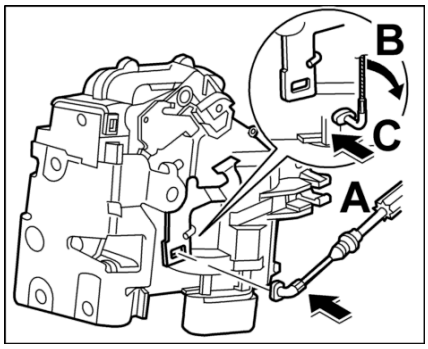
Installing door lock

Fitting the bowden cable

Installation Location:



Main illustration for removing and installing door lock

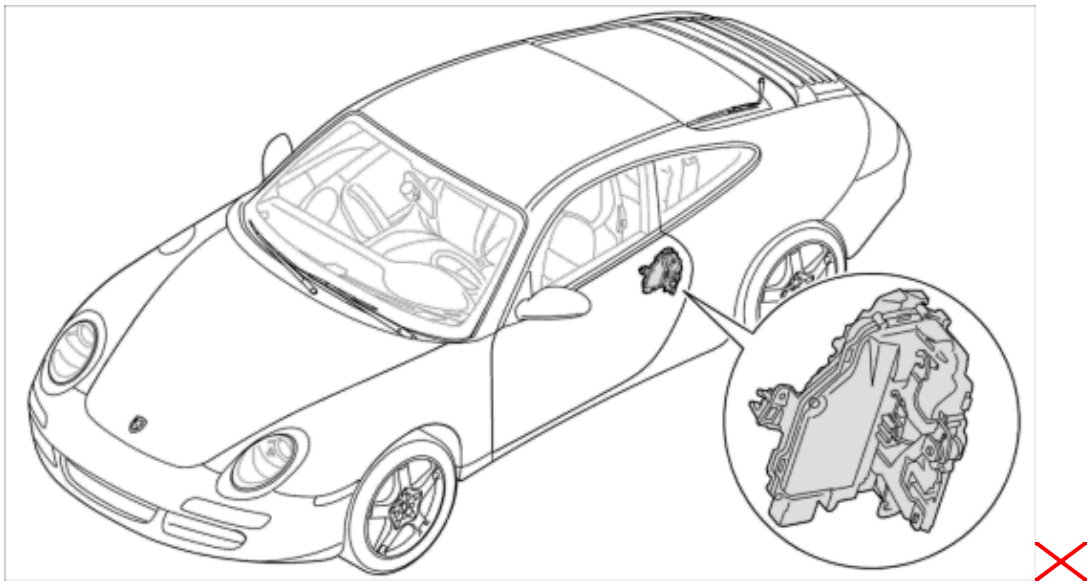


Fitting the bowden cable

1. Insert bowden cable into the actuating lever **-arrow C-** and swivel by 90° **-arrow B-** .
2. Clip bowden cable into the door lock **-arrow A-** .

Installing door lock

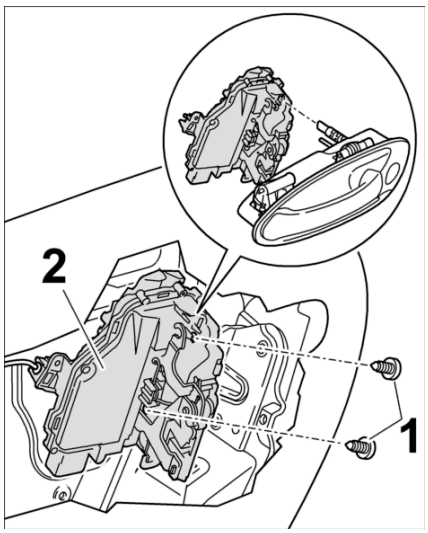
Installation Location:



Main illustration for removing and installing door lock

Note

- *To prevent a malfunction in the closing system, make sure that the closing cylinder shaft is fitted correctly in the door lock.*

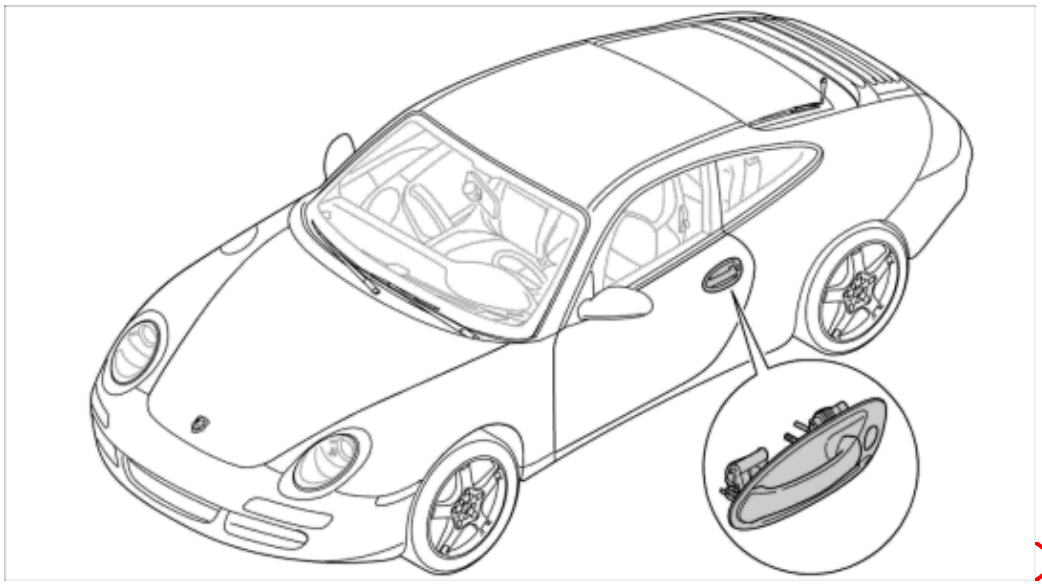


Installing door lock

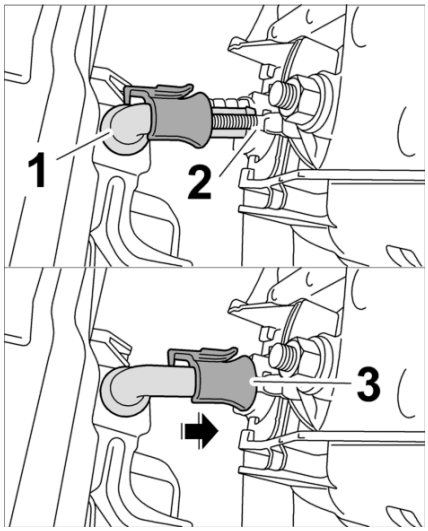
1. Insert door lock **-2-** into the door and secure with the fastening screws **-1-** . Tightening torque **Final tightening: 18 (13) Nm (ftlb.) +2 (1.5) Nm (ftlb.)**

Fit connection piece

Installation Location:



Overview, removing and installing door handle



Fitting connection piece

1. Insert the connection piece **-1-** into the actuating shaft **-2-** without play.
2. Push out the sliding piece **-3-** until it can be heard to engage.
3. Actuate the handle to ensure that the handle and door lock function without play.

top of page

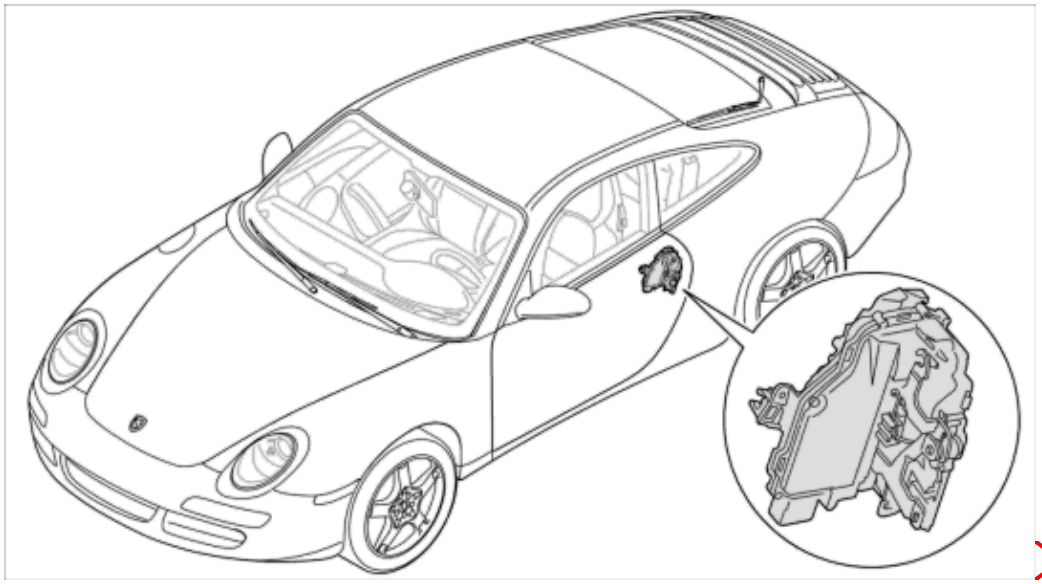
Subsequent work

Subsequent work

1. Install door unit carrier. *5730 23 Removing and installing door unit carrier - installing*

Function test following assembly work

Installation Location:

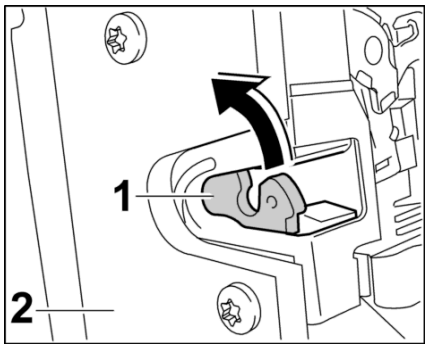


Main illustration for removing and installing door lock

Note

- *A malfunction occurs only after the vehicle is locked for the first time. In other words: if a door lock was fitted incorrectly, the affected door can be opened and closed without difficulty until the vehicle is locked for the first time. After that, the door cannot be opened either from inside or outside. Given this, it is important to perform a function test before the door is closed.*

1. Do not close vehicle door after fitting the door lock.



Engaging the bolt

2. With the door open **-2-** , use a screwdriver to engage the bolt in the door lock **-1-** fully in the second notch.

3. Lock vehicle with the remote control.
4. Unlock vehicle with the remote control.

Note

- *If the bolt in the door lock does not open, press the door button to make sure that the individual door opening function is deactivated. If the door lock still does not open, the door lock was assembled incorrectly.*

5. Press door handle on open door.

997110, 997111, 997120, 997121, 997310, 997311, 997320, 997321, 997410, 997411, 997430, 997431, 997610, 997611, 997620, 997621

as of MY 2005
Country C00, C02, C05, C07, C08, C09, C10, C11, C12, C13, C14, C15, C16, C18, C19, C20, C21, C22, C23, C24, C25, C26, C27, C28, C32, C33, C34, C35, C36, C37, C38, C39, C45, C46, C98, C99

WARNUNG

Gefahr des Verlusts der Text-Bild-Zuordnung beim Ausdruck.

- **Aus technischen Gründen kann derzeit nicht ausgeschlossen werden, dass trotz einwandfreier Darstellung auf dem Bildschirm beim Ausdruck der Zusammenhang von Text und zugehörigem Bild verloren geht.**
- **Wird der Fehler nicht bemerkt, besteht die Gefahr, daß Arbeiten nicht korrekt durchgeführt werden und es dadurch zu Personen- und Sachschäden kommt.**

Vergleichen Sie deshalb nach dem Druckvorgang unbedingt die Ausdrucke mit der Bildschirmdarstellung. Korrigieren Sie die Ausdrucke im Fehlerfall so, daß der Inhalt der Bildschirmdarstellung zutreffend wiedergegeben wird.

WARNING

Danger of losing text-figure correspondence when printing out.

- **For technical reasons, it can currently not be ruled out that the correspondence between text and associated figure can be lost when it is printed out, even though the display on the screen is correct.**
- **If the fault is not noticed, there is the danger that work will not be performed correctly which can cause injury and damage.**

Therefore, always compare printouts with the screen display after printing them out. Correct the printouts if they are faulty so that the content of the screen display matches that on the printouts.

AVERTISSEMENT

57 26 19 Removing and installing striker pin - as of MY 2005

- Removing striker pin
- Installing striker pin

top of page

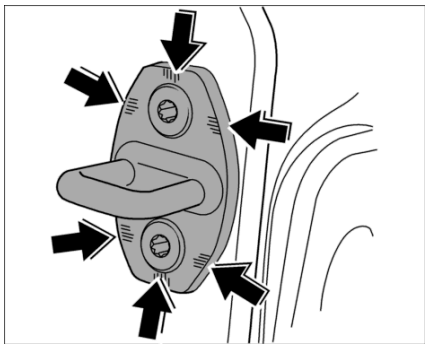
Removing striker pin

Removing striker pin

Note

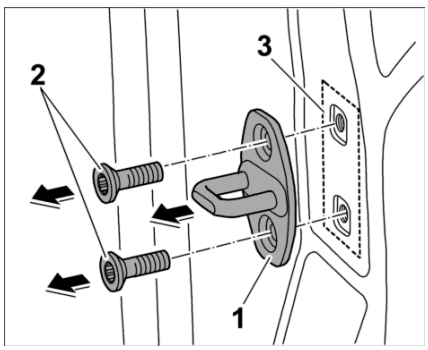
The striker pin counterplate is permanently fixed to the B-pillar structure. After the striker pin has been removed, the counterplate remains in the lower end position on the B-pillar.

1. Open door.



Striker pin position

2. Determine the position of the striker pin in relation to the B-pillar according to the impression made at the factory **-arrows-** and note it down.



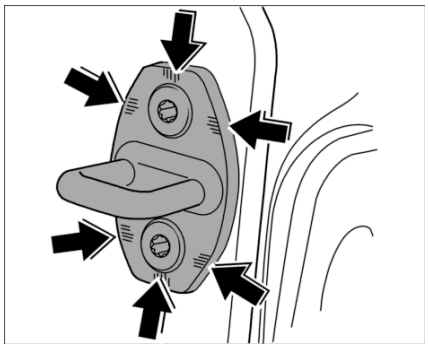
Removing striker pin

3. Remove fastening screws **-2-** from striker pin **-1-** .
4. Remove striker pin **-1-** .

top of page

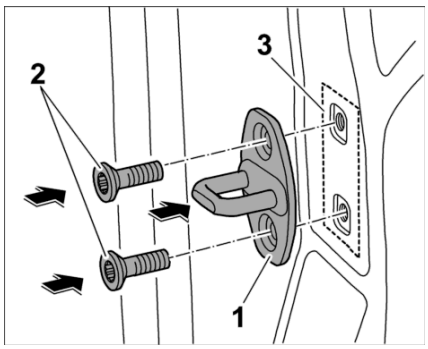
Installing striker pin

Installing striker pin



Striker pin position

1. Position striker pin in line with the markings.



Installing striker pin

2. Screw in fastening screws **-2-** for the striker pin **-1-** and tighten slightly.
3. Carefully close door and check that the striker pin is correctly positioned with respect to the lock.
4. If necessary, adjust the striker pin accordingly.
5. Tighten fastening screws M8 x 22 **-2-** . Tightening torque **Final tightening: 23 (17) Nm (ftlb.)** .
6. Remove the markings with a suitable cleaning product.
7. Close the door.

57 30 19 Removing and installing door unit carrier - as of MY 2005

- Preliminary work
- Removing door unit carrier
- Installing door unit carrier
- Subsequent work

top of page

Preliminary work

Preliminary work

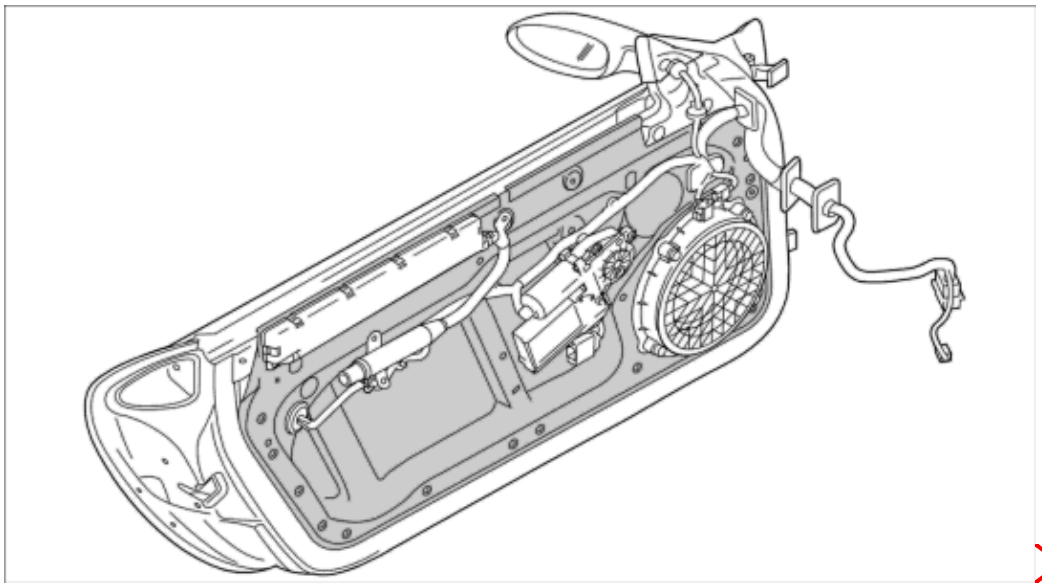
1. Disconnect electric lead for door. 973219 Removing and installing wiring harness for door
2. Remove door trim panel. 705919 Removing and installing door trim panel - chapter on "removing"
3. Remove power window motor. 645419 Removing and installing power window motor - chapter on "removing"
4. Remove head airbag. 696619 Removing and installing head airbag - chapter on "removing"

top of page

Removing door unit carrier

Covering door with adhesive tape

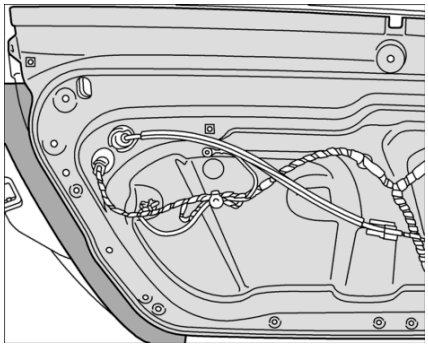
Installation Location:



Overview, door unit carrier

Note

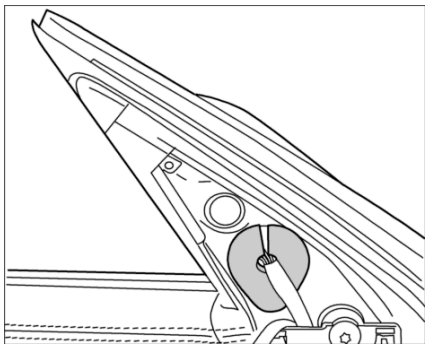
- *Adhesive tape protects the door from paint damage when removing the door unit carrier.*



Covering door with adhesive tape

1. Cover door in marked area with adhesive tape.

Removing seal for mirror triangle

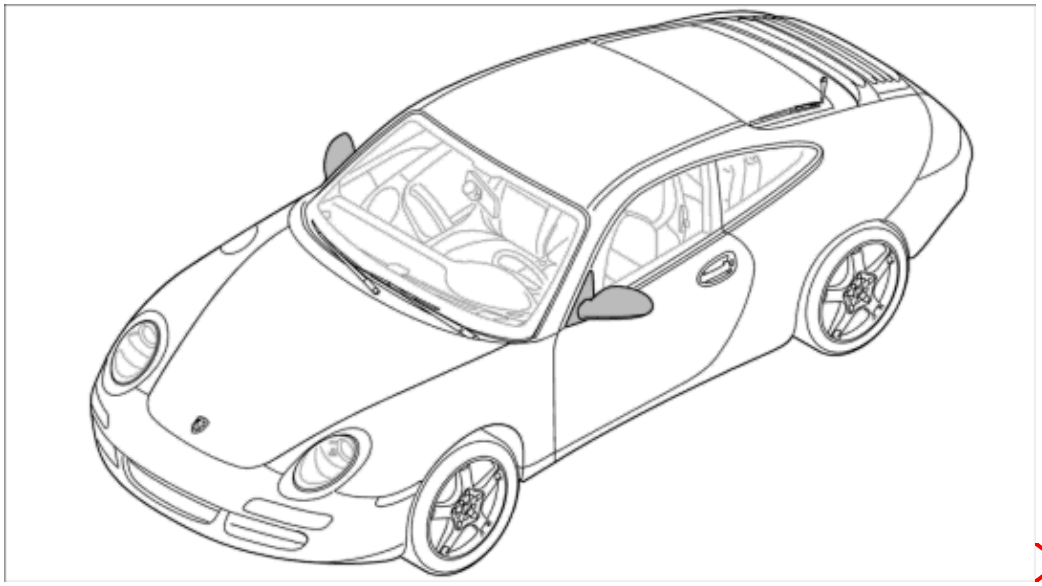


Seal for mirror triangle

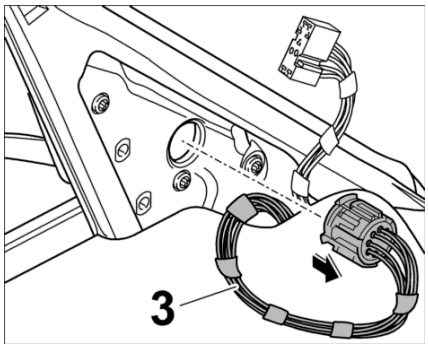
1. Pull out seal for mirror triangle from cable cutout opening for door mirror.

Disconnecting electrical plug connection

Installation Location:



Overview, removing and installing rear-view mirror

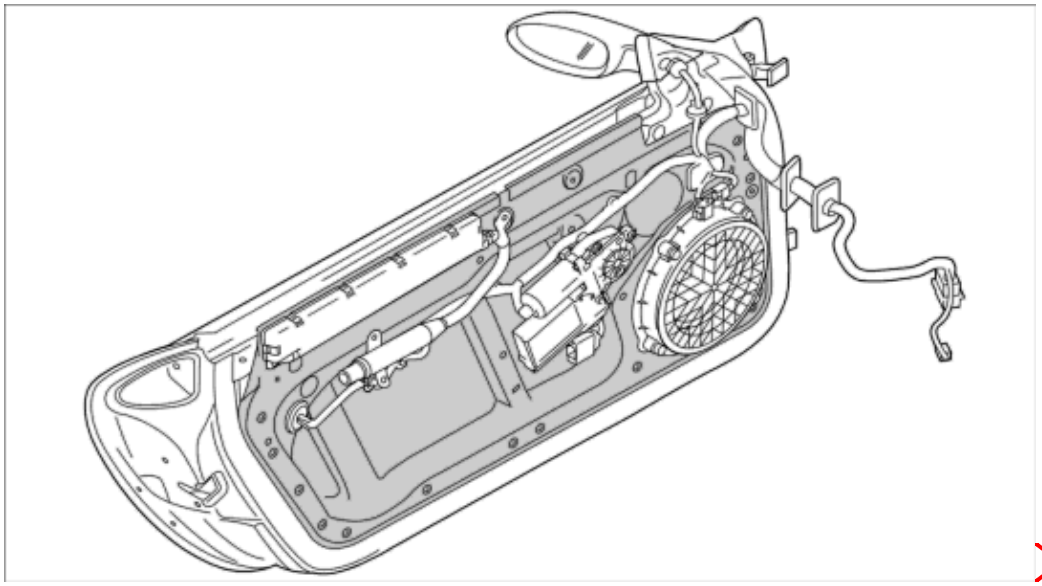


Pulling off electrical plug

1. Disconnect the plug connection of the mirror housing **-3-** .

Releasing door unit carrier

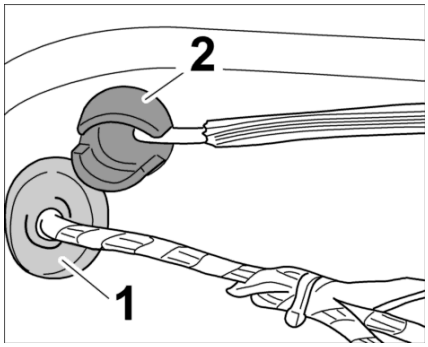
Installation Location:



Overview, door unit carrier

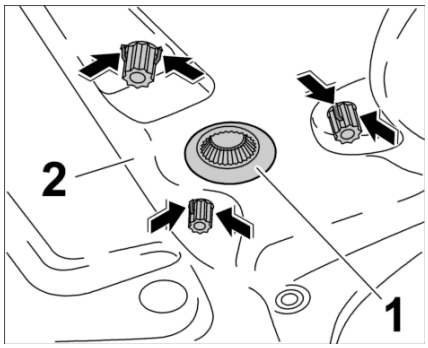
Note

- *A second person is required for removing the door unit carrier to avoid damage.*



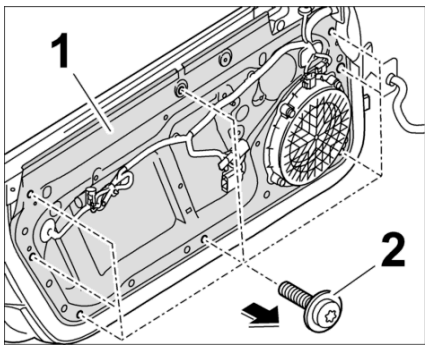
Pressing in rubber grommets

1. Press rubber grommet for electrical wire **-1-** and bowden cable **-2-** inwards.



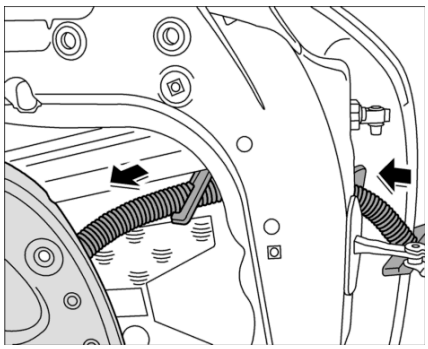
Unclipping power windows

2. Press in the locking tabs **-arrows-** and unclip power windows **-1-** from door unit carrier **-2-** .



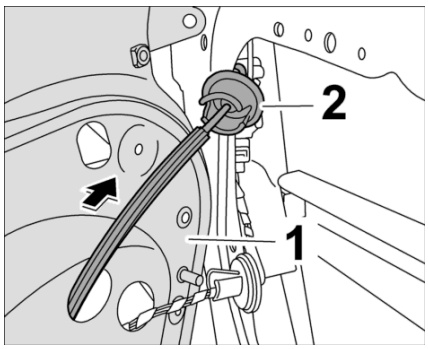
Releasing door unit carrier

3. Unscrew fastening screws **-2-** for the door unit carrier **-1-** .



Pulling out the wiring harness

4. Press the rubber grommet on the wiring harness inwards and pull the wiring harness through the door aperture.

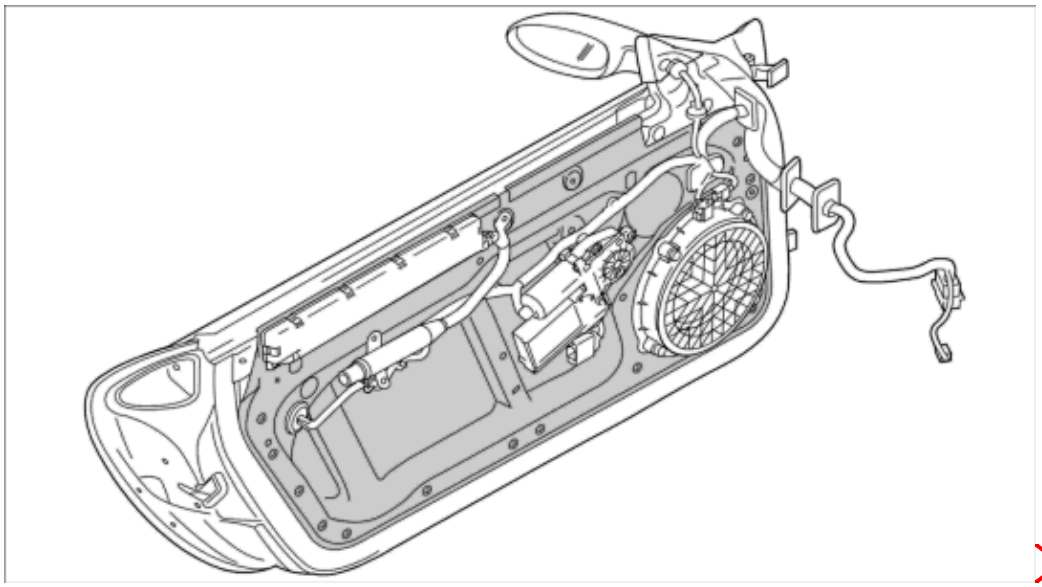


Pulling out the Bowden cable

5. Pull out the bowden cable **-2-** from the unit carrier **-1-** .

Disconnecting electrical plug connection on microswitch

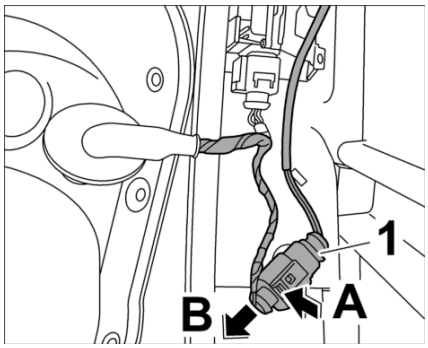
Installation Location:



Overview, door unit carrier

Note

- *A second person is required for removing the door unit carrier to avoid damage.*

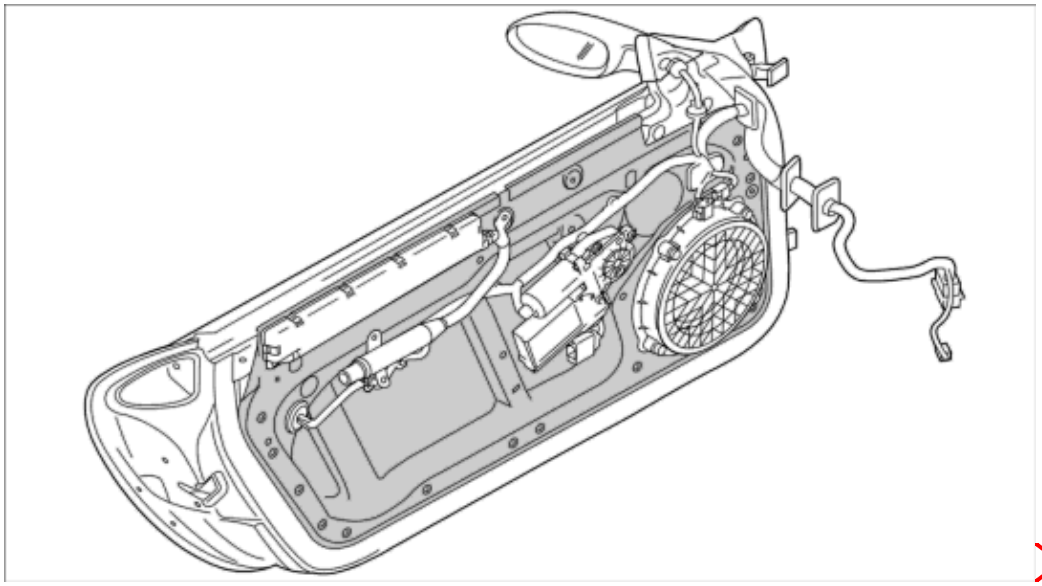


Disconnecting the microswitch plug connection

1. Unlock the electrical plug connection for the microswitch **-1-** by pressing the locking tab **-Pfeil A-** and remove **-Pfeil B-** .

Disconnecting the door lock electrical plug connection

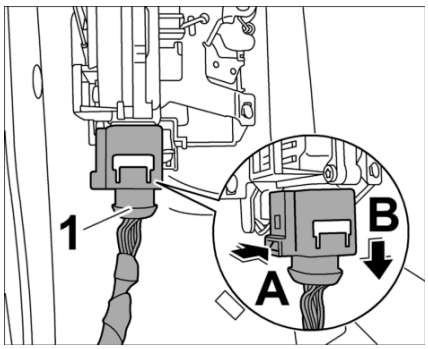
Installation Location:



Overview, door unit carrier

Note

- *A second person is required for removing the door unit carrier to avoid damage.*



Disconnecting the door lock plug connection

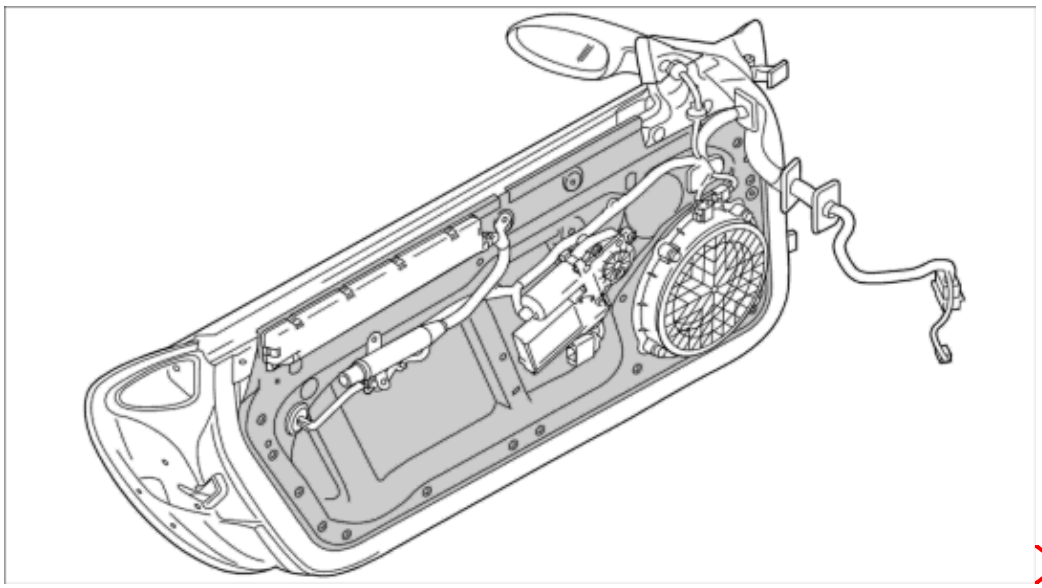
1. Unlock the electrical plug connection for the door lock **-1-** by pressing the locking tab **-Pfeil A-** and remove **-Pfeil B-** .
2. Remove door unit carrier.

top of page

Installing door unit carrier

Locking electrical plug connection for door lock

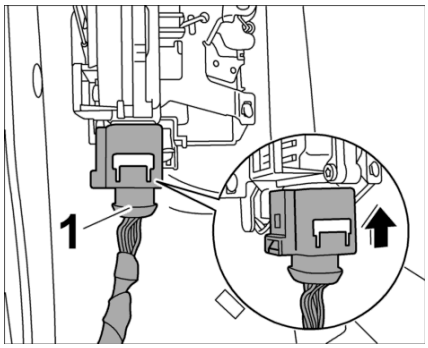
Installation Location:



Overview, door unit carrier

Note

- *A second person is required for removing the door unit carrier to avoid damage.*

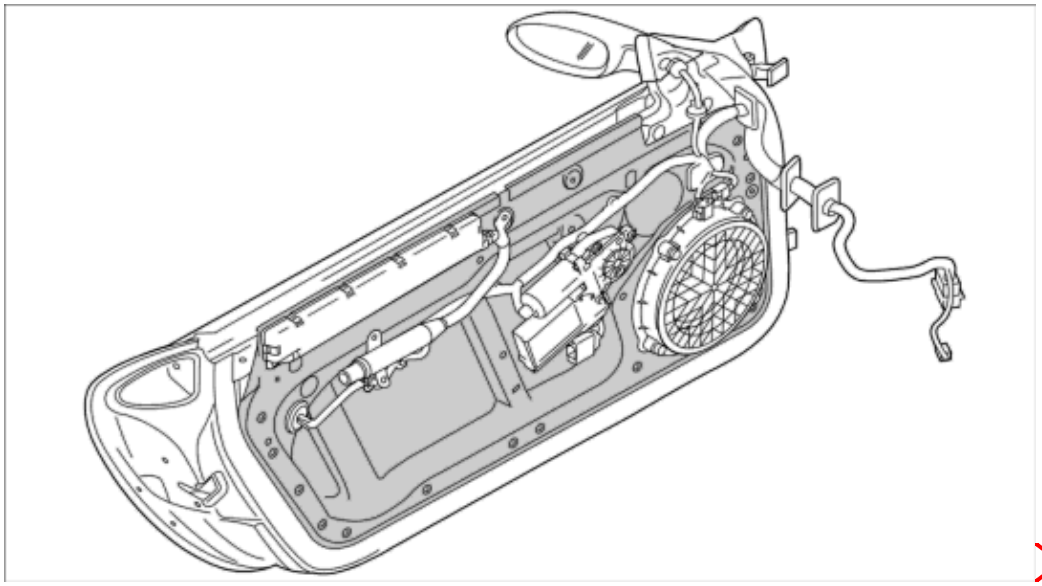


Locking plug connection for door lock

1. Lock electrical plug connection for door lock **-1-** until the plug audibly engages.

Locking electrical plug connection for microswitch

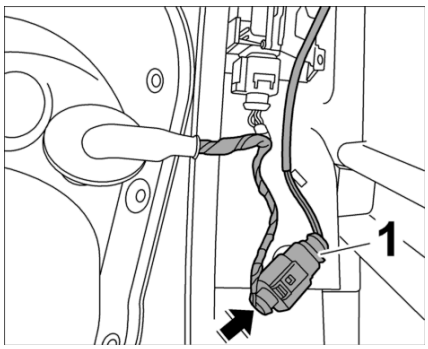
Installation Location:



Overview, door unit carrier

Note

- *A second person is required for removing the door unit carrier to avoid damage.*

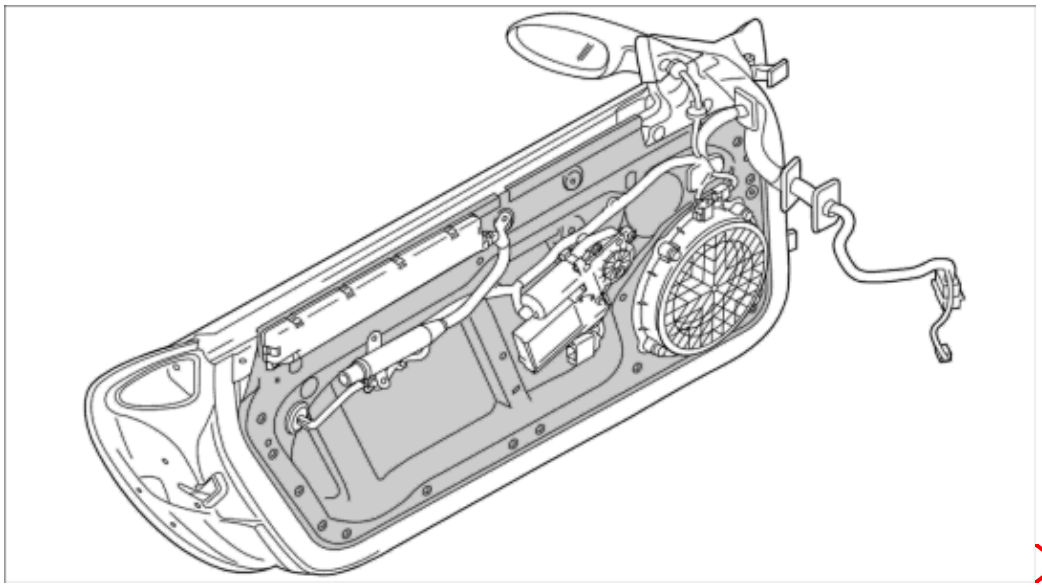


Locking plug connection for microswitch

1. Lock electrical plug connection for microswitch **-1-** until the plug audibly engages.

Fastening door unit carrier

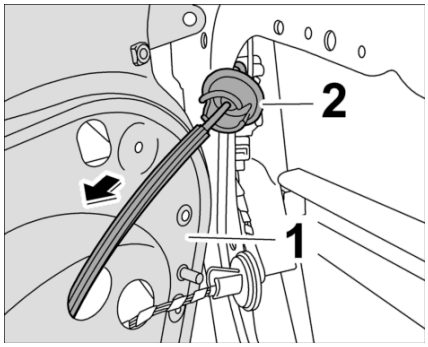
Installation Location:



Overview, door unit carrier

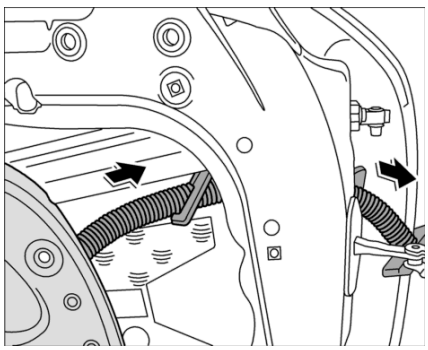
Note

- *A second person is required for removing the door unit carrier to avoid damage.*



Pushing bowden cable through

1. Push the bowden cable **-2-** through the unit carrier **-1-** .

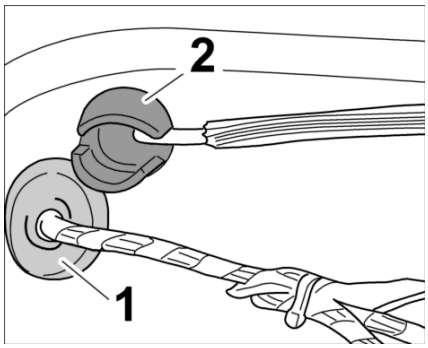


Pushing wiring harness through

Note

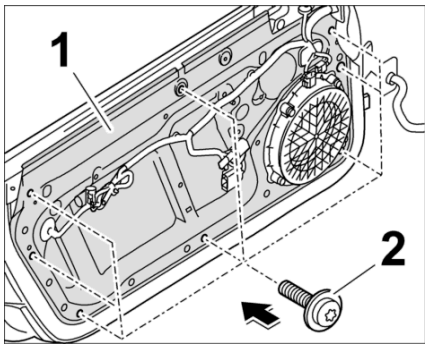
- *Make sure that the wiring harness is not twisted through the door opening when fitted.*

2. Push the wiring harness from the inside through the door aperture and press in the rubber grommet on the wiring harness from inside into the door aperture.



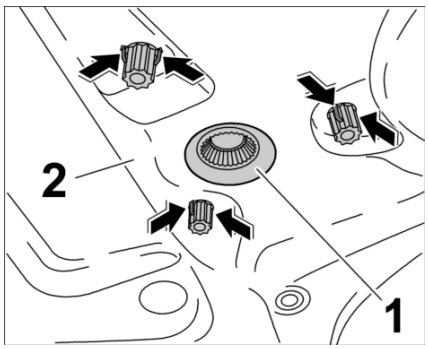
Installing rubber grommets

3. Install the rubber grommet for electric lead **-1-** and bowden cable **-2-** in the unit carrier until this engages all the way around.



Fastening door unit carrier

4. Screw down fastening screws **-2-** for the door unit carrier **-1-** . Tightening torque **Final tightening: 9.7 (7.2) Nm (ftlb.)**

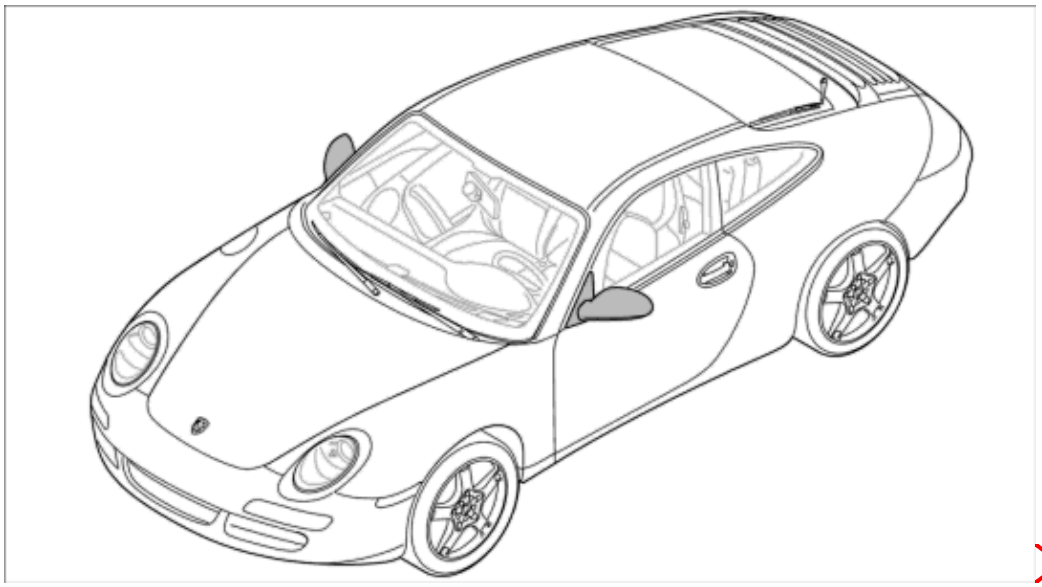


Clipping in power windows

5. Clip in power windows **-1-** on door unit carrier **-2-** .

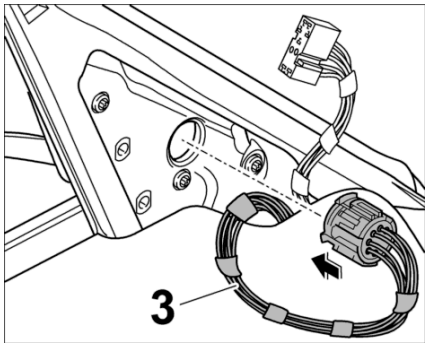
Locking electrical plug connection

Installation Location:



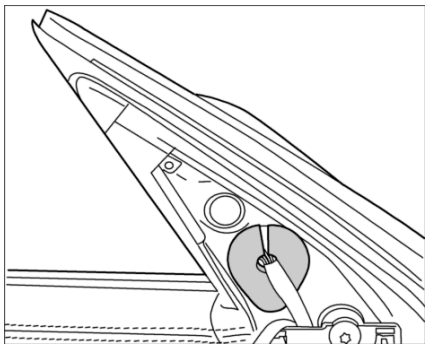
Overview, removing and installing rear-view mirror

1. Connect the plug connection of the mirror housing **-3-** .



Locking plug connection

Fitting seal for mirror triangle

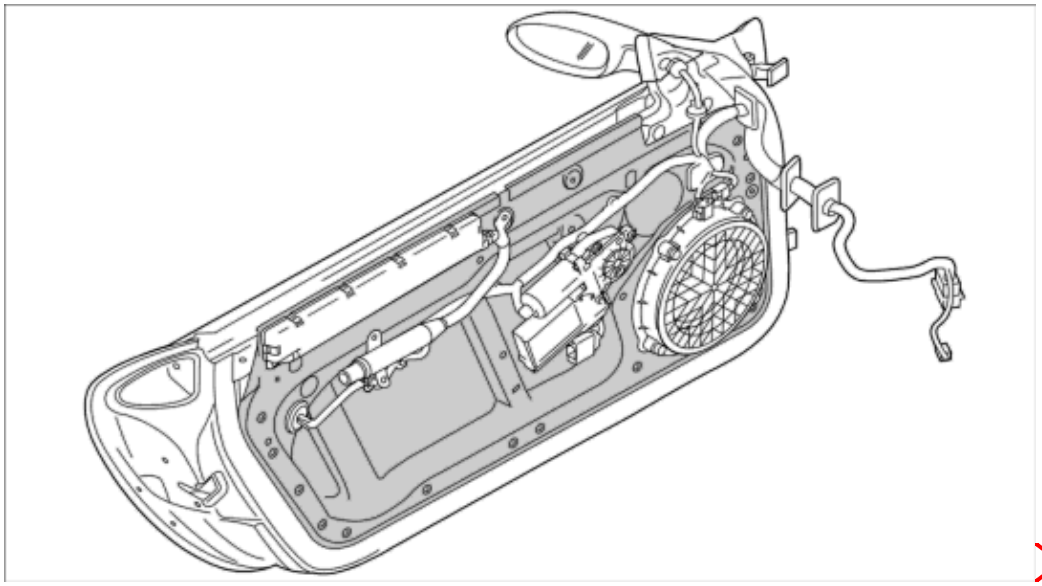


Seal for mirror triangle

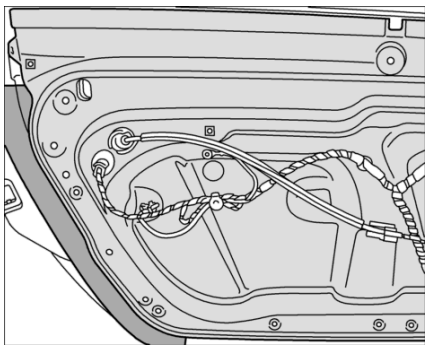
1. Stick seal for mirror triangle at cable cutout opening on door mirror to the basic door frame.

Removing adhesive tape

Installation Location:



Overview, door unit carrier



Remove adhesive tape.

1. Remove adhesive tape, clean marked area if necessary.

top of page

Subsequent work

Subsequent work

1. Install head airbag. 696619 Removing and installing head airbag - chapter on

"installing"

2. Install power window motor. 645419 Removing and installing power window motor - chapter on "installing"
3. Install door trim panel. 705919 Removing and installing door trim panel - chapter on "installing"
4. Lock electric lead for door. 973219 Removing and installing wiring harness for door

---

997110, 997111, 997120, 997121, 997310, 997311, 997320, 997321, 997410, 997411, 997430, 997431, 997610, 997611, 997620, 997621

as of MY 2005
Country C00, C02, C05, C07, C08, C09, C10, C11, C12, C13, C14, C15, C16, C18, C19, C20, C21, C22, C23, C24, C25, C26, C27, C28, C32, C33, C34, C35, C36, C37, C38, C39, C45, C46, C98, C99

WARNUNG

Gefahr des Verlusts der Text-Bild-Zuordnung beim Ausdruck.

- **Aus technischen Gründen kann derzeit nicht ausgeschlossen werden, dass trotz einwandfreier Darstellung auf dem Bildschirm beim Ausdruck der Zusammenhang von Text und zugehörigem Bild verloren geht.**
- **Wird der Fehler nicht bemerkt, besteht die Gefahr, daß Arbeiten nicht korrekt durchgeführt werden und es dadurch zu Personen- und Sachschäden kommt.**

Vergleichen Sie deshalb nach dem Druckvorgang unbedingt die Ausdrucke mit der Bildschirmdarstellung. Korrigieren Sie die Ausdrucke im Fehlerfall so, daß der Inhalt der Bildschirmdarstellung zutreffend wiedergegeben wird.

WARNING

Danger of losing text-figure correspondence when printing out.

- **For technical reasons, it can currently not be ruled out that the correspondence between text and associated figure can be lost when it is printed out, even though the display on the screen is correct.**
- **If the fault is not noticed, there is the danger that work will not be performed correctly which can cause injury and damage.**

Therefore, always compare printouts with the screen display after printing them out. Correct the printouts if they are faulty so that the content of the screen display matches that on the printouts.

AVERTISSEMENT

Risque de perte de la correspondance texte-illustration lors de l'impression papier.

- **Pour des raisons techniques, il ne peut pas être exclu à l'heure actuelle que, même en cas d'affichage correct à l'écran, la correspondance entre le texte et l'illustration puisse être erronée sur l'impression papier.**

57 30 37 Disassembling and assembling door unit carrier - as of MY 2005

- Preliminary work
- Disassembling door unit carrier
- Assembling door unit carrier
- Subsequent work

top of page

Preliminary work

Preliminary work

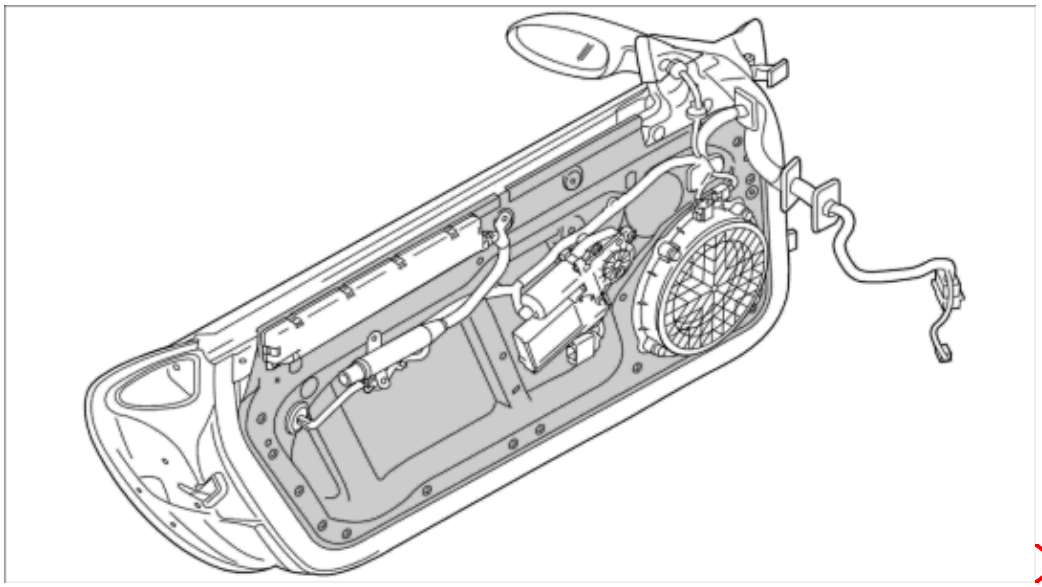
1. Remove door unit carrier. *5730 21 Removing and installing door unit carrier - removing*
2. Remove front door loudspeakers. *21 Removing and installing front door loudspeakers - removing*
3. Remove wiring harness for door. 973219 Removing and installing wiring harness for door - removing

top of page

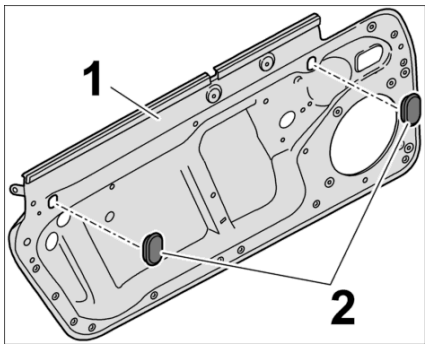
Disassembling door unit carrier

Disassembling door unit carrier

Installation Location:



Overview, door unit carrier



Removing rubber grommet

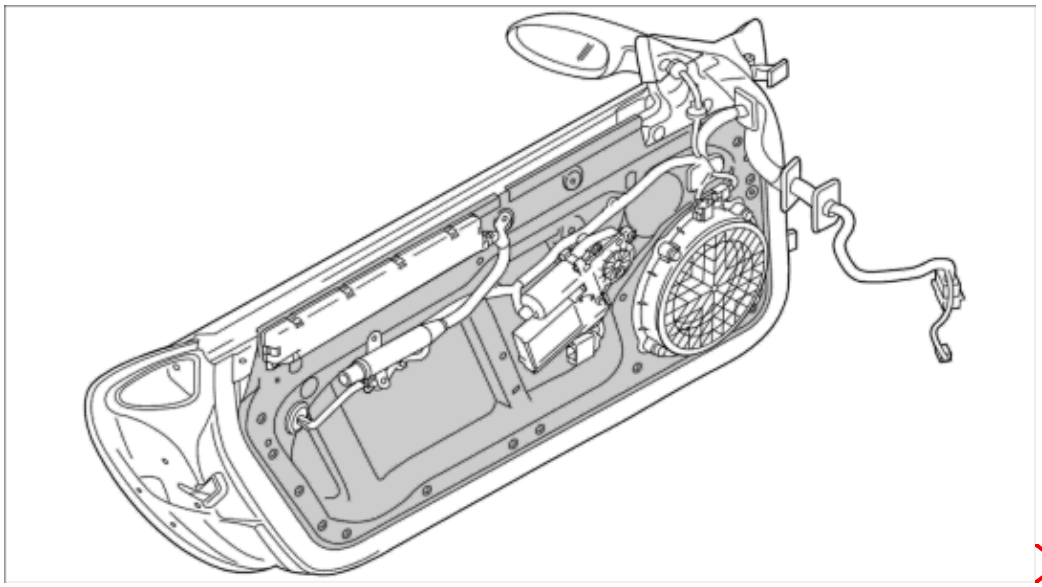
1. Remove rubber grommet **-2-** on the door unit carrier **-1-** .

top of page

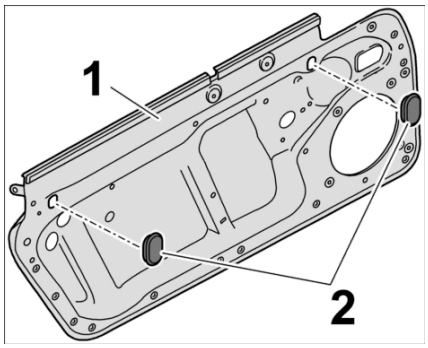
Assembling door unit carrier

Assembling door unit carrier

Installation Location:



Overview, door unit carrier



Installing rubber grommet

1. Position rubber grommet **-2-** on door unit carrier **-1-** and install until it engages all the way around.

top of page

Subsequent work

Subsequent work

1. Install wiring harness for door. 973219 Removing and installing wiring harness for door - installing
2. Install front door loudspeakers. *23 Removing and installing front door loudspeakers - installing*
3. Install door unit carrier. *5730 23 Removing and installing door unit carrier - installing*

997110, 997111, 997120, 997121, 997310, 997311, 997320, 997321, 997410, 997411, 997430, 997431, 997610, 997611, 997620, 997621

57 45 19 Removing and installing door handle - as of MY 2005

- Preliminary work
- Removing door handle
- Installing door handle
- Subsequent work

top of page

Preliminary work

Preliminary work

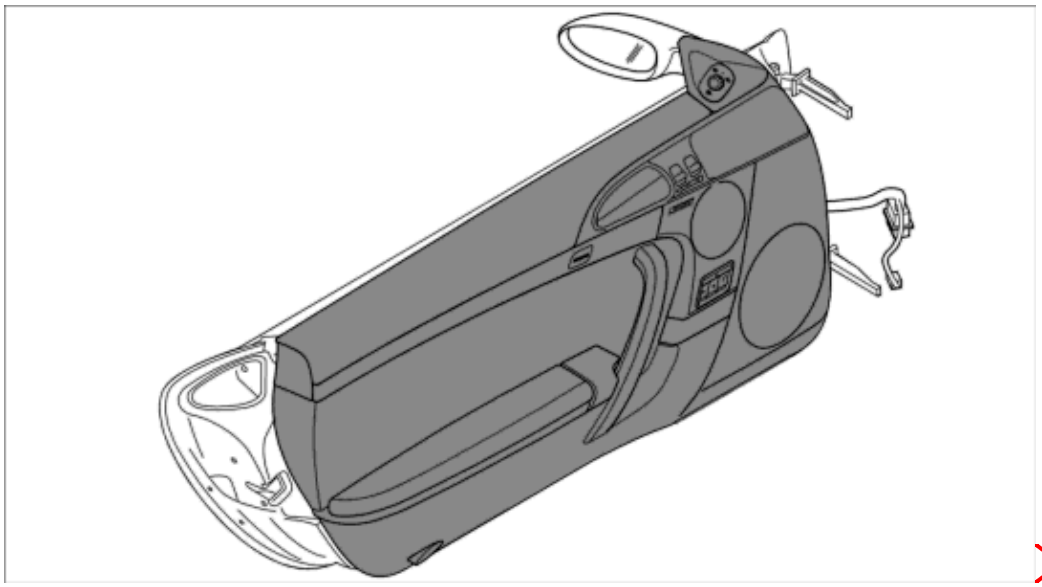
1. Remove door trim panel. 705919 Removing and installing door trim panel - chapter on "removing"

top of page

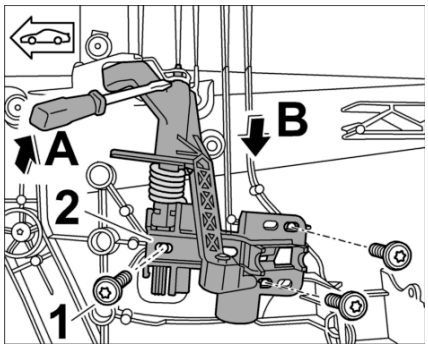
Removing door handle

Removing door handle

Installation Location:



Installation position of door handle



Removing door handle

1. Undo fastening screws **-1-** .

Note

- *Make sure that the return spring does not pop out.*

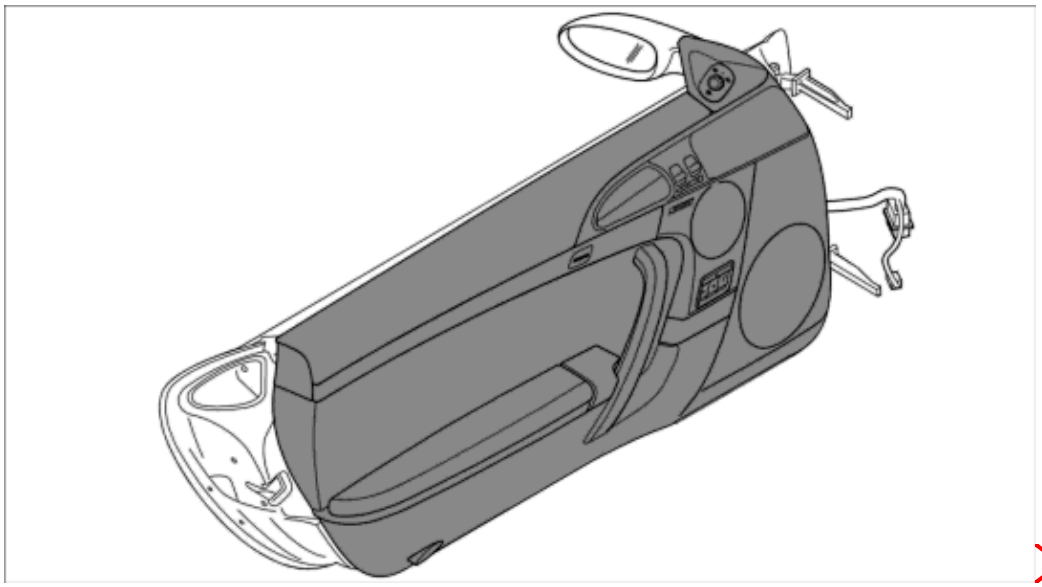
2. Insert a screwdriver between the door trim panel and the door handle **-2-** . Press door handle down **-arrow A-** and remove from the door trim panel **-arrow B-** .

top of page

Installing door handle

Installing door handle

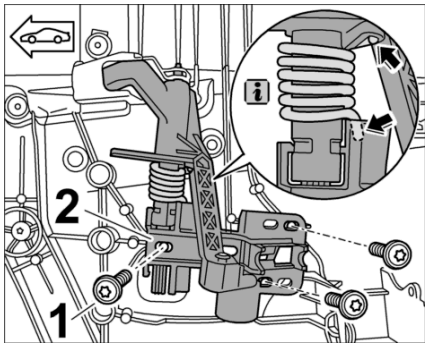
Installation Location:



Installation position of door handle

Note

- *To fit the door handle correctly, the return spring must be hooked into place prior to installation.*



Installing door handle

1. Position door handle **-2-** on door trim panel and secure with fastening screws **-1-** . Tightening torque **Final tightening: 2 (1.5) Nm (ftlb.) +0.2 (0.1) Nm (ftlb.)**

Note

- *Pull the door handle carefully to check that the return spring is fixed correctly.*

top of page

Subsequent work

Subsequent work

1. Install door trim panel. 705919 Removing and installing door trim panel - chapter on "installing"

997110, 997111, 997120, 997121, 997310, 997311, 997320, 997321, 997410, 997411, 997430, 997431, 997610, 997611, 997620, 997621

as of MY 2005
Country C00, C02, C05, C07, C08, C09, C10, C11, C12, C13, C14, C15, C16, C18, C19, C20, C21, C22, C23, C24, C25, C26, C27, C28, C32, C33, C34, C35, C36, C37, C38, C39, C45, C46, C98, C99

WARNUNG

Gefahr des Verlusts der Text-Bild-Zuordnung beim Ausdruck.

- **Aus technischen Gründen kann derzeit nicht ausgeschlossen werden, dass trotz einwandfreier Darstellung auf dem Bildschirm beim Ausdruck der Zusammenhang von Text und zugehörigem Bild verloren geht.**
- **Wird der Fehler nicht bemerkt, besteht die Gefahr, daß Arbeiten nicht korrekt durchgeführt werden und es dadurch zu Personen- und Sachschäden kommt.**

Vergleichen Sie deshalb nach dem Druckvorgang unbedingt die Ausdrucke mit der Bildschirmdarstellung. Korrigieren Sie die Ausdrucke im Fehlerfall so, daß der Inhalt der Bildschirmdarstellung zutreffend wiedergegeben wird.

WARNING

Danger of losing text-figure correspondence when printing out.

- **For technical reasons, it can currently not be ruled out that the correspondence between text and associated figure can be lost when it is printed out, even though the display on the screen is correct.**
- **If the fault is not noticed, there is the danger that work will not be performed correctly which can cause injury and damage.**

Therefore, always compare printouts with the screen display after printing them out. Correct the printouts if they are faulty so that the content of the screen display matches that on the printouts.

AVERTISSEMENT

Risque de perte de la correspondance texte-illustration lors de l'impression papier.

- **Pour des raisons techniques, il ne peut pas être exclu à l'heure actuelle que, même en cas d'affichage correct à l'écran, la correspondance entre le texte et l'illustration**

57 48 19 Removing and installing crash support - as of MY 2005

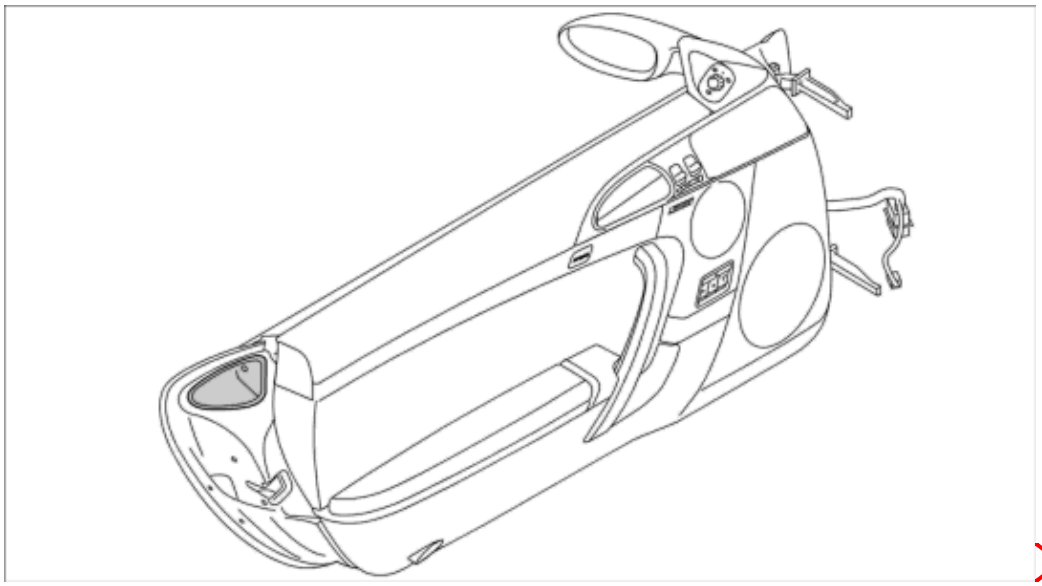
- Removing crash support
- Installing crash support

top of page

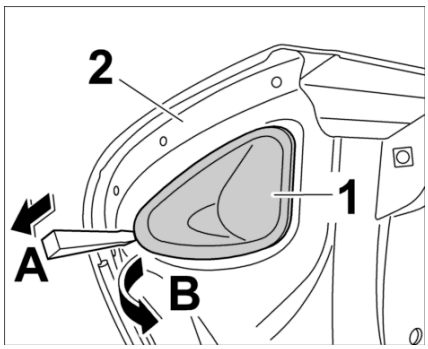
Removing crash support

Removing crash support

Installation Location:



Installation position of crash support



Removing crash support

1. Carefully insert a plastic wedge between basic door frame **-2-** and crash support **-1-** **-Arrow A-** and lever

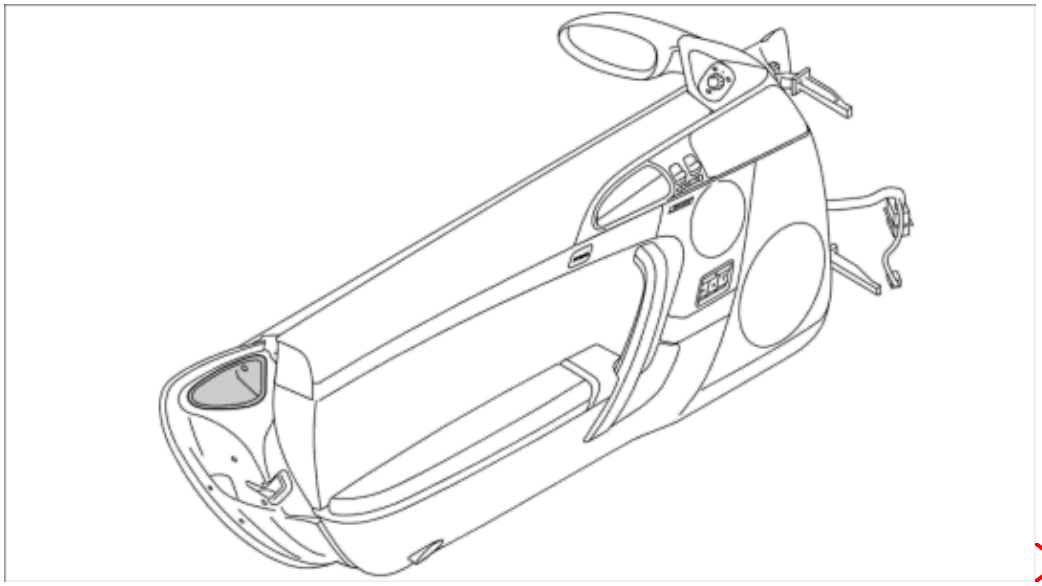
out in an inward direction **-Arrow B-** .

top of page

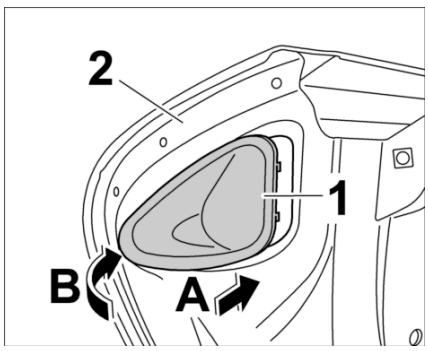
Installing crash support

Installing crash support

Installation Location:



Installation position of crash support



Installing crash support

1. Position crash support **-1-** on basic door frame **-2-** **-Arrow A-** and press in until it can be felt to engage **-Arrow B-** .

997110, 997111, 997120, 997121, 997310, 997311, 997320, 997321, 997410, 997411, 997430, 997431, 997610, 997611, 997620, 997621

57 51 15 Adjusting front door - as of MY 2005

- Adjusting front door

Tools

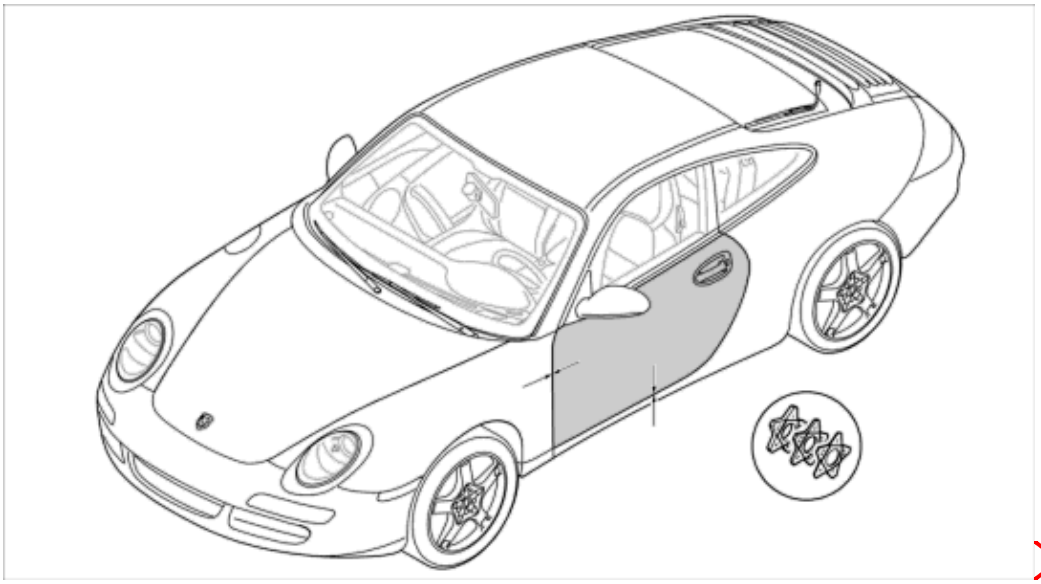
Designation	Type	Number	Explanation	
Key for door adjustment	special tool	3320		PORSCHE siehe Handbuch Werkstattausrüstung Voir le Manuel Equipement d´atelier Refer to the Workshop Equipment manual Vease Manual de Equipamiento de Taller Vedere il Manuale dell´attrezzatura d´officina ワークショップ・イクイップメント・マニュアルを参照

top of page

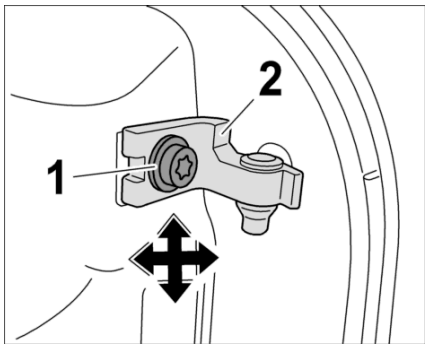
Adjusting front door

Setting the front door

Installation Location:



Adjusting the front door



Setting the front door

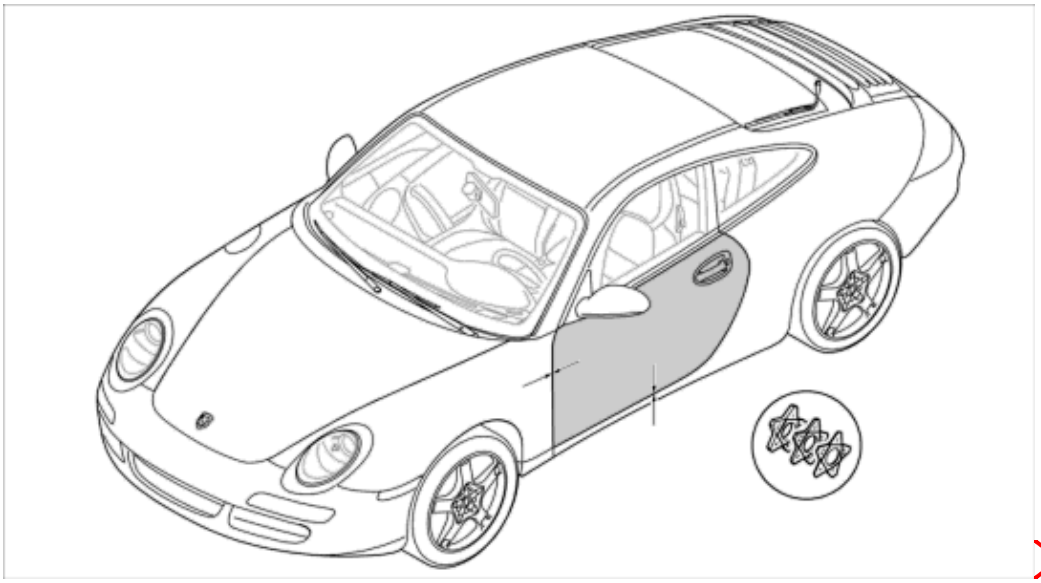
Note

- *To adjust front doors, use special tool* ***Key for door adjustment 3320***.

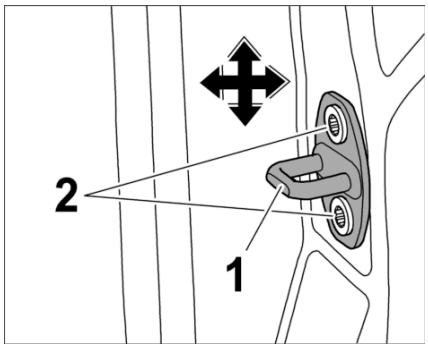
1. Undo fastening screw **-1-** . Set the contour with respect to the wing and side member by moving the angle pieces **-2-** both vertically and horizontally. *501000 Diagram - body gap dimensions*
   Tightening torque: **Final tightening: 17 ftlb.**

Setting the rear door

Installation Location:



Adjusting the rear door



Setting the rear door

1. Undo fastening screw **-2-** . Set the contour with respect to the rear wing and side member by shifting the latch striker **-1-** both vertically and horizontally. *501000 Diagram - body gap dimensions*
   Tightening torque: **Final tightening: 17 ftlb.**

997110, 997111, 997120, 997121, 997310, 997311, 997320, 997321, 997410, 997411, 997430, 997431, 997610, 997611, 997620, 997621

as of MY 2005
Country C00, C02, C05, C07, C08, C09, C10, C11, C12, C13, C14, C15, C16, C18, C19, C20, C21, C22, C23, C24, C25, C26, C27, C28, C32, C33, C34, C35, C36, C37, C38, C39, C45, C46, C98, C99

WARNUNG

Gefahr des Verlusts der Text-Bild-Zuordnung beim Ausdruck.

- **Aus technischen Gründen kann derzeit nicht ausgeschlossen werden, dass trotz einwandfreier Darstellung auf dem Bildschirm beim Ausdruck der Zusammenhang von Text und zugehörigem Bild verloren geht.**
- **Wird der Fehler nicht bemerkt, besteht die Gefahr, daß Arbeiten nicht korrekt durchgeführt werden und es dadurch zu Personen- und Sachschäden kommt.**

Vergleichen Sie deshalb nach dem Druckvorgang unbedingt die Ausdrucke mit der Bildschirmdarstellung. Korrigieren Sie die Ausdrucke im Fehlerfall so, daß der Inhalt der Bildschirmdarstellung zutreffend wiedergegeben wird.

WARNING

Danger of losing text-figure correspondence when printing out.

- **For technical reasons, it can currently not be ruled out that the correspondence between text and associated figure can be lost when it is printed out, even though the display on the screen is correct.**
- **If the fault is not noticed, there is the danger that work will not be performed correctly which can cause injury and damage.**

Therefore, always compare printouts with the screen display after printing them out. Correct the printouts if they are faulty so that the content of the screen display matches that on the printouts.

57 51 19 Removing and installing door - as of MY 2005

- General warning notes
- Preliminary work
- Removing door
- Installing door
- Subsequent work

top of page

General warning notes

General warning notes

5 IN Safety notes - information

top of page

Preliminary work

Preliminary work

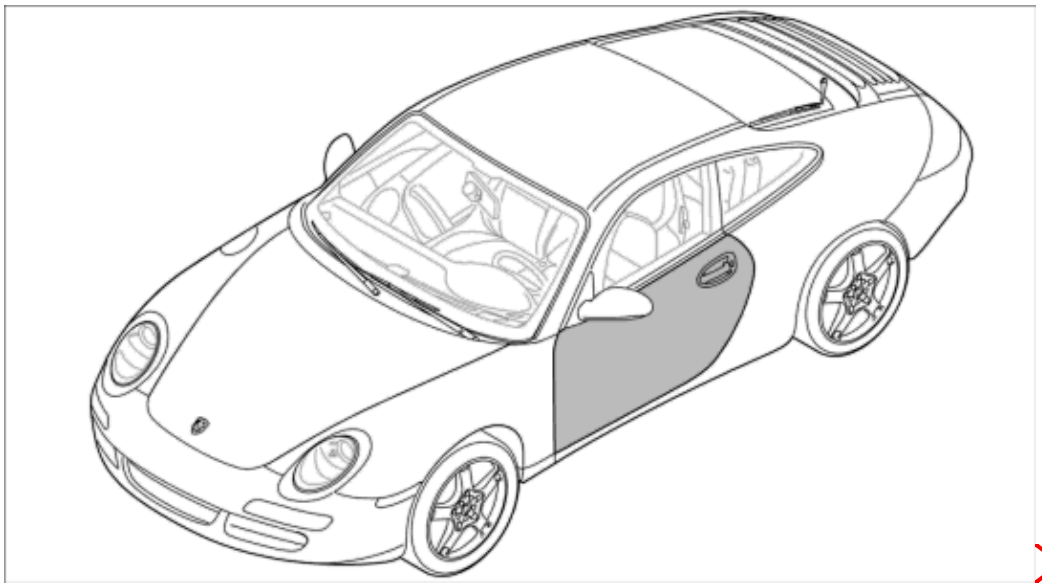
Disconnect electric lead for door. 973219 Removing and installing wiring harness for door - removing

top of page

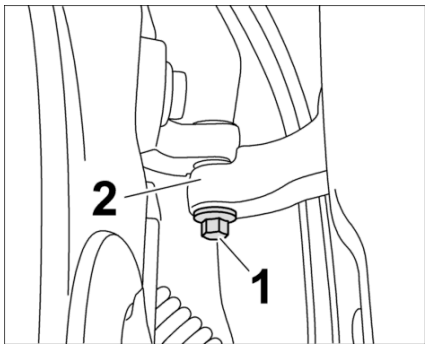
Removing door

Releasing hinge joint

Installation Location:



Overview, removing and installing door

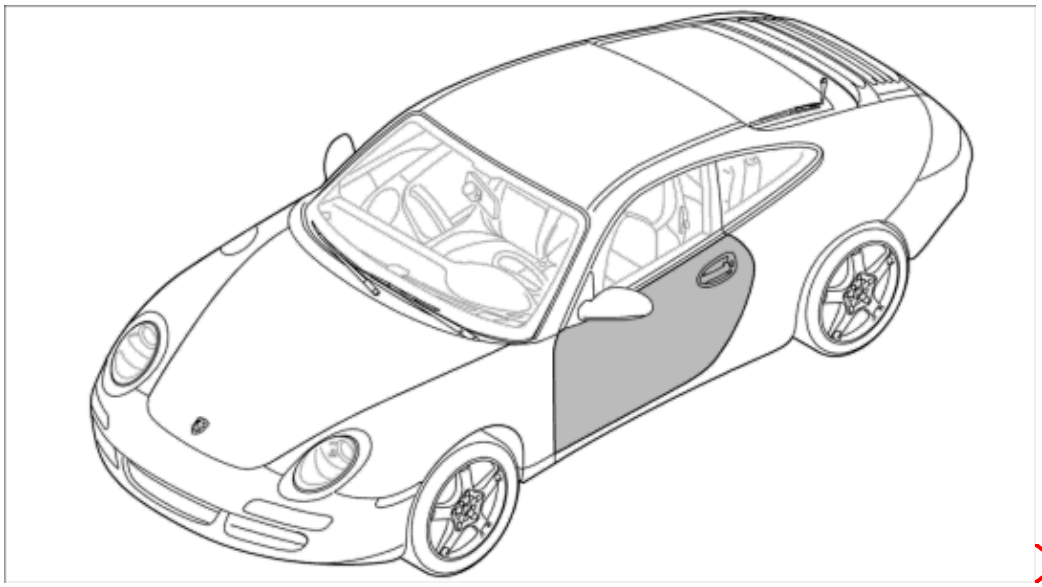


Releasing hinge joint

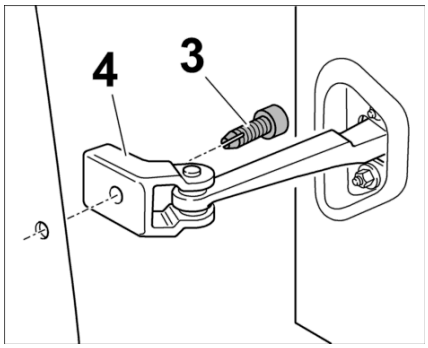
1. Unscrew fastening screws **-1-** of hinge joint **-2-** .

Releasing door latch snib on body side

Installation Location:



Overview, removing and installing door

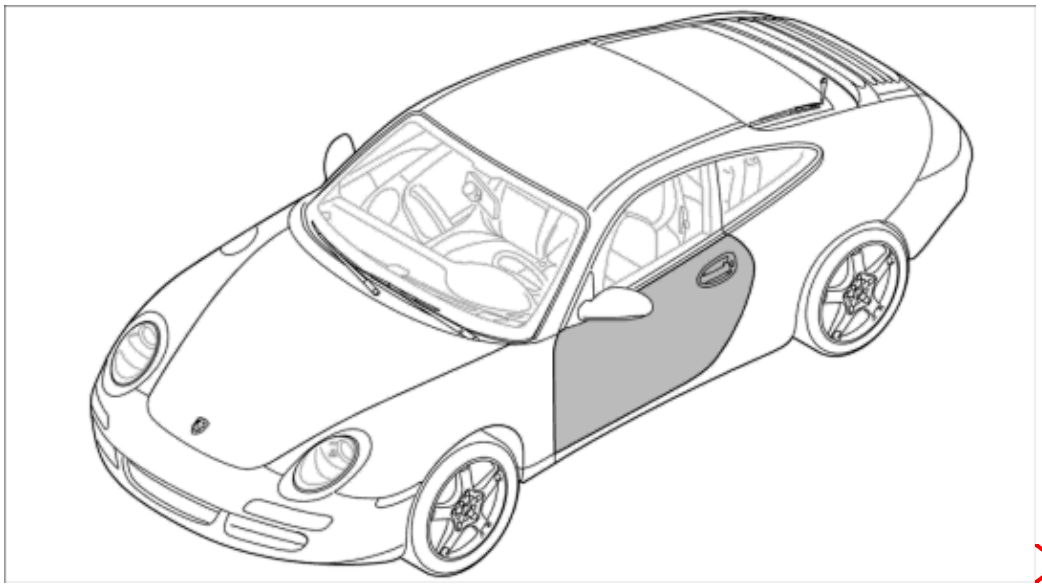


Releasing door latch snib on body side

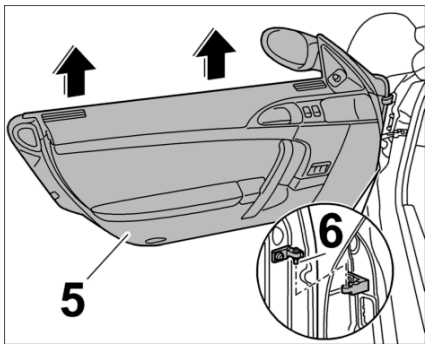
1. Unscrew fastening screw **-3-** from the door latch snib **-4-** .

Removing door

Installation Location:



Overview, removing and installing door



Removing door

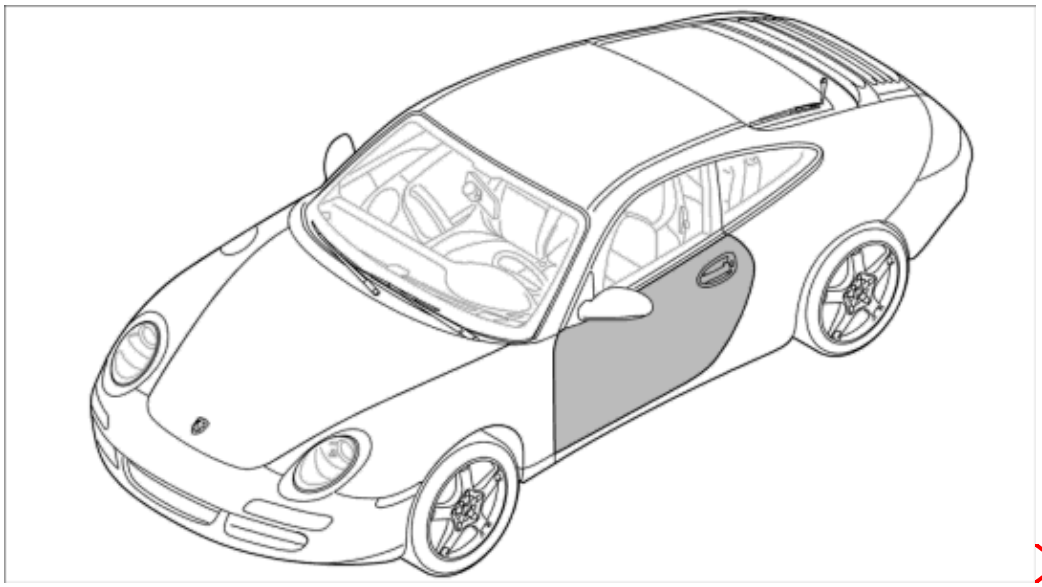
1. Lift the door **-5-** lightly upwards until the hinge bolts **-6-** are extended out of the hinge halves on the door side.
2. Take off the door **-5-** .

top of page

Installing door

Installing door

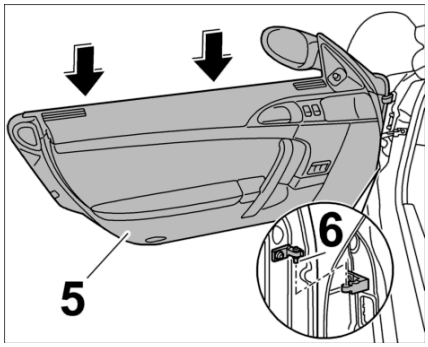
Installation Location:



Overview, removing and installing door

Note

- *Before inserting the door, the upper and lower hinge joint must be lubricated.*

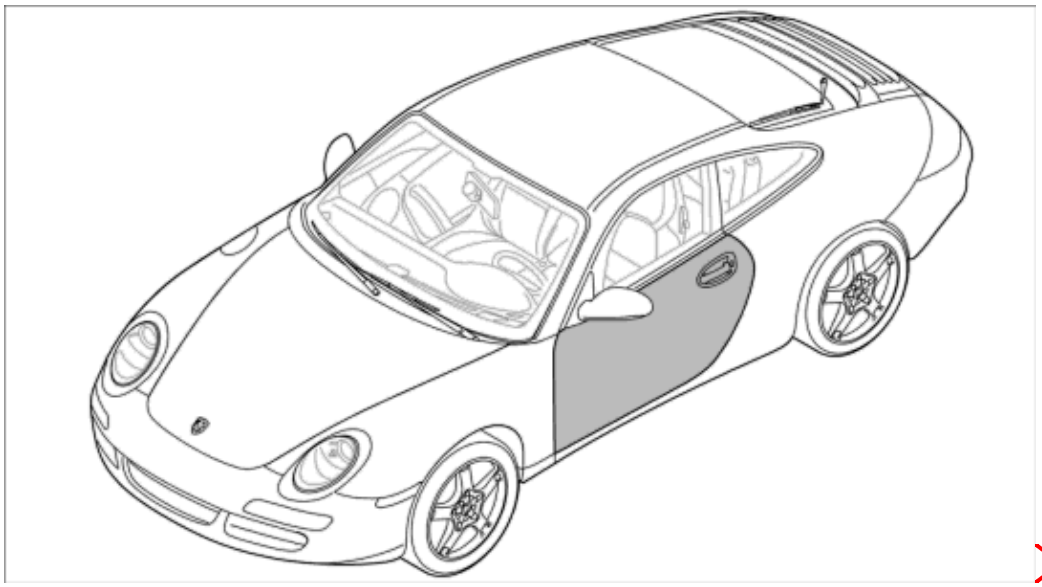


Installing door

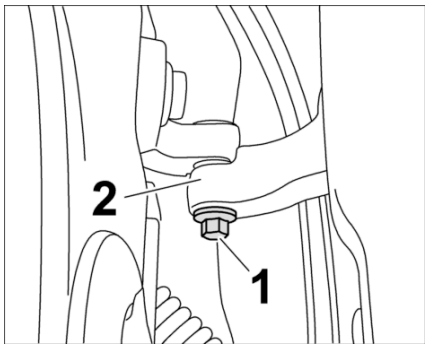
1. Engage the door **-5-** from above in the hinge bolts **-6-** .

Fastening the hinge joint

Installation Location:



Overview, removing and installing door

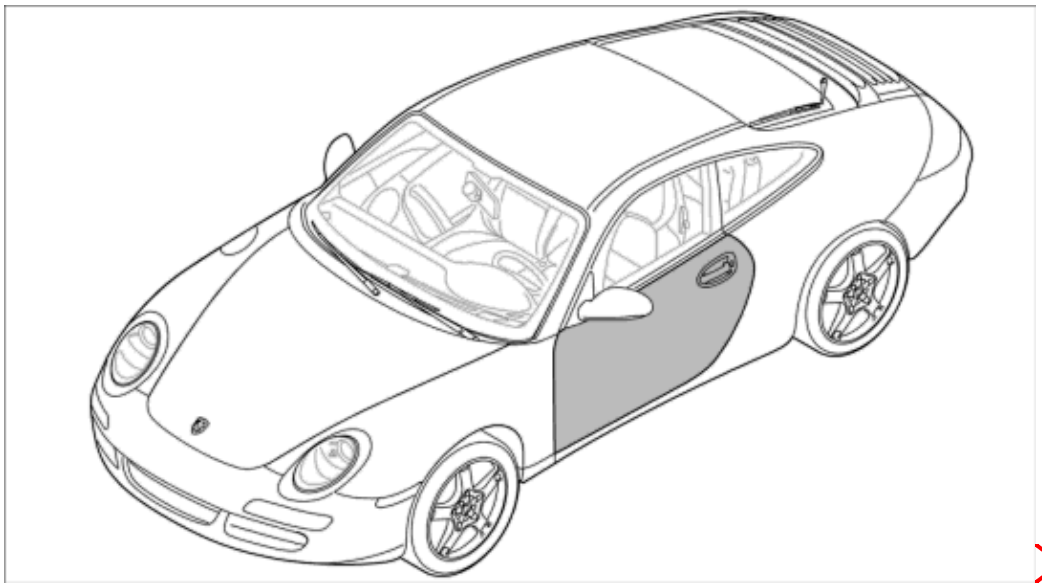


Fastening the hinge joint

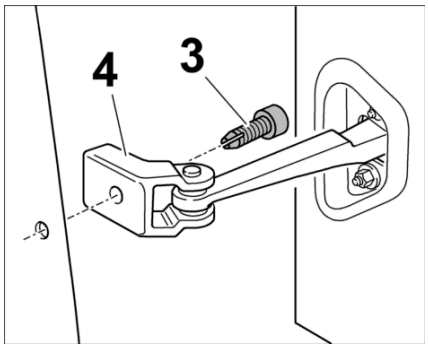
1. Tighten fastening screws M6 x 12 **-1-** on the hinge joints **-2-** . Tightening torque **: 9.5 ftlb.**

Fastening door latch snib on body side

Installation Location:



Overview, removing and installing door



Fastening door latch snib on body side

1. Screw down door latch snib **-4-** using fastening screw M8 **-3-** to the body. Tightening torque **: 22 ftlb.**

top of page

Subsequent work

Reworking

Lock electric lead for door. 973219 Removing and installing wiring harness for door - removing
Adjust front door. 575115 Adjusting door
Insert power windows. *Work instructions after disconnecting the battery*

997110, 997111, 997120, 997121, 997310, 997311, 997320, 997321, 997410, 997411, 997430, 997431, 997610, 997611, 997620, 997621

57 51 37 Disassembling and assembling door - as of MY 2005

- Preliminary work
- General warning notes
- Tools and materials
- Disassembling door
- Assembling door
- Subsequent work

Tools

Designation	Type	Number	Explanation	
wheel mounting trolley Master Wheel 50 with optional door mount	commercially available tool	00000		

top of page

Preliminary work

Preliminary work

1. Remove front door. 575119 Removing and installing doors - chapter on "Removing"
2. Position door on assembly fixture **wheel mounting trolley Master Wheel 50 with optional door mount 00000**.
3. Remove door trim panel. 705919 Removing and installing door trim panel - chapter on "removing"
4. Remove rear-view mirror. 668919 Removing and installing rear-view mirror - chapter on "removing"
5. Remove door sub-frame. 573019 Removing and installing door sub-frame - chapter on "removing"
6. Remove door handle. 571119 Removing and installing door handle - chapter on "Removing"
7. Remove door lock. 571719 Removing and installing door lock - chapter on "Removing"
8. Remove front door window. 644019 Removing and installing front door window - removing.
9. Remove front power windows. 645219 Removing and installing front power windows - removing
10. Remove door latch snib. 575919 Removing and installing door latch snib - removing
11.

Remove rubber seal for door. 576519 Removing and installing rubber seal for door - removing

12. Remove window channel seal. 644819 Removing and installing front window channel seal - chapter on "Removing"
13. Remove crash support. 574819 Removing and installing crash support - chapter on "Removing"

top of page

General warning notes

Safety instructions for door

ATTENTION

Material damage! Incorrect installation of the door lock!

- **Danger of material damage if the door lock is installed incorrectly! Malfunctions in the alarm system!**

The door lock should be installed only when the actuating lever is in basic position!

ATTENTION

Damage to plug connection lugs during door removal!

- **Damage to plug connection lugs during door removal! Damage to lugs when pulling the plug connection out of the A-pillar!**

The locking element at the bottom part of the plug connection must be pulled out before the plug connection is disconnected!

ATTENTION

Damage to the bowden cable when removing door trim panel!

- **Damage to the bowden cable when removing door trim panel! Damage by bending the bowden cable at the hook!**

Pull the hook out of the end piece only after installation in the inner door release!

ATTENTION

Danger of injury! Malfunction of the door window!

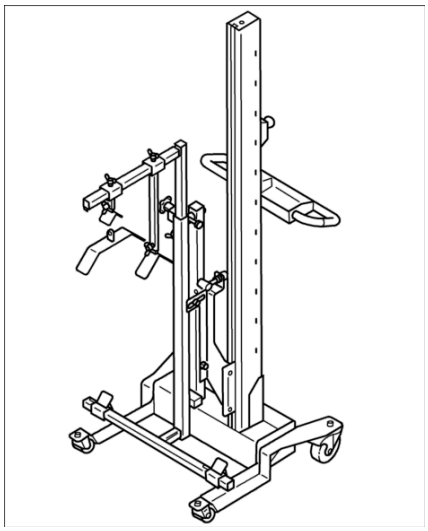
- **There is a danger of injury if fingers or hands are trapped by the door window when the comfort function is triggered: lower and raise door window!**

When carrying out assembly work in the area of the connection piece, the door handle and the door lock, the fuse No. 1 in row D must be removed!

top of page

Tools and materials

Tools and materials



Wheel mounting trolley with optional door mount

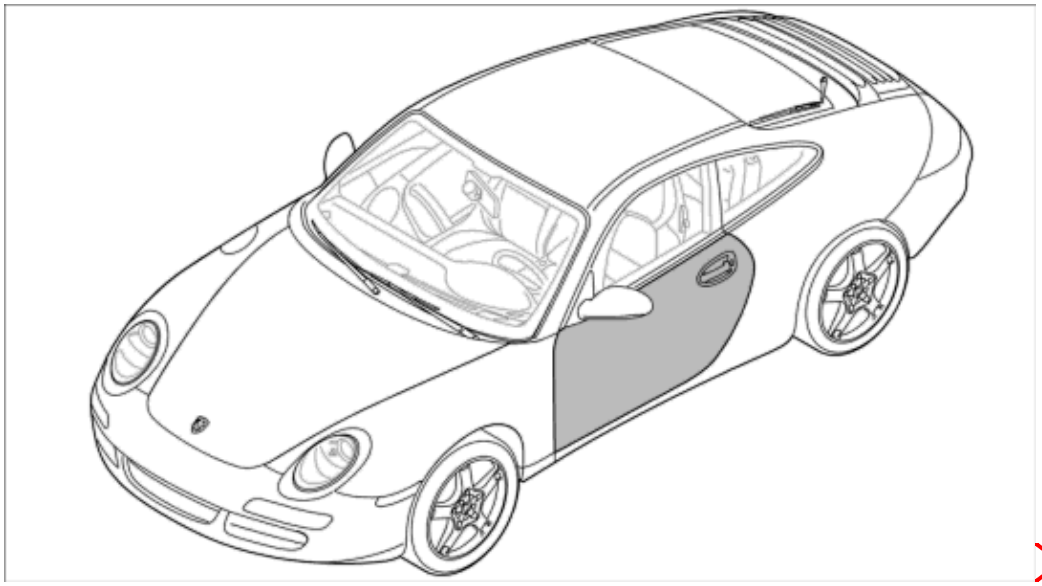
Wheel mounting trolley Master Wheel 50 with optional door mount, see Gr. 4; Workshop Equipment Manual 00000

top of page

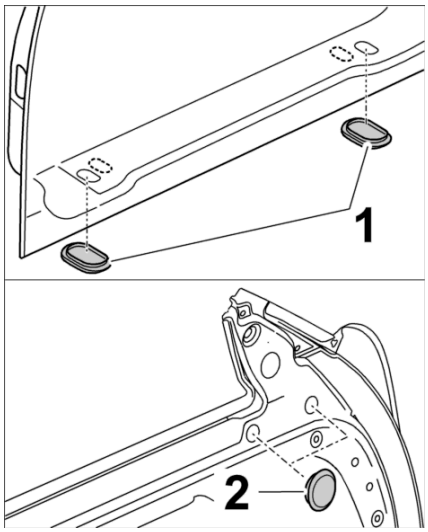
Disassembling door

Removing lid and rubber sleeve

Installation Location:



Installation position of lid and rubber sleeves

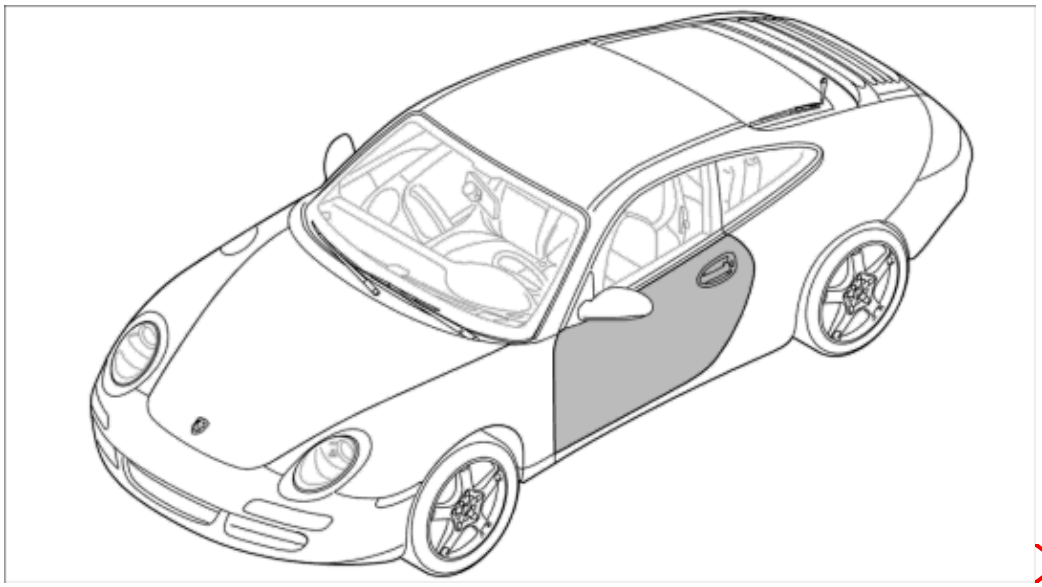


Removing lid and rubber sleeves

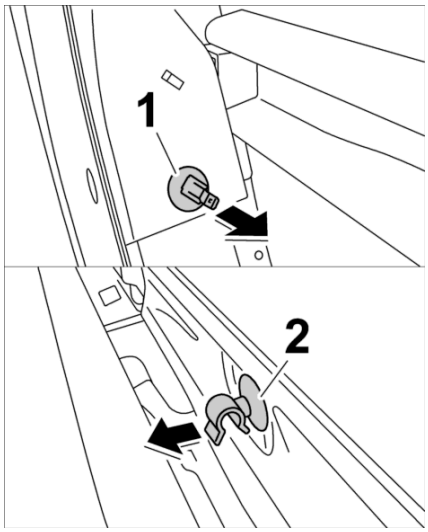
1. Press out the lid **-1-** and rubber sleeve **-2-** using a plastic spatula.

Removing retaining clips

Installation Location:



Installation position of retaining clips

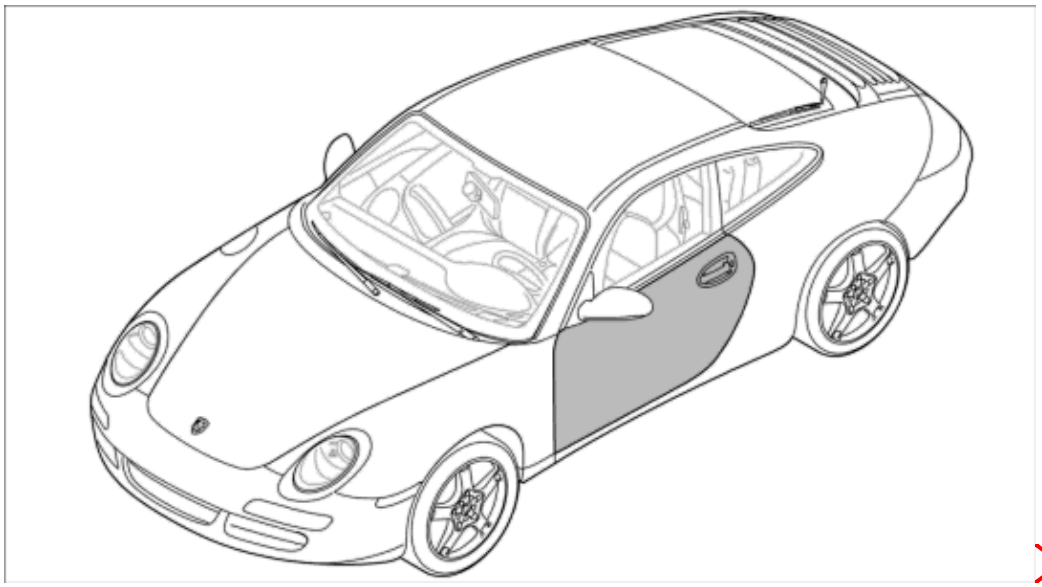


Removing retaining clips

1. Unclip retaining clip for electric plug connection **-1-** , examine it and replace if necessary.
2. Unclip retaining clip for bowden cable for power windows **-2-** , examine it and replace if necessary.

Removing rubber pad

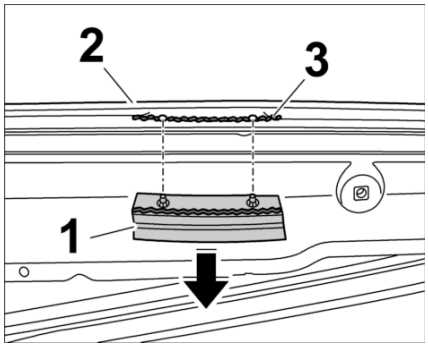
Installation Location:



Installation position of rubber buffer

Note

- *Note that removal of the rubber buffer will damage it. It must not be reused.*



Removing rubber buffer

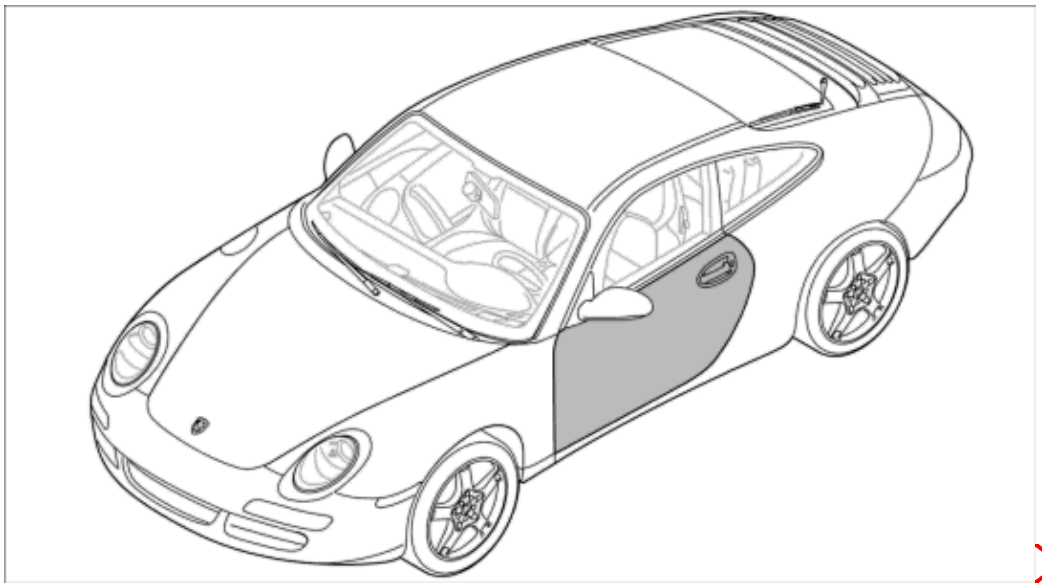
1. Lever the rubber buffer **-1-** off the basic door frame **-2-** using a plastic wedge and remove it **-arrow-** . Clean any residual adhesive **-3-** off the basic door frame using cleaning solution.

top of page

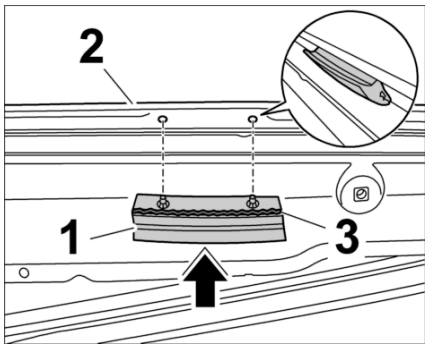
Assembling door

Installing rubber buffer

Installation Location:



Installation position of rubber buffer

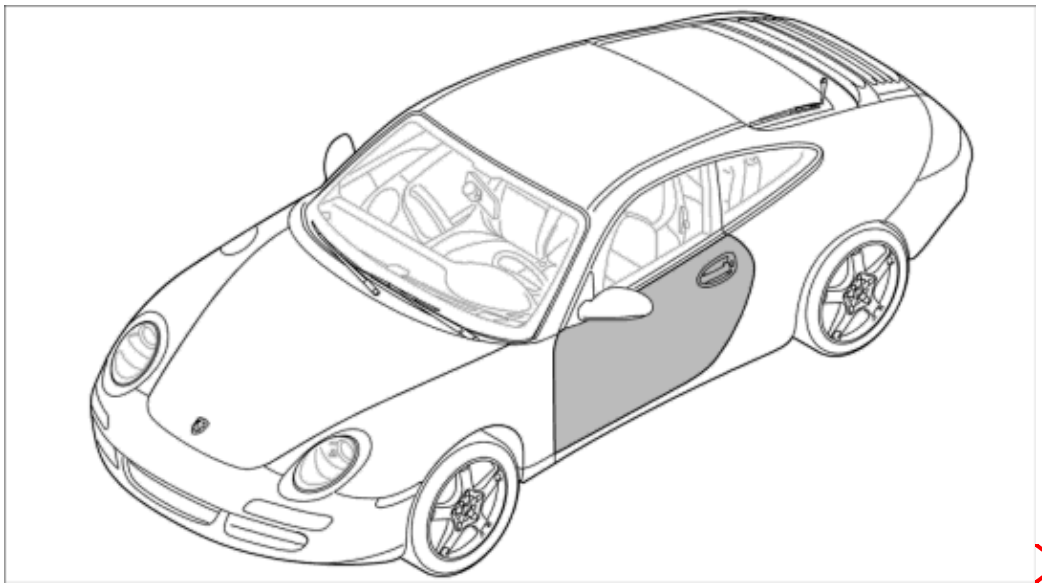


Installing rubber buffer

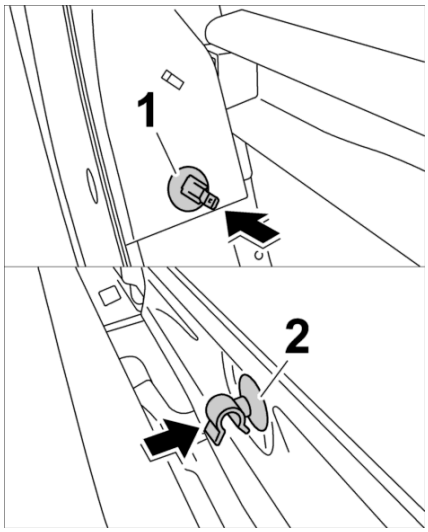
1. Remove protective film **-3-** from rubber buffer **-1-** , clip rubber buffer onto basic door frame **-1-** and press into position **-arrow-** .

Installing retaining clips

Installation Location:



Installation position of retaining clips

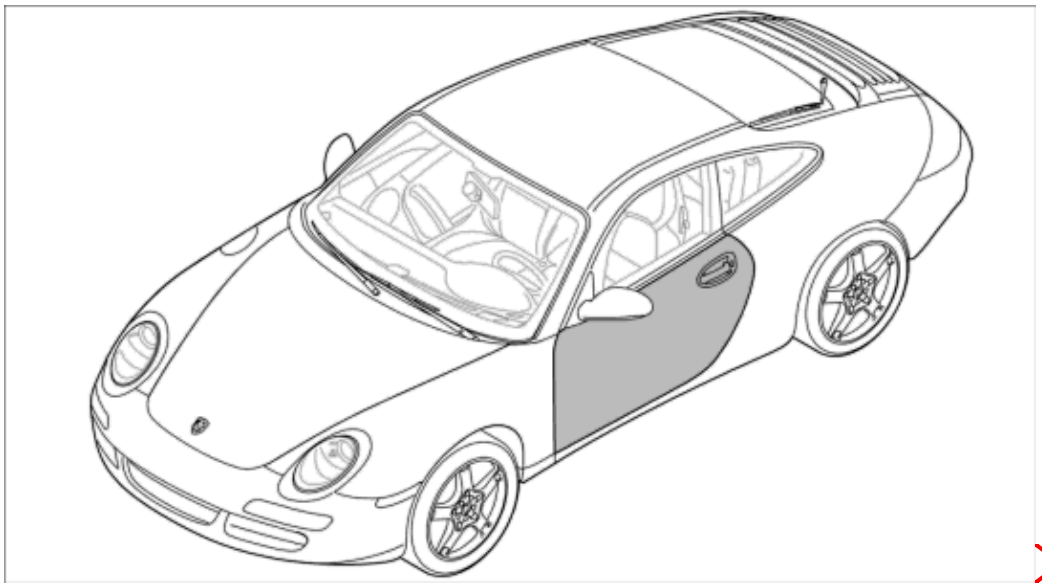


Installing retaining clips

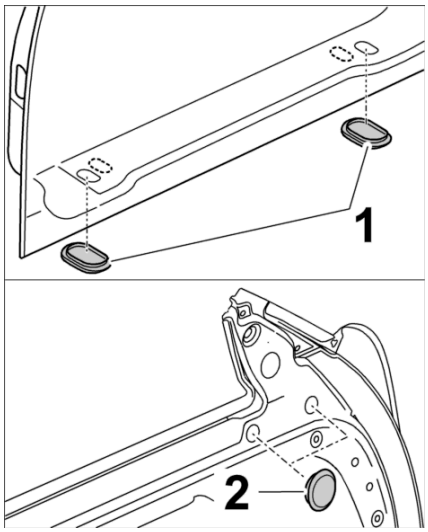
1. Clip in retaining clip for electric plug connection **-1-** (**-arrow-**).
2. Clip in retaining clip bowden cable for power windows **-2-** (**-arrow-**).

Fitting lid and rubber sleeves

Installation Location:



Installation position of lid and rubber sleeves



Installing lid and rubber sleeves

1. Position lid **-1-** and rubber sleeves **-2-** on basic door frame and press in until they click into place.

top of page

Subsequent work

Subsequent work

1. Install crash support. 574819 Removing and installing crash support - chapter on "Installing"
2. Install window channel seal. 644819 Removing and installing front window channel seal - chapter on "Installing"
3.

Install rubber seal for door. 576519 Removing and installing rubber seal for door - chapter on "Installing"

4. Install door latch snib. 575919 Removing and installing door latch snib - chapter on "Installing"
5. Install front power windows. 645219 Removing and installing front power windows - chapter on "Installing"
6. Install front door window. 644019 Removing and installing front door window - chapter on "Installing"
7. Install door lock. 571719 Removing and installing door lock - chapter on "Installing"
8. Install door handle. 571119 Removing and installing door handle - chapter on "Installing"
9. Install door sub-frame. 573019 Removing and installing door sub-frame - chapter on "installing"
10. Install rear-view mirror. 668919 Removing and installing rear-view mirror - chapter on "installing"
11. Install door trim panel. 705919 Removing and installing door trim panel - chapter on "installing"
12. Install front door. 575119 Removing and installing doors - chapter on "Installing"

997321, 997410, 997411, 997430, 997431, 997610, 997611, 997620, 997621

as of MY 2005
Country C00, C02, C05, C07, C08, C09, C10, C11, C12, C13, C14, C15, C16, C18, C19, C20, C21, C22, C23, C24, C25, C26, C27, C28, C32, C33, C34, C35, C36, C37, C38, C39, C45, C46, C98, C99

WARNUNG

Gefahr des Verlusts der Text-Bild-Zuordnung beim Ausdruck.

- **Aus technischen Gründen kann derzeit nicht ausgeschlossen werden, dass trotz einwandfreier Darstellung auf dem Bildschirm beim Ausdruck der Zusammenhang von Text und zugehörigem Bild verloren geht.**
- **Wird der Fehler nicht bemerkt, besteht die Gefahr, daß Arbeiten nicht korrekt durchgeführt werden und es dadurch zu Personen- und Sachschäden kommt.**

Vergleichen Sie deshalb nach dem Druckvorgang unbedingt die Ausdrucke mit der Bildschirmdarstellung. Korrigieren Sie die Ausdrucke im Fehlerfall so, daß der Inhalt der Bildschirmdarstellung zutreffend wiedergegeben wird.

WARNING

Danger of losing text-figure correspondence when printing out.

- **For technical reasons, it can currently not be ruled out that the correspondence between text and associated figure can be lost when it is printed out, even though the display on the screen is correct.**
- **If the fault is not noticed, there is the danger that work will not be performed correctly which can cause injury and damage.**

57 53 55 Replacing door hinge (on body side) - as of MY 2005

- General warning notes
- Tools and materials
- Preliminary work for body repairs with alignment bench
- Removing door hinge (on body side)
- Preparing connection areas of the body for installing the door hinge (on body side)
- Preparing door hinge (on body side) for installation
- Installing door hinge (on body side)
- Subsequent work

Tools

Designation	Type	Number	Explanation	
Pneumatic body saw No. PS1, see Gr. 3.5; Workshop Equipment Manual	commercially available tool	00000		
Press-out tool	special tool	97290		
Star gauges for body gap dimensions	commercially available tool	NR.127-1		

Spotweld drill	commercially available tool	NR.129		
Inverter welding equipment ATL Inverterspot	workshop equipment	WE1194		

top of page

General warning notes

Safety instructions for body repairs

5 AW Safety instructions - General warning notes

top of page

Tools and materials

Tools and materials

Spotweld drill NR.129 Star gauges for body gap dimensions NR.127-1
Press-out tool 97290
Pneumatic body saw No. PS1, see Gr. 3.5; Workshop Equipment Manual 00000
Angle grinder, see Gr. 3.5; see Workshop Equipment Manual 00000
Oscillating body saw (special electrical cutter), see Gr. 3.5; Workshop Equipment Manual 00000
Rotary brush, see Gr. 3.5; Workshop Equipment Manual 00000
Hole punch, see Gr. 3.5; Workshop Equipment Manual 00000
Leister Elektron hot-air gun, see Gr. 3.5; Workshop Equipment Manual 00000
Inverter welding equipment ATL Inverterspot WE1194

Basic straightening attachments for 911 Carrera (996), see Gr. 3.5; Workshop Equipment Manual 00000
Additional straightening attachments for 911 Carrera (997), see Gr. 3.5; Workshop Equipment Manual 00000
Pneumatic spotweld remover, Vario Drill No. WS 90, see Gr. 3.5; Workshop Equipment Manual 00000

top of page

Preliminary work for body repairs with alignment bench

Preliminary work for body repairs

Note

- *If it can be ensured there has been no deformation of the vehicle structure, the following repair can be carried out without the need of a straightening bench. In this case, the vehicle must not be raised when welding the component; it must stand on its wheels on an even surface.*

1. Removing add-on parts in the repair area
1.1. Remove add-on parts in the repair area according to the extent of damage to the vehicle.
2. Equipping straightening bench with straightening attachments
2.1. Equip straightening bench with the straightening attachments according to the plans included with the straightening attachments.
3. Placing vehicle on the straightening bench
3.1. Position vehicle on the straightening bench, align according to the reference holes and bolt firmly to the attachment set.
4. Covering add-on parts adjacent to the vehicle repair area
4.1. Cover all add-on parts remaining on the vehicle and the neighbouring areas with fire-proof, protective covers.
5. Reshaping connection area of the sheetmetal parts to be replaced
6. Exposing welding areas
6.1. Remove undersealing, paint, etc. from the welding areas of the body with a hot-air gun or rotary brush.

top of page

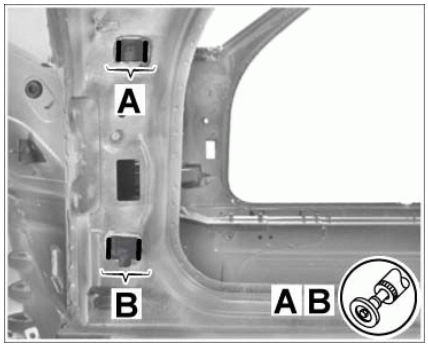
Removing door hinge (on body side)

Removing door hinge (on body side)

Installation Location:

Installation position of door hinge

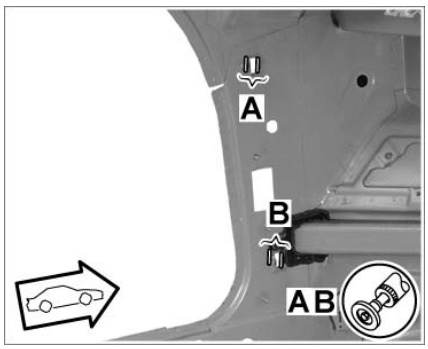
1. Remove the wing. 505519 Removing and installing wing - section on "Removing"
2. Remove door. 575119 Removing and installing door - section on "Removing"



Separating inert-gas welded seams

3. Separating inert-gas welded seams

3.1. Separate inert-gas welded seams in areas **-A-** and **-B-** using a parting grinder or spherical cutter.



Separating inert-gas welded seams

4. Separating inert-gas welded seams

4.1. Separate inert-gas welded seams in areas **-A-** and **-B-** using a parting grinder.

top of page

Preparing connection areas of the body for installing the door hinge (on body side)

Safety instructions for flying sparks during grinding and welding work

ATTENTION

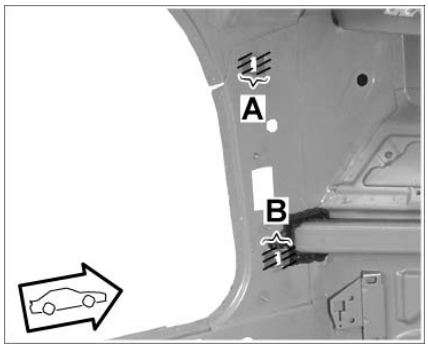
Danger of explosion and fire from flying sparks during grinding and welding work!

- **Danger of injury and danger of damage to vehicle parts and other vehicles due to flying sparks**

Cover vehicle parts such as battery, fuel system, paintwork, glass and passenger compartment parts with fire-proof covers and, if necessary, remove batteries and fuel-carrying components.

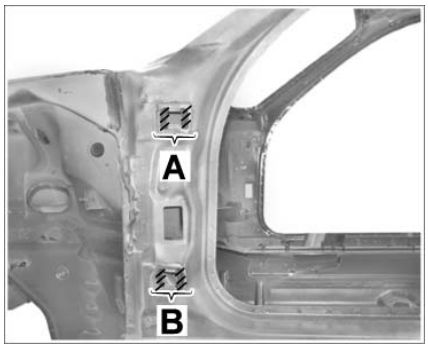
No other vehicles may be left unprotected in areas used for body repair!

Preparing connection areas of the body for installing the door hinge (on body side)



Preparing connecting flanges

1. Clean undersealing, adhesive residue and paint off the body connecting flanges from inside in the marked areas **-A-** and **-B-** using a hot-air gun or rotary brush. Grind the connecting flanges until bare.



Preparing connecting flanges

2. Clean undersealing, adhesive residue and paint off the body connecting flanges in the marked areas **-A-** and **-B-** using a hot-air gun or rotary brush. Grind the connecting flanges until bare.

top of page

Preparing door hinge (on body side) for installation

Safety instructions for sharp-edged body and unit parts

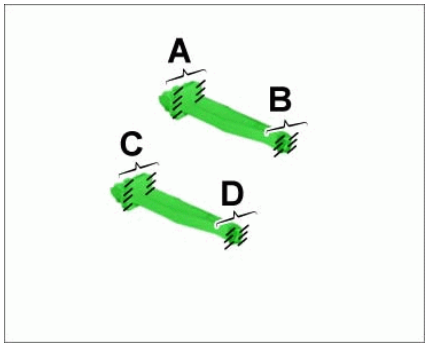
ATTENTION

Danger of injury! Sharp-edge burrs on body and unit parts!

- **Injuries from sharp edges on body and unit parts.**

Wear protective gloves when working in the area of sharp-edged body and unit parts!

Preparing door hinge (on body side) for installation



Cleaning the welding areas

1. Cleaning the welding areas

1.1. Grind both sides of the connecting flanges of the door hinge in the marked areas **-A, B, C, D-** until bare using a rotary brush.

top of page

Installing door hinge (on body side)

Danger of injury when welding

DANGER

Risk of fatal injury from high voltage during electric welding!

- **Danger of explosion and fire when welding in the area of highly inflammable materials.**
- **Irritation to respiratory tracts from toxic zinc oxide emitted when welding galvanised steel!**
- **Danger of injury from unintentional triggering of pyrotechnical safety components!**
- **Danger of injury from weld spatters and UV light when welding!**

Do not perform welding work in a damp environment or on wet ground; there is a risk of fatal injury from the voltage being conducted through the human body. Persons with heart pacemakers should not perform welding work. Use insulating underlays.

Remove highly flammable materials from the work area; if necessary, remove units with fuel-carrying parts and protect work areas in the vehicle that are at risk of catching fire using fire-proof covers.

Ventilate the work area well.

Remove smoke gases with a suitable extraction system (refer to Workshop Equipment Manual).

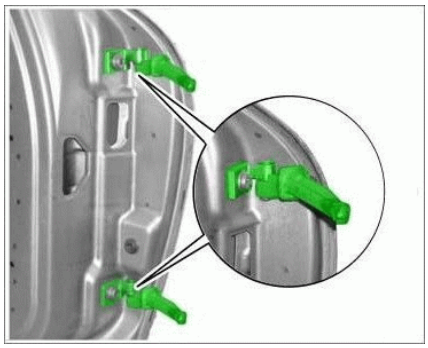
Wear suitable protective equipment, such as protective clothing, gloves, a welding shield and, if necessary, a protective mask.

For welding work, always disconnect both terminals on the battery. In the case of welding work in the immediate vicinity of the control modules for pyrotechnical safety systems, remove the control modules before beginning work.

In addition, the guidelines of the welding equipment manufacturer and the legal accident prevention regulations and those of the mutual indemnity association (BGV D1) must be observed.

Installing door hinge (on body side)

1. Fitting door hinge to the body



Installing door hinge

1.1. Position door hinge on the body, align it and screw down securely.

1.2. Install wing, door lock and striker pin before fitting.

1.2.1. *505520 23 Removing and installing front wing - section on "Installing"*

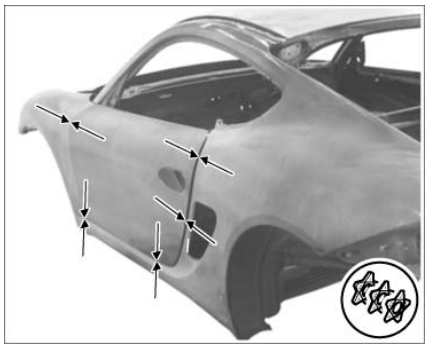
1.2.2. 571719 Removing and installing door lock - section on "Installing"

1.2.3. 572619 Removing and installing striker pin - section on "Installing"

Note

Two persons are needed to install the door hinges!

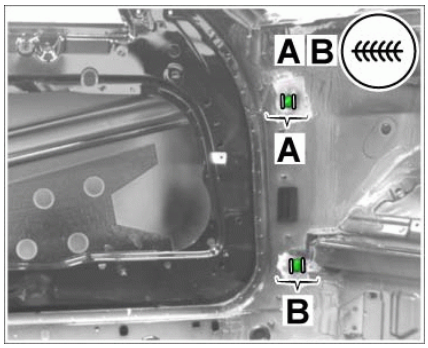
2. Fitting door to the body



Adjusting the door hinge

2.1. Fit the door to the body and adjust gaps between the door, wing and outer side member according to the adjustment values. *501000 IN Diagram - body gap dimensions - section on "Information"*

2.2. Fix the door in place.

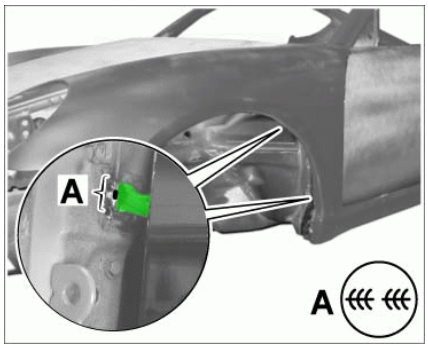


Welding in the door hinge

3. Welding in the door hinge

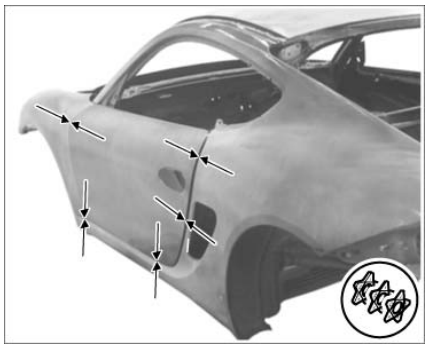
3.1. Apply a full weld to door hinge in areas **-A-** and **-B-** from the inside using inert gas.

4. Welding in the door hinge



Welding in the door hinge

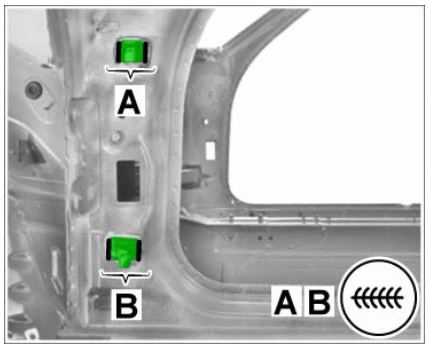
4.1. Secure the door hinge in area **-A-** by tack welding it using inert gas.



Adjusting the door hinge

4.2. Check position and gap dimensions of door and adjust them if necessary.

4.3. Lift the door and remove it.



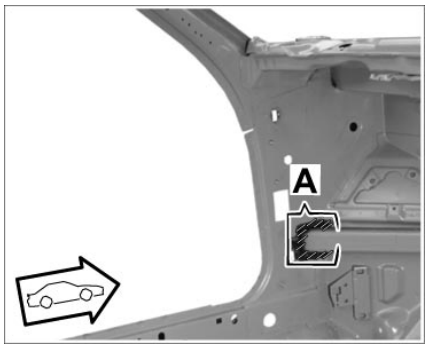
Welding in the door hinge

5. Welding in the door hinge

5.1. Apply a full weld to the door hinge in areas **-A-** and **-B-** using inert gas.

Note

After the required hardening time has elapsed, cut off excess expanded sealant to a height of more than 25 mm using a knife.



Applying expanded sealant

6. Applying expanded sealant

6.1. Seal inside of A-pillar in area **-A-** with AFS Vario . See: 5000IN Working with acoustic body foam 2K AFS Vario [997410 997411] 5000IN Working with acoustic body foam 2K AFS Vario [997430 997431] 5000IN Working with acoustic body foam 2K AFS Vario [997310 997311 997320 997321] 5000IN Working with acoustic body foam 2K AFS Vario [997110 997111 997120 997121] 5000IN Working with acoustic body foam 2K AFS Vario [997610 997611 997620 997621]

6.2. Apply expanded sealant using a spatula.

top of page

Subsequent work

Subsequent work for body repairs

1. Remove vehicle from the alignment bench.
2. Clean welded joints and sheetmetal flanges with a wire brush.
3. Prime flange areas with 2K primer.
4. Restore standard sealing with body sealant.
   5 Seam sealing
5. Restore standard undersealing with underbody sealant.
   5 Underbody protection
6. Paint repair area and adjacent surfaces, if necessary.
7. Install removed accessories in the repair area.
8. Apply cavity preservation.

997110, 997111, 997120, 997121, 997310, 997311, 997320, 997321, 997410, 997411, 997430, 997431, 997610, 997611, 997620, 997621

as of MY 2005
Country C00, C02, C05, C07, C08, C09, C10, C11, C12, C13, C14, C15, C16, C18, C19, C20, C21, C22, C23, C24, C25, C26, C27, C28, C32, C33, C34, C35, C36, C37, C38, C39, C45, C46, C98, C99

WARNUNG

Gefahr des Verlusts der Text-Bild-Zuordnung beim Ausdruck.

- **Aus technischen Gründen kann derzeit nicht ausgeschlossen werden, dass trotz einwandfreier Darstellung auf dem Bildschirm beim Ausdruck der Zusammenhang von Text und zugehörigem Bild verloren geht.**
- **Wird der Fehler nicht bemerkt, besteht die Gefahr, daß Arbeiten nicht korrekt durchgeführt werden und es dadurch zu Personen- und Sachschäden kommt.**

Vergleichen Sie deshalb nach dem Druckvorgang unbedingt die Ausdrucke mit der Bildschirmdarstellung. Korrigieren Sie die Ausdrucke im Fehlerfall so, daß der Inhalt der Bildschirmdarstellung zutreffend wiedergegeben wird.

WARNING

Danger of losing text-figure correspondence when printing out.

- **For technical reasons, it can currently not be ruled out that the correspondence between text and associated figure can be lost when it is printed out, even though the display on the screen is correct.**
- **If the fault is not noticed, there is the danger that work will not be performed correctly which can cause injury and damage.**

Therefore, always compare printouts with the screen display after printing them out. Correct the printouts if they are faulty so that the content of the screen display matches that on the printouts.

57 59 19 Removing and installing door latch snib - as of MY 2005

- Preliminary work
- Removing door latch snib
- Installing door latch snib
- Subsequent work

top of page

Preliminary work

Preliminary work

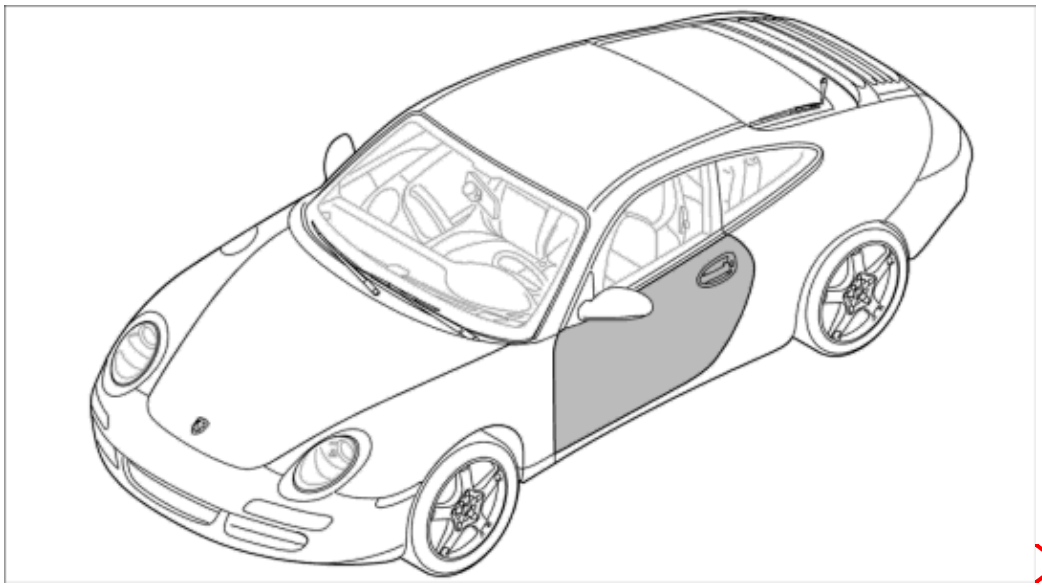
1. Remove loudspeaker for front door. 914119 Removing and installing loudspeakers for front doors - chapter on "removing"

top of page

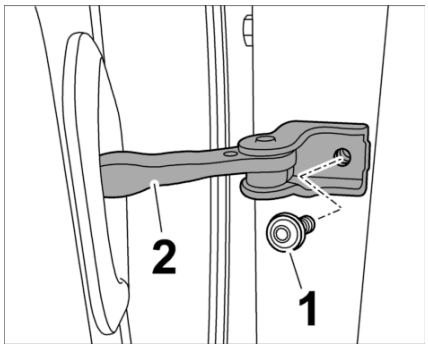
Removing door latch snib

Releasing door latch snib on body side

Installation Location:



Installation position of door latch snib

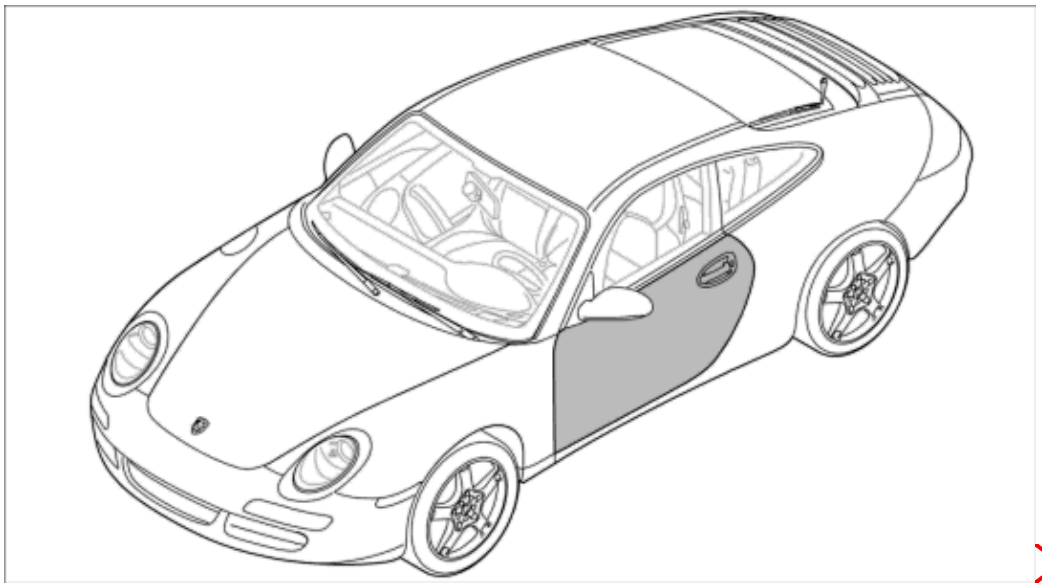


Releasing door latch snib on body side

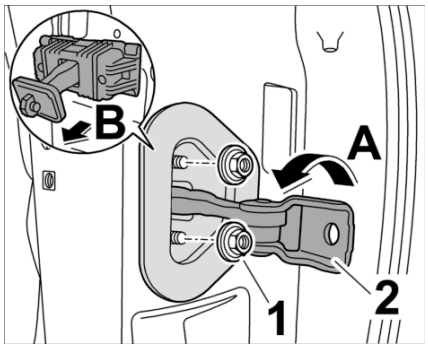
1. Unscrew fastening screw **-1-** on door latch snib **-2-** at the A-pillar.

Removing door latch snib

Installation Location:

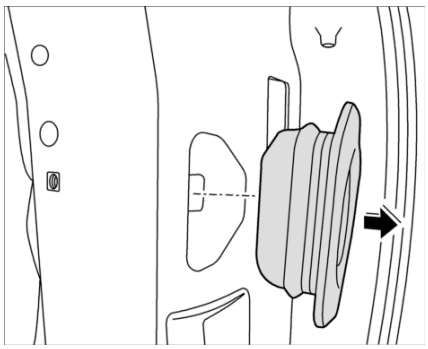


Installation position of door latch snib



Removing door latch snib

1. Unscrew fastening nuts **-1-** on the door latch snib **-2-** .
2. Swivel door latch snib **-2-** by 90° **-arrow A-** and pull it inwards **-arrow B-** .
3. Remove door latch snib **-2-** through opening for loudspeaker.



Removing the seal

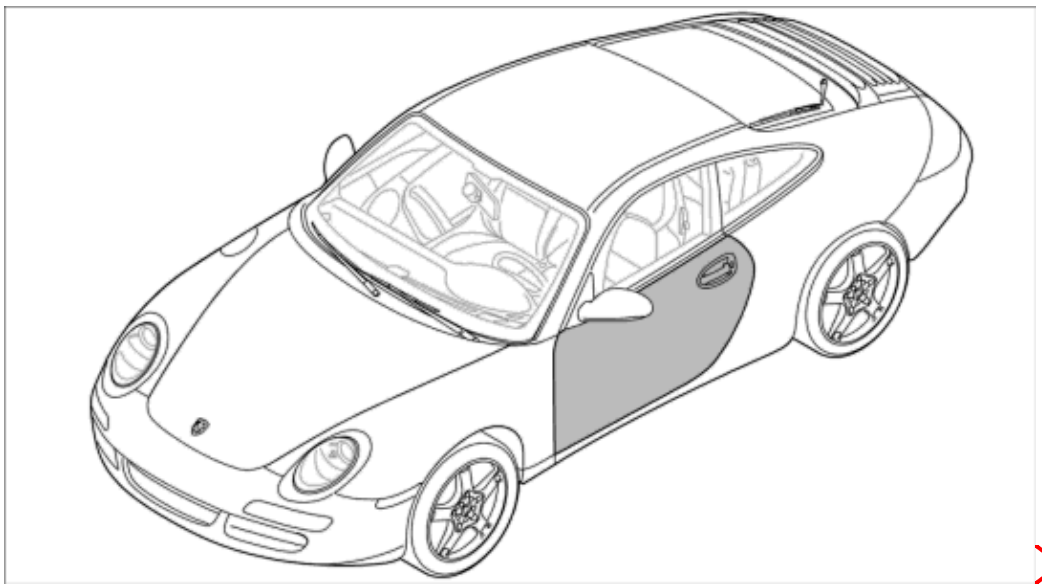
4. Remove the seal.

top of page

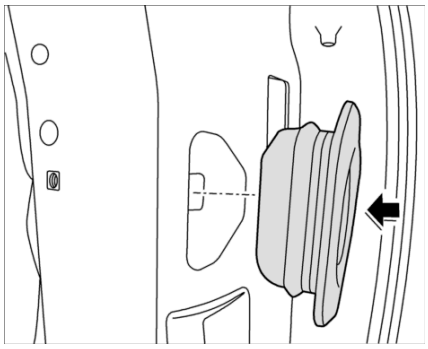
Installing door latch snib

Installing door latch snib

Installation Location:

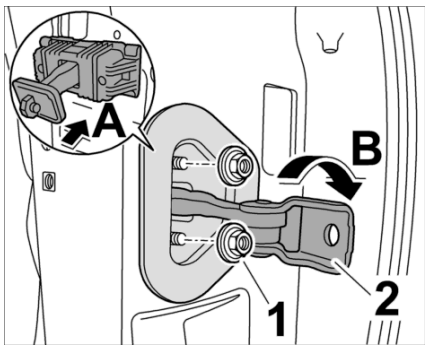


Installation position of door latch snib



Fitting the seal

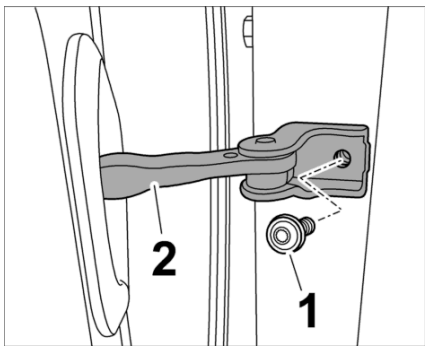
1. Position the seal.



Installing door latch snib

2. Insert door latch snib **-2-** through opening for loudspeaker from inside **-arrow A-** and swivel it by 90° **-arrow B-** .
3. Secure door latch snib **-2-** with the fastening nuts **-1-** . Tightening torque **Final tightening: 9.7 (7.2) Nm (ftlb.)**

Fastening door latch snib on body side



Releasing door latch snib on body side

1. Screw door latch snib **-2-** on to A-pillar using the fastening screw **-1-** . Tightening torque **Final tightening: 30 (22) Nm (ftlb.)**

top of page

Subsequent work

Subsequent work

1. Install loudspeaker for front door. 914119 Removing and installing loudspeakers for front doors - chapter on "installing"

997110, 997111, 997120, 997121, 997310, 997311, 997320, 997321, 997410, 997411, 997430, 997431, 997610, 997611, 997620, 997621

as of MY 2005
Country C00, C02, C05, C07, C08, C09, C10, C11, C12, C13, C14, C15, C16, C18, C19, C20, C21, C22, C23, C24, C25, C26, C27, C28, C32, C33, C34, C35, C36, C37, C38, C39, C45, C46, C98, C99

WARNUNG
Gefahr des Verlusts der Text-Bild-Zuordnung beim Ausdruck.

57 63 19 Removing and installing rubber seal for door - as of MY 2005

- Preliminary work
- Removing rubber seal for door
- Installing rubber seal for door
- Subsequent work

top of page

Preliminary work

Preliminary work

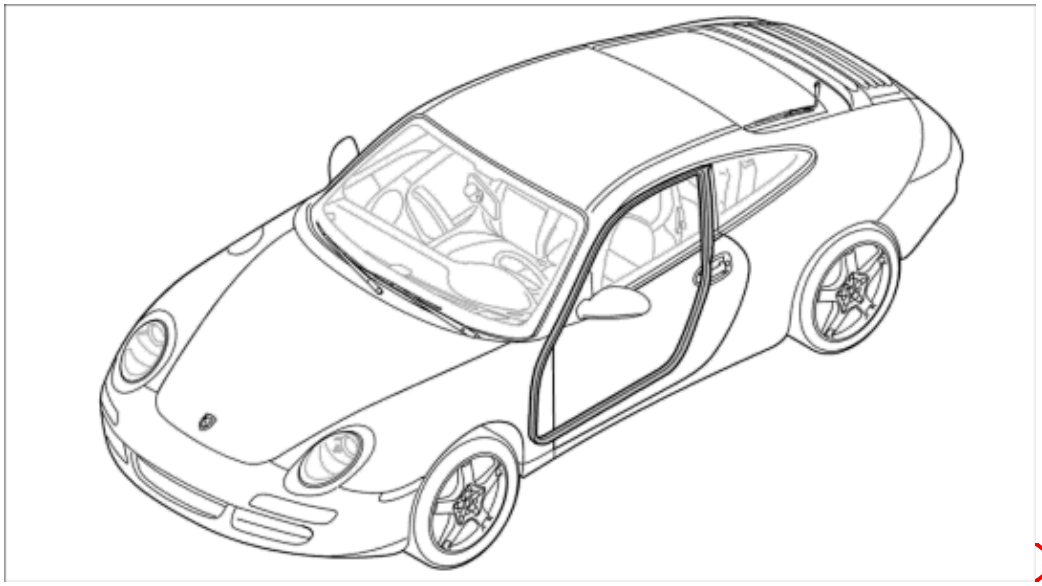
1. Remove inner sill. 680519 Removing and installing inner sill - removing

top of page

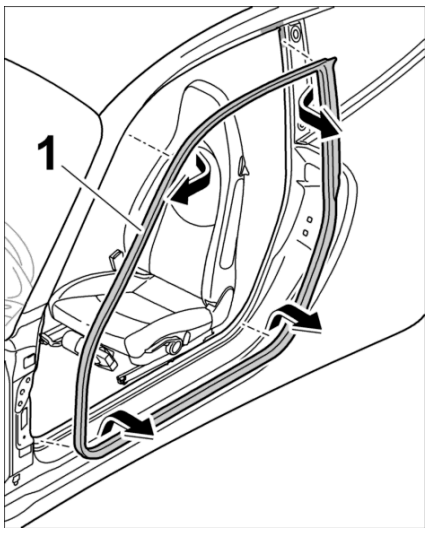
Removing rubber seal for door

Removing rubber seal for door

Installation Location:



Installation position of rubber seal for door



Removing rubber seal

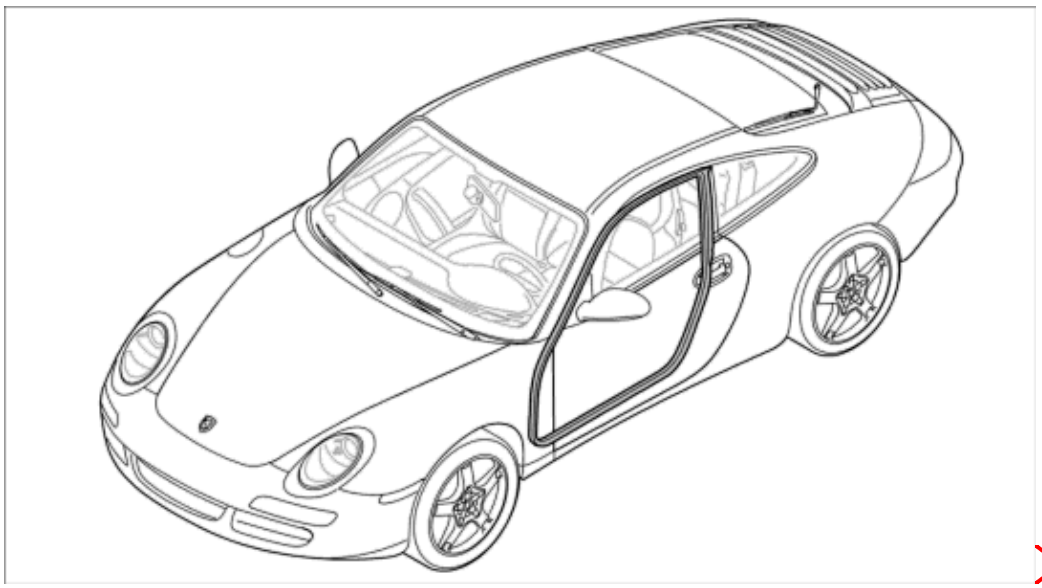
1. Remove rubber seal for door **-1-** from the circumference of the sheetmetal flange.

top of page

Installing rubber seal for door

Installing rubber seal for door

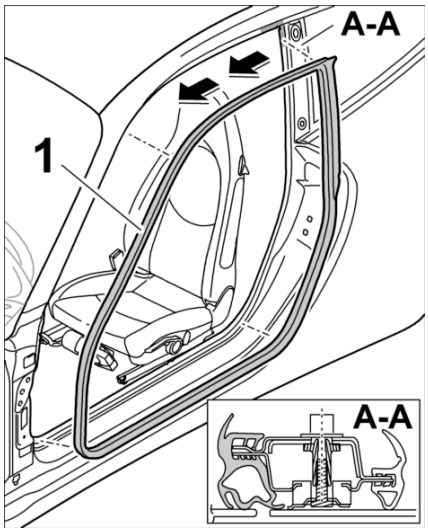
Installation Location:



Installation position of rubber seal for door

Note

- *The rubber seal for the door must be fitted by hand.*
- *Pay particular attention to the areas near the tight roundings for correct installation; there must be no deformation or stretching.*
- *Check the air vents; they must not be closed or covered.*



Installing rubber seal

1. Fit rubber seal for door **-1-** in upper area of B-pillar on the sheetmetal flange (**-section A-A-**) and attach in **-direction of arrow-** .

top of page

Subsequent work

Subsequent work

1. Install inner sill. 680519 Removing and installing inner sill - installing

---

997110, 997111, 997120, 997121, 997410, 997411, 997430, 997431

as of MY 2005
Country C00, C02, C05, C07, C08, C09, C10, C11, C12, C13, C14, C15, C16, C18, C19, C20, C21, C22, C23, C24, C25, C26, C27, C28, C32, C33, C34, C35, C36, C37, C38, C39, C45, C46, C98, C99

57 63 19 Removing and installing rubber seal for door - Cabriolet - as of MY 2005

- Preliminary work
- Removing rubber seal for door
- Installing rubber seal for door
- Subsequent work

top of page

Preliminary work

Preliminary work

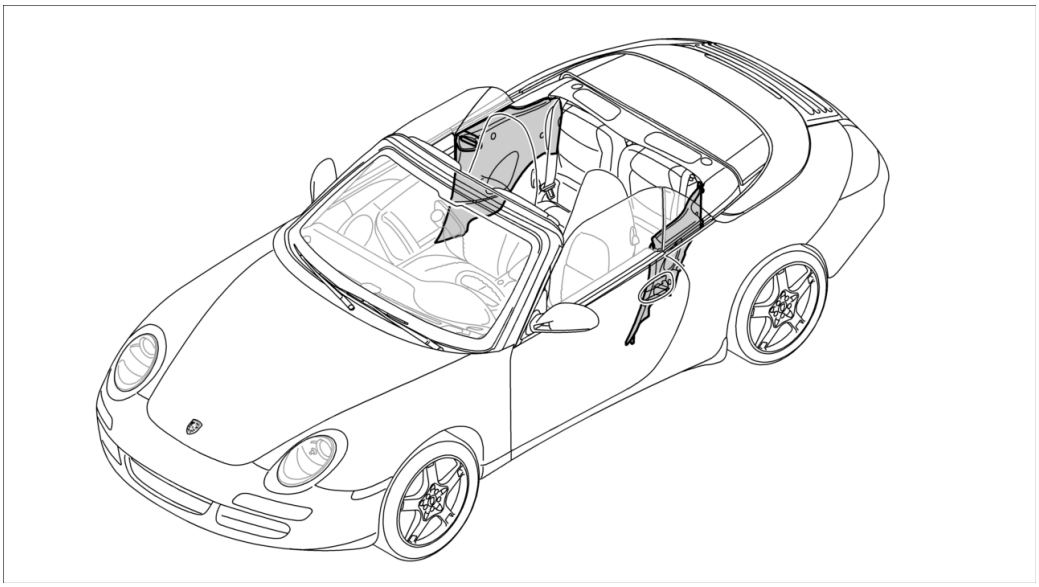
1. Remove A-pillar trim. 705719 Removing and installing A-pillar trim - chapter on "Removing"
2. Remove inner sill. 680519 Removing and installing inner sill - chapter on "Removing"

top of page

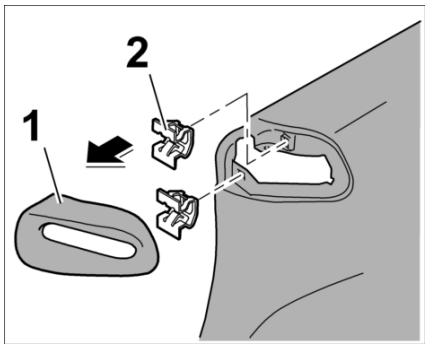
Removing rubber seal for door

Removing cover of three-point seat belt

Installation Location:



Installation position for side trim panel

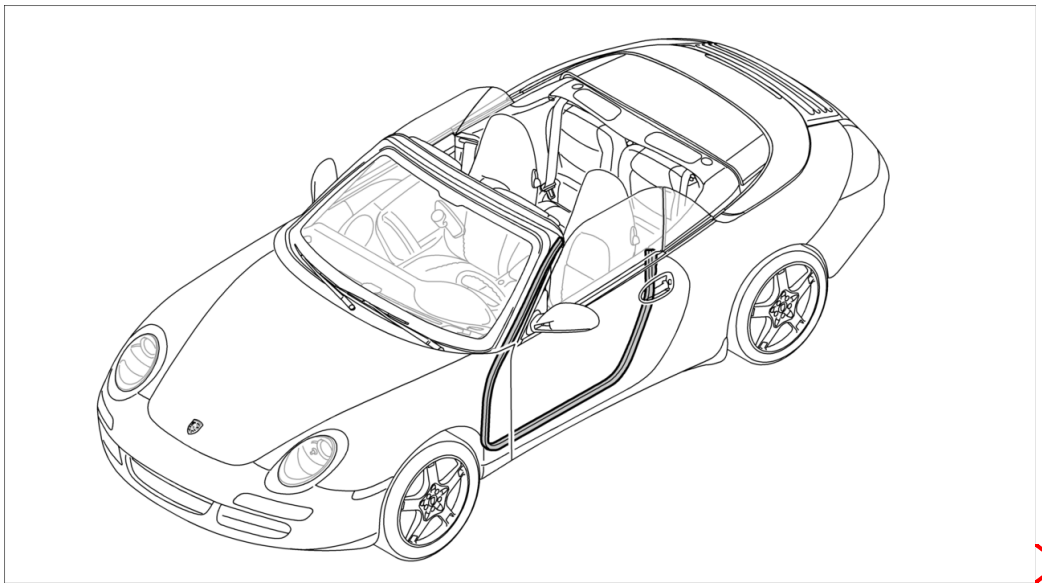


Removing cover of three-point seat belt

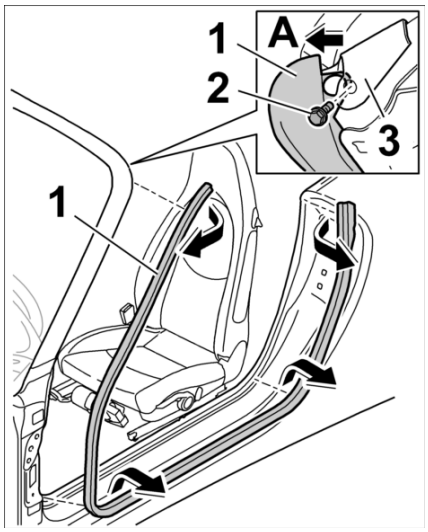
1. Pull cover of three-point seat belt **-1-** forwards out of the clips **-2-** .

Removing rubber seal for door

Installation Location:



Installation position of rubber seal for door



Removing rubber seal for door

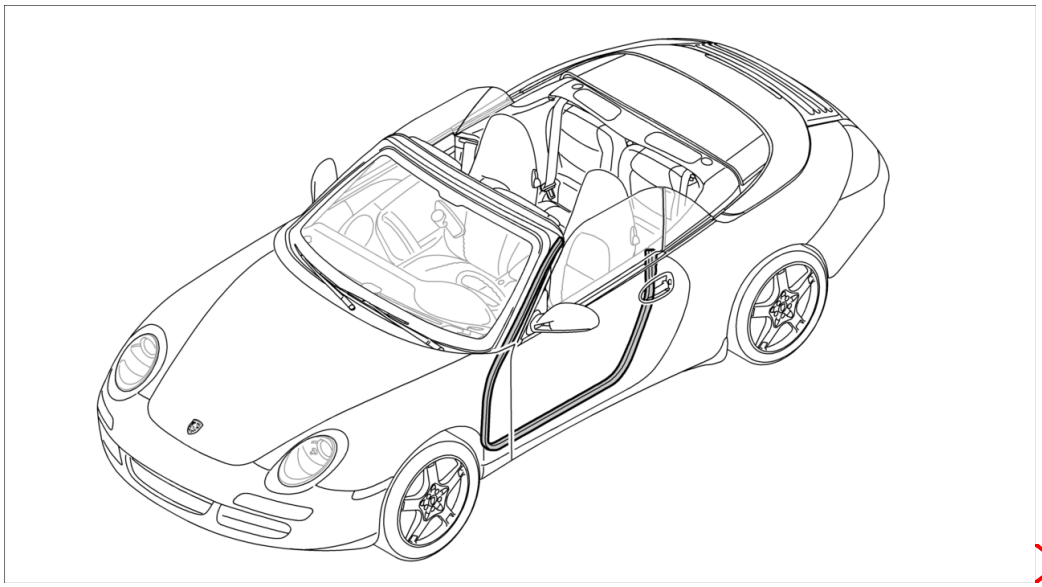
1. Unscrew fastening screw **-2-** and pull out rubber seal for door **-1-** under the cover strip **-3-** **-Arrow A-** .
2. Remove rubber seal for door **-1-** from around the sheetmetal flange.

top of page

Installing rubber seal for door

Installing rubber seal for door

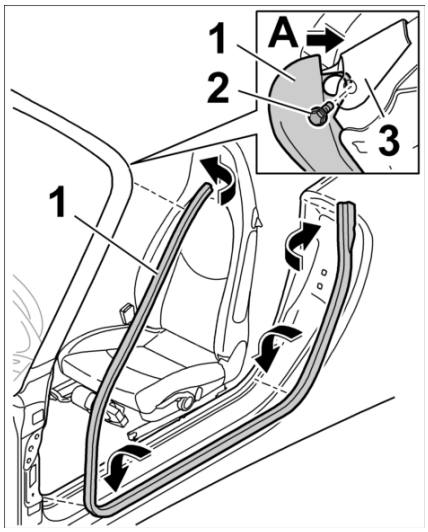
Installation Location:



Installation position of rubber seal for door

Note

- *The rubber seal for the door must be fitted by hand.*
- *Pay particular attention to the areas near the tight roundings for correct installation; there must be no deformation or stretching.*
- *Check the air vents; they must not be closed or covered.*

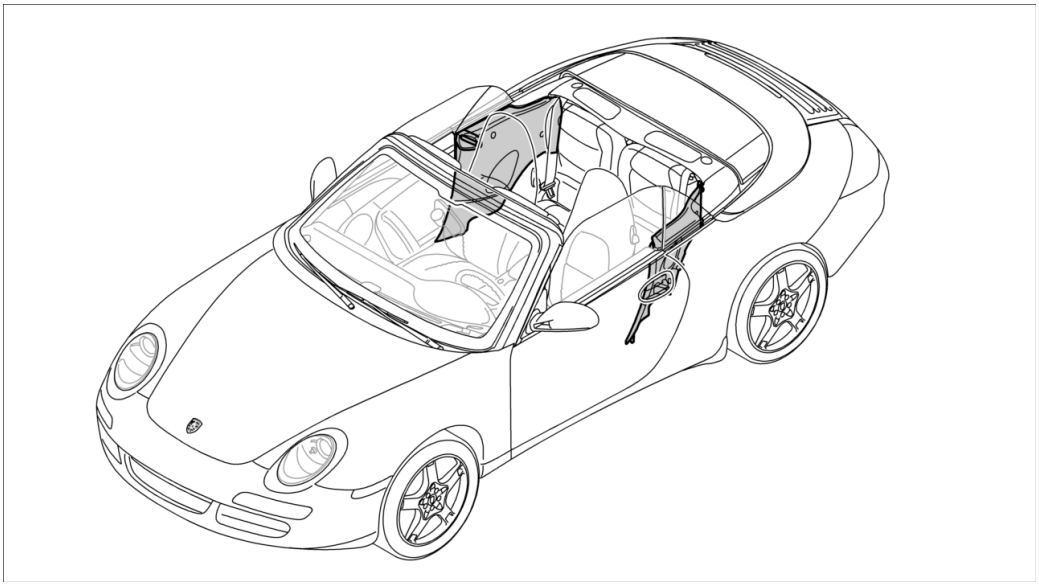


Installing rubber seal for door

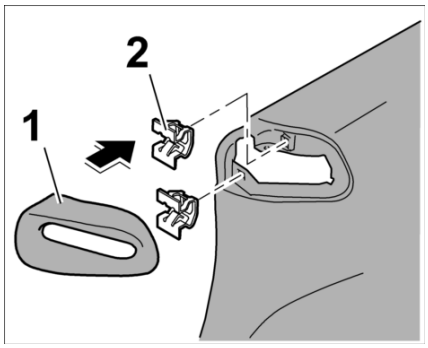
1. Push rubber seal for door **-1-** all around the sheetmetal flange.
2. Push rubber seal for door **-1-** under the cover strip **-3-** **-Arrow A-** and screw down with the fastening screw **-2-** . Tightening torque **Tightening torque : 6 (4.5 ftlb.) Nm**

Installing cover of three-point seat belt

Installation Location:



Installation position for side trim panel



Installing cover of three-point seat belt

1. Check clamps **-2-** for damage, replacing if necessary. Press in cover of three-point seat belt **-1-** into the clamps with the locking tabs until these audibly engage.

top of page

Subsequent work

Subsequent work

1. Install inner sill. 680519 Removing and installing inner sill - chapter on "Installing"
2. Install A-pillar trim. 705719 Removing and installing A-pillar trim - chapter on "Installing"

57 65 19 Removing and installing rubber seal for door - as of MY 2005

- Preliminary work
- Removing rubber seal for door
- Installing rubber seal for door
- Subsequent work

top of page

Preliminary work

Preliminary work

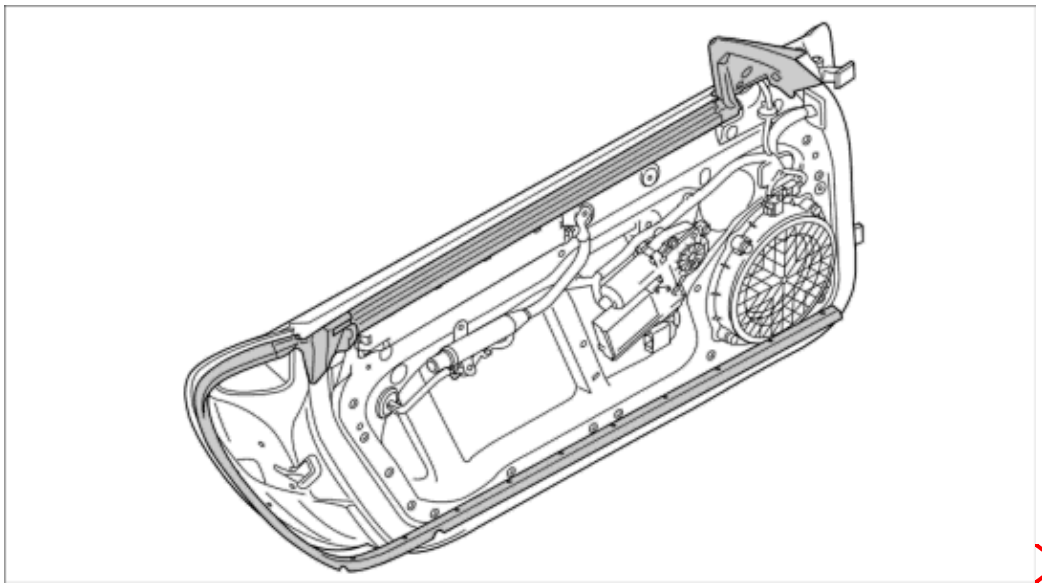
1. Remove door unit carrier. 573019 Removing and installing door unit carrier - chapter on "removing"
2. Remove rear-view mirror. 668919 Removing and installing rear-view mirror - chapter on "removing"

top of page

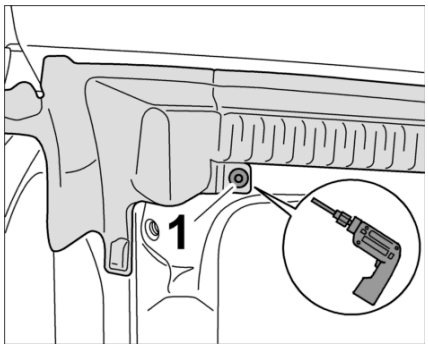
Removing rubber seal for door

Removing rubber seal for door

Installation Location:

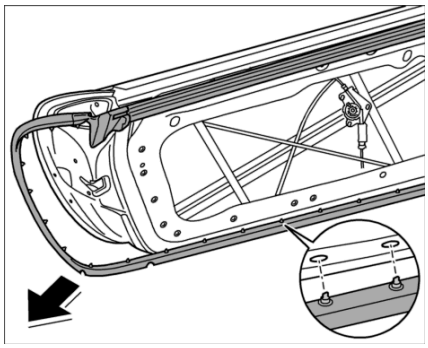


Installation position of rubber seal for door



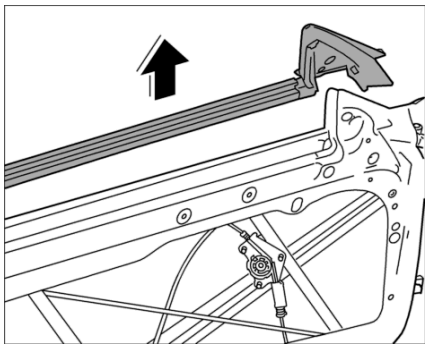
Boring out tubular rivet

1. Bore out tubular rivet **-1-** .



Unclipping rubber seal

2. Carefully pull the rubber seal out of the clips along the door contour.



Pulling off rubber seal

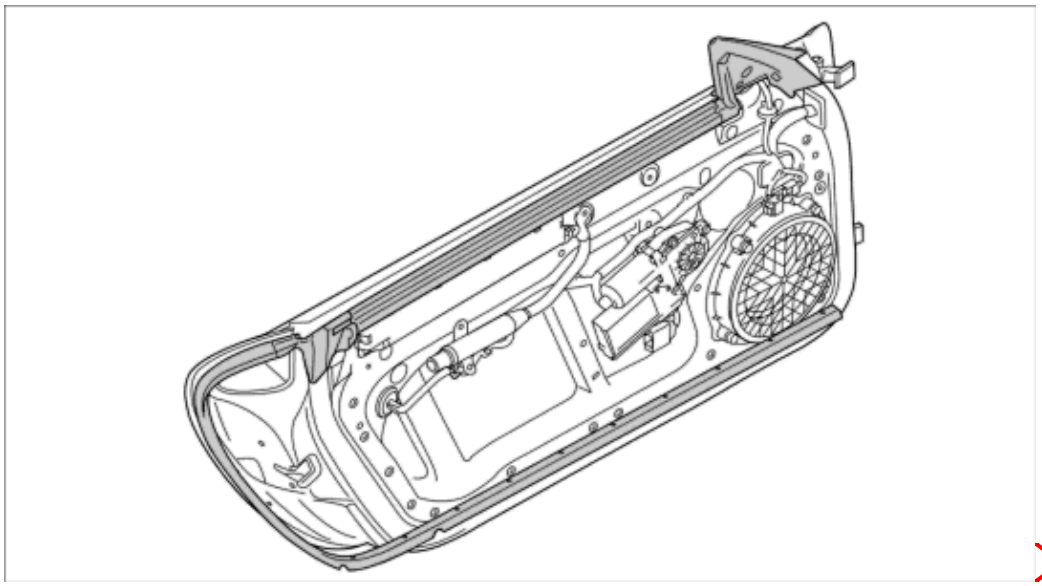
3. Pull the rubber seal off the bead of the door channel.

top of page

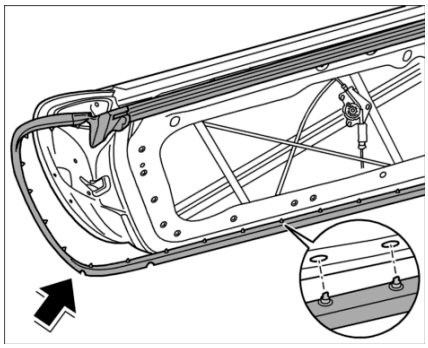
Installing rubber seal for door

Installing rubber seal for door

Installation Location:



Installation position of rubber seal for door

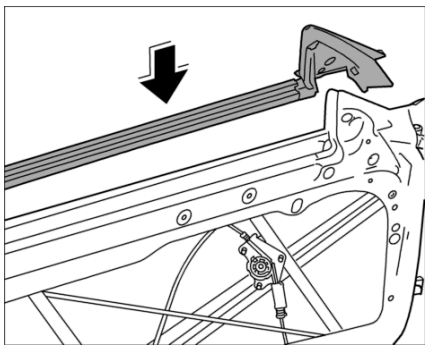


Pressing in rubber seal

Note

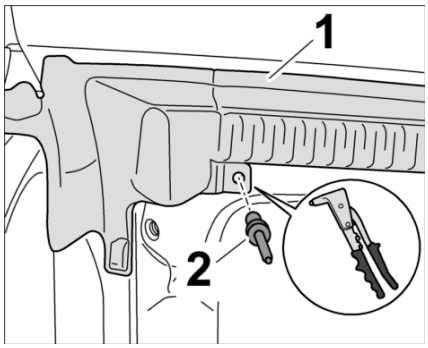
- *Pay attention to correct assembly (water drain).*

1. Position the rubber seal in the bead of the door channel and press it on.



Clipping in rubber seal

2. Position rubber seal at the top edge of the door and push it on.
3. Clip in the rubber seal along the door contour.



Fasten rubber seal.

4. Fasten rubber seal **-1-** with the tubular rivet **-2-** .

top of page

Subsequent work

Subsequent work

1. Install rear-view mirror. 668919 Removing and installing rear-view mirror - chapter on "installing"
2. Install door unit carrier. 573019 Removing and installing door unit carrier - chapter on "installing"

997110, 997111, 997120, 997121, 997310, 997311, 997320, 997321, 997410, 997411, 997430, 997431, 997610, 997611, 997620, 997621

as of MY 2005
Country C00, C02, C05, C07, C08, C09, C10, C11, C12, C13, C14, C15, C16, C18, C19, C20, C21, C22, C23, C24, C25, C26, C27, C28, C32, C33, C34, C35, C36, C37, C38, C39, C45, C46, C98, C99

WARNUNG

Gefahr des Verlusts der Text-Bild-Zuordnung beim Ausdruck.

- **Aus technischen Gründen kann derzeit nicht ausgeschlossen werden, dass trotz einwandfreier Darstellung auf dem Bildschirm beim Ausdruck der Zusammenhang von Text und zugehörigem Bild verloren geht.**
- **Wird der Fehler nicht bemerkt, besteht die Gefahr, daß Arbeiten nicht korrekt durchgeführt werden und es dadurch zu Personen- und Sachschäden kommt.**

Vergleichen Sie deshalb nach dem Druckvorgang unbedingt die Ausdrucke mit der Bildschirmdarstellung. Korrigieren Sie die Ausdrucke im Fehlerfall so, daß der Inhalt der Bildschirmdarstellung zutreffend wiedergegeben wird.

WARNING

Danger of losing text-figure correspondence when printing out.

- **For technical reasons, it can currently not be ruled out that the correspondence between text and associated figure can be lost when it is printed out, even though the display on the screen is correct.**
- **If the fault is not noticed, there is the danger that work will not be performed correctly which can cause injury and damage.**

Therefore, always compare printouts with the screen display after printing them out. Correct the printouts if they are faulty so that the content of the screen display matches that on the printouts.

AVERTISSEMENT

57 78 19 Removing and installing central locking switch - as of MY 2005

- Removing central locking switch
- Installing central locking switch

top of page

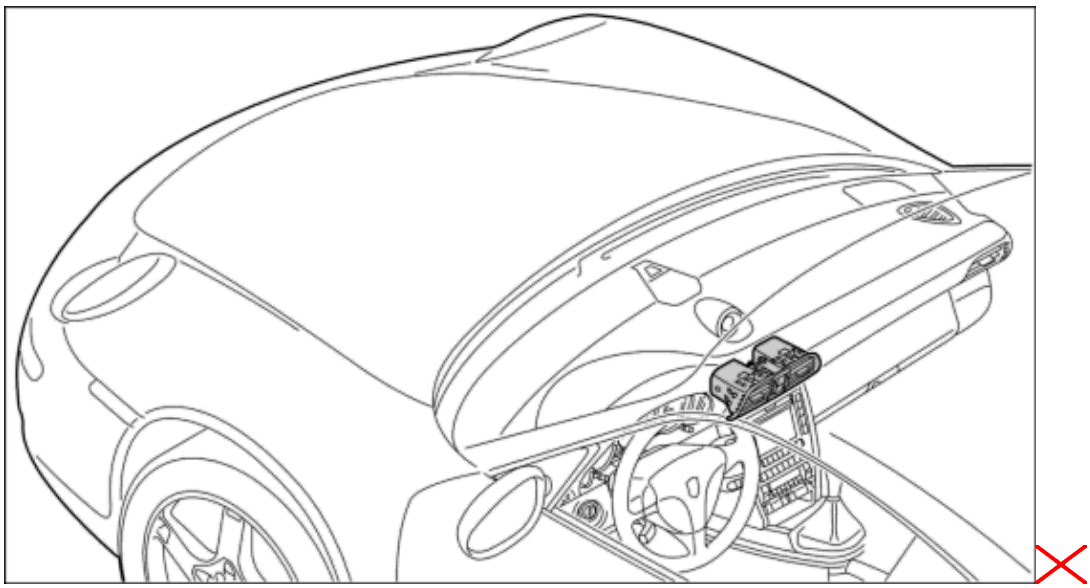
Removing central locking switch

Removing central locking switch

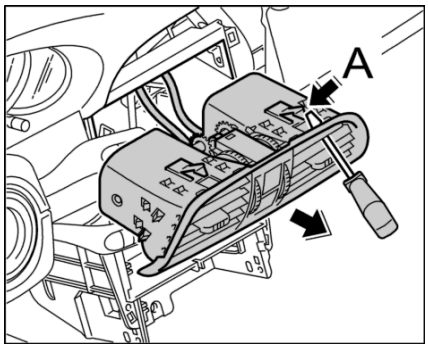
Note

The central locking switch is located in the centre air vent.

Installation Location:

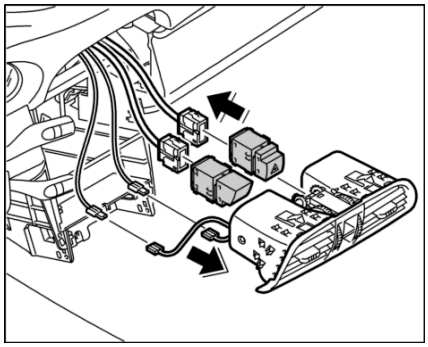


Overview of switch for central locking



Releasing the air vent

1. With a screwdriver through the top air slot, release the left and right retaining clip **-A-** and pull the air vent out of the dashboard.



Electrical connectors

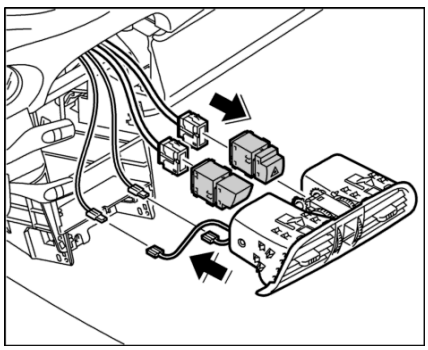
2. Pull apart the electrical plug connections and remove the air vent.
3. Unclip and take off central locking switch from the air vent.

top of page

Installing central locking switch

Installing central locking switch

1. Position central locking switch and push it into the air vent.



Electrical connectors

2. Push together the electrical plug connections.
3. Observe the line routing and insert the air vent into the dashboard until it clicks into place.
4. Check function of air vent illumination, the air vent adjustment, the hazard warning light switch, and the central locking switch.

997110, 997111, 997120, 997121, 997310, 997311, 997320, 997321, 997410, 997411, 997430, 997431, 997610, 997611, 997620, 997621

as of MY 2005
Country C00, C02, C05, C07, C08, C09, C10, C11, C12, C13, C14, C15, C16, C18, C19, C20, C21, C22, C23, C24, C25, C26, C27, C28, C32, C33, C34, C35, C36, C37, C38, C39, C45, C46, C98, C99

WARNUNG

Gefahr des Verlusts der Text-Bild-Zuordnung beim Ausdruck.

- **Aus technischen Gründen kann derzeit nicht ausgeschlossen werden, dass trotz einwandfreier Darstellung auf dem Bildschirm beim Ausdruck der Zusammenhang von Text und zugehörigem Bild verloren geht.**
- **Wird der Fehler nicht bemerkt, besteht die Gefahr, daß Arbeiten nicht korrekt durchgeführt werden und es dadurch zu Personen- und Sachschäden kommt.**

Vergleichen Sie deshalb nach dem Druckvorgang unbedingt die Ausdrucke mit der Bildschirmdarstellung. Korrigieren Sie die Ausdrucke im Fehlerfall so, daß der Inhalt der Bildschirmdarstellung zutreffend wiedergegeben wird.

WARNING

Danger of losing text-figure correspondence when printing out.

- **For technical reasons, it can currently not be ruled out that the correspondence between text and associated figure can be lost when it is printed out, even though the display on the screen is correct.**
- **If the fault is not noticed, there is the danger that work will not be performed correctly which can cause injury and damage.**

Therefore, always compare printouts with the screen display after printing them out. Correct the printouts if they are faulty so that the content of the screen display matches that on the printouts.

AVERTISSEMENT

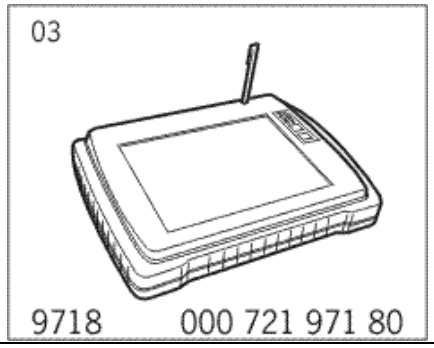
Risque de perte de la correspondance texte-illustration lors de l'impression papier.

- **Pour des raisons techniques, il ne peut pas être exclu à l'heure actuelle que, même en cas d'affichage correct à l'écran, la correspondance entre le texte et l'illustration puisse être erronée sur l'impression papier.**
- **Si l'erreur passe inaperçue, on court le risque d'exécuter certaines opérations de manière incorrecte pouvant conduire à des dommages corporels et matériels.**

57 89 19 Removing and installing control unit for rear convenience systems - as of MY 2005

- Preliminary work
- General warning notes
- Removing control unit for rear convenience systems
- Installing control unit for rear convenience systems
- Subsequent work
- Programming control unit for rear convenience systems
- Coding control unit for rear convenience systems

Tools

Designation	Type	Number	Explanation	
PIWIS tester	special tool	9718		

top of page

Preliminary work

Preparing control unit for comfort system rear

21 Removing and installing front seat - removing

top of page

General warning notes

General warnings for rear convenience systems control unit

WARNING

Risk of damage and injury!

- **If care is not taken, electrical and electronic components may br destroyed.**

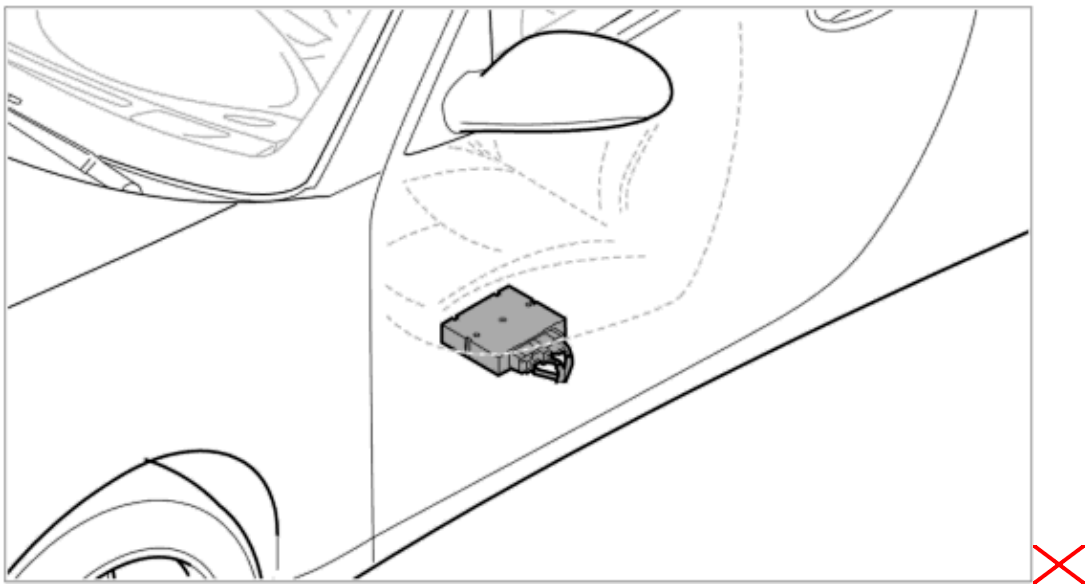
Before removing the control unit for rear convenience systems, switch off the ignition and remove the ignition key.

top of page

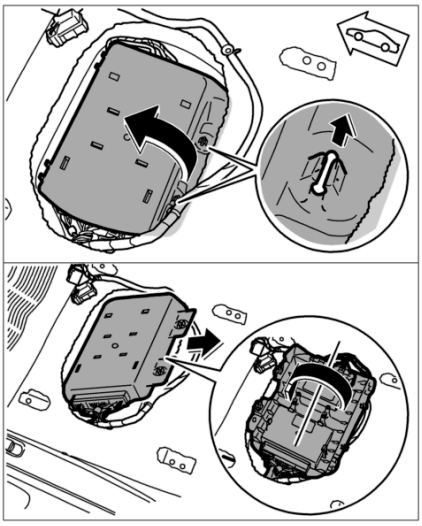
Removing control unit for rear convenience systems

Removing control unit for rear convenience systems

Installation Location:



Installation position



Unclipping holder of control unit

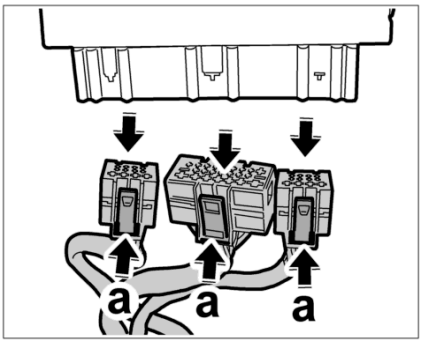
1. Push holder of control unit forwards in direction of travel from behind, unclip, detach and turn it through 180°.

WARNING

Risk of damage and injury!

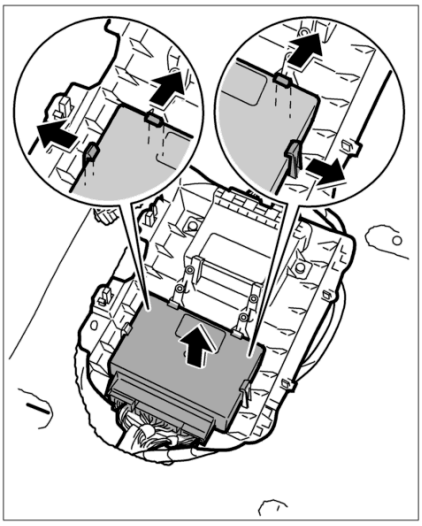
- **If care is not taken, electrical and electronic components may br destroyed.**

Before removing the control unit for rear convenience systems, switch off the ignition and remove the ignition key.



Pulling off electric connectors

2. Release the three electrical plugs **-a-** and pull them away from the control unit.



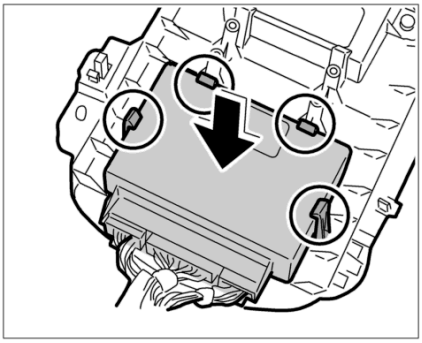
Disengaging control unit

3. Press the four retaining clips carefully back and take the control unit out of the holder.
4. Take out the control unit.

top of page

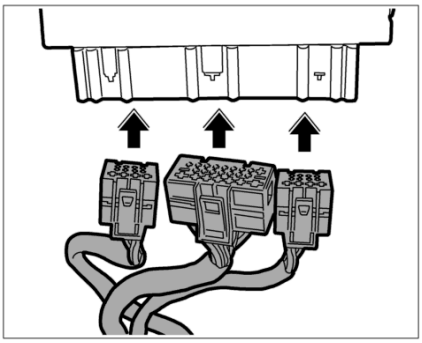
Installing control unit for rear convenience systems

Installing control unit for rear convenience systems



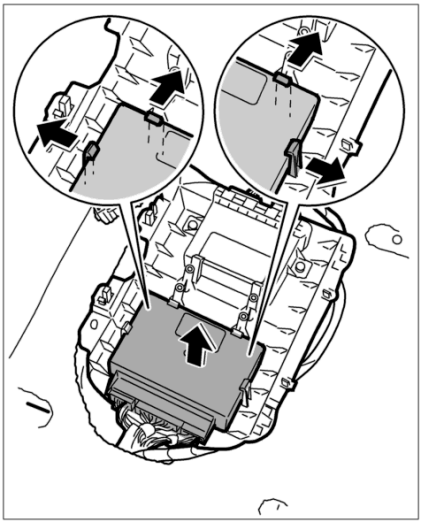
Clipping control unit into holder

1. Insert control unit into holder making sure the clips engage.



Pushing on electric connectors

2. Press electric connectors into control unit until they are felt to engage.



Clipping in holder for control unit

3. Turn the holder through 180° into the direction of travel, engage at front and clip in at rear.
4. If a new control unit has been installed, continue under 578919 Removing and installing control unit for rear convenience systems - section on "Programming"; 578919 Removing and installing control unit for rear convenience systems - section on "Coding"

top of page

Subsequent work

Subsequent work on control unit for rear convenience comfort systems

23 Removing and installing front seat - installing

top of page

Programming control unit for rear convenience systems

Reading from and writing to the rear convenience system control unit

WARNING

Sudden voltage interruption of the power supply to the control module.

- **Destruction of the control module.**

During programming, it is essential to guarantee the power supply for the Porsche System tester. It is essential to connect a battery charger with a current rating of at least 40 A to the vehicle battery.

Prior to disconnecting the control module, switch off the ignition and remove the ignition key.

Note

The **PIWIS tester 9718** instructions take precedence and in the event of a discrepancy these are the instructions that must be followed. Deviations may occur with later software versions.
The procedure described here has been structured in general terms; different text or additions may appear in the **PIWIS tester 9718**.

1. Connect the Porsche System Tester to the vehicle and start the System Tester. Switch on ignition. >> Continue.
2. Select the vehicle type.
3. Switch from the vehicle type to the list of control units.
4. Select **Rear** with the cursor keys and press the >> key.
5. Select **Control unit replacement** with the cursor keys and press the >> key.
6. Select **Read out values** (codings) with the cursor keys and press >> .
7. The message **Codes successfully read out** appears on the screen of the Porsche System Tester. Press >> .
8. Switch off ignition and replace control unit *21 Removing and installing control unit for rear convenience systems - removing*
9. Switch to the **Special functions** menu and perform **vehicle handover** by pressing F8 .
10. Erase **all fault memories** in the **Special functions** menu and press >> .
11. Carry out automatic search of control units.
12. Switch to the **Write in data** menu and press >> to load the data that was read out.
13. System Tester displays **Coding write-in complete** >> .
14. Change to the **Coding** menu and compare the coding with the vehicle equipment. Recode if necessary.
15. Exit the menu, carry out a test drive and read out the fault memory.

top of page

Coding control unit for rear convenience systems

Coding the control unit for rear convenience systems

WARNING
Sudden voltage interruption of the power supply to the control module.

- **Destruction of the control module.**

During programming, it is essential to guarantee the power supply for the Porsche System tester. It is essential to connect a battery charger with a current rating of at least 40 A to the vehicle battery.

Prior to disconnecting the control module, switch off the ignition and remove the ignition key.

Note
The **PIWIS tester 9718** instructions take precedence and in the event of a discrepancy these are the instructions that must be followed. Deviations may occur with later software versions.
The procedure described here has been structured in general terms; different text or additions may appear in the **PIWIS tester 9718**.

Note
The procedure described must be applied when a control unit has to be replaced and the tester function **Control unit replacement** cannot be used.

1. Connect the **PIWIS tester 9718** to the vehicle and start it. Switch on the ignition. >> Continue.
2. Select the **vehicle type**.
3. Switch to the **Special functions** menu and perform **vehicle handover** by pressing F8 .
4. Erase **all fault memories** in the **Special functions** menu and press >> .
5. Carry out automatic search of control units.
6. Using the >> key, move from the vehicle type to the list of control units.
7. Select **Rear end** and press the >> .
8. Select **Coding** and press the >> .
9. Select **Automatic transmission** and code with F8 .

Automatic transmission

Installed
Not installed

10. Select **Vehicle type** and code with F8 .

Vehicle type
Boxster (987)
911 (997)

11. Select **Rear wiper** and code with F8 .

Rear wiper
Installed
Not installed

12. Select **Targa roof** and code with F8 .

Targa roof
Installed
Not installed

13. Select **Convertible top** and code with F8 .

Convertible Top
Installed
Not installed

14. Select **Steel tilt/slide sunroof** and code with F8 .

Steel tilt/slide sunroof
Installed
Not installed

15. Select **Spoiler function** and code with F8 .

Spoiler function
No
Yes

16. Select **Country coding** and code with F8 .

Country coding
GB/Netherlands/Malta/Cyprus
USA/Mexico/Canada
Australia/New Zealand/Brazil
Belgium
RoW

17. Take a test drive, read out the fault memory and erase it if necessary.
18. Rear control unit is now taught.

997110, 997111, 997120, 997121, 997310, 997311, 997320, 997321, 997410, 997411, 997430, 997431, 997610, 997611, 997620, 997621

as of MY 2005
Country C00, C02, C05, C07, C08, C09, C10, C11, C12, C13, C14, C15, C16, C18, C19, C20, C21, C22, C23, C24, C25, C26, C27, C28, C32, C33, C34, C35, C36, C37, C38, C39, C45, C46, C98, C99

WARNUNG

Gefahr des Verlusts der Text-Bild-Zuordnung beim Ausdruck.

- **Aus technischen Gründen kann derzeit nicht ausgeschlossen werden, dass trotz einwandfreier Darstellung auf dem Bildschirm beim Ausdruck der Zusammenhang von Text und zugehörigem Bild verloren geht.**
- **Wird der Fehler nicht bemerkt, besteht die Gefahr, daß Arbeiten nicht korrekt durchgeführt werden und es dadurch zu Personen- und Sachschäden kommt.**

Vergleichen Sie deshalb nach dem Druckvorgang unbedingt die Ausdrucke mit der Bildschirmdarstellung. Korrigieren Sie die Ausdrucke im Fehlerfall so, daß der Inhalt der Bildschirmdarstellung zutreffend wiedergegeben wird.

WARNING

Danger of losing text-figure correspondence when printing out.

- **For technical reasons, it can currently not be ruled out that the correspondence between text and associated figure can be lost when it is printed out, even though the display on the screen is correct.**
- **If the fault is not noticed, there is the danger that work will not be performed correctly which can cause injury and damage.**

Therefore, always compare printouts with the screen display after printing them out. Correct the printouts if they are faulty so that the content of the screen display matches that on the printouts.

60 12 19 Removing and installing switch for sliding roof - as of MY 2005

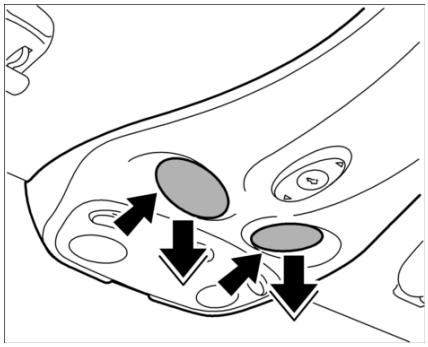
- Removing switch for sliding roof
- Installing switch for sliding roof

top of page

Removing switch for sliding roof

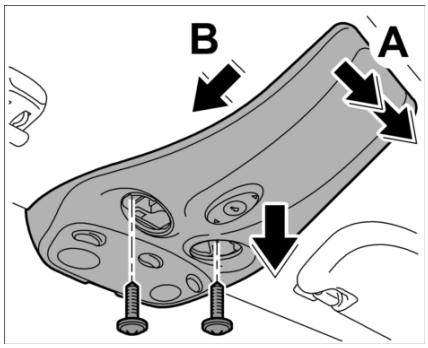
Removing cover for motor for sliding roof

1. Switch off ignition and remove ignition key.



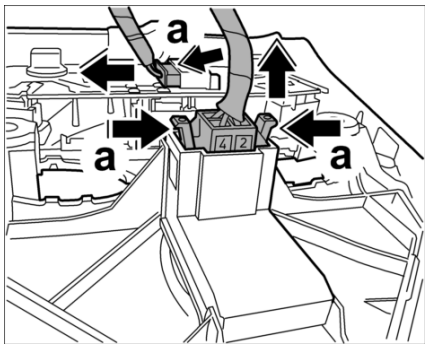
Unclipping cover for fastening screws

2. Using a small screwdriver, carefully unclip and remove the cover for the fastening screws at the openings **-arrows-** provided.



Unclipping cover for motor for sliding roof

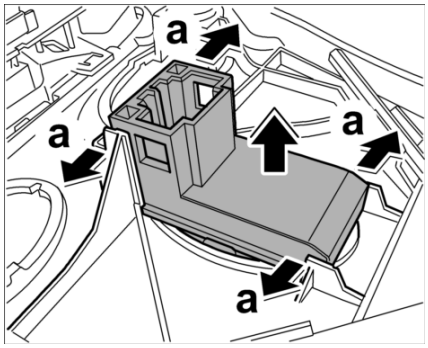
3. Unscrew the two fastening screws.
4. Unclip cover for motor for sliding roof at the rear to the left and right **-arrows A-** and push it out to the front towards the windscreen **-arrow B-** .



Removing connectors at sliding roof switch and interior light

5. Release connecters at sliding roof switch and at the interior light **-arrows a-** and remove them. Remove cover for motor for sliding roof.

Removing switch for sliding roof



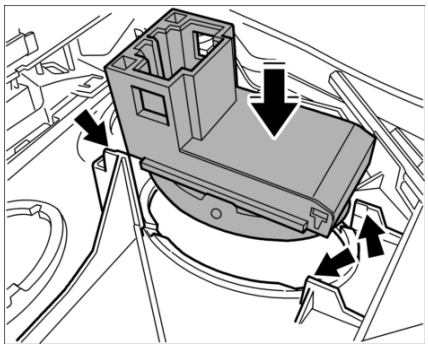
Removing switch for sliding roof

1. Release the four locking tabs on the cover of the motor for sliding roof **-arrows a-** and remove the switch for sliding roof.

top of page

Installing switch for sliding roof

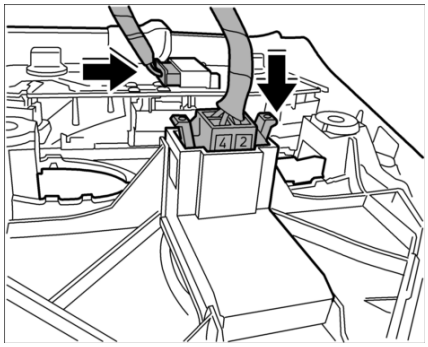
Installing switch for sliding roof



Installing switch for sliding roof

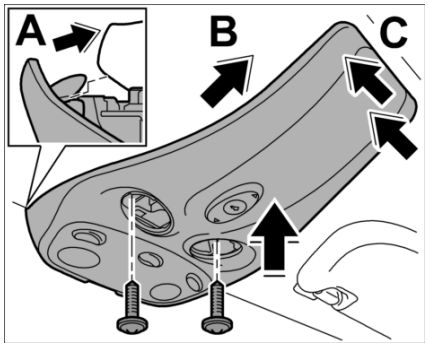
1. Press switch for sliding roof into the cover of the motor for sliding roof until the four locking tabs **-arrows-** are felt to engage.

Installing cover for sunroof motor



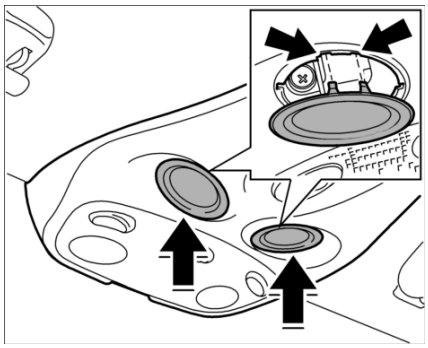
Plugging in connectors on interior light and sunroof switch

1. Position cover for sunroof motor. Plug in the connectors on the interior light and the sunroof switch until they are felt to engage.



Clipping in cover of sunroof motor

2. Using the clips, engage cover for sunroof motor on roof frame **-arrow A-** , push back towards sunroof **-arrow B-** and clip in at the rear to the left and right **-arrows C-** .



Clipping in cover for fastening screws

3. Insert cover of fastening screws into the mounts on the sunroof motor cover **-arrows-** and clip it in.
4. Switch on ignition and check that sunroof switch and interior light are working.

997110, 997111, 997120, 997121, 997410, 997411, 997430, 997431

as of MY 2005
Country C00, C02, C05, C07, C08, C09, C10, C11, C12, C13, C14, C15, C16, C18, C19, C20, C21, C22, C23, C24, C25, C26, C27, C28, C32, C33, C34, C35, C36, C37, C38, C39, C45, C46, C98, C99

WARNUNG

Gefahr des Verlusts der Text-Bild-Zuordnung beim Ausdruck.

- **Aus technischen Gründen kann derzeit nicht ausgeschlossen werden, dass trotz einwandfreier Darstellung auf dem Bildschirm beim Ausdruck der Zusammenhang von Text und zugehörigem Bild verloren geht.**
- **Wird der Fehler nicht bemerkt, besteht die Gefahr, daß Arbeiten nicht korrekt durchgeführt werden und es dadurch zu Personen- und Sachschäden kommt.**

Vergleichen Sie deshalb nach dem Druckvorgang unbedingt die Ausdrucke mit der Bildschirmdarstellung. Korrigieren Sie die Ausdrucke im Fehlerfall so, daß der Inhalt der Bildschirmdarstellung zutreffend wiedergegeben wird.

WARNING

Danger of losing text-figure correspondence when printing out.

- **For technical reasons, it can currently not be ruled out that the correspondence between text and associated figure can be lost when it is printed out, even though the display on the screen is correct.**
- **If the fault is not noticed, there is the danger that work will not be performed correctly which can cause injury and damage.**

Therefore, always compare printouts with the screen display after printing them out. Correct the printouts if they are faulty so that the content of the screen display matches that on the printouts.

60 14 19 Removing and installing motor for sliding roof - as of MY 2005

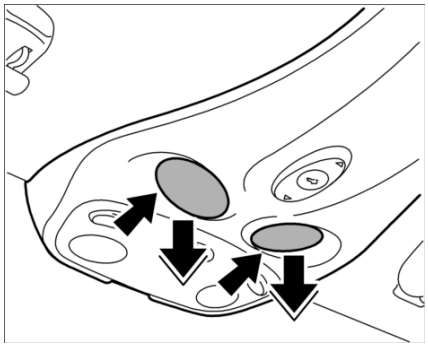
- Removing motor for sliding roof
- Installing motor for sliding roof
- Information

top of page

Removing motor for sliding roof

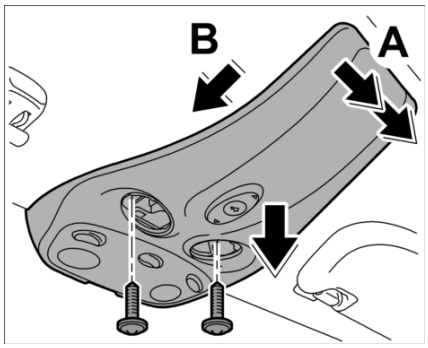
Removing cover for motor for sliding roof

1. Switch off ignition and remove ignition key.



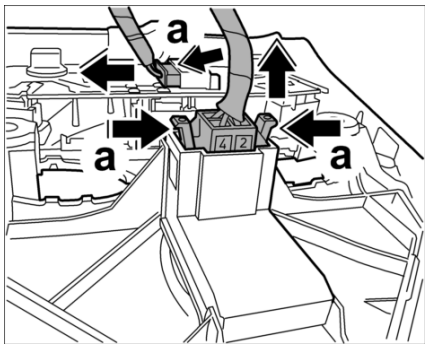
Unclipping cover for fastening screws

2. Using a small screwdriver, carefully unclip and remove the cover for the fastening screws at the openings **-arrows-** provided.



Unclipping cover for motor for sliding roof

3. Unscrew the two fastening screws.
4. Unclip cover for motor for sliding roof at the rear to the left and right **-arrows A-** and push it out to the front towards the windscreen **-arrow B-** .

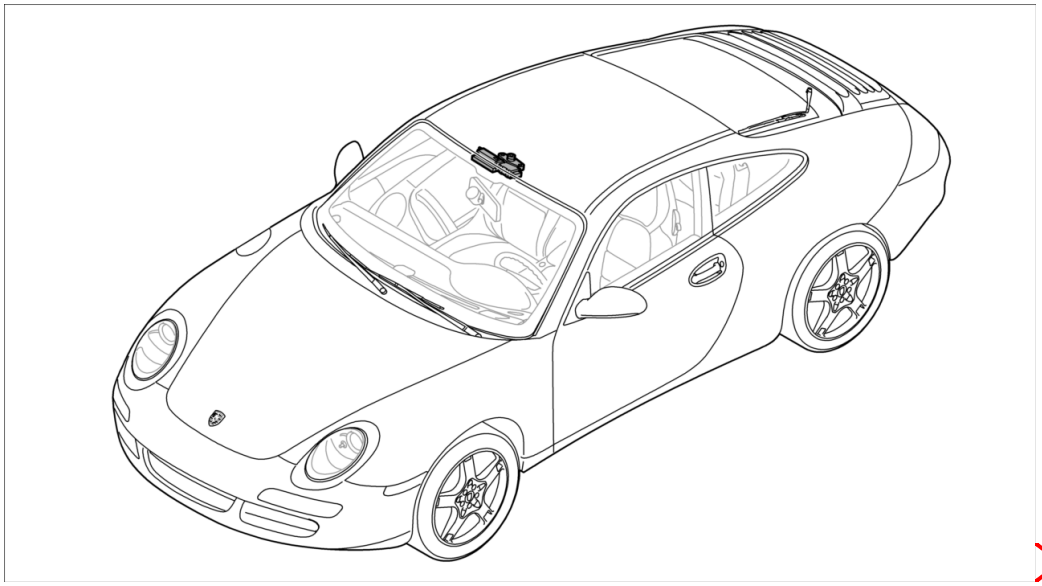


Removing connectors at sliding roof switch and interior light

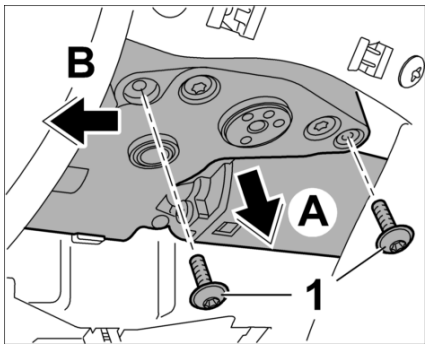
5. Release connecters at sliding roof switch and at the interior light **-arrows a-** and remove them. Remove cover for motor for sliding roof.

Removing motor for sunroof

Installation Location:



Overview of motor for sunroof

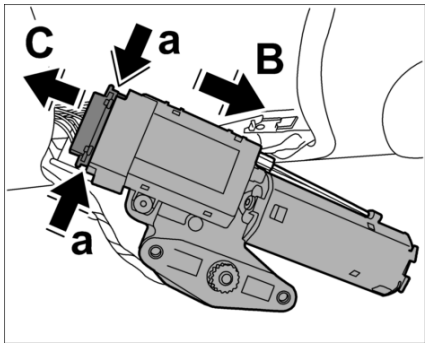


Unscrewing fastening screws of motor for sunroof

1. Unscrew both fastening screws **-1-** and remove motor for sunroof downward from the splines of the

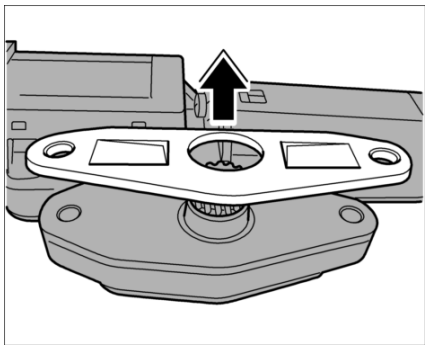
sunroof frame **-arrow A-** .

2. Push motor for sunroof to the left under the headliner **-arrow B-** .



Pulling off plug on motor for sunroof

3. Pull motor for sunroof down and out **-arrow B-** .
4. Release connector on motor for sunroof **-arrows a-** and pull it off **-arrow C-** .



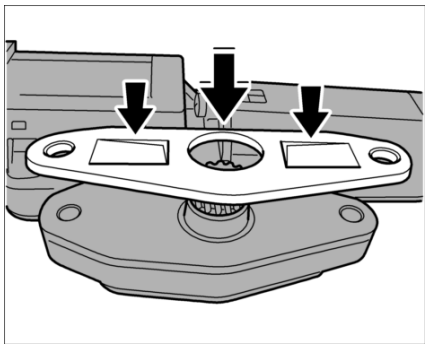
Removing spacer from motor for sunroof

5. Remove spacer from motor for sunroof.
6.

top of page

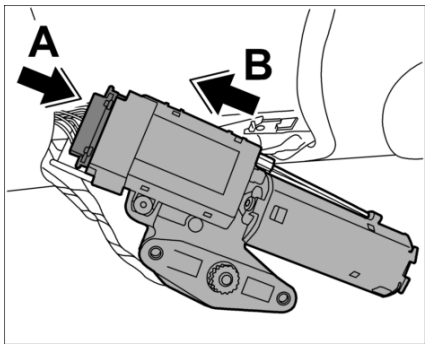
Installing motor for sliding roof

Installing motor for sunroof



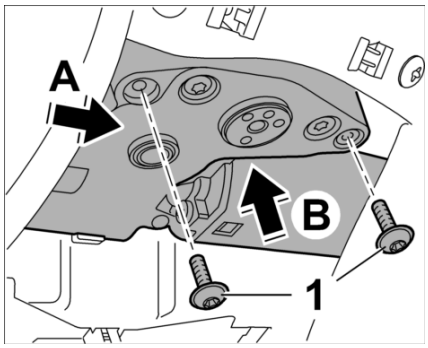
Positioning spacer on sunroof motor

1. Position spacer on sunroof motor. The elevations of the indentations **-arrows-** must point to the sunroof motor.



Pushing connector onto motor for sunroof

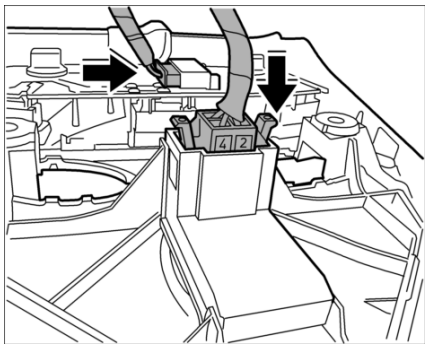
2. Push connector onto motor for sunroof **-arrow A-** until it is felt to engage.
3. Push motor for sunroof upwards to the left under the headliner **-arrow B-** .



Tightening fastening screws of motor for sunroof

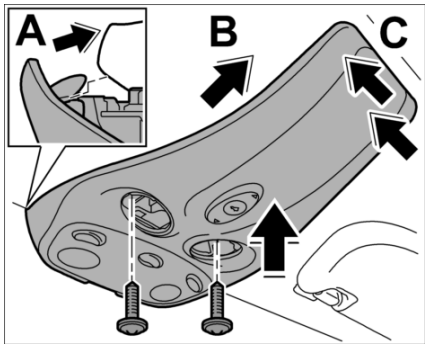
4. Pull motor for sunroof forward to the right under the headliner **-arrow A-** .
5. Push sunroof motor upwards onto the splines of the sunroof frame **-arrow B-** and secure using the two fastening screws **-1-** . **Tightening torque: 6 (4.5 ftlb.) Nm**

Installing cover for sunroof motor



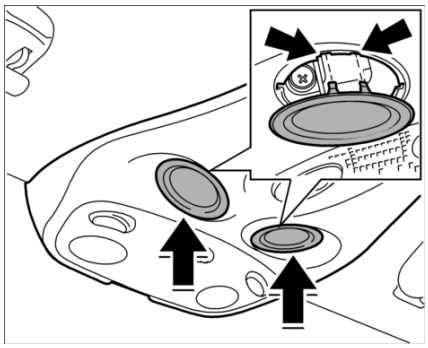
Plugging in connectors on interior light and sunroof switch

1. Position cover for sunroof motor. Plug in the connectors on the interior light and the sunroof switch until they are felt to engage.



Clipping in cover of sunroof motor

2. Using the clips, engage cover for sunroof motor on roof frame **-arrow A-** , push back towards sunroof **-arrow B-** and clip in at the rear to the left and right **-arrows C-** .



Clipping in cover for fastening screws

3. Insert cover of fastening screws into the mounts on the sunroof motor cover **-arrows-** and clip it in.
4. Switch on ignition and check that sunroof switch and interior light are working.

top of page

Information

Emergency operation on motor for sliding roof

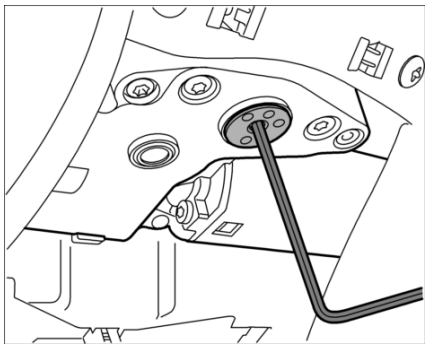
Note

The angle screwdriver required for emergency operation is clipped on to the back of the cover for the motor for sliding roof.
The motor for the sliding roof can be operated manually if the electric drive should fail. Check fuse **E3 in row E** before emergency operation.

Note

The end positions of the motor for the sliding roof must be stored again following emergency operation.

1. Removing cover of motor for sliding roof



Emergency operation on motor for sliding roof

2. Insert the angle screwdriver into the drive axle of the motor for the sliding roof and actuate the motor for sliding roof manually.

Storing end positions of motor for sliding roof

1. Actuate switch for sliding roof and close sliding roof fully.
2. Press the switch for the sliding roof again (Close).

The end position with the sliding roof closed is stored.

3. Actuate switch for sliding roof and open sliding roof fully.
4. Press the switch for the sliding roof again (Open).

The end position with the sliding roof open is stored.

5. Press the switch for the sliding roof and open the sliding roof in tilting position.
6. Press the switch for the sliding roof again (Tilting position).

The end position with the sliding roof in tilting position is stored.

60 28 19 Removing and installing frame for sliding roof - as of MY 2005

- Preliminary work
- Removing frame for sliding roof
- Installing frame for sliding roof
- Subsequent work

top of page

Preliminary work

Preliminary work

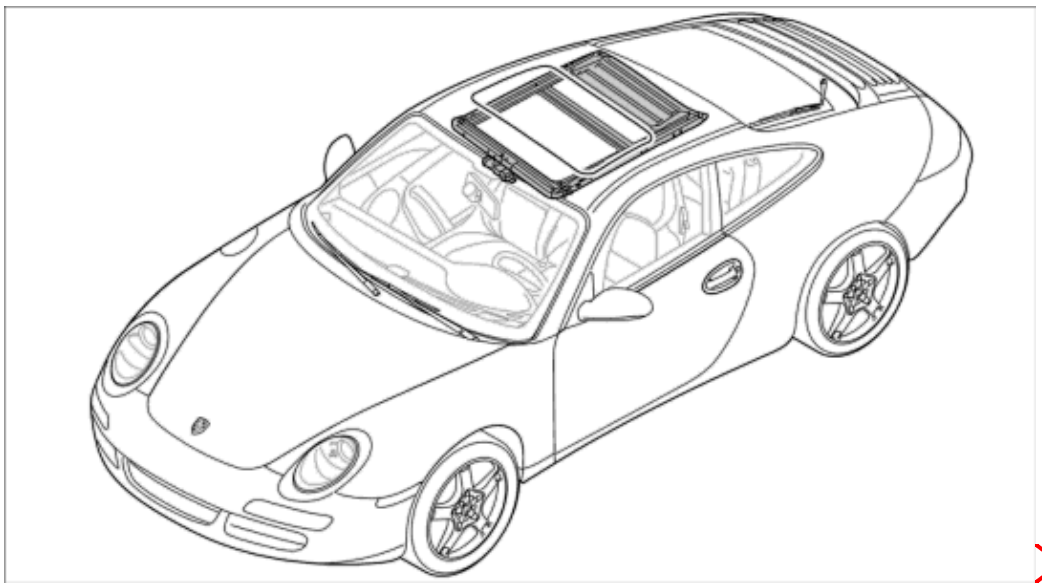
Remove headliner. 708419 Removing and installing headliner - section on "Removing"

top of page

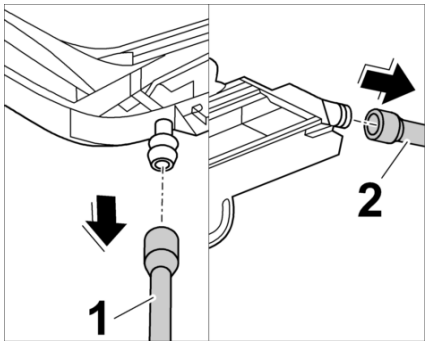
Removing frame for sliding roof

Removing frame for sliding roof

Installation Location:

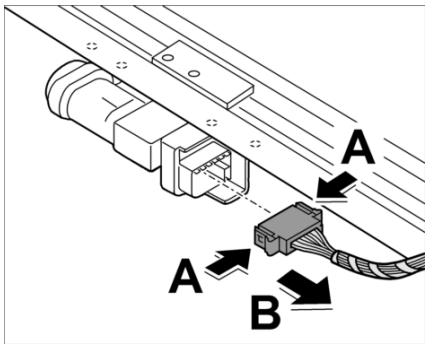


Installation position for sliding roof frame



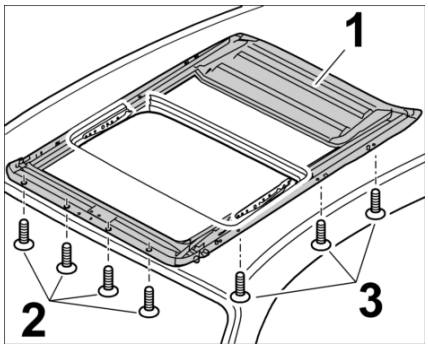
Pulling off water drain hoses

1. Disconnect water drain hoses at the front **-1-** and rear **-2-** from the water drain brackets of the frame for the sunroof.



Disconnecting plug connection for sunroof motor

2. Press in locking tabs on both sides **-arrows A-** and pull off the electric plug connection for the sunroof motor **-arrow B-** .



Loosening sliding roof frame

ATTENTION

Danger of damage to the seats during the removal of the sliding roof frame!

During removal of the sliding roof frame, move both seats to the rear and tilt the backrests to the rear.

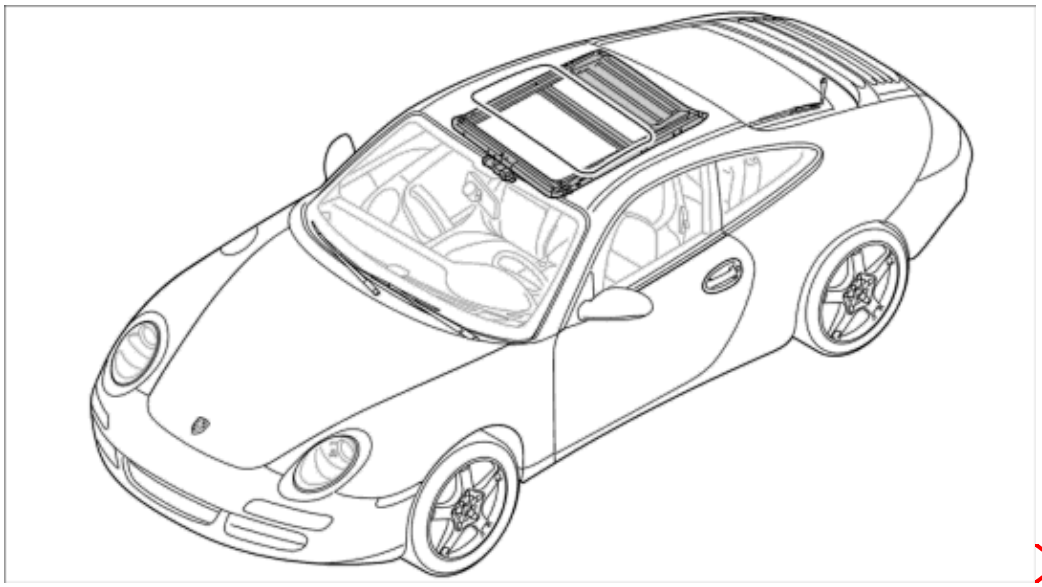
3. Unscrew the fastening screws **-2-** at the front of the sliding roof frame **-1-** .
4. Undo the fastening screws **-3-** from the frame for the sliding roof **-1-** at the sides.
5. Remove the sliding roof frame **-1-** with an assistant and pull it out of the passenger compartment through the door aperture.

top of page

Installing frame for sliding roof

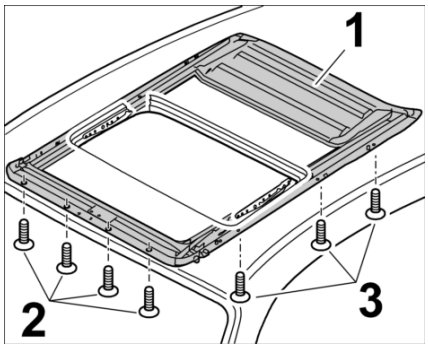
Installing frame for sliding roof

Installation Location:



Installation position for sliding roof frame

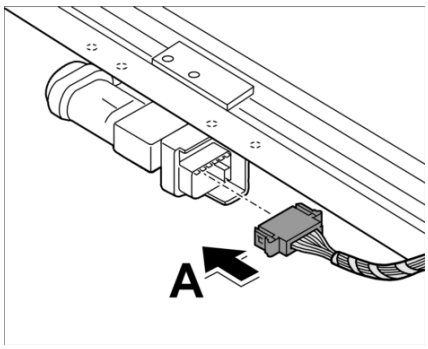
1. Insert sliding roof frame **-1-** with an assistant into the passenger compartment through the door aperture and position at the screw-mounting points.



Securing frame for sliding roof

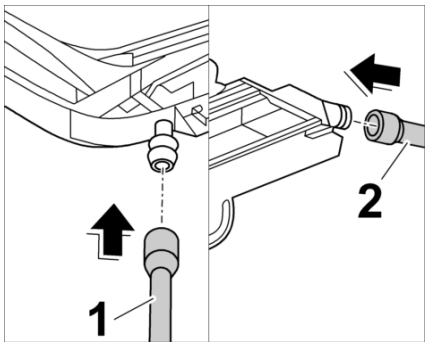
2. Position the fastening screw **-3-** of the sliding roof frame at the side and tighten by hand.
3. Position the fastening screws **-2-** on the sliding roof frame at the front and tighten by hand.
4.

Align sliding roof frame **-1-** accordingly and tighten fastening screws **-1, 2-** . Tightening torque
Tightening torque: 9.7 (7 ftlb.) Nm **Tightening torque: 9.7 (7 ftlb.) Nm**



Connecting plug connection for sunroof motor

5. Connect electric plug connection for sunroof motor **-arrow A-** . The locking tabs must engage on both sides when the connection is made.



Pushing on water drain hose

6. Push the water drain hoses at the front **-1-** and rear **-2-** onto the water drain brackets of the frame for the sliding roof.

top of page

Subsequent work

Subsequent work

1. Install headliner. 708419 Removing and installing headliner - section on "Installing"
2. Re-teach motor for sunroof. 601419 Removing and installing motor for sunroof - section on "Information"

997110, 997111, 997120, 997121, 997410, 997411, 997430, 997431

as of MY 2005
Country C00, C02, C05, C07, C08, C09, C10, C11, C12, C13, C14, C15, C16, C18, C19, C20, C21, C22,

60 28 37 Disassembling and assembling frame for sliding roof - as of MY 2005

- Preliminary work
- Disassembling frame for sliding roof
- Converting frame for sliding roof
- Assembling frame for sliding roof
- Subsequent work

top of page

Preliminary work

Preliminary work

1. Remove frame for sliding roof. 602819 Removing and installing sliding roof frame - chapter on "Removing"
2. Remove slide/tilt sunroof trim. 708619 Removing and installing slide/tilt sunroof trim - chapter on "Removing"
3. Remove air deflector. 603319 Removing and installing air deflector - chapter on "Removing"
4. Remove sunroof motor. 601419 Removing and installing sunroof motor - chapter on "Removing"

top of page

Disassembling frame for sliding roof

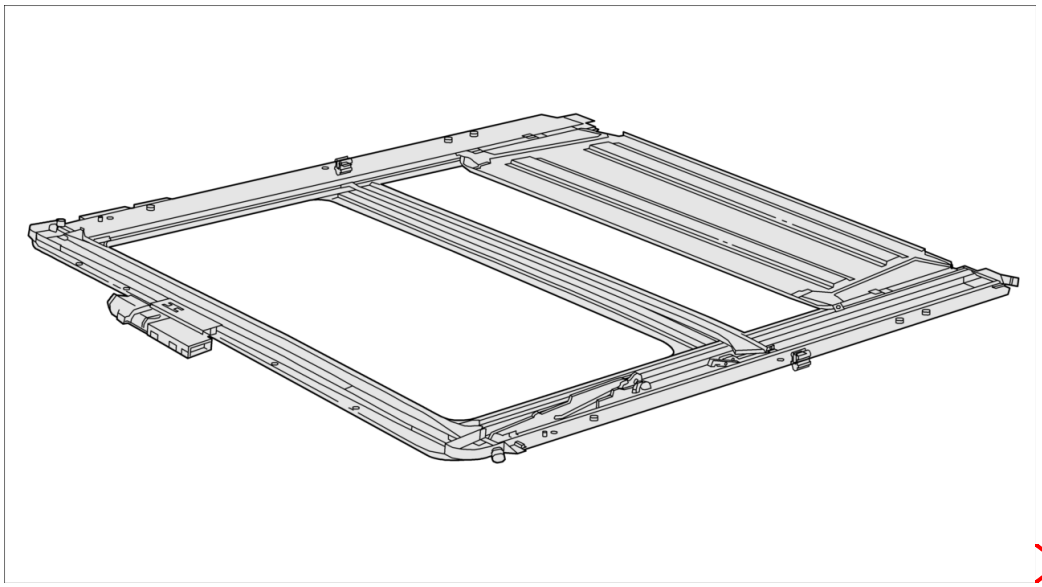
Disassembling frame for sliding roof

Note

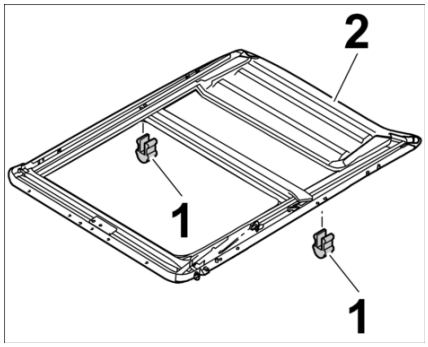
- *For model year 2005 a new sliding roof frame and air deflector are being used. This can be retrofitted in all vehicles (model years).*
- *The new plastic air deflector can also be installed into old sliding roof frames. Also use damping rubbers for sliding/tilting roof trim and washers for the sliding roof frame.*
- *Placing washers under the sliding roof frame or new frame will lower the frame and will require the use of 30 mm long fastening screws during installation.*

- *For the procedure see: 602837 Disassembling and assembling frame for sliding roof.*

Installation Location:

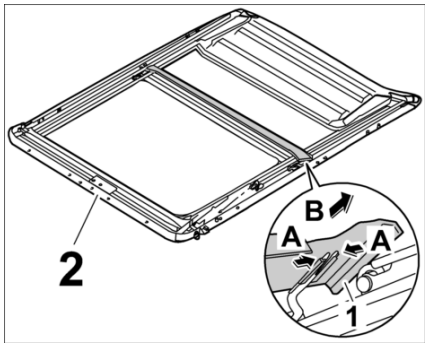


Overview: Disassembling and assembling frame for sliding roof



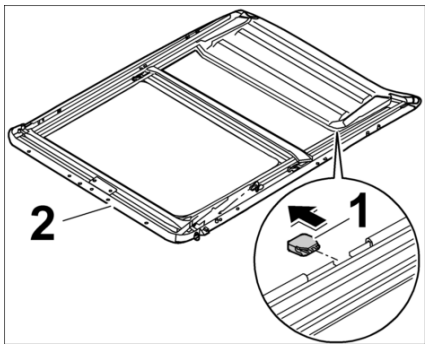
Pressing out frame clip

1. Press in left and right locking tabs of the frame clip **-1-** and remove it from the sliding roof frame **-2-** .



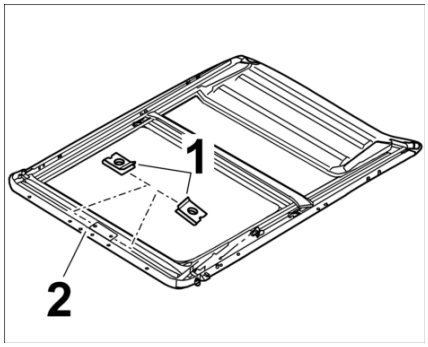
Removing seal

2. Press locking tabs together **-Arrows A-** and remove seal **-1-** from sliding roof frame **-2-** **-Arrow B-** .



Removing holder for transverse strut

3. Remove holder for transverse strut **-1-** on sliding roof frame **-2-** .



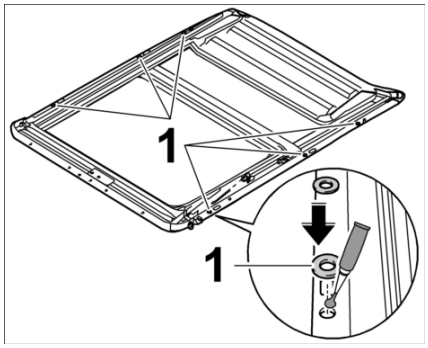
Removing fastening nut

4. Remove fastening nuts **-1-** from sliding roof frame **-2-** , inspect them and replace if necessary.

top of page

Converting frame for sliding roof

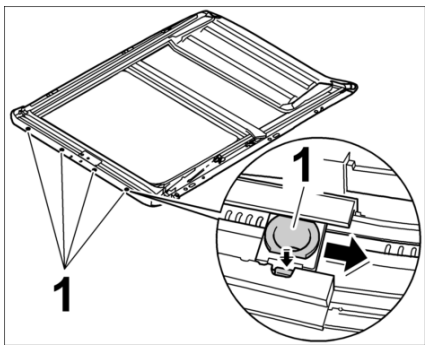
Converting frame for sliding roof



Installing washers

1. **Installing washers (6x)**

1.1. Affix washers **-1-** left and right at the fastening points of the sliding roof frame with Loctite 424.



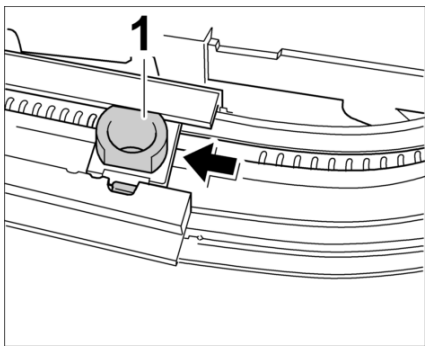
Removing short spacer sleeves

Note

- *For sliding roof frames converted for the new air deflector, the short spacer sleeves must be replaced by the long spacer sleeves.*

2. **Remove short spacer sleeves (4x)**

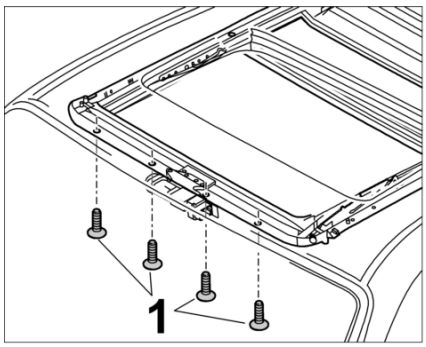
2.1. Press and hold the tab **-arrow-** on the spacer sleeves **-1-** and remove from the sides of the sliding roof frame.



Installing long spacer sleeves

3. **Install long spacer sleeves (4x)**

3.1. Insert spacer sleeves **-1-** into the sides of the sliding roof frame; the tab must be felt to engage.



Installing longer fastening screws

ATTENTION

Material damage due to fastening screws on the roof being too long.

- **Pressure marks in the front roof area.**

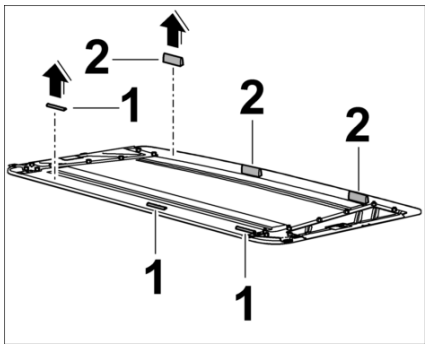
Only use the longer fastening screws at the front of the sliding roof frame in conjunction with the long spacer sleeves.

4. **Install longer fastening screws (4x)**

4.1. Replace fastening screws **-1-** at the front of the sliding roof frame.

Install only in conjunction with the long spacer sleeves.

Only if re-installing the sliding roof frame.



Removing damping rubber

ATTENTION

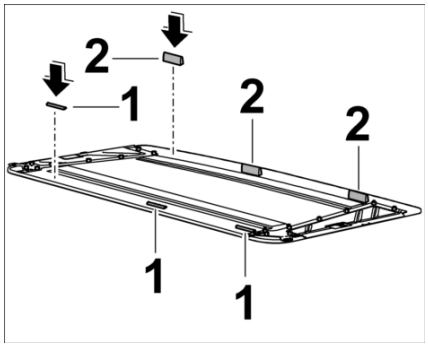
Incorrectly mounted damping rubbers.

- **Noises during driving due to rattling of the sliding/tilting roof trim.**

When using the new air deflector, the damping rubber at the front and rear of the sliding/tilting roof trim must be replaced by longer ones.

5. **Remove set of damping rubbers for sliding/tilting roof trim**

5.1. Remove damping rubber front **-1-** and damping rubber rear **-2-** .



Installing damping rubber

6. **Install set of damping rubbers for sliding/tilting roof trim**

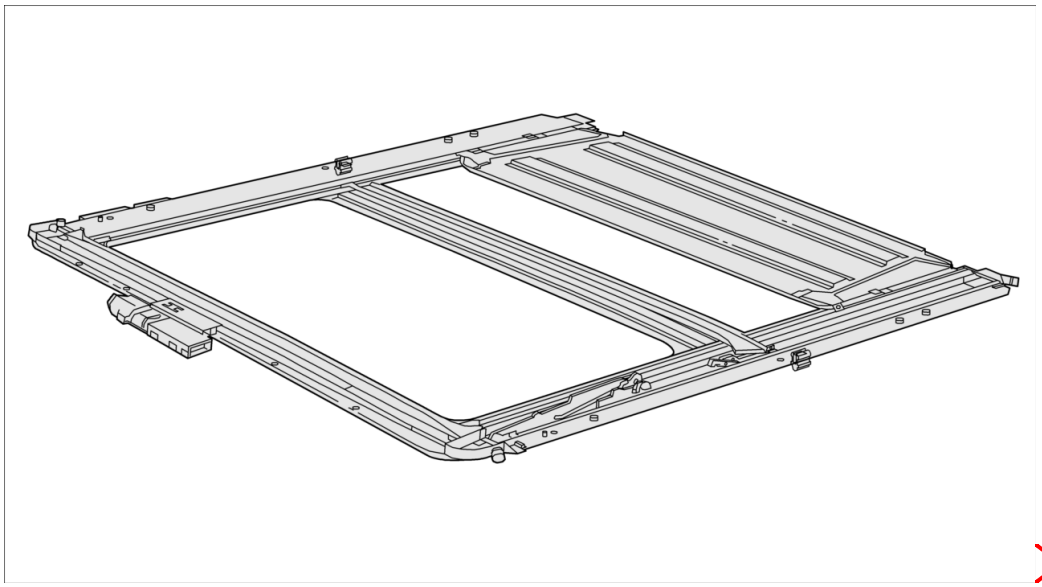
6.1. Remove protective film from the longer damping rubber front **-1-** and damping rubber rear **-2-** , and affix as shown in the figure or at the old position

top of page

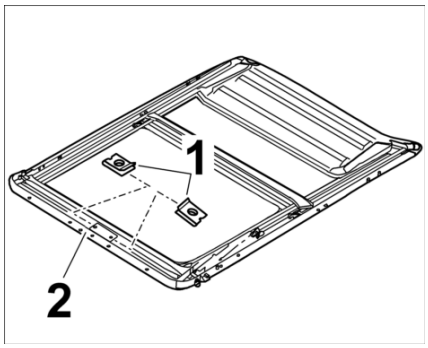
Assembling frame for sliding roof

Assembling frame for sliding roof

Installation Location:

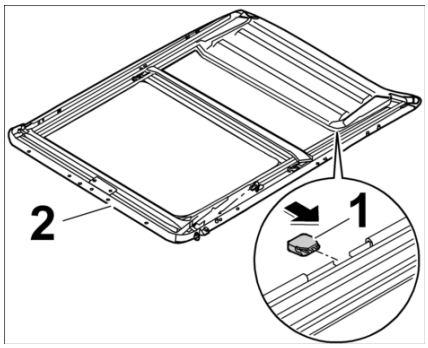


Overview: Disassembling and assembling frame for sliding roof



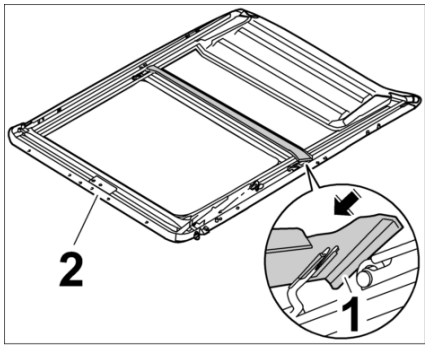
Pressing in fastening nut

1. Press in fastening nuts **-1-** on frame for sliding roof **-2-** .



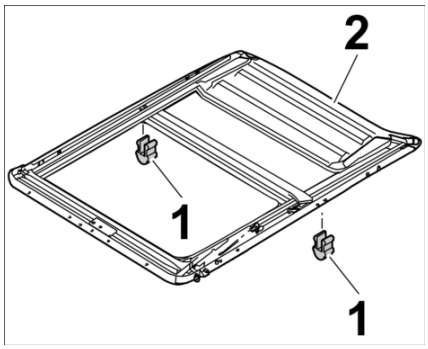
Installing holder for transverse strut

2. Fit holder for transverse strut **-1-** on sliding roof frame **-2-** .



Installing seal

3. Position seal **-1-** on frame for sliding roof **-2-** and press it in until it engages.



Pressing out frame clip

4. Press the frame clip **-1-** in on the sliding roof frame **-2-** until the left and right locking tabs engage.

top of page

Subsequent work

Subsequent work

1. Install sunroof motor. 601419 Removing and installing sunroof motor - chapter on "Installing"

2. Install air deflector. 603319 Removing and installing air deflector - chapter on "Installing"
3. Install slide/tilt sunroof trim. 708619 Removing and installing slide/tilt sunroof trim - chapter on "Installing"
4. Install frame for sliding roof. 602819 Removing and installing sliding roof frame - chapter on "Installing"

997110, 997111, 997120, 997121, 997410, 997411, 997430, 997431

as of MY 2005
Country C00, C02, C05, C07, C08, C09, C10, C11, C12, C13, C14, C15, C16, C18, C19, C20, C21, C22, C23, C24, C25, C26, C27, C28, C32, C33, C34, C35, C36, C37, C38, C39, C45, C46, C98, C99

WARNUNG

Gefahr des Verlusts der Text-Bild-Zuordnung beim Ausdruck.

- **Aus technischen Gründen kann derzeit nicht ausgeschlossen werden, dass trotz einwandfreier Darstellung auf dem Bildschirm beim Ausdruck der Zusammenhang von Text und zugehörigem Bild verloren geht.**
- **Wird der Fehler nicht bemerkt, besteht die Gefahr, daß Arbeiten nicht korrekt durchgeführt werden und es dadurch zu Personen- und Sachschäden kommt.**

Vergleichen Sie deshalb nach dem Druckvorgang unbedingt die Ausdrucke mit der Bildschirmdarstellung. Korrigieren Sie die Ausdrucke im Fehlerfall so, daß der Inhalt der Bildschirmdarstellung zutreffend wiedergegeben wird.

WARNING

Danger of losing text-figure correspondence when printing out.

- **For technical reasons, it can currently not be ruled out that the correspondence between text and associated figure can be lost when it is printed out, even though the display on the screen is correct.**
- **If the fault is not noticed, there is the danger that work will not be performed correctly which can cause injury and damage.**

Therefore, always compare printouts with the screen display after printing them out. Correct the printouts if they are faulty so that the content of the screen display matches that on the printouts.

AVERTISSEMENT

Risque de perte de la correspondance texte-illustration lors de l'impression papier.

- **Pour des raisons techniques, il ne peut pas être exclu à l'heure actuelle que, même en cas d'affichage correct à l'écran, la correspondance entre le texte et l'illustration puisse être erronée sur l'impression papier.**
- **Si l'erreur passe inaperçue, on court le risque d'exécuter certaines opérations de manière incorrecte pouvant conduire à des dommages corporels et matériels.**

60 33 19 Removing and installing air deflector - as of MY 2005

- Preliminary work
- Removing air deflector
- Installing air deflector
- Subsequent work

top of page

Preliminary work

Preliminary work

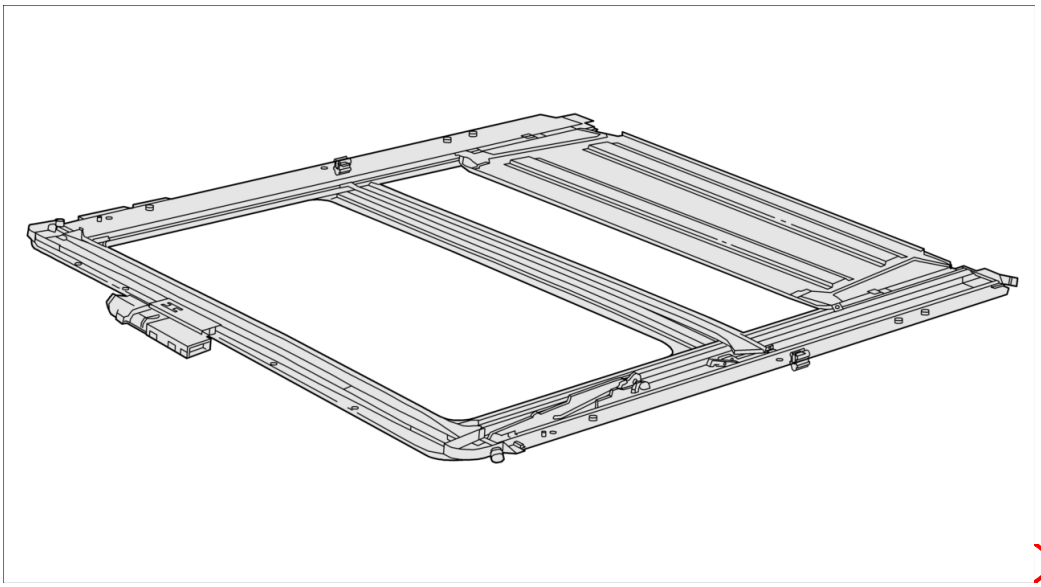
Remove frame for sliding roof. 602819 Removing and installing sliding roof frame - chapter on "Removing"

top of page

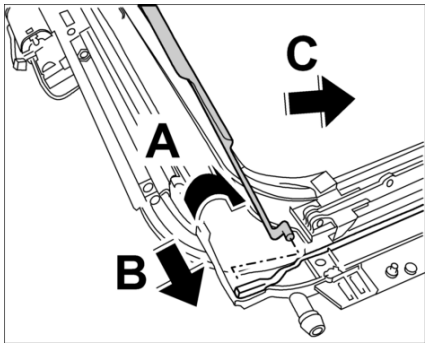
Removing air deflector

Removing air deflector

Installation Location:



Installation position for air deflector



Removing air deflector

1. Fold air deflector upwards **-arrow A-** and pull it out of the guides at the left and right sides **-arrow B-** . Press air deflector inwards and pull it out **-arrow C-** .

top of page

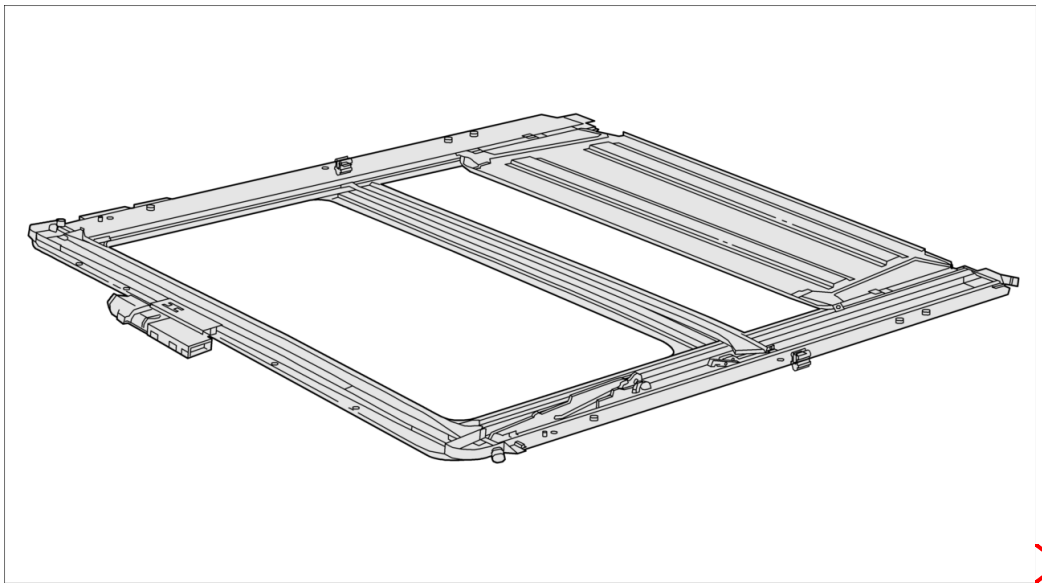
Installing air deflector

Installing air deflector

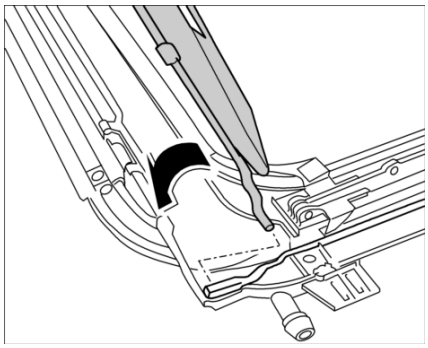
Note

- *For the better driving comfort of the customer, Porsche AG recommends installing the sheetmetal air deflector for the plastic air deflector.*
- *Procedure before installing the plastic air deflector: 602837 Disassembling and assembling frame for sliding roof - chapter on "Converting or replacing"*

Installation Location:



Installation position for air deflector



Installing air deflector

1. Press the air deflector in on the left and right and insert it into the guides at the sides. Fold up the air deflector.

top of page

Subsequent work

Subsequent work

Install frame for sliding roof. 602819 Removing and installing sliding roof frame - chapter on "Installing"

997110, 997111, 997120, 997121, 997410, 997411, 997430, 997431

as of MY 2005
Country C00, C02, C05, C07, C08, C09, C10, C11, C12, C13, C14, C15, C16, C18, C19, C20, C21, C22, C23, C24, C25, C26, C27, C28, C32, C33, C34, C35, C36, C37, C38, C39, C45, C46, C98, C99

60 40 19 Removing and installing cover for sliding roof - as of MY 2005

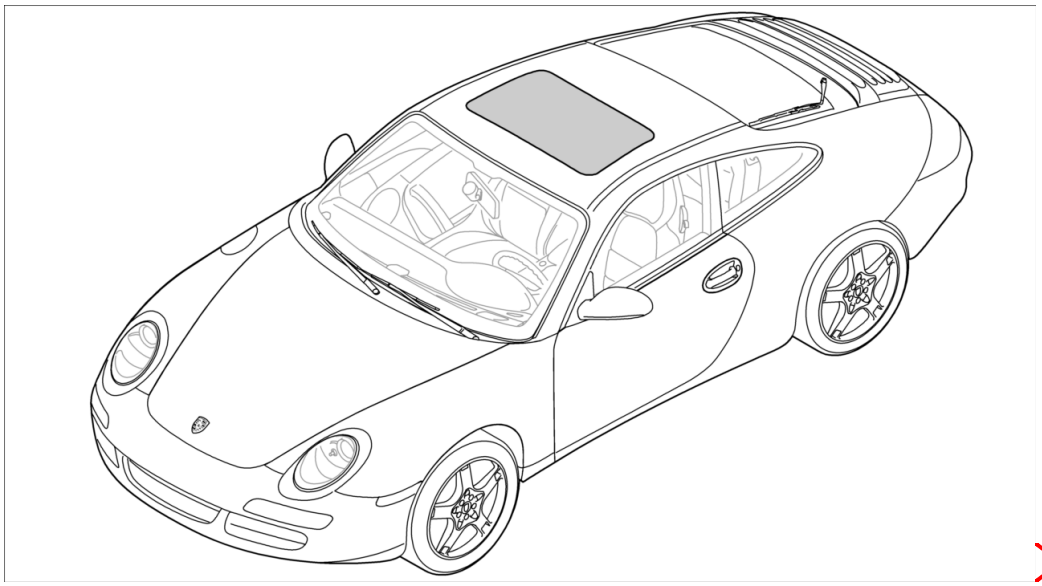
- Removing cover for sliding roof
- Installing cover for sliding roof

top of page

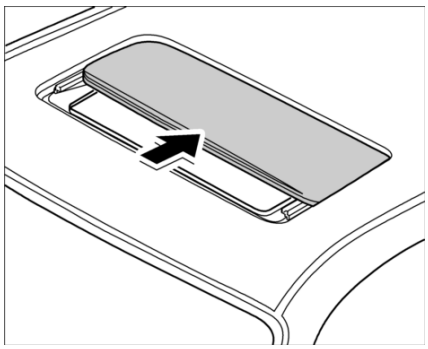
Removing cover for sliding roof

Removing cover for sliding roof

Installation Location:

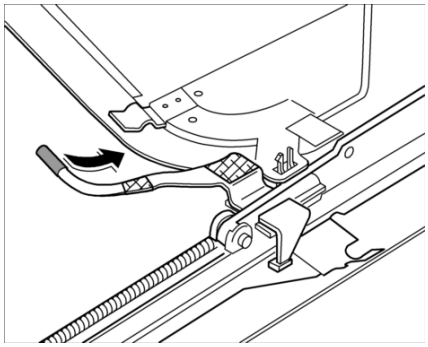


Installation position for sunroof



Opening sliding-roof panel

1. Open sliding-roof panel approx. 80 mm.

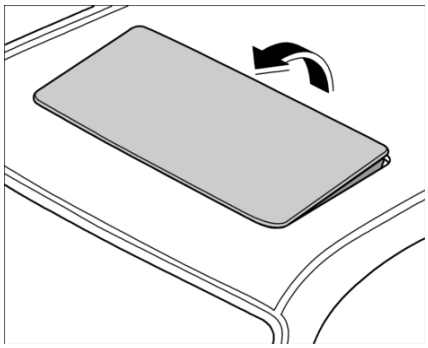


Disengaging slide/tilt sunroof trim

Note

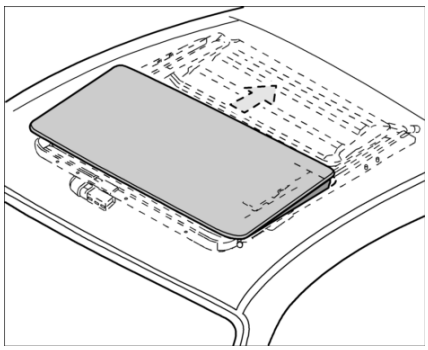
The slide/tilt sunroof trim must be moved without the use of force.

2. Disengage (press) slide/tilt sunroof trim out of the left and right-hand front catches towards the rear and out of the drivers, and push back by approx. 30 mm.



Moving sliding-roof panel to tilting position

3. Close sliding-roof panel and move to tilting position.

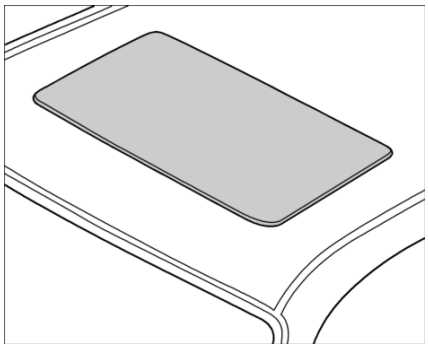


Slide/tilt sunroof trim

Note

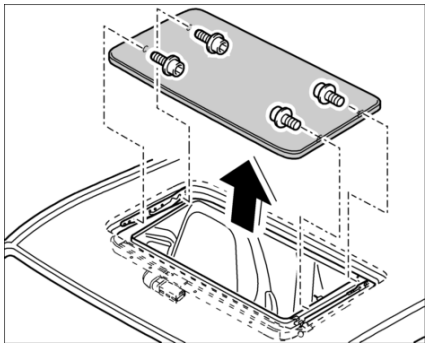
The slide/tilt sunroof trim must be moved without the use of force.

4. Push slide/tilt sunroof trim back evenly on the left and right as far as it will go.



Moving sliding-roof panel to zero position

5. Move sliding-roof panel to zero position (closed).



Undoing sliding-roof panel

ATTENTION

Damage to rear water drainage channel or to the sunroof mechanism when the sliding-roof panel is removed and when moving the slide/tilt sunroof trim.

Once the sliding-roof panel has been removed, the frame for the sunroof must not be moved to the "Open" position.

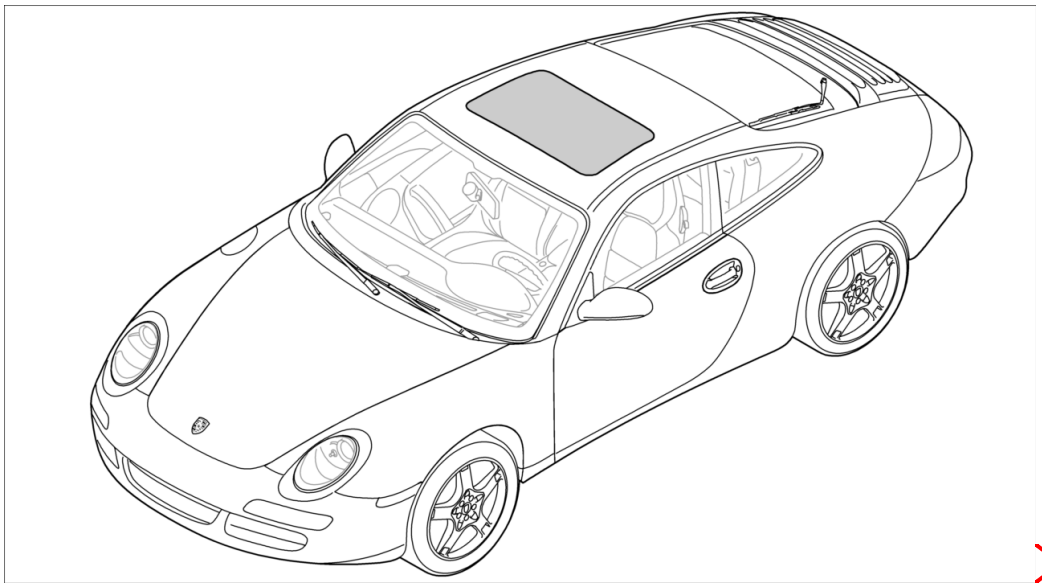
6. Unscrew fastening screws and lift sliding-roof panel up and off.

top of page

Installing cover for sliding roof

Installing cover for sliding roof

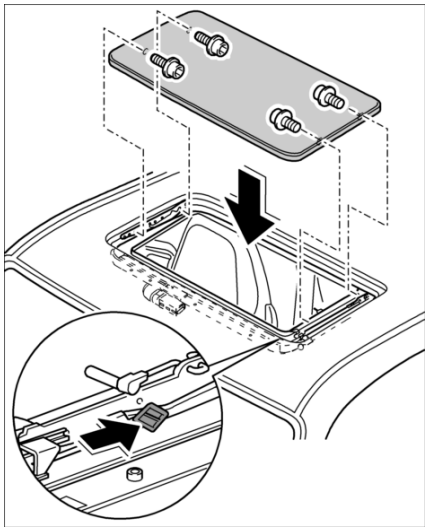
Installation Location:



Installation position for sliding-roof panel

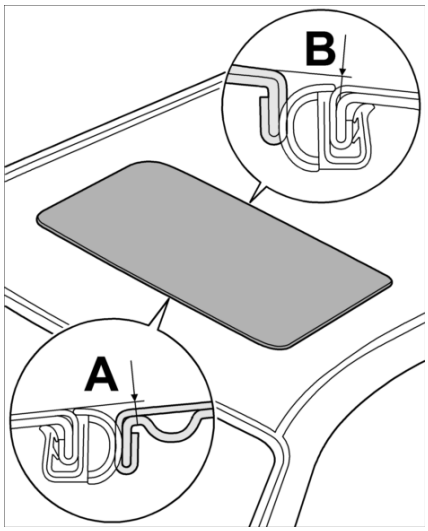
Note

- *Sliding-roof panel may only be installed in the zero position in the frame for the sunroof!*



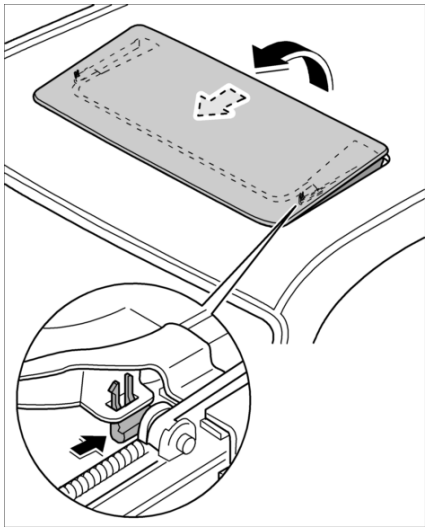
Inserting sliding-roof panel

1. Push gate (inset) back on the left and right. Insert panel for sliding roof in the designated frame and position fastening screws.



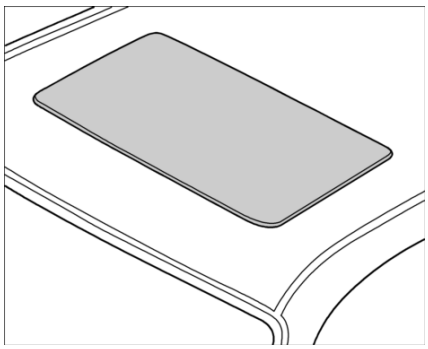
Adjusting sliding-roof panel

2. Adjust the sliding-roof panel according to the front and rear roof contour to **-dimension A-** up to -1.0 mm lower, **-dimension B-** up to +1.0 mm higher. Tighten fastening screws. Tightening torque **Tightening torque: 4 ftlb.**



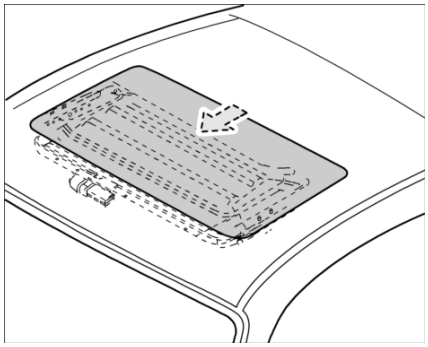
Moving sliding-roof panel to tilting position

3. Extend sliding-roof panel to tilting position. Carefully pull slide/tilt sunroof trim forward evenly on the left and right until it is approx. 40 mm in front of the roof edge cut-out. Check whether the left and right-hand inner side panels **-inset-** have engaged.



Moving sliding-roof panel to zero position

4. Move sliding-roof panel to zero position (closed).

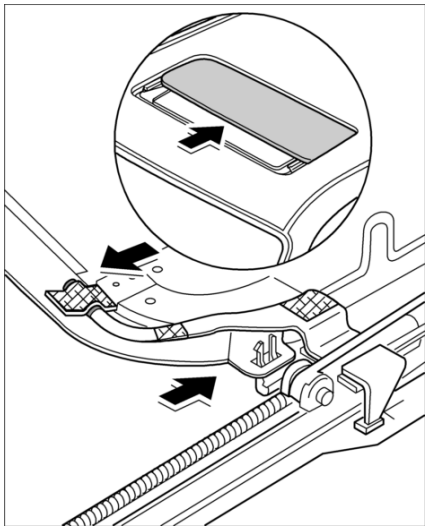


Engaging slide/tilt sunroof trim

Note

- *If inner panels are damaged or have become detached from the groove of the sunroof frame, take off the slide/tilt sunroof trim with the sliding-roof panel removed and replace the inner panels if necessary.* *708619 Removing and installing slide/tilt sunroof trim*

5. Push slide/tilt sunroof trim forward as far as the roof edge cut-out. While doing so, take care not to push slide/tilt sunroof trim upwards. This could detach or damage the inner panels.



Closing sliding-roof panel

6. Open sliding-roof panel approx. 80 mm. Pull slide/tilt sunroof forward until the left and right-hand drivers engage. Close sliding-roof panel.
7. **Function test:**The slide/tilt sunroof trim lies against the rear of the sliding-roof panel in tilting position. Close sliding-roof panel. The slide/tilt sunroof trim must lie against the clamping frame of the roof lining on the front, right and left with a slight degree of pre-tension. The slide/tilt sunroof trim must not lie against the rear cross bar of the roof lining.
   A gap of approx. **-0,5 mm-** (cheque card thickness) must be left. There is no gap at the rear cross bar and the roof lining in vehicles with a fully coated (flocked) clamping frame.

60 42 19 Removing and installing seal for sliding roof - as of MY 2005

- Preliminary work
- Removing seal for sliding roof
- Installing seal for sliding roof
- Subsequent work

top of page

Preliminary work

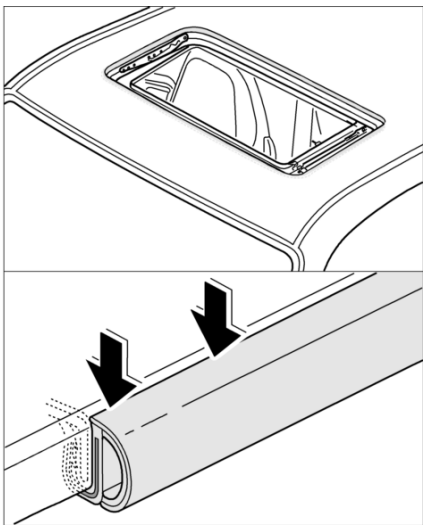
Preliminary work

Removing sliding-roof panel 604019 Removing and installing sliding-roof panel - chapter on "Removing"

top of page

Removing seal for sliding roof

Removing seal for sliding roof



Removing seal for sliding roof

1.

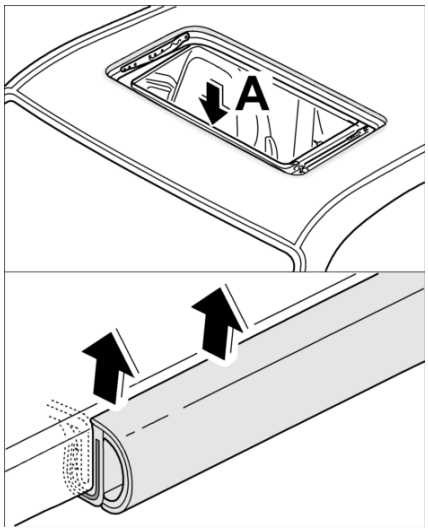
Press seal for sunroof down all the way round and detach it from the outer roof panel.

2. Remove seal for sliding roof.

top of page

Installing seal for sliding roof

Installing seal for sliding roof



Installing seal for sliding roof

1. Position seal for sunroof centred at the front (joint) **-arrow A-** and attach evenly to the outer roof panel all the way round, then press on in an upward direction.

top of page

Subsequent work

Subsequent work

Install sliding-roof panel. 604019 Removing and installing sliding-roof panel - chapter on "Installing"

997110, 997111, 997120, 997121, 997410, 997411, 997430, 997431

61 01 15 Adjusting convertible top - as of MY 2005

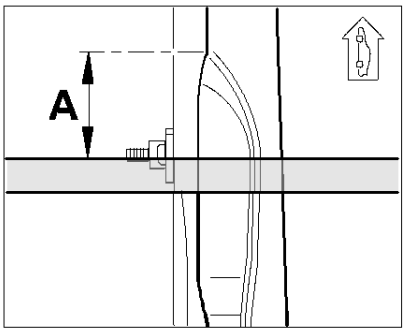
- Adjusting convertible top

top of page

Adjusting convertible top

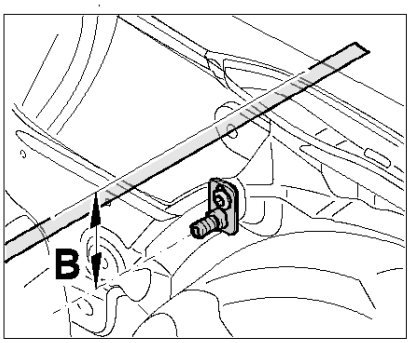
Adjusting assembly aids

The assembly aids must be recalibrated after removal following accident repairs in the area of the inner side section.
The calibration of the assembly aids represents the basic position for convertible top installation.
The required tools include a tape measure and a rule or an aluminium section that is at least 1,600 mm long.



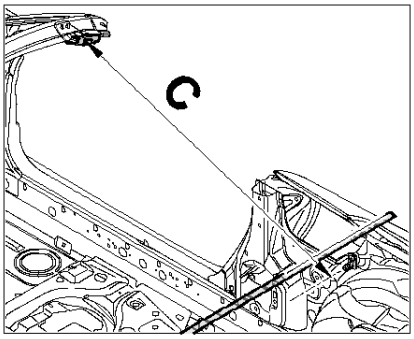
Adjusting assembly aids

1. Place the rule or aluminium section over the front of the rear side panel. Measured from the top of the side panel to the rule **Adjustment value A: 50 mm**



Adjusting assembly aid

2. Dimension **B** is measured from the rear side panel (rule or aluminium section) to the centre of the assembly aid peg **Adjustment value: 139 mm**



Calibrating assembly aid

3. Dimension **C** is measured from the centre of the assembly aid peg to the lower edge of the convertible-top peg housing on the inside **Adjustment value: 1070 mm**

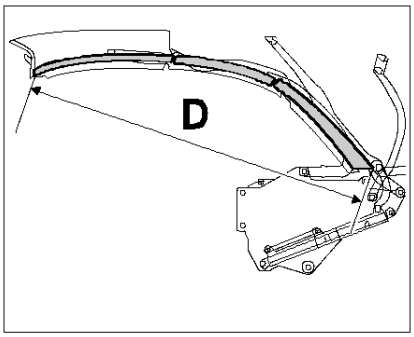
Adjusting convertible-top peg housing

Note

The convertible top must be closed or the hardtop must be fitted to check the adjustment.

To prevent rattling noises, each of the convertible-top peg housings on the left and right must be facing outwards with respect to the centring pins fitted on the convertible top or hardtop when tightening.

Checking diagonal dimension of styling edge



Checking diagonal dimension of styling edge

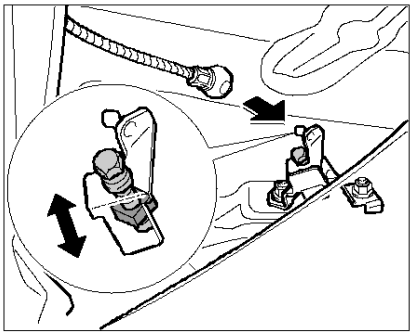
After calibrating the assembly aids and fitting the convertible top with convertible top closed, the check dimension from the styling edge, roof frame 1, lower edge diagonal to styling edge, roof frame 3, upper edge, rear should be **Adjustment value D: 1024 mm +/-2 mm** .

Adjusting tension cable on adjusting piece

Note

- *On vehicles that were operated for an extended period with the convertible top open or with a hardtop, the centring pins of the roof frame and the locking hook might not engage in the windscreen frame the first time the convertible top is closed. It is necessary to provide manual assistance at the handhold on the convertible-top latch. The folded convertible-top covering must first stretch again.*

The tension put on the tensioning bow by the left and right tension cables braces the convertible-top covering and presses the tension bow seal against the convertible-top compartment lid. If the pressure of the tension bow seal is too great, the convertible-top compartment will project with respect to the lid and the side panel.

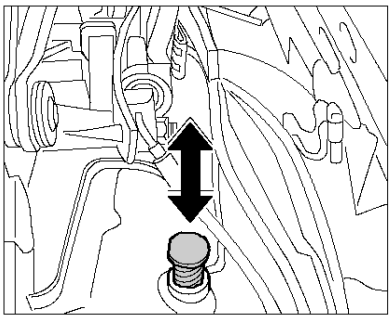


Adjusting tension cable on adjusting piece

Adjustment procedure: Raise the convertible-top compartment lid to upper position. Adjust tension of the tension bow at the hexagon-head bolt in the adjusting piece on the roll-over bar **Adjustment range: approx. 15 mm** according to the lid and side-panel contours and the contact pressure on the convertible-top compartment lid.

Adjusting end setting for convertible-top resting position

With the convertible top open, the corner bow rests on the adjusting piece in the water drip pan. The adjusting piece can be vertically adjusted by **approx. 30 mm** by screwing the adjusting piece in or out.



Adjusting end setting for convertible-top resting position

Adjustment procedure: Adjust height at the adjusting piece so that the convertible-top compartment lid can still close freely.

61 01 19 Removing and installing convertible top - as of MY 2005

- Preliminary work
- Tools and materials
- Removing convertible top
- Installing convertible top
- Subsequent work

Tools

Designation	Type	Number	Explanation	
Assembly tool for Springfix System pin circlips	commercially available tool	NR.131		

top of page

Preliminary work

Preliminary work

1. Open convertible top.
2. 707519 Removing and installing rear side trim panel - chapter on "Removing"
3. 6101IN IN -Convertible top in service position

top of page

Tools and materials

Tools

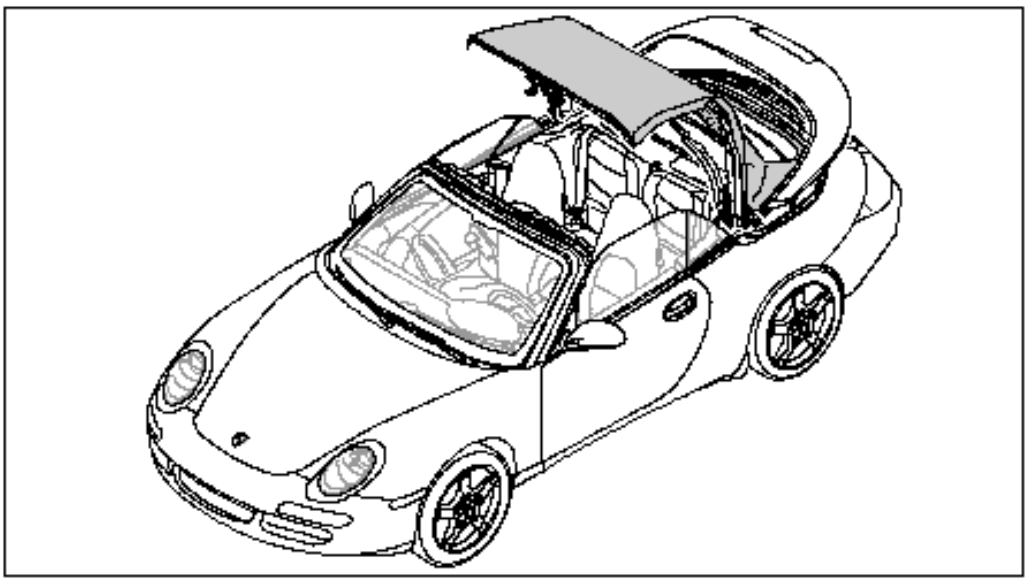
Assembly tool for Springfix System pin circlips NR.131

top of page

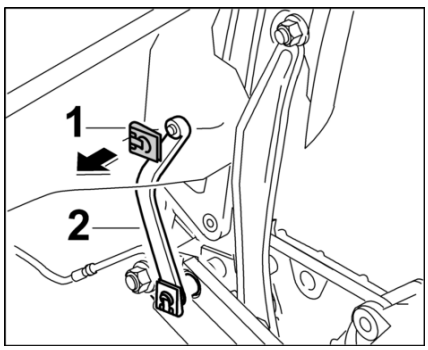
Removing convertible top

Removing convertible top

Installation Location:

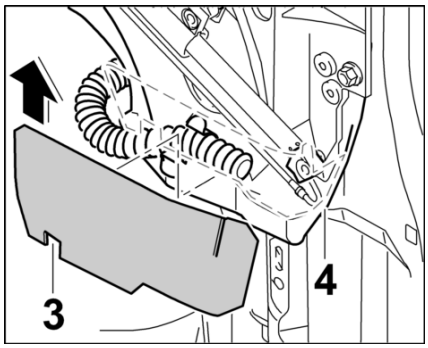


Installation position of convertible top



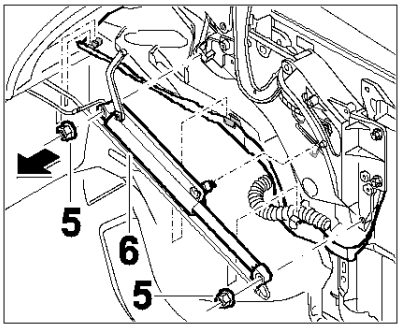
Removing lever

1. Press out both retaining clips **1** from lever **2** using the assembly tool for pin circlips and remove lever. 610119 Removing and installing convertible top - chapter on "Tools and materials"



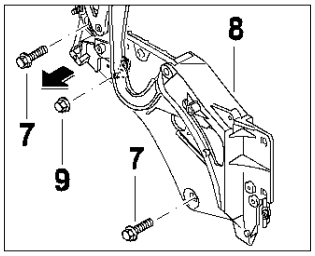
Removing protection plate

2. Pull protection plate **3** upwards out of the clip in the water drip pan **4**.



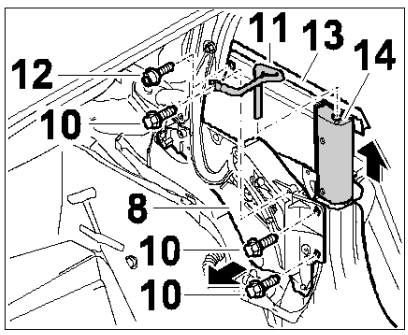
Removing hydraulic cylinder

3. Unscrew fastening nut **5** and remove hydraulic cylinder **6** together with lever.



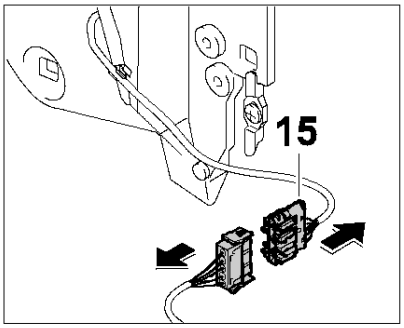
Unscrewing fastening screws of convertible top support

4. Unscrew fastening screws **7** from the convertible top support **8** and fastening nut **9** from the rear assembly aid.



Removing rear window inner seal

5. Unscrew and remove fastening screws **10** from the convertible-top support **8** and the deflection fitting **11**.
   Unscrew rear fastening screw **12** from the convertible-top support and pull the rear window inner seal **13** up and out together with the mounting for the belt guide section **14**.



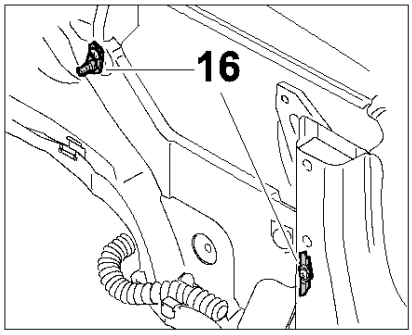
Disconnecting electric plug connection

6. Disconnect electric plug connection **15** of potentiometer at convertible-top support.

top of page

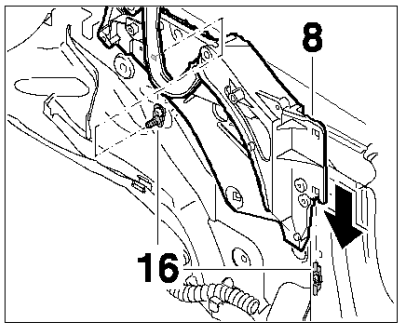
Installing convertible top

Installing convertible top



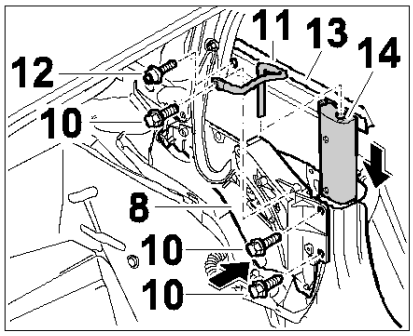
Ensuring assembly aids are fitted properly

1. Ensure assembly aid **16** is fitted properly. The rear assembly aid must be recalibrated if it has been removed.



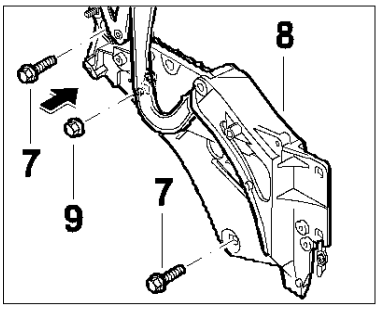
Positioning convertible top in vehicle

2. Position convertible-top supports **8** in the assembly aids **16** and place the convertible-top pegs of roof frame 1 into the convertible-top peg housing in the cowl-panel frame.



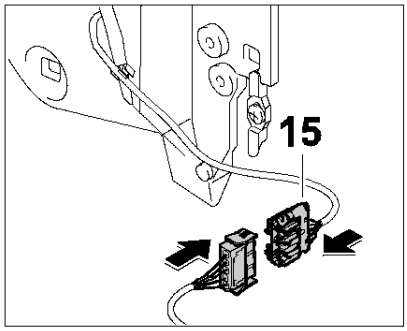
Installing rear window inner seal

3. Insert rear window inner seal **13** together with the belt guide section **14** and tighten fastening screw **12** on the convertible-top support. Push the deflection lever **11** into the belt guide section **14**, position the belt on the deflection lever and screw down with the fastening screws **10**.



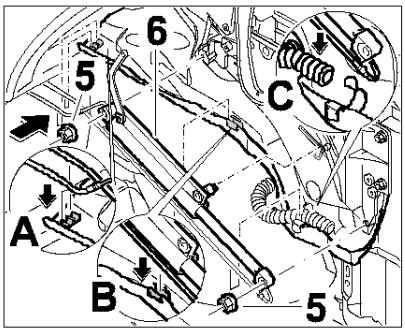
Screwing convertible top to the inner side section

4. Screw down the convertible-top support **8** on the left and right with the fastening screws **7** and the fastening nut **9**. **Tightening torque: 50 (37 ftlb.) Nm** **Tightening torque: 23 (17 ftlb.) Nm**



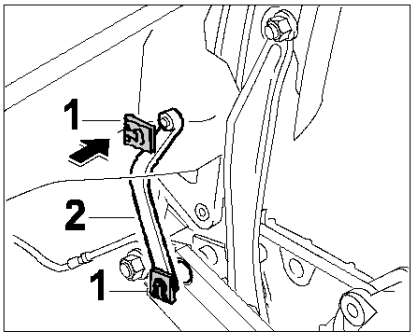
Connecting the electric plug connection

5. Connect the electric plug connection **15** between the potentiometer on the convertible-top support and the microswitch of the convertible-top lock.



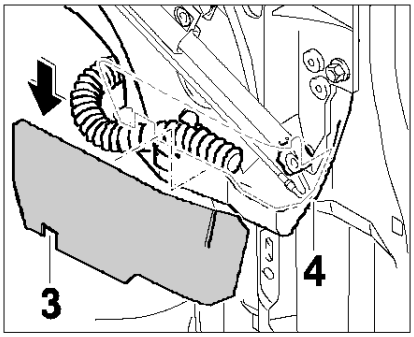
Installing hydraulic cylinder

6. Position hydraulic cylinder **6** together with lever on the convertible-top support. Insert potentiometer fork into the pins of the hydraulic housing (on left side only).
   Lay hydraulic line **Figure A** in the clip under the water drain hose. Press hydraulic lines into the clips in **Figure B** and **Figure C**. Tighten fastening nuts **5**. **Tightening torque: 17 (13 ftlb.) Nm +/-2 (1.5 ftlb.) Nm**



Installing lever

7. Secure lever **2** with the retaining clip **1**.



Installing protection plate

8. Insert the protection plate **3** in the clip of the water drip pan **4**.

top of page

Subsequent work

Subsequent work

1. 707519 Removing and installing rear side trim panel - chapter on "Installing"
2. 6101K2 K2 -Calibrating cabriolet convertible top

997310, 997311, 997320, 997321, 997610, 997611, 997620, 997621

as of MY 2005
Country C00, C02, C05, C07, C08, C09, C10, C11, C12, C13, C14, C15, C16, C18, C19, C20, C21, C22, C23, C24, C25, C26, C27, C28, C32, C33, C34, C35, C36, C37, C38, C39, C45, C46, C98, C99

WARNUNG

Gefahr des Verlusts der Text-Bild-Zuordnung beim Ausdruck.

- **Aus technischen Gründen kann derzeit nicht ausgeschlossen werden, dass trotz einwandfreier Darstellung auf dem Bildschirm beim Ausdruck der Zusammenhang von Text und zugehörigem Bild verloren geht.**
- **Wird der Fehler nicht bemerkt, besteht die Gefahr, daß Arbeiten nicht korrekt durchgeführt werden und es dadurch zu Personen- und Sachschäden kommt.**

Vergleichen Sie deshalb nach dem Druckvorgang unbedingt die Ausdrucke mit der Bildschirmdarstellung. Korrigieren Sie die Ausdrucke im Fehlerfall so, daß der Inhalt der Bildschirmdarstellung zutreffend wiedergegeben wird.

61 01 41 Convertible top repair - after emergency operation - as of MY 2005

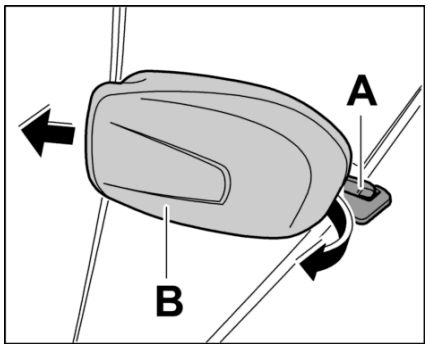
- Preliminary work
- Convertible top repair - after emergency operation
- Subsequent work

top of page

Preliminary work

Preliminary work

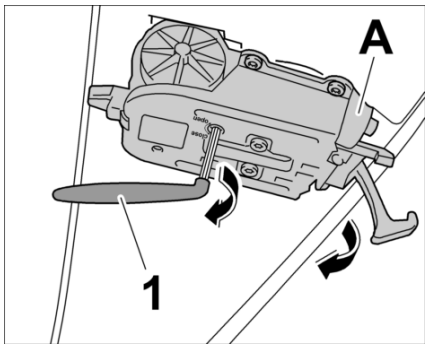
1. Removing rear wall trim panel 703119 Removing and installing trim panel for rear wall - chapter on "Removing" [997310 997311 997320 997321] *703119 21 Removing and installing trim panel for rear wall - chapter on "Removing" [997610 997611 997620 997621]*
2. Open hydraulic valve of the hydraulic pump. 618419 Removing and installing hydraulic pump - chapter on "Information"



Remove cover

3. Remove cover.

3.1. Pull off cover from convertible top lock.



Move locking hook to extended end position

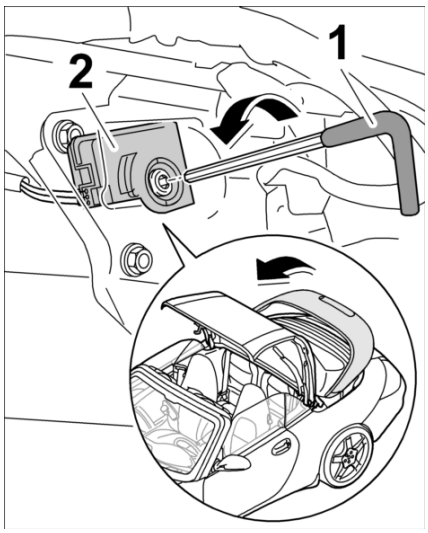
4. Move locking hook to end position.

4.1. Insert the Allen key **-1-** into the convertible top lock **-A-** and move in the direction of the arrow "Open" (inscription on convertible-top lock) until the locking hook is in the extended end position (perceptible stop).

top of page

Convertible top repair - after emergency operation

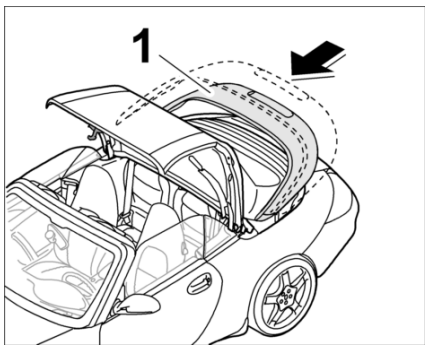
Repairing convertible-top compartment lid drive



Opening convertible-top compartment lid

1. Open convertible-top compartment lid.

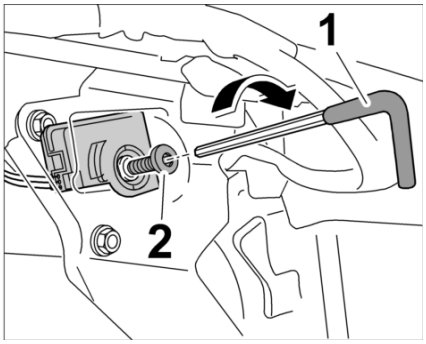
1.1. Insert Allen key (tool kit) **-1-** into the drive axle **-2-** and turn it anti-clockwise until the convertible-top compartment lid **-inset-** is fully open (perceptible stop).



Closing convertible-top compartment lid

2. Close convertible-top compartment lid.

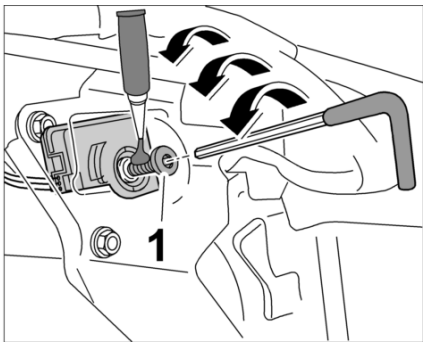
2.1. Grasp convertible-top compartment lid **-1-** above the brake light and push forward until it is closed.



Loosening hexagon socket head bolt

3. Loosen hexagon socket head bolt.

3.1. Turn Allen key (tool kit) **-1-** clockwise until the hexagon socket head bolt **-2-** (left-hand thread) is unscrewed.



Bonding in hexagon socket head bolt

4. Bond in hexagon socket head bolt.

4.1. Coat hexagon socket head bolt **-1-** with medium-strength screw-locking compound and screw it in by three turns (left-hand thread).

top of page

Subsequent work

Subsequent work

1. Close hydraulic valve on the hydraulic pump. 618419 Removing and installing hydraulic pump - section on "Information"
2. Calibrate cabriolet convertible top. 6101K2 K2 - Calibrating cabriolet convertible top
3. Install rear wall trim panel 703119 Removing and installing trim panel for rear wall - section on "Installing" [997310 997311 997320 997321] *703119 23 Removing and installing trim panel for rear wall - section on "Installing" [997610 997611 997620 997621]*

61 02 15 Adjusting the hardtop - as of MY 2005

- Adjusting the hardtop

Tools

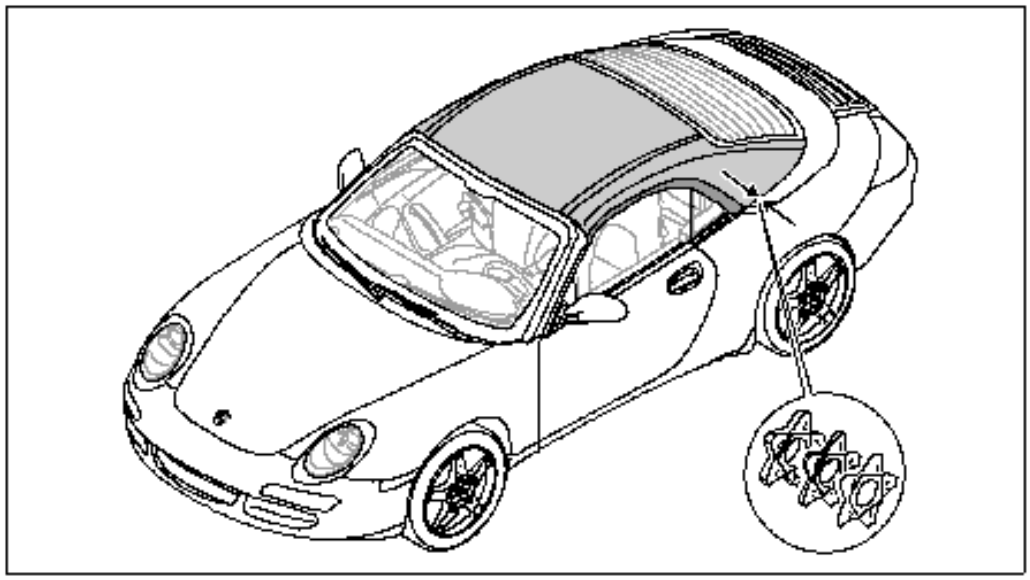
Designation	Type	Number	Explanation	
Star gauges for body gap dimensions	commercially available tool	NR.127-1		PORSCHE siehe Handbuch Werkstattausrüstung Voir le Manuel Equipement d´atelier Refer to the Workshop Equipment manual Vease Manual de Equipamiento de Taller Vedere il Manuale dell´attrezzatura d´officina ワークショップ・イクイップメント・マニュアルを参照

top of page

Adjusting the hardtop

Adjusting the hardtop

Installation Location:



Main illustration for adjusting hardtop

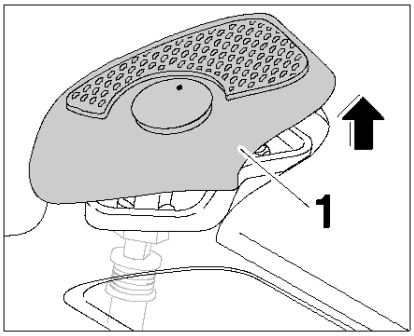
Note

- *Set gap dimensions on the lids, doors and covers, or accessories in accordance with the gap specifications.*
- *Given a clearance in the opening that is too great or too small, the movable body or the accessories must be centred accordingly.*
- *Ensure that the gaps do not taper or do not narrow at local points.*
- *The given values are guidelines which should be observed as far as possible.*
- *The guidelines apply to repair and assembly work.*
- *Use star gauges to measure the gap dimensions,* ***Star gauges for body gap dimensions NR.127-1***

Note

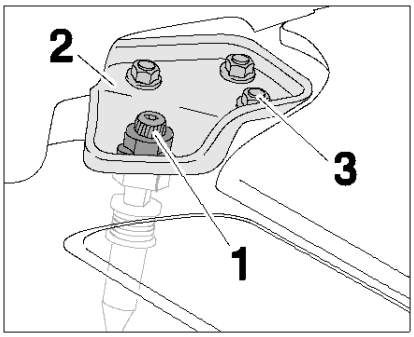
Change setting on the convertible top pin housing only after checking the adjusting dimensions with the convertible top closed.

1. Check gap dimensions for hardtop. *501000 Diagram - body gap dimensions*



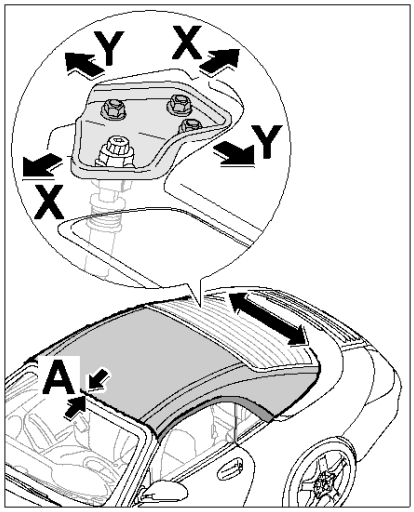
Unclipping trim panel

2. Unclip trim panel for hardtop locking element **-1-** in an upward direction.



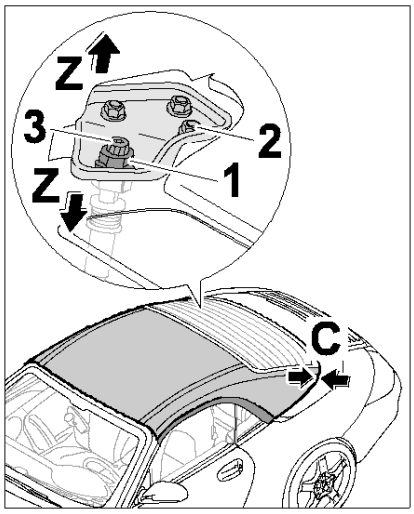
Loosening rear hardtop locking element

3. Loosen fastening screw **-1-** of rear hardtop locking element **-2-** approx. 2 turns and completely loosen by hand (approx. 8 turns).
4. Loosen the fastening screws **-3-** .



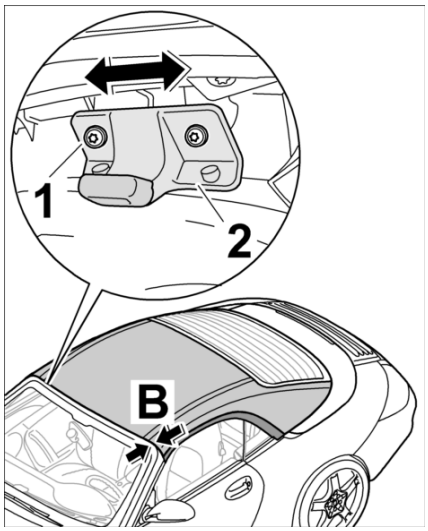
Aligning hardtop at the front

5. By shifting the hardtop sideways at the rear hardtop locking elements, set a parallel gap **-A-** at the windscreen frame.



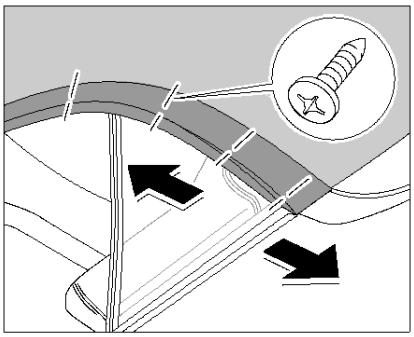
Setting gap between hardtop and convertible top compartment lid

6. Tightening the fastening screws **-2-** of the rear hardtop locking elements. Tightening torque
   Tightening torque: 10 (7.5 ftlb.) Nm
7. By turning the fastening nuts **-1-** adjust the gap dimension between hardtop and convertible top compartment lid **-C-** on both sides of the vehicle. Tighten fastening nuts **-1-** . Tightening torque
   Tightening torque: 90 (67 ftlb.) Nm
8. Screw down the fastening screw **-3-** of the rear hardtop locking element. Tightening torque
   Tightening torque: 46 (34 ftlb.) Nm



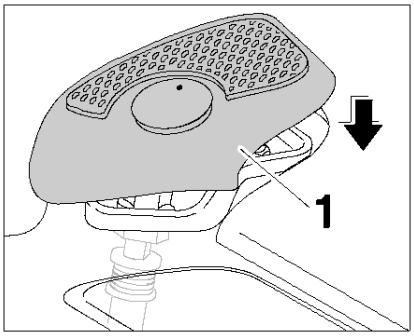
Laterally aligning the hardtop

9. Loosen the fastening screws **-1-** .
10. By shifting the centring journal **-2-** sideways at the hardtop by **-2 mm +/-1-** , set a parallel gap at the sides **-B-** of the windscreen frame. Tighten fastening screws **-1-** . Tightening torque **Tightening torque: 10 (7.5 ftlb.) Nm**
11. Close all side windows.



Adjusting channel strips on hardtop

12. Check for smooth operation and freedom from leaks; re-adjust the channel strips on the hardtop if necessary, adjust side windows if necessary. Before setting, check position of the side windows in relation to the convertible top. 647519 Removing and installing side window - section on "Adjusting"
13. It might be possible to avoid adjusting the side windows by varying the gap at the hardtop at the rear. If the windows are in contact with the hardtop at their end position, correct the gap at the hardtop at rear toward the max. value. If the side windows leak, correct the gap at the hardtop at rear toward the min. value. 644019 Removing and installing front door window



Clipping in the trim panel

14. Check fastening clips, replace if necessary. Clip in trim panel for hardtop locking element **-1-** .

997310, 997311, 997320, 997321, 997610, 997611, 997620, 997621

as of MY 2005
Country C00, C02, C05, C07, C08, C09, C10, C11, C12, C13, C14, C15, C16, C18, C19, C20, C21, C22, C23, C24, C25, C26, C27, C28, C32, C33, C34, C35, C36, C37, C38, C39, C45, C46, C98, C99

WARNUNG

Gefahr des Verlusts der Text-Bild-Zuordnung beim Ausdruck.

- **Aus technischen Gründen kann derzeit nicht ausgeschlossen werden, dass trotz einwandfreier Darstellung auf dem Bildschirm beim Ausdruck der Zusammenhang von Text und zugehörigem Bild verloren geht.**
- **Wird der Fehler nicht bemerkt, besteht die Gefahr, daß Arbeiten nicht korrekt durchgeführt werden und es dadurch zu Personen- und Sachschäden kommt.**

Vergleichen Sie deshalb nach dem Druckvorgang unbedingt die Ausdrucke mit der Bildschirmdarstellung. Korrigieren Sie die Ausdrucke im Fehlerfall so, daß der Inhalt der Bildschirmdarstellung zutreffend wiedergegeben wird.

WARNING

Danger of losing text-figure correspondence when printing out.

- **For technical reasons, it can currently not be ruled out that the correspondence between text and associated figure can be lost when it is printed out, even though the display on the screen is correct.**
- **If the fault is not noticed, there is the danger that work will not be performed correctly which can cause injury and damage.**

Therefore, always compare printouts with the screen display after printing them out. Correct the printouts if they are faulty so that the content of the screen display matches that on the printouts.

AVERTISSEMENT

Risque de perte de la correspondance texte-illustration lors de l'impression papier.

61 02 19 Removing and installing hardtop - as of MY 2005

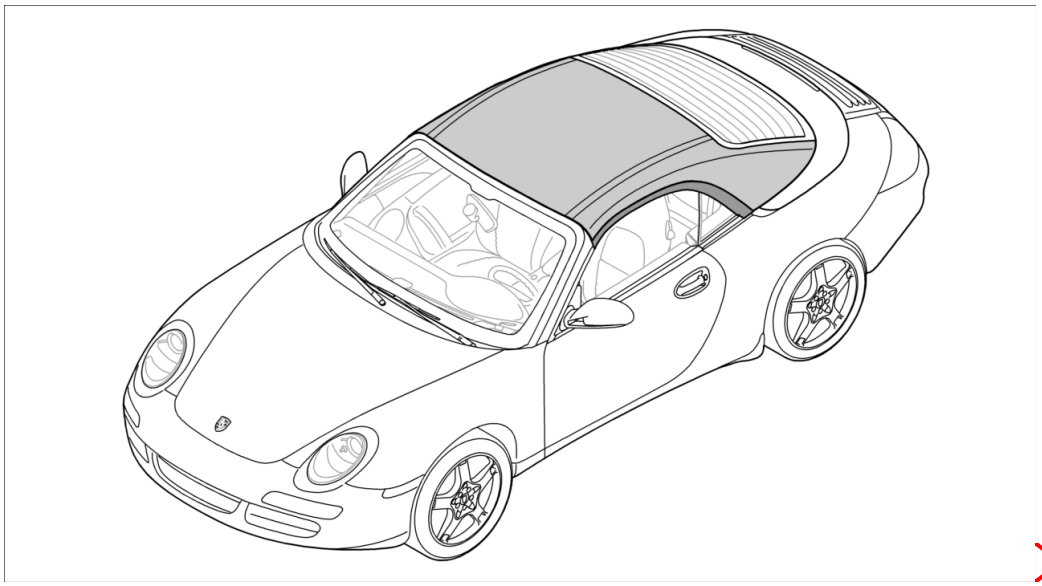
- Removing hardtop
- Installing hardtop

top of page

Removing hardtop

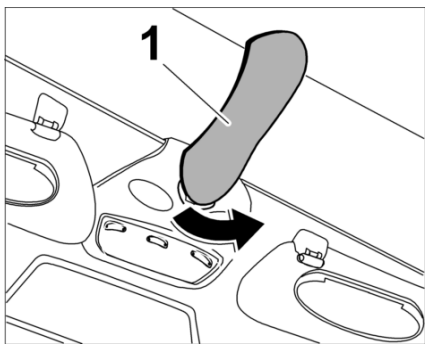
Removing hardtop

Installation Location:



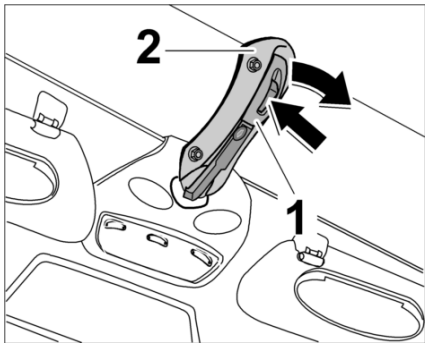
Main illustration, removing and installing hardtop

1. Open all four side windows.



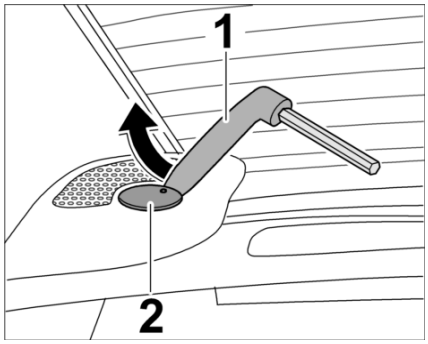
Pulling off cover for locking lever

2. Pull cover of the front locking lever **-1-** down and off.



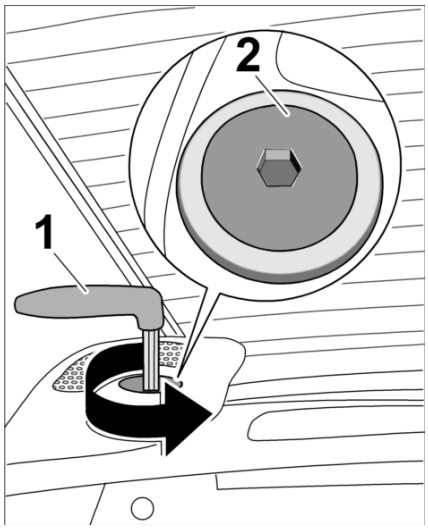
Opening the locking lever

3. Press red knob **-2-** on the front locking lever **-1-** and open the catch fully.



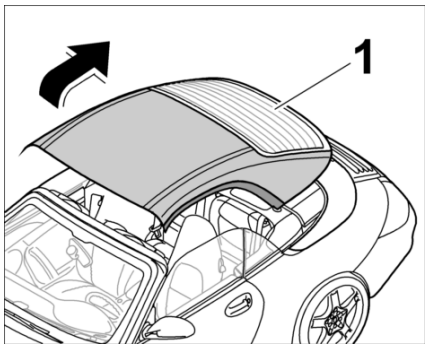
Removing the plastic cover

4. Take unlocking handle **-1-** from the shelf between the two front seats. Carefully remove the plastic cover **-2-** on both sides of the hardtop using the unlocking handle **-1-** .



Unlock hardtop lock

5. Insert unlocking handle **-1-** into one of the rear hardtop locking elements. Loosen fastening screw **-2-** approx. 2 turns, pull off handle and completely loosen fastening screw **-2-** by hand (approx. 8 turns).
6. Unscrew fastening screw **-2-** up until stop and turn 2 turns to the left (safeguard it against damage).
7. Repeat procedure on the other side of the hardtop.



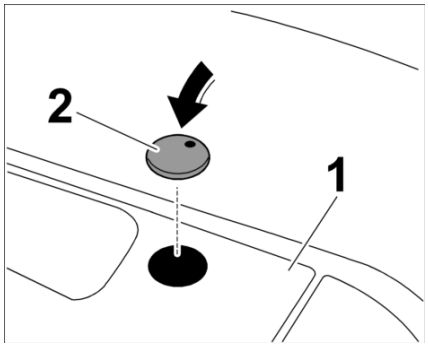
Removing the hardtop

ATTENTION

Hand can be trapped between the hardtop and convertible top compartment lid.

Evenly lift the hardtop at both sides.

8. Together with another person on the other side, evenly lift the hardtop **-1-** out of the locking elements. Carefully lift the hardtop up and over the vehicle to the rear. Carefully take the protective cover out of the roll-over protection cover to the rear and press the plastic cover into the locking elements.



Pressing in covers

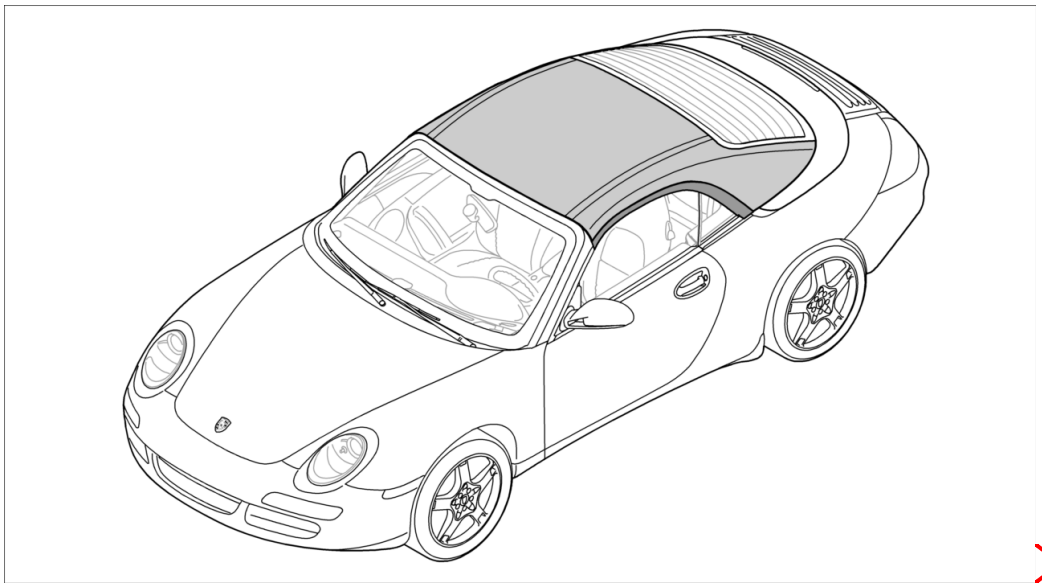
9. Press both plastic covers **-2-** in the rear cover **-1-** .

top of page

Installing hardtop

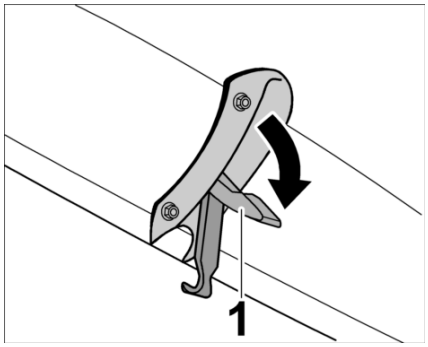
Installing hardtop

Installation Location:



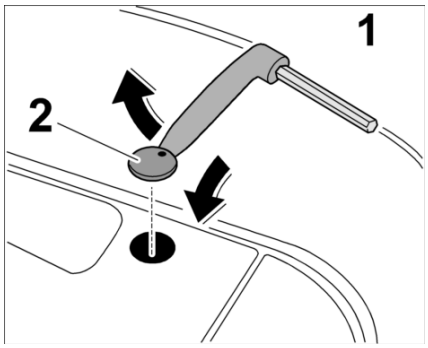
Main illustration, removing and installing hardtop

1. Open all four side windows.



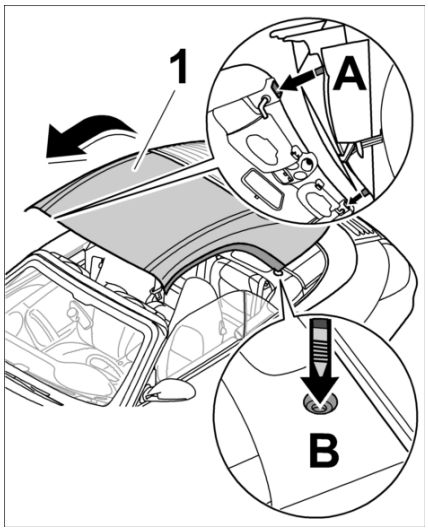
Opening the locking lever

2. The locking lever **-1-** must be opened fully.



Lifting the plastic cover

3. Take unlocking handle **-1-** from the shelf between the two front seats. Carefully remove the plastic cover **-2-** on both sides of the rear cover using the unlocking handle **-1-** .



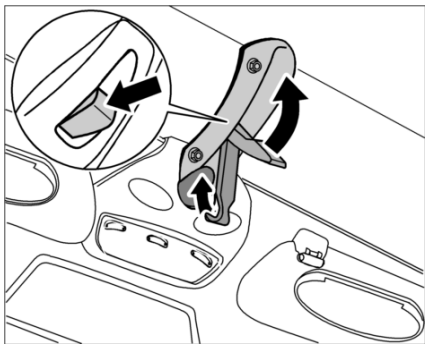
Fitting the hardtop

ATTENTION

Hand can be trapped between the hardtop and convertible top compartment lid.

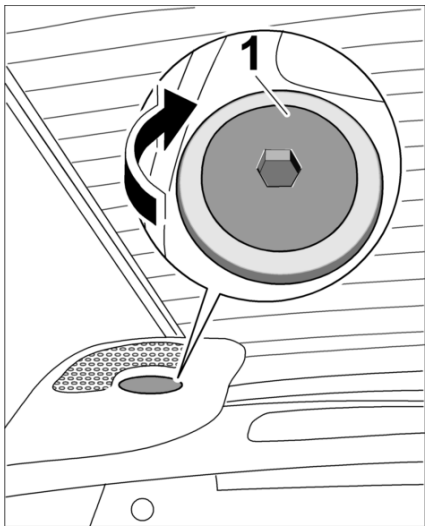
Evenly lift the hardtop at both sides.

4. Carefully lift the hardtop **-1-** over the vehicle from the rear and insert it first into the mounts of the windscreen frame at the front **-inset A-** . Then carefully lower the hardtop into the locking elements at the rear **-inset B-** .



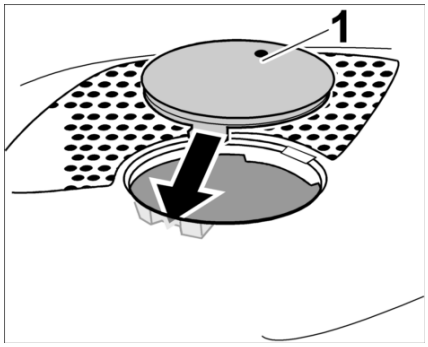
Closing locking lever at the front

5. Swivel the locking lever for the front lock to the rear. When doing so, the locking hook must engage in the windscreen frame. The white marking line on the red locking button **-inset-** must become visible when the hardtop is locked properly.



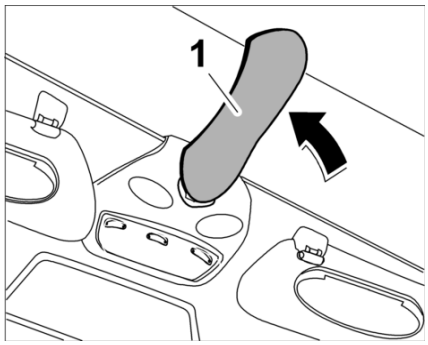
Closing rear locking mechanism

6. Screw in fastening screw **-1-** by hand and then screw down at tightening torque **Tightening torque: 34 ftlb.** .
7. Repeat procedure on the other side of the hardtop.



Inserting plastic cover

8. Press both plastic covers **-1-** into the trim panel of the hardtop lock.



Pushing on cover of the locking lever

9. Push on the cover **-1-** of the front locking lever.

997310, 997311, 997320, 997321, 997610, 997611, 997620, 997621

61 02 37 Disassembling and assembling hardtop - as of MY 2005

- Preliminary work
- Disassembling hardtop
- Assembling hardtop
- Subsequent work

top of page

Preliminary work

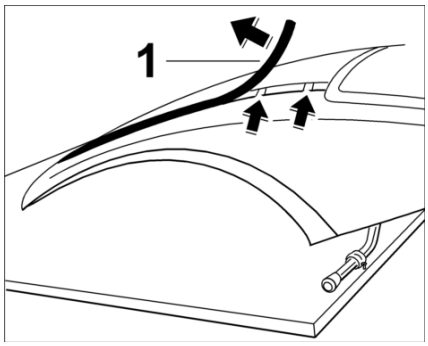
Preliminary work

1. Remove rear window. 648619 Removing and installing rear window - chapter on "Removing"
2. Remove centring peg. 611019 Removing and installing front convertible-top mount - chapter on "Removing"
3. Remove rear hardtop locking mechanism. 611119 Removing and installing rear mount - chapter on "Removing"

top of page

Disassembling hardtop

Disassembling hardtop

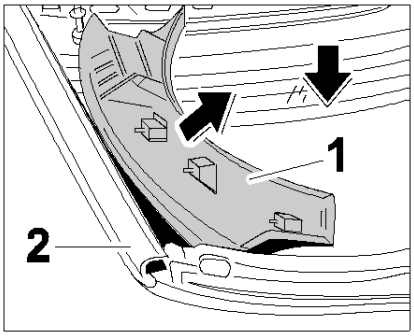


Detaching cover strips and roof strip clips

1. Detach cover strips and roof strip clips.

1.1. Lift up the cover strip **-1-** at left and right using a plastic spatula and pull it off. The roof strip clips are destroyed on removal.

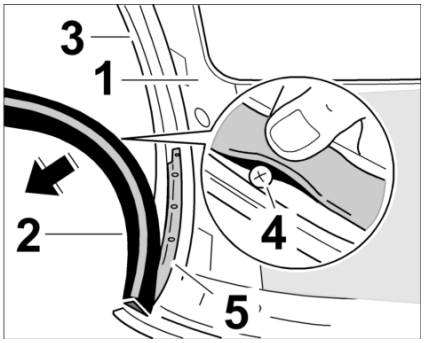
2. Place outer roof panel of hardtop on the assembly fixture.



Unclipping linings

3. Unclip linings.

3.1. Unclip linings **-1-** front and rear from hardtop **-2-** .



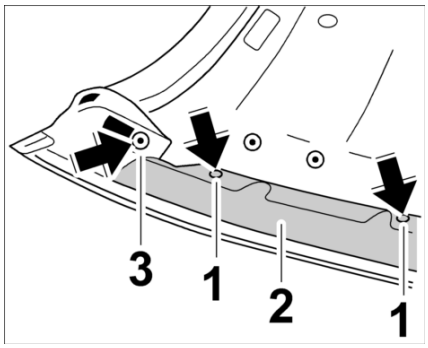
Detaching seal at sides of roof frame

4. Detach seal at sides of roof frame.

4.1. The seal at the sides of the roof frame **-1-** is in two parts. Pull the upper seal **-2-** out of the profile of the retaining strip **-3-** .

4.2. Unscrew fastening screws **-4-** from the retaining strip **-3-** .

4.3. Remove the seal below together with the retaining strip **-5-** from the roof frame **-1-** .

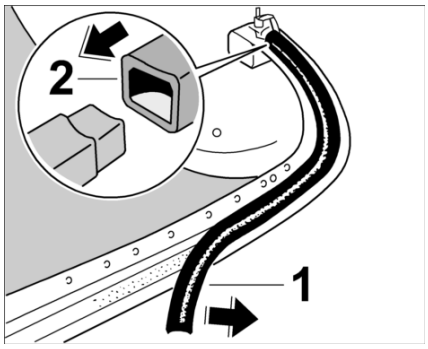


Detaching seal at sides of roof frame

5. Loosen and detach retaining strip and roof frame seal.

5.1. Unscrew tapping screws **-1-** from retaining strip **-2-** .

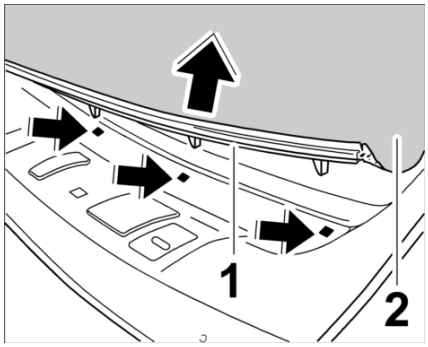
5.2. Unscrew pan-head screw **-3-** from the roof frame seal, detach the seal at the corners and remove it.



Pulling off sealing rubber

6. Pull off sealing rubber.

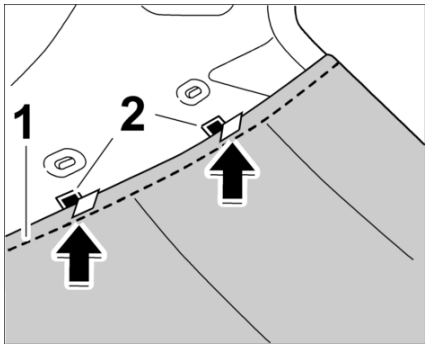
6.1. Pull off the surrounding sealing rubber **-1-** to the rear and pull it out at the ends from the roof frame seal **-2-** .



Detaching roof liner at front

7. Detach roof liner at front.

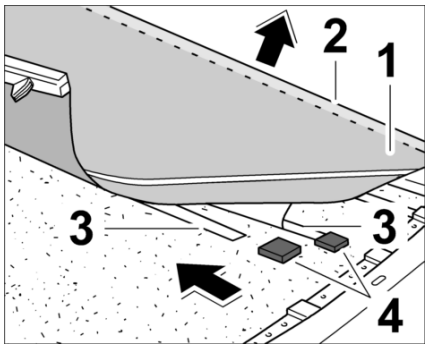
7.1. Lift front retaining strip **-1-** of roof liner **-2-** with a plastic spatula and pull it off.



Detaching roof liner at sides

8. Detach roof liner at sides.

8.1. Lift up the roof liner **-1-** on the left and right sides with a plastic spatula and disengage from the sheetmetal clips **-2-** .

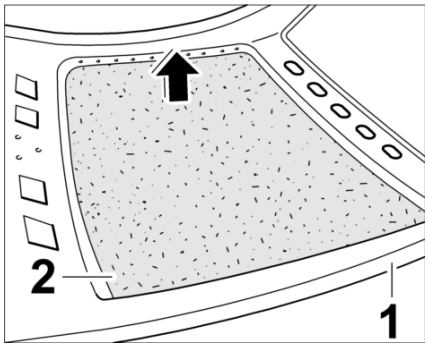


Detaching roof liner at rear and transverse struts

9. Detach roof liner at rear and transverse struts.

9.1. Pull plastic strip **-2-** of roof liner to the rear and detach it **-1-**
.

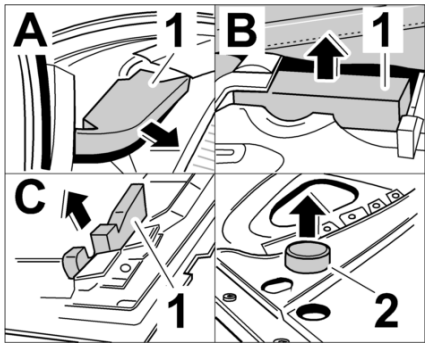
9.2. Pull out transverse struts **-3-** with plastic sleeves **-4-** and remove the roof liner **-1-** .



Detaching sound absorber from the hardtop body

10. Loosen sound absorber from the hardtop body.

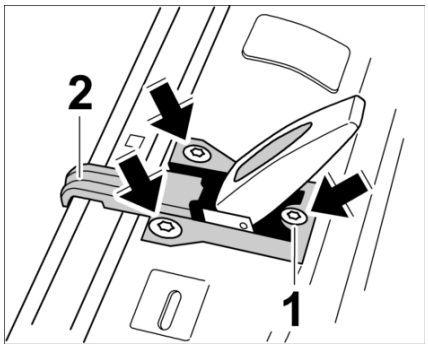
10.1. Loosen the sound absorber **-2-** of the hardtop body **-1-** using a spatula.



Removing foam strips

11. Remove foam strips.

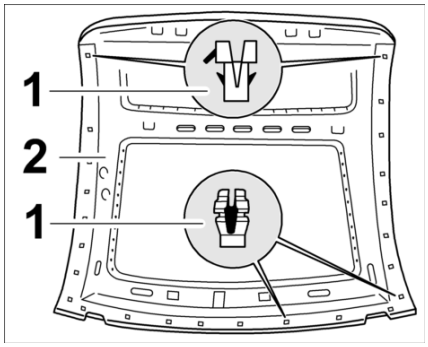
11.1. Carefully pull off foam strips **-1-** on B-pillar **-A-** , at rear of roof **-B-** and at the centring pegs at front **-C-** and the foam pads **-2-** on the left and right.



Removing locking lever

12. Remove locking lever.

12.1. Unscrew and remove fastening screws **-1-** from the locking lever **-2-** .



Pressing expander nuts out of the hardtop body

13. Press expander nuts out of the hardtop body.

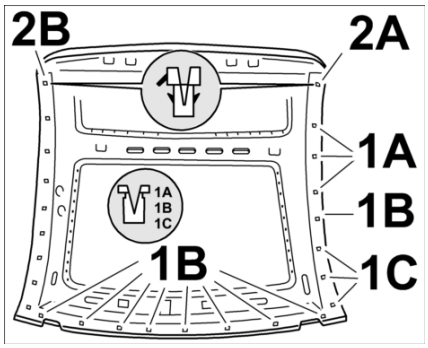
13.1. Press expander nuts **-1-** out of the hardtop body **-2-** at the sides and top.

top of page

Assembling hardtop

Assembling hardtop

1. Set the hardtop down on the assembly fixture on the outer roof panel.

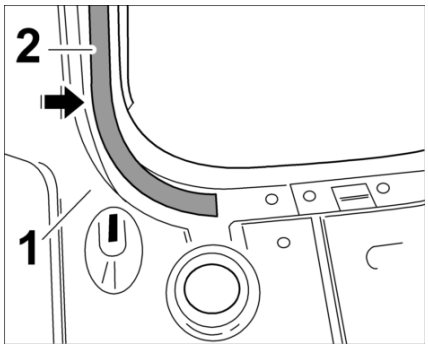


Pressing expander nuts into the hardtop body

Note

- *Please observe the coloured installation position of the expander nuts!*
- *1A = yellow*
- *1B = white*
- *1C = green*
- *2A = red*
- *2B = white*

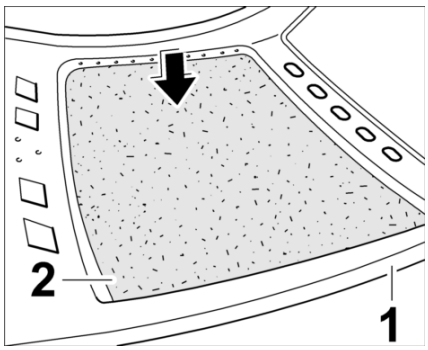
2. Press expander nuts into the hardtop body.
2.1. Beginning in the direction of travel going left
2.2. One red **-2A-** expander nut
2.3. Three yellow **-1A-** expander nuts
2.4. One green **-1C-** expander nut
2.5. One white **-1B-** expander nut
2.6. Press three green **-1C-** expander nuts into the hardtop body.
2.7. Beginning in the direction of travel going right
2.8. One white **-2B-** expander nut
2.9. Three yellow **-1A-** expander nuts
2.10. One green **-1C-** expander nut
2.11. One white **-1B-** expander nut
2.12. Press three green **-1C-** expander nuts into the hardtop body.
2.13. Press the expander nuts at the front **-1B-** into the hardtop body in the direction of travel.



Sticking felt strips on inside of window aperture

3. Stick felt strips on inside of window aperture.

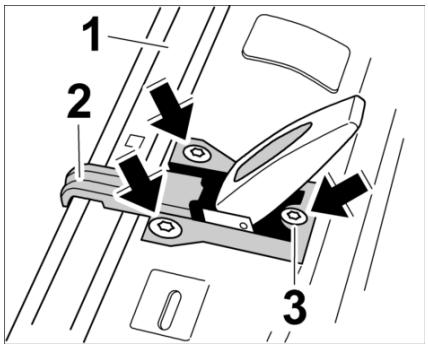
3.1. Stick a felt strip **-2-** approx. 2 cm wide along the window aperture on the rivet joints of the hardtop body **-1-** .



Sticking sound absorber in the hardtop body

4. Stick sound absorber on the hardtop body.

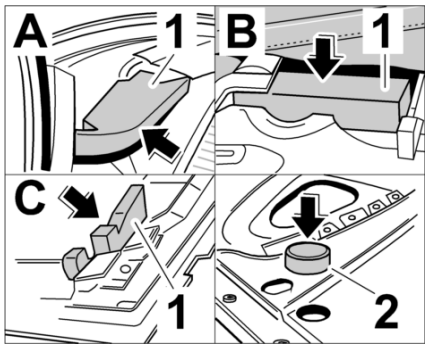
4.1. Position the self-adhesive sound absorber **-2-** in the hardtop body **-1-** and press firmly into place.



Fitting locking lever

5. Fit locking lever.

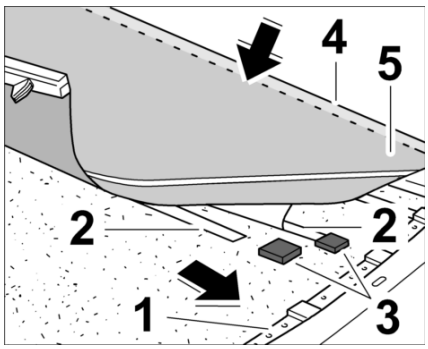
5.1. Position locking lever **-2-** on hardtop body **-1-** and secure with fastening screws **-3-** . Tightening torque **Tightening torque : 10 (7.5 ftlb.) Nm**



Sticking in foam strips and foam pads

6. Stick in foam strips and foam pads.

6.1. Position foam strips **-1-** on B-pillar **-A-** , at rear of roof **-B-** and at centring pegs at front **-C-** and the foam pads **-2-** on the left and right. Press on firmly.

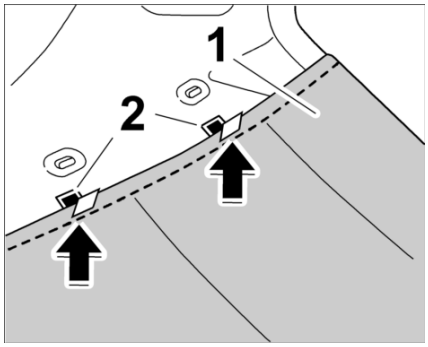


Engaging roof liner at rear and transverse struts

7. Engage roof liner at rear and transverse struts.

7.1. Insert transverse struts **-2-** with plastic sleeves **-3-** into the hardtop body **-3-** .

7.2. Pull back plastic strip **-4-** of roof liner **-5-** and engage in groove of hardtop body **-1-** .



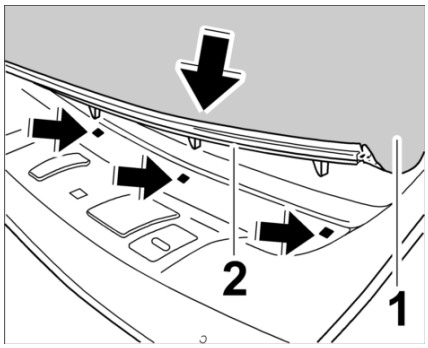
Engaging roof liner at sides

Note

- *If the hardtop body is new, the sheetmetal clips on the left and right must be bent over to the outside using a plastic hammer.*

8. Engage roof liner at sides.

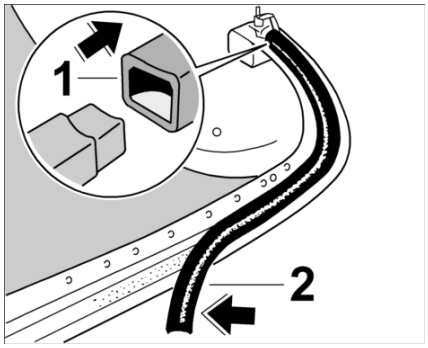
8.1. Engage roof liner **-1-** at the left and right sides in the sheetmetal clips **-2-** .



Fitting roof liner at front

9. Fit roof liner at front.

9.1. Position front retaining strip **-2-** of roof liner **-1-** and clip it in.

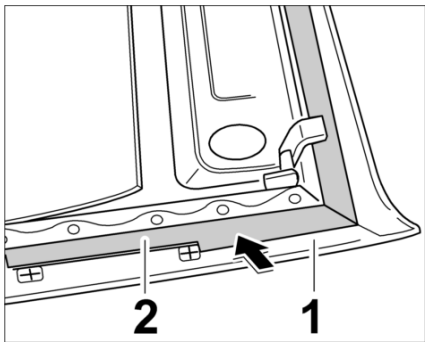


Fitting rubber seal

10. Fit sealing rubber.

10.1. Insert self-adhesive sealing rubber **-2-** at the ends of the roof frame seal **-1-** .

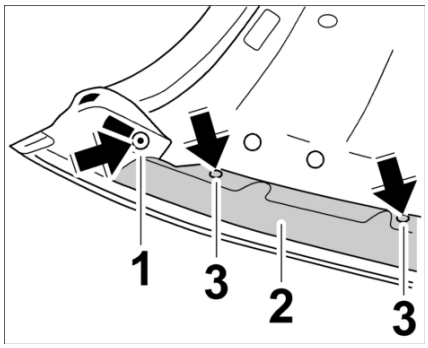
10.2. Remove protective film of the sealing rubber and press firmly into place at the rear on all sides.



Affixing Nito tape to the hardtop body

11. Affix Nito tape to the hardtop body.

11.1. Stick a 2 cm wide strip of Nitto tape **-2-** on the hardtop body **-1-** at the front left and right.

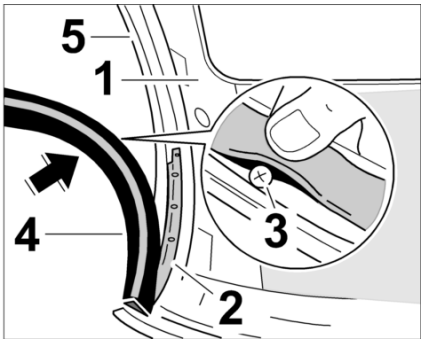


Fitting roof frame seal and retaining strip

12. Fit roof frame seal and retaining strip.

12.1. Engage roof frame seal in the hardtop body at the corners and fasten with the fastening screw **-1-** . Tightening torque **Tightening torque : 10 (7.5 ftlb.) Nm**

12.2. Position retaining strip **-2-** and screw down using the fastening screws **-3-** .

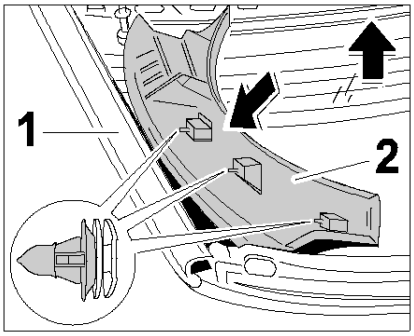


Fitting seal at sides of roof frame

13. Fit seal at sides of roof frame.

13.1. The seal at the sides of the roof frame **-1-** is in two parts. Position lower seal with retaining strip **-2-** on roof frame **-1-** and fasten with fastening screws **-3-** .

13.2. Press upper seal **-4-** into the profile of the retaining strip **-5-** .



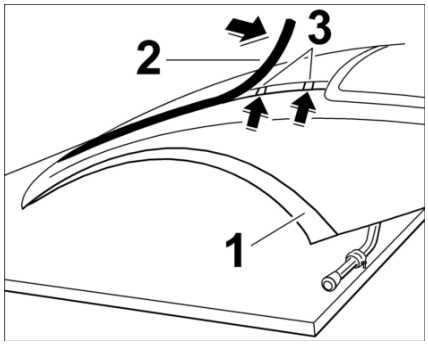
Clipping in lining

Note

- *Once a trim panel has been clipped in, the old plastic clips are no longer usable and must always be replaced.*

14. Fit lining.

14.1. Clip linings **-2-** front and rear into hardtop **-1-** .



Clipping in roof strip clips and cover strips

15. Clip in roof strip clips and cover strips.

15.1. Fit roof strip clips **-3-** .

15.2. Fit cover strip seal on the cover strip **-2-** .

15.3. Position cover strips on the hardtop body **-1-** and press into the roof strip clips.

top of page

Subsequent work

Subsequent work

1. Install rear hardtop locking mechanism. 611119 Removing and installing rear mount - chapter on "Installing"
2. Install centring peg. 611019 Removing and installing front convertible-top mount - chapter on "Installing"
3. Install rear window. 648619 Removing and installing rear window - chapter on "Installing"

997310, 997311, 997320, 997321, 997610, 997611, 997620, 997621

as of MY 2005
Country C00, C02, C05, C07, C08, C09, C10, C11, C12, C13, C14, C15, C16, C18, C19, C20, C21, C22, C23, C24, C25, C26, C27, C28, C32, C33, C34, C35, C36, C37, C38, C39, C45, C46, C98, C99

WARNUNG

Gefahr des Verlusts der Text-Bild-Zuordnung beim Ausdruck.

- **Aus technischen Gründen kann derzeit nicht ausgeschlossen werden, dass trotz einwandfreier Darstellung auf dem Bildschirm beim Ausdruck der Zusammenhang von Text und zugehörigem Bild verloren geht.**

61 05 19 Removing and installing latch at front - as of MY 2005

- Preliminary work
- Removing latch at front
- Installing latch at front
- Subsequent work

top of page

Preliminary work

Preliminary work

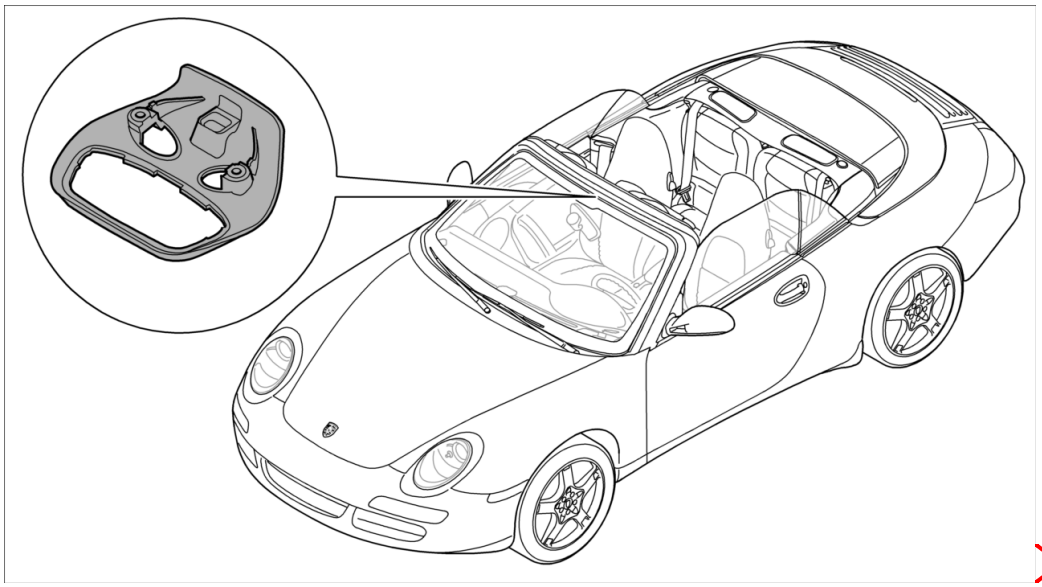
1. Remove interior light. 962219 Removing and installing bulb for interior light - section on "Removing"
2. Remove operator control unit for garage door opener. 967819 Removing and installing operator control unit for garage door opener - section on "Removing"

top of page

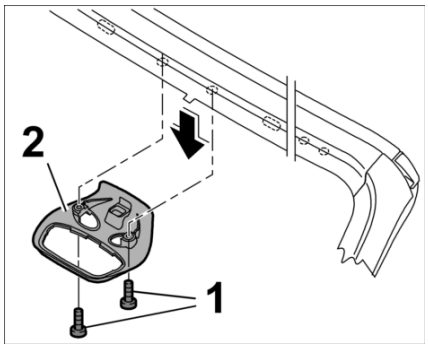
Removing latch at front

Removing front lock

Installation Location:

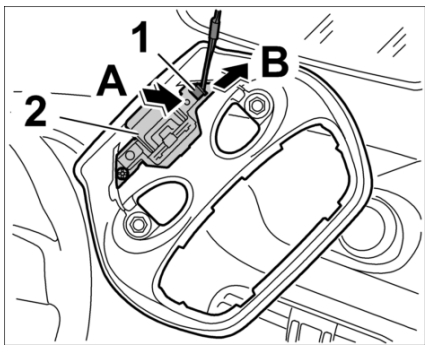


Installation position of front lock



Removing front lock

1. Release the two fastening screws **-1-** and pull the front lock **-2-** down and off **-arrow-** from the windscreen frame.
2. Push up the electric connecting lines for the interior light and the control units for garage door opener through the assembly openings on the front lock.



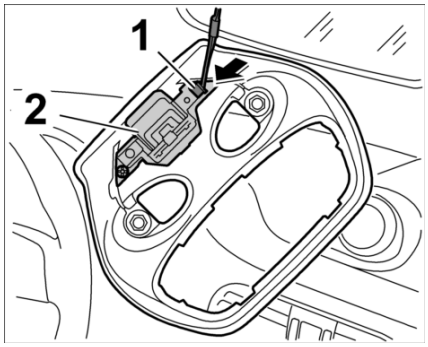
Pulling off connector on microswitch.

3. Release connector **-1-** **-Arrow A-** and remove from roof microswitch **-2-** **-Arrow B-** .

top of page

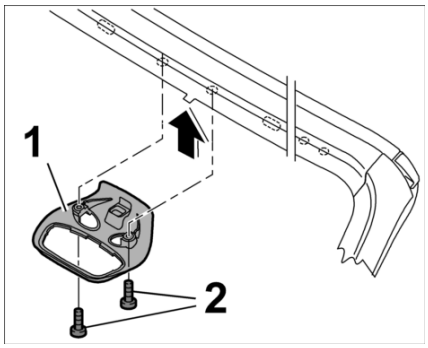
Installing latch at front

Installing front lock



Pushing on connector for microswitch

1. Push on connector **-1-** for roof microswitch **-2-** **-arrow-** until it is heard to engage.
2. Push the electric connecting lines for the interior light and the garage door opener control unit from above through the assembly openings on the front lock.



Installing front lock

Note

When fitting the front lock make sure the electric connecting lines are laid so that they are not trapped.

3. Mount front lock **-1-** from below **-arrow-** on windscreen frame.
4. Tighten front lock with the two fastening screws **-2-** . **Tightening torque: 7.5 ftlb.**

top of page

Subsequent work

Subsequent work

1. Install operator control unit for garage door opener. 967819 Removing and installing operator control unit for garage door opener - section on "Installing"
2. Install interior light. 962219 Removing and installing bulb for interior light - section on "Installing"

997310, 997311, 997320, 997321, 997610, 997611, 997620, 997621

as of MY 2005
Country C00, C02, C05, C07, C08, C09, C10, C11, C12, C13, C14, C15, C16, C18, C19, C20, C21, C22, C23, C24, C25, C26, C27, C28, C32, C33, C34, C35, C36, C37, C38, C39, C45, C46, C98, C99

WARNUNG

Gefahr des Verlusts der Text-Bild-Zuordnung beim Ausdruck.

- **Aus technischen Gründen kann derzeit nicht ausgeschlossen werden, dass trotz einwandfreier Darstellung auf dem Bildschirm beim Ausdruck der Zusammenhang von Text und zugehörigem Bild verloren geht.**
- **Wird der Fehler nicht bemerkt, besteht die Gefahr, daß Arbeiten nicht korrekt durchgeführt werden und es dadurch zu Personen- und Sachschäden kommt.**

Vergleichen Sie deshalb nach dem Druckvorgang unbedingt die Ausdrucke mit der Bildschirmdarstellung. Korrigieren Sie die Ausdrucke im Fehlerfall so, daß der Inhalt der Bildschirmdarstellung zutreffend wiedergegeben wird.

WARNING

Danger of losing text-figure correspondence when printing out.

- **For technical reasons, it can currently not be ruled out that the correspondence between text and associated figure can be lost when it is printed out, even though the display on the screen is correct.**
- **If the fault is not noticed, there is the danger that work will not be performed correctly which can cause injury and damage.**

Therefore, always compare printouts with the screen display after printing them out. Correct the printouts if they are faulty so that the content of the screen display matches that on the printouts.

AVERTISSEMENT

Risque de perte de la correspondance texte-illustration lors de l'impression papier.

- **Pour des raisons techniques, il ne peut pas être exclu à l'heure actuelle que, même en cas d'affichage correct à l'écran, la correspondance entre le texte et l'illustration puisse être erronée sur l'impression papier.**

61 09 19 Removing and installing convertible-top inner lining - as of MY 2005

- Preliminary work
- Removing convertible-top inner lining
- Installing convertible-top inner lining

top of page

Preliminary work

Preliminary work

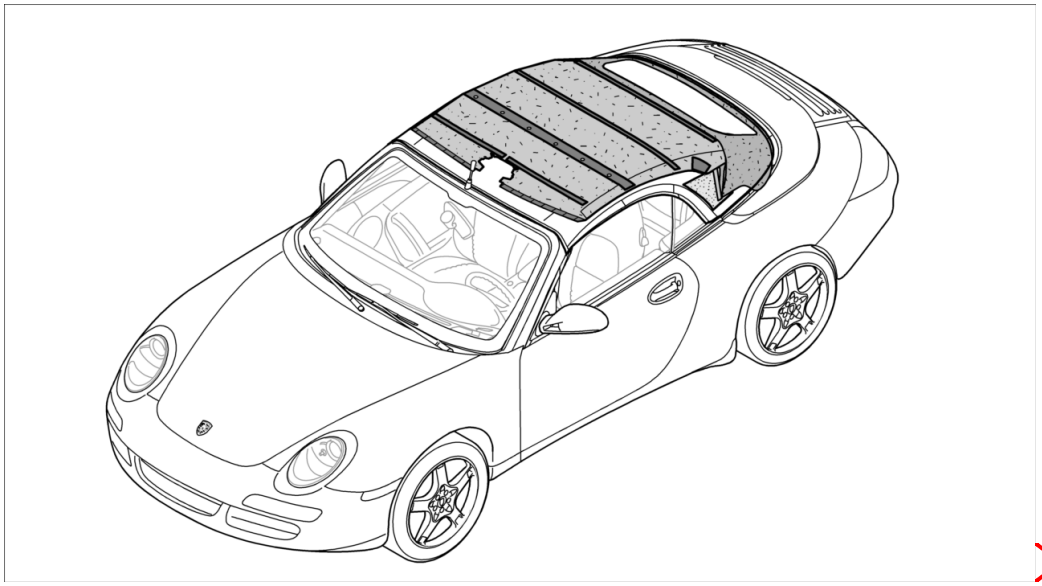
Move convertible top to service position. 6101IN IN -Convertible top in service position

top of page

Removing convertible-top inner lining

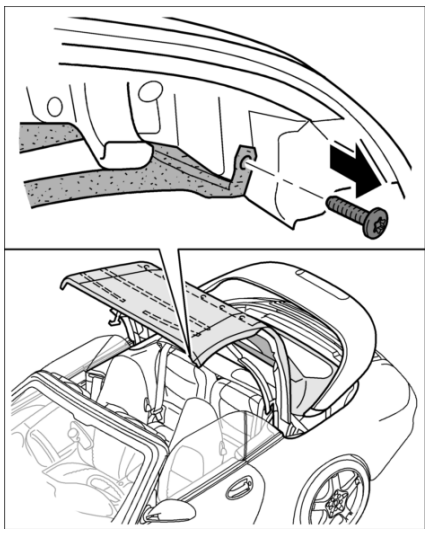
Removing front inner lining of convertible top

Installation Location:



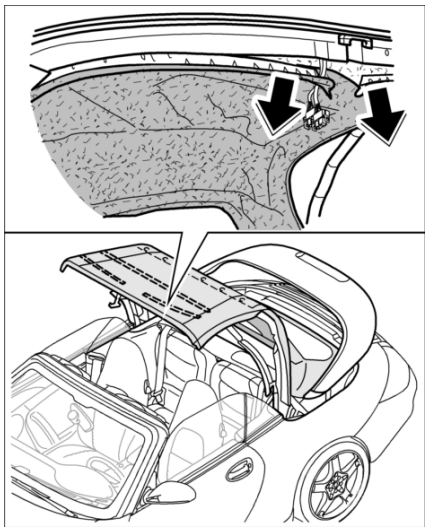
Installation position of convertible-top inner lining

1. Remove convertible top lock. 611919 Removing and installing convertible top lock - chapter on "Removing"



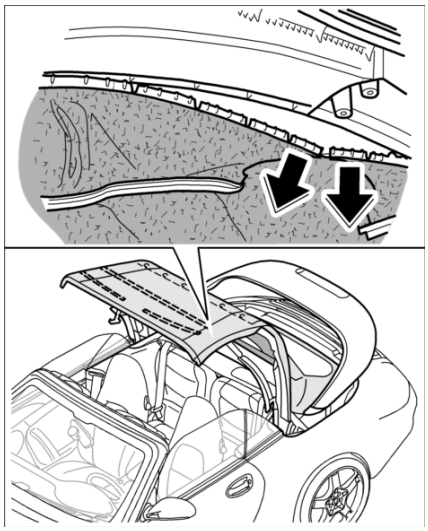
Unscrewing fastening screws

2. Unscrew fastening screws at the left and right.



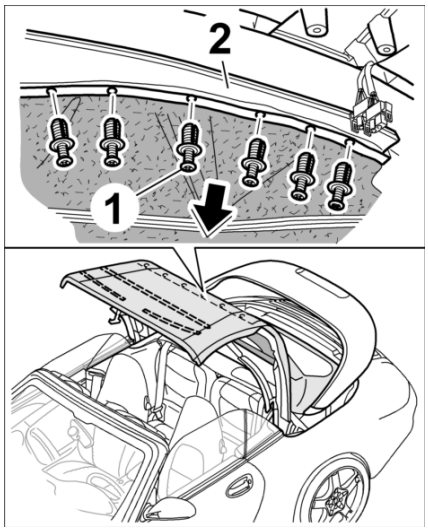
Pulling off front clamping rail

3. Pull off sewn-on clamping rail of headliner at roof frame 1 front left and right.



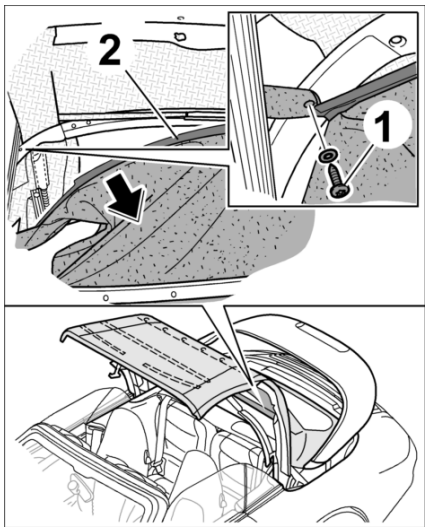
Pulling off the rear clamping rail

4. Pull off sewn-on clamping rail of headliner at roof frame 1 rear left and right.



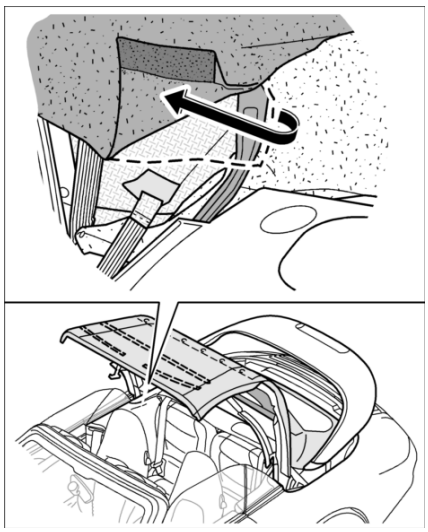
Loosen connection of convertible-top inner lining to roof frame

5. Unscrew expander nuts **-1-** from covering strips **-2-** and roof frame 1 at rear.



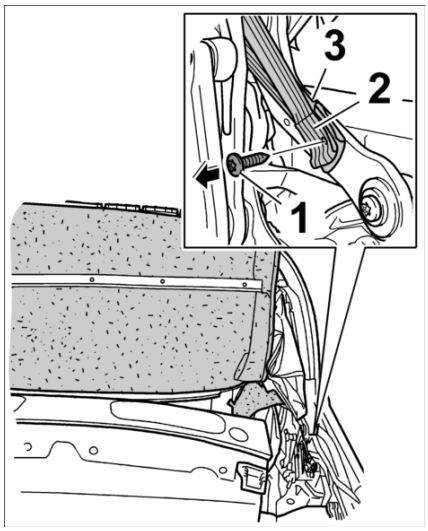
Removing clamping rail from main folding top bow

6. Unscrew fastening screws **-1-** at the left and right. Remove clamping rail connection **-2-** from the main folding top bow.
7. Open Velcro fastener of convertible-top inner lining on left and right.



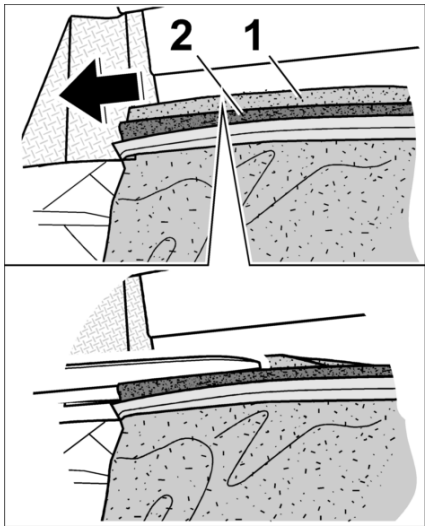
Opening Velcro fastener

8. Open Velcro fastener of headliner on the corner bow.



Removing bracing straps

9. Unscrew fastening screw **-1-** from bracing straps **-2 and 3-** .

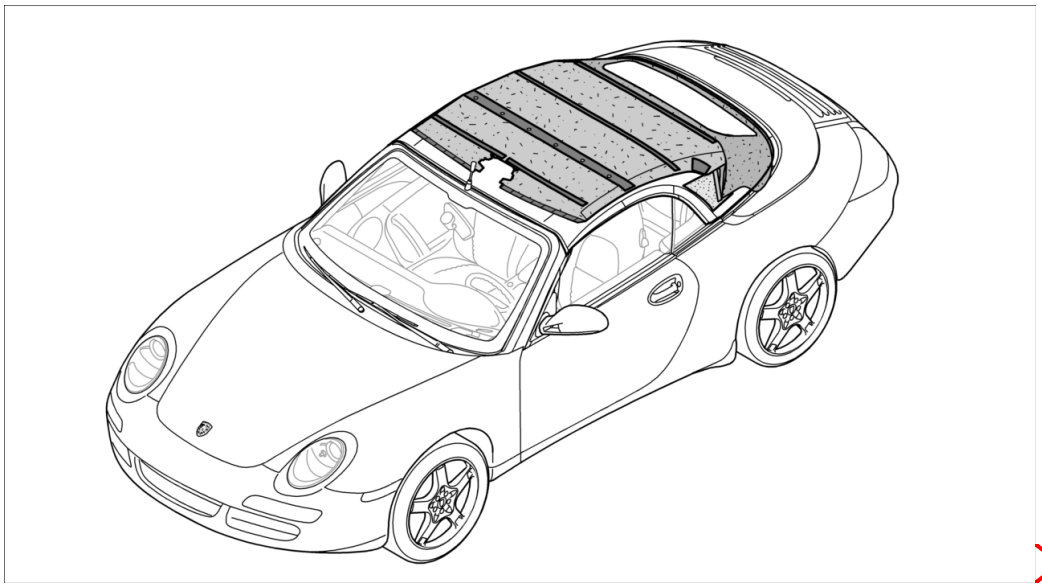


Removing corner bow connection

10. Using a plastic spatula, press out the connection strips **-1-** of the convertible-top inner lining from the rear groove of the corner bow. Detach convertible-top inner lining connection **-2-** from the front groove of the corner bow.

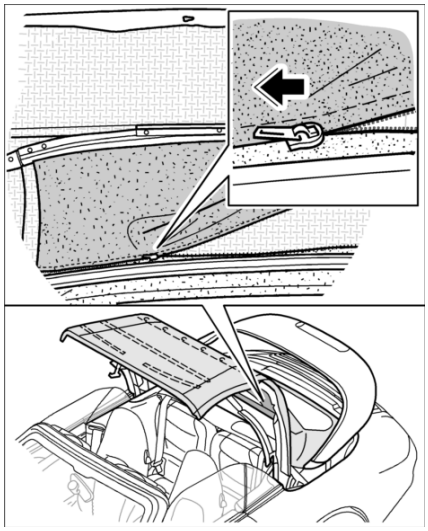
Removing inner lining of convertible top at rear

Installation Location:



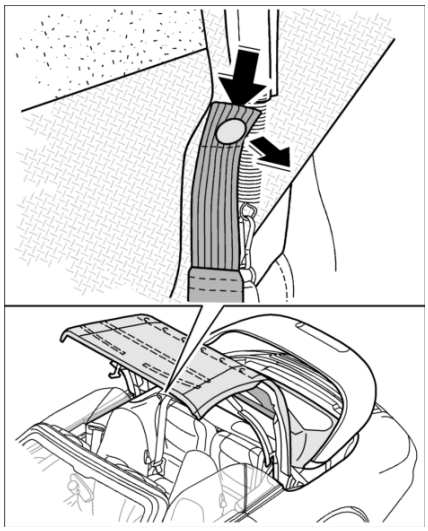
Installation position of convertible-top inner lining

1. Open Velcro fastener of convertible-top inner lining on left and right.



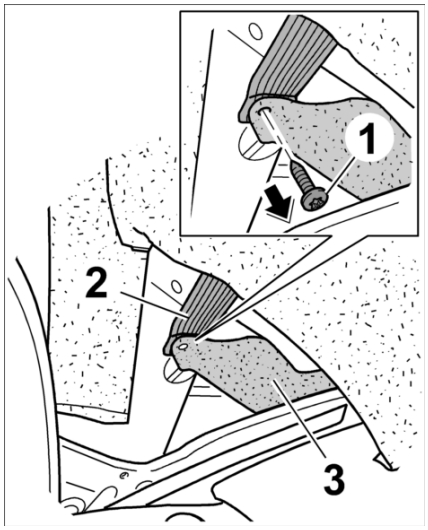
Separating inner lining from convertible top covering

2. Separate rear inner lining from convertible-top covering by opening the zip fastener zip.



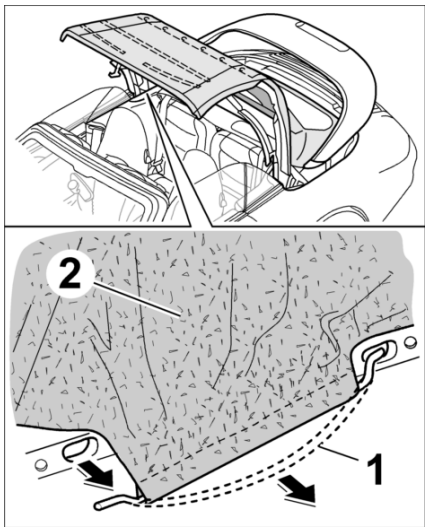
Release snap fastener

3. Release snap fastener.



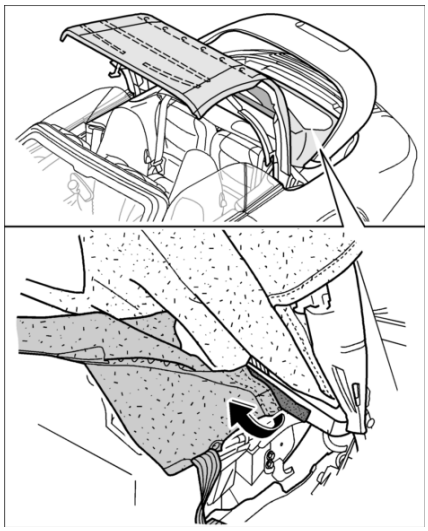
Loosening bracing strap.

4. Unscrew fastening screw **-1-** left and right from bracing strap **-2-** and rear of convertible-top inner lining **-3-** .



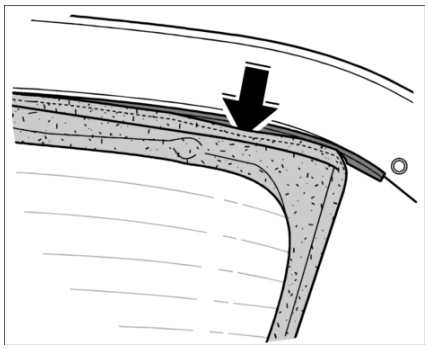
Removing brace

5. Bend brace **-1-** and remove to the front out of the tension bow. Remove brace from fabric pocket of convertible-top inner lining **-2-** .



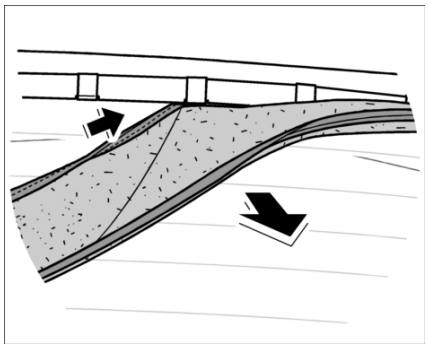
Opening Velcro fastener

6. Open Velcro fastener of tension bow.



Loosening connection on tension bow

7. Press connection out of groove on tension bow.

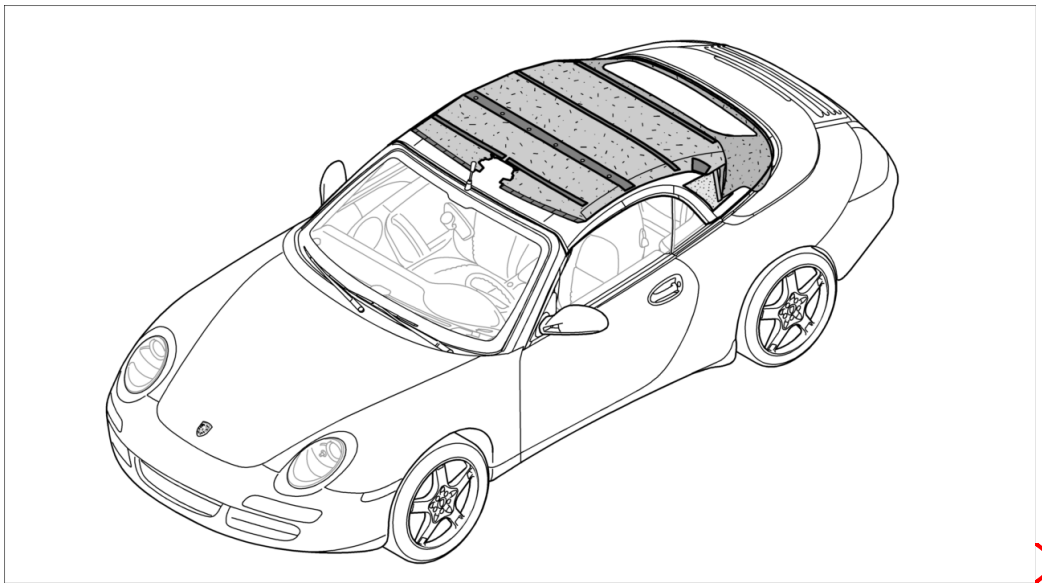


Loosening connection at rear window

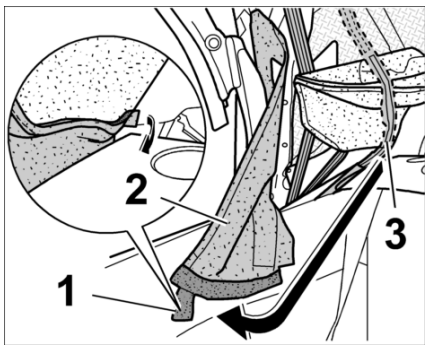
8. Carefully pull connection out of groove at rear window.

Removing convertible-top inner lining at sides

Installation Location:

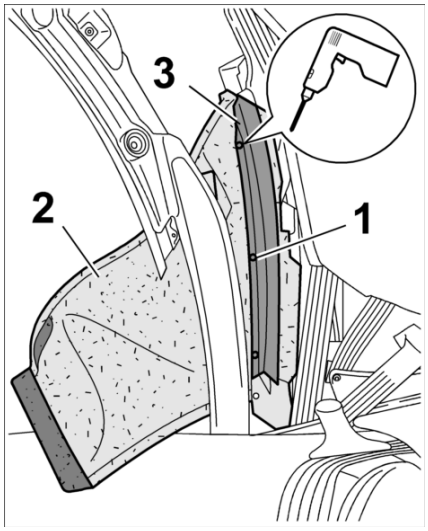


Installation position of convertible-top inner lining



Loosening Velcro fastener

1. Separate the Velcro fastener connection **-1-** between the sides of the convertible-top inner lining **-2-** and the corner bow **-3-** .



Removing convertible-top inner lining at sides

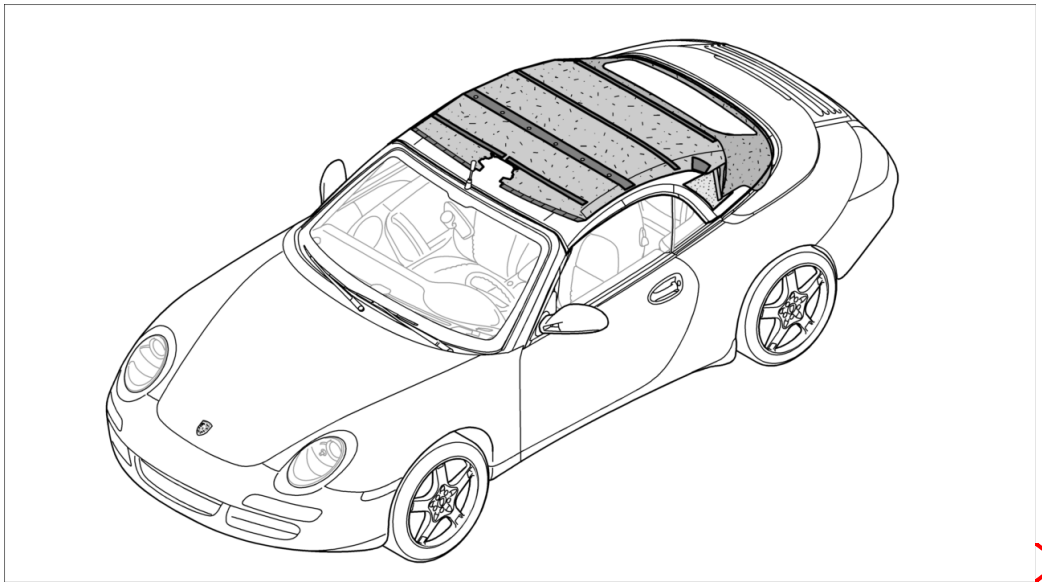
2. Drill out the rivets **-1-** Remove convertible-top inner lining at the sides **-2-** and the plastic insert **-3-** .

top of page

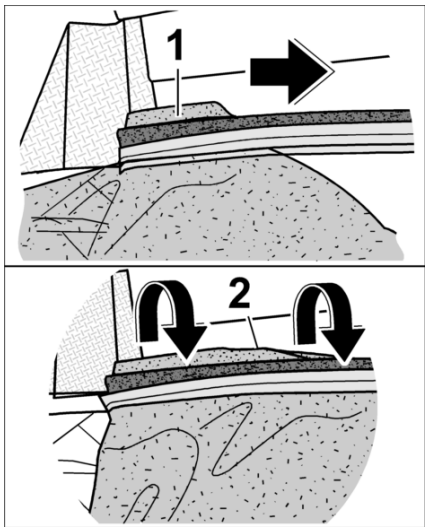
Installing convertible-top inner lining

Installing convertible-top inner lining at front

Installation Location:

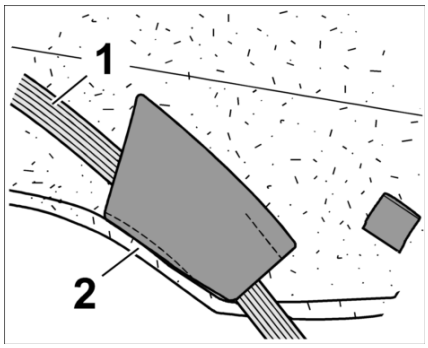


Installation position of convertible-top inner lining



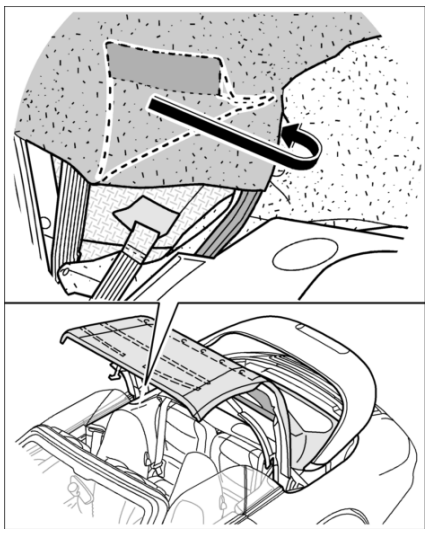
Installing corner bow connection

1. Insert convertible-top inner lining connection **-1-** into the front groove of the corner bow and centralise. Insert connecting strip **-2-** into the rear groove.



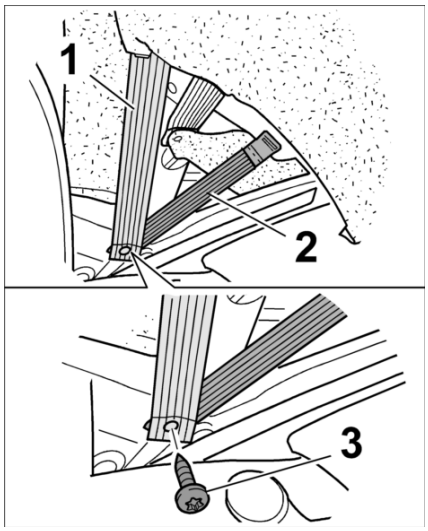
Pulling in bracing strap

2. Pull the bracing strap **-1-** into the plastic connection of the convertible-top inner lining **-2-** .



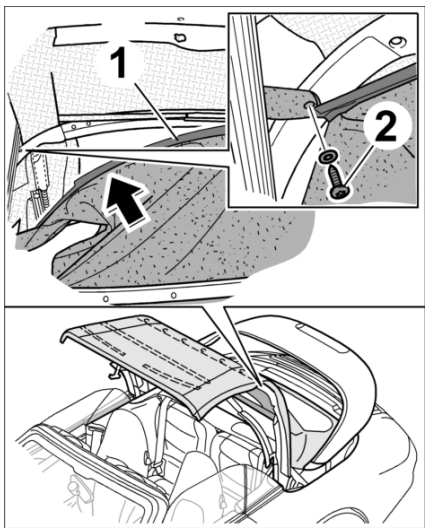
Closing Velcro fastener

3. Press Velcro fastener of convertible-top inner lining onto the corner bow.



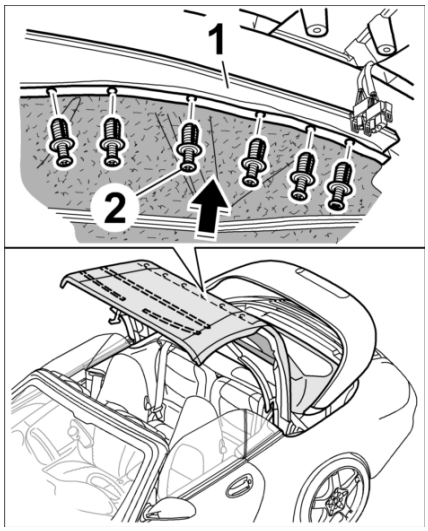
Installing bracing straps

4. Position bracing strap **-2-** under the bracing strap **-1-** . Follow the sequence as shown in the illustrated. Tighten fastening screw **-3-** with the bracing straps on the main folding top bow.
5. Close Velcro fastener of convertible-top inner lining on left and right sides.



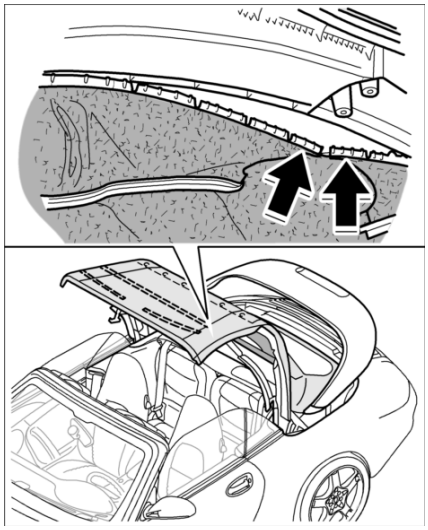
Fitting clamping rail to main folding top bow

6. Fit clamping rail connection **-1-** to the main folding top bow. Tighten the connection on the left and right with **-2-** .



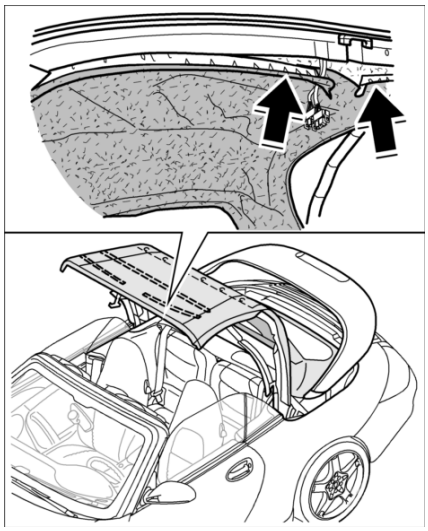
Fit connection of convertible-top inner lining to roof frame

7. Position covering strip **-1-** on roof frame 2 and press in expander nuts **-2-** .



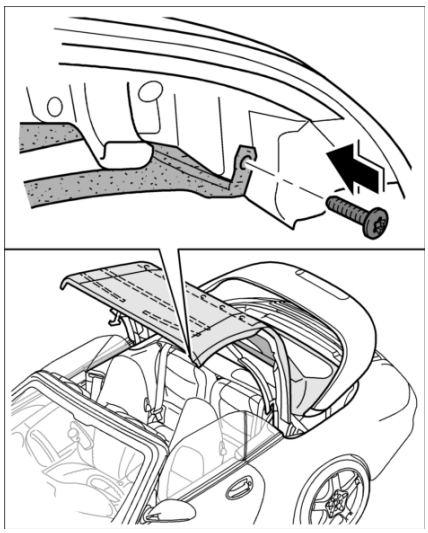
Fitting clamping rail at rear

8. Fit sewn-on clamping rail of convertible-top inner lining at rear left and right of roof frame 1.



Fitting front clamping rail

9. Fit front sewn-on clamping rail at front left and right of roof frame 1.

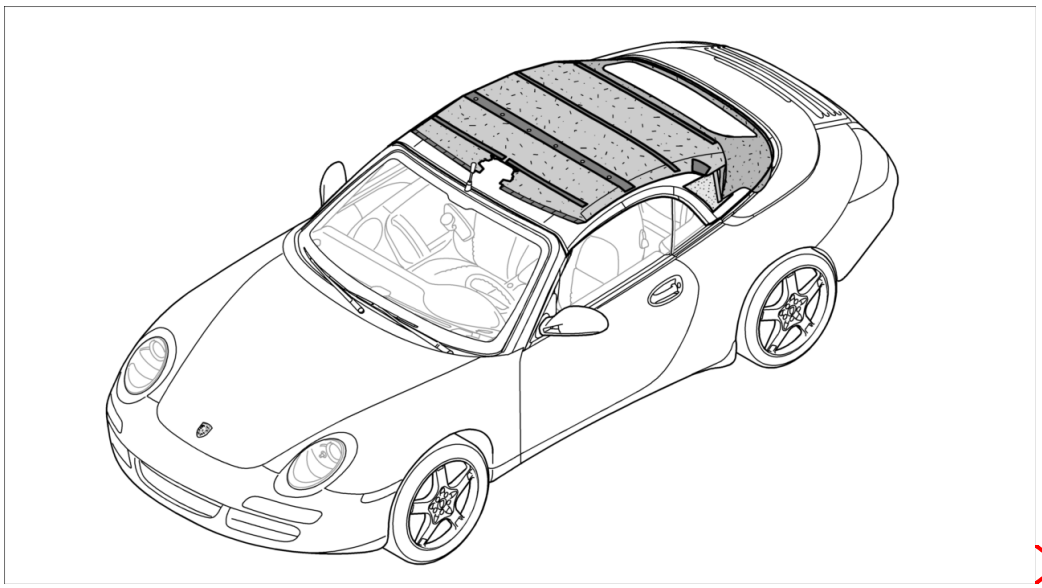


Tightening front clamping rail

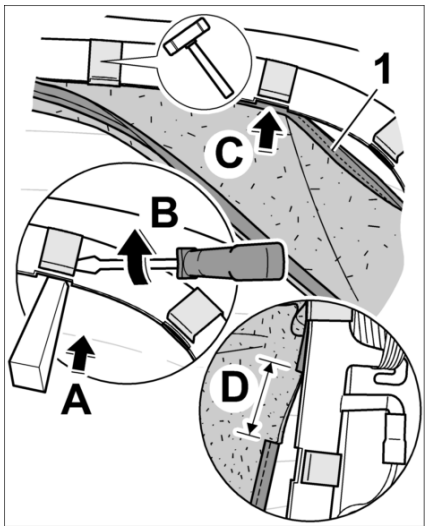
10. Tighten connection left and right with fastening screws.
11. Installing convertible top lock 611919 Removing and installing convertible top lock - chapter on "Installing"
12. End convertible top service position.

Installing convertible-top inner lining at rear

Installation Location:

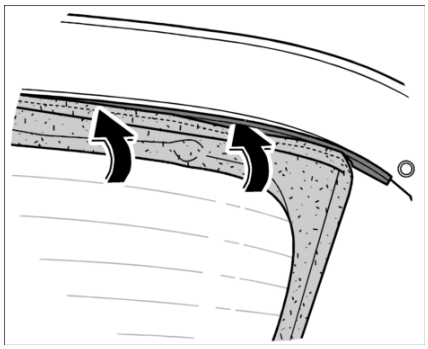


Installation position of convertible-top inner lining



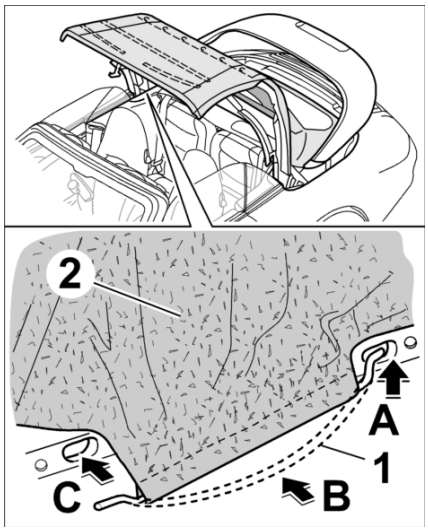
Convertible-top inner lining connection to the rear window

1. Lift the metal clips using a plastic spatula **-A-** and insert a small screwdriver under the metal clips **-B-** . Insert the connection piping **-1-** of the convertible-top inner lining underneath the metal clips **-C-** . Ensure that the clearance cuts of the convertible-top inner lining **-D-** are positioned at the electric connection of the rear window.
2. Knock the metal clips with a plastic hammer. Make sure that the metal clips engage in the frame cut-outs.



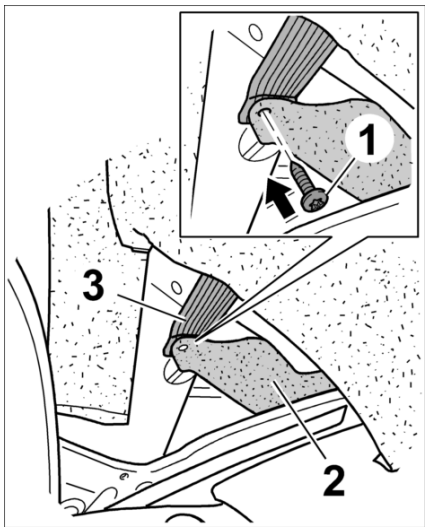
Convertible-top inner lining connection to the tension bow

3. Press the convertible-top inner lining connection into the groove of the tension bow.



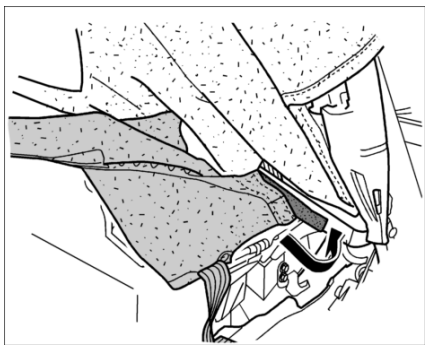
Installing brace

4. Insert brace **-1-** into fabric pocket of convertible-top inner lining **-2-** . First insert brace into tension bow at rear **-Arrow A-** , then bend it **-Arrow B-** and insert it at front **-Arrow C-** .



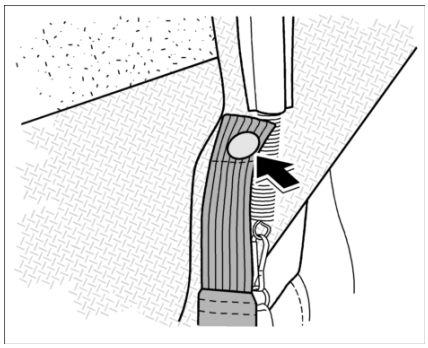
Installing brace

5. Position brace **-3-** under convertible- top inner lining **-2-** and secure to main folding top bow with fastening screw **-1-** .



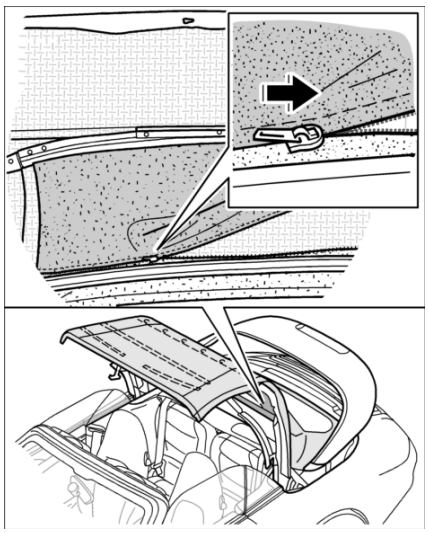
Closing Velcro fastener

6. Close Velcro fastener of tension bow.



Pressing on snap fastener

7. Press on snap fastener.

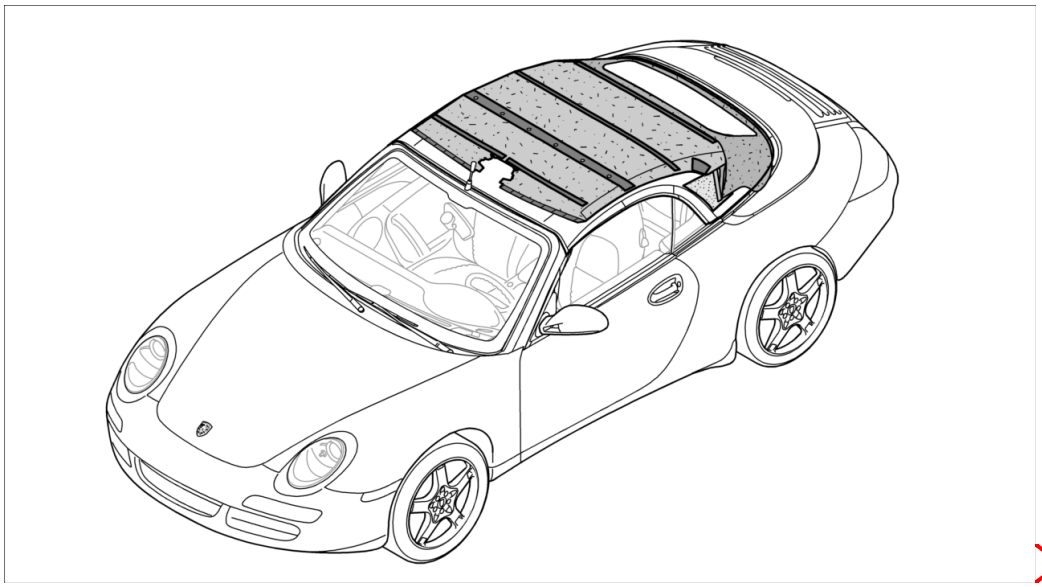


Closing zip fastener

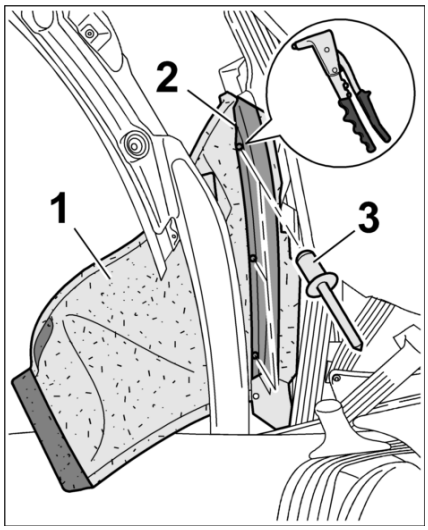
8. Close zip between convertible- top inner lining at rear and the main folding top bow connection.
9. Close Velcro fastener of convertible-top inner lining on left and right sides.

Installing convertible-top inner lining at sides

Installation Location:

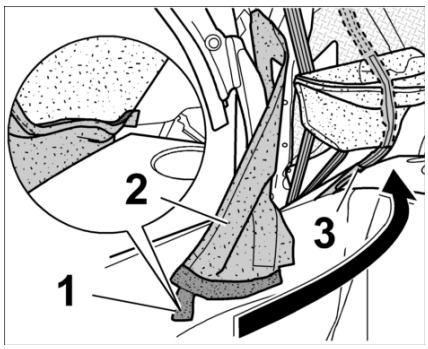


Installation position of convertible-top inner lining



Installing convertible top inner lining

1. Position convertible-top inner lining at the sides **-1-** and the plastic insert **-2-** on the main folding top bow.
2. Rivet on to the holes provided on the main folding top bow using the fastening rivets **-3-** (included in scope of replacement parts)



Closing Velcro fastener

3. Close the Velcro fastener connection **-1-** between the sides of the convertible-top inner lining **-2-** and the corner bow **-3-** .

997310, 997311, 997320, 997321, 997610, 997611, 997620, 997621

as of MY 2005
Country C00, C02, C05, C07, C08, C09, C10, C11, C12, C13, C14, C15, C16, C18, C19, C20, C21, C22, C23, C24, C25, C26, C27, C28, C32, C33, C34, C35, C36, C37, C38, C39, C45, C46, C98, C99

WARNUNG

Gefahr des Verlusts der Text-Bild-Zuordnung beim Ausdruck.

- **Aus technischen Gründen kann derzeit nicht ausgeschlossen werden, dass trotz einwandfreier Darstellung auf dem Bildschirm beim Ausdruck der Zusammenhang von Text und zugehörigem Bild verloren geht.**
- **Wird der Fehler nicht bemerkt, besteht die Gefahr, daß Arbeiten nicht korrekt durchgeführt werden und es dadurch zu Personen- und Sachschäden kommt.**

Vergleichen Sie deshalb nach dem Druckvorgang unbedingt die Ausdrucke mit der Bildschirmdarstellung. Korrigieren Sie die Ausdrucke im Fehlerfall so, daß der Inhalt der Bildschirmdarstellung zutreffend wiedergegeben wird.

WARNING

Danger of losing text-figure correspondence when printing out.

- **For technical reasons, it can currently not be ruled out that the correspondence between text and associated figure can be lost when it is printed out, even though the display on the screen is correct.**
- **If the fault is not noticed, there is the danger that work will not be performed correctly which can cause injury and damage.**

Therefore, always compare printouts with the screen display after printing them out. Correct the printouts if they are faulty so that the content of the screen display matches that on the printouts.

AVERTISSEMENT

Risque de perte de la correspondance texte-illustration lors de l'impression papier.

- **Pour des raisons techniques, il ne peut pas être exclu à l'heure actuelle que, même en cas d'affichage correct à l'écran, la correspondance entre le texte et l'illustration puisse être erronée sur l'impression papier.**
- **Si l'erreur passe inaperçue, on court le risque d'exécuter certaines opérations de manière incorrecte pouvant conduire à des dommages corporels et matériels.**

Comparez impérativement pour cette raison les impressions papier avec l'affichage à l'écran. Corrigez-les en cas d'erreur de manière à reproduire correctement l'affichage à l'écran.

61 10 19 Removing and installing front convertible-top mount - as of MY 2005

- Preliminary work
- Removing front convertible-top mount
- Installing front convertible-top mount
- Subsequent work
- Subsequent work

top of page

Preliminary work

Preliminary work

1. Move convertible top to service position. 6101IN IN - convertible top service position

Note
Only for vehicles with hardtop.

2. Remove hardtop. 610219 Removing and installing hardtop - chapter on "Removing"

Preliminary work

Note
Only for removing/installing or replacing convertible-top peg mount.

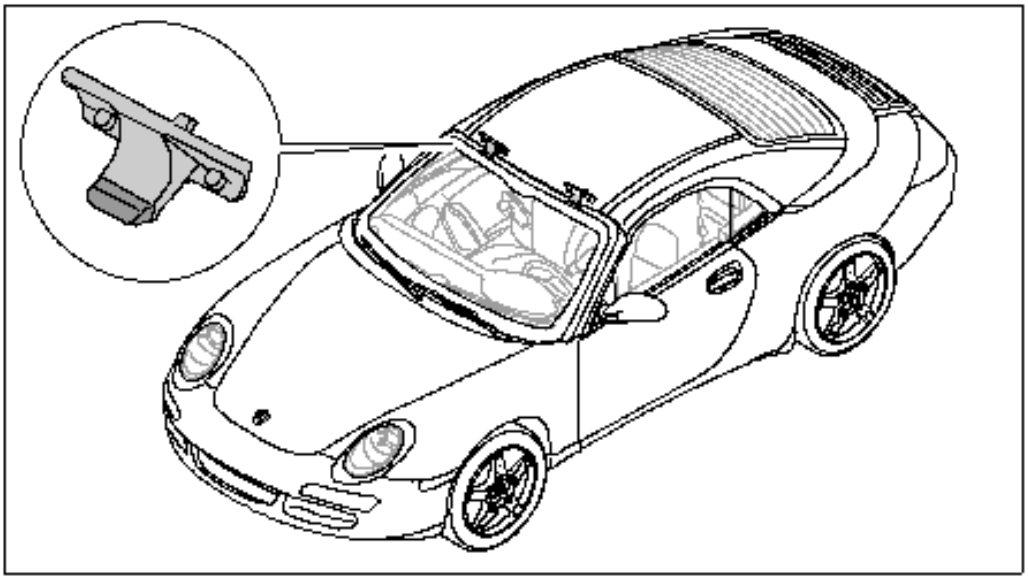
1. Remove sun visor. 682319 Removing and installing sun visor - section on "Removing"

top of page

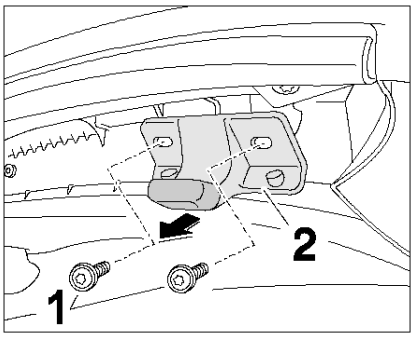
Removing front convertible-top mount

Removing centring journal

Installation Location:



Installation location of front mount

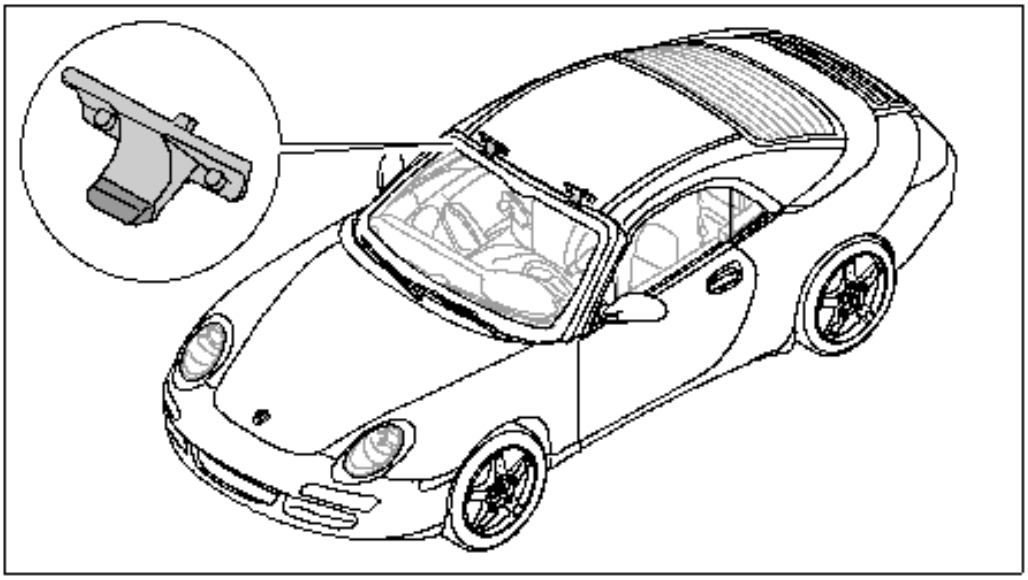


Removing centring journal

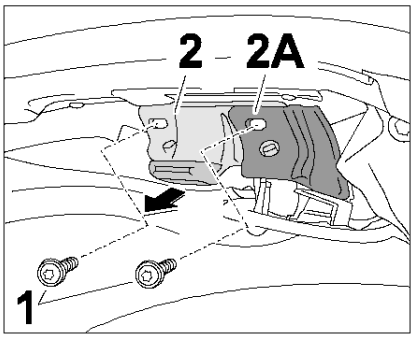
1. Unscrew fastening screws **-1-** and remove centring journal **-2-** .

Removing centring journal (hardtop)

Installation Location:



Installation location of front mount

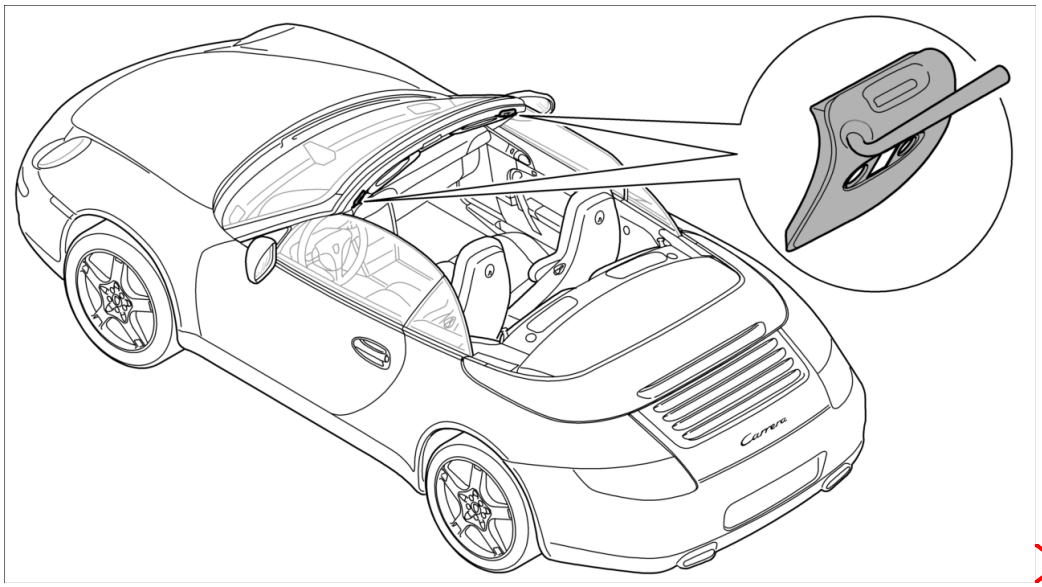


Removing centring journal

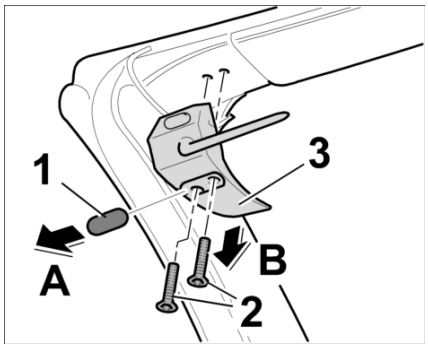
1. Unscrew fastening screws **-1-** and remove centring journal **-2-** with support **-2A-** .

Removing convertible-top peg mount

Installation Location:



Installation position of convertible-top peg mount



Removing convertible-top peg mount

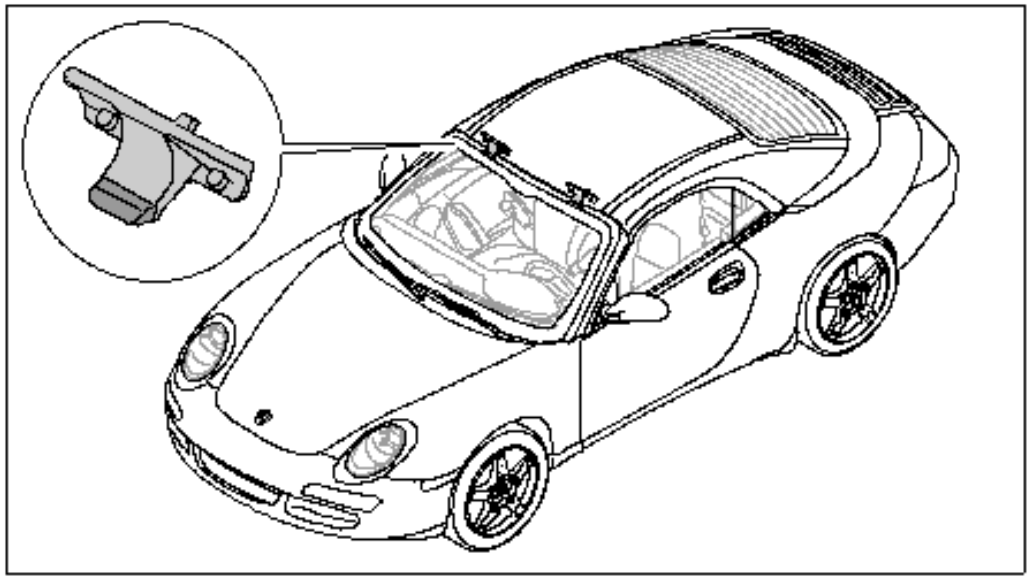
1. Unclip cap **-1-** in a downward direction with a small screwdriver and remove it **-arrow A-** .
2. Unscrew fastening screws **-2-** and remove convertible-top peg mount **-3-** downwards **-arrow B-** .

top of page

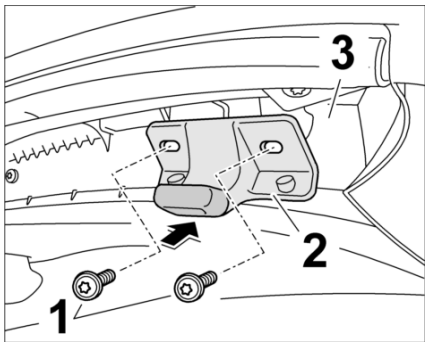
Installing front convertible-top mount

Installing centring journal

Installation Location:



Installation location of front mount

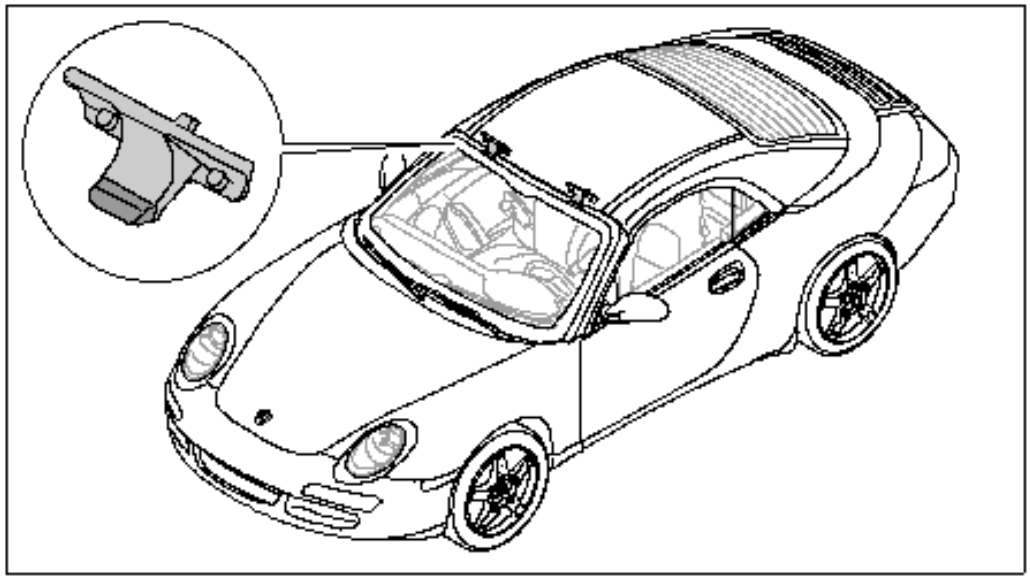


Installing centring journal

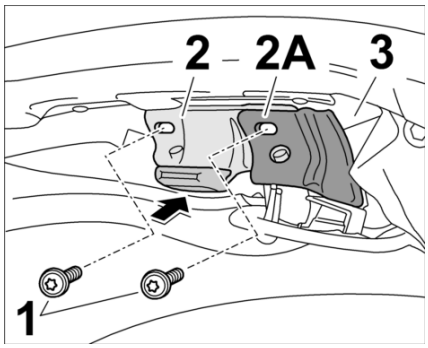
1. Position centring journal **-2-** on convertible top frame **-3-** and screw down the fastening screws **-1-** .
   Tightening torque **Tightening torque: 10 (7.5 ftlb.) Nm**

Installing centring journal (hardtop)

Installation Location:



Installation location of front mount

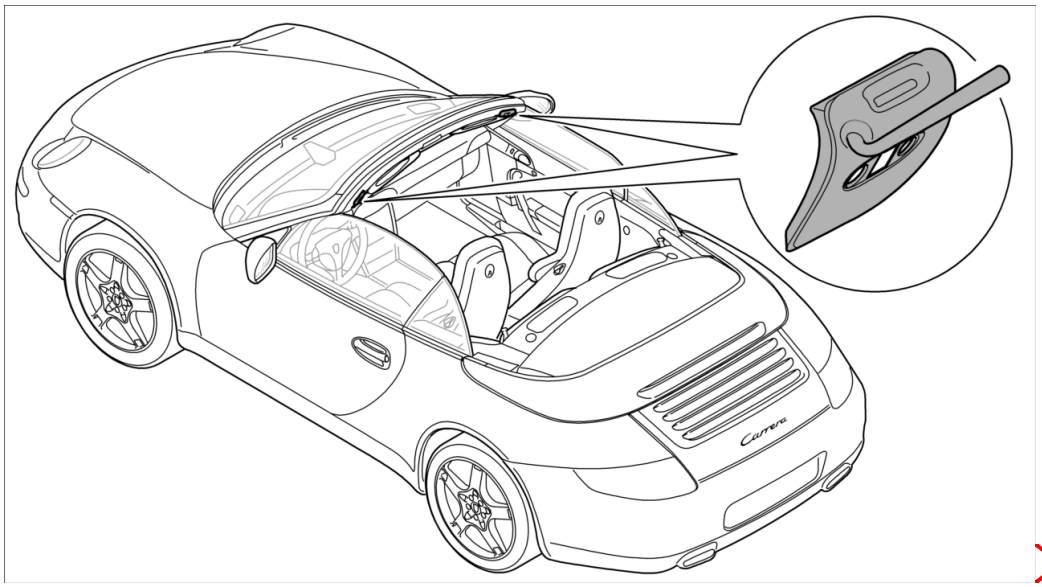


Installing centring journal

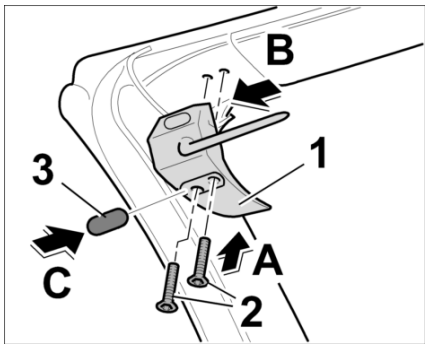
1. Position centring journal **-2-** with support **-2A-** on the hardtop body **-3-** and screw down fastening screws **-1-** . Tightening torque **Tightening torque: 10 (7.5 ftlb.) Nm**

Installing convertible-top peg mount

Installation Location:



Installation position of convertible-top peg mount



Installing convertible-top peg mount

1. Place convertible-top peg mount **-1-** on windscreen frame from below **-arrow A-** , position it correctly and screw down hand-tight using the fastening screws **-2-** .
2. To position convertible-top peg mount, close convertible top or fit hardtop.
3. Move convertible-top peg mount as far as possible outwards (towards the centring journal) **-arrow B-** and screw down. Tightening torque **Tightening torque: 10 (7.5 ftlb.) Nm**
4. Position cap **-3-** from below **-arrow C-** and clip into place.

top of page

Subsequent work

Subsequent work

1. End service position. 6101IN IN -Convertible top in service position
2. Check gap dimensions for convertible top, adjust if necessary. *501000 Diagram - body gap dimensions*

Note
Only for vehicles with hardtop.

3. Install hardtop. 610219 Removing and installing hardtop - section on "Installing"

Note
Only for vehicles with hardtop.

4. Adjust hardtop. 610215 Adjusting hardtop - section on "Adjusting"

top of page

Subsequent work

Subsequent work

Note
Only for removing/installing or replacing convertible-top peg mount.

1. Install sun visor. 682319 Removing and installing rear window - section on "Installing"

997310, 997311, 997320, 997321, 997610, 997611, 997620, 997621

as of MY 2005
Country C00, C02, C05, C07, C08, C09, C10, C11, C12, C13, C14, C15, C16, C18, C19, C20, C21, C22, C23, C24, C25, C26, C27, C28, C32, C33, C34, C35, C36, C37, C38, C39, C45, C46, C98, C99

WARNUNG
Gefahr des Verlusts der Text-Bild-Zuordnung beim Ausdruck.

- **Aus technischen Gründen kann derzeit nicht ausgeschlossen werden, dass trotz einwandfreier Darstellung auf dem Bildschirm beim Ausdruck der Zusammenhang von Text und zugehörigem Bild verloren geht.**
- **Wird der Fehler nicht bemerkt, besteht die Gefahr, daß Arbeiten nicht korrekt durchgeführt werden und es dadurch zu Personen- und Sachschäden kommt.**

Vergleichen Sie deshalb nach dem Druckvorgang unbedingt die Ausdrucke mit der Bildschirmdarstellung. Korrigieren Sie die Ausdrucke im Fehlerfall so, daß der Inhalt der Bildschirmdarstellung zutreffend wiedergegeben wird.

61 11 19 Removing and installing the rear hardtop locking element - as of MY 2005

- Preliminary work
- Removing the rear hardtop locking element
- Installing the rear hardtop locking element
- Subsequent work

top of page

Preliminary work

Preliminary work

Note

Only for removal of the rear left hardtop locking mechanism.

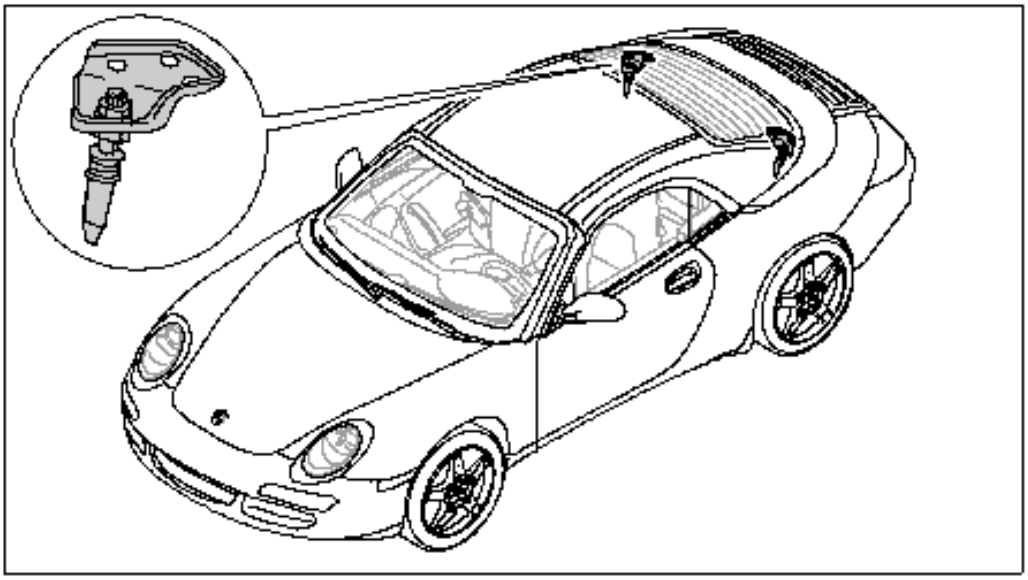
Remove hardtop. 610219 Removing and installing hardtop - chapter on "Removing"

top of page

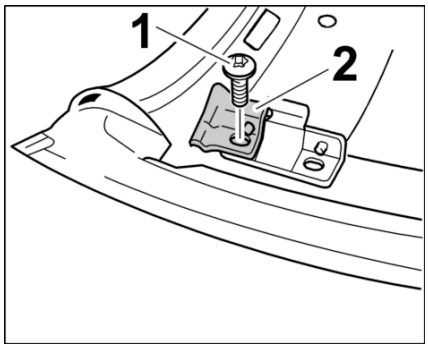
Removing the rear hardtop locking element

Removing rear hardtop locking mechanism

Installation Location:



Installation position of rear hardtop locking mechanism

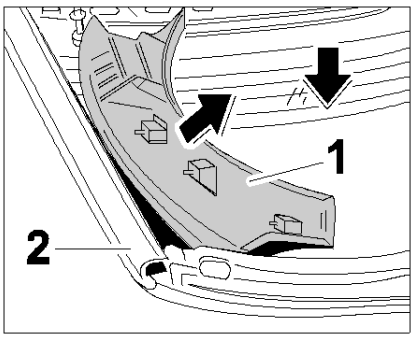


Unscrewing support for centring peg

Note

Only for removal of the rear left hardtop locking mechanism.

1. Undo fastening screw **-1-** and remove support for centring peg **-2-** .

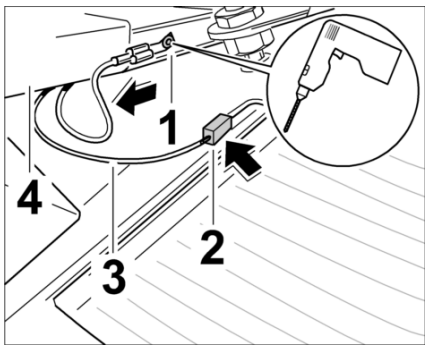


Unclipping lining at the sides

Note

Only for removal of the rear left hardtop locking mechanism.

2. Unclip lining **-1-** at the sides from the hardtop body **-2-** .

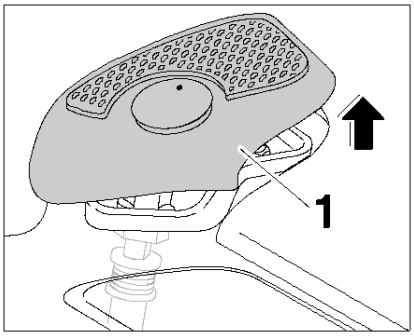


Disconnecting rear window heating

Note

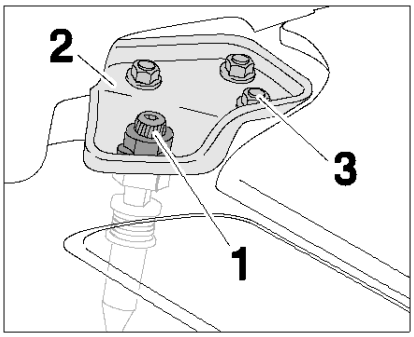
Only for removal of the rear left hardtop locking mechanism.

3. Drill out tubular rivet **-1-** , disconnect electric plug connection for rear window heating **-2-** and remove wiring harness **-3-** from hardtop body **-4-** .



Unclipping trim panel

4. Unclip trim panel **-1-** for the rear hardtop locking mechanism upwards.



Releasing rear hardtop locking mechanism

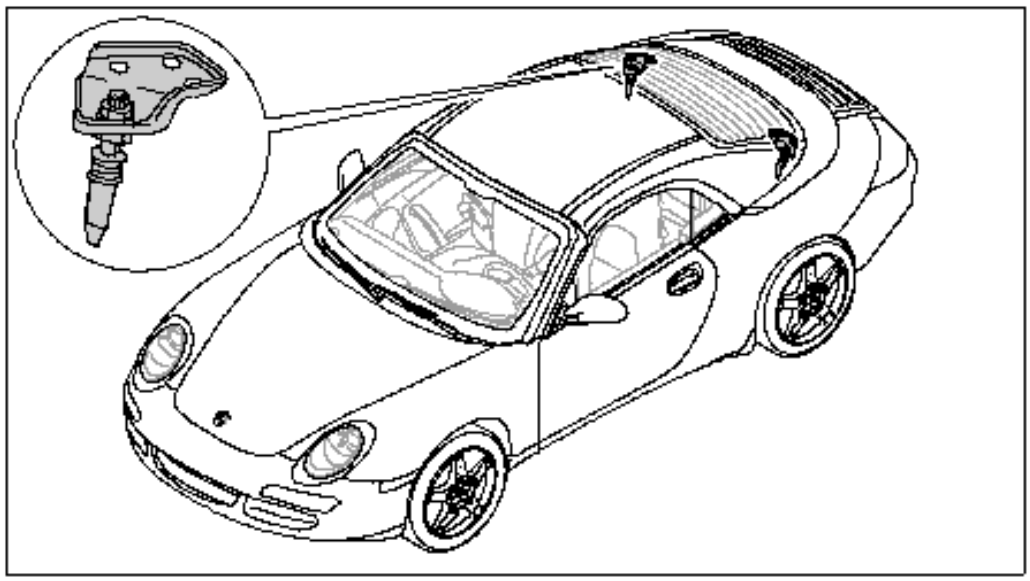
5. Loosen fastening screw **-1-** for the rear hardtop locking mechanism **-2-** by approx. two turns and then loosen fully by hand (approx. eight turns).
6. Unscrew fastening screws **-3-** and remove hardtop locking mechanism **-2-** from hardtop body.

top of page

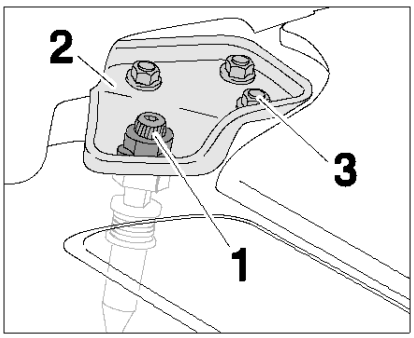
Installing the rear hardtop locking element

Installing rear hardtop locking mechanism

Installation Location:



Installation position of rear hardtop locking mechanism

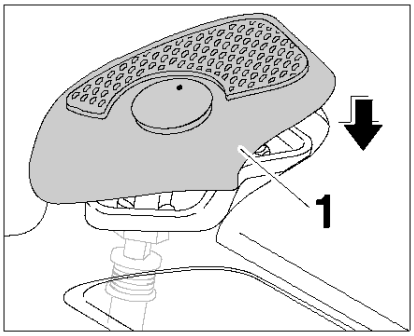


Installing rear hardtop locking mechanism

Note

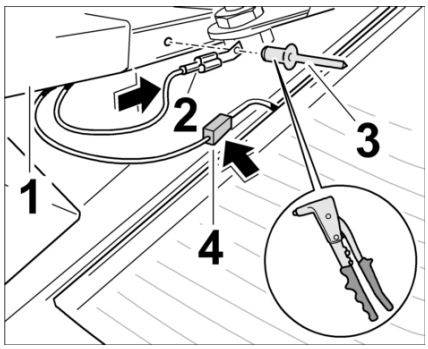
Only for removal of the rear left hardtop locking mechanism.

1. Position hardtop locking mechanism **-2-** on the hardtop body and screw down with the fastening screws **-3-** . Tightening torque **Tightening torque: 10 (7.5 ftlb.) Nm**
2. Screw in fastening screw **-1-** for rear hardtop locking mechanism by hand and then tighten to specified tightening torque **Tightening torque: 46 (34 ftlb.) Nm** .



Clipping in trim panel

3. Check fastening clips, replacing if necessary. Clip in trim panel **-1-** .

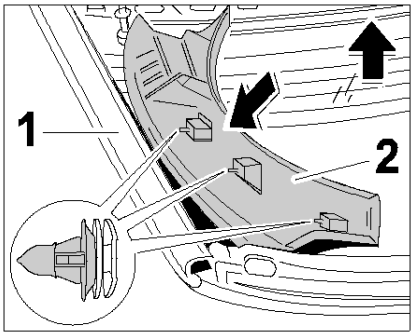


Fitting wiring harness for the rear window heating

Note

Only for removal of the rear left hardtop locking mechanism.

4. Rivet flat plug **-2-** of wiring harness with a 3.2 mm tubular rivet **-3-** to the hardtop body **-1-** and connect the electric plug connection for the rear window heating **-4-** .



Clipping in lining at the sides

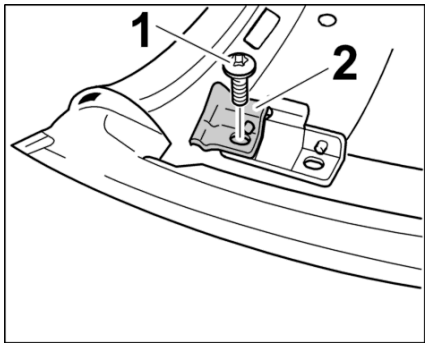
Note

Only for removal of the rear left hardtop locking mechanism.

Note

- *Once a trim panel has been clipped in, the old plastic clips are no longer usable and must always be replaced.*

5. Clip in lining **-2-** at the sides to the hardtop body **-1-** .



Installing support for centring peg

Note
Only for removal of the rear left hardtop locking mechanism.

6. Insert support for centring peg **-2-** and tighten with fastening screw **-1-** . Tightening torque
   Tightening torque : 10 (7.5 ftlb.) Nm

top of page

Subsequent work

Subsequent work

Note
Only for removal of the rear left hardtop locking mechanism.

1. Install hardtop. 610219 Removing and installing hardtop - chapter on "Installing"
2. Adjust hardtop. 610215 Adjusting hardtop - chapter on "Adjusting"

997310, 997311, 997320, 997321, 997610, 997611, 997620, 997621

as of MY 2005
Country C00, C02, C05, C07, C08, C09, C10, C11, C12, C13, C14, C15, C16, C18, C19, C20, C21, C22, C23, C24, C25, C26, C27, C28, C32, C33, C34, C35, C36, C37, C38, C39, C45, C46, C98, C99

WARNUNG
Gefahr des Verlusts der Text-Bild-Zuordnung beim Ausdruck.

61 14 19 Removing and installing water drip pan - as of MY 2005

- Preliminary work
- Removing water drip pan
- Installing water drip pan
- Subsequent work

top of page

Preliminary work

Preliminary work

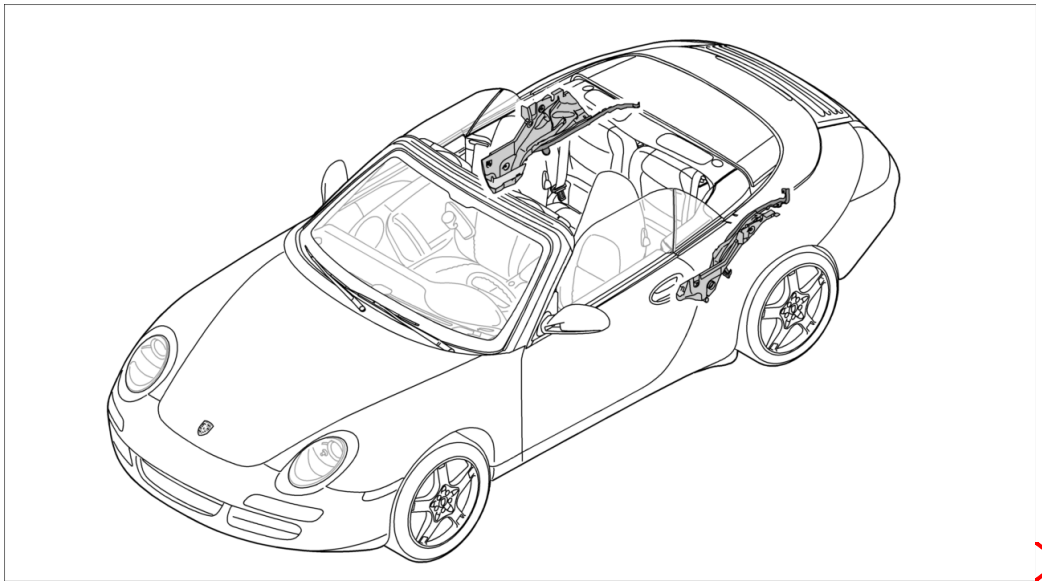
Remove convertible top. 610119 Removing and installing convertible top - section on "Removing"

top of page

Removing water drip pan

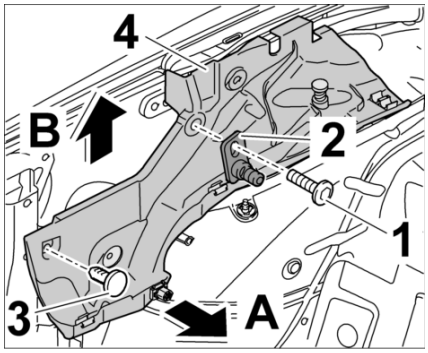
Removing water drip pan

Installation Location:



Installation position of water drip pan

1. Pull seal for convertible-top compartment lid up slightly close to the water drip pan.

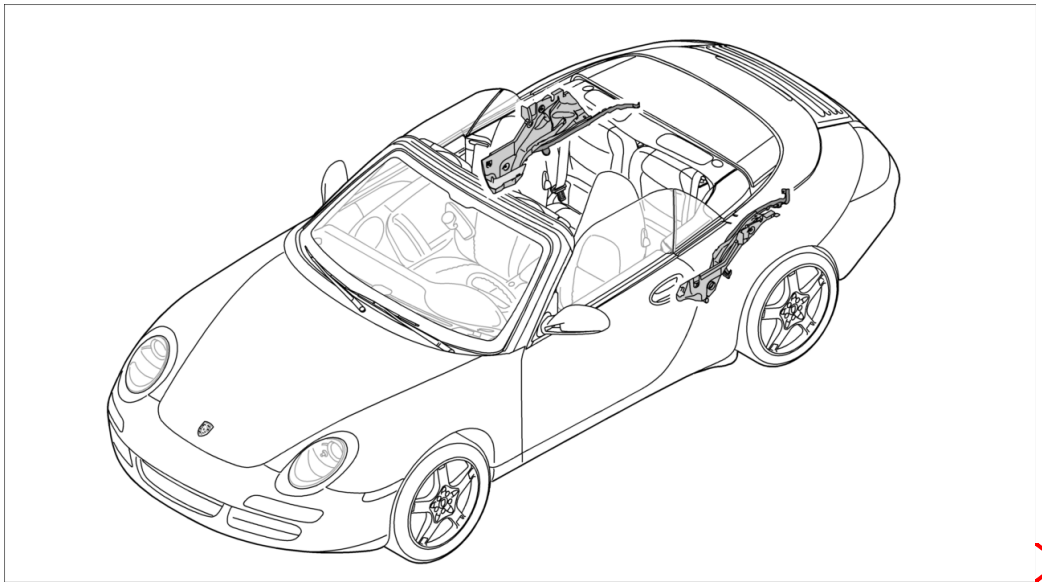


Removing water drip pan

2. Unscrew fastening screw **-1-** and remove support **-2-** .
3. Push out plug **-3-** .
4. Disconnect water drip pan **-4-** at the bottom from water drain tube **-arrow A-** and remove upwards **-arrow B-** .

Removing water channel

Installation Location:



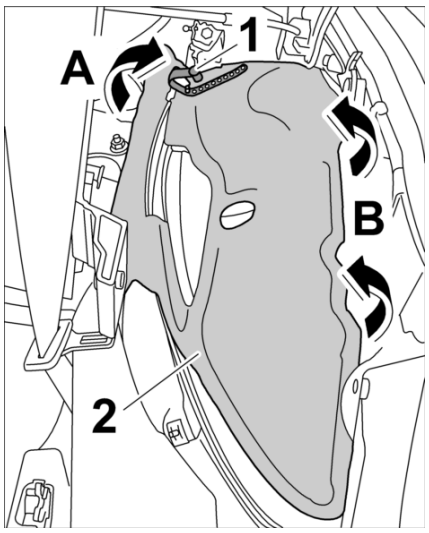
Installation position of water drip pan

ATTENTION

Danger of injury! Sharp-edge burrs on body and unit parts!

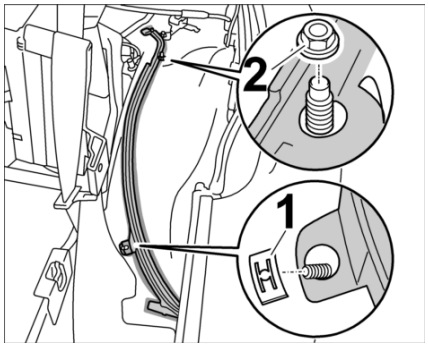
- **Danger of injury from sharp edges on body and unit parts!**

Wear protective gloves when working in the area of sharp-edged body and unit parts!



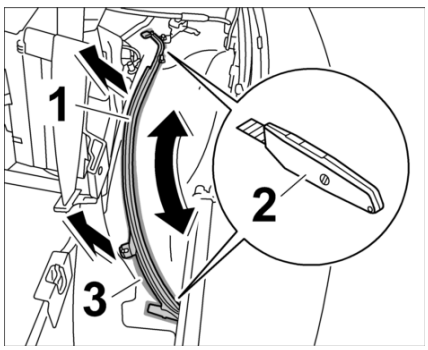
Loosening sound absorber

1. Remove cable holder **-1-** (**-arrow A-**) and loosen sound absorber **-2-** to the side **-arrow B-** .



Loosening water channel

2. Press out clamp **-1-** and screw off fastening nut **-2-** .



Removing water channel

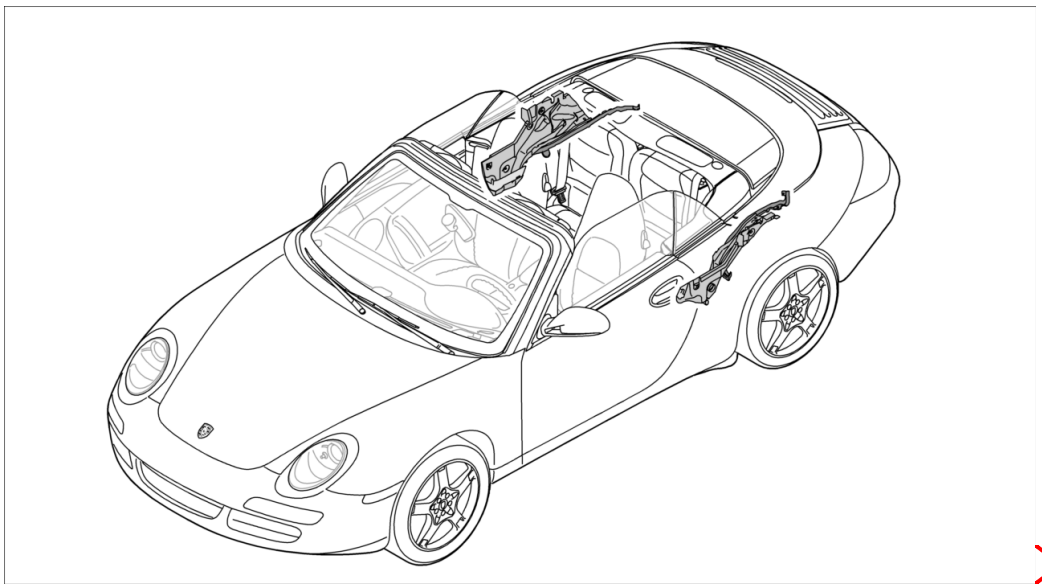
3. Cut out water channel **-1-** with a knife **-2-** .
4. Remove residual adhesive **-3-** and clean sealing surface.

top of page

Installing water drip pan

Installing water channel

Installation Location:



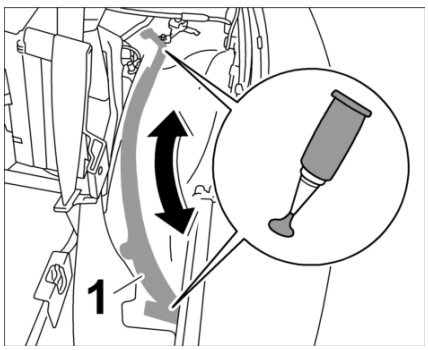
Installation position of water drip pan

ATTENTION

Danger of injury! Sharp-edge burrs on body and unit parts!

- **Danger of injury from sharp edges on body and unit parts!**

Wear protective gloves when working in the area of sharp-edged body and unit parts!

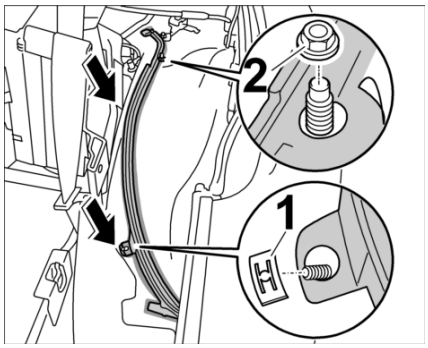


Applying adhesive

Note

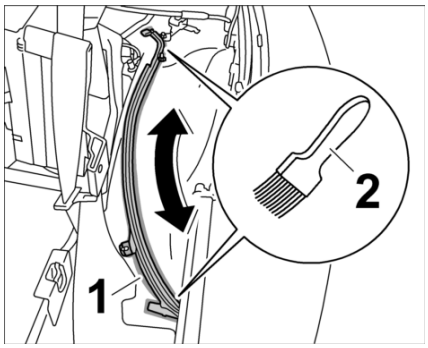
Sealing surface of water channel and inner wheel arch must be clean and free of grease.

1. Apply approx. 10 mm of adhesive **-1-** SEALING MATERIAL along the inner wheel arch.



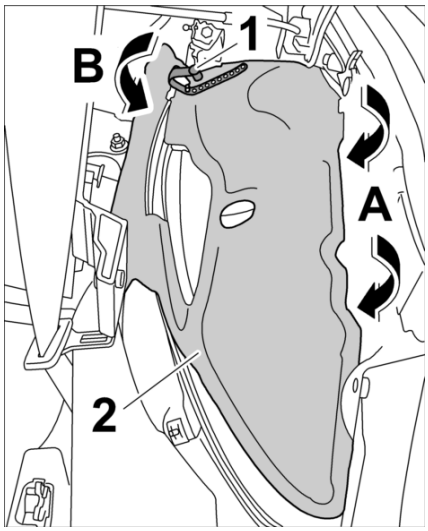
Installing water channel

2. Position water channel on the body and screw it on tight with the fastening nut **-2-** . Tightening torque **Tightening torque: 7 (5 ftlb.) Nm**
3. Press in clamp **-1-** .



Spreading out adhesive

4. Spread out any adhesive emerging at the sides **-1-** with a brush **-2-** .
5. Patch new sealing face and damage to top-coat paint with the same colour as the vehicle.

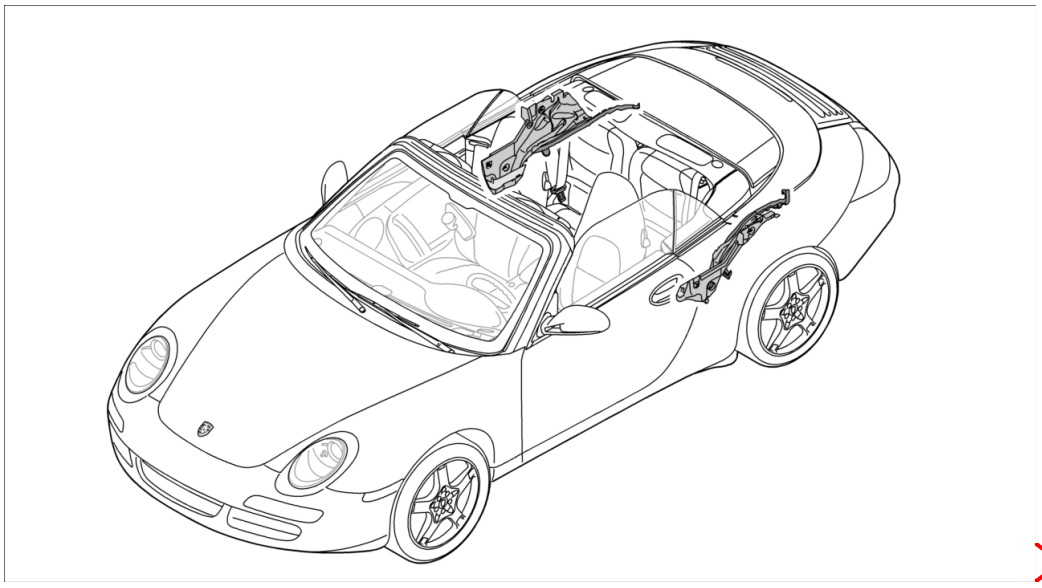


Securing sound absorber

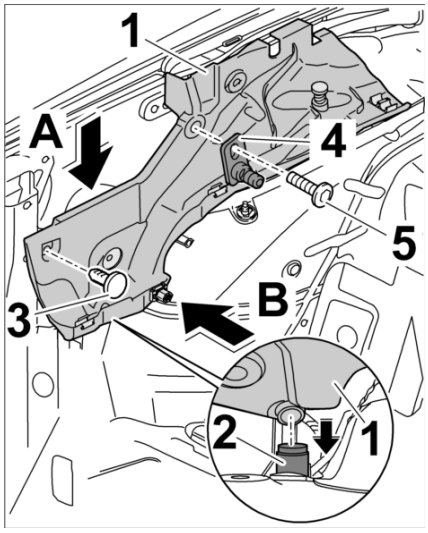
6. Secure sound absorber **-2-** to inner wheel arch **-arrow A-** and screw in cable holder **-1-** (**-arrow B-**).

Installing water drip pan

Installation Location:



Installation position of water drip pan



Installing water drip pan

1. Guide water drip pan **-1-** into position from above **-arrow A-** and insert into water drain tube at the bottom **-2-** (**-arrow B-**).
2. Press in plug **-3-** .
3. Position support **-4-** on water drip pan **-1-** and screw fastening screw **-5-** in but do not tighten.
4.

Adjust support **-4-** . 610115 Adjusting convertible top

5. Tighten fastening screw **-5-** . Tightening torque **Tightening torque: 23 (17 ftlb.) Nm**
6. Press in seal for convertible-top compartment lid close to the water drip pan.

top of page

Subsequent work

Subsequent work

Install convertible top. 610119 Removing and installing convertible top - section on "Installing"

997310, 997311, 997320, 997321, 997610, 997611, 997620, 997621

as of MY 2005
Country C00, C02, C05, C07, C08, C09, C10, C11, C12, C13, C14, C15, C16, C18, C19, C20, C21, C22, C23, C24, C25, C26, C27, C28, C32, C33, C34, C35, C36, C37, C38, C39, C45, C46, C98, C99

WARNUNG

Gefahr des Verlusts der Text-Bild-Zuordnung beim Ausdruck.

- **Aus technischen Gründen kann derzeit nicht ausgeschlossen werden, dass trotz einwandfreier Darstellung auf dem Bildschirm beim Ausdruck der Zusammenhang von Text und zugehörigem Bild verloren geht.**
- **Wird der Fehler nicht bemerkt, besteht die Gefahr, daß Arbeiten nicht korrekt durchgeführt werden und es dadurch zu Personen- und Sachschäden kommt.**

Vergleichen Sie deshalb nach dem Druckvorgang unbedingt die Ausdrucke mit der Bildschirmdarstellung. Korrigieren Sie die Ausdrucke im Fehlerfall so, daß der Inhalt der Bildschirmdarstellung zutreffend wiedergegeben wird.

WARNING

Danger of losing text-figure correspondence when printing out.

- **For technical reasons, it can currently not be ruled out that the correspondence between text and associated figure can be lost when it is printed out, even though the display on the screen is correct.**
- **If the fault is not noticed, there is the danger that work will not be performed correctly which can cause injury and damage.**

61 17 19 Removing and installing hardtop fastening - as of MY 2005

- Preliminary work
- Removing hardtop fastening
- Installing hardtop fastening
- Subsequent work

top of page

Preliminary work

Preliminary work

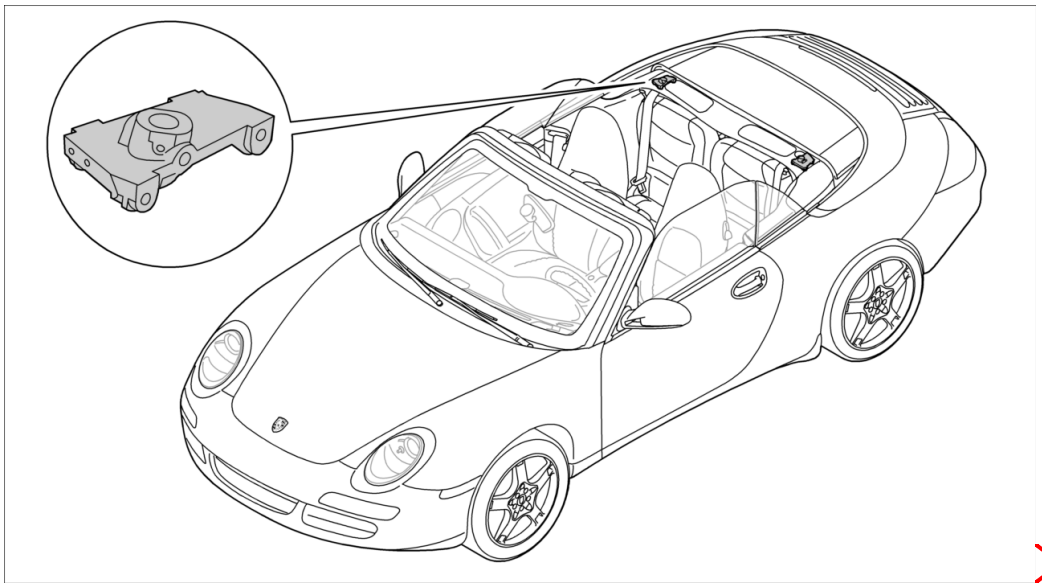
Remove cover for the rear. 705319 Removing and installing cover for rear- chapter on "Removing" [997310 997311 997320 997321] *705319 21 Removing and installing cover for rear- chapter on "Removing" [997610 997611 997620 997621]*

top of page

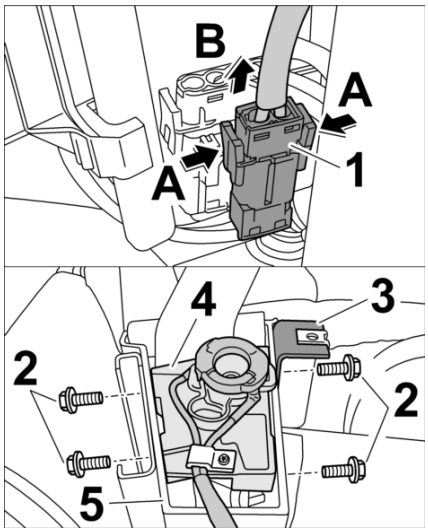
Removing hardtop fastening

Removing bracket for hardtop mount

Installation Location:



Installation position of bracket for hardtop mount



Removing bracket for hardtop mount

Note

Only when removing the left bracket for hardtop mount.

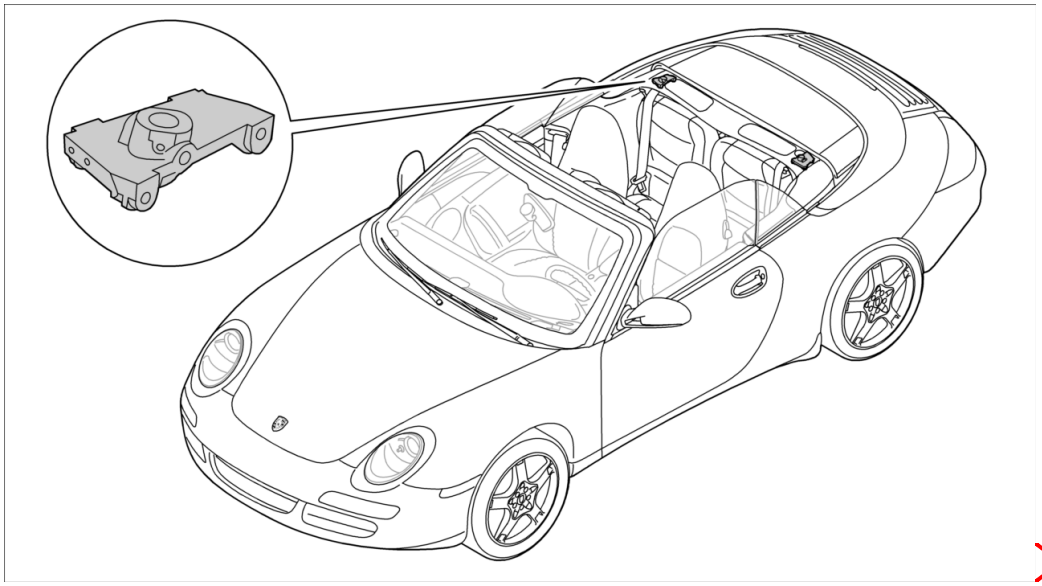
1. Press in locking tabs **-Arrows A-** and pull electric plug connection **-1-** up and off **-Arrow B-** .
2. Unscrew fastening screws **-2-** inside and remove the retaining angle **-3-** .
3. Unscrew fastening screws **-2-** outside and remove bracket for hardtop mount **-4-** upwards out of the frame of roll-over protection system **-5-** .

top of page

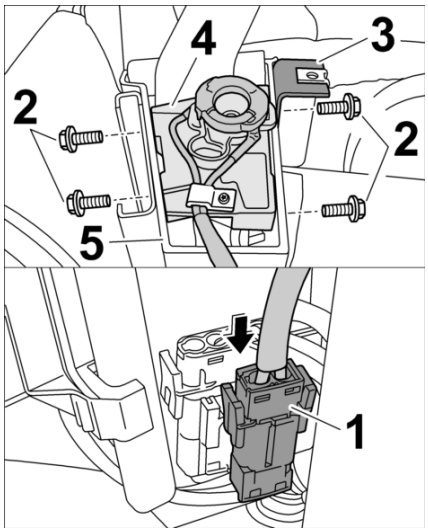
Installing hardtop fastening

Installing bracket for hardtop mount

Installation Location:



Installation position of bracket for hardtop mount



Installing bracket for hardtop mount

1. Position bracket for hardtop mount **-4-** on frame for roll-over protection system **-5-** and screw down the fastening screws **-2-** on the outside. Tightening torque **Tightening torque: 9.7 (7.2 ftlb.) Nm**
2. Position retaining angle **-3-** on frame for roll-over protection system **-5-** and screw down with the fastening screws **-2-** on the inside. Tightening torque **Tightening torque: 9.7 (7.2 ftlb.) Nm**

Note

Only when removing the left bracket for hardtop mount.

3. Press in electric plug connection **-1-** until it audibly engages.

top of page

Subsequent work

Subsequent work

Install cover for rear. 705319 Removing and installing cover for rear- chapter on "Installing" [997310 997311 997320 997321] *705319 23 Removing and installing cover for rear- chapter on "Installing" [997610 997611 997620 997621]*

997310, 997311, 997320, 997321, 997610, 997611, 997620, 997621

as of MY 2005
Country C00, C02, C05, C07, C08, C09, C10, C11, C12, C13, C14, C15, C16, C18, C19, C20, C21, C22, C23, C24, C25, C26, C27, C28, C32, C33, C34, C35, C36, C37, C38, C39, C45, C46, C98, C99

WARNUNG

Gefahr des Verlusts der Text-Bild-Zuordnung beim Ausdruck.

- **Aus technischen Gründen kann derzeit nicht ausgeschlossen werden, dass trotz einwandfreier Darstellung auf dem Bildschirm beim Ausdruck der Zusammenhang von Text und zugehörigem Bild verloren geht.**
- **Wird der Fehler nicht bemerkt, besteht die Gefahr, daß Arbeiten nicht korrekt durchgeführt werden und es dadurch zu Personen- und Sachschäden kommt.**

Vergleichen Sie deshalb nach dem Druckvorgang unbedingt die Ausdrucke mit der Bildschirmdarstellung. Korrigieren Sie die Ausdrucke im Fehlerfall so, daß der Inhalt der Bildschirmdarstellung zutreffend wiedergegeben wird.

WARNING

Danger of losing text-figure correspondence when printing out.

- **For technical reasons, it can currently not be ruled out that the correspondence between text and associated figure can be lost when it is printed out, even though the display on the screen is correct.**
- **If the fault is not noticed, there is the danger that work will not be performed correctly which can cause injury and damage.**

Therefore, always compare printouts with the screen display after printing them out. Correct the printouts if they are faulty so that the content of the screen display matches that on the printouts.

AVERTISSEMENT

Risque de perte de la correspondance texte-illustration lors de l'impression papier.

61 19 19 Removing and installing convertible top lock - as of MY 2005

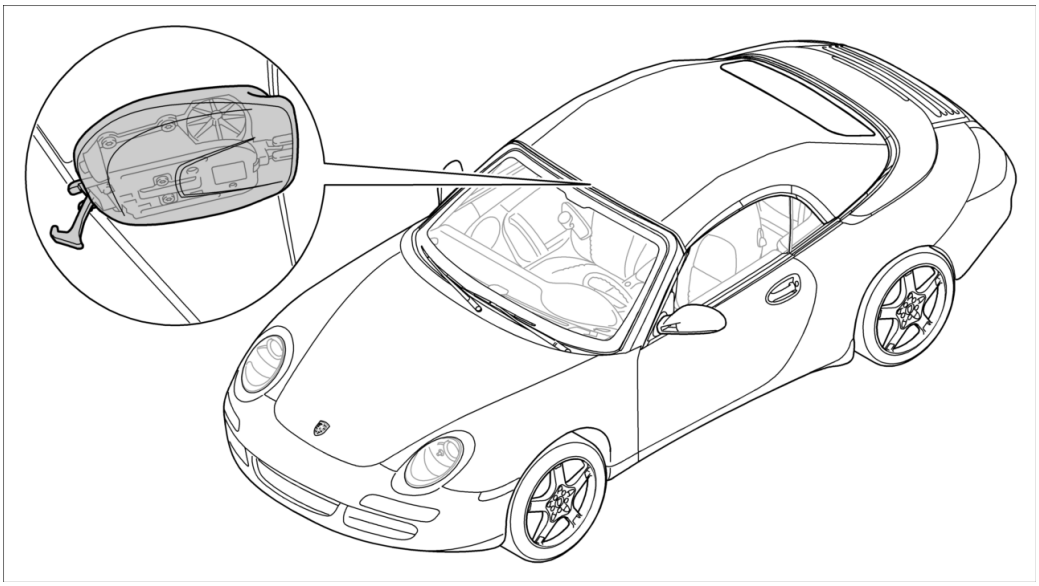
- Removing convertible top lock
- Installing convertible top lock

top of page

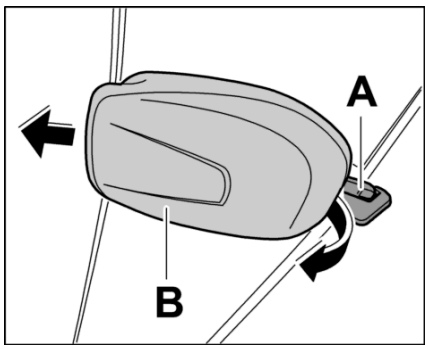
Removing convertible top lock

Removing cover for convertible top lock

Installation Location:



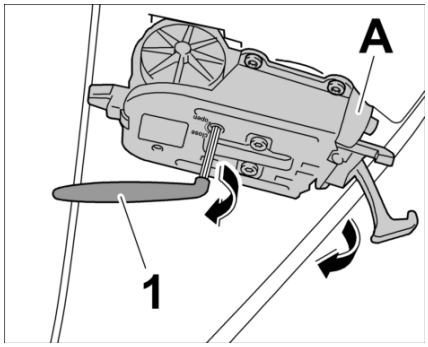
Installation position of convertible top lock



Removing cover for convertible top lock

1. Remove cover **-B-** of convertible top lock **-A-** . Hold the cover at the top of the front latch area with

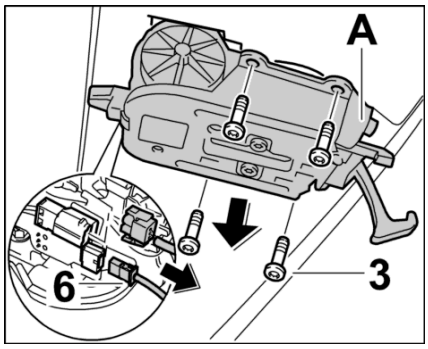
your fingers and release it by pressing it forwards. Pull cover **-B-** down off the convertible top lock.



Moving locking hook to extended end position

2. Insert Allen key **-1-** into convertible top lock **-A-** and turn in **-direction of arrow-** (inscription "Open") until locking hook is in the extended end position (perceptible stop).

Removing convertible top lock



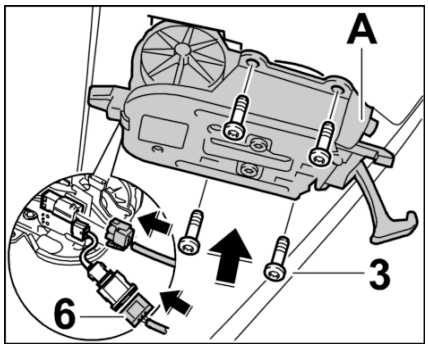
Removing convertible top lock

1. Unscrew the four fastening screws **-3-** . Remove convertible-top lock **-A-** and disconnect electric plug connections **-6-** .

top of page

Installing convertible top lock

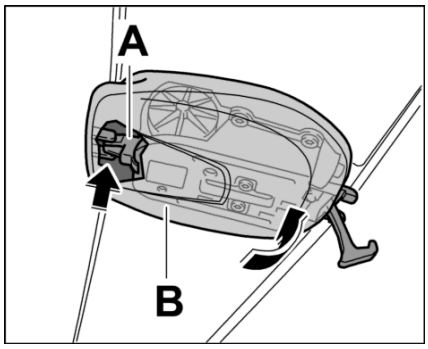
Installing convertible top lock



Installing convertible top lock

1. Plug in electric plug connections **-6-** and position convertible top lock **-A-** on roof frame. Coat the four fastening screws **-3-** with screw locking lacquer and tighten. **Tightening torque: 8 (6 ftlb.) Nm**

Installing cover for convertible top lock



Installing cover for convertible top lock

1. Slide cover **-B-** over the convertible top lock from the rear **-A-** . Ensure the cover **-B-** is centred and engages in the guide, then push it forward until it clicks into position. Press the front edge of the cover **-B-** up and bend it forward slightly with your fingers. The cover **-B-** clicks into place.
2. Lock convertible top.

997310, 997311, 997320, 997321, 997610, 997611, 997620, 997621

as of MY 2005
Country C00, C02, C05, C07, C08, C09, C10, C11, C12, C13, C14, C15, C16, C18, C19, C20, C21, C22, C23, C24, C25, C26, C27, C28, C32, C33, C34, C35, C36, C37, C38, C39, C45, C46, C98, C99

WARNUNG

Gefahr des Verlusts der Text-Bild-Zuordnung beim Ausdruck.

- **Aus technischen Gründen kann derzeit nicht ausgeschlossen werden, dass trotz**

61 28 19 Removing and installing convertible top covering - as of MY 2005

- Preliminary work
- Removing convertible-top covering
- Installing convertible-top covering
- Subsequent work

Tools

Designation	Type	Number	Explanation	
infra-red radiator	commercially available tool	00000		

top of page

Preliminary work

Preliminary work

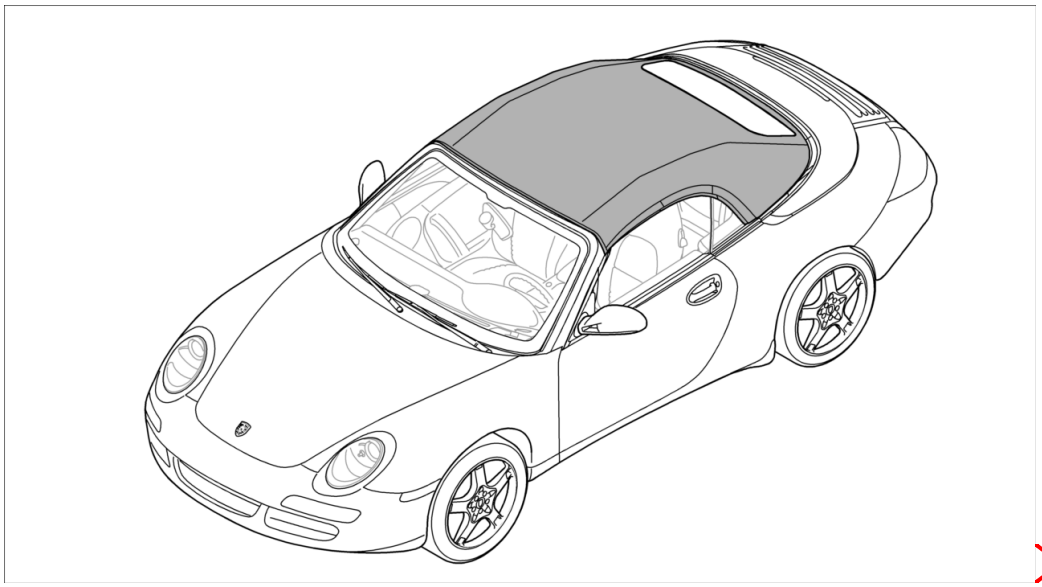
1. Remove convertible top inner lining. 610919 Removing and installing convertible-top inner lining - chapter on "Removing"

top of page

Removing convertible-top covering

Removing convertible-top covering

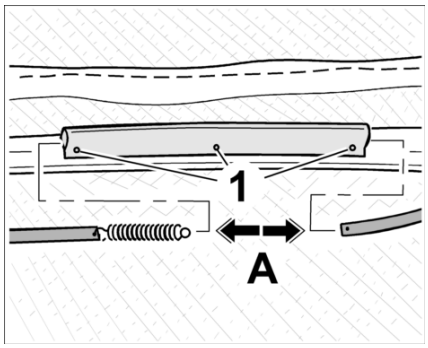
Installation Location:



Installation position for convertible top covering

Note

- *The spare parts contained in the "convertible-top covering" scope of parts must always be replaced.*
- *The convertible-top covering must be replaced at a room temperature of at least 15°C (59 Fahrenheit).*

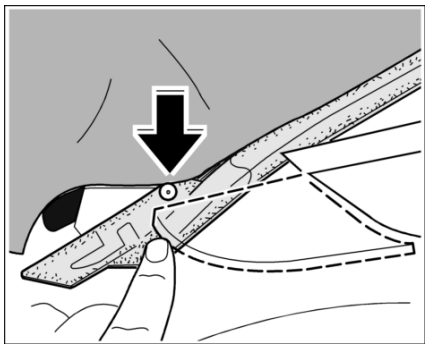


Removing tension strap on main folding top bow

1. Remove tension strap on main folding top bow.

1.1. Unscrew fastening screws **-1-** from the fabric pocket on the main folding top bow.

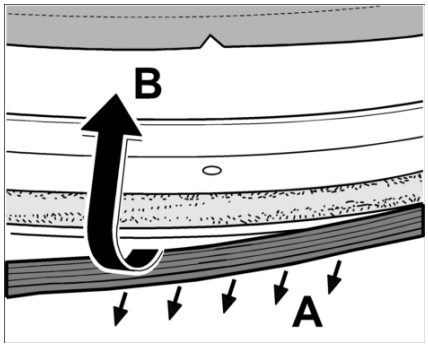
1.2. Move fabric pocket and disengage the tension spring from the tension strap **-A-** .



Removing tension bow seal

2. Remove tension bow seal.

2.1. Unscrew left and right fastening screws from tension bow seal and pull out of groove of tension bow.

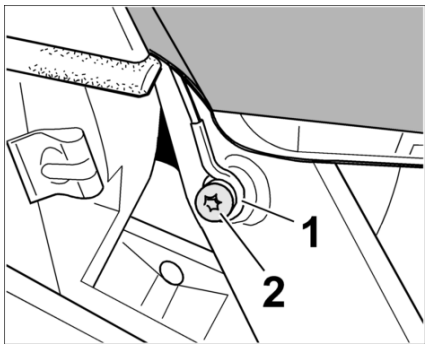


Removing tension bow seal

3. Remove convertible-top covering on tension bow.

3.1. Remove seal **-A-** from groove of tension bow.

3.2. Disengage convertible-top covering from groove **-B-** .



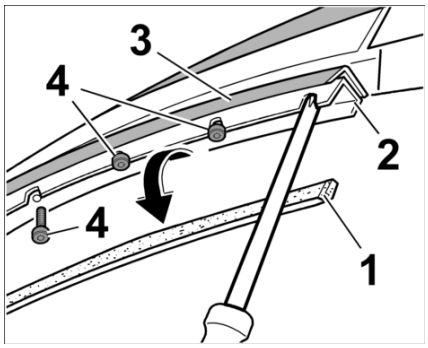
Removing tension cable on convertible-top covering

4. Remove tension cable on convertible-top covering.

4.1. From the tension cable **-1-** unscrew the fastening screw **-2-** .

Note

The seal on the roof frame is in two parts.

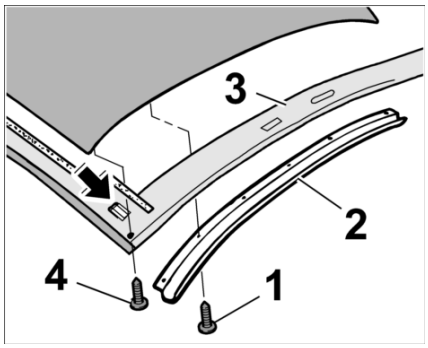


Removing seals and retaining frame

5. Remove seals and retaining bracket at sides of roof frame.

5.1. Pull the lower seal **-1-** out of the profile of the retaining strip **-2-** .

5.2. On the upper seal **-3-** with the retaining strip **-2-** , unscrew the fastening screws **-4-** and remove the seal **-3-** the retaining strip **-2-** from the roof frame.



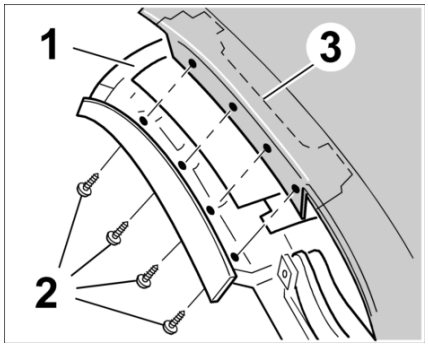
Removing retaining strip and convertible-top seal

6. Remove retaining strip and convertible-top seal on roof frame 1.

6.1. Unscrew and remove fastening screws **-1-** from retaining strip **-2-** .

6.2. From the tension cable **-3-** unscrew the fastening screws **-4-** .

6.3. Pull left and right convertible top seal **-3-** forwards out of roof frame 1

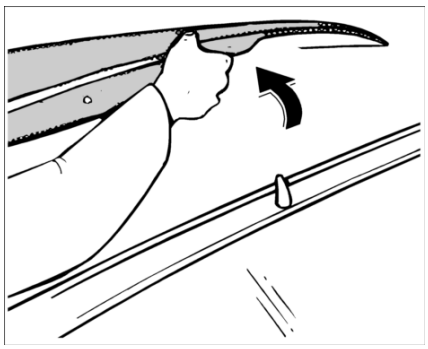


Removing convertible-top covering at sides of roof frame 1

7. Remove convertible-top covering at sides of roof frame 1.

7.1.

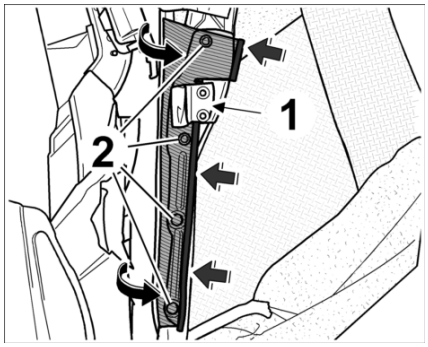
From the roof frame **-1-** Unscrew the fastening screws **-2-** and lift the shaped sheetmetal part **-3-** with convertible-top covering.



Removing convertible-top covering at front on roof frame 1.

8. Remove convertible-top covering at front on roof frame 1.

8.1. Detach convertible-top covering at front on roof frame 1 and lay it down to the rear.



Removing fastening strap on the main folding top bow

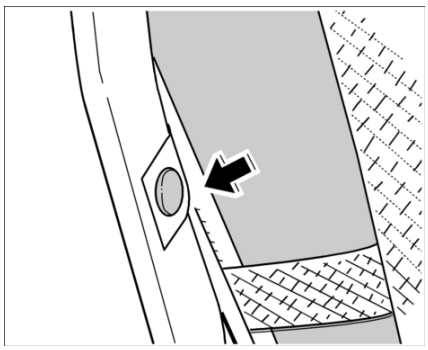
9. Remove fastening strap on the main folding top bow.

9.1. Remove thrust wedge.

9.2. Unscrew fastening screws **-1-** .

9.3. Unscrew fastening screws **-2-** from the shaped sheetmetal part on the main folding top bow from the rear.

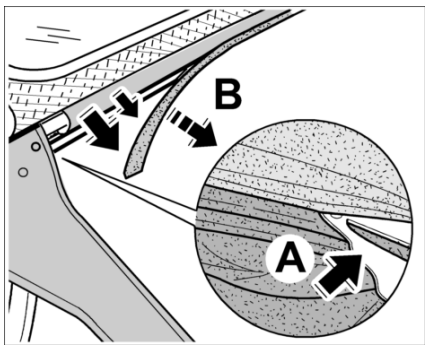
9.4. Pull the connection of the fastening strap off the shaped sheetmetal part.



Removing holding strap of convertible-top covering

10. Remove holding strap of convertible-top covering.

10.1. Press out fixing clip from roof frame 3 at inner right. On the left side, press fixing clip of wire harness out of roof frame 3.



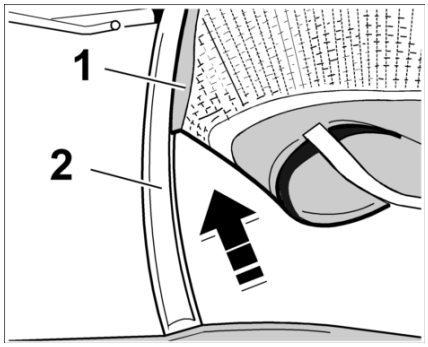
Removing convertible-top covering at corner bow

11. Remove convertible-top covering at corner bow.

11.1. Loosen bond of cloth inside **-A-** around the corner bow.

11.2. Fold the convertible-top covering forwards to the roof frame.

11.3. Pull seal out of the groove of the corner bow **-B-** and disengage the covering strip of the convertible-top covering in downward direction.



Removing convertible-top covering on main folding top bow

12. Remove convertible-top covering on main folding top bow

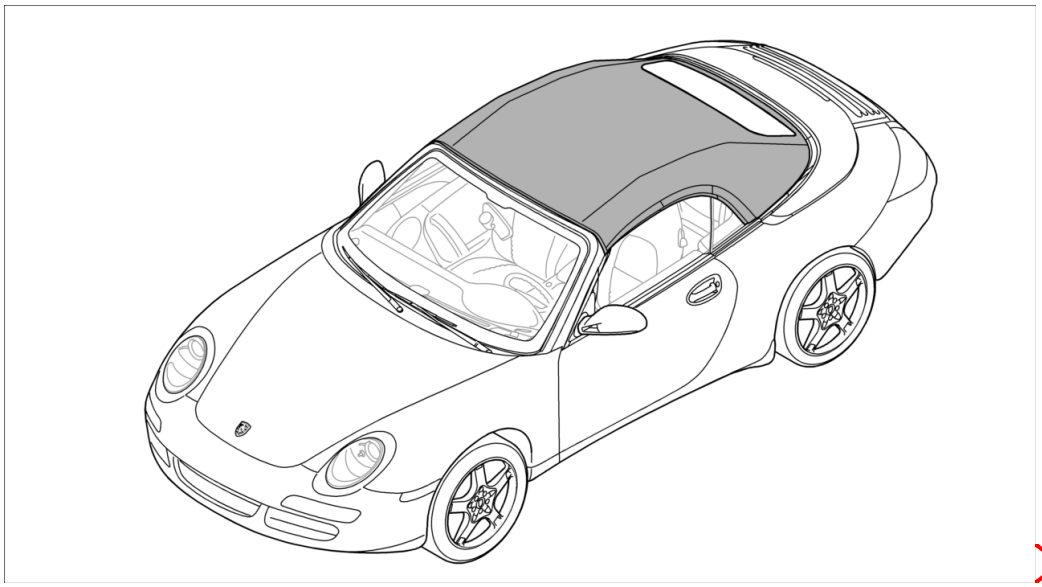
12.1. Pull the tightening strip of the convertible-top covering **-1-** from the groove of the main folding top bow **-2-** . Remove convertible-top covering from the vehicle.

top of page

Installing convertible-top covering

Installing convertible-top covering

Installation Location:



Installation position for convertible top covering

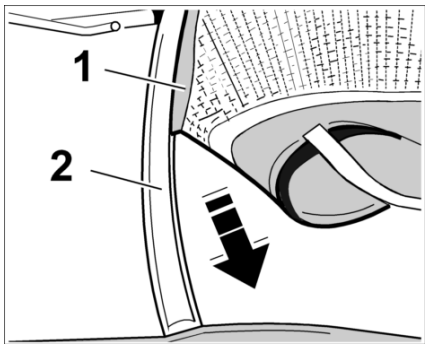
Note

- *If the convertible-top covering is very taut (with new convertible-top covering), close the convertible top and heat the convertible-top covering evenly using an **infra-red radiator 00000**.*
- *Ensure that the convertible-top covering is not heated for longer than 1 hour. Observe a minimum distance of 100 cm for the infra-red radiator and a maximum temperature of approx. 60 ºC (140 Fahrenheit). Then leave the vehicle to stand overnight with the convertible top closed.*
- *The same effect can be achieved if the vehicle is exposed to direct sunlight.*

Note

- *The spare parts contained in the "convertible-top covering" scope of parts must always be replaced.*
- *The convertible-top covering must be replaced at a room temperature of at least 15°C (59 Fahrenheit).*

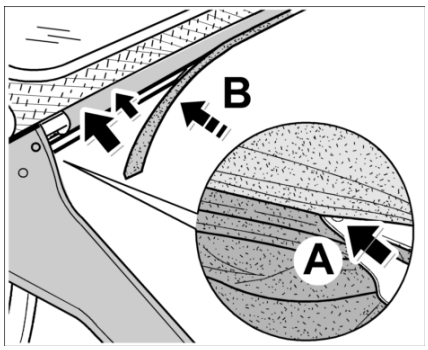
1. All pins and screw joints on the convertible top frame must be checked for tightness before the convertible-top covering is installed.
2. The tension strap and the bracing strap must be replaced before fitting the convertible-top covering.



Fastening convertible-top covering at the main folding top bow

3. Fasten convertible-top covering at the main folding top bow.

3.1. Lay the convertible-top covering on the convertible-top frame, fit the front tightening strip **-1-** of the convertible-top covering in the groove of the main folding top bow **-2-** and centralise.



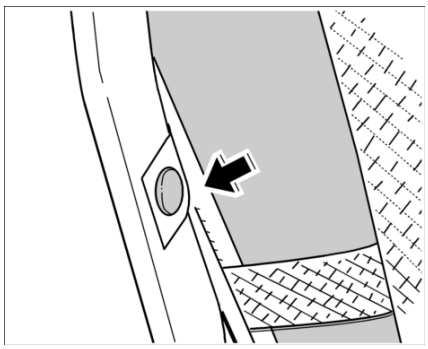
Fastening convertible-top covering at the corner bow

4. Fasten convertible-top covering at the corner bow.

4.1. Press tightening strip centre (notch marking) into groove of the corner bow (centre of the corner bow is identified by a hole).

4.2. The tightening strip is secured by tapping in the piping **-B-** .

4.3. Coat the tension hook cloth with adhesive and stick it inside around the corner bow **-A-** .

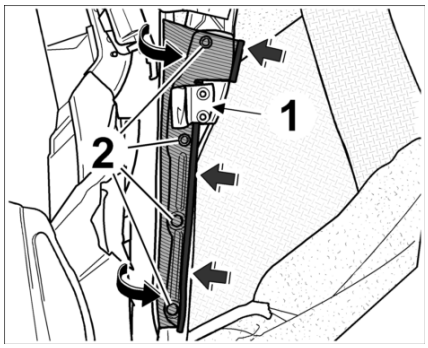


Fitting holding strap of convertible-top covering

5. Fasten holding strap of the convertible-top covering.

5.1. Position holding strap at right on convertible-top frame 3 on the inside and press in the clip.

5.2. On the left side, the holding strap is fastened with the fixing clip of the wire harness.

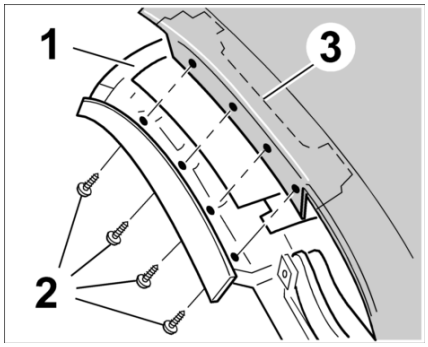


Fitting fastening strap at the main folding top bow:

6. Fasten the fastening strap at the main folding top bow.

6.1. Turn the vertical fastening strap of the convertible-top covering inward around the main folding top bow and place it on the shaped sheetmetal part. Secure with the fastening screws **-2-** . Tightening torque **Tightening torque : 1.7 (1.5 ftlb.) Nm**

6.2. Position thrust wedge on main folding top bow and screw in place with fastening screws **-1-** . Tightening torque **Tightening torque: 2.8 (2.0 ftlb.) Nm**

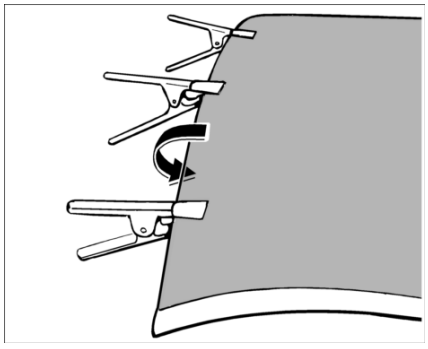


Convertible-top covering at sides of roof frame 1

7. Fasten convertible-top covering at the sides of roof frame 1.

7.1. Lay the convertible-top covering to the front and guide the shaped sheetmetal part **-3-** from above into the roof frame **-1-** .

7.2. Fasten convertible-top covering with fastening screws **-2-** starting from the rear bottom side of the roof frame. Tightening torque **Tightening torque : 5 (3.5 ftlb.) Nm**



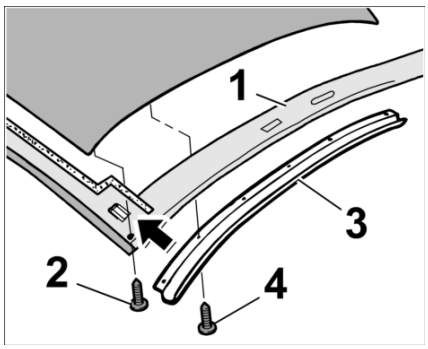
Fastening convertible-top covering at front

8. Fasten convertible-top covering at front.

8.1. A cardboard strip and a self-adhesive strip are affixed at the front of the convertible-top covering. Pull the protective film off the adhesive tape.

8.2.

Fold the convertible-top material around the roof frame edge without wrinkles. The convertible-top covering is initially held with fixing clips.



Fastening retaining strip and convertible-top seal

9. Fasten retaining strip and convertible-top seal on roof frame 1.

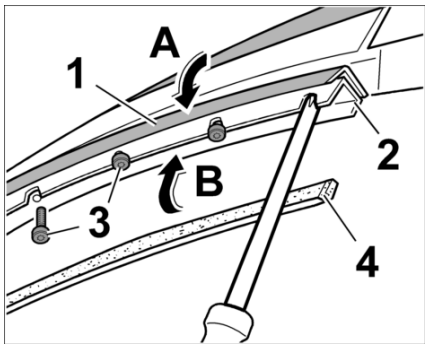
9.1. Remove fixing clips.

9.2. Insert convertible top seal **-1-** at the front corners into roof frame and tighten with fastening screws **-2-** . Tightening torque **Tightening torque : 1.7 (1.5 ftlb.) Nm**

9.3. Position retaining strip **-3-** on roof frame 1 and tighten with fastening screw **-4-** . Tightening torque **Tightening torque : 3.5 (2.5 ftlb.) Nm**

Note

The seal on the roof frame is in two parts.

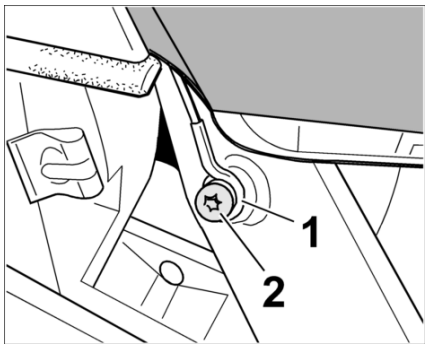


Fastening seals and retaining strip

10. Fasten seals and retaining strip at the sides of roof frame.

10.1. Position upper seal **-1-** onto retaining strip **-2-** and screw on to roof frame with fastening screws **-3-** . Tightening torque **Tightening torque: 2.8 (2.0 ftlb.) Nm**

10.2. Press the lower seal **-4-** into the profile of the retaining strip **-2-** .



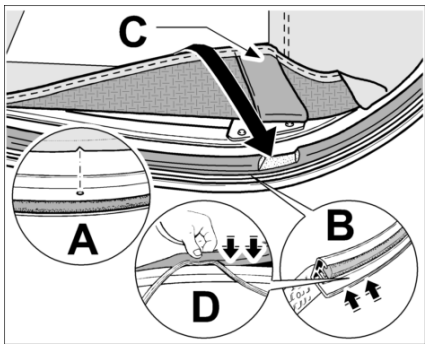
Tension cable on convertible-top covering

11. Fasten tension cable of convertible-top covering.

11.1. Position tension cable eyelet **-1-** on main folding top bow and screw in place with fastening screw **-2-** .
Tightening torque **Tightening torque: 7 (5 ftlb.) Nm**

Note

Cut-outs have been integrated to the right and left of the additional seal.



Fastening convertible-top covering at the tension bow

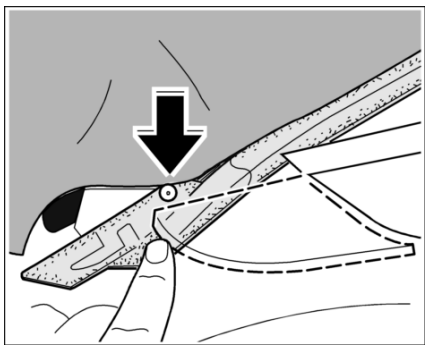
12. Fasten convertible-top covering at the tension bow.

12.1. Integrate the additional seal parallel to the tension strap **-C-** into the cut-outs on the right and left using a knife.

12.2. Press tightening strip centre (notch marking) **-A-** into the lower groove of the tension bow **-B-** (centre of tension bow is identified by a hole) **-A-** .

12.3. The reference overlap seams of the convertible-top covering must be positioned and centralised in the additional seal **-C-** cut-outs on the left and right.

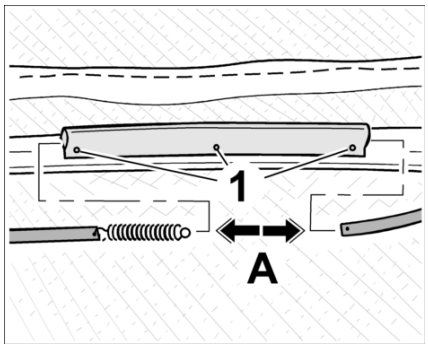
12.4. Secure the convertible-top covering by tapping in the piping **-D-** .



Fitting tension bow seal

13. Fit tension bow seal.

13.1. Press tension bow seal into the lower groove of the tension bow and fasten at both ends with the fastening screws. Tightening torque **Tightening torque: 5 (3.5 ftlb.) Nm**



Fastening tension strap at the main folding top bow

14. Fasten tension strap at the main folding top bow.

14.1. Pull the left tension strap through the fabric pocket on the main folding top bow.

14.2. Engage both ends of the tension straps in the tension spring **-A-** .

14.3. Position fabric pocket on main folding top bow and screw in place with fastening screws **-1-** .

top of page

Subsequent work

Subsequent work

1. Calibrate convertible top. 6101K2 K2 -Calibrating cabriolet convertible top
2. Install convertible top inner lining. 610919 Removing and installing convertible top inner lining - chapter on "Installing"

997310, 997311, 997320, 997321, 997610, 997611, 997620, 997621

as of MY 2005
Country C00, C02, C05, C07, C08, C09, C10, C11, C12, C13, C14, C15, C16, C18, C19, C20, C21, C22, C23, C24, C25, C26, C27, C28, C32, C33, C34, C35, C36, C37, C38, C39, C45, C46, C98, C99

WARNUNG

Gefahr des Verlusts der Text-Bild-Zuordnung beim Ausdruck.

- **Aus technischen Gründen kann derzeit nicht ausgeschlossen werden, dass trotz einwandfreier Darstellung auf dem Bildschirm beim Ausdruck der Zusammenhang von Text und zugehörigem Bild verloren geht.**

61 30 55 Replacing convertible-top frame - as of MY 2005

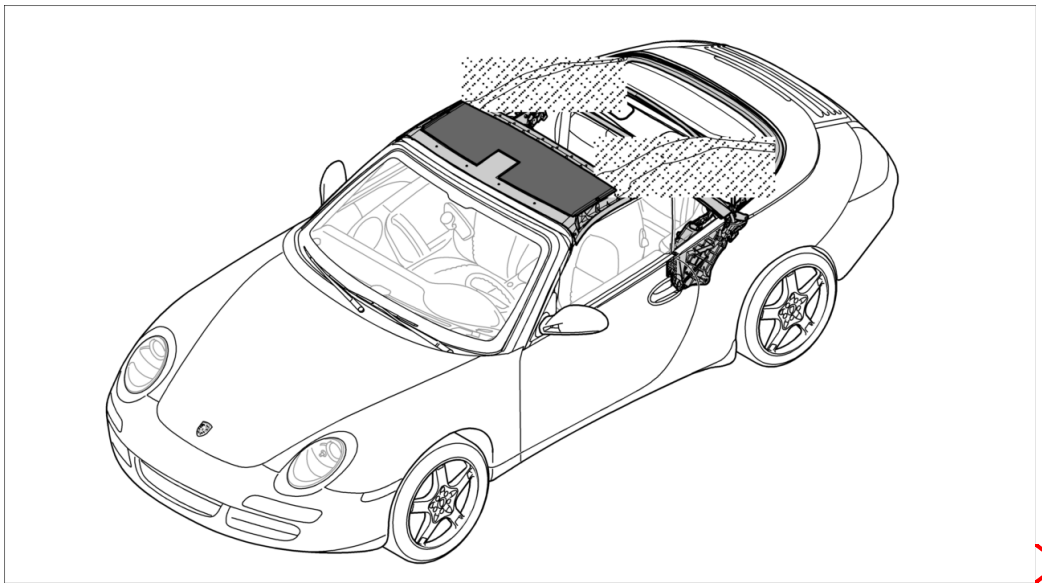
- Replacing convertible-top frame

top of page

Replacing convertible-top frame

Installing convertible top frame

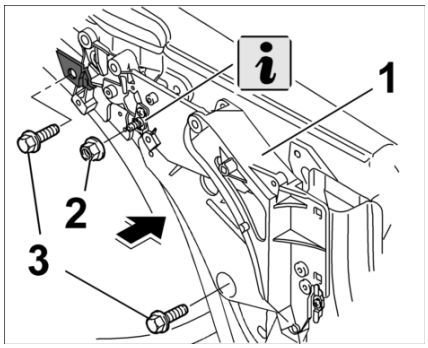
Installation Location:



Installation position for convertible-top frame

Note

Ensure that the assembly aid is seated firmly. The assembly aid must be recalibrated after removal. 610115 Adjusting convertible top



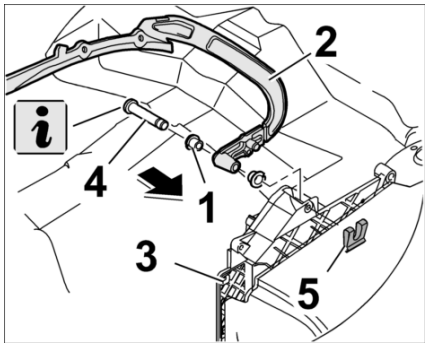
Installing convertible-top support

1. Install convertible-top support.

1.1. Position convertible-top support **-1-** on the assembly aid and screw down with fastening screws **-3-** or fastening nut **-2-** . Tightening torque **Tightening torque: 23 (17 ftlb.) Nm**

Note

- *Use assembly grease when fitting the pins.*



Installing roof frame 2

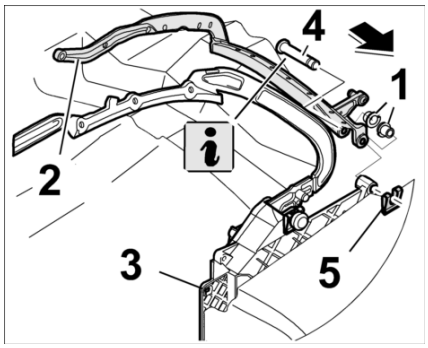
2. Install roof frame 2.

2.1. Insert bushes **-1-** into the bore of roof frame 2 **-2-** on the outboard side.

2.2. Position roof frame 2 **-2-** on convertible-top support **-3-** and connect with the pin **-4-** . Use the retaining clip **-5-** to secure the pin **-4-** .

Note

- *Use assembly grease when fitting the pins.*



Installing roof frame 3

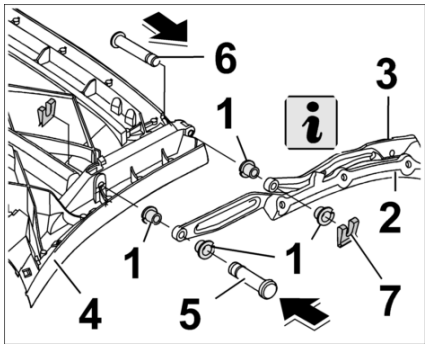
3. Install roof frame 3.

3.1. Insert bushes **-1-** in the bore of roof frame 3 **-2-** on the inboard side.

3.2. Position roof frame 3 **-2-** on the convertible-top support **-3-** and connect with the pin **-4-** . Use the retaining clip **-5-** to secure the pin **-4-** .

Note

- *Use assembly grease when fitting the pins.*

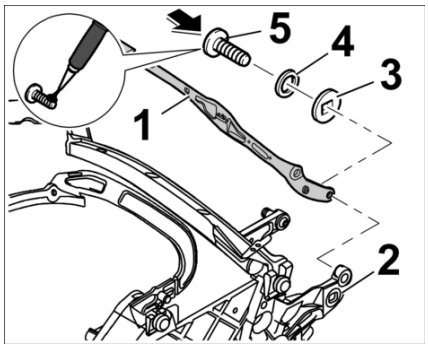


Installing roof frame 1

4. Install roof frame 1.

4.1. Insert bushes **-1-** into the bore of roof frame 2 **-2-** and roof frame 3 **-3-** on the outboard and inboard sides.

4.2. Position roof frame 2 **-2-** and roof frame 3 **-3-** on roof frame 1 **-4-** and connect with the pin **-5-** and **-6-** . Use the retaining clip **-7-** to secure the pin **-5-** and **-6-** .

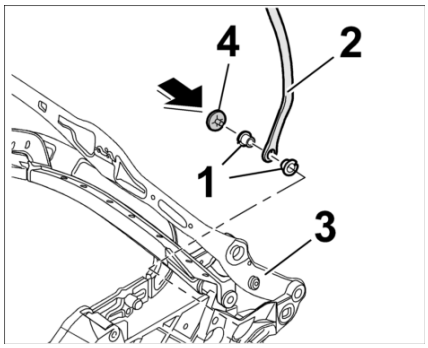


Installing main folding top bow

5. Install main folding top bow.

5.1. Position main folding top bow **-1-** on convertible-top support **-2-** .

5.2. Position square hole washer **-3-** and washer **-4-** on the main folding top bow. Coat fastening screw **-5-** with Loctite 270 and screw in. Use the fastening screw **-5-** to secure the main folding top bow. Tightening torque **Tightening torque: 9 (6.5 ftlb.) Nm**

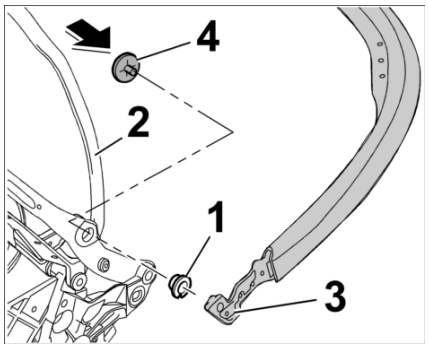


Installing corner bow

6. Install corner bow.

6.1. Insert bushes **-1-** into the bore of the corner bow **-2-**
.

6.2. Position corner bow **-2-** on the convertible-top support **-3-** and press in the anti-spread lock **-4-** . Secure the anti-spread lock with the locking pin.

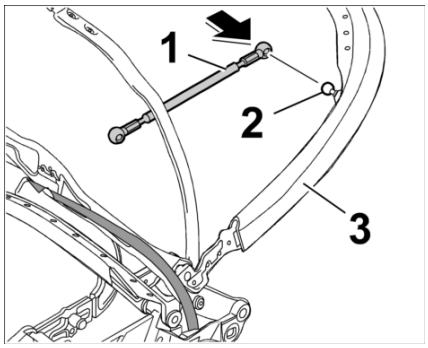


Installing tension bow

7. Install tension bow.

7.1. Insert bushes **-1-** into the bore of the main folding top bow **-2-** .

7.2. Position tension bow **-3-** on the main folding top bow and press in the anti-spread lock **-4-** . Secure the anti-spread lock with the locking pin.

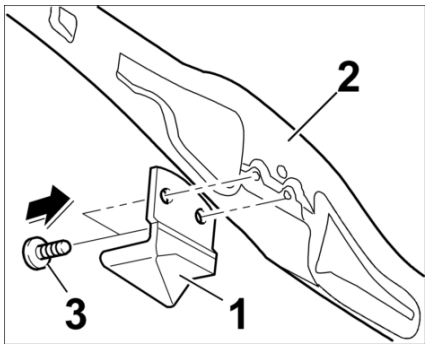


Installing tension cable

8. Install tension cable.

8.1. Press tension cable **-1-** into the ball head **-2-** of the tension bow **-3-** .

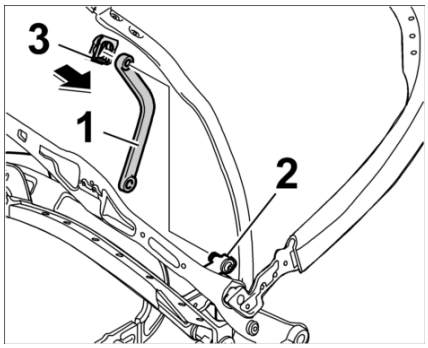
9. Install centring journal. 611019 Removing and installing front mount - chapter on "Installing"



Installing thrust wedge

10. Install thrust wedge.

10.1. Position thrust wedge **-1-** on main folding top bow **-2-** and screw in place with fastening screws **-3-** . Tightening torque **Tightening torque: 2.8 (2.0 ftlb.) Nm**



Installing lever

11. Install lever.

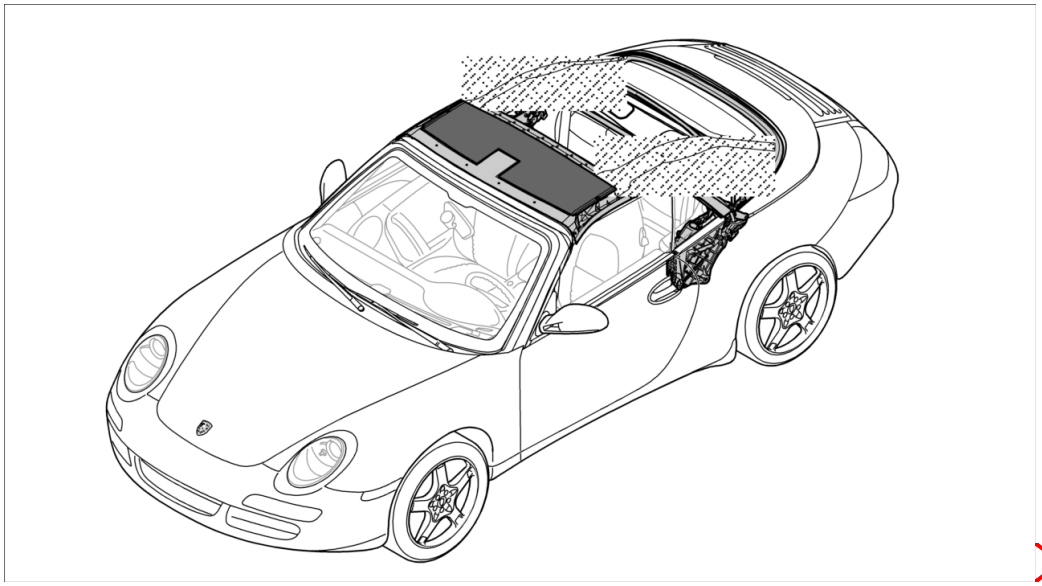
11.1. Position lever **-1-** on main folding top bow **-2-** and secure lever with locking clip **-3-** .

12. Install wire harness for convertible top. 975519 Removing and installing wire harness for convertible top- chapter on "Installing"

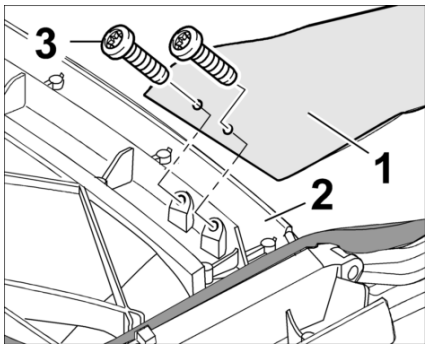
13. Install potentiometer. 616619 Removing and installing potentiometer - chapter on "Installing"

Installing tension strap

Installation Location:



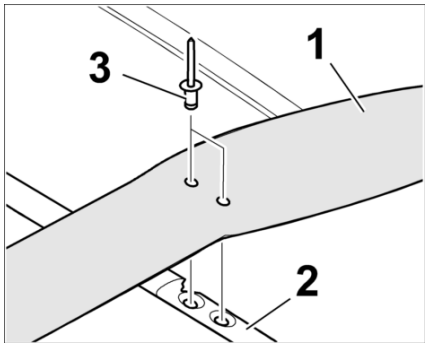
Installation position for convertible-top frame



Installing tension strap on roof frame 1

1. Install tension strap on roof frame 1.

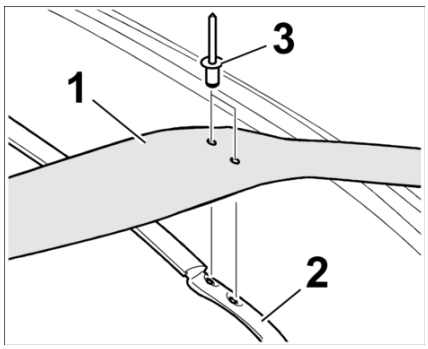
1.1. Position tension strap **-1-** on roof frame 1 **-2-** and screw down with the fastening screws **-3-** .
Tightening torque **Tightening torque : 5 (3.5 ftlb.) Nm**



Installing tension strap on the main folding top bow

2. Install tension strap on the main folding top bow.

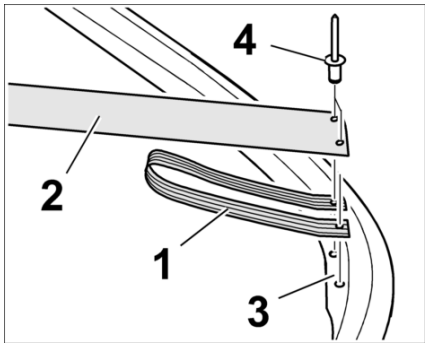
2.1. Position tension strap **-1-** on main folding top bow **-2-** at the holes provided, and use blind rivets **-3-** (in scope of parts for convertible top covering) to rivet on the tension strap **-1-** .



Installing tension strap on corner bow

3. Install tension strap on the corner bow.

3.1. Position tension strap **-1-** on corner bow **-2-** at the holes provided, and use blind rivets **-3-** (in scope of parts for convertible top covering) to rivet on the tension strap **-1-** .

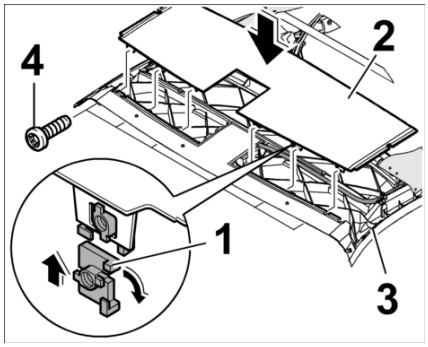


Installing tension strap and bracing strap on the tension bow

4. Install tension strap and bracing strap on the tension bow.

4.1. Position the bracing strap **-1-** as illustrated. Position tension strap **-2-** and bracing strap **-1-** on tension bow **-3-** at the holes provided, and use blind rivets **-4-** (in scope of parts for convertible top covering) to rivet on the tension strap **-2-** .

Installing plastic panel



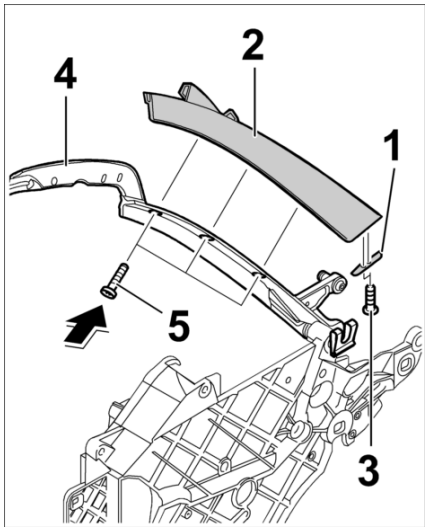
Installing plastic panel

1. Install plastic panel.

1.1. Insert fixing clip **-1-** onto plate of plastic panel from behind **-2-** and turn 90° clockwise.

1.2. Position plastic panel **-2-** on roof frame 1 **-3-** and screw down with the fastening screws **-4-** .
Tightening torque **Tightening torque : 5 (3.5 ftlb.) Nm**

Installing styling frame

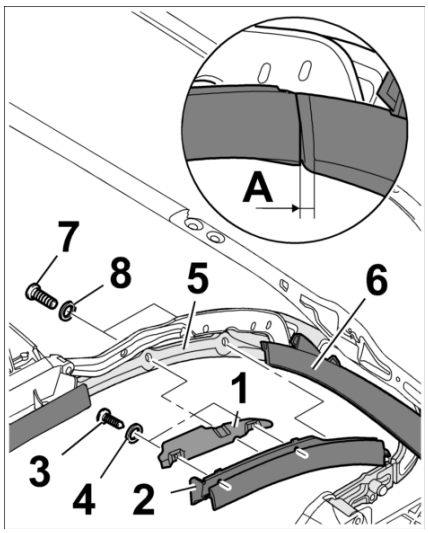


Installing styling frame on roof frame 3

1. Install styling frame on roof frame 3.

1.1. Screw air deflector **-1-** onto front face of styling frame **-2-** with the fastening screw **-3-** .
Tightening torque **Tightening torque: 1.7 (1.5 ftlb.) Nm**

1.2. Position styling frame **-2-** on roof frame 3 **-4-** and screw down with the fastening screws **-5-** .
Tightening torque **Tightening torque : 1.7 (1.5 ftlb.) Nm**

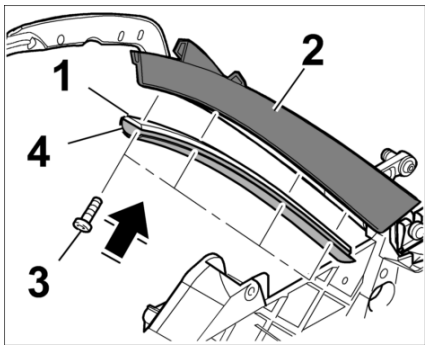


Installing styling frame on roof frame 2

2. Install styling frame on roof frame 2.

2.1. Screw down fabric guide plate **-1-** and styling frame **-2-** with the fastening screws **-3-** and washers **-4-** . Tightening torque **Tightening torque: 1.7 (1.5 ftlb.) Nm**

2.2. Position styling frame **-2-** on roof frame 2 **-5-** . Adjust gap dimension **-A = 3,1 + 0,5-** between styling frame 2 **-2-** and styling frame 3 **-6-** . Tighten fastening screws **-7-** and washers **-8-** . Tightening torque **Tightening torque : 9 (6.5 ftlb.) Nm**

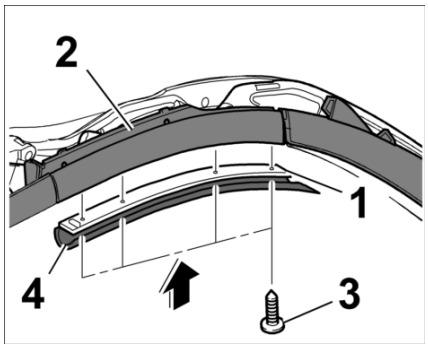


Installing seal on styling frame (roof frame 3)

3. Install seal on styling frame (roof frame 3).

3.1. Position aluminium profile **-1-** on styling frame **-2-** and screw in place with fastening screws **-3-** . Tightening torque **Tightening torque: 1.7 (1.5 ftlb.) Nm**

3.2. Insert seal **-4-** in the aluminium profile **-1-** .



Installing seal on styling frame (roof frame 2)

4. Install seal on styling frame (roof frame 2).

4.1. Position aluminium profile **-1-** on styling frame **-2-** and screw in place with fastening screws **-3-** . Tightening torque **Tightening torque: 1.7 (1.5 ftlb.) Nm**

4.2. Insert seal **-4-** in the aluminium profile **-1-** .

997310, 997311, 997320, 997321, 997610, 997611, 997620, 997621

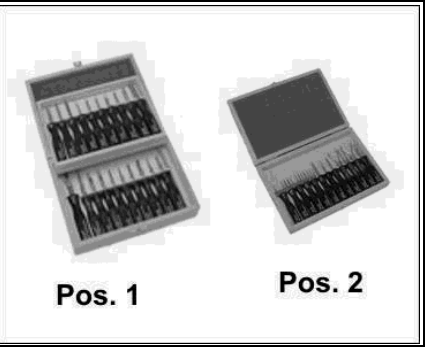
as of MY 2005
Country C00, C02, C05, C07, C08, C09, C10, C11, C12, C13, C14, C15, C16, C18, C19, C20, C21, C22, C23, C24, C25, C26, C27, C28, C32, C33, C34, C35, C36, C37, C38, C39, C45, C46, C98, C99

WARNUNG

61 40 19 Removing and installing flap motor - as of MY 2005

- Preliminary work
- Removing flap motor
- Installing flap motor
- Subsequent work

Tools

Designation	Type	Number	Explanation	
press-out and unlocking tools for flat and round plug connections of every size	commercially available tool	NR.155		

top of page

Preliminary work

Preliminary work

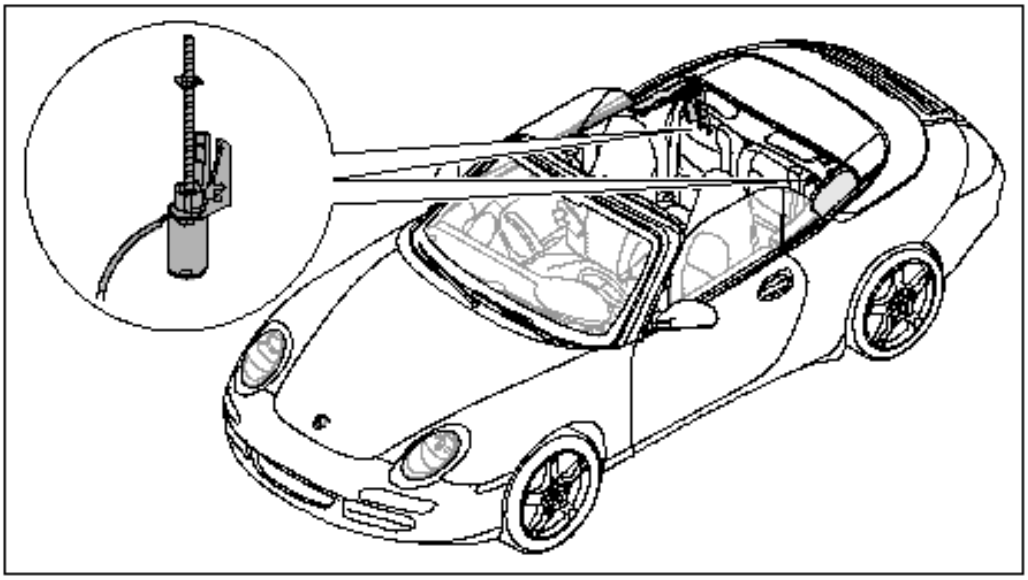
1. Remove rear side panel flap. 614219 Removing and installing rear side panel - chapter on "Removing"
2. Remove microswitch for flap. 614119 Removing and installing microswitch for flap - chapter on "Removing"

top of page

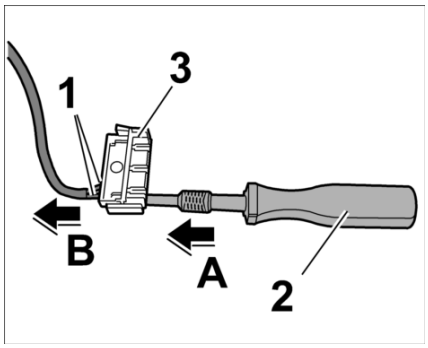
Removing flap motor

Removing flap motor

Installation Location:

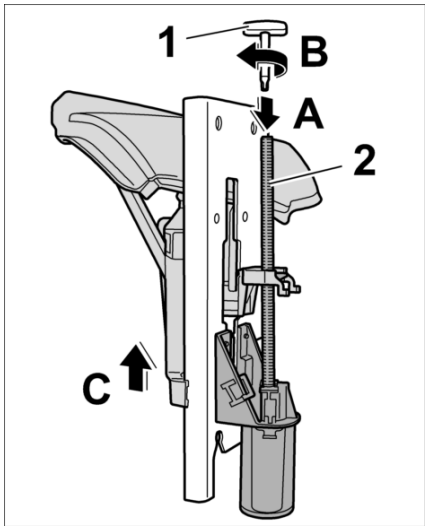


Installation position of flap motor



Releasing cable connections

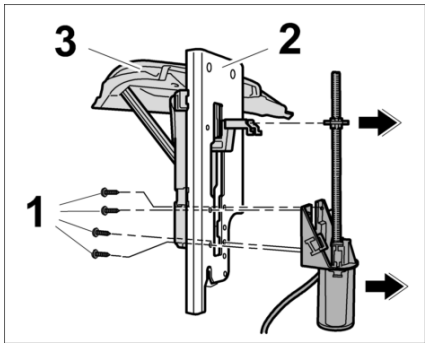
1. Release the two flat connectors of the electric connecting lines **-1-** using press-out tool **-2- press-out and unlocking tools for flat and round plug connections of every size NR.155 -Arrow A-** and pull out from the central connector **-3-** **-Arrow B-** .



Turning spindle via emergency release

2. Insert Allen key **-1-** into the emergency release **-2-** **-Arrow A-** and keep turning to the right **-Arrow**

B- until access can be gained to the four fastening screws **-Arrow C-** .



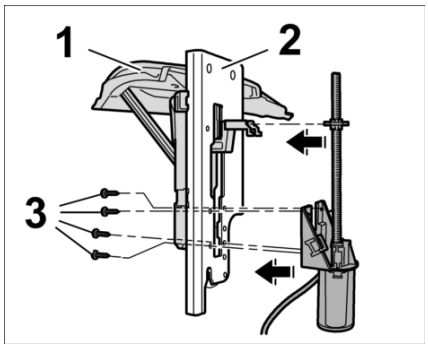
Removing motor

3. Loosen the four fastening screws **-1-** of the motor and remove motor to the side **-arrows-** from the bracket for the rear side panel flap **-2-** and from the spindle mounting **-3-** .

top of page

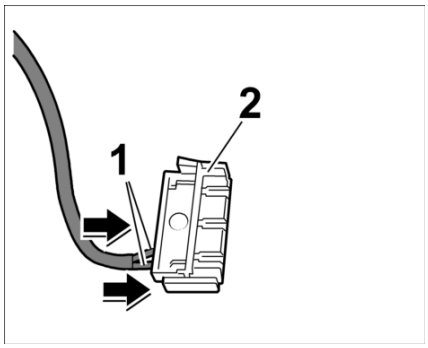
Installing flap motor

Installing flap motor



Inserting motor

1. Insert motor in the spindle mounting **-1-** and in the bracket for the rear panel flap **-2-** .
2. Screw down motor with the four fastening screws **-3-** .



Making cable connections

Note

When installing the flat connectors with the electric connecting lines, the correct installation position in the central connector (see wiring diagrams) must be observed.

3. Insert the two flat connectors with the electric connecting lines **-1-** in the central connector **-2-** **-arrows-** until they are felt to engage.

top of page

Subsequent work

Subsequent work

1. Install microswitch for flap. 614119 Removing and installing microswitch for flap - chapter on "Installing"
2. Install side panel flap. 614219 Removing and installing side panel flap - chapter on "Installing"

997310, 997311, 997320, 997321, 997610, 997611, 997620, 997621

as of MY 2005
Country C00, C02, C05, C07, C08, C09, C10, C11, C12, C13, C14, C15, C16, C18, C19, C20, C21, C22, C23, C24, C25, C26, C27, C28, C32, C33, C34, C35, C36, C37, C38, C39, C45, C46, C98, C99

WARNUNG

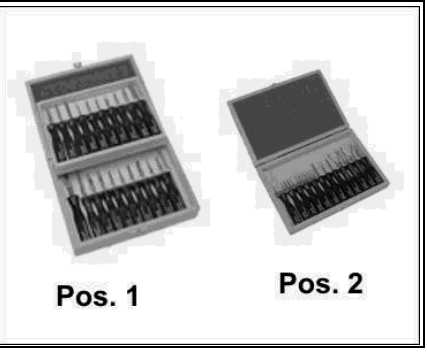
Gefahr des Verlusts der Text-Bild-Zuordnung beim Ausdruck.

- **Aus technischen Gründen kann derzeit nicht ausgeschlossen werden, dass trotz einwandfreier Darstellung auf dem Bildschirm beim Ausdruck der Zusammenhang von Text und zugehörigem Bild verloren geht.**
- **Wird der Fehler nicht bemerkt, besteht die Gefahr, daß Arbeiten nicht korrekt durchgeführt werden und es dadurch zu Personen- und Sachschäden kommt.**

61 41 19 Removing and installing microswitch for flap - as of MY 2005

- Removing microswitch for flap
- Installing microswitch for flap
- Subsequent work

Tools

Designation	Type	Number	Explanation	
press-out and unlocking tools for flat and round plug connections of all sizes	commercially available tool	NR.155		

Preliminary work

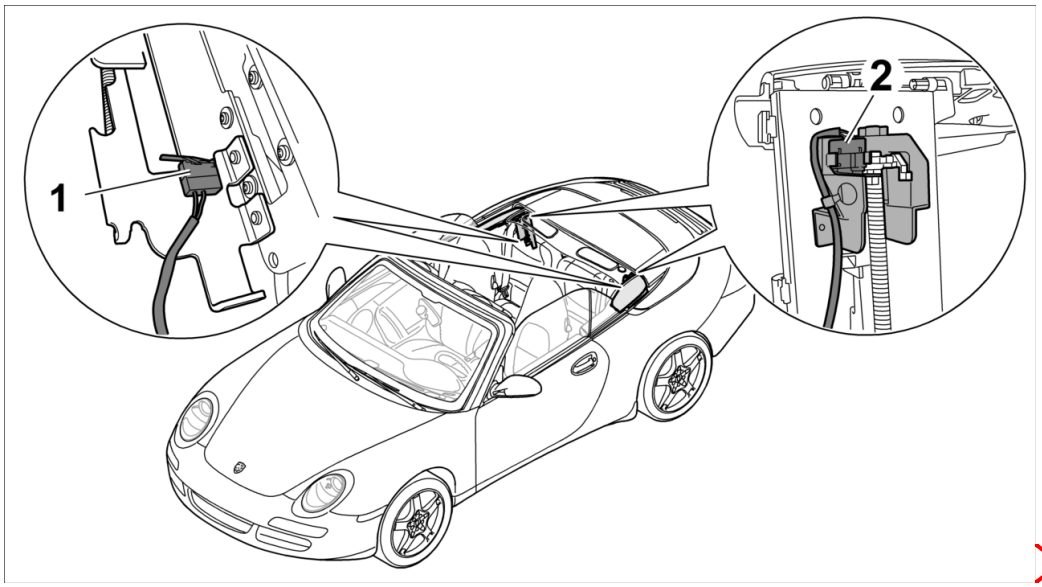
Remove rear side section flap. 614219 Removing and installing rear side section flap - "Removing" chapter

top of page

Removing microswitch for flap

Removing microswitch for flap

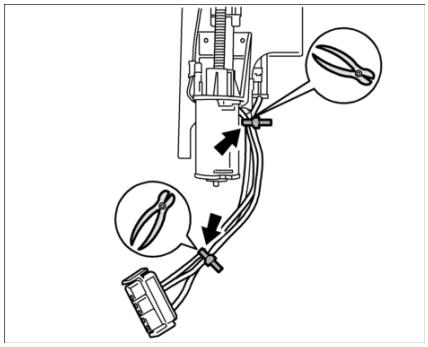
Installation Location:



Installation location for microswitch

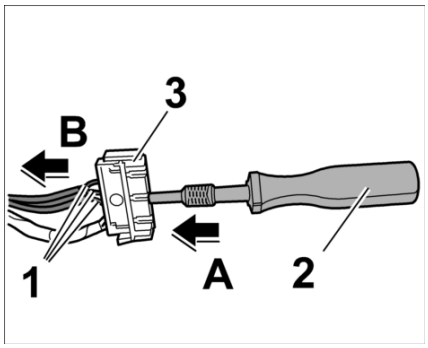
1 - Bottom microswitch

2 - Top microswitch



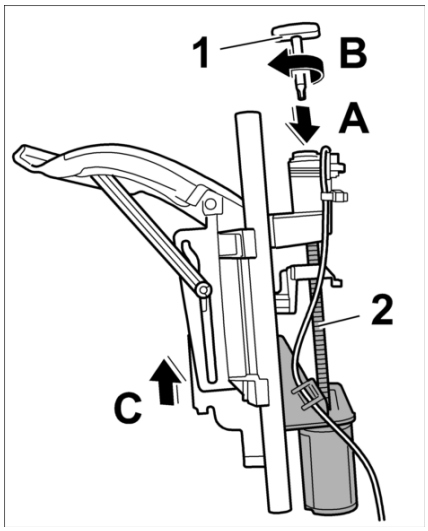
Undoing tie-wraps

1. Undo the two tie-wraps **-arrows-** on the electric connecting lines using a wire pliers.



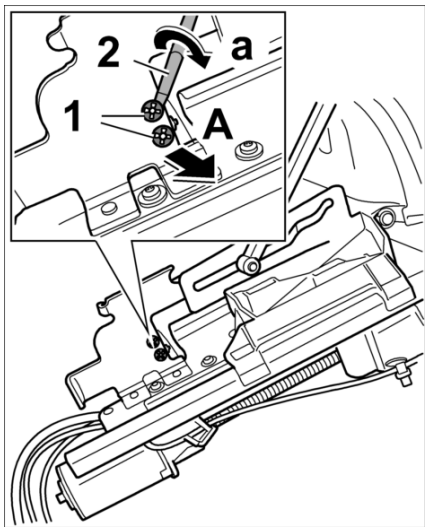
Undoing cable connections

2. Undo the three flat connectors of the electric connecting lines **-1-** using press-out tool **-2-** **press-out and unlocking tools for flat and round plug connections of all sizes NR.155** **-arrow A-** and pull them out of the central connector **-3-** **-arrow B-** .



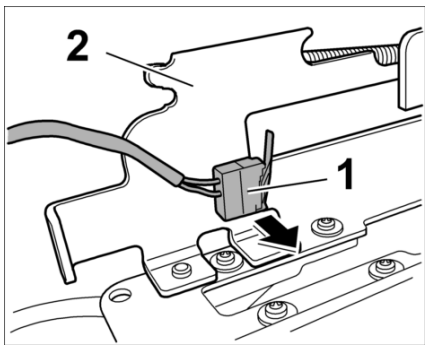
Turning spindle using emergency operation mechanism

3. Insert Allen key **-1-** in the emergency operation mechanism **-2-** **-arrow A-** and turn it to the right **-arrow B-** until the bottom microswitch can be accessed **-arrow C-** .



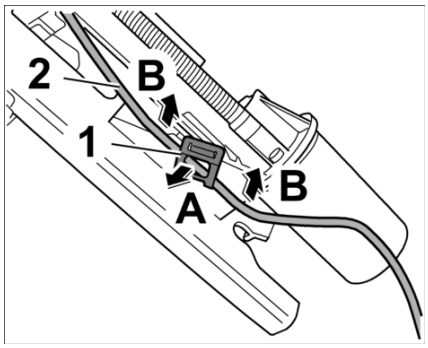
Removing bottom microswitch

4. Undo the two circlips **-1-** from the bottom microswitch by turning them **-arrow a-** with a small screwdriver **-2-** and remove them **-arrow A-** .



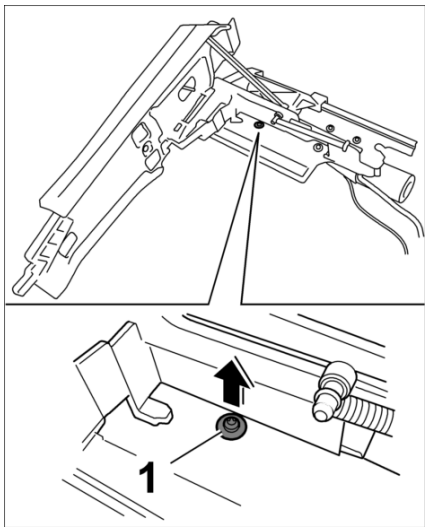
Removing bottom microswitch

5. Remove bottom microswitch **-1-** from bracket **-2-** **-arrow-** .



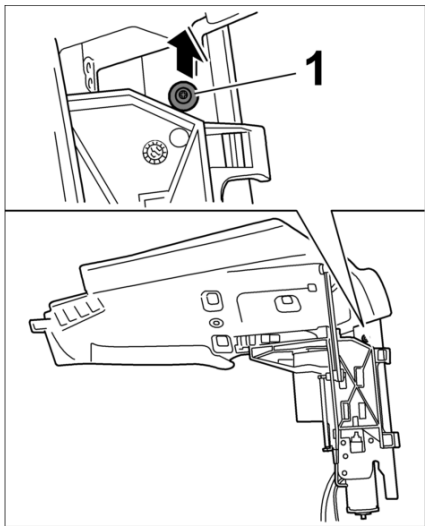
Undoing cable fixing device

6. Bend cable fixing device **-1-** on top engine slightly outwards **-arrow A-** and pull out electric connecting line **-2-** for the top microswitch from the cable fixing device **-arrows B-** .
7. Insert Allen key in the emergency operation mechanism and turn it to the right or left until the rear fastening screw of the top microswitch can be accessed *Turning spindle using emergency operation mechanism* .



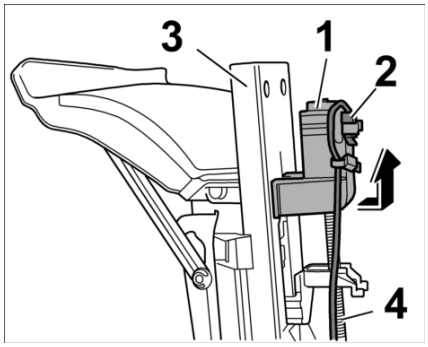
Undoing rear fastening screw

8. Undo and remove rear fastening screw **-1-** of top microswitch **-arrow-** .
9. Insert Allen key in the emergency operation mechanism and turn it to the right or left until the front fastening screw of the top microswitch can be accessed *Turning spindle using emergency operation mechanism* .



Undoing front fastening screw

10. Undo and remove front fastening screw **-1-** of top microswitch **-arrow-** .



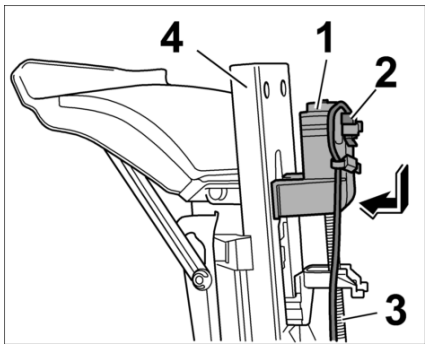
Removing spindle mount with microswitch

11. Remove spindle mount **-1-** together with top microswitch **-2-** first in a slightly outward direction and then upward **-arrow-** from the bracket **-3-** and the spindle **-4-** .

top of page

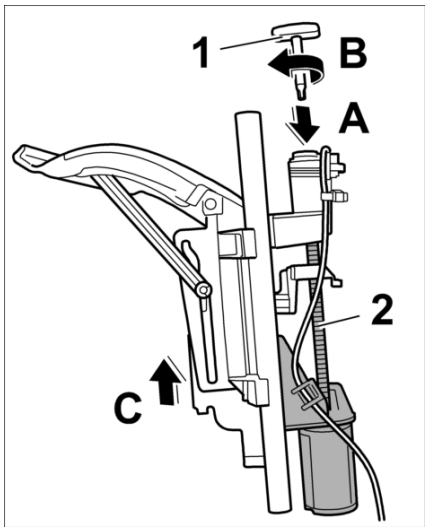
Installing microswitch for flap

Installing microswitch for flap



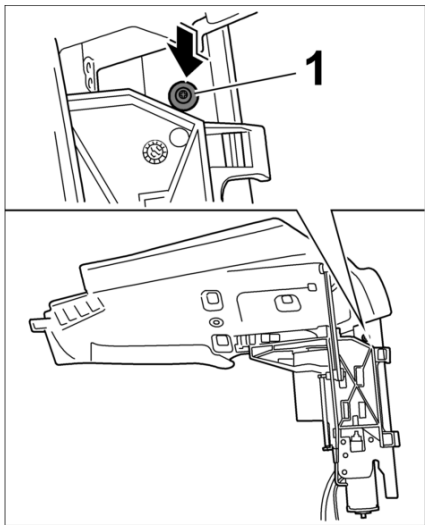
Inserting spindle mount with microswitch

1. Insert spindle mount **-1-** together with top microswitch **-2-** first from above into the spindle **-3-** and then into the bracket **-4-** **-arrow-** .



Turning spindle using emergency operation mechanism

2. Insert Allen key **-1-** in the emergency operation mechanism **-2-** **-arrow A-** and turn it to the right or left **-arrow B-** until the front fastening screw of the top microswitch can be accessed **-arrow C-** .

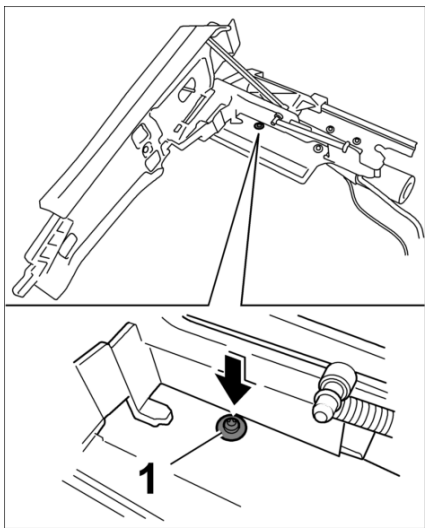


Inserting front fastening screw

3.

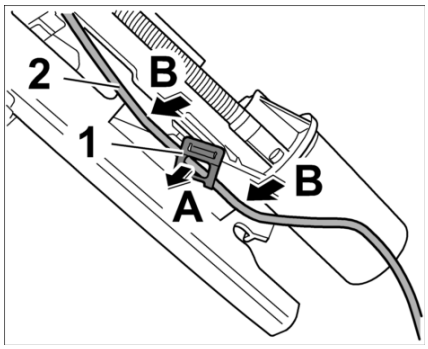
Insert and screw in front fastening screw **-1-** of top microswitch **-arrow-** .

4. Insert Allen key in the emergency operation mechanism and turn it to the right or left until the rear fastening screw of the top microswitch can be accessed. *Turning spindle using emergency operation mechanism* .



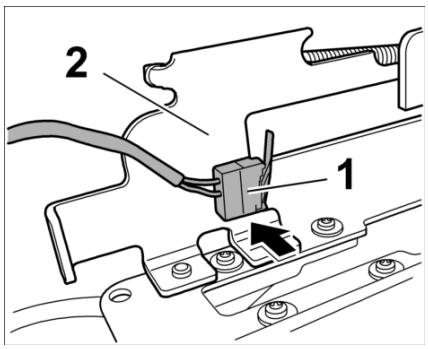
Inserting rear fastening screw

5. Insert and screw in rear fastening screw **-1-** of top microswitch **-arrow-** .



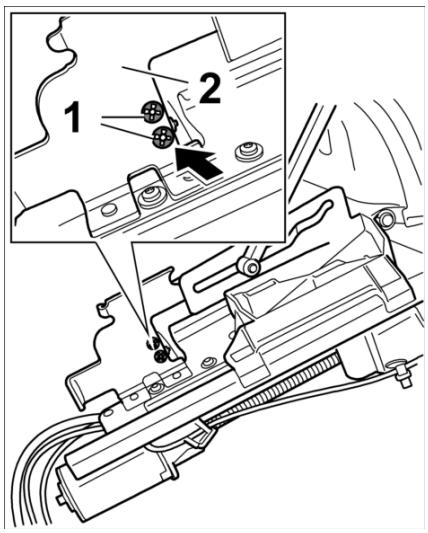
Engaging cable in fixing device

6. Bend cable fixing device **-1-** on top engine slightly outwards **-arrow A-** and engage electric connecting line **-2-** for the top microswitch in the cable fixing device **-arrows B-** .
7. Insert Allen key in the emergency operation mechanism and turn it to the right until the bottom microswitch can be accessed *Turning spindle using emergency operation mechanism* .



Inserting bottom microswitch

8. Insert bottom microswitch **-1-** in bracket **-2-** **-arrow-** .

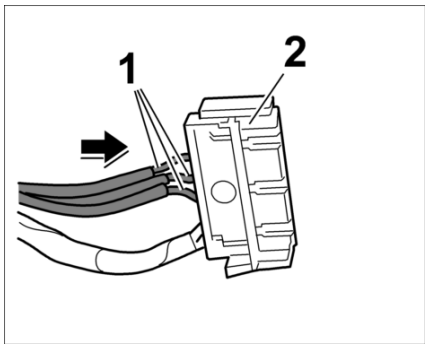


Installing bottom microswitch

Note

New circlips must always be used when securing the bottom microswitch.

9. Insert both circlips **-1-** from the side **-arrow-** and press in until they fully connect with the bracket **-2-** .

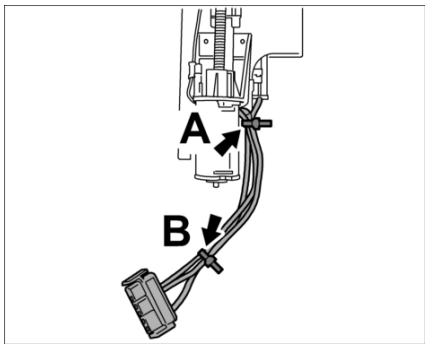


Establishing cable connections

Note

When installing the flat connectors with the electric connecting lines, the correct installation position in the central connect must be observed (see wiring diagrams).

10. Insert the three flat connectors together with the electric connecting lines **-1-** in the central connector **-2-** **-arrow-** , until the flat connectors audibly engage.



Affixing cable ties

11. Using a tie-wrap **-arrow A-** fasten electric connecting lines to the bracket.
12. Tie electric connecting lines together using a tie-wrap **-arrow B-** .

top of page

Subsequent work

Subsequent work

Install rear side section flap. 614219 Removing and installing rear side section flap - "Installing" chapter

---

997310, 997311, 997320, 997321, 997610, 997611, 997620, 997621

as of MY 2005
Country C00, C02, C05, C07, C08, C09, C10, C11, C12, C13, C14, C15, C16, C18, C19, C20, C21, C22, C23, C24, C25, C26, C27, C28, C32, C33, C34, C35, C36, C37, C38, C39, C45, C46, C98, C99

WARNUNG
Gefahr des Verlusts der Text-Bild-Zuordnung beim Ausdruck.

- **Aus technischen Gründen kann derzeit nicht ausgeschlossen werden, dass trotz einwandfreier Darstellung auf dem Bildschirm beim Ausdruck der Zusammenhang von Text und zugehörigem Bild verloren geht.**
- **Wird der Fehler nicht bemerkt, besteht die Gefahr, daß Arbeiten nicht korrekt durchgeführt werden und es dadurch zu Personen- und Sachschäden kommt.**

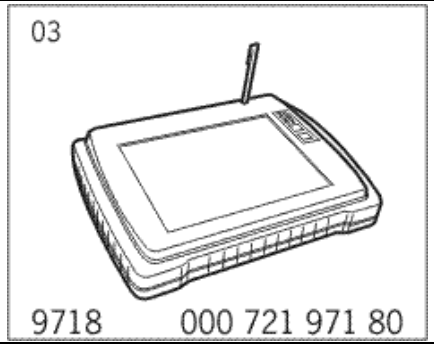
Vergleichen Sie deshalb nach dem Druckvorgang unbedingt die Ausdrucke mit der Bildschirmdarstellung. Korrigieren Sie die Ausdrucke im Fehlerfall so, daß der Inhalt der Bildschirmdarstellung zutreffend wiedergegeben wird.

WARNING
Danger of losing text-figure correspondence when printing out.

61 42 19 Removing and installing rear side section flap - as of MY 2005

- Preliminary work
- Removing rear side section flap
- Installing rear side section flap
- Subsequent work

Tools

Designation	Type	Number	Explanation	
PIWIS tester	special tool	9718		

top of page

Preliminary work

Preliminary work

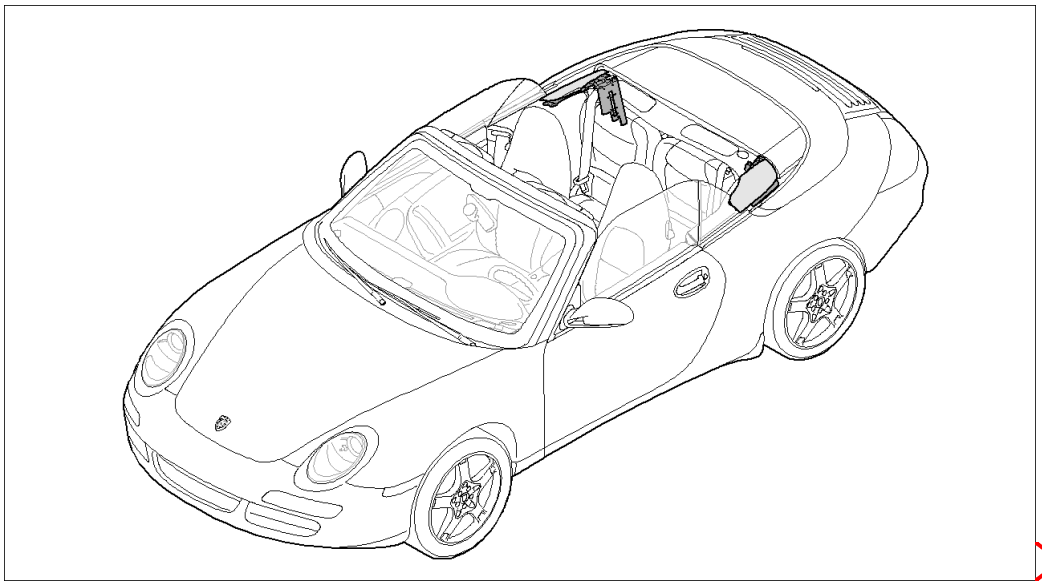
Removing hardtop mount 611719 Removing and installing hardtop mount - chapter on "Removing"

top of page

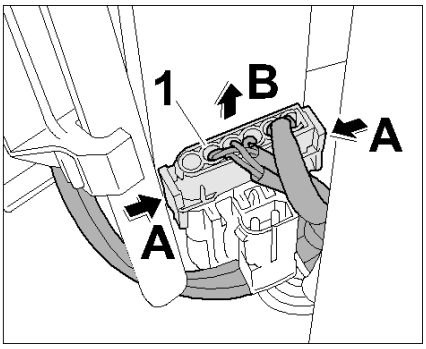
Removing rear side section flap

Removing rear side panel flap

Installation Location:

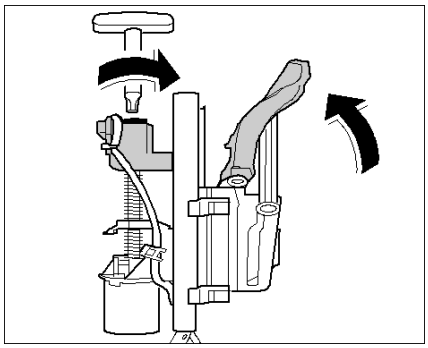


Installation position of rear side panel flap



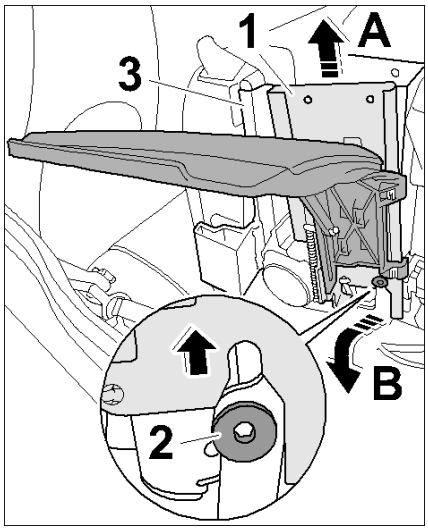
Releasing electric plug connection

1. Press in locking tabs **-Arrows A-** and pull electric plug connection **-1-** up and off **-Arrow B-** .



Lid top in service position

2. Insert Allen key into the emergency operation mechanism and turn it counterclockwise (in direction of arrow) until the flap lid starts to move vertically.



Removing rear side panel flap

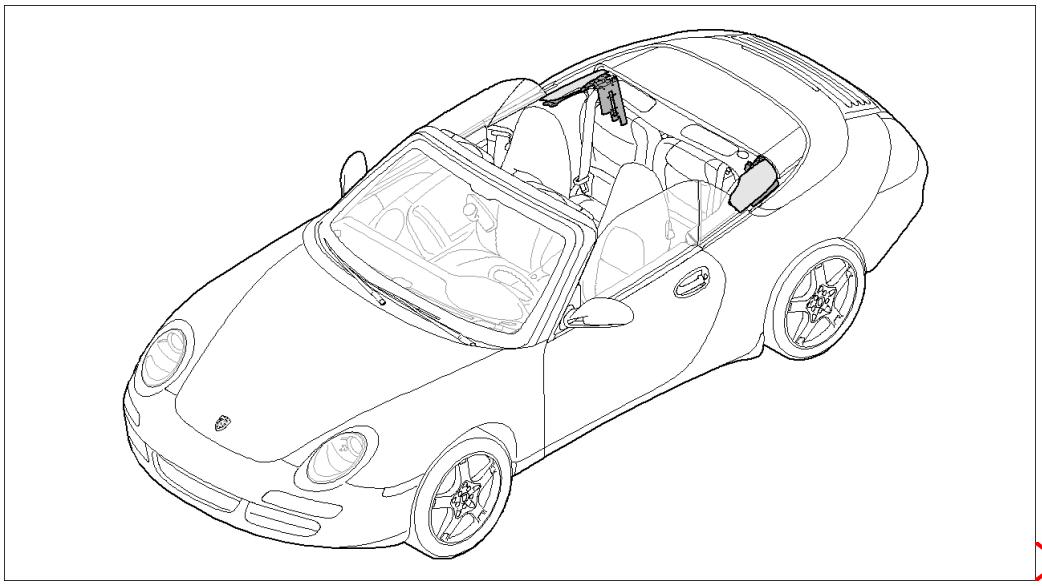
3. Move rear side panel flap **-1-** out of the pin **-2-** in an upwards direction **-Arrow A-** and guide out of the frame for the roll-over protection system **-3-** downwards **-Arrow B-** .

top of page

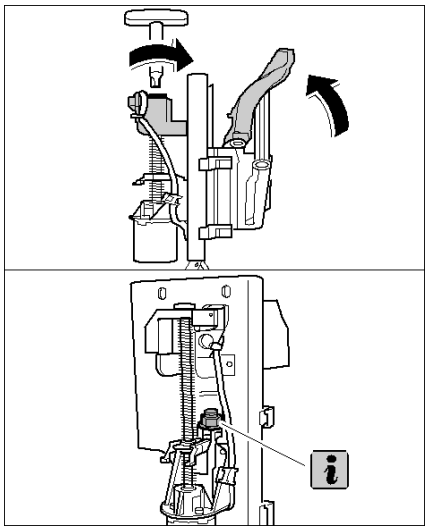
Installing rear side section flap

Installing rear side section flap

Installation Location:



Installation position of rear side panel flap

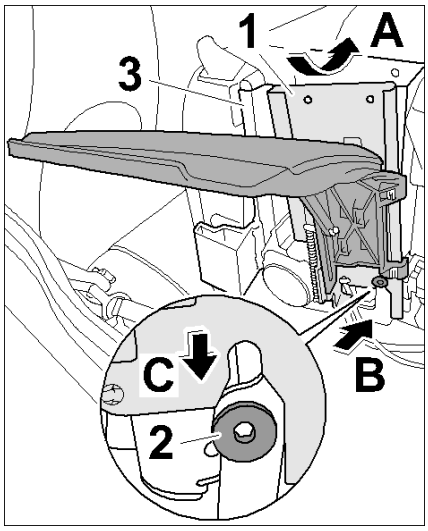


Lid service position

Note

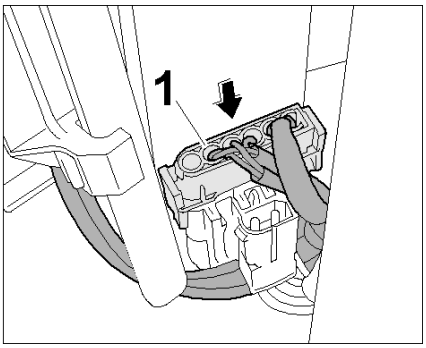
The height adjusting nut is set to its basic setting at the factory. This setting should not be changed.

1. Insert Allen key into the emergency operation mechanism and turn it counterclockwise (in direction of arrow) until the flap lid starts to move vertically.



Installing rear side section flap

2. Introduce rear side panel flap **-1-** into top of frame for roll-over protection system **-3-** **-Arrow A-** , then swing it inwards **-Arrow B-** and insert it into the pins **-2-** **-Arrow C-** .



Locking plug connection

3. Push in electric plug connection **-1-** until it engages audibly.

top of page

Subsequent work

Subsequent work

1. Installing hardtop mount 611719 Removing and installing mount for hardtop - chapter on "Installing"
2. Perform drive link test on rear side panel flap with **PIWIS tester 9718**.
3. Calibrate convertible top. 6101K2 K2 -Calibrating cabriolet convertible top
4. Check gap dimension of rear side panel, adjusting if necessary. *706819 15 Removing and installing C-pillar trim - chapter on "Installing"*

997310, 997311, 997320, 997321, 997610, 997611, 997620, 997621

as of MY 2005
Country C00, C02, C05, C07, C08, C09, C10, C11, C12, C13, C14, C15, C16, C18, C19, C20, C21, C22, C23, C24, C25, C26, C27, C28, C32, C33, C34, C35, C36, C37, C38, C39, C45, C46, C98, C99

WARNUNG

Gefahr des Verlusts der Text-Bild-Zuordnung beim Ausdruck.

- **Aus technischen Gründen kann derzeit nicht ausgeschlossen werden, dass trotz einwandfreier Darstellung auf dem Bildschirm beim Ausdruck der Zusammenhang von Text und zugehörigem Bild verloren geht.**
- **Wird der Fehler nicht bemerkt, besteht die Gefahr, daß Arbeiten nicht korrekt durchgeführt werden und es dadurch zu Personen- und Sachschäden kommt.**

Vergleichen Sie deshalb nach dem Druckvorgang unbedingt die Ausdrucke mit der Bildschirmdarstellung. Korrigieren Sie die Ausdrucke im Fehlerfall so, daß der Inhalt der

61 43 19 Removing and installing tension cable - as of MY 2005

- Preliminary work
- Removing tension cable
- Installing tension cable
- Subsequent work

top of page

Preliminary work

Preliminary work

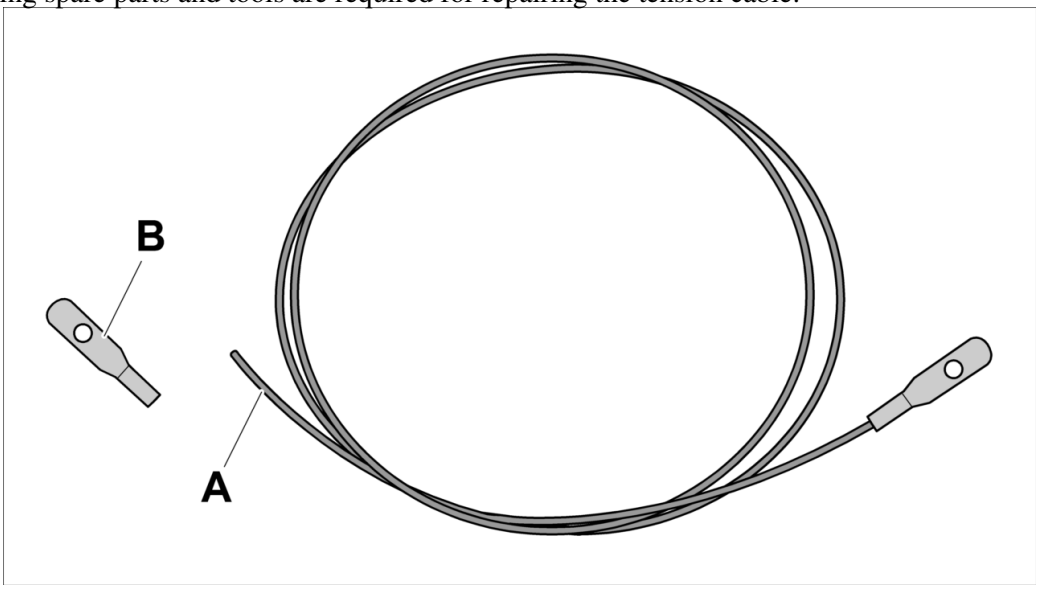
Remove convertible top covering. 612819 Removing and installing convertible top covering - chapter on "Removing"

top of page

Removing tension cable

Removing tension cable

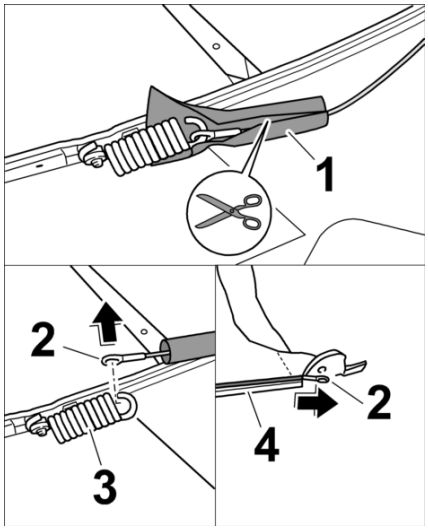
The following spare parts and tools are required for repairing the tension cable:



Tension cable

ATension cable

BEye



Removing tension cable

1. Disengage tension cable at the shaped sheetmetal part.

1.1. Cut open plastic sleeve **-1-** with a pair of scissors.

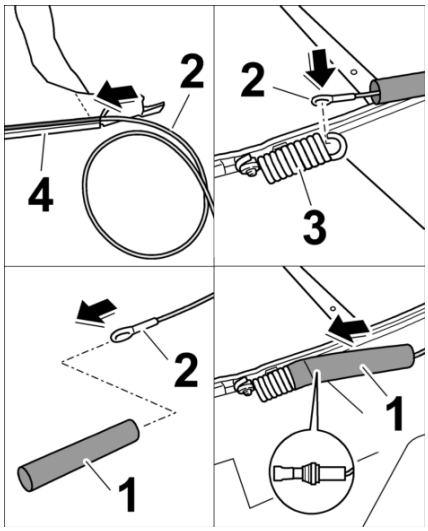
1.2. Disengage tension cable **-2-** from tension spring **-3-** at the shaped sheetmetal part.

1.3. Pull tension cable **-2-** out of the spring **-4-** .

top of page

Installing tension cable

Installing tension cable



Fitting tension cable

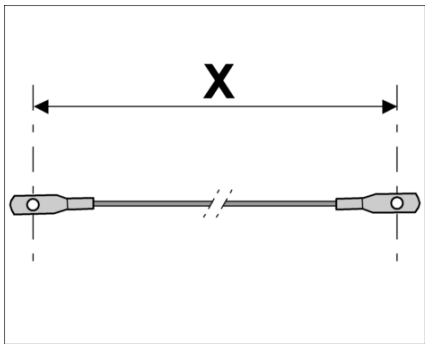
1. Fit tension cable to the shaped sheetmetal part.

1.1. Pull tension cable **-2-** into the spring **-4-** .

1.2. Push shrink-fit hose **-1-** over the tension cable **-2-** .

1.3. Engage tension cable **-2-** in tension spring **-3-** at the shaped sheetmetal part.

1.4. Pull the shrink-fit hose **-1-** over the tension spring. Shrink the shrink-fit hose to the diameter of the tension spring by heating it with a hot-air gun.

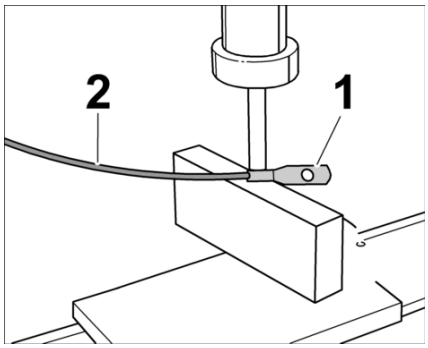


Fitting tension cable

2. Place eye on the tension cable and measure the total length.

2.1. Push the eye fully onto the end of the tension cable.

2.2. Measure total length of tension cable from centre of eye to centre of eye with a tape measure **-dimension X = 845 mm-** .



Pressing tension cable

3. Press tension cable and the eye together.

ATTENTION
Damage to eye

- **Compress the eye with the hydraulic stamp press so that the eye is only pressed in 1/4 of the diameter.**
- **If pressed together too strongly, the eye will crack.**

3.1. Using a commercially available hydraulic stamp press, press the eye **-1-** together with the tension cable **-2-** .

top of page

Subsequent work

Subsequent work

Install convertible-top covering. 612819 Removing and installing convertible-top covering - chapter on "Installing"

997310, 997311, 997320, 997321, 997610, 997611, 997620, 997621

as of MY 2005
Country C00, C02, C05, C07, C08, C09, C10, C11, C12, C13, C14, C15, C16, C18, C19, C20, C21, C22, C23, C24, C25, C26, C27, C28, C32, C33, C34, C35, C36, C37, C38, C39, C45, C46, C98, C99

WARNUNG
Gefahr des Verlusts der Text-Bild-Zuordnung beim Ausdruck.

- **Aus technischen Gründen kann derzeit nicht ausgeschlossen werden, dass trotz einwandfreier Darstellung auf dem Bildschirm beim Ausdruck der**

61 64 19 Removing and installing microswitch for roof - as of MY 2005

- Preliminary work
- Removing microswitch for roof
- Installing microswitch for roof
- Subsequent work

top of page

Preliminary work

Preliminary work

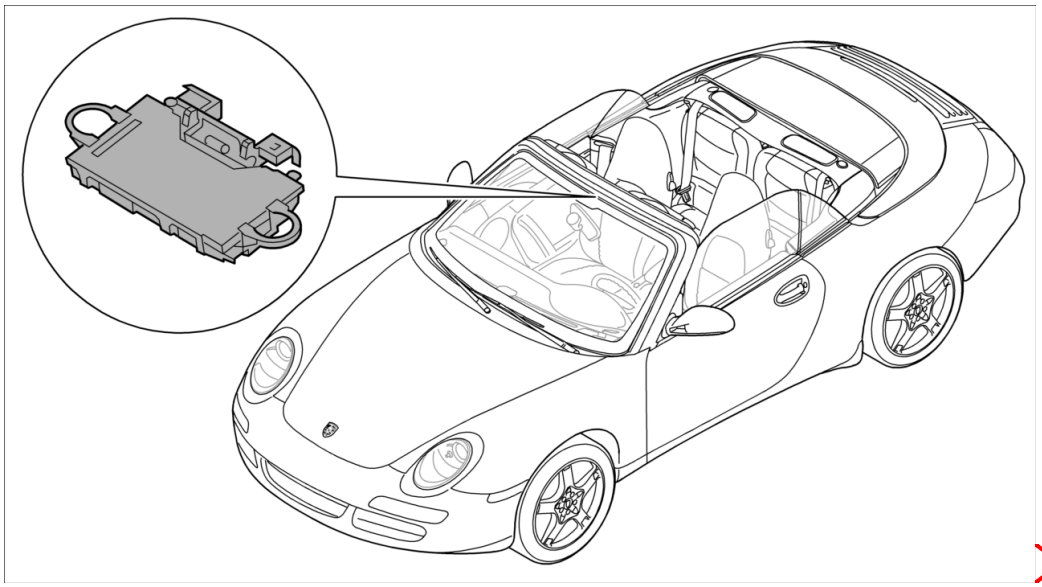
1. Open convertible top.
2. Remove interior light. *962255 21 Replacing bulb for interior light - chapter on "Removing"*
3. Remove operator control unit for garage door opener. 967819 Removing and installing operator control unit for garage door opener - section on "Removing"
4. Remove front lock. 610519 Removing and installing front lock - section on "Removing"

top of page

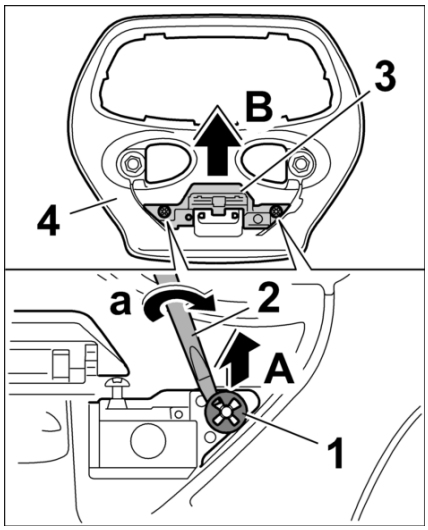
Removing microswitch for roof

Removing microswitch for roof

Installation Location:



Installation position of microswitch for roof



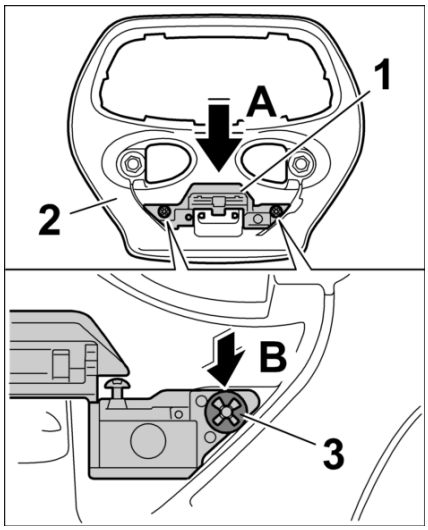
Removing microswitch

1. Loosen circlips **-1-** (by turning them **-Arrow a-** with a small screwdriver) **-2-** from the front lock **-4-** and lift them up and off **-Arrow A-** .
2. Remove microswitch for roof **-3-** from front lock **-4-** by pulling it upwards **-Arrow B-** .

top of page

Installing microswitch for roof

Installing microswitch for roof



Installing microswitch

1. Insert microswitch for roof **-1-** from above **-Arrow A-** into the front lock **-2-** .

Note

New circlips must always be used when securing the microswitch.

2. Fit circlips **-3-** from above **-Arrow B-** and press in until they connect fully with the roof microswitch **-1-** .

top of page

Subsequent work

Subsequent work

1. Install front lock. 610519 Removing and installing front lock - section on "Installing"
2. Install operator control unit for garage door opener. 967819 Removing and installing operator control unit for garage door opener - section on "Installing"
3. Install interior light. *962255 23 Replace bulb for interior light - chapter on "Installing"*
4. Close convertible top.

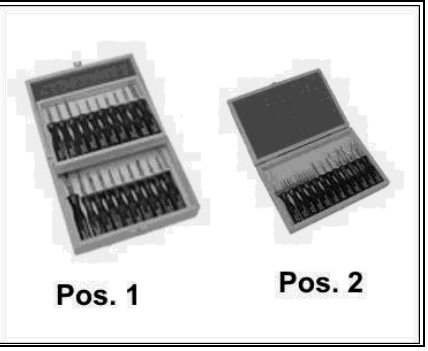
997310, 997311, 997320, 997321, 997610, 997611, 997620, 997621

as of MY 2005
Country C00, C02, C05, C07, C08, C09, C10, C11, C12, C13, C14, C15, C16, C18, C19, C20, C21, C22, C23, C24, C25, C26, C27, C28, C32, C33, C34, C35, C36, C37, C38, C39, C45, C46, C98, C99

61 66 19 Removing and installing potentiometer - as of MY 2006

- Preliminary work
- Removing potentiometer
- Installing potentiometer
- Subsequent work

Tools

Designation	Type	Number	Explanation	
Press-out and unlocking tools for flat and round plug connections of every size	commercially available tool	NR.155		

top of page

Preliminary work

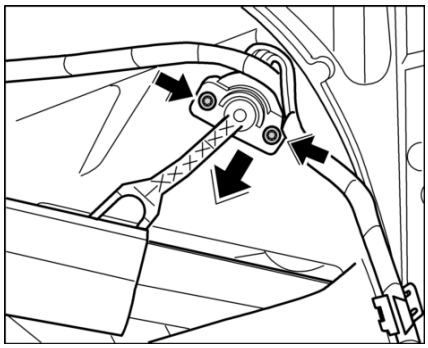
Preliminary work for potentiometer

1. Open convertible top.
2. Remove rear left side-panel lining and remove hydraulic cylinder. 610119 Removing and installing convertible top
3. Convertible top service position, 6101IN IN -Convertible top service position

top of page

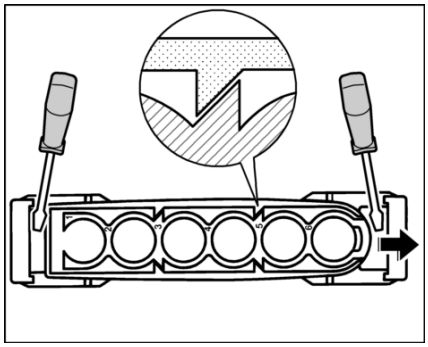
Removing potentiometer

Removing potentiometer



Removing potentiometer

1. Loosen the two fastening screws **-arrow-** and remove the potentiometer.
2. Unclip the potentiometer lines downwards and disconnect the electric plug connection (connection point X 26).
3. Carefully remove insulating tape from the potentiometer to the plug connection without damaging any other wires. Expose the potentiometer lines (green, yellow and red).



Unlocking secondary locking of the plug connection

4. Unlock both sides by inserting a small screwdriver and shift in the direction of the arrow. The figure **-inset-** shows the secondary locking unlocked.
5. Release old contacts of the potentiometer lines with the unlocking tool **Press-out and unlocking tools for flat and round plug connections of every size NR.155** and remove.

top of page

Installing potentiometer

Installing potentiometer

1. Install and lock new contacts of the potentiometer lines. To do this, compare the assignment with the wiring diagram.

1.1. Install the new contacts of the potentiometer in the same position as follows:

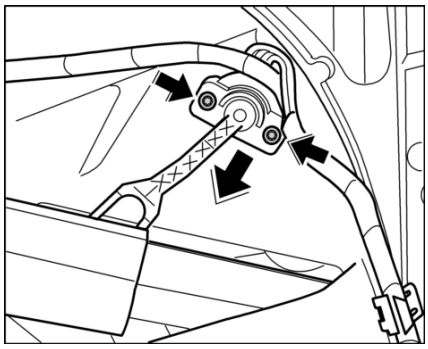
1.2. Green wire (pin 1) to pin 9

1.3. Yellow wire (pin 2) to pin 4

1.4. Red wire (pin 3) to pin 8

1.5. Close the secondary lock of the plug connection with a small screwdriver again.

2. Winding insulating tape around wires



Installing potentiometer

3. Tighten potentiometer with both fastening screws.
4. Route the electric plug connection and engage.

top of page

Subsequent work

Subsequent work on potentiometer

1. Fasten hydraulic cylinder and install rear left side-panel lining. 610119 Removing and installing convertible top
2. Convertible top out of the service position, 6101IN IN -service position for convertible top

---

997310, 997311, 997320, 997321, 997610, 997611, 997620, 997621

as of MY 2006
Country C00, C02, C05, C07, C08, C09, C10, C11, C12, C13, C14, C15, C16, C18, C19, C20, C21, C22, C23, C24, C25, C26, C27, C28, C32, C33, C34, C35, C36, C37, C38, C39, C45, C46, C98, C99

WARNUNG

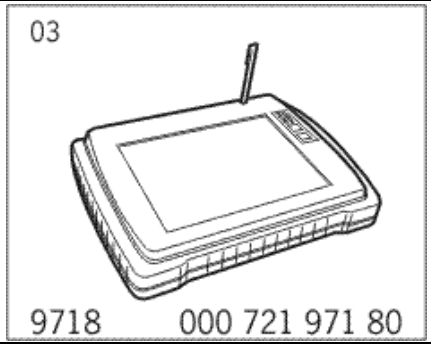
Gefahr des Verlusts der Text-Bild-Zuordnung beim Ausdruck.

- **Aus technischen Gründen kann derzeit nicht ausgeschlossen werden, dass trotz einwandfreier Darstellung auf dem Bildschirm beim Ausdruck der Zusammenhang von Text und zugehörigem Bild verloren geht.**
- **Wird der Fehler nicht bemerkt, besteht die Gefahr, daß Arbeiten nicht korrekt durchgeführt werden und es dadurch zu Personen- und Sachschäden kommt.**

61 70 19 Removing and installing convertible-top compartment lid drive - as of MY 2006

- Preliminary work
- Removing motor for convertible-top compartment lid drive
- Installing motor for convertible-top compartment lid drive
- Subsequent work

Tools

Designation	Type	Number	Explanation	
PIWIS Tester	special tool	9718		
Removal tool, universal	commercially available tool	NR.21		

top of page

Preliminary work

Preliminary work

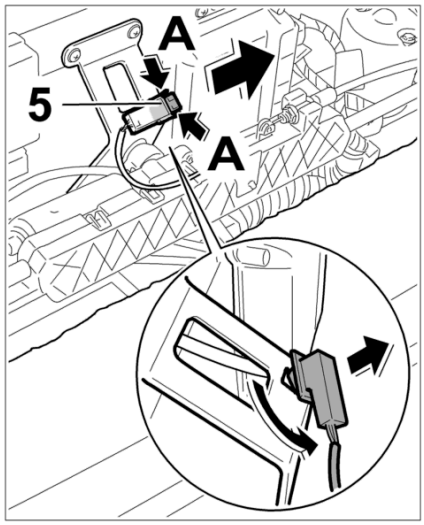
1. Move convertible top to service position.
2. Remove carpet over the motor.

2.1. To loosen the carpet, pull out the plastic clips using special tool 21 and remove the carpet.
Removal tool, universal NR.21

top of page

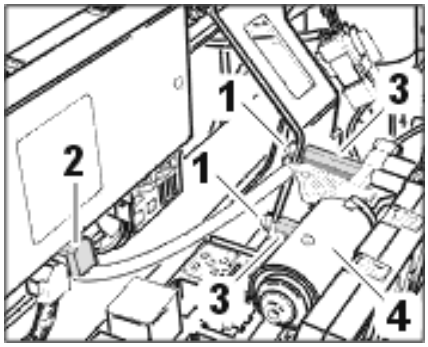
Removing motor for convertible-top compartment lid drive

Removing motor for convertible-top compartment lid drive



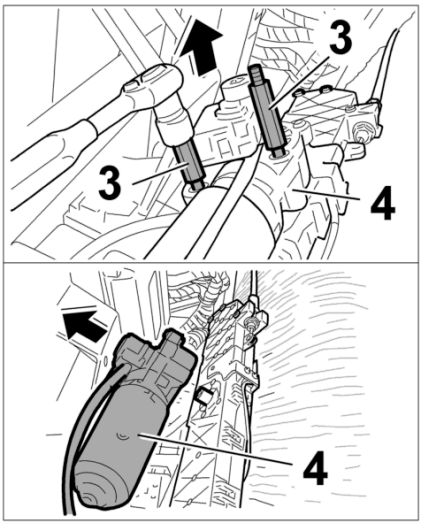
Disconnecting plug connection

1. Disengage electric plug connection for microswitch **-5-** from holder, release **-A-** and disconnect.



Unscrewing fastening nuts

2. Loosen both fastening nuts **-1-** , release the electric plug connection **-2-** and unplug from control unit.
3. Pull motor with driving mechanism to the rear out of the console.



Removing motor from convertible-top compartment lid drive

4. Loosen the two hexagon-head threaded bolts **-3-** and remove.
5. Remove motor for convertible-top compartment lid drive **-4-** .

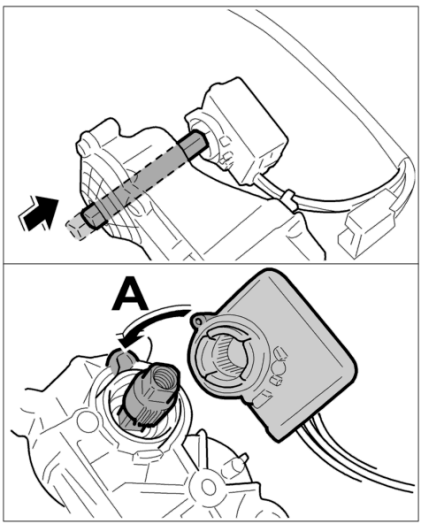
top of page

Installing motor for convertible-top compartment lid drive

Installing motor for convertible-top compartment lid drive

1. Grasp convertible-top compartment lid above the brake light and pull up and back until it is fully open.

The potentiometer must be set to 6.2 kÎ© before installing the motor.

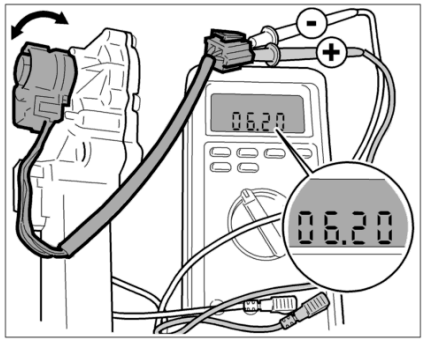


Sliding potentiometer onto motor

2. Slide potentiometer onto shaft of the motor and note position of lug **-A-** on motor; **do not clip potentiometer to the motor**.

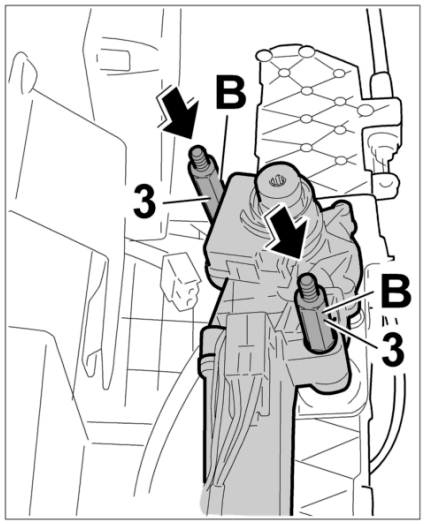
3. The potentiometer can be adjusted by pressing out and turning the shaft.

The potentiometer must be set to 6.2 kÎ© before installing the motor.



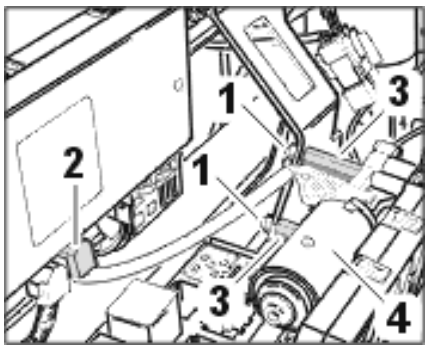
Setting the potentiometer

4. Connect a commercially available digital multimeter to pin 3 (blue/yellow) and pin 5 (red/black) of the potentiometer.
5. Lift potentiometer from the motor and turn on the toothing until it reaches a value of 6.2 k.
6. Clip potentiometer onto the motor.
7. Coat hexagon socket head bolt for emergency release of the convertible-top compartment lid with screw locking compound and screw it in three turns (left-hand thread).



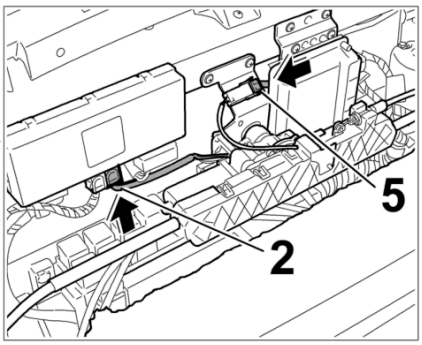
Securing motor with studs

8. Secure motor for the convertible-top compartment lid with the two studs **-3-** **-B-** to the driving mechanism.
   Tightening torque: 6 (4.5 ftlb.) Nm



Tightening fastening nuts

9. Slide motor with potentiometer onto the bracket and screw down with fastening nuts **-1-** .
   Tightening torque: 10 (7.5 ftlb.) Nm



Connecting electric plug connections

10. Push electric plug connection for potentiometer **-2-** into control unit until connector is felt to engage.
11. Connect electric plug connection for microswitch **-5-** and engage on bracket.

top of page

Subsequent work

Subsequent work

1. Reinstall the carpet over the motor.
2. Take convertible top out of the service position.
3. Write the read out values with the **PIWIS Tester 9718**. 619619 Removing and installing convertible top control unit - section on "Programming"

997310, 997311, 997320, 997321, 997610, 997611, 997620, 997621

as of MY 2006
Country C00, C02, C05, C07, C08, C09, C10, C11, C12, C13, C14, C15, C16, C18, C19, C20, C21, C22, C23, C24, C25, C26, C27, C28, C32, C33, C34, C35, C36, C37, C38, C39, C45, C46, C98, C99

WARNUNG
Gefahr des Verlusts der Text-Bild-Zuordnung beim Ausdruck.

- **Aus technischen Gründen kann derzeit nicht ausgeschlossen werden, dass trotz einwandfreier Darstellung auf dem Bildschirm beim Ausdruck der Zusammenhang von Text und zugehörigem Bild verloren geht.**
- **Wird der Fehler nicht bemerkt, besteht die Gefahr, daß Arbeiten nicht korrekt durchgeführt werden und es dadurch zu Personen- und Sachschäden kommt.**

61 72 19 Removing and installing convertible-top compartment lid drive gear - as of MY 2005

- Preliminary work
- Removing convertible-top compartment lid drive gear
- Installing convertible-top compartment lid drive gear
- Subsequent work

Tools

Designation	Type	Number	Explanation	
assembly tool for System Springfix pin circlips	commercially available tool	NR.131		

top of page

Preliminary work

Preliminary work

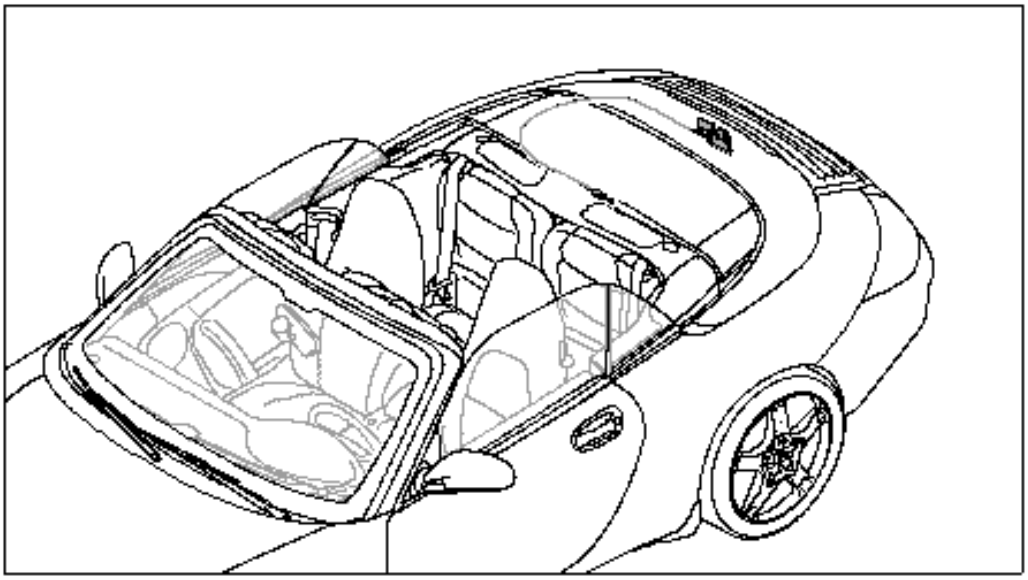
1. Remove microswitch for convertible-top compartment lid drive. 618119 Removing and installing microswitch for convertible top compartment lid drive - chapter on "Removing"

top of page

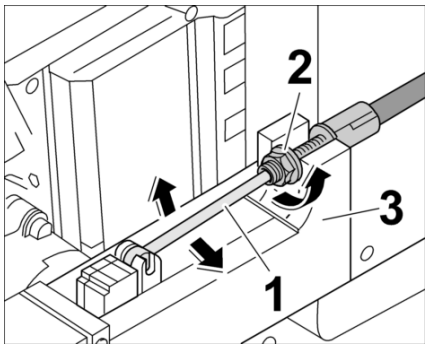
Removing convertible-top compartment lid drive gear

Disengaging cable for locking hook

Installation Location:



Installation location for locking hook cable

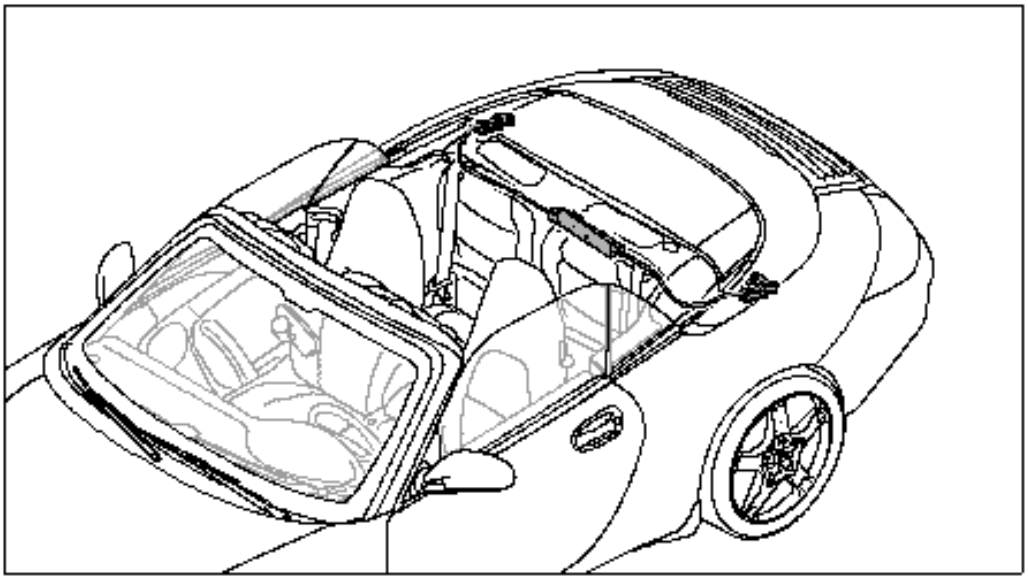


Disengaging cable for locking hook

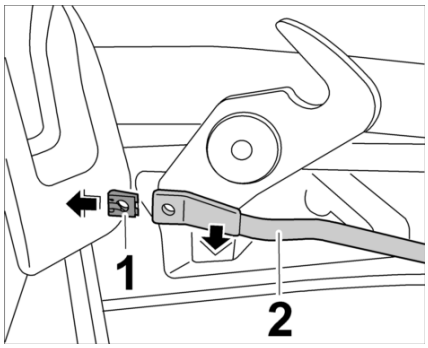
1. Loosen cable for locking hook **-1-** on the hexagon nut **-2-** and swivel the nipple from the driving mechanism **-3-** upwards and pull out.

Removing convertible-top compartment lid drive gear

Installation Location:

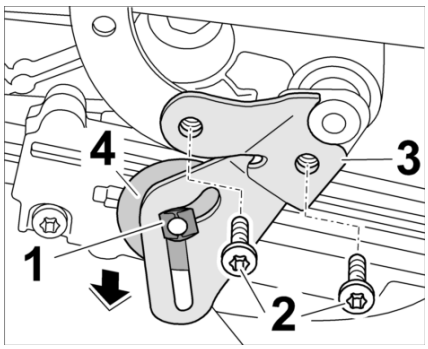


Installation location of transmission for convertible-top compartment lid drive



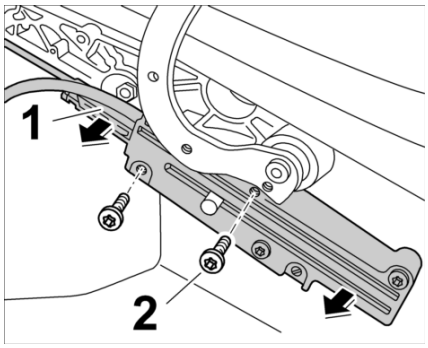
Disengaging lever

1. Remove fixing clip **-1-** using **assembly tool for System Springfix pin circlips NR.131** and take off lever **-2-** .



Removing deflector rail

2. Press out fixing clip **-1-** with **assembly tool for System Springfix pin circlips NR.131**.
3. Unscrew fastening screws **-2-** and remove deflector rail **-3-** .
4. Remove plastic washer **-4-** .



Loosening driving mechanism

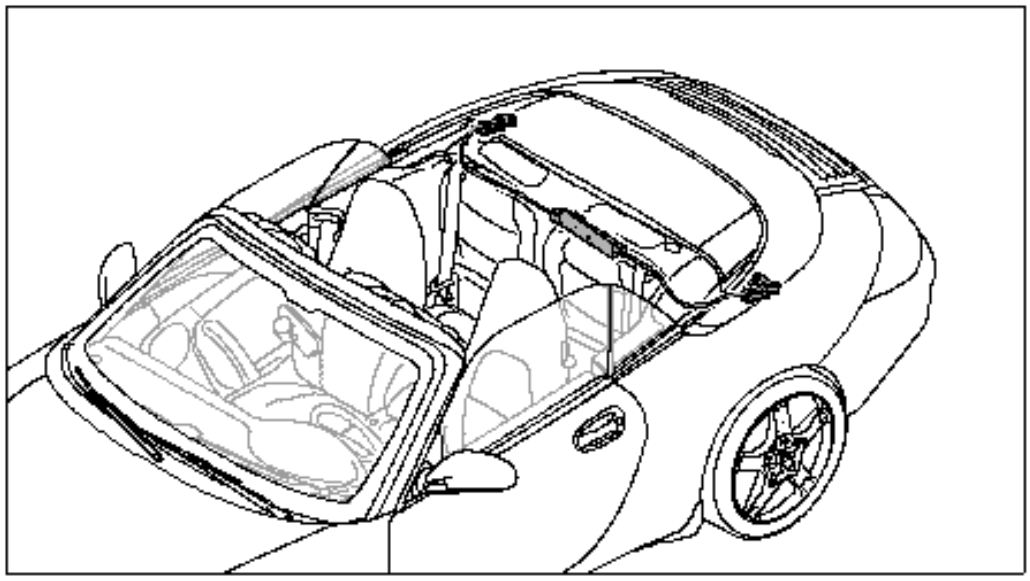
5. Unscrew fastening screws **-2-** and remove driving mechanism **-1-** .

top of page

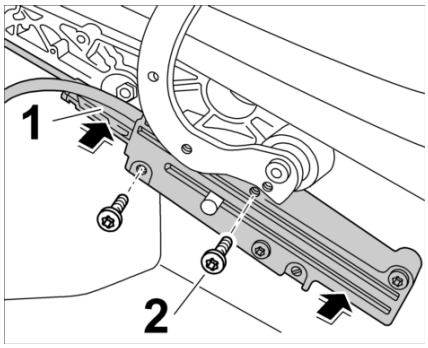
Installing convertible-top compartment lid drive gear

Installing convertible-top compartment lid drive gear

Installation Location:

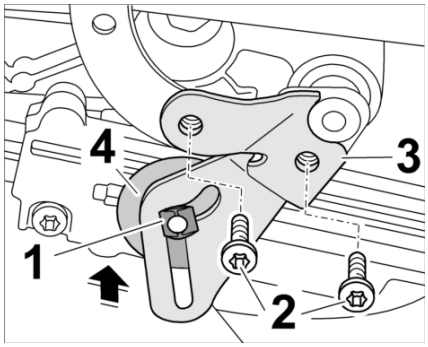


Installation location of transmission for convertible-top compartment lid drive



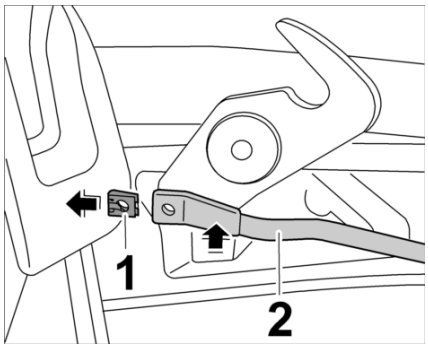
Installing driving mechanism

1. Position driving mechanism **-1-** in the centre on the hinge and screw down the positioning bolts **-2-** . Tightening torque **Tightening torque: 7 ftlb.**



Installing deflector rail

2. Push in plastic washer **-4-** .
3. Position deflector rail **-3-** on hinge and secure with fastening screws **-2-** . Tightening torque **Tightening torque: 7 ftlb.**
4. Press in fixing clip **-1-** .

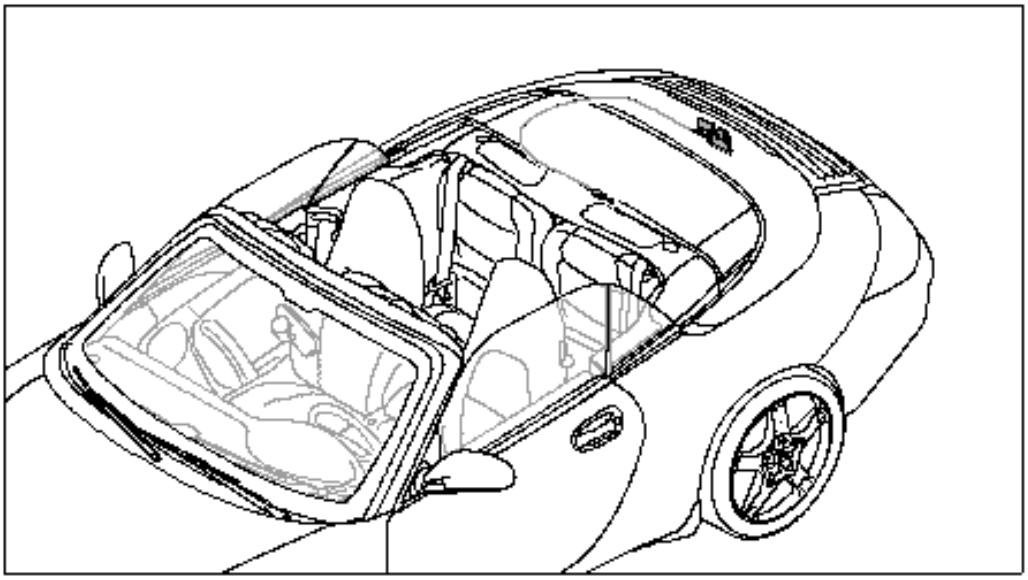


Engaging lever

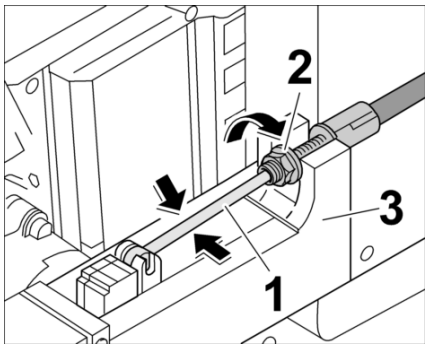
5. Position lever **-2-** on locking hook and clip into fastening clip **-1-** .

Engaging cable for locking hook

Installation Location:



Installation location for locking hook cable



Engaging cable for locking hook

1. Insert nipple in the driving mechanism **-3-** , adjust cable for locking hook **-1-** using the hexagon nut **-2-** so that it is without play.

top of page

Subsequent work

Subsequent work

Install microswitch for convertible-top compartment lid drive. 618119 Removing and installing microswitch for convertible top compartment lid drive - chapter on "Installing"

997310, 997311, 997320, 997321, 997610, 997611, 997620, 997621

as of MY 2005
Country C00, C02, C05, C07, C08, C09, C10, C11, C12, C13, C14, C15, C16, C18, C19, C20, C21, C22, C23, C24, C25, C26, C27, C28, C32, C33, C34, C35, C36, C37, C38, C39, C45, C46, C98, C99

61 74 19 Removing and installing cable for locking hook - as of MY 2005

- Preliminary work
- Removing cable for locking hook
- Installing cable for locking hook
- Subsequent work

top of page

Preliminary work

Preliminary work

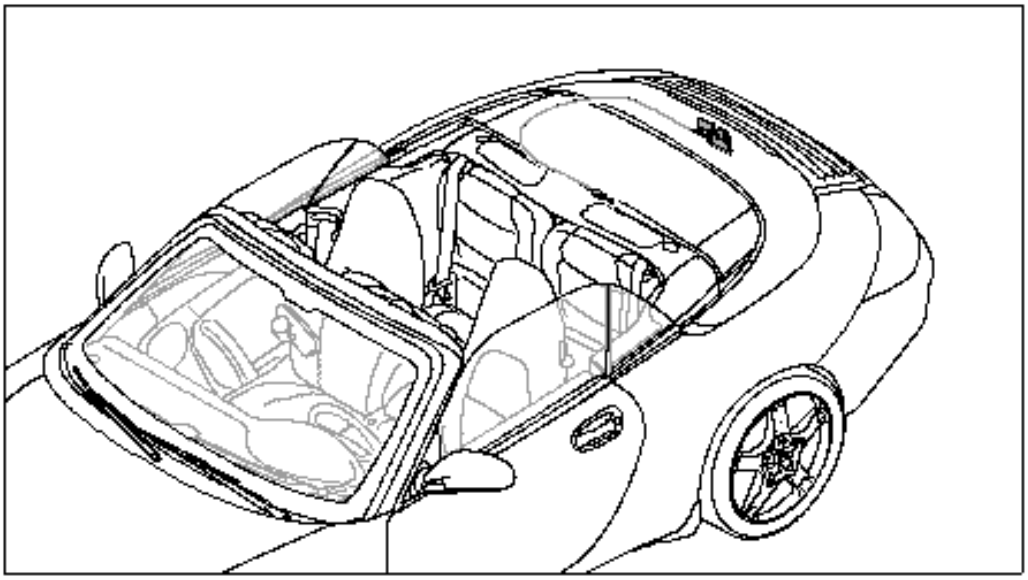
Remove trim panel for convertible top rest. 700819 Removing and installing trim panel for convertible top rest - chapter on "Removing"

top of page

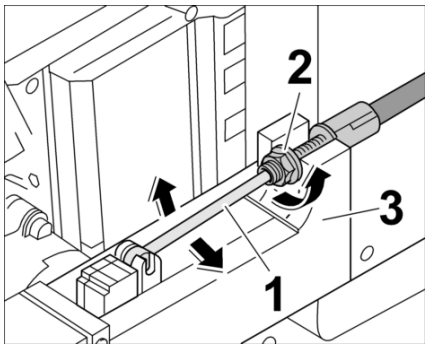
Removing cable for locking hook

Disengaging cable for locking hook

Installation Location:



Installation location for locking hook cable

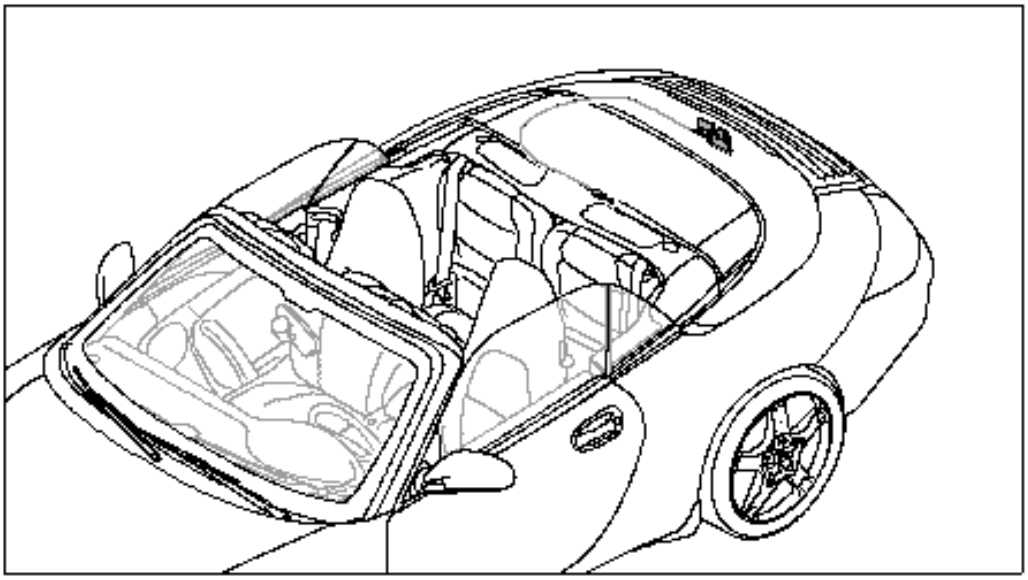


Disengaging cable for locking hook

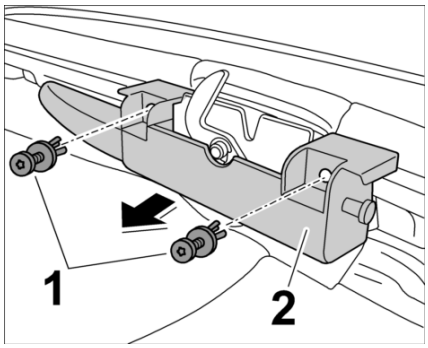
1. Loosen cable for locking hook **-1-** on the hexagon nut **-2-** and swivel the nipple from the driving mechanism **-3-** upwards and pull out.

Removing cable for locking hook

Installation Location:

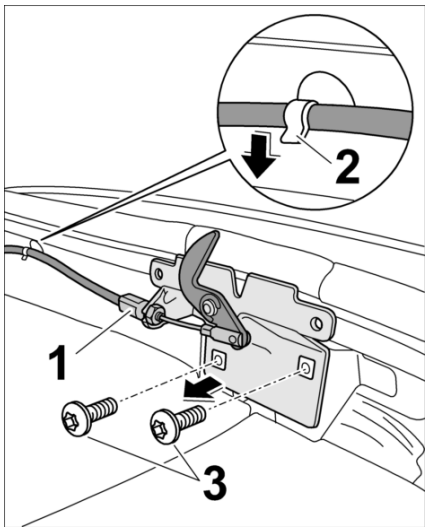


Installation location for locking hook cable



Removing trim

1. Unscrew expansion rivets **-1-** and take off trim **-2-** .



Removing cable for locking hook

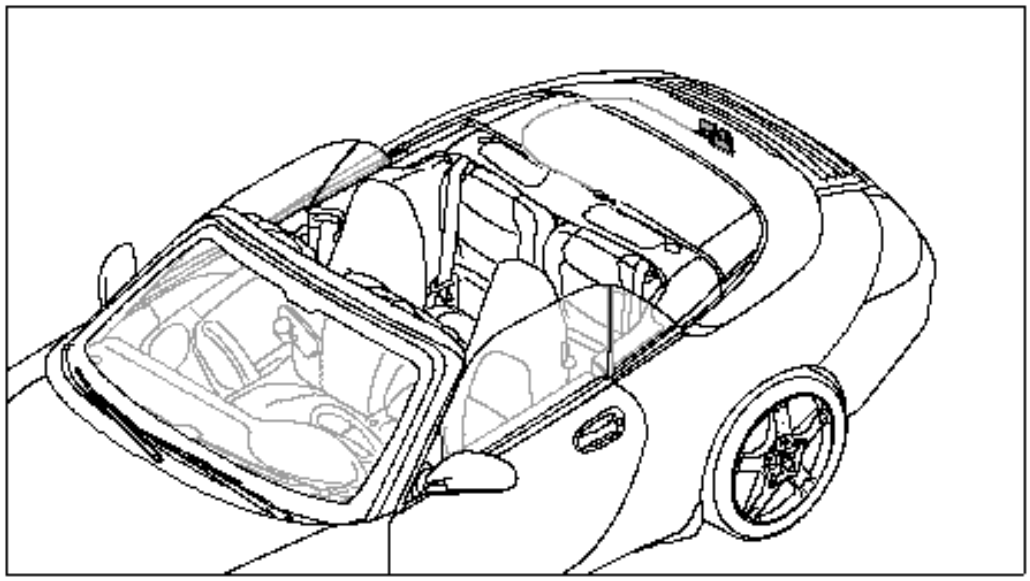
2. Disengage cable for locking hook **-1-** from the cable holder **-2-** .
3. Unscrew fastening screws **-3-** and take off cable for locking hook **-1-** with support.

top of page

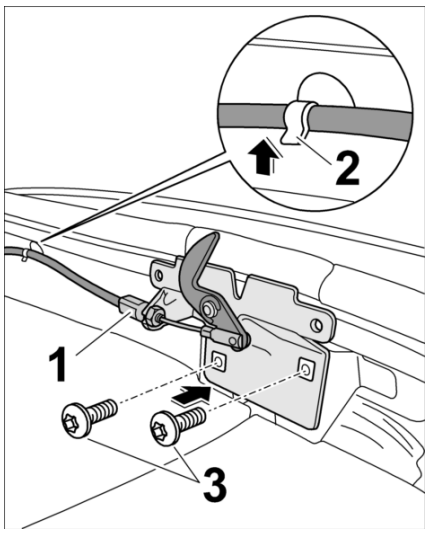
Installing cable for locking hook

Installing cable for locking hook

Installation Location:



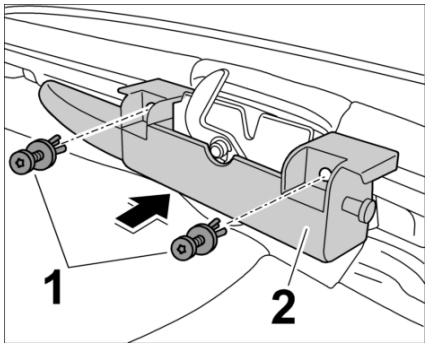
Installation location for locking hook cable



Installing cable for locking hook

1. Position cable for locking hook **-1-** with support on the body and screw down the fastening screws **-3-** . Tightening torque **Tightening torque: 7.5 ftlb.**

2. Engage cable for locking hook **-1-** to the cable holder **-2-** .

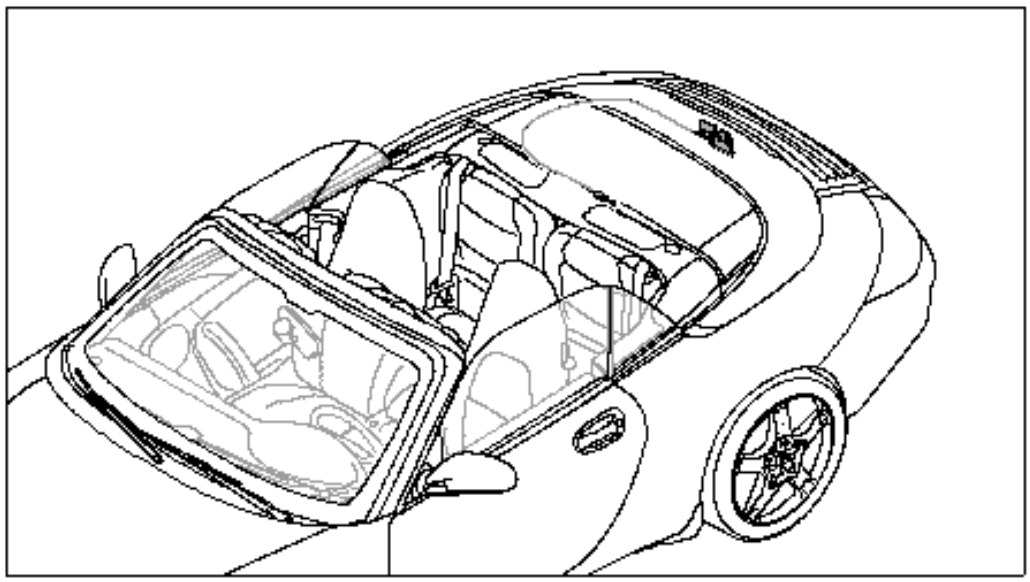


Installing trim

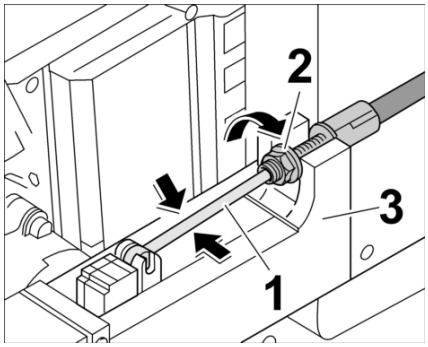
3. Position trim **-2-** and secure with the expansion rivets **-1-** .

Engaging cable for locking hook

Installation Location:



Installation location for locking hook cable



Engaging cable for locking hook

1. Insert nipple in the driving mechanism **-3-** , adjust cable for locking hook **-1-** using the hexagon nut **-2-** so that it is without play.

top of page

Subsequent work

Subsequent work

Install trim panel for convertible top rest. 700819 Removing and installing trim panel for convertible top rest - chapter on "Installing"

997310, 997311, 997320, 997321, 997610, 997611, 997620, 997621

as of MY 2005
Country C00, C02, C05, C07, C08, C09, C10, C11, C12, C13, C14, C15, C16, C18, C19, C20, C21, C22, C23, C24, C25, C26, C27, C28, C32, C33, C34, C35, C36, C37, C38, C39, C45, C46, C98, C99

WARNUNG

Gefahr des Verlusts der Text-Bild-Zuordnung beim Ausdruck.

- **Aus technischen Gründen kann derzeit nicht ausgeschlossen werden, dass trotz einwandfreier Darstellung auf dem Bildschirm beim Ausdruck der Zusammenhang von Text und zugehörigem Bild verloren geht.**
- **Wird der Fehler nicht bemerkt, besteht die Gefahr, daß Arbeiten nicht korrekt durchgeführt werden und es dadurch zu Personen- und Sachschäden kommt.**

Vergleichen Sie deshalb nach dem Druckvorgang unbedingt die Ausdrucke mit der Bildschirmdarstellung. Korrigieren Sie die Ausdrucke im Fehlerfall so, daß der Inhalt der Bildschirmdarstellung zutreffend wiedergegeben wird.

WARNING

Danger of losing text-figure correspondence when printing out.

- **For technical reasons, it can currently not be ruled out that the correspondence between text and associated figure can be lost when it is printed out, even though the display on the screen is correct.**
- **If the fault is not noticed, there is the danger that work will not be performed correctly which can cause injury and damage.**

Therefore, always compare printouts with the screen display after printing them out. Correct the printouts if they are faulty so that the content of the screen display matches that on the printouts.

61 81 19 Removing and installing microswitch for convertible-top compartment lid drive - as of MY 2006

- Preliminary work
- Removing microswitch for convertible-top compartment lid drive
- Installing microswitch for convertible-top compartment lid drive
- Subsequent work

top of page

Preliminary work

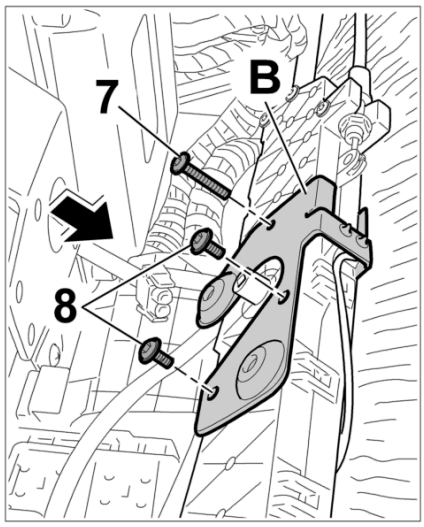
Preliminary work

Remove motor for convertible-top compartment lid drive. 617019 Removing and installing drive motor - section on "Removing"

top of page

Removing microswitch for convertible-top compartment lid drive

Removing microswitch for convertible-top compartment lid drive.



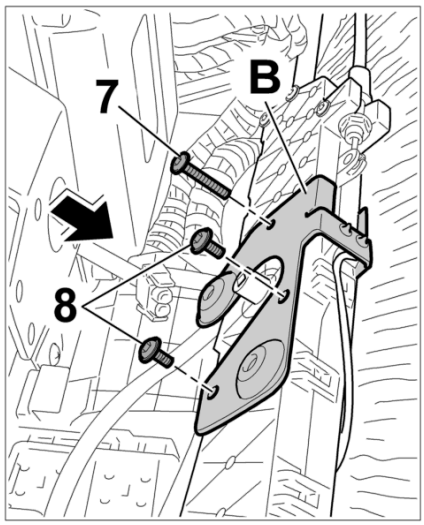
Unscrewing fastening screws for microswitch holder

1. Unscrew the three fastening screws **-7, 8-** for the microswitch holder.
2. Lift the holder **-B-** out.
3. If necessary, replace microswitch complete with holder.

top of page

Installing microswitch for convertible-top compartment lid drive

Installing microswitch for convertible-top compartment lid drive



Unscrewing fastening screws for microswitch holder

1. Mount the new microswitch with holder **-B-** on the convertible-top compartment lid drive and tighten with the fastening screws **-7, 8-** .

top of page

Subsequent work

Subsequent work

Install motor for convertible-top compartment lid drive. 617019 Removing and installing drive motor - section on "Installing"

61 84 19 Removing and installing hydraulic pump - as of MY 2005

- Preliminary work
- Removing hydraulic mount
- Installing hydraulic pump
- General information on the hydraulic system
- Opening and closing hydraulic valve of the hydraulic pump
- Filling and bleeding the hydraulic system
- Subsequent work

top of page

Preliminary work

Preliminary work

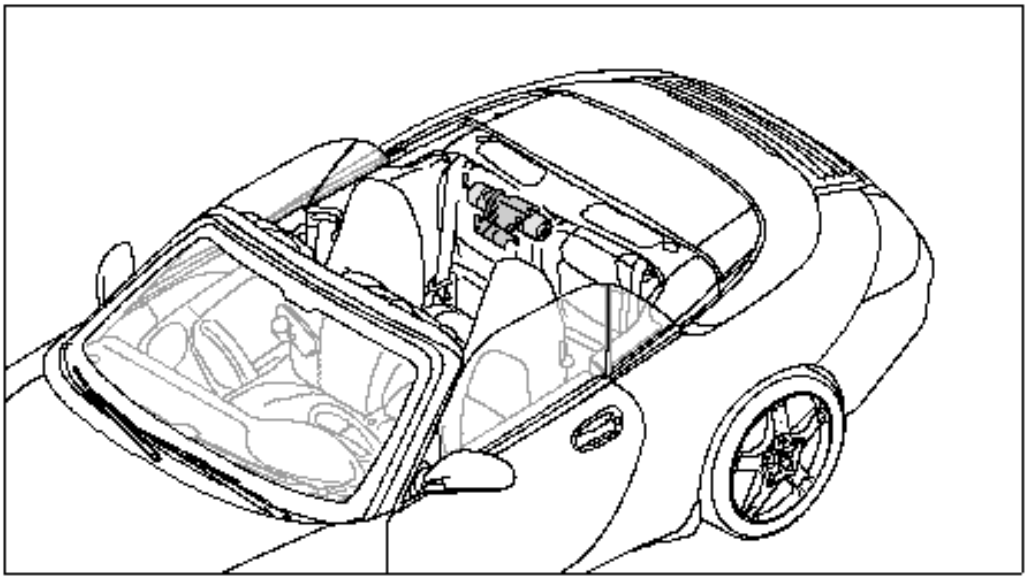
Remove trim panel for convertible top rest. 700819 Removing and installing trim panel for convertible top rest - chapter on "Removing"

top of page

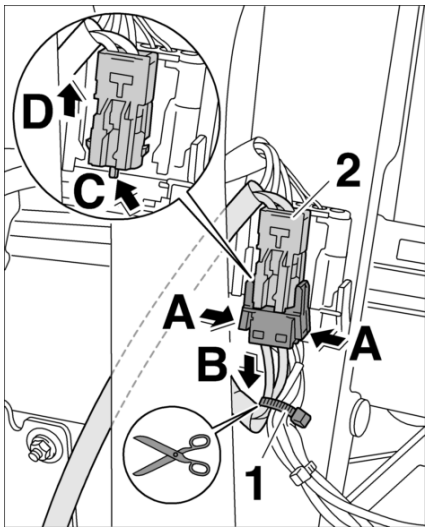
Removing hydraulic mount

Disconnecting electric plug connection for hydraulic pump

Installation Location:



Installation location for hydraulic pump

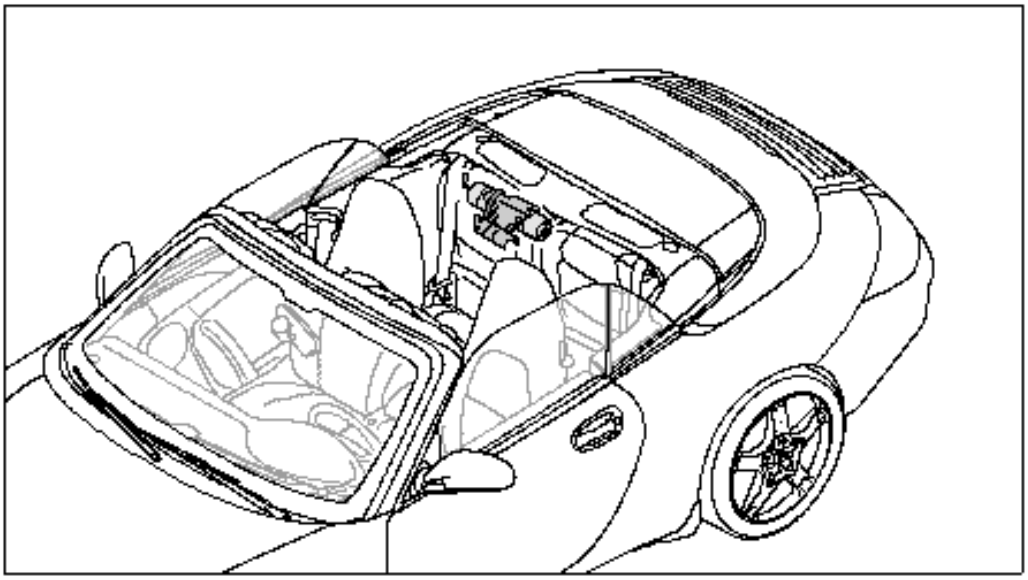


Disconnecting plug connection for hydraulic pump

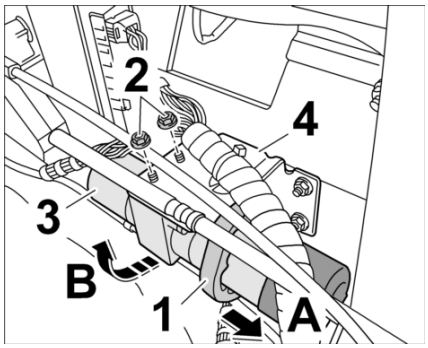
1. Cut tie-wrap **-1-** around the wire harness for hydraulic pump.
2. Press lugs **-arrows A-** and disconnect electric plug connection **-2-** **-arrow B-** .
3. Unlock connector **-2-** by pressing the lug **-arrow C-** and push out of the bracket **-arrow D-** .

Removing hydraulic pump

Installation Location:

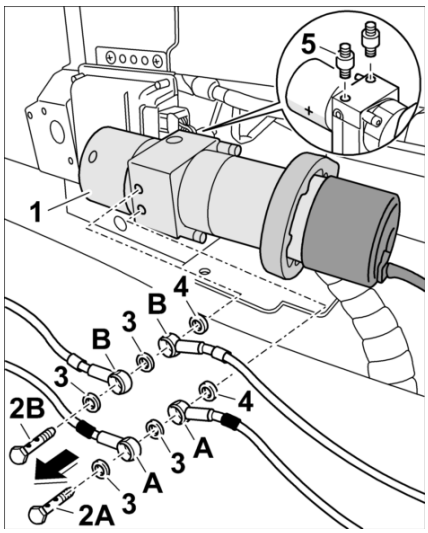


Installation location for hydraulic pump



Loosening hydraulic pump

1. Move rubber holder **-1-** in **-direction of arrow A-** from the support for hydraulic pump **-4-** .
2. Unscrew fastening nuts **-2-** and take out hydraulic pump **-3-** from the support for hydraulic pump upwards **-arrow B-** .



Loosening hydraulic lines

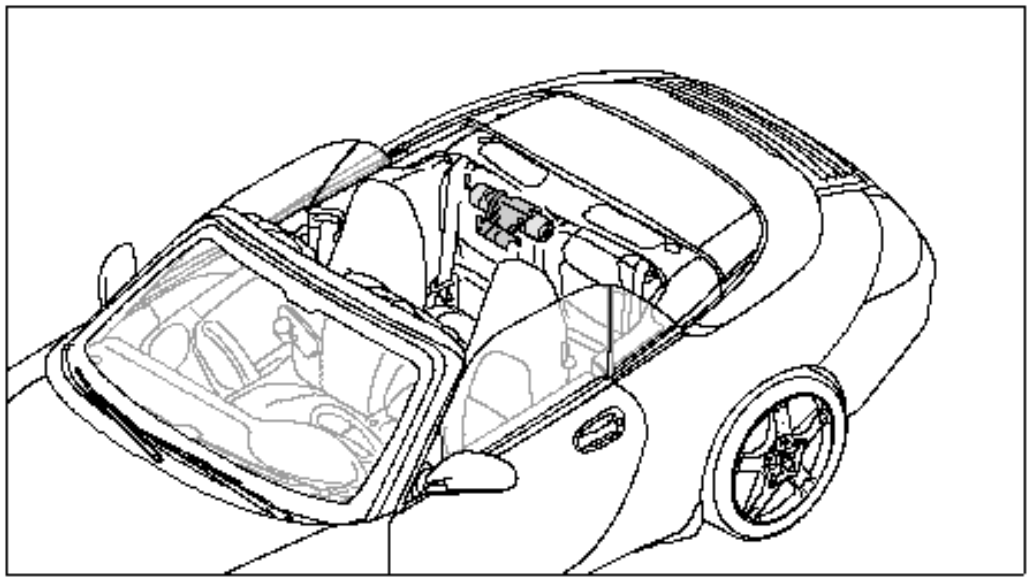
Note

Lay cloth under banjo bolt before unscrewing.

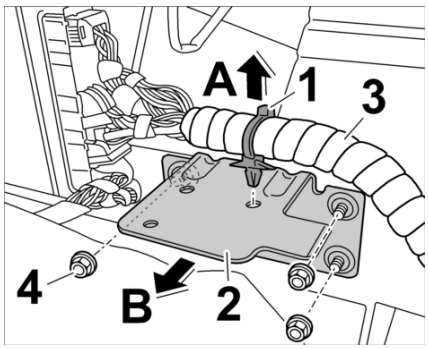
3. Unscrew banjo bolts **-2A, 2B-** on the hydraulic pump **-1-** and take out hydraulic lines **-A, B-** with sealing rings **-3, 4-** .
4. Unscrew silent mount **-5-** .

Removing support for hydraulic pump

Installation Location:



Installation location for hydraulic pump



Removing support for hydraulic pump

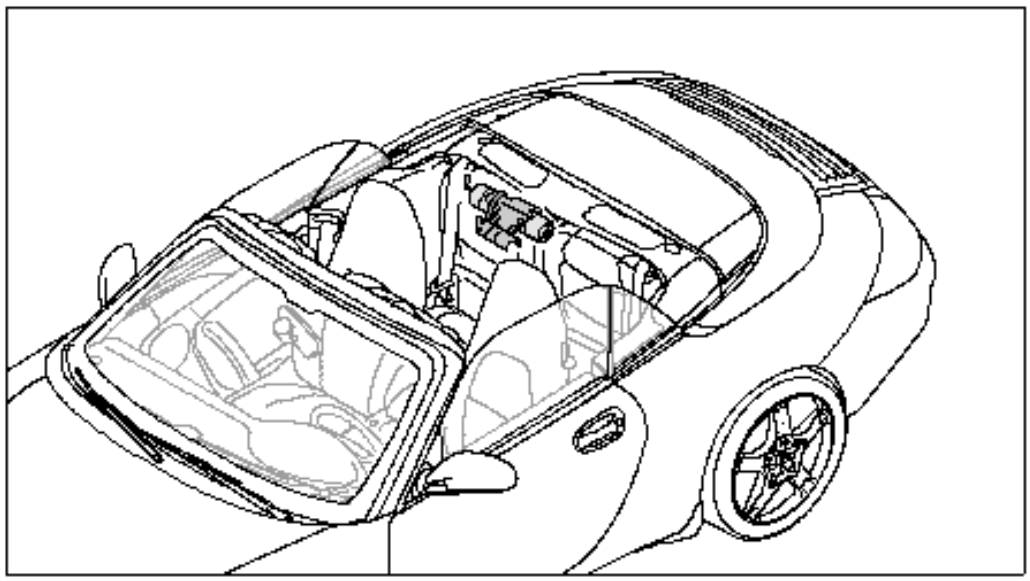
1. Release fixing clip **-1-** by pressing the lugs on the underside of the support together **-2-** and pull wire harness **-3-** upwards **-arrow A-** .
2. Undo fastening nuts **-4-** and take off support for hydraulic pump **-2-** **-arrow B-** .

top of page

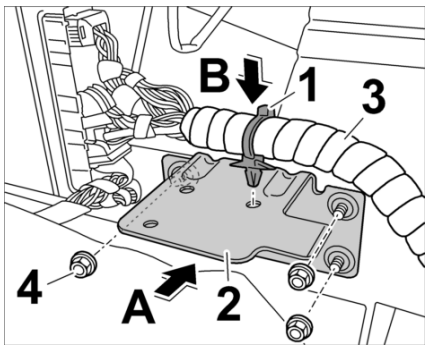
Installing hydraulic pump

Installing support for hydraulic pump

Installation Location:



Installation location for hydraulic pump

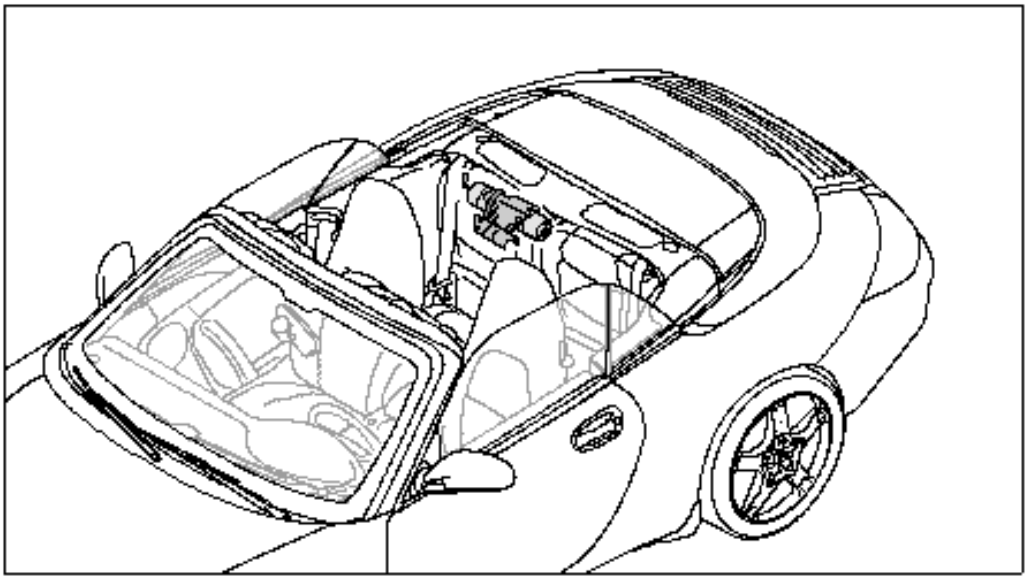


Installing support for hydraulic pump

1. Position support for hydraulic pump **-2-** on frame for roll-over protection system **-arrow A-** and screw down the fastening nuts **-4-** . Tightening torque **Tightening torque : 7.5 ftlb.**
2. Press fixing clip **-1-** on wire harness **-3-** in the support **-arrow B-** .

Installing hydraulic pump

Installation Location:



Installation location for hydraulic pump

ATTENTION

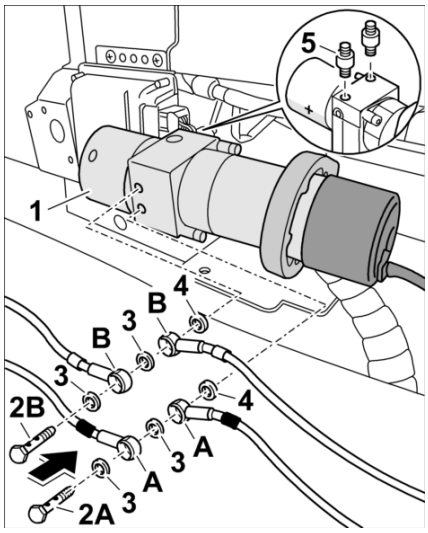
Damage to hydraulic lines.

Do not bend, trap or crush hydraulic lines when removing and installing.

Pay special attention when routing hydraulic lines in the clips.

Note

Always replace sealing rings.

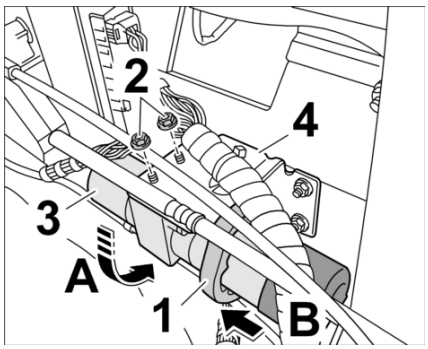


Connecting hydraulic line

1. Screw down silent mount **-5-** .
2.

Push on sealing rings **-3, 4-** and hydraulic lines **-A-** with the red ring. Screw in banjo bolt **-2A-** on the lower or right side of the hydraulic pump **-1-** . Tightening torque **Tightening torque: 9 ftlb. +1.5 ftlb.**

3. Push on sealing rings **-3, 4-** and hydraulic lines **-B-** with the blue ring. Screw in banjo bolt **-2B-** on the upper or left side of the hydraulic pump **-1-** . Tightening torque **Tightening torque: 9 ftlb. +1.5 ftlb.**

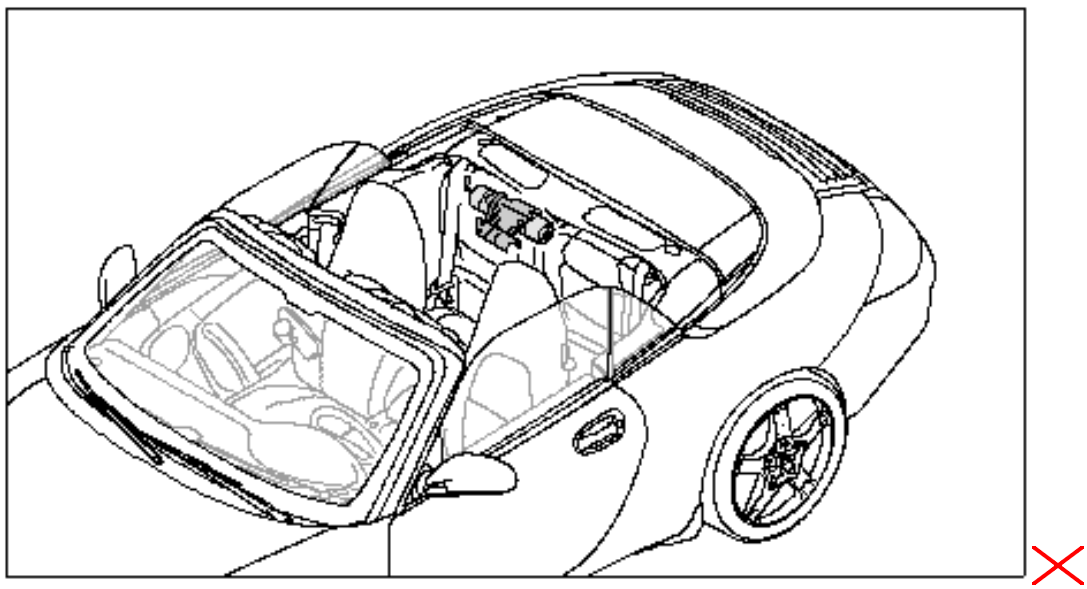


Fastening hydraulic pump

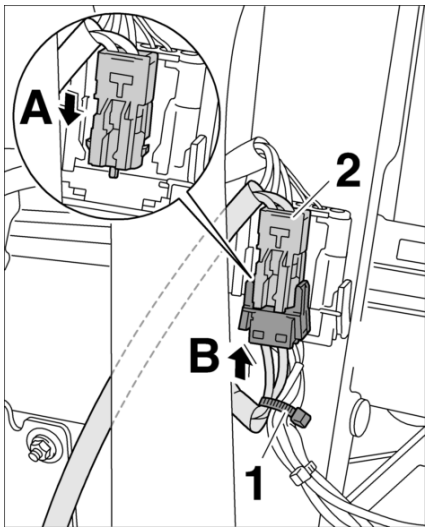
4. Position hydraulic pump **-3-** on holder for hydraulic pump **-4-** **-arrow A-** and screw down the fastening nuts **-2-** .
5. Push in rubber holder **-1-** in support for hydraulic pump **-arrow B-** .

Locking electric plug connection for hydraulic pump

Installation Location:



Installation location for hydraulic pump



Locking plug connection for hydraulic pump

1. Push plug connection **-2-** in bracket **-arrow A-** and join plug connection **-arrow B-** .
2. Insert new tie-wrap **-1-** around wire harness for hydraulic pump and fasten.

top of page

General information on the hydraulic system

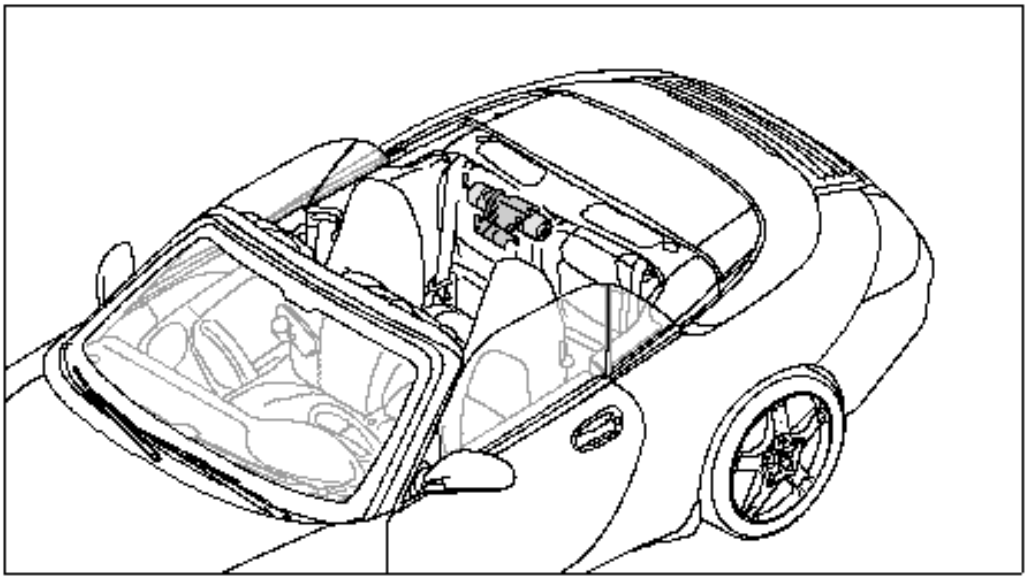
The hydraulic system is sensitive to penetration of dirt. As soon as the system is opened by the plug, a cloth must be placed under the hydraulic lines to catch escaping hydraulic oil.
The hydraulic convertible top uses a closed hydraulic system. In general, the hydraulic system will need to be filled only if the hydraulic circuit was opened (after parts replacement). Only Original Porsche hydraulic oil OIL must be used when changing or topping up the hydraulic oil.

top of page

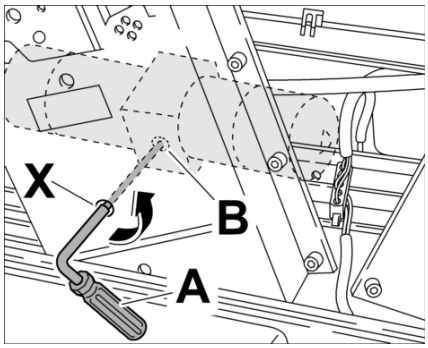
Opening and closing hydraulic valve of the hydraulic pump

Access for opening and closing the hydraulic valve

Installation Location:



Installation location for hydraulic pump



Opening and closing hydraulic valve

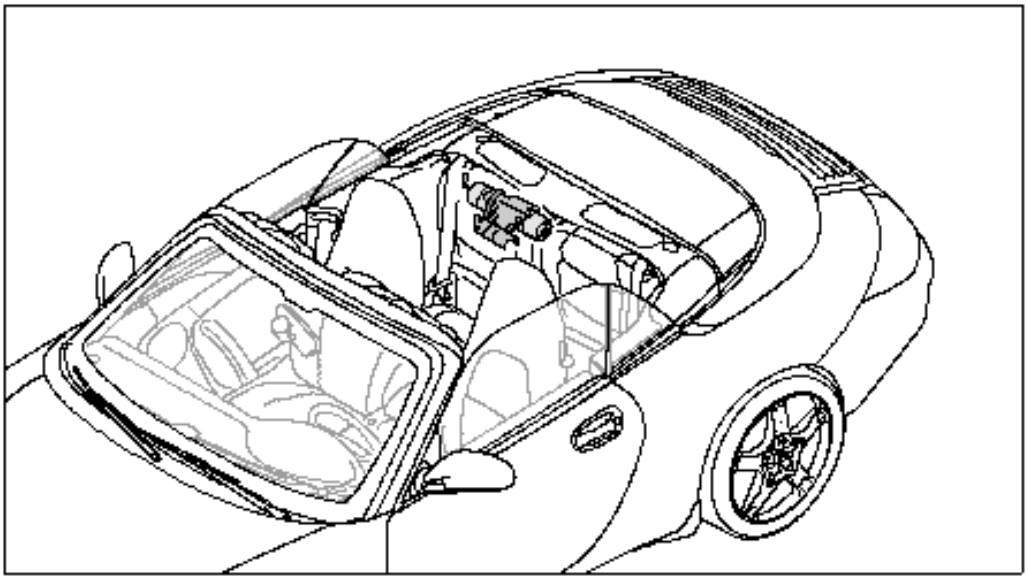
To open, insert the Allen key **-A-** through the bore **-X-** of the roll-over bar module into the hydraulic valve **-B-** and turn approx. 1 turn to the left.
To close, insert the Allen key **-A-** through the bore of the roll-over bar module **-X-** into the hydraulic valve **-B-** and turn to the right.

top of page

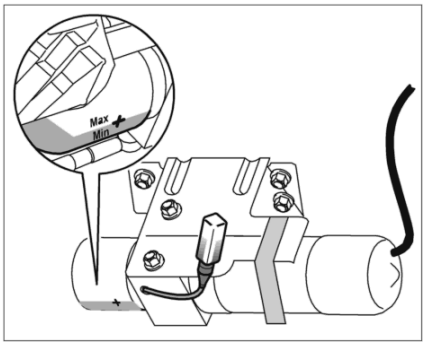
Filling and bleeding the hydraulic system

Filling the hydraulic system

Installation Location:



Installation location for hydraulic pump



Filling the hydraulic system

It is essential to lay a cloth underneath the hydraulic pump when filling. Do not fill above the cross hair marking.

1. Unscrew screw plug.
2. Fill system only using Original Porsche hydraulic oil OIL .
3. Screw in plug. Tightening torque **Tightening torque: 7.5 ftlb. +0.5 ftlb.**

Bleeding the hydraulic system

ATTENTION

Damage to the convertible-top frame if not running synchronously.

- **Bleed the hydraulic system only after the hydraulic cylinders have been removed from the convertible-top supports and drive levers on the left and right.**

The system has a self-bleeding feature. Three to four operations will bleed the system. After bleeding, check the oil level in the container on the hydraulic pump and check if necessary.

To bleed, the hydraulic valve must be closed.

top of page

Subsequent work

Subsequent work

Install trim panel for convertible top rest. 700819 Removing and installing trim panel for convertible top rest - chapter on "Installing"

997310, 997311, 997320, 997321, 997610, 997611, 997620, 997621

as of MY 2005
Country C00, C02, C05, C07, C08, C09, C10, C11, C12, C13, C14, C15, C16, C18, C19, C20, C21, C22, C23, C24, C25, C26, C27, C28, C32, C33, C34, C35, C36, C37, C38, C39, C45, C46, C98, C99

WARNUNG

Gefahr des Verlusts der Text-Bild-Zuordnung beim Ausdruck.

- **Aus technischen Gründen kann derzeit nicht ausgeschlossen werden, dass trotz einwandfreier Darstellung auf dem Bildschirm beim Ausdruck der Zusammenhang von Text und zugehörigem Bild verloren geht.**
- **Wird der Fehler nicht bemerkt, besteht die Gefahr, daß Arbeiten nicht korrekt durchgeführt werden und es dadurch zu Personen- und Sachschäden kommt.**

Vergleichen Sie deshalb nach dem Druckvorgang unbedingt die Ausdrucke mit der Bildschirmdarstellung. Korrigieren Sie die Ausdrucke im Fehlerfall so, daß der Inhalt der Bildschirmdarstellung zutreffend wiedergegeben wird.

WARNING

Danger of losing text-figure correspondence when printing out.

- **For technical reasons, it can currently not be ruled out that the correspondence between text and associated figure can be lost when it is printed out, even though the display on the screen is correct.**
- **If the fault is not noticed, there is the danger that work will not be performed correctly which can cause injury and damage.**

Therefore, always compare printouts with the screen display after printing them out. Correct the printouts if they are faulty so that the content of the screen display matches that on the printouts.

61 86 19 Removing and installing hydraulic cylinder - as of MY 2005

- Preliminary work
- Tools and materials
- Removing hydraulic cylinder
- Installing hydraulic cylinder
- Opening and closing hydraulic valve of the hydraulic pump
- Subsequent work

Tools

Designation	Type	Number	Explanation	
Assembly tool for Springfix System pin circlips	commercially available tool	NR.131		

top of page

Preliminary work

Preliminary work

1. Open convertible top.
2. Remove the rear side trim panel. 707519 Removing and installing rear side trim panel - chapter on "Removing"
3. Removing rear wall trim panel 703119 Removing and installing trim panel for rear wall - chapter on "Removing" [997310 997311 997320 997321] *703119 21 Removing and installing trim panel for rear wall - chapter on "Removing" [997610 997611 997620 997621]*
4. Remove trim panel for convertible top rest. 700819 Removing and installing trim panel for convertible top rest - chapter on "Removing"

top of page

Tools and materials

Tools

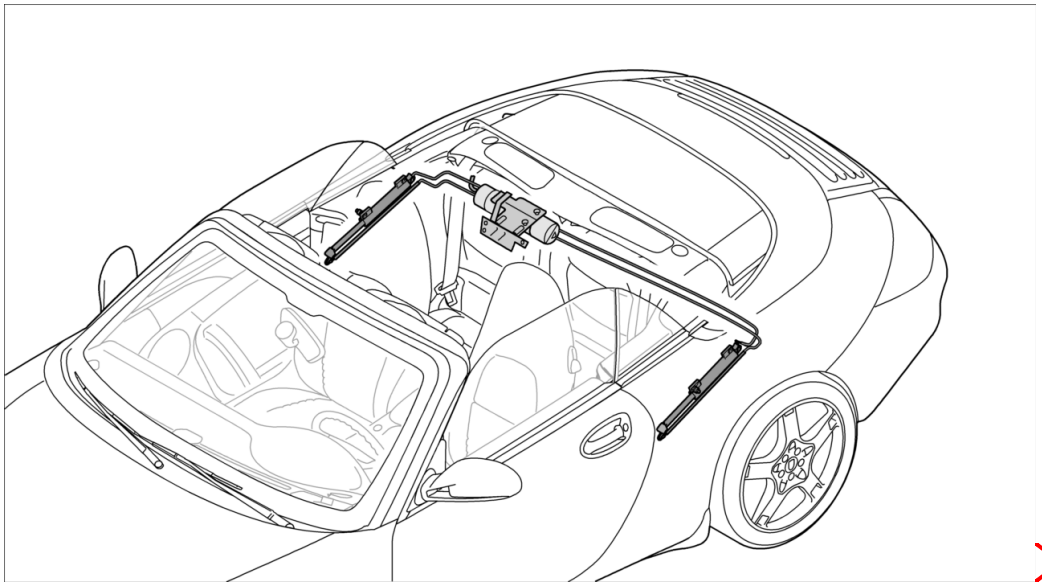
Assembly tool for Springfix System pin circlips NR.131

top of page

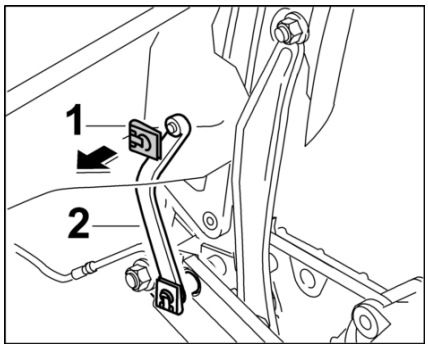
Removing hydraulic cylinder

Loosening hydraulic cylinder

Installation Location:

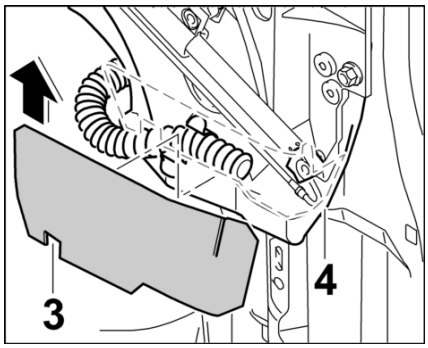


Installation position for hydraulic cylinder



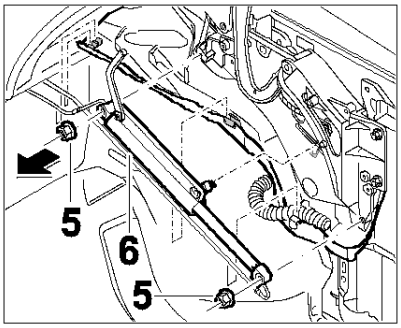
Removing lever

1. Press out the two retaining clips **-1-** from the lever **-2-** using **assembly tool for Springfix System pin circlips NR.131** and remove lever.



Removing protection plate

2. Pull the protection plate **-3-** upwards out of the chamber in the water drip pan **-4-** .



Loosening hydraulic cylinder

ATTENTION

Damage to hydraulic lines.

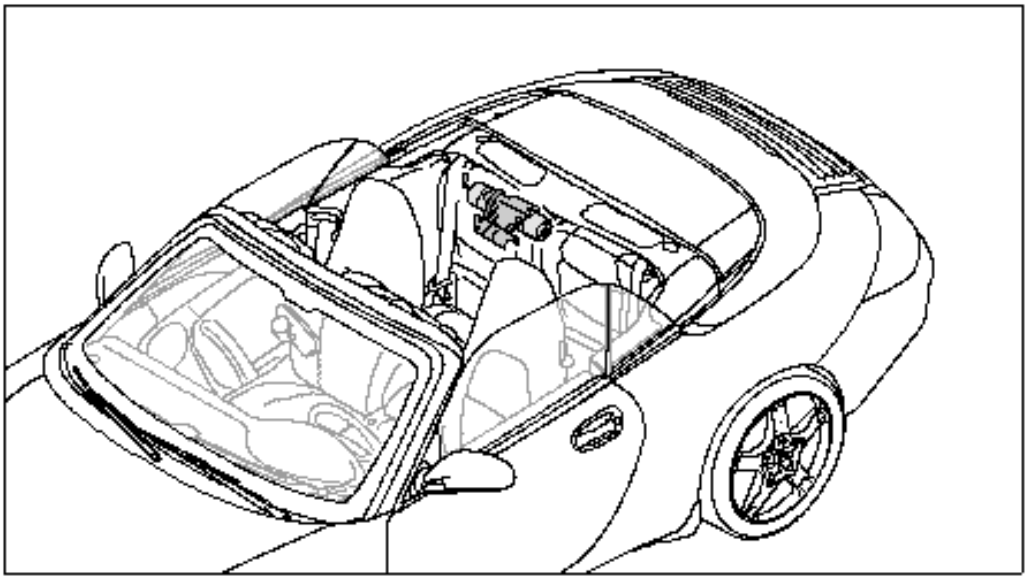
Do not bend, trap or crush hydraulic lines when removing and installing.

Pay special attention when routing hydraulic lines in the clips.

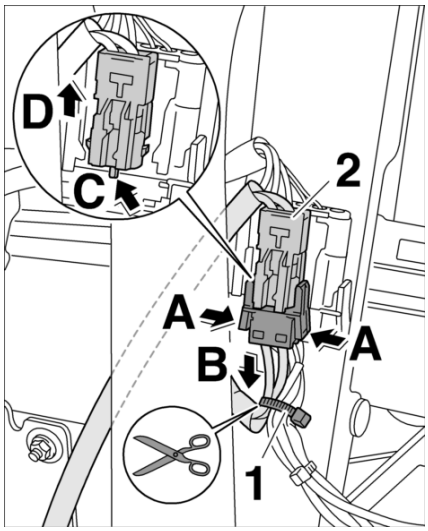
3. Unscrew fastening nut **-5-** and lay hydraulic cylinder **-6-** with lever to one side.

Disconnecting electric plug connection for hydraulic pump

Installation Location:



Installation location for hydraulic pump

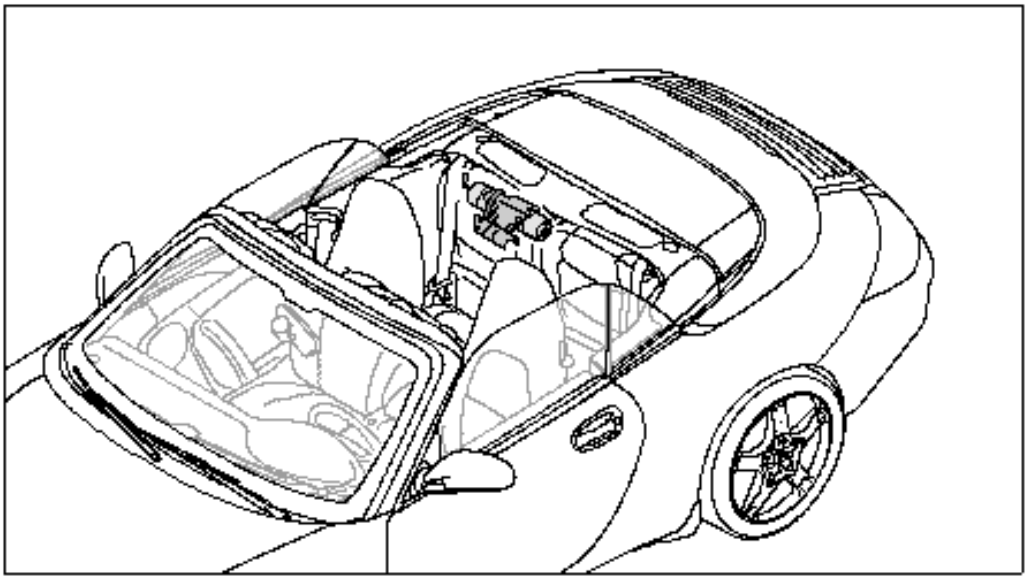


Disconnecting plug connection for hydraulic pump

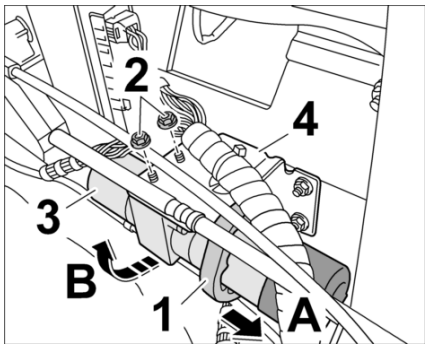
1. Cut tie-wrap **-1-** around the wire harness for hydraulic pump.
2. Press lugs **-arrows A-** and disconnect electric plug connection **-2-** **-arrow B-** .
3. Unlock connector **-2-** by pressing the lug **-arrow C-** and push out of the bracket **-arrow D-** .

Removing hydraulic pump

Installation Location:

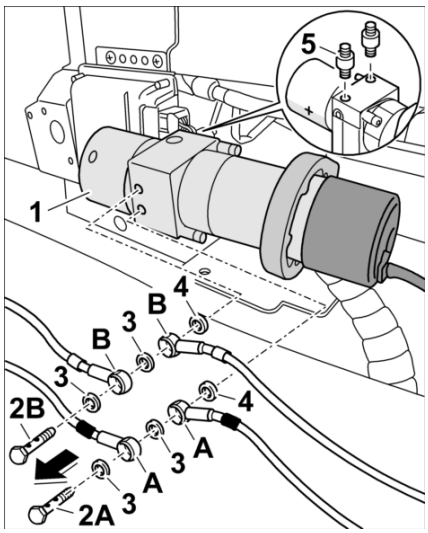


Installation location for hydraulic pump



Loosening hydraulic pump

1. Move rubber holder **-1-** in **-direction of arrow A-** from the support for hydraulic pump **-4-** .
2. Unscrew fastening nuts **-2-** and take out hydraulic pump **-3-** from the support for hydraulic pump upwards **-arrow B-** .



Loosening hydraulic lines

Note

Lay cloth under banjo bolt before unscrewing.

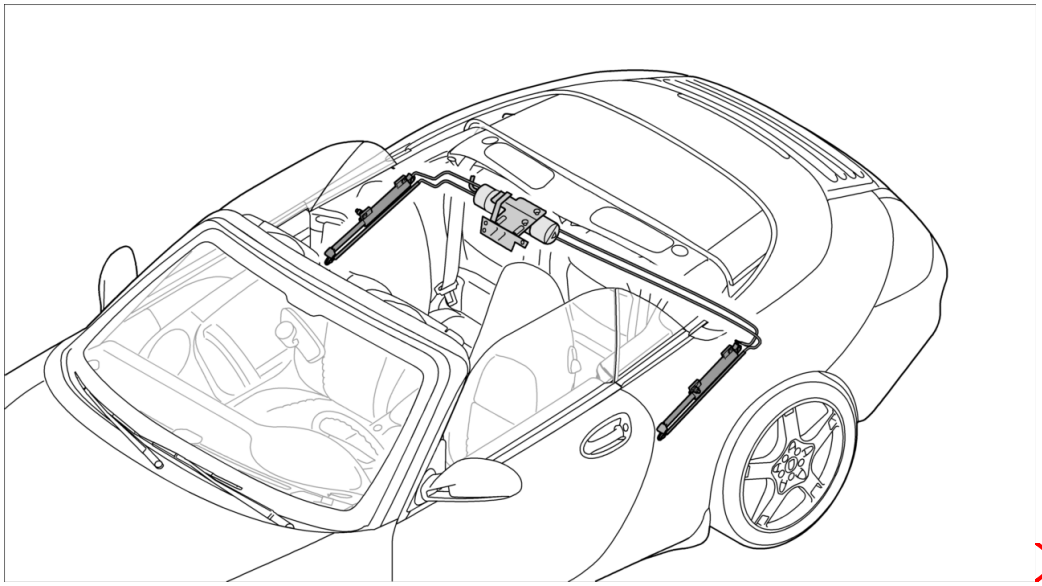
3. Unscrew banjo bolts **-2A, 2B-** on the hydraulic pump **-1-** and take out hydraulic lines **-A, B-** with sealing rings **-3, 4-** .
4. Unscrew silent mount **-5-** .

top of page

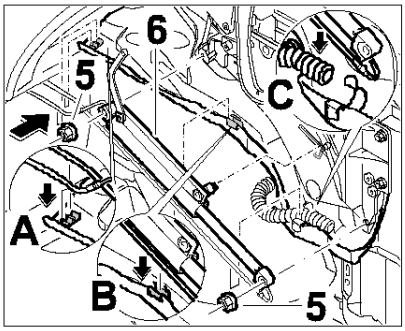
Installing hydraulic cylinder

Installing hydraulic cylinder

Installation Location:



Installation position for hydraulic cylinder



Installing hydraulic cylinder

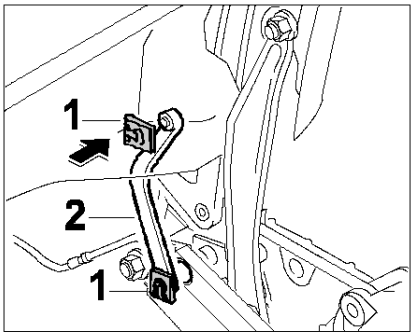
ATTENTION

Damage to hydraulic lines.

Do not bend, trap or crush hydraulic lines when removing and installing.

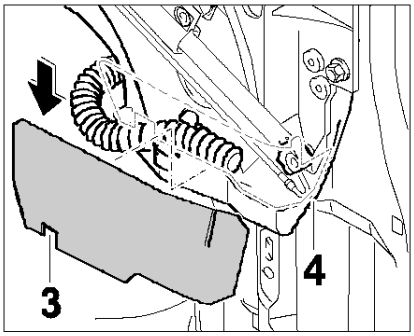
Pay special attention when routing hydraulic lines in the clips.

1. Position hydraulic cylinder **-6-** with the lever on the convertible-top support. Insert potentiometer fork into the pin of the hydraulic housing (on the left side only).
   Lay hydraulic line **-Figure A-** in the clip under the water drain hose. In **-Figure B-** and **-Figure C-** press the hydraulic lines into the clips. Tighten fastening nuts **-5-** . **Tightening torque: 17 (13 ftlb.) Nm +/-2 (1.5 ftlb.) Nm**



Installing lever

2. Fit lever **-2-** and secure with retaining clip **-1-** .

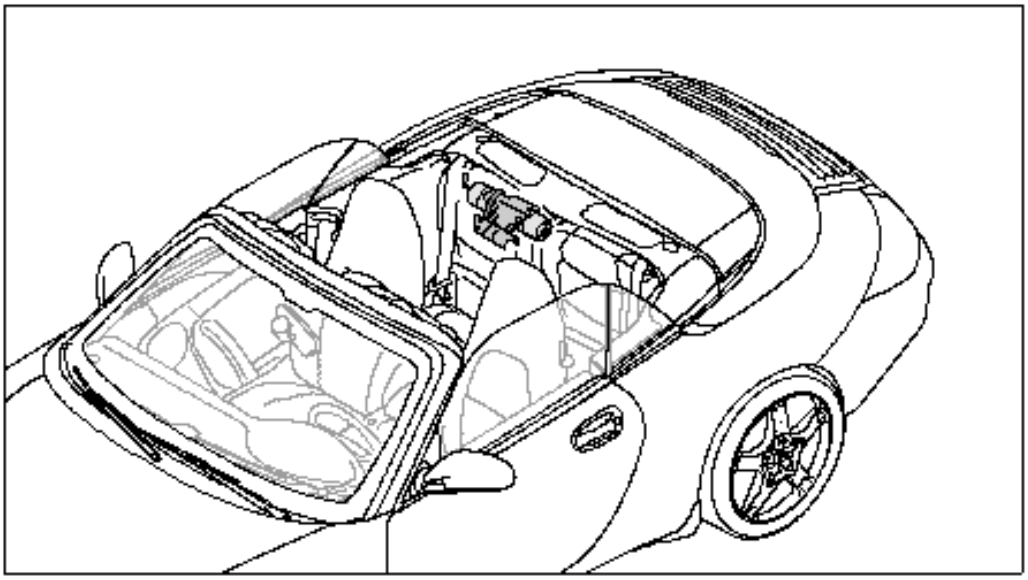


Installing protection plate

3. Insert protection plate **-3-** in chamber of water drip pan **-4-** .

Installing hydraulic pump

Installation Location:



Installation location for hydraulic pump

ATTENTION

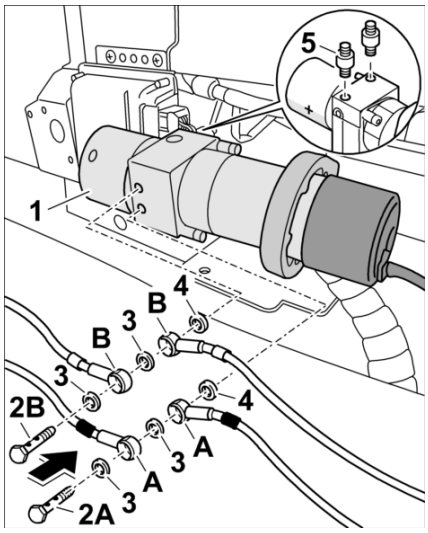
Damage to hydraulic lines.

Do not bend, trap or crush hydraulic lines when removing and installing.

Pay special attention when routing hydraulic lines in the clips.

Note

Always replace sealing rings.

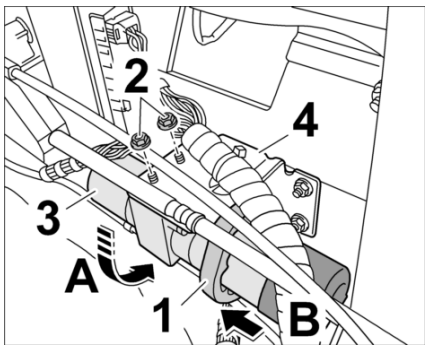


Connecting hydraulic line

1. Screw down silent mount **-5-** .
2.

Push on sealing rings **-3, 4-** and hydraulic lines **-A-** with the red ring. Screw in banjo bolt **-2A-** on the lower or right side of the hydraulic pump **-1-** . Tightening torque **Tightening torque: 9 ftlb. +1.5 ftlb.**

3. Push on sealing rings **-3, 4-** and hydraulic lines **-B-** with the blue ring. Screw in banjo bolt **-2B-** on the upper or left side of the hydraulic pump **-1-** . Tightening torque **Tightening torque: 9 ftlb. +1.5 ftlb.**

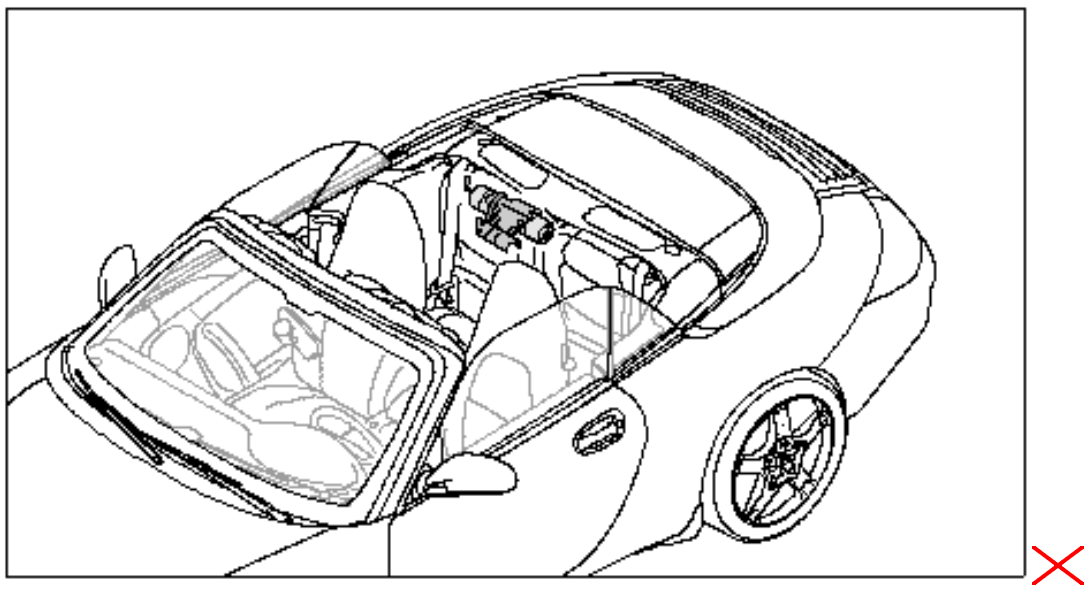


Fastening hydraulic pump

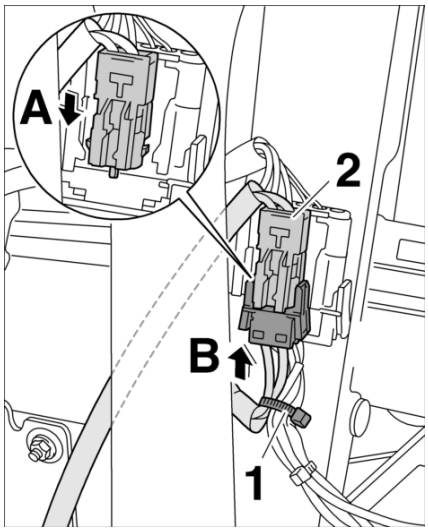
4. Position hydraulic pump **-3-** on holder for hydraulic pump **-4-** **-arrow A-** and screw down the fastening nuts **-2-** .
5. Push in rubber holder **-1-** in support for hydraulic pump **-arrow B-** .

Locking electric plug connection for hydraulic pump

Installation Location:



Installation location for hydraulic pump



Locking plug connection for hydraulic pump

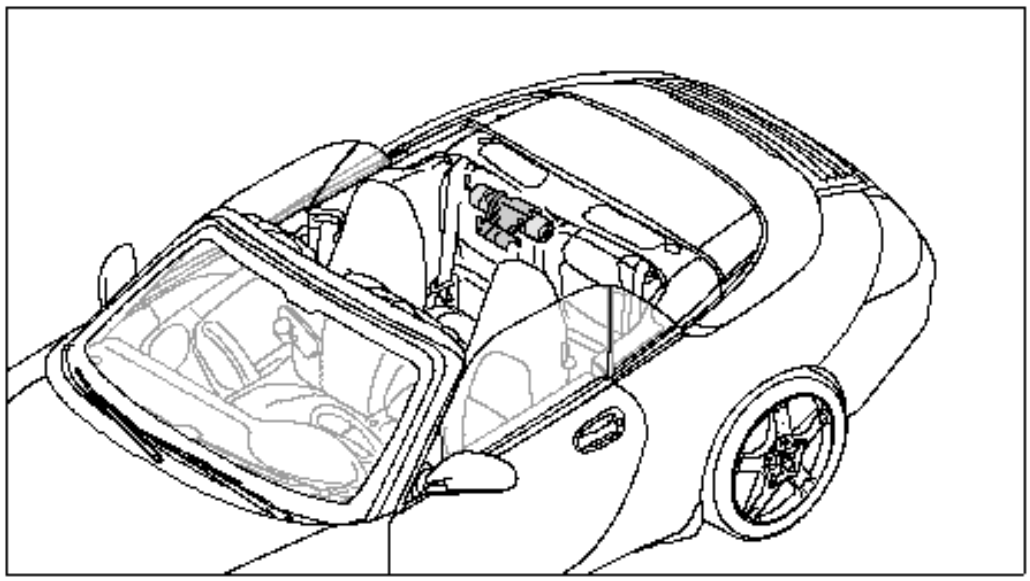
1. Push plug connection **-2-** in bracket **-arrow A-** and join plug connection **-arrow B-** .
2. Insert new tie-wrap **-1-** around wire harness for hydraulic pump and fasten.

top of page

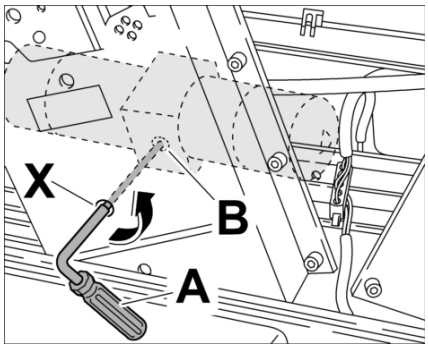
Opening and closing hydraulic valve of the hydraulic pump

Access for opening and closing the hydraulic valve

Installation Location:



Installation location for hydraulic pump



Opening and closing hydraulic valve

To open, insert the Allen key **-A-** through the bore **-X-** of the roll-over bar module into the hydraulic valve **-B-** and turn approx. 1 turn to the left.
To close, insert the Allen key **-A-** through the bore of the roll-over bar module **-X-** into the hydraulic valve **-B-** and turn to the right.

Bleeding the hydraulic system

ATTENTION
Damage to the convertible-top frame if not running synchronously.

- **Bleed the hydraulic system only after the hydraulic cylinders have been removed from the convertible-top supports and drive levers on the left and right.**

The system has a self-bleeding feature. Three to four operations will bleed the system. After bleeding, check the oil level in the container on the hydraulic pump and check if necessary.
To bleed, the hydraulic valve must be closed.

top of page

Subsequent work

Subsequent work

1. Calibrate convertible top. 6101K2 K2 -Calibrating convertible top in cabriolet
2. Install trim panel for convertible top rest. 700819 Removing and installing trim panel for convertible top rest - chapter on "Installing"
3. Install rear wall trim panel 703119 Removing and installing trim panel for rear wall - chapter on "Installing" [997310 997311 997320 997321] *703119 23 Removing and installing trim panel for rear wall - chapter on "Installing" [997610 997611 997620 997621]*
4. Install rear side trim panel. 707519 Removing and installing rear side trim panel - chapter on

"Installing"

997310, 997311, 997320, 997321, 997610, 997611, 997620, 997621

as of MY 2005
Country C00, C02, C05, C07, C08, C09, C10, C11, C12, C13, C14, C15, C16, C18, C19, C20, C21, C22, C23, C24, C25, C26, C27, C28, C32, C33, C34, C35, C36, C37, C38, C39, C45, C46, C98, C99

WARNUNG

Gefahr des Verlusts der Text-Bild-Zuordnung beim Ausdruck.

- **Aus technischen Gründen kann derzeit nicht ausgeschlossen werden, dass trotz einwandfreier Darstellung auf dem Bildschirm beim Ausdruck der Zusammenhang von Text und zugehörigem Bild verloren geht.**
- **Wird der Fehler nicht bemerkt, besteht die Gefahr, daß Arbeiten nicht korrekt durchgeführt werden und es dadurch zu Personen- und Sachschäden kommt.**

Vergleichen Sie deshalb nach dem Druckvorgang unbedingt die Ausdrucke mit der Bildschirmdarstellung. Korrigieren Sie die Ausdrucke im Fehlerfall so, daß der Inhalt der Bildschirmdarstellung zutreffend wiedergegeben wird.

WARNING

Danger of losing text-figure correspondence when printing out.

- **For technical reasons, it can currently not be ruled out that the correspondence between text and associated figure can be lost when it is printed out, even though the display on the screen is correct.**
- **If the fault is not noticed, there is the danger that work will not be performed correctly which can cause injury and damage.**

Therefore, always compare printouts with the screen display after printing them out. Correct the printouts if they are faulty so that the content of the screen display matches that on the printouts.

AVERTISSEMENT

Risque de perte de la correspondance texte-illustration lors de l'impression papier.

- **Pour des raisons techniques, il ne peut pas être exclu à l'heure actuelle que, même en cas d'affichage correct à l'écran, la correspondance entre le texte et l'illustration puisse être erronée sur l'impression papier.**
- **Si l'erreur passe inaperçue, on court le risque d'exécuter certaines opérations de manière incorrecte pouvant conduire à des dommages corporels et matériels.**

Comparez impérativement pour cette raison les impressions papier avec l'affichage à l'écran. Corrigez-les en cas d'erreur de manière à reproduire correctement l'affichage à l'écran.

61 90 19 Removing and installing convertible-top compartment lid - as of MY 2005

- Preliminary work
- Removing convertible-top compartment lid
- Installing convertible-top compartment lid
- Subsequent work

top of page

Preliminary work

Preliminary work

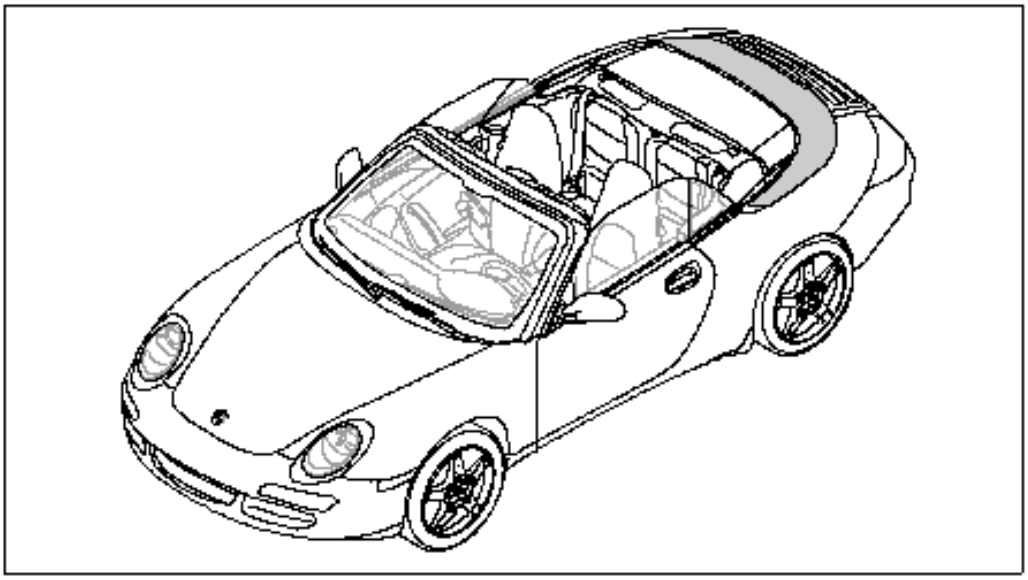
Remove trim panel for convertible top rest. 700819 Removing and installing trim panel for convertible top rest - chapter on "Removing"

top of page

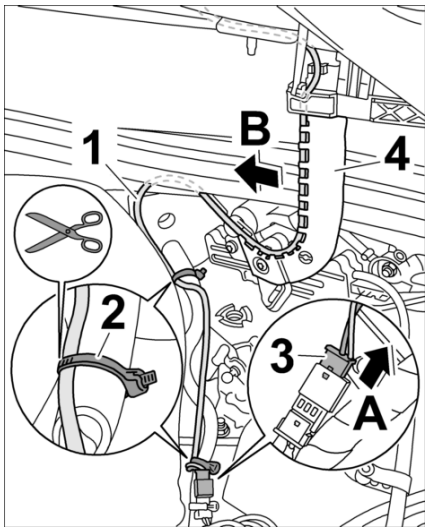
Removing convertible-top compartment lid

Loosening the wire harness for auxiliary stop light on the convertible top compartment lid

Installation Location:



Installation location convertible-top compartment lid

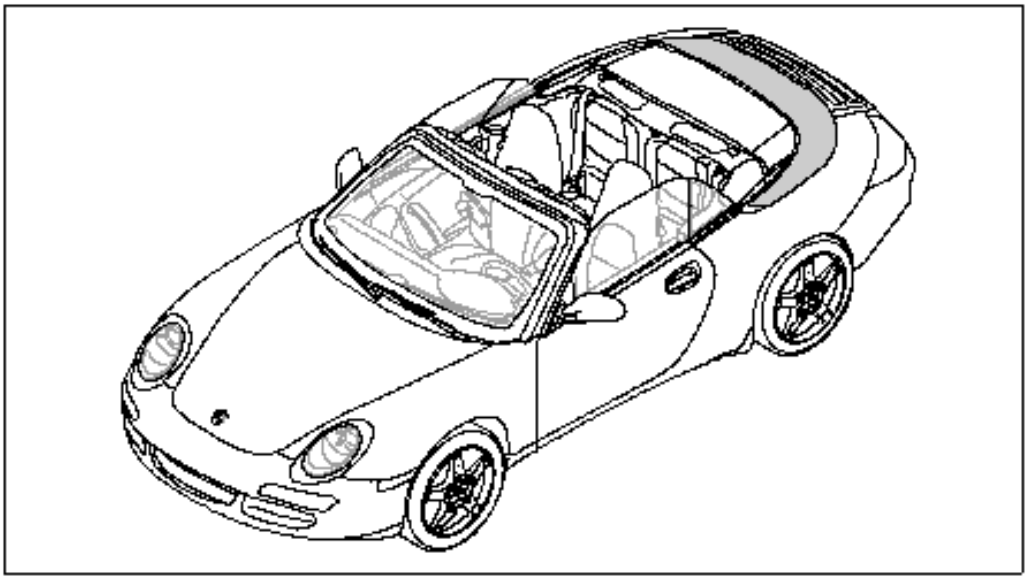


Loosening the wire harness

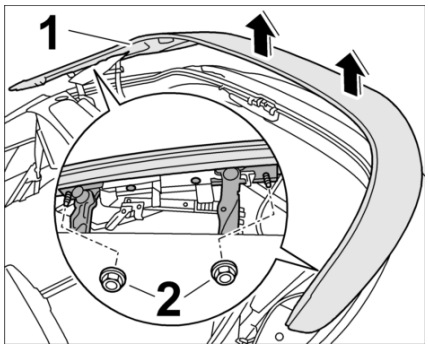
1. Cut tie-wrap **-2-** around the wire harness for auxiliary stop light **-1-** .
2. Release plug connection for auxiliary stop light **-3-** and take off **-arrow A-** .
3. Pull off wire harness for auxiliary stop light **-1-** on fastening part **-4-** in **-direction of arrow B-** .

Removing convertible top compartment lid

Installation Location:



Installation location convertible-top compartment lid



Removing convertible top compartment lid

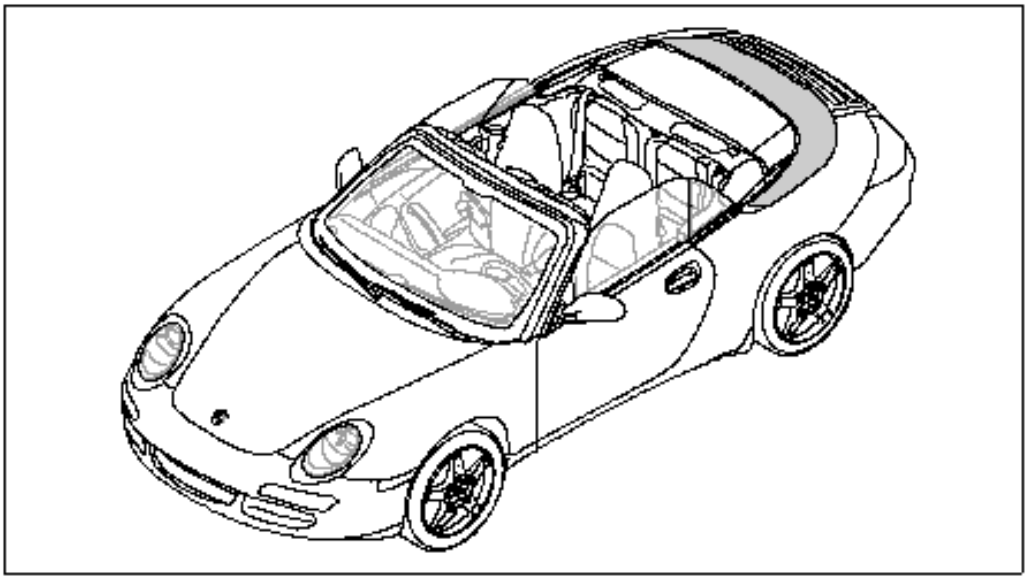
1. Loosen fastening nuts **-2-** on the right and left and take off convertible top compartment lid **-1-** with the help of a second person.

top of page

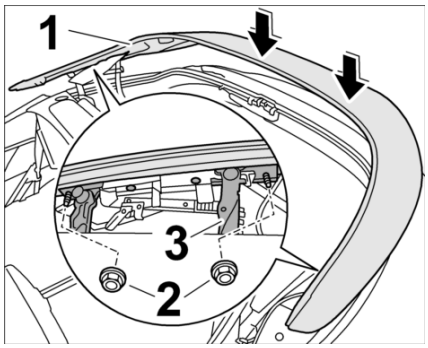
Installing convertible-top compartment lid

Installing convertible top compartment lid

Installation Location:



Installation location convertible-top compartment lid

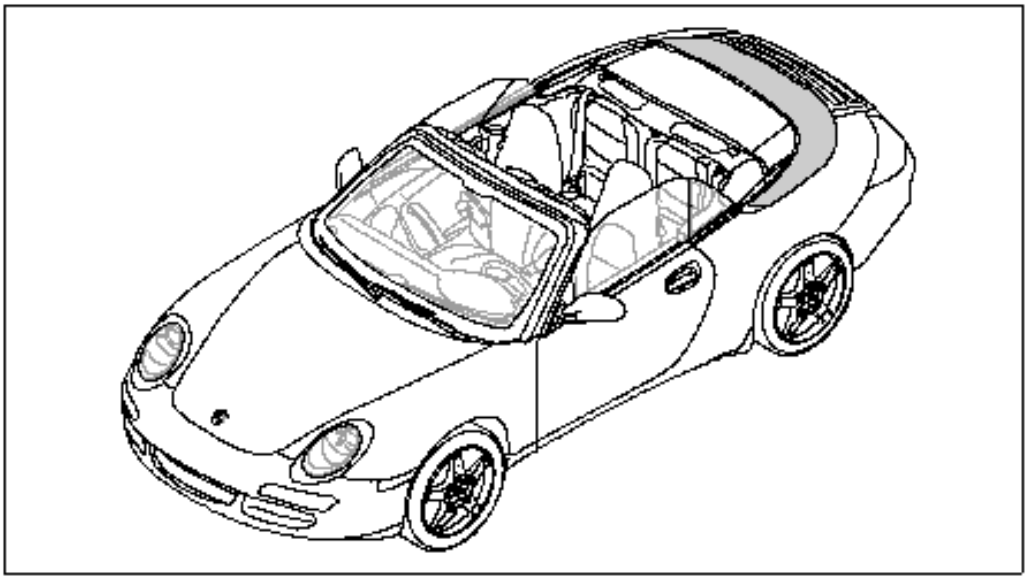


Installing convertible top compartment lid

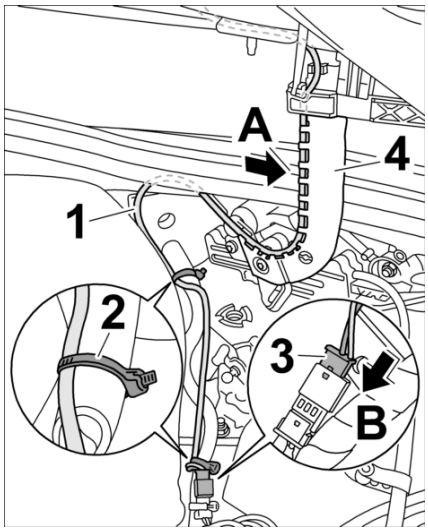
1. Position convertible top compartment lid **-1-** on the hinges **-3-** on the right and left with the help of a second person and fasten the fastening nuts **-2-** . Tightening torque **Tightening torque: 7 ftlb.**

Locking the wire harness for auxiliary stop light on the convertible top compartment lid

Installation Location:



Installation location convertible-top compartment lid



Securing wiring harness

1. Pull off wire harness for auxiliary stop light **-1-** on fastening part **-4-** in **-arrow A-** .
2. Connect plug connection for auxiliary stop light **-3-** **-arrow B-** .
3. Fasten wire harness for auxiliary stop light **-1-** using new tie-wraps **-2-** .

top of page

Subsequent work

Subsequent work

1. Install trim panel for convertible top rest. 700819 Removing and installing trim panel for convertible top rest - chapter on "Installing"

2. End service position.
3. By moving the convertible top compartment lid on the hinges, check the contours with respect to the side panels, the convertible top, and the rear lid, adjusting if necessary. *501000 Diagram - body gap dimensions*

997310, 997311, 997320, 997321, 997610, 997611, 997620, 997621

as of MY 2005
Country C00, C02, C05, C07, C08, C09, C10, C11, C12, C13, C14, C15, C16, C18, C19, C20, C21, C22, C23, C24, C25, C26, C27, C28, C32, C33, C34, C35, C36, C37, C38, C39, C45, C46, C98, C99

WARNUNG

Gefahr des Verlusts der Text-Bild-Zuordnung beim Ausdruck.

- **Aus technischen Gründen kann derzeit nicht ausgeschlossen werden, dass trotz einwandfreier Darstellung auf dem Bildschirm beim Ausdruck der Zusammenhang von Text und zugehörigem Bild verloren geht.**
- **Wird der Fehler nicht bemerkt, besteht die Gefahr, daß Arbeiten nicht korrekt durchgeführt werden und es dadurch zu Personen- und Sachschäden kommt.**

Vergleichen Sie deshalb nach dem Druckvorgang unbedingt die Ausdrucke mit der Bildschirmdarstellung. Korrigieren Sie die Ausdrucke im Fehlerfall so, daß der Inhalt der Bildschirmdarstellung zutreffend wiedergegeben wird.

WARNING

Danger of losing text-figure correspondence when printing out.

- **For technical reasons, it can currently not be ruled out that the correspondence between text and associated figure can be lost when it is printed out, even though the display on the screen is correct.**
- **If the fault is not noticed, there is the danger that work will not be performed correctly which can cause injury and damage.**

Therefore, always compare printouts with the screen display after printing them out. Correct the printouts if they are faulty so that the content of the screen display matches that on the printouts.

AVERTISSEMENT

Risque de perte de la correspondance texte-illustration lors de l'impression papier.

- **Pour des raisons techniques, il ne peut pas être exclu à l'heure actuelle que, même en cas d'affichage correct à l'écran, la correspondance entre le texte et l'illustration puisse être erronée sur l'impression papier.**
- **Si l'erreur passe inaperçue, on court le risque d'exécuter certaines opérations de manière incorrecte pouvant conduire à des dommages corporels et matériels.**

61 90 37 Disassembling and assembling convertible top compartment lid - as of MY 2005

- Preliminary work
- Disassembling convertible top compartment lid
- Assembling convertible top compartment lid
- Subsequent work

top of page

Preliminary work

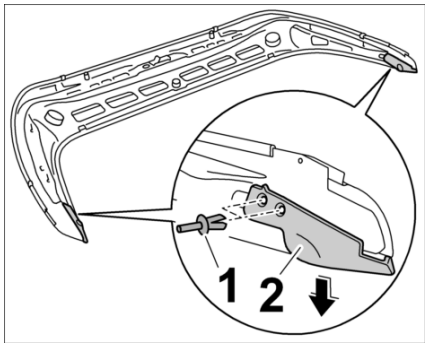
Preliminary work

1. Remove convertible-top compartment lid. 619019 Removing and installing convertible-top compartment lid - section on "Removing"
2. Remove auxiliary brake light in convertible-top compartment lid. 947019 Removing and installing auxiliary brake light - section on "Removing"
3. Remove wire harness for convertible-top compartment lid. 972519 Removing and installing rear wire harness - section on "Removing"

top of page

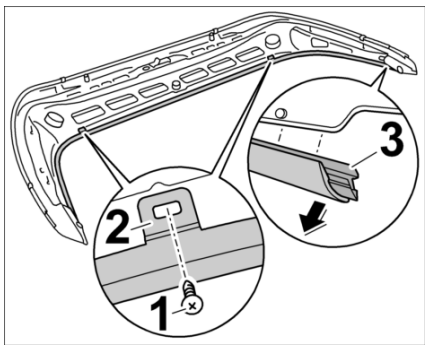
Disassembling convertible top compartment lid

Disassembling convertible-top compartment lid



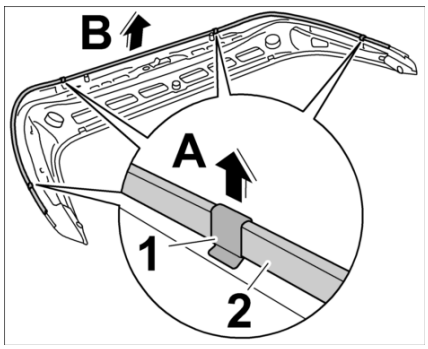
Removing bracket

1. Press in retaining pins and remove expanding clips **-1-** . Remove bracket at the left and right **-2-** .



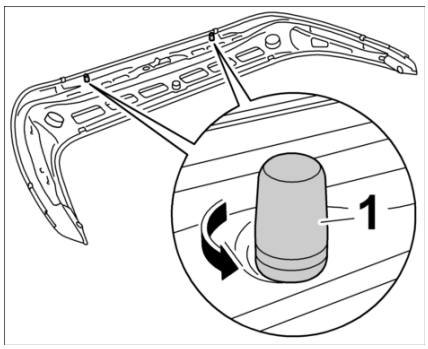
Removing seal with sealing strip

2. Unscrew fastening screws **-1-** and pull off seal **-2-** with sealing strip **-3-** .



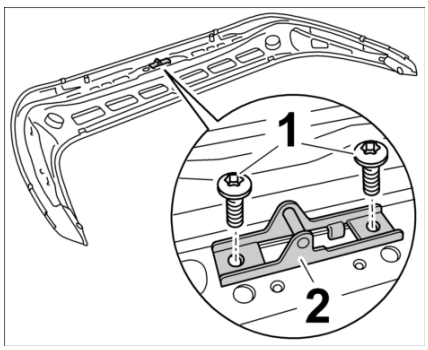
Removing protective edging

3. Pull off clamps **-1-** (**-arrow A-**).
4. Pull off protective edging **-2-** (**-arrow B-**).



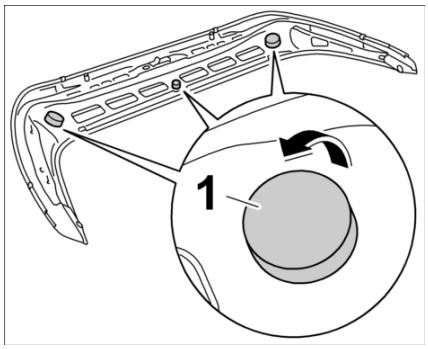
Removing rubber buffer

5. Unscrew rubber buffer **-1-** in **-direction of arrow-** .



Removing upper part of lid lock

6. Unscrew fastening screws **-1-** and remove upper part of lid lock **-2-** .



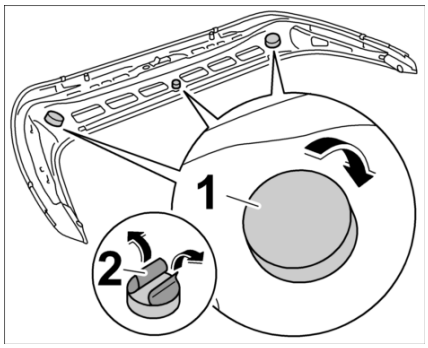
Pulling off foam pads

7. Pull off foam pads **-1-** .
8. Loosen and remove adhesive residue using a silicone remover.

top of page

Assembling convertible top compartment lid

Assembling convertible-top compartment lid

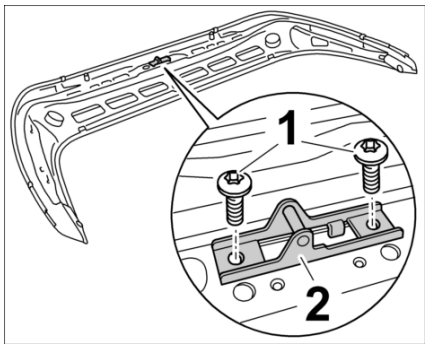


Sticking on foam pads

Note

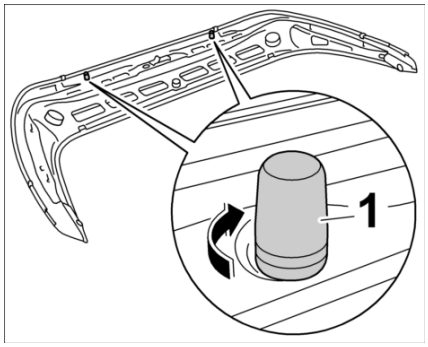
Sealing surfaces must be clean and free of grease.

1. Remove protective paper **-2-** and stick new foam pads **-1-** at the positions marked.



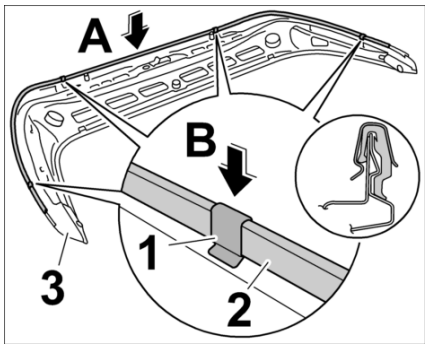
Removing upper part of lid lock

2. Position upper part of lid lock **-1-** on convertible-top compartment lid and screw down with the fastening screws **-2-** . Tightening torque **Tightening torque: 9.7 (7 ftlb.) Nm**



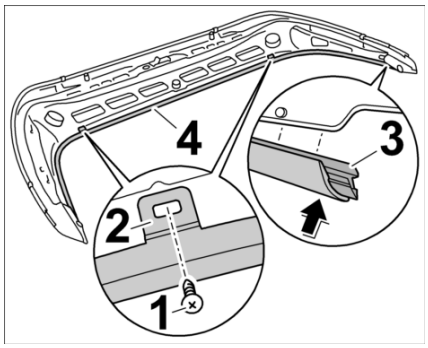
Installing rubber buffer

3. Screw in rubber buffer **-1-** in **-direction of arrow-** .



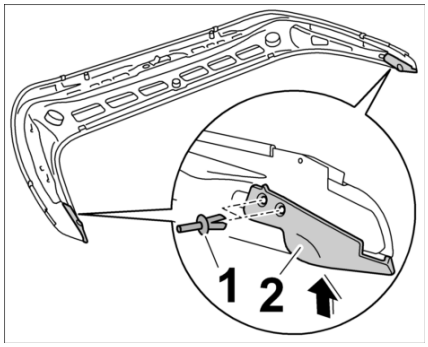
Fitting protective edging

4. Position protective edging **-2-** on convertible-top compartment lid **-3-** (**-arrow A-**) and secure with clamps **-1-** (**-arrow B-**).



Fitting seal with sealing strip

5. Attach seal **-2-** with the sealing strip **-3-** to the convertible-top compartment lid **-4-** and screw down with fastening screws **-1-** .



Fitting protective edging

6. Position bracket **-2-** on convertible-top compartment lid at left and right, then secure bracket with expanding clips **-1-** by pressing in the retaining pins.

top of page

Subsequent work

Subsequent work

1. Install wire harness for convertible-top compartment lid. 972519 Removing and installing rear wire harness - section on "Installing"
2. Install auxiliary brake light in convertible-top compartment lid. 947019 Removing and installing auxiliary brake light - section on "Installing"
3. Install convertible-top compartment lid. 619019 Removing and installing convertible top compartment lid - section on "Installing"

997310, 997311, 997320, 997321, 997610, 997611, 997620, 997621

as of MY 2005
Country C00, C02, C05, C07, C08, C09, C10, C11, C12, C13, C14, C15, C16, C18, C19, C20, C21, C22, C23, C24, C25, C26, C27, C28, C32, C33, C34, C35, C36, C37, C38, C39, C45, C46, C98, C99

WARNUNG

Gefahr des Verlusts der Text-Bild-Zuordnung beim Ausdruck.

- **Aus technischen Gründen kann derzeit nicht ausgeschlossen werden, dass trotz einwandfreier Darstellung auf dem Bildschirm beim Ausdruck der Zusammenhang von Text und zugehörigem Bild verloren geht.**
- **Wird der Fehler nicht bemerkt, besteht die Gefahr, daß Arbeiten nicht korrekt durchgeführt werden und es dadurch zu Personen- und Sachschäden kommt.**

61 91 19 Removing and installing additional flap - as of MY 2005

- Preliminary work
- Removing additional flap
- Installing additional flap

top of page

Preliminary work

Preliminary work

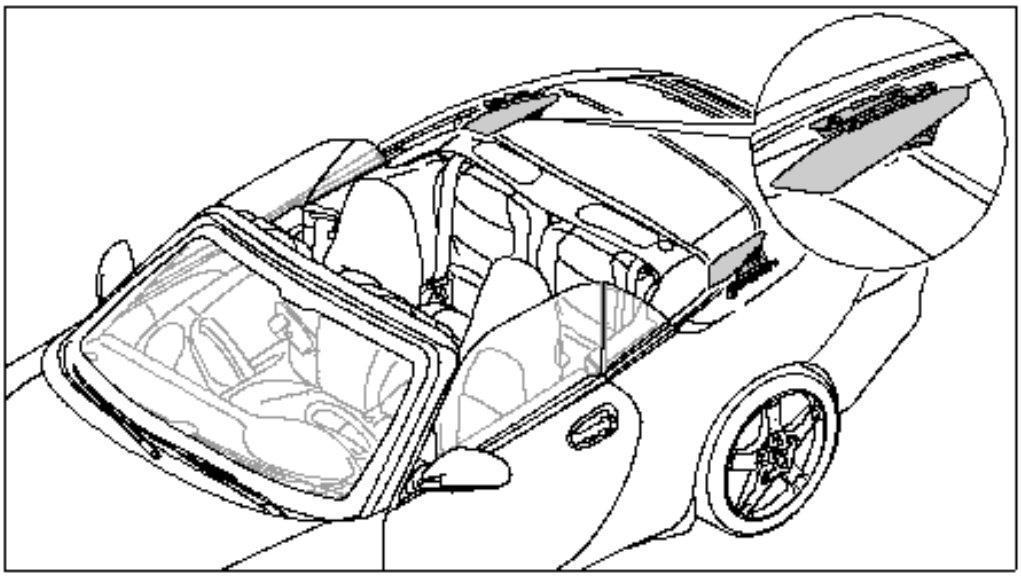
Move convertible top to service position. 6101IN IN -Convertible top in service position

top of page

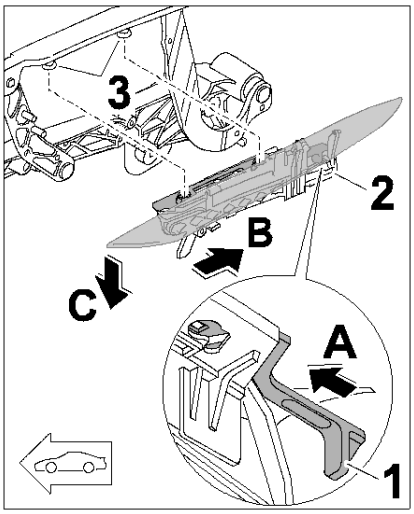
Removing additional flap

Removing additional flap

Installation Location:



Installation location additional flap



Removing additional flap

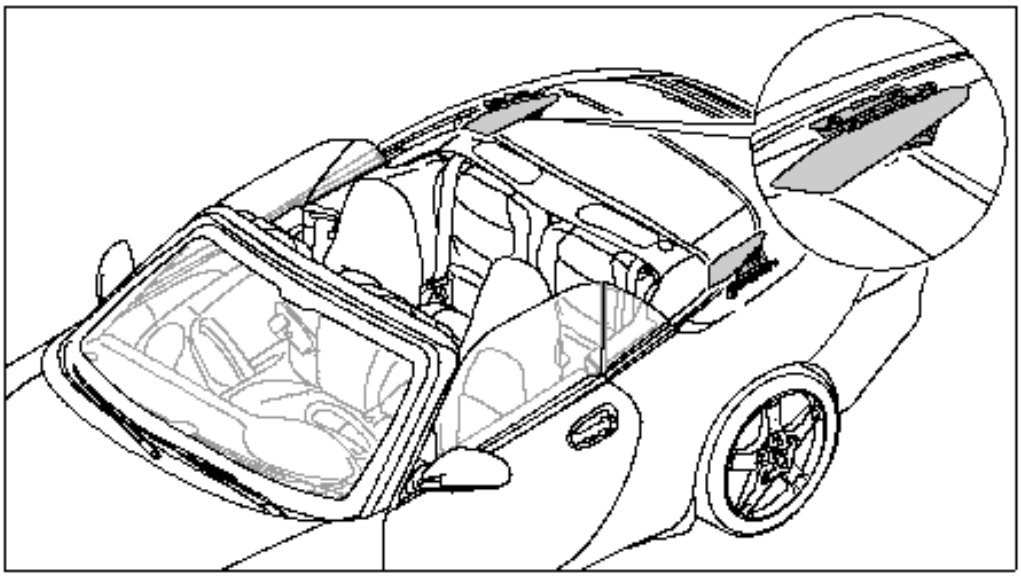
1. Press locking lever **-1-** toward the front **-arrow A-** (direction of travel).
2. Pull additional flap **-2-** backward **-arrow B-** and pull downwards out from hinge pins B of the convertible-top compartment lid **-3-** **-arrow C-** .

top of page

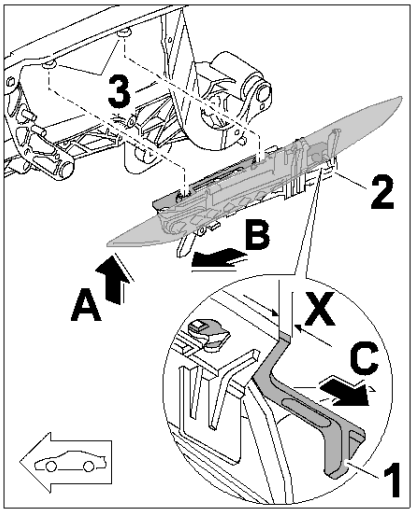
Installing additional flap

Installing additional flap

Installation Location:



Installation location additional flap



Installing additional flap

1. Insert additional flap **-2-** upward onto hinge pins of the convertible-top compartment lid **-3-** **-arrow A-** and pull forward **-arrow B-** .
2. Pull locking lever **-1-** backward **-arrow C-** (against direction of travel) to lock the additional flap. The additional flap **-2-** is locked if locking lever **-1-** projects approx. 5 to 8 mm over the body of the additional flap in the area of dimension **-X-** .
3. End convertible top service position.

997310, 997311, 997320, 997321, 997610, 997611, 997620, 997621

as of MY 2005
Country C00, C02, C05, C07, C08, C09, C10, C11, C12, C13, C14, C15, C16, C18, C19, C20, C21, C22, C23, C24, C25, C26, C27, C28, C32, C33, C34, C35, C36, C37, C38, C39, C45, C46, C98, C99

WARNUNG

Gefahr des Verlusts der Text-Bild-Zuordnung beim Ausdruck.

- **Aus technischen Gründen kann derzeit nicht ausgeschlossen werden, dass trotz einwandfreier Darstellung auf dem Bildschirm beim Ausdruck der Zusammenhang von Text und zugehörigem Bild verloren geht.**
- **Wird der Fehler nicht bemerkt, besteht die Gefahr, daß Arbeiten nicht korrekt durchgeführt werden und es dadurch zu Personen- und Sachschäden kommt.**

Vergleichen Sie deshalb nach dem Druckvorgang unbedingt die Ausdrucke mit der Bildschirmdarstellung. Korrigieren Sie die Ausdrucke im Fehlerfall so, daß der Inhalt der Bildschirmdarstellung zutreffend wiedergegeben wird.

WARNING

Danger of losing text-figure correspondence when printing out.

61 92 19 Removing and installing hinge for top box cover - as of MY 2005

- Preliminary work
- Removing hinge for top box cover
- Installing hinge for top box cover
- Subsequent work

top of page

Preliminary work

Preliminary work

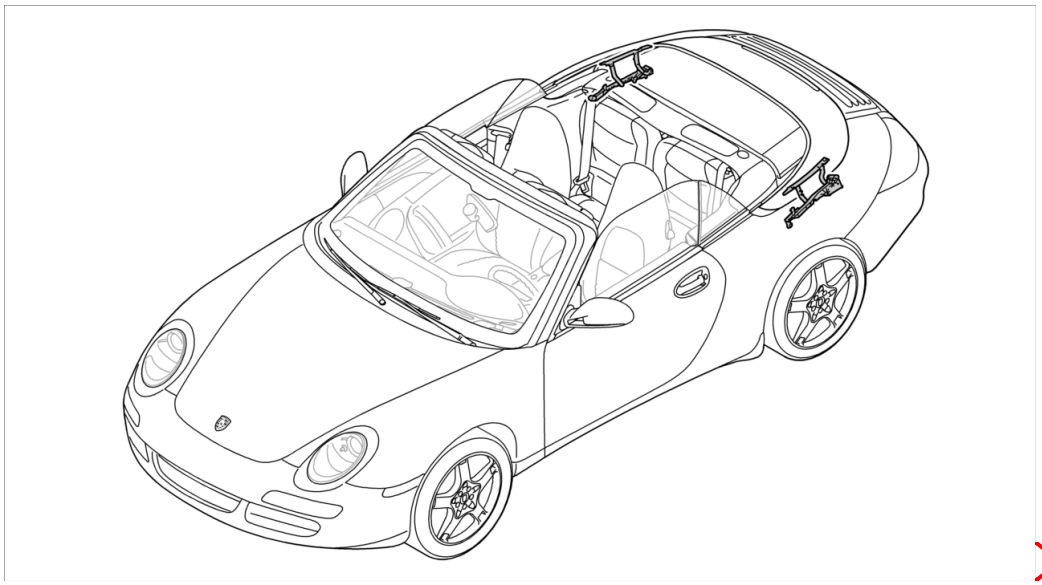
1. Remove convertible-top compartment lid. 619019 Removing and installing convertible top compartment lid - section on "Installing"
2. Remove additional flap. 619119 Removing and installing additional flap - section on "Installing"
3. Loosen drive for convertible top compartment lid on the left and right and set aside. 617219 Removing and installing transmission for convertible top compartment lid drive - chapter on "Installing"

top of page

Removing hinge for top box cover

Removing hinge for top box cover

Installation Location:

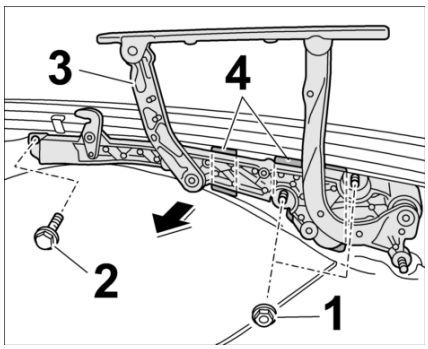


Installation position of hinge for top box cover

Note

The seal is damaged when removing the hinge.

1. Pull off rubber sleeve on water drip pan.



Removing hinge

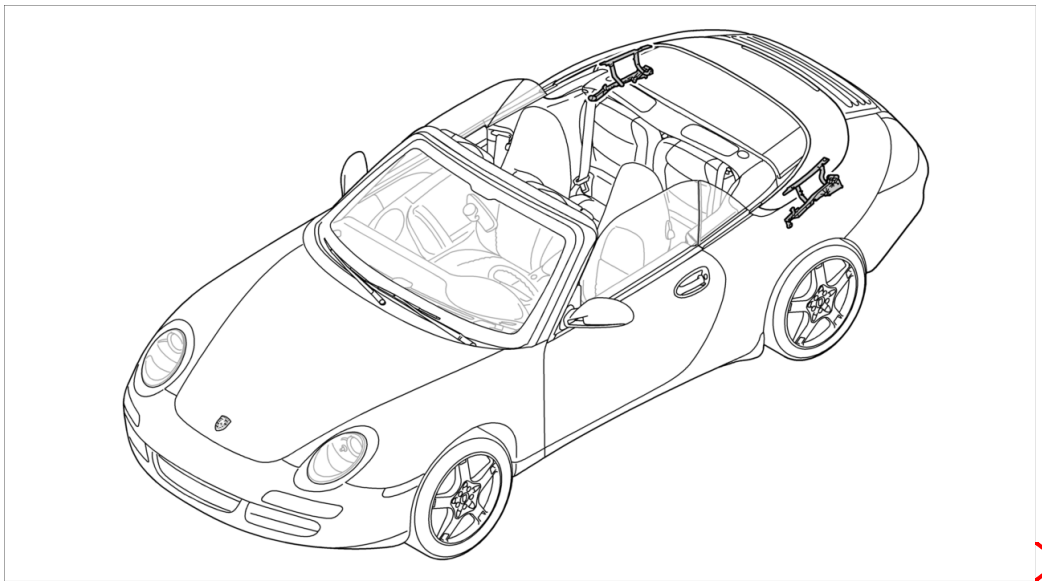
2. Unscrew fastening nuts **-1-** and fastening screw **-2-** .
3. Disconnect hinge for top box cover **-3-** from the body or loosen seal **-4-** with a spatula.

top of page

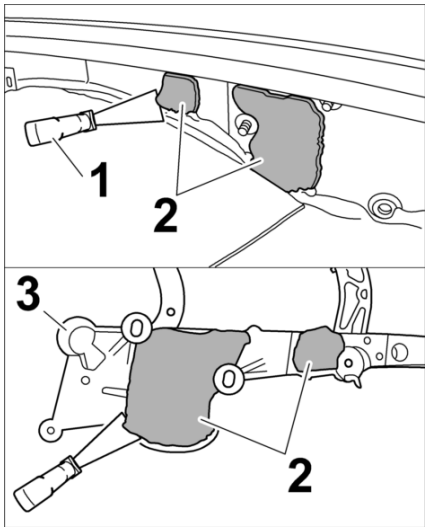
Installing hinge for top box cover

Installing hinge for top box cover

Installation Location:

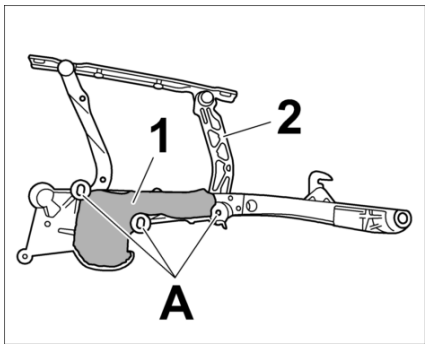


Installation position of hinge for top box cover



Removing seal

1. Using a spatula **-1-** remove the seal **-2-** on the body and hinge **-3-** and clean with cleaning solution.

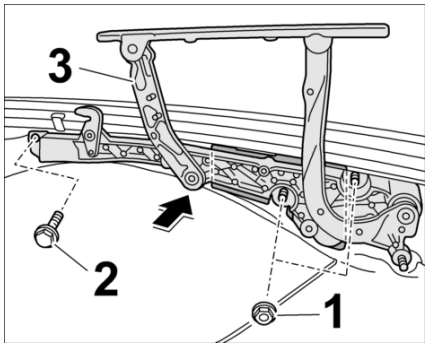


Affixing seal

Note

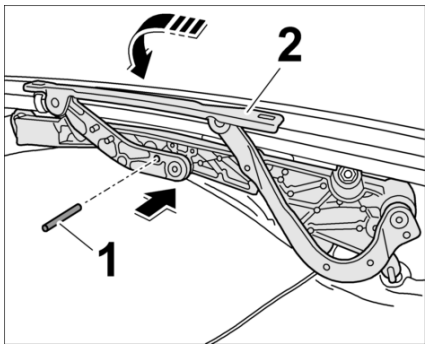
The contact surface of the hinge **-A-** and body must not be adhered over by the seal.

2. Position new seal **-1-** on the hinge **-2-** and stick on.



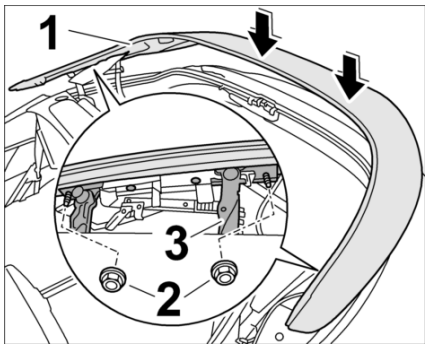
Fitting hinge

3. Pull off external protective film and position hinge **-3-** on the body.
4. Slightly tighten fastening nuts **-1-** and fastening screw **-2-** .



Centring hinge

5. Insert 5 mm centring pin (shop-made tool) **-1-** for centring the hinge in retracted position of hinge **-2-** in the bore provided.



Installing convertible top compartment lid

6. Position convertible top compartment lid **-1-** on the hinges **-3-** on the right and left with the help of a second person and fasten the fastening nuts **-2-** .
7. By moving the hinge and convertible top compartment lid, check the contours with respect to the side panels, the convertible top, and the rear lid, adjusting if necessary. *501000 Diagram - body gap dimensions*
8. Tighten fastening nuts **-1-** and fastening screw **-2-** . **Tightening torque: 7 ftlb. Tightening torque: 9.7 (7 ftlb.) Nm**
9.

Screw down fastening nuts **-2-** for convertible top compartment lid **-1-** . Tightening torque **Tightening torque: 9.7 (7 ftlb.) Nm**

10. Press rubber sleeve into water drip pan.
11. Remove centring pin **-1-** and put convertible top compartment lid manually in service position.

top of page

Subsequent work

Subsequent work

1. Fasten drive for convertible top compartment lid on the right and left. 617219 Removing and installing transmission for convertible top compartment lid drive - chapter on "Installing"
2. Install additional flap. 619119 Removing and installing additional flap - section on "Installing"
3. Completely install convertible-top compartment lid. 619019 Removing and installing convertible top compartment lid - section on "Installing"

997310, 997311, 997320, 997321, 997610, 997611, 997620, 997621

as of MY 2005
Country C00, C02, C05, C07, C08, C09, C10, C11, C12, C13, C14, C15, C16, C18, C19, C20, C21, C22, C23, C24, C25, C26, C27, C28, C32, C33, C34, C35, C36, C37, C38, C39, C45, C46, C98, C99

WARNUNG

Gefahr des Verlusts der Text-Bild-Zuordnung beim Ausdruck.

- **Aus technischen Gründen kann derzeit nicht ausgeschlossen werden, dass trotz einwandfreier Darstellung auf dem Bildschirm beim Ausdruck der Zusammenhang von Text und zugehörigem Bild verloren geht.**
- **Wird der Fehler nicht bemerkt, besteht die Gefahr, daß Arbeiten nicht korrekt durchgeführt werden und es dadurch zu Personen- und Sachschäden kommt.**

Vergleichen Sie deshalb nach dem Druckvorgang unbedingt die Ausdrucke mit der Bildschirmdarstellung. Korrigieren Sie die Ausdrucke im Fehlerfall so, daß der Inhalt der Bildschirmdarstellung zutreffend wiedergegeben wird.

WARNING

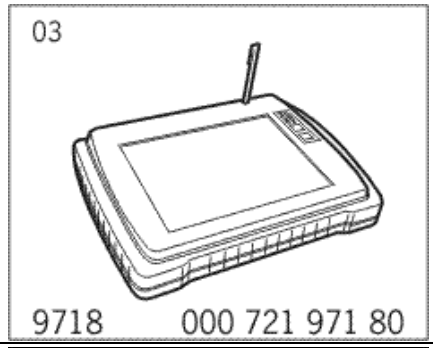
Danger of losing text-figure correspondence when printing out.

- **For technical reasons, it can currently not be ruled out that the correspondence between text and associated figure can be lost when it is printed out, even though**

61 96 19 Removing and installing control unit for convertible-top - as of MY 2006

- Preliminary work
- Removing control unit for convertible top
- Installing control unit for convertible top
- Subsequent work
- Programming control unit for convertible top
- Coding control unit for convertible top
- Calibrating the convertible top

Tools

Designation	Type	Number	Explanation	
PIWIS Tester	special tool	9718		
Removal tool, universal	commercially available tool	NR.21		

top of page

Preliminary work

Preliminary work

1. Move convertible top to service position.
2. Removing cover over the motor

2.1. To loosen the carpet, pull out the plastic clips with the special tool 21 and take out the carpet.
Removal tool, universal NR.21

3. If the control unit must be replaced, then read out the values from the control unit before removal. **PIWIS Tester 9718** 619619 Removing and installing control unit for convertible top - section on "Programming"

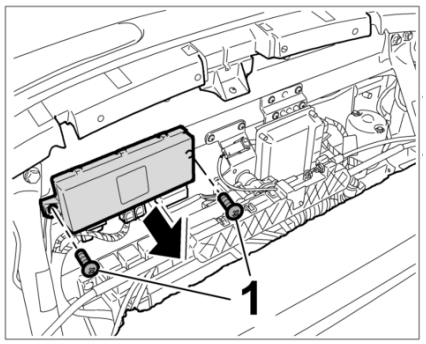
top of page

Removing control unit for convertible top

Removing control unit for convertible top

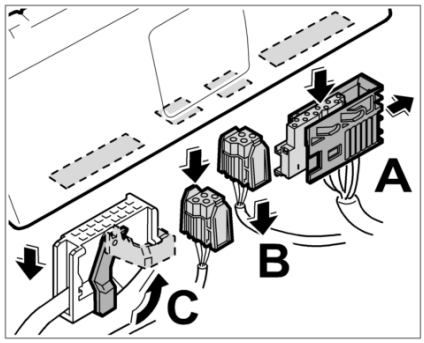
Note

If the control unit for the convertible top must be replaced, first the values must be read from the control unit using the **PIWIS tester 9718**. 619619 Removing and installing convertible top control unit - chapter on "Programming"



Unscrewing fastening screws

1. Unscrew both fastening screws **-1-** for the convertible top control unit.



Unplugging electrical connector

2. Remove control module, disengage the connector housing **-arrow A-** to the right, and pull it down and off. Press plug connection **-arrow B-** together and pull it down and off. Disengage plug connection **-arrow C-** upward and to the right, and pull it down and off.

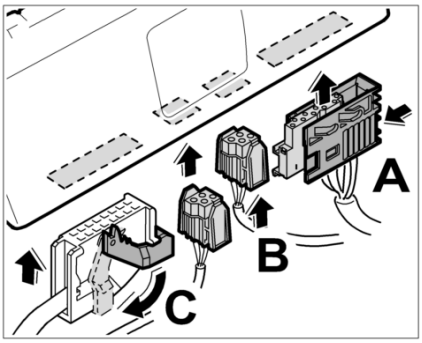
top of page

Installing control unit for convertible top

Installing control unit for convertible top

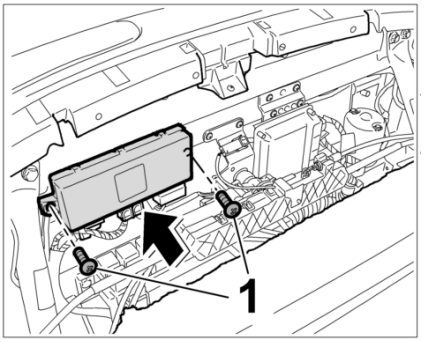
Note

If the control unit for the convertible top must be replaced, first the values must be read from the control unit using the **PIWIS tester 9718**. 619619 Removing and installing convertible top control unit - chapter on "Programming"



Plugging in the electric plug connections

1. Join electric plug connections **-arrow C-** and engage the locking lever downward. Connect the plug connection **-arrow B-** . Join plug connection **-arrow A-** and press the plug housing to the left until it engages. Lay lines carefully (do not trap).



Tightening fastening screws

2. Position control unit and secure with both fastening screws **-1-** .

top of page

Subsequent work

Subsequent work

1. Reinstall the carpet over the motor.
2. Take convertible top out of the service position.
3. Write the read out values with the **PIWIS Tester 9718**. 619619 Removing and installing convertible top control unit - section on "Programming"

top of page

Programming control unit for convertible top

Reading out and writing values for convertible top control unit

WARNING

Sudden voltage interruption of the power supply to the control module.

- **Destruction of the control module.**

During programming, it is essential to guarantee the power supply for the Porsche System tester. It is essential to connect a battery charger with a current rating of at least 40 A to the vehicle battery.

Prior to disconnecting the control module, switch off the ignition and remove the ignition key.

Note

The **PIWIS tester 9718** instructions take precedence and in the event of a discrepancy these are the instructions that must be followed. Deviations may occur with later software versions.
The procedure described here has been structured in general terms; different text or additions may appear in the **PIWIS tester 9718**.

1. Connect the Porsche System Tester to the vehicle and start the System Tester. Switch on ignition. >> Continue.
2. Select the vehicle type.
3. Switch from the vehicle type to the list of control units.
4. Select **convertible top** with the cursor keys and press the >> key.
5. Select **Control unit replacement** with the cursor keys and press the >> key.

6. Select **Read out values** (codings) with the cursor keys and press the >> key.
7. The message **Codes successfully read out** appears on the screen of the Porsche System Tester. Press >> .
8. Switch off ignition and replace control unit.
9. Switch to the **Special functions** menu and perform the **vehicle handover** using the F8 key.
10. In the **Special functions** menu, erase **All fault memories** by pressing >> .
11. Carry out automatic search of control units.
12. In the menu **Write in data** >> , the data read-out is installed.
13. System Tester displays **Coding write-in complete** >> .
14. Change to the **Coding** menu and compare the coding with the vehicle equipment. Recode if necessary.
15. Leave menu and read out fault memory.

top of page

Coding control unit for convertible top

Coding control unit for convertible top

WARNING

Sudden voltage interruption of the power supply to the control module.

- **Destruction of the control module.**

During programming, it is essential to guarantee the power supply for the Porsche System tester. It is essential to connect a battery charger with a current rating of at least 40 A to the vehicle battery.

Prior to disconnecting the control module, switch off the ignition and remove the ignition key.

Note

The **PIWIS tester 9718** instructions take precedence and in the event of a discrepancy these are the instructions that must be followed. Deviations may occur with later software versions.
The procedure described here has been structured in general terms; different text or additions may appear in the **PIWIS tester 9718**.

Note

The procedure described must be applied when a control unit has to be replaced and the tester function **Control unit replacement** cannot be used.

1. Connect the **PIWIS tester 9718** to the vehicle and start it. Switch on the ignition. >> Continue.

2. Select the **vehicle type**.
3. Switch to the **Special functions** menu and perform the **vehicle handover** using the F8 key.
4. In the **Special functions** menu, erase **All fault memories** by pressing >> .
5. Carry out automatic search of control units.
6. Using the >> key, move from the vehicle type to the list of control units.
7. Select **convertible top** with the cursor keys and press >> .
8. Select **Coding** and press the >> .

Rear window, automatic run	corresponds to automatic run
	does not correspond to automatic run
RHD coding	corresponds to left opening
	corresponds to right opening
Automatic opening of rear window without terminal 15 via key	Not coded
	Opening one-touch operation
Rear window without terminal 15 via front window position	Not coded
	Opening one-touch operation
Opening/closing convertible top not possible with remote control	Yes
	No
Opening/closing convertible top not possible with comfort	Yes
	No

9. Calibrate convertible top. 619619 Removing and installing control unit for convertible top - section on "Calibration"
10. Carry out a convertible top operation and read out fault memory.

top of page

Calibrating the convertible top

Calibrating the convertible top

Note

- *The convertible top opens and closes automatically during convertible-top calibration with the **PIWIS tester 9718**. Calibration can be started irrespective of whether the convertible top is open or closed. The latching hook in roof frame 1 does not close during calibration. There must not be any objects in or on the convertible top to obstruct this.*

1. Connect and switch on the **PIWIS tester 9718**.
2. Switch on ignition.
3. Select the menu item **Convertible top, Drive links**, and select **Calibrate** menu item in the command line which then appears.
4. Start calibration with the F7 key.

997310, 997311, 997320, 997321, 997610, 997611, 997620, 997621

as of MY 2006
Country C00, C02, C05, C07, C08, C09, C10, C11, C12, C13, C14, C15, C16, C18, C19, C20, C21, C22, C23, C24, C25, C26, C27, C28, C32, C33, C34, C35, C36, C37, C38, C39, C45, C46, C98, C99

WARNUNG

Gefahr des Verlusts der Text-Bild-Zuordnung beim Ausdruck.

- **Aus technischen Gründen kann derzeit nicht ausgeschlossen werden, dass trotz einwandfreier Darstellung auf dem Bildschirm beim Ausdruck der Zusammenhang von Text und zugehörigem Bild verloren geht.**
- **Wird der Fehler nicht bemerkt, besteht die Gefahr, daß Arbeiten nicht korrekt durchgeführt werden und es dadurch zu Personen- und Sachschäden kommt.**

Vergleichen Sie deshalb nach dem Druckvorgang unbedingt die Ausdrucke mit der Bildschirmdarstellung. Korrigieren Sie die Ausdrucke im Fehlerfall so, daß der Inhalt der Bildschirmdarstellung zutreffend wiedergegeben wird.

WARNING

Danger of losing text-figure correspondence when printing out.

- **For technical reasons, it can currently not be ruled out that the correspondence between text and associated figure can be lost when it is printed out, even though the display on the screen is correct.**
- **If the fault is not noticed, there is the danger that work will not be performed correctly which can cause injury and damage.**

Therefore, always compare printouts with the screen display after printing them out. Correct the printouts if they are faulty so that the content of the screen display matches that on the printouts.

AVERTISSEMENT

Risque de perte de la correspondance texte-illustration lors de l'impression papier.

- **Pour des raisons techniques, il ne peut pas être exclu à l'heure actuelle que, même en cas d'affichage correct à l'écran, la correspondance entre le texte et l'illustration puisse être erronée sur l'impression papier.**

63 10 19 Removing and installing front bumper - as of MY 2005

- Preliminary work
- Removing front bumper
- Installing front bumper
- Subsequent work

top of page

Preliminary work

Preliminary work

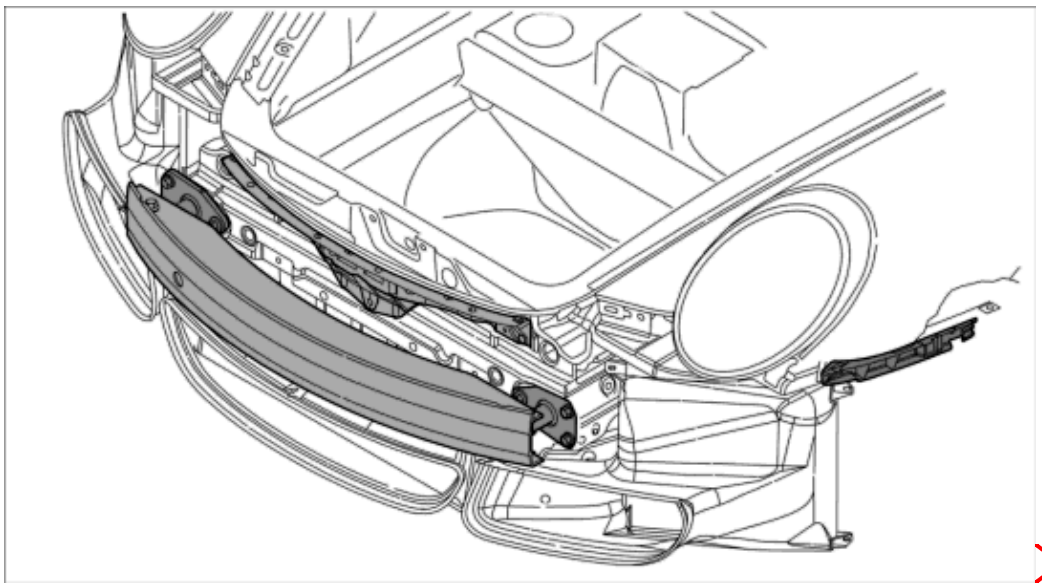
Remove the front spoiler. *21 Removing and installing front spoiler - removing*

top of page

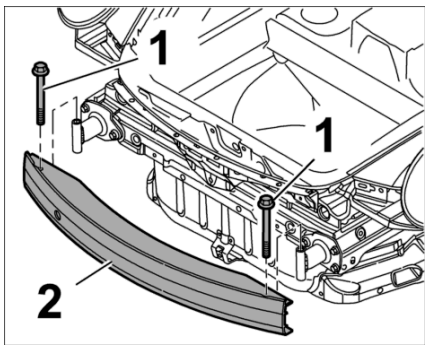
Removing front bumper

Removing the front bumper

Installation Location:



Overview, front bumper



Removing the front bumper

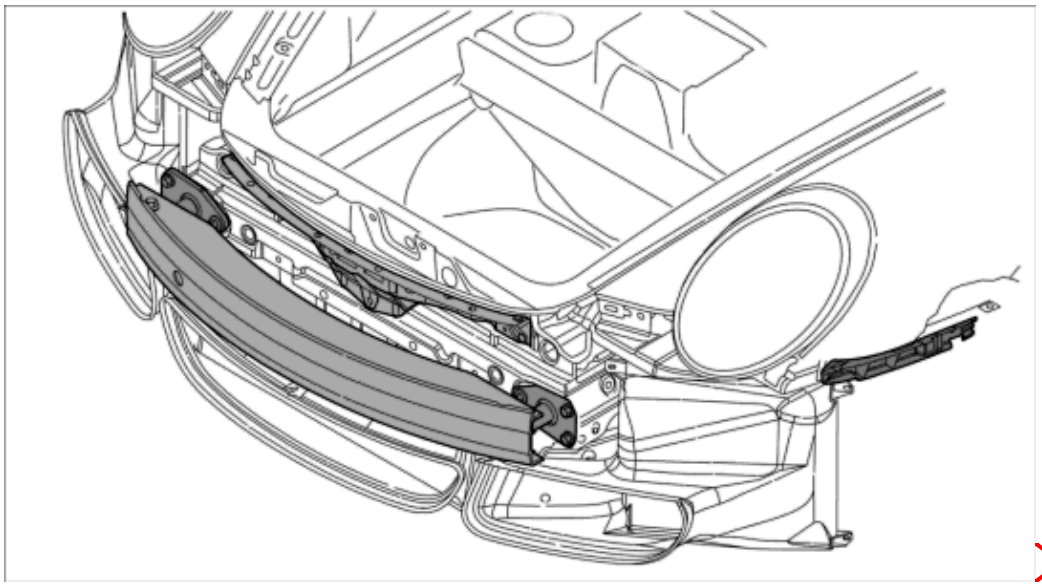
1. Unscrew fastening screws **-1-** and remove bumper **-2-** .

top of page

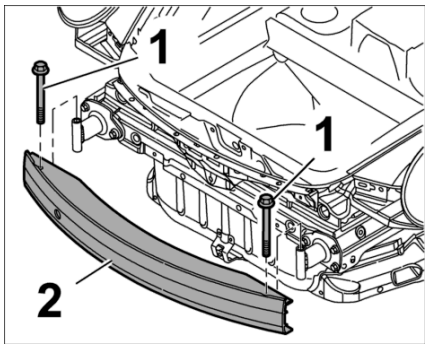
Installing front bumper

Installing the front bumper

Installation Location:



Overview, front bumper



Installing the front bumper

1. Position bumper **-2-** .
2. Insert fastening screws M12 x 100 **-1-** and tighten to the specified tightening torque. Tightening torque **: 63 ftlb.**

top of page

Subsequent work

Reworking

Install the front spoiler. *23 Removing and installing front spoiler - installing*

997110, 997111, 997120, 997121, 997310, 997311, 997320, 997321, 997410, 997411, 997430, 997431, 997610, 997611, 997620, 997621

as of MY 2005
Country C00, C02, C05, C07, C08, C09, C10, C11, C12, C13, C14, C15, C16, C18, C19, C20, C21, C22, C23, C24, C25, C26, C27, C28, C32, C33, C34, C35, C36, C37, C38, C39, C45, C46, C98, C99

WARNUNG

Gefahr des Verlusts der Text-Bild-Zuordnung beim Ausdruck.

- **Aus technischen Gründen kann derzeit nicht ausgeschlossen werden, dass trotz einwandfreier Darstellung auf dem Bildschirm beim Ausdruck der Zusammenhang von Text und zugehörigem Bild verloren geht.**
- **Wird der Fehler nicht bemerkt, besteht die Gefahr, daß Arbeiten nicht korrekt durchgeführt werden und es dadurch zu Personen- und Sachschäden kommt.**

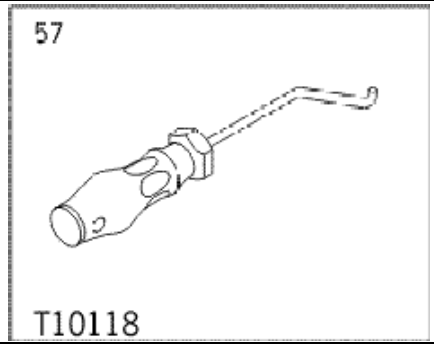
Vergleichen Sie deshalb nach dem Druckvorgang unbedingt die Ausdrucke mit der Bildschirmdarstellung. Korrigieren Sie die Ausdrucke im Fehlerfall so, daß der Inhalt der Bildschirmdarstellung zutreffend wiedergegeben wird.

WARNING

63 15 19 Removing and installing front spoiler - as of MY 2005

- Preliminary work
- Removing front apron
- Installing front apron
- Reworking

Tools

Designation	Type	Number	Explanation	
using	VW-tool	T10118		

top of page

Preliminary work

Preliminary work

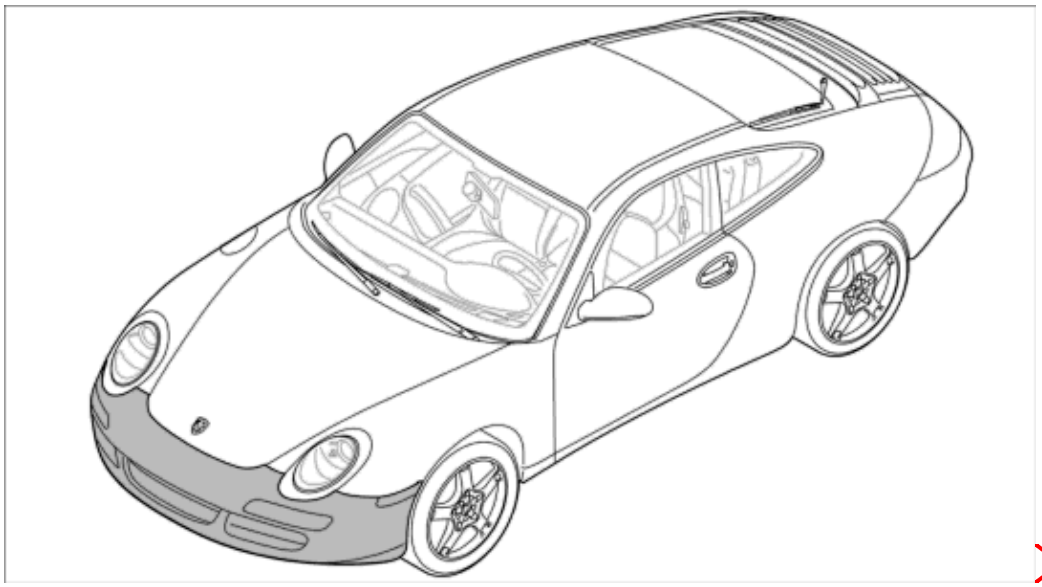
Remove cover for lock mount. *21 Removing and installing cover for lock mount - removing*
Remove front section of front wheel housing liner on left and right. *505620 21 Removing and installing front wheel housing liner - removing*

top of page

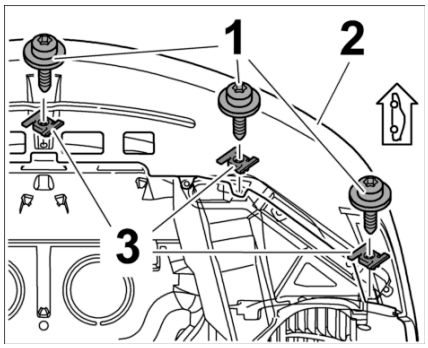
Removing front apron

Undoing front spoiler underneath

Installation Location:



Main illustration, removing and installing front spoiler

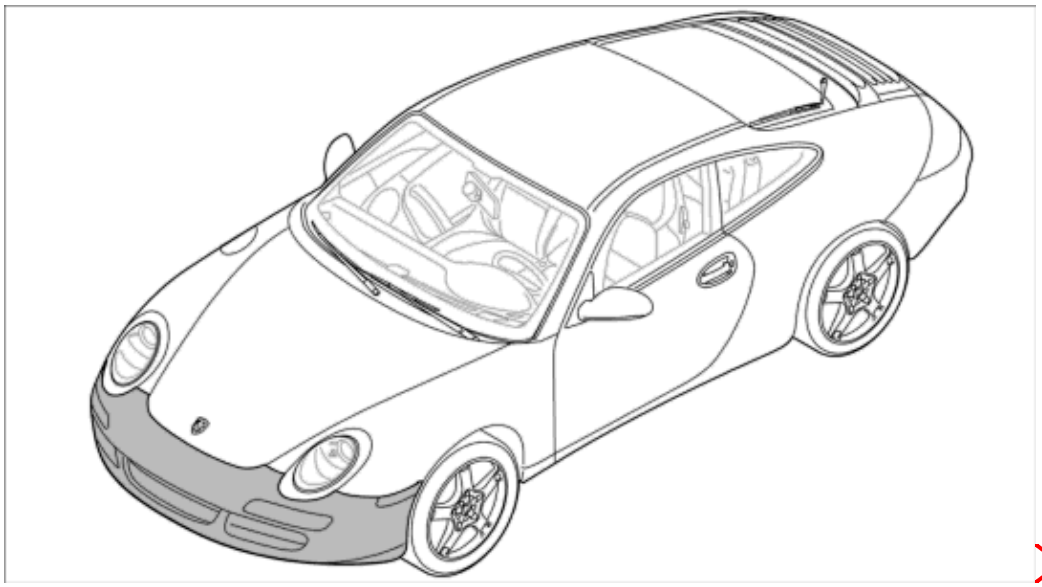


Undoing front spoiler underneath

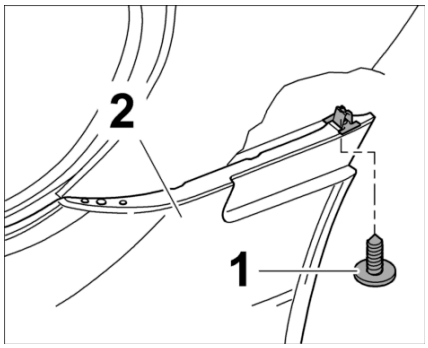
1. Unscrew fastening screws **-1-** underneath the front spoiler **-2-** .

Undoing front spoiler at the sides

Installation Location:



Main illustration, removing and installing front spoiler

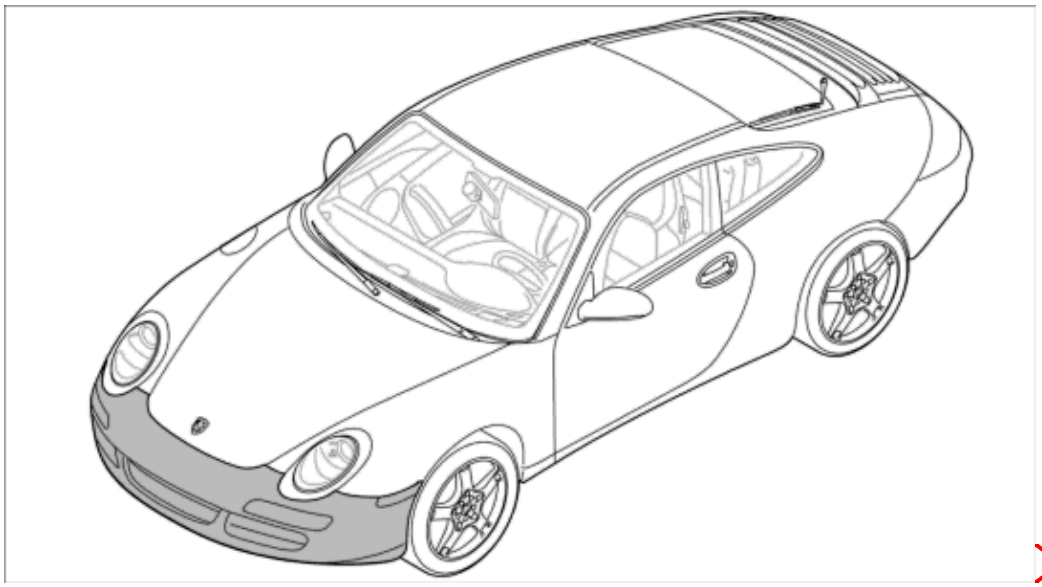


Undoing front spoiler at the sides

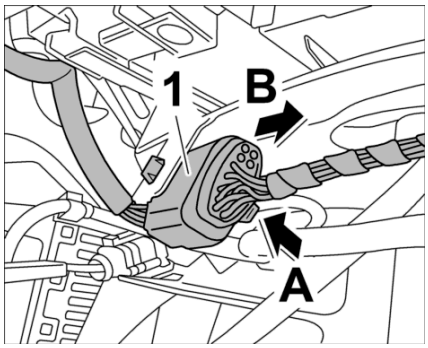
1. Unscrew fastening screws **-1-** at the sides of the front spoiler **-2-** .

Disconnecting electrical plug connection

Installation Location:



Main illustration, removing and installing front spoiler

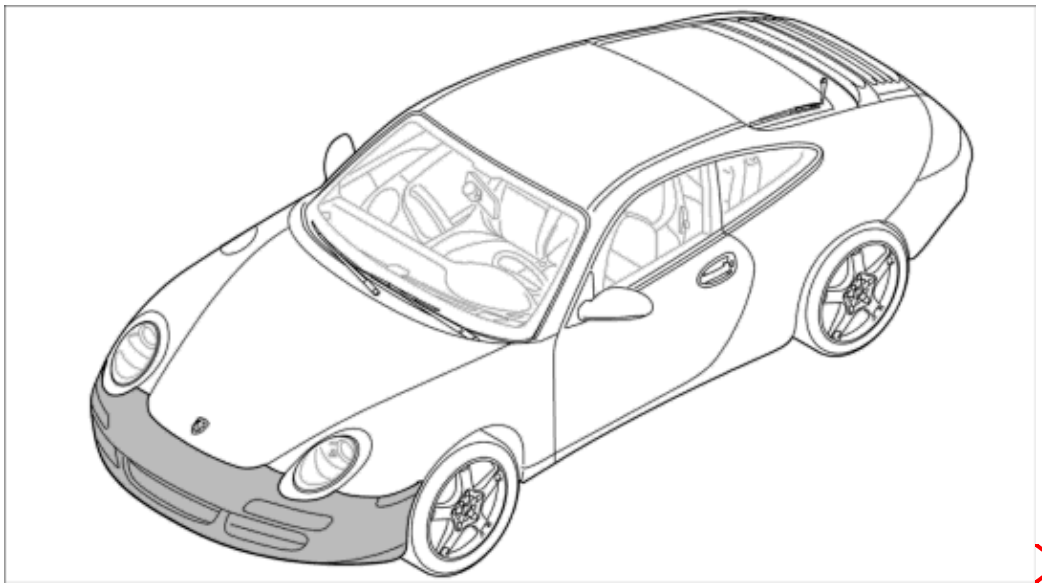


Disconnecting electrical plug connection

1. Disconnect wiring harness **-1-** . Press lug **-arrow A-** and pull plug connection apart **-arrow B-** .

Removing hose for headlight cleaning system

Installation Location:



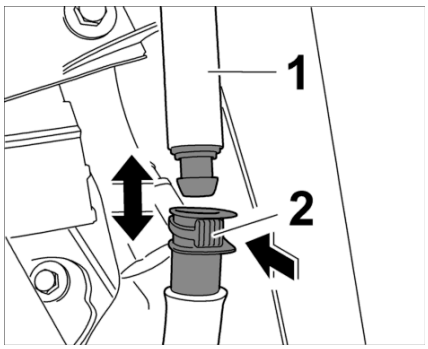
Main illustration, removing and installing front spoiler

Note

- *Only in vehicles with headlight cleaning system!*

Note

- *A tight hose can be pulled off more easily if it is heated with a hot-air gun!*
- *Collect windscreen washer system fluid with a suitable container.*

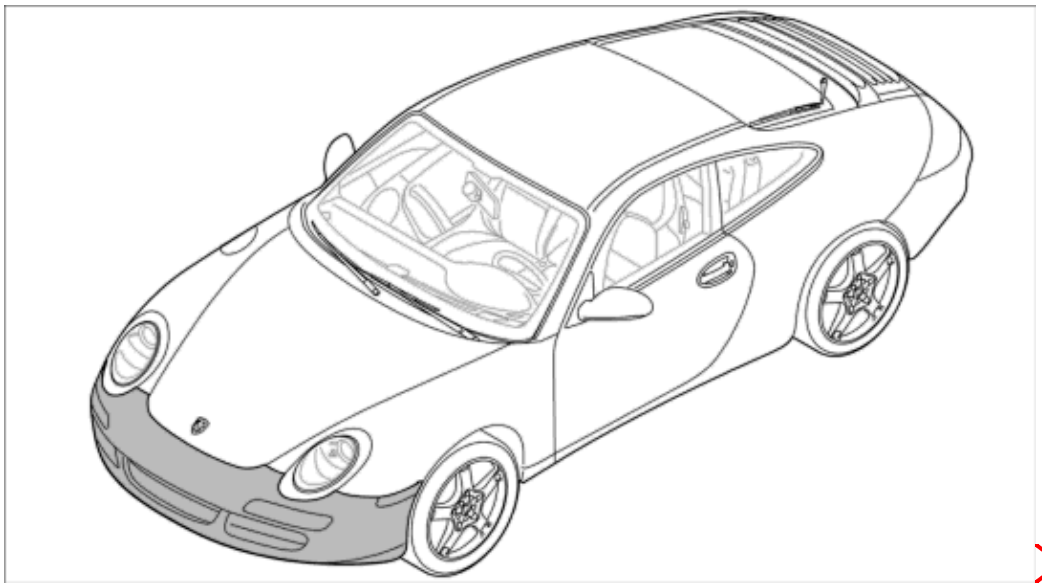


Removing hose for headlight cleaning system

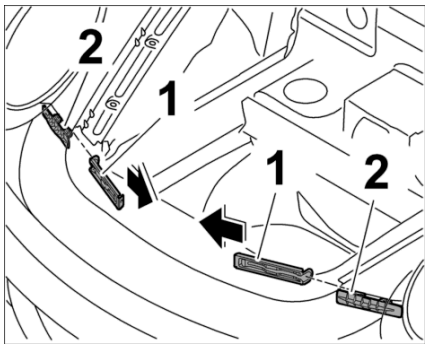
1. Press in lock **-2-** and pull water feed line for headlight cleaning system **-2-** apart **-direction of arrows-** .

Undoing front spoiler at the top

Installation Location:

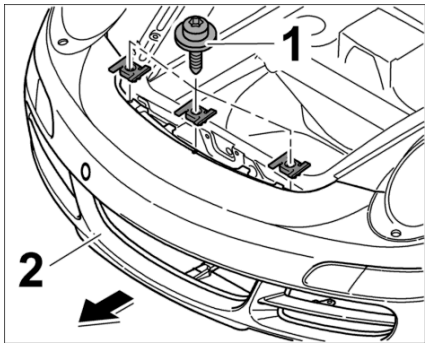


Main illustration, removing and installing front spoiler



Undoing front spoiler at the top

1. Open front end fixing devices **-1-** in **using T10118** assembly tool **-2-** at the guides **-direction of arrow-** of the front spoiler.



Undoing front spoiler at the top

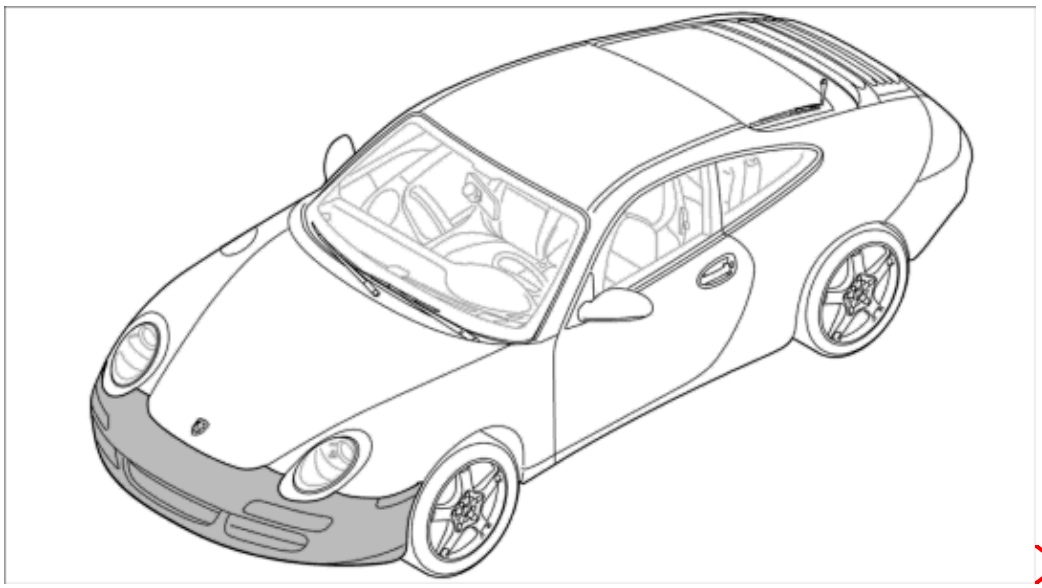
2. Unscrew fastening screws **-1-** at the top of the front spoiler **-2-** .
3. Remove front spoiler **-2-** by pulling it towards the front.

top of page

Installing front apron

Securing front spoiler at the top

Installation Location:

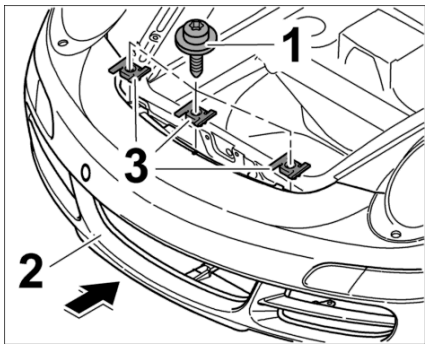


Main illustration, removing and installing front spoiler

Note

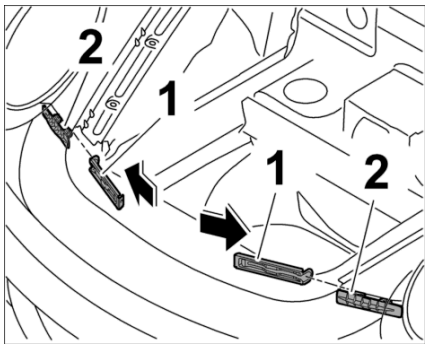
- *Ensure water and electrical lines are laid properly.*

1. Check retaining strip for front spoiler; replace if necessary. *Removing and installing front retaining strip*
2. Check sheetmetal nuts **-3-** ; replace if necessary.



Securing front spoiler at the top

3. Position the front spoiler **-2-** on the body at the front.
4. Screw in fastening screws **-1-** on front spoiler **-2-** and tighten to required tightening torque **: 1.8 ftlb.** .

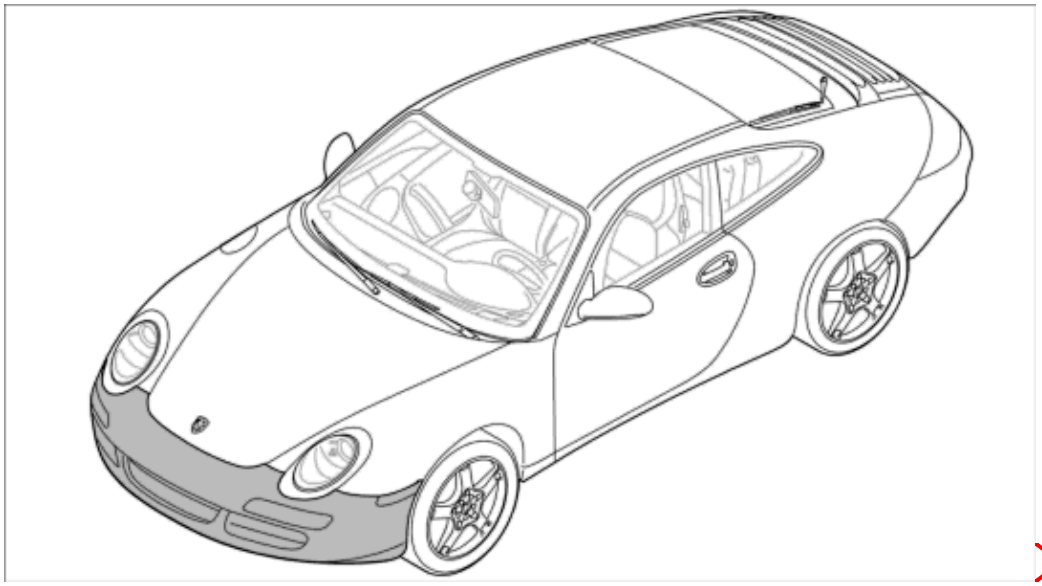


Securing front spoiler at the top

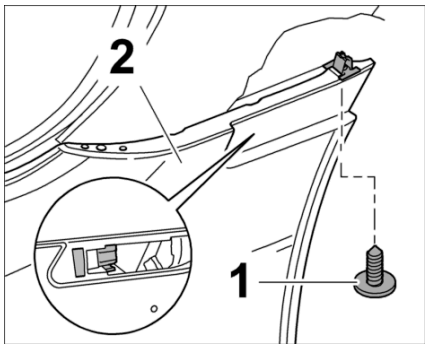
5. Engage locks **-7-** at the guides **-8-** of the front spoiler and lock in **-direction of arrow-** using a plastic wedge.

Securing front spoiler at the sides

Installation Location:



Main illustration, removing and installing front spoiler



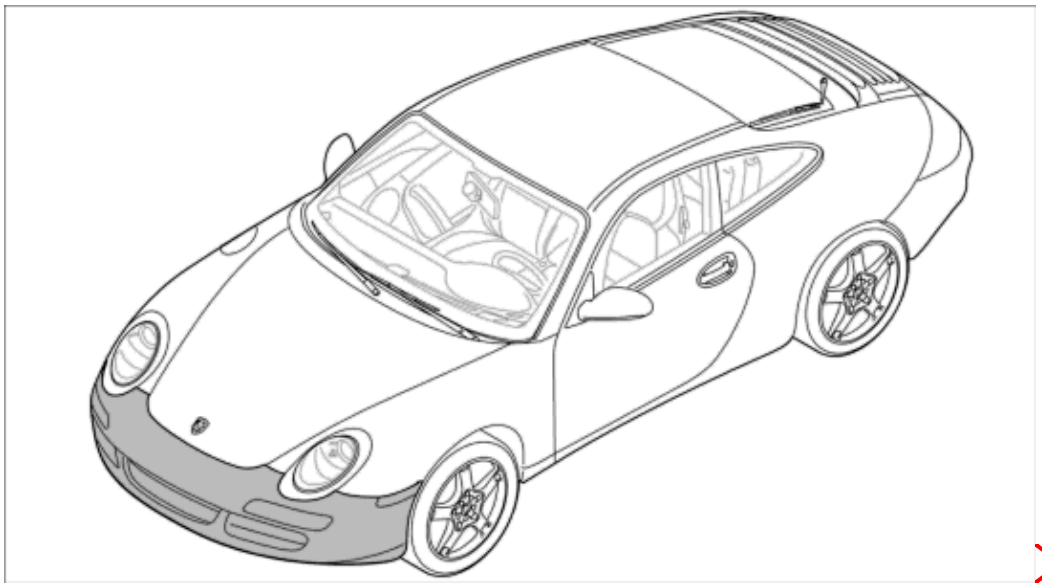
Securing front spoiler at the sides

1. Screw in fastening screws **-1-** at sides of front spoiler **-2-** and tighten to required tightening torque

: 1.8 ftlb. .

Locking hose for headlight cleaning system

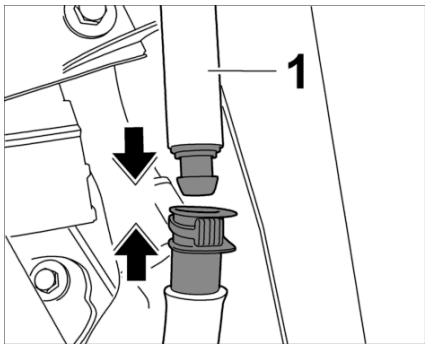
Installation Location:



Main illustration, removing and installing front spoiler

Note

- *Only in vehicles with headlight cleaning system!*

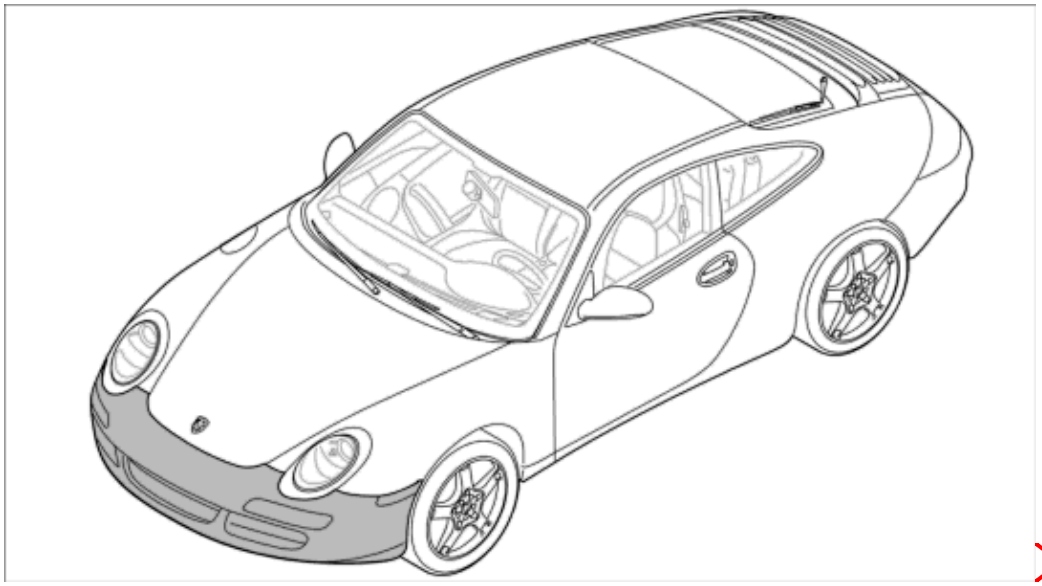


Locking hose for headlight cleaning system

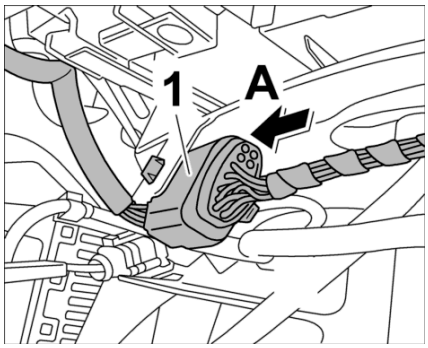
1. Connect water feed line for headlight cleaning **-1-** **-arrows-** .

Locking electrical plug connection

Installation Location:



Main illustration, removing and installing front spoiler

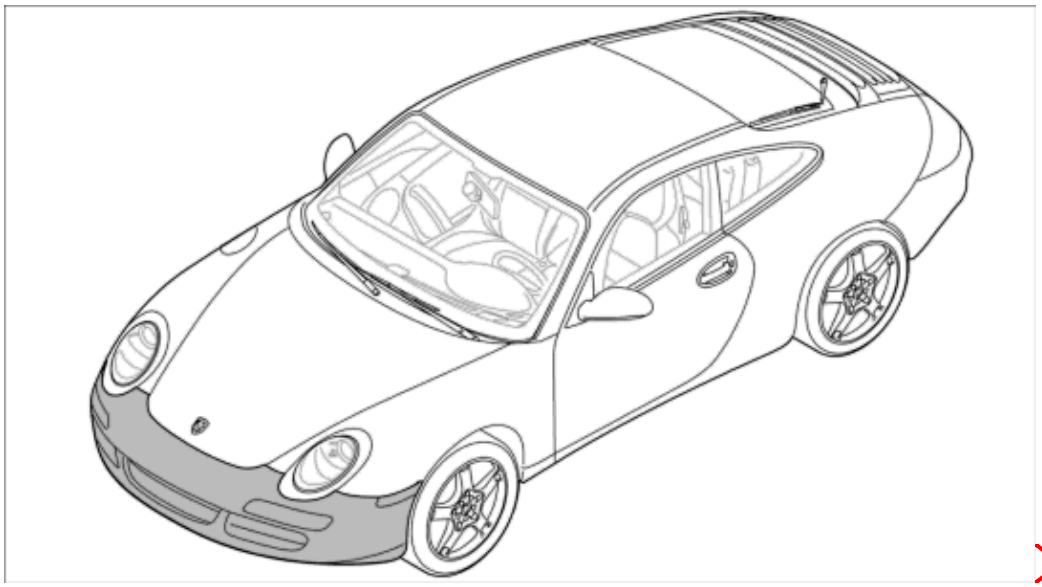


Locking electrical plug connection

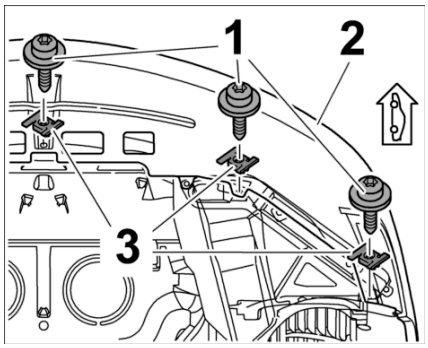
1. Press in **-arrow A-** electrical plug connection **-1-** until it engages audibly.

Securing front spoiler underneath

Installation Location:



Main illustration, removing and installing front spoiler



Securing front spoiler underneath

1. Screw in fastening screws **-1-** underneath the front spoiler **-2-** and tighten to required tightening torque **: 1.8 ftlb.** .
2. Check gap dimensions on lid, wing and main headlight. If necessary, unscrew fastening screws and adjust the gap dimensions by moving the front spoiler. *5 Diagram - body gap dimensions*

top of page

Reworking

Reworking

Install front section of front wheel housing liner on left and right. *505620 23 Removing and installing front wheel housing liner - installing*
Install cover for lock mount. *23 Removing and installing cover for lock mount - installing*

997110, 997111, 997120, 997121, 997310, 997311, 997320, 997321, 997410, 997411, 997430, 997431,

63 15 37 Disassembling and assembling front apron - as of MY 2005

- Preliminary work
- Disassembling front spoiler
- Assembling front spoiler
- Reworking

top of page

Preliminary work

Preliminary work

1. Remove the front apron. 631519 Removing and installing front apron - chapter on "Removing"
2. Remove fog lights. *946419 21 Removing and installing fog lights - chapter on "Removing"*
3. Remove side direction indicator lights at right and left. 945319 Removing and installing side direction indicator light - chapter on "Removing"

Note

- *Only for vehicles with headlight cleaning system.*

4. Remove spray nozzle for headlight washer system. *927220 21 Removing and installing spray nozzle for headlight washer system - chapter on "Removing"*
5. Remove front ventilation grille. *660419 21 Removing and installing front ventilation grille - chapter on "Removing"*
6. Remove front wiring harness. 971519 Removing and installing front wiring harness - chapter on "Removing"

Note

- *Only for vehicles with headlight cleaning system.*

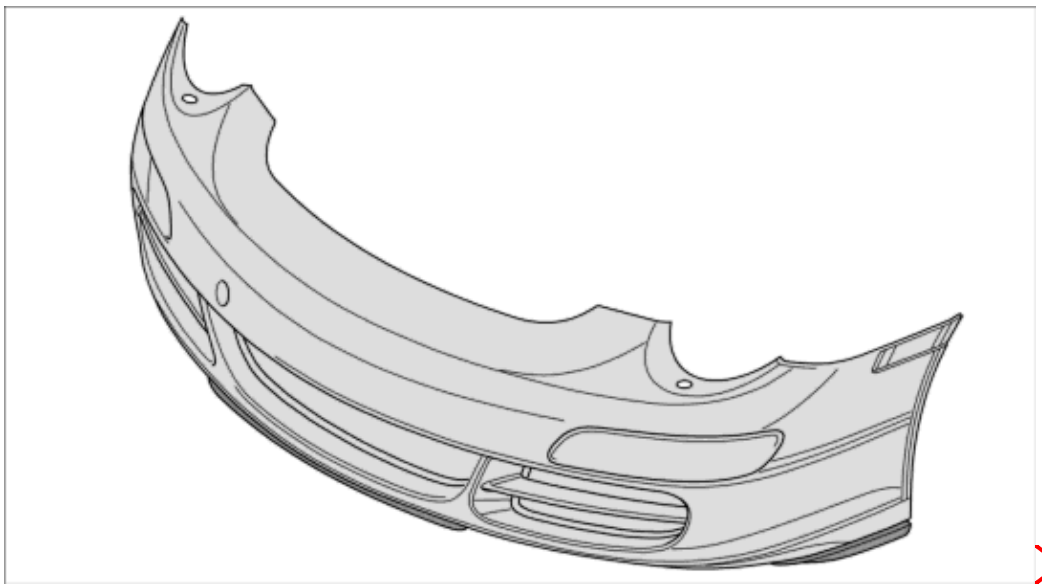
7. Remove hose for headlight washer system. 927719 Removing and installing hose for headlight washer system - chapter on "Removing"
8. Remove front spoiler. *660319 21 Removing and installing front spoiler - chapter on "Removing"*
9. Remove number plate cover. *668319 21 Removing and installing number plate cover - chapter on "Removing"*

top of page

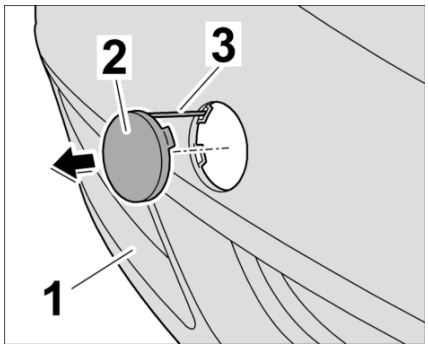
Disassembling front spoiler

Removing cover cap

Installation Location:



Overview, front spoiler

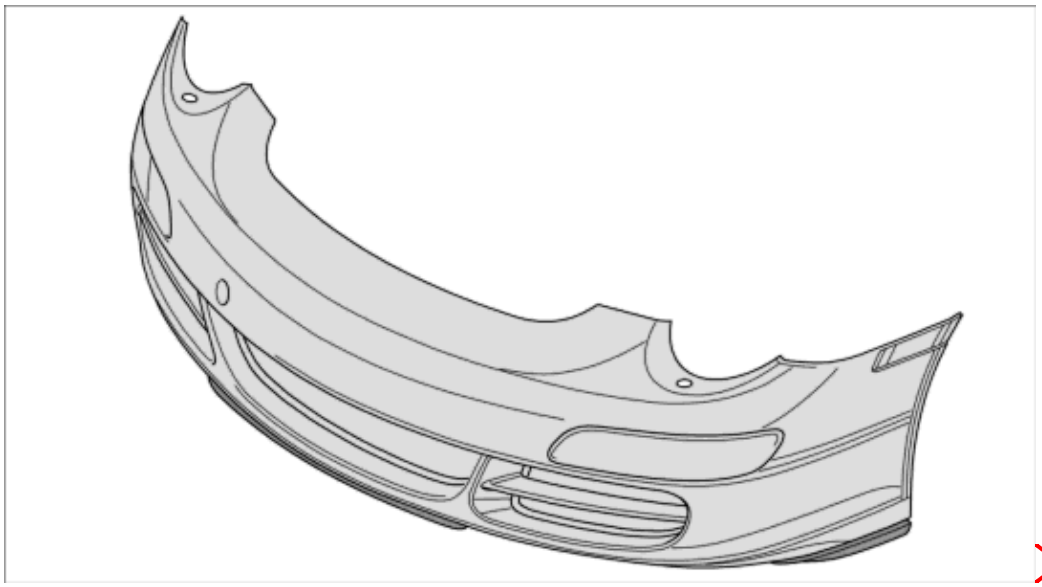


Removing cover cap

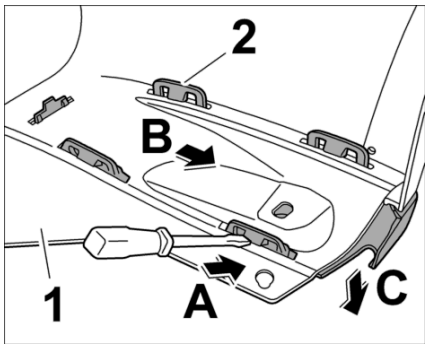
1. Carefully press out the cover cap **-2-** with a screwdriver. The securing cord **-3-** the cover cap **-2-** and the front end **-1-** are joined as they pull out.

Removing side covering frame

Installation Location:



Overview, front spoiler

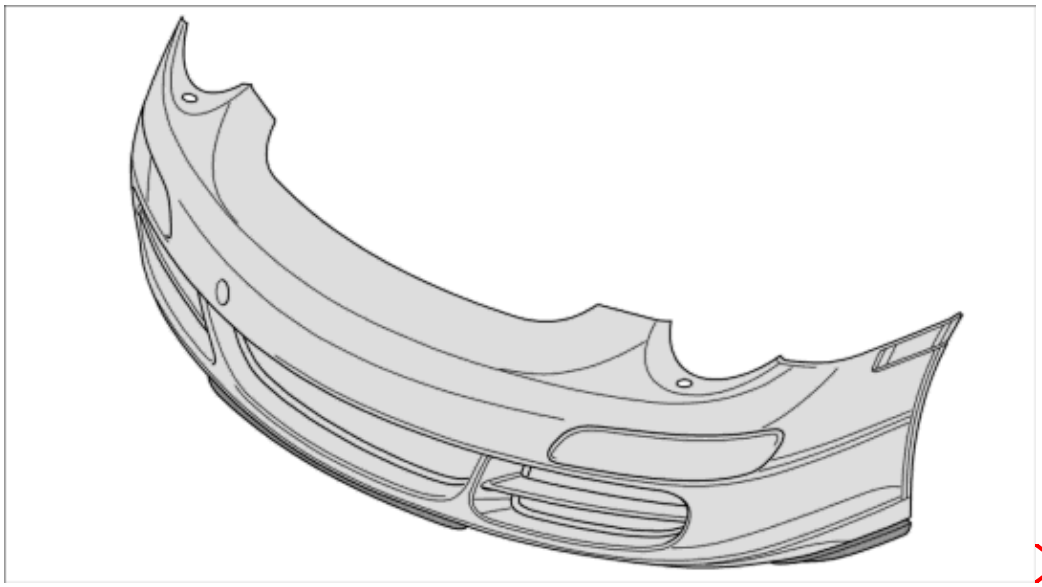


Removing side covering frame

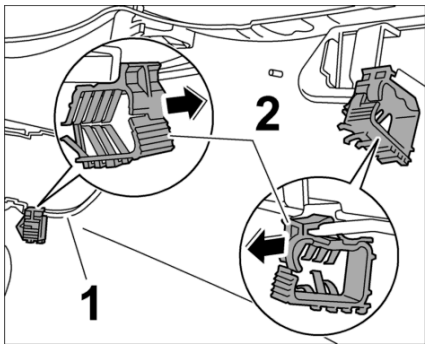
1. Carefully press in the lugs of the covering frame at the side **-2-** with a screwdriver **-Pfeil A-** . Firstly remove the covering frame **-2-** downwards **-Pfeilrichtung B-** . Afterwards pull rearward direction of **-Pfeilrichtung C-** out of the front end **-1-** .

Removing fastening clip for wiring harness

Installation Location:



Overview, front spoiler

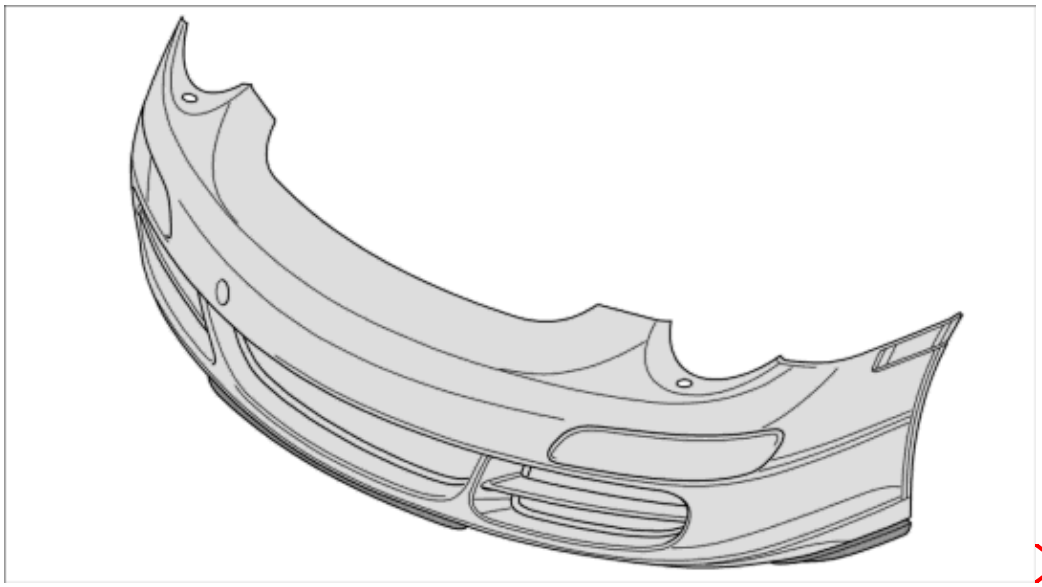


Removing fastening clip for wiring harness

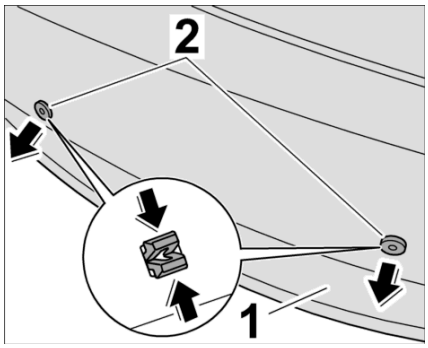
1. Insert a screwdriver between front spoiler **-1-** and fastening clip **-2-** and carefully remove. Check fastening clip **-2-** , replace if necessary.

Removing expanding nut for licence plate holder

Installation Location:



Overview, front spoiler

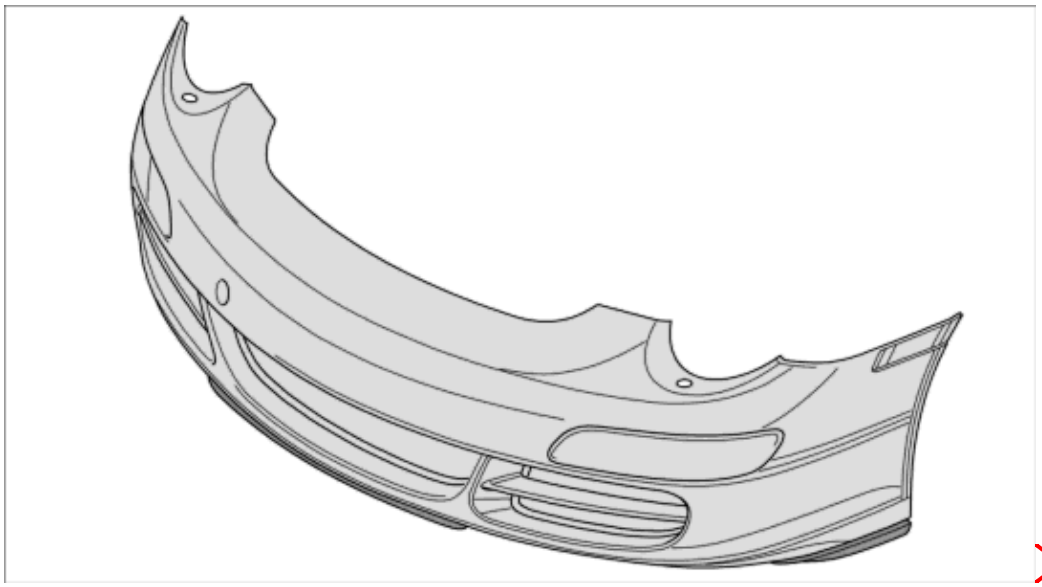


Removing expanding nut for licence plate holder

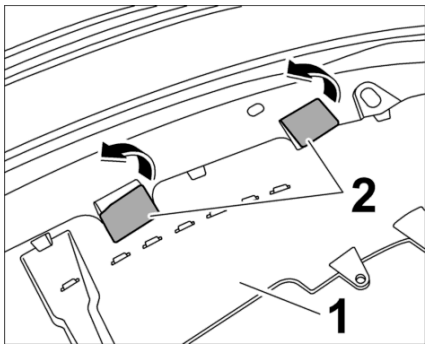
1. Press together expanding nut **-2-** and remove from the front spoiler **-1-** .

Pulling off joining latch

Installation Location:



Overview, front spoiler



Pulling off joining latch

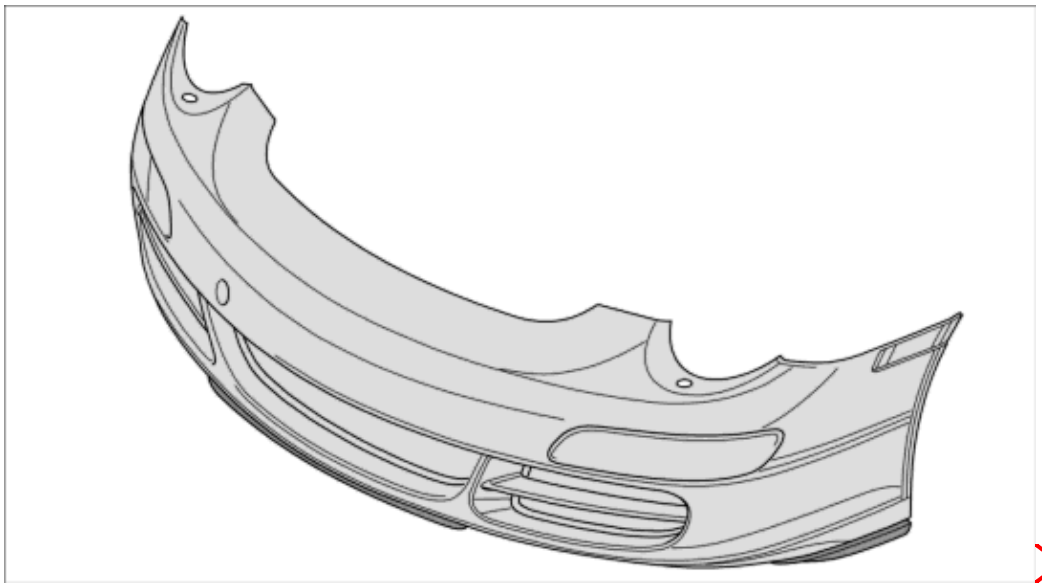
1. Pull joining latch **-2-** from the front spoiler **-1-** .

top of page

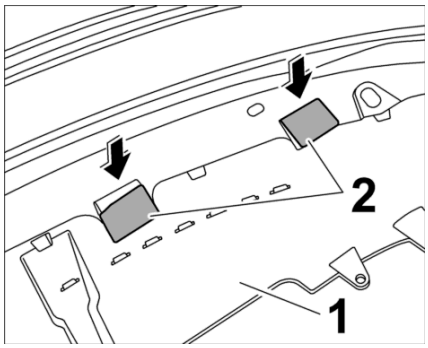
Assembling front spoiler

Affixing joining latch

Installation Location:



Overview, front spoiler

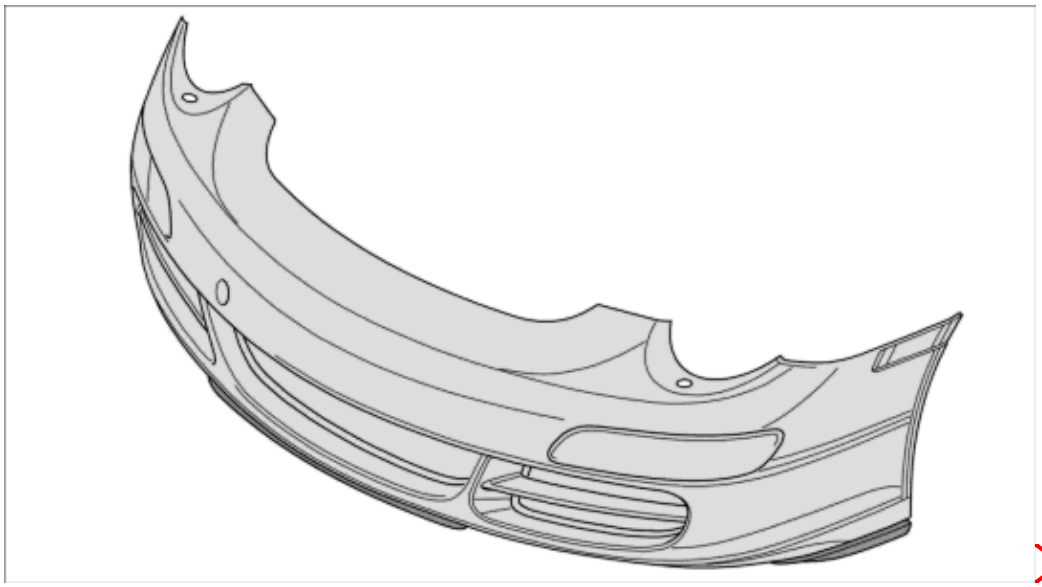


Affixing joining latch

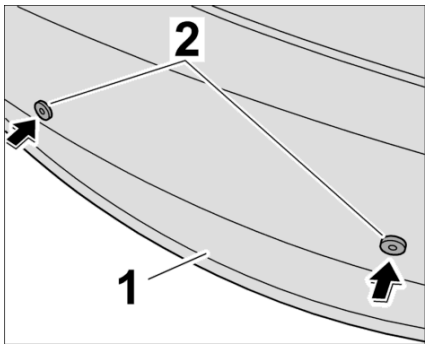
1. Position joining latch **-2-** on the front spoiler **-1-** and affix in place.

Installing expanding nut for licence plate holder

Installation Location:



Overview, front spoiler

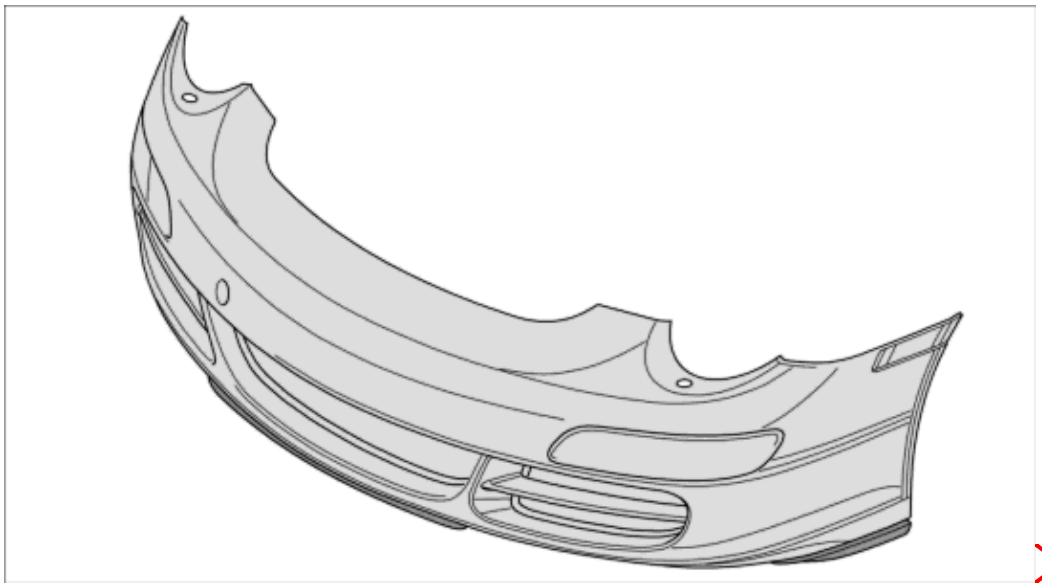


Installing expanding nut for licence plate holder

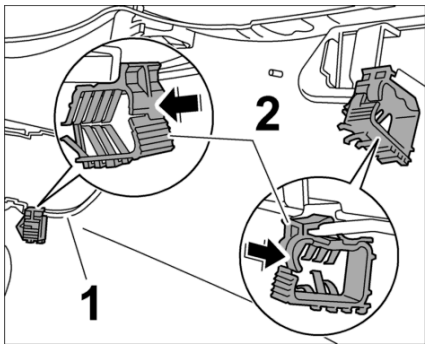
1. Position expanding nut **-2-** on the front spoiler **-1-** and press in until it can be felt to engage.

Installing fastening clip for wiring harness

Installation Location:



Overview, front spoiler

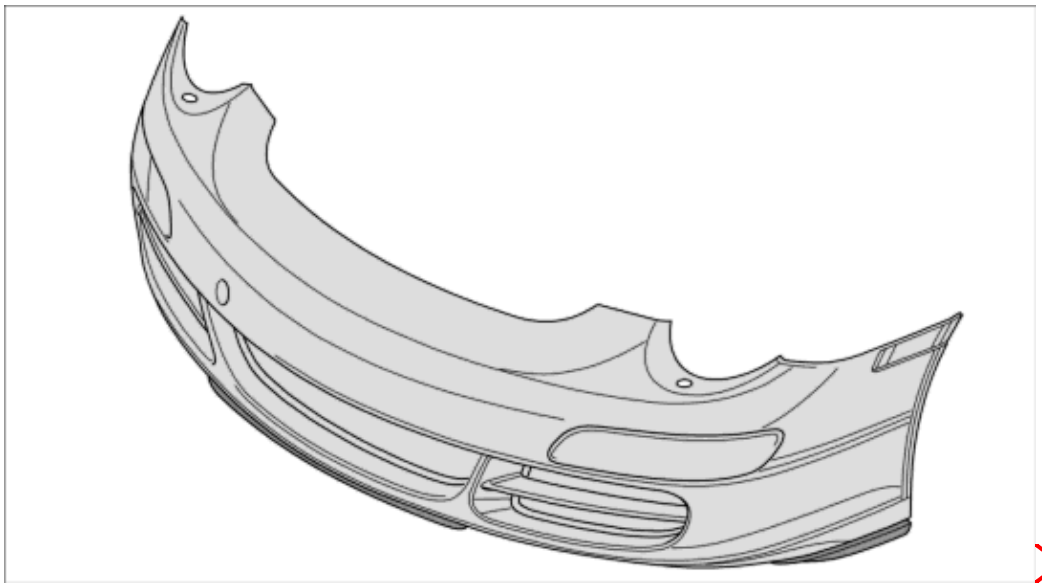


Installing fastening clip for wiring harness

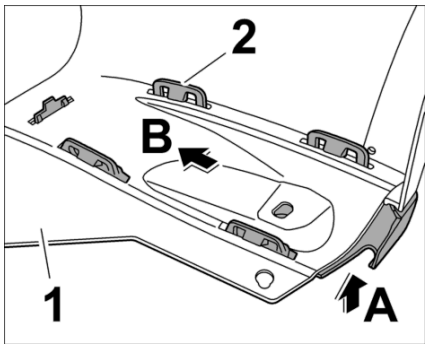
1. Position fastening clip **-2-** on the front spoiler **-1-** and press in.

Installing side covering frame

Installation Location:



Overview, front spoiler

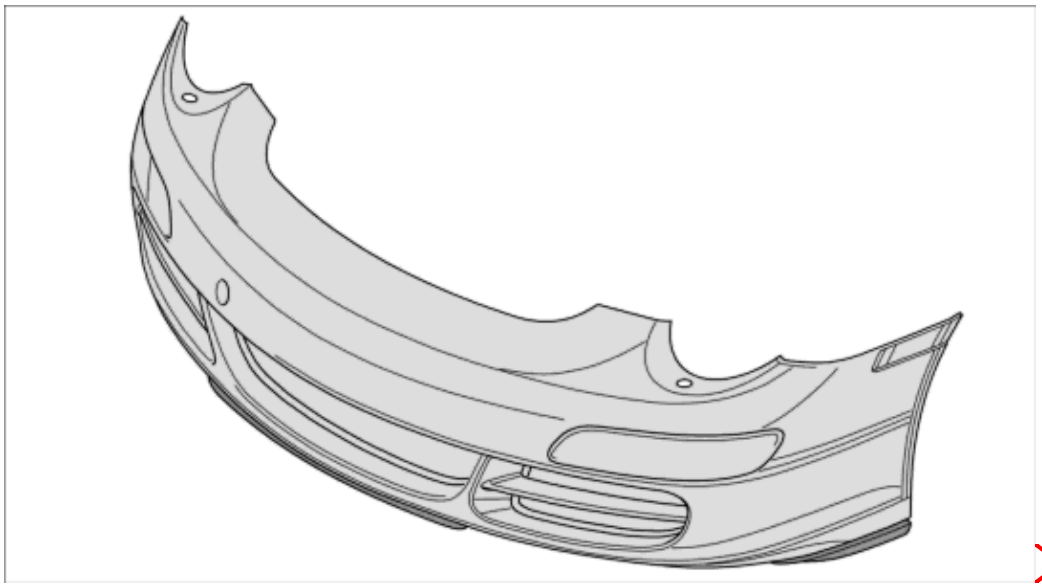


Installing side covering frame

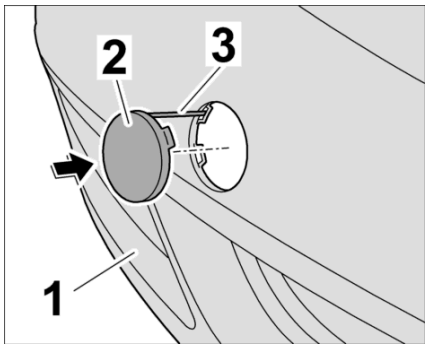
1. Insert side covering frame **-2-** upward in **-Pfeilrichtung A-** into the front end **-1-** and lock **-Pfeilrichtung B-** .

Installing cover cap

Installation Location:



Overview, front spoiler



Installing cover cap

1. Pull the securing cord **-3-** into the eyelet of the front spoiler. Insert cap **-2-** into the front spoiler **-1-** .

top of page

Reworking

Subsequent work

1. Install number plate cover. *668319 23 Removing and installing number plate cover - chapter on "Installing"*
2. Install front spoiler. *660319 23 Removing and installing front spoiler - chapter on "Installing"*
3. Install front wiring harness. 971519 Removing and installing front wiring harness - chapter on "Installing"

Note

- *Only for vehicles with headlight cleaning system.*

4. Install hose for headlight washer system. 927719 Removing and installing hose for headlight washer system - chapter on "Installing"
5. Install front ventilation grille. *660419 23 Removing and installing front ventilation grille - chapter on "Installing"*

Note

- *Only for vehicles with headlight cleaning system.*

6. Install spray nozzle for headlight washer system. *927220 23 Removing and installing spray nozzle for headlight washer system - chapter on "Installing"*
7. Install auxiliary headlight. *946419 23 Removing and installing fog lights - chapter on "Installing"*
8. Install side direction indicator lights at right and left. 945319 Removing and installing side direction indicator light - chapter on "Installing"
9. Install front apron. 631519 Removing and installing front apron - chapter on "Installing"

997110, 997111, 997120, 997121, 997310, 997311, 997320, 997321, 997410, 997411, 997430, 997431, 997610, 997611, 997620, 997621

as of MY 2005
Country C00, C02, C05, C07, C08, C09, C10, C11, C12, C13, C14, C15, C16, C18, C19, C20, C21, C22, C23, C24, C25, C26, C27, C28, C32, C33, C34, C35, C36, C37, C38, C39, C45, C46, C98, C99

WARNUNG

Gefahr des Verlusts der Text-Bild-Zuordnung beim Ausdruck.

- **Aus technischen Gründen kann derzeit nicht ausgeschlossen werden, dass trotz einwandfreier Darstellung auf dem Bildschirm beim Ausdruck der Zusammenhang von Text und zugehörigem Bild verloren geht.**
- **Wird der Fehler nicht bemerkt, besteht die Gefahr, daß Arbeiten nicht korrekt durchgeführt werden und es dadurch zu Personen- und Sachschäden kommt.**

Vergleichen Sie deshalb nach dem Druckvorgang unbedingt die Ausdrucke mit der Bildschirmdarstellung. Korrigieren Sie die Ausdrucke im Fehlerfall so, daß der Inhalt der Bildschirmdarstellung zutreffend wiedergegeben wird.

WARNING

Danger of losing text-figure correspondence when printing out.

- **For technical reasons, it can currently not be ruled out that the correspondence between text and associated figure can be lost when it is printed out, even though the display on the screen is correct.**
- **If the fault is not noticed, there is the danger that work will not be performed correctly which can cause injury and damage.**

63 17 19 Removing and installing front disc brake pad - as of MY 2005

- Preliminary work
- Removing front retaining strip
- Installing front retaining strip
- Subsequent work

top of page

Preliminary work

Preliminary work

1. Remove the front spoiler. *21 Removing and installing front spoiler - removing*

Note

Only open for vehicles with garage door function.

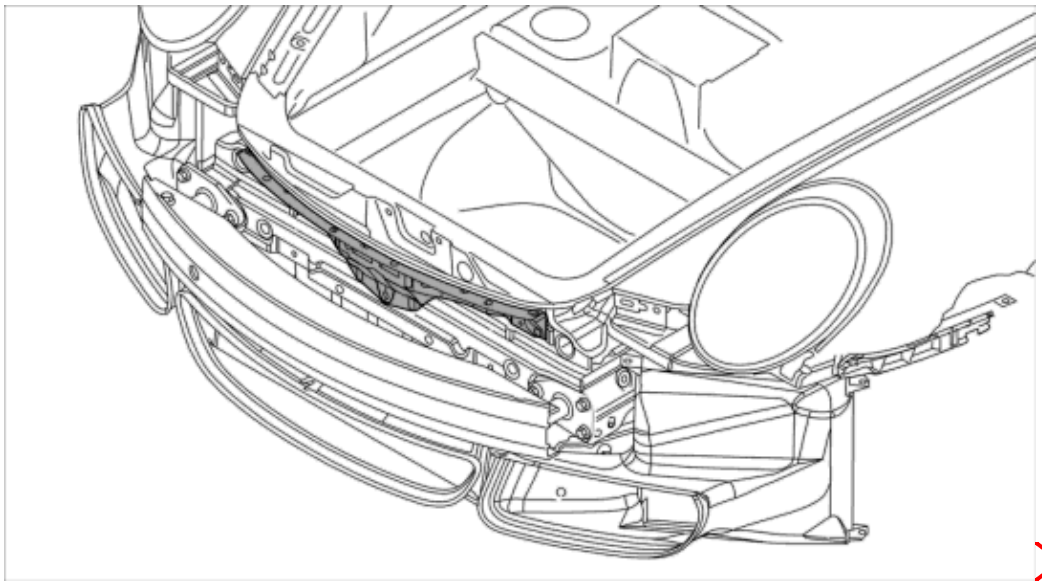
2. Remove control unit for garage door opener. 967919 Removing and installing control unit for garage door opener - chapter on "Removing"

top of page

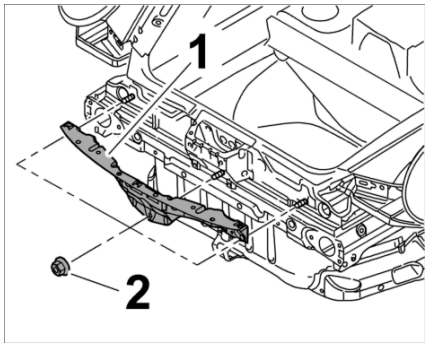
Removing front retaining strip

Removing front retaining strip

Installation Location:



Overview, front retaining strip



Removing front retaining strip

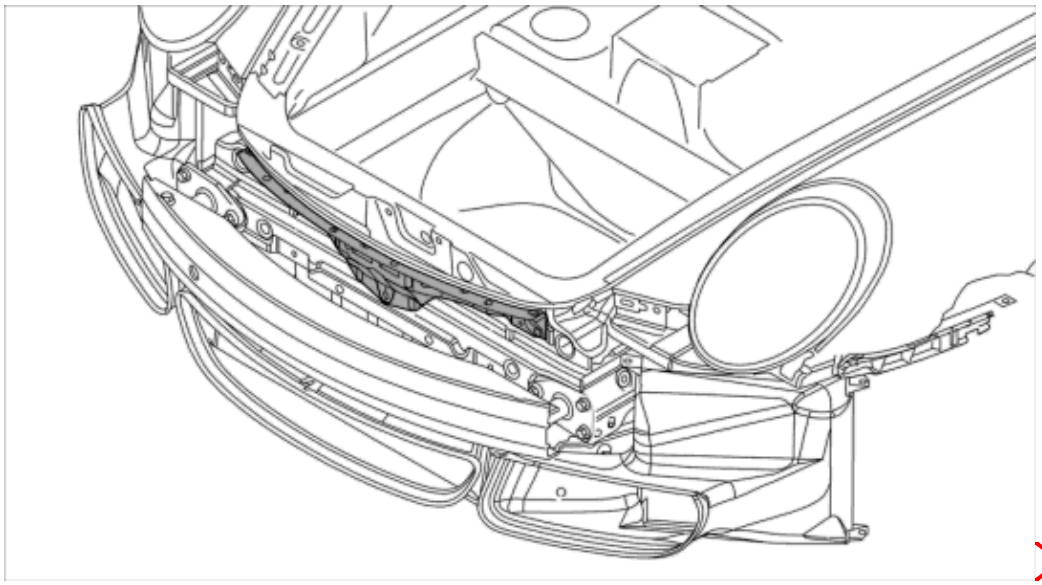
1. Unscrew fastening nuts **-2-** and remove front retaining strip **-1-** .

top of page

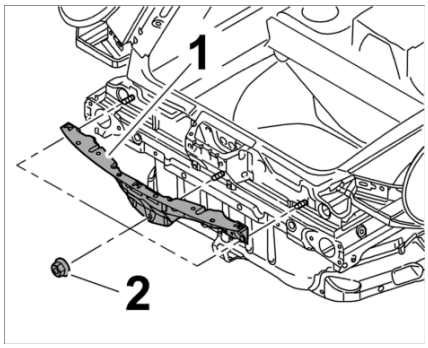
Installing front retaining strip

Installing front retaining strip

Installation Location:



Overview, front retaining strip



Installing front retaining strip

1. Position front retaining strip **-1-** on the body and tighten down slightly with the fastening nuts **-2-** .

Adjusting front retaining strip

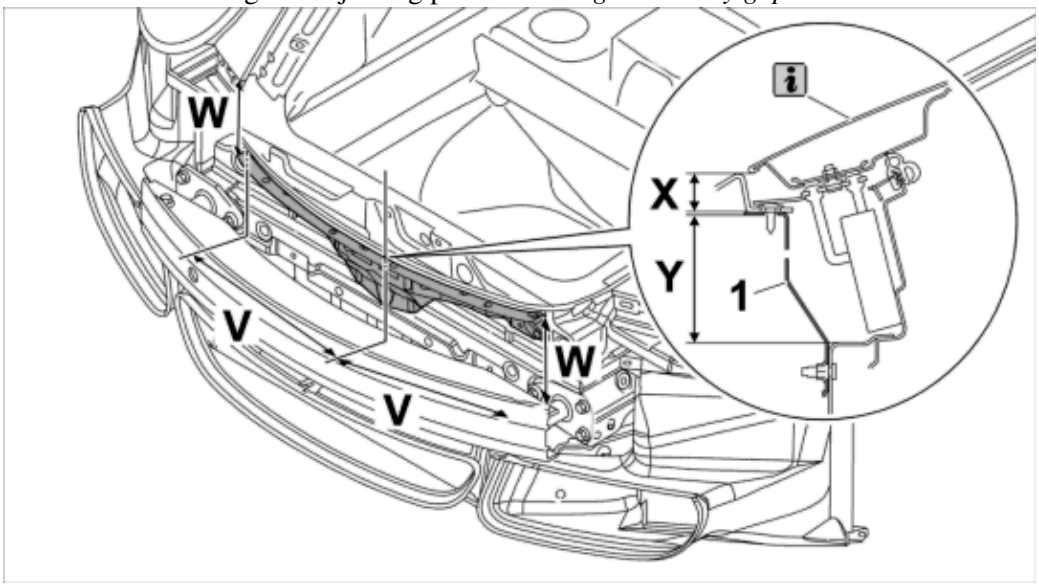
Note

- *In order to reduce adjustment work to a minimum when assembling the front spoiler, the front retaining strip must be aligned with the lower edge of the lid according to the dimensions shown.*
- *However, the precondition for precise positioning of the components is that the front lid is optimally adjusted and correctly locked in the lock in accordance with the joining plan, before the front retaining strip is assembled.*

Note

All measurements refer to the position **-V-** **Adjustment dimension: 632 mm**

1. Adjust the front lid according to the joining plan. *5 Diagram - body gap dimensions*



Adjustment dimensions, front retaining strip

2. After fitting the front retaining strip, check the distance **-X-** **Adjustment dimension: 26 mm +/-1 mm** between front lid and retaining strip **-Y-** **Adjustment dimension: 91 mm +/-0.5 mm** .
3. Check retaining strip on both sides to dimension **-W-** **adjustment dimension: 130 mm +/-0.5 mm** to wing and adjust. The measurements can be changed by undoing or moving the front retaining strip **-1-** .
4. Tighten fastening nuts **-2-** . Tightening torque **Final tightening: 7.5 ftlb.**

top of page

Subsequent work

Subsequent work

Note

Only open for vehicles with garage door function.

1. Install control unit for garage door opener. 967919 Removing and installing control unit for garage door opener - chapter on "Installing"
2. Install the front spoiler. *23 Removing and installing front spoiler - installing*

997110, 997111, 997120, 997121, 997310, 997311, 997320, 997321, 997410, 997411, 997430, 997431, 997610, 997611, 997620, 997621

as of MY 2005

63 33 19 Removing and installing front bracket (impact pipe) - as of MY 2005

- Preliminary work
- Removing front bracket (impact pipe)
- Installing front bracket (impact pipe)
- Subsequent work

top of page

Preliminary work

Preliminary work

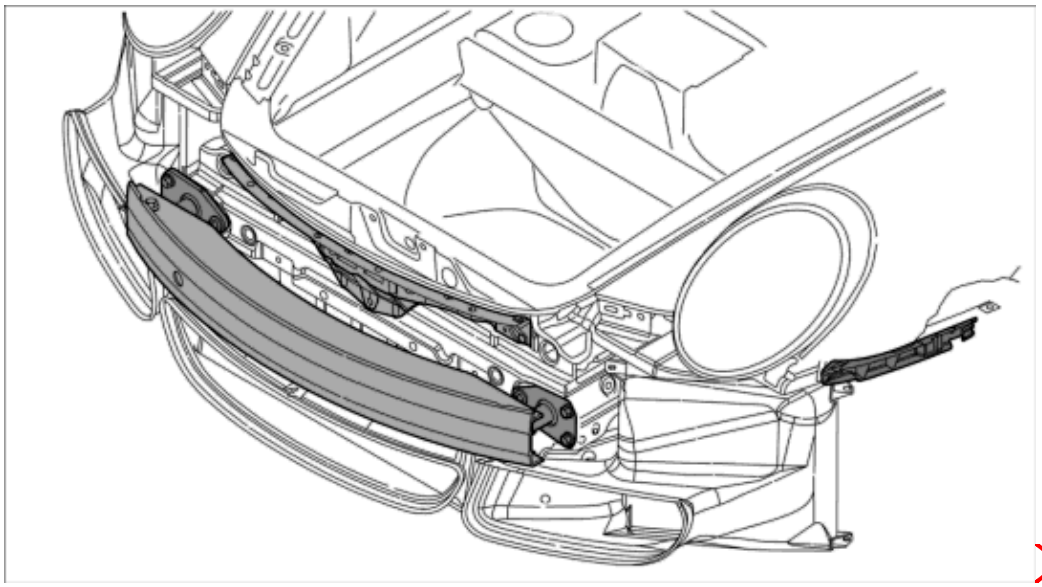
Remove the front spoiler. *21 Removing and installing front spoiler - removing*
Remove front bumper *21 Removing and installing front bumper - removing*

top of page

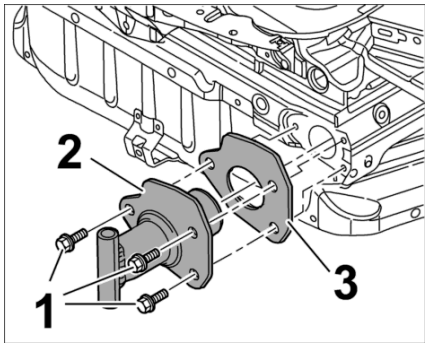
Removing front bracket (impact pipe)

Removing front impact pipe

Installation Location:



Overview, front impact pipe



Removing front impact pipe

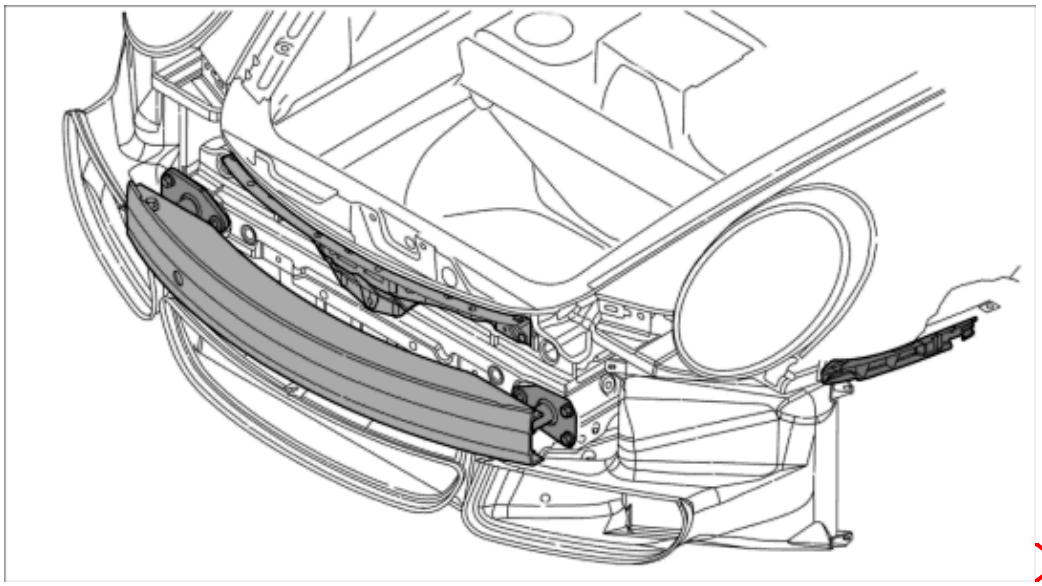
1. Undo fastening screws **-1-** .
2. Remove the impact pipe **-2-** and seal **-3-** .

top of page

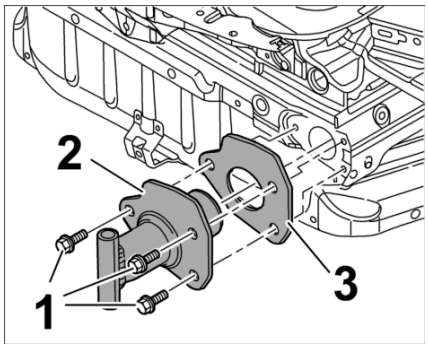
Installing front bracket (impact pipe)

Install front impact pipe

Installation Location:



Overview, front impact pipe



Install front impact pipe

1. Position the seal impact pipe **-3-** and impact pipe **-2-** .
2. Screw in fastening screws M8 x 30 **-1-** and tighten using tightening torque **Final tightening: 17 ftlb.** .

top of page

Subsequent work

Subsequent work

Install front bumper *23 Removing and installing front bumper - installing*
Install the front spoiler. *23 Removing and installing front spoiler - installing*

997110, 997111, 997120, 997121, 997310, 997311, 997320, 997321, 997410, 997411, 997430, 997431, 997610, 997611, 997620, 997621

as of MY 2005
Country C00, C02, C05, C07, C08, C09, C10, C11, C12, C13, C14, C15, C16, C18, C19, C20, C21, C22, C23, C24, C25, C26, C27, C28, C32, C33, C34, C35, C36, C37, C38, C39, C45, C46, C98, C99

WARNUNG

Gefahr des Verlusts der Text-Bild-Zuordnung beim Ausdruck.

- **Aus technischen Gründen kann derzeit nicht ausgeschlossen werden, dass trotz einwandfreier Darstellung auf dem Bildschirm beim Ausdruck der Zusammenhang von Text und zugehörigem Bild verloren geht.**
- **Wird der Fehler nicht bemerkt, besteht die Gefahr, daß Arbeiten nicht korrekt durchgeführt werden und es dadurch zu Personen- und Sachschäden kommt.**

Vergleichen Sie deshalb nach dem Druckvorgang unbedingt die Ausdrucke mit der Bildschirmdarstellung. Korrigieren Sie die Ausdrucke im Fehlerfall so, daß der Inhalt der Bildschirmdarstellung zutreffend wiedergegeben wird.

WARNING

63 50 19 Removing and installing rear bumper - as of MY 2005

- Preliminary work
- General warning notes
- Removing rear bumper
- Installing rear bumper
- Additional assembly instructions for installation of the bumper
- Subsequent work

top of page

Preliminary work

Preliminary work

Remove rear spoiler. *21 Removing and installing rear apron - removing*

top of page

General warning notes

Safety instructions for the heat shield

ATTENTION

The installation of deformed heat shields will cause damage!

- **The installation of deformed heat shields will cause damage due to parts heating up!**

Damaged or distorted heat shields must be straightened or replaced.

Check heat shields for deformation, fixing of the aluminium braided cord, tears and missing or damaged fixing tabs.

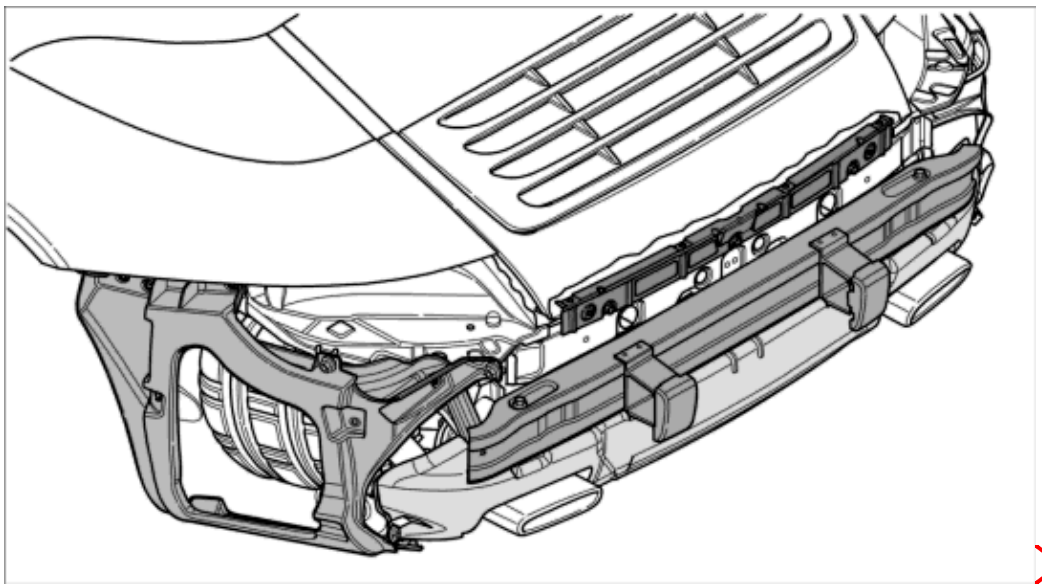
After fitting the bumper, check heat shields and aluminium braided cord for leaks.

top of page

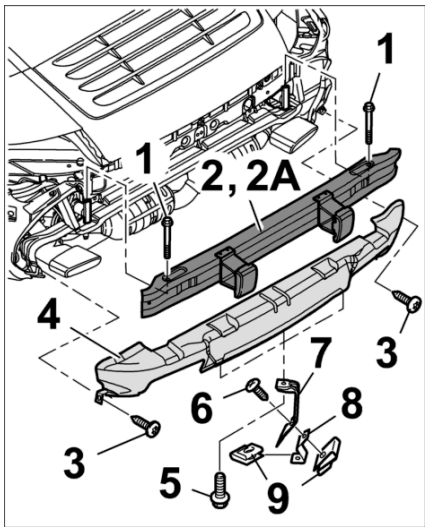
Removing rear bumper

Removing rear bumper

Installation Location:



Overview, rear bumper

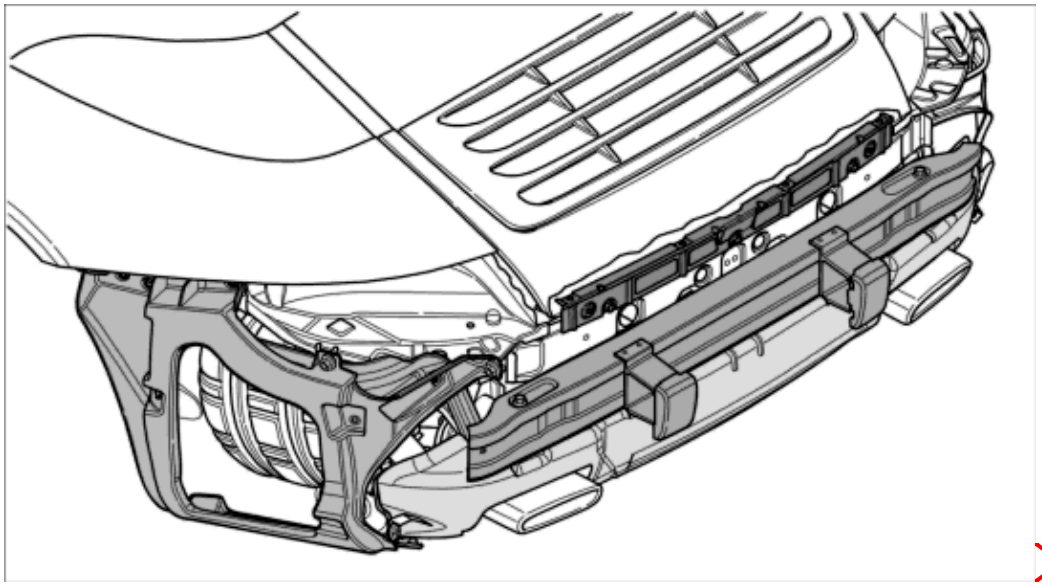


Removing rear bumper

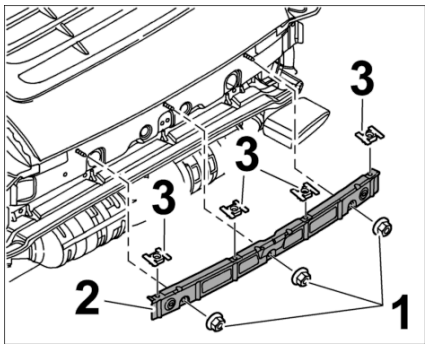
1. Unscrew sheetmetal screws **-3-** and fastening screws **-1-** , rear bumper **-2-** or (USA/Canada version) **-2A-** with the mounted centre heat shield **-4-** in a downward direction.
2. Unscrew fastening screws **-5-** , remove lower centre heat shield **-4-** and rear support **-7-** . Disassemble rear support **-7-** by unscrewing the fastening screws **-6-** . Remove connecting angle **-8-** and sheetmetal nuts **-9-** .

Removing centre retaining strip

Installation Location:



Overview, rear bumper

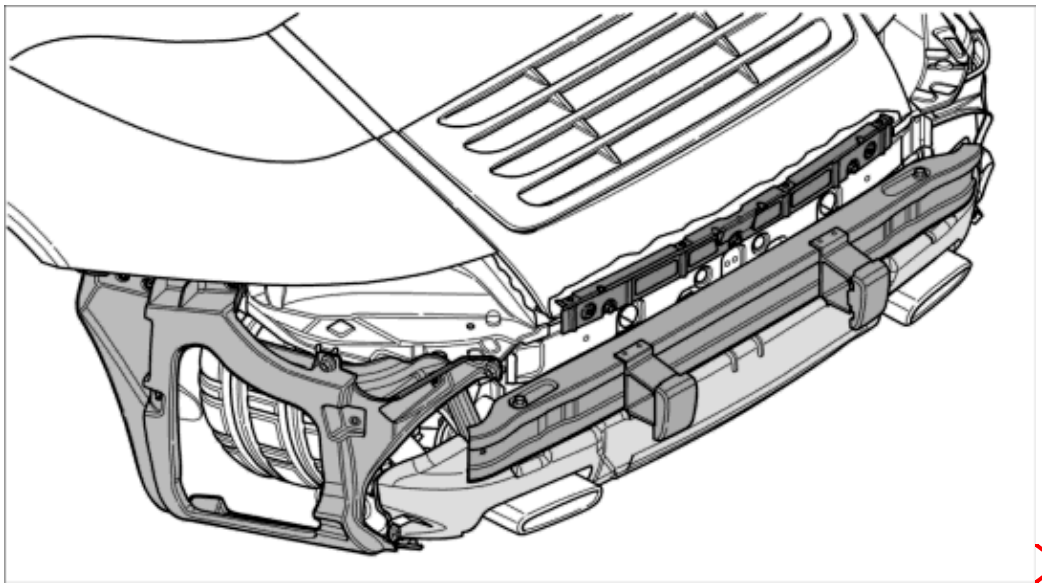


Removing centre retaining strip

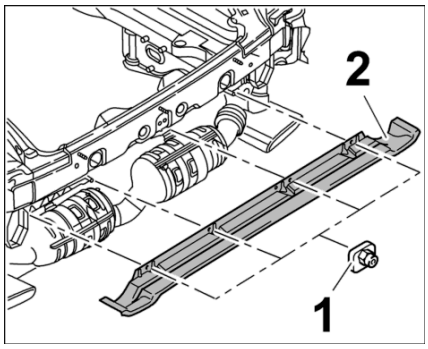
1. Screw off fastening nuts **-1-** and remove centre retaining strip **-2-** . Check sheetmetal nuts **-3-** , replace if necessary.

Removing centre heat shield

Installation Location:



Overview, rear bumper

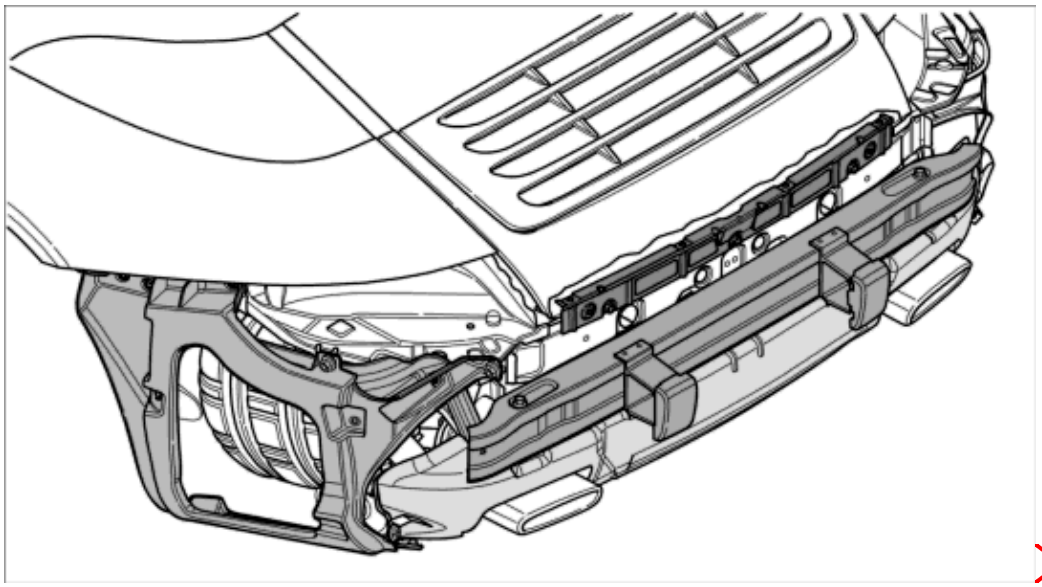


Removing centre heat shield

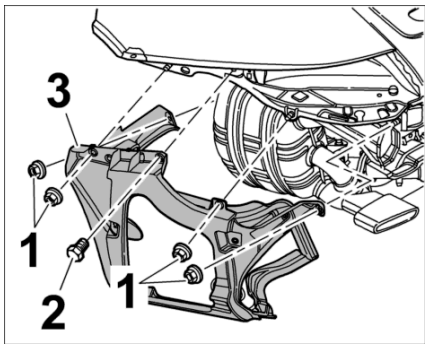
1. Screw off fastening nuts **-1-** and remove centre heat shield **-2-** .

Removing heat shield at the sides

Installation Location:



Overview, rear bumper

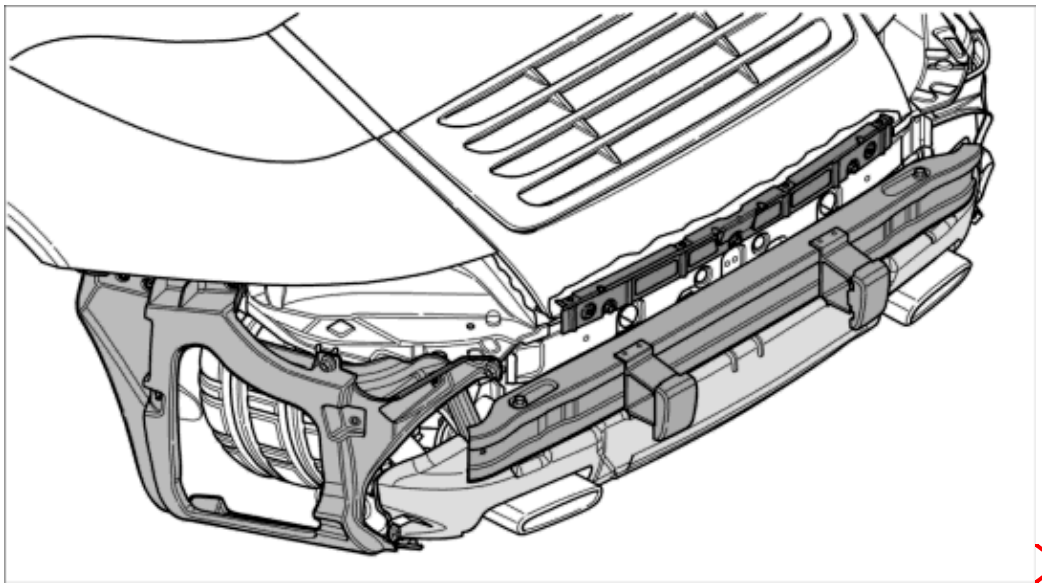


Removing heat shield at the sides

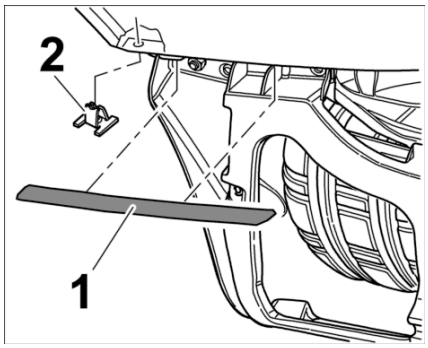
1. Screw off fastening nuts **-1-** , fastening screws **-2-** and remove heat shield at the sides **-3-** .

Checking anti-chafing film

Installation Location:



Overview, rear bumper



Checking anti-chafing film

Note

Make sure that the anti-chafing film completely seals off the cutout of the sheetmetal nut.

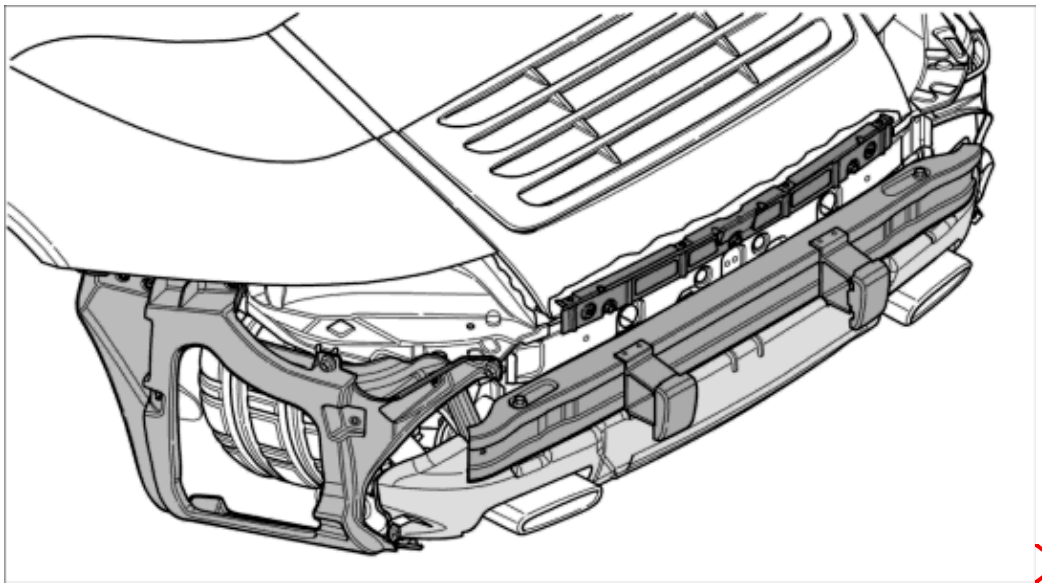
1. Check anti-chafing film **-1-** , replace if necessary .
2. Check sheetmetal nut **-2-** , replace if necessary.

top of page

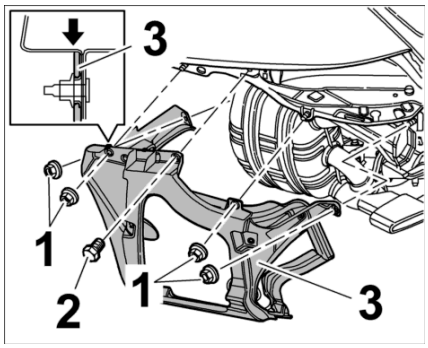
Installing rear bumper

Installing heat shield at the sides

Installation Location:



Overview, rear bumper

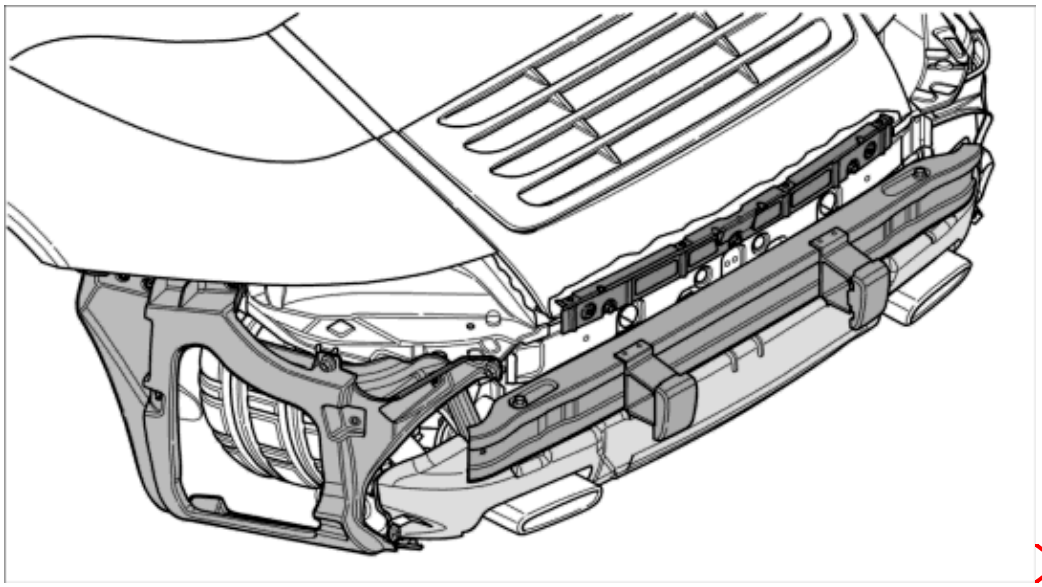


Installing heat shield at the sides

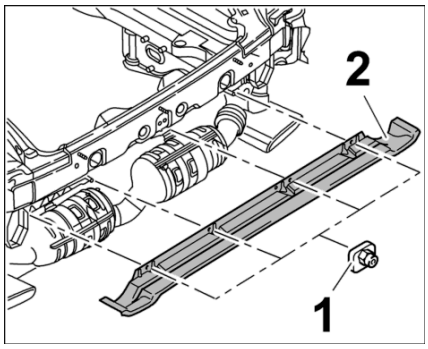
1. Position the heat shield at the sides **-3-** so that these against the side section without gaps.
2. Screw on fastening nuts **-1-** and fasten using tightening torque **: 7 ftlb.** .
3. Screw on fastening screw **-2-** and fasten using tightening torque **: 7 ftlb.** .

Installing centre heat shield

Installation Location:



Overview, rear bumper

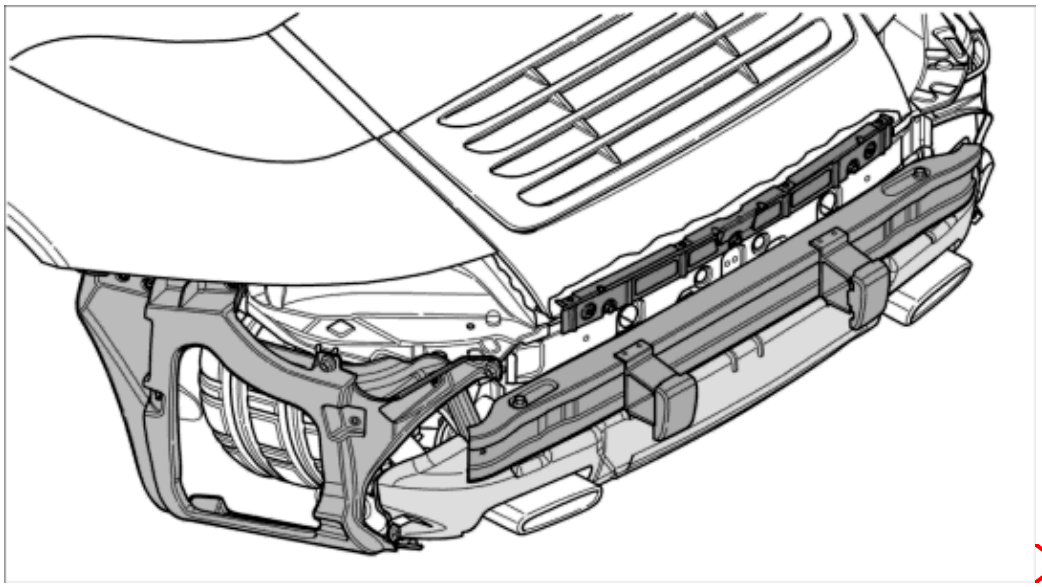


Installing centre heat shield

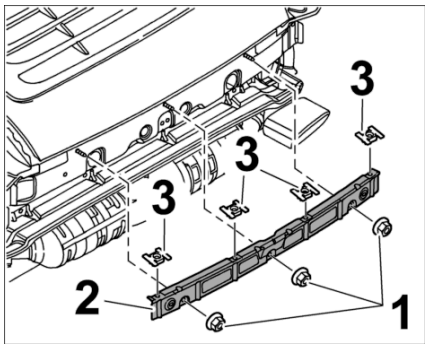
1. Screw on centre heat shield **-2-** with fastening nuts **-1-** .

Installing centre retaining strip

Installation Location:



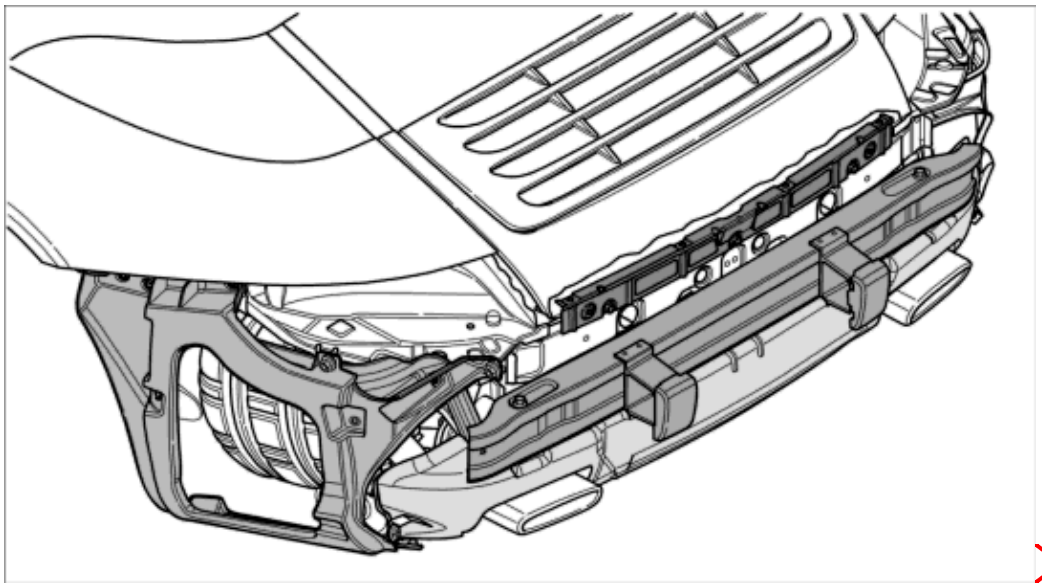
Overview, rear bumper



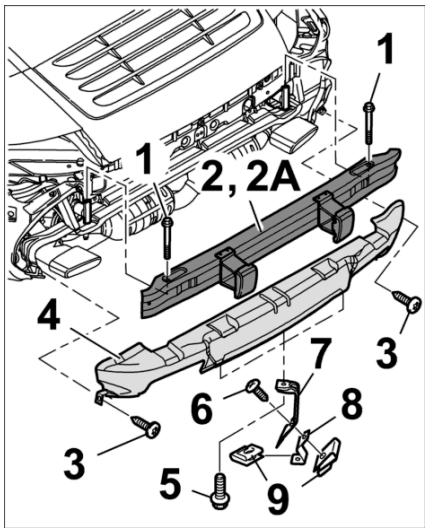
1. Position centre retaining strip **-2-** with sheetmetal nuts attached **-3-** .
2. Screw on fastening nuts and fasten with tightening torque **: 7 ftlb.** .
3. Check the adjustment dimensions of the centre retaining strip and correct if necessary.

Installing rear bumper

Installation Location:



Overview, rear bumper



Installing rear bumper

1. Position lower centre heat shield **-4-** together with rear support **-7-** and screw in with fastening screws **-5-** .
2. Position connecting angle **-8-** and screw in with fastening screws **-6-** .
3. Position rear bumper **-2-** or (USA/Canada version) **-2A-** with mounted centre heat shield **-4-** in a downward direction.
4. Screw in fastening screws **-1-** and tighten using tightening torque **: 63 ftlb.** .
5. Screw in fastening screws **-3-** .
6. Check the adjustment dimensions of the rear bumper and the assembly of the heat shield and correct if necessary

top of page

Additional assembly instructions for installation of the bumper

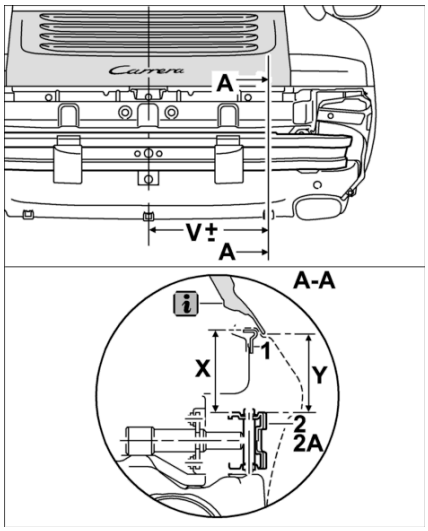
Adjustment dimensions of the bumper

Note

- *In order to reduce adjustment work to a minimum when assembling the rear spoiler, the rear bumper or centre retaining strip must be aligned with the lower support of the rear lid according to the dimensions shown above.*
- *However, the precondition for precise positioning of the components is that the rear lid is optimally adjusted and correctly locked in the lock in accordance with the joining plan, before the rear bumper or centre retaining strip are assembled.*

Note

All measurements refer to the position **-V = 280 mm-** .



Adjustment dimensions of the bumper

1. Adjust the rear lid according to the joining plan. *5 Diagram - body gap dimensions*
2. Adjust the rear bumper **-2, 2A-** on both sides to dimension **-X = 173 mm-** . The measurements can be changed by undoing or moving the impact pipes or impact absorbers (Canada version).
3. Adjust the centre retaining strip **-1-** according to dimension **-Y = 171 mm-** .

Correct assembly of the heat shields

ATTENTION

Damage will result if heat shields are fitted incorrectly!

- **Observe the following points during assembly!**

Make sure the heat shields **-Pfeil-** overlap correctly.

There should not be any continuous gaps along the entire length of the heat shields.

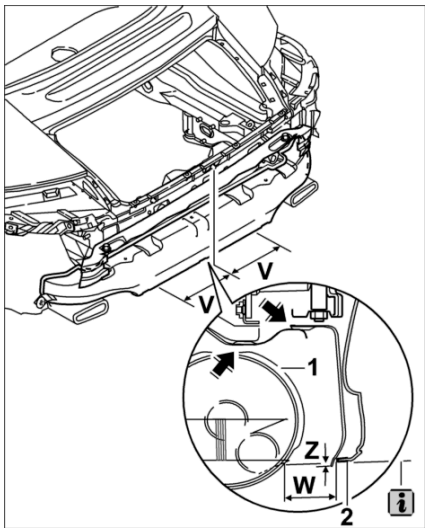
A gap of up to 2 mm wide and 30 mm long is permissible locally.

At least more than 80 % of the total sealing area must be sealed off without gaps.

The following minimum gap dimensions must be observed.

Note

All measurements refer to the position **-V = 280 mm-** .



Correct assembly of the heat shields

1. After assembly of the rear spoiler, check that there is a gap dimension of **-W = 40 mm-** between the shield of the exhaust system **-1-** and the lower retaining strip **-2-** . The heat shield must not project **-Z = 2 mm-** .

top of page

Subsequent work

Subsequent work

Install rear apron. *23 Removing and installing rear apron - installing*

997110, 997111, 997120, 997121, 997310, 997311, 997320, 997321, 997410, 997411, 997430, 997431, 997610, 997611, 997620, 997621

as of MY 2005
Country C00, C02, C05, C07, C08, C09, C10, C11, C12, C13, C14, C15, C16, C18, C19, C20, C21, C22, C23, C24, C25, C26, C27, C28, C32, C33, C34, C35, C36, C37, C38, C39, C45, C46, C98, C99

WARNUNG

Gefahr des Verlusts der Text-Bild-Zuordnung beim Ausdruck.

- **Aus technischen Gründen kann derzeit nicht ausgeschlossen werden, dass trotz einwandfreier Darstellung auf dem Bildschirm beim Ausdruck der Zusammenhang von Text und zugehörigem Bild verloren geht.**
- **Wird der Fehler nicht bemerkt, besteht die Gefahr, daß Arbeiten nicht korrekt durchgeführt werden und es dadurch zu Personen- und Sachschäden kommt.**

Vergleichen Sie deshalb nach dem Druckvorgang unbedingt die Ausdrucke mit der Bildschirmdarstellung. Korrigieren Sie die Ausdrucke im Fehlerfall so, daß der Inhalt der Bildschirmdarstellung zutreffend wiedergegeben wird.

WARNING

Danger of losing text-figure correspondence when printing out.

- **For technical reasons, it can currently not be ruled out that the correspondence between text and associated figure can be lost when it is printed out, even though the display on the screen is correct.**
- **If the fault is not noticed, there is the danger that work will not be performed correctly which can cause injury and damage.**

Therefore, always compare printouts with the screen display after printing them out. Correct the printouts if they are faulty so that the content of the screen display matches that on the printouts.

AVERTISSEMENT

Risque de perte de la correspondance texte-illustration lors de l'impression papier.

- **Pour des raisons techniques, il ne peut pas être exclu à l'heure actuelle que, même en cas d'affichage correct à l'écran, la correspondance entre le texte et l'illustration**

63 55 19 Removing and installing rear spoiler - as of MY 2005

- General warning notes
- Removing rear spoiler
- Installing rear spoiler
- Dimensions of tailpipes
- Subsequent work

top of page

General warning notes

General warning notes

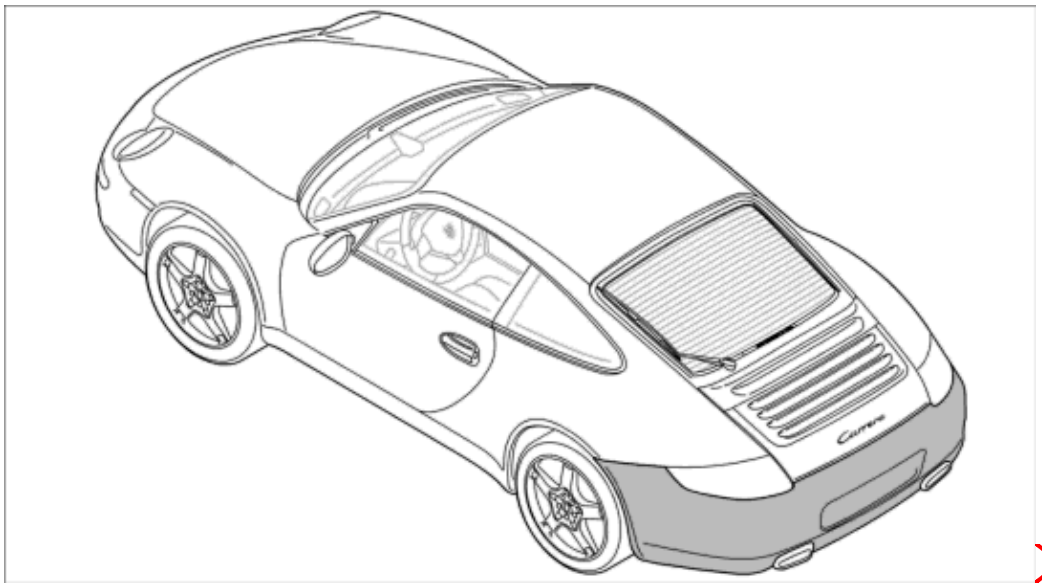
General warning notes for rear spoiler. *Safety notes*

top of page

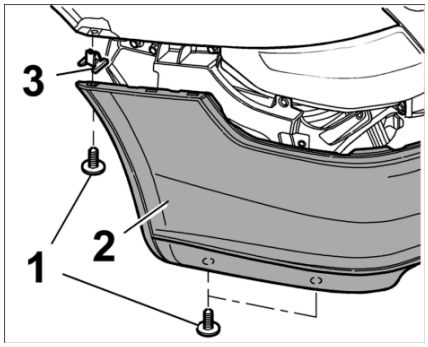
Removing rear spoiler

Removing rear spoiler

Installation Location:

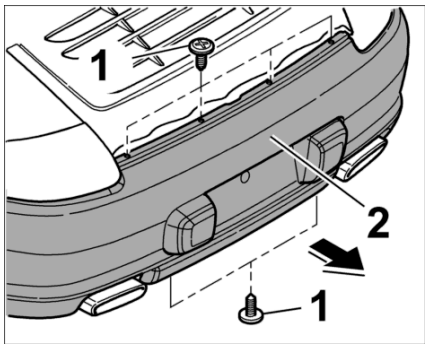


Installation position of rear apron



Undoing rear spoiler at the sides

1. Unscrew fastening screws **-1-** at the sides of the rear spoiler **-2-** .
2. Check sheetmetal nuts **-3-** , replace if necessary.



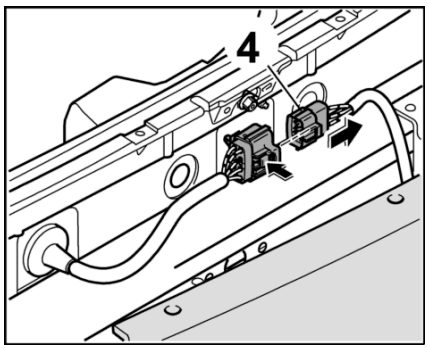
Undoing rear spoiler at the top and bottom

3. Unscrew fastening screws **-1-** at the top and bottom of the rear spoiler **-2-** .

Note

Two persons are needed to disengage and engage the rear apron!

4. Pull rear apron **-2-** carefully to the rear until the plug connection can be reached.



Disconnecting plug connection

5. Press lug **-arrow-** of the plug connection **-4-** and disconnect it.
6. Remove rear spoiler.

top of page

Installing rear spoiler

Safety instructions for the heat shield

ATTENTION

The installation of deformed heat shields will cause damage!

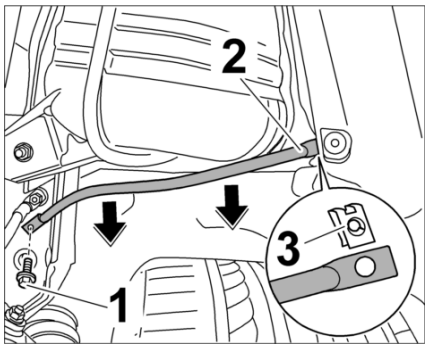
- **The installation of deformed heat shields will cause damage due to parts heating up!**

Damaged or distorted heat shields must be straightened or replaced.

Check heat shields for deformation, fixing of the aluminium braided cord, tears and missing or damaged fixing tabs.

After fitting the bumper, check heat shields and aluminium braided cord for leaks.

Removing and installing strut for rear apron

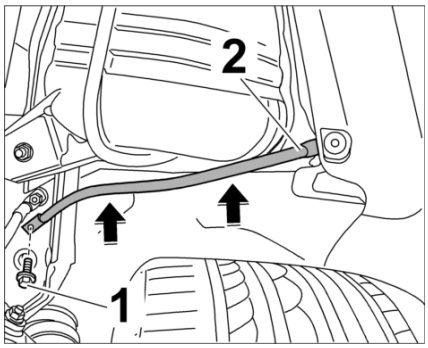


Removing strut for rear apron

1. Remove strut

1.1. Unscrew fastening screw **-1-** and remove strut **-2-** .

1.2. Check strut **-2-** and fastening nut **-3-** , and replace if necessary.



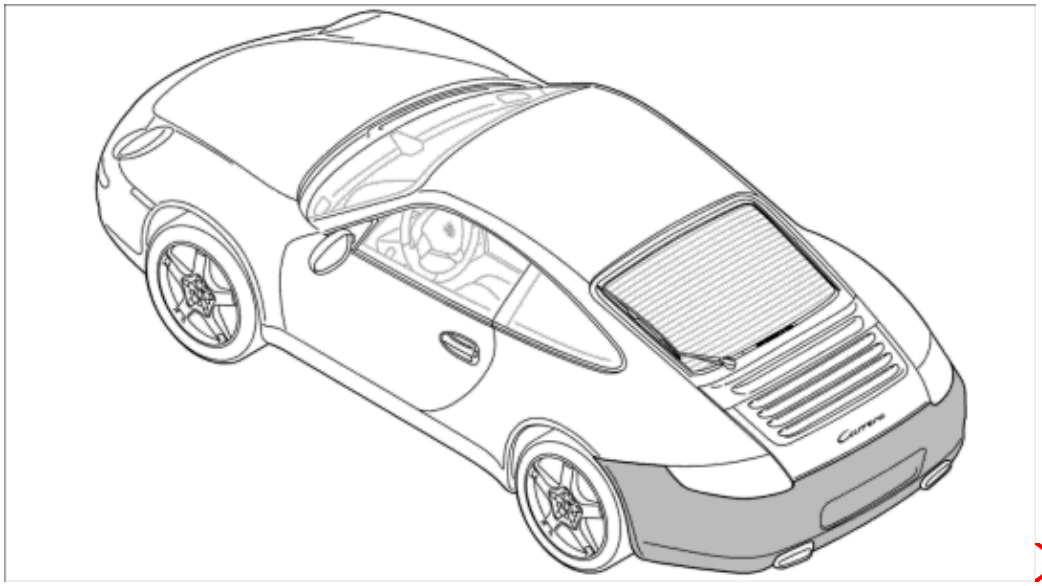
Installing strut for rear apron

2. Install strut

2.1. Position strut **-2-** on the body and screw down with the fastening screw **-1-** . **Tightening torque: 9.7 (7.0 ftlb.) Nm +/-20 %**

Installing rear spoiler

Installation Location:



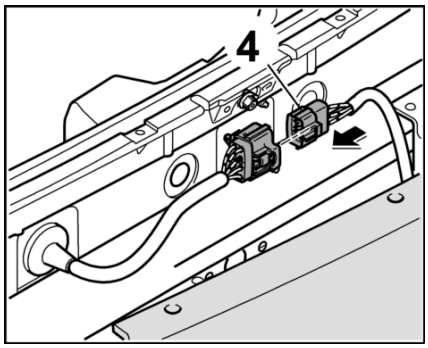
Installation position of rear apron

1. Before installing the rear apron, the following points must be carried out:

1.1. Inspect heat shield on vehicle and replace if necessary. 635019 Removing and installing rear bumper - chapter on "Checking and adjusting"

1.2. Check adjustment of rear lid, and correct if necessary. 559015 Adjusting rear lid - chapter on "Adjusting"

1.3. Check mounting points (fastening nuts) of rear apron, and replace if necessary.

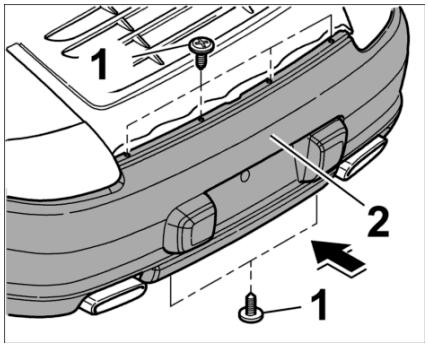


Connecting the plug connection

Note

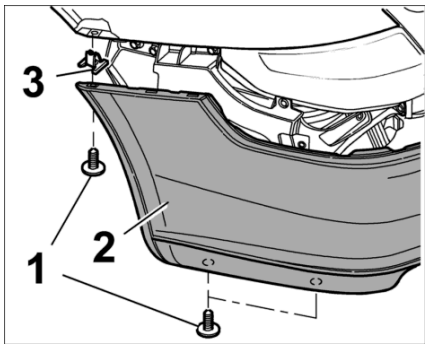
Two persons are needed to disengage and engage the rear apron!

2. Position rear apron on vehicle until the electric plug connection **-4-** can be connected.



Fastening rear spoiler at the top and bottom

3. Position rear apron **-2-** fully on the vehicle.
4. Screw down fastening screws **-1-** at the top and bottom of the rear apron **-2-** . **Tightening torque: 2.8 (2.0 ftlb.) Nm**



Fastening rear spoiler at the sides

5. Screw in fastening screws **-1-** at the sides of the rear apron **-2-** . **Tightening torque: 2.8 (2.0 ftlb.) Nm**

top of page

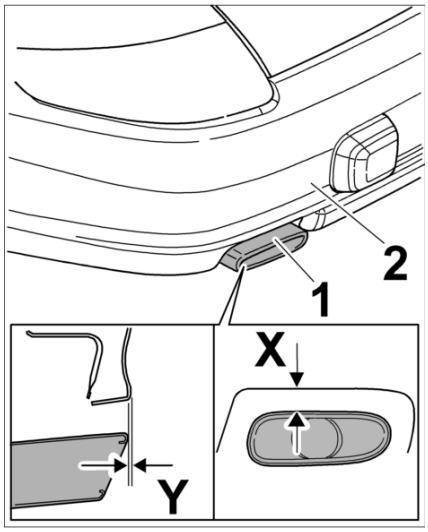
Dimensions of tailpipes

Gap dimensions of tailpipe

ATTENTION
Heating of vehicle parts.

- **Damage will result if tailpipe is fitted incorrectly!**

The following gap dimensions must be observed.
After the test drive check the gap dimension again and readjust if necessary.



Gap dimensions of tailpipes

1. Check gap dimensions of tailpipes **-1-** to rear apron **-2-** , and replace tailpipes if necessary. 263419 Removing and installing tailpipe - chapter on "Installing"

Gap dimension: 28 mm
:
Gap dimension: 2 mm

top of page

Subsequent work

Subsequent work

1. After fitting the rear apron, check heat protection shields for correct assembly, and correct if necessary.
   635019 Removing and installing rear bumper - chapter on "Checking and adjusting"
2. Check gap dimensions at rear, and adjust if necessary. *501000 Diagram - body gap dimensions*

997110, 997111, 997310, 997311, 997410, 997411, 997610, 997611

as of MY 2005
Country C00, C02, C05, C07, C08, C09, C10, C11, C12, C13, C14, C15, C16, C18, C19, C20, C21, C22, C23, C24, C25, C26, C27, C28, C32, C33, C34, C35, C36, C37, C38, C39, C45, C46, C98, C99

WARNUNG

Gefahr des Verlusts der Text-Bild-Zuordnung beim Ausdruck.

- **Aus technischen Gründen kann derzeit nicht ausgeschlossen werden, dass trotz einwandfreier Darstellung auf dem Bildschirm beim Ausdruck der Zusammenhang von Text und zugehörigem Bild verloren geht.**
- **Wird der Fehler nicht bemerkt, besteht die Gefahr, daß Arbeiten nicht korrekt durchgeführt werden und es dadurch zu Personen- und Sachschäden kommt.**

Vergleichen Sie deshalb nach dem Druckvorgang unbedingt die Ausdrucke mit der Bildschirmdarstellung. Korrigieren Sie die Ausdrucke im Fehlerfall so, daß der Inhalt der Bildschirmdarstellung zutreffend wiedergegeben wird.

WARNING

Danger of losing text-figure correspondence when printing out.

- **For technical reasons, it can currently not be ruled out that the correspondence between text and associated figure can be lost when it is printed out, even though the display on the screen is correct.**
- **If the fault is not noticed, there is the danger that work will not be performed correctly which can cause injury and damage.**

Therefore, always compare printouts with the screen display after printing them out. Correct the printouts if they are faulty so that the content of the screen display matches that on the printouts.

AVERTISSEMENT

Risque de perte de la correspondance texte-illustration lors de l'impression papier.

- **Pour des raisons techniques, il ne peut pas être exclu à l'heure actuelle que, même en cas d'affichage correct à l'écran, la correspondance entre le texte et l'illustration puisse être erronée sur l'impression papier.**
- **Si l'erreur passe inaperçue, on court le risque d'exécuter certaines opérations de manière incorrecte pouvant conduire à des dommages corporels et matériels.**

63 55 19 Removing and installing rear spoiler - as of MY 2005

- General warning notes
- Removing rear spoiler
- Installing rear spoiler
- Dimensions of tailpipes
- Subsequent work

top of page

General warning notes

General warning notes

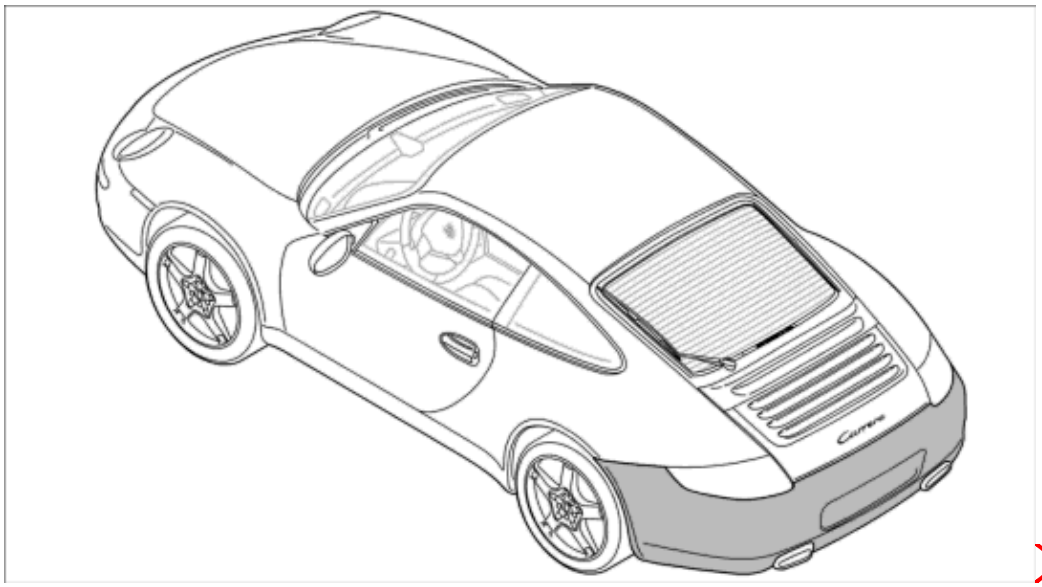
General warning notes for rear spoiler. *Safety notes*

top of page

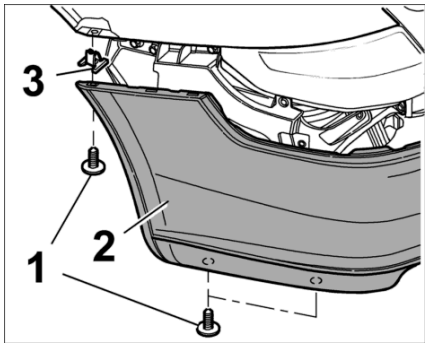
Removing rear spoiler

Removing rear spoiler

Installation Location:

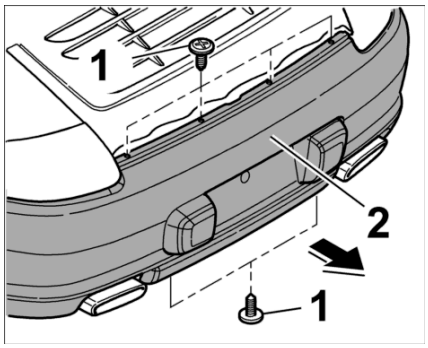


Installation position of rear apron



Undoing rear spoiler at the sides

1. Unscrew fastening screws **-1-** at the sides of the rear spoiler **-2-** .
2. Check sheetmetal nuts **-3-** , replace if necessary.



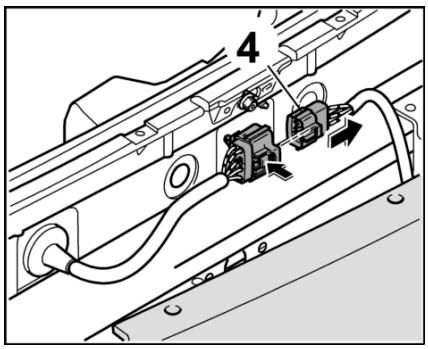
Undoing rear spoiler at the top and bottom

3. Unscrew fastening screws **-1-** at the top and bottom of the rear spoiler **-2-** .

Note

Two persons are needed to disengage and engage the rear apron!

4. Pull rear apron **-2-** carefully to the rear until the plug connection can be reached.



Disconnecting plug connection

5. Press lug **-arrow-** of the plug connection **-4-** and disconnect it.
6. Remove rear spoiler.

top of page

Installing rear spoiler

Safety instructions for the heat shield

ATTENTION

The installation of deformed heat shields will cause damage!

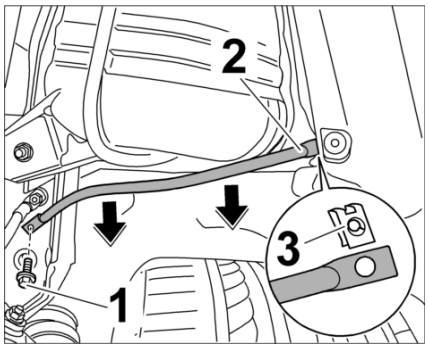
- **The installation of deformed heat shields will cause damage due to parts heating up!**

Damaged or distorted heat shields must be straightened or replaced.

Check heat shields for deformation, fixing of the aluminium braided cord, tears and missing or damaged fixing tabs.

After fitting the bumper, check heat shields and aluminium braided cord for leaks.

Removing and installing strut for rear apron

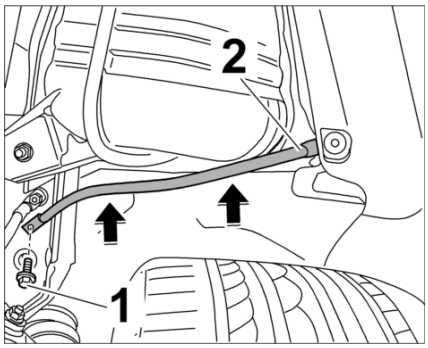


Removing strut for rear apron

1. Remove strut

1.1. Unscrew fastening screw **-1-** and remove strut **-2-** .

1.2. Check strut **-2-** and fastening nut **-3-** , and replace if necessary.



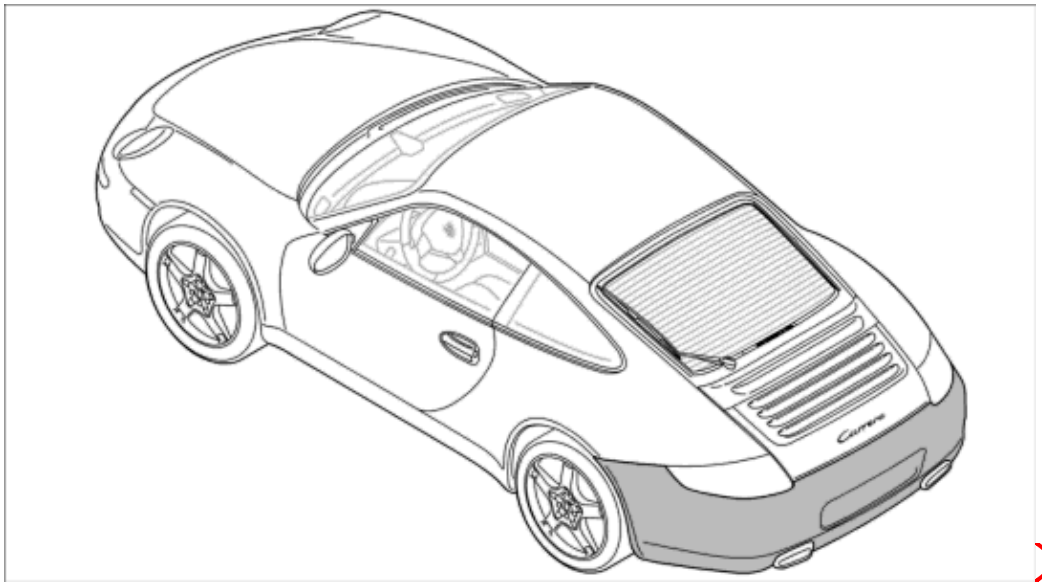
Installing strut for rear apron

2. Install strut

2.1. Position strut **-2-** on the body and screw down with the fastening screw **-1-** . **Tightening torque: 9.7 (7.0 ftlb.) Nm +/-20 %**

Installing rear spoiler

Installation Location:



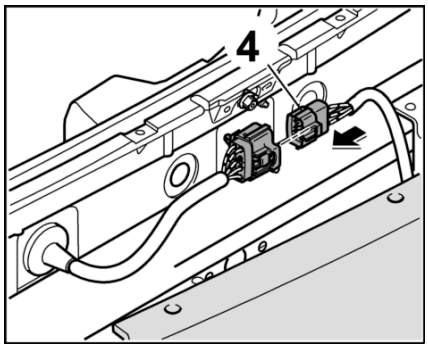
Installation position of rear apron

1. Before installing the rear apron, the following points must be carried out:

1.1. Inspect heat shield on vehicle and replace if necessary. 635019 Removing and installing rear bumper - chapter on "Checking and adjusting"

1.2. Check adjustment of rear lid, and correct if necessary. 559015 Adjusting rear lid - chapter on "Adjusting"

1.3. Check mounting points (fastening nuts) of rear apron, and replace if necessary.

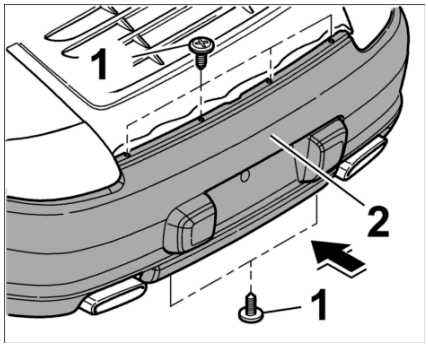


Connecting the plug connection

Note

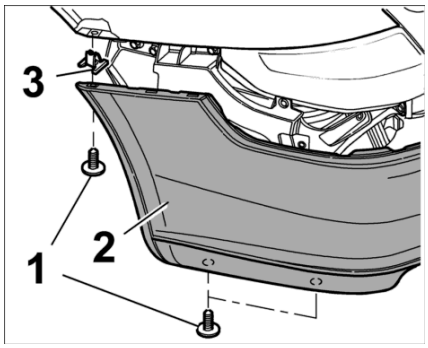
Two persons are needed to disengage and engage the rear apron!

2. Position rear apron on vehicle until the electric plug connection **-4-** can be connected.



Fastening rear spoiler at the top and bottom

3. Position rear apron **-2-** fully on the vehicle.
4. Screw down fastening screws **-1-** at the top and bottom of the rear apron **-2-** . **Tightening torque: 2.8 (2.0 ftlb.) Nm**



Fastening rear spoiler at the sides

5. Screw in fastening screws **-1-** at the sides of the rear apron **-2-** . **Tightening torque: 2.8 (2.0 ftlb.) Nm**

top of page

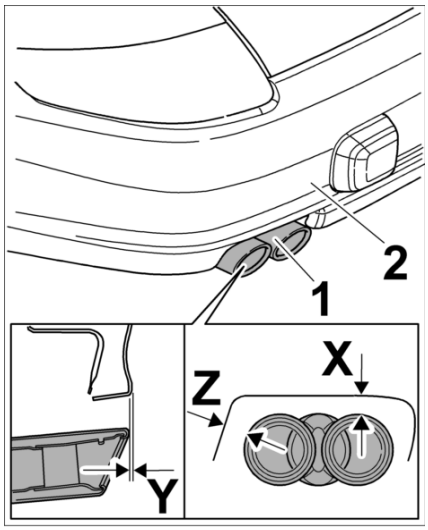
Dimensions of tailpipes

Gap dimensions of tailpipe

ATTENTION
Heating of vehicle parts.

- **Damage will result if tailpipe is fitted incorrectly!**

The following gap dimensions must be observed.
After the test drive check the gap dimension again and readjust if necessary.



Gap dimensions of tailpipes

1. Check gap dimensions of tailpipes **-1-** from rear apron **-2-** , and replace tailpipes if necessary. 263419 Removing and installing tailpipe - chapter on "Installing"

Gap dimension: 28 mm
Fugenmaß: 29 mm
Gap dimension: 2 mm

top of page

Subsequent work

Subsequent work

1. After fitting the rear apron, check heat protection shields for correct assembly, and correct if necessary.
   635019 Removing and installing rear bumper - chapter on "Checking and adjusting"
2. Check gap dimensions at rear, and adjust if necessary. *501000 Diagram - body gap dimensions*

997120, 997121, 997320, 997321, 997430, 997431, 997620, 997621

as of MY 2005
Country C00, C02, C05, C07, C08, C09, C10, C11, C12, C13, C14, C15, C16, C18, C19, C20, C21, C22, C23, C24, C25, C26, C27, C28, C32, C33, C34, C35, C36, C37, C38, C39, C45, C46, C98, C99

WARNUNG

Gefahr des Verlusts der Text-Bild-Zuordnung beim Ausdruck.

- **Aus technischen Gründen kann derzeit nicht ausgeschlossen werden, dass trotz einwandfreier Darstellung auf dem Bildschirm beim Ausdruck der Zusammenhang von Text und zugehörigem Bild verloren geht.**
- **Wird der Fehler nicht bemerkt, besteht die Gefahr, daß Arbeiten nicht korrekt durchgeführt werden und es dadurch zu Personen- und Sachschäden kommt.**

Vergleichen Sie deshalb nach dem Druckvorgang unbedingt die Ausdrucke mit der Bildschirmdarstellung. Korrigieren Sie die Ausdrucke im Fehlerfall so, daß der Inhalt der Bildschirmdarstellung zutreffend wiedergegeben wird.

WARNING

Danger of losing text-figure correspondence when printing out.

- **For technical reasons, it can currently not be ruled out that the correspondence between text and associated figure can be lost when it is printed out, even though the display on the screen is correct.**
- **If the fault is not noticed, there is the danger that work will not be performed correctly which can cause injury and damage.**

Therefore, always compare printouts with the screen display after printing them out. Correct the printouts if they are faulty so that the content of the screen display matches that on the printouts.

AVERTISSEMENT

Risque de perte de la correspondance texte-illustration lors de l'impression papier.

- **Pour des raisons techniques, il ne peut pas être exclu à l'heure actuelle que, même en cas d'affichage correct à l'écran, la correspondance entre le texte et l'illustration puisse être erronée sur l'impression papier.**
- **Si l'erreur passe inaperçue, on court le risque d'exécuter certaines opérations de manière incorrecte pouvant conduire à des dommages corporels et matériels.**

63 55 37 Disassembling and assembling rear spoiler - as of MY 2005

- Preliminary work
- Disassembling rear spoiler
- Assembling rear spoiler
- Subsequent work

top of page

Preliminary work

Preliminary work

1. Remove rear spoiler. 635519 Removing and installing rear spoiler - chapter on "removing" [997110 997111 997310 997311 997410 997411 997610 997611] 635519 Removing and installing rear spoiler - chapter on "removing" [997120 997121 997320 997321 997430 997431 997620 997621]

Note

- *Only for vehicles with ParkAssist.*

2. Remove sensor for ParkAssist. 917519 Removing and installing sensor for ParkAssist - removing
3. Remove number plate light. *942919 21 Removing and installing number plate light - removing*
4. Remove wiring harness for number plate light. 977019 Removing and installing wiring harness for number plate light - chapter on "removing"

Note

- *Only for USA/Canada version vehicles.*

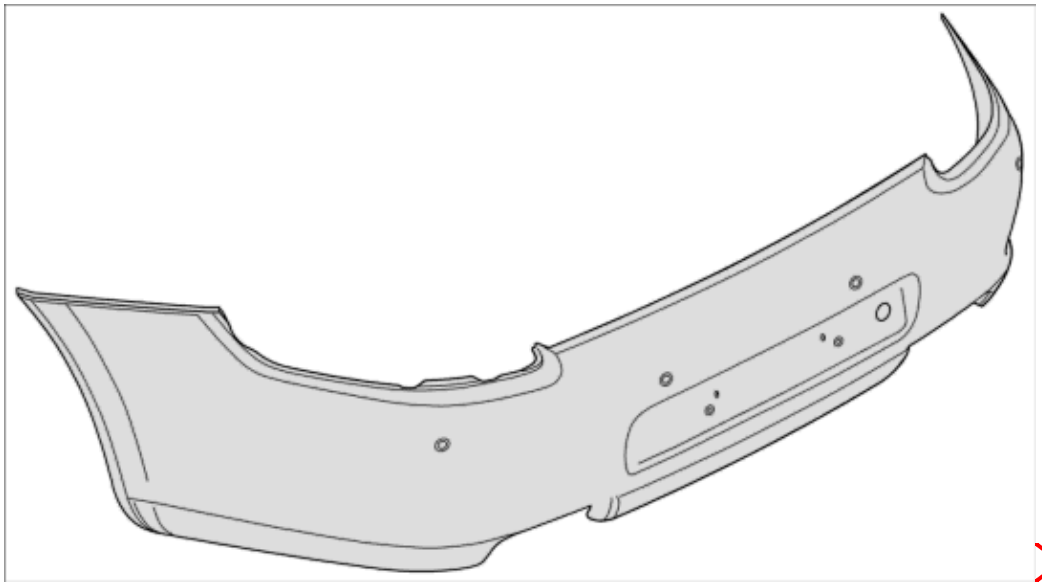
5. Remove rear bumper horn. 636519 Removing and installing rear bumper horn - chapter on "removing" [997110 997120 997310 997320 997410 997430 997610 997620] *636519 21 Removing and installing rear bumper horn - chapter on "removing" [997111 997121 997311 997321 997411 997431 997611 997621]*

top of page

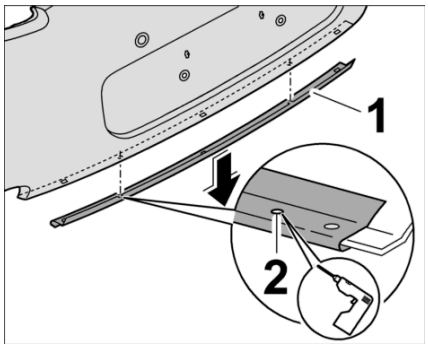
Disassembling rear spoiler

Removing the lower retaining strip

Installation Location:



Installation position of retaining strip

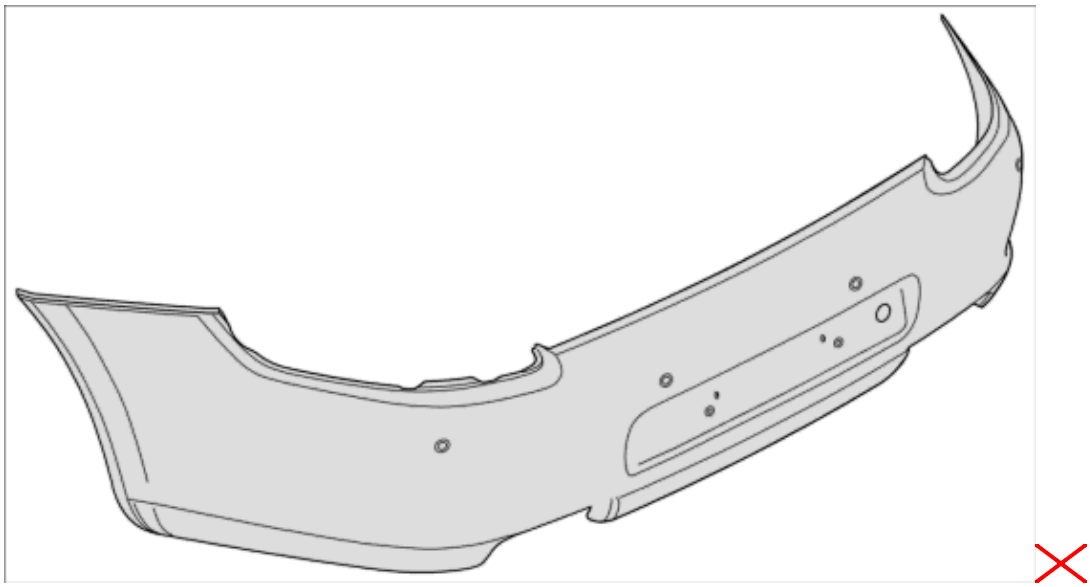


Removing the lower retaining strip

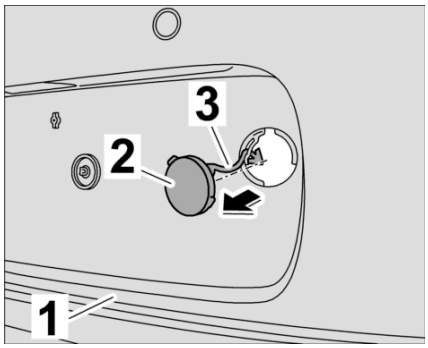
1. Bore out rivets **-2-** and lower retaining strip **-1-** .

Removing cover cap

Installation Location:



Installation position of cover cap



Removing cover cap

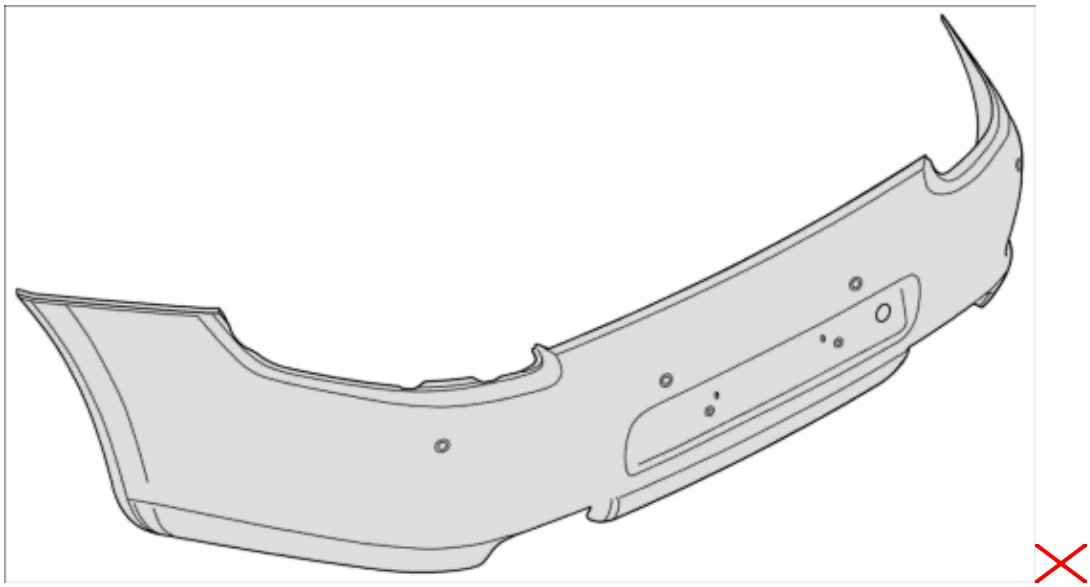
1. Carefully press out the cover cap **-2-** with a screwdriver. The securing cord **-3-** the cover cap **-2-** and the rear end **-1-** are joined as they pull out.

top of page

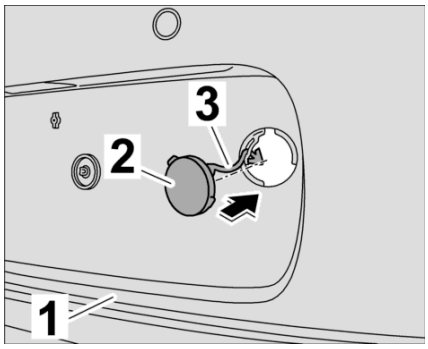
Assembling rear spoiler

Installing cover cap

Installation Location:



Installation position of cover cap

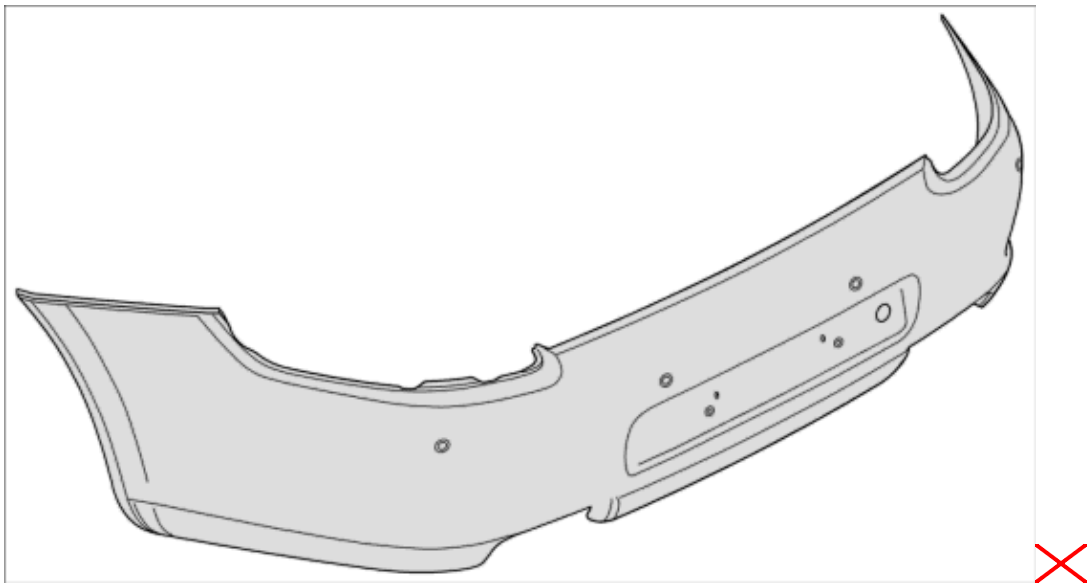


Installing cover cap

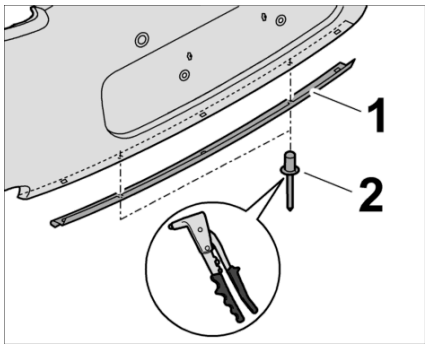
1. Pull the securing cord **-3-** into the eyelet of the rear apron **-1-** . Insert cap **-2-** into the rear apron **-1-** .

Installing the lower retaining strip

Installation Location:



Installation position of retaining strip



Installing the lower retaining strip

1. Push on lower retaining strip **-1-** and fasten with tubular rivets **-2-** .

top of page

Subsequent work

Subsequent work

Note

- *Only for USA/Canada version vehicles.*

1. Install rear bumper horn. *23 Removing and installing rear bumper horn - removing*
2. Install wiring harness for number plate light. *23 Removing and installing wiring harness for number plate light - installing*

3. Install number plate lights. *942919 23 Removing and installing number plate light - installing*

Note

- *Only for vehicles with ParkAssist.*

4. Install sensor for ParkAssist. 917519 Removing and installing sensor for ParkAssist - installing
5. Install rear apron. *23 Removing and installing rear apron - installing*

997110, 997111, 997120, 997121, 997310, 997311, 997320, 997321, 997410, 997411, 997430, 997431, 997610, 997611, 997620, 997621

as of MY 2005
Country C00, C02, C05, C07, C08, C09, C10, C11, C12, C13, C14, C15, C16, C18, C19, C20, C21, C22, C23, C24, C25, C26, C27, C28, C32, C33, C34, C35, C36, C37, C38, C39, C45, C46, C98, C99

WARNUNG

Gefahr des Verlusts der Text-Bild-Zuordnung beim Ausdruck.

- **Aus technischen Gründen kann derzeit nicht ausgeschlossen werden, dass trotz einwandfreier Darstellung auf dem Bildschirm beim Ausdruck der Zusammenhang von Text und zugehörigem Bild verloren geht.**
- **Wird der Fehler nicht bemerkt, besteht die Gefahr, daß Arbeiten nicht korrekt durchgeführt werden und es dadurch zu Personen- und Sachschäden kommt.**

Vergleichen Sie deshalb nach dem Druckvorgang unbedingt die Ausdrucke mit der Bildschirmdarstellung. Korrigieren Sie die Ausdrucke im Fehlerfall so, daß der Inhalt der Bildschirmdarstellung zutreffend wiedergegeben wird.

WARNING

Danger of losing text-figure correspondence when printing out.

- **For technical reasons, it can currently not be ruled out that the correspondence between text and associated figure can be lost when it is printed out, even though the display on the screen is correct.**
- **If the fault is not noticed, there is the danger that work will not be performed correctly which can cause injury and damage.**

Therefore, always compare printouts with the screen display after printing them out. Correct the printouts if they are faulty so that the content of the screen display matches that on the printouts.

AVERTISSEMENT

Risque de perte de la correspondance texte-illustration lors de l'impression papier.

63 65 19 Removing and installing rear bumper overrider - as of MY 2005

- Preliminary work
- Removing rear bumper overrider
- Installing rear bumper overrider
- Subsequent work

top of page

Preliminary work

Preliminary work

1. Remove rear spoiler. 635519 Removing and installing rear spoiler - chapter on "removing" [997110 997310 997410 997610] 635519 Removing and installing rear spoiler - chapter on "removing" [997120 997320 997430 997620]

Note

Only for vehicles with ParkAssist.

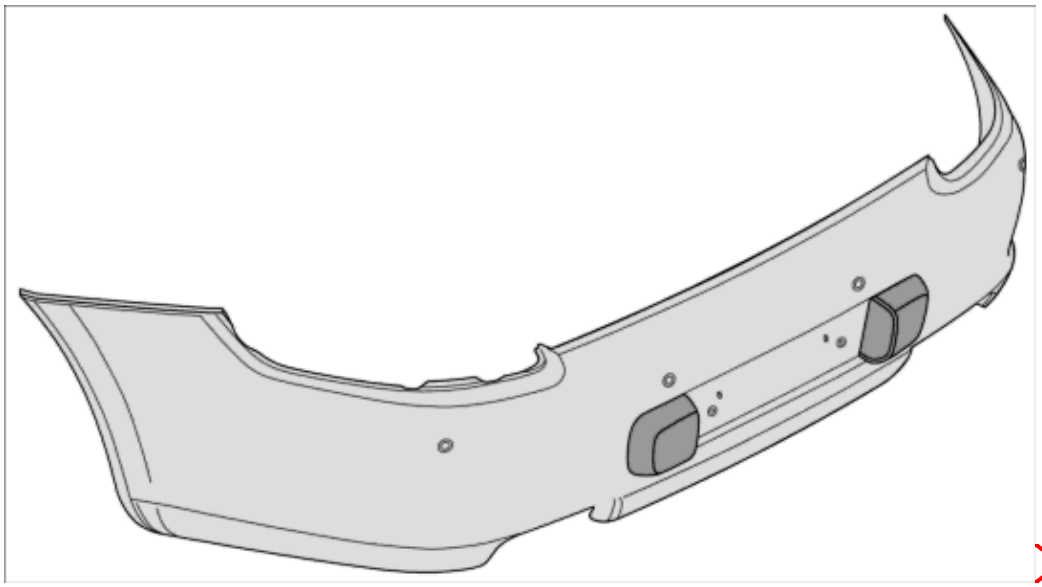
2. Remove the sensors for ParkAssist in the area of the rear bumper horn. 917519 Removing and installing sensor for ParkAssist - removing

top of page

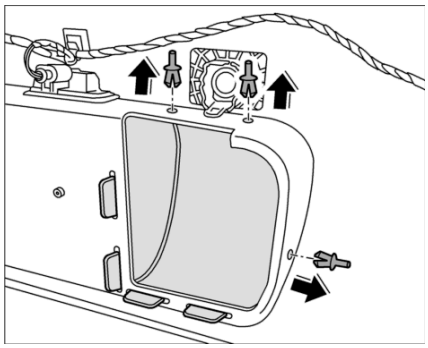
Removing rear bumper overrider

Removing rear bumper horn

Installation Location:

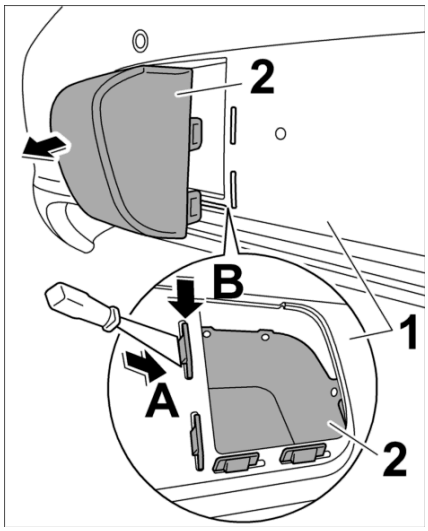


Main illustration rear bumper horn



Unclipping expanding clips

1. Push retaining pins from the inside and unclip expanding clips.



Removing the bumper horn

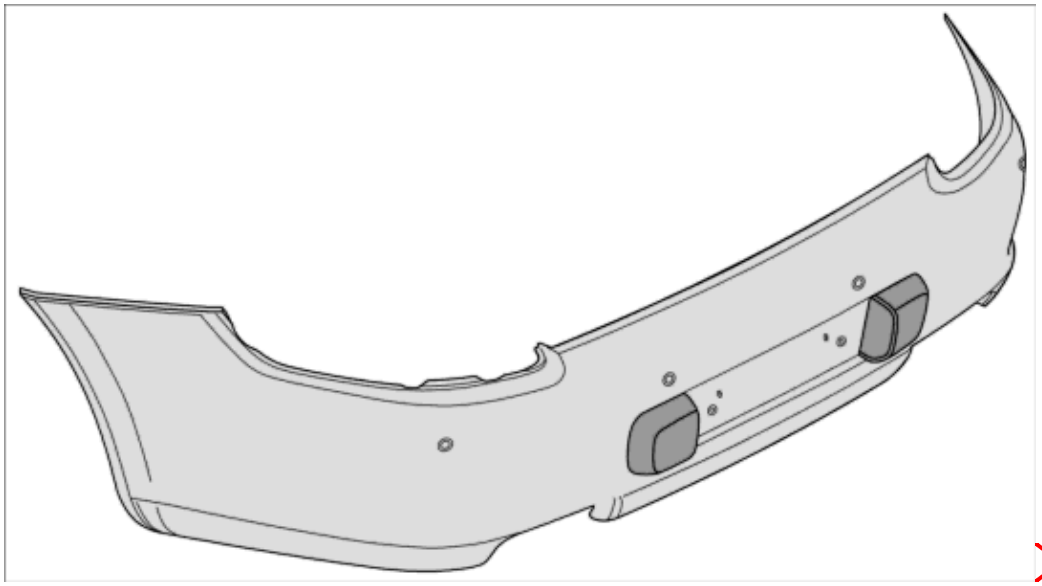
2. Insert a spatula laterally between the rear apron **-1-** and bumper horn **-2-** **-arrow A-** . Press in the locking tab **-arrow B-** and remove the bumper horn **-2-** .

top of page

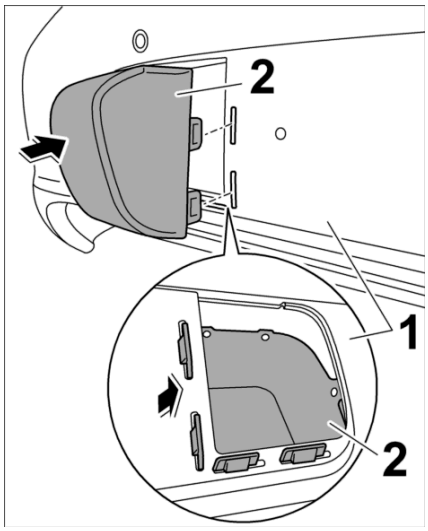
Installing rear bumper overrider

Installing the rear bumper horn

Installation Location:

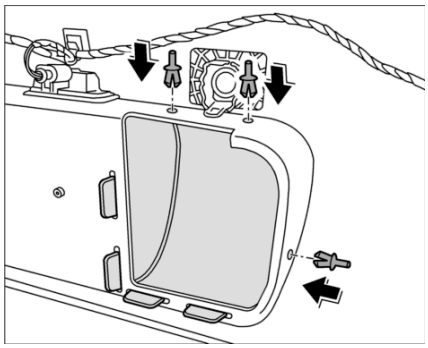


Main illustration rear bumper horn



Installing the rear bumper horn

1. Position the bumper horn **-2-** on the rear apron **-1-** and press in until the locking tabs engage.



Fastening the bumper horn

2. Fasten the bumper horn with the expanding clips by pressing in the retaining pins.

top of page

Subsequent work

Subsequent work

Note

Only for vehicles with ParkAssist.

1. Install sensor for ParkAssist. 917519 Removing and installing sensor for ParkAssist - installing
2. Install rear spoiler. 635519 Removing and installing rear spoiler - chapter on "installing" [997110 997310 997410 997610] 635519 Removing and installing rear spoiler - chapter on "installing" [997120 997320 997430 997620]

997110, 997120, 997310, 997320, 997410, 997430, 997610, 997620

as of MY 2005
Country C02, C36

WARNUNG

Gefahr des Verlusts der Text-Bild-Zuordnung beim Ausdruck.

- **Aus technischen Gründen kann derzeit nicht ausgeschlossen werden, dass trotz einwandfreier Darstellung auf dem Bildschirm beim Ausdruck der Zusammenhang von Text und zugehörigem Bild verloren geht.**
- **Wird der Fehler nicht bemerkt, besteht die Gefahr, daß Arbeiten nicht korrekt durchgeführt werden und es dadurch zu Personen- und Sachschäden kommt.**

63 73 19 Removing and installing rear bracket (impact pipe, impact absorber) - as of MY 2005

- Preliminary work
- Removing rear bracket (impact pipe, impact absorber)
- Installing rear bracket (impact pipe, impact absorber)
- Subsequent work

top of page

Preliminary work

Preliminary work

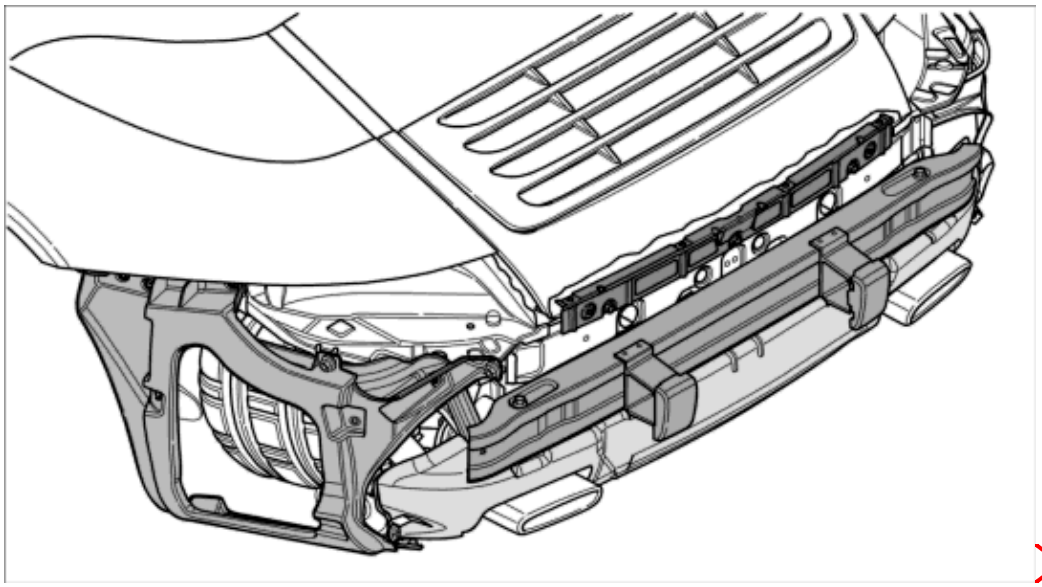
1. Remove rear spoiler. *21 Removing and installing rear apron - removing*
2. Remove rear bumper. *21 Removing and installing rear bumper - removing*

top of page

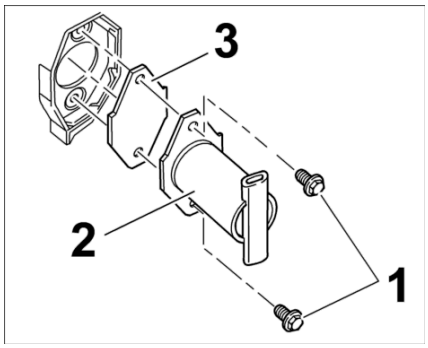
Removing rear bracket (impact pipe, impact absorber)

Removing rear impact pipe

Installation Location:



Overview, rear impact pipe

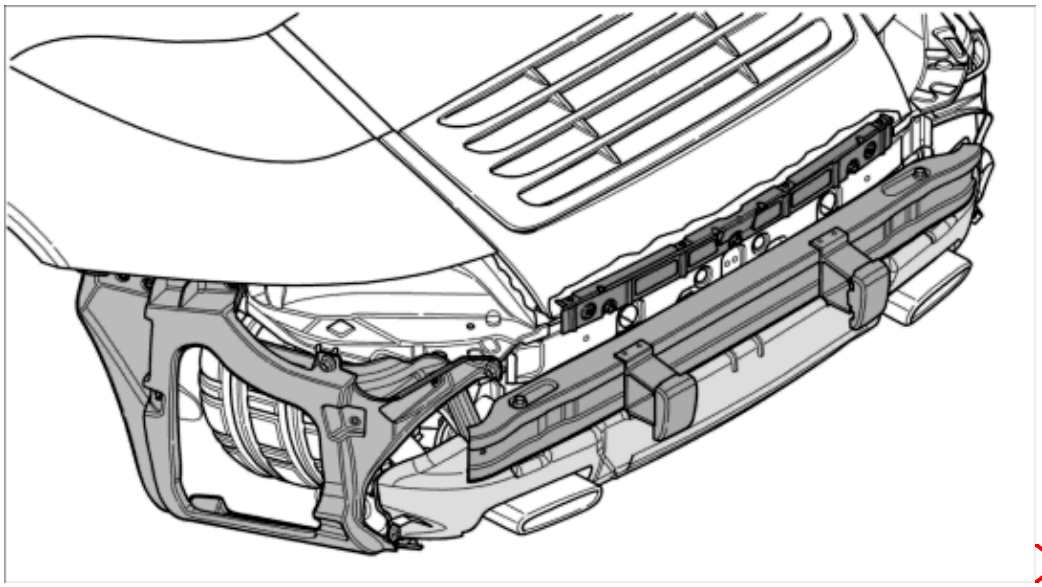


Removing impact pipe

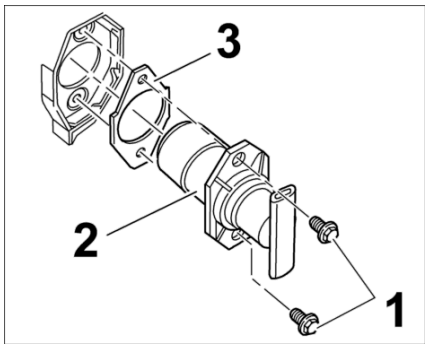
1. Undo fastening screws **-1-** .
2. Remove the impact pipe **-2-** with seal **-3-** .

Removing impact absorber

Installation Location:



Overview, rear impact absorber



Removing impact absorber

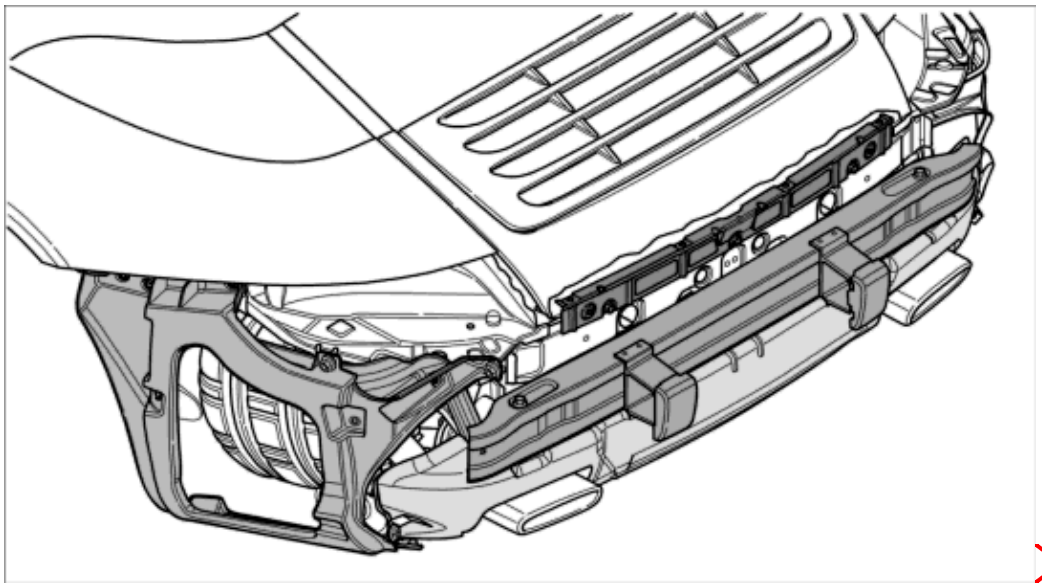
1. Undo fastening screws **-1-** .
2. Remove the impact absorber (Canada version) **-2-** with seal **-3-** .

top of page

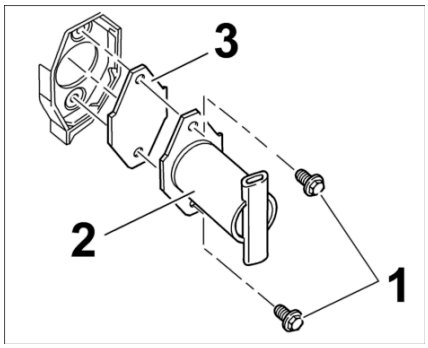
Installing rear bracket (impact pipe, impact absorber)

Install rear impact pipe

Installation Location:



Overview, rear impact pipe

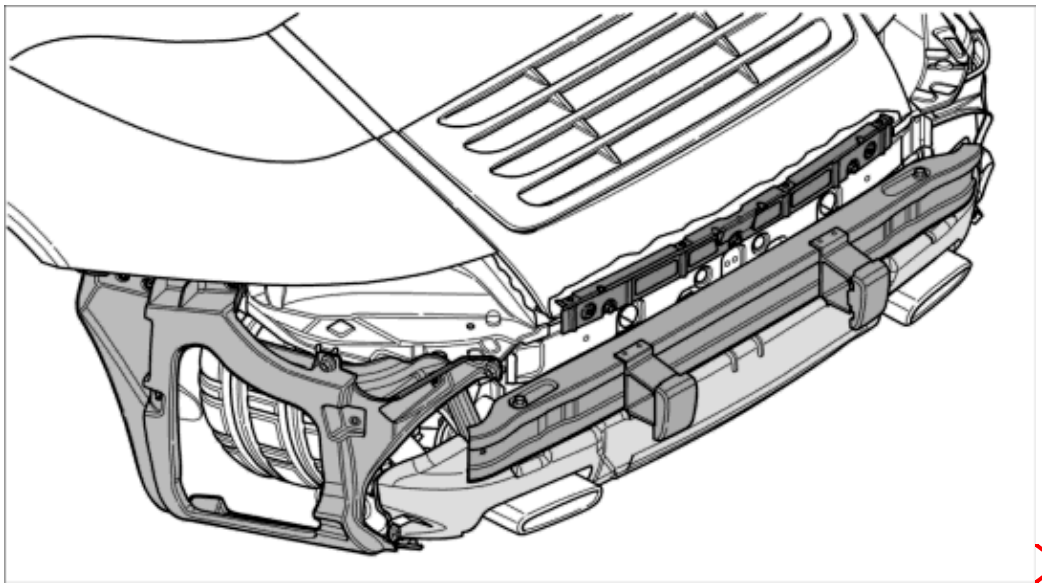


Installing impact pipe

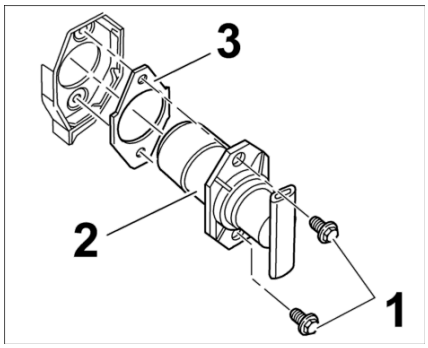
1. Position the impact pipe **-2-** with seal **-3-** .
2. Screw in M8 x 30 fastening screws **-1-** and tighten at tightening torque with **Fasten final tightening : 17 ftlb.** .

Installing impact absorber

Installation Location:



Overview, rear impact absorber



Installing impact absorber

1. Position the impact absorber (Canada version) **-2-** with seal **-3-** .
2. Screw in M8 x 30 fastening screws **-1-** and tighten at tightening torque with **Fasten final tightening : 23 (17) Nm (ftlb.)** .

top of page

Subsequent work

Subsequent work

1. Install rear bumper. *23 Removing and installing rear bumper - installing*
2. Install rear apron. *23 Removing and installing rear apron - installing*

63 73 19 Removing and installing rear bracket (impact pipe, impact absorber) - as of MY 2005

- Preliminary work
- Removing rear bracket (impact pipe, impact absorber)
- Installing rear bracket (impact pipe, impact absorber)
- Subsequent work

top of page

Preliminary work

Preliminary work

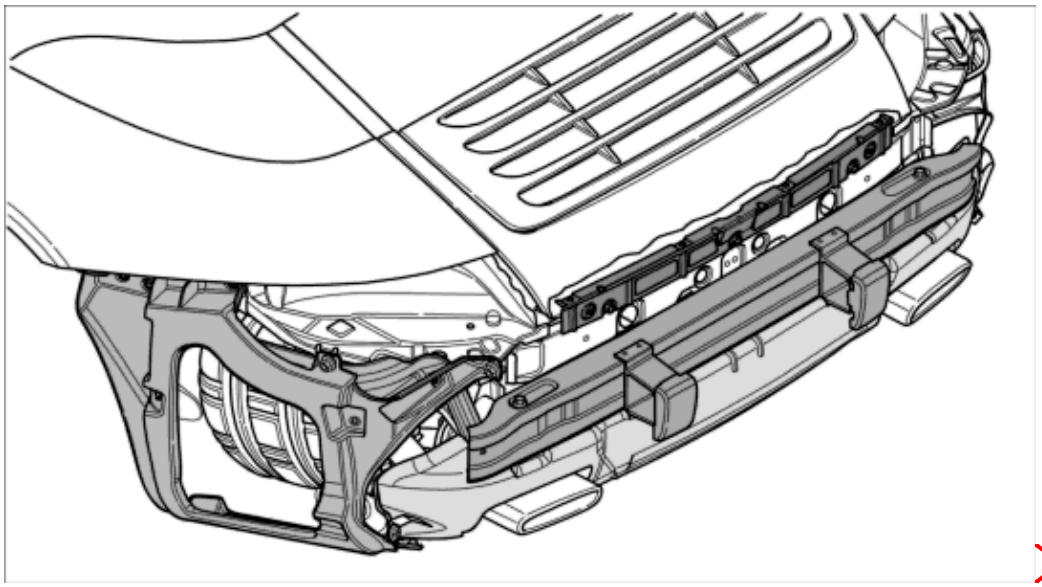
1. Remove rear spoiler. *21 Removing and installing rear apron - removing*
2. Remove rear bumper. *21 Removing and installing rear bumper - removing*

top of page

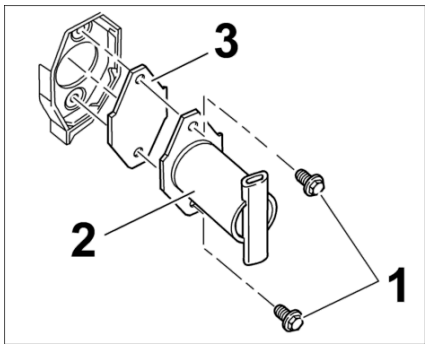
Removing rear bracket (impact pipe, impact absorber)

Removing rear impact pipe

Installation Location:



Overview, rear impact pipe



Removing impact pipe

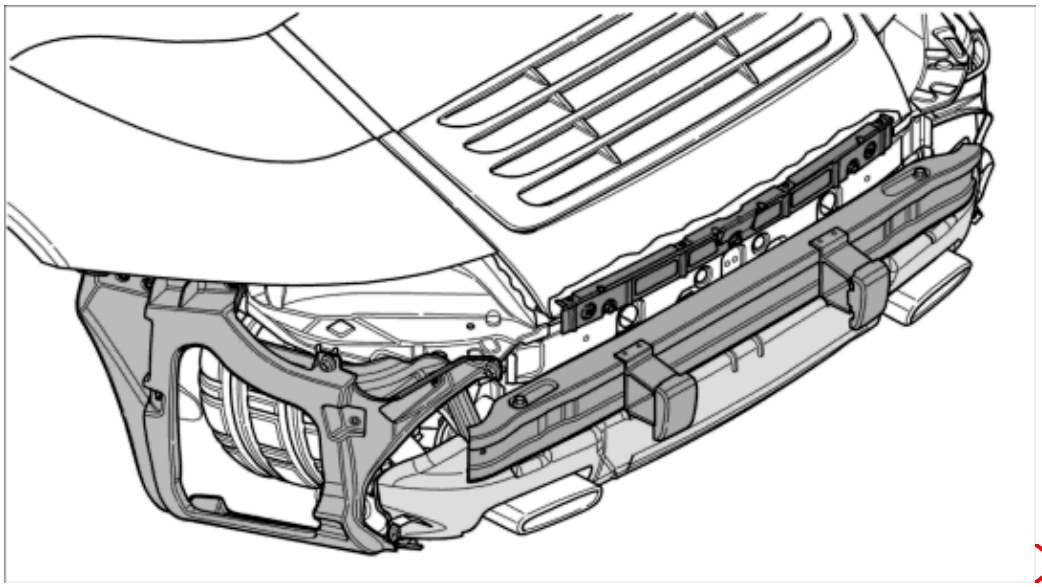
1. Undo fastening screws **-1-** .
2. Remove the impact pipe **-2-** with seal **-3-** .

top of page

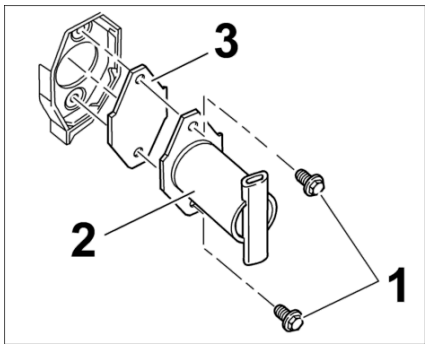
Installing rear bracket (impact pipe, impact absorber)

Install rear impact pipe

Installation Location:



Overview, rear impact pipe



Installing impact pipe

1. Position the impact pipe **-2-** with seal **-3-** .
2. Screw in M8 x 30 fastening screws **-1-** and tighten at tightening torque with **Fasten final tightening : 17 ftlb.** .

top of page

Subsequent work

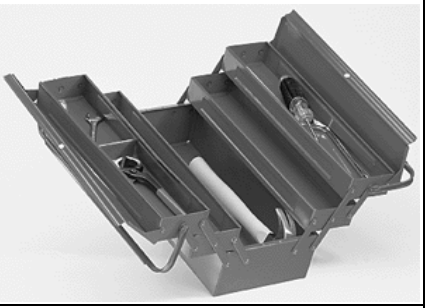
Subsequent work

1. Install rear bumper. *23 Removing and installing rear bumper - installing*
2. Install rear apron. *23 Removing and installing rear apron - installing*

64 12 19 Removing and installing windscreen - as of MY 2005

- Preliminary work
- General warning notes
- Tools and materials
- Removing windscreen
- Preparing window frame for installation
- Preparing windscreen for installation
- Installing windscreen
- Subsequent work

Tools

Designation	Type	Number	Explanation	
Cutting thread	commercially available tool			
2-component window bonding agent	commercially available tool	000.043.300.94		
Flashing knife, U-type	commercially available tool	639.031.130.22		
Pipette	commercially available tool	vag 1344		

Glass separating tool	commercially available tool	vag 1474 b		
Special electric cutter (fine)	commercially available tool	vag 1561 a		
Double cartridge gun	commercially available tool	vas 5237		

top of page

Preliminary work

Preliminary work

Removing cowl panel cover. *21 Removing and installing cowl panel cover -removing*
Remove A-post trim. *21 Removing and installing A-post trim - removing*
Remove cover for instrument panel (defroster cover). *21 Removing and installing cover for instrument panel (defroster cover)*
Remove interior rearview mirror. *682719 21 Removing and installing the interior rearview mirror - removing*
Disconnect plug for aerial amplifier. 918419 Removing and installing aerial amplifier

top of page

General warning notes

General warning notes

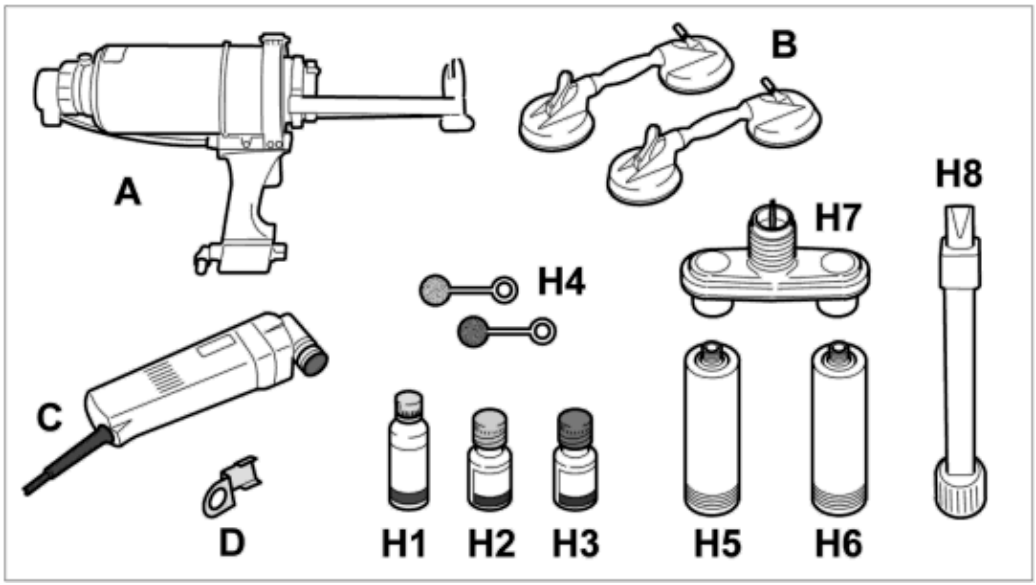
General information on installing and removing car windows

top of page

Tools and materials

Tools and materials

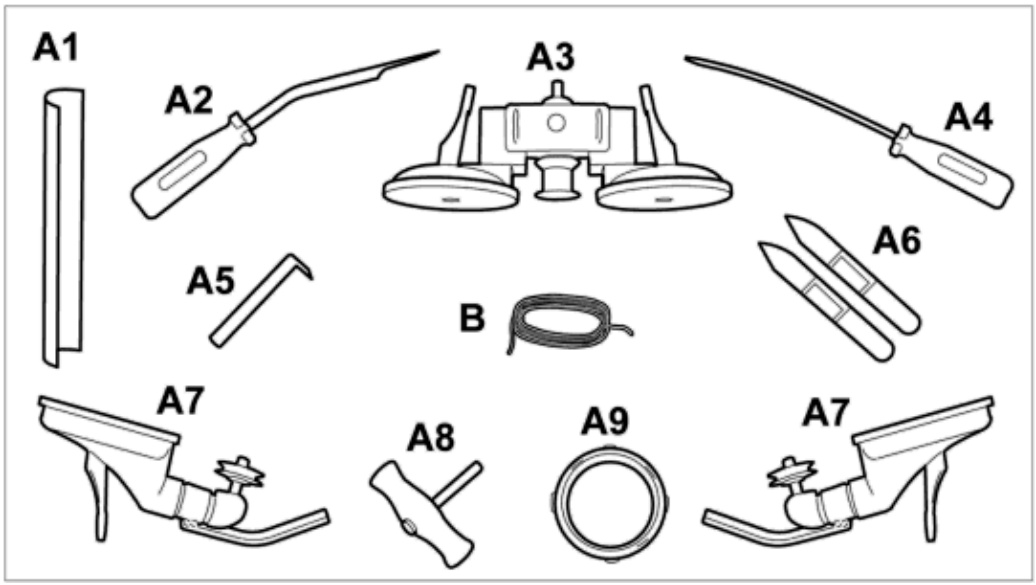
The following tools and materials are required for removing and installing the windscreen with 2-component adhesive:



Tools and materials

Item .	Designation	Source	Explanation
-A-	**Double cartridge gun vas 5237**	"See Workshop Equipment Manual, Chapter 3.5"	
-B-	**Pipette vag 1344**	"See Workshop Equipment Manual, Chapter 3.5"	
-C-	**Special electric cutter (fine) vag 1561 a**	"See Workshop Equipment Manual, Chapter 3.5"	
-D-	**Flashing knife, U-type 639.031.130.22**		
-H-	**2-component window bonding agent 000.043.300.94**		Contains set components

Item .	Designation	Item .	Designation
-H1-	Cleaning solution	**-H5-**	Cartridge, component A
-H2-	Primer	**-H6-**	Cartridge, component B
-H3-	Activator	**-H7-**	Mixing nozzle
-H4-	Swab	**-H8-**	Processing nozzle



Glass separating tool

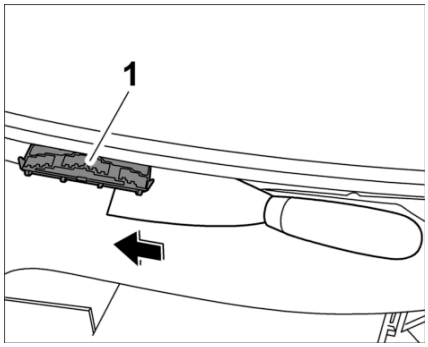
Item	Designation	Source	Explanation
-A-	**Glass separating tool vag 1474 b**	"See Workshop Equipment Manual, Chapter 3.5"	Contains set components A1-A9
-B-	**Cutting thread**	"See Parts Catalogue in Main Group 8"	

Item	Designation	Item	Designation
-A1-	Guide rails	**-A6-**	Filler
-A2-	Cutting tool (wire holder)	**-A7-**	Steering roller with arm bracket
-A3-	Spooling device	**-A8-**	Handle
-A4-	Awl	**-A9-**	Square cutting wire
-A5-	Guide rails		

top of page

Removing windscreen

Removing spacer blocks



Removing spacer blocks

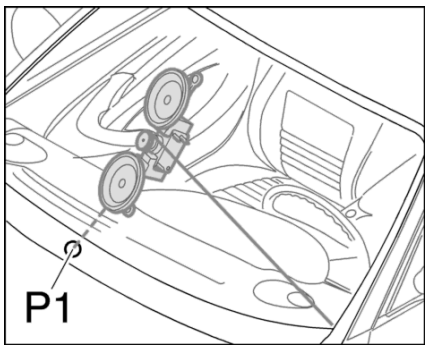
1. Insert a spatula under the spacer blocks **-1-** and remove the expanding rivets. Spacer blocks **-1-** must be replaced.

Removing windscreen

Note

- *The door windows must not be closed until after the curing time has elapsed.*

1. Lower the door windows.



Removing windscreen

2. Remove windscreen with the cutting wire separator. *General information on installing and removing car windows*

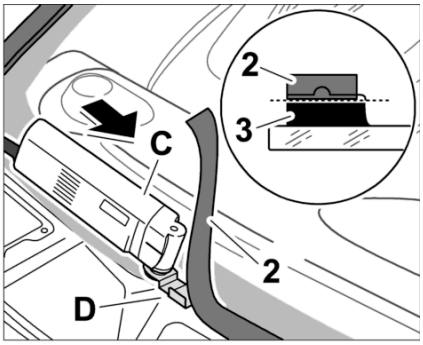
top of page

Preparing window frame for installation

Removing adhesive from the body

Note

- *The surface coating of adhesive residue on the window aperture of the body acts as an adhesive base for new bonding material. Keep cut surfaces clean and free of grease and do not clean with cleaning solution.*



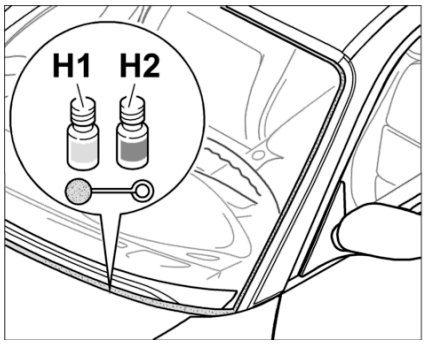
Removing adhesive from the body

1. When removing remaining adhesive **-2-** with the cutting tool **-C-** and the flashing knife **-D-** on the body, ensure that a surface coating of adhesive remains **-3-** .

Cleaning and priming areas that are free of adhesive residue or have paint damage or where there is newly built-up paint in the window aperture of the body

Note

- *A flash-off time of at least 2 minutes must be observed between the cleaning of the window aperture and the application of the primer! No cleaning solution residues must remain on the body.*



Cleaning and priming the body

1. Clean areas that are free of adhesive residue or have new paint or where there is damage to the top coat paint in the non-visible area of the window aperture in the body with cleaning solution **-H1-** and touch up with primers **-H2-** .

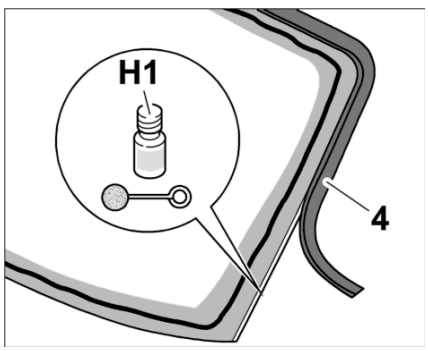
top of page

Preparing windscreen for installation

Removing windscreen seal

Note

- *Only if the windscreen is re-installed*



Pull off the seal

1. Pull off the seal **-4-** . Remove adhesive residues with cleaning solution **-H1-** .

Cleaning and priming areas that are free of adhesive residue or have paintdamage or where there is newly b

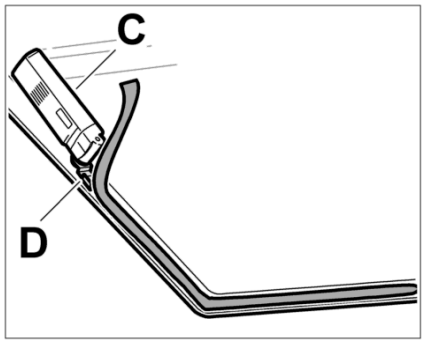
Removing adhesive from the windscreen

Note

- *Only if the windscreen is re-installed*

Note

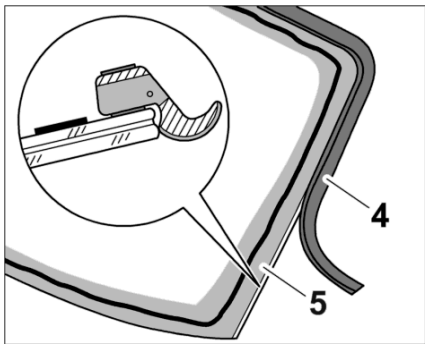
- *The remaining adhesive helps new adhesive to stick. Keep cut surfaces clean and free of grease and do not clean with cleaning solution.*



Removing adhesive from the windscreen

1. Equip cutting device **-C-** with the flashing knife **-D-** and remove the remaining adhesive from the windscreen, ensuring that a surface coating of adhesive remains.

Fitting windscreen seal



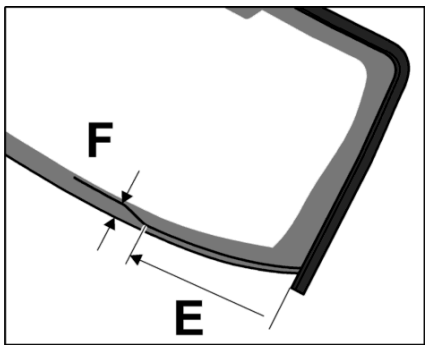
Fit the windscreen seal

1. Stick seal **-4-** to the windscreen **-5-** from one edge along the entire border.

Marking the bonding area

Note

- *Only if the windscreen is new and does not have a preliminary coat*



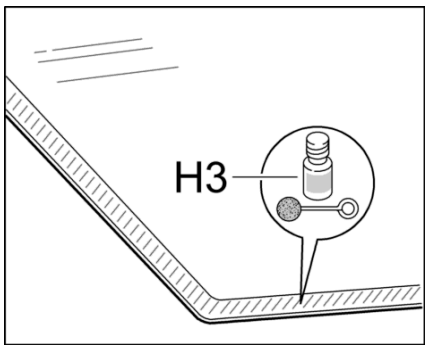
Marking the bonding area

1. Before applying the adhesive, mark the course of the adhesive bead in accordance with the dimensions **-E-** = 160 mm, **-F-** = 30 mm on the left and right on the lower edge of the windscreen.

Activating the bonding section of the windscreen

Note

- *Only if the windscreen is re-installed*



Activating the bonding section of the windscreen

1. During long idle periods (> 24 hours) apply activator **-H3-** to the remaining adhesive.

Priming the windscreen

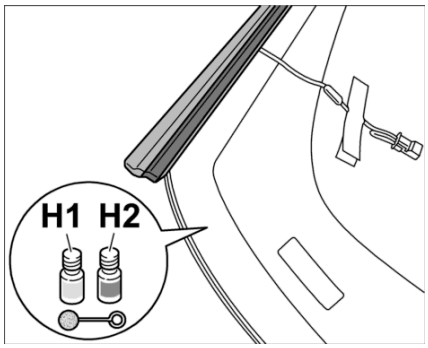
Note

- *Only with new windscreens*

Note

- *A ventilation period of at least 2 minutes must be observed between the cleaning of the glass and the application of the primer! No cleaning solution residues may remain on the body.*

1. Clean the windscreen with cleaning solution **-H1-** .



Priming the windscreen

2. Apply primer **-H2-** to the glass flange in the area of the marking.

top of page

Installing windscreen

Preliminary work before windscreen installation

Note

- *The removed windscreen can be reinstalled if there was no prior damage to the windscreen and the windscreen was removed without damage.*

1. Clip in spacer blocks and press in body-bound rivets.
2. Installing cover for instrument panel (defroster cover). *23 Removing and installing cover for instrument panel (defroster cover) - installing*

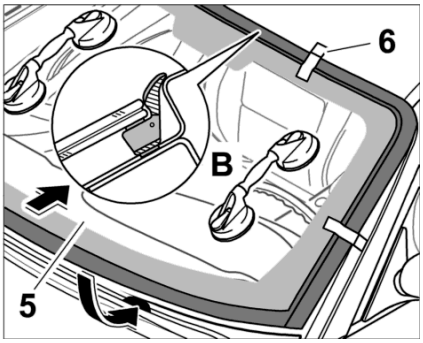
Fitting windscreen into the body

Note

- *Two persons are needed to insert and adjust the windscreen.*

Note

- *Owing to the bonding section, the windscreen can no longer be aligned on the seal because the section immediately adheres to the windscreen when inserted.*



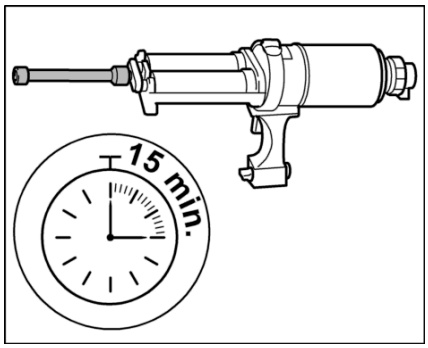
Fitting windscreen into the body

1. Apply suction cups **-B-** to the windscreen **-5-** and insert the windscreen into the window aperture. Press the windscreen **-5-** up as far as it will go. When doing so, press the lower edge of the glass against the spacer blocks. Mark the windscreen with adhesive tape **-6-** and remove.

Preparing 2-component adhesive for processing

Note

- *The adhesive has an open time of **-15 min-** , which means that the bonding material must be applied and the car window must be assembled within this period of time.*



Preparing the adhesive

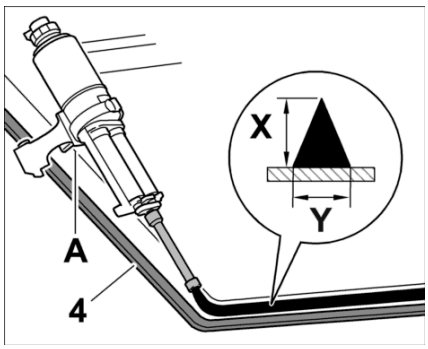
- *In order to ensure that the substance is completely mixed, apply a 30 mm long adhesive bead of fresh adhesive to a piece of cardboard before processing.*

1. Preparing 2-component adhesive for processing. *Processing of Porsche 2-component window bonding agents*

Applying adhesive to the windscreen

Note

- *When applying the adhesive, it is essential to ensure that the adhesive bead overlaps by approx. 30 mm at the beginning and at the end.*



Apply adhesive

1. Using the bonding gun **-A-** , apply 2-component adhesive to the windscreen along the seal **-4-** in the form of a triangular bead measuring **-X= ca. 15 mm-** **-Y= ca. 8 mm-** .

Pulling off protective film

Note

- *Make sure that no further work is performed in the area of the seal once the protective film has been removed.*

1. Before bonding the windscreen, remove the protective film from the seal such that no residues remain.

Inserting windscreen into the body

ATTENTION

Danger of material damage if specified curing time of adhesive is not observed!

- **There will not be a proper adhesive bond if the prescribed curing time of the adhesive is not observed!**

The vehicle must not be used until the curing time has elapsed.

Curing time: 3 hours

Temperature: at least 10°C

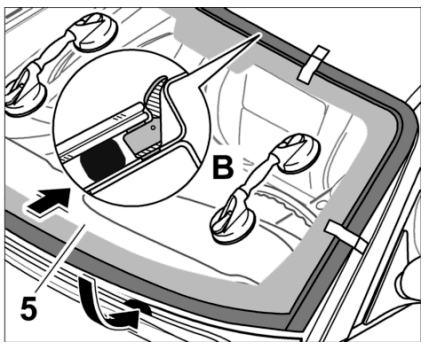
Fixing time: approx. 1 hour

Note

- *Two persons are needed to insert and adjust the windscreen.*

Note

- *The rear window can no longer be aligned, because the bonding section on the seal immediately sticks to the body when the rear window is installed.*



Pulling off protective film

Insert the windscreen

1. Guide the windscreen **-5-** into the window aperture and insert in the pre-marked positions.

Cleaning fields of vision

Note

- *The door windows must not be closed until after the curing time has elapsed.*

1. Adhesive which has oozed out must be removed immediately and the affected fields of vision must be cleaned using cleaning agent **-H1-** .

top of page

Subsequent work

Reworking

1. Install cowl panel cover. *23 Removing and installing cowl panel cover - removing*
2. Connect plug for aerial amplifier. 918419 Removing and installing aerial amplifier
3. Install A-pillar trim. *23 Removing and installing A-post trim - installing*

Note

- *Only with new windscreens*

4. Bonding on the interior rearview mirror. *682713 Securing the interior rearview mirror*

Note

- *The interior rear-view mirror may only be installed after a curing time of three hours!*

5. Installing the interior rearview mirror. *682719 23 Removing and installing the interior rearview mirror - installing*
6. Closing door windows.

997110, 997111, 997120, 997121, 997310, 997311, 997320, 997321, 997410, 997411, 997430, 997431, 997610, 997611, 997620, 997621

as of MY 2005

64 16 23 Installing seal for windscreen - as of MY 2005

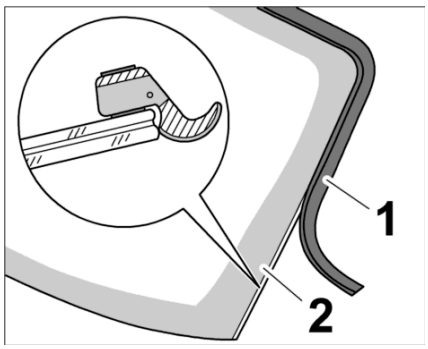
- Installing seal for windscreen

top of page

Installing seal for windscreen

Fitting seal for windscreen

Note
The bonding surfaces must be clean and free of grease.



Fitting seal for windscreen

– Stick seal **-1-** on the windscreen **-2-** from the edge all the way round.

997110, 997111, 997120, 997121, 997310, 997311, 997320, 997321, 997410, 997411, 997430, 997431, 997610, 997611, 997620, 997621

as of MY 2005
Country C00, C02, C05, C07, C08, C09, C10, C11, C12, C13, C14, C15, C16, C18, C19, C20, C21, C22, C23, C24, C25, C26, C27, C28, C32, C33, C34, C35, C36, C37, C38, C39, C45, C46, C98, C99

WARNUNG
Gefahr des Verlusts der Text-Bild-Zuordnung beim Ausdruck.

64 37 19 Removing and installing microswitch for window opening controls - as of MY 2005

- Preliminary work
- Removing microswitch for window opening controls
- Installing microswitch for window opening controls
- Subsequent work

top of page

Preliminary work

Preliminary work

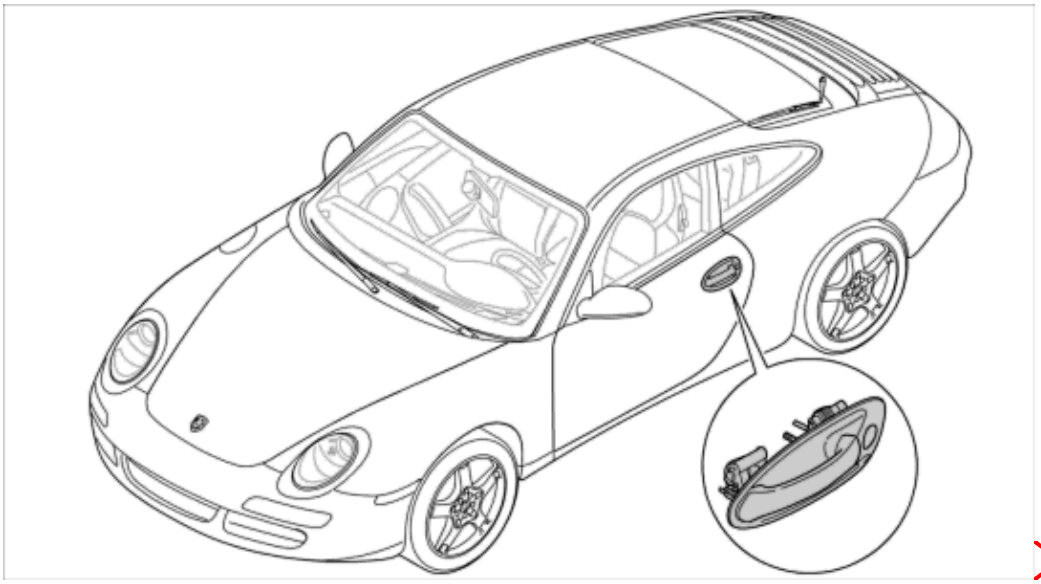
1. Remove door unit carrier. *5730 21 Removing and installing door unit carrier - removing*

top of page

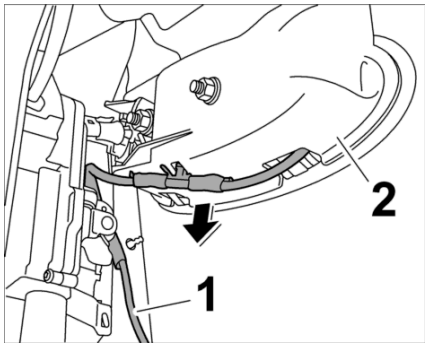
Removing microswitch for window opening controls

Unclipping electric wire for micro switches

Installation Location:



Overview, removing and installing door handle

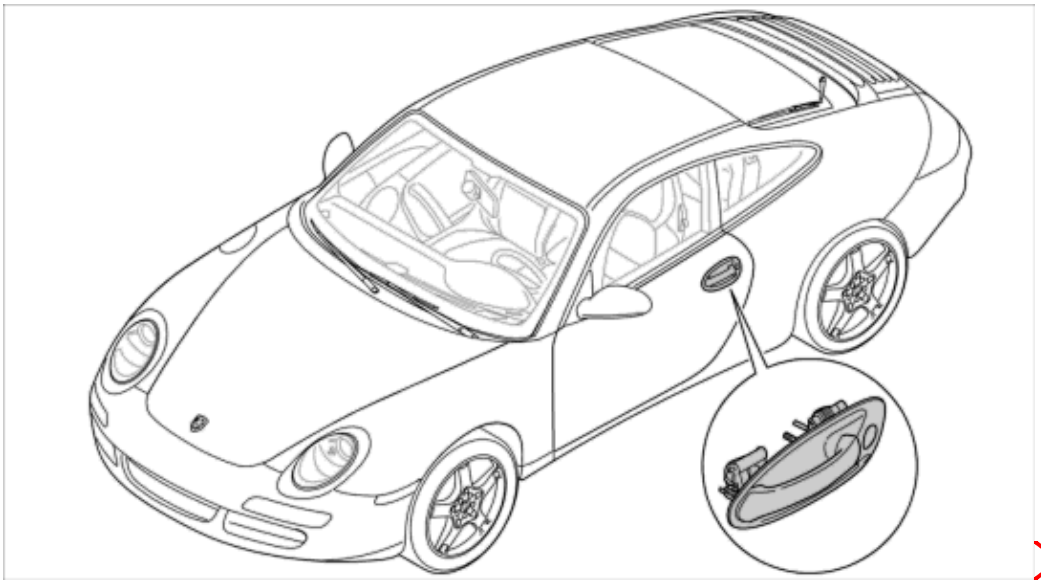


Unclipping wire

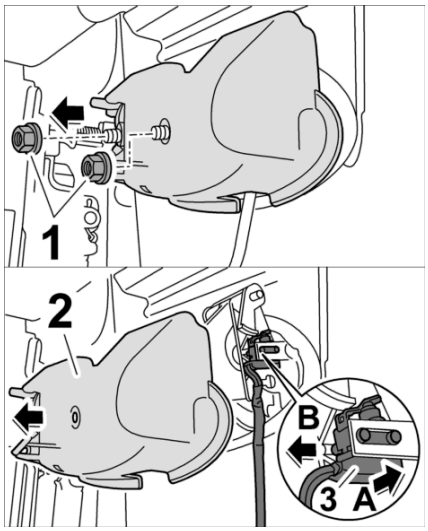
1. Unclip electric wire for microswitch **-1-** from the bottom part of door handle **-2-** .

Removing microswitch for window opening controls

Installation Location:



Install location for window opening microswitch



Removing microswitches

1. Unscrew fastening nuts **-1-** .
2. Pull bottom section of door handle **-2-** slightly backwards.

Note

- *Make sure that the locking tabs do not break when the microswitch is removed.*

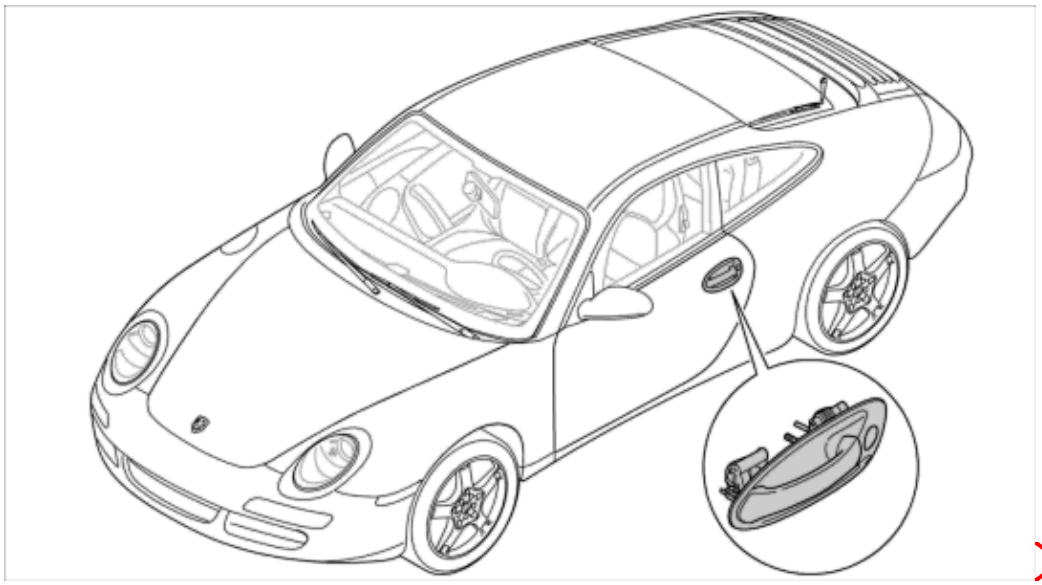
3. Gently loosen the locking tab **-arrow A-** and remove the microswitch **-3-** **-arrow B-** .

top of page

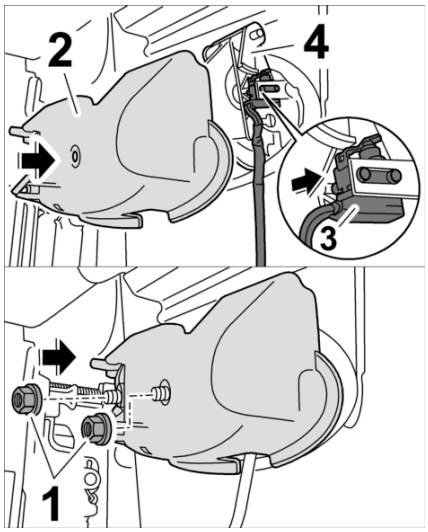
Installing microswitch for window opening controls

Installing microswitch for window opening controls

Installation Location:



Install location for window opening microswitch

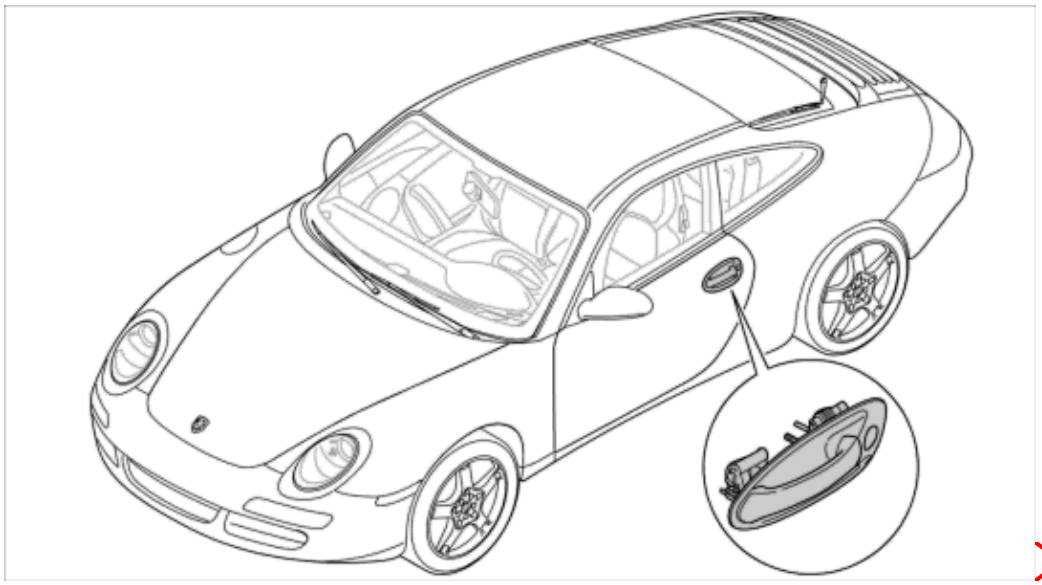


Installing microswitch

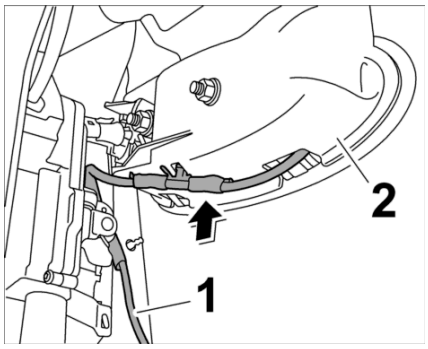
1. Position microswitch **-3-** on the door handle **-4-** and press in until it can be felt to engage.
2. Position the lower part of the door handle **-2-** under the handle and screw down with fastening nuts **-1-** .
   Tightening torque **Final tightening: 9.7 Nm** (7 ftlb.)

Clipping in the electric wire for micro switches

Installation Location:



Overview, removing and installing door handle



Clipping in wire

1. On the bottom part of door handle **-2-** clip in the electrical wire **-1-** .

top of page

Subsequent work

Subsequent work

1. Install door unit carrier. *5730 23 Removing and installing door unit carrier - installing*
2. Check window opener.

2.1. Close the doors.

2.2. Actuate the door handle until the window lowering function is activated.

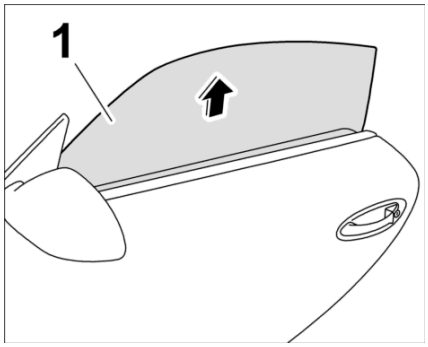
64 40 19 Removing and installing front door window - as of MY 2005

- Preliminary work
- Removing front door window
- Installing front door window
- Subsequent work

top of page

Preliminary work

Preliminary work



Raising front door window

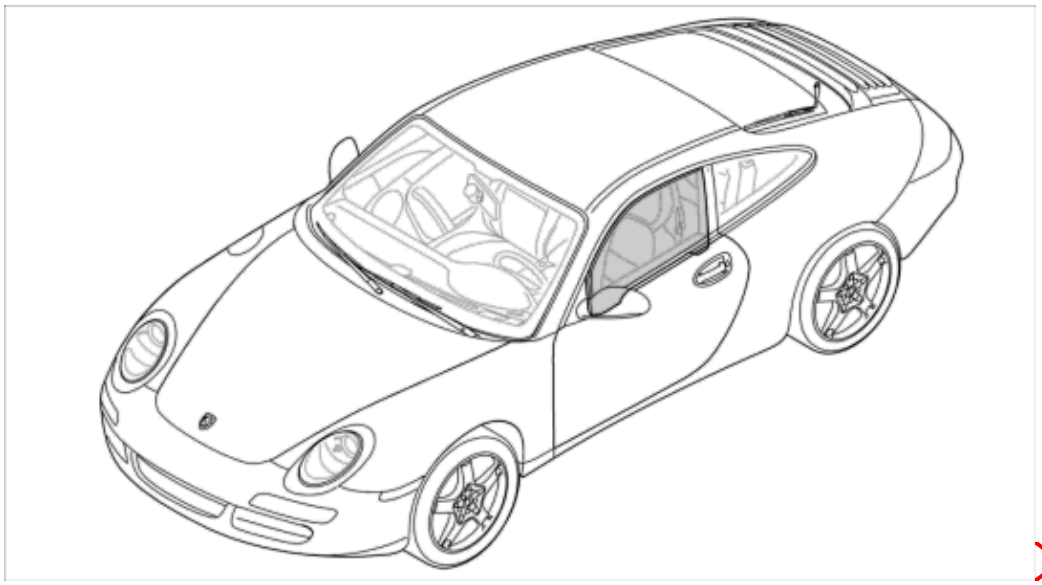
1. Raise front door window **-1-** .
2. Remove door trim panel. 705919 Removing and installing the door trim panel - Removing

top of page

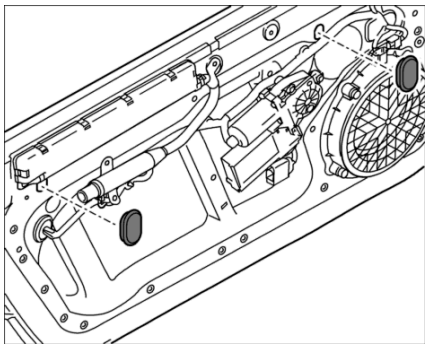
Removing front door window

Removing front door window

Installation Location:

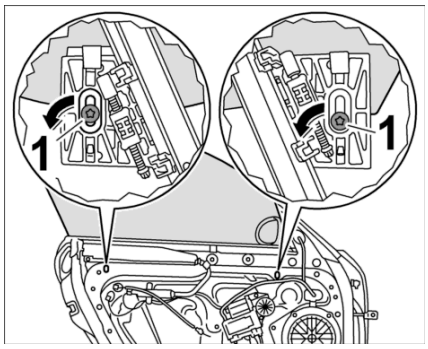


Installation position of front door window



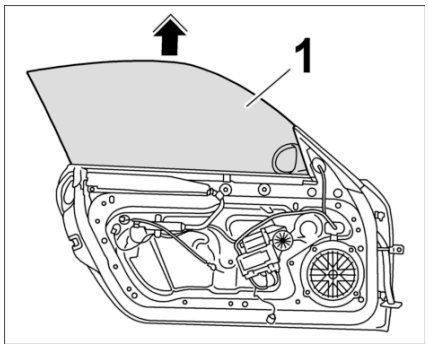
Removing plastic lid

1. Remove plastic lid. Fastening screws are then accessible.



Detaching door window

2. Loosen fastening screw **-1-** of the clamping jaws at the front and rear by 2 turns.



Removing door window

3. Pull front door window **-1-** upwards out of the door channel **-arrow-** .

top of page

Installing front door window

Installing front door window

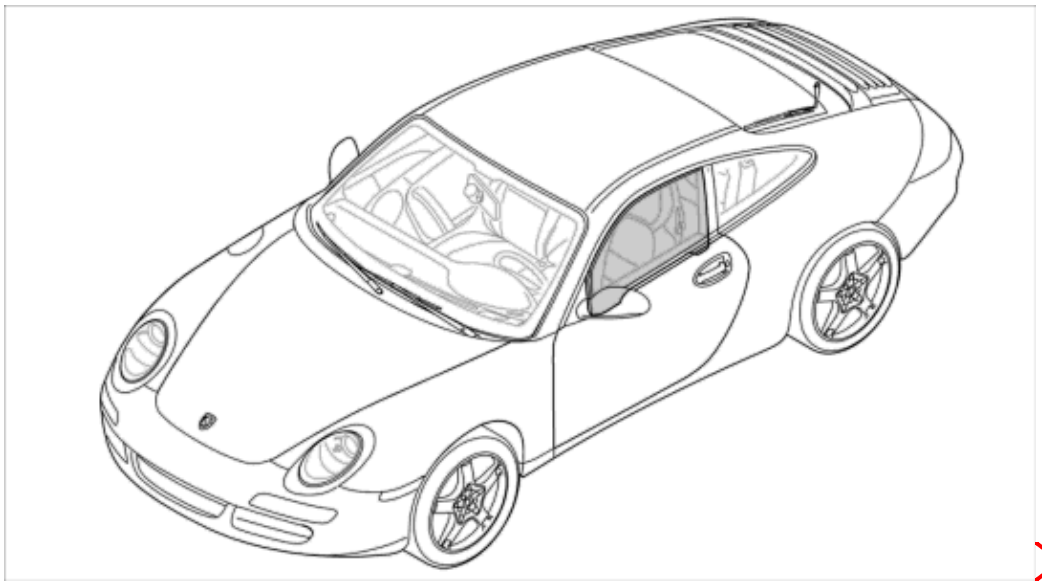
ATTENTION

Door glass can become soiled during installation!

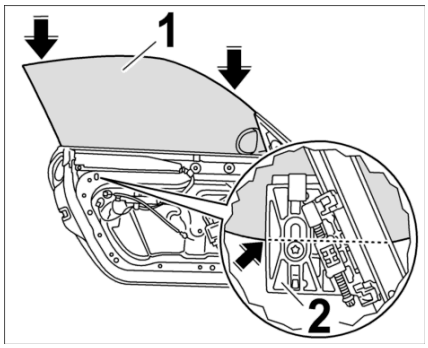
- **Risk of irreparable damage to front window shaft seal!**

During installation, make sure that no lubricant (grease) gets onto the door glass from the window guides. Clean door glass if necessary and check front window shaft seal for soiling, and replace the seal if necessary.

Installation Location:



Installation position of front door window

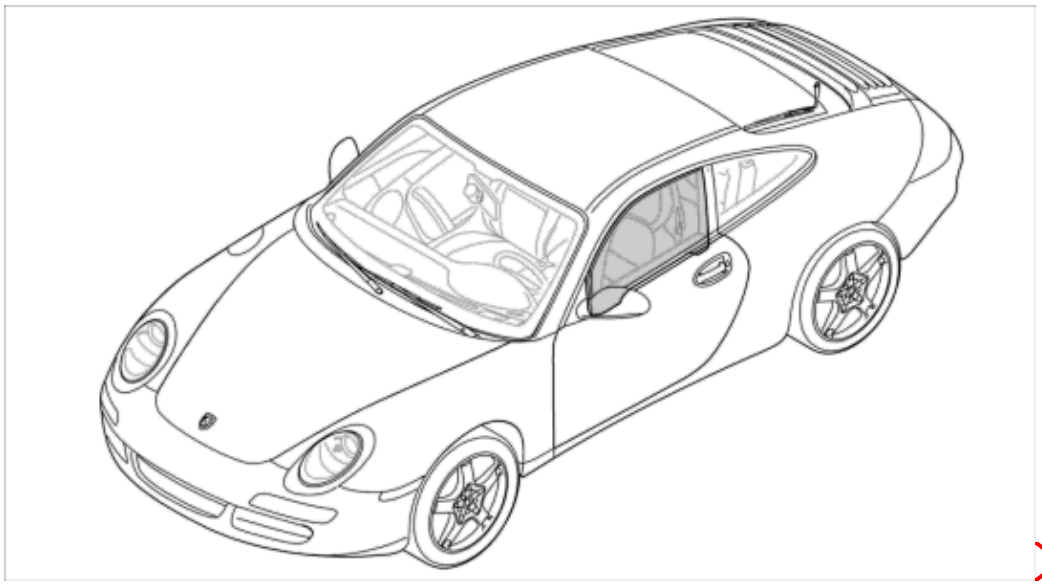


Installing front door window

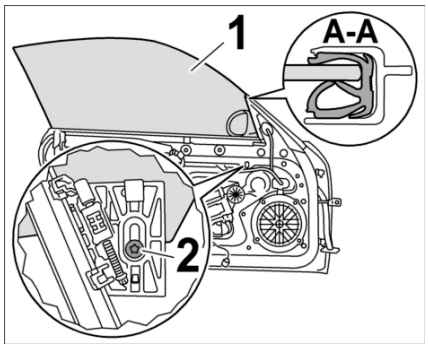
1. Insert front door window **-1-** into the door channel **-Arrows-** and position in the clamping jaws **-2-** .
2. Press the door window down as far as it will go **-Arrow-** into the clamping jaws.

Securing front door window

Installation Location:

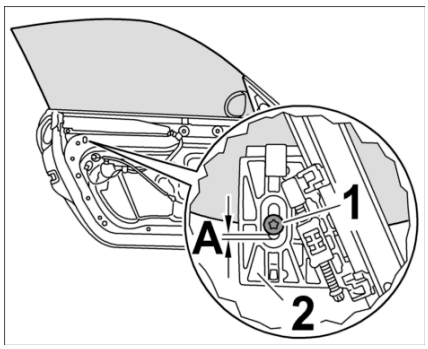


Installation position of front door window



Securing front door window

1. Slide door window **-1-** all the way forward into the window channel **-section A - A-** and screw down the fastening screw **-2-** on the front clamping jaw. Tightening torque **Final tightening: 8.5 (6.25) Nm (ftlb.) +/-1.5 (1) Nm (ftlb.)** .

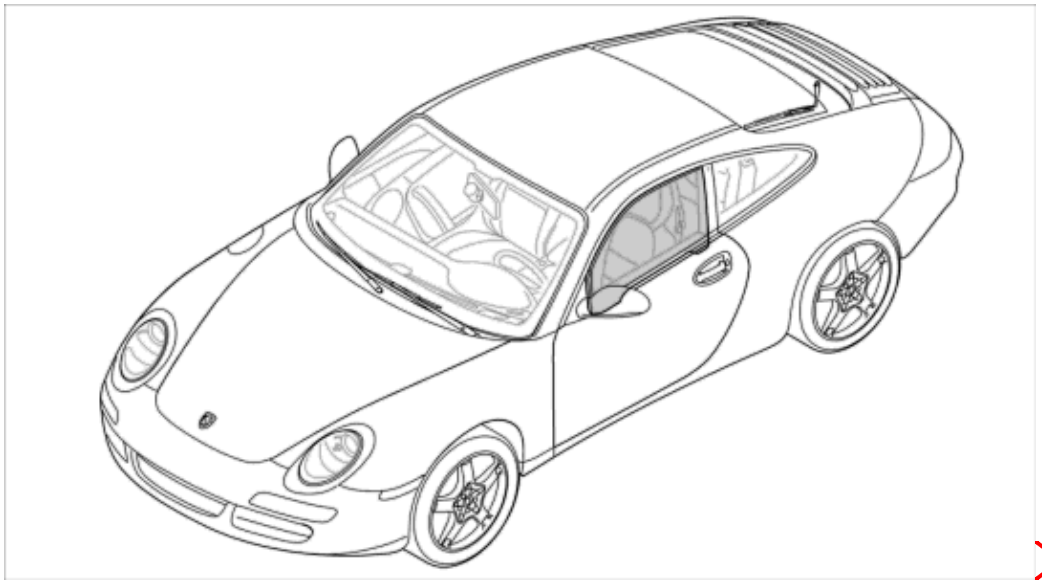


Securing door window

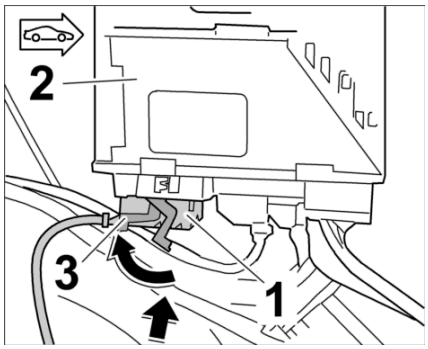
2. Raise rear clamping jaw **-2-** approx. 4 mm **-A-** and screw down fastening screw **-1-** . Tightening torque **Final tightening: 8.5 (6.25) Nm (ftlb.) +/-1.5 (1) Nm (ftlb.)** .

Inserting door trim panel

Installation Location:

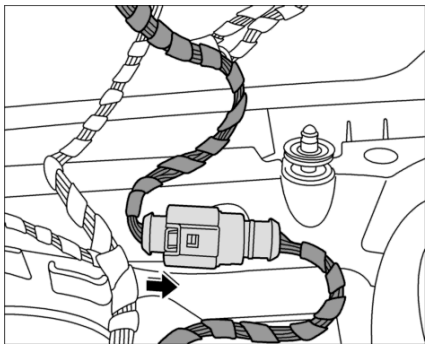


Installation position of front door window



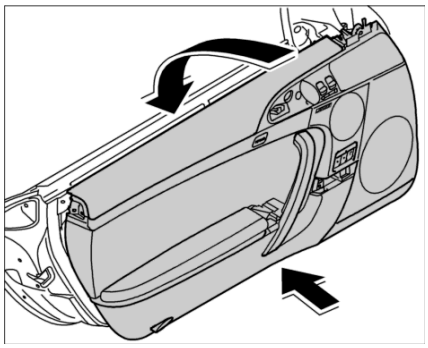
Lock plug connection to control module.

1. Connect electrical plug connection **-1-** to control module **-2-** by operating locking lever **-3-** and lock.



Locking electrical plug connection

2. Lock electrical plug connection **-arrow-** until it engages audibly.



Hooking in door trim panel

3. Hook front door trim panel into sealing channel at the top.

Standardising the power windows

The system must be re-standardised after an interruption in the power supply to the power window electronics in the door. The position values for the short-stroke lowering function, position-controlled lowering function in the case of convertible top actuation and enabling for "automatic start-up of window closing" (one-touch function) are redefined. The standardisation process is initiated by continuous actuation of the operating button Raise window .

– Hold down the Raise window button until the window is closed and is switched off by the blockage detection function of the power windows.

Blockage detection function

Note

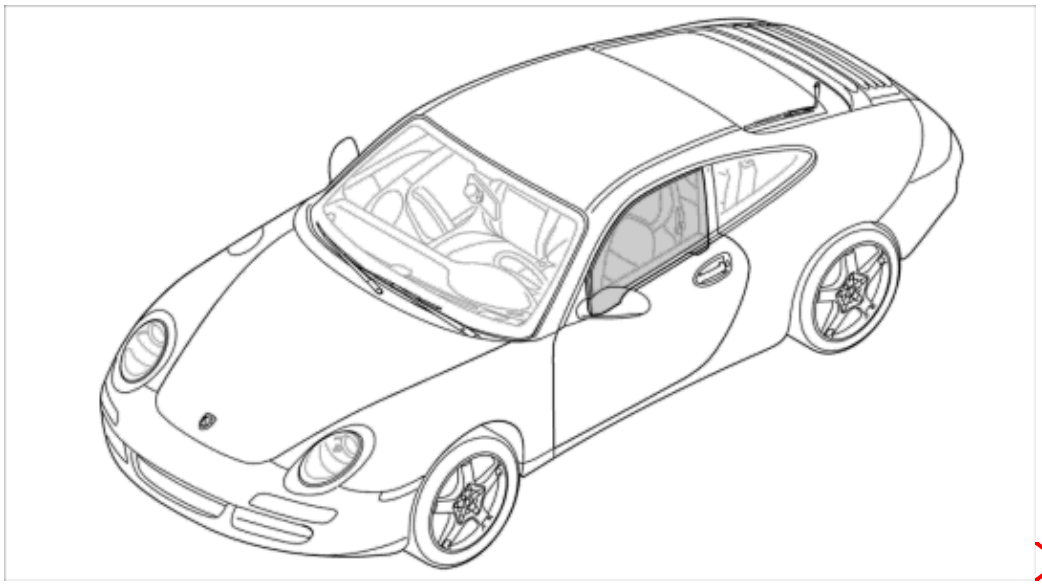
- *If the window drive encounters resistance during the door window movement, the motor is switched off after a delay of 500 ms.*

Precondition for operation of the power windows

Ignition switched on.
Ignition key should not be removed from the steering lock with the ignition switched off.
The door is opened for the first time after switching off the ignition.
Door opened.

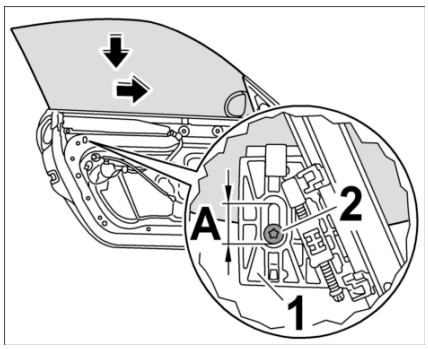
Adjusting the door window angle in the vehicle's longitudinal direction

Installation Location:



Installation position of front door window

1. Raise door window. Fastening screws are accessible.
2. Release electrical plug connections for door trim panel and remove door trim panel.

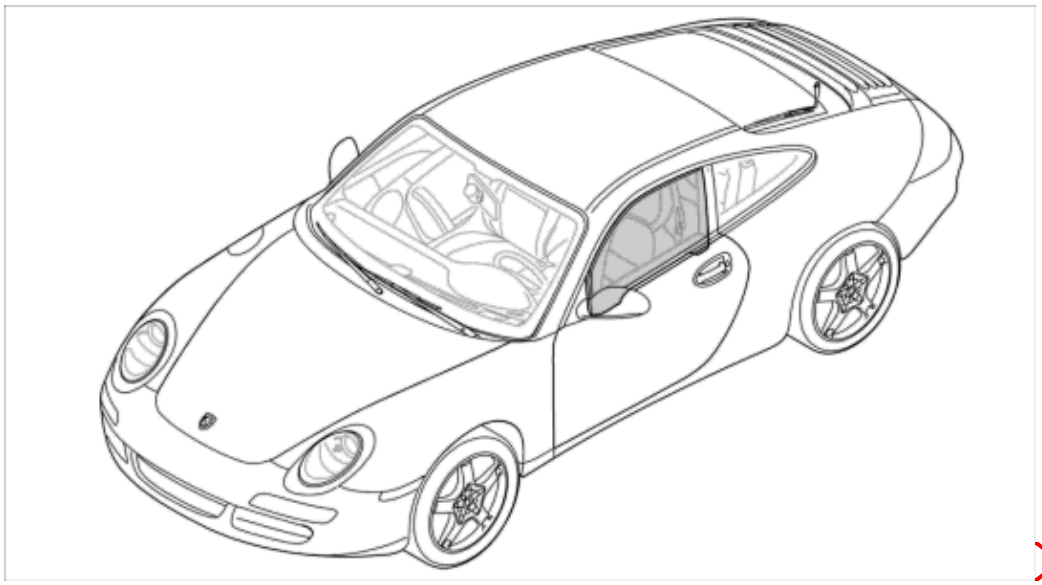


Adjusting the door window angle in the vehicle's longitudinal direction

3. Adjust to equalise the angle of the door window on the clamping jaws of the driver (upwards or downwards) **-A-** . **Adjustment range: 10 mm**
4. Tighten the fastening screw **-1-** on the clamping jaw **-2-** after completing the adjustment. Tightening torque **Final tightening: 8.5 (6.25) Nm (ftlb.) +/-1.5 (1) Nm (ftlb.)**

Adjusting the door window height

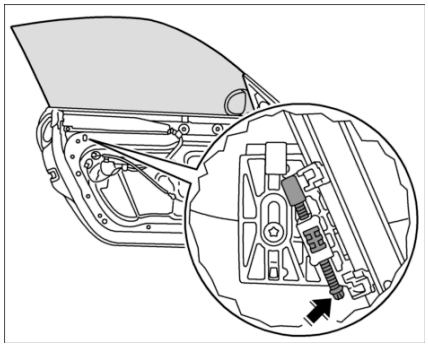
Installation Location:



Installation position of front door window

Note

- *The wax marking along the door window should be uniformly approx. 4 mm.*



Adjusting the door window height

Note

- *The adjusting screws of the drivers for the upper limit stops for the door window height are accessible through 2 holes at the bottom of the door.*

1. Adjust the upper limit stops of the drivers by screwing the fastening screw in or out using socket E6 in or against the direction of travel. **Adjustment range: approx. 15 mm**

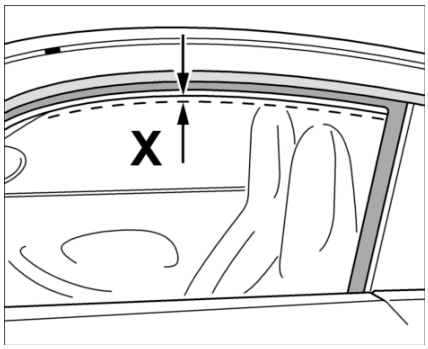
Note

- *The adjusting screws of the drivers for the upper limit stops for the door window height are accessible through 2 holes at the bottom of the door.*

2. Adjust the drivers so that they meet the upper limit stops at the same time.

Adjustment procedure:

3. Open the door.
4. Lock door lock with a screwdriver.
5. Re-insert the door trim panel (see Inserting door trim panel).
6. Move the power window regulator into its upper position.
7. Adjust door window height at the drivers so that the door window evenly projects approx. 2 mm above the roof strip.



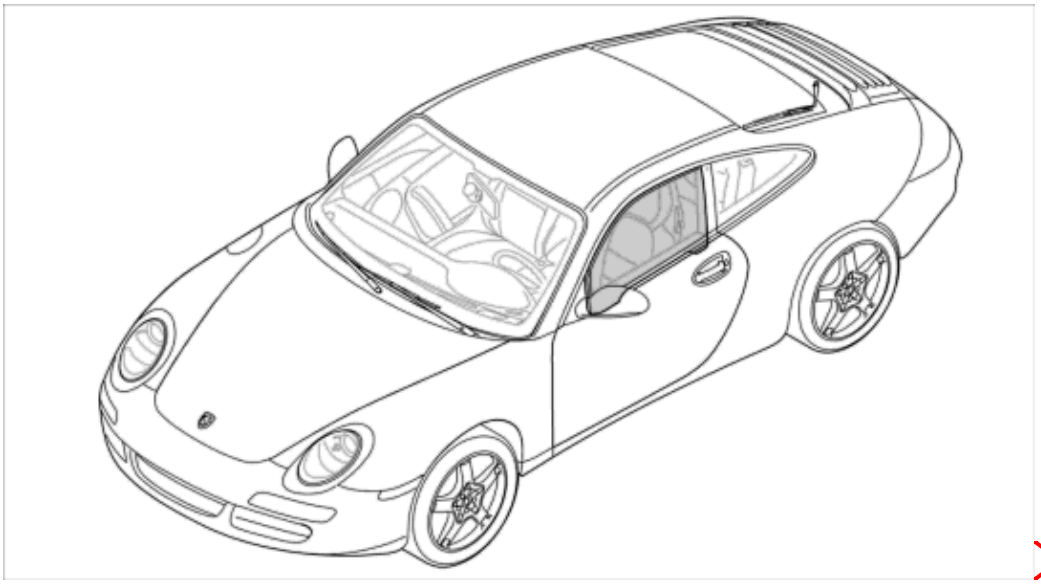
Overlapping of door window to roof

Checking the adjustment

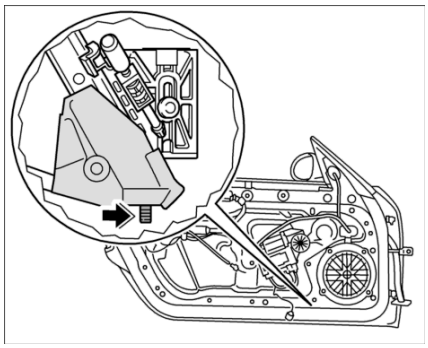
8. Close the door.
9. Use a wax marker to mark the door window along the roof strip.
10. Actuate the door handle until the window lowering function is activated. **Lowering function adjustment value: approx. 11 mm**
11. The wax marking along the door window must have the dimension **-X = approx. 4 mm-** . Correct adjustment if necessary.

Adjustment of the door window pressing force on the door seal at the top and sides

Installation Location:



Installation position of front door window



Adjustment of pressing force

Note

- *The adjusting nuts of the power window unit rails for the pressing force of the door window upper edge against the convertible top are accessible through two holes at the bottom of the door.*

1. Move the power window unit rails outwards or inwards by approx. 10 mm.

Adjustment procedure:

2. Open the door.

Note

- *The adjusting nuts of the power window unit rails for the pressing force of the door window upper edge against the convertible top are accessible through two holes at the bottom of the door.*

3. Move the power window regulator into its upper position and undo the fastening nuts on the power window rails.
4. Adjust the power window unit so that the upper edge of the door window is sufficiently pressed against the door seal at the side. Tightening torque **Final tightening: 9.7 (7.2) Nm (ftlb.)**

Checking the adjustment:

Note

- *It should not be possible to pull out the sheet of paper along the B-pillar when the door is closed.*

– clamp a sheet of paper between the door window and door seal.

top of page

Subsequent work

Subsequent work

1. Install door trim panel. 705919 Removing and installing door trim panel - chapter on "installing"

997110, 997111, 997120, 997121, 997310, 997311, 997320, 997321, 997410, 997411, 997430, 997431, 997610, 997611, 997620, 997621

as of MY 2005
Country C00, C02, C05, C07, C08, C09, C10, C11, C12, C13, C14, C15, C16, C18, C19, C20, C21, C22, C23, C24, C25, C26, C27, C28, C32, C33, C34, C35, C36, C37, C38, C39, C45, C46, C98, C99

WARNUNG
Gefahr des Verlusts der Text-Bild-Zuordnung beim Ausdruck.

- **Aus technischen Gründen kann derzeit nicht ausgeschlossen werden, dass trotz einwandfreier Darstellung auf dem Bildschirm beim Ausdruck der Zusammenhang von Text und zugehörigem Bild verloren geht.**
- **Wird der Fehler nicht bemerkt, besteht die Gefahr, daß Arbeiten nicht korrekt durchgeführt werden und es dadurch zu Personen- und Sachschäden kommt.**

Vergleichen Sie deshalb nach dem Druckvorgang unbedingt die Ausdrucke mit der Bildschirmdarstellung. Korrigieren Sie die Ausdrucke im Fehlerfall so, daß der Inhalt der Bildschirmdarstellung zutreffend wiedergegeben wird.

WARNING
Danger of losing text-figure correspondence when printing out.

- **For technical reasons, it can currently not be ruled out that the correspondence between text and associated figure can be lost when it is printed out, even though the display on the screen is correct.**
- **If the fault is not noticed, there is the danger that work will not be performed correctly which can cause injury and damage.**

64 40 49 Reworking (coating) front door window - as of MY 2005

- General warning notes
- Preliminary work

top of page

General warning notes

Warning note on hydrophobic window

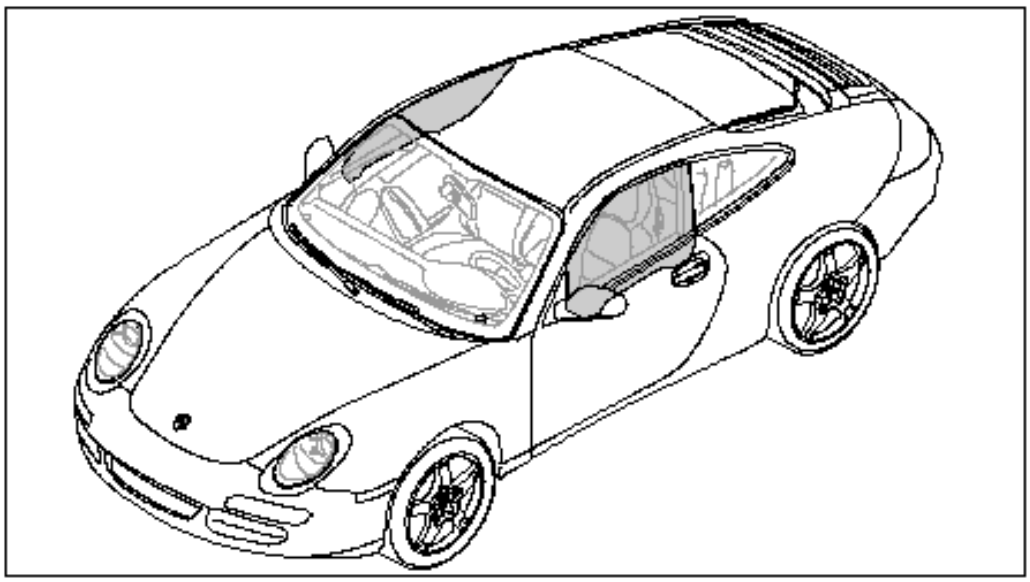
WARNING
Coating of windows

- **Fogging, dazzling and danger of accident!**

Hydrophobic coating is approved by the Porsche AG for the door windows only.

Checking front door window

Installation Location:

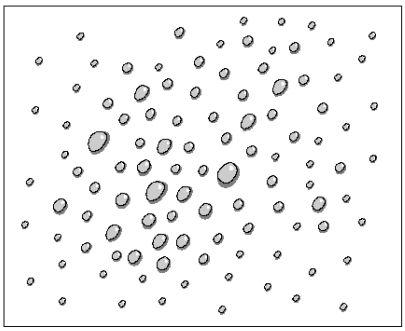


Installation position of door windows

Note

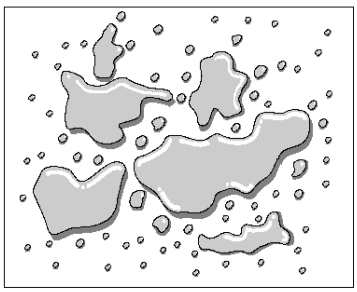
- *The hydrophobic coating has a very long life. If the hydrophobic coating deteriorates, the side window can be recoated without any special measures being required.*
- *You can see if reworking (coating) is required by checking how droplets form.*

Spray on water using a water spray bottle with an atomiser and check the hydrophobic layer from the droplet formation.



Droplet formation - hydrophobic door window OK

– Droplet formation - hydrophobic door window OK



Droplet formation - hydrophobic door window coating worn

– Droplet formation - coating worn.

top of page

Preliminary work

Mixing the components

Note

Once mixed, hydrophobic coating agent must be used within 24 hours!

1. Pour the entire contents of the Component 2 bottle into the Component 1 bottle.
2. Close the bottle tightly again and shake well immediately for at least three minutes.

Cleaning the surface

Note

Immediately after buffing, the side window should be coated.

1. Clean the side window with a commercially available glass cleaner
2. Shake the polish well before use.
3. Dampen polishing cloths with water, apply polish and buff for several minutes.
4. Allow polish film to dry and then remove completely.

Reworking (coating) front door window

Note

- *Do not let the hydrophobic coating come into contact with water for at least 30 minutes after applying the coating.*

1. Apply hydrophobic coating agent as a liquid film extensively over the surface and immediately rub evenly with a paper towel.
2. After buffing, a grey bloom forms over the treated surface. This grey bloom must be completely polished off with a new, dry and clean paper towel.
3. Afterwards the coating should be kept free of water or other liquids for at least 30 minutes.

Coating agent that has begun to dry can be softened up by rubbing with the aid of the still soaking towel and then rubbed off with a clean paper towel.

997110, 997111, 997120, 997121, 997310, 997311, 997320, 997321, 997410, 997411, 997430, 997431, 997610, 997611, 997620, 997621

as of MY 2005
Country C00, C02, C05, C07, C08, C09, C10, C11, C12, C13, C14, C15, C16, C18, C19, C20, C21, C22, C23, C24, C25, C26, C27, C28, C32, C33, C34, C35, C36, C37, C38, C39, C45, C46, C98, C99

WARNUNG

Gefahr des Verlusts der Text-Bild-Zuordnung beim Ausdruck.

- **Aus technischen Gründen kann derzeit nicht ausgeschlossen werden, dass trotz**

64 48 19 Removing and installing the front window shaft seal - as of MY 2005

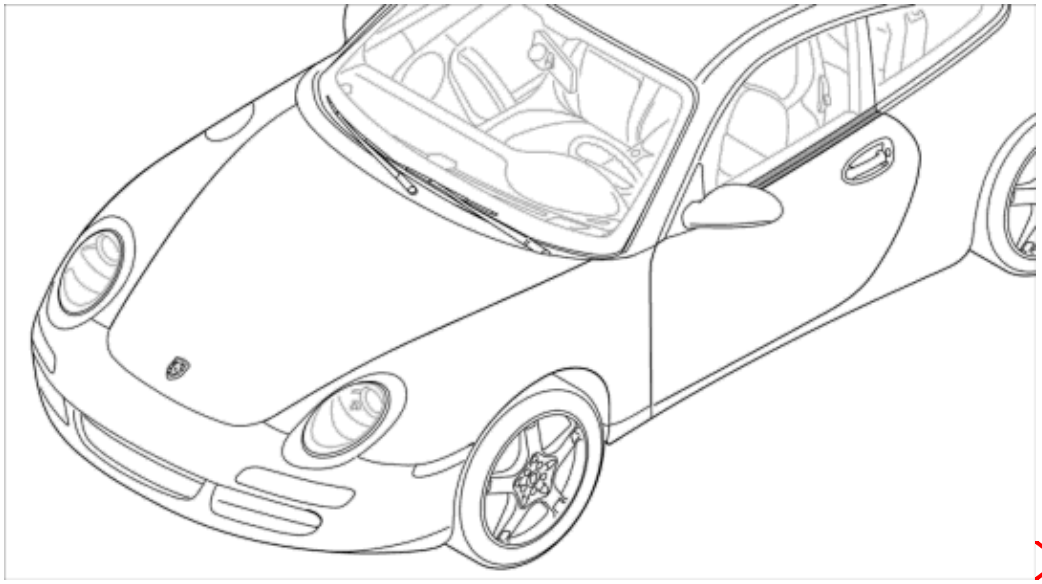
- Removing the front window shaft seal
- Installing the front window shaft seal

top of page

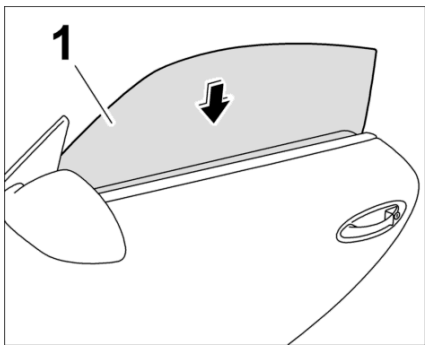
Removing the front window shaft seal

Removing the front window shaft seal

Installation Location:

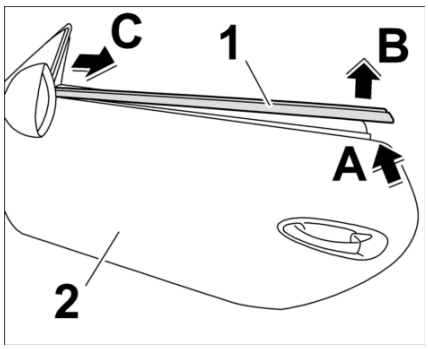


Installation position of front window shaft seal



Opening the front door window

1. Open the front door window **-1-** fully.



Removing the front window shaft seal

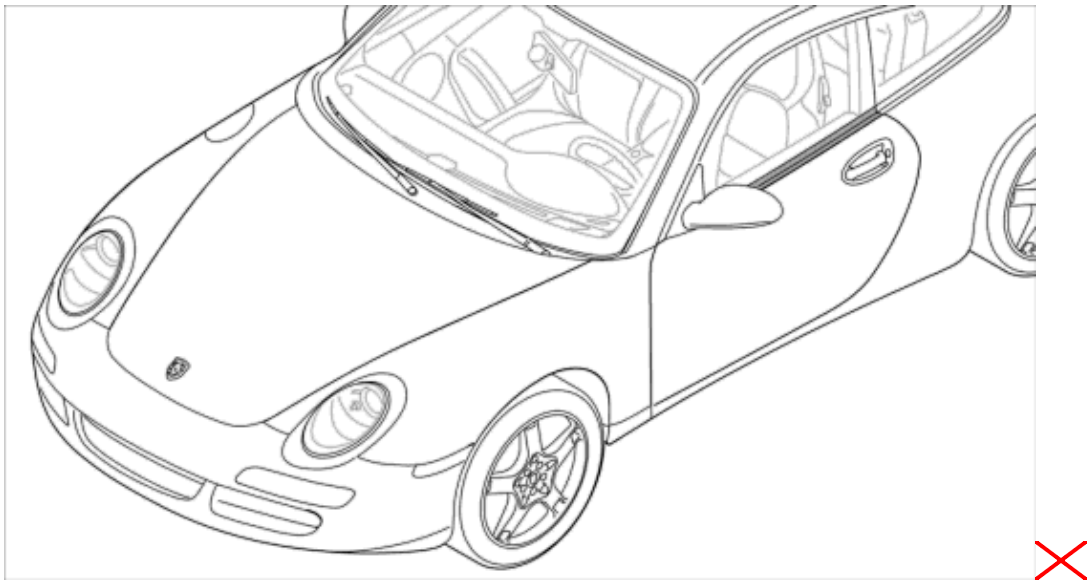
2. Pull front window shaft seal **-1-** - beginning at the rear end **-arrow A-** - off the sheetmetal door flange **-2-** in an upward direction **-arrow B-** .
3. Remove the front window shaft seal **-1-** .

top of page

Installing the front window shaft seal

Installing the front window shaft seal

Installation Location:



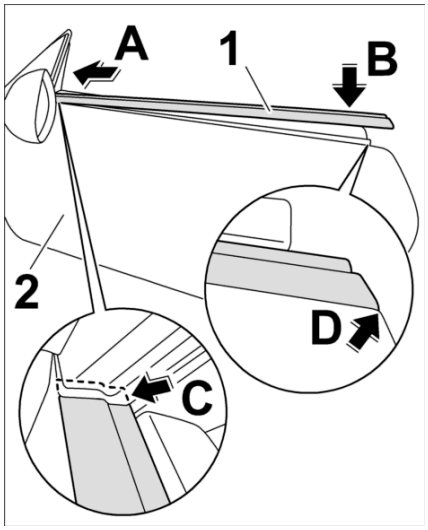
Installation position of front window shaft seal

ATTENTION

Door glass can become soiled during installation!

- **Risk of irreparable damage to front window shaft seal!**

During installation, make sure that no lubricant (grease) gets onto the door glass from the window guides. Clean door glass if necessary and check front window shaft seal for soiling, and replace the seal if necessary.

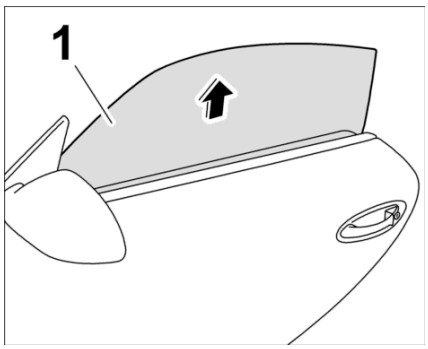


Installing the front window shaft seal

Note

- *Make sure horizontal alignment is correct (Arrows C, D).*

1. Attach front window shaft seal **-1-** - starting at the front end **-Arrow A-** - to the sheetmetal door flange **-2-** from above **-Arrow B-** .



Closing front door window

2. Close the front door window **-1-** fully.

997110, 997111, 997120, 997121, 997310, 997311, 997320, 997321, 997410, 997411, 997430, 997431, 997610, 997611, 997620, 997621

as of MY 2005
Country C00, C02, C05, C07, C08, C09, C10, C11, C12, C13, C14, C15, C16, C18, C19, C20, C21, C22, C23, C24, C25, C26, C27, C28, C32, C33, C34, C35, C36, C37, C38, C39, C45, C46, C98, C99

64 52 19 Removing and installing front power windows - as of MY 2005

- Preliminary work
- Removing front power windows
- Installing front power windows
- Subsequent work

top of page

Preliminary work

Preliminary work

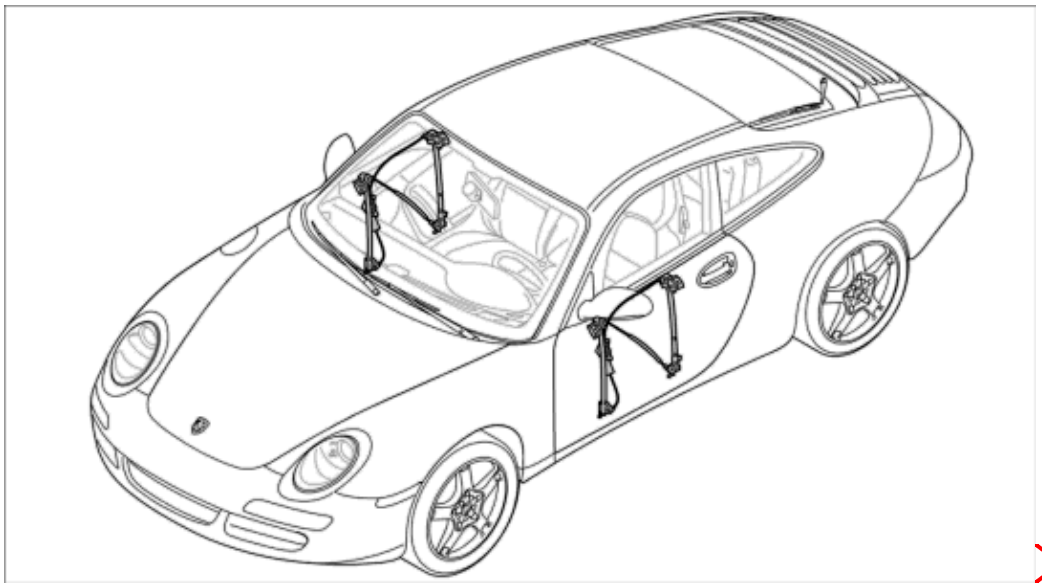
1. Remove door unit carrier. 573019 Removing and installing door unit carrier - removing
2. Remove front door window. 644019 Removing and installing front door window - removing

top of page

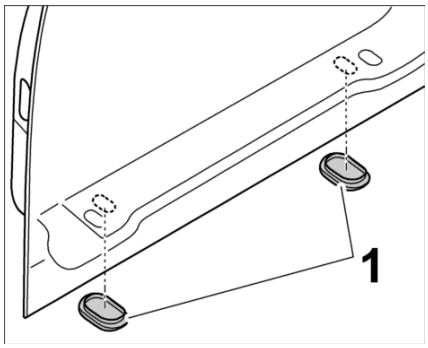
Removing front power windows

Removing front power windows

Installation Location:

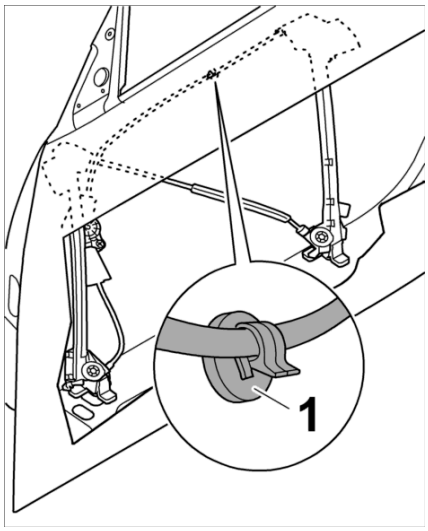


Installation position of front power windows



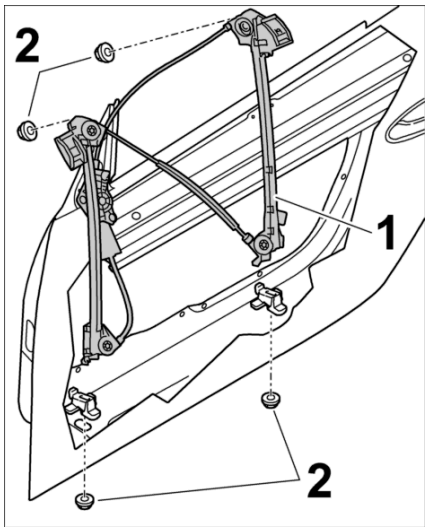
Removing rubber sleeve

1. Remove rubber sleeves **-1-** .



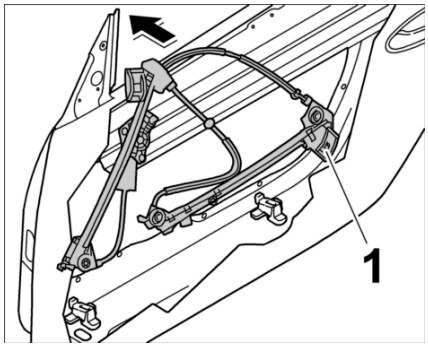
Unclipping cable

2. Unclip cable at retaining clip **-1-** .



Releasing power windows

3. Unscrew fastening nuts **-2-** on power windows **-1-** .



Removing power windows

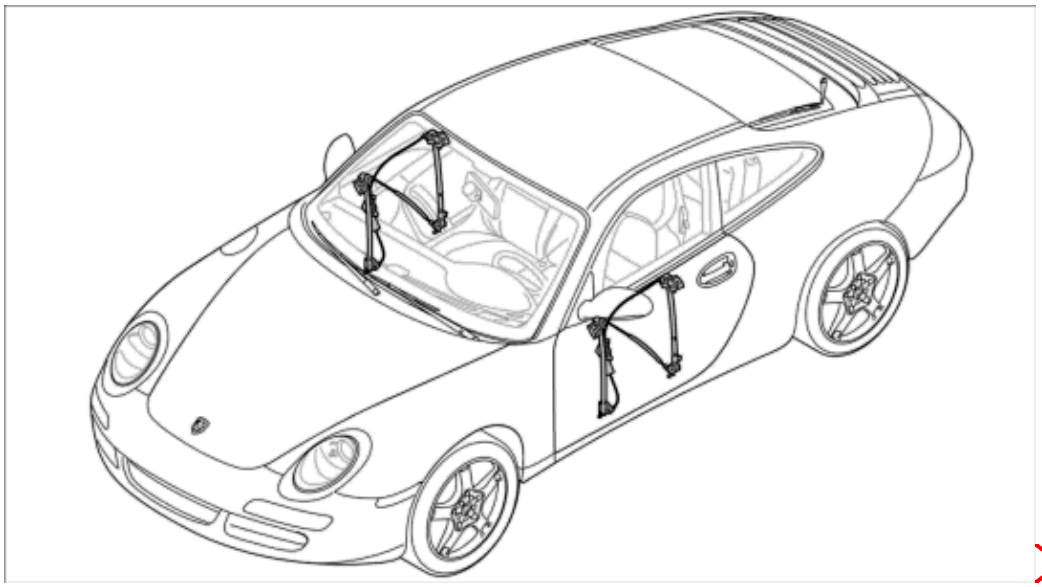
4. Fold power windows **-1-** together and remove through the door opening **-arrow-** .

top of page

Installing front power windows

Adjusting the lower stop of the power window unit

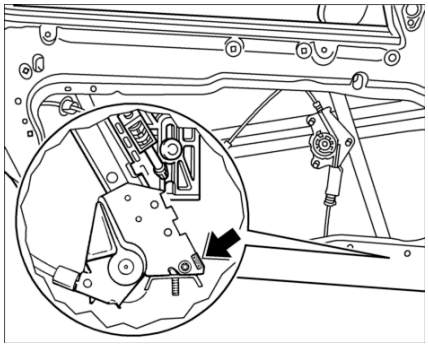
Installation Location:



Installation position of front power windows

Note

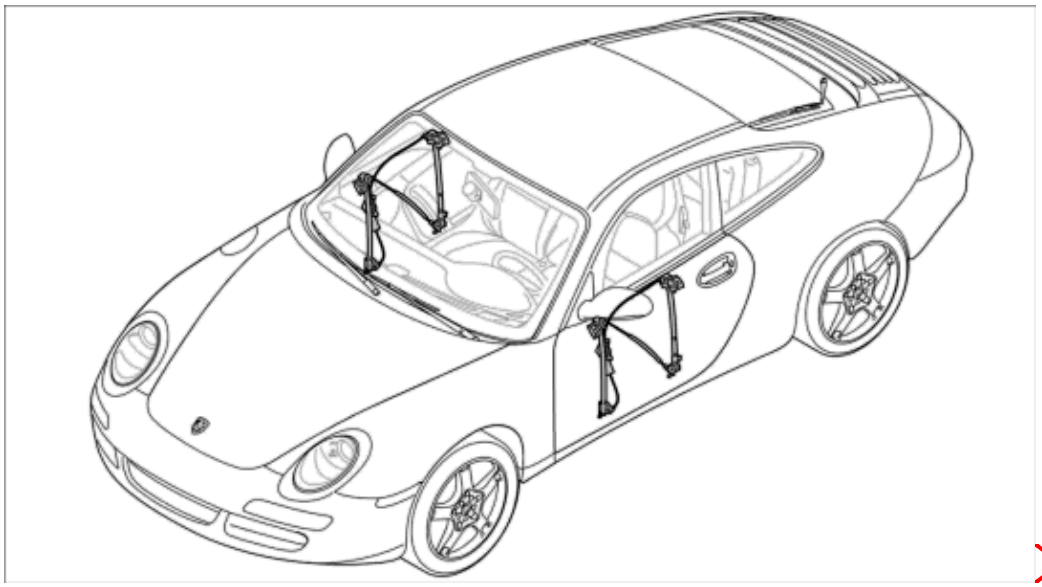
- *When replacing the power window unit, make sure that the correct position of the lower limit stop is selected for the respective model.*
- *There are three bores lying one above the other with the screwed-on limit stop in the front power window unit rail.*
- *The limit stop must be fitted in the bottom bore for the 997 model.*



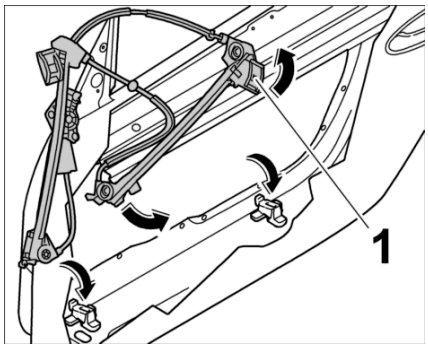
Limit stop adjustment

Installing front power windows

Installation Location:

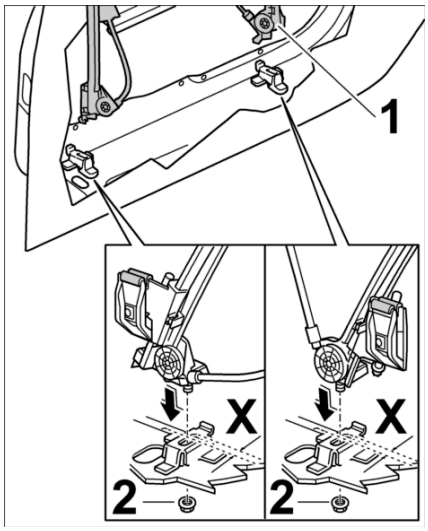


Installation position of front power windows



Installing power windows

1. Fold power windows **-1-** together and insert through the door opening **-arrows-** .



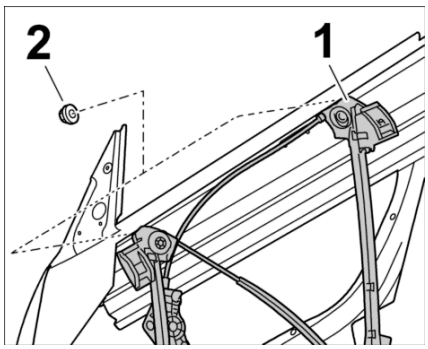
Securing power windows

ATTENTION

Noises on the power windows due to interfacing the window lifter rails!

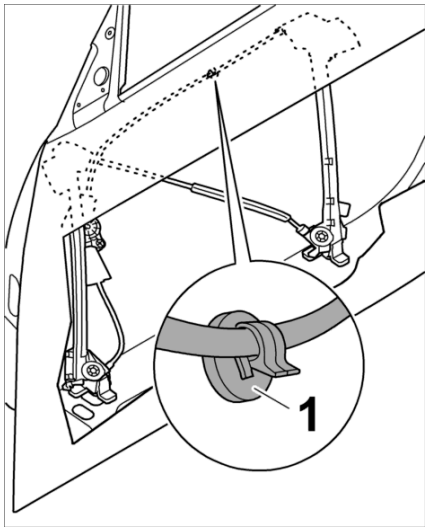
When moving the window lifter rails, they must be adjusted in parallel both during the first installation as well as during subsequent adjustment.

2. First position the lower fastening points of the power windows **-1-** to the dimension **-X = 5 mm-** and tighten with fastening nuts **- 2-** . Tightening torque **Final tightening : 7 ftlb.**



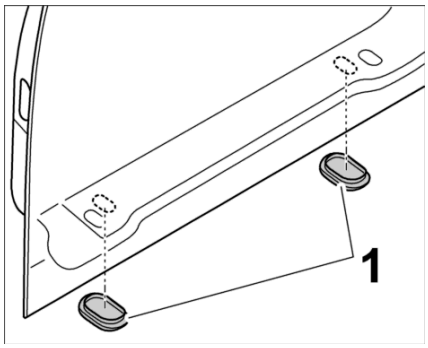
Securing power windows

3. Then screw down the upper fastening points of the power windows **-1-** with the fastening nuts **-2-** . Tightening torque **Final tightening: 7.2 ftlb.**



Clipping in cable

4. Clip in cable at retaining clip **-1-** .



Fitting rubber sleeve

5. Fit rubber sleeves **-1-** .

top of page

Subsequent work

Subsequent work

1. Install door unit carrier. 573019 Removing and installing door unit carrier - installing
2. Install front door window. 644019 Removing and installing front door window - installing

---

997110, 997111, 997120, 997121, 997310, 997311, 997320, 997321, 997410, 997411, 997430, 997431, 997610, 997611, 997620, 997621

as of MY 2005
Country C00, C02, C05, C07, C08, C09, C10, C11, C12, C13, C14, C15, C16, C18, C19, C20, C21, C22, C23, C24, C25, C26, C27, C28, C32, C33, C34, C35, C36, C37, C38, C39, C45, C46, C98, C99

WARNUNG

Gefahr des Verlusts der Text-Bild-Zuordnung beim Ausdruck.

- **Aus technischen Gründen kann derzeit nicht ausgeschlossen werden, dass trotz einwandfreier Darstellung auf dem Bildschirm beim Ausdruck der Zusammenhang von Text und zugehörigem Bild verloren geht.**
- **Wird der Fehler nicht bemerkt, besteht die Gefahr, daß Arbeiten nicht korrekt durchgeführt werden und es dadurch zu Personen- und Sachschäden kommt.**

Vergleichen Sie deshalb nach dem Druckvorgang unbedingt die Ausdrucke mit der Bildschirmdarstellung. Korrigieren Sie die Ausdrucke im Fehlerfall so, daß der Inhalt der Bildschirmdarstellung zutreffend wiedergegeben wird.

WARNING

Danger of losing text-figure correspondence when printing out.

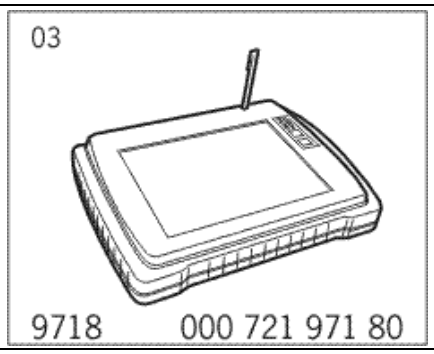
- **For technical reasons, it can currently not be ruled out that the correspondence between text and associated figure can be lost when it is printed out, even though the display on the screen is correct.**
- **If the fault is not noticed, there is the danger that work will not be performed correctly which can cause injury and damage.**

Therefore, always compare printouts with the screen display after printing them out. Correct the printouts if they are faulty so that the content of the screen display matches that on the printouts.

64 54 19 Removing and installing power window motor - as of MY 2005

- Preliminary work
- Removing power window motor
- Installing power window motor
- Subsequent work
- Programming power window motor (door control unit)
- Coding power window motor (door control unit)

Tools

Designation	Type	Number	Explanation	
PIWIS tester	special tool	9718		

top of page

Preliminary work

Preliminary work for power window motor

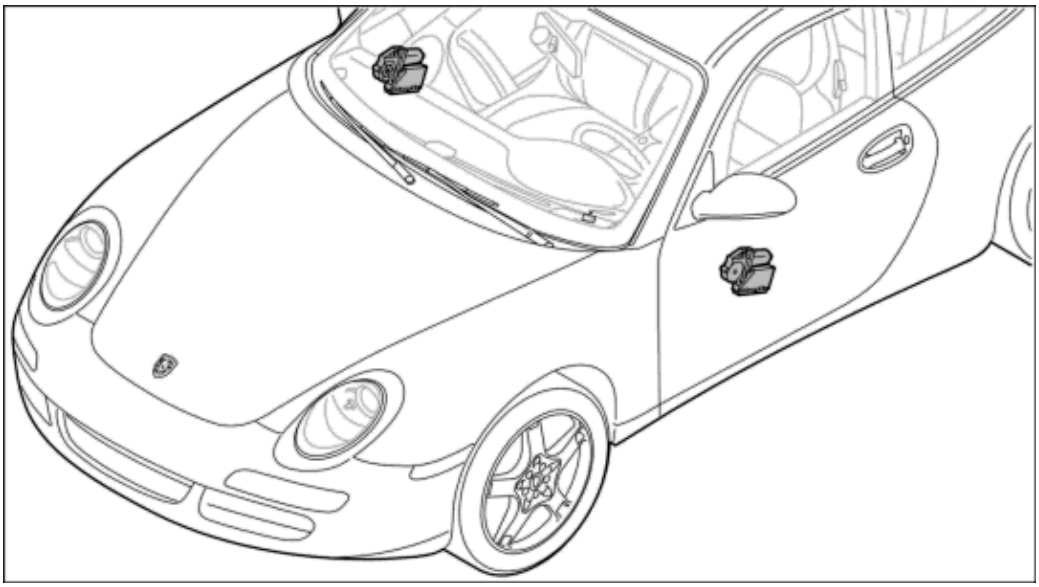
__705919 Removing and installing door trim panel - chapter on "removing"

top of page

Removing power window motor

Removing power window motor

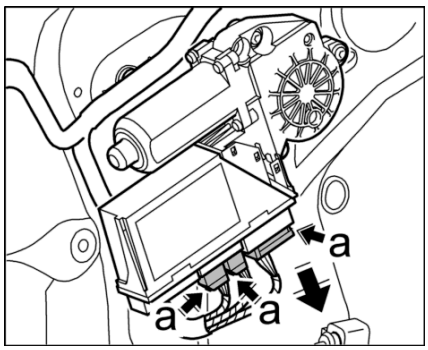
Installation Location:



Installation position shown on the 997

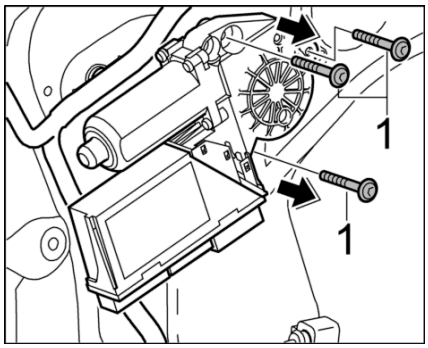
1. If a new power window motor is to be installed, read out the values first. 645419 Removing and installing power window motor - chapter on "installing"

Switch off ignition and remove ignition key.



Release connector -a- and remove.

2. Unlock electric connector **-a-** and disconnect from power window motor..



Unscrew fastening screws -1-.

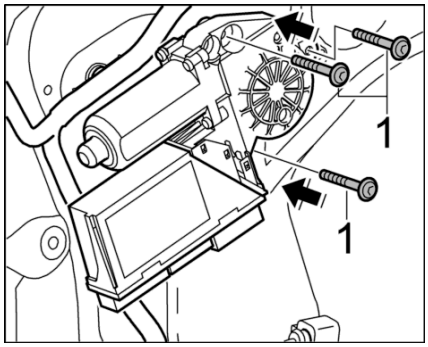
3. Unscrew the three fastening screws **-1-** .
4. Pull the power window motor out of the teeth.

top of page

Installing power window motor

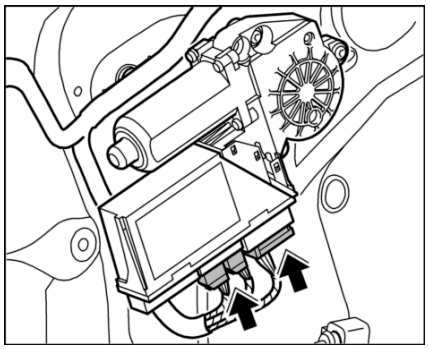
Installing power window motor

1. Position power window motor and push into the teeth.



Screwing in fastening screws -1-

2. Screw in the three fastening screws. **Tightening torque: 2 ftlb.**



Plugging in connector

3. Press in electric connector on power window motor until it is felt to engage.

Note

The end positions of the power windows are deleted from the control unit when the electric connectors are disconnected and connected.

4. Operate rocker switch and fully close window once.
5. Operate rocker switch to close again. The upper end position of the side window is stored.
6. Operate rocker switch and fully open window once.
7. Operate rocker switch to open again. The lower end position of the side window is stored.
8. If a new power window motor has been installed (door control unit), this must be programmed/coded. 645419 Removing and installing power window motor - chapter on "programming"; 645419 Removing and installing power window motor - chapter on "coding".

top of page

Subsequent work

Subsequent work for window power motor

705919 Removing and installing door trim panel - chapter on "installing"

top of page

Programming power window motor (door control unit)

Reading from and writing to the power windows motor (door control unit)

WARNING

Sudden voltage interruption of the power supply to the control module.

- **Destruction of the control module.**

During programming, it is essential to guarantee the power supply for the Porsche System tester. It is essential to connect a battery charger with a current rating of at least 40 A to the vehicle battery.

Prior to disconnecting the control module, switch off the ignition and remove the ignition key.

Note

The **PIWIS tester 9718** instructions take precedence and in the event of a discrepancy these are the instructions that must be followed. Deviations may occur with later software versions.
The procedure described here has been structured in general terms; different text or additions may appear in the **PIWIS tester 9718**.

1. Connect the Porsche System Tester to the vehicle and start the System Tester. Switch on ignition. >> Continue.
2. Select vehicle type using the cursor keys.
3. Switch from the vehicle type to the list of control units.
4. Select **Door** and press the >> key.
5. Select **Control unit replacement** and press the >> key.
6. Select **Read out values** (codings) and press >> .

7. The message **Coding read-out complete**appears on the screen of the Porsche System Tester >> .
8. Switch off ignition and replace control unit *21 Removing and installing control unit for rear convenience systems - removing*
9. Switch to the **Special functions** menu and perform the **vehicle handover** using the F8 key.
10. In the **Special functions** menu, erase **All fault memories** by pressing >> .
11. Carry out automatic search of control units.
12. In the menu **Write in data** >> , the data read-out is installed.
13. System Tester displays **Codes successfully written in**. Press >> .
14. Change to the **Coding** menu and compare the coding with the vehicle equipment. Recode if necessary.
15. Read out fault memory and, if necessary, erase it.

top of page

Coding power window motor (door control unit)

Coding the power windows motor (door control unit)

WARNING

Sudden voltage interruption of the power supply to the control module.

- **Destruction of the control module.**

During programming, it is essential to guarantee the power supply for the Porsche System tester. It is essential to connect a battery charger with a current rating of at least 40 A to the vehicle battery.

Prior to disconnecting the control module, switch off the ignition and remove the ignition key.

Note

The **PIWIS tester 9718** instructions take precedence and in the event of a discrepancy these are the instructions that must be followed. Deviations may occur with later software versions.
The procedure described here has been structured in general terms; different text or additions may appear in the **PIWIS tester 9718**.

Note

The procedure described must be applied when a control unit has to be replaced and the tester function **Control unit replacement** cannot be used.

1. Connect the **PIWIS tester 9718** to the vehicle and start it. Switch on the ignition. >> Continue.
2. Select the **vehicle type**.

3. Switch to the **Special functions** menu and perform the **vehicle handover** using the F8 key.
4. In the **Special functions** menu, erase **All fault memories** by pressing >> .
5. Carry out automatic search of control units.
6. Using the >> key, move from the vehicle type to the list of control units.
7. Select **Door** and press the >> .
8. Select **Coding** and press the >> .
9. Select **Memory via radio** and code with F8 .

Memory via radio
No
Yes

10. Select **Mirror memory function** and code with F8 .

Mirror memory function
Installed
Not installed

11. Select **Lock with Safe function** and code with F8 .

Lock with Safe function
Installed
Not installed

12. Select **Synchronous mirror adjustment** and code with F8 .

Synchronous mirror adjustment
Off
On

13. Select **Mirror lowering** and code with F8 .

Mirror lowering
Off
On

14. Select **Comfort closing** and code with F8 .

Comfort closing
Off
On

15. Select **Comfort opening** and code with F8 .

Comfort opening
Off
On

16. Select **Door inner handle in normal driving** and code with F8 .

Door inner handle in normal driving
Inactive
Active

17. Select **Manual transmission** and code with F8 .

Manual transmission
No
Yes

18. Read out fault memory and erase if required.
19. Door control unit is taught .

997110, 997111, 997120, 997121, 997310, 997311, 997320, 997321, 997410, 997411, 997430, 997431, 997610, 997611, 997620, 997621

as of MY 2005
Country C00, C02, C05, C07, C08, C09, C10, C11, C12, C13, C14, C15, C16, C18, C19, C20, C21, C22, C23, C24, C25, C26, C27, C28, C32, C33, C34, C35, C36, C37, C38, C39, C45, C46, C98, C99

WARNUNG

Gefahr des Verlusts der Text-Bild-Zuordnung beim Ausdruck.

- **Aus technischen Gründen kann derzeit nicht ausgeschlossen werden, dass trotz einwandfreier Darstellung auf dem Bildschirm beim Ausdruck der Zusammenhang von Text und zugehörigem Bild verloren geht.**
- **Wird der Fehler nicht bemerkt, besteht die Gefahr, daß Arbeiten nicht korrekt durchgeführt werden und es dadurch zu Personen- und Sachschäden kommt.**

64 58 19 Removing and installing switch for power windows - as of MY 2005

- Preliminary work
- Removing switch for power windows
- Installing switch for power windows
- Subsequent work

top of page

Preliminary work

Preliminary work

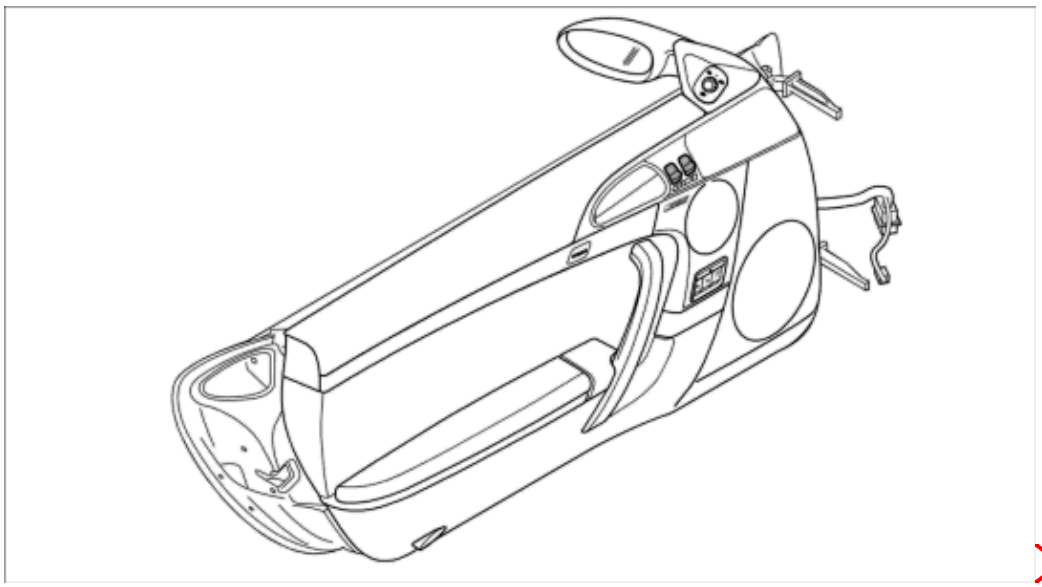
Remove door trim panel. 705919 Removing and installing door trim panel - chapter on "Removing"

top of page

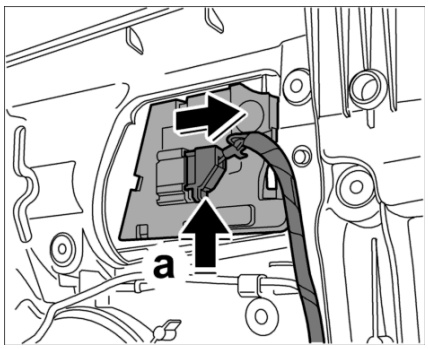
Removing switch for power windows

Removing switch for power windows

Installation Location:

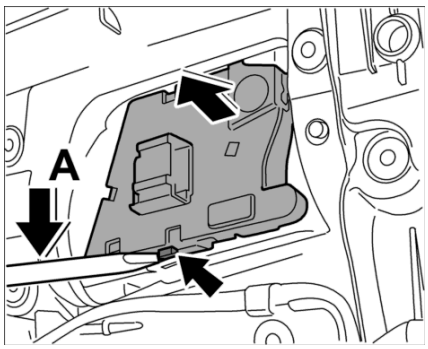


Overview of switch for power windows



Pulling connector off switch for power windows

1. Release **-arrow a-** and pull off connector.



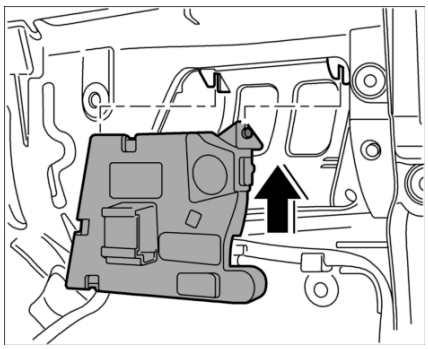
Removing switch for power windows

2. Lever off switch for power windows at the locking tab **-arrow-** (**-arrow A-**) and remove it.

top of page

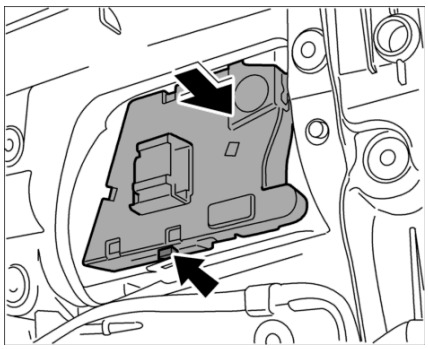
Installing switch for power windows

Installing switch for power windows



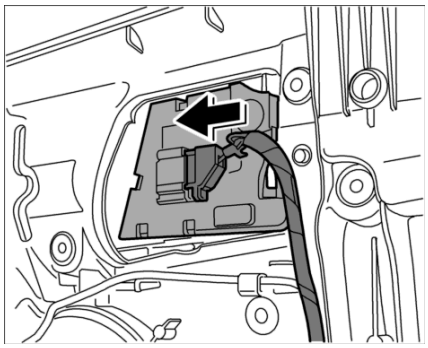
Installing switch for power windows

1. Insert the switch for power windows into the mounting points at the door trim panel using the locking tabs.



Installing switch for power windows

2. Press in switch for electric power windows until the locking tab **-arrow-** clicks into place.



Connecting connector for switch for power windows

3. Press in the connector until it is felt to engage.

top of page

Subsequent work

Subsequent work

Install door trim panel. 705919 Removing and installing door trim panel - chapter on "Installing"

997110, 997111, 997120, 997121, 997310, 997311, 997320, 997321, 997410, 997411, 997430, 997431, 997610, 997611, 997620, 997621

as of MY 2005
Country C00, C02, C05, C07, C08, C09, C10, C11, C12, C13, C14, C15, C16, C18, C19, C20, C21, C22, C23, C24, C25, C26, C27, C28, C32, C33, C34, C35, C36, C37, C38, C39, C45, C46, C98, C99

64 61 19 Removing and installing rear power window motor - as of MY 2005

- Preliminary work
- Removing rear power window motor
- Installing rear power window motor
- Subsequent work

top of page

Preliminary work

Preliminary work

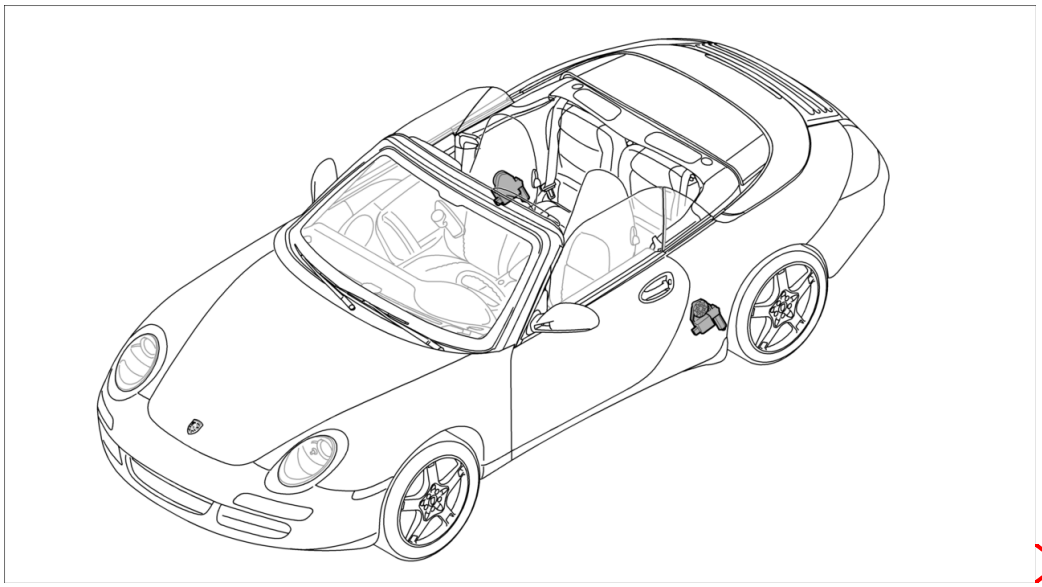
1. Remove rear power window. 647119 Removing and installing rear power window - chapter on "Removing"

top of page

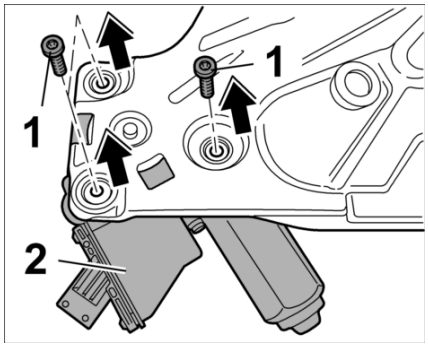
Removing rear power window motor

Removing rear power window motor

Installation Location:

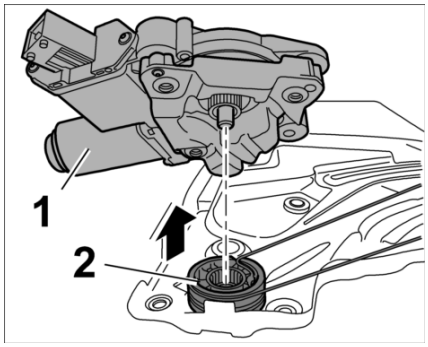


Installation location for rear power window motor



Unscrewing fastening screws

1. Unscrew the three fastening screws **-1-** on the rear power window motor **-2-** .



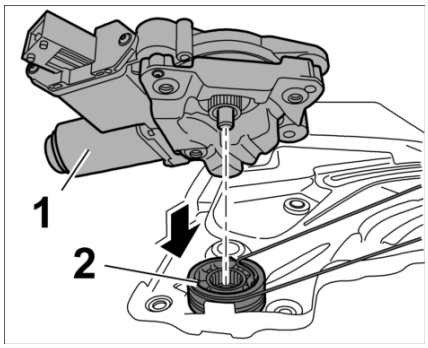
Removing rear power window motor

2. Pull rear power window motor **-1-** out of the teeth **-2-** .

top of page

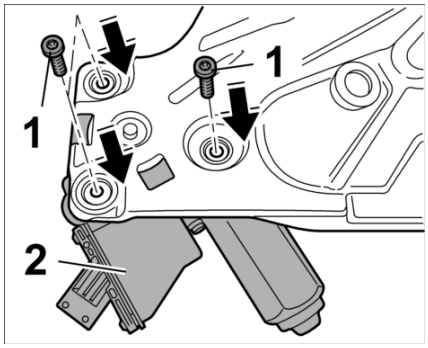
Installing rear power window motor

Installing rear power window motor



Installing rear power window motor

1. Position rear power window motor **-1-** and insert it into the teeth **-2-** .



Tightening fastening screws

2. Fasten the rear power window motor **-2-** with the three fastening screws **-1-** . **Tightening torque: 3 (2.0 ftlb.) Nm**

top of page

Subsequent work

Subsequent work

1. Install rear power window. 647119 Removing and installing rear power window - chapter on "Installing"

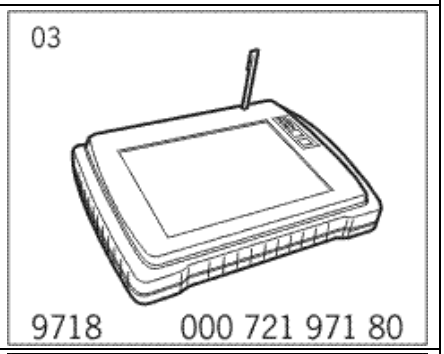
997310, 997311, 997320, 997321, 997610, 997611, 997620, 997621

as of MY 2005
Country C00, C02, C05, C07, C08, C09, C10, C11, C12, C13, C14, C15, C16, C18, C19, C20, C21, C22,

64 71 19 Removing and installing rear window lifter - as of MY 2005

- Preliminary work
- Removing rear window lifter
- Installing rear window lifter
- Adjusting rear window lifter
- Additional instructions for adjusting or replacing the rear window lifter
- Subsequent work

Tools

Designation	Type	Number	Explanation	
PIWIS tester	special tool	9718		
adjustment tool for rear window	commercially available tool	NR.123-1		
assembly tool for Springfix System pin circlips	commercially available tool	NR.131		

top of page

Preliminary work

Preliminary work

Note

Only for vehicles with hardtop.

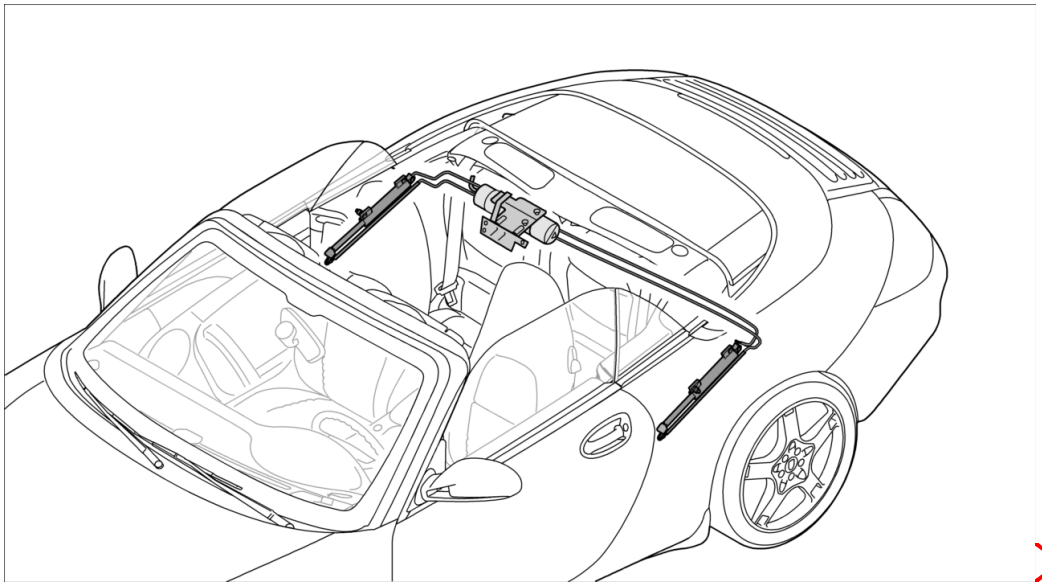
1. Remove hardtop. 610219 Removing and installing hardtop - section on "Removing"
2. Move convertible top to service position. 6101IN IN -Convertible top service position
3. Remove rear side trim panel. 707519 Removing and installing rear side trim panel - section on "Removing"

top of page

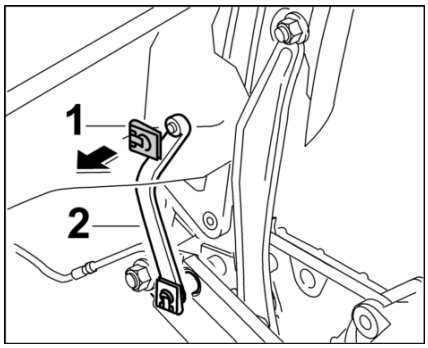
Removing rear window lifter

Loosening hydraulic cylinder

Installation Location:

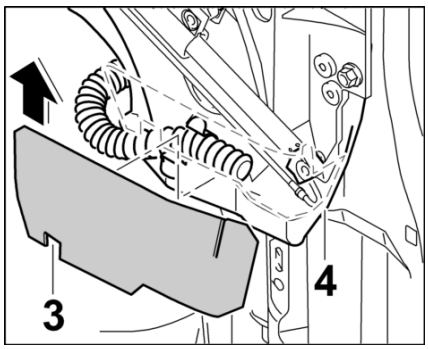


Installation position for hydraulic cylinder



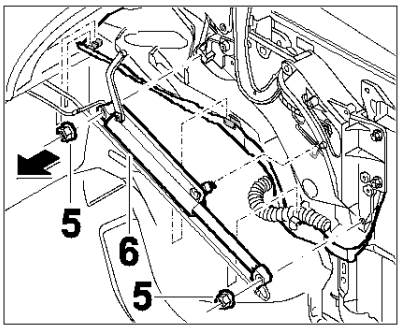
Removing lever

1. Press out the two retaining clips **-1-** from the lever **-2-** using **assembly tool for Springfix System pin circlips NR.131** and remove lever.



Removing protection plate

2. Pull the protection plate **-3-** upwards out of the chamber in the water drip pan **-4-** .



Loosening hydraulic cylinder

ATTENTION

Damage to hydraulic lines.

Do not bend, trap or crush hydraulic lines when removing and installing.

Pay special attention when routing hydraulic lines in the clips.

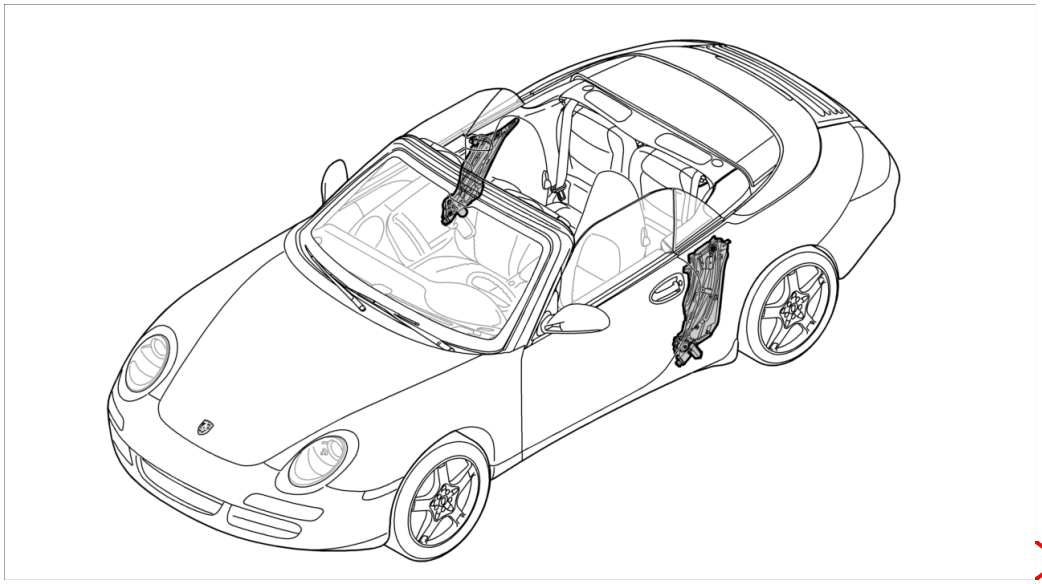
3. Unscrew fastening nut **-5-** and lay hydraulic cylinder **-6-** with lever to one side.

Removing rear window lifter

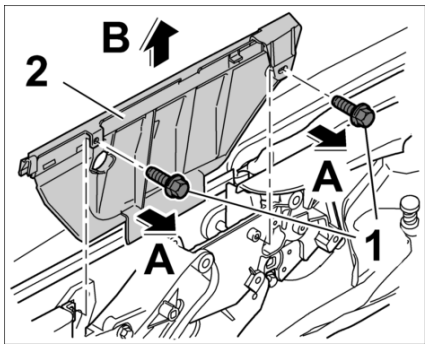
Note

- *Removal and installation of the rear window lifter should be carried out with the side window. Otherwise adjustment work is hindered during installation.*

Installation Location:



Installation position of rear window lifter



Removing rear window inner seal

1. Undo front and rear fastening screws **-1-** from the convertible top support and the belt guide section **-arrows A-** , and pull rear window inner seal **-2-** up and out **-arrow B-** .
2. Connect the **PIWIS tester 9718** to the diagnostic socket.
3. Switch on ignition.

Note

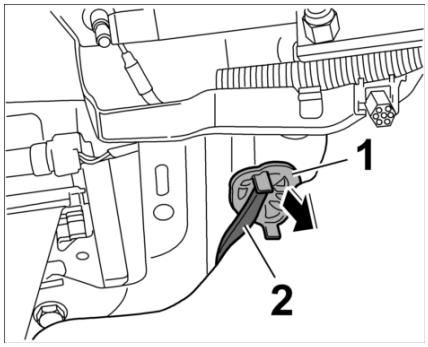
- *The rear window lifter can only be removed when closed.*

- *This closed state can only be achieved with the PIWIS tester when the convertible top is in service position.*

4. Select the **Convertible top** menu item, then **Drive links**, and select the**Raise rear door window (left or right)** menu item in the command line which then appears.

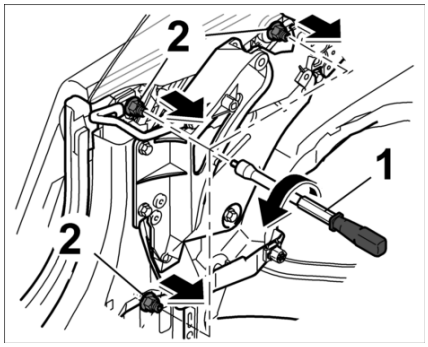
Note

- *The lower adjusting element for power windows is only accessible by removing the rubber sleeve from the wire harness for power windows.*



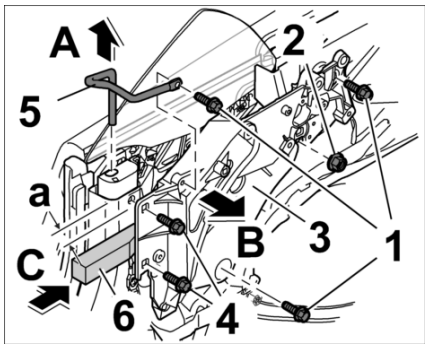
Removing rubber sleeve

5. Remove rubber sleeve **-1-** from wire harness for power windows **-2-** by pulling it inwards **-arrow-** .



Loosening adjusting elements for power windows

6. Release adjusting elements for power windows with the adjustment tool **-1-** **adjustment tool for rear window NR.123-1**. To do this, loosen and unscrew the nuts **-2-** on the adjusting elements (**-arrows-**).



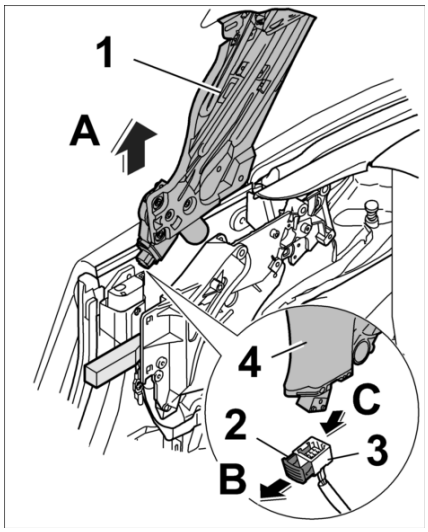
Detaching convertible top support

ATTENTION

Risk of damage to or destruction of the convertible top when the convertible top support is removed!

- **The convertible top must no longer be electrically operated when the convertible top support is detached.**

7. Remove fastening screws **-1-** and fastening nuts **-2-** from the convertible top support **-3-** . Remove fastening screws **-4-** for securing the deflection fitting **-5-** in the belt guide section. Pull deflection fitting **-5-** up out of the belt guide section. **-arrow A-** Pull convertible top support **-3-** inwards (**-arrow B-**) and fix a spacing block **-6-** measuring **-dimension a = 30 mm-** between B-pillar and convertible top support **-arrow C-** .



Removing window lifter

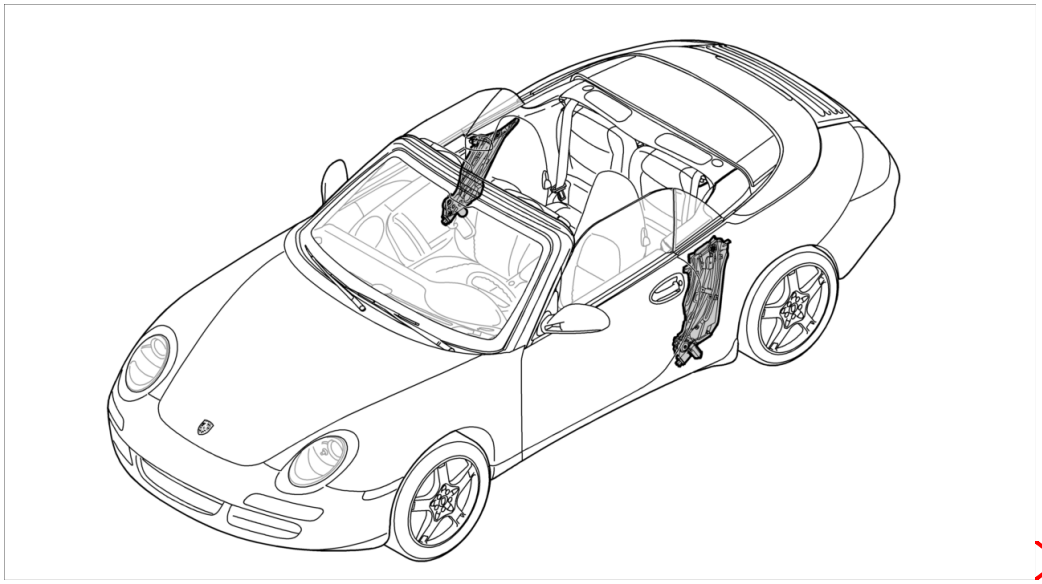
8. Pull window lifter **-1-** up and off **-arrow A-** .
9. Release latch **-2-** on electric plug connection **-3-** (**-arrow B-**) and pull plug connection off window regulator motor **-4-** (**-arrow C-**).

top of page

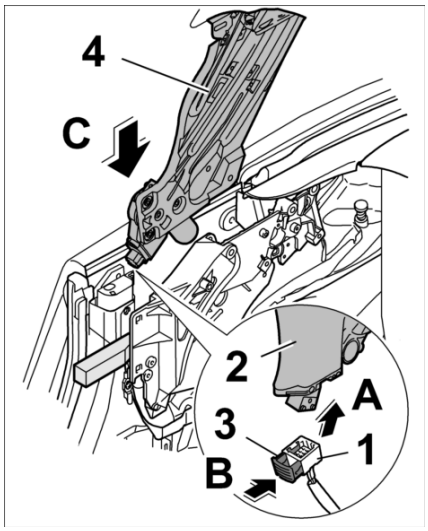
Installing rear window lifter

Installing rear window lifter

Installation Location:

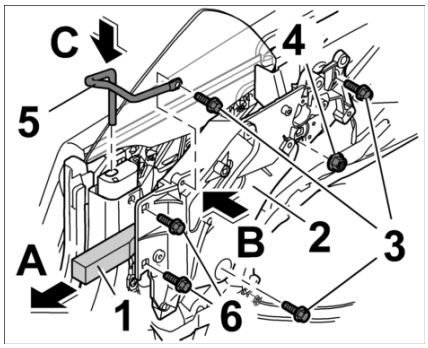


Installation position of rear window lifter



Installing power windows

1. Connect electric plug connection **-1-** to window regulator motor **-2-** (**-arrow A-**) and lock the latch **-3-** (**-arrow B-**).
2. Guide window lifter **-4-** into the window shaft from above **-arrow C-** and position in the mounts in the inner side section.

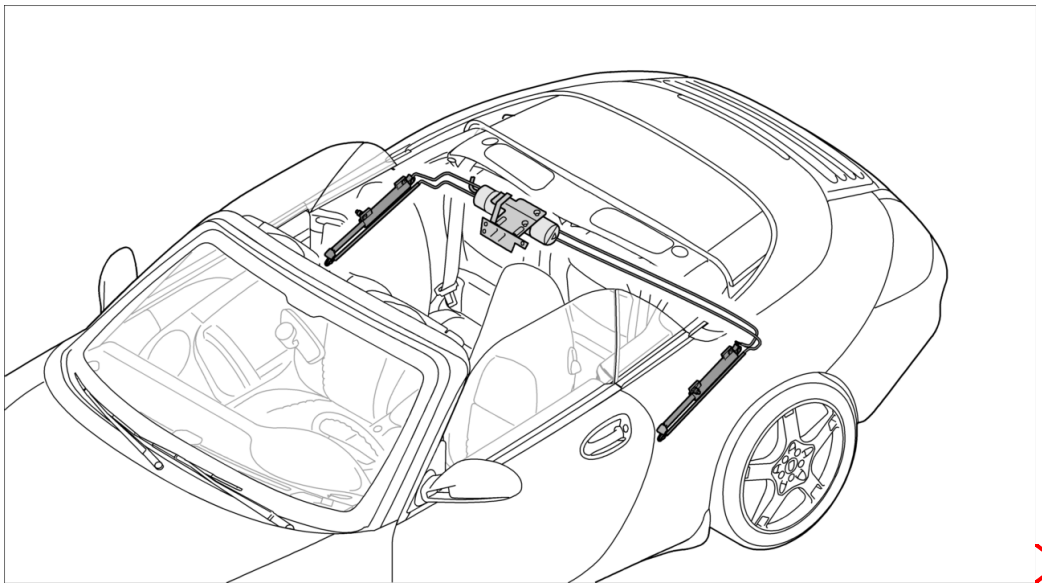


Securing convertible top support

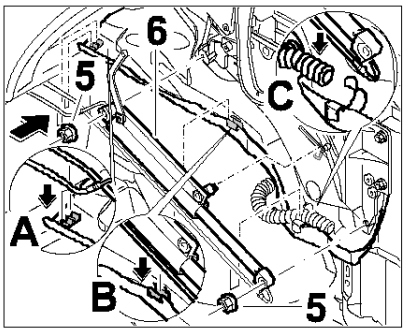
3. Remove spacing block **-1-** between B-pillar and convertible top support **-2-** (**-arrow A-**). Position convertible top support **-2-** (**-arrow B-**). Position and tighten fastening screws **-3-** and fastening nuts **-4-** in convertible-top support **-2-** . **Tightening torque: 23 (17 ftlb.) Nm**
4. Insert the deflection fitting **-5-** into the belt guide section **-arrow C-** . Screw in and tighten fastening screws **-6-** . **Tightening torque: 50 (37 ftlb.) Nm**

Installing hydraulic cylinder

Installation Location:



Installation position for hydraulic cylinder



Installing hydraulic cylinder

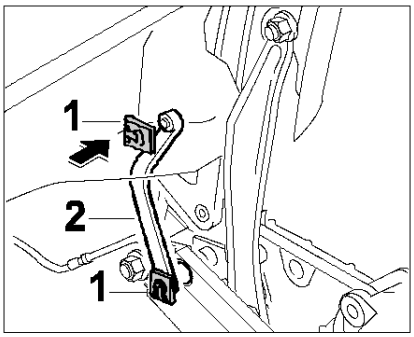
ATTENTION

Damage to hydraulic lines.

Do not bend, trap or crush hydraulic lines when removing and installing.

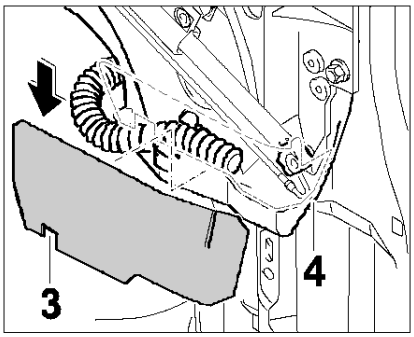
Pay special attention when routing hydraulic lines in the clips.

1. Position hydraulic cylinder **-6-** with the lever on the convertible-top support. Insert potentiometer fork into the pin of the hydraulic housing (on the left side only).
   Lay hydraulic line **-Figure A-** in the clip under the water drain hose. In **-Figure B-** and **-Figure C-** press the hydraulic lines into the clips. Tighten fastening nuts **-5-** . **Tightening torque: 17 (13 ftlb.) Nm +/-2 (1.5 ftlb.) Nm**



Installing lever

2. Fit lever **-2-** and secure with retaining clip **-1-** .



Installing protection plate

3. Insert protection plate **-3-** in chamber of water drip pan **-4-** .

top of page

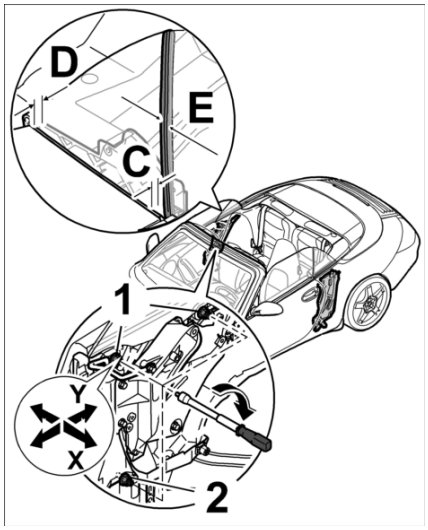
Adjusting rear window lifter

Adjusting rear window lifter

Adjusting rear window lifter

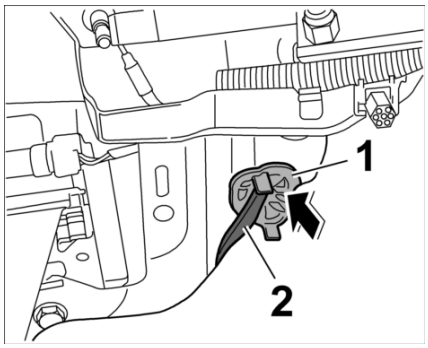
Note

By moving the window lifter with respect to the longitudinal axis of the vehicle, the power windows can be adjusted by dimension **-Y = ± 10 mm-** . The contact pressure of the upper edge of the side window on the convertible top is adjusted by screwing the adjusting element in or out by dimension **-X = ± 10 mm-** . The contact pressure on the rear window inner seal or the offset from the door window is adjusted by screwing both of the upper adjusting elements in or out by dimension **-X = ± 5 mm-** .
Adjusting tool for rear window lifter. **Adjusting tool for rear window NR.123-1**



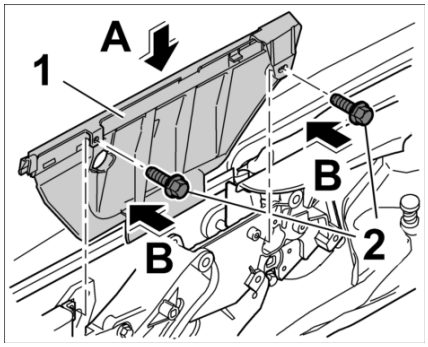
Adjusting power windows

1. Adjust the basic setting of the adjusting elements **-1-** from the upper edge moulding of the rear side panel to the side window. **Gap dimension C: 11 mm Gap dimension D: 14 mm**
2. Push the power window backwards or forwards to adjust the gap between the side window and door window. **Gap dimension E: 9 mm +/-1 mm**
3. Adjust the contour or the offset with respect to the door window on the adjusting element **-2-** .
4. Screw on adjusting elements for power windows **-1-** and **-2-** . **Tightening torque: 23 (17 ftlb.) Nm**



Fitting rubber sleeve

5. Fit rubber sleeve **-1-** on wire harness **-2-** for power windows **-arrow-** .



Installing rear window inner seal

6. Insert rear window inner seal **-1-** into rear side section slot from above **-arrow A-** and position on the convertible top support or belt guide section.
7. Insert and tighten front and rear fastening screws **-2-** (**-arrows B-**). **Tightening torque: 10 (7.5 ftlb.) Nm**

top of page

Additional instructions for adjusting or replacing the rear window lifter

Additional instructions for adjusting or replacing the rear window lifter

The rear power windows can be operated if:
1) the convertible top is closed.
2) the ignition is switched on.
3) the ignition key is not removed from the steering lock after the ignition is switched off.
4) after the ignition is switched off until a door is opened for the first time.
5) the door is open, USA vehicles do not have this function.

Note

The end positions of the power windows are deleted from the control unit when the electric connectors are disconnected and connected.

Standardising the system

1. Set rocker switch and fully close window once.
2. Set rocker switch to Close again. The upper end position of the side window is stored.
3. Set rocker switch and fully open window once.
4. Set rocker switch to Open again. The lower end position of the side window is stored.

Blockage detection function

If the window drive encounters resistance when activated, the motor is switched off after a delay of 500 ms. If the rocker switch is pressed again within 10 seconds, the side window closes the power window with all of its closing force. The anti-crushing protection is deactivated.

top of page

Subsequent work

Subsequent work

1. Install rear side trim panel. 707519 Removing and installing rear side trim panel - section on "Installing"
2. End service position. 6101IN IN -Convertible top service position

Note

Only for vehicles with hardtop.

3. Install hardtop. 610219 Removing and installing hardtop - section on "Installing"

Note

Only for vehicles with hardtop.

4. Adjust the hardtop. 610215 Adjusting hardtop

997310, 997311, 997320, 997321, 997610, 997611, 997620, 997621

as of MY 2005
Country C00, C02, C05, C07, C08, C09, C10, C11, C12, C13, C14, C15, C16, C18, C19, C20, C21, C22, C23, C24, C25, C26, C27, C28, C32, C33, C34, C35, C36, C37, C38, C39, C45, C46, C98, C99

WARNUNG

Gefahr des Verlusts der Text-Bild-Zuordnung beim Ausdruck.

- **Aus technischen Gründen kann derzeit nicht ausgeschlossen werden, dass trotz einwandfreier Darstellung auf dem Bildschirm beim Ausdruck der Zusammenhang von Text und zugehörigem Bild verloren geht.**

64 75 19 Removing and installing rear side window - as of MY 2005

- Preliminary work
- Removing rear side window
- Installing rear side window
- Subsequent work

top of page

Preliminary work

Preliminary work

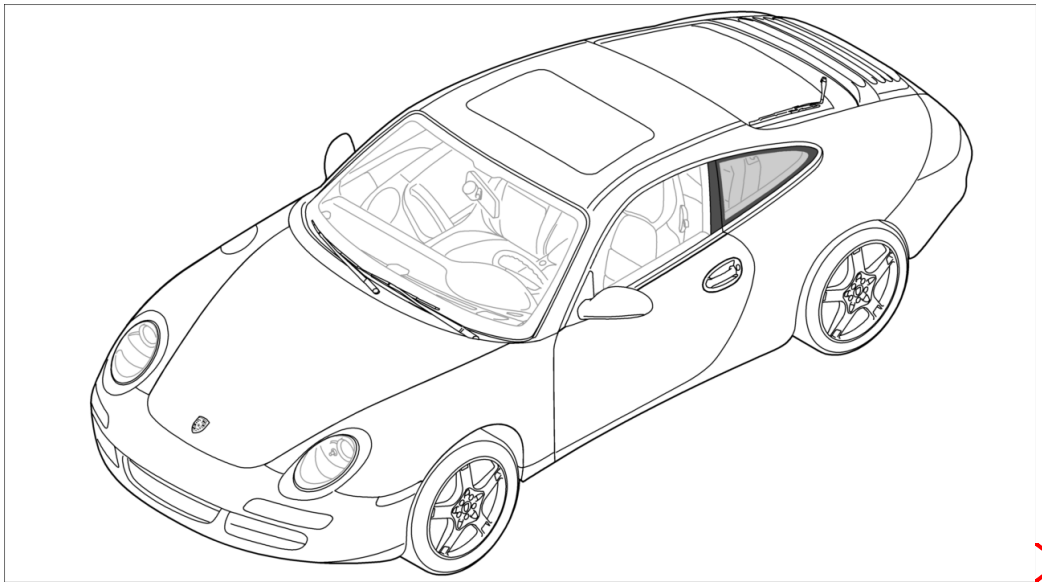
1. Remove C-pillar trim. 706819 Removing and installing C-pillar trim - section on "Removing"

top of page

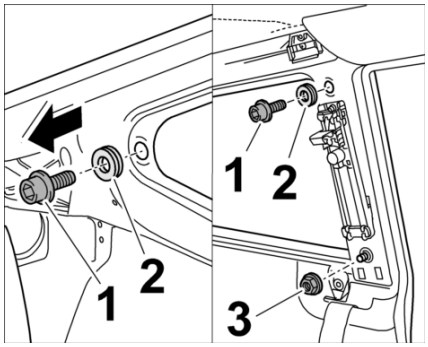
Removing rear side window

Removing side window

Installation Location:

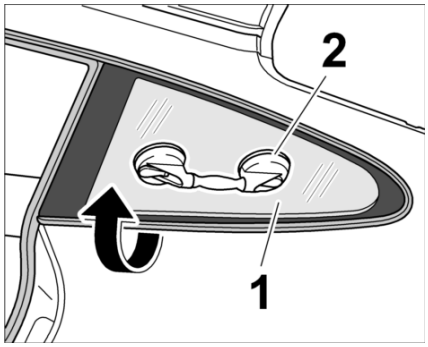


Installation position of side window



Loosening side window

1. Unscrew fastening screws **-1-** and remove washer **-2-** . Unscrew fastening nuts **-3-** .



Removing side window

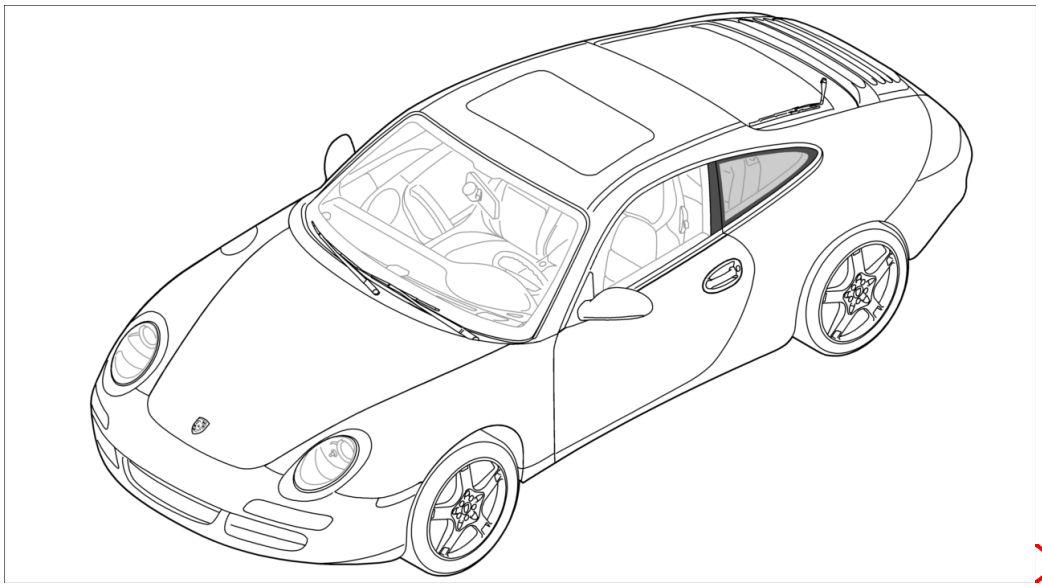
2. Affix suction cups **-1-** to the side window. Pull out side window **-2-** downward in **-direction of arrow-** .

top of page

Installing rear side window

Installing side window

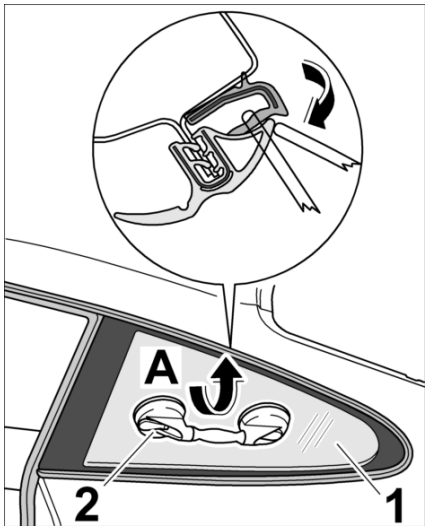
Installation Location:



Installation position of side window

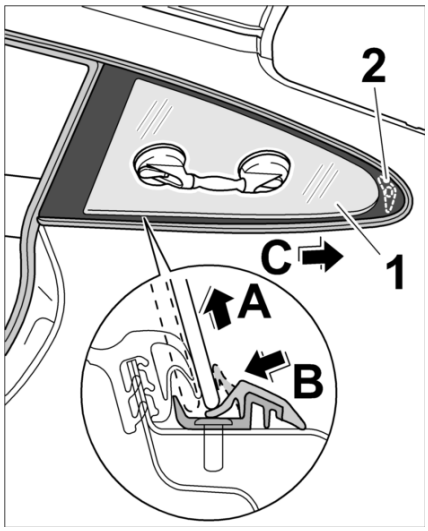
Note

- *The removed side window can be reinstalled if:*
- *there is no prior damage to the side window.*
- *the side window was removed without being damaged.*



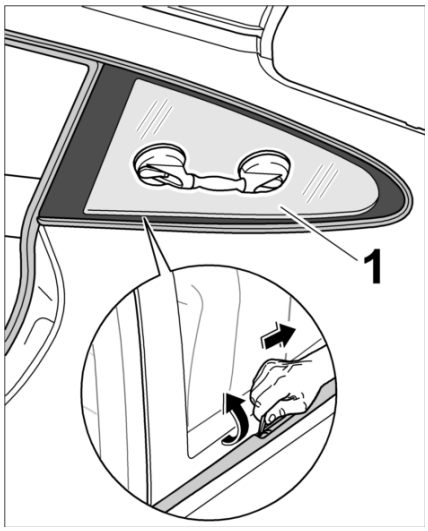
Positioning side window

1. Affix suction cups **-2-** to the side window **-1-** . Guide side window **-1-** up into the B-pillar opening **-direction of arrow A-** .



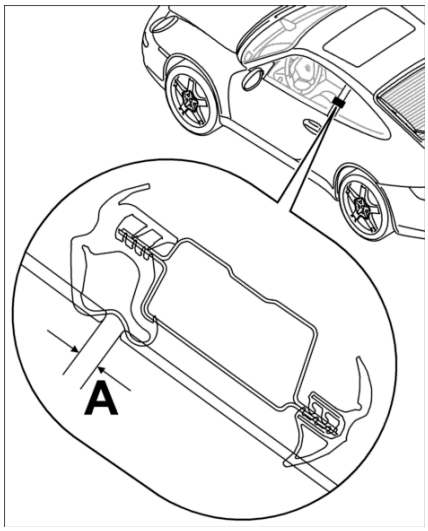
Guiding side window into position

2. Press side window **-1-** up in **-direction of arrow A-** , hold it and insert it into the lower B-pillar opening **-arrow B-** .
3. Slide side window **-1-** backwards using suction cups **-arrow C-** until the casing **-2-** engages in the C-pillar.



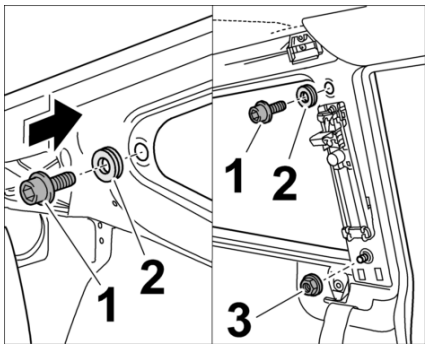
Pulling rubber seal forward

4. Pull the lip of the seal forward under the side window **-1-** using a plastic spatula.



Door window to side window

5. Adjust side window according to door window using the specified dimensions, tolerances and torques.
   Gap dimension A: 7 mm +/-1 mm



Securing side window

6. Tighten fastening screw **-1-** and washer **-2-** . Tighten fastening nuts **-3-** . Tightening torques
   Tightening torque: 9.7 (7.2 ftlb.) Nm Tightening torque: 23 (17 ftlb.) Nm

top of page

Subsequent work

Subsequent work

1. Install C-pillar trim. 706819 Removing and installing C-pillar trim - section on "Installing"

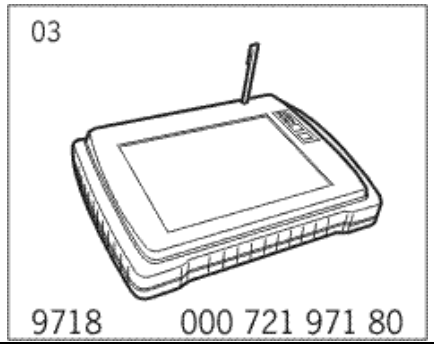
997110, 997111, 997120, 997121, 997410, 997411, 997430, 997431

as of MY 2005
Country C00, C02, C05, C07, C08, C09, C10, C11, C12, C13, C14, C15, C16, C18, C19, C20, C21, C22, C23, C24, C25, C26, C27, C28, C32, C33, C34, C35, C36, C37, C38, C39, C45, C46, C98, C99

64 75 19 Removing and installing rear side window - as of MY 2005

- Preliminary work
- Removing rear side window
- Subsequent work

Tools

Designation	Type	Number	Explanation	
PIWIS tester	special tool	9718		

top of page

Preliminary work

Preliminary work

Note

Only for vehicles with hardtop.

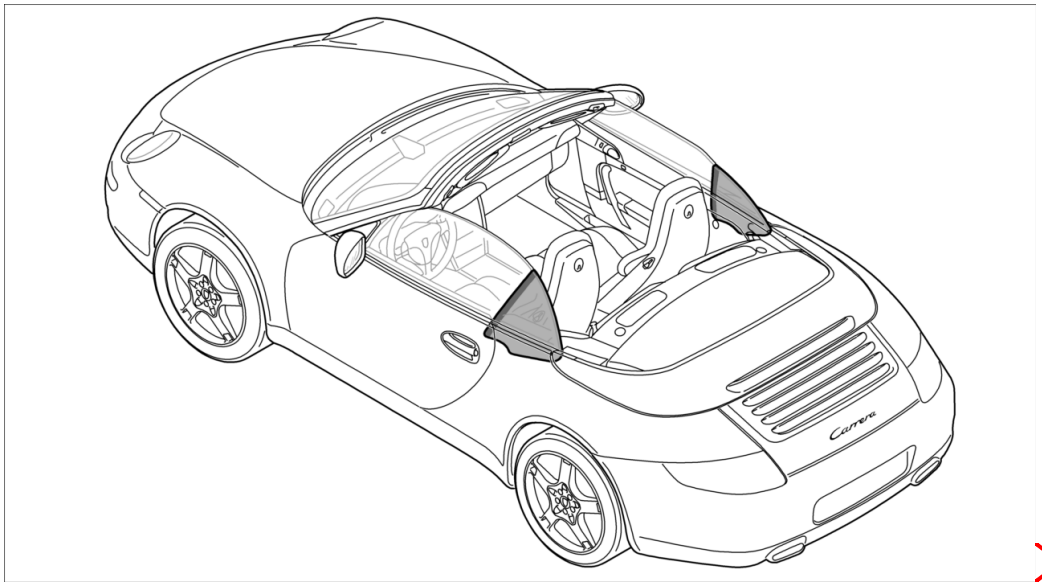
1. Remove hardtop. 610219 Removing and installing hardtop - section on "Removing"
2. Move convertible top to service position. 6101IN IN -Convertible top service position
3. Remove rear side trim panel. 707519 Removing and installing rear side trim panel - section on "Removing"

top of page

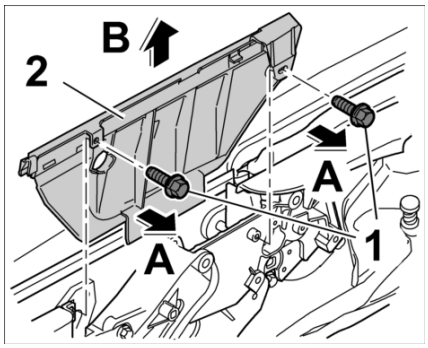
Removing rear side window

Removing rear side window

Installation Location:



Installation position of rear side window



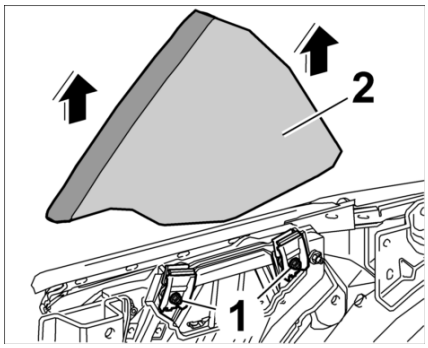
Removing rear window inner seal

1. Undo front and rear fastening screws **-1-** from the convertible top support and the belt guide section **-arrows A-** , and pull rear window inner seal **-2-** up and out **-arrow B-** .
2. Connect the **PIWIS tester 9718** to the diagnostic socket.
3. Switch on ignition.

Note

- *The rear window lifter can only be removed when closed.*
- *This closed state can only be achieved with the PIWIS tester when the convertible top is in service position.*

4. Select the **Convertible top** menu item, then **Drive links**, and select the**Raise rear door window (left or right)** menu item in the command line which then appears.



Removing side window

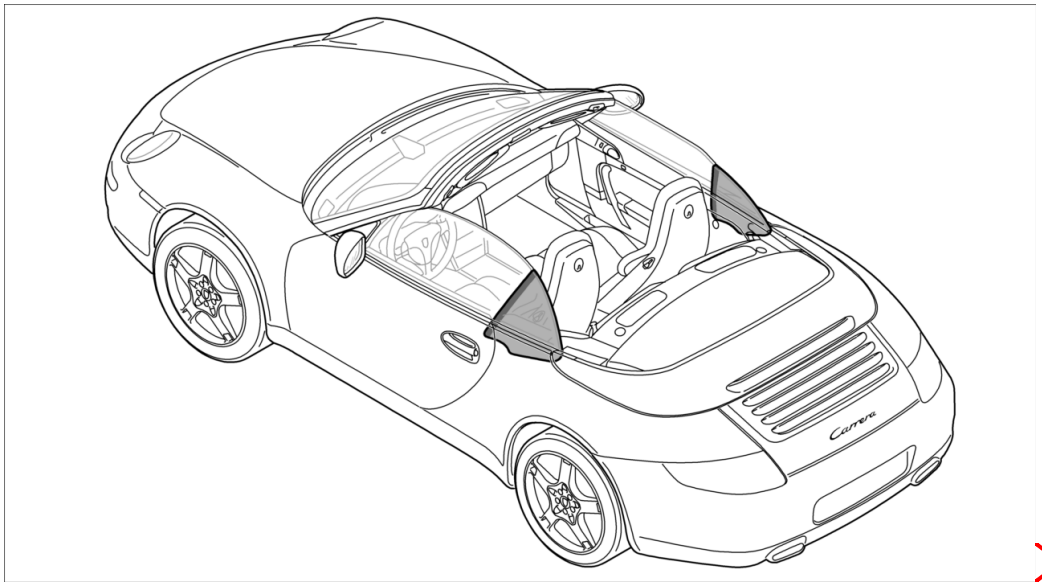
5. Loosen fastening nuts **-1-** on mounting pieces and remove side window **-2-** by pulling it up through the slot in the rear side panel. **-arrows-**

Installing rear side window

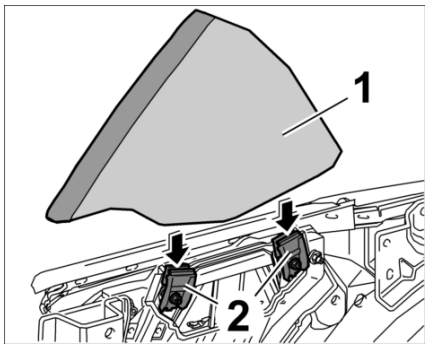
Note

- *The convertible top must be in service position or fully open in order to fit the side window.*
- *The power window must be in the upper position.*

Installation Location:



Installation position of rear side window



Installing side window

1. Insert the side window **-1-** through the side section slot from above and into the clamping jaws **-2-** of the front and rear drivers **-Arrows-** .

Adjusting rear side window

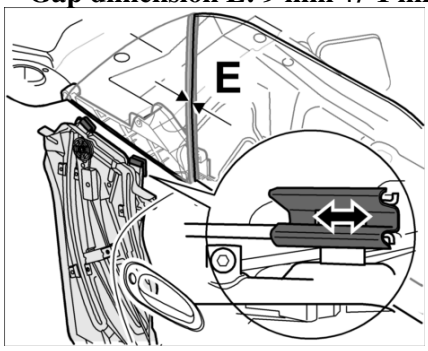
Adjusting the side window angle in the vehicle's longitudinal direction

Note

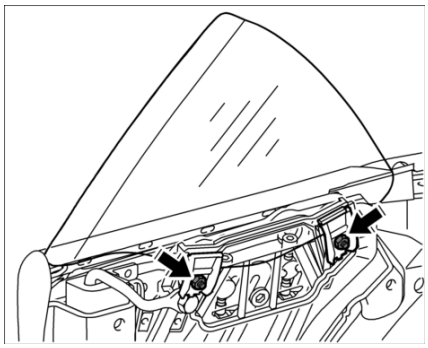
- *Moving the side window into the clamping jaws on the receiving rollers equalizes the angle of the side window with respect to the door window.*
- *The bottom edge of the window must lie against the receiving rollers in the clamping jaws.*

1. Adjust the side window in accordance with the contour of the door window.

Gap dimension E: 9 mm +/-1 mm



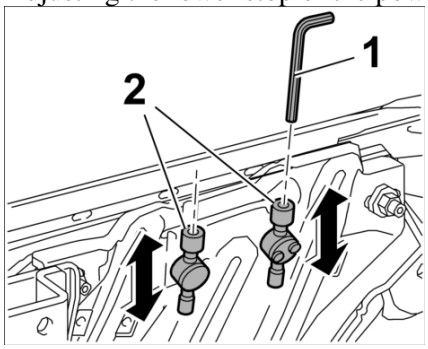
Adjusting the side window angle



Securing side window

2. Tighten fastening nuts **-arrows-** on clamping jaws to secure side window. **Tightening torque: 8.5 (6.3 ftlb.) Nm +/-1.5 (1 ftlb.) Nm**

Adjusting the lower stop of the power window unit

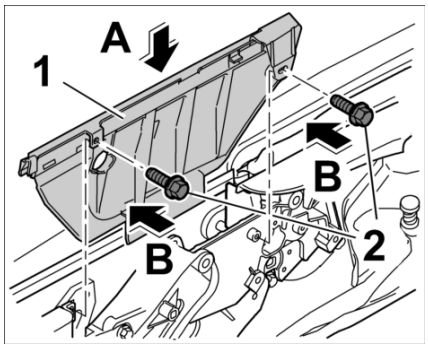


Adjusting height of lower stop

Note

- *It is possible to adjust the height of both lower stops, but these should only be adjusted synchronously.*
- *The adjustment is only possible when the side window is lowered.*

3. Insert hexagon-socket wrench **-1-** from above. Adjust the height by turning the screws **-2-** .



Installing rear window inner seal

4. Insert rear window inner seal **-1-** into rear side section slot from above **-arrow A-** and position on the convertible top support or belt guide section.
5. Insert and tighten front and rear fastening screws **-2-** (**-arrows B-**). **Tightening torque: 10 (7.5 ftlb.) Nm**

top of page

Subsequent work

Subsequent work

1. Install rear side trim panel. 707519 Removing and installing rear side trim panel - section on "Installing"
2. End service position. 6101IN IN -Convertible top service position

Note

Only for vehicles with hardtop.

3. Install hardtop. 610219 Removing and installing hardtop - section on "Installing"

Note

Only for vehicles with hardtop.

4. Adjust the hardtop. 610215 Adjusting hardtop

997310, 997311, 997320, 997321, 997610, 997611, 997620, 997621

as of MY 2005
Country C00, C02, C05, C07, C08, C09, C10, C11, C12, C13, C14, C15, C16, C18, C19, C20, C21, C22, C23, C24, C25, C26, C27, C28, C32, C33, C34, C35, C36, C37, C38, C39, C45, C46, C98, C99

WARNUNG

Gefahr des Verlusts der Text-Bild-Zuordnung beim Ausdruck.

- **Aus technischen Gründen kann derzeit nicht ausgeschlossen werden, dass trotz einwandfreier Darstellung auf dem Bildschirm beim Ausdruck der Zusammenhang von Text und zugehörigem Bild verloren geht.**
- **Wird der Fehler nicht bemerkt, besteht die Gefahr, daß Arbeiten nicht korrekt durchgeführt werden und es dadurch zu Personen- und Sachschäden kommt.**

Vergleichen Sie deshalb nach dem Druckvorgang unbedingt die Ausdrucke mit der Bildschirmdarstellung. Korrigieren Sie die Ausdrucke im Fehlerfall so, daß der Inhalt der Bildschirmdarstellung zutreffend wiedergegeben wird.

WARNING

Danger of losing text-figure correspondence when printing out.

64 76 19 Removing and installing side window seal - as of MY 2005

- Preliminary work
- Removing side window seal
- Installing side window seal
- Subsequent work

top of page

Preliminary work

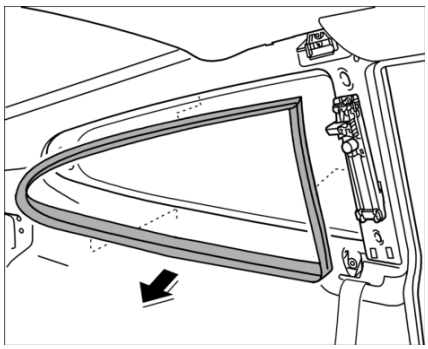
Preliminary work

1. Remove side window. 647519 Removing and installing side window - chapter on "removing"
2. Remove rubber seal for door in area of roof. 576319 Removing and installing rubber seal for door - chapter on "Removing"
3. Unscrew deflector for rear three-point belt. 691219 Removing and installing rear three-point belt - chapter on "Removing"

top of page

Removing side window seal

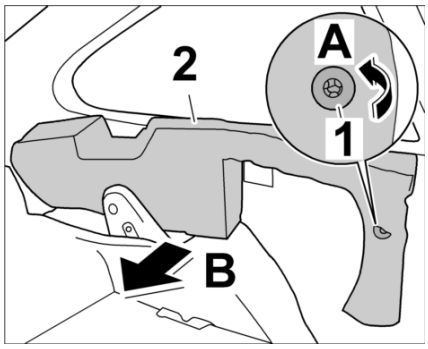
Removing side window seal



Removing side window seal

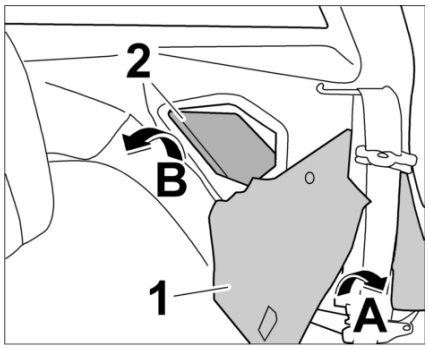
1. Pull side window seal off the rim of the side window section.

Loosening sound absorber



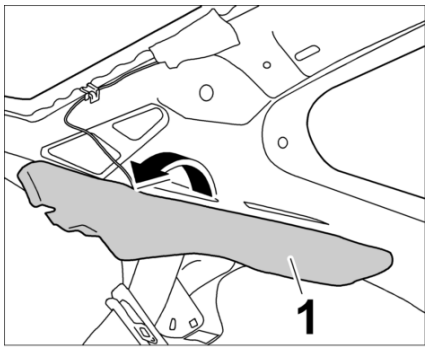
Removing sound absorber

1. Unscrew fixing clip **-1-** **-Arrow A-** and remove sound absorber **-2-** **-Arrow C-** .



Removing sound absorber

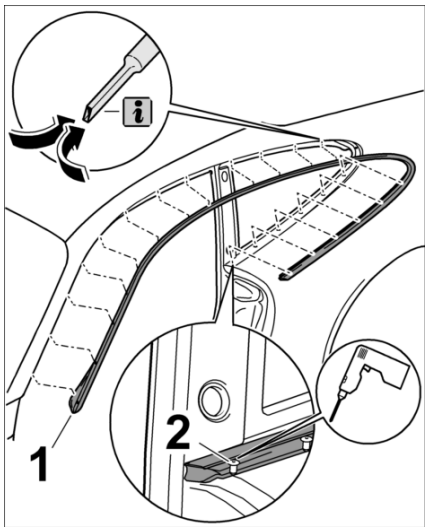
2. Carefully loosen sound absorber **-1-** and fold down **-Arrow A-** .
3. Remove sound absorber **-2-** from the side section **-Arrow C-** .



Loosening seal

4. Carefully loosen seal for side section **-1-** and fold down.

Removing seal for roof frame



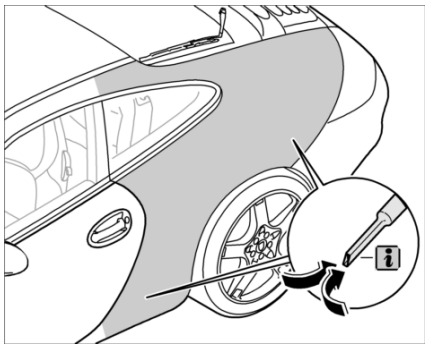
Removing seal for roof frame

Note

During drilling, get a second person to suck away the rivets and rivet swarf with a vacuum cleaner from the interior of the side section area.

1. Drill out rivets **-2-** from the integrated sheetmetal strip of the seal for the roof frame **-1-** using a 4.1 mm drill bit.

Remove seal for roof frame **-1-** .



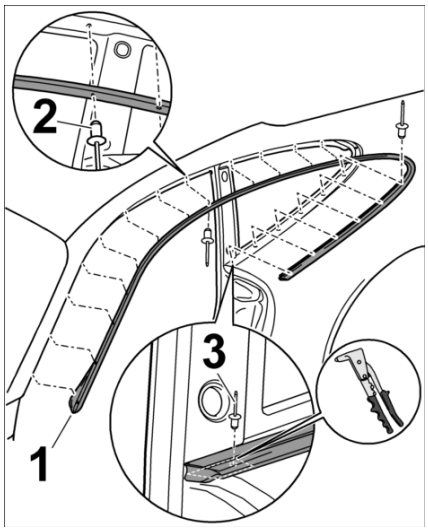
Vacuuming out the interior of the side section

2. Clean out the complete interior of the side section with a vacuum cleaner.

top of page

Installing side window seal

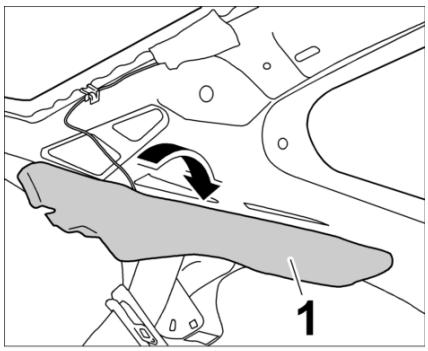
Installing seal for roof frame



Installing seal for roof frame

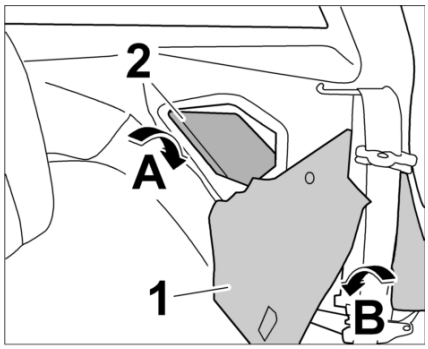
1. Position seal for roof frame **-1-** on the centring hole and rivet down with the rivet **-2-** . Rivet roof area using rivets **-2-** (4.0 x 7.9).
2. Rivet down seal for roof frame **-1-** in side section area using rivets **-3-** (4.0 x 6.3).

Fastening sound absorber



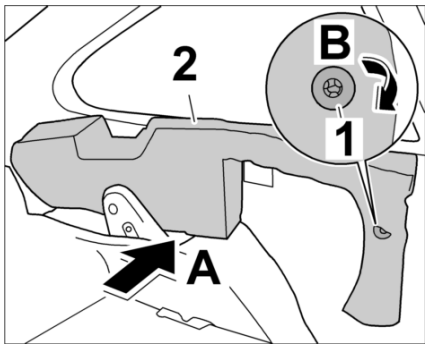
Sticking in the seal

1. Stick in the existing side section seal **-1-** using a commercially available adhesive or replace it, if necessary.



Installing sound absorber

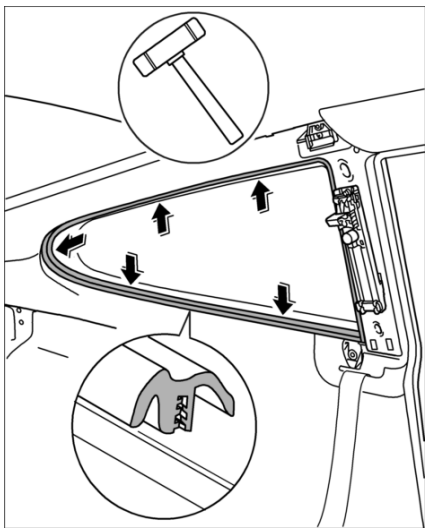
2. Insert sound absorber **-2-** in the side section **-Arrow A-** .
3. Stick in the existing sound absorber **-1-** using a commercially available adhesive **-Arrow B-** , or replace it, if necessary.



Installing sound absorber

4. Position sound absorber **-2-** on the side wall **-Arrow A-** and screw in fixing clip **-1-** **-Arrow B-** .

Installing side window seal



Installing side window seal

1. Fit side window seal to the rim of the side window section by hand.

top of page

Subsequent work

Subsequent work

1. Fasten deflector for rear three-point belt. 691219 Removing and installing rear three-point belt - chapter on "Installing"
2. Install side window. 647519 Removing and installing side window - chapter on "installing"
3. Fit rubber seal for door. 576319 Removing and installing rubber seal for door - chapter on "Installing"

997110, 997111, 997120, 997121, 997410, 997411, 997430, 997431

as of MY 2005
Country C00, C02, C05, C07, C08, C09, C10, C11, C12, C13, C14, C15, C16, C18, C19, C20, C21, C22, C23, C24, C25, C26, C27, C28, C32, C33, C34, C35, C36, C37, C38, C39, C45, C46, C98, C99

WARNUNG

Gefahr des Verlusts der Text-Bild-Zuordnung beim Ausdruck.

- **Aus technischen Gründen kann derzeit nicht ausgeschlossen werden, dass trotz einwandfreier Darstellung auf dem Bildschirm beim Ausdruck der Zusammenhang von Text und zugehörigem Bild verloren geht.**
- **Wird der Fehler nicht bemerkt, besteht die Gefahr, daß Arbeiten nicht korrekt durchgeführt werden und es dadurch zu Personen- und Sachschäden kommt.**

Vergleichen Sie deshalb nach dem Druckvorgang unbedingt die Ausdrucke mit der Bildschirmdarstellung. Korrigieren Sie die Ausdrucke im Fehlerfall so, daß der Inhalt der Bildschirmdarstellung zutreffend wiedergegeben wird.

WARNING

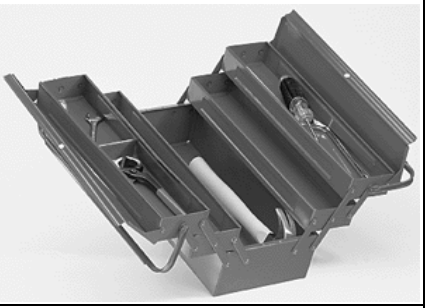
Danger of losing text-figure correspondence when printing out.

- **For technical reasons, it can currently not be ruled out that the correspondence between text and associated figure can be lost when it is printed out, even though the display on the screen is correct.**
- **If the fault is not noticed, there is the danger that work will not be performed correctly which can cause injury and damage.**

64 86 19 Removing and installing rear window - as of MY 2005

- Preliminary work
- General warning notes
- Tools and materials
- Removing rear window
- Preparing window frame for installation
- Preparing rear window for installation
- Installing rear window
- Subsequent work

Tools

Designation	Type	Number	Explanation	
Cutting thread	commercially available tool			
2-component window bonding agent	commercially available tool	000.043.300.94		
Flashing knife, U-type	commercially available tool	639.031.130.22		
Pipette	commercially available tool	vag 1344		

Glass separating tool	commercially available tool	vag 1474 b		
Special electric cutter (fine)	commercially available tool	vag 1561 a		
Double cartridge gun	commercially available tool	vas 5237		

top of page

Preliminary work

Preliminary work

Remove C-pillar trim panel, left and right. 706819 Removing and installing C-post trim - removing
Removing rear window wiper. *21 Removing and installing wiper arm for rear window washing system - removing*
Remove rear centre panel. 512119 Removing and installing rear centre panel - removing

top of page

General warning notes

General warning notes

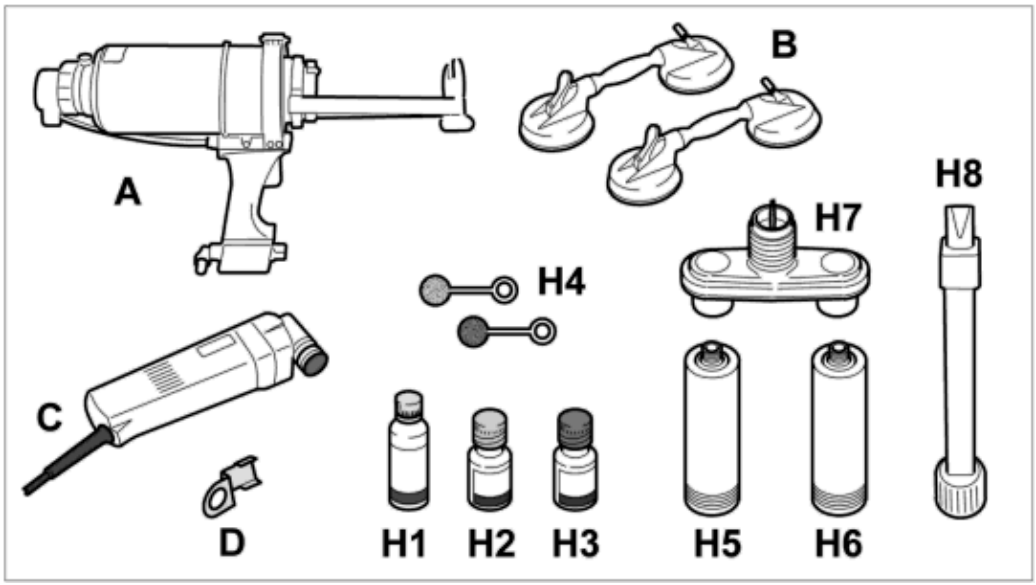
General information on installing and removing car windows

top of page

Tools and materials

Tools and materials

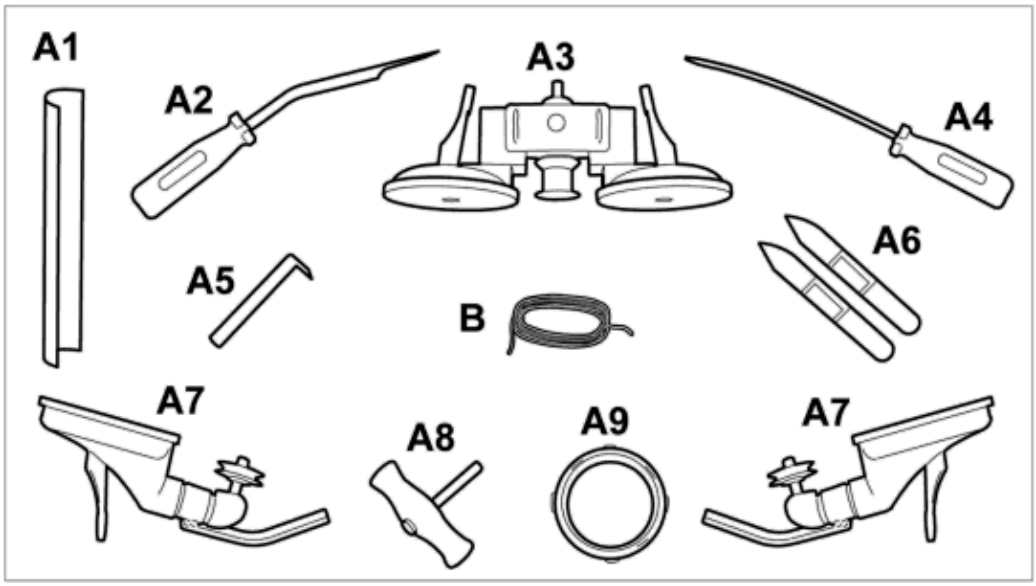
The following tools and materials are required for removal and installation of the rear window with 2-component adhesive:



Tools and materials

Item	Designation	Source	Explanation
-A-	**Double cartridge gun vas 5237**	"See Workshop Equipment Manual, Chapter 3.5"	
-B-	**Pipette vag 1344**	"See Workshop Equipment Manual, Chapter 3.5"	
-C-	**Special electric cutter (fine) vag 1561 a**	"See Workshop Equipment Manual, Chapter 3.5"	
-D-	**Flashing knife, U-type 639.031.130.22**		
-H-	**2-component window bonding agent 000.043.300.94**		Contains set components H1-H8

Item	Designation	Item	Designation
-H1-	Cleaning solution	**-H5-**	Cartridge, component A
-H2-	Primer	**-H6-**	Cartridge, component B
-H3-	Activator	**-H7-**	Mixing nozzle
-H4-	Swab	**-H8-**	Processing nozzle



Glass separating tool

Item	Designation	Source	Explanation
-A-	**Glass separating tool vag 1474 b**	"See Workshop Equipment Manual, Chapter 3.5"	Contains set components A1-A9
-B-	**Cutting thread**	"See Parts Catalogue in Main Group 8"	

top of page

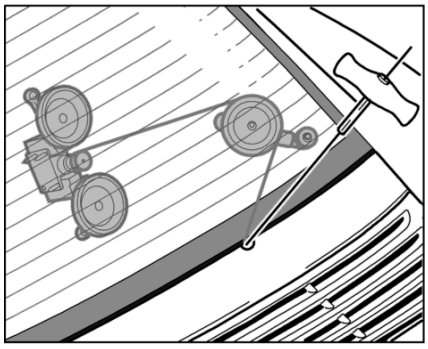
Removing rear window

Removing rear window

Note

- *The door windows must not be closed until after the curing time has elapsed.*

1. Lower the door windows.
2. Pull off the plug for the rear window heater on the rear window.



Removing rear window

3. Remove rear window with the cutting wire separator. *General information on installing and removing car windows*

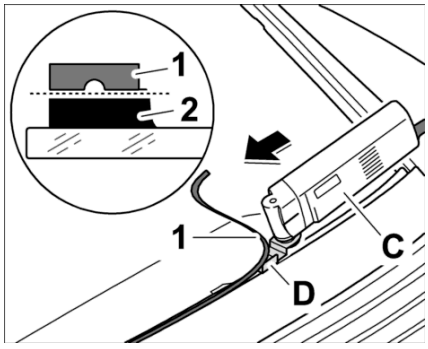
top of page

Preparing window frame for installation

Removing adhesive from the body

Note

- *The surface coating of adhesive residue helps new adhesive to stick. Keep cut surfaces clean and free of grease and do not clean with cleaning solution.*



Removing adhesive from the body

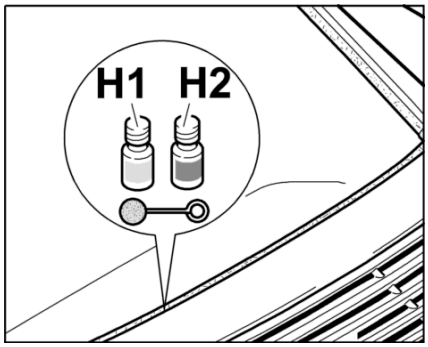
1.

When removing remaining adhesive **-1-** with the cutting tool **-C-** and the flashing knife **-D-** on the body, ensure that a surface coating of adhesive remains **-2-** .

Cleaning and priming paint damage or newly built-up paint areas in the window aperture of the body

Note

- *A ventilation period of at least 10 minutes must be observed between the cleaning of the glass section and the application of the primer! No cleaning solution residues may remain on the body.*



Clean and prime the body.

1. Clean new paint areas or damage to the top coat paint in the non-visible area of the glass section in the body with cleaning solution **-H1-** and patch with primer **-H2-** .

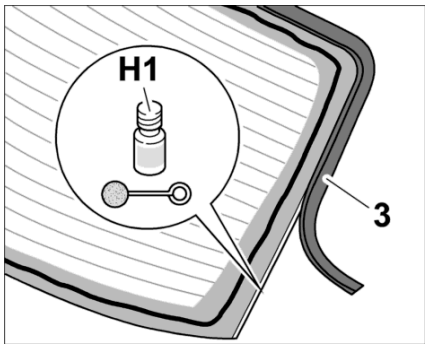
top of page

Preparing rear window for installation

Removing seal for rear window

Note

- *Only if the window is to be re-installed.*



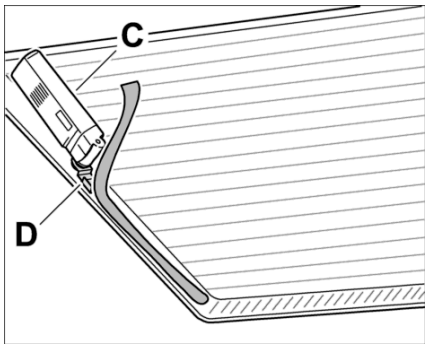
Pulling off seal

1. Pull off seal **-3-** . Remove adhesive residues with cleaning solution **-H1-** .

Removing adhesive from the rear window

Note

- *Only if the rear window is to be re-installed.*



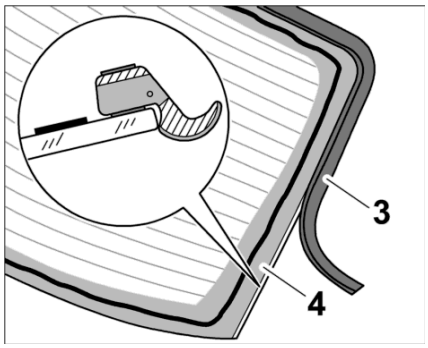
Removing adhesive from the rear window

Note

- *The remaining adhesive helps new adhesive to stick. Keep cut surfaces clean and free of grease and do not clean with cleaning solution.*

1. Equip cutter **-C-** with flashing knife **-D-** and remove remaining adhesive from the rear window, ensuring that a surface coating of adhesive remains.

Fitting seal for rear window



Fitting the seal

1. Staring from the edge, adhere the seal **-3-** along the entire border of the rear window **-4-** .

Applying activator to the bonding section of the rear window

Note

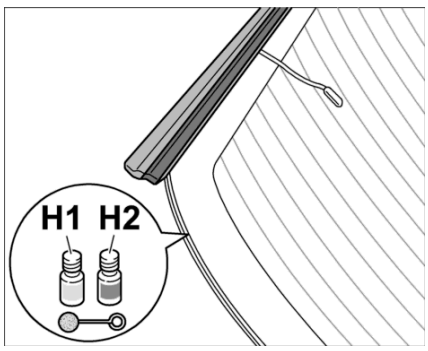
- *Only if the rear window is to be re-installed.*

1. During longer idle periods (> 24 h) apply activator **-H3-** to the remaining adhesive.

Note

- *A ventilation period of at least 10 minutes must be observed between the cleaning of the glass and the application of the primer! No cleaning solution residues may remain on the body.*

2. Clean window with cleaning solution **-H1-** .



Applying activator to the bonding section of the rear window

3. Apply primer **-H2-** to the window flange in the area of the marking.

top of page

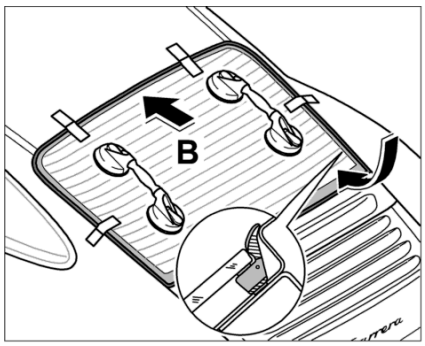
Installing rear window

Aligning rear window

Note

- *Two persons are needed to insert and adjust the rear window.*

1. Apply suction cups **-B-** to the rear window and insert the rear window into the window aperture.



Aligning rear window

Note

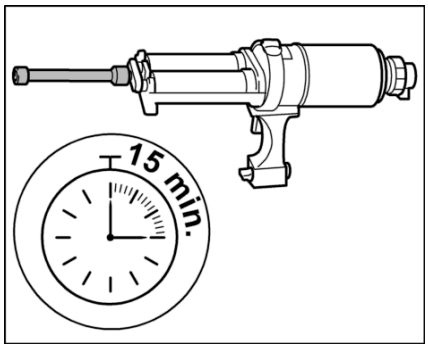
- *Ensure that the rear window can no longer be aligned after it is inserted.*

2. Align the rear window in the Z and Y directions. Mark the rear window with adhesive tape and remove.

Preparing 2-component adhesive for processing

Note

- *The adhesive has an open time of **-15 min-** , which means that the bonding material must be applied and the car window must be assembled within this period of time.*



Preparing the adhesive

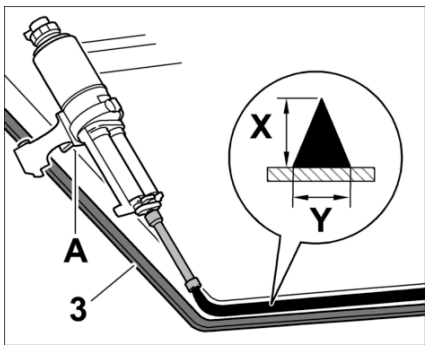
- *In order to ensure that the substance is completely mixed, apply a 30 mm long adhesive bead of fresh adhesive to a piece of cardboard before processing.*

1. Preparing 2-component adhesive for processing. *Processing of Porsche 2-component window bonding agents*

Applying adhesive on the rear window

Note

- *When applying the adhesive, it is essential to ensure that the adhesive bead overlaps by approx. 30 mm at the beginning and at the end.*



Applying adhesive

1. Using bonding gun **-A-** apply 2-component adhesive to the rear window along the seal **-3-** in the form of a triangular bead with the dimension **-X= ca. 15 mm-** **-Y= ca. 8 mm-** .

Pulling off protective film

Note

- *Make sure that no further work is performed in the area of the seal once the protective film has been removed.*

1. Before gluing in the rear window, peel off the protective film on the seal without leaving residues.

Inserting rear window into the body

ATTENTION

Danger of material damage if specified curing time of adhesive is not observed!

- **There will not be a proper adhesive bond if the prescribed curing time of the adhesive is not observed!**

The vehicle must not be used until the curing time has elapsed.

Curing time: 3 hours

Temperature: at least 10°C

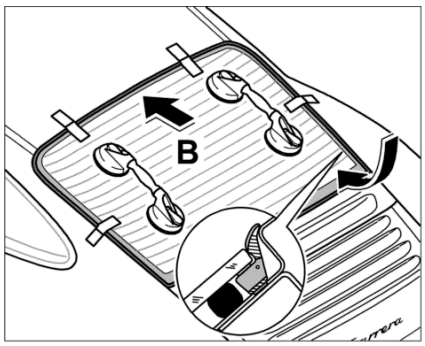
Fixing time: approx. 1 hour

Note

- *Two persons are needed to insert and adjust the rear window.*

Note

- *The rear window can no longer be aligned, because the bonding section on the seal immediately sticks to the body when the rear window is installed.*



Pulling off protective film

Inserting rear window

1. Insert the rear window into the window aperture and fit it at the previously marked positions.

Cleaning fields of vision

Note

- *The door windows must not be closed until after the curing time has elapsed.*

1. Adhesive which has oozed out must be removed immediately and the affected fields of vision must be cleaned using cleaning agent **-H1-** .

top of page

Subsequent work

Subsequent work

1. Connect plug for the rear window heater.
2. Install left and right C-pillar trim elements. 706819 Removing and installing C-pillar trim - Installing
3. Install rear window wiper *23 Removing and installing wiper arm for rear window washer system*
4. Install rear centre panel. 512119 Removing and installing rear centre panel - Installing
5. Close door windows.

997110, 997111, 997120, 997121, 997410, 997411, 997430, 997431

as of MY 2005
Country C00, C02, C05, C07, C08, C09, C10, C11, C12, C13, C14, C15, C16, C18, C19, C20, C21, C22, C23, C24, C25, C26, C27, C28, C32, C33, C34, C35, C36, C37, C38, C39, C45, C46, C98, C99

WARNUNG

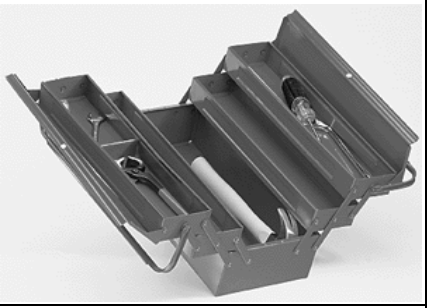
Gefahr des Verlusts der Text-Bild-Zuordnung beim Ausdruck.

- **Aus technischen Gründen kann derzeit nicht ausgeschlossen werden, dass trotz einwandfreier Darstellung auf dem Bildschirm beim Ausdruck der Zusammenhang von Text und zugehörigem Bild verloren geht.**
- **Wird der Fehler nicht bemerkt, besteht die Gefahr, daß Arbeiten nicht korrekt durchgeführt werden und es dadurch zu Personen- und Sachschäden kommt.**

64 86 19 Removing and installing rear window - as of MY 2005

- Preliminary work
- General warning notes
- Tools and materials
- Removing rear window
- Preparing window frame for installation
- Preparing rear window for installation
- Installing rear window
- Subsequent work

Tools

Designation	Type	Number	Explanation	
Cutting thread	commercially available tool			
2-component window bonding agent	commercially available tool	000.043.300.94		PORSCHE siehe Handbuch Werkstattausrüstung Voir le Manuel Equipement d´atelier Refer to the Workshop Equipment manual Vease Manual de Equipamiento de Taller Vedere il Manuale dell´attrezzatura d´officina ワークショップ・イクイップメント・マニュアルを参照
Flashing knife, U-type	commercially available tool	639.031.130.22		
Pipette	commercially available tool	vag 1344		PORSCHE siehe Handbuch Werkstattausrüstung Voir le Manuel Equipement d´atelier Refer to the Workshop Equipment manual Vease Manual de Equipamiento de Taller Vedere il Manuale dell´attrezzatura d´officina ワークショップ・イクイップメント・マニュアルを参照

Glass separating tool	commercially available tool	vag 1474 b		
Special electric cutter (fine)	commercially available tool	vag 1561 a		
Double cartridge gun	commercially available tool	vas 5237		

top of page

Preliminary work

Preliminary work

Remove hardtop. 610219 Removing and installing hardtop - chapter on "Removing"
Place outer side of the hardtop on the assembly fixture.

top of page

General warning notes

General warning notes

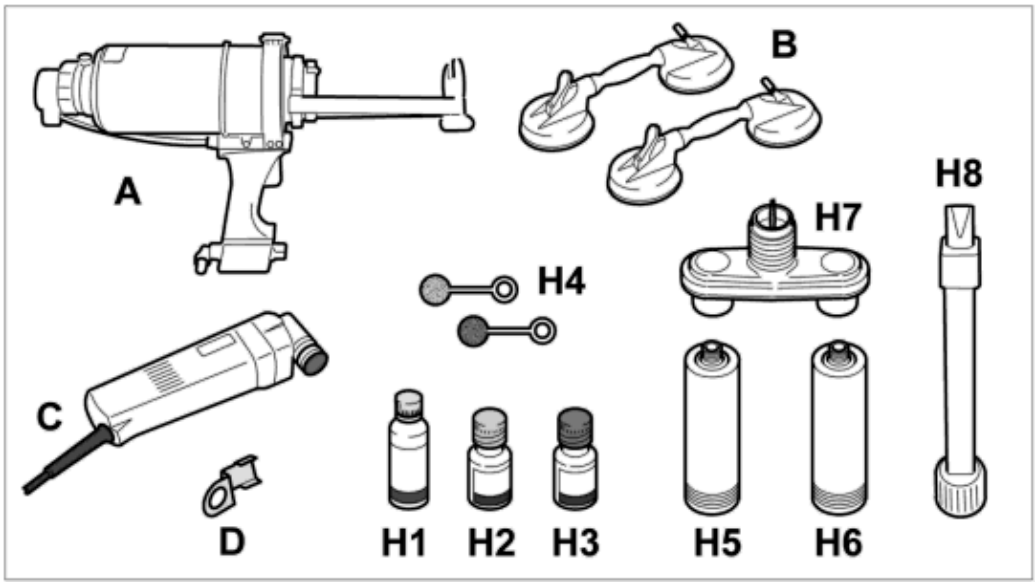
General information on installing and removing car windows

top of page

Tools and materials

Tools and materials

The following tools and materials are required for removal and installation of the rear window with 2-component adhesive:

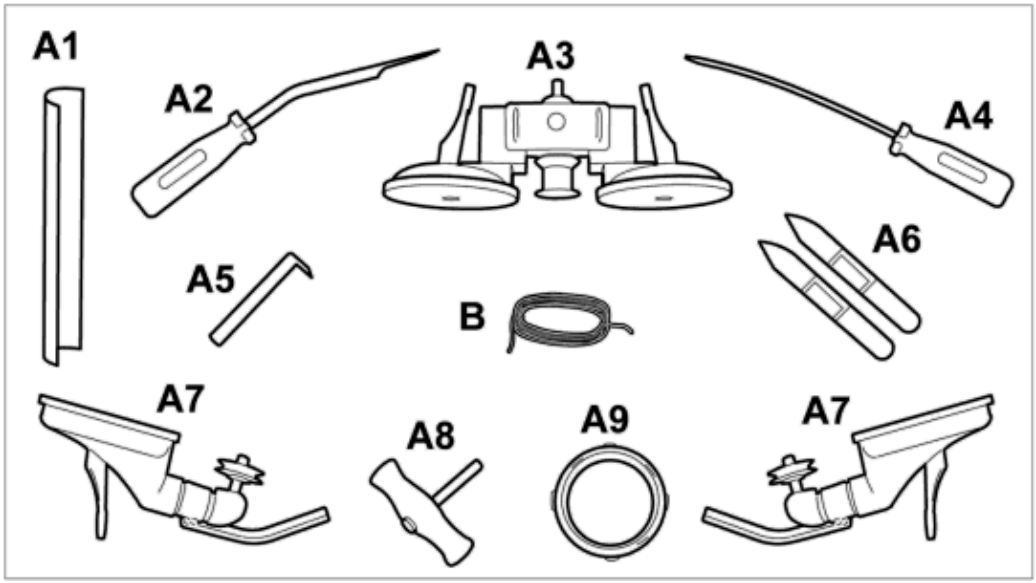


Tools and materials

Item	Designation	Source	Explanation
-A-	**Double cartridge gun vas 5237**	"See Workshop Equipment Manual, Chapter 3.5"	
-B-	**Pipette vag 1344**	"See Workshop Equipment Manual, Chapter 3.5"	
-C-	**Special electric cutter (fine) vag 1561 a**	"See Workshop Equipment Manual, Chapter 3.5"	
-D-	**Flashing knife, U-type 639.031.130.22**		
-H-	**2-component window bonding agent 000.043.300.94**		Contains set components H1-H8

Item	Designation	Item	Designation

-H1-	Cleaning solution	**-H5-**	Cartridge, component A
-H2-	Primer	**-H6-**	Cartridge, component B
-H3-	Activator	**-H7-**	Mixing nozzle
-H4-	Swab	**-H8-**	Processing nozzle



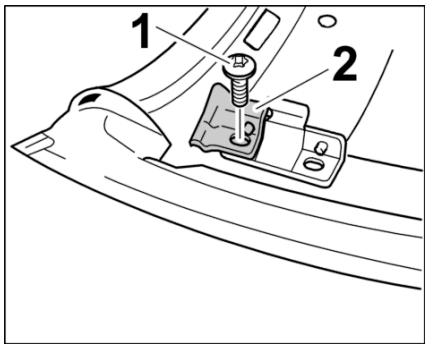
Glass separating tool

Item	Designation	Source	Explanation
-A-	**Glass separating tool vag 1474 b**	"See Workshop Equipment Manual, Chapter 3.5"	Contains set components A1-A9
-B-	**Cutting thread**	"See Parts Catalogue in Main Group 8"	

top of page

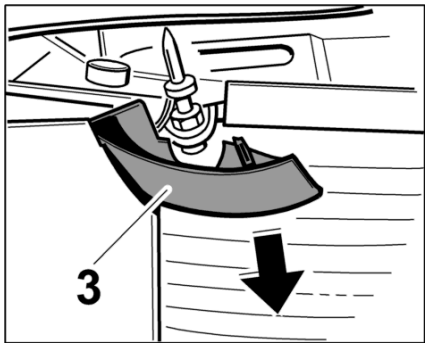
Removing rear window

Preparing the rear window (hardtop) for removal



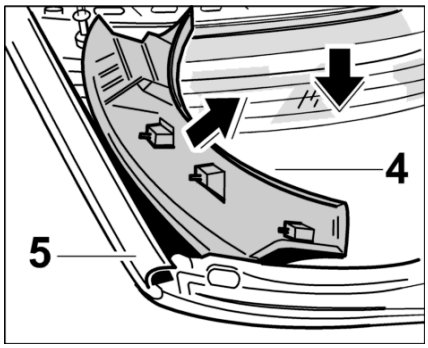
Removing centring journal support

1. Unscrew fastening screw **-1-** from the centring journal **-2-** on the left and right and take off support **-2-** .



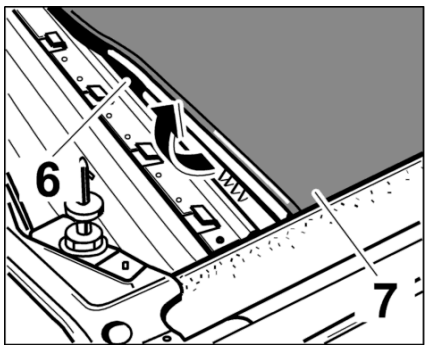
Removing centring journal trim panel

2. Unclip hardtop locking element trim panel **-3-** on the left and right.



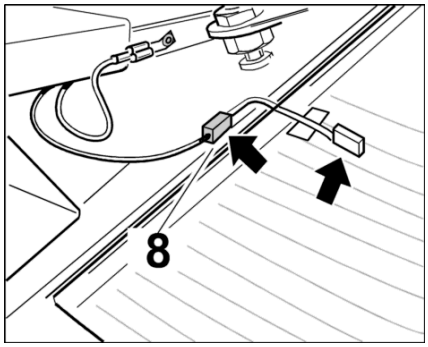
Unclipping linings

3. Unclip lining **-4-** at the sides and at the rear from the hardtop body **-5-** .



Detaching the roof liner

4. Pull plastic rail **-6-** on roof liner **-7-** to the rear and disengage.

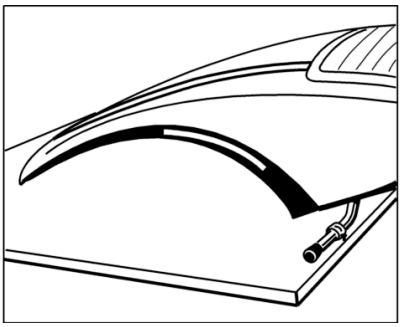


Disconnecting plug connection for rear window

Note

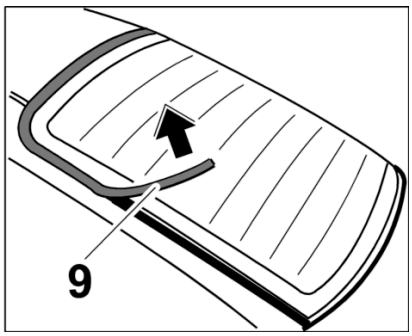
- *To avoid damaging the electric line when cutting out the rear window, affix this to the rear window with adhesive tape.*

5. Disconnect electrical plug connection **-8-** at left and right of rear window.



Locking hardtop to the assembly fixture

6. Place hardtop on the assembly fixture and lock with the latching levers and the locking lever at front.



Pulling off cover section

Note

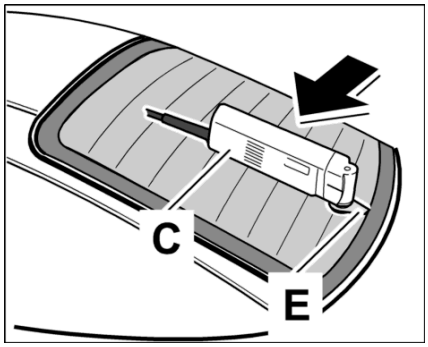
- *If the cover section is removed undamaged, it can be re-used.*

7. Loosen and pull off the cover section **-9-** .

Removing rear window

Note

- *When cutting out the rear window, take care not to damage the rivet connections that are connecting the hardtop body parts.*
- *When cutting out the rear window, make sure to cut close to the rear window.*



Removing rear window

1. Fit a cutter **-C-** with a u-type cutter **-E-** . Set the vibration frequency controller to 5. Cut through the bond between the body and the rear window at the top, bottom and sides. *641000 General information on installing and removing car windows*
2. Taking off rear window

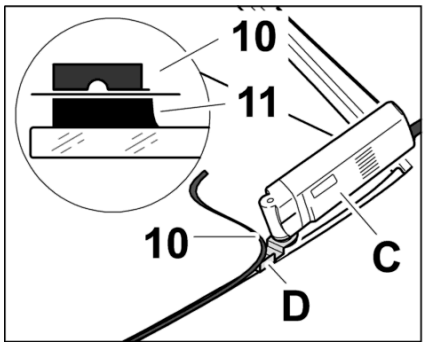
top of page

Preparing window frame for installation

Removing adhesive on the hardtop body

Note

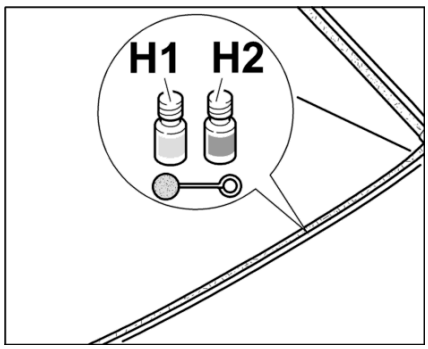
- *The surface coating of adhesive residue helps new adhesive to stick. Keep cut surfaces clean and free of grease and do not clean with cleaning solution.*



Removing remaining adhesive on the hardtop body

1. When removing remaining adhesive **-10-** with the cutting tool **-C-** and the flashing knife **-D-** on the hardtop body, ensure that a surface coating of adhesive remains **-2-** .

Cleaning and priming paint damage or newly built-up paint areas in the window aperture of the hardtop body



Cleaning and priming the body

Note

- *A ventilation period of at least 10 minutes must be observed between the cleaning of the glass section and the application of the primer! No cleaning solution residues may remain on the body.*

1. Clean new paint areas or damage to the top coat paint in the non-visible area of the glass section in the hardtop body with cleaning solution **-H1-** and patch with primer **-H2-** .

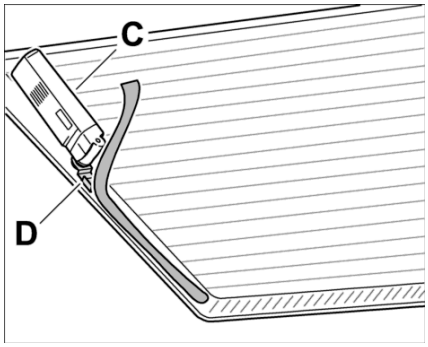
top of page

Preparing rear window for installation

Removing adhesive from the rear window

Note

- *Only if the rear window is to be re-installed.*



Removing adhesive from the rear window

Note

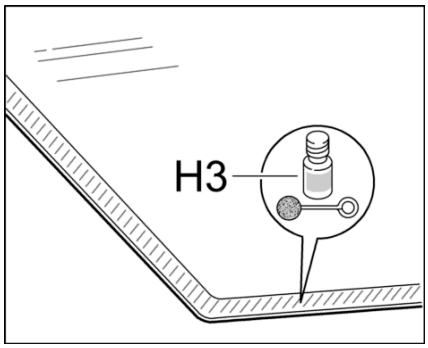
- *The remaining adhesive helps new adhesive to stick. Keep cut surfaces clean and free of grease and do not clean with cleaning solution.*

1. Equip cutter **-C-** with flashing knife **-D-** and remove remaining adhesive from the rear window, ensuring that a surface coating of adhesive remains.

Applying activator to the bonding section of the rear window

Note

- *Only with new rear windows*



Applying activator to the bonding section of the rear window

Note

- *Only if the rear window is re-installed*

1. During long idle periods apply activator **-H3-** to the remaining adhesive.

Note

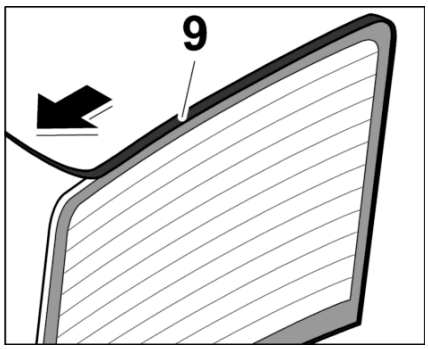
- *A ventilation period of at least 10 minutes must be observed between the cleaning of the glass and the application of the primer! No cleaning solution residues may remain on the body.*

2. Clean the windscreen with cleaning solution **-H1-** .
3. Apply primer **-H2-** to the window flange in the area of the marking.

Fitting cover section

Note

- *If the cover section is removed from the rear window undamaged, it can be re-used.*



Fitting cover section

1. Attach cover section **-9-** to the rear window.

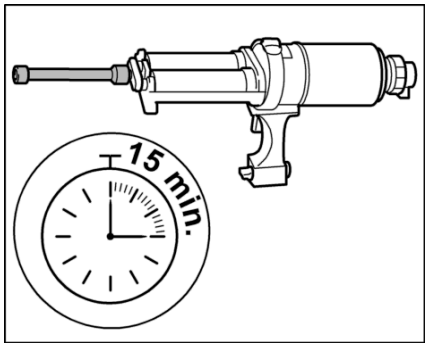
top of page

Installing rear window

Preparing 2-component adhesive for processing

Note

- *The adhesive has an open time of **-15 min-** , which means that the bonding material must be applied and the car window must be assembled within this period of time.*



Preparing the adhesive

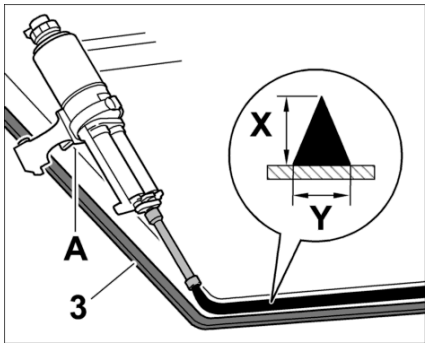
- *In order to ensure that the substance is completely mixed, apply a 30 mm long adhesive bead of fresh adhesive to a piece of cardboard before processing.*

1. Preparing 2-component adhesive for processing. *Processing of Porsche 2-component window bonding agents*

Applying adhesive on the rear window

Note

- *When applying the adhesive, it is essential to ensure that the adhesive bead overlaps by approx. 30 mm at the beginning and at the end.*



Applying adhesive

1. Using bonding gun **-A-** apply 2-component adhesive to the rear window along the seal **-3-** in the form of a triangular bead with the dimension **-X= ca. 15 mm-** **-Y= ca. 8 mm-** .

Inserting rear window into the hardtop body

ATTENTION

Danger of material damage if specified curing time of adhesive is not observed!

- **There will not be a proper adhesive bond if the prescribed curing time of the adhesive is not observed!**

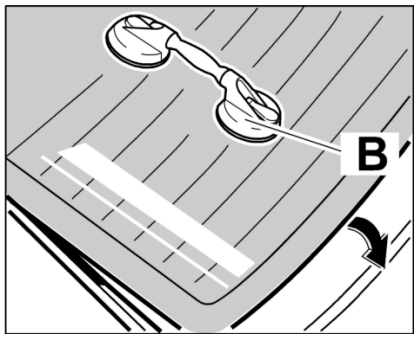
The vehicle must not be used until the curing time has elapsed.

Curing time: 3 hours

Temperature: at least 10°C

Fixing time: approx. 1 hour

1. Affix suction cups **-B-** to the rear window.

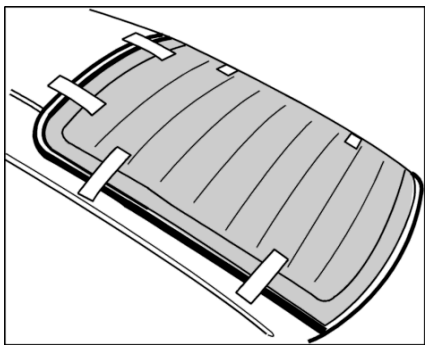


Inserting rear window

Note

- *Two persons are needed to insert and adjust the rear window.*

2. Insert the rear window at the top of the window aperture and lay it down carefully into the aperture.



Securing rear window

3. Press the rear window fully upwards, pressing on the lower edge of the glass while doing so. Use adhesive tape to prevent the rear window from slipping at the side and the top.

Cleaning fields of vision

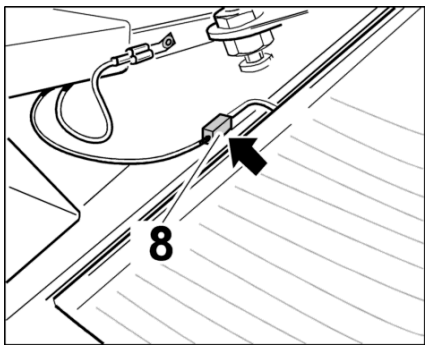
Note

- *The door windows must not be closed until after the curing time has elapsed.*

1. Adhesive which has oozed out must be removed immediately and the affected fields of vision must be cleaned using cleaning agent **-H1-** .

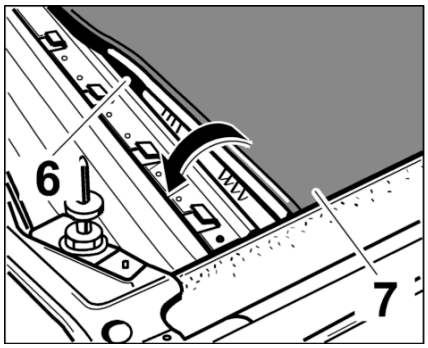
Completing the rear window (hardtop) after installation

1. Place outer side of the hardtop on the assembly fixture.



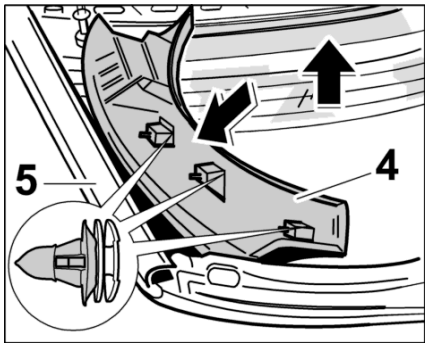
Joining plug connection for rear window heating

2. Connect electrical plug connection **-8-** at left and right of rear window.



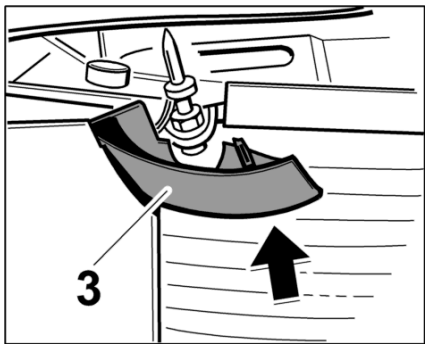
Attaching roof liner

3. Engage roof liner **-7-** to the rear using plastic rail **-6-** .



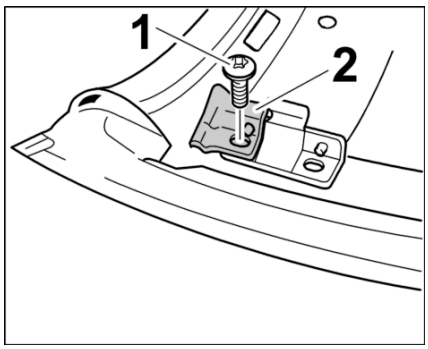
Clipping in linings

4. Clip in lining **-4-** at the sides and at the rear on the hardtop body **-5-** .



Clipping in hardtop locking trim panel

5. Clip hardtop locking element trim panel **-3-** on the left and right.



Installing centring journal support

6. Insert centring journal **-2-** on the left and right, screw in the fastening screw **-1-** und using torque **Tightening torque: 7.5 ftlb.** .

top of page

Subsequent work

Subsequent work

Install hardtop. 610219 Removing and installing hardtop - chapter on "Installing"

997310, 997311, 997320, 997321, 997610, 997611, 997620, 997621

as of MY 2005
Country C00, C02, C05, C07, C08, C09, C10, C11, C12, C13, C14, C15, C16, C18, C19, C20, C21, C22, C23, C24, C25, C26, C27, C28, C32, C33, C34, C35, C36, C37, C38, C39, C45, C46, C98, C99

WARNUNG

Gefahr des Verlusts der Text-Bild-Zuordnung beim Ausdruck.

- **Aus technischen Gründen kann derzeit nicht ausgeschlossen werden, dass trotz einwandfreier Darstellung auf dem Bildschirm beim Ausdruck der Zusammenhang von Text und zugehörigem Bild verloren geht.**
- **Wird der Fehler nicht bemerkt, besteht die Gefahr, daß Arbeiten nicht korrekt durchgeführt werden und es dadurch zu Personen- und Sachschäden kommt.**

Vergleichen Sie deshalb nach dem Druckvorgang unbedingt die Ausdrucke mit der Bildschirmdarstellung. Korrigieren Sie die Ausdrucke im Fehlerfall so, daß der Inhalt der Bildschirmdarstellung zutreffend wiedergegeben wird.

WARNING

Danger of losing text-figure correspondence when printing out.

- **For technical reasons, it can currently not be ruled out that the correspondence between text and associated figure can be lost when it is printed out, even though the display on the screen is correct.**
- **If the fault is not noticed, there is the danger that work will not be performed correctly which can cause injury and damage.**

Therefore, always compare printouts with the screen display after printing them out. Correct the printouts if they are faulty so that the content of the screen display matches that on the printouts.

64 90 23 Installing seal for rear window - as of MY 2005

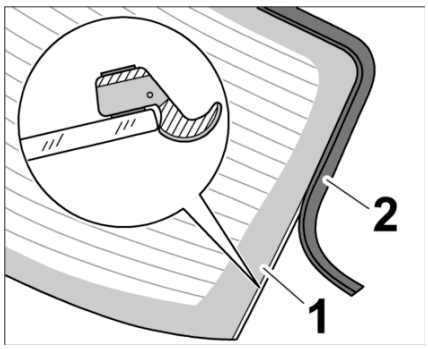
- Installing seal for rear window

top of page

Installing seal for rear window

Fitting seal for rear window

Note
The bonding surfaces must be clean and free of grease.



Fitting seal for rear window

– Stick seal **-2-** on the rear window **-1-** from the edge all the way round.

997110, 997111, 997120, 997121, 997410, 997411, 997430, 997431

as of MY 2005
Country C00, C02, C05, C07, C08, C09, C10, C11, C12, C13, C14, C15, C16, C18, C19, C20, C21, C22, C23, C24, C25, C26, C27, C28, C32, C33, C34, C35, C36, C37, C38, C39, C45, C46, C98, C99

WARNUNG
Gefahr des Verlusts der Text-Bild-Zuordnung beim Ausdruck.

- **Aus technischen Gründen kann derzeit nicht ausgeschlossen werden, dass trotz einwandfreier Darstellung auf dem Bildschirm beim Ausdruck der Zusammenhang von Text und zugehörigem Bild verloren geht.**

66 07 19 Removing and installing front logo - as of MY 2005

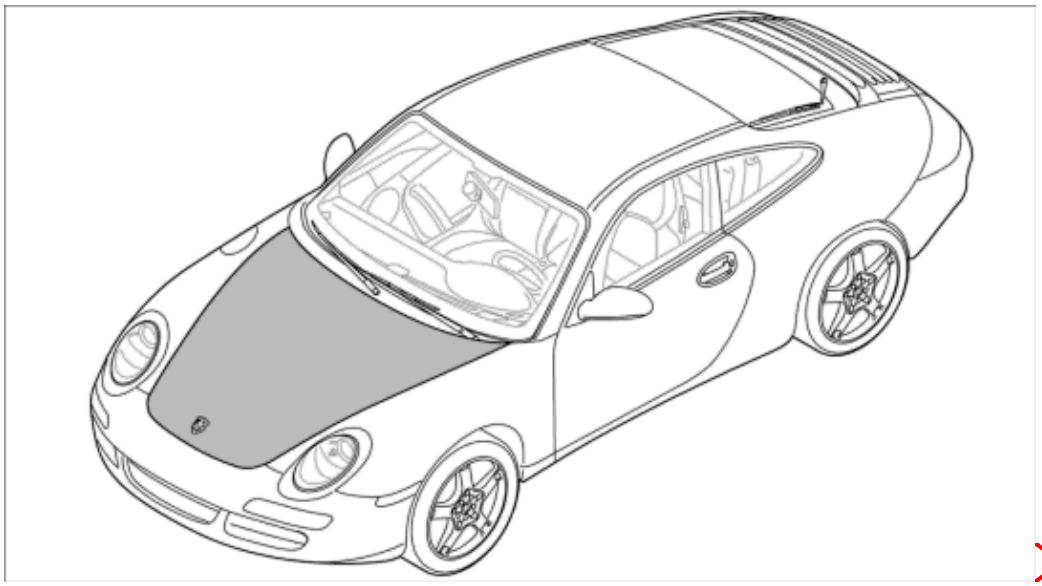
- Removing front logo
- Installing front logo

top of page

Removing front logo

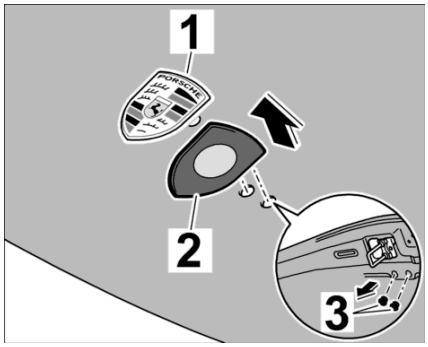
Removing front logo

Installation Location:



Overview, front lid

1. Open front lid.



Removing front logo

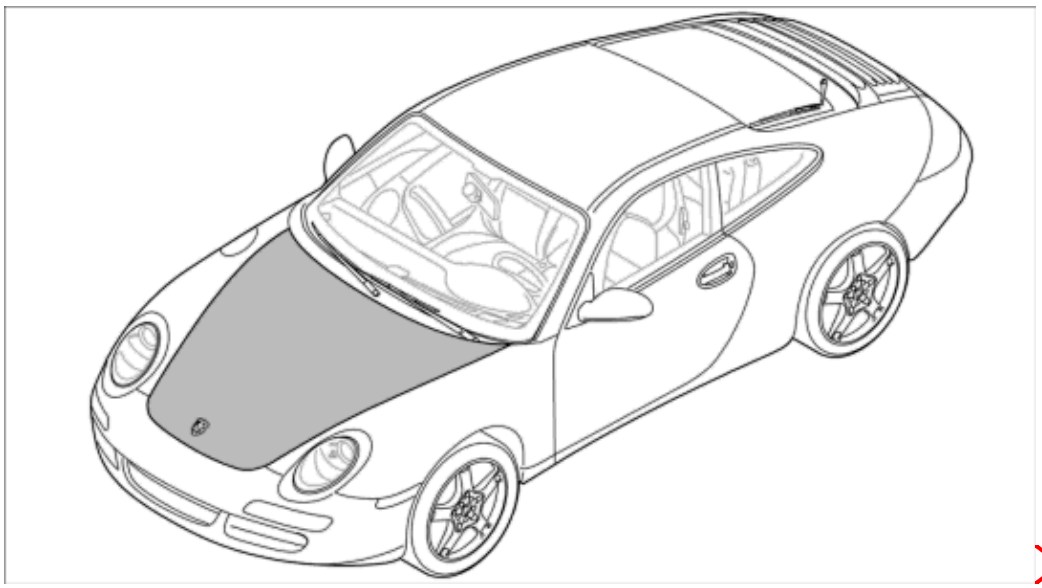
2. Unscrew fastening nuts **-3-** .
3. Remove logo **-1-** and washer **-2-** .

top of page

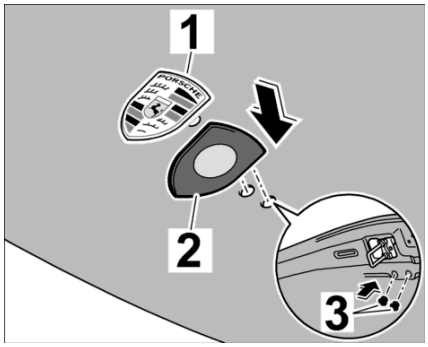
Installing front logo

Installing front logo

Installation Location:



Overview, front lid



Installing front logo

1. Insert washer **-2-** and logo **-1-** into lid and secure with new fastening nuts **-3-** .
2. Close front lid.

66 31 19 Removing and installing sill cover - as of MY 2006

- Preliminary work
- Removing sill cover
- Installing sill cover
- Gap dimensions of sill cover
- Subsequent work

top of page

Preliminary work

Preliminary work

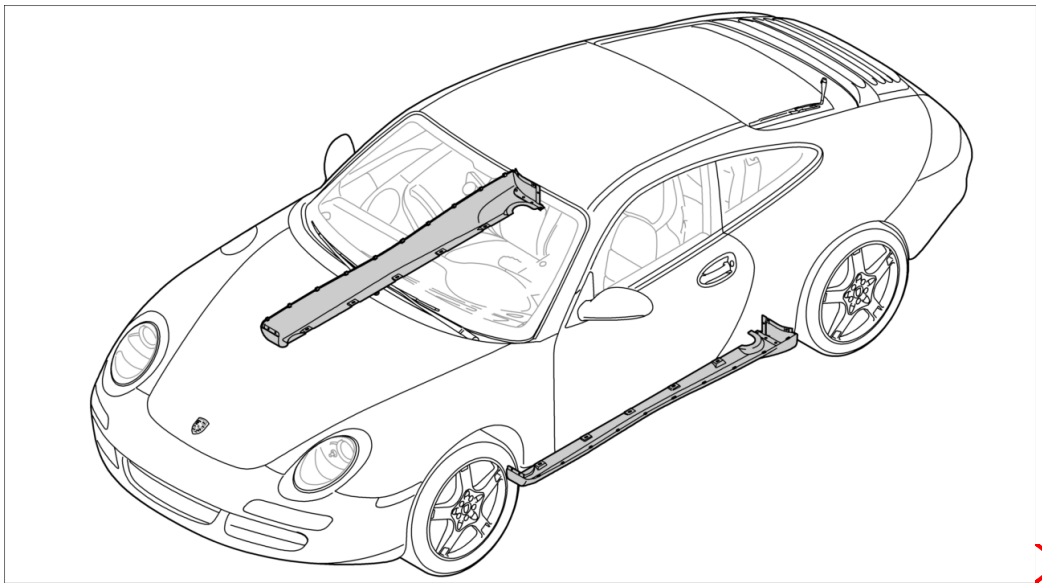
Remove wheel. 440519 Removing and installing wheel - removing

top of page

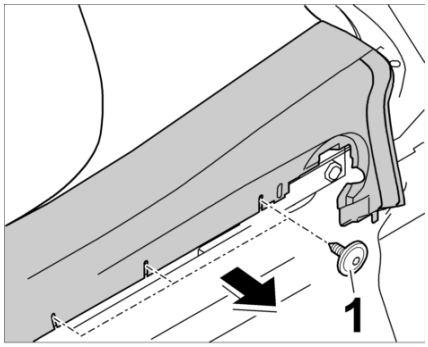
Removing sill cover

Removing sill cover

Installation Location:

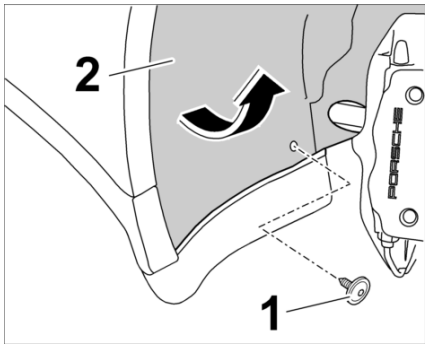


Installation position of sill cover



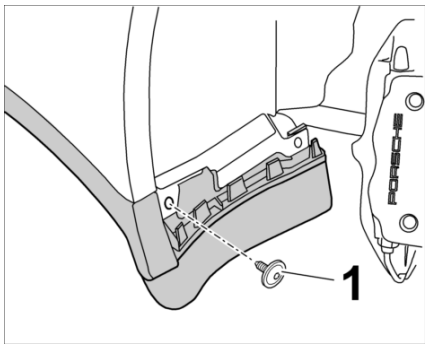
Loosening sill cover at bottom

1. Unscrew fastening screw **-1-** from the vehicle underbody.



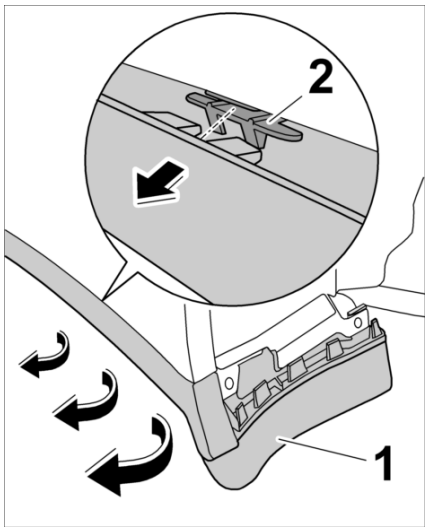
Releasing wheel housing liner

2. Unscrew fastening screw **-1-** from rear wheel housing liner **-2-** and pull out the wheel housing liner slightly.



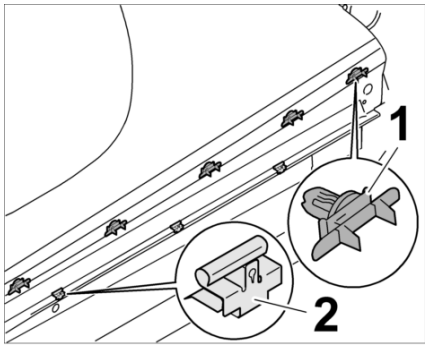
Loosening rear sill cover

3. Unscrew fastening screw **-1-** .



Removing sill cover

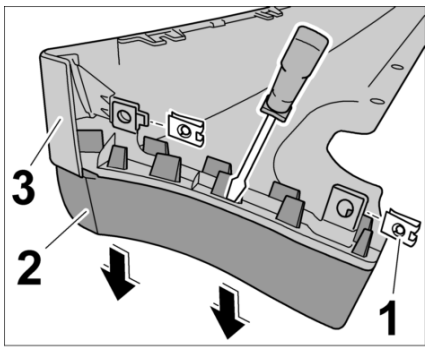
4. Pull out sill cover **-1-** , beginning at the rear, from the fixing clips **-2-** .



Checking fixing clips and clamps

5. Check fastening clips **-1-** , and replace if necessary.
6. Check clamps **-2-** on the vehicle underbody , and replace if necessary.

Disassembling and assembling sill cover

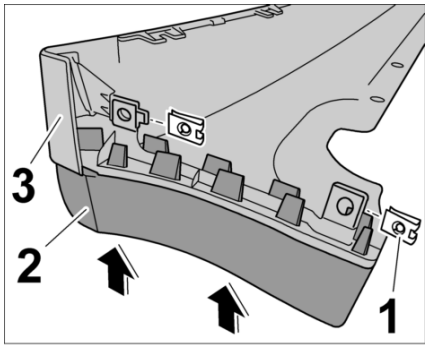


Disassembling sill cover

1. Disassembling sill cover

1.1. Press out fastening nuts **-1-** .

1.2. Insert a screwdriver between rubber lip **-2-** and sill cover **-3-** and remove rubber tab.



Assembling sill cover

2. Assembling sill cover

2.1. Position rubber lip **-2-** and pull the rubber tabs through the sill cover **-3-** .

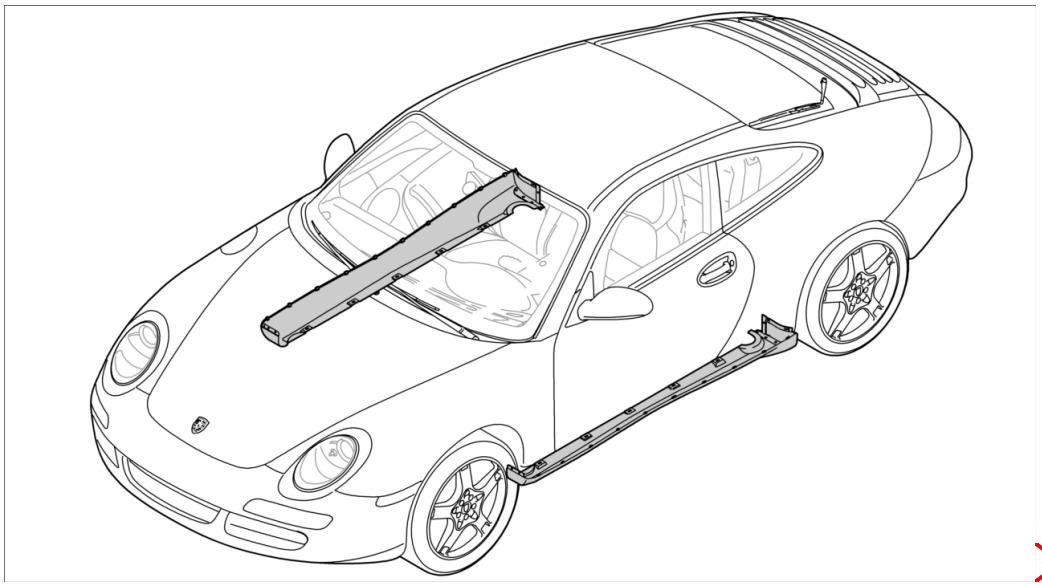
2.2. Press in fastening nuts **-1-** .

top of page

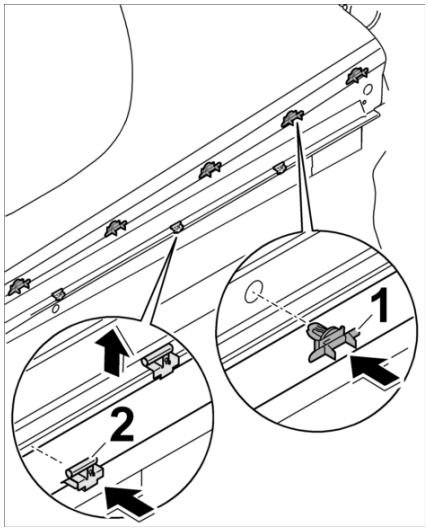
Installing sill cover

Installing sill cover

Installation Location:

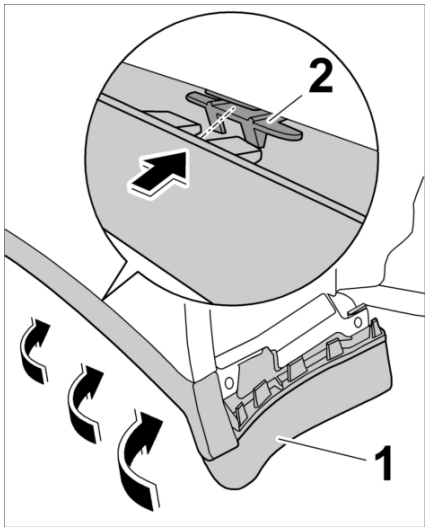


Installation position of sill cover



Installing clamps and fixing clips

1. Align clamps (six per side) **-2-** on the vehicle underbody with the sill cover and press in onto the edge of the door sill.
2. Press in fixing clips (nine per side) **-1-** until they engage.

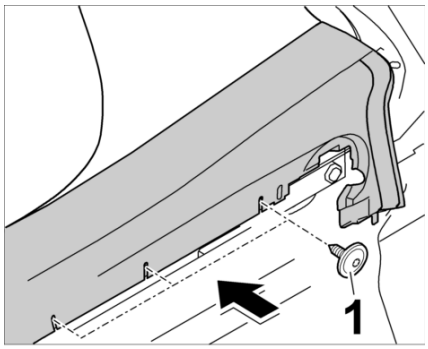


Installing sill cover

Note

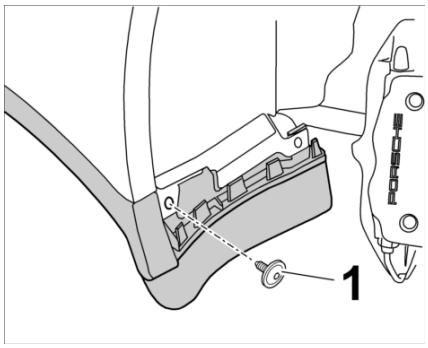
- *When inserting the sill cover, make sure the overlap is correct.*
- *Engage hook on front sill cover with side panel.*

3. With the help of a second person, insert sill cover **-1-** , beginning at the rear, and press into the fixing clips **-2-** .



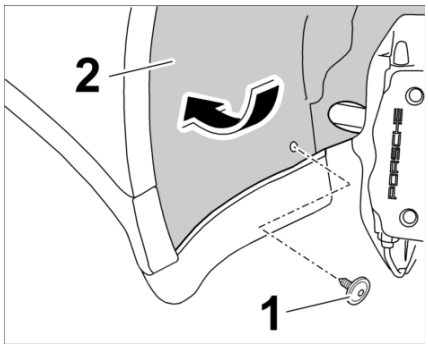
Fastening bottom of sill cover

4. Tighten sill cover with the fastening screws **-1-** in the clamps on the vehicle underbody.
   Tightening torque: 2 (1.5 ftlb.) Nm +/-20 %



Fastening rear of sill cover

5. Tighten fastening screw **-1-** . **Tightening torque: 2 (1.5 ftlb.) Nm +/-20 %**



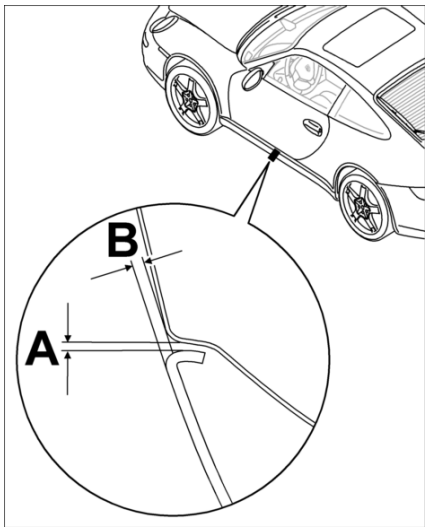
Fastening rear wheel housing liner

6. Align rear wheel housing liner **-2-** and tighten with the fastening screw **-1-** . **Tightening torque: 2 (1.5 ftlb.) Nm +/-20 %**
7. Check gap dimensions of sill cover, and adjust if necessary. 663119 Removing and installing sill cover - chapter on "Adjusting"

top of page

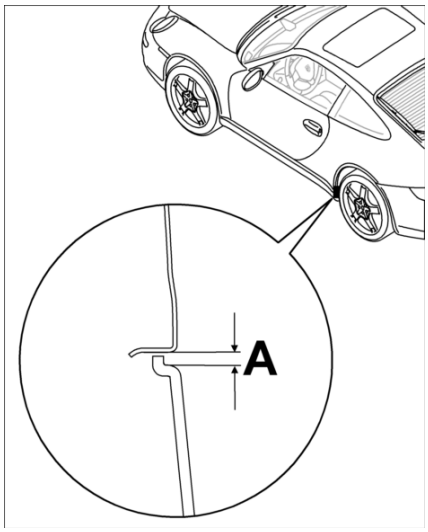
Gap dimensions of sill cover

Gap dimensions of sill cover



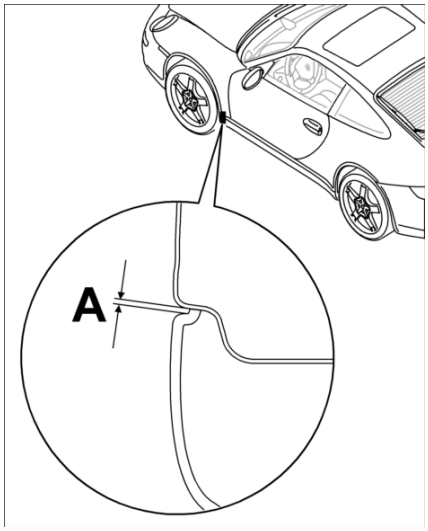
Sill cover to door sill

Location	Explanation	Type	Basic value	Tolerance 1	Tolerance 2
Sill cover to door sill		Gap dimension A	1.3 mm	+0.5 mm	
Sill cover to door sill	Door sill only lowered	Gap dimension B	2 mm	-1 mm	



Sill cover to door sill at rear in wheel housing

Location	Explanation	Type	Basic value	Tolerance 1	Tolerance 2
Sill cover to door sill rear in wheel housing		Gap dimension A	1.3 mm	+0.5 mm	



Sill cover to door sill at front in wheel housing

Location	Explanation	Type	Basic value	Tolerance 1	Tolerance 2
Sill cover to door sill at front in wheel housing		Gap dimension A	1.1 mm		

top of page

Subsequent work

Reworking

Install wheel. 440519 Removing and installing wheel - installing

---

997410, 997411, 997430, 997431, 997610, 997611, 997620, 997621

as of MY 2006
Country C00, C02, C05, C07, C08, C09, C10, C11, C12, C13, C14, C15, C16, C18, C19, C20, C21, C22, C23, C24, C25, C26, C27, C28, C32, C33, C34, C35, C36, C37, C38, C39, C45, C46, C98, C99

WARNUNG
Gefahr des Verlusts der Text-Bild-Zuordnung beim Ausdruck.

- **Aus technischen Gründen kann derzeit nicht ausgeschlossen werden, dass trotz einwandfreier Darstellung auf dem Bildschirm beim Ausdruck der Zusammenhang von Text und zugehörigem Bild verloren geht.**

66 34 19 Removing and installing side-section trim - as of MY 2005

- Preliminary work
- Removing side-section trim
- Installing side-section trim
- Subsequent work

top of page

Preliminary work

Preliminary work

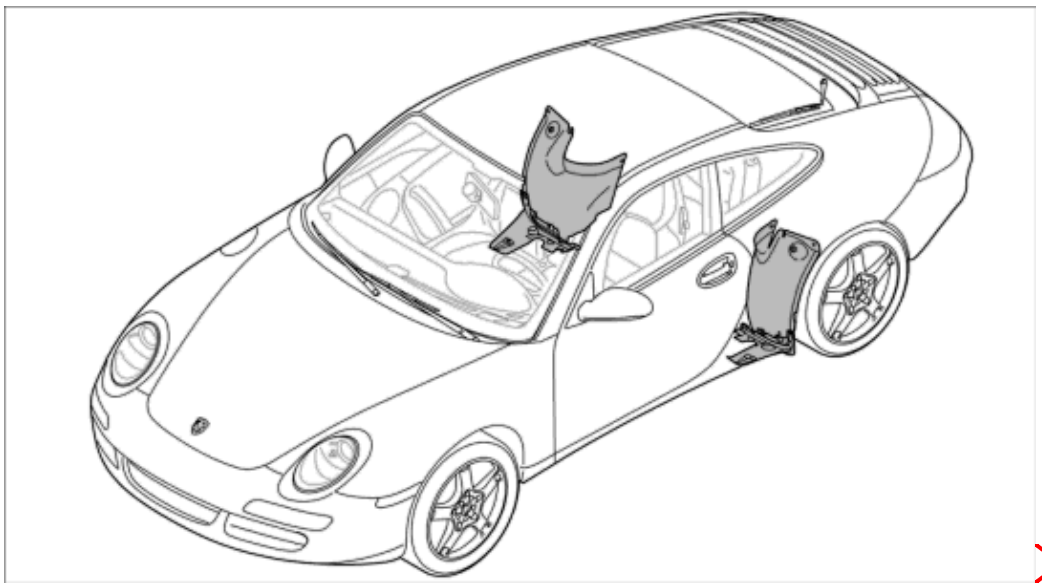
Remove wheel. 440519 Removing and installing wheel - removing

top of page

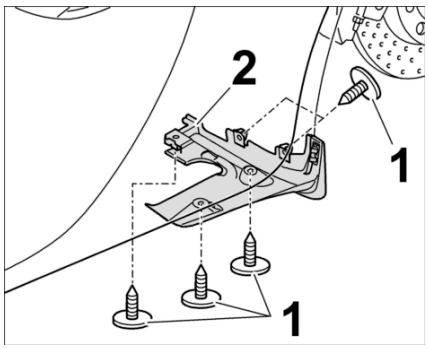
Removing side-section trim

Removing side-section trim

Installation Location:



Installation location of side-section trim



Removing side-section trim

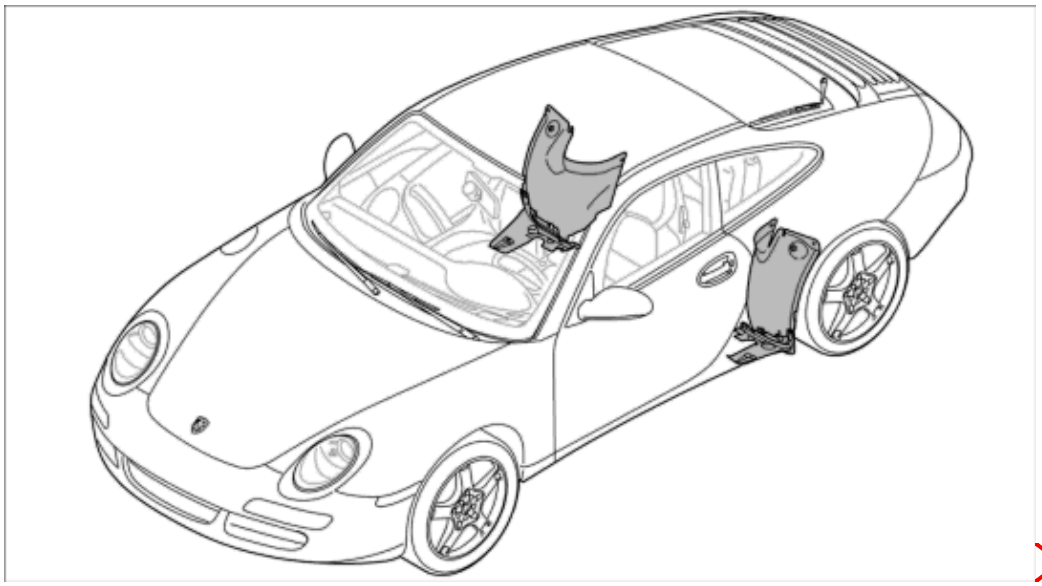
1. Unscrew fastening screws **-1-** and remove side-section trim **-2-** .

top of page

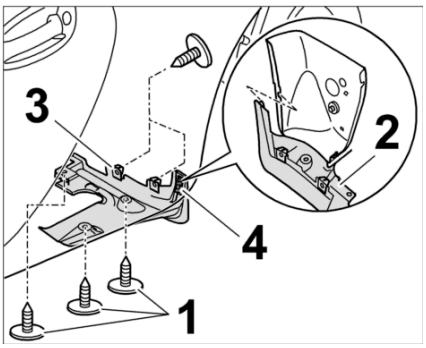
Installing side-section trim

Installing side-section trim

Installation Location:



Installation location of side-section trim



Installing side-section trim

1. Check sheetmetal nuts **-3-** for deformation, replacing if necessary **-3-** .
2. Insert side-section trim **-2-** and push retaining clip **-4-** into side panel.
3. Screw in fastening screws **-1-** and tighten to specified tightening torque **: 1.5 ftlb.** .

top of page

Subsequent work

Reworking

Install wheel. 440519 Removing and installing wheel - installing

---

997110, 997111, 997120, 997121, 997310, 997311, 997320, 997321

as of MY 2005
Country C00, C02, C05, C07, C08, C09, C10, C11, C12, C13, C14, C15, C16, C18, C19, C20, C21, C22, C23, C24, C25, C26, C27, C28, C32, C33, C34, C35, C36, C37, C38, C39, C45, C46, C98, C99

WARNUNG

Gefahr des Verlusts der Text-Bild-Zuordnung beim Ausdruck.

- **Aus technischen Gründen kann derzeit nicht ausgeschlossen werden, dass trotz einwandfreier Darstellung auf dem Bildschirm beim Ausdruck der Zusammenhang von Text und zugehörigem Bild verloren geht.**
- **Wird der Fehler nicht bemerkt, besteht die Gefahr, daß Arbeiten nicht korrekt durchgeführt werden und es dadurch zu Personen- und Sachschäden kommt.**

Vergleichen Sie deshalb nach dem Druckvorgang unbedingt die Ausdrucke mit der Bildschirmdarstellung. Korrigieren Sie die Ausdrucke im Fehlerfall so, daß der Inhalt der Bildschirmdarstellung zutreffend wiedergegeben wird.

66 36 19 Removing and installing roof joint strip - as of MY 2005

- Removing roof joint strip
- Disassembling roof joint cover strip
- Assembling roof joint cover strip
- Installing roof joint strip

Tools

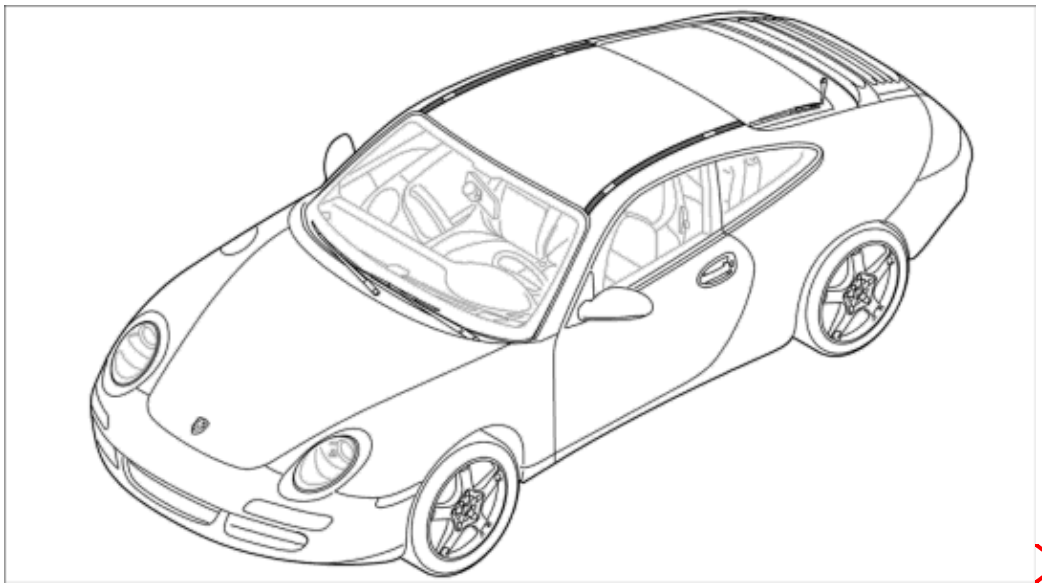
Designation	Type	Number	Explanation	
Loctite 241	workshop equipment			

top of page

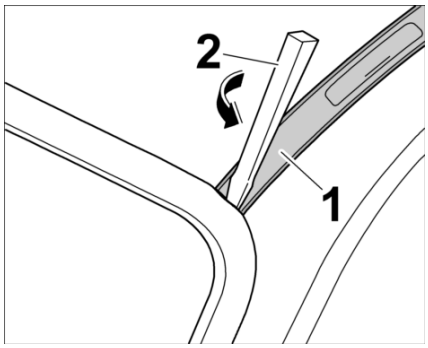
Removing roof joint strip

Removing roof joint cover strip

Installation Location:

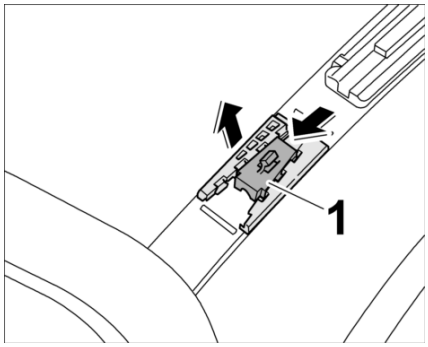


Installation position of roof joint cover strip



Removing roof joint cover strip

1. Lift roof joint cover strip **-1-** using a plastic spatula **-2 -** and unclip all the way along.



Detaching spreader

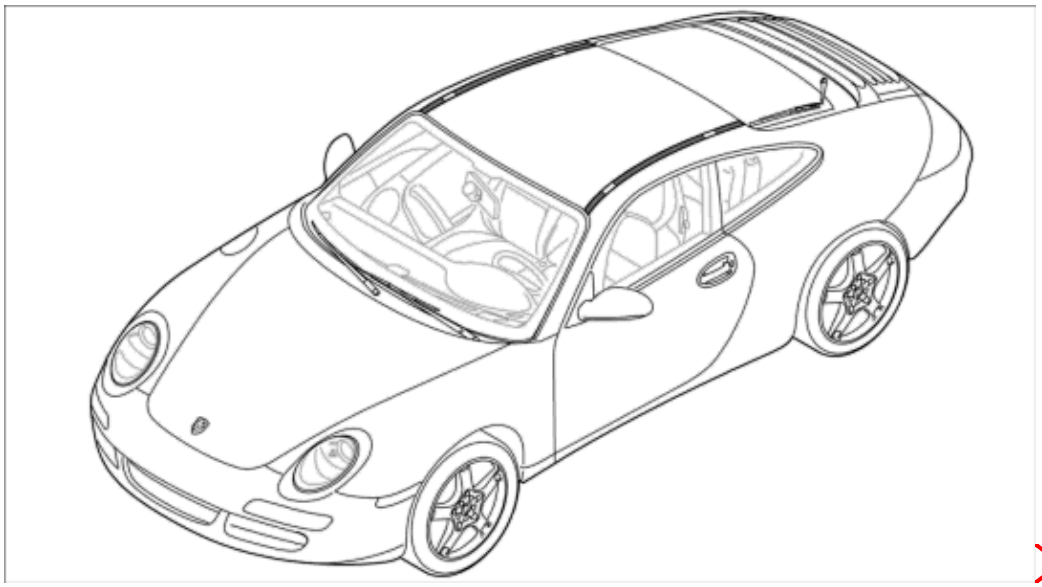
2. Move wedge piece of spreader **-1-** with a plastic wedge. Remove spreader.

top of page

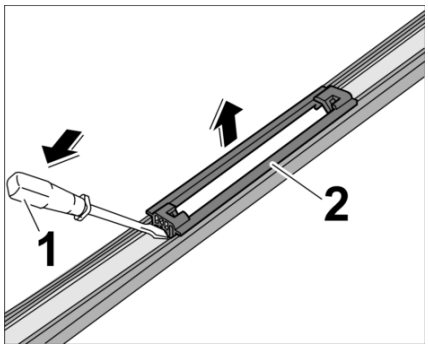
Disassembling roof joint cover strip

Disassembling roof joint cover strip

Installation Location:

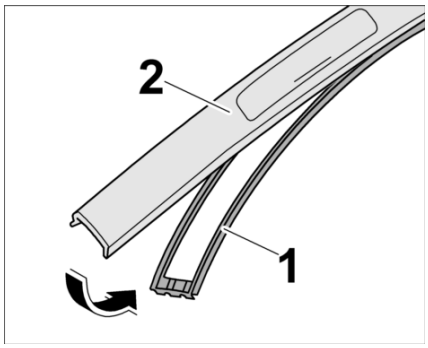


Installation position of roof joint cover strip



Removing fold-out element

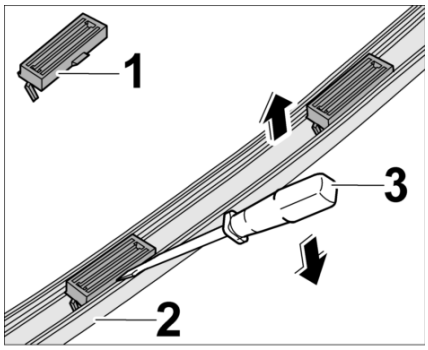
1. Insert a screwdriver **-1-** beneath both ends of the fold-out element **-2-** and press out.



Pulling off roof joint seal

2. Pull roof frame seal **-1-** from the roof joint cover strip **-2-**

.



Removing roof joint clips

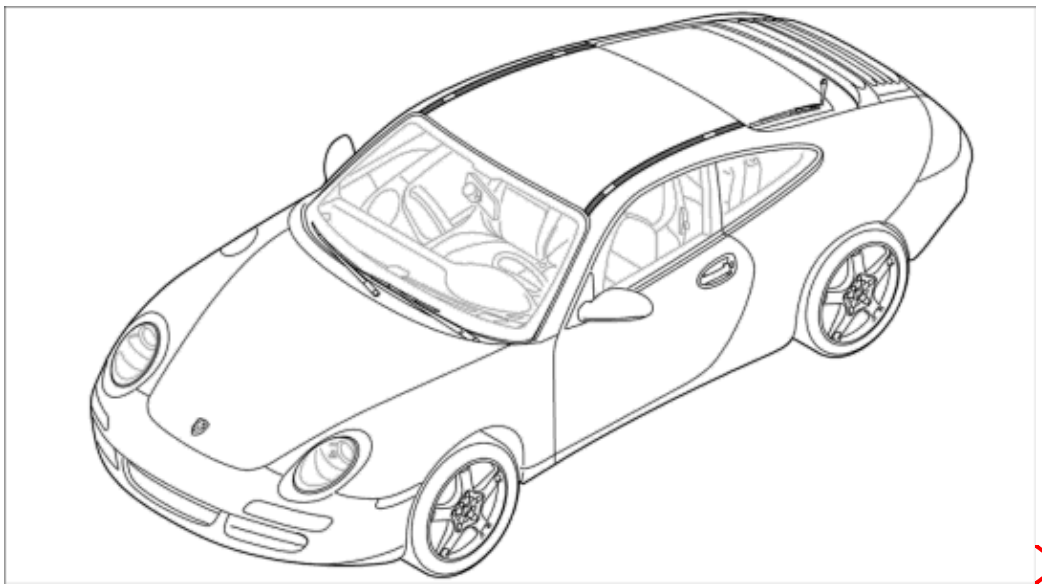
3. Between the roof joint clip **-1-** and the roof joint cover strip **-2-** insert a narrow screwdriver **-3-** and press outwards until the roof joint clip disengages.

top of page

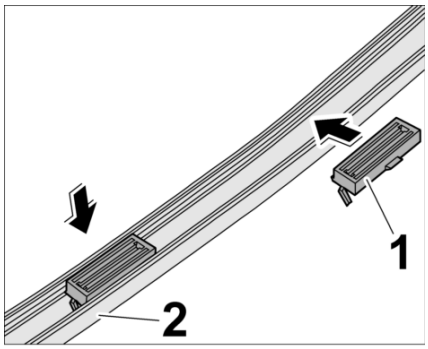
Assembling roof joint cover strip

Assembling roof joint cover strip

Installation Location:

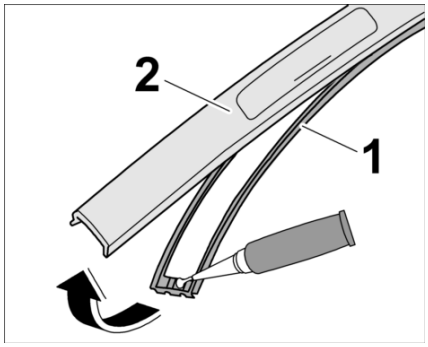


Installation position of roof joint cover strip



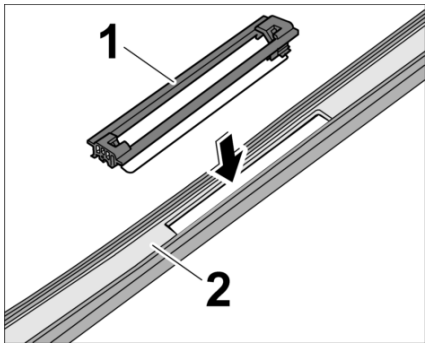
Fitting roof joint clips

1. Insert roof joint clips **-1-** narrow side first, and press in until the locking tab in the roof joint cover strip **-2-** engages.



Fitting roof joint seal

2. Push the roof joint seal **-1-** onto the roof joint strip **-2-** all the way round.
3. Stick in the roof frame seal **-1-** at the ends of the roof joint cover strip **-2-** using **Loctite 241** .



Fitting fold-out element

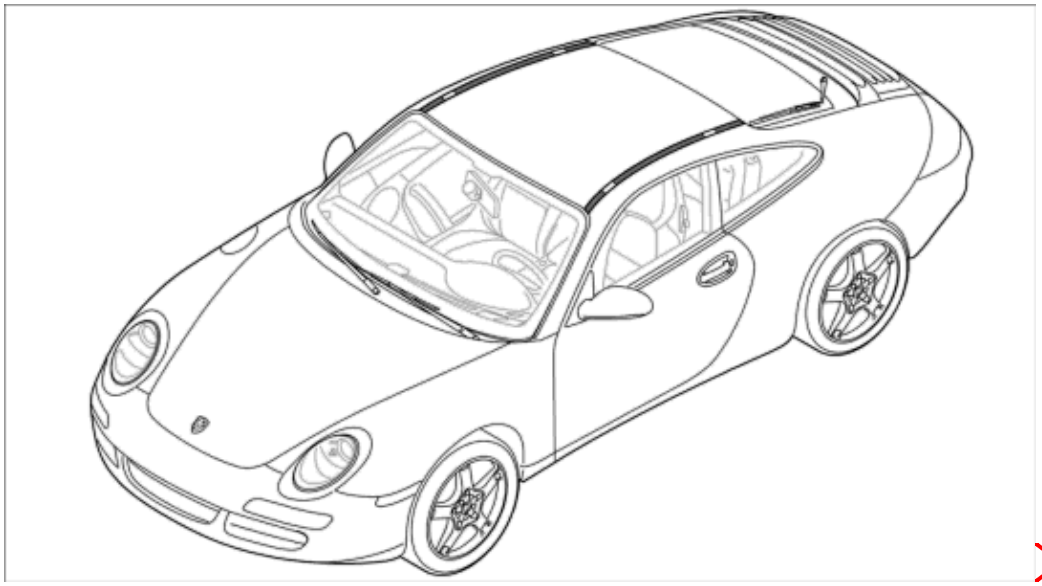
4. Position the fold-out element **-1-** in the cut-out of the roof joint strip **-2-** , and press in the locking tabs at the ends until they engage.

top of page

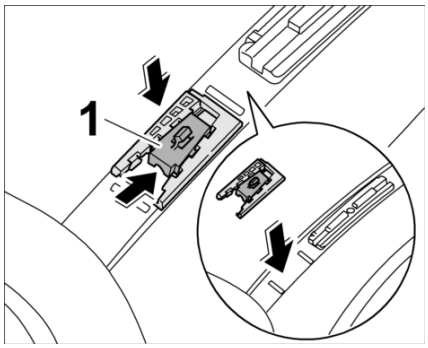
Installing roof joint strip

Installing roof joint cover strip

Installation Location:

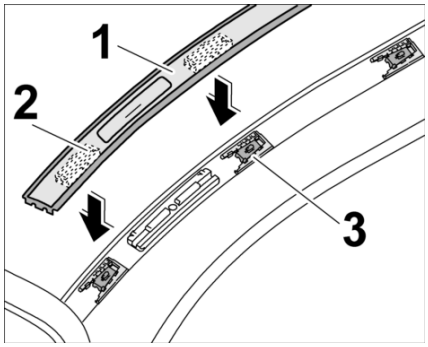


Installation position of roof joint cover strip



Fitting spreader

1. Position spreaders **-1-** (5 per roof channel) in the recesses, beginning at the front. Press the spreader right down into the roof channel.
2. Push wedge piece into the spreader **-1-** until the spreader is braced in the roof channel.



Installing roof joint cover strip

3.

Position the roof joint strip **-1-** on the roof channel, and align the roof joint clips **-2-** in the roof joint cover strip with the spreaders **-3-** so that they lie directly above one another.

4. Press in roof joint cover strip **-1-** until it audibly engages.

997110, 997111, 997120, 997121, 997410, 997411, 997430, 997431

as of MY 2005
Country C00, C02, C05, C07, C08, C09, C10, C11, C12, C13, C14, C15, C16, C18, C19, C20, C21, C22, C23, C24, C25, C26, C27, C28, C32, C33, C34, C35, C36, C37, C38, C39, C45, C46, C98, C99

WARNUNG

Gefahr des Verlusts der Text-Bild-Zuordnung beim Ausdruck.

- **Aus technischen Gründen kann derzeit nicht ausgeschlossen werden, dass trotz einwandfreier Darstellung auf dem Bildschirm beim Ausdruck der Zusammenhang von Text und zugehörigem Bild verloren geht.**
- **Wird der Fehler nicht bemerkt, besteht die Gefahr, daß Arbeiten nicht korrekt durchgeführt werden und es dadurch zu Personen- und Sachschäden kommt.**

Vergleichen Sie deshalb nach dem Druckvorgang unbedingt die Ausdrucke mit der Bildschirmdarstellung. Korrigieren Sie die Ausdrucke im Fehlerfall so, daß der Inhalt der Bildschirmdarstellung zutreffend wiedergegeben wird.

WARNING

Danger of losing text-figure correspondence when printing out.

- **For technical reasons, it can currently not be ruled out that the correspondence between text and associated figure can be lost when it is printed out, even though the display on the screen is correct.**
- **If the fault is not noticed, there is the danger that work will not be performed correctly which can cause injury and damage.**

Therefore, always compare printouts with the screen display after printing them out. Correct the printouts if they are faulty so that the content of the screen display matches that on the printouts.

AVERTISSEMENT

Risque de perte de la correspondance texte-illustration lors de l'impression papier.

- **Pour des raisons techniques, il ne peut pas être exclu à l'heure actuelle que, même en cas d'affichage correct à l'écran, la correspondance entre le texte et l'illustration puisse être erronée sur l'impression papier.**
- **Si l'erreur passe inaperçue, on court le risque d'exécuter certaines opérations de manière incorrecte pouvant conduire à des dommages corporels et matériels.**

66 50 55 Replacing rear logo - as of MY 2005

- Replacing rear logo
- Replacing model logo

Tools

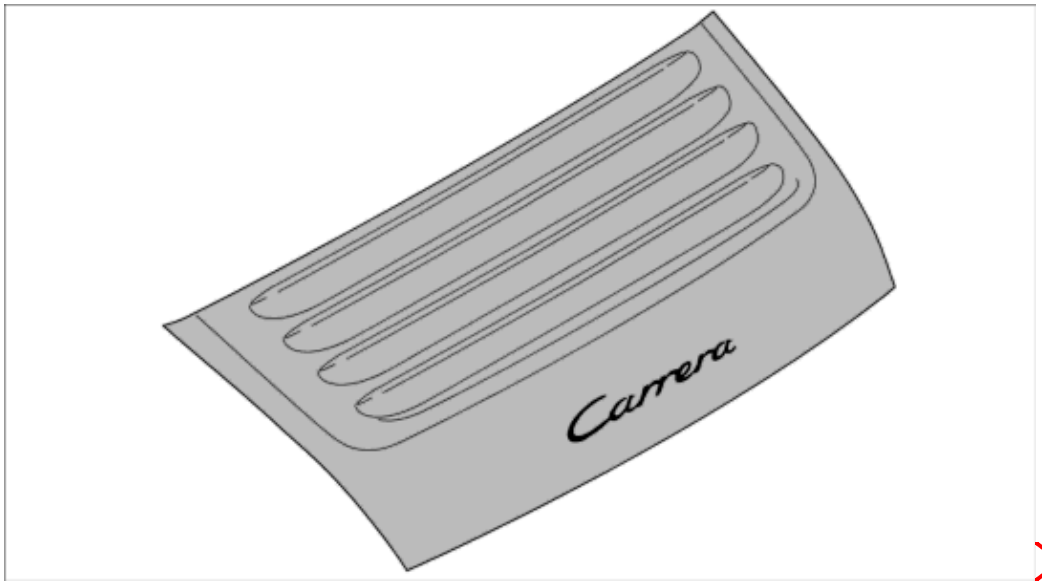
Designation	Type	Number	Explanation	
hot-air gun	commercially available tool	v.a.g 1416		PORSCHE siehe Handbuch Werkstattausrüstung Voir le Manuel Equipement d´atelier Refer to the Workshop Equipment manual Vease Manual de Equipamiento de Taller Vedere il Manuale dell´attrezzatura d´officina ワークショップ・イクイップメント・マニュアルを参照

top of page

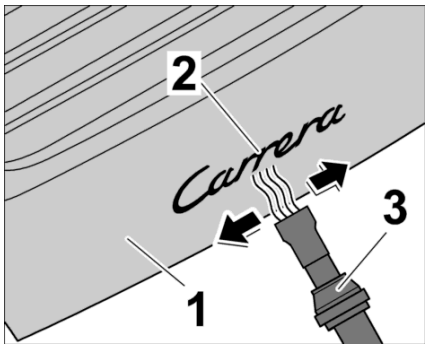
Replacing rear logo

Removing the rear logo

Installation Location:



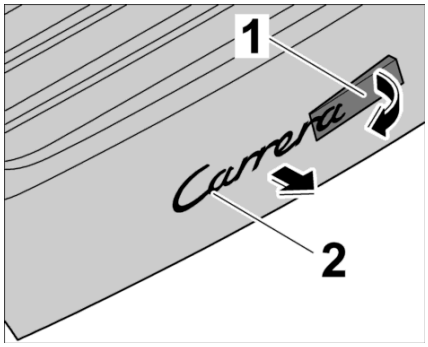
Main illustration rear logo



Heating the rear lid

1. **Heating the rear lid**

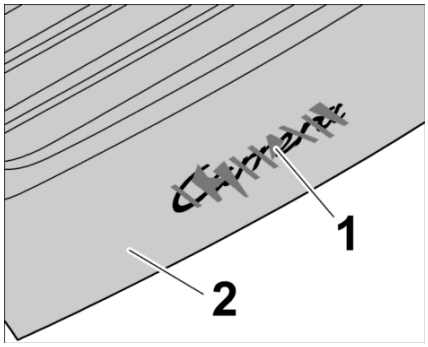
1.1. Heat the rear cover **-1-** in the area of the logo **-2-** using the **hot-air gun v.a.g 1416** **-3-** .



Levering off logo

2. **Lifting up the logo using a plastic wedge**

2.1. Move a plastic spatula **-1-** under the logo **-2-** and lift it up.



Clean the cover

3. **Clean the cover**

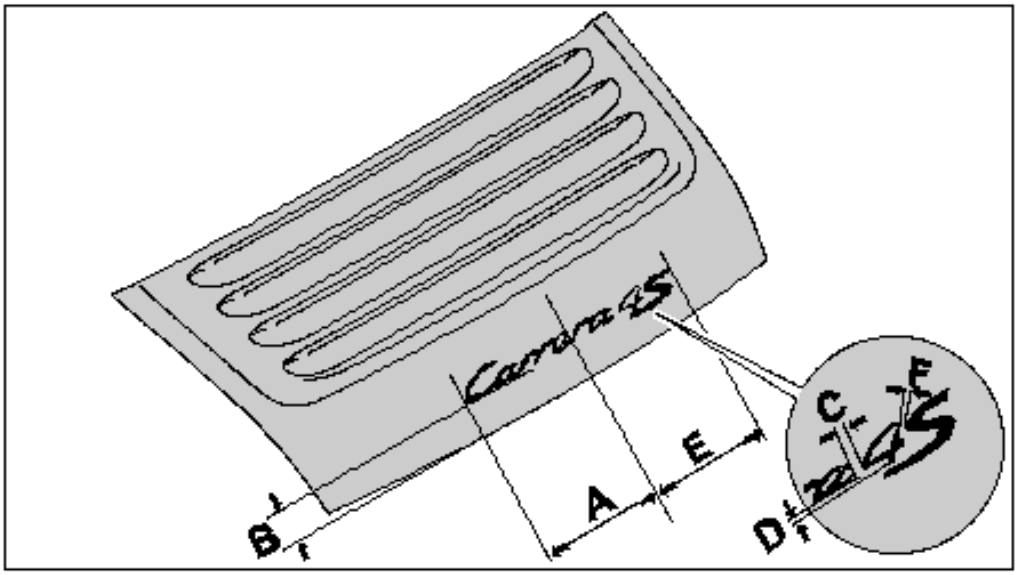
3.1. Loosen the adhesive residue **-1-** on the cover **-2-** using a silicone remover and remove it.

top of page

Replacing model logo

Replacing the Carrera 4S model logo

1. Find the centre of the lid.



Logo Carrera 4S

2. Position logo **-Carrera-** with the dimensions **-A-** **Dimension: 175.6 mm +/-1 mm** and **-B-** **distance: 45 mm -1 mm** and stick on lid.
3. Position logo **-4-** with the dimensions **-C-** **Dimension: 19 mm +/-1 mm** and **-D-** **Dimension: 2 mm +/-1 mm** and stick on rear lid.
4. Position logo **-S-** with the dimensions **-E-** **Dimension: 190 mm +/-1 mm** and **-F-** **Dimension: 3 mm** and stick on rear lid.

997430, 997431, 997620, 997621

as of MY 2005
Country C00, C02, C05, C07, C08, C09, C10, C11, C12, C13, C14, C15, C16, C18, C19, C20, C21, C22, C23, C24, C25, C26, C27, C28, C32, C33, C34, C35, C36, C37, C38, C39, C45, C46, C98, C99

WARNUNG

Gefahr des Verlusts der Text-Bild-Zuordnung beim Ausdruck.

- **Aus technischen Gründen kann derzeit nicht ausgeschlossen werden, dass trotz einwandfreier Darstellung auf dem Bildschirm beim Ausdruck der Zusammenhang von Text und zugehörigem Bild verloren geht.**
- **Wird der Fehler nicht bemerkt, besteht die Gefahr, daß Arbeiten nicht korrekt durchgeführt werden und es dadurch zu Personen- und Sachschäden kommt.**

Vergleichen Sie deshalb nach dem Druckvorgang unbedingt die Ausdrucke mit der Bildschirmdarstellung. Korrigieren Sie die Ausdrucke im Fehlerfall so, daß der Inhalt der Bildschirmdarstellung zutreffend wiedergegeben wird.

66 50 55 Replacing rear logo - as of MY 2005

- Replacing rear logo
- Replacing model logo

Tools

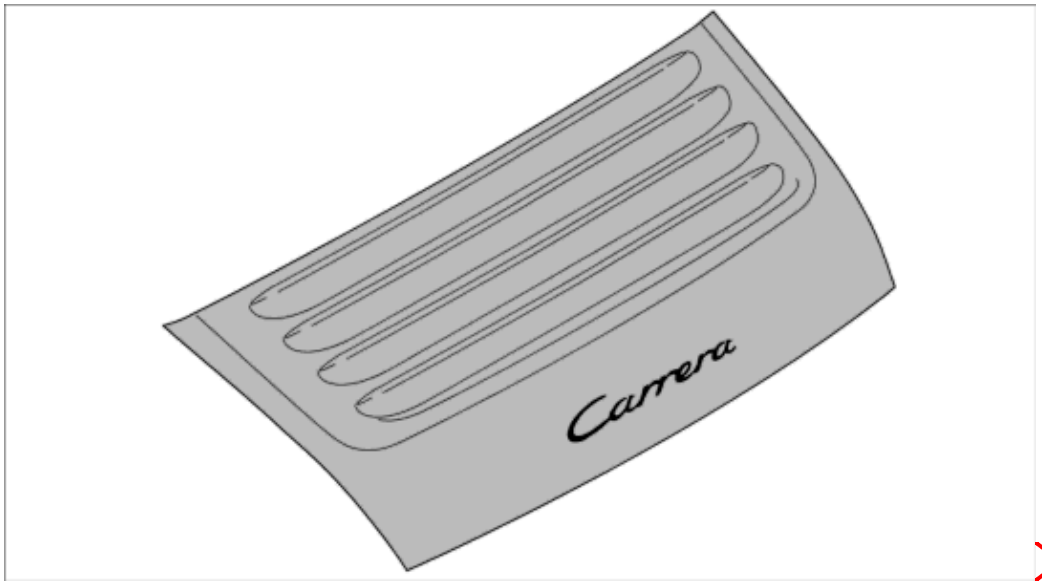
Designation	Type	Number	Explanation	
hot-air gun	commercially available tool	v.a.g 1416		PORSCHE siehe Handbuch Werkstattausrüstung Voir le Manuel Equipement d´atelier Refer to the Workshop Equipment manual Vease Manual de Equipamiento de Taller Vedere il Manuale dell´attrezzatura d´officina ワークショップ・イクイップメント・マニュアルを参照

top of page

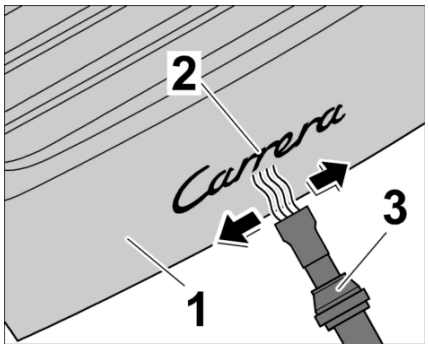
Replacing rear logo

Removing the rear logo

Installation Location:



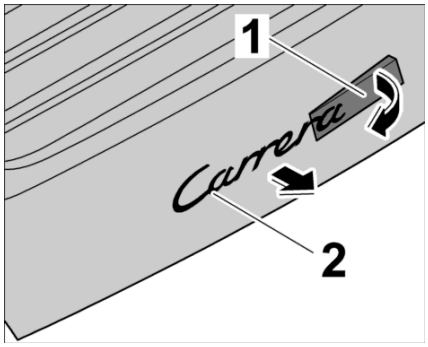
Main illustration rear logo



Heating the rear lid

1. **Heating the rear lid**

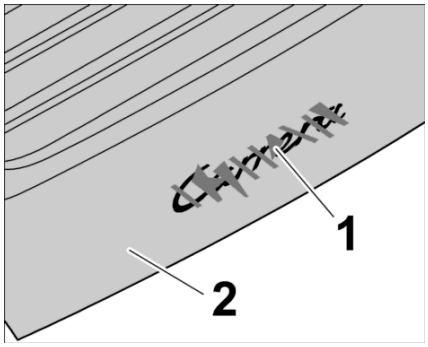
1.1. Heat the rear cover **-1-** in the area of the logo **-2-** using the **hot-air gun v.a.g 1416** **-3-** .



Levering off logo

2. **Lifting up the logo using a plastic wedge**

2.1. Move a plastic spatula **-1-** under the logo **-2-** and lift it up.



Clean the cover

3. **Clean the cover**

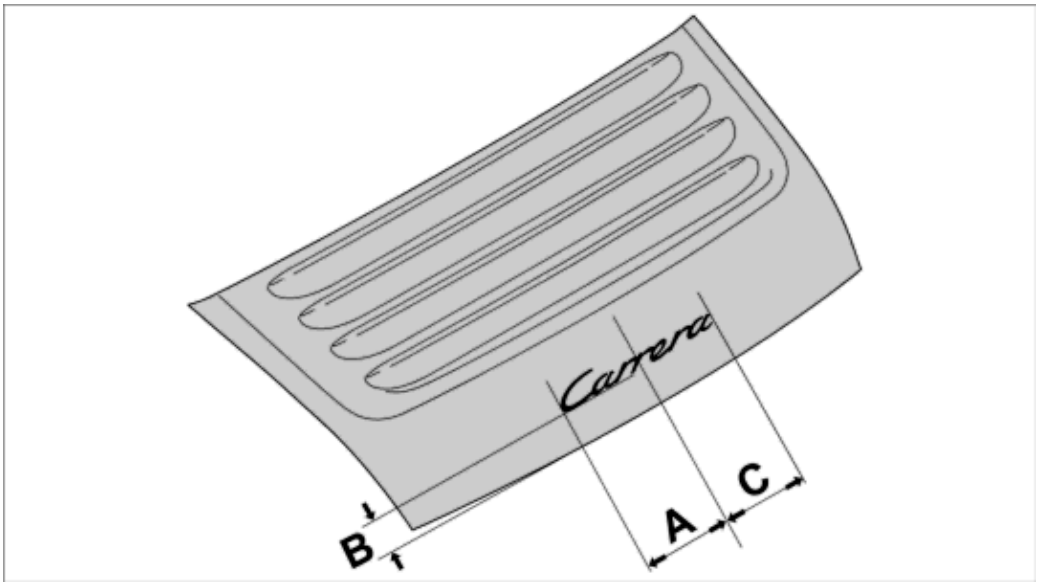
3.1. Loosen the adhesive residue **-1-** on the cover **-2-** using a silicone remover and remove it.

top of page

Replacing model logo

Replacing the Carrera model logo

1. Find the middle of the lid.



Logo Carrera

2. Position logo **-Carrera-** with the dimensions **-A und C-** **dimension: 129.6 mm +/-1 mm** and **-B-** **dimension: 45 mm -1 mm** and stick on lid.

997110, 997111, 997310, 997311

as of MY 2005
Country C00, C02, C05, C07, C08, C09, C10, C11, C12, C13, C14, C15, C16, C18, C19, C20, C21, C22, C23, C24, C25, C26, C27, C28, C32, C33, C34, C35, C36, C37, C38, C39, C45, C46, C98, C99

WARNUNG

Gefahr des Verlusts der Text-Bild-Zuordnung beim Ausdruck.

- **Aus technischen Gründen kann derzeit nicht ausgeschlossen werden, dass trotz einwandfreier Darstellung auf dem Bildschirm beim Ausdruck der Zusammenhang von Text und zugehörigem Bild verloren geht.**
- **Wird der Fehler nicht bemerkt, besteht die Gefahr, daß Arbeiten nicht korrekt durchgeführt werden und es dadurch zu Personen- und Sachschäden kommt.**

Vergleichen Sie deshalb nach dem Druckvorgang unbedingt die Ausdrucke mit der Bildschirmdarstellung. Korrigieren Sie die Ausdrucke im Fehlerfall so, daß der Inhalt der Bildschirmdarstellung zutreffend wiedergegeben wird.

WARNING

Danger of losing text-figure correspondence when printing out.

- **For technical reasons, it can currently not be ruled out that the correspondence**

66 50 55 Replacing rear logo - as of MY 2005

- Replacing rear logo
- Replacing model logo

Tools

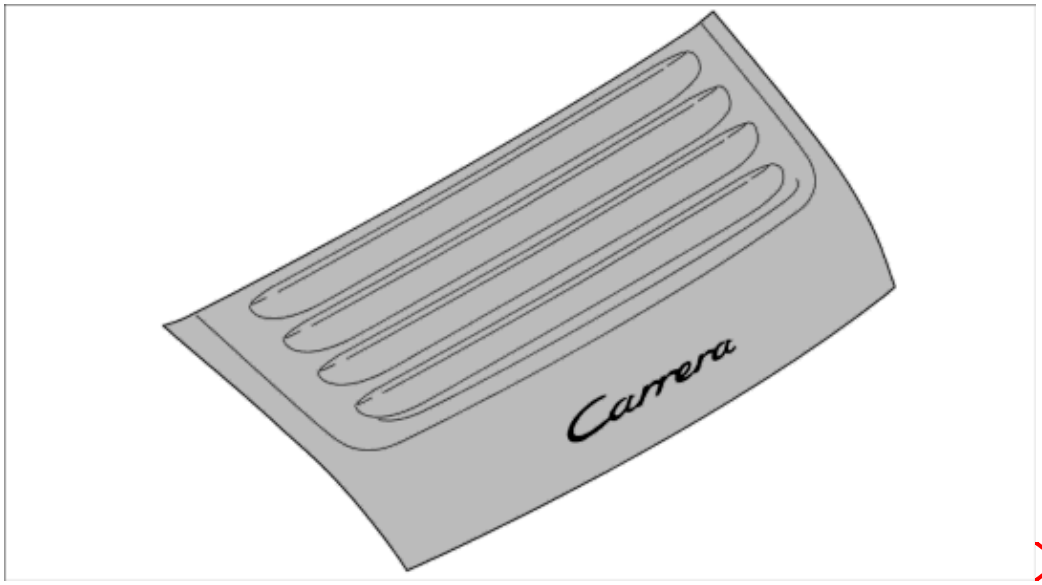
Designation	Type	Number	Explanation	
hot-air gun	commercially available tool	v.a.g 1416		PORSCHE siehe Handbuch Werkstattausrüstung Voir le Manuel Equipement d´atelier Refer to the Workshop Equipment manual Vease Manual de Equipamiento de Taller Vedere il Manuale dell´attrezzatura d´officina ワークショップ・イクイップメント・マニュアルを参照

top of page

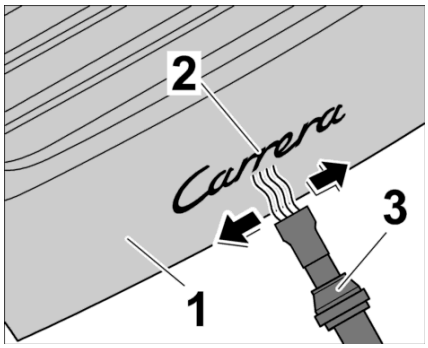
Replacing rear logo

Removing the rear logo

Installation Location:



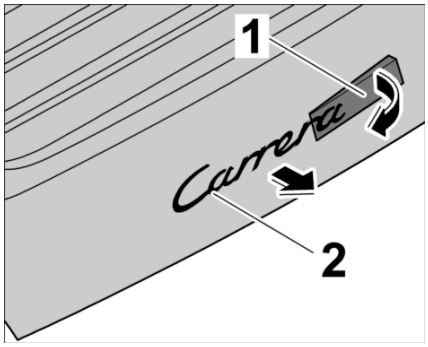
Main illustration rear logo



Heating the rear lid

1. **Heating the rear lid**

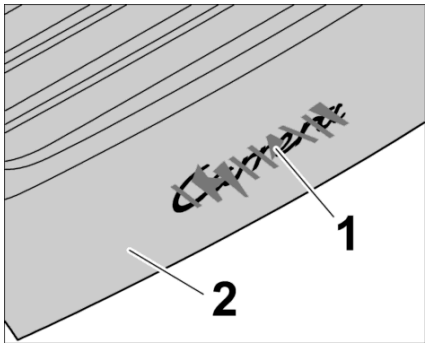
1.1. Heat the rear cover **-1-** in the area of the logo **-2-** using the **hot-air gun v.a.g 1416** **-3-** .



Levering off logo

2. **Lifting up the logo using a plastic wedge**

2.1. Move a plastic spatula **-1-** under the logo **-2-** and lift it up.



Clean the cover

3. **Clean the cover**

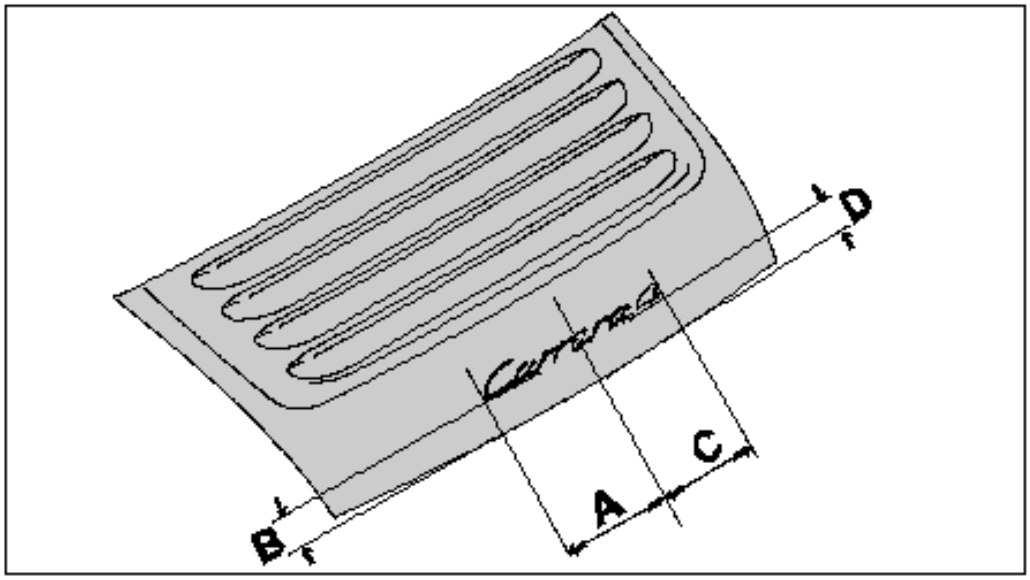
3.1. Loosen the adhesive residue **-1-** on the cover **-2-** using a silicone remover and remove it.

top of page

Replacing model logo

Replacing the Carrera 4 model logo

1. Find the centre of the lid.



Logo Carrera 4

2. Position logo **-Carrera-** with the dimensions **-A-** **Dimension: 164 mm +/-1 mm** and **-B-** **Dimension: 45 mm -1 mm** and stick on lid.
3. Position logo **-4-** with the dimensions **-C-** **Dimension: 164 mm +/-1 mm** and **-D-** **Dimension: 43 mm +/-1 mm** and stick on rear lid.

997410, 997411, 997610, 997611

as of MY 2005
Country C00, C02, C05, C07, C08, C09, C10, C11, C12, C13, C14, C15, C16, C18, C19, C20, C21, C22, C23, C24, C25, C26, C27, C28, C32, C33, C34, C35, C36, C37, C38, C39, C45, C46, C98, C99

WARNUNG

Gefahr des Verlusts der Text-Bild-Zuordnung beim Ausdruck.

- **Aus technischen Gründen kann derzeit nicht ausgeschlossen werden, dass trotz einwandfreier Darstellung auf dem Bildschirm beim Ausdruck der Zusammenhang von Text und zugehörigem Bild verloren geht.**
- **Wird der Fehler nicht bemerkt, besteht die Gefahr, daß Arbeiten nicht korrekt durchgeführt werden und es dadurch zu Personen- und Sachschäden kommt.**

Vergleichen Sie deshalb nach dem Druckvorgang unbedingt die Ausdrucke mit der Bildschirmdarstellung. Korrigieren Sie die Ausdrucke im Fehlerfall so, daß der Inhalt der Bildschirmdarstellung zutreffend wiedergegeben wird.

WARNING

Danger of losing text-figure correspondence when printing out.

66 50 55 Replacing rear logo - as of MY 2005

- Replacing rear logo
- Replacing model logo

Tools

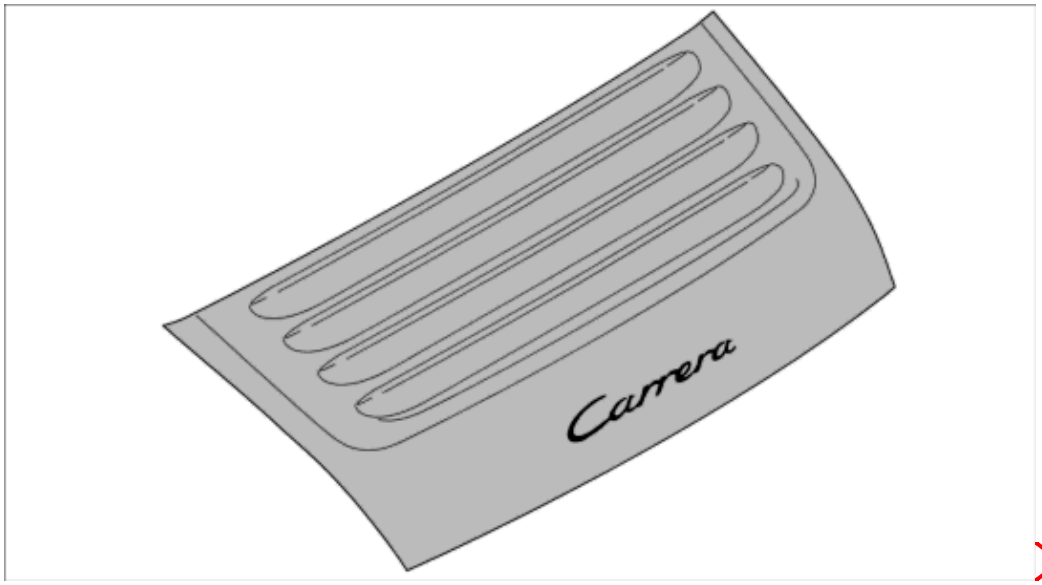
Designation	Type	Number	Explanation	
hot-air gun	commercially available tool	v.a.g 1416		PORSCHE siehe Handbuch Werkstattausrüstung Voir le Manuel Equipement d´atelier Refer to the Workshop Equipment manual Vease Manual de Equipamiento de Taller Vedere il Manuale dell´attrezzatura d´officina ワークショップ・イクイップメント・マニュアルを参照

top of page

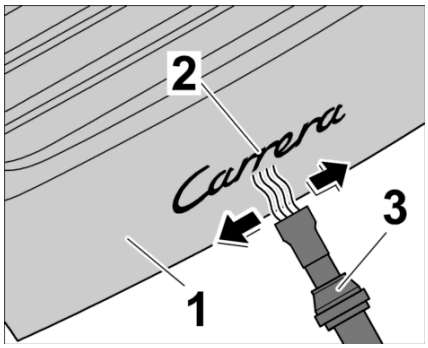
Replacing rear logo

Removing the rear logo

Installation Location:



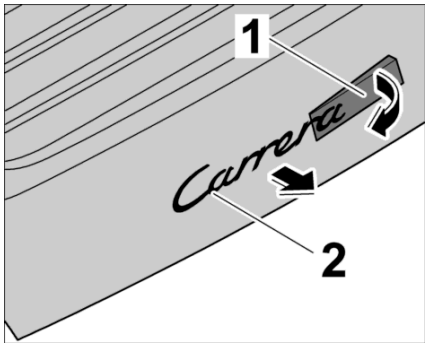
Main illustration rear logo



Heating the rear lid

1. **Heating the rear lid**

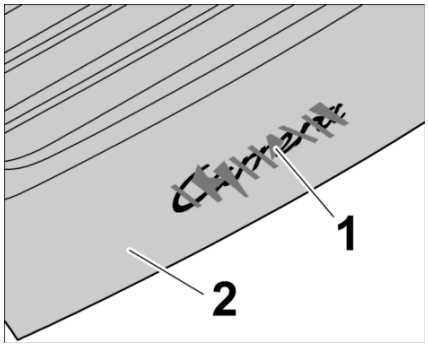
1.1. Heat the rear cover **-1-** in the area of the logo **-2-** using the **hot-air gun v.a.g 1416** **-3-** .



Levering off logo

2. **Lifting up the logo using a plastic wedge**

2.1. Move a plastic spatula **-1-** under the logo **-2-** and lift it up.



Clean the cover

3. **Clean the cover**

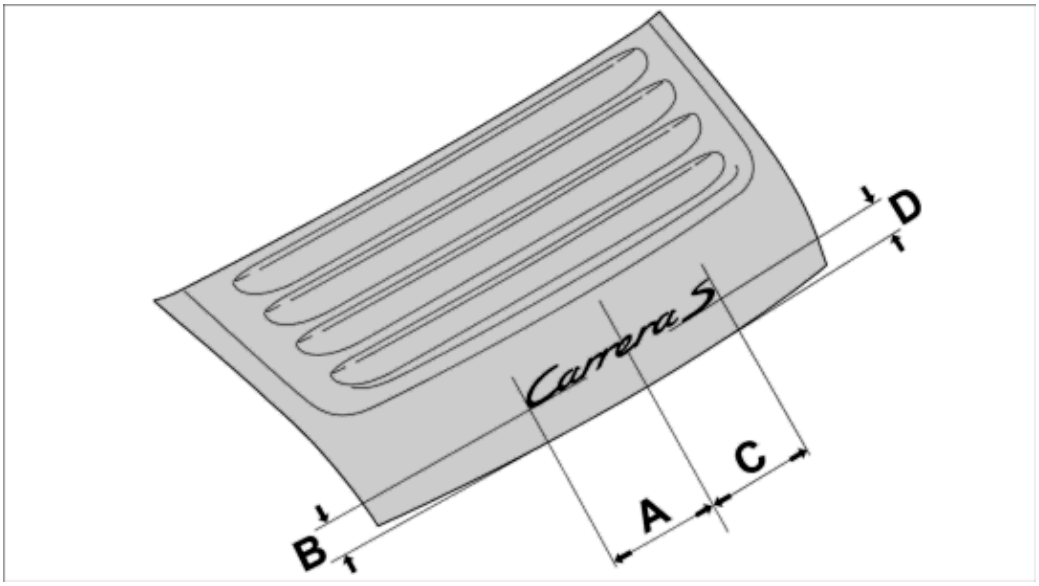
3.1. Loosen the adhesive residue **-1-** on the cover **-2-** using a silicone remover and remove it.

top of page

Replacing model logo

Replacing the Carrera S model logo

1. Find the middle of the lid.



Logo Carrera S

2. Position logo **-Carrera-** with the dimensions **-A-** **dimension: 175.6 mm +/-1 mm** and **-B-** **dimension: 45 mm -1 mm** and stick on lid.
3. Position logo **-S-** with the dimensions **-C-** **dimension: 175.6 mm +/-1 mm** and **-D-** **dimension: 39 mm +/-1 mm** and stick on rear lid.

997120, 997121, 997320, 997321

as of MY 2005
Country C00, C02, C05, C07, C08, C09, C10, C11, C12, C13, C14, C15, C16, C18, C19, C20, C21, C22, C23, C24, C25, C26, C27, C28, C32, C33, C34, C35, C36, C37, C38, C39, C45, C46, C98, C99

WARNUNG

Gefahr des Verlusts der Text-Bild-Zuordnung beim Ausdruck.

- **Aus technischen Gründen kann derzeit nicht ausgeschlossen werden, dass trotz einwandfreier Darstellung auf dem Bildschirm beim Ausdruck der Zusammenhang von Text und zugehörigem Bild verloren geht.**
- **Wird der Fehler nicht bemerkt, besteht die Gefahr, daß Arbeiten nicht korrekt durchgeführt werden und es dadurch zu Personen- und Sachschäden kommt.**

Vergleichen Sie deshalb nach dem Druckvorgang unbedingt die Ausdrucke mit der Bildschirmdarstellung. Korrigieren Sie die Ausdrucke im Fehlerfall so, daß der Inhalt der Bildschirmdarstellung zutreffend wiedergegeben wird.

WARNING

Danger of losing text-figure correspondence when printing out.

66 54 19 Removing and installing switch for rearview mirror - as of MY 2005

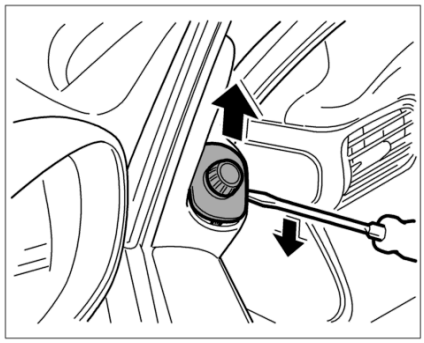
- Removing switch for rearview mirror
- Installing switch for rearview mirror

top of page

Removing switch for rearview mirror

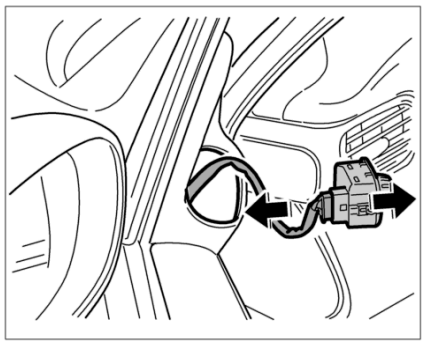
Removing switch for rear-view mirror

1. Remove ignition key.



Unclipping switch

2. Use a plastic spatula to carefully lever the switch for the rear-view mirror out of the mount on the door panel.



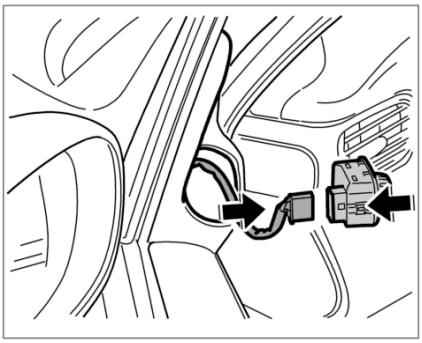
Removing plug

3. Pull off electrical plug on switch.

top of page

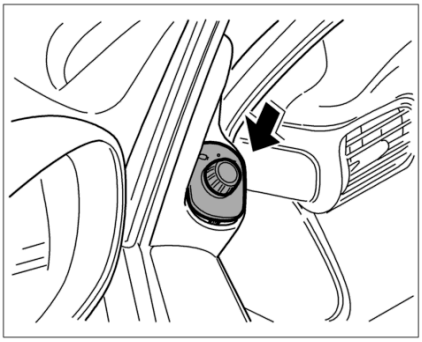
Installing switch for rearview mirror

Installing switch for rear-view mirror



Connecting plug

1. Push electric plug on to switch until it clicks into place.



Clipping in switch

2. Push electric wire into the mount for the rear-view mirror switch and clip the switch into the mount.

997110, 997111, 997120, 997121, 997310, 997311, 997320, 997321, 997410, 997411, 997430, 997431, 997610, 997611, 997620, 997621

as of MY 2005
Country C00, C02, C05, C07, C08, C09, C10, C11, C12, C13, C14, C15, C16, C18, C19, C20, C21, C22, C23, C24, C25, C26, C27, C28, C32, C33, C34, C35, C36, C37, C38, C39, C45, C46, C98, C99

WARNUNG

Gefahr des Verlusts der Text-Bild-Zuordnung beim Ausdruck.

- **Aus technischen Gründen kann derzeit nicht ausgeschlossen werden, dass trotz einwandfreier Darstellung auf dem Bildschirm beim Ausdruck der Zusammenhang von Text und zugehörigem Bild verloren geht.**

66 71 19 Removing and installing engine for rear spoiler - as of MY 2005

- Preliminary work
- Removing engine for rear spoiler
- Installing engine for rear spoiler
- Subsequent work

top of page

Preliminary work

Preliminary work

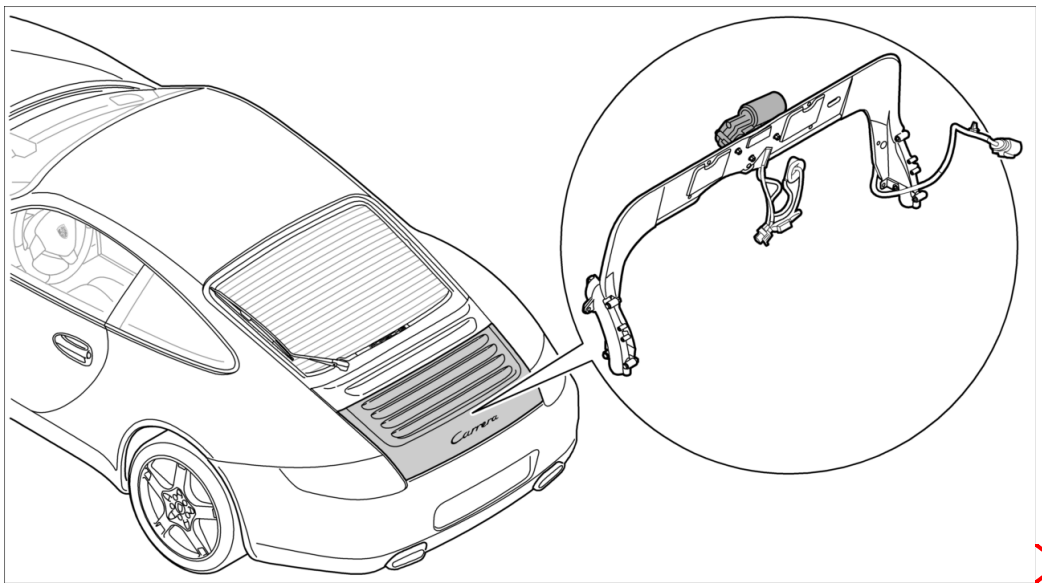
Remove spoiler drive. 667219 Removing and installing spoiler drive - chapter on "Removing"

top of page

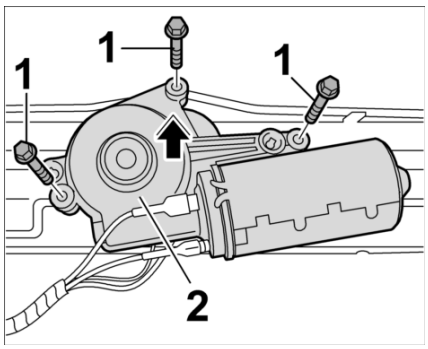
Removing engine for rear spoiler

Removing engine for rear spoiler

Installation Location:

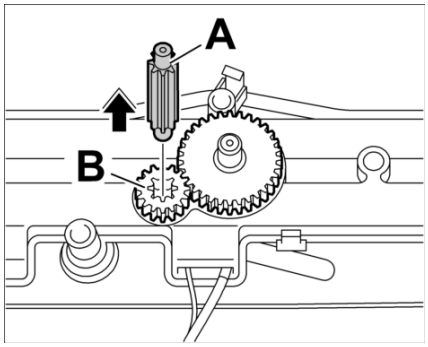


Installation position of spoiler drive



Removing engine for rear spoiler

1. Unscrew the three fastening screws **-1-** on the engine for the spoiler drive **-2-** .
2. Take off motor for spoiler drive **-2-** .



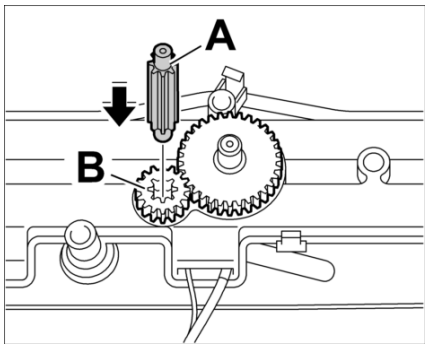
Removing spur gear and axle

3. Pull out axle **-A-** and remove spur gear **-B-** .

top of page

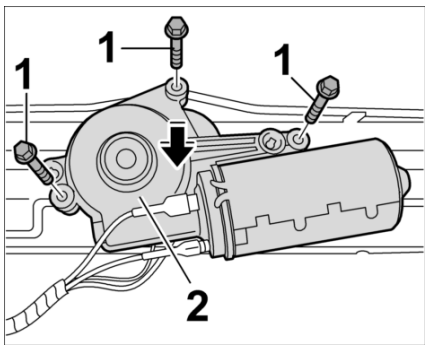
Installing engine for rear spoiler

Installing engine for rear spoiler



Installing spur gear and axle

1. Insert spur gear **-B-** and push in **-A-** axle.



Installing engine for rear spoiler

2. Mount engine for spoiler drive **-2-** , position it and screw down using the three fastening screws **-1-** .
   Tightening torque: 6 (4.5 ftlb.) Nm

top of page

Subsequent work

Subsequent work

Install spoiler drive. 667219 Removing and installing spoiler drive - chapter on "Installing"

997110, 997111, 997120, 997121, 997310, 997311, 997320, 997321, 997410, 997411, 997430, 997431, 997610, 997611, 997620, 997621

as of MY 2005
Country C00, C02, C05, C07, C08, C09, C10, C11, C12, C13, C14, C15, C16, C18, C19, C20, C21, C22, C23, C24, C25, C26, C27, C28, C32, C33, C34, C35, C36, C37, C38, C39, C45, C46, C98, C99

WARNUNG
Gefahr des Verlusts der Text-Bild-Zuordnung beim Ausdruck.

- **Aus technischen Gründen kann derzeit nicht ausgeschlossen werden, dass trotz einwandfreier Darstellung auf dem Bildschirm beim Ausdruck der Zusammenhang von Text und zugehörigem Bild verloren geht.**
- **Wird der Fehler nicht bemerkt, besteht die Gefahr, daß Arbeiten nicht korrekt durchgeführt werden und es dadurch zu Personen- und Sachschäden kommt.**

Vergleichen Sie deshalb nach dem Druckvorgang unbedingt die Ausdrucke mit der Bildschirmdarstellung. Korrigieren Sie die Ausdrucke im Fehlerfall so, daß der Inhalt der Bildschirmdarstellung zutreffend wiedergegeben wird.

66 72 19 Removing and installing spoiler drive - as of MY 2005

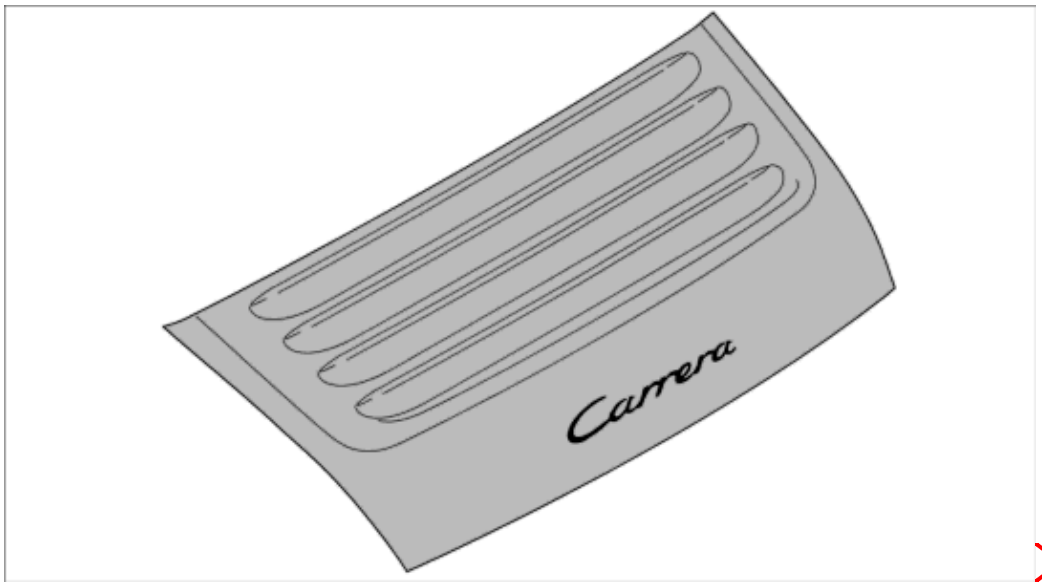
- Removing spoiler drive
- Installing spoiler drive

top of page

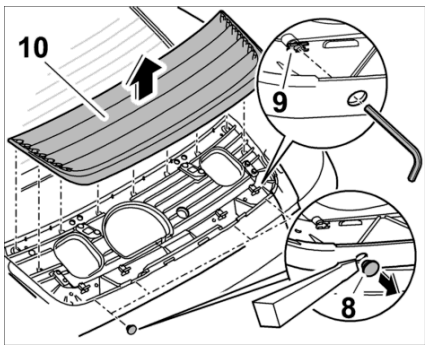
Removing spoiler drive

Removing upper part of spoiler

Installation Location:



Overview, rear lid



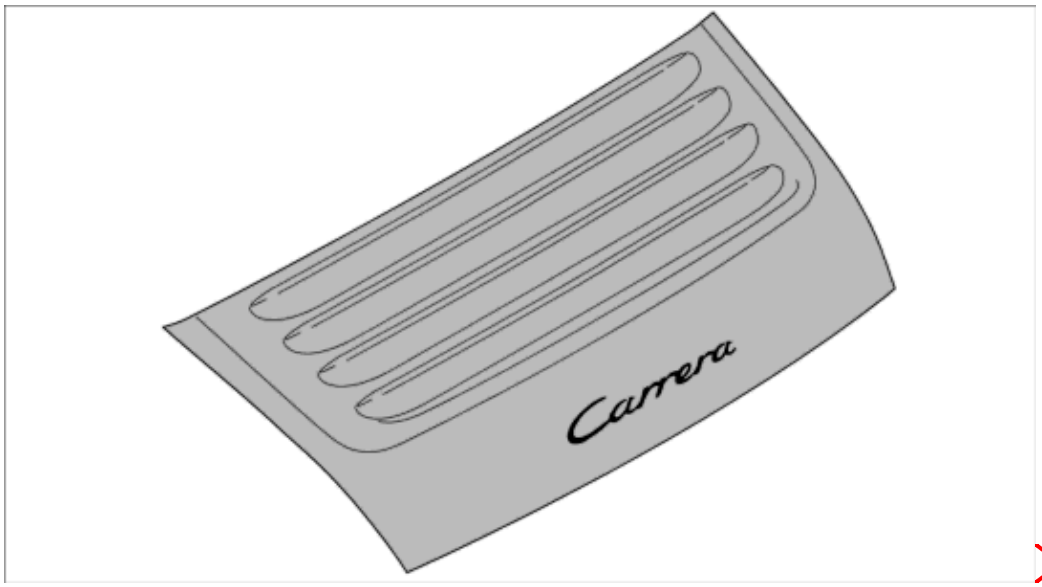
Removing upper part of spoiler

1. Press out plastic plugs **-8-** with a small screwdriver.

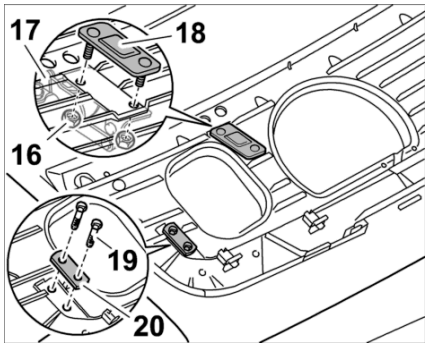
2. Unscrew clamping screw **-9-** by 2 to 3 turns and remove spoiler **-10-** by pulling it upwards.

Removing the lower part of the spoiler

Installation Location:



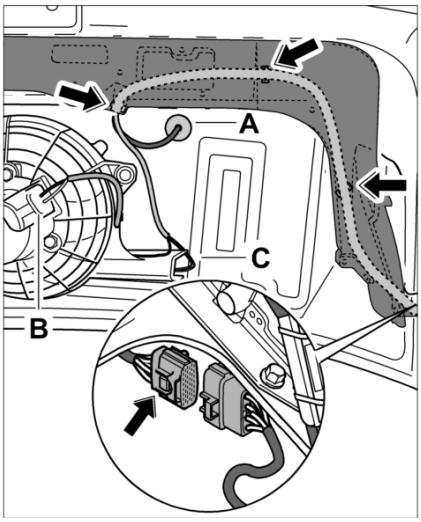
Overview, rear lid



Removing the lower part of the spoiler

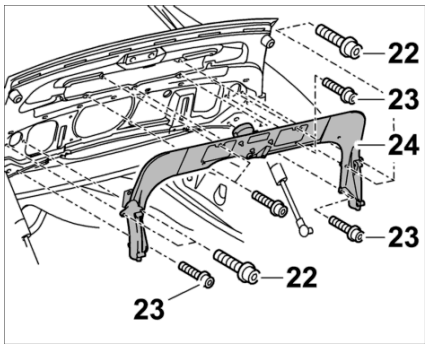
1. Unscrew the fastening nuts **-16-** from the upper part of the spoiler and the hinge **-17-** . Remove the threaded plate **-18-** .
2. Unscrew the fastening screws **-19-** from the lower part of the spoiler and the actuating element. Remove the spacer **-20-** .

Removing spoiler drive



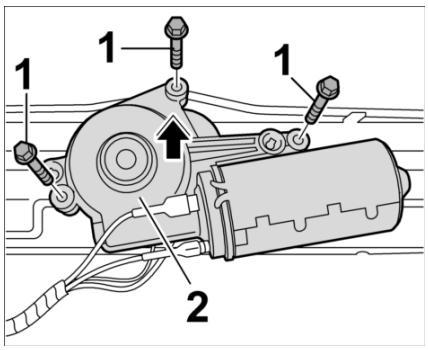
Loosening wire harness

1. Release plug connection for rear wire harness **-inset-** and disconnect.
2. Remove auxiliary brake light. 947019 Removing and installing auxiliary brake light - section on "Removing" [997110 997111 997120 997121 997410 997411 997430 997431] 947019 Removing and installing auxiliary brake light - section on "Removing" [997310 997311 997320 997321 997610 997611 997620 997621]
3. Pull out grommet **-A-** with the auxiliary stop light line. Release connector **-B-** on the engine compartment fan and pull off. Pull off engine compartment lighting connector **-C-** . Check retaining clip **-arrows-** , replace if necessary.



Removing spoiler drive

4. Unscrew fastening screws **-22 und 23-** from the spoiler drive **-24-** .



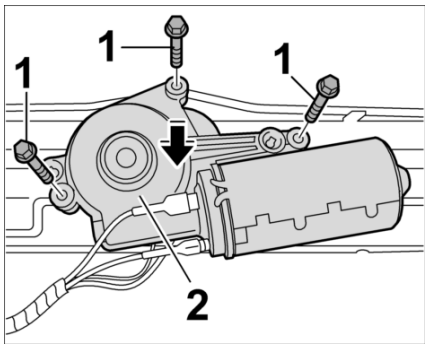
Removing motor for rear spoiler

5. Pull off both connectors on motor for spoiler drive **-2-** .
6. Remove spoiler drive with wire harness.

top of page

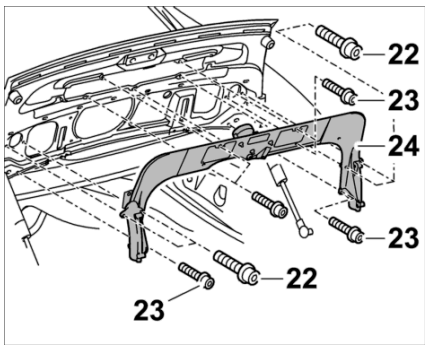
Installing spoiler drive

Installing spoiler drive



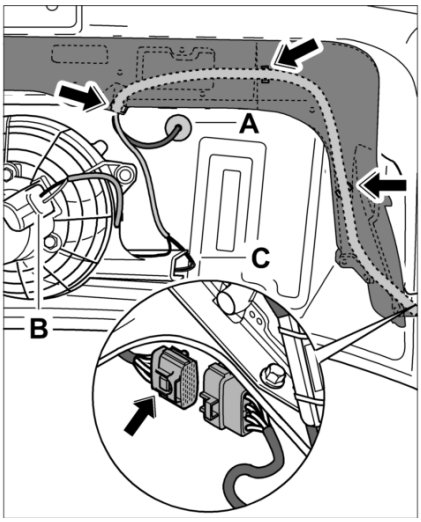
Installing motor for rear spoiler

1. Push together both connectors on motor for spoiler drive **-2-** .



Installing spoiler drive

2. Position spoiler drive **-24-** with wire harness on rear lid and tighten the fastening screws **-22 and 23-** . Tightening torque **: 9.7 (7 ftlb.) Nm**

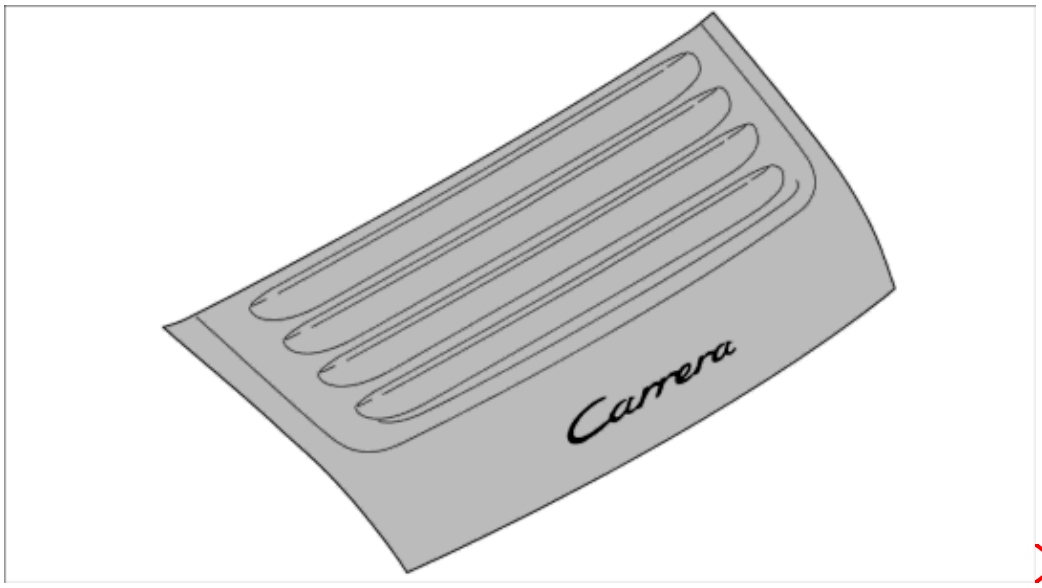


Securing wiring harness

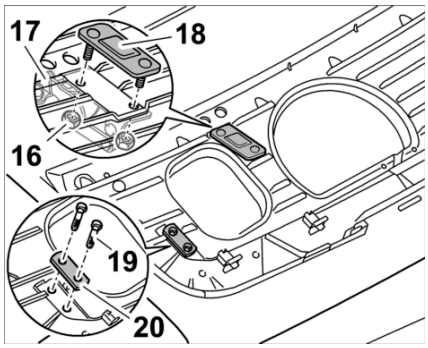
3. Push together connector for engine compartment lighting **-C-** and for engine compartment fan **-B-** , until they are felt to engage. Slide auxiliary stop light line with grommet through the opening in rear lid until grommet **-A-** can be pressed in.
4. Install auxiliary brake light. 947019 Removing and installing auxiliary brake light - section on "Installing" [997110 997111 997120 997121 997410 997411 997430 997431] 947019 Removing and installing auxiliary brake light - section on "Installing" [997310 997311 997320 997321 997610 997611 997620 997621]
5. Push the plug connection for the rear wire harness together until it is felt to engage.

Mounting the lower part of the spoiler

Installation Location:



Overview, rear lid

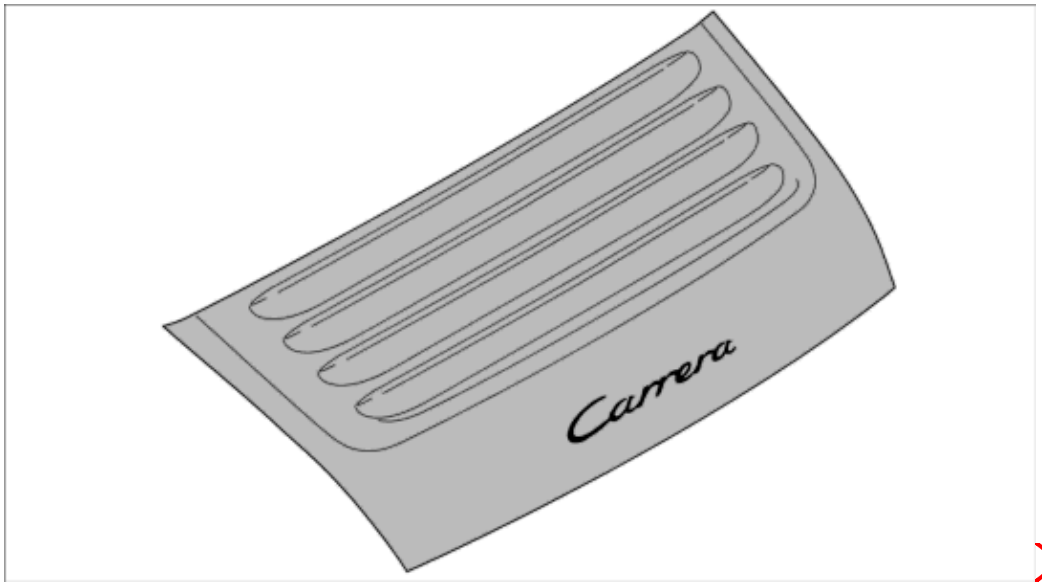


Mounting the lower part of the spoiler

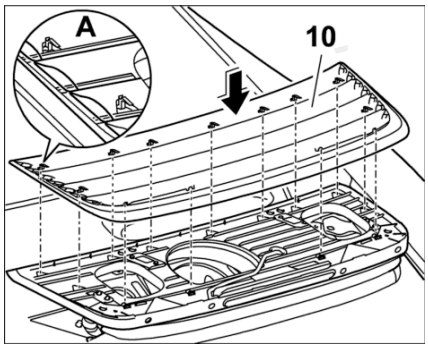
1. Position the spacer **-20-** on the lower part of the spoiler. Tighten M6 fastening screws **-19-** . Tightening torque **: 7 ftlb.**
2. Position the upper part of the spoiler on the hinge **-17-** . Using the threaded plate **-18-** and the M6 fastening nuts **-16-** , screw in the upper part of the spoiler securely. Tightening torque **: 7 ftlb.**

Mounting upper part of spoiler

Installation Location:

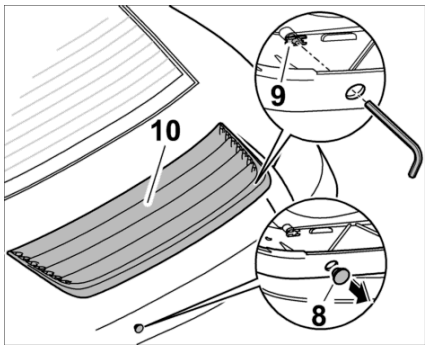


Overview, rear lid



Mounting upper part of spoiler

1. Place the upper part of the spoiler **-10-** on the lower part of the spoiler. Ensure that the locking tabs **-Lupe A-** have engaged.



Securing upper part of spoiler

2. Tighten clamping screws **-9-** . Tightening torque **: 2 ftlb. ±1 ftlb.**
3. Push in the plastic plugs **-8-** .

997110, 997111, 997120, 997121, 997310, 997311, 997320, 997321, 997410, 997411, 997430, 997431, 997610, 997611, 997620, 997621

as of MY 2005
Country C00, C02, C05, C07, C08, C09, C10, C11, C12, C13, C14, C15, C16, C18, C19, C20, C21, C22, C23, C24, C25, C26, C27, C28, C32, C33, C34, C35, C36, C37, C38, C39, C45, C46, C98, C99

WARNUNG

Gefahr des Verlusts der Text-Bild-Zuordnung beim Ausdruck.

- **Aus technischen Gründen kann derzeit nicht ausgeschlossen werden, dass trotz einwandfreier Darstellung auf dem Bildschirm beim Ausdruck der Zusammenhang von Text und zugehörigem Bild verloren geht.**
- **Wird der Fehler nicht bemerkt, besteht die Gefahr, daß Arbeiten nicht korrekt durchgeführt werden und es dadurch zu Personen- und Sachschäden kommt.**

Vergleichen Sie deshalb nach dem Druckvorgang unbedingt die Ausdrucke mit der Bildschirmdarstellung. Korrigieren Sie die Ausdrucke im Fehlerfall so, daß der Inhalt der Bildschirmdarstellung zutreffend wiedergegeben wird.

WARNING

Danger of losing text-figure correspondence when printing out.

- **For technical reasons, it can currently not be ruled out that the correspondence between text and associated figure can be lost when it is printed out, even though the display on the screen is correct.**
- **If the fault is not noticed, there is the danger that work will not be performed correctly which can cause injury and damage.**

66 77 55 Replacing stone guard film - as of MY 2005

- Replacing stone guard film

top of page

Replacing stone guard film

General affixing regulations for the stone guard film

Note
Affixing space:

- *Room temperature 18 - 30 °C.*
- *Humidity 40 % - 60 % rel. humidity.*

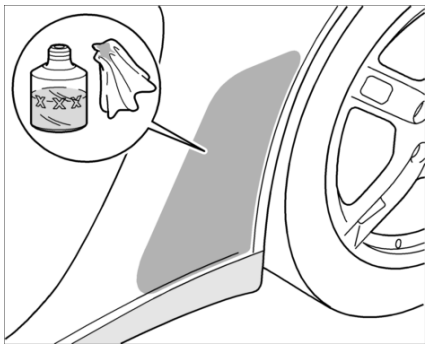
Note
Vehicle for affixing:

- *Acclimated to room conditions.*
- *Wear clean gloves when affixing so that there will not be any visible finger prints on the film.*

Note
Application fluid:

- *3 drops of non-lubricating washing-up liquid (e.g., Pril) in 1000 ml distilled water.*

Affixing the stone guard film



Cleaning paint surface

Note

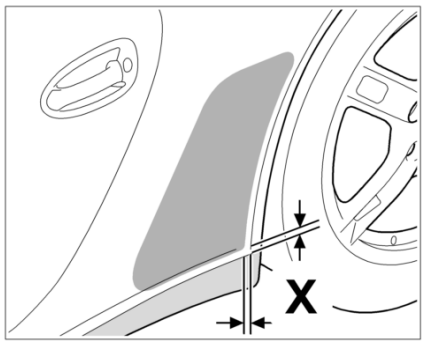
- *The surface must be free from dirt, oil, and wax residues.*

1. Clean the paint surface for the stone guard film and rub it dry using a lint-free, moisture absorbing cloth.
2. Wet the surface to be affixed with application fluid after cleaning.

Note

- *The film must be affixed immediately after spraying.*

3. Pull off film for stickers, and wet the bonding surface of the film with the application fluid.



Affixing the stone guard film

4. Affix film to vehicle to the dimension **-X= 0.5 + 1.5 mm-** and press lightly. Slight adjustments to the position can still be made.

Note

- *The film must be applied without bubbles, and no water may remain between the paint surface and adhesive.*

5. Press on the film with a plastic squeegee from the inside to the outside to squeeze out water.
6. The adhesive is activated by the pressure of the squeegee. The contact pressure should be at least 2 kg.
7. After affixing, pull off the thin protective film.
8.

Dry off the entire surface with a lint-free, moisture-absorbing, non-scratching cloth.

9. Check the affixed film for bubbles and faults. The film must bond permanently to the vehicle. Check corners again for correct bonding (press on again if necessary).

997110, 997111, 997120, 997121, 997310, 997311, 997320, 997321, 997410, 997411, 997430, 997431, 997610, 997611, 997620, 997621

as of MY 2005
Country C00, C02, C05, C07, C08, C09, C10, C11, C12, C13, C14, C15, C16, C18, C19, C20, C21, C22, C23, C24, C25, C26, C27, C28, C32, C33, C34, C35, C36, C37, C38, C39, C45, C46, C98, C99

WARNUNG

Gefahr des Verlusts der Text-Bild-Zuordnung beim Ausdruck.

- **Aus technischen Gründen kann derzeit nicht ausgeschlossen werden, dass trotz einwandfreier Darstellung auf dem Bildschirm beim Ausdruck der Zusammenhang von Text und zugehörigem Bild verloren geht.**
- **Wird der Fehler nicht bemerkt, besteht die Gefahr, daß Arbeiten nicht korrekt durchgeführt werden und es dadurch zu Personen- und Sachschäden kommt.**

Vergleichen Sie deshalb nach dem Druckvorgang unbedingt die Ausdrucke mit der Bildschirmdarstellung. Korrigieren Sie die Ausdrucke im Fehlerfall so, daß der Inhalt der Bildschirmdarstellung zutreffend wiedergegeben wird.

WARNING

Danger of losing text-figure correspondence when printing out.

- **For technical reasons, it can currently not be ruled out that the correspondence between text and associated figure can be lost when it is printed out, even though the display on the screen is correct.**
- **If the fault is not noticed, there is the danger that work will not be performed correctly which can cause injury and damage.**

Therefore, always compare printouts with the screen display after printing them out. Correct the printouts if they are faulty so that the content of the screen display matches that on the printouts.

AVERTISSEMENT

Risque de perte de la correspondance texte-illustration lors de l'impression papier.

- **Pour des raisons techniques, il ne peut pas être exclu à l'heure actuelle que, même en cas d'affichage correct à l'écran, la correspondance entre le texte et l'illustration puisse être erronée sur l'impression papier.**
- **Si l'erreur passe inaperçue, on court le risque d'exécuter certaines opérations de manière incorrecte pouvant conduire à des dommages corporels et matériels.**

66 82 19 Removing and reinstalling mirror adjuster motor - as of MY 2005

- Preliminary work
- Removing mirror adjuster motor
- Installing mirror adjuster motor
- Subsequent work

top of page

Preliminary work

Preliminary work

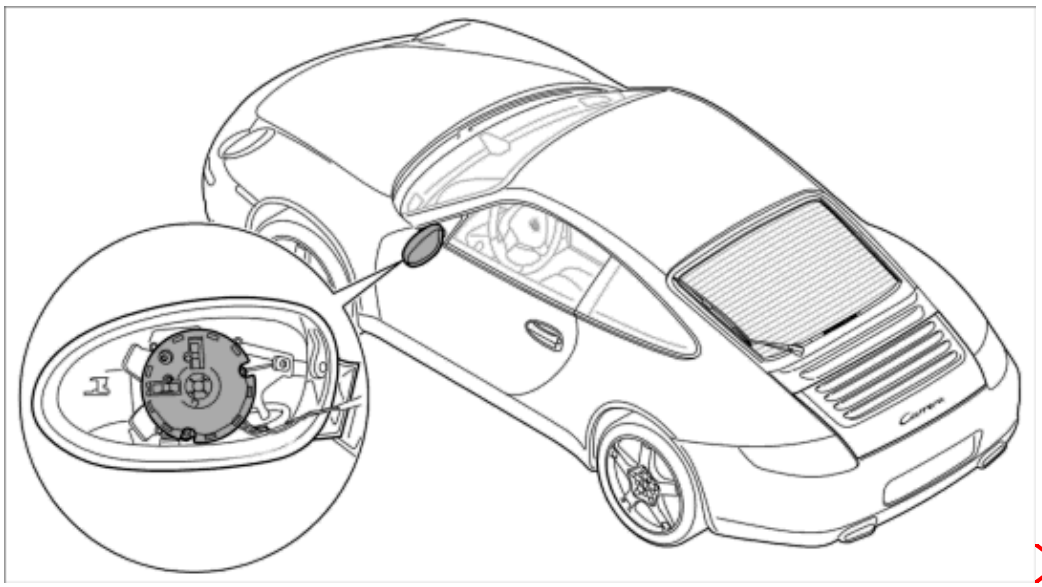
Remove mirror glass. *667819 21 Removing and reinstalling mirror glass - chapter on "Removing"*

top of page

Removing mirror adjuster motor

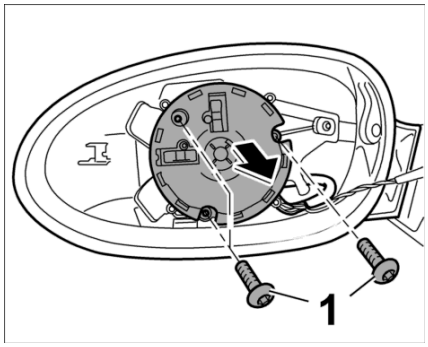
Removing mirror adjusting motor

Installation Location:



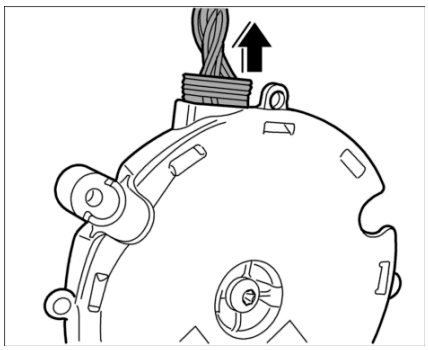
Overview of mirror adjusting motor

1. Switch off ignition and remove ignition key.



Unscrewing fastening screws from mirror adjusting motor

2. Unscrew the three fastening screws **-1-** from mirror adjusting motor.



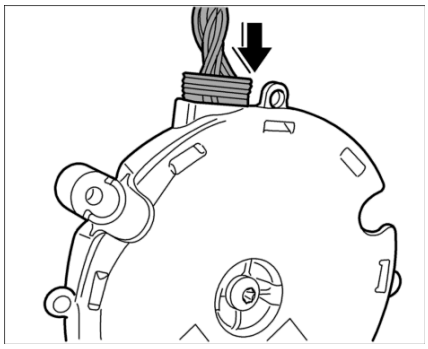
Pulling off connector from mirror adjusting motor

3. Pull off connector on mirror adjuster motor take off mirror adjusting motor.

top of page

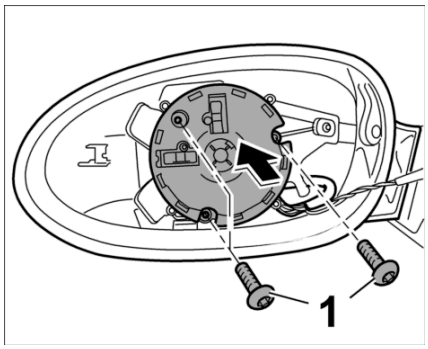
Installing mirror adjuster motor

Installing mirror adjuster motor



Pushing connector onto the mirror adjusting motor

1. Push connector onto mirror adjusting motor until it is felt to engage.



Screwing down fastening screws on the mirror adjusting motor

2. Insert mirror adjusting motor and screw down the three fastening screws **-1-** .
3. Switch on ignition and check function of the mirror adjusting motor.

top of page

Subsequent work

Subsequent work

Install mirror glass. *667819 23 Removing and reinstalling mirror glass - chapter on "Installing"*

997110, 997111, 997120, 997121, 997310, 997311, 997320, 997321, 997410, 997411, 997430, 997431, 997610, 997611, 997620, 997621

as of MY 2005
Country C00, C02, C05, C07, C08, C09, C10, C11, C12, C13, C14, C15, C16, C18, C19, C20, C21, C22, C23, C24, C25, C26, C27, C28, C32, C33, C34, C35, C36, C37, C38, C39, C45, C46, C98, C99

WARNUNG

Gefahr des Verlusts der Text-Bild-Zuordnung beim Ausdruck.

- **Aus technischen Gründen kann derzeit nicht ausgeschlossen werden, dass trotz einwandfreier Darstellung auf dem Bildschirm beim Ausdruck der Zusammenhang von Text und zugehörigem Bild verloren geht.**
- **Wird der Fehler nicht bemerkt, besteht die Gefahr, daß Arbeiten nicht korrekt durchgeführt werden und es dadurch zu Personen- und Sachschäden kommt.**

Vergleichen Sie deshalb nach dem Druckvorgang unbedingt die Ausdrucke mit der Bildschirmdarstellung. Korrigieren Sie die Ausdrucke im Fehlerfall so, daß der Inhalt der Bildschirmdarstellung zutreffend wiedergegeben wird.

66 89 19 Removing and installing rear-view mirror - as of MY 2005

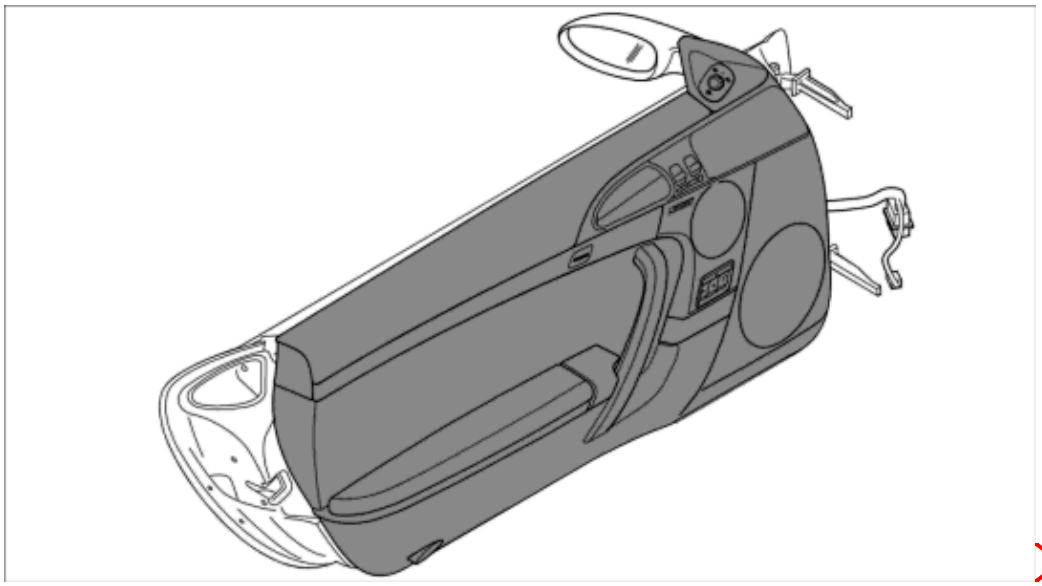
- Removing rear-view mirror
- Installing rear-view mirror

top of page

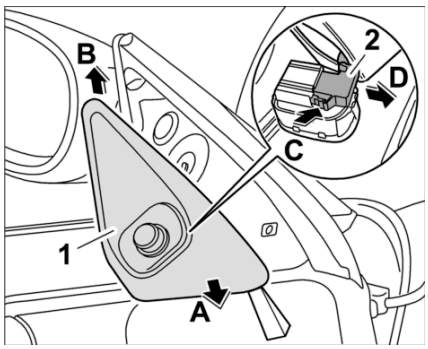
Removing rear-view mirror

Removing trim panel for mirror triangle

Installation Location:



Overview, door trim panel



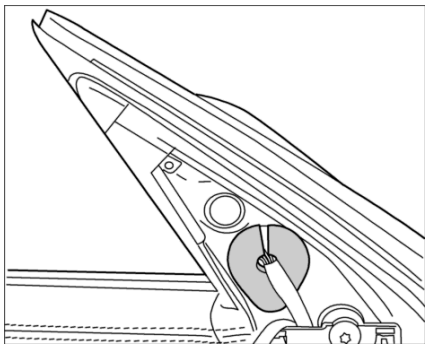
Removing trim panel for mirror triangle

1. Carefully lever out trim panel for mirror triangle **-1-** using plastic wedge **-arrow A-** and pull upwards

-arrow B- .

2. Press **-arrow C-** electrical plug connection **-2-** and pull off **-arrow D-** the plug **-2-** .
3. Remove trim panel for mirror triangle **-1-** .

Removing seal for mirror triangle

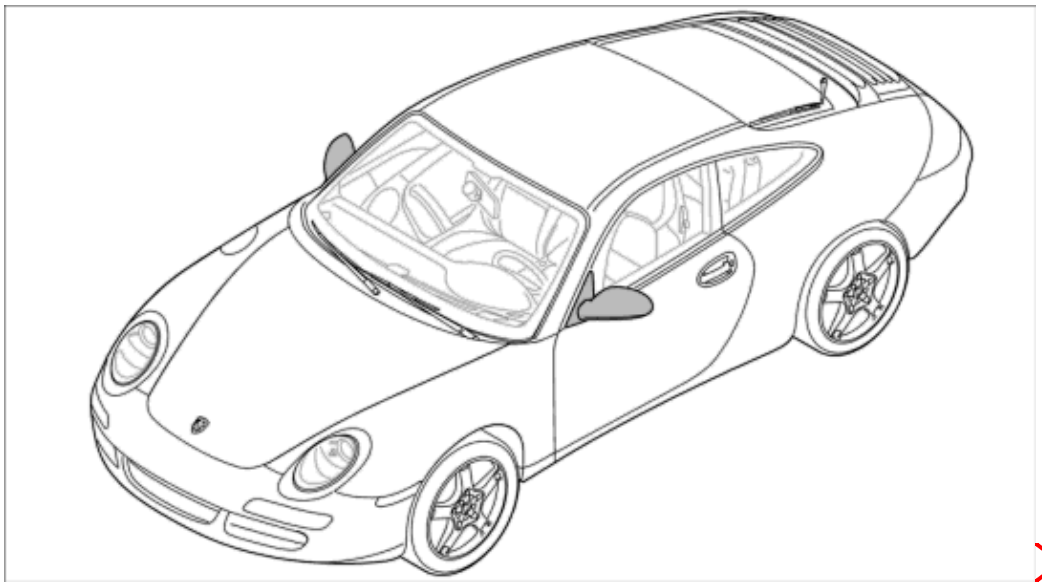


Seal for mirror triangle

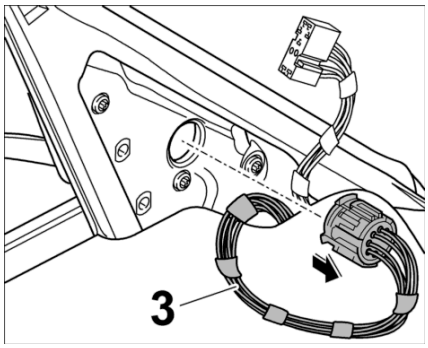
1. Pull out seal for mirror triangle from cable cutout opening for door mirror.

Disconnecting electrical plug connection

Installation Location:



Overview, removing and installing rear-view mirror

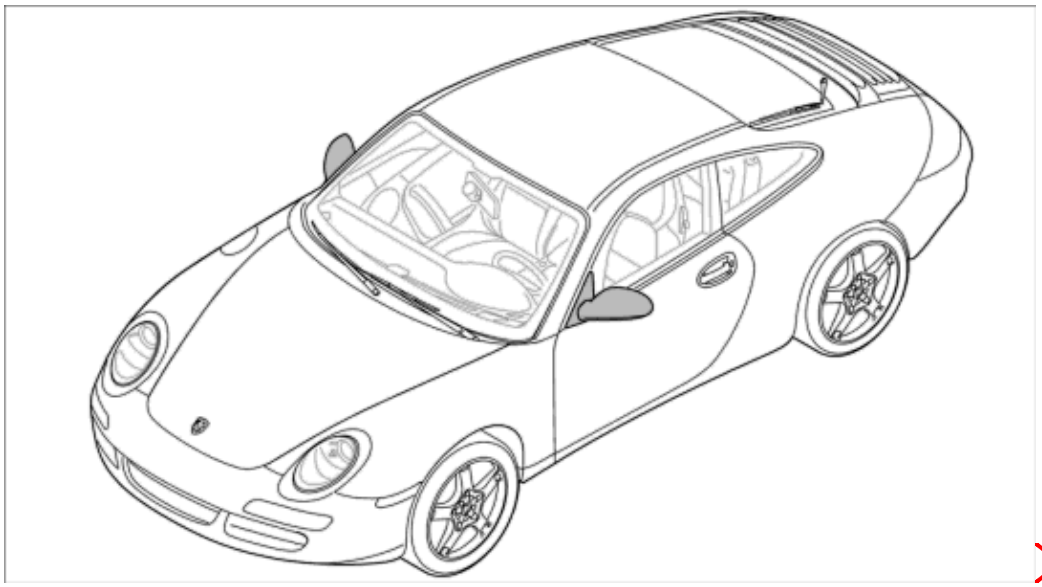


Pulling off electrical plug

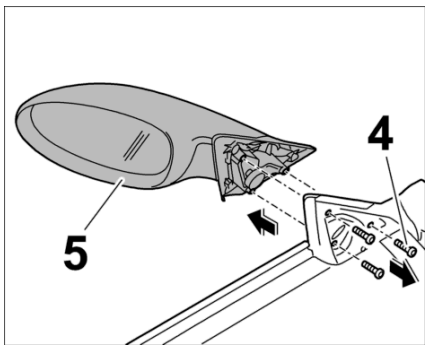
1. Disconnect the plug connection of the mirror housing **-3-** .

Removing rear-view mirror

Installation Location:



Overview, removing and installing rear-view mirror



Removing rear-view mirror

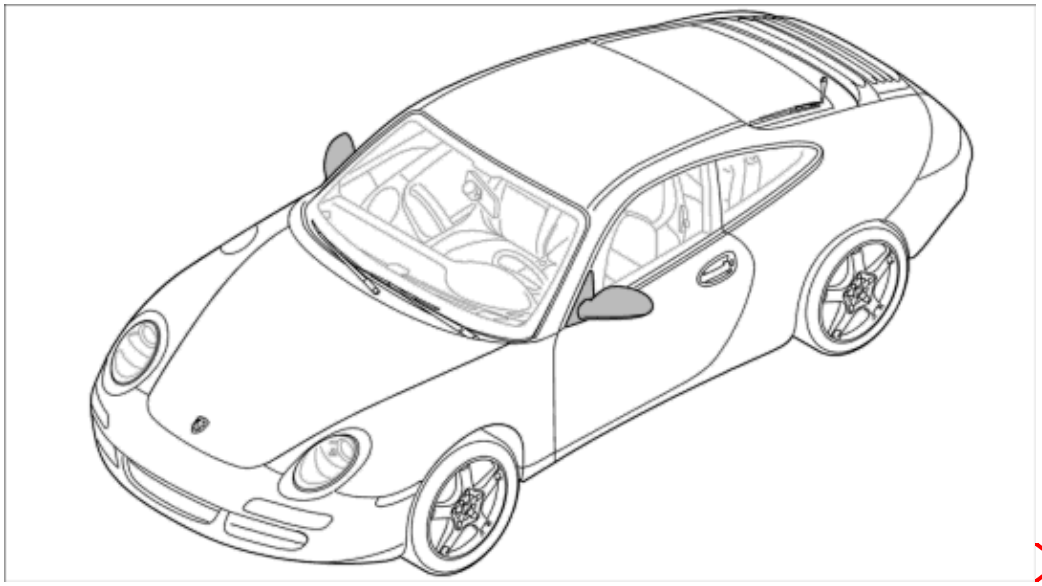
1. Unscrew fastening screws **-4-** and remove mirror housing **-5-** .

top of page

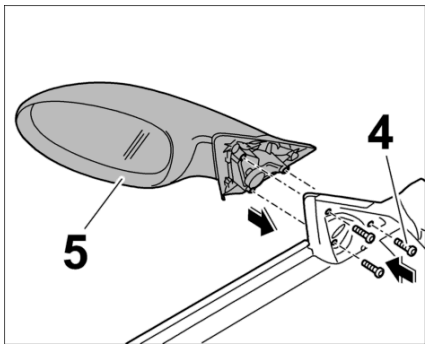
Installing rear-view mirror

Installing rear-view mirror

Installation Location:



Overview, removing and installing rear-view mirror

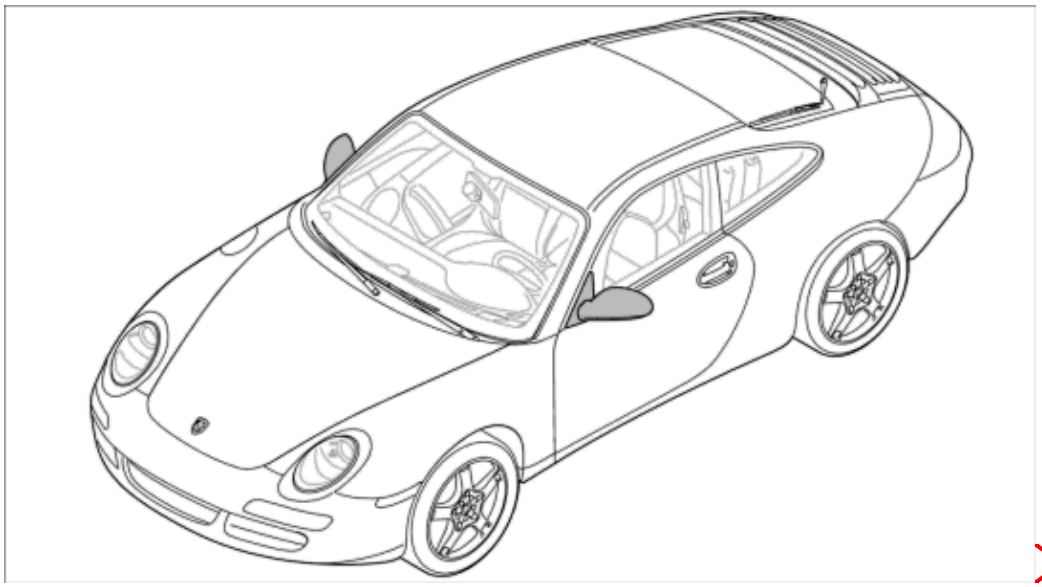


Installing rear-view mirror

1. Position mirror housing **-5-** and tighten with M6 fastening screws **-4-** . Tightening torque **Final tightening: 5.6 (3.9) Nm (ftlb.)**

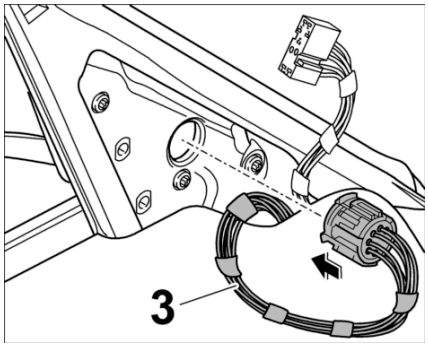
Locking electrical plug connection

Installation Location:



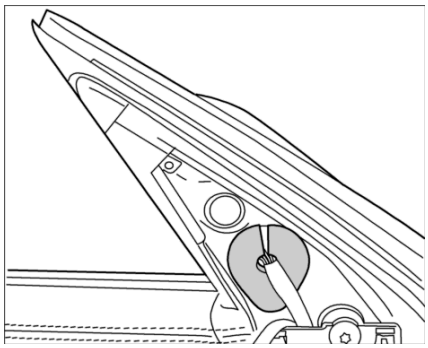
Overview, removing and installing rear-view mirror

1. Connect the plug connection of the mirror housing **-3-** .



Locking plug connection

Fitting seal for mirror triangle

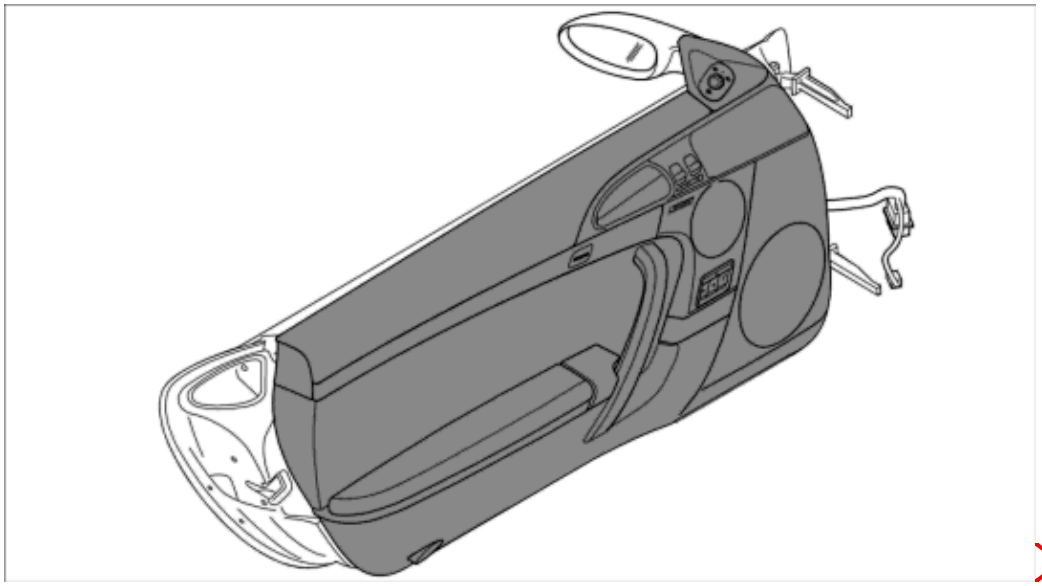


Seal for mirror triangle

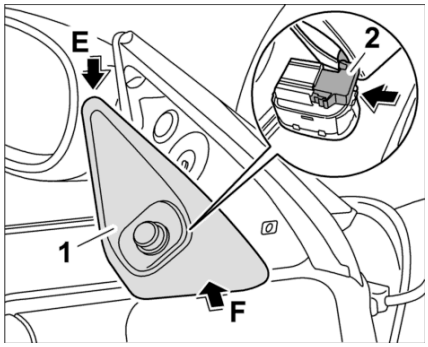
1. Stick seal for mirror triangle at cable cutout opening on door mirror to the basic door frame.

Installing trim panel for mirror triangle

Installation Location:



Overview, door trim panel



Installing trim panel for mirror triangle

1. Press in electrical plug connection **-2-** until it engages audibly.
2. Hook cover **-1-** into the door triangle from above **-arrow E-** and press into the fastening clips on the underside until it engages audibly **-arrow F-** .

997110, 997111, 997120, 997121, 997310, 997311, 997320, 997321, 997410, 997411, 997430, 997431, 997610, 997611, 997620, 997621

as of MY 2005
Country C00, C02, C05, C07, C08, C09, C10, C11, C12, C13, C14, C15, C16, C18, C19, C20, C21, C22, C23, C24, C25, C26, C27, C28, C32, C33, C34, C35, C36, C37, C38, C39, C45, C46, C98, C99

WARNUNG

66 92 19 Removing and installing the roof transport system - as of MY 2005

- General warning notes
- Removing the roof transport system
- Removing base plate of roof transport system
- Installing base plate of roof transport system
- Installing the roof transport system

top of page

General warning notes

Warning notes

DANGER

Danger of accident (death/danger to yourself and/or other road users)

- **as a result of losing the Roof Transport System and/or add-on modules.**

Check the Roof Transport System and add-on modules regularly before each journey and during an extended journey to make sure it is seated correctly and securely on the vehicle.

DANGER

Danger of accident (death/danger to yourself and/or other road users)

- **as a result of changed vehicle handling (higher centre of gravity and larger area exposed to the wind) when the Roof Transport System is fitted and especially when loaded.**

Adapt driving style accordingly!

Observe the instructions about the "Roof Transport System" in the Driver's Manual!

If the Roof Transport System and add-on modules are not in use, they should be completely removed from the vehicle in the interest of driving comfort (noise level) and fuel economy!

DANGER

Danger of accident (death/danger to yourself and/or other road users)

- **due to improper loading of the Roof Transport System and/or add-on modules.**

Load the Roof Transport System and/or add-on modules so that the load does not project beyond the sides of the roof surface!

Select the distances between several add-on modules fitted next to each other so that the transported items cannot bump against each other during the journey!

Secure load adequately to prevent it from shifting during the journey!

ATTENTION

Damage to the vehicle and/or Roof Transport System

- **due to non-observance of the total height of the vehicle.**

Observe total height of vehicle when entering car parks, underground car parks and tunnels etc.!

Completely remove load and Roof Transport System from the vehicle when not in use!

Completely remove the load and Roof Transport System from the vehicle roof before washing the vehicle in automatic car washes!

ATTENTION

Damage to the vehicle roof and/or Roof Transport System

- **due to incorrect fitting and use**

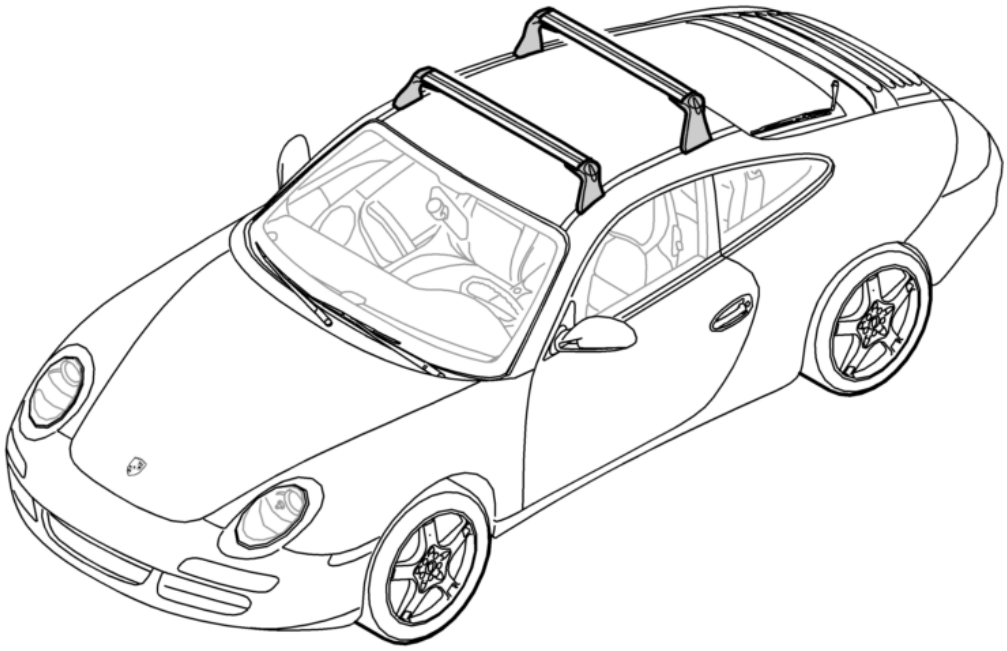
Always take care when fitting or removing both brackets for the adapter. If necessary, have a second person help!

top of page

Removing the roof transport system

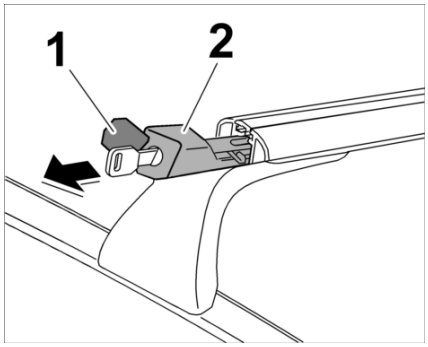
Removing the Roof Transport System

Installation Location:



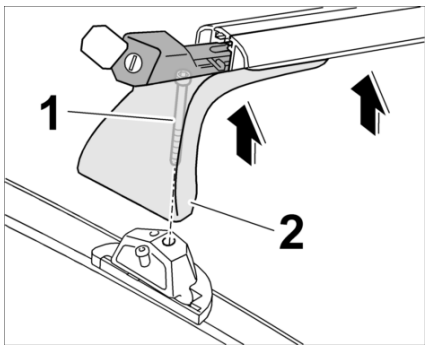
001

Installation position of Roof Transport System



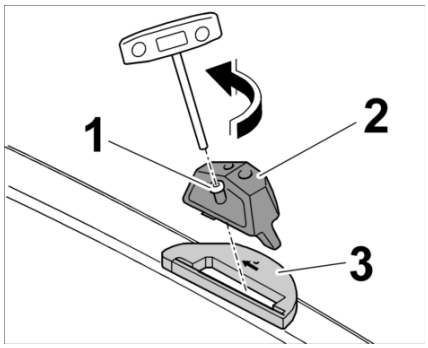
Opening cover flaps

1. Open cover flaps **-1-** on the lock handles **-2-** .
2. Unlock the lock handles **-2-** and pull out of the support tubes as far as the stop.



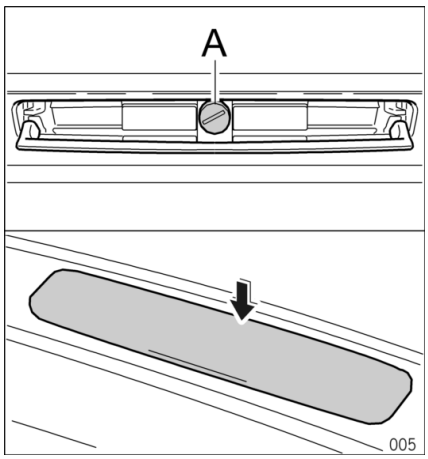
Removing bracket

3. Unscrew fastening screw **-1-** and remove bracket **-2-** .



Removing adapter with base

4. Unscrew fastening screw **-1-** and remove adapter **-2-** together with base **-3-** .



Screw plug for base plate

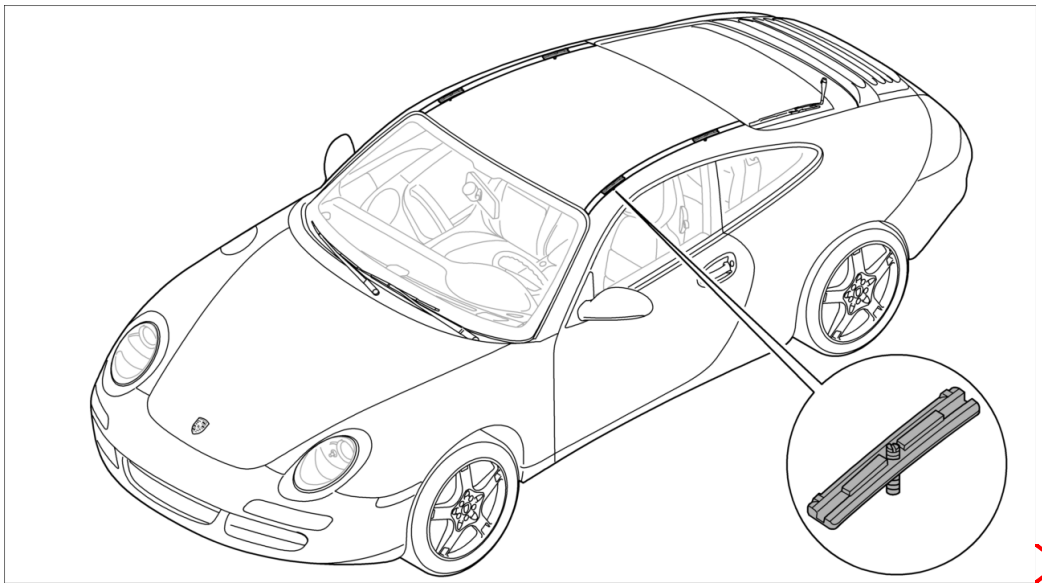
5. Screw the screw plug **-A-** into the base plate to protect against corrosion.
6. Close flaps in the roof joint cover strips.

top of page

Removing base plate of roof transport system

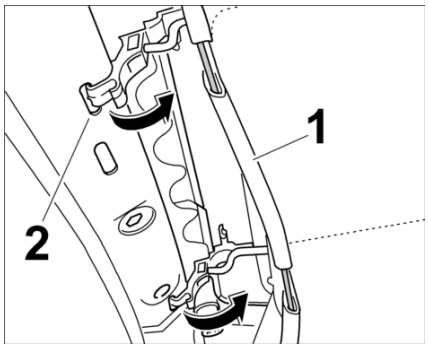
Removing base plate of Roof Transport System

Installation Location:



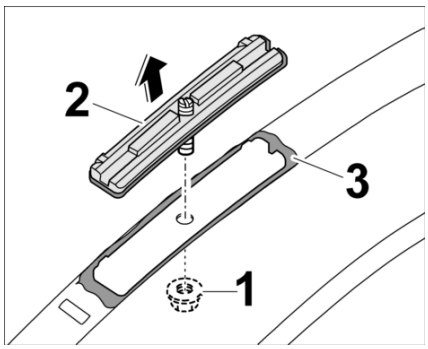
Installation position of base plate for Roof Transport System

1. Remove roof joint cover strip. 663619 Removing and installing roof joint cover strip - section on "Removing"
2. Remove A-pillar trim. 705719 Removing and installing A-pillar trim - chapter on "Removing"
3. Remove C-pillar trim panel. 706819 Removing and installing C-pillar trim - removing



Disengaging the metal strut

4. Disengage metal strut of roof liner **-1-** from plastic clips **-2-** .



Installing base plate of Roof Transport System

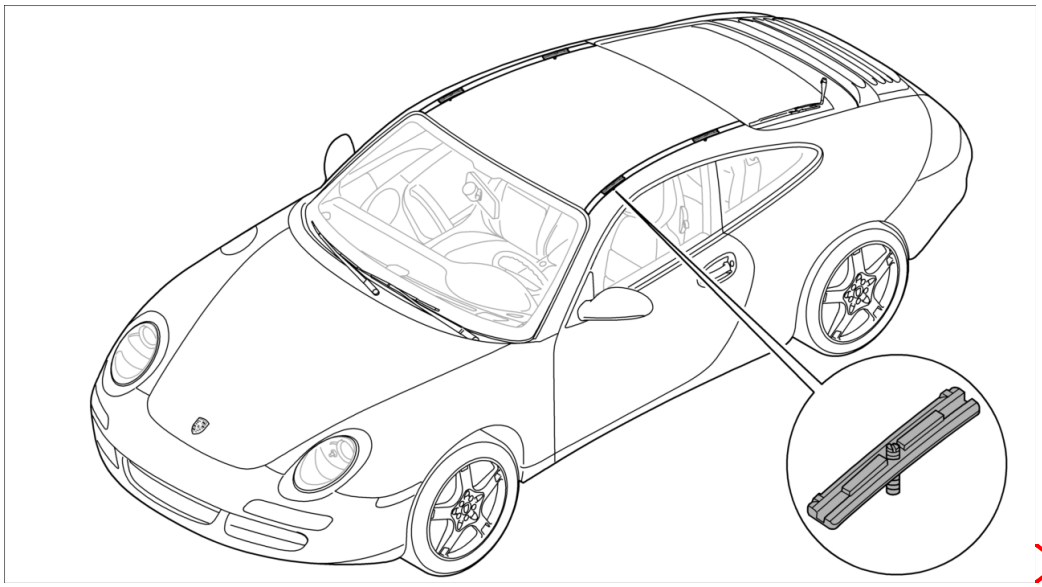
5. Unscrew fastening nut **-1-** from the inside and remove base plate **-2-** from roof channel.
6. Remove residual adhesive **-3-** and clean contact surface of base plate **-2-** .

top of page

Installing base plate of roof transport system

Installing base plate of Roof Transport System

Installation Location:

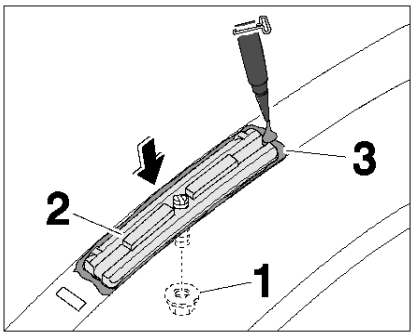


Removing base plate of Roof Transport System

Note

Contact surface of roof channel and base plate of Roof Transport System must be free of dirt and grease.

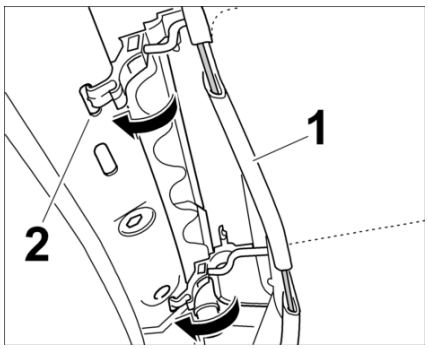
1. Apply adhesive **-3-** SEALING MATERIAL on the underside of the base plate **-2-** .



Installing base plate of Roof Transport System

2. Position base plate **-2-** of Roof Transport System in and parallel to the roof channel. Screw in fastening nut **-1-** from inside and tighten. **Tightening torque: 23 (17 ftlb.) Nm**
3. Lightly spread adhesive **-3-** with a brush.

4. Patch new sealing face and damage to top-coat paint in area of base plate with same colour as the vehicle.



Engaging headliner at the sides

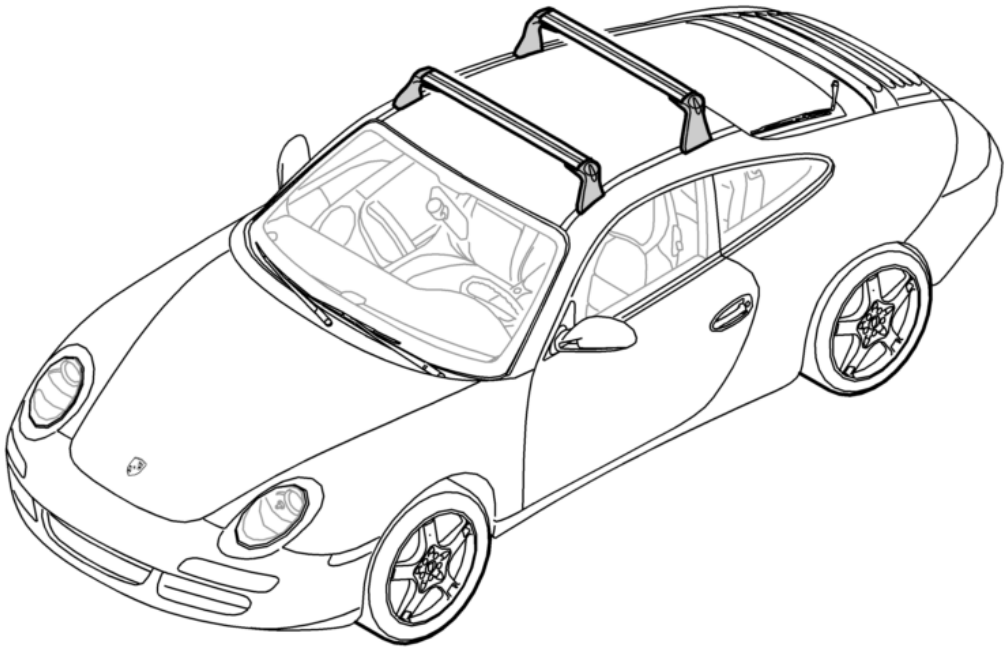
5. Push metal strut of roof liner **-1-** into the plastic clips **-2-**
.
6. Install C-pillar trim. 706819 Removing and installing C-pillar trim - installing
7. Install A-pillar trim. 705719 Removing and installing A-pillar trim - chapter on "Installing"
8. Install roof joint cover strip. 663619 Removing and installing roof joint cover strip - section on "Installing"

top of page

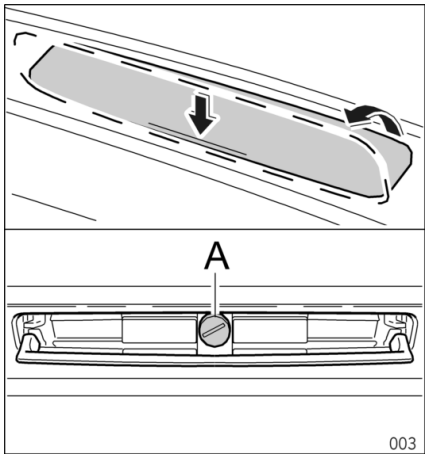
Installing the roof transport system

Installing the Roof Transport System

Installation Location:

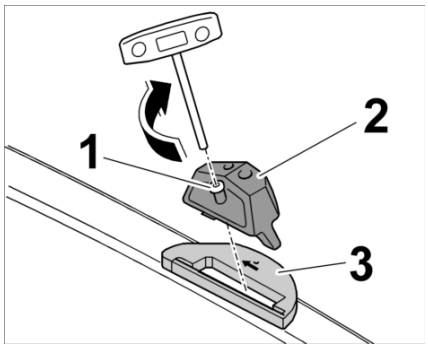


Installation position of Roof Transport System



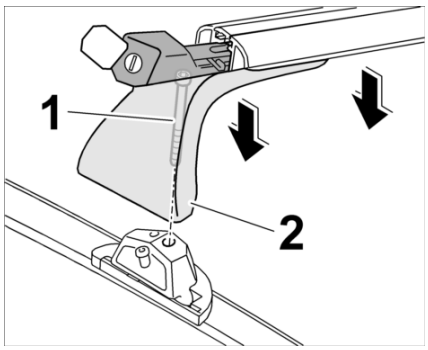
Opening flaps of roof joint cover strip

1. Open flaps in the roof joint cover strips.
2. Unscrew the screw plug **-A-** from the base plate and keep in a safe place.



Installing adapter with base

3. Position base **-3-** in the cut-out of the roof joint cover strip.
4. Position adapter **-2-** , align with the base and secure to vehicle with the fastening screw **-1-** .

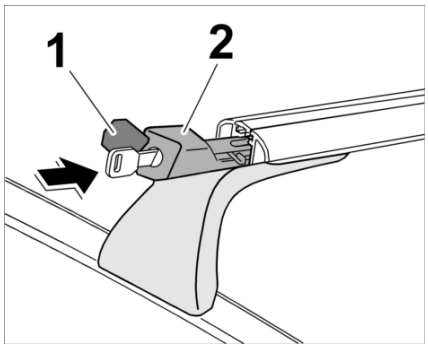


Installing bracket

Note

Observe marking (front/rear) on underside of support tube.

5. Carefully position bracket **-2-** on the adapter and tighten with fastening screw **-1-** .



Closing cover flap

6. Insert lock handles **-2-** into the support tube ends, lock them and push in caps **-1 -** of lock cylinder.

For further information on the Roof Transport System see: *669200 Roof Transport System*

997110, 997111, 997120, 997121, 997410, 997411, 997430, 997431

68 05 19 Removing and installing inner door sill trim - as of MY 2005

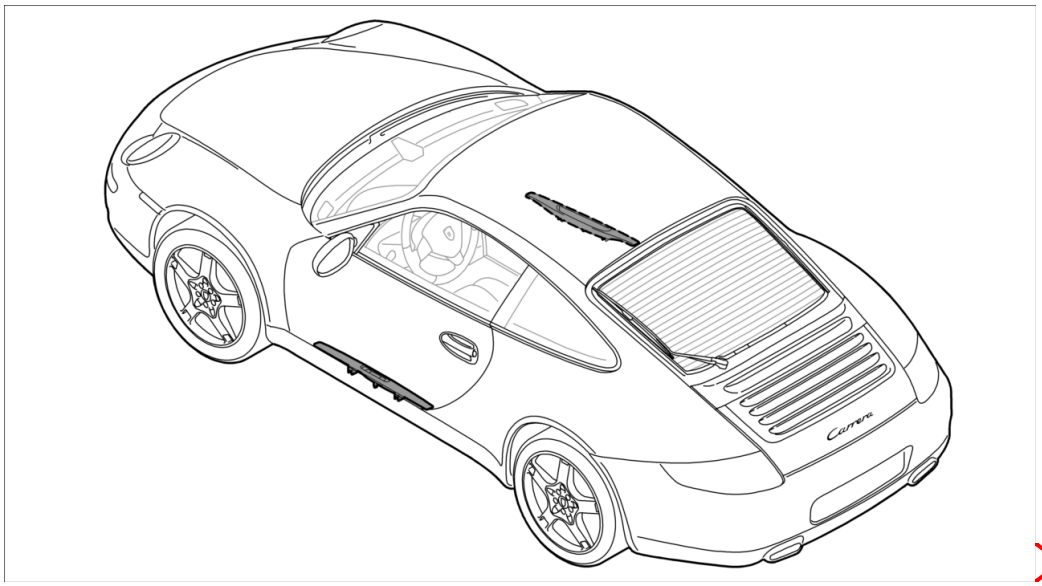
- Removing inner door sill trim
- Installing inner door sill trim

top of page

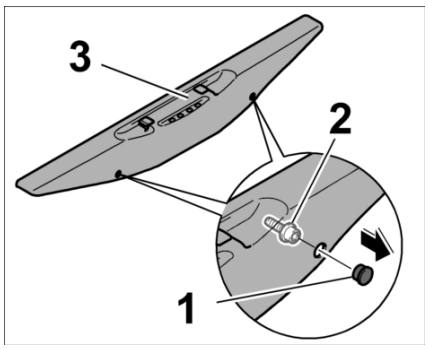
Removing inner door sill trim

Removing inner door sill trim (driver's side)

Installation Location:



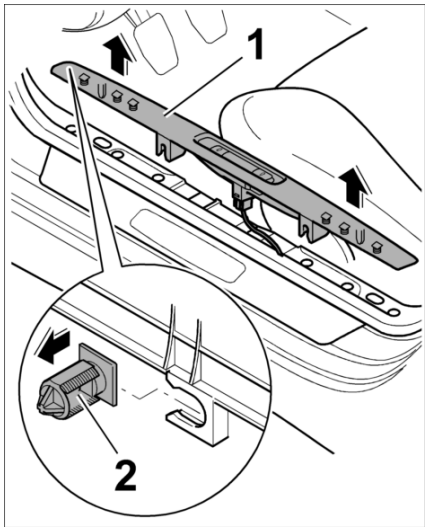
Installation position of scuff plate



Loosening scuff plate

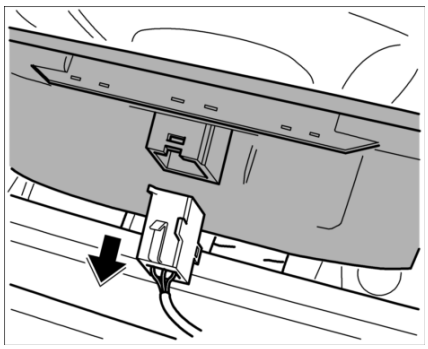
1. Remove plastic caps **-1-** and loosen the fastening screws **-2-** of scuff plate

-3- .



Removing scuff plate

2. Lift scuff plate **-1-** with a plastic wedge and pull up and off.
3. Check fixing clips **-2-** on the underside of the scuff plate **-1-** , replacing if necessary.

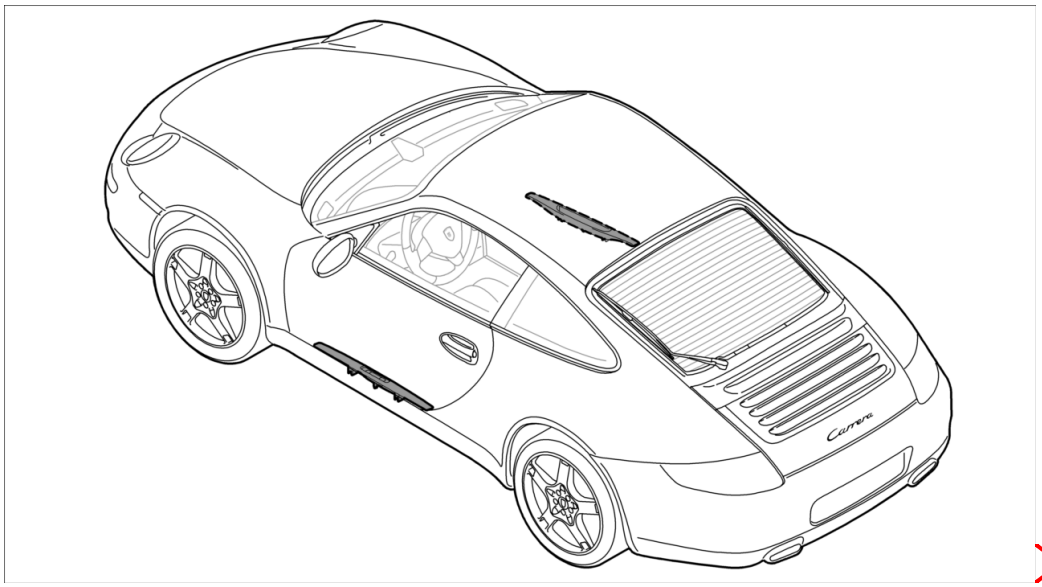


Disconnecting plug connection

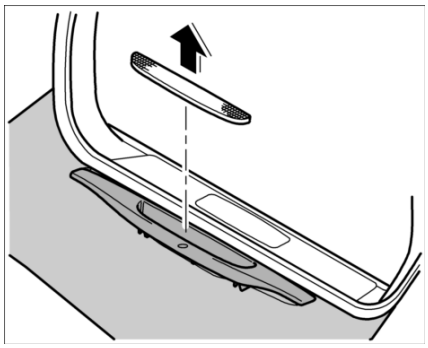
4. Release plug connection for actuating switch and remove scuff plate.

Removing inner door sill trim (passenger's side)

Installation Location:

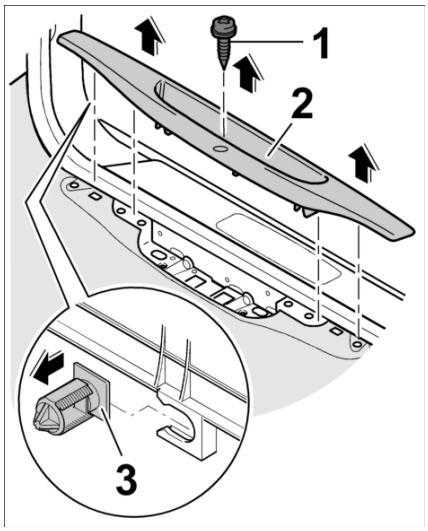


Installation position of scuff plate



Removing lining mat

1. Remove lining mat from oddments tray.



Removing scuff plate

2. Unscrew fastening screw **-1-** from scuff plate **-2-** .
3. Lift scuff plate with a plastic wedge, pull off and remove.

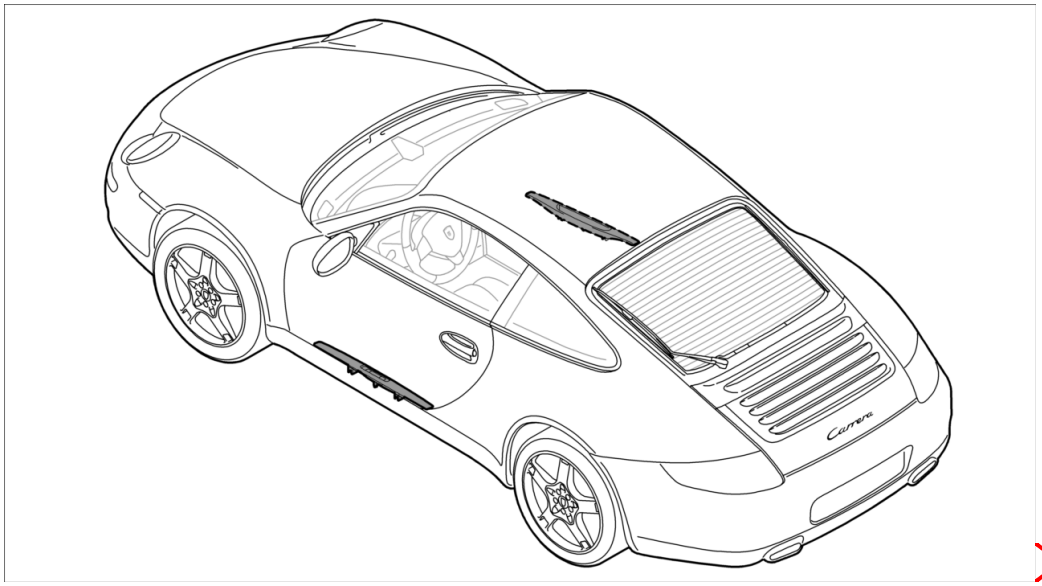
4. Check fixing clips **-3-** on the underside of the scuff plate, replacing if necessary.

top of page

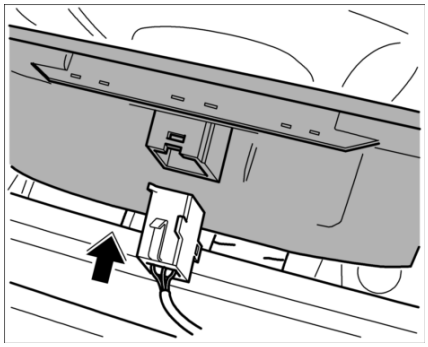
Installing inner door sill trim

Installing inner door sill trim (driver's side)

Installation Location:

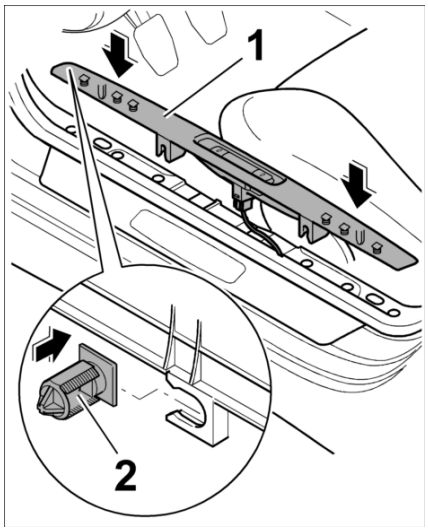


Installation position of scuff plate



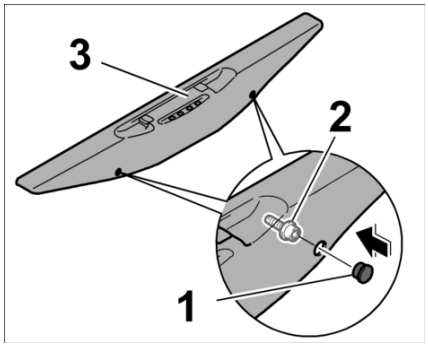
Locking plug connection

1. Lock plug connection for actuating switch.



Installing scuff plate

2. Check fixing clips **-2-** on the underside of the scuff plate **-1-** , replacing if necessary.
3. Position scuff plate **-1-** , press in and engage.

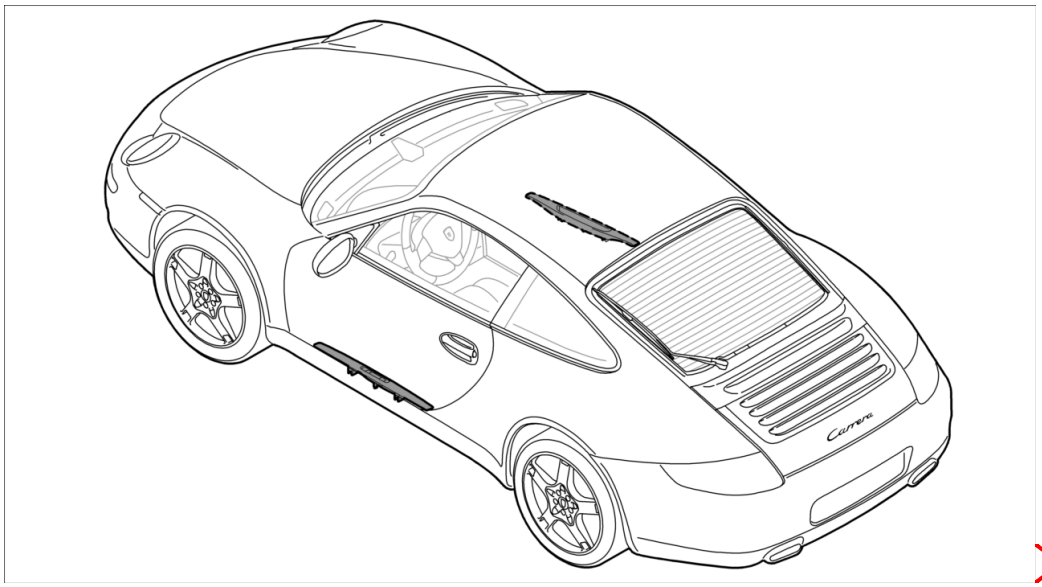


Tightening scuff plate

4. Tighten fastening screws **-2-** . Tightening torque **Tightening torque: 5 (3.5 ft lb.) Nm +/-0.5 (0.5 ftlb.) Nm**
5. Seal bores of scuff plate **-3-** with plastic caps **-1-** .

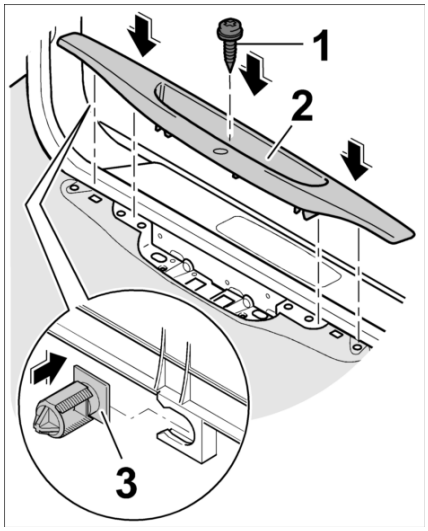
Installing inner door sill trim (passenger's side)

Installation Location:



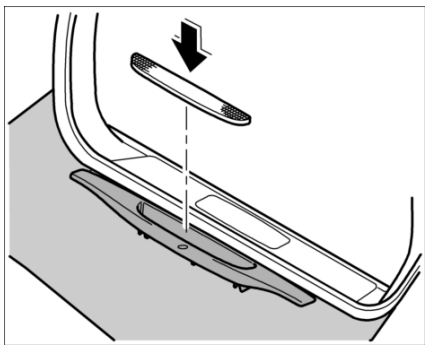
Installation position of scuff plate

1. Check fixing clips **-3-** on the underside of the scuff plate **-2-** , replacing if necessary.



Installing scuff plate

2. Position scuff plate **-2-** , press in and engage.
3. Tighten fastening screw **-1-** . Tightening torque **Tightening torque: 2.5 (2.0 ftlb.) Nm +/-0.5 (0.5 ftlb.) Nm**



Inserting lining mat

4. Insert lining mat in oddments tray.

997110, 997111, 997120, 997121, 997310, 997311, 997320, 997321, 997410, 997411, 997430, 997431, 997610, 997611, 997620, 997621

as of MY 2005
Country C00, C02, C05, C07, C08, C09, C10, C11, C12, C13, C14, C15, C16, C18, C19, C20, C21, C22, C23, C24, C25, C26, C27, C28, C32, C33, C34, C35, C36, C37, C38, C39, C45, C46, C98, C99

WARNUNG

Gefahr des Verlusts der Text-Bild-Zuordnung beim Ausdruck.

- **Aus technischen Gründen kann derzeit nicht ausgeschlossen werden, dass trotz einwandfreier Darstellung auf dem Bildschirm beim Ausdruck der Zusammenhang von Text und zugehörigem Bild verloren geht.**
- **Wird der Fehler nicht bemerkt, besteht die Gefahr, daß Arbeiten nicht korrekt durchgeführt werden und es dadurch zu Personen- und Sachschäden kommt.**

Vergleichen Sie deshalb nach dem Druckvorgang unbedingt die Ausdrucke mit der Bildschirmdarstellung. Korrigieren Sie die Ausdrucke im Fehlerfall so, daß der Inhalt der Bildschirmdarstellung zutreffend wiedergegeben wird.

WARNING

Danger of losing text-figure correspondence when printing out.

- **For technical reasons, it can currently not be ruled out that the correspondence between text and associated figure can be lost when it is printed out, even though the display on the screen is correct.**
- **If the fault is not noticed, there is the danger that work will not be performed correctly which can cause injury and damage.**

Therefore, always compare printouts with the screen display after printing them out. Correct the printouts if they are faulty so that the content of the screen display matches that on the printouts.

AVERTISSEMENT

Risque de perte de la correspondance texte-illustration lors de l'impression papier.

- **Pour des raisons techniques, il ne peut pas être exclu à l'heure actuelle que, même en cas d'affichage correct à l'écran, la correspondance entre le texte et l'illustration puisse être erronée sur l'impression papier.**
- **Si l'erreur passe inaperçue, on court le risque d'exécuter certaines opérations de manière incorrecte pouvant conduire à des dommages corporels et matériels.**

68 07 19 Removing and installing cover strip - as of MY 2005

- Preliminary work
- Removing cover strip
- Installing cover strip
- Subsequent work

top of page

Preliminary work

Preliminary work

1. Remove inner sill. 680519 Removing and installing inner sill - chapter on "Removing"

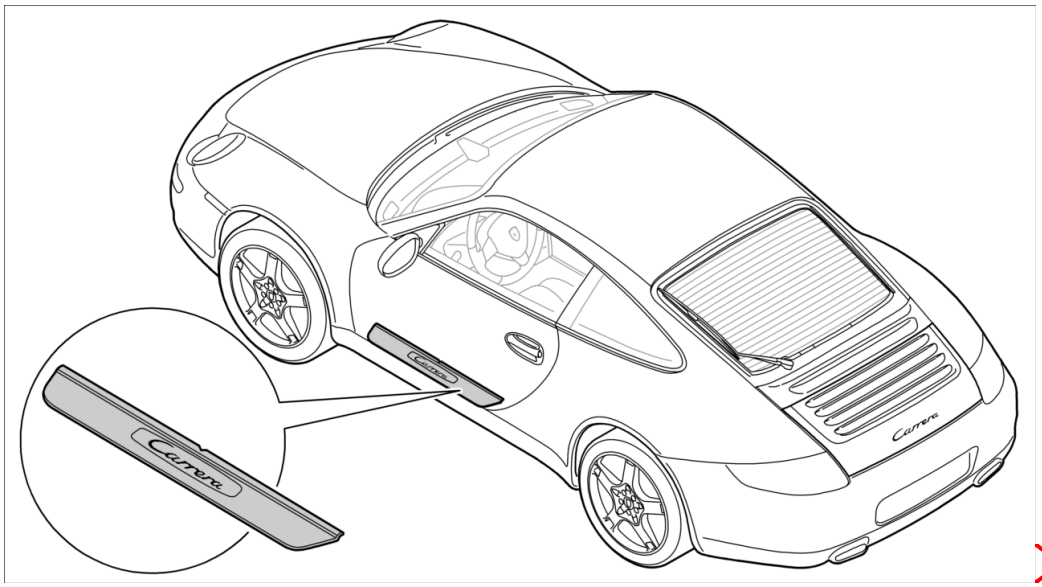
Loosen rubber seal for door in area of cover strip. 576319 Removing and installing rubber seal for door - chapter on "Removing" [997310 997311 997320 997321 997610 997611 997620 997621] 576319 Removing and installing rubber seal for door - chapter on "Removing" [997110 997111 997120 997121 997410 997411 997430 997431]

top of page

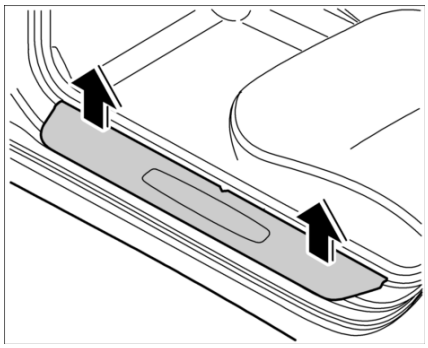
Removing cover strip

Removing cover strip

Installation Location:



Installation position for cover strip



Removing cover strip

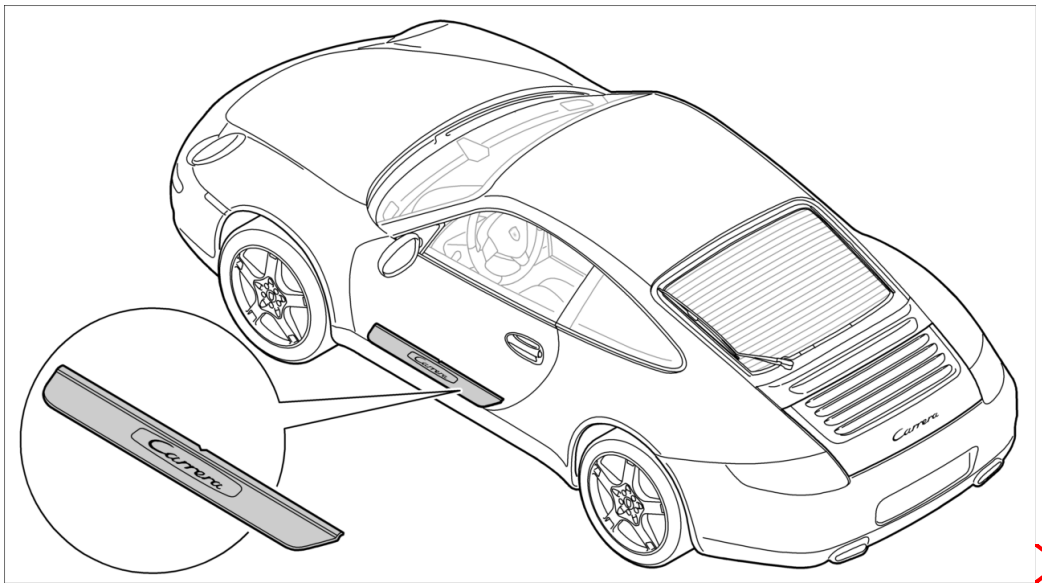
1. Lift cover strip with plastic wedge and pull off cover strip.
2. Remove adhesive residues with cleaning solution.

top of page

Installing cover strip

Installing cover strip

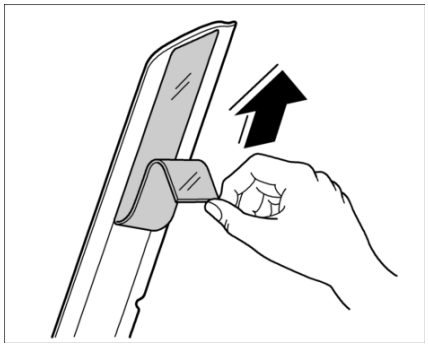
Installation Location:



Installation position for cover strip

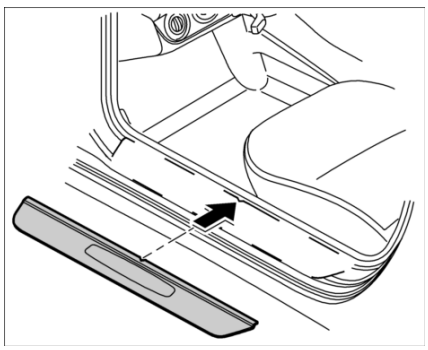
Note

- *The bonding surface must be free of dirt and grease. Clean with cleaning solution if necessary.*



Pulling off protective film

1. Pull protective film off the bonding area of cover strip.



Installing cover strip

2. Position cover strip and apply. Centre notch in cover strip at height of bead.

3. Press on cover strip firmly.

top of page

Subsequent work

Subsequent work

1. Connect rubber seal for door in area of cover strip. 576319 Removing and installing rubber seal for door - chapter on "Installing" [997310 997311 997320 997321 997610 997611 997620 997621] 576319 Removing and installing rubber seal for door - chapter on "Installing" [997110 997111 997120 997121 997410 997411 997430 997431]
2. Install inner sill. 680519 Removing and installing inner sill - chapter on "Installing"

997110, 997111, 997120, 997121, 997310, 997311, 997320, 997321, 997410, 997411, 997430, 997431, 997610, 997611, 997620, 997621

as of MY 2005
Country C00, C02, C05, C07, C08, C09, C10, C11, C12, C13, C14, C15, C16, C18, C19, C20, C21, C22, C23, C24, C25, C26, C27, C28, C32, C33, C34, C35, C36, C37, C38, C39, C45, C46, C98, C99

WARNUNG

Gefahr des Verlusts der Text-Bild-Zuordnung beim Ausdruck.

- **Aus technischen Gründen kann derzeit nicht ausgeschlossen werden, dass trotz einwandfreier Darstellung auf dem Bildschirm beim Ausdruck der Zusammenhang von Text und zugehörigem Bild verloren geht.**
- **Wird der Fehler nicht bemerkt, besteht die Gefahr, daß Arbeiten nicht korrekt durchgeführt werden und es dadurch zu Personen- und Sachschäden kommt.**

Vergleichen Sie deshalb nach dem Druckvorgang unbedingt die Ausdrucke mit der Bildschirmdarstellung. Korrigieren Sie die Ausdrucke im Fehlerfall so, daß der Inhalt der Bildschirmdarstellung zutreffend wiedergegeben wird.

WARNING

Danger of losing text-figure correspondence when printing out.

- **For technical reasons, it can currently not be ruled out that the correspondence between text and associated figure can be lost when it is printed out, even though the display on the screen is correct.**
- **If the fault is not noticed, there is the danger that work will not be performed correctly which can cause injury and damage.**

68 11 19 Removing and installing glove compartment lock - as of MY 2005

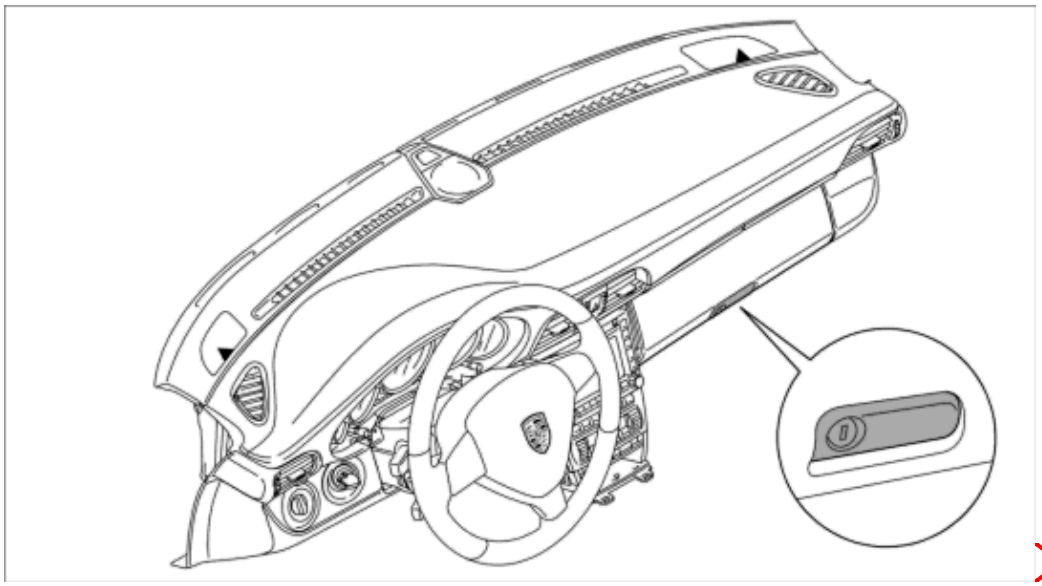
- Removing glove compartment lock
- Installing glove compartment lock

top of page

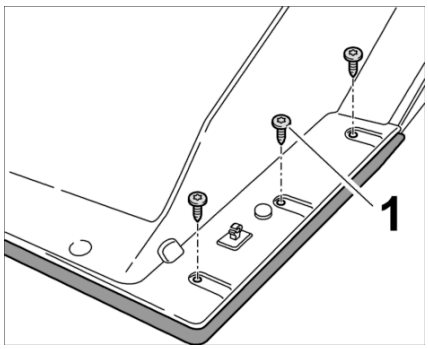
Removing glove compartment lock

Removing support for glove compartment lid

Installation Location:

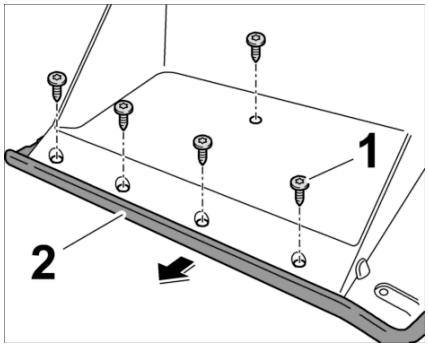


Installation position of glove compartment lock



Releasing support for glove compartment

1. Unscrew fastening screws at the side **-1-** .

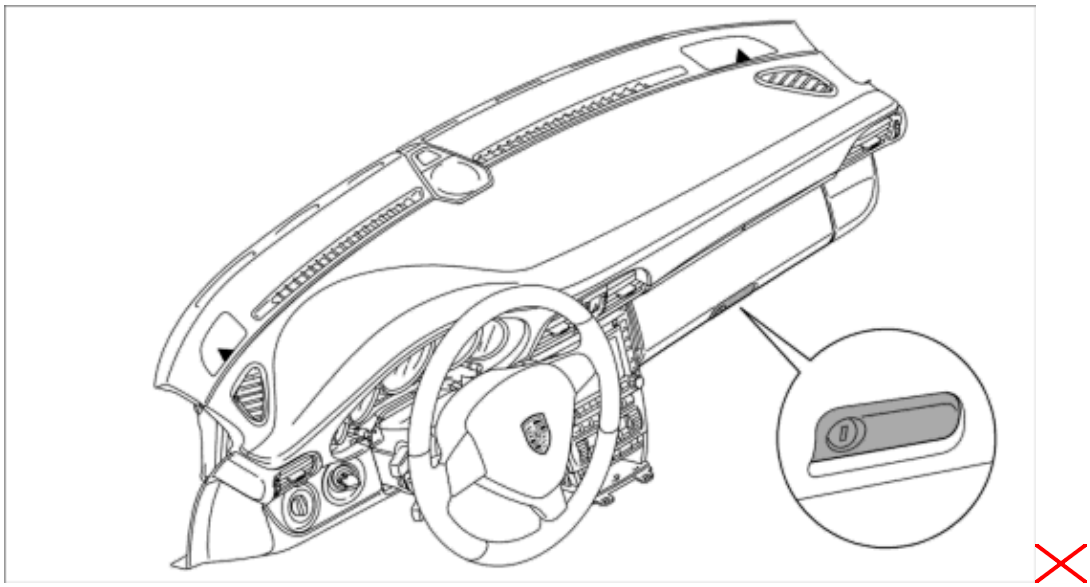


Removing support for glove compartment

2. Unscrew fastening screws at the front **-1-** and remove support for glove compartment lid **-2-** .

Removing glove compartment lock

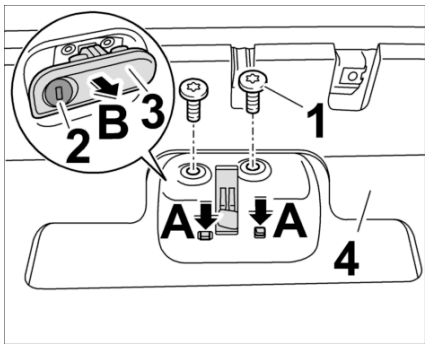
Installation Location:



Installation position of glove compartment lock

Note

- *The lock barrel for the glove compartment can only be removed when replacing the handle.*
- *Removing the lock barrel can damage the handle.*



Removing glove compartment lock

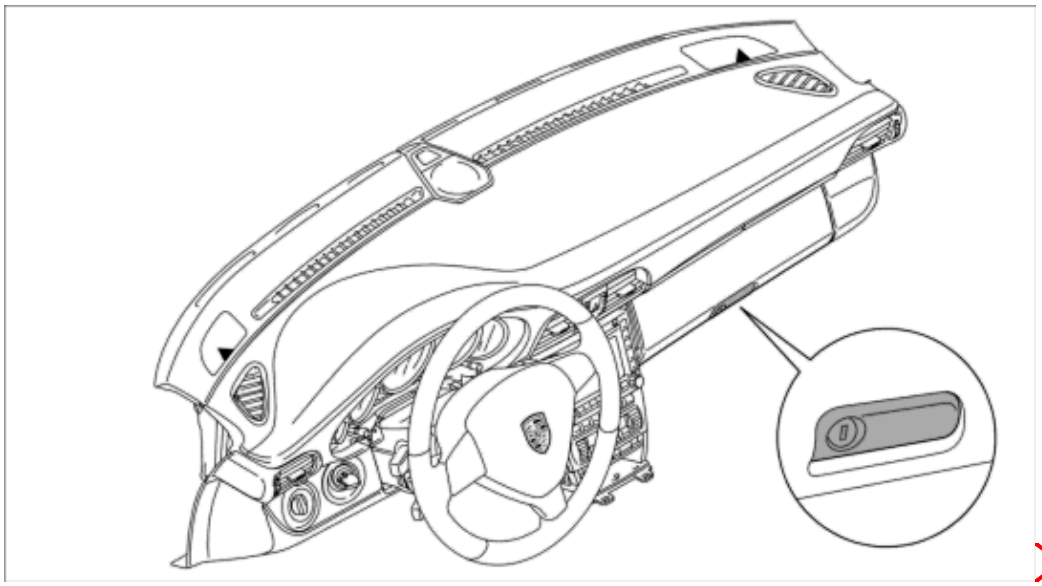
1. Unscrew fastening screws **-1-** .
2. Loosen the locking tabs slightly **-arrow A-** and remove the handle **-3-** with the glove compartment lock **-2-** out of the support for the glove compartment **-4-** .

top of page

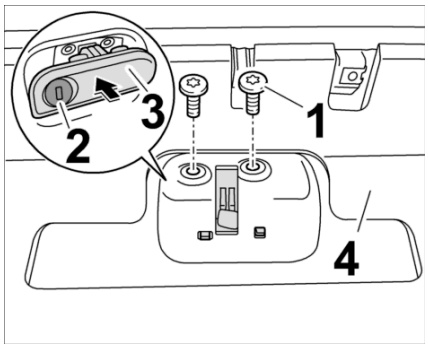
Installing glove compartment lock

Installing glove compartment lock

Installation Location:



Installation position of glove compartment lock

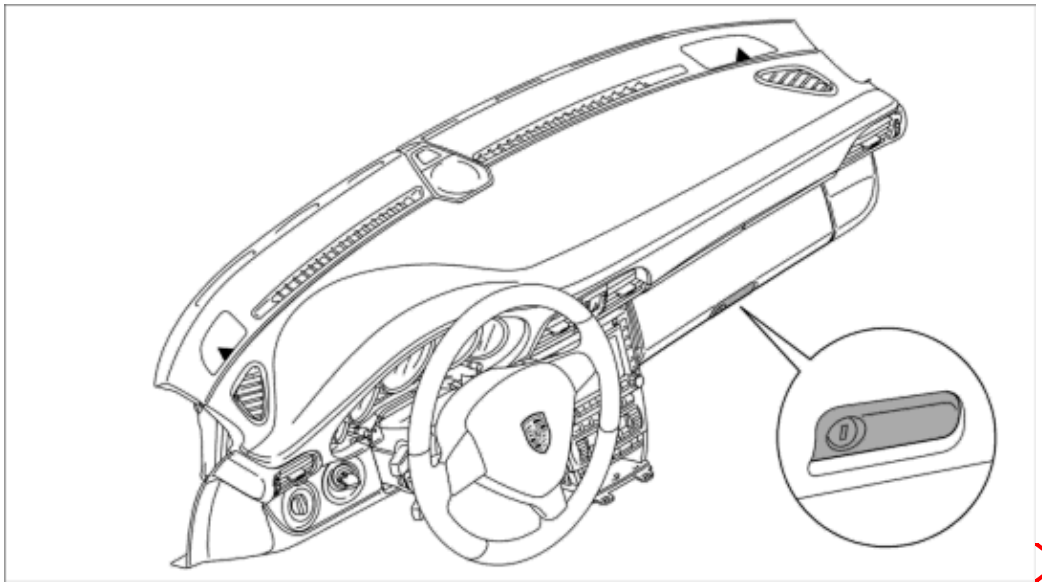


Installing glove compartment lock

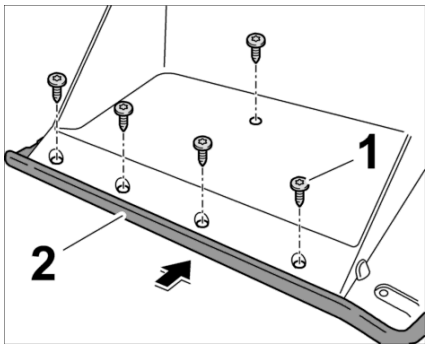
1. Position the handle **-3-** with the glove compartment lock **-2-** in the support for the glove compartment lid **-4-** (**-arrow-**) and secure in position with the fastening screws **-1-** .

Installing support for glove compartment lid

Installation Location:



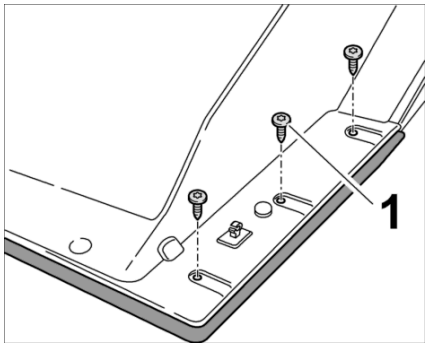
Installation position of glove compartment lock



Installing support for glove compartment

1. Position support for glove compartment lid **-2-** on the glove compartment lid **-arrow-** and screw in

the fastening screws at the front **-1-** .



Securing support for glove compartment

2. Screw in fastening screws at the side **-1-** .

997110, 997111, 997120, 997121, 997310, 997311, 997320, 997321, 997410, 997411, 997430, 997431, 997610, 997611, 997620, 997621

as of MY 2005
Country C00, C02, C05, C07, C08, C09, C10, C11, C12, C13, C14, C15, C16, C18, C19, C20, C21, C22, C23, C24, C25, C26, C27, C28, C32, C33, C34, C35, C36, C37, C38, C39, C45, C46, C98, C99

WARNUNG

Gefahr des Verlusts der Text-Bild-Zuordnung beim Ausdruck.

- **Aus technischen Gründen kann derzeit nicht ausgeschlossen werden, dass trotz einwandfreier Darstellung auf dem Bildschirm beim Ausdruck der Zusammenhang von Text und zugehörigem Bild verloren geht.**
- **Wird der Fehler nicht bemerkt, besteht die Gefahr, daß Arbeiten nicht korrekt durchgeführt werden und es dadurch zu Personen- und Sachschäden kommt.**

Vergleichen Sie deshalb nach dem Druckvorgang unbedingt die Ausdrucke mit der Bildschirmdarstellung. Korrigieren Sie die Ausdrucke im Fehlerfall so, daß der Inhalt der Bildschirmdarstellung zutreffend wiedergegeben wird.

WARNING

Danger of losing text-figure correspondence when printing out.

- **For technical reasons, it can currently not be ruled out that the correspondence between text and associated figure can be lost when it is printed out, even though the display on the screen is correct.**
- **If the fault is not noticed, there is the danger that work will not be performed correctly which can cause injury and damage.**

Therefore, always compare printouts with the screen display after printing them out. Correct the printouts if they are faulty so that the content of the screen display matches that on the printouts.

68 12 19 Removing and installing lid for glove compartment - as of MY 2005

- Preliminary work
- Removing lid for glove compartment
- Installing lid for glove compartment
- Subsequent work

top of page

Preliminary work

Preliminary work

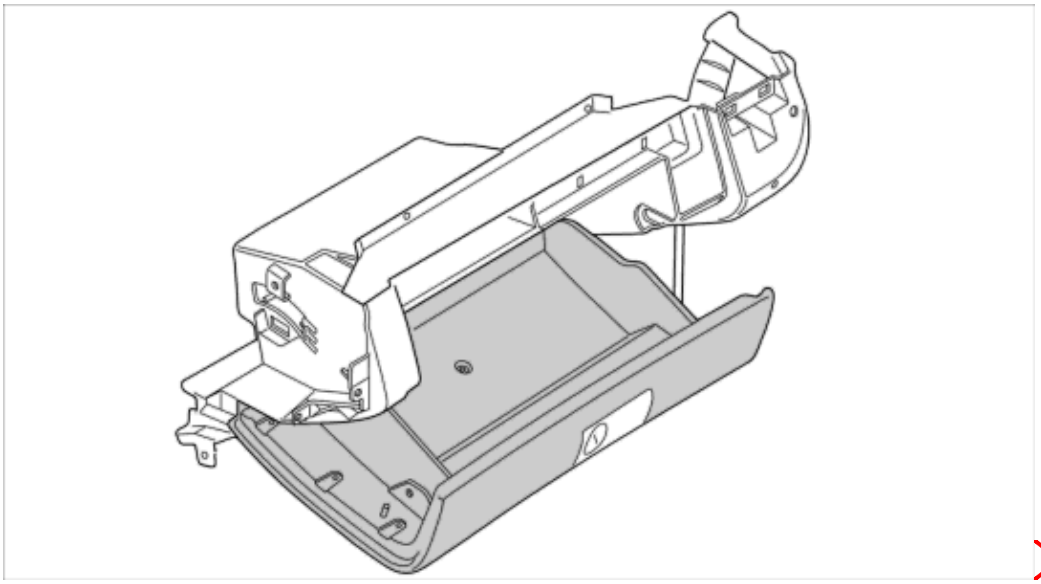
Remove glove compartment. 681519 Removing and installing glove compartment - chapter on "removing"

top of page

Removing lid for glove compartment

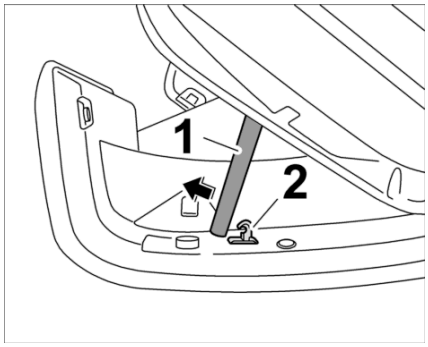
Removing lid for glove compartment

Installation Location:



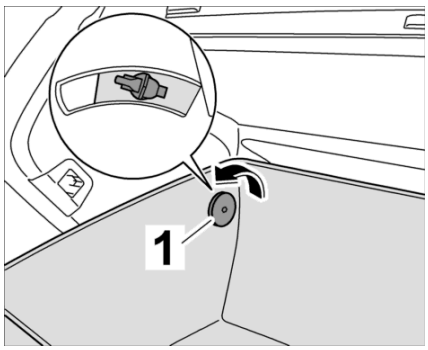
Installation position of glove compartment lid

1. Open the glove compartment.



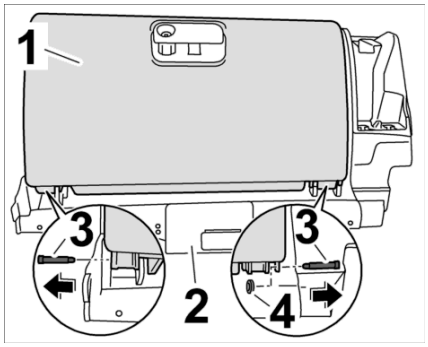
Pressing out shock absorber for glove compartment

2. Press shock absorber for glove compartment **-1-** carefully out of the fastening tab **-2-** .



Removing stop

3. Turn stop **-1-** 45° in **-direction of arrow-** and remove it.



Removing lid for glove compartment

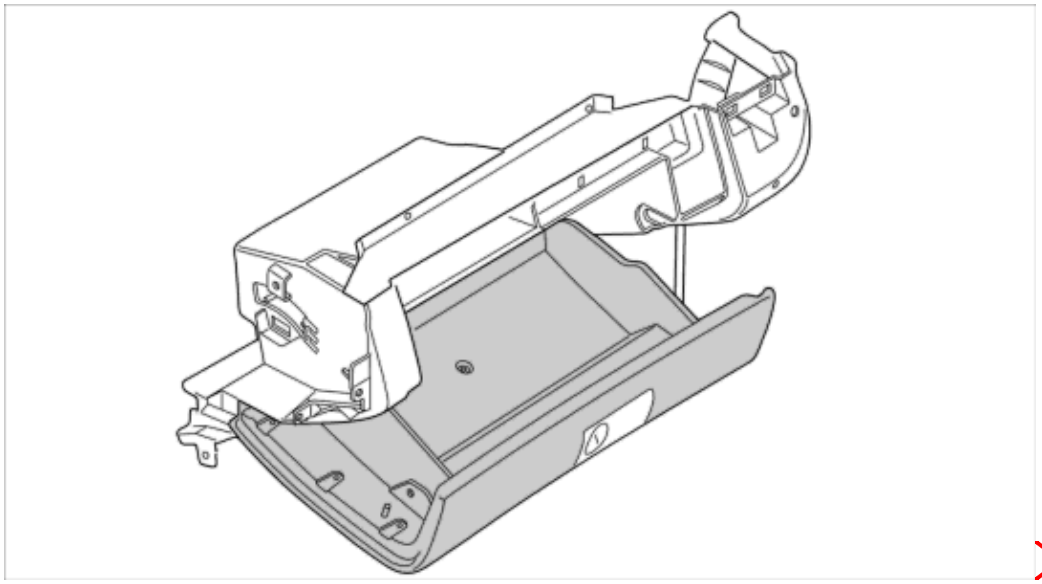
4. Drive out pin rod **-3-** , remove washer **-4-** and then detach the lid **-1-** from the glove compartment **-2-** (**-direction of arrow-**).

top of page

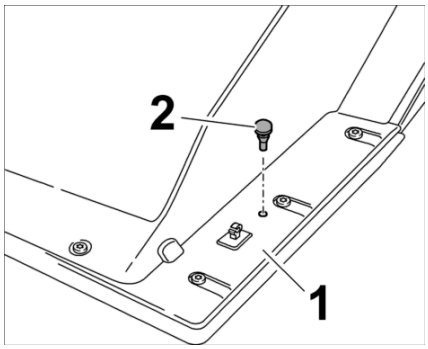
Installing lid for glove compartment

Installing lid for glove compartment

Installation Location:

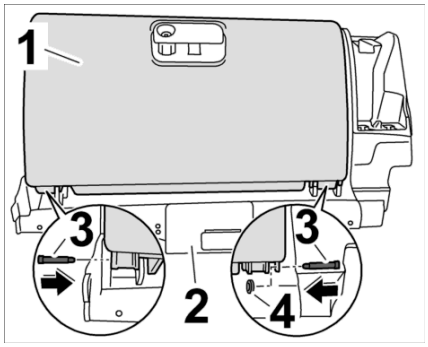


Installation position of glove compartment lid



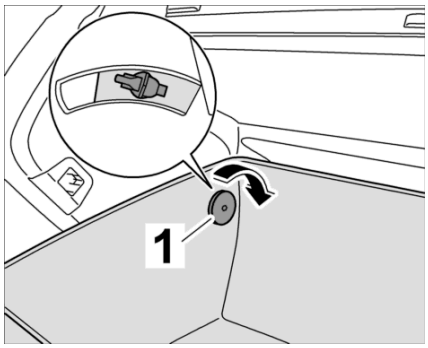
Checking rubber stops

1. Check rubber stops to the left and right **-2-** before installing the glove compartment lid **-1-** and replace them if necessary.



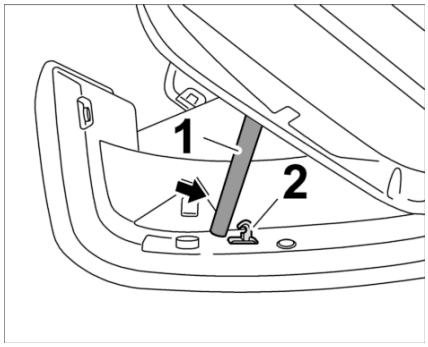
Installing lid for glove compartment

2. Position lid **-1-** and washer **-4-** on the glove compartment **-2-** and press in the pin rods **-3-** (**-arrows-**).



Installing stop

3. Close the glove compartment slightly, position stop **-1-** on the lid and turn 45° in **-direction of arrow-** .



Pressing in shock absorber for glove compartment

4. Press shock absorber for glove compartment **-1-** into the fastening tab **-2-** .
5. Close glove compartment.

top of page

Subsequent work

Subsequent work

Install glove compartment. 681519 Removing and installing glove compartment - chapter on "installing"

997110, 997111, 997120, 997121, 997310, 997311, 997320, 997321, 997410, 997411, 997430, 997431, 997610, 997611, 997620, 997621

as of MY 2005
Country C00, C02, C05, C07, C08, C09, C10, C11, C12, C13, C14, C15, C16, C18, C19, C20, C21, C22, C23, C24, C25, C26, C27, C28, C32, C33, C34, C35, C36, C37, C38, C39, C45, C46, C98, C99

WARNUNG

68 14 19 Removing and installing centre console cover - as of MY 2005

- Preliminary work
- Removing centre console cover
- Installing centre console cover
- Subsequent work

top of page

Preliminary work

Preliminary work

Note
Only for vehicles with additional receiver for telephone.

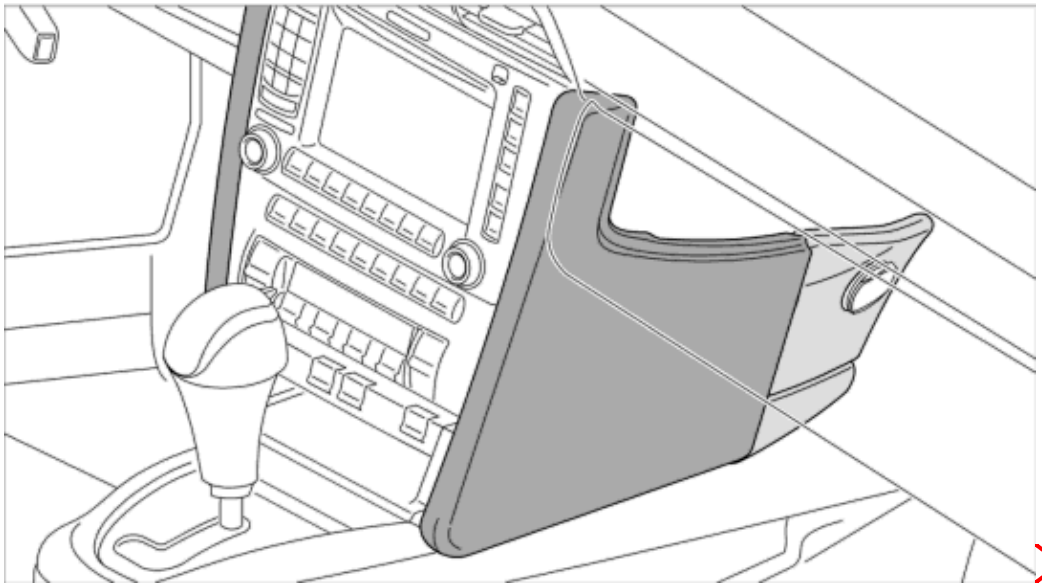
1. Remove bracket for telephone. 918819 Removing and installing bracket for telephone - chapter on "Removing"

top of page

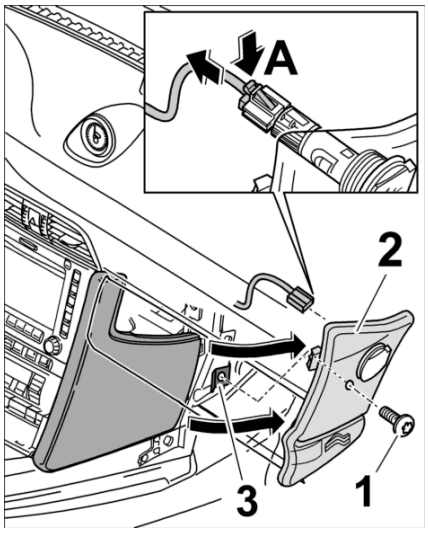
Removing centre console cover

Removing footwell outlet vent cover

Installation Location:



Installation location of footwell outlet vent cover



Removing footwell outlet vent cover

1. Unscrew fastening screw **-1-** and take out footwell outlet vent cover **-2-** .

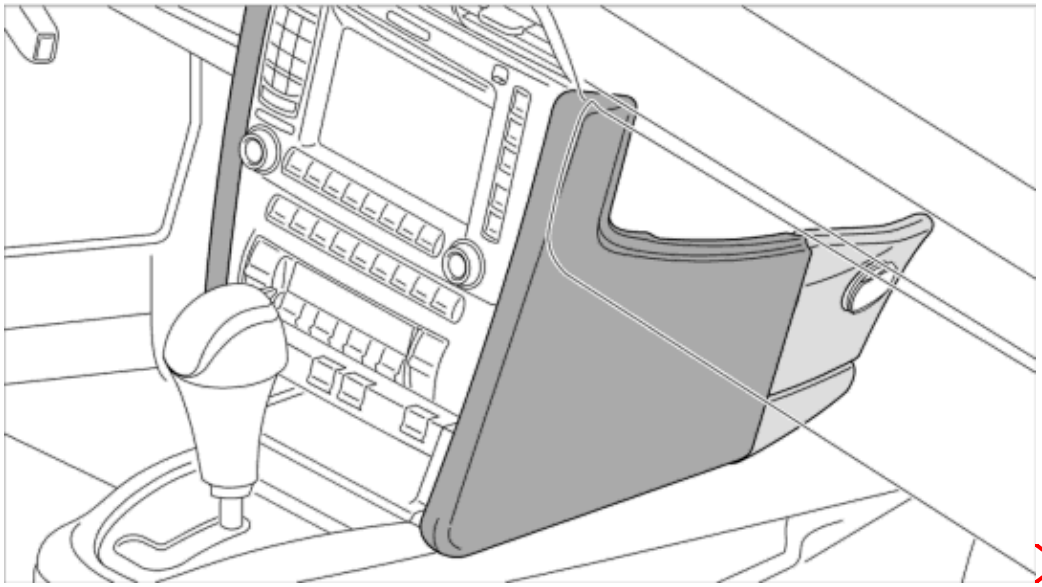
Note

Only passenger's side.

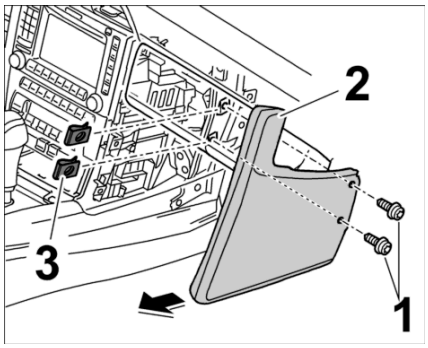
2. Release electric connector **-arrow A-** and pull off from the socket.
3. Check fastening nut **-3-** , replace if necessary.

Removing centre console cover

Installation Location:



Installation location for centre console cover



Removing centre console cover

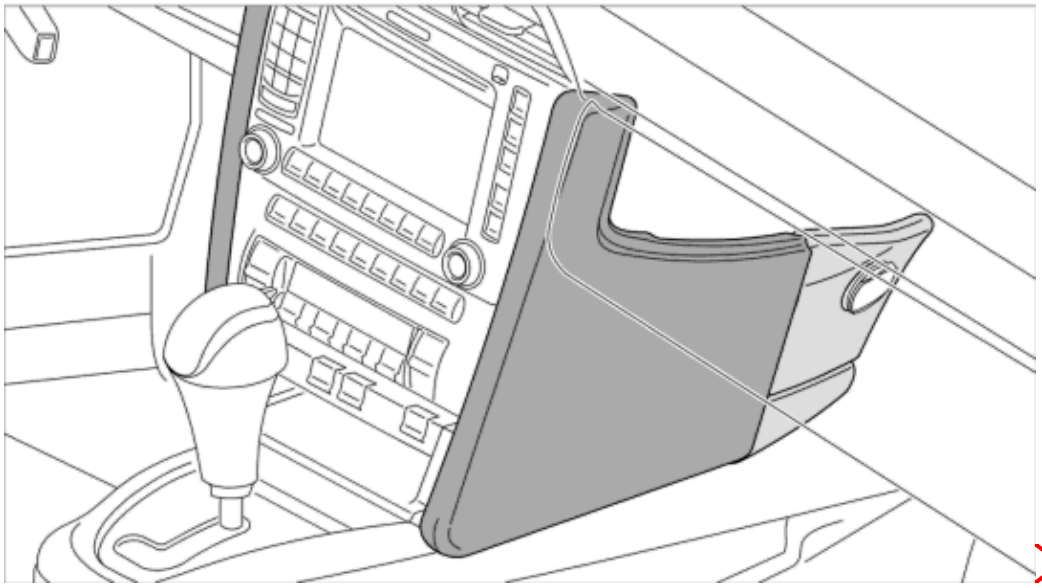
1. Unscrew fastening screws **-1-** and take off cover for centre console **-2-** .
2. Check fastening nut **-3-** , replace if necessary.

top of page

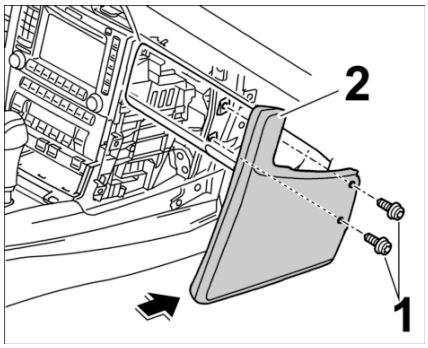
Installing centre console cover

Installing centre console cover

Installation Location:



Installation location for centre console cover

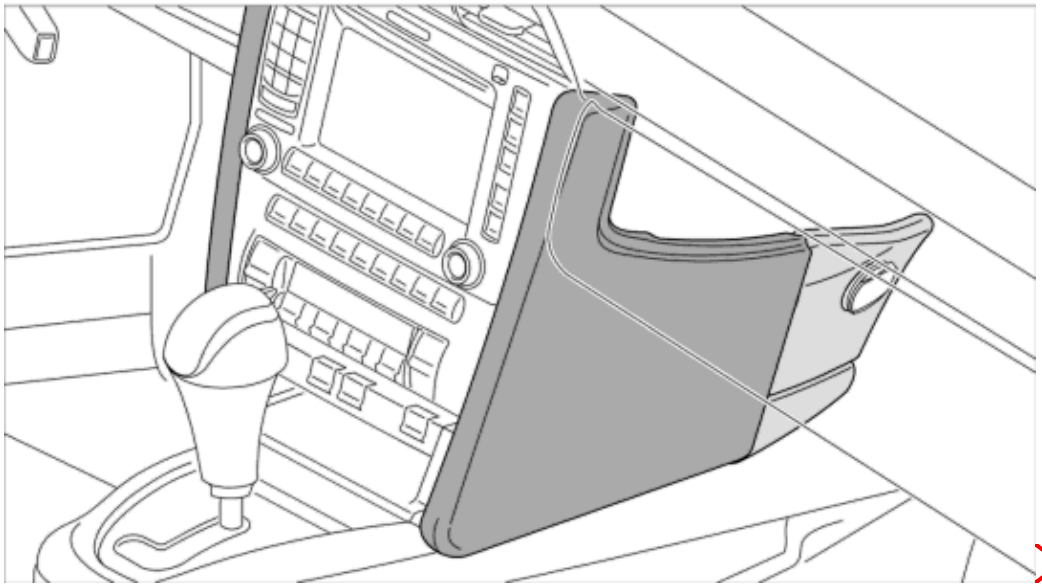


Installing centre console cover

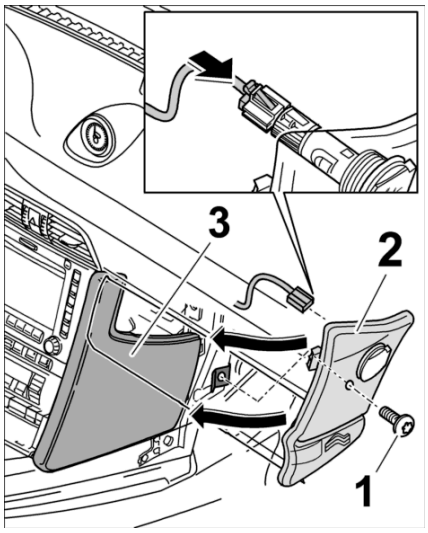
1. Position cover for centre console **-2-** and screw down using the fastening screws **-1-** . Tightening torque **Tightening torque: 1.5 ftlb. +/-0.15 ftlb.** .

Installing footwell outlet vent cover

Installation Location:



Installation location of footwell outlet vent cover



Installing footwell outlet vent cover

Note

Only passenger's side.

1. Push electric connector onto socket **-arrow-** until connector is felt to engage.
2. Insert footwell outlet vent cover **-2-** into centre console cover **-3-** and screw down the fastening screw **-1-** . Tightening torque **Tightening torque: 7.5 ftlb.**

top of page

Subsequent work

Subsequent work

Note

Only for vehicles with additional receiver for telephone.

1. Install bracket for telephone. 918819 Removing and installing bracket for telephone - chapter on "Installing"

997110, 997111, 997120, 997121, 997310, 997311, 997320, 997321, 997410, 997411, 997430, 997431, 997610, 997611, 997620, 997621

as of MY 2005
Country C00, C02, C05, C07, C08, C09, C10, C11, C12, C13, C14, C15, C16, C18, C19, C20, C21, C22, C23, C24, C25, C26, C27, C28, C32, C33, C34, C35, C36, C37, C38, C39, C45, C46, C98, C99

WARNUNG

Gefahr des Verlusts der Text-Bild-Zuordnung beim Ausdruck.

- **Aus technischen Gründen kann derzeit nicht ausgeschlossen werden, dass trotz einwandfreier Darstellung auf dem Bildschirm beim Ausdruck der Zusammenhang von Text und zugehörigem Bild verloren geht.**
- **Wird der Fehler nicht bemerkt, besteht die Gefahr, daß Arbeiten nicht korrekt durchgeführt werden und es dadurch zu Personen- und Sachschäden kommt.**

Vergleichen Sie deshalb nach dem Druckvorgang unbedingt die Ausdrucke mit der Bildschirmdarstellung. Korrigieren Sie die Ausdrucke im Fehlerfall so, daß der Inhalt der Bildschirmdarstellung zutreffend wiedergegeben wird.

WARNING

Danger of losing text-figure correspondence when printing out.

- **For technical reasons, it can currently not be ruled out that the correspondence between text and associated figure can be lost when it is printed out, even though the display on the screen is correct.**
- **If the fault is not noticed, there is the danger that work will not be performed correctly which can cause injury and damage.**

Therefore, always compare printouts with the screen display after printing them out. Correct the printouts if they are faulty so that the content of the screen display matches that on the printouts.

AVERTISSEMENT

Risque de perte de la correspondance texte-illustration lors de l'impression papier.

68 15 19 Removing and installing glove compartment - as of MY 2005

- Preliminary work
- Removing glove compartment
- Installing glove compartment
- Subsequent work

top of page

Preliminary work

Preliminary work

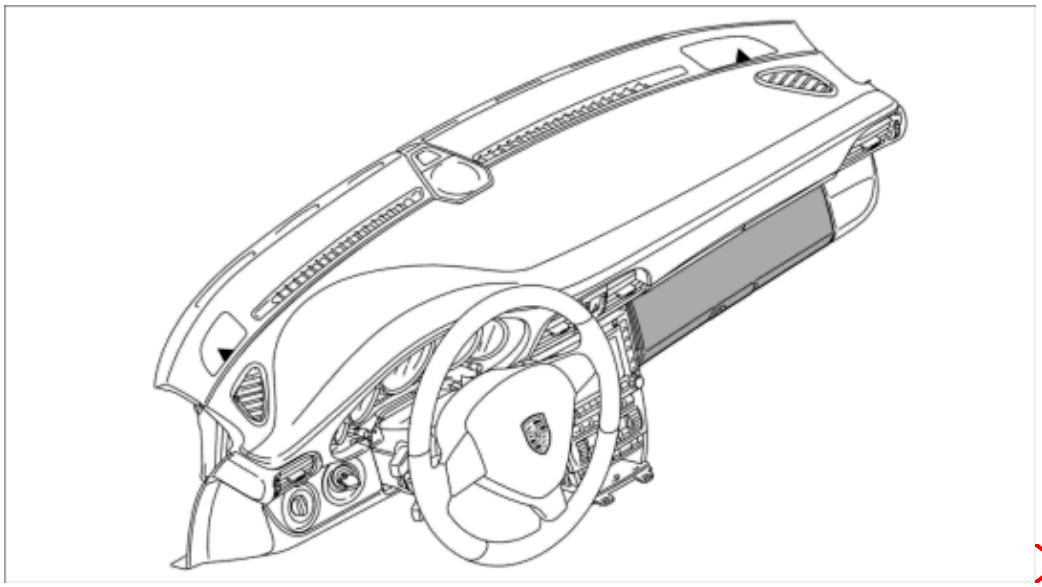
1. Remove right instrument panel cover. 701619 Removing and installing instrument panel cover - chapter on "removing"
2. Remove trim under instrument panel at front passenger's side. 701919 Removing and installing trim under instrument panel - chapter on "removing"
3. Remove right footwell light. 961519 Removing and installing footwell light - chapter on "removing"
4. Remove cover (cold air bulkhead). 702219 Removing and installing cover - chapter on "removing" [997110 997111 997120 997121 997310 997311 997320 9973211] *702219 21 Removing and installing cover - chapter on "removing" [997410 997411 997430 997431 997610 997611 997620 997621]*
5. Remove right centre console cover. 681419 Removing and installing centre console cover - chapter on "removing"
6. Remove cup holder. 683019 Removing and installing cup holder - chapter on "removing"

top of page

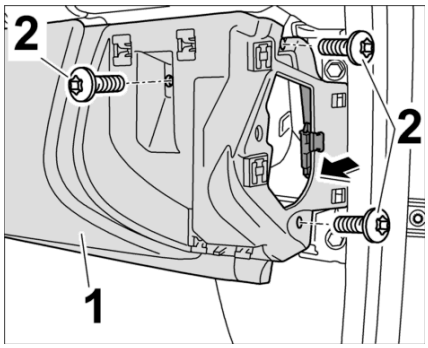
Removing glove compartment

Removing glove compartment

Installation Location:

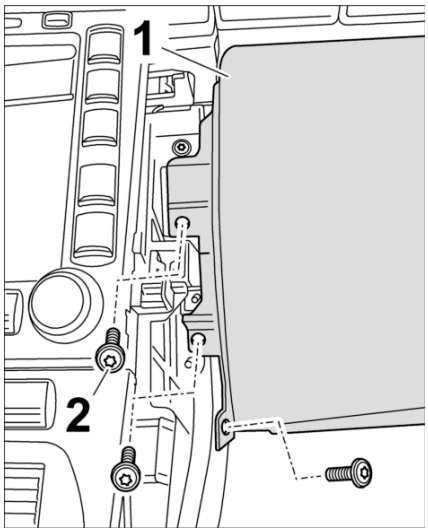


Installation position of glove compartment



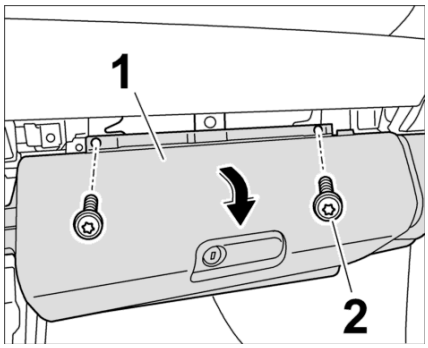
Releasing glove compartment, right

1. Unscrew right fastening screws **-2-** from the glove compartment **-1-** .
2. Pull electrical lead out of glove compartment **-arrow-** .



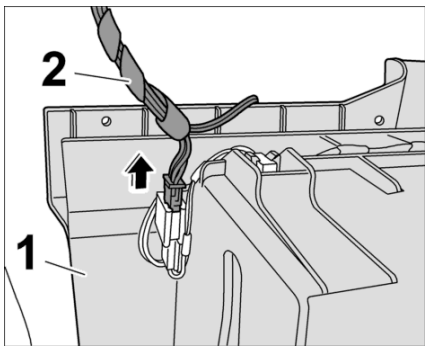
Releasing glove compartment, left

3. Unscrew left fastening screws **-2-** from the glove compartment **-1-** .



Releasing glove compartment, top

4. Unscrew top fastening screws **-2-** from the glove compartment **-1-** .
5. Carefully pull out glove compartment **-1-** (**-arrow-**) until the electrical plug connection can be removed.



Disconnecting plug connection

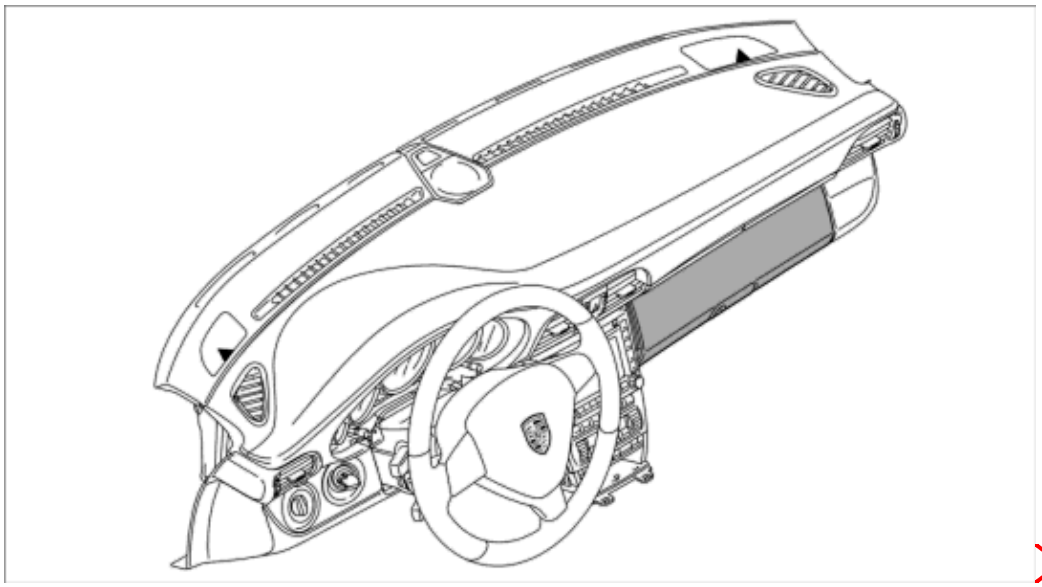
6. Pull off electrical plug connection **-2-** (**-arrow-**) and remove glove compartment **-1-** to the rear.

top of page

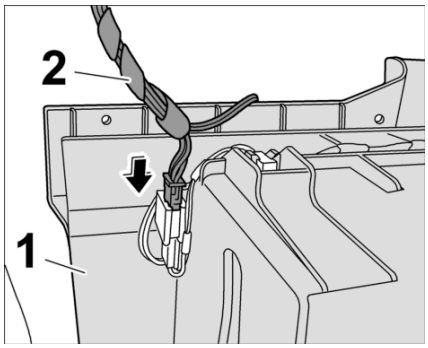
Installing glove compartment

Installing glove compartment

Installation Location:

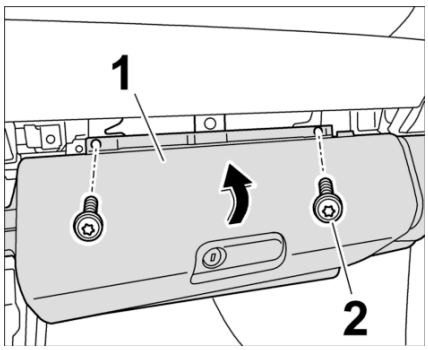


Installation position of glove compartment



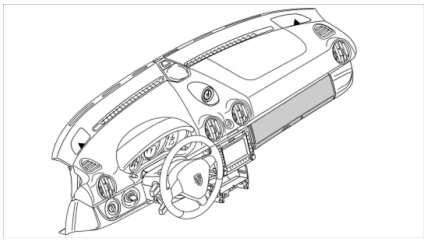
Locking plug connection

1. Swivel in glove compartment **-1-** at the bottom until the electrical plug connection **-2-** can be connected.
2. Plug in electrical plug connection **-2-** (**-arrow-**).



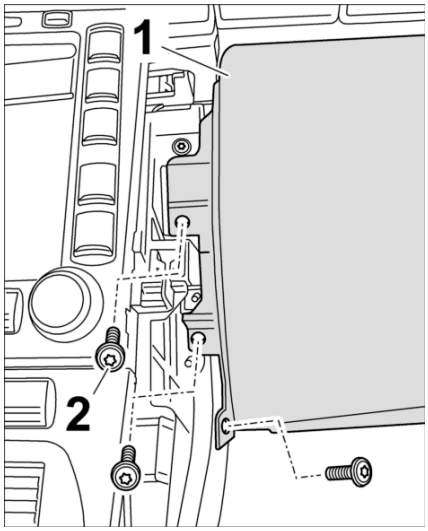
Installing glove compartment

3. Swivel glove compartment **-1-** into the instrument panel **-arrow-** and secure with the top fastening screws **-2-** . Tightening torque **Final tightening: 2 ftlb.**



Securing the glove compartment

4. Screw right fastening screws **-2-** into the glove compartment **-1-** . Tightening torque **Final tightening: 2 ftlb.**
5. Attach electrical wire to glove compartment **-arrow-** .



Securing glove compartment, left

6. Screw left fastening screws **-2-** into the glove compartment **-1-** . Tightening torque **Final tightening: 2 ftlb.**

top of page

Subsequent work

Subsequent work

1. Install cup holder. 683019 Removing and installing cup holder - chapter on "installing"
2. Install right centre console cover. 681419 Removing and installing centre console cover - chapter on "installing"
3. Install cover (cold air bulkhead). 702219 Removing and installing cover - chapter on "installing" [997110 997111 997120 997121 997310 997311 997320 997321] *702219 23 Removing and installing cover - chapter on "installing" [997410 997411 997430 997431 997610 997611 997620 997621]*
4.

Install right footwell light. 961519 Removing and installing footwell light - chapter on "installing"

5. Install trim under instrument panel at front passenger's side. 701919 Removing and installing trim under instrument panel - chapter on "installing"
6. Install right instrument panel cover. 701619 Removing and installing instrument panel cover - chapter on "installing"

997110, 997111, 997120, 997121, 997310, 997311, 997320, 997321, 997410, 997411, 997430, 997431, 997610, 997611, 997620, 997621

as of MY 2005
Country C00, C02, C05, C07, C08, C09, C10, C11, C12, C13, C14, C15, C16, C18, C19, C20, C21, C22, C23, C24, C25, C26, C27, C28, C32, C33, C34, C35, C36, C37, C38, C39, C45, C46, C98, C99

WARNUNG

Gefahr des Verlusts der Text-Bild-Zuordnung beim Ausdruck.

- **Aus technischen Gründen kann derzeit nicht ausgeschlossen werden, dass trotz einwandfreier Darstellung auf dem Bildschirm beim Ausdruck der Zusammenhang von Text und zugehörigem Bild verloren geht.**
- **Wird der Fehler nicht bemerkt, besteht die Gefahr, daß Arbeiten nicht korrekt durchgeführt werden und es dadurch zu Personen- und Sachschäden kommt.**

Vergleichen Sie deshalb nach dem Druckvorgang unbedingt die Ausdrucke mit der Bildschirmdarstellung. Korrigieren Sie die Ausdrucke im Fehlerfall so, daß der Inhalt der Bildschirmdarstellung zutreffend wiedergegeben wird.

WARNING

Danger of losing text-figure correspondence when printing out.

- **For technical reasons, it can currently not be ruled out that the correspondence between text and associated figure can be lost when it is printed out, even though the display on the screen is correct.**
- **If the fault is not noticed, there is the danger that work will not be performed correctly which can cause injury and damage.**

Therefore, always compare printouts with the screen display after printing them out. Correct the printouts if they are faulty so that the content of the screen display matches that on the printouts.

AVERTISSEMENT

Risque de perte de la correspondance texte-illustration lors de l'impression papier.

- **Pour des raisons techniques, il ne peut pas être exclu à l'heure actuelle que, même en cas d'affichage correct à l'écran, la correspondance entre le texte et l'illustration puisse être erronée sur l'impression papier.**

68 16 19 Removing and installing oddments tray. - as of MY 2005

- Preliminary work
- Removing oddments tray
- Installing oddments tray
- Subsequent work

top of page

Preliminary work

Preliminary work

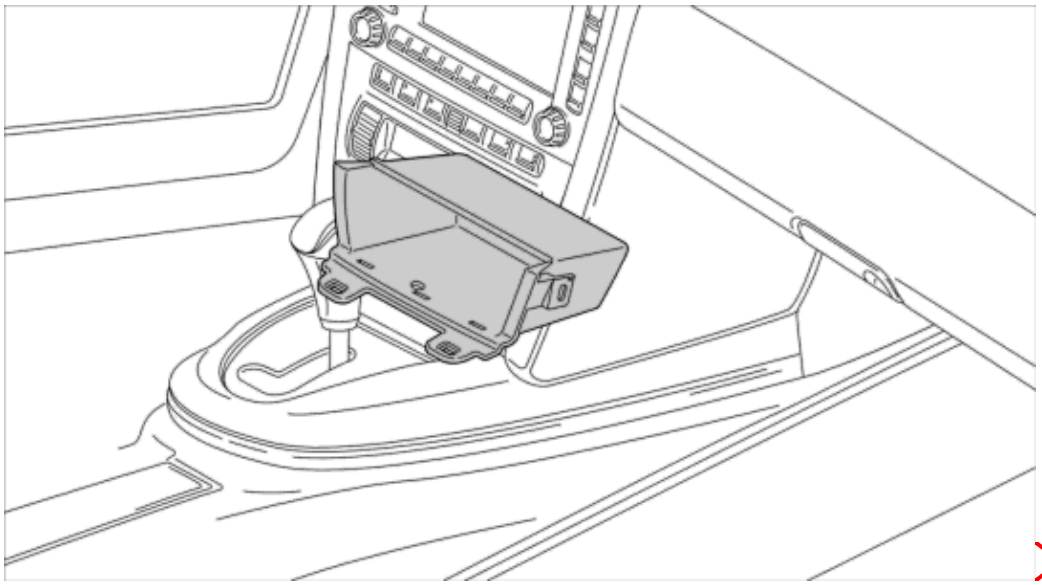
1. Remove centre console cover. 681919 Removing and installing centre console cover - chapter on "removing"

top of page

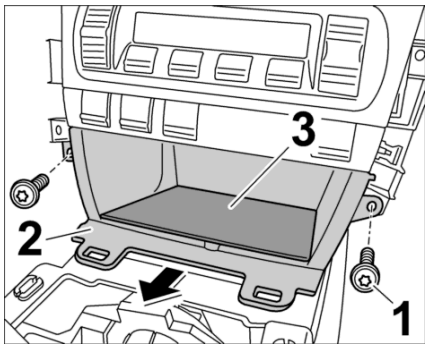
Removing oddments tray

Removing shelf

Installation Location:



Installation location for shelf



Removing shelf

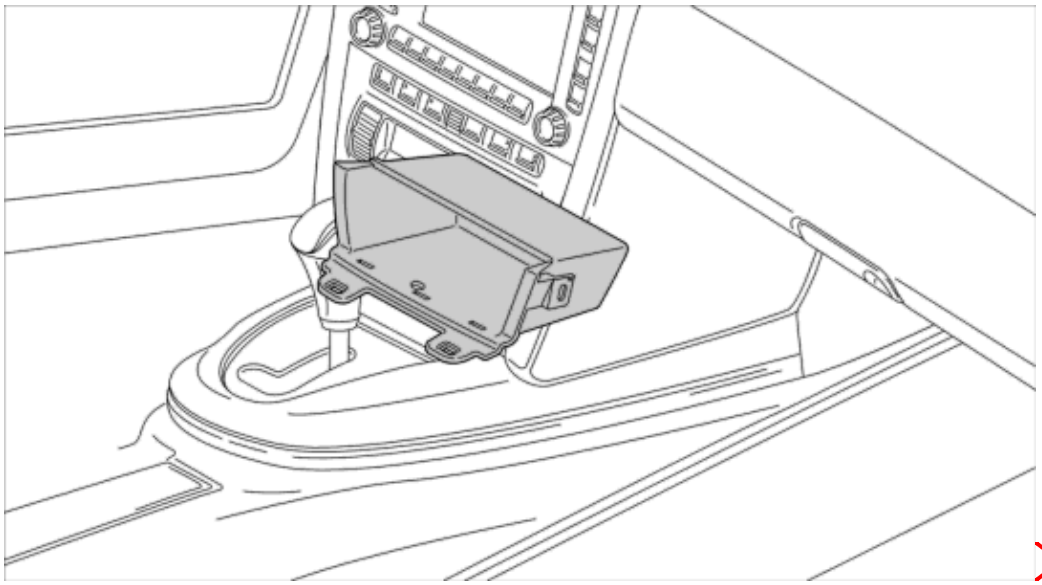
1. Unscrew fastening screws **-1-** and take off shelf **-2-** with mat **-3-** .

top of page

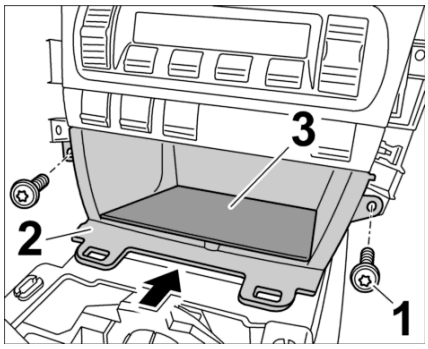
Installing oddments tray

Installing shelf

Installation Location:



Installation location for shelf



Installing shelf

1. Position shelf **-2-** and screw down using the fastening screws **-1-** .
2. Insert the mat
   -3- .

top of page

Subsequent work

Subsequent work

1. Install centre console cover. 681919 Removing and installing centre console cover - chapter on "installing"

997110, 997111, 997120, 997121, 997310, 997311, 997320, 997321, 997410, 997411, 997430, 997431, 997610, 997611, 997620, 997621

68 17 19 Removing and installing centre console - as of MY 2005

- Preliminary work
- Removing centre console
- Installing centre console
- Subsequent work

top of page

Preliminary work

Preliminary work

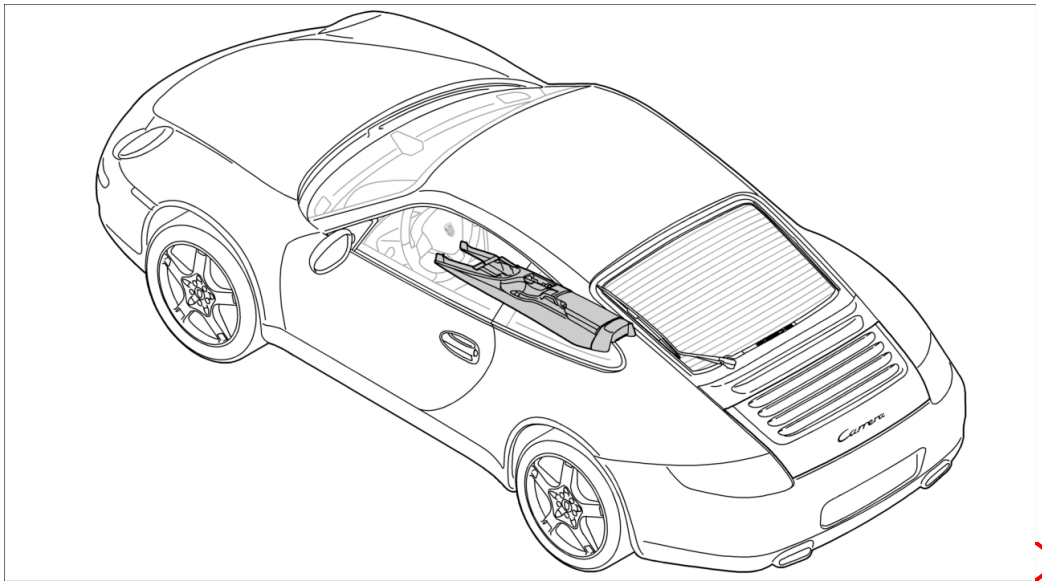
Remove shelf. 681619 Removing and installing oddments tray - chapter on "removing"

top of page

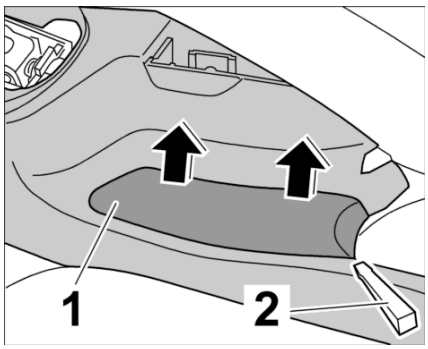
Removing centre console

Removing cover for parking-brake lever

Installation Location:



Installation position for centre console

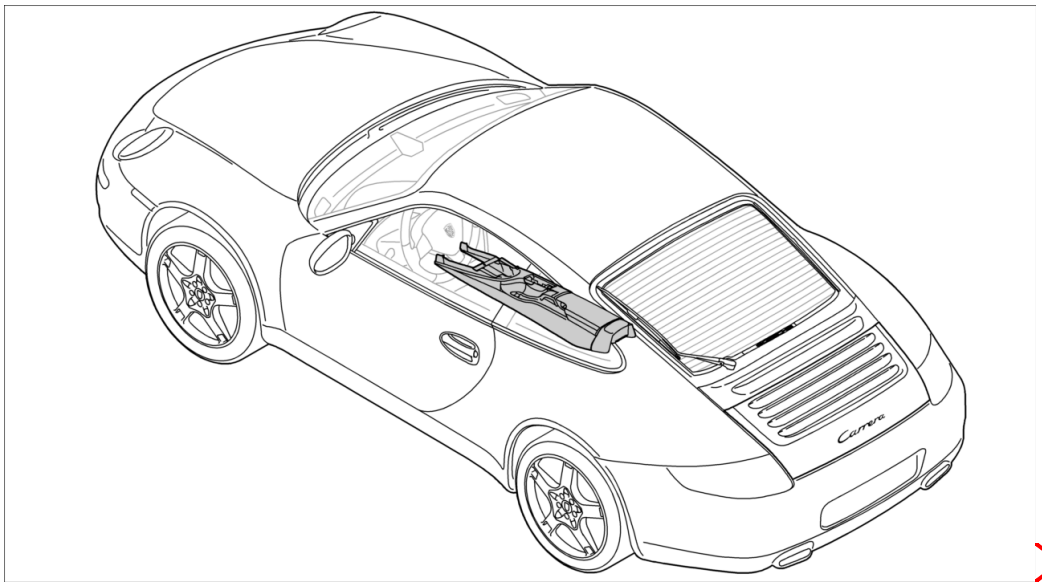


Removing cover for parking-brake lever

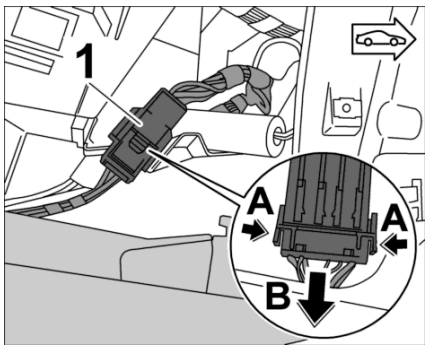
1. Pull parking-brake lever.
2. Unclip cover for parking-brake lever **-1-** using a plastic wedge **-2-** .

Disconnecting wire harness plug connection for centre console

Installation Location:



Installation position for centre console

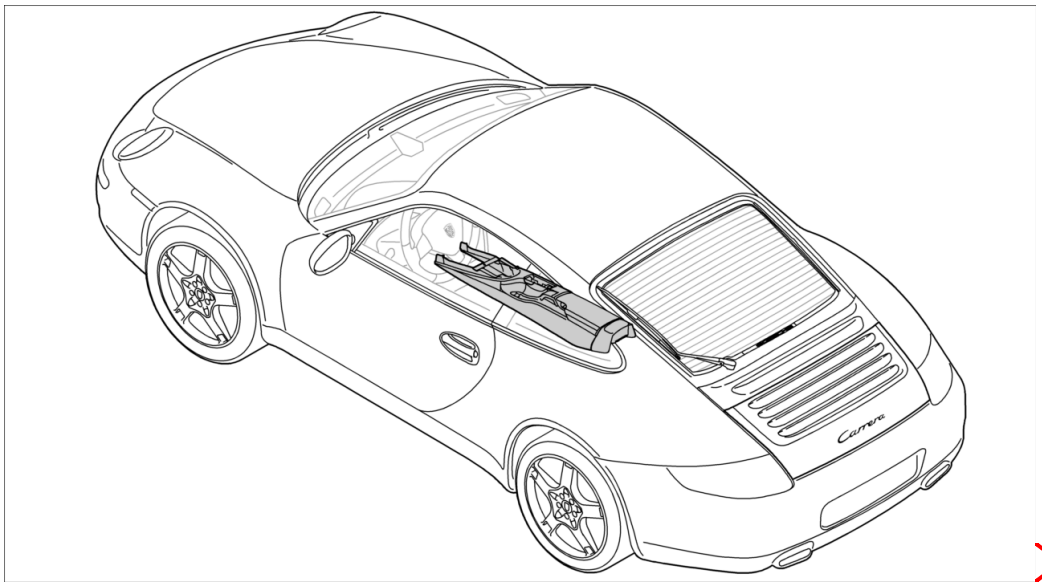


Disconnecting plug connection

1. Release wire harness electric plug connection for centre console **-1-** on right and left **-arrows A-** and pull apart **-arrow B-** .

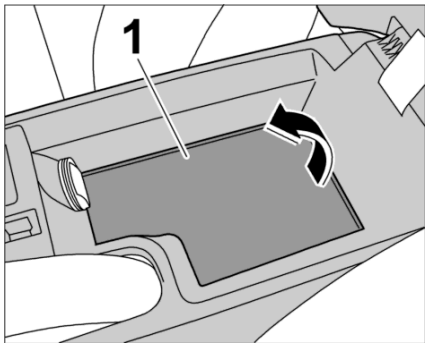
Removing centre console

Installation Location:



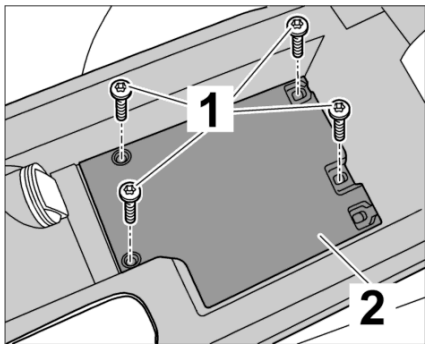
Installation position for centre console

1. Open lid of oddments tray.



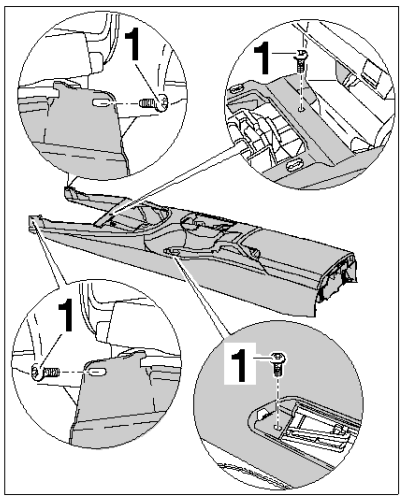
Removing centre console insert

2. Remove insert at rear of centre console **-1-** .



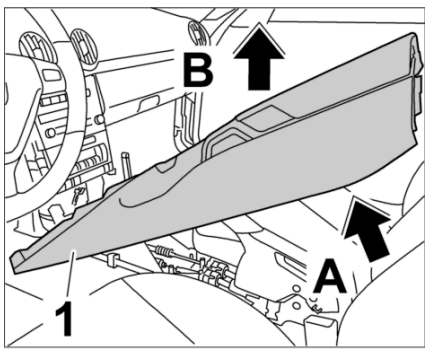
Removing floor at rear of centre console

3. Unscrew fastening screws **-1-** and remove floor at rear of centre console **-2-** .
4. Close lid of oddments tray.



Releasing centre console

5. Undo fastening screws **-1-** .



Removing centre console

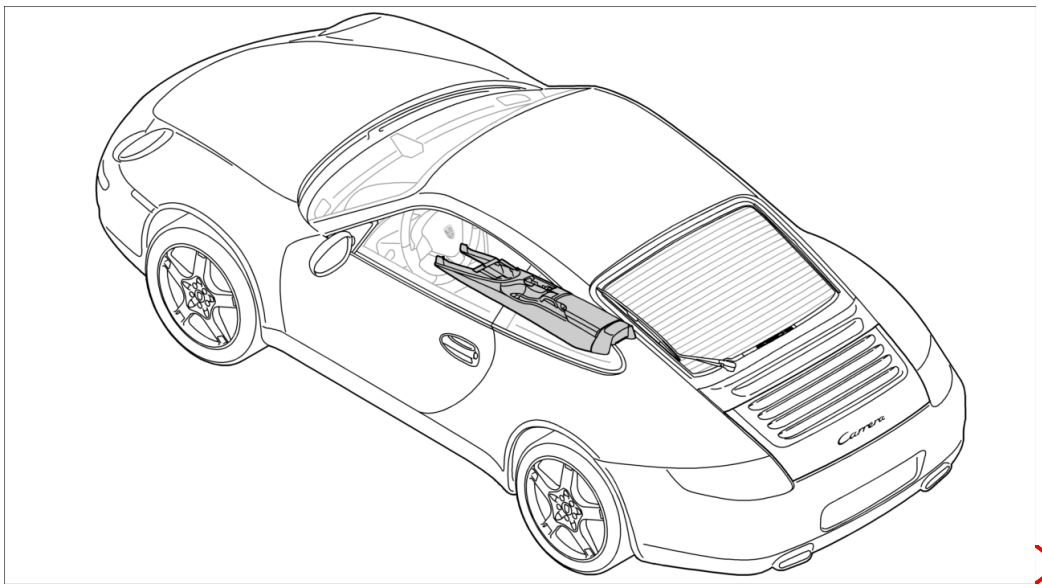
6. Swivel centre console **-1-** upward **-arrow A-** and remove **-arrow B-** .

top of page

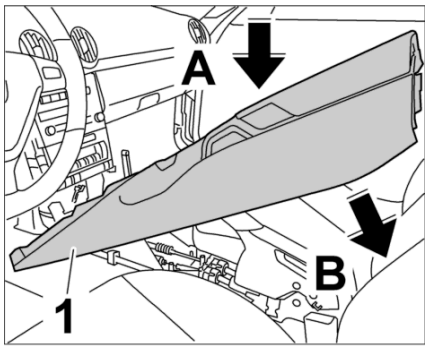
Installing centre console

Installing centre console

Installation Location:

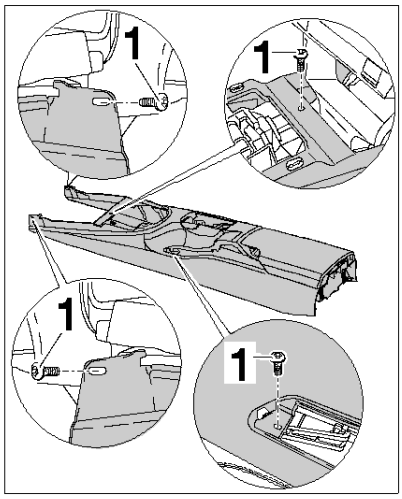


Installation position for centre console



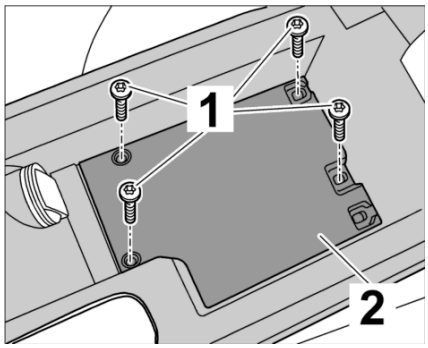
Installing centre console

1. Position and align the centre console **-1-**



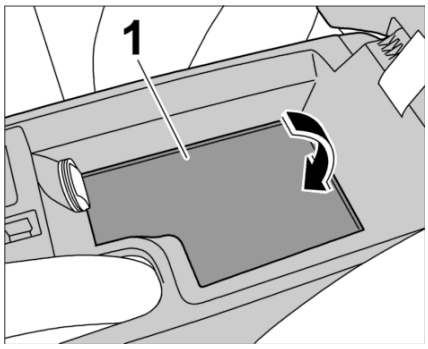
Fastening centre console

2. Tighten fastening screws **-1-** .
3. Open lid of oddments tray.



Installing floor at rear of centre console

4. Insert floor at rear of centre console **-2-** and screw down with fastening screw **-1-** .

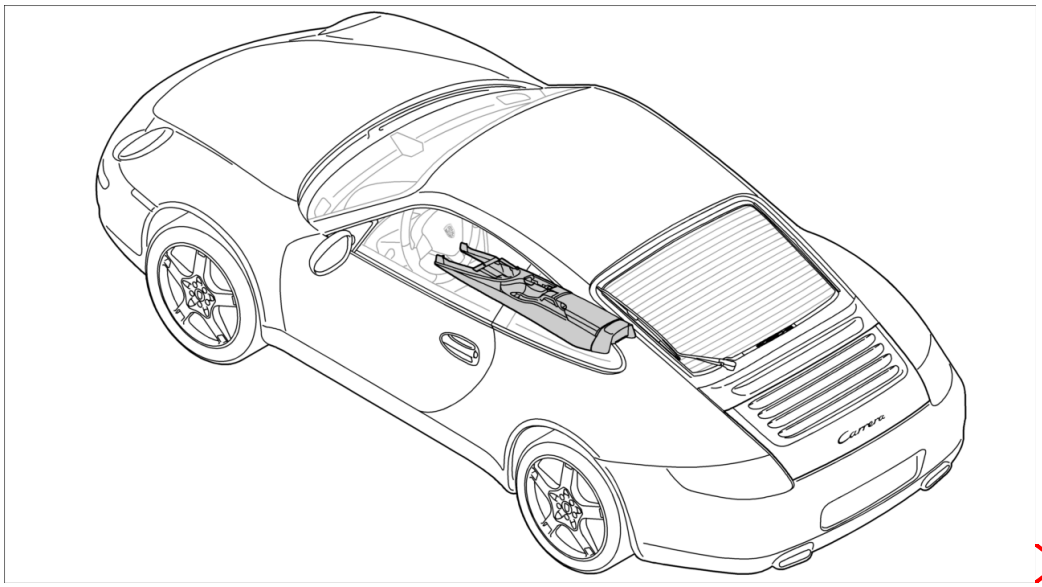


Installing insert of centre console

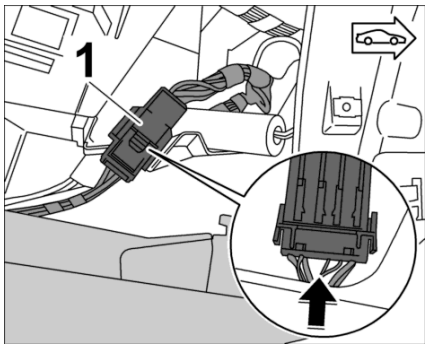
5. Position insert at rear of centre console **-1-** and close lid of oddments tray.

Locking wire harness plug connection for centre console

Installation Location:



Installation position for centre console

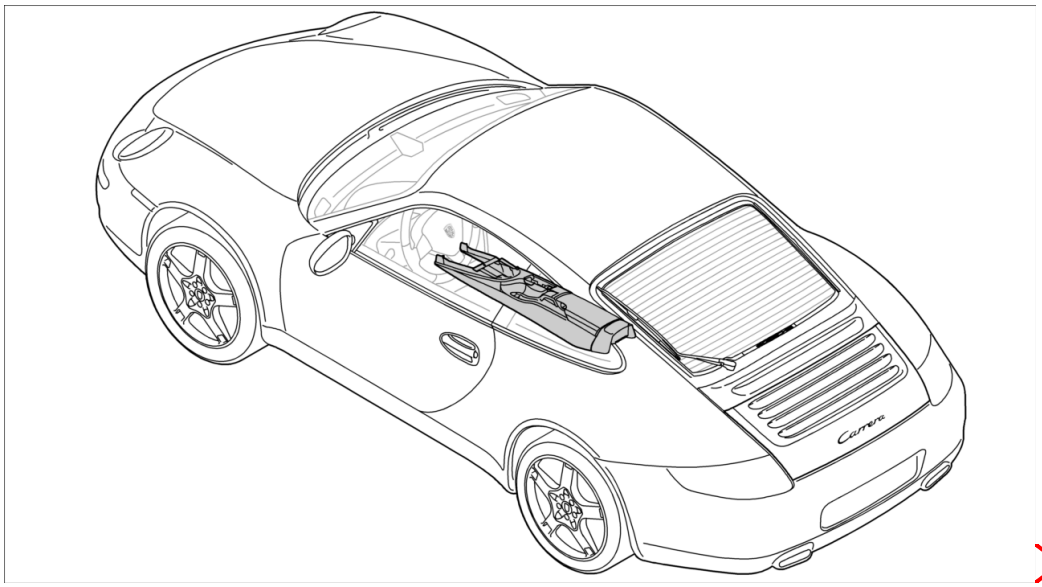


Locking plug connection

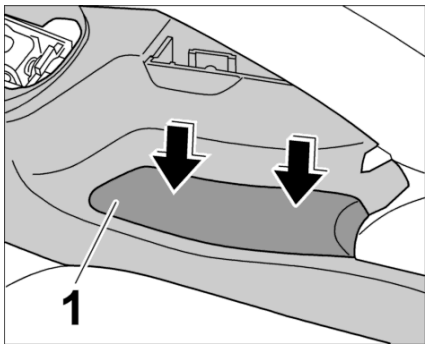
1. Push together electric plug connection of wire harness for centre console **-1-** until it audibly engages.

Installing cover for parking-brake lever

Installation Location:



Installation position for centre console



Installing cover for parking-brake lever

1. Press in cover of parking-brake lever **-1-** until it engages.

top of page

Subsequent work

Subsequent work

Install shelf. 681619 Removing and installing oddments tray - chapter on "Installing"

997110, 997111, 997120, 997121, 997310, 997311, 997320, 997321, 997410, 997411, 997430, 997431, 997610, 997611, 997620, 997621

as of MY 2005
Country C00, C02, C05, C07, C08, C09, C10, C11, C12, C13, C14, C15, C16, C18, C19, C20, C21, C22, C23, C24, C25, C26, C27, C28, C32, C33, C34, C35, C36, C37, C38, C39, C45, C46, C98, C99

68 17 37 Disassembling and assembling the centre console - as of MY 2005

- Preliminary work
- Disassembling the centre console
- Assembling the centre console
- Subsequent work

top of page

Preliminary work

Preliminary work

1. Remove centre console. 681719 Removing and installing centre console - chapter on "Removing"
2. Remove front ashtray. 682019 Removing and installing front ashtray - chapter on "Removing"
3. Remove cover for rear tray. *684819 21 Removing and installing cover for rear luggage tray - chapter on "Removing"*
4. Remove cigarette lighter. 906219 Removing and installing cigarette lighter - chapter on "Removing"
5. Remove centre console socket. 905819 Removing and installing socket - chapter on "Removing"
6. Remove interior monitoring sensor. 968519 Removing and installing interior monitoring sensor - chapter on "Removing"

Note

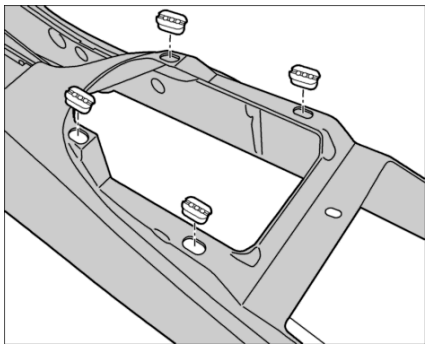
Only in the cabriolet.

7. Removing switch for convertible top operation *616019 21 Scd - chapter on "Removing"*
8. Remove wire harness for centre console. 972019 Removing and installing wire harness for centre console - chapter on "Removing"

top of page

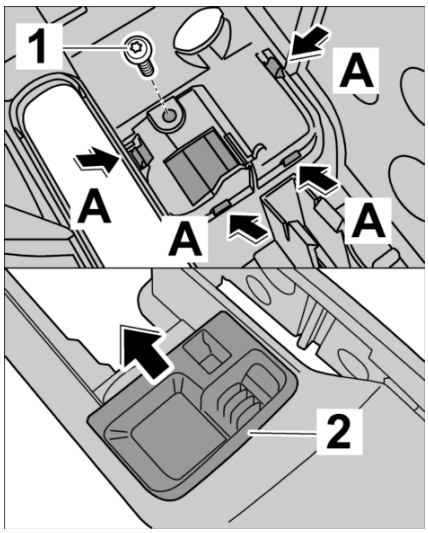
Disassembling the centre console

Disassembling centre console



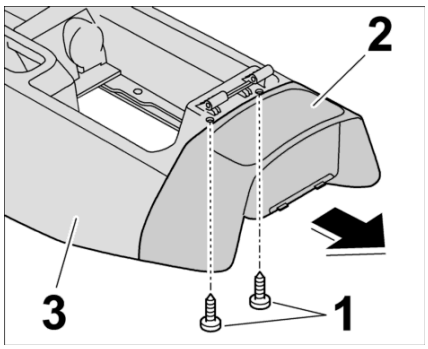
Unclipping fastening nut

1. Unclip fastening nut, check and replace if necessary.
2. Turn over centre console.



Removing locking mechanism insert

3. Unscrew fastening screw **-1-** . Press in locking tabs **-arrow A-** and remove insert of locking mechanism **-2-** .

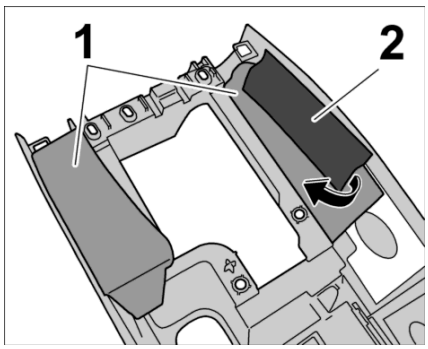


Removing extension

Note

Only in the coupé.

4. Unscrew fastening screws **-1-** and remove extension **-2-** from centre console **-3-** .



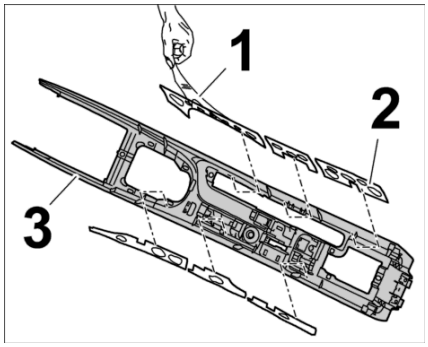
Removing filler piece

5. Loosen adhesive tape **-2-** and remove filler piece (sound absorber) **-1-** .

top of page

Assembling the centre console

Assembling centre console

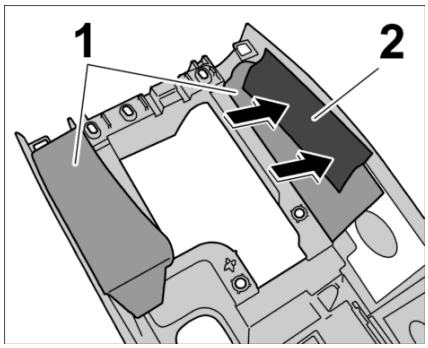


Sticking in sound absorbent film.

Note

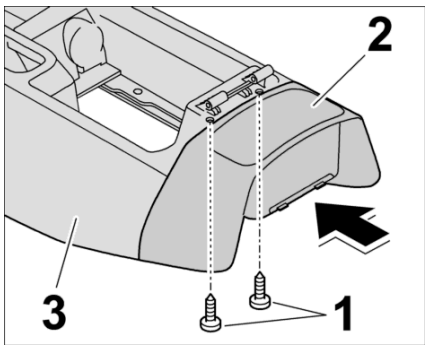
Only if replacing the centre console.

1. Remove protective film **-1-** from bonding point and stick sound absorbent film **-2-** inside the centre console **-3-** .



Sticking in a filler piece

2. Position filler piece (sound absorber) **-1-** and use commercially available adhesive tape **-2-** to fix it to the centre console.

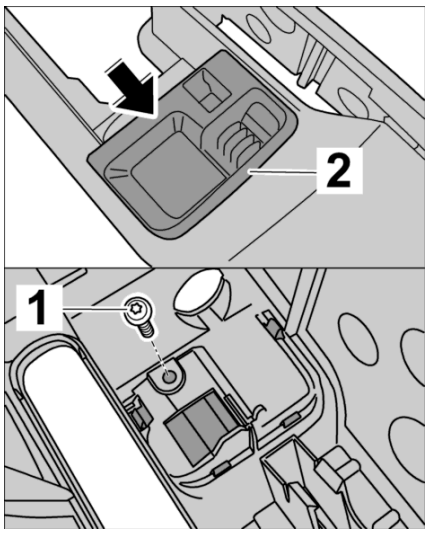


Installing extension

Note

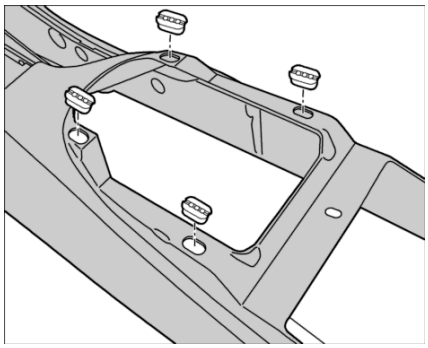
Only in the coupé.

3. Position extension **-2-** on centre console **-3-** and secure with fastening screws **-1-** .



Installing locking mechanism insert

4. Press in locking mechanism insert **-2-** until it clicks into place and tighten with fastening screw **-1-** .



Unclipping fastening nut

5. Press in fastening nut.

top of page

Subsequent work

Subsequent work

1. Install wire harness for centre console. 972019 Removing and installing centre console wire harness - chapter on "Installing"

Note

Only in the cabriolet.

2. Install switch for convertible top operation. *616019 23 Scd - chapter on "Installing"*
3. Install interior monitoring sensor. 968519 Removing and installing interior monitoring sensor - chapter on "Installing"
4. Install centre console socket. 905819 Removing and installing socket - chapter on "Installing"
5. Install cigarette lighter. 906219 Removing and installing cigarette lighter - chapter on "Installing"
6. Install cover for rear tray. *684819 23 Removing and installing cover for rear luggage tray - chapter on "Installing"*
7. Installing front ashtray. 682019 Removing and installing front ashtray - chapter on "Installing"
8. Install centre console. 681719 Removing and installing centre console - chapter on "Installing"

997110, 997111, 997120, 997121, 997310, 997311, 997320, 997321, 997410, 997411, 997430, 997431, 997610, 997611, 997620, 997621

as of MY 2005
Country C00, C02, C05, C07, C08, C09, C10, C11, C12, C13, C14, C15, C16, C18, C19, C20, C21, C22, C23, C24, C25, C26, C27, C28, C32, C33, C34, C35, C36, C37, C38, C39, C45, C46, C98, C99

68 19 19 Removing and installing cover for centre console - as of MY 2005

- Preliminary work
- Removing cover for centre console
- Installing cover for centre console
- Subsequent work

top of page

Preliminary work

Preliminary work

Note
For vehicles with manual transmission.

1. Remove shift lever knob. 340419 Removing and installing shift lever knob - chapter on "Removing"

Note
For vehicles with automatic transmission.

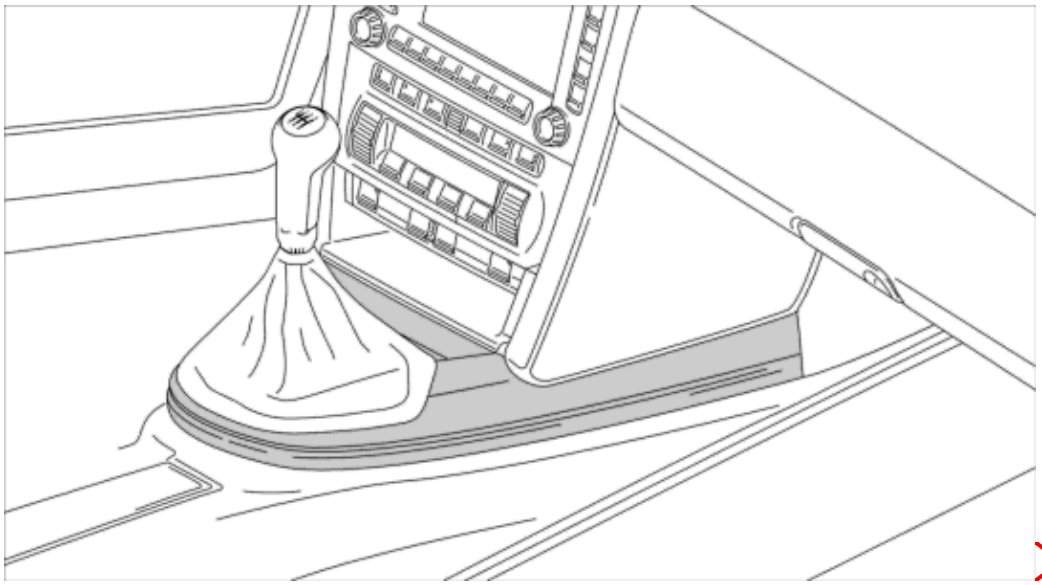
2. Remove selector knob. 370419 Removing and installing selector knob - chapter on "Removing"
3. Remove right and left centre console cover. 681419 Removing and installing centre console cover - chapter on "Removing"

top of page

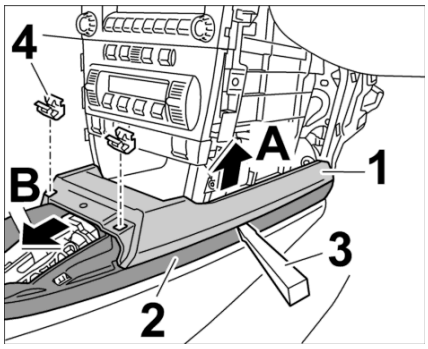
Removing cover for centre console

Removing cover for support frame

Installation Location:



Installation location for centre console cover

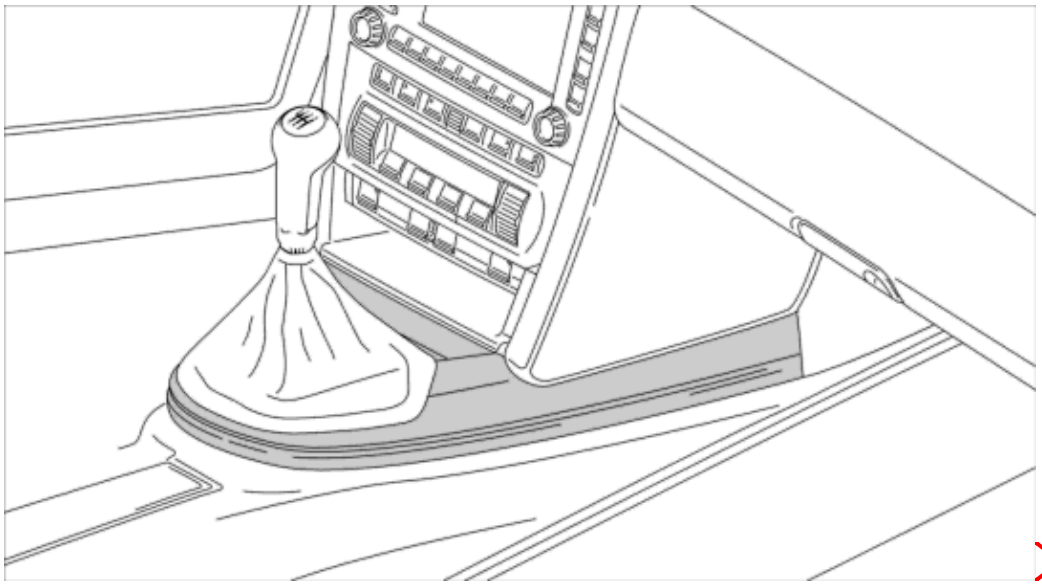


Unclipping cover for support frame

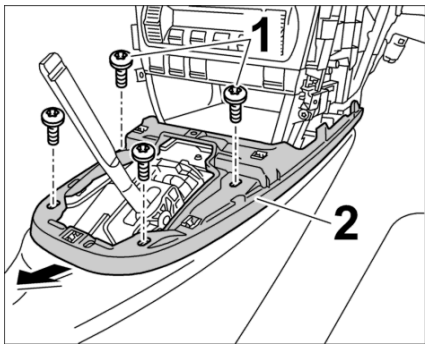
1. Move in with a plastic wedge **-3-** between cover for support frame **-1-** and frame **-2-** and unclip cover **-1- -arrow A-** .
2. Shift gearshift lever to the rear (4th gear) and take out cover **-1-** toward the top **-arrow B-** .
3. Check clamp **-4-** , replace if necessary.

Removing frame

Installation Location:



Installation location for centre console cover

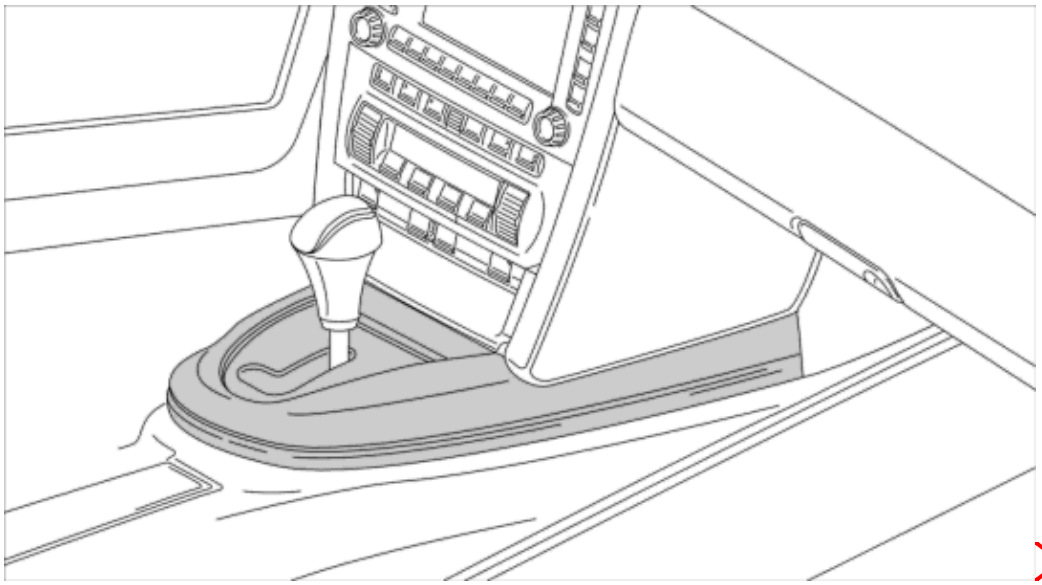


Removing frame

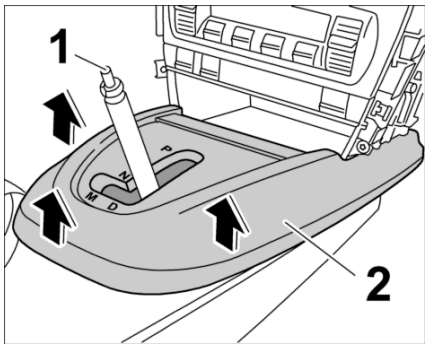
1. Loosen fastening screws **-1-** and take out frame **-2-** upwards.
2. Check clamp, replace if necessary.

Removing Tiptronic cover

Installation Location:

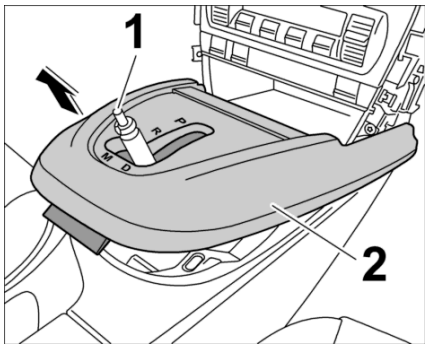


Installation location for centre console cover



Unclipping Tiptronic cover

1. Put selector lever **-1-** in position **"R"**.
2. Unclip cover **-2-** with a plastic wedge and pull upwards slightly.



Removing Tiptronic cover

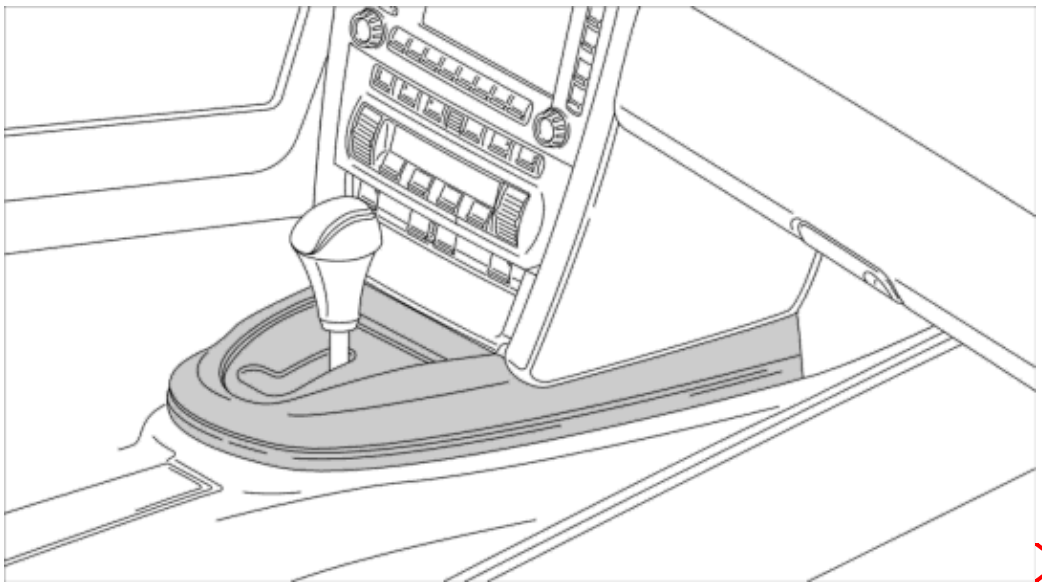
3. Put selector lever **-1-** in position **"D"** and take out cover **-2-** toward the top.

top of page

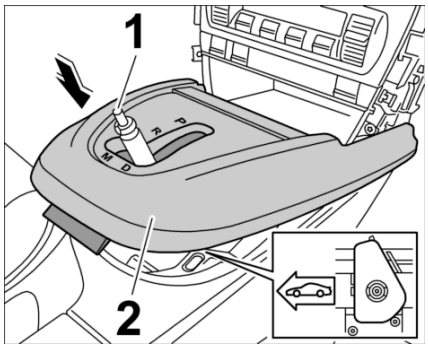
Installing cover for centre console

Installing Tiptronic cover

Installation Location:



Installation location for centre console cover

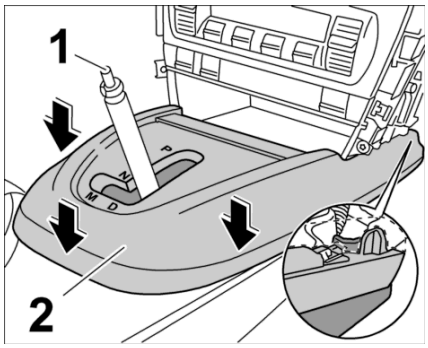


Installing Tiptronic cover

Note

Make sure that the rotary slide is positioned correctly.

1. Put selector lever **-1-** in position **"D"** and move in cover **-2-** .

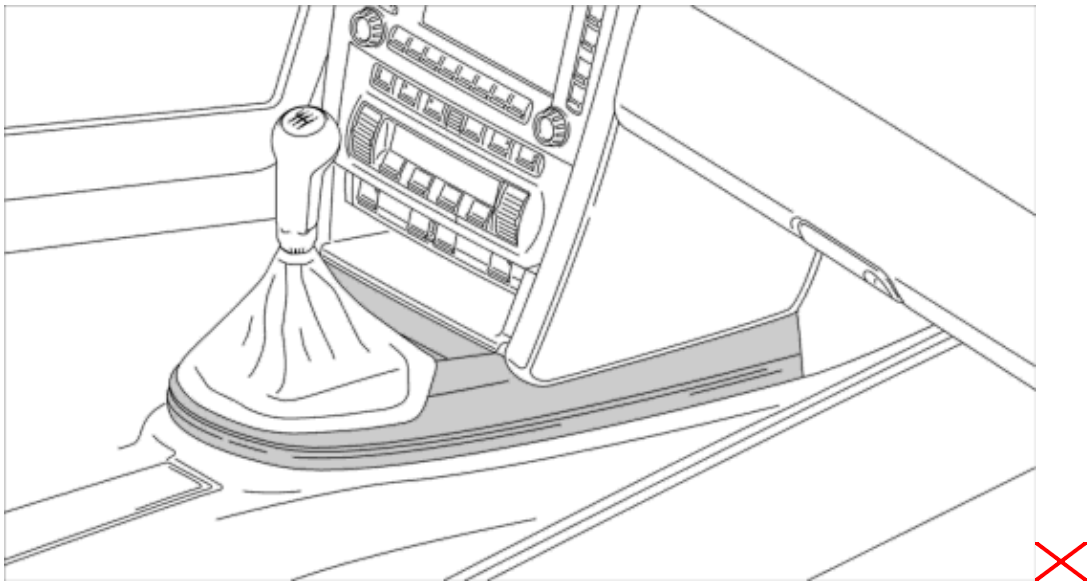


Clipping in the Tiptronic cover

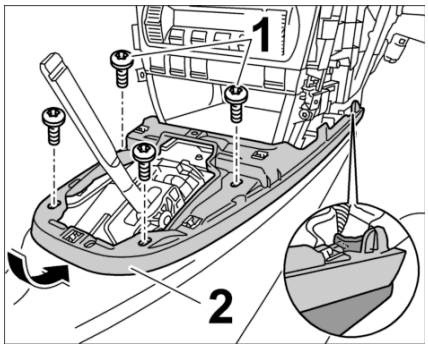
2. Put selector lever **-1-** in position **"R"**.
3. Move in cover **-2-** at the front into the guide on the right and left **-inset-** , clip in cover completely.

Installing frame

Installation Location:



Installation location for centre console cover



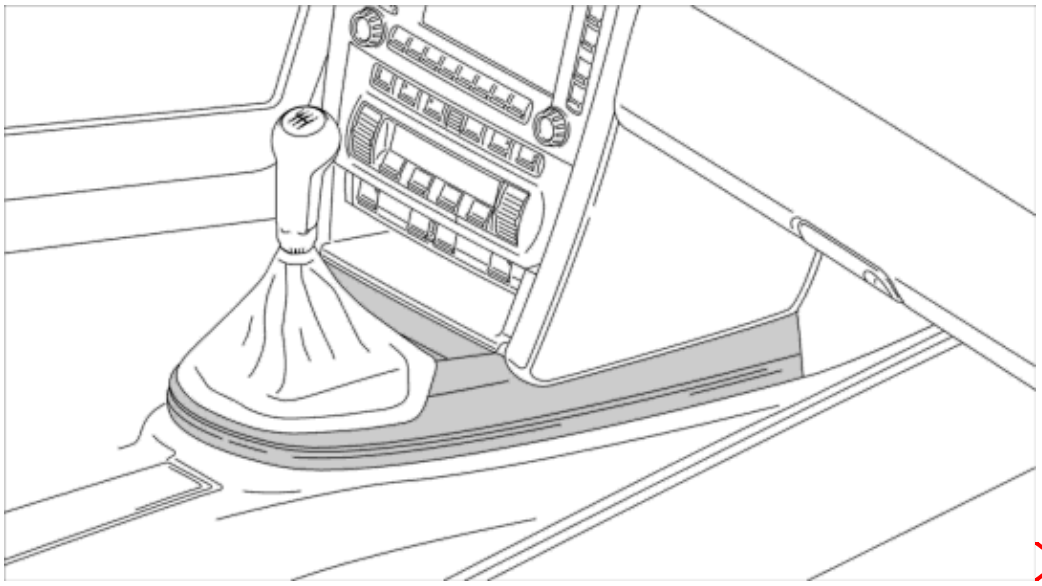
Installing frame

1. Move in cover **-2-** at the front into the guide on the right and left **-inset-** .

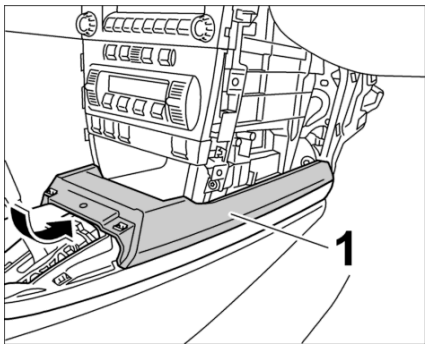
2. Tighten fastening screws **-1-** . Tightening torque [Nm] (ftlb.) **Tightening torque: 1.5 ftlb. +/-0.15 ftlb.**

Installing cover for support frame

Installation Location:



Installation location for centre console cover



Clipping in support frame cover

1. Shift gearshift lever to the rear (4th gear).
2. Position the cover **-1-** and clip completely into place.

top of page

Subsequent work

Subsequent work

1. Install right and left centre console cover. 681419 Removing and installing centre console cover - chapter on "Installing"

Note

For vehicles with automatic transmission.

2. Install selector knob. 370419 Removing and installing selector knob - chapter on "Installing"

Note

For vehicles with manual transmission.

3. Install shift lever knob. 340419 Removing and installing shift lever knob - chapter on "Installing"

997110, 997111, 997120, 997121, 997310, 997311, 997320, 997321, 997410, 997411, 997430, 997431, 997610, 997611, 997620, 997621

as of MY 2005
Country C00, C02, C05, C07, C08, C09, C10, C11, C12, C13, C14, C15, C16, C18, C19, C20, C21, C22, C23, C24, C25, C26, C27, C28, C32, C33, C34, C35, C36, C37, C38, C39, C45, C46, C98, C99

WARNUNG

Gefahr des Verlusts der Text-Bild-Zuordnung beim Ausdruck.

- **Aus technischen Gründen kann derzeit nicht ausgeschlossen werden, dass trotz einwandfreier Darstellung auf dem Bildschirm beim Ausdruck der Zusammenhang von Text und zugehörigem Bild verloren geht.**
- **Wird der Fehler nicht bemerkt, besteht die Gefahr, daß Arbeiten nicht korrekt durchgeführt werden und es dadurch zu Personen- und Sachschäden kommt.**

Vergleichen Sie deshalb nach dem Druckvorgang unbedingt die Ausdrucke mit der Bildschirmdarstellung. Korrigieren Sie die Ausdrucke im Fehlerfall so, daß der Inhalt der Bildschirmdarstellung zutreffend wiedergegeben wird.

WARNING

Danger of losing text-figure correspondence when printing out.

- **For technical reasons, it can currently not be ruled out that the correspondence between text and associated figure can be lost when it is printed out, even though the display on the screen is correct.**
- **If the fault is not noticed, there is the danger that work will not be performed correctly which can cause injury and damage.**

Therefore, always compare printouts with the screen display after printing them out. Correct the printouts if they are faulty so that the content of the screen display matches that on the printouts.

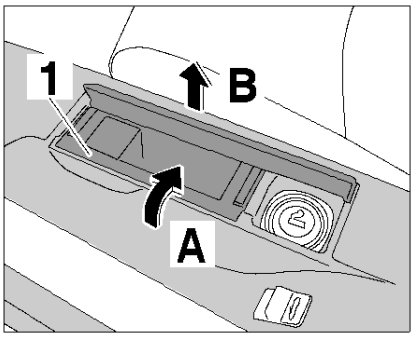
68 20 19 Removing and installing front ashtray - as of MY 2005

- Removing front ashtray
- Installing front ashtray

top of page

Removing front ashtray

Removing front ashtray



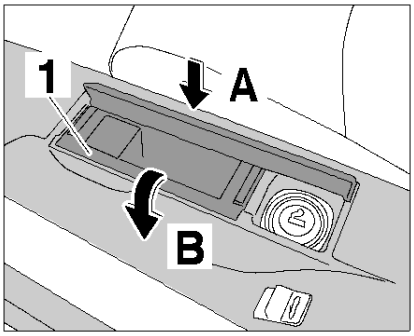
Removing front ashtray

1. Open ashtray **-1-** **-Arrow A-** and pull it upwards **-Arrow B-** .

top of page

Installing front ashtray

Installing front ashtray



Installing front ashtray

1. Insert opened ashtray **-1-** **-Arrow A-** and close lid **-Arrow B-**
   .

997110, 997111, 997120, 997121, 997310, 997311, 997320, 997321, 997410, 997411, 997430, 997431, 997610, 997611, 997620, 997621

as of MY 2005
Country C00, C02, C05, C07, C08, C09, C10, C11, C12, C13, C14, C15, C16, C18, C19, C20, C21, C22, C23, C24, C25, C26, C27, C28, C32, C33, C34, C35, C36, C37, C38, C39, C45, C46, C98, C99

WARNUNG

Gefahr des Verlusts der Text-Bild-Zuordnung beim Ausdruck.

- **Aus technischen Gründen kann derzeit nicht ausgeschlossen werden, dass trotz einwandfreier Darstellung auf dem Bildschirm beim Ausdruck der Zusammenhang von Text und zugehörigem Bild verloren geht.**
- **Wird der Fehler nicht bemerkt, besteht die Gefahr, daß Arbeiten nicht korrekt durchgeführt werden und es dadurch zu Personen- und Sachschäden kommt.**

Vergleichen Sie deshalb nach dem Druckvorgang unbedingt die Ausdrucke mit der Bildschirmdarstellung. Korrigieren Sie die Ausdrucke im Fehlerfall so, daß der Inhalt der Bildschirmdarstellung zutreffend wiedergegeben wird.

WARNING

Danger of losing text-figure correspondence when printing out.

- **For technical reasons, it can currently not be ruled out that the correspondence between text and associated figure can be lost when it is printed out, even though the display on the screen is correct.**
- **If the fault is not noticed, there is the danger that work will not be performed correctly which can cause injury and damage.**

Therefore, always compare printouts with the screen display after printing them out. Correct the printouts if they are faulty so that the content of the screen display matches that on the printouts.

68 23 19 Removing and installing sun visor - as of MY 2005

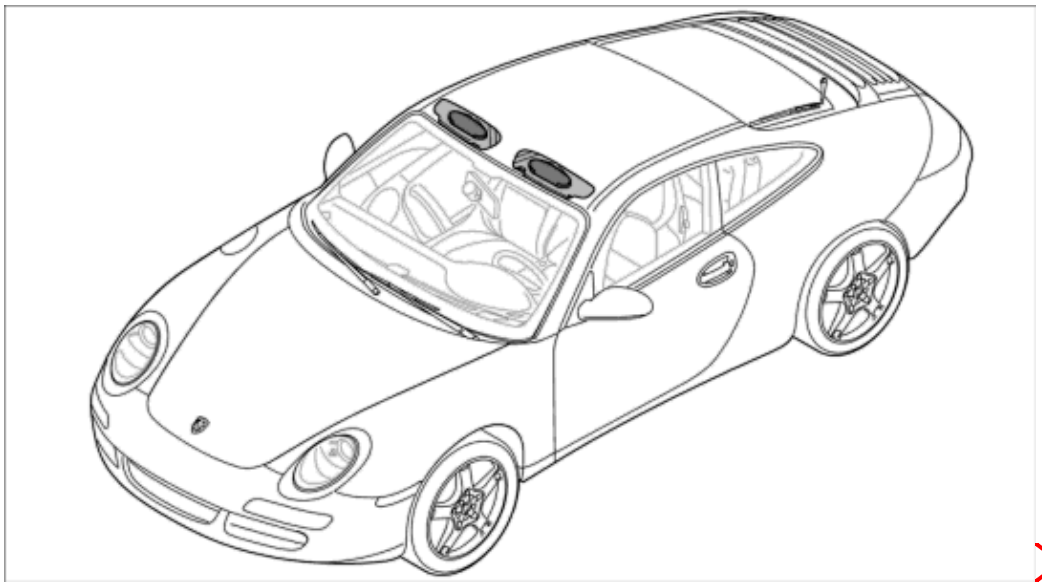
- Removing sun visors
- Installing sun visors

top of page

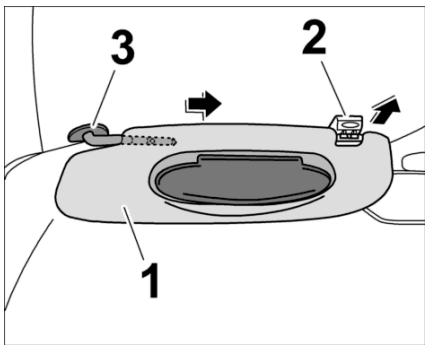
Removing sun visors

Removing sun visor

Installation Location:



Overview, sun visor



Removing sun visor

1. Detach the sun visor **-1-** from the thrust bearing **-2-** and pull out of the mounting saddle **-3-** towards the

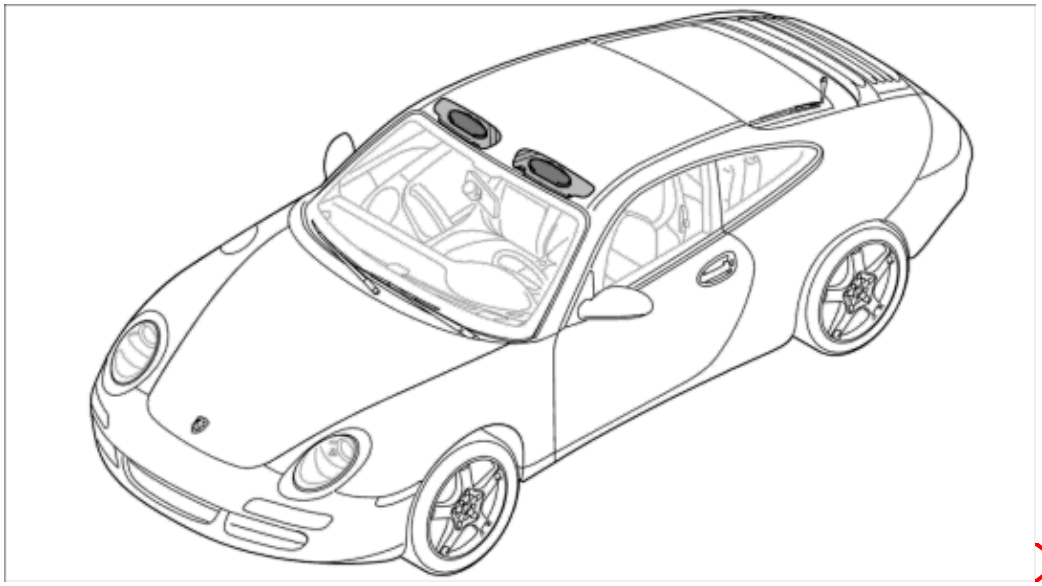
centre of the vehicle.

top of page

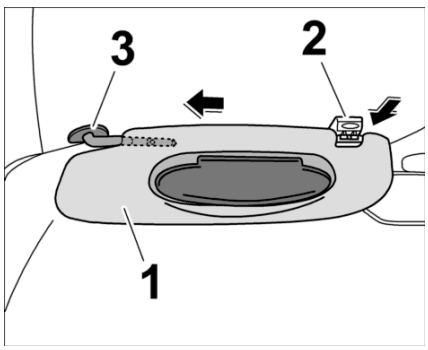
Installing sun visors

Fitting sun visor

Installation Location:



Overview, sun visor



Fitting sun visor

1. Insert the sun visor **-1-** into the mounting saddle **-3-** and push into the thrust bearing **-2-** .

997110, 997111, 997120, 997121, 997310, 997311, 997320, 997321, 997410, 997411, 997430, 997431, 997610, 997611, 997620, 997621

68 23 37 Disassembling and assembling sun visor - as of MY 2005

- Preliminary work
- Disassembling sun visor
- Assembling sun visor
- Subsequent work

top of page

Preliminary work

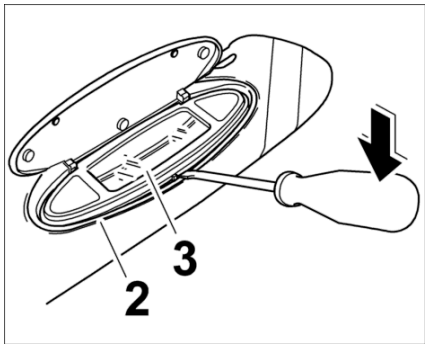
Preliminary work

Remove sun visor. *21 Removing and installing sun visor - removing*

top of page

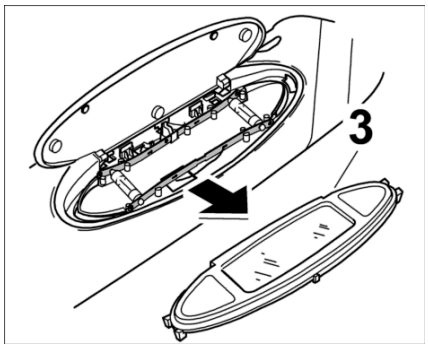
Disassembling sun visor

Removing mirror insert



Unclipping mirror insert

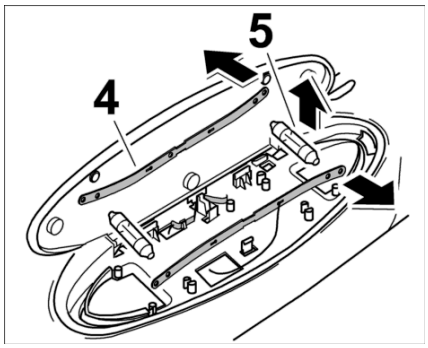
1. Insert a narrow screwdriver between the mirror insert **-3-** and mirror housing **-2-** at the bottom centre, and unclip the mirror insert.



Removing mirror insert

2. Pull the mirror insert **-3-** upwards and remove from the mirror housing **-2-** .

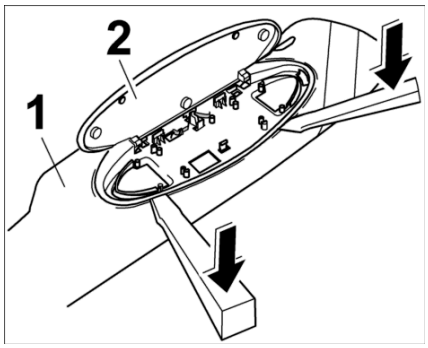
Removing bulb and contact clips



Removing bulb and contact clips

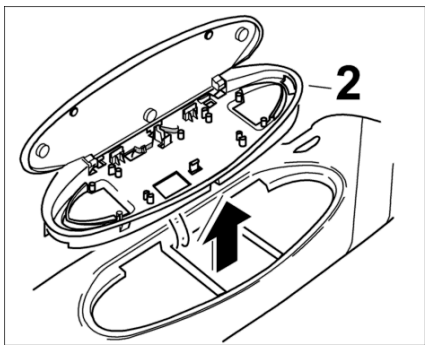
1. Remove bulb **-5-** from contact clips **-4-** . Take the contact clips upwards out of the holder.

Removing mirror housing



Unclipping mirror housing

1. Insert a narrow plastic spatula between the mirror housing **-2-** and the sun visor **-1-** on the left and right and unclip the mirror housing.



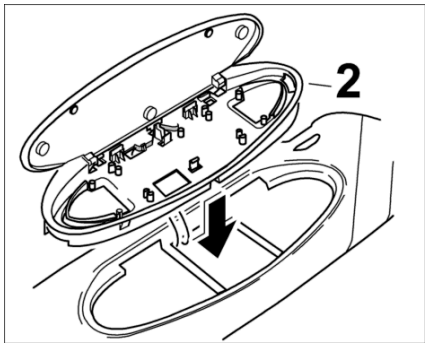
Removing mirror housing

2. Take the electric lead out of the mirror housing **-2-** and detach the mirror housing from the sun visor.

top of page

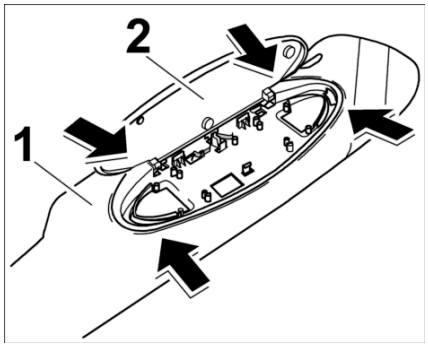
Assembling sun visor

Installing mirror housing



Positioning the mirror housing

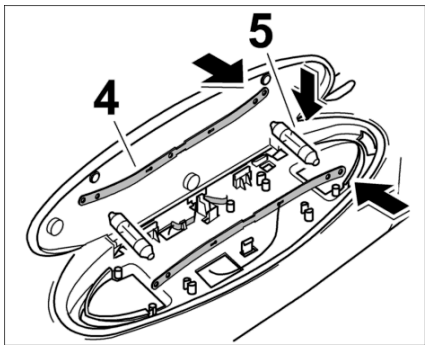
1. Insert electric lead into the mirror housing **-2-** . Position the mirror housing in the sun visor.



Press in mirror housing

2. Press the mirror housing **-2-** at all four corners until it locks into place.

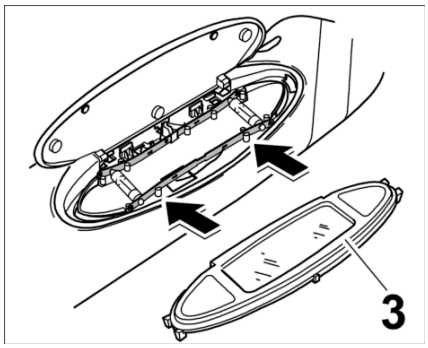
Inserting contact clips and bulb



Inserting contact clips and bulb

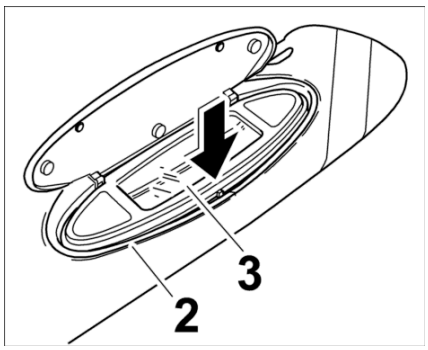
1. Position the contact clips **-4-** in the mirror housing and fit under the lug. Insert bulb **-5-** .

Installing mirror insert



Positioning mirror insert

1. Position the lugs on the right and left of the mirror insert **-3-** in the mirror housing.



Clipping in mirror insert

2. Clip the mirror insert **-3-** into the mirror housing **-2-** on the left, right and in the middle.

top of page

Subsequent work

Reworking

Install sun visor. *23 Removing and installing sun visor - installing*

997110, 997111, 997120, 997121, 997310, 997311, 997320, 997321, 997410, 997411, 997430, 997431, 997610, 997611, 997620, 997621

as of MY 2005
Country C00, C02, C05, C07, C08, C09, C10, C11, C12, C13, C14, C15, C16, C18, C19, C20, C21, C22, C23, C24, C25, C26, C27, C28, C32, C33, C34, C35, C36, C37, C38, C39, C45, C46, C98, C99

WARNUNG

Gefahr des Verlusts der Text-Bild-Zuordnung beim Ausdruck.

- **Aus technischen Gründen kann derzeit nicht ausgeschlossen werden, dass trotz einwandfreier Darstellung auf dem Bildschirm beim Ausdruck der Zusammenhang von Text und zugehörigem Bild verloren geht.**
- **Wird der Fehler nicht bemerkt, besteht die Gefahr, daß Arbeiten nicht korrekt durchgeführt werden und es dadurch zu Personen- und Sachschäden kommt.**

Vergleichen Sie deshalb nach dem Druckvorgang unbedingt die Ausdrucke mit der Bildschirmdarstellung. Korrigieren Sie die Ausdrucke im Fehlerfall so, daß der Inhalt der Bildschirmdarstellung zutreffend wiedergegeben wird.

WARNING

Danger of losing text-figure correspondence when printing out.

- **For technical reasons, it can currently not be ruled out that the correspondence between text and associated figure can be lost when it is printed out, even though the display on the screen is correct.**
- **If the fault is not noticed, there is the danger that work will not be performed correctly which can cause injury and damage.**

Therefore, always compare printouts with the screen display after printing them out. Correct the printouts if they are faulty so that the content of the screen display matches that on the printouts.

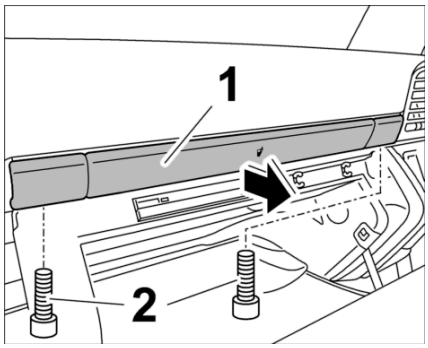
68 30 19 Removing and installing cup holder - as of MY 2005

- Removing cup holder
- Installing cup holder

top of page

Removing cup holder

Removing cup holder



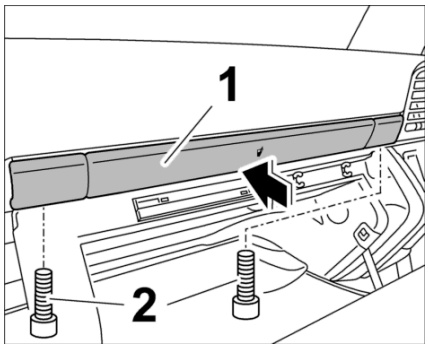
Removing cup holder

1. Open the glove compartment.
2. Unscrew fastening screws **-2-** from cupholder **-1-** .
3. Take off the cup holder **-1-** .

top of page

Installing cup holder

Installing cup holder



Installing cup holder

1. Push cup holder **-1-** into the shaft of the glove compartment.
2. Tighten fastening screws M5 x 30 **-2-** . Tightening torque **final tightening: 7.0 ftlb.**

997110, 997111, 997120, 997121, 997310, 997311, 997320, 997321, 997410, 997411, 997430, 997431, 997610, 997611, 997620, 997621

as of MY 2005
Country C00, C02, C05, C07, C08, C09, C10, C11, C12, C13, C14, C15, C16, C18, C19, C20, C21, C22, C23, C24, C25, C26, C27, C28, C32, C33, C34, C35, C36, C37, C38, C39, C45, C46, C98, C99

WARNUNG

Gefahr des Verlusts der Text-Bild-Zuordnung beim Ausdruck.

- **Aus technischen Gründen kann derzeit nicht ausgeschlossen werden, dass trotz einwandfreier Darstellung auf dem Bildschirm beim Ausdruck der Zusammenhang von Text und zugehörigem Bild verloren geht.**
- **Wird der Fehler nicht bemerkt, besteht die Gefahr, daß Arbeiten nicht korrekt durchgeführt werden und es dadurch zu Personen- und Sachschäden kommt.**

Vergleichen Sie deshalb nach dem Druckvorgang unbedingt die Ausdrucke mit der Bildschirmdarstellung. Korrigieren Sie die Ausdrucke im Fehlerfall so, daß der Inhalt der Bildschirmdarstellung zutreffend wiedergegeben wird.

WARNING

Danger of losing text-figure correspondence when printing out.

- **For technical reasons, it can currently not be ruled out that the correspondence between text and associated figure can be lost when it is printed out, even though the display on the screen is correct.**
- **If the fault is not noticed, there is the danger that work will not be performed correctly which can cause injury and damage.**

Therefore, always compare printouts with the screen display after printing them out. Correct the printouts if they are faulty so that the content of the screen display matches that on the printouts.

68 31 19 Removing and installing cassette/CD box - as of MY 2005

- Preliminary work
- Removing CD box
- Installing CD box
- Subsequent work

top of page

Preliminary work

Preliminary work

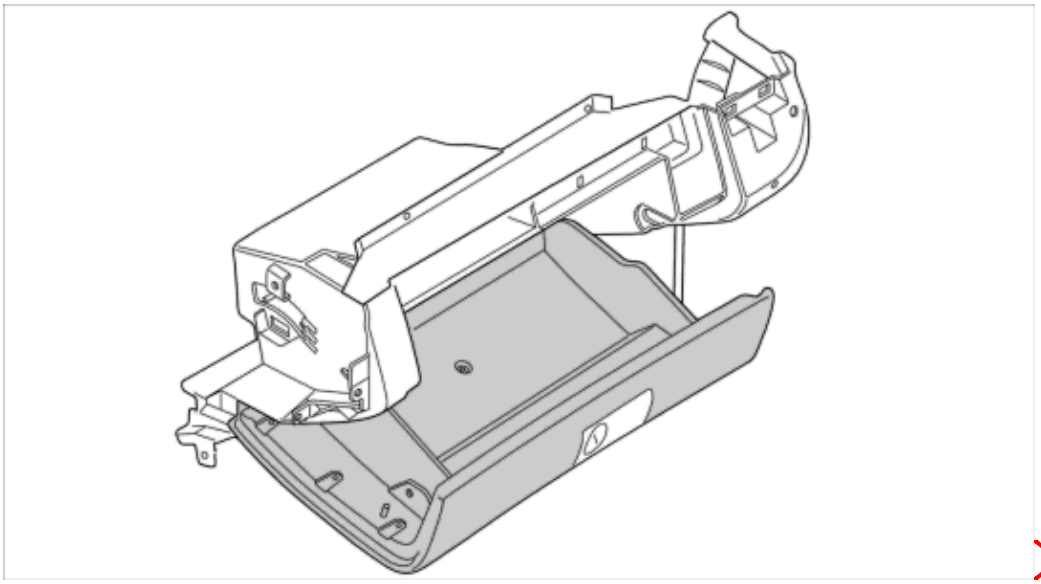
Remove glove compartment. 681519 Removing and installing glove compartment - chapter on "removing"

top of page

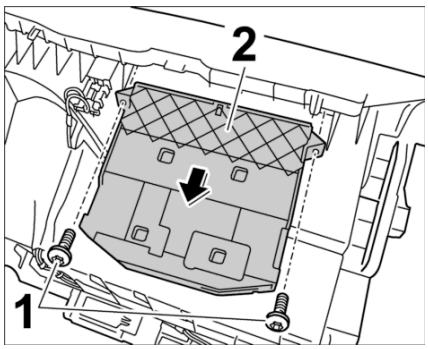
Removing CD box

Removing CD holder.

Installation Location:



Installation location for CD holder



Removing CD holder.

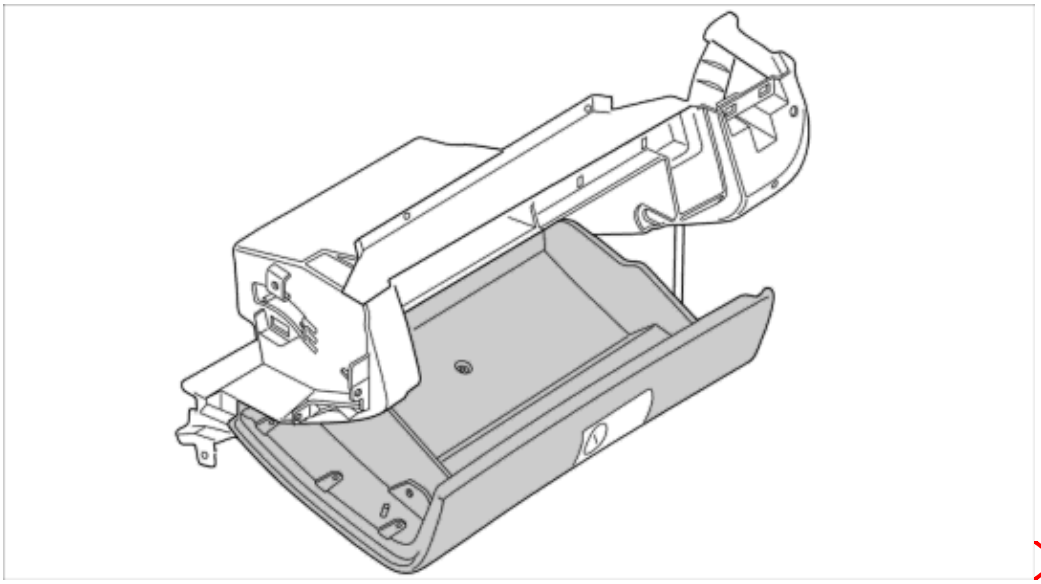
1. Unscrew fastening screws **-1-** and remove CD holder **-2-** .

top of page

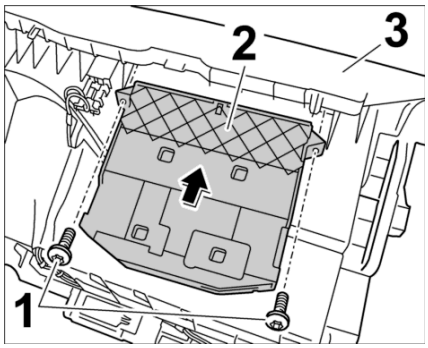
Installing CD box

Installing CD holder

Installation Location:



Installation location for CD holder



Installing CD holder

1. Position CD holder **-2-** at glove compartment **-3-** and secure using the fastening screws **-1-** .

top of page

Subsequent work

Subsequent work

Install glove compartment. 681519 Removing and installing glove compartment - chapter on "installing"

997110, 997111, 997120, 997121, 997310, 997311, 997320, 997321, 997410, 997411, 997430, 997431, 997610, 997611, 997620, 997621

as of MY 2005
Country C00, C02, C05, C07, C08, C09, C10, C11, C12, C13, C14, C15, C16, C18, C19, C20, C21, C22, C23, C24, C25, C26, C27, C28, C32, C33, C34, C35, C36, C37, C38, C39, C45, C46, C98, C99

WARNUNG

Gefahr des Verlusts der Text-Bild-Zuordnung beim Ausdruck.

- **Aus technischen Gründen kann derzeit nicht ausgeschlossen werden, dass trotz einwandfreier Darstellung auf dem Bildschirm beim Ausdruck der Zusammenhang von Text und zugehörigem Bild verloren geht.**
- **Wird der Fehler nicht bemerkt, besteht die Gefahr, daß Arbeiten nicht korrekt durchgeführt werden und es dadurch zu Personen- und Sachschäden kommt.**

Vergleichen Sie deshalb nach dem Druckvorgang unbedingt die Ausdrucke mit der Bildschirmdarstellung. Korrigieren Sie die Ausdrucke im Fehlerfall so, daß der Inhalt der Bildschirmdarstellung zutreffend wiedergegeben wird.

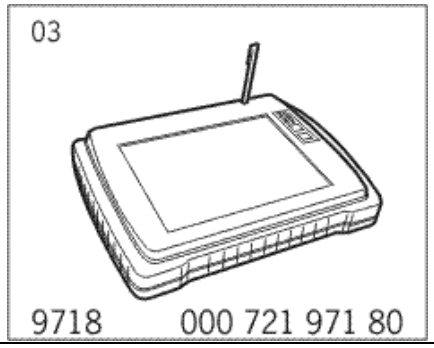
WARNING

Danger of losing text-figure correspondence when printing out.

69 01 01 Airbag diagnosis - as of MY 2005

- Airbag diagnosis

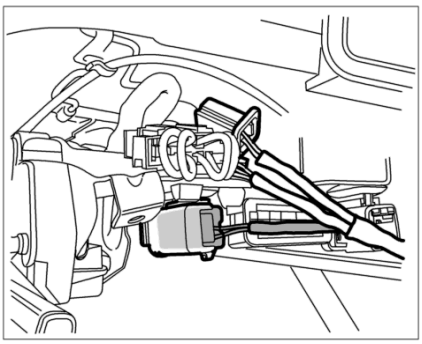
Tools

Designation	Type	Number	Explanation	
PIWIS tester	special tool	9718		

top of page

Airbag diagnosis

1. **Function test on airbag system:**
1.1. Connect and switch on the **PIWIS tester 9718**.
1.2. Switch on ignition.
1.3. Establish communication with the airbag control module.
1.4. Read out fault memory: No fault stored.
1.5. Select Drive link test menu.
1.6. Read out fault memory for all control units and erase if necessary.
1.7. Remove ignition key. Disconnect battery. Route or isolate the ground strap so that all contact with a ground carrier (e.g. body) is avoided. *271000 Working instructions after disconnecting the battery*



Side airbag plug connection

ATTENTION

Danger of injury and material damage if airbag units are not handled correctly!

Always observe the safety regulations for handling airbag units *69 Safety regulations for vehicles with airbag and belt tensioner*

After the battery is disconnected, always wait for 1 minute before disconnecting the airbag plugs.

2. **Simulating the fault:**

Note

- *To check the operation of the airbag system, a plug connection is disconnected from an airbag unit. A fault code - Static fault - must then be stored in the Porsche System Tester.*

2.1. Simulate the fault using the side airbag, for example. Move seat all the way forward. Switch off ignition, disconnect the battery and wait for 1 minute.

2.2. Unlock and disconnect electric plug for the seat.

2.3. Connect the battery and switch on ignition.

2.4. Read out fault memory. Static fault present.

3. **Correcting the fault:**

3.1. Switch off ignition, disconnect the battery and wait for 1 minute.

3.2. Insert connector in plug socket until connector is felt to engage.

4. **Reading out and deleting faults:**

Note

- *Fault memory shows a sporadic fault.*

4.1. Connect the battery, switch ignition on and read out the fault memory with the Porsche System Tester.

4.2. Erase fault memory.

Carry out work instruction after disconnecting the battery. *271000 Work instructions after disconnecting the battery*

997110, 997111, 997120, 997121, 997310, 997311, 997320, 997321, 997410, 997411, 997430, 997431, 997610, 997611, 997620, 997621

as of MY 2005
Country C00, C02, C05, C07, C08, C09, C10, C11, C12, C13, C14, C15, C16, C18, C19, C20, C21, C22, C23, C24, C25, C26, C27, C28, C32, C33, C34, C35, C36, C37, C38, C39, C45, C46, C98, C99

WARNUNG

Gefahr des Verlusts der Text-Bild-Zuordnung beim Ausdruck.

- **Aus technischen Gründen kann derzeit nicht ausgeschlossen werden, dass trotz einwandfreier Darstellung auf dem Bildschirm beim Ausdruck der Zusammenhang von Text und zugehörigem Bild verloren geht.**
- **Wird der Fehler nicht bemerkt, besteht die Gefahr, daß Arbeiten nicht korrekt durchgeführt werden und es dadurch zu Personen- und Sachschäden kommt.**

69 12 19 Removing and installing rear three-point belt - as of MY 2005

- Preliminary work
- Removing rear three-point belt
- Installing rear three-point belt
- Subsequent work

top of page

Preliminary work

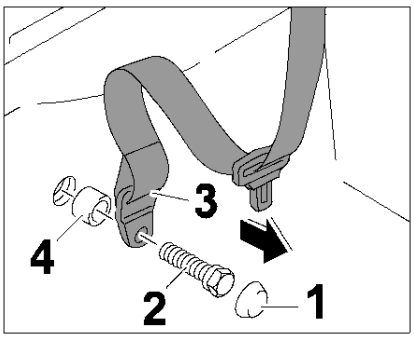
Preliminary work

1. Remove cover for the rear. 705319 Removing and installing cover for rear - section on "Removing" [997310 997311 997320 997321] *705319 21 Removing and installing cover for rear - section on "Removing" [997610 997611 997620 997621]*
2. Remove back seat cushion. 745719 Removing and installing back seat cushion - chapter on "Removing" [997310 997311 997320 997321] 745719 Removing and installing back seat cushion - chapter on "Removing" [997610 997611 997620 997621]
3. Removing rear wall trim panel 703119 Removing and installing trim panel for rear wall - section on "Removing" [997310 997311 997320 997321] *703119 21 Removing and installing trim panel for rear wall - section on "Removing" [997610 997611 997620 997621]*

top of page

Removing rear three-point belt

Undoing seat belt and fitting

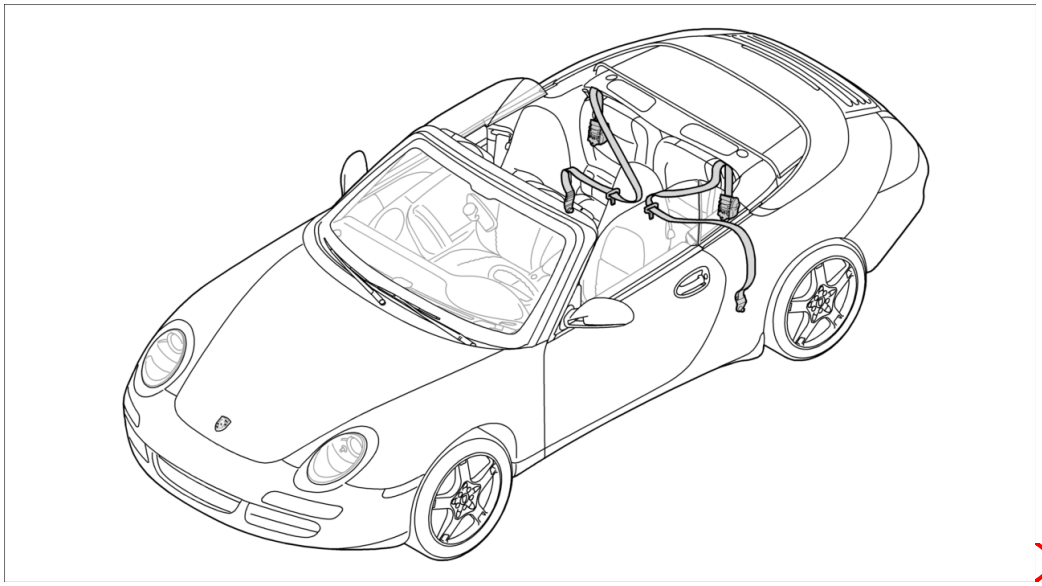


Undoing seat belt and fitting

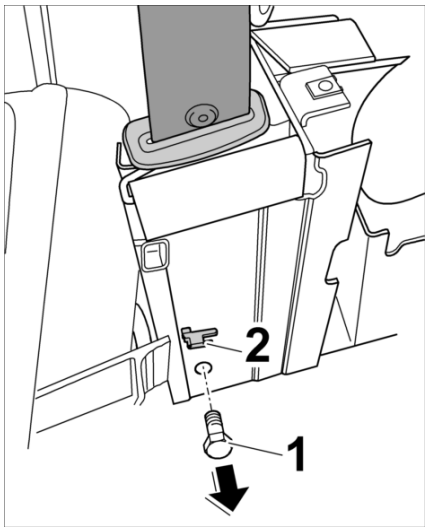
1. Press out cap **-1-** with a screwdriver. Unscrew fastening screw **-2-** . Remove seat belt with fitting **-3-** and spacer sleeve **-4-** .

Removing rear three-point belt

Installation Location:

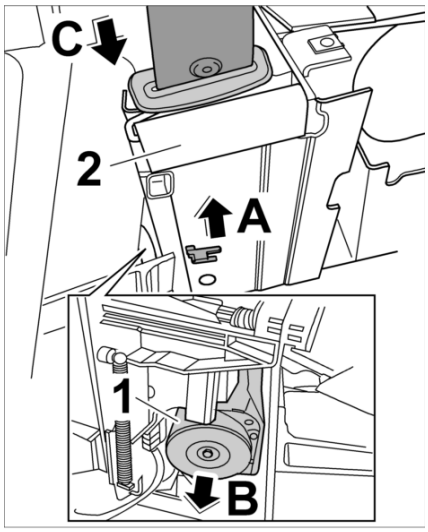


Installation location for rear three-point belt



Loosening rear three-point belt

1. Unscrew fastening screw **-1-** from the automatic belt device **-2-** .



Removing rear three-point belt

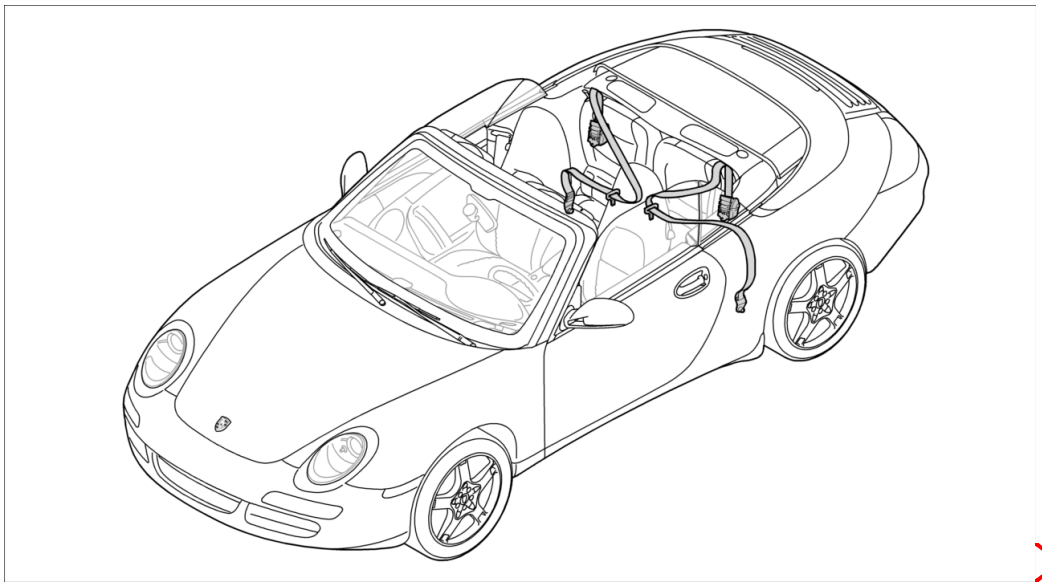
2. Lift automatic belt device **-1-** from the latch **-Arrow A-** and remove sideways from the frame for roll-over protection system **-2-** **-Arrow B-** .
3. Pull out belt strap **-Arrow C-** .

top of page

Installing rear three-point belt

Installing rear three-point belt

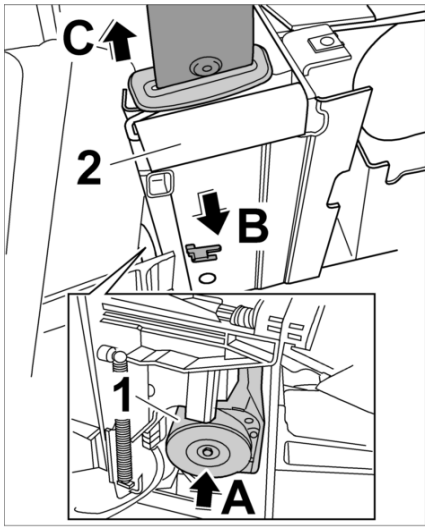
Installation Location:



Installation location for rear three-point belt

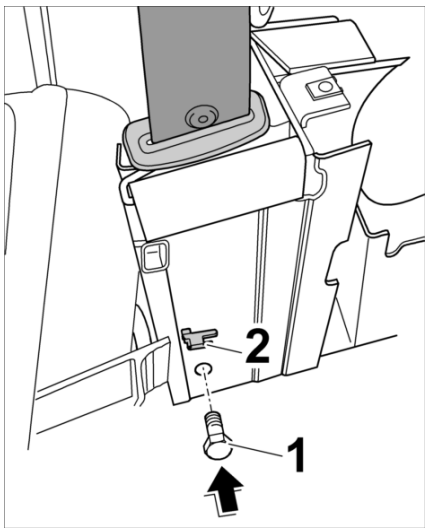
Note

Ensure that belt strap can run properly!



Installing rear three-point belt

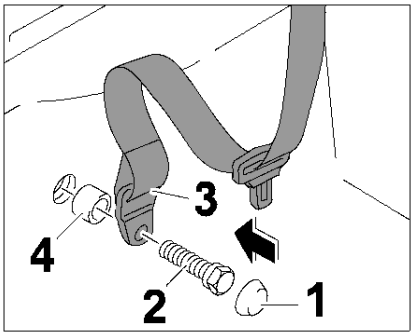
1. Insert automatic belt device **-1-** sideways into the frame for roll-over protection system **-2-** **-Arrow A-** and position in the latch **-Arrow B-** .
2. Pull belt strap upwards **-Arrow C-** .



Fastening rear three-point belt

3. Secure automatic belt device **-2-** with the fastening screw **-1-** . **Tightening torque: 50 (37 ftlb.) Nm +/-5 (3.5 ftlb.) Nm**
4. By gently pulling on the belt, check the winding ability of the belt strap.

Fastening seat belt with fitting



Installing seat belt and fitting

Note

Ensure that belt strap can run properly!

1. Tighten fastening screw **-2-** , seat belt with fitting **-3-** and spacer sleeve **-4-** on inner lower side member. Tightening torque **Tightening torque: 50 (37 ftlb.) Nm +/-5 (3.5 ftlb.) Nm**
2. Press in **-1-** cap.

top of page

Subsequent work

Subsequent work

1. Install rear wall trim panel 703119 Removing and installing trim panel for rear wall - section on "Installing" [997310 997311 997320 997321] *703119 23 Removing and installing trim panel for rear wall - section on "Installing" [997610 997611 997620 997621]*
2. Install back seat cushion. 745719 Removing and installing back seat cushion - chapter on "Installing" [997310 997311 997320 997321] 745719 Removing and installing back seat cushion - chapter on "Installing" [997610 997611 997620 997621]
3. Install cover for rear. 705319 Removing and installing cover for rear- section on "Installing" [997310 997311 997320 997321] *705319 23 Removing and installing cover for rear- section on "Installing" [997610 997611 997620 997621]*

997310, 997311, 997320, 997321, 997610, 997611, 997620, 997621

as of MY 2005
Country C00, C02, C05, C07, C08, C09, C10, C11, C12, C13, C14, C15, C16, C18, C19, C20, C21, C22, C23, C24, C25, C26, C27, C28, C32, C33, C34, C35, C36, C37, C38, C39, C45, C46, C98, C99

69 12 19 Removing and installing rear three-point belt - as of MY 2005

- Preliminary work
- Removing rear three-point belt
- Installing rear three-point belt
- Subsequent work

top of page

Preliminary work

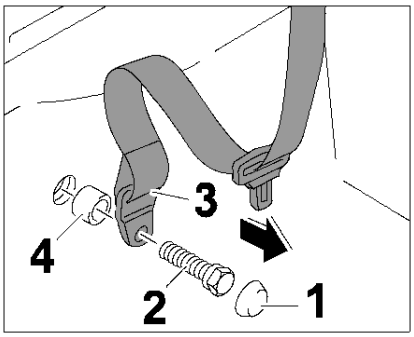
Preliminary work

1. Remove C-pillar trim. 706819 Removing and installing C-pillar trim - section on "Removing"

top of page

Removing rear three-point belt

Undoing seat belt and fitting

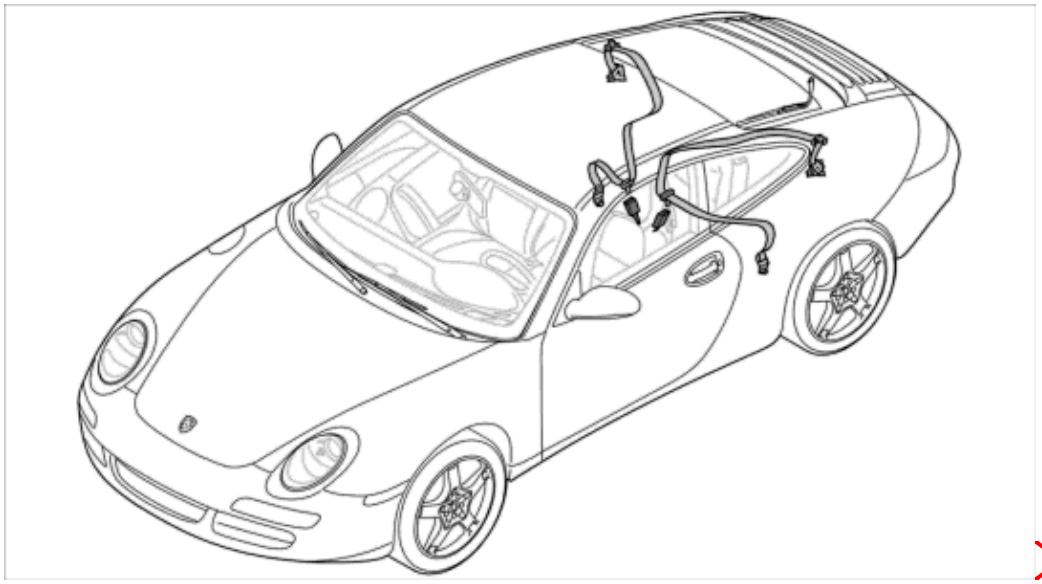


Undoing seat belt and fitting

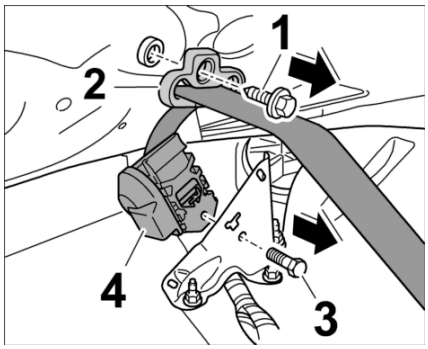
1. Press out cap **-1-** with a screwdriver. Unscrew fastening screw **-2-** . Remove seat belt with fitting **-3-** and spacer sleeve **-4-** .

Removing rear three-point belt

Installation Location:



Installation location for rear three-point belt



Removing rear three-point belt

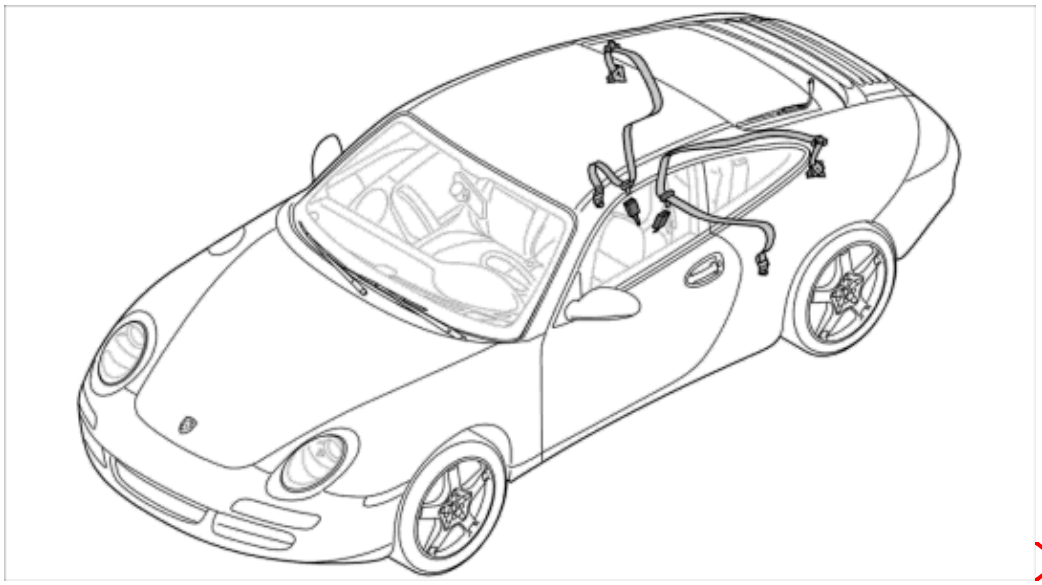
1. Unscrew fastening screw **-1-** from the deflector **-2-** .
2. Unscrew fastening screw **-3-** from the automatic belt device **-4-** and remove automatic belt device **-4-** .

top of page

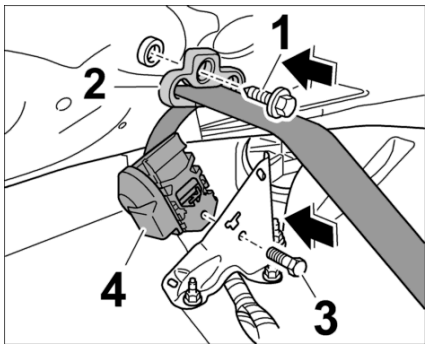
Installing rear three-point belt

Installing rear three-point belt

Installation Location:



Installation location for rear three-point belt



Installing rear three-point belt

Note

Ensure that belt strap can run properly!

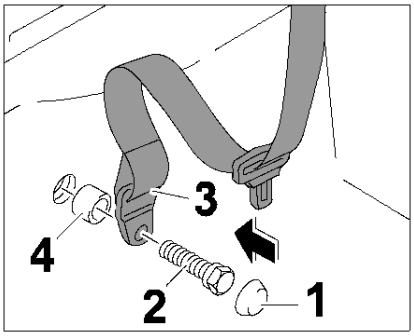
1. Position automatic belt device **-4-** , making sure that the locking tab of the automatic belt device is engaged correctly in the sheetmetal bracket.
2. Secure automatic belt device **-4-** with the fastening screw **-3-** . Tightening torque **Tightening torque: 37 ftlb. +/-3.5 ftlb.**

Note

Ensure that belt strap can run properly!

3. Position deflector **-2-** and screw down with the fastening screw **-1-** . Tightening torque **Tightening torque: 37 ftlb. +/-3.5 ftlb.**

Fastening seat belt with fitting



Installing seat belt and fitting

Note

Ensure that belt strap can run properly!

1. Tighten fastening screw **-2-** , seat belt with fitting **-3-** and spacer sleeve **-4-** on inner lower side member. Tightening torque **Tightening torque: 50 (37 ftlb.) Nm +/-5 (3.5 ftlb.) Nm**
2. Press in **-1-** cap.

top of page

Subsequent work

Subsequent work

1. Install C-pillar trim. 706819 Removing and installing C-pillar trim - section on "Installing"

997110, 997111, 997120, 997121, 997410, 997411, 997430, 997431

as of MY 2005
Country C00, C02, C05, C07, C08, C09, C10, C11, C12, C13, C14, C15, C16, C18, C19, C20, C21, C22, C23, C24, C25, C26, C27, C28, C32, C33, C34, C35, C36, C37, C38, C39, C45, C46, C98, C99

WARNUNG

Gefahr des Verlusts der Text-Bild-Zuordnung beim Ausdruck.

- **Aus technischen Gründen kann derzeit nicht ausgeschlossen werden, dass trotz einwandfreier Darstellung auf dem Bildschirm beim Ausdruck der Zusammenhang von Text und zugehörigem Bild verloren geht.**
- **Wird der Fehler nicht bemerkt, besteht die Gefahr, daß Arbeiten nicht korrekt durchgeführt werden und es dadurch zu Personen- und Sachschäden kommt.**

Vergleichen Sie deshalb nach dem Druckvorgang unbedingt die Ausdrucke mit der Bildschirmdarstellung. Korrigieren Sie die Ausdrucke im Fehlerfall so, daß der Inhalt der

69 13 01 Checking seat belts - as of MY 2005

- General warning notes
- Checking seat belts

top of page

General warning notes

Warning note for seat belts

WARNING
Damage to seat belt system

- **Danger of material damage and injury**

After any accident, the seat belt system must be checked systematically for proper function and damage. If damage is found according to the test points, the entire seat belt system must be replaced.

WARNING
Road test on public roads

- **Danger of material damage and injury**

For safety reasons, this driving test must be carried out on a traffic-free road, so that there is absolutely no danger to other road users.

top of page

Checking seat belts

Checking procedure for seat belt

Note

- *After any accident, the seat belt system must be checked systematically for proper function and damage. If damage is found according to the test points, the entire seat belt system must be replaced.*

Note

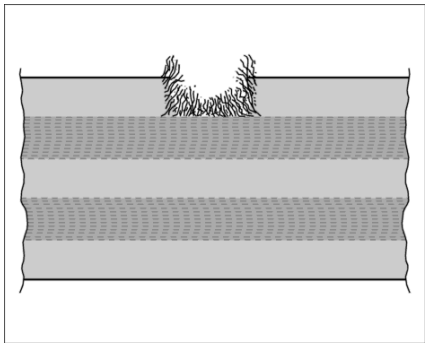
- *In the case of damage which does not occur as the result of an accident, e.g. wear, only the damaged part needs to be replaced.*

Note

- *The following requirements must be met when fitting the seat belt*
- *If one of the requirements listed below is not met, the seat belt or the buckle must be replaced.*

Checking belt strap

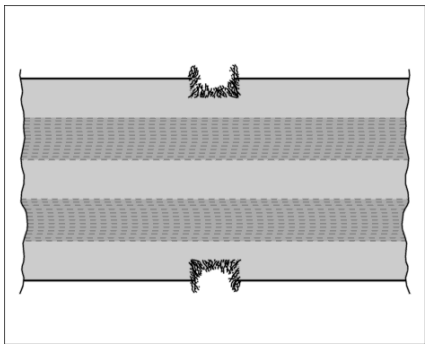
– Pull out the belt strap on the automatic belt device fully.
– Check the belt strap for soiling; clean, if necessary, with mild soap suds. When drying, avoid direct sunshine.



Damage type 1

1. **Damage type 1**

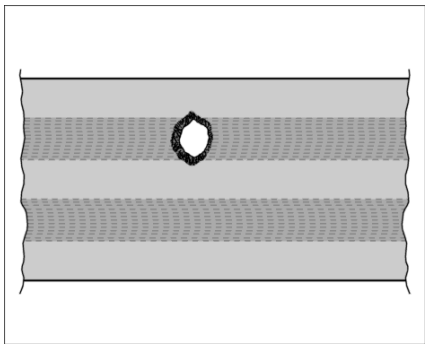
1.1. If one of the damage types shown below **-damage type 1, 2-** is found on an vehicle involved in an accident, the seat belt and belt buckle must be replaced.



Damage type 2

2. **Damage type 2**

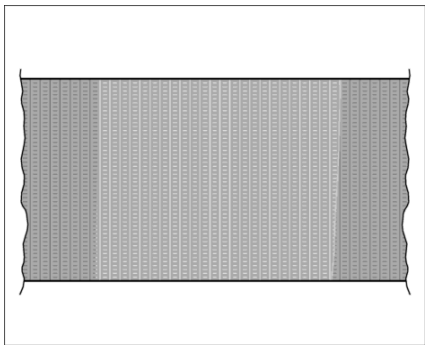
2.1. If damage such as damage type **-damage type 1, 2, 3-** is found on a vehicle not involved in an accident, it is sufficient to replace the damaged seat belt.



Damage type 3

3. **Damage type 3**

3.1. Burn marks from cigarettes, or similar.



Damage type 4

4. **Damage type 4**

4.1. The belt tensioner must always be replaced if it has been triggered. The seat belt is damaged by the deflector **-damage type 4-** .

Checking automatic belt device (locking effect)

The automatic belt device has two locking functions

- The first locking function is triggered by pulling the seat belt out quickly (belt extension acceleration).

Test

– Pull the seat belt out of the automatic belt device with a strong pull.

If no locking effect occurs, the entire seat belt and belt buckle must be replaced.
In the case of faults in the extension or retraction of the seat belt, check whether the locking tab of the automatic belt device is engaged correctly in the sheetmetal bracket on the body.

- The second locking function is triggered by a change in the sequence of vehicle movement (vehicle-dependent locking function).

Test

– Fasten the seat belt.

WARNING

Road test on public roads

- **Danger of material damage and injury**

For safety reasons, this driving test must be carried out on a traffic-free road, so that there is absolutely no danger to other road users.

– Accelerate the vehicle to 20 km/h (12 mph) and then perform an emergency stop with the foot brake.

If the belt is not locked by the blocking mechanism during the braking phase, the entire seat belt and belt buckle must be replaced.

Checking look and operation of seat-belt buckle

– Inspect the belt buckle for crack formation and flaking.

In the case of damage, the entire seat belt and belt buckle must be replaced.

Check belt buckle

– Push the buckle into the belt buckle until it engages audibly. Check whether the lock mechanism has engaged by pulling strongly on the belt strap.

If the belt tongue fails to lock in the belt buckle even just once in at least 5 test procedures, the entire seat belt and belt buckle must be replaced.

Checking belt buckle release

– Release the seat belt by pressing with a finger on the button on the belt buckle.

Carry out the test procedure at least 5 times. If the belt tongue fails to jump out even just once, the entire seat belt and belt buckle must be replaced.

Note

- *Lubricants must never be used to remedy noises or sluggishness of the buttons on the belt buckles.*

Checking sash guides

Plastic-coated covers show fine, parallel scores after the belt system has been subjected to stress (seat belt buckled during accident). On the other hand, wear caused by frequent use is indicated by a stripe-free, smooth surface.

– Inspect the sash guides for distortion, flaking and crack formation.

In the case of scoring and/or damage, the entire seat belt and belt buckle must be replaced.

Checking mounting elements and mounting points

- Check the belt buckle strap for distortion.
- Check the function of the height adjuster.
- Check the mounting points (seat, B-pillar, C-pillar, vehicle floor) for distortion or thread damage.

If damage is found on the parts, the entire seat belt and belt buckle must be replaced.
Replace damaged or distorted mounting points.

997110, 997111, 997120, 997121, 997310, 997311, 997320, 997321, 997410, 997411, 997430, 997431, 997610, 997611, 997620, 997621

as of MY 2005
Country C00, C02, C05, C07, C08, C09, C10, C11, C12, C13, C14, C15, C16, C18, C19, C20, C21, C22, C23, C24, C25, C26, C27, C28, C32, C33, C34, C35, C36, C37, C38, C39, C45, C46, C98, C99

WARNUNG

Gefahr des Verlusts der Text-Bild-Zuordnung beim Ausdruck.

- **Aus technischen Gründen kann derzeit nicht ausgeschlossen werden, dass trotz einwandfreier Darstellung auf dem Bildschirm beim Ausdruck der Zusammenhang von Text und zugehörigem Bild verloren geht.**
- **Wird der Fehler nicht bemerkt, besteht die Gefahr, daß Arbeiten nicht korrekt durchgeführt werden und es dadurch zu Personen- und Sachschäden kommt.**

Vergleichen Sie deshalb nach dem Druckvorgang unbedingt die Ausdrucke mit der Bildschirmdarstellung. Korrigieren Sie die Ausdrucke im Fehlerfall so, daß der Inhalt der Bildschirmdarstellung zutreffend wiedergegeben wird.

WARNING

Danger of losing text-figure correspondence when printing out.

- **For technical reasons, it can currently not be ruled out that the correspondence between text and associated figure can be lost when it is printed out, even though the display on the screen is correct.**
- **If the fault is not noticed, there is the danger that work will not be performed correctly which can cause injury and damage.**

Therefore, always compare printouts with the screen display after printing them out. Correct the printouts if they are faulty so that the content of the screen display matches that on the printouts.

AVERTISSEMENT

Risque de perte de la correspondance texte-illustration lors de l'impression papier.

69 13 19 Removing and installing front three-point belt with seat-belt tensioner - as of MY 2005

- Preliminary work
- General warning notes
- Removing three-point belt with seat-belt tensioner
- Installing three-point belt with seat-belt tensioner
- Subsequent work

Tools

Designation	Type	Number	Explanation	
PIWIS Tester	special tool	P 9718		

top of page

Preliminary work

Preliminary work

1. Disconnect battery. *271000 Work instructions after disconnecting the battery*
2. Remove the rear side trim panel. 707519 Removing and installing rear side trim panel - chapter on "Removing"

top of page

General warning notes

Safety instructions for seat-belt tensioner unit

DANGER

Removing and installing seat-belt tensioner unit.

- **Danger of injury and damage to property as a result of incorrect handling of seat-belt tensioner units!**

Always observe the safety regulations for handling seat-belt tensioner units. *691000 Safety regulations for airbag and seat-belt tensioner units*

Disposal regulations for seat-belt tensioner units must be observed. 6900AW Disposal of airbag and seat-belt tensioner units

If removed for an extended period, the seat-belt tensioner unit must be kept in a secure location!

Remove ignition key. Disconnect battery. Route or isolate ground strap so that all contact with a ground carrier (e.g. body, seat frame) is avoided. 2706IN Work instructions after disconnecting the battery

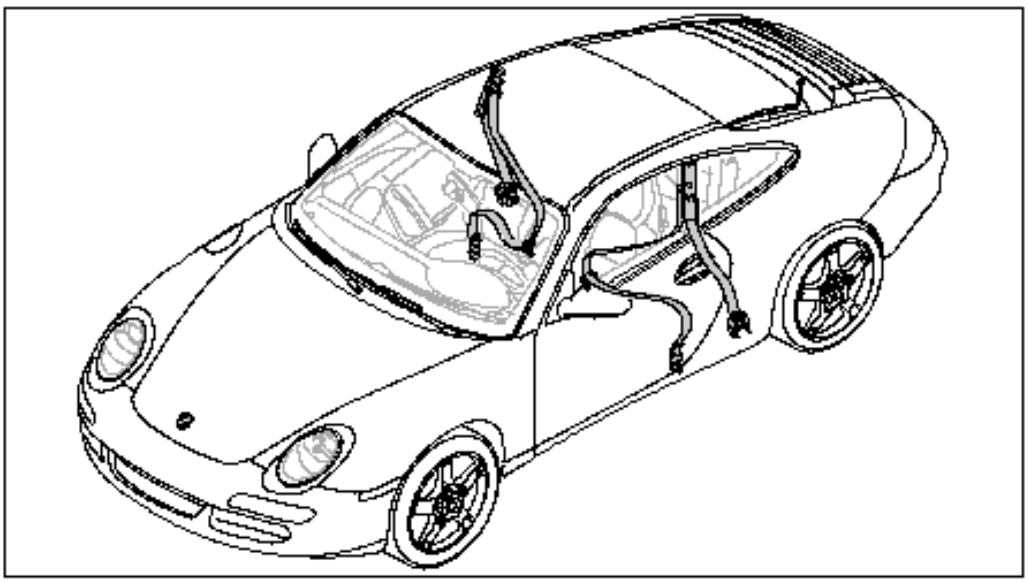
After the battery is disconnected, always wait for 1 minute before disconnecting the seat-belt tensioner plugs.

top of page

Removing three-point belt with seat-belt tensioner

Removing three-point belt with seat-belt tensioner

Installation Location:



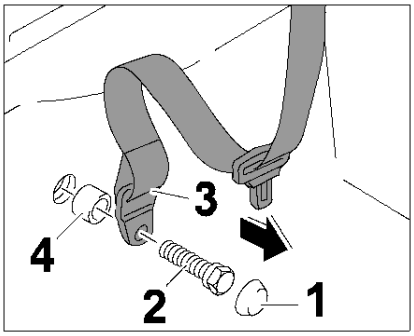
Installation location for three-point belt with seat-belt tensioner

Note

- *After the seat-belt tensioners have been triggered, they must be replaced. The fault can be read out*

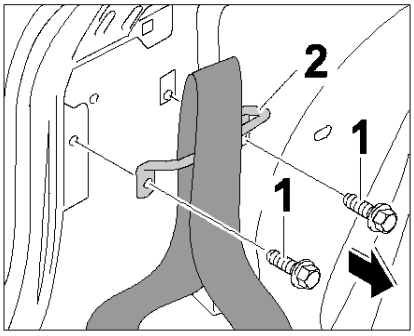
*with the **PIWIS Tester P 9718**. Observe direction of travel.*

- *If the seat-belt tensioner has been triggered, cut through the belt strap before removing the seat-belt tensioner. This ensures that the defective automatic belt device is not installed again.*
- *It is necessary to make sure that the negative terminal of the battery is disconnected.*



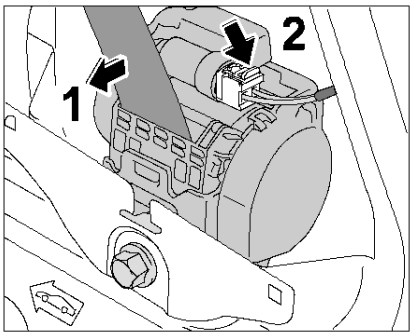
Undoing seat belt and fitting

1. Press out cap **-1-** with a screwdriver. Unscrew fastening screw **-2-** . Remove seat belt with fitting **-3-** and spacer sleeve **-4-** .



Removing deflector

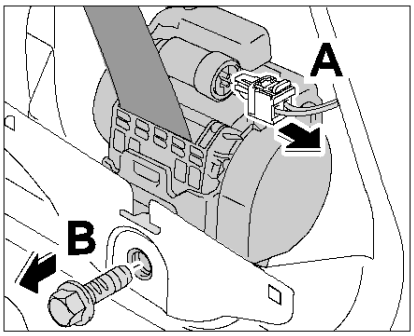
2. Unscrew fastening screws **-1-** from the deflector **-2-** .
3. Remove belt **-1-** by pulling it towards the front.



Releasing plug for seat-belt tensioner

4. Using a screwdriver, disable the fuse for the electrical plug **-2-** on the belt tensioner in **-arrowrichtung-** .
5.

Pull off plug from seat-belt tensioner **-arrow A-** .



Removing seat-belt tensioner

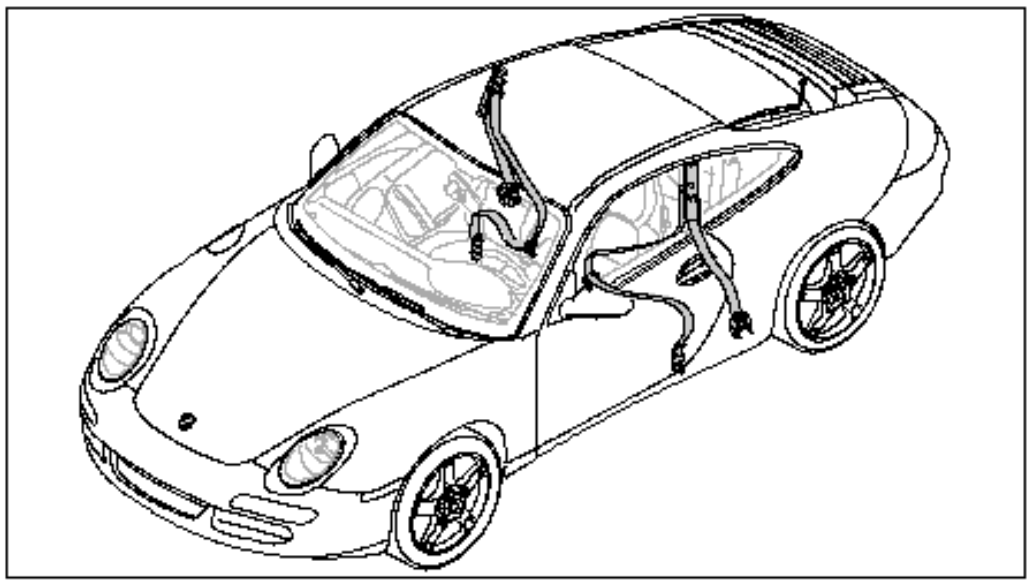
6. Unscrew the fastening screw **-arrow B-** and remove the belt tensioner.

top of page

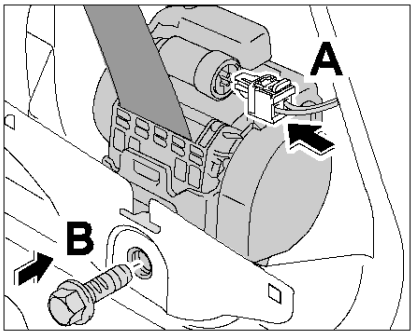
Installing three-point belt with seat-belt tensioner

Installing three-point belt with seat-belt tensioner

Installation Location:



Installation location for three-point belt with seat-belt tensioner

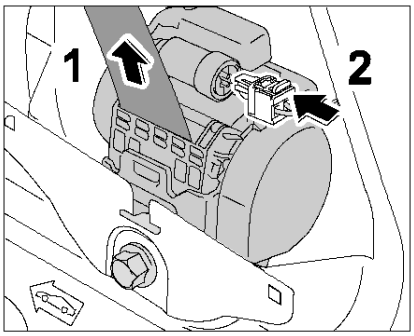


Installing seat-belt tensioner

Note

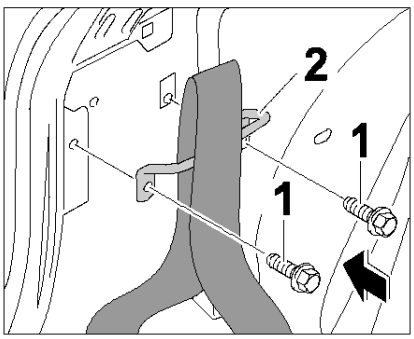
- *The seat-belt tensioner may only be installed with the ground terminal of the vehicle battery disconnected.*
- *The vehicle battery may only be re-connected after the re-installation of the belt has been completed.*

1. Install belt tensioner. Observe the direction of travel.
2. Tighten fastening screw **-arrow B-** . Tightening torque **Tightening torque: 50 (37 ftlb.) Nm +/-10 %**



Locking plug for seat-belt tensioner

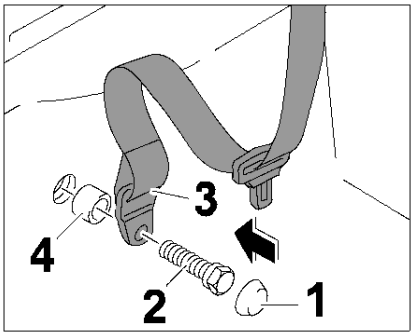
3. Insert electrical plug **-2-** in the seat-belt tensioner **-arrow A-** .
4. Using a screwdriver, for example, push the fuse in, in **-direction of arrow-** ,until it engages.
5. By gently pulling on the belt **-1-** , check the winding ability of the belt strap.



Installing deflector

6. Position the deflector **-2-** and the seat belt on the inner side section and screw tight with the

fastening screws **-1-** . Tightening torque **Tightening torque: 10 (7.5 ftlb.) Nm**



Installing seat belt and fitting

Note

Ensure that belt strap can run properly!

7. Screw in fastening screw **-2-** , seat belt and fitting **-3-** and spacer sleeve **-4-** on inner lower side member. Tightening torque **Tightening torque: 50 (37 ftlb.) Nm +/-10 %**
8. Press in **-1-** cap.

top of page

Subsequent work

Subsequent work

1. Install side trim panel. 707519 Removing and installing rear side trim panel - chapter on "Installing"
2. Connect battery. *271000 Work instructions after disconnecting the battery*
3. Using the PIWIS Tester 97180, read out the fault memory.

997110, 997111, 997120, 997121, 997410, 997411, 997430, 997431

as of MY 2005
Country C00, C02, C05, C07, C08, C09, C10, C11, C12, C13, C14, C15, C16, C18, C19, C20, C21, C22, C23, C24, C25, C26, C27, C28, C32, C33, C34, C35, C36, C37, C38, C39, C45, C46, C98, C99

WARNUNG

Gefahr des Verlusts der Text-Bild-Zuordnung beim Ausdruck.

- **Aus technischen Gründen kann derzeit nicht ausgeschlossen werden, dass trotz einwandfreier Darstellung auf dem Bildschirm beim Ausdruck der Zusammenhang von Text und zugehörigem Bild verloren geht.**

69 13 19 Removing and installing front three-point belt with seat-belt tensioner - as of MY 2005

- Preliminary work
- General warning notes
- Removing three-point belt with seat-belt tensioner
- Installing three-point belt with seat-belt tensioner
- Subsequent work

Tools

Designation	Type	Number	Explanation	
PIWIS Tester	special tool	P 9718		

top of page

Preliminary work

Preliminary work

1. Disconnect battery. *271000 Work instructions after disconnecting the battery*
2. Remove the rear side trim panel. 707519 Removing and installing rear side trim panel - chapter on "Removing"

top of page

General warning notes

Safety instructions for seat-belt tensioner unit

DANGER

Removing and installing seat-belt tensioner unit.

- **Danger of injury and damage to property as a result of incorrect handling of seat-belt tensioner units!**

Always observe the safety regulations for handling seat-belt tensioner units. *691000 Safety regulations for airbag and seat-belt tensioner units*

Disposal regulations for seat-belt tensioner units must be observed. 6900AW Disposal of airbag and seat-belt tensioner units

If removed for an extended period, the seat-belt tensioner unit must be kept in a secure location!

Remove ignition key. Disconnect battery. Route or isolate ground strap so that all contact with a ground carrier (e.g. body, seat frame) is avoided. 2706IN Work instructions after disconnecting the battery

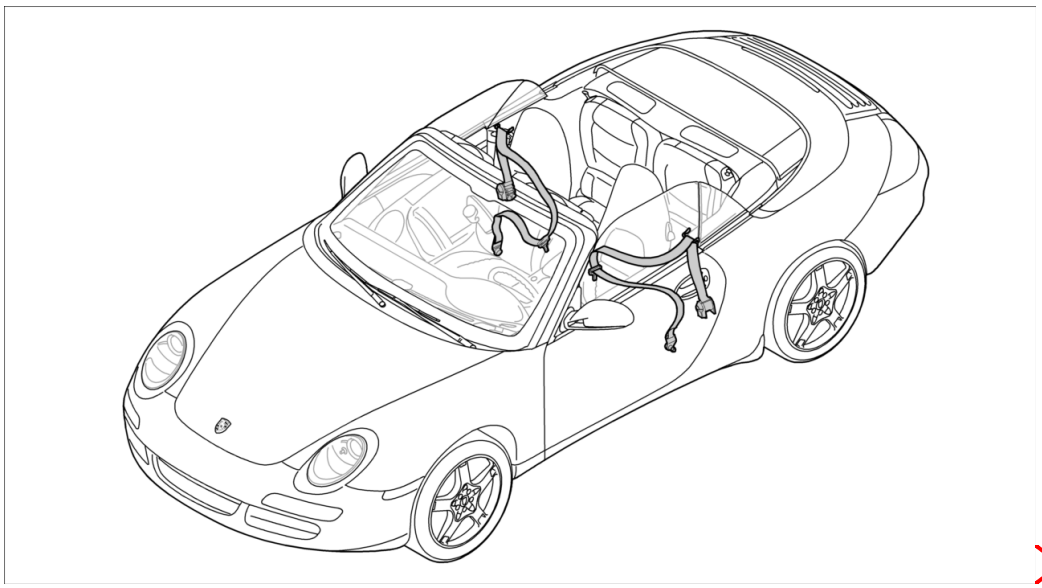
After the battery is disconnected, always wait for 1 minute before disconnecting the seat-belt tensioner plugs.

top of page

Removing three-point belt with seat-belt tensioner

Removing front three-point belt with seat-belt tensioner

Installation Location:



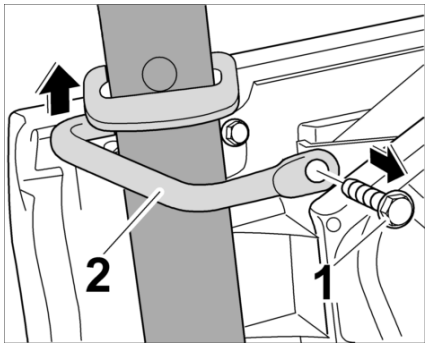
Installation position of front three-point belt with seat-belt tensioner

Note

- *After the seat-belt tensioners have been triggered, they must be replaced. The fault can be read out with the **PIWIS Tester P 9718**. Observe direction of travel.*

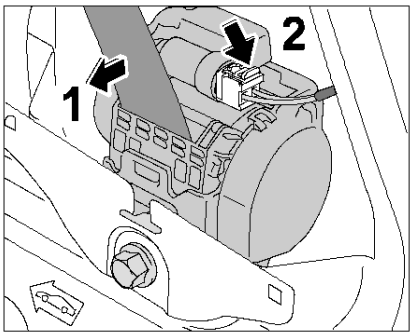
- *If the seat-belt tensioner has been triggered, cut through the belt strap before removing the seat-belt tensioner. This ensures that the defective automatic belt device is not installed again.*

- *It is necessary to make sure that the negative terminal of the battery is disconnected.*



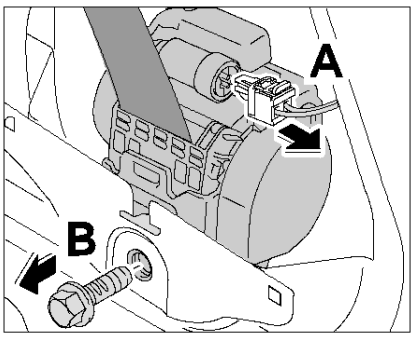
Removing deflector

1. Unscrew fastening screw **-1-** and remove deflector upwards **-2-** .
2. Pull belt **-1-** to the front.



Releasing connector for seat-belt tensioner

3. Using a screwdriver, release the fuse for the electric connector **-2-** on the belt tensioner in **-direction of arrow-** .
4. Pull out connector from seat-belt tensioner **-Arrow A-** .



Removing seat-belt tensioner

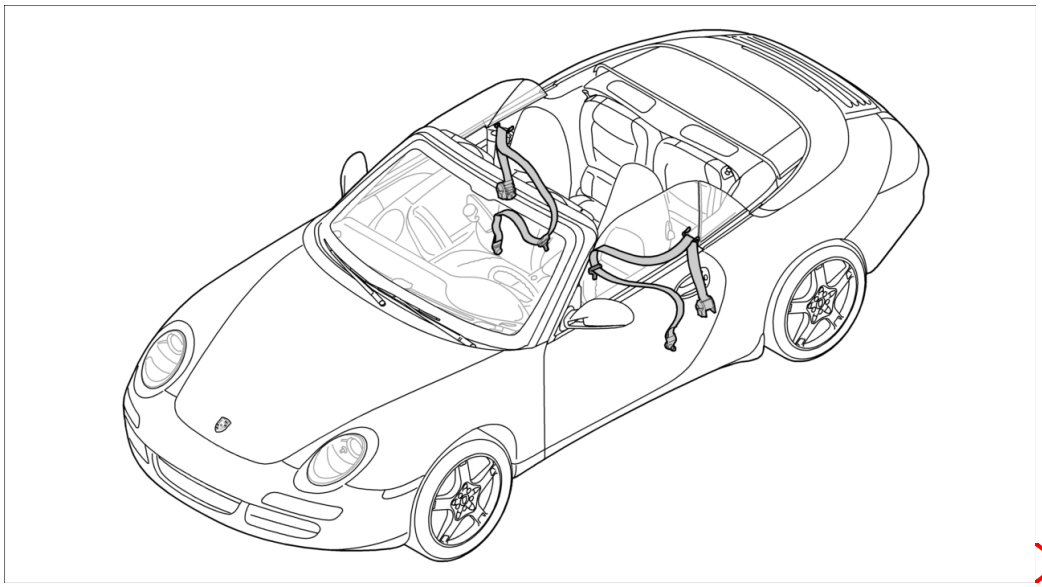
5. Unscrew the fastening screw **-Arrow B-** and remove the belt tensioner.

top of page

Installing three-point belt with seat-belt tensioner

Installing three-point belt with seat-belt tensioner

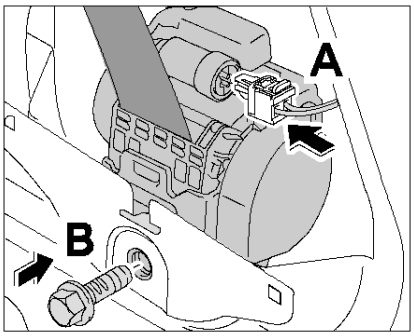
Installation Location:



Installation position of front three-point belt with seat-belt tensioner

Note

Ensure that belt strap can run properly!



Installing seat-belt tensioner

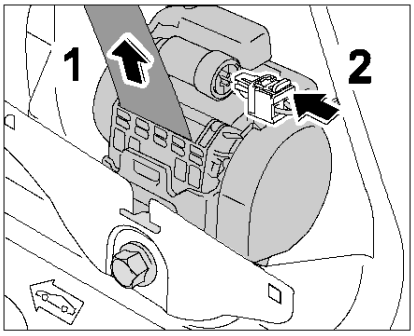
Note

- *The seat-belt tensioner may only be installed with the ground terminal of the vehicle battery*

disconnected.

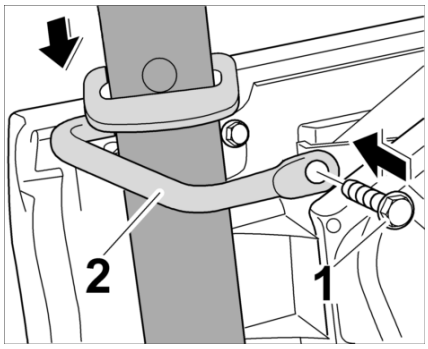
- *The vehicle battery may only be re-connected after the re-installation of the belt has been completed.*

1. Install belt tensioner. Observe the direction of travel.
2. Tighten fastening screw **-Arrow B-** . Tightening torque **Tightening torque: 50 (37 ftlb.) Nm +/-10 %**



Locking plug for seat-belt tensioner

3. Insert electric connector **-2-** in the seat-belt tensioner **-Arrow A-** .
4. Use a screwdriver or similar tool to push in the fuse in **-direction of arrow-** until it engages.
5. By gently pulling on the belt **-1-** , check the winding ability of the belt strap.



Installing deflector

6. Position the deflector **-2-** and the seat belt on the inner side section and tighten with the fastening screws **-1-** . Tightening torque **Tightening torque: 10 (7.5 ftlb.) Nm**

top of page

Subsequent work

Subsequent work

1. Install side trim panel. 707519 Removing and installing rear side trim panel - chapter on "Installing"

2. Connect battery. *271000 Work instructions after disconnecting the battery*
3. Using the PIWIS Tester 97180, read out the fault memory.

997310, 997311, 997320, 997321, 997610, 997611, 997620, 997621

as of MY 2005
Country C00, C02, C05, C07, C08, C09, C10, C11, C12, C13, C14, C15, C16, C18, C19, C20, C21, C22, C23, C24, C25, C26, C27, C28, C32, C33, C34, C35, C36, C37, C38, C39, C45, C46, C98, C99

WARNUNG

Gefahr des Verlusts der Text-Bild-Zuordnung beim Ausdruck.

- **Aus technischen Gründen kann derzeit nicht ausgeschlossen werden, dass trotz einwandfreier Darstellung auf dem Bildschirm beim Ausdruck der Zusammenhang von Text und zugehörigem Bild verloren geht.**
- **Wird der Fehler nicht bemerkt, besteht die Gefahr, daß Arbeiten nicht korrekt durchgeführt werden und es dadurch zu Personen- und Sachschäden kommt.**

Vergleichen Sie deshalb nach dem Druckvorgang unbedingt die Ausdrucke mit der Bildschirmdarstellung. Korrigieren Sie die Ausdrucke im Fehlerfall so, daß der Inhalt der Bildschirmdarstellung zutreffend wiedergegeben wird.

WARNING

Danger of losing text-figure correspondence when printing out.

- **For technical reasons, it can currently not be ruled out that the correspondence between text and associated figure can be lost when it is printed out, even though the display on the screen is correct.**
- **If the fault is not noticed, there is the danger that work will not be performed correctly which can cause injury and damage.**

Therefore, always compare printouts with the screen display after printing them out. Correct the printouts if they are faulty so that the content of the screen display matches that on the printouts.

AVERTISSEMENT

Risque de perte de la correspondance texte-illustration lors de l'impression papier.

- **Pour des raisons techniques, il ne peut pas être exclu à l'heure actuelle que, même en cas d'affichage correct à l'écran, la correspondance entre le texte et l'illustration puisse être erronée sur l'impression papier.**
- **Si l'erreur passe inaperçue, on court le risque d'exécuter certaines opérations de manière incorrecte pouvant conduire à des dommages corporels et matériels.**

Comparez impérativement pour cette raison les impressions papier avec l'affichage à l'écran. Corrigez-les en cas d'erreur de manière à reproduire correctement l'affichage à l'écran.

69 24 19 Removing and installing front belt lock - as of MY 2005

- Preliminary work
- Removing front belt lock
- Installing front belt lock
- Subsequent work

top of page

Preliminary work

Preliminary work

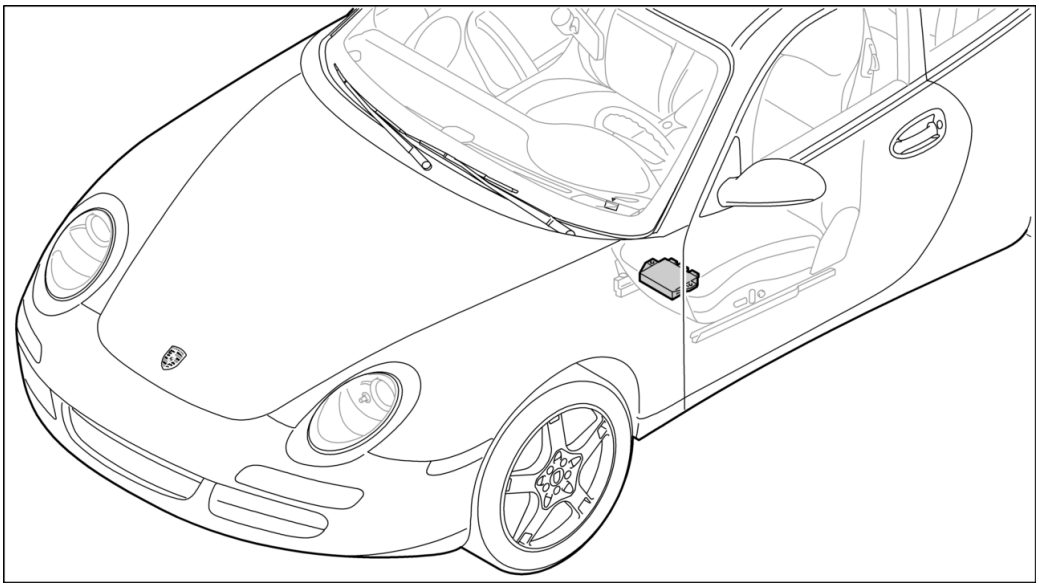
Remove front seat. 720119 Removing and installing front seat - section on "Removing" [997110 997120 997310 997320 997410 997430 997610 997620] 720119 Removing and installing front seat - section on "Removing" [997111 997121 997311 997321 997411 997431 997611 997621]

top of page

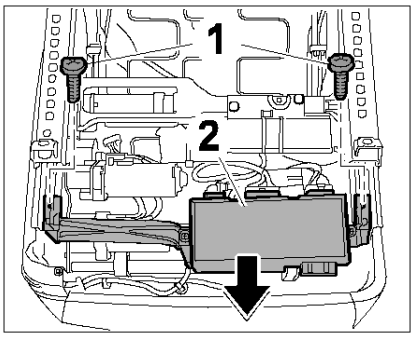
Removing front belt lock

Removing control unit for memory seat adjustment with support

Installation Location:

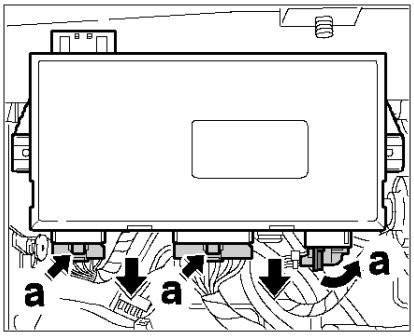


Installation position shown on the 911



Removing control unit for memory seat adjustment with support

1. Unscrew the two fastening screws **-1-** and remove control unit for memory seat adjustment together with the support **-2-** from the seat frame.

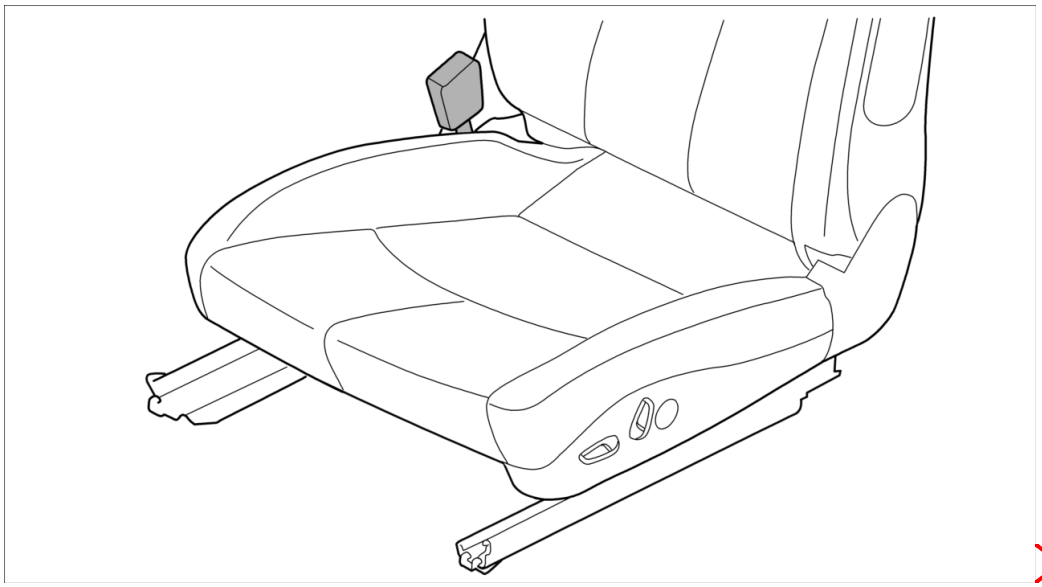


Pulling off connectors on control unit for memory seat adjustment

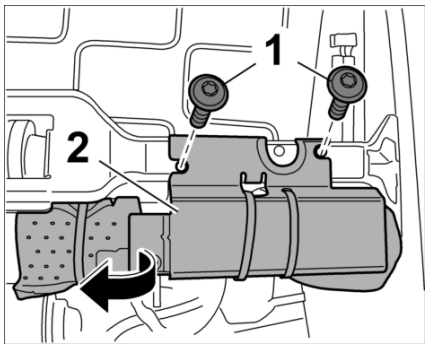
2. Unlock and pull off the three connectors on the control unit for memory seat adjustment **-arrows a-** .

Removing front belt lock

Installation Location:

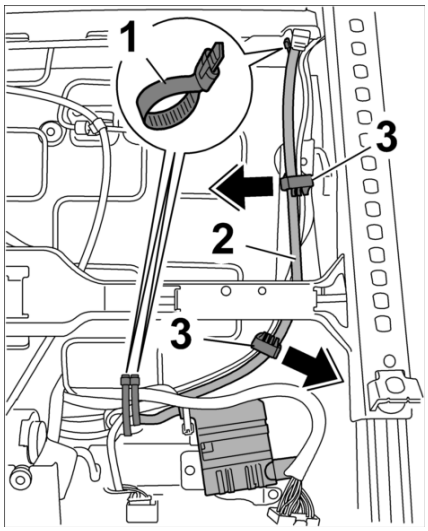


Installation position of front belt lock



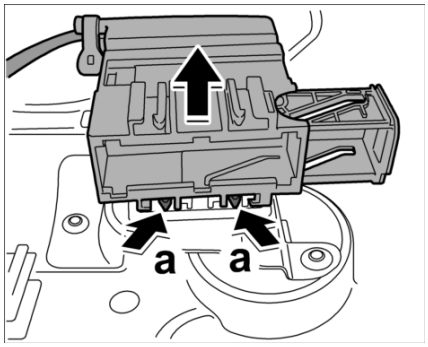
Loosening support with compressor and air distributor valve

1. Unscrew the two fastening screws **-1-** on the support **-2-** .
2. Set support **-2-** with connected motor and air cushion control valve aside.



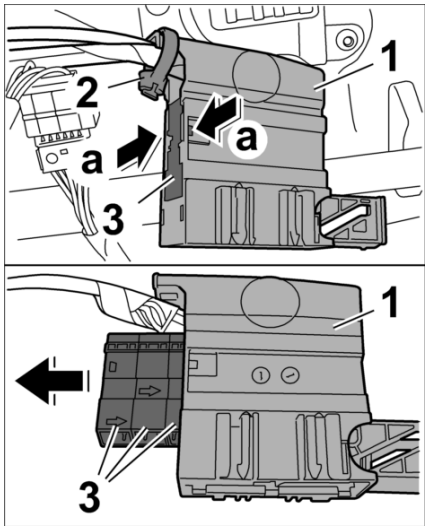
Loosening wire harness

3. Remove the three tie-wraps **-1-** and take the wire harness **-2-** out of the two line holders **-3-** .



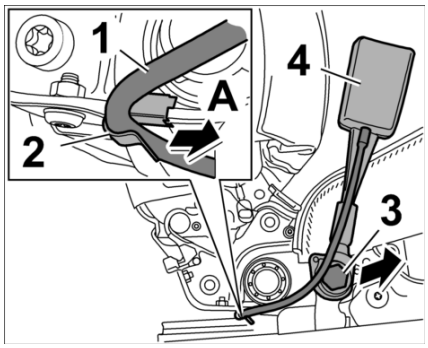
Pulling off connector socket

4. Release connector socket **-arrows a-** and pull out of holder.



Disassembling connector socket

5. Remove tie-wraps **-2-** on connector socket **-1-** .
6. Release connector socket **-1-** (**-arrows a-**) and remove the three individual connectors **-3-** .



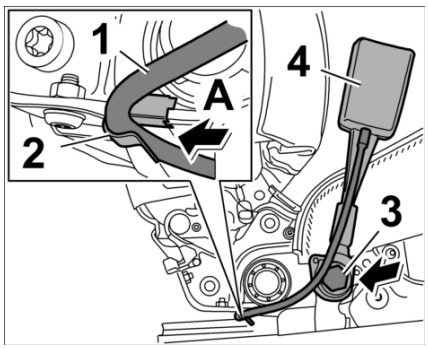
Removing front belt lock

7. Pull wire harness **-1-** out of the metal clip **-2-** (**-arrow A-**).
8. Unscrew fastening screw **-3-** .
9. Pull off wire harness **-1-** and remove front belt lock **-4-** .

top of page

Installing front belt lock

Installing front belt lock



Installing front belt lock

DANGER

Loosen the safety-related threaded joint.

- **Danger of injury if belt lock is not screwed on correctly.**

Always replace fastening screws for belt lock after customer service and reworking.

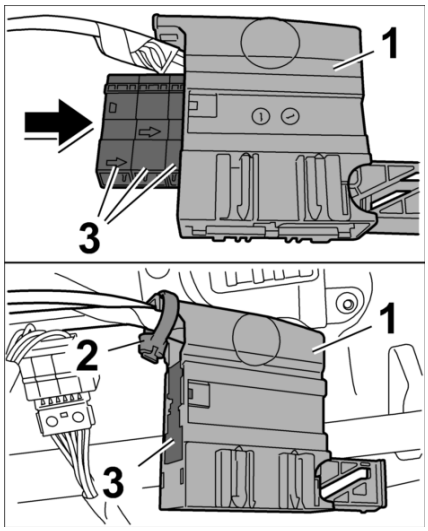
It is not permissible to make alterations to the microencapsulated screws (e.g. use lubricant, loosen bolts, and screw them down again).

1. Position belt lock **-4-** and secure using the fastening screw **-3-** . **Tightening torque: 50 (37 ftlb.) Nm**

Note

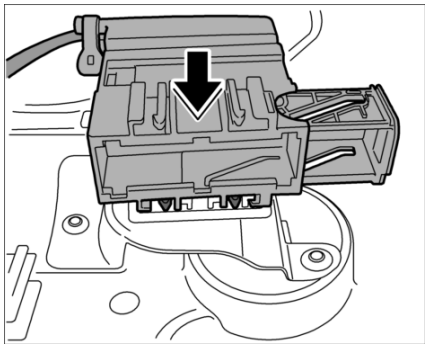
- *The electric lead must not be routed too tightly around the seat cushion.*

2. Lay wire harness **-1-** and press into the metal clip **-2-** (**-arrow A-**).



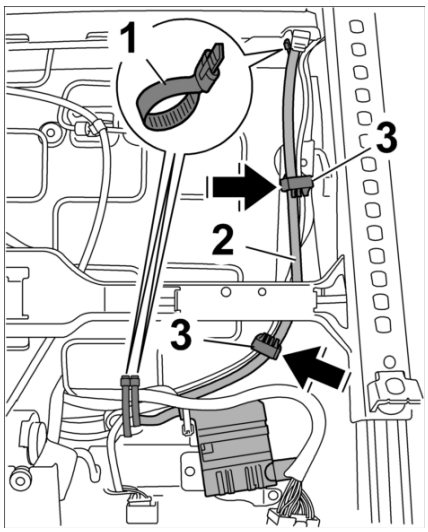
Assembling connector socket

3. Press the three individual connectors **-3-** into the connector socket **-1-** until they engage firmly.
4. Secure new tie-wraps **-2-** on connector socket **-1-** .



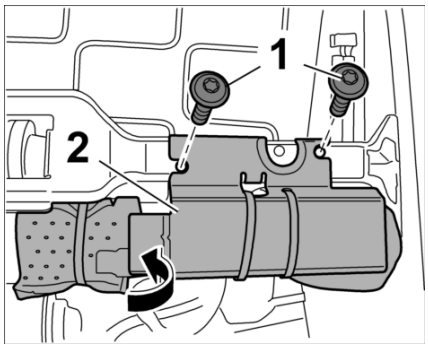
Attaching connector socket

5. Attach connector socket to support until it clicks into place.



Securing wiring harness

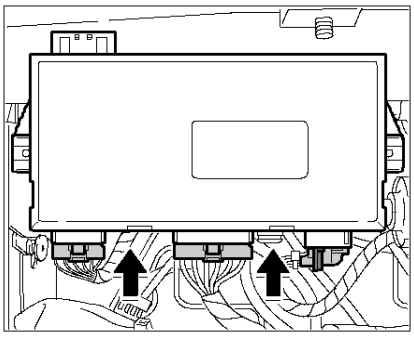
6. Place wire harness **-2-** into the two line holders **-3-** and secure with three new tie-wraps **-1-** .



Securing support with compressor and air distributor valve

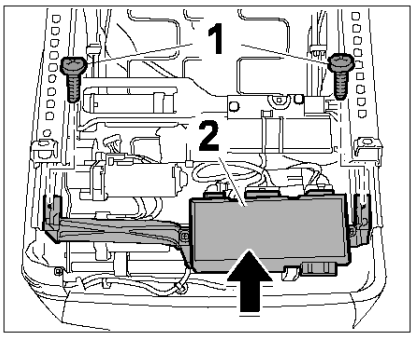
7. Position support **-2-** with connected motor and air cushion control valve and screw down with the two fastening screws **-1-** .

Installing control unit for memory seat adjustment with support



Attaching connectors on control unit for memory seat adjustment

1. Attach the three connectors on the control unit for memory seat adjustment until they are felt to engage.



Installing control unit for memory seat adjustment with support

2. Position control unit for memory seat adjustment with support **-2-** on seat frame and secure with both fastening screws **-1-** .

top of page

Subsequent work

Subsequent work

Install front seat. 720119 Removing and installing front seat - section on "Installing" [997110 997120 997310 997320 997410 997430 997610 997620] 720119 Removing and installing front seat - section on "Installing" [997111 997121 997311 997321 997411 997431 997611 997621]

997110, 997111, 997120, 997121, 997310, 997311, 997320, 997321, 997410, 997411, 997430, 997431, 997610, 997611, 997620, 997621

as of MY 2005
Country C00, C02, C05, C07, C08, C09, C10, C11, C12, C13, C14, C15, C16, C18, C19, C20, C21, C22, C23, C24, C25, C26, C27, C28, C32, C33, C34, C35, C36, C37, C38, C39, C45, C46, C98, C99

WARNUNG

Gefahr des Verlusts der Text-Bild-Zuordnung beim Ausdruck.

- **Aus technischen Gründen kann derzeit nicht ausgeschlossen werden, dass trotz einwandfreier Darstellung auf dem Bildschirm beim Ausdruck der Zusammenhang von Text und zugehörigem Bild verloren geht.**
- **Wird der Fehler nicht bemerkt, besteht die Gefahr, daß Arbeiten nicht korrekt durchgeführt werden und es dadurch zu Personen- und Sachschäden kommt.**

Vergleichen Sie deshalb nach dem Druckvorgang unbedingt die Ausdrucke mit der Bildschirmdarstellung. Korrigieren Sie die Ausdrucke im Fehlerfall so, daß der Inhalt der Bildschirmdarstellung zutreffend wiedergegeben wird.

WARNING

Danger of losing text-figure correspondence when printing out.

- **For technical reasons, it can currently not be ruled out that the correspondence between text and associated figure can be lost when it is printed out, even though the display on the screen is correct.**
- **If the fault is not noticed, there is the danger that work will not be performed correctly which can cause injury and damage.**

Therefore, always compare printouts with the screen display after printing them out. Correct the printouts if they are faulty so that the content of the screen display matches that on the printouts.

AVERTISSEMENT

Risque de perte de la correspondance texte-illustration lors de l'impression papier.

69 25 19 Removing and installing rear belt lock - as of MY 2005

- Preliminary work
- Removing rear belt lock
- Installing rear belt lock
- Subsequent work

top of page

Preliminary work

Preliminary work

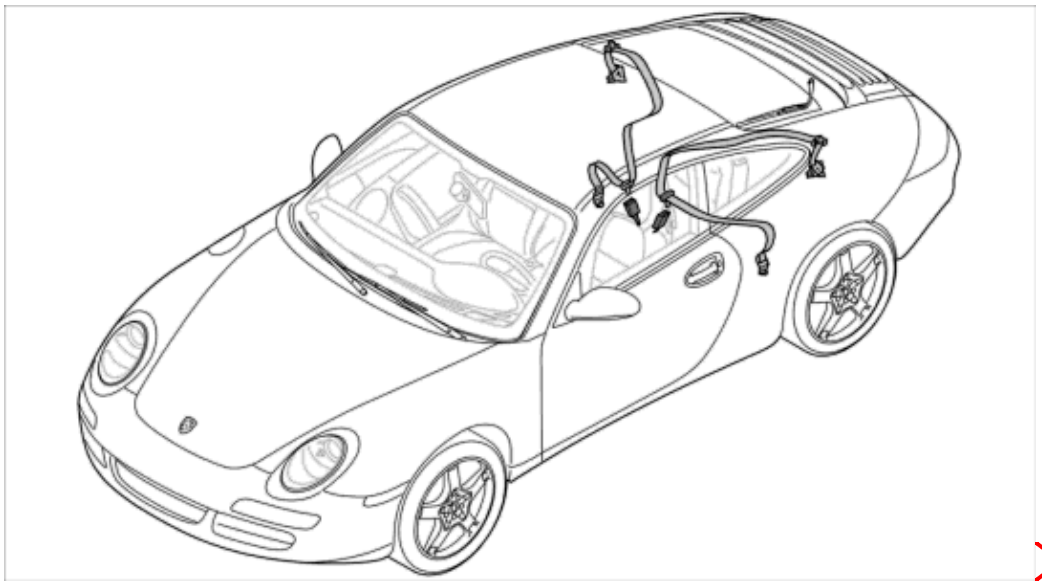
Remove back seat cushion. 745719 Removing and installing back seat cushion - chapter on "Removing" [997310 997311 997320 997321] 745719 Removing and installing back seat cushion - chapter on "Removing" [997410 997411 997430 997431 997610 997611 997620 997621] 745719 Removing and installing back seat cushion - chapter on "Removing" [997110 997111 997120 997121]

top of page

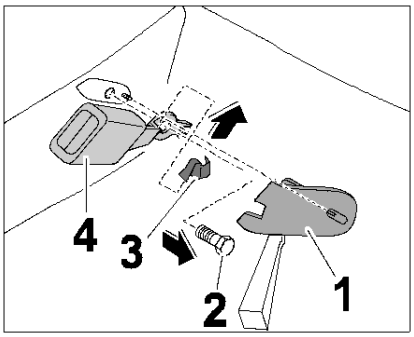
Removing rear belt lock

Removing rear belt lock

Installation Location:



Installation position for rear belt lock



Removing rear belt lock

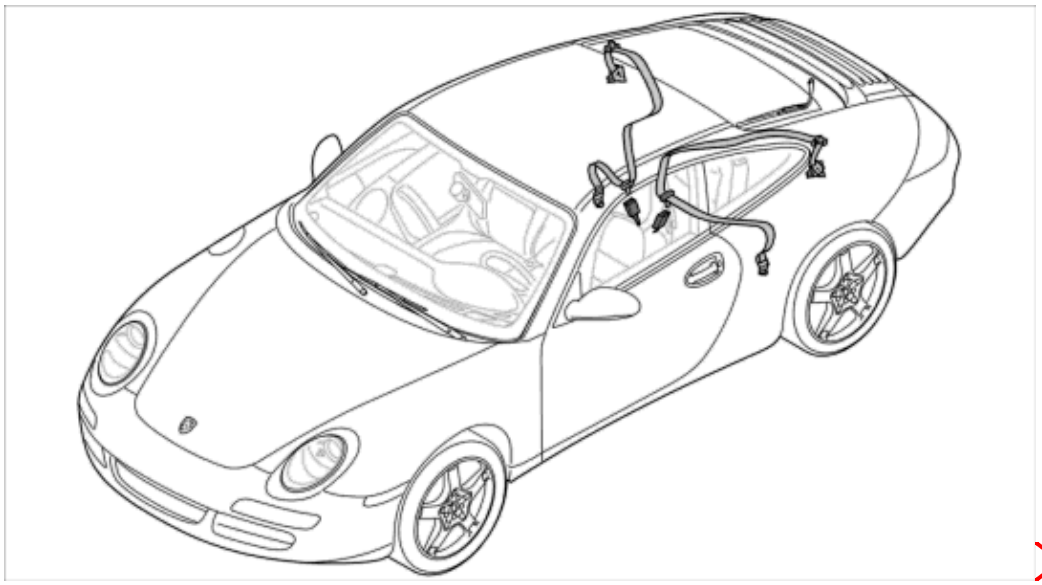
1. Press out cover **-1-** with a plastic spatula.
2. Unscrew fastening screw **-2-** from the seat-belt buckle **-4-** .
3. Remove metal clip **-3-** .

top of page

Installing rear belt lock

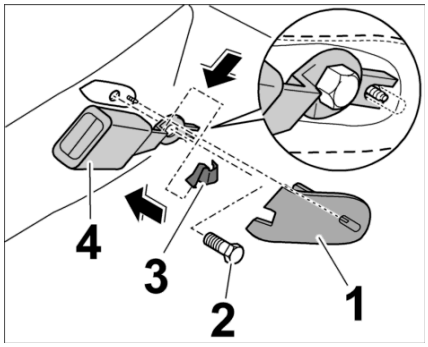
Installing rear belt lock

Installation Location:



Installation position for rear belt lock

1. Check metal clip **-3-** , replace if necessary.



Installing rear belt lock

2. Position seat-belt buckle **-4-** on the seat well and screw down with the fastening screw **-2-** . Tightening torque **Tightening torque: 37 ftlb. +/-3.5 ftlb.**
3. Press in **-1-** cover.

top of page

Subsequent work

Subsequent work

1. Install back seat cushion. 745719 Removing and installing back seat cushion - chapter on "Installing" [997310 997311 997320 997321] 745719 Removing and installing back seat cushion - chapter on "Installing" [997410 997411 997430 997431 997610 997611 997620 997621] 745719 Removing and installing back seat cushion - chapter on "Installing" [997110 997111 997120 997121]

69 36 19 Removing and installing adjustment fitting (seat belt height adjuster) - as of MY 2005

- Preliminary work
- Removing adjustment fitting (seat belt height adjuster)
- Installing adjustment fitting (seat belt height adjuster)
- Subsequent work

top of page

Preliminary work

Preliminary work

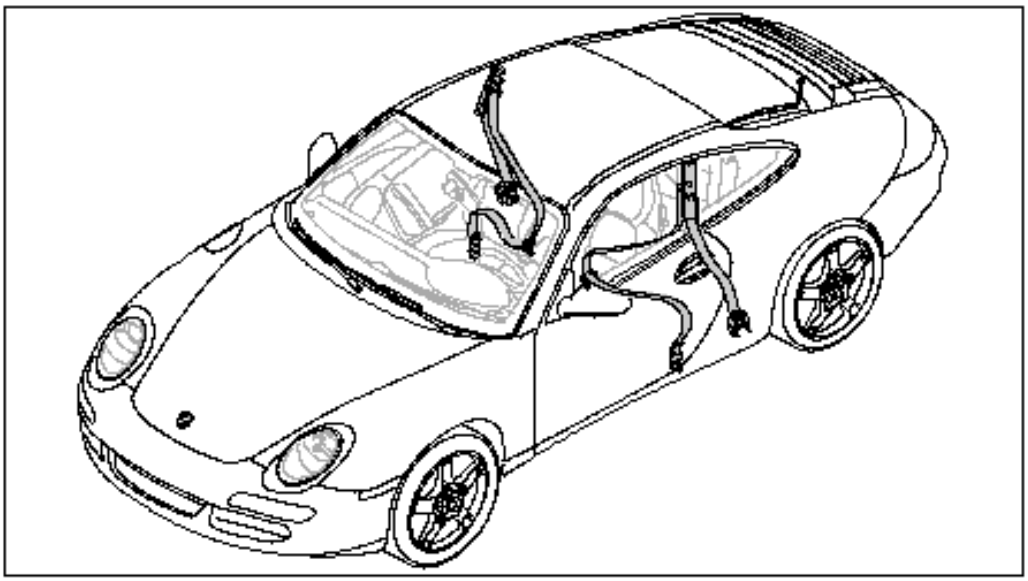
Remove B-pillar trim. 706719 Removing and installing B-pillar trim panel - "removing" chapter

top of page

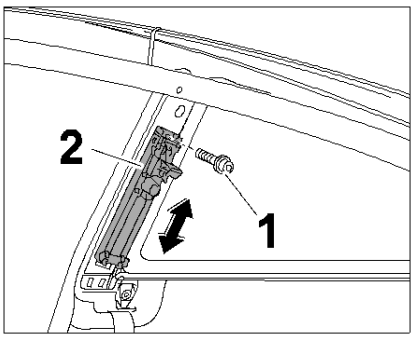
Removing adjustment fitting (seat belt height adjuster)

Removing adjustment fitting (seat belt height adjuster)

Installation Location:



Installation position for adjustment fitting (seat belt height adjuster)



Removing adjustment fitting

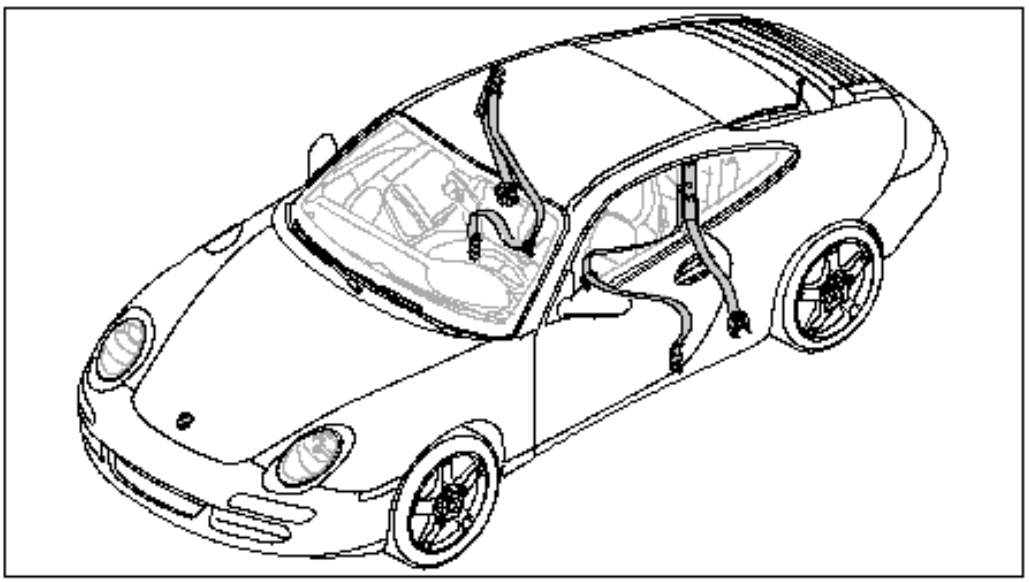
1. Unscrew fastening screw **-1-** .
2. Guide the adjustment fitting **-2-** upwards out of the B-pillar in **-direction of arrow-** .

top of page

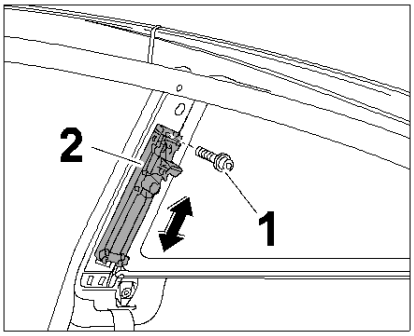
Installing adjustment fitting (seat belt height adjuster)

Installing adjustment fitting (seat belt height adjuster)

Installation Location:



Installation position for adjustment fitting (seat belt height adjuster)



Removing adjustment fitting

1. Run adjustment fitting **-2-** down into the B-pillar **-direction of arrow-** and tighten the fastening screw **-1-** . Tightening torque **Tightening torque: 17 ftlb.**

top of page

Subsequent work

Subsequent work

Install B-pillar trim panel. 706719 Removing and installing B-pillar trim panel - "installing" chapter

---

997110, 997111, 997120, 997121, 997410, 997411, 997430, 997431

as of MY 2005
Country C00, C02, C05, C07, C08, C09, C10, C11, C12, C13, C14, C15, C16, C18, C19, C20, C21, C22, C23, C24, C25, C26, C27, C28, C32, C33, C34, C35, C36, C37, C38, C39, C45, C46, C98, C99

WARNUNG

Gefahr des Verlusts der Text-Bild-Zuordnung beim Ausdruck.

- **Aus technischen Gründen kann derzeit nicht ausgeschlossen werden, dass trotz einwandfreier Darstellung auf dem Bildschirm beim Ausdruck der Zusammenhang von Text und zugehörigem Bild verloren geht.**
- **Wird der Fehler nicht bemerkt, besteht die Gefahr, daß Arbeiten nicht korrekt durchgeführt werden und es dadurch zu Personen- und Sachschäden kommt.**

Vergleichen Sie deshalb nach dem Druckvorgang unbedingt die Ausdrucke mit der Bildschirmdarstellung. Korrigieren Sie die Ausdrucke im Fehlerfall so, daß der Inhalt der Bildschirmdarstellung zutreffend wiedergegeben wird.

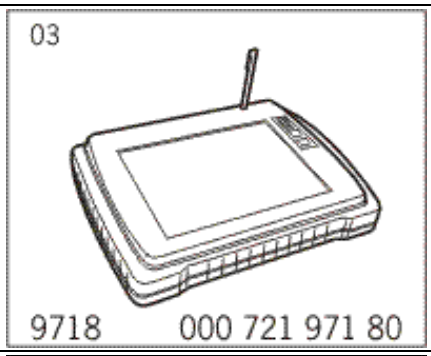
WARNING

Danger of losing text-figure correspondence when printing out.

69 51 19 Removing and installing airbag sensor - as of MY 2005

- Preliminary work
- General warning notes
- Tools and materials
- Removing airbag sensor
- Installing airbag sensor
- Reworking

Tools

Designation	Type	Number	Explanation	
PIWIS Tester	special tool	97180		
Removal tool, universal	commercially available tool	NR.21		

top of page

Preliminary work

Preliminary work for front airbag sensor

1. Disconnect battery. *Work instructions after disconnecting the battery*
2. Remove front apron. 631519 Removing and installing front apron - chapter on "Removing"

Preliminary work for centre airbag sensor

1. Disconnect battery. *Work instructions after disconnecting the battery*
2. Remove front seat. *Removing and installing front seat*
3. Remove the rear side-panel lining. 707519 Removing and installing rear side-panel lining [997310 997311 997320 997321 997610 997611 997620 997621] 707519 Removing and installing rear side-panel lining [997110 997111 997120 997121 997410 997411 997430 997431]
4. Remove sill. 680519 Removing and installing inner sill
5. Undo screw fastening seat belt to the body. *691119 21 Removing and installing front three-point belt - removing*

top of page

General warning notes

Safety instructions for airbag sensor

ATTENTION

Incorrect triggering of airbag modules.

- **Danger of injury and material damage if airbag sensors are not handled correctly!**

Remove ignition key. Disconnect battery. Route or isolate ground strap so that all contact with a ground carrier (e.g. body, seat frame) is avoided.

Always wait one minute after disconnecting the battery before disconnecting the connector from the sensor.

The airbag sensor must not be removed with the plug plugged in!

The airbag sensors cannot be interchanged. Install the sensor listed in the Spare Parts Catalogue (PET).

Always replace fastening nuts and bolts of sensors after customer service and reworking.

Never make alterations to the micro-encapsulated nuts and bolts which have a negative effect on the bond (e.g. using lubricant, loosening bolts and screwing them down again).

top of page

Tools and materials

Tools

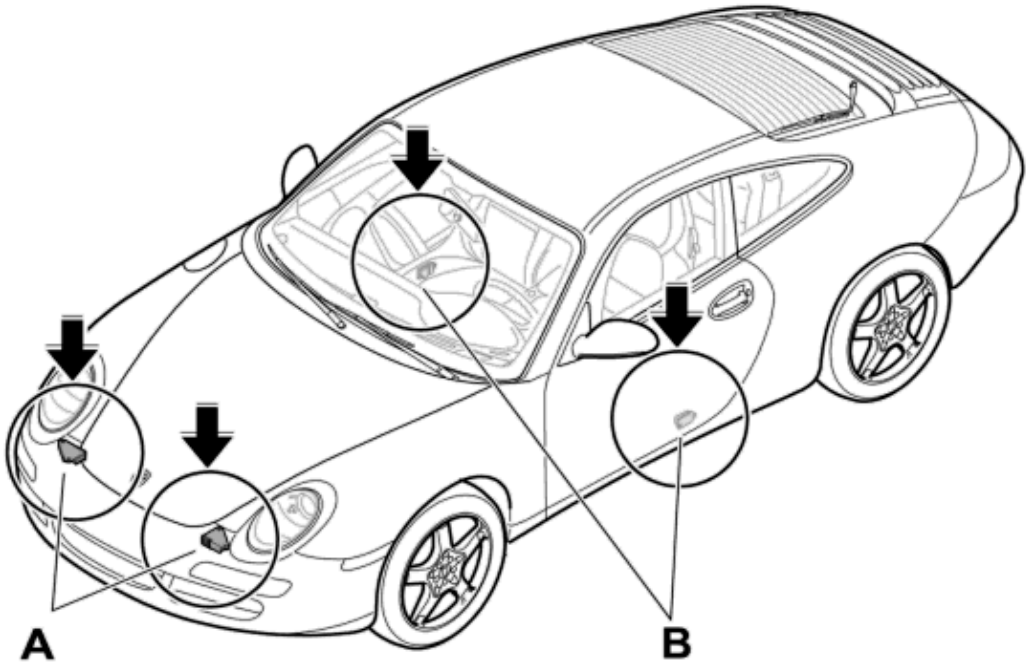
Removal tool, universal NR.21

top of page

Removing airbag sensor

Removing sensor for front airbag

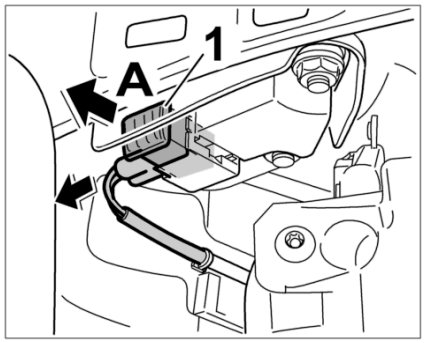
Installation Location:



Installation locations

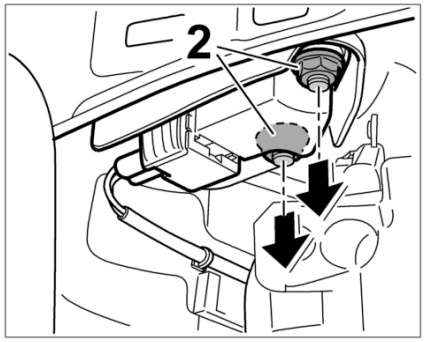
A - Sensors for front airbag

B - Sensors for centre airbag



Disconnecting plug connection

1. Unlock electrical connector **-1-** **-A-** and remove from sensor.

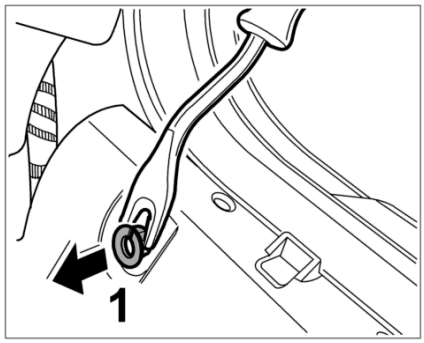


Mounting for removal of sensor

2. Unscrew the two fastening nuts **-2-** and remove the sensor.

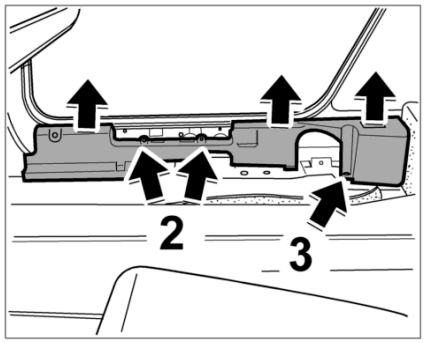
Removing sensor for centre airbag

1. Disengage floor covering at the support and lay it in the vehicle interior.



Unlocking locating peg using the removal tool

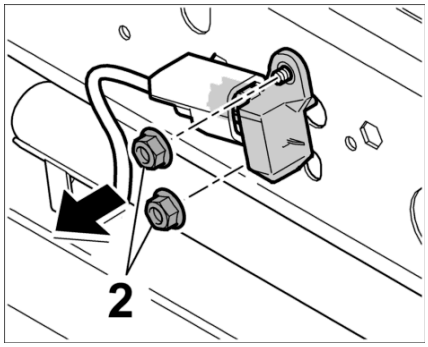
2. Unlock locating peg **-1-** using the removal tool



Removing support

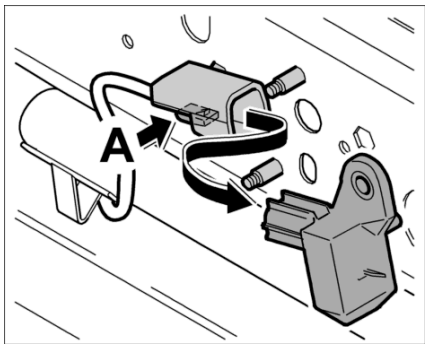
3. Unscrew fastening screws **-2-** and nuts **-3-** and carefully pull the support up and out of the retaining points.

Incorrect triggering of airbag modules. 695119 Removing and installing airbag sensor - general warnings



Removing airbag sensor

4. Unscrew the two fastening nuts **-2-** .



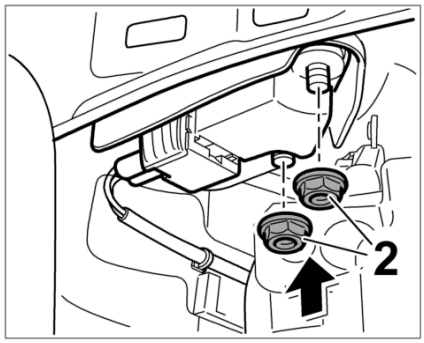
Removing connector for airbag sensor

5. Unlock electrical connector **-A-** and remove sensor.

top of page

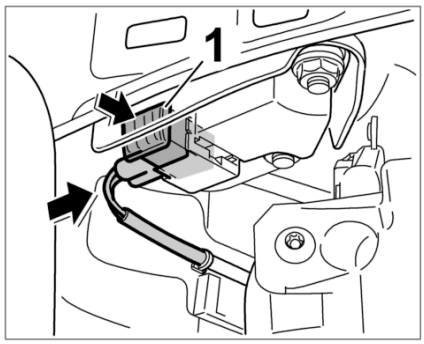
Installing airbag sensor

Installing sensor for front airbag



Mounting for installation of sensor

1. Position sensor on retaining bracket and screw it down with the fastening nuts **-2-** . **M6: 8 ftlb. +/-1 Nm(ftlb.)**

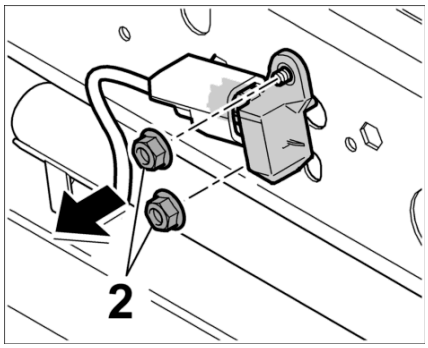


Installing the sensor plug connection

2. Push on the electrical connector **-1-** and lock.

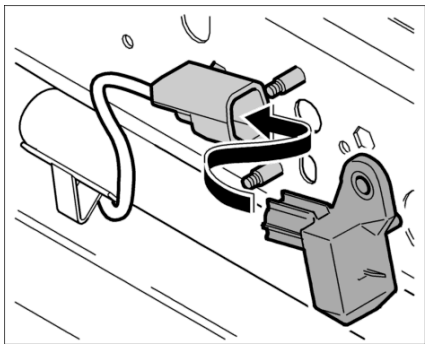
Installing sensor for centre airbag

Incorrect triggering of airbag modules. 695119 Removing and installing airbag sensor - general warnings



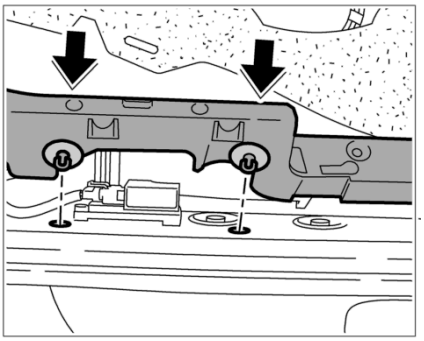
Mounting for installation of sensor

1. Position sensor on the body and screw it down with the fastening nuts **-2-** . **M6: 8 (6) ftlb. +/-1 (0.5) ftlb.**



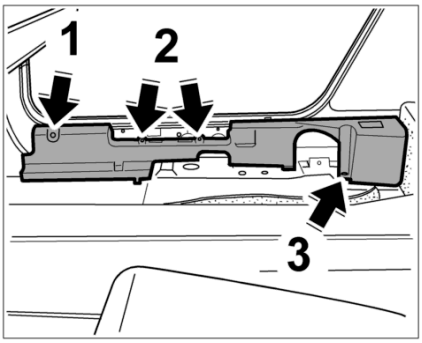
Installing the sensor plug connection

2. Push on the electrical connector until it clicks into place.



Engaging the support

3. Position the support and engage in lower side member.



Installing the support

4. Clip in locating peg **-1-** and check it is seated correctly.
5. Tighten the plastic fastening nuts **-3-** .
6. Screw in fastening screws **-2-** . **Final tightening: 7.2 (5.5) Nm(ftlb.)**
7. Lay the floor covering over the support and engage.

top of page

Reworking

Work in wake of front airbag sensor

1. Install front apron. 631519 Removing and installing front apron - chapter on "Installing"
2. Connect the battery . *Work instructions after disconnecting the battery*
3. Using the **PIWIS Tester 97180**, read out the fault memory and erase if required. If further faults exist, proceed in accordance with airbag diagnosis fault code.

Work in wake of centre airbag sensor

1. Screw in screw fastening seat belt to the body. *691119 23 Removing and installing front three-point belt - installing*
2. Insert sill. 680519 Removing and installing inner sill
3. Install the rear side-panel lining. 707519 Removing and installing rear side-panel lining [997310 997311 997320 997321 997610 997611 997620 997621] 707519 Removing and installing rear side-panel lining [997110 997111 997120 997121 997410 997411 997430 997431]
4. Installing front seat. *Removing and installing front seat*
5. Connect the battery . *Work instructions after disconnecting the battery*
6. Using the **PIWIS Tester 97180**, read out the fault memory and erase if required. If further faults exist, proceed in accordance with airbag diagnosis fault code.

997110, 997111, 997120, 997121, 997310, 997311, 997320, 997321, 997410, 997411, 997430, 997431, 997610, 997611, 997620, 997621

as of MY 2005
Country C00, C02, C05, C07, C08, C09, C10, C11, C12, C13, C14, C15, C16, C18, C19, C20, C21, C22, C23, C24, C25, C26, C27, C28, C32, C33, C34, C35, C36, C37, C38, C39, C45, C46, C98, C99

WARNUNG

Gefahr des Verlusts der Text-Bild-Zuordnung beim Ausdruck.

- **Aus technischen Gründen kann derzeit nicht ausgeschlossen werden, dass trotz einwandfreier Darstellung auf dem Bildschirm beim Ausdruck der Zusammenhang von Text und zugehörigem Bild verloren geht.**
- **Wird der Fehler nicht bemerkt, besteht die Gefahr, daß Arbeiten nicht korrekt durchgeführt werden und es dadurch zu Personen- und Sachschäden kommt.**

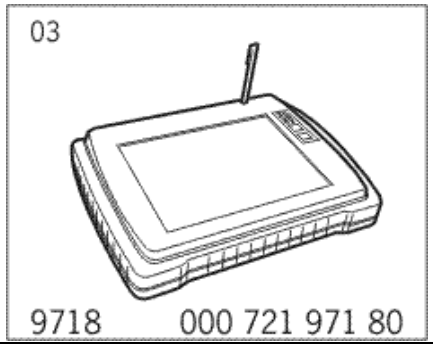
Vergleichen Sie deshalb nach dem Druckvorgang unbedingt die Ausdrucke mit der Bildschirmdarstellung. Korrigieren Sie die Ausdrucke im Fehlerfall so, daß der Inhalt der Bildschirmdarstellung zutreffend wiedergegeben wird.

WARNING

69 53 19 Removing and installing triggering unit for airbag - as of MY 2005

- Preliminary work
- General warning notes
- Removing triggering unit for airbag
- Installing the triggering unit
- Subsequent work
- Programming triggering unit
- Coding triggering unit

Tools

Designation	Type	Number	Explanation	
PIWIS Tester	special tool	9718		

top of page

Preliminary work

Preliminary work for triggering unit

Note

If a new control unit has to be installed, read out as much of the data from the old control unit as possible using the **PIWIS Tester 9718**.

1. Disconnect battery. *271000 A7 Work instructions after disconnecting the battery - chapter on "disconnecting and connecting"*
2. Remove left and right covers of console. 681419 Removing and installing centre console cover - chapter on "removing"
3. Remove centre console cover. 681919 Removing and installing centre console cover - chapter on "removing"
4. Remove centre console. 681719 Removing and installing centre console - chapter on "removing"
5. If installed, remove control unit for tilt sensor. 966319 Removing and installing control unit for tilt sensor - chapter on "Removing"

top of page

General warning notes

General warning notes for airbag triggering unit

WARNING

Incorrect triggering of airbag modules.

- **Danger of injury and material damage to as a result of incorrect handling of airbag units.**

Remove ignition key. Disconnect battery. Route or isolate ground strap so that all contact with a ground carrier (e.g. body, seat frame) is avoided.. *271000 A7* Work instructions after disconnecting the battery - chapter on "disconnecting and connecting"

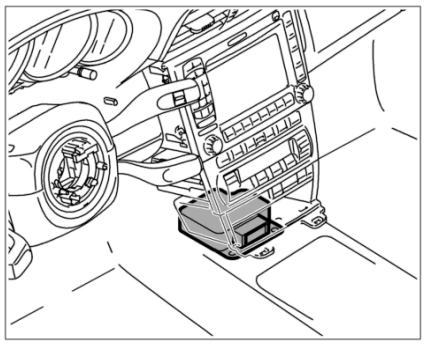
Before disconnecting the airbag plug from the triggering unit, always wait for one minute after disconnecting the battery.

The airbag triggering unit must not be removed with the connector still plugged in!

top of page

Removing triggering unit for airbag

Overview, triggering unit for the airbag



Overview, triggering unit for the airbag

Removing triggering unit for airbag

WARNING

Incorrect triggering of airbag modules.

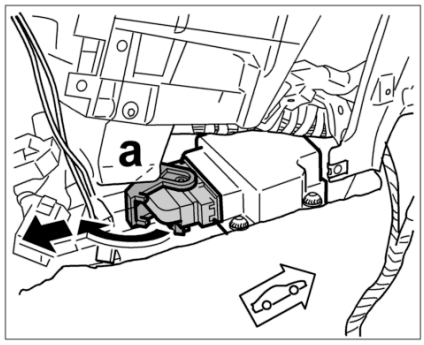
- **Danger of injury and material damage to as a result of incorrect handling of airbag units.**

Remove ignition key. Disconnect battery. Route or isolate ground strap so that all contact with a ground carrier (e.g. body, seat frame) is avoided.. *271000 A7* Work instructions after disconnecting the battery - chapter on "disconnecting and connecting"

Before disconnecting the airbag plug from the triggering unit, always wait for one minute after disconnecting the battery.

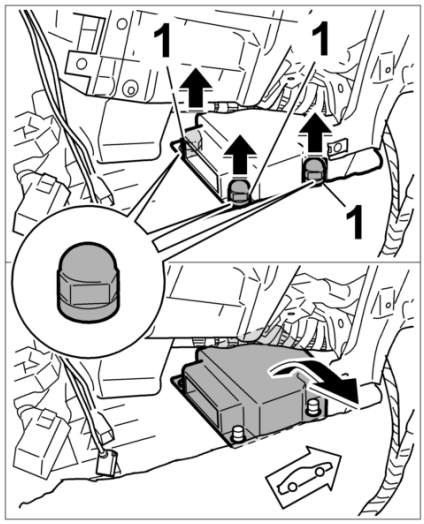
The airbag triggering unit must not be removed with the connector still plugged in!

Incorrect triggering of airbag modules.



Triggering unit plug

1. From the passenger's side, release electric plug **-a-** and open the latching lever **-arrow-** .



Unscrewing fastening screws

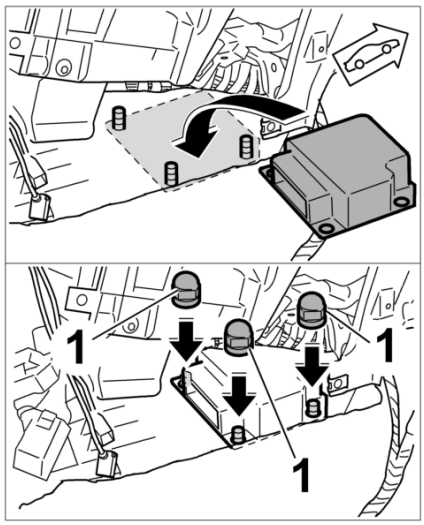
2. Unscrew the three fastening screws **-1-** .

3. Take off both ground straps **-2-** from the bolt for the triggering unit.
4. Remove triggering unit laterally.

top of page

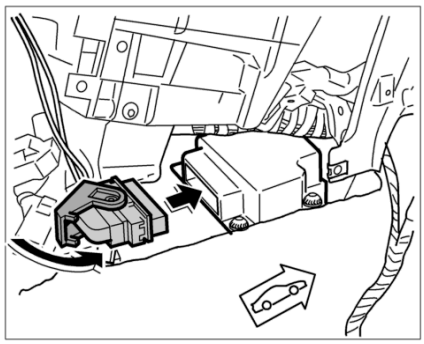
Installing the triggering unit

Installing triggering unit



Installing triggering unit

1. Position triggering unit, move both ground straps **-2-** on the left fastening bolts and screw down with the three fastening nuts **-1-** . **Tightening torque: 6 ftlb.**



Connecting electric plug

2. Connect electric plug and lock it until the lock engages.
3. If the triggering unit is new, lock the airbag triggering unit using the **PIWIS Tester 9718**.
   C1 Removing and installing triggering unit for airbag - coding

top of page

Subsequent work

Subsequent work for triggering unit

1. If installed, install control unit for tilt sensor. 966319 Removing and installing control unit for tilt sensor - chapter on "Installing"
2. Connect battery. *271000 Work instructions after disconnecting the battery*
3. Install centre console. 681719 Removing and installing centre console - chapter on "installing"
4. Install centre console cover. 681919 Removing and installing centre console cover - chapter on "installing"
5. Install left and right covers of console. 681419 Removing and installing centre console cover - chapter on "installing"

top of page

Programming triggering unit

Triggering unit - reading out and writing in data

WARNING

Sudden voltage interruption of the power supply to the control module.

- **Destruction of the control module.**

During programming, it is essential to guarantee the power supply for the Porsche System tester. It is essential to connect a battery charger with a current rating of at least 40 A to the vehicle battery.

Prior to disconnecting the control module, switch off the ignition and remove the ignition key.

Note

The **PIWIS tester 9718** instructions take precedence and in the event of a discrepancy these are the instructions that must be followed. Deviations may occur with later software versions.
The procedure described here has been structured in general terms; different text or additions may appear in the **PIWIS tester 9718**.

1. Connect the Porsche System Tester to the vehicle and start the System Tester. Switch on ignition. >> Continue.
2. Select vehicle type using the cursor keys.

3. Move from vehicle type to the list of control units. Locking is only possible after an automatic control unit search.
4. Select **Posip** with the cursor keys and press the >> key.
5. Select **Control unit replacement** with the cursor keys and press the >> key.
6. Select **Read out values** (codings) with the cursor keys and press >> .
7. The message **Codes successfully read out** appears on the screen of the Porsche System Tester. Press >> .
8. Switch off ignition and replace control unit.
9. Switch on ignition. Switch to the **Special functions** menu and perform the **vehicle handover** using the F8 key.
10. In the **Special functions** menu, erase **All fault memories** >> , compare **Vehicle identification number** and confirm.
11. With the cursor keys on **Posip** - **Replacing control unit**, after replacement of the control unit, the read-out data (see Section 6) are installed under the menu **Write in data** press >> .
12. System Tester displays **Codes successfully written in**. Press >> .
13. Locking is only possible after an automatic control unit search.

Lock triggering unit:

14. Change to the menu **Posip** - **lock** and press >> .
15. Select the country-specific **Equipment** and press >> .
16. Start **Lock** with F8 .
17. Observe message on Tester.
18. Quit menu, carry out a test drive, and read out fault memory.

top of page

Coding triggering unit

Coding triggering unit

WARNING

Sudden voltage interruption of the power supply to the control module.

- **Destruction of the control module.**

During programming, it is essential to guarantee the power supply for the Porsche System tester. It is essential to connect a battery charger with a current rating of at least 40 A to the vehicle battery.

Prior to disconnecting the control module, switch off the ignition and remove the ignition key.

Note

The **PIWIS tester 9718** instructions take precedence and in the event of a discrepancy these are the instructions that must be followed. Deviations may occur with later software versions.
The procedure described here has been structured in general terms; different text or additions may appear in the **PIWIS tester 9718**.

Note

The procedure described must be applied when a control unit has to be replaced and the tester function **Control unit replacement** cannot be used.

1. Connect the **PIWIS tester 9718** to the vehicle and start it. Switch on the ignition. >> Continue.
2. Switch to the **Special functions** menu and perform the **vehicle handover** using the F8 key.
3. In the **Special functions** menu, erase **All fault memories** >> , compare **Vehicle identification number** and confirm.
4. Select **vehicle type** using the cursor keys.
5. Using the >> , move from the vehicle type to the list of control units. Locking is only possible after an automatic control unit search.
6. Select **Posip** with the cursor keys and press >> .
7. Select **Coding** and press the >> .
8. Select **Thorax driver** and code with F8 .

Thorax driver
yes
no

9. Select **Thorax driver** and code with F8 .

Thorax passenger
yes
no

10. Select **Head airbag driver** and code with F8 .

Head airbag driver
yes
no

11. Select **Head airbag passenger** and code with F8 .

Head airbag passenger
yes
no

12. Select **Front airbag driver** and code with F8 .

Front airbag driver
yes
no

13. Select **Front airbag passenger** and code with F8 .

Front airbag passenger
yes
no

14. Select **Seat-belt tensioner driver** and code with F8 .

Seat-belt tensioner driver
yes
no

15. Select **Seat-belt tensioner passenger** and code with F8 .

Seat-belt tensioner passenger
yes
no

16. Select **Front sensor driver** and code with F8 .

Front sensor driver
yes
no

17. Select **Front sensor passenger** and code with F8 .

Front sensor passenger
yes
no

18. Select **Side sensor driver** and code with F8 .

Side sensor driver
yes
no

19. Select **Side sensor passenger** and code with F8 .

Side sensor passenger
yes
no

20. Select **AWS** and code with F8 .

AWS
yes
no

21. Select **Seat-belt buckle driver** and code with F8 .

Seat belt buckle driver
yes
no

22. Select **Seat-belt buckle passenger** and code with F8 .

Seat belt buckle passenger
yes
no

23. Select **Left/Right-hand drive** and code with F8 .

Left/Right-hand drive
LHD
RHD

24. Select **Key-operated switch** and code with F8 .

Key-operated switch
yes
no

Lock triggering unit:

25. Change to the menu **Posip** - **lock** and press >> .
26. Select the country-specific **Equipment** and press >> .
27. Start **Lock** with F8 .
28. Observe message on Tester.
29. Quit menu, carry out a test drive, and read out fault memory.

997110, 997111, 997120, 997121, 997310, 997311, 997320, 997321, 997410, 997411, 997430, 997431, 997610, 997611, 997620, 997621

as of MY 2005
Country C00, C02, C05, C07, C08, C09, C10, C11, C12, C13, C14, C15, C16, C18, C19, C20, C21, C22, C23, C24, C25, C26, C27, C28, C32, C33, C34, C35, C36, C37, C38, C39, C45, C46, C98, C99

WARNUNG

Gefahr des Verlusts der Text-Bild-Zuordnung beim Ausdruck.

- **Aus technischen Gründen kann derzeit nicht ausgeschlossen werden, dass trotz einwandfreier Darstellung auf dem Bildschirm beim Ausdruck der Zusammenhang von Text und zugehörigem Bild verloren geht.**
- **Wird der Fehler nicht bemerkt, besteht die Gefahr, daß Arbeiten nicht korrekt durchgeführt werden und es dadurch zu Personen- und Sachschäden kommt.**

Vergleichen Sie deshalb nach dem Druckvorgang unbedingt die Ausdrucke mit der Bildschirmdarstellung. Korrigieren Sie die Ausdrucke im Fehlerfall so, daß der Inhalt der Bildschirmdarstellung zutreffend wiedergegeben wird.

WARNING

Danger of losing text-figure correspondence when printing out.

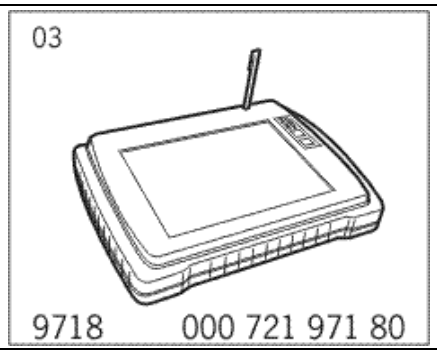
- **For technical reasons, it can currently not be ruled out that the correspondence between text and associated figure can be lost when it is printed out, even though the display on the screen is correct.**
- **If the fault is not noticed, there is the danger that work will not be performed correctly which can cause injury and damage.**

Therefore, always compare printouts with the screen display after printing them out. Correct the printouts if they are faulty so that the content of the screen display matches that on the printouts.

69 54 19 Removing and installing the contact unit - as of MY 2005

- Preliminary work
- General warning notes
- Removing contact unit for airbag
- Installing airbag contact unit
- Reworking
- Calibrating steering-angle sensor

Tools

Designation	Type	Number	Explanation	
PIWIS Tester	special tool	9718		

top of page

Preliminary work

Preliminary work for contact unit

Remove driver's airbag unit. *21 Removing and installing driver's airbag unit - removing*
Remove steering wheel. 481019 Removing and installing steering wheel - removing
Remove steering column trim. 481019 Removing and installing steering wheel - removing
Remove and disassemble steering column switch. *21 Removing and installing steering column switch - removing*

top of page

General warning notes

General warnings for contact unit

ATTENTION

Danger of injury and material damage if airbag units are not handled correctly!

- **Incorrect triggering of airbag unit!**

Always observe the safety regulations for handling airbag units! *Safety regulations for handling airbag and belt tensioner units*

WARNING

If the contact unit has been adjusted, proceed in accordance with the following work instruction:

- **Damage to the contact unit!**

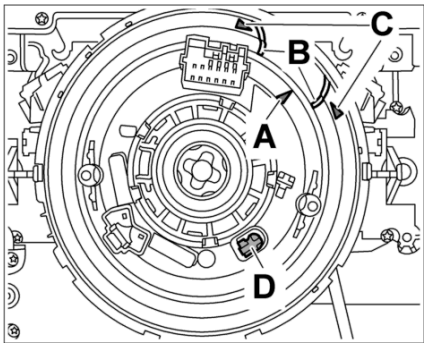
To position the airbag contact unit in the central position, press the locking element and turn the rotor carefully to the left as far as it will go.

Then turn the rotor carefully to the right, approx. 3.5 to 3.75 revolutions, until the band printed on one side is visible in the window.

top of page

Removing contact unit for airbag

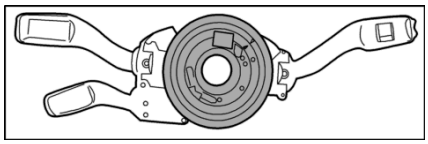
Removing contact unit for airbag



Marking the contact unit

Note

Ensure that arrow **-A-** of the rotor is positioned between the markings **-B-** of the arrows **-C-** of the airbag contact unit and that the locking element **-D-** is engaged.



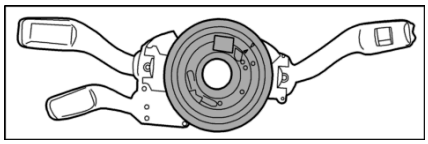
Airbag contact unit

1. Carefully lift up the three retaining tabs and remove airbag contact unit.

top of page

Installing airbag contact unit

Installing contact unit for airbag



Airbag contact unit

1. Position airbag contact unit and press onto the steering column switch until the three tabs engage.
2. Calibrate steering angle sensor. 695419 Removing and installing contact unit - calibrating

top of page

Reworking

Work in wake of airbag contact unit

Install steering column switch. *23 Removing and installing steering column switch - installing*
Install steering column trim. *481319 23 Removing and installing trim - installing*
Install steering wheel. 481019 Removing and installing steering wheel - installing

Install driver's airbag unit. *23 Removing and installing driver's airbag unit - installing*

top of page

Calibrating steering-angle sensor

Calibrating steering-angle sensor

Calibrating steering-angle sensor

Note

- *The steering-angle sensor must be re-calibrated after replacing the airbag contact unit.*
- *To correctly calibrate the angle sensor, the vehicle must be on the measuring platform.*
- *The steering angle sensor must be calibrated using the menu with the **PIWIS Tester 9718** under the specified test conditions:*
- *Running gear set according to Porsche specifications Adjusting values for suspension alignment*
- *Wheels in straight-ahead position and steering wheel horizontal.*
- *In the straight-ahead position, the steering wheel may depart from the horizontal position (steering centre position) by +/- 2.0° max.*

1. Connect the **PIWIS Tester 9718** to the vehicle and start the System Tester. Switch on ignition and press >> to continue.
2. Select vehicle type and press >> to continue.
3. Select control unit **PSM** and confirm with >> .
4. Select **Actual values** and confirm with >> .
5. Select **Security code** and confirm with >> .
6. Note the**Security code** und use << to go back to **Calibration**.
7. Select **Calibration** and confirm with >> .
8. Enter **Security code** and confirm with >> .
9. Confirm**Security code** with F7 .
10. Select **Steering angle sensor** and confirm with >> .
11. Read**Safety instructions** using F7 .
12. After successful calibration, the stored fault code is erased from the fault memory. The PSM indicator light in the instrument cluster goes out.
13. Read out the fault memory and, if necessary, erase it and read it again.

69 58 19 Removing and installing driver's airbag unit - as of MY 2005

- General warning notes
- Removing driver's airbag unit
- Installing driver's airbag unit
- Reworking

Preliminary work for driver's airbag unit

Note

Operate the steering wheel with the battery disconnected. Before disconnecting the battery, observe the following points:

1. Insert ignition key into ignition lock, switch on ignition and then off again.
2. Leave ignition key inserted.
3. Disconnect battery. *Work instructions after disconnecting the battery*

top of page

General warning notes

General warnings for driver's airbag unit

WARNING

Incorrect triggering of airbag module.

- **Danger of injury and damage to property as a result of incorrect handling of airbag units!**

The safety regulations *Safety regulations for handling airbag and belt tensioner units* must be followed.

The airbag unit must always be stowed so that the airbag opening faces upwards!

If removed for an extended period, the airbag unit must be kept in a locked place!

Remove ignition key. Disconnect battery. Route or isolate ground strap so that all contact with a ground carrier (e.g. body, seat frame) is avoided.

After the battery is disconnected, always wait for 1 minute before disconnecting the airbag plugs.

ATTENTION

Incorrect release of airbag unit.

- **Danger of injury and material damage if airbag units are not installed correctly!**

Before installing the airbag unit, check whether the locking clip, the airbag unit mounting and/or the metal stop on the steering wheel are deformed. If there is deformation, replace the damaged component (steering wheel/airbag unit).

The airbag unit must only be installed with locking clips that are operational and are in the correct position.

The locking clip must not jam or grind.

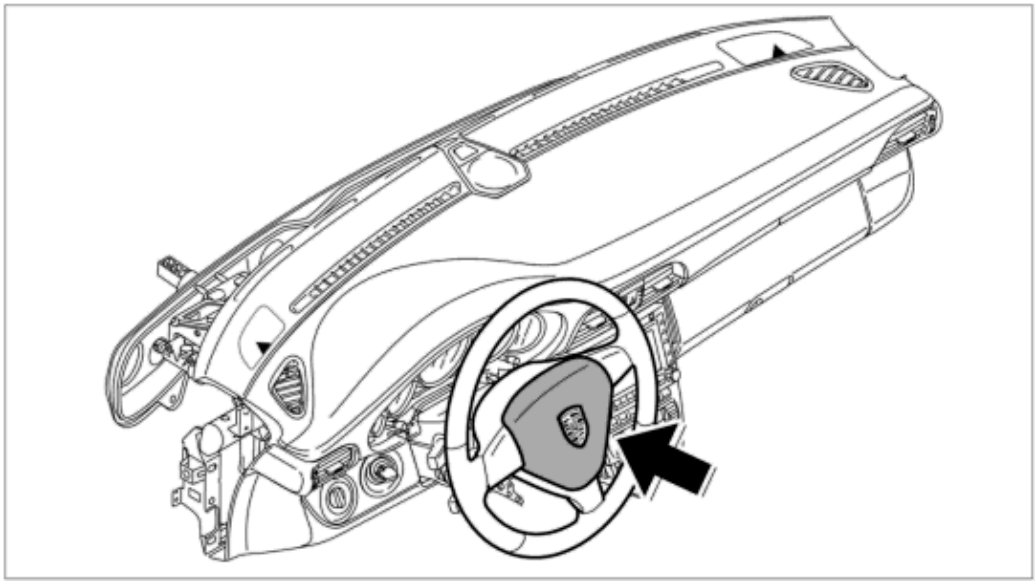
Do not expose face and other parts of the body to the airbag unit.

top of page

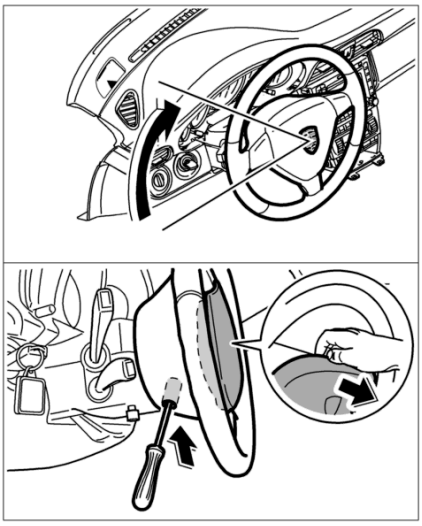
Removing driver's airbag unit

Removing driver's airbag unit

Installation Location:



Overview of driver' airbag unit



Releasing driver's airbag unit

1. Turn steering wheel 90° and stick a T30 (Torx with handle) or medium-size screwdriver through the opening of the steering wheel.

WARNING

Incorrect triggering of airbag module.

- **Danger of injury and damage to property as a result of incorrect handling of airbag units!**

The safety regulations *Safety regulations for handling airbag and belt tensioner units* must be followed.

The airbag unit must always be stowed so that the airbag opening faces upwards!

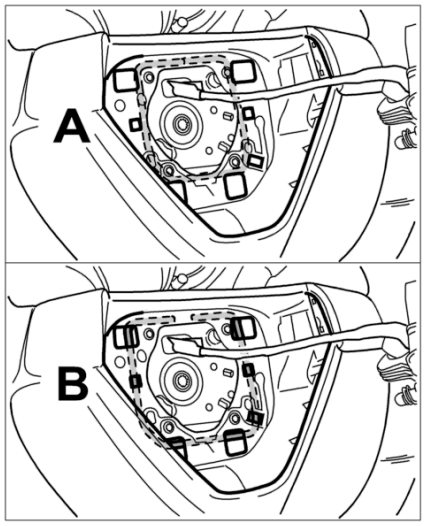
If removed for an extended period, the airbag unit must be kept in a locked place!

Remove ignition key. Disconnect battery. Route or isolate ground strap so that all contact with a ground carrier (e.g. body, seat frame) is avoided.

After the battery is disconnected, always wait for 1 minute before disconnecting the airbag plugs.

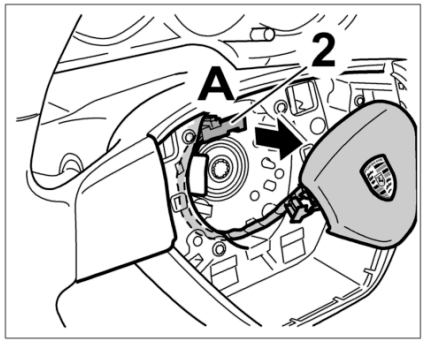
Incorrect triggering of airbag module.

2. Use the screwdriver or T30 to compress the locking clip and pull the airbag unit from the steering wheel with the fingers.



Locking clip

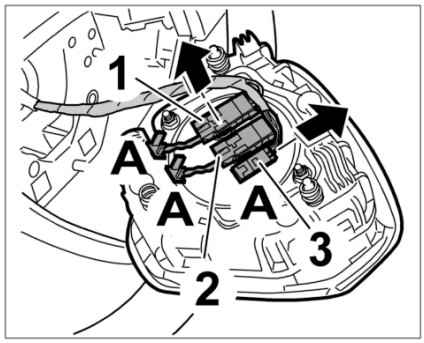
Locking clip compressed **-A-**
Locking clip relieved **-B-**



Unlocking connector for airbag wiring harness

3. Unlock electrical connector **-2-** on steering wheel **-A-** and remove.

Removing airbag lead:



Removing airbag lead

4. Unlock electrical connectors **-1, 2-** with a screwdriver and unplug.
5. Unplug electrical connector **-3-** .

top of page

Installing driver's airbag unit

Installing driver's airbag unit

ATTENTION

Incorrect release of airbag unit.

- **Danger of injury and material damage if airbag units are not installed correctly!**

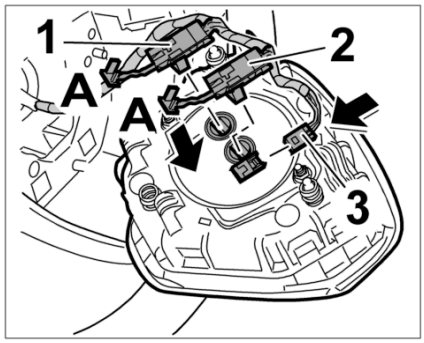
Before installing the airbag unit, check whether the locking clip, the airbag unit mounting and/or the metal stop on the steering wheel are deformed. If there is deformation, replace the damaged component (steering wheel/airbag unit).

The airbag unit must only be installed with locking clips that are operational and are in the correct position.

The locking clip must not jam or grind.

Do not expose face and other parts of the body to the airbag unit.

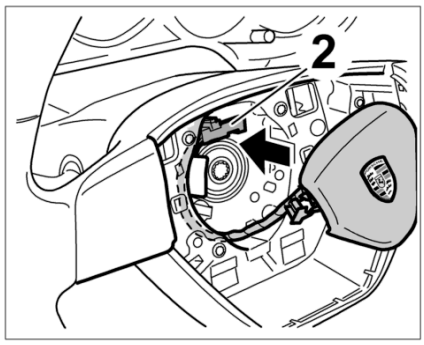
Installing airbag lead:



Installing airbag lead

1. Push in the electrical connector **-3-** until it clicks into place.
2. Press in the electrical connectors **-1, 2-** until they click into place, then clip the retainer into the electrical connectors **-1, 2-** .

Incorrect triggering of airbag module. *AW Removing and installing driver's airbag unit - general warnings*

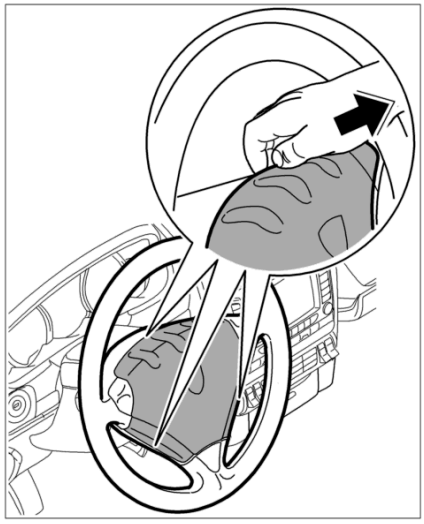


Inserting connector for airbag wiring harness

3. Insert electrical connector for the airbag wiring harness **-2-** until it clicks into place.

Engaging the airbag unit

4. Engage the airbag unit into the steering wheel with both hands using intermittent pressure.



Checking the airbag unit is positioned firmly:

5. Each time the airbag unit is fitted, it is important to check that it is installed correctly by **pulling** the airbag unit, **tapping** the steering wheel rim and performing a visual inspection (position of airbag unit on steering wheel).

top of page

Reworking

Work in wake of driver's airbag unit

1. Connect the battery . Carry out *Work instructions after disconnecting the battery.*.

69 59 19 Removing and installing passenger's airbag unit - as of MY 2005

- Preliminary work
- Removing passenger's airbag unit
- Installing passenger's airbag unit
- Reworking

top of page

Preliminary work

Preliminary work - airbag unit, passenger's side

1. Disconnect battery. *Working instructions after disconnecting the battery*
2. Remove glove compartment 681519 Removing and installing glove compartment - removing

Safety instructions, passenger's airbag unit

WARNING

Incorrect triggering of airbag module.

- **Danger of injury and damage to property as a result of incorrect handling of airbag units!**

The safety regulations *Safety regulations for handling airbag and belt tensioner units* must be followed.

The airbag unit must always be stowed so that the airbag opening faces upwards!

If removed for an extended period, the airbag unit must be kept in a locked place!

Remove ignition key. Disconnect battery. Route or isolate ground strap so that all contact with a ground carrier (e.g. body, seat frame) is avoided.

After the battery is disconnected, always wait for 1 minute before disconnecting the airbag plugs.

ATTENTION

Loosen the safety-related screw connection!

- **Danger of injury and material damage if the airbag module is screwed on incorrectly!**

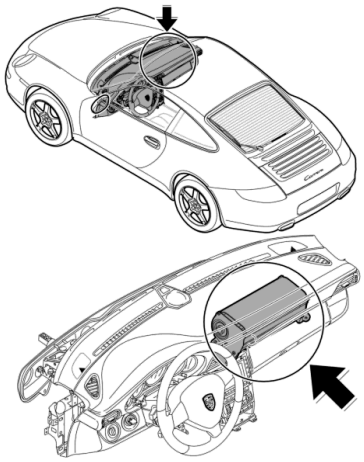
Always replace fastening screws for the airbag unit after customer service and reworking.

It is not permissible to make alterations to the microencapsulated screws (e.g., use lubricant, loosen bolts, and screw them down again).

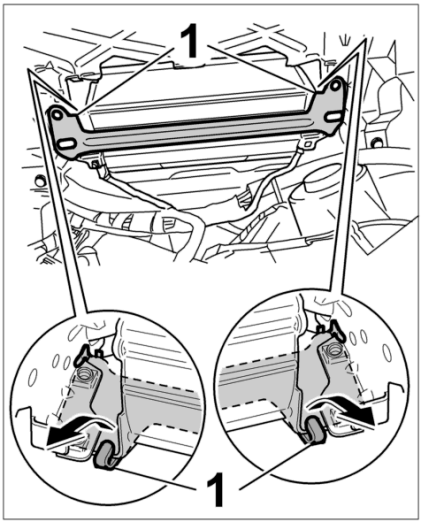
top of page

Removing passenger's airbag unit

Removing passenger's airbag unit



Installation location illustrated on 997



Bend up the reinforcing panel.

1. Bend up the curved metal straps **-1-** at the right and left of the reinforcing panel with a screwdriver.

WARNING

Incorrect triggering of airbag module.

- **Danger of injury and damage to property as a result of incorrect handling of airbag units!**

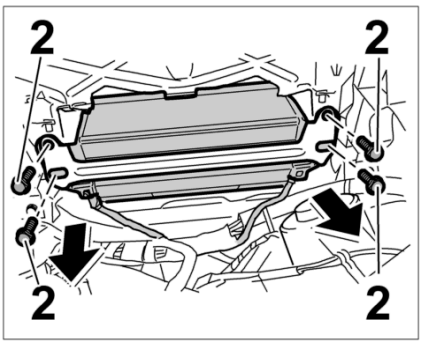
The safety regulations *Safety regulations for handling airbag and belt tensioner units* must be followed.

The airbag unit must always be stowed so that the airbag opening faces upwards!

If removed for an extended period, the airbag unit must be kept in a locked place!

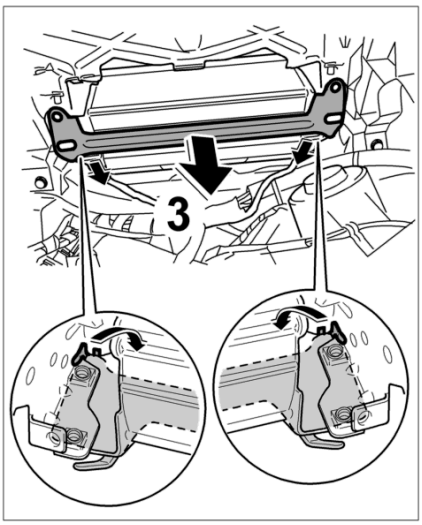
Remove ignition key. Disconnect battery. Route or isolate ground strap so that all contact with a ground carrier (e.g. body, seat frame) is avoided.

After the battery is disconnected, always wait for 1 minute before disconnecting the airbag plugs.



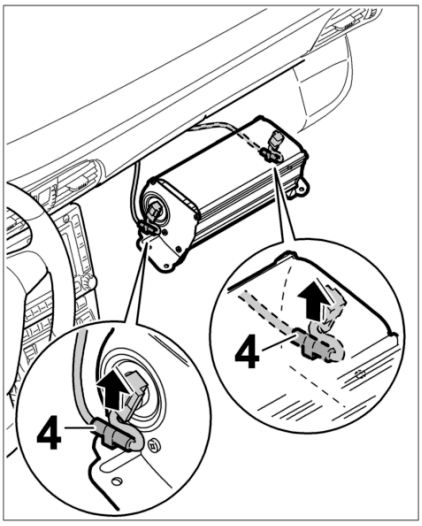
Screws for airbag unit

2. Unscrew the four fastening screws **-2-** for the airbag unit and carefully lower the airbag unit out a few centimetres.



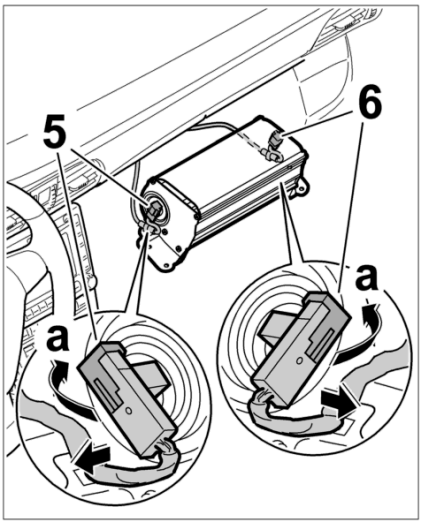
Removing the reinforcing panel

3. Push the reinforcing panel **-3-** back so that it rests on the airbag unit and carefully lower the airbag unit out a few centimetres.



Connection of electric plugs

4. Unclip the electrical leads **-4-** to the left and right of the airbag unit.



Unfastening the plugs for the airbag

5. Carefully prise out the locking unit **-5-** and **-6-** the electrical plugs to the left and right with a screwdriver **-a-** and then pull the plugs out of the airbag unit.
6. Remove airbag unit and lay to one side in the appropriate manner.

top of page

Installing passenger's airbag unit

Installing passenger's airbag unit

WARNING

Incorrect triggering of airbag module.

- **Danger of injury and damage to property as a result of incorrect handling of airbag units!**

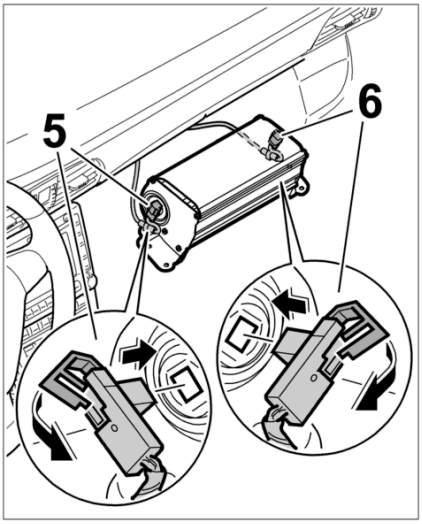
The safety regulations *Safety regulations for handling airbag and belt tensioner units* must be followed.

The airbag unit must always be stowed so that the airbag opening faces upwards!

If removed for an extended period, the airbag unit must be kept in a locked place!

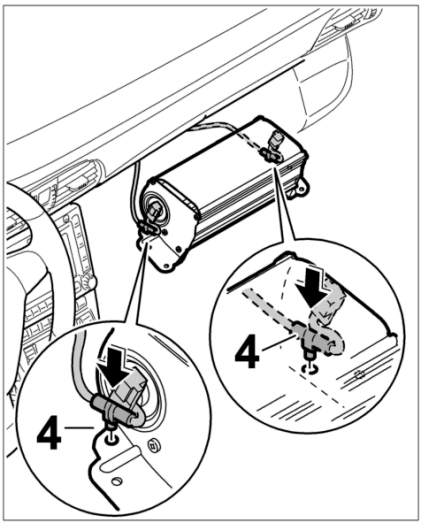
Remove ignition key. Disconnect battery. Route or isolate ground strap so that all contact with a ground carrier (e.g. body, seat frame) is avoided.

After the battery is disconnected, always wait for 1 minute before disconnecting the airbag plugs.



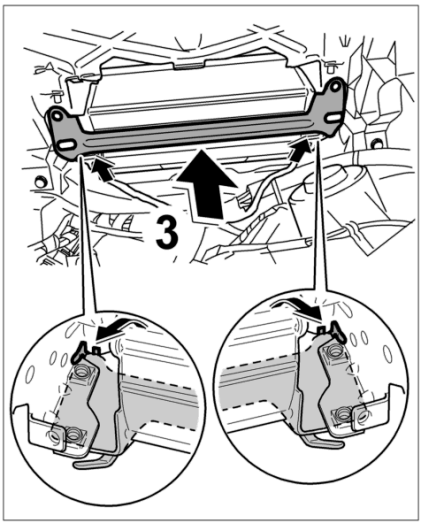
Locking plug for airbag

1. Lift the airbag unit under the dashboard and push in the plug **-5-** and **-6-** and lock.



Routing the electric plug

2. Clip in the electrical wire **-4-** on the left and right in the airbag unit.



Engaging the reinforcement plate

3. Position the airbag module from below on the mounting bracket and engage the reinforcement plate **-3-** on the airbag module.

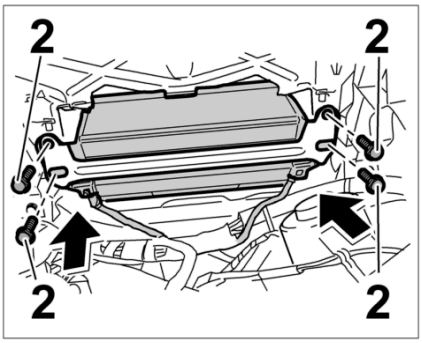
ATTENTION

Loosen the safety-related screw connection!

- **Danger of injury and material damage if the airbag module is screwed on incorrectly!**

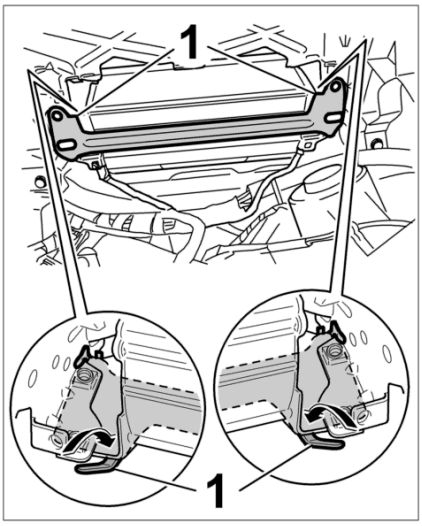
Always replace fastening screws for the airbag unit after customer service and reworking.

It is not permissible to make alterations to the microencapsulated screws (e.g., use lubricant, loosen bolts, and screw them down again).



Fastening screws for airbag module

4. Screw down the airbag module and reinforcement plate using the four fastening screws **-2-** . **Tightening torque: 7 ftlb.**



5. Bend over both projecting tabs **-1-** .

top of page

Reworking

Reworking for passenger's airbag unit

1. Install glove compartment. 681519 Removing and installing glove compartment - installing
2. Connect the battery . *Work instruction after disconnecting the battery*

997110, 997111, 997120, 997121, 997310, 997311, 997320, 997321, 997410, 997411, 997430, 997431, 997610, 997611, 997620, 997621

as of MY 2005
Country C00, C02, C05, C07, C08, C09, C10, C11, C12, C13, C14, C15, C16, C18, C19, C20, C21, C22, C23, C24, C25, C26, C27, C28, C32, C33, C34, C35, C36, C37, C38, C39, C45, C46, C98, C99

WARNUNG

Gefahr des Verlusts der Text-Bild-Zuordnung beim Ausdruck.

- **Aus technischen Gründen kann derzeit nicht ausgeschlossen werden, dass trotz einwandfreier Darstellung auf dem Bildschirm beim Ausdruck der Zusammenhang von Text und zugehörigem Bild verloren geht.**
- **Wird der Fehler nicht bemerkt, besteht die Gefahr, daß Arbeiten nicht korrekt durchgeführt werden und es dadurch zu Personen- und Sachschäden kommt.**

Vergleichen Sie deshalb nach dem Druckvorgang unbedingt die Ausdrucke mit der

69 63 19 Removing and installing side airbag - as of MY 2005

- Preliminary work
- General warning notes
- Removing side airbag
- Installing side airbag
- Reworking

top of page

Preliminary work

Preliminary work for side airbag

1. Disconnect seat from the power supply. *Removing and installing front seat* or Disconnecting battery *Work instructions after disconnecting the battery*.
2. Remove heating element for front seat backrest. 741919 Removing and installing covering for front backrest [997310 997311 997320 997321 997610 997611 997620 997621] 741919 Removing and installing covering for front backrest [997110 997111 997120 997121 997410 997411 997430 997431]
3. Partially detaching covering for front backrest, outboard side of seat 741919 Removing and installing covering for front backrest [997310 997311 997320 997321 997610 997611 997620 997621] 741919 Removing and installing covering for front backrest [997110 997111 997120 997121 997410 997411 997430 997431]

top of page

General warning notes

General warnings for side airbag

WARNING

Incorrect triggering of airbag module.

- **Danger of injury and damage to property as a result of incorrect handling of airbag units!**

The safety regulations *Safety regulations for handling airbag and belt tensioner units* must be followed.

The airbag unit must always be stowed so that the airbag opening faces upwards!

If removed for an extended period, the airbag unit must be kept in a locked place!

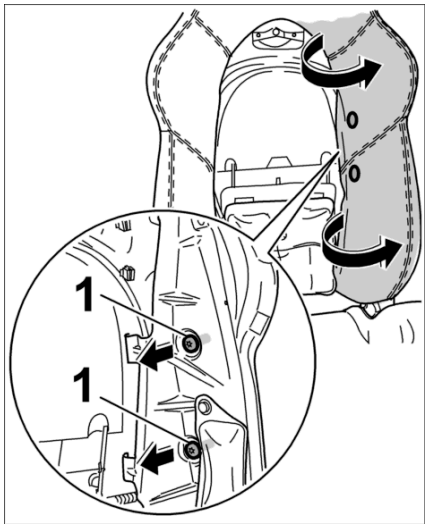
Remove ignition key. Disconnect battery. Route or isolate ground strap so that all contact with a ground carrier (e.g. body, seat frame) is avoided.

After the battery is disconnected, always wait for 1 minute before disconnecting the airbag plugs.

top of page

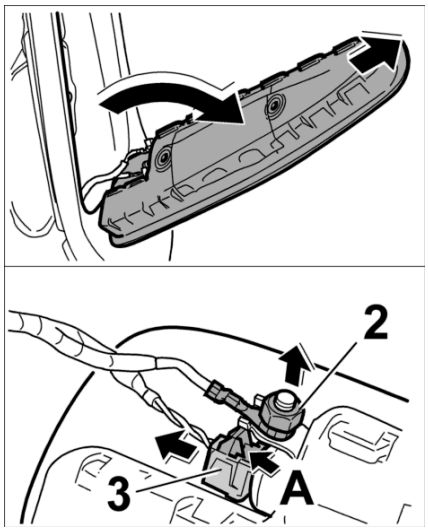
Removing side airbag

Removing side airbag



Mounting of side airbag

1. Lift up the appropriate detached side bolster and undo the two fastening screws **-1-** from the airbag unit.



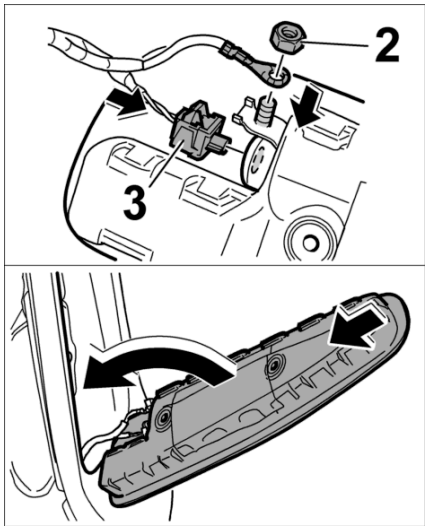
Electrical lead for side airbag

2. Pull the side airbag out from the backrest frame.
3. Undo and remove the fastening nut **-2-** .
4. Unlock the electrical connector for the side airbag **-3-** and remove **-A-** .

top of page

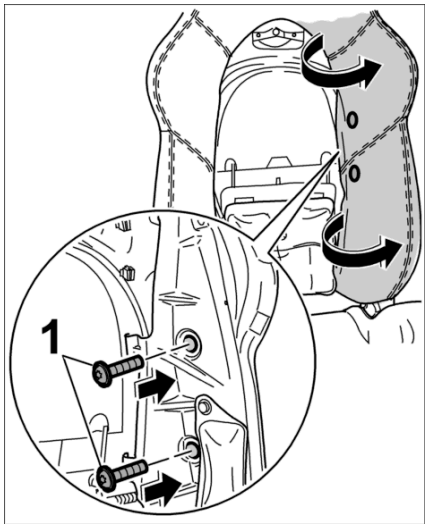
Installing side airbag

Installing side airbag



Electrical lead for side airbag

1. Push on the electrical connector for the side airbag **-3-** and lock.
2. Fit the ground lead **-2-** and tighten with fastening nut. **Tightening torque: 7 ftlb.**
3. Insert side airbag into backrest frame and counter.



Mounting of side airbag

4. Lift the appropriate loosened side bolster and tighten the two fastening screws **-1-** . **Tightening torque: 7 ftlb.**

top of page

Reworking

Work in wake of side airbag

1. Fasten covering for front backrest. 741919 Removing and installing covering for front backrest [997310 997311 997320 997321 997610 997611 997620 997621] 741919 Removing and installing covering for front backrest [997110 997111 997120 997121 997410 997411 997430 997431]
2. Install heating element for front seat backrest. 741919 Removing and installing covering for front backrest [997310 997311 997320 997321 997610 997611 997620 997621] 741919 Removing and installing covering for front backrest [997110 997111 997120 997121 997410 997411 997430 997431]
3. Connect the seat to the power supply. *Removing and installing front seat* or Connecting battery *Work instructions after disconnecting the battery*.

997110, 997111, 997120, 997121, 997310, 997311, 997320, 997321, 997410, 997411, 997430, 997431, 997610, 997611, 997620, 997621

as of MY 2005
Country C00, C02, C05, C07, C08, C09, C10, C11, C12, C13, C14, C15, C16, C18, C19, C20, C21, C22, C23, C24, C25, C26, C27, C28, C32, C33, C34, C35, C36, C37, C38, C39, C45, C46, C98, C99

69 66 19 Removing and installing the head airbag unit - as of MY 2005

- Preliminary work
- General warning notes
- Removing head airbag unit
- Installing head airbag unit
- Reworking

top of page

Preliminary work

Preliminary work

1. Disconnect battery. *Work instructions after disconnecting the battery*
2. Remove door trim panel. *705920 Removing and installing door trim panel, front*

top of page

General warning notes

Safety instructions for head airbag unit

WARNING

Removal and installation of airbag units

- **Danger of injury and material damage if airbag units are not handled correctly!**

Always observe the safety regulations for handling airbag units Safety regulations for handling airbag and belt tensioner units

If removed for an extended period, the airbag unit must be kept in a locked place!

Remove ignition key. Disconnect battery. Route or isolate ground strap so that all contact with a ground carrier (e.g. body, seat frame) is avoided. Work instructions after disconnecting the battery

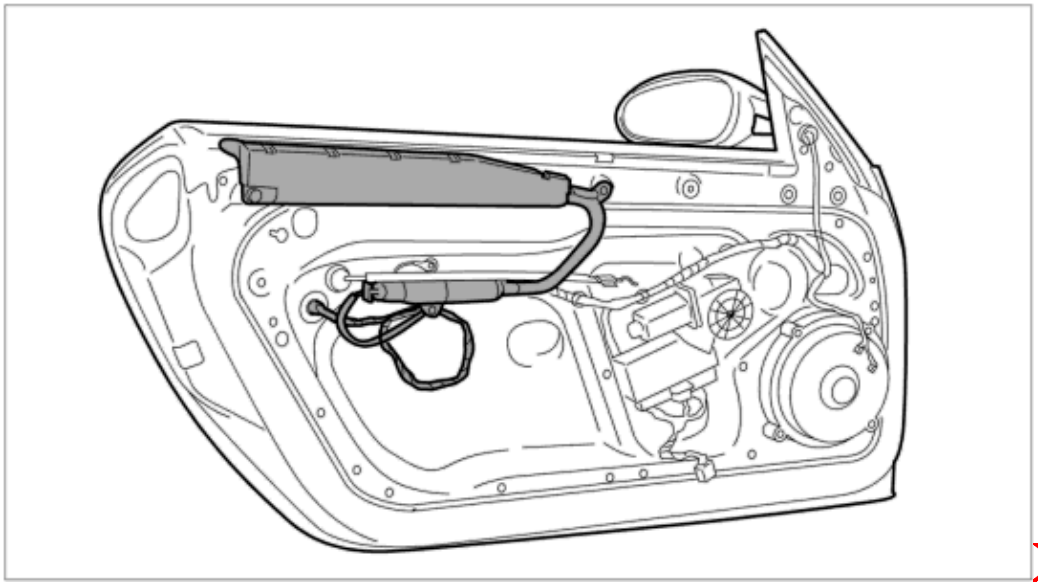
After the battery is disconnected, always wait for 1 minute before disconnecting the airbag plugs.

top of page

Removing head airbag unit

Removing head airbag unit

Installation Location:



Overview of head airbag unit

WARNING

Removal and installation of airbag units

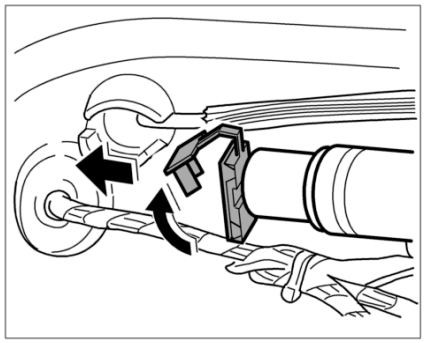
- **Danger of injury and material damage if airbag units are not handled correctly!**

Always observe the safety regulations for handling airbag units Safety regulations for handling airbag and belt tensioner units

If removed for an extended period, the airbag unit must be kept in a locked place!

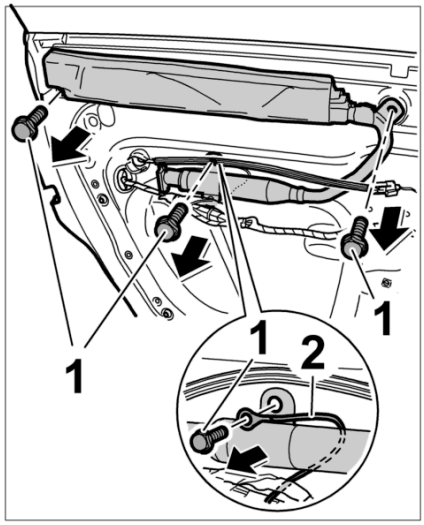
Remove ignition key. Disconnect battery. Route or isolate ground strap so that all contact with a ground carrier (e.g. body, seat frame) is avoided. Work instructions after disconnecting the battery

After the battery is disconnected, always wait for 1 minute before disconnecting the airbag plugs.



Releasing the plug connection for the head airbag

1. With a screwdriver, carefully release the locking element of the plug connection for the airbag unit and remove the plug from the airbag module.



Head airbag fastening

2. Unscrew the three fastening nuts **-1-** and remove the ground lead **-2-** .
3. Remove the airbag unit

top of page

Installing head airbag unit

Installing head airbag unit

WARNING

Removal and installation of airbag units

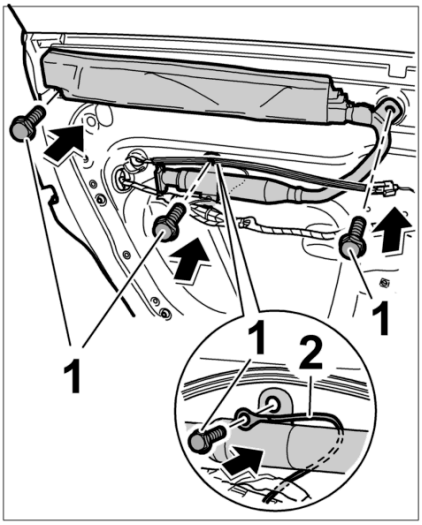
- **Danger of injury and material damage if airbag units are not handled correctly!**

Always observe the safety regulations for handling airbag units __ Safety regulations for handling airbag and belt tensioner units

If removed for an extended period, the airbag unit must be kept in a locked place!

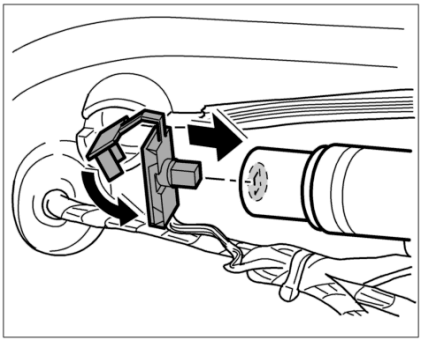
Remove ignition key. Disconnect battery. Route or isolate ground strap so that all contact with a ground carrier (e.g. body, seat frame) is avoided. __ Work instructions after disconnecting the battery

After the battery is disconnected, always wait for 1 minute before disconnecting the airbag plugs.



Head airbag fastening

1. Position airbag unit on the door unit carrier.
2. Tighten the two outer fastening screws **-1-** . Tightening torque 7.5 ftlb. **Tightening torque: 7.5 ftlb.**
3. Tighten fastening screw **-1-** and ground lead **-2-** . **Tightening torque: 7.5 ftlb.**



Locking the plug connection for the head airbag

4. Connect the electrical plug to the airbag unit and lock.

top of page

Reworking

Work in wake

1. Install door trim panel. *705920 Removing and installing door trim panel, front*
2. Connect the battery and carry out "Work instructions after disconnecting the battery". *Work instructions after disconnecting the battery*

997110, 997111, 997120, 997121, 997310, 997311, 997320, 997321, 997410, 997411, 997430, 997431, 997610, 997611, 997620, 997621

as of MY 2005
Country C00, C02, C05, C07, C08, C09, C10, C11, C12, C13, C14, C15, C16, C18, C19, C20, C21, C22, C23, C24, C25, C26, C27, C28, C32, C33, C34, C35, C36, C37, C38, C39, C45, C46, C98, C99

WARNUNG

Gefahr des Verlusts der Text-Bild-Zuordnung beim Ausdruck.

- **Aus technischen Gründen kann derzeit nicht ausgeschlossen werden, dass trotz einwandfreier Darstellung auf dem Bildschirm beim Ausdruck der Zusammenhang von Text und zugehörigem Bild verloren geht.**
- **Wird der Fehler nicht bemerkt, besteht die Gefahr, daß Arbeiten nicht korrekt durchgeführt werden und es dadurch zu Personen- und Sachschäden kommt.**

Vergleichen Sie deshalb nach dem Druckvorgang unbedingt die Ausdrucke mit der Bildschirmdarstellung. Korrigieren Sie die Ausdrucke im Fehlerfall so, daß der Inhalt der Bildschirmdarstellung zutreffend wiedergegeben wird.

WARNING

Danger of losing text-figure correspondence when printing out.

- **For technical reasons, it can currently not be ruled out that the correspondence between text and associated figure can be lost when it is printed out, even though the display on the screen is correct.**
- **If the fault is not noticed, there is the danger that work will not be performed correctly which can cause injury and damage.**

Therefore, always compare printouts with the screen display after printing them out. Correct the printouts if they are faulty so that the content of the screen display matches that on the printouts.

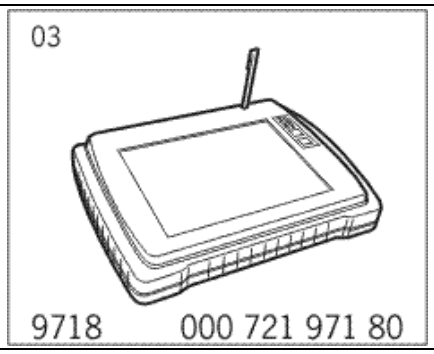
AVERTISSEMENT

Risque de perte de la correspondance texte-illustration lors de l'impression papier.

69 68 19 Removing and installing AWS control unit - as of MY 2005

- Preliminary work
- Removing AWS control unit
- Installing AWS control unit
- Subsequent work
- Programming AWS control unit

Tools

Designation	Type	Number	Explanation	
PIWIS tester	special tool	9718		
test weight	special tool	P 9742		

top of page

Preliminary work

Preliminary work for AWS control unit

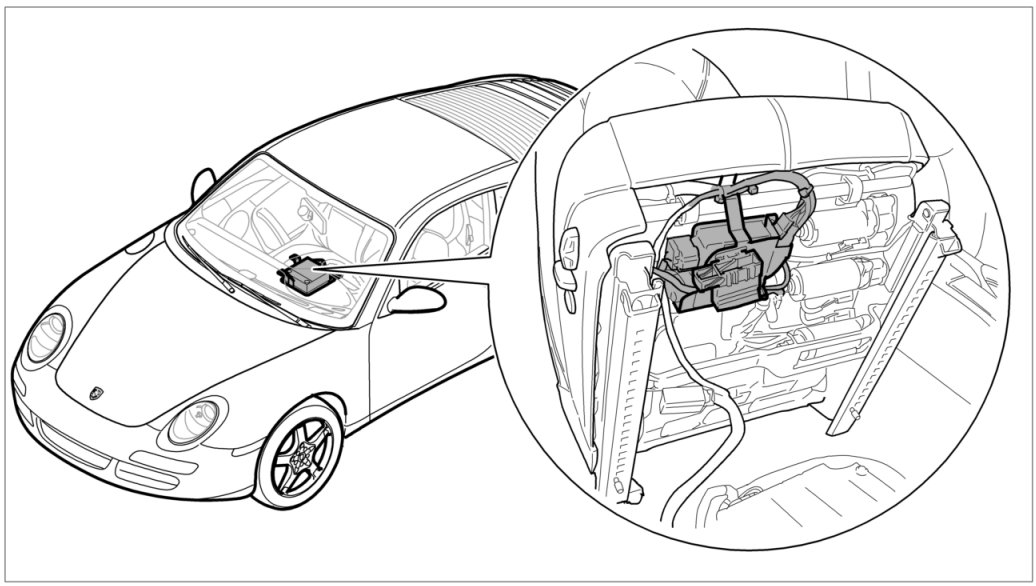
Disconnect battery. 2706IN Work instructions after disconnecting the battery
Remove right front seat. 720119 Removing and installing front seat - section on "Removing" [997110 997120 997310 997320 997410 997430 997610 997620] 720119 Removing and installing front seat - section on "Removing" [997111 997121 997311 997321 997411 997431 997611 997621]

top of page

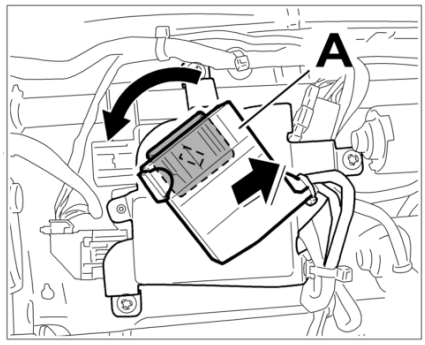
Removing AWS control unit

Removing AWS control unit

Installation Location:

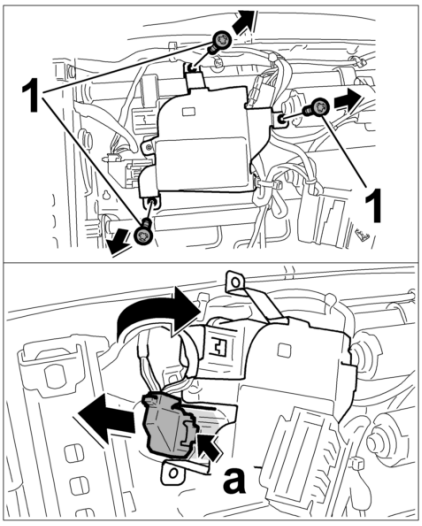


Installation position



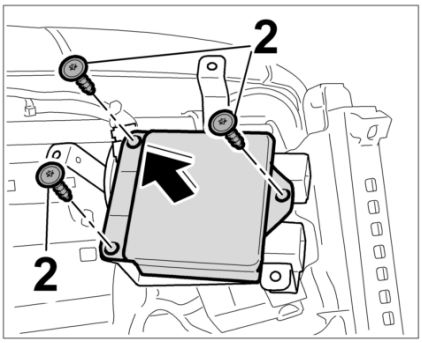
Loosening seat central connector

1. Turn seat central connector **-A-** at AWS holder to the left and remove from the holder.



Unscrewing fastening screws from AWS holder

2. Unscrew the three fastening screws **-1-** for the AWS holder on the seat bracket.
3. Release electric connector on AWS control unit **-a-** , unplug and tilt the AWS holder to the right side.



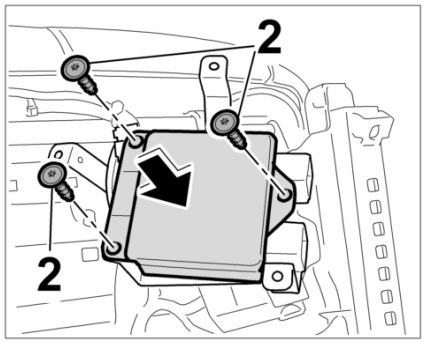
Unscrewing fastening screws for AWS control unit.

4. Unscrew the three fastening screws **-2-** of the AWS control unit and remove the control unit.

top of page

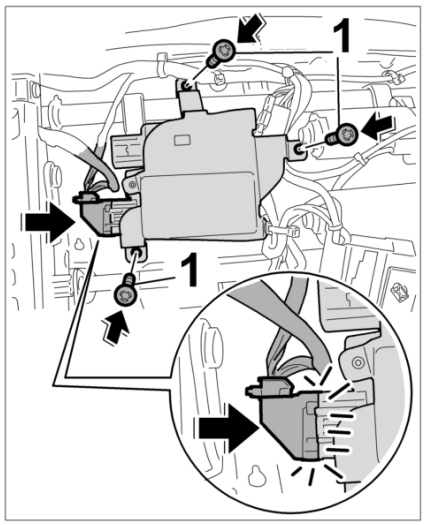
Installing AWS control unit

Installing AWS control unit



Screwing AWS control unit and holder together

1. Position AWS control unit on the holder and screw it down using the three fastening screws **-2-** .



Screwing AWS holder to seat bracket

2. Position AWS holder on the seat bracket and screw it down using the three fastening screws **-1-** .
3. Push electric connector onto AWS control unit until it is felt to engage.
4. Insert seat central connector into AWS holder and clamp by turning to the right.

top of page

Subsequent work

Subsequent work for AWS control unit

Install right front seat. 720119 Removing and installing front seat - section on "Installing" [997110 997120 997310 997320 997410 997430 997610 997620] 720119 Removing and installing front seat - section on "Installing" [997111 997121 997311 997321 997411 997431 997611 997621]

Connect the battery and carry out work instructions after disconnecting the battery. 2706IN Work instructions after disconnecting the battery

1. If the AWS control unit has been replaced, the new AWS control unit must be taught and calibrated under **AWSControl unit replacement**. 696819 Removing and installing AWS control unit - section on "Programming" 6968K2 Calibrating AWS control unit - section on "Calibrating"

top of page

Programming AWS control unit

Reading and writing values for AWS control unit

Note

The **PIWIS tester 9718** instructions take precedence and in the event of a discrepancy these are the instructions that must be followed. Deviations may occur with later software versions.
The procedure described here has been structured in general terms; different text or additions may appear in the **PIWIS tester 9718**.

1. Replace control unit. 696819 Removing and installing AWS control unit

WARNING

Sudden voltage interruption of the power supply to the control module.

- **Destruction of the control module.**

During programming, it is essential to guarantee the power supply for the Porsche System tester. It is essential to connect a battery charger with a current rating of at least 40 A to the vehicle battery.

Prior to disconnecting the control module, switch off the ignition and remove the ignition key.

2. Connect battery charger to the vehicle. Move passenger's seat longitudinally until flush with the seat rails and to its lowest position.
3. Connect the Porsche System Tester **PIWIS Tester 9718** to the vehicle and start the System Tester. Switch on ignition. Press >> to continue.
4. Select vehicle type.
5. Switch from the vehicle type to the list of control units >> .
6. Select **AWS** with the cursor keys and press the >> key.
7. Select **Control unit replacement** with the cursor keys and press the >> key.
8. The Tester displays several messages and instructions relating to the individual work steps until the message **Control unit replacement was completed successfully** appears. Press >> .
9. To check the system, select the **Actual values** menu under the **AWS** control unit. Then press >> .

9.1. Select the **Weight group (0-4)** and **Gross weight calibrated** options.

9.1.1. If there is **no weight** on the passenger's seat, compare values (see table below) using the PIWIS

Tester. The Passenger Airbag Off indicator light in the centre console **must not** come on.

9.1.2. Place the special tool **test weight P 9742** on the passenger's seat. The Passenger Airbag Off indicator light in the centre console **must** come on. Compare values (see table below) using the PIWIS Tester.

9.1.3. Get an assistant, for example, to sit on the passenger's seat. The Passenger Airbag Off indicator light in the centre console **must not** come on. Compare values (see table below) using the PIWIS Tester.

Test state	**Weight group (0-4)**	**Gross weight calibrated**
No weight on the passenger's seat.	0	**Control value: 0 kg +/-1 kg**
Special tool **test weight P 9742** on passenger's seat	1	**Control value: 6.7 kg +/-1 kg**
Get a person weighing at least 65 - 85 kg to sit on the passenger's seat.	2, 3 or 4	**Control value: Weight of test person kg +/-1 kg**

10. Read out and erase the fault memories in the **Airbag** and **AWS** control unit, perform a test drive and then read out the fault memories again. If faults are found, determine the cause using the PIWIS Tester and correct the faults.

997110, 997111, 997120, 997121, 997310, 997311, 997320, 997321, 997410, 997411, 997430, 997431, 997610, 997611, 997620, 997621

as of MY 2005
Country C00, C02, C05, C07, C08, C09, C10, C11, C12, C13, C14, C15, C16, C18, C19, C20, C21, C22, C23, C24, C25, C26, C27, C28, C32, C33, C34, C35, C36, C37, C38, C39, C45, C46, C98, C99

WARNUNG

Gefahr des Verlusts der Text-Bild-Zuordnung beim Ausdruck.

- **Aus technischen Gründen kann derzeit nicht ausgeschlossen werden, dass trotz einwandfreier Darstellung auf dem Bildschirm beim Ausdruck der Zusammenhang von Text und zugehörigem Bild verloren geht.**
- **Wird der Fehler nicht bemerkt, besteht die Gefahr, daß Arbeiten nicht korrekt durchgeführt werden und es dadurch zu Personen- und Sachschäden kommt.**

Vergleichen Sie deshalb nach dem Druckvorgang unbedingt die Ausdrucke mit der Bildschirmdarstellung. Korrigieren Sie die Ausdrucke im Fehlerfall so, daß der Inhalt der Bildschirmdarstellung zutreffend wiedergegeben wird.

WARNING

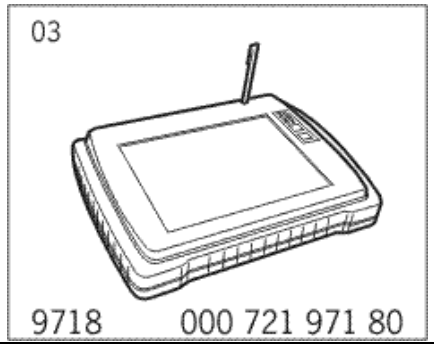
Danger of losing text-figure correspondence when printing out.

- **For technical reasons, it can currently not be ruled out that the correspondence between text and associated figure can be lost when it is printed out, even though the display on the screen is correct.**
- **If the fault is not noticed, there is the danger that work will not be performed correctly which can cause injury and damage.**

69 72 01 Checking roll-over protection system - as of MY 2005

- Preliminary work
- General warning notes
- Subsequent work

Tools

Designation	Type	Number	Explanation	
PIWIS tester	special tool	9718		

top of page

Preliminary work

Preliminary work

1. Fully open the convertible top.

top of page

General warning notes

Safety instructions for work on the roll-over protection system

ATTENTION

Danger of injury when working on the roll-over protection system!

The movement range of the roll-over protection system must be kept clear.
Work on the roll-over protection system must only be performed with the ignition key withdrawn.

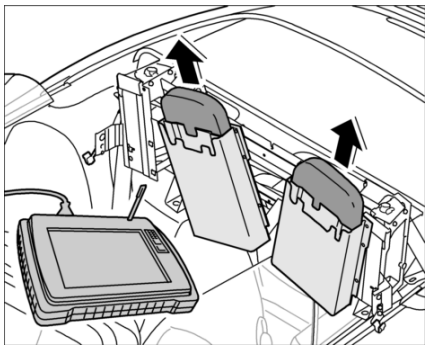
Attention: Do not begin assembly work until after a waiting time of 1 minute has elapsed.

Tools or other objects must not be placed in the extension area of the roll-over protection system.

Remove the roll-over bar modules only after the roll-over bar has been extended (triggered).

It is not permissible to perform repairs on the roll-over bar modules.
The roll-over bar modules must be replaced in the event of visible damage or pressure marks.
After assembly work on the roll-over protection system - but at least every 2 years - the function of the roll-over protection system must be tested by triggering it via the diagnostic interface of the **PIWIS tester 9718**.
Only perform the function test on the roll-over protection system with the hardtop and cap removed and the convertible top open.

Checking roll-over bar



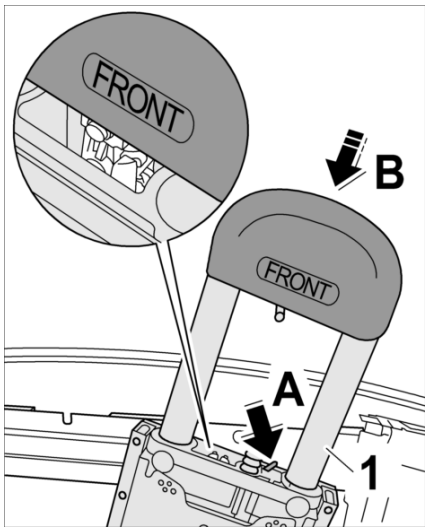
Checking roll-over protection system

Note

Actuate the roll-over protection system only if:

- *the hardtop is removed*
- *the convertible top is open*
- *the caps are removed*

1. Connect the **PIWIS tester 9718** to the diagnostic socket. Switch on ignition. Select menu item "Roll-over protection", and select menu item "Drive links" in the command line which then appears. Press the key combination described in the Tester; the roll-over protection system triggers.



Pressing in the roll-over bar

2. Press locking levers outward **-Arrow A-** and press in the roll-over bar **-1-** **-Arrow B-** until it is felt to engage **-inset-** .

top of page

Subsequent work

Subsequent work

1. Install
   caps.
2. Close convertible top.

997310, 997311, 997320, 997321, 997611, 997620, 997621

as of MY 2005
Country C00, C02, C05, C07, C08, C09, C10, C11, C12, C13, C14, C15, C16, C18, C19, C20, C21, C22, C23, C24, C25, C26, C27, C28, C32, C33, C34, C35, C36, C37, C38, C39, C45, C46, C98, C99

WARNUNG

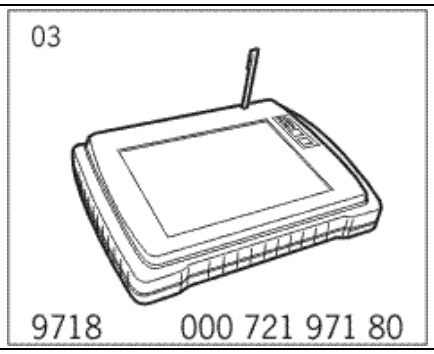
Gefahr des Verlusts der Text-Bild-Zuordnung beim Ausdruck.

- **Aus technischen Gründen kann derzeit nicht ausgeschlossen werden, dass trotz einwandfreier Darstellung auf dem Bildschirm beim Ausdruck der Zusammenhang von Text und zugehörigem Bild verloren geht.**
- **Wird der Fehler nicht bemerkt, besteht die Gefahr, daß Arbeiten nicht korrekt durchgeführt werden und es dadurch zu Personen- und Sachschäden kommt.**

69 72 19 Removing and installing roll-over bar - as of MY 2005

- Preliminary work
- General warning notes
- Removing roll-over bar
- Installing roll-over bar module
- Subsequent work

Tools

Designation	Type	Number	Explanation	
PIWIS tester	special tool	9718		

top of page

Preliminary work

Preliminary work

1. Remove cover for the rear. 705319 Removing and installing cover for rear- chapter on "Removing" [997310 997311 997320 997321] *705319 21 Removing and installing cover for rear- chapter on "Removing" [997611 997620 997621]*
2. Removing rear wall trim panel 703119 Removing and installing trim panel for rear wall - chapter on "Removing" [997310 997311 997320 997321] *703119 21 Removing and installing trim panel for rear wall - chapter on "Removing" [997611 997620 997621]*
3. Fully open the convertible top.

top of page

General warning notes

Safety instructions for work on the roll-over protection system

ATTENTION

Danger of injury when working on the roll-over protection system!

The movement range of the roll-over protection system must be kept clear.
Work on the roll-over protection system must only be performed with the ignition key withdrawn.
Attention: Do not begin assembly work until after a waiting time of 1 minute has elapsed.
Tools or other objects must not be placed in the extension area of the roll-over protection system.
Remove the roll-over bar modules only after the roll-over bar has been extended (triggered).

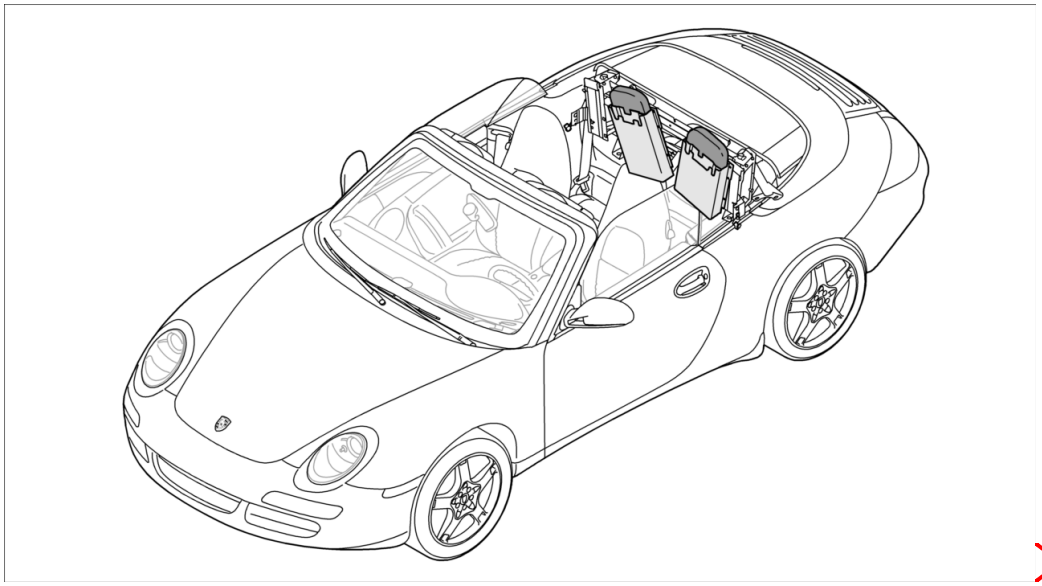
It is not permissible to perform repairs on the roll-over bar modules.
The roll-over bar modules must be replaced in the event of visible damage or pressure marks.
After assembly work on the roll-over protection system - but at least every 2 years - the function of the roll-over protection system must be tested by triggering it via the diagnostic interface of the **PIWIS tester 9718**.
Only perform the function test on the roll-over protection system with the hardtop and cap removed and the convertible top open.

top of page

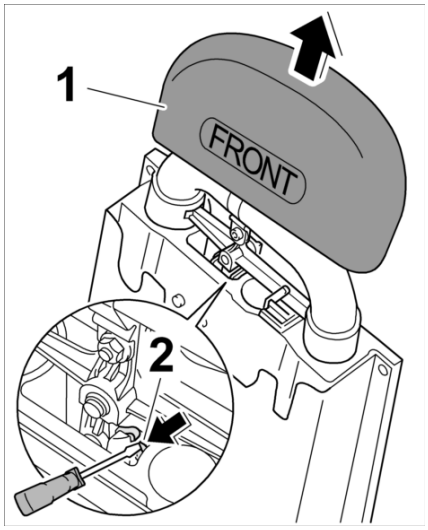
Removing roll-over bar

Mechanical emergency triggering of the roll-over protection system

Installation Location:



Installation position for roll-over bar



Mechanical emergency triggering of the roll-over protection system

If the roll-over bar modules cannot be triggered via the diagnostic interface, mechanical emergency triggering is possible.

1. Unclip cover upwards **-1-** .

ATTENTION

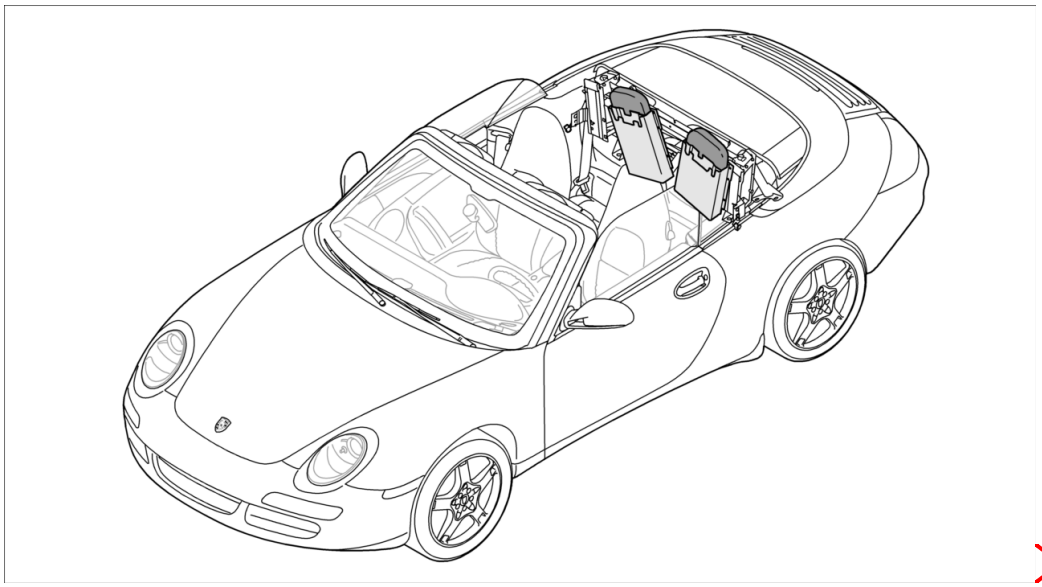
Danger of injury when working on the roll-over protection system!

The movement range of the roll-over protection system must be kept clear.

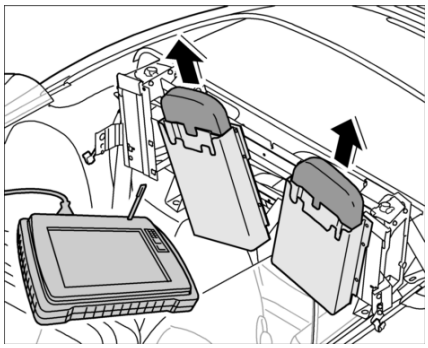
2. Press with a screwdriver against the upper edge of the pawl **-2-** . The roll-over protection system will be released.

Removing roll-over bar module

Installation Location:



Installation position for roll-over bar



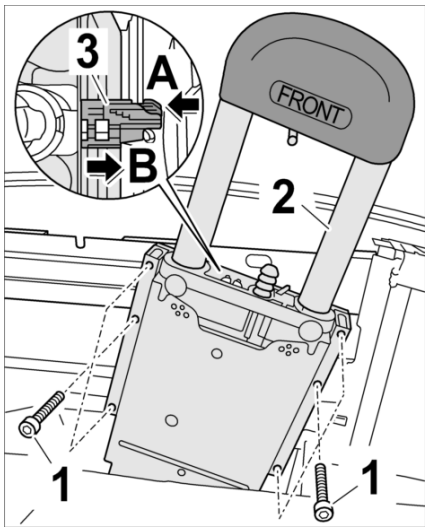
Triggering roll-over protection system

Note

Actuate the roll-over protection system only if:

- *the hardtop is removed*
- *the convertible top is open*
- *the caps are removed*

1. Connect the **PIWIS tester 9718** to the diagnostic socket. Switch on ignition. Select menu item "Roll-over protection", and select menu item "Drive links" in the command line which then appears. Press the key combination described in the tester; the roll-over protection system is triggered.



Removing roll-over bar module

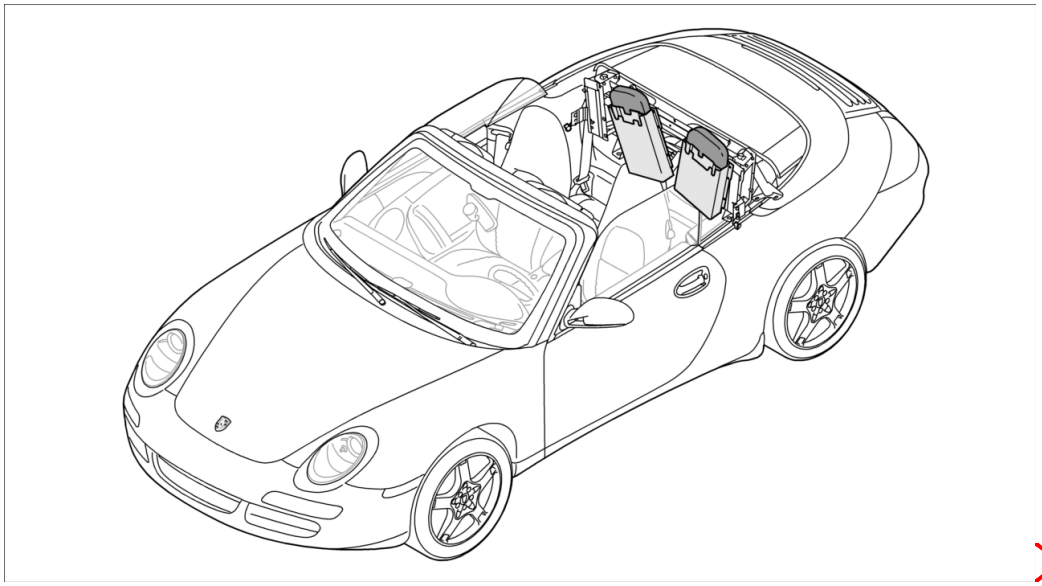
2. Unscrew fastening screws **-1-** from the roll-over bar module **-2-** .
3. Pull roll-over bar module forwards slightly until the electric plug connection **-3-** is accessible.
4. Press in locking mechanism **-Arrow A-** and pull off electric plug connection **-3-** **-Arrow B-** .
5. Lift roll-over bar module **-2-** up and off.

top of page

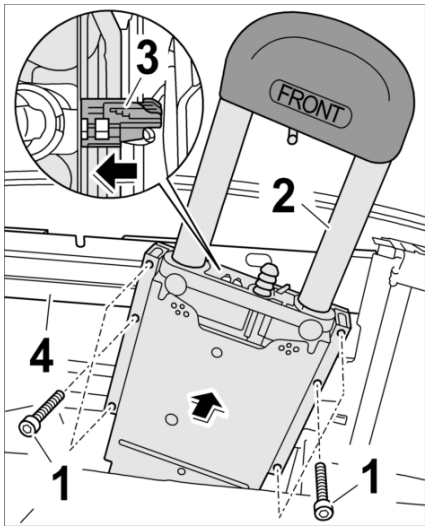
Installing roll-over bar module

Installing roll-over bar module

Installation Location:

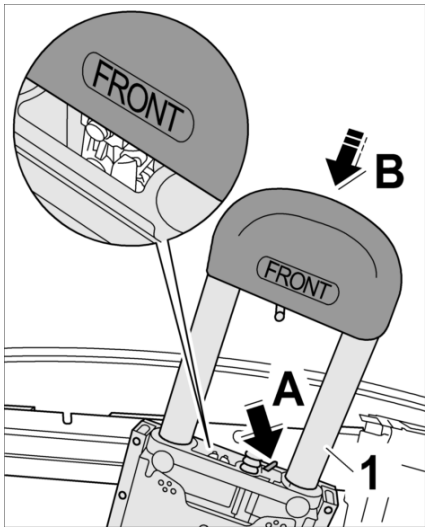


Installation position for roll-over bar



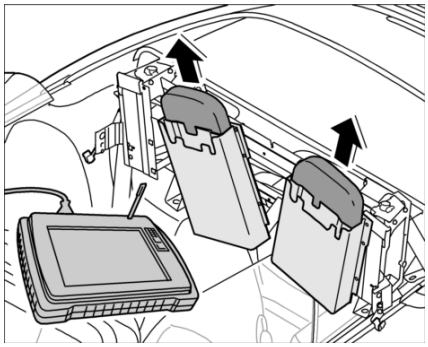
Installing roll-over bar module

1. Push in electric plug connection **-3-** until it engages.
2. Position roll-over bar module **-2-** on frame for roll-over protection system **-4-** and screw down with new fastening screws **-1-** . Tightening torque **Tightening torque: 33 (24 ftlb.) Nm**



Press in the roll-over bar

3. Press locking levers outward **-Arrow A-** and press in the roll-over bar **-1-** **-Arrow B-** until it is felt to engage **-inset-** .



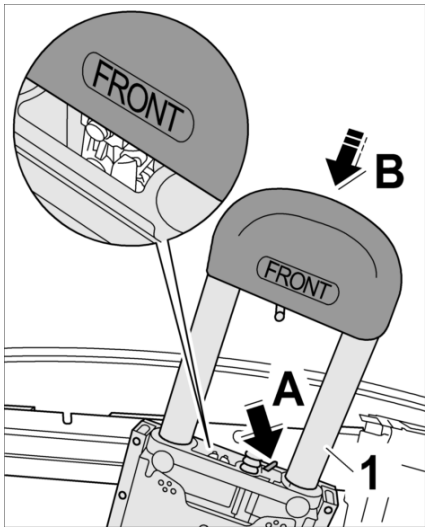
Triggering roll-over protection system

ATTENTION

Danger of injury when working on the roll-over protection system!

The movement range of the roll-over protection system must be kept clear.

4. Check roll-over protection system (function test). Select menu item Roll-over protection, and select menu item Drive links in the command line which then appears. Press the key combination described in the tester; the roll-over protection system is triggered.



Press in the roll-over bar

5. Press locking levers outward **-Arrow A-** and press in the roll-over bar **-1-** **-Arrow B-** until it is felt to engage **-inset-** .

top of page

Subsequent work

Subsequent work

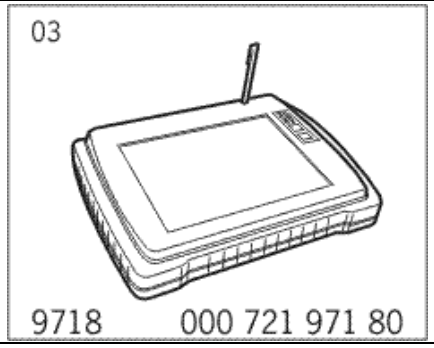
1. Install rear wall trim panel 703119 Removing and installing trim panel for rear wall - chapter on "Installing" [997310 997311 997320 997321] *703119 23 Removing and installing trim panel for rear wall - chapter on "Installing" [997611 997620 997621]*
2. Install cover for rear 705319 Removing and installing cover for rear - chapter on "Installing" [997310 997311 997320 997321] *705319 23 Removing and installing cover for rear - chapter on "Installing" [997611 997620 997621]*

997310, 997311, 997320, 997321, 997611, 997620, 997621

69 72 19 Removing and installing roll-over bar - as of MY 2005

- Preliminary work
- Removing roll-over bar
- Installing roll-over bar module
- Subsequent work

Tools

Designation	Type	Number	Explanation	
PIWIS tester	special tool	9718		

top of page

Preliminary work

Preliminary work

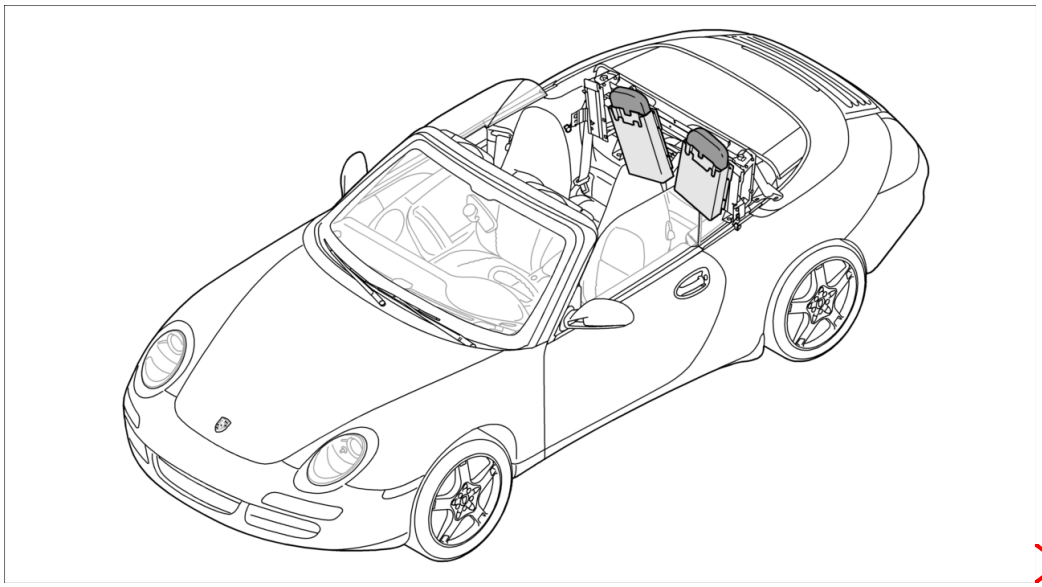
1. Remove cover for the rear. *705319 21 Removing and installing cover for rear- chapter on "Removing"*
2. Removing rear wall trim panel *703119 21 Removing and installing trim panel for rear wall - chapter on "Removing"*
3. Fully open the convertible top.

top of page

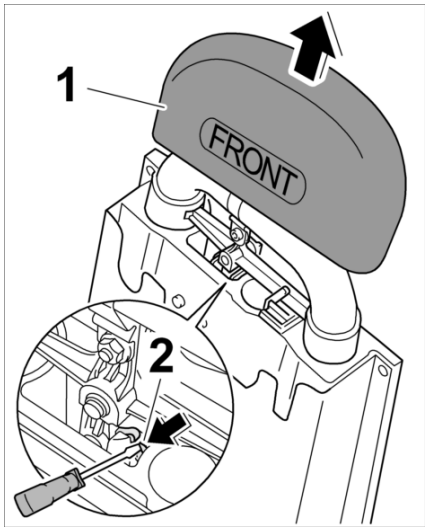
Removing roll-over bar

Mechanical emergency triggering of the roll-over protection system

Installation Location:



Installation position for roll-over bar



Mechanical emergency triggering of the roll-over protection system

If the roll-over bar modules cannot be triggered via the diagnostic interface, mechanical emergency triggering is possible.

1. Unclip cover upwards **-1-** .

ATTENTION

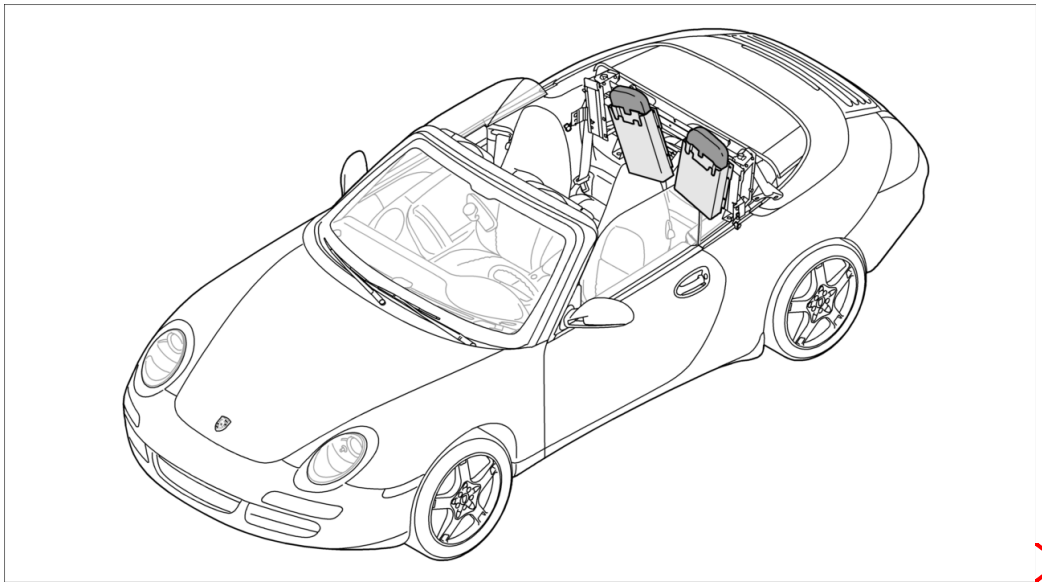
Danger of injury when working on the roll-over protection system!

The movement range of the roll-over protection system must be kept clear.

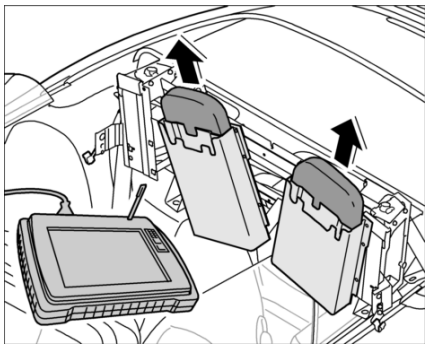
2. Press with a screwdriver against the upper edge of the pawl **-2-** . The roll-over protection system will be released.

Removing roll-over bar module

Installation Location:



Installation position for roll-over bar



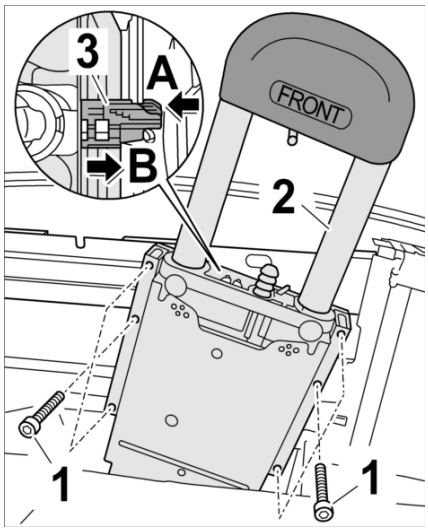
Triggering roll-over protection system

Note

Actuate the roll-over protection system only if:

- *the hardtop is removed*
- *the convertible top is open*
- *the caps are removed*

1. Connect the **PIWIS tester 9718** to the diagnostic socket. Switch on ignition. Select menu item "Roll-over protection", and select menu item "Drive links" in the command line which then appears. Press the key combination described in the tester; the roll-over protection system is triggered.



Removing roll-over bar module

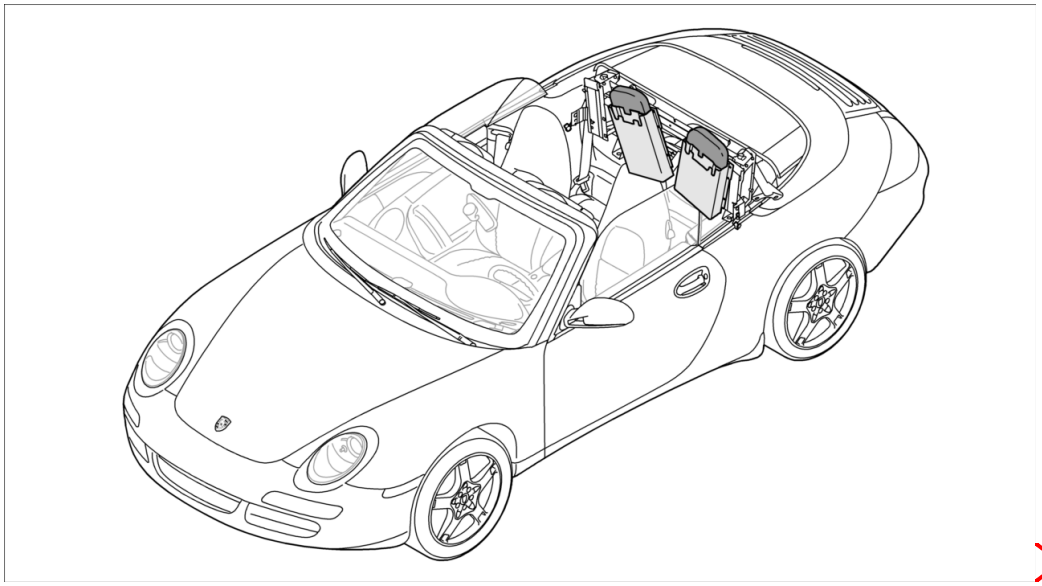
2. Unscrew fastening screws **-1-** from the roll-over bar module **-2-** .
3. Pull roll-over bar module forwards slightly until the electric plug connection **-3-** is accessible.
4. Press in locking mechanism **-Arrow A-** and pull off electric plug connection **-3-** **-Arrow B-** .
5. Lift roll-over bar module **-2-** up and off.

top of page

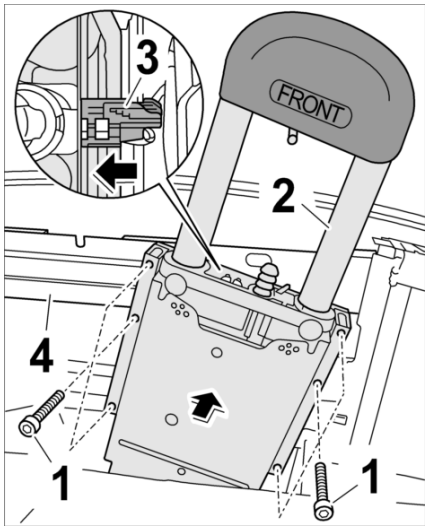
Installing roll-over bar module

Installing roll-over bar module

Installation Location:

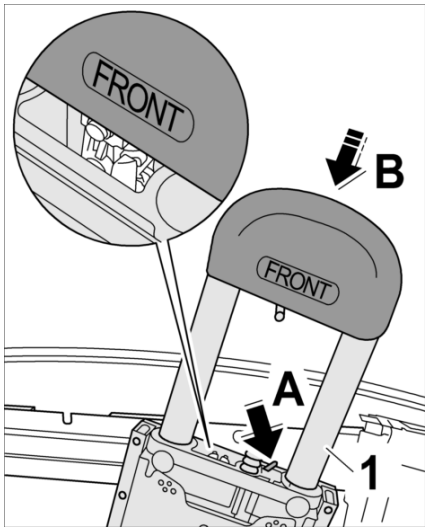


Installation position for roll-over bar



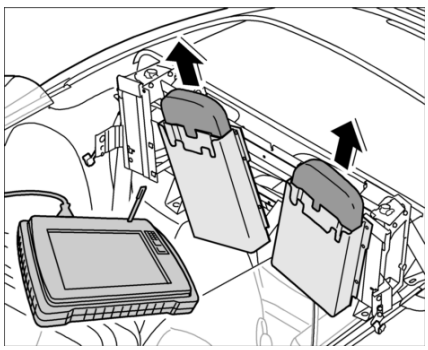
Installing roll-over bar module

1. Push in electric plug connection **-3-** until it engages.
2. Position roll-over bar module **-2-** on frame for roll-over protection system **-4-** and screw down with new fastening screws **-1-** . Tightening torque **Tightening torque: 33 (24 ftlb.) Nm**



Press in the roll-over bar

3. Press locking levers outward **-Arrow A-** and press in the roll-over bar **-1-** **-Arrow B-** until it is felt to engage **-inset-** .



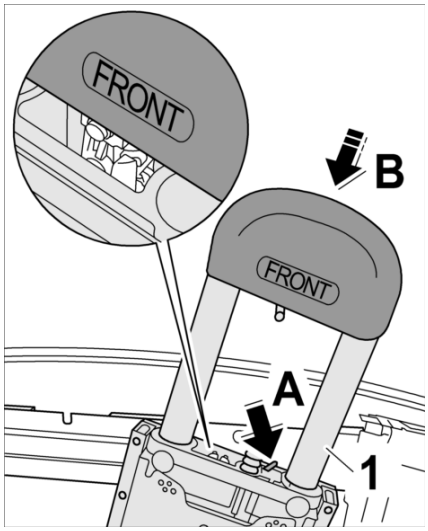
Triggering roll-over protection system

ATTENTION

Danger of injury when working on the roll-over protection system!

The movement range of the roll-over protection system must be kept clear.

4. Check roll-over protection system (function test). Select menu item Roll-over protection, and select menu item Drive links in the command line which then appears. Press the key combination described in the tester; the roll-over protection system is triggered.



Press in the roll-over bar

5. Press locking levers outward **-Arrow A-** and press in the roll-over bar **-1-** **-Arrow B-** until it is felt to engage **-inset-** .

top of page

Subsequent work

Subsequent work

1. Install rear wall trim panel *703119 23 Removing and installing trim panel for rear wall - chapter on "Installing"*
2. Install cover for rear *705319 23 Removing and installing cover for rear - chapter on "Installing"*

997610

as of MY 2005
Country C00, C02, C05, C07, C08, C09, C10, C11, C12, C13, C14, C15, C16, C18, C19, C20, C21, C22,

69 77 19 Removing and installing frame for roll-over protection system - as of MY 2005

- Preliminary work
- Removing frame for roll-over protection system
- Installing frame for roll-over protection system
- Subsequent work

top of page

Preliminary work

Preliminary work

1. Removing rear wall trim panel __ 703119 Removing and installing trim panel for rear wall - section on "Removing" [997310 997311 997320 997321] *703119 21 Removing and installing trim panel for rear wall - section on "Removing" [997610 997611 997620 997621]*
2. Remove cover for the rear. __ 705319 Removing and installing cover for rear - section on "Removing" [997310 997311 997320 997321] *705319 21 Removing and installing cover for rear - section on "Removing" [997610 997611 997620 997621]*
3. Remove rear side trim panel at left and right. __ 707519 Removing and installing rear side trim panel - section on "Removing"
4. Undo seat belt and rear mounting component at the left and right. __ 691219 Removing and installing rear three-point belt - section on "Removing"
5. Trigger the roll-over bar. __ 697219 Removing and installing roll-over bar - section on "Removing" [997610] __ 697219 Removing and installing roll-over bar - section on "Removing" [997310 997311 997320 997321 997611 997620 997621]

Note

Do not loosen hydraulic lines at hydraulic pump.

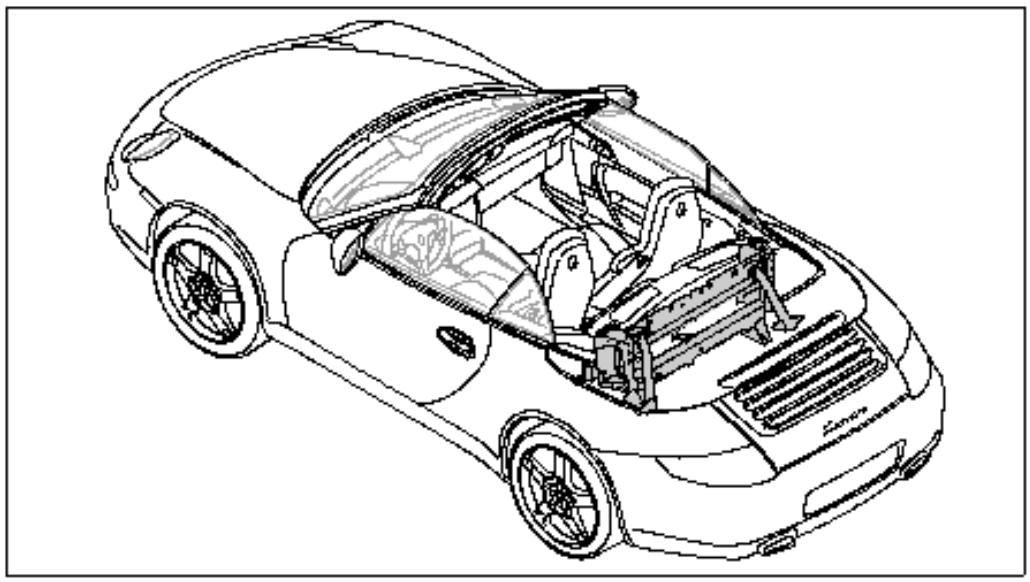
6. Remove hydraulic pump and set it aside. . __ 618419 Removing and installing hydraulic pump - section on "Removing"
7. Unlock plug connections for DME control module. __ 247019 Removing and installing DME control module - section on "Removing" [997310 997311 997320 997321 997611 997620 997621] __ 247019 Removing and installing DME control module - section on "Removing" [997610]
8. Unlock plug connections for convertible-top control unit. __ 619619 Removing and installing control unit for convertible top - section on "Removing"
9. Release relay carrier and set it aside. __ 979019 Removing and installing relay carrier - section on "Removing"
10. Remove motor for drive mechanism and set it aside. __ 617019 Removing and installing motor for drive mechanism - section on "Removing"

top of page

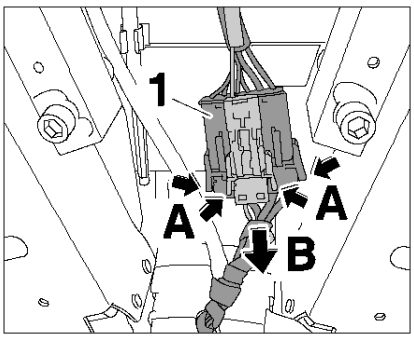
Removing frame for roll-over protection system

Removing frame for roll-over protection system

Installation Location:

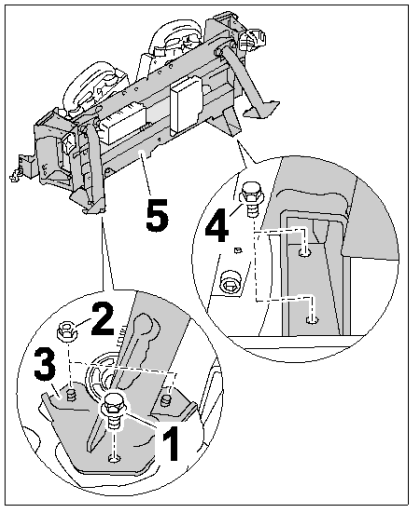


Installation position of frame for roll-over protection system



Disconnecting plug connections

1. Press in locking tabs **-arrows A-** and pull plug connections **-1-** off wire harness for roll-over protection system **-arrow B-** .



Removing frame for roll-over protection system

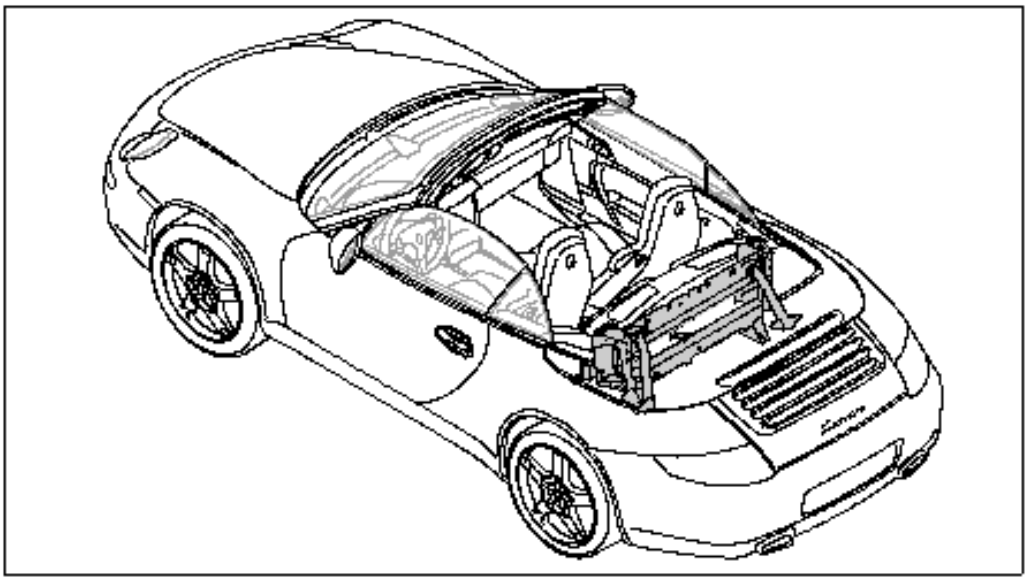
2. Unscrew fastening screw **-1-** and fastening nuts **-2-** from Z support **-3-** .
3. Unscrew fastening screws **-4-** and carefully remove frame for roll-over protection system **-5-** upwards out of the vehicle.

top of page

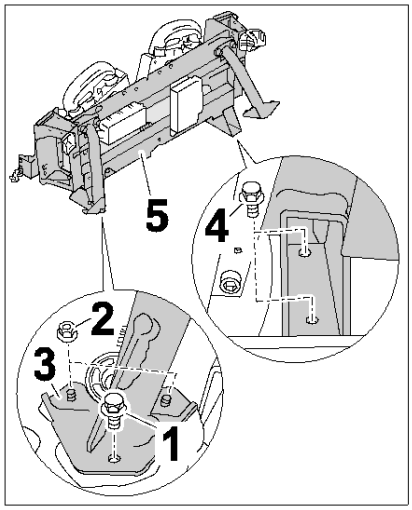
Installing frame for roll-over protection system

Installing frame for roll-over protection system

Installation Location:

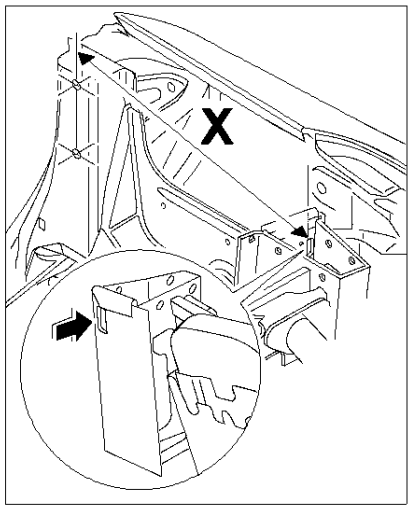


Installation position of frame for roll-over protection system



Removing frame for roll-over protection system

1. Carefully position frame for roll-over protection system **-5-** on the vehicle. Screw in fastening screws **-1, 4-** and fastening nuts partially by hand.

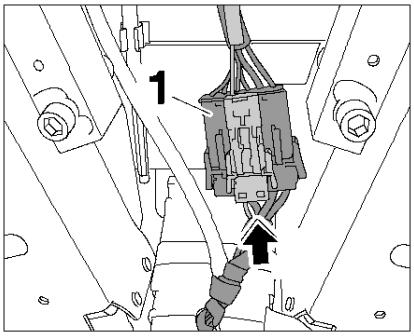


Adjusting frame for roll-over protection system

Note

To reduce adjustment work to a minimum when assembling convertible-top components, the frame for the roll-over protection system must be positioned according to the dimension shown.

2. Move frame for roll-over protection system **-5-** to adjust it by dimension **-X-** **Adjustment value: 491 mm +/-1 mm** .
3. Screw in fastening screw **-1-** and fastening nuts **-2-** on rear Z support **-3-** . Tightening torque **Tightening torque: 45 (33 ftlb.) Nm** **Tightening torque: 45 (33 ftlb.) Nm**
4. Screw down fastening screw **-4-** on frame for roll-over protection system **-5-** . Tightening torque **Tightening torque: 45 (33 ftlb Nm**



Locking plug connection

5. Press in plug connections **-1-** on wire harness for roll-over protection system.

Diagram of frame for roll-over protection system

Installation Location:

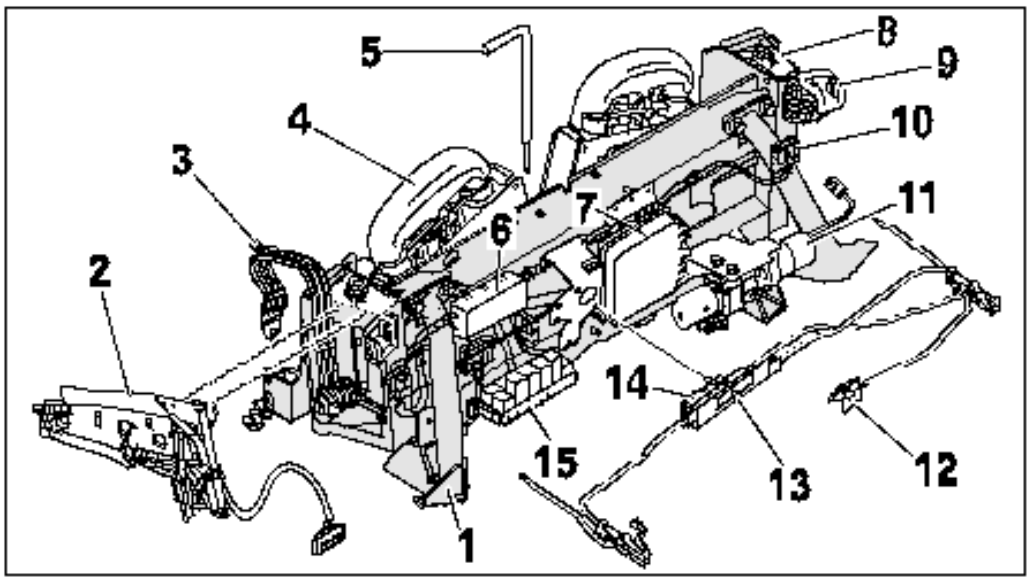


Diagram of frame for roll-over protection system

1 - Frame for roll-over protection system
2 - Rear side panel lid
3 - Rear three-point belt
4 - Mount for rear hardtop locking mechanism
5 - Roll-over bar module
6 - Angular screwdriver (tool kit)
7 - Convertible-top fixing device
8 - Hydraulic pump
9 - DME control module
10 - Motor for convertible-top compartment lid drive mechanism
11 - Convertible-top compartment lid drive gear

12 - Relay carrier

13 - Convertible-top control unit

top of page

Subsequent work

Subsequent work

1. Secure motor for convertible-top compartment lid drive. 617019 Removing and installing motor for drive mechanism - section on "Installing"
2. Push relay carrier into its retaining frame and engage firmly. 979019 Removing and installing relay carrier - section on "Installing"
3. Lock plug connections for convertible-top control unit. 619619 Removing and installing control unit for convertible top - section on "Installing"
4. Lock plug connections for DME control module. 247019 Removing and installing DME control module - section on "Installing" [997310 997311 997320 997321 997611 997620 997621] 247019 Removing and installing DME control module - section on "Installing" [997610]
5. Install hydraulic pump. 618419 Removing and installing hydraulic pump - section on "Installing"
6. Secure seat belt and rear mounting component at the left and right. 691219 Removing and installing rear three-point belt - section on "Installing"
7. Install rear side trim panel at left and right. 707519 Removing and installing rear side trim panel - section on "Installing"
8. Press in roll-over bar and perform a function test on the roll-over protection modules. 697219 Removing and installing roll-over bar - section on "Installing" [997610] 697219 Removing and installing roll-over bar - section on "Installing" [997310 997311 997320 997321 997611 997620 997621]
9. Install cover for rear. 705319 Removing and installing cover for rear- section on "Installing" [997310 997311 997320 997321] *705319 23 Removing and installing cover for rear- section on "Installing" [997610 997611 997620 997621]*
10. Install trim panel for rear wall 703119 Removing and installing trim panel for rear wall - section on "Installing" [997310 997311 997320 997321] *703119 23 Removing and installing trim panel for rear wall - section on "Installing" [997610 997611 997620 997621]*

997310, 997311, 997320, 997321, 997610, 997611, 997620, 997621

as of MY 2005
Country C00, C02, C05, C07, C08, C09, C10, C11, C12, C13, C14, C15, C16, C18, C19, C20, C21, C22, C23, C24, C25, C26, C27, C28, C32, C33, C34, C35, C36, C37, C38, C39, C45, C46, C98, C99

70 02 19 Removing and installing wing flange cover - as of MY 2005

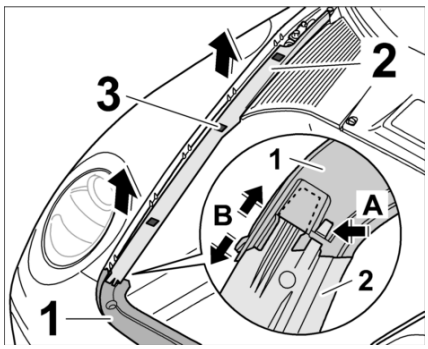
- Removing wing flange cover
- Installing wing flange cover

top of page

Removing wing flange cover

Removing cover for wing flange

1. Open front lid.



Removing cover for wing flange

2. Loosen cover for wing flange **-2-** at the Velcro fasteners **-3-** .
3. Lift cover for wing flange up slightly **-2-** , release the locking tab at the side from below **-arrow A-** and pull it out of the cover for the lock support **-1-** (**-arrows B-**).

top of page

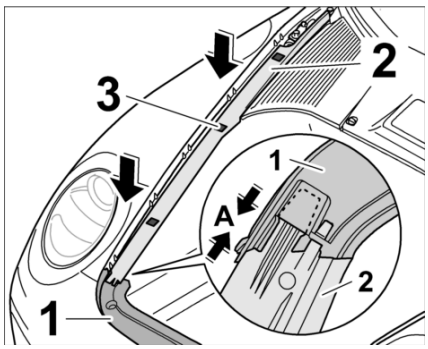
Installing wing flange cover

Installing cover for wing flange

Note

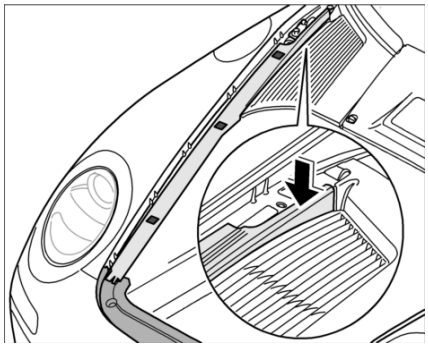
- *The Velcro fasteners must be removed and replaced when replacing the wing and cover for wing flange.*

1. Check Velcro fasteners on wing and cover for wing flange and replace if necessary. See: Additional assembly instructions for replacing Velcro fasteners



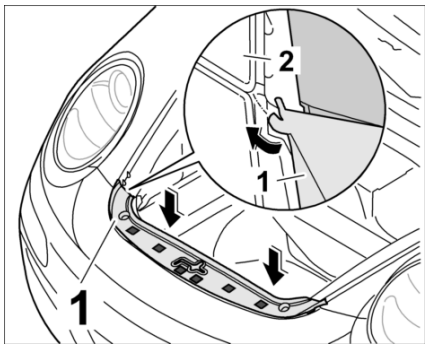
Installing cover for wing flange

2. Insert cover for wing flange **-2-** sideways into the trim panel for the lock support **-1-** (**-arrows A-**).
3. Slide cover for wing flange **-2-** with the soft lip under the luggage compartment seal and press on Velcro fasteners **-3-** .



Locking cover for wing flange into place

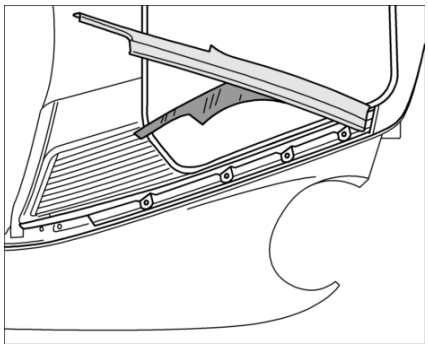
4. Lock cover for wing flange into place in plenum panel.



Securing trim panel

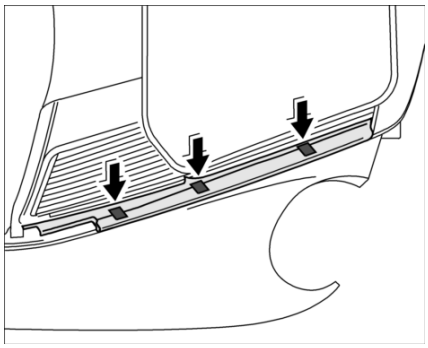
5. Insert locking lug for trim panel for lock support **-1-** into the wing at the side **-2-** .
6. Close front lid.

Additional assembly instructions for replacing Velcro fasteners



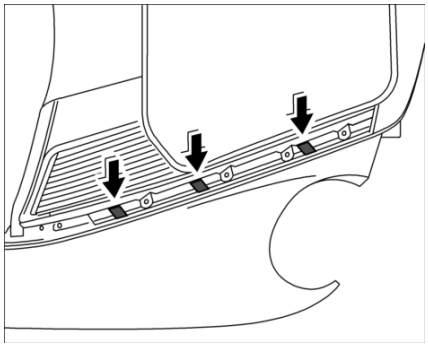
Pulling off protective film

1. Remove protective paper on the underside, push locking lug into the cover for lock support and press cover down onto the wing flange.



Pressing on Velcro fasteners

2. Press Velcro fasteners on at the positions indicated.



Securing Velcro fasteners

3. Lift off cover and press Velcro fasteners securely onto the wing flange again using a suitable tool.

997110, 997111, 997120, 997121, 997310, 997311, 997320, 997321, 997410, 997411, 997430, 997431, 997610, 997611, 997620, 997621

as of MY 2005
Country C00, C02, C05, C07, C08, C09, C10, C11, C12, C13, C14, C15, C16, C18, C19, C20, C21, C22, C23, C24, C25, C26, C27, C28, C32, C33, C34, C35, C36, C37, C38, C39, C45, C46, C98, C99

70 08 19 Removing and installing trim panel for convertible top rest - as of MY 2005

- Preliminary work
- Removing trim panel for convertible top rest
- Installing trim panel for convertible top rest

top of page

Preliminary work

Preliminary work

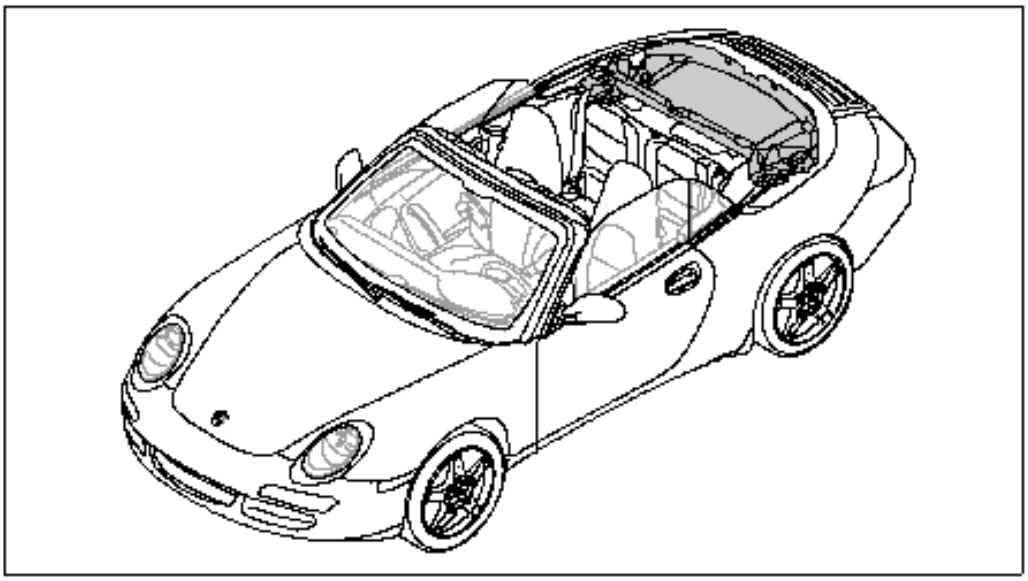
Move convertible top to service position. 6101IN IN -Convertible top in service position

top of page

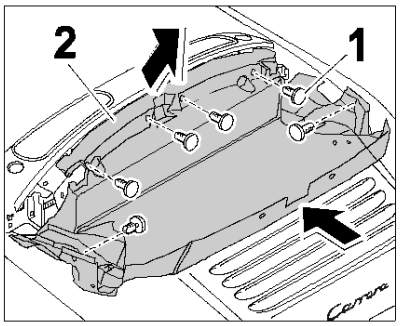
Removing trim panel for convertible top rest

Removing trim panel for convertible top rest

Installation Location:



Installation location for convertible top rest trim panel



Removing trim panel for convertible top rest

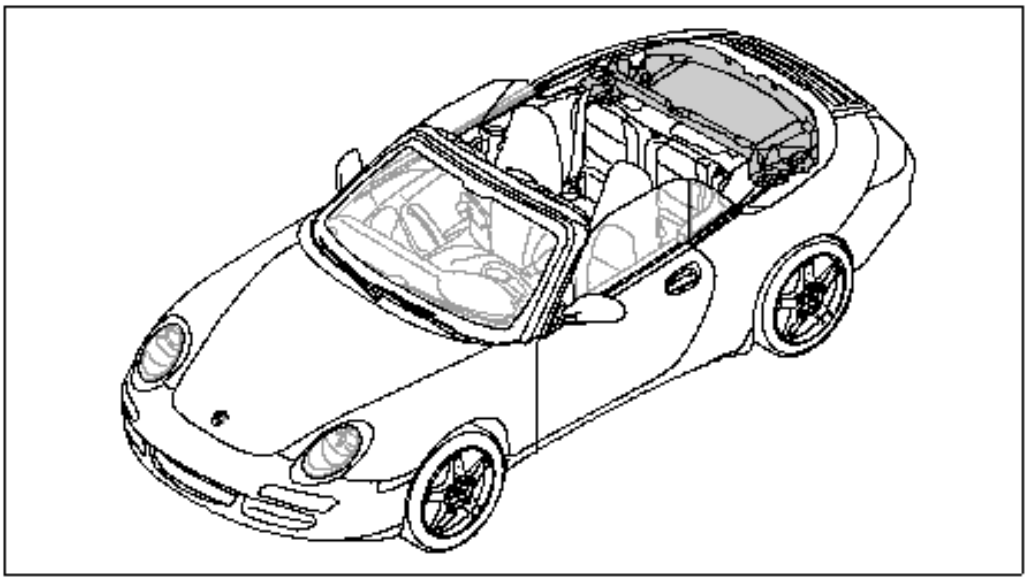
1. Unclip fixing clips **-1-** . Fold together trim panel for convertible top rest **-2-** somewhat and take up and out.

top of page

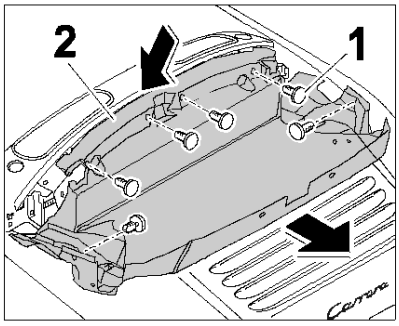
Installing trim panel for convertible top rest

Installing trim panel for convertible top rest

Installation Location:



Installation location for convertible top rest trim panel



Installing trim panel for convertible top rest

1. Position and align trim panel for convertible top rest **-2-** .
2. Press in fixing clips **-1-** .
3. End convertible top service position.

997310, 997311, 997320, 997321, 997610, 997611, 997620, 997621

as of MY 2005
Country C00, C02, C05, C07, C08, C09, C10, C11, C12, C13, C14, C15, C16, C18, C19, C20, C21, C22, C23, C24, C25, C26, C27, C28, C32, C33, C34, C35, C36, C37, C38, C39, C45, C46, C98, C99

WARNUNG

Gefahr des Verlusts der Text-Bild-Zuordnung beim Ausdruck.

- **Aus technischen Gründen kann derzeit nicht ausgeschlossen werden, dass trotz einwandfreier Darstellung auf dem Bildschirm beim Ausdruck der Zusammenhang von Text und zugehörigem Bild verloren geht.**
- **Wird der Fehler nicht bemerkt, besteht die Gefahr, daß Arbeiten nicht korrekt durchgeführt werden und es dadurch zu Personen- und Sachschäden kommt.**

Vergleichen Sie deshalb nach dem Druckvorgang unbedingt die Ausdrucke mit der Bildschirmdarstellung. Korrigieren Sie die Ausdrucke im Fehlerfall so, daß der Inhalt der Bildschirmdarstellung zutreffend wiedergegeben wird.

WARNING

Danger of losing text-figure correspondence when printing out.

- **For technical reasons, it can currently not be ruled out that the correspondence between text and associated figure can be lost when it is printed out, even though the display on the screen is correct.**
- **If the fault is not noticed, there is the danger that work will not be performed correctly which can cause injury and damage.**

Therefore, always compare printouts with the screen display after printing them out. Correct the printouts if they are faulty so that the content of the screen display matches that on the printouts.

70 16 19 Removing and installing instrument panel cover - as of MY 2005

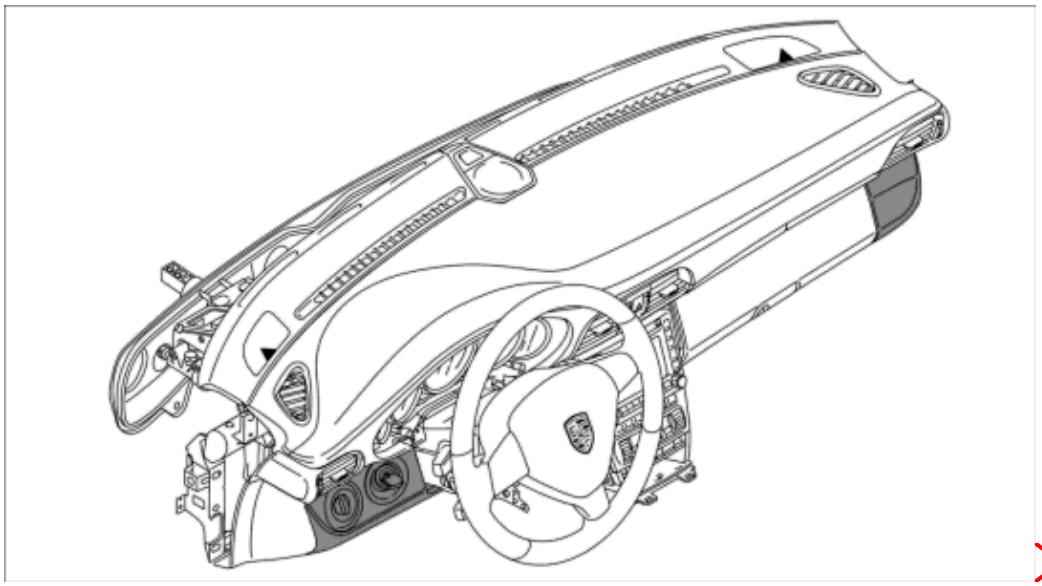
- Removing instrument panel cover
- Installing the instrument panel cover

top of page

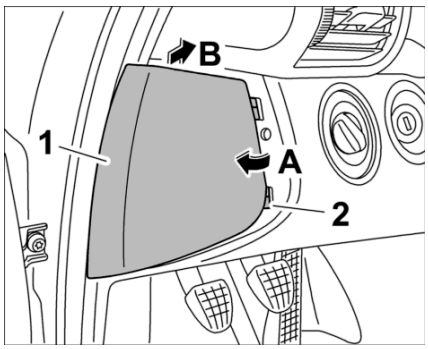
Removing instrument panel cover

Removing instrument panel cover

Installation Location:



Overview, instrument panel



Removing cover

1. Unclip cover **-1-** using a plastic wedge on the retaining clips **-2-** and swivel it outwards **-arrow A-** .

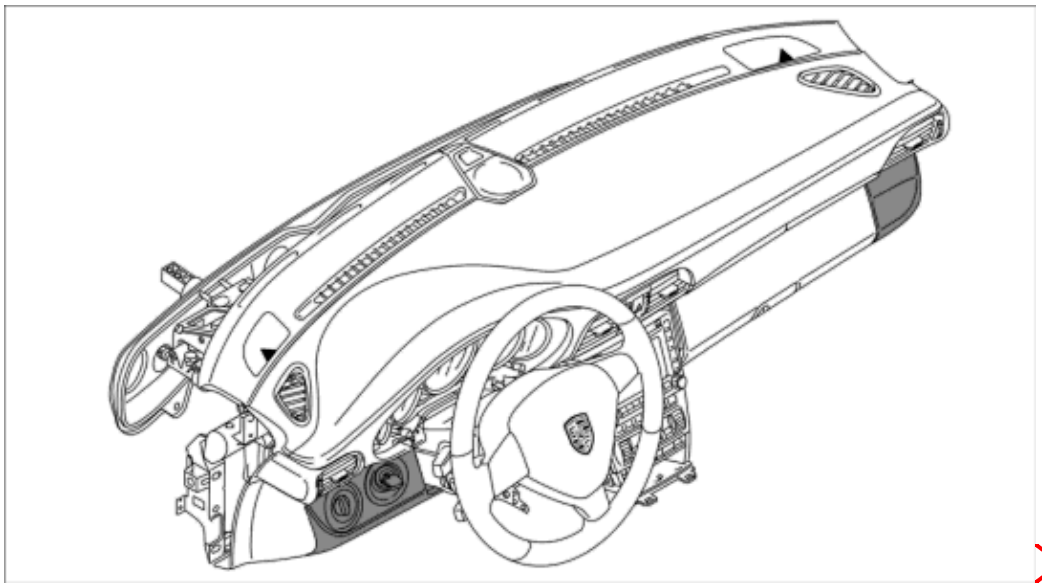
2. Remove the cover **-1-** to the rear **-arrow B-** .

top of page

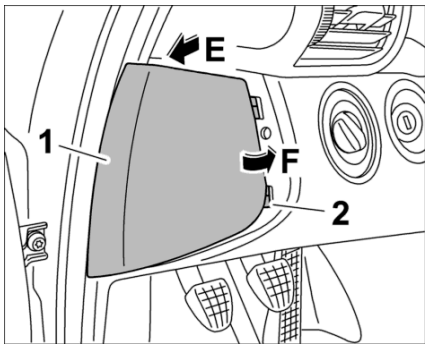
Installing the instrument panel cover

Installing the instrument panel cover

Installation Location:



Overview, instrument panel



Installing cover

1. Insert cover **-1-** at the front **-arrow E-** .
2. Swivel cover **-1-** inward and push it in **-arrow F-** until the retaining clips **-2-** click into place.

70 18 19 Removing and installing instrument panel - as of MY 2005

- Preliminary work
- Removing instrument panel
- Installing instrument panel
- Subsequent work

top of page

Preliminary work

Preliminary work

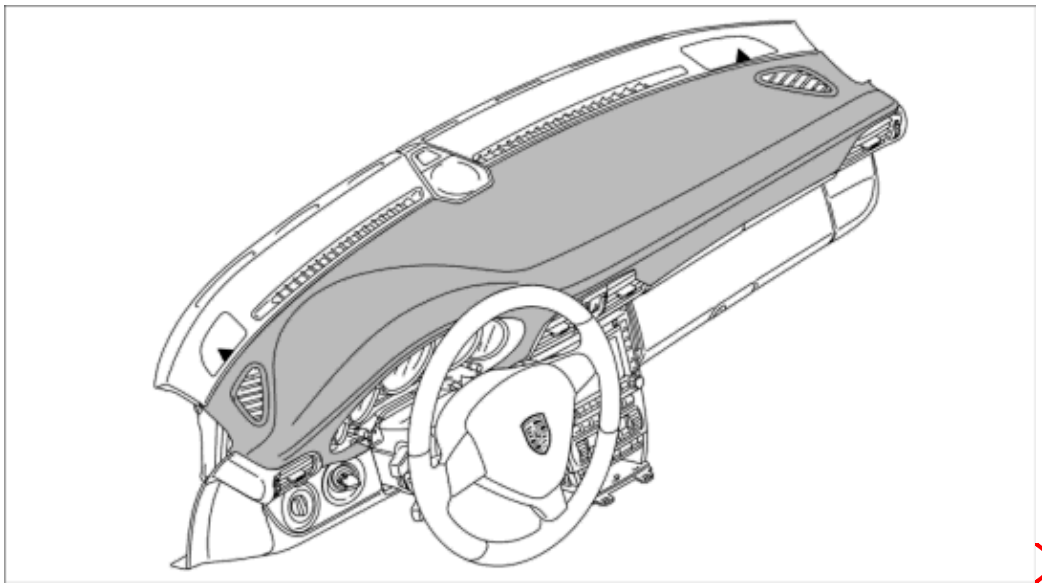
1. Remove steering column switch. 945019 Removing and installing steering column switch - chapter on "removing"
2. Remove trim under instrument panel. 701919 Removing and installing trim under instrument panel - chapter on "removing"
3. Remove instrument cluster. 902519 Removing and installing instrument cluster - chapter on "removing"
4. Remove dashboard insert. 900319 Removing and installing dashboard insert - chapter on "removing"
5. Remove passenger's airbag unit. 695919 Removing and installing passenger's airbag unit - chapter on "removing"
6. Remove stopwatch. 902219 Removing and installing stopwatch - chapter on "removing"
7. Remove cover for instrument panel (defroster cover). 702019 Removing and installing cover for instrument panel (defroster cover) - chapter on "removing"
8. Remove front loudspeakers. 914019 Removing and installing front loudspeakers - chapter on "removing"
9. Remove centre console cover. 681919 Removing and installing centre console cover - chapter on "removing"
10. Remove oddments tray. 681619 Removing and installing oddments tray - chapter on "removing"
11. Remove switch console. 962719 Removing and installing switch console - chapter on "removing"
12. Remove air-conditioning system regulator. 870219 Removing and installing air-conditioning system regulator - chapter on "removing"
13. Remove display and PCM operator control unit. 911019 Removing and installing display and PCM operator control unit - chapter on "removing"
14. Remove middle air vent. 855319 Removing and installing middle air vent - chapter on "removing"
15. Remove air vent at door. 855919 Removing and installing air vent at door - chapter on "removing"
16. Remove outer air ducts. 853419 Removing and installing air duct - chapter on "removing"

top of page

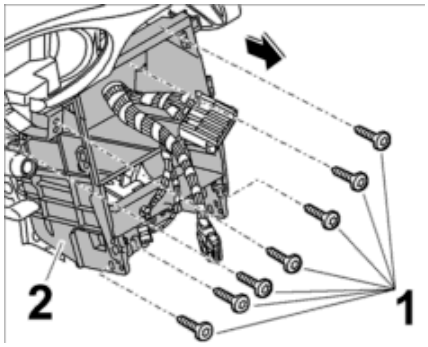
Removing instrument panel

Removing the device carrier

Installation Location:



Overview, instrument panel



Removing the device carrier

1. Undo fastening screws **-1-** .

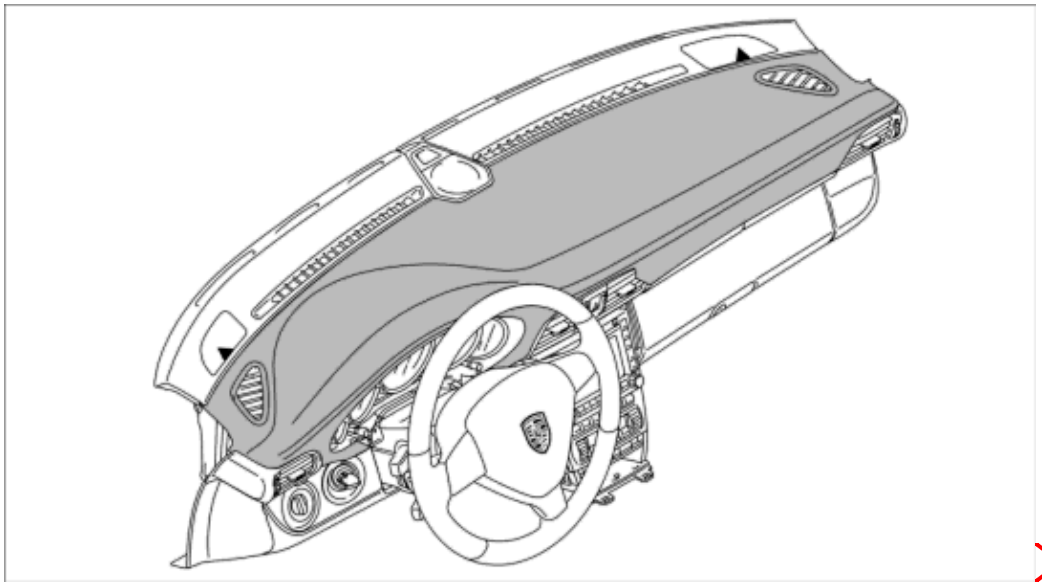
Note

- *Unclip electrical lead in vehicles with a telephone handset.*

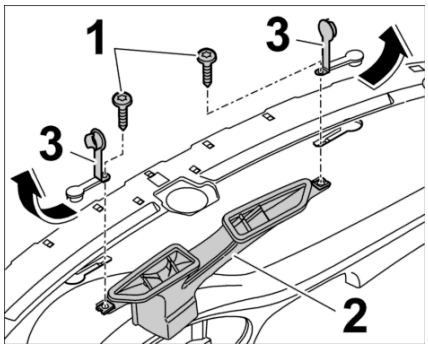
2. Pull device carrier **-2-** backwards.

Undoing intermediate piece for defroster cover

Installation Location:



Overview, instrument panel

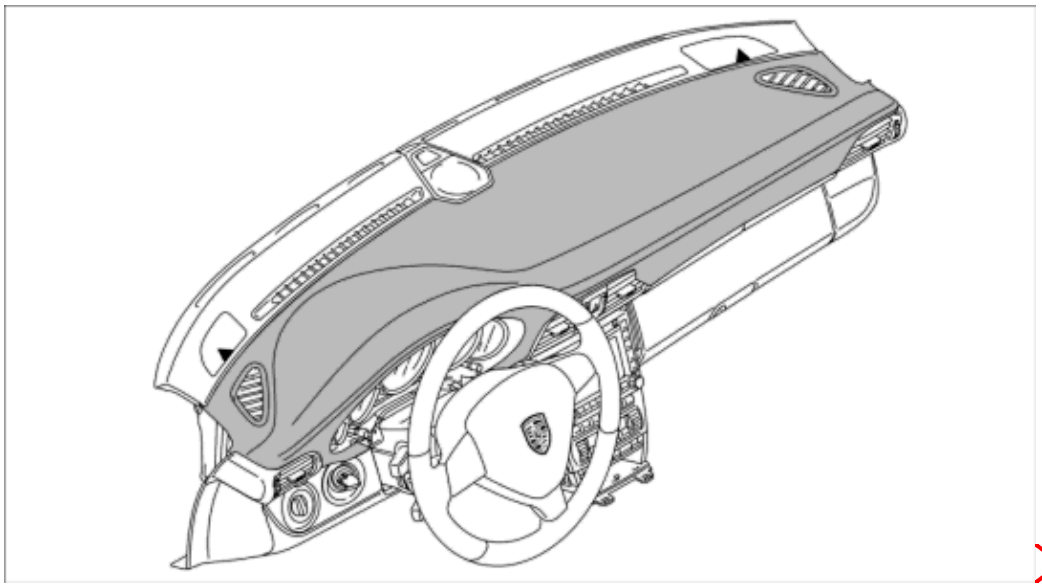


Undoing intermediate piece for defroster cover

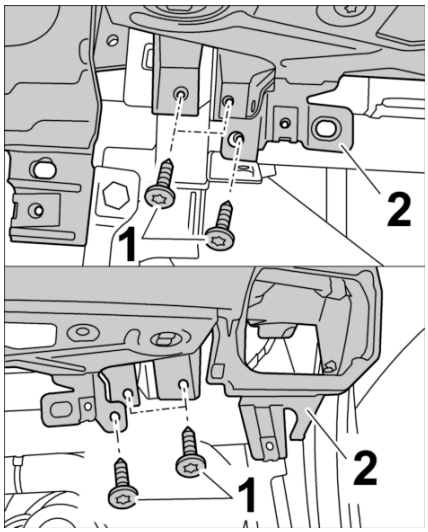
1. Unscrew fastening screws **-1-** on defroster intermediate piece **-2-** .
2. Remove defroster cover lid **-3-** .

Removing instrument panel

Installation Location:

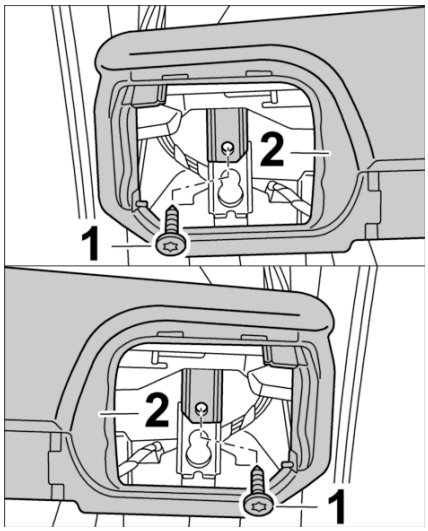


Overview, instrument panel



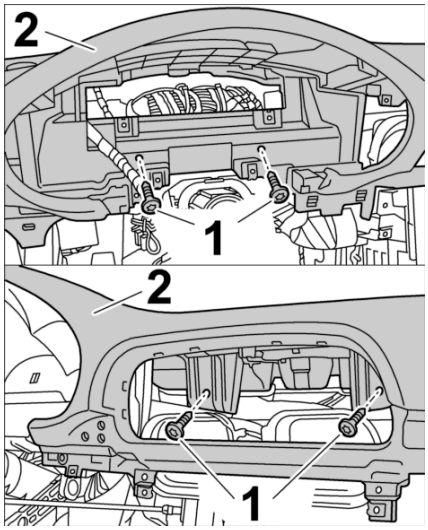
Detaching instrument panel

1. Unscrew fastening screws **-1-** on the instrument panel **-2-** at the front passenger side.



Detaching outer instrument panel

2. Unscrew fastening screws **-1-** on the instrument panel **-2-** close to the outer air ducts.



Removing instrument panel

3. Unscrew fastening screws **-1-** on the instrument panel **-2-** close to the instrument cluster and middle air vents.

Note

- *When removing the instrument panel, make sure that no wires or plug connections are damaged.*

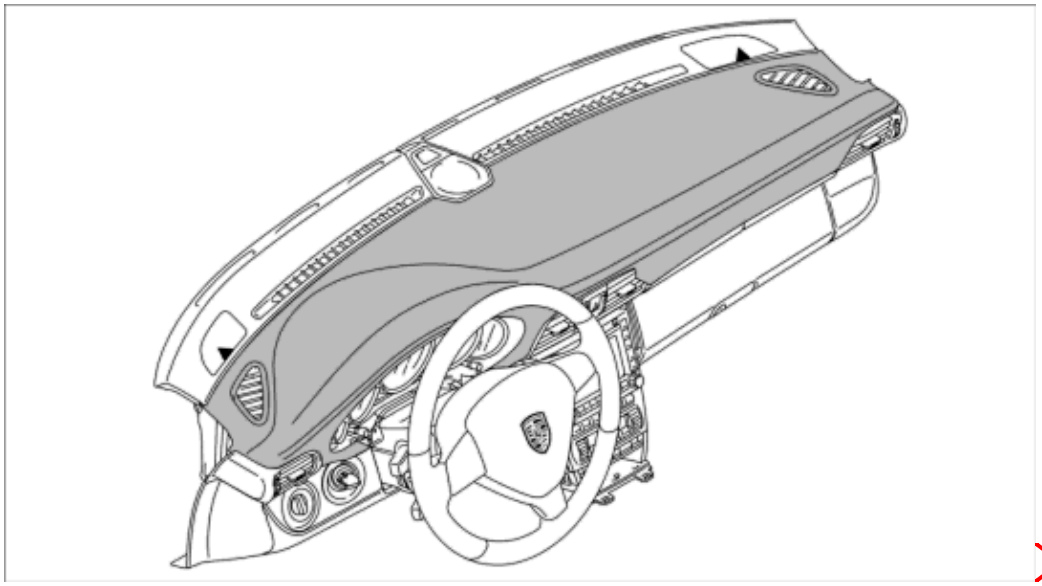
4. Carefully remove instrument panel **-2-** to the rear.

top of page

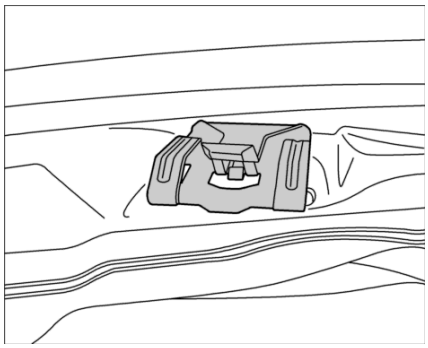
Installing instrument panel

Checking instrument panel clips

Installation Location:



Overview, instrument panel

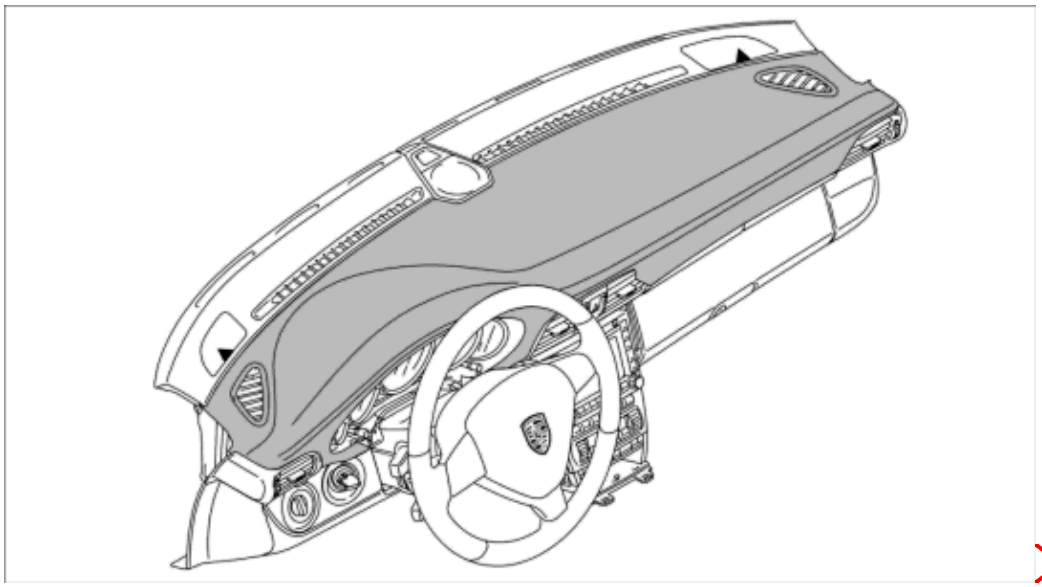


Instrument panel clips

1. Check instrument panel clips and replace if necessary.

Installing instrument panel

Installation Location:

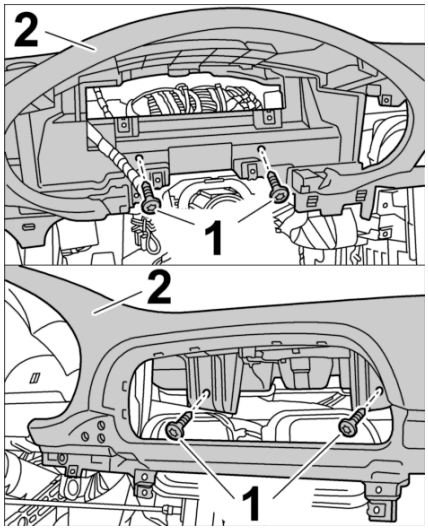


Overview, instrument panel

Note

- *When installing the instrument panel, make sure that no wires or plug connections are trapped.*

1. Carefully fit instrument panel over the instrument panel bracket.

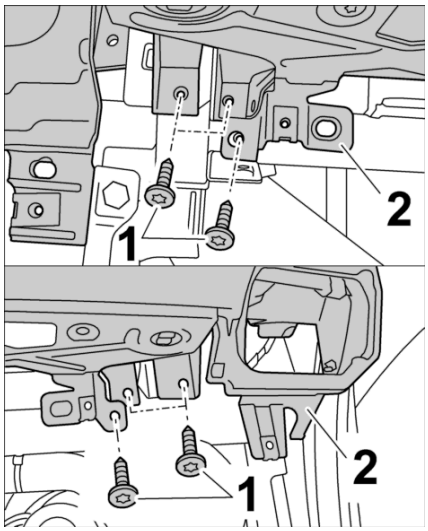


Installing instrument panel

Note

- *Before securing the instrument panel, make sure that all wires and plug connections are routed correctly.*

2. Screw in instrument panel **-2-** close to the instrument cluster and middle air vents using the fastening screws **-1-** .

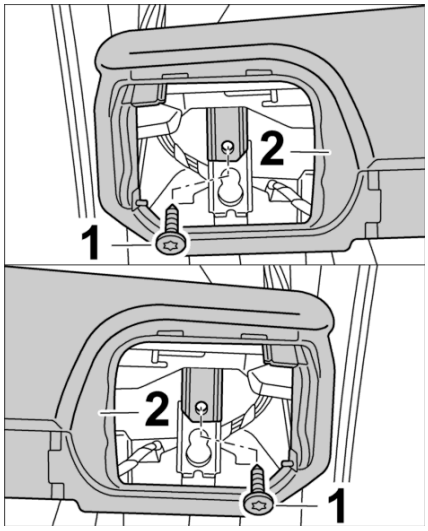


Fastening the instrument panel

Note

- *Before securing the instrument panel, make sure that all wires and plug connections are routed correctly.*

3. Screw in instrument panel **-2-** at the lower front passenger side using the fastening screws **-1-** .

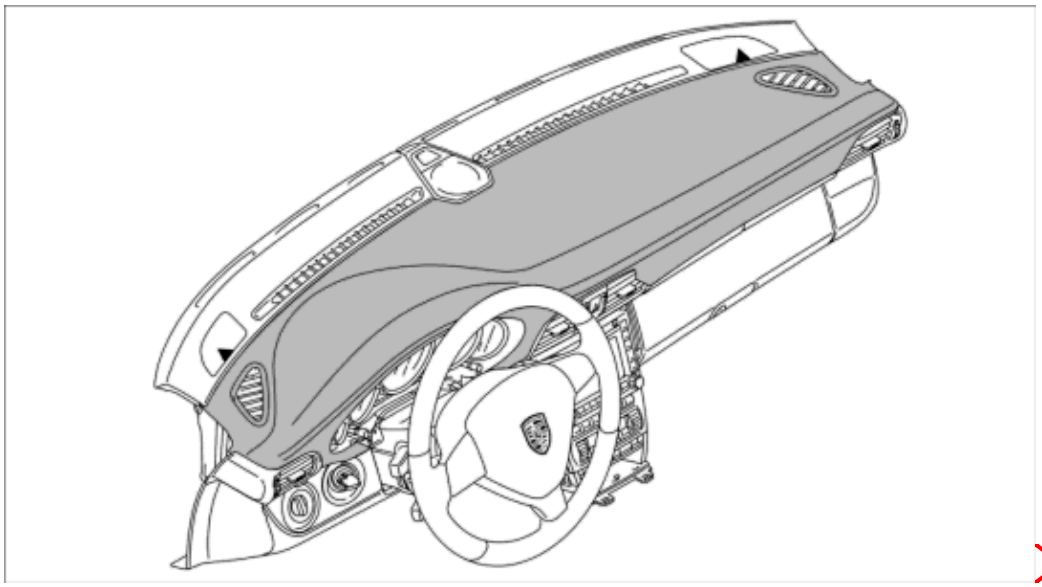


Fastening outer instrument panel

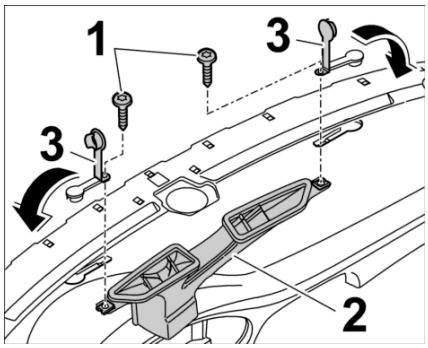
4. Screw in instrument panel **-2-** close to the outer air ducts using the fastening screws **-1-** .

Securing intermediate piece for defroster cover

Installation Location:



Overview, instrument panel

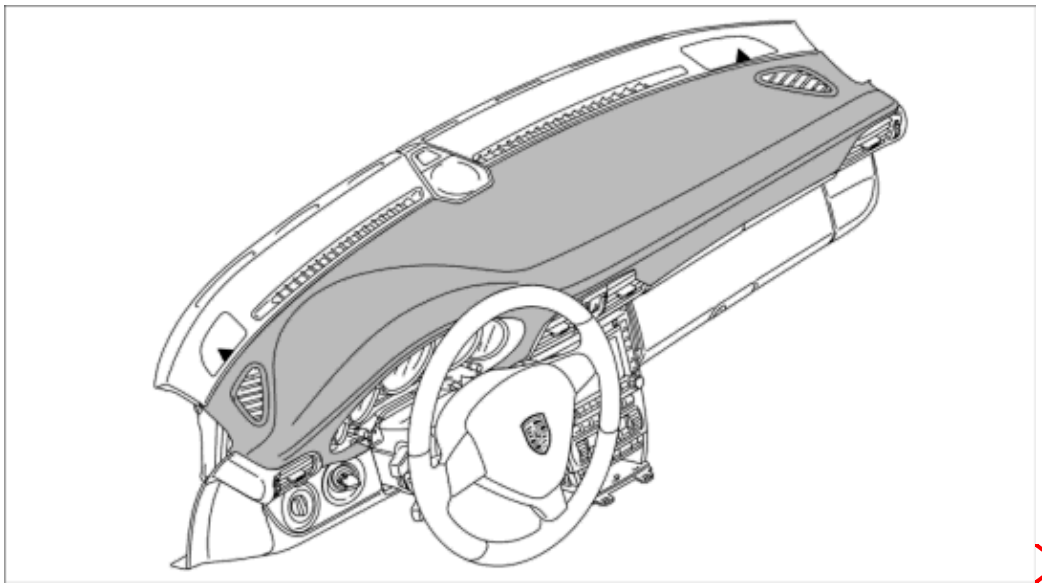


Securing intermediate piece for defroster cover

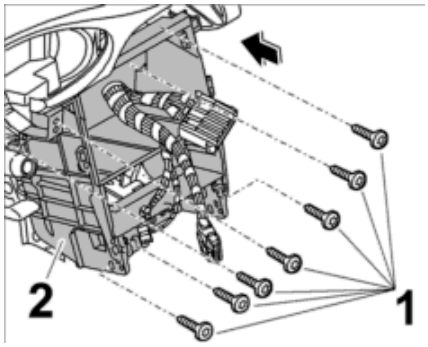
1. Position fastening screws **-1-** with the defroster cover lid **-3-** on the intermediate piece for the defroster cover **-2-** and tighten as required. Tightening torque **Final tightening: 3 (2) Nm (ftlb.)**

Installing the device carrier

Installation Location:



Overview, instrument panel



Installing the device carrier

1. Position device carrier **-2-** and screw down using the fastening screws **-1-** . Tightening torque **Final tightening: 3 (2) Nm (ftlb.)**

top of page

Subsequent work

Subsequent work

1. Install outer air ducts. 853419 Removing and installing air duct - chapter on "installing"
2. Install middle air vent. 855319 Removing and installing middle air vent - chapter on "installing"
3. Install air vent at door. 855919 Removing and installing air vent at door - chapter on "installing"
4. Install display and PCM operator control unit. 911019 Removing and installing display and PCM operator control unit - chapter on "installing"

5. Install air-conditioning system regulator. 870219 Removing and installing air-conditioning system regulator - chapter on "installing"
6. Install switch console. 962719 Removing and installing switch console - chapter on "installing"
7. Install oddments tray. 681619 Removing and installing oddments tray - chapter on "installing"
8. Install centre console cover. 681919 Removing and installing centre console cover - chapter on "installing"
9. Install front loudspeakers. 914019 Removing and installing front loudspeakers - chapter on "installing"
10. Install cover for instrument panel (defroster cover). 702019 Removing and installing cover for instrument panel (defroster cover) - chapter on "installing"
11. Install stopwatch. 902219 Removing and installing stopwatch - chapter on "installing"
12. Install passenger's airbag unit. 695919 Removing and installing passenger's airbag unit - chapter on "installing"
13. Install dashboard insert. 900319 Removing and installing dashboard insert - chapter on "installing"
14. Install instrument cluster. 902519 Removing and installing instrument cluster - chapter on "installing"
15. Install trim under instrument panel. 701919 Removing and installing trim under instrument panel - chapter on "installing"
16. Install steering column switch. 945019 Removing and installing steering column switch - chapter on "installing"

997110, 997111, 997120, 997121, 997310, 997311, 997320, 997321, 997410, 997411, 997430, 997431, 997610, 997611, 997620, 997621

as of MY 2005
Country C00, C02, C05, C07, C08, C09, C10, C11, C12, C13, C14, C15, C16, C18, C19, C20, C21, C22, C23, C24, C25, C26, C27, C28, C32, C33, C34, C35, C36, C37, C38, C39, C45, C46, C98, C99

WARNUNG

Gefahr des Verlusts der Text-Bild-Zuordnung beim Ausdruck.

- **Aus technischen Gründen kann derzeit nicht ausgeschlossen werden, dass trotz einwandfreier Darstellung auf dem Bildschirm beim Ausdruck der Zusammenhang von Text und zugehörigem Bild verloren geht.**
- **Wird der Fehler nicht bemerkt, besteht die Gefahr, daß Arbeiten nicht korrekt durchgeführt werden und es dadurch zu Personen- und Sachschäden kommt.**

Vergleichen Sie deshalb nach dem Druckvorgang unbedingt die Ausdrucke mit der Bildschirmdarstellung. Korrigieren Sie die Ausdrucke im Fehlerfall so, daß der Inhalt der Bildschirmdarstellung zutreffend wiedergegeben wird.

WARNING

Danger of losing text-figure correspondence when printing out.

- **For technical reasons, it can currently not be ruled out that the correspondence between text and associated figure can be lost when it is printed out, even though**

70 19 19 Removing and installing trim under dashboard - as of MY 2005

- Preliminary work
- Removing trim under the dashboard on the driver's side
- Installing trim under instrument panel on driver's side
- Removing and installing the cover under the instrument panel on the passenger's side
- Reworking

top of page

Preliminary work

Preliminary work

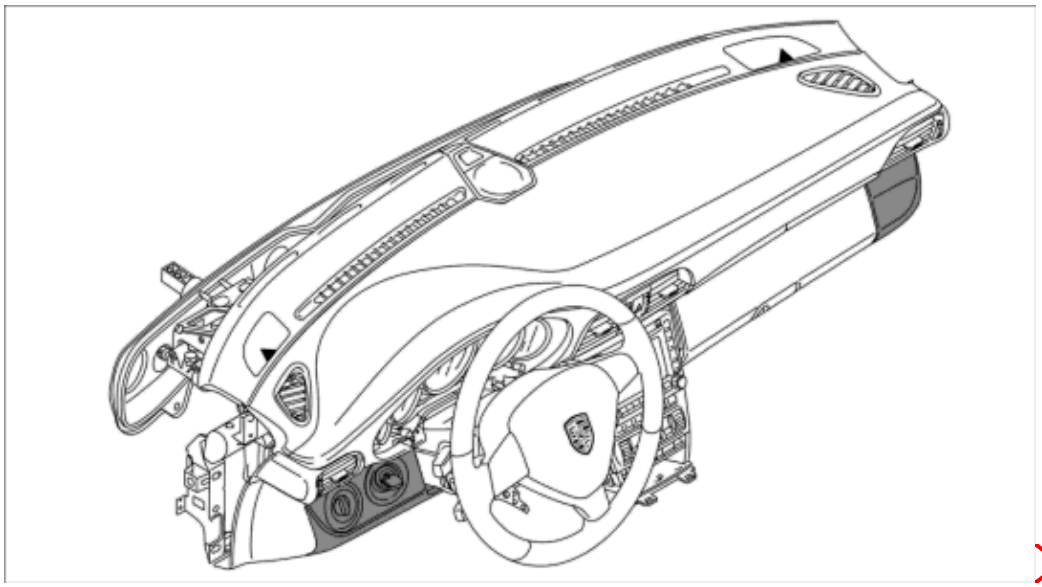
Remove main light switch. 940519 Removing and installing main light switch - removing
Removing cover for instrument panel into place on left 701619 Removing and installing dashboard cover - removing
Remove top steering-column trim. *481319 21 Removing and installing trim panel - "Removing" chapter*
Remove left centre console cover. 681419 Removing and installing centre console cover - chapter on "Removing"

top of page

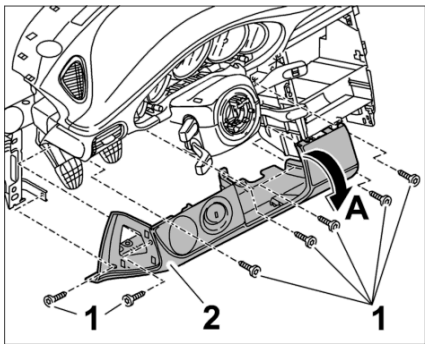
Removing trim under the dashboard on the driver's side

Removing trim under the dashboard on the driver's side

Installation Location:



Overview, cover under instrument panel

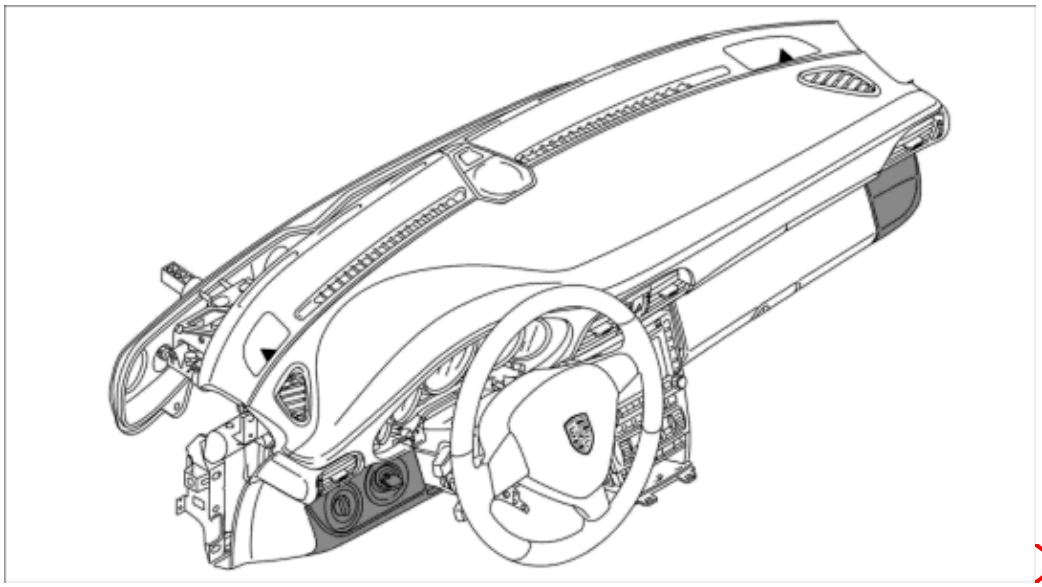


Removing lining

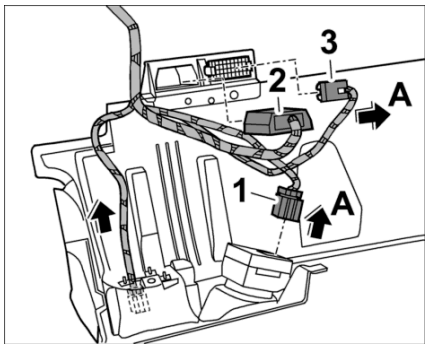
1. Unscrew the fastening screws **-1-** and swivel the cover under the instrument panel on the driver's side **-2-** downwards **-arrow A-** .

Disconnecting the electrical plug connections

Installation Location:



Overview, cover under instrument panel



Disconnecting the electrical plug connections

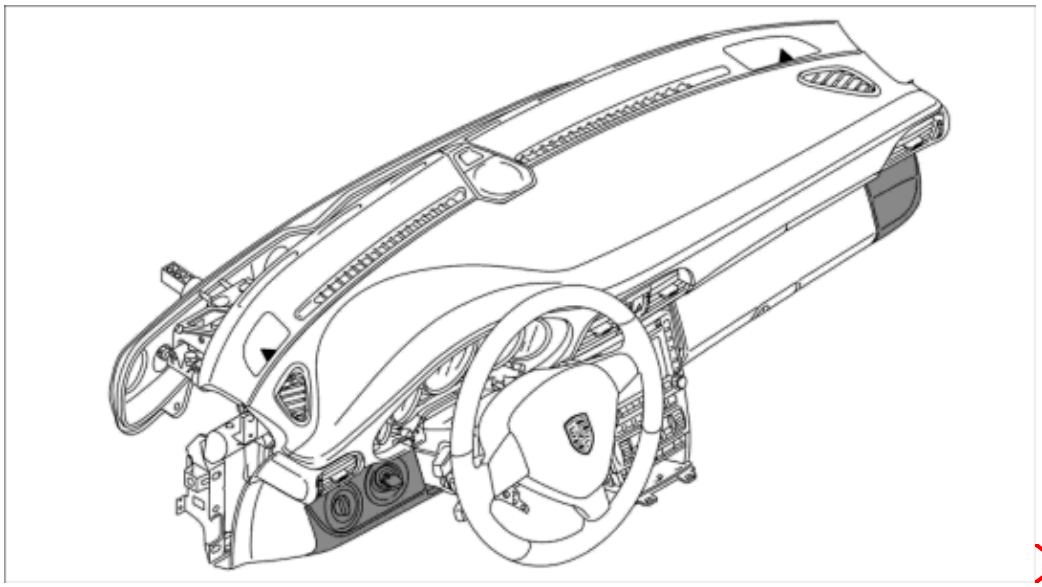
1. Release plug connections **-1, 2, 3-** and remove **-arrows A-** .

top of page

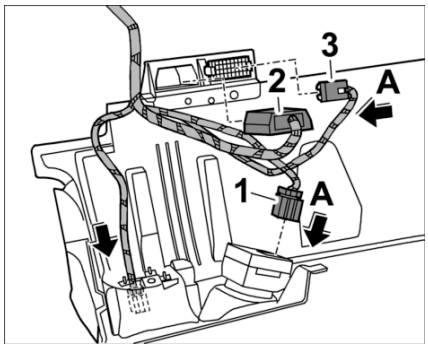
Installing trim under instrument panel on driver's side

Locking electrical plug connections

Installation Location:



Overview, cover under instrument panel

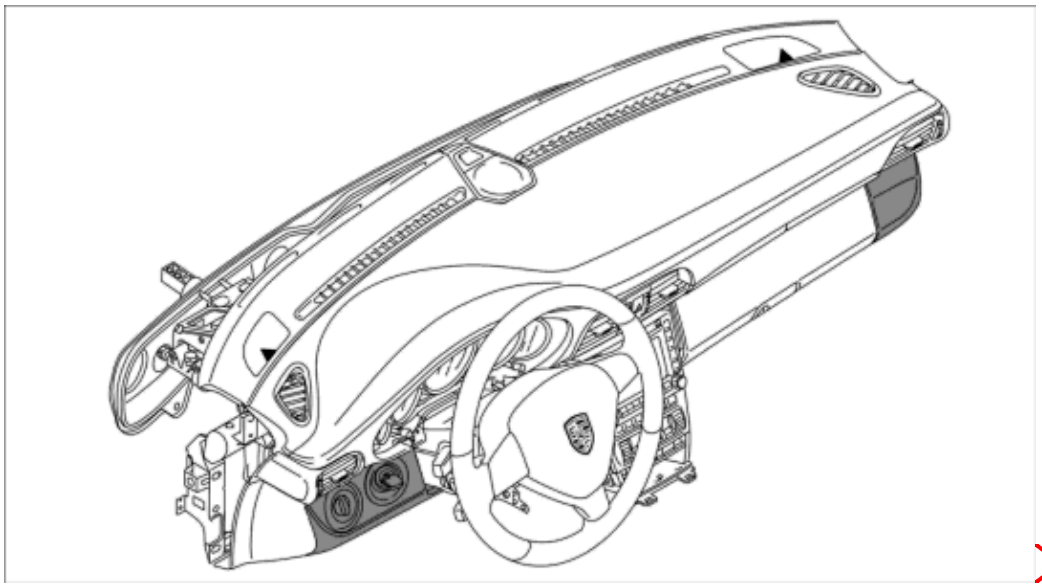


Locking electrical plug connections

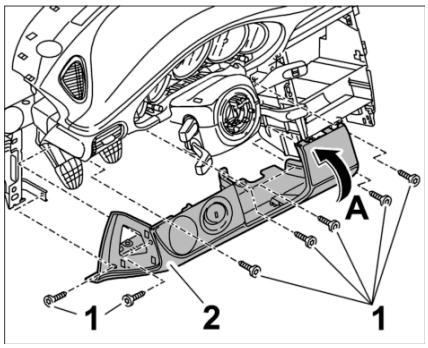
1. Push on plug connections **-1, 2, 3-** **-arrows A-** , until the locking tabs engage audibly.

Installing trim under dashboard on the driver's side

Installation Location:



Overview, cover under instrument panel



Installing lining

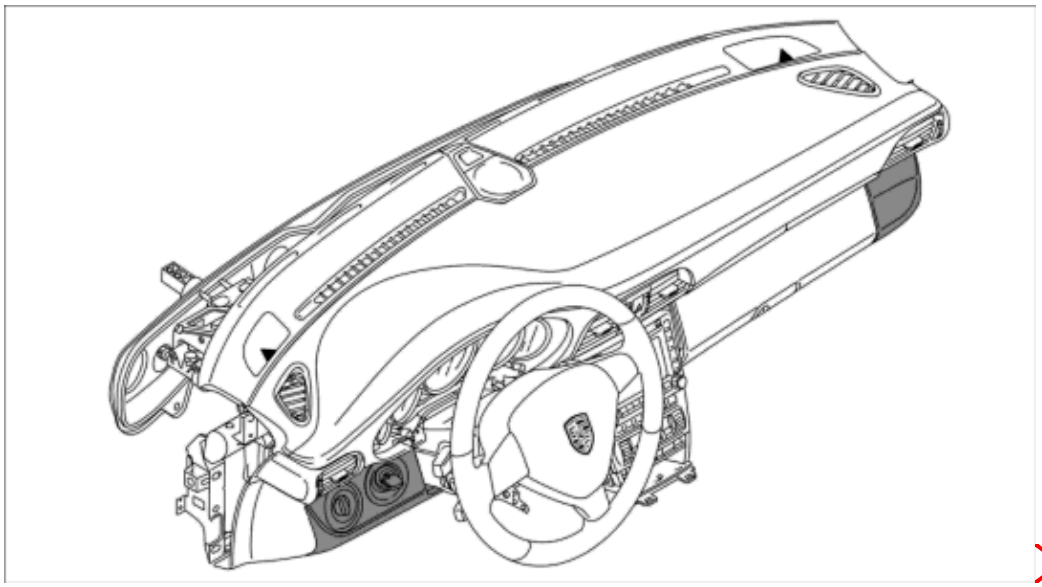
1. Insert cover under the instrument panel **-2-** on the guides.
2. Swivel cover under the instrument panel **-2-** upwards **-arrow A-** .
3. Screw in **-1-** fastening screws. Tightening torque **: 1.5 ftlb.**

top of page

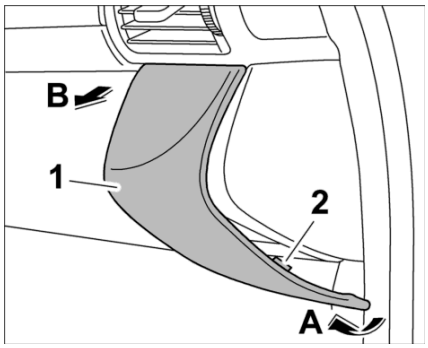
Removing and installing the cover under the instrument panel on the passenger's side

Removing the cover under the instrument panel on the passenger's side

Installation Location:



Overview, cover under instrument panel

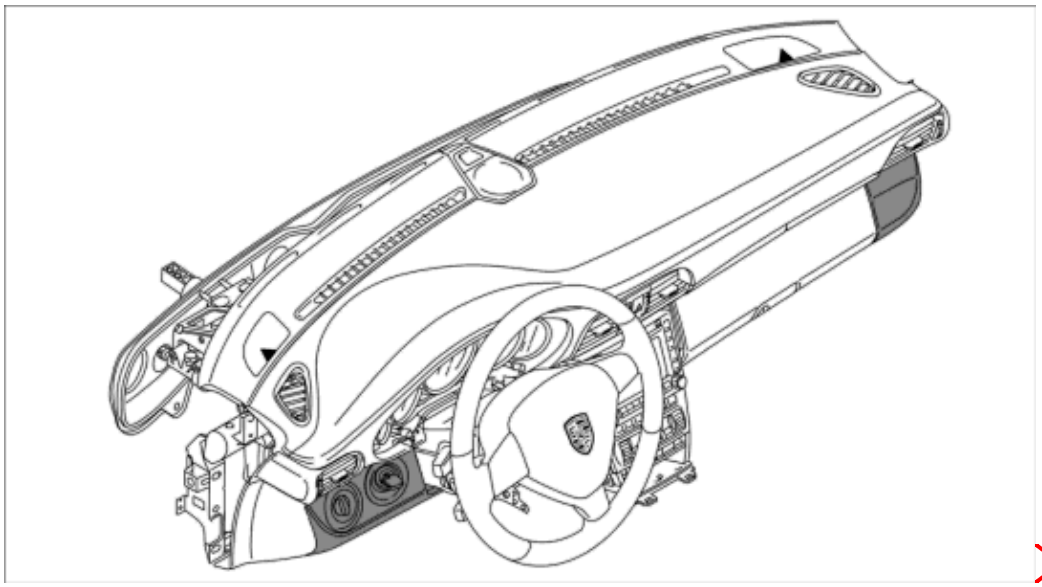


Removing lining

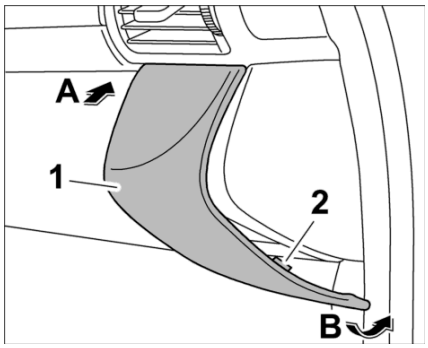
1. Unclip cover under the instrument panel on the passenger's side **-1-** with a plastic wedge on the retaining clips **-2-** and swivel outwards **-arrow A-** .
2. Take off the cover under the instrument panel on the passenger's side **-1-** to the rear **-arrow B-** .

Installing the cover under the instrument panel on the passenger's side

Installation Location:



Overview, cover under instrument panel



Installing lining

1. Insert the cover under the instrument panel on the passenger's side **-1-** from above **-arrow A-** .
2. Swivel cover under the instrument panel on the passenger's side **-1-** downwards and press in **-arrow B-** , until the retaining clips **-2-** engage audibly.

top of page

Reworking

Reworking

Install left centre console cover. 681419 Removing and installing centre console cover - chapter on "Installing"
Install top steering-column trim. *481319 23 Removing and installing trim panel - chapter on "Installing"*
Install dashboard cover on left. 701619 Removing and installing dashboard cover - installing
Installing main light switch 940519 Removing and installing main light switch - installing

70 20 19 Removing and installing cover for instrument panel (defroster cover) - as of MY 2005

- Preliminary work
- Removing cover for instrument panel (defroster cover)
- Installing cover for instrument panel (defroster cover)
- Subsequent work

top of page

Preliminary work

Preliminary work

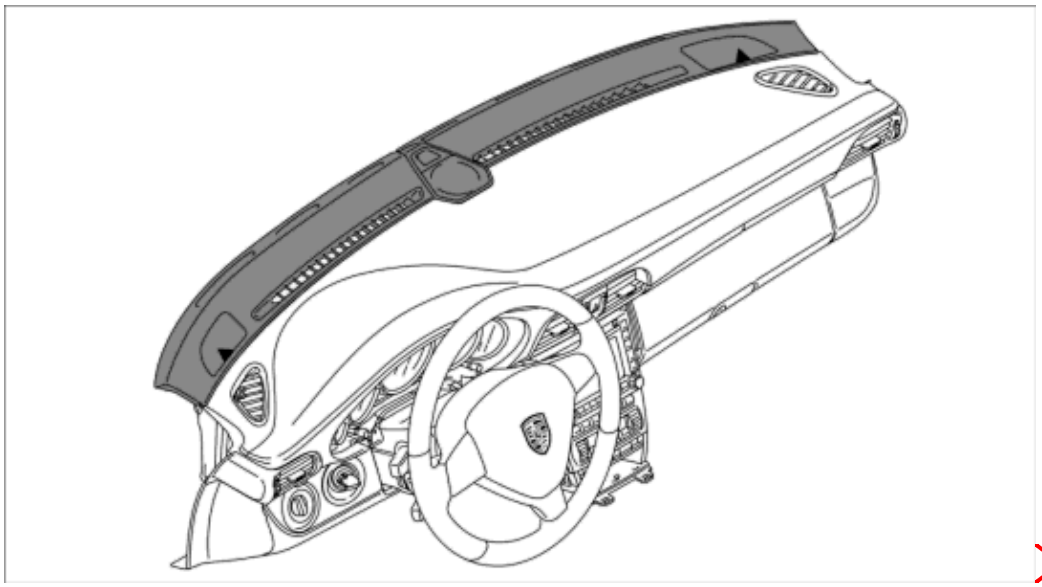
Remove A-pillar trim panel. 705719 Removing and installing A-pillar trim - chapter on "Removing" [997310 997311 997320 997321 997610 997611 997620 997621] 705719 Removing and installing A-pillar trim - chapter on "Removing" [997110 997111 997120 997121 997410 997411 997430 997431]

top of page

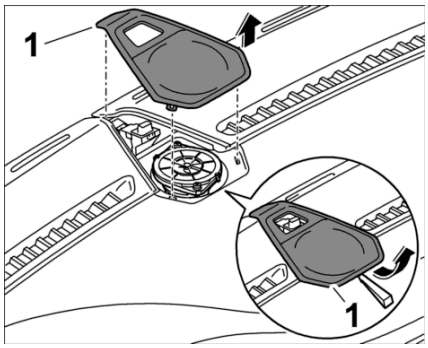
Removing cover for instrument panel (defroster cover)

Removing cover for centre instrument panel (defroster cover)

Installation Location:



Overview, removing and installing cover for instrument panel (defroster cover)

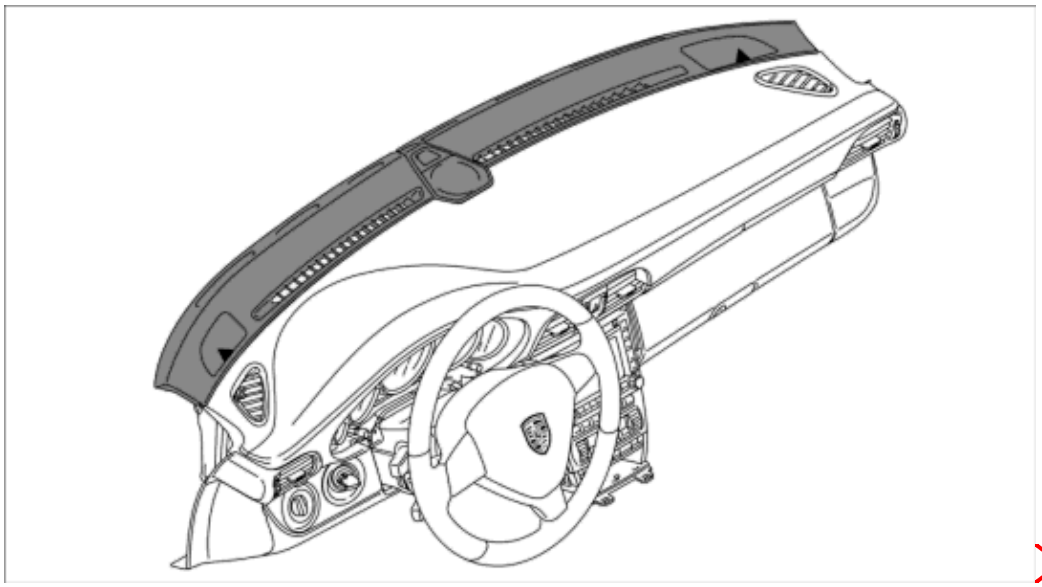


Removing middle cover

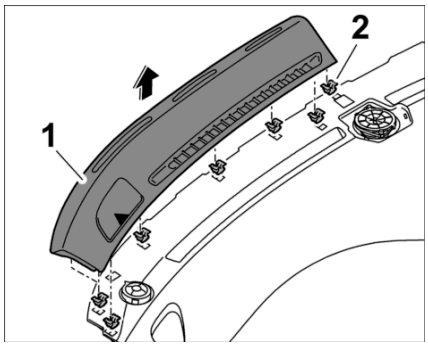
1. Insert plastic wedge under instrument panel cover (defroster cover) centre **-1-** and lever out in upward direction **-arrow-** .
2. Disconnect plug connection for sun sensor. *Removing and installing sun sensor.*

Removing cover for instrument panel (defroster cover) on right and left

Installation Location:



Overview, removing and installing cover for instrument panel (defroster cover)



Removing side cover

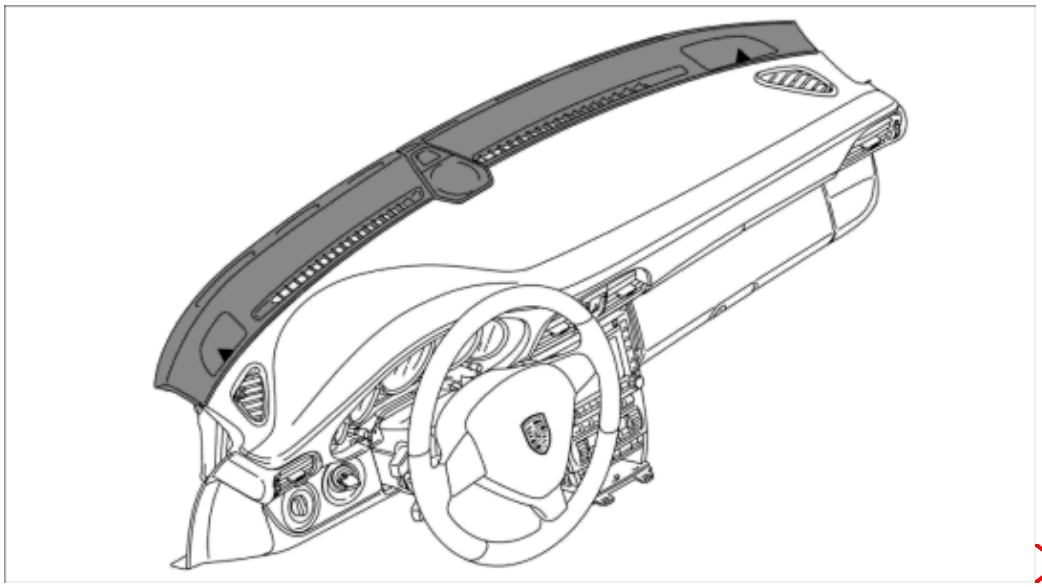
1. Insert plastic wedge under instrument panel cover (defroster cover) left and right **-4-** and lever out of sheetmetal clips **-5-** .

top of page

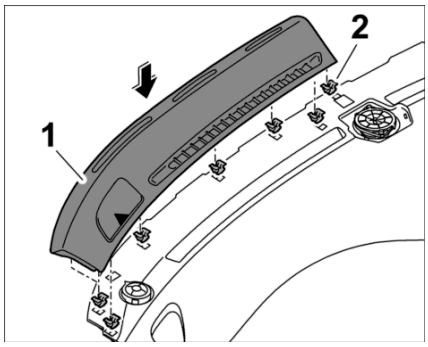
Installing cover for instrument panel (defroster cover)

Installing cover for instrument panel (defroster cover) on right and left

Installation Location:



Overview, removing and installing cover for instrument panel (defroster cover)

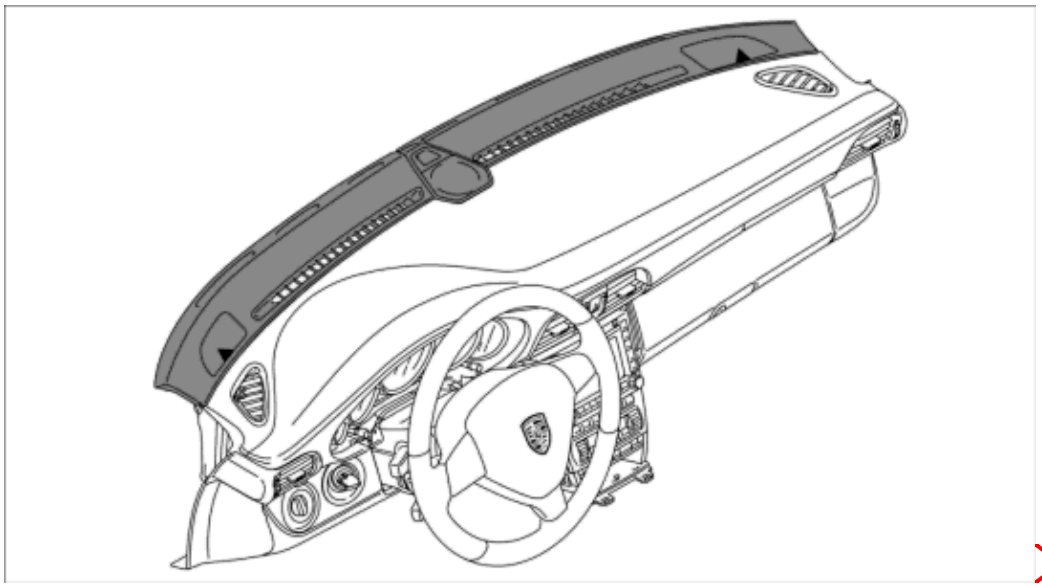


Installing side cover

1. Check sheetmetal clips **-5-** for deformation; replace if necessary.
2. Clip cover for instrument panel (defroster cover) into place on left and right **-4-** .

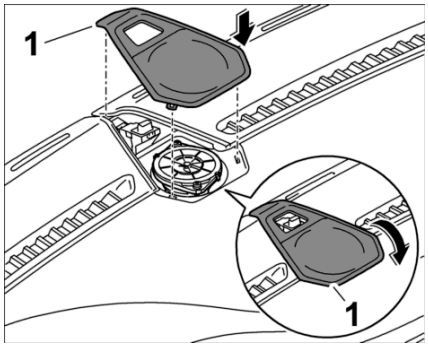
Installing cover for centre instrument panel (defroster cover)

Installation Location:



Overview, removing and installing cover for instrument panel (defroster cover)

1. Lock plug connection for sun sensor. *Removing and installing sun sensor.*



Install middle cover

2. Position cover for centre dashboard (defroster cover) **-1-** and clip in **-arrow-** .

top of page

Subsequent work

Reworking

Install A-pillar trim panel. 705719 Removing and installing A-pillar trim - chapter on "Installing" [997310 997311 997320 997321 997610 997611 997620 997621] 705719 Removing and installing A-pillar trim - chapter on "Installing" [997110 997111 997120 997121 997410 997411 997430 997431]

997110, 997111, 997120, 997121, 997310, 997311, 997320, 997321, 997410, 997411, 997430, 997431, 997610, 997611, 997620, 997621

70 22 19 Removing and installing cover (cold air bulkhead) - as of MY 2005

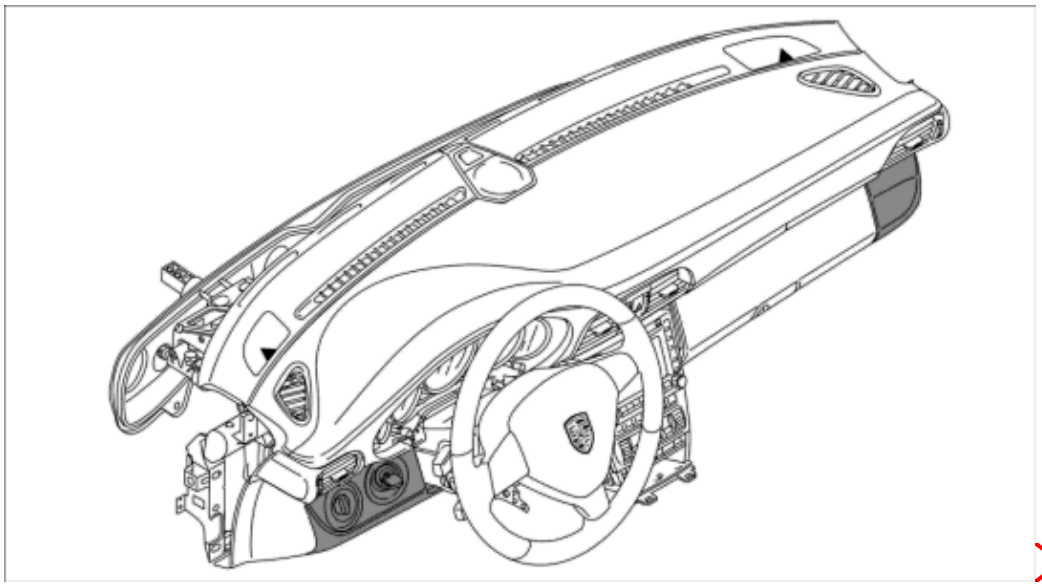
- Removing cover (cold air bulkhead)
- Installing cover (cold air bulkhead)

top of page

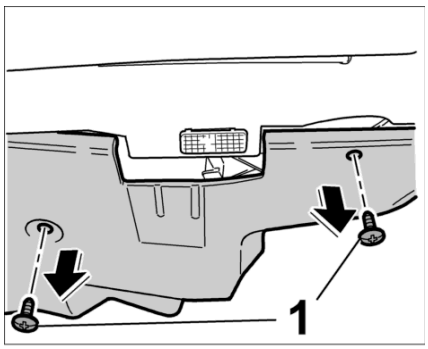
Removing cover (cold air bulkhead)

Removing cover (cold air bulkhead)

Installation Location:



Overview, removing and installing cover (cold air bulkhead)



Remove cover

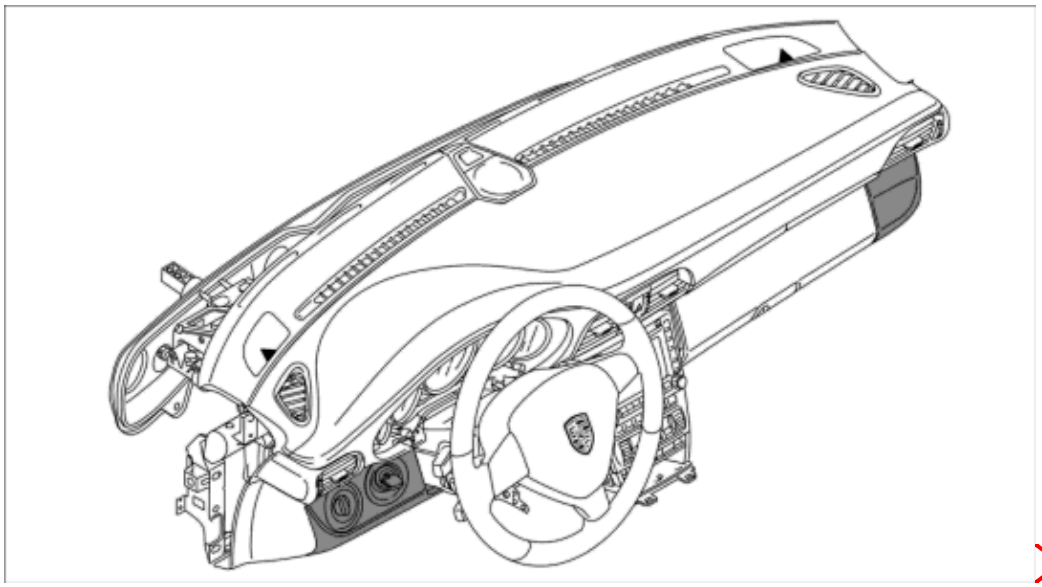
1. Unscrew both plastic screws **-1-** and remove the cover downwards **-arrows-** .

top of page

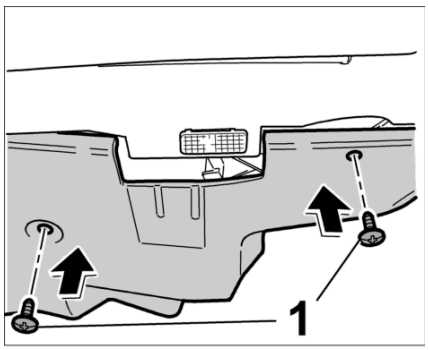
Installing cover (cold air bulkhead)

Installing cover (cold air bulkhead)

Installation Location:



Overview, removing and installing cover (cold air bulkhead)



Install cover

1. Position the cover from below **-arrows-** and screw in with the two fastening screws **-1-** .

997110, 997111, 997120, 997121, 997310, 997311, 997320, 997321

as of MY 2005
Country C00, C02, C05, C07, C08, C09, C10, C11, C12, C13, C14, C15, C16, C18, C19, C20, C21, C22,

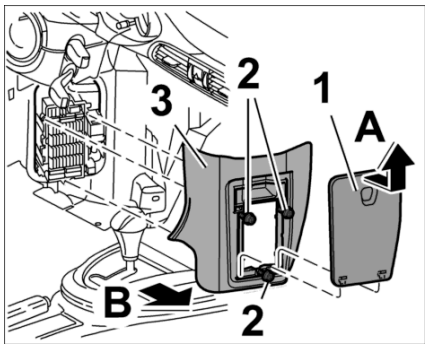
70 24 19 Removing and installing front side section trim - as of MY 2005

- Removing front side section trim
- Installing front side section trim

top of page

Removing front side section trim

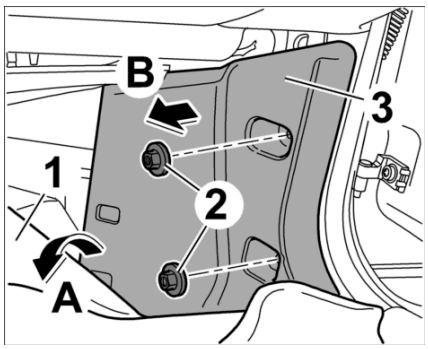
Removing front side section trim panel (driver's side)



Removing front side section trim panel (driver's side).

1. Remove fuse carrier cover **-1-** **-Arrow A-** .
2. Unscrew fastening screws **-2-** and remove side section trim panel **-3-** **-Arrow B-** .

Removing front side section trim panel (passenger's side).



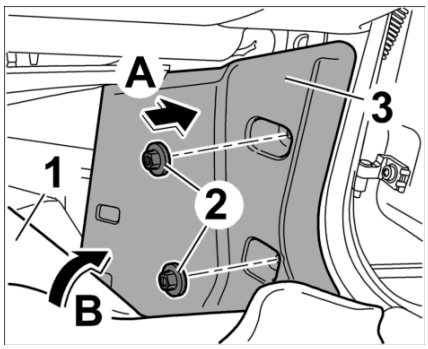
Removing front side section trim panel (passenger's side)

1. Partly loosen carpet **-1-** at the bottom in the area of the A-pillar **-Arrow A-** .
2. Unscrew plastic nuts **-2-** and remove side section trim panel **-3-** **-Arrow B-** .

top of page

Installing front side section trim

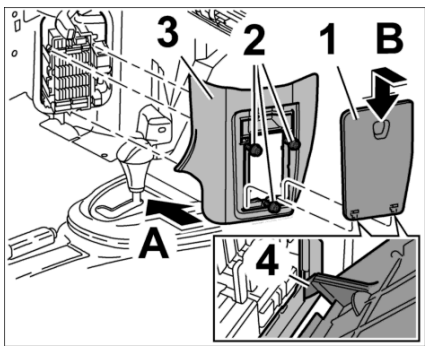
Installing front side section trim panel (passenger's side)



Installing front side section trim panel (passenger's side)

1. Position side section trim panel **-3-** **-Arrow A-** and screw down with the plastic nuts **-2-** .
2. Fasten carpet **-1-** at the bottom in the area of the A-pillar **-Arrow B-** **Double-sided adhesive tape or suitable adhesive**.

Installing front side section trim panel (driver's side)



Installing front side section trim panel (driver's side)

1. Insert side section trim panel **-3-** einsetzen **-Arrow A-** and screw down with the fastening screws **-2-** . **Tightening torque: 2.0 ftlb.**
2. Insert the fuse carrier cover **-1-** with both clips **-4-** into the lateral side section trim panel **-2-** and clip in **-Arrow B-** .

997110, 997111, 997120, 997121, 997310, 997311, 997320, 997321, 997410, 997411, 997430, 997431, 997610, 997611, 997620, 997621

as of MY 2005
Country C00, C02, C05, C07, C08, C09, C10, C11, C12, C13, C14, C15, C16, C18, C19, C20, C21, C22, C23, C24, C25, C26, C27, C28, C32, C33, C34, C35, C36, C37, C38, C39, C45, C46, C98, C99

WARNUNG

Gefahr des Verlusts der Text-Bild-Zuordnung beim Ausdruck.

- **Aus technischen Gründen kann derzeit nicht ausgeschlossen werden, dass trotz einwandfreier Darstellung auf dem Bildschirm beim Ausdruck der Zusammenhang von Text und zugehörigem Bild verloren geht.**
- **Wird der Fehler nicht bemerkt, besteht die Gefahr, daß Arbeiten nicht korrekt durchgeführt werden und es dadurch zu Personen- und Sachschäden kommt.**

Vergleichen Sie deshalb nach dem Druckvorgang unbedingt die Ausdrucke mit der Bildschirmdarstellung. Korrigieren Sie die Ausdrucke im Fehlerfall so, daß der Inhalt der Bildschirmdarstellung zutreffend wiedergegeben wird.

WARNING

Danger of losing text-figure correspondence when printing out.

- **For technical reasons, it can currently not be ruled out that the correspondence between text and associated figure can be lost when it is printed out, even though the display on the screen is correct.**
- **If the fault is not noticed, there is the danger that work will not be performed correctly which can cause injury and damage.**

Therefore, always compare printouts with the screen display after printing them out. Correct the printouts if they are faulty so that the content of the screen display matches that on the printouts.

AVERTISSEMENT

Risque de perte de la correspondance texte-illustration lors de l'impression papier.

- **Pour des raisons techniques, il ne peut pas être exclu à l'heure actuelle que, même en cas d'affichage correct à l'écran, la correspondance entre le texte et l'illustration puisse être erronée sur l'impression papier.**
- **Si l'erreur passe inaperçue, on court le risque d'exécuter certaines opérations de manière incorrecte pouvant conduire à des dommages corporels et matériels.**

70 30 19 Removing and installing front luggage compartment cover - as of MY 2005

- Preliminary work
- Removing front luggage compartment cover
- Installing front luggage compartment cover
- Subsequent work

top of page

Preliminary work

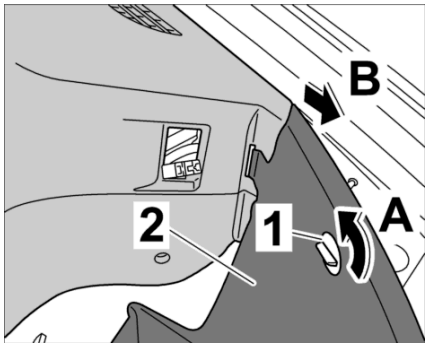
Preliminary work

Remove luggage compartment light. *964019 21 Removing and installing luggage compartment light - "Removing" section*

top of page

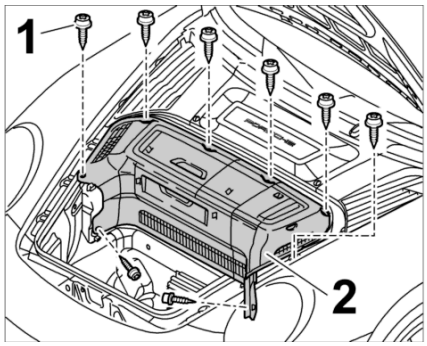
Removing front luggage compartment cover

Removing luggage compartment cover



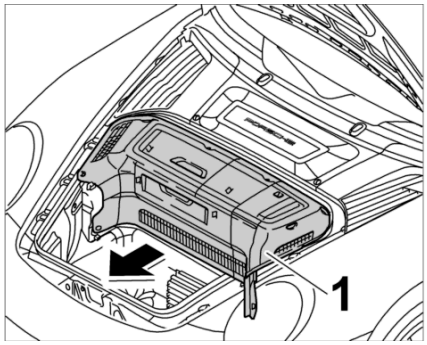
Loosen luggage compartment lining

1. Unscrew plastic nut **-1-** **-arrow A-** and loosen luggage-compartment lining on the left-hand side **-2-** **-arrow B-** .



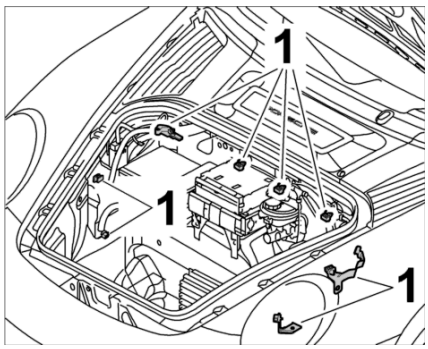
Loosening luggage compartment cover

2. Unscrew fastening screws **-1-** from the luggage compartment cover **-2-** .



Removing luggage compartment cover

3. Remove luggage compartment cover **-1-** to the front.



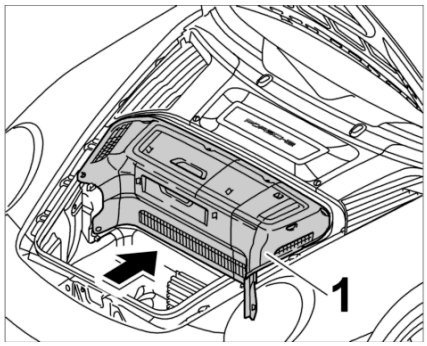
Checking support

4. Check support **-1-** and replace if necessary.

top of page

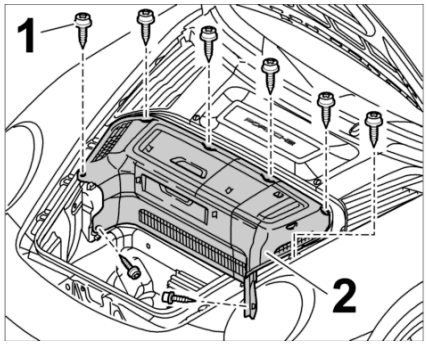
Installing front luggage compartment cover

Installing luggage compartment cover



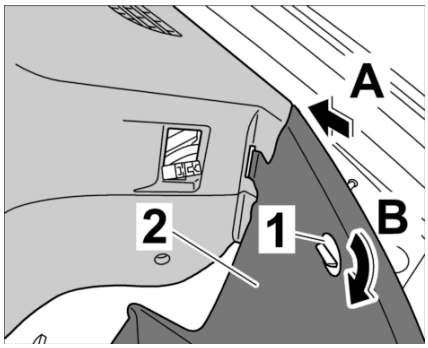
Installing luggage compartment cover

1. Position luggage compartment cover **-1-** in the luggage compartment.



Fastening luggage compartment cover

2. Screw down luggage compartment cover **-2-** using the fastening screws **-1-** .



Fastening luggage compartment lining

3. Run in luggage-compartment lining **-2-** **-arrow A-** and fasten with the plastic nut **-1-** **-arrow B-** .
4. Check to ensure that lid seal is installed correctly.

top of page

Subsequent work

Subsequent work

Install luggage compartment light. *964019 23 Removing and installing luggage compartment light - "Installing" section*

997110, 997111, 997120, 997121, 997310, 997311, 997320, 997321

as of MY 2005
Country C00, C02, C05, C07, C08, C09, C10, C11, C12, C13, C14, C15, C16, C18, C19, C20, C21, C22, C23, C24, C25, C26, C27, C28, C32, C33, C34, C35, C36, C37, C38, C39, C45, C46, C98, C99

WARNUNG

Gefahr des Verlusts der Text-Bild-Zuordnung beim Ausdruck.

- **Aus technischen Gründen kann derzeit nicht ausgeschlossen werden, dass trotz einwandfreier Darstellung auf dem Bildschirm beim Ausdruck der Zusammenhang von Text und zugehörigem Bild verloren geht.**
- **Wird der Fehler nicht bemerkt, besteht die Gefahr, daß Arbeiten nicht korrekt durchgeführt werden und es dadurch zu Personen- und Sachschäden kommt.**

Vergleichen Sie deshalb nach dem Druckvorgang unbedingt die Ausdrucke mit der Bildschirmdarstellung. Korrigieren Sie die Ausdrucke im Fehlerfall so, daß der Inhalt der Bildschirmdarstellung zutreffend wiedergegeben wird.

WARNING

Danger of losing text-figure correspondence when printing out.

- **For technical reasons, it can currently not be ruled out that the correspondence between text and associated figure can be lost when it is printed out, even though the display on the screen is correct.**
- **If the fault is not noticed, there is the danger that work will not be performed correctly which can cause injury and damage.**

Therefore, always compare printouts with the screen display after printing them out. Correct the printouts if they are faulty so that the content of the screen display matches that on the printouts.

AVERTISSEMENT

Risque de perte de la correspondance texte-illustration lors de l'impression papier.

- **Pour des raisons techniques, il ne peut pas être exclu à l'heure actuelle que, même en cas d'affichage correct à l'écran, la correspondance entre le texte et l'illustration**

70 31 19 Removing and installing rear wall trim panel - as of MY 2005

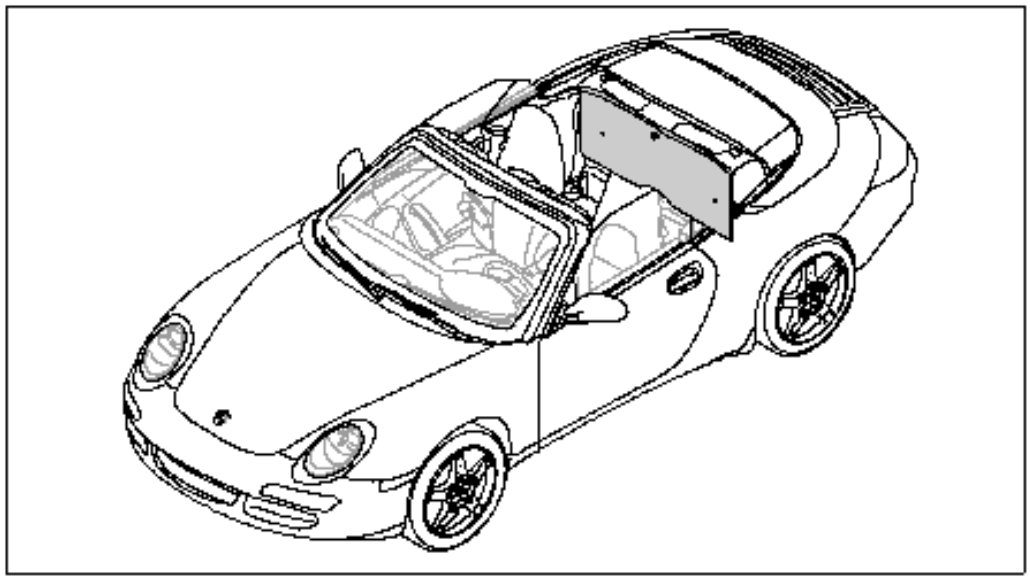
- Removing rear wall trim panel
- Installing rear wall trim panel

top of page

Removing rear wall trim panel

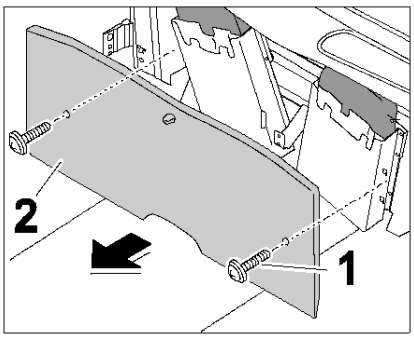
Removing rear wall trim panel

Installation Location:



Installation location for rear wall trim panel

1. Release both backrests and fold forward.



Removing rear wall trim panel

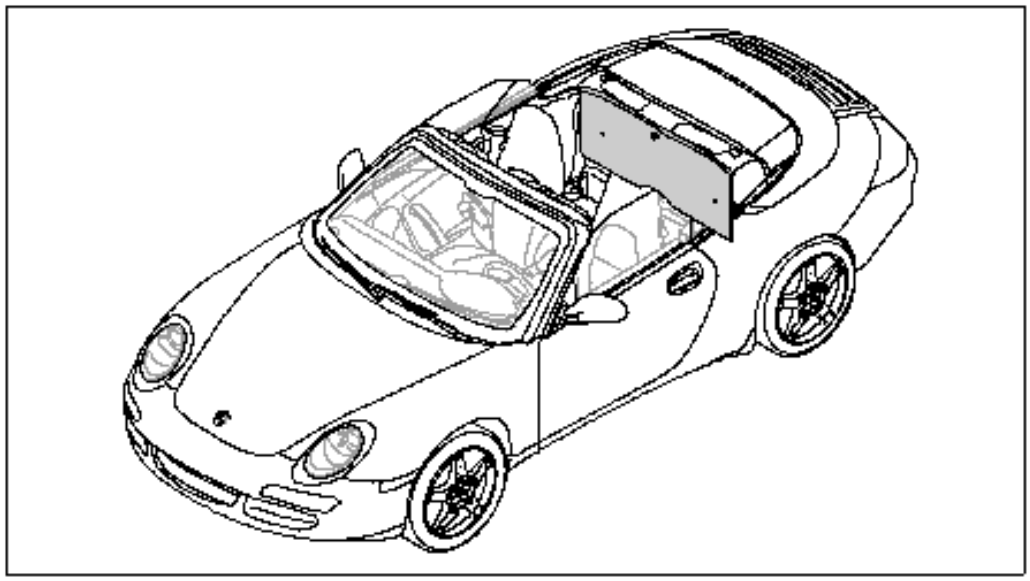
2. Unscrew fastening screws **-1-** on left and right and take off trim panel for rear wall **-2-** forwards.

top of page

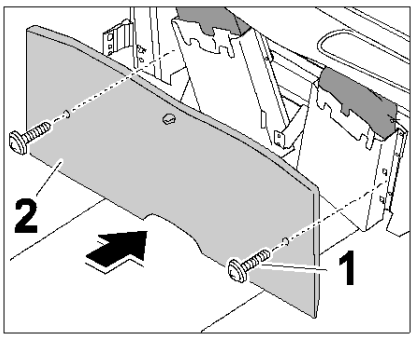
Installing rear wall trim panel

Installing rear wall trim panel

Installation Location:



Installation location for rear wall trim panel



Installing rear wall trim panel

1. Position trim panel for rear wall **-2-** on roll-over bar and screw down using the fastening screws **-1-** on the left and right.
2. Fold up both backrests and lock them.

70 35 19 Removing and installing footrest - as of MY 2005

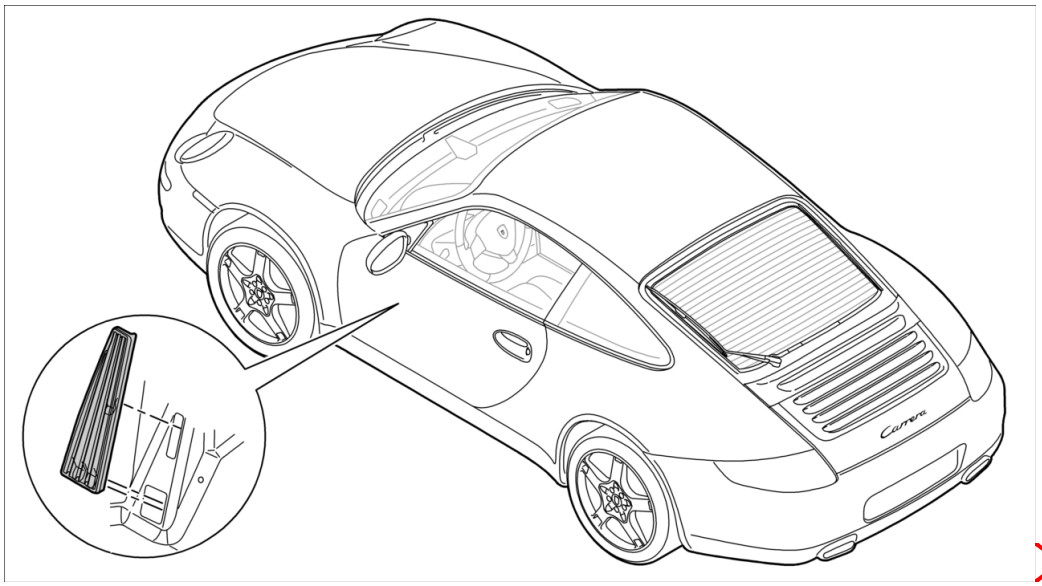
- Removing footrest
- Installing footrest

top of page

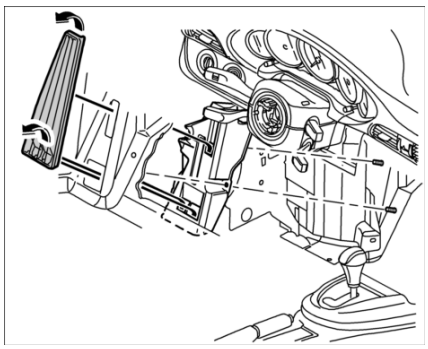
Removing footrest

Removing footrest

Installation Location:



Installation position for footrest



Removing footrest

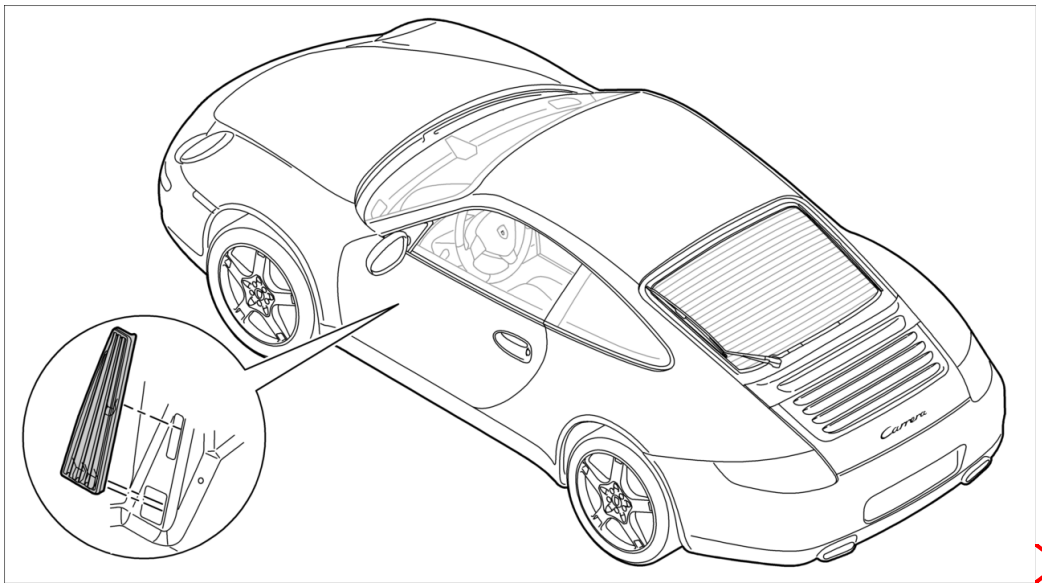
1. Carefully pull out footrest by hand from above and remove.

top of page

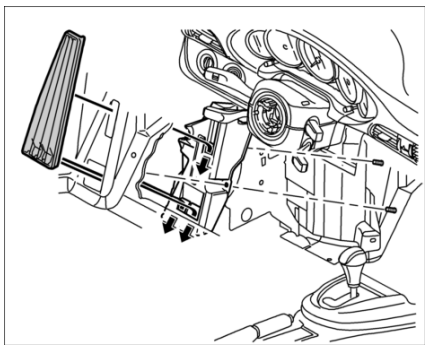
Installing footrest

Installing footrest

Installation Location:



Installation position for footrest



Installing footrest

1. Position footrest with the three locking tabs and carefully engage.

997110, 997111, 997120, 997121, 997310, 997311, 997320, 997321, 997410, 997411, 997430, 997431, 997610, 997611, 997620, 997621

as of MY 2005
Country C00, C02, C05, C07, C08, C09, C10, C11, C12, C13, C14, C15, C16, C18, C19, C20, C21, C22,

70 39 19 Removing and installing cover for front lock mount - as of MY 2005

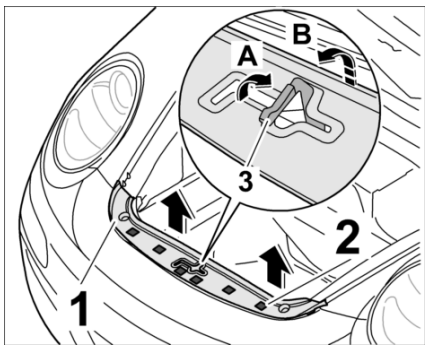
- Removing cover for lock mount
- Installing cover for front lock mount

top of page

Removing cover for lock mount

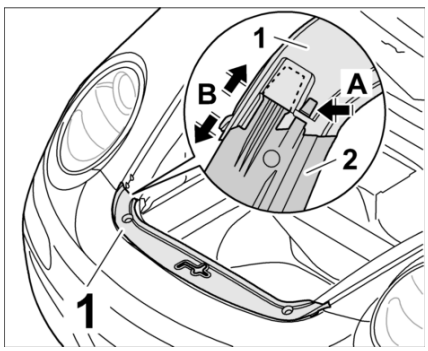
Removing cover for lock support

1. Open front lid.



Loosening trim panel

2. Loosen cover for lock support **-1-** at the Velcro fasteners **-2-** .
3. Actuate lid-release lever **-3-** in **-direction of arrow A-** and remove cover for lock support **-1-** (**-arrow B-**).



Unclipping trim panel

4. Lift cover for lock support up slightly **-1-** , release the locking tab at the side from below **-arrow A-** and pull it out of the cover for the wing flange **-2-** (**-arrows B-**).

top of page

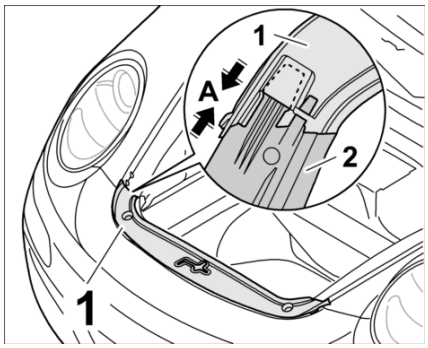
Installing cover for front lock mount

Installing cover for lock support

Note

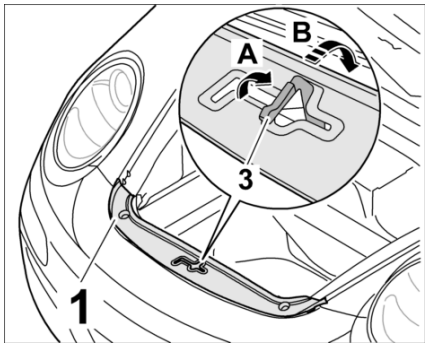
- *The Velcro fasteners must be removed and replaced when replacing the front apron and cover for lock support.*

1. Check Velcro fasteners on front apron and cover for lock support and replace if necessary. See: Additional assembly instructions for replacing Velcro fasteners



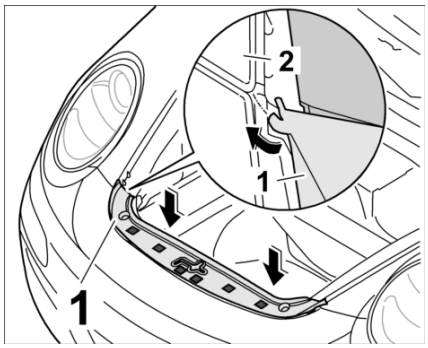
Inserting trim panel

2. Insert trim panel for lock support **-1-** sideways into the cover for the wing flange **-2-** (**-arrows A-**).



Installing lining

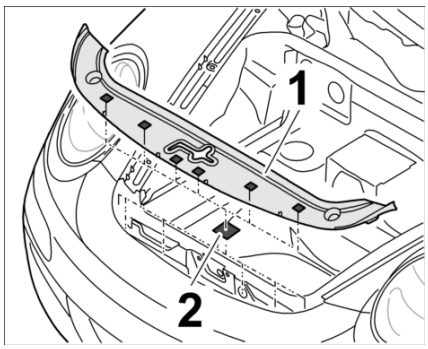
3. Actuate lid-release lever **-3-** in **-direction of arrow A-** and fit trim panel for lock support **-1-** (**-arrow B-**).



Securing trim panel

4. Insert locking lug for trim panel for lock support **-1-** into the wing at the side **-2-** .
5. Slide trim panel for lock support **-1-** with the soft lip under the luggage compartment seal and press on Velcro fasteners.
6. Close front lid.

Additional assembly instructions for replacing Velcro fasteners



Checking Velcro fasteners

1. Remove protective paper on the underside, push locking lug into the cover for the wing flange and press trim panel for lock support **-1-** down onto the front apron.
2. Press Velcro fasteners **-2-** on at the positions indicated.
3. Lift off trim panel for lock support **-1-** and press Velcro fasteners **-2-** securely onto the front apron again using a suitable tool.

997110, 997111, 997120, 997121, 997310, 997311, 997320, 997321, 997410, 997411, 997430, 997431, 997610, 997611, 997620, 997621

as of MY 2005
Country C00, C02, C05, C07, C08, C09, C10, C11, C12, C13, C14, C15, C16, C18, C19, C20, C21, C22, C23, C24, C25, C26, C27, C28, C32, C33, C34, C35, C36, C37, C38, C39, C45, C46, C98, C99

WARNUNG

Gefahr des Verlusts der Text-Bild-Zuordnung beim Ausdruck.

70 53 19 Removing and installing rear cover. - as of MY 2005

- Preliminary work
- Removing rear cover
- Installing rear cover
- Subsequent work

top of page

Preliminary work

Preliminary work

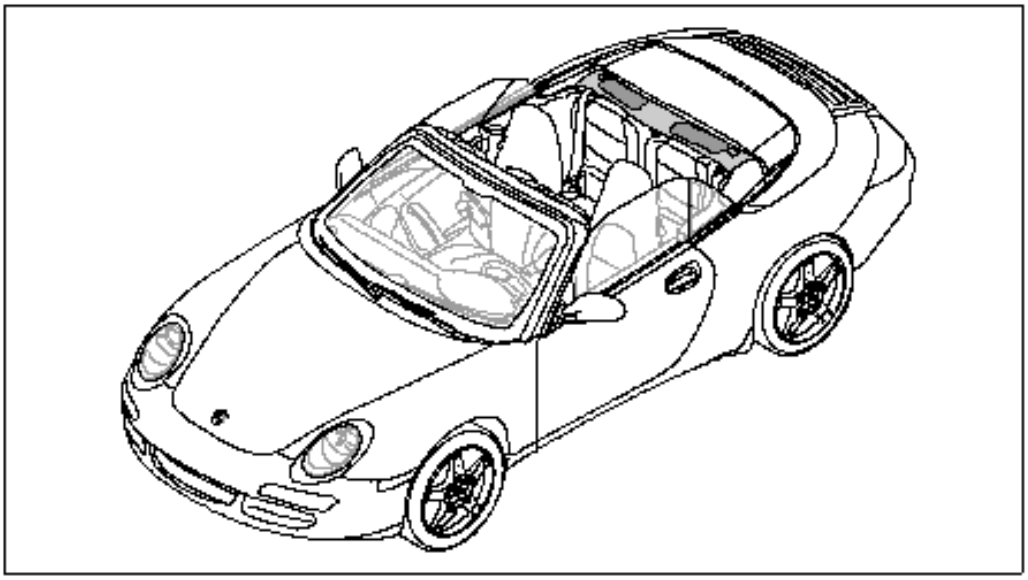
Remove trim panel for convertible top rest. 700819 Removing and installing trim panel for convertible top rest - chapter on "Removing"

top of page

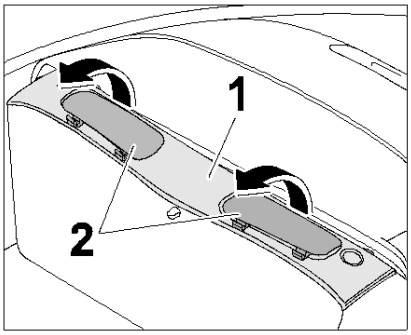
Removing rear cover

Remove trim for the rear.

Installation Location:

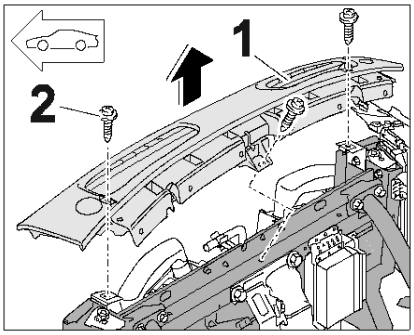


Installation location for rear cover



Removing roll-over protection cap

1. Using a plastic wedge between the cover for rear **-1-** and cap, move in roll-over protection **-2-** , take off roll-over protection cap up and out in **-direction of arrow-** .



Removing cover for rear

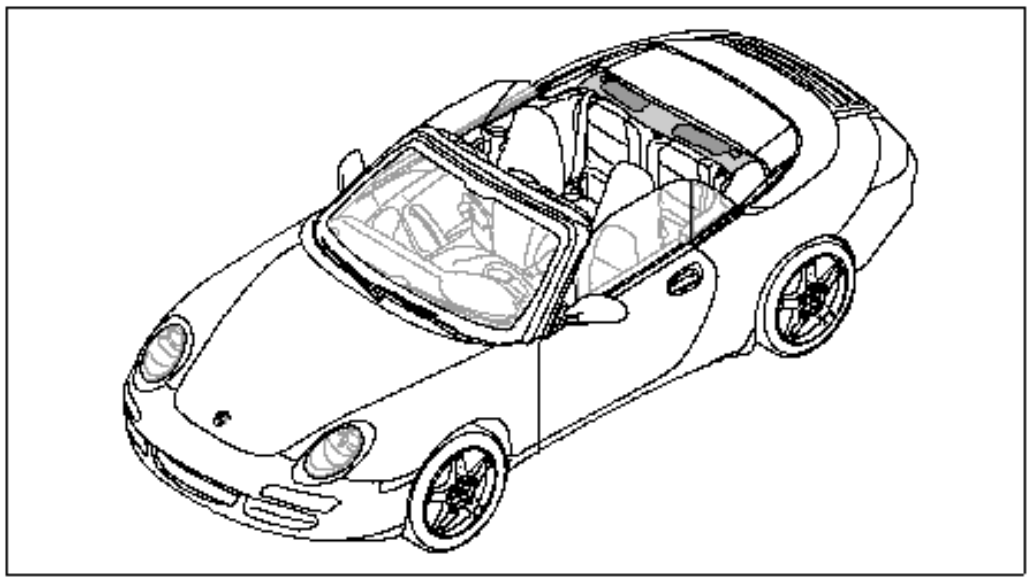
2. Loosen fastening screws **-2-** and pull cover for rear **-1-** up and out.

top of page

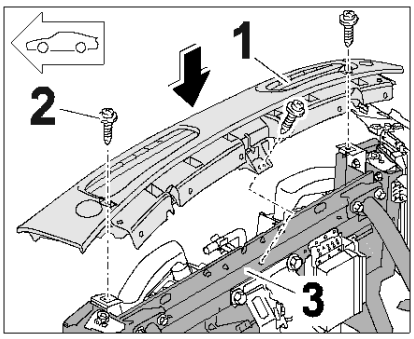
Installing rear cover

Installing cover for rear

Installation Location:

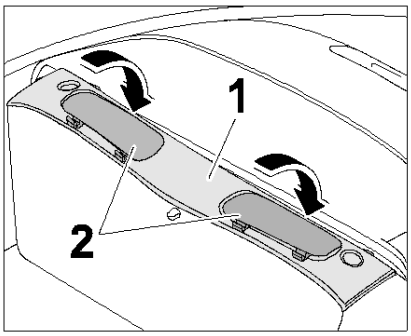


Installation location for rear cover



Installing cover for rear

1. Position cover for rear **-1-** on frame for roll-over protection system **-3-** and screw down the fastening screws **-2-** .



Installing roll-over protection cap

2. Position cap for roll-over protection **-2-** on the cover for rear **-1-** and press in in **-direction of arrow-** .

top of page

Subsequent work

Subsequent work

Install trim panel for convertible top rest. 700819 Removing and installing trim panel for convertible top rest - chapter on "Installing"

997310, 997311, 997320, 997321

as of MY 2005
Country C00, C02, C05, C07, C08, C09, C10, C11, C12, C13, C14, C15, C16, C18, C19, C20, C21, C22, C23, C24, C25, C26, C27, C28, C32, C33, C34, C35, C36, C37, C38, C39, C45, C46, C98, C99

WARNUNG
Gefahr des Verlusts der Text-Bild-Zuordnung beim Ausdruck.

- **Aus technischen Gründen kann derzeit nicht ausgeschlossen werden, dass trotz einwandfreier Darstellung auf dem Bildschirm beim Ausdruck der Zusammenhang von Text und zugehörigem Bild verloren geht.**
- **Wird der Fehler nicht bemerkt, besteht die Gefahr, daß Arbeiten nicht korrekt durchgeführt werden und es dadurch zu Personen- und Sachschäden kommt.**

Vergleichen Sie deshalb nach dem Druckvorgang unbedingt die Ausdrucke mit der Bildschirmdarstellung. Korrigieren Sie die Ausdrucke im Fehlerfall so, daß der Inhalt der Bildschirmdarstellung zutreffend wiedergegeben wird.

WARNING
Danger of losing text-figure correspondence when printing out.

70 57 19 Removing and installing A-pillar trim - as of MY 2005

- Preliminary work
- Removing A-pillar trim
- Installing A-pillar trim
- Subsequent work

top of page

Preliminary work

Preliminary work

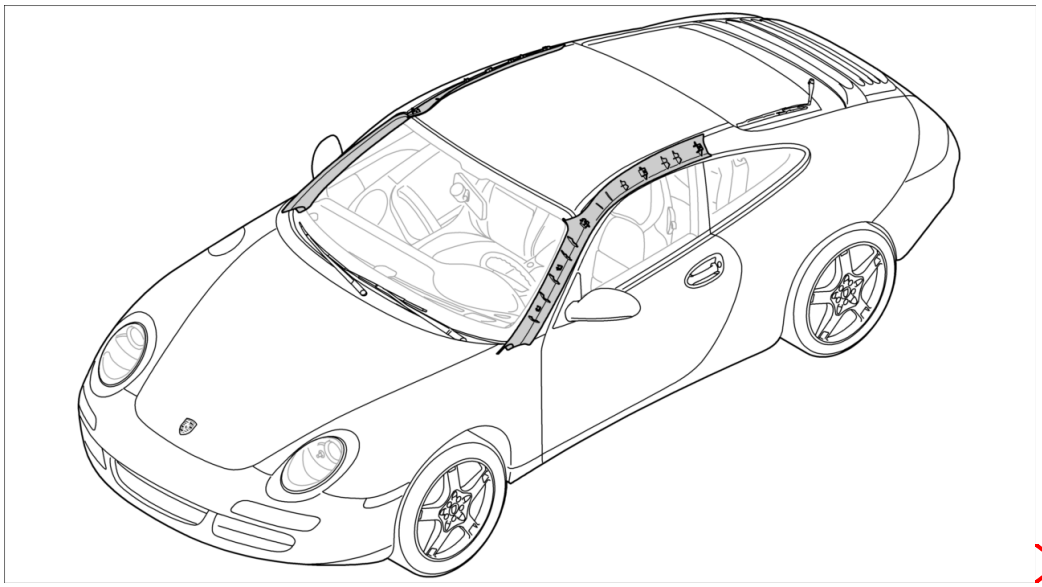
1. Loosen upper B-pillar trim panel and pull slightly inwards. 706719 Removing and installing B-pillar trim panel - chapter on "Removing"

top of page

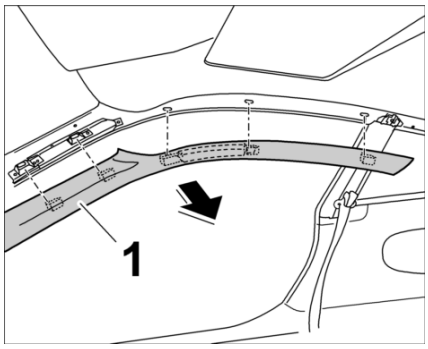
Removing A-pillar trim

Removing A-pillar trim

Installation Location:



Installation position for A-pillar trim



Removing A-pillar trim panel

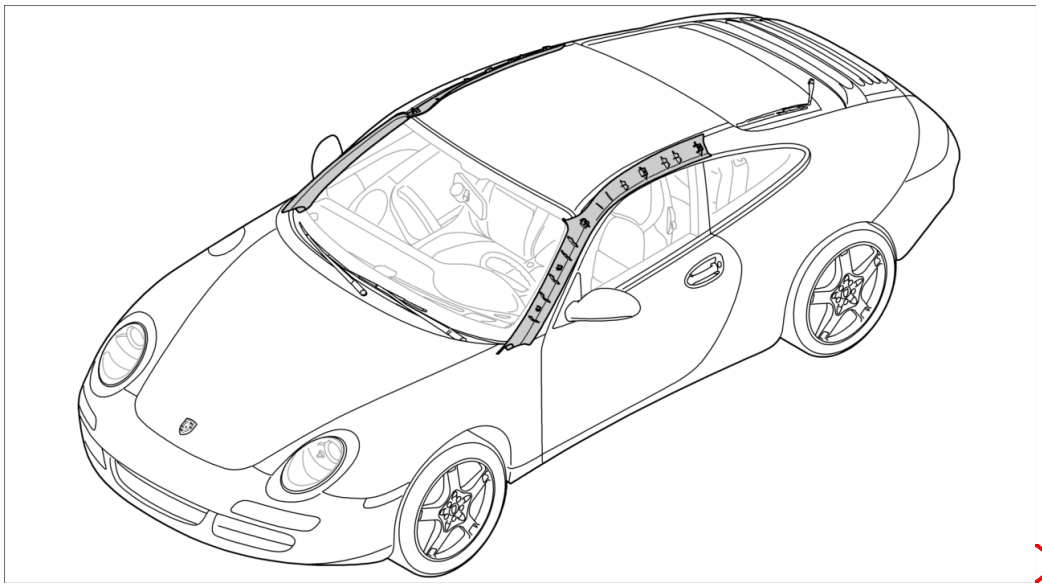
1. Pull the A-pillar trim **-1-** inwards along the roof frame and windscreen frame **-arrow-** .

top of page

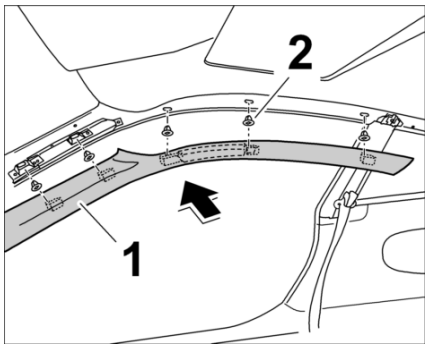
Installing A-pillar trim

Installing A-pillar trim panel

Installation Location:



Installation position for A-pillar trim panel



Installing A-pillar trim panel

1. Check sheetmetal clips **-2-** , replacing if necessary.

Note

Ensure that deformation element is seated correctly before installation.

2. Insert the A-pillar trim panel **-1-** at side of windscreen frame (transition to dashboard) and clip it in along the roof frame.

top of page

Subsequent work

Subsequent work

1. Fasten upper B-pillar trim panel. 706719 Removing and installing B-pillar trim panel - chapter on "Installing"

70 57 19 Removing and installing A-pillar trim - as of MY 2005

- Preliminary work
- Removing A-pillar trim
- Installing A-pillar trim
- Subsequent work

top of page

Preliminary work

Preliminary work

1. Move convertible top to service position. 6101IN IN -Convertible top service position

Note

Only for vehicles with hardtop.

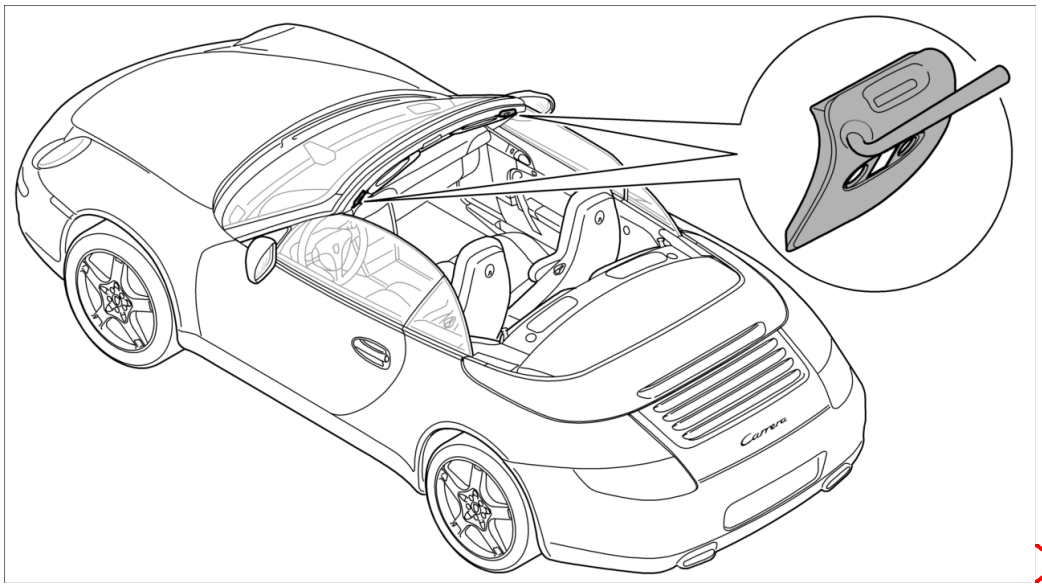
2. Remove hardtop. 610219 Removing and installing hardtop - section on "Removing"
3. Remove sun visor. 682319 Removing and installing sun visor - section on "Removing"

top of page

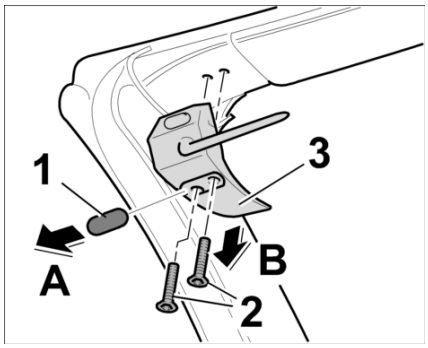
Removing A-pillar trim

Removing convertible-top peg mount

Installation Location:



Installation position of convertible-top peg mount

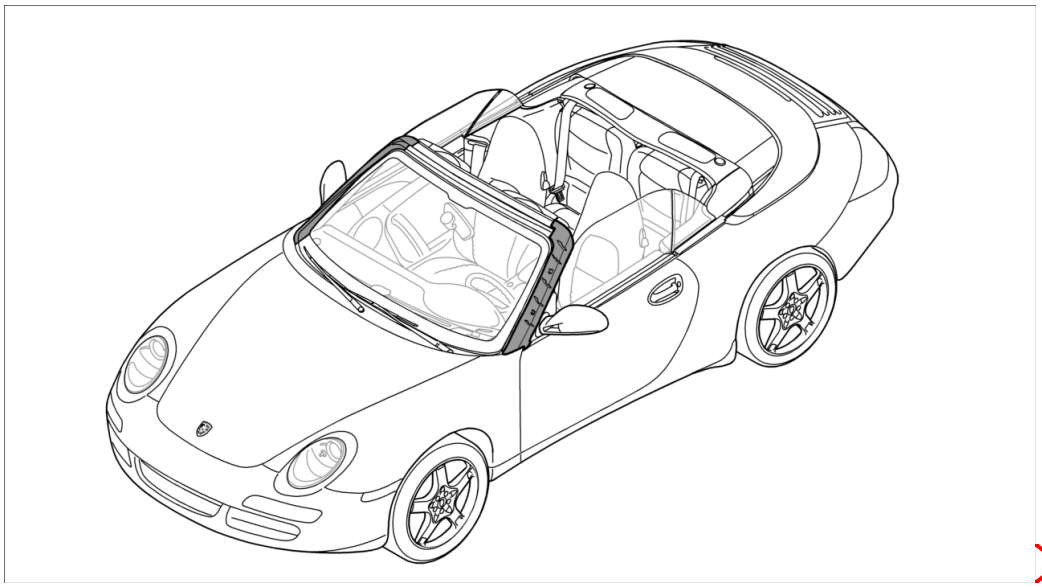


Removing convertible-top peg mount

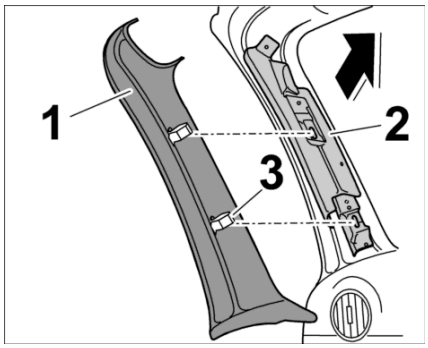
1. Unclip cap **-1-** in a downward direction with a small screwdriver and remove it **-arrow A-** .
2. Unscrew fastening screws **-2-** and remove convertible-top peg mount **-3-** downwards **-arrow B-** .

Removing A-pillar trim

Installation Location:

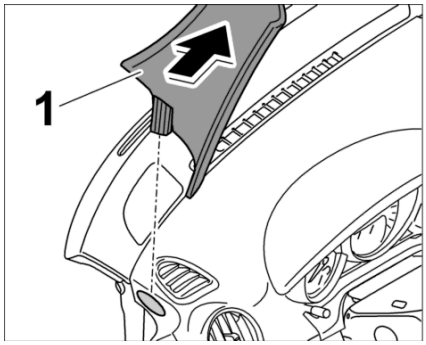


Installation position for A-pillar trim



Removing A-pillar trim

1. Pull the A-pillar trim **-1-** inwards along the windscreen frame **-2-** .



Removing A-pillar trim

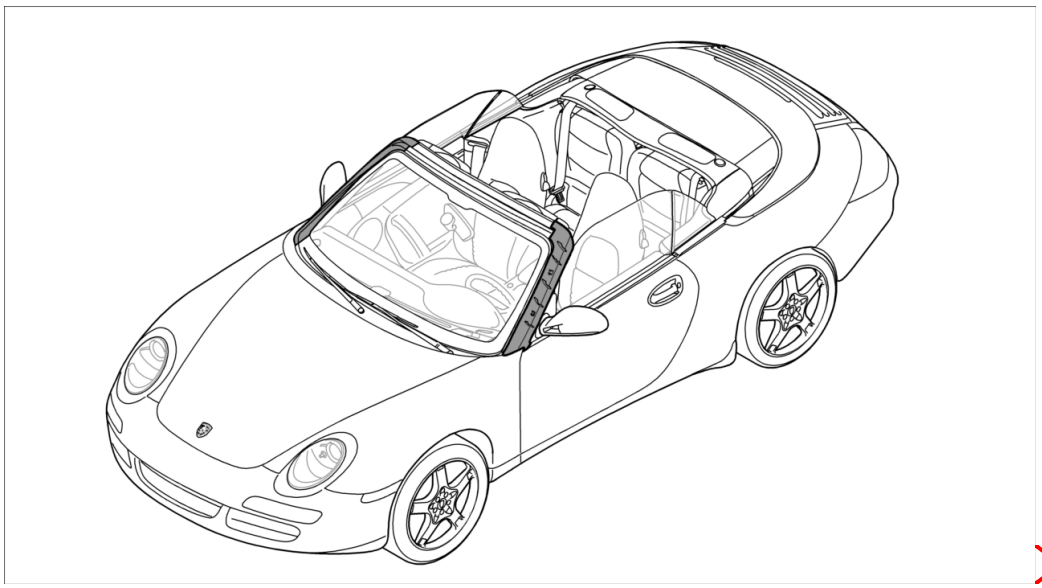
2. Remove A-pillar trim **-1-** in upward direction.

top of page

Installing A-pillar trim

Installing A-pillar trim

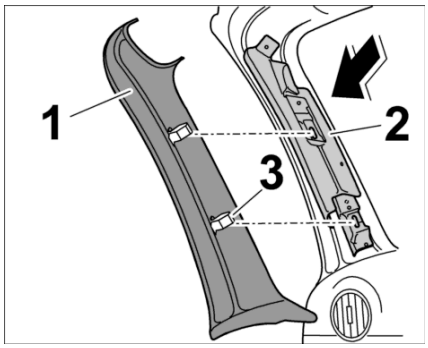
Installation Location:



Installation position for A-pillar trim

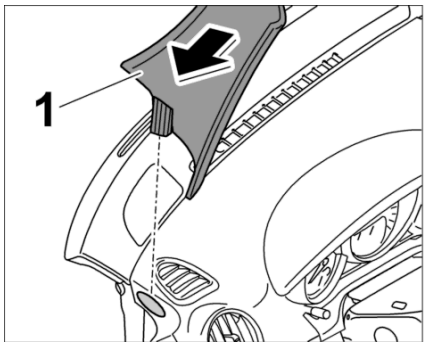
Note

- *Ensure that deformation element is seated correctly before installation.*



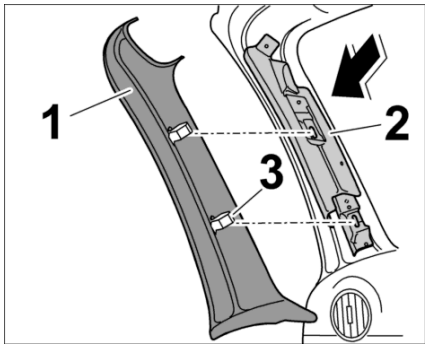
Installing A-pillar trim

1. Check metal clips **-3-** and replace if necessary.



Installing A-pillar trim

2. Insert A-pillar trim **-1-** laterally (transition point to dashboard) on windscreen frame and click into place.

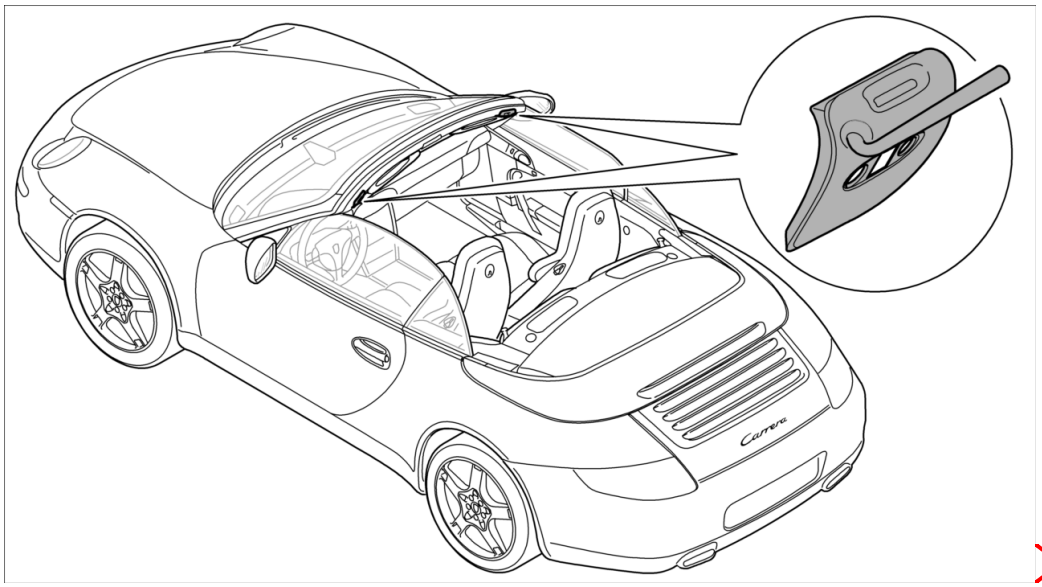


Installing A-pillar trim

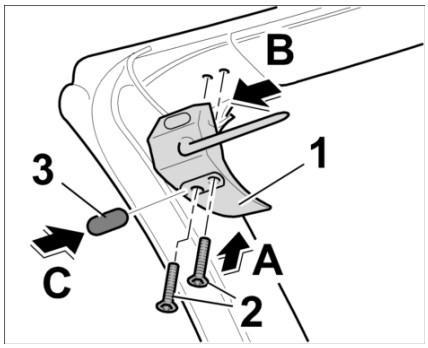
3. Position A-pillar trim **-1-** on windscreen frame **-2-** and clip into place.

Installing convertible-top peg mount

Installation Location:



Installation position of convertible-top peg mount



Installing convertible-top peg mount

1. Place convertible-top peg mount **-1-** on windscreen frame from below **-arrow A-** , position it correctly and screw down hand-tight using the fastening screws **-2-** .
2. To position convertible-top peg mount, close convertible top or fit hardtop.
3. Move convertible-top peg mount as far as possible outwards (towards the centring journal) **-arrow B-** and screw down. Tightening torque **Tightening torque: 10 (7.5 ftlb.) Nm**
4. Position cap **-3-** from below **-arrow C-** and clip into place.

top of page

Subsequent work

Subsequent work

1. Install sun visor. 682319 Removing and installing sun visor - section on "Installing"
2. End service position. 6101IN IN -Convertible top service position
3. Check gap dimensions for convertible top, adjust if necessary. *501000 Diagram - body gap dimensions*

Note

Only for vehicles with hardtop.

4. Install hardtop. 610219 Removing and installing hardtop - section on "Installing"

Note

Only for vehicles with hardtop.

5. Adjust hardtop. 610215 Adjusting hardtop - section on "Adjusting"

997310, 997311, 997320, 997321, 997610, 997611, 997620, 997621

as of MY 2005
Country C00, C02, C05, C07, C08, C09, C10, C11, C12, C13, C14, C15, C16, C18, C19, C20, C21, C22, C23, C24, C25, C26, C27, C28, C32, C33, C34, C35, C36, C37, C38, C39, C45, C46, C98, C99

70 59 19 Removing and installing door trim panel - as of MY 2005

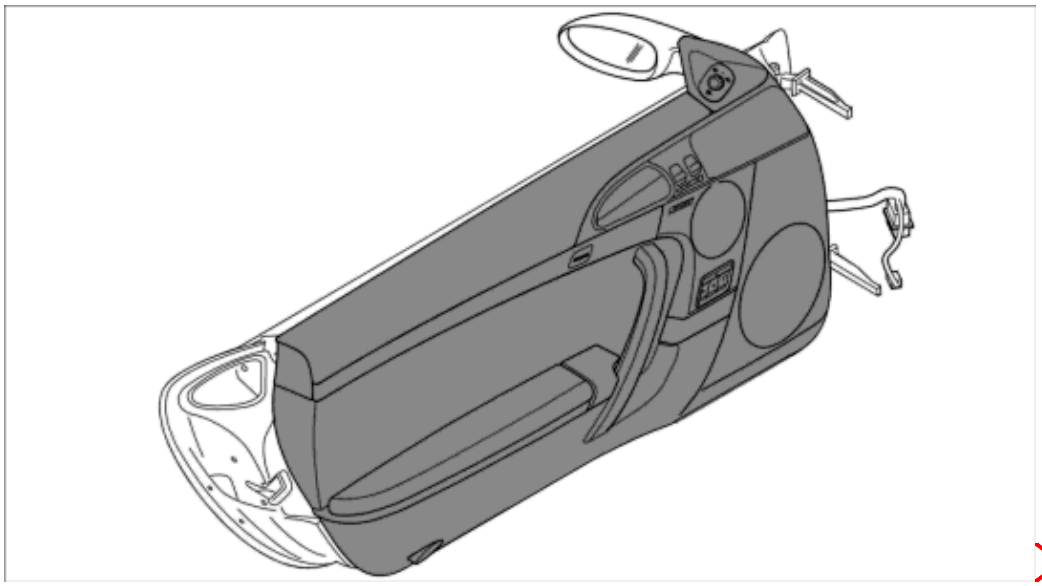
- Remove door trim panel
- Install door trim panel

top of page

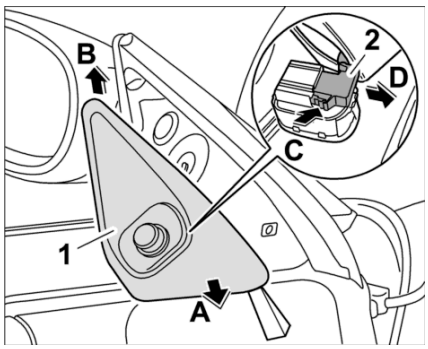
Remove door trim panel

Removing trim panel for mirror triangle

Installation Location:



Overview, door trim panel



Removing trim panel for mirror triangle

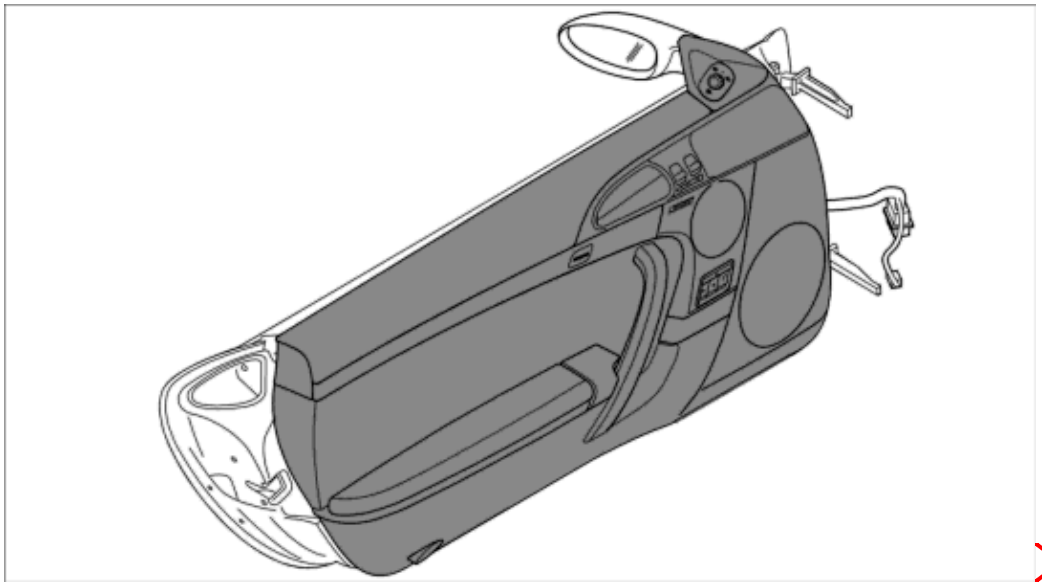
1. Carefully lever out trim panel for mirror triangle **-1-** using plastic wedge **-arrow A-** and pull upwards

-arrow B- .

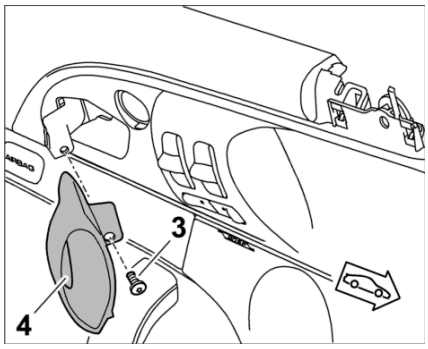
2. Press **-arrow C-** electrical plug connection **-2-** and pull off **-arrow D-** the plug **-2-** .
3. Remove trim panel for mirror triangle **-1-** .

Removing lever for door handle

Installation Location:



Overview, door trim panel

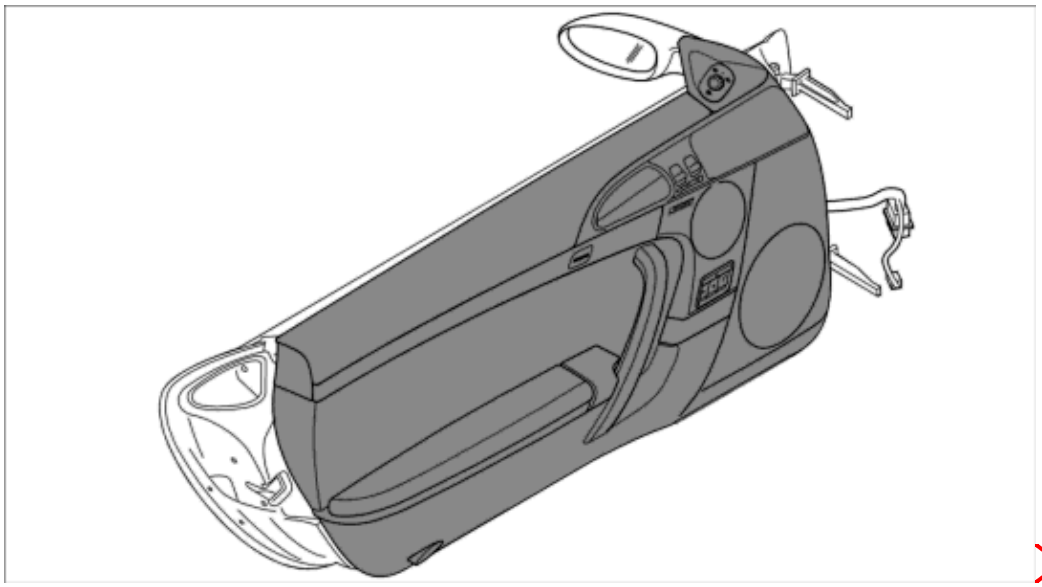


Removing lever for door handle

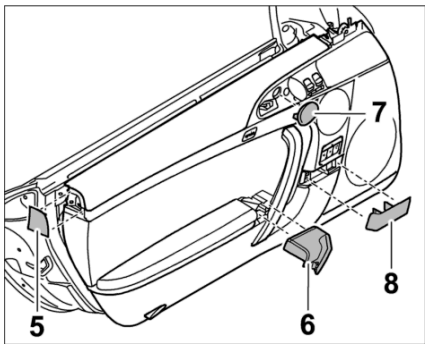
1. Unscrew fastening screw **-3-** and remove door handle **-4-** .

Removing covers for door trim panel

Installation Location:



Overview, door trim panel

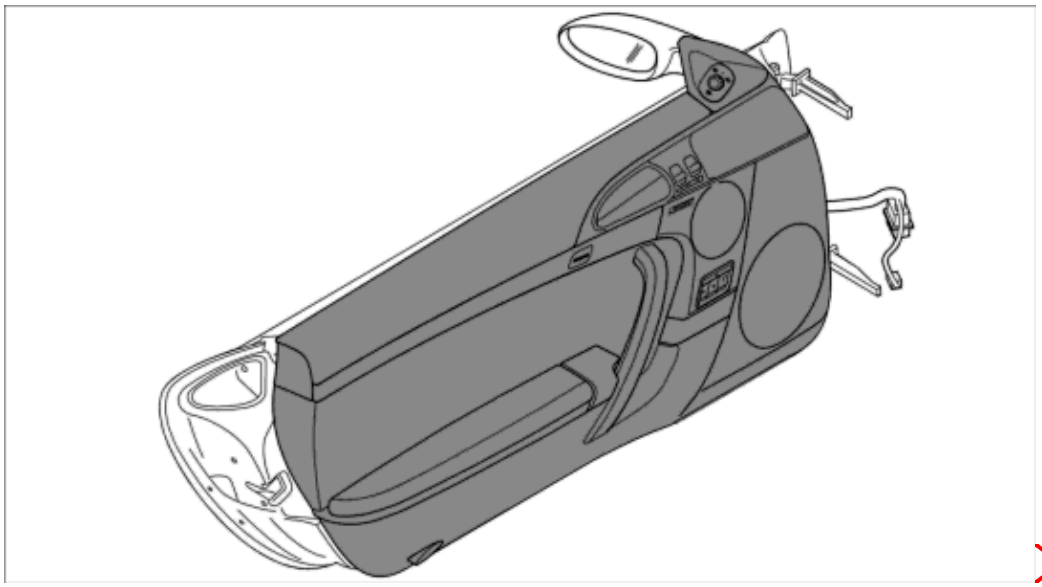


Removing covers

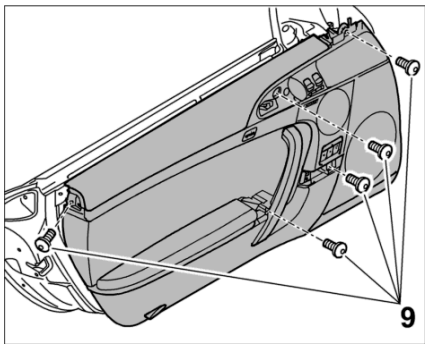
1. Carefully lever out covers **-5, 6, 7, 8-** using a plastic wedge and remove them.

Releasing door trim panel

Installation Location:

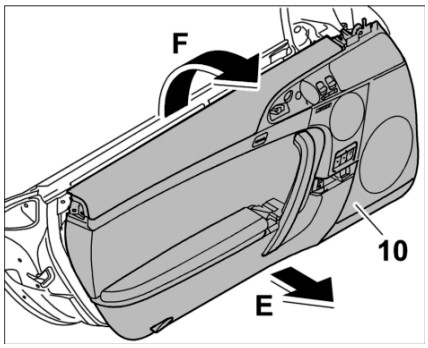


Overview, door trim panel



Releasing door trim panel

1. Undo fastening screws **-9-** .

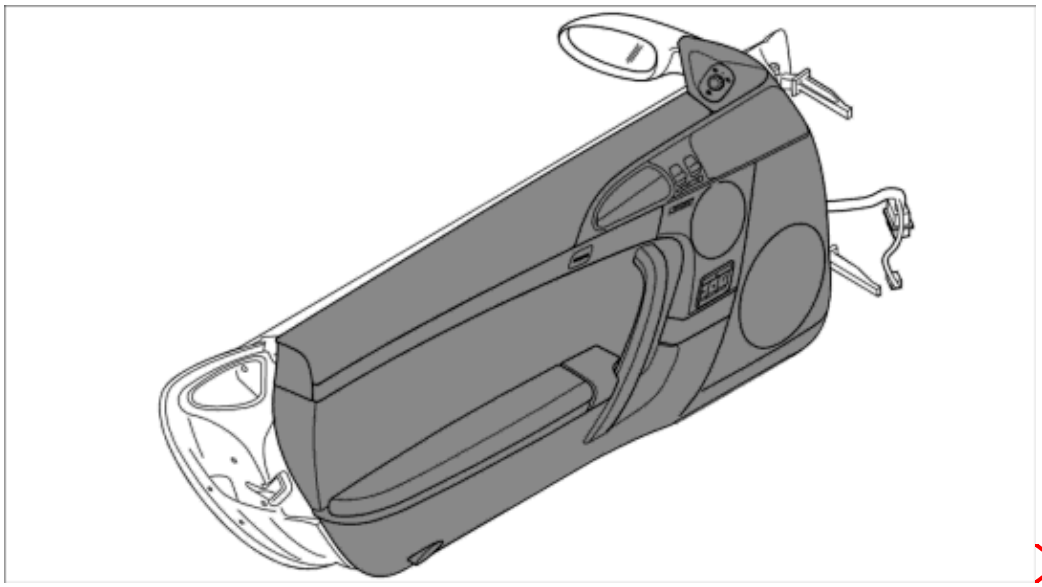


Clipping out door trim panel

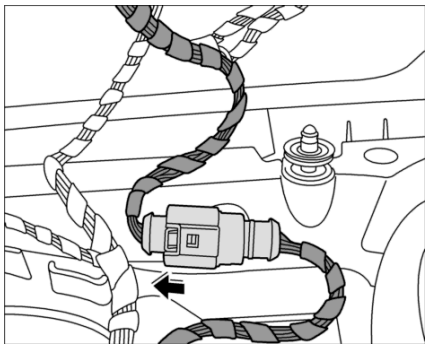
2. Unclip front door trim panel **-10-** at bottom **-arrow E-** and unhook from sealing channel at top **-arrow F-** .

Disconnecting the electrical plug connections

Installation Location:

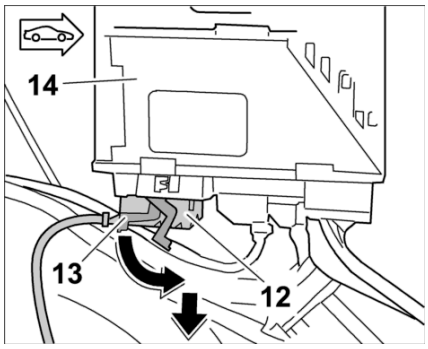


Overview, door trim panel



Disconnecting plug connection

1. Disconnect electrical plug connection **-arrow-** .

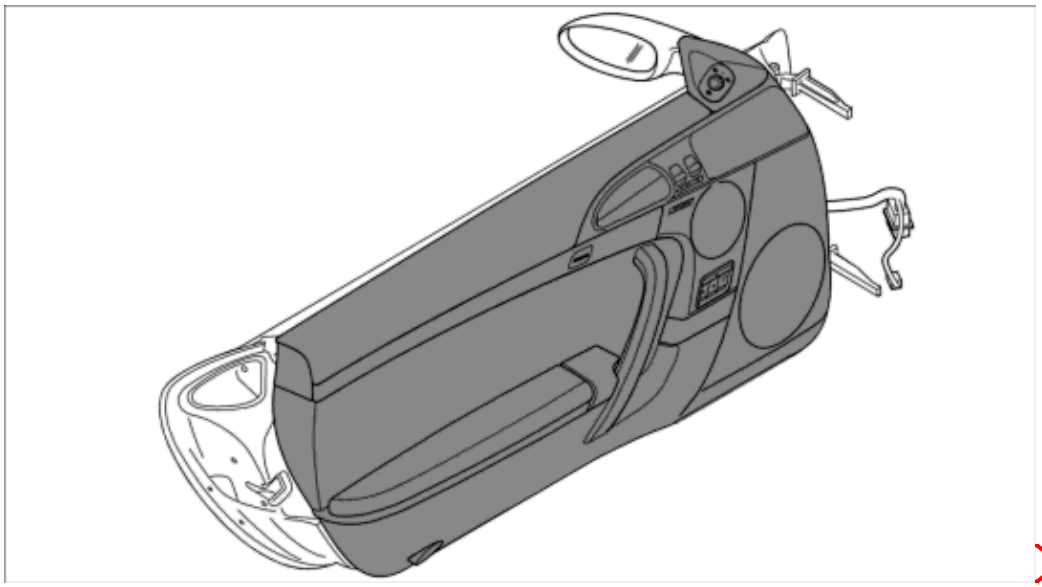


Unlocking plug connection on control module

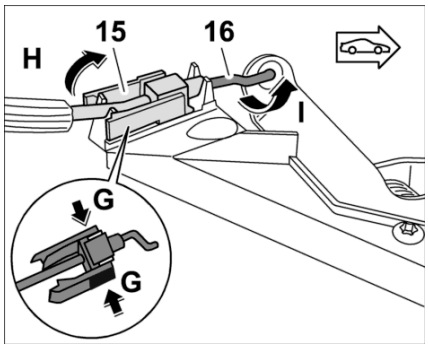
2. Unlock electrical plug connection **-12-** by operating locking lever **-13-** and remove from control module **-14-** .

Removing actuating cable for door lock

Installation Location:



Overview, door trim panel



Unhooking actuating cable

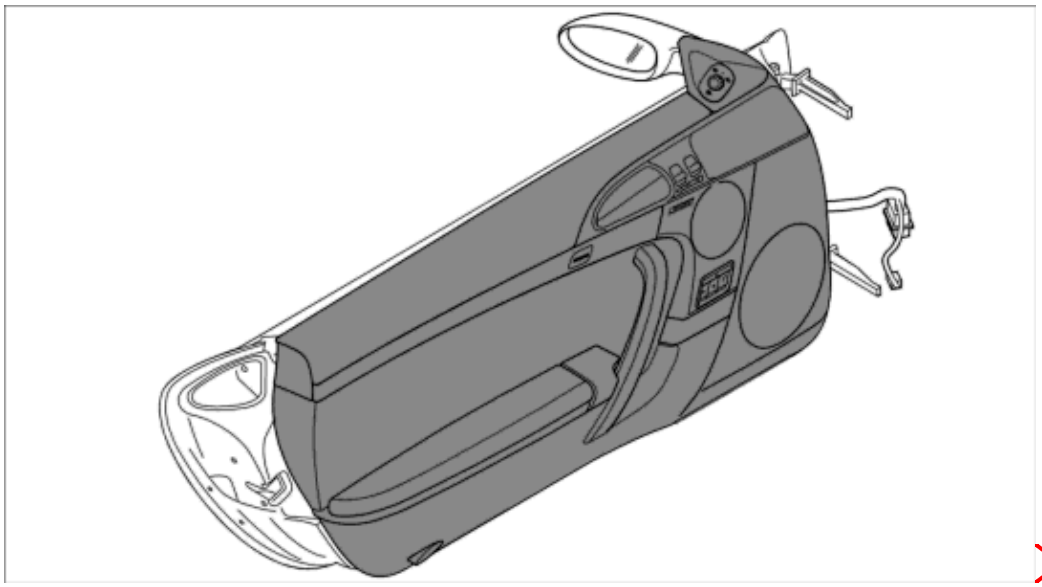
1. Unlock fastening clip for actuating cable for door lock **-15-** by pressing the locking hook arrows **-arrows G-** and disengage from the guide slot arrow **-arrow H-** .
2. Swivel pin **-16-** of actuating cable to the right by 90° **-arrow I-** and disengage.
3. Remove door trim panel.

top of page

Install door trim panel

Checking fastening clips

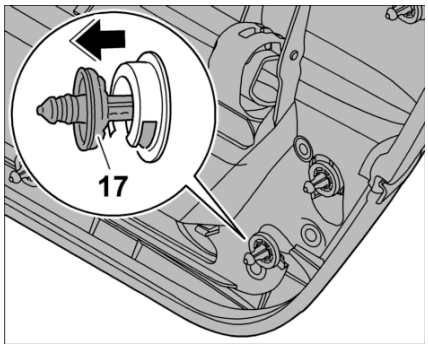
Installation Location:



Overview, door trim panel

Note

- *The fastening clips have two settings. Before installing the front door trim panel, the fastening clips must be loosened fully because otherwise the door trim panel may not engage fully into the door unit carrier, possibly resulting in noises. The fastening clips must be pulled to the front position.*

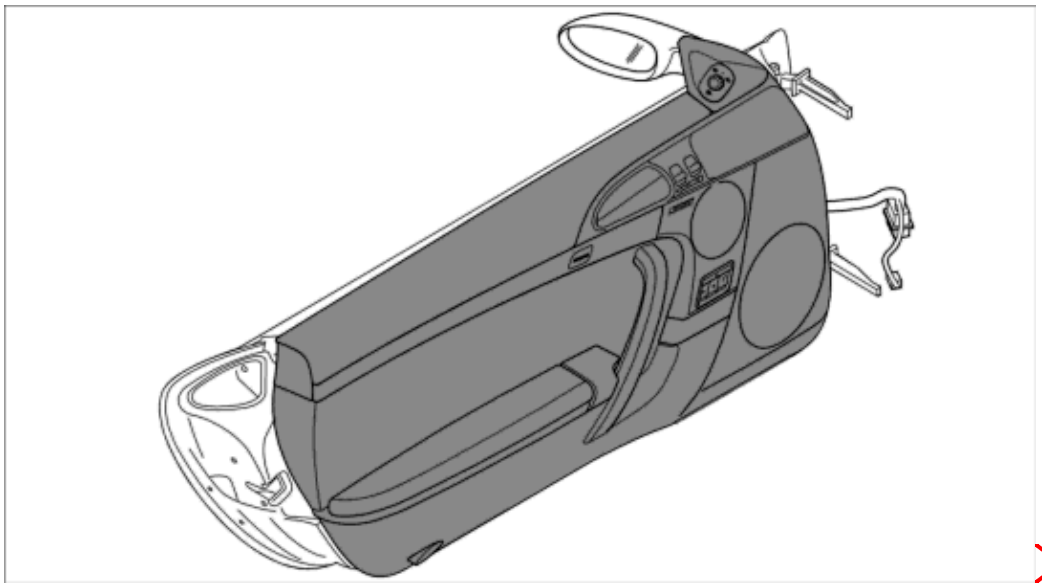


Checking the fastening clips

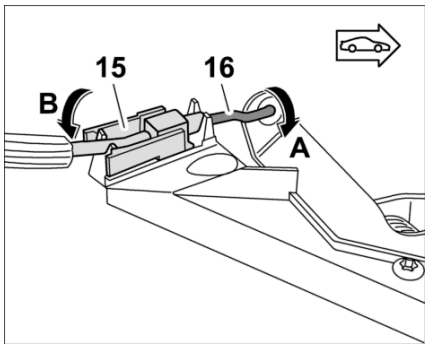
1. Check fastening clips **-17-** for deformation, replace if necessary.
2. Pull fastening clips **-17-** to the front position so that they are fully loosened.

Installing actuating cable for door lock

Installation Location:



Overview, door trim panel

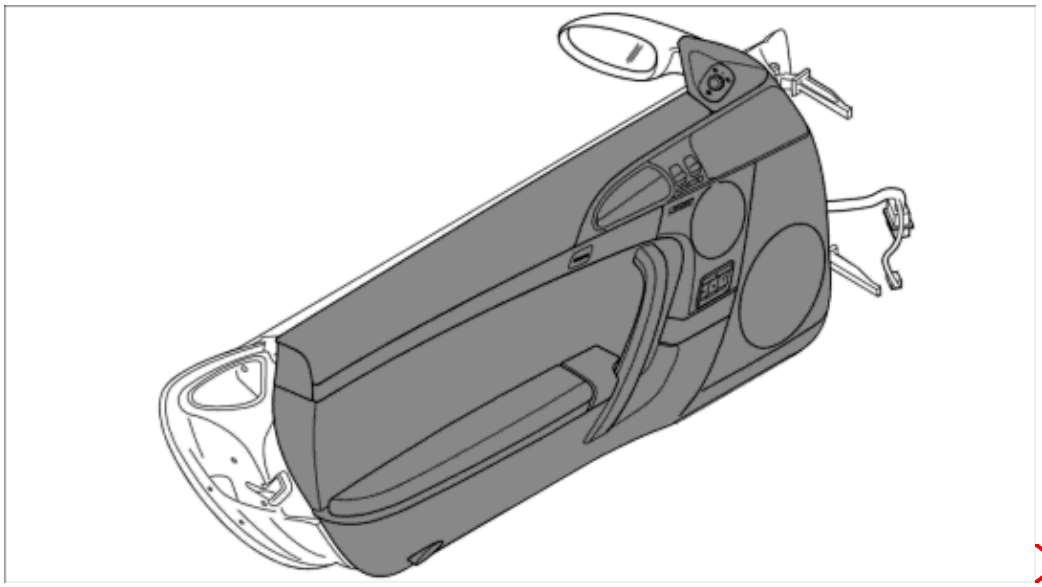


Engaging actuating cable

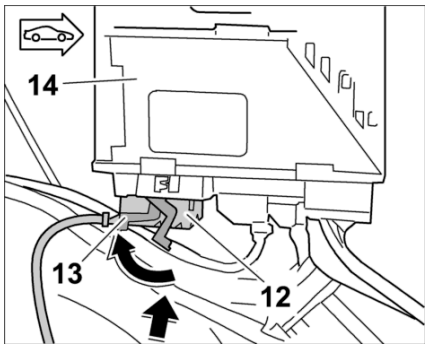
1. Engage pin **-16-** of the actuating cable and swivel to the left by 90° **-arrow A-** .
2. Insert T-tread of fastening clip **-15-** into the square hole **-arrow B-** .
3. Push fastening clip **-15-** forward and lock the locking hook.

Locking electrical plug connections

Installation Location:

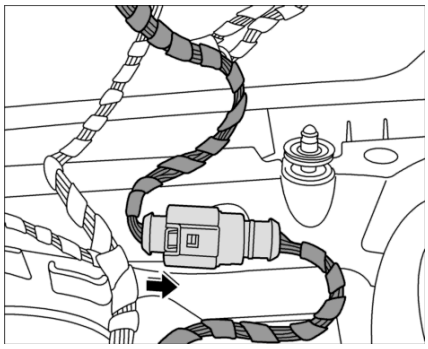


Overview, door trim panel



Lock plug connection to control module.

1. Connect electrical plug connection **-12-** to control module **-14-** by operating locking lever **-13-** and lock.

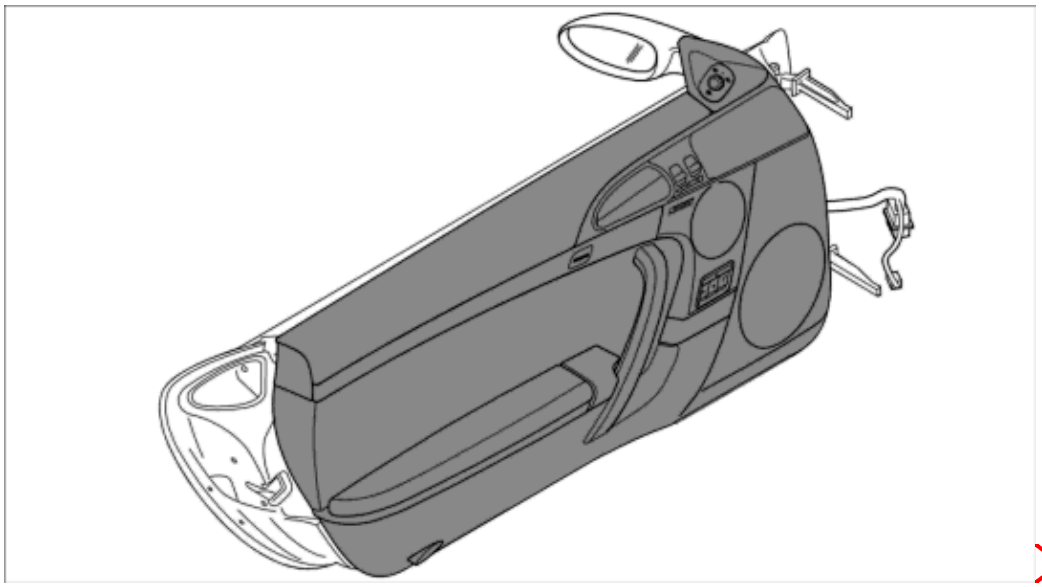


Locking plug connection

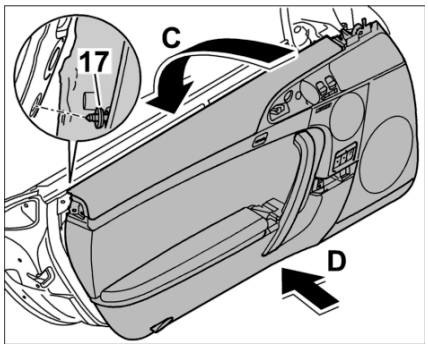
2. Lock electrical plug connection **-arrow-** until it engages audibly.

Installing door trim panel

Installation Location:

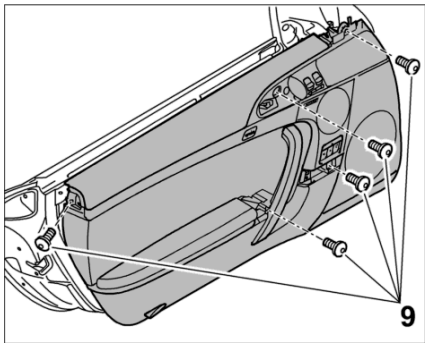


Overview, door trim panel



Clipping door trim panel into place

1. Hook front door trim panel in sealing channel at top **-arrow C-** and clip in at bottom **-arrow B-** . Make sure that the fastening clips **-17-** engage in the unit carrier.

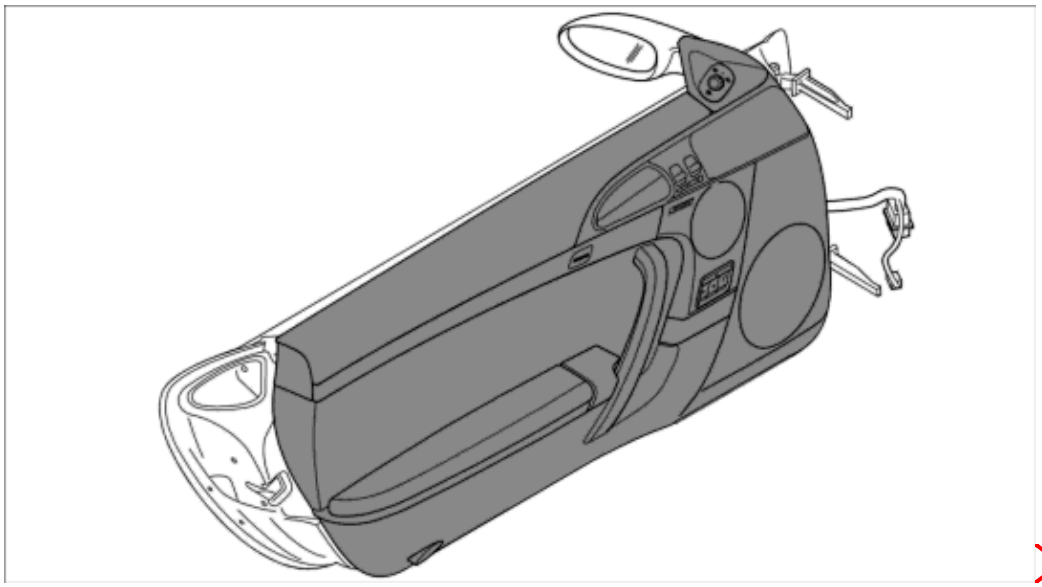


Fastening door trim panel

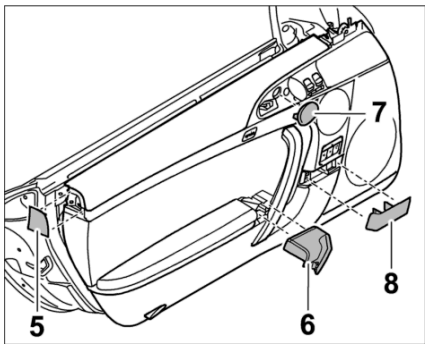
2. Tighten fastening screws **-9-** . Tightening torque **: 5.5 + 0.5 ftlb.**

Installing covers for door trim panel

Installation Location:



Overview, door trim panel

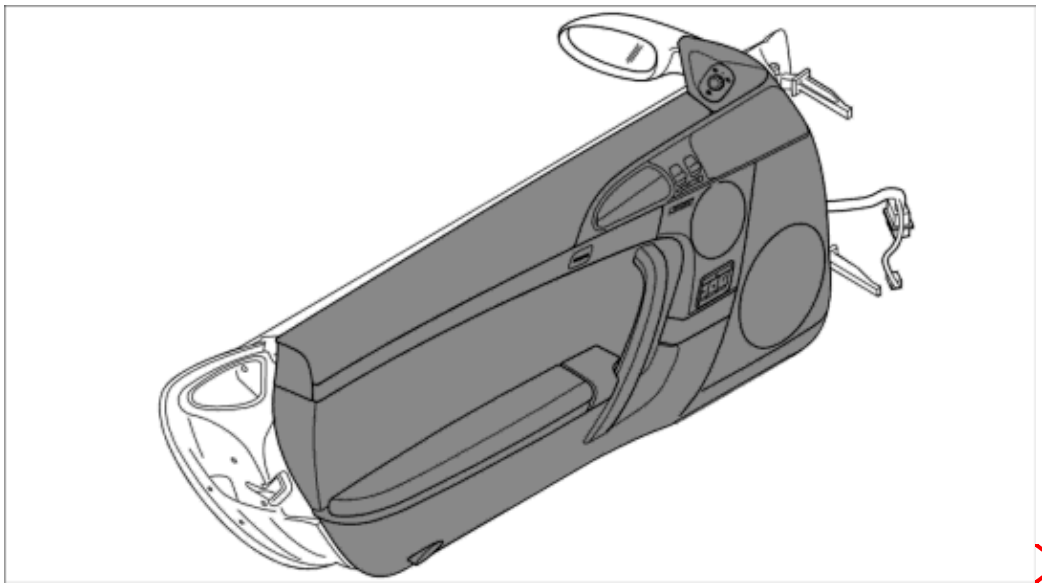


Installing covers

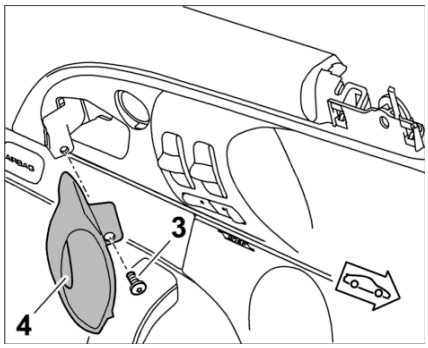
1. Clip covers **-5, 6, 7, 8-** into place on the door trim panel until it is felt to engage.

Installing lever for door handle

Installation Location:



Overview, door trim panel

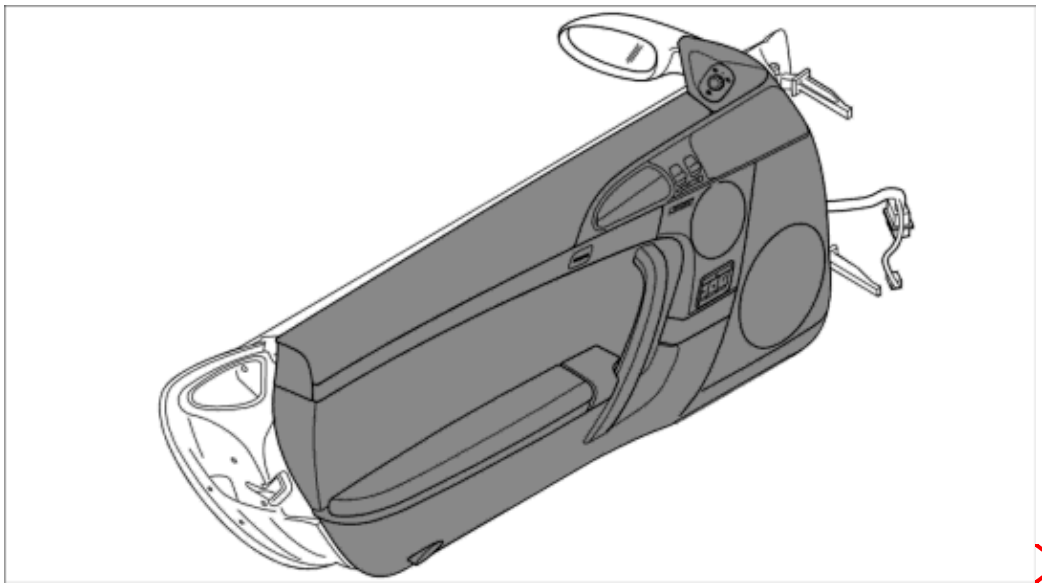


Installing lever for door handle

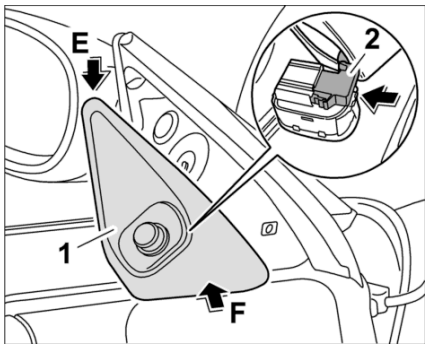
1. Screw down fastening screw **-3-** to door handle **-4-** . Tightening torque **: 1.5 + 0.2 ftlb.**

Installing trim panel for mirror triangle

Installation Location:



Overview, door trim panel



Installing trim panel for mirror triangle

1. Press in electrical plug connection **-2-** until it engages audibly.
2. Hook cover **-1-** into the door triangle from above **-arrow E-** and press into the fastening clips on the underside until it engages audibly **-arrow F-** .

997110, 997111, 997120, 997121, 997310, 997311, 997320, 997321, 997410, 997411, 997430, 997431, 997610, 997611, 997620, 997621

as of MY 2005
Country C00, C02, C05, C07, C08, C09, C10, C11, C12, C13, C14, C15, C16, C18, C19, C20, C21, C22, C23, C24, C25, C26, C27, C28, C32, C33, C34, C35, C36, C37, C38, C39, C45, C46, C98, C99

WARNUNG

Gefahr des Verlusts der Text-Bild-Zuordnung beim Ausdruck.

- **Aus technischen Gründen kann derzeit nicht ausgeschlossen werden, dass trotz einwandfreier Darstellung auf dem Bildschirm beim Ausdruck der Zusammenhang von Text und zugehörigem Bild verloren geht.**
- **Wird der Fehler nicht bemerkt, besteht die Gefahr, daß Arbeiten nicht korrekt durchgeführt werden und es dadurch zu Personen- und Sachschäden kommt.**

70 61 19 Removing and installing cover for door trim panel - as of MY 2005

- Preliminary work
- Subsequent work

Tools

Designation	Type	Number	Explanation	
vice-grip wrench lowered	commercially available tool	NR.127		
TRIAC S plastic welder	workshop equipment	WE1120		

top of page

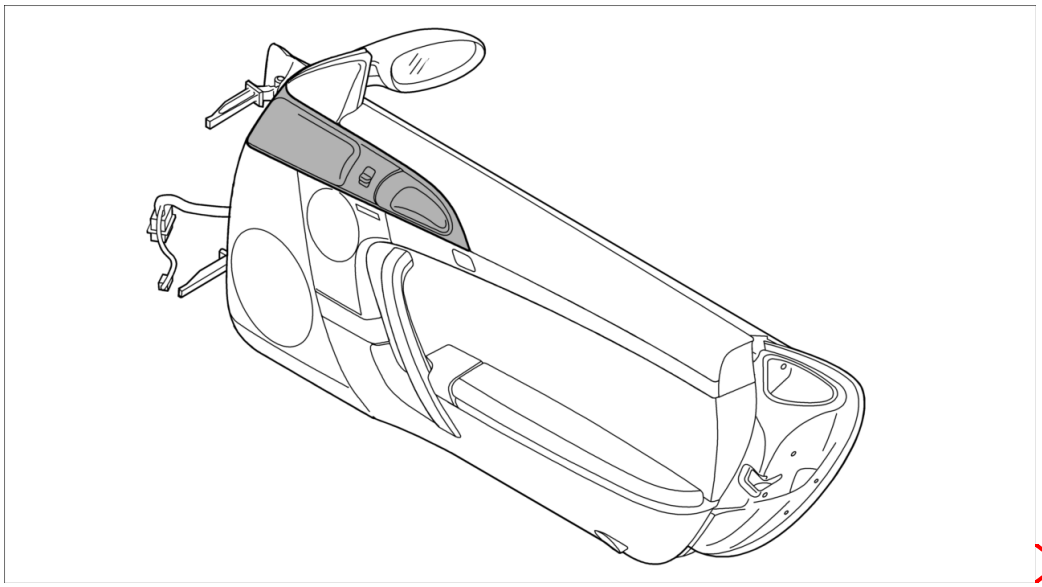
Preliminary work

Preliminary work

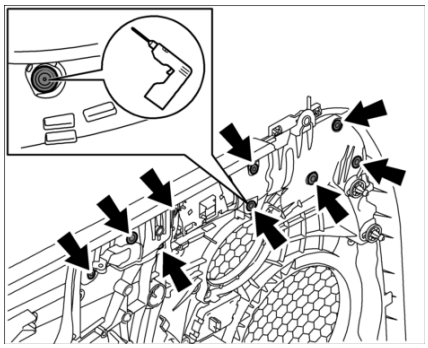
1. Remove trim panel for mirror triangle. 707019 Trim panel for mirror triangle - section on "Removing"
2. Remove door trim panel. 705919 Removing and installing door trim panel - section on "Removing"
3. Remove door handle. 574519 Removing and installing door handle - section on "Removing"

Removing cover for door trim panel

Installation Location:

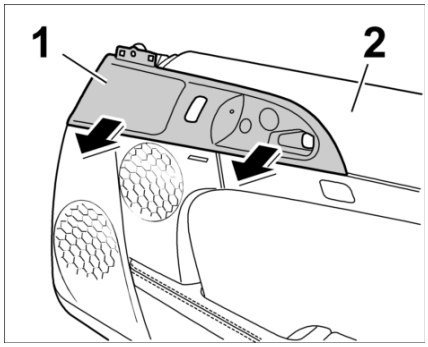


Installation position of cover



Drilling out pins

1. Drill out the nine fastening pins **-arrows-** on the cover with a 4.5-mm drill bit, starting at the back of the door trim panel.

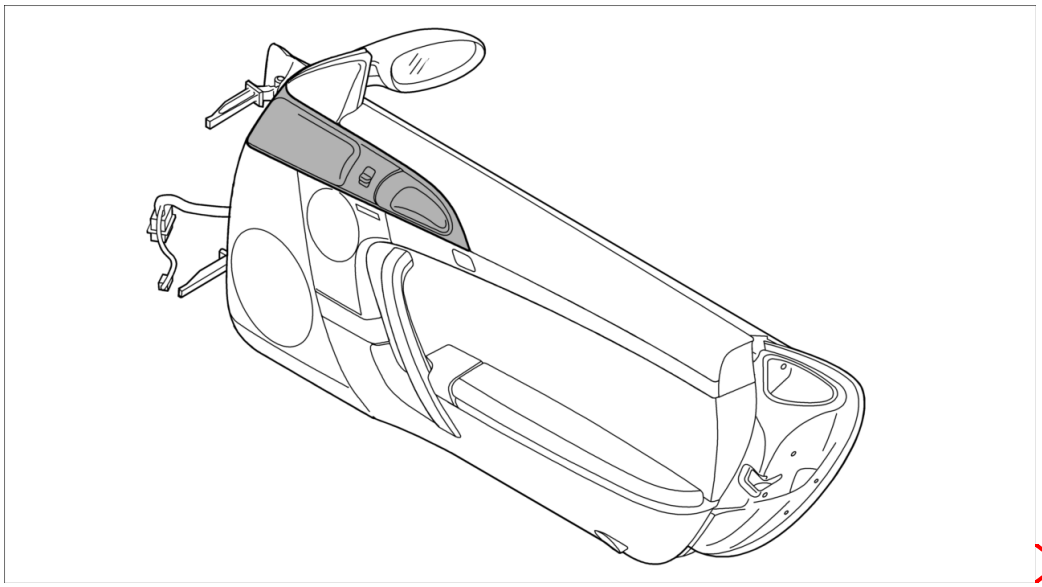


Removing cover

2. Remove cover **-1-** outwards from the door trim panel **-2-** (**-arrows-**).

Installing cover for door trim panel

Installation Location:

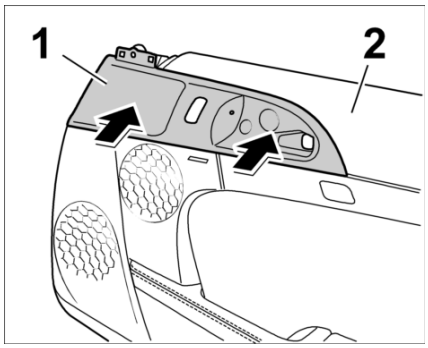


Installation position of cover

Note

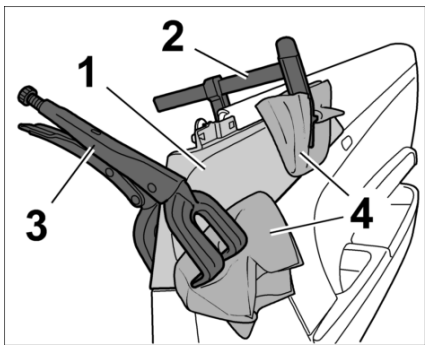
To ensure that the new cover fits correctly, the fastening holes on the inner door trim panel must be countersunk from the inside using an 8-mm drill bit.

1. Countersink the nine fastening holes on the inner door trim panel with an 8-mm drill bit.



Fitting the cover

2. Position cover **-1-** on the door trim panel **-2-** from outside (**-arrows-**).

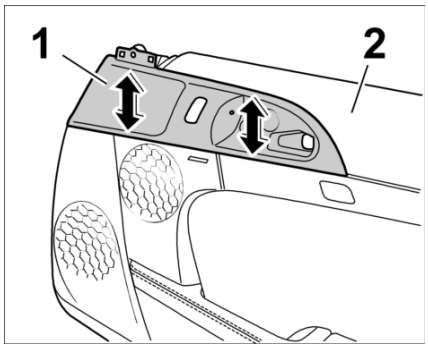


Attaching the cover

Note

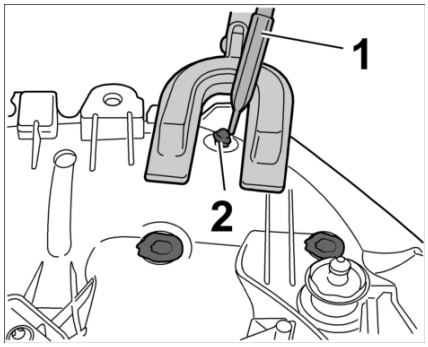
When attaching the cover with a screw clamp and vice-grip wrench, always protect the outside of the door trim panel with fabric protection. A flat metal piece (flat iron, etc.) must be placed on the inside of the door trim panel so that the tools can be positioned better.

3. Position cover **-1-** and secure with a screw clamp **-2-** and vice-grip wrench **-3-** **vice-grip wrench lowered NR.127**. Always use sufficiently thick fabric **-4-** to protect the door trim panel.



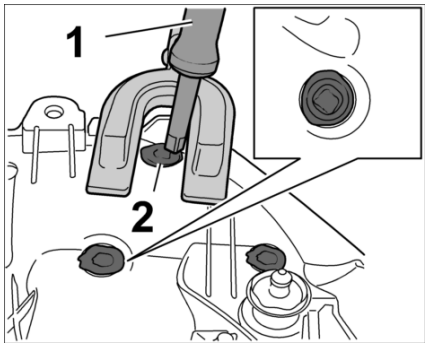
Checking joint

4. Check that the joint between the cover **-1-** and door trim panel **-2-** is uniform all the way round and align the cover as required **-arrows-** .



Securing the cover

5. Use a plastic welder **-1-** **TRIAC S plastic welder WE1120** to heat up the fastening pins **-2-** for the cover until visco-elasticity is achieved.



Pressing in fastening pins

6. Use an 8-mm round stock **-1-** to press the fastening pins **-2-** in evenly on the door trim panel.

top of page

Subsequent work

Subsequent work

1. Fit door handle. 574519 Removing and installing door handle - section on "Installing"
2. Install door trim panel. 705919 Removing and installing door trim panel - section on "Installing"
3. Install trim panel for mirror triangle. 707019 Trim panel for mirror triangle - section on "Installing"

997110, 997111, 997120, 997121, 997310, 997311, 997320, 997321, 997410, 997411, 997430, 997431, 997610, 997611, 997620, 997621

as of MY 2005
Country C00, C02, C05, C07, C08, C09, C10, C11, C12, C13, C14, C15, C16, C18, C19, C20, C21, C22, C23, C24, C25, C26, C27, C28, C32, C33, C34, C35, C36, C37, C38, C39, C45, C46, C98, C99

WARNUNG

Gefahr des Verlusts der Text-Bild-Zuordnung beim Ausdruck.

- **Aus technischen Gründen kann derzeit nicht ausgeschlossen werden, dass trotz einwandfreier Darstellung auf dem Bildschirm beim Ausdruck der Zusammenhang von Text und zugehörigem Bild verloren geht.**
- **Wird der Fehler nicht bemerkt, besteht die Gefahr, daß Arbeiten nicht korrekt durchgeführt werden und es dadurch zu Personen- und Sachschäden kommt.**

Vergleichen Sie deshalb nach dem Druckvorgang unbedingt die Ausdrucke mit der Bildschirmdarstellung. Korrigieren Sie die Ausdrucke im Fehlerfall so, daß der Inhalt der Bildschirmdarstellung zutreffend wiedergegeben wird.

WARNING

Danger of losing text-figure correspondence when printing out.

- **For technical reasons, it can currently not be ruled out that the correspondence between text and associated figure can be lost when it is printed out, even though the display on the screen is correct.**
- **If the fault is not noticed, there is the danger that work will not be performed correctly which can cause injury and damage.**

Therefore, always compare printouts with the screen display after printing them out. Correct the printouts if they are faulty so that the content of the screen display matches that on the printouts.

AVERTISSEMENT

Risque de perte de la correspondance texte-illustration lors de l'impression papier.

70 63 19 Removing and installing inner door handle - as of MY 2005

- Preliminary work
- Removing inner door handle
- Installing inner door handle
- Subsequent work

top of page

Preliminary work

Preliminary work

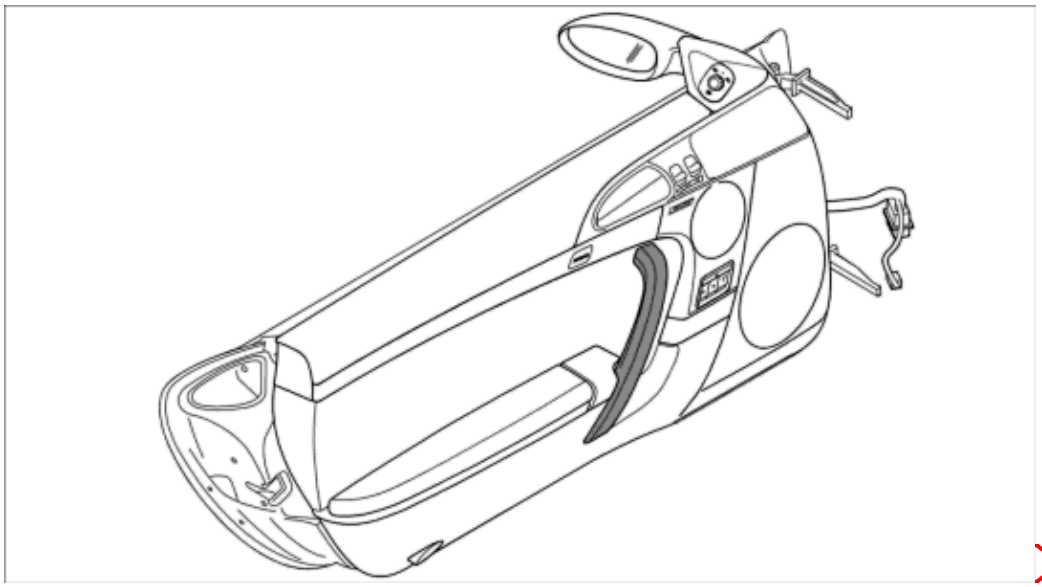
1. Remove door trim panel. 705919 Removing and installing door trim panel - chapter on "removing"

top of page

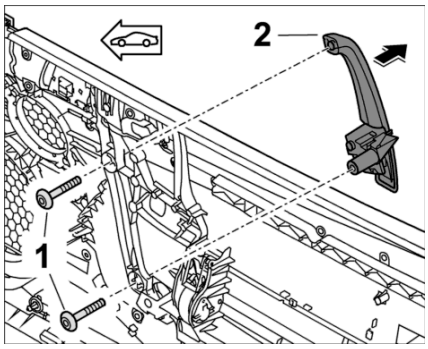
Removing inner door handle

Removing inner door handle

Installation Location:



Overview, inner door handle



Removing inner door handle

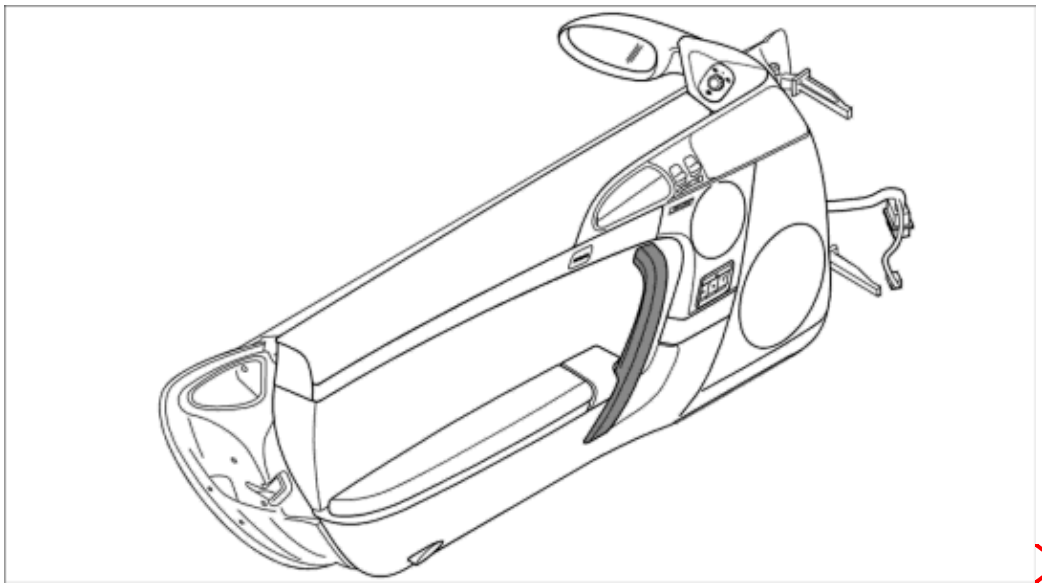
1. Undo fastening screws **-1-** .
2. Take off inner door handle **-2-** (**-arrow-**).

top of page

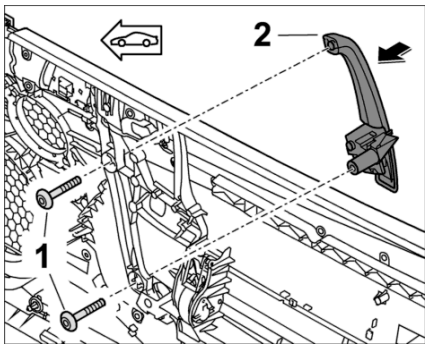
Installing inner door handle

Installing inner door handle

Installation Location:



Overview, inner door handle



Installing inner door handle

1. Insert inner door handle **-2-** (**-arrow-**).
2. Screw in fastening screws **-1-** and tighten to required tightening torque **Final tightening: 7 (5) Nm (ftlb.)** .

top of page

Subsequent work

Subsequent work

1. Install door trim panel. 705919 Removing and installing door trim panel - chapter on "installing"

997110, 997111, 997120, 997121, 997310, 997311, 997320, 997321

70 65 19 Removing and installing oddments compartment lid - as of MY 2005

- Preliminary work
- Removing lid for oddments compartment
- Installing lid for oddments compartment
- Subsequent work

top of page

Preliminary work

Preliminary work

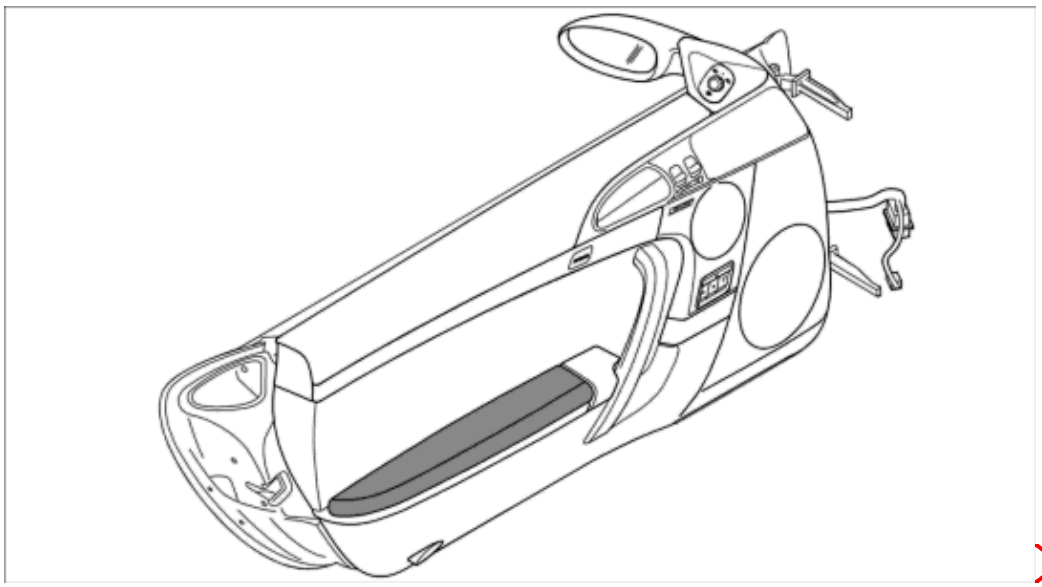
Remove door trim panel. *21 Removing and installing door trim panel - removing*

top of page

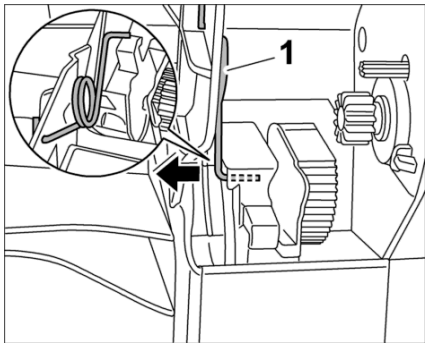
Removing lid for oddments compartment

Removing lid for oddments compartment

Installation Location:

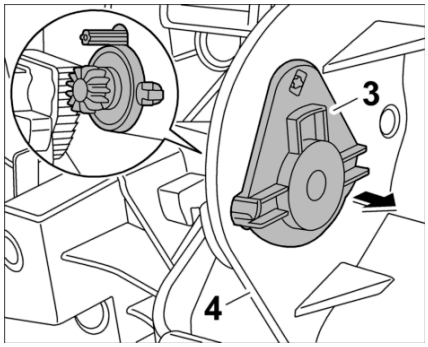


Overview, removing and installing oddments tray lid



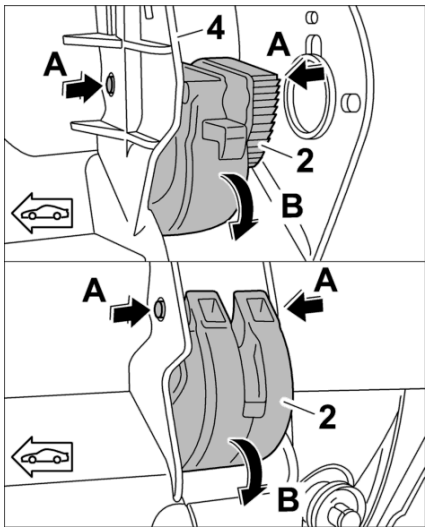
Disengaging spring

1. Disengage spring **-1-** with a suitable pair of pliers from the guide mechanism **-2-** .



Unclipping shock absorber

2. Unclip shock absorber **-3-** from door trim panel **-4-** .



Disengaging guide mechanism

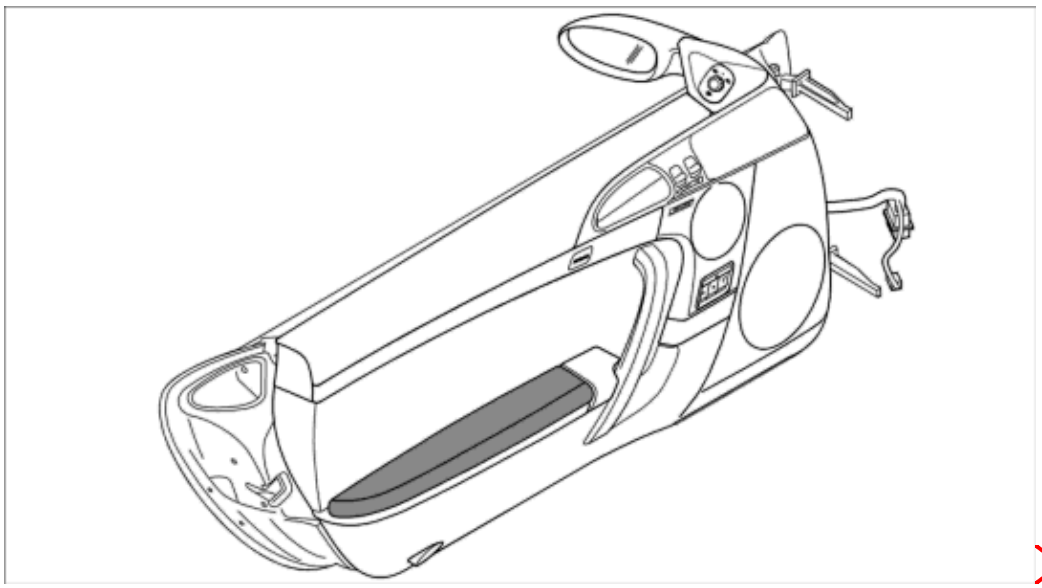
3. Press together guide mechanism on the right and left **-2-** with a suitable pair of pliers **-arrow A-** and disengage from the door trim panel **-4-** **-arrow B-** .

top of page

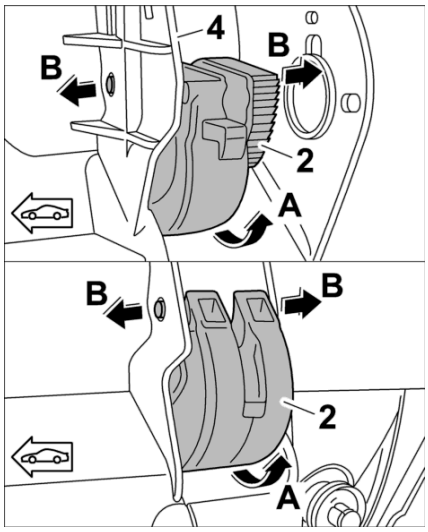
Installing lid for oddments compartment

Installing lid for oddments compartment

Installation Location:

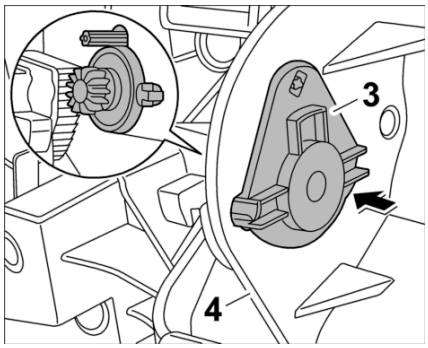


Overview, removing and installing oddments tray lid



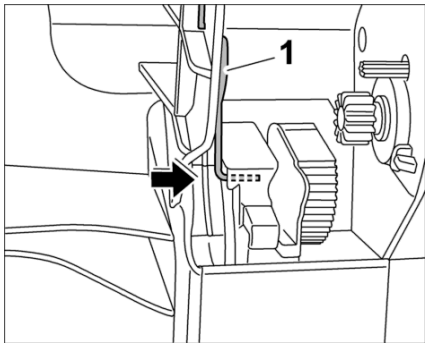
Engaging guide mechanism

1. Insert guide mechanism on the right and left **-2-** in door trim panel **-4-** **-arrow A-** and engage **-arrow B-** .



Clip in shock absorber

2. Position shock absorber **-3-** in the door panel **-4-** and guide mechanism, and push in until it engages at the groove.



Engaging spring

3. Engage spring **-1-** with a suitable pair of pliers in the guide mechanism **-2-** .

top of page

Subsequent work

Reworking

Install door trim panel. *23 Removing and installing door trim panel - installing*

997110, 997111, 997120, 997121, 997310, 997311, 997320, 997321, 997410, 997411, 997430, 997431, 997610, 997611, 997620, 997621

as of MY 2005
Country C00, C02, C05, C07, C08, C09, C10, C11, C12, C13, C14, C15, C16, C18, C19, C20, C21, C22, C23, C24, C25, C26, C27, C28, C32, C33, C34, C35, C36, C37, C38, C39, C45, C46, C98, C99

WARNUNG
Gefahr des Verlusts der Text-Bild-Zuordnung beim Ausdruck.

70 67 19 Removing and installing B-pillar trim - as of MY 2005

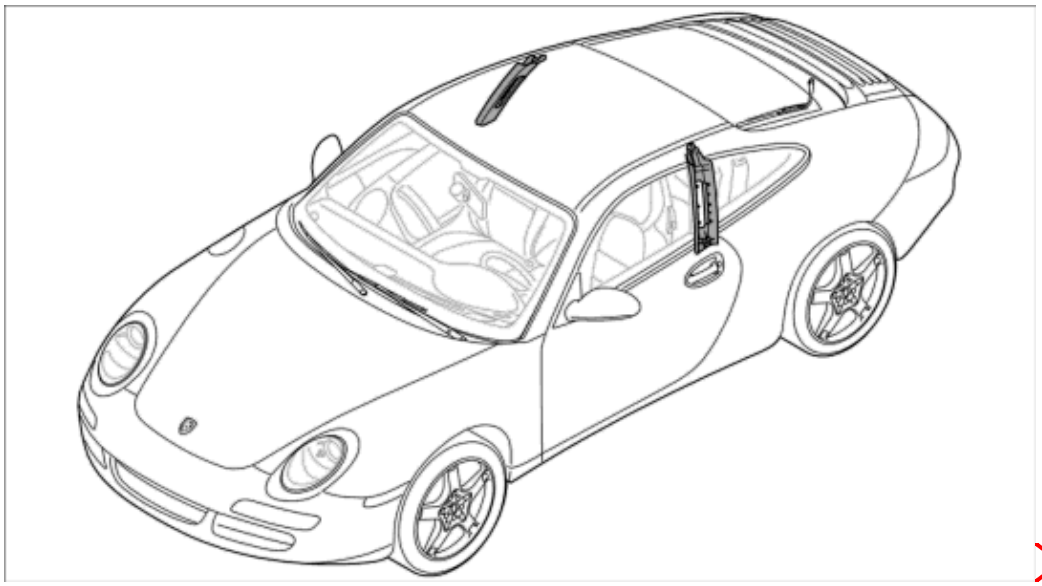
- Removing B-pillar trim
- Installing B-pillar trim

top of page

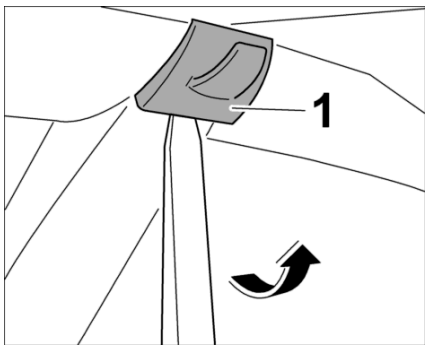
Removing B-pillar trim

Removing B-pillar trim panel

Installation Location:



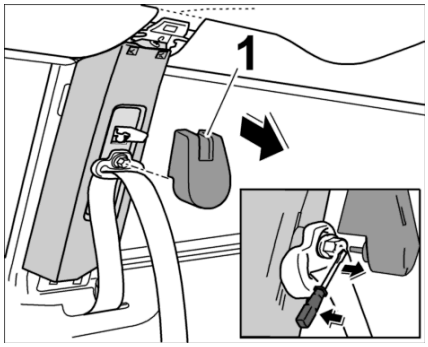
Installation location of B-pillar trim panel



Unclipping coat hook bracket

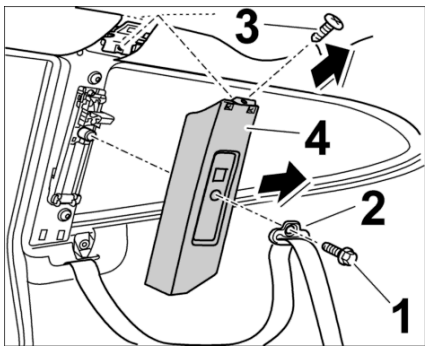
1. Lift up coat hook bracket **-1-** from below with a plastic spatula **-arrow-** and carefully pull up and

off.



Pressing out seat belt height adjuster actuator

2. Press seat belt height adjuster actuator **-1-** out of the fastening screw using a screwdriver.



Removing B-pillar trim panel

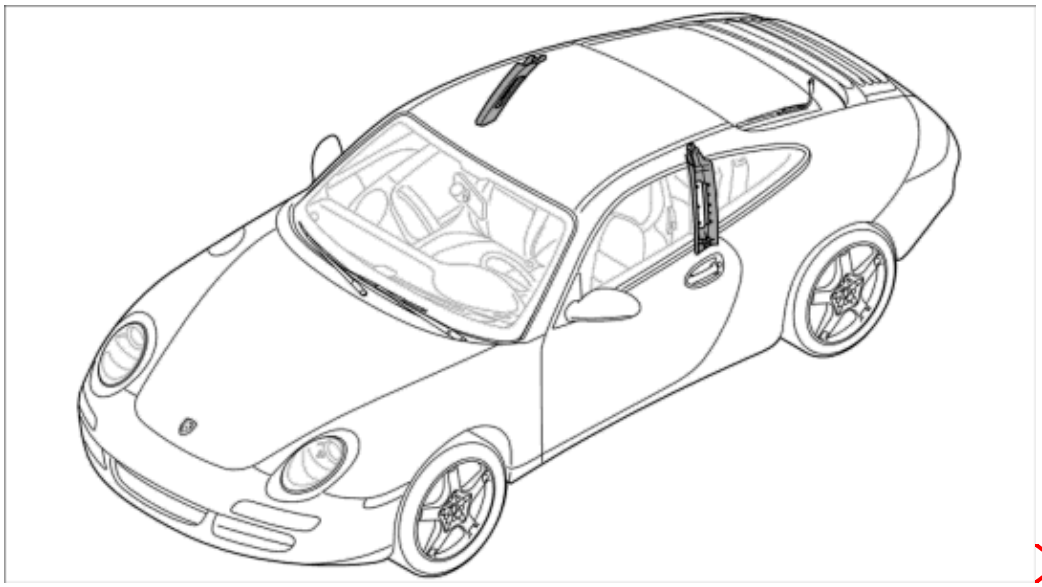
3. Unscrew fastening screw **-1-** from sash guide mount **-2-** .
4. Unscrew fastening screw **-3-** . Lift B-pillar trim **-4-** up and out.

top of page

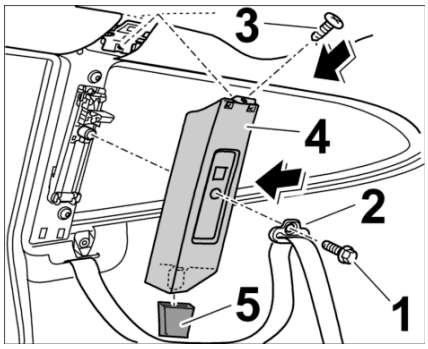
Installing B-pillar trim

Installing B-pillar trim panel

Installation Location:

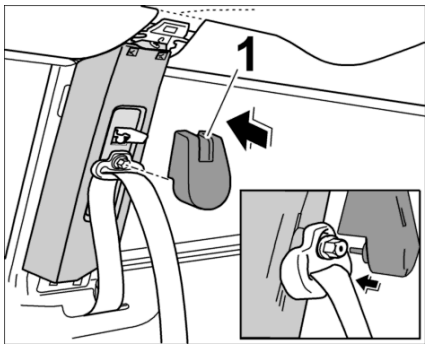


Installation location of B-pillar trim panel



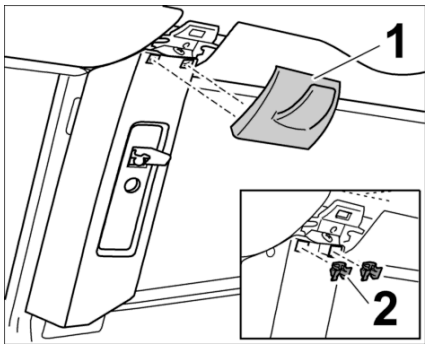
Installing B-pillar trim panel

1. Push grommet **-5-** onto lug of the B-pillar trim panel **-4-** and insert in bottom of the B-pillar.
2. Screw down B-pillar trim panel **-4-** with fastening screw **-3-** .
3. Position sash-guide mount **-2-** on the B-pillar and tighten with fastening screw **-1-** . Tightening torque **Tightening torque: 37 ftlb.**



Installing seat belt height adjuster actuator

4. Press peg of the seat beat height adjuster actuator **-1-** into the bore of the fastening screw.



Installing coat hook bracket

5. Check sheetmetal clips **-2-** , replacing if necessary.
6. Carefully press coat hook bracket **-1-** into the sheetmetal clips **-2-** at the bottom of the B-pillar trim panel.

997110, 997111, 997120, 997121, 997410, 997411, 997430, 997431

as of MY 2005
Country C00, C02, C05, C07, C08, C09, C10, C11, C12, C13, C14, C15, C16, C18, C19, C20, C21, C22, C23, C24, C25, C26, C27, C28, C32, C33, C34, C35, C36, C37, C38, C39, C45, C46, C98, C99

WARNUNG

Gefahr des Verlusts der Text-Bild-Zuordnung beim Ausdruck.

- **Aus technischen Gründen kann derzeit nicht ausgeschlossen werden, dass trotz einwandfreier Darstellung auf dem Bildschirm beim Ausdruck der Zusammenhang von Text und zugehörigem Bild verloren geht.**
- **Wird der Fehler nicht bemerkt, besteht die Gefahr, daß Arbeiten nicht korrekt durchgeführt werden und es dadurch zu Personen- und Sachschäden kommt.**

Vergleichen Sie deshalb nach dem Druckvorgang unbedingt die Ausdrucke mit der Bildschirmdarstellung. Korrigieren Sie die Ausdrucke im Fehlerfall so, daß der Inhalt der Bildschirmdarstellung zutreffend wiedergegeben wird.

WARNING

Danger of losing text-figure correspondence when printing out.

- **For technical reasons, it can currently not be ruled out that the correspondence between text and associated figure can be lost when it is printed out, even though the display on the screen is correct.**
- **If the fault is not noticed, there is the danger that work will not be performed correctly which can cause injury and damage.**

Therefore, always compare printouts with the screen display after printing them out. Correct the printouts if they are faulty so that the content of the screen display matches that on the printouts.

70 68 19 Removing and installing C-pillar trim - as of MY 2005

- Preliminary work
- Removing C-pillar trim
- Installing C-pillar trim
- Subsequent work

top of page

Preliminary work

Preliminary work

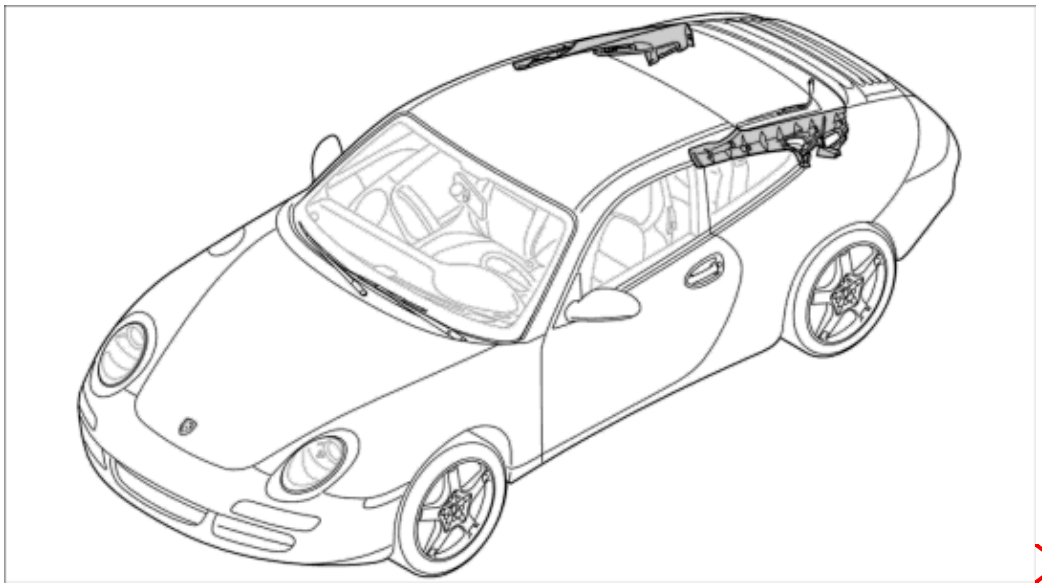
1. Remove rear side trim panel. 707519 Removing and installing rear side trim panel - chapter on "Removing"
2. Remove rear roof trim panel. 708519 Removing and installing rear roof trim panel - chapter on "removing" [997110 997111 997120 997121 997410 997411] *708519 21 Removing and installing rear roof trim panel - chapter on "removing" [997430 997431]*
3. Remove seat belt and and rear mounting component. 691219 Removing and installing rear three-point belt - chapter on "Removing"

top of page

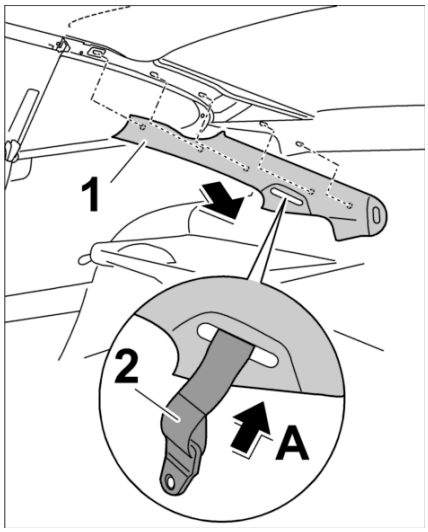
Removing C-pillar trim

Removing C-pillar trim panel

Installation Location:



Installation position for C-pillar trim panel



Removing C-pillar trim panel

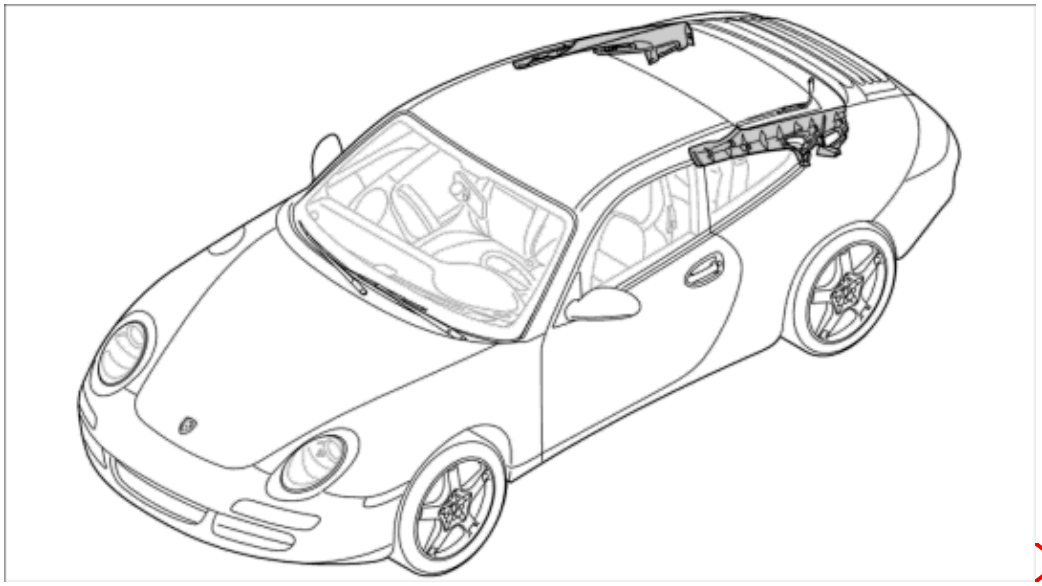
1. Pull C-pillar trim panel **-1-** inwards.
2. Thread seat belt with mounting component **-2-** through the C-pillar trim panel **-Arrow A-** .
3. Remove C-pillar trim panel **-1-** .

top of page

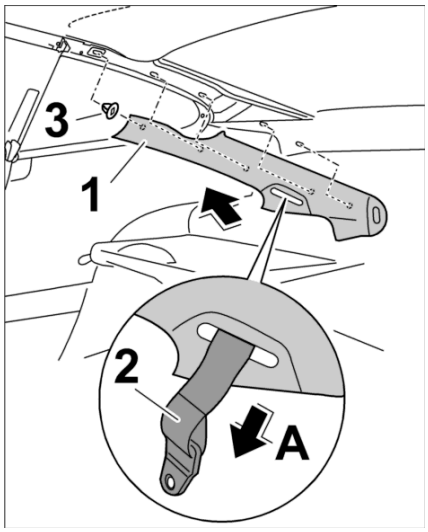
Installing C-pillar trim

Installing C-pillar trim panel

Installation Location:



Installation position for C-pillar trim panel



Installing C-pillar trim

1. Check sheetmetal clips **-3-** , replacing if necessary.
2. Thread seat belt with mounting component **-2-** through the C-pillar trim panel **-1-** **-Arrow A-** .
3. Position C-pillar trim panel **-1-** on the C-pillar and clip in.

top of page

Subsequent work

Subsequent work

1. Install seat belt and and rear mounting component. 691219 Removing and installing rear three-point belt - chapter on "Installing"
2. Install rear roof trim panel. 708519 Removing and installing rear roof trim panel - chapter on "Installing" [997110 997111 997120 997121 997410 997411] *708519 23 Removing and installing rear roof trim panel - chapter on "Installing" [997430 997431]*
3. Install rear side trim panel. 707519 Removing and installing rear side trim panel - chapter on "Installing"

997110, 997111, 997120, 997121, 997410, 997411, 997430, 997431

as of MY 2005
Country C00, C02, C05, C07, C08, C09, C10, C11, C12, C13, C14, C15, C16, C18, C19, C20, C21, C22, C23, C24, C25, C26, C27, C28, C32, C33, C34, C35, C36, C37, C38, C39, C45, C46, C98, C99

WARNUNG

Gefahr des Verlusts der Text-Bild-Zuordnung beim Ausdruck.

- **Aus technischen Gründen kann derzeit nicht ausgeschlossen werden, dass trotz einwandfreier Darstellung auf dem Bildschirm beim Ausdruck der Zusammenhang von Text und zugehörigem Bild verloren geht.**
- **Wird der Fehler nicht bemerkt, besteht die Gefahr, daß Arbeiten nicht korrekt durchgeführt werden und es dadurch zu Personen- und Sachschäden kommt.**

Vergleichen Sie deshalb nach dem Druckvorgang unbedingt die Ausdrucke mit der Bildschirmdarstellung. Korrigieren Sie die Ausdrucke im Fehlerfall so, daß der Inhalt der Bildschirmdarstellung zutreffend wiedergegeben wird.

WARNING

Danger of losing text-figure correspondence when printing out.

- **For technical reasons, it can currently not be ruled out that the correspondence between text and associated figure can be lost when it is printed out, even though the display on the screen is correct.**
- **If the fault is not noticed, there is the danger that work will not be performed correctly which can cause injury and damage.**

Therefore, always compare printouts with the screen display after printing them out. Correct the printouts if they are faulty so that the content of the screen display matches that on the printouts.

70 70 19 Removing and installing trim panel for mirror triangle - as of MY 2005

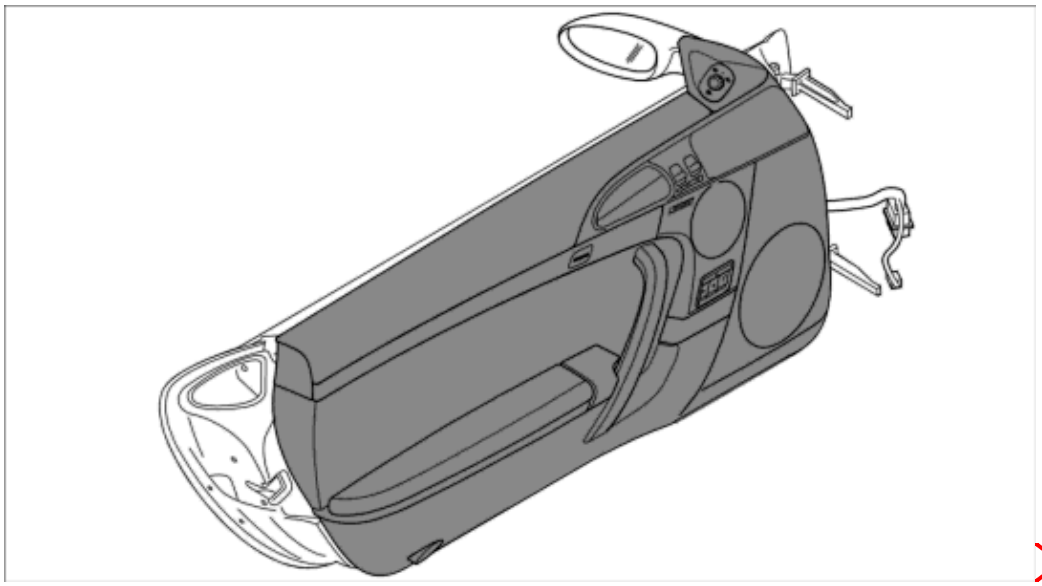
- Removing trim panel for mirror triangle
- Installing trim panel for mirror triangle

top of page

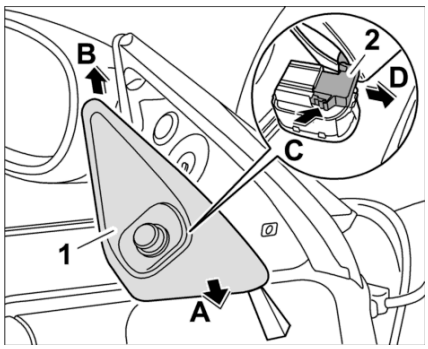
Removing trim panel for mirror triangle

Removing trim panel for mirror triangle

Installation Location:



Overview, door trim panel



Removing trim panel for mirror triangle

1. Carefully lever out trim panel for mirror triangle **-1-** using plastic wedge **-arrow A-** and pull upwards

-arrow B- .

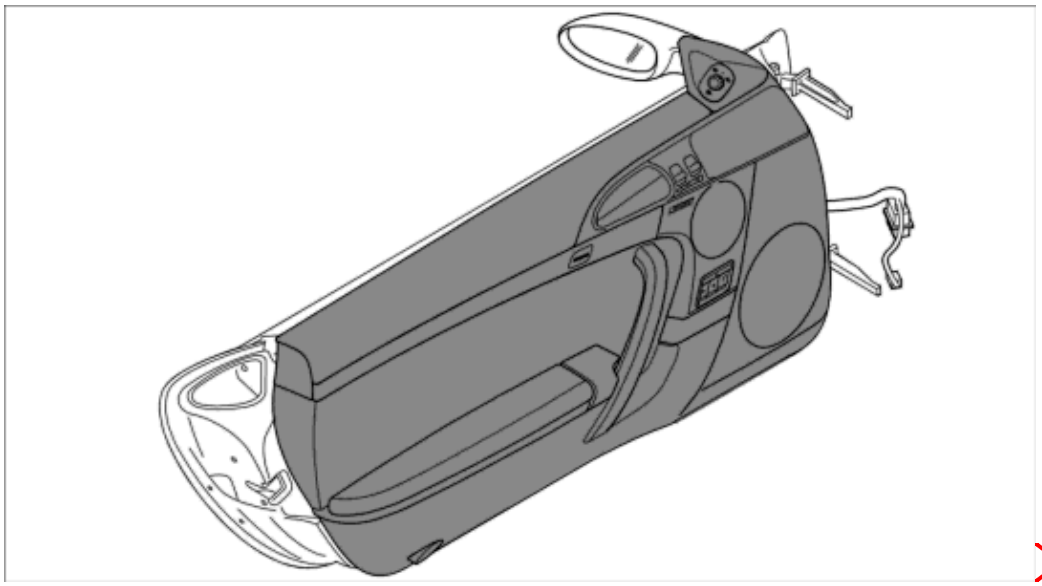
2. Press **-arrow C-** electrical plug connection **-2-** and pull off **-arrow D-** the plug **-2-** .
3. Remove trim panel for mirror triangle **-1-** .

top of page

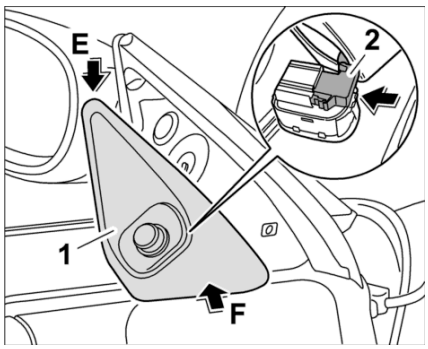
Installing trim panel for mirror triangle

Installing trim panel for mirror triangle

Installation Location:



Overview, door trim panel



Installing trim panel for mirror triangle

1. Press in electrical plug connection **-2-** until it engages audibly.
2. Hook cover **-1-** into the door triangle from above **-arrow E-** and press into the fastening clips on the underside until it engages audibly **-arrow F-** .

70 75 19 Removing and installing rear side-panel lining - as of MY 2005

- Preliminary work
- Removing side-panel lining at rear
- Subsequent work

top of page

Preliminary work

Preliminary work

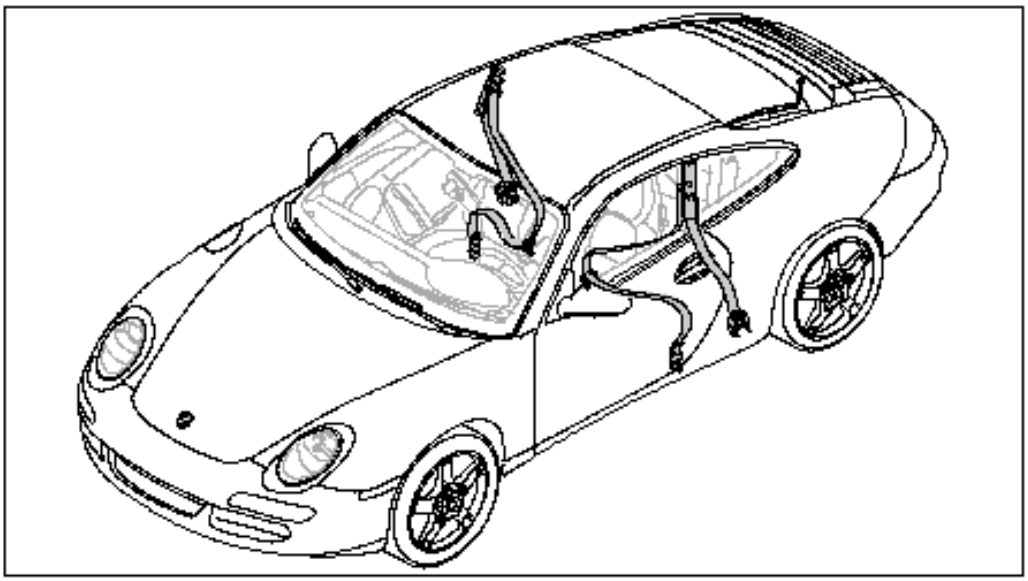
1. Remove rear loudspeaker. 914219 Removing and installing rear loudspeaker - section on "Removing"

top of page

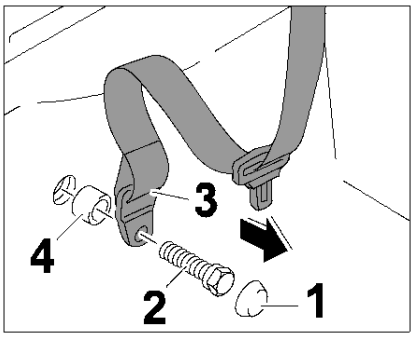
Removing side-panel lining at rear

Removing seat belt and fitting

Installation Location:



Installation location for three-point belt with seat-belt tensioner

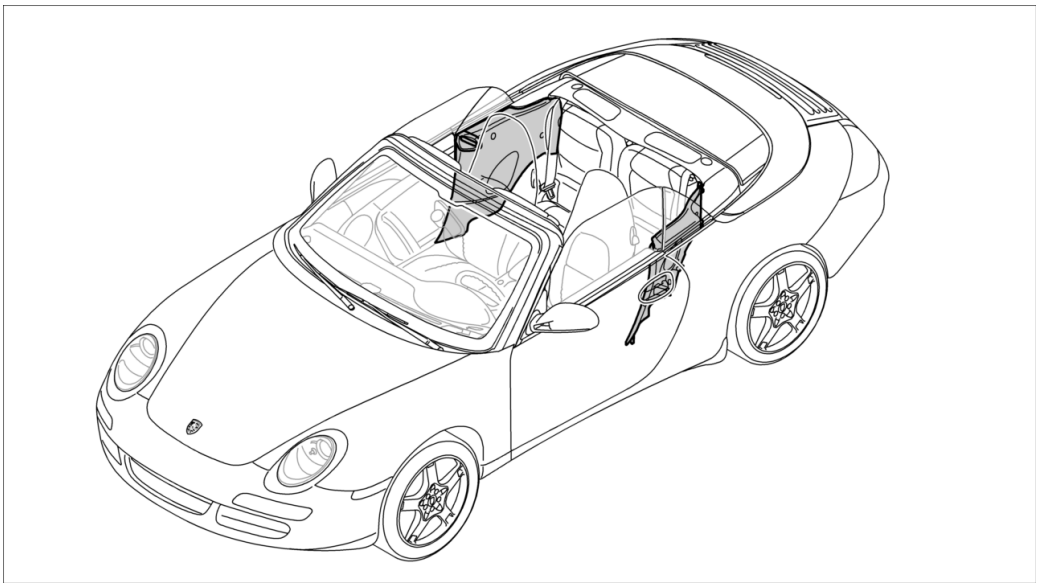


Undoing seat belt and fitting

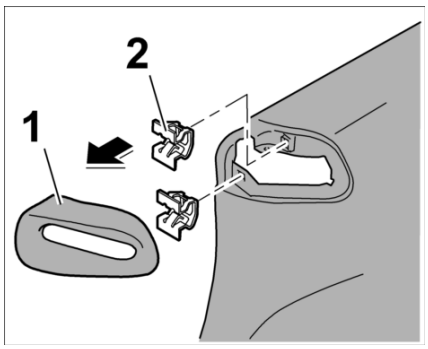
1. Press out cap **-1-** with a screwdriver. Unscrew fastening screw **-2-** . Remove seat belt with fitting **-3-** and spacer sleeve **-4-** .

Removing cover of three-point seat belt

Installation Location:



Installation position for side trim panel

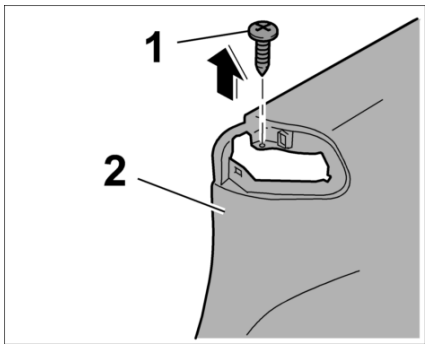


Removing cover of three-point seat belt

1. Pull cover of three-point seat belt **-1-** forwards out of the clips **-2-** .

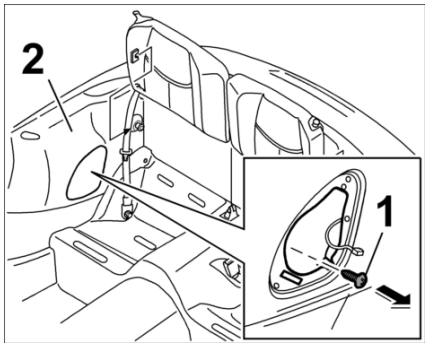
Removing side panel trim at rear

1. Pull off door seal at side trim panel.



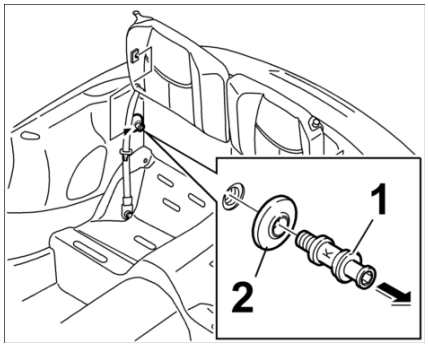
Fastening screw at front side trim panel

2. Unscrew fastening screw **-1-** at side trim panel **-2-** (**-arrow-**).



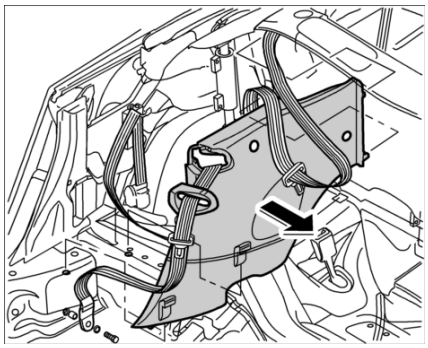
Removing fastening screw close to loudspeaker

3. Unscrew fastening screw **-1-** on side trim panel **-2-** close to the loudspeaker **-arrow-** .
4. Move backrest forward.



Removing backrest locking pin

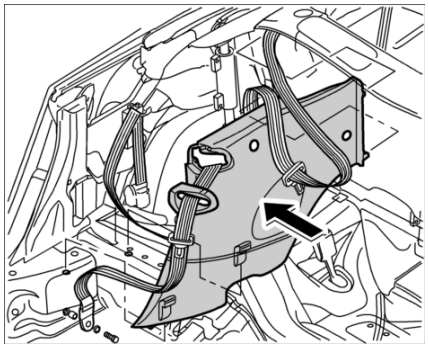
5. Unscrew locking pin **-1-** for backrest. Remove locking pin and washer **-2-** (**-arrow-**).



Removing side trim panel

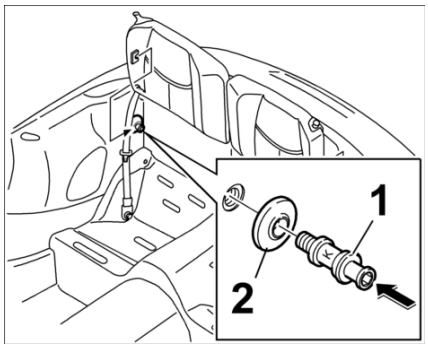
6. Carefully unclip side trim panel and pull inwards to remove it **-arrow-** .

Installing rear side trim panel



Installing side trim panel

1. Place side trim panel into position from inside **-arrow-** and clip in carefully.

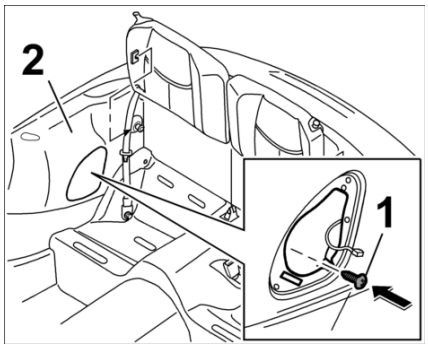


Installing backrest locking pin

2. Insert locking pin **-1-** with washer **-2-** (**-arrow-**).

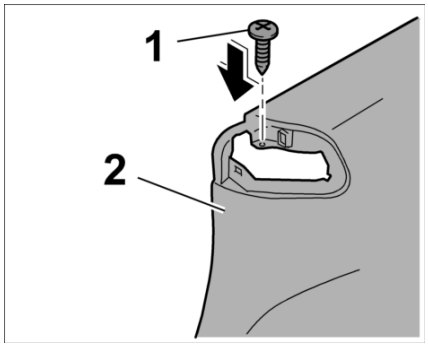
   Screw in locking pin for backrest. Tightening torque **Tightening torque: 35 (26 ftlb.) Nm +2 (1.5 ftlb.) Nm**

3. Move backrest back into sitting position again.



Screwing in fastening screw close to loudspeaker

4. Insert fastening screw **-1-** on side trim panel **-2-** close to the loudspeaker **-arrow-** and screw down securely.

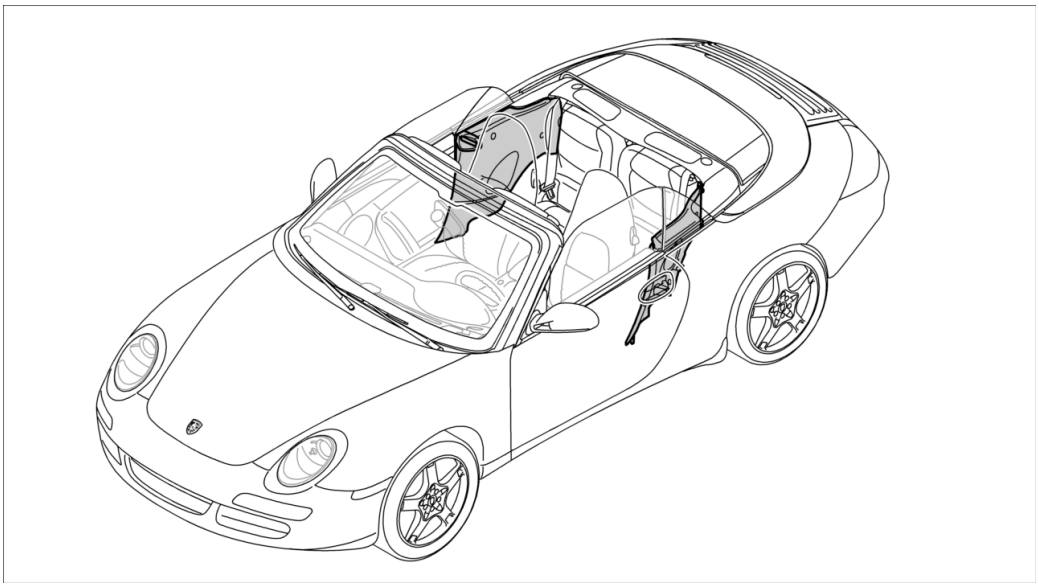


Tightening fastening screw on side trim panel

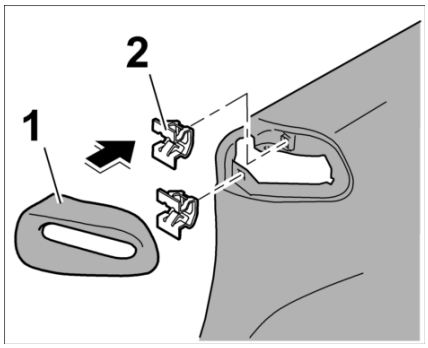
5. Insert fastening screw **-1-** from above **-arrow-** at side trim panel **-2-** and screw in securely. Tightening torque **Tightening torque: 0.6 (0.5 ftlb.) Nm**
6. Attach door seal at side trim panel.

Installing cover of three-point seat belt

Installation Location:



Installation position for side trim panel

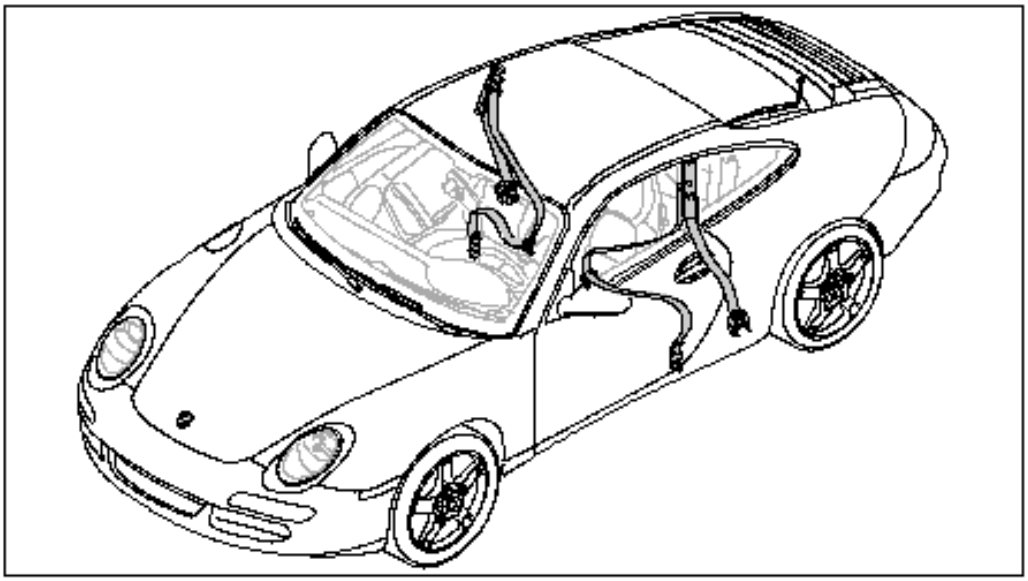


Installing cover of three-point seat belt

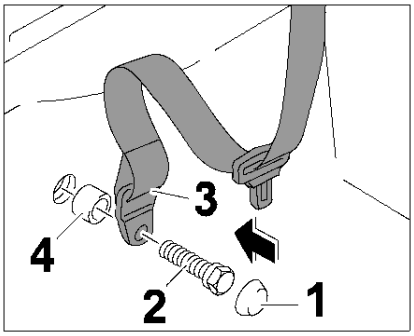
1. Check clamps **-2-** for damage, replacing if necessary. Press in cover of three-point seat belt **-1-** into the clamps with the locking tabs until these audibly engage.

Installing seat belt and fitting

Installation Location:



Installation location for three-point belt with seat-belt tensioner



Installing seat belt and fitting

Note

Ensure that belt strap can run properly!

1. Screw in fastening screw **-2-** , seat belt and fitting **-3-** and spacer sleeve **-4-** on inner lower side member. Tightening torque **Tightening torque: 37 ftlb. +/-10 %**
2. Press in **-1-** cap.

top of page

Subsequent work

Subsequent work

1. Install rear speaker. 914219 Removing and installing rear loudspeaker - section on "Installing"

70 75 19 Removing and installing rear side-panel lining - as of MY 2005

- Preliminary work
- Removing side-panel lining at rear
- Installing side-panel lining at rear
- Subsequent work

top of page

Preliminary work

Preliminary work

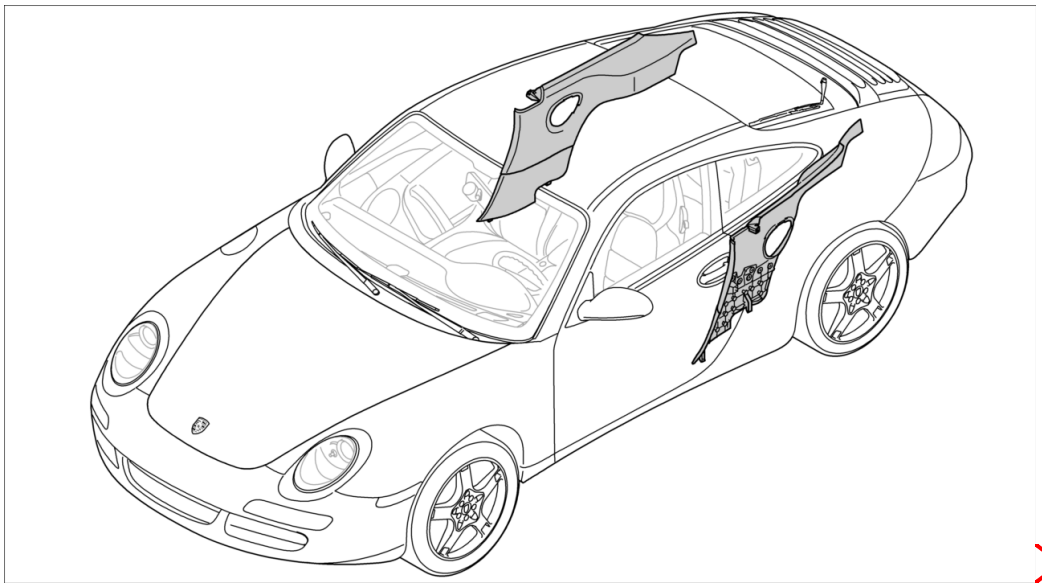
1. Remove the B-pillar trim. 706719 Removing and installing B-pillar trim - "Removing" section
2. Remove back seat cushion. 745719 Removing and installing back seat cushion - chapter on "Removing" [997410 997411 997430 997431] 745719 Removing and installing back seat cushion - chapter on "Removing" [997110 997111 997120 997121]

top of page

Removing side-panel lining at rear

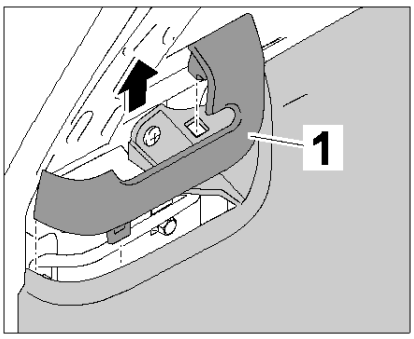
Removing side-panel lining at rear

Installation Location:



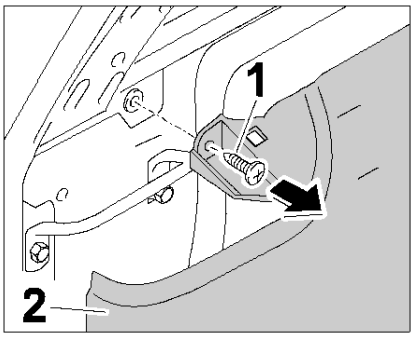
Installation location for rear side trim panel

1. Release rear backrest and fold it forward.



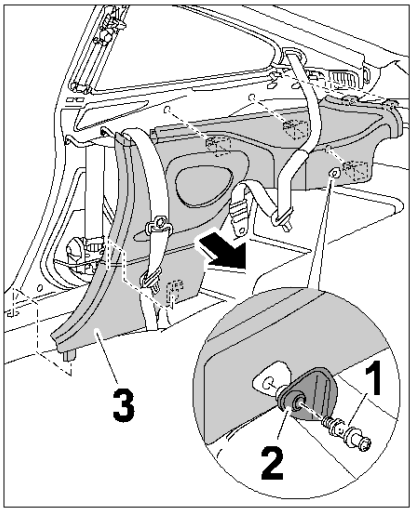
Removing collar of opening for belt

2. Pull collar of opening for belt **-1-** up and off.



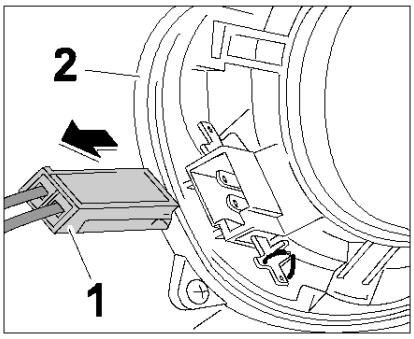
Undoing side trim panel

3. Unscrew fastening screw **-1-** from the side trim panel **-2-** .



Removing side trim panel

4. Unscrew locking pins **-1-** , remove stop **-2-** .
5. Pull side trim panel locking tabs **-3-** out of the clamp in the rear side panel. Lift side trim panel locking tabs on lower side member and guide them out.



Disconnecting loudspeaker

ATTENTION

Voltage peaks can damage the audio system.

Before unplugging/removing audio components, remove ignition key and switch off audio system.

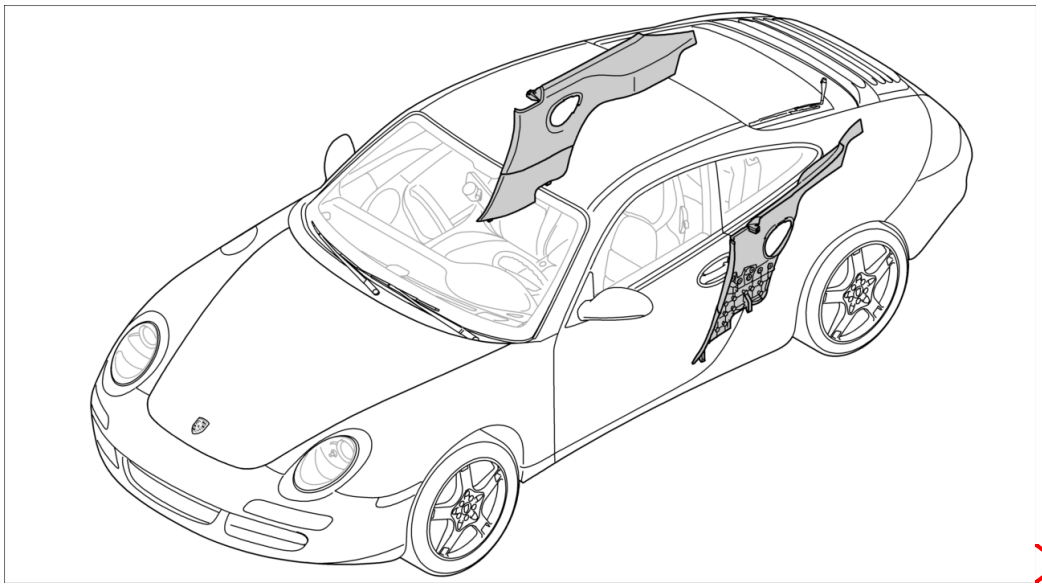
6. Disconnect electric plug connection **-1-** on loudspeaker **-2-** and remove side trim panel **-3-** .

top of page

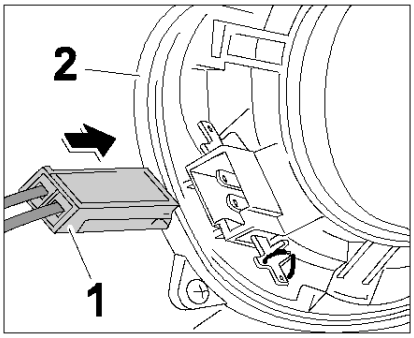
Installing side-panel lining at rear

Installing rear side trim panel

Installation Location:

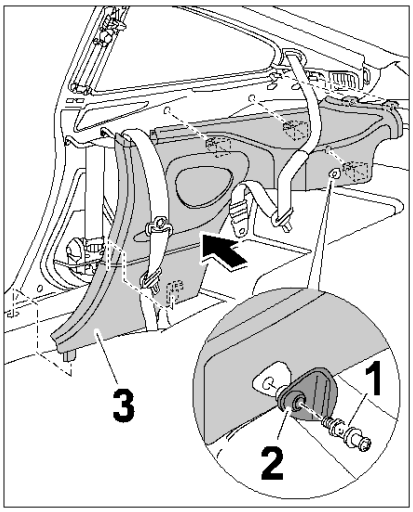


Installation location for rear side trim panel



Plugging in loudspeaker

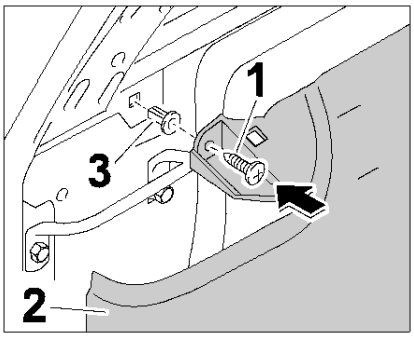
1. Plug in the electric plug connection **-1-** on the loudspeaker **-2-** .



Installing side trim panel

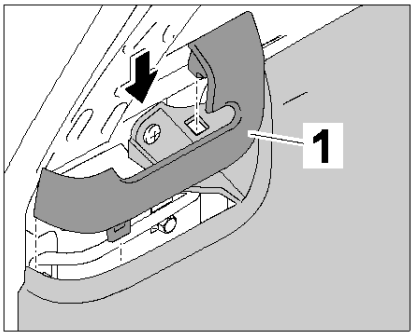
2. Position side trim panel **-3-** on the inside of the rear side section and the inside of the lower side member and press the locking tabs into the clamps.
3.

Position stop **-2-** and screw down locking pins **-1-** . Tightening torque **Tightening torque: 37 ftlb. +1.5 ftlb.**



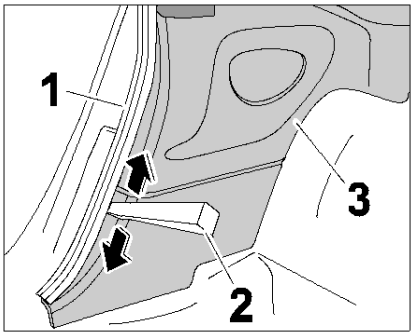
Securing side trim panel

4. Check plug-in nut **-3-** and replace if necessary. Position and tighten fastening screw **-2-** in the side-panel trim **-2-** .



Installing collar of opening for belt

5. Position locking tabs of collar of opening for belt **-1-** on side trim panel and press them in.



Aligning seal

6. Lift up the pillar seal **-1-** using a plastic spatula **-2-** along the side trim panel **-3-** .
7. Fold up rear backrest and lock it.

top of page

Subsequent work

Subsequent work

1. Install back seat cushion. 745719 Removing and installing back seat cushion - chapter on "Installing" [997410 997411 997430 997431] 745719 Removing and installing back seat cushion - chapter on "Installing" [997110 997111 997120 997121]
2. Install B-pillar trim. 706719 Removing and installing B-pillar trim - "Installing" section

---

997110, 997111, 997120, 997121, 997410, 997411, 997430, 997431

as of MY 2005
Country C00, C02, C05, C07, C08, C09, C10, C11, C12, C13, C14, C15, C16, C18, C19, C20, C21, C22, C23, C24, C25, C26, C27, C28, C32, C33, C34, C35, C36, C37, C38, C39, C45, C46, C98, C99

WARNUNG

Gefahr des Verlusts der Text-Bild-Zuordnung beim Ausdruck.

- **Aus technischen Gründen kann derzeit nicht ausgeschlossen werden, dass trotz einwandfreier Darstellung auf dem Bildschirm beim Ausdruck der Zusammenhang von Text und zugehörigem Bild verloren geht.**
- **Wird der Fehler nicht bemerkt, besteht die Gefahr, daß Arbeiten nicht korrekt durchgeführt werden und es dadurch zu Personen- und Sachschäden kommt.**

Vergleichen Sie deshalb nach dem Druckvorgang unbedingt die Ausdrucke mit der Bildschirmdarstellung. Korrigieren Sie die Ausdrucke im Fehlerfall so, daß der Inhalt der Bildschirmdarstellung zutreffend wiedergegeben wird.

WARNING

Danger of losing text-figure correspondence when printing out.

- **For technical reasons, it can currently not be ruled out that the correspondence between text and associated figure can be lost when it is printed out, even though the display on the screen is correct.**
- **If the fault is not noticed, there is the danger that work will not be performed correctly which can cause injury and damage.**

Therefore, always compare printouts with the screen display after printing them out. Correct the printouts if they are faulty so that the content of the screen display matches that on the printouts.

AVERTISSEMENT

Risque de perte de la correspondance texte-illustration lors de l'impression papier.

70 84 19 Removing and installing roof lining - as of MY 2005

- Preliminary work
- Removing roof lining
- Installing roof lining
- Subsequent work

top of page

Preliminary work

Preliminary work

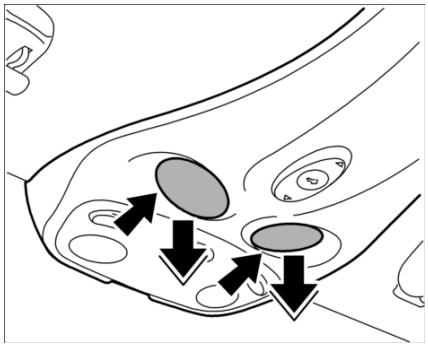
1. Remove A-pillar trim panel. *705749 21 Subsequent work on A-pillar trim panel - chapter on "Removing"*
2. Remove C-pillar trim. 706819 Removing and installing C-pillar trim - chapter on "removing"
3. Remove and install sliding roof panel. 604019 Removing and installing sliding-roof panel - chapter on "Removing"

top of page

Removing roof lining

Removing cover for motor for sliding roof

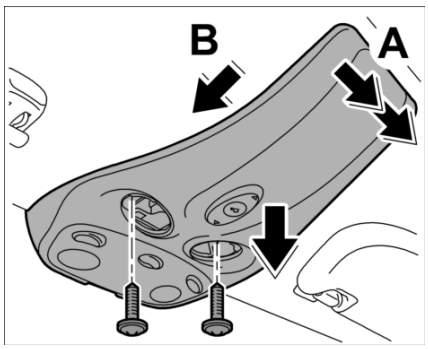
1. Switch off ignition and remove ignition key.



Unclipping cover for fastening screws

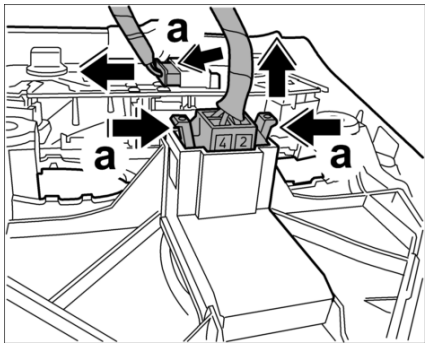
2.

Using a small screwdriver, carefully unclip and remove the cover for the fastening screws at the openings **-arrows-** provided.



Unclipping cover for motor for sliding roof

3. Unscrew the two fastening screws.
4. Unclip cover for motor for sliding roof at the rear to the left and right **-arrows A-** and push it out to the front towards the windscreen **-arrow B-** .

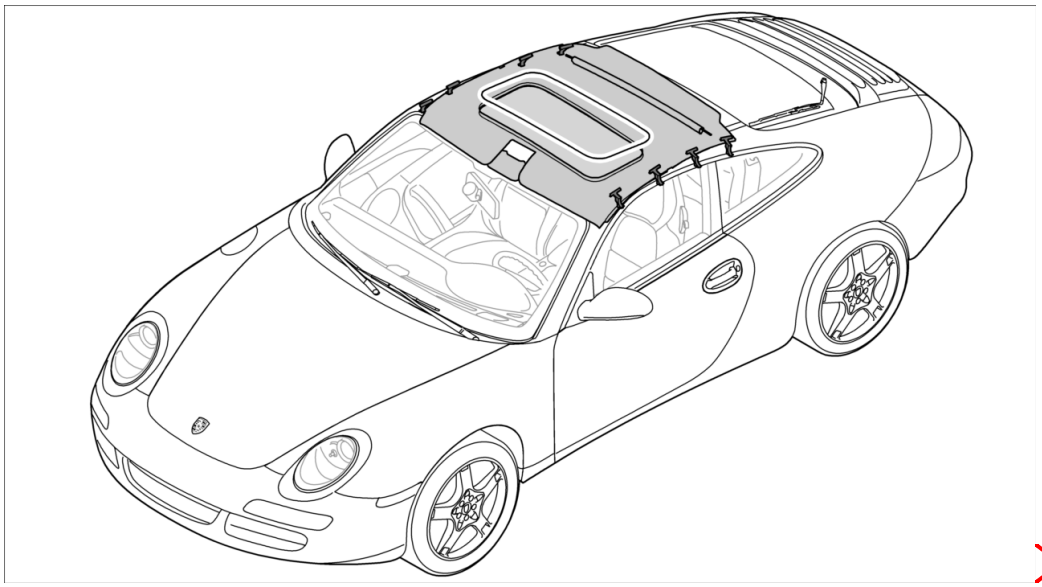


Removing connectors at sliding roof switch and interior light

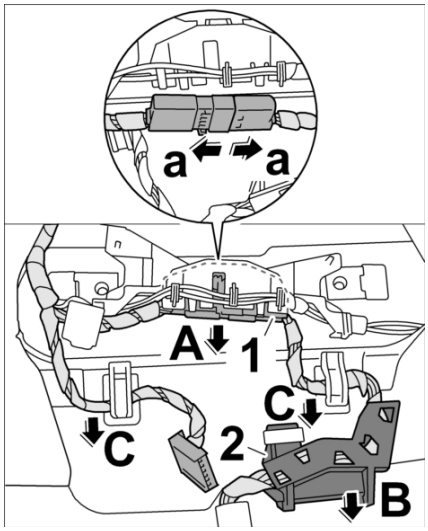
5. Release connecters at sliding roof switch and at the interior light **-arrows a-** and remove them. Remove cover for motor for sliding roof.

Disconnecting electric plug connection

Installation Location:



Installation position for headliner

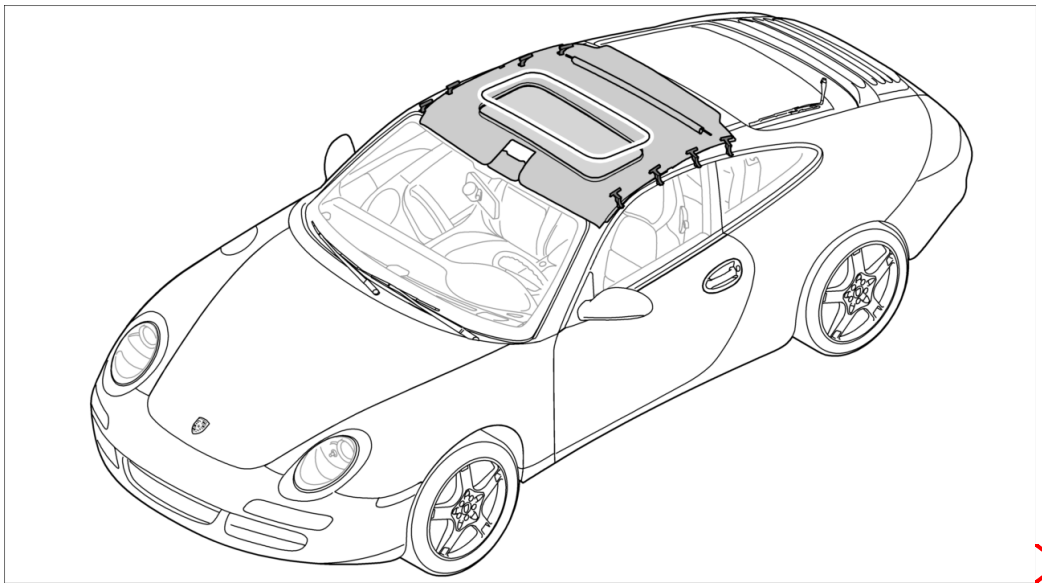


Disconnecting plug connection

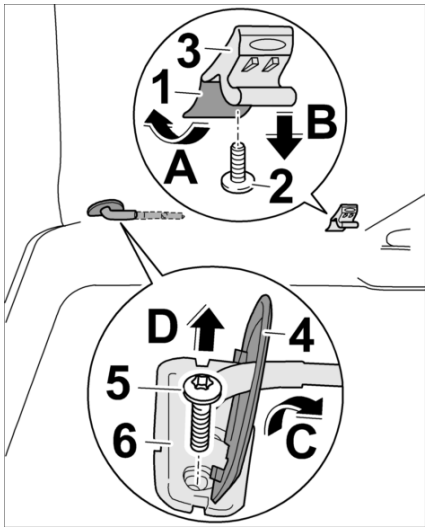
1. Unclip plug connection for interior mirror **-1-** from the support **-arrow A-** and disconnect connector **-arrows a-** .
2. Unclip support for wire harness **-2-** **-arrow B-** and disengage electric lines **-arrows C-** .

Removing mounting saddle and pivot bearing for sun visor

Installation Location:



Installation position for headliner

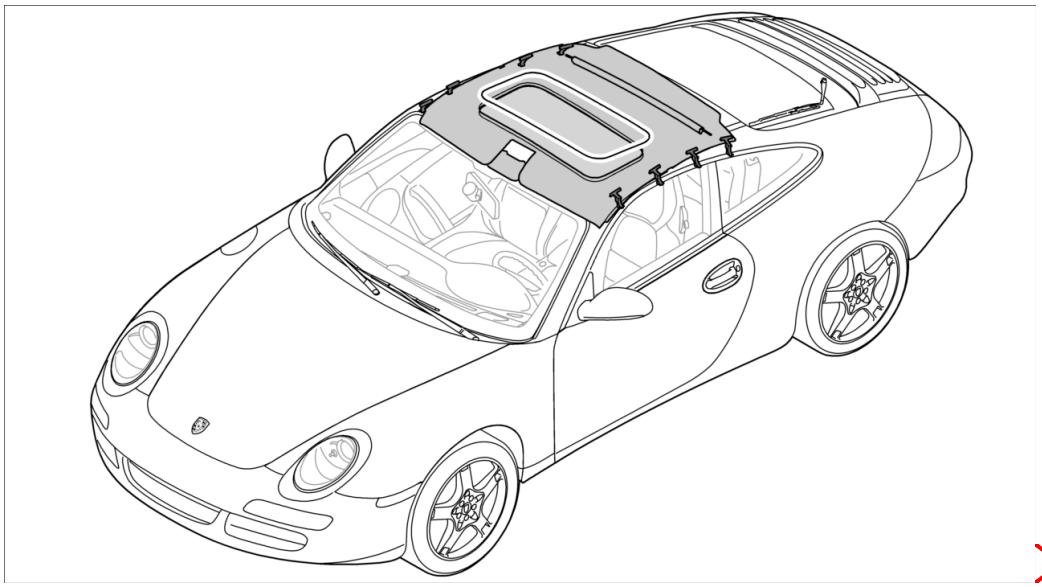


Removing mounting saddle and pivot bearing

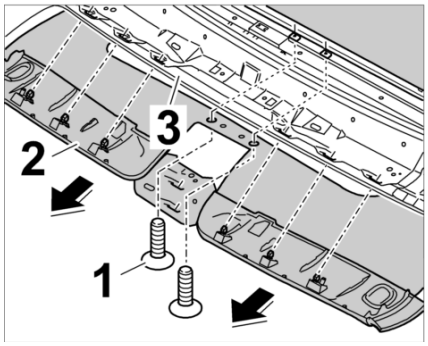
1. Unclip cap on the mounting saddle **-1-** with a screwdriver and open **-arrow A-** .
2. Unscrew fastening screw **-2-** and remove mounting saddle **-3-** **-arrow B-** .
3. Carefully insert a screwdriver between headliner and pivot bearing and release cover **-4-** **-arrow C-** .
4. Unscrew fastening screw **-5-** and remove pivot bearing **-6-** **-arrow D-** .

Removing headliner

Installation Location:

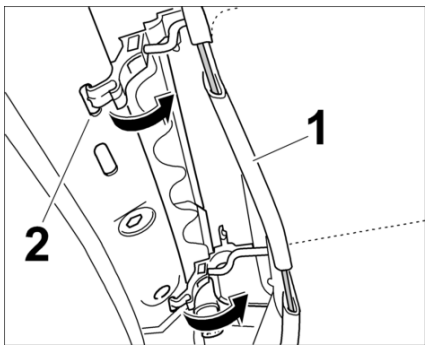


Installation position for headliner



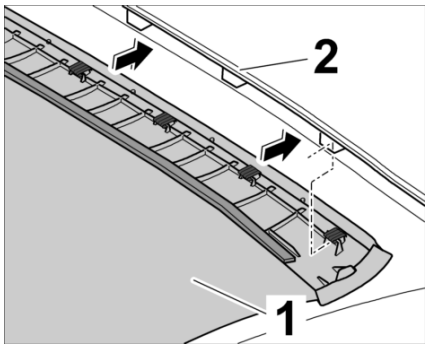
Undoing headliner at the front

1. Unscrew fastening screws **-1-** at the front in the headliner **-2-** and unclip the headliner from the cowl panel frame **-3-** in a downward direction at the left and right.



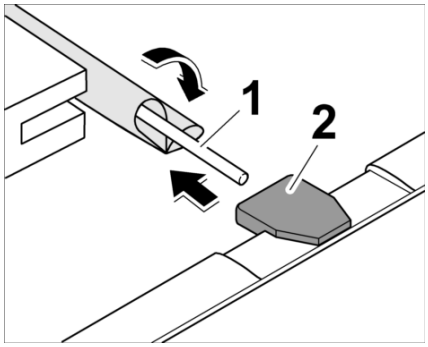
Disengaging headliner at the sides

2. Unclip the metal strut of the roof liner **-1-** from the plastic clips **-2-** at the right and left.



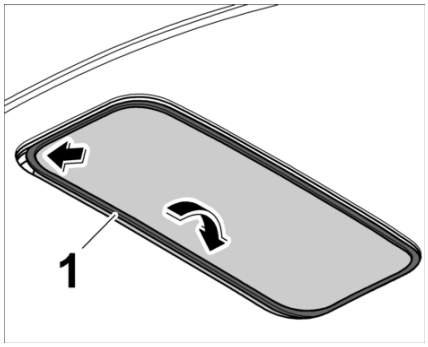
Disengaging headliner at the rear

3. Pull the rear headliner **-1-** towards the rear out of the roof frame **-2-** evenly on the left and right and disengage.



Disengaging the metal strut

4. Pull the metal brace contained in the fabric pocket **-1-** down in the centre so that it bends. Pull the metal strut **-1-** out of the bracket **-2-** on the left and right.



Disengaging frame

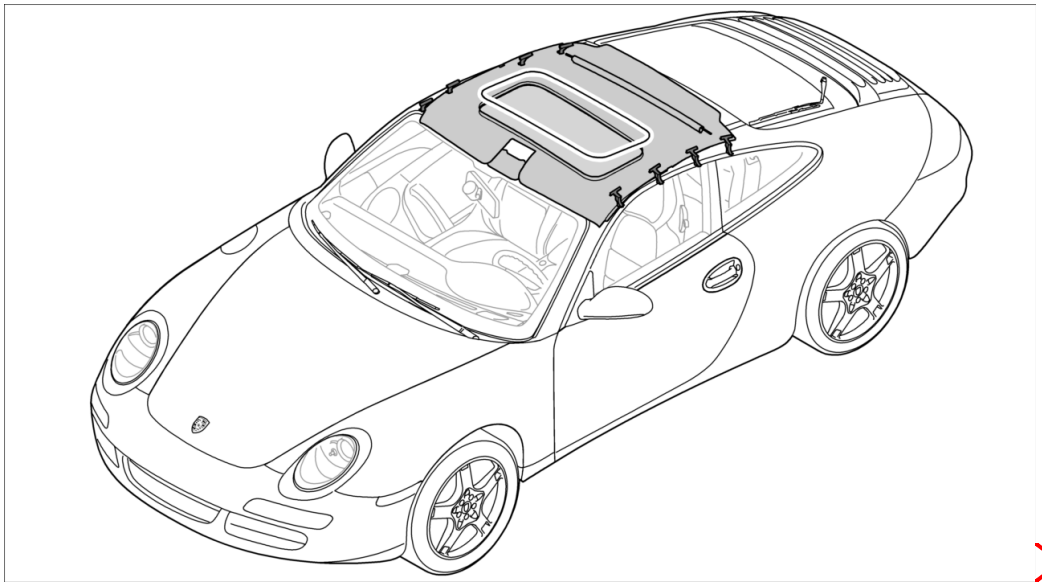
5. Pull the frame of the sliding roof cut-out backwards and downwards in the centre at the front, so that the frame overlap at the corners is reduced and it is possible to pull it out in a downward direction. Then pull out the roof frame **-1-** diagonally via the sliding roof cut-out inwards into the passenger compartment.

top of page

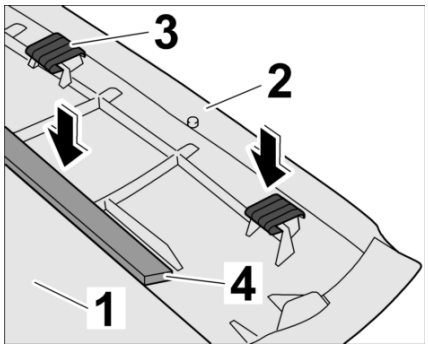
Installing roof lining

Fitting headliner

Installation Location:

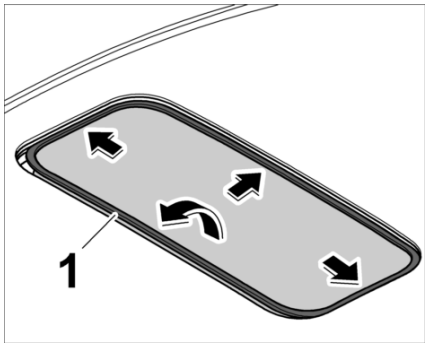


Installation position for headliner



Checking roof lining

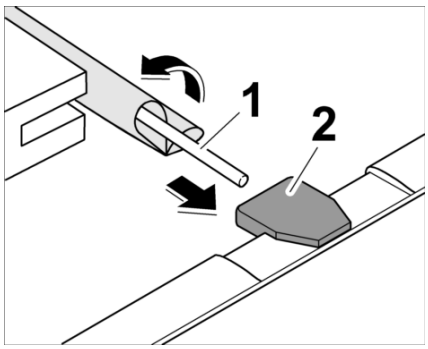
1. Before installing the headliner **-1-** , carry out a visual inspection of the rear plastic lining **-2-** to check that the Styrofoam cover **-4-** and the self-adhesive fabric parts **-3-** on the locking peg are completely seated.



Fitting frame

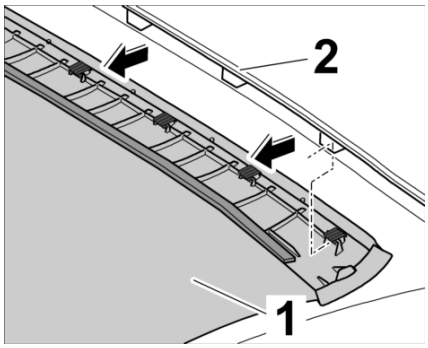
2. Insert the roof frame **-1-** diagonally from the inside via the sliding roof cut-out of the passenger compartment. At the same time, pull the frame backwards in the centre at the front of the sliding

roof cut-out, so that the frame overlap at the corners is reduced and it is possible to insert the frame into the sliding roof cut-out.



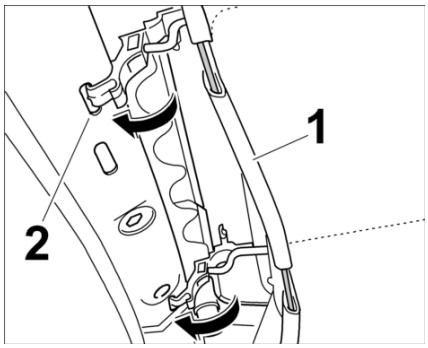
Engaging metal strut

3. Pull the metal brace contained in the fabric pocket **-1-** down in the centre so that it bends. Engage the metal strut in the bracket **-2-** on the left and right.



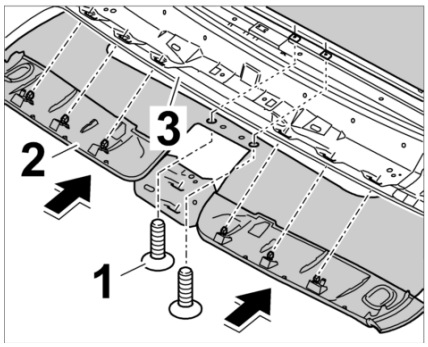
Engaging headliner at the rear

4. Engage the headliner towards the rear into the roof frame evenly on the left and right.



Engaging headliner at the sides

5. Engage the metal strut of the roof liner **-1-** in the plastic clips **-2-** at the left and right.

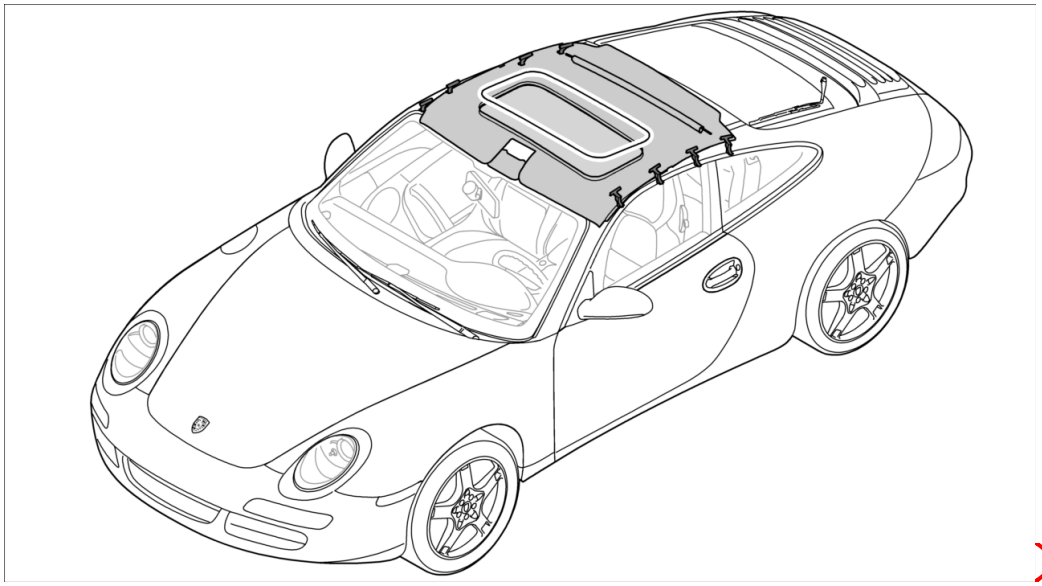


Clipping in headliner at the front

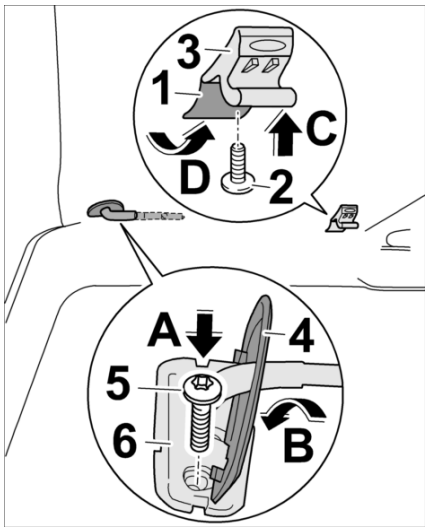
6. Position the headliner **-2-** at the left and right on the cowl panel frame **-3-** and clip in. Tighten fastening screws **-1-** .

Installing mounting saddle and pivot bearing for sun visor

Installation Location:



Installation position for headliner

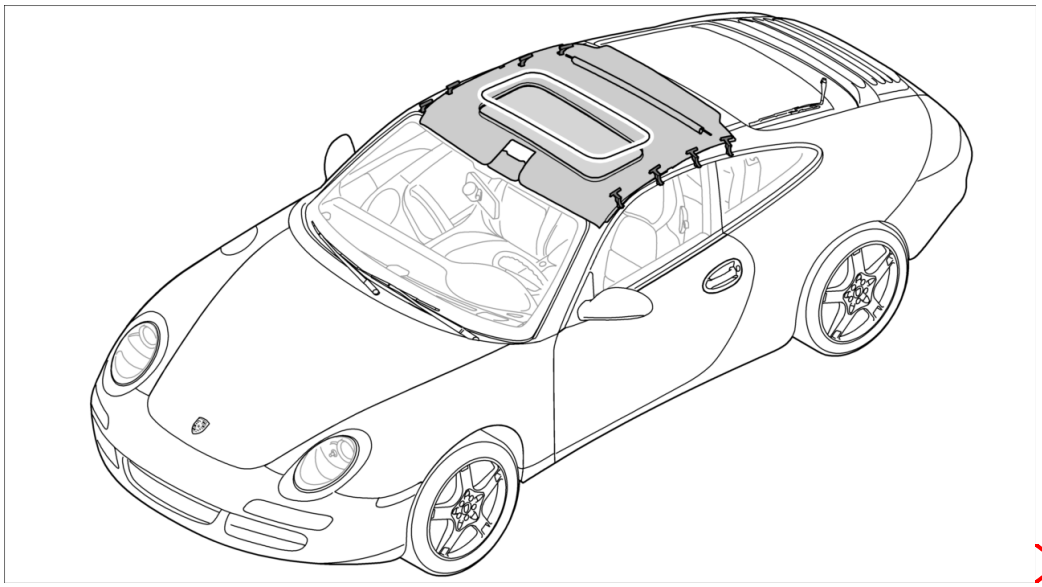


Installing mounting saddle and pivot bearing

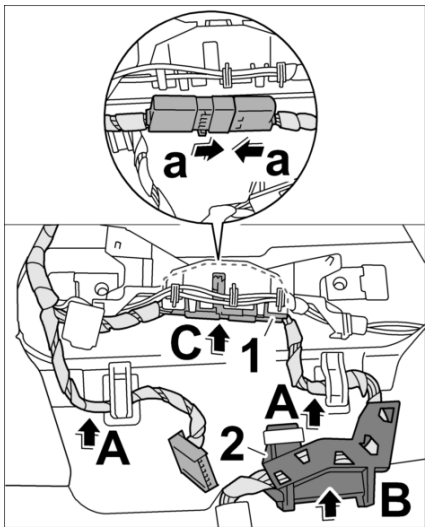
1. Press in pivot bearing **-6-** until it clicks into place **-arrow A-** and tighten with fastening screw **-5-** . Tightening screw **Tightening torque: 5 (3.5 ftlb.) Nm +0.5 (0.5 ftlb.) Nm**
2. Press in cover for pivot bearing **-4-** **-arrow B-** .
3. Position mounting saddle **-3-** at the top on the roof liner **-arrow C-** and secure using the fastening screw **-2-** . Tightening torque **Tightening torque: 2.5 (2 ftlb.) Nm +0.5 (0.5 ftlb.) Nm**
4. Press in cap **-1-** on mounting saddle **-arrow D-** .

Locking electric plug connection

Installation Location:



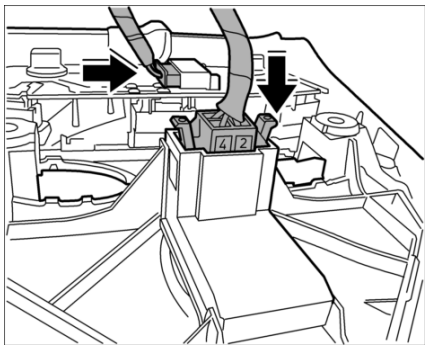
Installation position for headliner



Locking plug connections

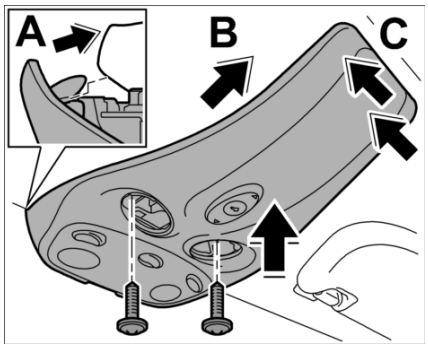
1. Engage electric lines **-arrows A-** and clip in support for wire harness **-2-** **-arrow B-** .
2. Connect electric plug connection for interior mirror **-1-** **-arrows a-** and clip into the support **-arrow C-** .

Installing cover for sunroof motor



Plugging in connectors on interior light and sunroof switch

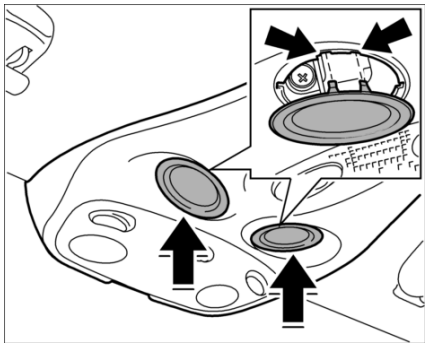
1. Position cover for sunroof motor. Plug in the connectors on the interior light and the sunroof switch until they are felt to engage.



Clipping in cover of sunroof motor

2.

Using the clips, engage cover for sunroof motor on roof frame **-arrow A-** , push back towards sunroof **-arrow B-** and clip in at the rear to the left and right **-arrows C-** .



Clipping in cover for fastening screws

3. Insert cover of fastening screws into the mounts on the sunroof motor cover **-arrows-** and clip it in.
4. Switch on ignition and check that sunroof switch and interior light are working.

top of page

Subsequent work

Subsequent work

1. Install sliding-roof panel. 604019 Removing and installing sliding-roof panel - chapter on "Installing"
2. Install A-pillar trim. 705719 Removing and installing A-pillar trim - "Installing" section
3. Install C-pillar trim. 706819 Removing and installing C-pillar trim - chapter on "installing"

997110, 997111, 997120, 997121, 997410, 997411, 997430, 997431

as of MY 2005
Country C00, C02, C05, C07, C08, C09, C10, C11, C12, C13, C14, C15, C16, C18, C19, C20, C21, C22, C23, C24, C25, C26, C27, C28, C32, C33, C34, C35, C36, C37, C38, C39, C45, C46, C98, C99

WARNUNG

Gefahr des Verlusts der Text-Bild-Zuordnung beim Ausdruck.

- **Aus technischen Gründen kann derzeit nicht ausgeschlossen werden, dass trotz einwandfreier Darstellung auf dem Bildschirm beim Ausdruck der Zusammenhang von Text und zugehörigem Bild verloren geht.**
- **Wird der Fehler nicht bemerkt, besteht die Gefahr, daß Arbeiten nicht korrekt durchgeführt werden und es dadurch zu Personen- und Sachschäden kommt.**

70 85 19 Removing and installing rear roof lining - as of MY 2005

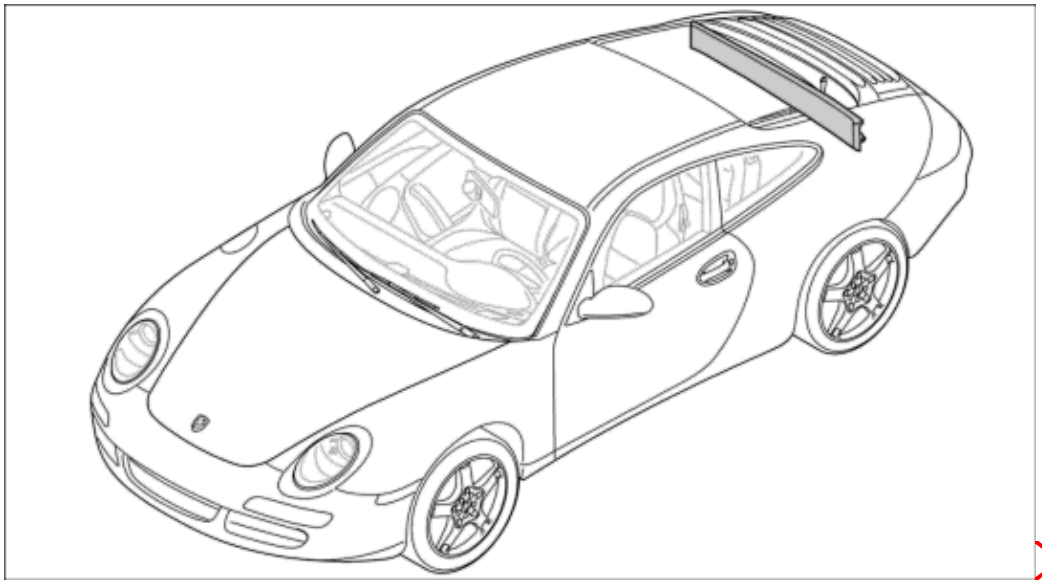
- Removing rear roof lining
- Installing rear roof lining

top of page

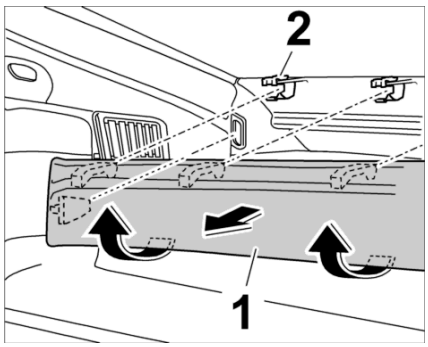
Removing rear roof lining

Removing rear roof trim panel

Installation Location:



Installation location of rear roof trim panel



Removing rear roof trim panel

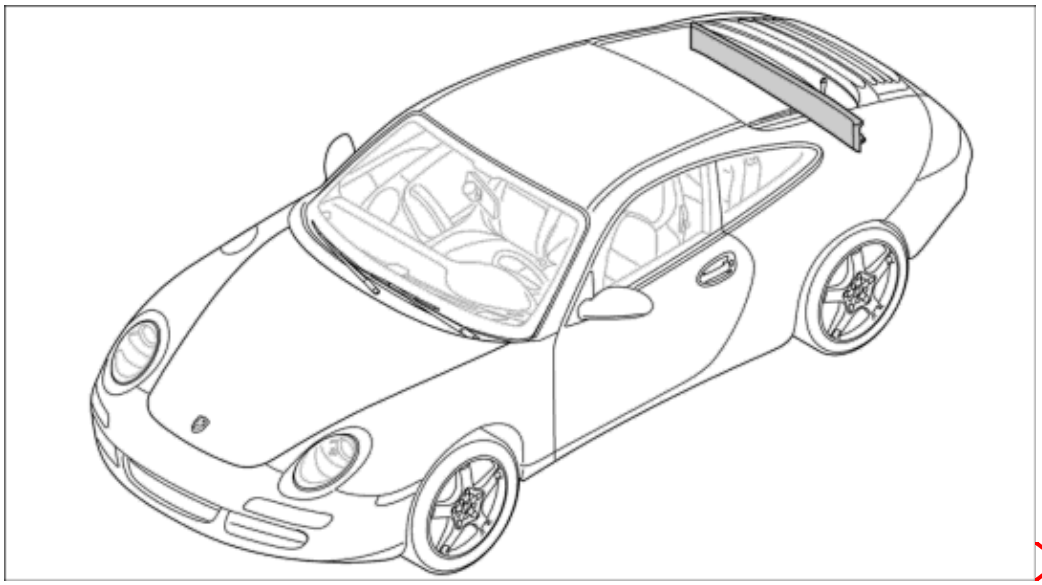
1. Grasp underneath the roof trim panel **-1-** at the side and, pulling in **-direction of arrow-** , carefully remove it from the cable clamps **-2-** .

top of page

Installing rear roof lining

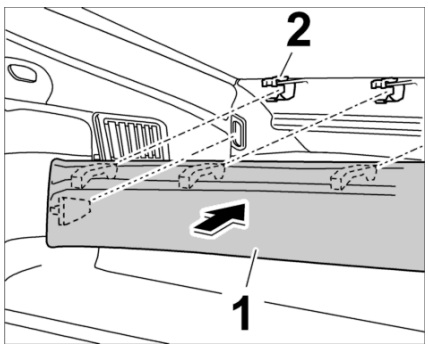
Installing rear roof trim panel

Installation Location:



Installation location of rear roof trim panel

1. Check cable clamps **-2-** and replace if necessary.



Installing rear roof trim panel

2. Position roof trim panel **-1-** and press into place in **-direction of arrow-** ensuring that the pegs engage audibly in the cable clamps **-2-** .

997110, 997111, 997120, 997121, 997410, 997411, 997610, 997611

70 86 19 Removing and installing slide/tilt sunroof trim - as of MY 2005

- Preliminary work
- Removing slide/tilt sunroof trim
- Installing slide/tilt sunroof trim
- Subsequent work

top of page

Preliminary work

Preliminary work

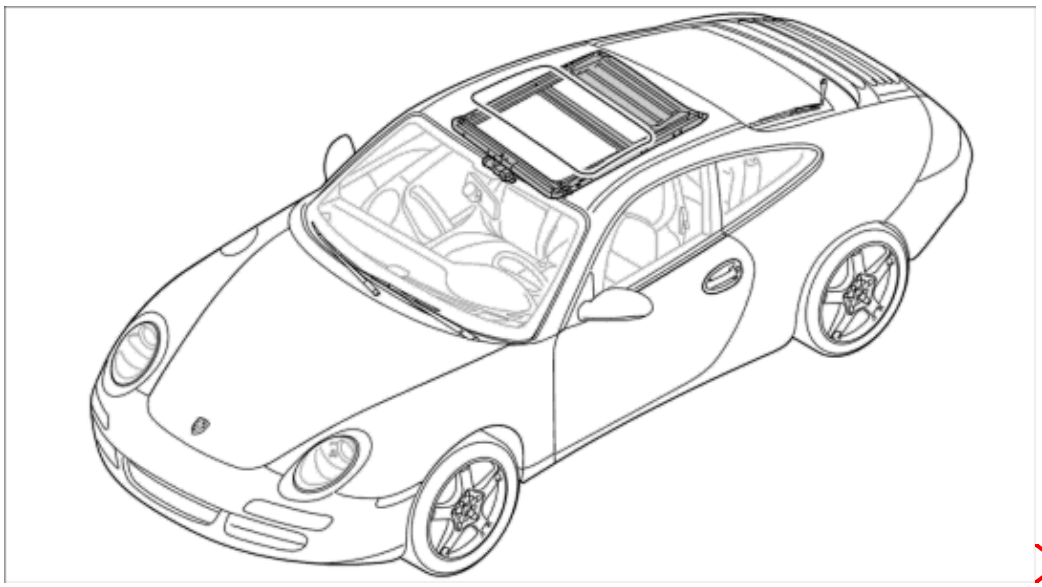
Removing sliding-roof panel 604019 Removing and installing sliding-roof panel - chapter on "Removing"

top of page

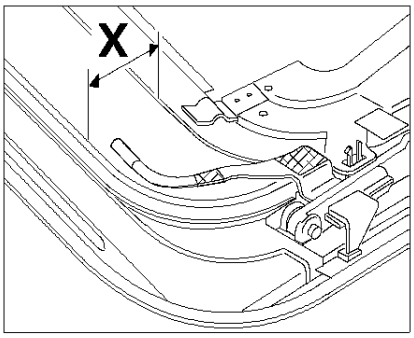
Removing slide/tilt sunroof trim

Removing slide/tilt sunroof trim

Installation Location:

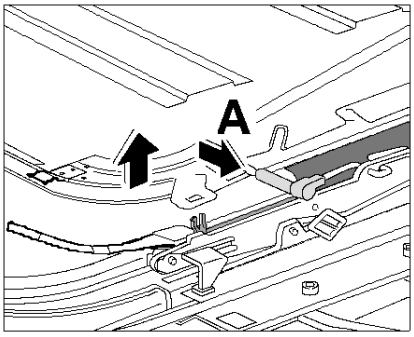


Installation position for slide/tilt sunroof trim



Positioning slide/tilt sunroof trim

1. Position the slide/tilt sunroof trim **-dimension X-** approx. 80 mm in front of the roof edge cut-out.

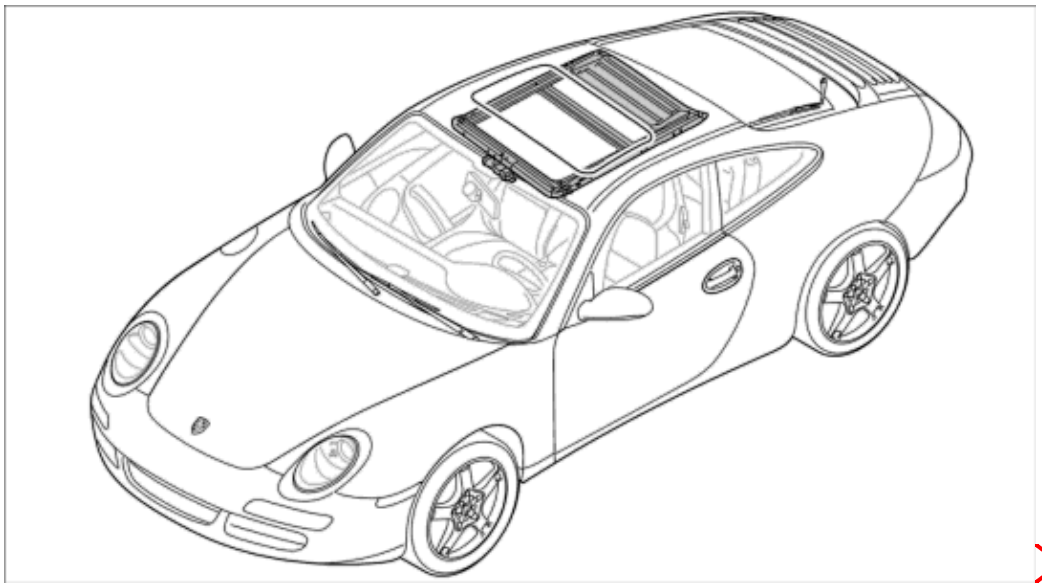


Removing slide/tilt sunroof trim

2. Disengage left and right inner side panels. Pull out the connector springs **-A-** on the gate and carefully pull the slide/tilt sunroof trim upwards.

Additional instructions for removing the inner panels

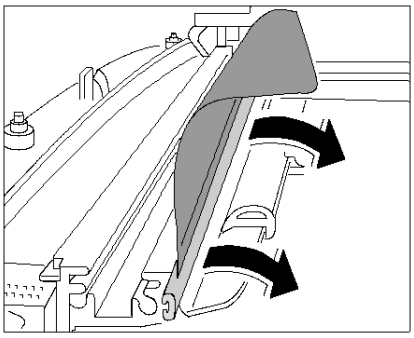
Installation Location:



Installation position for slide/tilt sunroof trim

Note

- *The inner panels must be removed or replaced if the sliding roof panel and slide/tilt sunroof trim is removed and the gate of the roof frame is extended (tilting position).*



Removing inner panel

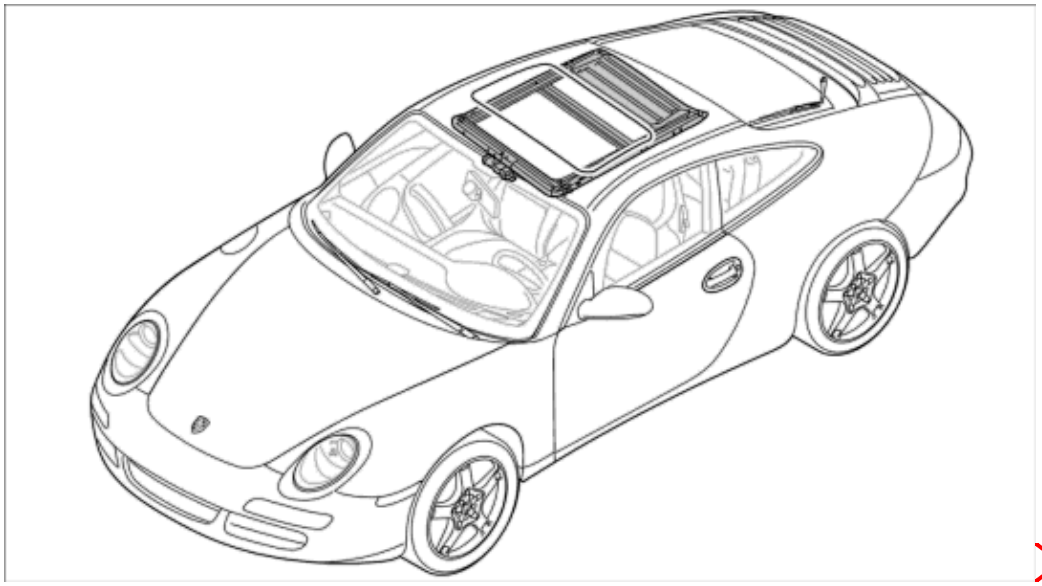
1. Push the sides of the inner panels out of the sliding roof frame inwards (centre of the vehicle).

top of page

Installing slide/tilt sunroof trim

Additional instructions for fitting the inner panels

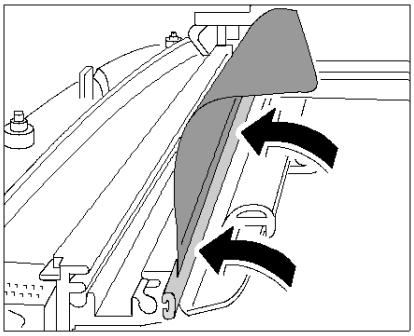
Installation Location:



Installation position for slide/tilt sunroof trim

Note

- *The inner panels must be removed or replaced if the sliding roof panel and slide/tilt sunroof trim is removed and the gate of the roof frame is extended (tilting position).*

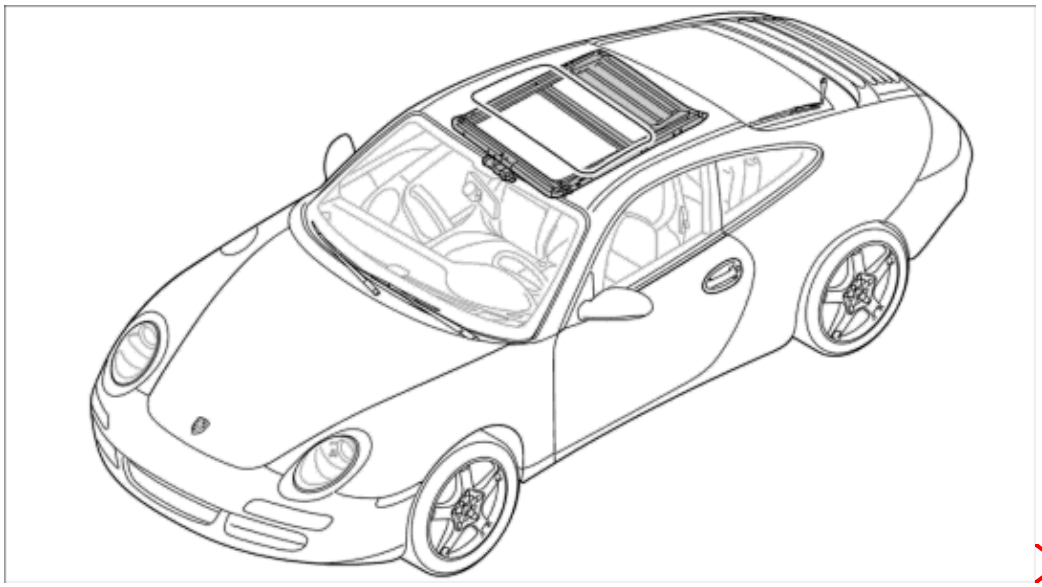


Installing inner panel

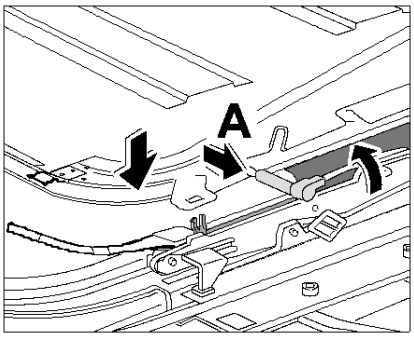
1. Press the sides of the inner panel into the sliding roof frame. Check function by sliding longitudinally.

Installing slide/tilt sunroof trim

Installation Location:

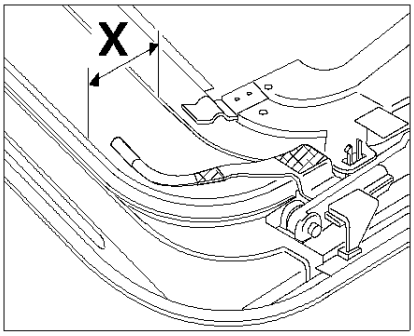


Installation position for slide/tilt sunroof trim



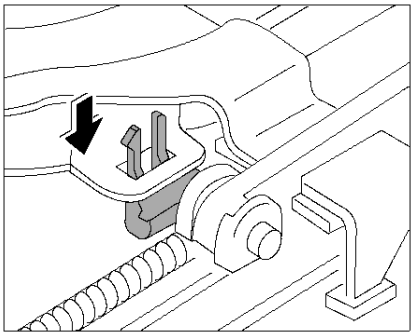
Installing slide/tilt sunroof trim

1. Pull out the connector springs **-A-** on the gate and push in slide/tilt sunroof trim. Push inner panels under the sheetmetal panel of the slide/tilt sunroof trim.



Positioning slide/tilt sunroof trim

2. Position the slide/tilt sunroof trim **-dimension X-** approx. 80 mm in front of the roof edge cut-out.



Engaging slide/tilt sunroof trim

3. Engage the left and right-hand inner side panels in the slide/tilt sunroof trim.

top of page

Subsequent work

Subsequent work

Install sliding-roof panel. 604019 Removing and installing sliding-roof panel - chapter on "Installing"

997110, 997111, 997120, 997121, 997410, 997411, 997430, 997431

as of MY 2005
Country C00, C02, C05, C07, C08, C09, C10, C11, C12, C13, C14, C15, C16, C18, C19, C20, C21, C22, C23, C24, C25, C26, C27, C28, C32, C33, C34, C35, C36, C37, C38, C39, C45, C46, C98, C99

WARNUNG

Gefahr des Verlusts der Text-Bild-Zuordnung beim Ausdruck.

- **Aus technischen Gründen kann derzeit nicht ausgeschlossen werden, dass trotz einwandfreier Darstellung auf dem Bildschirm beim Ausdruck der Zusammenhang von Text und zugehörigem Bild verloren geht.**
- **Wird der Fehler nicht bemerkt, besteht die Gefahr, daß Arbeiten nicht korrekt durchgeführt werden und es dadurch zu Personen- und Sachschäden kommt.**

Vergleichen Sie deshalb nach dem Druckvorgang unbedingt die Ausdrucke mit der Bildschirmdarstellung. Korrigieren Sie die Ausdrucke im Fehlerfall so, daß der Inhalt der Bildschirmdarstellung zutreffend wiedergegeben wird.

WARNING

Danger of losing text-figure correspondence when printing out.

72 01 19 Removing and installing front seat - as of MY 2005

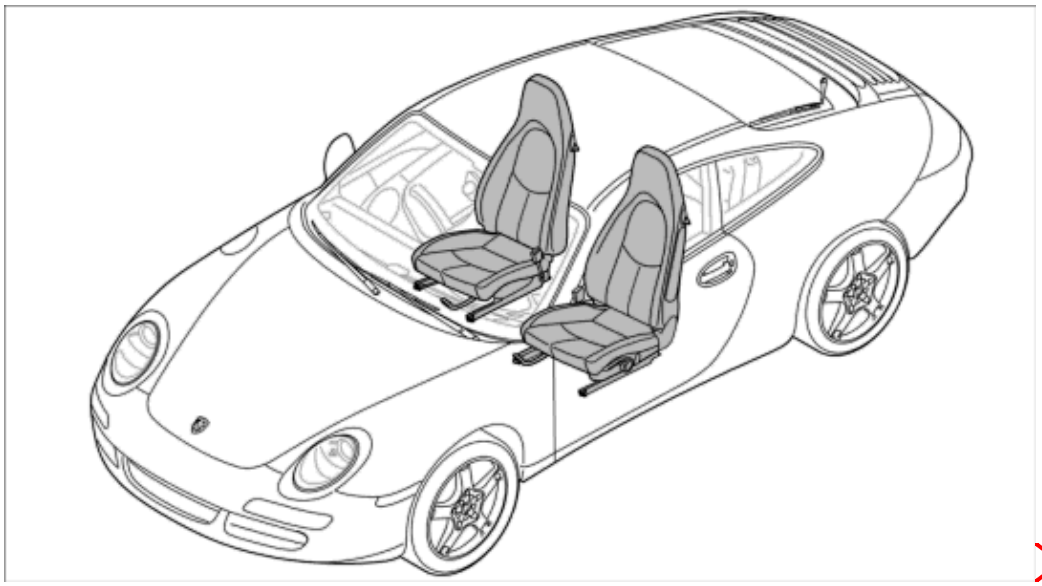
- Removing front seat
- Installing front seat

top of page

Removing front seat

Removing seat rail cover

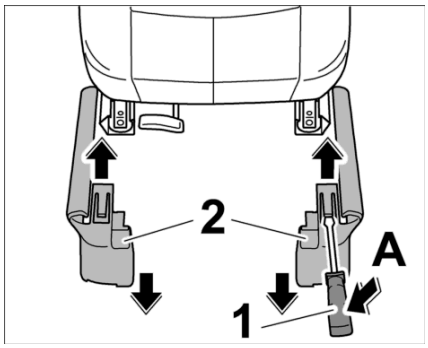
Installation Location:



Overview, removing and installing front seat

Note

Caution! Locking lugs can break.

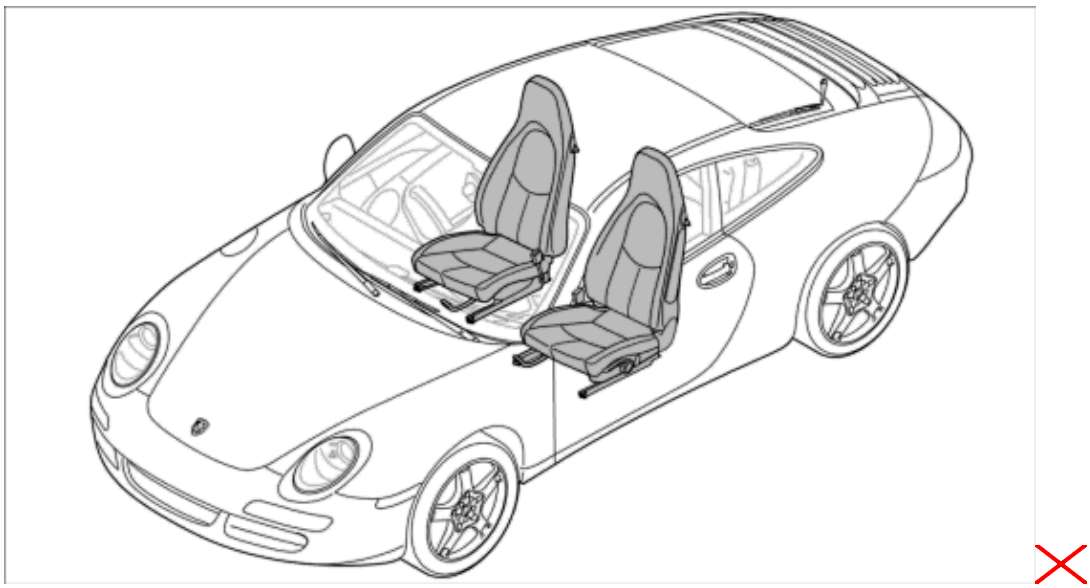


Removing seat rail cover

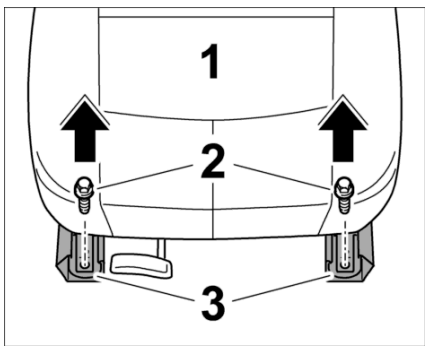
1. Insert a screwdriver **-1-** under the lugs and press upwards slightly **-arrow A-** .
2. Pull seat rail covers **-2-** on right and left seat rails off in forward direction.

Undoing seat screws at front

Installation Location:



Overview, removing and installing front seat

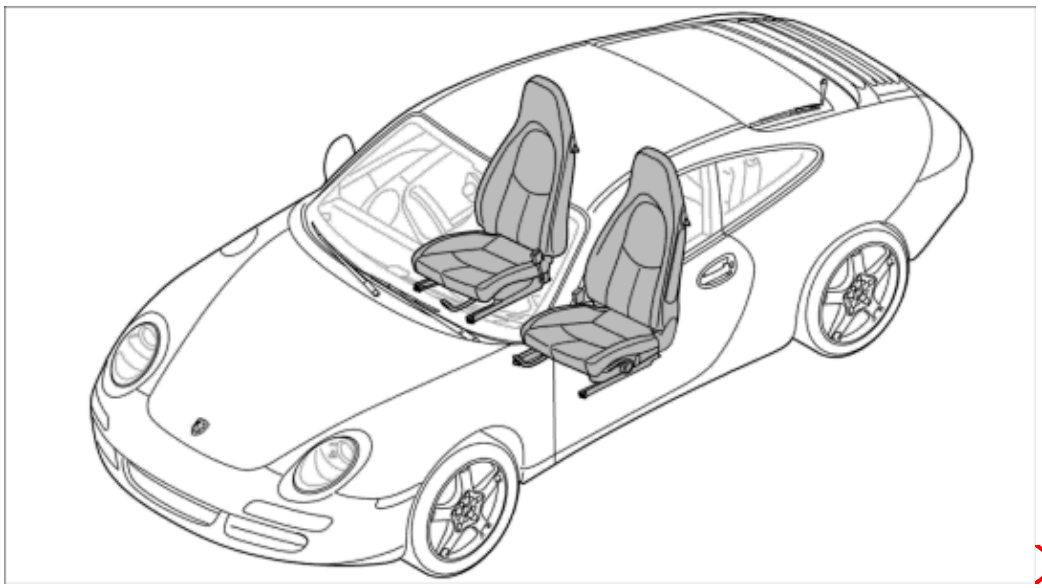


Undoing seat screws at front

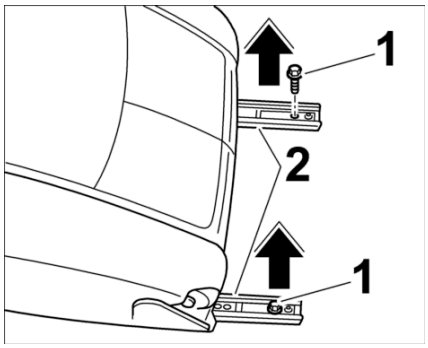
1. Move seat **-1-** to its rear limit position and undo the front fastening screws **-2-** from the right and left seat rails **-3-** .

Undoing seat screws at rear

Installation Location:



Overview, removing and installing front seat

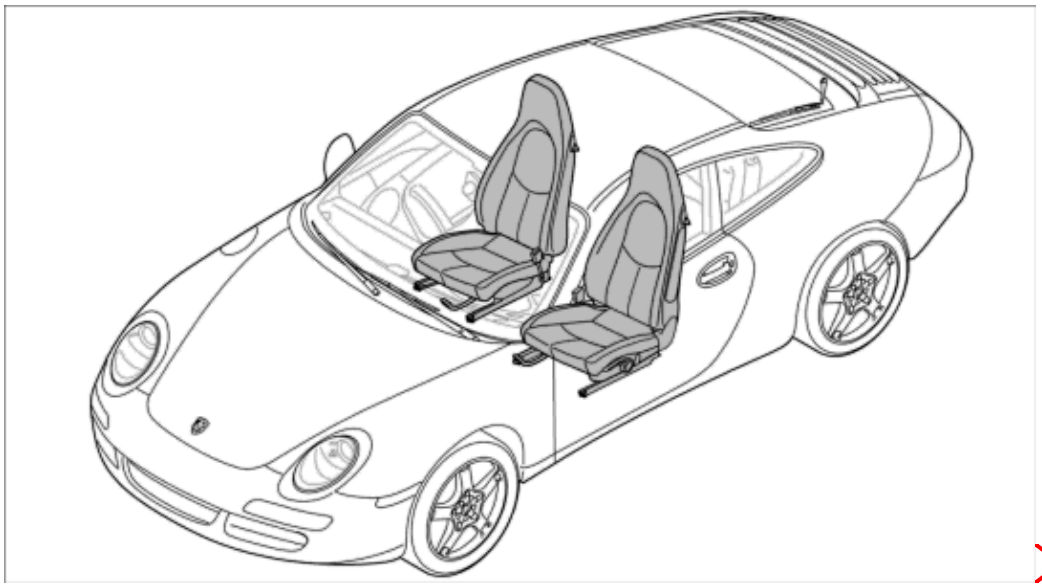


Undoing seat screws at rear

1. Move seat to its front limit position and undo the fastening screws **-1-** from the right and left seat rails **-2-** .

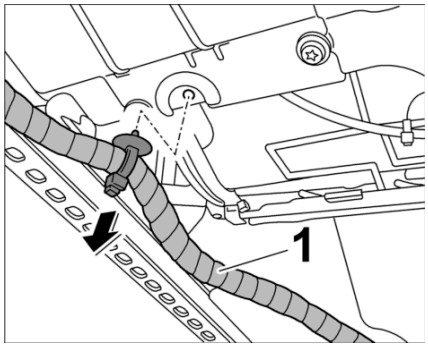
Releasing electrical wire

Installation Location:



Overview, removing and installing front seat

1. Disconnect battery. *271000 Work instructions after disconnecting the battery*

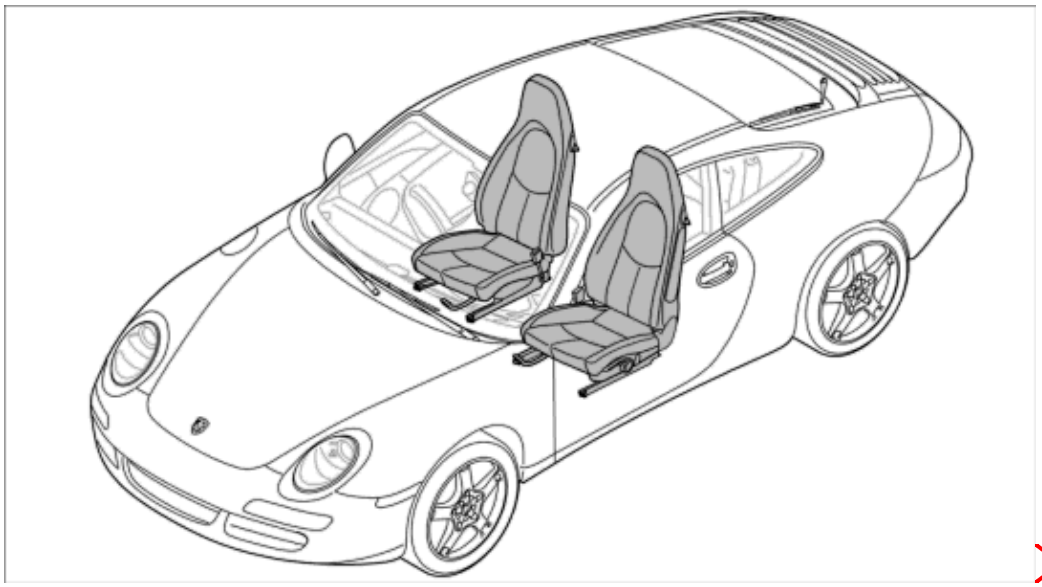


Releasing electrical wire

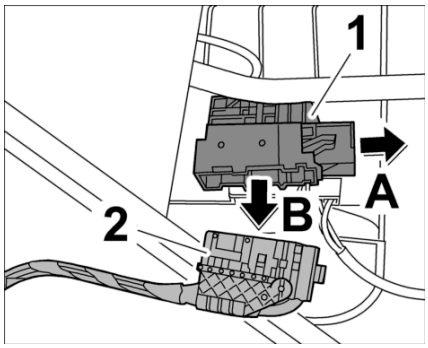
2. Tilt seat backwards.
3. Unclip wiring harness **-1-** .

Disconnecting central plug

Installation Location:



Overview, removing and installing front seat

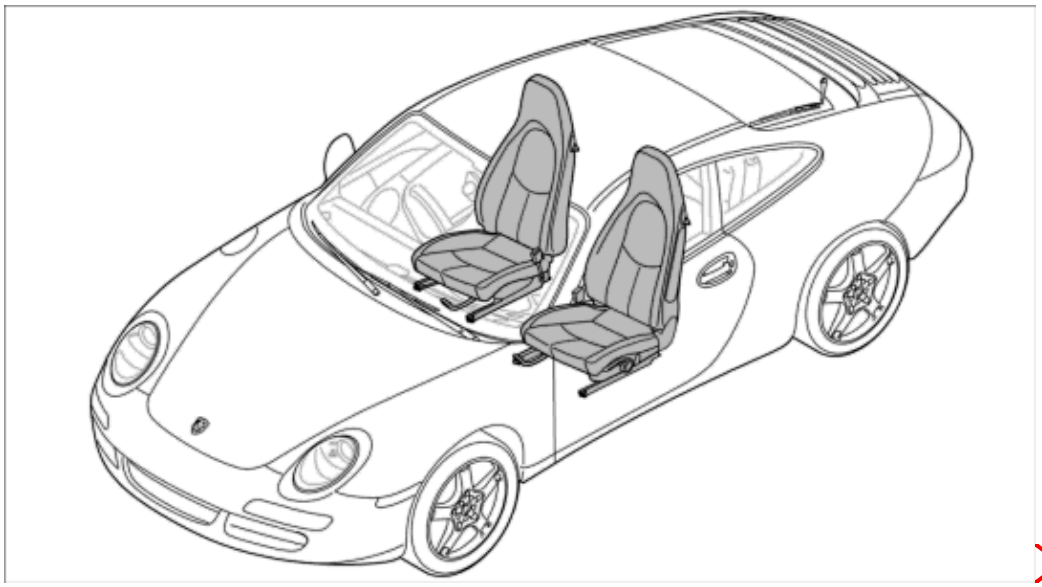


Disconnecting central plug

1. Release plug connector locking device **-1-** on the side **-arrow A-** and separate the plug connection **-2- -arrow B-** .

Disconnecting electrical plug connection (power seat)

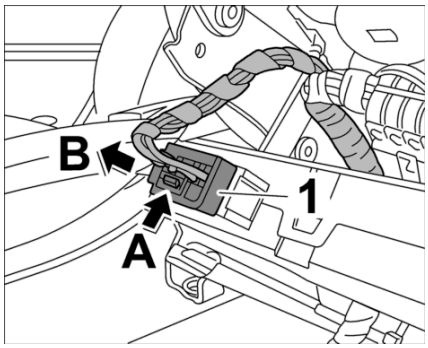
Installation Location:



Overview, removing and installing front seat

Note

Only for vehicles with electrically adjustable seat



Disconnecting seat memory plug connection

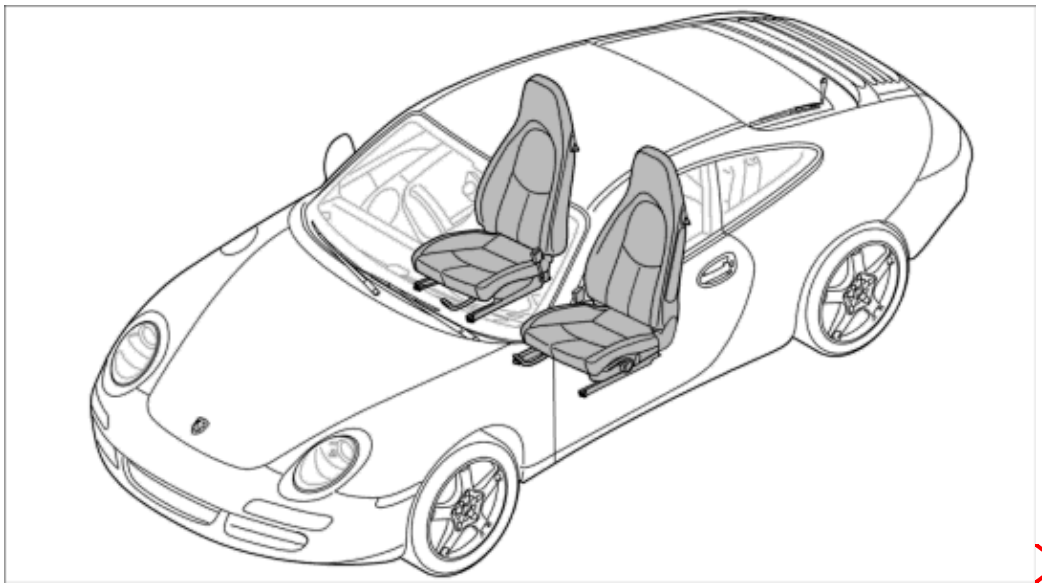
1. Release electrical plug connection **-1-** by activating the locking tab **-arrow A-** and remove from seat memory control module **-arrow B-** .
2. Remove front seat.

top of page

Installing front seat

Fastening electric line

Installation Location:



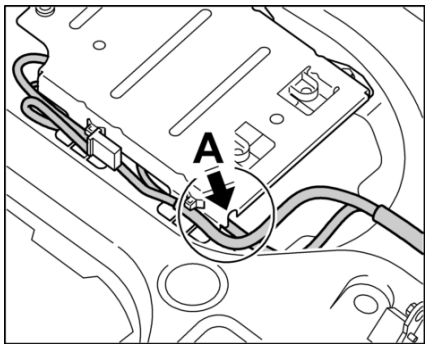
Overview, removing and installing front seat

WARNING

If the wiring at the telephone holder is not routed correctly, the wires can catch at the seat.

- **Danger of destroying/damaging wire harness for the telephone control unit**

The wire harness at the telephone holder must not be routed over the edge.



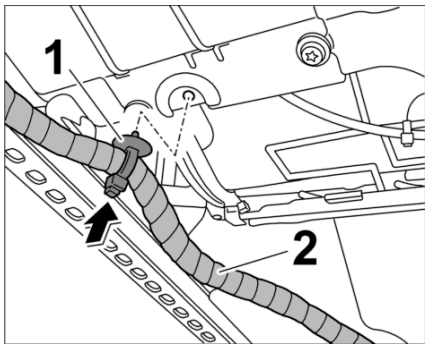
Routing of wire harness

Note

The routing of the wire harness for the control unit must be checked before installing the seat.
The wire harness must not be routed over the cover, but should be laid along side the cover **-A-** .

Note

Before installing and securing the front seat, make sure the electric lines are not pinched or damaged.

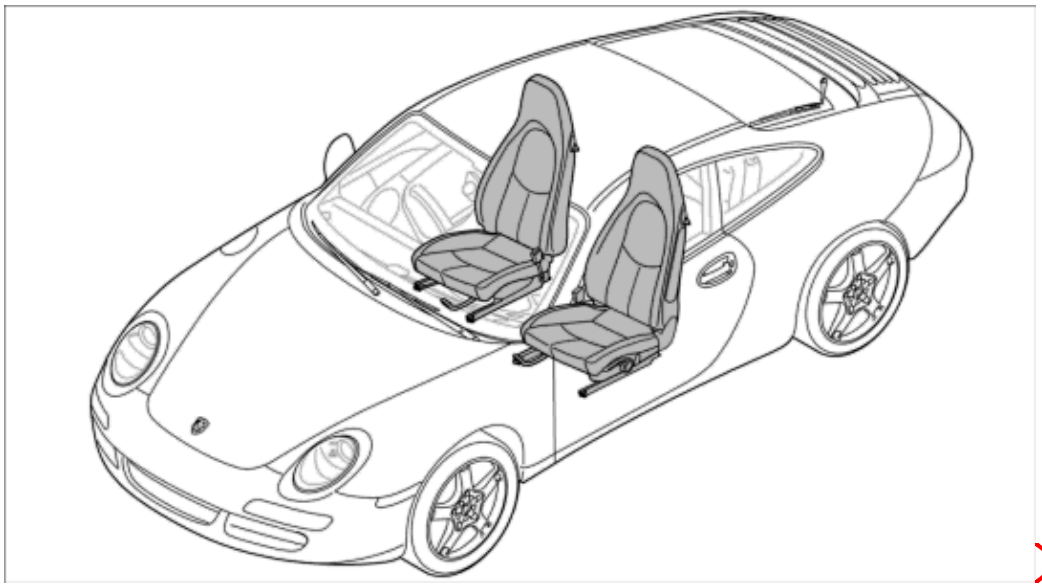


Fastening electric line

1. Place front seat in car and tilt backwards.
2. Check tie-wrap **-1-** , replace tie-wrap **-1-** if necessary.
3. Clip wire harness **-2-** into place.

Connecting electrical plug connection (power seat)

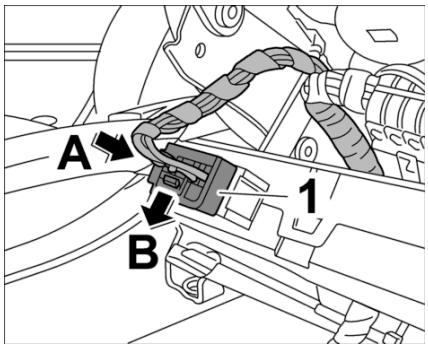
Installation Location:



Overview, removing and installing front seat

Note

Only for vehicles with electrically adjustable seat

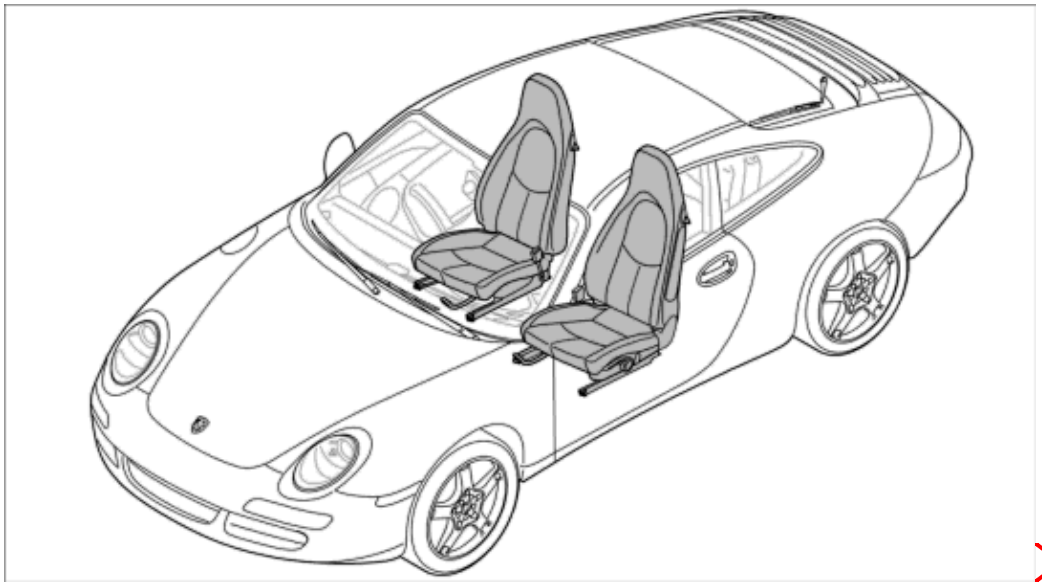


Locking plug connection for seat memory

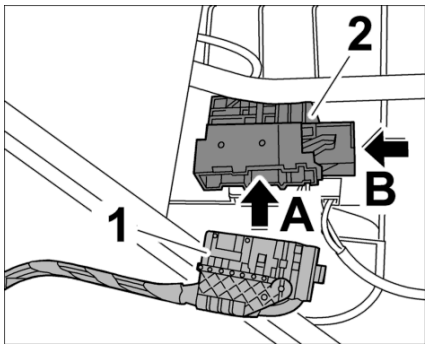
1. Push in electrical plug connection **-1-** **-arrow A-** until the locking tab audibly engages **-arrow B-** .

Locking central plug

Installation Location:



Overview, removing and installing front seat



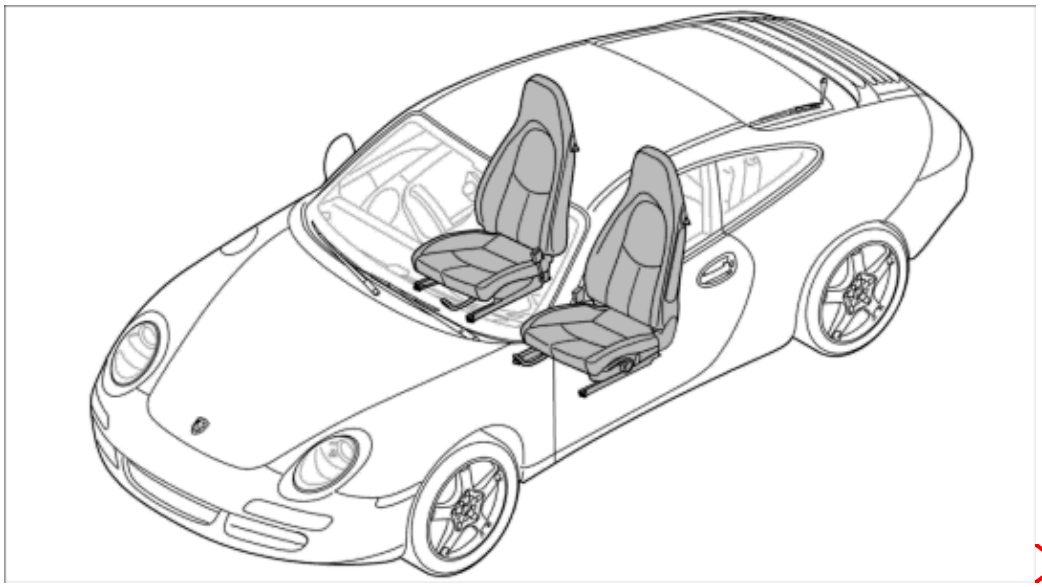
Locking central plug

1. Join the plug connection **-1-** **-arrow A-** , press in plug connector locking device **-2-** on the side **-arrow B-**

.

Tightening seat screws at rear

Installation Location:



Overview, removing and installing front seat

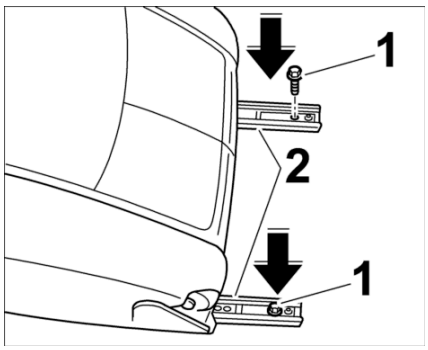
DANGER

Loosen the safety-related threaded joint.

- **Danger of injury if front seat is not screwed down correctly.**

Always replace fastening screws for the front seat after customer service and reworking.

It is not permissible to make alterations to the micro-encapsulated screws (e.g., use lubricant, loosen bolts, and screw them down again).



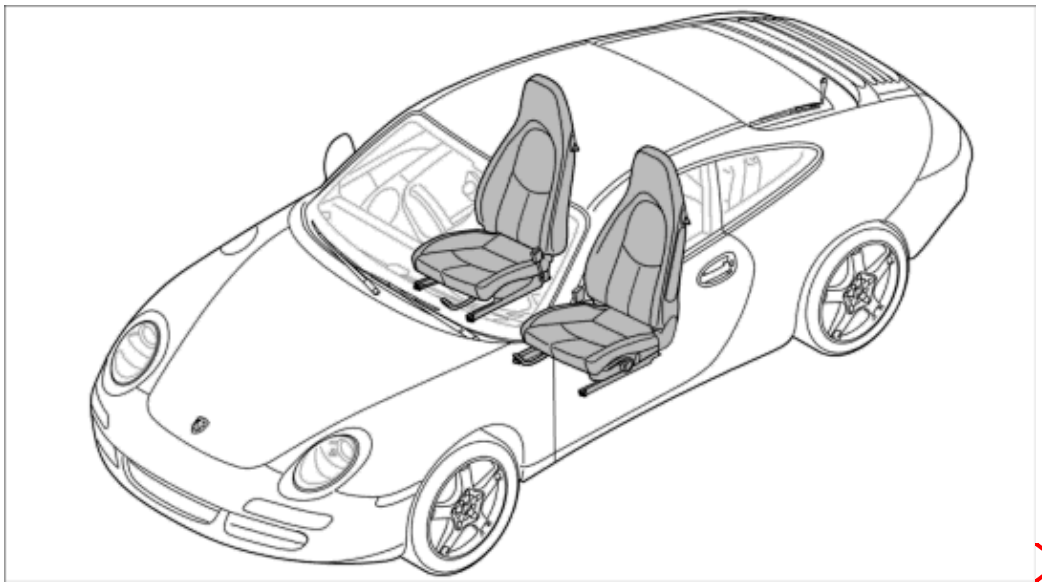
Tightening seat screws at rear

1. Tip seat forwards and position seat rails on the seat baseframe.

2. Screw left and right fastening screws **-1-** into seat bracket **-2-** and tighten to specified tightening torque **Micro-encapsulated: 50 (37 ftlb.) Nm** .

Tightening seat screws at the front

Installation Location:



Overview, removing and installing front seat

DANGER

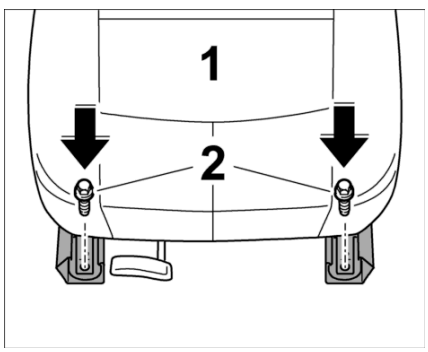
Loosen the safety-related threaded joint.

- **Danger of injury if front seat is not screwed down correctly.**

Always replace fastening screws for the front seat after customer service and reworking.

It is not permissible to make alterations to the micro-encapsulated screws (e.g., use lubricant, loosen bolts, and screw them down again).

1. Connect the battery . *Work instructions after disconnecting the battery*

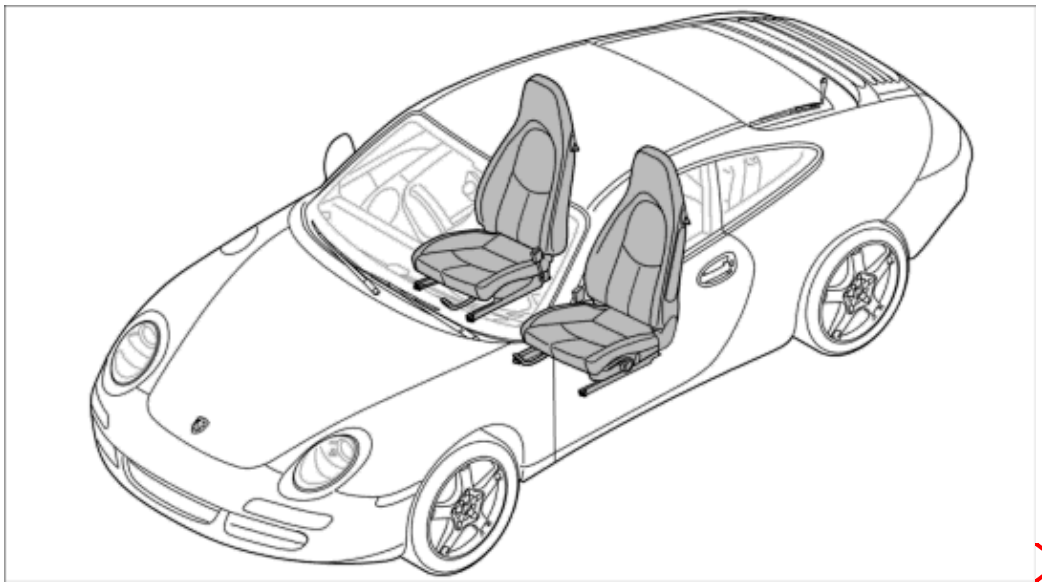


Tightening seat screws at the front

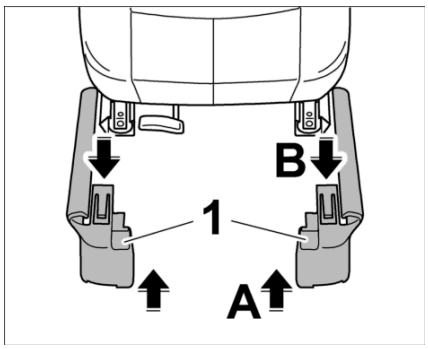
2. Move seat **-1-** to rear end position and screw down front fastening screws **-2-** to specified tightening torque **Micro-encapsulated: 50 (37 ftlb.) Nm** .

Fit seat rail cover

Installation Location:



Overview, removing and installing front seat



Fitting seat rail cover

1. Push seat rail cover **-1-** into front end of the left and right seat rails **-arrow A-** until the locking tab audibly engages **-arrow B-** .

997111, 997121, 997311, 997321, 997411, 997431, 997611, 997621

as of MY 2005
Country C00, C02, C05, C07, C08, C09, C10, C11, C12, C13, C14, C15, C16, C18, C19, C20, C21, C22, C23, C24, C25, C26, C27, C28, C32, C33, C34, C35, C36, C37, C38, C39, C45, C46, C98, C99

WARNUNG

72 01 19 Removing and installing front seat - as of MY 2005

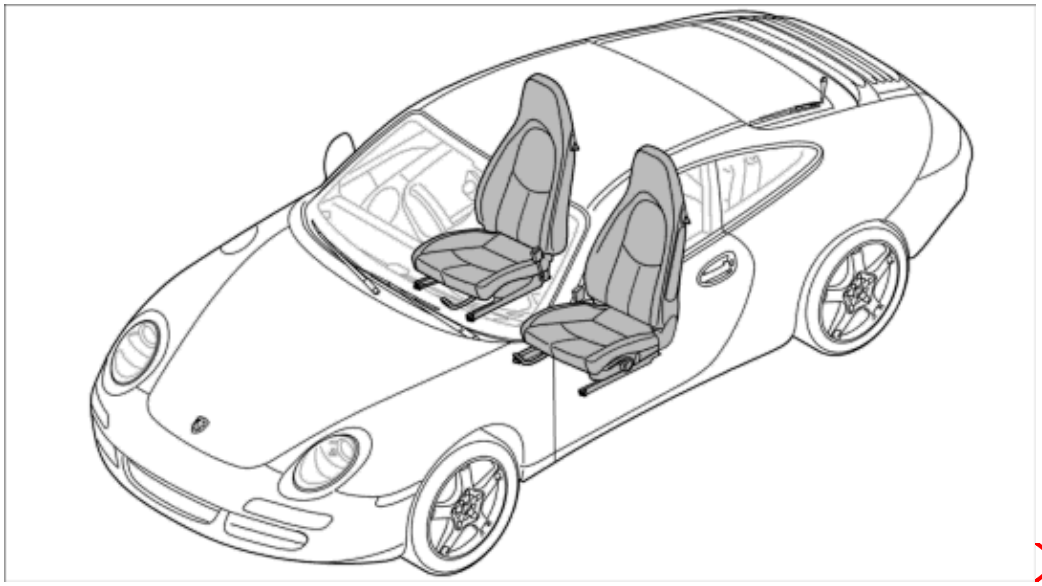
- Removing front seat
- Installing front seat
- Subsequent work

top of page

Removing front seat

Removing seat rail cover

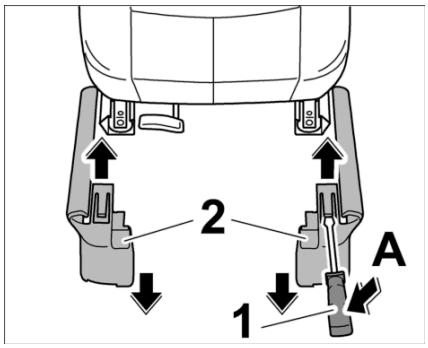
Installation Location:



Overview, removing and installing front seat

Note

Caution! Locking lugs can break.

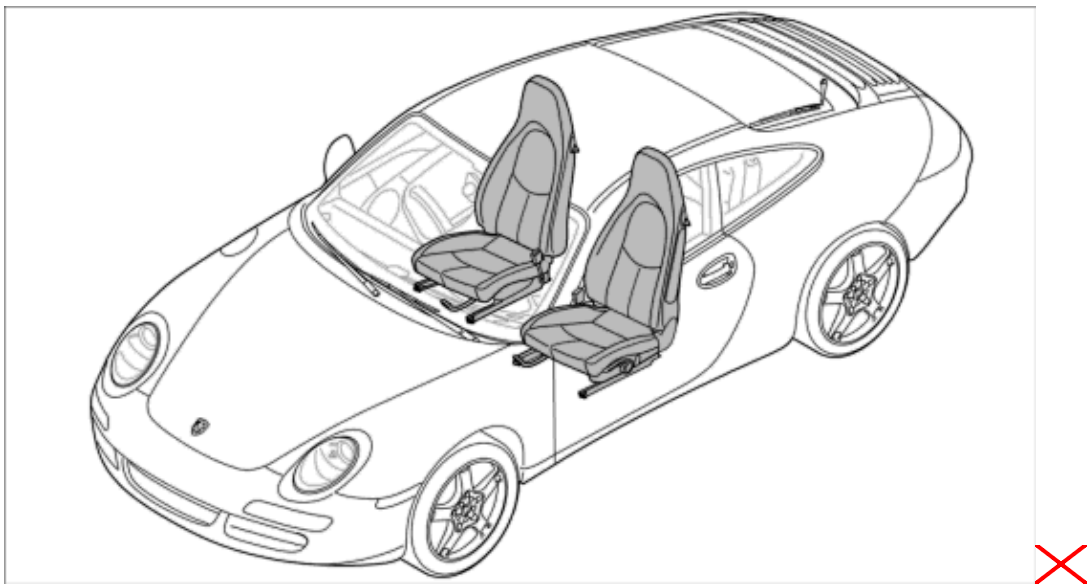


Removing seat rail cover

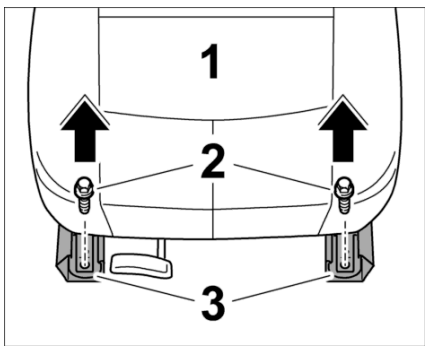
1. Insert a screwdriver **-1-** under the lugs and press upwards slightly **-arrow A-** .
2. Pull seat rail covers **-2-** on right and left seat rails off in forward direction.

Undoing seat screws at front

Installation Location:



Overview, removing and installing front seat

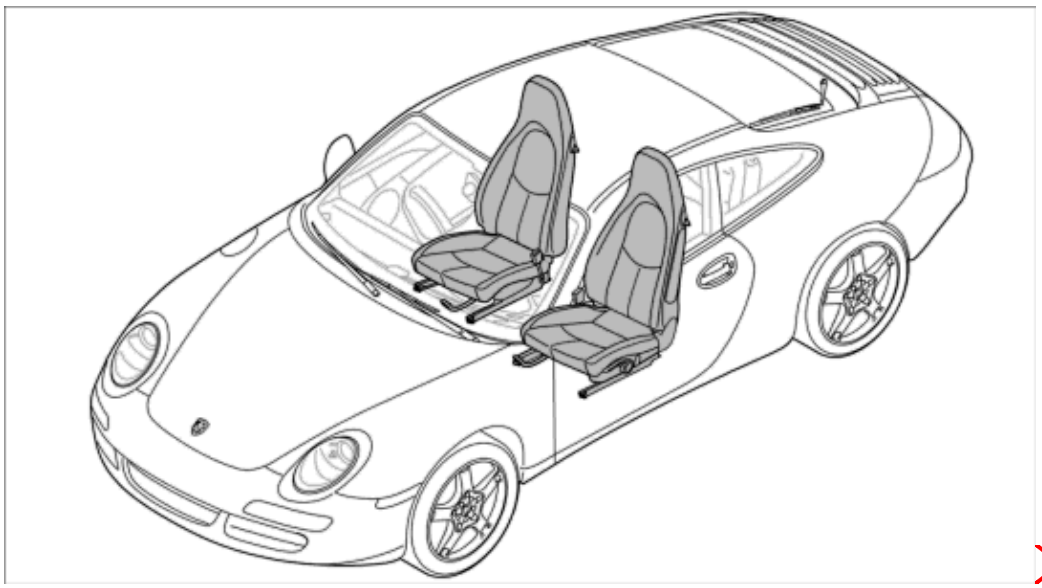


Undoing seat screws at front

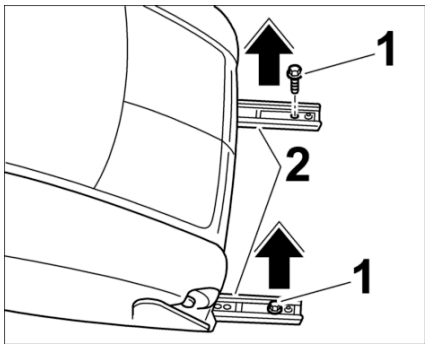
1. Move seat **-1-** to its rear limit position and undo the front fastening screws **-2-** from the right and left seat rails **-3-** .

Undoing seat screws at rear

Installation Location:



Overview, removing and installing front seat

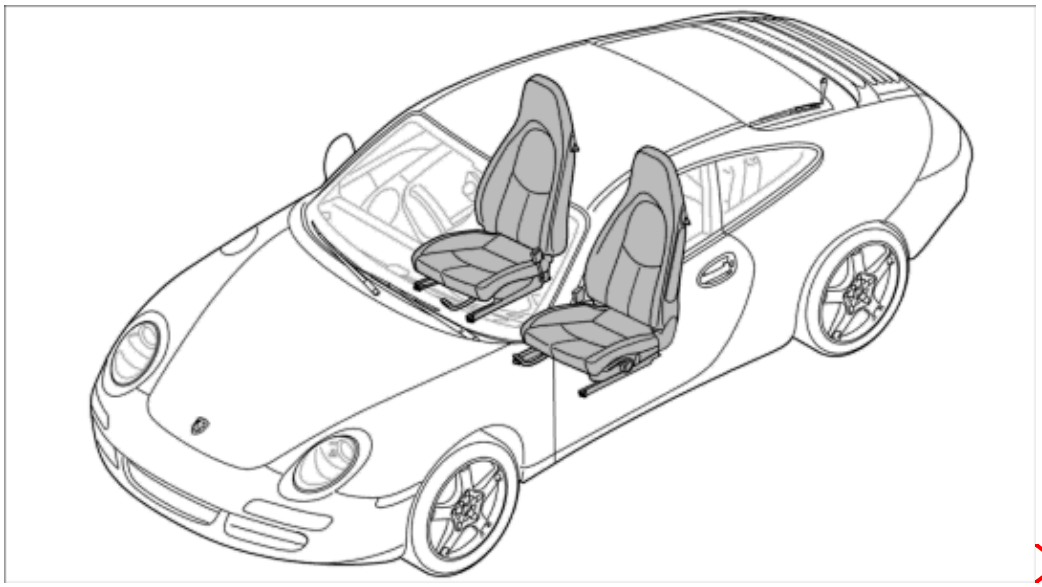


Undoing seat screws at rear

1. Move seat to its front limit position and undo the fastening screws **-1-** from the right and left seat rails **-2-** .

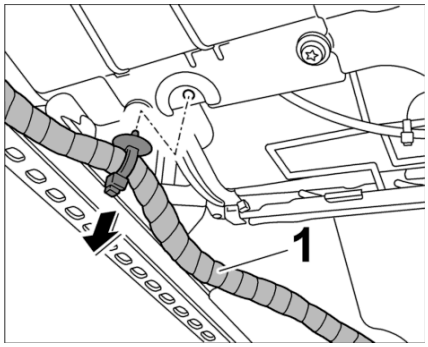
Releasing electrical wire

Installation Location:



Overview, removing and installing front seat

1. Disconnect battery. *271000 Work instructions after disconnecting the battery*

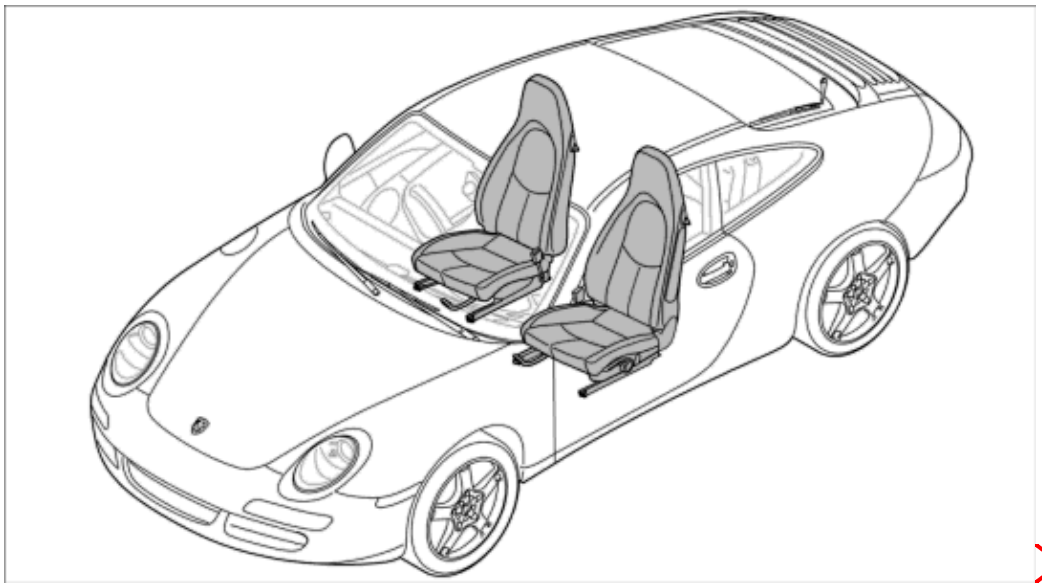


Releasing electrical wire

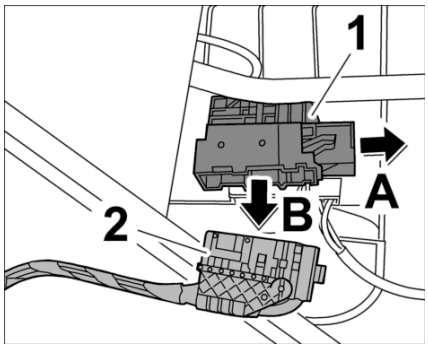
2. Tilt seat backwards.
3. Unclip wiring harness **-1-** .

Disconnecting central plug

Installation Location:



Overview, removing and installing front seat

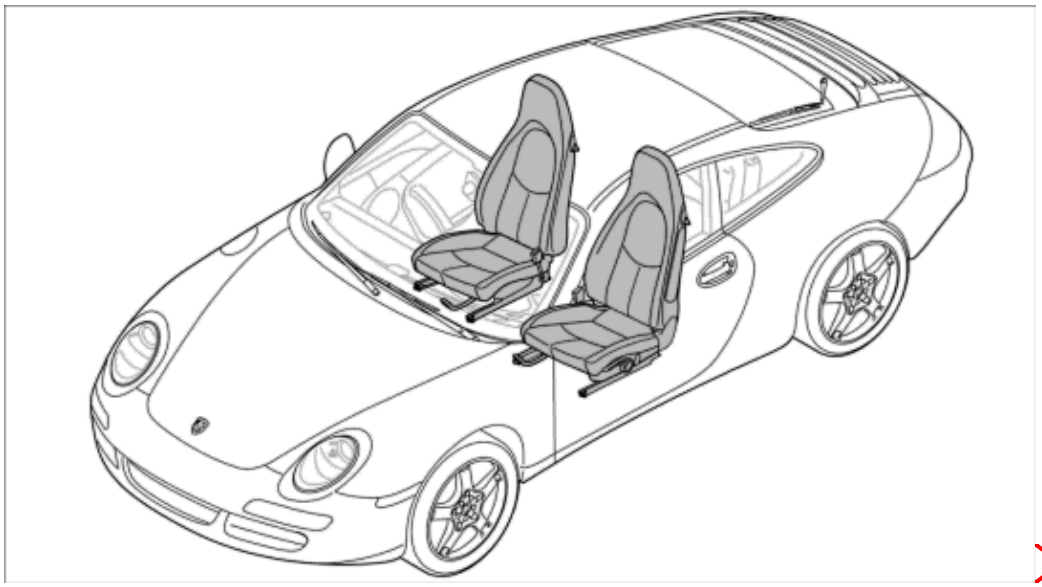


Disconnecting central plug

1. Release plug connector locking device **-1-** on the side **-arrow A-** and separate the plug connection **-2- -arrow B-** .

Disconnecting electrical plug connection (power seat)

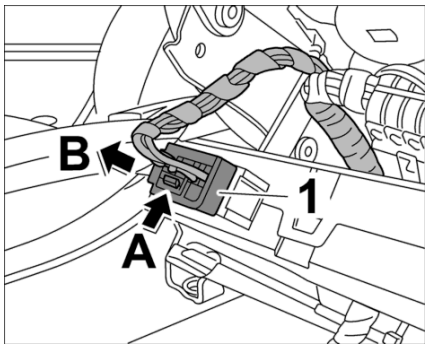
Installation Location:



Overview, removing and installing front seat

Note

Only for vehicles with electrically adjustable seat

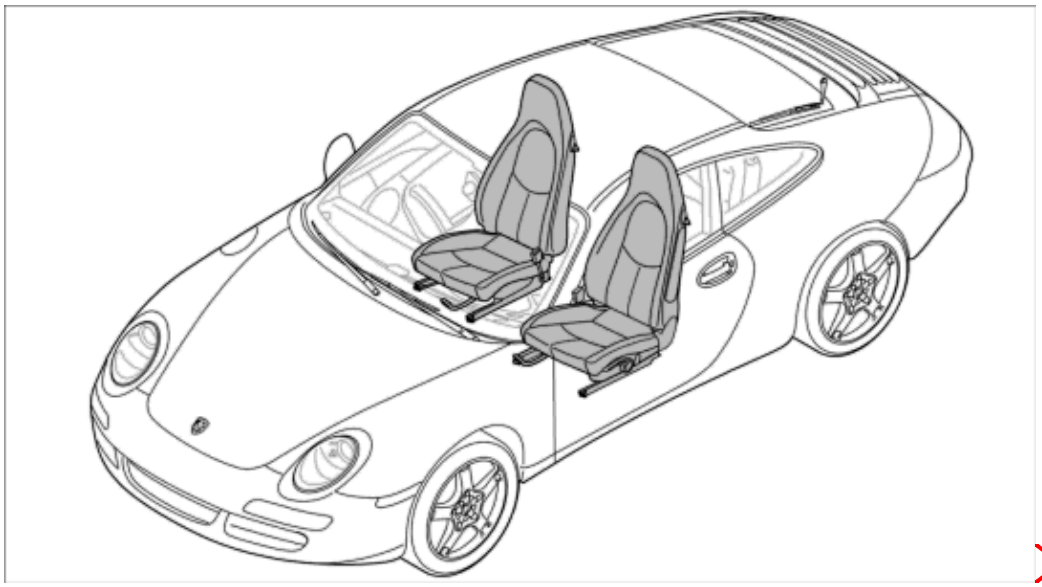


Disconnecting seat memory plug connection

1. Release electrical plug connection **-1-** by activating the locking tab **-arrow A-** and remove from seat memory control module **-arrow B-** .
2. Remove front seat.

Disconnecting the electrical plug connection of the AWS control module

Installation Location:



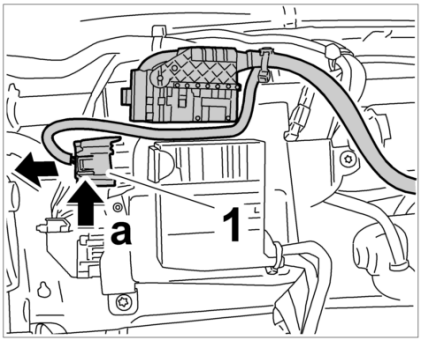
Overview, removing and installing front seat

Note

- *Only for USA/Canada version vehicles.*

Note

- *Passenger's seat only.*



Disconnecting the plug connection of the AWS control module

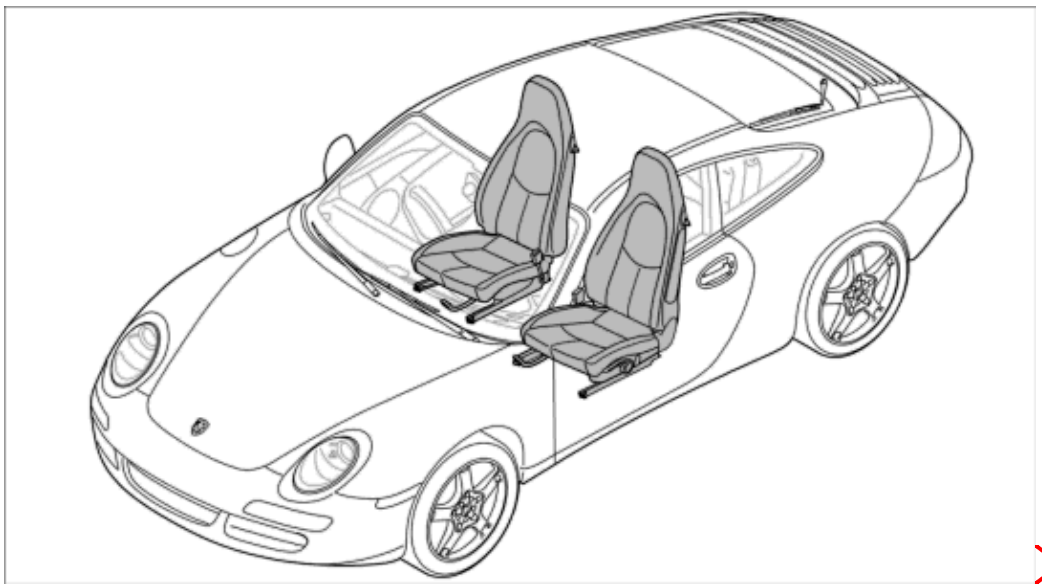
1. Release electric connector **-1-** by pressing the lug **-arrow a-** and pull off from control module.

top of page

Installing front seat

Fastening electric line

Installation Location:



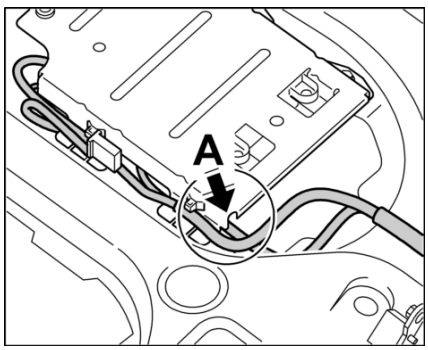
Overview, removing and installing front seat

WARNING

If the wiring at the telephone holder is not routed correctly, the wires can catch at the seat.

- **Danger of destroying/damaging wire harness for the telephone control unit**

The wire harness at the telephone holder must not be routed over the edge.



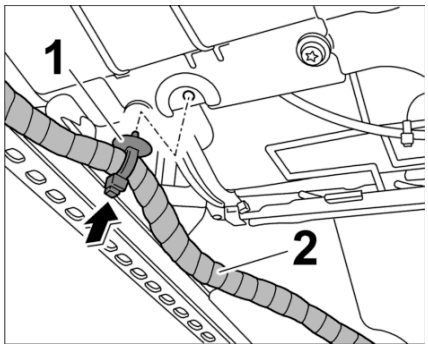
Routing of wire harness

Note

The routing of the wire harness for the control unit must be checked before installing the seat.
The wire harness must not be routed over the cover, but should be laid along side the cover **-A-** .

Note

Before installing and securing the front seat, make sure the electric lines are not pinched or damaged.

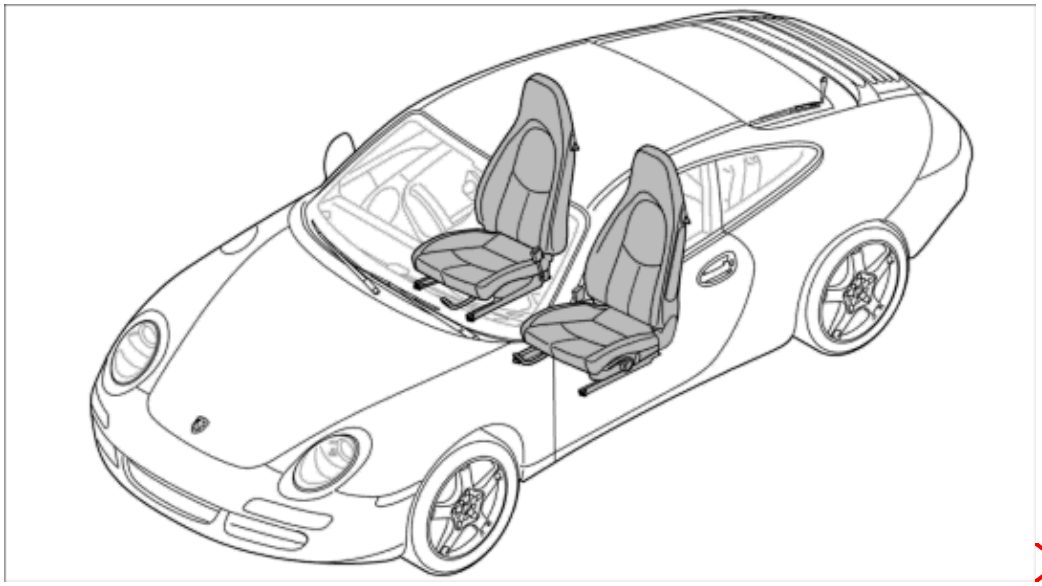


Fastening electric line

1. Place front seat in car and tilt backwards.
2. Check tie-wrap **-1-** , replace tie-wrap **-1-** if necessary.
3. Clip wire harness **-2-** into place.

Locking the electrical plug connection of the AWS control module

Installation Location:



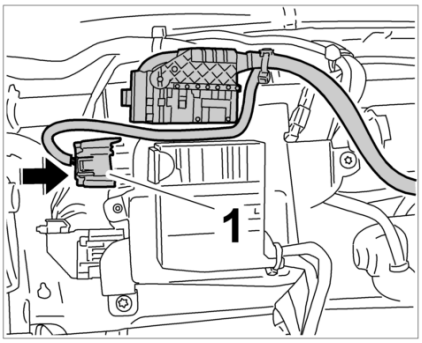
Overview, removing and installing front seat

Note

- *Only for USA/Canada version vehicles.*

Note

- *Passenger's seat only.*

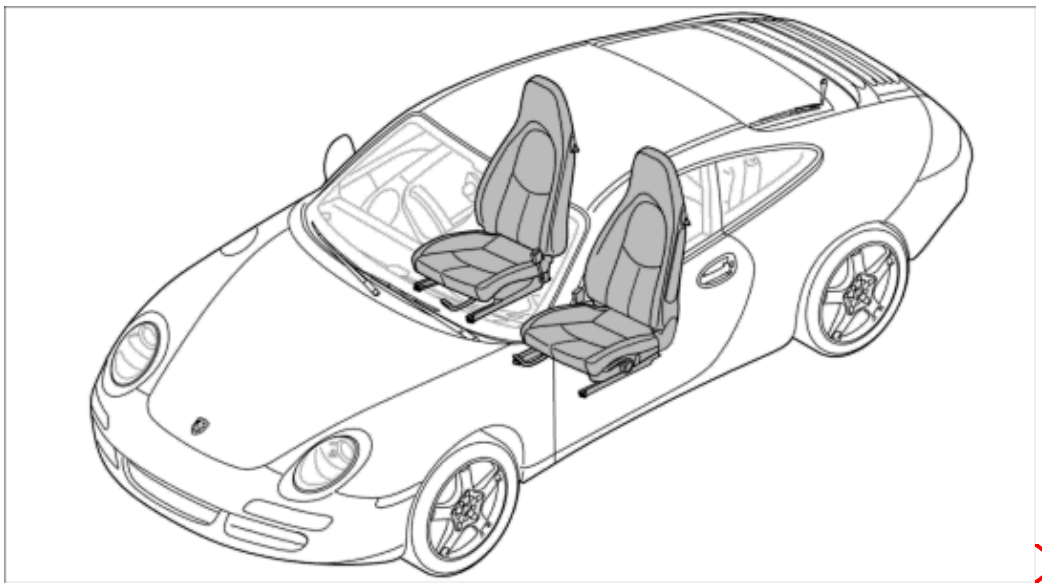


Locking the plug connection of the AWS control module

1. Push electric connector **-1-** onto AWS control module until it is felt to engage.

Connecting electrical plug connection (power seat)

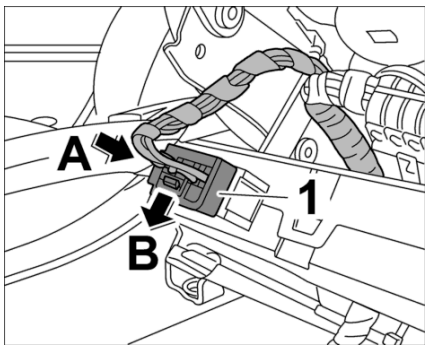
Installation Location:



Overview, removing and installing front seat

Note

Only for vehicles with electrically adjustable seat

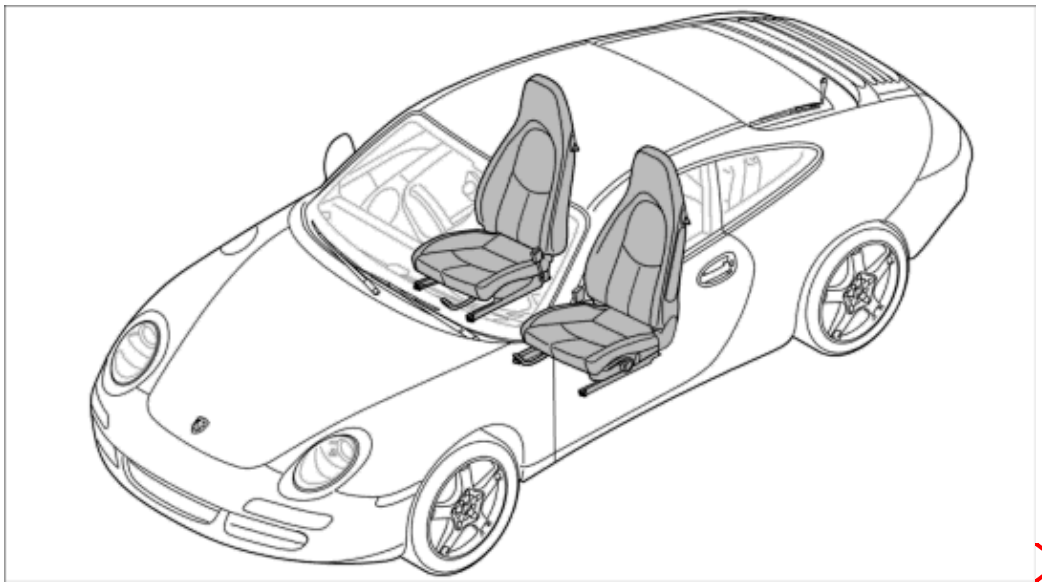


Locking plug connection for seat memory

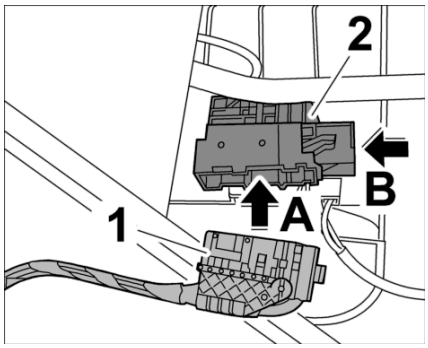
1. Push in electrical plug connection **-1-** **-arrow A-** until the locking tab audibly engages **-arrow B-** .

Locking central plug

Installation Location:



Overview, removing and installing front seat

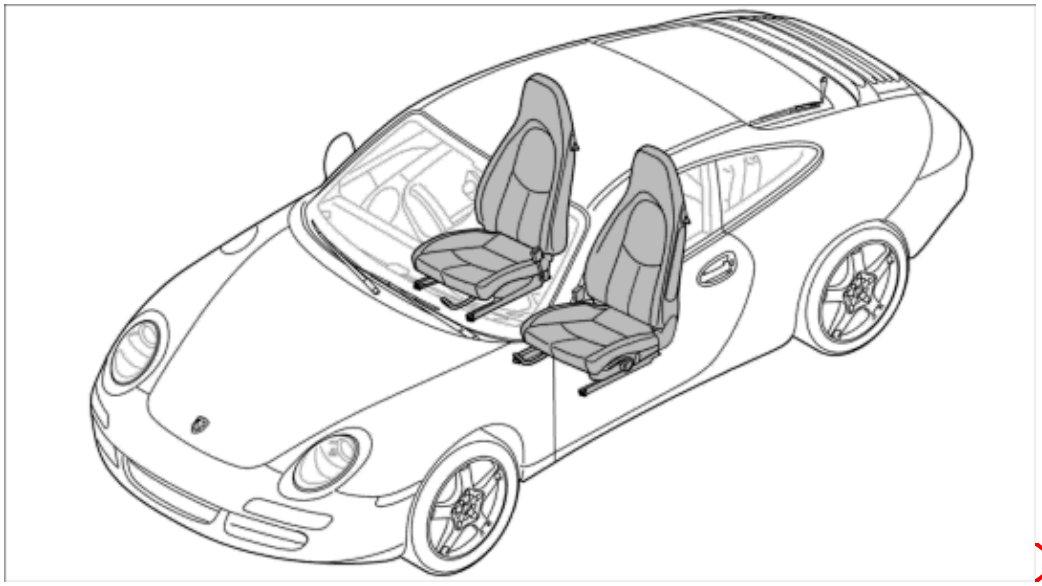


Locking central plug

1. Join the plug connection **-1- -arrow A-** , press in plug connector locking device **-2-** on the side **-arrow B-** .

Tightening seat screws at rear

Installation Location:



Overview, removing and installing front seat

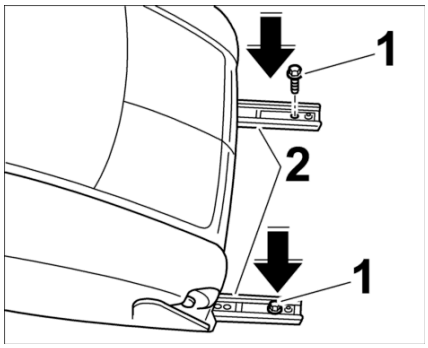
DANGER

Loosen the safety-related threaded joint.

- **Danger of injury if front seat is not screwed down correctly.**

Always replace fastening screws for the front seat after customer service and reworking.

It is not permissible to make alterations to the micro-encapsulated screws (e.g., use lubricant, loosen bolts, and screw them down again).

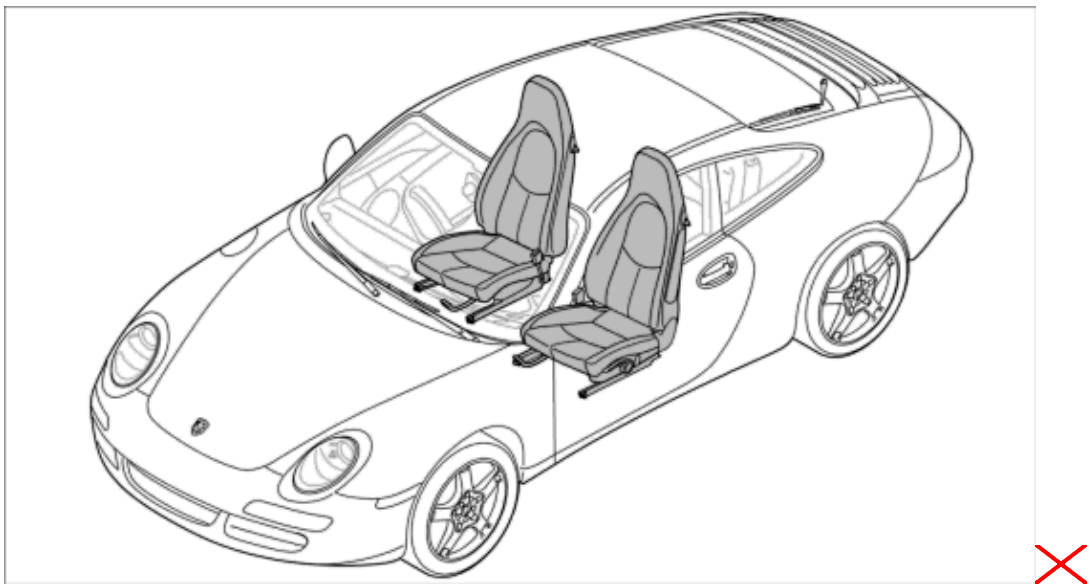


Tightening seat screws at rear

1. Tip seat forwards and position seat rails on the seat baseframe.
2. Screw left and right fastening screws **-1-** into seat bracket **-2-** and tighten to specified tightening torque **Micro-encapsulated: 50 (37 ftlb.) Nm** .

Tightening seat screws at the front

Installation Location:



Overview, removing and installing front seat

DANGER

Loosen the safety-related threaded joint.

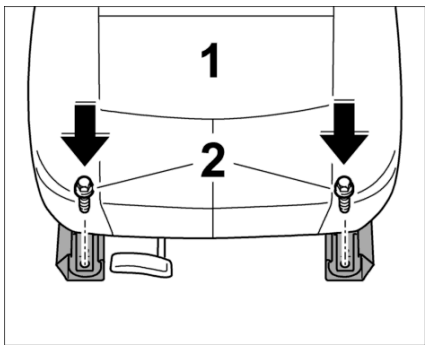
- **Danger of injury if front seat is not screwed down correctly.**

Always replace fastening screws for the front seat after customer service and reworking.

It is not permissible to make alterations to the micro-encapsulated screws (e.g., use lubricant, loosen bolts, and screw them down again).

1.

Connect the battery . *Work instructions after disconnecting the battery*

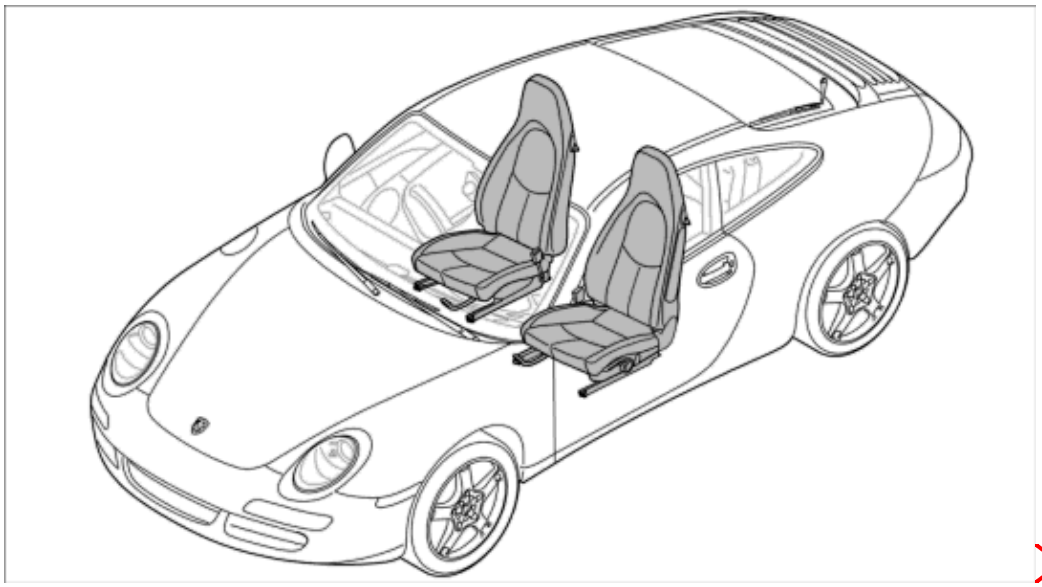


Tightening seat screws at the front

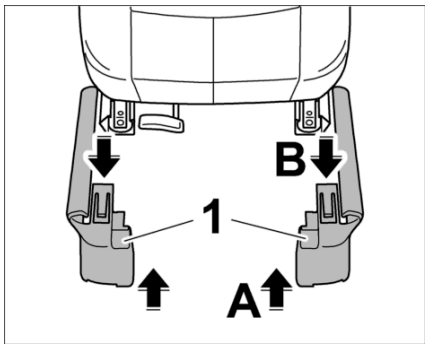
2. Move seat **-1-** to rear end position and screw down front fastening screws **-2-** to specified tightening torque **Micro-encapsulated: 50 (37 ftlb.) Nm** .

Fit seat rail cover

Installation Location:



Overview, removing and installing front seat



Fitting seat rail cover

1. Push seat rail cover **-1-** into front end of the left and right seat rails **-arrow A-** until the locking tab audibly engages **-arrow B-** .

top of page

Subsequent work

Subsequent work

DANGER

Incorrect information for AWS control module.

- **Passenger's airbag is triggered differently.**

If the passenger's seat was removed and re-installed, the AWS control module must be calibrated.

If the seat bracket was replaced, the AWS control module must be calibrated.

If the AWS control module was replaced, the AWS control module must be calibrated.

Note

- *Only for USA/Canada version vehicles.*

1. Calibrate the AWS control module. 6968K2 Calibrating AWS control module

---

997110, 997120, 997310, 997320, 997410, 997430, 997610, 997620

as of MY 2005
Country C00, C02, C05, C07, C08, C09, C10, C11, C12, C13, C14, C15, C16, C18, C19, C20, C21, C22, C23, C24, C25, C26, C27, C28, C32, C33, C34, C35, C36, C37, C38, C39, C45, C46, C98, C99

72 06 19 Removing and installing air cushion switch - as of MY 2005

- Preliminary work
- Removing air cushion switch
- Installing air cushion switch
- Subsequent work

top of page

Preliminary work

Preliminary work

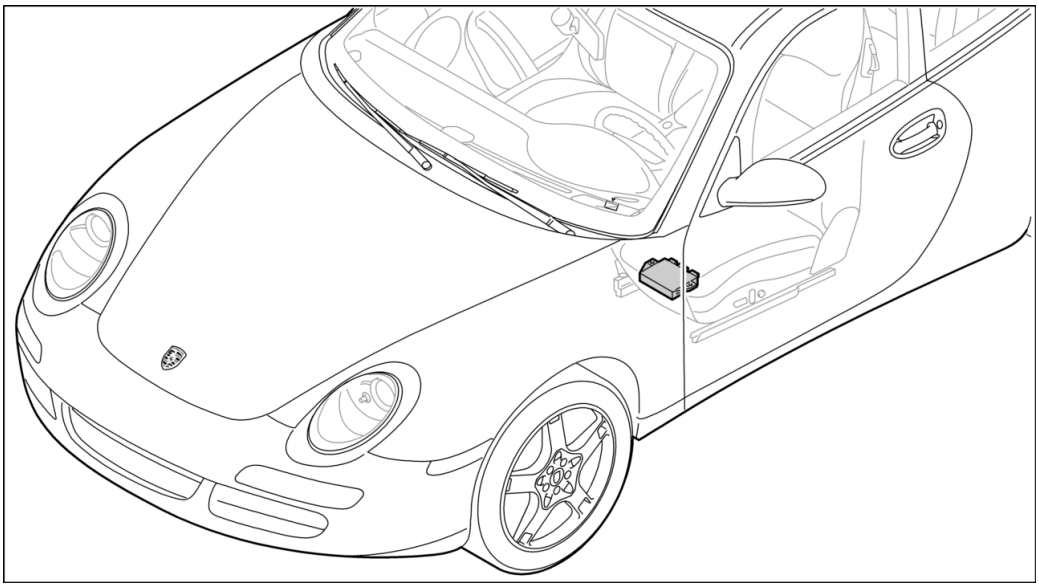
Remove control module trim panel (electric). 721619 Removing and installing control module trim panel - section on "Removing"

top of page

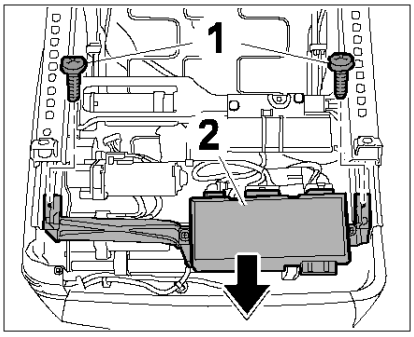
Removing air cushion switch

Removing control unit for memory seat adjustment with support

Installation Location:

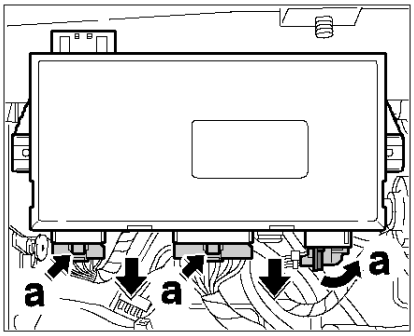


Installation position shown on the 911



Removing control unit for memory seat adjustment with support

1. Unscrew the two fastening screws **-1-** and remove control unit for memory seat adjustment together with the support **-2-** from the seat frame.

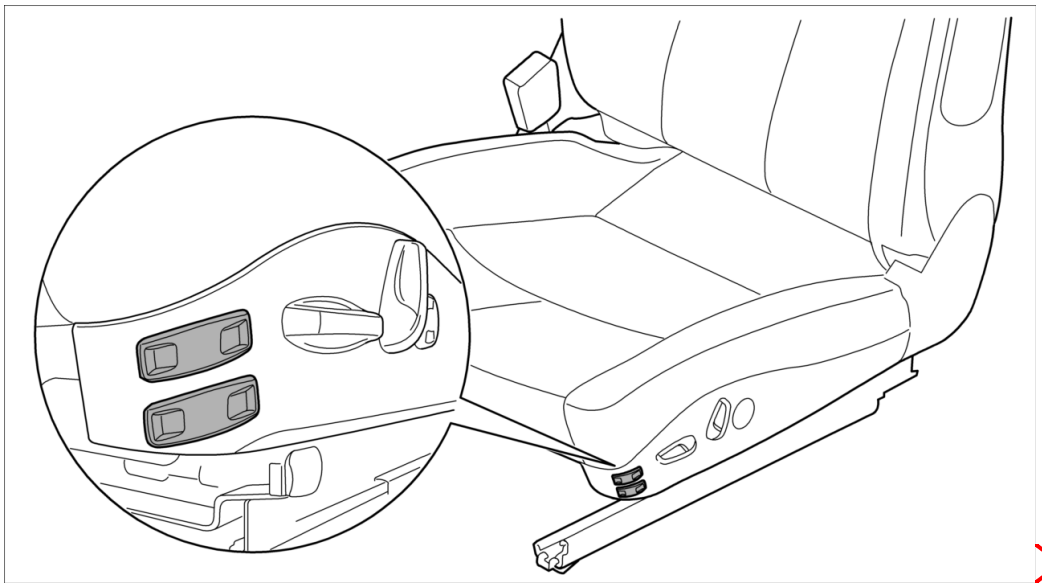


Pulling off connectors on control unit for memory seat adjustment

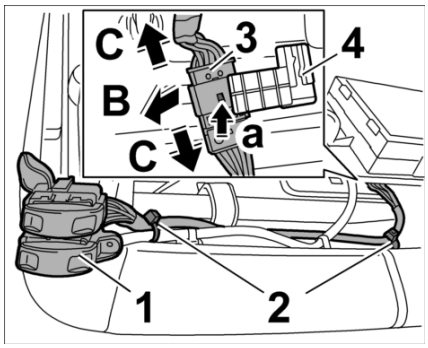
2. Unlock and pull off the three connectors on the control unit for memory seat adjustment **-arrows a-** .

Removing switch for air cushion

Installation Location:



Installation position of switch for air cushion



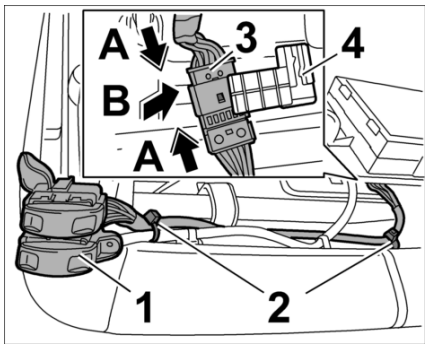
Removing switch for air cushion

1. Remove the two tie-wraps **-2-** on wire harness of switch for air cushion **-1-** .
2. Pull plug connection **-3-** out of holder **-4-** (**-arrow B-**).
3. Release plug connection **-3-** (**-arrow a-**) and disconnect it **-arrows C-** .

top of page

Installing air cushion switch

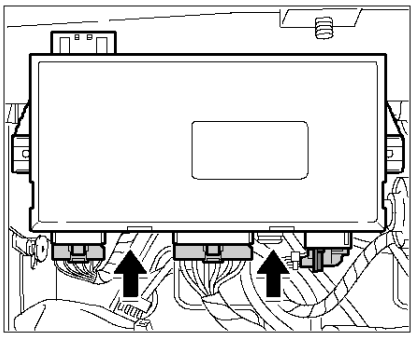
Installing switch for air cushion



Installing switch for air cushion

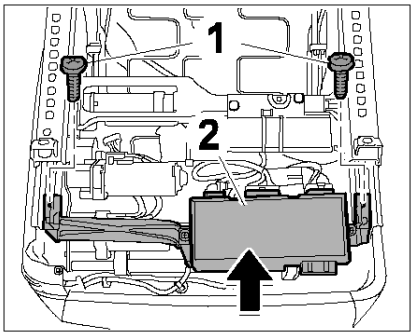
1. Push plug connection **-3-** together **-arrows A-** until it engages securely.
2. Push plug connection **-3-** into holder **-4-** (**-arrow B-**).
3. Lay wire harness of switch for air cushion **-1-** and secure with two new tie-wraps **-2-** .

Installing control unit for memory seat adjustment with support



Attaching connectors on control unit for memory seat adjustment

1. Attach the three connectors on the control unit for memory seat adjustment until they are felt to engage.



Installing control unit for memory seat adjustment with support

2. Position control unit for memory seat adjustment with support **-2-** on seat frame and secure with both fastening screws **-1-** .

top of page

Subsequent work

Subsequent work

Install control module trim panel (electric). 721619 Removing and installing control module trim panel - section on "Installing"

997110, 997111, 997120, 997121, 997310, 997311, 997320, 997321, 997410, 997411, 997430, 997431, 997610, 997611, 997620, 997621

as of MY 2005
Country C00, C02, C05, C07, C08, C09, C10, C11, C12, C13, C14, C15, C16, C18, C19, C20, C21, C22, C23, C24, C25, C26, C27, C28, C32, C33, C34, C35, C36, C37, C38, C39, C45, C46, C98, C99

WARNUNG

Gefahr des Verlusts der Text-Bild-Zuordnung beim Ausdruck.

- **Aus technischen Gründen kann derzeit nicht ausgeschlossen werden, dass trotz einwandfreier Darstellung auf dem Bildschirm beim Ausdruck der Zusammenhang von Text und zugehörigem Bild verloren geht.**
- **Wird der Fehler nicht bemerkt, besteht die Gefahr, daß Arbeiten nicht korrekt durchgeführt werden und es dadurch zu Personen- und Sachschäden kommt.**

Vergleichen Sie deshalb nach dem Druckvorgang unbedingt die Ausdrucke mit der Bildschirmdarstellung. Korrigieren Sie die Ausdrucke im Fehlerfall so, daß der Inhalt der Bildschirmdarstellung zutreffend wiedergegeben wird.

WARNING

Danger of losing text-figure correspondence when printing out.

- **For technical reasons, it can currently not be ruled out that the correspondence between text and associated figure can be lost when it is printed out, even though the display on the screen is correct.**
- **If the fault is not noticed, there is the danger that work will not be performed correctly which can cause injury and damage.**

Therefore, always compare printouts with the screen display after printing them out. Correct the printouts if they are faulty so that the content of the screen display matches that on the printouts.

AVERTISSEMENT

Risque de perte de la correspondance texte-illustration lors de l'impression papier.

72 09 55 Replacing seat frame - as of MY 2005

- Preliminary work
- Disassembling seat frame
- Assembling seat frame
- Subsequent work

top of page

Preliminary work

Preliminary work

1. Remove padding for front seat. 741019 Removing and installing padding for front seat - section on "Removing"
2. Remove belt lock. 692419 Removing and installing front belt lock - section on "Removing"

Note

Only for vehicles with adaptive sports seats.

3. Remove air cushion motor. 723919 Removing and installing air cushion motor - section on "Removing"

Note

Only for vehicles with adaptive sports seats.

4. Remove air cushion control valve. 723819 Removing and installing air cushion control valve - section on "Removing"

Note

Only for vehicles with adaptive sports seats.

5. Remove switch for air cushion. 720619 Removing and installing air cushion switch - section on "Removing"
6. Remove wire harness for electrically adjustable seats. 975719 Removing and installing wiring for electrically adjustable seats - section on "Removing"

Note

- *Only for USA/Canada version vehicles.*

Note

- *Passenger's seat only.*

7. Remove AWS control unit. 696819 Removing and installing AWS control unit - section on "Removing"

Note

Only for vehicles with adaptive sports seats.

8. Remove air cushion for seat. 721419 Removing and installing air cushion for seat - section on "Removing"

top of page

Disassembling seat frame

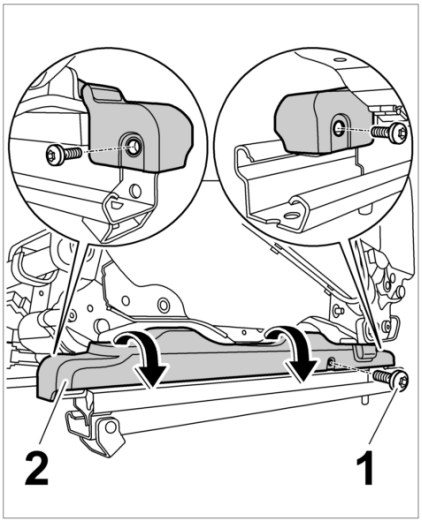
Removing cover for AWS sensor on left and right

Note

- *Only for USA/Canada version vehicles.*

Note

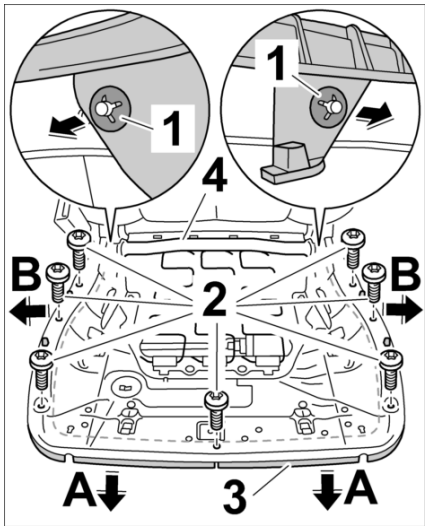
- *Passenger's seat only.*



Removing cover for AWS sensor

1. Unscrew fastening screws **-1-** and remove cover for AWS sensor **-2-** in direction of arrow.

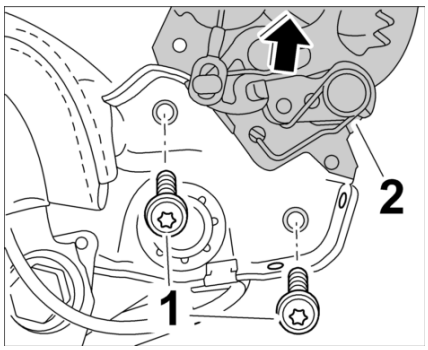
Removing frame for seat surface



Removing frame for seat surface

1. Press out retaining pins **-1-** at the left and right with a screwdriver.
2. Unscrew fastening screws **-2-** , pull frame for seat surface **-3-** downwards **-arrow A-** and remove outwards **-arrow B-** from the seat frame **-4-** .

Removing backrest frame



Removing backrest frame

Note

Two persons are needed to remove and install the backrest frame.

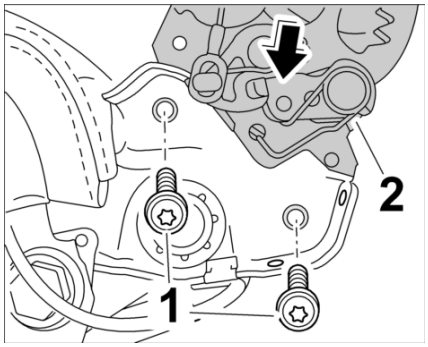
1. Secure backrest frame **-2-** in upright position.

2. Unscrew fastening screws **-1-** on left and right and remove backrest frame **-2-** up out of the seat frame.

top of page

Assembling seat frame

Installing backrest frame



Installing backrest frame

DANGER

Loosen the safety-related threaded joint.

- **Danger of injury if front seat is not screwed down correctly.**

Always replace fastening screws for the front seat after customer service and reworking.

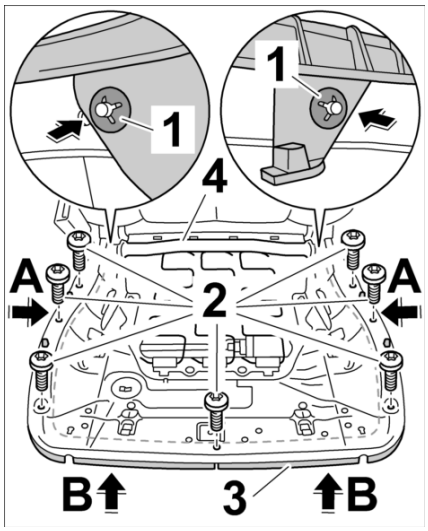
It is not permissible to make alterations to the micro-encapsulated screws (e.g., use lubricant, loosen bolts, and screw them down again).

Note

Two persons are needed to remove and install the backrest frame.

1. Fit backrest frame **-2-** into the seat frame, position it correctly and secure with the fastening screws **-1-** . Tightening torque **Tightening torque: 34 (25 ftlb.) Nm +/-4 (3 ftlb.) Nm**

Installing frame for seat surface



Installing frame for seat surface

1. Position frame for seat surface **-3-** on the seat frame **-4-** (**-arrow A-**), press it upwards **-arrow B-** and screw down the fastening screws **-2-** .
2. Press in new retaining pins **-1-** at the left and right.

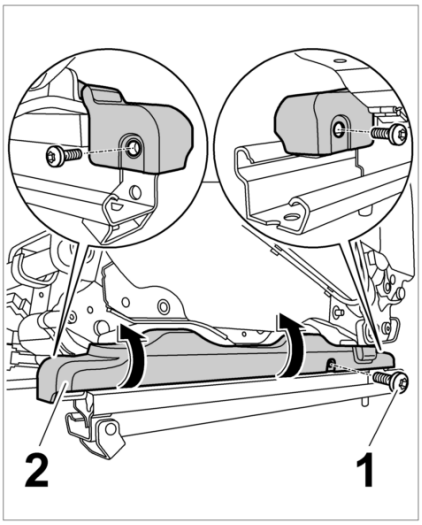
Installing cover for AWS sensor on left and right

Note

- *Only for USA/Canada version vehicles.*

Note

- *Passenger's seat only.*



Installing cover for AWS sensor

1. Fit cover for AWS sensor **-2-** in direction of arrow and tighten hand-tight using the fastening screws **-1-** .

top of page

Subsequent work

Subsequent work

Note

Only for vehicles with adaptive sports seats.

Note

Only for vehicles with adaptive sports seats.

1. Install air cushion for seat. 721419 Removing and installing air cushion for seat - section on "Installing"
2. Install wire harness for electrically adjustable seats. 975719 Removing and installing wiring for electrically adjustable seats - section on "Installing"

Note

- *Only for USA/Canada version vehicles.*

Note

- *Passenger's seat only.*

3. Install AWS control unit. 696819 Removing and installing AWS control unit - section on "Installing"

Note

Only for vehicles with adaptive sports seats.

4. Install switch for air cushion. 720619 Removing and installing air cushion switch - section on "Installing"

Note

Only for vehicles with adaptive sports seats.

5. Install air cushion control valve. 723819 Removing and installing air cushion control valve - section on "Installing"

Note

Only for vehicles with adaptive sports seats.

6. Install air cushion motor. 723919 Removing and installing air cushion motor - section on "Installing"
7. Install belt lock. 692419 Removing and installing front belt lock - section on "Installing"
8. Install padding for front seat. 741019 Removing and installing padding for front seat - section on "Installing"

997110, 997120, 997310, 997320, 997410, 997430, 997610, 997620

as of MY 2005
Country C00, C02, C05, C07, C08, C09, C10, C11, C12, C13, C14, C15, C16, C18, C19, C20, C21, C22, C23, C24, C25, C26, C27, C28, C32, C33, C34, C35, C36, C37, C38, C39, C45, C46, C98, C99

WARNUNG

Gefahr des Verlusts der Text-Bild-Zuordnung beim Ausdruck.

- **Aus technischen Gründen kann derzeit nicht ausgeschlossen werden, dass trotz einwandfreier Darstellung auf dem Bildschirm beim Ausdruck der Zusammenhang von Text und zugehörigem Bild verloren geht.**
- **Wird der Fehler nicht bemerkt, besteht die Gefahr, daß Arbeiten nicht korrekt durchgeführt werden und es dadurch zu Personen- und Sachschäden kommt.**

Vergleichen Sie deshalb nach dem Druckvorgang unbedingt die Ausdrucke mit der Bildschirmdarstellung. Korrigieren Sie die Ausdrucke im Fehlerfall so, daß der Inhalt der Bildschirmdarstellung zutreffend wiedergegeben wird.

WARNING

72 09 55 Replacing seat frame - as of MY 2005

- Preliminary work
- Disassembling seat frame
- Assembling seat frame
- Subsequent work

top of page

Preliminary work

Preliminary work

1. Remove padding for front seat. 741019 Removing and installing padding for front seat - section on "Removing"
2. Remove belt lock. 692419 Removing and installing front belt lock - section on "Removing"

Note

Only for vehicles with adaptive sports seats.

3. Remove air cushion motor. 723919 Removing and installing air cushion motor - section on "Removing"

Note

Only for vehicles with adaptive sports seats.

4. Remove air cushion control valve. 723819 Removing and installing air cushion control valve - section on "Removing"

Note

Only for vehicles with adaptive sports seats.

5. Remove switch for air cushion. 720619 Removing and installing air cushion switch - section on "Removing"
6. Remove wire harness for electrically adjustable seats. 975719 Removing and installing wiring for electrically adjustable seats - section on "Removing"

Note

- *Only for USA/Canada version vehicles.*

Note

- *Passenger's seat only.*

7. Remove AWS control unit. 696819 Removing and installing AWS control unit - section on "Removing"

Note

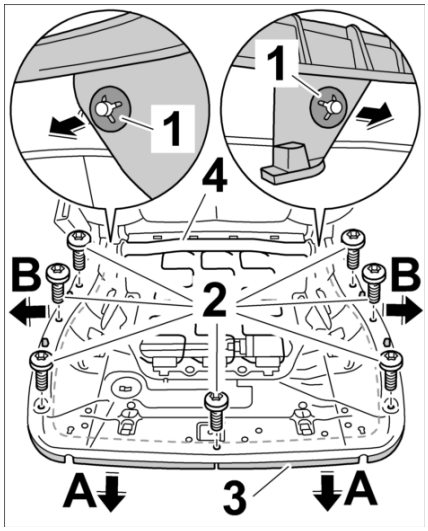
Only for vehicles with adaptive sports seats.

8. Remove air cushion for seat. 721419 Removing and installing air cushion for seat - section on "Removing"

top of page

Disassembling seat frame

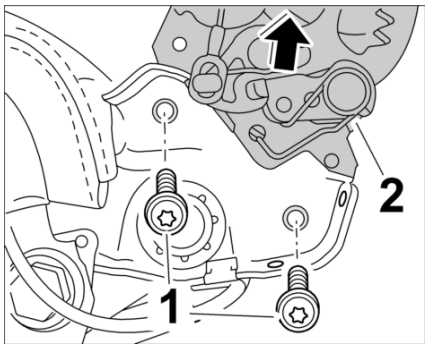
Removing frame for seat surface



Removing frame for seat surface

1. Press out retaining pins **-1-** at the left and right with a screwdriver.
2. Unscrew fastening screws **-2-** , pull frame for seat surface **-3-** downwards **-arrow A-** and remove outwards **-arrow B-** from the seat frame **-4-** .

Removing backrest frame



Removing backrest frame

Note

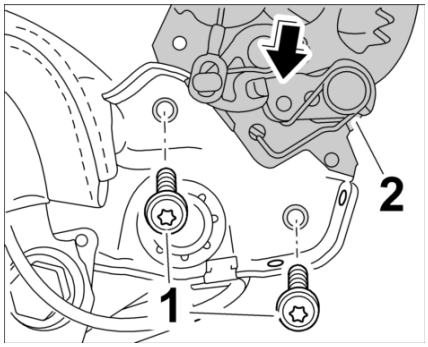
Two persons are needed to remove and install the backrest frame.

1. Secure backrest frame **-2-** in upright position.
2. Unscrew fastening screws **-1-** on left and right and remove backrest frame **-2-** up out of the seat frame.

top of page

Assembling seat frame

Installing backrest frame



Installing backrest frame

DANGER

Loosen the safety-related threaded joint.

- **Danger of injury if front seat is not screwed down correctly.**

Always replace fastening screws for the front seat after customer service and reworking.

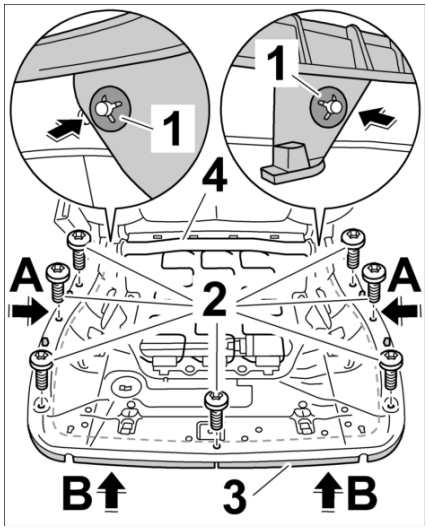
It is not permissible to make alterations to the micro-encapsulated screws (e.g., use lubricant, loosen bolts, and screw them down again).

Note

Two persons are needed to remove and install the backrest frame.

1. Fit backrest frame **-2-** into the seat frame, position it correctly and secure with the fastening screws **-1-** . Tightening torque **Tightening torque: 34 (25 ftlb.) Nm +/-4 (3 ftlb.) Nm**

Installing frame for seat surface



Installing frame for seat surface

1. Position frame for seat surface **-3-** on the seat frame **-4-** (**-arrow A-**), press it upwards **-arrow B-** and screw down the fastening screws **-2-** .
2. Press in new retaining pins **-1-** at the left and right.

top of page

Subsequent work

Subsequent work

Note

Only for vehicles with adaptive sports seats.

Note

Only for vehicles with adaptive sports seats.

1. Install air cushion for seat. 721419 Removing and installing air cushion for seat - section on "Installing"
2. Install wire harness for electrically adjustable seats. 975719 Removing and installing wiring for electrically adjustable seats - section on "Installing"

Note

- *Only for USA/Canada version vehicles.*

Note

- *Passenger's seat only.*

3. Install AWS control unit. 696819 Removing and installing AWS control unit - section on "Installing"

Note

Only for vehicles with adaptive sports seats.

4. Install switch for air cushion. 720619 Removing and installing air cushion switch - section on "Installing"

Note

Only for vehicles with adaptive sports seats.

5. Install air cushion control valve. 723819 Removing and installing air cushion control valve - section on "Installing"

Note

Only for vehicles with adaptive sports seats.

6. Install air cushion motor. 723919 Removing and installing air cushion motor - section on "Installing"
7. Install belt lock. 692419 Removing and installing front belt lock - section on "Installing"
8. Install padding for front seat. 741019 Removing and installing padding for front seat - section on "Installing"

997111, 997121, 997311, 997321, 997411, 997431, 997611, 997621

72 14 19 Removing and installing air cushion for seat - as of MY 2005

- Preliminary work
- Removing air cushion for seat
- Installing air cushion for seat
- Subsequent work

top of page

Preliminary work

Preliminary work

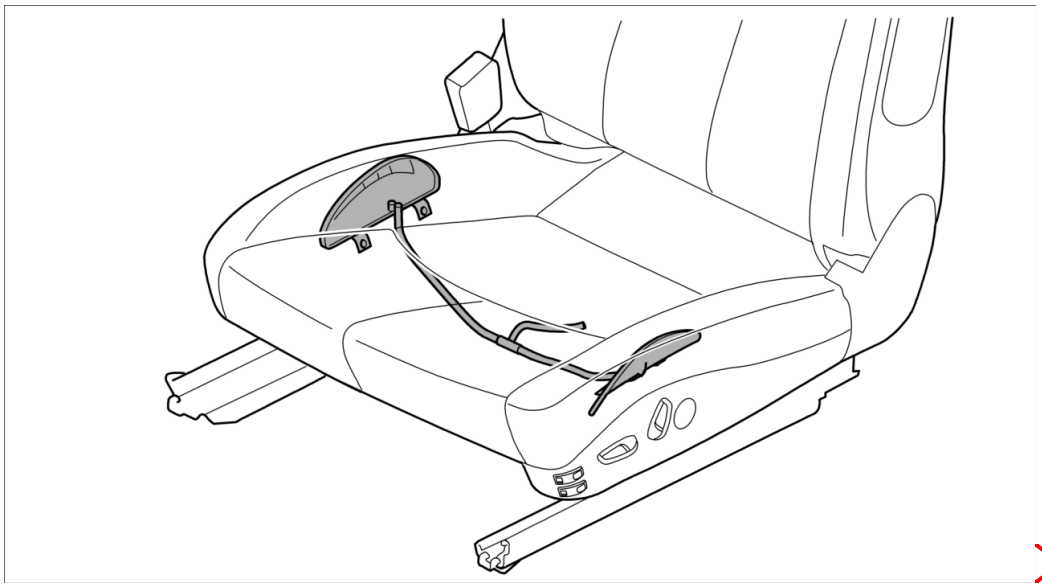
1. Remove padding for front seat. 741019 Removing and installing padding for front seat - chapter on "Removing"

top of page

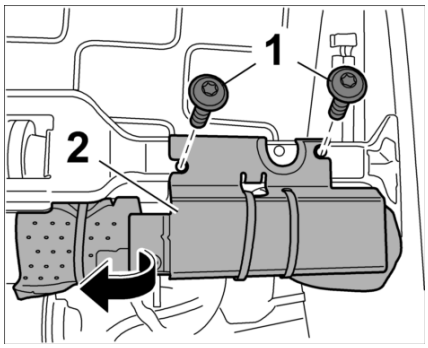
Removing air cushion for seat

Removing air cushion for seat

Installation Location:

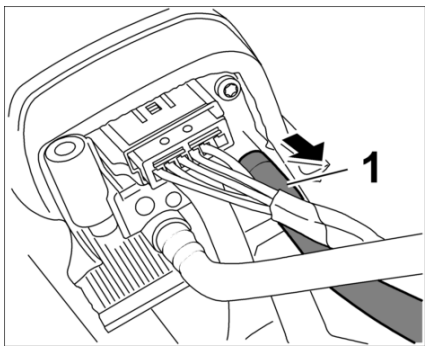


Installation position of air cushion for seat



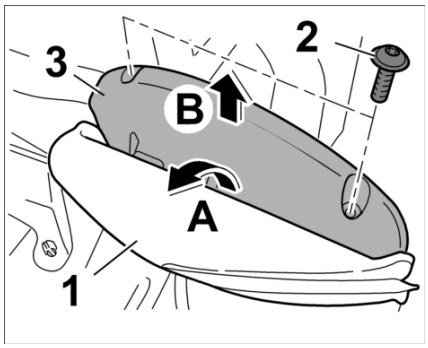
Loosening support with compressor and air distributor valve

1. Unscrew the two fastening screws **-1-** on the support **-2-** .
2. Set support **-2-** with connected motor and air cushion control valve aside.



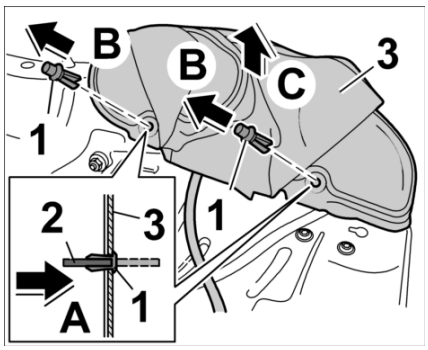
Pulling hose off the air cushion control valve

3. Pull the white hose **-1-** off the air cushion control valve.



Unscrewing fastening screws on the air cushion support plate

4. Fold the air cushion for the seat **-1-** aside **-Arrow A-** and unscrew the two fastening screws **-2-** on the air cushion support plate **-3-** .
5. Take air cushion support plate **-3-** off **-Arrow B-**



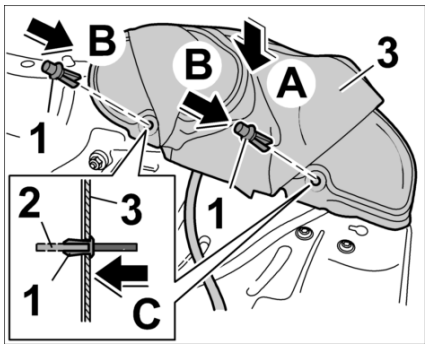
Removing air cushion for seat

6. Push the pins **-2-** of the two expanding clips **-1-** back (**-Arrow A-**) and remove the expanding clips **-1-** **-Arrows B-** .
7. Remove air cushion for seat (**-3-**).

top of page

Installing air cushion for seat

Installing air cushion for seat



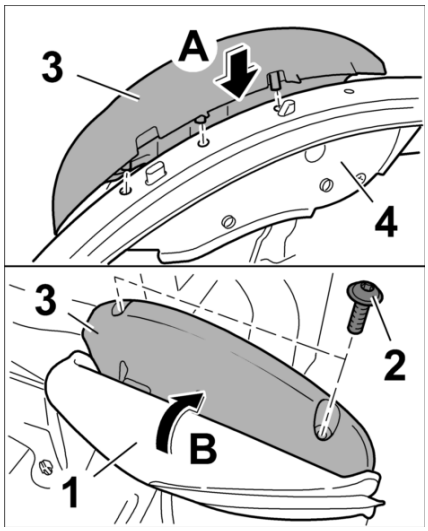
Installing air cushion for seat

1. Position air cushion for seat **-3-** on the air cushion support plate **-Arrow A-** .

Note

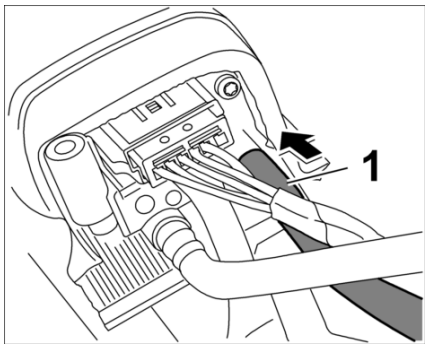
The air cushion for the seat is fastened only with the rear air cushion on the air cushion support plate.

2. Secure the air cushion for the seat **-3-** . Use the two expanding clips **-1-** to fasten **-Arrows B-** it. To do this, the pins **-2-** must be forced into the expanding clips **-1-** by pressing **-Arrow C-** .



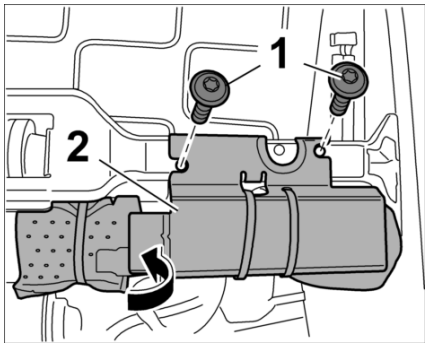
Tightening the fastening screws on the air cushion support plate

3. The air cushion support plate **-3-** must be fitted into the seat frame **-4-** by inserting **-Arrow A-** the guides into the seat frame.
4. Fasten the air cushion support plate **-3-** with the two fastening screws **-2-** .
5. The air cushion for the seat **-1-** must be folded over **-Arrow B-** and aligned with the air cushion support plate **-3-** .



Pushing hose onto the air cushion control valve

6. Push the white hose **-1-** onto the air cushion control valve.



Securing support with compressor and air distributor valve

7. Position support **-2-** with connected motor and air cushion control valve and screw down with the two fastening screws **-1-** .

top of page

Subsequent work

Subsequent work

1. Install padding for front seat. 741019 Removing and installing padding for front seat - chapter on "Installing"

997110, 997111, 997120, 997121, 997310, 997311, 997320, 997321, 997410, 997411, 997430, 997431, 997610, 997611, 997620, 997621

as of MY 2005
Country C00, C02, C05, C07, C08, C09, C10, C11, C12, C13, C14, C15, C16, C18, C19, C20, C21, C22, C23, C24, C25, C26, C27, C28, C32, C33, C34, C35, C36, C37, C38, C39, C45, C46, C98, C99

WARNUNG
Gefahr des Verlusts der Text-Bild-Zuordnung beim Ausdruck.

72 16 19 Removing and installing control module trim panel - as of MY 2005

- Removing control module trim panel
- Installing control module trim panel

top of page

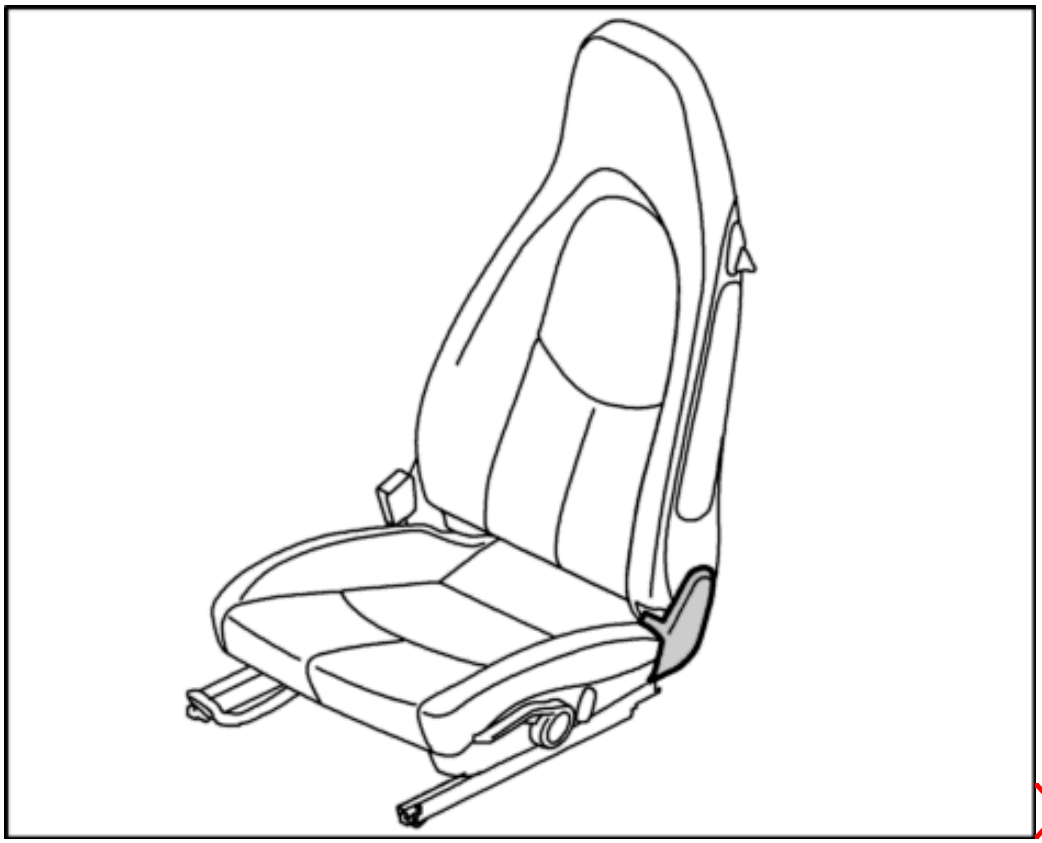
Removing control module trim panel

Preliminary work

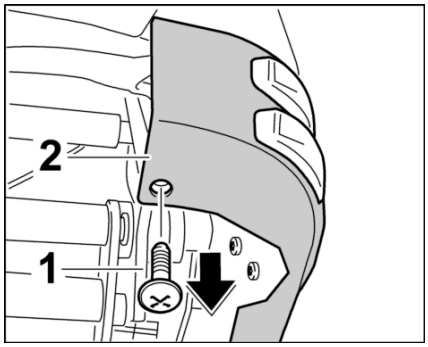
1. Remove front seat. 720119 Removing and installing front seat - chapter on "Removing" [997110 997120 997310 997320 997410 997430 997610 997620] 720119 Removing and installing front seat - chapter on "Removing" [997111 997121 997311 997321 997411 997431 997611 997621]

Removing control part trim panel

Installation Location:

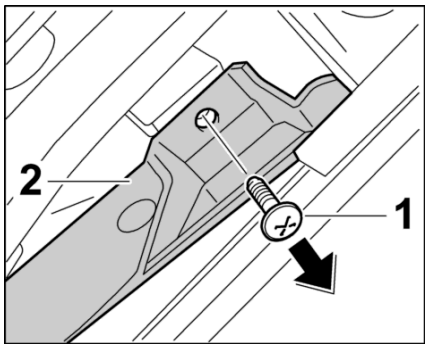


Installation location for control part trim panel



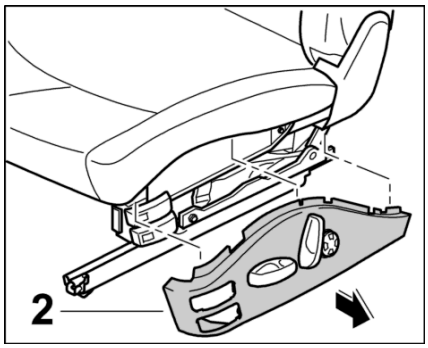
Unscrewing front fastening screw

1. Unscrew front fastening screws **1** from the control part trim panel**2**.



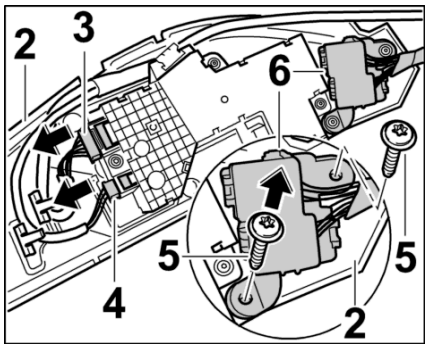
Unscrewing the rear fastening screw

2. Unscrew rear fastening screws **1** from the control part trim panel**2**.



Pulling out control part trim panel

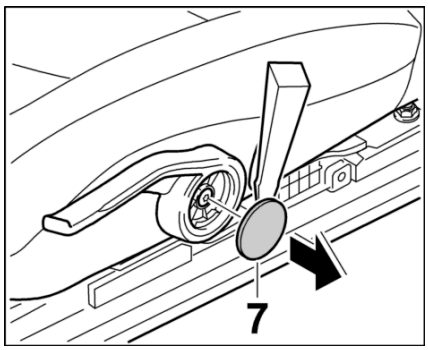
3. Pull out control part trim panel **2** from the cushion in direction of arrow.



Disconnecting electrical plug connection

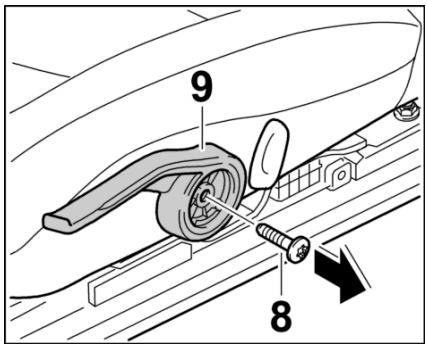
4. Disconnect electric plug connection **3 and 4**, unscrew fastening screws **5** from the tip switch **6** and take off the tip switch from the control part trim panel **2**.

Removing control part trim panel (with mechanical lever)



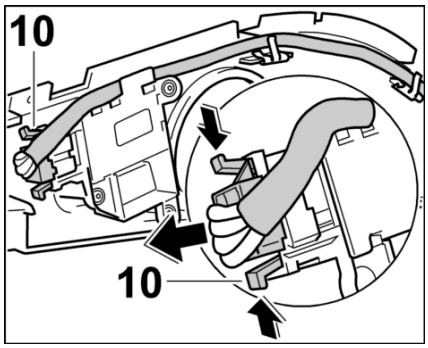
Pressing out trim panel

1. Press out trim panel **7** using a plastic spatula.



Unscrewing fastening screw

2. Unscrew fastening screw **8** from the lever **9** and remove lever.
3. Removing control part trim panel, work step **1, 2, 3**



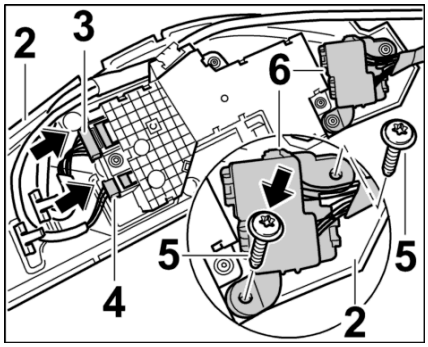
Disconnecting electrical plug connection

4. Disconnect electric plug connection **10** by pressing together the lugs **arrow**.

top of page

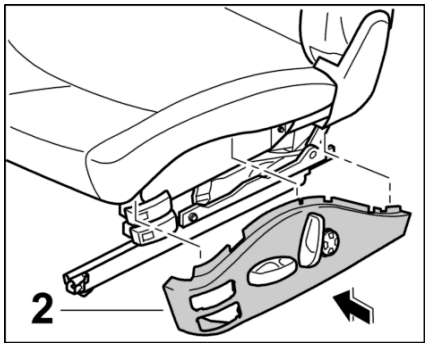
Installing control module trim panel

Installing control part trim panel



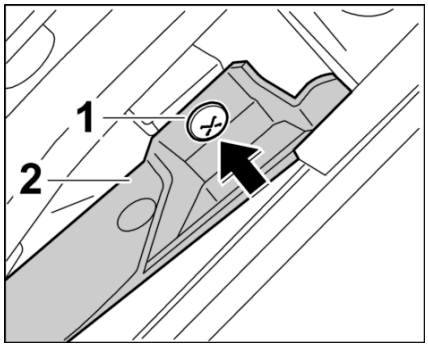
Connect electrical plug connection

1. Position tip switch **6** on the control part trim panel **2** and screw down with the fastening screws **5**. Plug in electrical plug connection **3 and 4**.



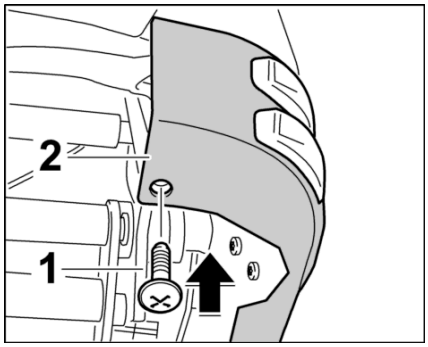
Positioning control part trim panel

2. Insert control part trim panel **2** into the cushion in direction of arrow.



Screwing down rear control part trim panel

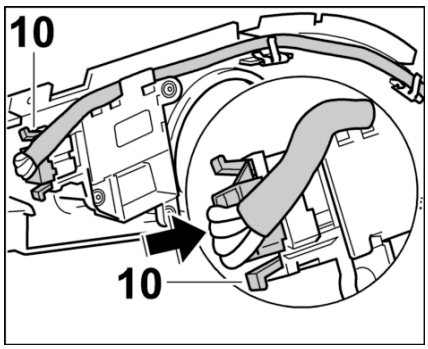
3. Screw down rear control part trim panel **2**with the fastening screws **1**. **Tightening torque: 2 ftlb.**



Screwing down front control part trim panel

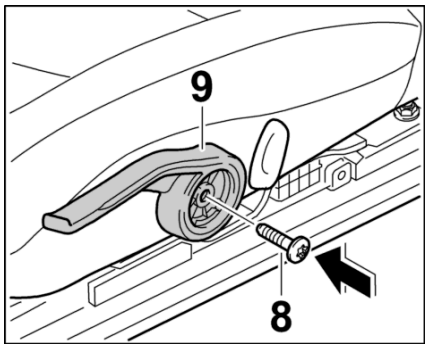
4. Screw down front control part trim panel **2**with the fastening screws **1**. **Tightening torque: 2 ftlb.**

Installing control part trim panel (mechanical)



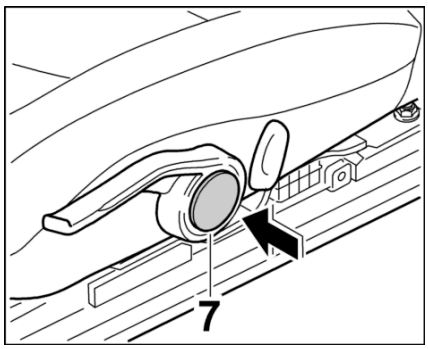
Connecting the electrical plug connection

1. Connect electrical plug connection **10**.
2. Procedure: Installing control part trim panel, work step **2, 3, 4**



Screwing down lever

3. Position lever **9** on seat, screw down fastening screw **8**. **Tightening torque: 4.5 ftlb.**



Pressing in trim panel

4. Press in trim panel.

Subsequent work

1. Install front seat. 720119 Removing and installing front seat - chapter on "Installing" [997110 997120 997310 997320 997410 997430 997610 997620] 720119 Removing and installing front seat - chapter on "Installing" [997111 997121 997311 997321 997411 997431 997611 997621]

997110, 997111, 997120, 997121, 997310, 997311, 997320, 997321, 997410, 997411, 997430, 997431, 997610, 997611, 997620, 997621

as of MY 2005
Country C00, C02, C05, C07, C08, C09, C10, C11, C12, C13, C14, C15, C16, C18, C19, C20, C21, C22, C23, C24, C25, C26, C27, C28, C32, C33, C34, C35, C36, C37, C38, C39, C45, C46, C98, C99

WARNUNG

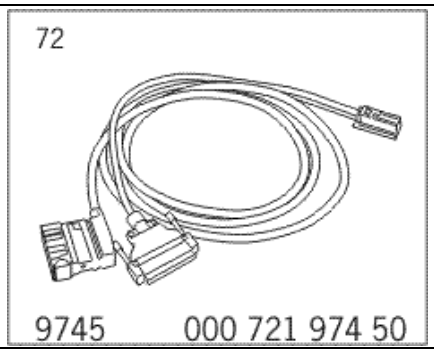
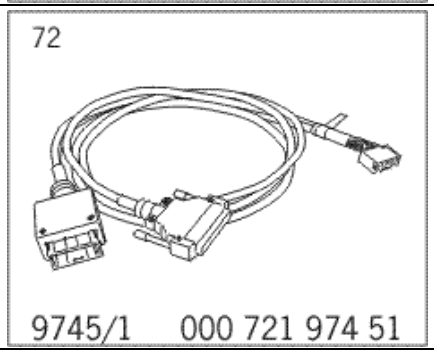
Gefahr des Verlusts der Text-Bild-Zuordnung beim Ausdruck.

- **Aus technischen Gründen kann derzeit nicht ausgeschlossen werden, dass trotz einwandfreier Darstellung auf dem Bildschirm beim Ausdruck der Zusammenhang von Text und zugehörigem Bild verloren geht.**

72 17 19 Removing and installing air cushion for backrest - as of MY 2005

- Preliminary work
- Removing air cushion for backrest
- Installing air cushion for backrest
- Subsequent work

Tools

Designation	Type	Number	Explanation	
test cable	special tool	9745		
test cable	special tool	9745/1		

top of page

Preliminary work

Preliminary work

1. Remove padding for front backrest. 741719 Removing and installing padding for front backrest - section on "Removing"

Note

Only necessary if you are removing the hose for the air cushion control valve!

2. Remove cover for left backrest. 722619 Removing and installing cover for backrest - section on "Removing"

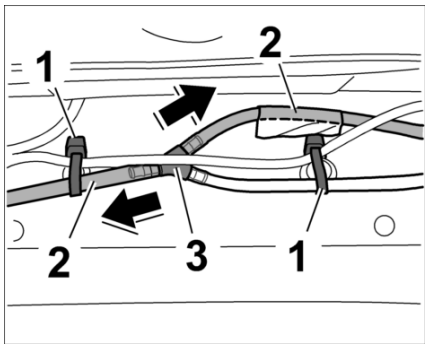
top of page

Removing air cushion for backrest

Removing air cushion for backrest

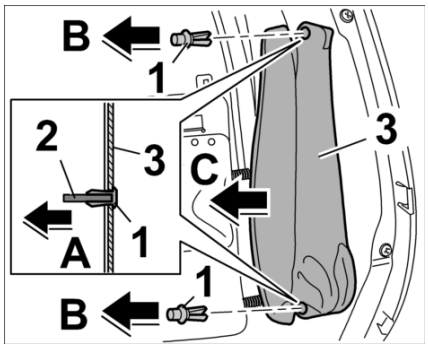
Installation Location:

Installation position of air cushion for backrest



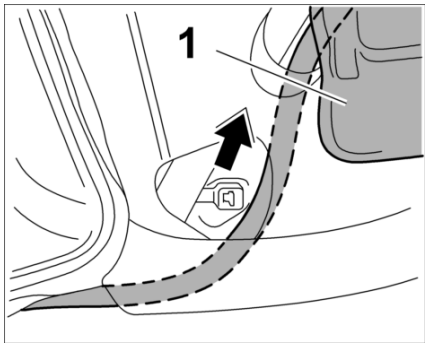
Pulling off hoses on air cushion for backrest

1. Remove the two tie-wraps **-1-** .
2. Pull off the two hoses for the air cushion for backrest **-2-** at the branch piece **-3-** .



Removing air cushion for backrest

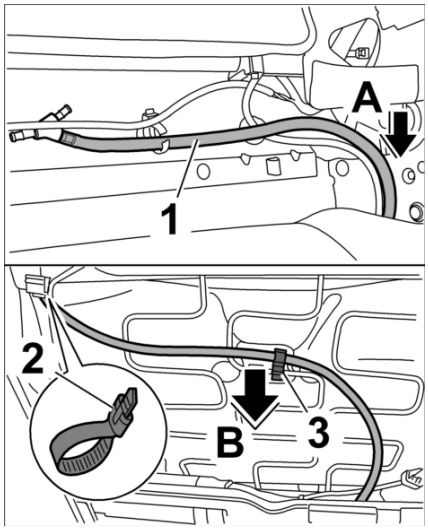
3. Push out the pins **-2-** on the two expanding clips **-1-** (**-arrow A-**) and remove the expanding clips **-1-** .
4. Remove air cushion for backrest **-3-** (**-arrow C-**).



Pulling out hose

5. Pull air cushion for backrest **-1-** together with the hose out of the backrest frame.

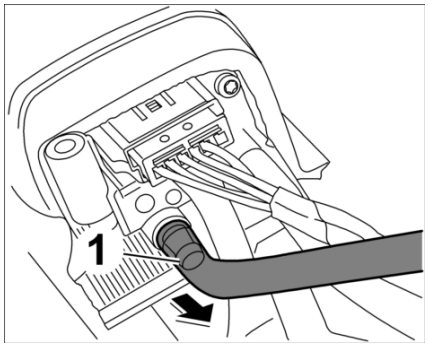
Removing hose for air cushion control valve



Removing hose

1. Remove tie-wraps **-2-** and push hose **-1-** for air cushion control valve through in a downward direction **-arrow A-** .

2. Unclip the hose **-1-** at the holder **-3-** (**-arrow B-**).



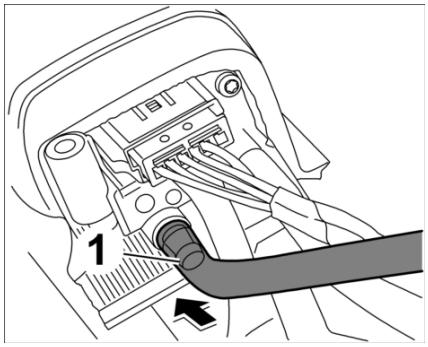
Pulling hose off the air cushion control valve

3. Pull hose **-1-** off the air cushion control valve.

top of page

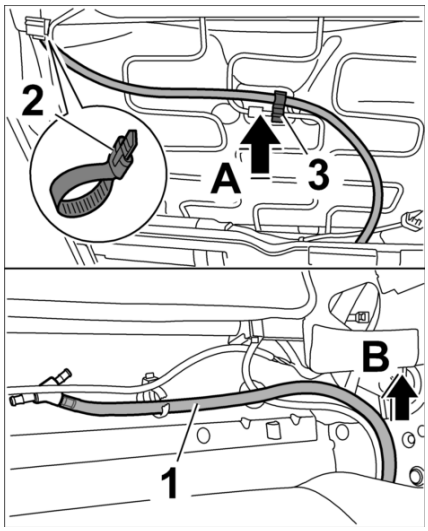
Installing air cushion for backrest

Installing hose for air cushion control valve



Pushing hose onto the air cushion control valve

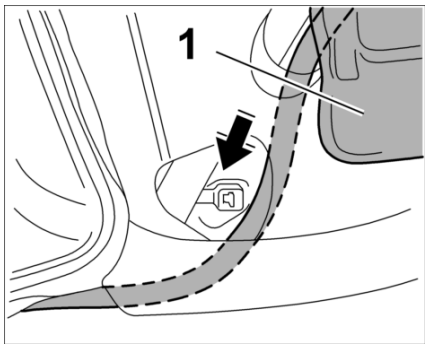
1. Push hose **-1-** onto the air cushion control valve.



Fitting hose

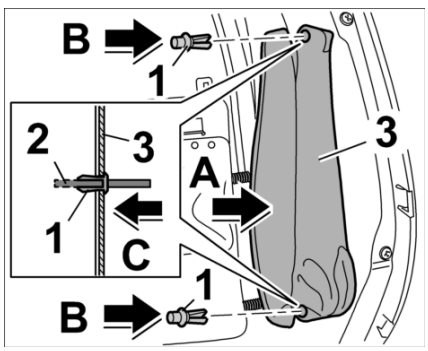
2. Lay the hose **-1-** and clip it into the holder **-3-** (**-arrow A-**).
3. Pull the hose **-1-** through in an upward direction **-arrow B-** and secure with a new tie-wrap **-2-** .

Installing air cushion for backrest



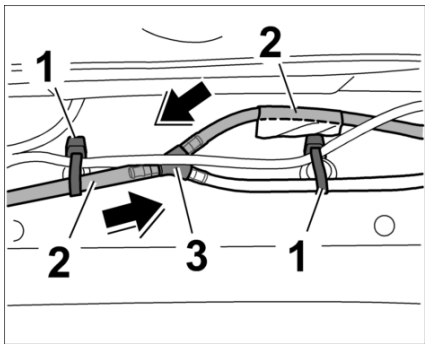
Routing the hose

1. Slide hose for the air cushion for backrest **-1-** into the backrest frame.



Installing air cushion for backrest

2. Position air cushion for backrest **-3-** (**-arrow A-**).
3. Secure the air cushion for backrest **-3-** with the two expanding clips **-1-** (**-arrows B-**). To do this, press the pins **-2-** into the expanding clips **-1-** (**-arrow C-**).



Connecting hoses on air cushion for backrest

4. Slide the two hoses for the air cushion for backrest **-2-** onto the branch piece **-3-** and secure with two new tie-wraps **-1-** .

Checking seat following removal

1. Connect the removed seat to the vehicle's wiring harness via **test cable 9745** and **test cable 9745/1**.
2. Connect electric plug to control module trim panel. 721619 Removing and installing control module trim panel - section on "Installing"
3. Connect the battery. 2706IN IN -Work instructions after disconnecting the battery
4. Switch on ignition.
5. Carry out a function check on the seat components.
6. Switch off ignition after function test and disconnect battery.
7. Disconnect **test cable 9745** and **test cable 9745/1**.

top of page

Subsequent work

Subsequent work

1. Install cover for left backrest. 722619 Removing and installing cover for backrest - section on "Installing"
2. Install padding for front backrest. 741719 Removing and installing padding for front backrest - section on "Installing"

72 19 55 Replacing backrest frame - as of MY 2005

- Preliminary work
- Disassembling backrest frame
- Assembling backrest frame
- Subsequent work

top of page

Preliminary work

Preliminary work

1. Remove cushion carrier. 722419 Removing and installing cushion carrier for front backrest - section on "Removing"

Note

Only for vehicles with lumbar support.

2. Remove control valve for lumbar support adjustment. 723319 Removing and installing control valve for lumbar support adjustment - section on "Removing"

Note

Only for vehicles with lumbar support.

3. Remove lumbar support. 723419 Removing and installing lumbar support - section on "Removing"

Note

Only for vehicles with lumbar support.

4. Remove motor for lumbar support. 723619 Motor for lumbar support - section on "Removing"

Note

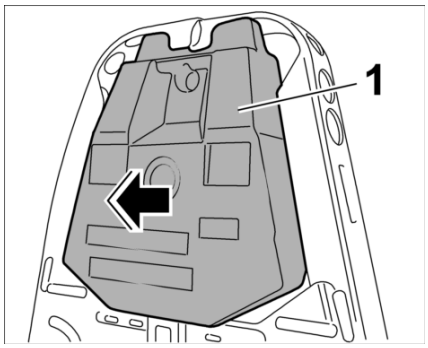
Only for vehicles with adaptive sports seats.

5. Remove air cushion for backrest. 721719 Removing and installing air cushion for backrest - section on "Removing"

top of page

Disassembling backrest frame

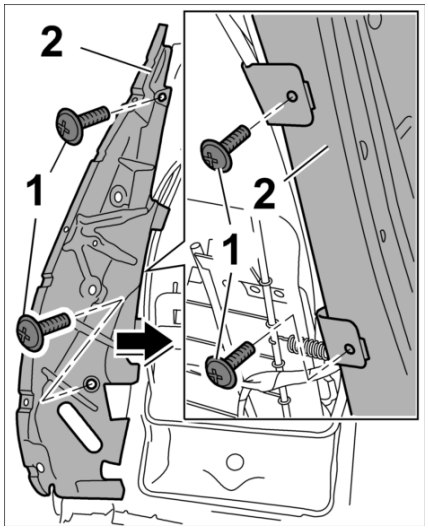
Removing foam part



Taking off foam part

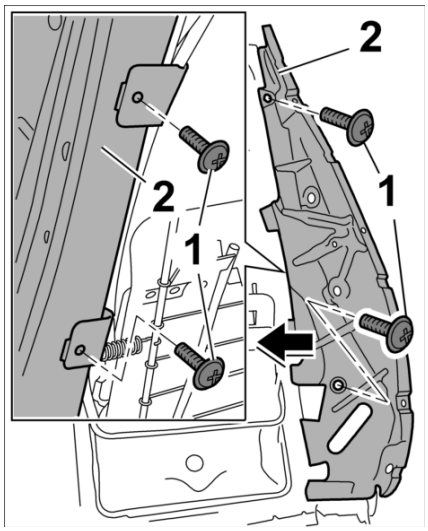
1. Remove foam part **-1-** at the headrest.

Removing supports for backrest side parts



Removing support for right backrest side part

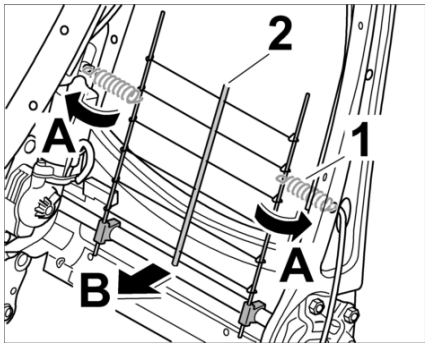
1. Unscrew fastening screws **-1-** and remove support for right backrest side part **-2-** .



Removing support for left backrest side part

2. Unscrew fastening screws **-1-** and remove support for left backrest side part **-2-** .

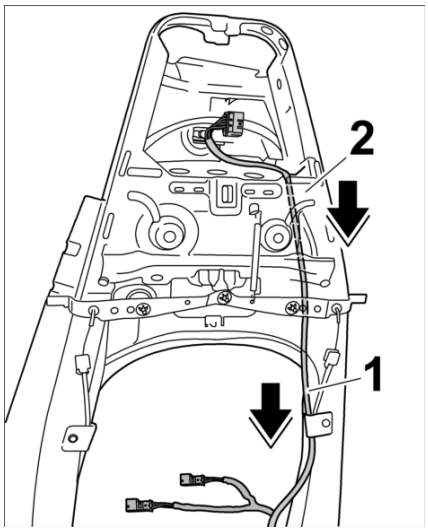
Removing inner spring on backrest frame



Removing inner spring on backrest frame

1. Disengage tension springs **-1-** at left and right on inner spring **-2-** (**-arrows A-**).
2. Unclip inner spring **-2-** on backrest frame at the drive shaft **-arrow B-** and remove inner spring.
3. Disengage tension springs **-1-** on the backrest frame.

Disconnecting wire harnesses on backrest frame



Pulling out wire harness for backrest

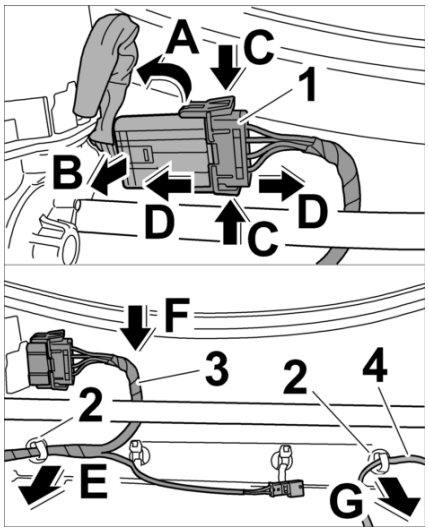
Note

Only for vehicles with lumbar support.

Note

Make sure not to trap or damage the wire harness when pulling it through.

1. Pull wire harness for backrest **-1-** down out of the backrest frame **-2-** .



Disconnecting plug connection

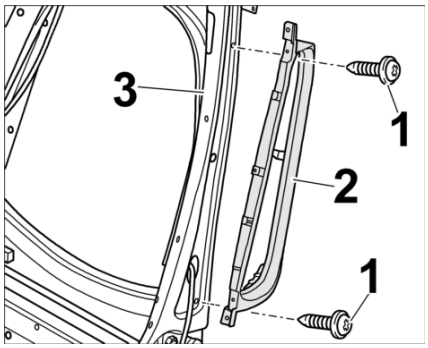
2. Turn plug connection **-1-** approx. 90° anti-clockwise **-arrow A-** and pull it off the backrest frame **-arrow B-** .
3. Release plug connection **-arrows C-** and disconnect it **-arrows D-** .

Note

Make sure not to trap or damage the wire harness when pulling it through.

4. Press locking tabs on fixing clip **-2-** together and unclip it **-arrow E-** . Pull wire harness for backrest **-3-** down and out **-arrow F-** .
5. Press locking tabs on fixing clip **-2-** together and unclip wire harness for side airbag **-4-** from the backrest frame **-arrow G-** .

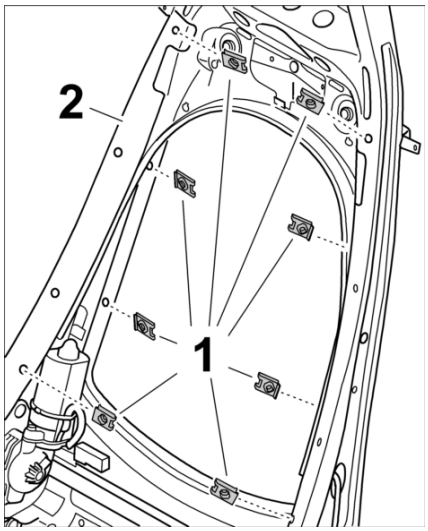
Removing frame for side airbag



Removing frame for side airbag

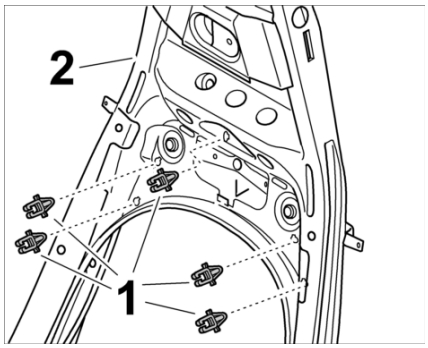
1. Unscrew fastening screws **-1-** and unclip frame for side airbag **-2-** from the backrest frame **-3-** .

Disassembling backrest frame



Removing fastening nuts

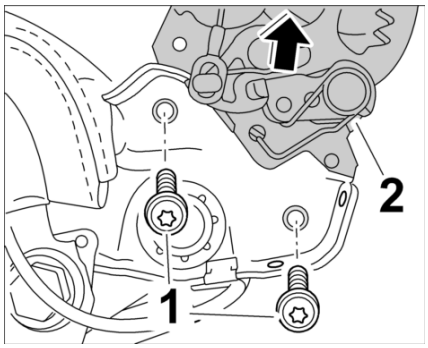
1. Remove fastening nuts **-1-** from the backrest frame **-2-** , check them and replace if necessary.



Removing fixing clips

2. Unclip fixing clips **-1-** from the backrest frame **-2-** , check them and replace if necessary.

Removing backrest frame



Removing backrest frame

Note

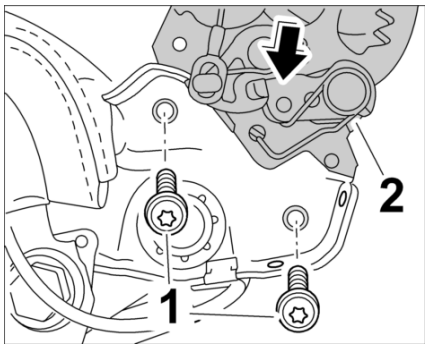
Two persons are needed to remove and install the backrest frame.

1. Secure backrest frame **-2-** in upright position.
2. Unscrew fastening screws **-1-** on left and right and remove backrest frame **-2-** up out of the seat frame.

top of page

Assembling backrest frame

Installing backrest frame



Installing backrest frame

DANGER

Loosen the safety-related threaded joint.

- **Danger of injury if front seat is not screwed down correctly.**

Always replace fastening screws for the front seat after customer service and reworking.

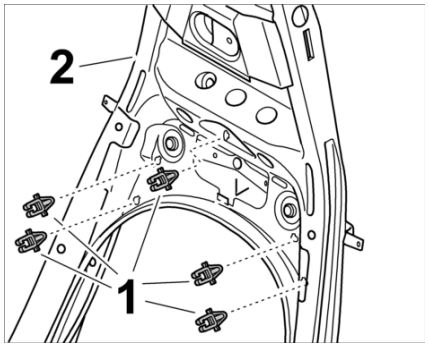
It is not permissible to make alterations to the micro-encapsulated screws (e.g., use lubricant, loosen bolts, and screw them down again).

Note

Two persons are needed to remove and install the backrest frame.

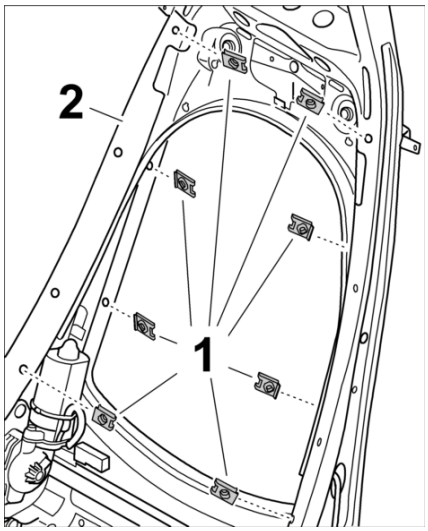
1. Fit backrest frame **-2-** into the seat frame, position it correctly and secure with the fastening screws **-1-** .
   Tightening torque **Tightening torque: 34 (25 ftlb.) Nm +/-4 (3 ftlb.) Nm**

Assembling backrest frame



Pressing in fixing clips

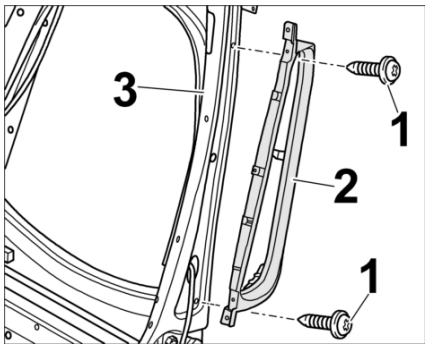
1. Press in fixing clips **-1-** on the backrest frame **-2-** .



Screwing on fastening nuts

2. Screw fastening nuts **-1-** onto the backrest frame **-2-** .

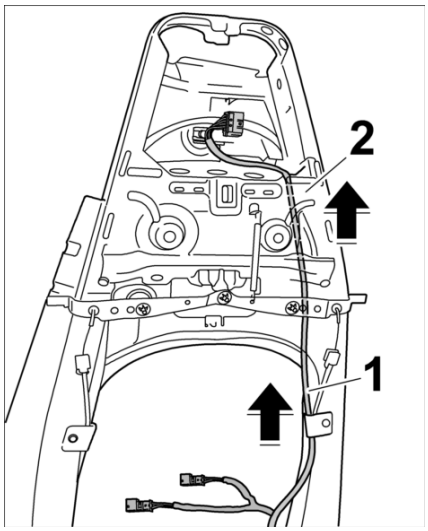
Installing frame for side airbag



Installing frame for side airbag

1. Clip frame for side airbag **-2-** to backrest frame **-3-** and secure with the fastening screws **-1-** .

Securing wire harnesses on backrest frame



Pulling through wire harness for backrest

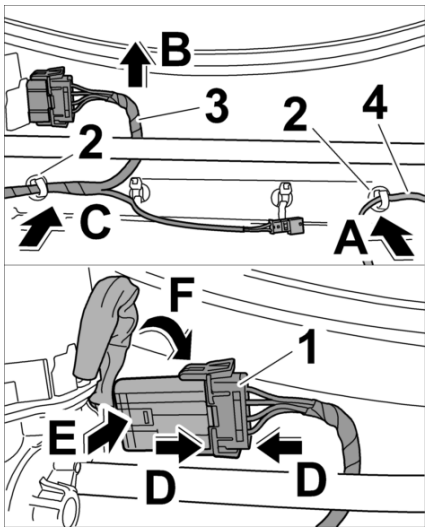
Note

Only for vehicles with lumbar support.

Note

Make sure not to trap or damage the wire harness when pulling it through.

1. Pull wire harness for backrest **-1-** up into the backrest frame **-2-** .



Securing wire harness for backrest

2. Press fixing clip **-2-** on wire harness for side airbag onto the backrest frame **-arrow A-** .

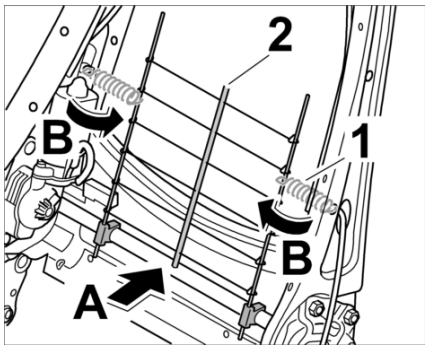
Note

Make sure not to trap or damage the wire harness when pulling it through.

3. Pull wire harness for backrest **-3-** through **-arrow B-** and press in fixing clip **-2-** (**-arrow C-**).
4. Push plug connection **-1-** together **-arrows D-** until it engages securely.

5. Insert plug connection **-1-** into the backrest frame **-arrow E-** and turn it clockwise by approx. 90° **-arrow F-** .

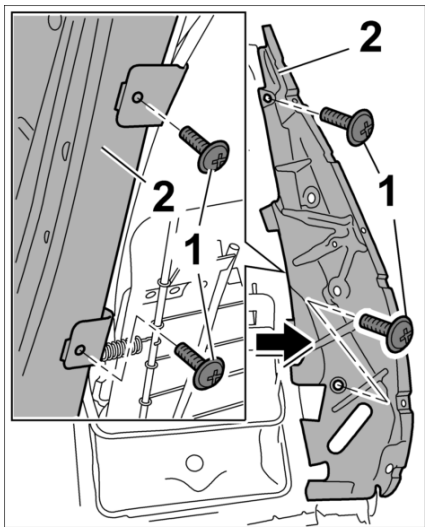
Installing inner spring on backrest frame



Engaging inner spring on backrest frame

1. Engage tension springs **-1-** in the backrest frame.
2. Clip in inner spring **-2-** on lower part of backrest frame at the drive shaft **-arrow A-** .
3. Engage tension springs **-1-** in the inner spring **-2-** on the backrest frame **-arrow B-** .

Installing supports for backrest side parts

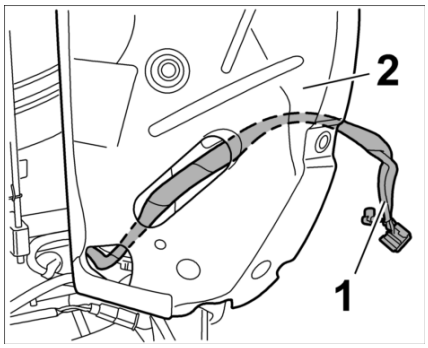


Installing support for left backrest side part

Note

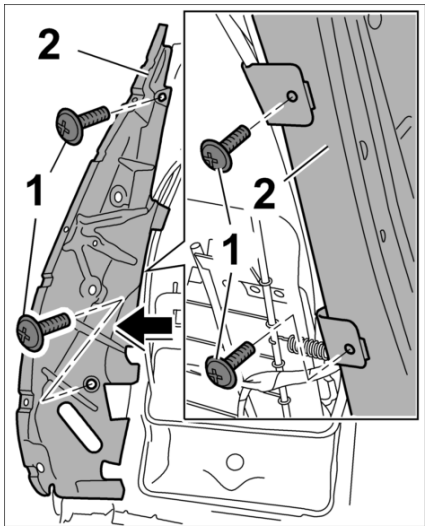
Observe hose routing!
In vehicles with lumbar support, make sure the hoses are routed correctly in the area of the backrest side support.

1. Insert support for left backrest side part **-2-** and secure with the fastening screws **-1-** .



Routing wire harness for side airbag

2. Route wire harness for side airbag **-1-** as shown behind the backrest side part support **-2-** .



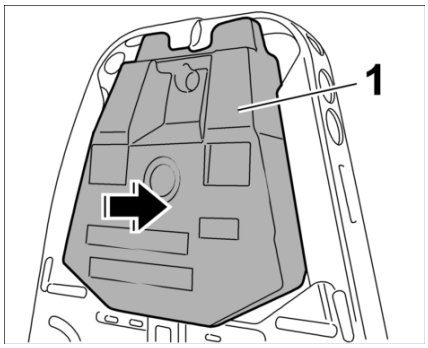
Installing support for right backrest side part

Note

Observe hose routing!
In vehicles with lumbar support, make sure the hoses are routed correctly in the area of the backrest side support.

3. Insert support for right backrest side part **-2-** and secure with the fastening screws **-1-** .

Fitting foam part



Fitting foam part

1. Fit foam part **-1-** to the headrest.

top of page

Subsequent work

Subsequent work

Note

Only for vehicles with adaptive sports seats.

1. Install air cushion for backrest. 721719 Removing and installing air cushion for backrest - section on "Installing"

Note

Only for vehicles with lumbar support.

2. Install motor for lumbar support. 723619 Motor for lumbar support - section on "Installing"

Note

Only for vehicles with lumbar support.

3. Install lumbar support. 723419 Removing and installing lumbar support - section on "Installing"

Note

Only for vehicles with lumbar support.

4. Install control valve for lumbar support adjustment. 723319 Removing and installing control valve for lumbar support adjustment - section on "Installing"
5. Install cushion carrier. 722419 Removing and installing cushion carrier for front backrest - section on "Installing"

72 24 19 Removing and installing cushion carrier for front backrest - as of MY 2005

- Preliminary work
- Removing cushion carrier for front backrest
- Installing cushion carrier for front backrest
- Subsequent work

top of page

Preliminary work

Preliminary work

Remove padding for backrest. 741719 Removing and installing padding for front backrest - chapter on "Removing"

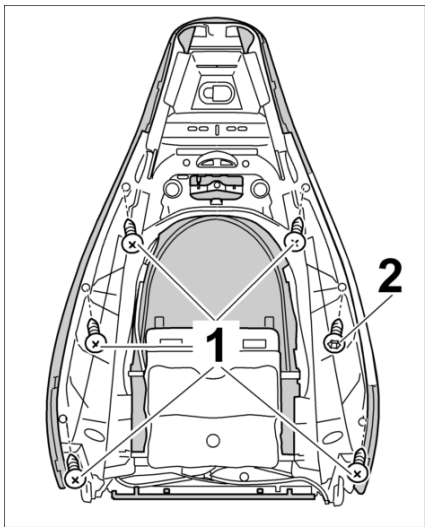
Preliminary work

1. Remove padding for front backrest. 741719 Removing and installing padding for front backrest - section on "Removing"
2. Remove side airbag. 696319 Removing and installing side airbag - section on "Removing"
3. Remove control button for backrest release. 723119 Removing and installing control button for backrest release - section on "Removing"

top of page

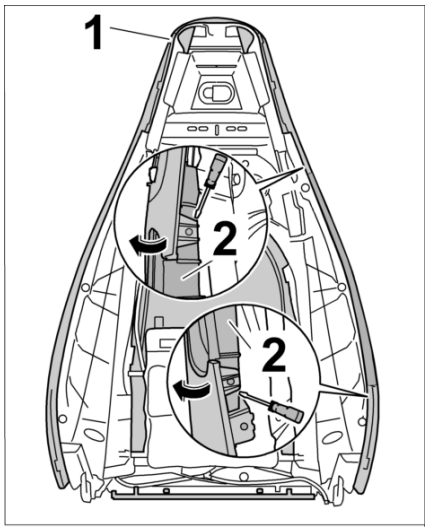
Removing cushion carrier for front backrest

Removing cushion carrier for front backrest



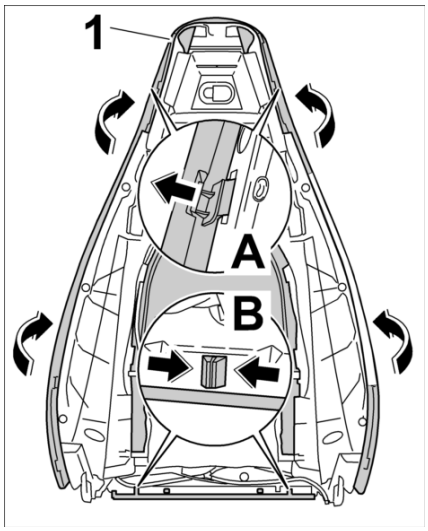
Loosening cushion carrier

1. Undo fastening screws **-1, 2-** .



Loosening cushion carrier at the sides

2. Pull out frame for side airbag **-2-** slightly and unclip locking tabs from cushion carrier **-1-** using a screwdriver.

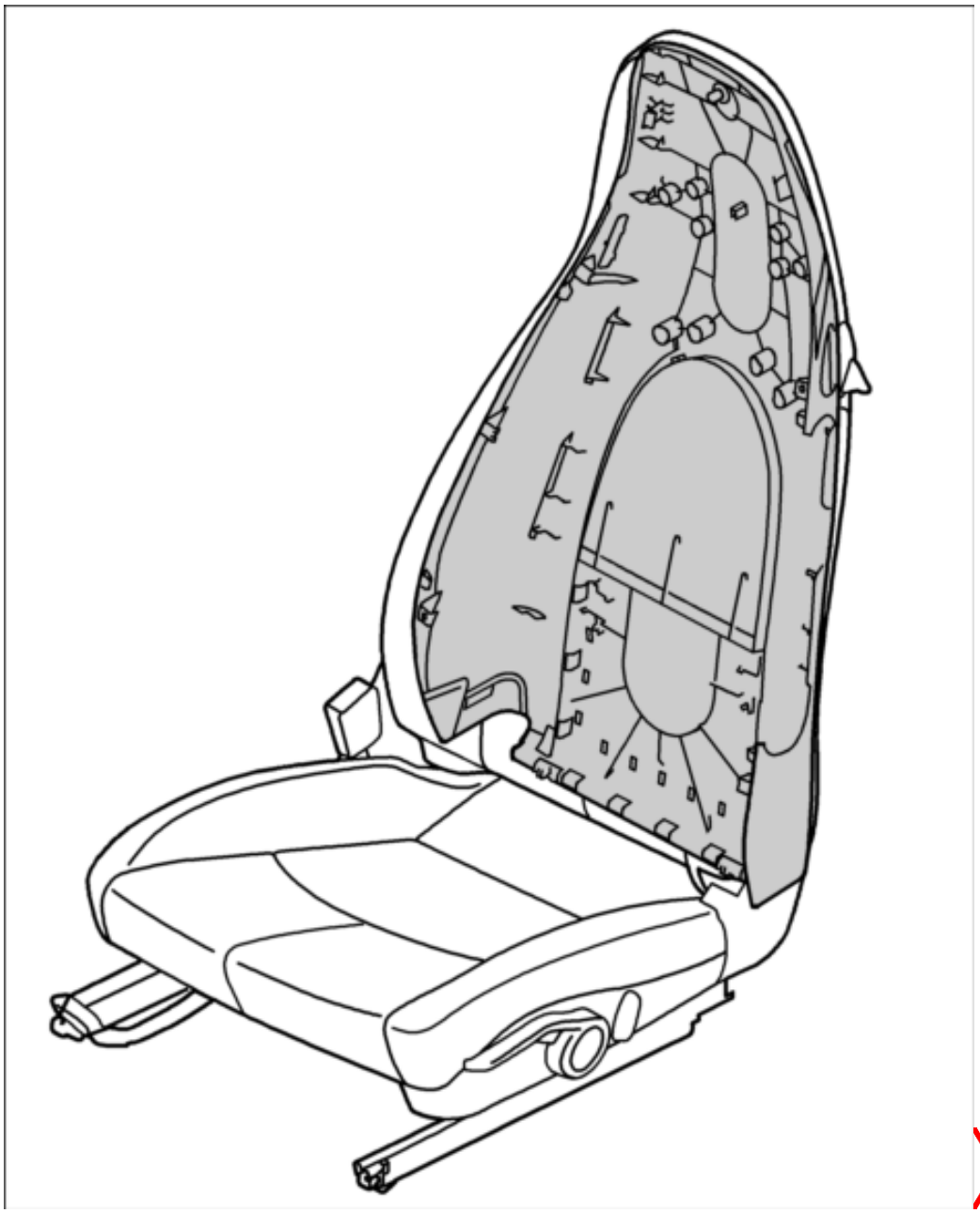


Removing cushion carrier

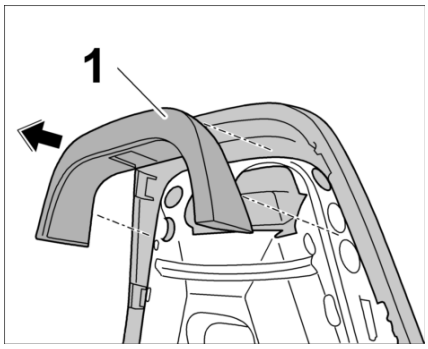
3. Release upper locking tabs in direction of arrow **-Inset A-** .
4. Press lower locking tabs together and unclip cushion carrier **-1-** (**-Inset B-**).
5. Press cushion carrier **-1-** outward slightly in area of backrest release and remove it.

Removing cushion carrier for front backrest

Installation Location:

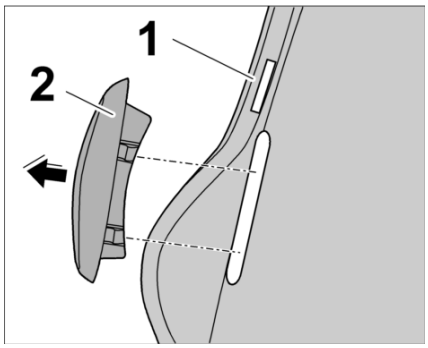


Installation position of cushion carrier



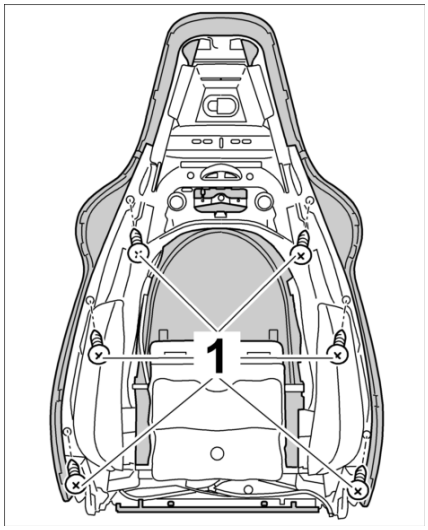
Removing foam part of headrest

1. Remove foam part of headrest **-1-** .



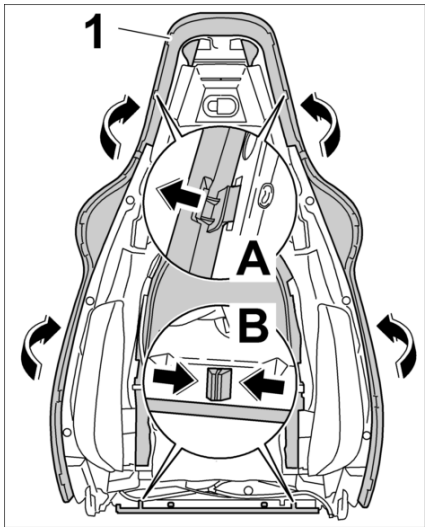
Removing collar

2. Insert a plastic wedge between the cushion carrier **-1-** and the collar **-2-** and unclip collar.



Loosening cushion carrier

3. Undo fastening screws **-1-** .



Removing cushion carrier

4. Release upper locking tabs in direction of arrow **-Inset A-** .
5.

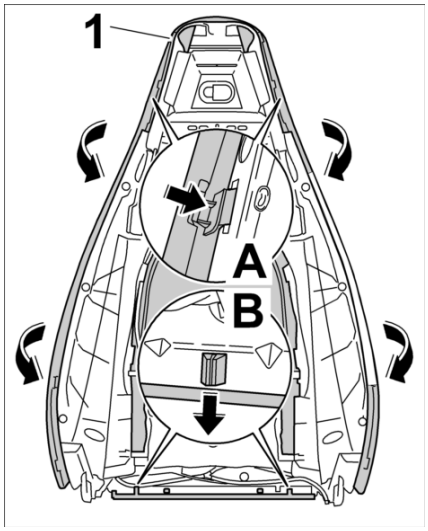
Press lower locking tabs together and unclip cushion carrier **-1-** (**-Inset B-**).

6. Press cushion carrier **-1-** outward slightly close to the backrest release and remove it.

top of page

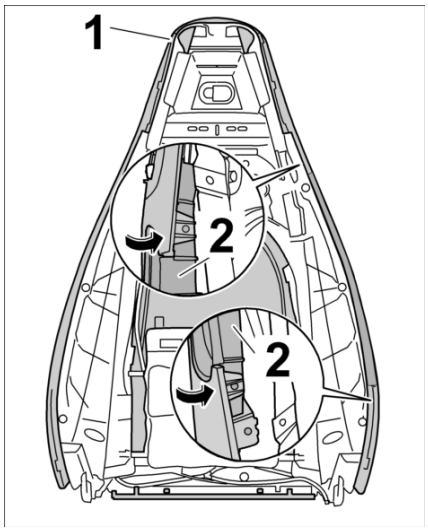
Installing cushion carrier for front backrest

Installing cushion carrier for front backrest



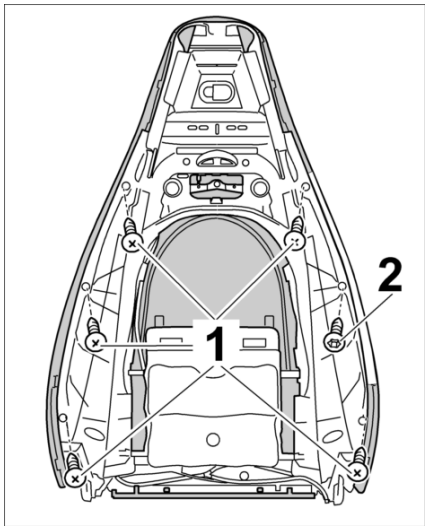
Installing cushion carrier

1. Press cushion carrier **-1-** outward slightly in area of backrest release and position it on the backrest frame **-2-** until the locking tabs engage at the top **-Inset A-** and bottom **-Inset B-** .



Fastening cushion carrier at the sides

2. Press cushion carrier **-1-** at the sides into the frame for the side airbag **-2-** until the locking tabs engage.

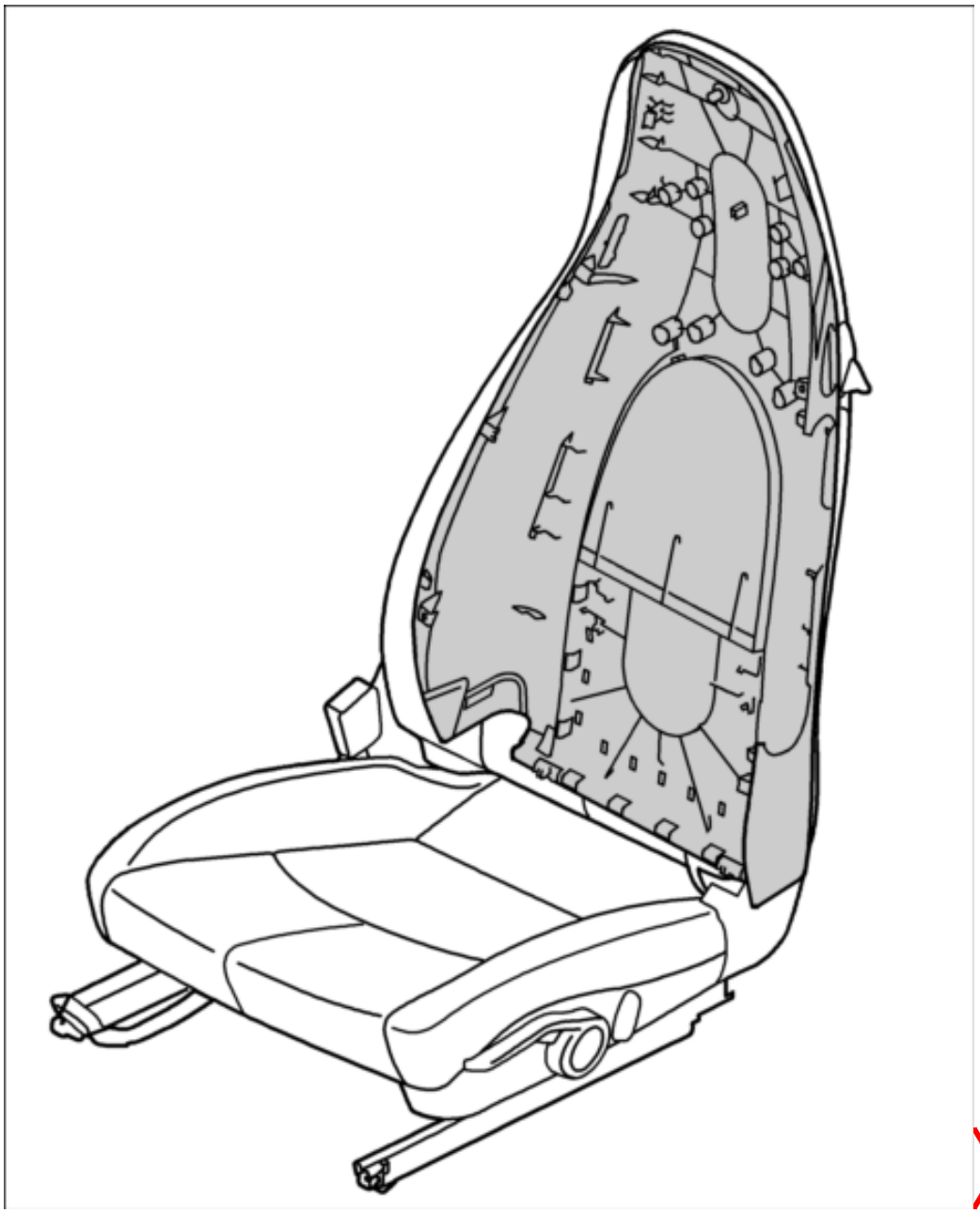


Securing cushion carrier

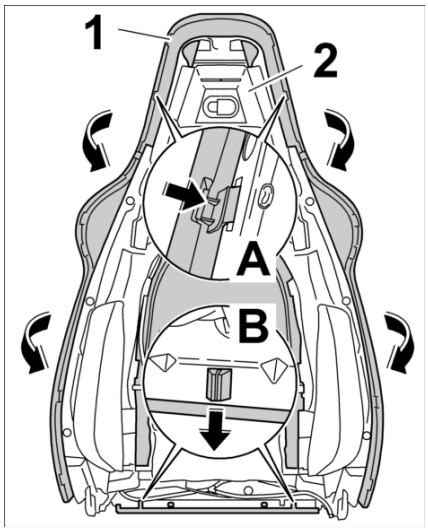
3. Tighten fastening screws **-1, 2-** .

Installing cushion carrier for front backrest

Installation Location:

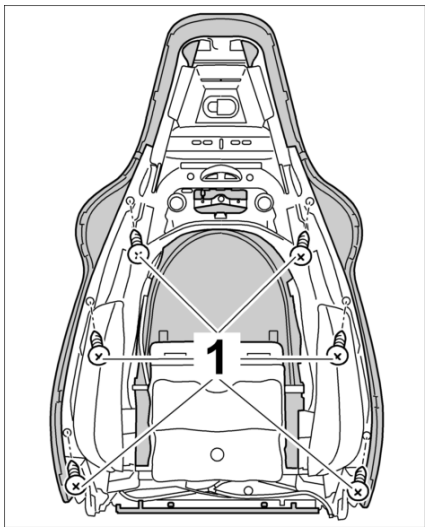


Installation position of cushion carrier



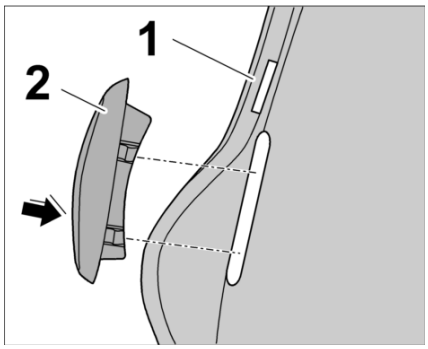
Installing cushion carrier

1. Press cushion carrier **-1-** outward slightly close to the backrest release and position it on the backrest frame **-2-** until the locking tabs engage at the top **-Inset A-** and bottom **-Inset B-** .



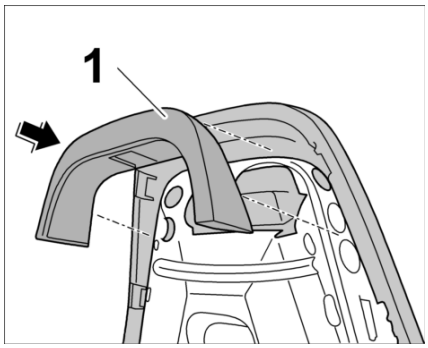
Securing cushion carrier

2. Tighten fastening screws **-1-** .



Installing collar

3. Position collar **-2-** on the cushion carrier **-1-** and press in until it clicks into place.



Fitting foam part of headrest

4. Fit foam part of headrest **-1-** .

top of page

Subsequent work

Subsequent work

Install padding for backrest. 741719 Removing and installing padding for front backrest - chapter on "Installing"

Subsequent work

1. Install control button for backrest release. 723119 Removing and installing control button for backrest release - section on "Installing"
2. Install side airbag. 696319 Removing and installing side airbag - section on "Installing"
3. Install padding for front backrest. 741719 Removing and installing padding for front backrest - section on "Installing"

997110, 997111, 997120, 997121, 997310, 997311, 997320, 997321, 997410, 997411, 997430, 997431, 997610, 997611, 997620, 997621

as of MY 2005
Country C00, C02, C05, C07, C08, C09, C10, C11, C12, C13, C14, C15, C16, C18, C19, C20, C21, C22, C23, C24, C25, C26, C27, C28, C32, C33, C34, C35, C36, C37, C38, C39, C45, C46, C98, C99

WARNUNG

Gefahr des Verlusts der Text-Bild-Zuordnung beim Ausdruck.

- **Aus technischen Gründen kann derzeit nicht ausgeschlossen werden, dass trotz einwandfreier Darstellung auf dem Bildschirm beim Ausdruck der Zusammenhang von Text und zugehörigem Bild verloren geht.**

72 25 19 Removing and installing bowden cable for backrest release - as of MY 2005

- Preliminary work
- Removing bowden cable for backrest release
- Installing bowden cable for backrest release
- Subsequent work

top of page

Preliminary work

Preliminary work

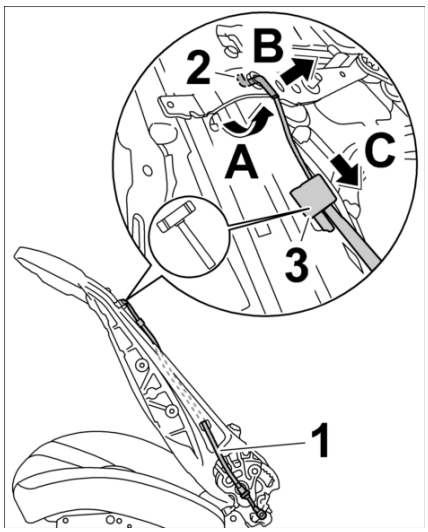
1. Remove cushion carrier for front backrest. 722419 Removing and installing cushion carrier for front backrest - section on "Removing"

top of page

Removing bowden cable for backrest release

Removing bowden cable for backrest release

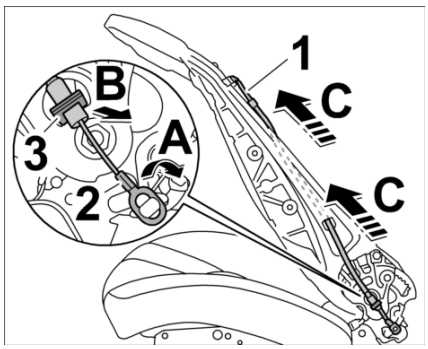
1. Release backrest and tilt forwards.



Disengaging bowden cable upwards

2. Swivel pin **-2-** of bowden cable **-1-** up by 90° **-arrow A-** and disengage it **-arrow B-** .

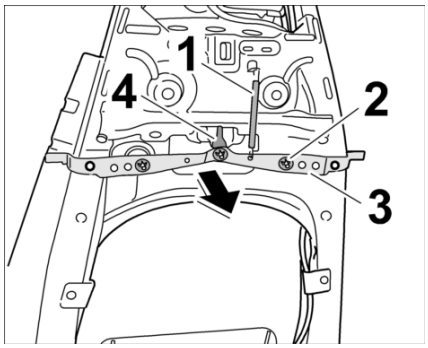
3. Press locking tab on fixing clip **-3-** outwards slightly and press fixing clip **-3-** down and out with a plastic hammer **-arrow C-** .



Disengaging bowden cable downwards

4. Swivel eye **-2-** of bowden cable **-1-** by 90° **-arrow A-** and pull it out of the locking lever.
5. Unclip fixing clip **-3-** from the backrest frame **-1-** (**-arrow B-**).
6. Pull bowden cable **-1-** up out of the backrest frame **-arrows C-** .

Removing backrest frame release



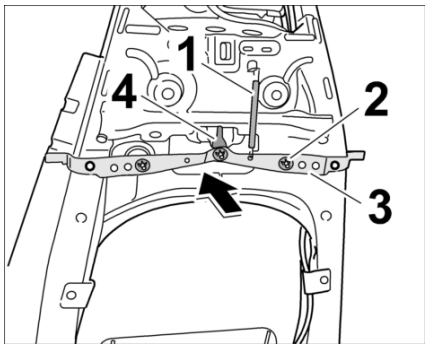
Removing backrest frame release

1. Disengage tension spring **-1-** .
2. Press retaining pins **-2-** out with a screwdriver and remove backrest frame release **-3-** .
3. Press out rubber stop **-4-** .

top of page

Installing bowden cable for backrest release

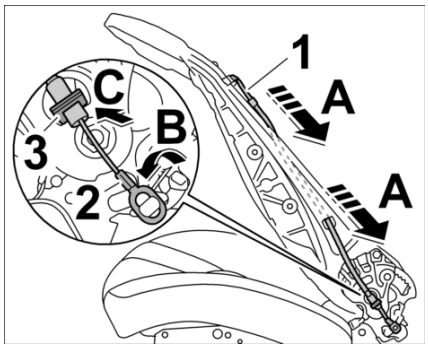
Installing backrest frame release



Installing backrest frame release

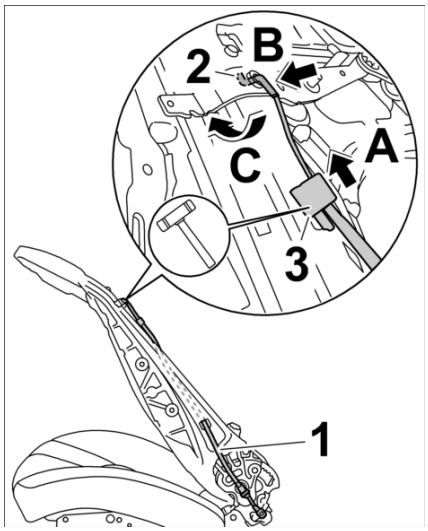
1. Press in rubber stop **-4-** .
2. Position backrest frame release **-3-** and secure with new retaining pins **-2-** .
3. Engage tension spring **-1-** .

Installing bowden cable for backrest release



Installing bowden cable

1. Insert bowden cable **-1-** downwards into the backrest frame from above **-Arrows A-** .
2. Insert eye **-2-** of bowden cable **-1-** into the locking lever and swivel by 90° **-Arrow B-** .
3. Press fixing clip **-3-** with bowden cable into the backrest frame **-Arrow C-** .



Engaging bowden cable at the top

4. Position fixing clip **-3-** on backrest frame and tap it upwards into place with a plastic hammer **-Arrow A-** .
5. Engage pin **-2-** of bowden cable **-1-** (**-Arrow B-**) and swivel downwards by 90° **-Arrow C-** .

top of page

Subsequent work

Reworking

1. Install cushion carrier for front backrest. 722419 Removing and installing cushion carrier for front backrest - section on "Installing"

997110, 997111, 997120, 997121, 997310, 997311, 997320, 997321, 997410, 997411, 997430, 997431, 997610, 997611, 997620, 997621

as of MY 2005
Country C00, C02, C05, C07, C08, C09, C10, C11, C12, C13, C14, C15, C16, C18, C19, C20, C21, C22, C23, C24, C25, C26, C27, C28, C32, C33, C34, C35, C36, C37, C38, C39, C45, C46, C98, C99

WARNUNG

Gefahr des Verlusts der Text-Bild-Zuordnung beim Ausdruck.

- **Aus technischen Gründen kann derzeit nicht ausgeschlossen werden, dass trotz einwandfreier Darstellung auf dem Bildschirm beim Ausdruck der Zusammenhang von Text und zugehörigem Bild verloren geht.**
- **Wird der Fehler nicht bemerkt, besteht die Gefahr, daß Arbeiten nicht korrekt durchgeführt werden und es dadurch zu Personen- und Sachschäden kommt.**

72 26 19 Removing and installing cover for backrest - as of MY 2005

- Removing cover for backrest
- Installing cover for backrest

top of page

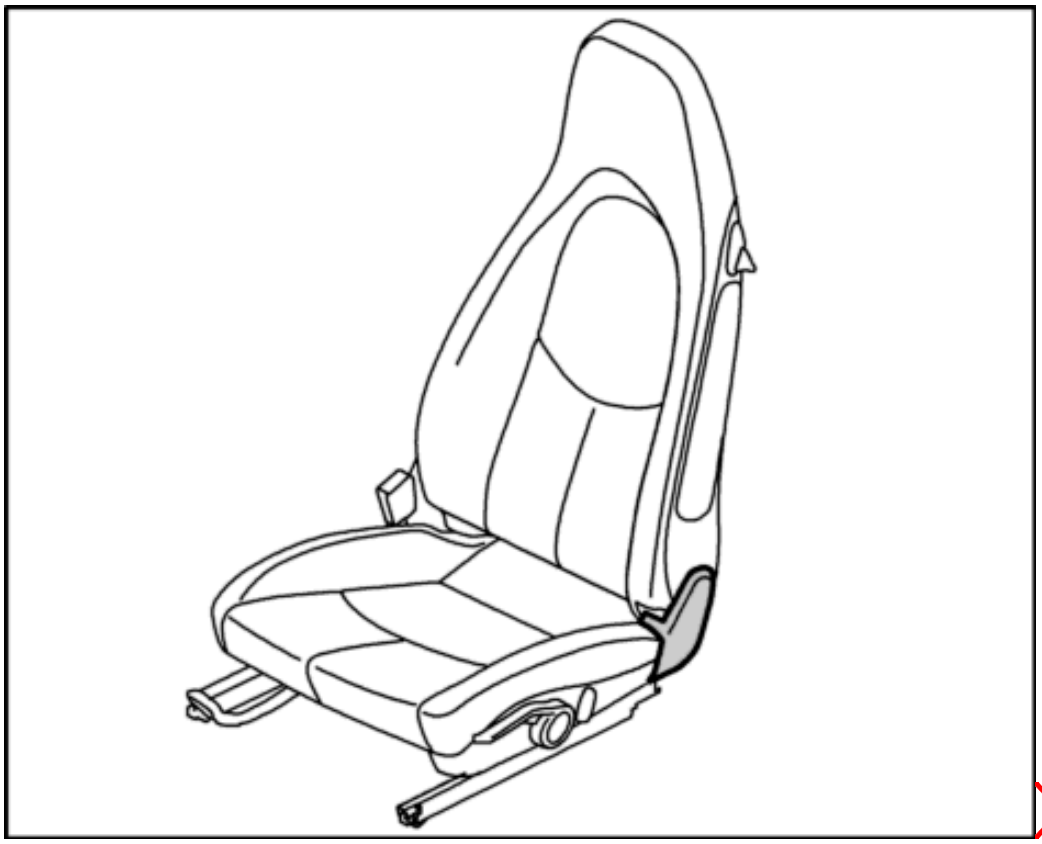
Removing cover for backrest

Preliminary work

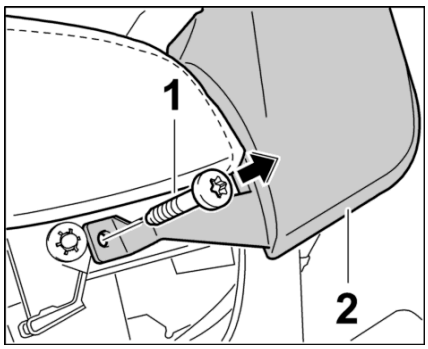
1. Remove front seat. 720119 Removing and installing front seat - chapter on "Removing" [997110 997120 997310 997320 997410 997430 997610 997620] 720119 Removing and installing front seat - chapter on "Removing" [997111 997121 997311 997321 997411 997431 997611 997621]
2. Remove control module trim panel. 721619 Removing and installing control module trim panel - chapter on "Removing"

Removing cover for outer backrest

Installation Location:

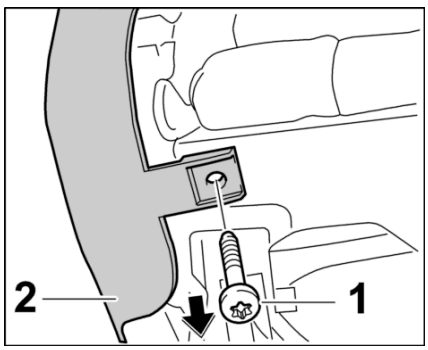


Installation position of backrest cover



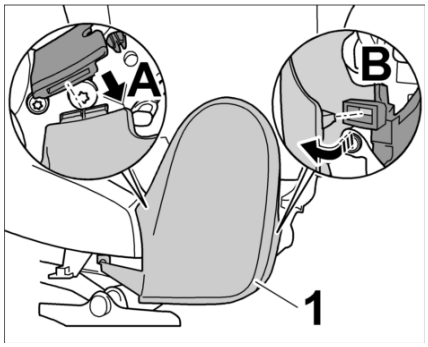
Unscrewing fastening screw laterally

1. Unscrew fastening screw **-1-** laterally out of the cover **-2-** .



Unscrewing lower fastening screw

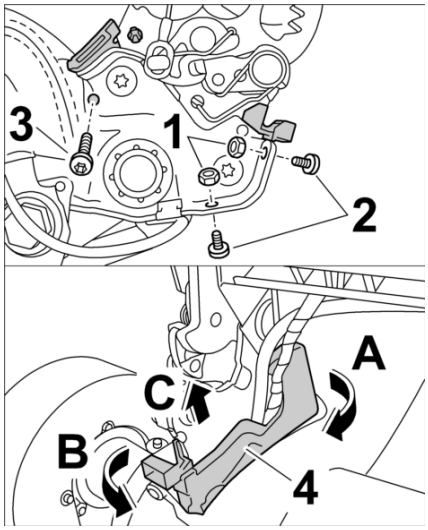
2. Unscrew lower fastening screw **-1-** out of the cover **-2-** .



Remove cover

3. Unclip cover **-1-** at the front **-inset A-** and remove by pulling backwards in direction of arrow **-inset B-** .

Removing cover for inner backrest



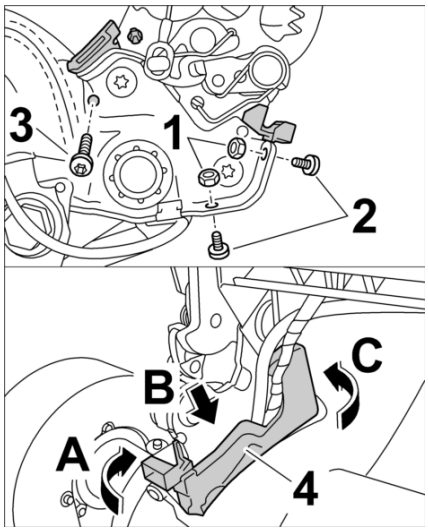
Removing cover for inner backrest

1. Unscrew fastening nuts **-1-** and loosen fastening screws **-2-** and seat frame slightly.
2. Unscrew fastening screw **-3-** .
3. Unclip cover **-4-** at the front **-arrow A-** , disengage carefully at the back **-arrow B-** and remove in **-direction of arrow C-** .

top of page

Installing cover for backrest

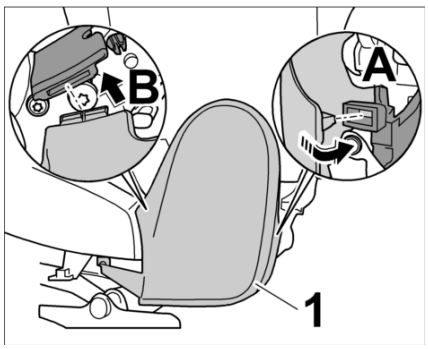
Installing cover for inner backrest



Installing cover for inner backrest

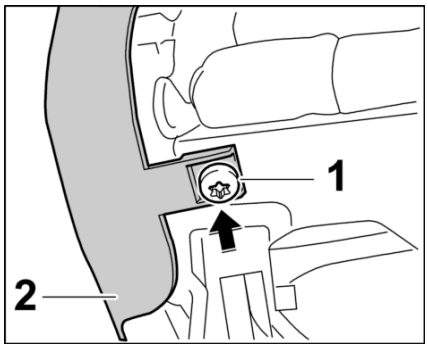
1. Engage cover **-4-** at the back **-arrow A-** , at the same time press downwards **-arrow B-** and then clip in at the front **-arrow C-** .
2. Secure cover **-4-** with the fastening screw **-3-** .
3. Screw in fastening screws **-2-** and secure seat frame with the fastening nuts **-1-** .

Installing cover for outer backrest



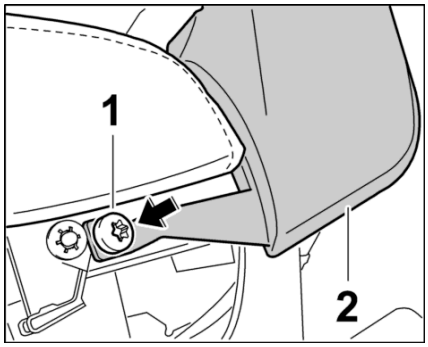
Installing cover

1. Insert cover **-1-** at the back in direction of arrow **-inset A-** and press into position at the front **-inset B-** .



Screwing down lower fastening screw

2. Screw down the cover **-2-** from below with the fastening screw **-1-** . **Tightening torque: 2.7 (1.8 ftlb.) Nm**



Tightening the fastening screw laterally

3. Screw down the cover **-2-** laterally with the fastening screw **-1-** . **Tightening torque: 2.7 (1.8 ftlb.) Nm**

Subsequent work

1. Install control module trim panel. 721619 Removing and installing control module trim panel - chapter on "Installing"
2. Install front seat. 720119 Removing and installing front seat - chapter on "Installing" [997110 997120 997310 997320 997410 997430 997610 997620] 720119 Removing and installing front seat - chapter on "Installing" [997111 997121 997311 997321 997411 997431 997611 997621]

997110, 997111, 997120, 997121, 997310, 997311, 997320, 997321, 997410, 997411, 997430, 997431, 997610, 997611, 997620, 997621

as of MY 2005
Country C00, C02, C05, C07, C08, C09, C10, C11, C12, C13, C14, C15, C16, C18, C19, C20, C21, C22, C23, C24, C25, C26, C27, C28, C32, C33, C34, C35, C36, C37, C38, C39, C45, C46, C98, C99

WARNUNG

Gefahr des Verlusts der Text-Bild-Zuordnung beim Ausdruck.

72 28 19 Removing and installing height adjustment lever - as of MY 2005

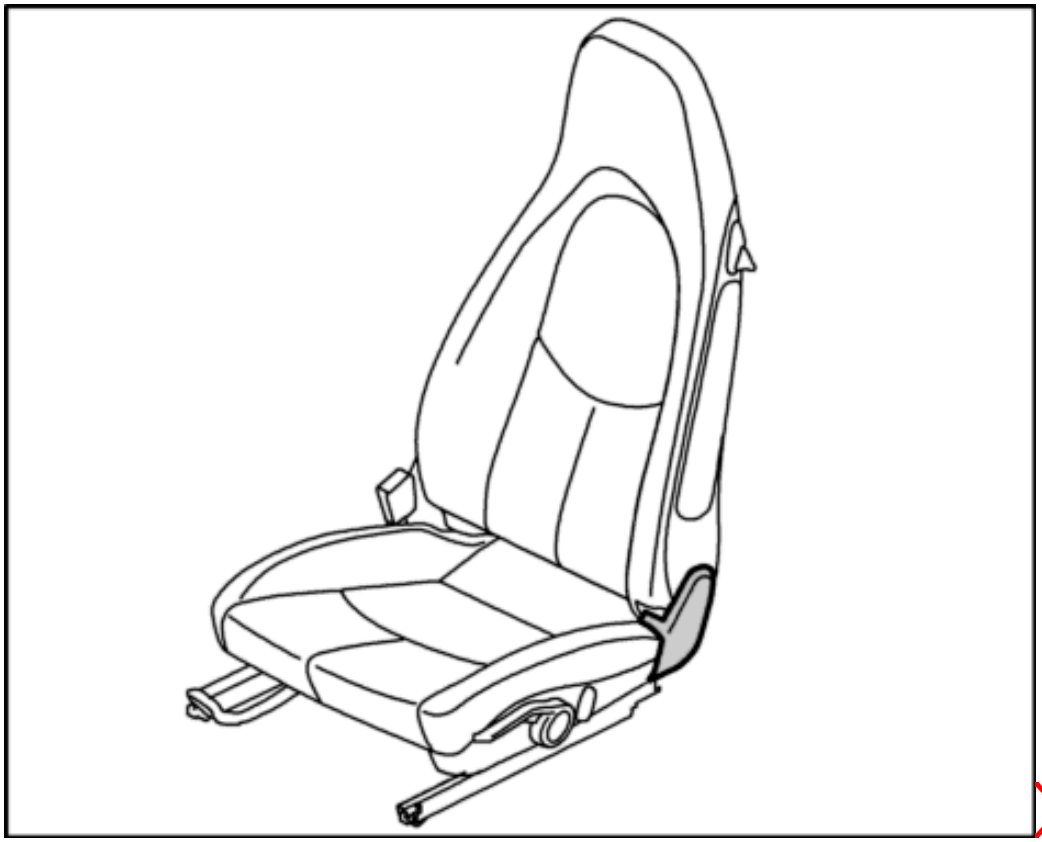
- Removing height adjustment lever
- Installing height adjustment lever

top of page

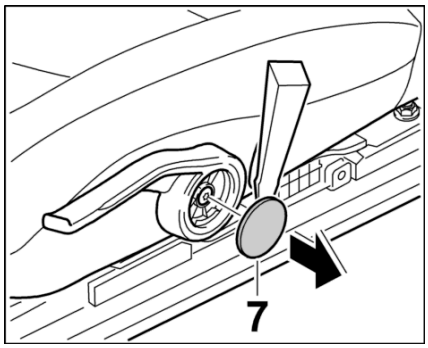
Removing height adjustment lever

Removing height adjustment lever

Installation Location:

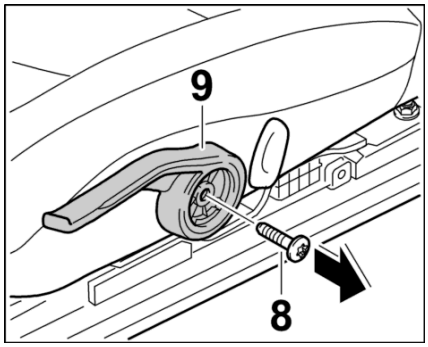


Installation position of backrest adjustment



Pressing out trim panel

1. Press out trim panel **-7-** using a plastic spatula.



Unscrewing fastening screw

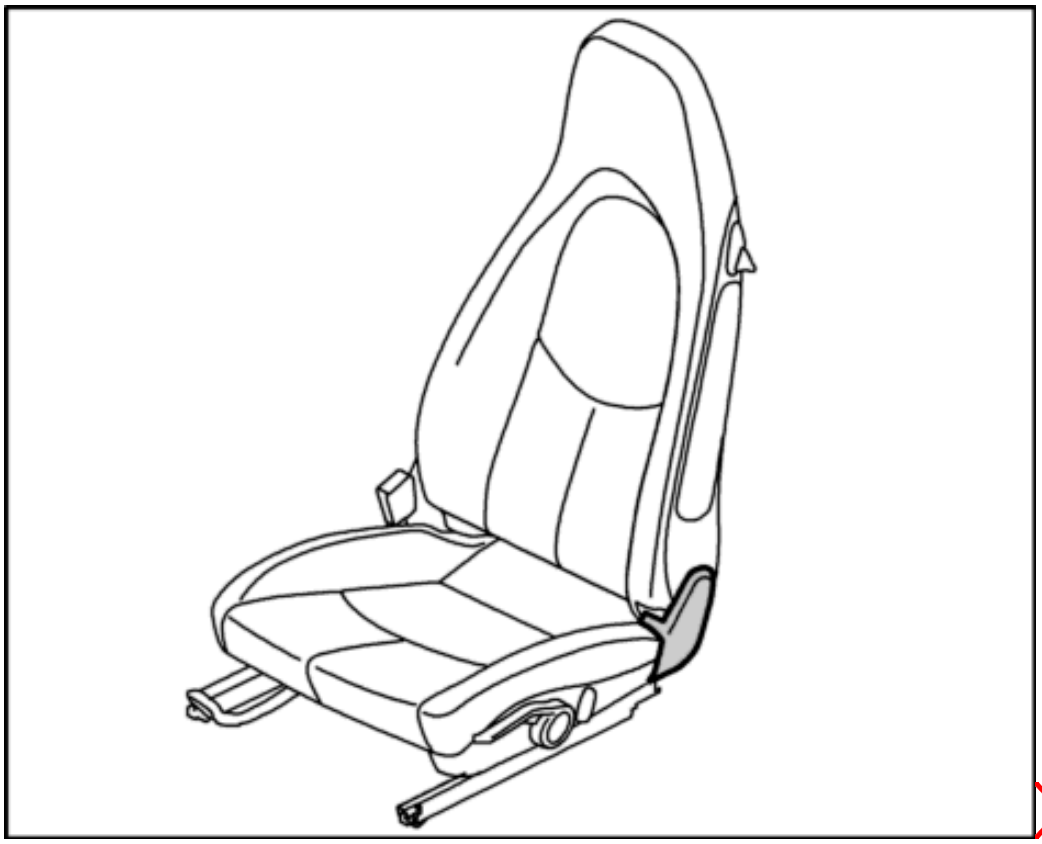
2. Unscrew fastening screw **-8-** from the lever **-9-** and remove lever.

top of page

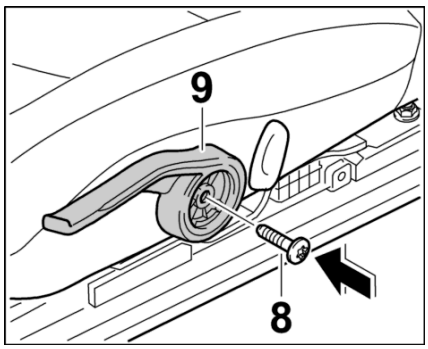
Installing height adjustment lever

Installing height adjustment lever

Installation Location:

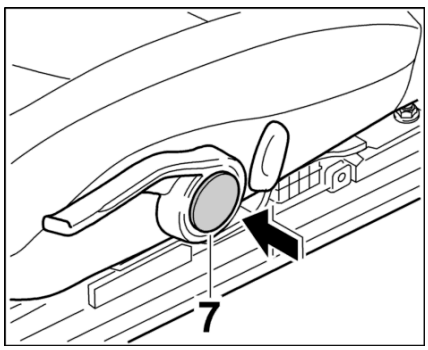


Installation position of backrest adjustment



Screwing down lever

1. Position lever **-9-** on the seat and screw down fastening screw **-8-** . Tightening torque **Tightening torque: 5.9 (4.5 ftlb.) Nm**



Pressing in trim panel

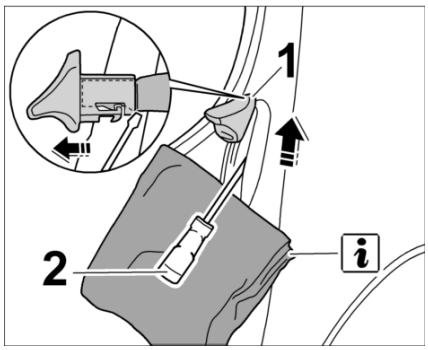
72 31 19 Removing and installing control button for backrest release - as of MY 2005

- Removing control button for backrest release
- Installing control button for backrest release

top of page

Removing control button for backrest release

Removing control button for backrest release



Removing control button

1. Press the control button **-1-** up and maintain in this position.

Note

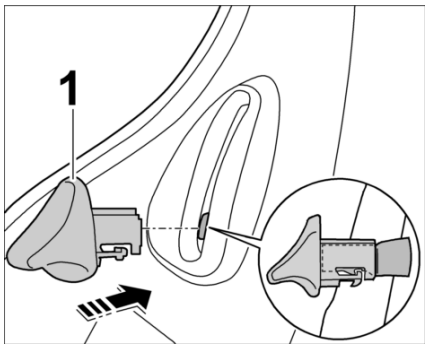
- *The cloth protects the collar from damage when pushing out the control button.*
- *Note that the control button will be damaged during removal. It must not be reused.*

2. Insert a screwdriver **-2-** underneath the control button and press the control button **-1-** out.

top of page

Installing control button for backrest release

Installing control button for backrest release



Installing control button

1. Press in control button **-1-** until it clicks into place.

997110, 997111, 997120, 997121, 997310, 997311, 997320, 997321, 997410, 997411, 997430, 997431, 997610, 997611, 997620, 997621

as of MY 2005
Country C00, C02, C05, C07, C08, C09, C10, C11, C12, C13, C14, C15, C16, C18, C19, C20, C21, C22, C23, C24, C25, C26, C27, C28, C32, C33, C34, C35, C36, C37, C38, C39, C45, C46, C98, C99

WARNUNG

Gefahr des Verlusts der Text-Bild-Zuordnung beim Ausdruck.

- **Aus technischen Gründen kann derzeit nicht ausgeschlossen werden, dass trotz einwandfreier Darstellung auf dem Bildschirm beim Ausdruck der Zusammenhang von Text und zugehörigem Bild verloren geht.**
- **Wird der Fehler nicht bemerkt, besteht die Gefahr, daß Arbeiten nicht korrekt durchgeführt werden und es dadurch zu Personen- und Sachschäden kommt.**

Vergleichen Sie deshalb nach dem Druckvorgang unbedingt die Ausdrucke mit der Bildschirmdarstellung. Korrigieren Sie die Ausdrucke im Fehlerfall so, daß der Inhalt der Bildschirmdarstellung zutreffend wiedergegeben wird.

WARNING

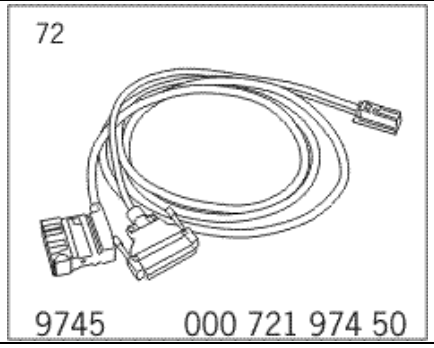
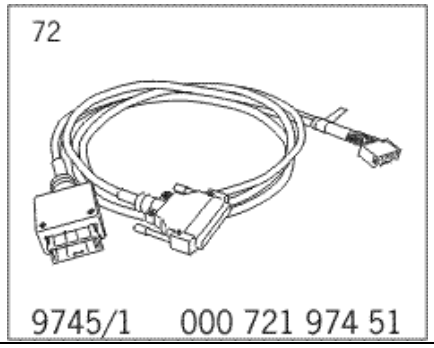
Danger of losing text-figure correspondence when printing out.

- **For technical reasons, it can currently not be ruled out that the correspondence between text and associated figure can be lost when it is printed out, even though the display on the screen is correct.**
- **If the fault is not noticed, there is the danger that work will not be performed correctly which can cause injury and damage.**

72 33 19 Removing and installing control valve for lumbar support adjustment - as of MY 2005

- Preliminary work
- Removing control valve for lumbar support adjustment
- Installing control valve for lumbar support adjustment
- Subsequent work

Tools

Designation	Type	Number	Explanation	
test cable	special tool	9745		
test cable	special tool	9745/1		

top of page

Preliminary work

Preliminary work

1. Remove cushion carrier for front backrest. 722419 Removing and installing cushion carrier for front backrest - section on "Removing"

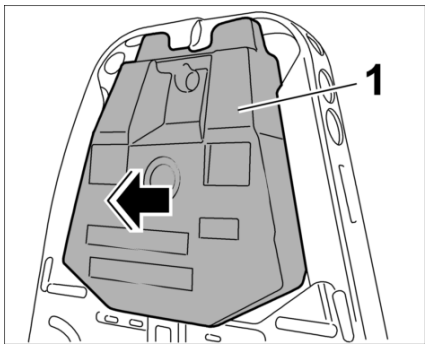
top of page

Removing control valve for lumbar support adjustment

Taking off foam part

Installation Location:

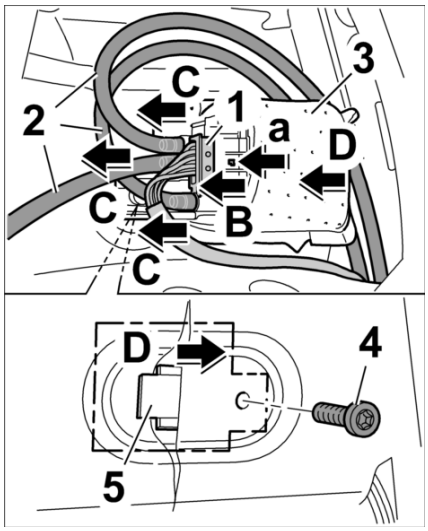
Installation position of control valve for lumbar support adjustment



Taking off foam part

1. Remove foam part **-1-** at the headrest.

Removing control valve for lumbar support adjustment



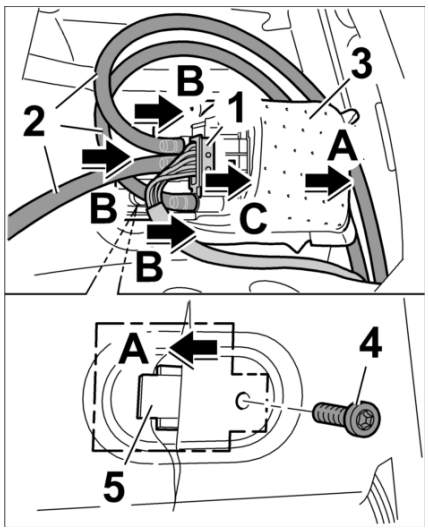
Removing control valve for lumbar support adjustment

1. Release connector **-1-** on control valve for lumbar support adjustment **-3-** (**-arrow a-**) and pull it off **-arrow B-** .
2. Pull off the three hoses **-2-** on the control valve for lumbar support adjustment **-3-** (**-arrows C-**).
3. Unscrew fastening screw **-4-** and pull control valve for lumbar support adjustment **-3-** (with the clip **-5-**) off the backrest frame **-arrow D-** .

top of page

Installing control valve for lumbar support adjustment

Installing control valve for lumbar support adjustment



Installing control valve for lumbar support adjustment

1. Push control valve for lumbar support adjustment **-3-** (with the clip **-5-**) onto the backrest frame **-arrow A-** and screw down with the fastening screw **-4-** . **Tightening torque: 4 (3 ftlb.) Nm**

Note

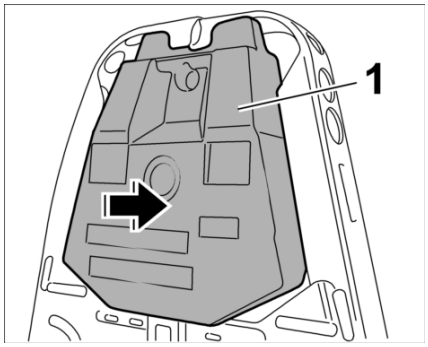
Observe the installation position of the hoses!
Push on the blue hose onto the connection marked **B** and push on the red hose onto the connection marked **R**.

2. Push on the three hoses **-2-** onto the control valve for lumbar support adjustment **-3-** (**-arrows B-**).
3. Push connector **-1-** onto the control valve for lumbar support adjustment **-3-** (**-arrow C-**) until it engages securely.

Checking seat following removal

1. Connect the removed seat to the vehicle's wiring harness via **test cable 9745** and **test cable 9745/1**.
2. Connect electric plug to control module trim panel. 721619 Removing and installing control module trim panel - section on "Installing"
3. Connect the battery. 2706IN IN -Work instructions after disconnecting the battery
4. Switch on ignition.
5. Carry out a function check on the seat components.
6. Switch off ignition after function test and disconnect battery.
7. Disconnect **test cable 9745** and **test cable 9745/1**.

Fitting foam part



Fitting foam part

Note

Observe the installation position of the hoses!
Make sure that the hoses are not pinched. Insert hoses exactly into the cut-outs on the foam part.

1. Fit foam part **-1-** at the headrest.

top of page

Subsequent work

Reworking

1. Install cushion carrier for front backrest. 722419 Removing and installing cushion carrier for front backrest - section on "Installing"

997110, 997111, 997120, 997121, 997310, 997311, 997320, 997321, 997410, 997411, 997430, 997431, 997610, 997611, 997620, 997621

as of MY 2005
Country C00, C02, C05, C07, C08, C09, C10, C11, C12, C13, C14, C15, C16, C18, C19, C20, C21, C22, C23, C24, C25, C26, C27, C28, C32, C33, C34, C35, C36, C37, C38, C39, C45, C46, C98, C99

WARNUNG

Gefahr des Verlusts der Text-Bild-Zuordnung beim Ausdruck.

- **Aus technischen Gründen kann derzeit nicht ausgeschlossen werden, dass trotz einwandfreier Darstellung auf dem Bildschirm beim Ausdruck der Zusammenhang von Text und zugehörigem Bild verloren geht.**
- **Wird der Fehler nicht bemerkt, besteht die Gefahr, daß Arbeiten nicht korrekt durchgeführt werden und es dadurch zu Personen- und Sachschäden kommt.**

Vergleichen Sie deshalb nach dem Druckvorgang unbedingt die Ausdrucke mit der Bildschirmdarstellung. Korrigieren Sie die Ausdrucke im Fehlerfall so, daß der Inhalt der Bildschirmdarstellung zutreffend wiedergegeben wird.

WARNING

Danger of losing text-figure correspondence when printing out.

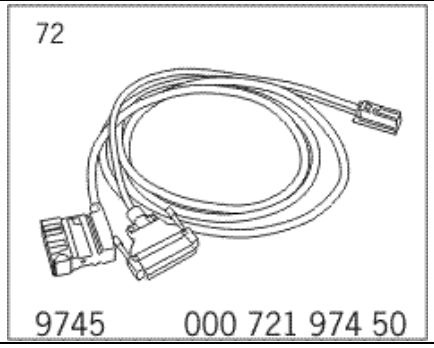
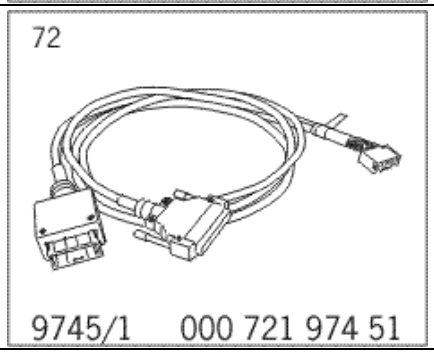
- **For technical reasons, it can currently not be ruled out that the correspondence between text and associated figure can be lost when it is printed out, even though the display on the screen is correct.**
- **If the fault is not noticed, there is the danger that work will not be performed correctly which can cause injury and damage.**

Therefore, always compare printouts with the screen display after printing them out. Correct the printouts if they are faulty so that the content of the screen display matches that on the printouts.

72 34 19 Removing and installing lumbar support - as of MY 2005

- Preliminary work
- Removing lumbar support
- Installing lumbar support
- Subsequent work

Tools

Designation	Type	Number	Explanation	
test cable	special tool	9745		
test cable	special tool	9745/1		

top of page

Preliminary work

Preliminary work

1. Remove cushion carrier for front backrest. 722419 Removing and installing cushion carrier for front backrest - section on "Removing"

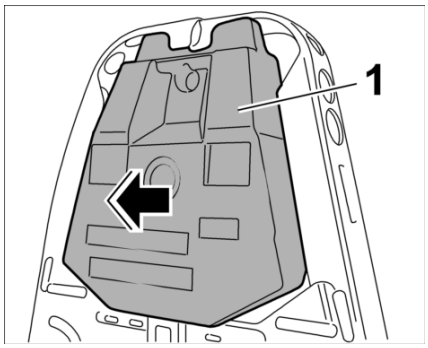
top of page

Removing lumbar support

Taking off foam part

Installation Location:

Installation position of control valve for lumbar support adjustment



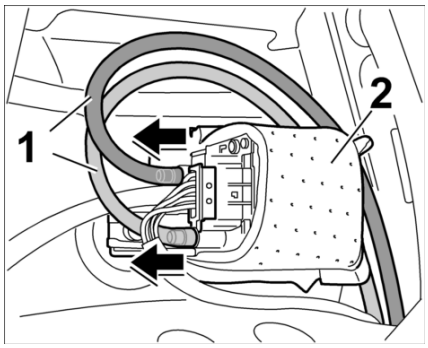
Taking off foam part

1. Remove foam part **-1-** at the headrest.

Removing lumbar support

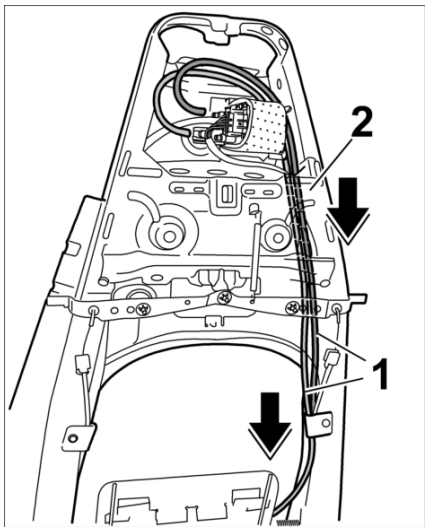
Installation Location:

Installation position of lumbar support



Pulling off hoses on the lumbar support control valve

1. Pull off the red and blue hose **-1-** on the lumbar support control valve **-2-** .

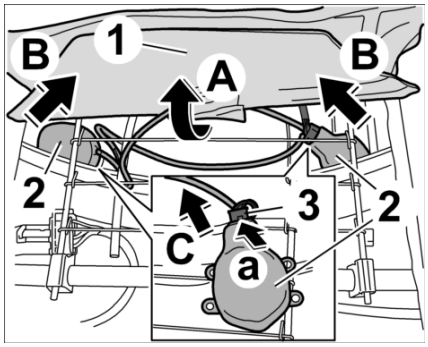


Pulling hoses out of the backrest frame

2. Pull the red and blue hose **-1-** out of the backrest frame **-2-** .

Note

Only for seats with a memory function



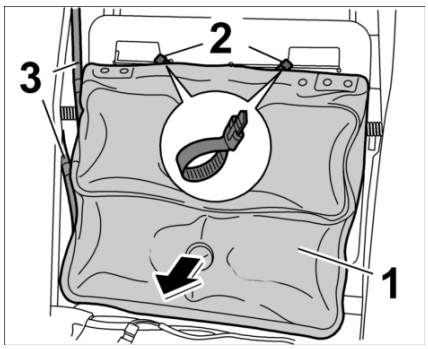
Pulling connectors off the lumbar support sensors

3. Pull connectors off the lumbar support sensors.

3.1. Swivel lumbar support **-1-** upward **-arrow A-** .

3.2. Pull the two sensors **-2-** forward behind the backrest panel **-arrows B-** .

3.3. Release both connectors **-3-** at the sensors **-2-** (**-arrow a-**) and unplug them **-arrow C-** .



Removing lumbar support

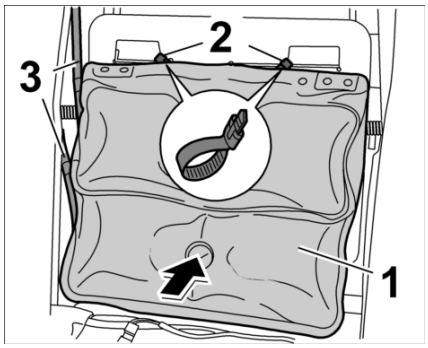
4. Remove the two tie-wraps **-2-** on the lumbar support **-1-** .

5. Remove lumbar support **-1-** together with the red and blue hose **-3-** .

top of page

Installing lumbar support

Installing lumbar support

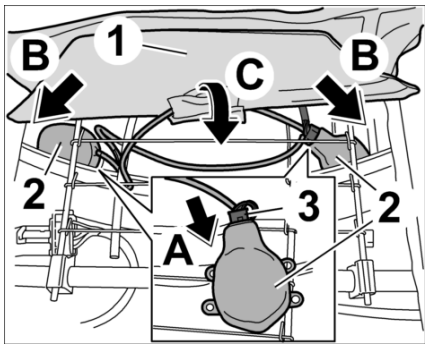


Installing lumbar support

1. Install the lumbar support **-1-** together with the red and blue hose **-3-** .
2. Secure the lumbar support **-1-** to the grille using two new tie-wraps **-2-** .

Note

Only for seats with a memory function



Attaching connectors to the lumbar support sensors

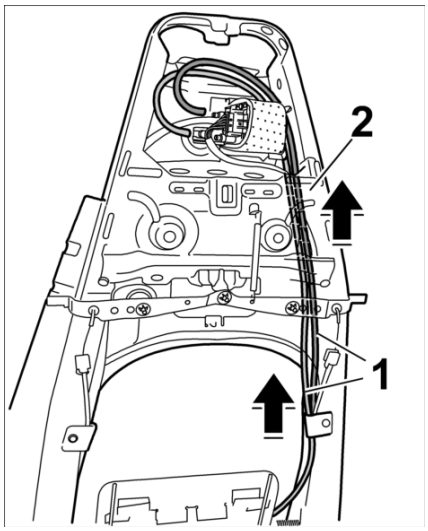
3. Attach connectors to the lumbar support sensors.

Note

Observe installation position of connectors!
Push **red-lilac-brown** connector onto the sensor at the top air cushion.
Push **red-white-brown** connector onto the sensor at the bottom air cushion.

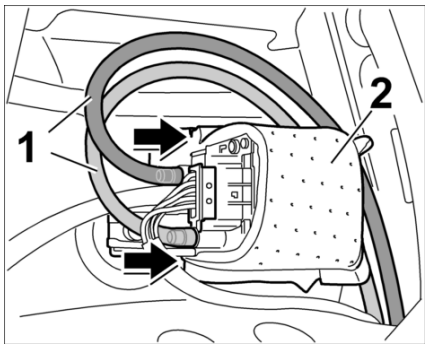
3.1. Connect the two connectors **-3-** to the sensors **-2-** (**-arrow A-**) until they engage securely.

3.2. Push the two sensors **-2-** behind the backrest panel **-arrows B-** and fold down the lumbar support **-1-** (**-arrow C-**).



Laying hoses on the backrest frame

4. Lay the red hose and the blue hose **-1-** on the backrest frame **-2-**
   .



Sliding hoses onto the lumbar support control valve

Note

Observe the installation position of the hoses!
Push on the blue hose onto the connection marked **B** and push on the red hose onto the connection marked **R**.

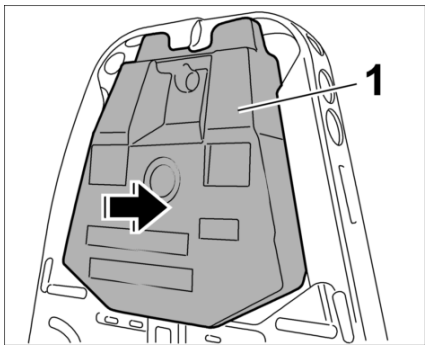
5. Slide the red and blue hose **-1-** onto the lumbar support control valve **-2-** .
6. Check the function of the lumbar support using the test cable.

Checking seat following removal

1. Connect the removed seat to the vehicle's wiring harness via **test cable 9745** and **test cable 9745/1**.
2. Connect electric plug to control module trim panel. 721619 Removing and installing control module trim panel - section on "Installing"
3. Connect the battery. 2706IN IN -Work instructions after disconnecting the battery
4. Switch on ignition.
5. Carry out a function check on the seat components.
6. Switch off ignition after function test and disconnect battery.

7. Disconnect **test cable 9745** and **test cable 9745/1**.

Fitting foam part



Fitting foam part

Note

Observe the installation position of the hoses!
Make sure that the hoses are not pinched. Insert hoses exactly into the cut-outs on the foam part.

1. Fit foam part **-1-** at the headrest.

top of page

Subsequent work

Reworking

1. Install cushion carrier for front backrest. 722419 Removing and installing cushion carrier for front backrest - section on "Installing"

997110, 997111, 997120, 997121, 997310, 997311, 997320, 997321, 997410, 997411, 997430, 997431, 997610, 997611, 997620, 997621

as of MY 2005
Country C00, C02, C05, C07, C08, C09, C10, C11, C12, C13, C14, C15, C16, C18, C19, C20, C21, C22, C23, C24, C25, C26, C27, C28, C32, C33, C34, C35, C36, C37, C38, C39, C45, C46, C98, C99

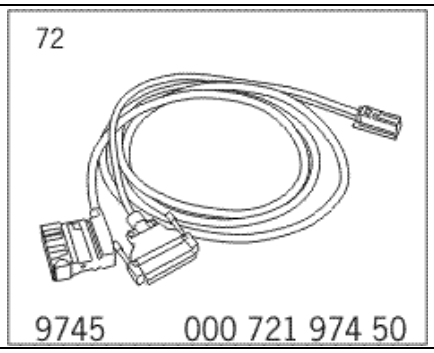
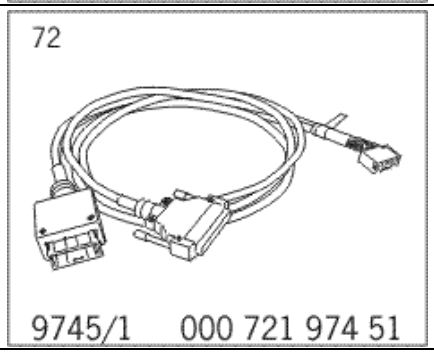
WARNUNG

Gefahr des Verlusts der Text-Bild-Zuordnung beim Ausdruck.

72 36 19 Removing and installing motor for lumbar support - as of MY 2005

- Preliminary work
- Removing motor for lumbar support
- Installing motor for lumbar support
- Subsequent work

Tools

Designation	Type	Number	Explanation	
test cable	special tool	9745		
test cable	special tool	9745/1		

top of page

Preliminary work

Preliminary work

1. Remove cushion carrier for front backrest. 722419 Removing and installing cushion carrier for front backrest - section on "Removing"

Note

Only for vehicles with adaptive sports seats.

2. Remove left air cushion for backrest. 721719 Removing and installing air cushion for backrest - section on "Removing"

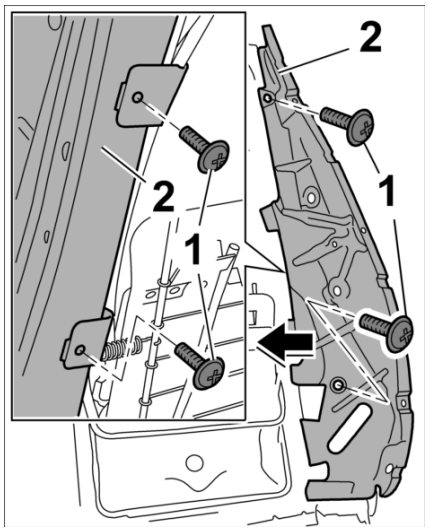
top of page

Removing motor for lumbar support

Removing support for left backrest side part

Installation Location:

Installation position of motor for lumbar support



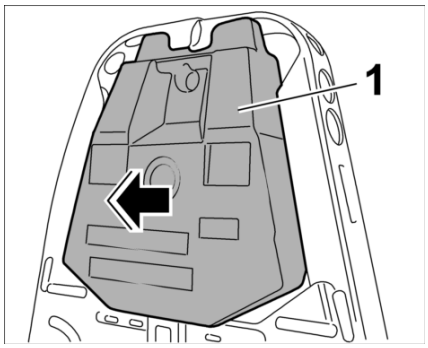
Removing support for left backrest side part

1. Unscrew the four fastening screws **-1-** and remove support for backrest side part **-2-** .

Taking off foam part

Installation Location:

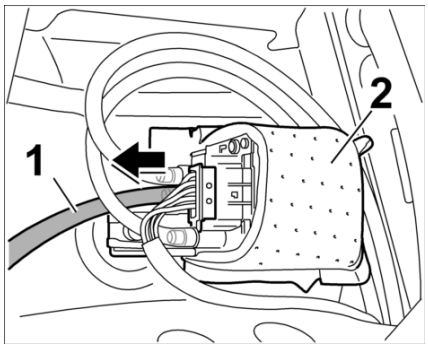
Installation position of control valve for lumbar support adjustment



Taking off foam part

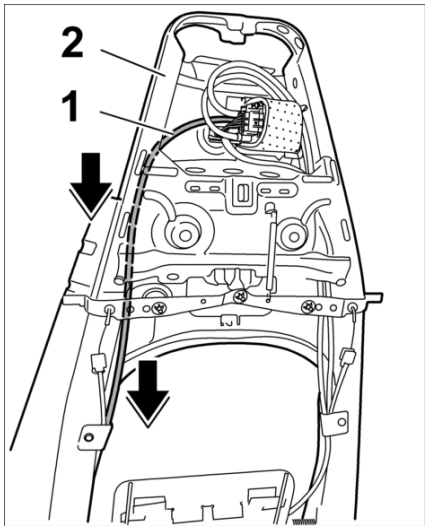
1. Remove foam part **-1-** at the headrest.

Removing motor for lumbar support



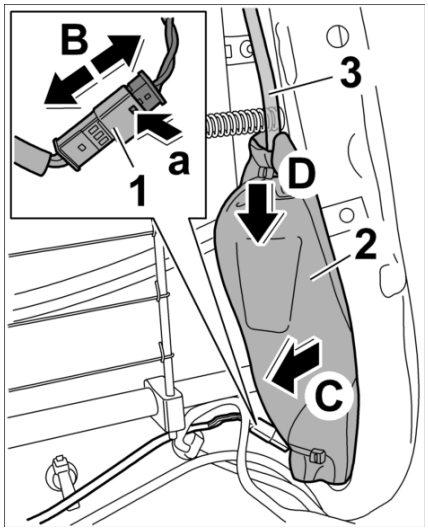
Pulling hose off the control valve for lumbar support

1. Pull the white hose **-1-** off the control valve for lumbar support **-2-** .



Pulling hose out of the backrest frame

2. Pull the white hose **-1-** out of the backrest frame **-2-** .



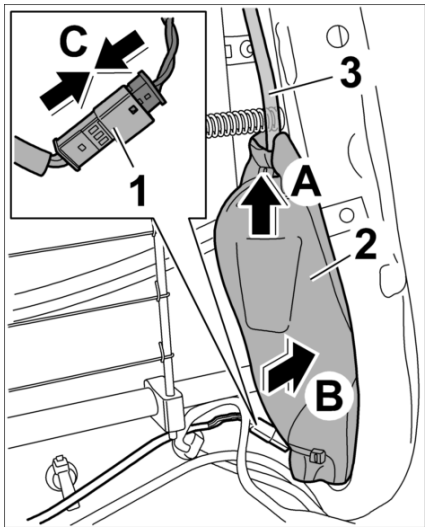
Removing motor for lumbar support

3. Release plug connection **-1-** (**-arrow a-**) and disconnect it **-arrows B-** .
4. Take motor for lumbar support **-2-** out of the backrest frame (**-arrow C-**) and pull the hose **-3-** along with the motor out of the backrest frame **-arrow D-** .

top of page

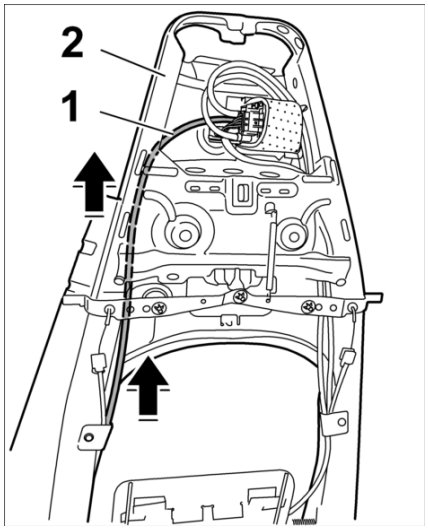
Installing motor for lumbar support

Installing motor for lumbar support



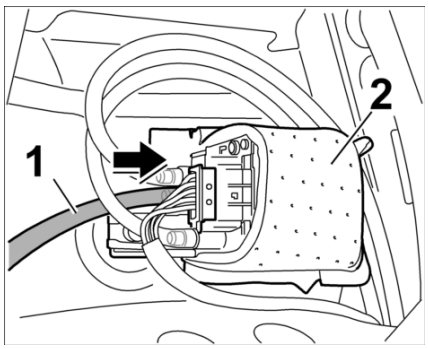
Installing motor for lumbar support

1. Push hose **-3-** into the backrest frame **-arrow A-** and insert motor for lumbar support **-2-** into the backrest frame **-arrow B-** .
2. Push plug connection **-1-** together **-arrows C-** until it engages securely.



Laying hose on backrest frame

3. Lay the white hose **-1-** on the backrest frame **-2-** .



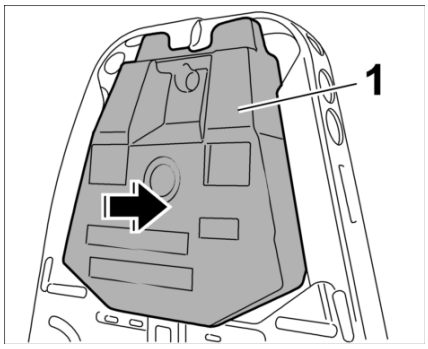
Pushing hose onto the control valve for lumbar support

4. Push the white hose **-1-** onto the control valve for lumbar support **-2-** .

Checking seat following removal

1. Connect the removed seat to the vehicle's wiring harness via **test cable 9745** and **test cable 9745/1**.
2. Connect electric plug to control module trim panel. 721619 Removing and installing control module trim panel - section on "Installing"
3. Connect the battery. 2706IN IN -Work instructions after disconnecting the battery
4. Switch on ignition.
5. Carry out a function check on the seat components.
6. Switch off ignition after function test and disconnect battery.
7. Disconnect **test cable 9745** and **test cable 9745/1**.

Fitting foam part



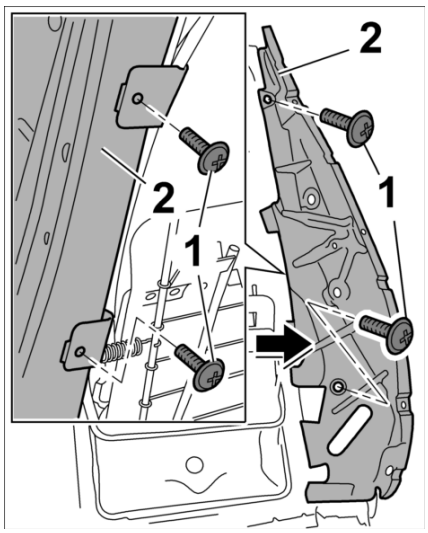
Fitting foam part

Note

Observe the installation position of the hoses!
Make sure that the hoses are not pinched. Insert hoses exactly into the cut-outs on the foam part.

1. Fit foam part **-1-** at the headrest.

Installing support for left backrest side part

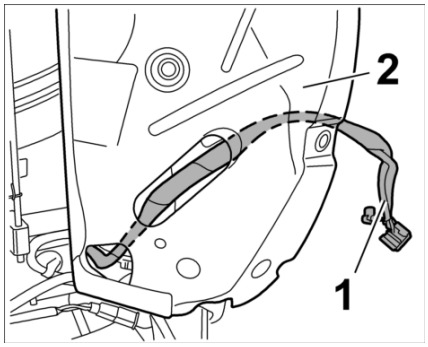


Installing support for left backrest side part

Note

Observe hose routing!
In vehicles with lumbar support, make sure the hoses are routed correctly in the area of the backrest side support.

1. Insert support for backrest side part **-2-** and secure with the four fastening screws **-1-** .



Routing wire harness for airbag

2. Route wire harness for airbag **-1-** as shown behind the backrest side part support **-2-** .

top of page

Subsequent work

Subsequent work

1. Install right air cushion for backrest. 721719 Removing and installing air cushion for backrest - section on "Installing"
2. Install cushion carrier for front backrest. 722419 Removing and installing cushion carrier for front backrest - section on "Installing"

997110, 997111, 997120, 997121, 997310, 997311, 997320, 997321, 997410, 997411, 997430, 997431, 997610, 997611, 997620, 997621

as of MY 2005
Country C00, C02, C05, C07, C08, C09, C10, C11, C12, C13, C14, C15, C16, C18, C19, C20, C21, C22, C23, C24, C25, C26, C27, C28, C32, C33, C34, C35, C36, C37, C38, C39, C45, C46, C98, C99

WARNUNG

Gefahr des Verlusts der Text-Bild-Zuordnung beim Ausdruck.

- **Aus technischen Gründen kann derzeit nicht ausgeschlossen werden, dass trotz einwandfreier Darstellung auf dem Bildschirm beim Ausdruck der Zusammenhang von Text und zugehörigem Bild verloren geht.**
- **Wird der Fehler nicht bemerkt, besteht die Gefahr, daß Arbeiten nicht korrekt durchgeführt werden und es dadurch zu Personen- und Sachschäden kommt.**

Vergleichen Sie deshalb nach dem Druckvorgang unbedingt die Ausdrucke mit der Bildschirmdarstellung. Korrigieren Sie die Ausdrucke im Fehlerfall so, daß der Inhalt der Bildschirmdarstellung zutreffend wiedergegeben wird.

WARNING

Danger of losing text-figure correspondence when printing out.

- **For technical reasons, it can currently not be ruled out that the correspondence between text and associated figure can be lost when it is printed out, even though the display on the screen is correct.**
- **If the fault is not noticed, there is the danger that work will not be performed correctly which can cause injury and damage.**

Therefore, always compare printouts with the screen display after printing them out. Correct the printouts if they are faulty so that the content of the screen display matches that on the printouts.

AVERTISSEMENT

72 38 19 Removing and installing air cushion control valve - as of MY 2005

- Preliminary work
- Removing air cushion control valve
- Installing air cushion control valve
- Subsequent work

top of page

Preliminary work

Preliminary work

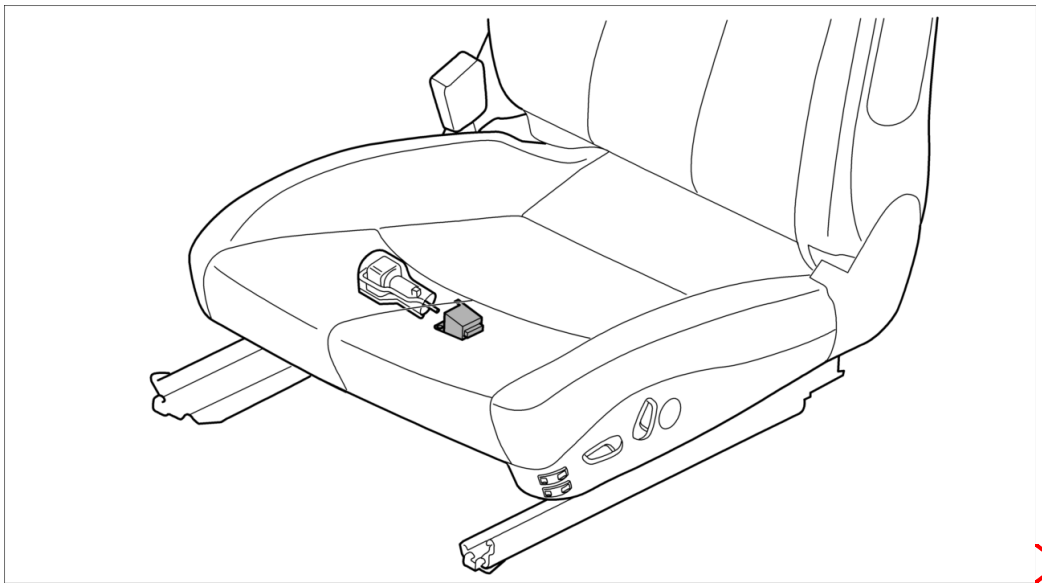
Remove front seat. 720119 Removing and installing front seat - section on "Removing" [997110 997120 997310 997320 997410 997430 997610 997620] 720119 Removing and installing front seat - section on "Removing" [997111 997121 997311 997321 997411 997431 997611 997621]

top of page

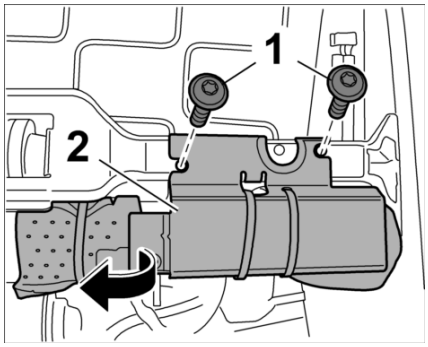
Removing air cushion control valve

Removing air cushion control valve

Installation Location:

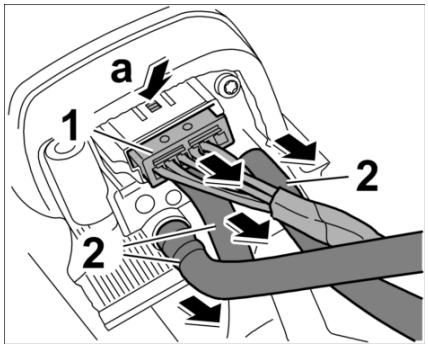


Installation position for air cushion control valve



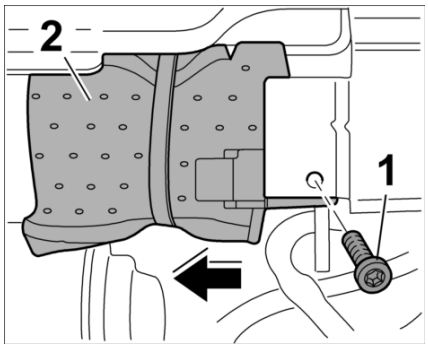
Loosening support with compressor and air distributor valve

1. Unscrew the two fastening screws **-1-** on the support **-2-** .
2. Set support **-2-** with connected motor and air cushion control valve aside.



Pulling off connector and hoses on air cushion control valve

3. Release connector **-1-** on air cushion control valve **-arrow a-** and pull it off.
4. Pull off the three hoses **-2-** from the air cushion control valve.



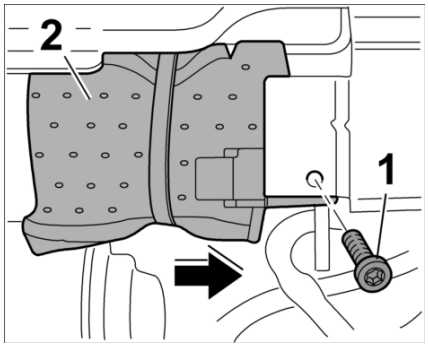
Removing air cushion control valve

5. Unscrew fastening screw **-1-** and remove air cushion control valve **-2-** .

top of page

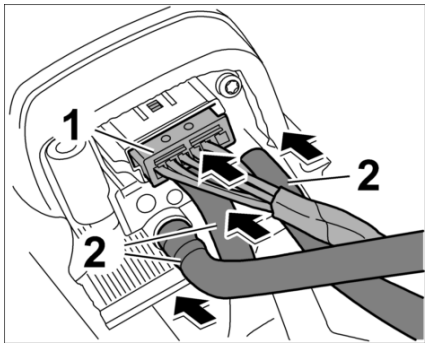
Installing air cushion control valve

Installing air cushion control valve



Installing air cushion control valve

1. Position air cushion control valve **-2-** and tighten with the fastening screw **-1-** .

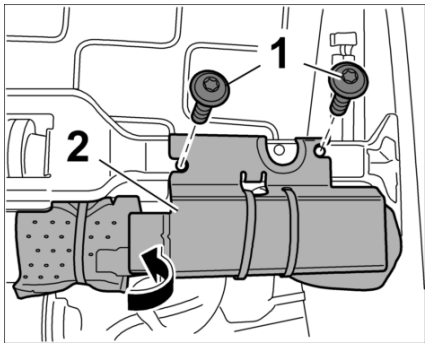


Pushing on connector and hoses onto air cushion control valve

Note

Observe the installation position of the hoses!
Push on the blue hose onto the connection marked **B** and push on the red hose onto the connection marked **R**.

2. Push on the three hoses **-2-** onto the air cushion control valve.
3. Push on connector **-1-** onto air cushion control valve until this engages audibly.



Securing support with compressor and air distributor valve

4. Position support **-2-** with connected motor and air cushion control valve and screw down with the two fastening screws **-1-** .

top of page

Subsequent work

Subsequent work

Install front seat. 720119 Removing and installing front seat - section on "Installing" [997110 997120 997310 997320 997410 997430 997610 997620] 720119 Removing and installing front seat - section on "Installing" [997111 997121 997311 997321 997411 997431 997611 997621]

997110, 997111, 997120, 997121, 997310, 997311, 997320, 997321, 997410, 997411, 997430, 997431, 997610, 997611, 997620, 997621

as of MY 2005
Country C00, C02, C05, C07, C08, C09, C10, C11, C12, C13, C14, C15, C16, C18, C19, C20, C21, C22, C23, C24, C25, C26, C27, C28, C32, C33, C34, C35, C36, C37, C38, C39, C45, C46, C98, C99

WARNUNG

Gefahr des Verlusts der Text-Bild-Zuordnung beim Ausdruck.

- **Aus technischen Gründen kann derzeit nicht ausgeschlossen werden, dass trotz einwandfreier Darstellung auf dem Bildschirm beim Ausdruck der**

72 39 19 Removing and installing air cushion motor - as of MY 2005

- Preliminary work
- Removing air cushion motor
- Installing air cushion motor
- Subsequent work

top of page

Preliminary work

Preliminary work

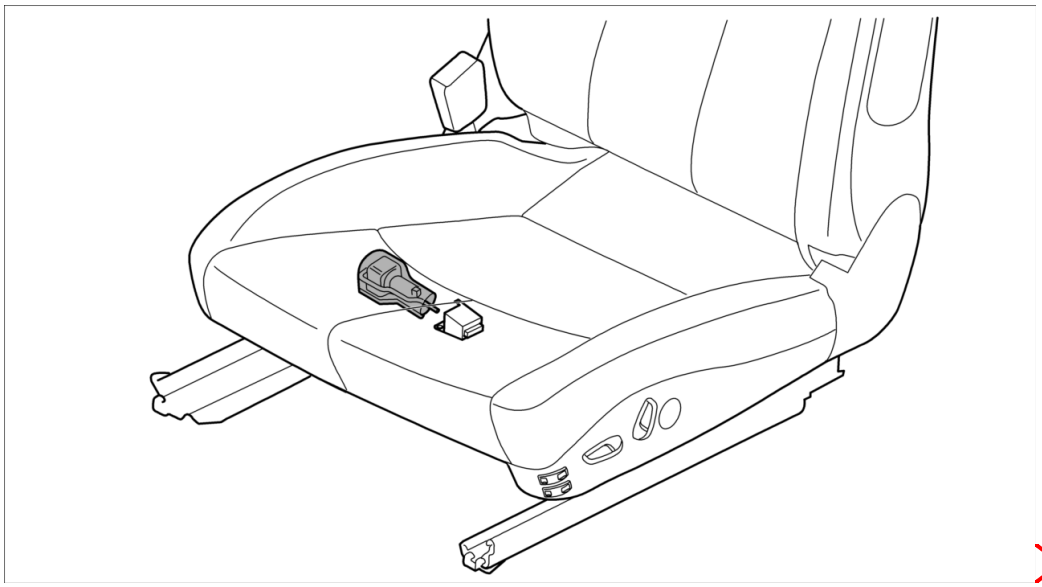
Remove front seat. 720119 Removing and installing front seat - section on "Removing" [997110 997120 997310 997320 997410 997430 997610 997620] 720119 Removing and installing front seat - section on "Removing" [997111 997121 997311 997321 997411 997431 997611 997621]

top of page

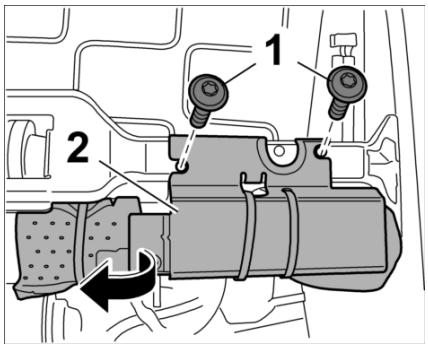
Removing air cushion motor

Removing air cushion motor

Installation Location:

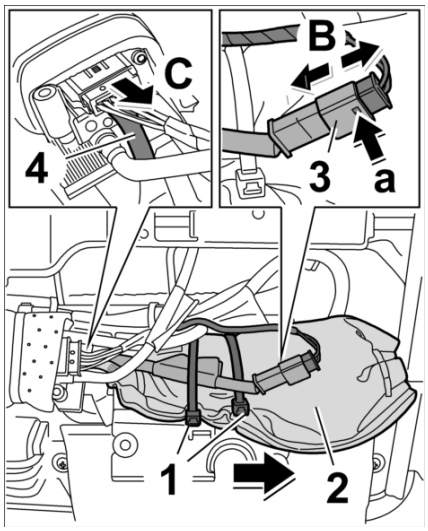


Installation position for air cushion motor



Loosening support with compressor and air distributor valve

1. Unscrew the two fastening screws **-1-** on the support **-2-** .
2. Set support **-2-** with connected motor and air cushion control valve aside.



Removing air cushion motor

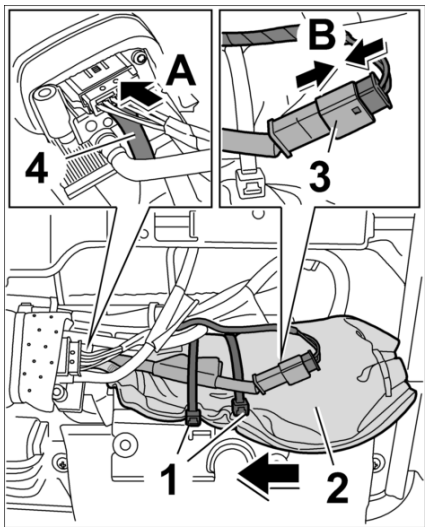
3. Remove the two tie-wraps **-1-** on the air cushion motor **-2-** .

4. Release plug connection **-3-** **-arrow a-** and disconnect **-arrows B-** .
5. Pull off the white hose **-4-** from the air cushion control valve **-arrow C-** and remove the air cushion motor **-2-** .

top of page

Installing air cushion motor

Installing air cushion motor



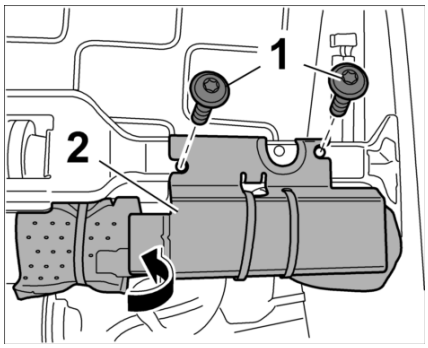
Installing air cushion motor

1. Position air cushion motor **-2-** and push on the white hose **-4-** onto the air cushion control valve **-arrow A-** .
2. Push the plug connection **-3-** together **-arrows B-** until it is felt to engage.

Note

Observe hose routing!
Ensure that no hoses are disconnected by the tie-wraps.

3. Secure air cushion motor **-2-** onto support using two new tie-wraps **-1-** .



Securing support with compressor and air distributor valve

4. Position support **-2-** with connected motor and air cushion control valve and screw down with the two fastening screws **-1-** .

top of page

Subsequent work

Subsequent work

Install front seat. 720119 Removing and installing front seat - section on "Installing" [997110 997120 997310 997320 997410 997430 997610 997620] 720119 Removing and installing front seat - section on "Installing" [997111 997121 997311 997321 997411 997431 997611 997621]

997110, 997111, 997120, 997121, 997310, 997311, 997320, 997321, 997410, 997411, 997430, 997431, 997610, 997611, 997620, 997621

as of MY 2005
Country C00, C02, C05, C07, C08, C09, C10, C11, C12, C13, C14, C15, C16, C18, C19, C20, C21, C22, C23, C24, C25, C26, C27, C28, C32, C33, C34, C35, C36, C37, C38, C39, C45, C46, C98, C99

WARNUNG

Gefahr des Verlusts der Text-Bild-Zuordnung beim Ausdruck.

- **Aus technischen Gründen kann derzeit nicht ausgeschlossen werden, dass trotz einwandfreier Darstellung auf dem Bildschirm beim Ausdruck der Zusammenhang von Text und zugehörigem Bild verloren geht.**
- **Wird der Fehler nicht bemerkt, besteht die Gefahr, daß Arbeiten nicht korrekt durchgeführt werden und es dadurch zu Personen- und Sachschäden kommt.**

Vergleichen Sie deshalb nach dem Druckvorgang unbedingt die Ausdrucke mit der Bildschirmdarstellung. Korrigieren Sie die Ausdrucke im Fehlerfall so, daß der Inhalt der Bildschirmdarstellung zutreffend wiedergegeben wird.

72 47 19 Removing and installing rear backrest - as of MY 2005

- Preliminary work
- Removing rear backrest
- Installing rear backrest
- Subsequent work

top of page

Preliminary work

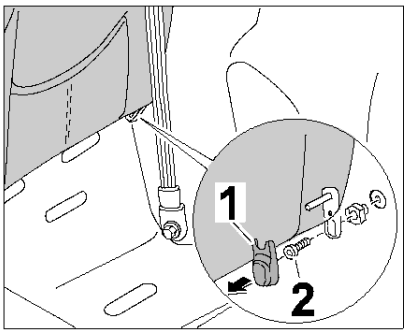
Preliminary work

Remove back seat cushion. 745719 Removing and installing back seat cushion - section on "Removing" [997310 997311 997320 997321] 745719 Removing and installing back seat cushion - section on "Removing" [997410 997411 997430 997431 997610 997611 997620 997621] 745719 Removing and installing back seat cushion - section on "Removing" [997110 997111 997120 9971121]

top of page

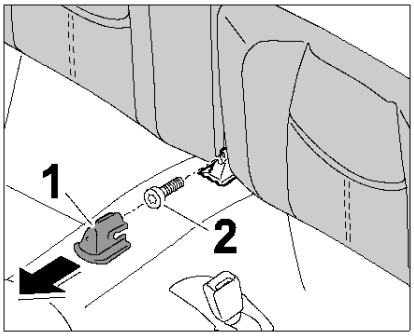
Removing rear backrest

Removing rear backrest



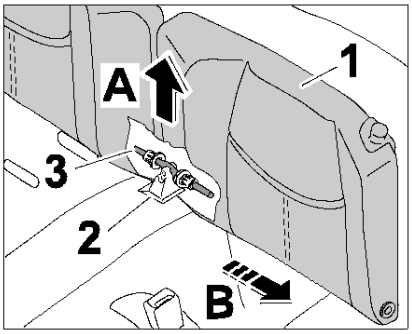
Loosening outer backrest

1. Press out cover **-1-** with a screwdriver.
2. Unscrew fastening screw **-2-** .



Loosening inner backrest

3. Press cover **-1-** out to the front.
4. Unscrew fastening screw **-2-** .



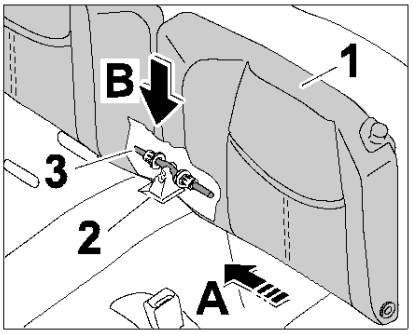
Removing backrest

5. Release backrest **-1-** , lift it out of the mounting saddle **-2-** (**-arrow A-**) and then pull it out of the bearing axle **-3-** (**-arrow B-**).

top of page

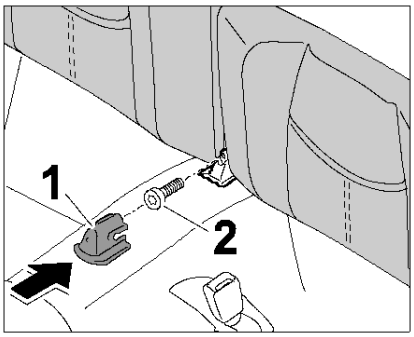
Installing rear backrest

Installing rear backrest



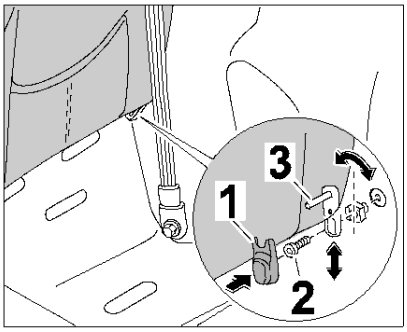
Installing backrest

1. Insert backrest **-1-** into the bearing axle **-3-** (**-arrow A-**) and engage in the mounting saddle **-2-** (**-arrow B-**).



Securing backrest on the inside

2. Secure bearing axle **-3-** with the fastening screw **-2-** . Tightening torque **Tightening torque: 5.6 (4 ftlb.) Nm**
3. Press in cover **-1-** .



Securing backrest on the outside

4. Lock backrest, align it and screw in fastening screw **-2-** on the outer bearing **-3-** . Tightening torque **Tightening torque: 25 (19 ftlb.) Nm**
5. Press in cover **-1-** .

top of page

Subsequent work

Subsequent work

Install back seat cushion. 745719 Removing and installing back seat cushion - section on "Installing" [997310 997311 997320 997321] 745719 Removing and installing back seat cushion - section on "Installing" [997410 997411 997430 997431 997610 997611 997620 997621] 745719 Removing and installing back seat cushion - section on "Installing" [997110 997111 997120 997121]

997110, 997111, 997120, 997121, 997310, 997311, 997320, 997321, 997410, 997411, 997430, 997431,

72 63 19 Removing and installing locking mechanism for rear backrest - as of MY 2005

- Preliminary work
- Removing locking mechanism for rear backrest
- Installing locking mechanism for rear backrest
- Subsequent work

top of page

Preliminary work

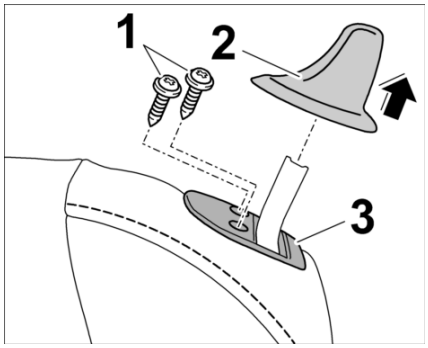
Preliminary work

Remove rear backrest. 724719 Removing and installing rear backrest - section on "Removing"

top of page

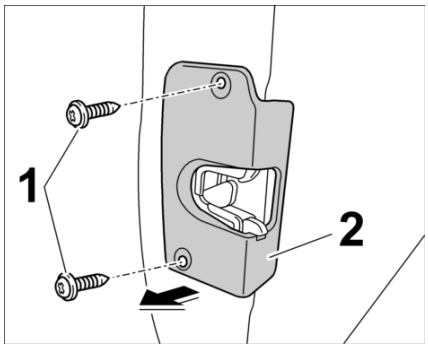
Removing locking mechanism for rear backrest

Removing locking mechanism for rear backrest



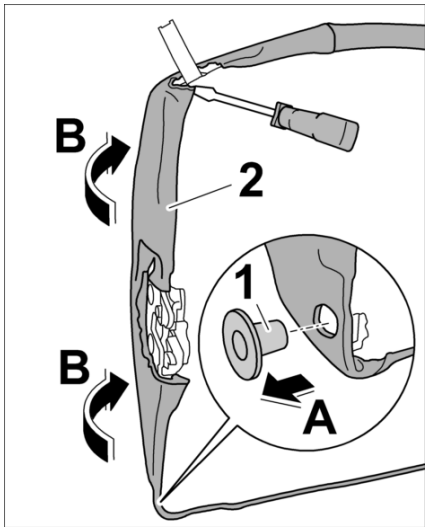
Removing control button

1. Press out control button **-1-** with a screwdriver.
2. Unscrew fastening screws **-2-** and remove collar **-3-** .



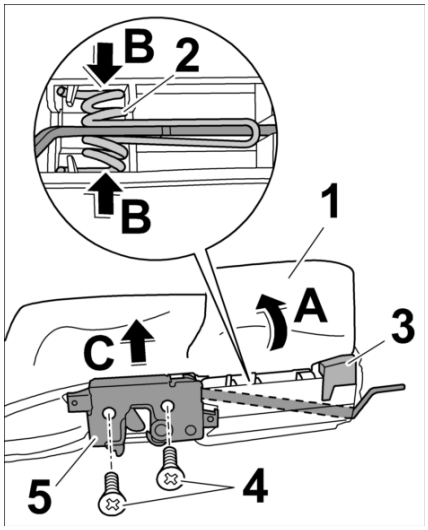
Removing cover for lock

3. Unscrew fastening screws **-1-** and remove cover for lock **-2-** .



Loosening cover

4. Remove protection washer **-1-** (**-arrow A-**).
5. Press out cover for backrest **-2-** at the sides with a screwdriver **-arrows B-** .



Removing lock

6. Fold padding **-1-** inwards **-arrow A-** .
7. Press reset spring **-2-** together **-arrows B-** and remove upwards.

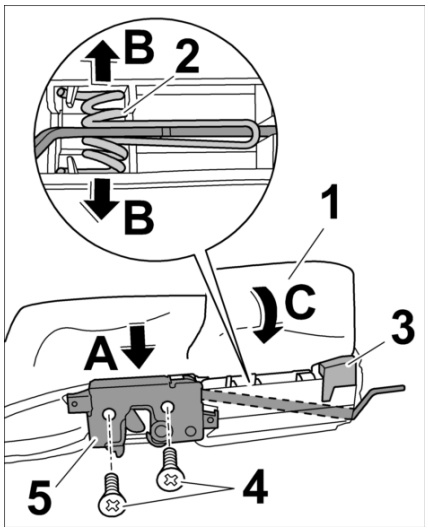
8. Unclip cover **-3-** .
9. Unscrew fastening screws **-4-** and remove lock for backrest **-5-** by pulling it upwards **-arrow C-** .

top of page

Installing locking mechanism for rear backrest

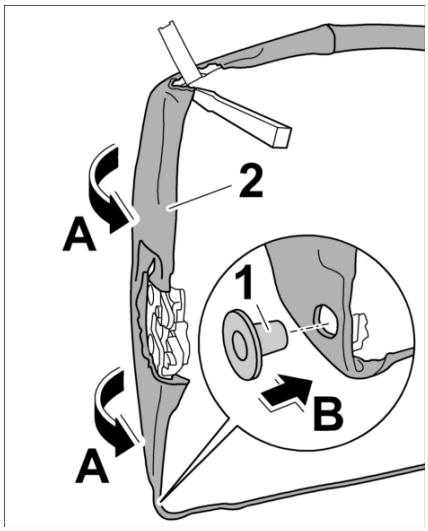
Installing locking mechanism for rear backrest

Installing locking mechanism for rear backrest



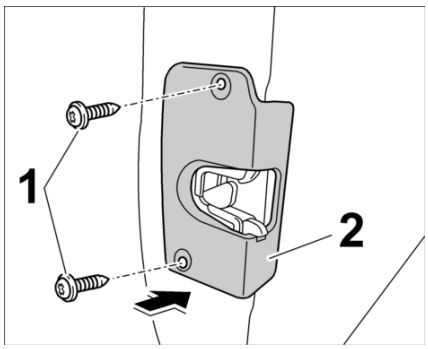
Installing lock

1. Position lock for backrest **-5-** on the backrest frame **-arrow A-** and screw in the fastening screws **-4-** . Tightening torque **Tightening torque: 12 (9 ftlb.) Nm +/-2 (1.5) Nm**
2. Clip in cover **-3-** .
3. Press in reset spring **-2-** until it engages **-arrows B-** and check lever function.



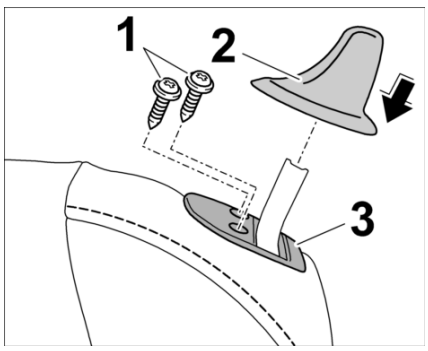
Securing cover

4. Press connection for backrest cover **-2-** sideways into the backrest frame with a plastic wedge **-arrows A-** .
5. Press in protection washer **-1-** (**-arrow A-**).



Installing cover for lock

6. Position cover for lock **-2-** and screw in the fastening screws **-1-** .



Installing control button

7. Place collar **-3-** in position and screw in the fastening screws **-1-** .
8. Press in control button **-2-** .

top of page

Subsequent work

Subsequent work

Install rear backrest. 724719 Removing and installing rear backrest - section on "Installing"

997110, 997111, 997120, 997121, 997310, 997311, 997320, 997321, 997410, 997411, 997430, 997431, 997610, 997611, 997620, 997621

as of MY 2005
Country C00, C02, C05, C07, C08, C09, C10, C11, C12, C13, C14, C15, C16, C18, C19, C20, C21, C22, C23, C24, C25, C26, C27, C28, C32, C33, C34, C35, C36, C37, C38, C39, C45, C46, C98, C99

WARNUNG

Gefahr des Verlusts der Text-Bild-Zuordnung beim Ausdruck.

- **Aus technischen Gründen kann derzeit nicht ausgeschlossen werden, dass trotz einwandfreier Darstellung auf dem Bildschirm beim Ausdruck der Zusammenhang von Text und zugehörigem Bild verloren geht.**
- **Wird der Fehler nicht bemerkt, besteht die Gefahr, daß Arbeiten nicht korrekt durchgeführt werden und es dadurch zu Personen- und Sachschäden kommt.**

Vergleichen Sie deshalb nach dem Druckvorgang unbedingt die Ausdrucke mit der Bildschirmdarstellung. Korrigieren Sie die Ausdrucke im Fehlerfall so, daß der Inhalt der Bildschirmdarstellung zutreffend wiedergegeben wird.

WARNING

Danger of losing text-figure correspondence when printing out.

- **For technical reasons, it can currently not be ruled out that the correspondence between text and associated figure can be lost when it is printed out, even though the display on the screen is correct.**
- **If the fault is not noticed, there is the danger that work will not be performed correctly which can cause injury and damage.**

Therefore, always compare printouts with the screen display after printing them out. Correct the printouts if they are faulty so that the content of the screen display matches that on the printouts.

AVERTISSEMENT

Risque de perte de la correspondance texte-illustration lors de l'impression papier.

- **Pour des raisons techniques, il ne peut pas être exclu à l'heure actuelle que, même en cas d'affichage correct à l'écran, la correspondance entre le texte et l'illustration**

72 86 19 Removing and installing switch for seat adjustment - as of MY 2005

- Preliminary work
- Removing switch for seat adjustment
- Installing switch for seat adjustment
- Subsequent work

top of page

Preliminary work

Preliminary work

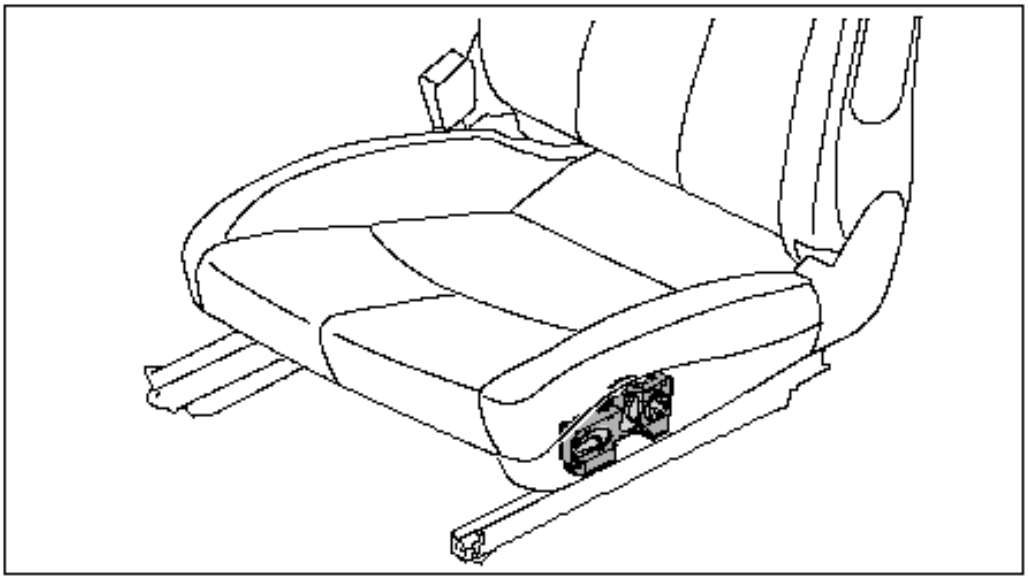
Remove control module trim panel (electric). 721619 Removing and installing control module trim panel - section on "Removing"

top of page

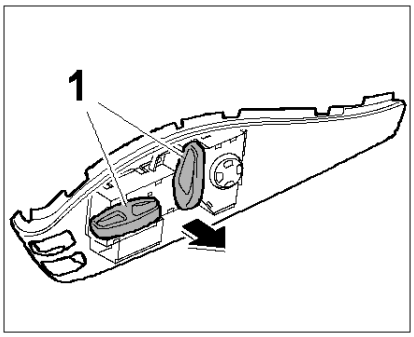
Removing switch for seat adjustment

Removing switch for seat adjustment

Installation Location:

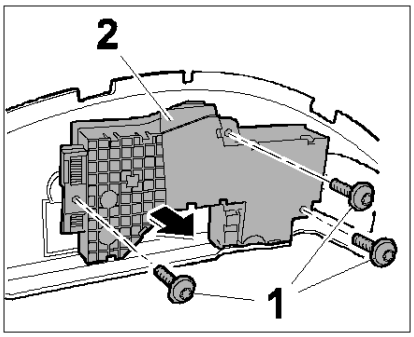


Installation position of seat adjustment switch



Unclipping control buttons

1. Carefully unclip the two control buttons **-1-** using a plastic wedge.



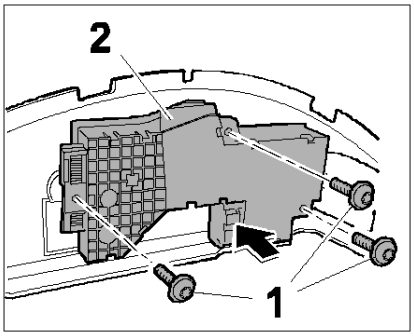
Removing switch for seat adjustment

2. Unscrew the three fastening screws **-1-** and remove seat adjustment switch **-2-** .

top of page

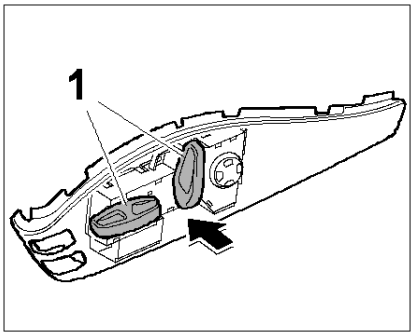
Installing switch for seat adjustment

Installing switch for seat adjustment



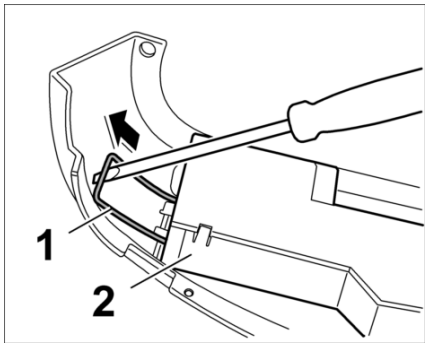
Installing switch for seat adjustment

1. Position switch for seat adjustment **-2-** and screw down using the three fastening screws **-1-** .



Clipping in control buttons

2. Position the two control buttons **-1-** precisely and carefully press down onto the seat adjustment switch until they are felt to engage.



Removing assembly clip

Note

The assembly clip must be removed in order to install a new seat adjustment switch.

3. Use a small screwdriver to lever the assembly clip **-1-** out of the seat adjustment switch **-2-** .

top of page

Subsequent work

Subsequent work

Install control module trim panel (electric). 721619 Removing and installing control module trim panel - section on "Installing"

997110, 997111, 997120, 997121, 997310, 997311, 997320, 997321, 997410, 997411, 997430, 997431, 997610, 997611, 997620, 997621

as of MY 2005
Country C00, C02, C05, C07, C08, C09, C10, C11, C12, C13, C14, C15, C16, C18, C19, C20, C21, C22, C23, C24, C25, C26, C27, C28, C32, C33, C34, C35, C36, C37, C38, C39, C45, C46, C98, C99

WARNUNG

Gefahr des Verlusts der Text-Bild-Zuordnung beim Ausdruck.

- **Aus technischen Gründen kann derzeit nicht ausgeschlossen werden, dass trotz einwandfreier Darstellung auf dem Bildschirm beim Ausdruck der Zusammenhang von Text und zugehörigem Bild verloren geht.**
- **Wird der Fehler nicht bemerkt, besteht die Gefahr, daß Arbeiten nicht korrekt durchgeführt werden und es dadurch zu Personen- und Sachschäden kommt.**

Vergleichen Sie deshalb nach dem Druckvorgang unbedingt die Ausdrucke mit der Bildschirmdarstellung. Korrigieren Sie die Ausdrucke im Fehlerfall so, daß der Inhalt der Bildschirmdarstellung zutreffend wiedergegeben wird.

WARNING

Danger of losing text-figure correspondence when printing out.

- **For technical reasons, it can currently not be ruled out that the correspondence between text and associated figure can be lost when it is printed out, even though the display on the screen is correct.**
- **If the fault is not noticed, there is the danger that work will not be performed correctly which can cause injury and damage.**

Therefore, always compare printouts with the screen display after printing them out. Correct the printouts if they are faulty so that the content of the screen display matches that on the printouts.

72 87 19 Removing and installing motor for seat adjustment - as of MY 2005

- Preliminary work
- Removing motor for seat adjustment
- Installing motor for seat adjustment
- Subsequent work

top of page

Preliminary work

Preliminary work

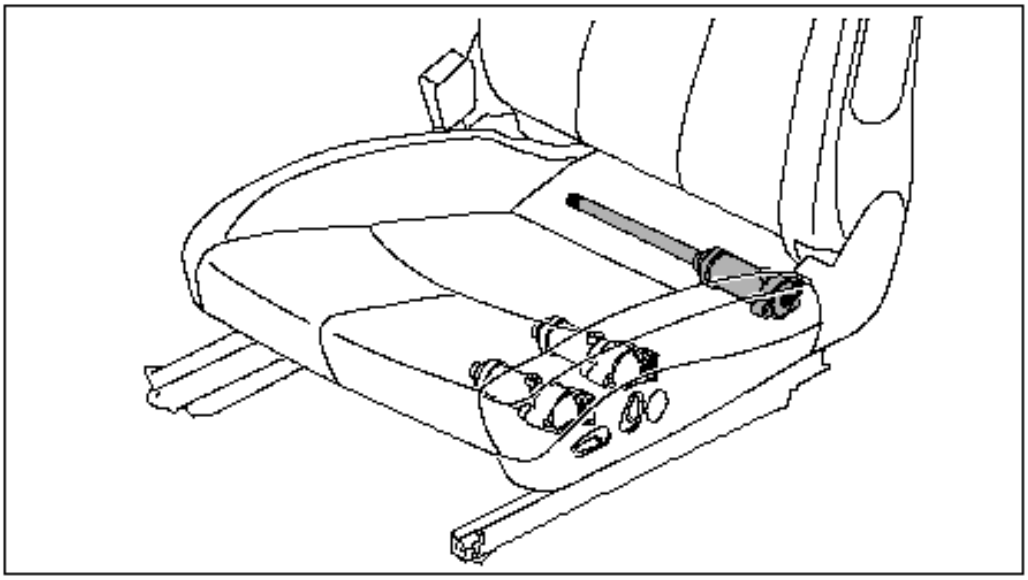
Remove front seat. 720119 Removing and installing front seat - section on "Removing" [997110 997120 997310 997320 997410 997430 997610 997620] 720119 Removing and installing front seat - section on "Removing" [997111 997121 997311 997321 997411 997431 997611 997621]

top of page

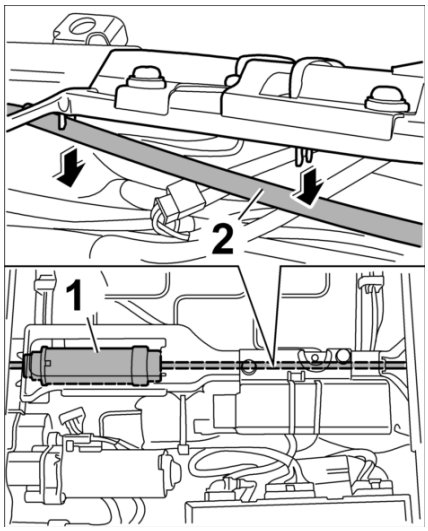
Removing motor for seat adjustment

Removing motor for seat adjustment

Installation Location:

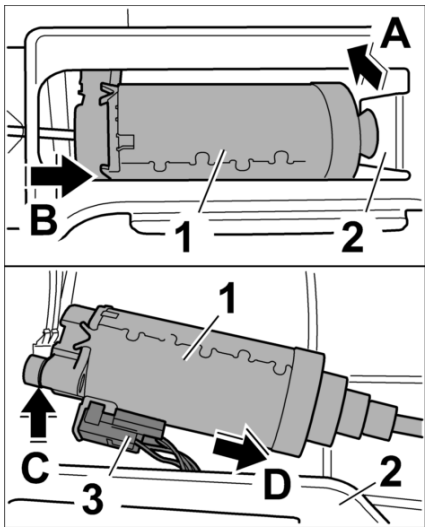


Installation position of motor for seat adjustment



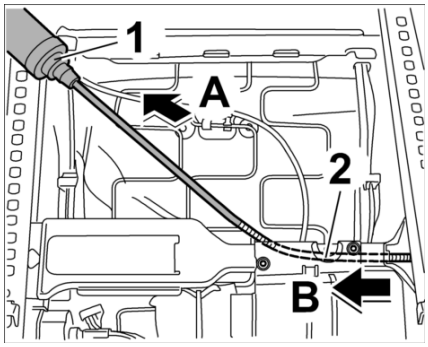
Unclipping sleeve of shaft of seat adjustment motor

1. Unclip sleeve of long drive shaft **-2-** of seat adjustment motor **-1-** at the support.



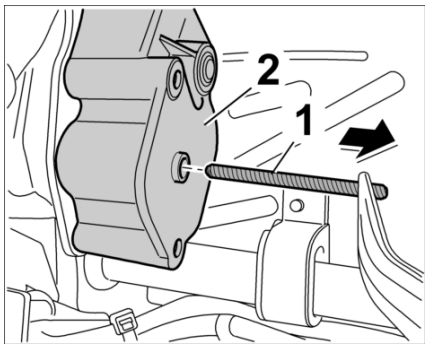
Pressing motor for seat adjustment out of support

2. Press motor for seat adjustment **-1-** out of the support **-2-** at the boot **-arrow A-** .
3. Pull motor for seat adjustment **-1-** off the short drive shaft **-arrow B-** .
4. Pull motor for seat adjustment **-1-** forward under the support **-2-** (**-arrow C-**) and pull off connector **-3-** (**-arrow D-**).



Pulling motor for seat adjustment off the drive shaft

5. Pull motor for seat adjustment **-1-** and sleeve off the long drive shaft **-2-** (**-arrow A-**).
6. Pull the long drive shaft **-2-** out of the gear mount **-arrow B-** and check for damage.



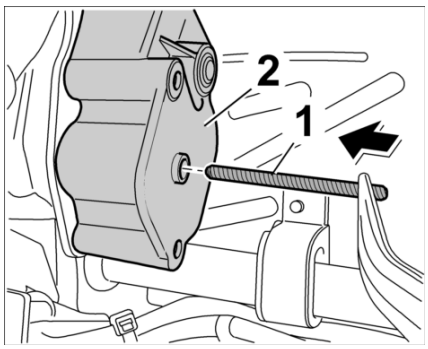
Removing drive shaft

7. Pull the short drive shaft **-1-** out of the gear mount **-2-** and check for damage.

top of page

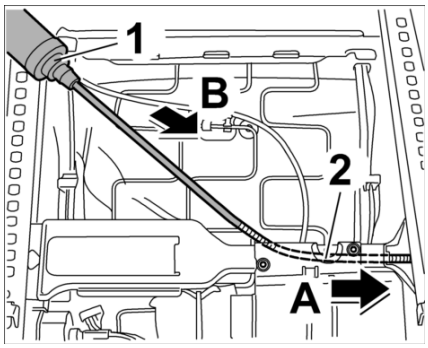
Installing motor for seat adjustment

Installing motor for seat adjustment



Installing drive shaft

1. Insert the short drive shaft **-1-** into the gear mount **-2-** by twisting slightly.



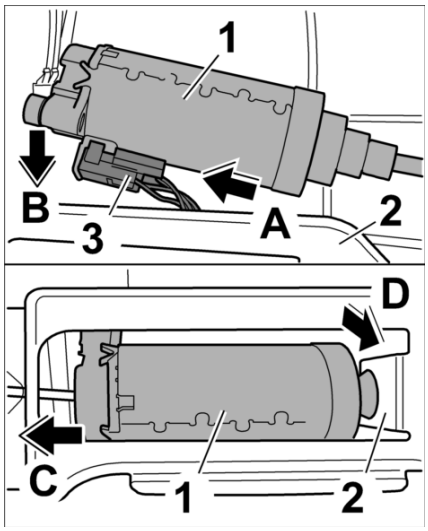
Pushing motor for seat adjustment onto the drive shaft

2. Insert the long drive shaft **-2-** into the gear mount **-arrow A-** by twisting slightly.

Note

When installing the motor for seat adjustment, make sure the two seat rails are in the same position.

3. Push motor for seat adjustment **-1-** and sleeve onto the long drive shaft **-2-** by twisting slightly **-arrow A-** .



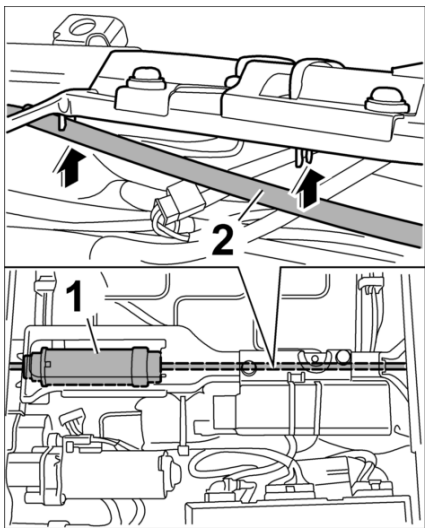
Pressing motor for seat adjustment into support

4. Attach the connector **-3-** to the motor for seat adjustment **-1-** (**-arrow A-**) until it engages firmly.
5. Push motor for seat adjustment **-1-** under the support **-2-** (**-arrow B-**).

Note

When installing the motor for seat adjustment, make sure the two seat rails are in the same position.

6. Push motor for seat adjustment **-1-** onto the short drive shaft by twisting slightly **-arrow C-** .
7. Press motor for seat adjustment **-1-** into the support **-2-** at the boot **-arrow D-** .



Clipping in sleeve of shaft of seat adjustment motor

8. Clip in sleeve of long drive shaft **-2-** of seat adjustment motor **-1-** on the support.

top of page

Subsequent work

Subsequent work

Install front seat. 720119 Removing and installing front seat - section on "Installing" [997110 997120 997310 997320 997410 997430 997610 997620] 720119 Removing and installing front seat - section on "Installing" [997111 997121 997311 997321 997411 997431 997611 997621]

997110, 997111, 997120, 997121, 997310, 997311, 997320, 997321, 997410, 997411, 997430, 997431, 997610, 997611, 997620, 997621

as of MY 2005
Country C00, C02, C05, C07, C08, C09, C10, C11, C12, C13, C14, C15, C16, C18, C19, C20, C21, C22, C23, C24, C25, C26, C27, C28, C32, C33, C34, C35, C36, C37, C38, C39, C45, C46, C98, C99

WARNUNG

Gefahr des Verlusts der Text-Bild-Zuordnung beim Ausdruck.

- **Aus technischen Gründen kann derzeit nicht ausgeschlossen werden, dass trotz einwandfreier Darstellung auf dem Bildschirm beim Ausdruck der Zusammenhang von Text und zugehörigem Bild verloren geht.**
- **Wird der Fehler nicht bemerkt, besteht die Gefahr, daß Arbeiten nicht korrekt durchgeführt werden und es dadurch zu Personen- und Sachschäden kommt.**

Vergleichen Sie deshalb nach dem Druckvorgang unbedingt die Ausdrucke mit der Bildschirmdarstellung. Korrigieren Sie die Ausdrucke im Fehlerfall so, daß der Inhalt der Bildschirmdarstellung zutreffend wiedergegeben wird.

WARNING

Danger of losing text-figure correspondence when printing out.

- **For technical reasons, it can currently not be ruled out that the correspondence between text and associated figure can be lost when it is printed out, even though the display on the screen is correct.**
- **If the fault is not noticed, there is the danger that work will not be performed correctly which can cause injury and damage.**

Therefore, always compare printouts with the screen display after printing them out. Correct the printouts if they are faulty so that the content of the screen display matches that on the printouts.

AVERTISSEMENT

Risque de perte de la correspondance texte-illustration lors de l'impression papier.

72 88 19 Removing and installing motor for front vertical adjustment - as of MY 2005

- Preliminary work
- Removing motor for front vertical adjustment
- Installing motor for front vertical adjustment
- Subsequent work

top of page

Preliminary work

Preliminary work

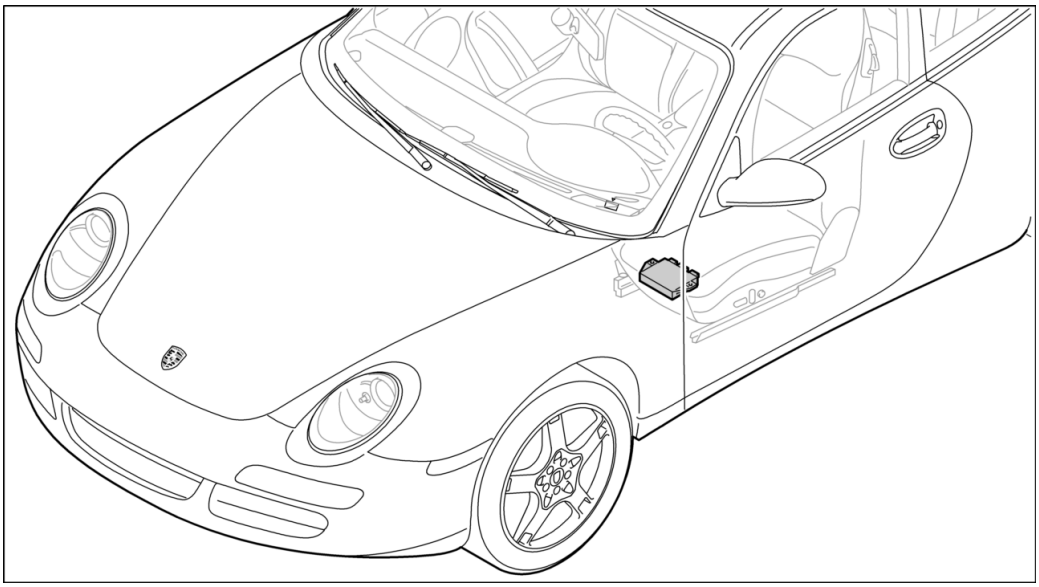
Remove front seat. 720119 Removing and installing front seat - section on "Removing" [997110 997120 997310 997320 997410 997430 997610 997620] 720119 Removing and installing front seat - section on "Removing" [997111 997121 997311 997321 997411 997431 997611 997621]

top of page

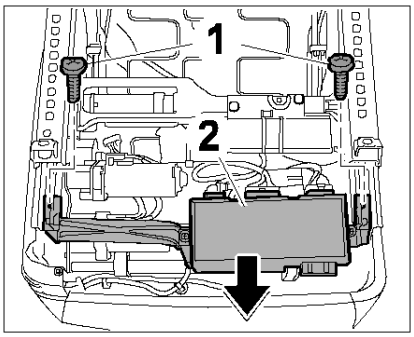
Removing motor for front vertical adjustment

Removing control unit for memory seat adjustment with support

Installation Location:

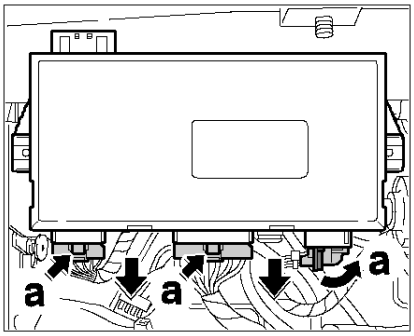


Installation position shown on the 911



Removing control unit for memory seat adjustment with support

1. Unscrew the two fastening screws **-1-** and remove control unit for memory seat adjustment together with the support **-2-** from the seat frame.

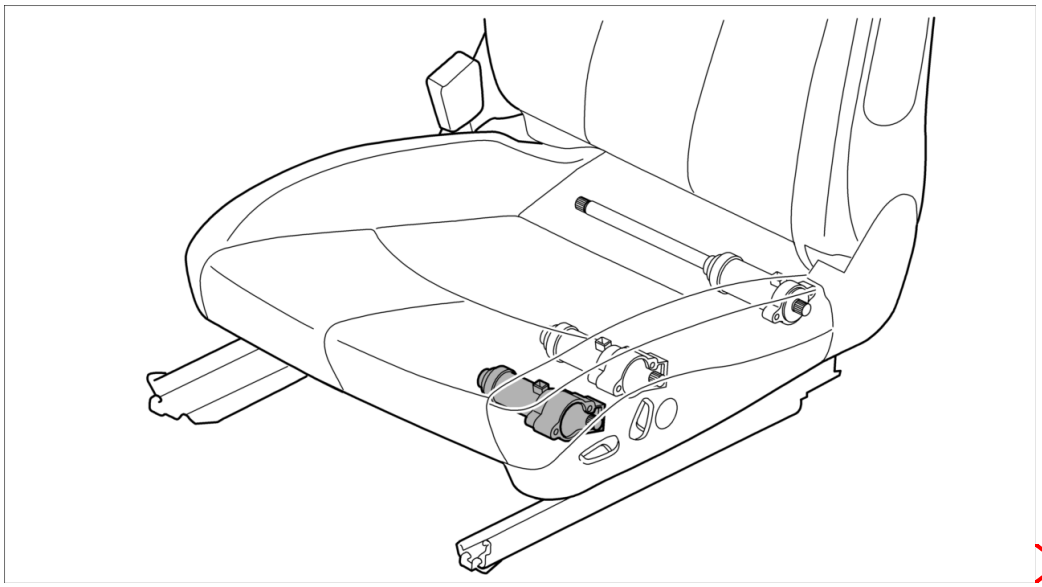


Pulling off connectors on control unit for memory seat adjustment

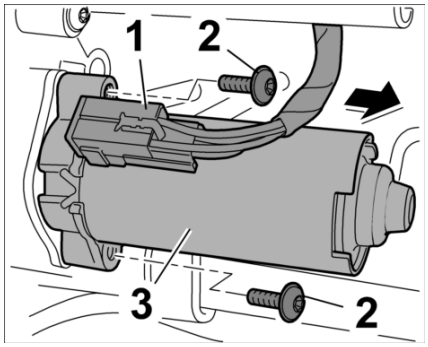
2. Unlock and pull off the three connectors on the control unit for memory seat adjustment **-arrows a-** .

Removing motor for front vertical adjustment

Installation Location:

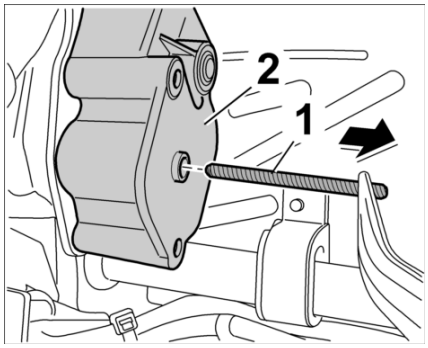


Installation position of motor for front vertical adjustment



Removing motor for front vertical adjustment

1. Pull connector **-1-** off the motor for front vertical adjustment **-3-** .
2. Unscrew the two fastening screws **-2-** and remove motor for front vertical adjustment **-3-** .



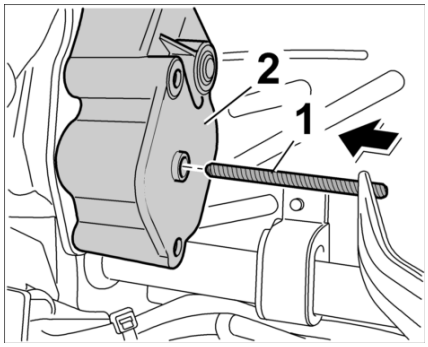
Removing drive shaft

3. Pull drive shaft **-1-** out of the gear mount **-2-** and check for damage.

top of page

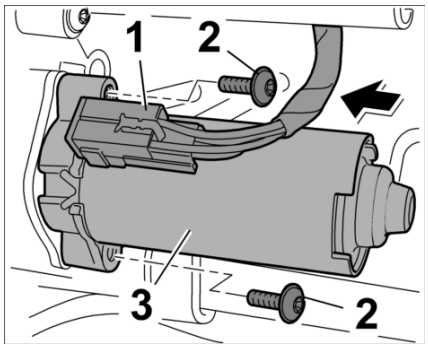
Installing motor for front vertical adjustment

Installing motor for front vertical adjustment



Installing drive shaft

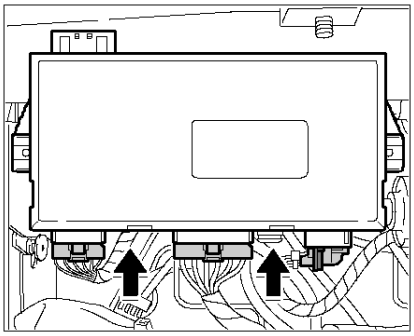
1. Insert the drive shaft **-1-** into the gear mount **-2-** by twisting slightly.



Installing motor for front vertical adjustment

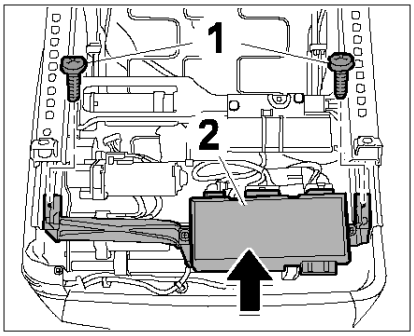
2. Push motor for front vertical adjustment **-3-** onto the drive shaft by twisting slightly and secure with the two fastening screws **-2-** . **Tightening torque: 7 (5 ftlb.) Nm**
3. Attach connector **-1-** to motor for front vertical adjustment **-3-** until it engages firmly.

Installing control unit for memory seat adjustment with support



Attaching connectors on control unit for memory seat adjustment

1. Attach the three connectors on the control unit for memory seat adjustment until they are felt to engage.



Installing control unit for memory seat adjustment with support

2. Position control unit for memory seat adjustment with support **-2-** on seat frame and secure with both fastening screws **-1-** .

top of page

Subsequent work

Subsequent work

Install front seat. 720119 Removing and installing front seat - section on "Installing" [997110 997120 997310 997320 997410 997430 997610 997620] 720119 Removing and installing front seat - section on "Installing" [997111 997121 997311 997321 997411 997431 997611 997621]

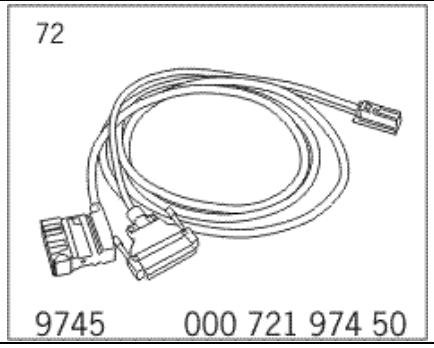
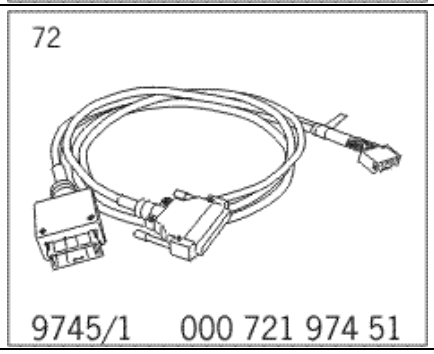
997110, 997111, 997120, 997121, 997310, 997311, 997320, 997321, 997410, 997411, 997430, 997431, 997610, 997611, 997620, 997621

as of MY 2005
Country C00, C02, C05, C07, C08, C09, C10, C11, C12, C13, C14, C15, C16, C18, C19, C20, C21, C22, C23, C24, C25, C26, C27, C28, C32, C33, C34, C35, C36, C37, C38, C39, C45, C46, C98, C99

72 89 19 Removing and installing motor for backrest adjustment - as of MY 2005

- Preliminary work
- Removing motor for backrest adjustment
- Installing motor for backrest adjustment
- Subsequent work

Tools

Designation	Type	Number	Explanation	
test cable	special tool	9745		
test cable	special tool	9745/1		

top of page

Preliminary work

Preliminary work

1. Remove cushion carrier for front backrest. 722419 Removing and installing cushion carrier for front backrest - section on "Removing"

Note

Only for vehicles with adaptive sports seats.

2. Remove right air cushion for backrest. 721719 Removing and installing air cushion for backrest - section on "Removing"

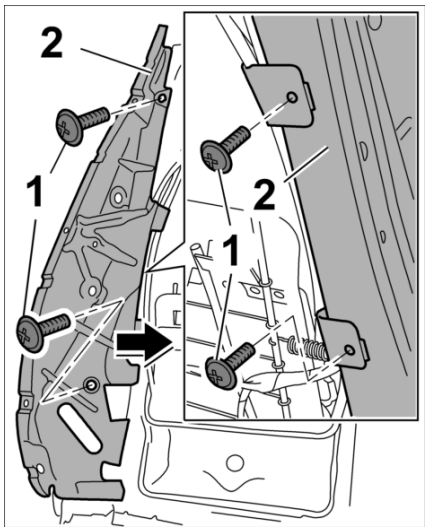
top of page

Removing motor for backrest adjustment

Removing backrest side support

Installation Location:

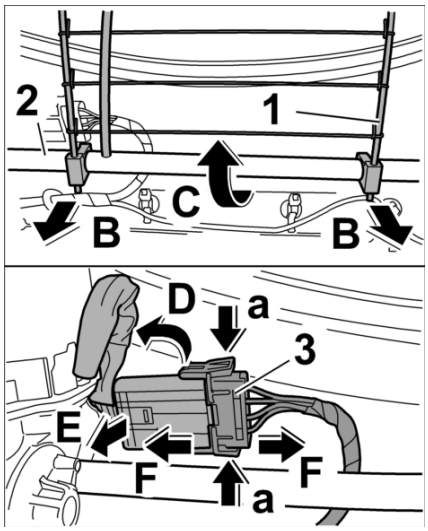
Installation position of motor for backrest adjustment



Removing backrest side support

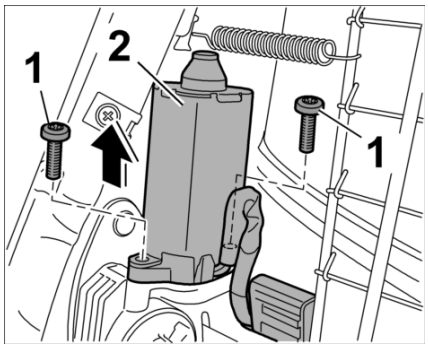
1. Unscrew the four fastening screws **-1-** and remove backrest side support **-2-** .

Removing motor for backrest adjustment



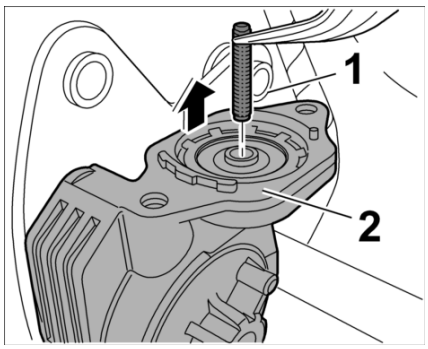
Disconnecting plug connection on motor for backrest adjustment

1. Unclip inner spring for backrest frame **-1-** at the drive shaft **-2-** (**-arrows B-**) and swivel it upwards (**-arrow C-**).
2. Turn plug connection **-3-** approx. 90° anti-clockwise **-arrow D-** and remove it from the backrest frame **-arrow E-** .
3. Release plug connection **-3-** (**-arrows a-**) and disconnect it **-arrows F-** .



Removing motor for backrest adjustment

4. Unscrew the two fastening screws **-1-** and remove motor for backrest adjustment **-2-** .



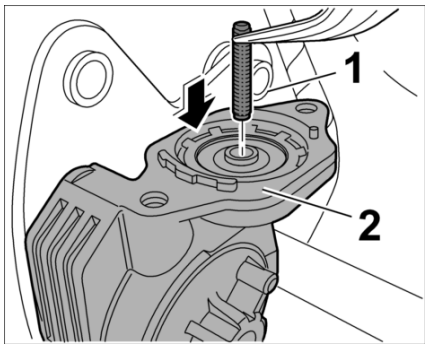
Removing drive shaft

5. Pull drive shaft **-1-** out of the gear mount **-2-** and check for damage.

top of page

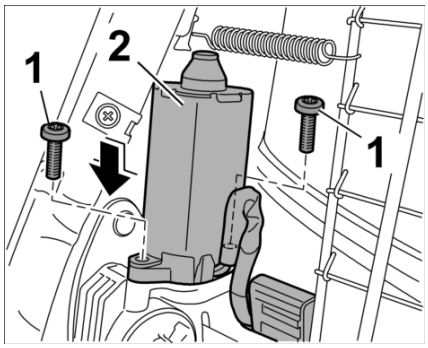
Installing motor for backrest adjustment

Installing motor for backrest adjustment



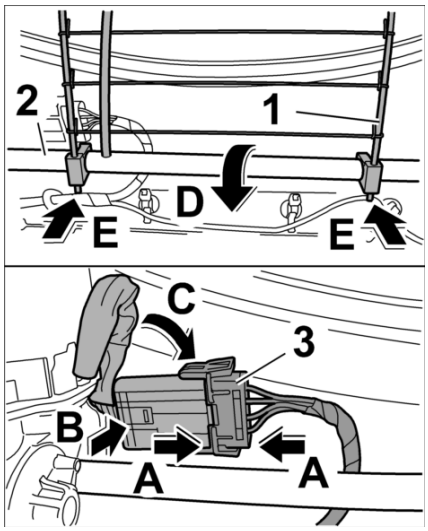
Installing drive shaft

1. Insert the drive shaft **-1-** into the gear mount **-2-** by twisting slightly.



Installing motor for backrest adjustment

2. Push motor for backrest adjustment **-2-** onto the drive shaft by twisting slightly and secure with the two fastening screws **-1-** .



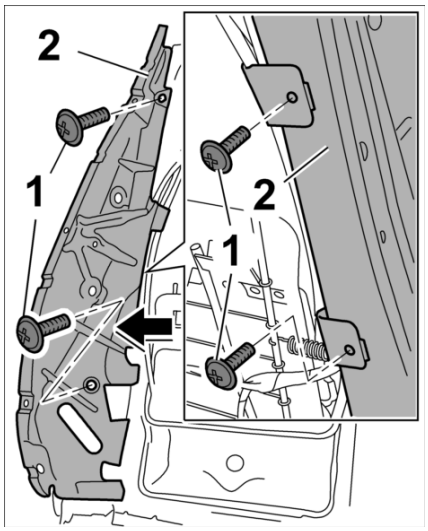
Connecting plug connection on motor for backrest adjustment

3. Push plug connection **-3-** together **-arrows A-** until it engages securely.
4. Insert plug connection **-3-** into the backrest frame **-arrow B-** and turn approx. 90° clockwise **-arrow C-** .
5. Swivel inner spring for backrest frame **-1-** downwards **-arrow D-** and clip in at the drive shaft **-2-** (**-arrows E-**).

Checking seat following removal

1. Connect the removed seat to the vehicle's wiring harness via **test cable 9745** and **test cable 9745/1**.
2. Connect electric plug to control module trim panel. 721619 Removing and installing control module trim panel - section on "Installing"
3. Connect the battery. 2706IN IN -Work instructions after disconnecting the battery
4. Switch on ignition.
5. Carry out a function check on the seat components.
6. Switch off ignition after function test and disconnect battery.
7. Disconnect **test cable 9745** and **test cable 9745/1**.

Installing backrest side support



Installing backrest side support

Note

Observe hose routing!
In vehicles with lumbar support, make sure the hoses are routed correctly in the area of the backrest side support.

1. Fit backrest side support **-2-** and screw down with the four fastening screws **-1-** .

top of page

Subsequent work

Subsequent work

1. Install right air cushion for backrest. 721719 Removing and installing air cushion for backrest - section on "Installing"
2. Install cushion carrier for front backrest. 722419 Removing and installing cushion carrier for front backrest - section on "Installing"

997110, 997111, 997120, 997121, 997310, 997311, 997320, 997321, 997410, 997411, 997430, 997431, 997610, 997611, 997620, 997621

as of MY 2005
Country C00, C02, C05, C07, C08, C09, C10, C11, C12, C13, C14, C15, C16, C18, C19, C20, C21, C22, C23, C24, C25, C26, C27, C28, C32, C33, C34, C35, C36, C37, C38, C39, C45, C46, C98, C99

WARNUNG

72 92 19 Removing and installing motor for rear vertical adjustment - as of MY 2005

- Preliminary work
- Removing motor for rear vertical adjustment
- Installing motor for rear vertical adjustment
- Subsequent work

top of page

Preliminary work

Preliminary work

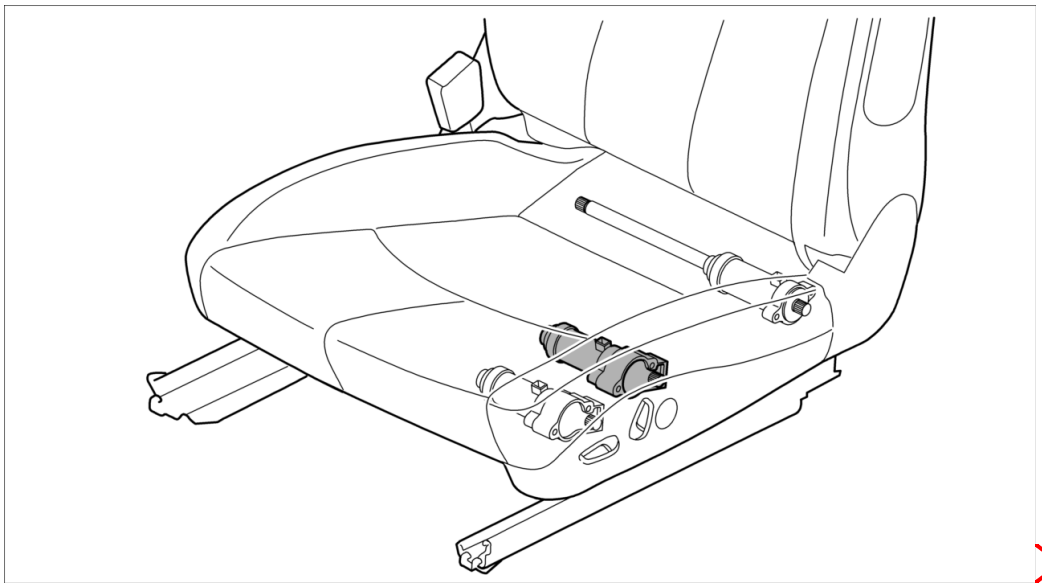
Remove front seat. 720119 Removing and installing front seat - section on "Removing" [997110 997120 997310 997320 997410 997430 997610 997620] 720119 Removing and installing front seat - section on "Removing" [997111 997121 997311 997321 997411 997431 997611 997621]

top of page

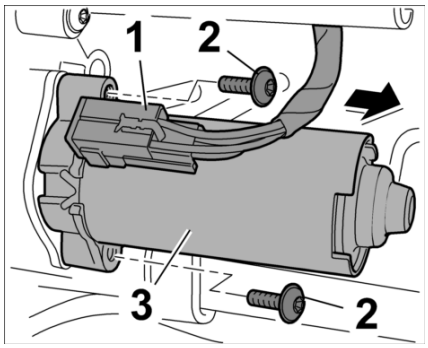
Removing motor for rear vertical adjustment

Removing motor for rear vertical adjustment

Installation Location:

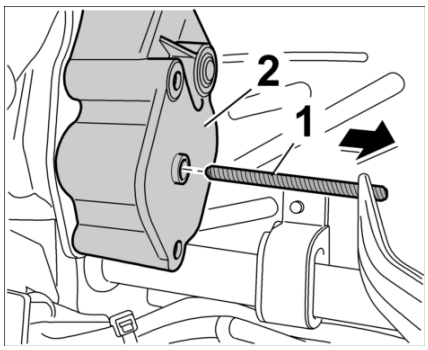


Installation position of motor for rear vertical adjustment



Removing motor for rear vertical adjustment

1. Pull connector **-1-** off the motor for rear vertical adjustment **-3-** .
2. Unscrew the two fastening screws **-2-** and remove motor for rear vertical adjustment **-3-** .



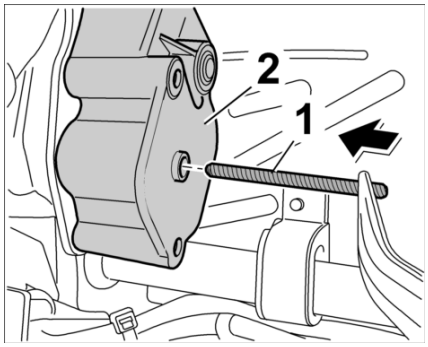
Removing drive shaft

3. Pull drive shaft **-1-** out of the gear mount **-2-** and check for damage.

top of page

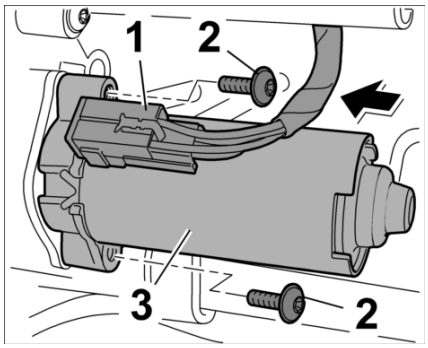
Installing motor for rear vertical adjustment

Installing motor for rear vertical adjustment



Installing drive shaft

1. Insert the drive shaft **-1-** into the gear mount **-2-** by twisting slightly.



Installing motor for rear vertical adjustment

2. Push motor for rear vertical adjustment **-3-** onto the drive shaft by twisting slightly and secure with the two fastening screws **-2-** . **Tightening torque: 7 (5 ftlb.) Nm**
3. Attach connector **-1-** to motor for rear vertical adjustment **-3-** until it engages firmly.

top of page

Subsequent work

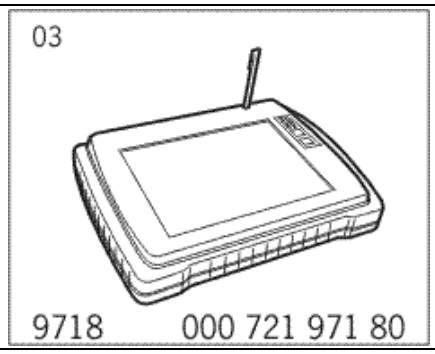
Subsequent work

Install front seat. 720119 Removing and installing front seat - section on "Installing" [997110 997120 997310 997320 997410 997430 997610 997620] 720119 Removing and installing front seat - section on "Installing" [997111 997121 997311 997321 997411 997431 997611 997621]

72 93 19 Removing and installing control unit for memory seat adjustment - as of MY 2005

- Preliminary work
- Removing control unit for memory seat adjustment
- Installing control unit for memory seat adjustment
- Subsequent work
- Programming control unit

Tools

Designation	Type	Number	Explanation	
PIWIS Tester	special tool	9718		

top of page

Preliminary work

Preliminary work for control unit for memory seat adjustment

Remove seat. 720119 Removing and installing front seat - section on "Removing" [997110 997120 997310 997320 997410 997430 997610 997620] 720119 Removing and installing front seat - section on "Removing" [997111 997121 997311 997321 997411 997431 997611 997621]

top of page

Removing control unit for memory seat adjustment

Removing control unit for memory seat adjustment

WARNING

Sudden voltage interruption of the power supply to the control module.

- **Destruction of the control module.**

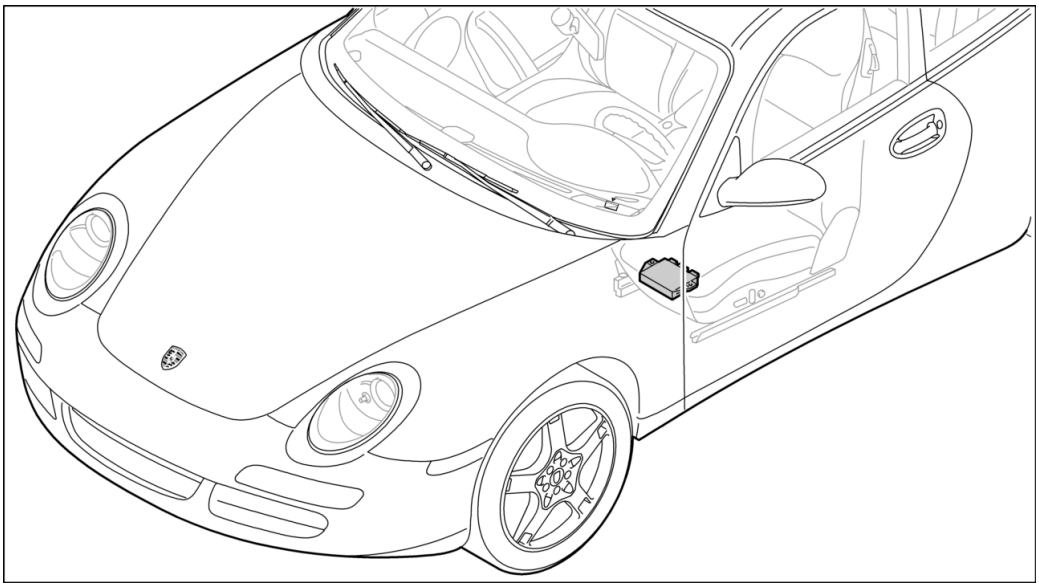
During programming, it is essential to guarantee the power supply for the Porsche System tester. It is essential to connect a battery charger with a current rating of at least 40 A to the vehicle battery.

Prior to disconnecting the control module, switch off the ignition and remove the ignition key.

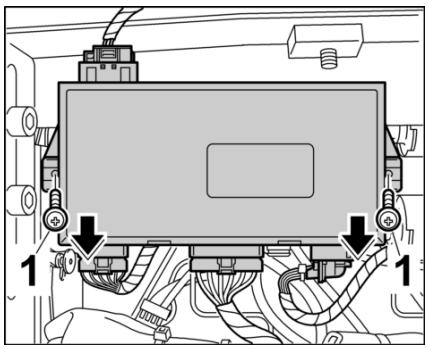
Note

If the control unit must be replaced, first read out the **values** using the **PIWIS Tester 9718**.

Installation Location:

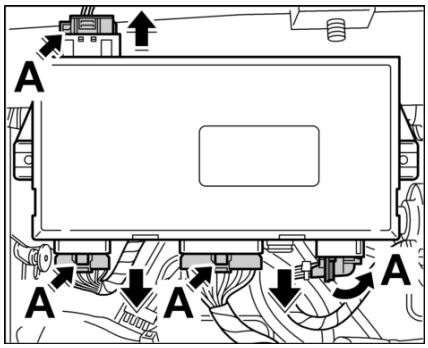


Installation position shown on the 911



Unscrewing fastening screws

1. Unscrew the two fastening screws **-1-** .



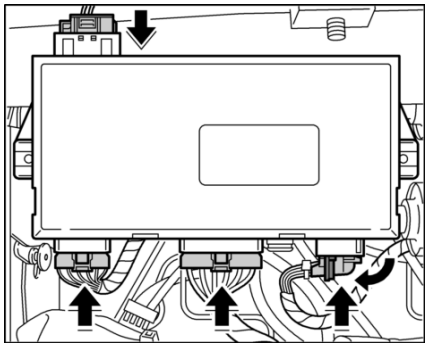
Disconnecting electric connectors on the control unit

2. Release electric connectors **-A-** on the control unit and disconnect them.

top of page

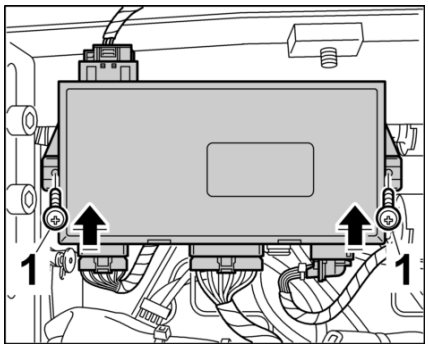
Installing control unit for memory seat adjustment

Installing control unit for memory seat adjustment



Inserting electric connectors into control unit

1. Insert electric connectors into control unit until they are felt to engage.



Screwing control unit to seat

2. Position control unit on the holder and screw it down using the two fastening screws **-1-** .

top of page

Subsequent work

Subsequent work for control unit for memory seat adjustment

Install seat. __720119 Removing and installing front seat - section on "Installing" [997110 997120 997310 997320 997410 997430 997610 997620]__720119 Removing and installing front seat - section on "Installing" [997111 997121 997311 997321 997411 997431 997611 997621]

top of page

Programming control unit

Reading out and printing out values

WARNING

Sudden voltage interruption of the power supply to the control module.

- **Destruction of the control module.**

During programming, it is essential to guarantee the power supply for the Porsche System tester. It is essential to connect a battery charger with a current rating of at least 40 A to the vehicle battery.

Prior to disconnecting the control module, switch off the ignition and remove the ignition key.

Note

Follow the instructions on the Tester.
Later versions of the software may display slightly different text or require a slightly different procedure. The instructions you receive from the tester itself take precedence over this description.

1. Connect the Porsche System Tester to the vehicle and start the System Tester. Switch on the ignition. >> Continue.
2. Select the **vehicle type**.
3. Move from **vehicle type** to the list of **control units** and press >> .
4. Select the relevant **control unit** using the cursor keys and press >> .

5. Select **Control unit replacement** with the cursor keys and press the >> key.
6. Select **Read out values** (codings) with the cursor keys and press the >> key.
7. The message **Codes successfully read out** appears on the screen of the Porsche System Tester. Press >> .
8. Switch off ignition and replace control unit.
9. Switch on ignition. Select the vehicle type, choose the **Special functions** menu, start **Vehicle handover** and follow the instructions on the Tester.
10. Erase **All fault memories**.
11. Using the >> key, move from the vehicle type to the list of control units. Perform the automatic control unit search.
12. After replacing the control unit, the data that was previously read out (see Item 6) is reloaded under the **Write in data** menu. Press >> .
13. The System Tester displays the message **Coding write-in complete**. Press >> .
14. Go to the **Coding** menu by pressing >> , compare the coding with the vehicle equipment and code it if necessary.
15. Check the operation of the memory switch, read out the fault memory and erase it if necessary.

Programming control unit

WARNING

Sudden voltage interruption of the power supply to the control module.

- **Destruction of the control module.**

During programming, it is essential to guarantee the power supply for the Porsche System tester. It is essential to connect a battery charger with a current rating of at least 40 A to the vehicle battery.

Prior to disconnecting the control module, switch off the ignition and remove the ignition key.

Note

Follow the instructions on the Tester.
Later versions of the software may display slightly different text or require a slightly different procedure. The instructions you receive from the tester itself take precedence over this description.

1. Connect the Porsche System Tester to the vehicle and start the System Tester. Switch on the ignition. >> Continue.

Note

If the control unit values cannot be read out, proceed according to the instructions given here.

2. Select the vehicle type, choose the **Special functions** menu, start **Vehicle handover** and follow the instructions on the Tester.
3. Erase **All fault memories**.

4. Using the >> key, move from the vehicle type to the list of control modules. Perform the automatic control module search.
5. Use the cursor keys to select the **Memory seat adjustment** control unit and press >> .
6. Select **Coding** using the cursor keys and press >> .
7. Select the coding required for the vehicle and follow the instructions on the Tester.
8. Check the operation of the memory switch, read out the fault memory and erase it if necessary.

997110, 997111, 997120, 997121, 997310, 997311, 997320, 997321, 997410, 997411, 997430, 997431, 997610, 997611, 997620, 997621

as of MY 2005
Country C00, C02, C05, C07, C08, C09, C10, C11, C12, C13, C14, C15, C16, C18, C19, C20, C21, C22, C23, C24, C25, C26, C27, C28, C32, C33, C34, C35, C36, C37, C38, C39, C45, C46, C98, C99

WARNUNG

Gefahr des Verlusts der Text-Bild-Zuordnung beim Ausdruck.

- **Aus technischen Gründen kann derzeit nicht ausgeschlossen werden, dass trotz einwandfreier Darstellung auf dem Bildschirm beim Ausdruck der Zusammenhang von Text und zugehörigem Bild verloren geht.**
- **Wird der Fehler nicht bemerkt, besteht die Gefahr, daß Arbeiten nicht korrekt durchgeführt werden und es dadurch zu Personen- und Sachschäden kommt.**

Vergleichen Sie deshalb nach dem Druckvorgang unbedingt die Ausdrucke mit der Bildschirmdarstellung. Korrigieren Sie die Ausdrucke im Fehlerfall so, daß der Inhalt der Bildschirmdarstellung zutreffend wiedergegeben wird.

WARNING

Danger of losing text-figure correspondence when printing out.

- **For technical reasons, it can currently not be ruled out that the correspondence between text and associated figure can be lost when it is printed out, even though the display on the screen is correct.**
- **If the fault is not noticed, there is the danger that work will not be performed correctly which can cause injury and damage.**

Therefore, always compare printouts with the screen display after printing them out. Correct the printouts if they are faulty so that the content of the screen display matches that on the printouts.

AVERTISSEMENT

Risque de perte de la correspondance texte-illustration lors de l'impression papier.

- **Pour des raisons techniques, il ne peut pas être exclu à l'heure actuelle que, même en cas d'affichage correct à l'écran, la correspondance entre le texte et l'illustration**

72 94 19 Removing and installing switch for memory seat adjustment - as of MY 2005

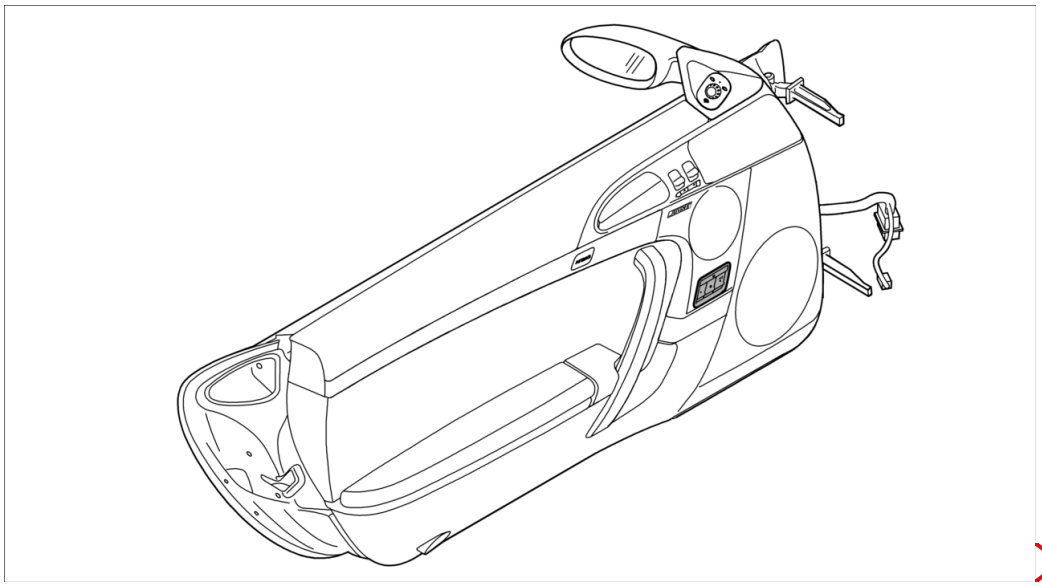
- Removing switch for memory seat adjustment
- Installing switch for memory seat adjustment

top of page

Removing switch for memory seat adjustment

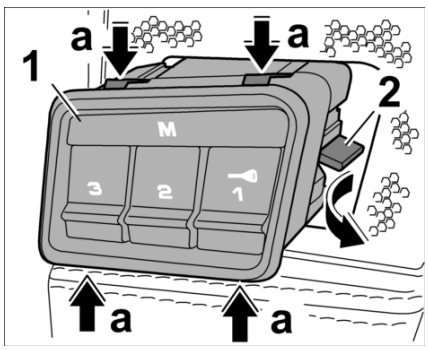
Removing switch for memory seat adjustment

Installation Location:



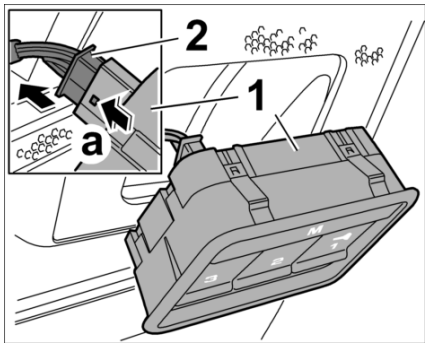
Installation position of switch for memory seat adjustment

1. Switch off ignition and remove ignition key.



Removing switch for memory seat adjustment

2. Release switch for memory seat adjustment **-1-** at the four locking tabs **-arrows a-** . Swivel switch for memory seat adjustment **-1-** out of the door trim panel at the clip **-2-** in **-direction of arrow-** .



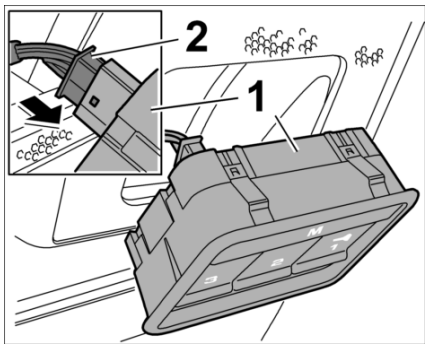
Pulling off connector on switch for memory seat adjustment

3. Release connector **-2-** and remove it **-arrow a-** . Remove switch for memory seat adjustment **-1-** .

top of page

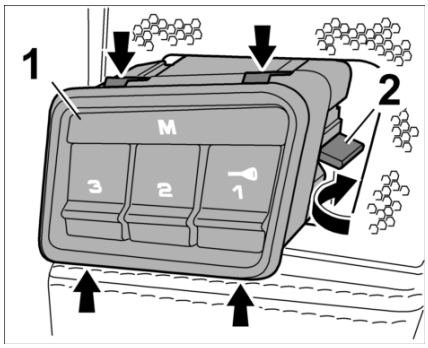
Installing switch for memory seat adjustment

Installing switch for memory seat adjustment



Attaching connector on switch for memory seat adjustment

1. Place switch for memory seat adjustment **-1-** into position and attach connector **-2-** until it engages correctly.



Installing switch for memory seat adjustment

2. Guide switch for memory seat adjustment **-1-** with the clip **-2-** into position behind the door trim panel and press down until the locking tabs **-arrows-** engage correctly.

997110, 997111, 997120, 997121, 997310, 997311, 997320, 997321, 997410, 997411, 997430, 997431, 997610, 997611, 997620, 997621

as of MY 2005
Country C00, C02, C05, C07, C08, C09, C10, C11, C12, C13, C14, C15, C16, C18, C19, C20, C21, C22, C23, C24, C25, C26, C27, C28, C32, C33, C34, C35, C36, C37, C38, C39, C45, C46, C98, C99

WARNUNG

Gefahr des Verlusts der Text-Bild-Zuordnung beim Ausdruck.

- **Aus technischen Gründen kann derzeit nicht ausgeschlossen werden, dass trotz einwandfreier Darstellung auf dem Bildschirm beim Ausdruck der Zusammenhang von Text und zugehörigem Bild verloren geht.**
- **Wird der Fehler nicht bemerkt, besteht die Gefahr, daß Arbeiten nicht korrekt durchgeführt werden und es dadurch zu Personen- und Sachschäden kommt.**

Vergleichen Sie deshalb nach dem Druckvorgang unbedingt die Ausdrucke mit der Bildschirmdarstellung. Korrigieren Sie die Ausdrucke im Fehlerfall so, daß der Inhalt der Bildschirmdarstellung zutreffend wiedergegeben wird.

WARNING

Danger of losing text-figure correspondence when printing out.

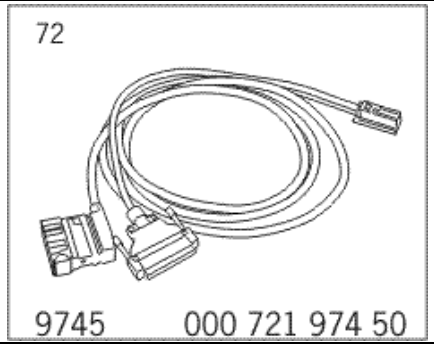
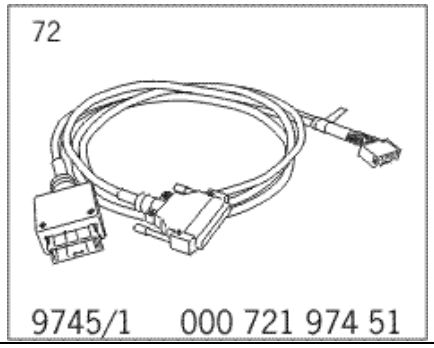
- **For technical reasons, it can currently not be ruled out that the correspondence between text and associated figure can be lost when it is printed out, even though the display on the screen is correct.**
- **If the fault is not noticed, there is the danger that work will not be performed correctly which can cause injury and damage.**

Therefore, always compare printouts with the screen display after printing them out. Correct the printouts if they are faulty so that the content of the screen display matches that on the printouts.

74 10 19 Removing and installing padding for front seat - as of MY 2005

- Preliminary work
- Removing padding for front seat
- Installing padding for front seat
- Subsequent work

Tools

Designation	Type	Number	Explanation	
test cable	special tool	9745		
test cable	special tool	9745/1		

top of page

Preliminary work

Preliminary work

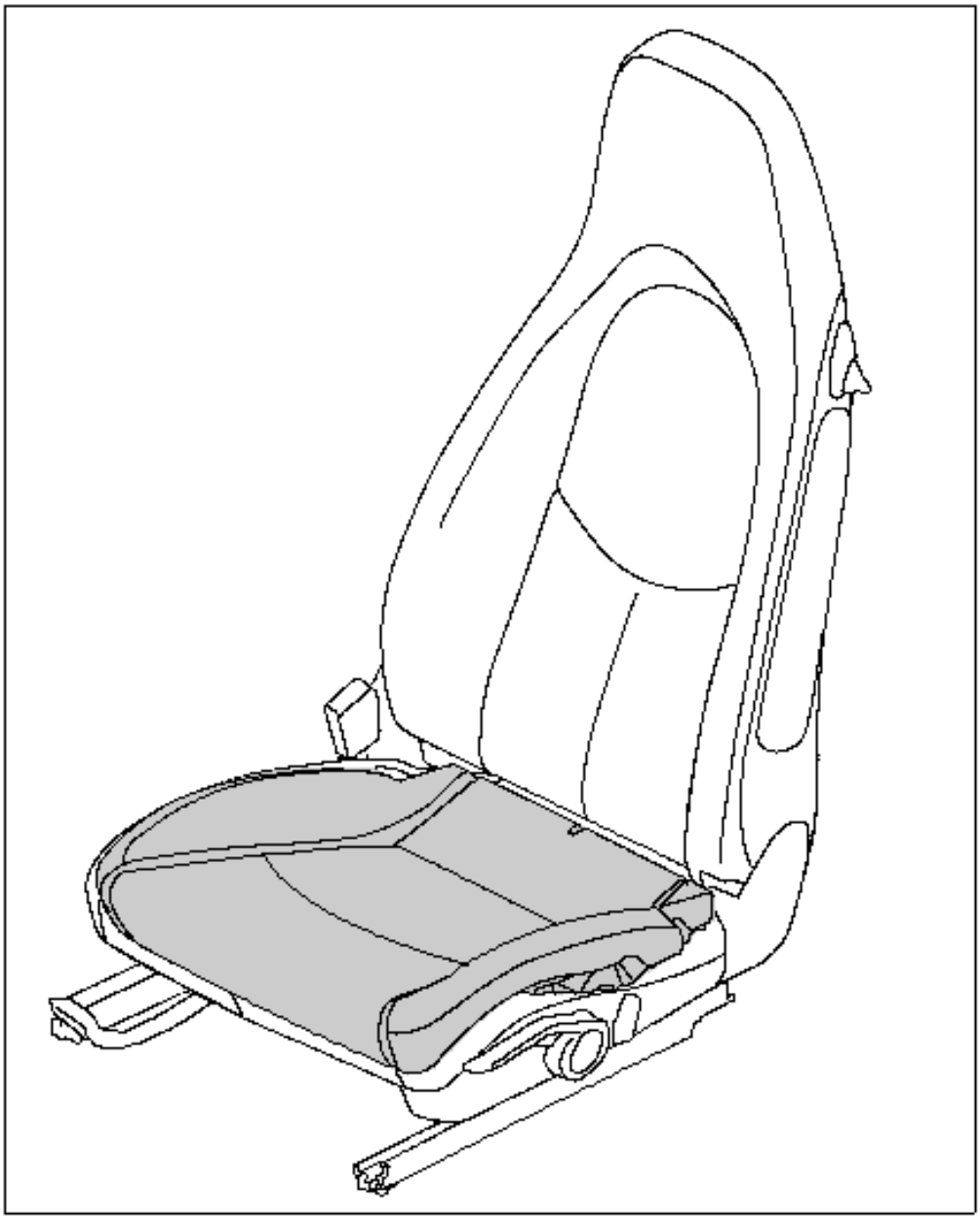
1. Remove cover for front seat. 741319 Removing and installing cover for front seat - section on "Removing"

top of page

Removing padding for front seat

Disconnecting wire harness for heated seats

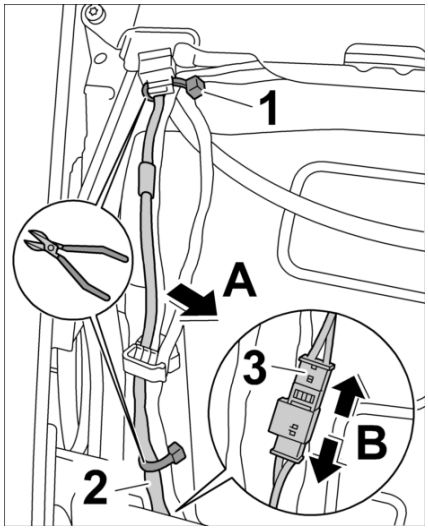
Installation Location:



Installation position of padding for seat

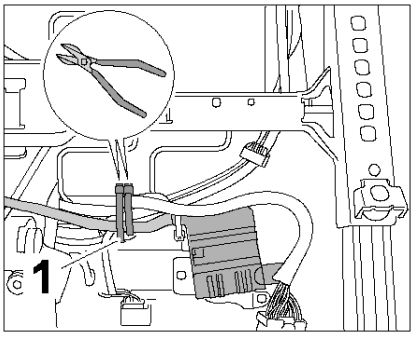
Note

Only for vehicles with heated seats.



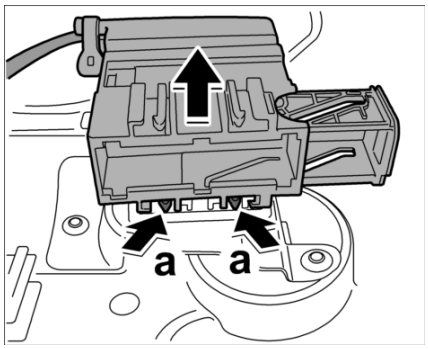
Releasing wire harness on seat frame

1. Cut tie-wraps **-1-** and disengage wire harness **-2-** (**-arrow A-**).
2. Disconnect electric plug connection **-3-** for backrest seat heating **-arrows B-** .



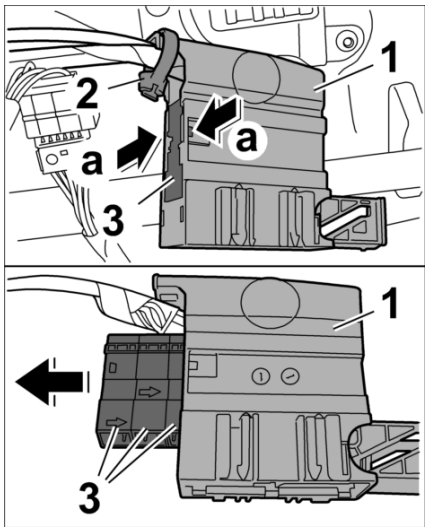
Cutting tie-wraps

3. Cut tie-wraps **-1-**



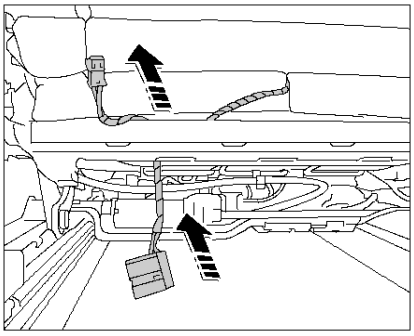
Pulling off connector socket

4. Release connector socket **-arrows a-** and pull out of holder.



Disassembling connector socket

5. Remove tie-wraps **-2-** on connector socket **-1-** .
6. Release connector socket **-1-** (**-arrows a-**) and remove the three individual connectors **-3-** .



Pulling out wire harness

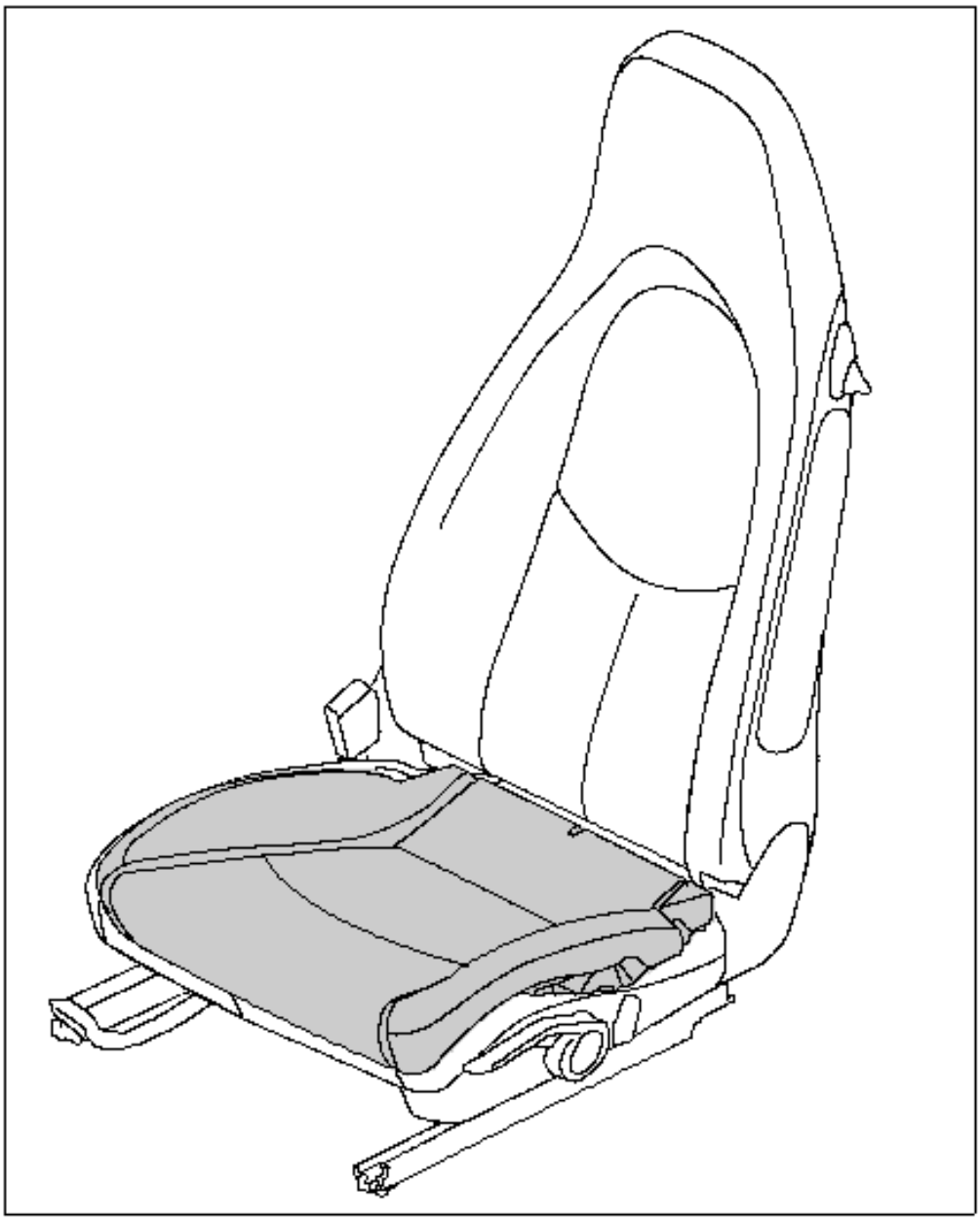
Note

Make sure not to trap or damage the wire harness when pulling it through.

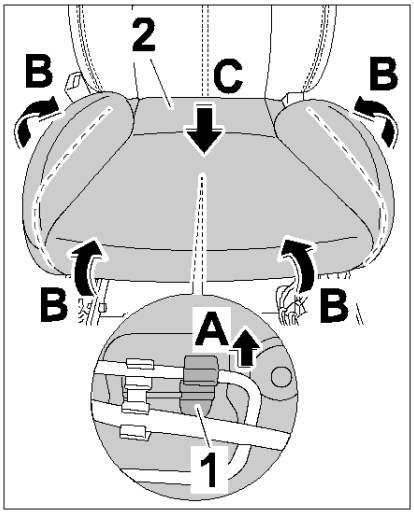
7. Pull wire harness out through the seat frame.

Removing padding for seat

Installation Location:

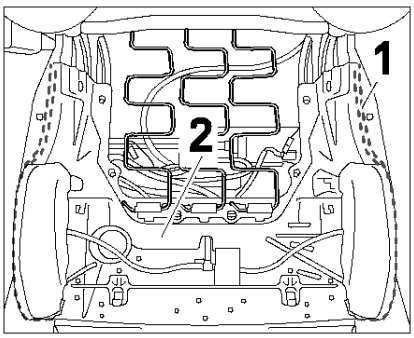


Installation position of padding for seat



Removing padding

1. Unclip fixing clip **-1-** underneath the padding **-2-** (**-arrow A-**).
2. Carefully detach padding **-2-** by hand from the seat frame **-arrow B-** and remove it **-arrow C-** .



Removing residual adhesive

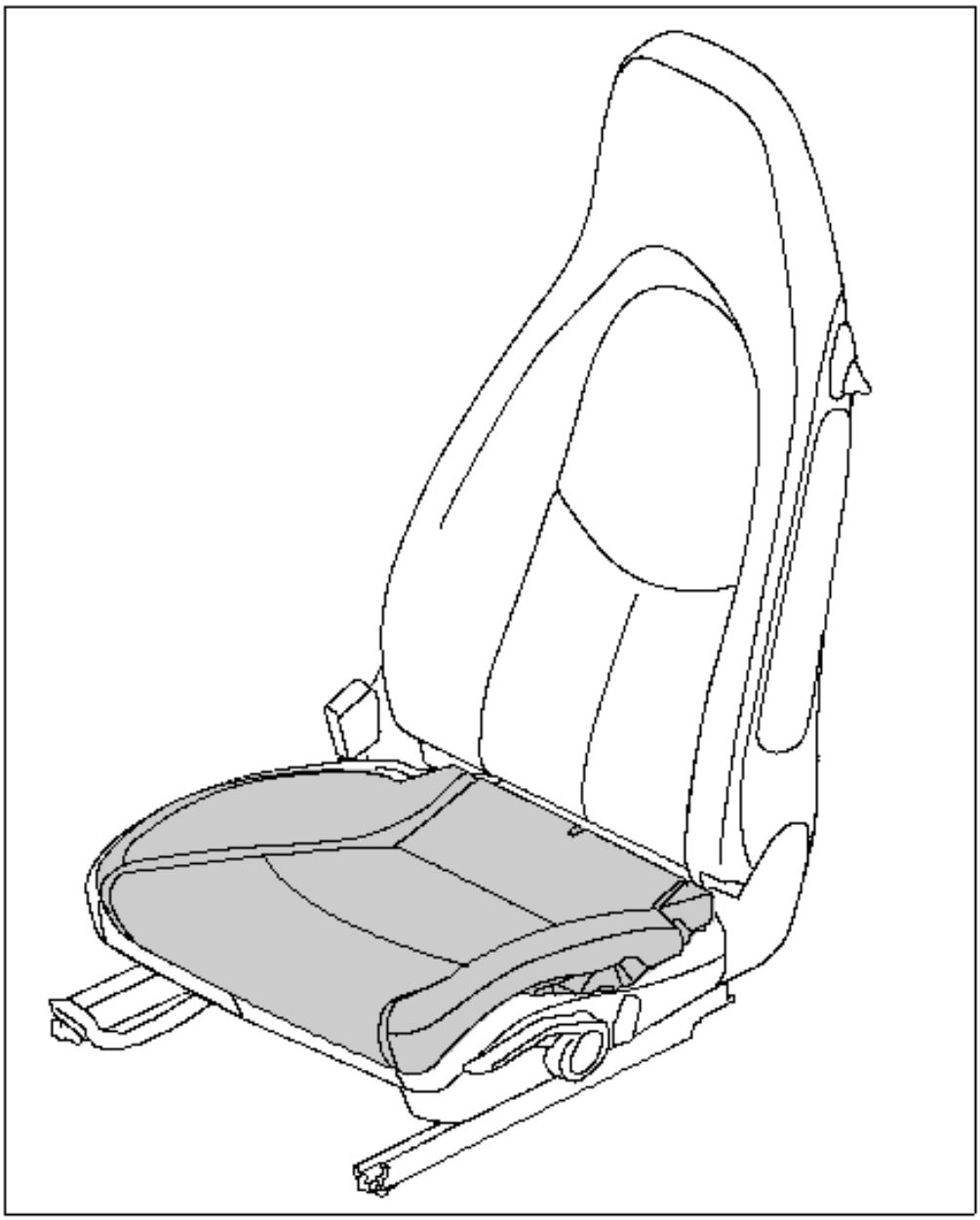
3. Remove residual adhesive **-1-** and clean sealing surface of seat frame **-2-** with cleaning agent.

top of page

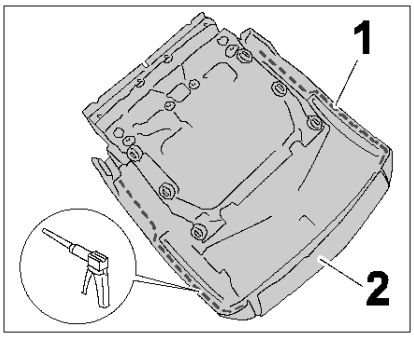
Installing padding for front seat

Installing padding for seat

Installation Location:

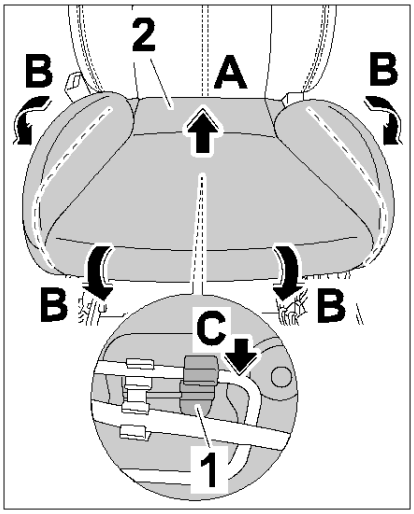


Installation position of padding for seat



Applying adhesive

1. Apply adhesive **-1-** on the marked area of the padding **-2-** .



Installing padding

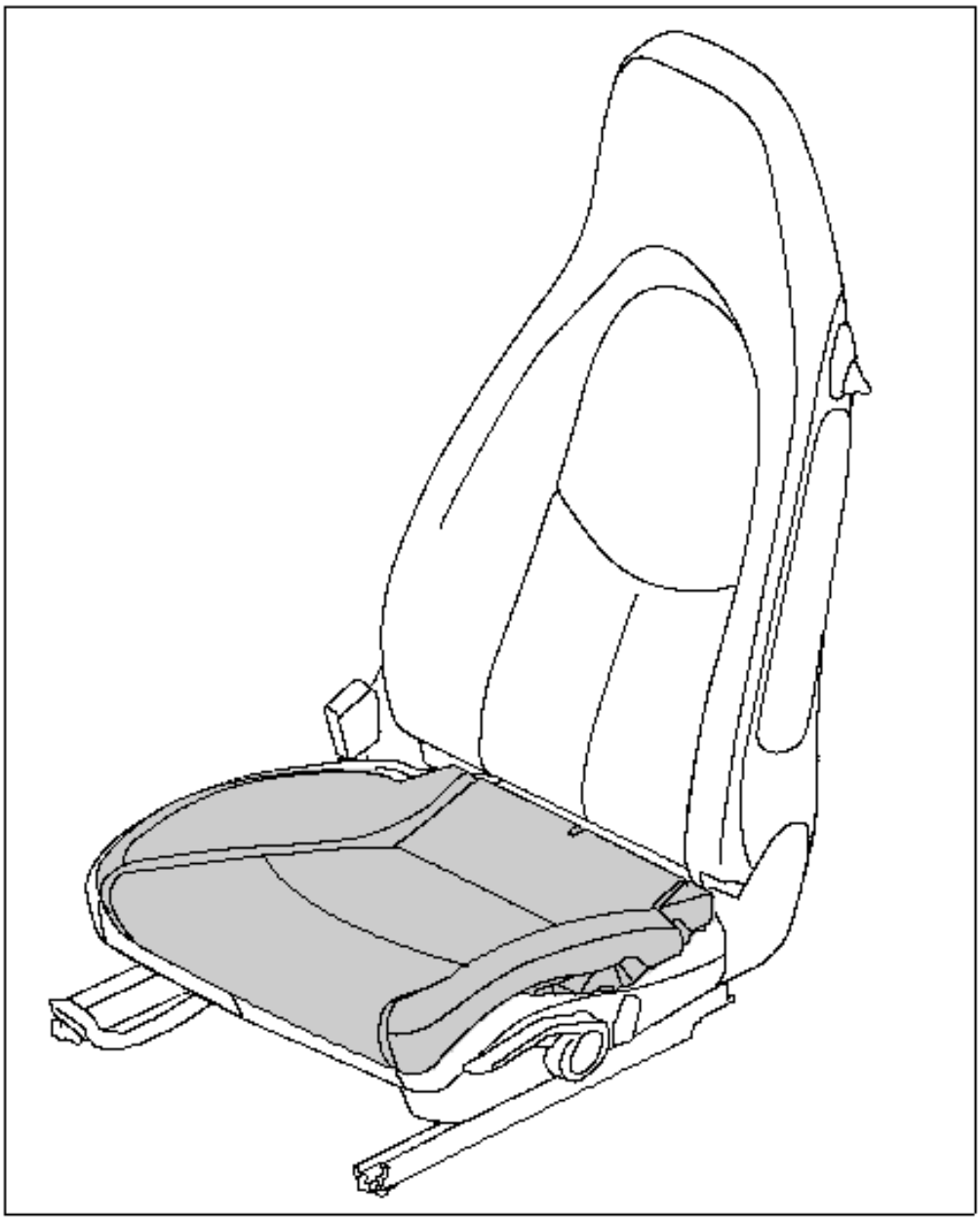
Note

Sealing surface of seat frame must be clean and free of grease.

2. Place padding **-2-** on the seat frame **-arrow A-** and align it with the seat frame **-arrow B-** .
3. Clip in fixing clip **-1-** underneath the padding **-2-** (**-arrow C-**).

Securing wire harness for heated seats

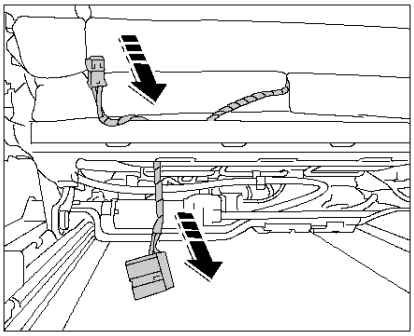
Installation Location:



Installation position of padding for seat

Note

Only for vehicles with heated seats.

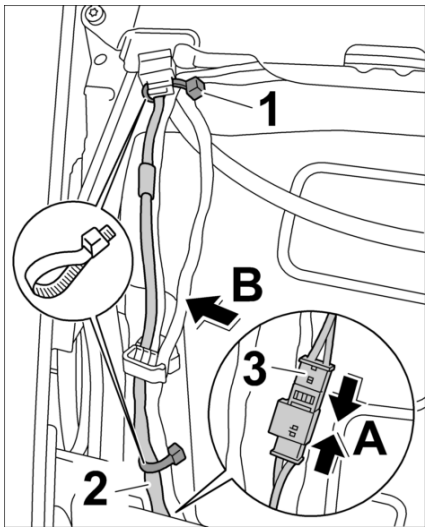


Pulling wire harness through

Note

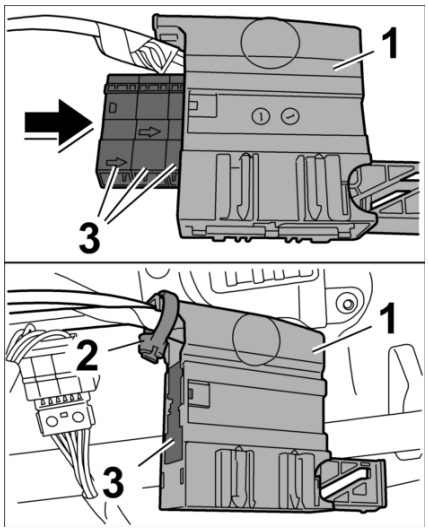
Make sure not to trap or damage the wire harness when pulling it through.

1. Pull wire harness through the seat frame.



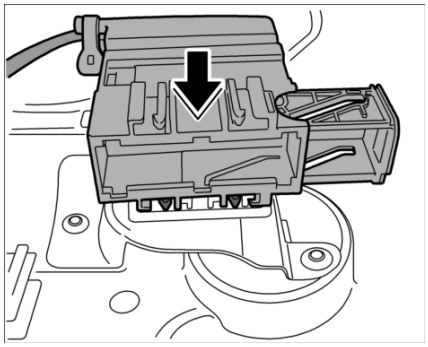
Securing wire harness on seat frame

2. Connect electric plug connection **-3-** for backrest seat heating **-arrows A-** .
3. Engage wire harness **-2-** (**-arrow C-**) and secure with new tie-wraps **-1-** .



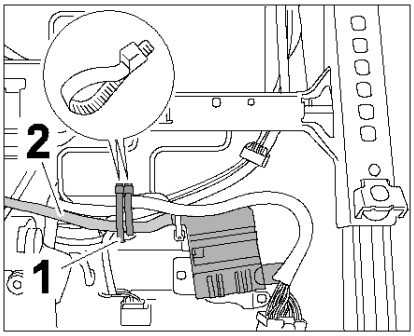
Assembling connector socket

4. Press the three individual connectors **-3-** into the connector socket **-1-** until they engage firmly.
5. Put new tie-wraps **-2-** on the connector socket **-1-** .



Attaching connector socket

6. Attach connector socket to support until it clicks into place.



Securing wiring harness

7. Secure wire harness **-2-** with new tie-wraps **-1-** .

Checking seat following removal

1. Connect the removed seat to the vehicle's wiring harness via **test cable 9745** and **test cable**

9745/1.

2. Connect electric plug to control module trim panel. 721619 Removing and installing control module trim panel - section on "Installing"
3. Connect the battery. 2706IN IN -Work instructions after disconnecting the battery
4. Switch on ignition.
5. Carry out a function check on the seat components.
6. Switch off ignition after function test and disconnect battery.
7. Disconnect **test cable 9745** and **test cable 9745/1**.

top of page

Subsequent work

Subsequent work

1. Install cover for front seat. 741319 Removing and installing cover for front seat - section on "Installing"

997110, 997111, 997120, 997121, 997310, 997311, 997320, 997321, 997410, 997411, 997430, 997431, 997610, 997611, 997620, 997621

as of MY 2005
Country C00, C02, C05, C07, C08, C09, C10, C11, C12, C13, C14, C15, C16, C18, C19, C20, C21, C22, C23, C24, C25, C26, C27, C28, C32, C33, C34, C35, C36, C37, C38, C39, C45, C46, C98, C99

WARNUNG

Gefahr des Verlusts der Text-Bild-Zuordnung beim Ausdruck.

- **Aus technischen Gründen kann derzeit nicht ausgeschlossen werden, dass trotz einwandfreier Darstellung auf dem Bildschirm beim Ausdruck der Zusammenhang von Text und zugehörigem Bild verloren geht.**
- **Wird der Fehler nicht bemerkt, besteht die Gefahr, daß Arbeiten nicht korrekt durchgeführt werden und es dadurch zu Personen- und Sachschäden kommt.**

Vergleichen Sie deshalb nach dem Druckvorgang unbedingt die Ausdrucke mit der Bildschirmdarstellung. Korrigieren Sie die Ausdrucke im Fehlerfall so, daß der Inhalt der Bildschirmdarstellung zutreffend wiedergegeben wird.

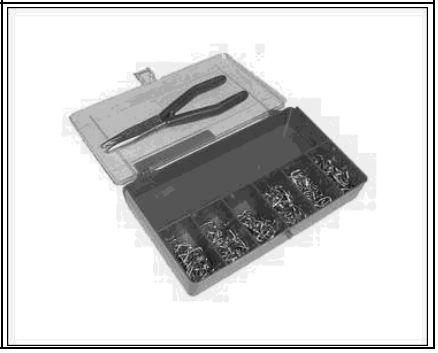
WARNING

Danger of losing text-figure correspondence when printing out.

74 13 19 Removing and installing cover for front seat - as of MY 2005

- Preliminary work
- Removing cover for front seat
- Installing cover for front seat
- Subsequent work

Tools

Designation	Type	Number	Explanation	
cushion clip pliers	commercially available tool	NR.130		

top of page

Preliminary work

Preliminary work

Note

- *The front-seat air cushions must be bled before removing the front seat.*
- *Only for adaptive sports seats.*

1. Remove control part trim panel. 721619 Removing and installing control part trim panel - section on "Removing"

Front seat on assembly fixture

2. Position front seat on assembly fixture.

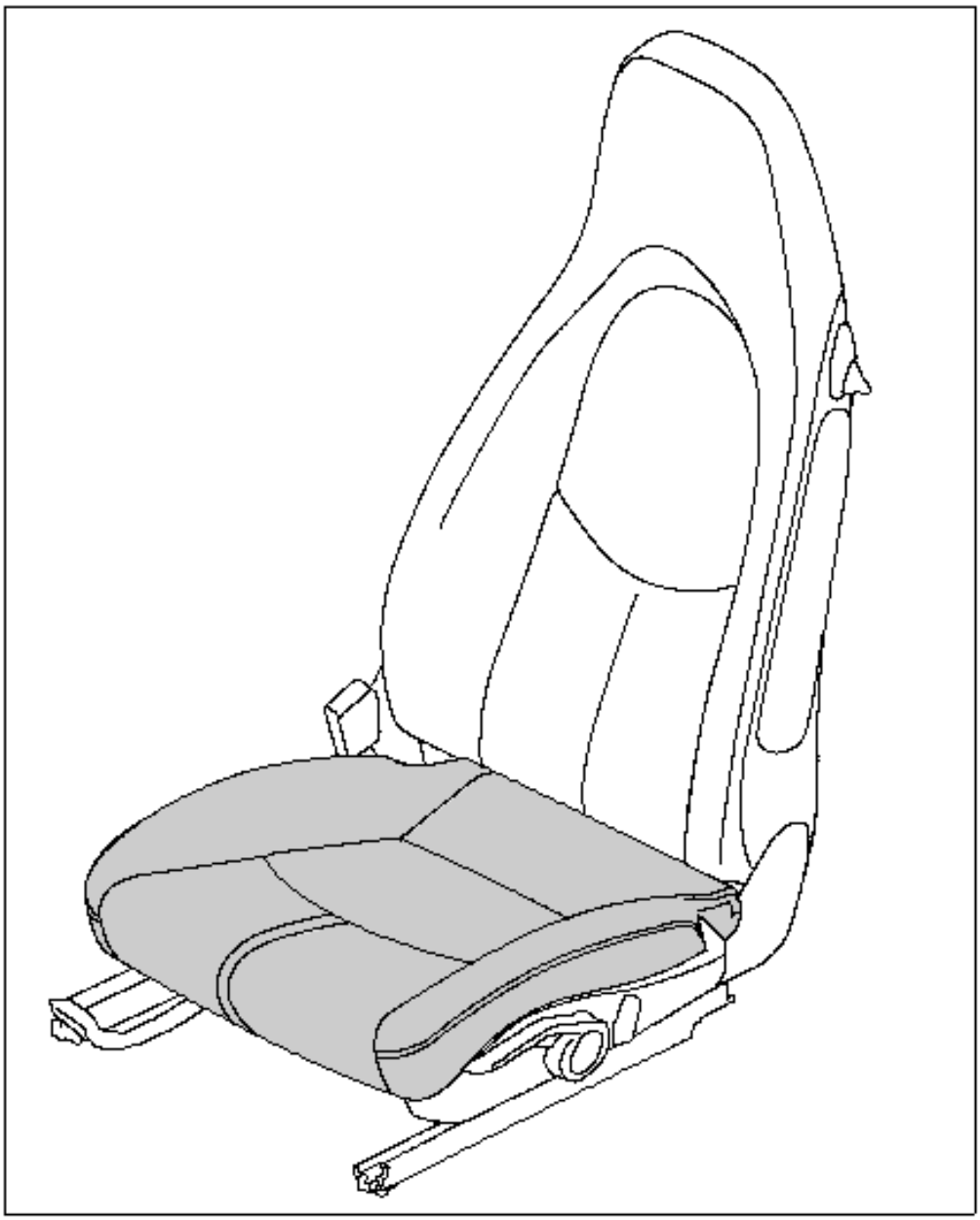
top of page

Removing cover for front seat

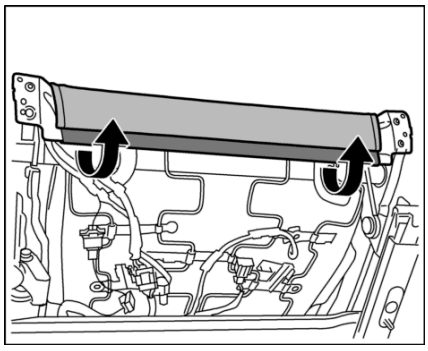
Removing cover for front seat

Removing cover for front seat

Installation Location:

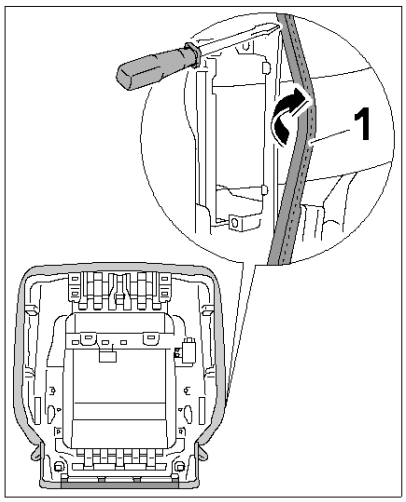


Installation position of cover for front seat



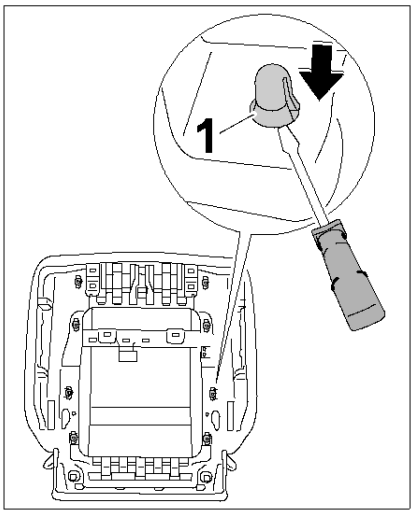
Pressing out cover at rear

1. Press cover piping at rear carefully out of the seat frame using a screwdriver **-arrows-** .



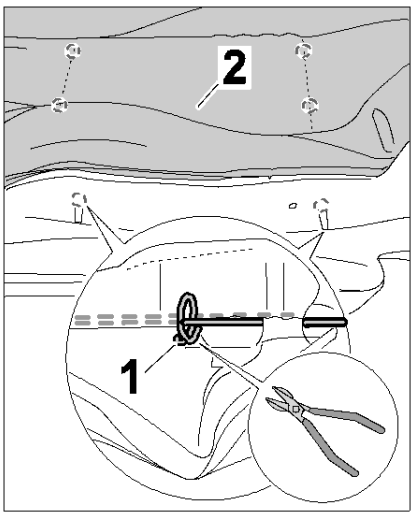
Pulling out cover

2. Slightly loosen cover piping **-1-** with a screwdriver and pull out all around by hand.



Unclip fixing clips

3. Unclip fixing clips **-1-** with a screwdriver.



Loosening cover from padding

4. Cut open cushion clips **-1-** with side cutters and remove cover **-2-** from padding.

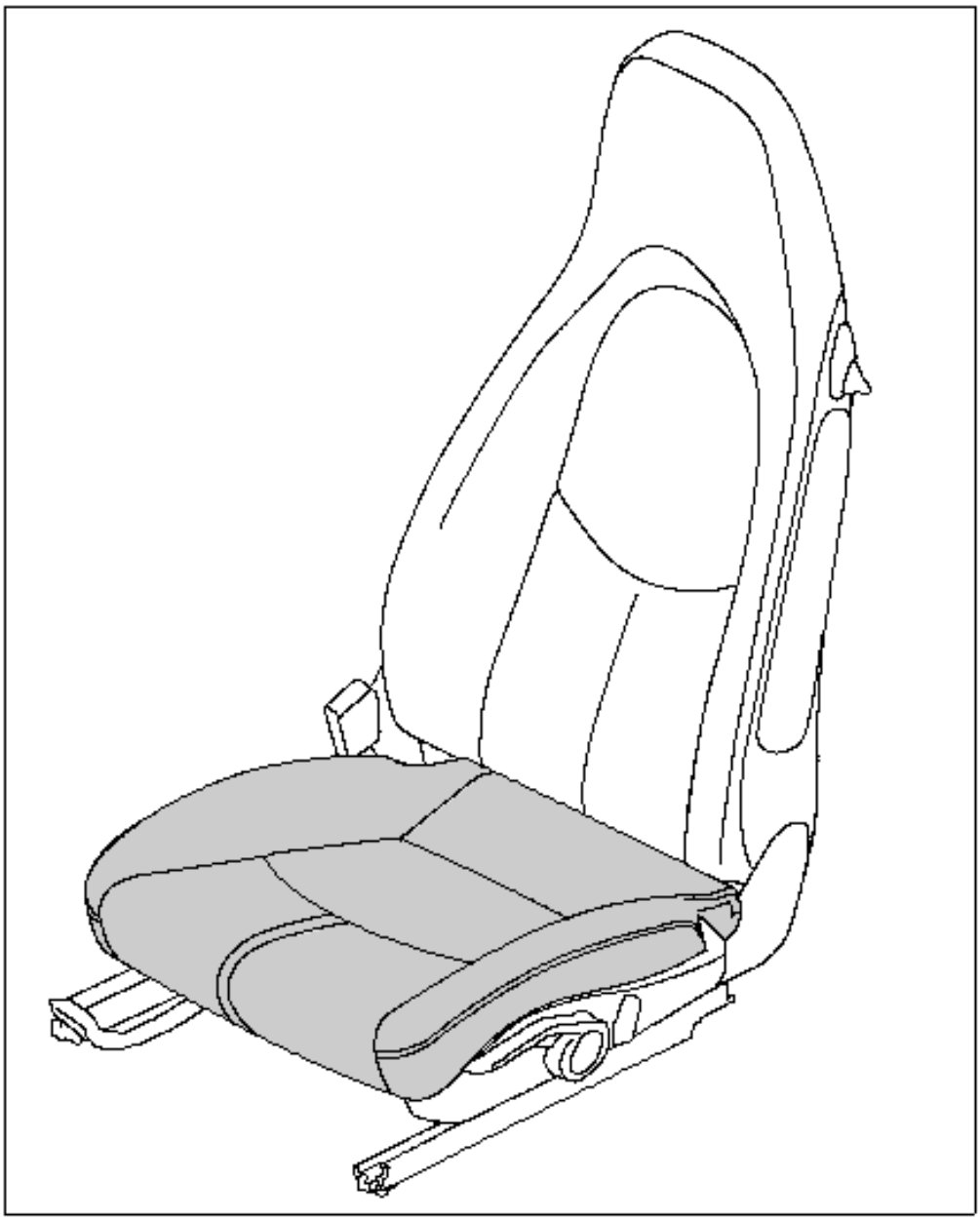
top of page

Installing cover for front seat

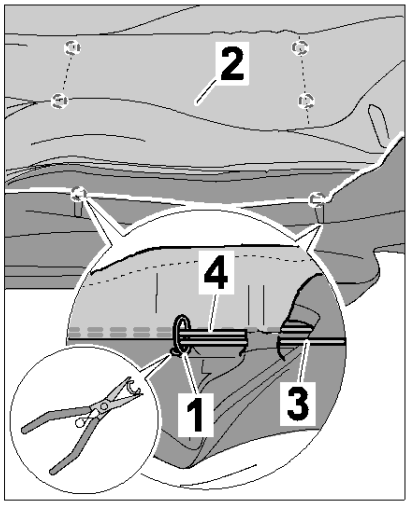
Installing cover for front seat

Installing cover for front seat

Installation Location:



Installation position of cover for front seat



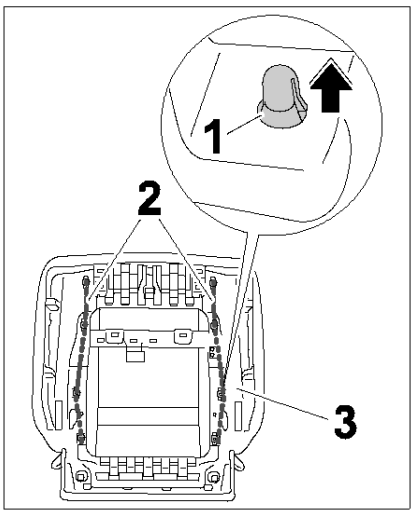
Fastening cover to padding

1. Place cover **-2-** on the padding and align with the contour of the padding.

Note

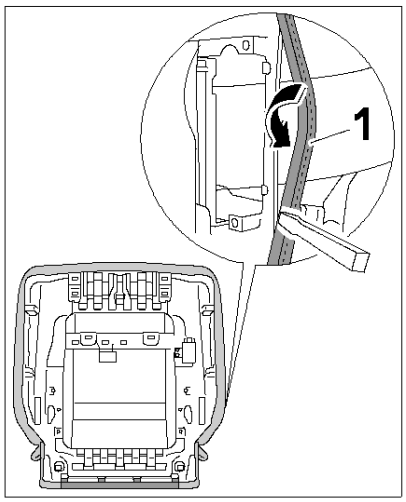
- *Fasten cover to the padding, starting from the inside.*
- *Do this in the following sequence: rear, front.*

2. Use the **cushion clip pliers NR.130** and the cushion clips **-1-** to connect the integrated metal struts of the padding **-3-** with the metal struts of the cover strips **-4-** .



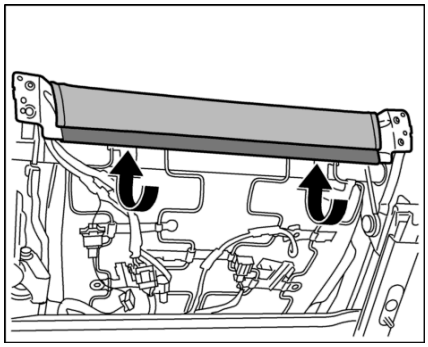
Clipping in cover strips

3. Check fastening clip **-1-** , and replace if necessary.
4. Position cover strips right and left **-2-** at the cut-outs provided to the padding and clip into the seat frame **-3-** .
5. Fit cover over the padding without creases.



Fitting cover

6. Fit cover piping **-1-** all around the seat frame with a plastic wedge.



Fitting cover at rear

7. Fit cover piping at rear to seat frame with a plastic wedge **-arrows-** .

top of page

Subsequent work

Removing creases in the cover

ATTENTION

Danger of material damage if excessive heat is applied.

If creases have formed, only short partial warming with the hot-air gun is permissible.

The hot-air temperature of approx. 50 degrees Celsius (122 Fahrenheit) must always be observed.

If creases have formed in areas of the cover, partially heat them with the hot-air gun and smooth out with the tool.

Subsequent work

Install control module trim panel (electric). 721619 Removing and installing control module trim panel - section on "Installing"

997110, 997111, 997120, 997121, 997310, 997311, 997320, 997321, 997410, 997411, 997430, 997431, 997610, 997611, 997620, 997621

as of MY 2005
Country C00, C02, C05, C07, C08, C09, C10, C11, C12, C13, C14, C15, C16, C18, C19, C20, C21, C22, C23, C24, C25, C26, C27, C28, C32, C33, C34, C35, C36, C37, C38, C39, C45, C46, C98, C99

WARNUNG

Gefahr des Verlusts der Text-Bild-Zuordnung beim Ausdruck.

- **Aus technischen Gründen kann derzeit nicht ausgeschlossen werden, dass trotz einwandfreier Darstellung auf dem Bildschirm beim Ausdruck der Zusammenhang von Text und zugehörigem Bild verloren geht.**
- **Wird der Fehler nicht bemerkt, besteht die Gefahr, daß Arbeiten nicht korrekt durchgeführt werden und es dadurch zu Personen- und Sachschäden kommt.**

Vergleichen Sie deshalb nach dem Druckvorgang unbedingt die Ausdrucke mit der Bildschirmdarstellung. Korrigieren Sie die Ausdrucke im Fehlerfall so, daß der Inhalt der Bildschirmdarstellung zutreffend wiedergegeben wird.

WARNING

Danger of losing text-figure correspondence when printing out.

- **For technical reasons, it can currently not be ruled out that the correspondence between text and associated figure can be lost when it is printed out, even though the display on the screen is correct.**
- **If the fault is not noticed, there is the danger that work will not be performed correctly which can cause injury and damage.**

Therefore, always compare printouts with the screen display after printing them out. Correct the printouts if they are faulty so that the content of the screen display matches that on the printouts.

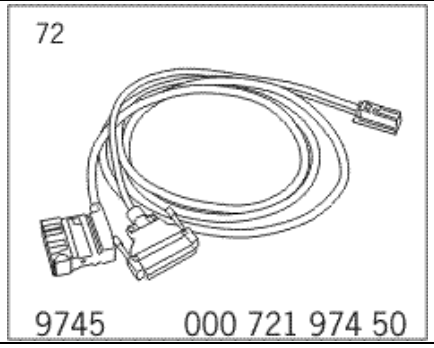
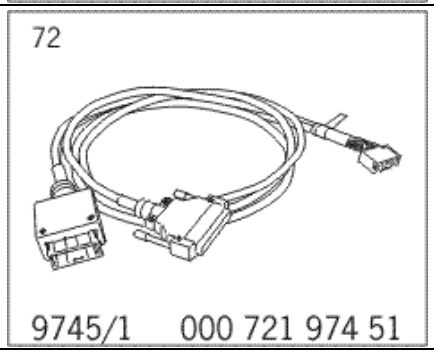
AVERTISSEMENT

Risque de perte de la correspondance texte-illustration lors de l'impression papier.

74 17 19 Removing and installing padding for front backrest - as of MY 2005

- Preliminary work
- Removing padding for front backrest
- Installing padding for front backrest
- Subsequent work

Tools

Designation	Type	Number	Explanation	
test cable	special tool	9745		
test cable	special tool	9745/1		

top of page

Preliminary work

Preliminary work

1. Remove cover for front backrest. 741919 Removing and installing cover for front backrest - section on "Removing" [997310 997311 997320 997321 997610 997611 997620 997621] 741919 Removing and installing cover for front backrest - section on "Removing" [997110 997111 997120 997121 997410 997411 997430 997431]

Note

Only for vehicles with heated seats.

2.

Remove cover for inner backrest. 722619 Removing and installing cover for backrest - section on "Removing"

top of page

Removing padding for front backrest

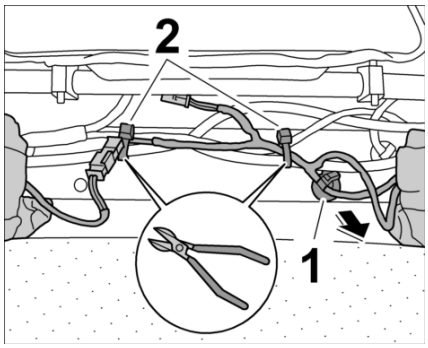
Releasing wire harness for backrest seat heating

Installation Location:

Installation position of padding

Note

Only for vehicles with heated seats.

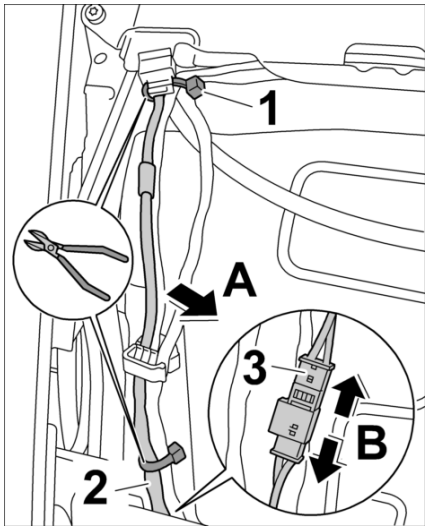


Releasing wire harness on backrest frame

1. Release wire harness on backrest frame.

1.1. Unclip fixing clip **-1-** .

1.2. Cut tie-wrap **-2-** .

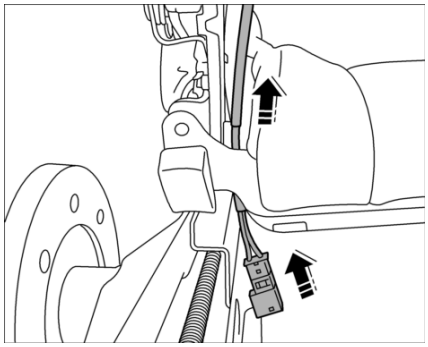


Releasing wire harness on seat frame

2. Release wire harness on seat frame.

2.1. Cut tie-wrap **-1-** and disengage wire harness **-2-** (**-arrow A-**).

2.2. Disconnect electric plug connection **-3-** for backrest seat heating **-arrows B-** .



Pulling out wire harness

Note

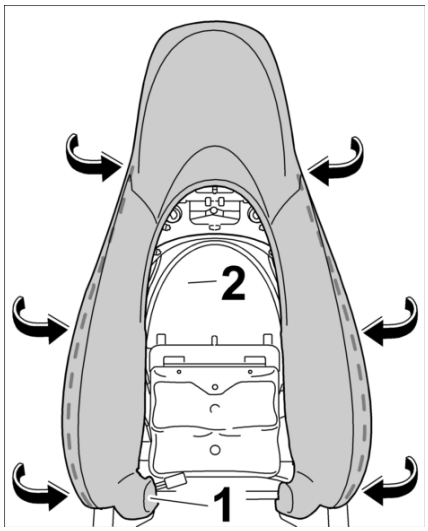
Make sure not to trap or damage the wire harness when pulling it through.

3. Pull wire harness out through the seat and backrest frame.

Removing padding for front backrest

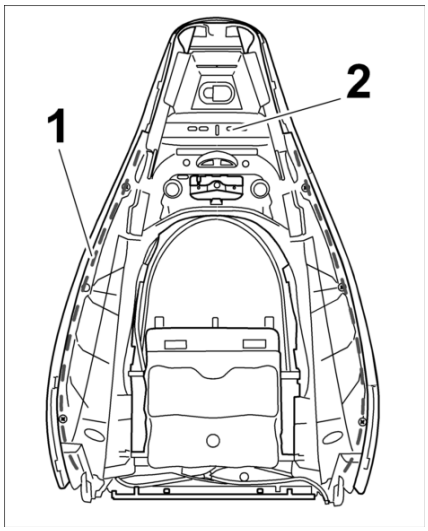
Installation Location:

Installation position of padding



Removing padding

1. Loosen padding **-1-** carefully by hand and remove it from the cushion carrier **-2-** .



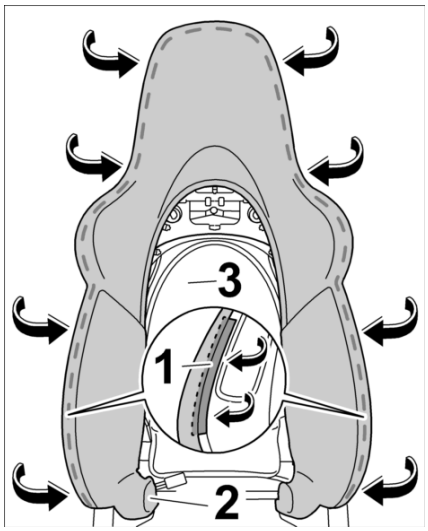
Removing residual adhesive

2. Remove residual adhesive **-1-** and clean sealing surface of backrest frame **-2-** with cleaning agent.

Removing padding for front backrest

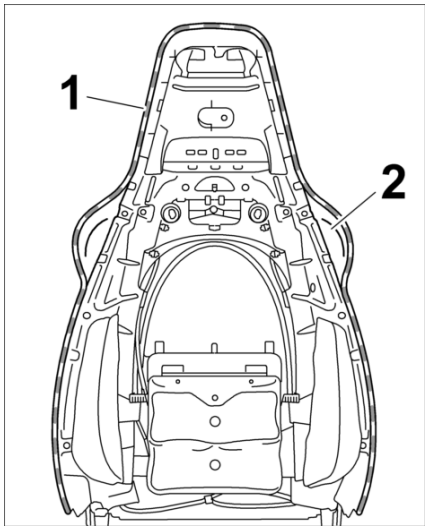
Installation Location:

Installation position of padding



Loosening padding

1. Disengage padding **-1-** laterally from the cushion carrier **-3-** .
2. Loosen padding **-2-** carefully by hand and remove it from the cushion carrier **-3-** .



Removing residual adhesive

3. Remove residual adhesive **-1-** and clean sealing surface of cushion carrier **-2-** with cleaning agent.

top of page

Installing padding for front backrest

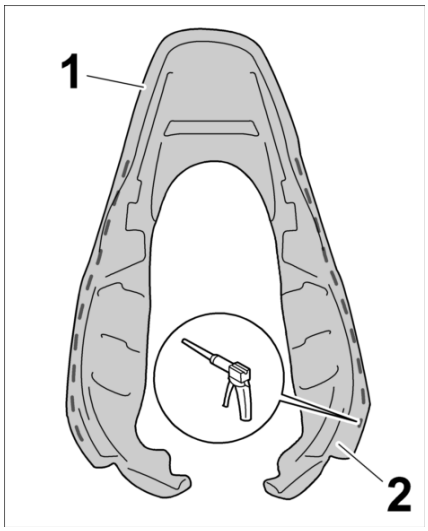
Installing padding for front backrest

Installation Location:

Installation position of padding

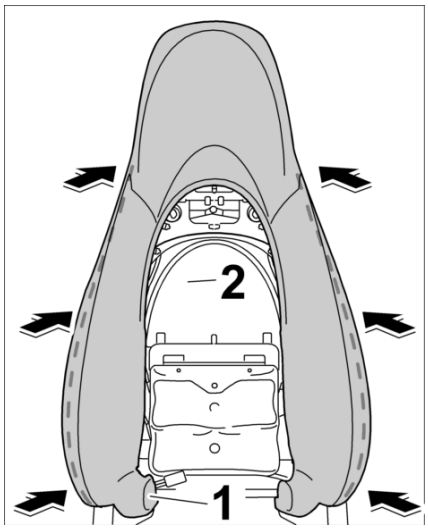
Note

Sealing surface of backrest frame must be clean and free of grease.



Applying adhesive

1. Apply adhesive **-1-** to the marked area of the padding **-2-** .



Installing padding

2. Place padding **-1-** on the cushion carrier **-2-** and align it with the cushion carrier.

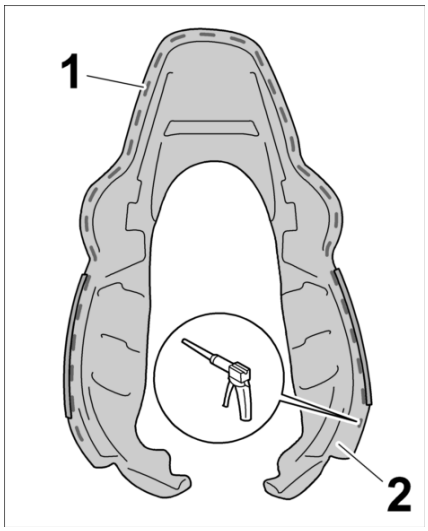
Installing padding for front backrest

Installation Location:

Installation position of padding

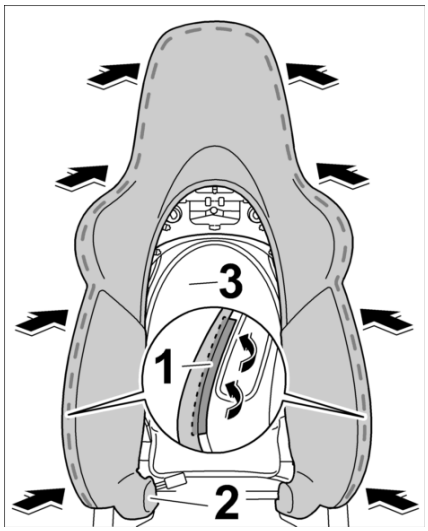
Note

Sealing surface of padding must be clean and free of grease.



Applying adhesive

1. Apply adhesive **-1-** to the marked area of the padding **-2-** .



Installing padding

2. Place padding **-2-** on the cushion carrier **-3-** and align it with the cushion carrier.
3. Engage padding **-1-** in the cushion carrier at the sides.

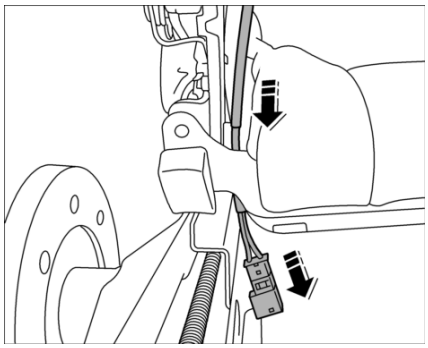
Securing wire harness for backrest seat heating

Installation Location:

Installation position of padding

Note

Make sure not to trap or damage the wire harness when pulling it through.

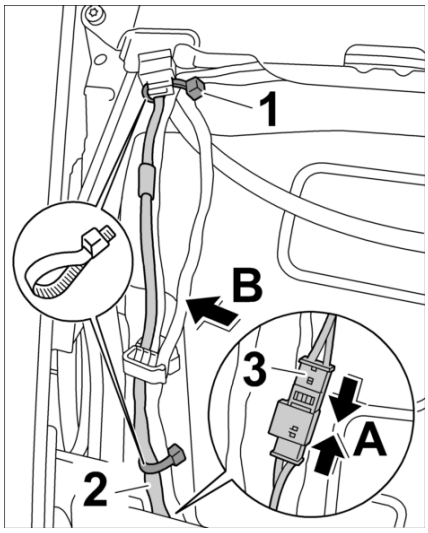


Pulling wire harness through

Note

Only for vehicles with heated seats.

1. Pull wire harness through the seat and backrest frame.

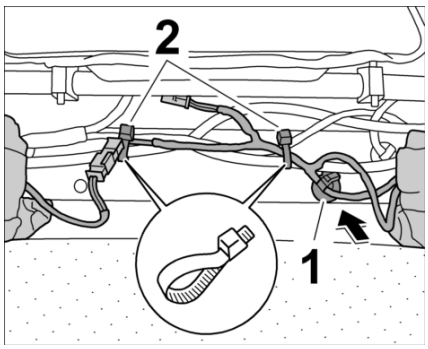


Securing wire harness on seat frame

2. Secure wire harness on seat frame.

2.1. Connect electric plug connection **-3-** for backrest seat heating **-arrows A-** .

2.2. Engage wire harness **-2-** (**-arrow C-**) and secure with new tie-wraps **-1-** .



Securing wire harness on backrest frame

3.

Secure wire harness on backrest frame.

3.1. Press in fixing clip **-1-** .

3.2. Secure wire harness with new tie-wraps **-2-** .

Checking seat following removal

1. Connect the removed seat to the vehicle's wiring harness via **test cable 9745** and **test cable 9745/1**.
2. Connect electric plug to control module trim panel. 721619 Removing and installing control module trim panel - section on "Installing"
3. Connect the battery. 2706IN IN -Work instructions after disconnecting the battery
4. Switch on ignition.
5. Carry out a function check on the seat components.
6. Switch off ignition after function test and disconnect battery.
7. Disconnect **test cable 9745** and **test cable 9745/1**.

top of page

Subsequent work

Subsequent work

Note

Only for vehicles with heated seats.

1. Install cover for inner backrest. 722619 Removing and installing cover for backrest - section on "Installing"
2. Install cover for front backrest. 741919 Removing and installing cover for front backrest - section on "Installing" [997310 997311 997320 997321 997610 997611 997620 997621] 741919 Removing and installing cover for front backrest - section on "Installing" [997110 997111 997120 997121 997410 997411 997430 997431]

997110, 997111, 997120, 997121, 997310, 997311, 997320, 997321, 997410, 997411, 997430, 997431, 997610, 997611, 997620, 997621

as of MY 2005
Country C00, C02, C05, C07, C08, C09, C10, C11, C12, C13, C14, C15, C16, C18, C19, C20, C21, C22, C23, C24, C25, C26, C27, C28, C32, C33, C34, C35, C36, C37, C38, C39, C45, C46, C98, C99

74 18 19 Removing and installing padding for front middle backrest - as of MY 2005

- Preliminary work
- Removing padding for front middle backrest
- Installing padding for front middle backrest
- Subsequent work

Tools

Designation	Type	Number	Explanation	
cushion clip pliers	commercially available tool	NR.130		

top of page

Preliminary work

Preliminary work

Remove cover for front middle backrest. 742019 Removing and installing cover for front middle backrest - section on "Removing"

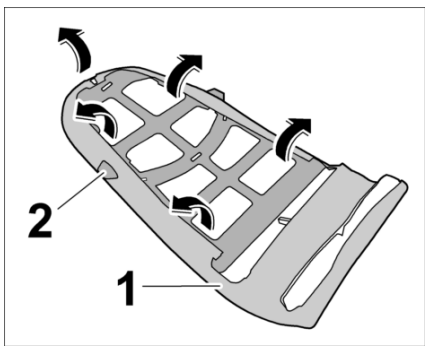
top of page

Removing padding for front middle backrest

Removing padding for front middle backrest

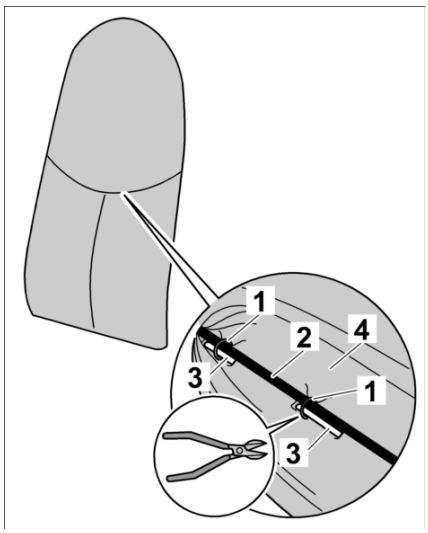
Installation Location:

Installation position of cover for front middle backrest



Disengaging cover for middle backrest

1. Disengage cover for middle backrest **-1-** out of the plastic frame **-2-** all the way round.



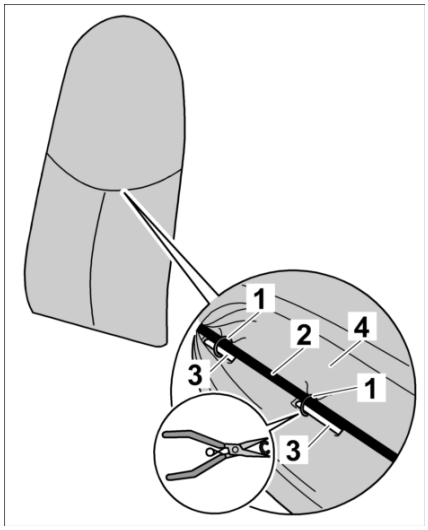
Removing cover for middle backrest

2. Cut through cushion clips **-1-** using side cutters. Detach piping **-2-** for cover for middle backrest and remove plastic frame **-3-** from the padding **-4-** .

top of page

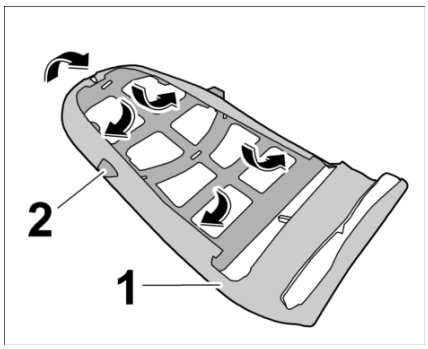
Installing padding for front middle backrest

Installing padding for front middle backrest



Installing cover for middle backrest

1. Position piping **-2-** for cover for middle backrest and padding **-4-** on the plastic frame **-3-** . Use the **cushion clip pliers NR.130** and the cushion clips **-1-** to connect the cover strips and the plastic frame **-3-** .



Engaging cover for middle backrest

2. Engage cover for middle backrest **-1-** in the plastic frame **-2-** all the way round.

top of page

Subsequent work

Subsequent work

Install cover for front middle backrest. 742019 Removing and installing cover for front middle backrest - section on "Installing"

997110, 997111, 997120, 997121, 997310, 997311, 997320, 997321, 997410, 997411, 997430, 997431, 997610, 997611, 997620, 997621

as of MY 2005
Country C00, C02, C05, C07, C08, C09, C10, C11, C12, C13, C14, C15, C16, C18, C19, C20, C21, C22, C23, C24, C25, C26, C27, C28, C32, C33, C34, C35, C36, C37, C38, C39, C45, C46, C98, C99

WARNUNG

Gefahr des Verlusts der Text-Bild-Zuordnung beim Ausdruck.

- **Aus technischen Gründen kann derzeit nicht ausgeschlossen werden, dass trotz einwandfreier Darstellung auf dem Bildschirm beim Ausdruck der Zusammenhang von Text und zugehörigem Bild verloren geht.**
- **Wird der Fehler nicht bemerkt, besteht die Gefahr, daß Arbeiten nicht korrekt durchgeführt werden und es dadurch zu Personen- und Sachschäden kommt.**

Vergleichen Sie deshalb nach dem Druckvorgang unbedingt die Ausdrucke mit der Bildschirmdarstellung. Korrigieren Sie die Ausdrucke im Fehlerfall so, daß der Inhalt der Bildschirmdarstellung zutreffend wiedergegeben wird.

74 19 19 Removing and installing cover for front backrest - as of MY 2005

- Preliminary work
- Removing cover for front backrest
- Installing cover for front backrest
- Subsequent work

top of page

Preliminary work

Preliminary work

Note

The lumbar support must be deflated before removing the front seat.

1. Remove front seat. 720119 Removing and installing front seat - chapter on "Removing" [997110 997120 997410 997430] 720119 Removing and installing front seat - chapter on "Removing" [997111 997121 997411 997431]

Front seat on assembly fixture

2. Position front seat on assembly fixture.
3. Remove cover for front centre backrest. 742019 Removing and installing cover for front centre backrest - section on "Removing"
4. Remove cover for backrest. 722619 Removing and installing cover for backrest - section on "Removing"
5.

Remove control button for backrest release at right and left. 723119 Removing and installing control button for backrest release - section on "Removing"

Preliminary work

Note

The air cushions and lumbar support must be deflated before removing the front seat.

1. Remove front seat. 720119 Removing and installing front seat - chapter on "Removing" [997110 997120 997410 997430] 720119 Removing and installing front seat - chapter on "Removing" [997111 997121 997411 997431]

Front seat on assembly fixture

2. Position front seat on assembly fixture.
3. Remove cover for front centre backrest. 742019 Removing and installing cover for front centre backrest - section on "Removing"

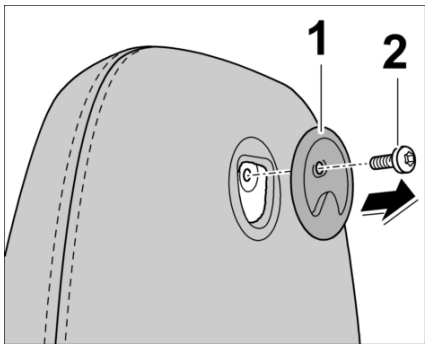
top of page

Removing cover for front backrest

Removing cover for front backrest

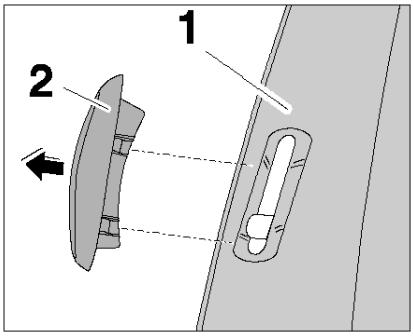
Installation Location:

Installation position of cover for front backrest



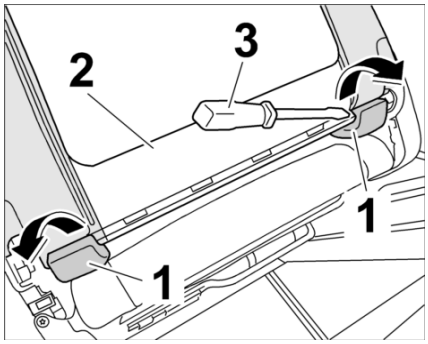
Removing coat hook

1. Unscrew fastening screw **-2-** and remove coat hook **-1-** .



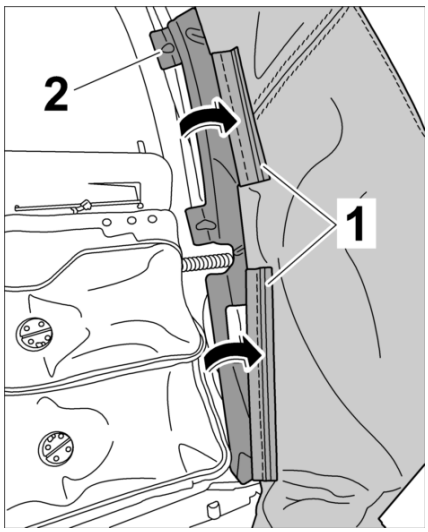
Removing collar

2. Insert a plastic wedge between the backrest cover **-1-** and the collar **-2-** and unclip collar.



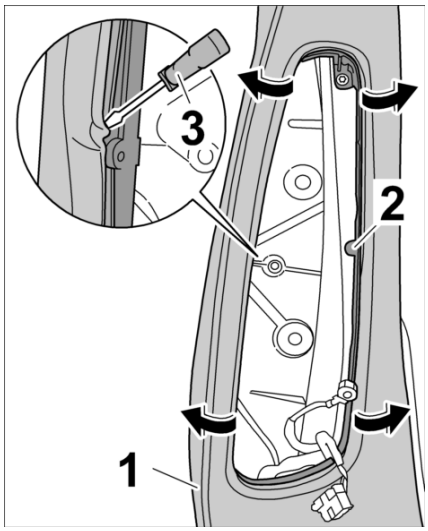
Disengaging cover for backrest

3. Press out cover for backrest **-1-** from the cushion carrier **-2-** lower left and right using a screwdriver **-3-** .



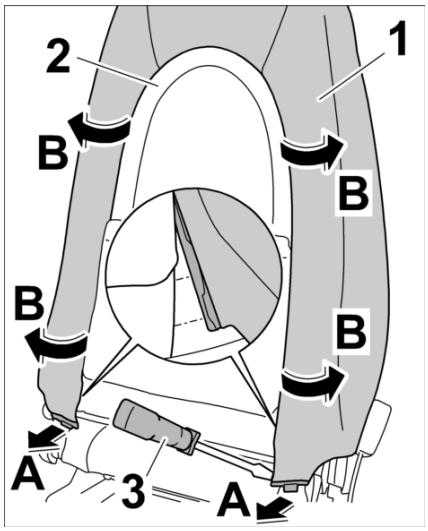
Loosening cover piping

4. Press out cover piping **-1-** right and left from backrest frame **-2-** .
5. Remove side airbag. 696319 Removing and installing side airbag - section on "Removing"



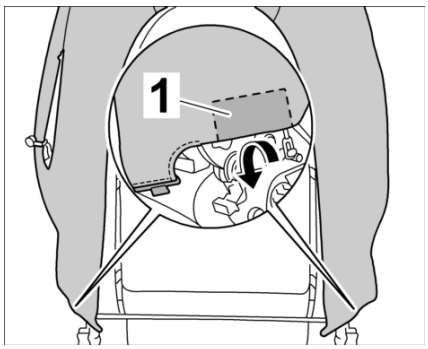
Loosening connection at frame for side airbag

6. Slightly loosen connection of backrest cover **-1-** from frame for side airbag **-2-** with a screwdriver **-3-** and pull out all around by by hand.



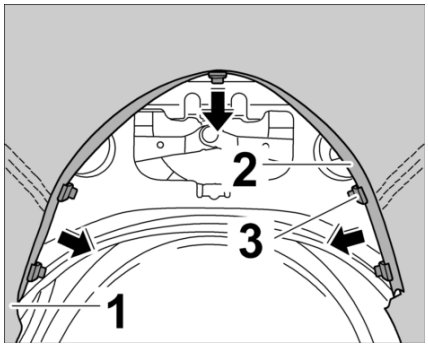
Loosening cover for rear backrest

7. Press out cover for backrest **-1-** from the cushion carrier **-2-** lower left and right using a screwdriver **-3-** **-Arrows A-** .
8. Pull out cover for backrest **-1-** all around by hand from the rear of the cushion carrier **-2-** **-Arrows B-** .



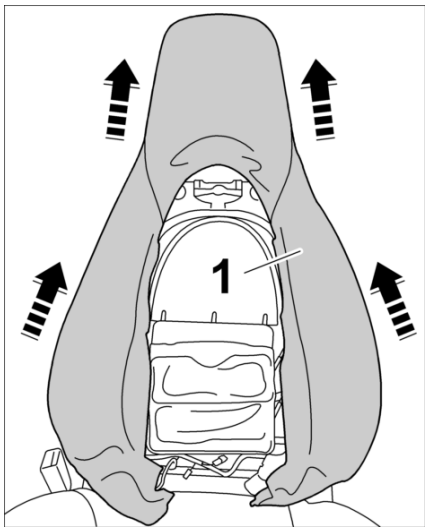
Folding cover piping at the sides

9. Fold cover piping **-1-** at the sides right and left in direction of arrow.



Installing cover for backrest

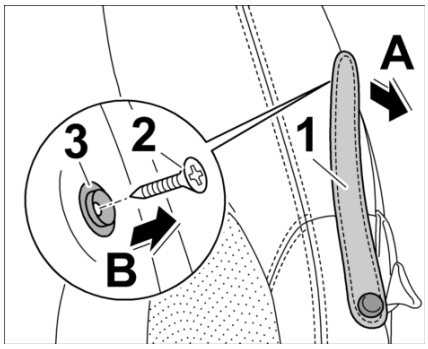
10. Press plastic strip **-2-** on cover for backrest **-1-** out of the fixing clips **-3-** .



Removing cover for backrest

11. Remove cover for backrest **-1-** .

Removing guide for seat belt

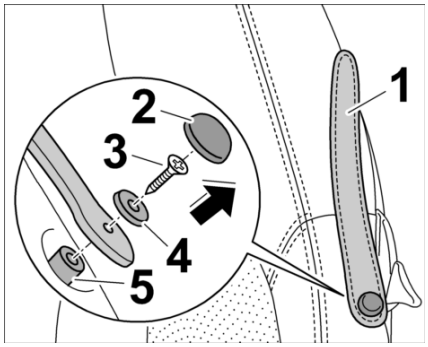


Loosening guide for seat belt at top

1.

Remove guide for seat belt **-1-** at top **-Arrow A-** .

2. Unscrew fastening screw **-2-** and remove push button **-3-** **-Arrow B-** .



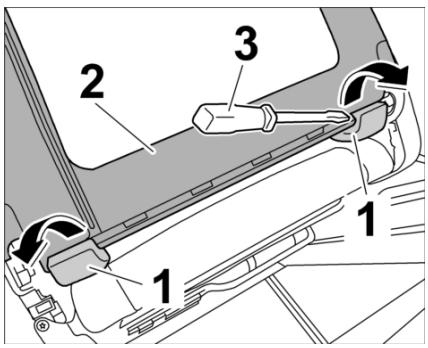
Loosening guide for seat belt at bottom

3. Press out cap **-2-** and unscrew fastening screw **-3-** with spacer **-4-** .
4. Remove guide for seat belt **-1-** and sleeve **-5-** .

Removing cover for front backrest

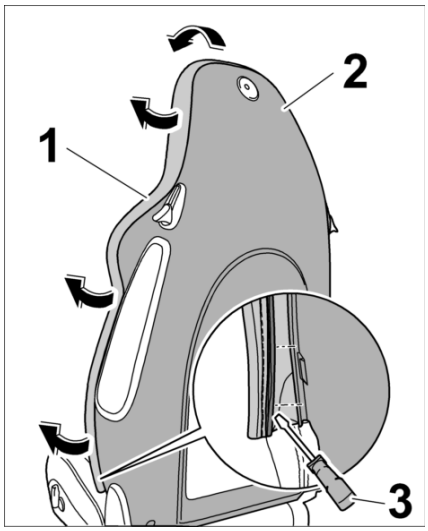
Installation Location:

Installation position of cover for front backrest



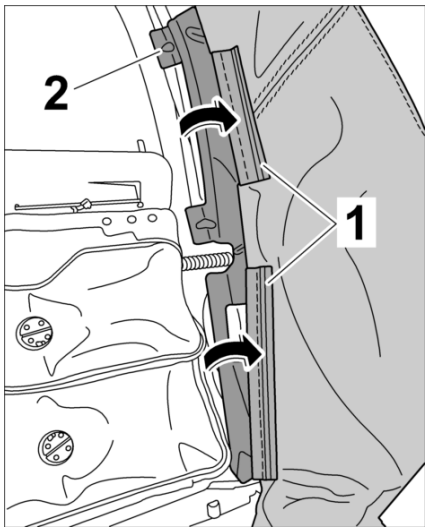
Disengaging cover for backrest

1. Press out cover for backrest **-1-** from the backrest shell **-2-** lower left and right using a screwdriver **-3-** .



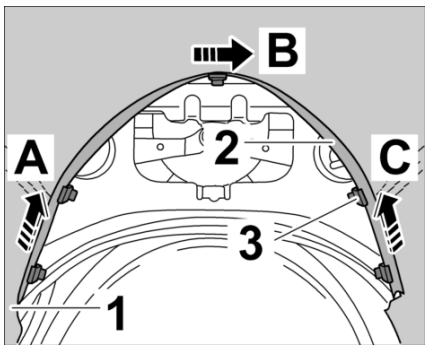
Disengaging cover for backrest

2. Slightly loosen cover for backrest **-1-** at outside of backrest shell **-2-** , starting from the bottom with a screwdriver **-3-** , and pull out all around by hand.



Loosening cover piping

3. Press out cover piping **-1-** right and left from backrest frame **-2-** .



Loosening cover for backrest

4. Push out plastic strip **-2-** on cover for backrest **-1-** from the fixing clips **-3-** in direction of arrow **-A, B, C-** .

5. Remove cover for backrest **-1-** .

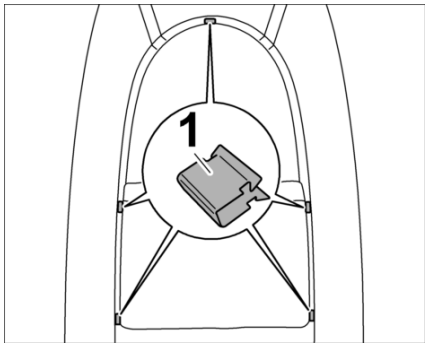
top of page

Installing cover for front backrest

Installing cover for backrest

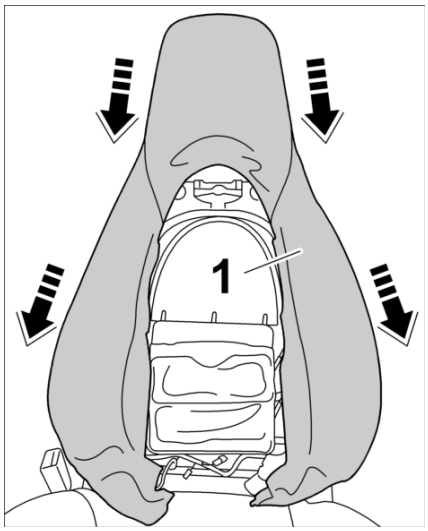
Installation Location:

Installation position of cover for front backrest



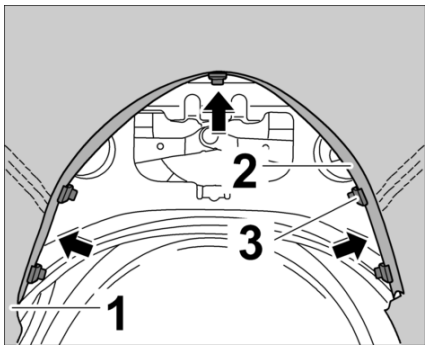
Checking clamps

1. Check clamps **-1-** , and replace if necessary.



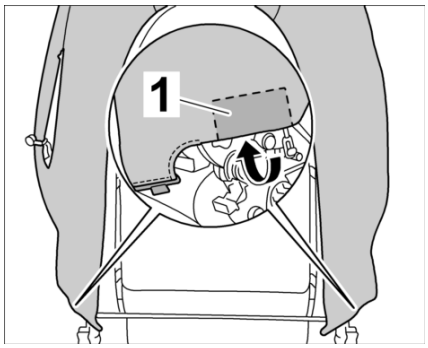
Installing cover for backrest

2. Pull on cover for backrest **-1-** and align with contour of padding.



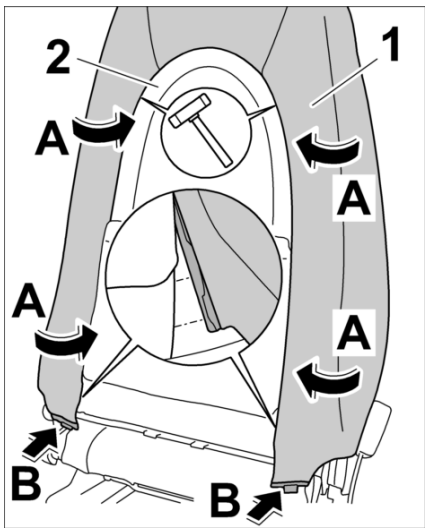
Fastening cover for backrest

3. Check fastening clip **-3-** , and replace if necessary.
4. Press plastic strip **-2-** on cover for backrest **-1-** into the fixing clips **-3-** .



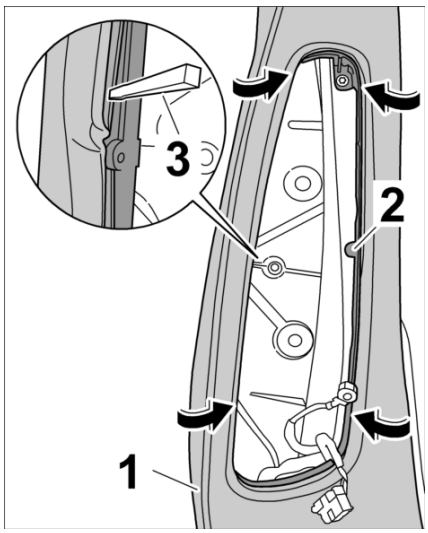
Folding cover for backrest at sides

5. Fold cover piping **-1-** at the sides in direction of arrow.



Fastening cover at rear of backrest

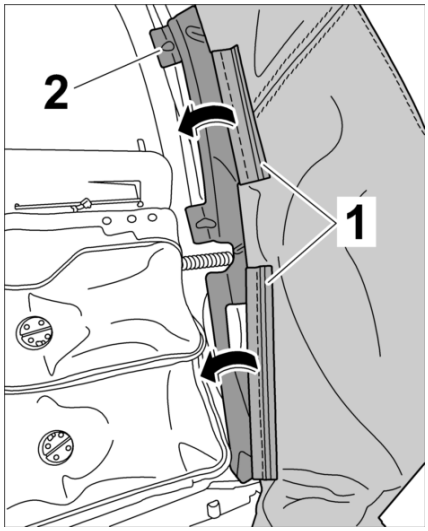
6. Press connection of backrest cover **-1-** at the rear into the cushion carrier **-2-** **-Arrows A-** and tap gently into place (plastic hammer).
7. Engage connection of backrest cover **-1-** at the bottom into the cushion carrier **-Arrows B-** .



Fastening connection at frame for side airbag

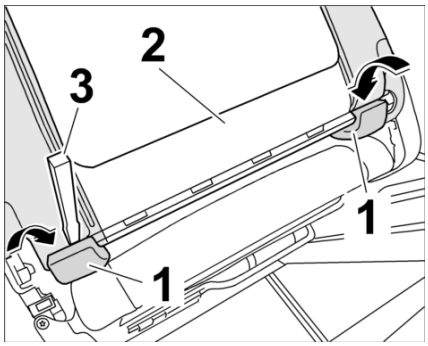
8. Press connection of backrest cover **-1-** into the side airbag frame **-2-** with a plastic wedge **-3-** .

9. Install side airbag. 696319 Removing and installing side airbag - section on "Installing"



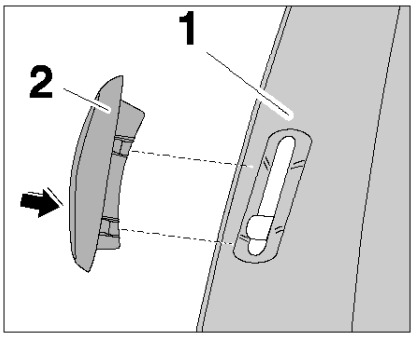
Fastening cover piping

10. Engage cover piping **-1-** right and left into backrest frame **-2-** .



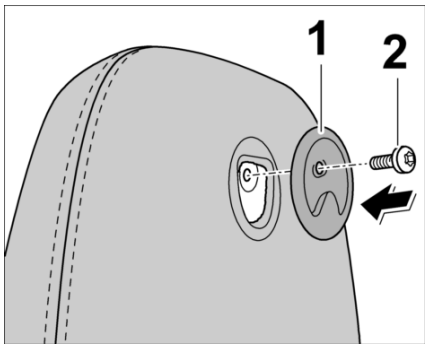
Fastening cover for backrest at bottom

11. Press cover for backrest **-1-** into the cushion carrier **-2-** lower left and right using a plastic wedge **-3-** .



Installing collar

12. Position collar **-2-** on the backrest cover **-1-** and press in until it clicks into place.



Installing coat hook

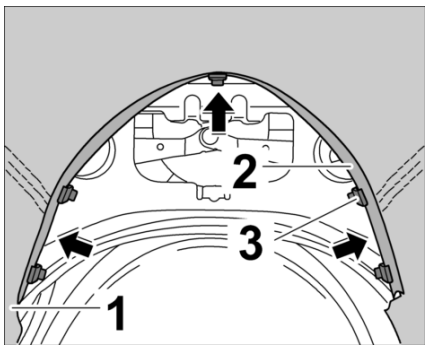
13. Position coat hook **-1-** and screw down with the fastening screw **-2-** .

Installing cover for backrest

Installation Location:

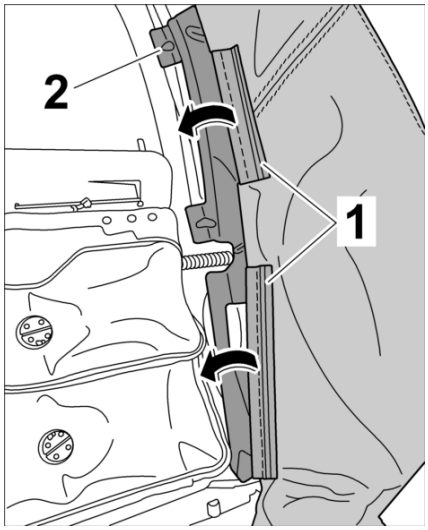
Installation position of cover for front backrest

1. Fit cover for backrest and align with contour of padding.



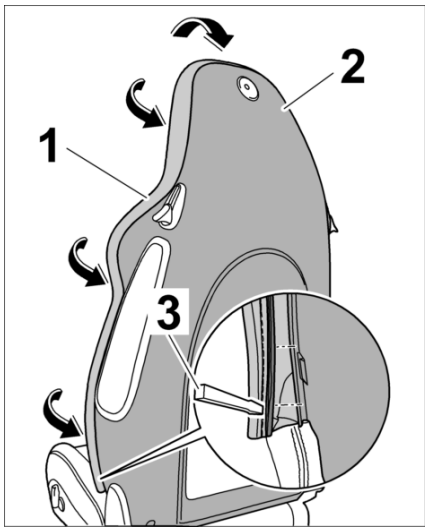
Fastening cover for backrest

2. Check fastening clips **-3-** , and replace if necessary.
3. Press plastic strip **-2-** on cover for backrest **-1-** into the fixing clips **-3-** .



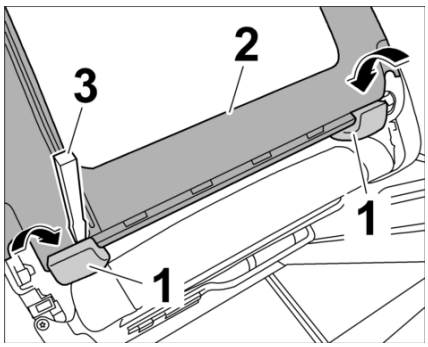
Fastening cover piping

4. Engage cover piping **-1-** right and left into backrest frame **-2-** .



Fastening cover for backrest at sides

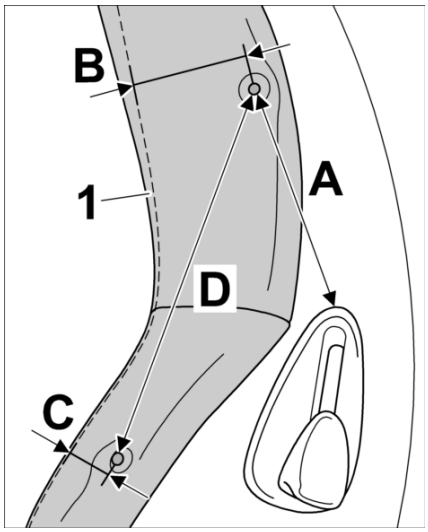
5. Press connection of backrest cover **-1-** sideways into the backrest frame **-2-** with a plastic wedge **-3-** .



Fastening cover for backrest at bottom

6. Press cover for backrest **-1-** into the backrest shell **-2-** lower left and right using a screwdriver **-3-** .

Installing guide for seat belt

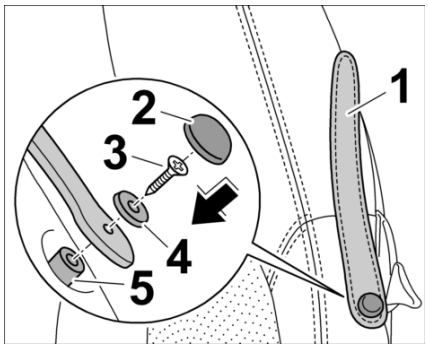


Marking seat-belt guide mounting points

Note

If the backrest cover **-1-** has been replaced after repairs, the seat-belt guide mounting points must be measured again and marked.

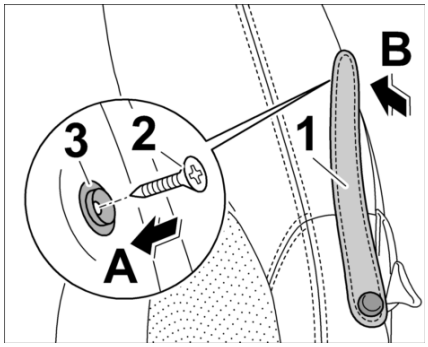
- *Mark upper mounting point with the dimensions **-A= 95 mm-** and **-B= 50 mm-** .*
- *Mark lower mounting point with the dimensions **-C= 25 mm-** and **-D= 155 mm-** .*



Fastening guide for seat belt at bottom

1. Position seat-belt guide **-1-** with sleeve **-5-** with the aid of the marking on the backrest cover.
2. Tighten fastening screw **-3-** with spacer **-4-** .

3. Press in **-2-** cap



Fastening guide for seat belt at top

4. Position push button **-3-** with the aid of the marking on the backrest cover **-Arrow A-** and screw down with the fastening screw **-2-** .
5. Press seat-belt guide **-1-** into push button **-3-** at top **-Arrow B-** .

top of page

Subsequent work

Removing creases in the cover

ATTENTION

Danger of material damage if excessive heat is applied.

If creases have formed, only short partial warming with the hot-air gun is permissible.

The hot-air temperature of approx. 50 degrees Celsius (122 Fahrenheit) must always be observed.

If creases have formed in areas of the cover, partially heat them with the hot-air gun and smooth out with the tool.

Subsequent work

1. Install control button for backrest release at right and left. 723119 Removing and installing control button for backrest release - chapter on "Installing"
2. Install cover for backrest. 722619 Removing and installing cover for backrest - chapter on "Installing"
3. Install cover for front centre backrest. 742019 Removing and installing cover for front centre backrest - chapter on "Installing"

4. Install front seat. 720119 Removing and installing front seat - chapter on "Installing" [997110 997120 997410 997430] 720119 Removing and installing front seat - chapter on "Installing" [997111 997121 997411 997431]

Subsequent work

1. Install cover for front centre backrest. 742019 Removing and installing cover for front centre backrest - chapter on "Installing"
2. Install front seat. 720119 Removing and installing front seat - chapter on "Installing" [997110 997120 997410 997430] 720119 Removing and installing front seat - chapter on "Installing" [997111 997121 997411 997431]

997110, 997111, 997120, 997121, 997410, 997411, 997430, 997431

as of MY 2005
Country C00, C02, C05, C07, C08, C09, C10, C11, C12, C13, C14, C15, C16, C18, C19, C20, C21, C22, C23, C24, C25, C26, C27, C28, C32, C33, C34, C35, C36, C37, C38, C39, C45, C46, C98, C99

WARNUNG

Gefahr des Verlusts der Text-Bild-Zuordnung beim Ausdruck.

- **Aus technischen Gründen kann derzeit nicht ausgeschlossen werden, dass trotz einwandfreier Darstellung auf dem Bildschirm beim Ausdruck der Zusammenhang von Text und zugehörigem Bild verloren geht.**
- **Wird der Fehler nicht bemerkt, besteht die Gefahr, daß Arbeiten nicht korrekt durchgeführt werden und es dadurch zu Personen- und Sachschäden kommt.**

Vergleichen Sie deshalb nach dem Druckvorgang unbedingt die Ausdrucke mit der Bildschirmdarstellung. Korrigieren Sie die Ausdrucke im Fehlerfall so, daß der Inhalt der Bildschirmdarstellung zutreffend wiedergegeben wird.

WARNING

Danger of losing text-figure correspondence when printing out.

- **For technical reasons, it can currently not be ruled out that the correspondence between text and associated figure can be lost when it is printed out, even though the display on the screen is correct.**
- **If the fault is not noticed, there is the danger that work will not be performed correctly which can cause injury and damage.**

Therefore, always compare printouts with the screen display after printing them out. Correct the printouts if they are faulty so that the content of the screen display matches that on the printouts.

AVERTISSEMENT

74 19 19 Removing and installing cover for front backrest - as of MY 2005

- Preliminary work
- Removing cover for front backrest
- Installing cover for front backrest
- Subsequent work

top of page

Preliminary work

Preliminary work

Note

The lumbar support must be deflated before removing the front seat.

1. Remove front seat. 720119 Removing and installing front seat - chapter on "Removing" [997310 997320 997610 997620] 720119 Removing and installing front seat - chapter on "Removing" [997311 997321 997611 997621]

Front seat on assembly fixture

2. Position front seat on assembly fixture.
3. Remove cover for front centre backrest. 742019 Removing and installing cover for front centre backrest - section on "Removing"
4. Remove cover for backrest. 722619 Removing and installing cover for backrest - section on "Removing"
5.

Remove control button for backrest release at right and left. 723119 Removing and installing control button for backrest release - section on "Removing"

Preliminary work

Note

The air cushions and lumbar support must be deflated before removing the front seat.

1. Remove front seat. 720119 Removing and installing front seat - chapter on "Removing" [997310 997320 997610 997620] 720119 Removing and installing front seat - chapter on "Removing" [997311 997321 997611 997621]

Front seat on assembly fixture

2. Position front seat on assembly fixture.
3. Remove cover for front centre backrest. 742019 Removing and installing cover for front centre backrest - section on "Removing"

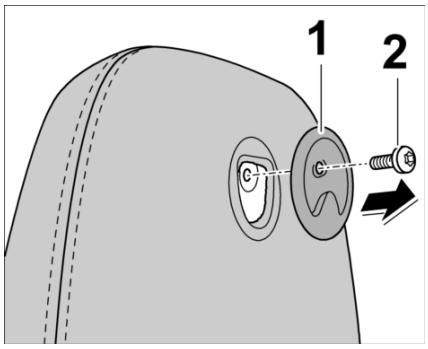
top of page

Removing cover for front backrest

Removing cover for front backrest

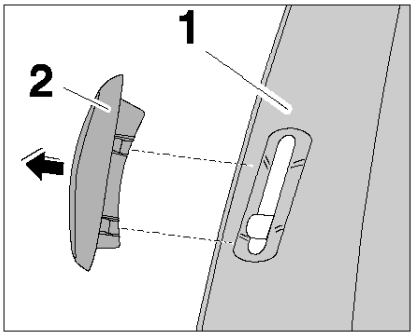
Installation Location:

Installation position of cover for front backrest



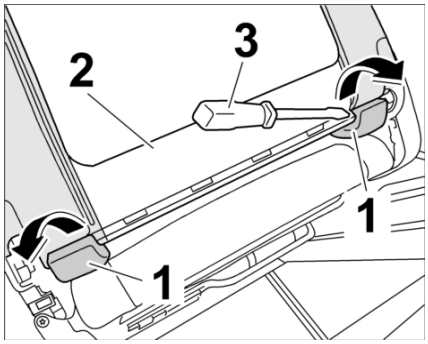
Removing coat hook

1. Unscrew fastening screw **-2-** and remove coat hook **-1-** .



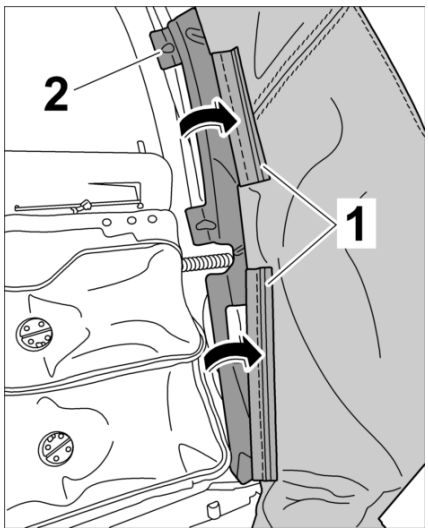
Removing collar

2. Insert a plastic wedge between the backrest cover **-1-** and the collar **-2-** and unclip collar.



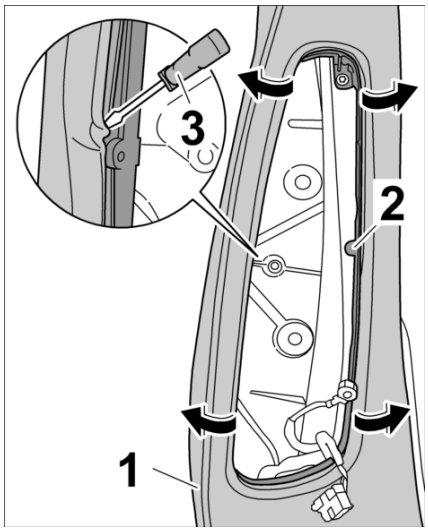
Disengaging cover for backrest

3. Press out cover for backrest **-1-** from the cushion carrier **-2-** lower left and right using a screwdriver **-3-** .



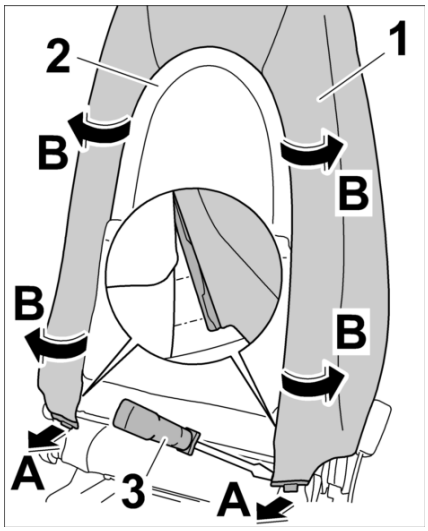
Loosening cover piping

4. Press out cover piping **-1-** right and left from backrest frame **-2-** .
5. Remove side airbag. 696319 Removing and installing side airbag - section on "Removing"



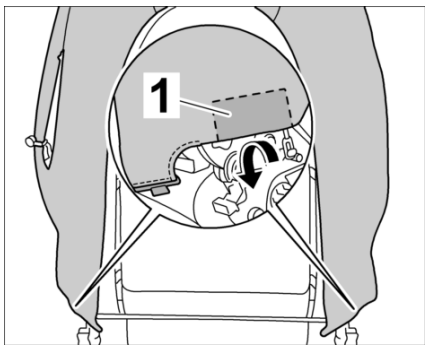
Loosening connection at frame for side airbag

6. Slightly loosen connection of backrest cover **-1-** from frame for side airbag **-2-** with a screwdriver **-3-** and pull out all around by by hand.



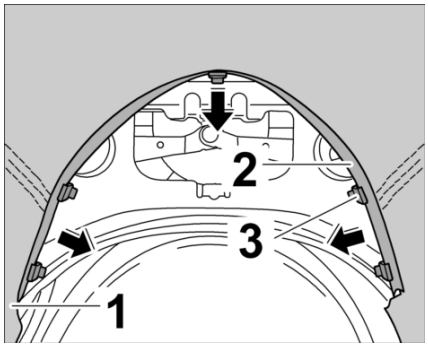
Loosening cover for rear backrest

7. Press out cover for backrest **-1-** from the cushion carrier **-2-** lower left and right using a screwdriver **-3-** **-Arrows A-** .
8. Pull out cover for backrest **-1-** all around by hand from the rear of the cushion carrier **-2-** **-Arrows B-** .



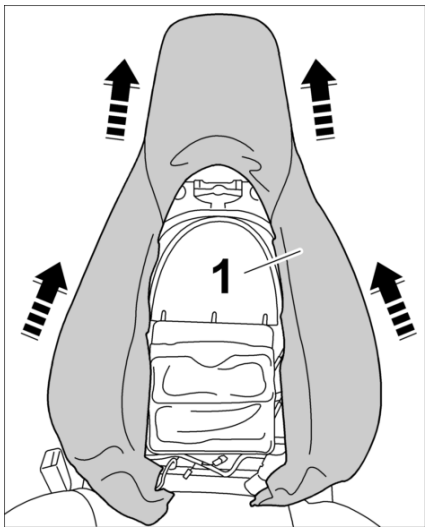
Folding cover piping at the sides

9. Fold cover piping **-1-** at the sides right and left in direction of arrow.



Installing cover for backrest

10. Press plastic strip **-2-** on cover for backrest **-1-** out of the fixing clips **-3-** .



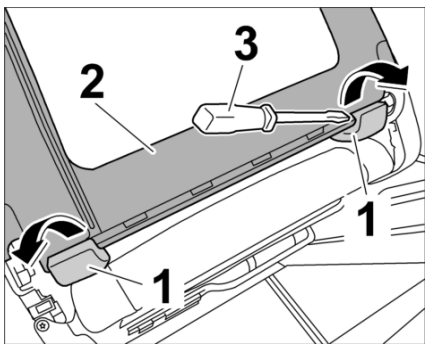
Removing cover for backrest

11. Remove cover for backrest **-1-** .

Removing cover for front backrest

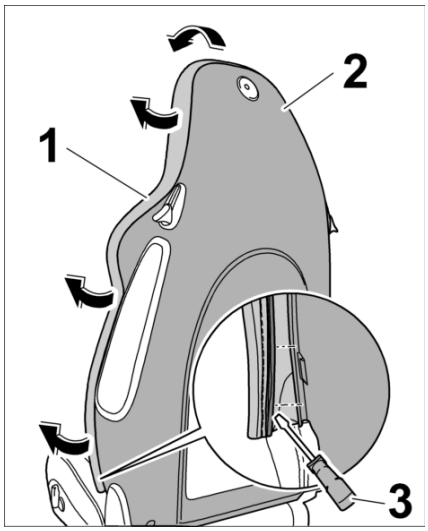
Installation Location:

Installation position of cover for front backrest



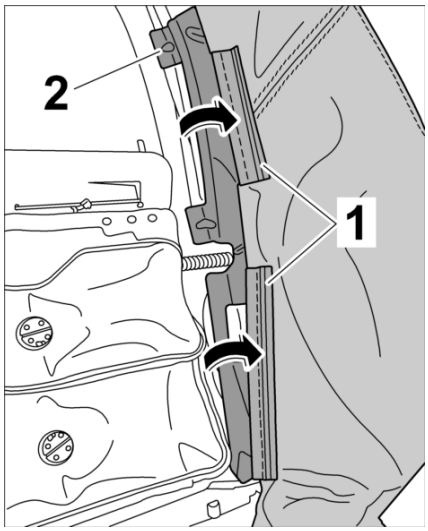
Disengaging cover for backrest

1. Press out cover for backrest **-1-** from the backrest shell **-2-** lower left and right using a screwdriver **-3-** .



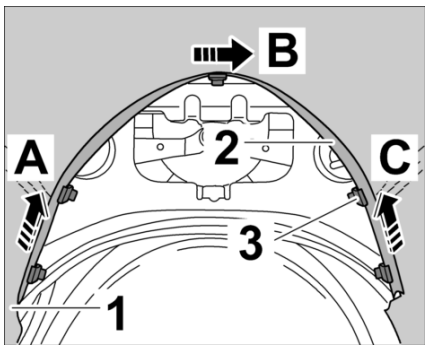
Disengaging cover for backrest

2. Slightly loosen cover for backrest **-1-** at outside of backrest shell **-2-** , starting from the bottom with a screwdriver **-3-** , and pull out all around by hand.



Loosening cover piping

3. Press out cover piping **-1-** right and left from backrest frame **-2-** .



Loosening cover for backrest

4. Push out plastic strip **-2-** on cover for backrest **-1-** from the fixing clips **-3-** in direction of arrow **-A, B, C-** .

5. Remove cover for backrest **-1-** .

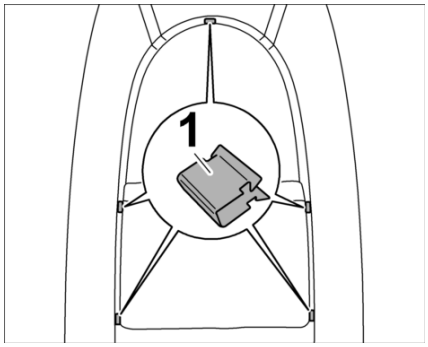
top of page

Installing cover for front backrest

Installing cover for backrest

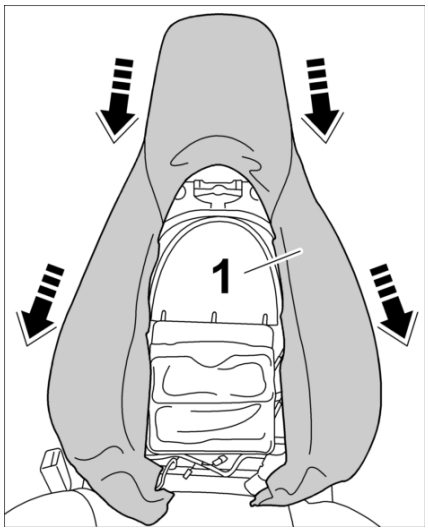
Installation Location:

Installation position of cover for front backrest



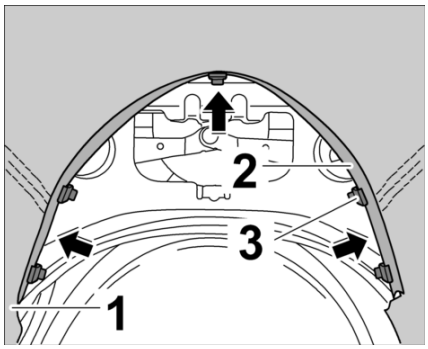
Checking clamps

1. Check clamps **-1-** , and replace if necessary.



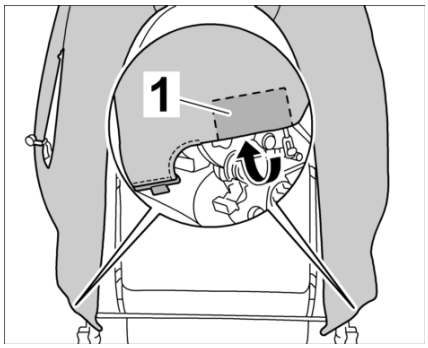
Installing cover for backrest

2. Pull on cover for backrest **-1-** and align with contour of padding.



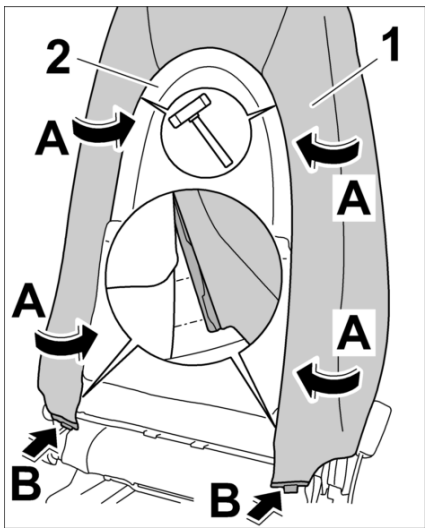
Fastening cover for backrest

3. Check fastening clip **-3-** , and replace if necessary.
4. Press plastic strip **-2-** on cover for backrest **-1-** into the fixing clips **-3-** .



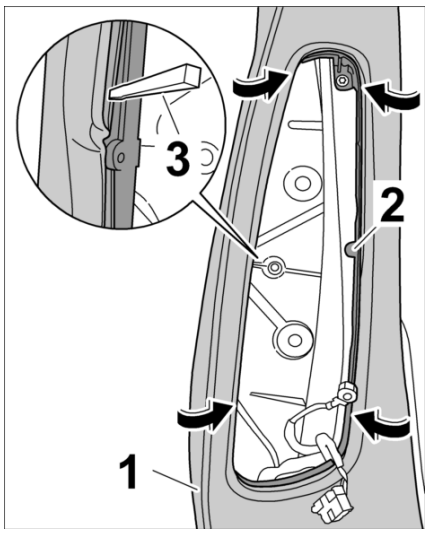
Folding cover for backrest at sides

5. Fold cover piping **-1-** at the sides in direction of arrow.



Fastening cover at rear of backrest

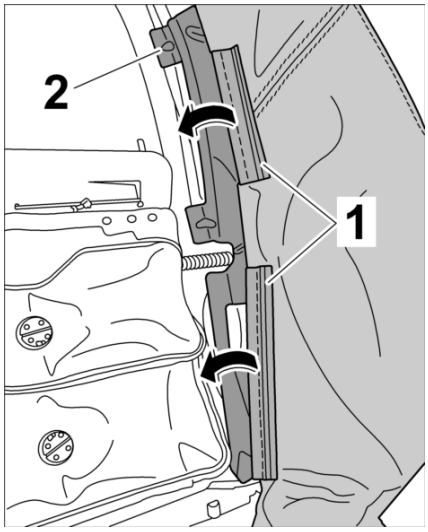
6. Press connection of backrest cover **-1-** at the rear into the cushion carrier **-2-** **-Arrows A-** and tap gently into place (plastic hammer).
7. Engage connection of backrest cover **-1-** at the bottom into the cushion carrier **-Arrows B-** .



Fastening connection at frame for side airbag

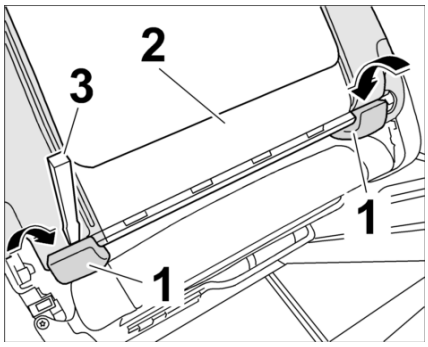
8. Press connection of backrest cover **-1-** into the side airbag frame **-2-** with a plastic wedge **-3-** .

9. Install side airbag. 696319 Removing and installing side airbag - section on "Installing"



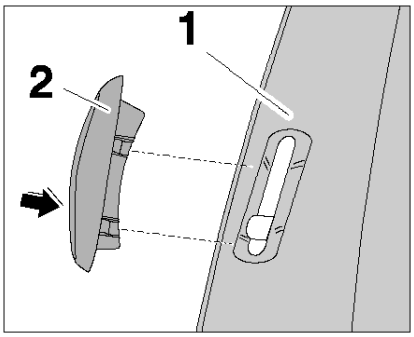
Fastening cover piping

10. Engage cover piping **-1-** right and left into backrest frame **-2-** .



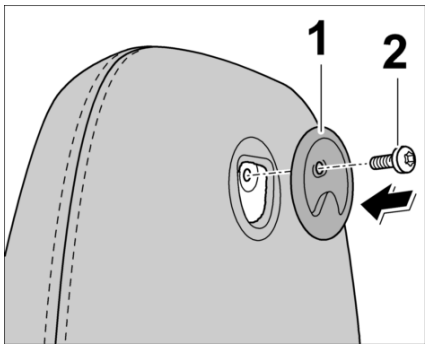
Fastening cover for backrest at bottom

11. Press cover for backrest **-1-** into the cushion carrier **-2-** lower left and right using a plastic wedge **-3-** .



Installing collar

12. Position collar **-2-** on the backrest cover **-1-** and press in until it clicks into place.



Installing coat hook

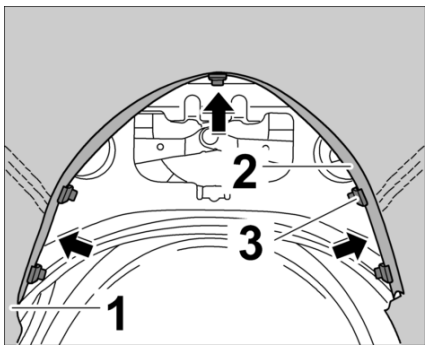
13. Position coat hook **-1-** and screw down with the fastening screw **-2-** .

Installing cover for backrest

Installation Location:

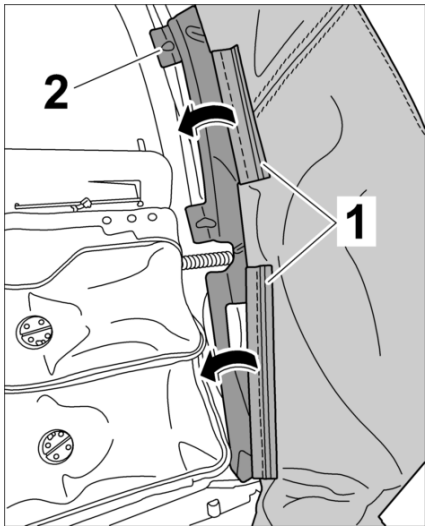
Installation position of cover for front backrest

1. Fit cover for backrest and align with contour of padding.



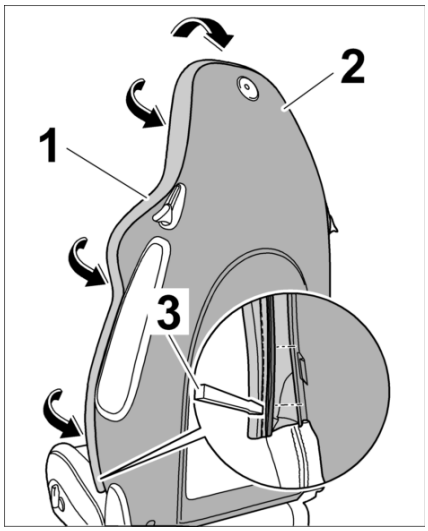
Fastening cover for backrest

2. Check fastening clips **-3-** , and replace if necessary.
3. Press plastic strip **-2-** on cover for backrest **-1-** into the fixing clips **-3-** .



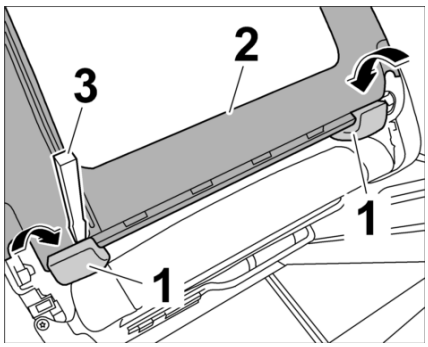
Fastening cover piping

4. Engage cover piping **-1-** right and left into backrest frame **-2-** .



Fastening cover for backrest at sides

5. Press connection of backrest cover **-1-** sideways into the backrest frame **-2-** with a plastic wedge **-3-** .



Fastening cover for backrest at bottom

6. Press cover for backrest **-1-** into the backrest shell **-2-** lower left and right using a screwdriver **-3-** .

top of page

Subsequent work

Removing creases in the cover

ATTENTION

Danger of material damage if excessive heat is applied.

If creases have formed, only short partial warming with the hot-air gun is permissible.

The hot-air temperature of approx. 50 degrees Celsius (122 Fahrenheit) must always be observed.

If creases have formed in areas of the cover, partially heat them with the hot-air gun and smooth out with the tool.

Subsequent work

1. Install control button for backrest release at right and left. 723119 Removing and installing control button for backrest release - chapter on "Installing"
2. Install cover for backrest. 722619 Removing and installing cover for backrest - chapter on "Installing"
3. Install cover for front centre backrest. 742019 Removing and installing cover for front centre backrest - chapter on "Installing"
4. Install front seat. 720119 Removing and installing front seat - chapter on "Installing" [997310 997320 997610 997620] 720119 Removing and installing front seat - chapter on "Installing" [997311 997321 997611 997621]

Subsequent work

1. Install cover for front centre backrest. 742019 Removing and installing cover for front centre backrest - chapter on "Installing"
2. Install front seat. 720119 Removing and installing front seat - chapter on "Installing" [997310 997320 997610 997620] 720119 Removing and installing front seat - chapter on "Installing" [997311 997321 997611 997621]

997310, 997311, 997320, 997321, 997610, 997611, 997620, 997621

74 20 19 Removing and installing cover for front middle backrest - as of MY 2005

- Removing cover for front middle backrest
- Installing cover for front middle backrest

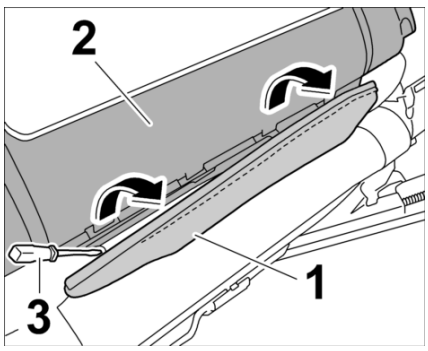
top of page

Removing cover for front middle backrest

Removing cover for front middle backrest

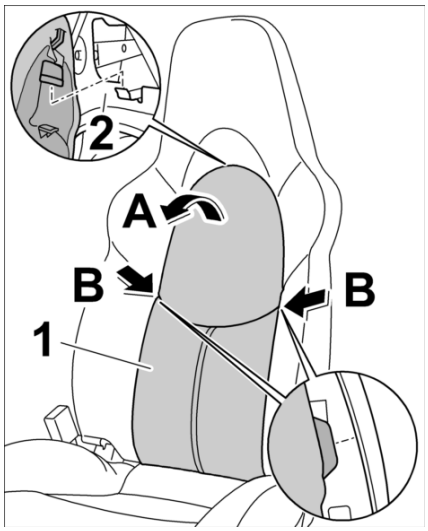
Installation Location:

Installation position of cover for front middle backrest



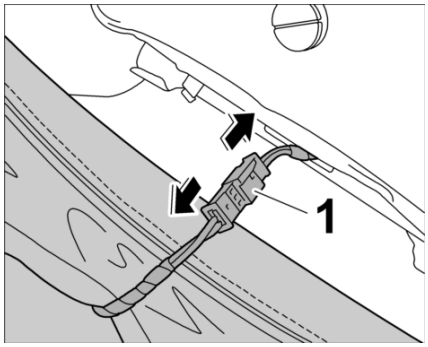
Loosening cover

1. Press cover for backrest **-1-** carefully out of the backrest shell **-2-** using a screwdriver **-3-** .



Removing cover for backrest

2. Insert your hand into the top of the backrest cover **-1-** and disengage it by pulling it up out of the backrest frame **-2-** (**-arrow A-**). Then press cover for backrest together slightly in the middle **-arrows B-** and pull forwards and out.



Disconnecting plug connection

Note

Only for vehicles with heated seats.

Note

Only for vehicles with heated seats.

3. Disconnect electric plug connection for backrest seat heating **-1-** .

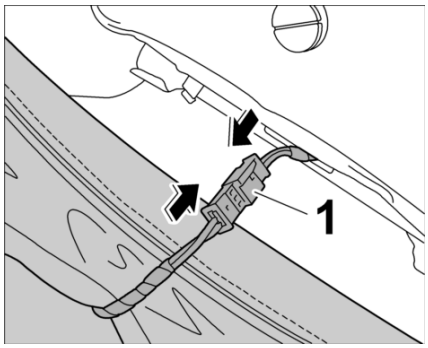
top of page

Installing cover for front middle backrest

Installing cover for front middle backrest

Installation Location:

Installation position of cover for front middle backrest



Connecting plug connection

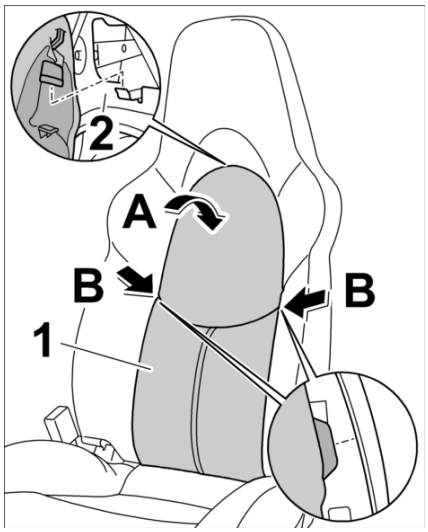
Note

Only for vehicles with heated seats.

Note

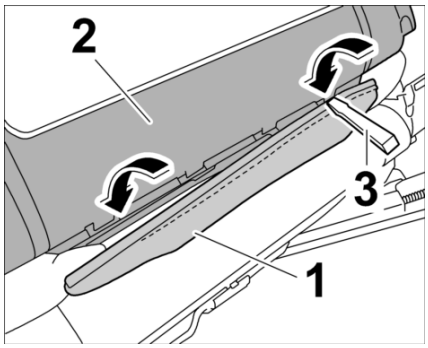
Only for vehicles with heated seats.

1. Connect electric plug connection for backrest seat heating **-1-** .



Installing cover for backrest

2. Engage cover for backrest **-1-** in the backrest frame **-2-** at the top **-arrow A-** .
3. Press in cover for backrest **-1-** in the middle **-arrows B-** until the locking tabs engage **-inset-** .



Securing cover

4. Press cover for backrest **-1-** into the backrest shell **-2-** at the bottom using a plastic wedge **-3-** .

997110, 997111, 997120, 997121, 997310, 997311, 997320, 997321, 997410, 997411, 997430, 997431, 997610, 997611, 997620, 997621

as of MY 2005
Country C00, C02, C05, C07, C08, C09, C10, C11, C12, C13, C14, C15, C16, C18, C19, C20, C21, C22, C23, C24, C25, C26, C27, C28, C32, C33, C34, C35, C36, C37, C38, C39, C45, C46, C98, C99

WARNUNG

Gefahr des Verlusts der Text-Bild-Zuordnung beim Ausdruck.

- **Aus technischen Gründen kann derzeit nicht ausgeschlossen werden, dass trotz einwandfreier Darstellung auf dem Bildschirm beim Ausdruck der Zusammenhang von Text und zugehörigem Bild verloren geht.**
- **Wird der Fehler nicht bemerkt, besteht die Gefahr, daß Arbeiten nicht korrekt durchgeführt werden und es dadurch zu Personen- und Sachschäden kommt.**

Vergleichen Sie deshalb nach dem Druckvorgang unbedingt die Ausdrucke mit der Bildschirmdarstellung. Korrigieren Sie die Ausdrucke im Fehlerfall so, daß der Inhalt der Bildschirmdarstellung zutreffend wiedergegeben wird.

WARNING

Danger of losing text-figure correspondence when printing out.

- **For technical reasons, it can currently not be ruled out that the correspondence between text and associated figure can be lost when it is printed out, even though the display on the screen is correct.**
- **If the fault is not noticed, there is the danger that work will not be performed correctly which can cause injury and damage.**

Therefore, always compare printouts with the screen display after printing them out. Correct the printouts if they are faulty so that the content of the screen display matches that on the printouts.

AVERTISSEMENT

74 23 19 Removing and installing backrest pocket - as of MY 2005

- Removing backrest pocket
- Installing backrest pocket

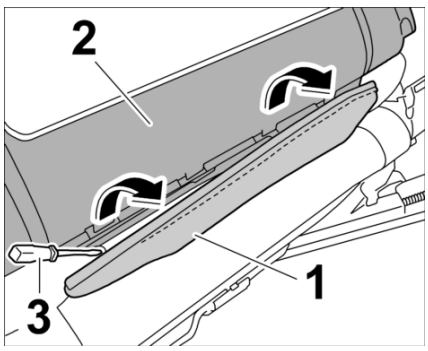
top of page

Removing backrest pocket

Removing cover for front middle backrest

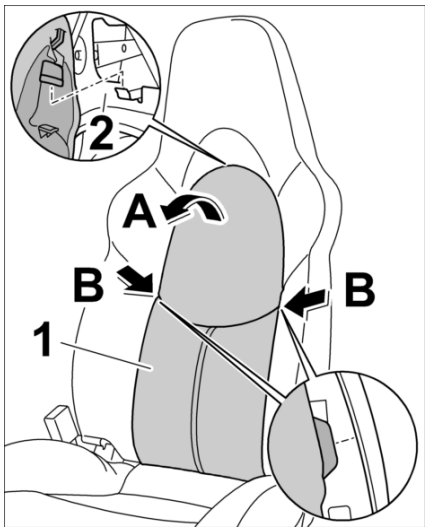
Installation Location:

Installation position of cover for front middle backrest



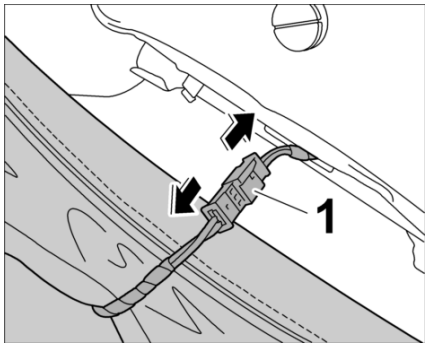
Loosening cover

1. Press cover for backrest **-1-** carefully out of the backrest shell **-2-** using a screwdriver **-3-** .



Removing cover for backrest

2. Insert your hand into the top of the backrest cover **-1-** and disengage it by pulling it up out of the backrest frame **-2-** (**-arrow A-**). Then press cover for backrest together slightly in the middle **-arrows B-** and pull forwards and out.



Disconnecting plug connection

Note

Only for vehicles with heated seats.

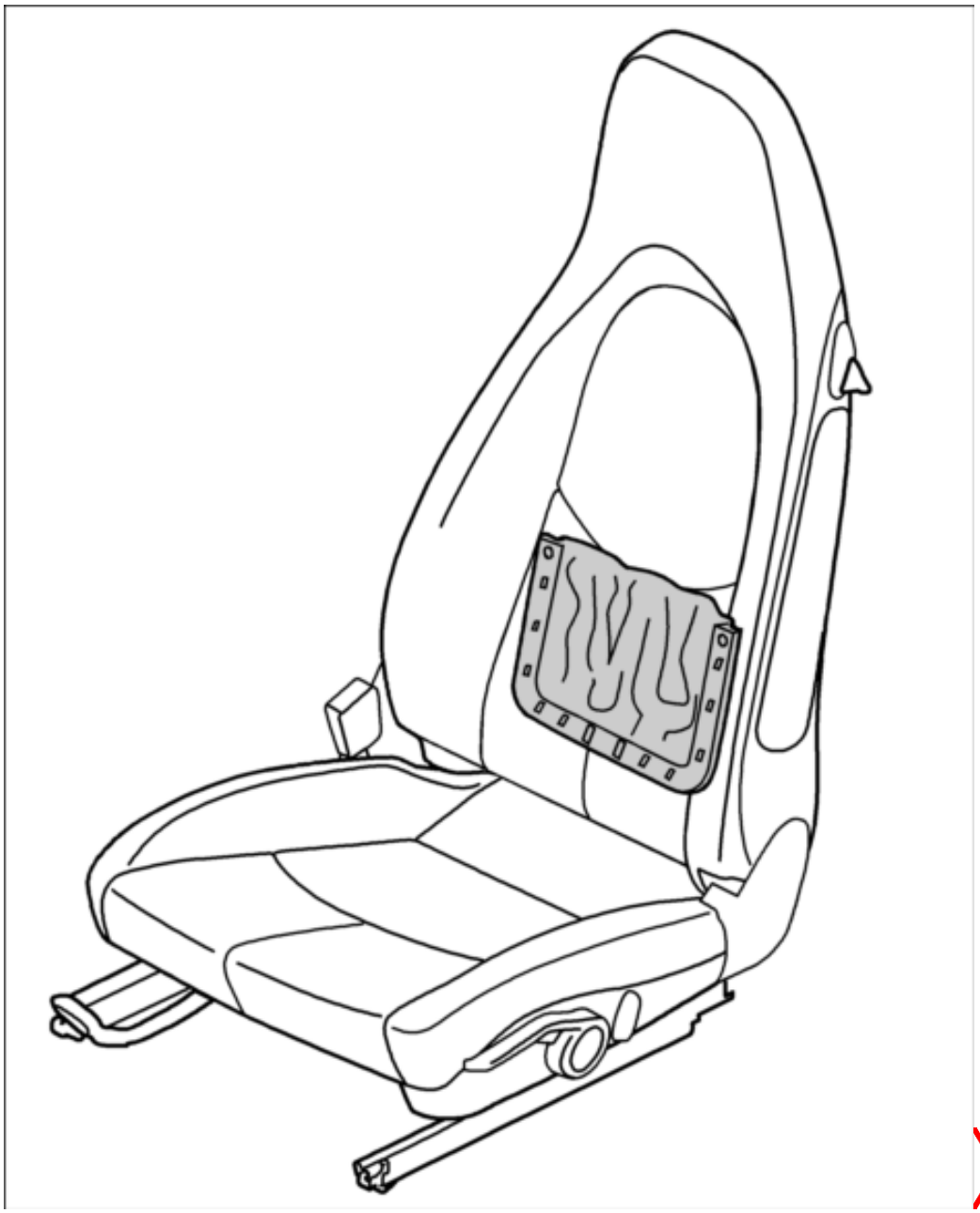
Note

Only for vehicles with heated seats.

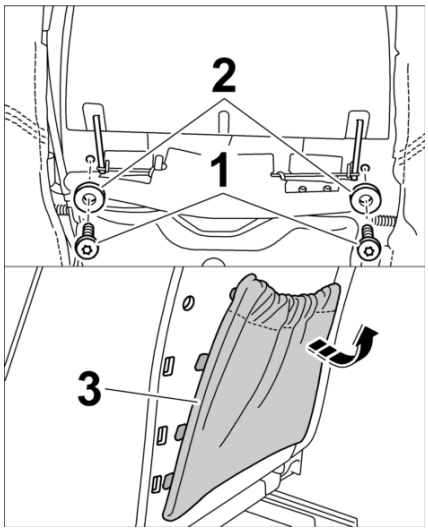
3. Disconnect electric plug connection for backrest seat heating **-1-** .

Removing backrest pocket

Installation Location:



Installation position of backrest pocket

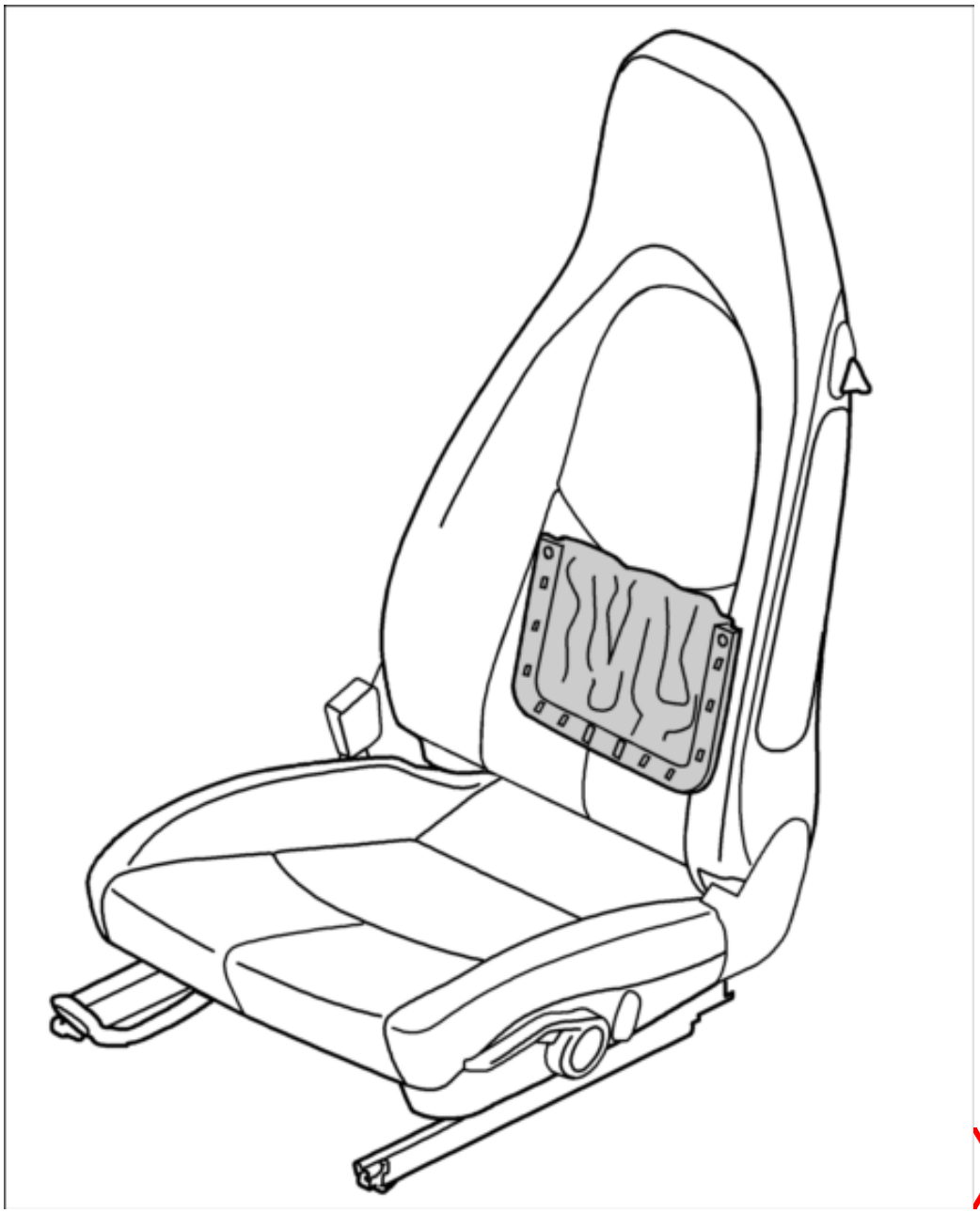


Removing backrest pocket

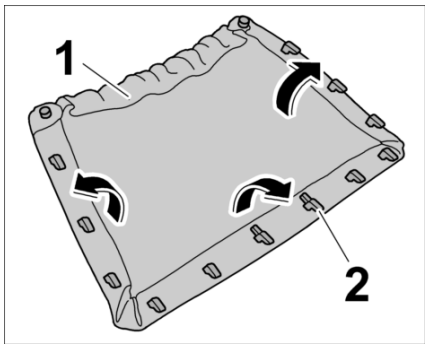
1. Unscrew fastening screws **-1-** with washers **-2-** on the inside.
2. Pull backrest pocket **-3-** out slightly at the top and disengage upwards.

Replacing cover for backrest pocket

Installation Location:



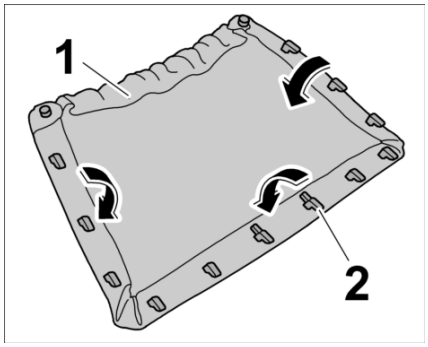
Installation position of backrest pocket



Removing cover

1. Remove cover for backrest pocket.

Disengage cover for backrest pocket **-1-** out of the plastic frame **-2-** all the way round.



Installing cover

2. Install cover for backrest pocket.

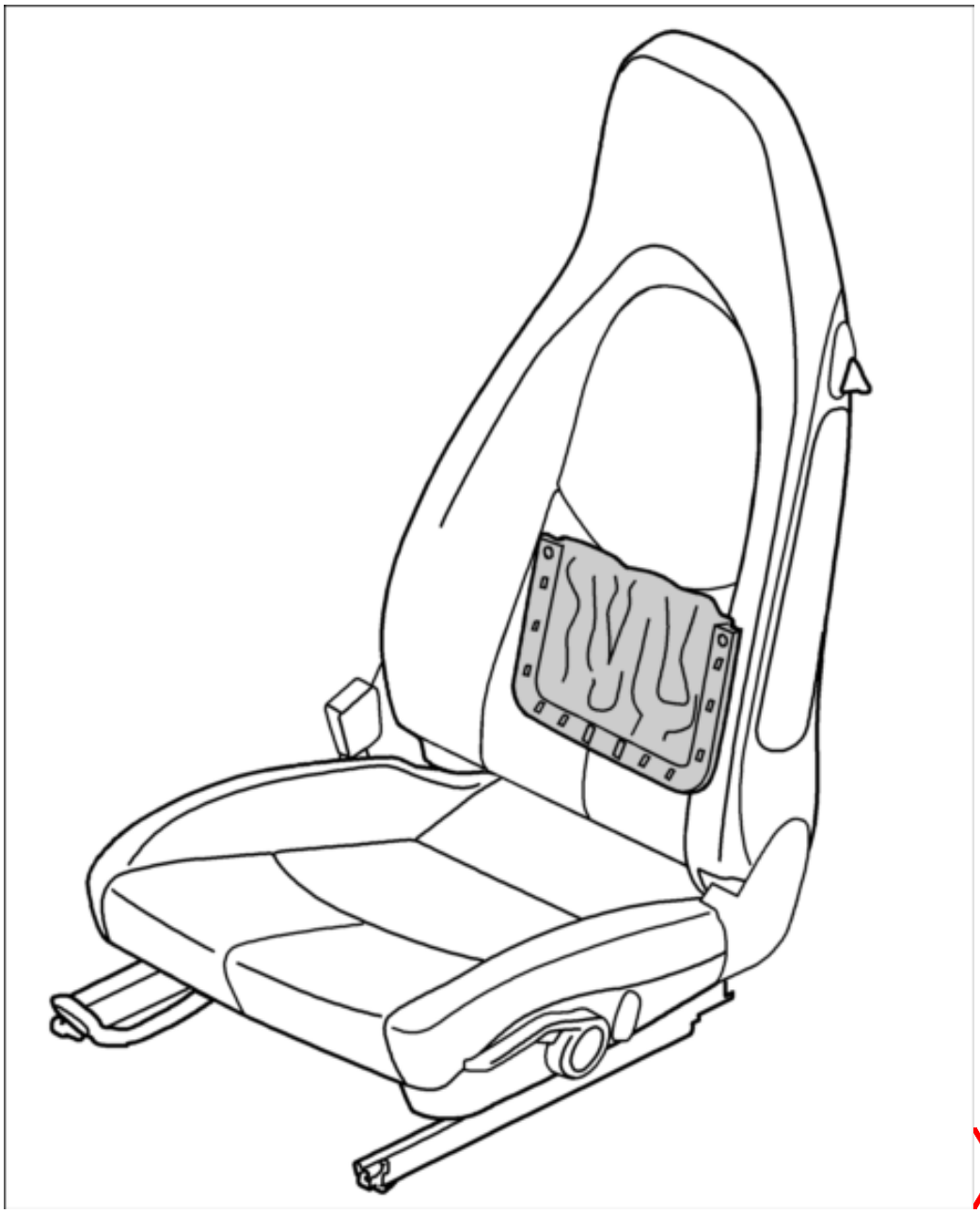
   Engage cover for backrest pocket **-1-** in the plastic frame **-2-** all the way round.

top of page

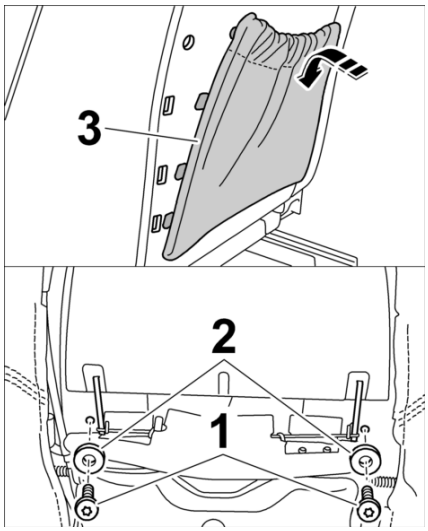
Installing backrest pocket

Installing backrest pocket

Installation Location:



Installation position of backrest pocket



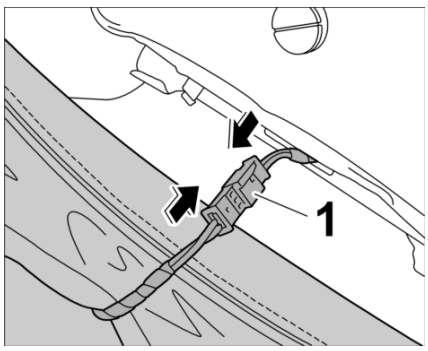
Installing backrest pocket

1. Engage backrest pocket **-3-** in the backrest shell and press in at the top.
2. Screw in fastening screws **-1-** with washers **-2-** on the inside onto the backrest pocket.

Installing cover for front middle backrest

Installation Location:

Installation position of cover for front middle backrest



Connecting plug connection

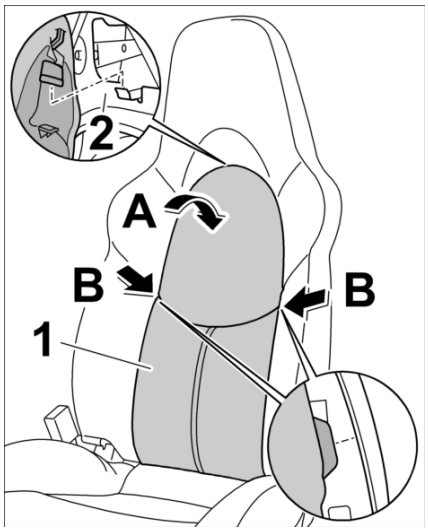
Note

Only for vehicles with heated seats.

Note

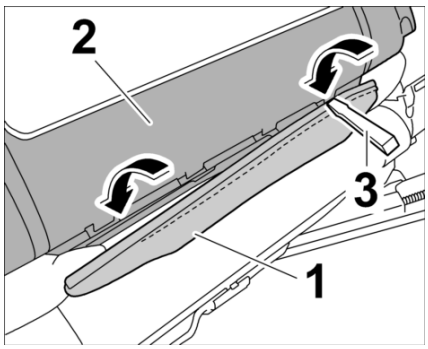
Only for vehicles with heated seats.

1. Connect electric plug connection for backrest seat heating **-1-** .



Installing cover for backrest

2. Engage cover for backrest **-1-** in the backrest frame **-2-** at the top **-arrow A-** .
3. Press in cover for backrest **-1-** in the middle **-arrows B-** until the locking tabs engage **-inset-** .



Securing cover

4. Press cover for backrest **-1-** into the backrest shell **-2-** at the bottom using a plastic wedge **-3-** .

997110, 997111, 997120, 997121, 997310, 997311, 997320, 997321, 997410, 997411, 997430, 997431, 997610, 997611, 997620, 997621

as of MY 2005
Country C00, C02, C05, C07, C08, C09, C10, C11, C12, C13, C14, C15, C16, C18, C19, C20, C21, C22, C23, C24, C25, C26, C27, C28, C32, C33, C34, C35, C36, C37, C38, C39, C45, C46, C98, C99

74 28 19 Removing and installing heating element for front seat - as of MY 2005

- Information

top of page

Information

Spare parts information

Note
The heating element is stuck to the padding and can only be replaced together with the padding. Depending on the I number, the padding spare part is only supplied with the heating element attached.

Replace padding for front seat. 741019 Removing and installing padding for front seat

---

997110, 997111, 997120, 997121, 997310, 997311, 997320, 997321, 997410, 997411, 997430, 997431, 997610, 997611, 997620, 997621

as of MY 2005
Country C00, C02, C05, C07, C08, C09, C10, C11, C12, C13, C14, C15, C16, C18, C19, C20, C21, C22, C23, C24, C25, C26, C27, C28, C32, C33, C34, C35, C36, C37, C38, C39, C45, C46, C98, C99

WARNUNG
Gefahr des Verlusts der Text-Bild-Zuordnung beim Ausdruck.

- **Aus technischen Gründen kann derzeit nicht ausgeschlossen werden, dass trotz einwandfreier Darstellung auf dem Bildschirm beim Ausdruck der Zusammenhang von Text und zugehörigem Bild verloren geht.**
- **Wird der Fehler nicht bemerkt, besteht die Gefahr, daß Arbeiten nicht korrekt durchgeführt werden und es dadurch zu Personen- und Sachschäden kommt.**

Vergleichen Sie deshalb nach dem Druckvorgang unbedingt die Ausdrucke mit der Bildschirmdarstellung. Korrigieren Sie die Ausdrucke im Fehlerfall so, daß der Inhalt der Bildschirmdarstellung zutreffend wiedergegeben wird.

WARNING
Danger of losing text-figure correspondence when printing out.

74 29 19 Removing and installing heating element for backrest - as of MY 2005

- Information

top of page

Information

Spare parts information

Note
The heating element is stuck to the padding and can only be replaced together with the padding. Depending on the I number, the padding spare part is only supplied with the heating element attached.

Replace padding for front backrest. 741719 Removing and installing padding for front backrest

---

997110, 997111, 997120, 997121, 997310, 997311, 997320, 997321, 997410, 997411, 997430, 997431, 997610, 997611, 997620, 997621

as of MY 2005
Country C00, C02, C05, C07, C08, C09, C10, C11, C12, C13, C14, C15, C16, C18, C19, C20, C21, C22, C23, C24, C25, C26, C27, C28, C32, C33, C34, C35, C36, C37, C38, C39, C45, C46, C98, C99

WARNUNG
Gefahr des Verlusts der Text-Bild-Zuordnung beim Ausdruck.

- **Aus technischen Gründen kann derzeit nicht ausgeschlossen werden, dass trotz einwandfreier Darstellung auf dem Bildschirm beim Ausdruck der Zusammenhang von Text und zugehörigem Bild verloren geht.**
- **Wird der Fehler nicht bemerkt, besteht die Gefahr, daß Arbeiten nicht korrekt durchgeführt werden und es dadurch zu Personen- und Sachschäden kommt.**

Vergleichen Sie deshalb nach dem Druckvorgang unbedingt die Ausdrucke mit der Bildschirmdarstellung. Korrigieren Sie die Ausdrucke im Fehlerfall so, daß der Inhalt der Bildschirmdarstellung zutreffend wiedergegeben wird.

WARNING
Danger of losing text-figure correspondence when printing out.

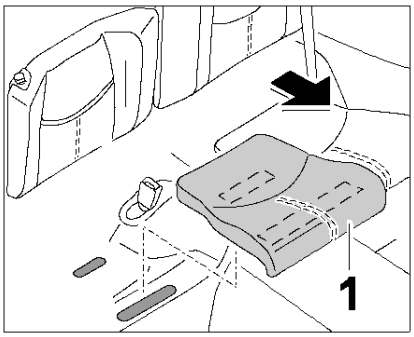
74 57 19 Removing and installing rear seat cushion - as of MY 2005

- Removing rear seat cushion
- Installing rear seat cushion

top of page

Removing rear seat cushion

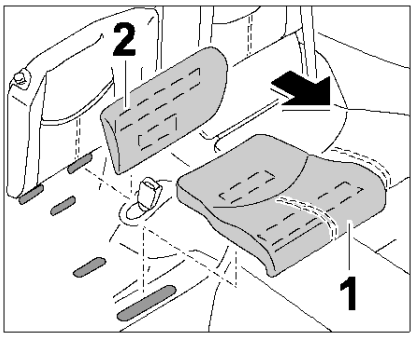
Removing back seat cushion



Removing back seat cushion

1. Pull back seat cushion **-1-** upwards and out.

Removing back seat cushion



Removing back seat cushion

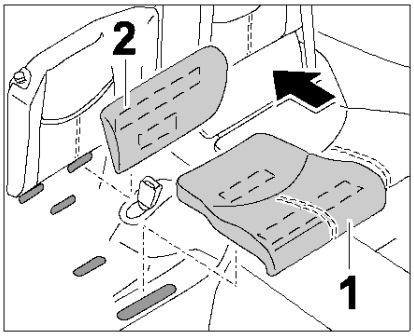
1. Pull back seat cushion **-1-** upwards and out.

2. Pull off lumbar part **-2-** to the front.

top of page

Installing rear seat cushion

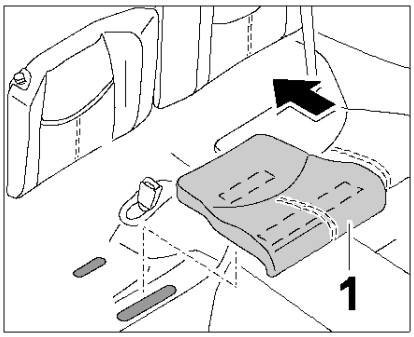
Installing back seat cushion



Installing back seat cushion

1. Press the lumbar part **-2-** on to the Velcro fastenings.
2. Press back seat cushion **-1-** on to the Velcro fastenings.

Installing back seat cushion



Installing back seat cushion

1. Press back seat cushion **-1-** on to the Velcro fastenings.

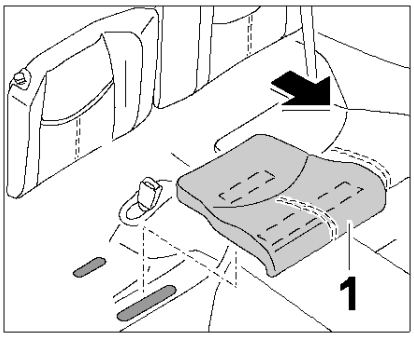
74 57 19 Removing and installing rear seat cushion - as of MY 2005

- Removing rear seat cushion
- Installing rear seat cushion

top of page

Removing rear seat cushion

Removing back seat cushion



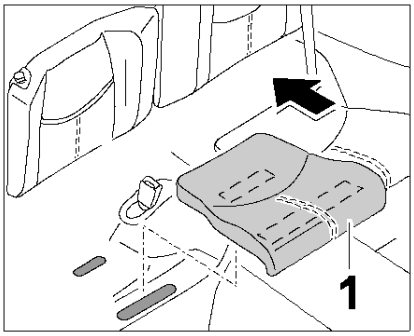
Removing back seat cushion

1. Pull back seat cushion **-1-** upwards and out.

top of page

Installing rear seat cushion

Installing back seat cushion



Installing back seat cushion

1. Press back seat cushion **-1-** on to the Velcro fastenings.

997110, 997111, 997120, 997121

as of MY 2005
Country C00, C02, C05, C07, C08, C09, C10, C11, C12, C13, C14, C15, C16, C18, C19, C20, C21, C22, C23, C24, C25, C26, C27, C28, C32, C33, C34, C35, C36, C37, C38, C39, C45, C46, C98, C99

WARNUNG

Gefahr des Verlusts der Text-Bild-Zuordnung beim Ausdruck.

- **Aus technischen Gründen kann derzeit nicht ausgeschlossen werden, dass trotz einwandfreier Darstellung auf dem Bildschirm beim Ausdruck der Zusammenhang von Text und zugehörigem Bild verloren geht.**
- **Wird der Fehler nicht bemerkt, besteht die Gefahr, daß Arbeiten nicht korrekt durchgeführt werden und es dadurch zu Personen- und Sachschäden kommt.**

Vergleichen Sie deshalb nach dem Druckvorgang unbedingt die Ausdrucke mit der Bildschirmdarstellung. Korrigieren Sie die Ausdrucke im Fehlerfall so, daß der Inhalt der Bildschirmdarstellung zutreffend wiedergegeben wird.

WARNING

Danger of losing text-figure correspondence when printing out.

- **For technical reasons, it can currently not be ruled out that the correspondence between text and associated figure can be lost when it is printed out, even though the display on the screen is correct.**
- **If the fault is not noticed, there is the danger that work will not be performed correctly which can cause injury and damage.**

Therefore, always compare printouts with the screen display after printing them out. Correct the printouts if they are faulty so that the content of the screen display matches that on the printouts.

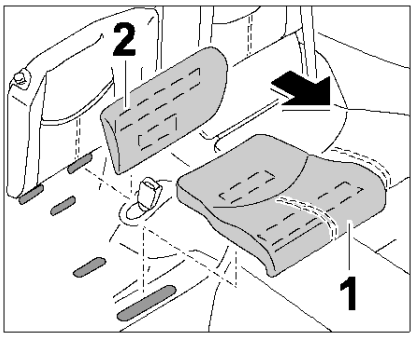
74 57 19 Removing and installing rear seat cushion - as of MY 2005

- Removing rear seat cushion
- Installing rear seat cushion

top of page

Removing rear seat cushion

Removing back seat cushion



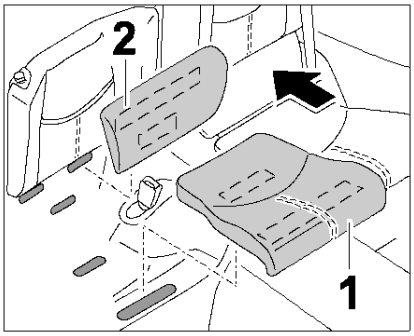
Removing back seat cushion

1. Pull back seat cushion **-1-** upwards and out.
2. Pull off lumbar part **-2-** to the front.

top of page

Installing rear seat cushion

Installing back seat cushion



Installing back seat cushion

1. Press the lumbar part **-2-** on to the Velcro fastenings.
2. Press back seat cushion **-1-** on to the Velcro fastenings.

997310, 997311, 997320, 997321

as of MY 2005
Country C00, C02, C05, C07, C08, C09, C10, C11, C12, C13, C14, C15, C16, C18, C19, C20, C21, C22, C23, C24, C25, C26, C27, C28, C32, C33, C34, C35, C36, C37, C38, C39, C45, C46, C98, C99

WARNUNG
Gefahr des Verlusts der Text-Bild-Zuordnung beim Ausdruck.

- **Aus technischen Gründen kann derzeit nicht ausgeschlossen werden, dass trotz einwandfreier Darstellung auf dem Bildschirm beim Ausdruck der Zusammenhang von Text und zugehörigem Bild verloren geht.**
- **Wird der Fehler nicht bemerkt, besteht die Gefahr, daß Arbeiten nicht korrekt durchgeführt werden und es dadurch zu Personen- und Sachschäden kommt.**

Vergleichen Sie deshalb nach dem Druckvorgang unbedingt die Ausdrucke mit der Bildschirmdarstellung. Korrigieren Sie die Ausdrucke im Fehlerfall so, daß der Inhalt der Bildschirmdarstellung zutreffend wiedergegeben wird.

WARNING
Danger of losing text-figure correspondence when printing out.

- **For technical reasons, it can currently not be ruled out that the correspondence between text and associated figure can be lost when it is printed out, even though the display on the screen is correct.**
- **If the fault is not noticed, there is the danger that work will not be performed correctly which can cause injury and damage.**

Therefore, always compare printouts with the screen display after printing them out. Correct the printouts if they are faulty so that the content of the screen display matches that on the

80 23 19 Removing and installing heat exchanger - as of MY 2005

- Preliminary work
- Removing heat exchanger
- Installing heat exchanger
- Subsequent work

top of page

Preliminary work

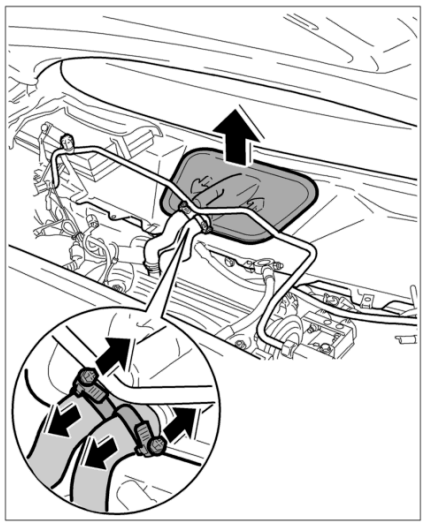
Preliminary work for heat exchanger

_ 193817 Draining and topping up with coolant - chapter on "draining"
_ 921919 Removing and installing wiper link - chapter on "removing"
Remove left and right dome strut.

top of page

Removing heat exchanger

Removing heat exchanger

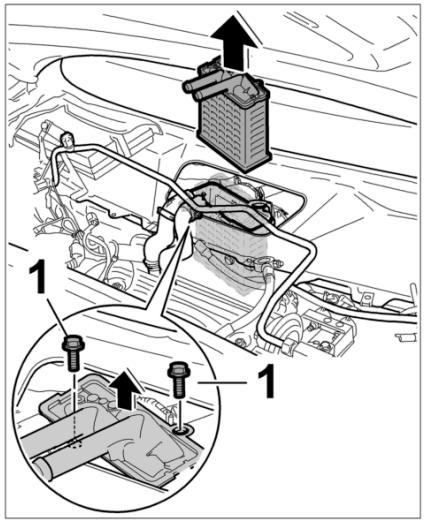


Disconnecting coolant hoses of heat exchanger

1. Release the two fastening clamps for the coolant hoses of the heat exchanger and slide them back over the hoses.
2. Carefully lift off the cover of the heat exchanger and remove from the body.

Note

If the cover of the heat exchanger is damaged during removal, it must be replaced.



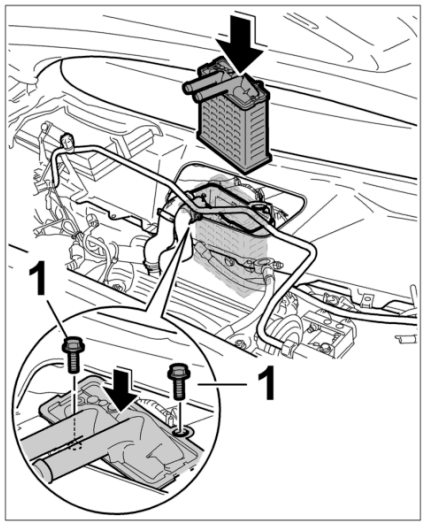
Removing the heat exchanger.

3. Undo the two fastening screws **-1-** and carefully lift the heat exchanger up and out.

top of page

Installing heat exchanger

Installing heat exchanger

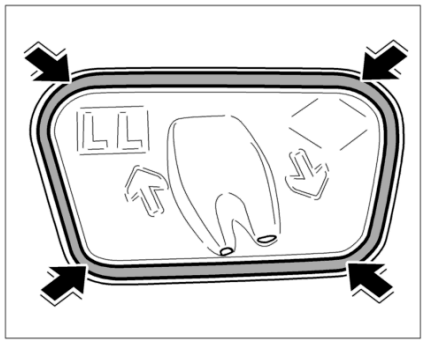


Inserting heat exchanger into the heating/air-conditioning unit.

1. Carefully insert heat exchanger from above into the heating/air-conditioning unit and secure with the fastening screws **-1-** . **Tightening torque: 1.0 ftlb.**

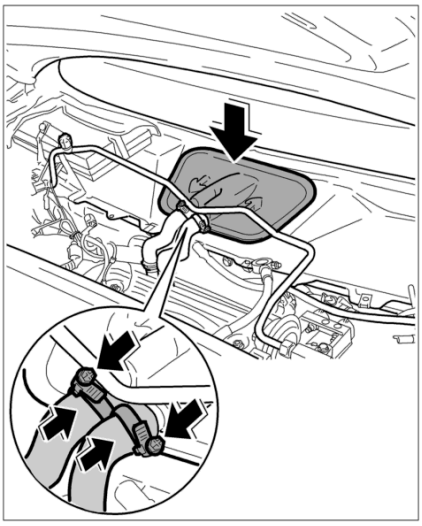
Note

If the cover of the heat exchanger is damaged during removal, it must be replaced.



Seal of heat exchanger cover

2. Check the seal at the cover of the heat exchanger and repair using a commercially available butyl adhesive or replace if necessary.



Securing coolant hoses of heat exchanger

3. Push the cover over the connections of the heat exchanger and press into place against the body, making sure it fits securely.
4. Push coolant hoses onto the heat exchanger and secure with fastening clamps.

top of page

Subsequent work

Subsequent work for heat exchanger

193817 Draining and topping up with coolant - chapter on "topping up"
921919 Removing and installing wiper link - chapter on "installing"
Install left and right dome strut.

997110, 997111, 997120, 997121, 997310, 997311, 997320, 997321, 997410, 997411, 997430, 997431, 997610, 997611, 997620, 997621

as of MY 2005
Country C00, C02, C05, C07, C08, C09, C10, C11, C12, C13, C14, C15, C16, C18, C19, C20, C21, C22, C23, C24, C25, C26, C27, C28, C32, C33, C34, C35, C36, C37, C38, C39, C45, C46, C98, C99

WARNUNG

Gefahr des Verlusts der Text-Bild-Zuordnung beim Ausdruck.

- **Aus technischen Gründen kann derzeit nicht ausgeschlossen werden, dass trotz einwandfreier Darstellung auf dem Bildschirm beim Ausdruck der Zusammenhang von Text und zugehörigem Bild verloren geht.**
- **Wird der Fehler nicht bemerkt, besteht die Gefahr, daß Arbeiten nicht korrekt durchgeführt werden und es dadurch zu Personen- und Sachschäden kommt.**

80 32 19 Removing and installing heat exchanger hose - as of MY 2005

- Preliminary work
- Removing heat exchanger hose
- Installing heat exchanger hose
- Subsequent work

Tools

Designation	Type	Number	Explanation	
assembly tool for spring-band clamps	commercially available tool	NR.72		

top of page

Preliminary work

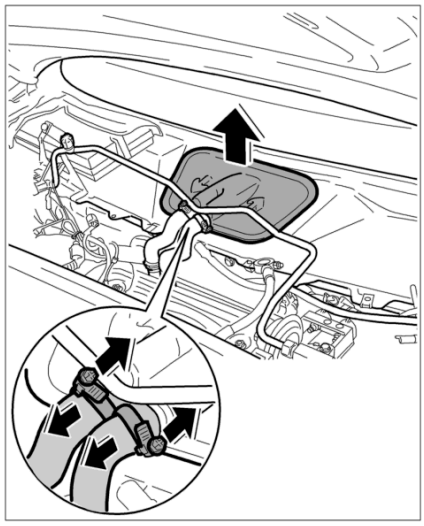
Preliminary work for heat exchanger hose

Drain coolant. 193817 Draining and topping up with coolant - section on "Draining"
Remove battery cover. 271219 Removing and installing battery cover - section on "Removing"
Removing the battery. 270619 Removing and installing battery - section on "Removing"

top of page

Removing heat exchanger hose

Removing heat exchanger hose



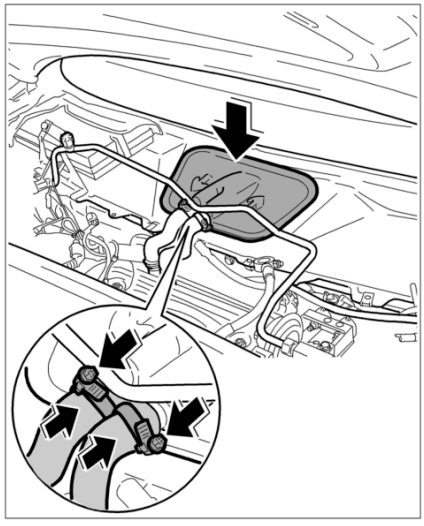
Disconnecting coolant hoses of heat exchanger

1. Release the two top fastening clamps for the coolant hoses of the heat exchanger and slide them back over the hoses.
2. Remove the two bottom spring-band clamps using the **assembly tool for spring-band clamps NR.72**.

top of page

Installing heat exchanger hose

Installing heat exchanger hose



Securing coolant hoses of heat exchanger

1. Push coolant hoses onto the heat exchanger and secure with the two fastening clamps.

2. Fit the two bottom spring-band clamps using the **assembly tool for spring-band clamps NR.72**.

top of page

Subsequent work

Subsequent work for heat exchanger hose

Installing battery. 270619 Removing and installing battery - section on "Installing"
Fill in coolant. 193817 Draining and topping up with coolant - section on "Topping up"
Install battery cover. 271219 Removing and installing battery cover - section on "Installing"
Carry out work instruction after disconnecting the battery. 2706IN Work instructions after disconnecting battery

---

997110, 997111, 997120, 997121, 997310, 997311, 997320, 997321, 997410, 997411, 997430, 997431, 997610, 997611, 997620, 997621

as of MY 2005
Country C00, C02, C05, C07, C08, C09, C10, C11, C12, C13, C14, C15, C16, C18, C19, C20, C21, C22, C23, C24, C25, C26, C27, C28, C32, C33, C34, C35, C36, C37, C38, C39, C45, C46, C98, C99

WARNUNG

Gefahr des Verlusts der Text-Bild-Zuordnung beim Ausdruck.

- **Aus technischen Gründen kann derzeit nicht ausgeschlossen werden, dass trotz einwandfreier Darstellung auf dem Bildschirm beim Ausdruck der Zusammenhang von Text und zugehörigem Bild verloren geht.**
- **Wird der Fehler nicht bemerkt, besteht die Gefahr, daß Arbeiten nicht korrekt durchgeführt werden und es dadurch zu Personen- und Sachschäden kommt.**

Vergleichen Sie deshalb nach dem Druckvorgang unbedingt die Ausdrucke mit der Bildschirmdarstellung. Korrigieren Sie die Ausdrucke im Fehlerfall so, daß der Inhalt der Bildschirmdarstellung zutreffend wiedergegeben wird.

WARNING

Danger of losing text-figure correspondence when printing out.

- **For technical reasons, it can currently not be ruled out that the correspondence between text and associated figure can be lost when it is printed out, even though the display on the screen is correct.**
- **If the fault is not noticed, there is the danger that work will not be performed correctly which can cause injury and damage.**

80 55 19 Removing and installing front footwell outlet vent - as of MY 2005

- Preliminary work
- Removing front footwell outlet vent
- Installing front footwell outlet vent
- Subsequent work

top of page

Preliminary work

Preliminary work for front footwell outlet vent

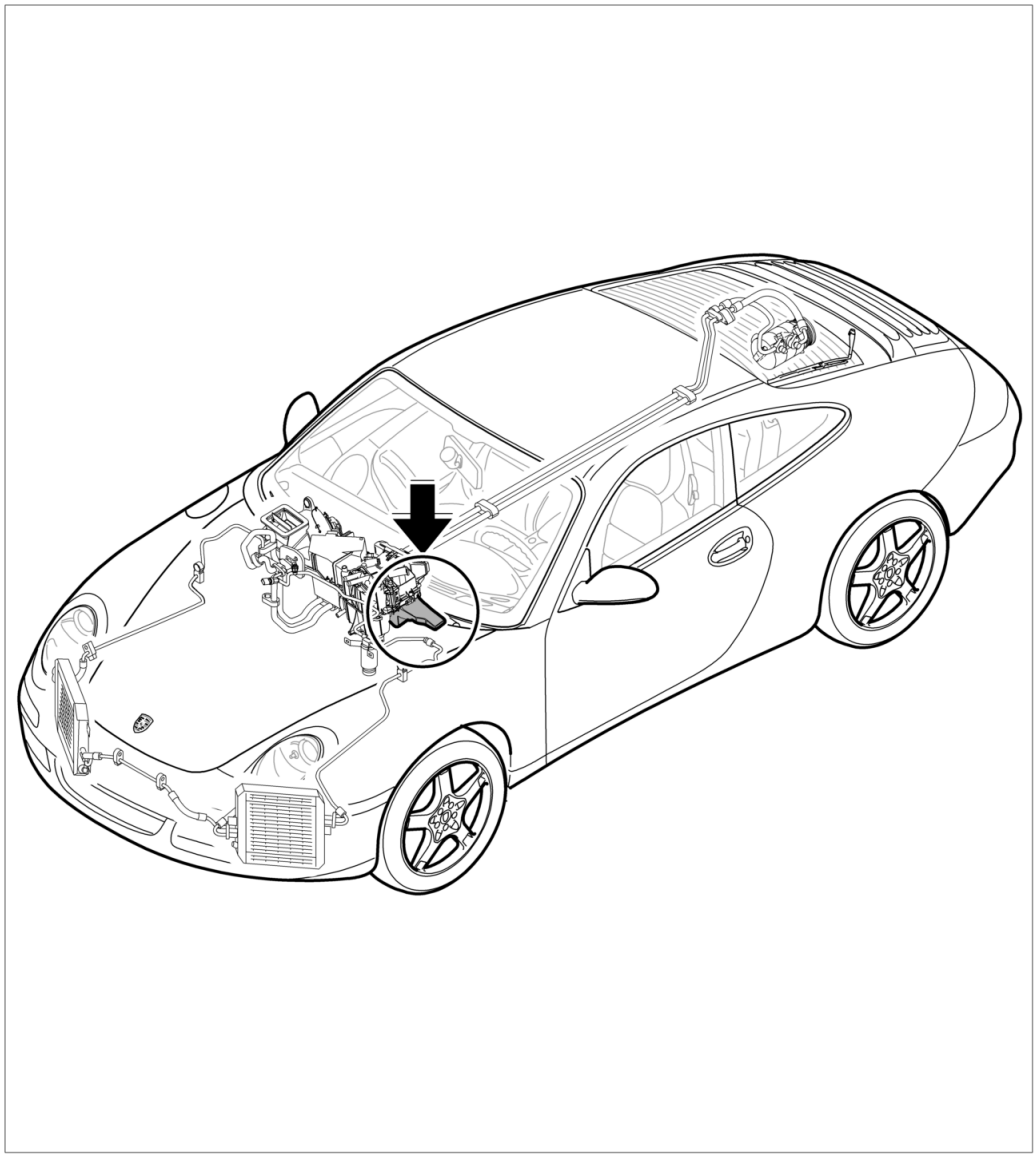
Remove the small front covers for the centre console at the left and right. 681419 Removing and installing centre console cover - section on "Removing"

top of page

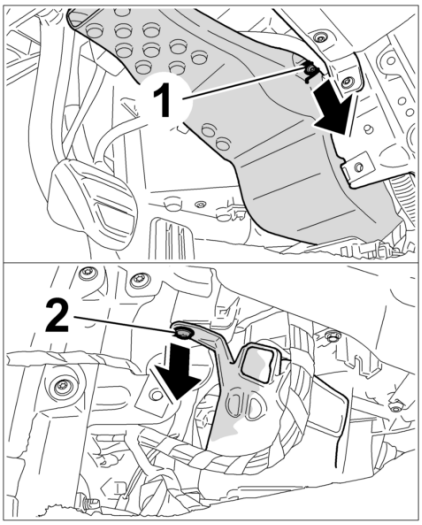
Removing front footwell outlet vent

Removing front footwell outlet vent

Installation Location:

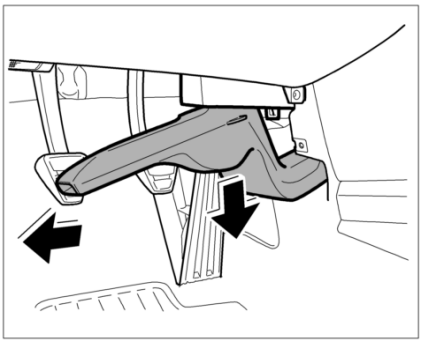


Installation position of air guide



Unscrewing fastening screws

1. Unscrew the fastening screw at the left **-1-** and right **-2-** of the heater/air-conditioning unit.



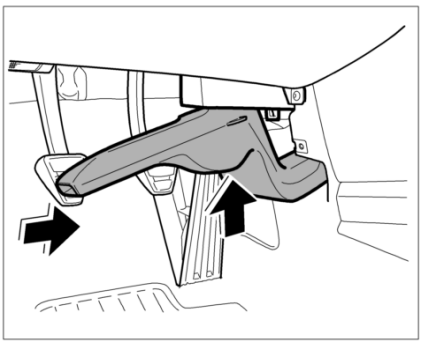
Removing footwell outlet vent

2. Pull the footwell outlet vent down out of the heater/air-conditioning unit and remove through the driver's side.

top of page

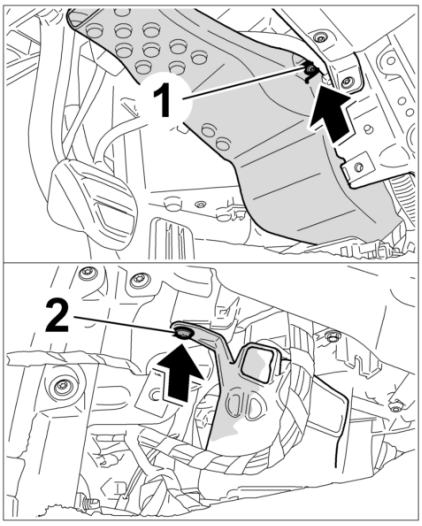
Installing front footwell outlet vent

Installing front footwell outlet vent



Inserting footwell outlet vent

1. Slide the footwell outlet vent in under the heater/air-conditioning unit through the driver's side and push it onto the heater/air-conditioning unit.



Screw down the footwell outlet vent

2. Screw the footwell outlet vent to the heater/air-conditioning unit with the two fastening screws at the left **-1-** and right **-2-** . **Tightening torque: 1 (0.5 ftlb.) Nm**

top of page

Subsequent work

Subsequent work for front footwell outlet vent

Fit the small front covers for the centre console at the left and right. 681419 Removing and installing cover for centre console - section on "Installing"

997110, 997111, 997120, 997121, 997310, 997311, 997320, 997321, 997410, 997411, 997430, 997431, 997610, 997611, 997620, 997621

as of MY 2005
Country C00, C02, C05, C07, C08, C09, C10, C11, C12, C13, C14, C15, C16, C18, C19, C20, C21, C22, C23, C24, C25, C26, C27, C28, C32, C33, C34, C35, C36, C37, C38, C39, C45, C46, C98, C99

WARNUNG

Gefahr des Verlusts der Text-Bild-Zuordnung beim Ausdruck.

- **Aus technischen Gründen kann derzeit nicht ausgeschlossen werden, dass trotz einwandfreier Darstellung auf dem Bildschirm beim Ausdruck der Zusammenhang von Text und zugehörigem Bild verloren geht.**
- **Wird der Fehler nicht bemerkt, besteht die Gefahr, daß Arbeiten nicht korrekt durchgeführt werden und es dadurch zu Personen- und Sachschäden kommt.**

85 15 19 Removing and installing heating/fresh air unit - as of MY 2005

- Preliminary work
- Removing heating/fresh air unit.
- Installing heating/fresh air unit.
- Subsequent work

top of page

Preliminary work

Preliminary work for heating/fresh air unit

1. Drain refrigerant. 870317 Draining and filling in refrigerant - chapter on "draining"
2. Drain engine coolant. 193817 Draining and refilling coolant
3. Remove dashboard. 701819 Removing and installing dashboard - chapter on "Removing"
4. Remove tunnel support. *684419 21 Tunnel support - chapter on "Removing"*
5. Remove passenger's airbag unit. 695919 Removing and installing passenger's airbag unit - chapter on "Removing"
6. Remove battery. 270619 Removing and installing battery - chapter on "Removing"
7. Remove right plenum panel cover. 852219 Removing and installing cover - chapter on "Removing"
8. Remove heat exchanger. 802319 Removing and installing heat exchanger - chapter on "Removing"

top of page

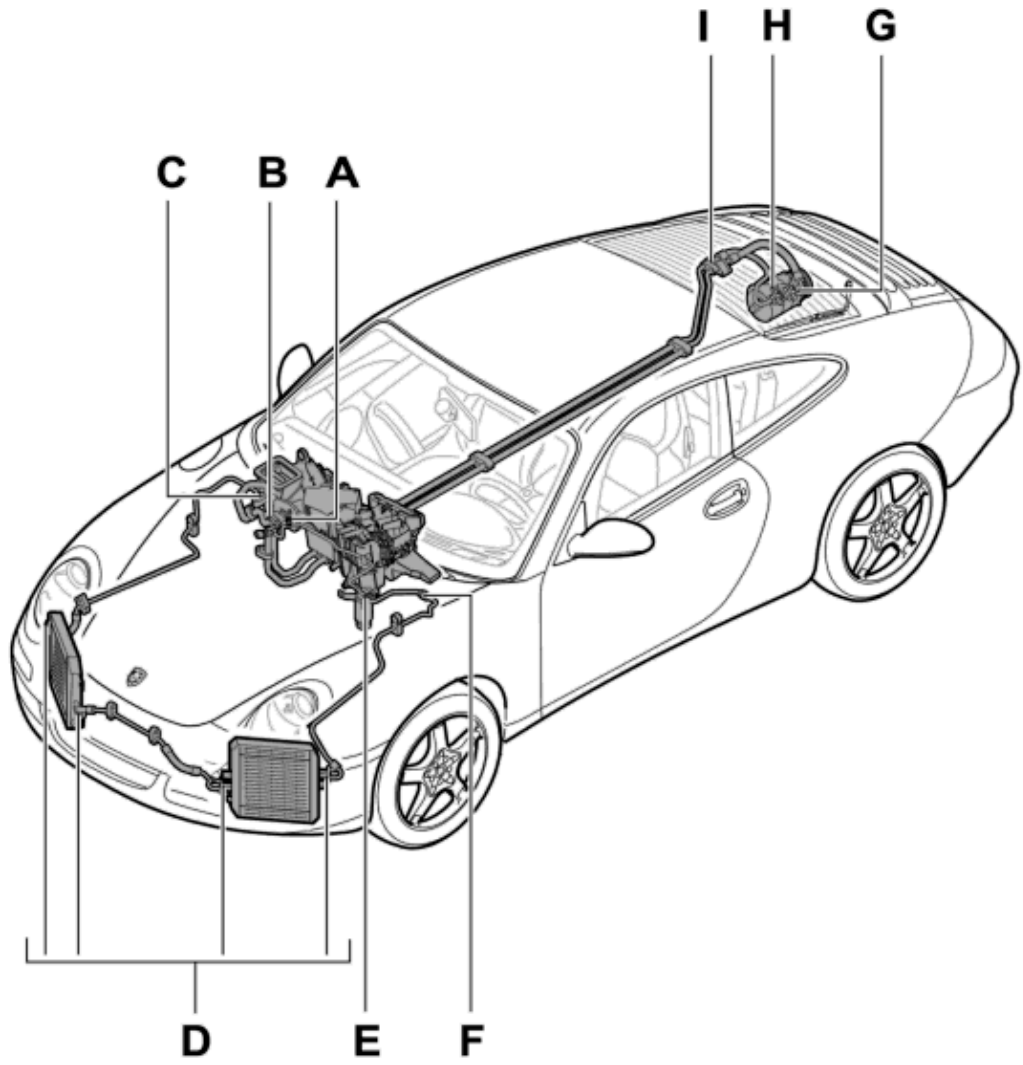
Removing heating/fresh air unit.

Removing heating/fresh air unit

Note

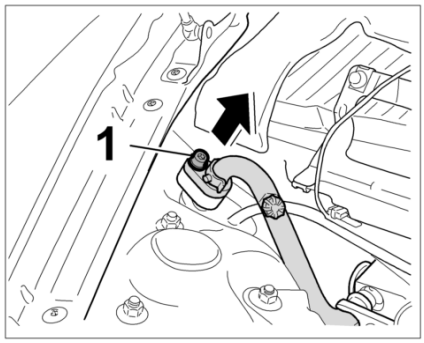
- *Make sure not to damage the insulation of the main wiring harness.*

Installation Location:



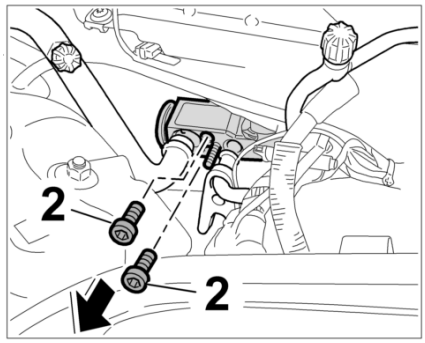
Installation position shown on the 911

1. Immediately seal the openings of air-conditioning lines with suitable plugs.



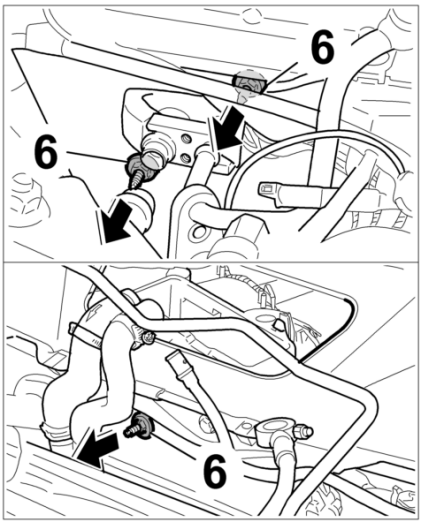
Opening pressure line

2. Unscrew fastening screw **-1-** for refrigerant line **-C-** and open the pressure line.



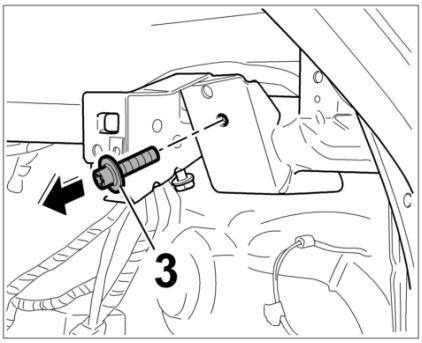
Removing expansion valve

3. Unscrew fastening screws **-2-** and remove expansion valve. 877019 Removing and installing expansion valve - chapter on "Removing"



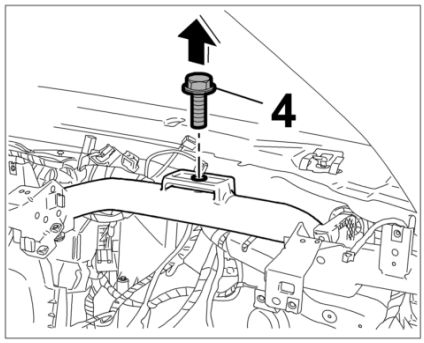
Fastening nuts for heater/air-conditioning unit

4. Unscrew the fastening nuts **-6-** for the heater/air-conditioning unit in the area of the plenum panel/firewall.



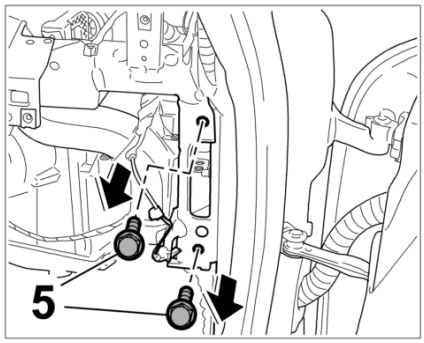
Fastening screw to dashboard bracket

5. Unscrew fastening screw **-3-** for securing holder of the heater/air-conditioning unit to right side of dashboard bracket (next to A-pillar).



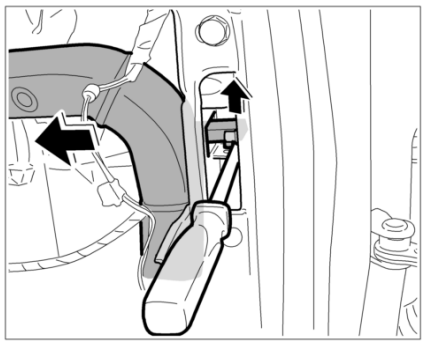
Fastening screw to dashboard bracket

6. Unscrew fastening screw **-4-** for securing heater/air-conditioning unit to right side of dashboard bracket (passenger's side).



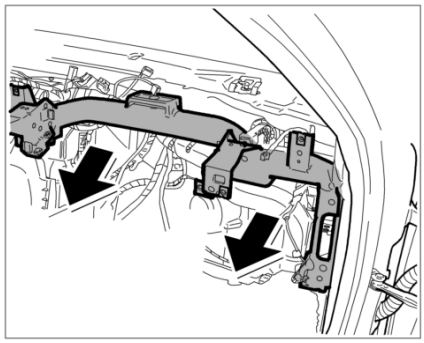
Fastening screws on dashboard bracket

7. Unscrew the two fastening screws **-5-** for dashboard bracket to right side of body.



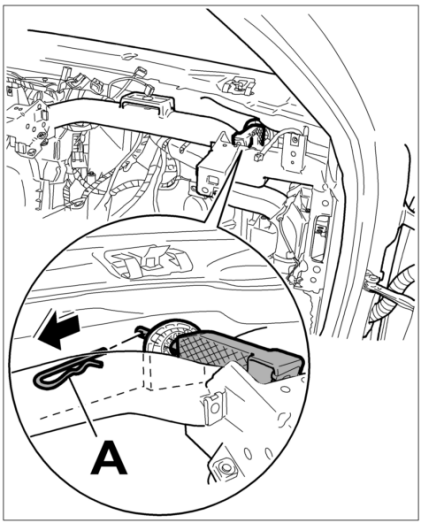
Unclipping wire harness at dashboard bracket.

8. Unclip holder for electric harness with a screwdriver from right side of dashboard bracket.



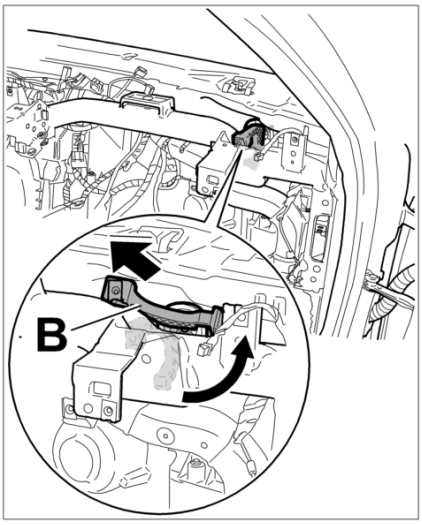
Pulling dashboard bracket forward

9. Now pull dashboard bracket a few centimetres forward on the right side.



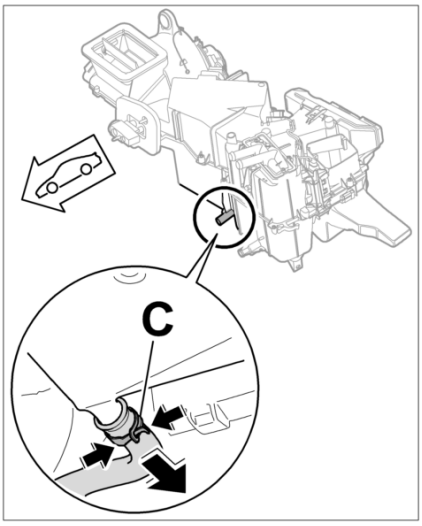
Removing cotter pin

10. Pull out cotter pin **-A-** for holder of the heater/air-conditioning unit.



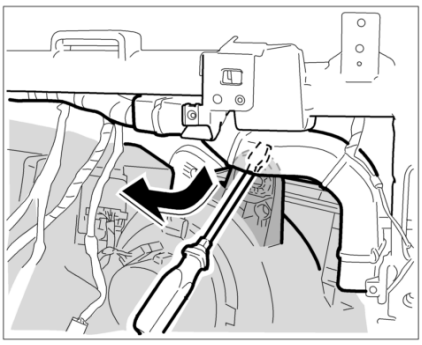
Pull out holder

11. Turn holder **-B-** for heater/air-conditioning unit by 90° and pull up and out.



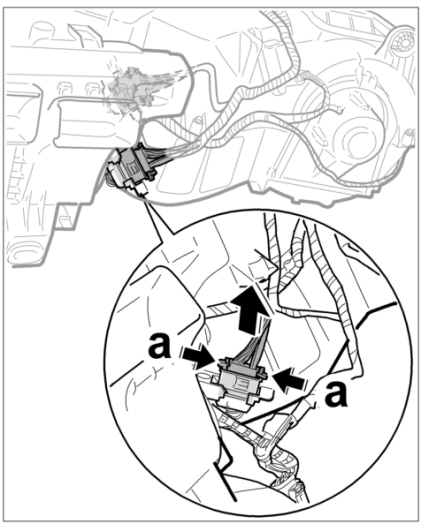
Pulling off water drain hose

12. Lay down the air conditioner, release clamp for water drain hose **-C-** and pull off the water drain hose from the heater/air-conditioning unit.



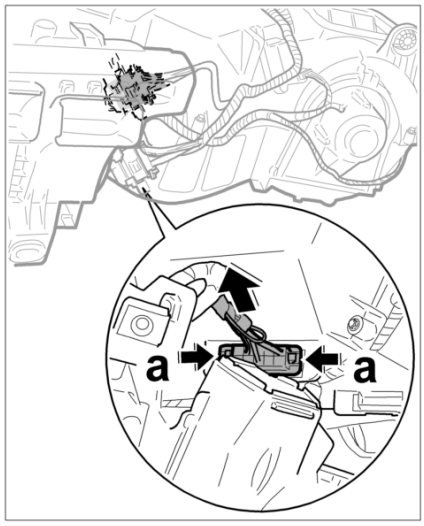
Lifting heater/air-conditioning unit forward under the dashboard bracket

13. Carefully lift heater/air-conditioning unit forward with a screwdriver under the right side of the dashboard bracket.



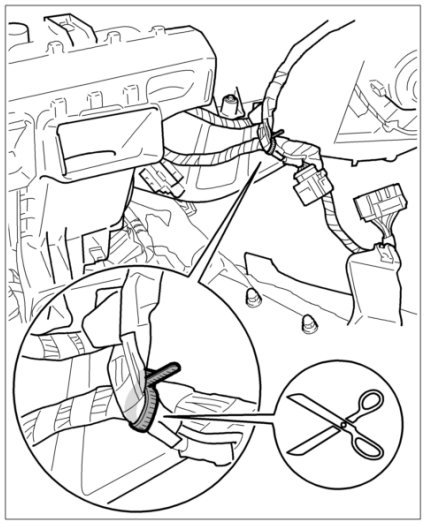
Releasing electric plug connection

14. Release lower plug connection on heater/air-conditioning unit **-a-** and unplug.



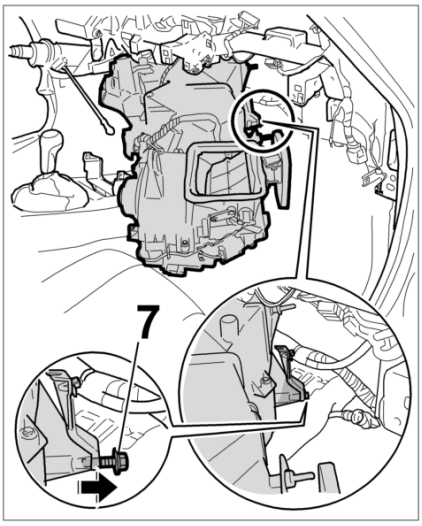
Releasing electric plug connection

15. Release upper plug connection on heater/air-conditioning unit **-a-** and unplug.



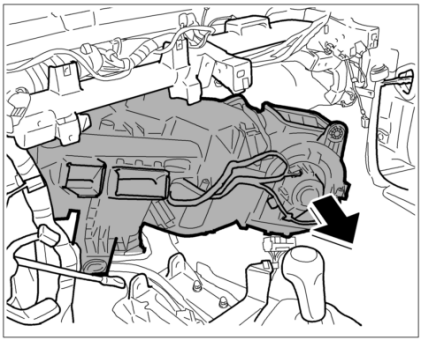
Cutting tie-wraps

16. Cut tie-wraps of electric line (vehicle wire harness to heater/air-conditioning unit wire harness) with side cutters. Remove vehicle wire harness.



Unscrewing holder for B+ line

17. Pull air conditioner forward on the right side, unscrew fastening screw **-7-** for B+ line holder and remove holder for heater/air-conditioning unit.



Pulling out heater/air-conditioning unit

18. Pull/push heater/air-conditioning unit as far as possible in direction of passenger's seat.

Heating/air-conditioning unit

19. Remove heater/air-conditioning unit from passenger compartment via passenger's door.

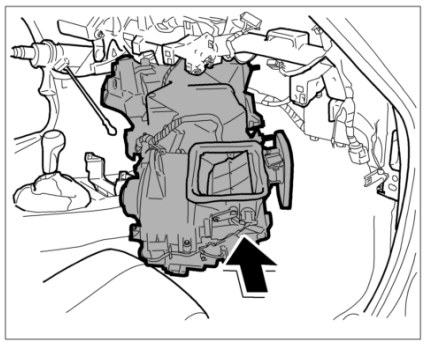
top of page

Installing heating/fresh air unit.

Installing heating/fresh air unit

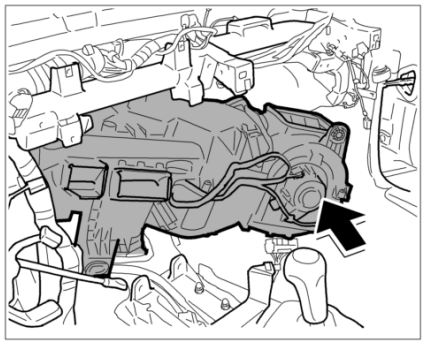
Note

Do not remove the plugs until just before installing the expansion valve.
Check the condition of foam parts for damage; if in doubt replace.



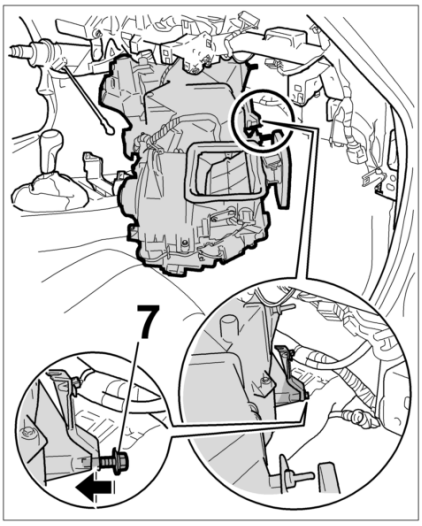
Placing heater/air-conditioning unit in the vehicle

1. Insert heater/air-conditioning unit in the vehicle over the passenger's side.



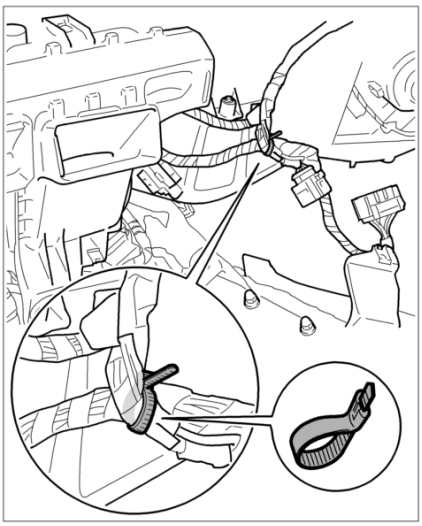
Positioning heater/air-conditioning unit

2. Lift heater/air-conditioning unit over the centre console and position under dashboard bracket.



Tightening holder for B + lead

3. Position holder for the B+ line on the heater/air-conditioning unit and tighten with the fastening screw **-7-**. **Tightening torque: 1.7 (1.5 ftlb.) Nm**

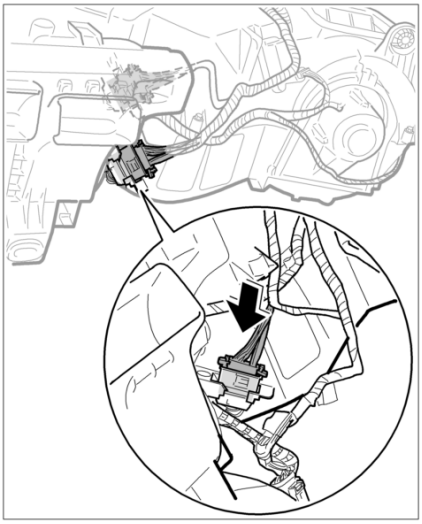


Fastening electric line

4. Lay electric line from vehicle wire harness to heater/air-conditioning unit wire harness and fix with a tie-wrap.

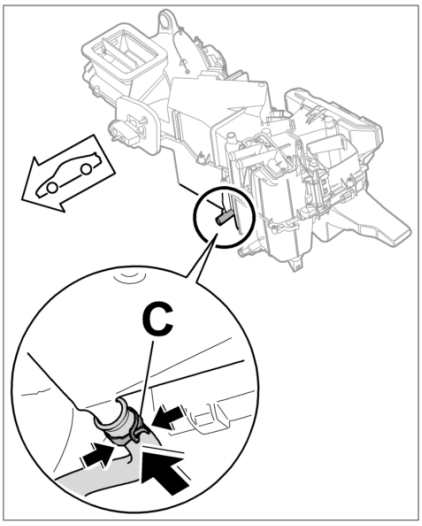
Connecting upper electrical plug connection

5. Connect upper electric plug connection at heater/air-conditioning unit until it is felt to engage.



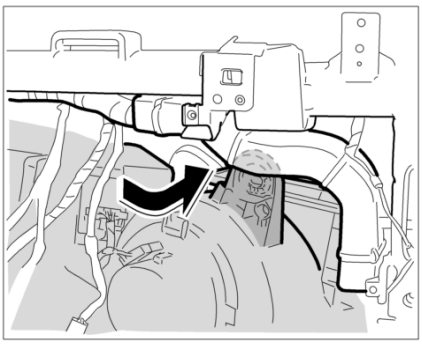
Connecting lower electrical plug connection

6. Connect upper electric plug connection at heater/air-conditioning unit until it is felt to engage.



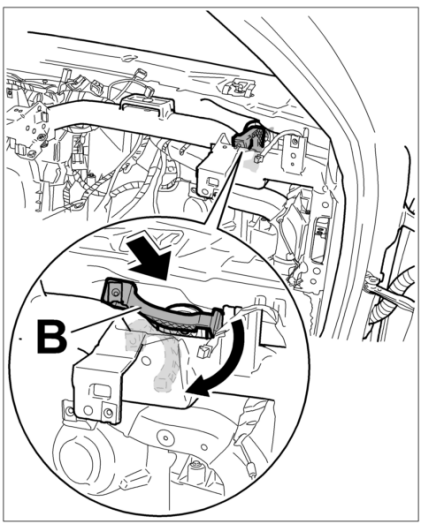
Fixing water drain hose

7. Check water drain hose for damage; if drain hose shows no sign of damage, connect hose to the drain on heater/air-conditioning unit and fix with the clamp **-C-** .



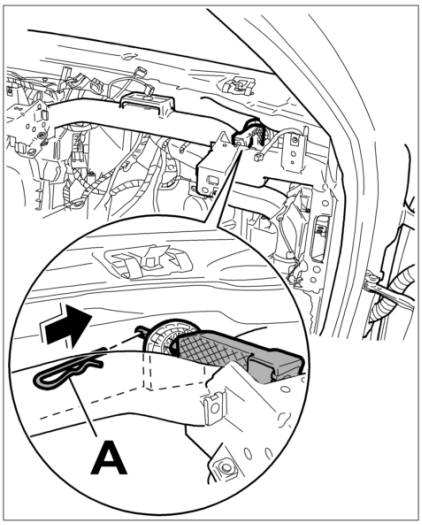
Positioning heater/air-conditioning unit

8. Push heater/air-conditioning unit into position under right side of dashboard bracket in the direction of firewall.



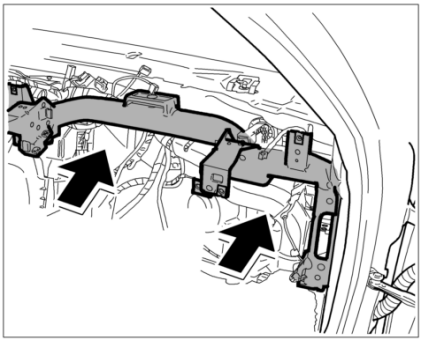
Positioning holder for heater/air-conditioning unit

9. Guide holder **-B-** for the heater/air-conditioning unit over the dashboard bracket, push through the mounting of the heater/air-conditioning unit and turn through 90°.



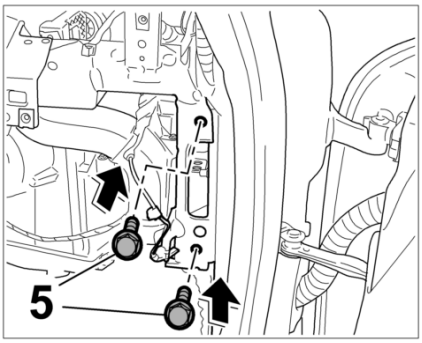
Holder for heater/air-conditioning unit

10. Fix holder for heater/air-conditioning unit with cotter pin **-A-** .



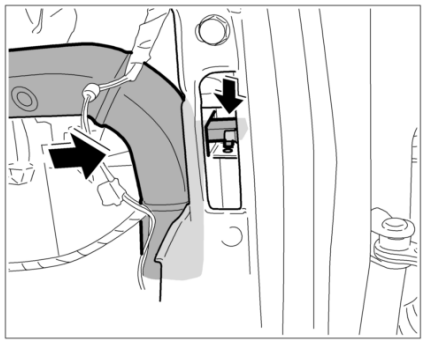
Pushing dashboard bracket forwards

11. Push dashboard bracket forwards while lifting the heater/air-conditioning unit and taking care that no electric lines get trapped.



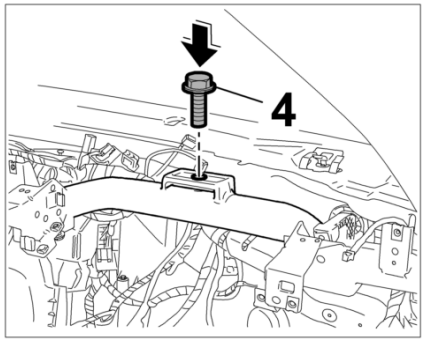
Securing dashboard bracket

12. Screw down dashboard bracket with the two fastening screws **-5-** . **Tightening torque: 23 (17 ftlb.) Nm**



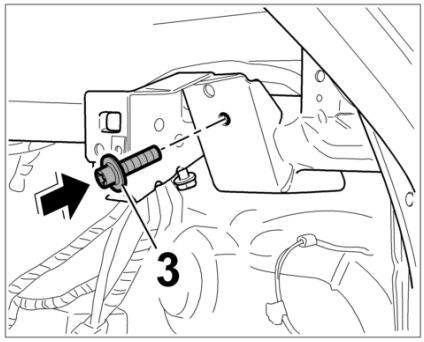
Clipping in plastic holders

13. Clip in the plastic holders for the electric main wire harness to the dashboard bracket.



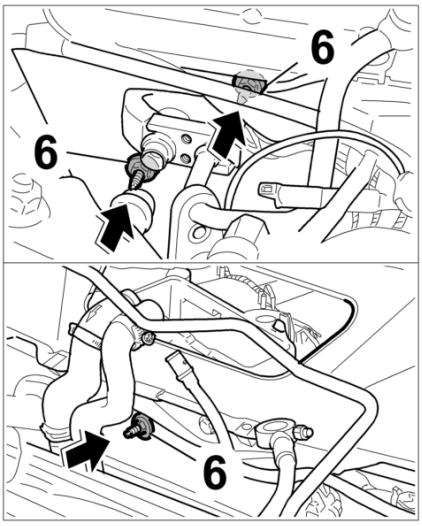
Securing dashboard bracket

14. Secure dashboard bracket with the fastening screw **-4-** . **Tightening torque: 9.7 (7.0 ftlb.) Nm**



Securing holder for heater/air-conditioning unit

15. Screw down holder of heater/air-conditioning unit with the fastening screw **-3-** .
    Tightening torque: 3.5 (2.5 ftlb.) Nm

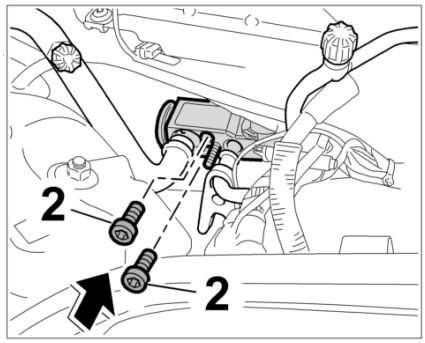


Securing heater/air-conditioning unit to firewall

16. Slide the fastening bolts of the heater/air-conditioning unit through the firewall lid and tighten with the three fastening nuts **-6-** . **Tightening torque: 9.7 (7.0 ftlb.) Nm**

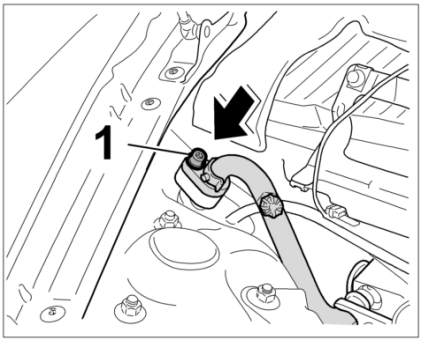
Note

Do not remove the plugs until just before installing the expansion valve.
Check the condition of foam parts for damage; if in doubt replace.



Installing expansion valve

17. Install expansion valve and tighten with the two fastening screws **-2-** , replace sealing rings for refrigerant lines and wet them with refrigerant. 877019 Removing and installing expansion valve - chapter on "Installing" **Tightening torque: 9 (6.5 ftlb.) Nm**



Positioning and securing refrigerant lines

18. Replace sealing rings for refrigerant lines and wet with refrigerant. Position refrigerant line and tighten with fastening screw **-1-** . **M8: 14 (10.5 ftlb.) Nm**

top of page

Subsequent work

Subsequent work for heater/air-conditioning unit

1. Install heat exchanger 802319 Removing and installing heat exchanger - chapter on "Installing"
2. Install passenger's airbag unit. 695919 Removing and installing passenger's airbag unit - chapter on "Installing"
3. Install tunnel support. *684419 23 Tunnel support - chapter on "Installing"*
4. Install dashboard. 701819 Removing and installing dashboard - chapter on "Installing"
5. Install and connect the battery. 270619 Removing and reinstalling battery - chapter on "Installing" *271000 Work instruction after disconnecting battery*
6. Fill in refrigerant. 870317 Draining and filling in refrigerant
7. Top up engine coolant. 193817 Draining and refilling coolant
8. Install right cover for plenum panel. 852219 Removing and installing cover - chapter on "Installing"

997110, 997111, 997120, 997121, 997310, 997311, 997320, 997321, 997410, 997411, 997430, 997431, 997610, 997611, 997620, 997621

as of MY 2005
Country C00, C02, C05, C07, C08, C09, C10, C11, C12, C13, C14, C15, C16, C18, C19, C20, C21, C22, C23, C24, C25, C26, C27, C28, C32, C33, C34, C35, C36, C37, C38, C39, C45, C46, C98, C99

WARNUNG

Gefahr des Verlusts der Text-Bild-Zuordnung beim Ausdruck.

- **Aus technischen Gründen kann derzeit nicht ausgeschlossen werden, dass trotz einwandfreier Darstellung auf dem Bildschirm beim Ausdruck der Zusammenhang von Text und zugehörigem Bild verloren geht.**
- **Wird der Fehler nicht bemerkt, besteht die Gefahr, daß Arbeiten nicht korrekt durchgeführt werden und es dadurch zu Personen- und Sachschäden kommt.**

85 18 19 Removing and installing particle filter - as of MY 2005

- Preliminary work
- Removing particle filter
- Installing particle filter
- Subsequent work

top of page

Preliminary work

Preliminary work for the particle filter

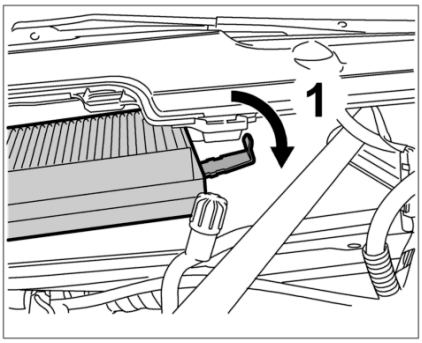
1. Remove battery cover.
2. Remove cover on right for plenum chamber.

top of page

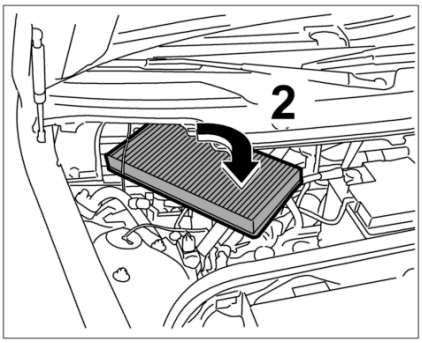
Removing particle filter

Removing particle filter

1. In conjunction with telephone preparation, loosen the antenna at the two top fastening screws and unscrew the two bottom fastening screws. Remove antenna part.



2. Open the lock **-1-** on the filter housing.

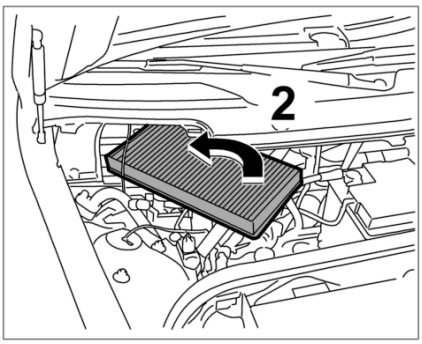


3. Remove the particle filter upwards and to the side **-2-** out of the housing guide.

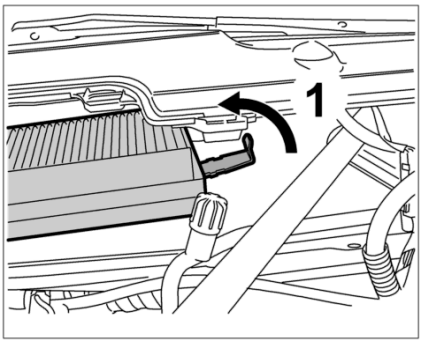
top of page

Installing particle filter

Installing particle filter



1. Insert a new particle filter into the housing guide **-2-** .
2. Ensure correct seating and installation position.



3. Close the lock **-1-** on the filter housing.
4.

For vehicles with telephone preparation, insert antenna part at the top. Secure the antenna with the four fastening screws.

top of page

Subsequent work

Work subsequent to installing particle filter

1. Install cover on right for plenum chamber.
2. Install battery cover.

997110, 997111, 997120, 997121, 997310, 997311, 997320, 997321, 997410, 997411, 997430, 997431, 997610, 997611, 997620, 997621

as of MY 2005
Country C00, C02, C05, C07, C08, C09, C10, C11, C12, C13, C14, C15, C16, C18, C19, C20, C21, C22, C23, C24, C25, C26, C27, C28, C32, C33, C34, C35, C36, C37, C38, C39, C45, C46, C98, C99

WARNUNG

Gefahr des Verlusts der Text-Bild-Zuordnung beim Ausdruck.

- **Aus technischen Gründen kann derzeit nicht ausgeschlossen werden, dass trotz einwandfreier Darstellung auf dem Bildschirm beim Ausdruck der Zusammenhang von Text und zugehörigem Bild verloren geht.**
- **Wird der Fehler nicht bemerkt, besteht die Gefahr, daß Arbeiten nicht korrekt durchgeführt werden und es dadurch zu Personen- und Sachschäden kommt.**

Vergleichen Sie deshalb nach dem Druckvorgang unbedingt die Ausdrucke mit der Bildschirmdarstellung. Korrigieren Sie die Ausdrucke im Fehlerfall so, daß der Inhalt der Bildschirmdarstellung zutreffend wiedergegeben wird.

WARNING

Danger of losing text-figure correspondence when printing out.

- **For technical reasons, it can currently not be ruled out that the correspondence between text and associated figure can be lost when it is printed out, even though the display on the screen is correct.**
- **If the fault is not noticed, there is the danger that work will not be performed correctly which can cause injury and damage.**

Therefore, always compare printouts with the screen display after printing them out. Correct the printouts if they are faulty so that the content of the screen display matches that on the

85 22 19 Removing and installing cover - as of MY 2005

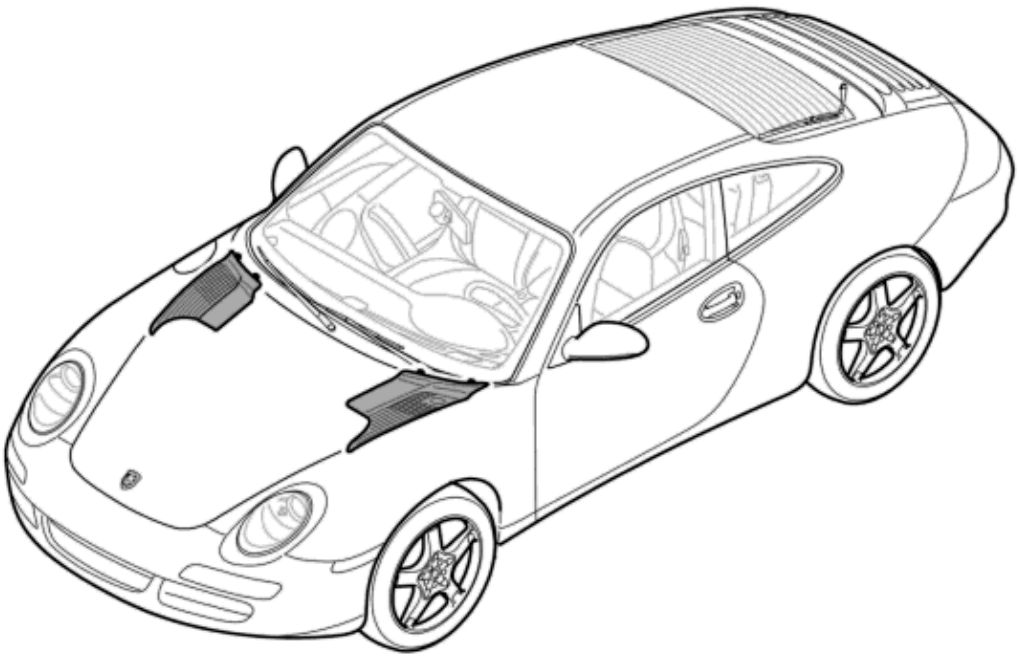
- Removing cover
- Installing cover

top of page

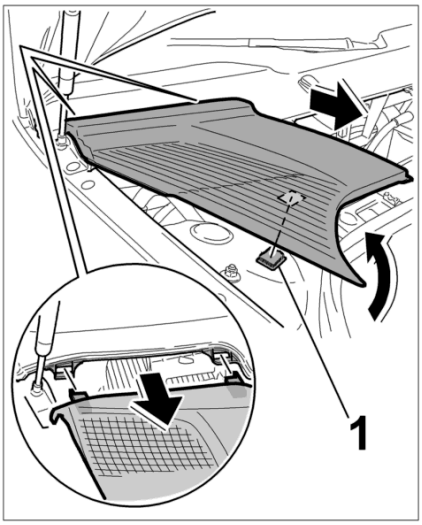
Removing cover

Removing cover

Installation Location:



Installation position



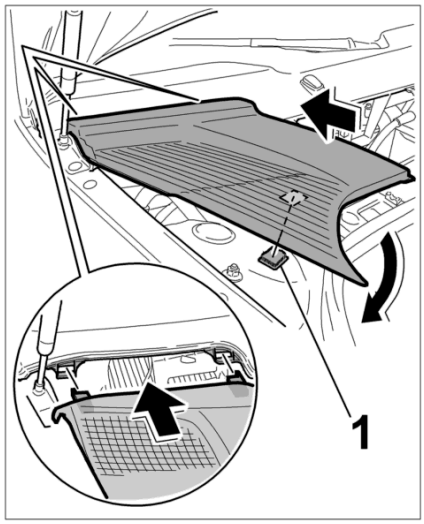
Remove cover

1. Lift rubber lip of luggage compartment seal to one side, lift up the cover and disengage it from cowl panel cover.
2. Check condition of Velcro strip **-1-** on the body and on the cover; replace if necessary.

top of page

Installing cover

Installing cover



Install cover

1. Check condition of Velcro strip **-1-** on the body and on the cover; replace if necessary.
2. Engage cover in cowl panel cover, lift rubber lip of luggage compartment seal to one side and press the cover onto the Velcro strip **-1-** .

997110, 997111, 997120, 997121, 997310, 997311, 997320, 997321, 997410, 997411, 997430, 997431, 997610, 997611, 997620, 997621

as of MY 2005
Country C00, C02, C05, C07, C08, C09, C10, C11, C12, C13, C14, C15, C16, C18, C19, C20, C21, C22, C23, C24, C25, C26, C27, C28, C32, C33, C34, C35, C36, C37, C38, C39, C45, C46, C98, C99

WARNUNG
Gefahr des Verlusts der Text-Bild-Zuordnung beim Ausdruck.

85 30 19 Removing and installing heater/fresh-air blower motor - as of MY 2005

- Preliminary work
- Removing heater/fresh-air blower motor
- Installing heater/fresh-air blower motor
- Subsequent work

top of page

Preliminary work

Preliminary work for heating and fresh air blower motor

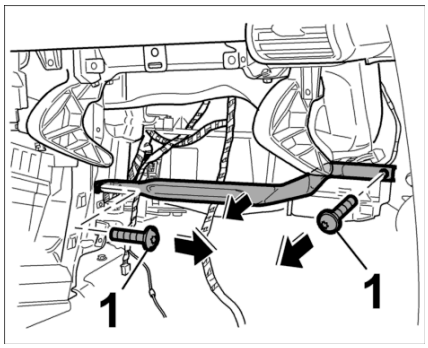
1. 681519 Removing and installing glove compartment - removing

top of page

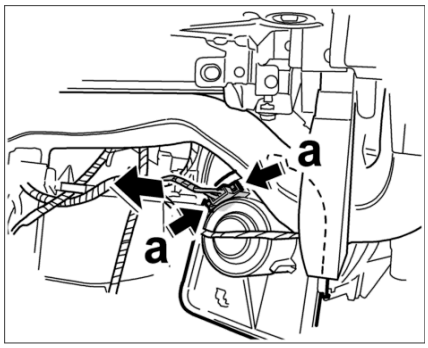
Removing heater/fresh-air blower motor

Removing heater/fresh-air blower motor

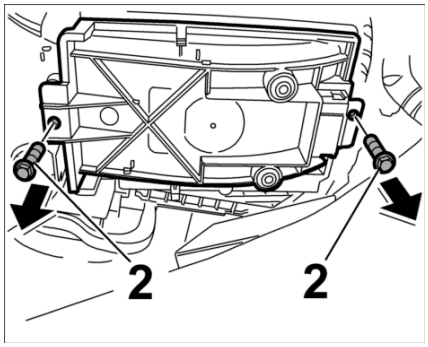
Set blower to position 0 on climate control and remove ignition key.



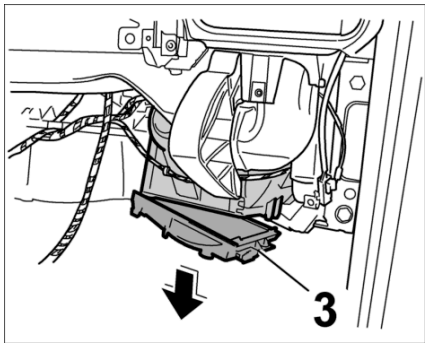
1. Unscrew the two fastening screws **-1-** of support strut and remove support strut.



2. Squeeze the plug **-a-** on the blower motor and pull off.



3. Unscrew the two fastening screws **-2-** holding the blower motor cover.

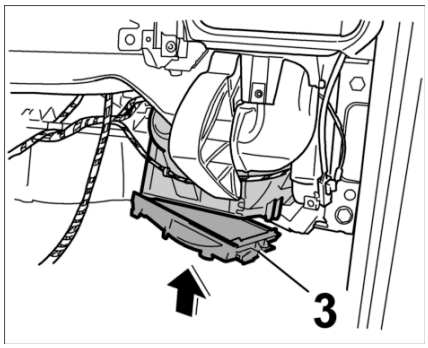


4. Remove the cover **-3-** for the blower motor and pull out the blower motor downwards.

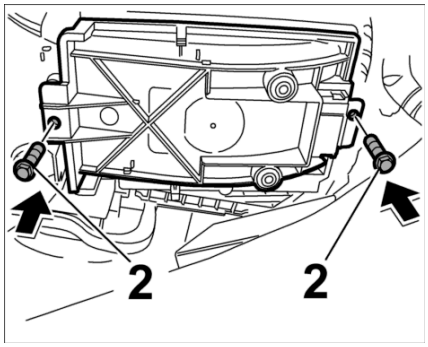
top of page

Installing heater/fresh-air blower motor

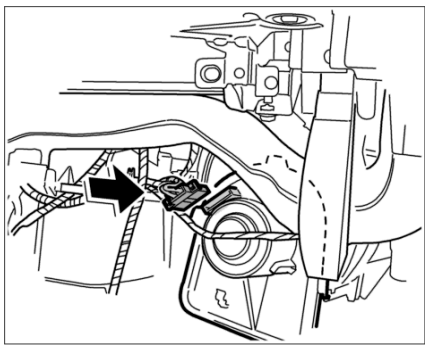
Installing heater/fresh-air blower motor



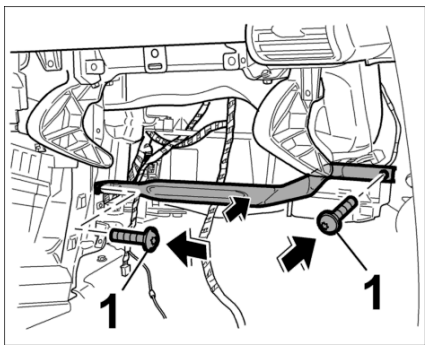
1. Insert the heater/fresh-air blower motor from below into the heater/ A/C unit and position the cover **-3-** .



2. Secure cover **-3-** with the two fastening screws.



3. Insert the electrical plug connection until the plug can be felt to engage.



4. Install support strut and tighten with the two fastening screws **-1-** .
5. Switch on ignition and the blower in stages on the heating and fresh-air control. Check the function of the blower.

top of page

Subsequent work

Subsequent work for heater blower motor

681519 Removing and installing glove compartment - installing

---

997110, 997111, 997120, 997121, 997310, 997311, 997320, 997321, 997410, 997411, 997430, 997431, 997610, 997611, 997620, 997621

as of MY 2005
Country C00, C02, C05, C07, C08, C09, C10, C11, C12, C13, C14, C15, C16, C18, C19, C20, C21, C22, C23, C24, C25, C26, C27, C28, C32, C33, C34, C35, C36, C37, C38, C39, C45, C46, C98, C99

WARNUNG

Gefahr des Verlusts der Text-Bild-Zuordnung beim Ausdruck.

- **Aus technischen Gründen kann derzeit nicht ausgeschlossen werden, dass trotz einwandfreier Darstellung auf dem Bildschirm beim Ausdruck der Zusammenhang von Text und zugehörigem Bild verloren geht.**
- **Wird der Fehler nicht bemerkt, besteht die Gefahr, daß Arbeiten nicht korrekt durchgeführt werden und es dadurch zu Personen- und Sachschäden kommt.**

Vergleichen Sie deshalb nach dem Druckvorgang unbedingt die Ausdrucke mit der Bildschirmdarstellung. Korrigieren Sie die Ausdrucke im Fehlerfall so, daß der Inhalt der Bildschirmdarstellung zutreffend wiedergegeben wird.

WARNING

Danger of losing text-figure correspondence when printing out.

- **For technical reasons, it can currently not be ruled out that the correspondence between text and associated figure can be lost when it is printed out, even though the display on the screen is correct.**
- **If the fault is not noticed, there is the danger that work will not be performed correctly which can cause injury and damage.**

Therefore, always compare printouts with the screen display after printing them out. Correct the printouts if they are faulty so that the content of the screen display matches that on the printouts.

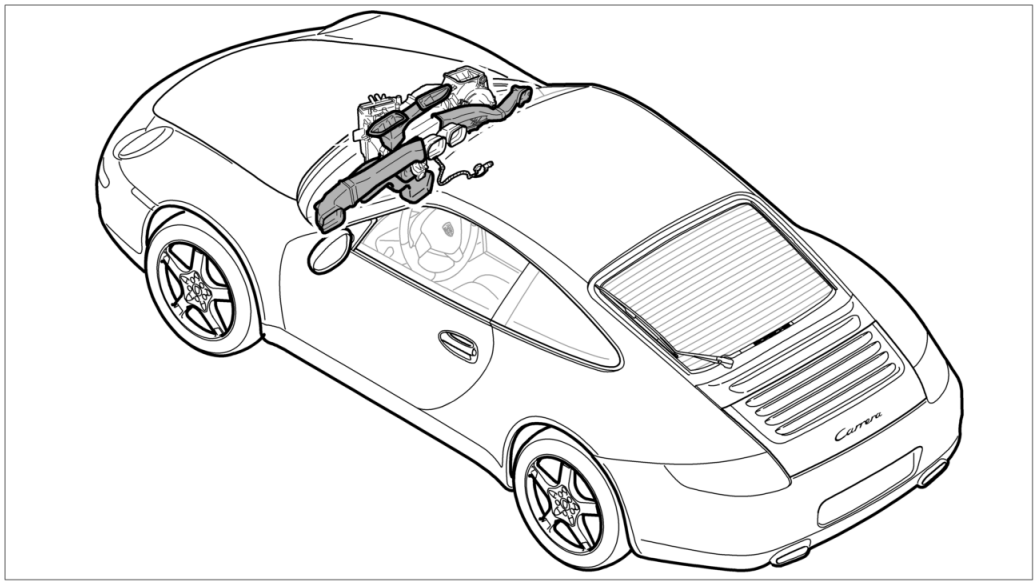
AVERTISSEMENT

85 34 19 Removing and installing air guide - as of MY 2005

- Preliminary work
- Removing air guide
- Installing air guide
- Subsequent work

Overview of air guide

Installation Location:



Overview of air guide

top of page

Preliminary work

Preliminary work for defrost air guide

Remove dashboard. 701819 Removing and installing dashboard - section on "Removing"

Preliminary work for left air guide

Remove air vent for left door window. 855919 Removing and installing air vent at door - section on "Removing"

Remove instrument panel trim. 701919 Removing and installing trim under instrument panel - section on "Removing"

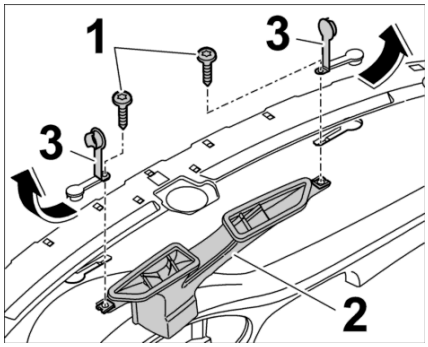
Preliminary work for right air guide

Remove glove compartment. 681519 Removing and installing glove compartment - section on "Removing"

top of page

Removing air guide

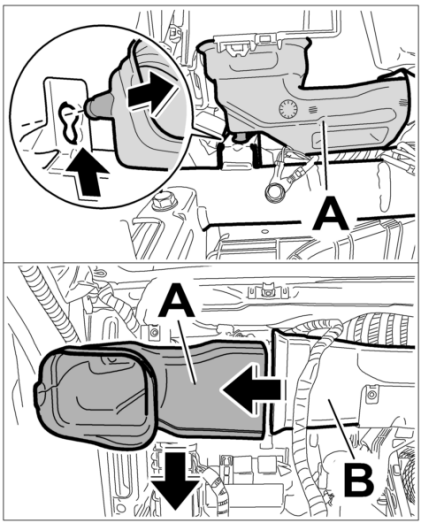
Removing defrost air guide



Defrost air guide

1. Pull defrost air guide **-2-** up out of the heater/air-conditioning unit.

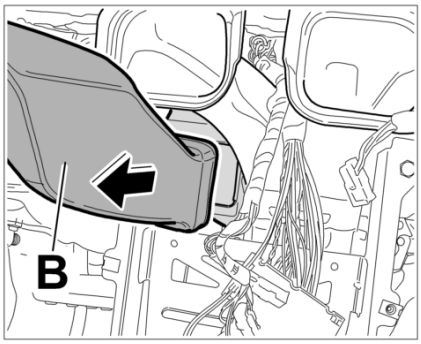
Removing left air guide



Disengaging air guide

1. Disengage air guide **-A-** for air vent at left door window by pulling it upward at the mounting bracket, then pull to the left out of the air guide slot **-B-** to remove it in a downward direction.

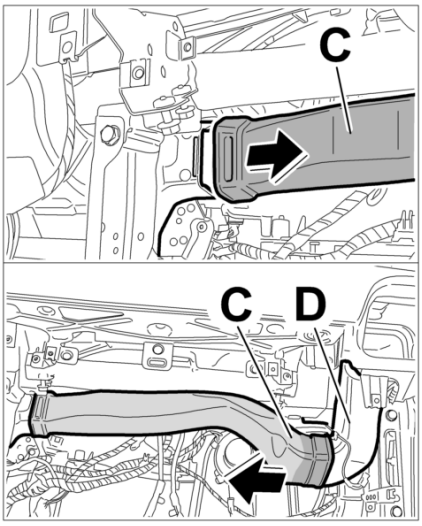
If the air guide **-B-** is to be removed, first remove the dashboard. 701819 Removing and installing dashboard - section on "Removing"



Removing air guide

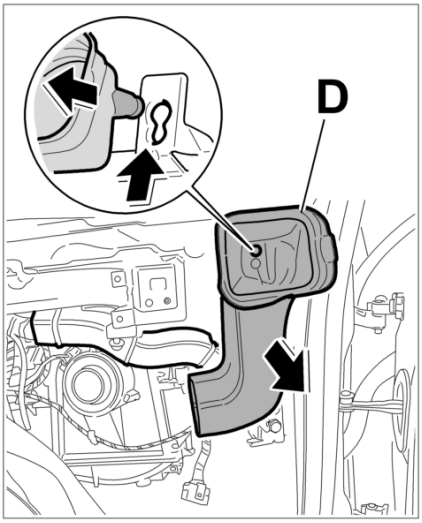
2. Pull the air guide **-B-** up out of the heater/air-conditioning unit.

Removing right air guide



Disengaging air guide

1. Disengage air guide **-C-** at the heater/air-conditioning unit and at the air guide **-D-** .
2. If the air guide **-D-** has to be removed, first remove the air vent at the right door window. 855919 Removing and installing air vent at door - section on "Removing"



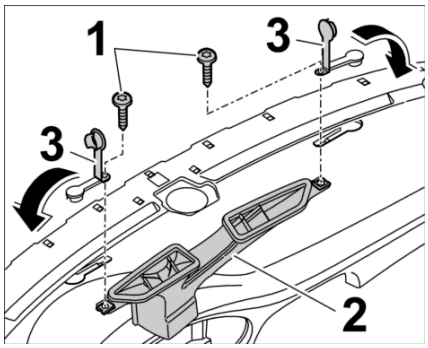
Disengaging air guide

3. Disengage air guide **-D-** by pulling it upward at the mounting bracket, and pull it out in a downward direction to remove it.

top of page

Installing air guide

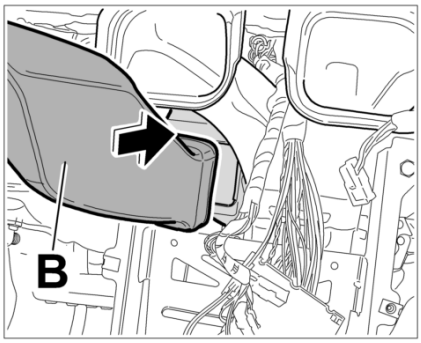
Installing defrost air guide



Securing intermediate piece for defroster cover

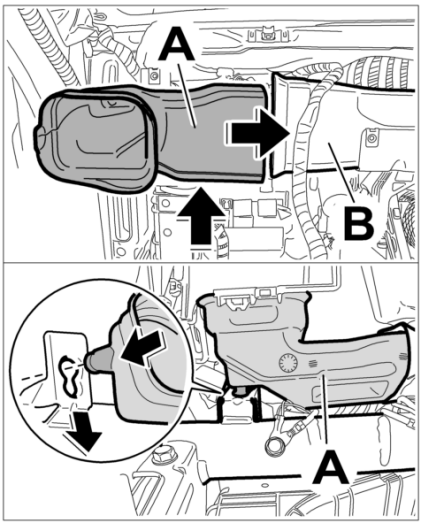
1. Push defrost air guide **-2-** onto the connection on the heater/air-conditioning unit. Ensure it is seated properly.

Installing left air guide



Inserting air guide

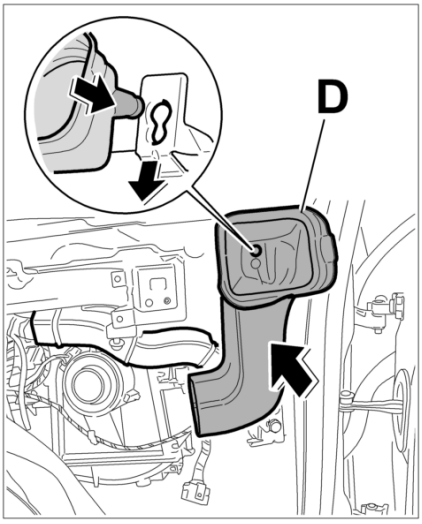
1. Insert the air guide **-B-** into the heating/air-conditioning unit and check that it is secure.
2. Install the dashboard if necessary. 701819 Removing and installing dashboard - section on "Installing"



Engaging air guide

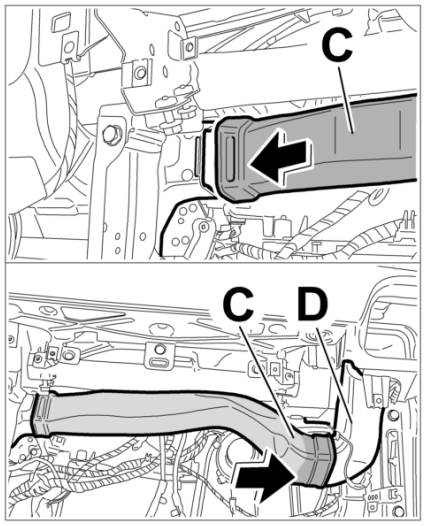
3. Slide the air guide **-A-** into the air guide slot **-B-** and engage air guide **-A-** at the mounting bracket.

Installing right air guide



Engaging air guide

1. Engage the air guide **-D-** at the mounting bracket.



Connecting air guide

2. Connect air guide **-C-** at the heater/air-conditioning unit and at the air guide **-D-** .
3. Install air vent at door window if necessary. 855919 Removing and installing air vent at door - section on "Installing"

top of page

Subsequent work

Subsequent work for defrost air guide

Install dashboard. 701619 Removing and installing instrument panel cover - section on "Installing"

Subsequent work for left air guide

Install air vent for left door window. 855919 Removing and installing air vent at door - section on "Installing"
Install trim under instrument panel. 701919 Removing and installing trim under instrument panel - section on "Installing"

Subsequent work for right air guide

Install glove compartment. 681519 Removing and installing glove compartment - section on "Installing"

997110, 997111, 997120, 997121, 997310, 997311, 997320, 997321, 997410, 997411, 997430, 997431, 997610, 997611, 997620, 997621

85 53 19 Removing and installing middle air vent - as of MY 2005

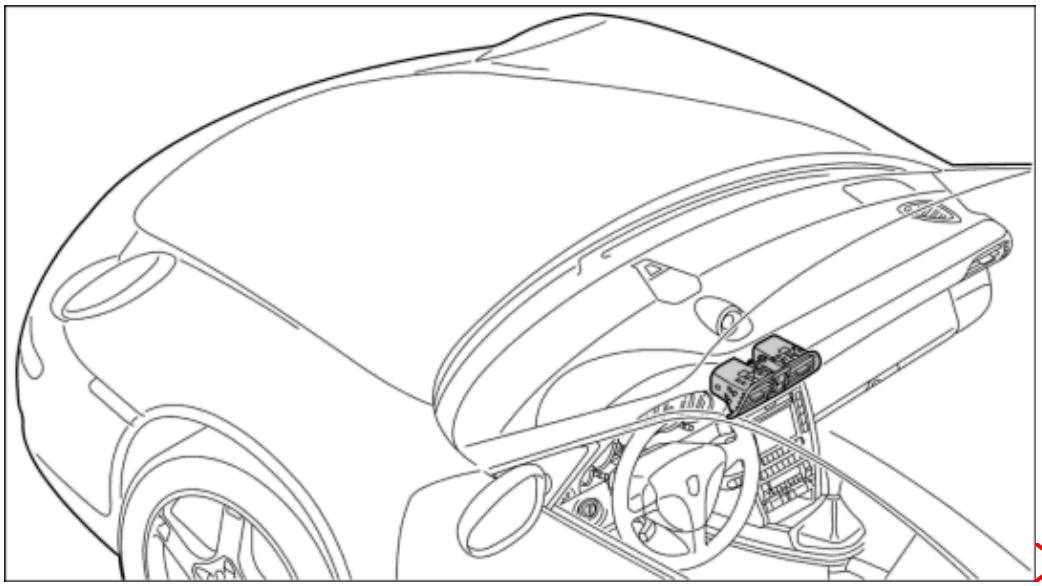
- Removing middle air vent
- Installing middle air vent

top of page

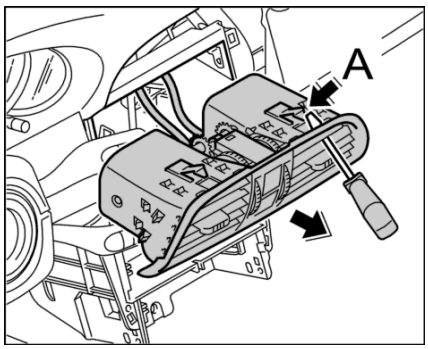
Removing middle air vent

Removing middle air vent

Installation Location:



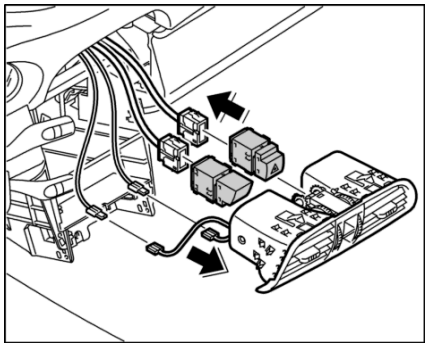
Installation position



Releasing the air vent

1. With a screwdriver through the top air slot, release the left and right retaining clip **-A-** and pull the air vent

out of the dashboard.



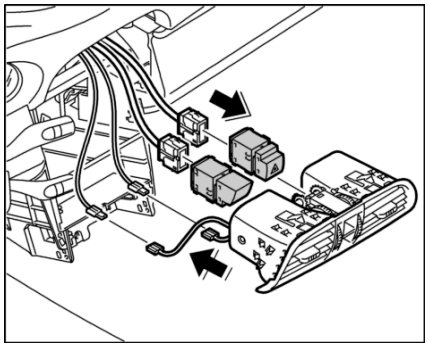
Electrical connectors

2. Pull apart the electrical plug connections and remove the air vent.

top of page

Installing middle air vent

Installing middle air vent



Electrical connectors

1. Push together the electrical plug connections.
2. Observe the line routing and insert the air vent into the dashboard until it clicks into place.
3. Check function of air vent illumination and air vent adjustment.

997110, 997111, 997120, 997121, 997310, 997311, 997320, 997321, 997410, 997411, 997430, 997431, 997610, 997611, 997620, 997621

as of MY 2005
Country C00, C02, C05, C07, C08, C09, C10, C11, C12, C13, C14, C15, C16, C18, C19, C20, C21, C22, C23, C24, C25, C26, C27, C28, C32, C33, C34, C35, C36, C37, C38, C39, C45, C46, C98, C99

85 59 19 Removing and installing air vent at door - as of MY 2005

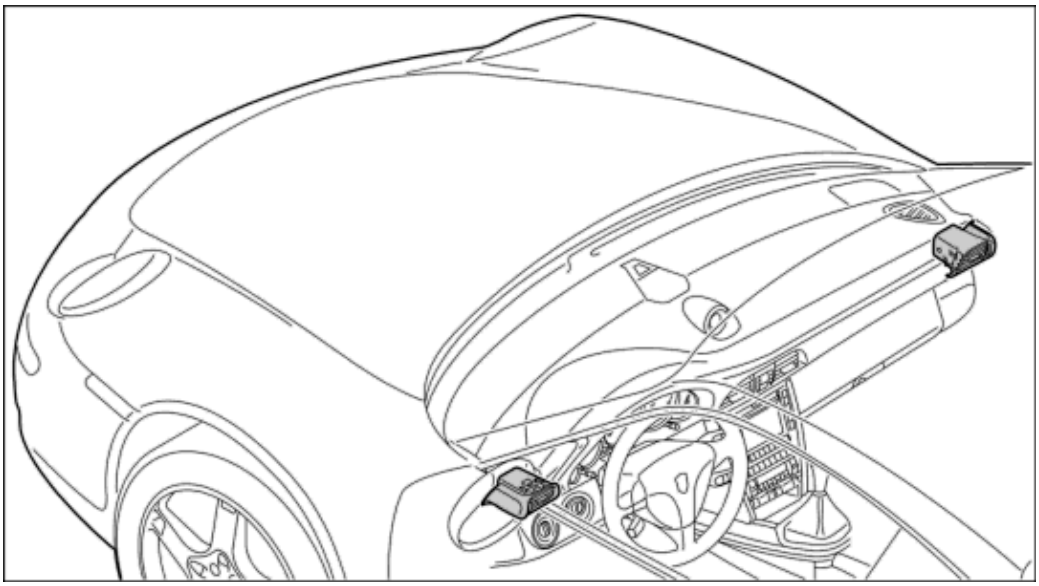
- Removing air vent at door
- Installing air vent at door

top of page

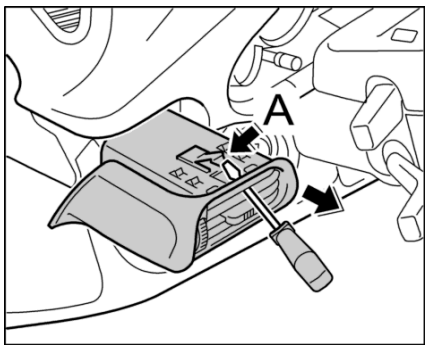
Removing air vent at door

Removing air vent at door

Installation Location:



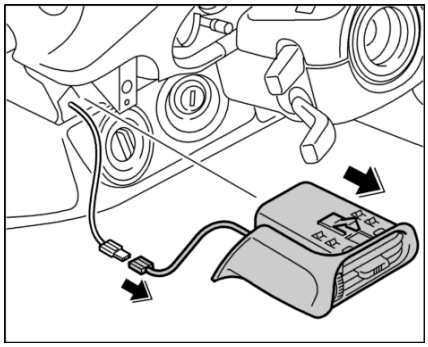
Installation position



Releasing the air vent

1. With a screwdriver through the top air slot, release the retaining clips **-A-** and pull the air vent out of the

dashboard.



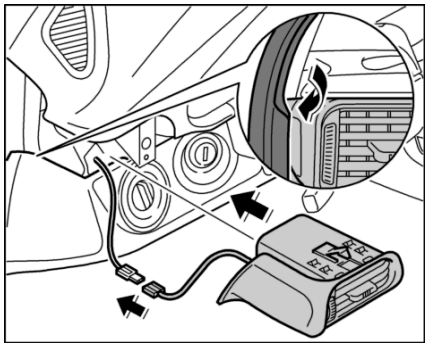
Electrical connector

2. Pull apart the electrical plug connection and remove the air vent.

top of page

Installing air vent at door

Installing air vent at door



Electrical connector

1. Push together the electrical plug connection.
2. Observe the line routing and insert the air vent into the dashboard until it clicks into place.
3. Raise the door seal and lay it over the air vent.
4. Check function of air vent illumination and air vent adjustment.

997110, 997111, 997120, 997121, 997310, 997311, 997320, 997321, 997410, 997411, 997430, 997431, 997610, 997611, 997620, 997621

as of MY 2005
Country C00, C02, C05, C07, C08, C09, C10, C11, C12, C13, C14, C15, C16, C18, C19, C20, C21, C22,

85 65 19 Removing and installing ventilation cover - as of MY 2005

- Preliminary work
- Removing ventilation cover
- Installing ventilation cover
- Subsequent work

top of page

Preliminary work

Preliminary work for ventilation cover

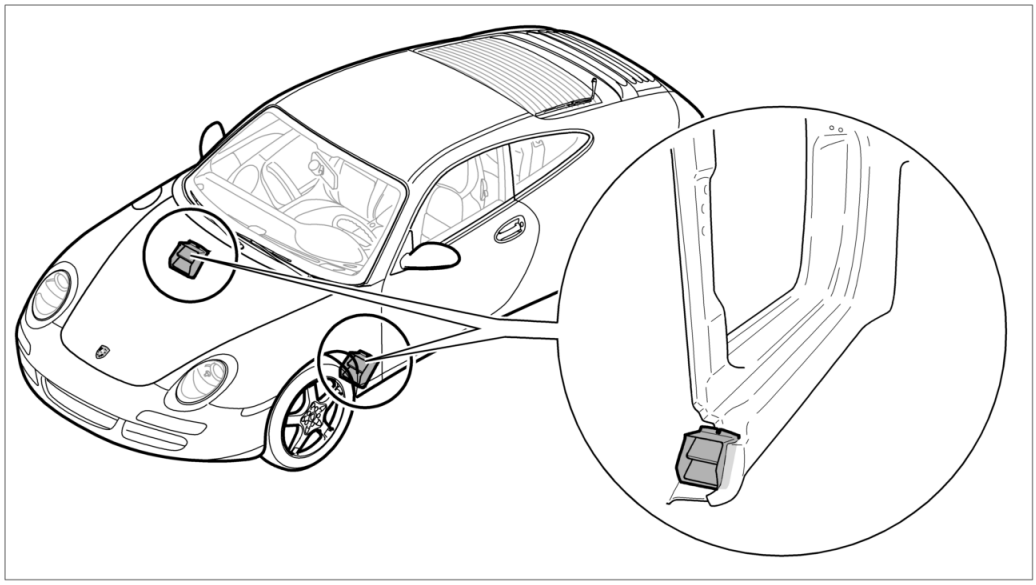
Remove the front wheel on the right or left. 440519 Removing and installing wheel - chapter on "Removing"
Remove the front wheel housing liner on the right or left. 505619 Removing and installing front wheel housing liner - chapter on "Removing" [997110 997111 997120 997121 997310 997311 997320 997321] 505619 Removing and installing front wheel housing liner - chapter on "Removing" [997621] 505619 Removing and installing front wheel housing liner - chapter on "Removing" [997410 997411 997430 997431 997610 997611 997620]

top of page

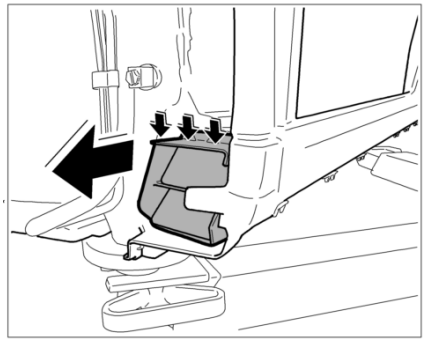
Removing ventilation cover

Removing ventilation cover

Installation Location:



Installation position



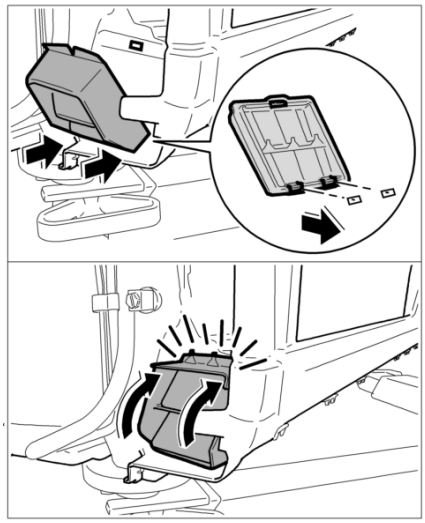
Pulling out the ventilation cover

1. Grasp the ventilation cover on the upper frame **-arrow-** and pull it out abruptly to the front.

top of page

Installing ventilation cover

Installing ventilation cover



Clipping in the ventilation cover

1. Insert the ventilation cover from below **-arrow-** and clip it in in an upward direction.

top of page

Subsequent work

Subsequent work for ventilation cover

Install the front wheel housing liner on the right or left. 505619 Removing and installing front wheel housing liner - chapter on "Installing" [997110 997111 997120 997121 997310 997311 997320 997321] 505619 Removing and installing front wheel housing liner - chapter on "Installing" [997621] 505619 Removing and installing front wheel housing liner - chapter on "Installing" [997410 997411 997430 997431 997610 997611 997620]
Install the front wheel on the right or left. 440519 Removing and installing wheel - chapter on "Installing"

997110, 997111, 997120, 997121, 997310, 997311, 997320, 997321, 997410, 997411, 997430, 997431, 997610, 997611, 997620, 997621

as of MY 2005
Country C00, C02, C05, C07, C08, C09, C10, C11, C12, C13, C14, C15, C16, C18, C19, C20, C21, C22, C23, C24, C25, C26, C27, C28, C32, C33, C34, C35, C36, C37, C38, C39, C45, C46, C98, C99

WARNUNG

Gefahr des Verlusts der Text-Bild-Zuordnung beim Ausdruck.

- **Aus technischen Gründen kann derzeit nicht ausgeschlossen werden, dass trotz einwandfreier Darstellung auf dem Bildschirm beim Ausdruck der**

85 78 19 Installing and removing fresh/recirc. air servo motor - as of MY 2005

- Preliminary work
- Removing fresh/recirc. air servo motor
- Installing fresh/recirc. air servo motor
- Subsequent work

top of page

Preliminary work

Preliminary work for fresh/recirc. air servo motor

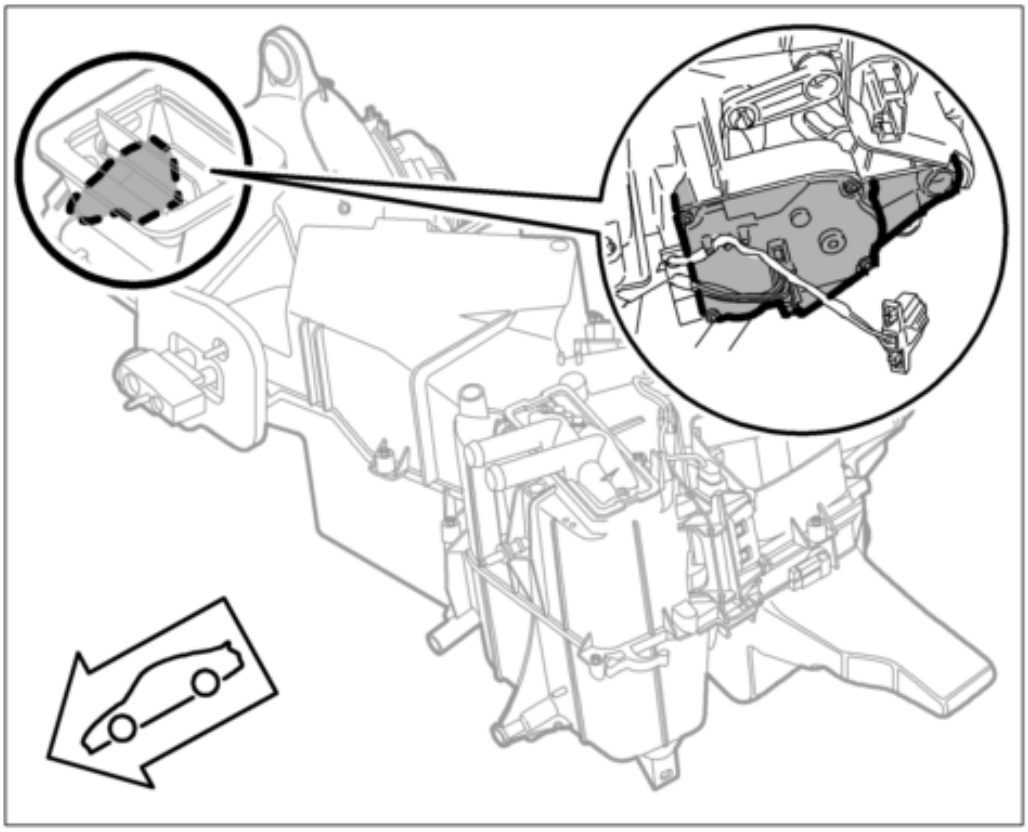
1. Remove heater/air-conditioning unit. 851519 Removing and installing heating/fresh-air unit - chapter on "Removing"

top of page

Removing fresh/recirc. air servo motor

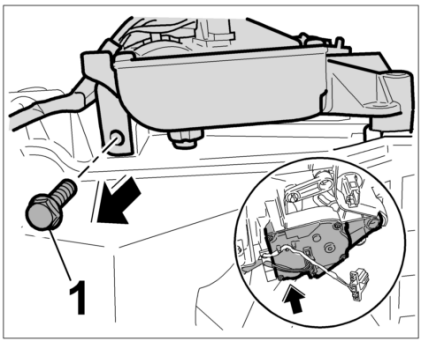
Removing fresh/recirc. air servo motor

Installation Location:



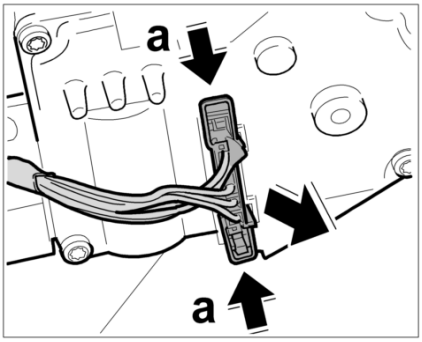
Installation position

1. Switch off ignition and remove ignition key.



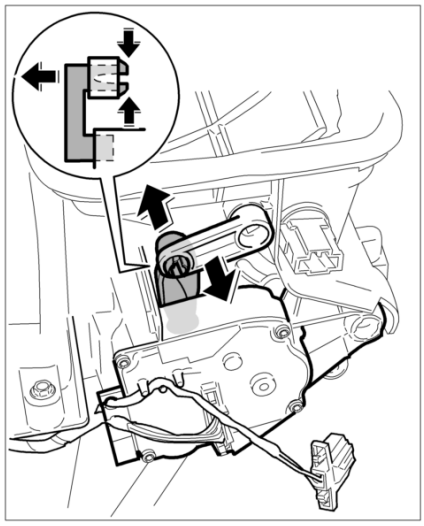
Unscrewing fastening screws

2. Unscrew fastening screw **-1-** from below **-arrow-** .



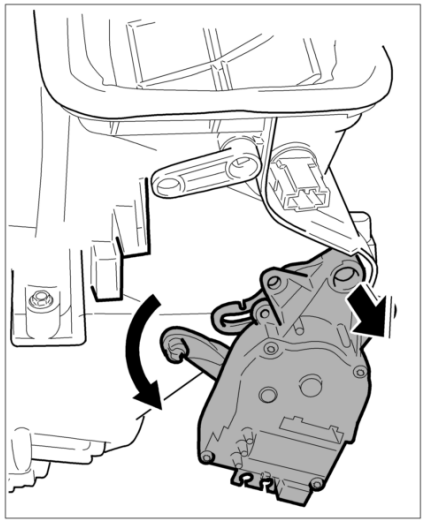
Unlocking the electric connector

3. Release and unplug electric connector **-a-** .



Disengaging actuating lever

4. Press the locking mechanism of the servo motor actuating lever and press it out from the deflector of the recirculation flap.



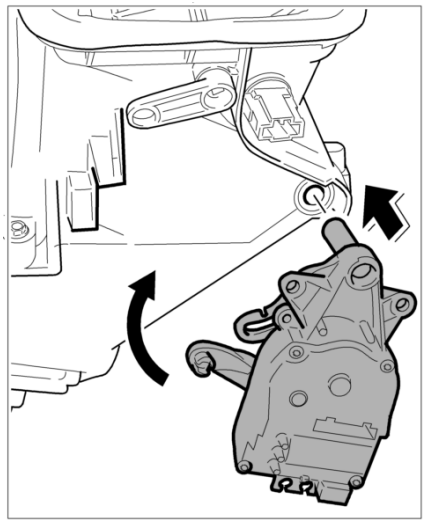
Removing servo motor

5. Swing down the servo motor and remove from the heater/air-conditioning unit.

top of page

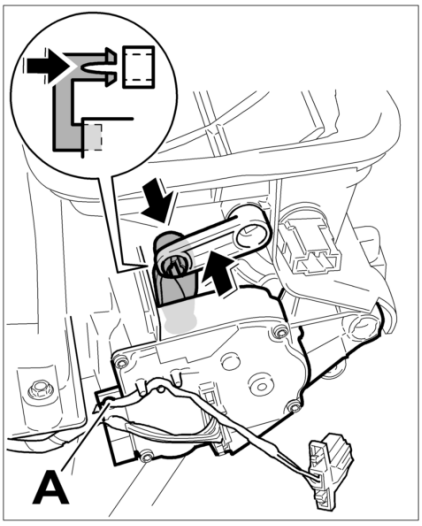
Installing fresh/recirc. air servo motor

Installing fresh/recirc. air servo motor



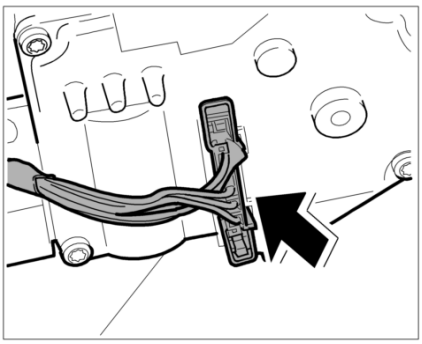
Inserting servo motor into heater/air-conditioning unit

1. Slide servo motor into heater/air-conditioning unit as far as it will go and then swing it upwards.



Engaging actuating lever

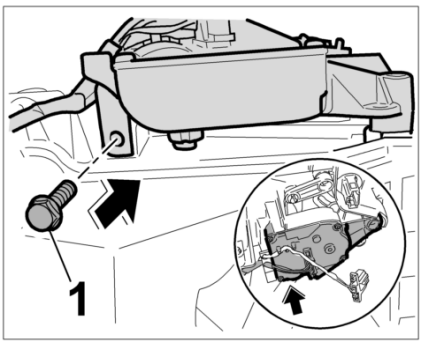
2. Clip the servo motor actuating lever onto the deflection lever of the heater/air-conditioning unit.



Connecting electric connector

3.

Lay electric line to the servo motor **-A-** and connect the electric connector to servo motor until it is felt to engage.



Securing servo motor

4. Secure servo motor with the fastening screw **-1-** . **Tightening torque: 1.2 (1.0 ftlb.) Nm +/-0.5 (0.5 ftlb.) Nm**
5. Switch on ignition and check function of servo motor by adjusting the air conditioning control.

top of page

Subsequent work

Subsequent work for fresh/recirc. air servo motor

1. Install heating/air-conditioning unit. 851519 Removing and installing heating/fresh-air unit - chapter on "Installing"

997110, 997111, 997120, 997121, 997310, 997311, 997320, 997321, 997410, 997411, 997430, 997431, 997610, 997611, 997620, 997621

as of MY 2005
Country C00, C02, C05, C07, C08, C09, C10, C11, C12, C13, C14, C15, C16, C18, C19, C20, C21, C22, C23, C24, C25, C26, C27, C28, C32, C33, C34, C35, C36, C37, C38, C39, C45, C46, C98, C99

WARNUNG

Gefahr des Verlusts der Text-Bild-Zuordnung beim Ausdruck.

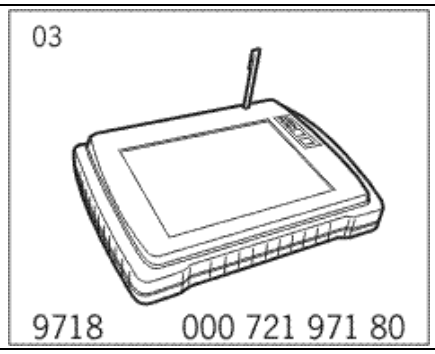
- **Aus technischen Gründen kann derzeit nicht ausgeschlossen werden, dass trotz einwandfreier Darstellung auf dem Bildschirm beim Ausdruck der Zusammenhang von Text und zugehörigem Bild verloren geht.**
- **Wird der Fehler nicht bemerkt, besteht die Gefahr, daß Arbeiten nicht korrekt durchgeführt werden und es dadurch zu Personen- und Sachschäden kommt.**

Vergleichen Sie deshalb nach dem Druckvorgang unbedingt die Ausdrucke mit der

87 02 19 Removing and installing air-conditioning system regulator - as of MY 2005

- Preliminary work
- Removing air-conditioning system regulator
- Installing air-conditioning system regulator
- Subsequent work
- Coding air-conditioning regulator

Tools

Designation	Type	Number	Explanation	
PIWIS Tester	special tool	9718		

top of page

Preliminary work

Preliminary work for removing and installing air-conditioning system regulator

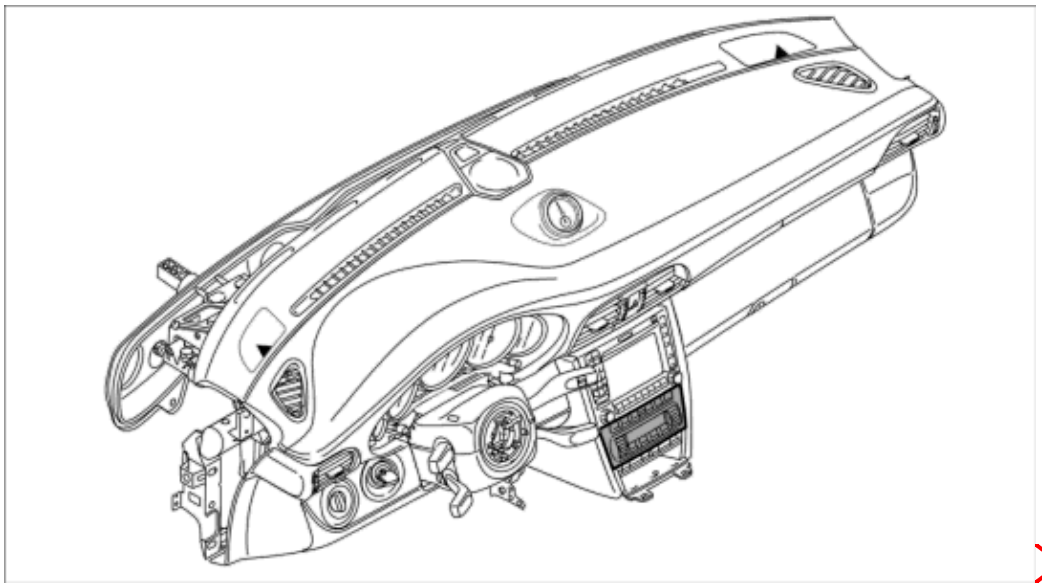
1. Remove left and right cover for the centre console. *21 Removing and installing centre console panel - removing*
2. Move gear-shift lever to rear position.

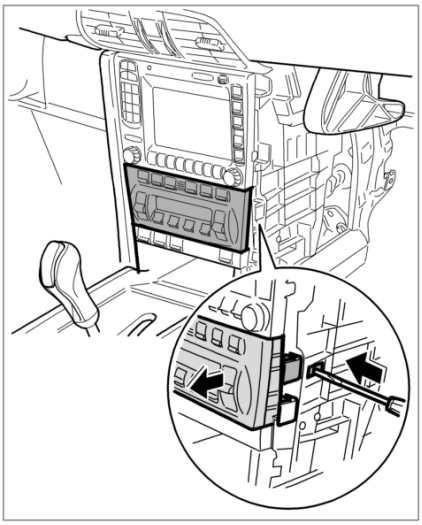
top of page

Removing air-conditioning system regulator

Removing air-conditioning system regulator

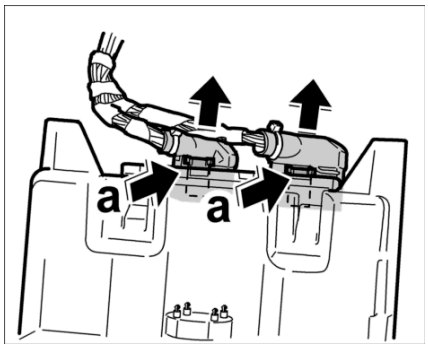
Installation Location:





Releasing air-conditioning control

1. Using a screwdriver, press the side holder to the left and right and pull out the air conditioning control from the installation slot.



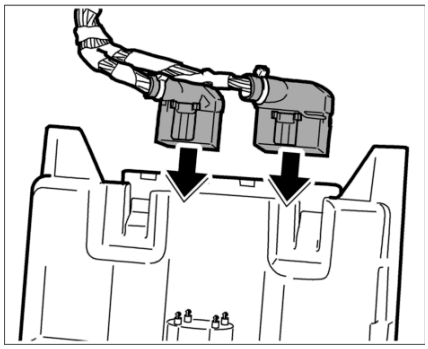
Releasing electric connectors

2. Release the electrical **-a-** and pull off.

top of page

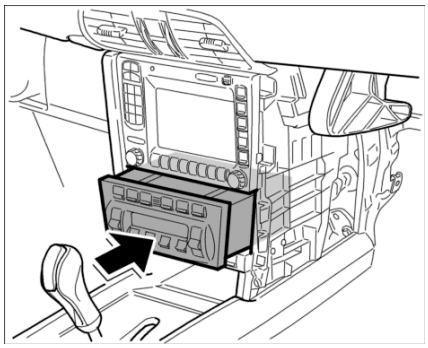
Installing air-conditioning system regulator

Installing air-conditioning system regulator



Plugging in electric connector

1. Insert electrical plugs in the air-conditioning system regulator until they are felt to engage.



Sliding in air-conditioning system regulator

2. Slide the air-conditioning system regulator into the installation slot until it clicks into place.

top of page

Subsequent work

Subsequent work for the air-conditioning system regulator

1. Install left and right side cover for centre console. *23 Removing and installing centre console cover - installing*

top of page

Coding air-conditioning regulator

Coding the air-conditioning control

Note

If the control unit for the air-conditioning control is replaced, it must be programmed using the **PIWIS Tester 9718**. This is to adapt the control unit to the vehicle and equipment.
During coding, it is essential to guarantee the power supply for the **PIWIS Tester 9718**. It is essential to connect a battery charger with a current rating of at least 40 A to the vehicle battery.
The **PIWIS Tester 9718** instructions take precedence and in the event of a discrepancy these are the instructions that must be followed. Deviations may occur with later software versions.
The procedure described here has been structured in general terms; different text or additions may appear in the Porsche System Tester.

1. Connect the **PIWIS Tester 9718** to the vehicle and start the System Tester. Switch on ignition. >> continue.
2. Select vehicle type using the cursor keys. >> continue.
3. Select **air conditioner** with the cursor keys and press the >> key.
4. Select **Control unit replacement** with the cursor keys and press the >> key.
5. Select **Read out values** (codings) with the cursor keys and press the >> key.
6. The message **Codes successfully read out** appears on the screen of the Porsche System Tester. Press >> .
7. Switch off ignition, replace air conditioning control.
8. Switch to the **Special functions** menu and perform the **vehicle handover** using the F8 key.
9. In the **Special functions** menu, erase **All fault memories** by pressing >> .
10. Carry out automatic search of control units.
11. In the menu **Write in data** >> , the data read-out is installed.
12. System Tester displays **Codes successfully written in**. Press >> .
13. Select **System test** with the cursor keys and press the >> key.
14. The Tester starts the **system test**, follow the instructions on the Tester.
15. Quit menu, carry out a test drive, and check operation of the air conditioning control. Read out fault memory.

997110, 997111, 997120, 997121, 997310, 997311, 997320, 997321, 997410, 997411, 997430, 997431, 997610, 997611, 997620, 997621

as of MY 2005
Country C00, C02, C05, C07, C08, C09, C10, C11, C12, C13, C14, C15, C16, C18, C19, C20, C21, C22,

87 03 17 Draining and filling in refrigerant - as of MY 2005

- General warning notes
- Technical values
- Draining and filling in refrigerant

Tools

Designation	Type	Number	Explanation	
Air-conditioning recycling unit	commercially available tool			

top of page

General warning notes

Warning notes for handling refrigerant

ATTENTION

Danger of injury when working on air-conditioned vehicles!

Observe safety regulations for working on air-conditioned vehicles and dealing with refrigerant R134a. *80 Safety regulations for working on air-conditioned vehicles and dealing with refrigerant R134a*

Observe safety regulations for working with extraction and filling systems. *80 Safety regulations for extraction and filling systems*

Observe instructions for repairing air-conditioning systems and storing spare parts. *80 Instructions for repairing air-conditioning systems and storing spare parts*

top of page

Technical values

Servicing equipment

Air-conditioning recycling unit , " Gr. 2.5; Handbuch Werkstatteinrichtung"

top of page

Draining and filling in refrigerant

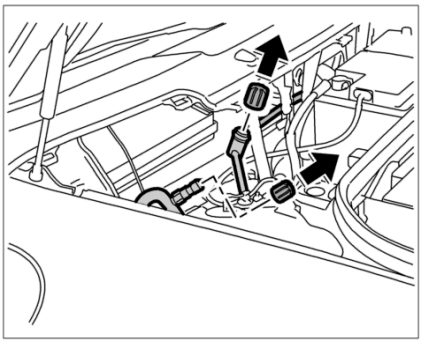
Assembly work involving the refrigerant system

Note

During all work on the air-conditioning system which necessitates opening the refrigerant system, the system contents must first be disposed of correctly!
Dirt and moisture must be kept out of the air-conditioning system's pipe system!
Thorough cleanliness must be ensured during all work!
System components must never be cleaned on the inside with hot steam!
Use only nitrogen for cleaning purposes!
When replacing a component, all openings must be closed off with suitable plugs!

General assembly sequence

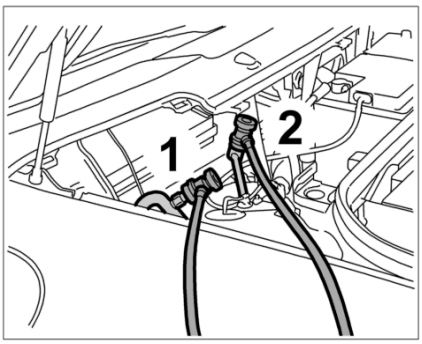
The charging valves are located in the radiator tank at the front right.



Protective caps on charging valves

1. Screw off the protective caps on the charging valves.

Pay attention to sealing rings when disconnecting or connecting the hose connections!



Service connection

Before connecting the high-pressure **-2-** and low-pressure lines **-1-** to the vehicle, remove any refrigerant remaining in the lines by suction.

2. Connecting the high-pressure and low-pressure lines of the air-conditioning unit

Note

In the case of service units with transparent oil separator, read and take note of the oil level before removing the refrigerant.
Do not carry out this step with empty air-conditioning systems (pressure gauge approx. 0 bar), otherwise air will get into the refrigerant bottle.
In the case of cold vehicles, it may be necessary to repeat the suction procedure until all refrigerant has been removed from the air-conditioning system. This step is carried out automatically with some units.

2.1.

2.2. Let the engine run for a short while with the air-conditioning on, then connect the high-pressure and low-pressure lines of the air-conditioning unit.

2.3. Open the valves of the high-pressure and low-pressure lines.

3. Remove refrigerant by suction.

3.1. In the case of cold vehicles, it may be necessary to repeat the suction procedure until all refrigerant has been removed from the air-conditioning system. This step is carried out automatically with some units.

3.2. Wait for approx. 2 minutes after the service unit has switched itself off. If the pressure gauge reading rises above 0 bar, repeat the suction process.

3.3. The vehicle air-conditioning system is now completely empty. Necessary repairs, such as removing and fitting the dryer, can now be carried out.

3.4. The open air-conditioning system should not be left open unnecessarily, but must be closed again as quickly as possible after being opened.

3.5. Drain the extracted refrigerant oil into a measuring cup on the service unit and determine the volume.

4. Carrying out repairs

4.1. If the air-conditioning system has been open for a long time, a new dryer must be fitted. 875519 Removing and installing dryer

4.2. If necessary, reconnect high-pressure and low-pressure lines.

5. Evacuate the system and check it for leaks.

5.1. If the air-conditioning system has been opened, evacuation should last at least 20 minutes so that the moisture can evaporate and be removed by suction.

5.2. If the air-conditioning system has been open for a long time, evacuation can be carried out for up to 120 minutes.

5.3. Observe the pressure gauge for approx. 2 minutes. If the pressure rises, air is entering the vehicle air-conditioning system. The leak must be located and repaired. If the pressure remains constant, add refrigerant oil.

6. Adding refrigerant oil

6.1. For units without oil filling system:

6.2. Start the vacuum pump. At the start of this vacuum phase, add the measured quantity of refrigerant oil using an oil injector or a hose disconnected from the service unit. Reconnect the hose to the service unit immediately after adding the oil.

6.3.

For units with oil filling system: Add the measured quantity of refrigerant oil and wait for it to be taken in.

6.4. Do not allow any air to be taken in, otherwise point 5 must be repeated.

7. Evacuate.

7.1. If the air-conditioning system has been opened, evacuation should last at least 20 minutes so that the moisture can evaporate and be removed by suction.

7.2. If the air-conditioning system has been open for a long time, evacuation can be carried out for up to 120 minutes.

7.3. In the case of units with fitted oil filling system, add refrigerant oil now.

8. Filling the air-conditioning system

8.1. Using the service unit, add the refrigerant quantity stated in the manual into the air-conditioning lines. *Technical data for air-conditioning system*

8.2. As refrigerant usually flows instead of being pumped, it may not be possible - especially if the vehicle is warm and the service unit cold - to add the entire quantity. If this is the case, switch the engine and the air-conditioning on. Wait for the suction pressure to fall below 2 bar. Now open the low-pressure valve on the unit slowly and carefully until the remaining quantity has been added.

ATTENTION

Low-pressure reading too high in refrigerant circuit.

- **Destruction of air-conditioning compressor.**

Do not allow the low-pressure gauge to exceed 3 bar, otherwise liquid refrigerant can get onto the suction side of the compressor and destroy it.

8.3.

9. Add the refrigerant from both connection hoses to the air-conditioning system in the vehicle.

9.1. The refrigerant in the high-pressure and low-pressure lines belongs to the filling capacity of the refrigerant in the air-conditioning system in the vehicle.

9.2. Close the valve on the high-pressure line and disconnect it from the vehicle.

9.3. Start the engine and air-conditioning system. When the pressure on both pressure gauges sinks below 2 bar, close the valve on the low-pressure line and disconnect it from the vehicle.

997110, 997111, 997120, 997121, 997310, 997311, 997320, 997321, 997410, 997411, 997430, 997431, 997610, 997611, 997620, 997621

as of MY 2005
Country C00, C02, C05, C07, C08, C09, C10, C11, C12, C13, C14, C15, C16, C18, C19, C20, C21, C22, C23, C24, C25, C26, C27, C28, C32, C33, C34, C35, C36, C37, C38, C39, C45, C46, C98, C99

WARNUNG

Gefahr des Verlusts der Text-Bild-Zuordnung beim Ausdruck.

87 14 19 Removing and installing sun sensor. - as of MY 2005

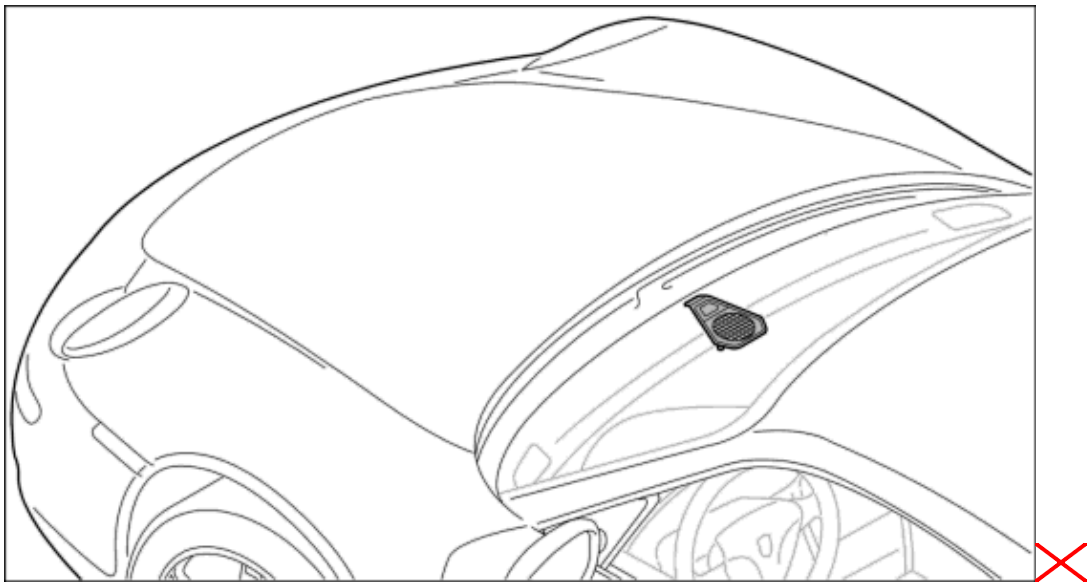
- Removing sun sensor
- Installing sun sensor

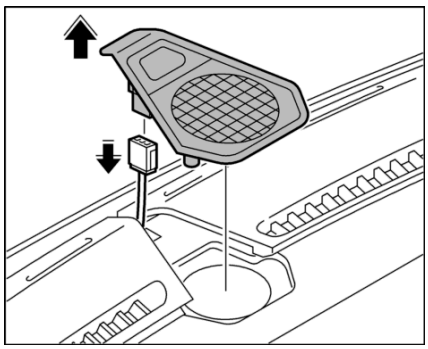
top of page

Removing sun sensor

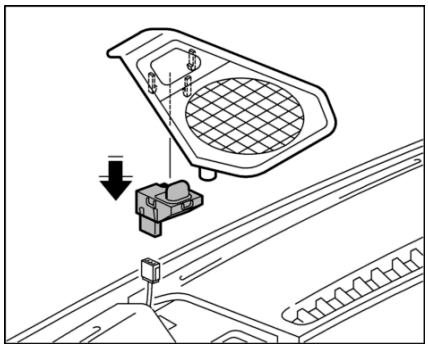
Remove sun sensor

Installation Location:





1. Lift cover on dashboard using plastic spatula and unclip.
2. Unplug electrical plug connection.



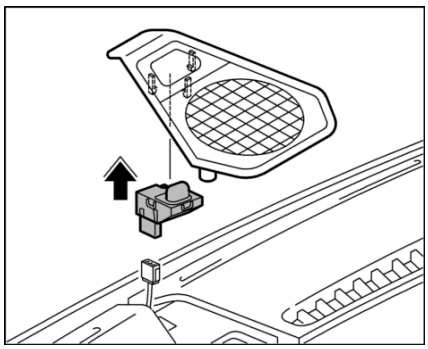
3. Carefully pull the three tabs out of the cover and remove the sun sensor.

top of page

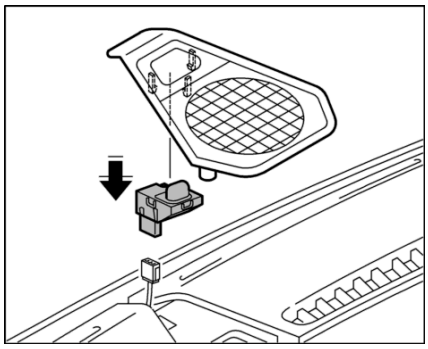
Installing sun sensor

Installing sun sensor

1. Press sensor into the holder until the sensor lugs engage.



2. Plug in the electrical plug connection.



3. Position cover and clip into dashboard.

87 20 19 Removing and installing footwell/defrost (yellow) servo motor - as of MY 2005

- Preliminary work
- Removing footwell/defrost servo motor
- Installing footwell/defrost servo motor
- Subsequent work

top of page

Preliminary work

Preliminary work for footwell/defrost servo motor

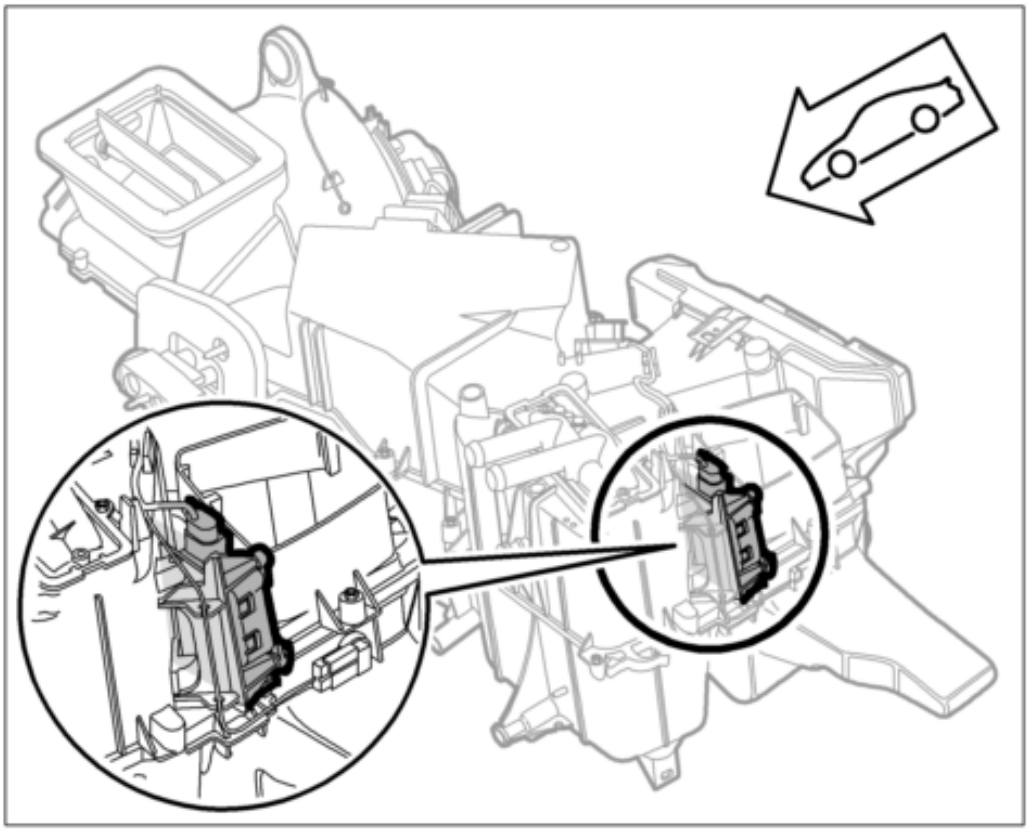
1. Remove dashboard trim panel. 701919 Removing and reinstalling trim panel under dashboard - chapter on "Removing"
2. Remove left console cover. 681419 Removing and installing cover for centre console - chapter on "Removing"

top of page

Removing footwell/defrost servo motor

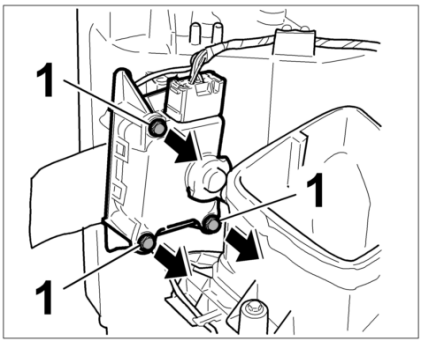
Removing footwell/defrost servo motor

Installation Location:



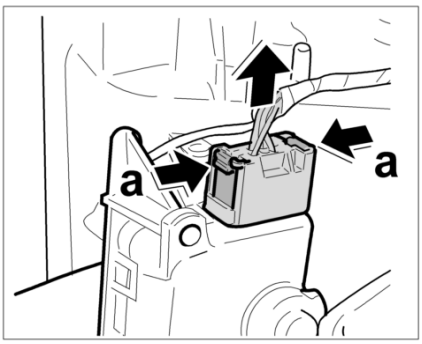
Installation position

1. Switch off ignition and remove ignition key.



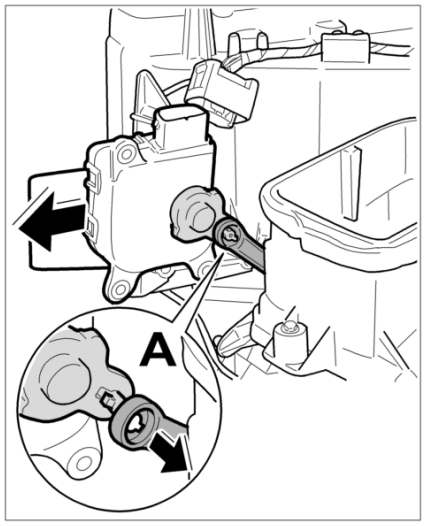
Unscrewing fastening screws

2. Unscrew the three fastening screws.



Releasing electric connector

3. Release and unplug electric connector **-a-** .



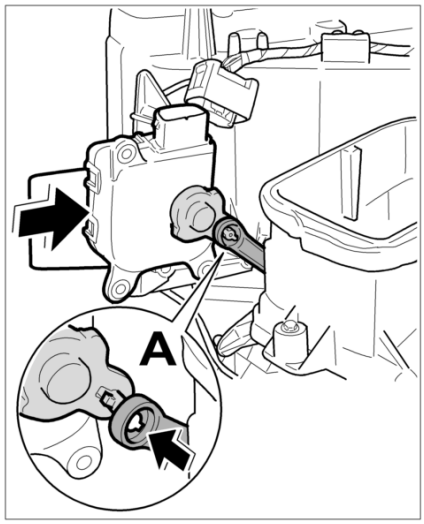
Disengaging actuating lever

4. Pull the servo motor out further until the actuating lever **-A-** can be disengaged.
5. Remove servo motor.

top of page

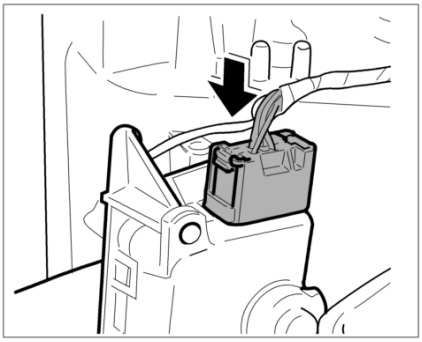
Installing footwell/defrost servo motor

Installing footwell/defrost servo motor



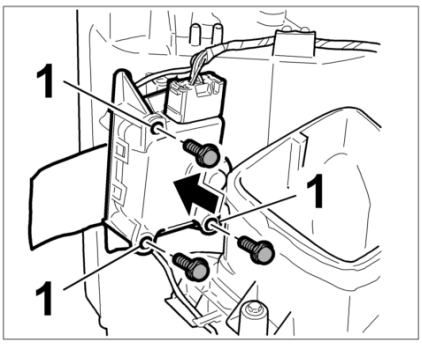
Engaging actuating lever on servo motor

1. Position servo motor and engage actuating lever on the servo motor.



Connecting electric connector

2. Connect electric connector to servo motor until the connector is felt to engage.



Securing servo motor

3. Position servo motor on heater/air-conditioning unit and tighten with fastening screws **-1-** .
Tightening torque: 1.2 (1.0 ftlb.) Nm +/-0.5 (0.5 ftlb.) Nm
4. Switch on ignition and check function of servo motor by adjusting the air conditioning control.

top of page

Subsequent work

Subsequent work for footwell/defrost servo motor

1. Install left console cover. 681419 Removing and installing cover for centre console - chapter on "Installing"
2. Install dashboard cover. 701919 Removing and installing trim panel under dashboard - chapter on "Installing"

997110, 997111, 997120, 997121, 997310, 997311, 997320, 997321, 997410, 997411, 997430, 997431, 997610, 997611, 997620, 997621

87 20 19 Removing and installing servo motor for temperature mixing flap (pink) - as of MY 2005

- Preliminary work
- Removing servo motor for temperature mixing flap
- Installing servo motor for temperature mixing flap
- Subsequent work

top of page

Preliminary work

Preliminary work - servo motor for temperature mixing valve

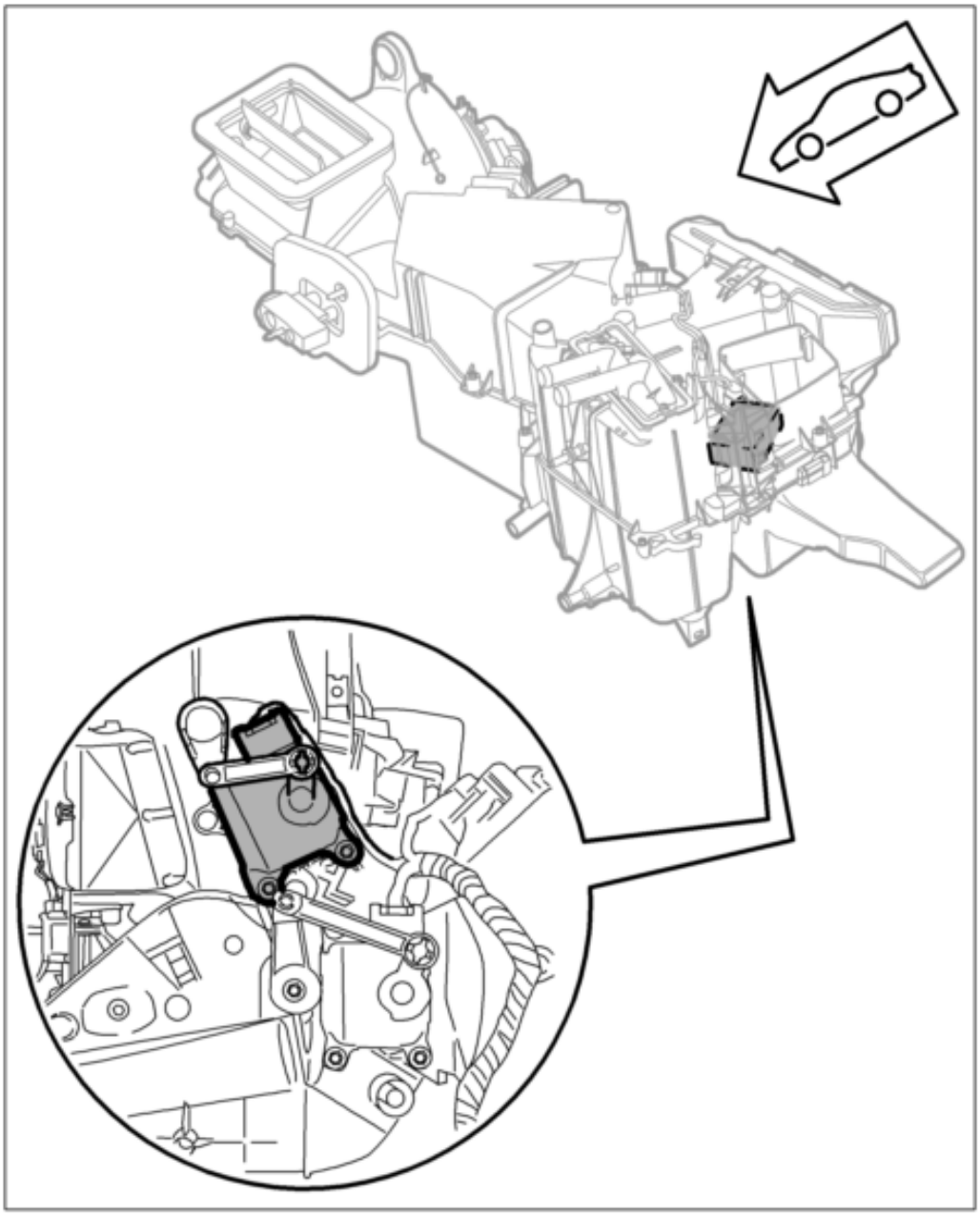
1. Remove left and right covers of console. 681419 Removing and installing centre console cover - chapter on "Removing"
2. Remove front footwell outlet vent. 805519 Removing and installing front footwell outlet vent - chapter on "Removing"

top of page

Removing servo motor for temperature mixing flap

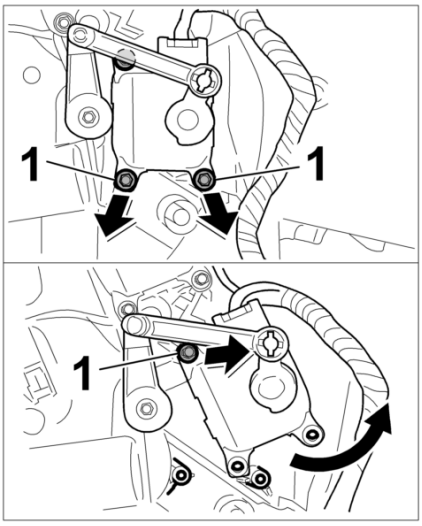
Removing servo motor for temperature mixing flap

Installation Location:



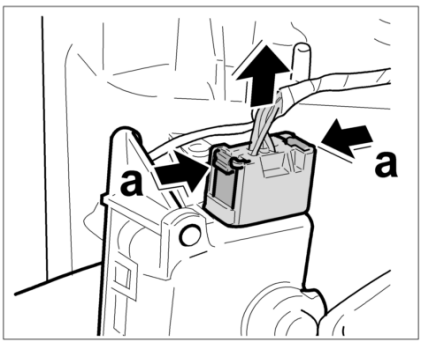
Installation position

1. Switch off ignition and remove ignition key.



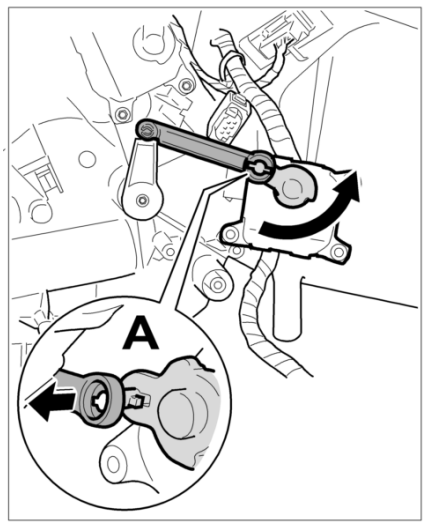
Unscrewing fastening screws

2. First unscrew the two accessible fastening screws **-1-** , then shift the servo motor and unscrew the third fastening screw **-1-** .



Releasing the electric connector

3. Release and unplug electric connector **-a-** .



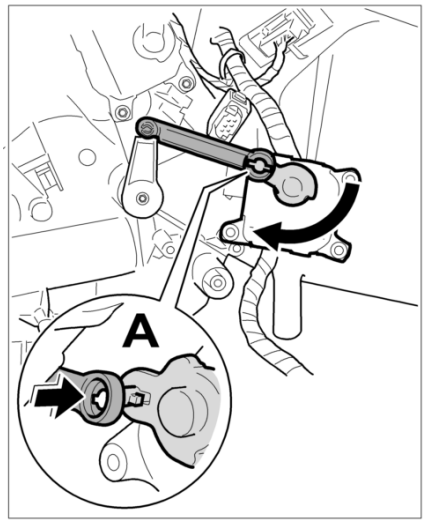
Disengaging actuating lever

4. Turn the servo motor out until the actuating lever **-A-** can be disengaged.
5. Remove servo motor.

top of page

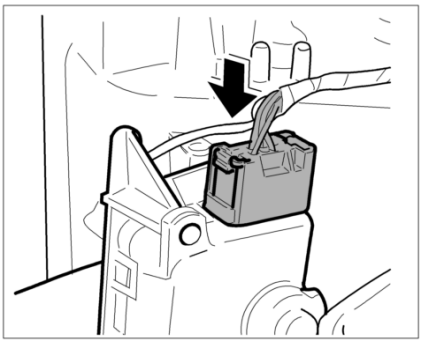
Installing servo motor for temperature mixing flap

Installing servo motor for temperature mixing flap



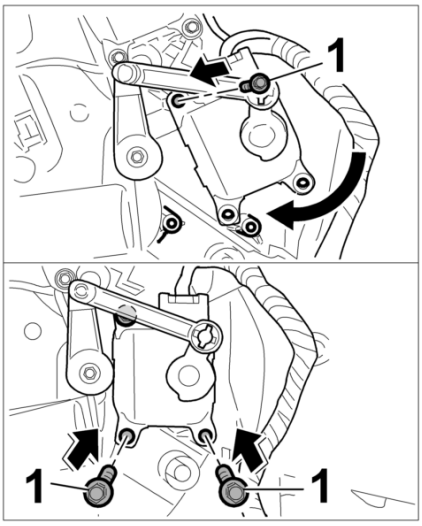
Engaging actuating lever on servo motor

1. Position servo motor and engage actuating lever **-A-** on the servo motor.



Connecting electric plugs

2. Connect electric connector to servo motor until the connector is felt to engage.



Securing servo motor

3. Position servo motor on heater/air-conditioning unit and tighten with the three fastening screws **-1-** . **Tightening torque: 1.2 (1.0 ftlb.) Nm +/-0.5 (0.5 ftlb.) Nm**

3.1. First screw in one fastening screw.

3.2. Turn the servo motor and screw in the remaining two fastening screws.

4. Switch on ignition and check function of servo motor by adjusting the air conditioning control.

top of page

Subsequent work

Subsequent work - servo motor for temperature mixing valve

1. Install front footwell outlet vent. 805519 Removing and installing front footwell outlet vent - chapter on "Installing"
2. Install left and right covers of console. 681419 Removing and installing centre console cover - chapter on "Installing"

997110, 997111, 997120, 997121, 997310, 997311, 997320, 997321, 997410, 997411, 997430, 997431, 997610, 997611, 997620, 997621

as of MY 2005
Country C00, C02, C05, C07, C08, C09, C10, C11, C12, C13, C14, C15, C16, C18, C19, C20, C21, C22, C23, C24, C25, C26, C27, C28, C32, C33, C34, C35, C36, C37, C38, C39, C45, C46, C98, C99

WARNUNG

Gefahr des Verlusts der Text-Bild-Zuordnung beim Ausdruck.

87 20 19 Removing and installing servo motor for central distributor flap (green) - as of MY 2005

- Preliminary work
- Removing servo motor for central distributor flap
- Installing servo motor for central distributor flap
- Subsequent work

top of page

Preliminary work

Preliminary work - servo motor for central distributor flap

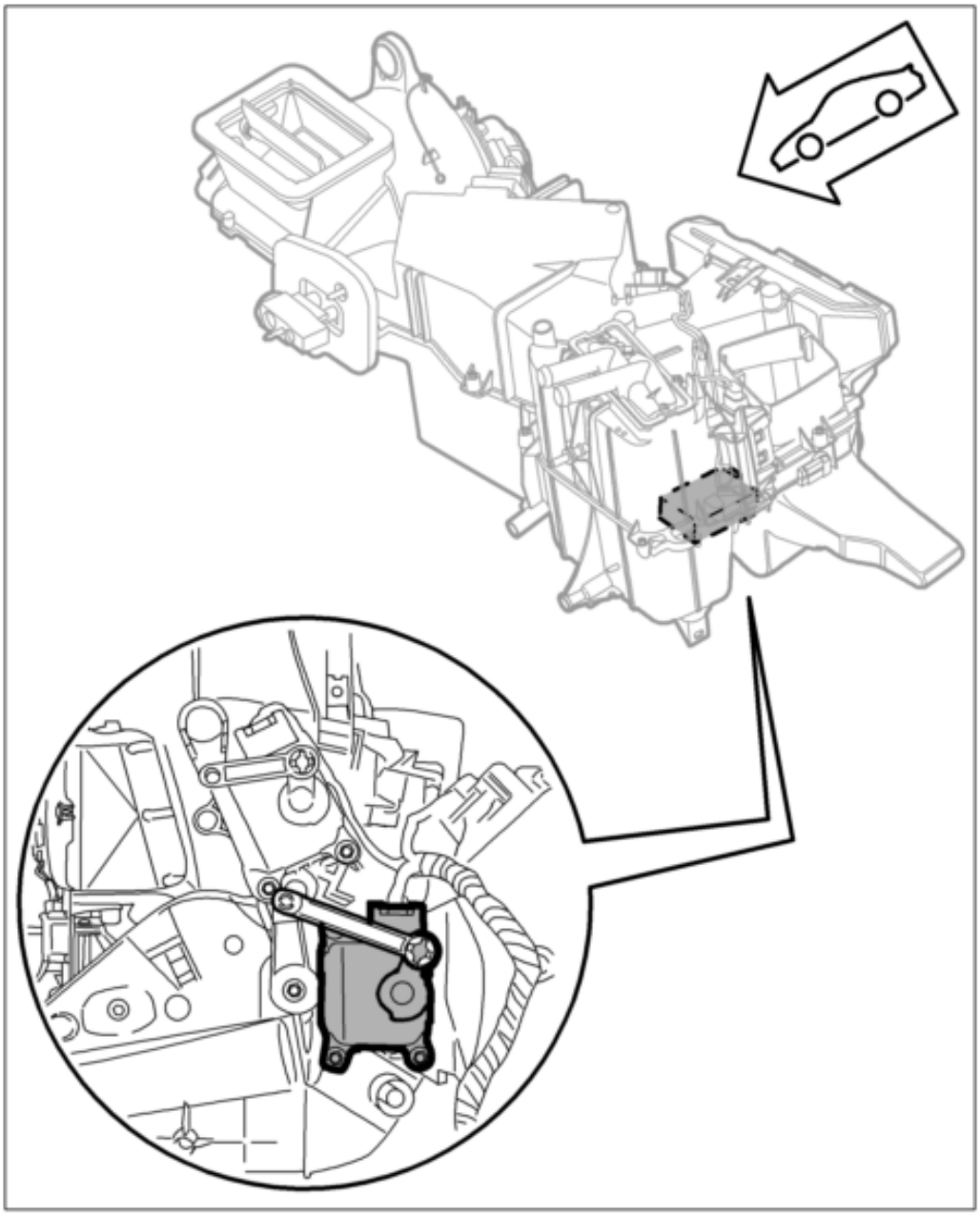
1. Remove left and right covers of console. 681419 Removing and installing centre console cover - chapter on "Removing"
2. Remove front footwell outlet vent. 805519 Removing and installing front footwell outlet vent - chapter on "Removing"

top of page

Removing servo motor for central distributor flap

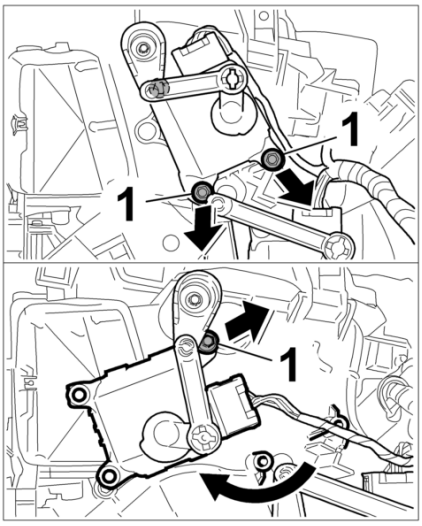
Removing servo motor for central distributor flap

Installation Location:



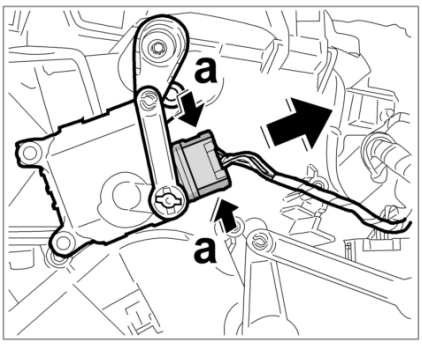
Installation position

1. Switch off ignition and remove ignition key.



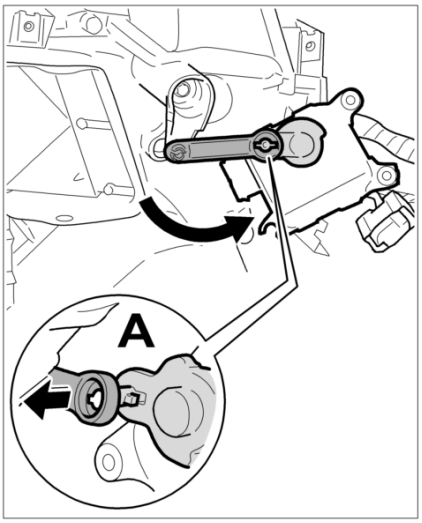
Unscrewing fastening screws

2. First unscrew the two accessible fastening screws **-1-** , then shift the servo motor and unscrew the third fastening screw **-1-** .



Releasing the electric connector

3. Release and unplug electric connector **-a-** .



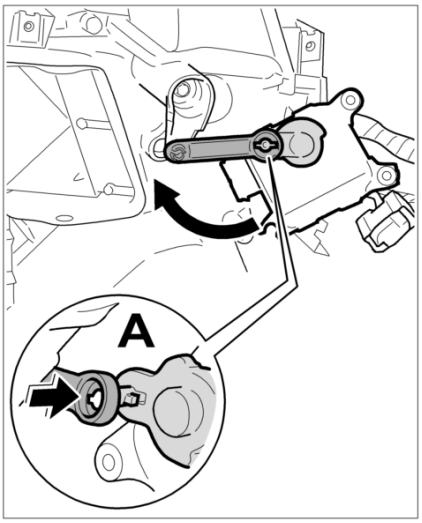
Disengaging actuating lever

4. Turn the servo motor out until the actuating lever **-A-** can be disengaged.
5. Remove servo motor.

top of page

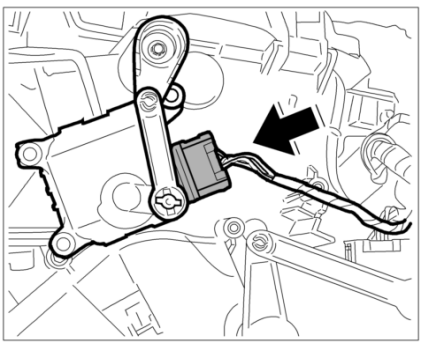
Installing servo motor for central distributor flap

Installing servo motor for central distributor flap



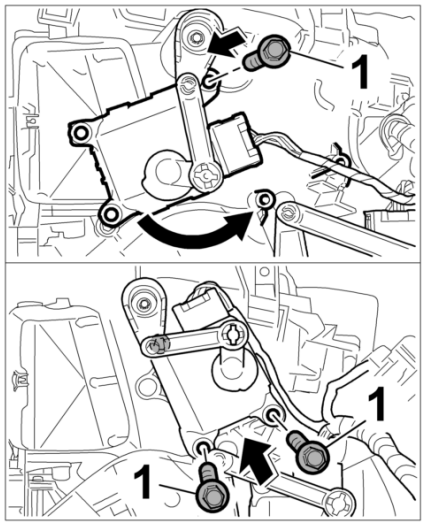
Engaging actuating lever on servo motor

1. Position servo motor and engage actuating lever **-A-** on the servo motor.



Connecting electric plugs

2. Connect electric connector to servo motor until the connector is felt to engage.



Securing servo motor

3. Position servo motor on heater/air-conditioning unit and tighten with the three fastening screws **-1-** . **Tightening torque: 1.2 (1.0 ftlb.) Nm +/-0.5 (0.5 ftlb.) Nm**

3.1. First screw in one fastening screw.

3.2. Turn the servo motor and screw in the remaining two fastening screws.

4. Switch on ignition and check function of servo motor by adjusting the air conditioning control.

top of page

Subsequent work

Subsequent work - servo motor for central distributor flap

1. Install front footwell outlet vent. 805519 Removing and installing front footwell outlet vent - chapter on "Installing"
2. Install left and right covers of console. 681419 Removing and installing centre console cover - chapter on "Installing"

997110, 997111, 997120, 997121, 997310, 997311, 997320, 997321, 997410, 997411, 997430, 997431, 997610, 997611, 997620, 997621

as of MY 2005
Country C00, C02, C05, C07, C08, C09, C10, C11, C12, C13, C14, C15, C16, C18, C19, C20, C21, C22, C23, C24, C25, C26, C27, C28, C32, C33, C34, C35, C36, C37, C38, C39, C45, C46, C98, C99

WARNUNG

Gefahr des Verlusts der Text-Bild-Zuordnung beim Ausdruck.

87 27 19 Removing and installing magnetic coupling - as of MY 2005

- Preliminary work
- Removing the magnetic coupling
- Installing the magnetic coupling
- Checking the magnetic coupling
- Subsequent work

top of page

Preliminary work

Preliminary work for magnetic clutch

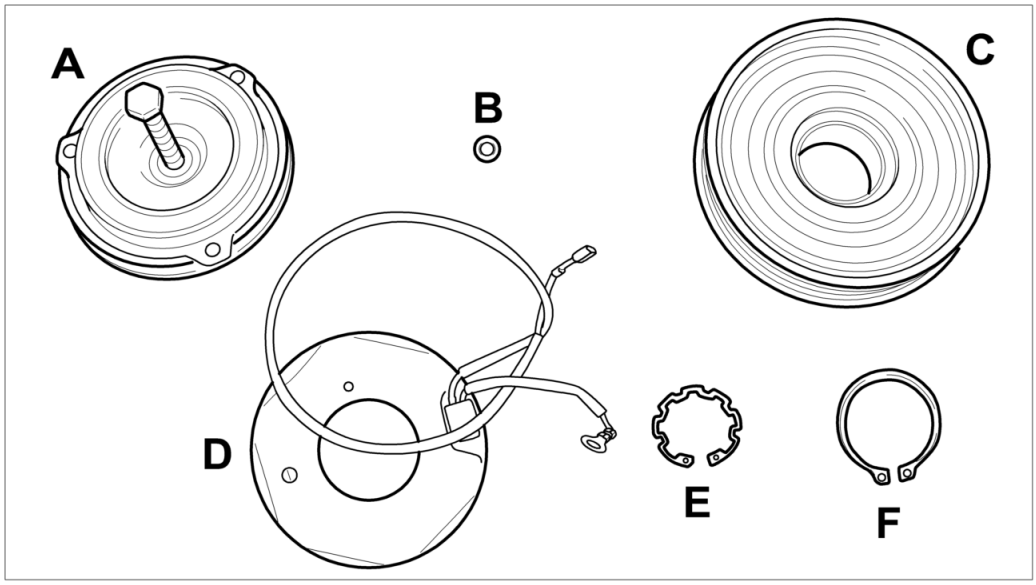
Remove air cleaner. 242519 Removing and installing air cleaner housing - chapter on "Removing"
Remove drive belt. 137819 Removing and installing drive belt - chapter on "Removing"

top of page

Removing the magnetic coupling

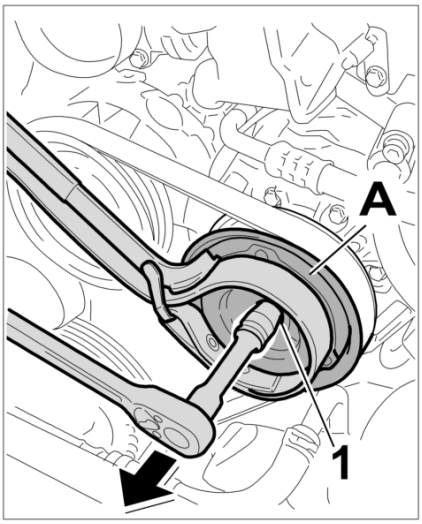
Removing the magnetic coupling

Installation Location:



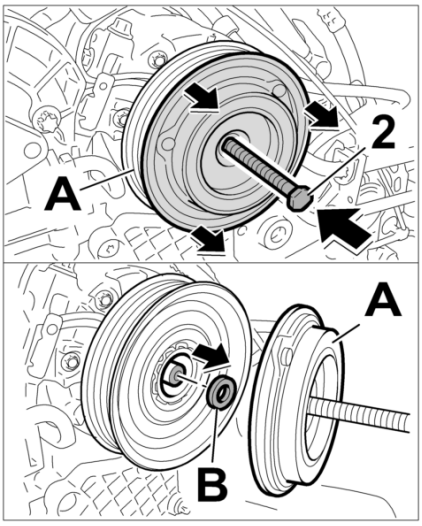
Overview

A - Pressure plate
B - Spacer
C - Pulley
D - Solenoid coil
E - Seeger circlip ring for pulley
F - Seeger circlip ring for solenoid coil



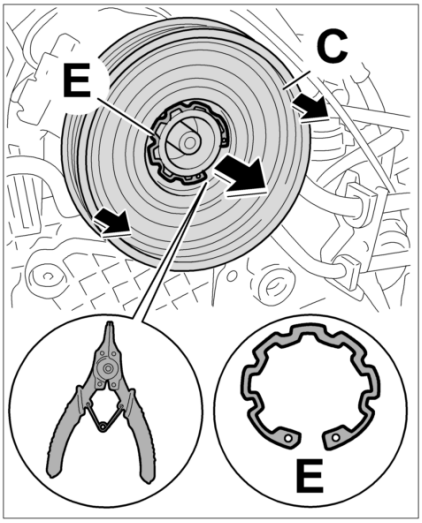
Loosen pressure plate mount

1. Use a commercially available strap wrench to securely hold the pressure plate **-A-** on the air-conditioning compressor, and undo the fastening screw **-1-** .



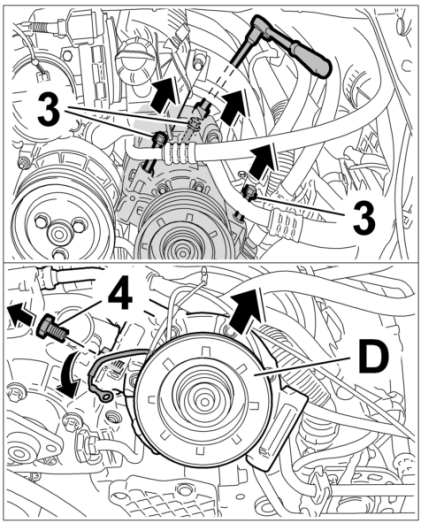
Removing pressure plate

2. Screw in an M8 screw **-2-** into the thread of the pressure plate until the pressure plate **-A-** can be removed by hand.
3. Take off spacers **-B-** behind the pressure plate.



Removing Seeger circlip ring for pulley

4. Use a Seeger circlip ring pliers to remove the Seeger circlip ring **-E-** on the pulley **-C-** .
5. Remove pulley **-C-** on the compressor.



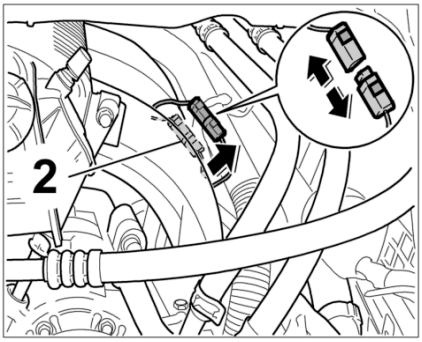
Screwing on electric line to compressor

6. Unscrew electric line of solenoid coil on the compressor:

6.1. Remove the three fastening screws holding the air-conditioning compressor **-3-** .

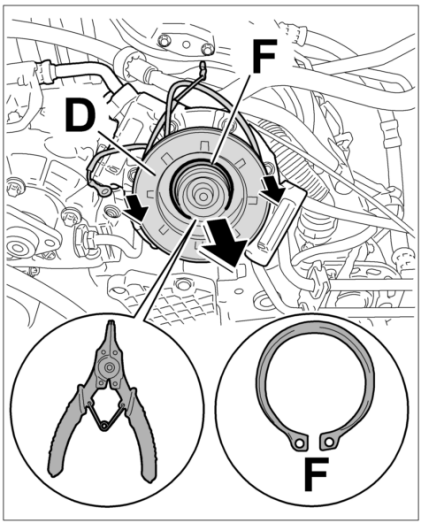
6.2. Remove the air-conditioning compressor and lift upwards, now the fastening screw **-4-** for the solenoid coil line is accessible.

6.3. Unscrew the fastening screw **-4-** for the solenoid coil line.



Disconnecting compressor plug connection

7. Take out the electric connector **-2-** for the compressor from between the intake pipes and pull apart.



Removing solenoid coil

8. Remove Seeger circlip ring **-F-** for the solenoid coil with the Seeger circlip ring pliers. Remove the solenoid coil from the compressor housing.

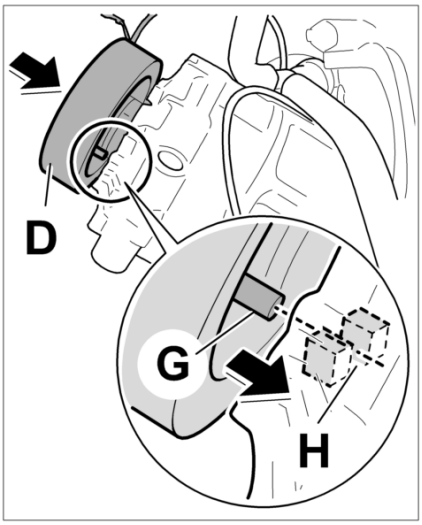
top of page

Installing the magnetic coupling

Installing magnetic clutch

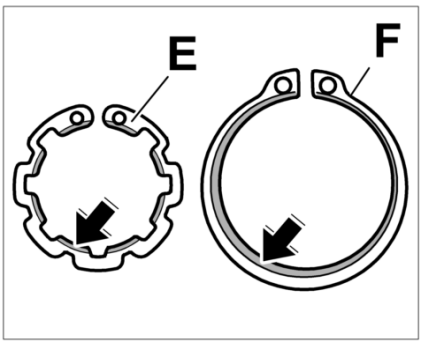
Note

If a new magnetic clutch is installed, the air gap between pressure plate and pulley must be checked with a depth gauge. 872719 Removing and installing magnetic clutch - chapter on "Checking"



Engaging lock pin

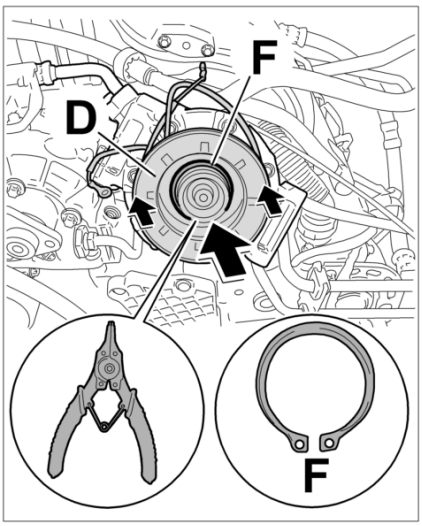
1. Place solenoid coil **-D-** on the compressor housing. The lock pin **-G-** must engage in the locking hole **-H-** .



Seeger circlip ring installation position

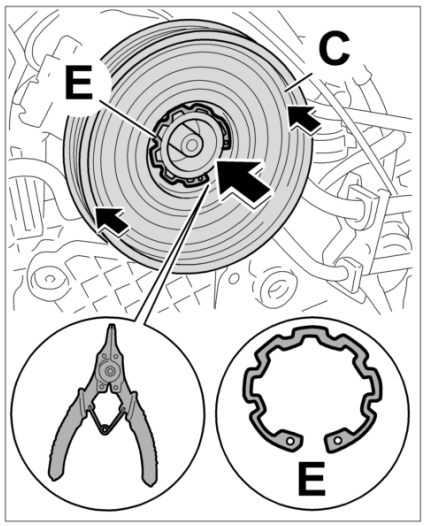
Note

When installing the Seeger circlip ring, the slanted surface of the Seeger circlip ring must point forward.



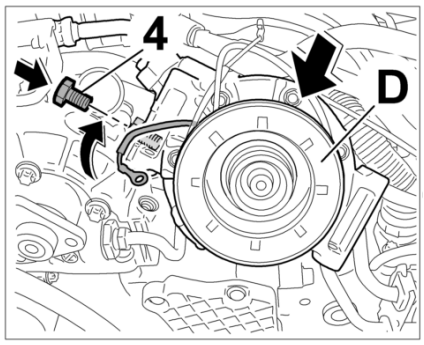
Installing Seeger circlip ring for solenoid coil

2. Position Seeger circlip ring **-F-** for solenoid coil **-D-** and fit using Seeger circlip ring pliers.



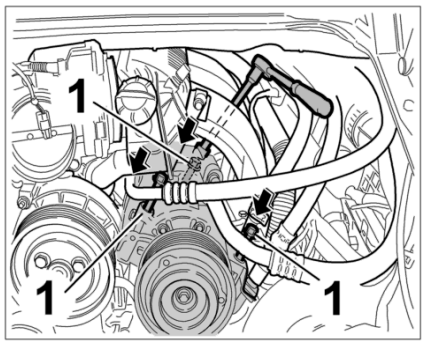
Installing pulley

3. Position pulley **-C-** and fit with Seeger circlip ring **-E-** .



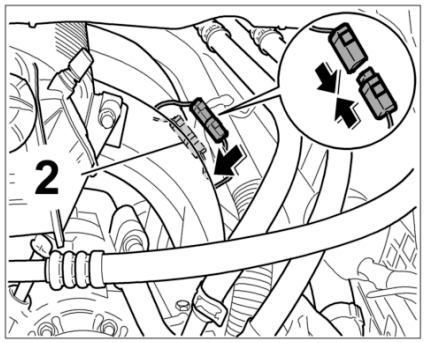
Screw down electric line for compressor.

4. Secure electric line to compressor with fastening screw **-4-** .
5. Re-fit compressor to the engine and tighten with fastening screws.



Screwing down air-conditioning compressor

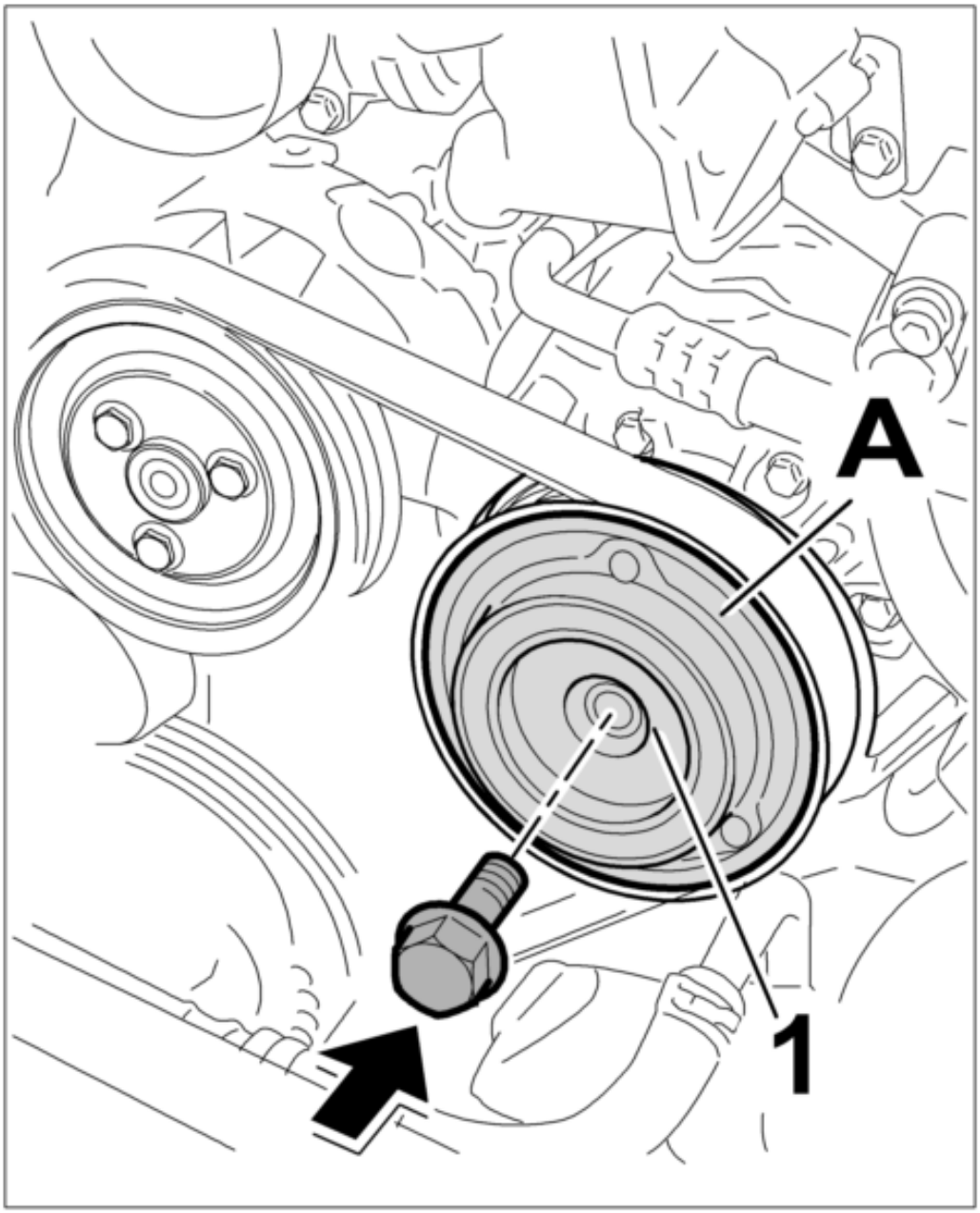
5.1. Fit air-conditioning compressor to engine housing with the rear fastening screws and tighten with the three fastening screws **-1-** . **M8: 23 (17 ftlb.) Nm**



Connecting the compressor plug connection

5.2. Connect the connector and position between the pipes of the intake system.

6. Position the pressure plate **-A-** and tighten with the fastening screw **-1-** . **Tightening torque: 14 (10.5 ftlb.) Nm**

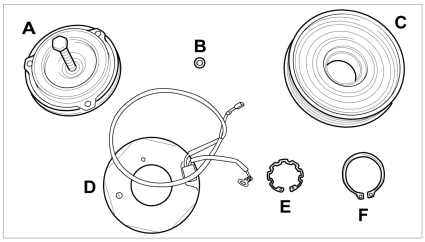


Tightening pressure plate

top of page

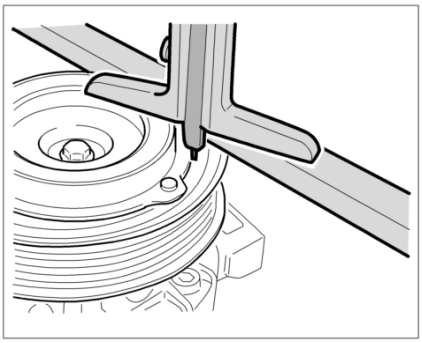
Checking the magnetic coupling

Check air gap of magnetic clutch



Overview

A - Thrust plate
B - Spacer washer
C - Pulley
D - Solenoid coil
E - Seeger circlip ring for pulley
F - Seeger circlip ring for solenoid coil



Check air gap of magnetic clutch

1. Check the air gap between the pressure plate and belt pulley with a depth gauge.
2. Place a rule on the outer edge of the belt pulley. Use a depth gauge to measure up to the pressure plate. Apply battery voltage to the magnetic coupling and measure the distance (air gap) to the attracted pressure plate. Always measure at least three points on the pressure plate in order to obtain a mean value. Distance: 0.5 mm ± 0.15 mm
3. If the air gap is not in the tolerance range, it must be adjusted with the aid of the spacer washers **-B-** .

top of page

Subsequent work

Subsequent work for magnetic clutch

Install drive belt. 137819 Removing and installing drive belt - chapter on "Installing"
Install air cleaner. 242519 Removing and installing air cleaner housing - chapter on "Installing"

87 34 19 Removing and installing air-conditioning compressor - as of MY 2005

- Preliminary work
- General warning notes
- Tools and materials
- Removing air-conditioning compressor
- Installing air-conditioning compressor
- Subsequent work
- Checking refrigerant oil in "new" air-conditioning compressor

top of page

Preliminary work

Preliminary work for air-conditioning compressor

1. Drain refrigerant for air-conditioning system with a refrigerant pump.
2. Remove drive belt. *21 Removing and installing drive belt - removing*.

top of page

General warning notes

General warning notes for air-conditioning compressor

WARNING

Safety regulations should be strictly observed when working on air-conditioned vehicles and dealing with refrigerant.

- **Danger of injury.**

Safety regulations for working on air-conditioned vehicles and handling refrigerant
Safety regulations for extraction and filling systems
Instructions for repairing air-conditioning systems and storing spare parts

top of page

Tools and materials

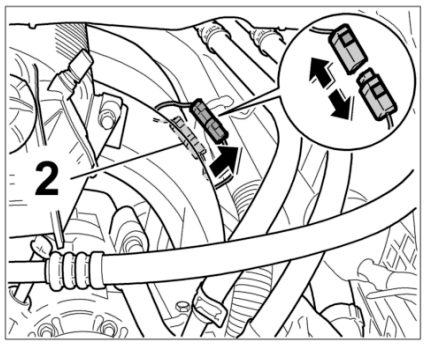
Tools for air-conditioning compressor

Air-conditioning service unit, refer to Special Tools, Commercially Available Tools, Chapter 2.4, No. 96-2)

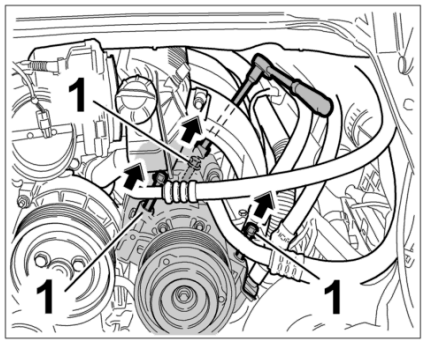
top of page

Removing air-conditioning compressor

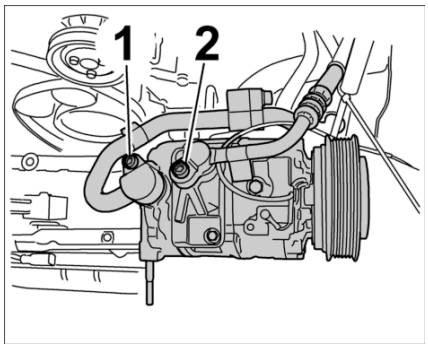
Removing the air-conditioning compressor



1. Take out the connector for the compressor from between the intake pipes and pull apart.



2. Remove the three fastening screws **-1-** from the air conditioning compressor. The rear screw can only be pulled out after removal.
3. Lift the air-conditioning compressor with the rear fastening screw and pull out of the engine.



4. Place the air-conditioning compressor with the lines on the rear support plate and remove the two fastening screws **-1, 2-** .
5. Immediately close off connections and lines with suitable plugs.

top of page

Installing air-conditioning compressor

Installing the air-conditioning compressor

ATTENTION

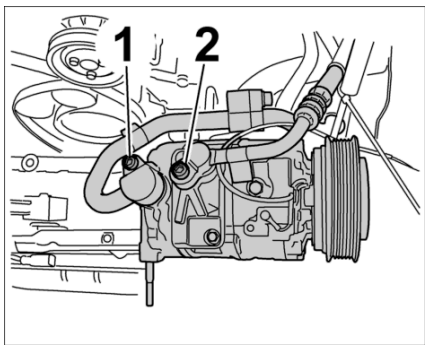
Risk of damaging the air-conditioning compressor.

The engine must not be started until the air-conditioning system has been filled.

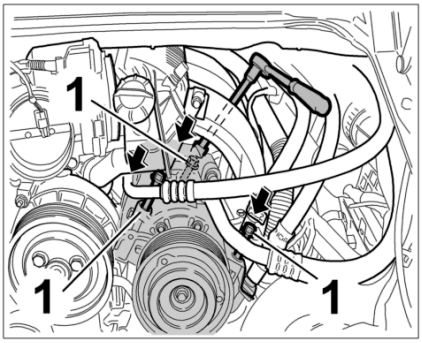
Note

- *New compressors are pressurised and are filled with the required amount of oil for the refrigerant circuit!*
- *The remaining oil quantity in the individual components must therefore be taken into account!*
- *Refrigerant oil from the compressor or refrigerant oil removed by suction from a previously run air-conditioning system may no longer be used (special-category waste)!*

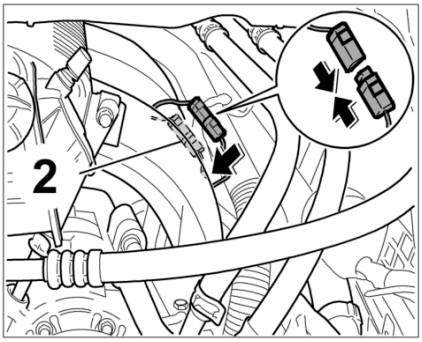
1. If a new compressor is installed, first correct the refrigerant oil quantity in the air-conditioning compressor.
2. Replace O-rings for the refrigerant lines and wet the new rings with refrigerant oil.
3. Do not remove the plugs for the lines and compressor connection until shortly before installation.



4. Connect the lines and secure with the fastening screws **-1, 2-** . **M8: 15 ftlb** **M8: 15 ftlb**
5. Insert the rear fastening screw into the air-conditioning compressor.



6. Place the air-conditioning compressor with the rear fastening screw on the engine housing and screw down with the three fastening screws **-1-** . **M8: 17 ftlb**



7. Connect the plug and place between the pipes of the intake system.

top of page

Subsequent work

Subsequent work for the air-conditioning compressor

Install drive belt. *23 Removing and installing drive belt - installing*.

Fill refrigerant on the air-conditioning system in accordance with regulations. 870317 Draining and filling in refrigerant
Open air outlet nozzles on the instrument panel, and set blower to at least 75 %.
After allowing the system to stabilise at idle speed (approx. 5 sec.), switch on air conditioning and allow the engine to run uninterrupted for at least 2 minutes at 1500 rpm.
Switch off the air-conditioning system again. Do not drive until the air-conditioning system has been filled.

top of page

Checking refrigerant oil in "new" air-conditioning compressor

Correct the refrigerant oil level in the "new" air-conditioning compressor

WARNING

A new air-conditioning compressor contains the oil quantity for the complete air-conditioning circuit.

- **Risk of damaging the air-conditioning compressor by excessive refrigerant oil in the air-conditioning circuit.**

If a new air-conditioning compressor or a component in the circuit is replaced, the oil quantity must be determined and adjusted.

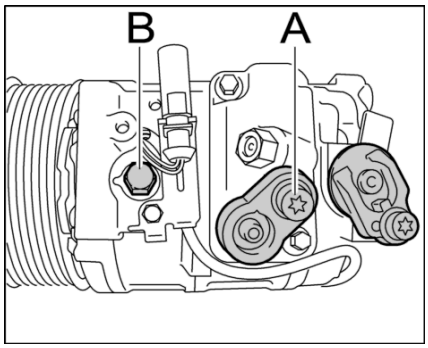
Insufficient refrigerant oil causes a lack of lubrication, resulting in the failure of the air-conditioning compressor.

Too much refrigerant oil results in reduced refrigerant performance.

Note

All connection points must be completely dirt-free.
The air-conditioning compressor must be dry (washing the vehicle) and the air-conditioning compressor and lines must be free of moisture.
The connection points must be closed after they have been opened. Use the original transport caps.
A clean measuring cylinder with a capacity of approx. 300 ml is required.

Determining oil quantity on the "old" air-conditioning compressor

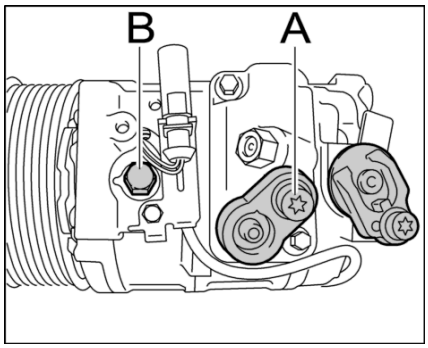


Caps

1. First, open the cap on the high-pressure side and relieve the pressure from the compressor **-A-** .
2. Open the oil filler screw **-B-** on the compressor.
3. Fill the refrigerant oil from the air-conditioning compressor into the measuring cylinder. Turn the pressure plate on the air-conditioning compressor (not the belt pulley) when emptying the refrigerant oil.

The amount of refrigerant oil is referred to as "V_{old}" in the formula below.

4. Always replace the sealing ring for the oil filler plug.
5. Screw oil filler plug **-B-** into the compressor. **Tightening torque: 30 (22 ftlb.) Nm**



Oil filler screw

Determining the oil quantity at the "new" oil filler screw of the air-conditioning compressor

1. To drain refrigerant oil:

1.1. First, open the cap on the high-pressure side and relieve the pressure from the compressor **-A-** .

1.2. Open the oil filler screw **-B-** on the compressor.

1.3. Drain the refrigerant oil from the air-conditioning compressor.

The refrigerant oil must not be re-used, but must be disposed of properly.

2. To determine the refrigerant oil quantity:

2.1. V_{total} = "$V_{removed}$" + "V_{old}" + 20 cm^3

2.2. V_{total}= Total volume for the new air-conditioning compressor

2.3. $V_{removed}$ = Volume of refrigerant oil removed by suction

2.4. V_{old} = Volume of refrigerant oil in the old air-conditioning compressor

2.5. 20 cm^3 = Additional safety volume

3. To fill the air-conditioning compressor:

3.1. Fill the determined refrigerant oil volume V_{total} into the air-conditioning compressor.

3.2. Always replace the sealing ring for the oil filler plug.

3.3. Screw oil filler plug **-B-** onto the compressor. **Tightening torque: 30 (22 ftlb.) Nm**

3.4. Install air-conditioning compressor. 873419 Removing and installing compressor - Installing

---

997110, 997111, 997120, 997121, 997310, 997311, 997320, 997321, 997410, 997411, 997430, 997431, 997610, 997611, 997620, 997621

as of MY 2005
Country C00, C02, C05, C07, C08, C09, C10, C11, C12, C13, C14, C15, C16, C18, C19, C20, C21, C22, C23, C24, C25, C26, C27, C28, C32, C33, C34, C35, C36, C37, C38, C39, C45, C46, C98, C99

WARNUNG

Gefahr des Verlusts der Text-Bild-Zuordnung beim Ausdruck.

- **Aus technischen Gründen kann derzeit nicht ausgeschlossen werden, dass trotz einwandfreier Darstellung auf dem Bildschirm beim Ausdruck der Zusammenhang von Text und zugehörigem Bild verloren geht.**
- **Wird der Fehler nicht bemerkt, besteht die Gefahr, daß Arbeiten nicht korrekt durchgeführt werden und es dadurch zu Personen- und Sachschäden kommt.**

Vergleichen Sie deshalb nach dem Druckvorgang unbedingt die Ausdrucke mit der Bildschirmdarstellung. Korrigieren Sie die Ausdrucke im Fehlerfall so, daß der Inhalt der Bildschirmdarstellung zutreffend wiedergegeben wird.

WARNING

Danger of losing text-figure correspondence when printing out.

- **For technical reasons, it can currently not be ruled out that the correspondence between text and associated figure can be lost when it is printed out, even though the display on the screen is correct.**
- **If the fault is not noticed, there is the danger that work will not be performed correctly which can cause injury and damage.**

Therefore, always compare printouts with the screen display after printing them out. Correct the printouts if they are faulty so that the content of the screen display matches that on the printouts.

AVERTISSEMENT

Risque de perte de la correspondance texte-illustration lors de l'impression papier.

87 42 19 Removing and installing condenser-condenser line - as of MY 2005

- Preliminary work
- Removing the condenser-condenser line
- Installing the condenser-condenser line
- Subsequent work

top of page

Preliminary work

Preliminary work for line condenser-condenser

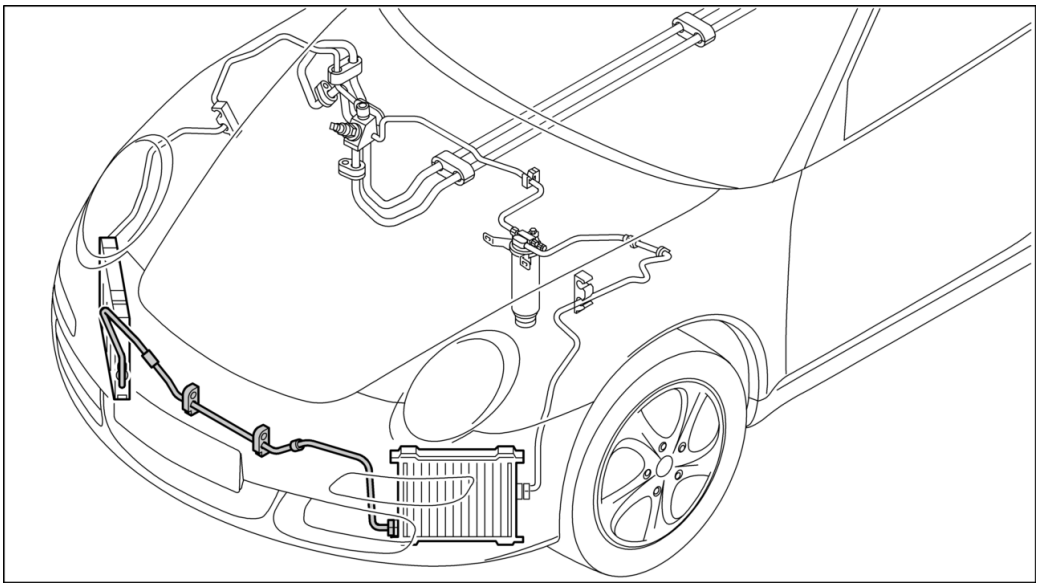
Removing front apron. 631519 Removing and installing front apron - chapter on "Removing"
Draining refrigerant. 870317 Draining and filling in refrigerant - chapter on "draining"

top of page

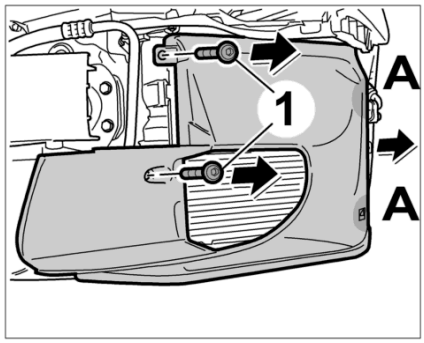
Removing the condenser-condenser line

Removing the condenser-condenser line

Installation Location:

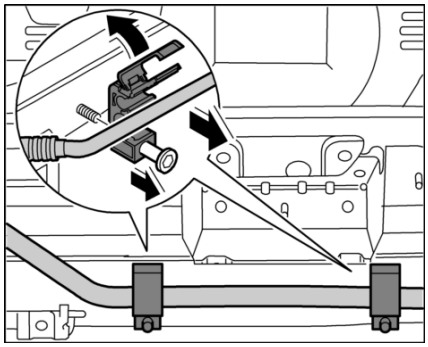


Installation location for line condenser-condenser



Air guide for condenser

1. Unscrew the two fastening screws **-1-** holding the air guide for the condenser.
2. Pull the air guide forward and disengage it at the condenser **-A-** .



Releasing and opening up the mount

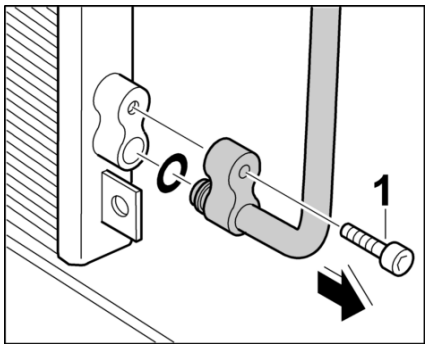
3. Unscrew the fastening nuts for both holders line, open the holder and take out the line.

Note

- *When loosening or tightening the M8 refrigerant lines on the condenser, always counter with a 21-mm open-ended wrench.*

Note

Before re-installing the component, check the O-rings of the refrigerant lines for damage and replaced them if necessary.
Wet the O-rings of the refrigerant lines with refrigerant oil.
Do not open the plugs for the lines and connections until shortly before installation.
Close off all lines and connections using suitable plugs during removal.



Unscrew condenser fastening screw

4. Unscrew the fastening screws **-1-** of the line condenser-condenser and pull the line out of both condensers.

top of page

Installing the condenser-condenser line

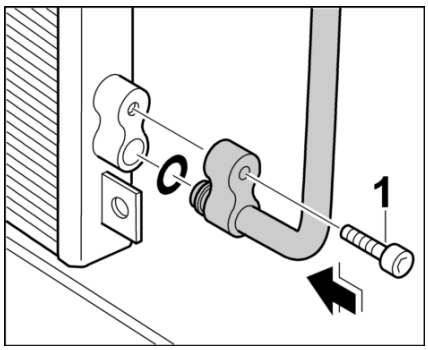
Installing the condenser-condenser line

Note

- *When loosening or tightening the M8 refrigerant lines on the condenser, always counter with a 21-mm open-ended wrench.*

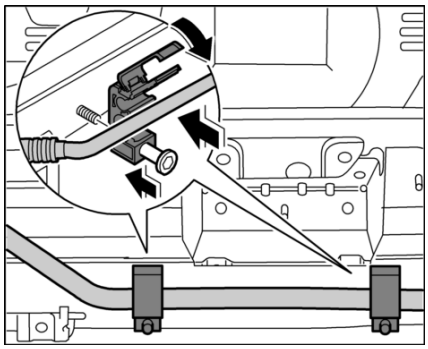
Note

Before re-installing the component, check the O-rings of the refrigerant lines for damage and replaced them if necessary.
Wet the O-rings of the refrigerant lines with refrigerant oil.
Do not open the plugs for the lines and connections until shortly before installation.
Close off all lines and connections using suitable plugs during removal.



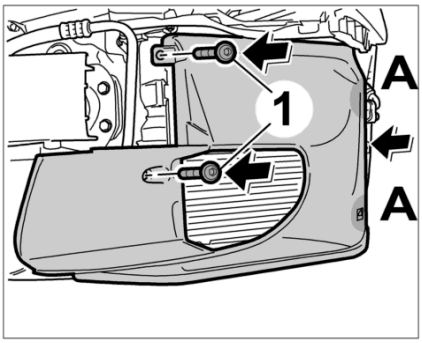
Position and secure line

1. Carefully push the lines into the condensers and screw tight with the fastening screws.
   Tightening torque: 14 (10.5 ftlb.) Nm



Close and secure holder

2. Attach line to both holders, close holders and secure with fastening screws.



Air guide for condenser

3. Engage air guide on condenser **-A-** and screw down using the two fastening screws **-1-** .
   Tightening torque: 4 (3 ftlb.) Nm

top of page

Subsequent work

Subsequent work for line condenser-condenser

Filling in refrigerant. 870317 Draining and filling in refrigerant
Install front apron. *23 Removing and installing front apron - chapter on "Installing"*

997110, 997111, 997120, 997121, 997310, 997311, 997320, 997321, 997410, 997411, 997430, 997431, 997610, 997611, 997620, 997621

as of MY 2005
Country C00, C02, C05, C07, C08, C09, C10, C11, C12, C13, C14, C15, C16, C18, C19, C20, C21, C22,

87 43 19 Removing and installing compressor-condenser line at front - as of MY 2005

- Preliminary work
- Removing compressor-condenser line
- Installing compressor-condenser line
- Subsequent work

top of page

Preliminary work

Preliminary work on compressor-condenser line

Remove front right wheel. 440519 Removing and installing wheel - chapter on "Removing"
Remove front right wheel housing liner. 505619 Removing and installing front wheel housing liner - chapter on "Removing" [997110 997111 997120 997121 997310 997311 997320 997321] 505619 Removing and installing front wheel housing liner - chapter on "Removing" [997621] 505619 Removing and installing front wheel housing liner - chapter on "Removing" [997410 997411 997430 997431 997610 997611 997620]
Drain refrigerant. 870317 Draining and filling in refrigerant - chapter on "draining"

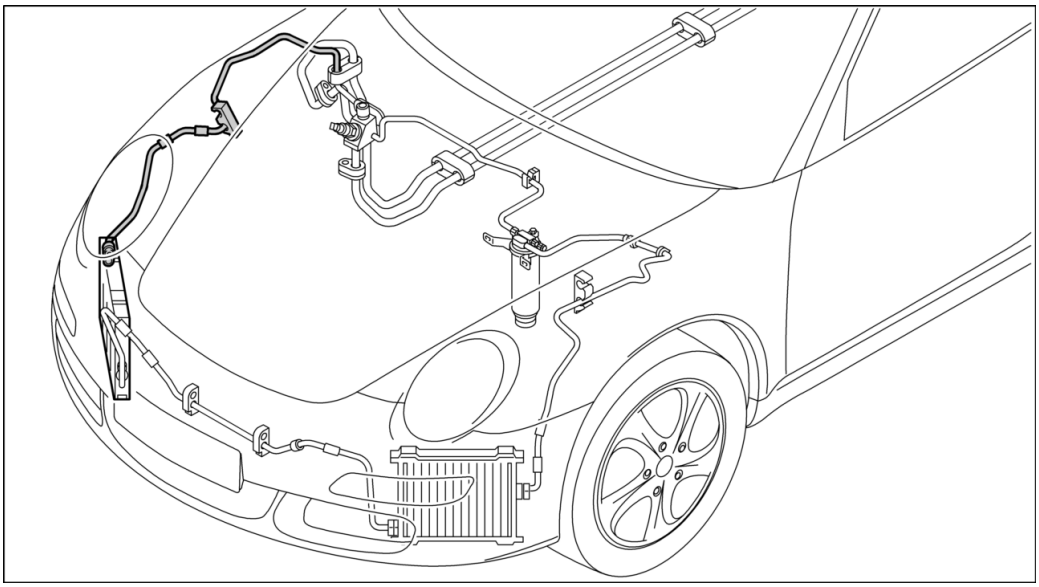
top of page

Removing compressor-condenser line

Removing compressor-condenser line

Note
Before re-installing the component, check the O-rings of the refrigerant lines for damage and replaced them if necessary.
Wet the O-rings of the refrigerant lines with refrigerant oil.
Do not open the plugs for the lines and connections until shortly before installation.
Close off all lines and connections using suitable plugs during removal.

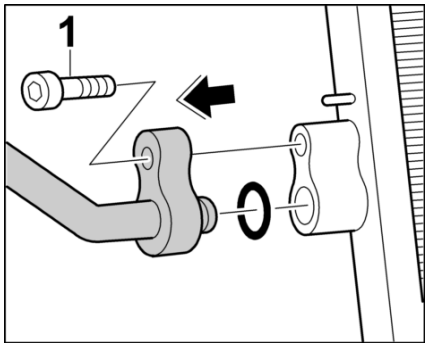
Installation Location:



Installation location for compressor-condenser line

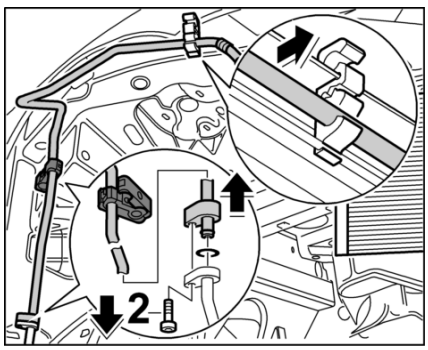
Note

When loosening or tightening the M8 refrigerant lines on the condenser, always counter with a 21-mm open-ended wrench.



Unscrewing condenser fastening screws

1. Unscrew the fastening screw **-1-** for the condenser line and pull the line out of the condenser.



Unscrewing the compressor line fastening screw

2. Unclip holder for line and remove the line.

3. Unscrew the fastening screw **-2-** for the line to the compressor and pull the line out of the compressor line.
4. Pull the line out of the line holder and take it out.

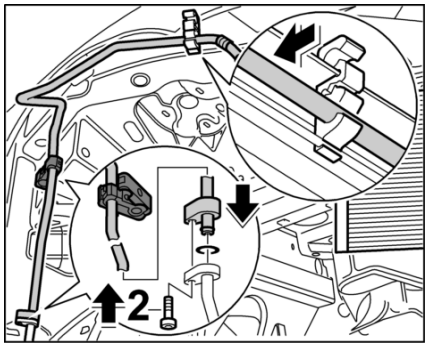
top of page

Installing compressor-condenser line

Installing compressor-condenser line

Note

When loosening or tightening the M8 refrigerant lines on the condenser, always counter with a 21-mm open-ended wrench.



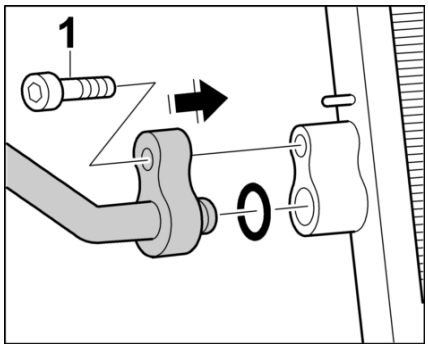
Pulling line out of holder

1. Clip line into the line holder at the top and engage it in the rubber mounting.

Note

Before re-installing the component, check the O-rings of the refrigerant lines for damage and replaced them if necessary.
Wet the O-rings of the refrigerant lines with refrigerant oil.
Do not open the plugs for the lines and connections until shortly before installation.
Close off all lines and connections using suitable plugs during removal.

2. Insert compressor-condenser line into the line to the compressor and fasten with the fastening screw **-2-** . **Tightening torque: 14 (10.5 ftlb.) Nm**
3. Close and engage holder for rubber mounting.



Inserting and screwing down refrigerant line

4. Insert compressor-condensor line into the condenser and fasten it with the fastening screw **-1-** .
   Tightening torque: 14 (10.5 ftlb.) Nm

top of page

Subsequent work

Subsequent work on compressor-condenser line

Fill in refrigerant. 870317 Draining and filling in refrigerant
Install front right wheel housing liner. 505619 Removing and installing front wheel housing liner - chapter on "Installing" [997110 997111 997120 997121 997310 997311 997320 997321] 505619 Removing and installing front wheel housing liner - chapter on "Installing" [997621] 505619 Removing and installing front wheel housing liner - chapter on "Installing" [997410 997411 997430 997431 997610 997611 997620]
Install front right wheel. 440519 Removing and installing wheel - chapter on "Installing"

997110, 997111, 997120, 997121, 997310, 997311, 997320, 997321, 997410, 997411, 997430, 997431, 997610, 997611, 997620, 997621

as of MY 2005
Country C00, C02, C05, C07, C08, C09, C10, C11, C12, C13, C14, C15, C16, C18, C19, C20, C21, C22, C23, C24, C25, C26, C27, C28, C32, C33, C34, C35, C36, C37, C38, C39, C45, C46, C98, C99

WARNUNG
Gefahr des Verlusts der Text-Bild-Zuordnung beim Ausdruck.

- **Aus technischen Gründen kann derzeit nicht ausgeschlossen werden, dass trotz einwandfreier Darstellung auf dem Bildschirm beim Ausdruck der Zusammenhang von Text und zugehörigem Bild verloren geht.**
- **Wird der Fehler nicht bemerkt, besteht die Gefahr, daß Arbeiten nicht korrekt durchgeführt werden und es dadurch zu Personen- und Sachschäden kommt.**

Vergleichen Sie deshalb nach dem Druckvorgang unbedingt die Ausdrucke mit der Bildschirmdarstellung. Korrigieren Sie die Ausdrucke im Fehlerfall so, daß der Inhalt der

87 43 19 Removing and installing compressor-condenser line in area of engine - as of MY 2005

- Preliminary work
- Removing compressor-condenser line
- Installing compressor-condenser line
- Subsequent work

top of page

Preliminary work

Preliminary work on compressor-condenser line

Drain refrigerant. 870317 Draining and filling in refrigerant - chapter on "draining"
Remove drive belt . *21 Removing and installing drive belt - removing*.
Unscrew compressor from engine block. 873419 Removing and installing compressor

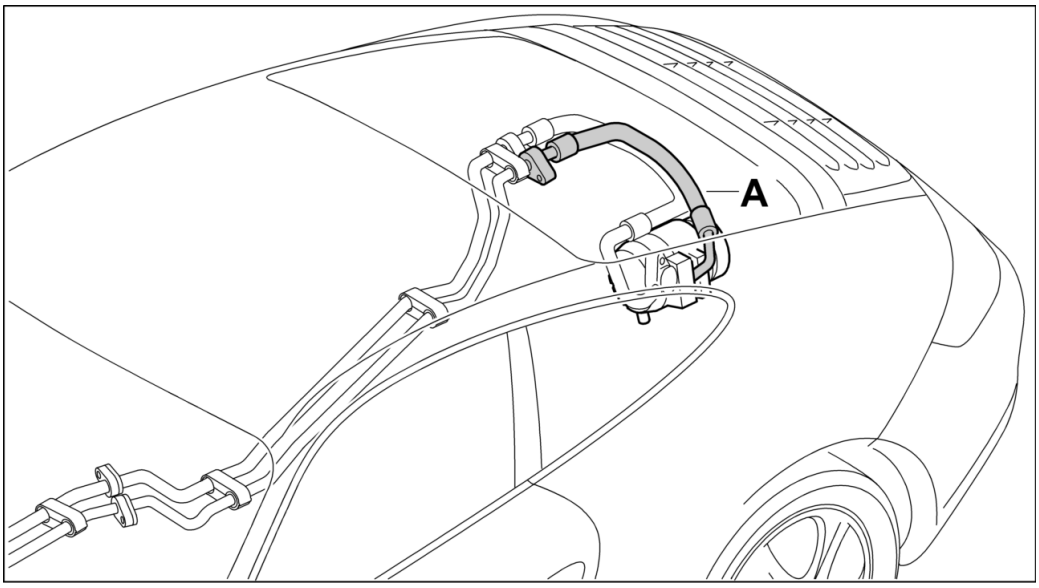
top of page

Removing compressor-condenser line

Removing compressor-condenser line

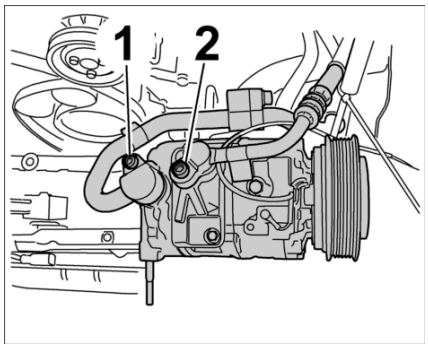
Note
Close off all lines and connections using suitable plugs during removal.
Before re-installing the component, check the O-rings of the refrigerant lines for damage and replaced them if necessary.

Installation Location:



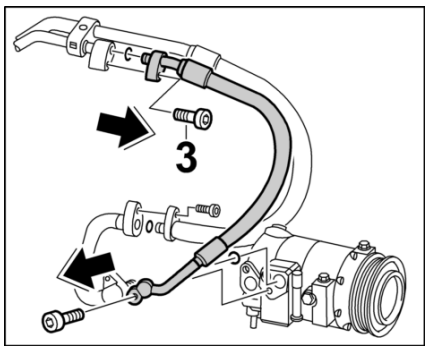
Installation position

A - Compressor-condenser line



Unscrewing fastening screw

1. Unscrew the fastening screw **-2-** on the compressor.



Fastening screw at disconnection point

2. Unscrew the fastening screw **-3-** at the disconnection point ahead of the rubber mounting and remove the line from the engine compartment.

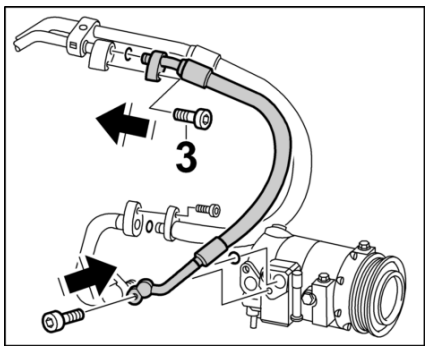
top of page

Installing compressor-condenser line

Installing compressor-condenser line

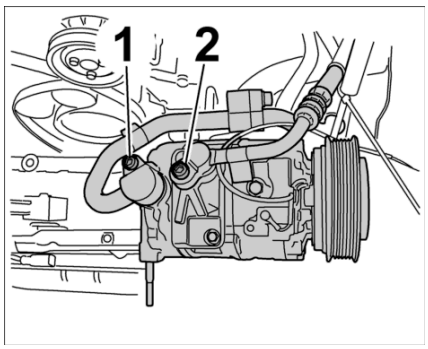
Note

Before re-installing the component, check the O-rings of the refrigerant lines for damage and replaced them if necessary.
Wet the O-rings of the refrigerant lines with refrigerant oil.
Do not open the plugs for the lines and connections until shortly before installation.



Disconnection point in engine compartment

1. Carefully insert the line into the engine-compartment disconnection point and fasten with the fastening screw **-3-** . **Tightening torque: 14 (10.5 ftlb.) Nm**



Fastening screw

2. Push the line on and fasten it with the fastening screw **-2-** . **Tightening torque: 21 (16 ftlb.) Nm**

top of page

Subsequent work

Subsequent work on compressor-condenser line

Screw compressor to engine block. 873419 Removing and installing compressor - chapter on "Installing"
Install drive belt. *23 Removing and installing drive belt - installing.*
Fill in refrigerant. 870317 Draining and filling in refrigerant

---

997110, 997111, 997120, 997121, 997310, 997311, 997320, 997321, 997410, 997411, 997430, 997431, 997610, 997611, 997620, 997621

as of MY 2005
Country C00, C02, C05, C07, C08, C09, C10, C11, C12, C13, C14, C15, C16, C18, C19, C20, C21, C22, C23, C24, C25, C26, C27, C28, C32, C33, C34, C35, C36, C37, C38, C39, C45, C46, C98, C99

WARNUNG

Gefahr des Verlusts der Text-Bild-Zuordnung beim Ausdruck.

- **Aus technischen Gründen kann derzeit nicht ausgeschlossen werden, dass trotz einwandfreier Darstellung auf dem Bildschirm beim Ausdruck der Zusammenhang von Text und zugehörigem Bild verloren geht.**
- **Wird der Fehler nicht bemerkt, besteht die Gefahr, daß Arbeiten nicht korrekt durchgeführt werden und es dadurch zu Personen- und Sachschäden kommt.**

Vergleichen Sie deshalb nach dem Druckvorgang unbedingt die Ausdrucke mit der Bildschirmdarstellung. Korrigieren Sie die Ausdrucke im Fehlerfall so, daß der Inhalt der Bildschirmdarstellung zutreffend wiedergegeben wird.

WARNING

Danger of losing text-figure correspondence when printing out.

- **For technical reasons, it can currently not be ruled out that the correspondence between text and associated figure can be lost when it is printed out, even though the display on the screen is correct.**
- **If the fault is not noticed, there is the danger that work will not be performed correctly which can cause injury and damage.**

Therefore, always compare printouts with the screen display after printing them out. Correct the printouts if they are faulty so that the content of the screen display matches that on the printouts.

AVERTISSEMENT

Risque de perte de la correspondance texte-illustration lors de l'impression papier.

- **Pour des raisons techniques, il ne peut pas être exclu à l'heure actuelle que, même en cas d'affichage correct à l'écran, la correspondance entre le texte et l'illustration puisse être erronée sur l'impression papier.**

87 45 19 Removing and installing compressor-evaporator line - as of MY 2005

- Preliminary work
- Removing compressor-evaporator line
- Installing compressor-evaporator line
- Subsequent work

top of page

Preliminary work

Preliminary work on compressor-evaporator line

Drain refrigerant. 870317 Draining and filling in refrigerant - chapter on "draining"
Remove drive belt . *21 Removing and installing drive belt - removing*.
Unscrew compressor from engine block. 873419 Removing and installing compressor

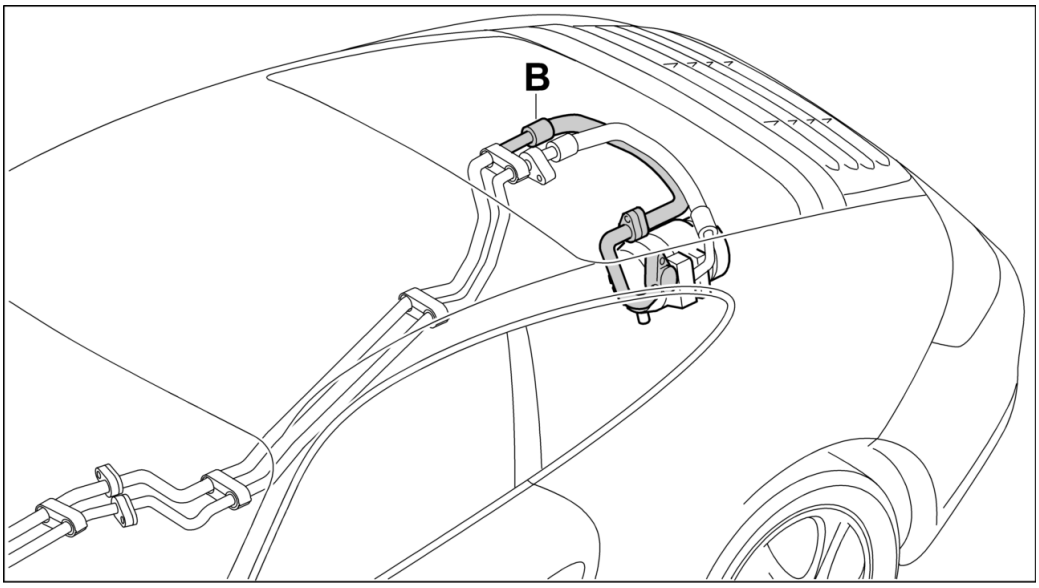
top of page

Removing compressor-evaporator line

Removing compressor-evaporator line

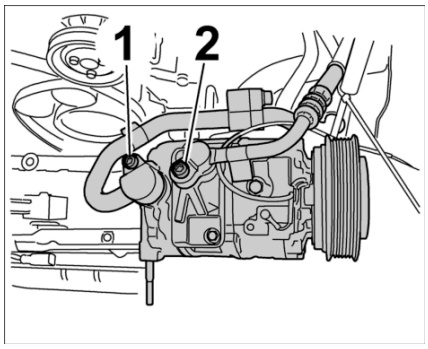
Note
Close off all lines and connections using suitable plugs during removal.
Before re-installing the component, check the O-rings of the refrigerant lines for damage and replaced them if necessary.

Installation Location:



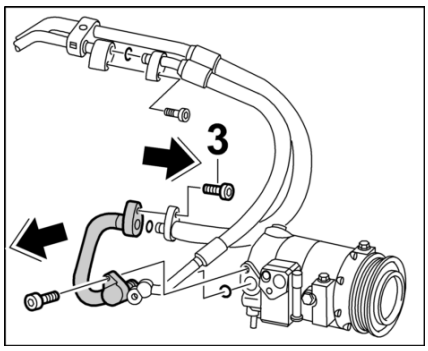
Installation position

B - Compressor-evaporator line



Unscrewing fastening screw

1. Unscrew the fastening screw **-1-** on the compressor.



Fastening screw at disconnection point

2. Unscrew the fastening screw **-3-** at the disconnection point and remove the line from the engine compartment.

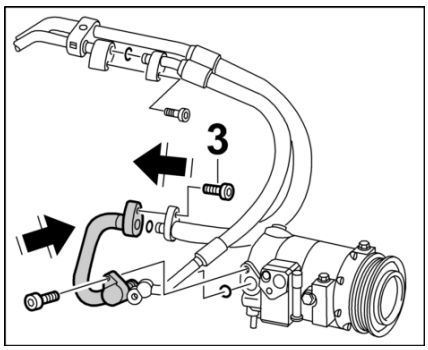
top of page

Installing compressor-evaporator line

Installing compressor-evaporator line

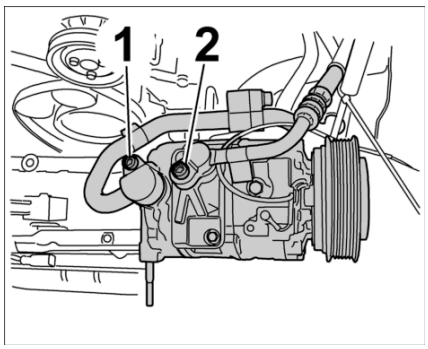
Note

Before re-installing the component, check the O-rings of the refrigerant lines for damage and replaced them if necessary.
Wet the O-rings of the refrigerant lines with refrigerant oil.
Do not open the plugs for the lines and connections until shortly before installation.



Disconnection point in engine compartment

1. Carefully insert the line into the engine-compartment disconnection point and fasten with the fastening screw **-3-** . **Tightening torque: 14 (10.5 ftlb.) Nm**



Tightening fastening screw

2. Push the line on and fasten it with the fastening screw **-1-** . **Tightening torque: 21 (16 ftlb.) Nm**

top of page

Subsequent work

Subsequent work on compressor-evaporator line

Screw compressor to engine block. 873419 Removing and installing compressor - chapter on "Installing"
Install drive belt. *23 Removing and installing drive belt - installing.*
Fill in refrigerant. 870317 Draining and filling in refrigerant

---

997110, 997111, 997120, 997121, 997310, 997311, 997320, 997321, 997410, 997411, 997430, 997431, 997610, 997611, 997620, 997621

as of MY 2005
Country C00, C02, C05, C07, C08, C09, C10, C11, C12, C13, C14, C15, C16, C18, C19, C20, C21, C22, C23, C24, C25, C26, C27, C28, C32, C33, C34, C35, C36, C37, C38, C39, C45, C46, C98, C99

WARNUNG

Gefahr des Verlusts der Text-Bild-Zuordnung beim Ausdruck.

- **Aus technischen Gründen kann derzeit nicht ausgeschlossen werden, dass trotz einwandfreier Darstellung auf dem Bildschirm beim Ausdruck der Zusammenhang von Text und zugehörigem Bild verloren geht.**
- **Wird der Fehler nicht bemerkt, besteht die Gefahr, daß Arbeiten nicht korrekt durchgeführt werden und es dadurch zu Personen- und Sachschäden kommt.**

Vergleichen Sie deshalb nach dem Druckvorgang unbedingt die Ausdrucke mit der Bildschirmdarstellung. Korrigieren Sie die Ausdrucke im Fehlerfall so, daß der Inhalt der Bildschirmdarstellung zutreffend wiedergegeben wird.

WARNING

Danger of losing text-figure correspondence when printing out.

- **For technical reasons, it can currently not be ruled out that the correspondence between text and associated figure can be lost when it is printed out, even though the display on the screen is correct.**
- **If the fault is not noticed, there is the danger that work will not be performed correctly which can cause injury and damage.**

Therefore, always compare printouts with the screen display after printing them out. Correct the printouts if they are faulty so that the content of the screen display matches that on the printouts.

AVERTISSEMENT

Risque de perte de la correspondance texte-illustration lors de l'impression papier.

- **Pour des raisons techniques, il ne peut pas être exclu à l'heure actuelle que, même en cas d'affichage correct à l'écran, la correspondance entre le texte et l'illustration puisse être erronée sur l'impression papier.**

87 46 19 Removing and installing condenser-fluid tank line - as of MY 2005

- Preliminary work
- Removing the condenser-fluid tank line
- Installing the condenser-fluid tank line
- Subsequent work

top of page

Preliminary work

Preliminary work for line condenser-fluid tank

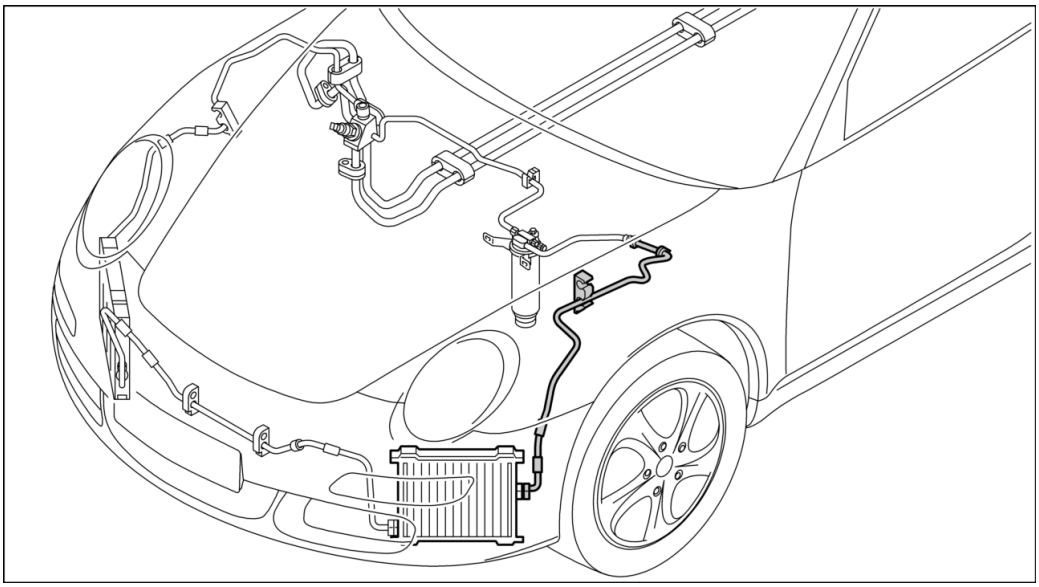
Removing left front wheel. 440519 Removing and installing wheel - chapter on "Removing"
Remove front left wheel housing liner. 505619 Removing and installing front wheel housing liner - chapter on "removing" [997110 997111 997120 997121 997310 997311 997320 997321] 505619 Removing and installing front wheel housing liner - chapter on "removing" [997621] 505619 Removing and installing front wheel housing liner - chapter on "removing" [997410 997411 997430 997431 997610 997611 997620]
Draining refrigerant. 870317 Draining and filling in refrigerant - chapter on "draining"

top of page

Removing the condenser-fluid tank line

Removing the condenser-fluid tank line

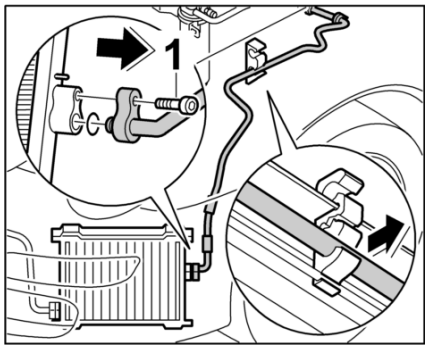
Installation Location:



Installation location for line condenser-fluid tank

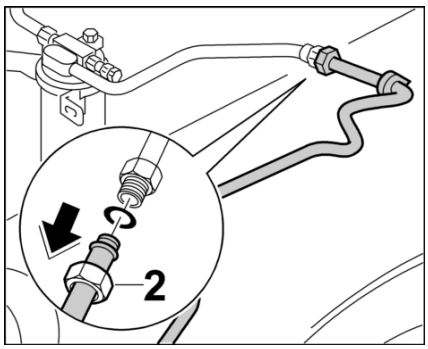
Note

When loosening or tightening the M8 refrigerant lines on the condenser, always counter with a 21-mm open-ended wrench.



Unscrew condenser fastening screw

1. Unscrew the fastening screw **-1-** for the line condenser and pull the line out of the condenser.
2. Pull the line out of the line holder.

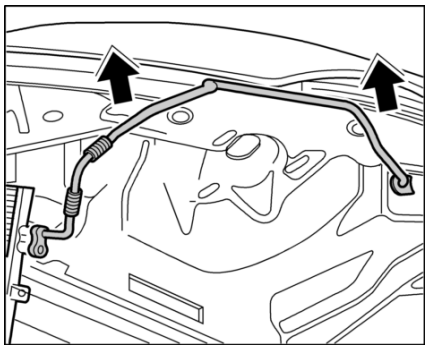


Open threaded joint

3. Counter the fastening nuts **-2-** and open carefully.

Note

Before re-installing the component, check the O-rings of the refrigerant lines for damage and replaced them if necessary.
Wet the O-rings of the refrigerant lines with refrigerant oil.
Do not open the plugs for the lines and connections until shortly before installation.
Close off all lines and connections using suitable plugs during removal.



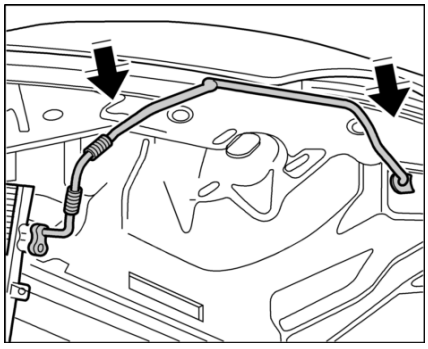
Remove line

4. Pull the line and the rubber sleeve out of the passage to the plenum panel over the wheel housing.

top of page

Installing the condenser-fluid tank line

Installing the condenser-fluid tank line

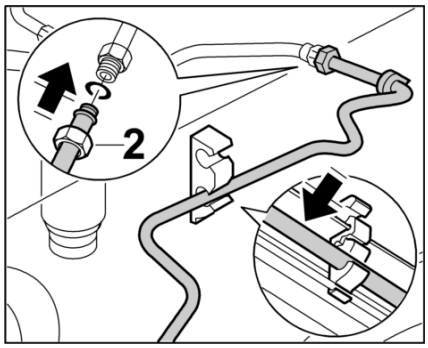


Insert line

1. Push line into the plenum panel via the wheel housing and press rubber sleeve into place. Ensure that rubber sleeve is fitted correctly.

Note

When loosening or tightening the M8 refrigerant lines on the condenser, always counter with a 21-mm open-ended wrench.

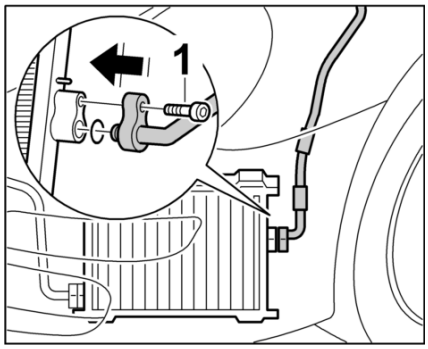


Screw down line on the condenser

2. Clip line into the line holder at the top, insert line into the condenser and screw down with **-2-** fastening screw. **Tightening torque: 14 (10.5 ftlb.) Nm**

Note

Before re-installing the component, check the O-rings of the refrigerant lines for damage and replaced them if necessary.
Wet the O-rings of the refrigerant lines with refrigerant oil.
Do not open the plugs for the lines and connections until shortly before installation.
Close off all lines and connections using suitable plugs during removal.



Screw on line

3. Push together line in plenum panel and screw on with the **-1-** fastening screws. **Tightening torque: 20 (15 ftlb.) Nm**

top of page

Subsequent work

Subsequent work for line condenser-fluid tank

Filling in refrigerant. 870317 Draining and filling in refrigerant
Install front left wheel housing liner. 505619 Removing and installing front wheel housing liner - chapter on "installing" [997110 997111 997120 997121 997310 997311 997320 997321] 505619 Removing and installing front wheel housing liner - chapter on "installing" [997621] 505619 Removing and installing front wheel housing liner - chapter on "installing" [997410 997411 997430 997431 997610 997611 997620]
Installing front wheel. 440519 Removing and installing wheel - chapter on "Installing"

997110, 997111, 997120, 997121, 997310, 997311, 997320, 997321, 997410, 997411, 997430, 997431, 997610, 997611, 997620, 997621

as of MY 2005
Country C00, C02, C05, C07, C08, C09, C10, C11, C12, C13, C14, C15, C16, C18, C19, C20, C21, C22, C23, C24, C25, C26, C27, C28, C32, C33, C34, C35, C36, C37, C38, C39, C45, C46, C98, C99

WARNUNG

Gefahr des Verlusts der Text-Bild-Zuordnung beim Ausdruck.

- **Aus technischen Gründen kann derzeit nicht ausgeschlossen werden, dass trotz einwandfreier Darstellung auf dem Bildschirm beim Ausdruck der Zusammenhang von Text und zugehörigem Bild verloren geht.**
- **Wird der Fehler nicht bemerkt, besteht die Gefahr, daß Arbeiten nicht korrekt durchgeführt werden und es dadurch zu Personen- und Sachschäden kommt.**

Vergleichen Sie deshalb nach dem Druckvorgang unbedingt die Ausdrucke mit der Bildschirmdarstellung. Korrigieren Sie die Ausdrucke im Fehlerfall so, daß der Inhalt der Bildschirmdarstellung zutreffend wiedergegeben wird.

WARNING

Danger of losing text-figure correspondence when printing out.

- **For technical reasons, it can currently not be ruled out that the correspondence between text and associated figure can be lost when it is printed out, even though the display on the screen is correct.**
- **If the fault is not noticed, there is the danger that work will not be performed correctly which can cause injury and damage.**

Therefore, always compare printouts with the screen display after printing them out. Correct the printouts if they are faulty so that the content of the screen display matches that on the printouts.

87 47 19 Removing and installing evaporator-fluid tank line - as of MY 2005

- Preliminary work
- Removing the condenser-fluid tank line
- Installing the condenser-fluid tank line
- Subsequent work

top of page

Preliminary work

Preliminary work line condenser-fluid tank

Draining refrigerant. 870317 Draining and filling in refrigerant - chapter on "draining"
Removing cowl panel cover. 508719 Removing and installing cowl panel cover - chapter on "removing"
Removing the battery. 270619 Removing and installing battery - chapter on "Removing"

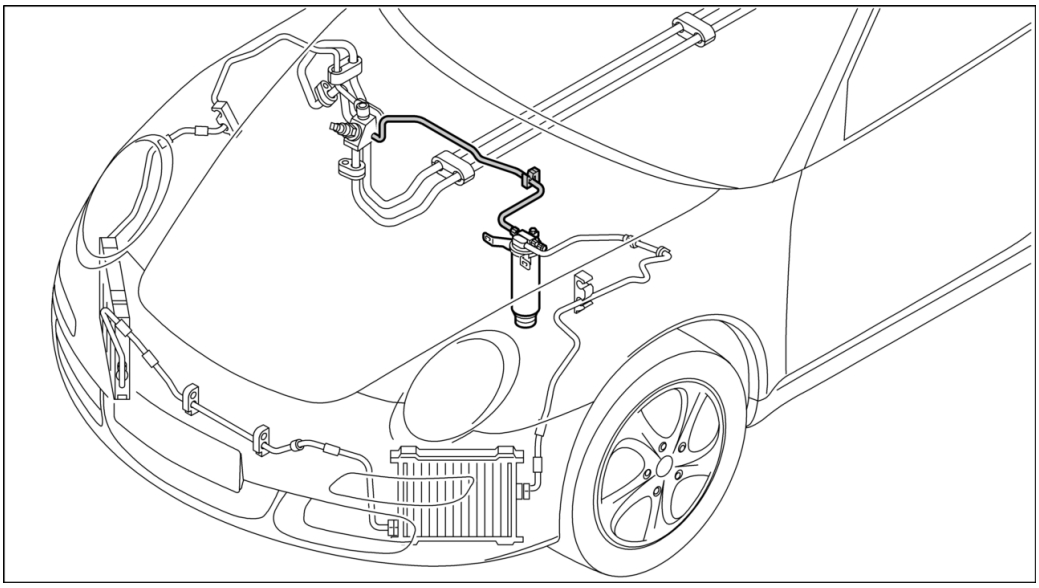
top of page

Removing the condenser-fluid tank line

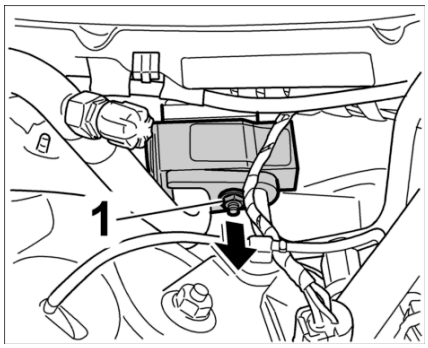
Removing the condenser-fluid tank line

Note
Before re-installing the component, check the O-rings of the refrigerant lines for damage and replaced them if necessary.
Wet the O-rings of the refrigerant lines with refrigerant oil.
Do not open the plugs for the lines and connections until shortly before installation.
Close off all lines and connections using suitable plugs during removal.

Installation Location:

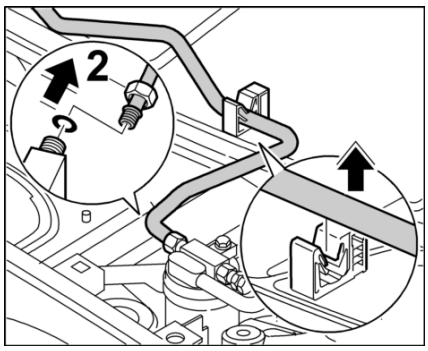


Installation location line condenser-fluid tank



Unscrewing fastening nuts

1. Unscrew fastening nut **-1-** .
2. Remove the holder for the two refrigerant lines and pull the refrigerant line condenser-fluid tank out of the expansion valve.



Taking out refrigerant line

3. Unscrew the fastening nut **-2-** for the refrigerant line condenser-fluid tank in front of the fluid tank, detach the line from the holder and pull out from under the water hoses for the heat exchanger.

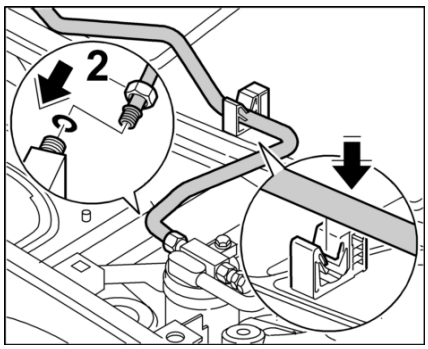
top of page

Installing the condenser-fluid tank line

Installing the condenser-fluid tank line

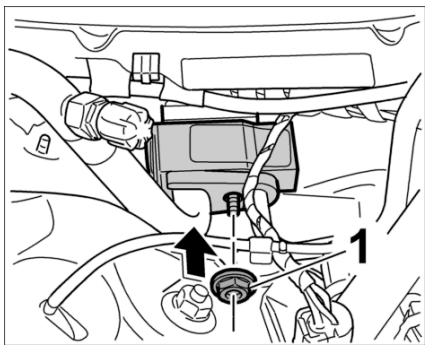
Note

Before re-installing the component, check the O-rings of the refrigerant lines for damage and replaced them if necessary.
Wet the O-rings of the refrigerant lines with refrigerant oil.
Do not open the plugs for the lines and connections until shortly before installation.
Close off all lines and connections using suitable plugs during removal.



Fastening nut on line fluid tank

1. Lay the refrigerant line under the heat exchanger hoses and screw down on line to fluid tank **-2-** with fastening nut. **Tightening torque: 20 (15 ftlb.) Nm**
2. Clip line into the holder.



Screwing in fastening nuts

3. Position holder for refrigerant lines and secure with the fastening nut **-1-** . **Tightening torque: 6 (4.5 ftlb.) Nm**

top of page

Subsequent work

Subsequent work line condenser-fluid tank

Installing battery. 270619 Removing and installing battery - chapter on "Installing"
Filling in refrigerant. 870317 Draining and filling in refrigerant
Installing cowl panel cover. 508719 Removing and installing cowl panel cover - chapter on "Installing"

997110, 997111, 997120, 997121, 997310, 997311, 997320, 997321, 997410, 997411, 997430, 997431, 997610, 997611, 997620, 997621

as of MY 2005
Country C00, C02, C05, C07, C08, C09, C10, C11, C12, C13, C14, C15, C16, C18, C19, C20, C21, C22, C23, C24, C25, C26, C27, C28, C32, C33, C34, C35, C36, C37, C38, C39, C45, C46, C98, C99

WARNUNG

Gefahr des Verlusts der Text-Bild-Zuordnung beim Ausdruck.

- **Aus technischen Gründen kann derzeit nicht ausgeschlossen werden, dass trotz einwandfreier Darstellung auf dem Bildschirm beim Ausdruck der Zusammenhang von Text und zugehörigem Bild verloren geht.**
- **Wird der Fehler nicht bemerkt, besteht die Gefahr, daß Arbeiten nicht korrekt durchgeführt werden und es dadurch zu Personen- und Sachschäden kommt.**

Vergleichen Sie deshalb nach dem Druckvorgang unbedingt die Ausdrucke mit der Bildschirmdarstellung. Korrigieren Sie die Ausdrucke im Fehlerfall so, daß der Inhalt der Bildschirmdarstellung zutreffend wiedergegeben wird.

WARNING

Danger of losing text-figure correspondence when printing out.

- **For technical reasons, it can currently not be ruled out that the correspondence between text and associated figure can be lost when it is printed out, even though the display on the screen is correct.**
- **If the fault is not noticed, there is the danger that work will not be performed correctly which can cause injury and damage.**

Therefore, always compare printouts with the screen display after printing them out. Correct the printouts if they are faulty so that the content of the screen display matches that on the printouts.

AVERTISSEMENT

Risque de perte de la correspondance texte-illustration lors de l'impression papier.

87 50 19 Removing and installing condenser - as of MY 2005

- Preliminary work
- Removing the condenser
- Installing the condenser
- Subsequent work

top of page

Preliminary work

Preliminary work for condenser

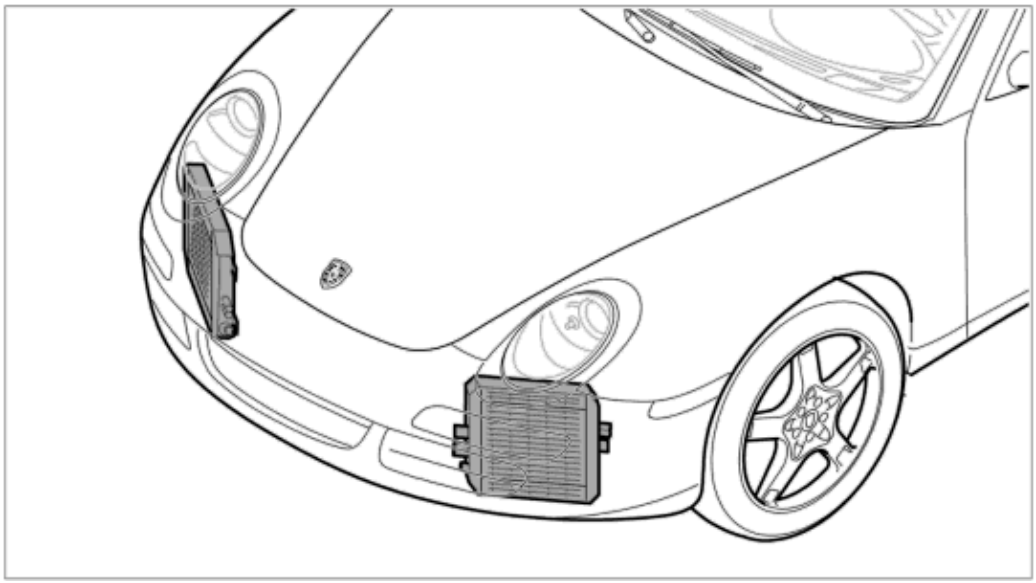
870317 Draining and filling in refrigerant
21 Removing and installing front apron - chapter on "removing"

top of page

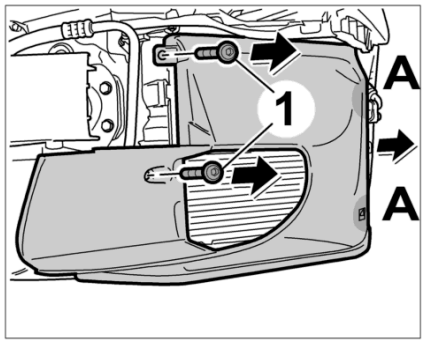
Removing the condenser

Removing the condenser

Installation Location:

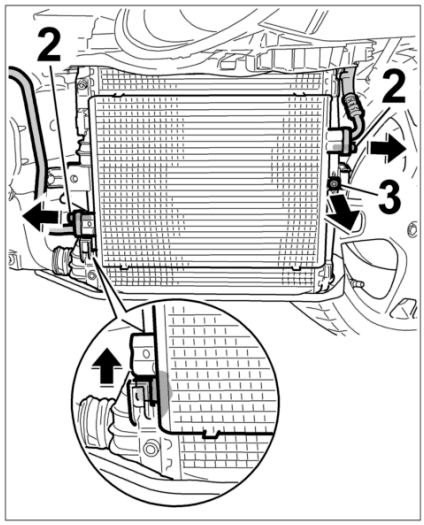


Installation position



Air guide for condenser

1. Unscrew the two fastening screws **-1-** holding the air guide for the condenser.
2. Pull the air guide forward and disengage it at the condenser **-A-** .

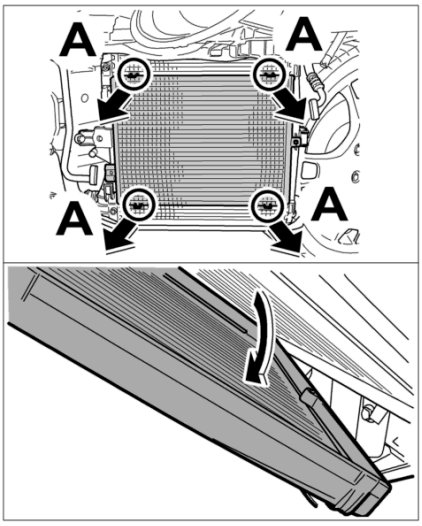


Refrigerant lines on condenser

Note

- *When loosening or tightening the M8 refrigerant lines on the condenser, always counter with a 21-mm open-ended wrench.*

3. Unscrew the two fastening screws **-2-** for the refrigerant lines.
4. Unscrew fastening screw **-3-** , lift the condenser and disengage from radiator bracket.



Unclipping condenser

Note

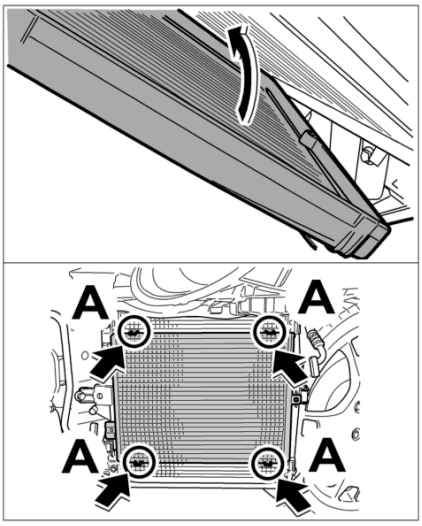
Before re-installing the component, check the O-rings of the refrigerant lines for damage and replaced them if necessary.
Wet the O-rings of the refrigerant lines with refrigerant oil.
Do not open the plugs for the lines and connections until shortly before installation.
Close off all lines and connections using suitable plugs during removal.

5. Unclip the condenser from the four brackets **-A-** and lift it out of the retaining bracket **-arrow-** .

top of page

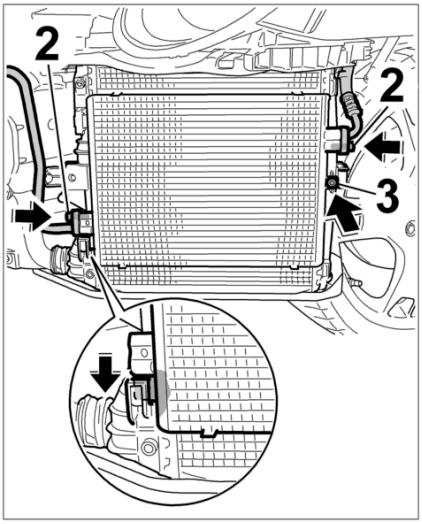
Installing the condenser

Installing the condenser



Clipping in condenser

1. Insert condenser into the retaining bracket and clip it into place **-A-** .



Refrigerant lines on condenser

2. Engage the condenser on the radiator bracket and secure with the fastening screw **-3-** . **tightening torque: 4 (3) Nm (ftlb.)**

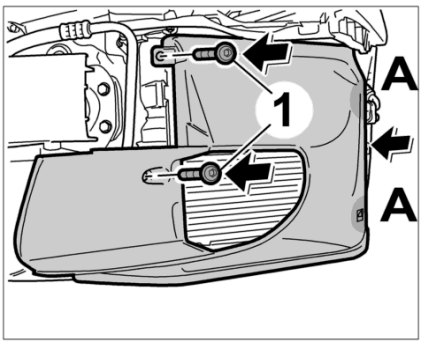
Note

- *When loosening or tightening the M8 refrigerant lines on the condenser, always counter with a 21-mm open-ended wrench.*

Note

Before re-installing the component, check the O-rings of the refrigerant lines for damage and replaced them if necessary.
Wet the O-rings of the refrigerant lines with refrigerant oil.
Do not open the plugs for the lines and connections until shortly before installation.
Close off all lines and connections using suitable plugs during removal.

3. Carefully insert refrigerant lines into the condenser and secure with the fastening screws **-2-** .
tightening torque: 14 (10.5) Nm (ftlb.)



Air guide for condenser

4. Engage air guide on condenser **-A-** and screw down using the two fastening screws **-1-** . **tightening torque: 4 (3) Nm (ftlb.)**

top of page

Subsequent work

Rework on condenser

870317 Draining and filling in refrigerant
23 Removing and installing front apron - chapter on "installing"

997110, 997111, 997120, 997121, 997310, 997311, 997320, 997321, 997410, 997411, 997430, 997431, 997610, 997611, 997620, 997621

as of MY 2005
Country C00, C02, C05, C07, C08, C09, C10, C11, C12, C13, C14, C15, C16, C18, C19, C20, C21, C22, C23, C24, C25, C26, C27, C28, C32, C33, C34, C35, C36, C37, C38, C39, C45, C46, C98, C99

WARNUNG
Gefahr des Verlusts der Text-Bild-Zuordnung beim Ausdruck.

- **Aus technischen Gründen kann derzeit nicht ausgeschlossen werden, dass trotz einwandfreier Darstellung auf dem Bildschirm beim Ausdruck der Zusammenhang von Text und zugehörigem Bild verloren geht.**
- **Wird der Fehler nicht bemerkt, besteht die Gefahr, daß Arbeiten nicht korrekt durchgeführt werden und es dadurch zu Personen- und Sachschäden kommt.**

Vergleichen Sie deshalb nach dem Druckvorgang unbedingt die Ausdrucke mit der Bildschirmdarstellung. Korrigieren Sie die Ausdrucke im Fehlerfall so, daß der Inhalt der Bildschirmdarstellung zutreffend wiedergegeben wird.

87 55 19 Removing and installing dryer (fluid tank) - as of MY 2005

- Preliminary work
- General warning notes
- Tools and materials
- Removing dryer (fluid tank)
- Installing dryer (fluid tank)
- Subsequent work

top of page

Preliminary work

Preliminary work for dryer

1. Remove cover on left for plenum chamber. 852219 Removing and installing cover - removing
2. Drain refrigerant for air-conditioning system with one air-conditioning unit. 870317 Draining and filling in refrigerant - draining

top of page

General warning notes

General safety regulations for work on the air-conditioning systems.

ATTENTION

Danger of injury when working on air-conditioned vehicles!

Observe safety regulations for working on air-conditioned vehicles and dealing with refrigerant R134a. *80 Safety regulations for working on air-conditioned vehicles and dealing with refrigerant R134a*

Observe safety regulations for working with extraction and filling systems. *80 Safety regulations for extraction and filling systems*

Observe instructions for repairing air-conditioning systems and storing spare parts. *80 Instructions for repairing air-conditioning systems and storing spare parts*

top of page

Tools and materials

Tools for air-conditioning compressor

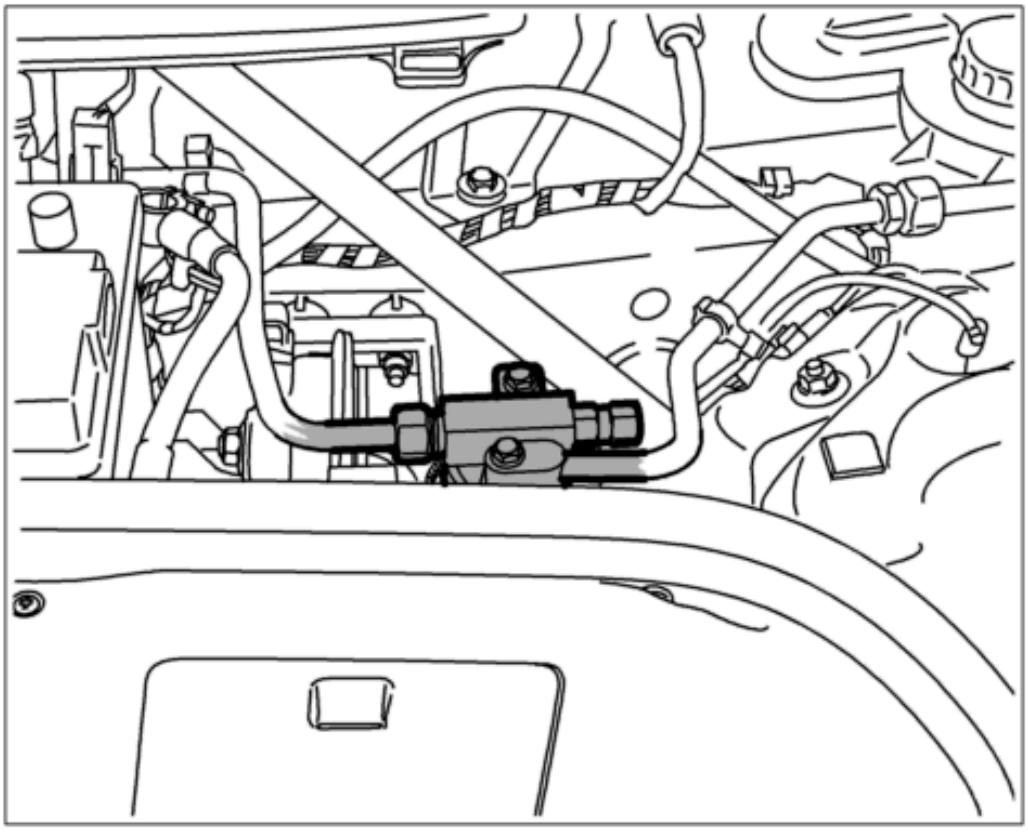
Air-conditioning service unit, refer to Special Tools, Commercially Available Tools, Chapter 2.4, No. 96-2)

top of page

Removing dryer (fluid tank)

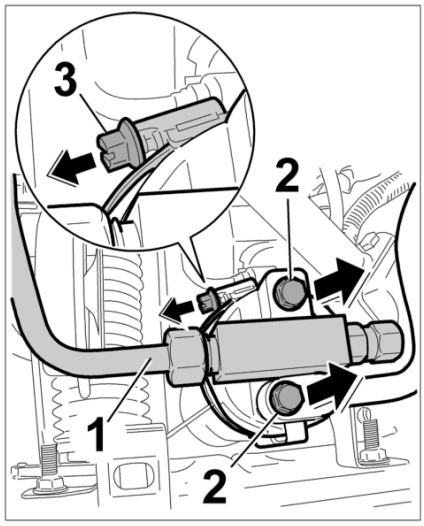
Removing desiccator (fluid tank)

Installation Location:



Installation position

The desiccator (fluid tank) is located under the left plenum chamber cover .



Removing desiccator

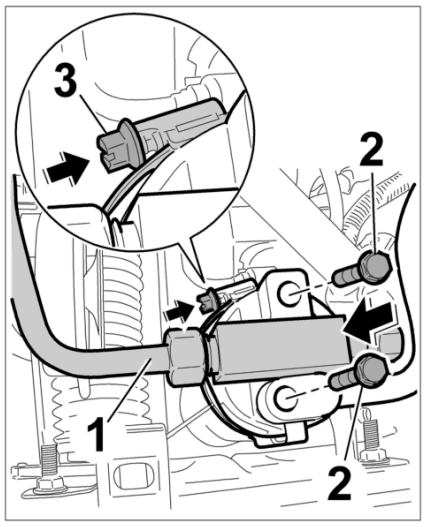
1. Unscrew the fastening nuts **-1-** on the fluid tank
2. Undo fastening screws **-2-** .
3. Unscrew the fastening clamp **-3-** and remove the fluid tank upwards.
4. In any case, replace the desiccator.

top of page

Installing dryer (fluid tank)

Installing desiccator (fluid tank)

In any case, replace O-rings for the refrigerant lines and wet the new rings with refrigerant oil.
Only install a new desiccator.



Installing desiccator

1. Position the fluid tank, connect the refrigerant lines and secure with the fastening screws **-2-** . **M6: 4.5 ftlb.**
2. Connect the air-conditioning line **-1-** and tighten with fastening nut.
3. Tighten the hose clamp **-3-** .
4. Determine the quantity of refrigerant oil. *Technical data for the air-conditioning system*, volume removed by suction + 30 cm^3.

top of page

Subsequent work

Subsequent work for the dryer

1. Fill in refrigerant correctly. 870317 Draining and filling in refrigerant - filling in
2. Install cover on left for plenum chamber. 852219 Removing and installing cover - installing

---

997110, 997111, 997120, 997121, 997310, 997311, 997320, 997321, 997410, 997411, 997430, 997431, 997610, 997611, 997620, 997621

as of MY 2005
Country C00, C02, C05, C07, C08, C09, C10, C11, C12, C13, C14, C15, C16, C18, C19, C20, C21, C22, C23, C24, C25, C26, C27, C28, C32, C33, C34, C35, C36, C37, C38, C39, C45, C46, C98, C99

WARNUNG

Gefahr des Verlusts der Text-Bild-Zuordnung beim Ausdruck.

- **Aus technischen Gründen kann derzeit nicht ausgeschlossen werden, dass trotz einwandfreier Darstellung auf dem Bildschirm beim Ausdruck der Zusammenhang von Text und zugehörigem Bild verloren geht.**
- **Wird der Fehler nicht bemerkt, besteht die Gefahr, daß Arbeiten nicht korrekt durchgeführt werden und es dadurch zu Personen- und Sachschäden kommt.**

Vergleichen Sie deshalb nach dem Druckvorgang unbedingt die Ausdrucke mit der Bildschirmdarstellung. Korrigieren Sie die Ausdrucke im Fehlerfall so, daß der Inhalt der Bildschirmdarstellung zutreffend wiedergegeben wird.

WARNING

Danger of losing text-figure correspondence when printing out.

- **For technical reasons, it can currently not be ruled out that the correspondence**

87 58 19 Removing and installing temperature sensor - as of MY 2005

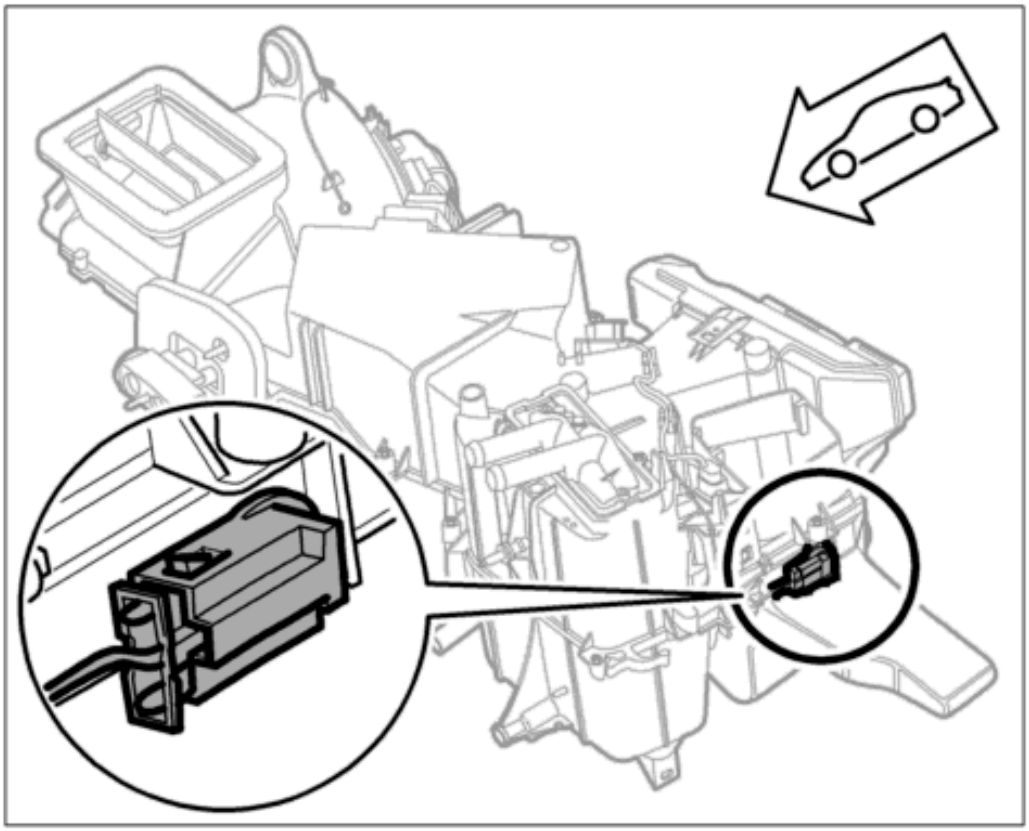
- Removing temperature sensor
- Installing temperature sensor

top of page

Removing temperature sensor

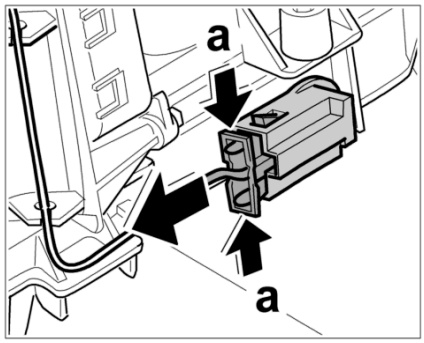
Removing temperature sensor

Installation Location:



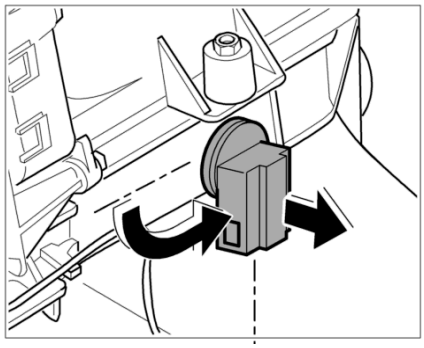
Installation position

1. Switch off ignition and remove ignition key.



Releasing electrical connector

2. From the driver's side, reach around to the "driver's footwell" air vent to release and disconnect the electrical connector **-a-** .



Removing temperature sensor

3. Turn temperature sensor through 90° and pull it out of the heating/air conditioner unit.

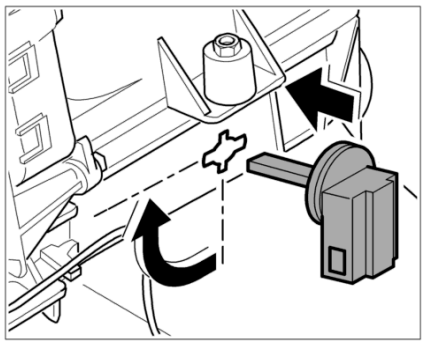
top of page

Installing temperature sensor

Installing temperature sensor

Installing temperature sensor

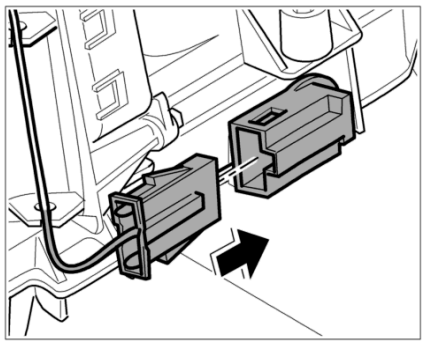
1. Switch off ignition and remove ignition key.



Installing temperature sensor

2.

From the driver's side, reach around the "driver's footwell" air vent to insert the temperature sensor into the heater/air-conditioning unit and turn it through 90°.



Plugging in connector

3. Plug in the electric connector until it clicks into place.

997110, 997111, 997120, 997121, 997310, 997311, 997320, 997321, 997410, 997411, 997430, 997431, 997610, 997611, 997620, 997621

as of MY 2005
Country C00, C02, C05, C07, C08, C09, C10, C11, C12, C13, C14, C15, C16, C18, C19, C20, C21, C22, C23, C24, C25, C26, C27, C28, C32, C33, C34, C35, C36, C37, C38, C39, C45, C46, C98, C99

WARNUNG

Gefahr des Verlusts der Text-Bild-Zuordnung beim Ausdruck.

- **Aus technischen Gründen kann derzeit nicht ausgeschlossen werden, dass trotz einwandfreier Darstellung auf dem Bildschirm beim Ausdruck der Zusammenhang von Text und zugehörigem Bild verloren geht.**
- **Wird der Fehler nicht bemerkt, besteht die Gefahr, daß Arbeiten nicht korrekt durchgeführt werden und es dadurch zu Personen- und Sachschäden kommt.**

Vergleichen Sie deshalb nach dem Druckvorgang unbedingt die Ausdrucke mit der Bildschirmdarstellung. Korrigieren Sie die Ausdrucke im Fehlerfall so, daß der Inhalt der Bildschirmdarstellung zutreffend wiedergegeben wird.

WARNING

Danger of losing text-figure correspondence when printing out.

- **For technical reasons, it can currently not be ruled out that the correspondence between text and associated figure can be lost when it is printed out, even though the display on the screen is correct.**
- **If the fault is not noticed, there is the danger that work will not be performed correctly which can cause injury and damage.**

Therefore, always compare printouts with the screen display after printing them out. Correct the printouts if they are faulty so that the content of the screen display matches that on the

87 59 19 Removing and installing outside temperature sensor - as of MY 2005

- Preliminary work
- Removing outside temperature sensor
- Installing outside temperature sensor
- Subsequent work

top of page

Preliminary work

Preliminary work for outside temperature sensor

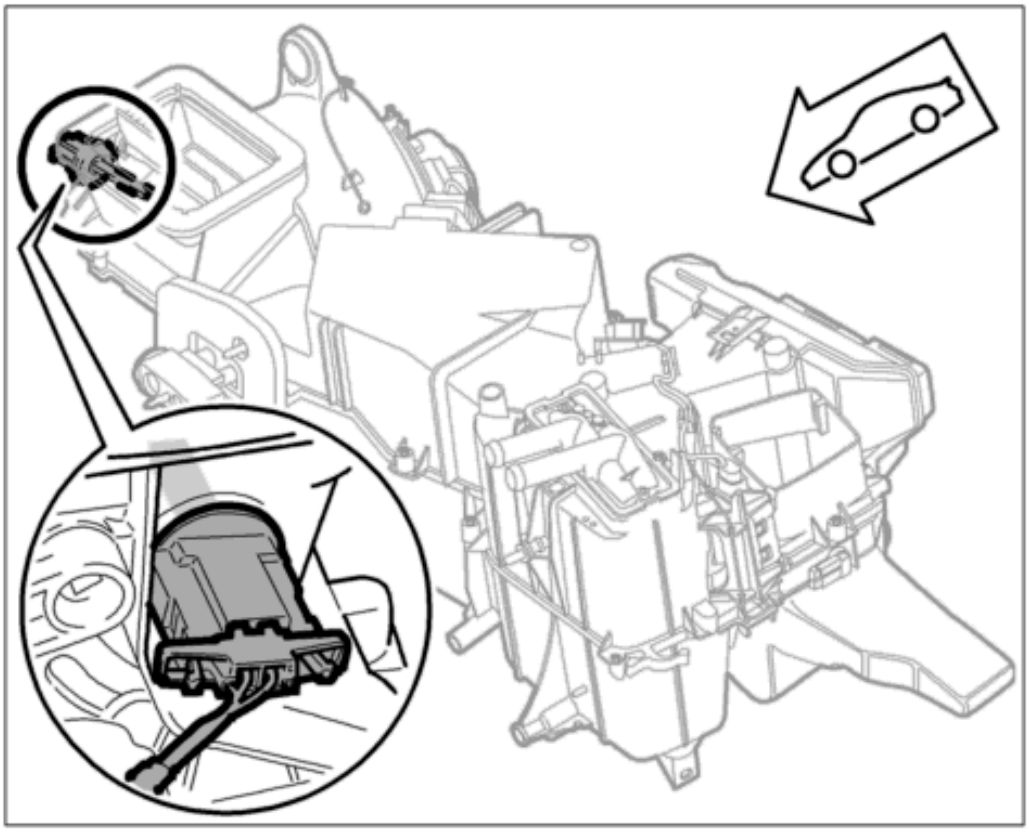
851519 Removing and installing heating/fresh-air unit - chapter on "removing"

top of page

Removing outside temperature sensor

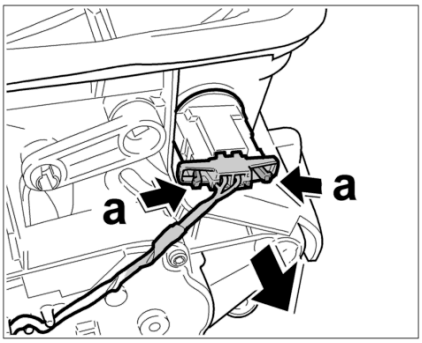
Removing outside temperature sensor

Installation Location:



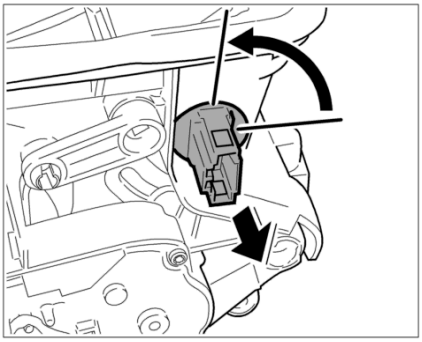
Installation position

1. Switch off ignition and remove ignition key.



Unplugging electrical connector.

2. Release electrical connector to the temperature sensor **-a-** and unplug it.



Removing temperature sensor

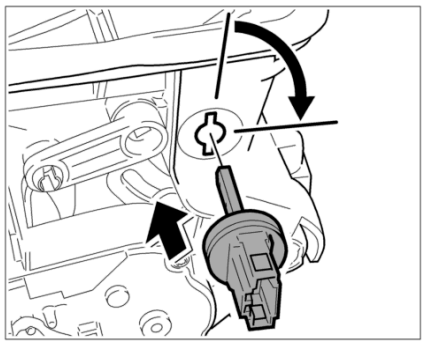
3. Turn temperature sensor through 90° and pull it out of the heating/fresh-air unit.

top of page

Installing outside temperature sensor

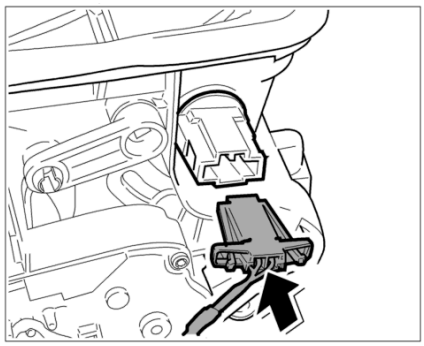
Installing outside temperature sensor

1. Switch off ignition and remove ignition key.



Installing temperature sensor

2. Insert temperature sensor into the heating/fresh air unit and turn through 90°.



Connecting electric plug

3. Push electrical connector into temperature sensor until it clicks into place.

top of page

Subsequent work

Subsequent work for outside temperature sensor

_ 851519 Removing and installing heating/fresh-air unit - chapter on "installing"

87 70 19 Removing and installing expansion valve - as of MY 2005

- Preliminary work
- Removing expansion valve
- Installing expansion valve
- Subsequent work

top of page

Preliminary work

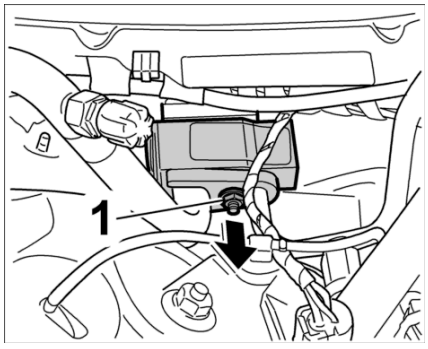
Preliminary work for expansion valve

_ 852219 Removing and installing cover - chapter on "removing"
_ 870317 Draining and filling in refrigerant

top of page

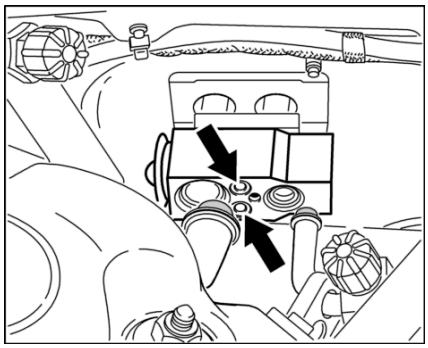
Removing expansion valve

Removing expansion valve



Unscrewing fastening nuts

1. Unscrew fastening nuts **-1-** .
2. Remove the bracket for the two refrigerant lines and pull the refrigerant lines out of the expansion valve.



Fastening screws on expansion valve

3. Undo the two fastening screws on the expansion valve and remove expansion valve.

top of page

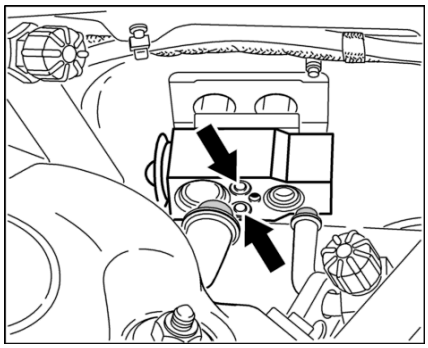
Installing expansion valve

Installing expansion valve

Note

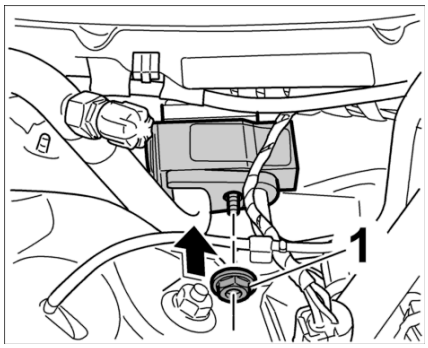
Before re-installing the component, check the O-rings of the refrigerant lines for damage and replaced them if necessary.
Wet the O-rings of the refrigerant lines with refrigerant oil.
Do not open the plugs for the lines and connections until shortly before installation.
Close off all lines and connections using suitable plugs during removal.

1. Carefully push expansion valve onto refrigerant lines from evaporator - do not tilt.



Fastening screws on expansion valve

2. Insert and tighten the two fastening screws. **tightening torque: 9 (6.5) Nm (ftlb.)**
3. Position refrigerant lines on expansion valve and press into place - do not tilt.



Screwing in fastening nuts

4. Position bracket for refrigerant lines and secure with the fastening nuts **-1-** . **tightening torque: 6 (4.5) Nm (ftlb.)**

top of page

Subsequent work

Rework on expansion valve

870317 Draining and filling in refrigerant
852219 Removing and installing cover - chapter on "installing"

997110, 997111, 997120, 997121, 997310, 997311, 997320, 997321, 997410, 997411, 997430, 997431, 997610, 997611, 997620, 997621

as of MY 2005
Country C00, C02, C05, C07, C08, C09, C10, C11, C12, C13, C14, C15, C16, C18, C19, C20, C21, C22, C23, C24, C25, C26, C27, C28, C32, C33, C34, C35, C36, C37, C38, C39, C45, C46, C98, C99

WARNUNG
Gefahr des Verlusts der Text-Bild-Zuordnung beim Ausdruck.

- **Aus technischen Gründen kann derzeit nicht ausgeschlossen werden, dass trotz einwandfreier Darstellung auf dem Bildschirm beim Ausdruck der Zusammenhang von Text und zugehörigem Bild verloren geht.**
- **Wird der Fehler nicht bemerkt, besteht die Gefahr, daß Arbeiten nicht korrekt durchgeführt werden und es dadurch zu Personen- und Sachschäden kommt.**

Vergleichen Sie deshalb nach dem Druckvorgang unbedingt die Ausdrucke mit der Bildschirmdarstellung. Korrigieren Sie die Ausdrucke im Fehlerfall so, daß der Inhalt der Bildschirmdarstellung zutreffend wiedergegeben wird.

WARNING

87 78 19 Removing and installing blower regulator - as of MY 2005

- Preliminary work
- Removing blower regulator
- Installing blower regulator
- Subsequent work

top of page

Preliminary work

Preliminary work for blower regulator

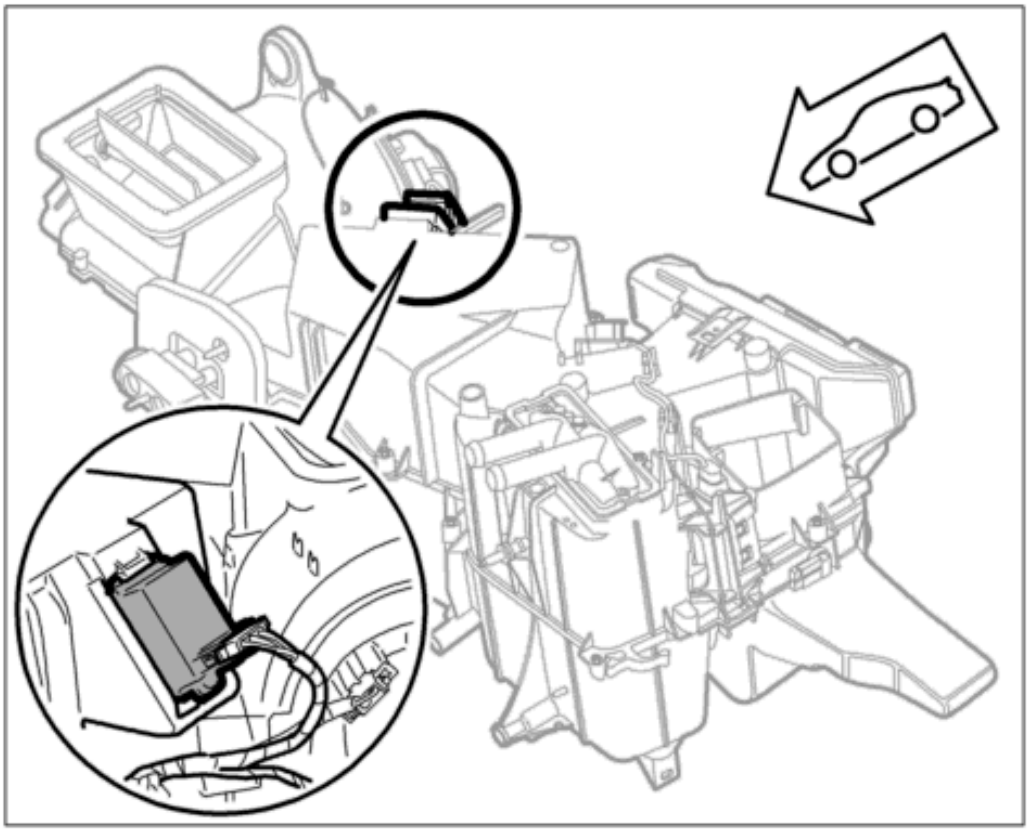
Remove glove compartment. 681519 Removing and installing glove compartment - section on "Removing"
Remove air guide **C**. 853419 Removing and installing air guide - section on "Removing"

top of page

Removing blower regulator

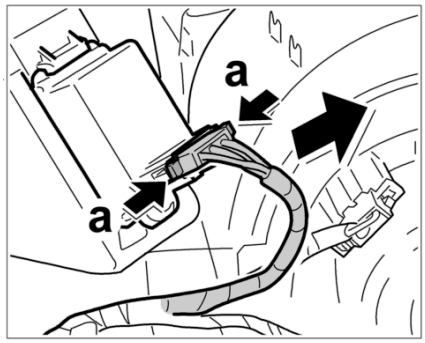
Removing blower regulator

Installation Location:



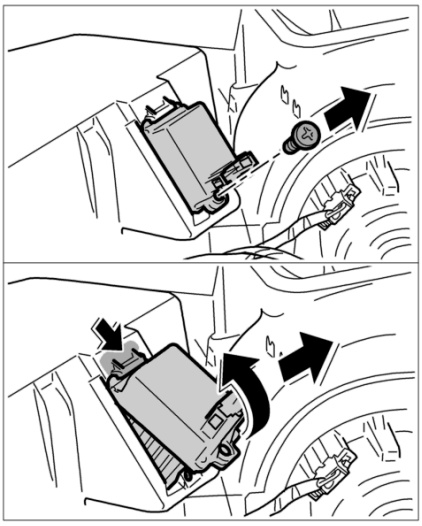
Installation position

1. Switch off ignition and remove ignition key.



Releasing electrical connector

2. Release electrical connector and unplug it from blower regulator.



Unscrewing fastening screw

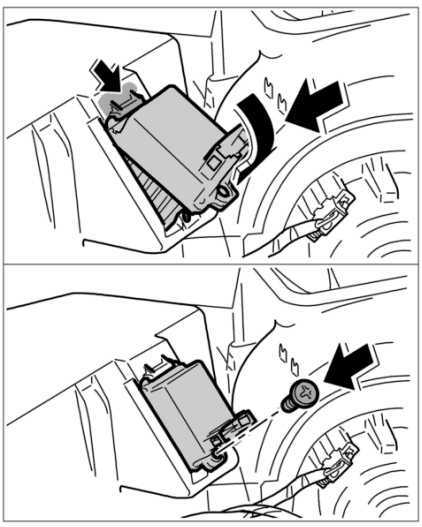
3. Undo fastening screw.
4. Lift blower regulator and detach at the top side.

top of page

Installing blower regulator

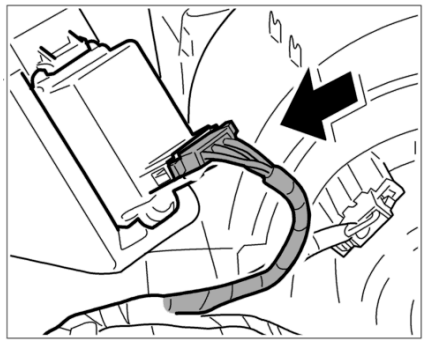
Installing blower regulator

1. Switch off ignition and remove ignition key.



Engage and screw down the blower regulator.

2. Engage blower regulator and insert into the heating/air-conditioning unit.
3. Secure the blower regulator with the fastening screw. **Tightening torque: 1.5 (1.0 ftlb.) Nm**



Inserting electric connector

4. Insert electrical connector into blower regulator until it clicks into place.

top of page

Subsequent work

Subsequent work for blower regulator

Install air guide **C**. 853419 Removing and installing air guide - section on "Installing"
Install glove compartment. 681519 Removing and installing glove compartment - section on "Installing"

997110, 997111, 997120, 997121, 997310, 997311, 997320, 997321, 997410, 997411, 997430, 997431, 997610, 997611, 997620, 997621

as of MY 2005
Country C00, C02, C05, C07, C08, C09, C10, C11, C12, C13, C14, C15, C16, C18, C19, C20, C21, C22, C23, C24, C25, C26, C27, C28, C32, C33, C34, C35, C36, C37, C38, C39, C45, C46, C98, C99

WARNUNG

Gefahr des Verlusts der Text-Bild-Zuordnung beim Ausdruck.

- **Aus technischen Gründen kann derzeit nicht ausgeschlossen werden, dass trotz einwandfreier Darstellung auf dem Bildschirm beim Ausdruck der Zusammenhang von Text und zugehörigem Bild verloren geht.**
- **Wird der Fehler nicht bemerkt, besteht die Gefahr, daß Arbeiten nicht korrekt durchgeführt werden und es dadurch zu Personen- und Sachschäden kommt.**

Vergleichen Sie deshalb nach dem Druckvorgang unbedingt die Ausdrucke mit der Bildschirmdarstellung. Korrigieren Sie die Ausdrucke im Fehlerfall so, daß der Inhalt der Bildschirmdarstellung zutreffend wiedergegeben wird.

WARNING

87 83 19 Removing and installing pressure switch - as of MY 2005

- Preliminary work
- Removing pressure switch
- Installing pressure switch
- Subsequent work

top of page

Preliminary work

Preliminary work for pressure switch

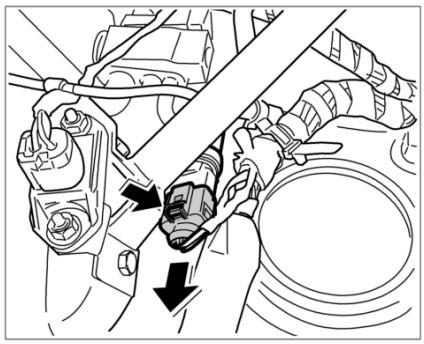
870317 Draining and filling in refrigerant - chapter on "draining"

top of page

Removing pressure switch

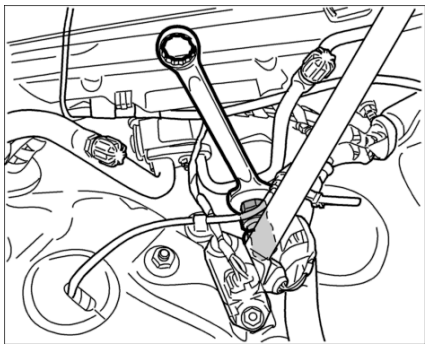
Removing pressure switch

The pressure switch is located in the radiator tank, right side in the direction of travel, under the cowl panel cover.



Releasing and removing connector

1. Press release on electrical connector and disconnect from pressure switch.



Removing switch

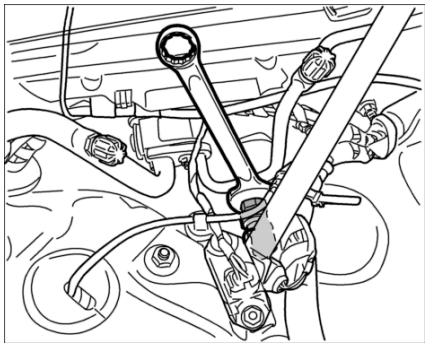
2. Place one open-ended wrench on the hexagon of the pressure switch and a second open-ended wrench on the hexagon of the refrigerant line.
3. Unscrew pressure switch from refrigerant line and remove.

top of page

Installing pressure switch

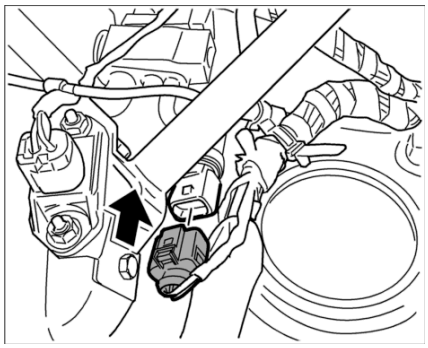
Installing pressure switch

Replace the O-ring on the pressure switch and wet it with refrigerant oil.



Installing switch

1. Screw pressure switch onto refrigerant line and tighten with an open-ended wrench. Counter with a second open-ended wrench. **Tightening torque: 3.5 ftlb.**



Plugging in connector

2. Push electrical plug onto pressure switch until it clicks into place.

top of page

Subsequent work

Subsequent work for pressure switch

870317 Draining and filling in refrigerant - chapter on "filling in"

997110, 997111, 997120, 997121, 997310, 997311, 997320, 997321, 997410, 997411, 997430, 997431, 997610, 997611, 997620, 997621

as of MY 2005
Country C00, C02, C05, C07, C08, C09, C10, C11, C12, C13, C14, C15, C16, C18, C19, C20, C21, C22, C23, C24, C25, C26, C27, C28, C32, C33, C34, C35, C36, C37, C38, C39, C45, C46, C98, C99

WARNUNG

Gefahr des Verlusts der Text-Bild-Zuordnung beim Ausdruck.

- **Aus technischen Gründen kann derzeit nicht ausgeschlossen werden, dass trotz einwandfreier Darstellung auf dem Bildschirm beim Ausdruck der Zusammenhang von Text und zugehörigem Bild verloren geht.**
- **Wird der Fehler nicht bemerkt, besteht die Gefahr, daß Arbeiten nicht korrekt durchgeführt werden und es dadurch zu Personen- und Sachschäden kommt.**

Vergleichen Sie deshalb nach dem Druckvorgang unbedingt die Ausdrucke mit der Bildschirmdarstellung. Korrigieren Sie die Ausdrucke im Fehlerfall so, daß der Inhalt der Bildschirmdarstellung zutreffend wiedergegeben wird.

WARNING

Danger of losing text-figure correspondence when printing out.

- **For technical reasons, it can currently not be ruled out that the correspondence between text and associated figure can be lost when it is printed out, even though the display on the screen is correct.**
- **If the fault is not noticed, there is the danger that work will not be performed correctly which can cause injury and damage.**

Therefore, always compare printouts with the screen display after printing them out. Correct the printouts if they are faulty so that the content of the screen display matches that on the printouts.

90 03 19 Removing and installing dashboard insert - as of MY 2005

- Preliminary work
- Removing dashboard insert
- Installing dashboard insert
- Subsequent work

top of page

Preliminary work

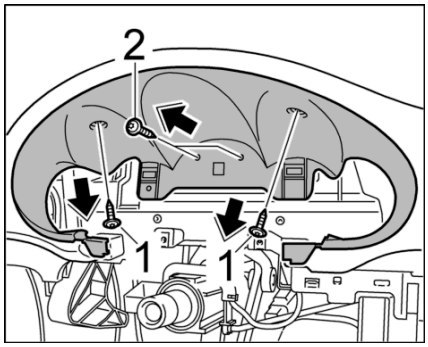
Preliminary work for the dashboard insert

1. Remove instrument cluster. *21 Removing and installing instrument cluster - removing*

top of page

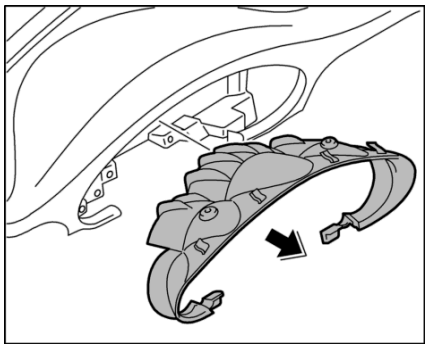
Removing dashboard insert

Removing dashboard insert



Removing dashboard insert

1. Adjust the steering wheel as far down and as far back as it will go (as seen from the direction of travel)
2. Unclip both ends of the ornamental strip to the left and right
3. Unfasten securing screws **-1-** and **-2-** .



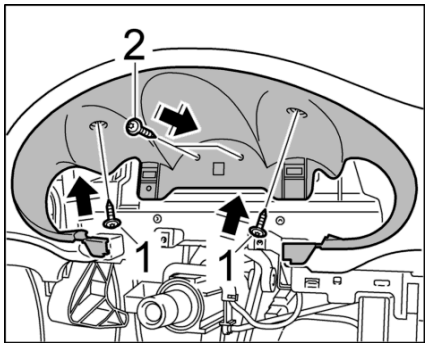
Pull out the dashboard insert

4. Push down the dashboard insert out of the dashboard mounting from the top using a plastic trowel.

top of page

Installing dashboard insert

Installing dashboard insert



Installing dashboard insert

1. Position the dashboard insert in the dashboard mounting and use the fastening screws **-1-** **4,2X13-C: 1 ftlb** and **-2-** **4,2X13-C: 1 ftlb** to screw it firmly into place.
2. Clip in both the end caps for the ornamental strip.

top of page

Subsequent work

Subsequent work for the dashboard insert

1. Remove instrument cluster. *23 Removing and installing instrument cluster - installing*

997110, 997111, 997120, 997121, 997310, 997311, 997320, 997321, 997410, 997411, 997430, 997431, 997610, 997611, 997620, 997621

as of MY 2005
Country C00, C02, C05, C07, C08, C09, C10, C11, C12, C13, C14, C15, C16, C18, C19, C20, C21, C22, C23, C24, C25, C26, C27, C28, C32, C33, C34, C35, C36, C37, C38, C39, C45, C46, C98, C99

WARNUNG

Gefahr des Verlusts der Text-Bild-Zuordnung beim Ausdruck.

- **Aus technischen Gründen kann derzeit nicht ausgeschlossen werden, dass trotz einwandfreier Darstellung auf dem Bildschirm beim Ausdruck der Zusammenhang von Text und zugehörigem Bild verloren geht.**
- **Wird der Fehler nicht bemerkt, besteht die Gefahr, daß Arbeiten nicht korrekt durchgeführt werden und es dadurch zu Personen- und Sachschäden kommt.**

Vergleichen Sie deshalb nach dem Druckvorgang unbedingt die Ausdrucke mit der Bildschirmdarstellung. Korrigieren Sie die Ausdrucke im Fehlerfall so, daß der Inhalt der Bildschirmdarstellung zutreffend wiedergegeben wird.

WARNING

Danger of losing text-figure correspondence when printing out.

- **For technical reasons, it can currently not be ruled out that the correspondence between text and associated figure can be lost when it is printed out, even though the display on the screen is correct.**
- **If the fault is not noticed, there is the danger that work will not be performed correctly which can cause injury and damage.**

Therefore, always compare printouts with the screen display after printing them out. Correct the printouts if they are faulty so that the content of the screen display matches that on the printouts.

AVERTISSEMENT

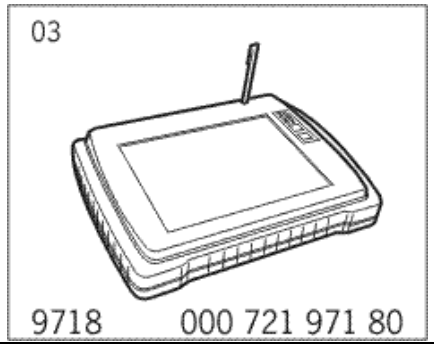
Risque de perte de la correspondance texte-illustration lors de l'impression papier.

- **Pour des raisons techniques, il ne peut pas être exclu à l'heure actuelle que, même en cas d'affichage correct à l'écran, la correspondance entre le texte et l'illustration puisse être erronée sur l'impression papier.**
- **Si l'erreur passe inaperçue, on court le risque d'exécuter certaines opérations de manière incorrecte pouvant conduire à des dommages corporels et matériels.**

90 22 19 Removing and installing stopwatch - as of MY 2005

- Removing stopwatch
- Installing stopwatch
- Programming stopwatch

Tools

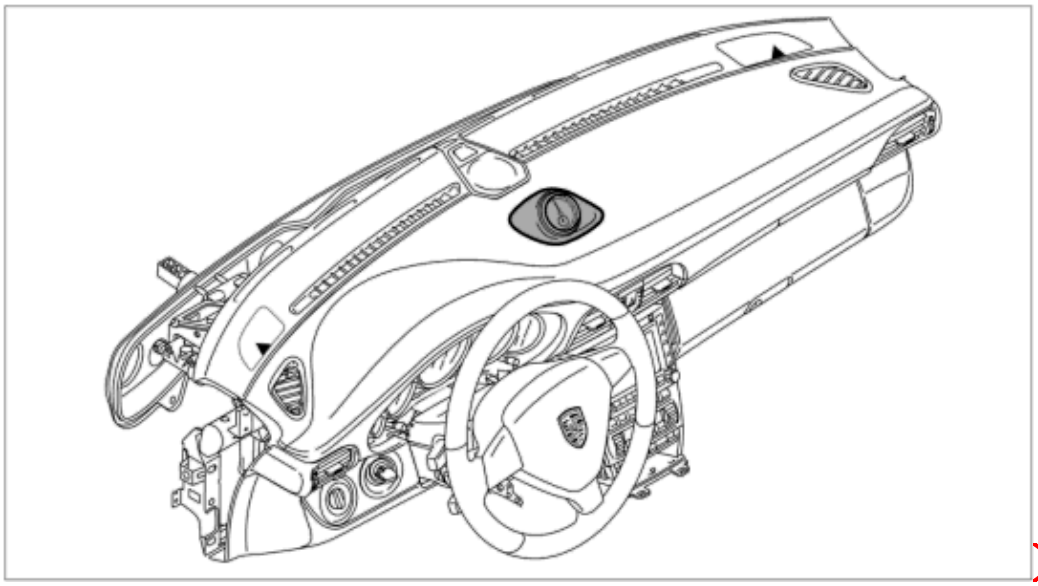
Designation	Type	Number	Explanation	
PIWIS tester	special tool	9718		

top of page

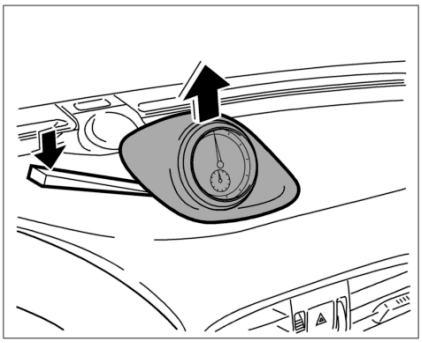
Removing stopwatch

Removing stopwatch

Installation Location:

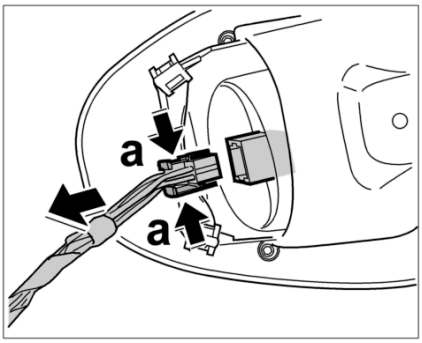


Install location



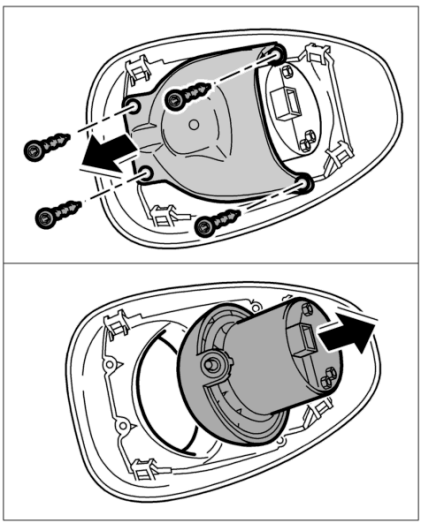
Plastic spatula

1. Insert a plastic spatula between the dashboard and the stopwatch. Lift up the stopwatch until its four clips unclip from the dashboard.



Releasing electrical connector

2. Release electrical connector **-a-** and pull away from the stopwatch.



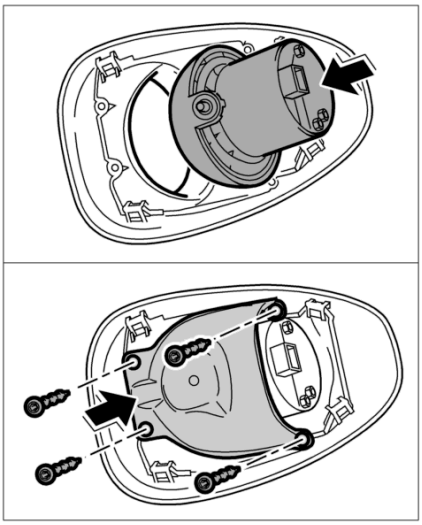
Unscrewing fastening screws

3. Turn the stopwatch around, unscrew the four fastening screws, remove the cover and take the stopwatch out of its holder.

top of page

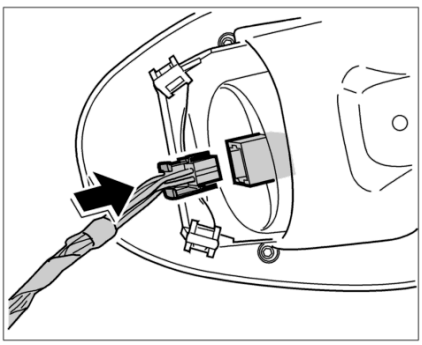
Installing stopwatch

Installing stopwatch



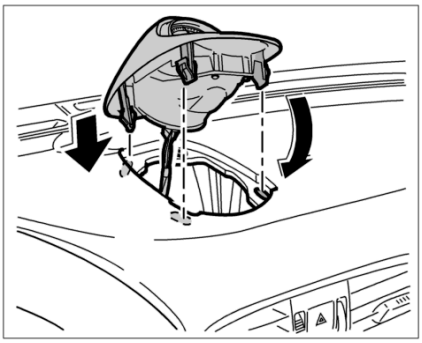
Installing stopwatch

1. Insert the stopwatch into the holder and attach it.
2. Position the cover and screw down with the fastening screws.



Inserting connector into stopwatch.

3. Insert electrical connector into stopwatch until it is felt to engage.



Clipping in stopwatch.

4. Run electrical lead into the dashboard, position the stopwatch with its cover over the dashboard and clip in the four clips.

top of page

Programming stopwatch

Reading out and writing stopwatch values

WARNING

Sudden voltage interruption of the power supply to the control module.

- **Destruction of the control module.**

During programming, it is essential to guarantee the power supply for the Porsche System tester. It is essential to connect a battery charger with a current rating of at least 40 A to the vehicle battery.

Prior to disconnecting the control module, switch off the ignition and remove the ignition key.

Note

The **PIWIS tester 9718** instructions take precedence and in the event of a discrepancy these are the instructions that must be followed. Deviations may occur with later software versions.
The procedure described here has been structured in general terms; different text or additions may appear in the **PIWIS tester 9718**.

1. Connect the Porsche System tester to the vehicle and start the System tester. Switch on ignition. >> Continue.
2. Select the vehicle type.
3. Switch from the vehicle type to the list of control units.
4. Select **Stopwatch** with the cursor keys and press the >> key.
5. Select **Control unit replacement** with the cursor keys and press the >> key.

6. Select **Read out values** (codings) with the cursor keys and press >> .
7. The message **Codes successfully read out** appears on the screen of the Porsche System tester. Press >> .
8. Switch off ignition and replace control unit.
9. Switch on ignition, switch to the **Special functions** menu and perform the **Vehicle handover** using the F8 key.
10. In the **Special functions** menu, erase **All fault memories** by pressing >> .
11. Carry out automatic search of control units.
12. In the menu **Write in data** >> , the data read-out is installed.
13. System tester displays **Coding write-in complete** >> .
14. Quit menu, check operation of stopwatch and read out fault memory.

Coding stopwatch

WARNING

Sudden voltage interruption of the power supply to the control module.

- **Destruction of the control module.**

During programming, it is essential to guarantee the power supply for the Porsche System tester. It is essential to connect a battery charger with a current rating of at least 40 A to the vehicle battery.

Prior to disconnecting the control module, switch off the ignition and remove the ignition key.

Note

The **PIWIS tester 9718** instructions take precedence and in the event of a discrepancy these are the instructions that must be followed. Deviations may occur with later software versions.
The procedure described here has been structured in general terms; different text or additions may appear in the **PIWIS tester 9718**.

Note

The procedure described must be applied when a control unit has to be replaced and the tester function **Control unit replacement** cannot be used.

1. Connect the **PIWIS tester 9718** to the vehicle and start it. Switch on the ignition. >> Continue.
2. Select the **vehicle type**.
3. Switch to the **Special functions** menu and perform the **vehicle handover** using the F8 key.
4. In the **Special functions** menu, erase **All fault memories** by pressing >> .
5. Carry out automatic search of control units.
6. Using the >> key, move from the vehicle type to the list of control units.

7. Select **Stopwatch** with the cursor keys and press the >> .

Note

The codings will be optimised with later versions of the tester software; the coding scope documented here serves as a guide.

8. Select **Stopwatch** with the cursor keys and press the >> .

Illumination settings:	Default
	Illumination off
Time constant brighter	Reference value >> 3.2
Time constant darker	Reference value >> 12.8

9. Quit menu, check operation of stopwatch and read out fault memory.

997110, 997111, 997120, 997121, 997310, 997311, 997320, 997321, 997410, 997411, 997430, 997431, 997610, 997611, 997620, 997621

as of MY 2005
Country C00, C02, C05, C07, C08, C09, C10, C11, C12, C13, C14, C15, C16, C18, C19, C20, C21, C22, C23, C24, C25, C26, C27, C28, C32, C33, C34, C35, C36, C37, C38, C39, C45, C46, C98, C99

WARNUNG

Gefahr des Verlusts der Text-Bild-Zuordnung beim Ausdruck.

- **Aus technischen Gründen kann derzeit nicht ausgeschlossen werden, dass trotz einwandfreier Darstellung auf dem Bildschirm beim Ausdruck der Zusammenhang von Text und zugehörigem Bild verloren geht.**
- **Wird der Fehler nicht bemerkt, besteht die Gefahr, daß Arbeiten nicht korrekt durchgeführt werden und es dadurch zu Personen- und Sachschäden kommt.**

Vergleichen Sie deshalb nach dem Druckvorgang unbedingt die Ausdrucke mit der Bildschirmdarstellung. Korrigieren Sie die Ausdrucke im Fehlerfall so, daß der Inhalt der Bildschirmdarstellung zutreffend wiedergegeben wird.

WARNING

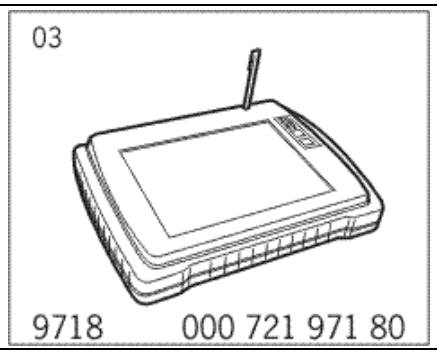
Danger of losing text-figure correspondence when printing out.

- **For technical reasons, it can currently not be ruled out that the correspondence between text and associated figure can be lost when it is printed out, even though the display on the screen is correct.**
- **If the fault is not noticed, there is the danger that work will not be performed correctly which can cause injury and damage.**

90 25 19 Removing and installing instrument cluster - as of MY 2005

- General warning notes
- Preliminary work
- Removing instrument cluster
- Installing instrument cluster
- Subsequent work
- Programming instrument cluster

Tools

Designation	Type	Number	Explanation	
PIWIS Tester	special tool	9718		

top of page

General warning notes

General warnings for instrument cluster

ATTENTION

Sudden voltage interruption of the power supply to the control module.

- **Destruction of the control module.**

During programming, it is essential to guarantee the power supply for the Porsche System tester. It is essential to connect a battery charger with a current rating of at least 40 A to the vehicle battery.

Prior to disconnecting the control module, switch off the ignition and remove the ignition key.

top of page

Preliminary work

Preliminary work for instrument cluster

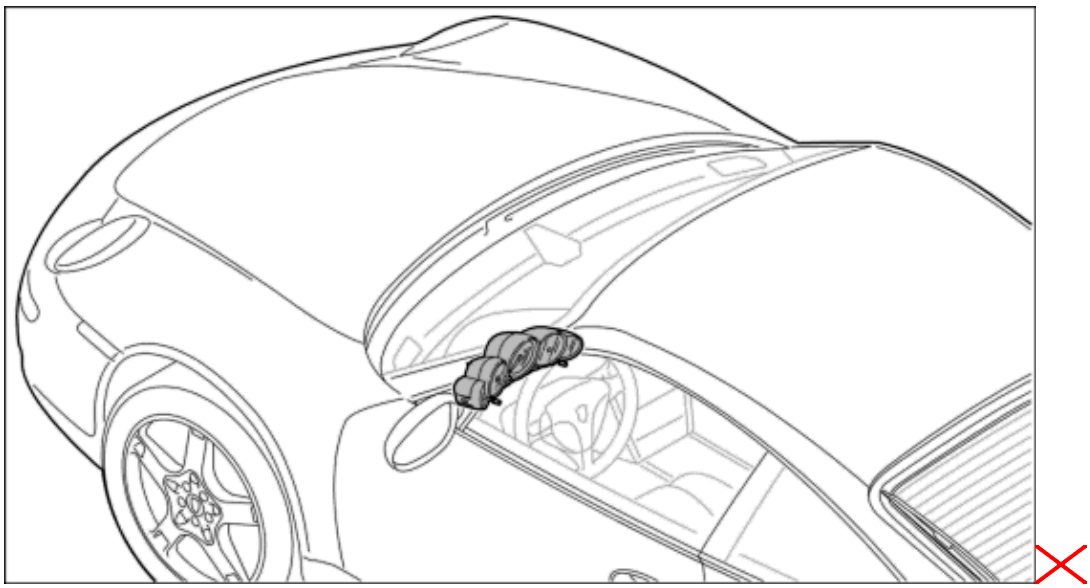
Remove top steering-column panel. *481319 21 Removing and installing trim panel - Removing*

top of page

Removing instrument cluster

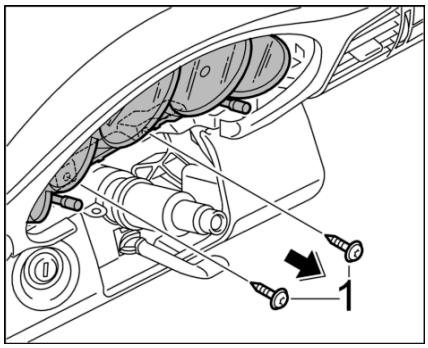
Removing instrument cluster

Installation Location:



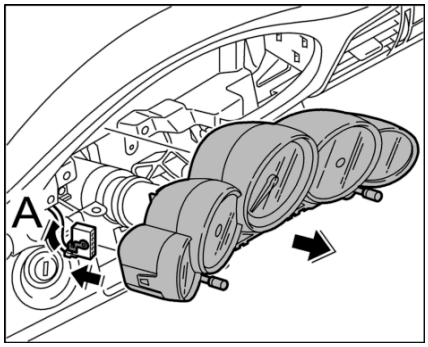
Installation position

1. If a new instrument cluster should be installed, read out the values if possible from the instrument cluster. *25 Removing and installing instrument cluster - programming*
2. Loosen the steering wheel adjustment, put the steering wheel in the front-most and lowest position and lock the steering wheel adjustment.



Unscrewing fastening screws

3. Unscrew the two fastening screws **-1-** .



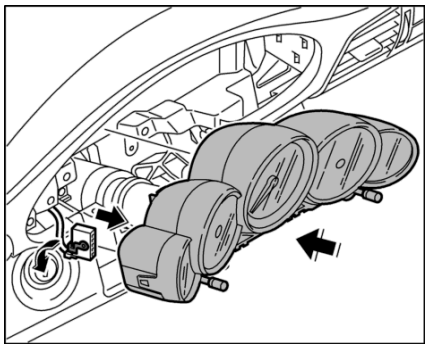
Unlocking the electric connector

4. The instrument cluster is also secured in the dashboard with two retaining clips. Therefore, pull the instrument cluster abruptly forward and if necessary push instrument cluster away from dashboard from underneath.
5. Release electrical connector on instrument cluster **-A-** and unplug it.
6. Pull out instrument cluster at the sides and to the left.

top of page

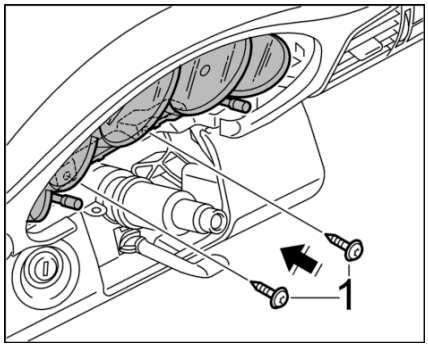
Installing instrument cluster

Installing instrument cluster



Connecting electric plug

1. Position the instrument cluster, connect the electrical plug and lock.
2. The instrument cluster has two retaining clips; push instrument cluster into the dashboard and press on until the retaining clips engage.



3. Screw down instrument cluster with both fastening screws **-1-** . **4.2x16-C: 2.0 ftlb.**
4. If a new instrument cluster was installed, *25 Removing and installing instrument cluster - programming*

top of page

Subsequent work

Reworking instrument cluster

Install top steering-column panel. *481319 23 Removing and installing trim panel - Installing*

top of page

Programming instrument cluster

Reading and printing values

Note

If the instrument cluster is replaced or exchanged, the instrument cluster must be programmed and coded using the **PIWIS Tester 9718**. This is done to adapt the instrument cluster to the vehicle and equipment.
If possible, before the instrument cluster is removed and replaced, a read-out of the vehicle data should be obtained using the Porsche System Tester.
During coding, it is essential to guarantee the power supply for the Porsche System Tester. It is essential to connect a battery charger with a current rating of at least 40 A to the vehicle battery.
The Porsche System Tester instructions take precedence and in the event of a discrepancy these are the instructions that must be followed. Deviations may occur with later software versions.
The procedure described here has been structured in general terms; different text or additions may appear in the Porsche System Tester.

1. Connect the Porsche System Tester to the vehicle and start the System Tester. Switch on ignition. >> Continue.
2. Select vehicle type >> .
3. Switch from the vehicle type to the list of control units.
4. Select **Instrument cluster** and press the >> key.
5. Select **Control unit replacement** with the cursor keys and press the >> key.
6. Select **Read out values** (codings) with the cursor keys and press the >> key.
7. The message Coding read-out complete will appear on the screen of the Porsche System Tester >> .
8. Switch off ignition and replace instrument cluster. *21 Removing and installing instrument cluster - removing.*
9. Switch on ignition. After replacement of the control unit, the vehicle data is installed under the menu **Write in data** (see Point 6) > > .
10. System Tester displays Coding write-in complete . Press the >> key.
11. Go to the **Special functions** menu and start the **Vehicle handover** also; follow the instructions on the Tester.
12. Erase **All fault memories**.
13. Go to the **Instrument clusterCoding** menu again and check the coding in accordance with the vehicle equipment.
14. Carry out a test drive and read out fault memory again.

997110, 997111, 997120, 997121, 997310, 997311, 997320, 997321, 997410, 997411, 997430, 997431, 997610, 997611, 997620, 997621

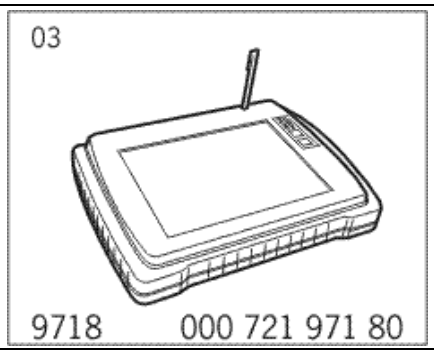
as of MY 2005
Country C00, C02, C05, C07, C08, C09, C10, C11, C12, C13, C14, C15, C16, C18, C19, C20, C21, C22, C23, C24, C25, C26, C27, C28, C32, C33, C34, C35, C36, C37, C38, C39, C45, C46, C98, C99

WARNUNG

90 35 19 Removing and installing gateway control unit - as of MY 2005

- Preliminary work
- General warning notes
- Removing gateway control unit
- Installing gateway control unit
- Subsequent work
- Coding gateway control unit

Tools

Designation	Type	Number	Explanation	
PIWIS tester	special tool	9718		

top of page

Preliminary work

Preliminary work for gateway control unit

Cover of driver's footwell: 702219 Removing and installing cover - removing. [997110 997111 997120 997121 997310 997311 997320 997321] *702219 21 Removing and installing cover - removing. [997410 997411 997430 997431 997610 997611 997620 997621]*
Remove relay carrier 1 978319 Removing and installing relay carrier 1 - chapter on "removing"
Remove vehicle electrical system control unit. 971019 Removing and installing vehicle electrical system control unit - chapter on "installing"

top of page

General warning notes

General warnings for gateway control module

WARNING

Sudden voltage interruption of the power supply to the control module.

- **Destruction of the control module.**

During programming, it is essential to guarantee the power supply for the Porsche System tester. It is essential to connect a battery charger with a current rating of at least 40 A to the vehicle battery.

Prior to disconnecting the control module, switch off the ignition and remove the ignition key.

top of page

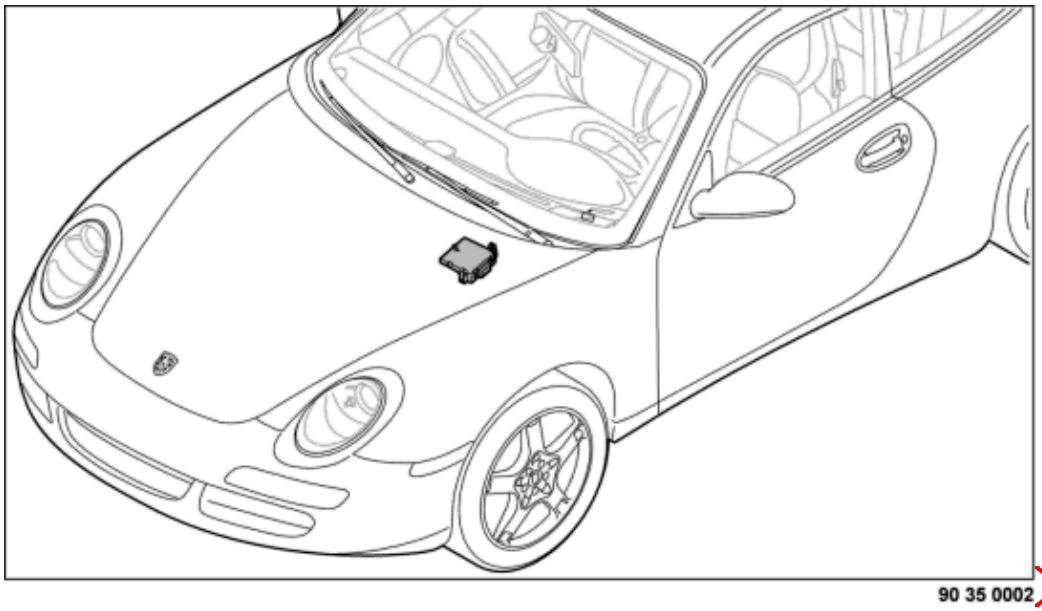
Removing gateway control unit

Removing gateway control unit

Note

The gateway control module is located under the radiator tank, accessible from inside the vehicle near to the driver.

Installation Location:



Installation location of gateway control unit

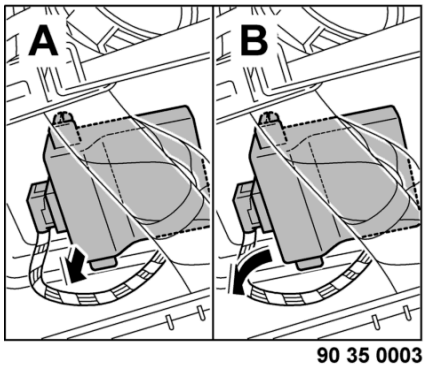
WARNING

Sudden voltage interruption of the power supply to the control module.

- **Destruction of the control module.**

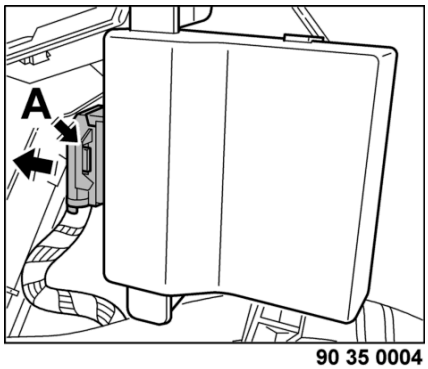
During programming, it is essential to guarantee the power supply for the Porsche System tester. It is essential to connect a battery charger with a current rating of at least 40 A to the vehicle battery.

Prior to disconnecting the control module, switch off the ignition and remove the ignition key.



Removing gateway control unit

1. **-A-** Pull gateway control unit downwards on the plug side (unclip)
   AW Removing and installing gateway control unit - general warnings
2. **-B-** Pull gateway control unit to the left out of the holder.



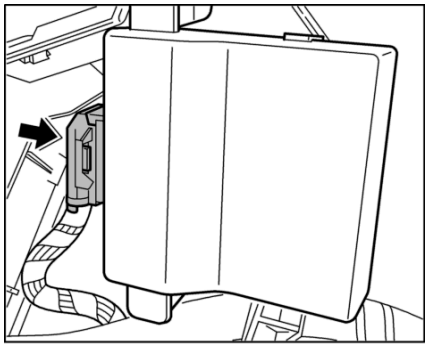
Unlocking the electric connector

3. Release electric connector **-A-** and pull from the gateway control unit.

top of page

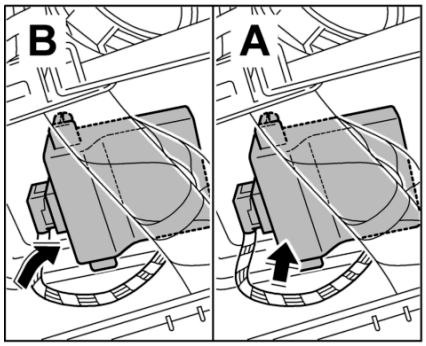
Installing gateway control unit

Installing gateway control module



Connecting electric plug

1. Push on electric plug until it is felt to engage on gateway control module.



Installing gateway control module

2. Push in gateway control module into the holder **-A-** and clip in **-A-** .
3. If a new gateway control module has been installed, it must be coded on the vehicle. *C1 Removing and installing gateway control module - coding*

top of page

Subsequent work

Subsequent work for gateway control unit

Install relay carrier 1. 978319 Removing and installing relay carrier 1 - chapter on "installing"

Install vehicle electrical system control unit. 971019 Removing and installing vehicle electrical system control unit - chapter on "installing"
Cover of driver's footwell: 702219 Removing and installing cover - installing. [997110 997111 997120 997121 997310 997311 997320 997321] *702219 23 Removing and installing cover - installing. [997410 997411 997430 997431 997610 997611 997620 997621]*

top of page

Coding gateway control unit

Coding the gateway control unit

Note
If the gateway control module is replaced, the gateway control module must be coded using the **PIWIS tester 9718**. This is to adapt the Gateway control module to the vehicle and equipment.
If possible, before the gateway control module is removed and replaced, a read-out of the vehicle data should be obtained from the Porsche System Tester.
During coding, it is essential to guarantee the power supply for the Porsche System Tester. It is essential to connect a battery charger with a current rating of at least 40 A to the vehicle battery.
The Porsche System Tester instructions take precedence and in the event of a discrepancy these are the instructions that must be followed. Deviations may occur with later software versions.
The procedure described here has been structured in general terms; different text or additions may appear in the Porsche System Tester.

1. Connect the Porsche System Tester to the vehicle and start the System Tester. Switch on the ignition. >> Continue.
2. Select vehicle type using the cursor keys.
3. Move from vehicle type to the list of control units >> .
4. Select **Gateway** with the cursor keys and press the >> key.
5. Select **Control unit replacement** with the cursor keys and press the >> key.
6. Select **Read out values** (codings) with the cursor keys and press the >> key.
7. The message Coding read-out complete will appear on the screen of the Porsche System Tester. Press the >> key.
8. Switch off ignition and replace Gateway control unit. *21 Removing and installing gateway control unit - removing*
9. System Tester displays Coding write-in complete . Press the >> key.
10. Follow the instructions on the Tester .
11. Quit menu, switch off ignition, lock then unlock vehicle and read out fault memory once more.
12. In the **Gateway** menu, select **Required & actual configuration** >> .
13. Check the list for both **Required** and **Actual** for the same **+** or **-**. If there are deviating specifications, first check if the components are installed on this vehicle.

14. If necessary, change to the **Coding** menu, and select the non-matching components (e.g., Tyre pressure monitoring system) and code the components with F8 .
15. In the **Gateway** menu, select **Required & actual configuration** >> and check the list once again.
16. Read out and erase fault memory.

Programming gateway control unit

Note

If the "old" control module can no longer be read out, the coding must be performed "manually" with the **PIWIS tester 9718**. This is to adapt the Gateway control module to the vehicle and equipment.
During coding, it is essential to guarantee the power supply for the Porsche System Tester. It is essential to connect a battery charger with a current rating of at least 40 A to the vehicle battery.
The Porsche System Tester instructions take precedence and in the event of a discrepancy these are the instructions that must be followed. Deviations may occur with later software versions.
The procedure described here has been structured in general terms; different text or additions may appear in the Porsche System Tester.

1. Connect the Porsche System Tester to the vehicle and start the System Tester. Switch on the ignition. >> Continue.
2. Select vehicle type using the cursor keys.
3. Move from vehicle type to the list of control units >> .
4. Select **Gateway** with the cursor keys and press the >> key.
5. Select the **Coding** menu >> .
6. Select the individual systems/components in turn and code the vehicle-dependent equipment with F8 .
7. In the **Gateway** menu, select **Required & actual configuration** >> .
8. Check the list for both **Required** and **Actual** for the same **+** or **-**. If there are deviating specifications, first check if the components are installed on this vehicle.
9. If necessary, change to the **Coding** menu, and select the non-matching components (e.g., Tyre pressure monitoring system) and code the components with F8 .
10. In the **Gateway** menu, select **Required & actual configuration** >> and check the list once again.
11. In the menu **Vehicle type**, select **Control units** and then select the menu **Special functions**.
12. Perform**Vehicle handover** and follow the instructions of the tester.
13. Read out and erase fault memory.

997110, 997111, 997120, 997121, 997310, 997311, 997320, 997321, 997410, 997411, 997430, 997431, 997610, 997611, 997620, 997621

as of MY 2005
Country C00, C02, C05, C07, C08, C09, C10, C11, C12, C13, C14, C15, C16, C18, C19, C20, C21, C22,

90 50 19 Removing and installing horn - as of MY 2005

- Preliminary work
- Removing horn
- Installing horn
- Subsequent work

top of page

Preliminary work

Preliminary work for horn

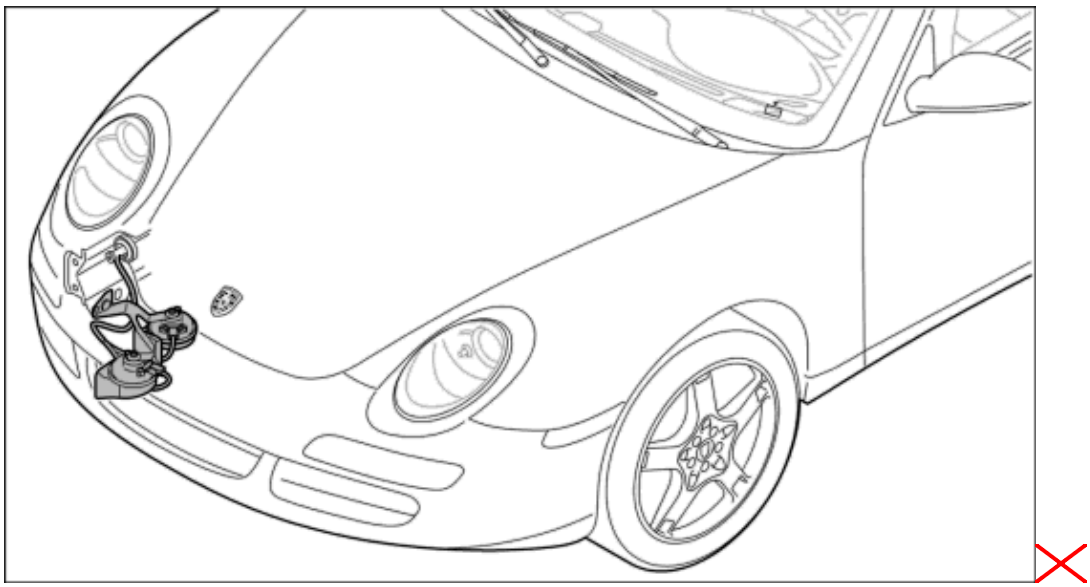
21 Removing and installing front spoiler - removing

top of page

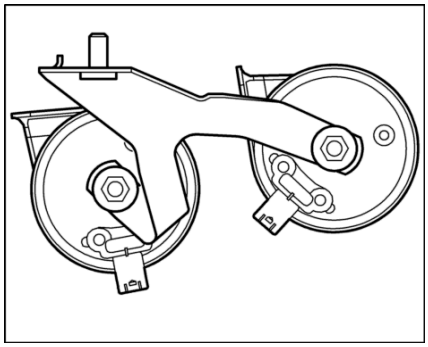
Removing horn

Removing horn

Installation Location:

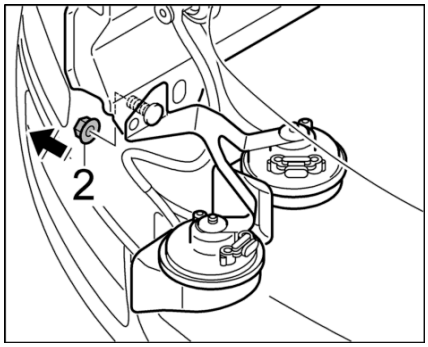


Installation position for horn



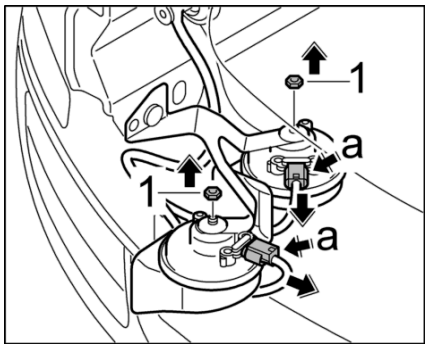
Horn with holder

1. The horn must be removed with the holder.



Fastening nut

2. Unscrew the fastening nut **-2-** and remove the holder with the horns.



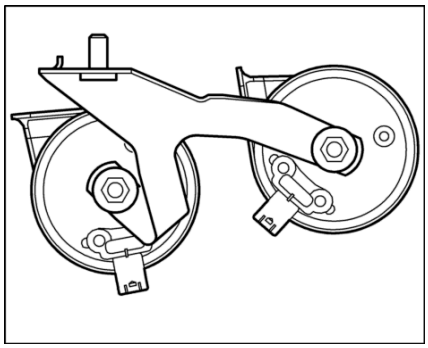
Installation of horn

3. Unlock the electrical plug **-a-** and disconnect from the horns.
4. Unscrew the fastening nut **-1-** and remove the horn from the holder.

top of page

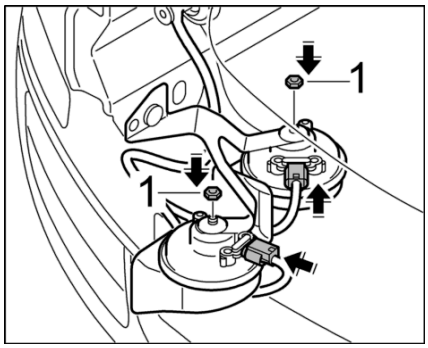
Installing horn

Installing horn



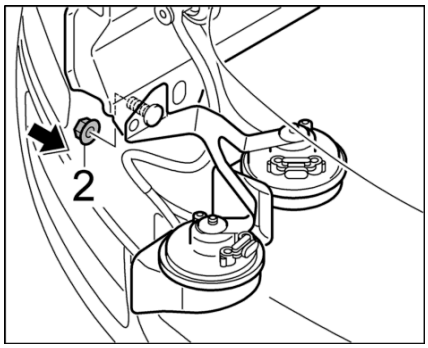
Installation position of the horn

1. Push in the horn in the holder and position the horn in the same way as the figure.



Installation of horn

2. Screw down the horns with the fastening nuts **-1-** . **M6: 7.5 ftlb.**
3. Insert both electrical connectors until they perceptibly engage.



Installation of holder

4. Position the holder with the horns on the body and screw down with the fastening nuts **-2-** . **M8: 17 ftlb.**

top of page

Subsequent work

Reworking the horn

23 Removing and installing front spoiler - installing

997110, 997111, 997120, 997121, 997310, 997311, 997320, 997321, 997410, 997411, 997430, 997431, 997610, 997611, 997620, 997621

as of MY 2005
Country C00, C02, C05, C07, C08, C09, C10, C11, C12, C13, C14, C15, C16, C18, C19, C20, C21, C22, C23, C24, C25, C26, C27, C28, C32, C33, C34, C35, C36, C37, C38, C39, C45, C46, C98, C99

WARNUNG

Gefahr des Verlusts der Text-Bild-Zuordnung beim Ausdruck.

- **Aus technischen Gründen kann derzeit nicht ausgeschlossen werden, dass trotz einwandfreier Darstellung auf dem Bildschirm beim Ausdruck der Zusammenhang von Text und zugehörigem Bild verloren geht.**
- **Wird der Fehler nicht bemerkt, besteht die Gefahr, daß Arbeiten nicht korrekt durchgeführt werden und es dadurch zu Personen- und Sachschäden kommt.**

Vergleichen Sie deshalb nach dem Druckvorgang unbedingt die Ausdrucke mit der Bildschirmdarstellung. Korrigieren Sie die Ausdrucke im Fehlerfall so, daß der Inhalt der Bildschirmdarstellung zutreffend wiedergegeben wird.

WARNING

Danger of losing text-figure correspondence when printing out.

- **For technical reasons, it can currently not be ruled out that the correspondence between text and associated figure can be lost when it is printed out, even though the display on the screen is correct.**
- **If the fault is not noticed, there is the danger that work will not be performed correctly which can cause injury and damage.**

Therefore, always compare printouts with the screen display after printing them out. Correct the printouts if they are faulty so that the content of the screen display matches that on the printouts.

AVERTISSEMENT

Risque de perte de la correspondance texte-illustration lors de l'impression papier.

- **Pour des raisons techniques, il ne peut pas être exclu à l'heure actuelle que, même en cas d'affichage correct à l'écran, la correspondance entre le texte et l'illustration**

90 58 19 Installing and removing socket - as of MY 2005

- Preliminary work
- Removing socket
- Installing socket
- Subsequent work

top of page

Preliminary work

Preliminary work for passenger's footwell socket

Remove right centre console cover. *21 Removing and installing centre console cover - removing*

Preliminary work for centre console socket

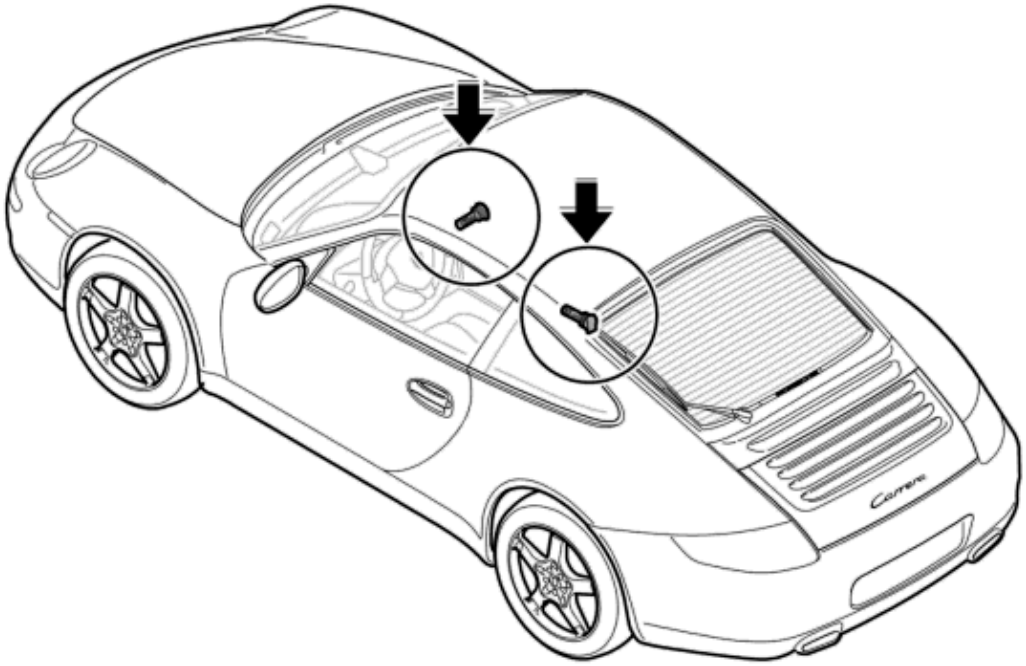
681719 Removing and installing centre console - removing

top of page

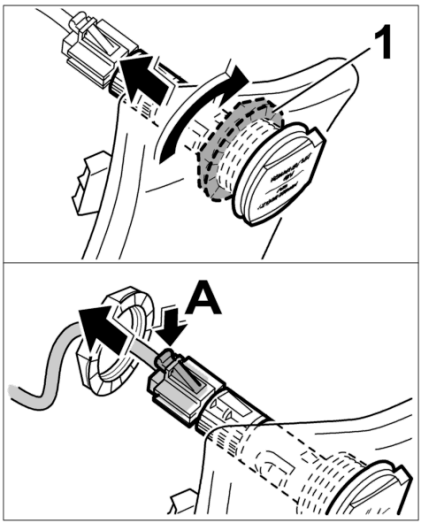
Removing socket

Removing passenger's footwell socket

Installation Location:



Overview of passenger's footwell socket

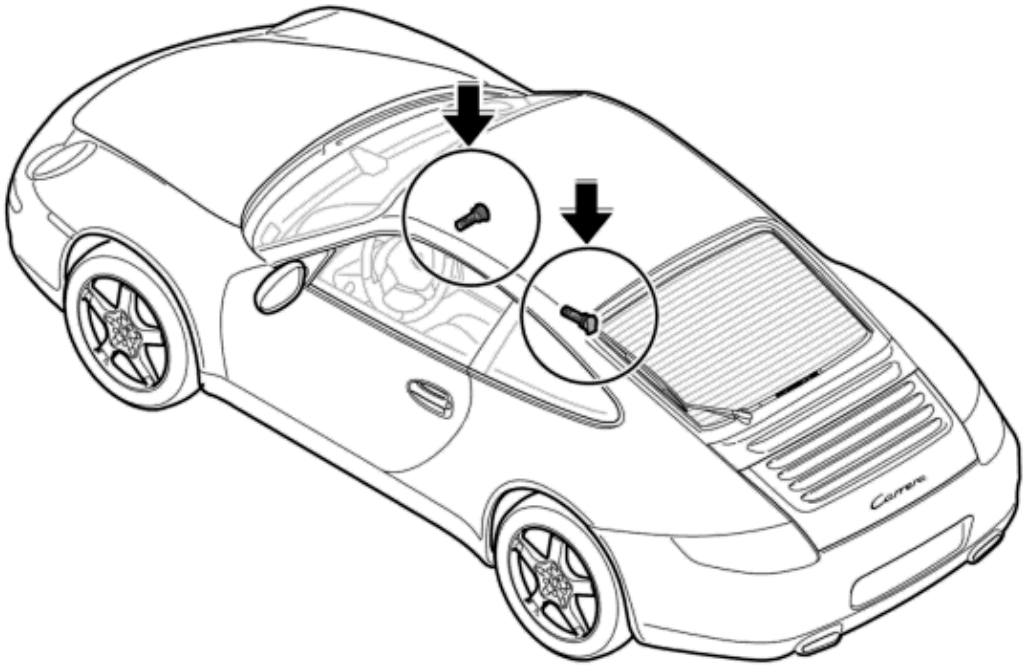


Removing the passenger's footwell socket

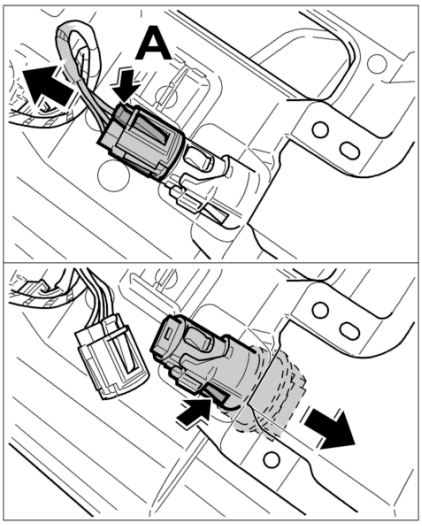
1. Loosen the fastening nuts **-1-** and pull to the rear over the electric wire.
2. Unlock electrical plug **-A-** and pull from the socket.

Removing centre console socket

Installation Location:



Overview of centre console socket



Removing the centre console socket

1. Turn centre console, unlock electrical plug **-A-** and pull from the socket.
2. Unlock socket and pull out of the centre console.

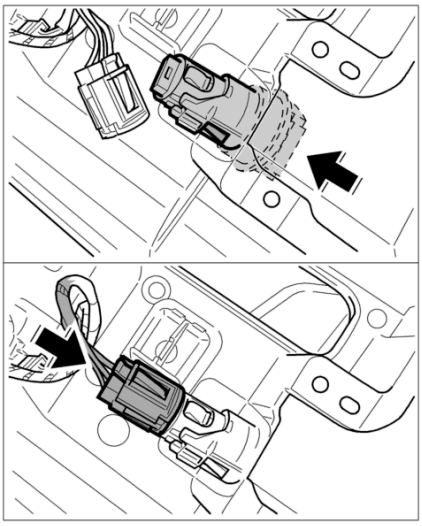
top of page

Installing socket

Installing passenger's footwell socket

1. Move the fastening nut through the electrical wire, move socket through the cover for the centre console and screw down with the fastening nut.
2. Push electrical plug onto socket until plug is felt to engage.

Installing the centre console socket



Installing the centre console socket

1. Insert the socket into the centre console until it clicks into place.
2. Push electrical plug onto socket until plug is felt to engage.

top of page

Subsequent work

Reworking the passenger's footwell socket

Install right centre console cover. *23 Removing and installing centre console cover - installing*

Reworking the centre console socket

681719 Removing and installing centre console - installing

997110, 997111, 997120, 997121, 997310, 997311, 997320, 997321, 997410, 997411, 997430, 997431, 997610, 997611, 997620, 997621

as of MY 2005
Country C00, C02, C05, C07, C08, C09, C10, C11, C12, C13, C14, C15, C16, C18, C19, C20, C21, C22, C23, C24, C25, C26, C27, C28, C32, C33, C34, C35, C36, C37, C38, C39, C45, C46, C98, C99

WARNUNG
Gefahr des Verlusts der Text-Bild-Zuordnung beim Ausdruck.

90 62 19 Removing and installing cigar lighter - as of MY 2005

- Preliminary work
- Removing cigar lighter
- Installing cigar lighter
- Subsequent work

top of page

Preliminary work

Preliminary work for cigar lighter

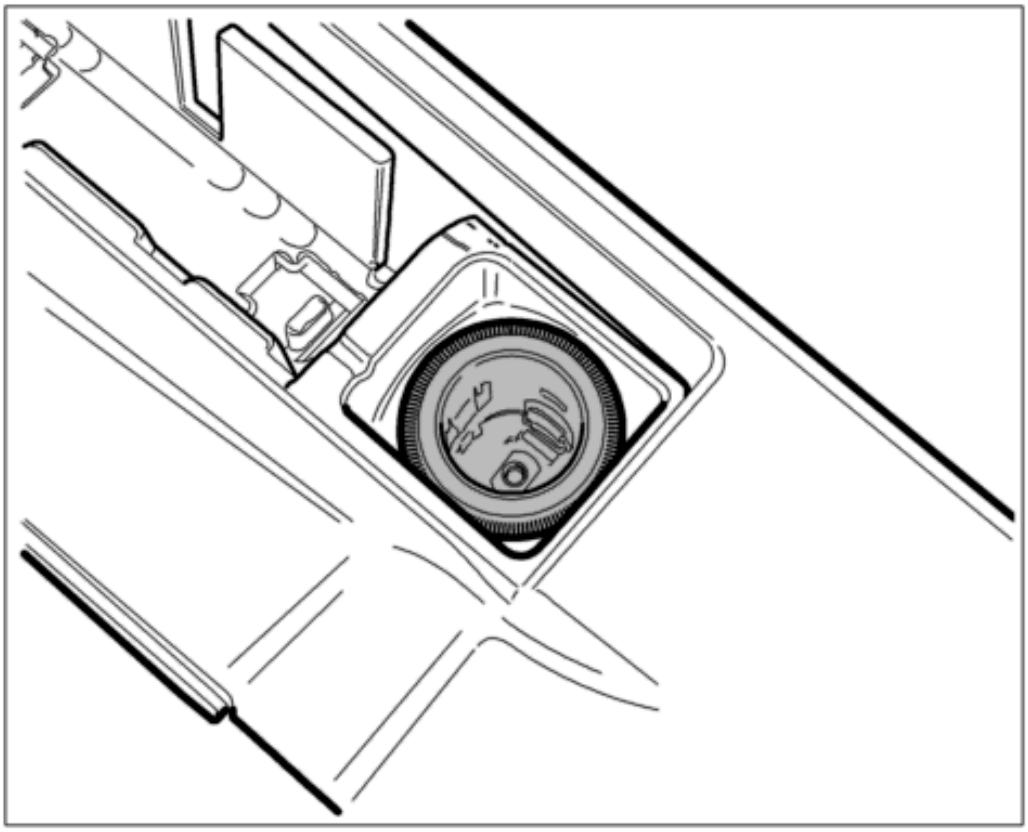
681719 Removing and installing centre console - removing

top of page

Removing cigar lighter

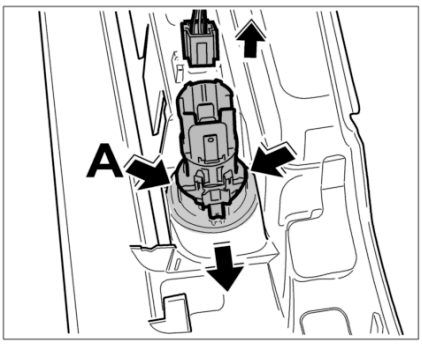
Removing cigar lighter

Installation Location:



Overview

The cigar lighter is located in the centre console behind the ashtray.



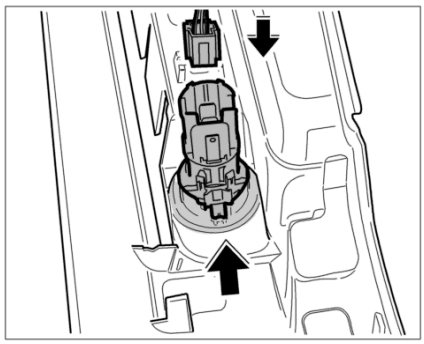
Removing the cigar lighter

1. Disconnect the electrical plugs.
2. Press together the locks **-A-** and push out the cigar lighter out of the centre console.

top of page

Installing cigar lighter

Installing cigar lighter



Installing the cigar lighter

1. Push in the cigar lighter into the centre console until the cigar lighter clicks into place in the centre console.
2. Connect the electric plug.

top of page

Subsequent work

Reworking the cigar lighter

681719 Removing and installing centre console - reworking

997110, 997111, 997120, 997121, 997310, 997311, 997320, 997321, 997410, 997411, 997430, 997431, 997610, 997611, 997620, 997621

as of MY 2005
Country C00, C02, C05, C07, C08, C09, C10, C11, C12, C13, C14, C15, C16, C18, C19, C20, C21, C22, C23, C24, C25, C26, C27, C28, C32, C33, C34, C35, C36, C37, C38, C39, C45, C46, C98, C99

WARNUNG

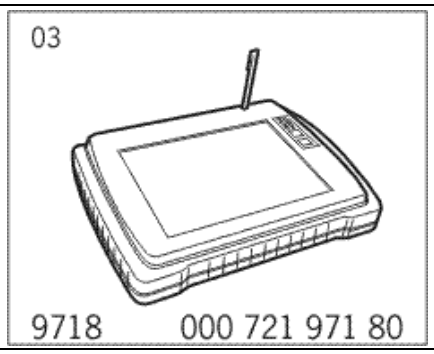
Gefahr des Verlusts der Text-Bild-Zuordnung beim Ausdruck.

- **Aus technischen Gründen kann derzeit nicht ausgeschlossen werden, dass trotz einwandfreier Darstellung auf dem Bildschirm beim Ausdruck der Zusammenhang von Text und zugehörigem Bild verloren geht.**
- **Wird der Fehler nicht bemerkt, besteht die Gefahr, daß Arbeiten nicht korrekt durchgeführt werden und es dadurch zu Personen- und Sachschäden kommt.**

91 10 19 Removing and installing PCM display and control unit - as of MY 2005

- Preliminary work
- Removing PCM display and control unit
- Installing PCM display and control unit
- Subsequent work
- Reading out PCM display and control unit
- Programming PCM display and control unit

Tools

Designation	Type	Number	Explanation	
PIWIS tester	special tool	9718		

top of page

Preliminary work

Preliminary work for display and PCM operator control unit

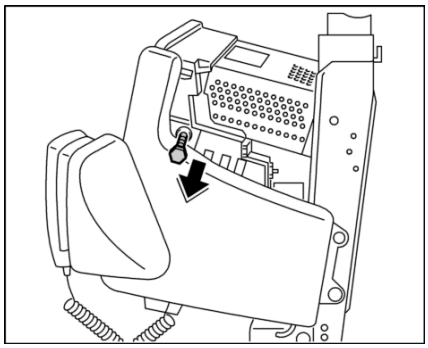
Remove both covers on centre console. *21 Removing and installing centre console cover - removing*

top of page

Removing PCM display and control unit

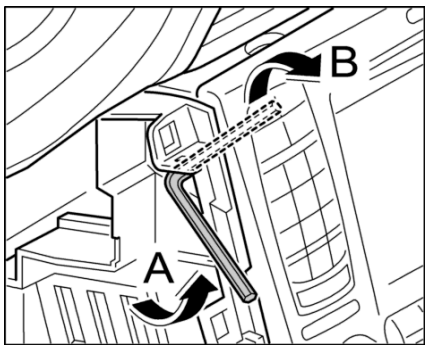
Removing display for the PCM operator control unit

Switch off ignition and remove ignition key.



PCM screw locking lacquer

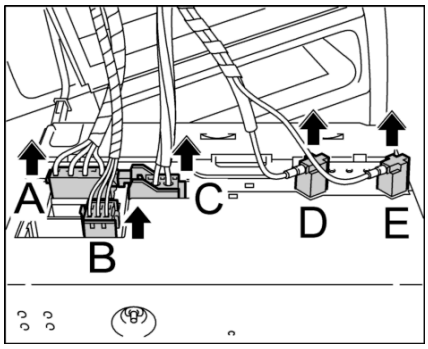
1. Loosen the side fastening screw a few turns.



Fastening the PCM

2. Insert a hexagon-socket wrench sideways into the screw connection of the PCM detent hooks.
3. Close the detents (2 each side) with an Allen key **-A-** and carefully pull out the PCM.
4. For reinstallation, open the detents with the hexagon-socket wrench **-B-** .

The number of plug connections will vary, depending on the I No. (CD changer, amplifier, etc.).
The variant without additional audio components (external Most control units) has a jumper (output to input) connected to the optical waveguide plug.



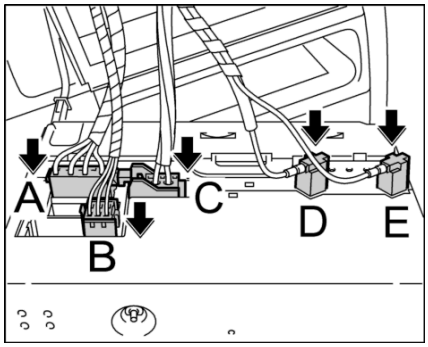
PCM plug connections

5. Unlock antenna plug **-D, E-** and remove.
6. Unlock and disconnect the electrical plug connections in the order **-A, B, C-** .

top of page

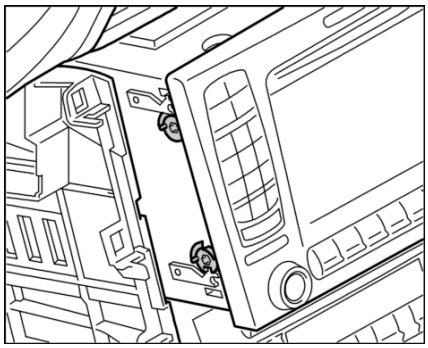
Installing PCM display and control unit

Installing display and PCM operator control unit



PCM plug connections

1. Push on the electrical plug connections for the display and operator control unit in the sequence **-C, B, A-** and the antenna amplifiers **-D, E-** until the plugs are felt to engage.



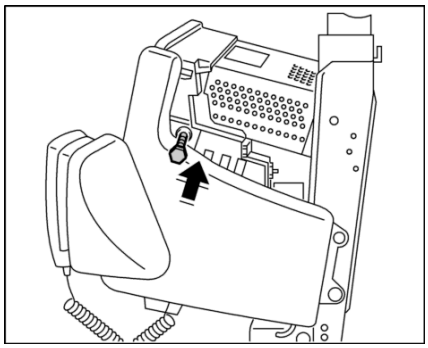
Locking tabs on the PCM

2. Check that the locking tabs on the PCM are out, open the lock with an Allen key if necessary.

Note

Before sliding the PCM/radio into the installation slot, make sure that the electric lines are not trapped by the PCM/radio or damaged .
After installation of a new display and PCM/radio operator control unit, the system must be activated with the **PIWIS tester 9718**. 911019 Removing and installing display and PCM operator control unit - programming

3. Push the navigation unit into the installation slot until the locks engage on the PCM housing.



PCM screw locking lacquer

4. Screw in the locking screw for the PCM and tighten it.

top of page

Subsequent work

Subsequent work for display and PCM operator control unit

Install both covers on centre console. *23 Removing and installing centre console panel - installing*

top of page

Reading out PCM display and control unit

Reading from and writing to the PCM display and operator control unit

Note

- *When installing a new PCM/CDR in a vehicle, the PCM/CDR code specified in IPAS should be present. Normally, the code is stored in the instrument cluster, and is read out from the PCM/CDR.*
- *You can get the codes from IPAS or from your importer by specifying the vehicle identification number.*
- *During coding, there should be a guaranteed power supply for the **PIWIS tester 9718**. It is essential to connect a battery charger with a current rating of at least 40 A to the vehicle battery.*
- *The **PIWIS tester 9718** instructions take precedence and in the event of a discrepancy these are the instructions that must be followed. Deviations may occur with later software versions.*

- *The procedure described here has been structured in general terms; different text or additions may appear in the **PIWIS tester 9718**.*

1. Connect the **PIWIS tester 9718** to the vehicle and start it. Switch on the ignition. >> Continue.
2. Select the vehicle type.
3. Using the >> key, move from the vehicle type to the list of control units.
4. Select **PCM-MMI** and press the >> .
5. In the menu **PCM-MMI**, select **Control unit replacement** and press the >> .
6. Select **Read coding** and press >> .
7. On the screen of the PIWIS tester appears the message **Coding read-out complete** >> .
8. Switch off ignition and replace the PCM. 911019 Removing and installing PCM display and operator control unit
9. Switch on ignition << return to **vehicle type**, for the **control units** select **Special functions** and start the **vehicle handover** with F8 .
10. Read out and erase all fault memories.
11. Using the >> change from **vehicle type** to **control units**.
12. Select **PCM-MMI** and press the >> .
13. In the menu **PCM-MMI**, select **Control unit replacement** and press the >> .
14. Under the menu **Write coding**, the data read out (see Section 7) is installed >> .
15. PIWIS tester displays **Coding write-in complete** >> .
16. In the menu **PCM-MMI**, select **Required & Actual Configuration** and press the >> .
17. Compare the Actual/Required listing. Use F8 to start **Mapping**. All installed audio components will now be listed with a plus under Actual/Required.
18. Read out the fault memory again and erase as necessary.
19. PCM is now taught.

top of page

Programming PCM display and control unit

Programming the display and operator control unit

Note

The procedure described must be applied when a control unit has to be replaced and the tester function **Control unit replacement** cannot be used.

1. Connect the **PIWIS tester 9718** to the vehicle and start it. Switch on the ignition. >> Continue.
2. Switch on ignition << return to **vehicle type**, for the **control units** select **Special functions** and start the **vehicle handover** with F8 .

3. Read out and erase all fault memories.
4. Switch from the vehicle type to the list of control units >> .
5. Select **PCM** and press the >> .
6. In the menu PCM, select **PCM2 MMI** und press the >> .
7. Select **Control unit replacement** with the cursor keys and press the >> key.
8. Select **Write coding** and write in the coding. (Even if no coding data was read out, the required data is loaded for the control unit.)
9. Select **Coding** and press >> .
10. Select **Equipment** and press >> .

The following codings can be performed:

Note

- *When installing a new PCM/CDR in a vehicle, the PCM/CDR code specified in IPAS should be present. Normally, the code is stored in the instrument cluster, and is read out from the PCM/CDR.*
- *You can get the codes from IPAS or from your importer by specifying the vehicle identification number.*
- *During coding, there should be a guaranteed power supply for the **PIWIS tester 9718**. It is essential to connect a battery charger with a current rating of at least 40 A to the vehicle battery.*
- *The **PIWIS tester 9718** instructions take precedence and in the event of a discrepancy these are the instructions that must be followed. Deviations may occur with later software versions.*
- *The procedure described here has been structured in general terms; different text or additions may appear in the **PIWIS tester 9718**.*

11. If the **PCM code** is not displayed with an *****, then select the **PCM code**, enter, and code with F8 .
12. Select **Country coding** and the relevant country, and code with F8 .
13. Select **Vehicle type vehicle coding** and code with F8 .

Vehicle type vehicle coding
911 (997)
Boxster (987)

14. Select **Vehicle version vehicle coding** and code with F8 .

Vehicle version vehicle coding
Coupé
Cabriolet
Targa

15. Select **Air conditioner** and code with F8 .

Air conditioner
Without air conditioner
With air conditioner

16. Select **Units** and code with F8 .

Units
RoW (°C, litre, km)
UK (°C, gal, mph)
USA (°F, gal, mph)

17. Select **Right/left-hand drive vehicle coding** and code with F8 .

Right/left-hand drive vehicle coding
Right-hand drive
Left-hand drive

18. Select **Windscreen wiper/washer system** and code with F8 .

Windscreen wiper/washer system
Not present
Present

19. Select **Rain sensor** and code with F8 .

Rain sensor
Not present
Present

20. Select **Electronic air conditioner** and code with F8 .

Electronic air conditioner
Not installed
Installed

21. Select **Daytime driving lights** and code with F8 .

Daytime driving light
Not installed
Installed

22. Select **ASK amplifier** and code with F8 .

ASK amplifier
Not installed
Installed

23. Select **Adjustability of orientation light** and code with F8 .

Adjustability of orientation light
Not installed
Installed

24. Select **Multi-function steering wheel** and code with F8 .

Multi-function steering wheel
Not installed
Installed

25. In the other submenus (e.g. Porsche Assistance, Additional and freely-selectable codes, e.g., Sport watch) of **Coding**, further customer-specific settings can be selected and coded in the same way.
26. In the menu **PCM MMI**, change to **MOST actual installed components list**; here a version installed in the vehicle (e.g. CD changer) must be displayed
27. Change to **MOST required installed components list**; here too the same version (e.g. CD changer) must be displayed - if this is not the case, select the version and code with F8 .
28. Select **Required & Actual configuration** and press the >> .
29. Compare the Actual/Required listing. Use F8 to start **Mapping**. All installed audio components must now be listed with a plus under Actual/Required. If this is not the case, the versions in the **MOST actual installed components list** or **MOST required installed components list** must be coded manually.
30. Use << to quit the menu **PCM MMI** and change to the menu **PCM GW**.

In the menu PCM GW:

31. Select **Coding** and press the >> .
32. Select **Vehicle equipment vehicle coding** and code with F8 .
33. Select **Vehicle type vehicle coding** and code with F8 .

Vehicle type vehicle coding
911 (997)
Boxster (987)

34. Select **Vehicle version vehicle coding** and code with F8 .

Vehicle version vehicle coding
Coupé
Cabriolet
Targa

35. Select **Air conditioner** and code with F8 .

Air conditioner
Without air conditioner
With air conditioner

36. Select **Right/left-hand drive vehicle coding** and code with F8 .

Right/left-hand drive vehicle coding
Right-hand drive
Left-hand drive

37. Select **Tuner parameters** and code with F8 .

Tuner parameters
Europe
USA
South America
Australia
Asia
(South) Africa
Japan

38. Press << to quit the menu **PCM**.
39. Read out fault memory of all control units and erase if required.
40. PCM is now taught.
41. If the PCM/vehicle equipment does not have a DVD navigation unit, then adjust the time/date using the **SET** button on the PCM and in the menu **PCM system**.

42. For vehicle equipment with DVD navigation unit, switch on the PCM in clear surroundings (to load GPS almanac); as soon as four satellites are identified the almanac will reload. The time is updated again when there is a plausible GPS reception (four satellites). The date and time are also adopted once the GPS almanac has been loaded; it may be necessary to change over to summer time (daylight-saving time). This time is transferred to the instrument cluster. If the time is then manually changed by means of the instrument cluster, this time is adopted by the PCM and synchronised with GPS time.
43. For vehicle equipment with telephone, the telephone is enabled again when the telephone PIN code is entered with the SIM telephone card inserted.

997110, 997111, 997120, 997121, 997310, 997311, 997320, 997321, 997410, 997411, 997430, 997431, 997610, 997611, 997620, 997621

as of MY 2005
Country C00, C02, C05, C07, C08, C09, C10, C11, C12, C13, C14, C15, C16, C18, C19, C20, C21, C22, C23, C24, C25, C26, C27, C28, C32, C33, C34, C35, C36, C37, C38, C39, C45, C46, C98, C99

WARNUNG

Gefahr des Verlusts der Text-Bild-Zuordnung beim Ausdruck.

- **Aus technischen Gründen kann derzeit nicht ausgeschlossen werden, dass trotz einwandfreier Darstellung auf dem Bildschirm beim Ausdruck der Zusammenhang von Text und zugehörigem Bild verloren geht.**
- **Wird der Fehler nicht bemerkt, besteht die Gefahr, daß Arbeiten nicht korrekt durchgeführt werden und es dadurch zu Personen- und Sachschäden kommt.**

Vergleichen Sie deshalb nach dem Druckvorgang unbedingt die Ausdrucke mit der Bildschirmdarstellung. Korrigieren Sie die Ausdrucke im Fehlerfall so, daß der Inhalt der Bildschirmdarstellung zutreffend wiedergegeben wird.

WARNING

Danger of losing text-figure correspondence when printing out.

- **For technical reasons, it can currently not be ruled out that the correspondence between text and associated figure can be lost when it is printed out, even though the display on the screen is correct.**
- **If the fault is not noticed, there is the danger that work will not be performed correctly which can cause injury and damage.**

Therefore, always compare printouts with the screen display after printing them out. Correct the printouts if they are faulty so that the content of the screen display matches that on the printouts.

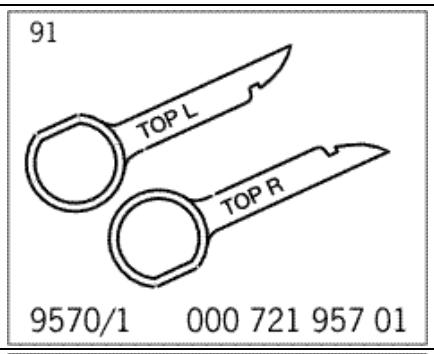
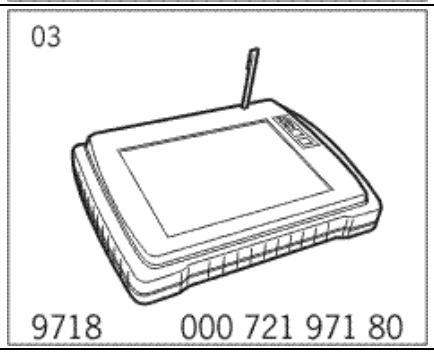
AVERTISSEMENT

Risque de perte de la correspondance texte-illustration lors de l'impression papier.

91 12 19 Removing and installing navigation unit - as of MY 2005

- Preliminary work
- Removing navigation unit
- Installing navigation unit
- Subsequent work
- Programming navigation unit
- Coding navigation unit

Tools

Designation	Type	Number	Explanation	
removal tool	special tool	9570/1		
PIWIS tester	special tool	9718		
PIWIS tester	special tool	P 9718		

top of page

Preliminary work

Preliminary work for navigation unit

21 Removing and installing luggage compartment cover - removing

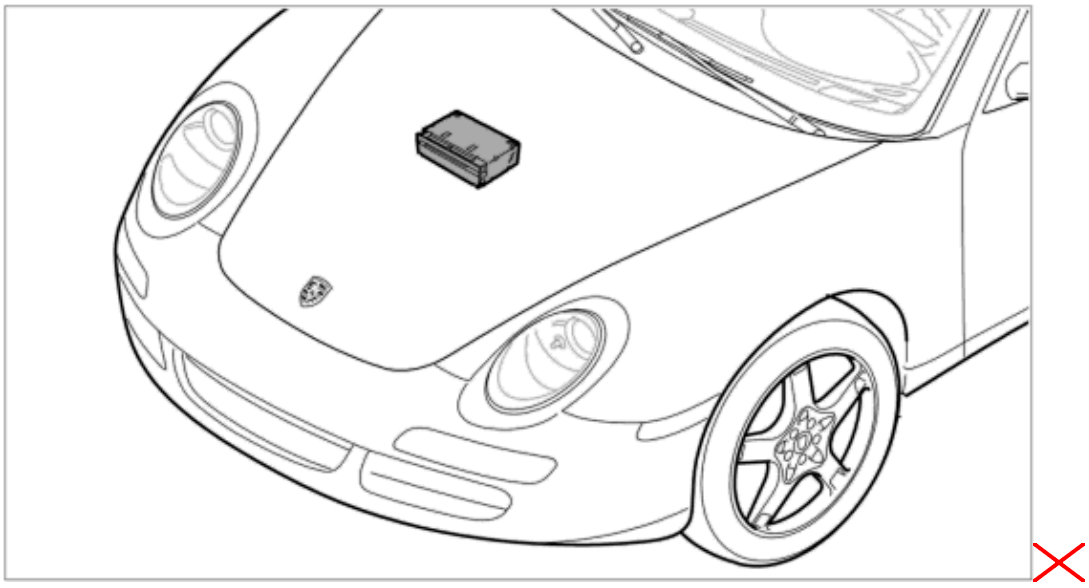
top of page

Removing navigation unit

Removing navigation unit

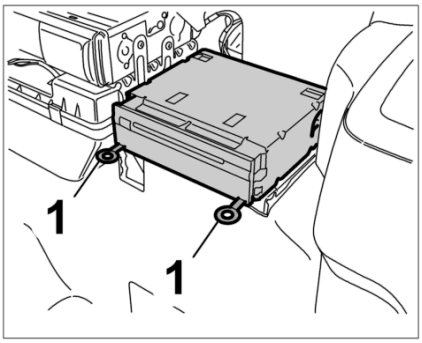
Note
If the navigation unit has to be replaced, the coding must be read out prior to removal using the **PIWIS tester P 9718**.

Installation Location:



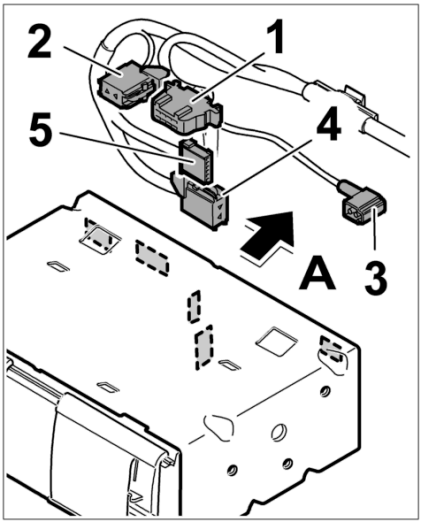
Installation position

Remove ignition key.
Depending on the equipment I No., the navigation unit is located next to or on the CD - changer.



Unlocking the navigation unit

1. Push the **removal tool 9570/1** **-1-** into the navigation unit and pull the navigation unit forward.



Electrical plug

2. Unlock the electrical plug **-1, 2, 3-** on the navigation unit and pull out the navigation unit.

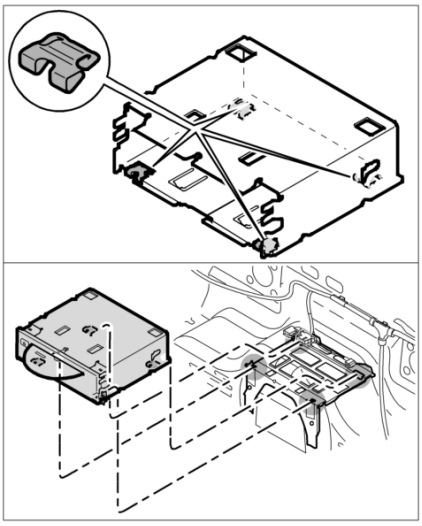
Removing the navigation unit with retaining bracket

Note

If the navigation unit has to be replaced, the coding must be read out prior to removal using the **PIWIS tester P 9718**.

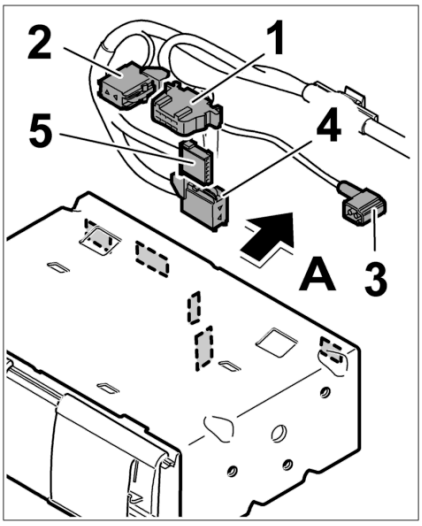
Note

If the navigation unit is removed with the retaining bracket, then new clips must be used before reinstallation.



Removing the navigation unit with retaining bracket

1. Give the navigation unit with the retaining bracket a pull forward, and lever out the clips with a screwdriver if necessary.



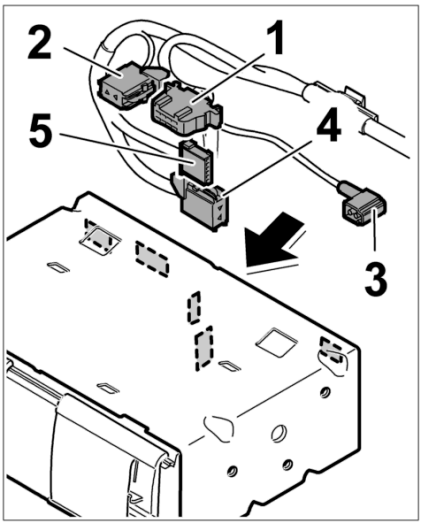
Electrical plug

2. Unlock the electrical plug **-1, 2, 3-** on the navigation unit and remove the navigation unit with holder.

top of page

Installing navigation unit

Installing navigation unit



Electrical plug

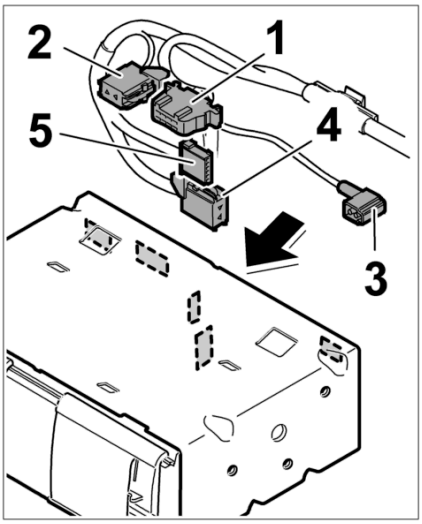
1. Insert the navigation unit into the retaining bracket and plug into the electrical plug connections **-1, 2, 3-** until the plug is felt to click into place.
2. Slide the navigation unit further into the retaining bracket until the navigation unit is felt to click into place.

Installing the navigation unit with retaining bracket

Note

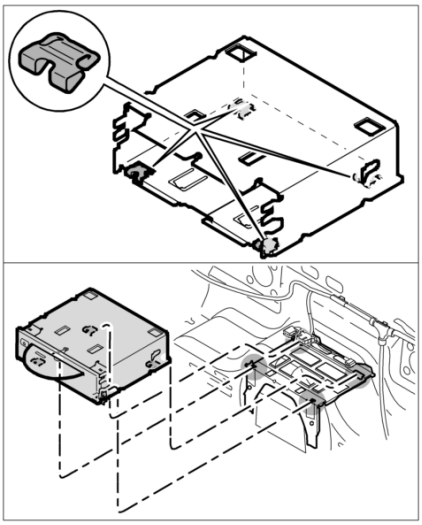
If the navigation unit is removed with the retaining bracket, then new clips must be used before reinstallation.

1. Install new clips , push in the navigation unit in the retaining bracket until the navigation unit is felt to engage.



Electrical plug

2. Push in electrical plug connections **-1, 2, 3-** until plugs are felt to engage.



Installing the navigation unit with retaining bracket

3. Position the navigation unit with retaining bracket on the body and push into the four holders. Check proper seating of holder by pulling up on the retaining bracket.

top of page

Subsequent work

Reworking the navigation unit

23 Removing and installing luggage compartment cover - installing

top of page

Programming navigation unit

Reading out and writing values for navigation unit

WARNING

Sudden voltage interruption of the power supply to the control module.

- **Destruction of the control module.**

During programming, it is essential to guarantee the power supply for the Porsche System tester. It is essential to connect a battery charger with a current rating of at least 40 A to the vehicle battery.

Prior to disconnecting the control module, switch off the ignition and remove the ignition key.

Note

The **PIWIS tester 9718** instructions take precedence and in the event of a discrepancy these are the instructions that must be followed. Deviations may occur with later software versions.
The procedure described here has been structured in general terms; different text or additions may appear in the **PIWIS tester 9718**.

1. Connect the Porsche System tester to the vehicle and start the System tester. Switch on ignition. >> Continue.
2. Select the vehicle type.
3. Switch from the vehicle type to the list of control units.
4. Select **PCM 2.1**, **Navigation** with the cursor keys and press the >> key.
5. Select **Control unit replacement** with the cursor keys and press the >> key.
6. Select **Read out codings** (codings) with the cursor keys and press >> .
7. The message **Codes successfully read out** appears on the screen of the Porsche System tester. Press >> .
8. Switch off ignition and replace control unit.
9. Switch to the **Special functions** menu and perform the **vehicle handover** using the F8 key.
10. In the **Special functions** menu, erase **All fault memories** by pressing >> .
11. Carry out automatic search of control units.
12. In the menu **Write in codings** >> the data read-out are installed.
13. System tester displays **Coding write-in complete** >> .
14. Quit menu, insert navigation CD, switch off ignition and lock the vehicle, then unlock, switch on ignition and load navigation CD.
15. Perform navigation during the test drive and afterwards read out fault memory.

top of page

Coding navigation unit

Coding navigation unit

WARNING

Sudden voltage interruption of the power supply to the control module.

- **Destruction of the control module.**

During programming, it is essential to guarantee the power supply for the Porsche System tester. It is essential to connect a battery charger with a current rating of at least 40 A to the vehicle battery.

Prior to disconnecting the control module, switch off the ignition and remove the ignition key.

Note

The **PIWIS tester 9718** instructions take precedence and in the event of a discrepancy these are the instructions that must be followed. Deviations may occur with later software versions.
The procedure described here has been structured in general terms; different text or additions may appear in the **PIWIS tester 9718**.

Note

The procedure described must be applied when a control unit has to be replaced and the tester function **Control unit replacement** cannot be used.

1. Connect the **PIWIS tester 9718** to the vehicle and start it. Switch on the ignition. >> Continue.
2. Select the **vehicle type**.
3. Switch to the **Special functions** menu and perform the **vehicle handover** using the F8 key.
4. In the **Special functions** menu, erase **All fault memories** by pressing >> .
5. Carry out automatic search of control units.
6. Using the >> key, move from the vehicle type to the list of control units.
7. Select **PCM 2.1**, **Navigation** with the cursor keys and press the >> .
8. Select **Coding** and press the >> .
9. In the menu **Coding** the PCM code has to be displayed using *.
10. Quit menu, insert navigation CD, switch off ignition and lock the vehicle, then unlock, switch on ignition and load navigation CD.
11. Perform navigation during the test drive and afterwards read out fault memory.

997110, 997111, 997120, 997121, 997310, 997311, 997320, 997321

as of MY 2005
Country C00, C02, C05, C07, C08, C09, C10, C11, C12, C13, C14, C15, C16, C18, C19, C20, C21, C22, C23, C24, C25, C26, C27, C28, C32, C33, C34, C35, C36, C37, C38, C39, C45, C46, C98, C99

WARNUNG

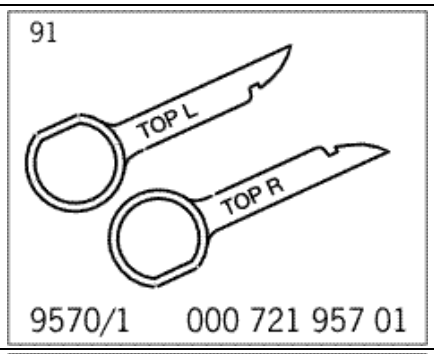
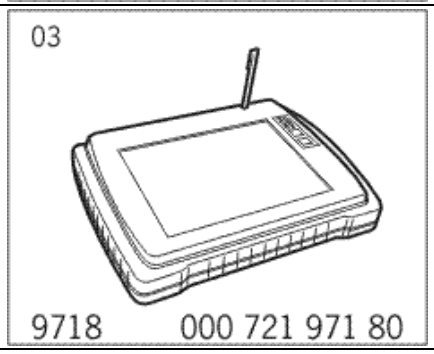
Gefahr des Verlusts der Text-Bild-Zuordnung beim Ausdruck.

- **Aus technischen Gründen kann derzeit nicht ausgeschlossen werden, dass trotz einwandfreier Darstellung auf dem Bildschirm beim Ausdruck der Zusammenhang von Text und zugehörigem Bild verloren geht.**
- **Wird der Fehler nicht bemerkt, besteht die Gefahr, daß Arbeiten nicht korrekt durchgeführt werden und es dadurch zu Personen- und Sachschäden kommt.**

91 12 19 Removing and installing navigation unit - as of MY 2005

- Preliminary work
- Removing navigation unit
- Installing navigation unit
- Subsequent work
- Programming navigation unit
- Coding navigation unit

Tools

Designation	Type	Number	Explanation	
removal tool	special tool	9570/1		
PIWIS tester	special tool	9718		
PIWIS tester	special tool	P 9718		

top of page

Preliminary work

Preliminary work for navigation unit

21 Removing and installing luggage compartment cover - removing

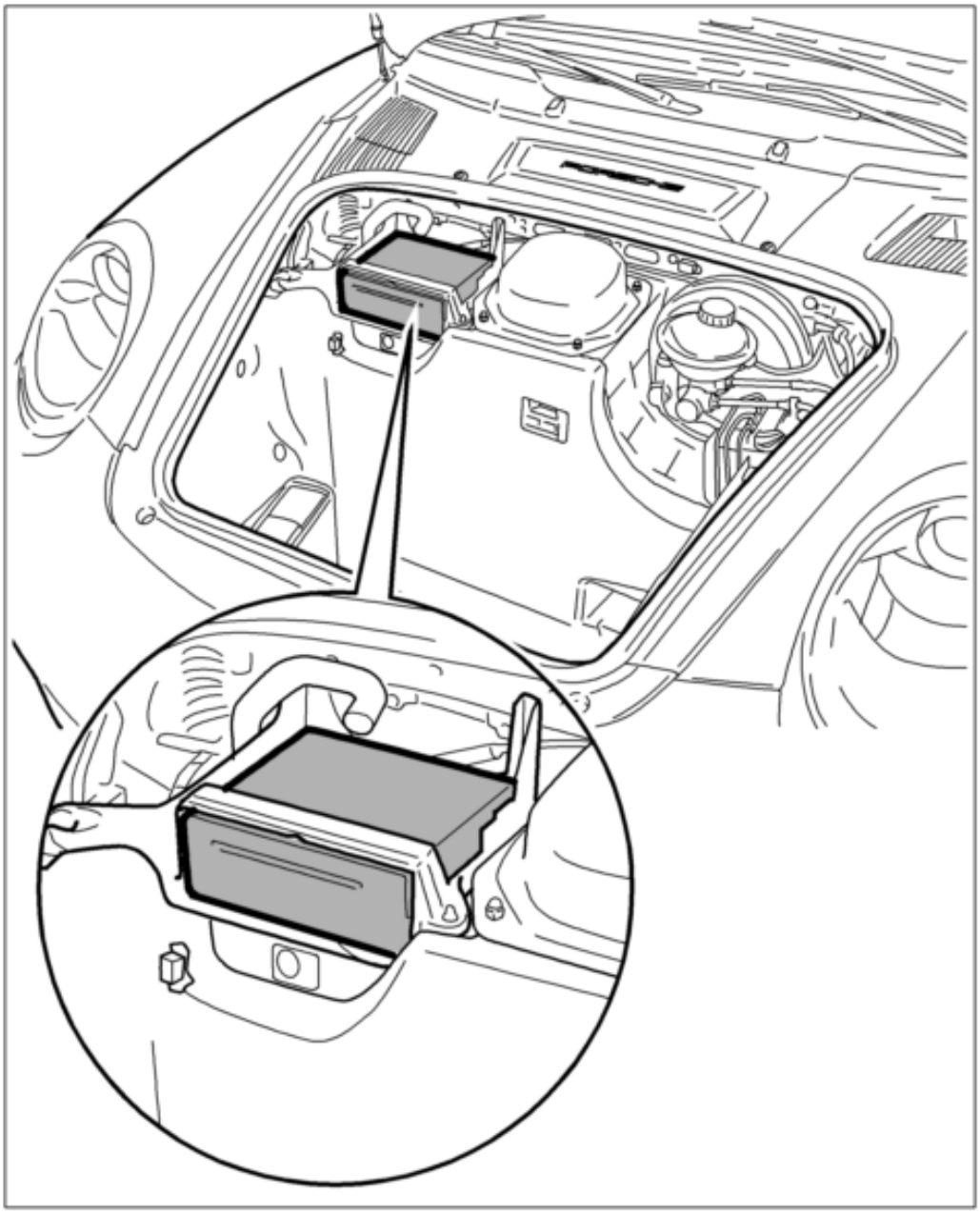
top of page

Removing navigation unit

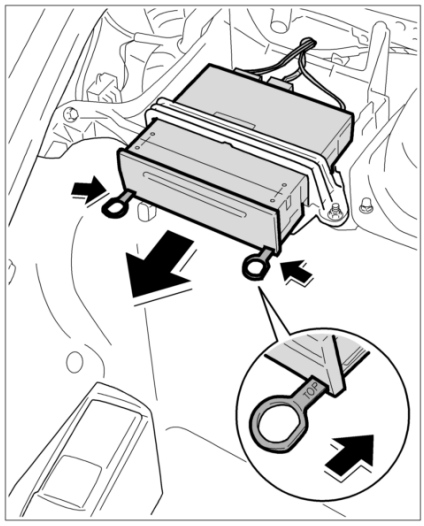
Removing navigation unit

Note
If the navigation unit has to be replaced, the coding must be read out prior to removal using the **PIWIS tester P 9718**.

Installation Location:

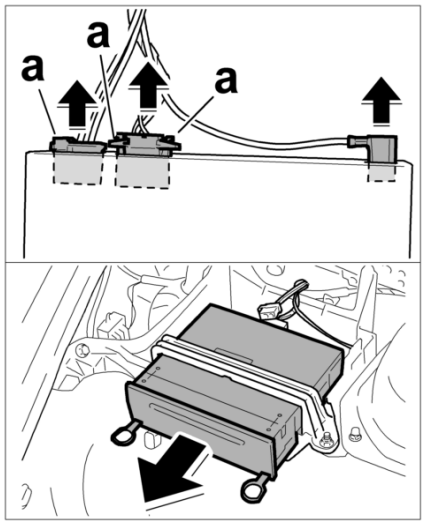


Installation position



Pulling out navigation unit with removal tool

1. Push the **removal tool 9570/1** **-1-** into the navigation unit and pull the navigation unit forward.



Unplugging electrical connector

2. Unlock the electric connectors on the navigation unit and pull out the navigation unit.

Removing the navigation unit (US version)

ATTENTION

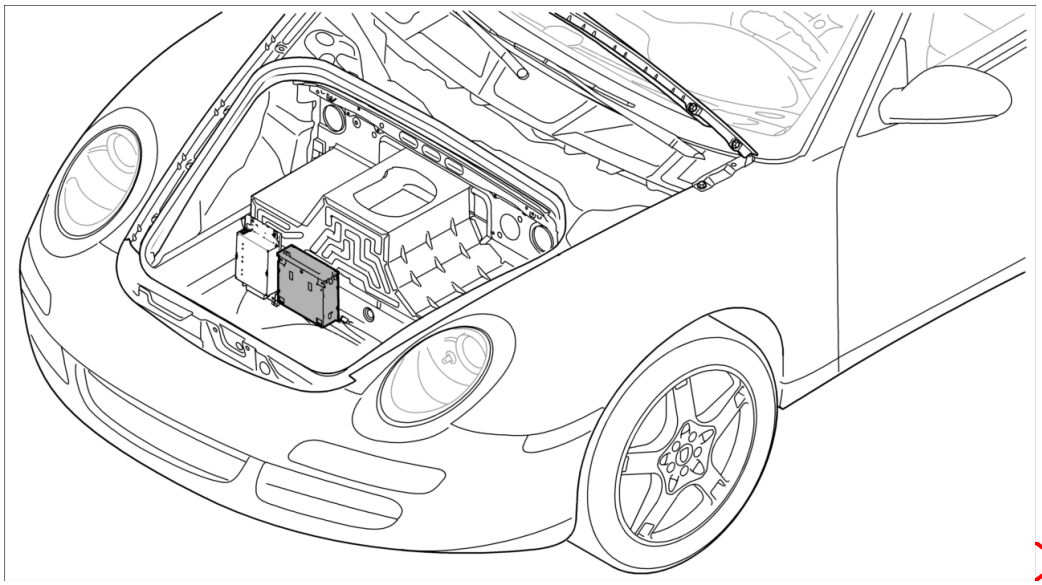
Voltage peaks can damage the audio system.

Before unplugging/removing audio components, remove ignition key and switch off audio system.

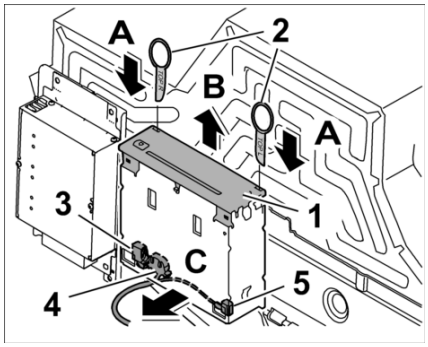
Note

If the navigation unit has to be replaced, the coding must be read out prior to removal using the **PIWIS tester P 9718**.

Installation Location:



Installation location for navigation unit, C4 USA



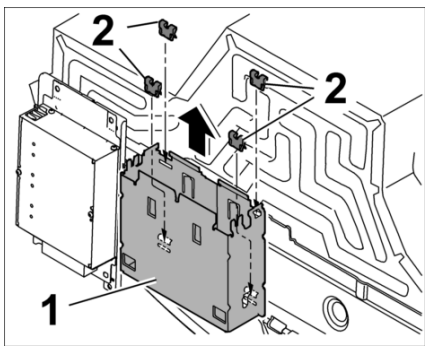
Removing navigation unit

1. Remove navigation unit.

1.1. **Insert disassembly tool 9570/1** **-2-** into the navigation unit **-1-** **-arrows A-** and lift up the navigation unit **-1-** **-arrow B-** .

1.2. Release the connector **-3 to 5-** on the navigation unit **-1-** and pull off **-arrow C-** .

Pull out **-1-** navigation unit **-arrow B-** .



Removing retaining frame for navigation unit

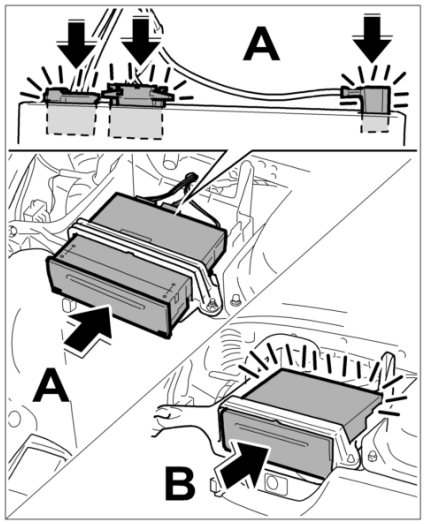
2. Remove retaining frame for navigation unit.

2.1. Give the retaining frame **-1-** a pull upward, and lever out the clips **-2-** with a screwdriver if necessary.

top of page

Installing navigation unit

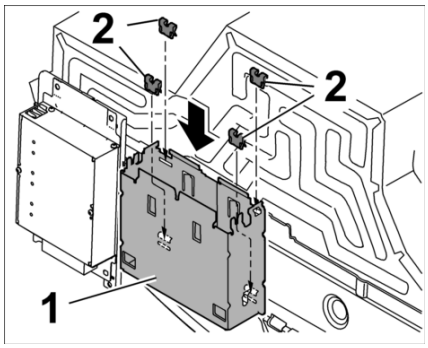
Installing navigation unit



Connecting plug connections

1. Insert the navigation unit into the retaining frame and plug in the electric plug connections until the connectors engage securely.
2. Slide the navigation unit further into the retaining bracket until the navigation unit is felt to click into place.

Installing the navigation unit (US version)



Installing retaining frame for navigation unit

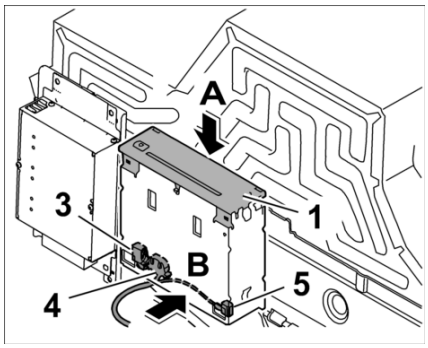
1. Install retaining frame for navigation unit.

1.1. Push new clip **-2-** onto the retaining frame for navigation unit **-1-** .

1.2. Position the retaining bracket for navigation unit **-1-** on the body and push into the four holders. Check proper seating by pulling up on the retaining frame for navigation unit **-1-** .

Note

If the navigation unit is removed with the retaining bracket, then new clips must be used before reinstallation.



Installing navigation unit

2. Install navigation unit.

2.1. Insert navigation unit **-1-** in the retaining frame **-arrow A-** and push on connector **-3 to 5-** **-arrow B-** .

2.2. Slide the navigation unit **-1-** further into the retaining bracket **-arrow A-** until the navigation unit is felt to engage.

top of page

Subsequent work

Reworking the navigation unit

23 Removing and installing luggage compartment cover - installing

top of page

Programming navigation unit

Reading out and writing values for navigation unit

WARNING

Sudden voltage interruption of the power supply to the control module.

- **Destruction of the control module.**

During programming, it is essential to guarantee the power supply for the Porsche System tester. It is essential to connect a battery charger with a current rating of at least 40 A to the vehicle battery.

Prior to disconnecting the control module, switch off the ignition and remove the ignition key.

Note

The **PIWIS tester 9718** instructions take precedence and in the event of a discrepancy these are the instructions that must be followed. Deviations may occur with later software versions.
The procedure described here has been structured in general terms; different text or additions may appear in the **PIWIS tester 9718**.

1. Connect the Porsche System tester to the vehicle and start the System tester. Switch on ignition. >> Continue.
2. Select the vehicle type.
3. Switch from the vehicle type to the list of control units.
4. Select **PCM 2.1**, **Navigation** with the cursor keys and press the >> key.
5. Select **Control unit replacement** with the cursor keys and press the >> key.
6. Select **Read out codings** (codings) with the cursor keys and press >> .
7. The message **Codes successfully read out** appears on the screen of the Porsche System tester. Press >> .
8. Switch off ignition and replace control unit.
9. Switch to the **Special functions** menu and perform the **vehicle handover** using the F8 key.
10. In the **Special functions** menu, erase **All fault memories** by pressing >> .
11. Carry out automatic search of control units.
12. In the menu **Write in codings** >> the data read-out are installed.

13. System tester displays **Coding write-in complete** >> .
14. Quit menu, insert navigation CD, switch off ignition and lock the vehicle, then unlock, switch on ignition and load navigation CD.
15. Perform navigation during the test drive and afterwards read out fault memory.

top of page

Coding navigation unit

Coding navigation unit

WARNING

Sudden voltage interruption of the power supply to the control module.

- **Destruction of the control module.**

During programming, it is essential to guarantee the power supply for the Porsche System tester. It is essential to connect a battery charger with a current rating of at least 40 A to the vehicle battery.

Prior to disconnecting the control module, switch off the ignition and remove the ignition key.

Note

The **PIWIS tester 9718** instructions take precedence and in the event of a discrepancy these are the instructions that must be followed. Deviations may occur with later software versions.
The procedure described here has been structured in general terms; different text or additions may appear in the **PIWIS tester 9718**.

Note

The procedure described must be applied when a control unit has to be replaced and the tester function **Control unit replacement** cannot be used.

1. Connect the **PIWIS tester 9718** to the vehicle and start it. Switch on the ignition. >> Continue.
2. Select the **vehicle type**.
3. Switch to the **Special functions** menu and perform the **vehicle handover** using the F8 key.
4. In the **Special functions** menu, erase **All fault memories** by pressing >> .
5. Carry out automatic search of control units.
6. Using the >> key, move from the vehicle type to the list of control units.
7. Select **PCM 2.1**, **Navigation** with the cursor keys and press the >> .
8. Select **Coding** and press the >> .

9. In the menu **Coding** the PCM code has to be displayed using *.
10. Quit menu, insert navigation CD, switch off ignition and lock the vehicle, then unlock, switch on ignition and load navigation CD.
11. Perform navigation during the test drive and afterwards read out fault memory.

997410, 997411, 997430, 997431, 997610, 997611, 997620, 997621

as of MY 2005
Country C00, C02, C05, C07, C08, C09, C10, C11, C12, C13, C14, C15, C16, C18, C19, C20, C21, C22, C23, C24, C25, C26, C27, C28, C32, C33, C34, C35, C36, C37, C38, C39, C45, C46, C98, C99

WARNUNG

Gefahr des Verlusts der Text-Bild-Zuordnung beim Ausdruck.

- **Aus technischen Gründen kann derzeit nicht ausgeschlossen werden, dass trotz einwandfreier Darstellung auf dem Bildschirm beim Ausdruck der Zusammenhang von Text und zugehörigem Bild verloren geht.**
- **Wird der Fehler nicht bemerkt, besteht die Gefahr, daß Arbeiten nicht korrekt durchgeführt werden und es dadurch zu Personen- und Sachschäden kommt.**

Vergleichen Sie deshalb nach dem Druckvorgang unbedingt die Ausdrucke mit der Bildschirmdarstellung. Korrigieren Sie die Ausdrucke im Fehlerfall so, daß der Inhalt der Bildschirmdarstellung zutreffend wiedergegeben wird.

WARNING

Danger of losing text-figure correspondence when printing out.

- **For technical reasons, it can currently not be ruled out that the correspondence between text and associated figure can be lost when it is printed out, even though the display on the screen is correct.**
- **If the fault is not noticed, there is the danger that work will not be performed correctly which can cause injury and damage.**

Therefore, always compare printouts with the screen display after printing them out. Correct the printouts if they are faulty so that the content of the screen display matches that on the printouts.

AVERTISSEMENT

Risque de perte de la correspondance texte-illustration lors de l'impression papier.

- **Pour des raisons techniques, il ne peut pas être exclu à l'heure actuelle que, même en cas d'affichage correct à l'écran, la correspondance entre le texte et l'illustration puisse être erronée sur l'impression papier.**
- **Si l'erreur passe inaperçue, on court le risque d'exécuter certaines opérations de manière incorrecte pouvant conduire à des dommages corporels et matériels.**

91 13 19 Removing and installing GPS antenna - as of MY 2005

- Preliminary work
- Removing GPS antenna
- Installing GPS antenna
- Subsequent work

top of page

Preliminary work

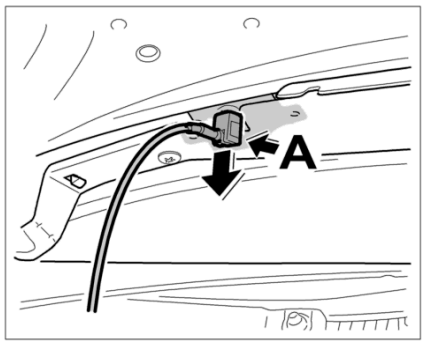
Preliminary work GPS antenna

21 Removing and installing cowl panel cover -removing
Depending on the I No., 914719 Removing and installing radio antenna - removing

top of page

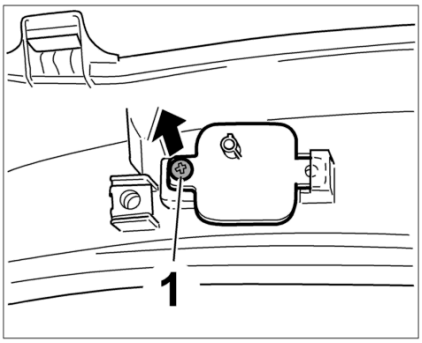
Removing GPS antenna

Removing GPS antenna



GPS plug connection.

1. On the cover for the cowl panel, release the electrical plug connection **-A-** and remove.



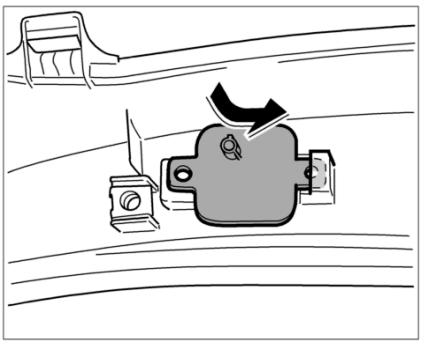
Fastening screw for GPS

2. Unscrew the fastening screw **-1-** and pull out the GPS antenna out of the cowl panel cover.

top of page

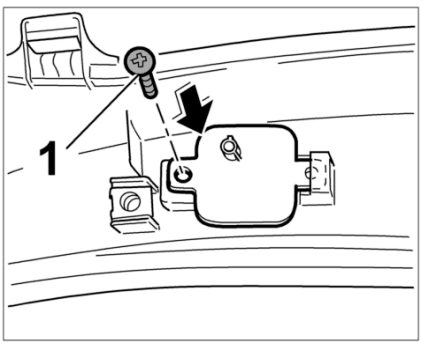
Installing GPS antenna

Installing GPS antenna



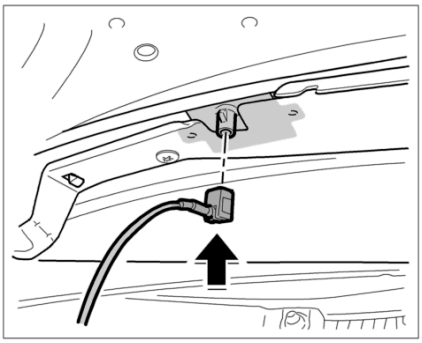
Engaging the GPS antenna

1. Engage the GPS antenna on the cowl panel cover.



Fastening screw for GPS

2. Screw down the GPS antenna with the fastening screw **-1-** .



GPS plug connection.

3. When installing the cowl panel cover, push on the electrical plug until the plug can be felt to engage.

top of page

Subsequent work

Reworking GPS antenna

Depending on the I No., 914719 Removing and installing radio antenna - installing
23 Removing and installing cowl panel cover - removing

997110, 997111, 997120, 997121, 997310, 997311, 997320, 997321, 997410, 997411, 997430, 997431, 997610, 997611, 997620, 997621

as of MY 2005
Country C00, C02, C05, C07, C08, C09, C10, C11, C12, C13, C14, C15, C16, C18, C19, C20, C21, C22, C23, C24, C25, C26, C27, C28, C32, C33, C34, C35, C36, C37, C38, C39, C45, C46, C98, C99

WARNUNG

Gefahr des Verlusts der Text-Bild-Zuordnung beim Ausdruck.

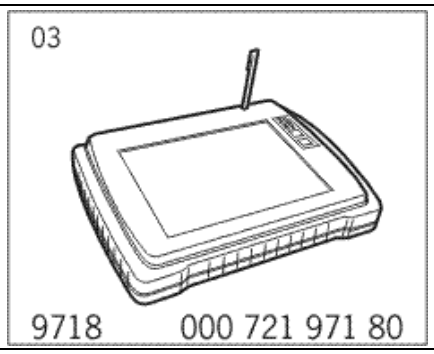
- **Aus technischen Gründen kann derzeit nicht ausgeschlossen werden, dass trotz einwandfreier Darstellung auf dem Bildschirm beim Ausdruck der Zusammenhang von Text und zugehörigem Bild verloren geht.**
- **Wird der Fehler nicht bemerkt, besteht die Gefahr, daß Arbeiten nicht korrekt durchgeführt werden und es dadurch zu Personen- und Sachschäden kommt.**

Vergleichen Sie deshalb nach dem Druckvorgang unbedingt die Ausdrucke mit der Bildschirmdarstellung. Korrigieren Sie die Ausdrucke im Fehlerfall so, daß der Inhalt der Bildschirmdarstellung zutreffend wiedergegeben wird.

91 24 19 Removing and installing car radio CD player - as of MY 2005

- Preliminary work
- Removing the car radio
- Installing the car radio
- Subsequent work
- Reading out car radio
- Programming car radio

Tools

Designation	Type	Number	Explanation	
PIWIS tester	special tool	9718		

top of page

Preliminary work

Preliminary work for car radio

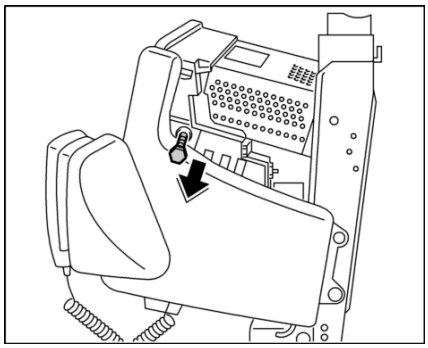
Remove both covers on centre console. *21 Removing and installing centre console cover - removing*

top of page

Removing the car radio

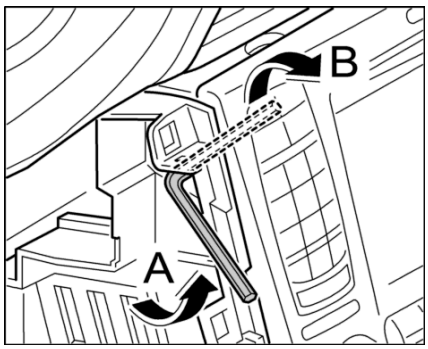
Removing the car radio

Switch off ignition and remove ignition key.



Screw locking device

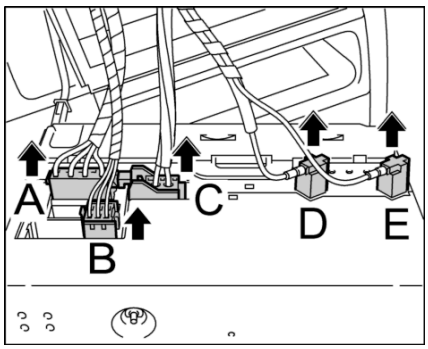
1. Loosen the side fastening screws a few turns.



Mounting of the radio

2. Insert an Allen key sideways into the screw connection of the radio latch hooks.
3. Close the latches (2 each side) with an Allen key **-A-** and carefully pull out the radio.
4. For reinstallation, open the latches with the Allen key **-B-** .

The number of plug connections will vary, depending on the I No. (CD changer, amplifier, etc.).
The variant without additional audio components (external Most control units) has a jumper (output to input) connected to the optical waveguide plug.



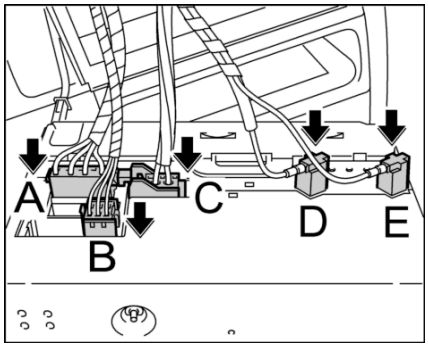
Radio plug connections

5. Unlock antenna plug **-D, E-** and remove.
6. Unlock and disconnect the electrical plug connections in the order **-A, B, C-** .

top of page

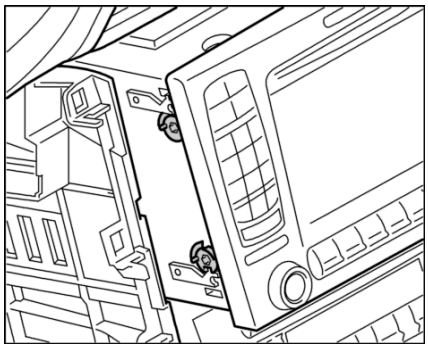
Installing the car radio

Installing the car radio



Plug connections

1. Connect the electric plug connections in the sequence **-C, B, A-** and the antenna amplifiers **-D, E-** so that the plugs are felt to engage.



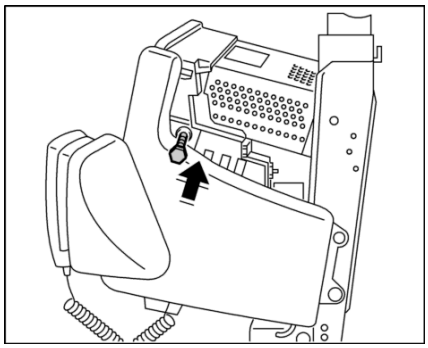
Locking tabs shown on the PCM

2. Check that the locking tabs on the radio are out, opening the locking mechanism with an Allen key if necessary.

Note

Before sliding the PCM/radio into the installation slot, make sure that the electric lines are not trapped by the PCM/radio or damaged .
After installation of a new display and PCM/radio operator control unit, the system must be activated with the **PIWIS tester 9718**. 911019 Removing and installing display and PCM operator control unit - programming

3. Push the radio into the installation slot until the locking mechanisms engage on the radio housing.



Screw locking device

4. Screw in the locking screw for the radio and tighten it.

top of page

Subsequent work

Subsequent work for car radio

Install both covers on centre console. *23 Removing and installing centre console panel - installing*

top of page

Reading out car radio

Reading out and transferring car radio codes

Note

- *When installing a new PCM/CDR in a vehicle, the PCM/CDR code specified in IPAS should be present. Normally, the code is stored in the instrument cluster, and is read out from the PCM/CDR.*
- *You can get the codes from IPAS or from your importer by specifying the vehicle identification number.*
- *During coding, there should be a guaranteed power supply for the **PIWIS tester 9718**. It is essential to connect a battery charger with a current rating of at least 40 A to the vehicle battery.*
- *The **PIWIS tester 9718** instructions take precedence and in the event of a discrepancy these are the instructions that must be followed. Deviations may occur with later software versions.*

- *The procedure described here has been structured in general terms; different text or additions may appear in the **PIWIS tester 9718**.*

1. Connect the **PIWIS tester 9718** to the vehicle and start it. Switch on the ignition. >> Continue.
2. Select vehicle type using the cursor keys.
3. Using the >> key, move from the vehicle type to the list of control units.
4. Select **CDR24** with the cursor keys and press the >> .
5. In the menu **CDR24**, select **Control unit replacement** and press the >> .
6. Select **Read codes** and press >> .
7. On the screen of the PIWIS tester appears the message **Coding read-out complete** >> .
8. Switch off ignition and replace radio. 912419 Removing and installing car radio "CD player" - chapter on "Removing" 912419 Removing and installing car radio "CD player" - chapter on "Installing"
9. Switch on ignition. After replacement of the radio, the data previously read out (see Item 7) is reloaded under the menu **Write in codes**. >> .
10. PIWIS tester displays **Coding write-in complete** >> .
11. In the menu **CDR24**, select **Required & Actual installed components list** and press >> .
12. Compare the Actual/Required listing.
13. Remove ignition key, close and lock vehicle, then unlock and switch on ignition
14. Read out the fault memory again and erase as necessary.
15. Car radio is now taught.

top of page

Programming car radio

Programming the car radio

Note

The procedure described must be applied when a control unit has to be replaced and the tester function **Control unit replacement** cannot be used.

1. Connect the **PIWIS tester 9718** to the vehicle and start it. Switch on the ignition. >> Continue.
2. Select **vehicle type** using the cursor keys.
3. Using the >> key, move from the vehicle type to the list of control units.
4. Select **CDR24** with the cursor keys and press the >> .
5. Select **Coding** and press the >> .

The following codings can be performed:

Note

- *When installing a new PCM/CDR in a vehicle, the PCM/CDR code specified in IPAS should be present. Normally, the code is stored in the instrument cluster, and is read out from the PCM/CDR.*
- *You can get the codes from IPAS or from your importer by specifying the vehicle identification number.*
- *During coding, there should be a guaranteed power supply for the **PIWIS tester 9718**. It is essential to connect a battery charger with a current rating of at least 40 A to the vehicle battery.*
- *The **PIWIS tester 9718** instructions take precedence and in the event of a discrepancy these are the instructions that must be followed. Deviations may occur with later software versions.*
- *The procedure described here has been structured in general terms; different text or additions may appear in the **PIWIS tester 9718**.*

6. Select **PCM code**, enter and code with F8 .
7. Select **Traffic broadcast loudspeaker boost** and code with F8 .
8. Select **GAL (NLB)** and code with F8 .
9. Select **Vehicle type vehicle coding** and code with F8 .

Vehicle type vehicle coding
911 (997)
Boxster (987)

10. Select **Vehicle version vehicle coding** and code with F8 .

Vehicle version vehicle coding
Coupé
Cabriolet
Targa

11. Select **Air conditioner** and code with F8 .

Air conditioning
Without air conditioning
With air conditioning

12. Select **Tuner parameters** and code with F8 .

Tuner parameters

Europe
USA
South America
Australia
Asia
(South) Africa
Japan

13. Select **ASK amplifier** and code with F8 .

ASK amplifier
Not installed
Installed

14. Select **Loudness** and code with F8 .

Loudness
off
on

15. Select **Factory settings** and code with F8 .

Factory settings
no
yes

16. In the menu **CDR24**, change to **MOST actual installed components list**; here a version (e.g. CD changer) installed in the vehicle must be displayed
17. Change to **MOST required installed components list**; here too the same version (e.g. CD changer) must be displayed - if this is not the case, select the version and code with F8 .
18. Select **Required & Actual configuration** and press the >> .
19. Compare the Actual/Required listing. Use F8 to start **Mapping**. All installed audio components must now be listed with a plus under Actual/Required. If this is not the case, the versions in the **MOST actual installed components list** or **MOST required installed components list** must be coded manually.
20. Read out fault memory and erase if required.
21. Use << to quit the menu **CDR24**.
22. Remove ignition key, close and lock vehicle, then unlock and switch on ignition
23. In the menu **CDR24** select **Control unit replacement** and perform the functions **Read codes** and **Write codes**.
24. Read out the fault memory again and erase as necessary.

25. Car radio is now taught.

997110, 997111, 997120, 997121, 997310, 997311, 997320, 997321, 997410, 997411, 997430, 997431, 997610, 997611, 997620, 997621

as of MY 2005
Country C00, C02, C05, C07, C08, C09, C10, C11, C12, C13, C14, C15, C16, C18, C19, C20, C21, C22, C23, C24, C25, C26, C27, C28, C32, C33, C34, C35, C36, C37, C38, C39, C45, C46, C98, C99

WARNUNG

Gefahr des Verlusts der Text-Bild-Zuordnung beim Ausdruck.

- **Aus technischen Gründen kann derzeit nicht ausgeschlossen werden, dass trotz einwandfreier Darstellung auf dem Bildschirm beim Ausdruck der Zusammenhang von Text und zugehörigem Bild verloren geht.**
- **Wird der Fehler nicht bemerkt, besteht die Gefahr, daß Arbeiten nicht korrekt durchgeführt werden und es dadurch zu Personen- und Sachschäden kommt.**

Vergleichen Sie deshalb nach dem Druckvorgang unbedingt die Ausdrucke mit der Bildschirmdarstellung. Korrigieren Sie die Ausdrucke im Fehlerfall so, daß der Inhalt der Bildschirmdarstellung zutreffend wiedergegeben wird.

WARNING

Danger of losing text-figure correspondence when printing out.

- **For technical reasons, it can currently not be ruled out that the correspondence between text and associated figure can be lost when it is printed out, even though the display on the screen is correct.**
- **If the fault is not noticed, there is the danger that work will not be performed correctly which can cause injury and damage.**

Therefore, always compare printouts with the screen display after printing them out. Correct the printouts if they are faulty so that the content of the screen display matches that on the printouts.

AVERTISSEMENT

Risque de perte de la correspondance texte-illustration lors de l'impression papier.

- **Pour des raisons techniques, il ne peut pas être exclu à l'heure actuelle que, même en cas d'affichage correct à l'écran, la correspondance entre le texte et l'illustration puisse être erronée sur l'impression papier.**
- **Si l'erreur passe inaperçue, on court le risque d'exécuter certaines opérations de manière incorrecte pouvant conduire à des dommages corporels et matériels.**

Comparez impérativement pour cette raison les impressions papier avec l'affichage à l'écran. Corrigez-les en cas d'erreur de manière à reproduire correctement l'affichage à l'écran.

91 28 55 Replacing the antenna leads - as of MY 2005

- Preliminary work
- Installing the antenna leads
- Subsequent work

top of page

Preliminary work

Preliminary work for PCM/radio antenna lead up to antenna control unit

1. Remove cover for centre console on the left and right. 681419 Removing and installing cover for centre console - section on "Removing"
2. Remove PCM display and operator control unit. 911019 Removing and installing PCM display and operator control unit - section on "Removing"

Preliminary work for antenna lead for left antenna amplifier up to right antenna amplifier

1. Remove A-pillar trim panel on the left and right. 705719 Removing and installing A-pillar trim - section on "Removing"
2. Remove trim panel under dashboard on the left and right. 701919 Removing and installing trim panel under dashboard - section on "Removing"
3. Remove glove compartment. 681519 Removing and installing glove compartment - section on "Removing"
4. Remove right air guide. 853419 Removing and installing air guide - section on "Removing"

Preliminary work for antenna lead for left antenna amplifier up to KESSY/PAS control unit

1. Remove A-pillar trim panel on the left. 705719 Removing and installing A-pillar trim - section on "Removing"
2. Remove trim panel under dashboard on left. 701919 Removing and installing trim panel under dashboard - section on "Removing"
3. Remove control unit for KESSY/PAS. 966619 Removing and installing KESSY control unit - section on "Removing"

Preliminary work for antenna lead for right antenna amplifier up to rod antenna

1. Remove rear part of right front wheel housing liner __ 505619 Removing and installing front wheel housing liner - section on "Removing" [997621] __ 505619 Removing and installing front wheel housing liner - section on "Removing" [997610 997611 997620].
2. Remove carbon canister. __ 202519 Removing and installing carbon canister - section on "Removing"
3. Remove battery cover. __ 270619 Removing and installing battery - section on "Removing"
4. Remove cover on the left and right. __ 852219 Removing and installing cover - section on "Removing"
5. Remove A-pillar trim panel on the right. __ 705719 Removing and installing A-pillar trim - section on "Removing"
6. Remove glove compartment. __ 681519 Removing and installing glove compartment - section on "Removing"
7. Remove right air guide. __ 853419 Removing and installing air guide - section on "Removing"

Preliminary work for navigation unit antenna lead up to GPS antenna

1. Remove cowl panel cover. __ 508719 Removing and installing cowl panel cover - section on "Removing"
2. Remove navigation unit. __ 911219 Removing and installing navigation unit - section on "Removing"
3. Remove luggage compartment trim panels *700519 21 Removing and installing trim panel for front luggage compartment - section on "Removing"*

top of page

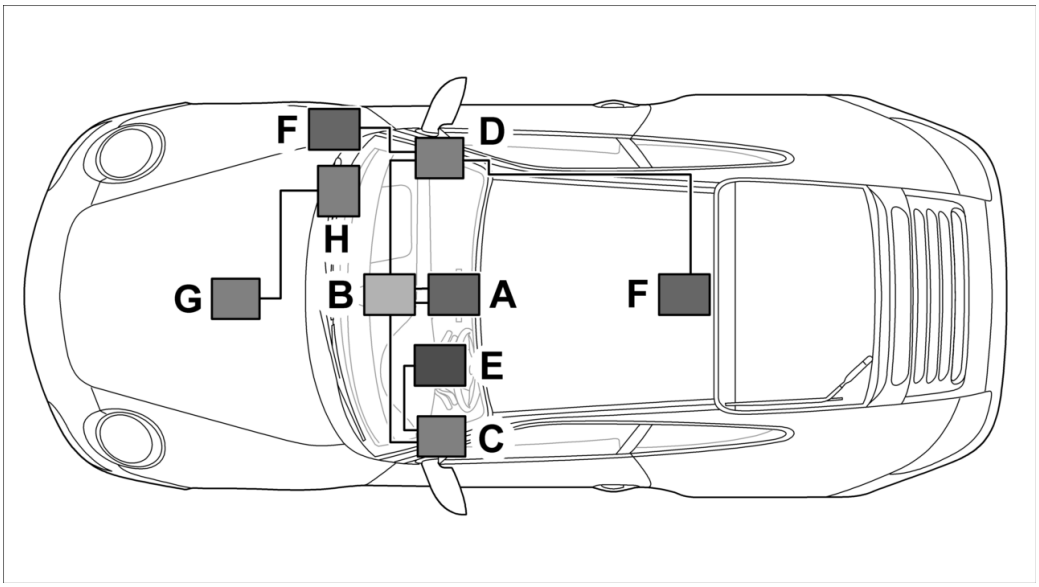
Installing the antenna leads

Installing antenna leads

ATTENTION

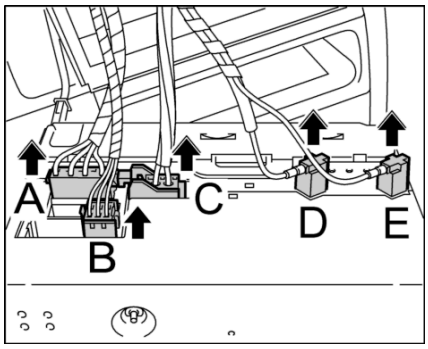
Risk of destruction when removing electric components with the ignition on.

Switch off ignition and remove ignition key.



Overview of antenna leads, shown on the 911

A - PCM/radio
B - Antenna control unit
C - Antenna amplifier, left
D - Antenna amplifier, right
E - KESSY/PAS control unit
F - Rod antenna
G - Navigation unit
H - GPS antenna

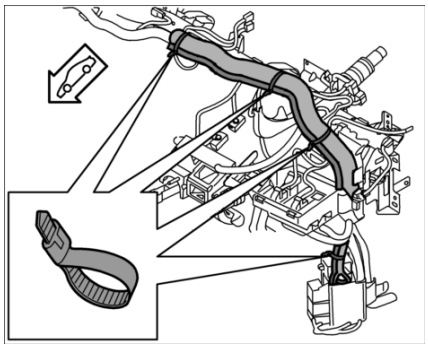


PCM plug connections

Note

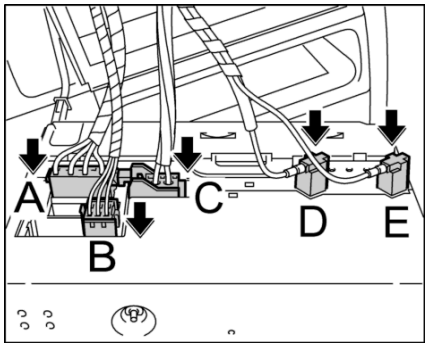
- *The number of plugs can vary, depending on the vehicle equipment.*

1. Release and pull off connectors **-D and E-** on the damaged antenna lead on the affected components. The illustration shows the connectors for the PCM display and operator control unit as an example.
2. Cut off the connectors on the damaged antenna lead, then insulate it and tie it to the main wire harness.



Securing antenna lead to the main wire harness

3. Route the new antenna lead along the main wire harness, guide it through the existing cable ducts and tie it to the main wire harness using tie-wraps.



PCM plug connections

4. Connect the connectors **-D and E-** for the new antenna lead to the affected components until the connectors are felt to engage. The illustration shows the connectors for the PCM display and operator control unit as an example.

top of page

Subsequent work

Subsequent work for PCM/radio antenna lead up to antenna control unit

1. Install PCM display and operator control unit. 911019 Removing and installing PCM display and operator control unit - section on "Installing"
2. Install cover for centre console on the left and right. 681419 Removing and installing cover for centre console - section on "Installing"

Subsequent work for antenna lead for left antenna amplifier up to right antenna amplifier

1. Install right air guide. 853419 Removing and installing air guide - section on "Installing"
2. Install glove compartment. 681519 Removing and installing glove compartment - section on "Installing"

3. Install trim panel under dashboard on the left and right. 701919 Removing and installing trim panel under dashboard - section on "Installing"
4. Install A-pillar trim panel on the left and right. 705719 Removing and installing A-pillar trim - section on "Installing"

Subsequent work for antenna lead for left antenna amplifier up to KESSY/PAS control unit

1. Install control unit for KESSY/PAS. 966619 Removing and installing KESSY control unit - section on "Installing"
2. Install trim panel under dashboard on the left. 701919 Removing and installing trim panel under dashboard - section on "Installing"
3. Install A-pillar trim panel on the left. 705719 Removing and installing A-pillar trim - section on "Installing"

Subsequent work for antenna lead for right antenna amplifier up to rod antenna

1. Install right air guide. 853419 Removing and installing air guide - section on "Installing"
2. Install glove compartment. 681519 Removing and installing glove compartment - section on "Installing"
3. Install A-pillar trim panel on the right. 705719 Removing and installing A-pillar trim - section on "Installing"
4. Install cover on the left and right. 852219 Removing and installing cover - section on "Installing"
5. Install battery cover. 270619 Removing and installing battery - section on "Installing"
6. Install carbon canister. 202519 Removing and installing carbon canister - section on "Installing"
7. Install rear section of front right wheel housing liner 505619 Removing and installing front wheel housing liner - section on "Installing" [997621] 505619 Removing and installing front wheel housing liner - section on "Installing" [997610 997611 997620]

Subsequent work for navigation unit antenna lead up to GPS antenna

1. Install trim panels for luggage compartment. *700519 23 Removing and installing trim panel for front luggage compartment - section on "Installing"*
2. Install navigation unit. 911219 Removing and installing navigation unit - section on "Installing"
3. Install cowl panel cover. 508719 Removing and installing cowl panel cover - section on "Installing"

997610, 997611, 997620, 997621

as of MY 2005
Country C00, C02, C05, C07, C08, C09, C10, C11, C12, C13, C14, C15, C16, C18, C19, C20, C21, C22,

91 28 55 Replacing the antenna leads - as of MY 2005

- Preliminary work
- Installing the antenna leads
- Subsequent work

top of page

Preliminary work

Preliminary work for PCM/radio antenna lead up to antenna control unit

1. Remove cover for centre console on the left and right. 681419 Removing and installing cover for centre console - section on "Removing"
2. Remove PCM display and operator control unit. 911019 Removing and installing PCM display and operator control unit - section on "Removing"

Preliminary work for antenna lead for left antenna amplifier up to right antenna amplifier

1. Remove A-pillar trim panel on the left and right. 705719 Removing and installing A-pillar trim - section on "Removing"
2. Remove trim panel under dashboard on the left and right. 701919 Removing and installing trim panel under dashboard - section on "Removing"
3. Remove glove compartment. 681519 Removing and installing glove compartment - section on "Removing"
4. Remove right air guide. 853419 Removing and installing air guide - section on "Removing"

Preliminary work for antenna lead for left antenna amplifier up to KESSY/PAS control unit

1. Remove A-pillar trim panel on the left. 705719 Removing and installing A-pillar trim - section on "Removing"
2. Remove trim panel under dashboard on left. 701919 Removing and installing trim panel under dashboard - section on "Removing"
3. Remove control unit for KESSY/PAS. 966619 Removing and installing KESSY control unit - section on "Removing"

Preliminary work for antenna lead for right antenna amplifier up to rod antenna

1. Remove rear part of right front wheel housing liner 505619 Removing and installing front wheel housing liner - section on "Removing" .
2. Remove carbon canister. 202519 Removing and installing carbon canister - section on "Removing"
3. Remove battery cover. 270619 Removing and installing battery - section on "Removing"
4. Remove cover on the left and right. 852219 Removing and installing cover - section on "Removing"
5. Remove glove compartment. 681519 Removing and installing glove compartment - section on "Removing"
6. Remove right air guide. 853419 Removing and installing air guide - section on "Removing"
7. Remove headliner. 708419 Removing and installing headliner - section on "Removing"

Preliminary work for navigation unit antenna lead up to GPS antenna

1. Remove cowl panel cover. 508719 Removing and installing cowl panel cover - section on "Removing"
2. Remove navigation unit. 911219 Removing and installing navigation unit - section on "Removing"
3. Remove luggage compartment trim panels *700519 21 Removing and installing trim panel for front luggage compartment - section on "Removing"*

top of page

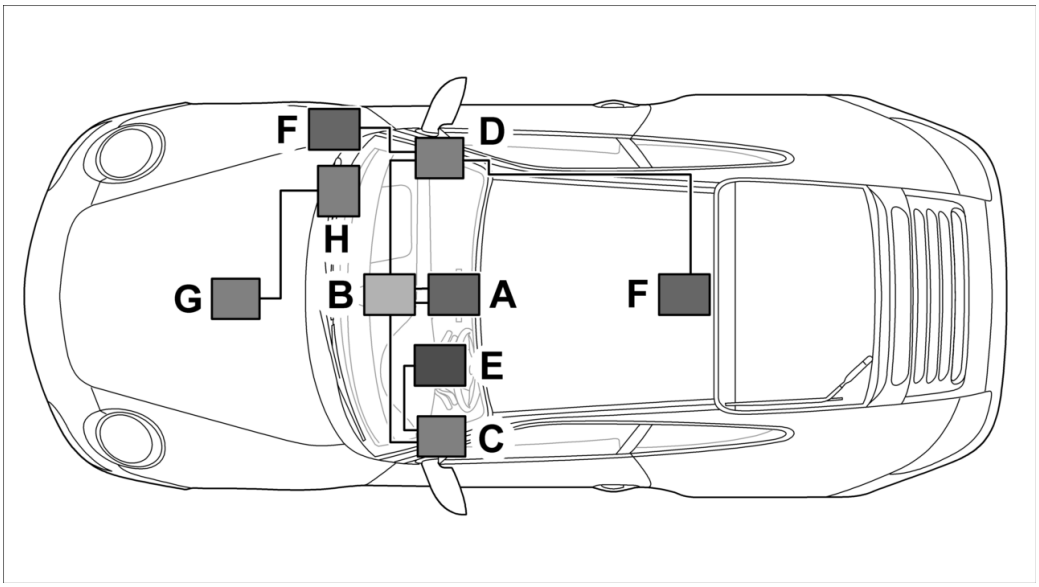
Installing the antenna leads

Installing antenna leads

ATTENTION

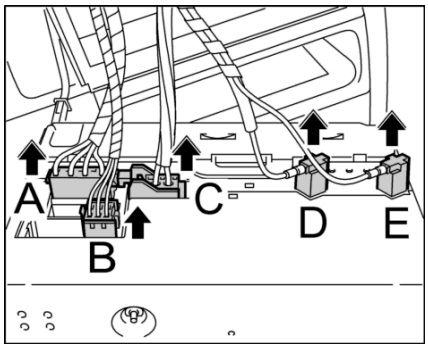
Risk of destruction when removing electric components with the ignition on.

Switch off ignition and remove ignition key.



Overview of antenna leads, shown on the 911

A - PCM/radio
B - Antenna control unit
C - Antenna amplifier, left
D - Antenna amplifier, right
E - KESSY/PAS control unit
F - Rod antenna
G - Navigation unit
H - GPS antenna

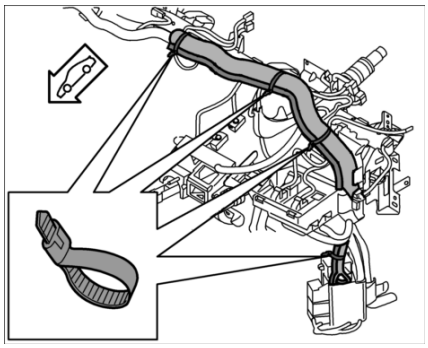


PCM plug connections

Note

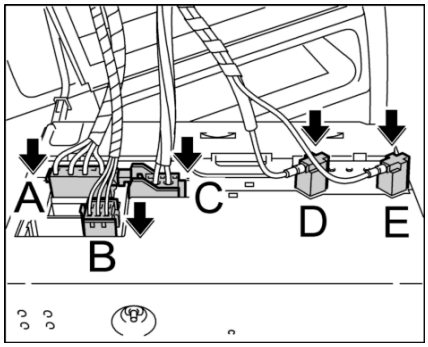
- *The number of plugs can vary, depending on the vehicle equipment.*

1. Release and pull off connectors **-D and E-** on the damaged antenna lead on the affected components. The illustration shows the connectors for the PCM display and operator control unit as an example.
2. Cut off the connectors on the damaged antenna lead, then insulate it and tie it to the main wire harness.



Securing antenna lead to the main wire harness

3. Route the new antenna lead along the main wire harness, guide it through the existing cable ducts and tie it to the main wire harness using tie-wraps.



PCM plug connections

4. Connect the connectors **-D and E-** for the new antenna lead to the affected components until the connectors are felt to engage. The illustration shows the connectors for the PCM display and operator control unit as an example.

top of page

Subsequent work

Subsequent work for PCM/radio antenna lead up to antenna control unit

1. Install PCM display and operator control unit. 911019 Removing and installing PCM display and operator control unit - section on "Installing"
2. Install cover for centre console on the left and right. 681419 Removing and installing cover for centre console - section on "Installing"

Subsequent work for antenna lead for left antenna amplifier up to right antenna amplifier

1. Install right air guide. 853419 Removing and installing air guide - section on "Installing"
2. Install glove compartment. 681519 Removing and installing glove compartment - section on "Installing"

3. Install trim panel under dashboard on the left and right. 701919 Removing and installing trim panel under dashboard - section on "Installing"
4. Install A-pillar trim panel on the left and right. 705719 Removing and installing A-pillar trim - section on "Installing"

Subsequent work for antenna lead for left antenna amplifier up to KESSY/PAS control unit

1. Install control unit for KESSY/PAS. 966619 Removing and installing KESSY control unit - section on "Installing"
2. Install trim panel under dashboard on the left. 701919 Removing and installing trim panel under dashboard - section on "Installing"
3. Install A-pillar trim panel on the left. 705719 Removing and installing A-pillar trim - section on "Installing"

Subsequent work for antenna lead for right antenna amplifier up to rod antenna

1. Install headliner. 708419 Removing and installing headliner - section on "Installing"
2. Install right air guide. 853419 Removing and installing air guide - section on "Installing"
3. Install glove compartment. 681519 Removing and installing glove compartment - section on "Installing"
4. Install cover on the left and right. 852219 Removing and installing cover - section on "Installing"
5. Install battery cover. 270619 Removing and installing battery - section on "Installing"
6. Install carbon canister. 202519 Removing and installing carbon canister - section on "Installing"
7. Install rear section of front right wheel housing liner 505619 Removing and installing front wheel housing liner - section on "Installing"

Subsequent work for navigation unit antenna lead up to GPS antenna

1. Install trim panels for luggage compartment. *700519 23 Removing and installing trim panel for front luggage compartment - section on "Installing"*
2. Install navigation unit. 911219 Removing and installing navigation unit - section on "Installing"
3. Install cowl panel cover. 508719 Removing and installing cowl panel cover - section on "Installing"

997410, 997411, 997430, 997431

as of MY 2005
Country C00, C02, C05, C07, C08, C09, C10, C11, C12, C13, C14, C15, C16, C18, C19, C20, C21, C22, C23, C24, C25, C26, C27, C28, C32, C33, C34, C35, C36, C37, C38, C39, C45, C46, C98, C99

91 28 55 Replacing the antenna leads - as of MY 2005

- Preliminary work
- Installing the antenna leads
- Subsequent work

top of page

Preliminary work

Preliminary work for PCM/radio antenna lead up to antenna control unit

1. Remove cover for centre console on the left and right. 681419 Removing and installing cover for centre console - section on "Removing"
2. Remove PCM display and operator control unit. 911019 Removing and installing PCM display and operator control unit - section on "Removing"

Preliminary work for antenna lead for left antenna amplifier up to right antenna amplifier

1. Remove A-pillar trim panel on the left and right. 705719 Removing and installing A-pillar trim - section on "Removing"
2. Remove trim panel under dashboard on the left and right. 701919 Removing and installing trim panel under dashboard - section on "Removing"
3. Remove glove compartment. 681519 Removing and installing glove compartment - section on "Removing"
4. Remove right air guide. 853419 Removing and installing air guide - section on "Removing"

Preliminary work for antenna lead for left antenna amplifier up to KESSY/PAS control unit

1. Remove A-pillar trim panel on the left. 705719 Removing and installing A-pillar trim - section on "Removing"
2. Remove trim panel under dashboard on left. 701919 Removing and installing trim panel under dashboard - section on "Removing"
3. Remove control unit for KESSY/PAS. 966619 Removing and installing KESSY control unit - section on "Removing"

Preliminary work for antenna lead for right antenna amplifier up to rod antenna

1. Remove rear part of right front wheel housing liner 505619 Removing and installing front wheel housing liner - section on "Removing" .
2. Remove carbon canister. 202519 Removing and installing carbon canister - section on "Removing"
3. Remove battery cover. 270619 Removing and installing battery - section on "Removing"
4. Remove cover on the left and right. 852219 Removing and installing cover - section on "Removing"
5. Remove glove compartment. 681519 Removing and installing glove compartment - section on "Removing"
6. Remove right air guide. 853419 Removing and installing air guide - section on "Removing"
7. Remove headliner. 708419 Removing and installing headliner - section on "Removing"

Preliminary work for navigation unit antenna lead up to GPS antenna

1. Remove cowl panel cover. 508719 Removing and installing cowl panel cover - section on "Removing"
2. Remove navigation unit. 911219 Removing and installing navigation unit - section on "Removing"
3. Remove luggage compartment trim panels *700519 21 Removing and installing trim panel for front luggage compartment - section on "Removing"*
4. Remove trim panel under dashboard on left. 701919 Removing and installing trim panel under dashboard - section on "Removing"
5. Detach relay carrier 1. 978319 Removing and installing relay carrier 1 - section on "Removing"
6. Remove glove compartment. 681519 Removing and installing glove compartment - section on "Removing"
7. Remove right air guide. 853419 Removing and installing air guide - section on "Removing"

top of page

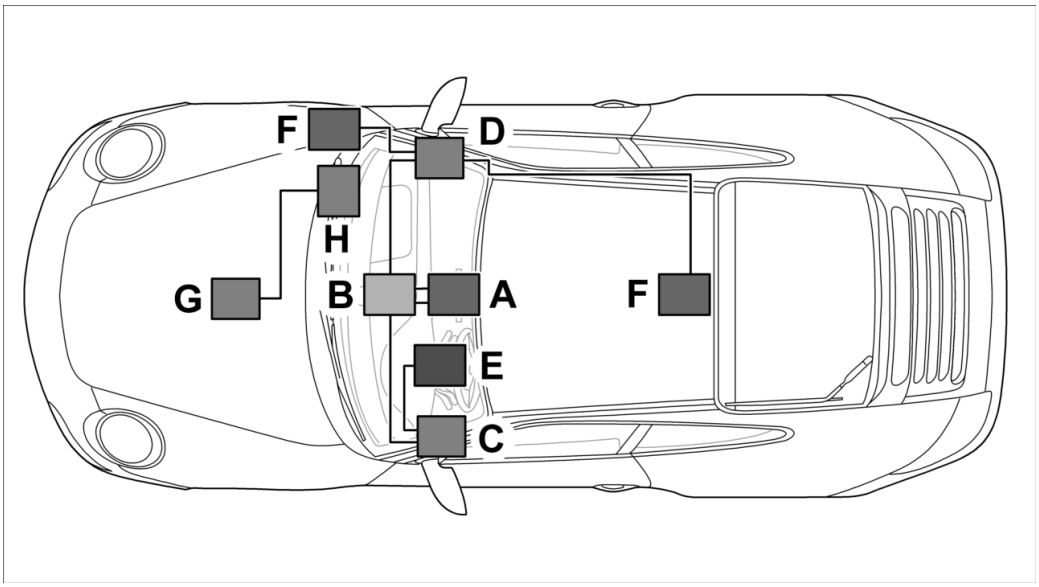
Installing the antenna leads

Installing antenna leads

ATTENTION

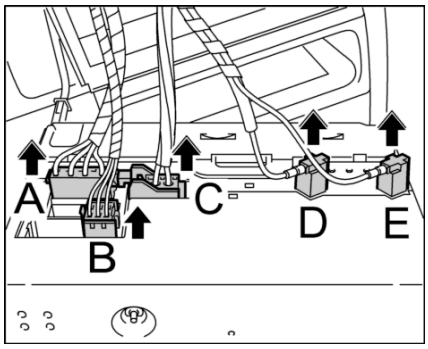
Risk of destruction when removing electric components with the ignition on.

Switch off ignition and remove ignition key.



Overview of antenna leads, shown on the 911

A - PCM/radio
B - Antenna control unit
C - Antenna amplifier, left
D - Antenna amplifier, right
E - KESSY/PAS control unit
F - Rod antenna
G - Navigation unit
H - GPS antenna

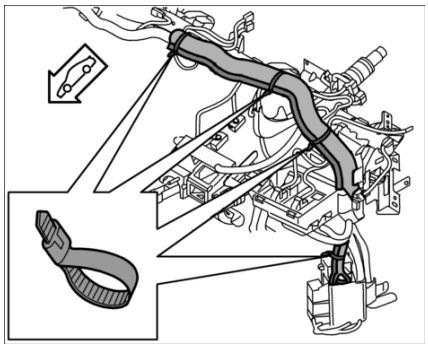


PCM plug connections

Note

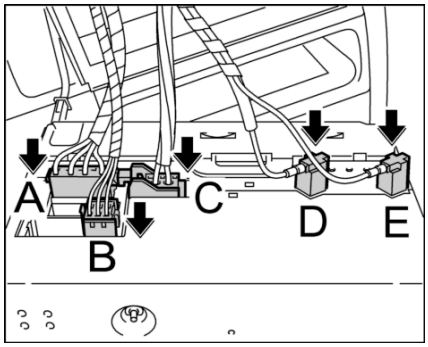
- *The number of plugs can vary, depending on the vehicle equipment.*

1. Release and pull off connectors **-D and E-** on the damaged antenna lead on the affected components. The illustration shows the connectors for the PCM display and operator control unit as an example.
2. Cut off the connectors on the damaged antenna lead, then insulate it and tie it to the main wire harness.



Securing antenna lead to the main wire harness

3. Route the new antenna lead along the main wire harness, guide it through the existing cable ducts and tie it to the main wire harness using tie-wraps.



PCM plug connections

4. Connect the connectors **-D and E-** for the new antenna lead to the affected components until the connectors are felt to engage. The illustration shows the connectors for the PCM display and operator control unit as an example.

top of page

Subsequent work

Subsequent work for PCM/radio antenna lead up to antenna control unit

1. Install PCM display and operator control unit. 911019 Removing and installing PCM display and operator control unit - section on "Installing"
2. Install cover for centre console on the left and right. 681419 Removing and installing cover for centre console - section on "Installing"

Subsequent work for antenna lead for left antenna amplifier up to right antenna amplifier

1. Install right air guide. 853419 Removing and installing air guide - section on "Installing"
2. Install glove compartment. 681519 Removing and installing glove compartment - section on "Installing"

3. Install trim panel under dashboard on the left and right. 701919 Removing and installing trim panel under dashboard - section on "Installing"
4. Install A-pillar trim panel on the left and right. 705719 Removing and installing A-pillar trim - section on "Installing"

Subsequent work for antenna lead for left antenna amplifier up to KESSY/PAS control unit

1. Install control unit for KESSY/PAS. 966619 Removing and installing KESSY control unit - section on "Installing"
2. Install trim panel under dashboard on the left. 701919 Removing and installing trim panel under dashboard - section on "Installing"
3. Install A-pillar trim panel on the left. 705719 Removing and installing A-pillar trim - section on "Installing"

Subsequent work for antenna lead for right antenna amplifier up to rod antenna

1. Install headliner. 708419 Removing and installing headliner - section on "Installing"
2. Install right air guide. 853419 Removing and installing air guide - section on "Installing"
3. Install glove compartment. 681519 Removing and installing glove compartment - section on "Installing"
4. Install cover on the left and right. 852219 Removing and installing cover - section on "Installing"
5. Install battery cover. 270619 Removing and installing battery - section on "Installing"
6. Install carbon canister. 202519 Removing and installing carbon canister - section on "Installing"
7. Install rear section of front right wheel housing liner 505619 Removing and installing front wheel housing liner - section on "Installing"

Subsequent work for navigation unit antenna lead up to GPS antenna

1. Install right air guide. 853419 Removing and installing air guide - section on "Installing"
2. Install glove compartment. 681519 Removing and installing glove compartment - section on "Installing"
3. Attach relay carrier 1. 978319 Removing and installing relay carrier 1 - section on "Installing"
4. Install trim panel under dashboard on the left. 701919 Removing and installing trim panel under dashboard - section on "Installing"
5. Install trim panels for luggage compartment. *700519 23 Removing and installing trim panel for front luggage compartment - section on "Installing"*
6. Install navigation unit. 911219 Removing and installing navigation unit - section on "Installing"
7. Install cowl panel cover. 508719 Removing and installing cowl panel cover - section on "Installing"

91 28 55 Replacing the antenna leads - as of MY 2005

- Preliminary work
- Installing the antenna leads
- Subsequent work

top of page

Preliminary work

Preliminary work for PCM/radio antenna lead up to antenna control unit

1. Remove cover for centre console on the left and right. 681419 Removing and installing cover for centre console - section on "Removing"
2. Remove PCM display and operator control unit. 911019 Removing and installing PCM display and operator control unit - section on "Removing"

Preliminary work for antenna lead for left antenna amplifier up to right antenna amplifier

1. Remove A-pillar trim panel on the left and right. 705719 Removing and installing A-pillar trim - section on "Removing"
2. Remove trim panel under dashboard on the left and right. 701919 Removing and installing trim panel under dashboard - section on "Removing"
3. Remove glove compartment. 681519 Removing and installing glove compartment - section on "Removing"
4. Remove right air guide. 853419 Removing and installing air guide - section on "Removing"

Preliminary work for antenna lead for left antenna amplifier up to KESSY/PAS control unit

1. Remove A-pillar trim panel on the left. 705719 Removing and installing A-pillar trim - section on "Removing"
2. Remove trim panel under dashboard on left. 701919 Removing and installing trim panel under dashboard - section on "Removing"
3. Remove control unit for KESSY/PAS. 966619 Removing and installing KESSY control unit - section on "Removing"

Preliminary work for antenna lead for right antenna amplifier up to rod antenna

1. Remove rear part of right front wheel housing liner 505619 Removing and installing front wheel housing liner - section on "Removing" .
2. Remove carbon canister. 202519 Removing and installing carbon canister - section on "Removing"
3. Remove battery cover. 270619 Removing and installing battery - section on "Removing"
4. Remove cover on the left and right. 852219 Removing and installing cover - section on "Removing"
5. Remove A-pillar trim panel on the right. 705719 Removing and installing A-pillar trim - section on "Removing"
6. Remove glove compartment. 681519 Removing and installing glove compartment - section on "Removing"
7. Remove right air guide. 853419 Removing and installing air guide - section on "Removing"

Preliminary work for navigation unit antenna lead up to GPS antenna

1. Remove cowl panel cover. 508719 Removing and installing cowl panel cover - section on "Removing"
2. Remove navigation unit. 911219 Removing and installing navigation unit - section on "Removing"
3. Remove luggage compartment trim panels *700519 21 Removing and installing trim panel for front luggage compartment - section on "Removing"*
4. Remove trim panel under dashboard on left. 701919 Removing and installing trim panel under dashboard - section on "Removing"
5. Detach relay carrier 1. 978319 Removing and installing relay carrier 1 - section on "Removing"
6. Remove glove compartment. 681519 Removing and installing glove compartment - section on "Removing"
7. Remove right air guide. 853419 Removing and installing air guide - section on "Removing"

top of page

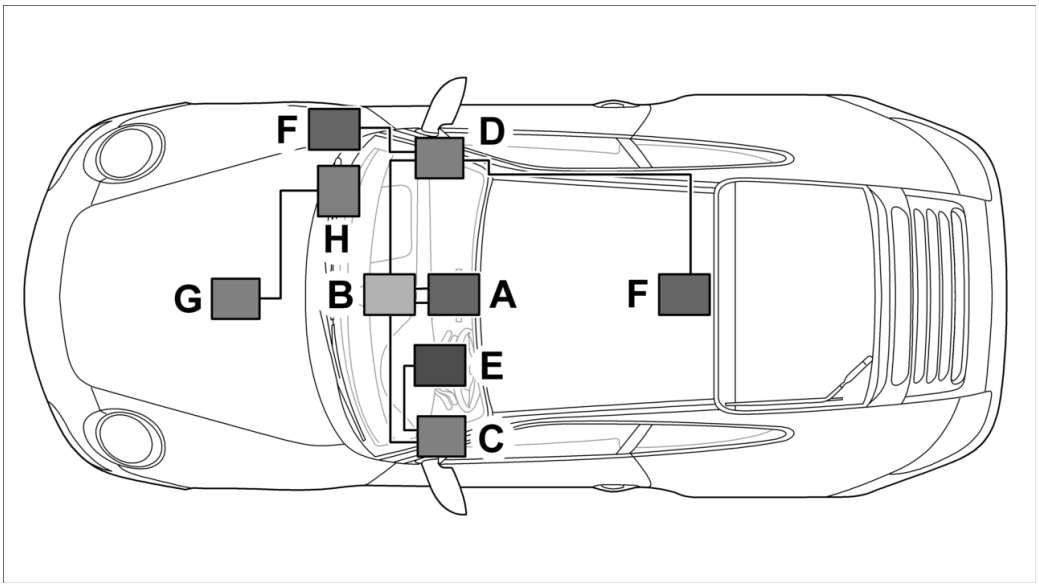
Installing the antenna leads

Installing antenna leads

ATTENTION

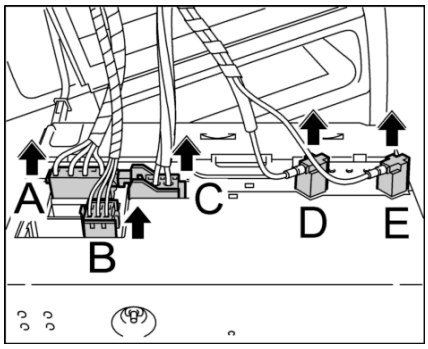
Risk of destruction when removing electric components with the ignition on.

Switch off ignition and remove ignition key.



Overview of antenna leads, shown on the 911

A - PCM/radio
B - Antenna control unit
C - Antenna amplifier, left
D - Antenna amplifier, right
E - KESSY/PAS control unit
F - Rod antenna
G - Navigation unit
H - GPS antenna

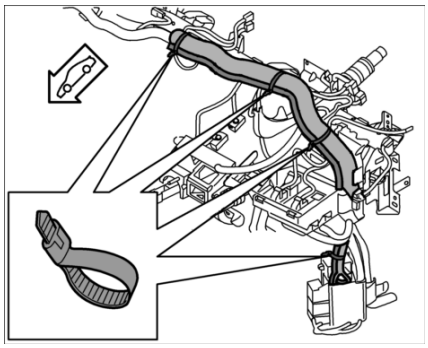


PCM plug connections

Note

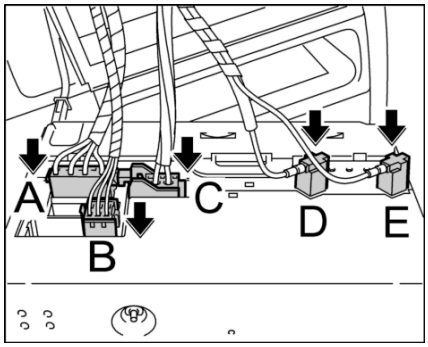
- *The number of plugs can vary, depending on the vehicle equipment.*

1. Release and pull off connectors **-D and E-** on the damaged antenna lead on the affected components. The illustration shows the connectors for the PCM display and operator control unit as an example.
2. Cut off the connectors on the damaged antenna lead, then insulate it and tie it to the main wire harness.



Securing antenna lead to the main wire harness

3. Route the new antenna lead along the main wire harness, guide it through the existing cable ducts and tie it to the main wire harness using tie-wraps.



PCM plug connections

4. Connect the connectors **-D and E-** for the new antenna lead to the affected components until the connectors are felt to engage. The illustration shows the connectors for the PCM display and operator control unit as an example.

top of page

Subsequent work

Subsequent work for PCM/radio antenna lead up to antenna control unit

1. Install PCM display and operator control unit. 911019 Removing and installing PCM display and operator control unit - section on "Installing"
2. Install cover for centre console on the left and right. 681419 Removing and installing cover for centre console - section on "Installing"

Subsequent work for antenna lead for left antenna amplifier up to right antenna amplifier

1. Install right air guide. 853419 Removing and installing air guide - section on "Installing"
2. Install glove compartment. 681519 Removing and installing glove compartment - section on "Installing"

3. Install trim panel under dashboard on the left and right. 701919 Removing and installing trim panel under dashboard - section on "Installing"
4. Install A-pillar trim panel on the left and right. 705719 Removing and installing A-pillar trim - section on "Installing"

Subsequent work for antenna lead for left antenna amplifier up to KESSY/PAS control unit

1. Install control unit for KESSY/PAS. 966619 Removing and installing KESSY control unit - section on "Installing"
2. Install trim panel under dashboard on the left. 701919 Removing and installing trim panel under dashboard - section on "Installing"
3. Install A-pillar trim panel on the left. 705719 Removing and installing A-pillar trim - section on "Installing"

Subsequent work for antenna lead for right antenna amplifier up to rod antenna

1. Install right air guide. 853419 Removing and installing air guide - section on "Installing"
2. Install glove compartment. 681519 Removing and installing glove compartment - section on "Installing"
3. Install A-pillar trim panel on the right. 705719 Removing and installing A-pillar trim - section on "Installing"
4. Install cover on the left and right. 852219 Removing and installing cover - section on "Installing"
5. Install battery cover. 270619 Removing and installing battery - section on "Installing"
6. Install carbon canister. 202519 Removing and installing carbon canister - section on "Installing"
7. Install rear section of front right wheel housing liner 505619 Removing and installing front wheel housing liner - section on "Installing"

Subsequent work for navigation unit antenna lead up to GPS antenna

1. Install right air guide. 853419 Removing and installing air guide - section on "Installing"
2. Install glove compartment. 681519 Removing and installing glove compartment - section on "Installing"
3. Attach relay carrier 1. 978319 Removing and installing relay carrier 1 - section on "Installing"
4. Install trim panel under dashboard on the left. 701919 Removing and installing trim panel under dashboard - section on "Installing"
5. Install trim panels for luggage compartment. *700519 23 Removing and installing trim panel for front luggage compartment - section on "Installing"*
6. Install navigation unit. 911219 Removing and installing navigation unit - section on "Installing"
7. Install cowl panel cover. 508719 Removing and installing cowl panel cover - section on "Installing"

91 36 19 Removing and installing subwoofer - as of MY 2005

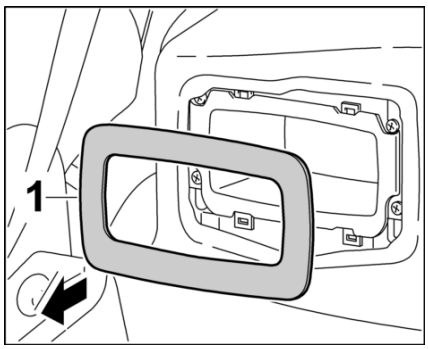
- Removing subwoofer
- Installing subwoofer

top of page

Removing subwoofer

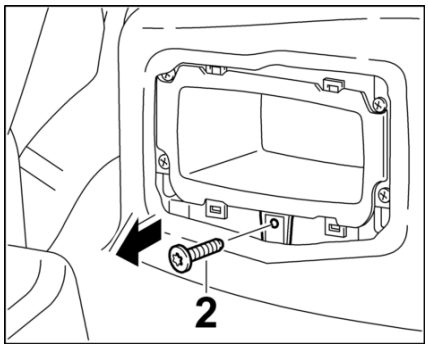
Removing subwoofer

1. Switch ignition off, remove ignition key and switch off audio system.



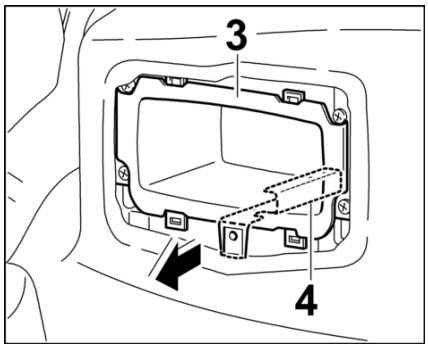
Removing trim

2. Remove trim **-1-** at left and right towards the front.



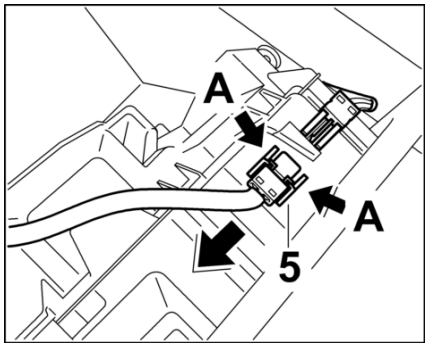
Unscrewing fastening screws

3. Unscrew fastening screw **-2-** left and right.



Pulling out sound package

4. Pull the sound package **-3-** in **-direction of arrow-** out of the bracket **-4-** and fold over.



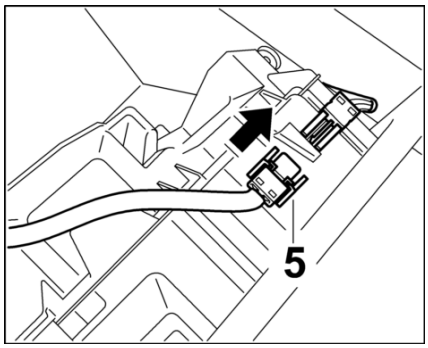
Releasing electric plug connection

5. Press the electric connector together **-5-** and disconnect.

top of page

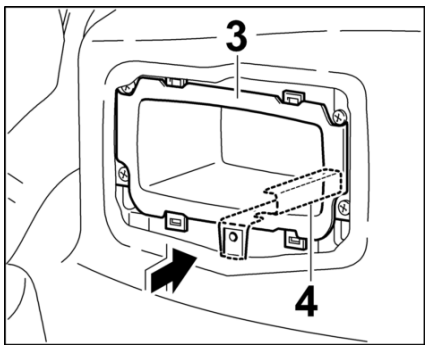
Installing subwoofer

Installing subwoofer



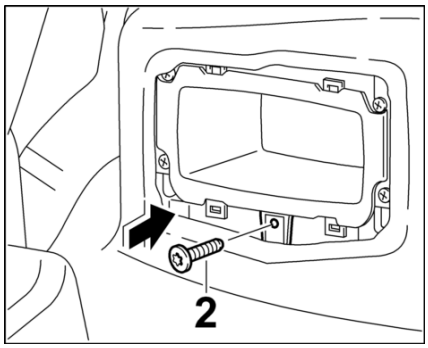
Connecting plug connection

1. Push in plug connection **-5-** until the plug engages.



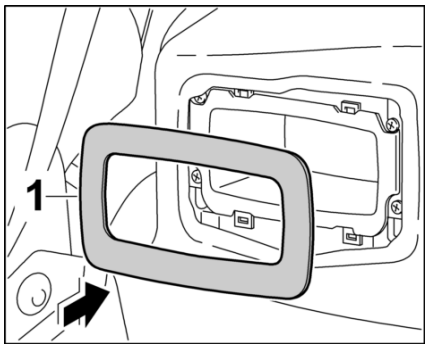
Installing sound package

2. Push sound package **-3-** into bracket **-4-** as far as the stop.



Fastening sound package

3. Screw in fastening screws **-2-** left and right. Tightening torque: 7.2 Nm (5.5 ftlb.)



Attaching trim

4. Position trim **-1-** and press into place.

997110, 997111, 997120, 997121, 997410, 997411, 997430, 997431

as of MY 2005
Country C00, C02, C05, C07, C08, C09, C10, C11, C12, C13, C14, C15, C16, C18, C19, C20, C21, C22, C23, C24, C25, C26, C27, C28, C32, C33, C34, C35, C36, C37, C38, C39, C45, C46, C98, C99

WARNUNG

91 36 19 Removing and installing subwoofer - as of MY 2005

- Removing subwoofer
- Installing subwoofer

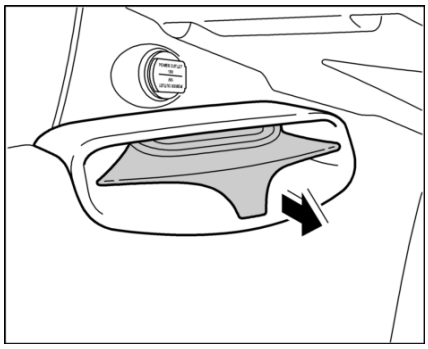
top of page

Removing subwoofer

Removing subwoofer

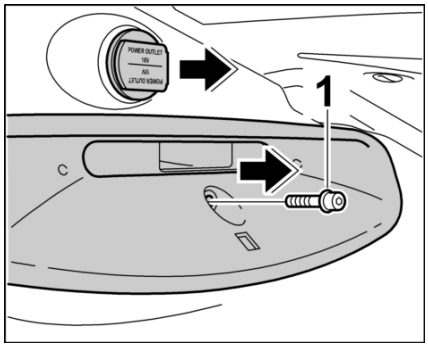
The subwoofer is located next to the centre console under the glove box cover.

1. Switch ignition off, remove ignition key and switch off audio system.



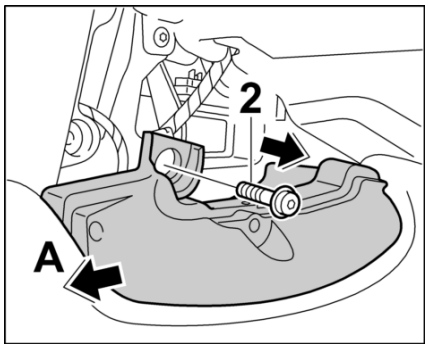
Removing subwoofer cover

2. Unclip cover.



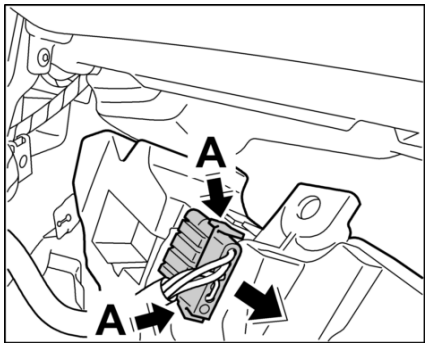
Unscrewing fastening screw for cover

3. Unscrew fastening screw **-1-** for cover and remove cover. Disconnect electric plug connection for socket.



Unscrewing fastening screw and disengaging subwoofer

4. Unscrew fastening screw **-2-** for subwoofer and slide subwoofer to the rear.



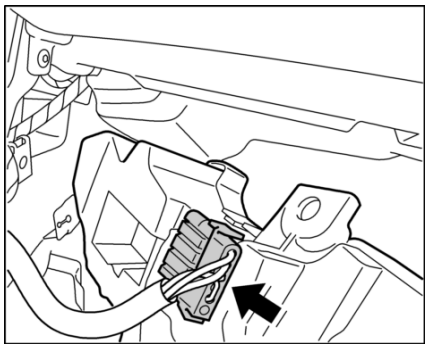
Releasing electric connector

5. Release connector and remove from subwoofer.

top of page

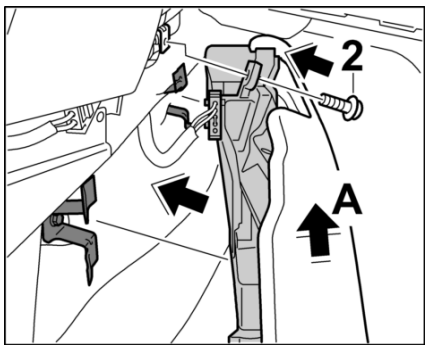
Installing subwoofer

Installing subwoofer



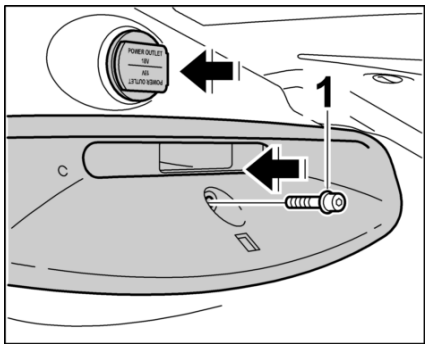
Connecting connector on subwoofer

1. Push in electric plug of subwoofer until it is felt to engage.



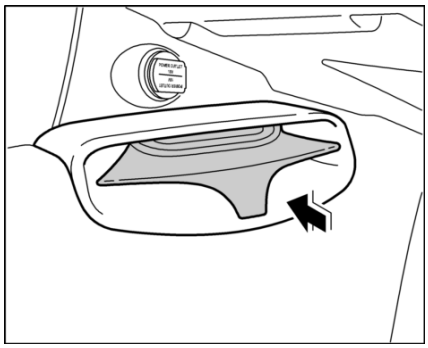
Engaging and screwing down subwoofer

2. Engage subwoofer at the four retaining clips, slide forwards and screw down with the fastening screw **-2-** .



Screwing down cover for subwoofer

3. Connect electric connector for socket in cover of subwoofer, position the cover and screw down with fastening screw **-1-** .



Engaging cover for subwoofer.

4. Position and engage cover for subwoofer.

997310, 997311, 997320, 997321, 997610, 997611, 997620, 997621

as of MY 2005
Country C00, C02, C05, C07, C08, C09, C10, C11, C12, C13, C14, C15, C16, C18, C19, C20, C21, C22, C23, C24, C25, C26, C27, C28, C32, C33, C34, C35, C36, C37, C38, C39, C45, C46, C98, C99

WARNUNG

91 38 19 Removing and installing rod antenna - as of MY 2005

- Preliminary work
- Removing rod antenna
- Installing rod antenna
- Reworking

top of page

Preliminary work

Preliminary work

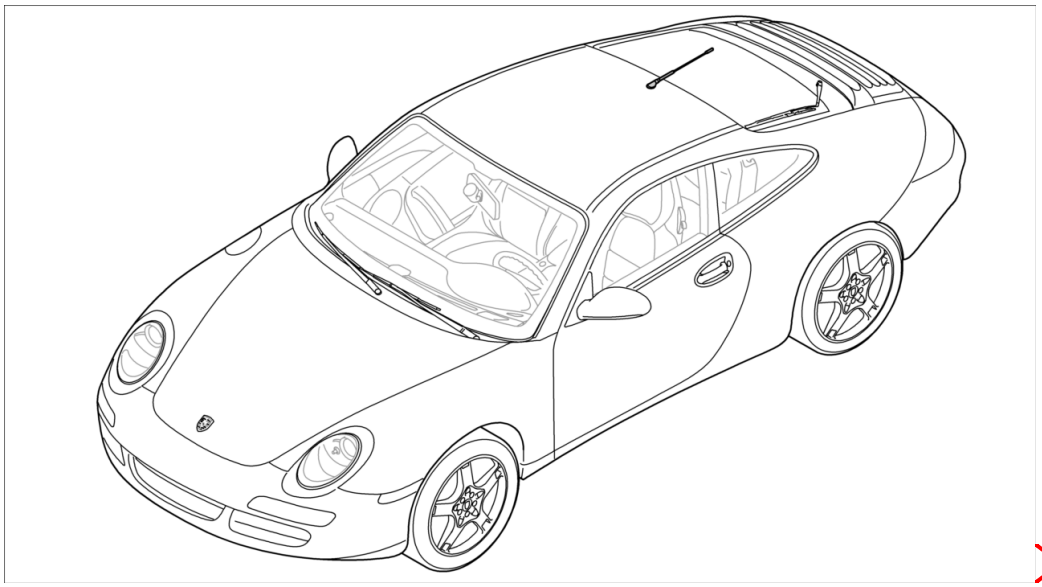
1. Remove rear part of right front wheel housing liner 505619 Removing and installing front wheel housing liner - chapter on "Removing" [997310 997311 997320 997321] 505619 Removing and installing front wheel housing liner - chapter on "Removing" [997621] 505619 Removing and installing front wheel housing liner - chapter on "Removing" [997610 997611 997620].
2. Remove carbon canister. 202519 Removing and installing carbon canister - chapter on "Removing"

top of page

Removing rod antenna

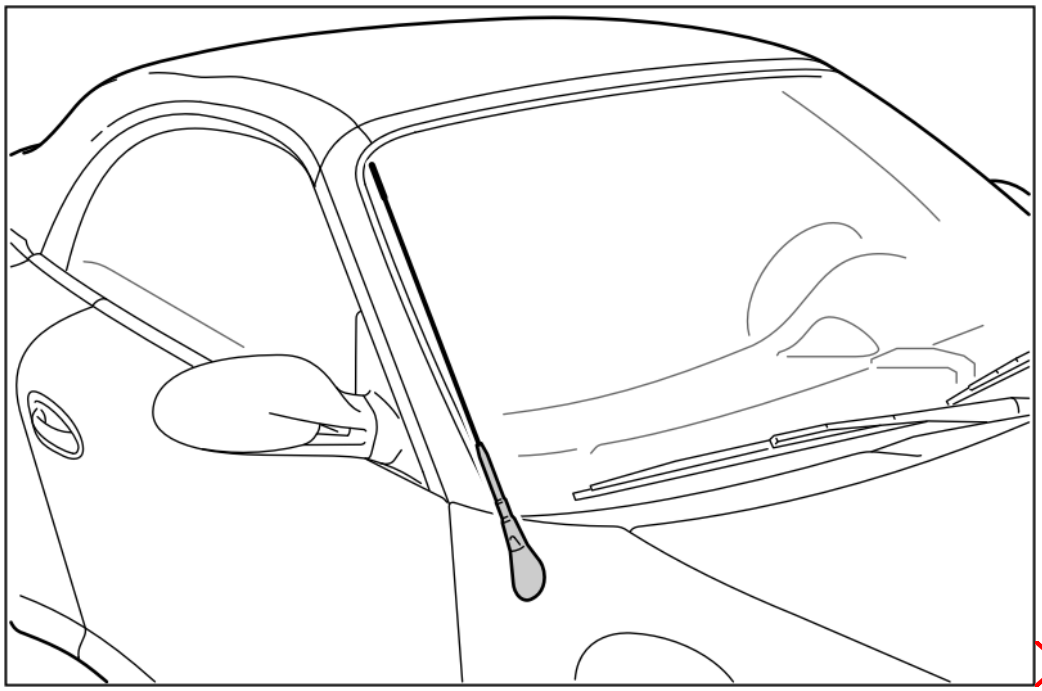
Removing rod antenna

Installation Location:



Installation location for rod antenna

Installation Location:



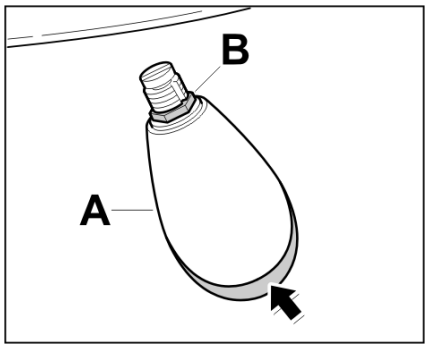
Rod antenna installation location for the 911 Cabriolet

ATTENTION

Voltage peaks can damage the audio system.

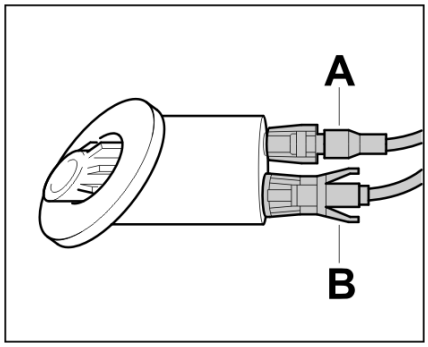
Before unplugging/removing audio components, remove ignition key and switch off audio system.

1. Remove the ignition key and switch off the audio system.
2. Unscrew antenna rod on the antenna base cover.



Antenna base cover

3. Unscrew fastening nut **-B-** and remove antenna base cover **-A-** .
4. Remove **-arrow-** seal.



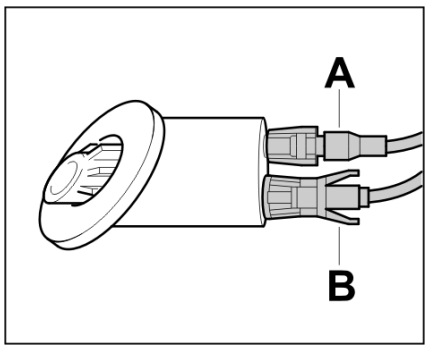
Antenna base connector

5. Take out antenna base downward and pull off both connectors **-A and B-** from the antenna base.

top of page

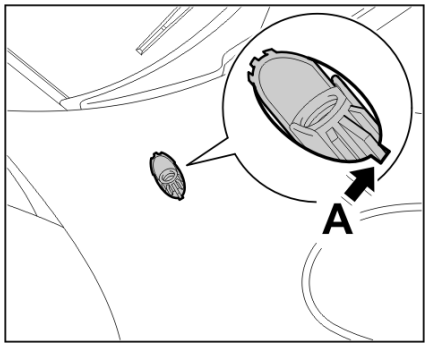
Installing rod antenna

Installing rod antenna



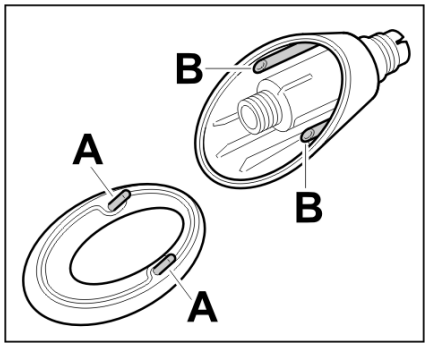
Antenna base connector

1. Push both connectors **-A and B-** onto the antenna base until they are felt to engage.



Inserting the antenna base

2. Insert antenna base in the cut-out from below. The bar of the antenna base must be inserted in the guide nut **-A-** while doing so.

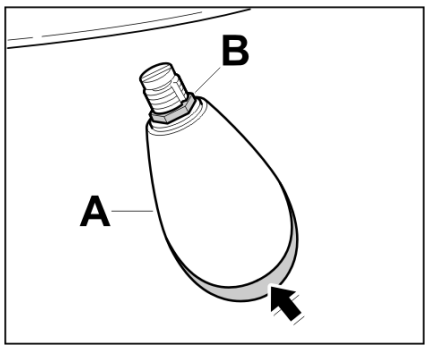


Inserting the seal on the antenna base cover

3. Insert seal with the locating pins **-A-** in the holes **-B-** on the antenna base cover.

Note

The seal (arrow) must make contact all the way around on the antenna base cover.



Antenna base cover

4. Position antenna base cover **-A-** and tighten the fastening nut **-B-** . **Tightening torque: 3 (2 ftlb.) Nm**
5. Screw in antenna rod hand-tight in the antenna base cover.

top of page

Reworking

Subsequent work

1. Install carbon canister. 202519 Removing and installing carbon canister - chapter on "Installing"
2. Install rear section of front right wheel housing liner 505619 Removing and installing front wheel housing liner - chapter on "Installing" [997310 997311 997320 997321] 505619 Removing and installing front wheel housing liner - chapter on "Installing" [997621] 505619 Removing and installing front wheel housing liner - chapter on "Installing" [997610 997611 997620]

997310, 997311, 997320, 997321, 997610, 997611, 997620, 997621

as of MY 2005
Country C00, C02, C05, C07, C08, C09, C10, C11, C12, C13, C14, C15, C16, C18, C19, C20, C21, C22, C23, C24, C25, C26, C27, C28, C32, C33, C34, C35, C36, C37, C38, C39, C45, C46, C98, C99

WARNUNG

Gefahr des Verlusts der Text-Bild-Zuordnung beim Ausdruck.

- **Aus technischen Gründen kann derzeit nicht ausgeschlossen werden, dass trotz einwandfreier Darstellung auf dem Bildschirm beim Ausdruck der Zusammenhang von Text und zugehörigem Bild verloren geht.**
- **Wird der Fehler nicht bemerkt, besteht die Gefahr, daß Arbeiten nicht korrekt durchgeführt werden und es dadurch zu Personen- und Sachschäden kommt.**

Vergleichen Sie deshalb nach dem Druckvorgang unbedingt die Ausdrucke mit der Bildschirmdarstellung. Korrigieren Sie die Ausdrucke im Fehlerfall so, daß der Inhalt der Bildschirmdarstellung zutreffend wiedergegeben wird.

WARNING

Danger of losing text-figure correspondence when printing out.

- **For technical reasons, it can currently not be ruled out that the correspondence between text and associated figure can be lost when it is printed out, even though the display on the screen is correct.**
- **If the fault is not noticed, there is the danger that work will not be performed correctly which can cause injury and damage.**

Therefore, always compare printouts with the screen display after printing them out. Correct the printouts if they are faulty so that the content of the screen display matches that on the printouts.

91 38 19 Removing and installing rod antenna - as of MY 2005

- Removing rod antenna
- Installing rod antenna
- Reworking

Preliminary work

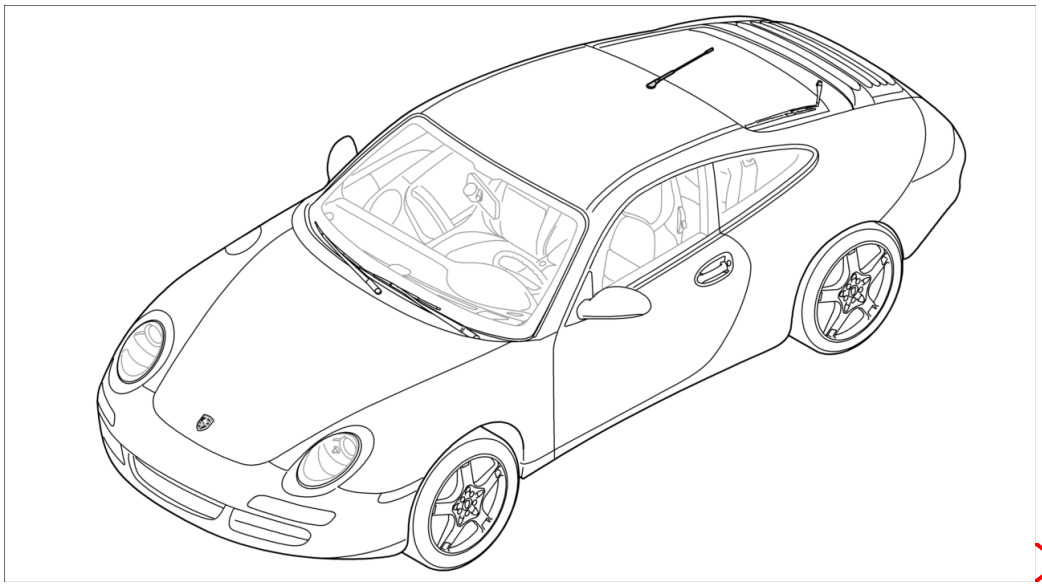
1. Removing headliner. 708419 Removing and installing headliner - section on "Removing"

top of page

Removing rod antenna

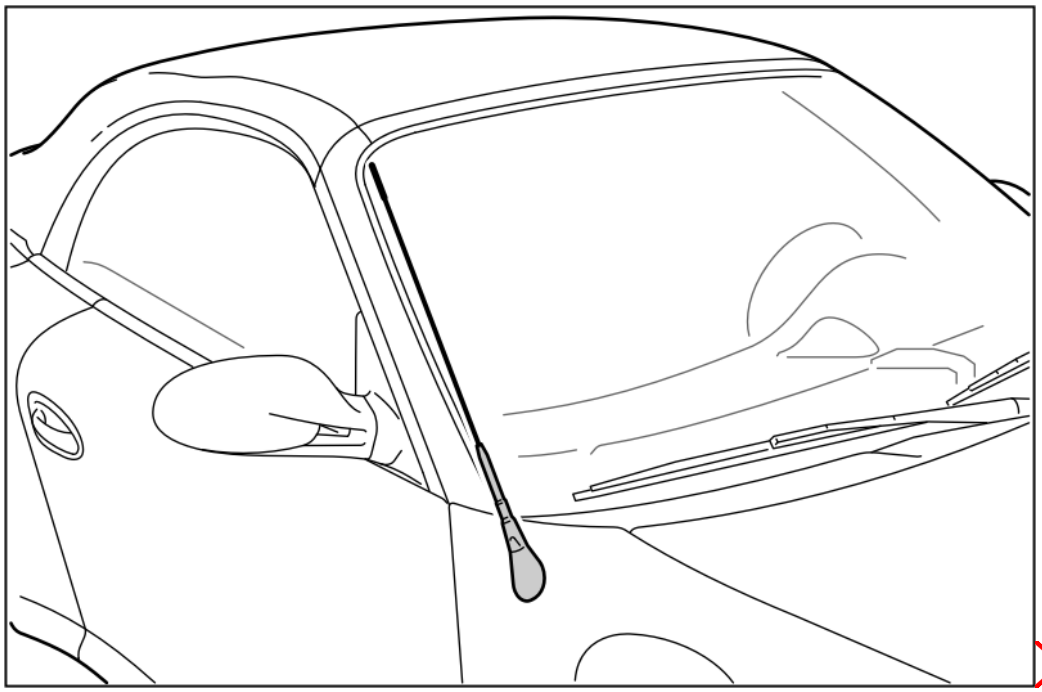
Removing rod antenna

Installation Location:



Installation location for rod antenna

Installation Location:



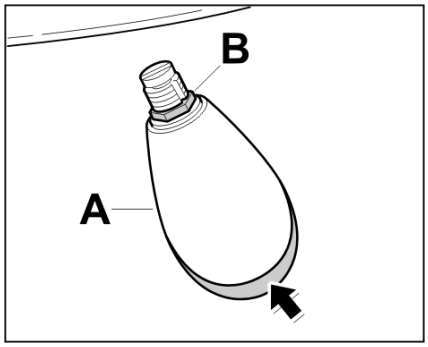
Rod antenna installation location for the 911 Cabriolet

ATTENTION

Voltage peaks can damage the audio system.

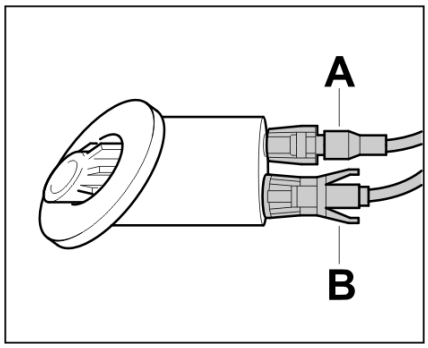
Before unplugging/removing audio components, remove ignition key and switch off audio system.

1. Remove the ignition key and switch off the audio system.
2. Unscrew antenna rod on the antenna base cover.



Antenna base cover

3. Unscrew fastening nut **-B-** and remove antenna base cover **-A-** .
4. Remove **-arrow-** seal.



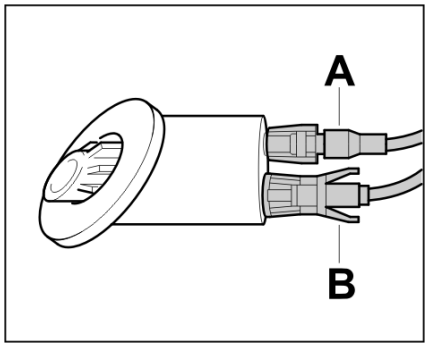
Antenna base connector

5. Take out antenna base downward and pull off both connectors **-A and B-** from the antenna base.

top of page

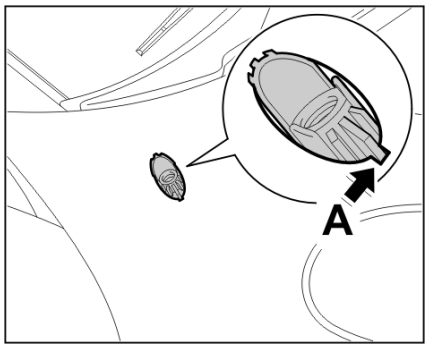
Installing rod antenna

Installing rod antenna



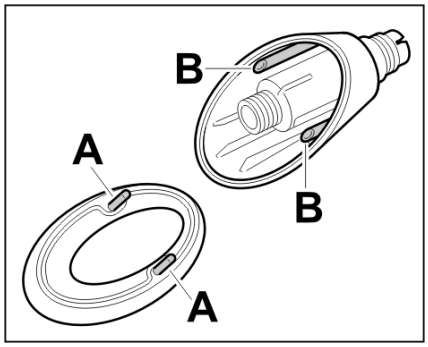
Antenna base connector

1. Push both connectors **-A and B-** onto the antenna base until they are felt to engage.



Inserting the antenna base

2. Insert antenna base in the cut-out from below. The bar of the antenna base must be inserted in the guide nut **-A-** while doing so.

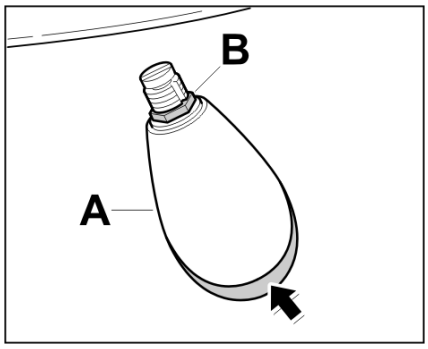


Inserting the seal on the antenna base cover

3. Insert seal with the locating pins **-A-** in the holes **-B-** on the antenna base cover.

Note

The seal (arrow) must make contact all the way around on the antenna base cover.



Antenna base cover

4. Position antenna base cover **-A-** and tighten the fastening nut **-B-** . **Tightening torque: 3 (2 ftlb.) Nm**
5. Screw in antenna rod hand-tight in the antenna base cover.

top of page

Reworking

Subsequent work

1. Install headliner. 708419 Removing and installing headliner - section on "Installing"

997110, 997111, 997120, 997121, 997410, 997411, 997430, 997431

91 40 19 Removing and installing front loudspeakers (dashboard) - as of MY 2005

- Preliminary work
- Removing front loudspeakers (dashboard)
- Installing front loudspeakers (dashboard)
- Subsequent work

top of page

Preliminary work

Preparation for front loudspeakers (dashboard)

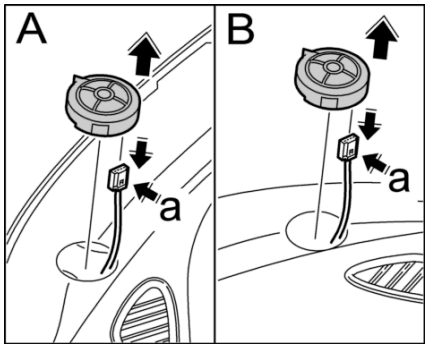
702019 Removing and installing cover for dashboard - removing

top of page

Removing front loudspeakers (dashboard)

Removing front loudspeakers (dashboard)

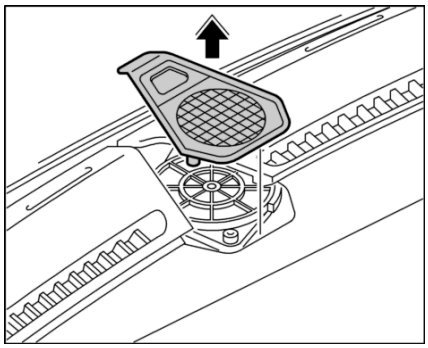
The two dashboard loudspeakers are clipped into the instrument panel.



Unclipping loudspeaker

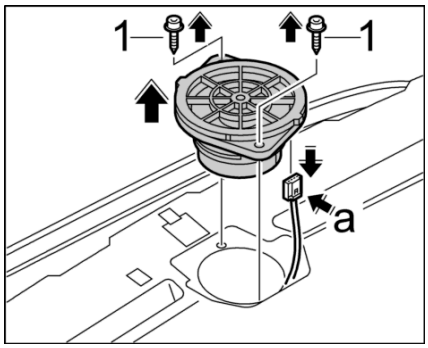
1. **-A-** Unclip the speaker with a plastic spatula.
2. **-B-** Unplug electrical plug connection.

Removing central speaker from dashboard.



Centre speaker cover

1. Remove the cover for the centre speaker with a plastic spatula and pull it out upwards.



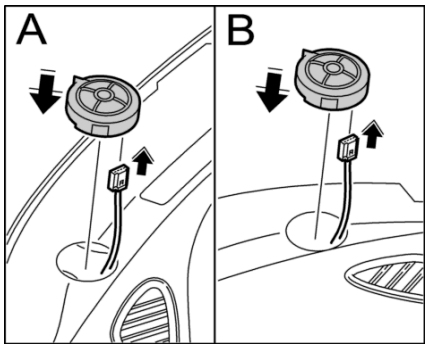
Centre speaker

2. Unscrew both fastening screws **-1-** for the centre speaker.
3. Unplug electrical plug connection.

top of page

Installing front loudspeakers (dashboard)

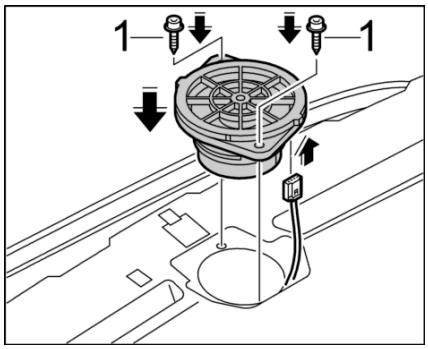
Installing front loudspeakers (dashboard)



Clipping in loudspeaker

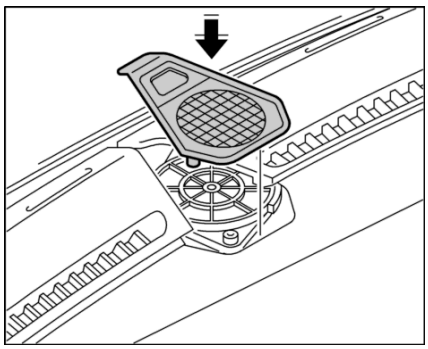
1. **-A-** Plug in the electrical plug connection to the speaker.
2. **-B-** Clip the speaker into the dashboard and check that it is firmly in place.

Installing the centre speaker into the instrument panel



Centre speaker

1. Plug in the electrical plug connection to the speaker.
2. Position the speaker on the instrument panel and screw it down tight with fastening screws **-1-** . **4.2: 3.0 ftlb. +/-0.5 ftlb.**



Clipping in cover

3. Position cover for centre speaker and clip into dashboard.

top of page

Subsequent work

Subsequent work for front speakers (dashboard)

702019 Removing and installing cover for dashboard - installing

---

997110, 997111, 997120, 997121, 997310, 997311, 997320, 997321, 997410, 997411, 997430, 997431, 997610, 997611, 997620, 997621

as of MY 2005
Country C00, C02, C05, C07, C08, C09, C10, C11, C12, C13, C14, C15, C16, C18, C19, C20, C21, C22, C23, C24, C25, C26, C27, C28, C32, C33, C34, C35, C36, C37, C38, C39, C45, C46, C98, C99

WARNUNG

Gefahr des Verlusts der Text-Bild-Zuordnung beim Ausdruck.

- **Aus technischen Gründen kann derzeit nicht ausgeschlossen werden, dass trotz einwandfreier Darstellung auf dem Bildschirm beim Ausdruck der Zusammenhang von Text und zugehörigem Bild verloren geht.**
- **Wird der Fehler nicht bemerkt, besteht die Gefahr, daß Arbeiten nicht korrekt durchgeführt werden und es dadurch zu Personen- und Sachschäden kommt.**

Vergleichen Sie deshalb nach dem Druckvorgang unbedingt die Ausdrucke mit der Bildschirmdarstellung. Korrigieren Sie die Ausdrucke im Fehlerfall so, daß der Inhalt der Bildschirmdarstellung zutreffend wiedergegeben wird.

WARNING

Danger of losing text-figure correspondence when printing out.

- **For technical reasons, it can currently not be ruled out that the correspondence between text and associated figure can be lost when it is printed out, even though the display on the screen is correct.**
- **If the fault is not noticed, there is the danger that work will not be performed correctly which can cause injury and damage.**

Therefore, always compare printouts with the screen display after printing them out. Correct the printouts if they are faulty so that the content of the screen display matches that on the printouts.

AVERTISSEMENT

Risque de perte de la correspondance texte-illustration lors de l'impression papier.

- **Pour des raisons techniques, il ne peut pas être exclu à l'heure actuelle que, même en cas d'affichage correct à l'écran, la correspondance entre le texte et l'illustration**

91 41 19 Removing and installing front loudspeakers (door) - as of MY 2005

- Preliminary work
- Removing front loudspeakers (door)
- Installing front loudspeakers (door)
- Subsequent work

top of page

Preliminary work

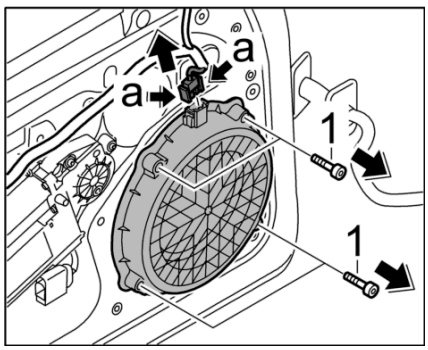
Preliminary work - front door speakers

21 Removing and installing door trim panel - removing

top of page

Removing front loudspeakers (door)

Removing bass speaker



Bass speaker

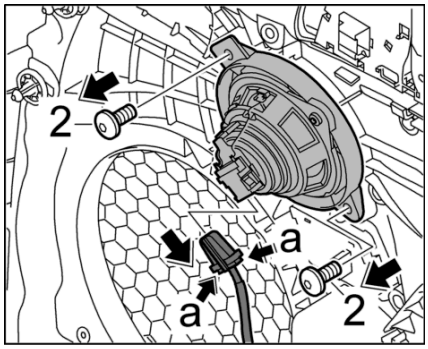
ATTENTION

Voltage peaks can damage the audio system.

Before unplugging/removing audio components, remove ignition key and switch off audio system.

1. Release electrical connector **-a-** and unplug it.
2. Unscrew the four fastening nuts **-1-** and remove the speaker.

Removing mid-tone speaker



Mid-tone speaker

ATTENTION

Voltage peaks can damage the audio system.

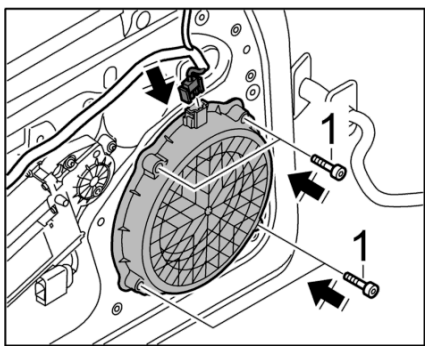
Before unplugging/removing audio components, remove ignition key and switch off audio system.

1. Release electrical connector and unplug it.
2. Unscrew the two fastening nuts **-2-** and remove the speaker.

top of page

Installing front loudspeakers (door)

Installing bass speaker

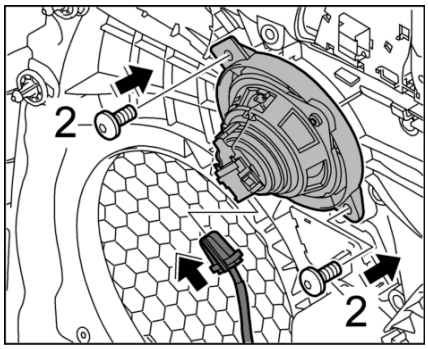


Removing bass speaker

Bass speaker

1. Position the speaker on the door unit carrier and screw it down with the four fastening screws **-1-** . **M6x30: 2.0 ftlb. +/-0.5 ftlb.**
2. Push in electrical connector for the speaker until it is felt to engage.

Installing mid-tone speaker



Screwing down loudspeaker

1. Position the speaker on the door trim panel and screw it down with the two fastening screws **-2-** . **5x12: 1.5 ftlb. +0.5 ftlb.**
2. Push in electrical connector for the speaker until it is felt to engage.

top of page

Subsequent work

Subsequent work - front door speakers

23 Removing and installing door trim panel - installing

997110, 997111, 997120, 997121, 997310, 997311, 997320, 997321, 997410, 997411, 997430, 997431, 997610, 997611, 997620, 997621

as of MY 2005
Country C00, C02, C05, C07, C08, C09, C10, C11, C12, C13, C14, C15, C16, C18, C19, C20, C21, C22, C23, C24, C25, C26, C27, C28, C32, C33, C34, C35, C36, C37, C38, C39, C45, C46, C98, C99

WARNUNG

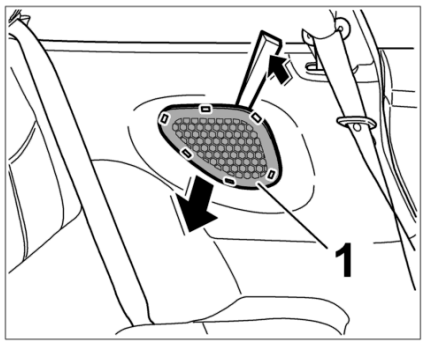
91 42 19 Removing and installing rear loudspeakers - as of MY 2005

- Removing rear loudspeakers
- Installing rear loudspeakers

top of page

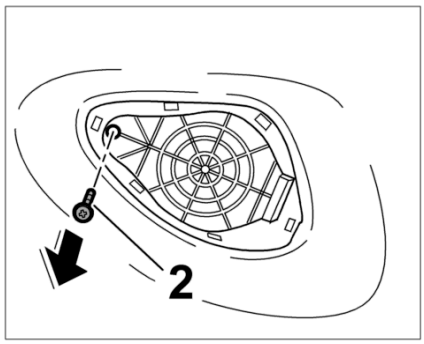
Removing rear loudspeakers

Removing rear speakers



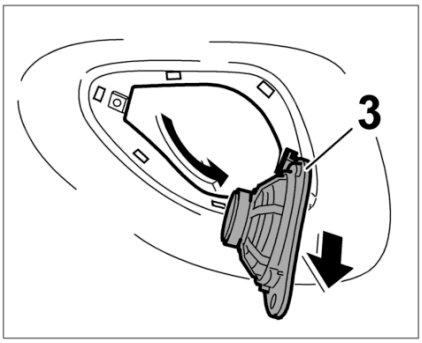
Speaker cover

1. Unclip the cover for the speaker with the help of a plastic spatula **-1-** .



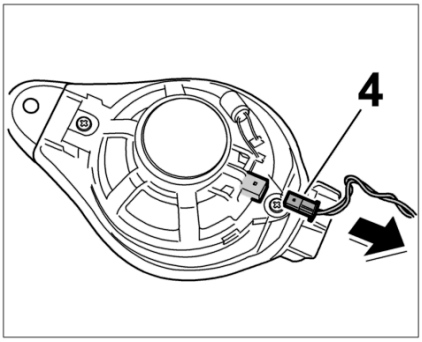
Fastening screw

2. Undo fastening screws **-2-** .



Tipping the loudspeaker forwards

3. Tip the speaker **-3-** forwards and pull it out of its mounting.



Plug connection

ATTENTION

Voltage peaks can damage the audio system.

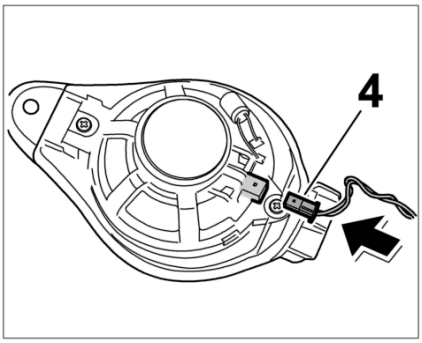
Before unplugging/removing audio components, remove ignition key and switch off audio system.

4. Unplug the electrical connector **-4-** from the speaker.

top of page

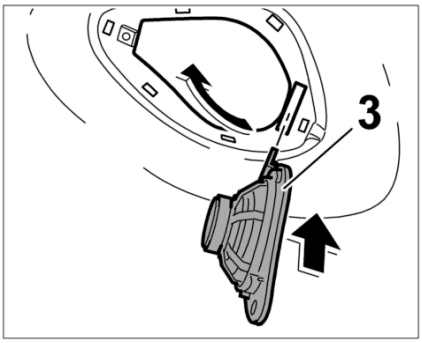
Installing rear loudspeakers

Installing rear speakers



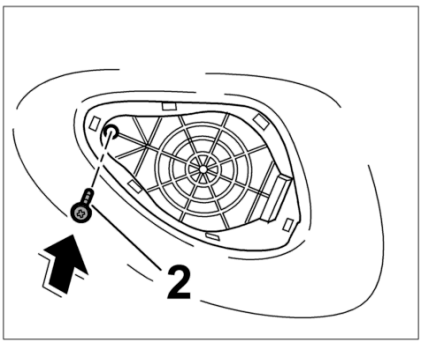
Plug connection

1. Unplug the electrical connector **-4-** from the speaker.



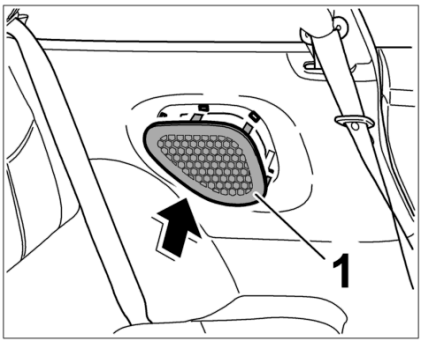
Attaching speaker

2. Insert the speaker **-3-** into the panelling and tip it backwards.



Fastening screw

3. Secure the speaker with the fastening screw **-2-** .



Speaker cover

4. Position the cover **-1-** and clip it into the panel.

997110, 997111, 997120, 997121, 997310, 997311, 997320, 997321, 997410, 997411, 997430, 997431, 997610, 997611, 997620, 997621

as of MY 2005
Country C00, C02, C05, C07, C08, C09, C10, C11, C12, C13, C14, C15, C16, C18, C19, C20, C21, C22, C23, C24, C25, C26, C27, C28, C32, C33, C34, C35, C36, C37, C38, C39, C45, C46, C98, C99

WARNUNG

Gefahr des Verlusts der Text-Bild-Zuordnung beim Ausdruck.

- **Aus technischen Gründen kann derzeit nicht ausgeschlossen werden, dass trotz einwandfreier Darstellung auf dem Bildschirm beim Ausdruck der Zusammenhang von Text und zugehörigem Bild verloren geht.**
- **Wird der Fehler nicht bemerkt, besteht die Gefahr, daß Arbeiten nicht korrekt durchgeführt werden und es dadurch zu Personen- und Sachschäden kommt.**

Vergleichen Sie deshalb nach dem Druckvorgang unbedingt die Ausdrucke mit der Bildschirmdarstellung. Korrigieren Sie die Ausdrucke im Fehlerfall so, daß der Inhalt der Bildschirmdarstellung zutreffend wiedergegeben wird.

WARNING

Danger of losing text-figure correspondence when printing out.

- **For technical reasons, it can currently not be ruled out that the correspondence between text and associated figure can be lost when it is printed out, even though the display on the screen is correct.**
- **If the fault is not noticed, there is the danger that work will not be performed correctly which can cause injury and damage.**

Therefore, always compare printouts with the screen display after printing them out. Correct the printouts if they are faulty so that the content of the screen display matches that on the printouts.

AVERTISSEMENT

Risque de perte de la correspondance texte-illustration lors de l'impression papier.

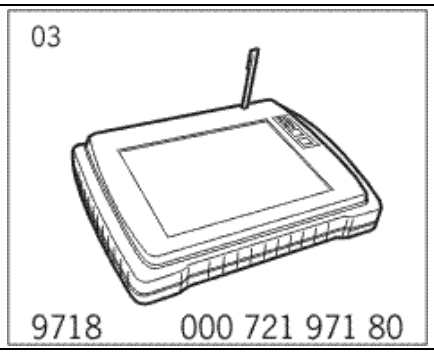
- **Pour des raisons techniques, il ne peut pas être exclu à l'heure actuelle que, même en cas d'affichage correct à l'écran, la correspondance entre le texte et l'illustration puisse être erronée sur l'impression papier.**
- **Si l'erreur passe inaperçue, on court le risque d'exécuter certaines opérations de manière incorrecte pouvant conduire à des dommages corporels et matériels.**

Comparez impérativement pour cette raison les impressions papier avec l'affichage à l'écran. Corrigez-les en cas d'erreur de manière à reproduire correctement l'affichage à l'écran.

91 44 19 Removing and installing loudspeaker amplifier - as of MY 2005

- Preliminary work
- Removing loudspeaker amplifier
- Installing loudspeaker amplifier
- Subsequent work
- Programming loudspeaker amplifier

Tools

Designation	Type	Number	Explanation	
PIWIS tester	special tool	9718		

top of page

Preliminary work

Preliminary work for loudspeaker amplifier

1. Remove the luggage compartment cover. *703019 21 Removing and installing luggage compartment cover - section on "Removing"*
2. Remove navigation unit DVD player. 911219 Removing and installing navigation unit - section on "Removing"

top of page

Removing loudspeaker amplifier

Removing loudspeaker amplifier

ATTENTION

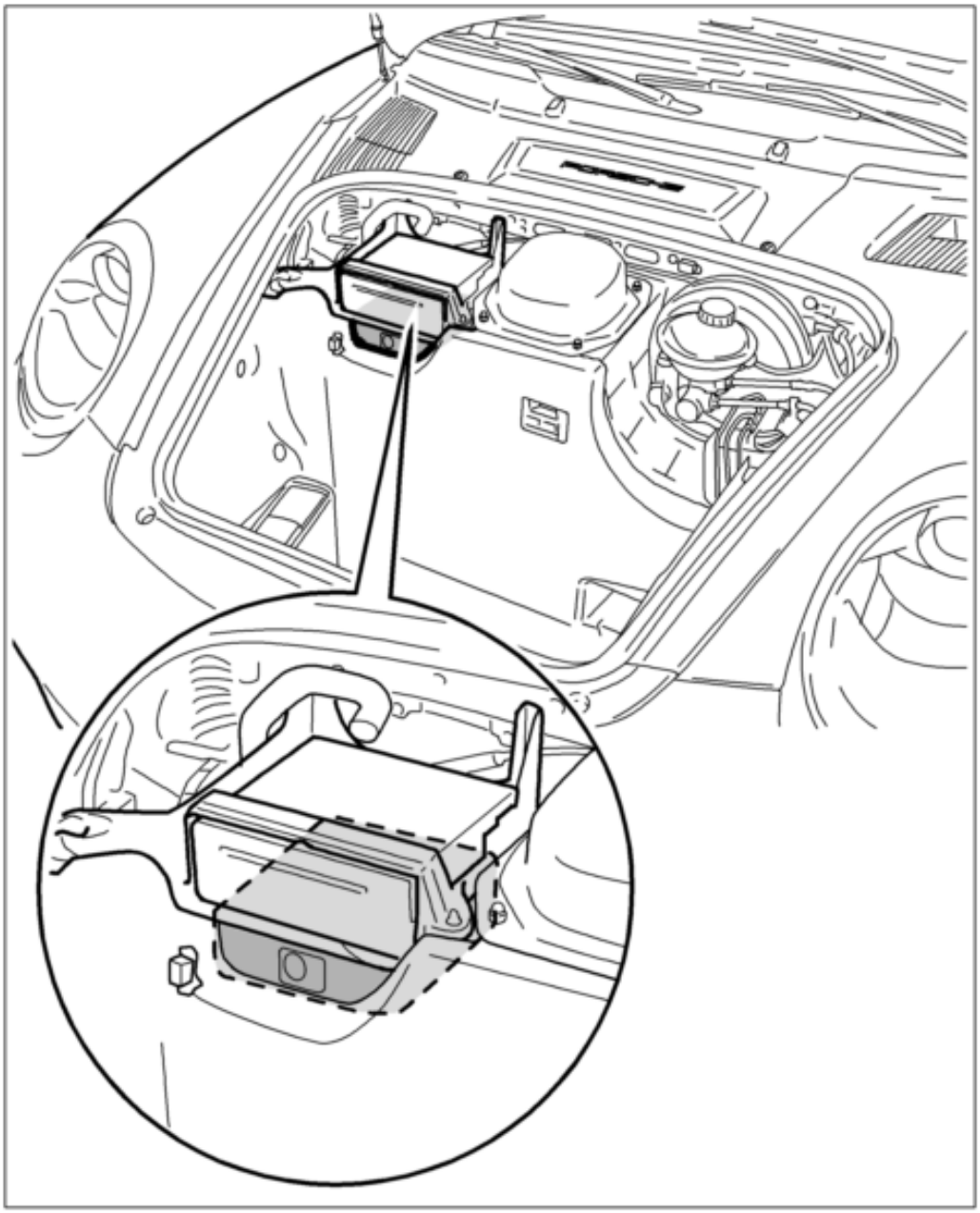
Voltage peaks can damage the audio system.

Before unplugging/removing audio components, remove ignition key and switch off audio system.

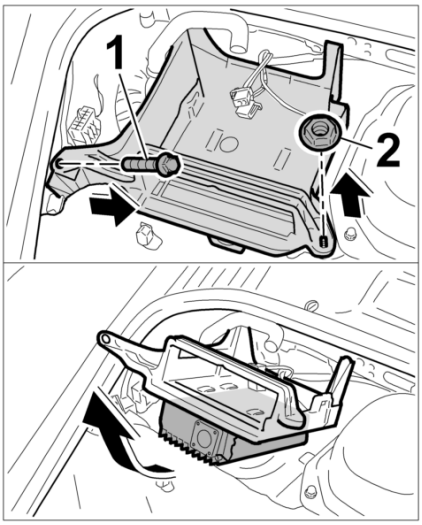
Note

If the amplifier is to be replaced, the coding must be read out using the **PIWIS tester 9718** before removing the amplifier.

Installation Location:

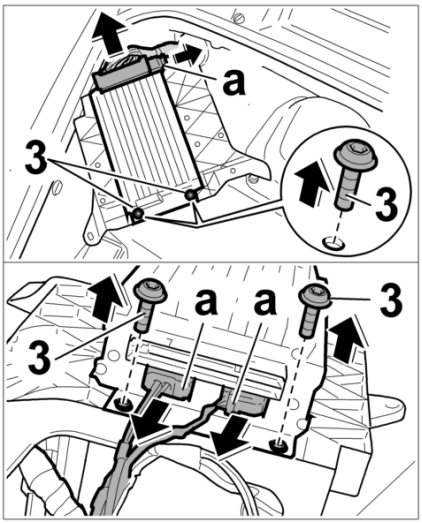


Installation position



Unscrew amplifier holder and disengage it.

1. Unscrew fastening screw **-1-** and fastening nut **-2-** .
2. Lift up holder and disengage at the body.



Unplugging electric connectors

3. Turn the holder around, release the electric connectors **-a-** and unplug from the amplifier.
4. Unscrew the four fastening screws **-3-** and remove amplifier from the holder.

Removing the loudspeaker amplifier (US version)

ATTENTION

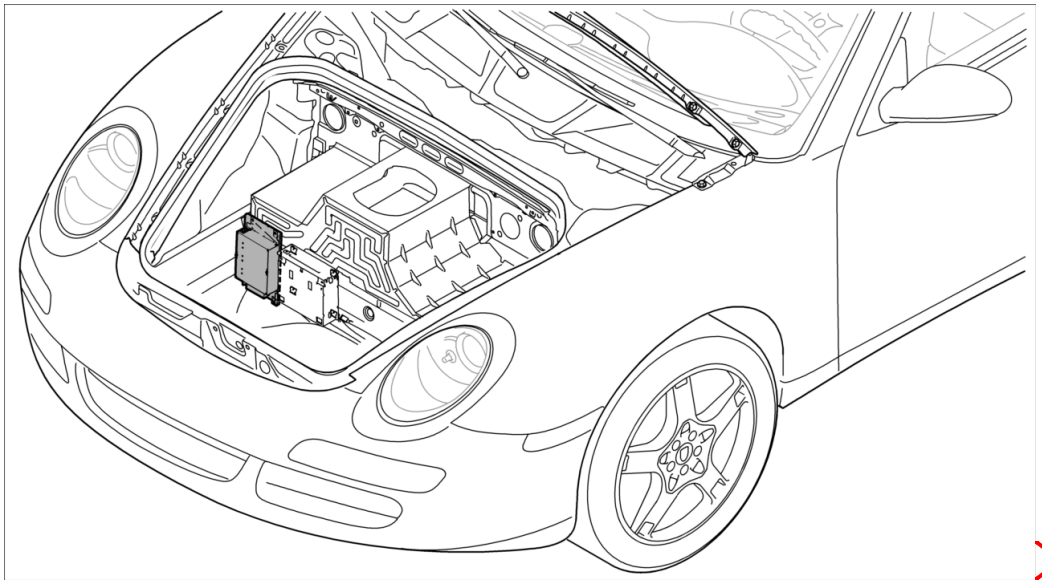
Voltage peaks can damage the audio system.

Before unplugging/removing audio components, remove ignition key and switch off audio system.

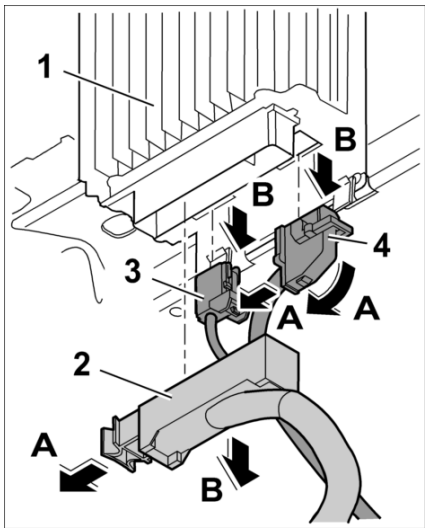
Note

If the amplifier is to be replaced, the coding must be read out using the **PIWIS tester 9718** before removing the amplifier.

Installation Location:



Installation location for loudspeaker amplifier (C4 USA version)

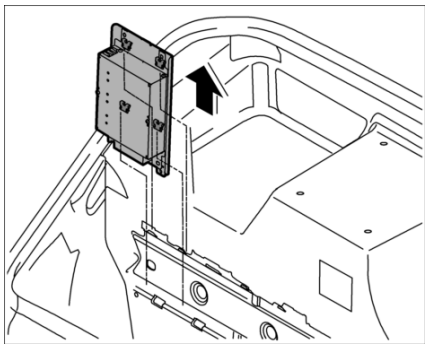


Pulling off connector on loudspeaker amplifier

Note

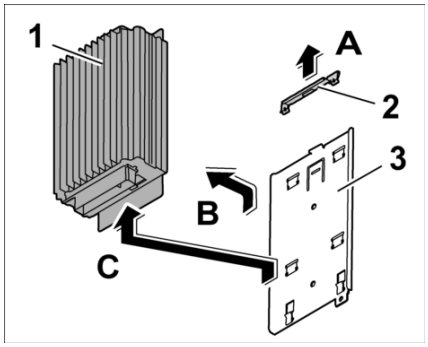
- *The number of plugs can vary, depending on the equipment.*

1. Release connector **-2 to 4-** on loudspeaker amplifier **-1-** **-arrows A-** and pull off **-arrows B-** .



Removing the loudspeaker amplifier with holder

2. Remove the loudspeaker amplifier with holder up and out.



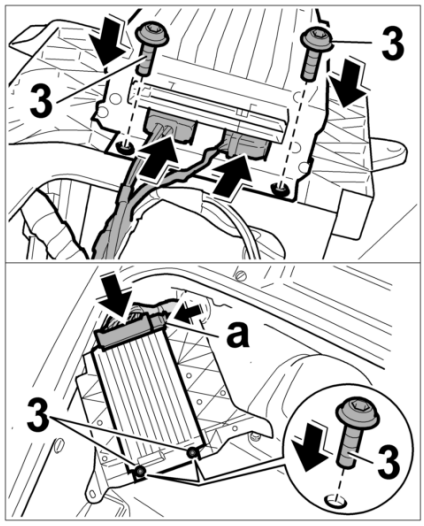
Pulling loudspeaker amplifier out of holder

3. Pull off sheetmetal clip **-2-** on the loudspeaker amplifier **-1-** **-arrow A-** .
4. Swivel loudspeaker amplifier **-1-** up and out of the holder **-3-** **-arrow B-** and pull out **-arrow C-** .

top of page

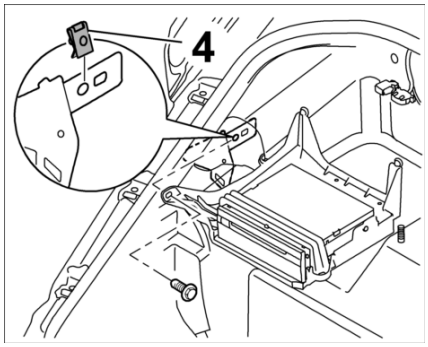
Installing loudspeaker amplifier

Installing loudspeaker amplifier



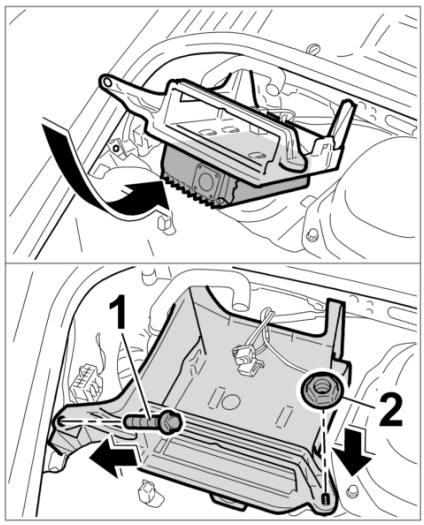
Plugging in connectors

1. Secure the amplifier to the holder with the four fastening screws **-3-** . **Tightening torque: 6.5 (5 ftlb.) Nm**
2. Plug in electric connectors until they engage securely.



Pushing new retaining clip on the body

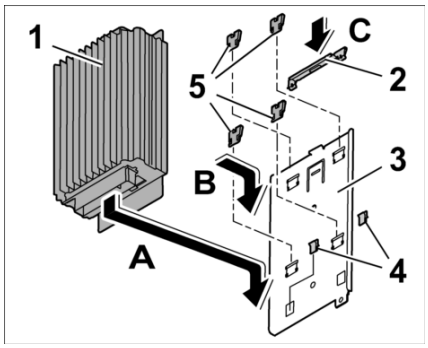
3. Push new retaining clip **-4-** onto the body.



Screwing in amplifier holder

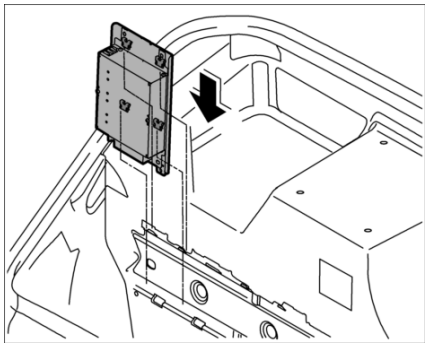
4. Turn holder, engage it in the body and swivel downwards.
5. Screw down the holder with the fastening screw **-1-** and fastening nut **-2-** . **Tightening torque: 6.5 (5 ftlb.) Nm** **Tightening torque: 6.5 (5 ftlb.) Nm**

Installing the loudspeaker amplifier (US version)



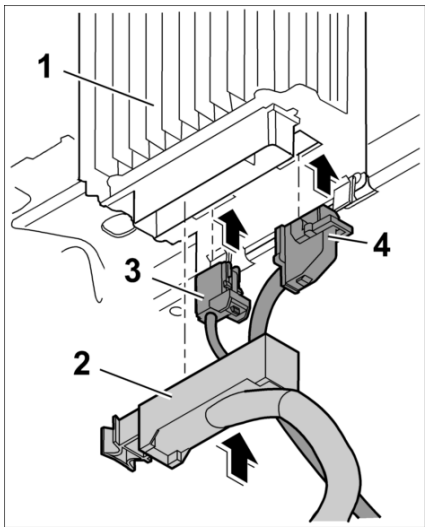
Inserting loudspeaker amplifier into the holder

1. Checking retaining clips **-4 und 5-** and sheetmetal clips **-2-** , replacing if necessary
2. Push loudspeaker amplifier **-1-** into both lower retaining clips **-4-** **-arrow A-** and insert in the holder **-3-** **-arrow B-** .
3. Move sheetmetal clip **-2-** over the loudspeaker amplifier **-1-** and holder **-3-** **-arrow C-** .



Pushing on the loudspeaker amplifier with holder

4. Position loudspeaker amplifier with holder and push completely onto the body using the four retaining clips.



Pushing on connector onto loudspeaker amplifier

5. Push connectors **-2 to 4-** onto the loudspeaker amplifier **-1-** and lock until they are felt to engage.

top of page

Subsequent work

Subsequent work for loudspeaker amplifier

1. Install navigation unit DVD player. 911219 Removing and installing navigation unit - section on "Installing"
2. Install luggage compartment cover. *703019 23 Removing and installing luggage compartment cover - section on "Installing"*

top of page

Programming loudspeaker amplifier

Reading out and writing to the BOSE loudspeaker amplifier

WARNING

Sudden voltage interruption of the power supply to the control module.

- **Destruction of the control module.**

During programming, it is essential to guarantee the power supply for the Porsche System tester. It is essential to connect a battery charger with a current rating of at least 40 A to the vehicle battery.

Prior to disconnecting the control module, switch off the ignition and remove the ignition key.

Note

Follow the instructions on the Tester.
Later versions of the software may display slightly different text or require a slightly different procedure. The instructions you receive from the tester itself take precedence over this description.

1. Connect the Porsche System Tester to the vehicle and start the System Tester. Switch on the ignition. >> Continue.
2. Select the **vehicle type**.
3. Using the >> key, move from **Vehicle type** to the list of **Control units** and perform the automatic control unit search.
4. Select **PCM2** with the cursor keys and press the >> key.
5. Select **External BOSE amplifier** with the cursor keys and press the >> key.
6. Select **Coding** using the cursor keys and press >> .
7. Select **Read out coding** (codings) with the cursor keys and press >> .
8. Switch to the **Special functions** menu and perform the **vehicle handover** using the F8 key.
9. In the **Special functions** menu, erase **All fault memories** by pressing >> .
10. Carry out automatic search of control units.
11. In the menu **Write in coding** >> , the data read out are installed.
12. In **Coding** select the version and follow the instructions of the Tester.
13. Read out and erase fault memory.

Coding the BOSE loudspeaker amplifier

WARNING

Sudden voltage interruption of the power supply to the control module.

- **Destruction of the control module.**

During programming, it is essential to guarantee the power supply for the Porsche System tester. It is essential to connect a battery charger with a current rating of at least 40 A to the vehicle battery.

Prior to disconnecting the control module, switch off the ignition and remove the ignition key.

Note

Follow the instructions on the Tester.
Later versions of the software may display slightly different text or require a slightly different procedure. The instructions you receive from the tester itself take precedence over this description.

Note

The PCM 2 code from the IPAS is needed for coding the loudspeaker amplifier.

1. Connect the Porsche System Tester to the vehicle and start the System Tester. Switch on the ignition. >> Continue.
2. Select vehicle type using the cursor keys.
3. Using the >> key, move from the vehicle type to the list of control modules. Perform the automatic control module search.
4. Select the relevant control module with the cursor keys and press the >> key.
5. Select **Coding** using the cursor keys and press >> .
6. Select the version required for the vehicle in question, code it with F8 and follow the instructions on the Tester.

Vehicle type vehicle coding	911 (997) Boxster (987)
Vehicle version vehicle coding	Coupé Cabriolet Targa
Right/left-hand drive vehicle coding	Left-hand drive Right-hand drive
Bass box	Normal bass box Large bass box (50l)
PCM 2 code	**Enter PCM 2 code**

7. In the menu **Vehicle type**, select **Control units** and then select the menu **Special functions**.
8. Perform**Vehicle handover** and follow the instructions of the tester.
9. Read out and erase fault memory.

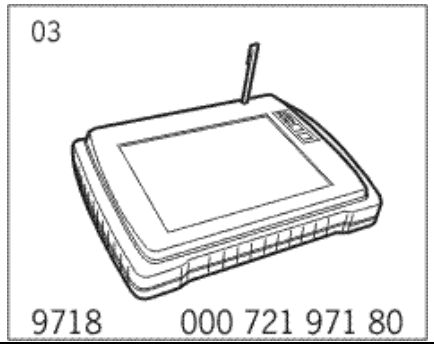
997410, 997411, 997430, 997431, 997610, 997611, 997620, 997621

as of MY 2005
Country C00, C02, C05, C07, C08, C09, C10, C11, C12, C13, C14, C15, C16, C18, C19, C20, C21, C22,

91 44 19 Removing and installing loudspeaker amplifier - as of MY 2005

- Removing loudspeaker amplifier
- Installing loudspeaker amplifier
- Programming loudspeaker amplifier

Tools

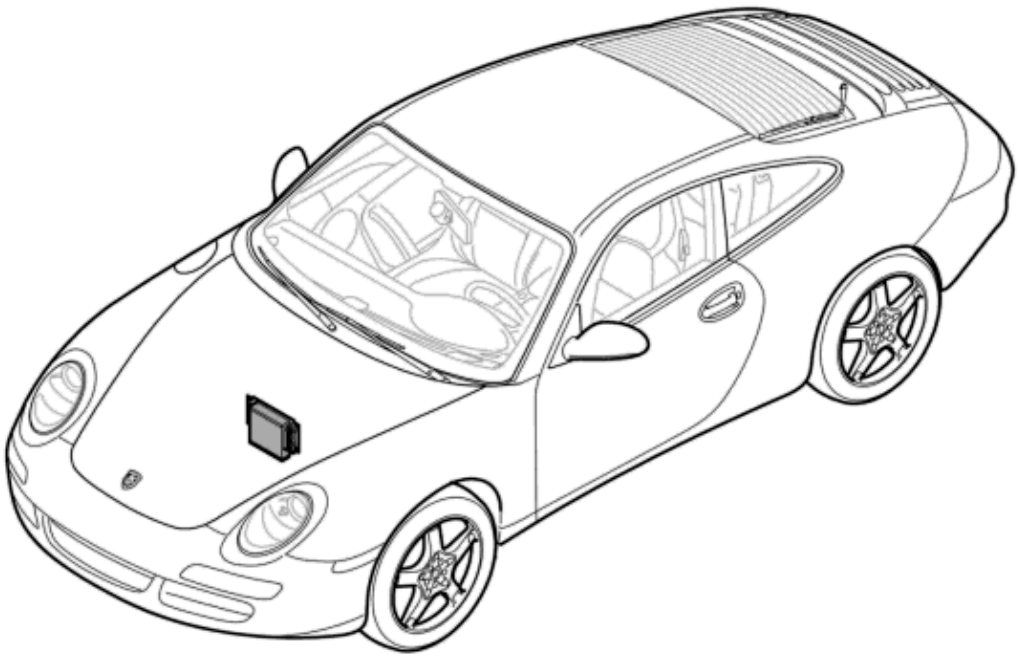
Designation	Type	Number	Explanation	
PIWIS tester	special tool	9718		

top of page

Removing loudspeaker amplifier

Removing loudspeaker amplifier

Installation Location:



Install location

ATTENTION

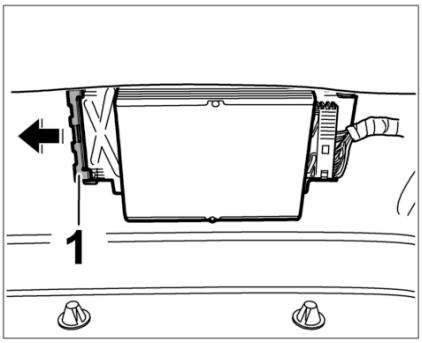
Voltage peaks can damage the audio system.

Before unplugging/removing audio components, remove ignition key and switch off audio system.

Note

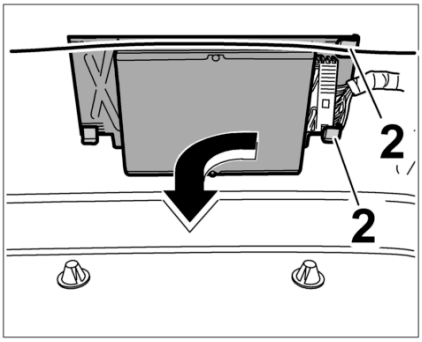
If the amplifier is to be replaced, the coding must be read out using the **PIWIS tester 9718** before removing the amplifier.

1. Remove panel for hazard warning triangle and tyre air bottle.



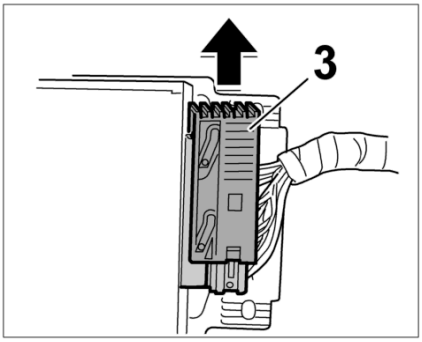
Metal clips for amplifier

2. Remove metal clips **-1-** from amplifier.



Amplifier bracket

3. Pull amplifier out of its two retaining brackets **-2-** .



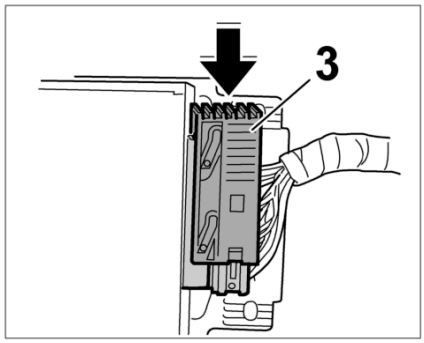
Electrical connector

4. Release electrical connector **-3-** and remove from amplifier.

top of page

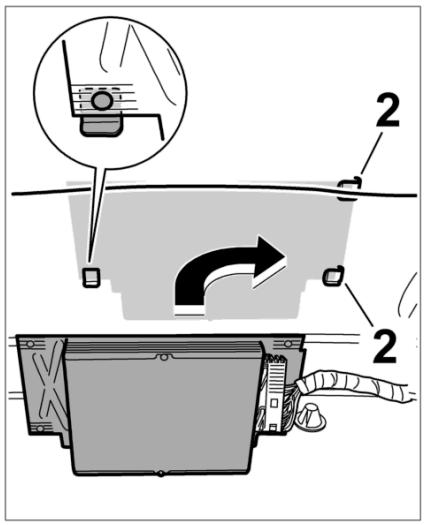
Installing loudspeaker amplifier

Installing loudspeaker amplifier



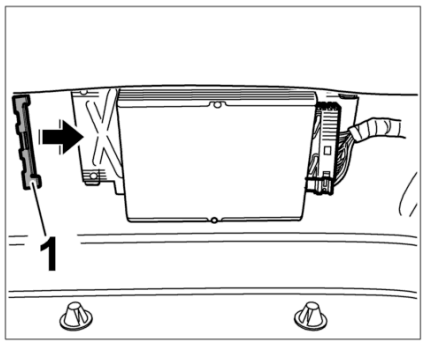
Electrical connector

1. Push electric connector **-3-** onto the amplifier and lock it.



Amplifier bracket

2. Push the amplifier into its two brackets **-2-** and allow it to rest on the guide rail.



Metal clips for amplifier

3. Push amplifier into its brackets and clip on the metal clips **-1-** .

top of page

Programming loudspeaker amplifier

Reading out and writing to the BOSE loudspeaker amplifier

WARNING

Sudden voltage interruption of the power supply to the control module.

- **Destruction of the control module.**

During programming, it is essential to guarantee the power supply for the Porsche System tester. It is essential to connect a battery charger with a current rating of at least 40 A to the vehicle battery.

Prior to disconnecting the control module, switch off the ignition and remove the ignition key.

Note

Follow the instructions on the Tester.
Later versions of the software may display slightly different text or require a slightly different procedure. The instructions you receive from the tester itself take precedence over this description.

1. Connect the Porsche System Tester to the vehicle and start the System Tester. Switch on the ignition. >> Continue.
2. Select the **vehicle type**.
3. Using the >> key, move from **Vehicle type** to the list of **Control units** and perform the automatic control unit search.
4. Select **PCM2** with the cursor keys and press the >> key.
5. Select **External BOSE amplifier** with the cursor keys and press the >> key.
6. Select **Coding** using the cursor keys and press >> .
7. Select **Read out coding** (codings) with the cursor keys and press >> .
8. Switch to the **Special functions** menu and perform the **vehicle handover** using the F8 key.
9. In the **Special functions** menu, erase **All fault memories** by pressing >> .
10. Carry out automatic search of control units.
11. In the menu **Write in coding** >> , the data read out are installed.
12. In **Coding** select the version and follow the instructions of the Tester.
13. Read out and erase fault memory.

Coding the BOSE loudspeaker amplifier

WARNING

Sudden voltage interruption of the power supply to the control module.

- **Destruction of the control module.**

During programming, it is essential to guarantee the power supply for the Porsche System tester. It is essential to connect a battery charger with a current rating of at least 40 A to the vehicle battery.

Prior to disconnecting the control module, switch off the ignition and remove the ignition key.

Note

Follow the instructions on the Tester.
Later versions of the software may display slightly different text or require a slightly different procedure. The instructions you receive from the tester itself take precedence over this description.

Note

The PCM 2 code from the IPAS is needed for coding the loudspeaker amplifier.

1. Connect the Porsche System Tester to the vehicle and start the System Tester. Switch on the ignition. >> Continue.
2. Select vehicle type using the cursor keys.
3. Using the >> key, move from the vehicle type to the list of control modules. Perform the automatic control module search.
4. Select the relevant control module with the cursor keys and press the >> key.
5. Select **Coding** using the cursor keys and press >> .
6. Select the version required for the vehicle in question, code it with F8 and follow the instructions on the Tester.

Vehicle type vehicle coding	911 (997) Boxster (987)
Vehicle version vehicle coding	Coupé Cabriolet Targa
Right/left-hand drive vehicle coding	Left-hand drive Right-hand drive

Bass box	Normal bass box Large bass box (50l)
PCM 2 code	**Enter PCM 2 code**

7. In the menu **Vehicle type**, select **Control units** and then select the menu **Special functions**.
8. Perform**Vehicle handover** and follow the instructions of the tester.
9. Read out and erase fault memory.

997110, 997111, 997120, 997121, 997310, 997311, 997320, 997321

as of MY 2005
Country C00, C02, C05, C07, C08, C09, C10, C11, C12, C13, C14, C15, C16, C18, C19, C20, C21, C22, C23, C24, C25, C26, C27, C28, C32, C33, C34, C35, C36, C37, C38, C39, C45, C46, C98, C99

WARNUNG
Gefahr des Verlusts der Text-Bild-Zuordnung beim Ausdruck.

- **Aus technischen Gründen kann derzeit nicht ausgeschlossen werden, dass trotz einwandfreier Darstellung auf dem Bildschirm beim Ausdruck der Zusammenhang von Text und zugehörigem Bild verloren geht.**
- **Wird der Fehler nicht bemerkt, besteht die Gefahr, daß Arbeiten nicht korrekt durchgeführt werden und es dadurch zu Personen- und Sachschäden kommt.**

Vergleichen Sie deshalb nach dem Druckvorgang unbedingt die Ausdrucke mit der Bildschirmdarstellung. Korrigieren Sie die Ausdrucke im Fehlerfall so, daß der Inhalt der Bildschirmdarstellung zutreffend wiedergegeben wird.

WARNING
Danger of losing text-figure correspondence when printing out.

- **For technical reasons, it can currently not be ruled out that the correspondence between text and associated figure can be lost when it is printed out, even though the display on the screen is correct.**
- **If the fault is not noticed, there is the danger that work will not be performed correctly which can cause injury and damage.**

Therefore, always compare printouts with the screen display after printing them out. Correct the printouts if they are faulty so that the content of the screen display matches that on the printouts.

AVERTISSEMENT
Risque de perte de la correspondance texte-illustration lors de l'impression papier.

91 47 19 Removing and installing radio antenna - as of MY 2005

- Preliminary work
- Removing radio antenna
- Installing radio antenna
- Subsequent work

top of page

Preliminary work

Preliminary work - radio antenna

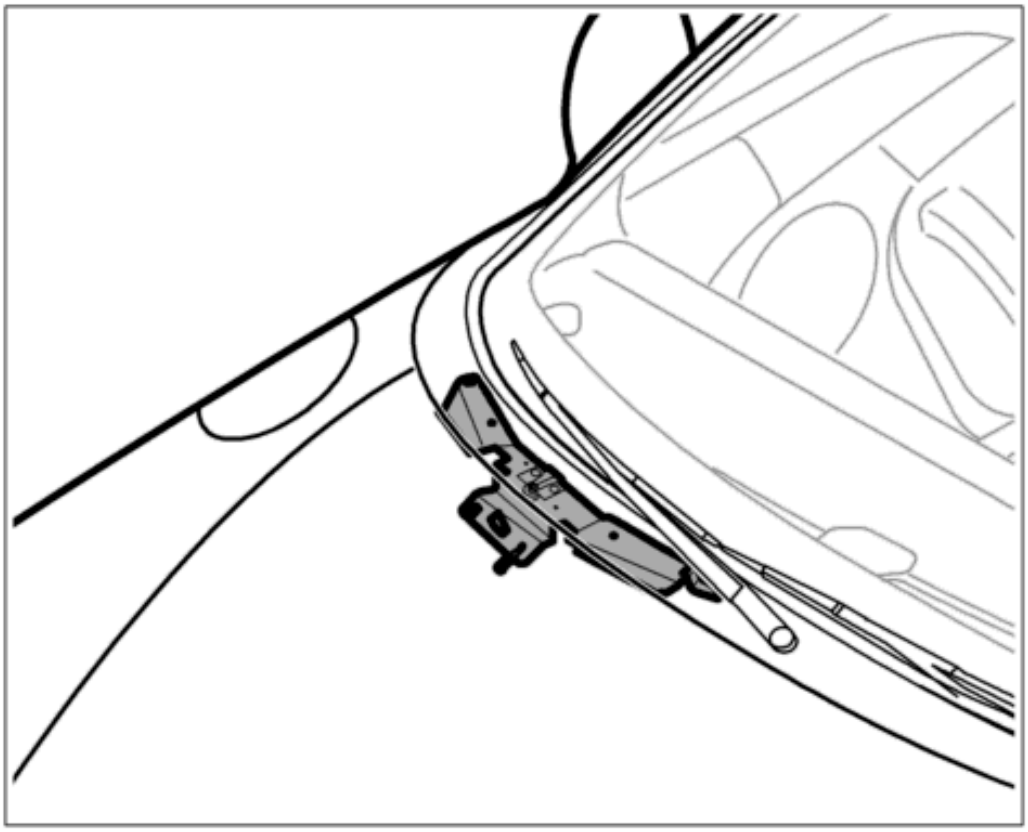
21 Removing and installing cowl panel cover -removing

top of page

Removing radio antenna

Removing radio antenna

Installation Location:

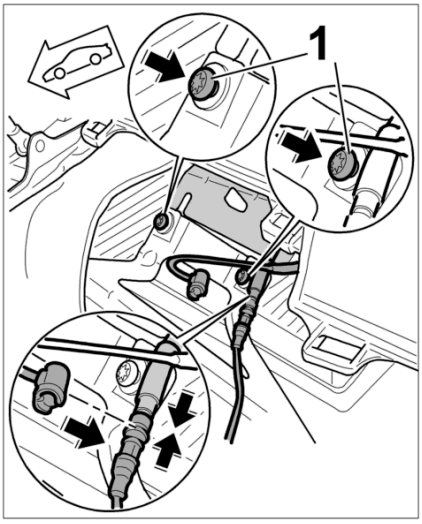


Install location

ATTENTION

Voltage peaks can damage the audio system.

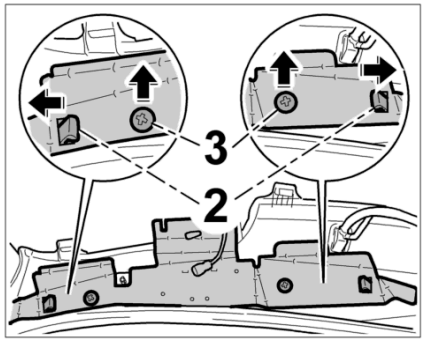
Before unplugging/removing audio components, remove ignition key and switch off audio system.



Antenna lead

1.

Before removing cowl cover, unclip the retaining clamps for the antenna lead. Disconnect antenna lead and undo the fastening screws **-1-** .



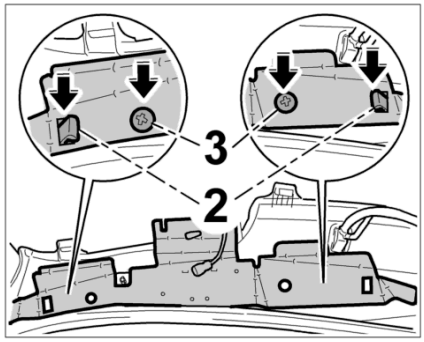
Radio antenna installation

2. Turn around cowl cover and unscrew the two fastening screws **-3-** .
3. Unclip the radio antenna from the cowl in both places **-2-** .

top of page

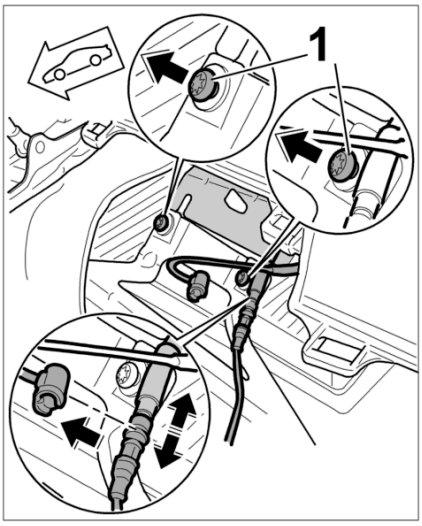
Installing radio antenna

Installing radio antenna



Radio antenna installation

1. Clip the antenna onto the cowl cover to the left and right **-2-** .
2. Screw down radio antenna with both fastening screws **-3-** .



Antenna lead

3. Connect the antenna lead and clip on the fuse.
4. Position the antenna on its bracket and screw it down tight with fastening screws **-1-** .

top of page

Subsequent work

Subsequent work - radio antenna

23 Removing and installing cowl panel cover - removing

997110, 997111, 997120, 997121, 997310, 997311, 997320, 997321, 997410, 997411, 997430, 997431, 997610, 997611, 997620, 997621

as of MY 2005
Country C00, C02, C05, C07, C08, C09, C10, C11, C12, C13, C14, C15, C16, C18, C19, C20, C21, C22, C23, C24, C25, C26, C27, C28, C32, C33, C34, C35, C36, C37, C38, C39, C45, C46, C98, C99

WARNUNG

Gefahr des Verlusts der Text-Bild-Zuordnung beim Ausdruck.

- **Aus technischen Gründen kann derzeit nicht ausgeschlossen werden, dass trotz einwandfreier Darstellung auf dem Bildschirm beim Ausdruck der Zusammenhang von Text und zugehörigem Bild verloren geht.**
- **Wird der Fehler nicht bemerkt, besteht die Gefahr, daß Arbeiten nicht korrekt durchgeführt werden und es dadurch zu Personen- und Sachschäden kommt.**

91 57 19 Removing and installing microphone for telephone - as of MY 2005

- Preliminary work
- Removing microphone for telephone
- Installing microphone for telephone
- Subsequent work

top of page

Preliminary work

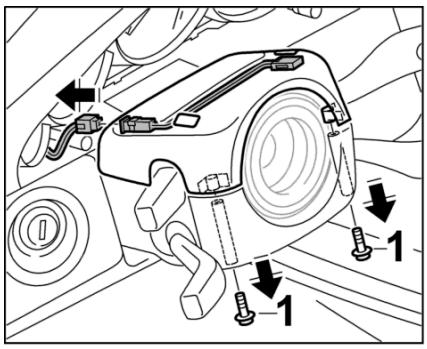
Preliminary work - microphone

481319 21 Removing and installing trim - removing

top of page

Removing microphone for telephone

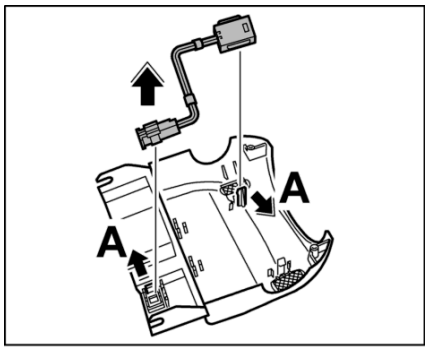
Removing microphone for telephone



91 57 0012

Removing steering column trim.

1. Unscrew the two fastening screws **-1-** for the steering column trim.
2. Disconnect the electrical plug and remove the upper part of the steering column trim.



91 57 0013

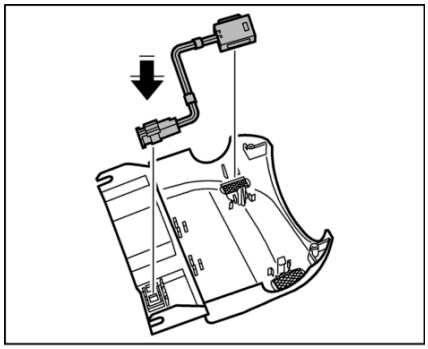
Microphone wiring

3. Unclip the microphone and the electrical connector from the steering column trim **-A-** .

top of page

Installing microphone for telephone

Installing microphone for telephone



91 57 0014

Microphone wiring

1. Insert the wiring harness with the microphone into the steering column trim.
2. Position the microphone and connector and clip them into the trim.
3. Position the upper part of the steering column trim back over the steeering column, plug in the connector and screw the top part of the trim down tight with fastening screws.

top of page

Subsequent work

Subsequent work - microphone for telephone

481519 Removing and installing centre steering column - installing

---

997110, 997111, 997120, 997121, 997310, 997311, 997320, 997321, 997410, 997411, 997430, 997431, 997610, 997611, 997620, 997621

as of MY 2005
Country C00, C02, C05, C07, C08, C09, C10, C11, C12, C13, C14, C15, C16, C18, C19, C20, C21, C22, C23, C24, C25, C26, C27, C28, C32, C33, C34, C35, C36, C37, C38, C39, C45, C46, C98, C99

WARNUNG

Gefahr des Verlusts der Text-Bild-Zuordnung beim Ausdruck.

- **Aus technischen Gründen kann derzeit nicht ausgeschlossen werden, dass trotz einwandfreier Darstellung auf dem Bildschirm beim Ausdruck der Zusammenhang von Text und zugehörigem Bild verloren geht.**
- **Wird der Fehler nicht bemerkt, besteht die Gefahr, daß Arbeiten nicht korrekt durchgeführt werden und es dadurch zu Personen- und Sachschäden kommt.**

Vergleichen Sie deshalb nach dem Druckvorgang unbedingt die Ausdrucke mit der Bildschirmdarstellung. Korrigieren Sie die Ausdrucke im Fehlerfall so, daß der Inhalt der Bildschirmdarstellung zutreffend wiedergegeben wird.

WARNING

Danger of losing text-figure correspondence when printing out.

- **For technical reasons, it can currently not be ruled out that the correspondence between text and associated figure can be lost when it is printed out, even though the display on the screen is correct.**
- **If the fault is not noticed, there is the danger that work will not be performed correctly which can cause injury and damage.**

Therefore, always compare printouts with the screen display after printing them out. Correct the printouts if they are faulty so that the content of the screen display matches that on the printouts.

AVERTISSEMENT

Risque de perte de la correspondance texte-illustration lors de l'impression papier.

- **Pour des raisons techniques, il ne peut pas être exclu à l'heure actuelle que, même en cas d'affichage correct à l'écran, la correspondance entre le texte et l'illustration**

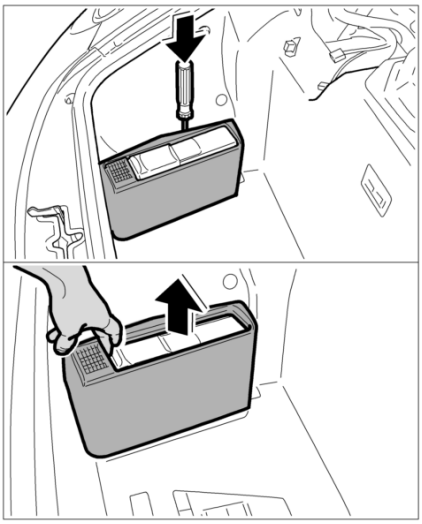
91 60 19 Removing and installing CD changer - as of MY 2005

- Preliminary work
- Removing CD changer
- Installing CD changer
- Subsequent work

top of page

Preliminary work

Preliminary work - removing CD changer



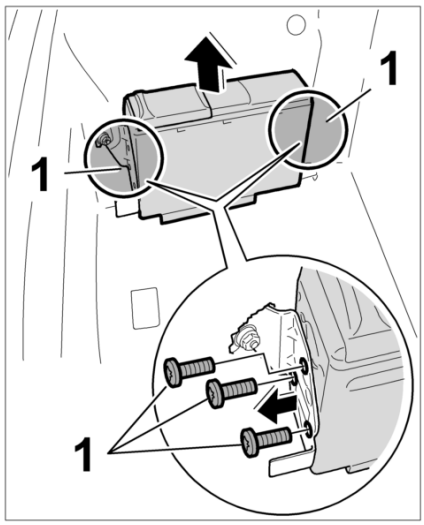
Removing the cover

1. Carefully push a screwdriver between CD changer trim panel and carpet.
2. Reach into the gap between carpet and CD changer trim panel and lift the trim panel up and off.

top of page

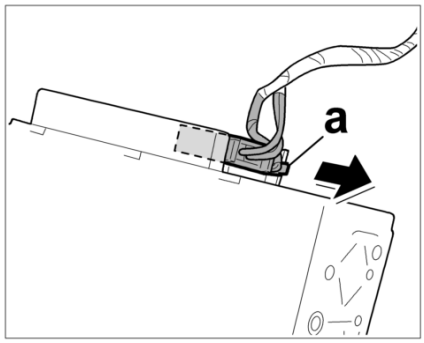
Removing CD changer

Removing CD changer



Unscrewing fastening screws

1. Unscrew the six fastening screws **-1-** and pull the CD changer out of its retaining frame.



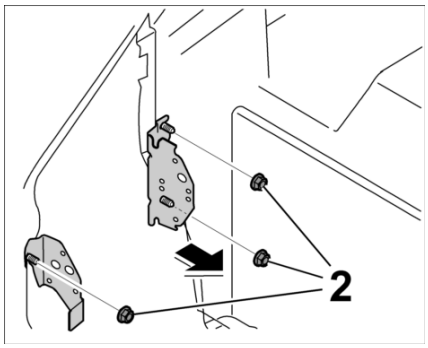
Electrical connectors

ATTENTION

Voltage peaks can damage the audio system.

Before unplugging/removing audio components, remove ignition key and switch off audio system.

2. Release the electric connectors and unplug them.



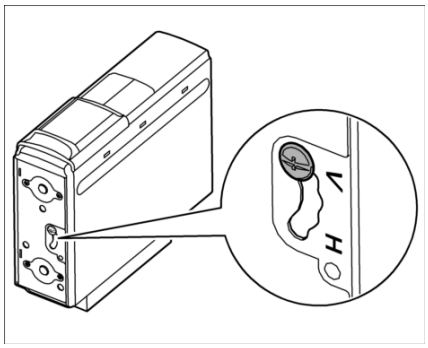
Removing retaining frame

3. Unscrew the three fastening nuts **-2-** and take off both retaining frames.

top of page

Installing CD changer

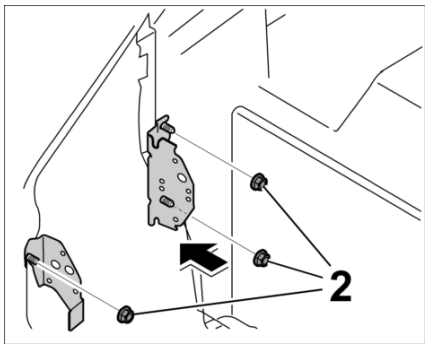
Installing CD changer



Position of the adjusting screw of a new CD changer

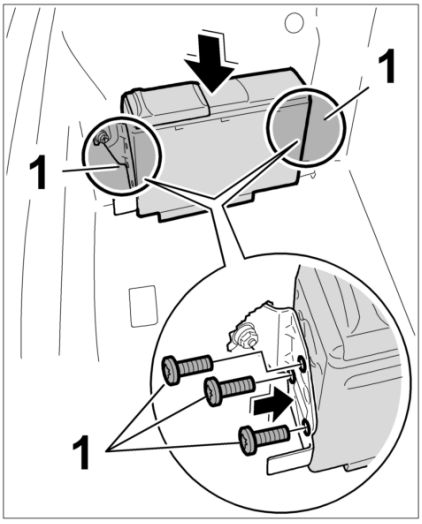
Note

If a new CD changer is installed, the adjusting screw must be in position **V**.



Installing retaining frame

1. Place the retaining frame onto the threaded pins and screw down using the three fastening nuts **-2-** .
   Tightening torque: 6.5 (5 ftlb.) Nm
2. Plug the electric connectors into the CD changer until they are felt to engage.



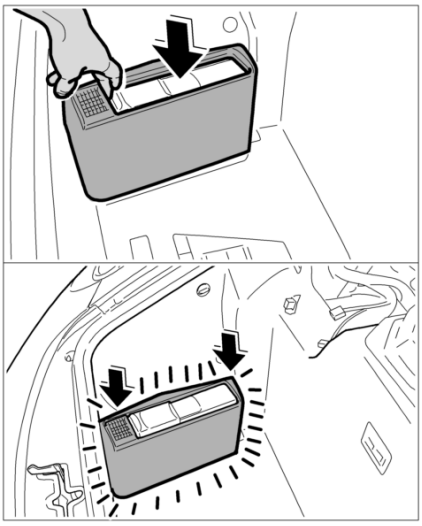
Screwing CD changer to retaining frame

3. Insert the CD changer into its retaining frame and screw down tight with the six fastening screws.
   Tightening torque: 2.5 (2.0 ftlb.) Nm

top of page

Subsequent work

Subsequent work - CD changer



Sliding on the CD changer trim panel

1. Slide cover over the CD changer and engage it.

997410, 997411, 997430, 997431, 997610, 997611, 997620, 997621

as of MY 2005
Country C00, C02, C05, C07, C08, C09, C10, C11, C12, C13, C14, C15, C16, C18, C19, C20, C21, C22, C23, C24, C25, C26, C27, C28, C32, C33, C34, C35, C36, C37, C38, C39, C45, C46, C98, C99

WARNUNG
Gefahr des Verlusts der Text-Bild-Zuordnung beim Ausdruck.

- **Aus technischen Gründen kann derzeit nicht ausgeschlossen werden, dass trotz einwandfreier Darstellung auf dem Bildschirm beim Ausdruck der Zusammenhang von Text und zugehörigem Bild verloren geht.**
- **Wird der Fehler nicht bemerkt, besteht die Gefahr, daß Arbeiten nicht korrekt durchgeführt werden und es dadurch zu Personen- und Sachschäden kommt.**

Vergleichen Sie deshalb nach dem Druckvorgang unbedingt die Ausdrucke mit der Bildschirmdarstellung. Korrigieren Sie die Ausdrucke im Fehlerfall so, daß der Inhalt der Bildschirmdarstellung zutreffend wiedergegeben wird.

WARNING
Danger of losing text-figure correspondence when printing out.

- **For technical reasons, it can currently not be ruled out that the correspondence between text and associated figure can be lost when it is printed out, even though the display on the screen is correct.**
- **If the fault is not noticed, there is the danger that work will not be performed correctly which can cause injury and damage.**

91 60 19 Removing and installing CD changer - as of MY 2005

- Preliminary work
- Removing CD changer
- Installing CD changer
- Subsequent work

top of page

Preliminary work

Preliminary work - removing CD changer

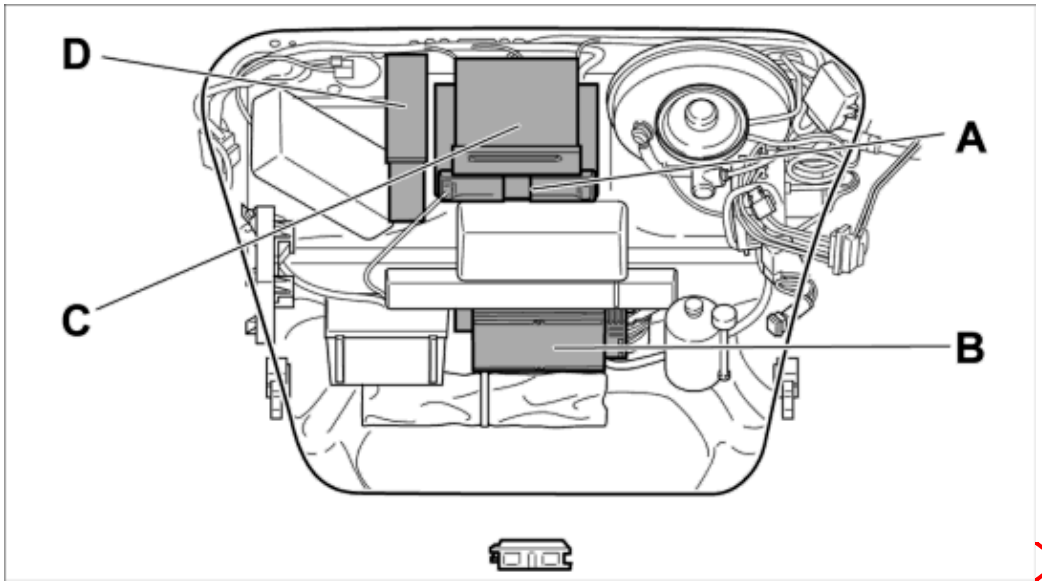
21 Removing and installing luggage compartment cover - removing

top of page

Removing CD changer

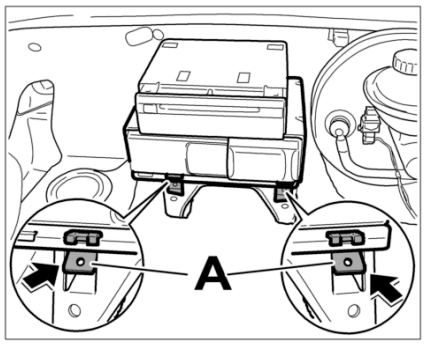
Removing CD changer

Installation Location:



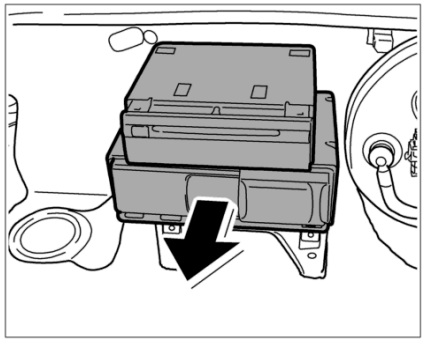
Install location

A - CD changer



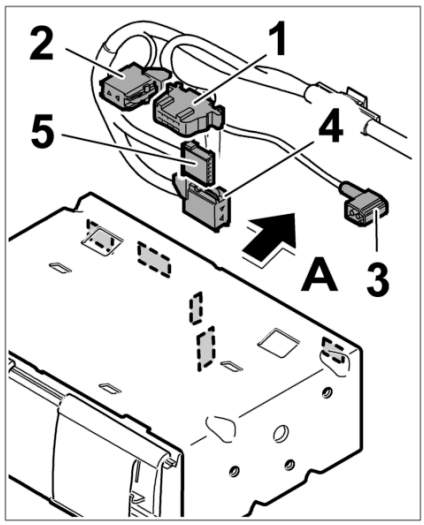
Retaining clips

1. Push both retaining clips **-A-** back.



Removal

2. Jerk the CD changer with its retaining bracket forward.



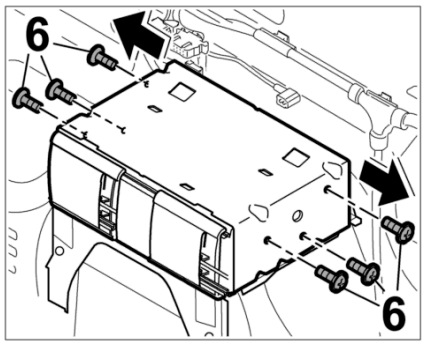
Electrical connectors

ATTENTION

Voltage peaks can damage the audio system.

Before unplugging/removing audio components, remove ignition key and switch off audio system.

3. Release the electrical connectors and unplug them.

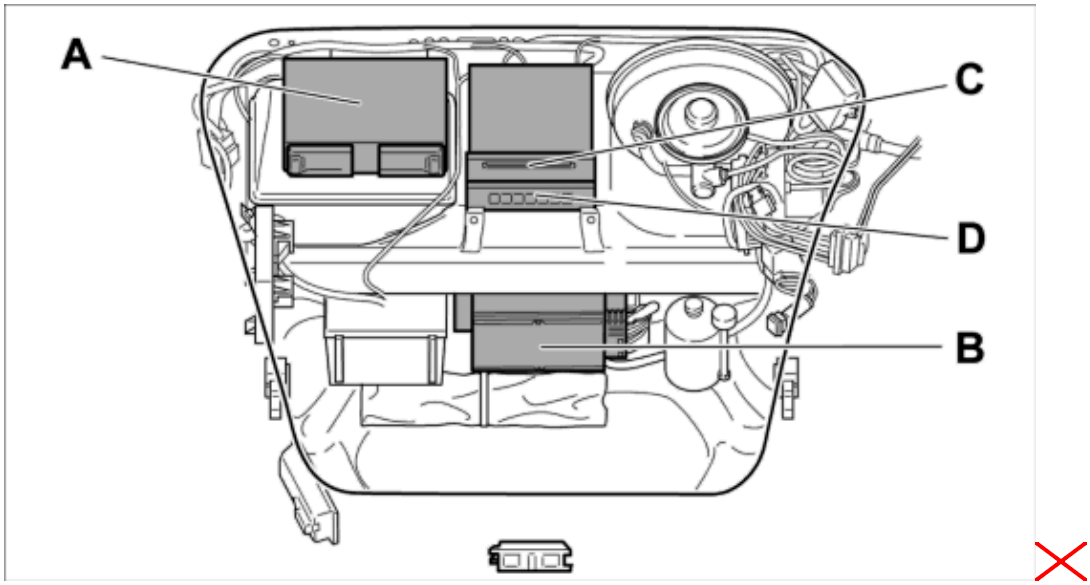


Fastening screws

4. Unscrew the 6 fastening screws **-6-** and pull the CD changer out of its retaining bracket.

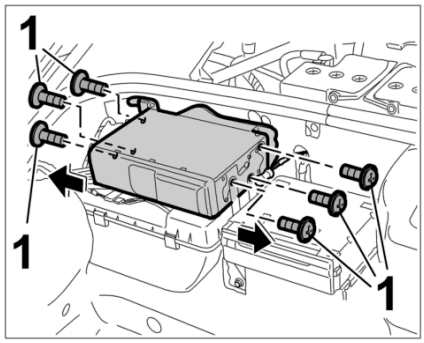
Removing the US version of the CD changer.

Installation Location:



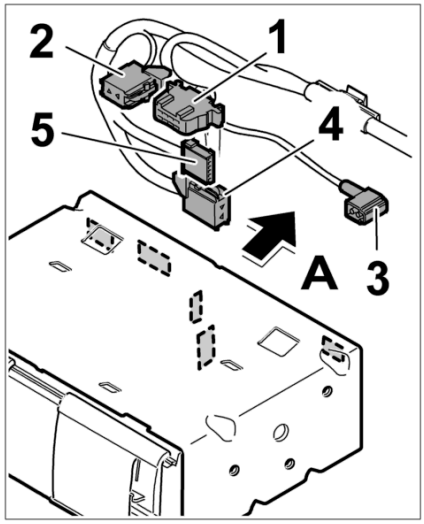
Install location

A - CD changer



Fastening screws

1. Unscrew the 6 fastening screws **-1-** and pull the CD changer out of its retaining bracket.



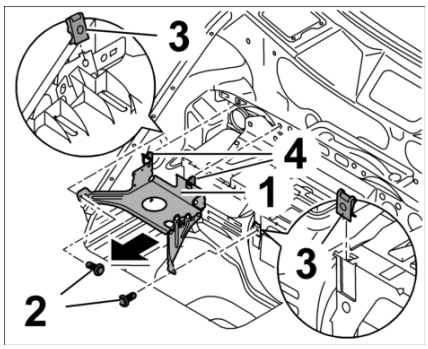
Electrical connectors

ATTENTION

Voltage peaks can damage the audio system.

Before unplugging/removing audio components, remove ignition key and switch off audio system.

2. Release the electrical connectors **-4, 5-** and unplug them.



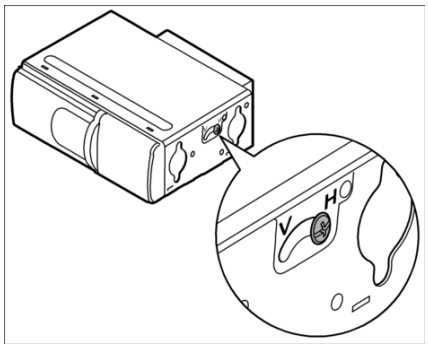
Removing holder for CD changer

3. Undo the two fastening screws **-2-** .
4. Pull out holder for CD changer **-1-** toward the front from both fastening parts **-4-** and take off.

top of page

Installing CD changer

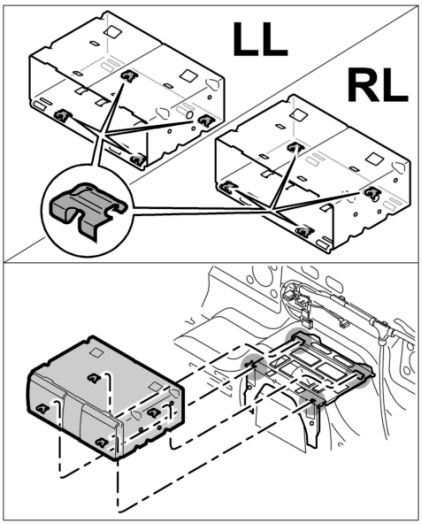
Installing CD changer



CD changer adjusting screw position

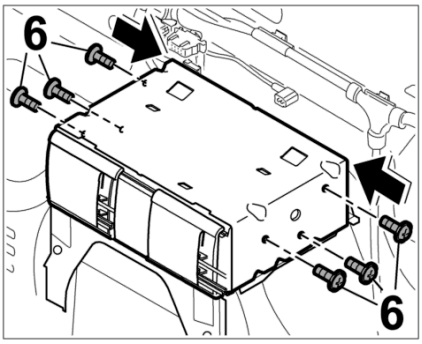
Note

If a new CD changer is installed, the adjusting screw must be in position **H**.



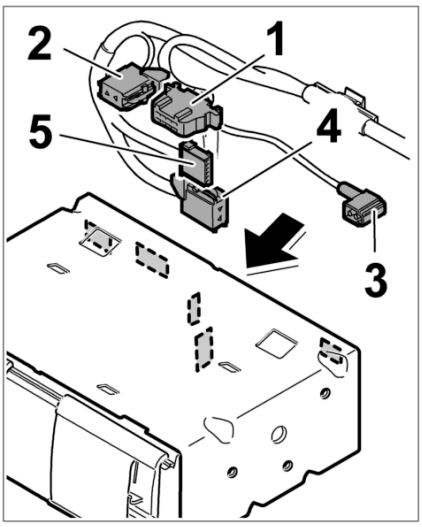
Retaining clips

1. Replace retaining clips for CD changer retaining frame.



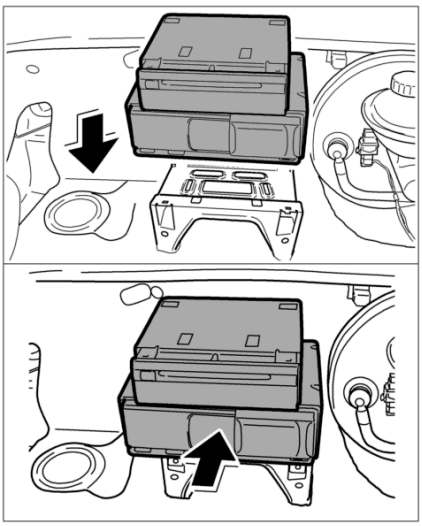
Fastening screws

2. Insert the CD changer into its retaining frame and screw down tight with the six fastening screws **-6-** . **Tightening torque: 2.5 (2 ftlb.) Nm**



Electric connectors

3. Insert electric connectors into the audio components until they are felt to engage.

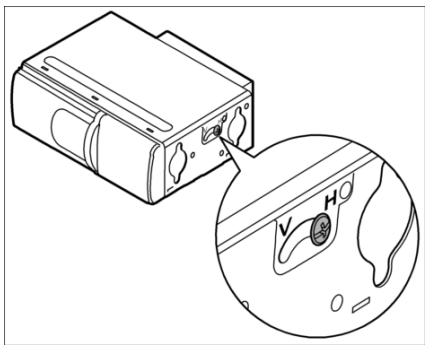


Installation

4. Position the support with the CD changer already attached on the body and move it backwards until the support clicks into place.

5. Check whether the clips have engaged in the body by pulling the CD changer.

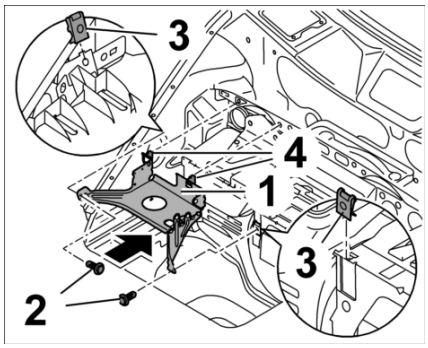
Installing the US version of the CD changer.



CD changer adjusting screw position

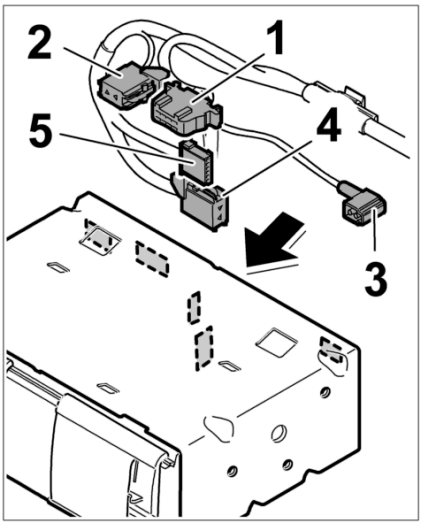
Note

If a new CD changer is installed, the adjusting screw must be in position **H**.



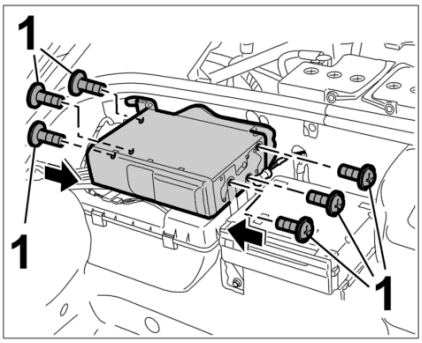
Installing holder for CD changer

1. Check both sheetmetal clips **-3-** and both fastening parts **-4-** , replace if necessary.
2. Press in holder for CD changer **-1-** with both fastening parts **-4-** to the body and tighten both fastening screws. **Tightening torque: 6.5 (5 ftlb.) Nm**



Electrical plug

3. Plug the electrical connectors **-4, 5-** into the CD changer until they are felt to engage.



Fastening screw

4. Insert the CD changer into its retaining frame and screw down tight with six fastening screws **-1-** .
   Tightening torque: 2.5 (2.0 ftlb.) Nm

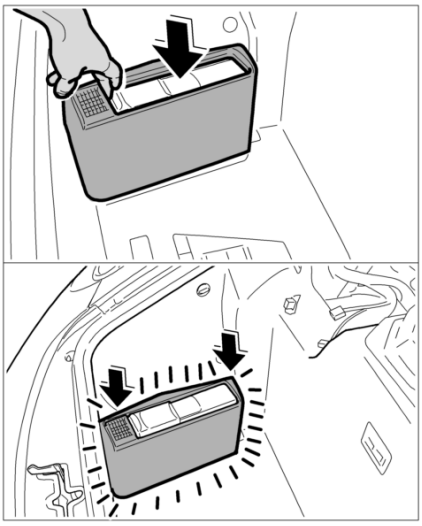
top of page

Subsequent work

Subsequent work - CD changer

23 Removing and installing luggage compartment cover - installing

Subsequent work - CD changer



Sliding on the CD changer trim panel

1. Slide cover over the CD changer and engage it.

997110, 997111, 997120, 997121, 997310, 997311, 997320, 997321

as of MY 2005
Country C00, C02, C05, C07, C08, C09, C10, C11, C12, C13, C14, C15, C16, C18, C19, C20, C21, C22, C23, C24, C25, C26, C27, C28, C32, C33, C34, C35, C36, C37, C38, C39, C45, C46, C98, C99

WARNUNG
Gefahr des Verlusts der Text-Bild-Zuordnung beim Ausdruck.

- **Aus technischen Gründen kann derzeit nicht ausgeschlossen werden, dass trotz einwandfreier Darstellung auf dem Bildschirm beim Ausdruck der Zusammenhang von Text und zugehörigem Bild verloren geht.**
- **Wird der Fehler nicht bemerkt, besteht die Gefahr, daß Arbeiten nicht korrekt durchgeführt werden und es dadurch zu Personen- und Sachschäden kommt.**

Vergleichen Sie deshalb nach dem Druckvorgang unbedingt die Ausdrucke mit der Bildschirmdarstellung. Korrigieren Sie die Ausdrucke im Fehlerfall so, daß der Inhalt der Bildschirmdarstellung zutreffend wiedergegeben wird.

WARNING
Danger of losing text-figure correspondence when printing out.

- **For technical reasons, it can currently not be ruled out that the correspondence between text and associated figure can be lost when it is printed out, even though the display on the screen is correct.**
- **If the fault is not noticed, there is the danger that work will not be performed correctly which can cause injury and damage.**

91 61 19 Removing and installing multi-function remote control - as of MY 2005

- Preliminary work
- Removing multi-function remote control
- Installing multi-function remote control
- Subsequent work

top of page

Preliminary work

Preliminary work for multi-function remote control

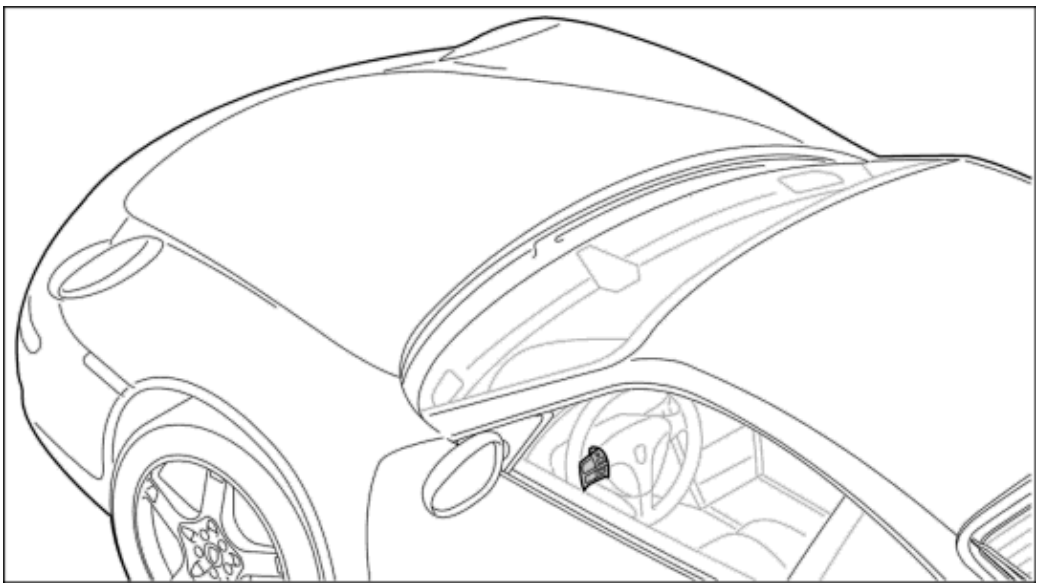
Remove driver's airbag unit. 695819 Removing and installing driver's airbag unit - section on "Removing"

top of page

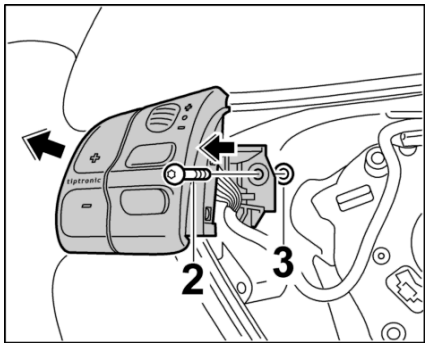
Removing multi-function remote control

Removing multi-function remote control

Installation Location:

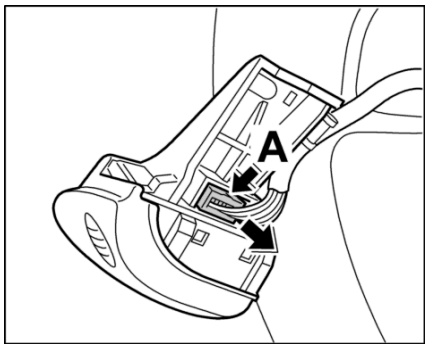


Installation position of steering wheel, shown on the 911



Removing remote control from steering wheel

1. Unscrew the fastening screws **-2-** and washers **-3-** for the remote control and carefully lever the remote control out using a screwdriver.



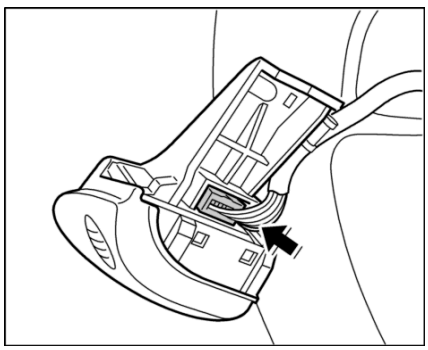
Releasing plug connection on the remote control

2. Release the electric plug connection on the remote control **-A-** and disconnect it.
3. Remove remote control.

top of page

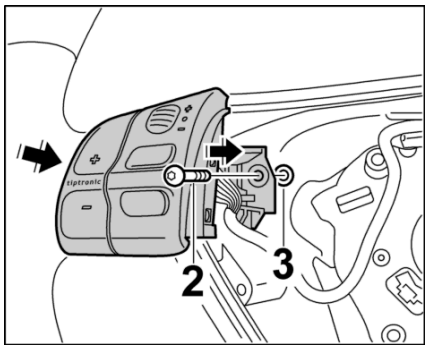
Installing multi-function remote control

Installing multi-function remote control



Connecting plug connection on the remote control

1. Insert electric connector into the remote control until it clicks into place.



Installing remote control

2. Insert remote control into the steering wheel, position washers **-3-** and screw down with the fastening screw **-2-** .

top of page

Subsequent work

Subsequent work for multi-function remote control

Install driver's airbag unit. 695819 Removing and installing driver's airbag unit - section on "Installing"

997110, 997111, 997120, 997121, 997310, 997311, 997320, 997321, 997410, 997411, 997430, 997431, 997610, 997611, 997620, 997621

as of MY 2005
Country C00, C02, C05, C07, C08, C09, C10, C11, C12, C13, C14, C15, C16, C18, C19, C20, C21, C22, C23, C24, C25, C26, C27, C28, C32, C33, C34, C35, C36, C37, C38, C39, C45, C46, C98, C99

WARNUNG

Gefahr des Verlusts der Text-Bild-Zuordnung beim Ausdruck.

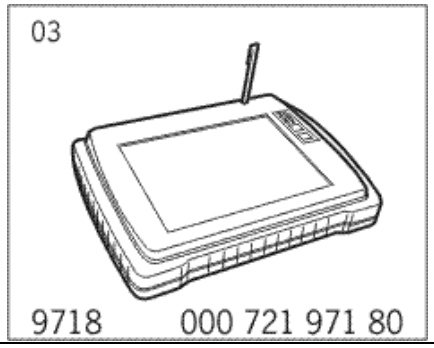
- **Aus technischen Gründen kann derzeit nicht ausgeschlossen werden, dass trotz einwandfreier Darstellung auf dem Bildschirm beim Ausdruck der Zusammenhang von Text und zugehörigem Bild verloren geht.**
- **Wird der Fehler nicht bemerkt, besteht die Gefahr, daß Arbeiten nicht korrekt durchgeführt werden und es dadurch zu Personen- und Sachschäden kommt.**

Vergleichen Sie deshalb nach dem Druckvorgang unbedingt die Ausdrucke mit der Bildschirmdarstellung. Korrigieren Sie die Ausdrucke im Fehlerfall so, daß der Inhalt der Bildschirmdarstellung zutreffend wiedergegeben wird.

91 62 19 Removing and installing control unit for steering wheel electronics - as of MY 2005

- Preliminary work
- Removing control unit for steering wheel electronics
- Installing control unit for steering wheel electronics
- Subsequent work
- Reading data out of and writing data into the control unit for steering wheel electronics.
- Coding control unit for steering wheel electronics
- Calibrating steering-angle sensor

Tools

Designation	Type	Number	Explanation	
PIWIS tester	special tool	9718		

top of page

Preliminary work

Preliminary work

1. Remove driver's airbag unit. 695819 Removing and installing driver's airbag unit - section on "Removing"
2. Remove steering wheel. 481019 Removing and installing steering wheel - section on "Removing"
3. Remove steering column trim. *481319 21 Removing and installing trim - section on "Removing"*
4. Remove steering column switch. 945019 Removing and installing steering column switch - section on "Removing"

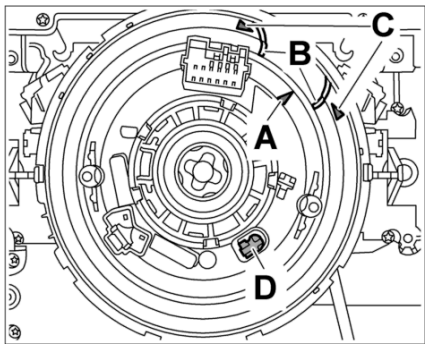
top of page

Removing control unit for steering wheel electronics

Removing control unit for steering wheel electronics

Note

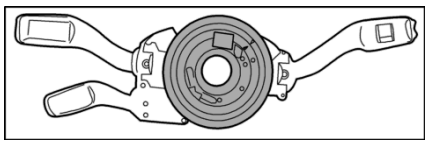
The control unit for steering wheel electronics is bolted to the steering-column switch.
Before the ground strap of the battery is disconnected, the data in the control unit for steering wheel electronics must be read out using the Porsche System Tester.



Position of markings

Note

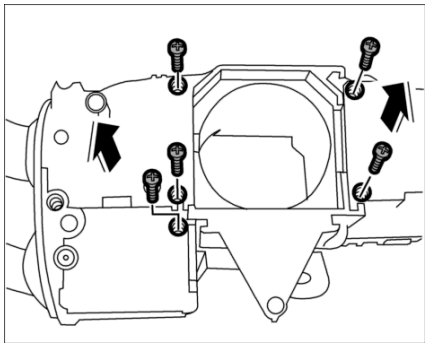
- *Ensure that the arrow **-A-** of the rotor is positioned between the markings **-B-** of the arrows **-C-** of the airbag contact unit and that the latch **-D-** is engaged.*



Removing contact unit

1. Remove contact unit.

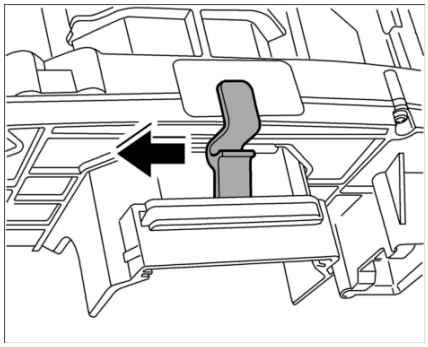
1.1. Carefully lift up the three retaining tabs and remove airbag contact unit.



Unscrewing fastening screws

2. Unscrew fastening screws for steering wheel electronics control unit.

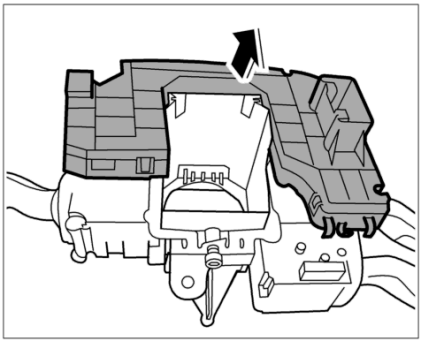
2.1. Unscrew the five fastening screws.



Pushing out the line holder

3. Push out the line holder.

3.1. Push line holder down and out of the steering-column switch.



Removing control unit for steering wheel electronics

4. Remove control unit for steering wheel electronics.

4.1. Turn steering column switch round and remove control unit for steering wheel electronics.

top of page

Installing control unit for steering wheel electronics

Installing control unit for steering wheel electronics

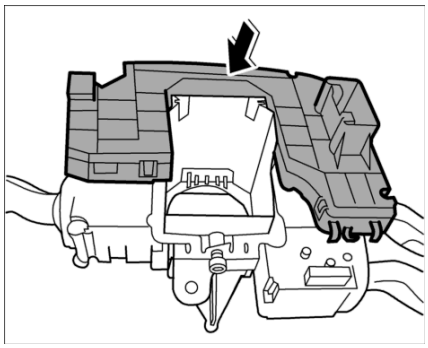
WARNING

Risk of damaging airbag contact unit.

- **If the airbag contact unit has been adjusted, proceed in accordance with the following work instruction:**

To position the airbag contact unit in the central position, press the locking element and turn the rotor carefully to the left as far as it will go.

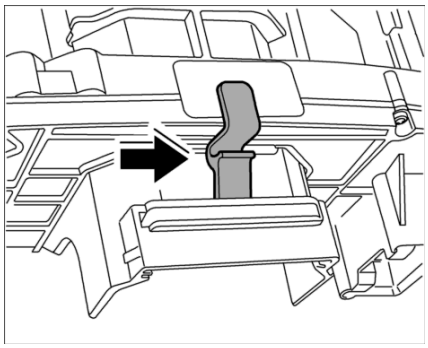
Then turn the rotor carefully to the right, approx. 3.5 to 3.75 revolutions, until the band printed on one side is visible in the window.



Mounting control unit for steering wheel electronics

1. Install control unit for steering wheel electronics.

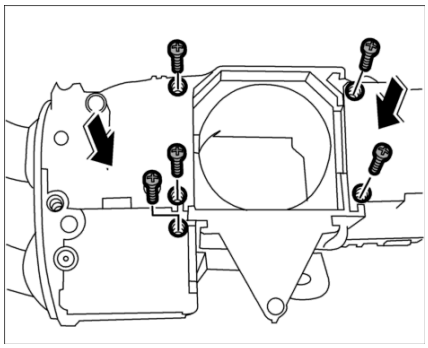
1.1. Position control unit for steering wheel electronics on the steering-column switch.



Pushing on line holder

2. Push on line holder.

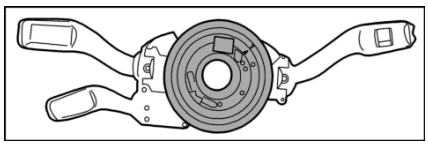
2.1. Push line holder onto steering-column switch.



Screwing in the fastening screws

3. Unscrew fastening screws for steering wheel electronics control unit

3.1. Turn the steering column switch round and screw in the five fastening screws.



Engaging contact unit

4. Install contact unit.

4.1. Position airbag contact unit and press onto the steering column switch until the three tabs are felt to engage.

top of page

Subsequent work

Subsequent work

1. Install steering column switch. 945019 Removing and installing steering column switch - section on "Installing"
2. Install steering column trim. *481319 23 Removing and installing trim - section on "Installing"*
3. Install steering wheel. 481019 Removing and installing steering wheel - section on "Installing"
4. Install driver's airbag unit. 695819 Removing and installing driver's airbag unit - section on "Installing"
5. Read data into the control unit for steering wheel electronics.
6. Calibrating steering angle sensor

top of page

Reading data out of and writing data into the control unit for steering wheel electronics.

Reading and printing values

Note

- *If reading out the data is not possible, the new control unit for steering wheel electronics must be*

coded. 916219 Removing and installing control unit for steering wheel electronics - chapter on "Coding"

Note

The **PIWIS tester 9718** instructions take precedence and in the event of a discrepancy these are the instructions that must be followed. Deviations may occur with later software versions.
The procedure described here has been structured in general terms; different text or additions may appear in the **PIWIS tester 9718**.

WARNING

Sudden voltage interruption of the power supply to the control module.

- **Destruction of the control module.**

During programming, it is essential to guarantee the power supply for the Porsche System tester. It is essential to connect a battery charger with a current rating of at least 40 A to the vehicle battery.

Prior to disconnecting the control module, switch off the ignition and remove the ignition key.

1. Connect the Porsche System Tester to the vehicle and start the System Tester. Switch on ignition. >> Continue.
2. Select the vehicle type.
3. Switch from the vehicle type to the list of control units.
4. Select **steering wheel electronics** with the cursor keys and press the >> key.
5. Select **Control unit replacement** with the cursor keys and press the >> key.
6. Select **Read out values** (codings) with the cursor keys and press the >> key.
7. The message **Codes successfully read out** appears on the screen of the Porsche System Tester. Press >> .
8. Switch off ignition and replace control unit. 916219 Removing and installing control unit for steering wheel electronics - section on "Removing"
9. Switch to the **Special functions** menu and perform the **vehicle handover** using the F8 key.
10. In the **Special functions** menu, erase **All fault memories** by pressing >> .
11. Carry out automatic search of control units.
12. In the menu **Write in data** >> , the data read-out is installed.
13. System tester displays **Coding write-in complete** >> .
14. Change to the **Coding** menu and compare the coding with the vehicle equipment. Recode if necessary.
15. Quit menu, carry out a test drive, and read out fault memory.

top of page

Coding control unit for steering wheel electronics

Coding control unit for steering wheel electronics

Note

The procedure described must be applied when a control unit has to be replaced and the tester function **Control unit replacement** cannot be used.

Note

The **PIWIS tester 9718** instructions take precedence and in the event of a discrepancy these are the instructions that must be followed. Deviations may occur with later software versions.
The procedure described here has been structured in general terms; different text or additions may appear in the **PIWIS tester 9718**.

WARNING

Sudden voltage interruption of the power supply to the control module.

- **Destruction of the control module.**

During programming, it is essential to guarantee the power supply for the Porsche System tester. It is essential to connect a battery charger with a current rating of at least 40 A to the vehicle battery.

Prior to disconnecting the control module, switch off the ignition and remove the ignition key.

1. Connect the **PIWIS tester 9718** to the vehicle and start it. Switch on the ignition. >> Continue.
2. Select the **vehicle type**.
3. Switch to the **Special functions** menu and perform the **vehicle handover** using the F8 key.
4. In the **Special functions** menu, erase **All fault memories** by pressing >> .
5. Carry out automatic search of control units.
6. Using the >> key, move from the vehicle type to the list of control units.
7. Select the control unit **Steering wheel electronics** and activate with the >> key.
8. Select **Coding** and activate with the >> key.
9. Select the respective equipment versions and code them.

Coding	Setting
Tiptronic	yes/no
Multi-function steering wheel	yes/no
Cruise control	yes/no

Headlight washing system	yes/no
Push-to-talk	yes/no
Rear wiper/washer system	yes/no

10. Follow the instructions on the Tester.
11. Calibrate steering angle sensor . 916219 Remove and install control unit for steering wheel electronics - section on "Calibration"
12. Carry out a test drive and read out fault memory.

top of page

Calibrating steering-angle sensor

Calibrating steering-angle sensor

Note

- *The steering-angle sensor must be recalibrated on the measuring platform following repairs to or work on the chassis/steering or if the steering-angle sensor/steering column switch/hydraulic unit is replaced.*
- *In order to be able to calibrate the steering angle sensor correctly, the vehicle must be on the measuring platform, the wheel alignment values correct and the steering in the straight-ahead position.*
- *The security code is displayed in the Porsche System Tester under menu **PSM**, **Actual values**, **Security code**.*

The steering angle sensor must be calibrated using the menu with PIWIS tester under the specified test conditions:

1. Switch on ignition.
2. Turn wheels or steering wheel to straight-ahead position. In the straight-ahead position, the steering wheel must deviate by no more than ± 2.0° from the horizontal position (steering centre position).
3. Before calibrating, first turn the steering wheel from the straight-ahead position approx. 20° to the left and 20° to the right (past straight-ahead position).
4. Turn wheels or steering wheel to straight-ahead position and calibrate the steering-angle sensor in the menu **PSM**, **Calibration**. To calibrate, you must enter the security code in the actual values menu**PSM**, **Actual values**.
5. Enter security code and confirm with F7 .
6. Turn steering-wheel to Tester default position.

7. Tester confirms **Calibration successful**.
8. Carry out a test drive and read out fault memory.

997110, 997111, 997120, 997121, 997310, 997311, 997320, 997321, 997410, 997411, 997430, 997431, 997610, 997611, 997620, 997621

as of MY 2005
Country C00, C02, C05, C07, C08, C09, C10, C11, C12, C13, C14, C15, C16, C18, C19, C20, C21, C22, C23, C24, C25, C26, C27, C28, C32, C33, C34, C35, C36, C37, C38, C39, C45, C46, C98, C99

WARNUNG

Gefahr des Verlusts der Text-Bild-Zuordnung beim Ausdruck.

- **Aus technischen Gründen kann derzeit nicht ausgeschlossen werden, dass trotz einwandfreier Darstellung auf dem Bildschirm beim Ausdruck der Zusammenhang von Text und zugehörigem Bild verloren geht.**
- **Wird der Fehler nicht bemerkt, besteht die Gefahr, daß Arbeiten nicht korrekt durchgeführt werden und es dadurch zu Personen- und Sachschäden kommt.**

Vergleichen Sie deshalb nach dem Druckvorgang unbedingt die Ausdrucke mit der Bildschirmdarstellung. Korrigieren Sie die Ausdrucke im Fehlerfall so, daß der Inhalt der Bildschirmdarstellung zutreffend wiedergegeben wird.

WARNING

Danger of losing text-figure correspondence when printing out.

- **For technical reasons, it can currently not be ruled out that the correspondence between text and associated figure can be lost when it is printed out, even though the display on the screen is correct.**
- **If the fault is not noticed, there is the danger that work will not be performed correctly which can cause injury and damage.**

Therefore, always compare printouts with the screen display after printing them out. Correct the printouts if they are faulty so that the content of the screen display matches that on the printouts.

AVERTISSEMENT

Risque de perte de la correspondance texte-illustration lors de l'impression papier.

- **Pour des raisons techniques, il ne peut pas être exclu à l'heure actuelle que, même en cas d'affichage correct à l'écran, la correspondance entre le texte et l'illustration puisse être erronée sur l'impression papier.**
- **Si l'erreur passe inaperçue, on court le risque d'exécuter certaines opérations de manière incorrecte pouvant conduire à des dommages corporels et matériels.**

91 68 19 Removing and installing outside temperature sensor - as of MY 2005

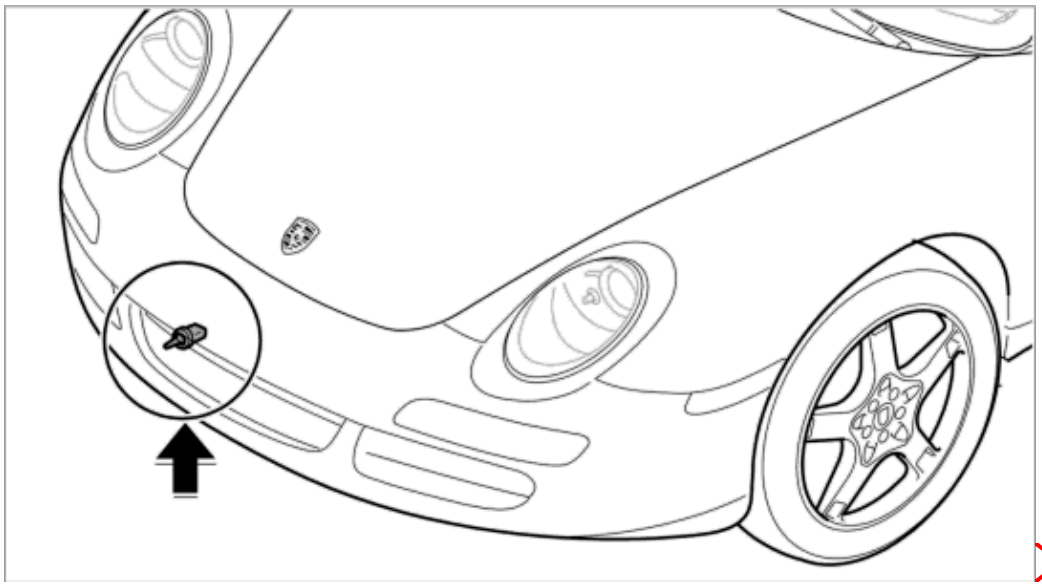
- Removing outside temperature sensor
- Installing outside temperature sensor

top of page

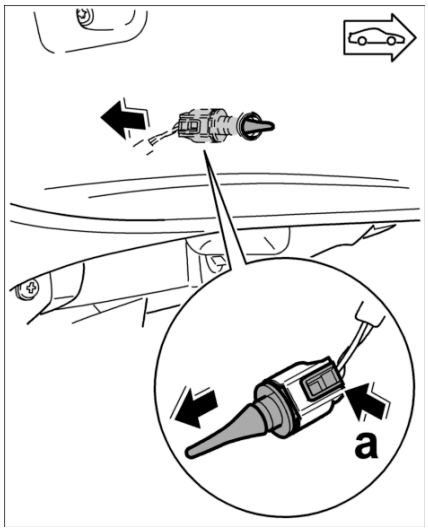
Removing outside temperature sensor

Removing outside temperature sensor

Installation Location:



Installation position



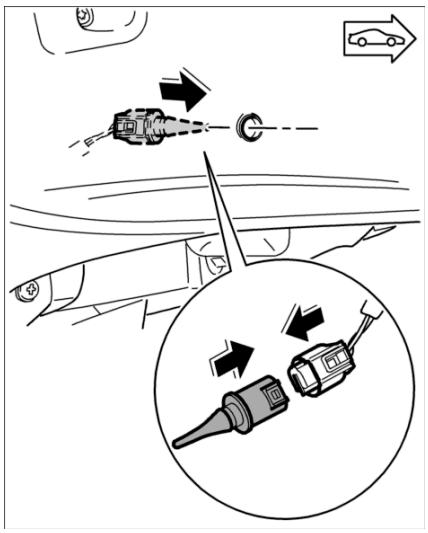
Outside temperature sensor

1. Reach into the opening in the floor and pull out the outside temperature sensor.
2. Release electrical connector **-a-** and pull out.

top of page

Installing outside temperature sensor

Installing outside temperature sensor



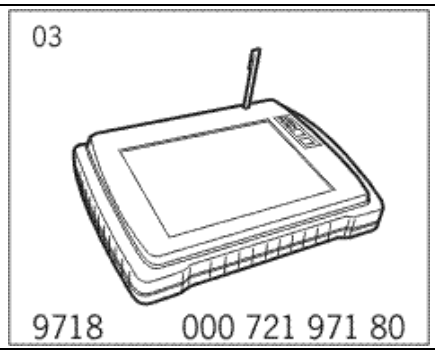
Outside temperature sensor

1. Push electrical connector onto outside temperature sensor until it is felt to engage.
2. Insert outside temperature sensor into its holder. Ensure that the temperature sensor is fitted securely.

91 74 19 Removing and installing control module for ParkAssist - as of MY 2005

- Preliminary work
- Removing control module for ParkAssist
- Installing control module for ParkAssist
- Subsequent work
- Programming control unit for ParkAssist

Tools

Designation	Type	Number	Explanation	
PIWIS Tester	special tool	9718		

top of page

Preliminary work

Preliminary work - control module for ParkAssist

21 Removing and installing front seat - removing

top of page

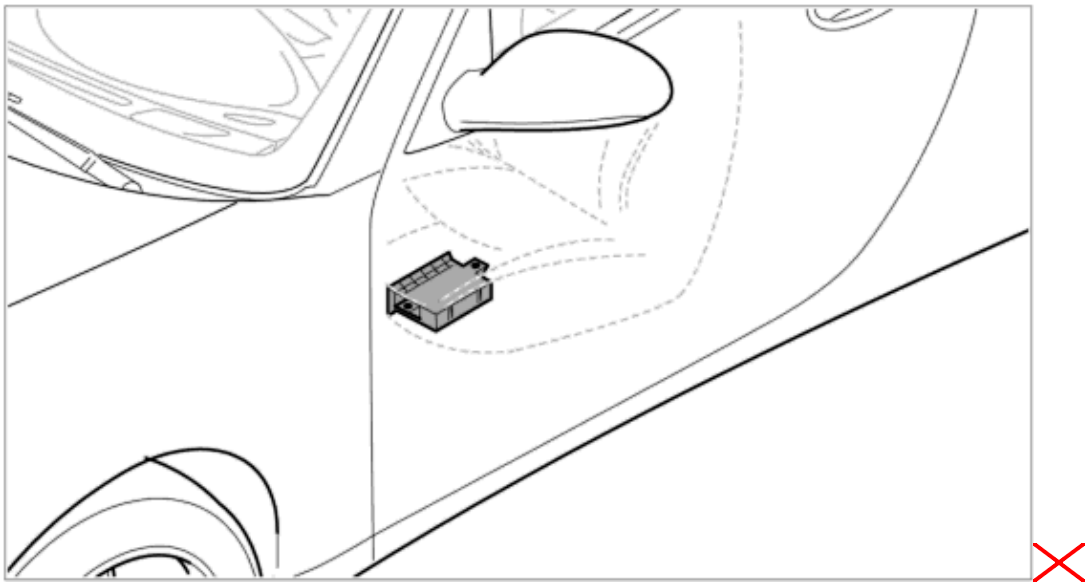
Removing control module for ParkAssist

Removing control module for ParkAssist

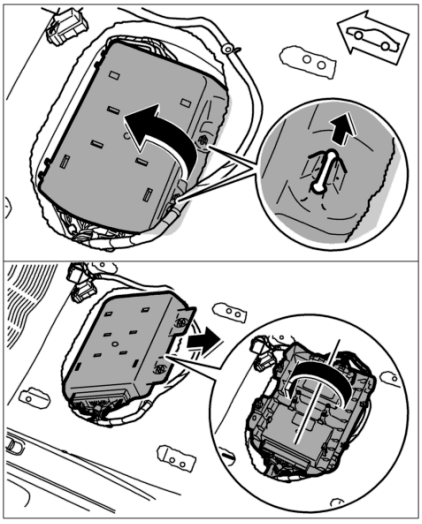
Note

If the ParkAssist control unit has to be replaced, the values from the control unit should first be read out using the **PIWIS Tester 9718**. 917419 Removing and installing ParkAssist control unit - chapter on "Programming"

Installation Location:

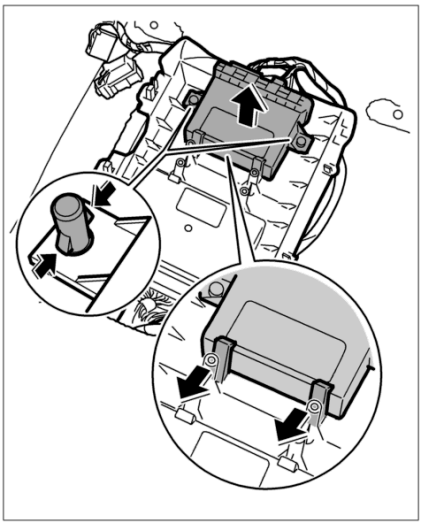


Installation position



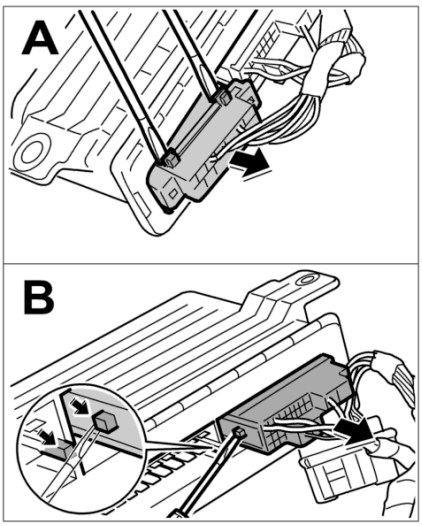
Control unit holder.

1. Push control unit forwards in direction of travel from behind, unclip it, detach it and turn the holder 180°.



Mounting point for control unit

2. Push together the retaining tabs for the control unit and pull the two catches back. Lift control unit up and out.



Connector

WARNING

Risk of damage to electronic control modules.

- **If care is not taken, electrical and electronic components may be destroyed.**

Before removing the control module, switch off the ignition and remove the ignition key.

3. **-A-** Carefully lever the connector away from the control unit using two screwdrivers.
4. **-B-** Carefully lever the connector away from the control unit using one screwdriver.

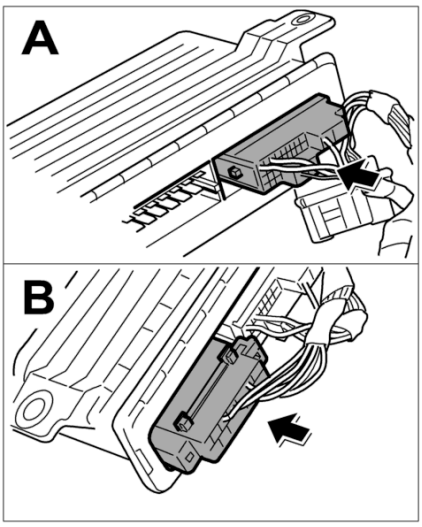
top of page

Installing control module for ParkAssist

Installing control module for ParkAssist

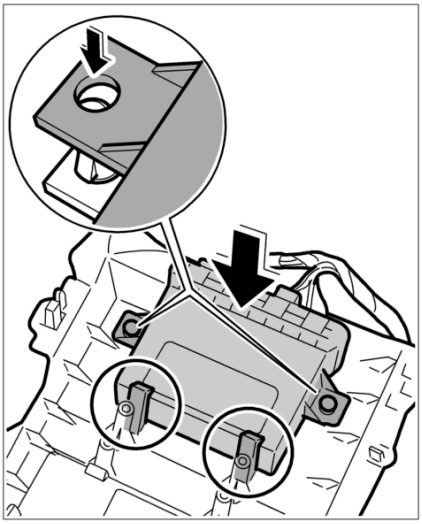
Note

If the ParkAssist control unit has to be replaced, the values from the control unit should first be read out using the **PIWIS Tester 9718**. 917419 Removing and installing ParkAssist control unit - chapter on "Programming"



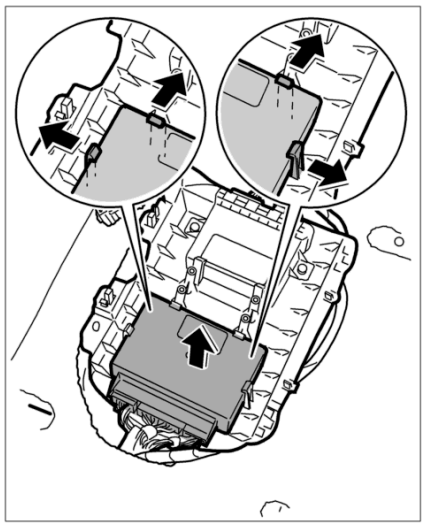
Connector

1. Press electrical connectors **-A, B-** into control unit until they are felt to engage.



2.

Position control unit on its holder, press it in and clip it into the holder.



Control unit holder.

3. Turn the bracket by 180° into the direction of travel, attach it at the front and clip it into place at the rear.

top of page

Subsequent work

Subsequent work - control module for ParkAssist

23 Removing and installing front seat - installing

top of page

Programming control unit for ParkAssist

Reading out and writing values for ParkAssist control unit

WARNING

Sudden voltage interruption of the power supply to the control module.

- **Destruction of the control module.**

During programming, it is essential to guarantee the power supply for the Porsche System tester. It is essential to connect a battery charger with a current rating of at least 40 A to the vehicle battery.

Prior to disconnecting the control module, switch off the ignition and remove the ignition key.

Note

The **PIWIS tester 9718** instructions take precedence and in the event of a discrepancy these are the instructions that must be followed. Deviations may occur with later software versions.
The procedure described here has been structured in general terms; different text or additions may appear in the **PIWIS tester 9718**.

1. Connect the Porsche System Tester to the vehicle and start the System Tester. Switch on ignition. >> Continue.
2. Select the vehicle type.
3. Switch from the vehicle type to the list of control units.
4. Select **ParkAssist** with the cursor keys and press the >> key.
5. Select **Control unit replacement** with the cursor keys and press the >> key.
6. Select **Read out values** (codings) with the cursor keys and press >> .
7. The message **Codes successfully read out** appears on the screen of the Porsche System Tester. Press >> .
8. Switch off ignition and replace control unit.
9. Switch to the **Special functions** menu and perform the **vehicle handover** using the F8 key.
10. In the **Special functions** menu, erase **All fault memories** by pressing >> .
11. Carry out automatic search of control units.
12. In the menu **Write in data** >> , the data read-out is installed.
13. System Tester displays **Codes successfully written in**. Press >> .
14. Change to the **Coding** menu and compare the coding with the vehicle equipment. Recode if necessary.
15. Quit menu, carry out a test drive, and read out fault memory.

Coding control unit for ParkAssist

WARNING

Sudden voltage interruption of the power supply to the control module.

- **Destruction of the control module.**

During programming, it is essential to guarantee the power supply for the Porsche System tester. It is essential to connect a battery charger with a current rating of at least 40 A to the vehicle battery.

Prior to disconnecting the control module, switch off the ignition and remove the ignition key.

Note

The **PIWIS tester 9718** instructions take precedence and in the event of a discrepancy these are the instructions that must be followed. Deviations may occur with later software versions.
The procedure described here has been structured in general terms; different text or additions may appear in the **PIWIS tester 9718**.

Note

The procedure described must be applied when a control unit has to be replaced and the tester function **Control unit replacement** cannot be used.

1. Connect the **PIWIS tester 9718** to the vehicle and start it. Switch on the ignition. >> Continue.
2. Select the **vehicle type**.
3. Switch to the **Special functions** menu and perform the **vehicle handover** using the F8 key.
4. In the **Special functions** menu, erase **All fault memories** by pressing >> .
5. Carry out automatic search of control units.
6. Using the >> key, move from the vehicle type to the list of control units.
7. Select **ParkAssist** with the cursor keys and press the >> key.
8. Select **Coding** and press the >> .
9. Select **Vehicle type** and code with F8 .

Vehicle type
997
987

10. Select **Volume** and code with F8 .

Volume
Loud
Quiet

11. Take a test drive, read out the fault memory and erase it if necessary.
12. ParkAssist has now been taught.

997110, 997111, 997120, 997121, 997310, 997311, 997320, 997321, 997410, 997411, 997430, 997431, 997610, 997611, 997620, 997621

as of MY 2005
Country C00, C02, C05, C07, C08, C09, C10, C11, C12, C13, C14, C15, C16, C18, C19, C20, C21, C22, C23, C24, C25, C26, C27, C28, C32, C33, C34, C35, C36, C37, C38, C39, C45, C46, C98, C99

91 75 19 Removing and installing sensor for ParkAssist - as of MY 2005

- Preliminary work
- Removing sensor for ParkAssist
- Installing sensor for ParkAssist
- Subsequent work

top of page

Preliminary work

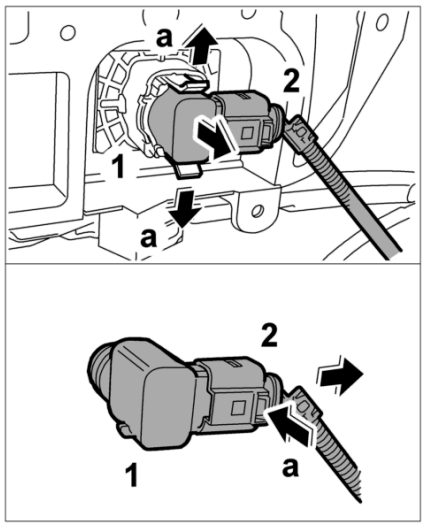
Preliminary work - sensor for ParkAssist

21 Removing and installing rear apron - removing

top of page

Removing sensor for ParkAssist

Removing sensor for ParkAssist



Removing sensor

1.

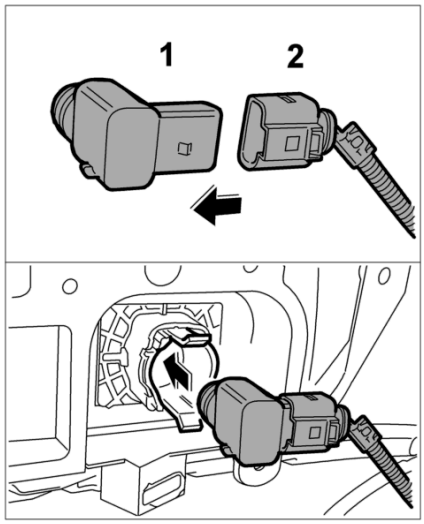
Pull apart retaining tabs **-a-** and remove sensor **-1-** .

2. Press catch **-a-** for connector **-2-** and pull connector off .

top of page

Installing sensor for ParkAssist

Installing sensor for ParkAssist



Installing sensor

1. Slide the connector **-2-** onto the sensor **-1-** until it is felt to engage.
2. Insert sensor into mounting point of bumper until retaining tabs on sensor engage.

top of page

Subsequent work

Subsequent work - sensor for ParkAssist

23 Removing and installing rear apron - installing

997110, 997111, 997120, 997121, 997310, 997311, 997320, 997321, 997410, 997411, 997430, 997431, 997610, 997611, 997620, 997621

91 77 19 Removing and installing multi-function control unit - as of MY 2005

- Preliminary work
- Removing multi-function control unit
- Installing multi-function control unit
- Subsequent work

top of page

Preliminary work

Preliminary work for multi-function remote control

Remove driver's airbag unit. 695819 Removing and installing driver's airbag unit - section on "Removing"

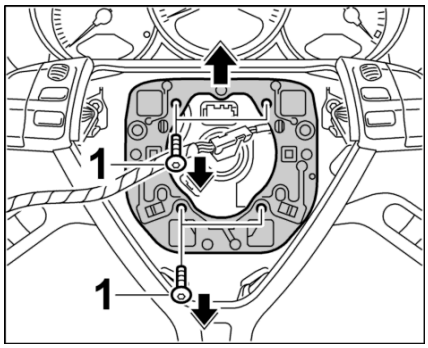
top of page

Removing multi-function control unit

Removing multi-function control unit

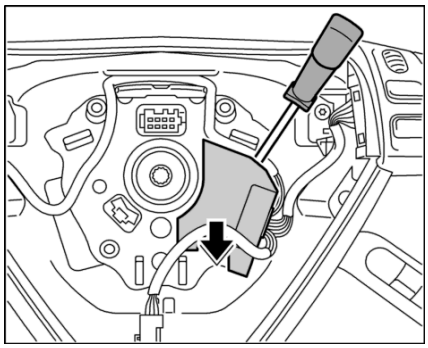
Note
The control unit is removed and, if necessary, replaced without reading, writing or coding the data with the PIWIS Tester. This procedure is not required at present.

Note
When removing the locking plate, take note of how many washers are used on each fastening screw. During installation make sure that the washers are fitted in the same way as they were before removal.



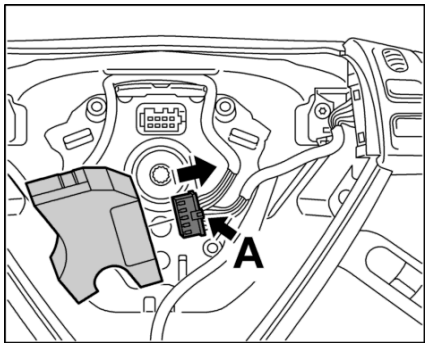
Removing the locking plate

1. Unscrew the four fastening screws **-1-** from the locking plate in the steering wheel and remove along with the locking plate.



Removing multi-function control unit

2. Use a screwdriver to carefully lever the multi-function control unit out of the steering wheel.



Releasing electric plug connection

3. Release electric plug connection **-A-** and disconnect it from the multi-function control unit.

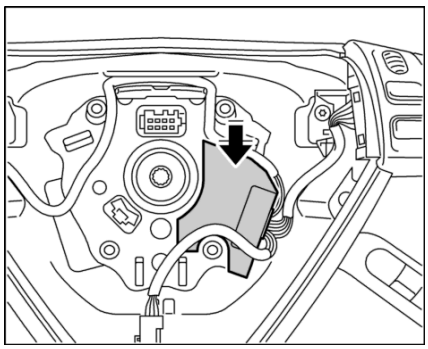
top of page

Installing multi-function control unit

Installing multi-function control unit

Note

The control unit is removed and, if necessary, replaced without reading, writing or coding the data with the PIWIS Tester. This procedure is not required at present.

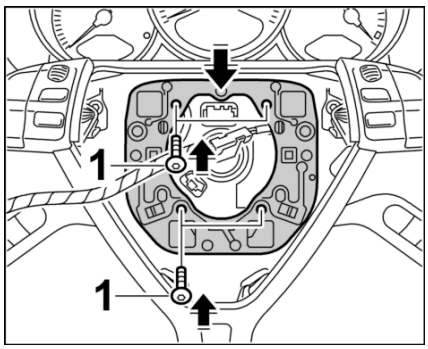


Clipping multi-function control unit into steering wheel

1. Attach electric plug connection to multi-function control unit until the plug clicks into place.
2. Clip multi-function control unit into steering wheel. Check that it is secure.

Note

When removing the locking plate, take note of how many washers are used on each fastening screw. During installation make sure that the washers are fitted in the same way as they were before removal.



Screwing down locking plate

3. Position locking plate on steering wheel and screw down using the four fastening screws **-1-** and the washers. **Tightening torque: 4.5 ftlb.**

top of page

Subsequent work

Subsequent work for multi-function control unit

Install driver's airbag unit. 695819 Removing and installing driver's airbag unit - section on "Installing"

997110, 997111, 997120, 997121, 997310, 997311, 997320, 997321, 997410, 997411, 997430, 997431, 997610, 997611, 997620, 997621

as of MY 2005
Country C00, C02, C05, C07, C08, C09, C10, C11, C12, C13, C14, C15, C16, C18, C19, C20, C21, C22, C23, C24, C25, C26, C27, C28, C32, C33, C34, C35, C36, C37, C38, C39, C45, C46, C98, C99

WARNUNG

Gefahr des Verlusts der Text-Bild-Zuordnung beim Ausdruck.

- **Aus technischen Gründen kann derzeit nicht ausgeschlossen werden, dass trotz einwandfreier Darstellung auf dem Bildschirm beim Ausdruck der Zusammenhang von Text und zugehörigem Bild verloren geht.**
- **Wird der Fehler nicht bemerkt, besteht die Gefahr, daß Arbeiten nicht korrekt durchgeführt werden und es dadurch zu Personen- und Sachschäden kommt.**

Vergleichen Sie deshalb nach dem Druckvorgang unbedingt die Ausdrucke mit der Bildschirmdarstellung. Korrigieren Sie die Ausdrucke im Fehlerfall so, daß der Inhalt der Bildschirmdarstellung zutreffend wiedergegeben wird.

WARNING

Danger of losing text-figure correspondence when printing out.

- **For technical reasons, it can currently not be ruled out that the correspondence between text and associated figure can be lost when it is printed out, even though the display on the screen is correct.**
- **If the fault is not noticed, there is the danger that work will not be performed correctly which can cause injury and damage.**

Therefore, always compare printouts with the screen display after printing them out. Correct the printouts if they are faulty so that the content of the screen display matches that on the printouts.

AVERTISSEMENT

Risque de perte de la correspondance texte-illustration lors de l'impression papier.

- **Pour des raisons techniques, il ne peut pas être exclu à l'heure actuelle que, même en cas d'affichage correct à l'écran, la correspondance entre le texte et l'illustration**

91 84 19 Removing and installing antenna amplifier - as of MY 2005

- Preliminary work
- Removing antenna amplifier
- Installing antenna amplifier

top of page

Preliminary work

Preliminary work - antenna amplifier

_ 705719 Removing and installing A-pillar trim - removing [997310 997311 997320 997321 997610 997611 997620 997621] _ 705719 Removing and installing A-pillar trim - removing [997110 997111 997120 997121 997410 997411 997430 997431]

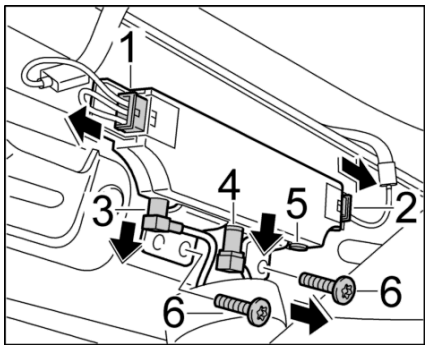
top of page

Removing antenna amplifier

Removing antenna amplifier

Note

The antenna amplifier is installed together with the PCM.
The antenna amplifier is located on the A-pillars.
Remove the ignition key and switch off the audio system.



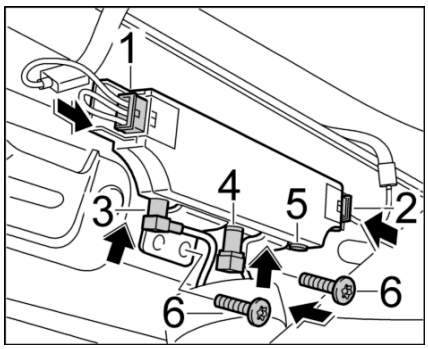
Connector for antenna amplifier

1. Unplug the antenna plug for the windscreen **-1, 2-** .
2. Unplug the plug connections for the antenna control unit **-3, 4-** on the left-hand side and **-3, 4, 5-** on the right-hand side.
3. Unscrew both fastening screws **-6-** .

top of page

Installing antenna amplifier

Installing antenna amplifier



Connector for antenna amplifier

1. Position the antenna amplifier on the A-pillar and screw down the fastening screws **-6-** .
2. Plug in the connectors for the antenna control unit **-3, 4-** on the left-hand side and **-3, 4, 5-** on the right-hand side.
3. Plug in the antenna connectors for the windscreen **-1-** and **-2-** .

Subsequent work - antenna amplifier

_ 705719 Removing and installing A-pillar trim - installing [997310 997311 997320 997321 997610 997611 997620 997621] _ 705719 Removing and installing A-pillar trim - installing [997110 997111 997120 997121 997410 997411 997430 997431]

997110, 997111, 997120, 997121, 997310, 997311, 997320, 997321, 997410, 997411, 997430, 997431, 997610, 997611, 997620, 997621

as of MY 2005
Country C00, C02, C05, C07, C08, C09, C10, C11, C12, C13, C14, C15, C16, C18, C19, C20, C21, C22,

91 86 19 Removing and installing control unit for antenna - as of MY 2005

- Preliminary work
- Removing control unit for antenna
- Installing control module for antenna
- Subsequent work

top of page

Preliminary work

Preliminary work - antennacontrol unit

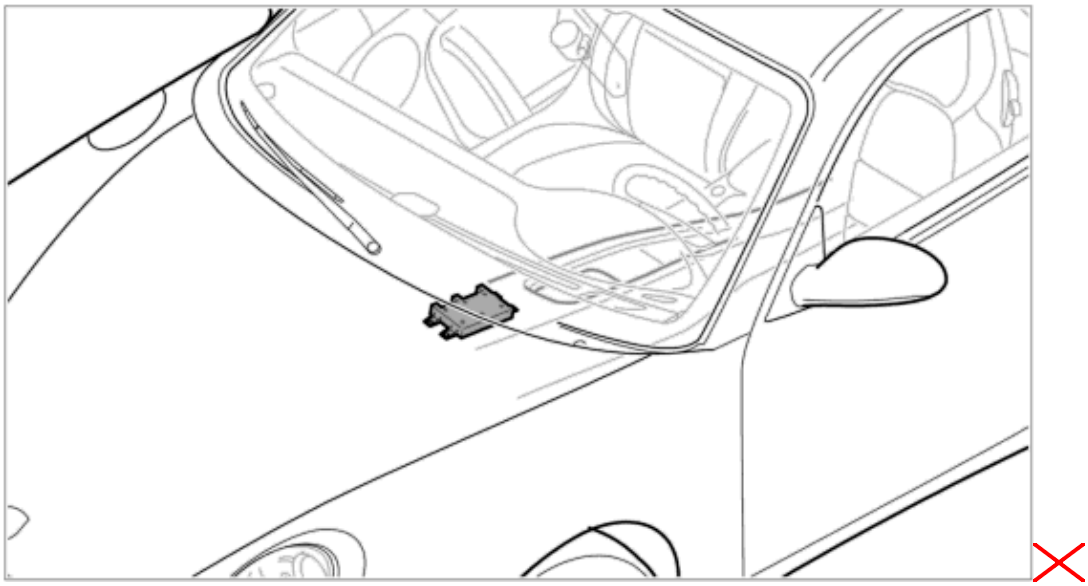
Remove right-hand panel of centre console. *21 Removing and installing centre console panel - removing*

top of page

Removing control unit for antenna

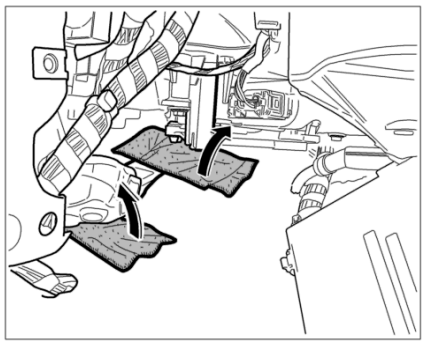
Removing antenna control unit

Installation Location:



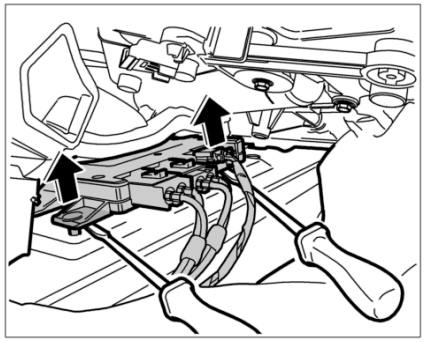
Install location

1. Remove ignition key and switch off audio system.



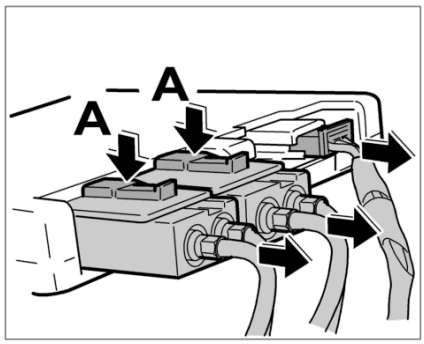
Velcro fastening on carpet

2. Undo the velcro strip on the carpet underneath the centre console.



Levering up control unit at both front and rear.

3. Push a screwdriver under the control unit and lever it up at the front and rear.



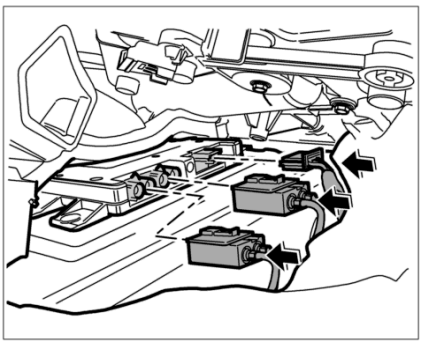
Releasing electrical connectors

4. Release the electrical connectors **-A-** and pull them away from the antenna control unit.
5. Take out the control unit.

top of page

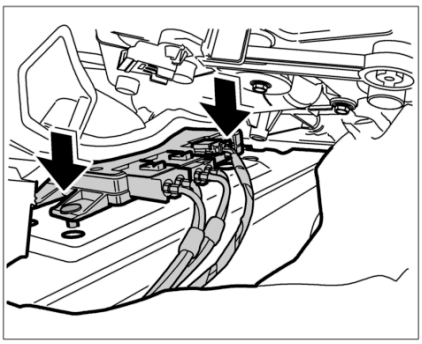
Installing control module for antenna

Installing antenna control unit



Connecting electric plug

1. Press electrical connectors onto control module until they are felt to engage.



Installing control module

2. Position control unit on body and secure it with retaining clips.
3. Draw the carpeting beneath the centre console together and secure with the velcro fastener.

top of page

Subsequent work

Subsequent work - antenna control unit

Install right-hand panel of centre console. *23 Removing and installing centre console panel - installing*

997110, 997111, 997120, 997121, 997310, 997311, 997320, 997321, 997410, 997411, 997430, 997431, 997610, 997611, 997620, 997621

91 88 19 Removing and installing console for telephone - as of MY 2005

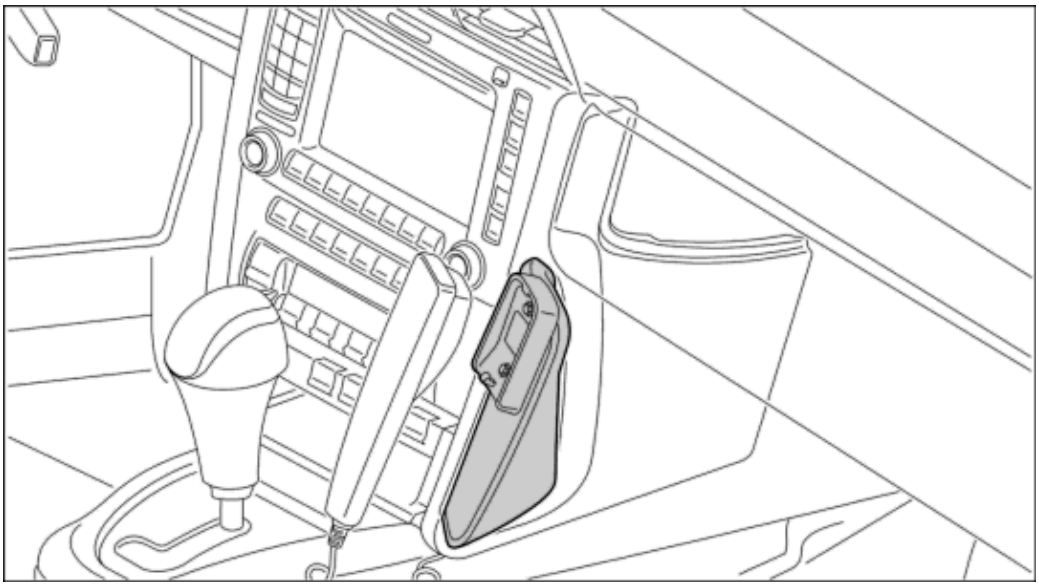
- Removing console for telephone
- Installing console for telephone

top of page

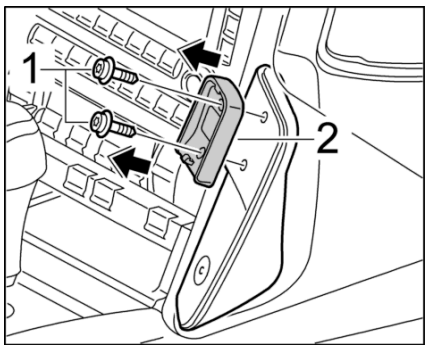
Removing console for telephone

Removing console for telephone

Installation Location:

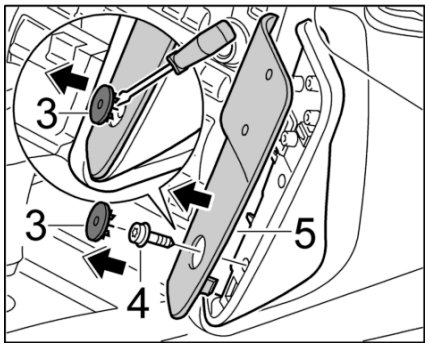


Installation position



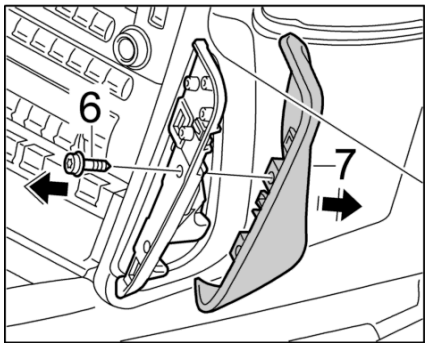
Unscrewing fastening screw -1-

1. Unscrew the two fastening screws **-1-** and remove the mounting plate **-2-** .



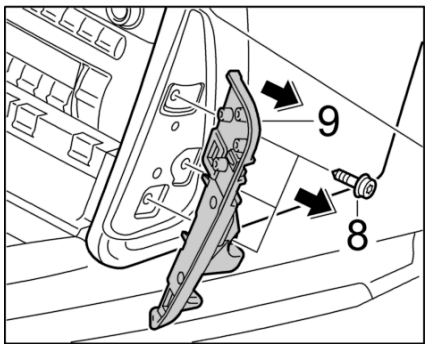
Unclipping cap

2. Carefully unclip the cover **-3-** with a screwdriver.
3. Unscrew the fastening screw **-4-** and remove the carrier **-5-** .



Unscrewing fastening screw and removing trim

4. Unscrew the fastening screw **-6-** and remove the trim **-7-** .



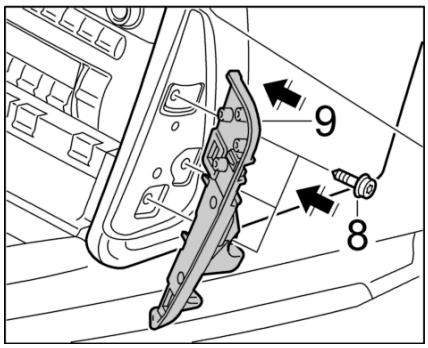
Unscrewing fastening screw and removing telephone console

5. Unscrew the three fastening screws **-8-** and remove console for the telephone **-9-** .

top of page

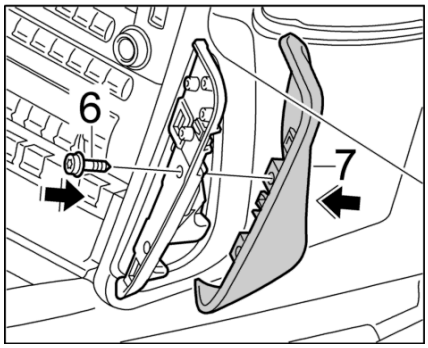
Installing console for telephone

Installing console for telephone



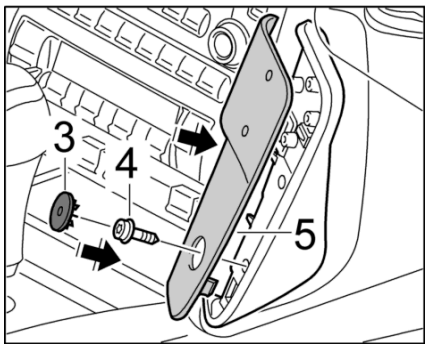
Positioning and securing telephone console

1. Position console for telephone **-9-** and screw down with the three fastening screws **-8-** .
   Tightening torque: 1.5 ftlb. +/-0.2 ftlb.



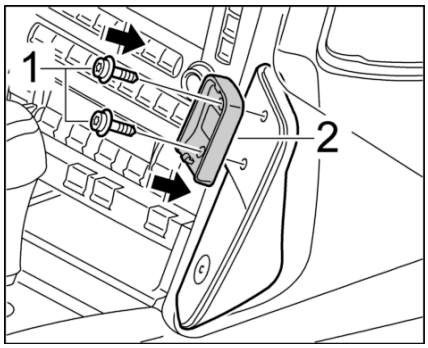
Positioning trim and securing with the fastening screw

2. Press trim **-7-** on the console and screw down with the fastening screw **-6-** . **Tightening torque: 1.5 ftlb. +/-0.2 ftlb.**



Positioning and securing carrier

3. Press carrier **-5-** on the console and screw down with the fastening screw **-4-** . **Tightening torque: 1.5 ftlb. +/-0.2 ftlb.**
4. Position the cover **-4-** and clip it into place.



Securing mounting plate

5. Secure the mounting plate with the fastening screws **-1-** . **Tightening torque: 1.5 ftlb. +/-0.2 ftlb.**
6. Place the handset in the bracket.

997110, 997111, 997120, 997121, 997310, 997311, 997320, 997321, 997410, 997411, 997430, 997431, 997610, 997611, 997620, 997621

as of MY 2005
Country C00, C02, C05, C07, C08, C09, C10, C11, C12, C13, C14, C15, C16, C18, C19, C20, C21, C22, C23, C24, C25, C26, C27, C28, C32, C33, C34, C35, C36, C37, C38, C39, C45, C46, C98, C99

WARNUNG

Gefahr des Verlusts der Text-Bild-Zuordnung beim Ausdruck.

- **Aus technischen Gründen kann derzeit nicht ausgeschlossen werden, dass trotz einwandfreier Darstellung auf dem Bildschirm beim Ausdruck der Zusammenhang von Text und zugehörigem Bild verloren geht.**
- **Wird der Fehler nicht bemerkt, besteht die Gefahr, daß Arbeiten nicht korrekt durchgeführt werden und es dadurch zu Personen- und Sachschäden kommt.**

Vergleichen Sie deshalb nach dem Druckvorgang unbedingt die Ausdrucke mit der Bildschirmdarstellung. Korrigieren Sie die Ausdrucke im Fehlerfall so, daß der Inhalt der Bildschirmdarstellung zutreffend wiedergegeben wird.

WARNING

Danger of losing text-figure correspondence when printing out.

- **For technical reasons, it can currently not be ruled out that the correspondence between text and associated figure can be lost when it is printed out, even though the display on the screen is correct.**
- **If the fault is not noticed, there is the danger that work will not be performed correctly which can cause injury and damage.**

Therefore, always compare printouts with the screen display after printing them out. Correct the printouts if they are faulty so that the content of the screen display matches that on the printouts.

91 90 19 Removing and installing control unit for telephone - as of MY 2005

- Preliminary work
- Technical values
- Removing control unit for telephone
- Installing control unit for telephone
- Subsequent work
- Coding control unit for telephone

top of page

Preliminary work

Preliminary work - telephone control unit

720119 Removing and installing front seat - chapter on "removing" [997110 997120 997310 997320 997410 997430 997610 997620] 720119 Removing and installing front seat - chapter on "removing" [997111 997121 997311 997321 997411 997431 997611 997621]

top of page

Technical values

Tightening torques for telephone control unit

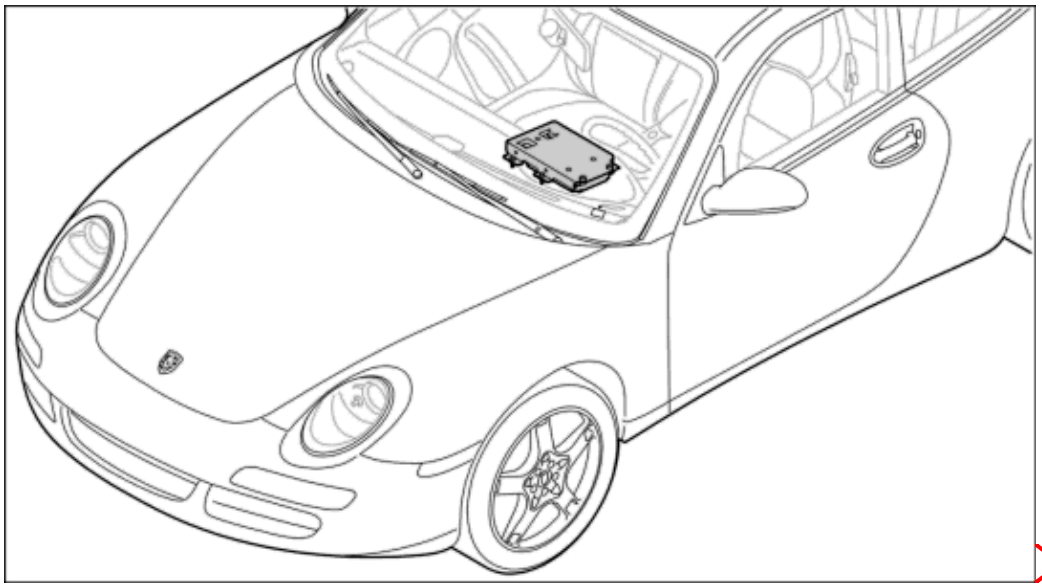
Tightening torque: 3.5 ftlb. Tightening torque: 1.5 ftlb.

top of page

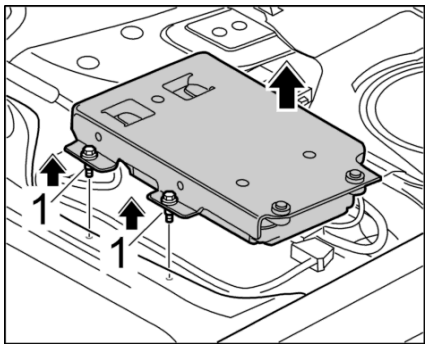
Removing control unit for telephone

Removing control unit for telephone

Installation Location:

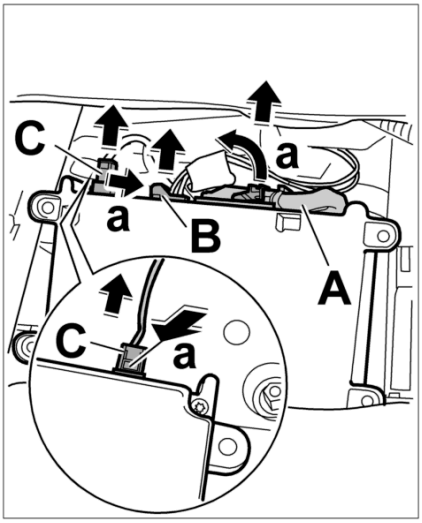


Installation position



Fastening screws for cover

1. Unscrew the two fastening screws **-1-** and rotate the cover and telephone control unit by 180°.



Inserting the connectors

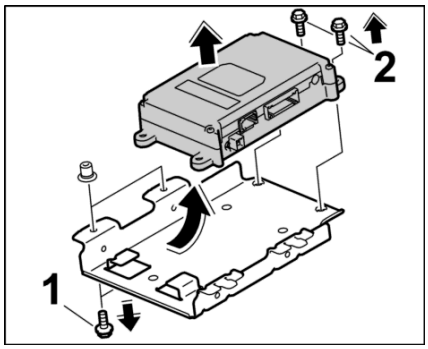
WARNING

Risk of damage to electronic control modules.

- **If care is not taken, electrical and electronic components may be destroyed.**

Before removing the control module, switch off the ignition and remove the ignition key.

2. Press latch on the electrical plug **-A-** , open the locking lever **-a-** , and remove plug.
3. Press latch on the electrical plug **-B-** for optical fibre and remove plug.



Pulling the control unit from the cover.

4. Undo both fastening screws **-2-** on the telephone control unit and pull the control unit from the cover.

top of page

Installing control unit for telephone

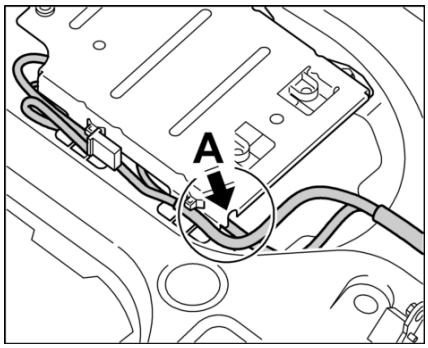
Installing control unit for telephone

WARNING

If the wiring at the telephone holder is not routed correctly, the wires can catch at the seat.

- **Danger of destroying/damaging wire harness for the telephone control unit**

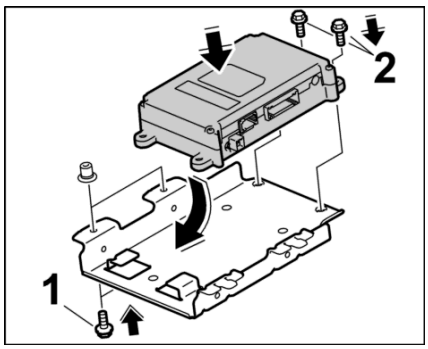
The wire harness at the telephone holder must not be routed over the edge.



Routing of wire harness

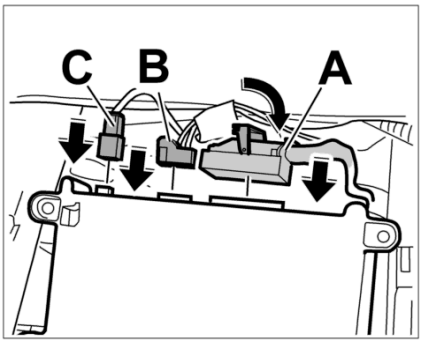
Note

The routing of the wire harness for the control unit must be checked before installing the seat.
The wire harness must not be routed over the cover, but should be laid along side the cover **-A-** .



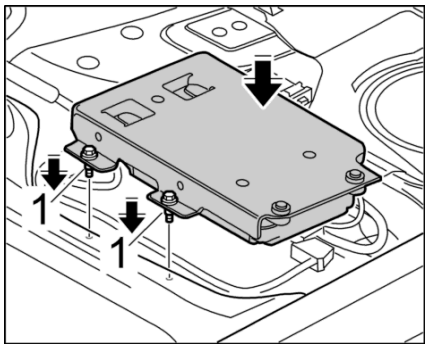
Inserting the control unit in the cover.

1. Insert control unit into the cover and screw tight with the two fastening screws **-2-** . **Tightening torque: 2 (1.5 ftlb.) Nm**



Inserting the connectors

2. Push in electrical plug connections **-C, B -** until plugs are felt to engage.
3. Position plug **-A-** and close with the locking lever until the retainer clicks into place.



Fastening screws for cover

4. Turn over the cover and telephone control unit, position it on the floor of the vehicle and screw down with fastening screws **-1-** . **Tightening torque: 5 (3.5 ftlb.) Nm**

If a new telephone control unit has been installed, it must be programmed (coded) in the vehicle. 919019 Removing and installing telephone control unit - section on "coding"

top of page

Subsequent work

Subsequent work - telephone control unit

720119 Removing and installing front seat - chapter on "installing" [997110 997120 997310 997320 997410 997430 997610 997620] 720119 Removing and installing front seat - chapter on "installing" [997111 997121 997311 997321 997411 997431 997611 997621]

top of page

Coding control unit for telephone

Coding the telephone control unit

WARNING

Sudden voltage interruption of the power supply to the control module.

- **Destruction of the control module.**

During programming, it is essential to guarantee the power supply for the Porsche System tester. It is essential to connect a battery charger with a current rating of at least 40 A to the vehicle battery.

Prior to disconnecting the control module, switch off the ignition and remove the ignition key.

Note

Follow the instructions on the Tester.
Later versions of the software may display slightly different text or require a slightly different procedure. The instructions you receive from the tester itself take precedence over this description.

1. Connect the Porsche System Tester to the vehicle and start the System Tester. Switch on the ignition. >> Continue.
2. Select the **vehicle type**.
3. Using the >> key, move from **Vehicle type** to the list of **Control units** and perform the automatic control unit search.

4. Select **PCM2** with the cursor keys and press the >> key.
5. Select **Telephone** with the cursor keys and press the >> key.
6. Select **Coding** using the cursor keys and press >> .
7. Select **Read out coding** (codings) with the cursor keys and press >> .
8. Switch to the **Special functions** menu and perform the **vehicle handover** using the F8 key.
9. In the **Special functions** menu, erase **All fault memories** by pressing >> .
10. Carry out automatic search of control units.
11. In the menu **Write in coding** >> , the data read out are installed.
12. In **Coding** select the version and follow the instructions of the Tester.
13. Read out and erase fault memory.

997110, 997111, 997120, 997121, 997310, 997311, 997320, 997321, 997410, 997411, 997430, 997431, 997610, 997611, 997620, 997621

as of MY 2005
Country C00, C02, C05, C07, C08, C09, C10, C11, C12, C13, C14, C15, C16, C18, C19, C20, C21, C22, C23, C24, C25, C26, C27, C28, C32, C33, C34, C35, C36, C37, C38, C39, C45, C46, C98, C99

WARNUNG

Gefahr des Verlusts der Text-Bild-Zuordnung beim Ausdruck.

- **Aus technischen Gründen kann derzeit nicht ausgeschlossen werden, dass trotz einwandfreier Darstellung auf dem Bildschirm beim Ausdruck der Zusammenhang von Text und zugehörigem Bild verloren geht.**
- **Wird der Fehler nicht bemerkt, besteht die Gefahr, daß Arbeiten nicht korrekt durchgeführt werden und es dadurch zu Personen- und Sachschäden kommt.**

Vergleichen Sie deshalb nach dem Druckvorgang unbedingt die Ausdrucke mit der Bildschirmdarstellung. Korrigieren Sie die Ausdrucke im Fehlerfall so, daß der Inhalt der Bildschirmdarstellung zutreffend wiedergegeben wird.

WARNING

Danger of losing text-figure correspondence when printing out.

- **For technical reasons, it can currently not be ruled out that the correspondence between text and associated figure can be lost when it is printed out, even though the display on the screen is correct.**
- **If the fault is not noticed, there is the danger that work will not be performed correctly which can cause injury and damage.**

Therefore, always compare printouts with the screen display after printing them out. Correct the printouts if they are faulty so that the content of the screen display matches that on the

91 91 19 Installing and removing additional telephone receiver - as of MY 2005

- Preliminary work
- Removing additional telephone receiver
- Installing additional telephone receiver
- Subsequent work

top of page

Preliminary work

Preliminary work for additional receiver for telephone

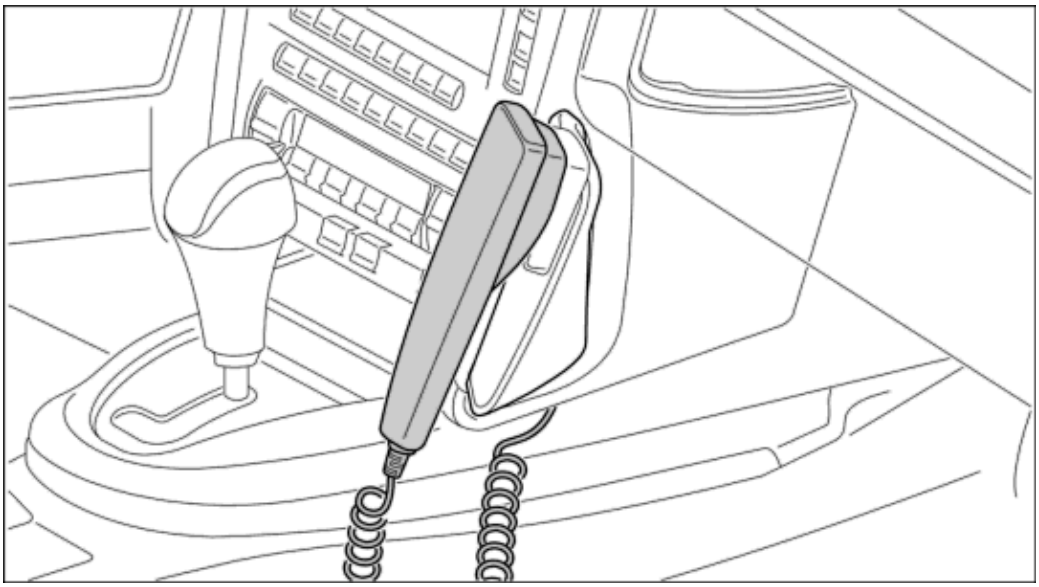
_ 918819 Removing and installing console for telephone - chapter on "removing"
_ 681419 Removing and installing centre console cover - chapter on "removing"

top of page

Removing additional telephone receiver

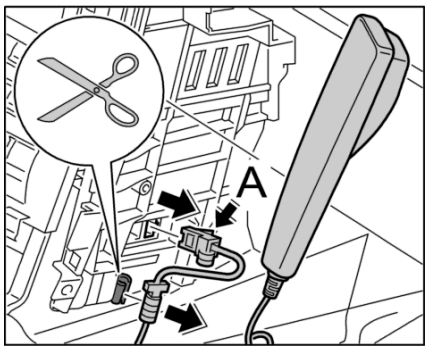
Removing additional receiver for telephone

Installation Location:



Installation position

1. Remove ignition key and switch off audio system.



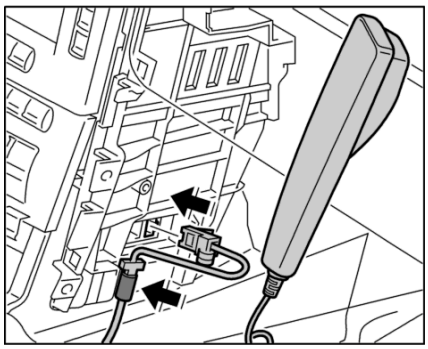
Disconnecting plug connection

2. Cut through the tie-wrap for the electric wire and disengage the wire at the retaining bracket.
3. Release electric plug from additional receiver **-A-** and unplug it.

top of page

Installing additional telephone receiver

Installing additional receiver for telephone



Connecting plug connection

1. Insert electrical plug for additional receiver until it is felt to engage.
2. Engage electric wire at the retaining bracket and secure with a tie-wrap.

top of page

Subsequent work

Subsequent work for additional receiver for telephone

681419 Removing and installing centre console cover - chapter on "installing"
918819 Removing and installing console for telephone - chapter on "installing"

997110, 997111, 997120, 997121, 997310, 997311, 997320, 997321, 997410, 997411, 997430, 997431, 997610, 997611, 997620, 997621

as of MY 2005
Country C00, C02, C05, C07, C08, C09, C10, C11, C12, C13, C14, C15, C16, C18, C19, C20, C21, C22, C23, C24, C25, C26, C27, C28, C32, C33, C34, C35, C36, C37, C38, C39, C45, C46, C98, C99

WARNUNG

Gefahr des Verlusts der Text-Bild-Zuordnung beim Ausdruck.

- **Aus technischen Gründen kann derzeit nicht ausgeschlossen werden, dass trotz einwandfreier Darstellung auf dem Bildschirm beim Ausdruck der Zusammenhang von Text und zugehörigem Bild verloren geht.**
- **Wird der Fehler nicht bemerkt, besteht die Gefahr, daß Arbeiten nicht korrekt durchgeführt werden und es dadurch zu Personen- und Sachschäden kommt.**

Vergleichen Sie deshalb nach dem Druckvorgang unbedingt die Ausdrucke mit der Bildschirmdarstellung. Korrigieren Sie die Ausdrucke im Fehlerfall so, daß der Inhalt der Bildschirmdarstellung zutreffend wiedergegeben wird.

WARNING

Danger of losing text-figure correspondence when printing out.

- **For technical reasons, it can currently not be ruled out that the correspondence between text and associated figure can be lost when it is printed out, even though the display on the screen is correct.**
- **If the fault is not noticed, there is the danger that work will not be performed correctly which can cause injury and damage.**

Therefore, always compare printouts with the screen display after printing them out. Correct the printouts if they are faulty so that the content of the screen display matches that on the printouts.

AVERTISSEMENT

Risque de perte de la correspondance texte-illustration lors de l'impression papier.

92 12 19 Removing and installing rain sensor - as of MY 2005

- Removing rain sensor
- Installing rain sensor

top of page

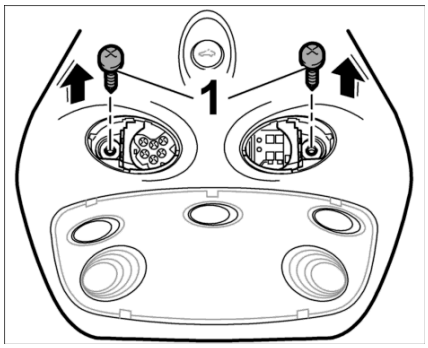
Removing rain sensor

Removing rain sensor

Note

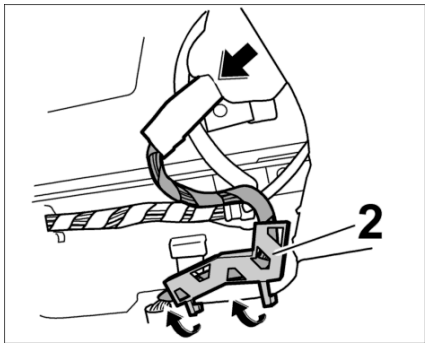
- *An adhesive pad must be used when reinstalling the rain sensor. See PET, main group 9, sub-group 04.*
- *When fitting the adhesive pad, make sure there is no air trapped between the windscreen and the adhesive pad or between the adhesive pad and the rain sensor.*
- *When installing the adhesive pad, the temperature of the windscreen, rain sensor and adhesive pad must be approx 20 °C. Carefully heat the windscreen with a hot-air gun for example.*
- *Do not touch the adhesive surface of the sensor with your fingers.*
- *If the sensor is new, remove the protection cap before sticking the sensor on to the windscreen.*
- *When sticking on a new sensor, make sure that no air pockets are caught between the gel and the windscreen. Air pockets could impair the function of the sensor.*
- *Sensor, orientation lights, wires and wiring ducts are spare parts.*

Limited functionality of the rain sensor if the following points are not observed: Please observe note *"An adhesive pad must be used when reinstalling the rain sensor. See PET, main group 9, sub-group 04."*



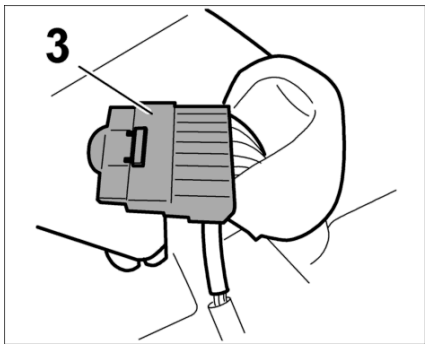
Removing roof console

1. Unclip the two covers on the roof console and unscrew both fastening screws **-1-** .



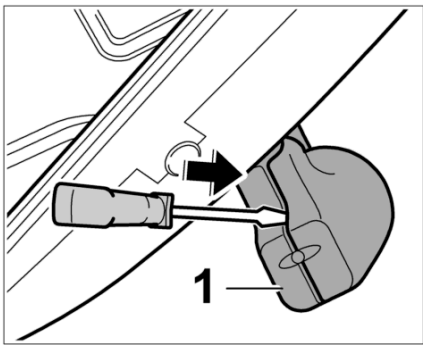
Wire routing

2. Disengage holder **-2-** for the wire **-arrow-** and pull wire forward behind the roof liner.



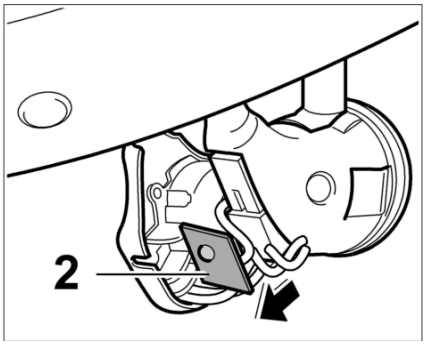
Disconnecting plug connection

3. Release and pull electrical plug apart **-3-** .



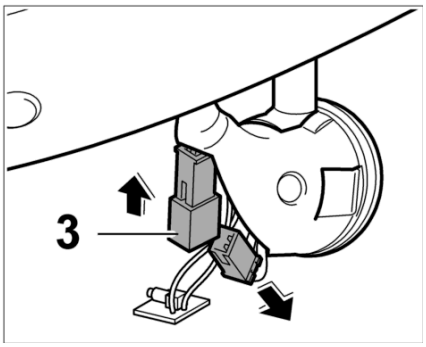
Removing cover of rain sensor

4. Carefully unclip the cover **-1-** from the rain sensor from above using a narrow screwdriver.



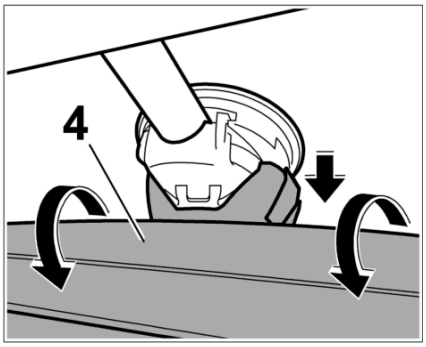
Removing orientation lights

5. Remove orientation lights **-2-** .



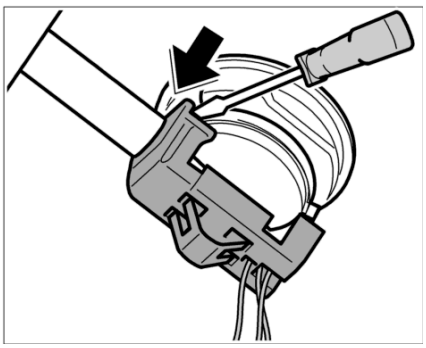
Disconnecting plug connection

6. Carefully pull the plug connection **-3-** out of the holder and pull it apart.



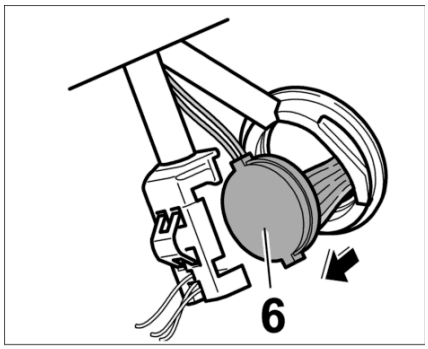
Pushing mirror down from mirror holder

7. Fold mirror downwards **-4-** and push down from the front windscreen bracket.



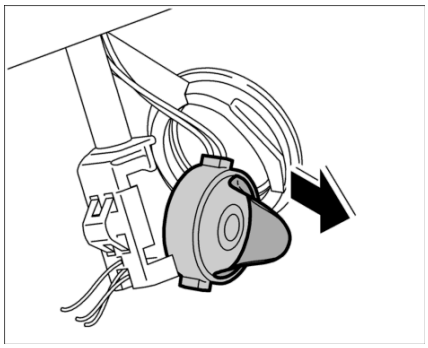
Unclipping rain sensor holder

8. Carefully unclip holder from rain sensor at the top, bottom left and right.



Removing rain sensor from windscreen

9. Slowly remove rain sensor **-6-** from the windscreen.



Pulling off adhesive pad

10. If the rain sensor is to be reinstalled, then slowly pull the adhesive pad **-7-** off the rain sensor.

top of page

Installing rain sensor

Installing rain sensor

Note

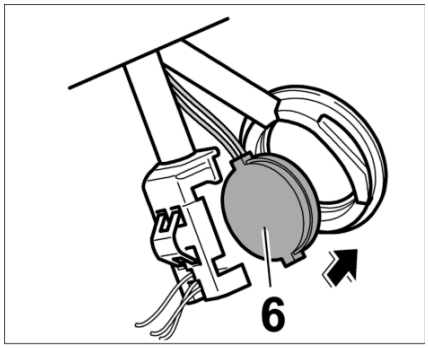
- *An adhesive pad must be used when reinstalling the rain sensor. See PET, main group 9, sub-group 04.*
- *When fitting the adhesive pad, make sure there is no air trapped between the windscreen and the adhesive pad or between the adhesive pad and the rain sensor.*

- *When installing the adhesive pad, the temperature of the windscreen, rain sensor and adhesive pad must be approx 20 °C. Carefully heat the windscreen with a hot-air gun for example.*
- *Do not touch the adhesive surface of the sensor with your fingers.*
- *If the sensor is new, remove the protection cap before sticking the sensor on to the windscreen.*
- *When sticking on a new sensor, make sure that no air pockets are caught between the gel and the windscreen. Air pockets could impair the function of the sensor.*
- *Sensor, orientation lights, wires and wiring ducts are spare parts.*

Limited functionality of the rain sensor if the following points are not observed: Please observe note *"An adhesive pad must be used when reinstalling the rain sensor. See PET, main group 9, sub-group 04."*

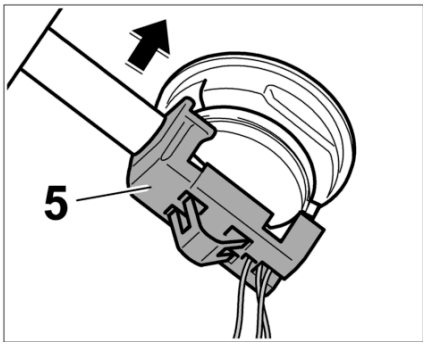
Note

- *If the removed rain sensor is to be reinstalled, the surfaces must be free of adhesive residues. Do not use harsh cleaning agents. Stick the adhesive pad onto the rain sensor at a temperature of approx. 20 °C.*



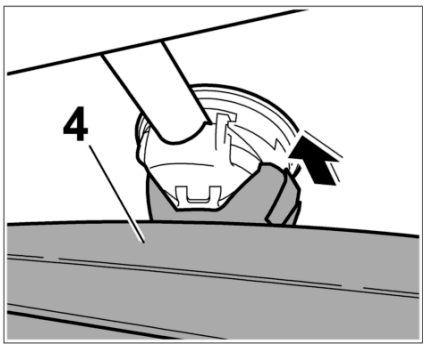
Sticking on rain sensor

1. Press the rain sensor **-6-** onto the windscreen.



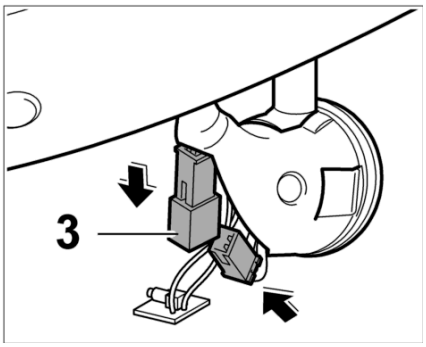
Clipping in holder

2. Push and press holder **-5-** onto the rain sensor until it engages.



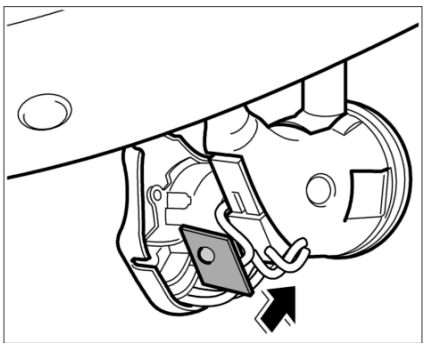
Pushing on rear-view mirror

3. Push rear-view mirror **-4-** onto the mirror holder from below.



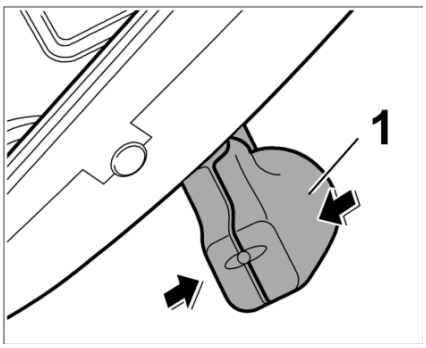
Plugging in connector

4. Join the plug connection **-3-** and insert it into the mirror base.



Inserting orientation lights

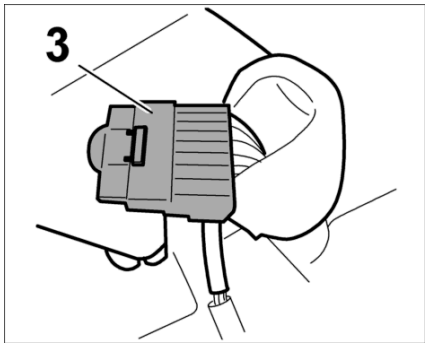
5. Insert orientation light into the cover.



Attaching mirror base cover

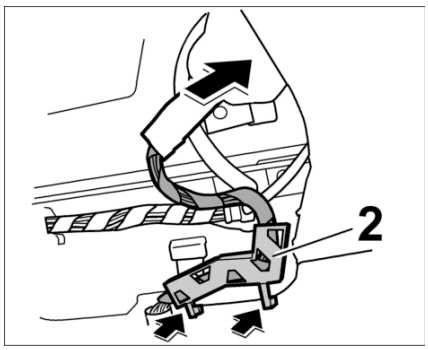
6. Join both covers **-1-** , ensuring that the orientation light is positioned

correctly.



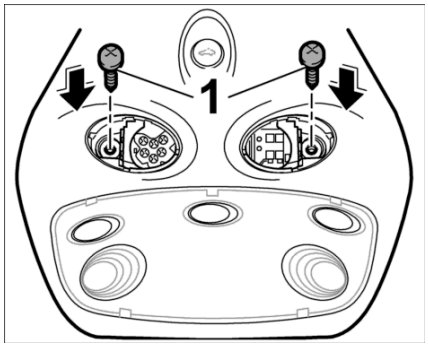
Connecting the plug connection

7. Push the electrical plug connection together **-1-** until the plug is felt to engage.



Wire routing

8. Engage holder **-2-** for the electric wire and push wire in behind the roof liner.



Tightening fastening screws

9. Tighten fastening screws **-1-** and clip in both covers.

997110, 997111, 997120, 997121, 997310, 997311, 997320, 997321, 997410, 997411, 997430, 997431, 997610, 997611, 997620, 997621

as of MY 2005
Country C00, C02, C05, C07, C08, C09, C10, C11, C12, C13, C14, C15, C16, C18, C19, C20, C21, C22, C23, C24, C25, C26, C27, C28, C32, C33, C34, C35, C36, C37, C38, C39, C45, C46, C98, C99

WARNUNG

92 15 19 Removing and installing wiper motor - as of MY 2005

- Preliminary work on wiper motor
- Removing wiper motor
- Installing wiper motor
- Reworking wiper motor

top of page

Preliminary work on wiper motor

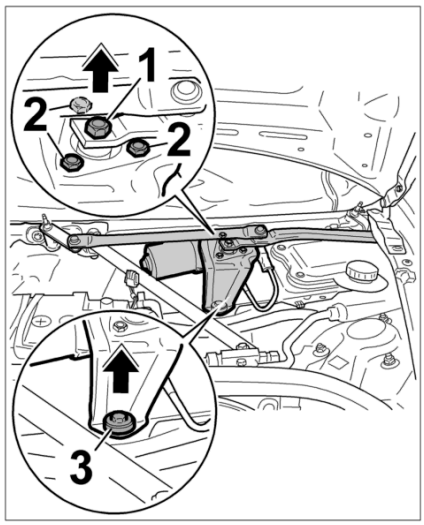
Preliminary work on wiper motor

Disconnect the battery and cover terminal or battery. *271000 Work instructions after disconnecting the battery*
Left plenum chamber cover 852219 Removing and installing cover - chapter on "Removing"

top of page

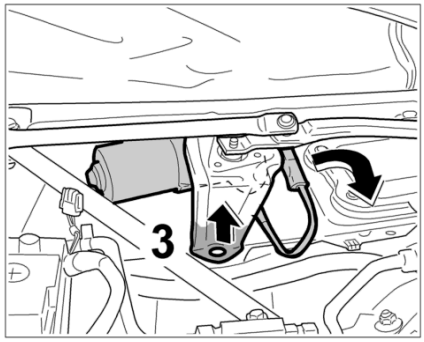
Removing wiper motor

Removing wiper motor



Removing wiper link drive

1. Unscrew the fastening nut **-1-** for the wiper link drive and remove the drive.
2. Unscrew the three fastening screws **-2-** for the wiper motor and the fastening screw **-3-** for the wiper link.



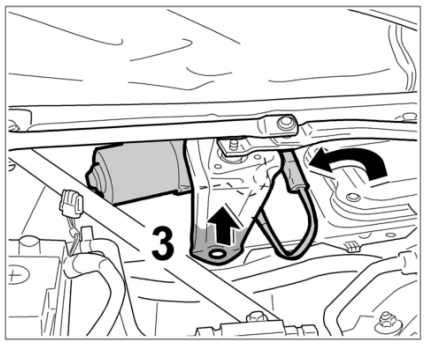
Removing wiper motor in a downward direction

3. Carefully raise the wiper link and remove the wiper motor downwards.
4. Unlock the electric connector a and pull it out of the wiper motor.

top of page

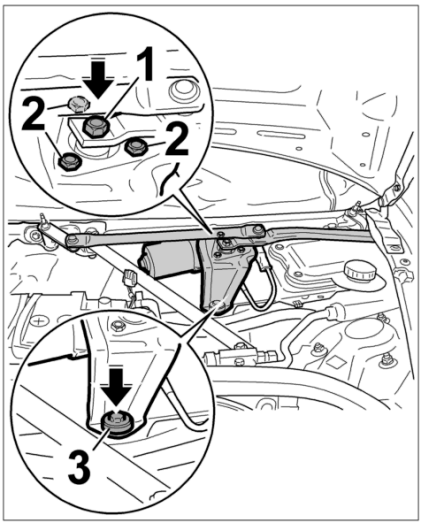
Installing wiper motor

Installing wiper motor



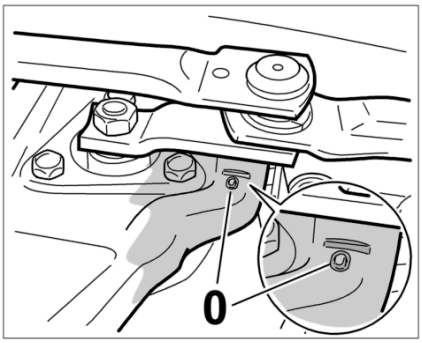
Positioning wiper motor from below

1. Carefully raise the wiper link and position the wiper motor from below.
2. Push electrical connector onto wiper motor until it is felt to engage.



Screwing down wiper motor to wiper link

3. Secure the wiper motor with the three fastening screws **-2-** to the wiper link. **Tightening torque: 6 ftlb.**
4. Screw down the fastening screw **-3-** for the wiper link. **Tightening torque: 7.5 ftlb.**
5. Connect battery, ignition on, and actuate wiper motor.



Installation position for wiper motor drive

6. Allow wiper motor to run in parking position. Place the link on the drive on the wiper motor. Place fastening nuts **-1-** . The installation position of the link is identified by a 0 marking (parking position) on the console.
7. If the position **-0-** matches, then screw down the fastening nut **-1-** . **Tightening torque: 13 ftlb.**
8. Connect the battery .
9. Switch on the wiper motor and check the wiper position.

top of page

Reworking wiper motor

Touching up wiper motor

Left plenum chamber cover 852219 Removing and installing cover - chapter on "Installing"
Carry out work instruction after disconnecting the battery. *271000 Work instructions after disconnecting the battery*

997110, 997111, 997120, 997121, 997310, 997311, 997320, 997321, 997410, 997411, 997430, 997431, 997610, 997611, 997620, 997621

as of MY 2005
Country C00, C02, C05, C07, C08, C09, C10, C11, C12, C13, C14, C15, C16, C18, C19, C20, C21, C22, C23, C24, C25, C26, C27, C28, C32, C33, C34, C35, C36, C37, C38, C39, C45, C46, C98, C99

WARNUNG

Gefahr des Verlusts der Text-Bild-Zuordnung beim Ausdruck.

- **Aus technischen Gründen kann derzeit nicht ausgeschlossen werden, dass trotz einwandfreier Darstellung auf dem Bildschirm beim Ausdruck der Zusammenhang von Text und zugehörigem Bild verloren geht.**
- **Wird der Fehler nicht bemerkt, besteht die Gefahr, daß Arbeiten nicht korrekt durchgeführt werden und es dadurch zu Personen- und Sachschäden kommt.**

Vergleichen Sie deshalb nach dem Druckvorgang unbedingt die Ausdrucke mit der Bildschirmdarstellung. Korrigieren Sie die Ausdrucke im Fehlerfall so, daß der Inhalt der Bildschirmdarstellung zutreffend wiedergegeben wird.

WARNING

Danger of losing text-figure correspondence when printing out.

- **For technical reasons, it can currently not be ruled out that the correspondence between text and associated figure can be lost when it is printed out, even though the display on the screen is correct.**
- **If the fault is not noticed, there is the danger that work will not be performed correctly which can cause injury and damage.**

Therefore, always compare printouts with the screen display after printing them out. Correct the printouts if they are faulty so that the content of the screen display matches that on the printouts.

AVERTISSEMENT

Risque de perte de la correspondance texte-illustration lors de l'impression papier.

- **Pour des raisons techniques, il ne peut pas être exclu à l'heure actuelle que, même en cas d'affichage correct à l'écran, la correspondance entre le texte et l'illustration puisse être erronée sur l'impression papier.**

92 19 19 Removing and installing wiper link - as of MY 2005

- Preliminary work
- Removing wiper link
- Installing wiper link
- Subsequent work

top of page

Preliminary work

Preliminary work on wiper motor

Disconnect the battery and cover terminal or battery. *271000 Work instructions after disconnecting the battery*
Left plenum chamber cover 852219 Removing and installing cover - chapter on "Removing"

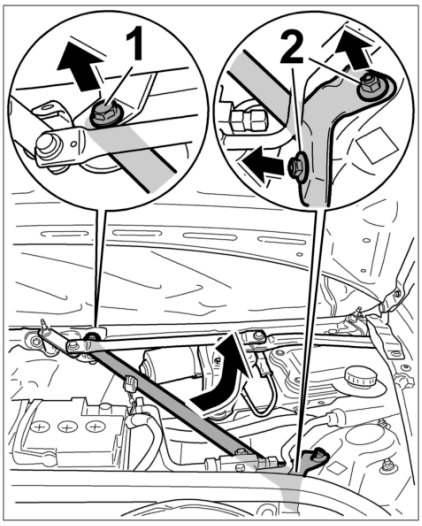
Preliminary work for wiper link

Remove wiper arms. 924119 Removing and installing wiper arm for rear window wiper system - chapter on "Removing"
Removing cowl panel cover. 508719 Removing and installing cowl panel cover - chapter on "removing"

top of page

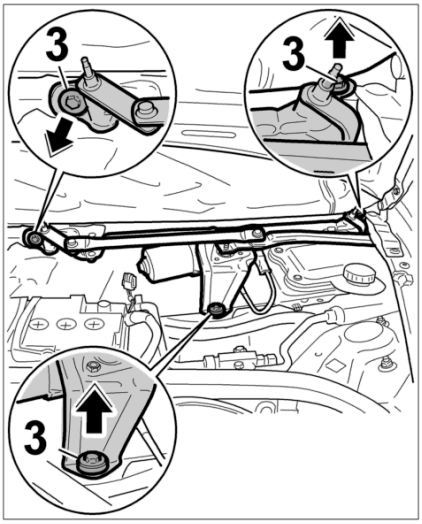
Removing wiper link

Removing wiper link



Dome strut fastening screws

1. Unscrew the fastening screws for the dome strut **-1, 2-** and remove the strut.



Unscrewing fastening screws

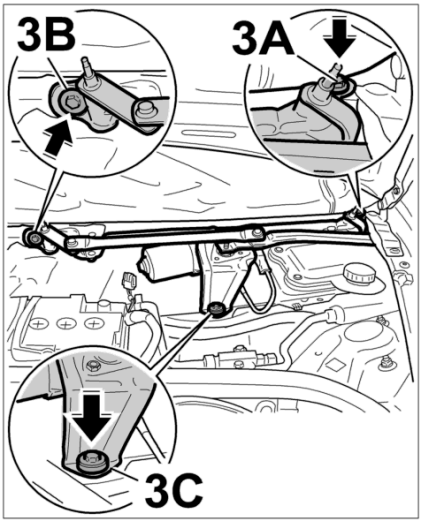
2. Unscrew the three fastening screws **-3-** for the wiper link, release and unplug the electrical plug for the wiper motor.
3. Remove wiper link, if the wiper motor should be removed from the wiper link, then proceed according to Removing and installing wiper motor 921519 Removing and installing wiper motor - chapter on "Removing".

top of page

Installing wiper link

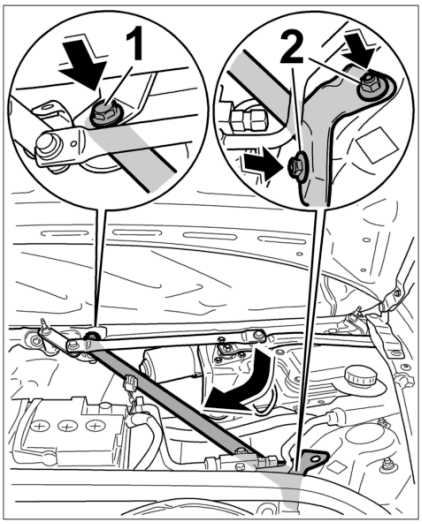
Installing wiper link

1. If necessary, fit the wiper motor to the wiper link. 921519 Removing and installing wiper motor - chapter on "Installing"



Tightening order

2. Position wiper link in radiator tank and screw down the fastening screws **-3A, 3B, 3,C-** in turn.
Tightening torque: 7.5 ftlb.



Installing dome strut

3. Lowre vehicle onto the wheels, position dome strut and screw down with the fastening screws **-1, 2-**.
Tightening torque: 7 ftlb. **Tightening torque: 17 ftlb.**

top of page

Subsequent work

Reworking wiper link

__ 508719 Removing and installing cowl panel cover - chapter on "Installing"
Left plenum chamber cover __ 852219 Removing and installing cover - chapter on "Installing"
__ 922519 Removing and installing wiper arm - chapter on "installing"
Connect battery. *271000 Work instructions after disconnecting the battery*

997110, 997111, 997120, 997121, 997310, 997311, 997320, 997321, 997410, 997411, 997430, 997431, 997610, 997611, 997620, 997621

as of MY 2005
Country C00, C02, C05, C07, C08, C09, C10, C11, C12, C13, C14, C15, C16, C18, C19, C20, C21, C22, C23, C24, C25, C26, C27, C28, C32, C33, C34, C35, C36, C37, C38, C39, C45, C46, C98, C99

WARNUNG

Gefahr des Verlusts der Text-Bild-Zuordnung beim Ausdruck.

- **Aus technischen Gründen kann derzeit nicht ausgeschlossen werden, dass trotz einwandfreier Darstellung auf dem Bildschirm beim Ausdruck der Zusammenhang von Text und zugehörigem Bild verloren geht.**
- **Wird der Fehler nicht bemerkt, besteht die Gefahr, daß Arbeiten nicht korrekt durchgeführt werden und es dadurch zu Personen- und Sachschäden kommt.**

Vergleichen Sie deshalb nach dem Druckvorgang unbedingt die Ausdrucke mit der Bildschirmdarstellung. Korrigieren Sie die Ausdrucke im Fehlerfall so, daß der Inhalt der Bildschirmdarstellung zutreffend wiedergegeben wird.

WARNING

Danger of losing text-figure correspondence when printing out.

- **For technical reasons, it can currently not be ruled out that the correspondence between text and associated figure can be lost when it is printed out, even though the display on the screen is correct.**
- **If the fault is not noticed, there is the danger that work will not be performed correctly which can cause injury and damage.**

Therefore, always compare printouts with the screen display after printing them out. Correct the printouts if they are faulty so that the content of the screen display matches that on the printouts.

AVERTISSEMENT

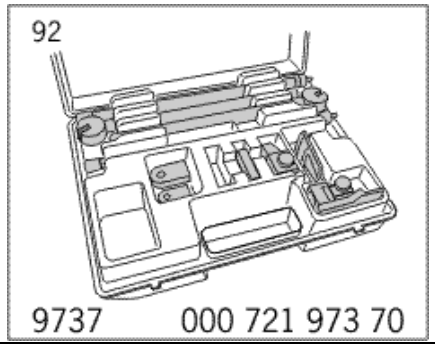
Risque de perte de la correspondance texte-illustration lors de l'impression papier.

- **Pour des raisons techniques, il ne peut pas être exclu à l'heure actuelle que, même en cas d'affichage correct à l'écran, la correspondance entre le texte et l'illustration puisse être erronée sur l'impression papier.**

92 25 15 Adjusting wiper arm attack angle - as of MY 2005

- Preliminary work
- Adjusting wiper arm
- Subsequent work

Tools

Designation	Type	Number	Explanation	
Adjustment device	special tool	9737		

top of page

Preliminary work

Preliminary work for adjusting wiper arm attack angle

Note

The wiper arm attack angle will need to be checked and adjusted if the customer complains of: rubbing or hesitation of wiper, noises when wiping or uneven wiping area.
It is important that the wiper blades are inspected for wear and the windscreen is free of contamination.

1. Check condition of windscreen and clean off any contamination.
2. Remove wiper blade. 922719 Removing and installing wiper blade - chapter on "Removing"
3. Inspect condition of wiper blade and replace if necessary.

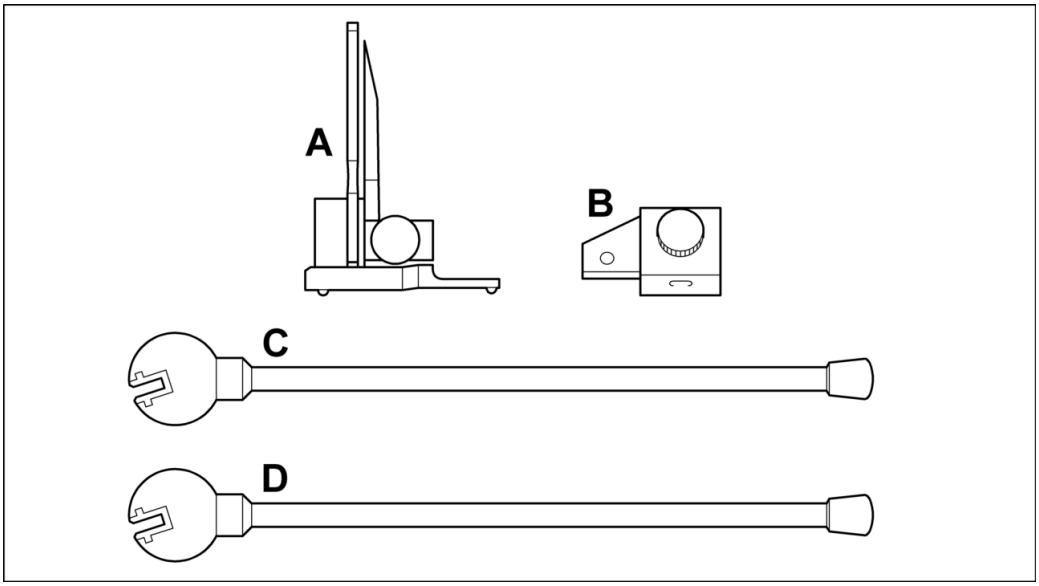
top of page

Adjusting wiper arm

Adjusting wiper arm attack angle

Special tools: **Adjustment device 9737**

Installation Location:



Tools overview

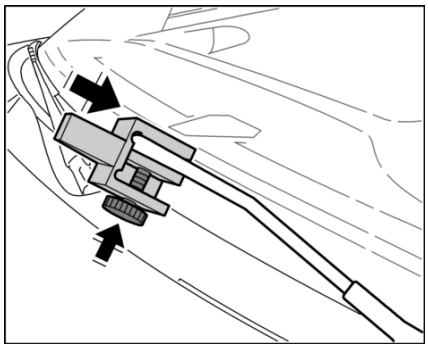
A - Angle measuring device
B - Adapter
C - Angle adjusting tool - holder
D - Angle adjusting tool - arm bracket

Note
Wiper system must be in the parking position. Before starting work, allow the wiper system to run 2 - 3 times with water spray.

WARNING
Unexpected switching on of wiper system while working on the wiper arms.

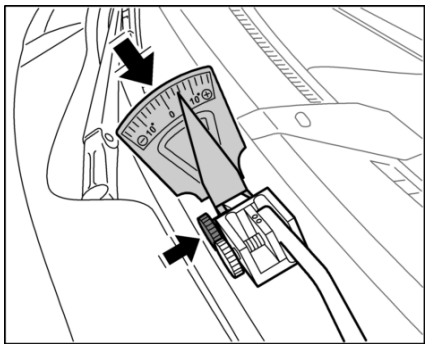
- **Danger of trapping from wiper arms.**

Switch off ignition and remove ignition key.



Screw adapter onto wiper arm

1. Fit adapter **-B-** for the sports car flush on the wiper and tighten with the knurled screw.

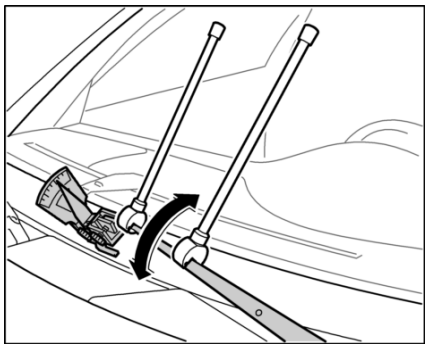


Screwing angle measuring device to adapter

2. Mount the angle measuring device **-A-** on the adapter and tighten with the knurled screw.
3. Read off wiper arm attack angle using the angle measuring device and compare with the nominal values.

Wiper position	Nominal angle	Tolerance
Parking position on driver's side	+ 5°	+/- 2°
Parking position on passenger's side	+ 3°	+/- 2°

4. If the nominal values are not achieved, the wiper arm must be adjusted using the two adjusting tools.



Adjusting wiper arm angle to nominal value

5. Mount both adjusting tools on the wiper arm and adjust the angle to the nominal value by turning the front adjusting tool.

top of page

Subsequent work

Subsequent work for adjusting wiper arm attack angle

1. Install wiper blade. 922719 Removing and installing wiper blade - chapter on "Installing"
2. Check wiper function of wiper system.

997110, 997111, 997120, 997121, 997310, 997311, 997320, 997321, 997410, 997411, 997430, 997431, 997610, 997611, 997620, 997621

as of MY 2005
Country C00, C02, C05, C07, C08, C09, C10, C11, C12, C13, C14, C15, C16, C18, C19, C20, C21, C22, C23, C24, C25, C26, C27, C28, C32, C33, C34, C35, C36, C37, C38, C39, C45, C46, C98, C99

WARNUNG

Gefahr des Verlusts der Text-Bild-Zuordnung beim Ausdruck.

- **Aus technischen Gründen kann derzeit nicht ausgeschlossen werden, dass trotz einwandfreier Darstellung auf dem Bildschirm beim Ausdruck der Zusammenhang von Text und zugehörigem Bild verloren geht.**
- **Wird der Fehler nicht bemerkt, besteht die Gefahr, daß Arbeiten nicht korrekt durchgeführt werden und es dadurch zu Personen- und Sachschäden kommt.**

Vergleichen Sie deshalb nach dem Druckvorgang unbedingt die Ausdrucke mit der Bildschirmdarstellung. Korrigieren Sie die Ausdrucke im Fehlerfall so, daß der Inhalt der Bildschirmdarstellung zutreffend wiedergegeben wird.

WARNING

Danger of losing text-figure correspondence when printing out.

- **For technical reasons, it can currently not be ruled out that the correspondence between text and associated figure can be lost when it is printed out, even though the display on the screen is correct.**
- **If the fault is not noticed, there is the danger that work will not be performed correctly which can cause injury and damage.**

Therefore, always compare printouts with the screen display after printing them out. Correct the printouts if they are faulty so that the content of the screen display matches that on the printouts.

AVERTISSEMENT

92 25 19 Removing and installing wiper arm - as of MY 2005

- Removing wiper arm
- Installing wiper arm

top of page

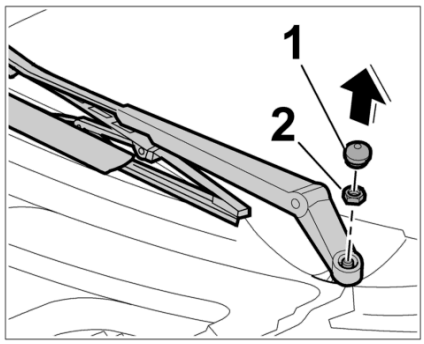
Removing wiper arm

Removing wiper arm

WARNING

Danger of trapping and injury due to uncontrolled activation of wiper arms when fitting.

Switch off ignition and remove ignition key.



Removing caps and fastening nuts

1. Remove caps **-1-** and unscrew the fastening nuts **-2-** .
2. Push wiper arm down at the joint and pull off the wiper link.

top of page

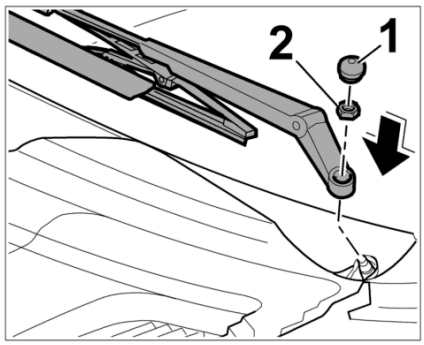
Installing wiper arm

Installing wiper arm

WARNING

Danger of trapping and injury due to uncontrolled activation of wiper arms when fitting.

Switch off ignition and remove ignition key.



Screw tight wiper arm

1. Position wiper arm on wiper link, align, and screw tight using the fastening nuts **-2-** . **Tightening torque: 16 ftlb. +/-1.6 ftlb.**
2. Attach and press down cap **-1-** until it is heard to engage.
3. Start wiper, observe wiping area and wiper rest, re-adjust wiper arms again if necessary.

997110, 997111, 997120, 997121, 997310, 997311, 997320, 997321, 997410, 997411, 997430, 997431, 997610, 997611, 997620, 997621

as of MY 2005
Country C00, C02, C05, C07, C08, C09, C10, C11, C12, C13, C14, C15, C16, C18, C19, C20, C21, C22, C23, C24, C25, C26, C27, C28, C32, C33, C34, C35, C36, C37, C38, C39, C45, C46, C98, C99

WARNUNG

Gefahr des Verlusts der Text-Bild-Zuordnung beim Ausdruck.

- **Aus technischen Gründen kann derzeit nicht ausgeschlossen werden, dass trotz einwandfreier Darstellung auf dem Bildschirm beim Ausdruck der Zusammenhang von Text und zugehörigem Bild verloren geht.**
- **Wird der Fehler nicht bemerkt, besteht die Gefahr, daß Arbeiten nicht korrekt durchgeführt werden und es dadurch zu Personen- und Sachschäden kommt.**

Vergleichen Sie deshalb nach dem Druckvorgang unbedingt die Ausdrucke mit der Bildschirmdarstellung. Korrigieren Sie die Ausdrucke im Fehlerfall so, daß der Inhalt der Bildschirmdarstellung zutreffend wiedergegeben wird.

92 27 19 Removing and installing wiper blade - as of MY 2005

- Removing wiper blade
- Installing wiper blade

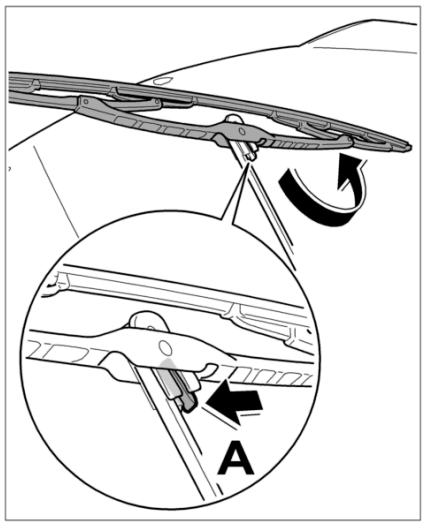
top of page

Removing wiper blade

Removing wiper blade

WARNING
Danger of trapping and injury due to uncontrolled activation of wiper arms when fitting.

Switch off ignition and remove ignition key.



Releasing wiper arm

1. Raise wiper arm, release holder **-A-** and remove wiper blade by sliding it downwards and to the side.

top of page

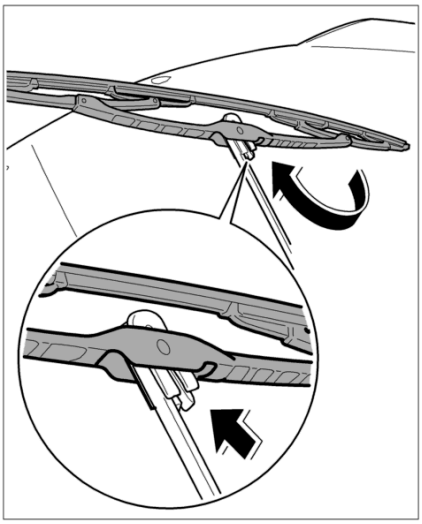
Installing wiper blade

Installing wiper blade

WARNING

Danger of trapping and injury due to uncontrolled activation of wiper arms when fitting.

Switch off ignition and remove ignition key.



Sliding in wiper arm

1. Slide wiper blade in from the side and engage in the wiper arm.
2. Lower wiper arm and check wiper function.

997110, 997111, 997120, 997121, 997310, 997311, 997320, 997321, 997410, 997411, 997430, 997431, 997610, 997611, 997620, 997621

as of MY 2005
Country C00, C02, C05, C07, C08, C09, C10, C11, C12, C13, C14, C15, C16, C18, C19, C20, C21, C22, C23, C24, C25, C26, C27, C28, C32, C33, C34, C35, C36, C37, C38, C39, C45, C46, C98, C99

WARNUNG

Gefahr des Verlusts der Text-Bild-Zuordnung beim Ausdruck.

- **Aus technischen Gründen kann derzeit nicht ausgeschlossen werden, dass trotz einwandfreier Darstellung auf dem Bildschirm beim Ausdruck der**

92 34 19 Removing and installing wiper motor for rear window washer - as of MY 2005

- Preliminary work
- Removing wiper motor for rear window washer
- Installing wiper motor for rear window washer
- Subsequent work

top of page

Preliminary work

Preliminary work for wiper motor for rear window wiper system

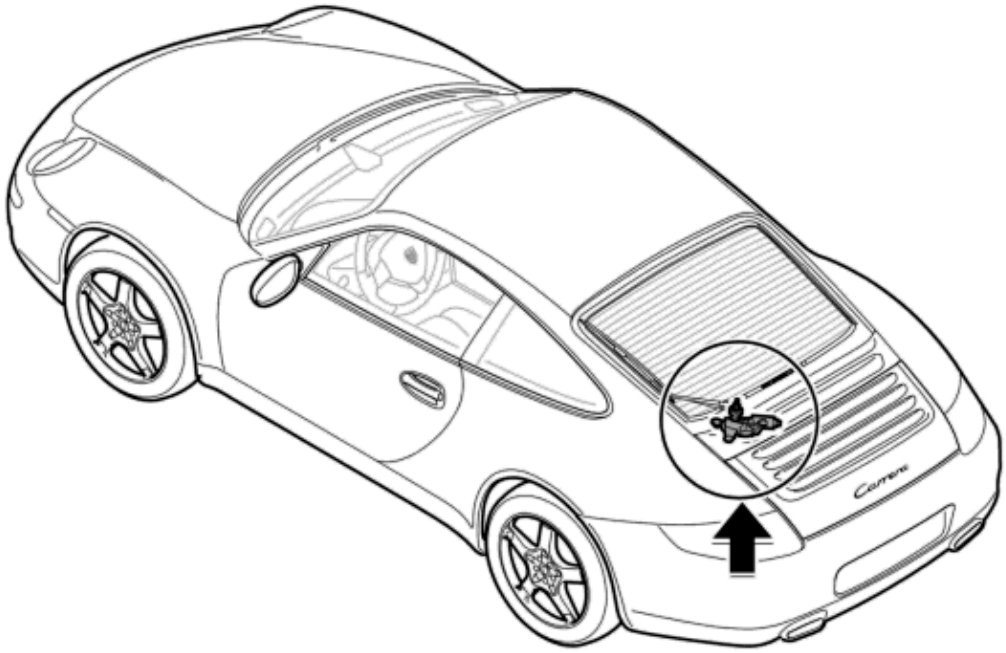
Remove lining for rear lid. *708719 21 Removing and installing rear lid lining - chapter on "removing"*
Remove wiper arm for rear window wiper system. 924119 Removing and installing wiper arm for rear window wiper system - chapter on "Removing"

top of page

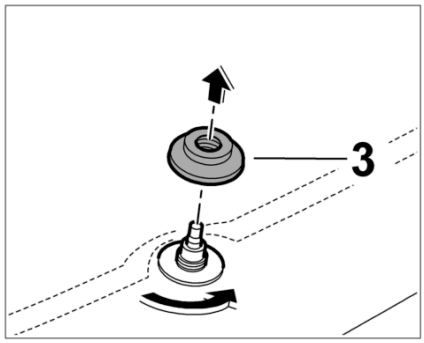
Removing wiper motor for rear window washer

Removing wiper arm for rear window wiper system

Installation Location:

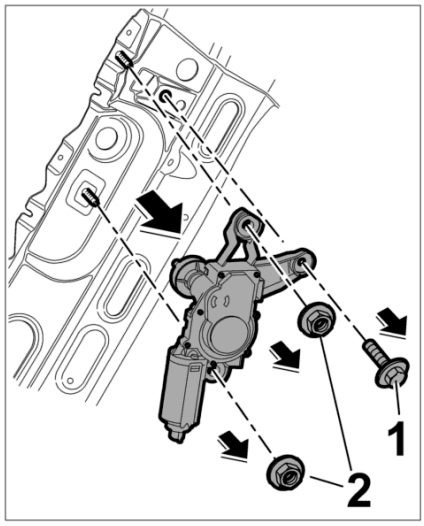


Installation position



Unscrewing grommet

1. After removing the wiper arm, unscrew the grommet **-3-** from the wiper arm drive to the right.



Unscrewing the fastening screw and the fastening nuts

2. Unscrew the fastening screw **-1-** and the fastening nuts **-2-** .
3. Take out wiper motor, release and unplug the electrical plug.
4. Take out the wiper motor.

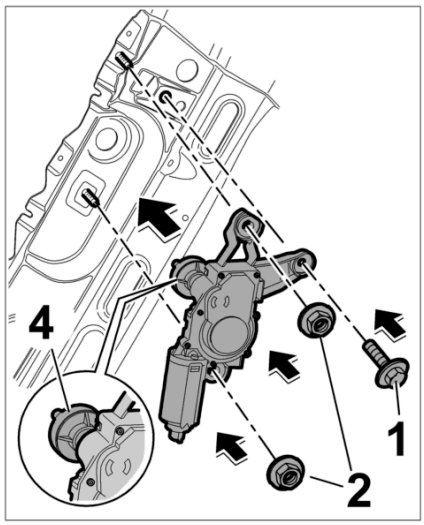
top of page

Installing wiper motor for rear window washer

Installing the wiper motor for rear window wiper system

Note

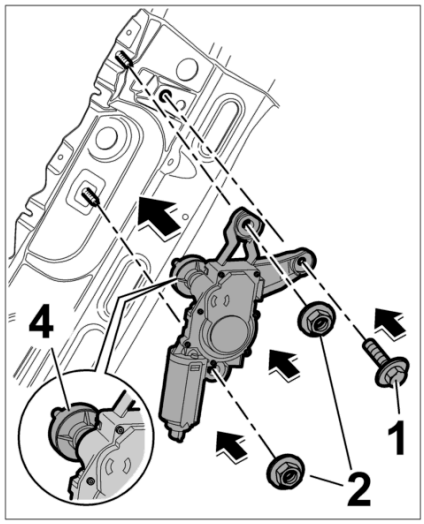
If a previously installed wiper motor is installed "again", the sealing ring/foam part **-4-** must be replaced due to water leakage.



Sealing ring/foam part

The drive for the wiper arm must be uniformly spaced from the rear window.

1. Position the wiper motor in the vehicle, while making sure that the drive for the wiper arm must be uniformly spaced from the rear window.
2. Plug in the electric connector on the wiper motor until it clicks into place.

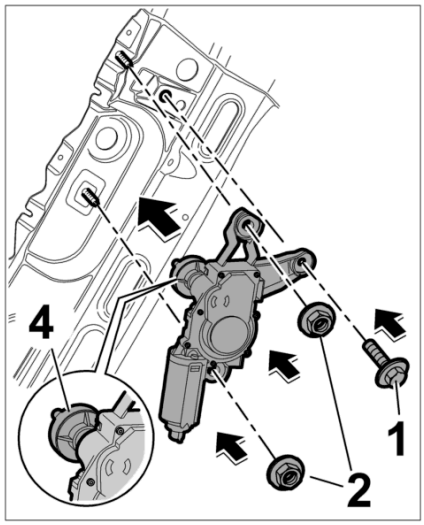


Positioning and screwing down wiper motor

3. Screw down the wiper motor using the fastening screw **-1-** and the fastening nuts **-2-** . **Tightening torque: 6 ftlb.** **Tightening torque: 6 ftlb.**

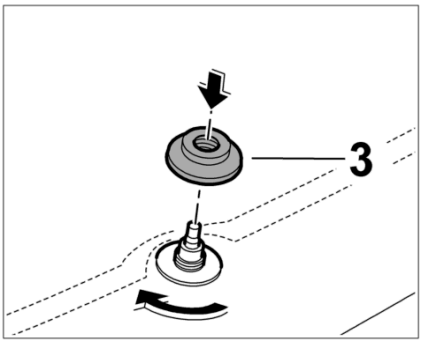
Note

If a previously installed wiper motor is installed "again", the sealing ring/foam part **-4-** must be replaced due to water leakage.



Sealing ring/foam part

The drive for the wiper arm must be uniformly spaced from the rear window.



Tighten grommet

4. Turn the grommet **-3-** on the drive for the wiper arm.
5. Actuate the wiper motor at least once and allow to run until it stops.

top of page

Subsequent work

Reworking for wiper motor for rear window wiper system

Install trim panel for rear lid. *708719 Removing and installing trim panel for rear lid.*
Install wiper arm for rear window wiper system. 924119 Removing and installing wiper arm for rear window wiper system - chapter on "Installing"

997110, 997111, 997120, 997121, 997310, 997311, 997320, 997321, 997410, 997411, 997430, 997431, 997610, 997611, 997620, 997621

as of MY 2005
Country C00, C02, C05, C07, C08, C09, C10, C11, C12, C13, C14, C15, C16, C18, C19, C20, C21, C22, C23, C24, C25, C26, C27, C28, C32, C33, C34, C35, C36, C37, C38, C39, C45, C46, C98, C99

WARNUNG

Gefahr des Verlusts der Text-Bild-Zuordnung beim Ausdruck.

- **Aus technischen Gründen kann derzeit nicht ausgeschlossen werden, dass trotz einwandfreier Darstellung auf dem Bildschirm beim Ausdruck der Zusammenhang von Text und zugehörigem Bild verloren geht.**
- **Wird der Fehler nicht bemerkt, besteht die Gefahr, daß Arbeiten nicht korrekt durchgeführt werden und es dadurch zu Personen- und Sachschäden kommt.**

Vergleichen Sie deshalb nach dem Druckvorgang unbedingt die Ausdrucke mit der Bildschirmdarstellung. Korrigieren Sie die Ausdrucke im Fehlerfall so, daß der Inhalt der Bildschirmdarstellung zutreffend wiedergegeben wird.

92 41 19 Removing and installing wiper arm for rear window washer - as of MY 2005

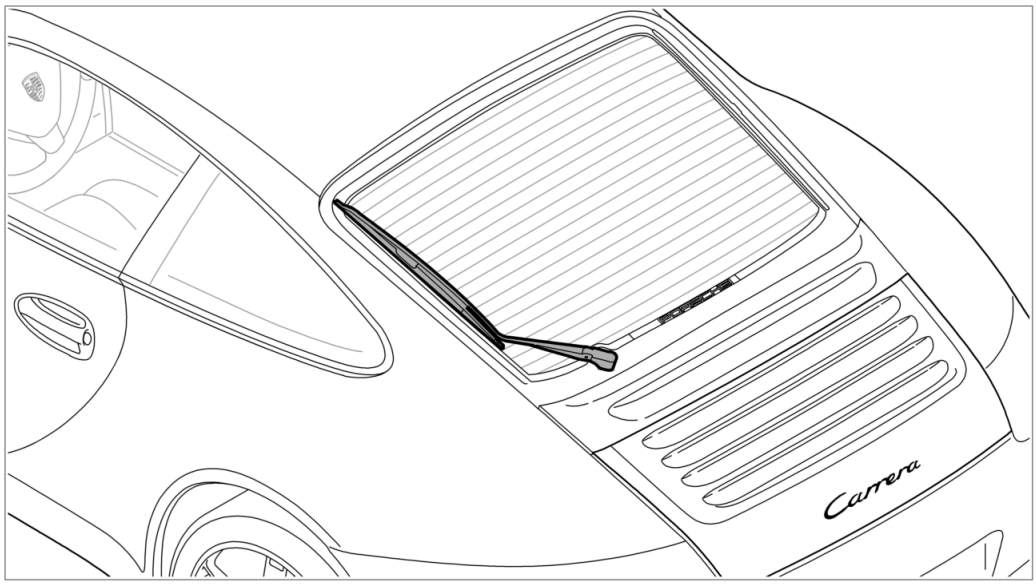
- Removing wiper arm for rear window washer system
- Installing wiper arm for rear window washer system

top of page

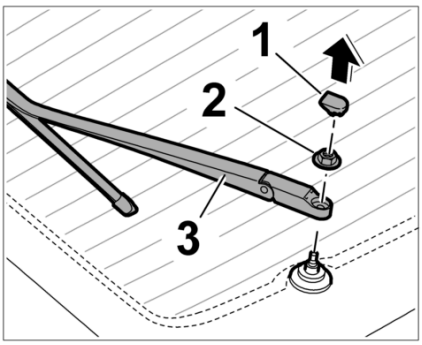
Removing wiper arm for rear window washer system

Removing wiper arm for rear window washer system

Installation Location:



Installation position



Removing wiper arm

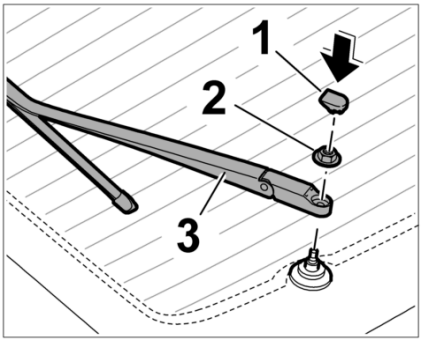
1. Pull cover **-1-** up and off.

2. Unscrew the fastening nut **-2-** .
3. Press wiper arm **-3-** down at joint and pull down from the wiper motor drive.

top of page

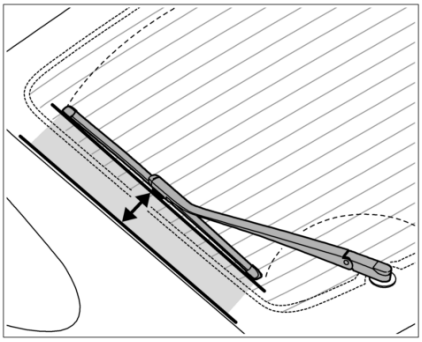
Installing wiper arm for rear window washer system

Installing wiper arm for rear window washer system



Fitting wiper arm

1. Position wiper arm **-3-** on the wiper motor drive and do up the fastening nut **-2-** by hand.



Aligning wiper arm

2. Adjust the wiper arm so that the wiper blade is parallel to the roof frame.
3. Screw on fastening nut **-2-** and push on the cover **-1-** . **Tightening torque: 14 ftlb.**
4. Actuate wiper motor of the rear window washer system, allow it to come to rest and check the position of the wiper arm once more.

997110, 997111, 997120, 997121, 997310, 997311, 997320, 997321, 997410, 997411, 997430, 997431, 997610, 997611, 997620, 997621

as of MY 2005

92 43 19 Removing and installing wiper blade for rear window washer - as of MY 2005

- Removing wiper blade for rear window washer system
- Installing wiper blade for rear window washer system

top of page

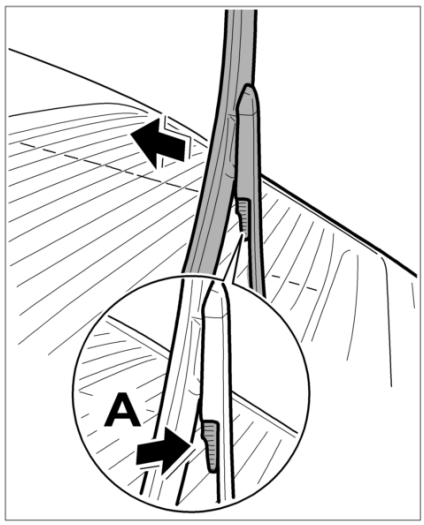
Removing wiper blade for rear window washer system

Removing wiper blade for rear window washer system

WARNING

Danger of trapping and injury due to uncontrolled activation of wiper arms when fitting.

Switch off ignition and remove ignition key.



Releasing wiper blade

1. Raise wiper arm and release and disengage wiper blade **-A-** .

top of page

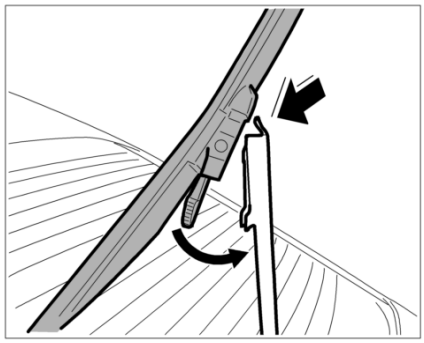
Installing wiper blade for rear window washer system

Installing wiper blade for rear window washer system

WARNING

Danger of trapping and injury due to uncontrolled activation of wiper arms when fitting.

Switch off ignition and remove ignition key.



Engaging wiper blade

1. Insert the wiper blade in the wiper arm until it engages.

997110, 997111, 997120, 997121, 997410, 997411, 997430, 997431

as of MY 2005
Country C00, C02, C05, C07, C08, C09, C10, C11, C12, C13, C14, C15, C16, C18, C19, C20, C21, C22, C23, C24, C25, C26, C27, C28, C32, C33, C34, C35, C36, C37, C38, C39, C45, C46, C98, C99

WARNUNG

Gefahr des Verlusts der Text-Bild-Zuordnung beim Ausdruck.

- **Aus technischen Gründen kann derzeit nicht ausgeschlossen werden, dass trotz einwandfreier Darstellung auf dem Bildschirm beim Ausdruck der Zusammenhang von Text und zugehörigem Bild verloren geht.**
- **Wird der Fehler nicht bemerkt, besteht die Gefahr, daß Arbeiten nicht korrekt durchgeführt werden und es dadurch zu Personen- und Sachschäden kommt.**

Vergleichen Sie deshalb nach dem Druckvorgang unbedingt die Ausdrucke mit der Bildschirmdarstellung. Korrigieren Sie die Ausdrucke im Fehlerfall so, daß der Inhalt der Bildschirmdarstellung zutreffend wiedergegeben wird.

92 56 19 Removing and installing pump for windscreen washer system - as of MY 2005

- Preliminary work
- Removing pump for windscreen washer system
- Installing pump for windscreen washer system
- Subsequent work

Tools

Designation	Type	Number	Explanation	
removal tool, universal	commercially available tool	NR.21		

top of page

Preliminary work

Preliminary work

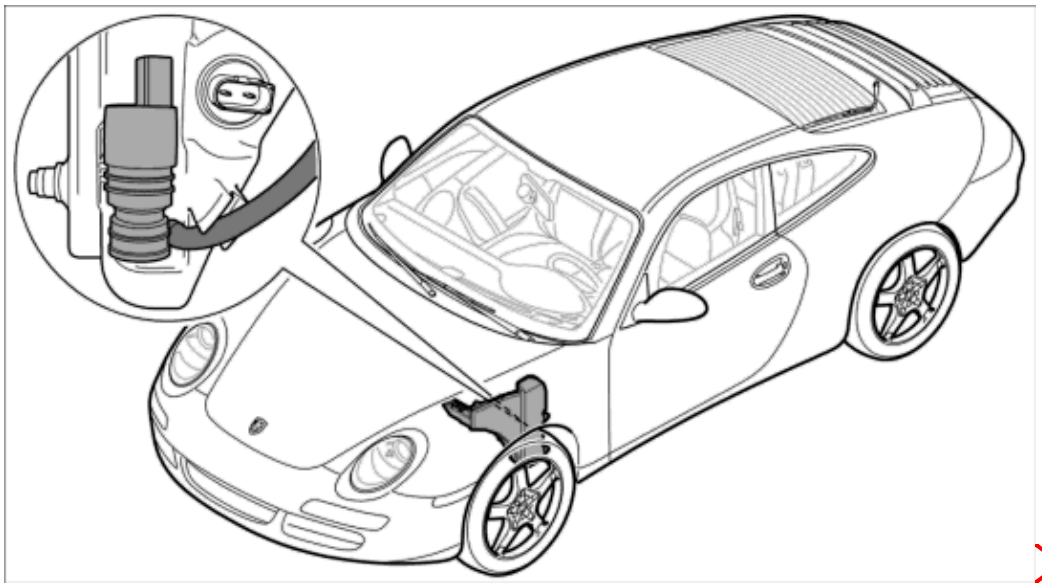
Remove tank for windscreen washer system. *21 Removing and installing tank for windscreen washer system - chapter on "Removing"*

top of page

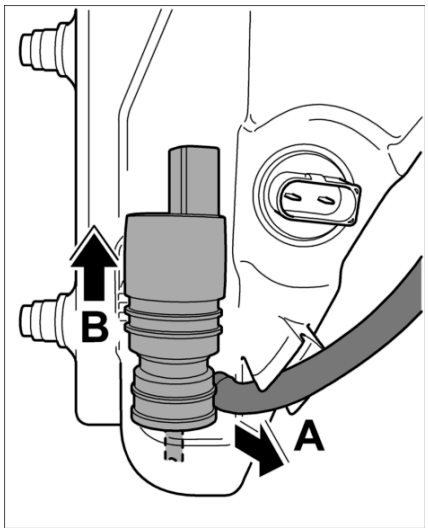
Removing pump for windscreen washer system

Removing pump for windscreen washer system

Installation Location:



Overview of pump for windscreen washer system

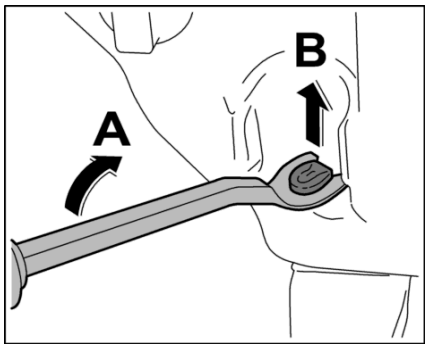


Removing pump for windscreen washer system

Note

- *A tight hose can be pulled off more easily if it is heated with a hot-air gun!*

1. Pull the water pipe off the pump for the windscreen washer system **-arrow A-** .
2. Pull the pump for the windscreen washer system upwards out of the tank **-arrow B-** .



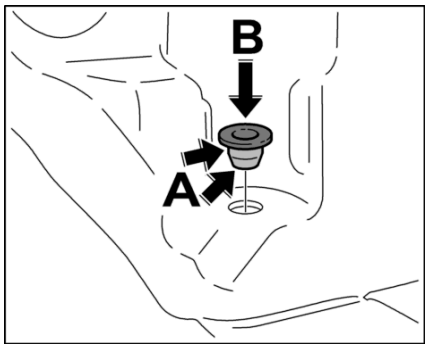
Levering out the rubber seal

3. Use the **removal tool, universal NR.21** to lever the rubber seal out of the tank **-arrow A-** and remove it **-arrow B-** .

top of page

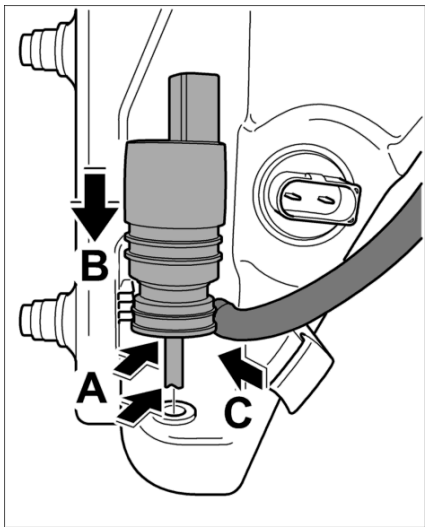
Installing pump for windscreen washer system

Installing pump for windscreen washer system



Fitting rubber seal

1. Apply a suitable rubber lubricant (tyre mounting paste) to the sealing surface **-arrows A-** and press the rubber seal into the tank **-arrow B-** until it is felt to engage.



Installing pump for windscreen washer system

2. Apply a suitable rubber lubricant (tyre mounting paste) to the sealing surface **-arrows A-** and press the pump for the windscreen washer system into the rubber seal **-arrow B-** until the pump is felt to engage.
3. Connect the water pipe to the connections at the pump for the windscreen washer system **-arrow C-** .

top of page

Subsequent work

Subsequent work

Install tank for windscreen washer system. *23 Removing and installing tank for windscreen washer system - chapter on "Installing"*

997110, 997111, 997120, 997121, 997310, 997311, 997320, 997321, 997410, 997411, 997430, 997431, 997610, 997611, 997620, 997621

as of MY 2005
Country C00, C02, C05, C07, C08, C09, C10, C11, C12, C13, C14, C15, C16, C18, C19, C20, C21, C22, C23, C24, C25, C26, C27, C28, C32, C33, C34, C35, C36, C37, C38, C39, C45, C46, C98, C99

WARNUNG

Gefahr des Verlusts der Text-Bild-Zuordnung beim Ausdruck.

- **Aus technischen Gründen kann derzeit nicht ausgeschlossen werden, dass trotz einwandfreier Darstellung auf dem Bildschirm beim Ausdruck der Zusammenhang von Text und zugehörigem Bild verloren geht.**
- **Wird der Fehler nicht bemerkt, besteht die Gefahr, daß Arbeiten nicht korrekt durchgeführt werden und es dadurch zu Personen- und Sachschäden kommt.**

92 60 19 Removing and installing reservoir for windscreen washer system - as of MY 2005

- Preliminary work
- Removing reservoir for windscreen washer system
- Installing reservoir for windscreen washer system
- Subsequent work

top of page

Preliminary work

Preliminary work - tank for windscreen washer system

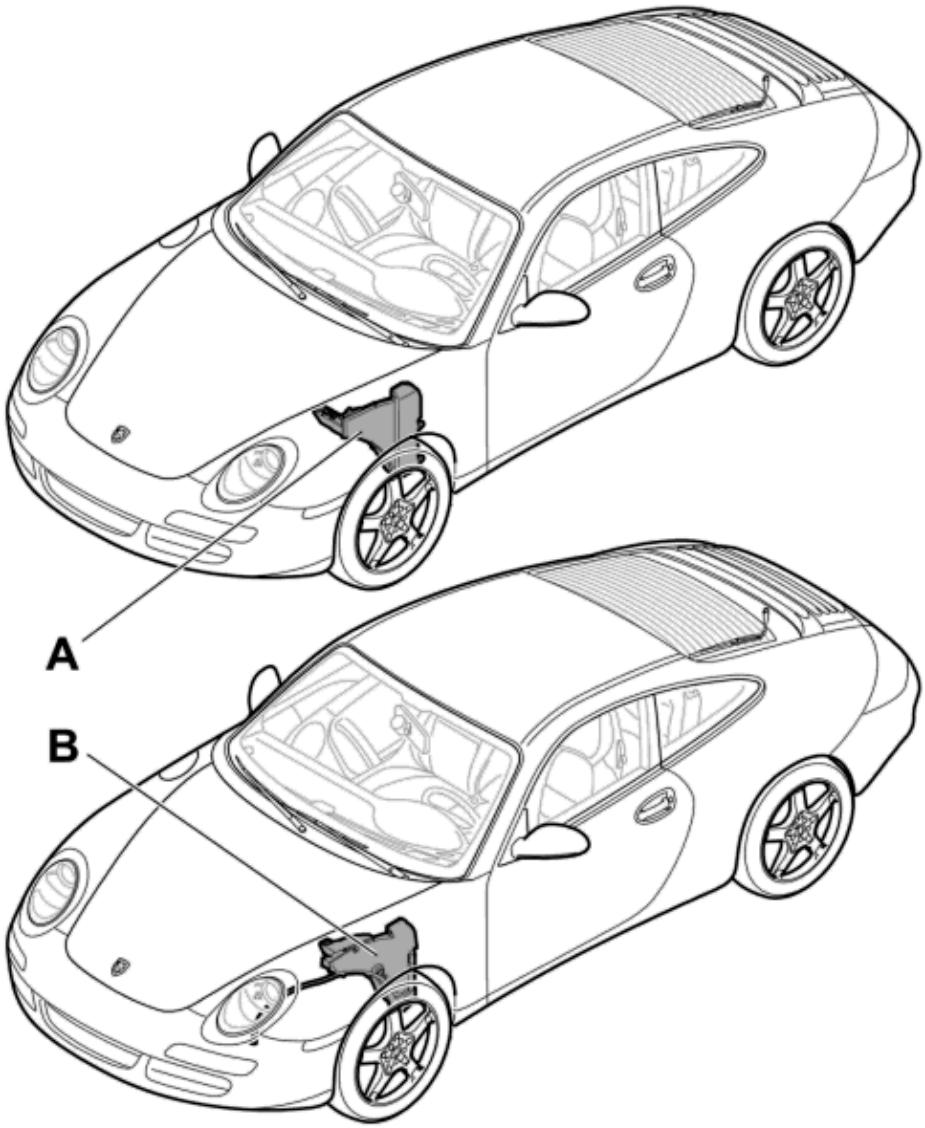
Remove front left wheel. 440519 Removing and installing wheel - chapter on "removing"
Remove front left wheel housing liner. 505619 Removing and installing front wheel housing liner - chapter on "removing" [997110 997111 997120 997121 997310 997311 997320 997321] 505619 Removing and installing front wheel housing liner - chapter on "removing" [997621] 505619 Removing and installing front wheel housing liner - chapter on "removing" [997410 997411 997430 997431 997610 997611 997620]
Remove cover of plenum chamber on left. 852219 Removing and installing cover - chapter on "removing"
Drain windscreen washer water with the pump for windscreen or headlights. If this does not function, the filled tank be removed.

top of page

Removing reservoir for windscreen washer system

Removing tank for windscreen washer system

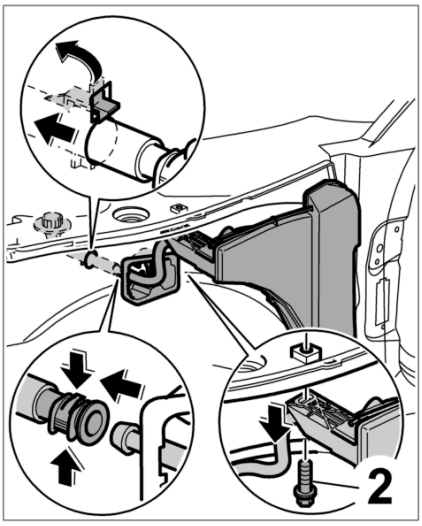
Installation Location:



Installation position

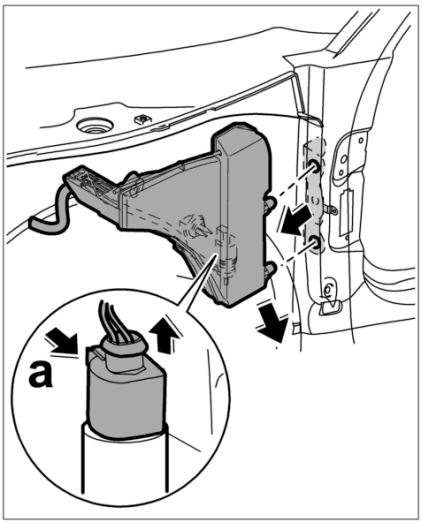
A - 2.5 l tank

B - 6.5 l tank (M288)



Removing tank

1. Lift lever on water filler neck and pull out the filler neck.
2. Release water connection for the windscreen washer spray nozzles and pull apart.
3. Release water connection for the headlight washer spray nozzles and pull apart.
4. Unscrew fastening screw **-2-** and pull the tank from the mounting point on the A-pillar.



Removing tank from the A-pillar and disconnecting the electrical plug connections

5. Release the electrical plugs **-a-** and pull them off.

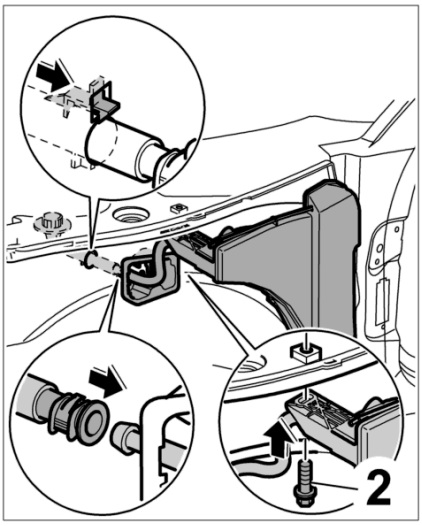
top of page

Installing reservoir for windscreen washer system

Installing tank for windscreen washer system

Connecting the plugs and engaging the tank at the A-pillar

1. Retain the tank in the wheel housing and push in electrical plug connections until plugs are felt to engage.



Installing tank:

2. Engage the windscreen washer tank in the A-pillar and secure with the fastening screw **-2-** .
   Tightening torque: 15 ftlb.
3. Engage the electrical leads in the windscreen washer tank.
4. Connect water connection for the windscreen washer spray nozzles.
5. Connect water connection for the headlight washer spray nozzles.
6. Route and engage the water lines to the tank.

top of page

Subsequent work

Subsequent work - tank for windscreen washer system

Install front left wheel housing liner. 505619 Removing and installing front wheel housing liner - chapter on "installing" [997110 997111 997120 997121 997310 997311 997320 997321] 505619 Removing and installing front wheel housing liner - chapter on "installing" [997621] 505619 Removing and installing front wheel housing liner - chapter on "installing" [997410 997411 997430 997431 997610 997611 997620]
Install front left wheel. 440519 Removing and installing wheel - chapter on "installing"
Install cover of plenum chamber on left. 852219 Removing and installing cover - chapter on "installing"

997110, 997111, 997120, 997121, 997310, 997311, 997320, 997321, 997410, 997411, 997430, 997431, 997610, 997611, 997620, 997621

as of MY 2005
Country C00, C02, C05, C07, C08, C09, C10, C11, C12, C13, C14, C15, C16, C18, C19, C20, C21, C22, C23, C24, C25, C26, C27, C28, C32, C33, C34, C35, C36, C37, C38, C39, C45, C46, C98, C99

WARNUNG

Gefahr des Verlusts der Text-Bild-Zuordnung beim Ausdruck.

- **Aus technischen Gründen kann derzeit nicht ausgeschlossen werden, dass trotz einwandfreier Darstellung auf dem Bildschirm beim Ausdruck der Zusammenhang von Text und zugehörigem Bild verloren geht.**
- **Wird der Fehler nicht bemerkt, besteht die Gefahr, daß Arbeiten nicht korrekt durchgeführt werden und es dadurch zu Personen- und Sachschäden kommt.**

Vergleichen Sie deshalb nach dem Druckvorgang unbedingt die Ausdrucke mit der Bildschirmdarstellung. Korrigieren Sie die Ausdrucke im Fehlerfall so, daß der Inhalt der Bildschirmdarstellung zutreffend wiedergegeben wird.

WARNING

Danger of losing text-figure correspondence when printing out.

- **For technical reasons, it can currently not be ruled out that the correspondence between text and associated figure can be lost when it is printed out, even though the display on the screen is correct.**
- **If the fault is not noticed, there is the danger that work will not be performed correctly which can cause injury and damage.**

Therefore, always compare printouts with the screen display after printing them out. Correct the printouts if they are faulty so that the content of the screen display matches that on the printouts.

AVERTISSEMENT

Risque de perte de la correspondance texte-illustration lors de l'impression papier.

92 66 19 Removing and installing spray nozzle for windscreen washer system - as of MY 2005

- Preliminary work
- Removing spray nozzle for windscreen washer system
- Installing spray nozzle for windscreen washer system
- Subsequent work

top of page

Preliminary work

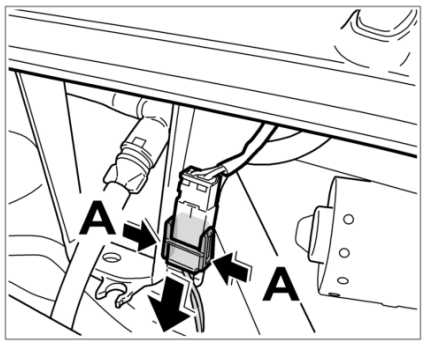
Preliminary work for windscreen-washer spray nozzle

Remove battery cover.
Remove left and right plenum panel cover. 852219 Removing and installing cover - "Removing" section

top of page

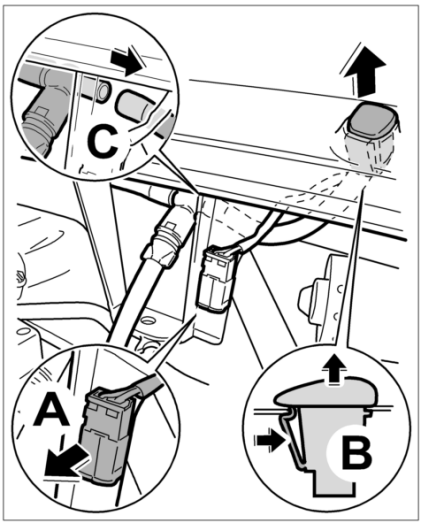
Removing spray nozzle for windscreen washer system

Removing spray nozzle for windscreen washer system



Releasing electric plug connection

1. Release electric plug connection, e.g. for left spray nozzle **-A-** and pull it apart.



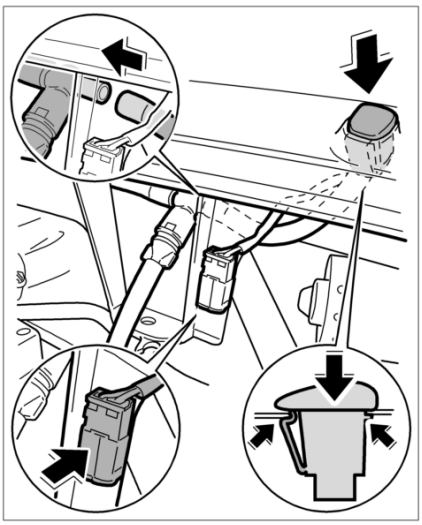
Removing spray nozzle

2. **-A-** Release electric connector on cowl panel cover and push it down.
3. **-B-** Press together spray nozzle from below and push it out of cowl panel cover.
4. **-C-** Pull off water hose from T-piece (below the cowl panel cover).
5. Pull out spray nozzle with water hose and electric line.

top of page

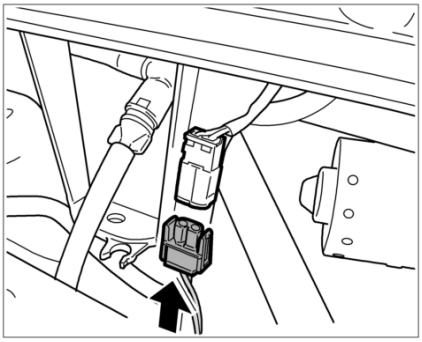
Installing spray nozzle for windscreen washer system

Installing spray nozzle for windscreen washer system



Installing spray nozzle

1. Push spray nozzle, together with hose and electric connector, through cowl panel cover, and engage.
2. Push water hose onto T-piece and ensure that it is securely fixed.
3. Push electric connector onto mount on cowl panel cover.



Plugging in connector

4. Push on electric connector for spray nozzle until it clicks into place.

top of page

Subsequent work

Subsequent work for spray nozzle of windscreen washer system

Install plenum panel cover to the left and right. 852219 Removing and installing cover - chapter on "Installing"
Install battery cover.

997110, 997111, 997120, 997121, 997310, 997311, 997320, 997321, 997410, 997411, 997430, 997431, 997610, 997611, 997620, 997621

as of MY 2005
Country C00, C02, C05, C07, C08, C09, C10, C11, C12, C13, C14, C15, C16, C18, C19, C20, C21, C22, C23, C24, C25, C26, C27, C28, C32, C33, C34, C35, C36, C37, C38, C39, C45, C46, C98, C99

WARNUNG

Gefahr des Verlusts der Text-Bild-Zuordnung beim Ausdruck.

- **Aus technischen Gründen kann derzeit nicht ausgeschlossen werden, dass trotz einwandfreier Darstellung auf dem Bildschirm beim Ausdruck der**

92 67 19 Removing and installing sensor for fluid level display - as of MY 2005

- Preliminary work
- Removing sensor for fluid level display
- Installing sensor for fluid level display
- Subsequent work

Tools

Designation	Type	Number	Explanation	
removal tool, universal	commercially available tool	NR.21		

top of page

Preliminary work

Preliminary work

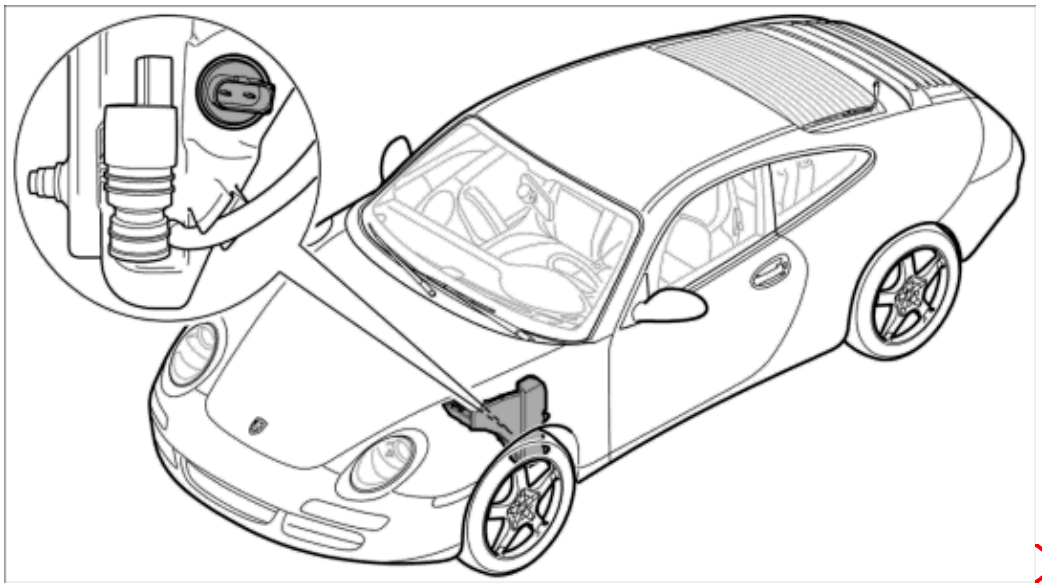
Remove tank for windscreen washer system. *21 Removing and installing tank for windscreen washer system - chapter on "Removing"*

top of page

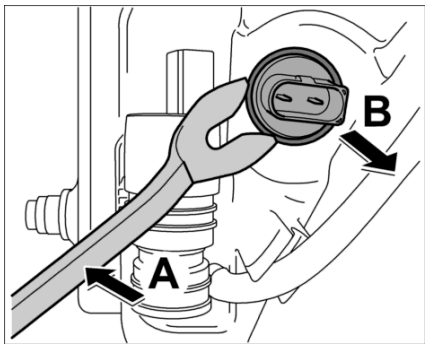
Removing sensor for fluid level display

Removing sensor for fluid level display

Installation Location:

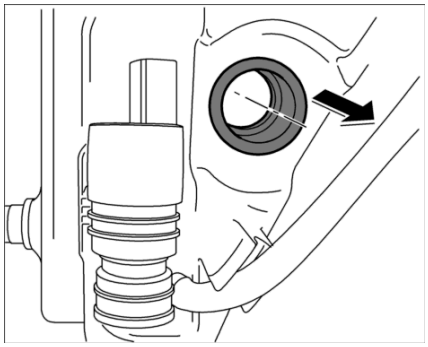


Overview of sensor for fluid level display



Removing sensor for fluid level display

1. Use the **removal tool, universal NR.21** to lever the sensor out of the rubber seal **-arrow A-** and remove it **-arrow B-** .



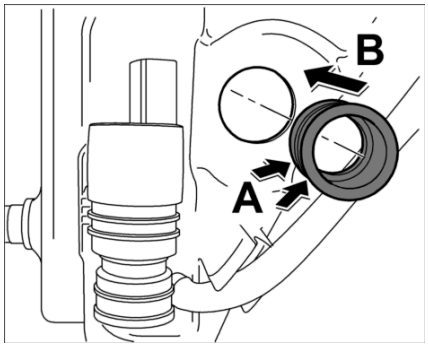
Levering out the rubber seal

2. Remove rubber seal.

top of page

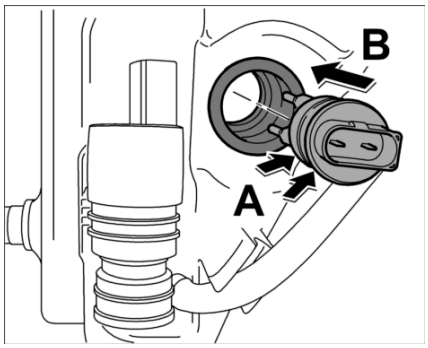
Installing sensor for fluid level display

Installing sensor for fluid level display



Pressing in rubber seal

1. Apply a suitable rubber lubricant (tyre mounting paste) to the sealing surface **-arrows A-** and press the rubber seal into the tank **-arrow B-** until it is felt to engage.



Installing sensor for fluid level display

2. Apply a suitable rubber lubricant (tyre mounting paste) to the sealing surface **-arrows A-** and press the sensor for fluid level display into the rubber seal **-arrow B-** until the sensor is felt to engage.

top of page

Subsequent work

Subsequent work

Install tank for windscreen washer system. *23 Removing and installing tank for windscreen washer system - chapter on "Installing"*

92 72 19 Removing and installing spray nozzle for headlight washer system - as of MY 2005

- Preliminary work
- Removing spray nozzle for headlight washer system
- Installing spray nozzle for headlight washer system
- Subsequent work
- Removing and installing spray nozzle head

top of page

Preliminary work

Preliminary work for spray nozzle of headlight washer system

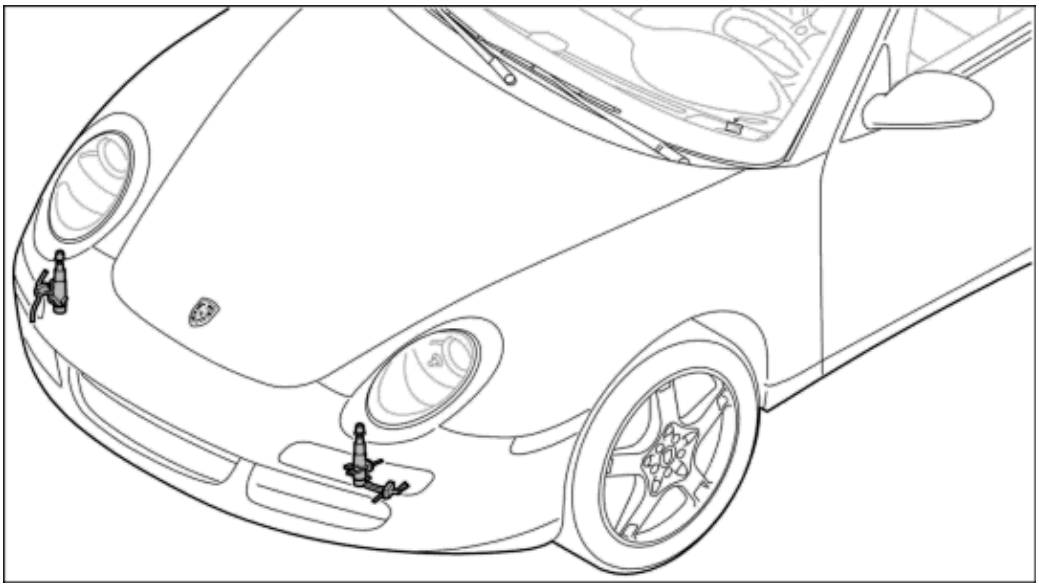
Remove front apron. *21 Removing and installing front apron - chapter on "removing"*
Remove fog lights. *21 Removing and installing fog lights - chapter on "removing"*

top of page

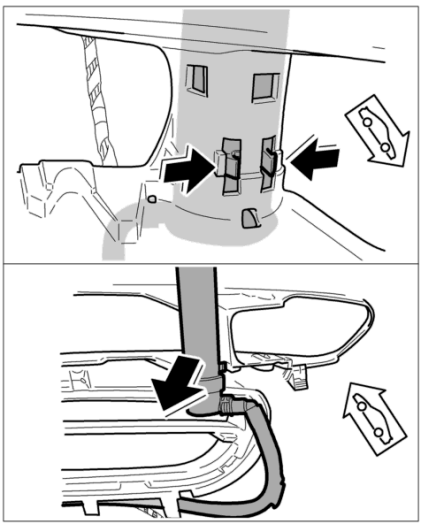
Removing spray nozzle for headlight washer system

Removing spray nozzle for headlight washer system

Installation Location:

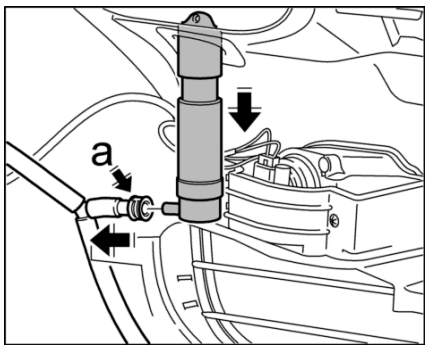


Installation position for the 911 Carrera



Pressing retaining lugs of spray nozzles together

1. Press both retaining lugs of spray nozzle together and remove it from front apron.



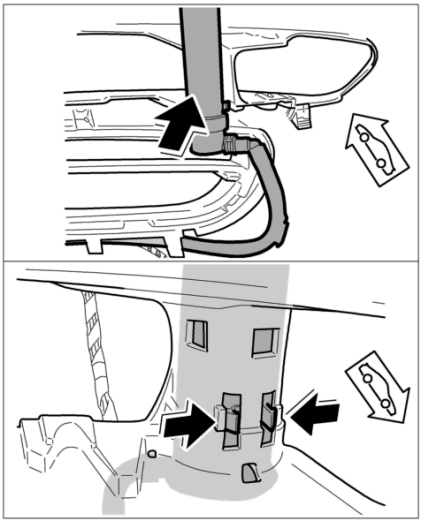
Pressing quick-connecting lock and removing water connection

2. Release quick-connecting lock of water connection **-a-** and pull away from the spray nozzle.

top of page

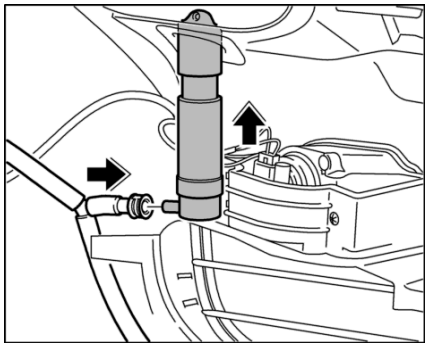
Installing spray nozzle for headlight washer system

Installing spray nozzle for headlight washer system



Inserting spray nozzle in front apron

1. Insert spray nozzle in front apron until it engages.



Inserting spray nozzle in front apron and connecting hose line

2. Push water hose onto the spray nozzle until it is felt to engage.

top of page

Subsequent work

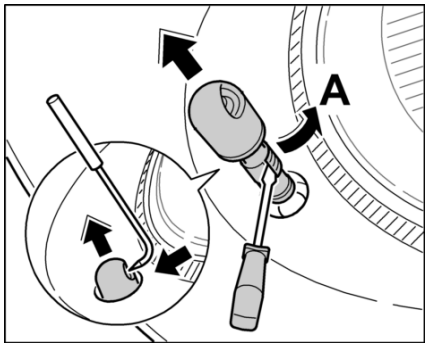
Subsequent work for spray nozzle of headlight washer system

1. Install fog lights. *23 Removing and installing fog lights - chapter on "Installing"*
2. Install front apron. *N0 Removing and installing front apron - chapter on "Installing"*
3. Bleed the spray nozzles. The system is bled by activating the spray nozzles for the headlight washer multiple times. Depending on whether it is a left or right spray nozzle, or whether the water reservoir for the headlight washer was completely emptied or not, the bleeding process can require frequent activations of the spray nozzle.

top of page

Removing and installing spray nozzle head

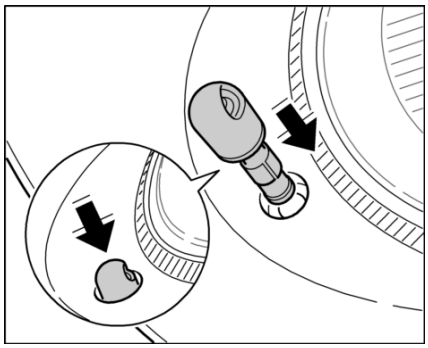
Removing spray nozzle head



Pulling out spray nozzle

1. Insert an angled scriber, for example, into the opening on the nozzle head and pull the spray nozzle up and out.
2. Hold the nozzle head at the top and disengage the catch on the spray nozzle with a small screwdriver **-A-** . The nozzle head is released from the spray nozzle and the spray nozzle moves back into place.

Installing spray nozzle head



Pressing nozzle head into place

1. Insert the nozzle head into the opening on the spray nozzle and slide it in as far as it will go. The nozzle head clicks into place in the spray nozzle.
2. Check function of spray nozzle and spray range.

997110, 997111, 997120, 997121, 997310, 997311, 997320, 997321, 997410, 997411, 997430, 997431, 997610, 997611, 997620, 997621

as of MY 2005
Country C00, C02, C05, C07, C08, C09, C10, C11, C12, C13, C14, C15, C16, C18, C19, C20, C21, C22, C23, C24, C25, C26, C27, C28, C32, C33, C34, C35, C36, C37, C38, C39, C45, C46, C98, C99

WARNUNG

Gefahr des Verlusts der Text-Bild-Zuordnung beim Ausdruck.

- **Aus technischen Gründen kann derzeit nicht ausgeschlossen werden, dass trotz einwandfreier Darstellung auf dem Bildschirm beim Ausdruck der Zusammenhang von Text und zugehörigem Bild verloren geht.**
- **Wird der Fehler nicht bemerkt, besteht die Gefahr, daß Arbeiten nicht korrekt durchgeführt werden und es dadurch zu Personen- und Sachschäden kommt.**

Vergleichen Sie deshalb nach dem Druckvorgang unbedingt die Ausdrucke mit der Bildschirmdarstellung. Korrigieren Sie die Ausdrucke im Fehlerfall so, daß der Inhalt der Bildschirmdarstellung zutreffend wiedergegeben wird.

WARNING

Danger of losing text-figure correspondence when printing out.

- **For technical reasons, it can currently not be ruled out that the correspondence between text and associated figure can be lost when it is printed out, even though the display on the screen is correct.**
- **If the fault is not noticed, there is the danger that work will not be performed correctly which can cause injury and damage.**

Therefore, always compare printouts with the screen display after printing them out. Correct

92 77 19 Removing and installing hose for headlight washer system - as of MY 2005

- Preliminary work
- Removing hose for headlight washer system
- Installing hose for headlight washer system
- Subsequent work

top of page

Preliminary work

Preliminary work for removing hose for headlight washer system (front apron)

Remove front apron. *21 Removing and installing front apron - chapter on "Removing"*

Preliminary work for removing hose for headlight washer system (at tank)

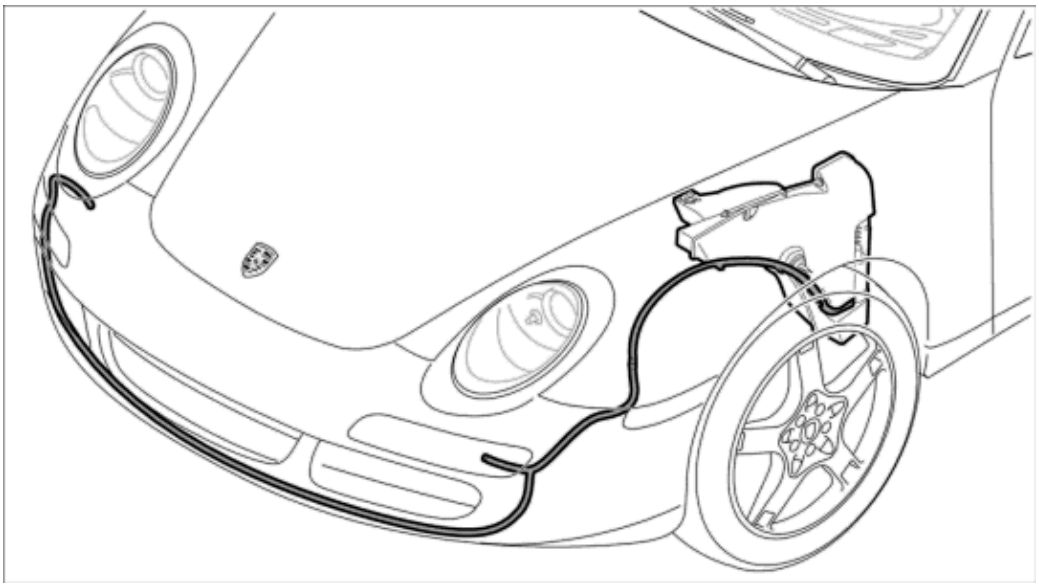
Remove tank for windscreen washer system. 926019 Removing and installing tank for windscreen washer system - chapter on "Removing"

top of page

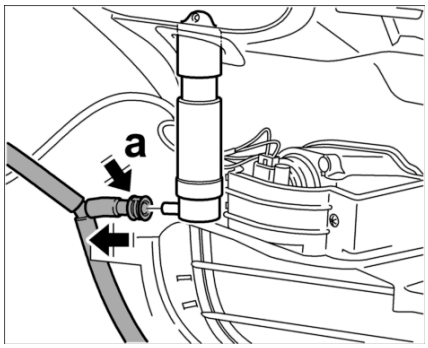
Removing hose for headlight washer system

Removing hose for headlight washer system (front apron)

Installation Location:

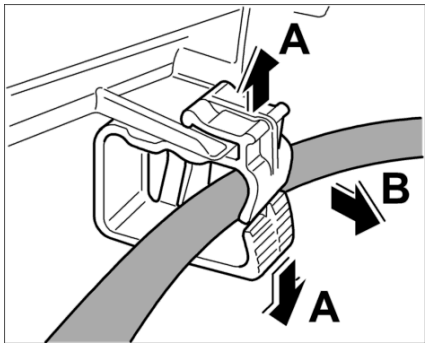


Overview of hose for headlight washer system



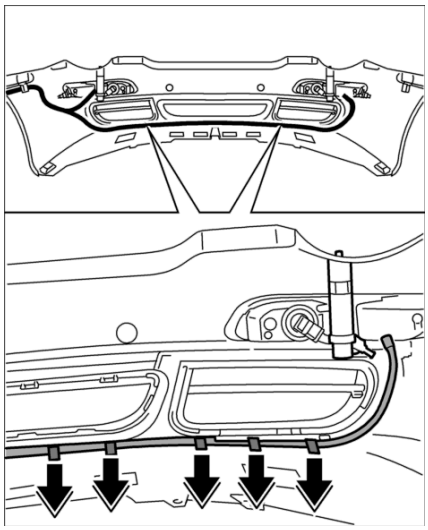
Pulling off hose for headlight washer system

1. Release hose for headlight washer system **-arrow a-** and pull hose off the spray nozzle.



Removing hose for headlight washer system from holder

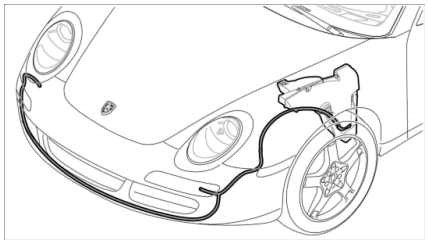
2. Open holder **-arrows A-** and remove hose for headlight washer system **-arrow B-** .



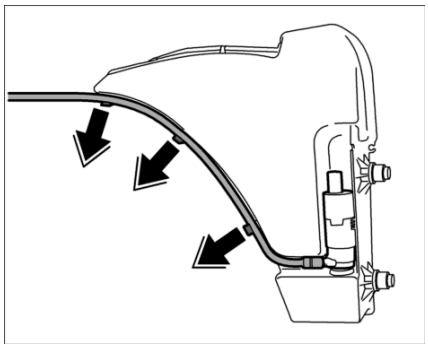
Removing hose for headlight washer system at the clips for the front apron

3. Remove hose for headlight washer system at the clips for the front apron.

Removing hose for headlight washer system (at tank)

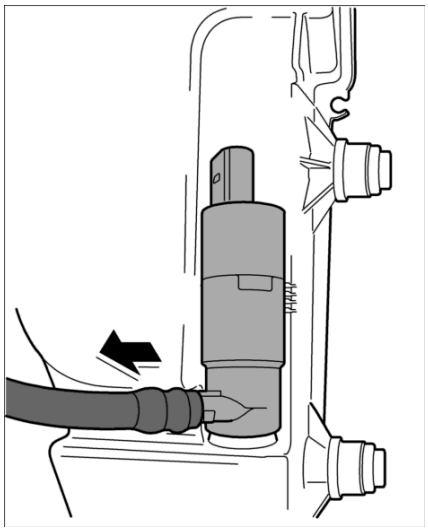


Overview of hose for headlight washer system



Removing hose for headlight washer system out of the clips at the tank

1. Remove hose for headlight washer system out of the clips at the tank.



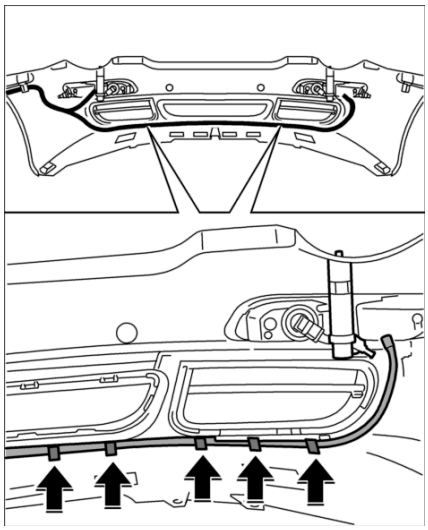
Pulling hose for headlight washer system off the pump

2. Pull hose for headlight washer system off the pump.

top of page

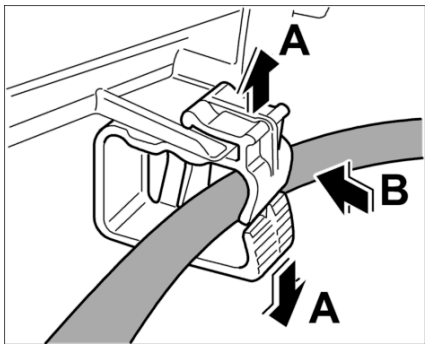
Installing hose for headlight washer system

Installing hose for headlight washer system (front apron)



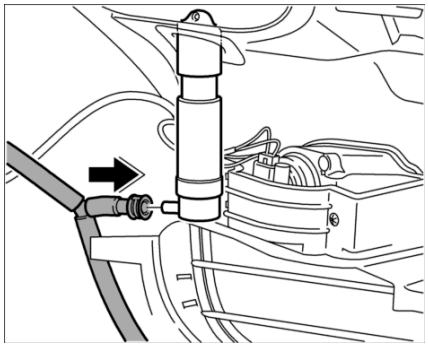
Inserting hose for headlight washer system into the clips for the front apron

1. Insert hose for headlight washer system into the clips for the front apron.



Inserting hose for headlight washer system into holder

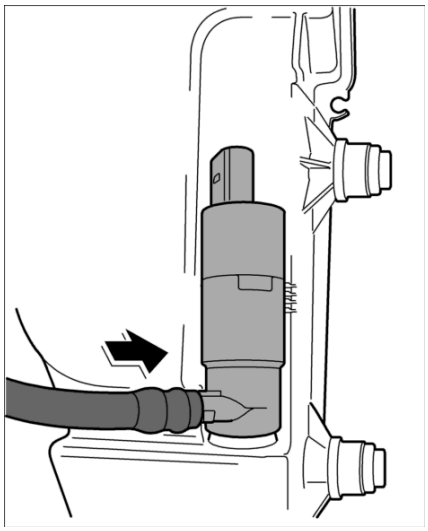
2. Open holder **-arrows A-** and insert hose for headlight washer system **-arrow B-** .



Pushing on hose for headlight washer system

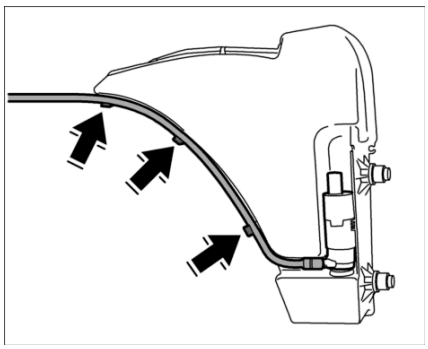
3. Push hose for headlight washer system onto the spray nozzle until the hose clicks into place.

Installing hose for headlight washer system (at tank)



Pushing hose for headlight washer system onto the pump

1. Push hose for headlight washer system onto the pump.



Inserting hose for headlight washer system into the clips at the tank

2. Insert hose for headlight washer system into the clips at the tank.

top of page

Subsequent work

Subsequent work for installing hose for headlight washer system (front apron)

Install front apron. *N0 Removing and installing front apron - chapter on "Installing"*

Subsequent work for installing hose for headlight washer system (at tank)

Install tank for windscreen washer system. 926019 Removing and installing tank for windscreen washer system - chapter on "Installing"

997110, 997111, 997120, 997121, 997310, 997311, 997320, 997321, 997410, 997411, 997430, 997431, 997610, 997611, 997620, 997621

as of MY 2005
Country C00, C02, C05, C07, C08, C09, C10, C11, C12, C13, C14, C15, C16, C18, C19, C20, C21, C22, C23, C24, C25, C26, C27, C28, C32, C33, C34, C35, C36, C37, C38, C39, C45, C46, C98, C99

WARNUNG

Gefahr des Verlusts der Text-Bild-Zuordnung beim Ausdruck.

- **Aus technischen Gründen kann derzeit nicht ausgeschlossen werden, dass trotz einwandfreier Darstellung auf dem Bildschirm beim Ausdruck der Zusammenhang von Text und zugehörigem Bild verloren geht.**
- **Wird der Fehler nicht bemerkt, besteht die Gefahr, daß Arbeiten nicht korrekt durchgeführt werden und es dadurch zu Personen- und Sachschäden kommt.**

92 78 19 Removing and installing pump for headlight washer system - as of MY 2005

- Preliminary work
- Removing pump for headlight washer system
- Installing pump for headlight washer system
- Subsequent work

Tools

Designation	Type	Number	Explanation	
removal tool, universal	commercially available tool	NR.21		

top of page

Preliminary work

Preliminary work

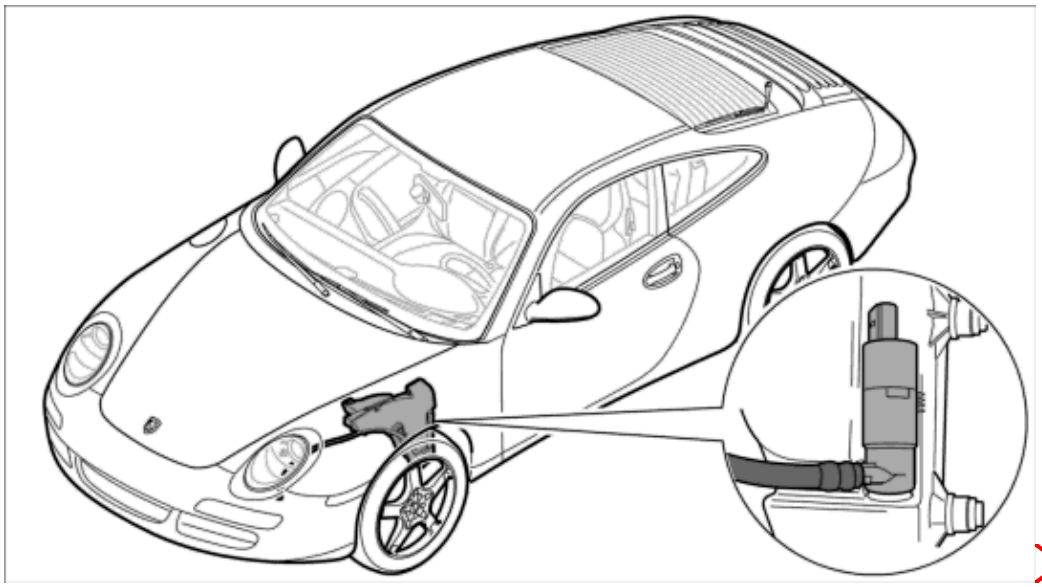
Remove tank for windscreen washer system. *21 Removing and installing tank for windscreen washer system - chapter on "Removing"*

top of page

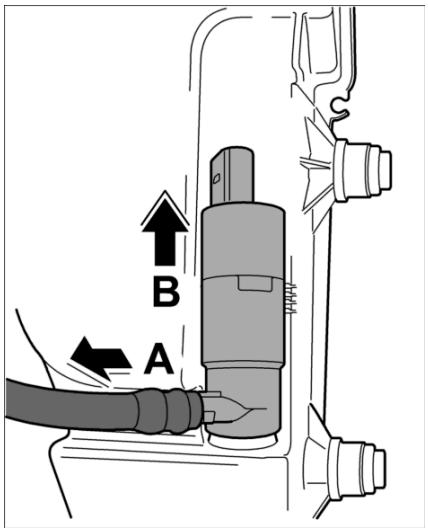
Removing pump for headlight washer system

Removing pump for headlight washer system

Installation Location:



Overview of pump for headlight washer system

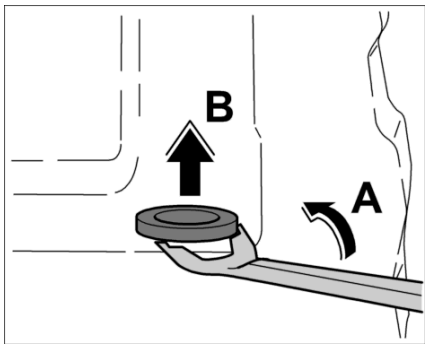


Removing pump for headlight washer system

Note

- *A tight hose can be pulled off more easily if it is heated with a hot-air gun!*

1. Pull the water pipe off the pump for the headlight washer system **-arrow A-** .
2. Pull the pump for the headlight washer system upwards out of the tank **-arrow B-** .



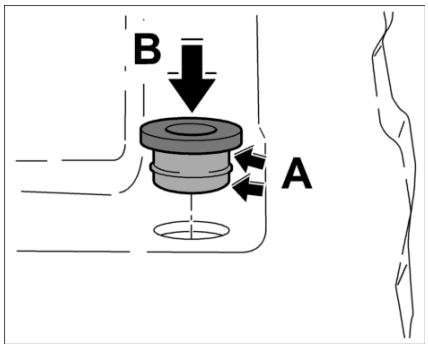
Levering out the rubber seal

3. Use the **removal tool, universal NR.21** to lever the rubber seal out of the tank **-arrows A-** and remove it **-arrow B-** .

top of page

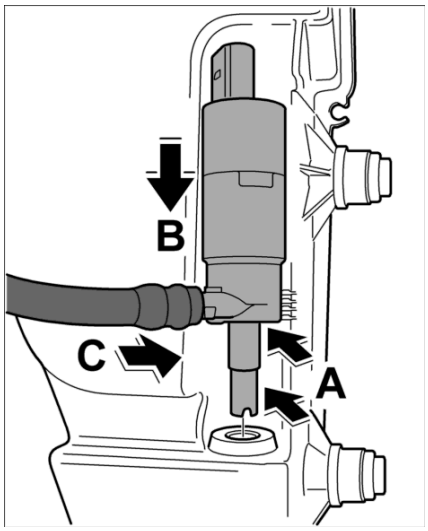
Installing pump for headlight washer system

Installing pump for headlight washer system



Pressing in rubber seal

1. Apply a suitable rubber lubricant (tyre mounting paste) to the sealing surface **-arrows A-** and press the rubber seal into tank **-arrow B-** until it is felt to engage.



Installing pump for windscreen washer system

2. Apply a suitable rubber lubricant (tyre mounting paste) to the sealing surface **-arrows A-** and press the pump for the windscreen washer system into the rubber seal **-arrow B-** until it is felt to engage.
3. Connect the water pipe to the connections at the pump for the windscreen washer system **-arrow C-** .

top of page

Subsequent work

Subsequent work

Install tank for windscreen washer system. *23 Removing and installing tank for windscreen washer system - chapter on "Installing"*

997110, 997111, 997120, 997121, 997310, 997311, 997320, 997321, 997410, 997411, 997430, 997431, 997610, 997611, 997620, 997621

as of MY 2005
Country C00, C02, C05, C07, C08, C09, C10, C11, C12, C13, C14, C15, C16, C18, C19, C20, C21, C22, C23, C24, C25, C26, C27, C28, C32, C33, C34, C35, C36, C37, C38, C39, C45, C46, C98, C99

WARNUNG

Gefahr des Verlusts der Text-Bild-Zuordnung beim Ausdruck.

- **Aus technischen Gründen kann derzeit nicht ausgeschlossen werden, dass trotz einwandfreier Darstellung auf dem Bildschirm beim Ausdruck der Zusammenhang von Text und zugehörigem Bild verloren geht.**
- **Wird der Fehler nicht bemerkt, besteht die Gefahr, daß Arbeiten nicht korrekt durchgeführt werden und es dadurch zu Personen- und Sachschäden kommt.**

94 05 19 Removing and installing main light switch - as of MY 2005

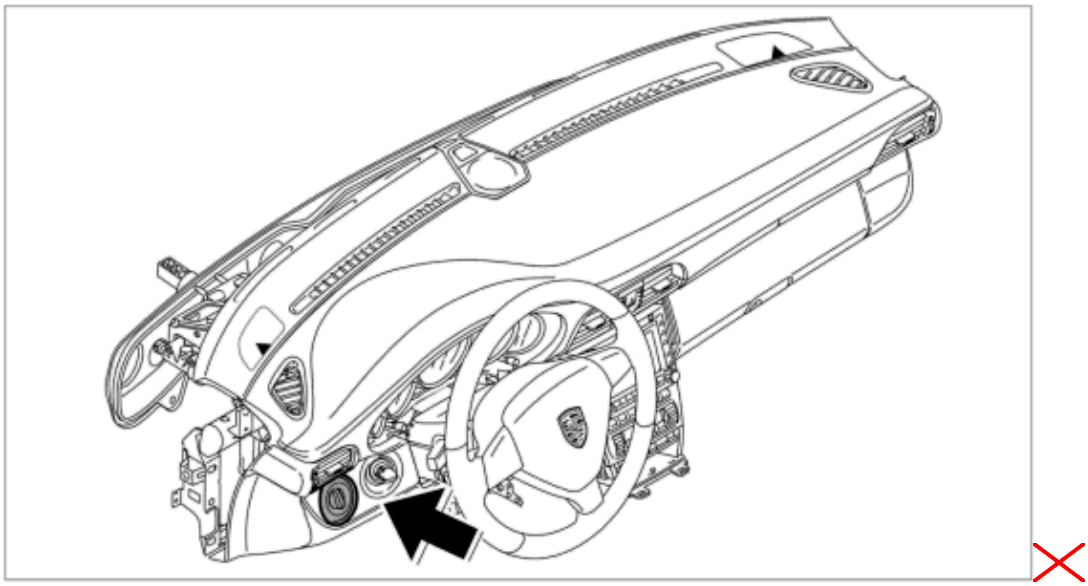
- Removing main light switch
- Installing main light switch

top of page

Removing main light switch

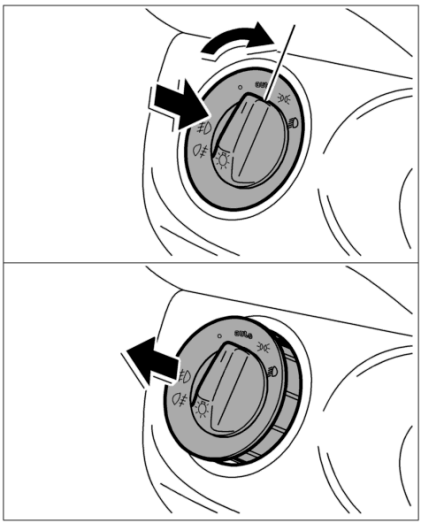
Removing main light switch

Installation Location:



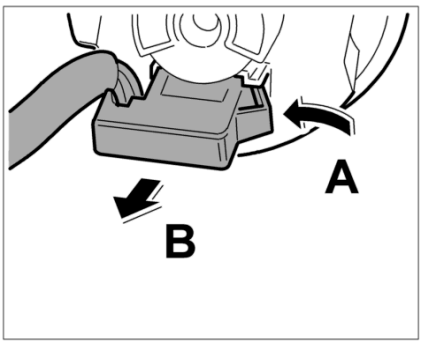
Install location

Switch off ignition and remove ignition key.



Removing main light switch

1. Press in rotary knob on the light switch (but not to the limit) and turn the switch to the right.
2. Pull the light switch out.



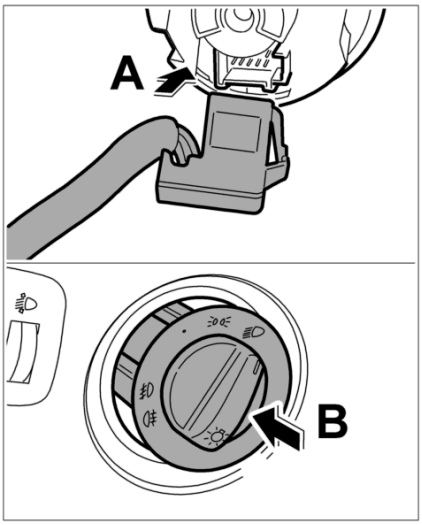
Releasing electrical connector

3. Release **-A-** and remove **-B-** electrical connector.

top of page

Installing main light switch

Installing main light switch



Plugging in connector

1. **-A-** Insert the light switch connector until it is felt to engage.
2. **-B-** Push in the light switch to its limit and turn the rotary knob anti-clockwise.

997110, 997111, 997120, 997121, 997310, 997311, 997320, 997321, 997410, 997411, 997430, 997431, 997610, 997611, 997620, 997621

as of MY 2005
Country C00, C02, C05, C07, C08, C09, C10, C11, C12, C13, C14, C15, C16, C18, C19, C20, C21, C22, C23, C24, C25, C26, C27, C28, C32, C33, C34, C35, C36, C37, C38, C39, C45, C46, C98, C99

WARNUNG
Gefahr des Verlusts der Text-Bild-Zuordnung beim Ausdruck.

- **Aus technischen Gründen kann derzeit nicht ausgeschlossen werden, dass trotz einwandfreier Darstellung auf dem Bildschirm beim Ausdruck der Zusammenhang von Text und zugehörigem Bild verloren geht.**
- **Wird der Fehler nicht bemerkt, besteht die Gefahr, daß Arbeiten nicht korrekt durchgeführt werden und es dadurch zu Personen- und Sachschäden kommt.**

Vergleichen Sie deshalb nach dem Druckvorgang unbedingt die Ausdrucke mit der Bildschirmdarstellung. Korrigieren Sie die Ausdrucke im Fehlerfall so, daß der Inhalt der Bildschirmdarstellung zutreffend wiedergegeben wird.

WARNING
Danger of losing text-figure correspondence when printing out.

- **For technical reasons, it can currently not be ruled out that the correspondence between text and associated figure can be lost when it is printed out, even though the display on the screen is correct.**

94 14 19 Removing and installing headlight mounting - as of MY 2005

- Preliminary work
- Removing headlight mounting
- Installing headlight mounting
- Subsequent work

top of page

Preliminary work

Preliminary work - headlight mounts

Remove the headlights. 941519 Removing and installing headlights - removing
Remove the front spoiler. 631519 Removing and installing front spoiler - removing
Remove front wheel housing liner. 505619 Removing and installing front wheel housing liner - removing [997110 997111 997120 997121 997310 997311 997320 997321] 505619 Removing and installing front wheel housing liner - removing [997621] 505619 Removing and installing front wheel housing liner - removing [997410 997411 997430 997431 997610 997611 997620]

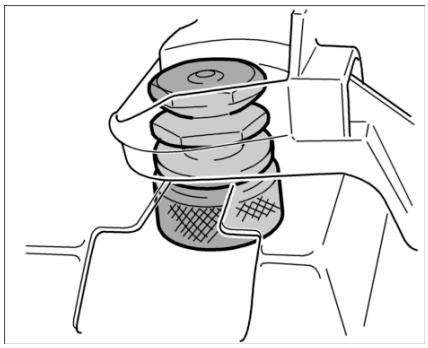
top of page

Removing headlight mounting

Removing headlight mount

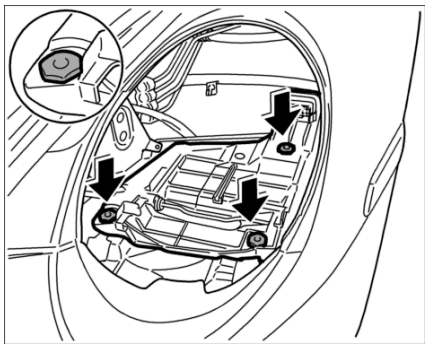
Note

The main headlights are fitted into the body at the factory.
A new adjustment may only be made in the case of accident repairs or replacement of the main headlights.
The headlight mount is secured to the body by 3 knurled nuts.



Adjusting element

1. Unscrew the 3 knurled nuts from the adjusting elements.



Mount installation

2. Pull mount forwards out of the body.

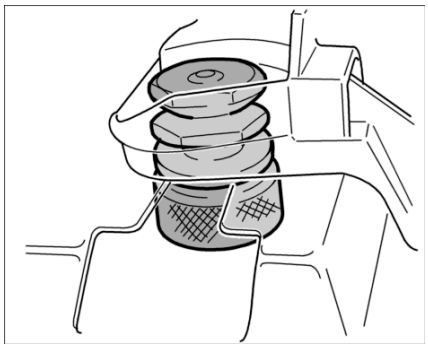
top of page

Installing headlight mounting

Installing headlight mount

Note

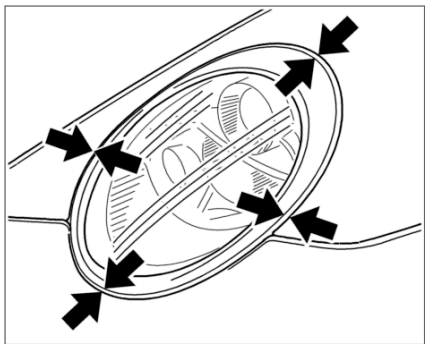
The main headlights are fitted into the body at the factory.
A new adjustment may only be made in the case of accident repairs or replacement of the main headlights.
The headlight mount is secured to the body by 3 knurled nuts.



Adjusting element

1. Push the mount into the body and screw down with three knurled nuts. **Tightening torque: 6 ftlb. +/-1.5 ftlb.**
2. Check that the gaps match the specified gap dimensions *501000 Illustration of body gap dimensions*. Adjust the headlight mount if necessary. 941419 Removing and installing headlight mount - testing and adjusting

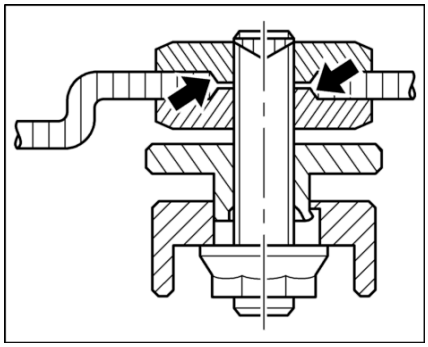
Testing and adjusting headlight mount



Edge of body

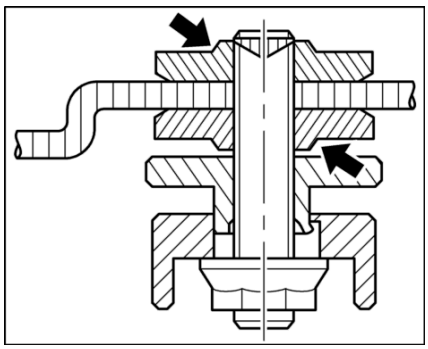
Note

The headlight cover lens should lie approximately 2 mm below the body edge.



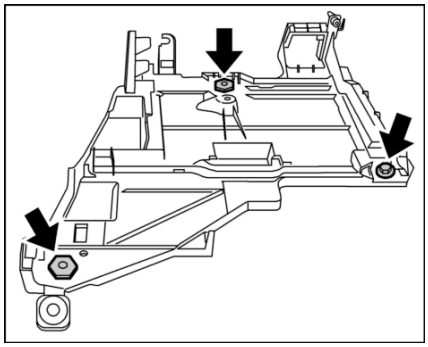
Factory fitting of the adjusting element fastening nuts

Where the headlight housing joins the body, both should be in the same plane (flush).



Fitting of the fastening nuts in the case of accident repairs or replacement of the main headlights

Adjust fastening nuts to the same height as the old unit and tighten gently by hand.



Mounting plate removed

1. Adjust fastening nuts to the same height as the old unit and tighten gently by hand.
2. Press headlight housing firmly into the body and lock.
3. After adjustment, tighten the fastening nuts. **Tightening torque: 6 ftlb. +/-1.5 ftlb.**

top of page

Subsequent work

Subsequent work - headlight mounts

Install front wheel housing liner. 505619 Removing and installing front wheel housing liner - installing [997110 997111 997120 997121 997310 997311 997320 997321] 505619 Removing and installing front wheel housing liner - installing [997621] 505619 Removing and installing front wheel housing liner - installing [997410 997411 997430 997431 997610 997611 997620]
Install the front spoiler. 631519 Removing and installing front spoiler - installing
Installing headlights. 941519 Removing and installing headlights - installing

94 15 19 Removing and installing main headlight - as of MY 2005

- Removing main headlight
- Installing main headlight

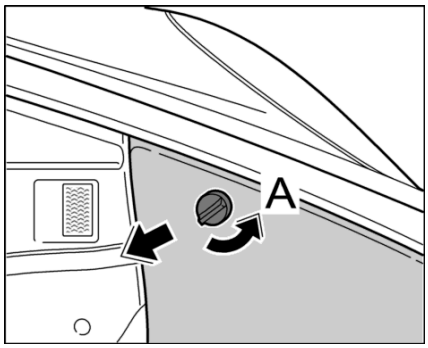
top of page

Removing main headlight

Removing main headlight

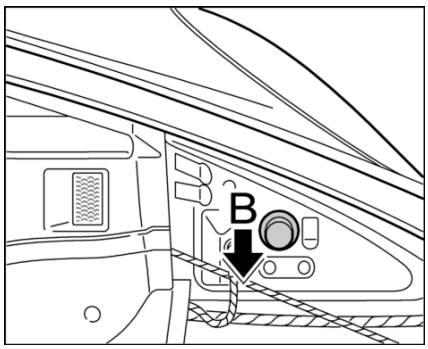
Note

Risk of damage to headlights due to chafing and excessive temperatures.
Headlights must not be covered when they are switched on, e.g. wing protector or film.
Switch off the ignition.



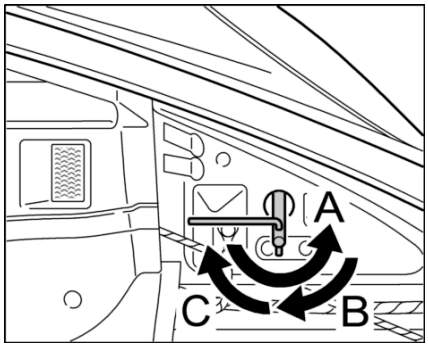
Releasing carpet at the sides.

1. Release carpet at the side by unscrewing plastic nut **-A, arrow-** .



Rubber stopper

2. Pull rubber stopper **-B-** out of the release opening.



Release the headlight.

3. Place the socket wrench from the tool kit on the release axle.
4. The toggle of the socket wrench should point horizontally to the rear.
5. Turn the socket wrench through approx. 180° **-A-** and leave it in position.
6. The headlight is now unlocked and can be pulled forwards out of the wing.
7. Turn the socket wrench back until it points vertically **-B-** downwards.

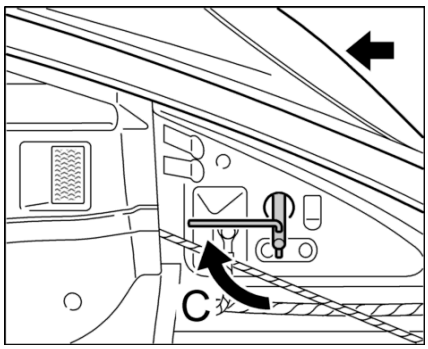
top of page

Installing main headlight

Installing main headlight

Note

Risk of damage to headlights due to chafing and excessive temperatures.
Headlights must not be covered when they are switched on, e.g. wing protector or film.
Switch off the ignition.

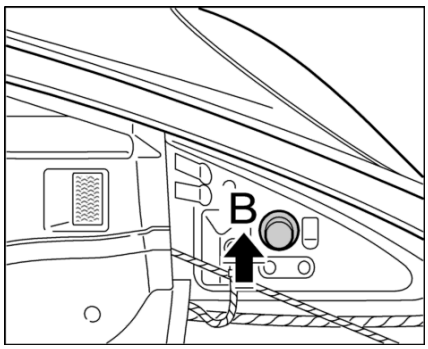


Lock headlight.

1.

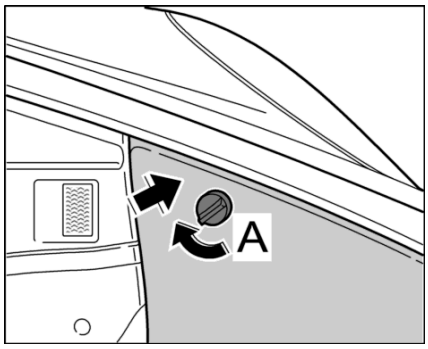
Insert headlight into guide rails and push fully home into wing **-arrow-** .

2. Press the headlight to the rear, turning the socket wrench at the same time until the wrench points horizontally to the rear **-arrow C-** . In the process, the headlight lock must engage with an audible and perceptible click.



Rubber stopper

3. Check the correct seating of the headlight, e.g. by pulling gently in the area of the fog light.
4. Insert rubber stopper **-B-** in the release opening.



Fastening carpet at the sides.

5. Screw the carpeting at the side tight with the plastic screw **-A-** .

997110, 997111, 997120, 997121, 997310, 997311, 997320, 997321, 997410, 997411, 997430, 997431, 997610, 997611, 997620, 997621

as of MY 2005
Country C00, C02, C05, C07, C08, C09, C10, C11, C12, C13, C14, C15, C16, C18, C19, C20, C21, C22, C23, C24, C25, C26, C27, C28, C32, C33, C34, C35, C36, C37, C38, C39, C45, C46, C98, C99

WARNUNG

Gefahr des Verlusts der Text-Bild-Zuordnung beim Ausdruck.

- **Aus technischen Gründen kann derzeit nicht ausgeschlossen werden, dass trotz einwandfreier Darstellung auf dem Bildschirm beim Ausdruck der Zusammenhang von Text und zugehörigem Bild verloren geht.**
- **Wird der Fehler nicht bemerkt, besteht die Gefahr, daß Arbeiten nicht korrekt durchgeführt werden und es dadurch zu Personen- und Sachschäden kommt.**

94 23 19 Removing and installing halogen bulb - as of MY 2005

- Preliminary work
- Removing halogen bulb
- Installing halogen bulb
- Subsequent work

top of page

Preliminary work

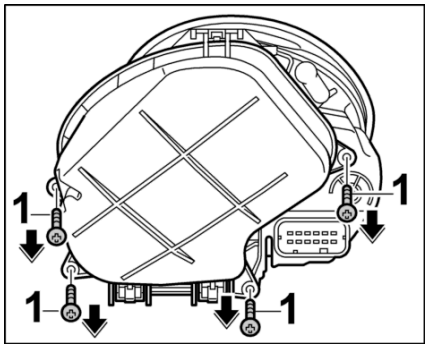
Preliminary work

Remove main headlight. 941519 Removing and installing headlight - section on "Removing"

top of page

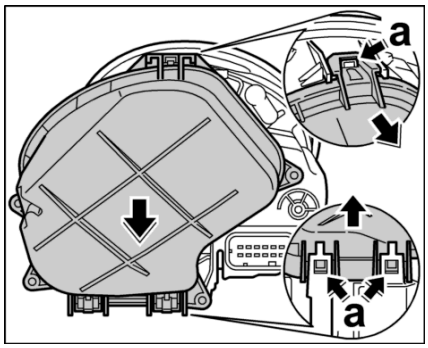
Removing halogen bulb

Removing cap of main headlight



Fastening screws for cap

1. Unscrew four fastening screws **-1-** from the cap.

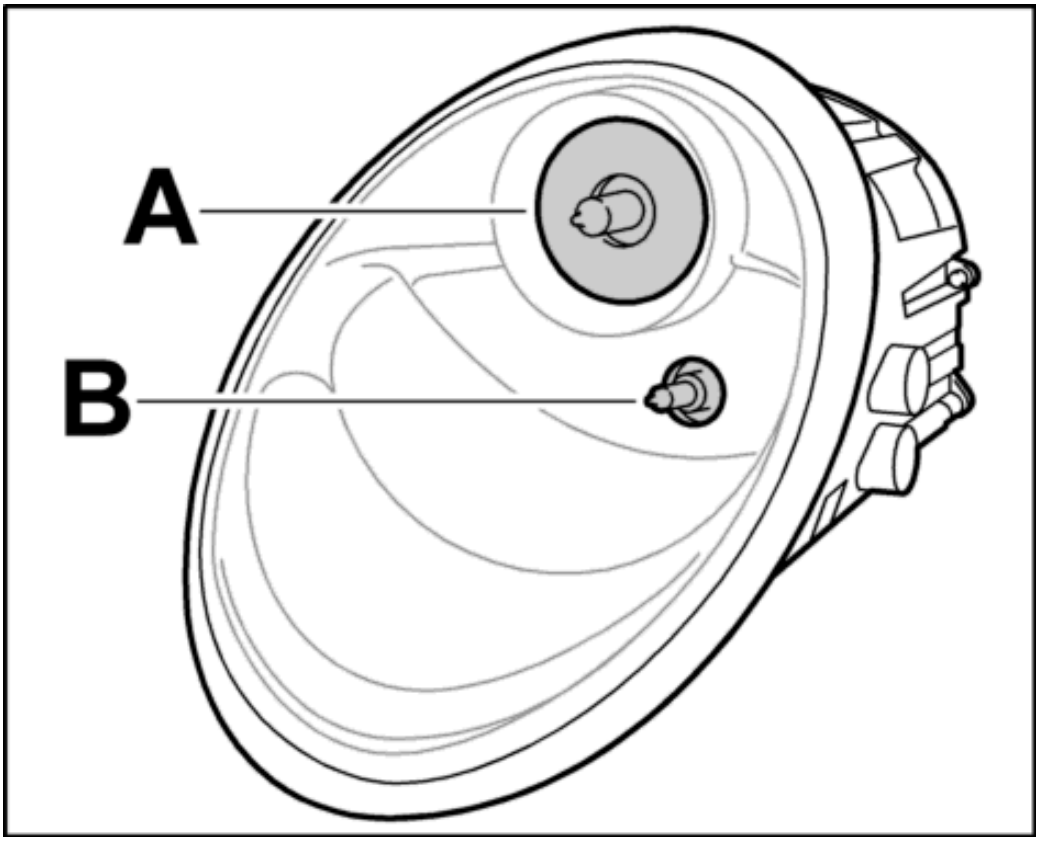


Releasing cap

2. Release cap once at the top and twice at the bottom **-a-** and remove from the main headlight.

Removing halogen bulb

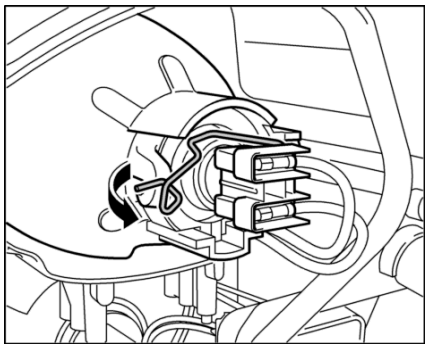
Installation Location:



Installation position

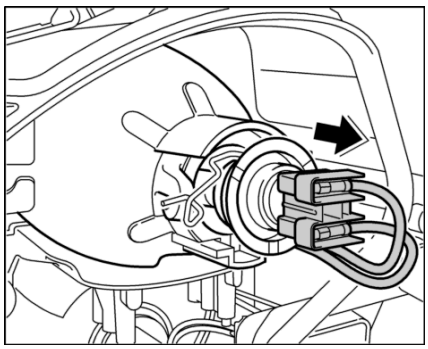
A - Halogen bulb

B - High beam bulb



Disengaging securing clip

1. Disengage securing clip.

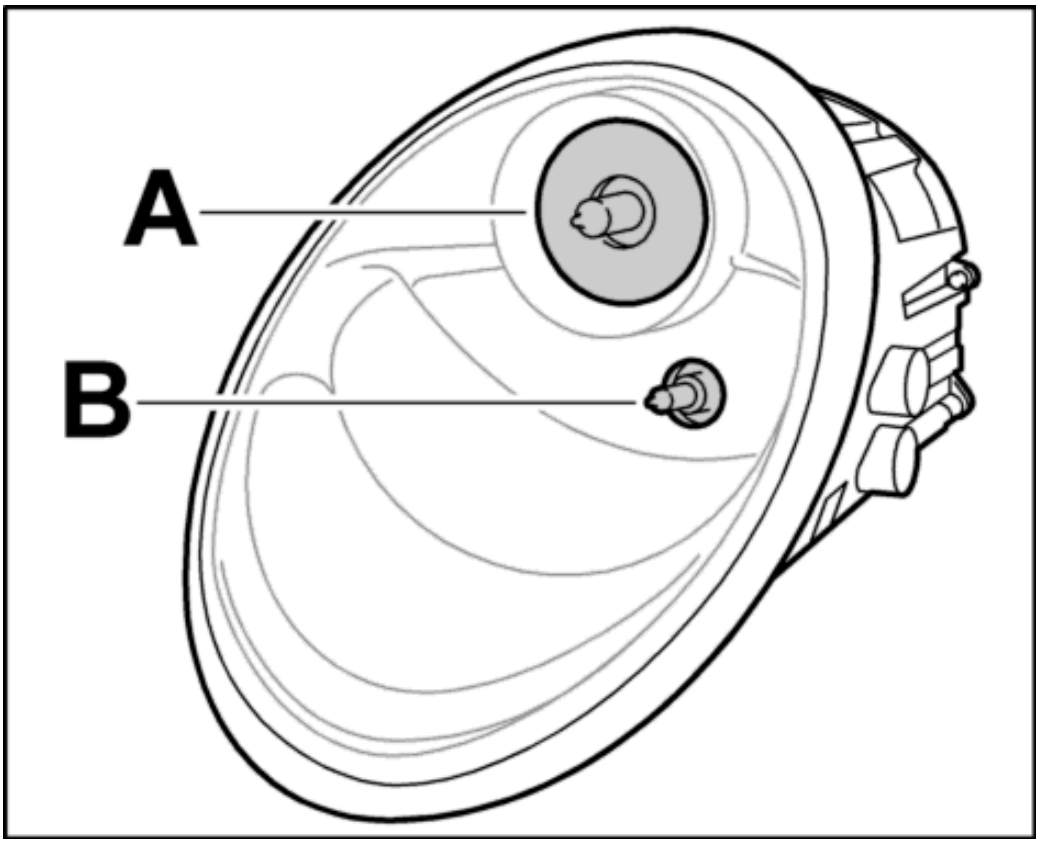


Pulling off electrical connector

2. Pull electrical connector off bulb and remove bulb.

Removing high beam halogen bulb

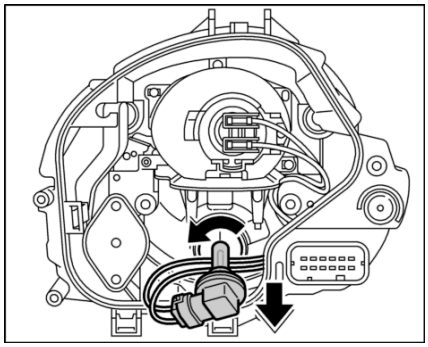
Installation Location:



Installation position

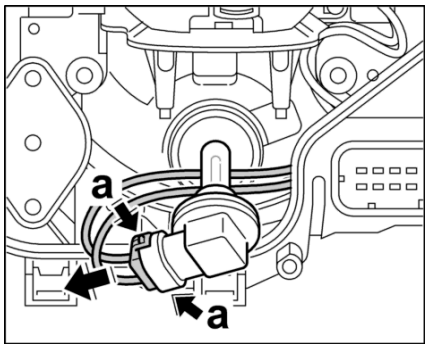
A - Halogen bulb

B - High beam bulb



Unscrewing bayonet lock

1. Unscrew high beam bulb, bayonet lock counter-clockwise.



Unplugging electrical connector

2. Unclip electrical connector **-a-** and unplug.

top of page

Installing halogen bulb

Installing halogen bulb

Installing halogen bulb

ATTENTION

Danger of injury! Danger of material damage if bulbs are used or handled incorrectly!

When installed, the headlight has a high voltage.

Only bulbs specified in the bulb table may be used!

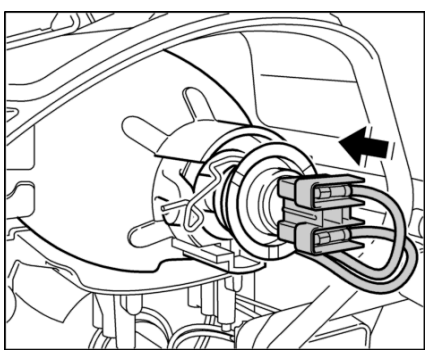
Bulbs with a higher wattage may damage the bulb housing!

To prevent short circuits, the load in question must be switched off when changing bulbs!

New bulbs must be clean and free of grease. Therefore, never touch bulbs with your bare hands! To change the bulbs, use a cloth or soft paper.

Observe the safety instructions when replacing a bulb in a Bi-Xenon headlight.

In certain states, it is compulsory to carry spare light bulbs.



Pushing connector onto bulb

1. Push the electrical connector fully onto the bulb.
2. Engage locking clip.

Installing high beam halogen bulb

ATTENTION

Danger of injury! Danger of material damage if bulbs are used or handled incorrectly!

When installed, the headlight has a high voltage.

Only bulbs specified in the bulb table may be used!

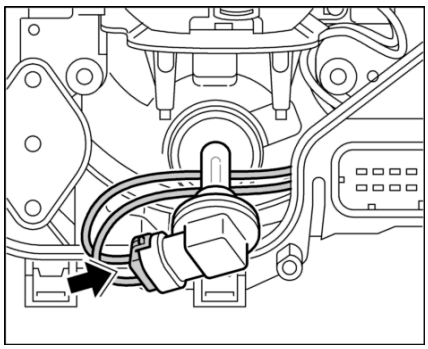
Bulbs with a higher wattage may damage the bulb housing!

To prevent short circuits, the load in question must be switched off when changing bulbs!

New bulbs must be clean and free of grease. Therefore, never touch bulbs with your bare hands! To change the bulbs, use a cloth or soft paper.

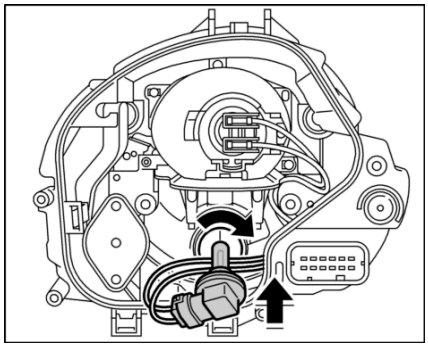
Observe the safety instructions when replacing a bulb in a Bi-Xenon headlight.

In certain states, it is compulsory to carry spare light bulbs.



Pushing on electric connector

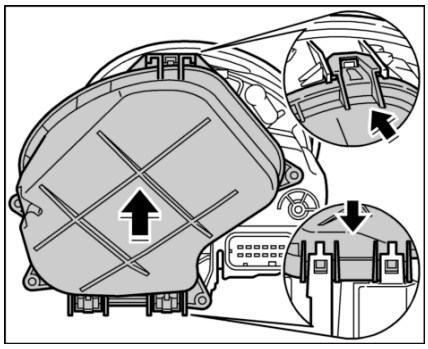
1. Push electric connector onto bulb until it clicks into place.



Installing high beam bulb

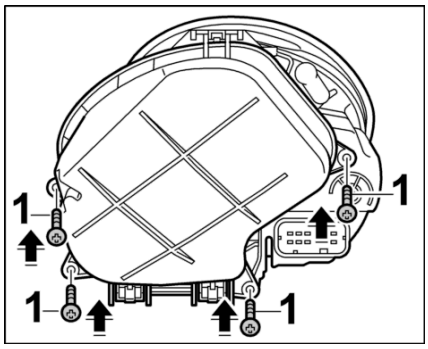
2. Insert high beam bulb into headlight and lock with bayonet lock.

Installing main headlight cap



Positioning cap

1. Position cap on main headlight and press into place, making sure that the cap engages once at the top and twice at the bottom.



Screwing in the fastening screws

2. Screw in four fastening screws **-1-** for the cap.

top of page

Subsequent work

Subsequent work

Install main headlight. 941519 Removing and installing headlight - section on "Installing"
Carry out functional check of headlights.

997110, 997111, 997120, 997121, 997310, 997311, 997320, 997321, 997410, 997411, 997430, 997431, 997610, 997611, 997620, 997621

94 27 19 Removing and installing bulb for parking light - as of MY 2005

- Preliminary work
- Removing bulb for parking light
- Installing bulb for parking light
- Subsequent work

top of page

Preliminary work

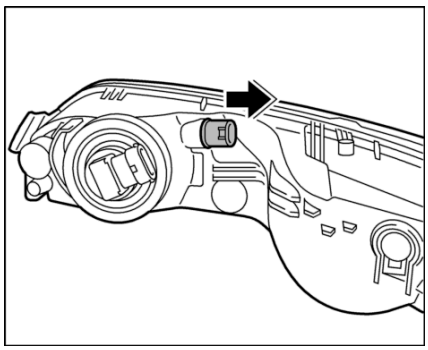
Preliminary work for parking light bulb

Remove auxiliary headlight. 947119 Removing and installing auxiliary headlight - section on "Removing"

top of page

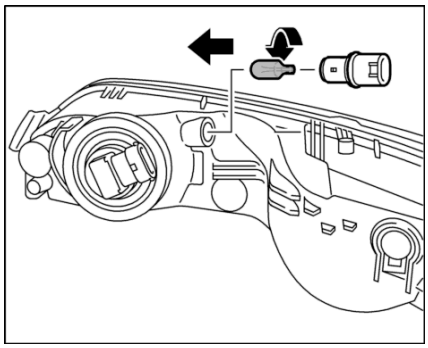
Removing bulb for parking light

Removing parking light bulb



Unlocking bulb holder

1. Pull out mounting for parking light bulb from fog light.



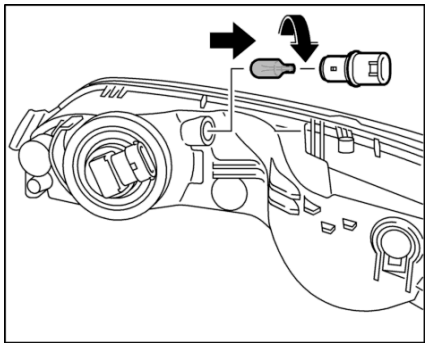
Removing bulb from holder

2. Unscrew parking light bulb from bulb holder.

top of page

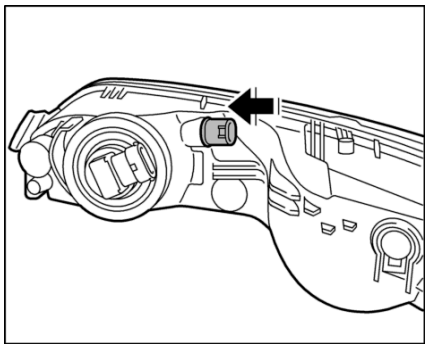
Installing bulb for parking light

Installing parking light bulb



Pushing bulb into holder

1. Insert bulb into holder.



Locking bulb holder

2. Insert and lock bulb holder.

top of page

Subsequent work

Subsequent work for parking light bulb

Install auxiliary headlight. 947119 Removing and installing auxiliary headlight - section on "Installing"

997110, 997111, 997120, 997121, 997310, 997311, 997320, 997321, 997410, 997411, 997430, 997431, 997610, 997611, 997620, 997621

as of MY 2005
Country C00, C02, C05, C07, C08, C09, C10, C11, C12, C13, C14, C15, C16, C18, C19, C20, C21, C22, C23, C24, C25, C26, C27, C28, C32, C33, C34, C35, C36, C37, C38, C39, C45, C46, C98, C99

WARNUNG

Gefahr des Verlusts der Text-Bild-Zuordnung beim Ausdruck.

- **Aus technischen Gründen kann derzeit nicht ausgeschlossen werden, dass trotz einwandfreier Darstellung auf dem Bildschirm beim Ausdruck der Zusammenhang von Text und zugehörigem Bild verloren geht.**
- **Wird der Fehler nicht bemerkt, besteht die Gefahr, daß Arbeiten nicht korrekt durchgeführt werden und es dadurch zu Personen- und Sachschäden kommt.**

Vergleichen Sie deshalb nach dem Druckvorgang unbedingt die Ausdrucke mit der Bildschirmdarstellung. Korrigieren Sie die Ausdrucke im Fehlerfall so, daß der Inhalt der Bildschirmdarstellung zutreffend wiedergegeben wird.

WARNING

Danger of losing text-figure correspondence when printing out.

- **For technical reasons, it can currently not be ruled out that the correspondence between text and associated figure can be lost when it is printed out, even though the display on the screen is correct.**
- **If the fault is not noticed, there is the danger that work will not be performed correctly which can cause injury and damage.**

Therefore, always compare printouts with the screen display after printing them out. Correct the printouts if they are faulty so that the content of the screen display matches that on the printouts.

AVERTISSEMENT

Risque de perte de la correspondance texte-illustration lors de l'impression papier.

94 31 19 Removing and installing tail light - as of MY 2005

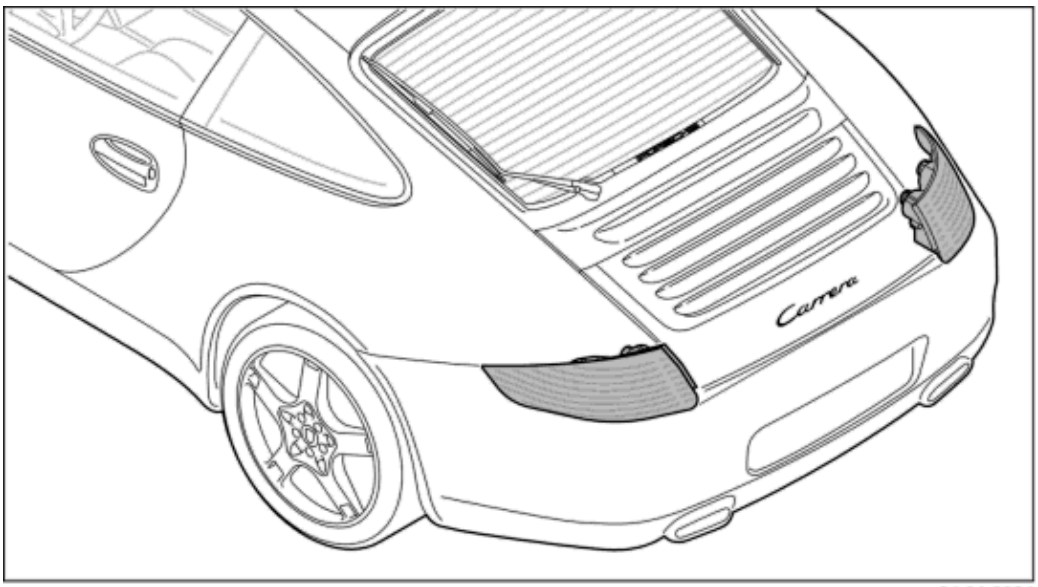
- Removing tail light
- Installing tail light
- Information

top of page

Removing tail light

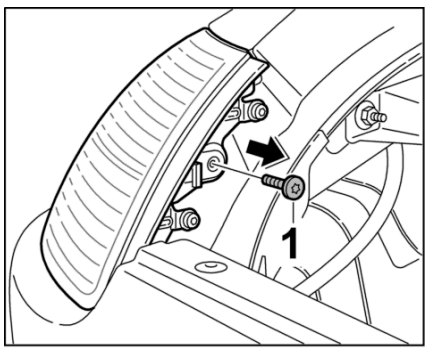
Removing tail light

Installation Location:



94 31 0024

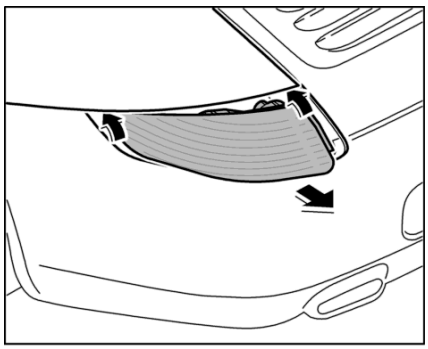
Installation position



94 31 0025

Unscrewing fastening screw

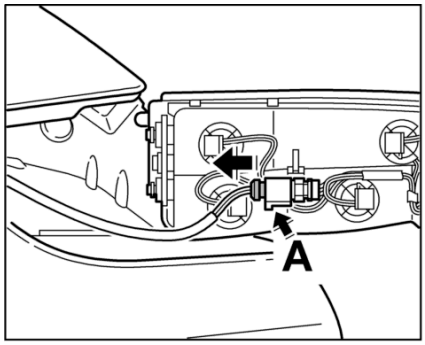
1. Unscrew the fastening screw **-1-** for the tail light.



94 31 0027

Removing tail light from guide

2. Lift the tail light at the bottom and remove from the guide.



94 31 0028

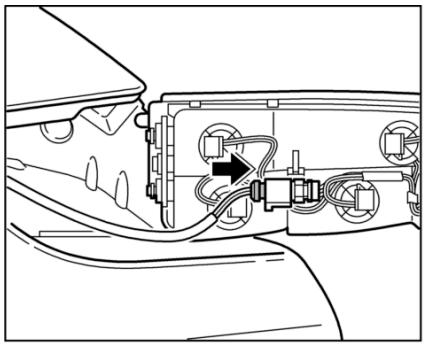
Releasing and pulling off connector

3. Release the electric central connector for the tail light **-A-** and pull it off.
4. Remove tail light.

top of page

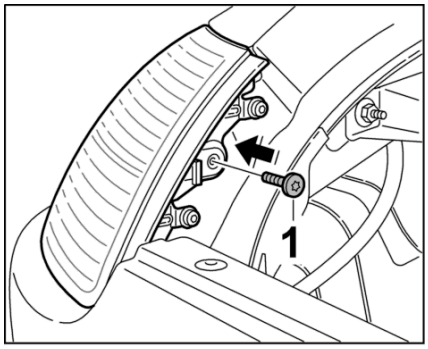
Installing tail light

Installing tail light


94 31 0029

Connecting connector

1. Push the central connector for the tail light together until the connector is felt to engage.
2. Push the electric lead into the rear wing and insert the tail light into the guide.



94 31 0026

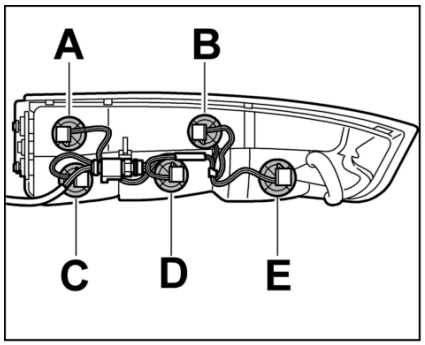
Tightening fastening screw

3. Secure the tail light with the fastening screw **-1-** . **Tightening torque: 7.2 ftlb.**

top of page

Information

Lamp overview: tail light



Lamp overview: tail light

A - P21 W, reverse light
B - PY21 W, direction indicator light
C - P21/4 W, brake light/tail light
D - P21/5 W, rear fog light/tail light
E - P21/4 W, rear fog light/tail light

997110, 997111, 997120, 997121, 997310, 997311, 997320, 997321, 997410, 997411, 997430, 997431, 997610, 997611, 997620, 997621

as of MY 2005
Country C00, C02, C05, C07, C08, C09, C10, C11, C12, C13, C14, C15, C16, C18, C19, C20, C21, C22, C23, C24, C25, C26, C27, C28, C32, C33, C34, C35, C36, C37, C38, C39, C45, C46, C98, C99

WARNUNG
Gefahr des Verlusts der Text-Bild-Zuordnung beim Ausdruck.

- **Aus technischen Gründen kann derzeit nicht ausgeschlossen werden, dass trotz einwandfreier Darstellung auf dem Bildschirm beim Ausdruck der Zusammenhang von Text und zugehörigem Bild verloren geht.**
- **Wird der Fehler nicht bemerkt, besteht die Gefahr, daß Arbeiten nicht korrekt durchgeführt werden und es dadurch zu Personen- und Sachschäden kommt.**

Vergleichen Sie deshalb nach dem Druckvorgang unbedingt die Ausdrucke mit der Bildschirmdarstellung. Korrigieren Sie die Ausdrucke im Fehlerfall so, daß der Inhalt der Bildschirmdarstellung zutreffend wiedergegeben wird.

WARNING
Danger of losing text-figure correspondence when printing out.

- **For technical reasons, it can currently not be ruled out that the correspondence between text and associated figure can be lost when it is printed out, even though the display on the screen is correct.**

94 36 19 Removing and installing stop light switch - as of MY 2005

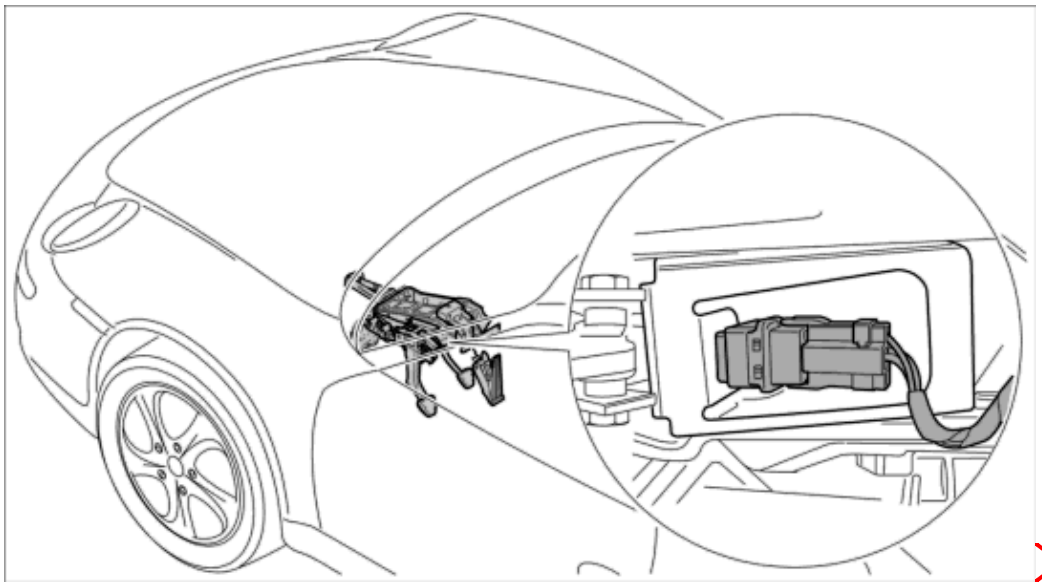
- Removing stop light switch
- Installing stop light switch

top of page

Removing stop light switch

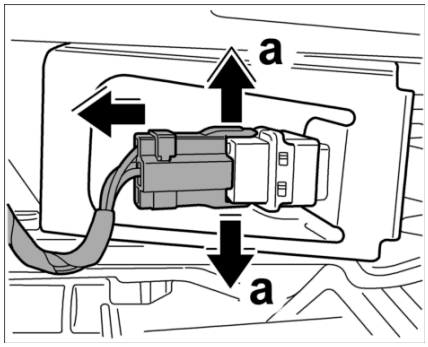
Removing stop light switch

Installation Location:



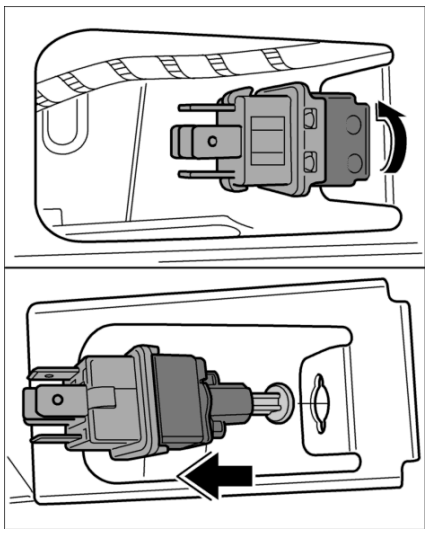
Overview of stop light switch

1. Switch off ignition and remove ignition key.



Disconnecting plug for stop light switch

2. Disengage plug from stop light switch on both sides (Arrows a) and remove.



Removing stop light switch

3. Turn brake light switch 90° counter-clockwise and remove it.

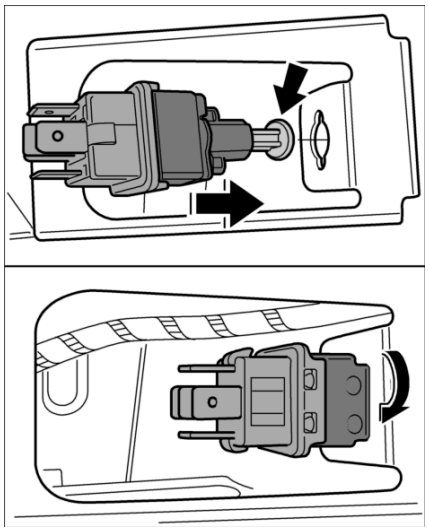
top of page

Installing stop light switch

Installing stop light switch

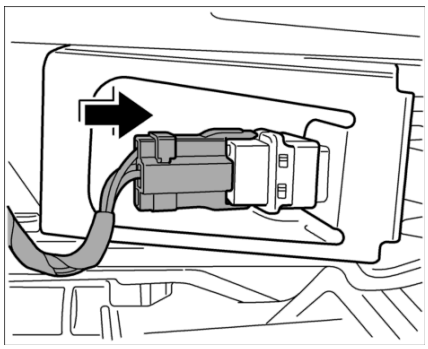
Note

- *The brake light switch setting is firmly fixed and is not adjustable!*
- *The brake light switch may be fitted only once in order to ensure that it fits tightly!*



Installing stop light switch

1. Before fitting the stop light switch, pull out the plunger (arrow) out of the stop light switch until the stop.
2. Insert stop light switch with the bayonet lock take-up bore, press in, and turn clockwise by 90°. This sets the tappet push rod to the exact length.



Connecting stop light switch plug

3. Position and insert the plug until it is felt to engage.

997110, 997111, 997120, 997121, 997310, 997311, 997320, 997321, 997410, 997411, 997430, 997431, 997610, 997611, 997620, 997621

as of MY 2005
Country C00, C02, C05, C07, C08, C09, C10, C11, C12, C13, C14, C15, C16, C18, C19, C20, C21, C22, C23, C24, C25, C26, C27, C28, C32, C33, C34, C35, C36, C37, C38, C39, C45, C46, C98, C99

WARNUNG

Gefahr des Verlusts der Text-Bild-Zuordnung beim Ausdruck.

- **Aus technischen Gründen kann derzeit nicht ausgeschlossen werden, dass trotz einwandfreier Darstellung auf dem Bildschirm beim Ausdruck der**

94 44 19 Removing and installing bulb for number plate light - as of MY 2005

- Removing bulb for number plate light
- Installing bulb for number plate light

top of page

Removing bulb for number plate light

Removing number plate light

ATTENTION

Danger of damage to property if bulbs are used or handled incorrectly!

- **Risk of damage to bulbs and bulb housing.**

Switch off ignition and remove ignition key.

To prevent short circuits, the load in question must be switched off while changing bulbs.

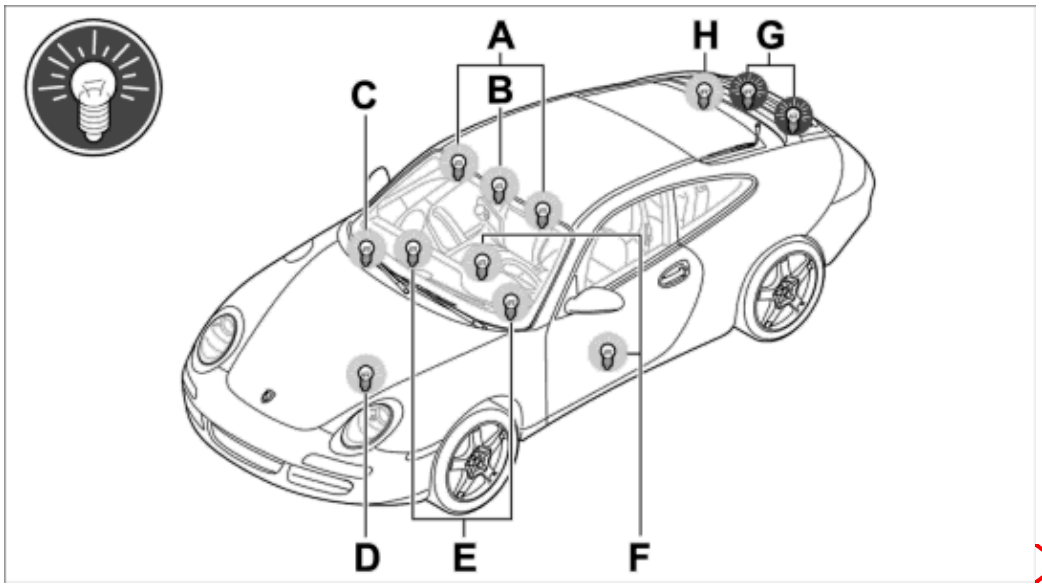
Only bulbs specified in the bulb table may be used.

Bulbs with a higher wattage may damage the bulb housing.

New bulbs must be clean and free of grease. Therefore, never touch the bulbs with your bare hands. Use a cloth or soft paper when changing bulbs.

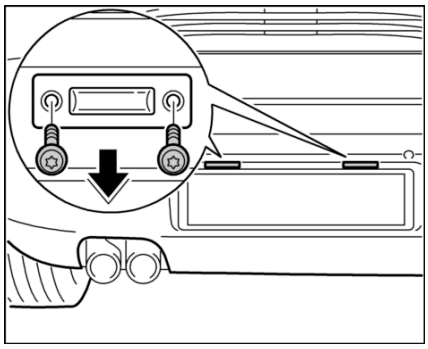
In certain states, it is compulsory to carry spare light bulbs.

Installation Location:



Number plate light overview

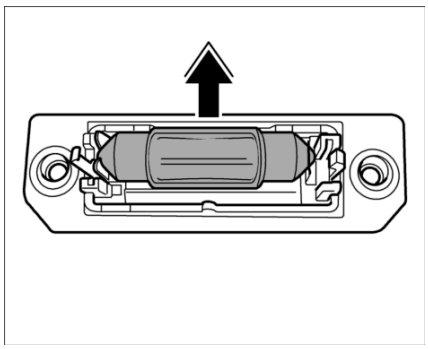
G - Number plate lights



Removing number plate light

1. Unscrew the two fastening screws and remove the number plate light.

Removing bulb for number plate light



Removing bulb for number plate light

1. Remove defective bulb from between the contact springs.

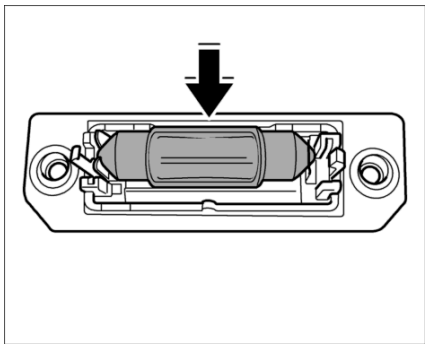
top of page

Installing bulb for number plate light

Installing bulb for number plate light

Note

Only use the relevant bulb specified in the bulb table *IN IN - Bulb table and installation instructions - "Information" chapter*.

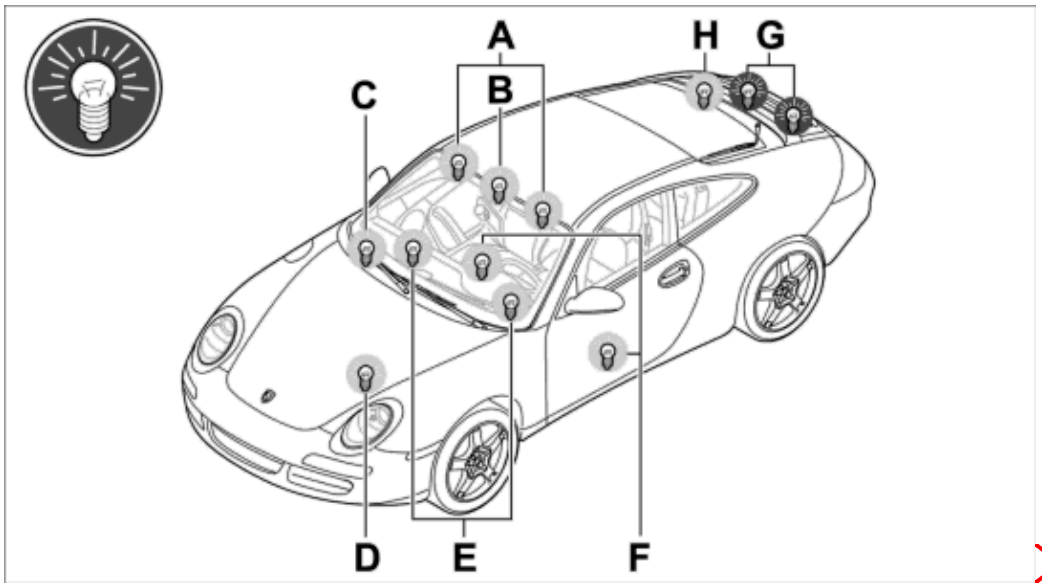


Installing bulb for number plate light

1. Insert new bulb into the contact springs.

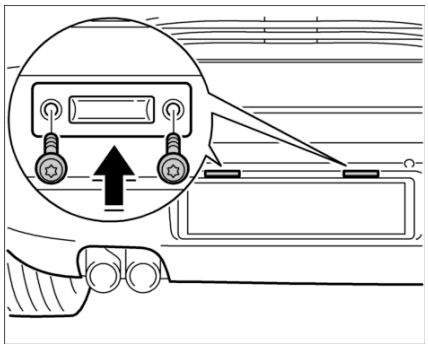
Installing number plate light

Installation Location:



Number plate light overview

G - Number plate lights



Installing number plate light

1. Insert number plate lights and tighten with the two fastening screws.

997110, 997111, 997120, 997121, 997310, 997311, 997320, 997321, 997410, 997411, 997430, 997431, 997610, 997611, 997620, 997621

as of MY 2005
Country C00, C02, C05, C07, C08, C09, C10, C11, C12, C13, C14, C15, C16, C18, C19, C20, C21, C22, C23, C24, C25, C26, C27, C28, C32, C33, C34, C35, C36, C37, C38, C39, C45, C46, C98, C99

WARNUNG

Gefahr des Verlusts der Text-Bild-Zuordnung beim Ausdruck.

- **Aus technischen Gründen kann derzeit nicht ausgeschlossen werden, dass trotz einwandfreier Darstellung auf dem Bildschirm beim Ausdruck der Zusammenhang von Text und zugehörigem Bild verloren geht.**

94 47 19 Removing and installing hazard warning light switch - as of MY 2005

- Removing hazard warning light switch
- Installing hazard warning light switch

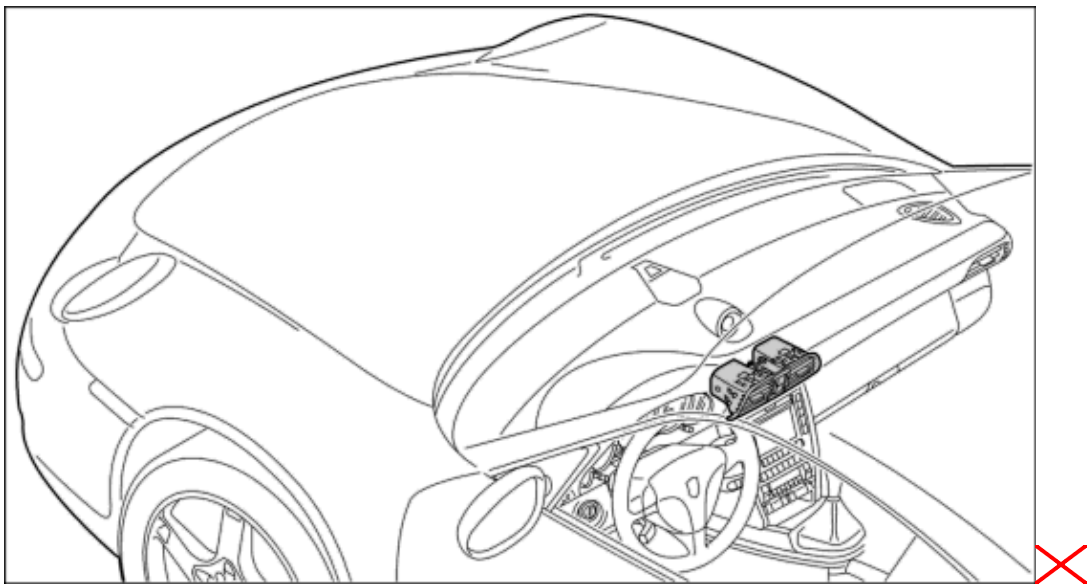
top of page

Removing hazard warning light switch

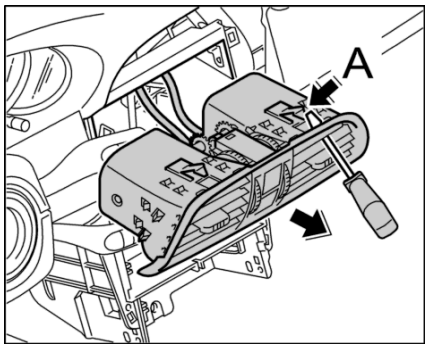
Removing hazard warning light switch

Note
The hazard warning light switch is located in the middle air vent.

Installation Location:

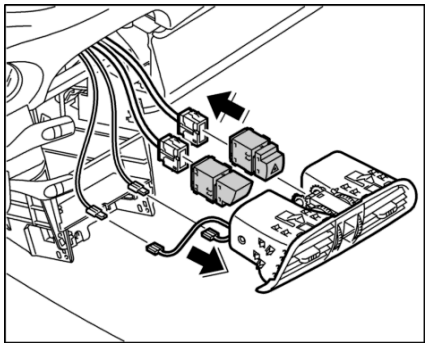


Overview of hazard warning light switch



Releasing the air vent

1. With a screwdriver through the top air slot, release the left and right retaining clip **-A-** and pull the air vent out of the dashboard.



Electrical connectors

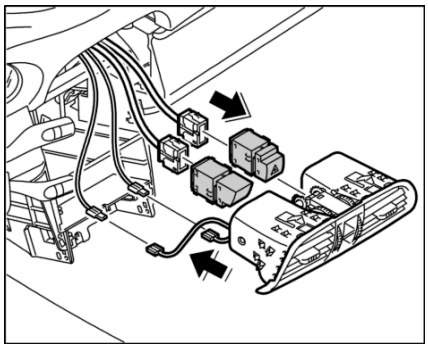
2. Pull apart the electrical plug connections and remove the air vent.
3. Unclip and remove hazard warning light switch from the air vent.

top of page

Installing hazard warning light switch

Installing hazard warning light switch

1. Position hazard warning light switch and press it into the air vent.



Electrical connectors

2. Push together the electrical plug connections.
3. Observe the line routing and insert the air vent into the dashboard until it clicks into place.
4. Check function of air vent illumination, air vent adjustment and the hazard warning light switch.

997110, 997111, 997120, 997121, 997310, 997311, 997320, 997321, 997410, 997411, 997430, 997431, 997610, 997611, 997620, 997621

as of MY 2005
Country C00, C02, C05, C07, C08, C09, C10, C11, C12, C13, C14, C15, C16, C18, C19, C20, C21, C22, C23, C24, C25, C26, C27, C28, C32, C33, C34, C35, C36, C37, C38, C39, C45, C46, C98, C99

WARNUNG

Gefahr des Verlusts der Text-Bild-Zuordnung beim Ausdruck.

- **Aus technischen Gründen kann derzeit nicht ausgeschlossen werden, dass trotz einwandfreier Darstellung auf dem Bildschirm beim Ausdruck der Zusammenhang von Text und zugehörigem Bild verloren geht.**
- **Wird der Fehler nicht bemerkt, besteht die Gefahr, daß Arbeiten nicht korrekt durchgeführt werden und es dadurch zu Personen- und Sachschäden kommt.**

Vergleichen Sie deshalb nach dem Druckvorgang unbedingt die Ausdrucke mit der Bildschirmdarstellung. Korrigieren Sie die Ausdrucke im Fehlerfall so, daß der Inhalt der Bildschirmdarstellung zutreffend wiedergegeben wird.

WARNING

Danger of losing text-figure correspondence when printing out.

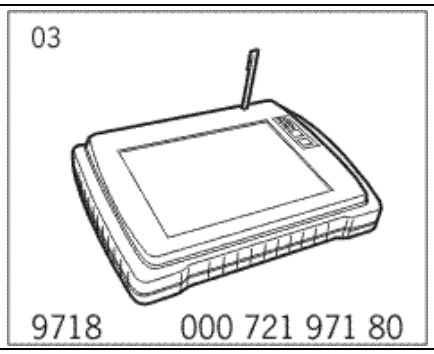
- **For technical reasons, it can currently not be ruled out that the correspondence between text and associated figure can be lost when it is printed out, even though the display on the screen is correct.**
- **If the fault is not noticed, there is the danger that work will not be performed correctly which can cause injury and damage.**

Therefore, always compare printouts with the screen display after printing them out. Correct the printouts if they are faulty so that the content of the screen display matches that on the printouts.

94 49 19 Removing and installing front control unit - as of MY 2005

- Preliminary work
- Technical values
- Removing front control unit
- Installing front control unit
- Subsequent work
- Coding control unit

Tools

Designation	Type	Number	Explanation	
PIWIS tester	special tool	9718		

top of page

Preliminary work

Preliminary work - front control unit

Remove luggage compartment lining in the area around the front control unit.
703019 Removing and installing luggage compartment cover - "Removing" chapter [997110 997111 997120 997121 997310 997311 997320 997321] *703019 21 Removing and installing luggage compartment cover - "Removing" chapter [997410 997411 997430 997431 997610 997611 997620 997621]*

top of page

Technical values

Technical values - front control unit

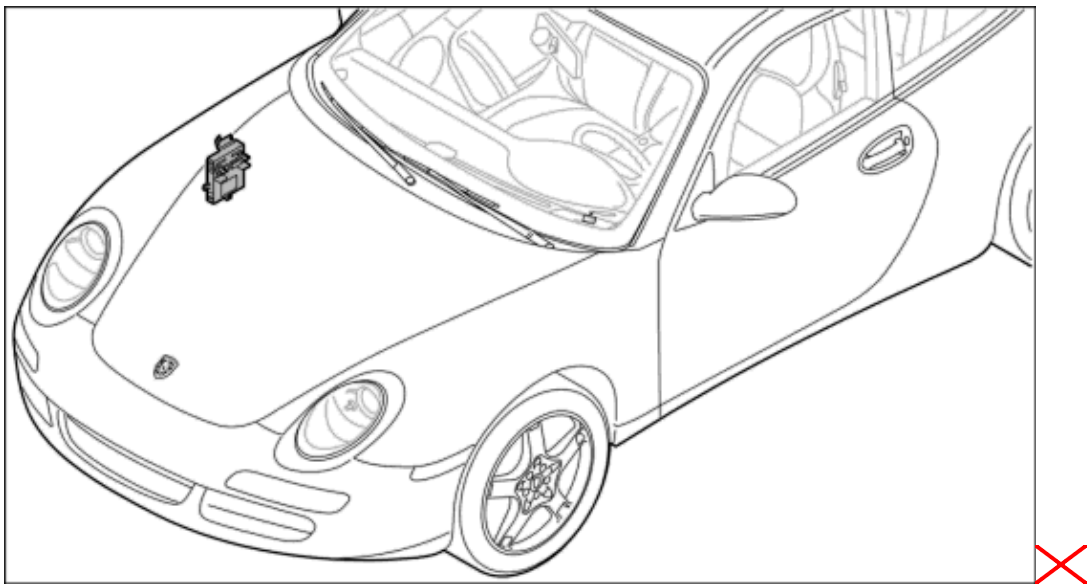
M6: 7.5 ftlb.

top of page

Removing front control unit

Removing front control unit

Installation Location:



Install location

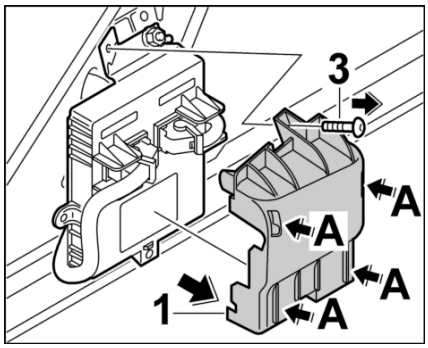
If a new control unit has to be installed, read out as much of the data from the old control unit as possible using the **PIWIS tester 9718**. 944919 Removing and installing front control unit - "Coding" chapter

WARNING

Risk of damage to electronic control modules.

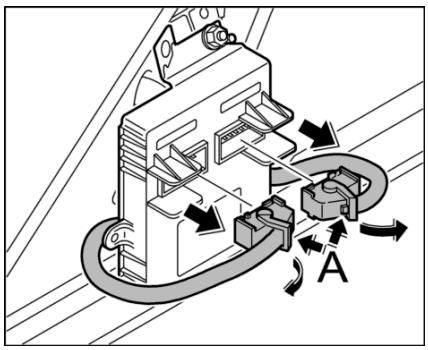
- **If care is not taken, electrical and electronic components may be destroyed.**

Before removing the control module, switch off the ignition and remove the ignition key.



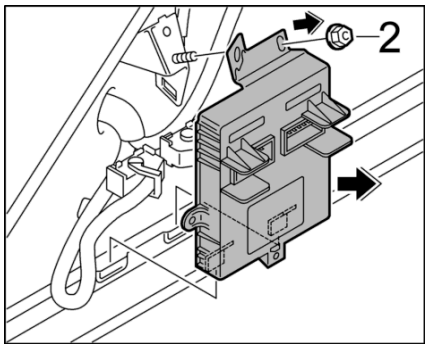
Removing the cover

1. Unscrew fastening screw **-3-** .
2. Push a screwdriver into the openings **-A-** and unclip the four clips holding the cover **-1-** .



Electrical plug

3. Release and unplug both electric connectors **-A-** and disengage the left and right electric lines on the control unit.



Detaching control unit.

4. Unscrew the fastening nuts **-2-** , lift up the control unit and detach it.

top of page

Installing front control unit

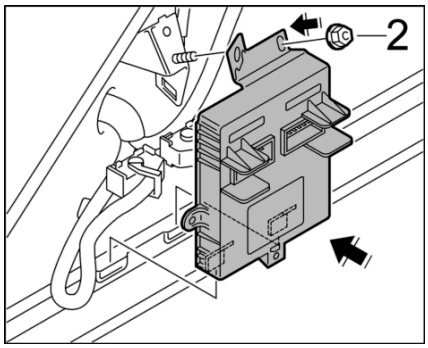
Installing front control unit

WARNING

Risk of damage to electronic control modules.

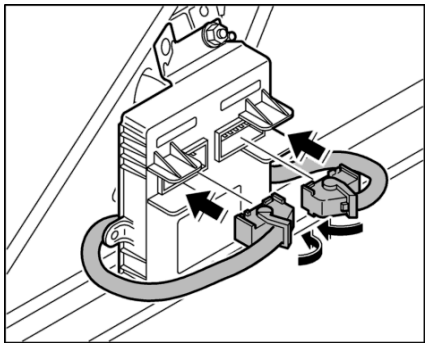
- **If care is not taken, electrical and electronic components may be destroyed.**

Before removing the control module, switch off the ignition and remove the ignition key.



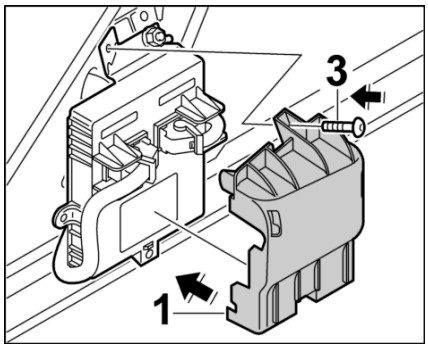
Attaching control unit.

1. Insert the front control unit into the body and secure with the fastening nut **-2-** . 944919 Removing and installing front control unit - chapter on "Technical values" **Tightening torque: 7.0 ftlb.**



Plugging in the electrical connector and locking it.

2. Push in the electrical connector and lock it so that it is felt to engage.
3. Clip in left and right electric lines on the control unit.



Positioning the cover.

4. Position the cover **-1-** and push it in until it snaps into place in the four clips.
5. Screw down cover with the fastening screw **-3-** .
6. If a new control unit has been installed, it must be programmed in the vehicle. 944919 Removing and installing front control unit - "Coding" chapter

top of page

Subsequent work

Subsequent work - front control unit

Secure luggage compartment lining in the area around the front control module.
703019 Removing and installing luggage compartment lining - "Installing" chapter [997110 997111 997120 997121 997310 997311 997320 997321] *703019 23 Removing and installing luggage compartment lining - "Installing" chapter [997410 997411 997430 997431 997610 997611 997620 997621]*

top of page

Coding control unit

Reading out and printing out values

WARNING
Sudden voltage interruption of the power supply to the control module.

- **Destruction of the control module.**

During programming, it is essential to guarantee the power supply for the Porsche System tester. It is essential to connect a battery charger with a current rating of at least 40 A to the vehicle battery.

Prior to disconnecting the control module, switch off the ignition and remove the ignition key.

Note

Follow the instructions on the Tester.
Later versions of the software may display slightly different text or require a slightly different procedure. The instructions you receive from the tester itself take precedence over this description.

1. Connect the Porsche System Tester to the vehicle and start the System Tester. Switch on the ignition. >> Continue.
2. Select **vehicle type**.
3. From **vehicle type**, change to **control units** >> .
4. Select required **control unit** with the cursor keys and press >> key.
5. Select **Control unit replacement** with the cursor keys and press the >> key.
6. Select **Read out values** (codings) with the cursor keys and press the >> key.
7. The message **Codes successfully read out** appears on the screen of the Porsche System Tester. Press >> .
8. Switch off ignition and replace control unit.
9. Switch on ignition. After replacement of the control unit, the data previously read out (see Item 6) is reloaded under the menu **Write in codes**. Press >> .
10. System Tester displays Coding write-in complete . Press the >> key.
11. Leave menu, read out all control units and erase fault memories.
12. Select **front end** on the control unit, carry out **calibration** menu.
13. Check headlight setting and adjust if necessary.

Coding the front end control unit

WARNING

Sudden voltage interruption of the power supply to the control module.

- **Destruction of the control module.**

During programming, it is essential to guarantee the power supply for the Porsche System tester. It is essential to connect a battery charger with a current rating of at least 40 A to the vehicle battery.

Prior to disconnecting the control module, switch off the ignition and remove the ignition key.

Note

Follow the instructions on the Tester.
Later versions of the software may display slightly different text or require a slightly different procedure. The instructions you receive from the tester itself take precedence over this description.

1. Connect the Porsche System Tester to the vehicle and start the System Tester. Switch on the ignition. >> Continue.
2. Select vehicle type, select the **special functions** menu, start the **vehicle handover** and follow the instructions of the tester.
3. **Erase all fault memories**.
4. Using the >> key, move from the vehicle type to the list of control units. Perform the automatic control unit search.
5. Select **front end** with the cursor keys and press >> key.
6. Select **coding** with the cursor keys and press the >> key.
7. Select the variants required for the vehicle and follow the instructions of the tester.
8. Read out and erase fault memory.
9. Select **front end** on the control unit, carry out **calibration** menu.
10. Check headlight setting and adjust if necessary.

997110, 997111, 997120, 997121, 997310, 997311, 997320, 997321, 997410, 997411, 997430, 997431, 997610, 997611, 997620, 997621

as of MY 2005
Country C00, C02, C05, C07, C08, C09, C10, C11, C12, C13, C14, C15, C16, C18, C19, C20, C21, C22, C23, C24, C25, C26, C27, C28, C32, C33, C34, C35, C36, C37, C38, C39, C45, C46, C98, C99

WARNUNG

Gefahr des Verlusts der Text-Bild-Zuordnung beim Ausdruck.

- **Aus technischen Gründen kann derzeit nicht ausgeschlossen werden, dass trotz einwandfreier Darstellung auf dem Bildschirm beim Ausdruck der Zusammenhang von Text und zugehörigem Bild verloren geht.**
- **Wird der Fehler nicht bemerkt, besteht die Gefahr, daß Arbeiten nicht korrekt durchgeführt werden und es dadurch zu Personen- und Sachschäden kommt.**

Vergleichen Sie deshalb nach dem Druckvorgang unbedingt die Ausdrucke mit der Bildschirmdarstellung. Korrigieren Sie die Ausdrucke im Fehlerfall so, daß der Inhalt der Bildschirmdarstellung zutreffend wiedergegeben wird.

WARNING

Danger of losing text-figure correspondence when printing out.

- **For technical reasons, it can currently not be ruled out that the correspondence between text and associated figure can be lost when it is printed out, even though the display on the screen is correct.**
- **If the fault is not noticed, there is the danger that work will not be performed correctly which can cause injury and damage.**

94 50 19 Removing and installing steering-column switch - as of MY 2005

- Preliminary work
- Technical values
- Removing steering-column switch
- Installing steering-column switch
- Subsequent work

top of page

Preliminary work

Preliminary work - steering column switch

695819 Removing and installing driver's airbag unit - "Removing" chapter
481019 Removing and installing steering wheel - "Removing" chapter
481319 21 Removing and installing trim - "Removing" chapter

top of page

Technical values

Technical values - steering column switch

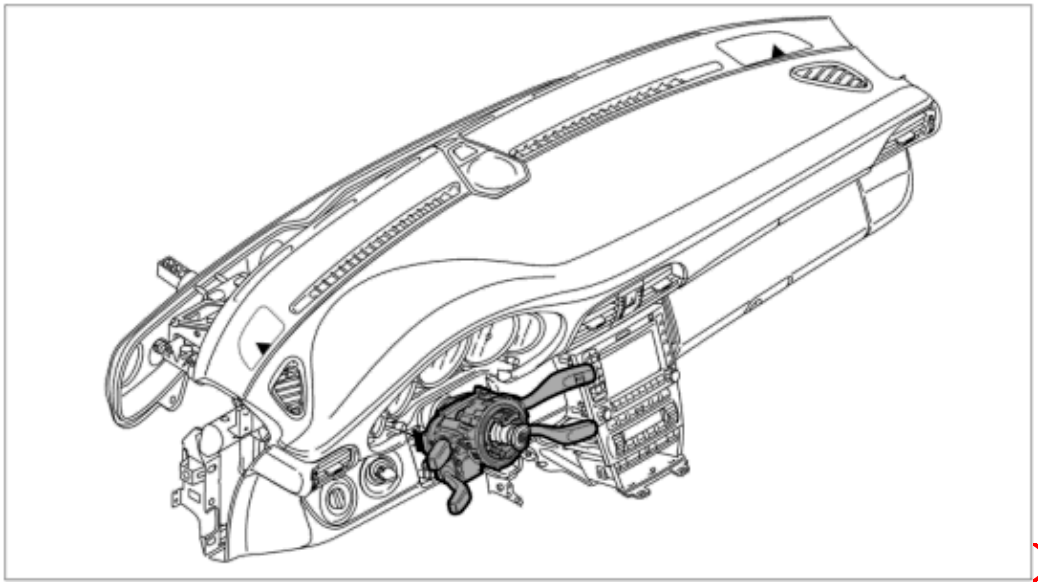
Tightening torque: 4.5 ftlb.

top of page

Removing steering-column switch

Removing steering column switch

Installation Location:



Install location

WARNING

Incorrect adjustment of the contact unit may cause the airbag contact unit to be destroyed when the steering wheel is turned all the way.

- **Risk of destroying airbag contact unit.**

When removing and installing steering column switch, the steering wheel must be pulled off in the straight-ahead position. This ensures that the airbag contact unit is locked in the central position.

If the setting has accidently changed (locking element released, airbag contact unit out of adjustment), the airbag contact unit must be adjusted as follows.

To position the airbag contact unit in the central position, press the locking element and turn the rotor carefully to the left as far as it will go.

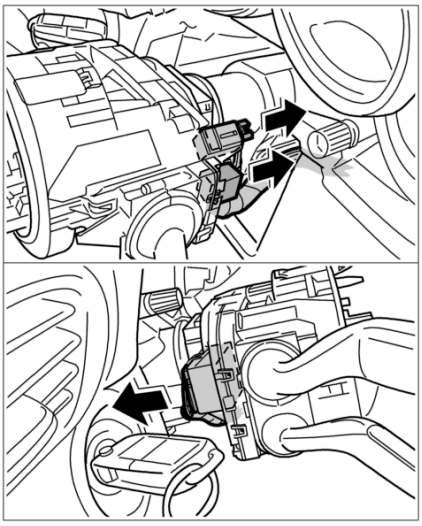
Then turn the rotor carefully to the right, approx. 3.5 to 3.75 revolutions, until the locking element engages. The rotor arrow marking must be positioned between the arrow markings of the contact unit.

WARNING

Risk of damage to electronic control modules.

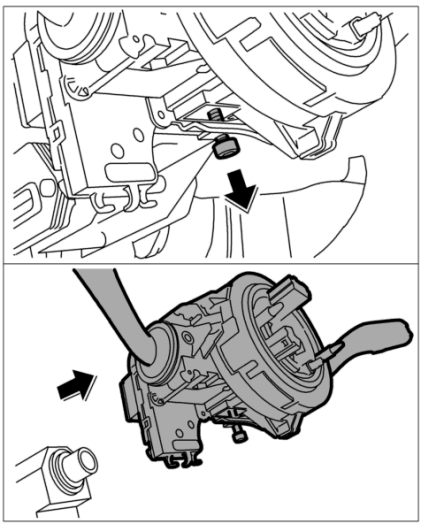
- **If care is not taken, electrical and electronic components may be destroyed.**

Before removing the control module, switch off the ignition and remove the ignition key.



Releasing electrical plug

1. Press locking element for the electrical plug and pull off the plug.



Undoing fastening screw

2. Loosen fastening screw and pull steering column switch downwards from the steering column.

top of page

Installing steering-column switch

Removing steering column switch

WARNING

Incorrect adjustment of the contact unit may cause the airbag contact unit to be destroyed when the steering wheel is turned all the way.

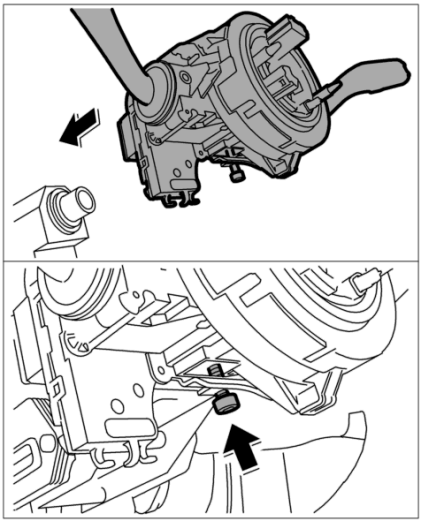
- **Risk of destroying airbag contact unit.**

When removing and installing steering column switch, the steering wheel must be pulled off in the straight-ahead position. This ensures that the airbag contact unit is locked in the central position.

If the setting has accidently changed (locking element released, airbag contact unit out of adjustment), the airbag contact unit must be adjusted as follows.

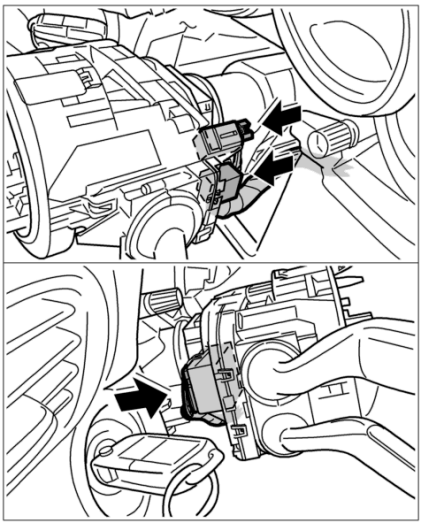
To position the airbag contact unit in the central position, press the locking element and turn the rotor carefully to the left as far as it will go.

Then turn the rotor carefully to the right, approx. 3.5 to 3.75 revolutions, until the locking element engages. The rotor arrow marking must be positioned between the arrow markings of the contact unit.



Installation of steering column switch

1. Slide steering column switch onto steering column to the stop and secure with fastening screw.
   Tightening torque: 4.5 ftlb.



Connecting the plug connection

2. Push on connector plugs of steering column switch until they are felt to engage.

top of page

Subsequent work

Subsequent work - steering column switch

481319 23 Removing and installing trim - "Installing" chapter
481019 Removing and installing steering wheel - "Installing" chapter
695819 Removing and installing driver's airbag unit - "Installing" chapter

---

997110, 997111, 997120, 997121, 997310, 997311, 997320, 997321, 997410, 997411, 997430, 997431, 997610, 997611, 997620, 997621

as of MY 2005
Country C00, C02, C05, C07, C08, C09, C10, C11, C12, C13, C14, C15, C16, C18, C19, C20, C21, C22, C23, C24, C25, C26, C27, C28, C32, C33, C34, C35, C36, C37, C38, C39, C45, C46, C98, C99

WARNUNG

Gefahr des Verlusts der Text-Bild-Zuordnung beim Ausdruck.

- **Aus technischen Gründen kann derzeit nicht ausgeschlossen werden, dass trotz einwandfreier Darstellung auf dem Bildschirm beim Ausdruck der Zusammenhang von Text und zugehörigem Bild verloren geht.**
- **Wird der Fehler nicht bemerkt, besteht die Gefahr, daß Arbeiten nicht korrekt durchgeführt werden und es dadurch zu Personen- und Sachschäden kommt.**

94 50 37 Disassembling and assembling steering column switch - as of MY 2005

- Preliminary work - steering column switch
- Disassembling and assembling steering column switch
- Subsequent work - steering column switch

top of page

Preliminary work - steering column switch

Preliminary work - steering column switch

695819 Removing and installing driver's airbag unit - "Removing" chapter
481019 Removing and installing steering wheel - "Removing" chapter
481319 21 Removing and installing trim - "Removing" chapter

top of page

Disassembling and assembling steering column switch

Disassembling steering column switch

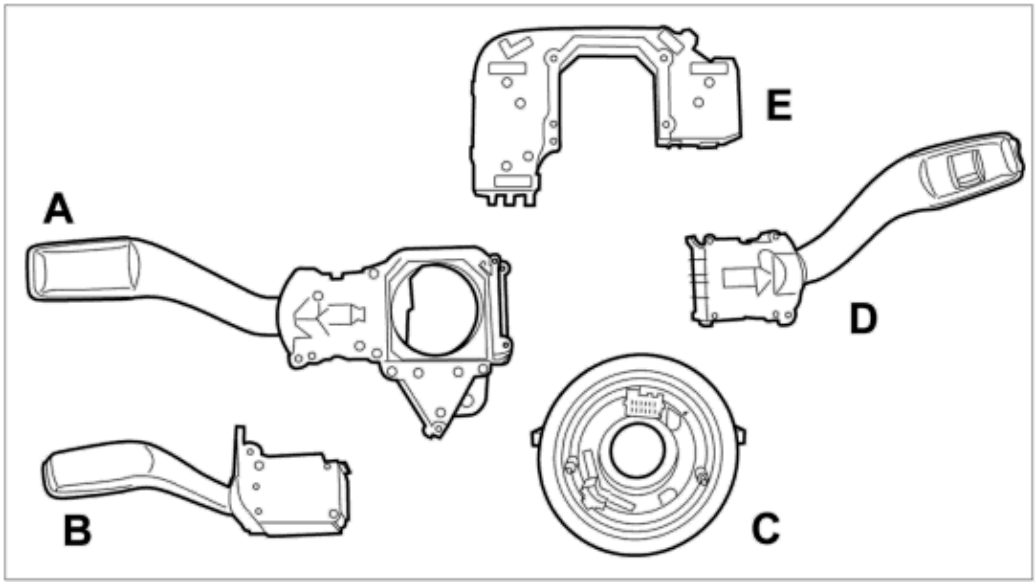
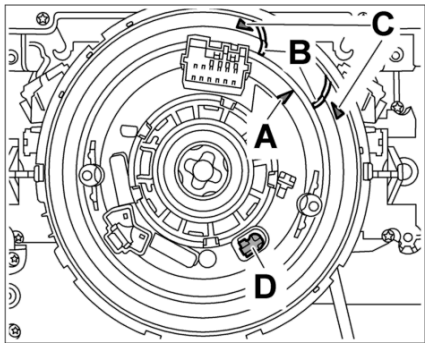


Diagram of steering column switch
-A- - Direction indicator switch

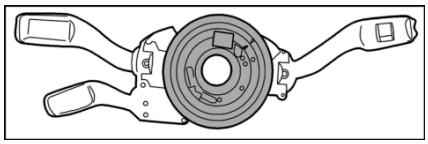
-B- - GRA switch
-C- - Contact unit for airbag
-D- - Switch for wiper and washer system
-E- - Electronic unit



Airbag contact unit marking

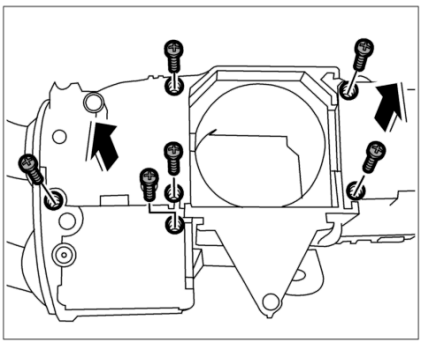
Note

Ensure that arrow **-A-** of the rotor is positioned between the markings **-B-** of the arrows **-C-** of the airbag contact unit and that the locking element **-D-** is engaged.



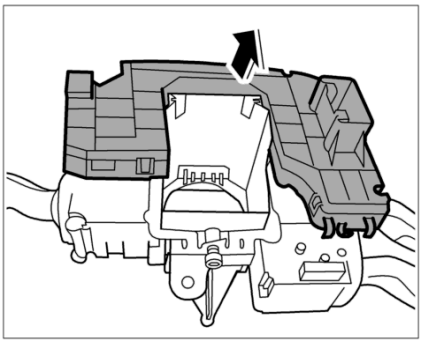
Airbag contact unit locking tabs

1. Carefully lift up the three retaining tabs and remove airbag contact unit **-C-** .



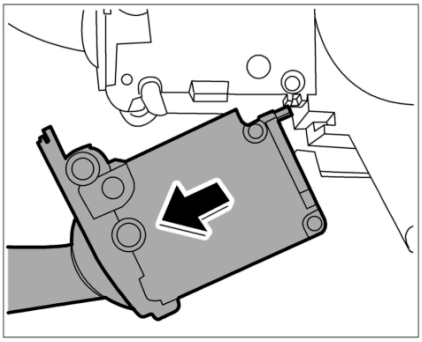
Fastening screws

2. Unscrew the six fastening screws.



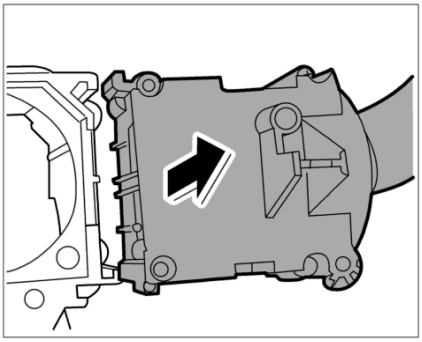
Electronic unit

3. Turn the steering column switch round and remove the electronic unit **-E-** .



GRA switch

4. Pull the GRA switch **-B-** downward and disengage.



Switch for wiper and washer system

5. Pull switch for wiper and washer system **-D-** up and out of the mount.

Assembling steering column switch

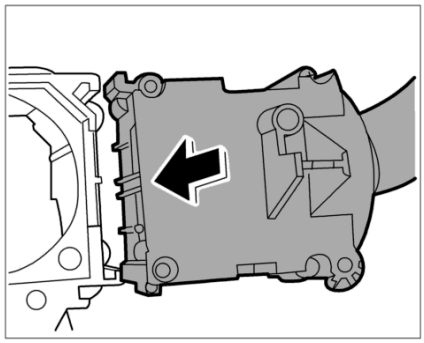
WARNING

Risk of damage to airbag contact unit!

- **If the contact unit has been adjusted, proceed in accordance with the following work instruction:**

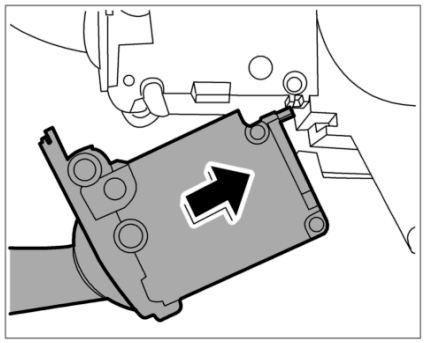
To position the airbag contact unit in the central position, press the locking element and turn the rotor carefully to the left as far as it will go.

Then turn the rotor carefully to the right, approx. 3.5 to 3.75 revolutions, until the locking element engages. The rotor arrow marking must be positioned between the arrow markings of the contact unit



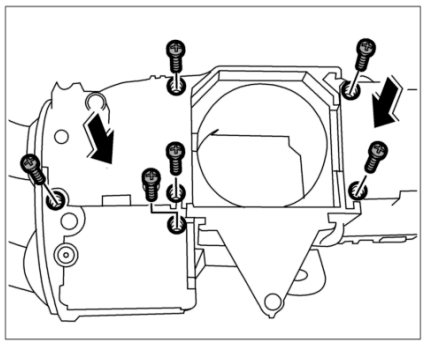
Switch for wiper and washer system

1. Insert switch for wiper and washer system **-D-** into the mount.



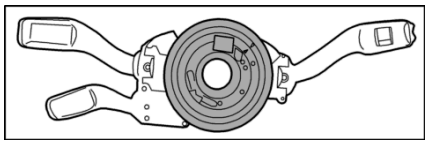
GRA switch

2. Attach the GRA switch **-B-** and fold it upwards.
3. Turn the steering column switch and position the electronic unit.



Screw in 6 fastening screws.

4. Turn the steering column switch round again and screw in the six fastening screws.



Position airbag contact unit

5. Position airbag contact unit and press onto the steering column switch until the three tabs engage **-arrows-** .

top of page

Subsequent work - steering column switch

Subsequent work - steering column switch

481319 23 Removing and installing trim - "Installing" chapter
481019 Removing and installing steering wheel - "Installing" chapter
695819 Removing and installing driver's airbag unit - "Installing" chapter

---

997110, 997111, 997120, 997121, 997310, 997311, 997320, 997321, 997410, 997411, 997430, 997431, 997610, 997611, 997620, 997621

as of MY 2005
Country C00, C02, C05, C07, C08, C09, C10, C11, C12, C13, C14, C15, C16, C18, C19, C20, C21, C22, C23, C24, C25, C26, C27, C28, C32, C33, C34, C35, C36, C37, C38, C39, C45, C46, C98, C99

WARNUNG
Gefahr des Verlusts der Text-Bild-Zuordnung beim Ausdruck.

- **Aus technischen Gründen kann derzeit nicht ausgeschlossen werden, dass trotz einwandfreier Darstellung auf dem Bildschirm beim Ausdruck der Zusammenhang von Text und zugehörigem Bild verloren geht.**
- **Wird der Fehler nicht bemerkt, besteht die Gefahr, daß Arbeiten nicht korrekt durchgeführt werden und es dadurch zu Personen- und Sachschäden kommt.**

Vergleichen Sie deshalb nach dem Druckvorgang unbedingt die Ausdrucke mit der Bildschirmdarstellung. Korrigieren Sie die Ausdrucke im Fehlerfall so, daß der Inhalt der Bildschirmdarstellung zutreffend wiedergegeben wird.

WARNING
Danger of losing text-figure correspondence when printing out.

- **For technical reasons, it can currently not be ruled out that the correspondence between text and associated figure can be lost when it is printed out, even though the display on the screen is correct.**

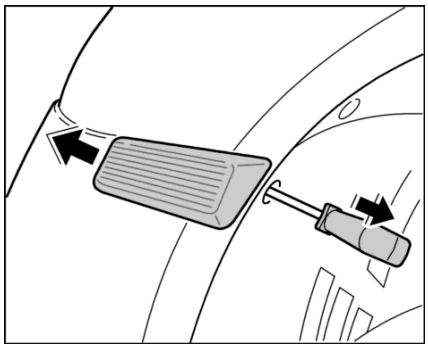
94 53 19 Removing and installing side direction indicator light - as of MY 2005

- Removing side direction indicator light
- Installing side direction indicator light

top of page

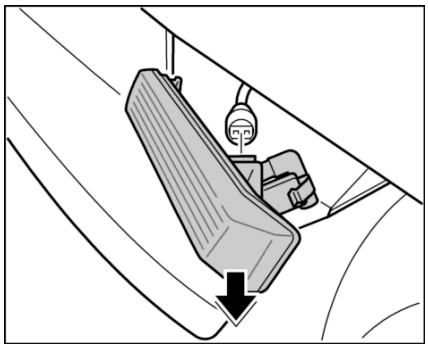
Removing side direction indicator light

Removing side direction indicator light



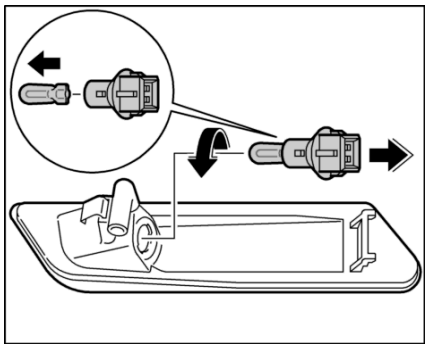
Removing direction indicator light

1. Insert a screwdriver through the opening in the wheel housing liner, press on the spring clamp at the direction indicator light and remove the direction indicator light.



Disconnecting electric plug connection

2. Release the electric plug connection and disconnect it from the direction indicator light.
3. Remove the direction indicator light.



Removing bulb

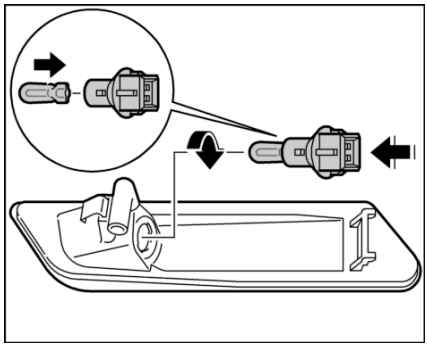
4. Unscrew the bulb holder.
5. Remove the bulb from the holder.

top of page

Installing side direction indicator light

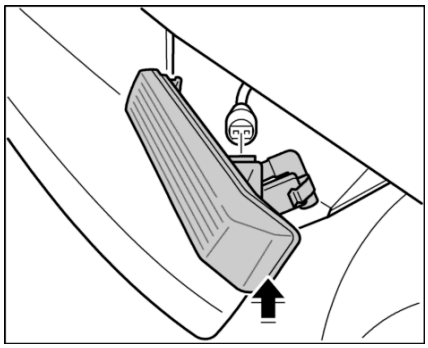
Installing side direction indicator light

Observe instructions in Bulb table and installation instructions. 9423IN Bulb table and installation instructions



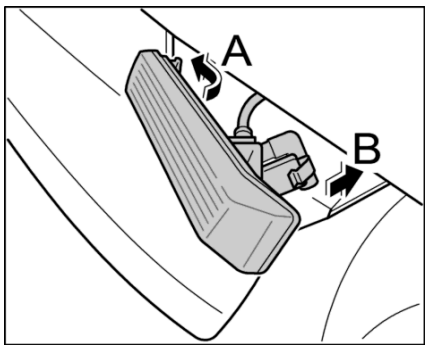
Installing bulb

1. Insert the new bulb into the holder.
2. Screw the holder with the bulb into the direction indicator light.



Connecting electric plug

3. Insert the electric plug connection into the direction indicator light until the connector can be felt to engage.



Installing direction indicator light

4. Engage the direction indicator light in the front apron **-A-** and clip it in **-B-** .
5. Check operation of direction indicator light.

997110, 997111, 997120, 997121, 997310, 997311, 997320, 997321, 997410, 997411, 997430, 997431, 997610, 997611, 997620, 997621

as of MY 2005
Country C00, C02, C05, C07, C08, C09, C10, C11, C12, C13, C14, C15, C16, C18, C19, C20, C21, C22, C23, C24, C25, C26, C27, C28, C32, C33, C34, C35, C36, C37, C38, C39, C45, C46, C98, C99

WARNUNG
Gefahr des Verlusts der Text-Bild-Zuordnung beim Ausdruck.

- **Aus technischen Gründen kann derzeit nicht ausgeschlossen werden, dass trotz einwandfreier Darstellung auf dem Bildschirm beim Ausdruck der Zusammenhang von Text und zugehörigem Bild verloren geht.**
- **Wird der Fehler nicht bemerkt, besteht die Gefahr, daß Arbeiten nicht korrekt durchgeführt werden und es dadurch zu Personen- und Sachschäden kommt.**

Vergleichen Sie deshalb nach dem Druckvorgang unbedingt die Ausdrucke mit der Bildschirmdarstellung. Korrigieren Sie die Ausdrucke im Fehlerfall so, daß der Inhalt der Bildschirmdarstellung zutreffend wiedergegeben wird.

94 56 19 Removing and installing bulb for front direction indicator - as of MY 2005

- Preliminary work
- Removing bulb for front direction indicator
- Installing bulb for front direction indicator
- Subsequent work

top of page

Preliminary work

Preliminary work - bulb for front direction indicator light

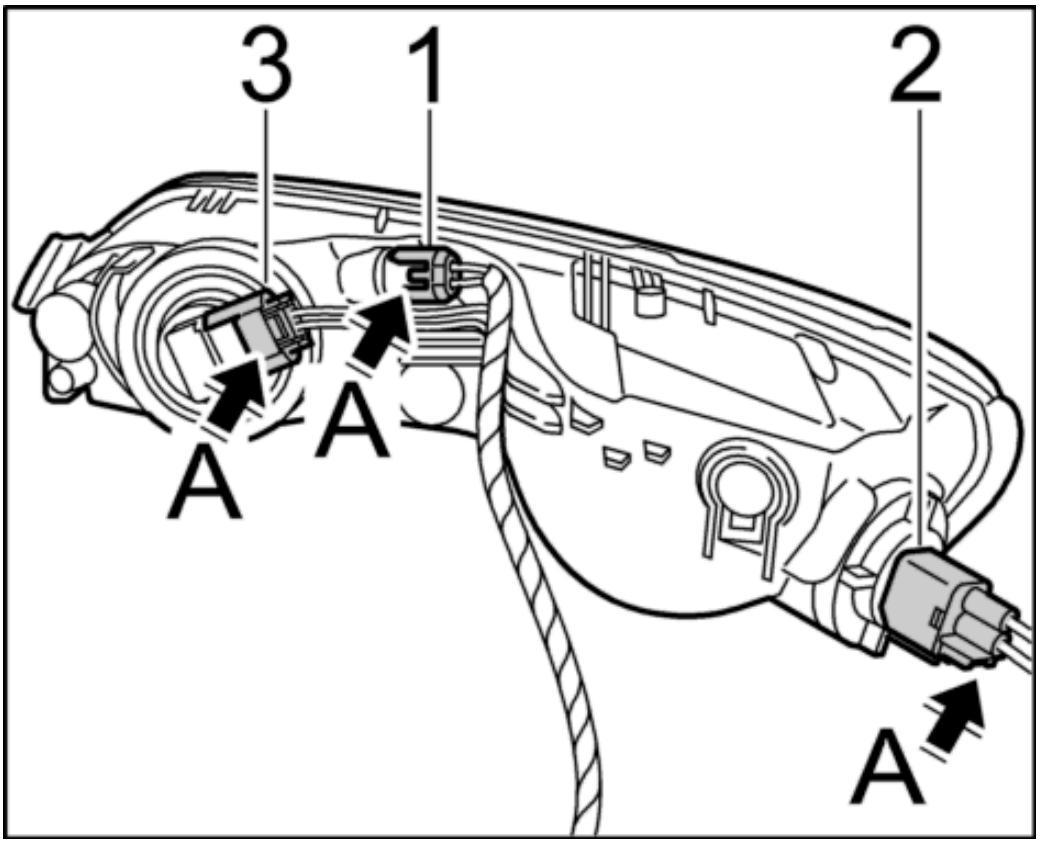
21 Removing and installing fog lights - chapter on "Removing"

top of page

Removing bulb for front direction indicator

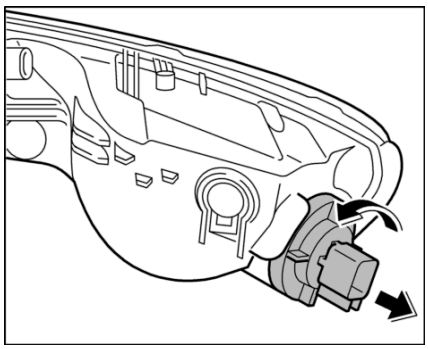
Removing bulb for front direction indicator light

Installation Location:



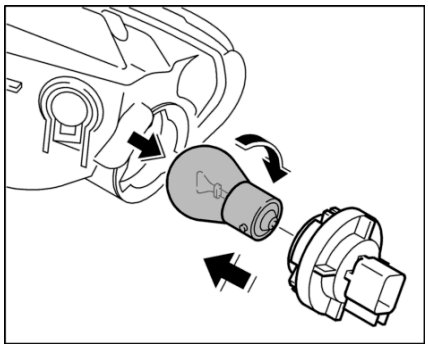
Installation position

2 - Bulb for front direction indicator light



Releasing bulb holder

1. Open the bulb holder with the bayonet lock for the front direction indicator light bulb and remove it.



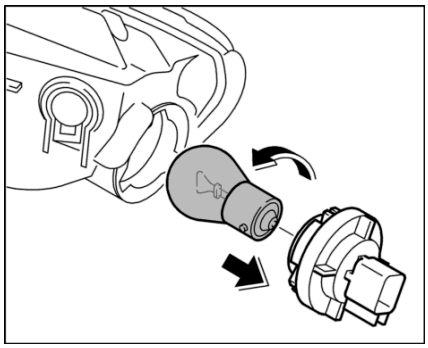
Pressing bulb and turning clockwise

2. Press the bulb into the bulb holder, turn it clockwise and remove it from the bulb holder.

top of page

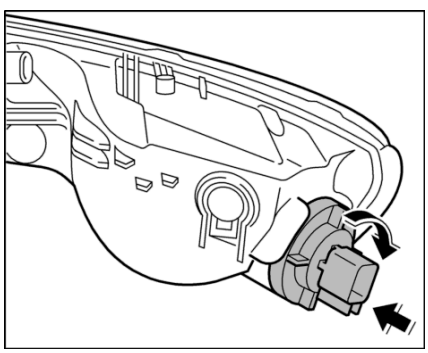
Installing bulb for front direction indicator

Installing bulb for front direction indicator light



Pressing bulb and turning anti-clockwise

1. Press the bulb into the bulb holder and turn it anti-clockwise until it engages fully.



Locking bulb holder

2. Insert the bulb with the bulb holder into the headlight and lock into place with the bayonet lock.

top of page

Subsequent work

Subsequent work - bulb for front direction indicator light

23 Removing and installing fog lights - chapter on "Installing"

997110, 997111, 997120, 997121, 997310, 997311, 997320, 997321, 997410, 997411, 997430, 997431, 997610, 997611, 997620, 997621

as of MY 2005
Country C00, C02, C05, C07, C08, C09, C10, C11, C12, C13, C14, C15, C16, C18, C19, C20, C21, C22, C23, C24, C25, C26, C27, C28, C32, C33, C34, C35, C36, C37, C38, C39, C45, C46, C98, C99

WARNUNG

Gefahr des Verlusts der Text-Bild-Zuordnung beim Ausdruck.

- **Aus technischen Gründen kann derzeit nicht ausgeschlossen werden, dass trotz einwandfreier Darstellung auf dem Bildschirm beim Ausdruck der Zusammenhang von Text und zugehörigem Bild verloren geht.**
- **Wird der Fehler nicht bemerkt, besteht die Gefahr, daß Arbeiten nicht korrekt durchgeführt werden und es dadurch zu Personen- und Sachschäden kommt.**

Vergleichen Sie deshalb nach dem Druckvorgang unbedingt die Ausdrucke mit der Bildschirmdarstellung. Korrigieren Sie die Ausdrucke im Fehlerfall so, daß der Inhalt der Bildschirmdarstellung zutreffend wiedergegeben wird.

WARNING

Danger of losing text-figure correspondence when printing out.

- **For technical reasons, it can currently not be ruled out that the correspondence between text and associated figure can be lost when it is printed out, even though the display on the screen is correct.**
- **If the fault is not noticed, there is the danger that work will not be performed correctly which can cause injury and damage.**

Therefore, always compare printouts with the screen display after printing them out. Correct the printouts if they are faulty so that the content of the screen display matches that on the printouts.

94 57 19 Removing and installing control unit for gas discharge - as of MY 2005

- Preliminary work
- Removing control unit for gas discharge
- Installing control unit for gas discharge
- Subsequent work

top of page

Preliminary work

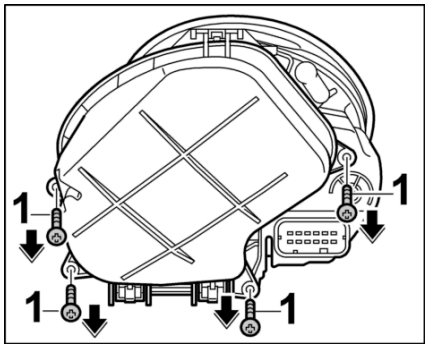
Preliminary work on control unit for gas discharge

941519 Removing and installing headlights - "Removing" section

top of page

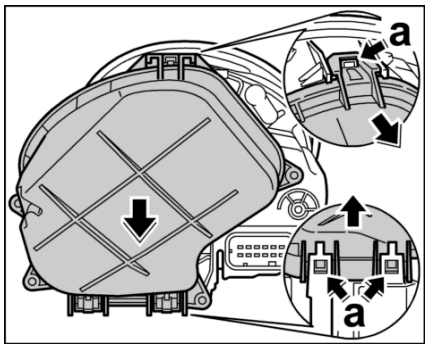
Removing control unit for gas discharge

Removing cap of main headlight



Fastening screws for cap

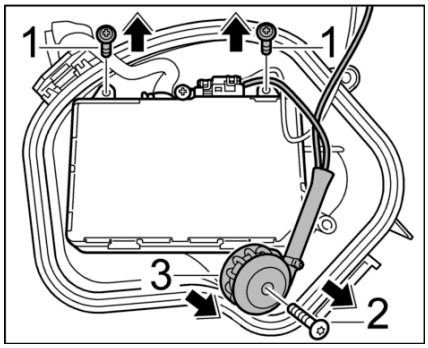
1. Unscrew four fastening screws **-1-** from the cap.



Releasing cap

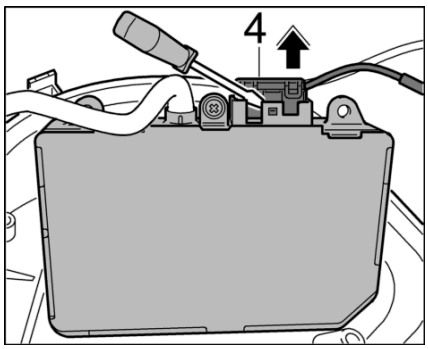
2. Release cap once at the top and twice at the bottom **-a-** and remove from the main headlight.

Removing control unit for gas discharge



Unscrewing fastening screws and pulling out coil

1. Unscrew the fastening screw **-2-** for the coil and pull the coil **-3-** out of the cap.
2. Unscrew the two fastening screws **-1-** and remove the control unit.



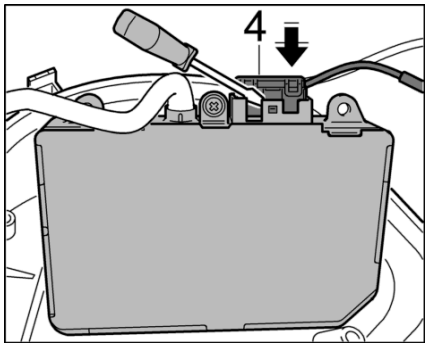
Releasing electrical connector with screwdriver

3. Using a screwdriver, carefully release the electrical connector on the screwdriver and lever it out.

top of page

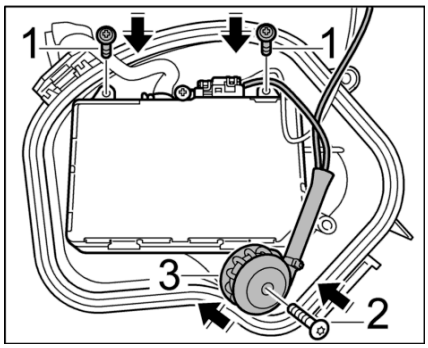
Installing control unit for gas discharge

Installing control unit for gas discharge



Connecting electric plug

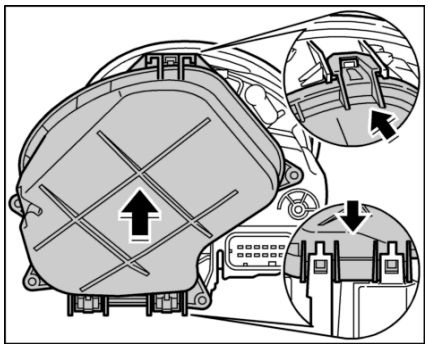
1. Press in the electrical connector for the gas-discharge control unit until it clicks into place.



Screwing down the fastening screws and the coil

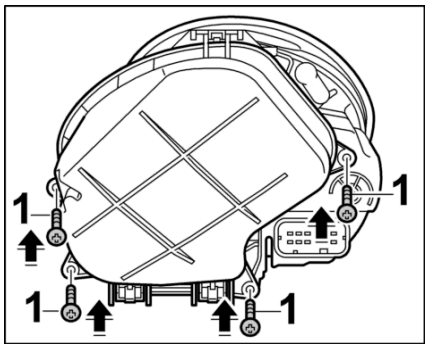
2. Insert the control unit in the headlight cap and screw down with both fastening screws **-1-** .
3. Push on the coil and screw it down with the fastening screw.

Installing main headlight cap



Positioning cap

1. Position cap on main headlight and press into place, making sure that the cap engages once at the top and twice at the bottom.



Screwing in the fastening screws

2. Screw in four fastening screws **-1-** for the cap.

top of page

Subsequent work

Subsequent work on control unit for gas discharge

941519 Removing and installing headlights - "Installing" section

---

997110, 997111, 997120, 997121, 997310, 997311, 997320, 997321, 997410, 997411, 997430, 997431, 997610, 997611, 997620, 997621

as of MY 2005
Country C00, C02, C05, C07, C08, C09, C10, C11, C12, C13, C14, C15, C16, C18, C19, C20, C21, C22, C23, C24, C25, C26, C27, C28, C32, C33, C34, C35, C36, C37, C38, C39, C45, C46, C98, C99

WARNUNG

Gefahr des Verlusts der Text-Bild-Zuordnung beim Ausdruck.

94 59 19 Removing and installing gas discharge lamp - as of MY 2005

- Preliminary work
- Removing gas discharge lamp
- Installing gas discharge lamp
- Subsequent work

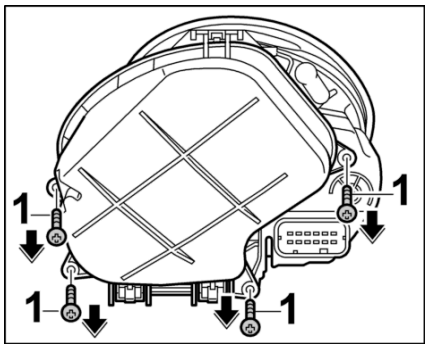
top of page

Preliminary work

Preliminary work

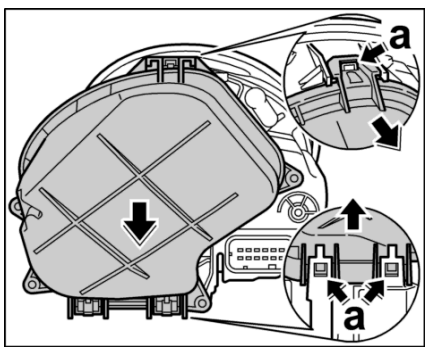
Remove main headlight. 941519 Removing and installing headlight - section on "Removing"

Removing cap of main headlight



Fastening screws for cap

1. Unscrew four fastening screws **-1-** from the cap.



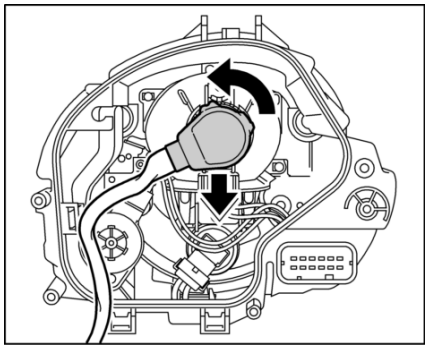
Releasing cap

2. Release cap once at the top and twice at the bottom **-a-** and remove from the main headlight.

top of page

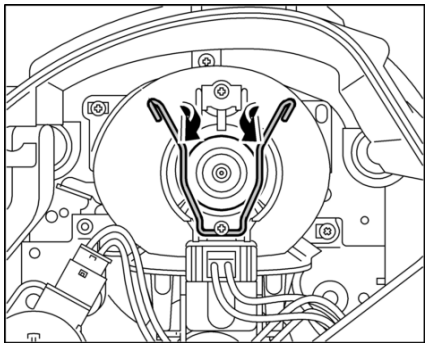
Removing gas discharge lamp

Removing gas discharge lamp



Releasing electric connector

1. Turn connector to the left (bayonet lock) and pull it off.



Disengaging retaining bows

2. Disengage both retaining bows and pull out lamp.

top of page

Installing gas discharge lamp

Installing gas discharge lamp

ATTENTION

Danger of injury! Danger of material damage if bulbs are used or handled incorrectly!

When installed, the headlight has a high voltage.

Only bulbs specified in the bulb table may be used!

Bulbs with a higher wattage may damage the bulb housing!

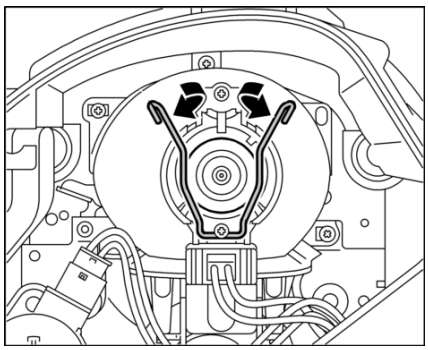
To prevent short circuits, the load in question must be switched off when changing bulbs!

New bulbs must be clean and free of grease. Therefore, never touch bulbs with your bare hands! To change the bulbs, use a cloth or soft paper.

Observe the safety instructions when replacing a bulb in a Bi-Xenon headlight.

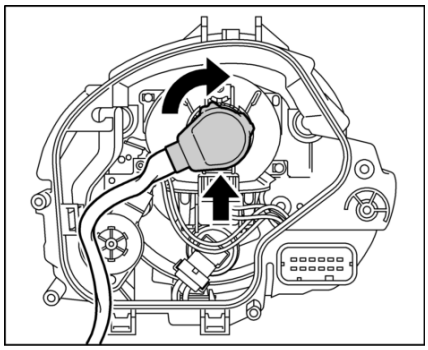
In certain states, it is compulsory to carry spare light bulbs.

1. Replace faulty lamp. Ensure that the lamp is seated correctly when doing so.



Inserting retaining bows

2. Insert both retainng bows.



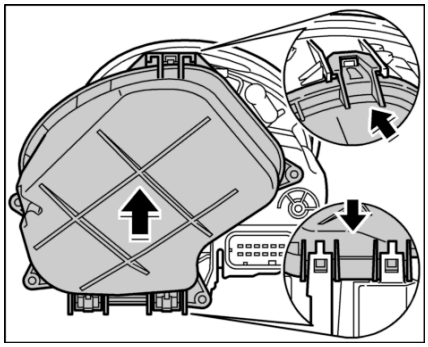
Positioning electric connector

3. Position electric connector and turn to the right as far as it will go (bayonet lock).

top of page

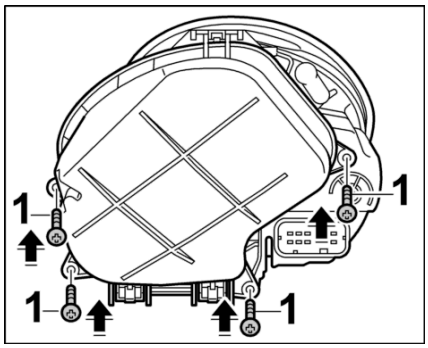
Subsequent work

Installing main headlight cap



Positioning cap

1. Position cap on main headlight and press into place, making sure that the cap engages once at the top and twice at the bottom.



Screwing in the fastening screws

2. Screw in four fastening screws **-1-** for the cap.

Subsequent work

Install main headlight. 941519 Removing and installing headlight - section on "Installing"
Carry out functional check of headlights.

997110, 997111, 997120, 997121, 997310, 997311, 997320, 997321, 997410, 997411, 997430, 997431, 997610, 997611, 997620, 997621

as of MY 2005
Country C00, C02, C05, C07, C08, C09, C10, C11, C12, C13, C14, C15, C16, C18, C19, C20, C21, C22, C23, C24, C25, C26, C27, C28, C32, C33, C34, C35, C36, C37, C38, C39, C45, C46, C98, C99

94 67 19 Removing and installing bulb for fog light - as of MY 2005

- Preliminary work
- Removing bulb for fog light
- Installing bulb for fog light
- Subsequent work

top of page

Preliminary work

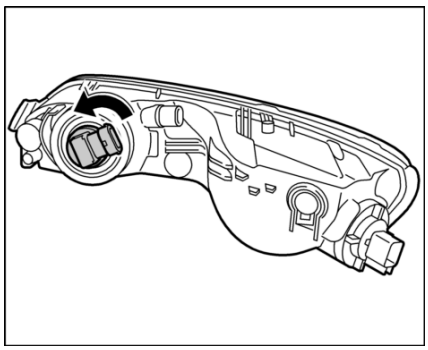
Preliminary work

Remove auxiliary headlight. 947119 Removing and installing auxiliary headlight - section on "Removing"

top of page

Removing bulb for fog light

Removing bulb for fog light



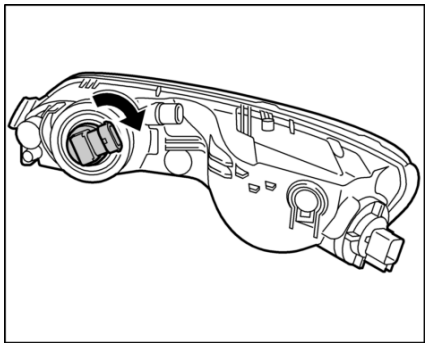
Releasing lamp (yellow connector)

1. Turn faulty lamp in left fog light to the left or turn lamp in right fog light to the right (bayonet lock) and replace.

top of page

Installing bulb for fog light

Installing bulb for fog light



Locking lamp

1. Insert new lamp in headlight and turn lamp in left fog light to the right or turn lamp in right fog light to the left (bayonet lock).

top of page

Subsequent work

Subsequent work

Install auxiliary headlight. 947119 Removing and installing auxiliary headlight - section on "Installing"

997110, 997111, 997120, 997121, 997310, 997311, 997320, 997321, 997410, 997411, 997430, 997431, 997610, 997611, 997620, 997621

as of MY 2005
Country C00, C02, C05, C07, C08, C09, C10, C11, C12, C13, C14, C15, C16, C18, C19, C20, C21, C22, C23, C24, C25, C26, C27, C28, C32, C33, C34, C35, C36, C37, C38, C39, C45, C46, C98, C99

WARNUNG
Gefahr des Verlusts der Text-Bild-Zuordnung beim Ausdruck.

- **Aus technischen Gründen kann derzeit nicht ausgeschlossen werden, dass trotz einwandfreier Darstellung auf dem Bildschirm beim Ausdruck der Zusammenhang von Text und zugehörigem Bild verloren geht.**

94 70 19 Removing and installing auxiliary brake light - as of MY 2005

- Removing auxiliary stop light in rear centre panel
- Removing auxiliary stop light in rear spoiler
- Installing auxiliary stop light in rear centre panel
- Installing auxiliary stop light in rear spoiler

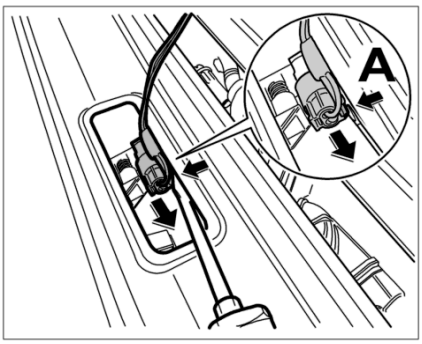
top of page

Removing auxiliary stop light in rear centre panel

Preliminary work for auxiliary brake light in rear centre panel

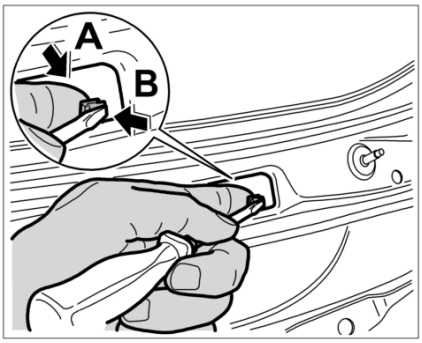
Remove rear centre panel. 512119 Removing and installing rear centre panel - section on "Removing"

Removing auxiliary brake light in rear centre panel



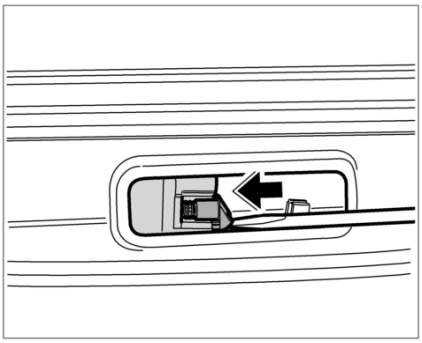
Releasing connector with screwdriver

1. Raise rear centre panel away from the vehicle, release the electric connector using a small screwdriver **-A-** and unplug it.
2. Turn the rear centre panel over and set it down on a suitable protective base.



Releasing fastening clips

3. The auxiliary brake light is clipped into the rear centre panel six times in total. Starting from the outside, put your finger through the openings in the rear centre panel and release the clips from behind **-A-** . At the same time, release the clips from the front using the screwdriver **-B-** and pull the ends of the auxiliary brake light carefully out of the rear centre panel.



Pushing left and right locking mechanisms together with a screwdriver

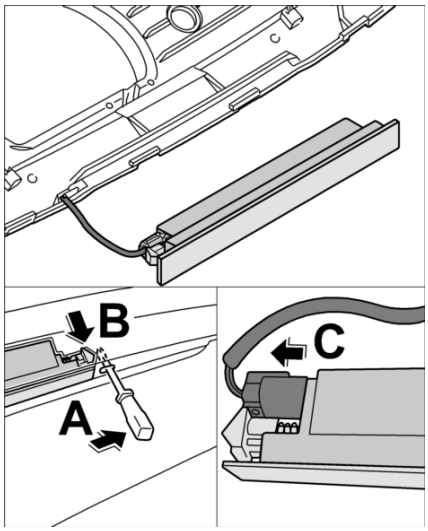
4. Push the two locking mechanisms for the auxiliary brake light (centre) together with a screwdriver and pull the brake light out of the rear centre panel.

top of page

Removing auxiliary stop light in rear spoiler

Removing auxiliary brake light in rear spoiler

1. Remove the spoiler.



Removing auxiliary brake light

2. Insert a screwdriver through the openings in the rear spoiler from below, press the locking mechanism **-B-** for the auxiliary brake light together **-A-** and carefully pull out the brake light.
3. Repeat the procedure on the other side if necessary.
4. Release the electric plug connection **-C-** and disconnect it from the brake light.

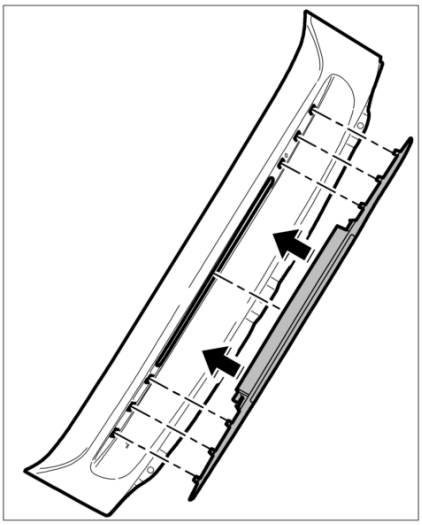
top of page

Installing auxiliary stop light in rear centre panel

Installing auxiliary brake light in rear centre panel

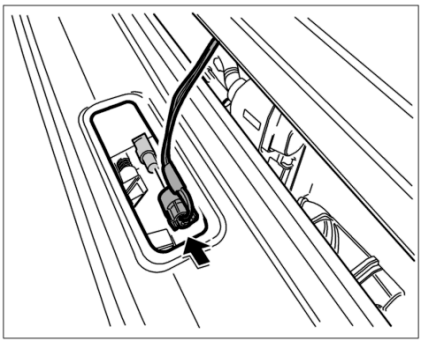
Note

Check the six clips on the auxiliary brake light for damage. If the brake light holders are damaged, the light must be replaced.



Inserting brake light

1. Position the auxiliary brake light in the rear centre panel and carefully clip it into the rear centre panel, starting from the centre out.
2. Check that the auxiliary brake light is fitted securely.



Plugging in connector

3. Connect the electric plug connection to the auxiliary brake light until it clicks into place.

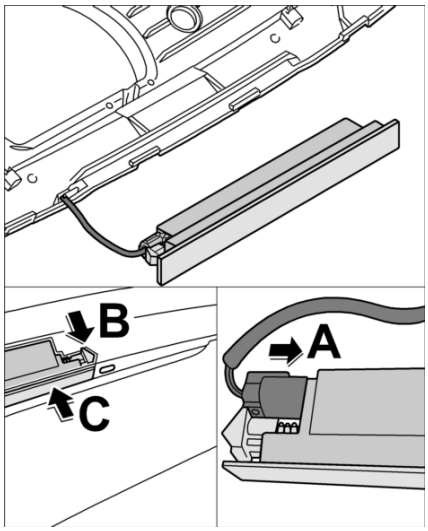
Subsequent work for auxiliary brake light in rear centre panel

Install rear centre panel. 512119 Removing and installing rear centre panel - section on "Installing"

top of page

Installing auxiliary stop light in rear spoiler

Installing auxiliary brake light in rear spoiler



Installing auxiliary brake light

1. Plug electric plug connection **-A-** into the auxiliary brake light until the connector is felt to engage.
2. Insert brake light into the centre of the opening in the rear spoiler and press into place **-C-**
   .
3. Check that the brake light is fitted securely in the rear spoiler by pulling it gently **-B-**
   .

997110, 997111, 997120, 997121, 997410, 997411, 997430, 997431

as of MY 2005
Country C00, C02, C05, C07, C08, C09, C10, C11, C12, C13, C14, C15, C16, C18, C19, C20, C21, C22, C23, C24, C25, C26, C27, C28, C32, C33, C34, C35, C36, C37, C38, C39, C45, C46, C98, C99

WARNUNG

Gefahr des Verlusts der Text-Bild-Zuordnung beim Ausdruck.

- **Aus technischen Gründen kann derzeit nicht ausgeschlossen werden, dass trotz einwandfreier Darstellung auf dem Bildschirm beim Ausdruck der Zusammenhang von Text und zugehörigem Bild verloren geht.**
- **Wird der Fehler nicht bemerkt, besteht die Gefahr, daß Arbeiten nicht korrekt durchgeführt werden und es dadurch zu Personen- und Sachschäden kommt.**

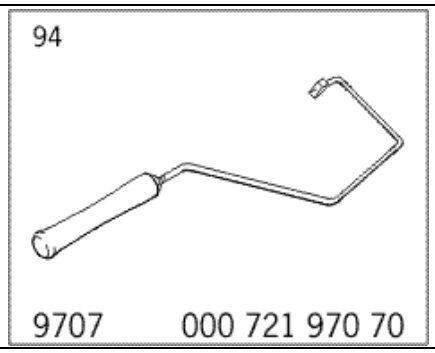
Vergleichen Sie deshalb nach dem Druckvorgang unbedingt die Ausdrucke mit der Bildschirmdarstellung. Korrigieren Sie die Ausdrucke im Fehlerfall so, daß der Inhalt der Bildschirmdarstellung zutreffend wiedergegeben wird.

WARNING

94 70 19 Removing and installing auxiliary brake light - as of MY 2005

- Removing auxiliary stop light in rear spoiler
- Removing auxiliary stop light in convertible top compartment lid
- Installing auxiliary stop light in rear spoiler
- Installing auxiliary stop light in convertible top compartment lid

Tools

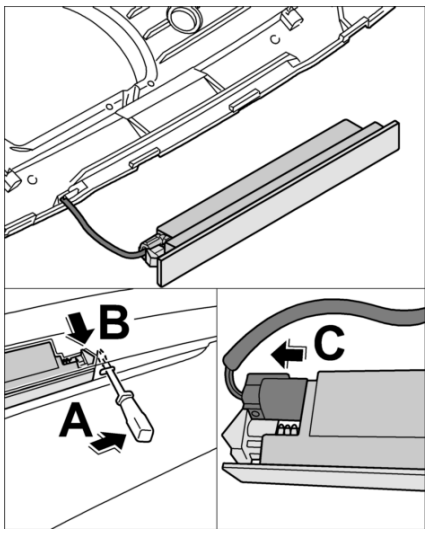
Designation	Type	Number	Explanation	
disassembly aid	special tool	9707		

top of page

Removing auxiliary stop light in rear spoiler

Removing auxiliary brake light in rear spoiler

1. Remove the spoiler.



Removing auxiliary brake light

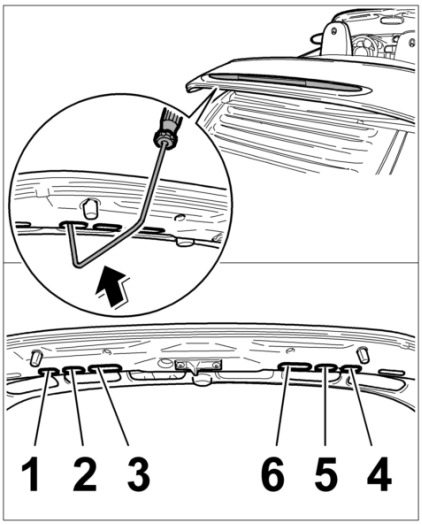
2. Insert a screwdriver through the openings in the rear spoiler from below, press the locking mechanism **-B-** for the auxiliary brake light together **-A-** and carefully pull out the brake light.
3. Repeat the procedure on the other side if necessary.
4. Release the electric plug connection **-C-** and disconnect it from the brake light.

top of page

Removing auxiliary stop light in convertible top compartment lid

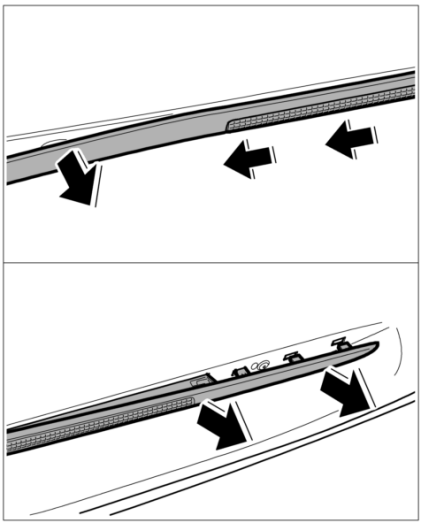
Removing auxiliary stop light in convertible top compartment lid

1. Open the convertible top compartment lid fully.



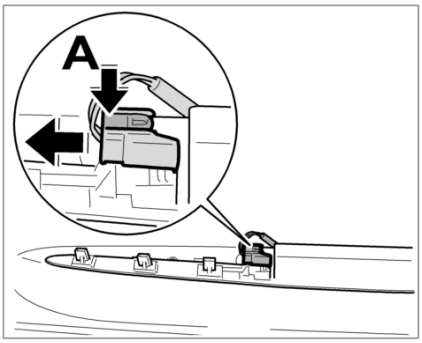
Release retaining clips with special tool

2. Pass the disassembly tool **disassembly aid 9707** through the openings in the convertible-top compartment lid and guide the disassembly tool onto the retaining clips of the auxiliary stop light with the finger.
3. Unclip the retaining clips in turn **-1 - 6-** .



Moving the stop light

4. Carefully pull out the auxiliary stop light in the area of the outer retaining clips and slowly push to the left.
5. The auxiliary stop light then disengages on the right side of the convertible-top compartment lid and you can now remove it easily to the right.



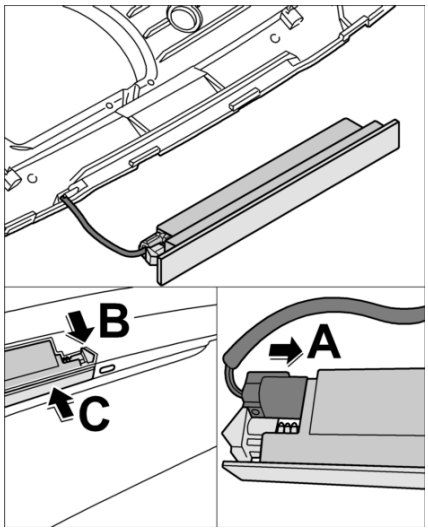
Releasing electric plug connection

6. Release electric plug connection **-A-** and pull it off the auxiliary stop light.

top of page

Installing auxiliary stop light in rear spoiler

Installing auxiliary brake light in rear spoiler



Installing auxiliary brake light

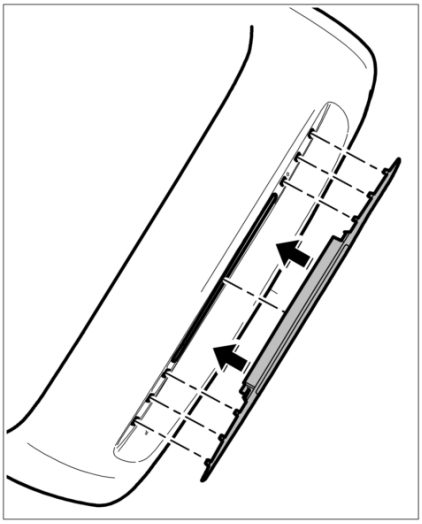
1. Plug electric plug connection **-A-** into the auxiliary brake light until the connector is felt to engage.
2. Insert brake light into the centre of the opening in the rear spoiler and press into place **-C-**
   .
3. Check that the brake light is fitted securely in the rear spoiler by pulling it gently **-B-**
   .

top of page

Installing auxiliary stop light in convertible top compartment lid

Installing auxiliary stop light in convertible top compartment lid

1. Connect the electric plug connection to the auxiliary brake light until it clicks into place.



Clipping auxiliary stop light into the convertible-top compartment lid.

2. Position the auxiliary stop light on the convertible-top compartment lid and carefully clip it in, from the centre outwards.
3. Check auxiliary stop light is secure and in working order.
4. Close the convertible-top compartment lid.

997310, 997311, 997320, 997321, 997610, 997611, 997620, 997621

as of MY 2005
Country C00, C02, C05, C07, C08, C09, C10, C11, C12, C13, C14, C15, C16, C18, C19, C20, C21, C22, C23, C24, C25, C26, C27, C28, C32, C33, C34, C35, C36, C37, C38, C39, C45, C46, C98, C99

WARNUNG

Gefahr des Verlusts der Text-Bild-Zuordnung beim Ausdruck.

- **Aus technischen Gründen kann derzeit nicht ausgeschlossen werden, dass trotz einwandfreier Darstellung auf dem Bildschirm beim Ausdruck der Zusammenhang von Text und zugehörigem Bild verloren geht.**
- **Wird der Fehler nicht bemerkt, besteht die Gefahr, daß Arbeiten nicht korrekt durchgeführt werden und es dadurch zu Personen- und Sachschäden kommt.**

Vergleichen Sie deshalb nach dem Druckvorgang unbedingt die Ausdrucke mit der Bildschirmdarstellung. Korrigieren Sie die Ausdrucke im Fehlerfall so, daß der Inhalt der Bildschirmdarstellung zutreffend wiedergegeben wird.

WARNING

Danger of losing text-figure correspondence when printing out.

- **For technical reasons, it can currently not be ruled out that the correspondence between text and associated figure can be lost when it is printed out, even though the display on the screen is correct.**
- **If the fault is not noticed, there is the danger that work will not be performed correctly which can cause injury and damage.**

Therefore, always compare printouts with the screen display after printing them out. Correct the printouts if they are faulty so that the content of the screen display matches that on the printouts.

AVERTISSEMENT

Risque de perte de la correspondance texte-illustration lors de l'impression papier.

- **Pour des raisons techniques, il ne peut pas être exclu à l'heure actuelle que, même en cas d'affichage correct à l'écran, la correspondance entre le texte et l'illustration puisse être erronée sur l'impression papier.**
- **Si l'erreur passe inaperçue, on court le risque d'exécuter certaines opérations de manière incorrecte pouvant conduire à des dommages corporels et matériels.**

94 71 19 Removing and installing auxiliary headlight - as of MY 2005

- Removing auxiliary headlight
- Installing auxiliary headlight
- Subsequent work

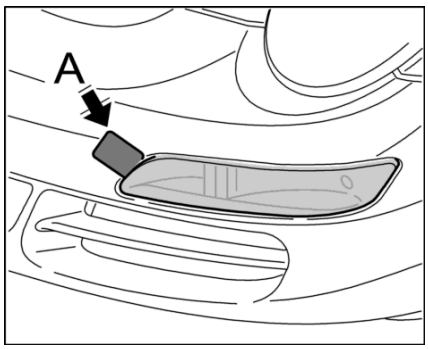
top of page

Removing auxiliary headlight

Removing auxiliary headlamp

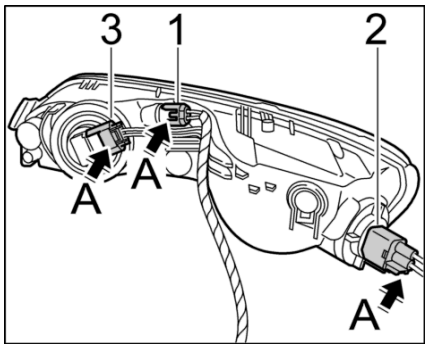
Note

The key-card for unlocking the auxiliary headlamp is in the on-board folder.



Unlocking the auxiliary headlamp

1. Insert the key-card at the side of the auxiliary headlamp.
2. By pressing the card in **-A-** , the auxiliary headlamp is unlocked. It is possible that the second engagement needs to be unlocked by pressing the card again.
3. Remove auxiliary headlamp. When removing the auxiliary headlamp, make sure that the ventilation connection piece - required for re-installation - is attached to the auxiliary headlamp.



Unlocking plug connections

4. Disconnect the electrical plug connections **-1, 2, 3-** (unlock) **-A-** , and remove auxiliary headlamps.

top of page

Installing auxiliary headlight

Installing auxiliary headlamp

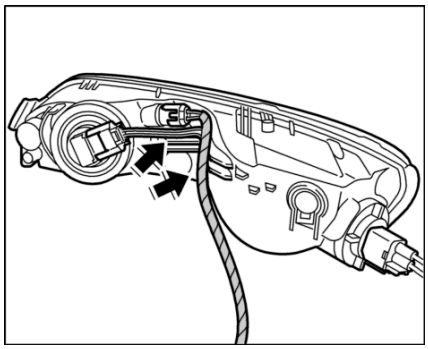
ATTENTION

Auxiliary headlamp is inserted into the front spoiler at a tilt.

- **Paint damage on the front spoiler.**

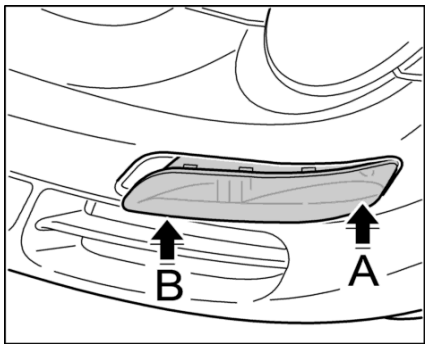
Carefully insert auxiliary headlamp into the guides of the front apron.
Make sure that the guide of the housing is inserted into the guide of the front spoiler.

1. Make sure that the ventilation connection piece is correctly seated on the auxiliary headlamp.
2. Connect the electrical plugs to the auxiliary headlamp, pressing until they audibly click into place.



Wire routing

3. Make sure that the elctrical lines are in the guides correctly.



Snapping auxiliary headlamp into place

4. Insert auxiliary headlamp into front spoiler **-A-** and press **-B-** until you feel the auxiliary headlamp snap into place.

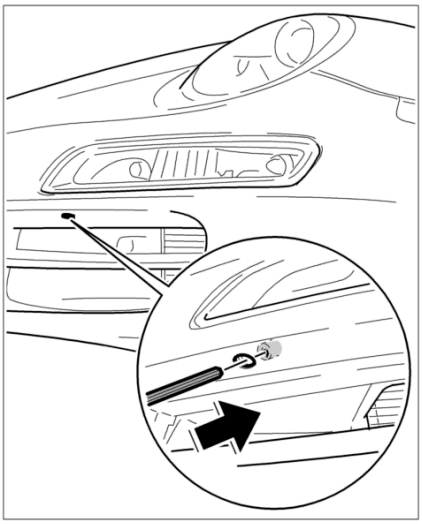
top of page

Subsequent work

Reworking auxiliary headlight

Note

On installing a new auxiliary headlight, the adjustment must be checked with a headlight adjustment unit and adjusted if necessary.



Adjusting auxiliary headlight

Use hexagon socket wrench insert size 4 through opening in front spoiler and adjust the auxiliary headlight.

94 72 19 Removing and reinstalling switch for reversing light - as of MY 2005

- Preliminary work
- Removing switch for reversing light
- Installing switch for reversing light
- Subsequent work

top of page

Preliminary work

Preliminary work

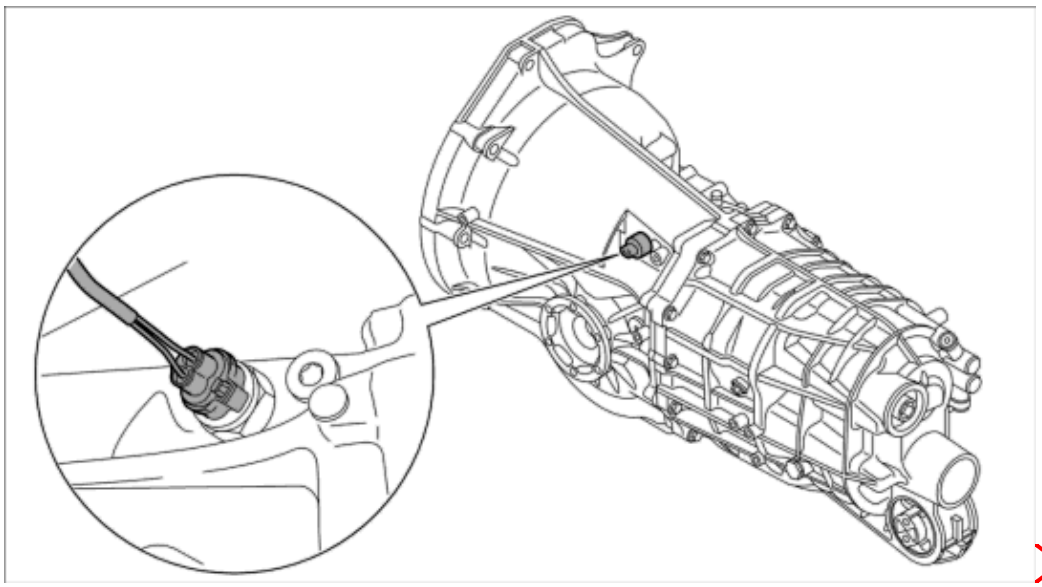
Remove rear underbody cover. 519419 Removing and reinstalling rear cover - chapter on "Removing"

top of page

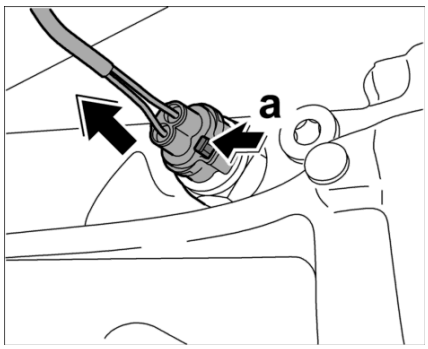
Removing switch for reversing light

Removing switch for reversing light

Installation Location:

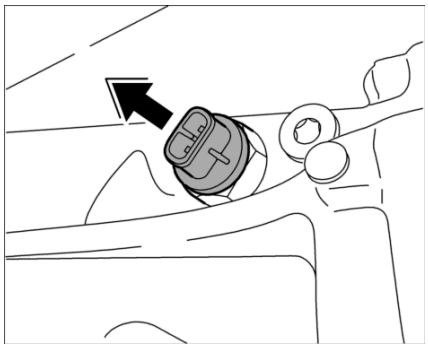


Overview of switch for reversing light



Pulling connector off switch for reversing light

1. Release connector on switch for reversing light **-arrow a-** and remove.



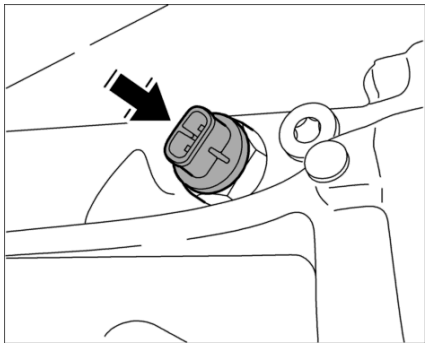
Unscrewing switch for reversing light

2. Unscrew switch for reversing light.

top of page

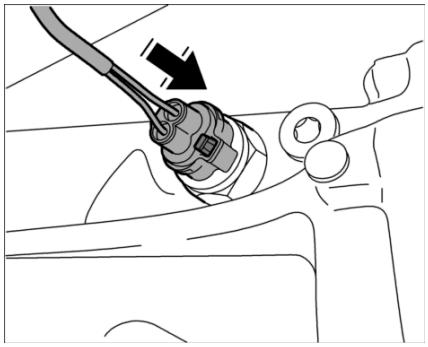
Installing switch for reversing light

Installing switch for reversing light



Screwing down switch for reversing light

1. Screw down switch for reversing light. **Tightening torque: 32 ftlb.**



Connecting connector to switch for reversing light

2. Connect connector on switch for reversing light until connector is felt to engage.

top of page

Subsequent work

Subsequent work

Install rear underbody cover. 519419 Removing and reinstalling rear cover - chapter on "Installing"

997110, 997111, 997120, 997121, 997310, 997311, 997320, 997321, 997410, 997411, 997430, 997431, 997610, 997611, 997620, 997621

as of MY 2005
Country C00, C02, C05, C07, C08, C09, C10, C11, C12, C13, C14, C15, C16, C18, C19, C20, C21, C22, C23, C24, C25, C26, C27, C28, C32, C33, C34, C35, C36, C37, C38, C39, C45, C46, C98, C99

WARNUNG

Gefahr des Verlusts der Text-Bild-Zuordnung beim Ausdruck.

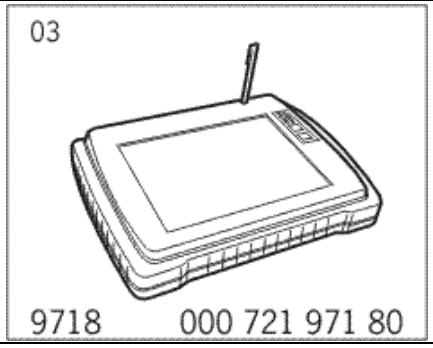
- **Aus technischen Gründen kann derzeit nicht ausgeschlossen werden, dass trotz einwandfreier Darstellung auf dem Bildschirm beim Ausdruck der Zusammenhang von Text und zugehörigem Bild verloren geht.**
- **Wird der Fehler nicht bemerkt, besteht die Gefahr, daß Arbeiten nicht korrekt durchgeführt werden und es dadurch zu Personen- und Sachschäden kommt.**

Vergleichen Sie deshalb nach dem Druckvorgang unbedingt die Ausdrucke mit der Bildschirmdarstellung. Korrigieren Sie die Ausdrucke im Fehlerfall so, daß der Inhalt der Bildschirmdarstellung zutreffend wiedergegeben wird.

94 78 19 Removing and installing front angle sensor for headlight levelling system - as of MY 2005

- Preliminary work
- Removing front angle sensor for headlight levelling system
- Installing front angle sensor for headlight levelling system
- Subsequent work

Tools

Designation	Type	Number	Explanation	
PIWIS Tester	special tool	9718		

top of page

Preliminary work

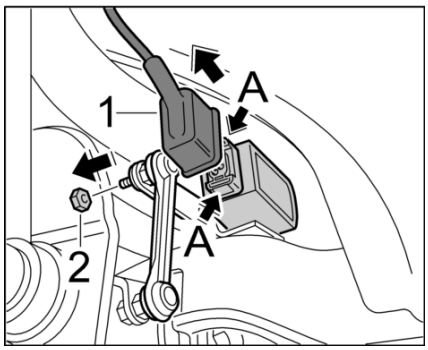
Preliminary work - front angle sensor for headlight levelling system

Remove front underbody panel. 519219 Removing and installing front cover - chapter on "Removing"

top of page

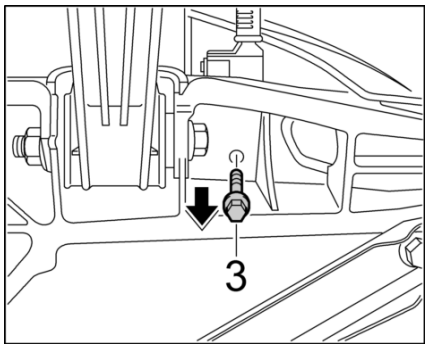
Removing front angle sensor for headlight levelling system

Removing front angle sensor for headlight levelling system



Unscrewing fastening nut

1. Hold intermediate link on rotary lever with second open-ended wrench and screw off fastening nut **-2-** .
2. Push back rubber cover **-1-** over the electrical plug connection, release electrical plug connection **-A-** and remove connector from angle sensor.



Unscrewing fastening screw for angle sensor retaining bracket

3. Unscrew fastening screw **-3-** for angle sensor retaining bracket on side member from below.
4. Remove angle sensor from retaining bracket.

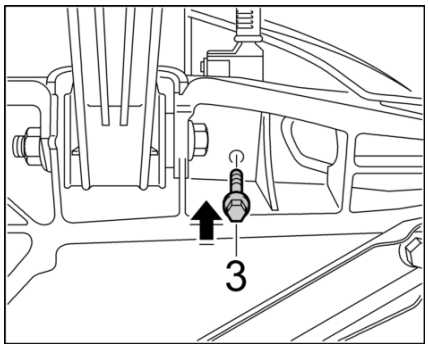
top of page

Installing front angle sensor for headlight levelling system

Installing front angle sensor for headlight levelling system

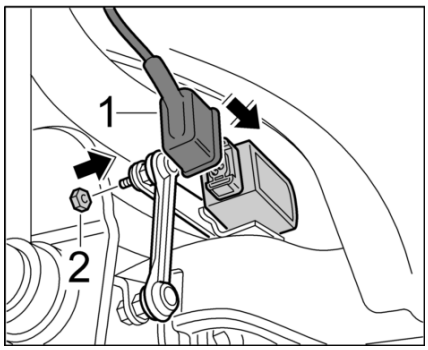
Note

If the angle sensor has been replaced, the front end control unit must be calibrated; afterwards the headlight setting must be checked and adjusted if necessary.



Securing angle sensor and bracket

1. Fasten angle sensor to retaining bracket and secure with fastening screw **-3-** to the side member.



Engaging electrical plug connection

2. Engage electrical plug connection and pull rubber cover **-1-** carefully over the plug connection (protects against ingress of water).
3. Engage intermediate link on rotary lever and secure with fastening nut **-2-** . **Tightening torque: 7 (5 ftlb.) Nm**

top of page

Subsequent work

Subsequent work - front angle sensor for headlight levelling system

Note

If the angle sensor has been replaced, the front end control unit must be calibrated; afterwards the headlight setting must be checked and adjusted if necessary.

1. Install front underbody panel. 519219 Removing and installing front cover - chapter on "Installing"
2. Connect the Porsche System Tester **PIWIS Tester 9718** to the vehicle and start the System Tester. Switch on ignition. >> to continue.
3.

Select **front end** on the control unit, carry out **calibration** menu.

4. Check headlight setting and adjust if necessary.

997110, 997111, 997120, 997121, 997310, 997311, 997320, 997321, 997410, 997411, 997430, 997431, 997610, 997611, 997620, 997621

as of MY 2005
Country C00, C02, C05, C07, C08, C09, C10, C11, C12, C13, C14, C15, C16, C18, C19, C20, C21, C22, C23, C24, C25, C26, C27, C28, C32, C33, C34, C35, C36, C37, C38, C39, C45, C46, C98, C99

WARNUNG

Gefahr des Verlusts der Text-Bild-Zuordnung beim Ausdruck.

- **Aus technischen Gründen kann derzeit nicht ausgeschlossen werden, dass trotz einwandfreier Darstellung auf dem Bildschirm beim Ausdruck der Zusammenhang von Text und zugehörigem Bild verloren geht.**
- **Wird der Fehler nicht bemerkt, besteht die Gefahr, daß Arbeiten nicht korrekt durchgeführt werden und es dadurch zu Personen- und Sachschäden kommt.**

Vergleichen Sie deshalb nach dem Druckvorgang unbedingt die Ausdrucke mit der Bildschirmdarstellung. Korrigieren Sie die Ausdrucke im Fehlerfall so, daß der Inhalt der Bildschirmdarstellung zutreffend wiedergegeben wird.

WARNING

Danger of losing text-figure correspondence when printing out.

- **For technical reasons, it can currently not be ruled out that the correspondence between text and associated figure can be lost when it is printed out, even though the display on the screen is correct.**
- **If the fault is not noticed, there is the danger that work will not be performed correctly which can cause injury and damage.**

Therefore, always compare printouts with the screen display after printing them out. Correct the printouts if they are faulty so that the content of the screen display matches that on the printouts.

AVERTISSEMENT

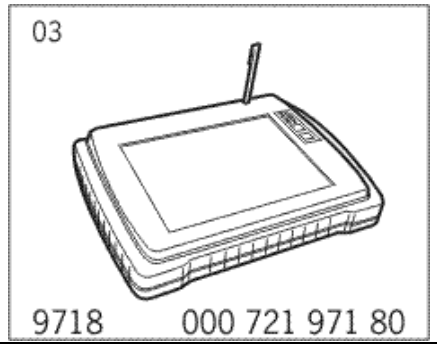
Risque de perte de la correspondance texte-illustration lors de l'impression papier.

- **Pour des raisons techniques, il ne peut pas être exclu à l'heure actuelle que, même en cas d'affichage correct à l'écran, la correspondance entre le texte et l'illustration puisse être erronée sur l'impression papier.**
- **Si l'erreur passe inaperçue, on court le risque d'exécuter certaines opérations de manière incorrecte pouvant conduire à des dommages corporels et matériels.**

94 79 19 Removing and installing rear angle sensor for headlight levelling system - as of MY 2005

- Removing rear angle sensor for headlight levelling system
- Installing rear angle sensor for headlight levelling system
- Subsequent work

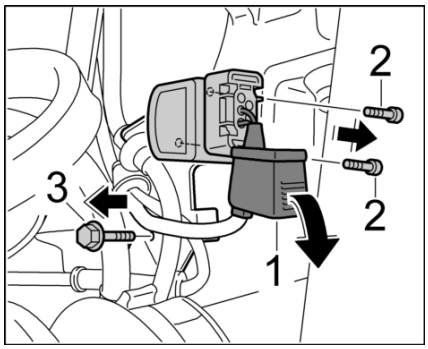
Tools

Designation	Type	Number	Explanation	
PIWIS Tester	special tool	9718		

top of page

Removing rear angle sensor for headlight levelling system

Removing rear angle sensor for headlight levelling system



Removing rear angle sensor for headlight levelling system

1. Hold intermediate link on rotary lever with second open-ended wrench and screw off fastening nut.
2. Push back rubber cover **-1-** over the electrical plug connection, release electrical plug connection and remove connector from angle sensor.
3. Unscrew fastening screw **-3-** for securing retaining bracket for angle sensor, combination wire and

brake line to the body.

4. Unscrew the two fastening screws **-2-** and remove angle sensor from bracket.

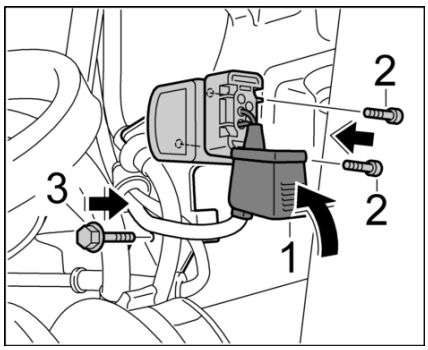
top of page

Installing rear angle sensor for headlight levelling system

Installing rear angle sensor for headlight levelling system

Note

If the angle sensor has been replaced, the front end control unit must be calibrated; afterwards the headlight setting must be checked and adjusted if necessary.



Installing rear angle sensor for headlight levelling system

1. Secure angle sensor to retaining bracket with the two fastening screws **-2-** .
2. Position retaining bracket with angle sensor on the body and screw down with the fastening screw **-3-** .
3. Engage electrical plug connection and pull rubber cover carefully over the plug connection (protects against water leaking in).
4. Engage intermediate link on rotary lever and secure with fastening nut. **Tightening torque: 7 (5 ftlb.) Nm**

top of page

Subsequent work

Subsequent work - rear angle sensor for headlight levelling system

Note

If the angle sensor has been replaced, the front end control unit must be calibrated; afterwards the headlight setting must be checked and adjusted if necessary.

1. Connect the Porsche System Tester **PIWIS Tester 9718** to the vehicle and start the System Tester. Switch on ignition. >> to continue.
2. Select **front end** on the control unit, carry out **calibration** menu.
3. Check headlight setting and adjust if necessary.

997110, 997111, 997120, 997121, 997310, 997311, 997320, 997321, 997410, 997411, 997430, 997431, 997610, 997611, 997620, 997621

as of MY 2005
Country C00, C02, C05, C07, C08, C09, C10, C11, C12, C13, C14, C15, C16, C18, C19, C20, C21, C22, C23, C24, C25, C26, C27, C28, C32, C33, C34, C35, C36, C37, C38, C39, C45, C46, C98, C99

WARNUNG

Gefahr des Verlusts der Text-Bild-Zuordnung beim Ausdruck.

- **Aus technischen Gründen kann derzeit nicht ausgeschlossen werden, dass trotz einwandfreier Darstellung auf dem Bildschirm beim Ausdruck der Zusammenhang von Text und zugehörigem Bild verloren geht.**
- **Wird der Fehler nicht bemerkt, besteht die Gefahr, daß Arbeiten nicht korrekt durchgeführt werden und es dadurch zu Personen- und Sachschäden kommt.**

Vergleichen Sie deshalb nach dem Druckvorgang unbedingt die Ausdrucke mit der Bildschirmdarstellung. Korrigieren Sie die Ausdrucke im Fehlerfall so, daß der Inhalt der Bildschirmdarstellung zutreffend wiedergegeben wird.

WARNING

Danger of losing text-figure correspondence when printing out.

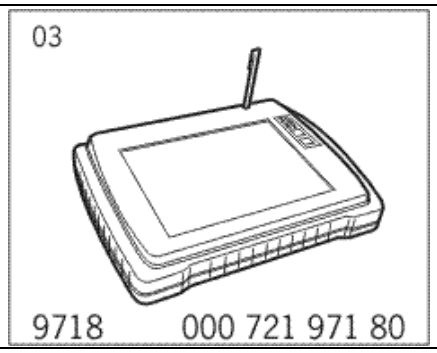
- **For technical reasons, it can currently not be ruled out that the correspondence between text and associated figure can be lost when it is printed out, even though the display on the screen is correct.**
- **If the fault is not noticed, there is the danger that work will not be performed correctly which can cause injury and damage.**

Therefore, always compare printouts with the screen display after printing them out. Correct the printouts if they are faulty so that the content of the screen display matches that on the printouts.

94 94 19 Removing and installing servo motor for headlight levelling system - as of MY 2005

- Preliminary work
- Removing servo motor for headlight levelling system
- Installing servo motor for headlight levelling system
- Subsequent work

Tools

Designation	Type	Number	Explanation	
PIWIS Tester	special tool	9718		

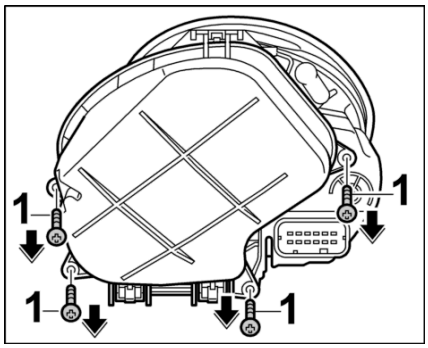
top of page

Preliminary work

Preliminary work - servo motor for headlight levelling system

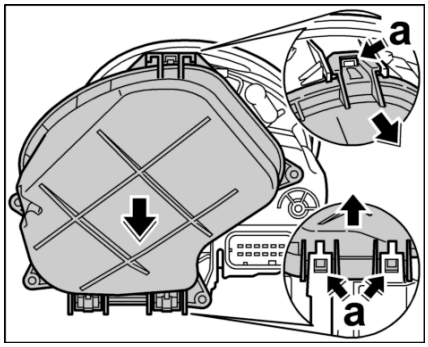
1. Remove main headlight. 941519 Removing and installing headlight - chapter on "Removing"

Removing cap of main headlight



Fastening screws for cap

1. Unscrew four fastening screws **-1-** from the cap.



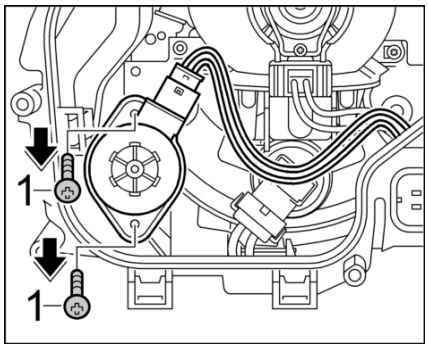
Releasing cap

2. Release cap once at the top and twice at the bottom **-a-** and remove from the main headlight.

top of page

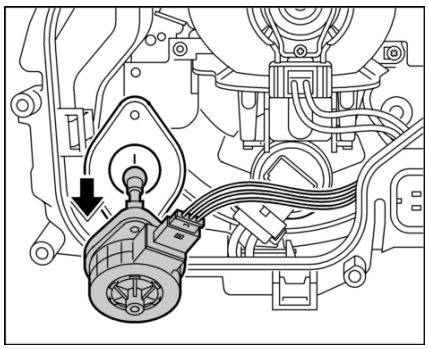
Removing servo motor for headlight levelling system

Removing servo motor for headlight levelling system



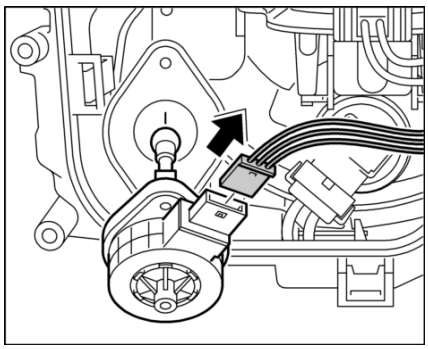
Unscrewing the two fastening screws

1. Unscrew the two fastening screws **-1-** for the servo motor.



Disengaging ball head from servo motor for headlight

2. Slide servo motor vertically downwards and remove.



Disconnecting electric plug connection

3. Disconnect electrical plug connection from servo motor and remove the servo motor.

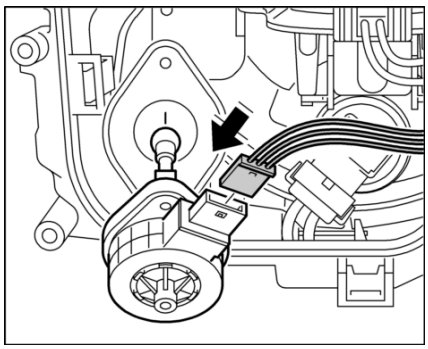
top of page

Installing servo motor for headlight levelling system

Installing servo motor for headlight levelling system

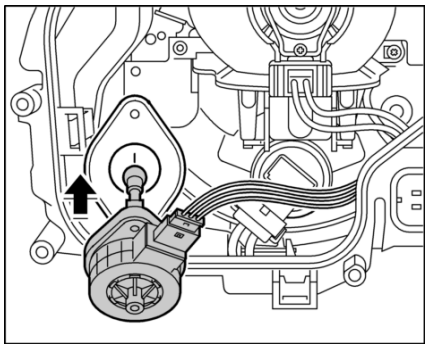
Note

After reinstallation or installation of a new servo motor for the headlight levelling system, the headlight must be calibrated.



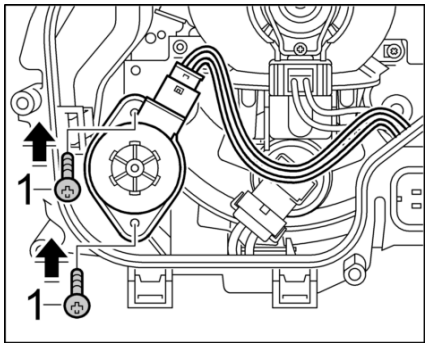
Connecting the electrical plug connection

1. Push electric plug onto the servo motor until it is felt to engage.



Engaging ball head

2. Engage servo motor in the actuator for the main headlight and push servo motor upwards.



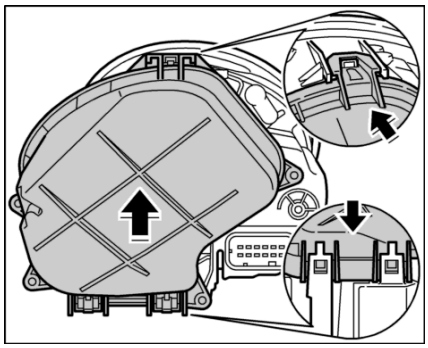
Tightening the two fastening screws

3. Screw down the servo motor with the two fastening screws.

top of page

Subsequent work

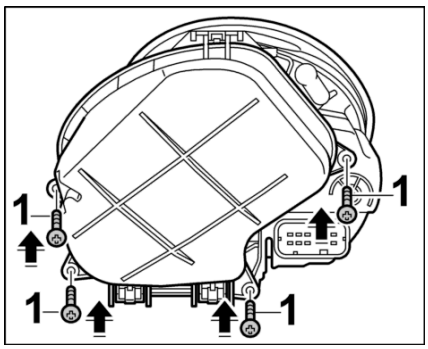
Installing main headlight cap



Positioning cap

1.

Position cap on main headlight and press into place, making sure that the cap engages once at the top and twice at the bottom.



Screwing in the fastening screws

2. Screw in four fastening screws **-1-** for the cap.

Subsequent work - servo motor for headlight levelling system

Note

After reinstallation or installation of a new servo motor for the headlight levelling system, the headlight must be calibrated.

1. Install main headlight. 941519 Removing and installing headlight - chapter on "Installing"
2. Connect the Porsche System Tester **PIWIS Tester 9718** to the vehicle and start the System Tester. Switch on ignition. >> to continue.
3. Select **front end** on the control unit, carry out **calibration** menu.
4. Check headlight setting and adjust if necessary.

997110, 997111, 997120, 997121, 997310, 997311, 997320, 997321, 997410, 997411, 997430, 997431, 997610, 997611, 997620, 997621

as of MY 2005
Country C00, C02, C05, C07, C08, C09, C10, C11, C12, C13, C14, C15, C16, C18, C19, C20, C21, C22, C23, C24, C25, C26, C27, C28, C32, C33, C34, C35, C36, C37, C38, C39, C45, C46, C98, C99

WARNUNG

Gefahr des Verlusts der Text-Bild-Zuordnung beim Ausdruck.

- **Aus technischen Gründen kann derzeit nicht ausgeschlossen werden, dass trotz einwandfreier Darstellung auf dem Bildschirm beim Ausdruck der Zusammenhang von Text und zugehörigem Bild verloren geht.**
- **Wird der Fehler nicht bemerkt, besteht die Gefahr, daß Arbeiten nicht korrekt durchgeführt werden und es dadurch zu Personen- und Sachschäden kommt.**

96 07 19 Removing and installing contact switch for glove compartment light - as of MY 2005

- Preliminary work
- Removing contact switch for glove compartment light
- Installing contact switch for glove compartment light
- Subsequent work

top of page

Preliminary work

Preliminary work

Remove glove compartment. 681519 Removing and installing glove compartment - chapter on "removing"

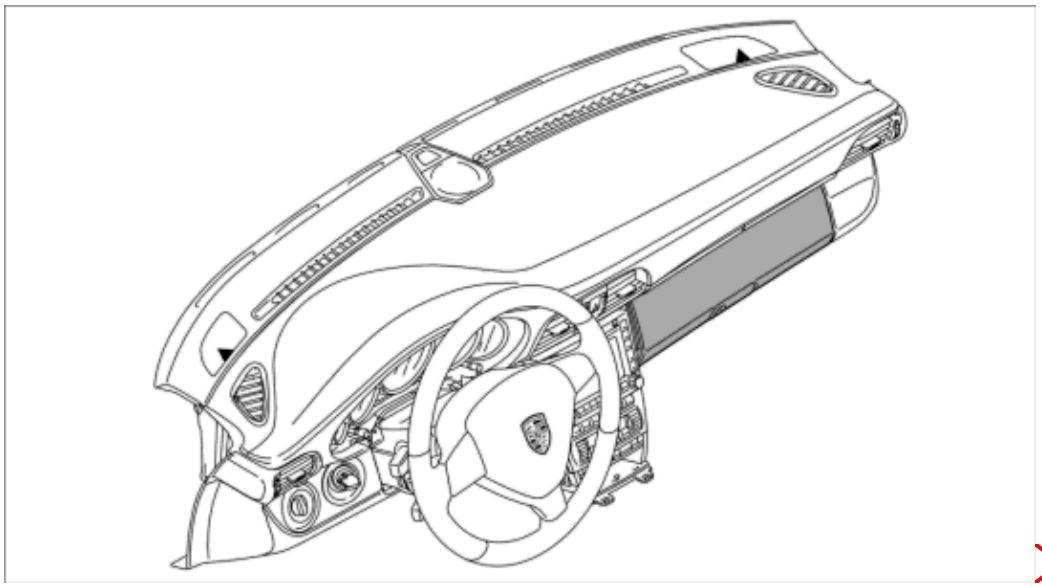
top of page

Removing contact switch for glove compartment light

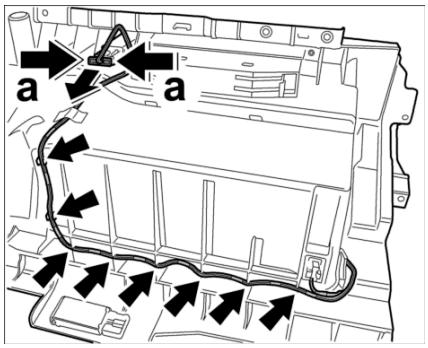
Removing contact switch for glove compartment light

Note
The door switch for the glove compartment light is located on the rear of the glove compartment.

Installation Location:

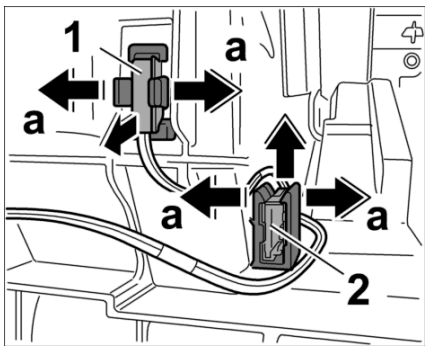


Overview of contact switch for glove compartment light



Unclipping wiring harness

1. Release glove compartment light plug **-Arrows a-** and unplug.
2. Remove wiring harness on the mounting points on the glove compartment **-Arrows-** .



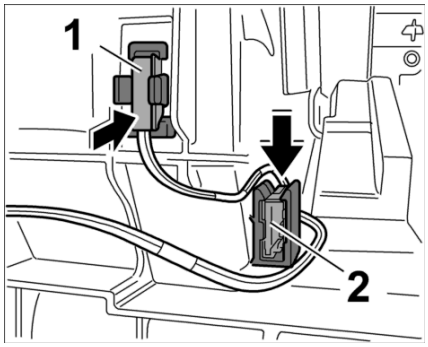
Unclipping contact switch for glove compartment light

3. Release mounting points **-Arrows a-** and take out the door switch for the glove compartment light **-1-** and the connector socket **-2-** .

top of page

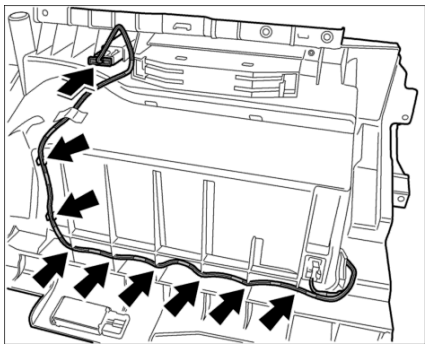
Installing contact switch for glove compartment light

Installing contact switch for glove compartment light



Clipping in contact switch for glove compartment light

1. Press the door switch for the glove compartment light **-1-** and the connector socket **-2-** in the mounting points, until they can be felt to engage.



Clipping in wiring harness

2. Lay the wiring harness and press in the mounting points on the glove compartment **-Arrows-**
3. Insert the glove compartment light plug until it is felt to engage.

top of page

Subsequent work

Subsequent work

Install glove compartment. 681519 Removing and installing glove compartment - chapter on "installing"

96 15 19 Removing and installing footwell light - as of MY 2005

- Removing footwell light
- Installing footwell light

top of page

Removing footwell light

Removing footwell light

ATTENTION

Danger of damage to property if bulbs are used or handled incorrectly!

- **Risk of damage to bulbs and bulb housing.**

Switch off ignition and remove ignition key.

To prevent short circuits, the load in question must be switched off while changing bulbs.

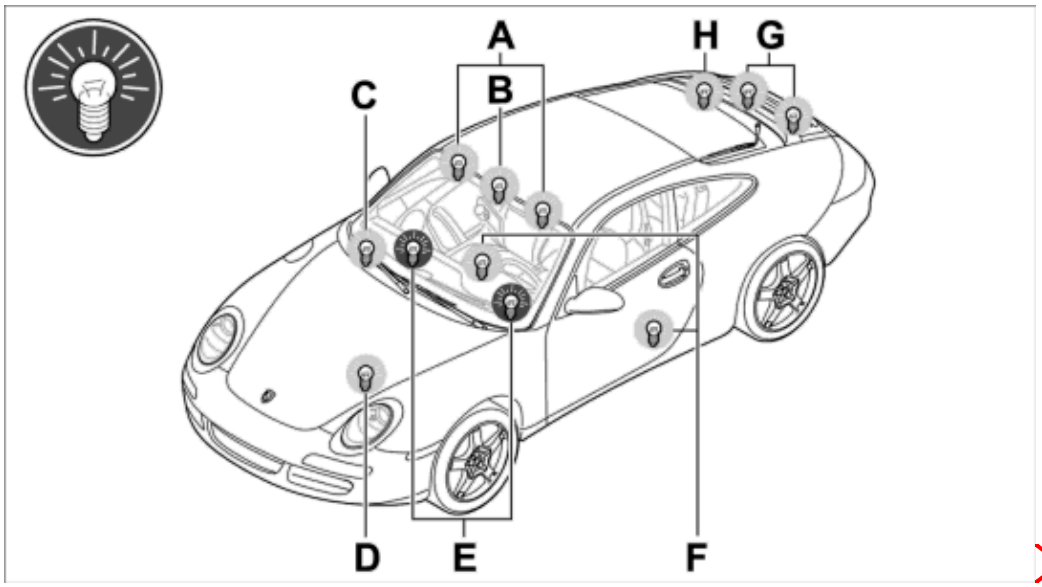
Only bulbs specified in the bulb table may be used.

Bulbs with a higher wattage may damage the bulb housing.

New bulbs must be clean and free of grease. Therefore, never touch the bulbs with your bare hands. Use a cloth or soft paper when changing bulbs.

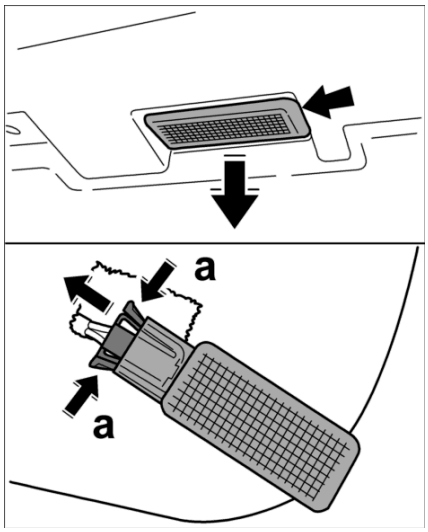
In certain states, it is compulsory to carry spare light bulbs.

Installation Location:



Footwell light overview

E - Footwell light



Removing footwell light

1. Press footwell light carefully out of the trim panel at the cutout **-arrow-** using a screwdriver.
2. Release plug on footwell light **-arrows a-** and pull it off.
3. Remove footwell light.

top of page

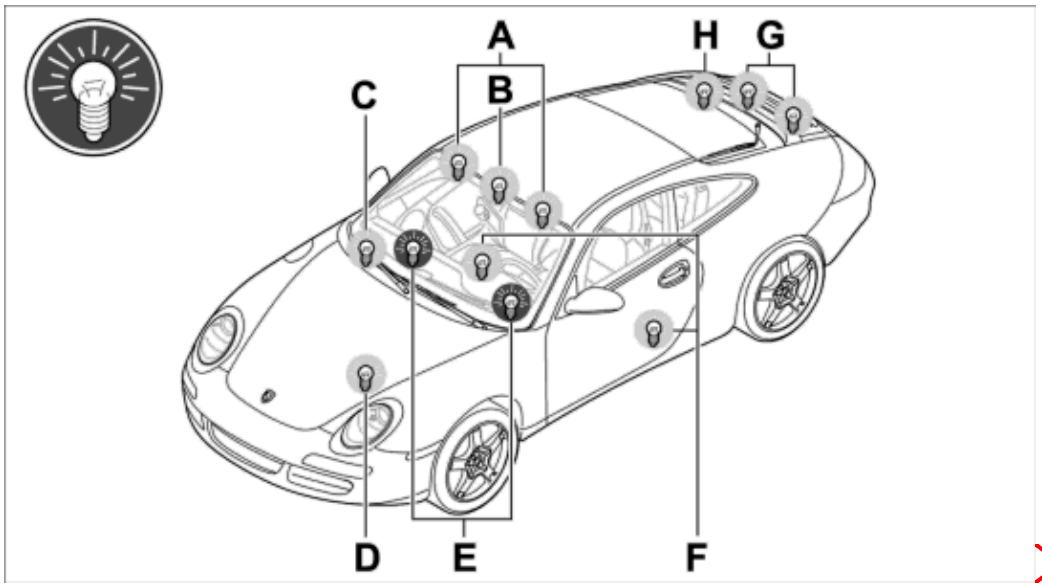
Installing footwell light

Installing footwell light

Note

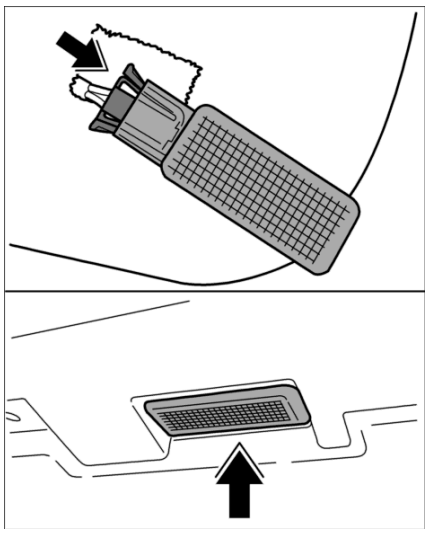
Only use the relevant bulb specified in the bulb table *IN IN - Bulb table and installation instructions - "Information" chapter.*

Installation Location:



Footwell light overview

E - Footwell light



Installing footwell light

1. Push plug on to footwell light until the plug is felt to engage.
2. Press footwell light into trim panel.

96 16 19 Removing and installing door warning light - as of MY 2005

- Removing bulb for door warning light
- Installing bulb for door warning light

top of page

Removing bulb for door warning light

Removing door warning light

ATTENTION

Danger of damage to property if bulbs are used or handled incorrectly!

- **Risk of damage to bulbs and bulb housing.**

Switch off ignition and remove ignition key.

To prevent short circuits, the load in question must be switched off while changing bulbs.

Only bulbs specified in the bulb table may be used.

Bulbs with a higher wattage may damage the bulb housing.

New bulbs must be clean and free of grease. Therefore, never touch the bulbs with your bare hands. Use a cloth or soft paper when changing bulbs.

In certain states, it is compulsory to carry spare light bulbs.

Installation Location:

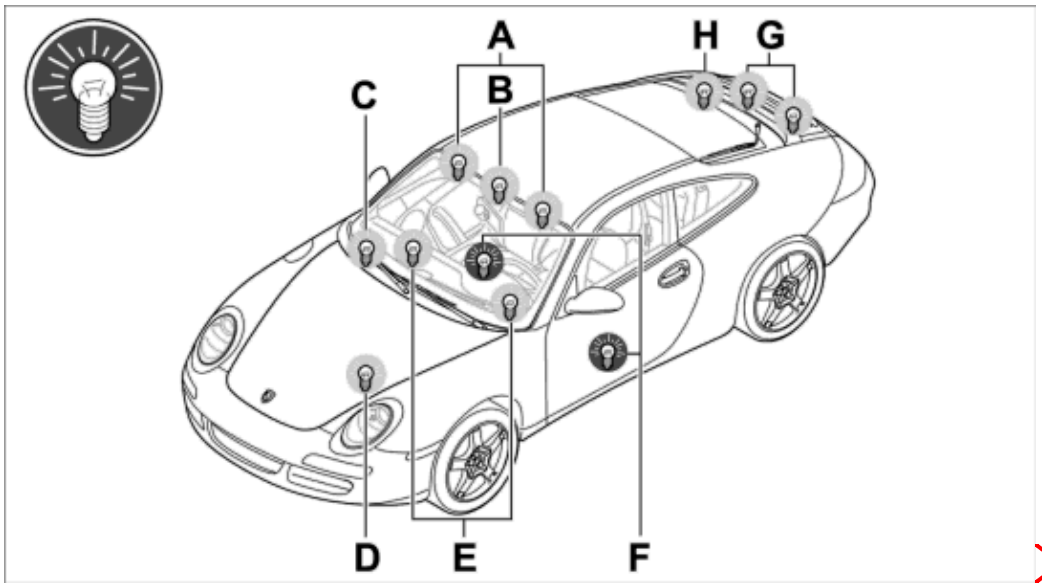
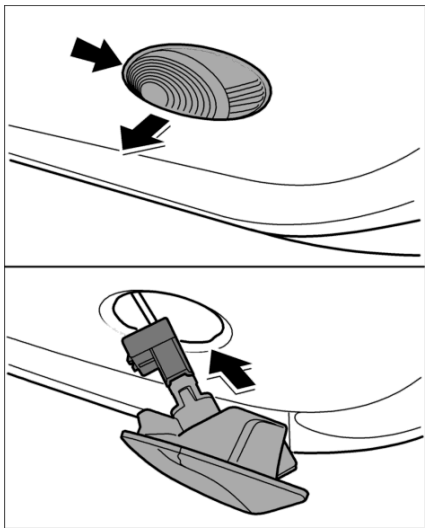


Diagram of door warning light,

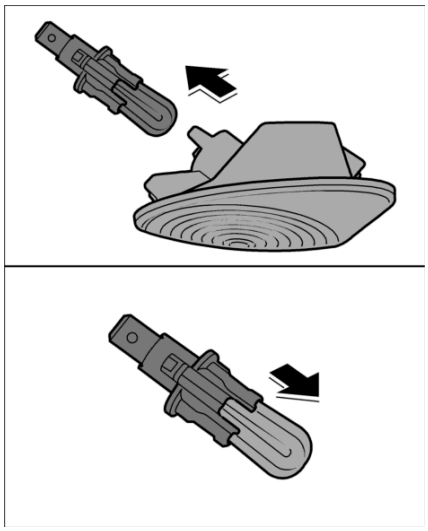
F - Door warning light, left and right



Removing door warning light

1. Push door warning light carefully out of the door trim via the cutaway **-arrow-** using a screwdriver .
2. Pull off door warning light connector and remove light.

Removing bulb for door warning light



Removing bulb for door warning light

1. Remove bulb socket from the door warning light and remove defective bulb.

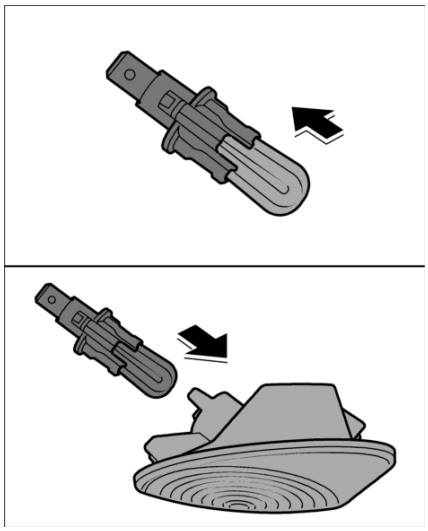
top of page

Installing bulb for door warning light

Installing bulb for door warning light

Note

Only use the relevant bulb specified in the bulb table *IN IN - Bulb table and installation instructions - "Information" chapter*.



Installing bulb for door warning light

1. Insert new bulb in the bulb socket and insert the socket into the door warning light opening.

Installing door warning light

Installation Location:

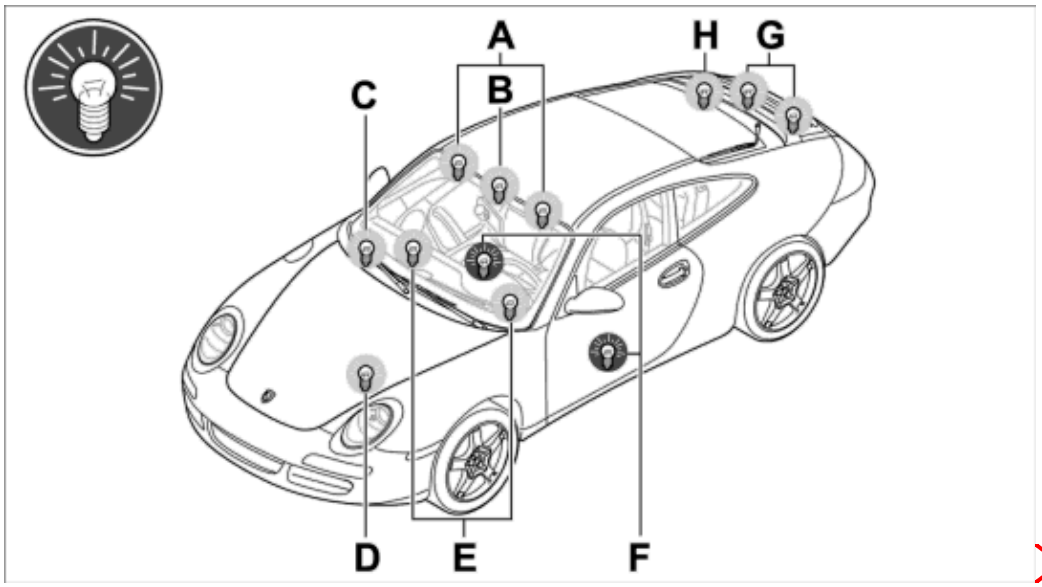
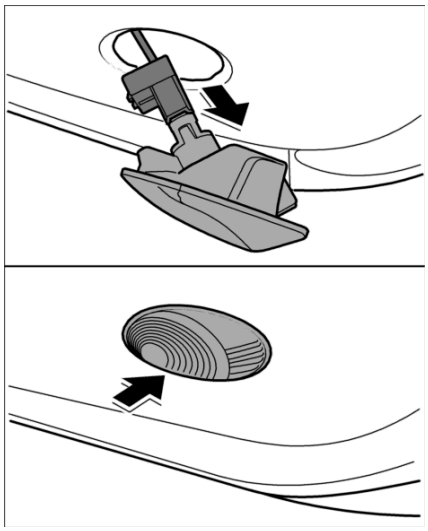


Diagram of door warning light,



Installing door warning light

1. Push connector on to door warning light.
2. Press door warning light into door trim panel.

997110, 997111, 997120, 997121, 997310, 997311, 997320, 997321, 997410, 997411, 997430, 997431, 997610, 997611, 997620, 997621

as of MY 2005
Country C00, C02, C05, C07, C08, C09, C10, C11, C12, C13, C14, C15, C16, C18, C19, C20, C21, C22, C23, C24, C25, C26, C27, C28, C32, C33, C34, C35, C36, C37, C38, C39, C45, C46, C98, C99

WARNUNG

Gefahr des Verlusts der Text-Bild-Zuordnung beim Ausdruck.

- **Aus technischen Gründen kann derzeit nicht ausgeschlossen werden, dass trotz einwandfreier Darstellung auf dem Bildschirm beim Ausdruck der Zusammenhang von Text und zugehörigem Bild verloren geht.**
- **Wird der Fehler nicht bemerkt, besteht die Gefahr, daß Arbeiten nicht korrekt durchgeführt werden und es dadurch zu Personen- und Sachschäden kommt.**

Vergleichen Sie deshalb nach dem Druckvorgang unbedingt die Ausdrucke mit der Bildschirmdarstellung. Korrigieren Sie die Ausdrucke im Fehlerfall so, daß der Inhalt der Bildschirmdarstellung zutreffend wiedergegeben wird.

WARNING

Danger of losing text-figure correspondence when printing out.

- **For technical reasons, it can currently not be ruled out that the correspondence between text and associated figure can be lost when it is printed out, even though the display on the screen is correct.**
- **If the fault is not noticed, there is the danger that work will not be performed correctly which can cause injury and damage.**

96 22 19 Removing and installing bulb for interior light - as of MY 2005

- Removing bulb for interior light
- Installing bulb for interior light

top of page

Removing bulb for interior light

Removing interior light

ATTENTION

Danger of damage to property if bulbs are used or handled incorrectly!

- **Risk of damage to bulbs and bulb housing.**

Switch off ignition and remove ignition key.

To prevent short circuits, the load in question must be switched off while changing bulbs.

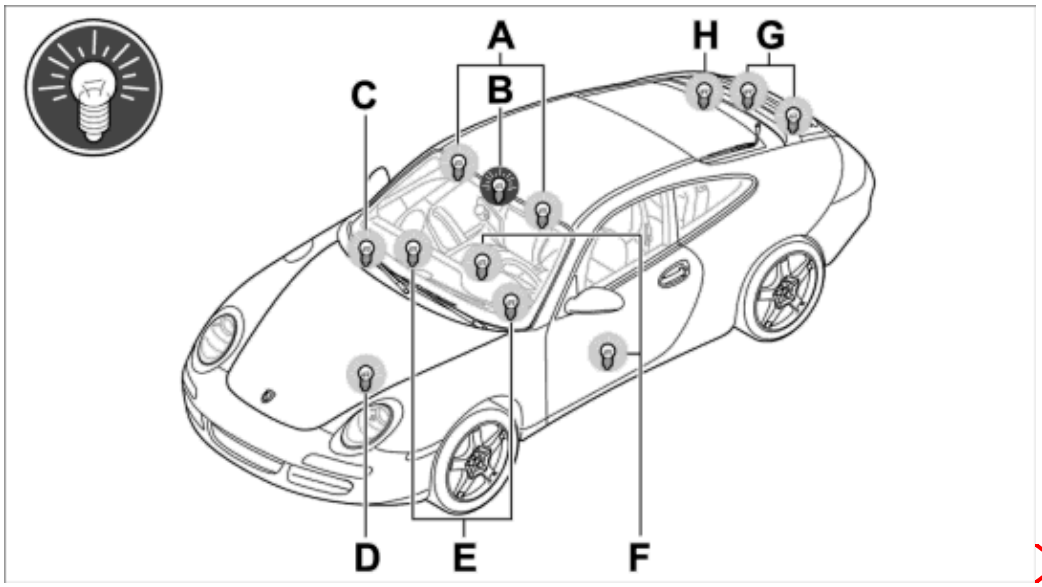
Only bulbs specified in the bulb table may be used.

Bulbs with a higher wattage may damage the bulb housing.

New bulbs must be clean and free of grease. Therefore, never touch the bulbs with your bare hands. Use a cloth or soft paper when changing bulbs.

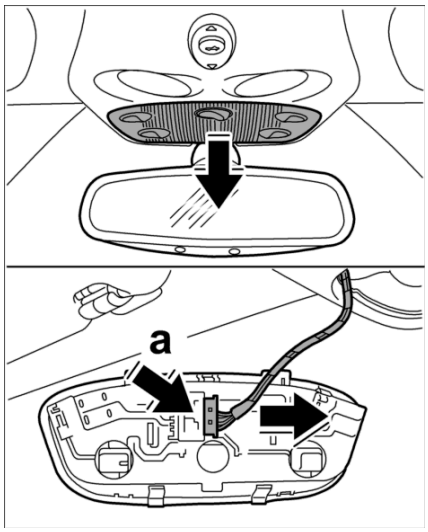
In certain states, it is compulsory to carry spare light bulbs.

Installation Location:



Interior light overview

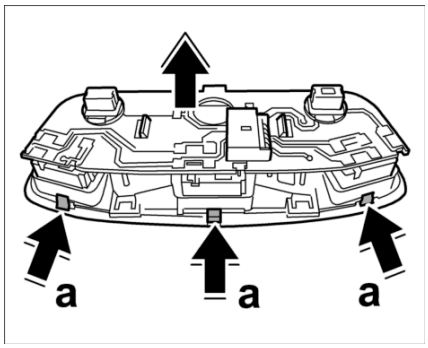
B - Interior light



Removing interior light

1. Pull the interior light out of the trim panel carefully from the front.
2. Release plug on interior light **-arrow a-** and pull it off.

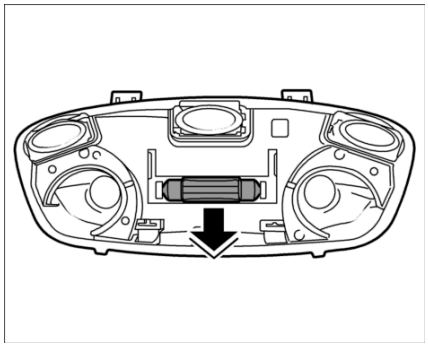
Removing lens for interior light



Removing lens for interior light

1. Carefully release lens at the three locking lugs on the interior light **-arrow a-** and remove interior light.

Removing bulb for interior light



Removing bulb for interior light

1. Remove defective bulb from between the contact springs.

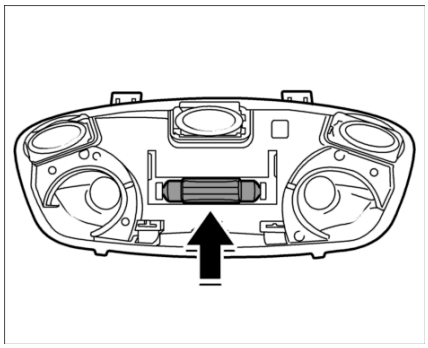
top of page

Installing bulb for interior light

Installing bulb for interior light

Note

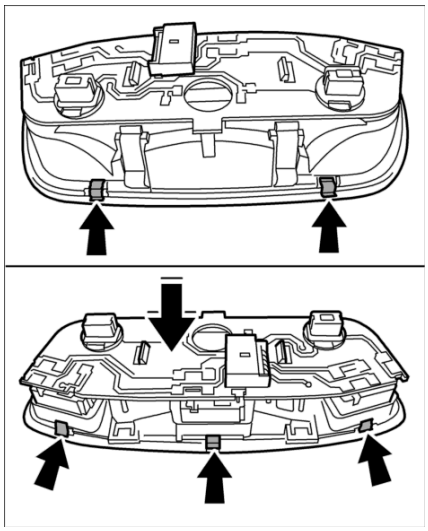
Only use the relevant bulb specified in the bulb table *IN IN - Bulb table and installation instructions - "Information" chapter.*



Installing bulb for interior light

1. Insert new bulb into the contact springs.

Installing lens for interior light

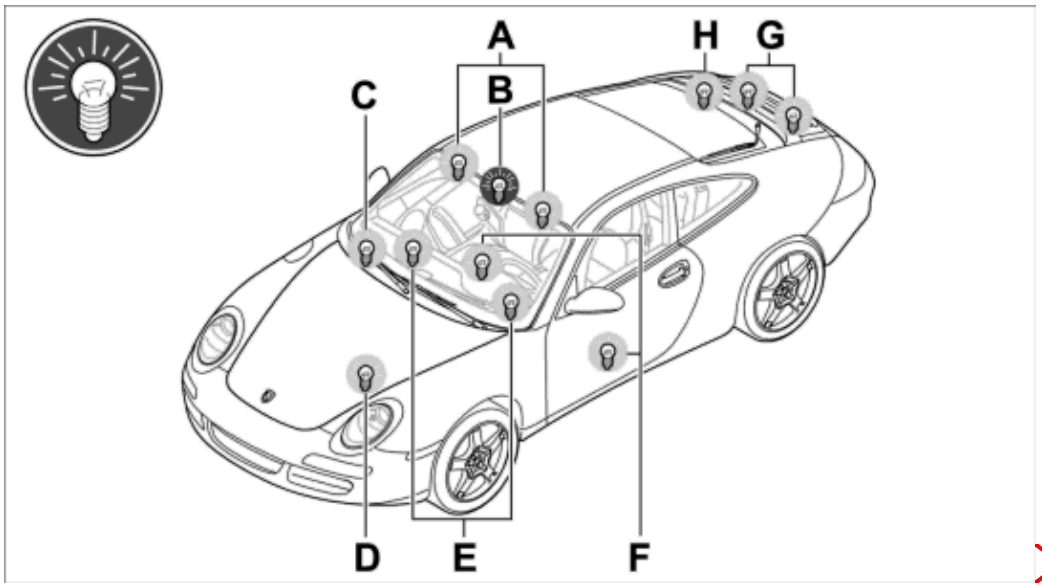


Installing lens for interior light

1. Insert interior light into the two guides on the lens.
2. Press interior light down until the three locking lugs click into place in the lens.

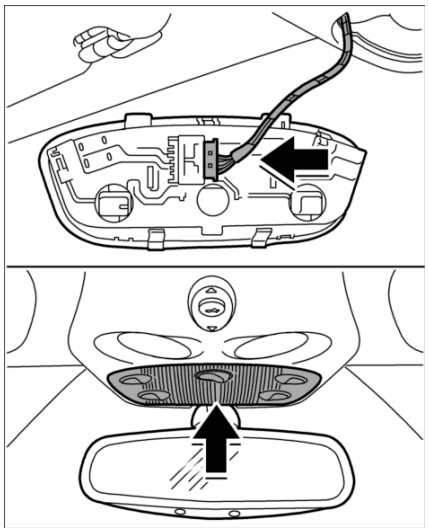
Installing interior light

Installation Location:



Interior light overview

B - Interior light



Installing interior light

1. Connect plug for interior light until the plug engages perceptibly.
2. Insert interior light into the trim panel at the rear, then press it into the trim panel at the front.

997110, 997111, 997120, 997121, 997310, 997311, 997320, 997321, 997410, 997411, 997430, 997431, 997610, 997611, 997620, 997621

as of MY 2005
Country C00, C02, C05, C07, C08, C09, C10, C11, C12, C13, C14, C15, C16, C18, C19, C20, C21, C22, C23, C24, C25, C26, C27, C28, C32, C33, C34, C35, C36, C37, C38, C39, C45, C46, C98, C99

WARNUNG

96 27 19 Removing and installing switch console - as of MY 2005

- Preliminary work
- Remove switch console
- Install switch console
- Subsequent work

top of page

Preliminary work

Preliminary work for switch console

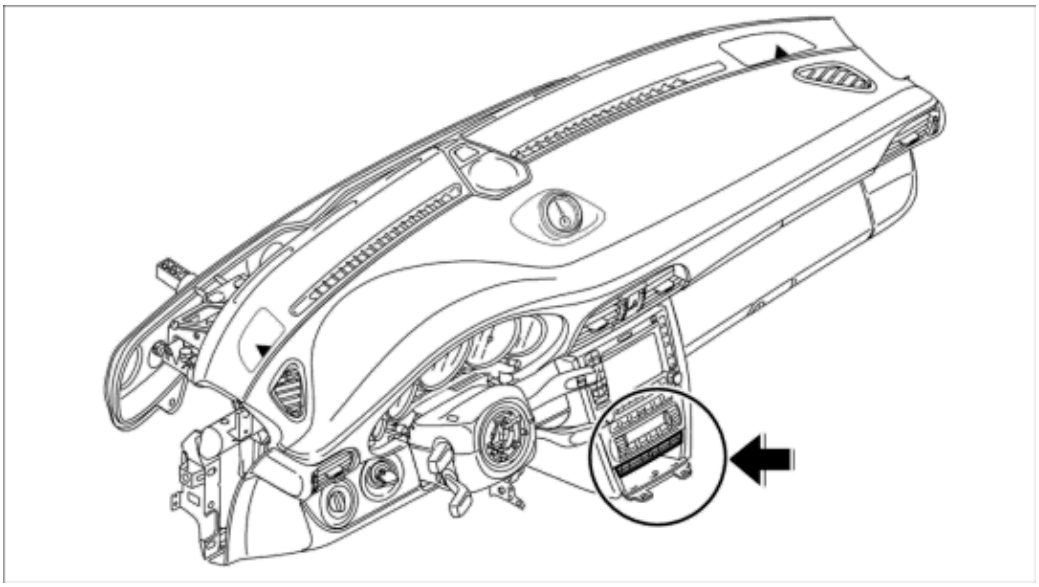
Remove air-conditioning control. 870219 Removing and installing air-conditioning system regulator - chapter on "Removing"

top of page

Remove switch console

Removing switch console

Installation Location:

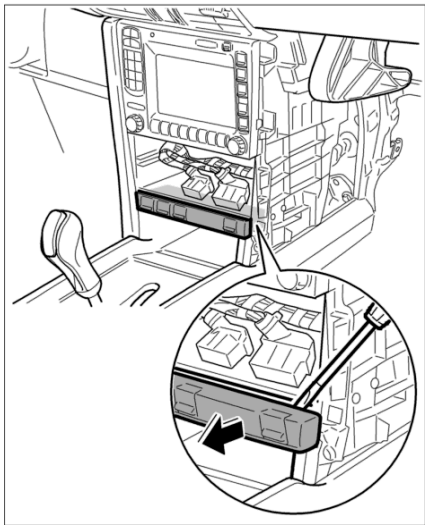


Installation diagram for the 911

1. Switch off ignition and pull gearshift lever back.

Note

The switch console is clipped into the centre console.



Removing switch console

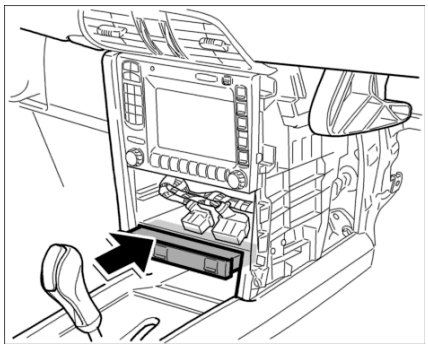
2. Lift the switch console out of the centre console mounting using a screwdriver and pull it out.
3. Release electric plugs and disconnect from the switch console.

top of page

Install switch console

Installing switch console

1. Insert electric plugs into the switch console until they click into place.



Inserting switch console

2. Slide switch console into the centre console and press until the switch console clips into place.

top of page

Subsequent work

Subsequent work for switch console

Install air-conditioning control. 870219 Removing and installing air-conditioning system regulator - chapter on "Installing"

997110, 997111, 997120, 997121, 997310, 997311, 997320, 997321, 997410, 997411, 997430, 997431, 997610, 997611, 997620, 997621

as of MY 2005
Country C00, C02, C05, C07, C08, C09, C10, C11, C12, C13, C14, C15, C16, C18, C19, C20, C21, C22, C23, C24, C25, C26, C27, C28, C32, C33, C34, C35, C36, C37, C38, C39, C45, C46, C98, C99

WARNUNG

Gefahr des Verlusts der Text-Bild-Zuordnung beim Ausdruck.

- **Aus technischen Gründen kann derzeit nicht ausgeschlossen werden, dass trotz einwandfreier Darstellung auf dem Bildschirm beim Ausdruck der Zusammenhang von Text und zugehörigem Bild verloren geht.**
- **Wird der Fehler nicht bemerkt, besteht die Gefahr, daß Arbeiten nicht korrekt durchgeführt werden und es dadurch zu Personen- und Sachschäden kommt.**

Vergleichen Sie deshalb nach dem Druckvorgang unbedingt die Ausdrucke mit der Bildschirmdarstellung. Korrigieren Sie die Ausdrucke im Fehlerfall so, daß der Inhalt der Bildschirmdarstellung zutreffend wiedergegeben wird.

WARNING

Danger of losing text-figure correspondence when printing out.

96 41 19 Removing and installing bulb for luggage compartment light - as of MY 2005

- Removing bulb for luggage compartment light
- Installing bulb for luggage compartment light

top of page

Removing bulb for luggage compartment light

Removing luggage compartment light

ATTENTION

Danger of damage to property if bulbs are used or handled incorrectly!

- **Risk of damage to bulbs and bulb housing.**

Switch off ignition and remove ignition key.

To prevent short circuits, the load in question must be switched off while changing bulbs.

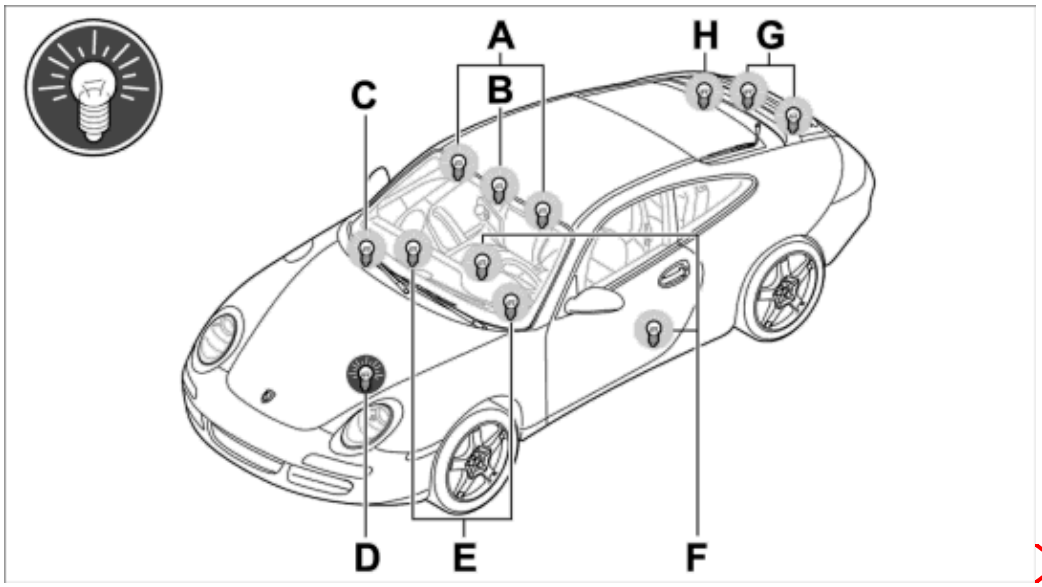
Only bulbs specified in the bulb table may be used.

Bulbs with a higher wattage may damage the bulb housing.

New bulbs must be clean and free of grease. Therefore, never touch the bulbs with your bare hands. Use a cloth or soft paper when changing bulbs.

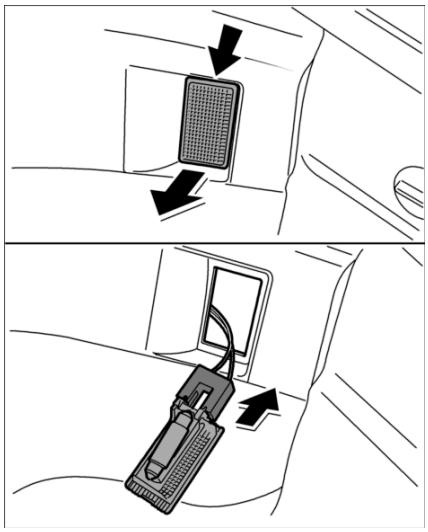
In certain states, it is compulsory to carry spare light bulbs.

Installation Location:



Luggage compartment light overview

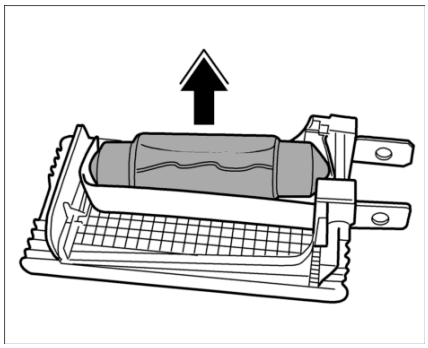
D - Luggage compartment light



Removing luggage compartment light

1. Press luggage compartment light carefully out of the luggage compartment trim at the cutout **-arrow-** using a screwdriver.
2. Pull off plug on luggage compartment light and remove luggage compartment light.

Removing bulb for light



Removing bulb for light

1. Remove defective bulb from between the contact springs.

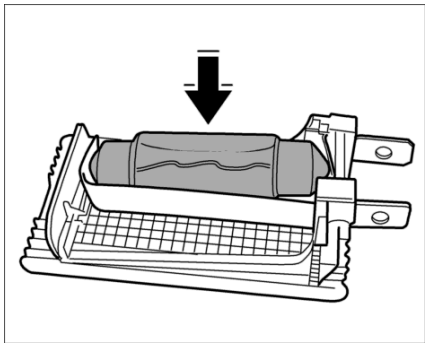
top of page

Installing bulb for luggage compartment light

Installing bulb for light

Note

Only use the relevant bulb specified in the bulb table *IN IN - Bulb table and installation instructions - "Information" chapter*.

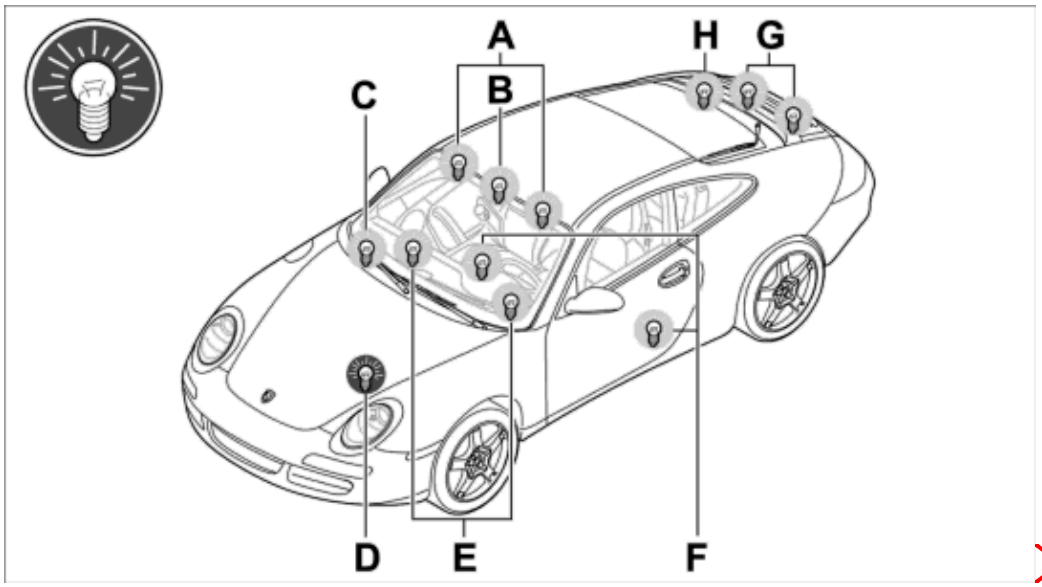


Installing bulb for light

1. Insert new bulb into the contact springs.

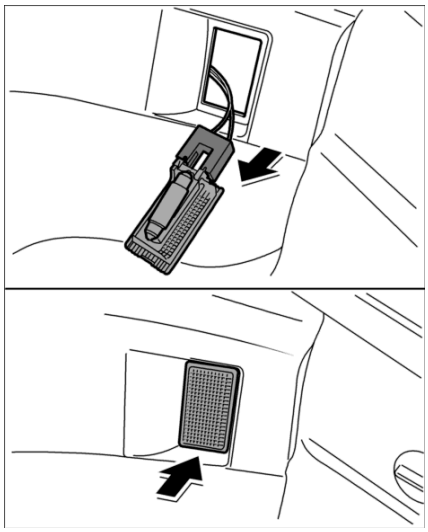
Installing luggage compartment light

Installation Location:



Luggage compartment light overview

D - Luggage compartment light



Installing luggage compartment light

1. Attach plug on luggage compartment light.
2. Press luggage compartment light into the luggage compartment lining.

997110, 997111, 997120, 997121, 997310, 997311, 997320, 997321, 997410, 997411, 997430, 997431, 997610, 997611, 997620, 997621

as of MY 2005
Country C00, C02, C05, C07, C08, C09, C10, C11, C12, C13, C14, C15, C16, C18, C19, C20, C21, C22, C23, C24, C25, C26, C27, C28, C32, C33, C34, C35, C36, C37, C38, C39, C45, C46, C98, C99

WARNUNG

96 43 19 Removing and installing bulb for engine compartment light - as of MY 2005

- Removing bulb for engine compartment light
- Installing bulb for engine compartment light

top of page

Removing bulb for engine compartment light

Removing engine compartment light

ATTENTION

Danger of damage to property if bulbs are used or handled incorrectly!

- **Risk of damage to bulbs and bulb housing.**

Switch off ignition and remove ignition key.

To prevent short circuits, the load in question must be switched off while changing bulbs.

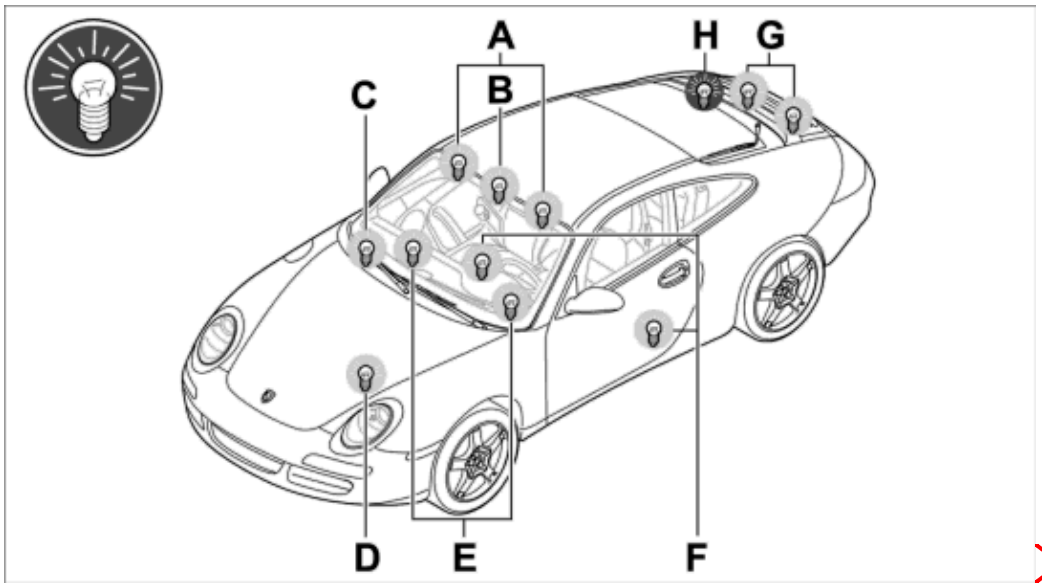
Only bulbs specified in the bulb table may be used.

Bulbs with a higher wattage may damage the bulb housing.

New bulbs must be clean and free of grease. Therefore, never touch the bulbs with your bare hands. Use a cloth or soft paper when changing bulbs.

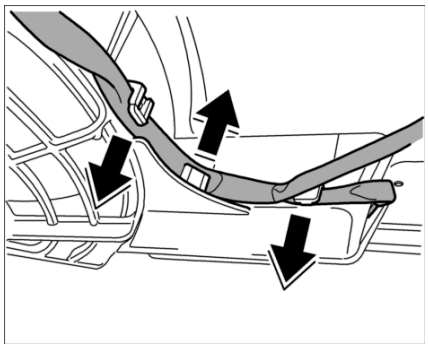
In certain states, it is compulsory to carry spare light bulbs.

Installation Location:



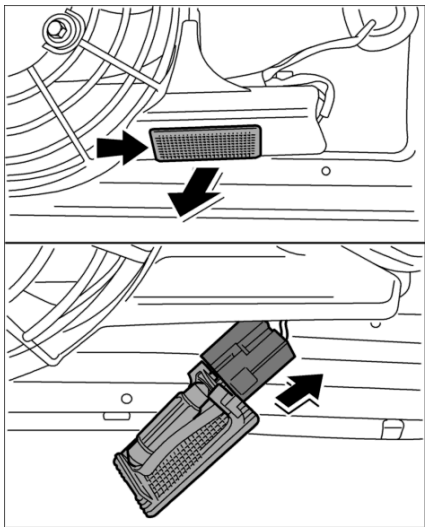
Engine compartment light overview

H - Engine compartment light



Disengaging wiring harness on blower motor housing

1. Disengage wiring harness on blower motor housing.



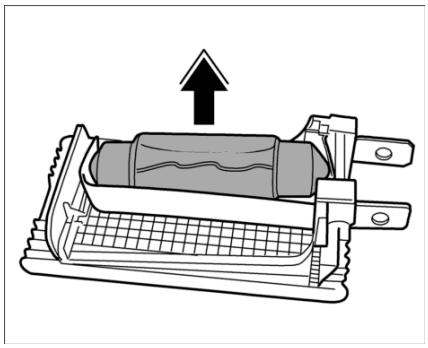
Removing engine compartment light

2.

Press engine compartment light carefully out of the blower motor housing at the cutout **-arrow-** using a screwdriver.

3. Pull off plug on engine compartment light and remove engine compartment light.

Removing bulb for light



Removing bulb for light

1. Remove defective bulb from between the contact springs.

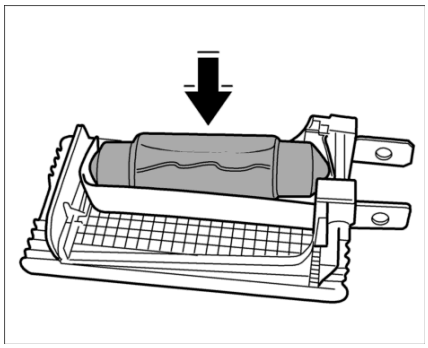
top of page

Installing bulb for engine compartment light

Installing bulb for light

Note

Only use the relevant bulb specified in the bulb table *IN IN - Bulb table and installation instructions - "Information" chapter*.

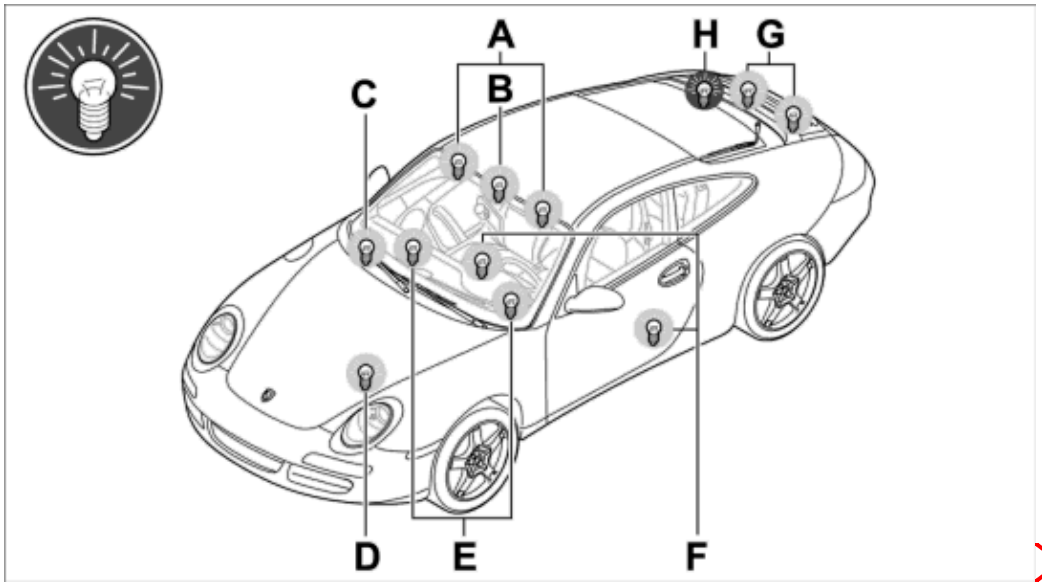


Installing bulb for light

1. Insert new bulb into the contact springs.

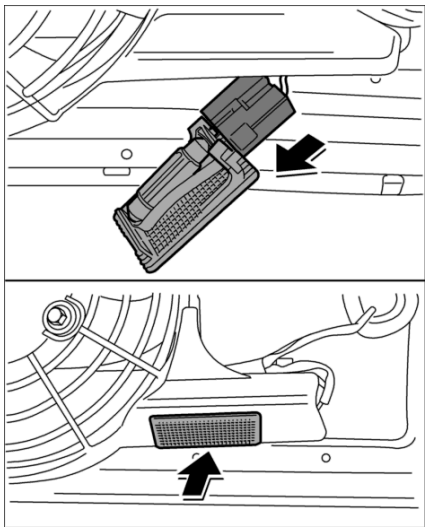
Installing engine compartment light

Installation Location:



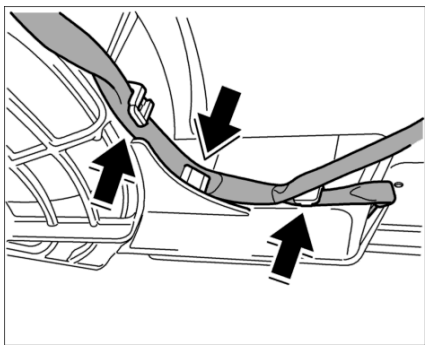
Engine compartment light overview

H - Engine compartment light



Installing engine compartment light

1. Attach plug on engine compartment light.
2. Press engine compartment light into the blower motor housing.



Engaging wiring harness on blower motor housing

3. Engage wiring harness on blower motor housing.

997110, 997111, 997120, 997121, 997310, 997311, 997320, 997321, 997410, 997411, 997430, 997431, 997610, 997611, 997620, 997621

as of MY 2005
Country C00, C02, C05, C07, C08, C09, C10, C11, C12, C13, C14, C15, C16, C18, C19, C20, C21, C22, C23, C24, C25, C26, C27, C28, C32, C33, C34, C35, C36, C37, C38, C39, C45, C46, C98, C99

WARNUNG

Gefahr des Verlusts der Text-Bild-Zuordnung beim Ausdruck.

- **Aus technischen Gründen kann derzeit nicht ausgeschlossen werden, dass trotz einwandfreier Darstellung auf dem Bildschirm beim Ausdruck der Zusammenhang von Text und zugehörigem Bild verloren geht.**
- **Wird der Fehler nicht bemerkt, besteht die Gefahr, daß Arbeiten nicht korrekt durchgeführt werden und es dadurch zu Personen- und Sachschäden kommt.**

96 44 19 Removing and installing glove compartment light - as of MY 2005

- Removing glove compartment light
- Installing glove compartment light

top of page

Removing glove compartment light

Removing glove compartment light

ATTENTION

Danger of damage to property if bulbs are used or handled incorrectly!

- **Risk of damage to bulbs and bulb housing.**

Switch off ignition and remove ignition key.

To prevent short circuits, the load in question must be switched off while changing bulbs.

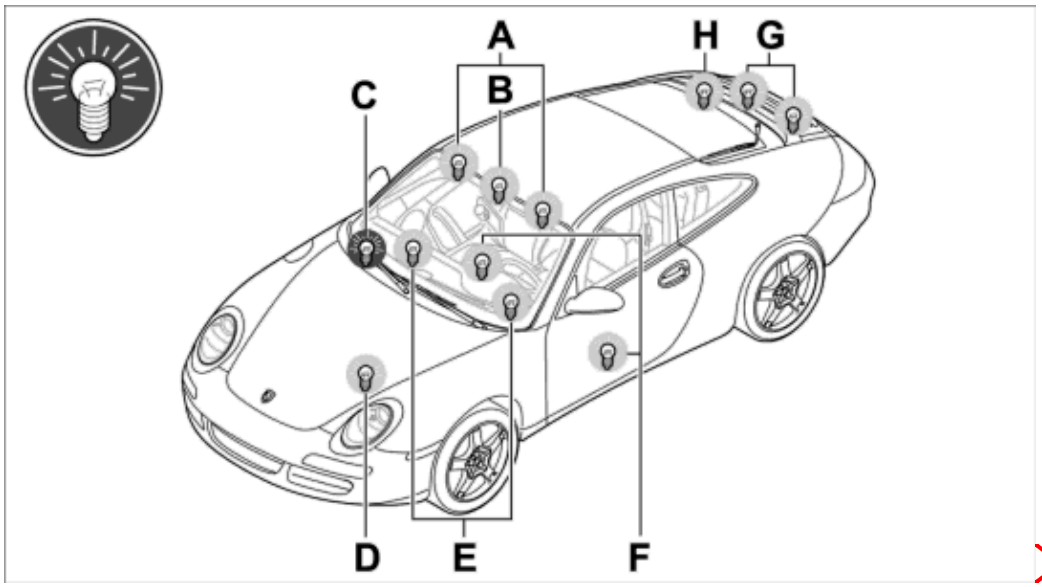
Only bulbs specified in the bulb table may be used.

Bulbs with a higher wattage may damage the bulb housing.

New bulbs must be clean and free of grease. Therefore, never touch the bulbs with your bare hands. Use a cloth or soft paper when changing bulbs.

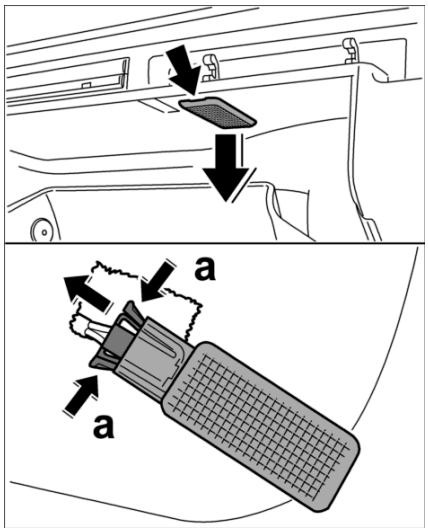
In certain states, it is compulsory to carry spare light bulbs.

Installation Location:



Glove compartment light overview

C - Glove compartment light



Removing glove compartment light

1. Press glove compartment light carefully out of the glove compartment at the cutout **-arrow-** using a screwdriver.
2. Release plug on glove compartment light **-arrows a-** and pull it off.
3. Remove glove compartment light.

top of page

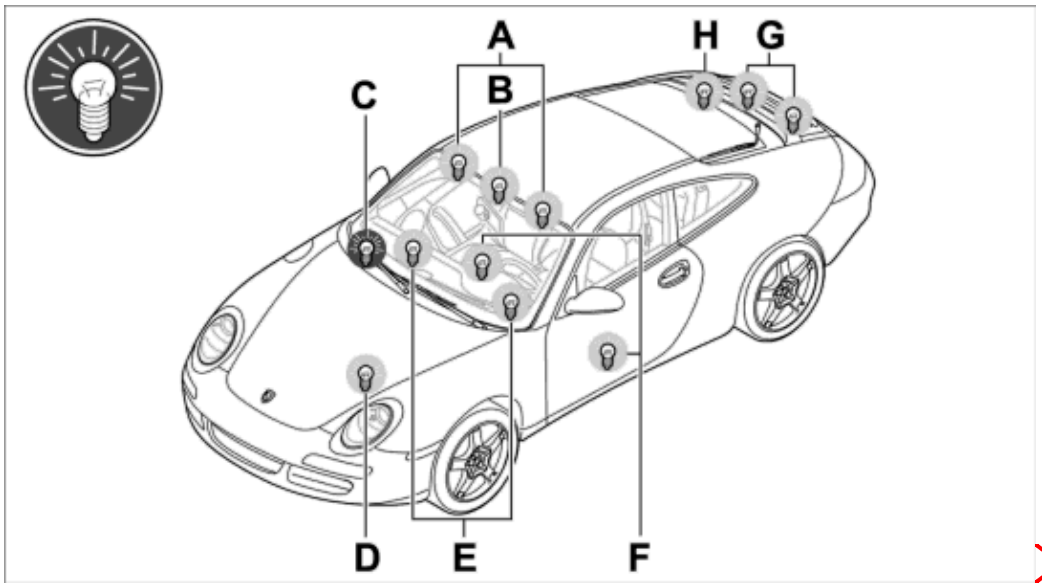
Installing glove compartment light

Installing glove compartment light

Note

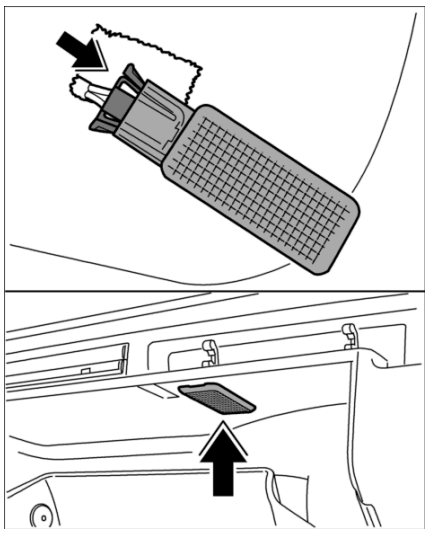
Only use the relevant bulb specified in the bulb table *IN IN - Bulb table and installation instructions - "Information" chapter.*

Installation Location:



Glove compartment light overview

C - Glove compartment light



Installing glove compartment light

1. Push plug on to glove compartment light until the plug is felt to engage.
2. Press glove compartment light into the glove compartment.

96 47 19 Removing and installing bulb for reading light - as of MY 2005

- Removing bulb for reading light
- Installing bulb for reading light

top of page

Removing bulb for reading light

Removing interior light

ATTENTION

Danger of damage to property if bulbs are used or handled incorrectly!

- **Risk of damage to bulbs and bulb housing.**

Switch off ignition and remove ignition key.

To prevent short circuits, the load in question must be switched off while changing bulbs.

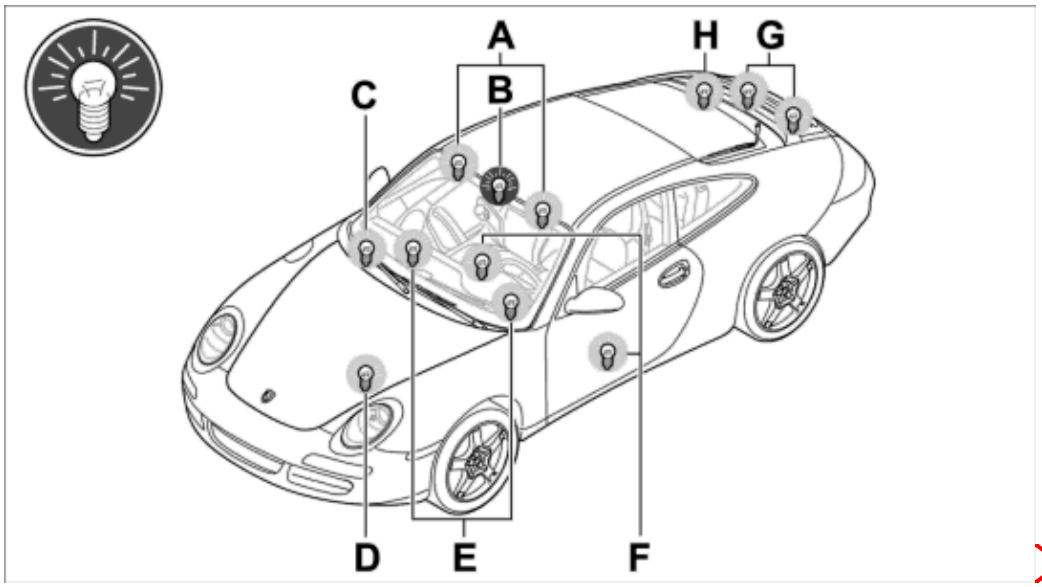
Only bulbs specified in the bulb table may be used.

Bulbs with a higher wattage may damage the bulb housing.

New bulbs must be clean and free of grease. Therefore, never touch the bulbs with your bare hands. Use a cloth or soft paper when changing bulbs.

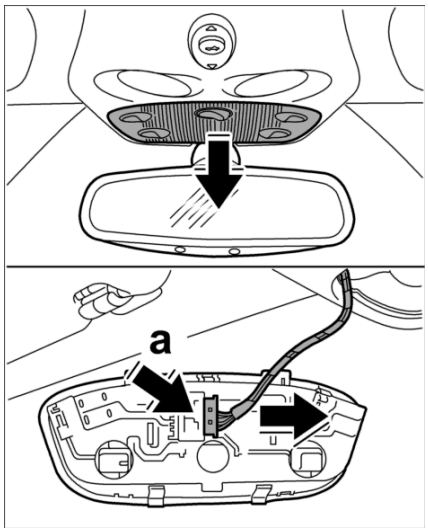
In certain states, it is compulsory to carry spare light bulbs.

Installation Location:



Interior light overview

B - Interior light

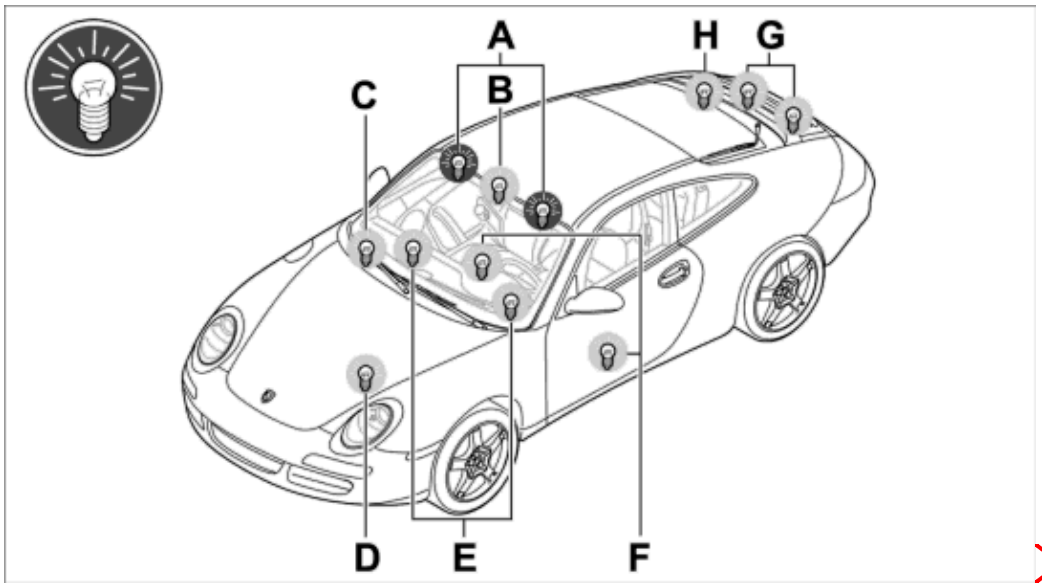


Removing interior light

1. Pull the interior light out of the trim panel carefully from the front.
2. Release plug on interior light **-arrow a-** and pull it off.

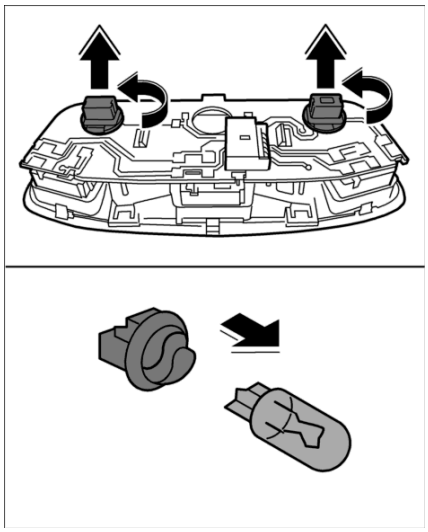
Removing bulb for reading light

Installation Location:



Reading light overview

A - Reading light



Removing bulb for reading light

1. Disengage bulb socket with bayonet lock **-direction of arrow-** and remove it.
2. Take defective bulb out of the bulb socket.

top of page

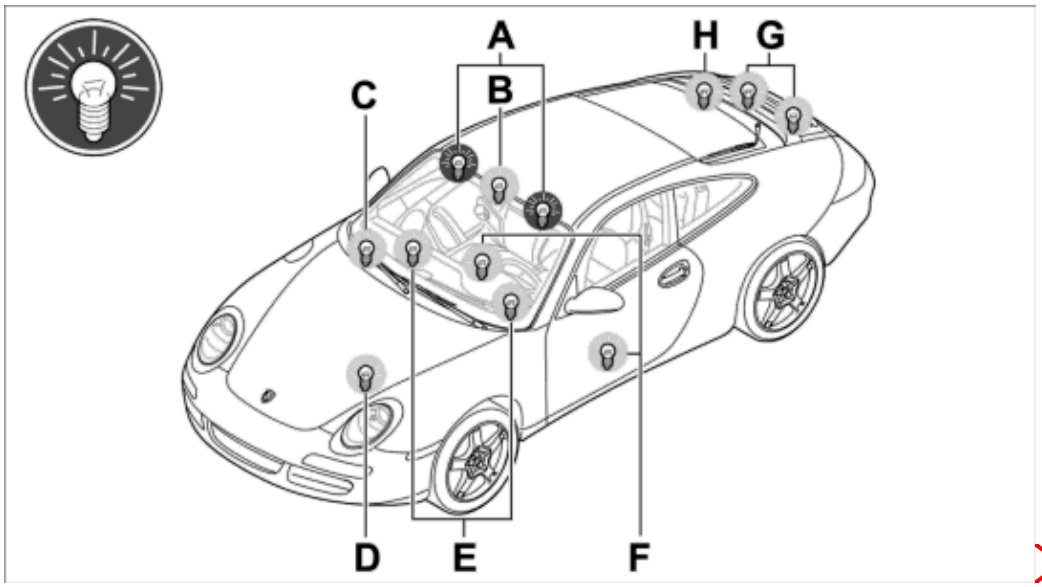
Installing bulb for reading light

Installing bulb for reading light

Note

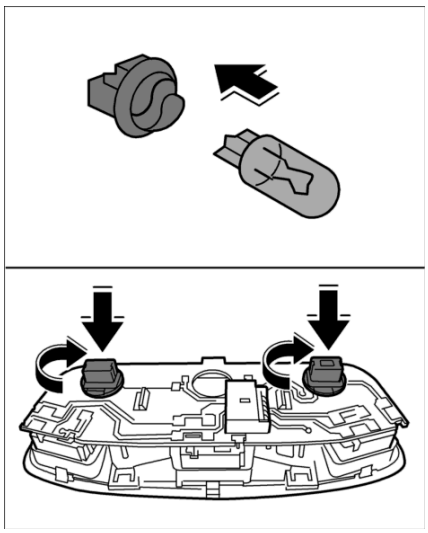
Only use the relevant bulb specified in the bulb table *IN IN - Bulb table and installation instructions - "Information" chapter.*

Installation Location:



Reading light overview

A - Reading light

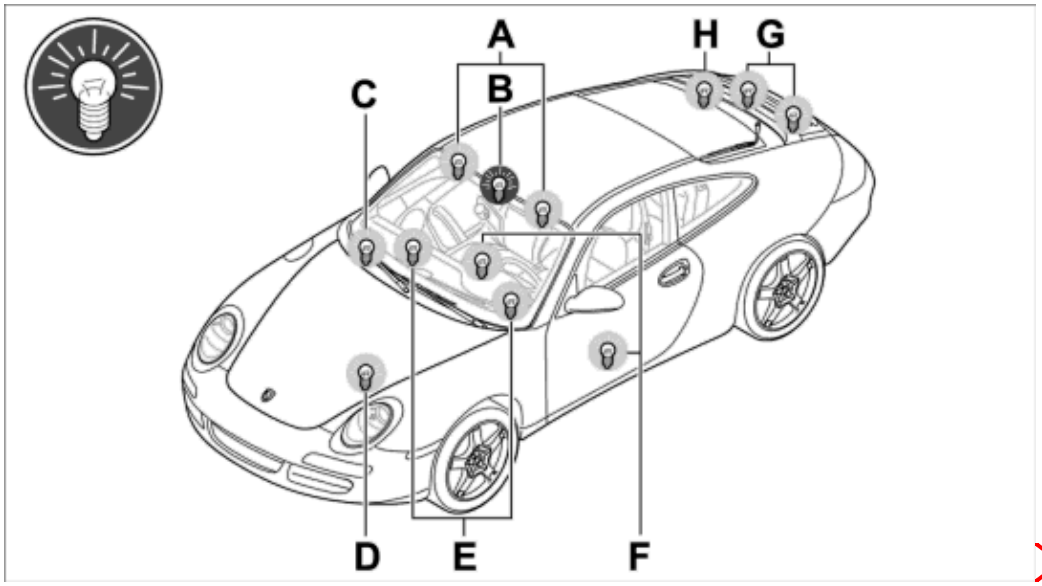


Installing bulb for reading light

1. Insert new bulb into the bulb socket.
2. Insert bulb socket with bayonet lock into the interior light and lock it **-direction of arrow-** .

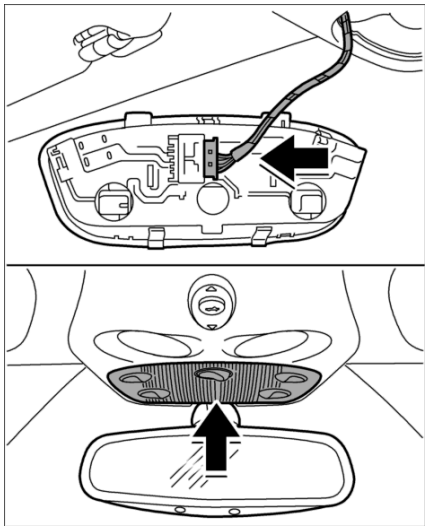
Installing interior light

Installation Location:



Interior light overview

B - Interior light



Installing interior light

1. Connect plug for interior light until the plug engages perceptibly.
2. Insert interior light into the trim panel at the rear, then press it into the trim panel at the front.

96 60 21 Removing main switch for power supply - as of MY 2005

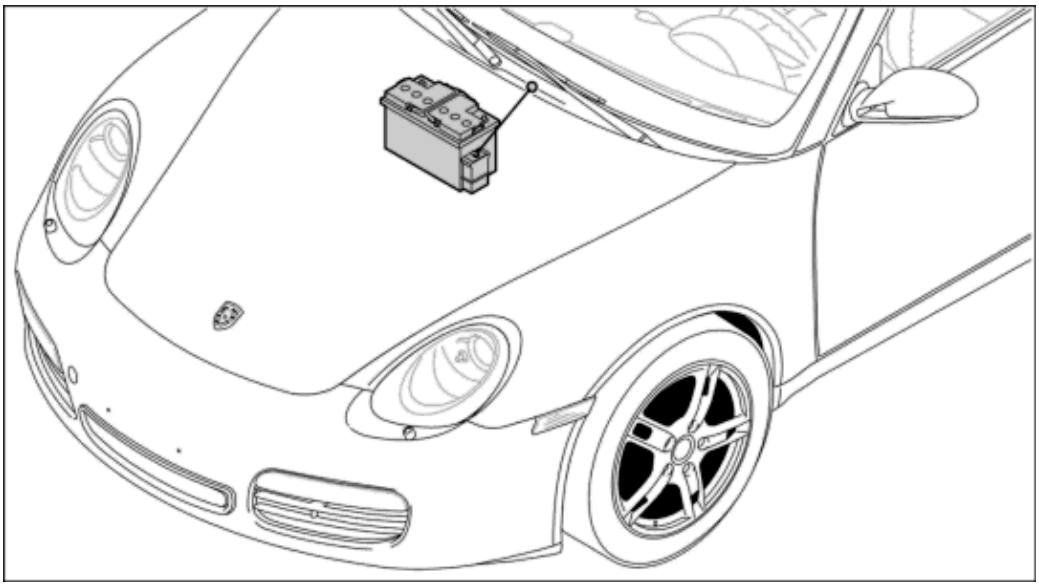
- Removing main switch for power supply
- Information

top of page

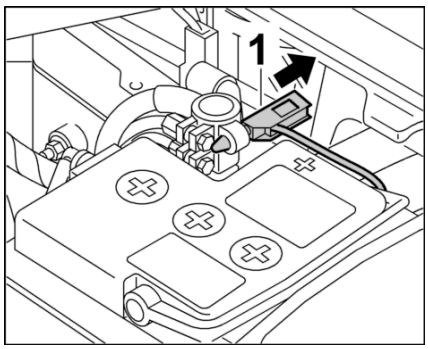
Removing main switch for power supply

Removing main power supply switch

Installation Location:



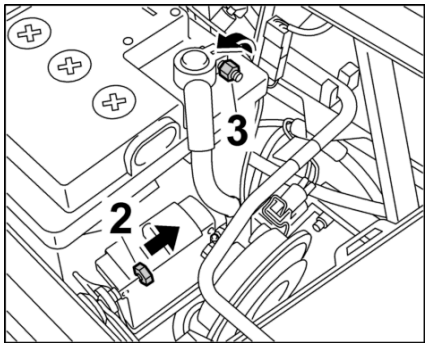
Installation position



Plug for the main switch

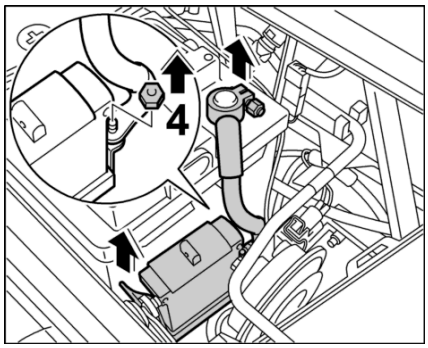
1. Pull off the B+ plug **-1-** for the main switch (battery disconnect switch) from the battery positive

terminal.



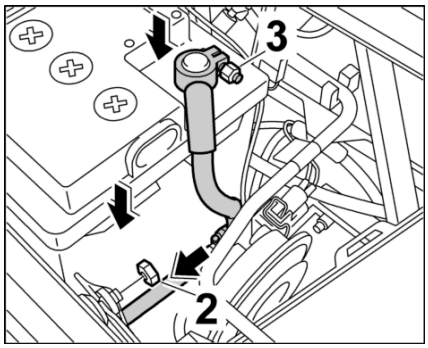
Unscrewing the ground point

2. Unscrew the fastening nut **-2-** for the ground point on the body and disconnect the negative terminal **-3-** from the battery.
3. Cover the negative terminal on the battery with a soft, dry cloth.



Removing the battery disconnect switch

4. Remove battery disconnect switch together with the lead for the negative terminal and unscrew the fastening nut **-4-** . Remove lead for the negative terminal.



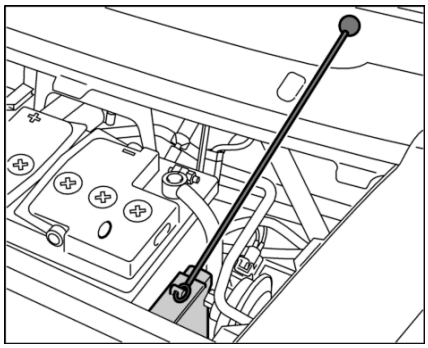
Routing and securing lead for negative terminal

5. Position lead for the negative terminal on the battery again and screw it firmly into place **-3-** .
   Tightening torque: 3.5 ftlb.
6. Position lead for the negative terminal on the bulkhead and secure with the fastening nut **-2-** .
   Tightening torque: 11 ftlb.
7. Place and fit the battery cover included with the vehicle.
8. Carry out *271000 Work instructions after disconnecting the battery*.

top of page

Information

Vehicle electrical system - switching on

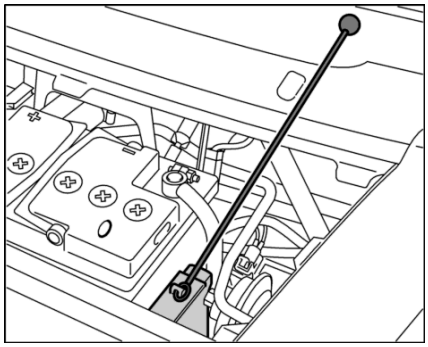


Battery disconnect switch with external switch lever

The battery disconnect switch, which is supplied via the positive terminal, is closed manually using the external switch lever and locked electromagnetically. The luggage compartment lid must not be open when doing this.

Vehicle electrical system - switching off

The vehicle electrical system switches off:
If the battery voltage falls below 12.6 V for approx. 10 min.
Immediately, if the voltage supply of the main power supply switch (battery disconnect switch) is disconnected from the positive terminal.



Vehicle electrical system - switching off

Immediately, if the main power supply switch (battery disconnect switch) is mechanically released.

96 62 25 Teaching hand-held transmitter - as of MY 2005

Teaching hand-held transmitter

Note

If an additional hand-held transmitter is to be taught, for example, all original keys/remote controls must also be used and taught.
If a new hand-held transmitter is taught for a vehicle, the Teach Enable Code (TEC), Transponder password and Transponder Secret Key specified in IPAS must be entered.
You can get the codes from IPAS or from your importer by specifying the vehicle identification number.
During programming, it is essential to guarantee the power supply for the Porsche System tester. It is essential to connect a battery charger with a current rating of at least 40 A to the vehicle battery.
The Porsche System Tester instructions take precedence and in the event of a discrepancy these are the instructions that must be followed. Deviations may occur with later software versions.
The procedure described here has been structured generally, different text or additions may appear in the Porsche System Tester.

Note

- *Only new hand-held transmitters or those already adapted to the immobiliser system on the vehicle can be taught.*
- *Hand-held transmitters that are already adapted are overwritten, and so all hand-held transmitters that will later be used on the vehicle must be taught.*
- *Teaching of keys is protected over a time period. Once this time has elapsed, teaching is aborted.*

1. Ignition off. Connect the Porsche System Tester to the vehicle and start the System Tester. Select vehicle type.
2. Switch on warning indicator light; this will activate CAN and ensure that the KESSY control unit is identified.
3. Select **PAS** control unit and press >> .
4. Select the **Teaching function** menu >> .
5. Select the **Teach keys** menu >> .
6. Enter the Teach Enable Code **TEC** from IPAS >> and confirm by pressing F7 .
7. Enter the **Number of keys** >> and confirm by pressing F7 .
8. Enter the **Transponder password** >> and confirm by pressing F7 .

9. Enter the **Transponder Secret Key** >> and confirm by pressing F7 .
10. Tester requests: **Insert key 1** >> , **Insert key 2** >> etc., until the relevant number of keys is reached.
11. Tester information regarding **Synchronisation of keys** is no longer necessary.
12. Switch on the ignition, read out the fault memory of all control units, and erase if necessary.
13. Start engine with all keys, one after the other. The hand-held transmitters have now been taught.

997110, 997111, 997120, 997121, 997310, 997311, 997320, 997321, 997410, 997411, 997430, 997431, 997610, 997611, 997620, 997621

as of MY 2005
Country C00, C02, C05, C07, C08, C09, C10, C11, C12, C13, C14, C15, C16, C18, C19, C20, C21, C22, C23, C24, C25, C26, C27, C28, C32, C33, C34, C35, C36, C37, C38, C39, C45, C46, C98, C99

WARNUNG

Gefahr des Verlusts der Text-Bild-Zuordnung beim Ausdruck.

- **Aus technischen Gründen kann derzeit nicht ausgeschlossen werden, dass trotz einwandfreier Darstellung auf dem Bildschirm beim Ausdruck der Zusammenhang von Text und zugehörigem Bild verloren geht.**
- **Wird der Fehler nicht bemerkt, besteht die Gefahr, daß Arbeiten nicht korrekt durchgeführt werden und es dadurch zu Personen- und Sachschäden kommt.**

Vergleichen Sie deshalb nach dem Druckvorgang unbedingt die Ausdrucke mit der Bildschirmdarstellung. Korrigieren Sie die Ausdrucke im Fehlerfall so, daß der Inhalt der Bildschirmdarstellung zutreffend wiedergegeben wird.

WARNING

Danger of losing text-figure correspondence when printing out.

- **For technical reasons, it can currently not be ruled out that the correspondence between text and associated figure can be lost when it is printed out, even though the display on the screen is correct.**
- **If the fault is not noticed, there is the danger that work will not be performed correctly which can cause injury and damage.**

Therefore, always compare printouts with the screen display after printing them out. Correct the printouts if they are faulty so that the content of the screen display matches that on the printouts.

AVERTISSEMENT

Risque de perte de la correspondance texte-illustration lors de l'impression papier.

- **Pour des raisons techniques, il ne peut pas être exclu à l'heure actuelle que, même en cas d'affichage correct à l'écran, la correspondance entre le texte et l'illustration puisse être erronée sur l'impression papier.**

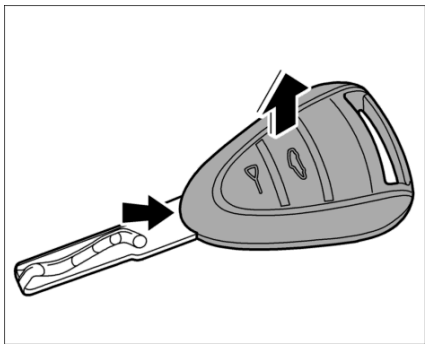
96 62 55 Replacing hand-held transmitter - as of MY 2005

- Disassembling hand-held transmitter
- Assembling hand-held transmitter

top of page

Disassembling hand-held transmitter

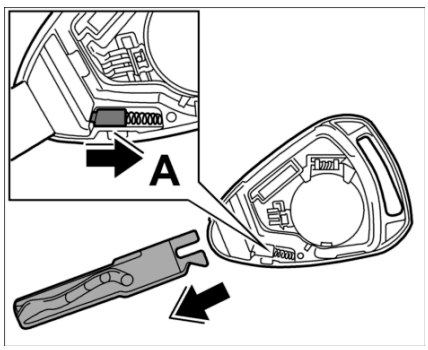
Removing cover of hand-held transmitter



Removing cover of hand-held transmitter

1. Insert a small screwdriver between the cover and the bottom part of the hand-held transmitter **-arrow-** and carefully lift off the cover.

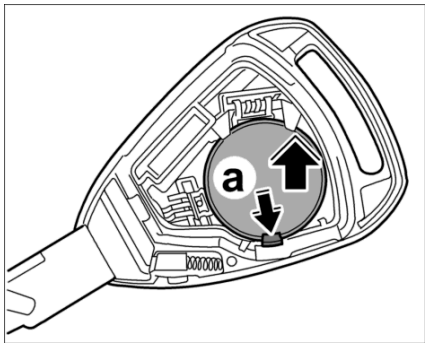
Removing hand-held transmitter key



Removing hand-held transmitter key

1. Push the sliding latch back using a small screwdriver **-arrow A-** and pull the key out of the bottom part.

Removing battery for hand-held transmitter



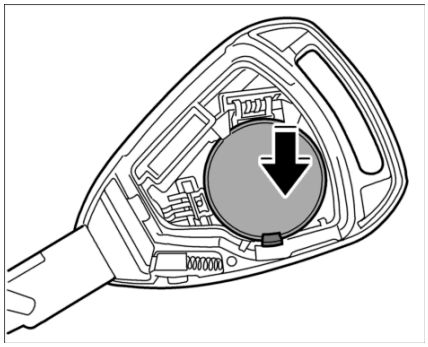
Removing battery for hand-held transmitter

1. Loosen the locking tab **-arrow a-** and remove the battery.

top of page

Assembling hand-held transmitter

Installing battery for hand-held transmitter



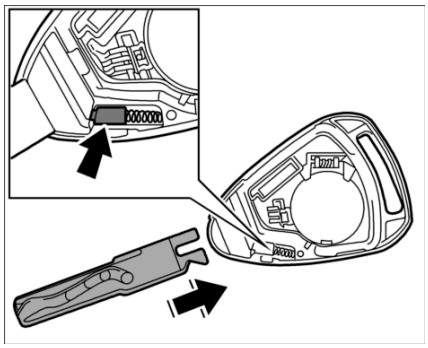
Installing battery for hand-held transmitter

1. Insert battery and press it in until the locking tab clicks into place.

Installing hand-held transmitter key

Note

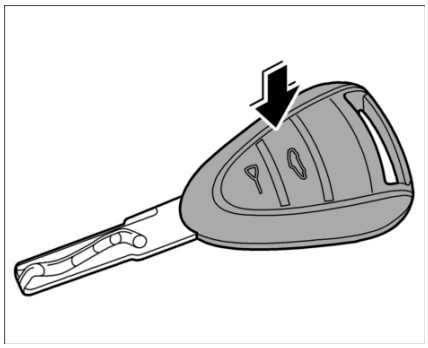
The lock code from IPAS must be specified when ordering a new key.



Installing hand-held transmitter key

1. Push the key into the bottom part until the sliding latch **-arrow-** engages perceptibly.

Installing cover of hand-held transmitter



Installing cover of hand-held transmitter

1. Position the cover on the bottom part of the hand-held transmitter and press together until the cover clicks into place.

997110, 997111, 997120, 997121, 997310, 997311, 997320, 997321, 997410, 997411, 997430, 997431, 997610, 997611, 997620, 997621

as of MY 2005
Country C00, C02, C05, C07, C08, C09, C10, C11, C12, C13, C14, C15, C16, C18, C19, C20, C21, C22, C23, C24, C25, C26, C27, C28, C32, C33, C34, C35, C36, C37, C38, C39, C45, C46, C98, C99

96 63 19 Removing and installing tilt sensor control unit - as of MY 2005

- Preliminary work
- Removing tilt sensor control unit
- Installing tilt sensor control unit
- Subsequent work

top of page

Preliminary work

Preliminary work

Remove centre console cover. *21 Removing and installing centre console cover - chapter on "removing"*

top of page

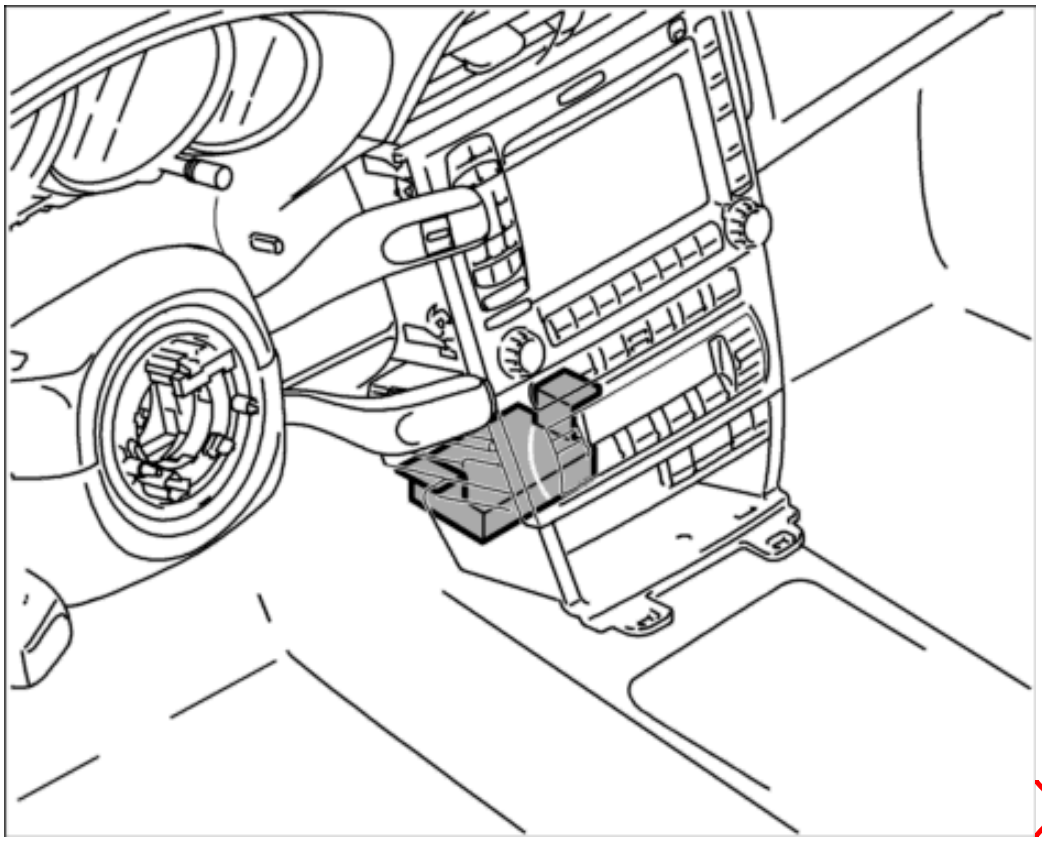
Removing tilt sensor control unit

Removing tilt sensor control unit

Note

- *The tilt sensor is integrated into the tilt control unit and cannot be separately replaced.*

Installation Location:



Overview of tilt sensor control unit

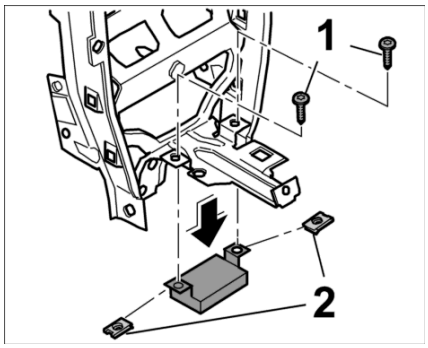
WARNING

Risk of damage to electronic control modules.

- **If care is not taken, electrical and electronic components may be destroyed.**

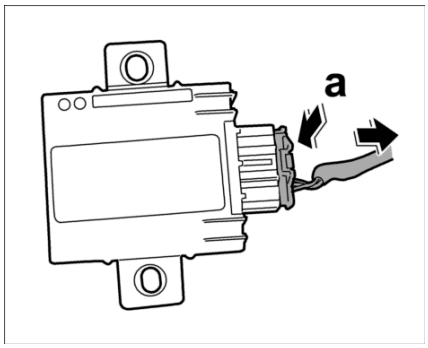
Before removing the control module, switch off the ignition and remove the ignition key.

1. Switch off ignition and remove ignition key.



Unscrewing fastening screws for tilt sensor conrol unit

2. Unscrew the two fastening nuts **-1-** and remove the tilt sensor conrol unit.
3. Remove the two sheetmetal nuts **-2-** from the tilt sensor conrol unit.



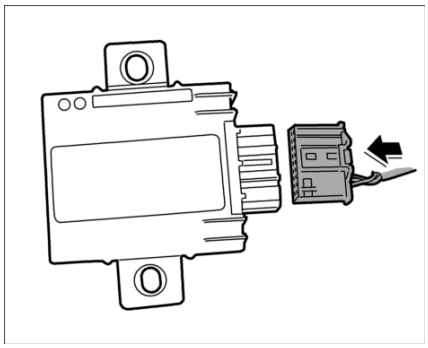
Removing plug for tilt sensor control unit

4. Unlock plug for tilt sensor control unit **-Arrow a-** and remove.

top of page

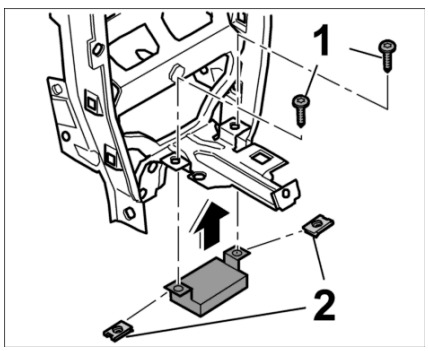
Installing tilt sensor control unit

Installing tilt sensor control unit



Connect plug to tilt sensor control unit.

1. Push plug onto tilt sensor control unit until it is felt to engage.



Tightening fastening screws for tilt sensor conrol unit

2. Check sheetmetal nuts for deformation, replacing if necessary. Push the two sheetmetal nuts **-2-** onto the tilt sensor control unit.
3. Position tilt sensor control unit **-1-** and secure with both fastening nuts. **Tightening torque: 3 ftlb.**

top of page

Subsequent work

Subsequent work

Install centre console cover. *23 Removing and installing centre console cover - chapter on "installing"*

997110, 997111, 997120, 997121, 997310, 997311, 997320, 997321, 997410, 997411, 997430, 997431, 997610, 997611, 997620, 997621

as of MY 2005
Country C00, C02, C05, C07, C08, C09, C10, C11, C12, C13, C14, C15, C16, C18, C19, C20, C21, C22, C23, C24, C25, C26, C27, C28, C32, C33, C34, C35, C36, C37, C38, C39, C45, C46, C98, C99

WARNUNG
Gefahr des Verlusts der Text-Bild-Zuordnung beim Ausdruck.

- **Aus technischen Gründen kann derzeit nicht ausgeschlossen werden, dass trotz einwandfreier Darstellung auf dem Bildschirm beim Ausdruck der Zusammenhang von Text und zugehörigem Bild verloren geht.**
- **Wird der Fehler nicht bemerkt, besteht die Gefahr, daß Arbeiten nicht korrekt durchgeführt werden und es dadurch zu Personen- und Sachschäden kommt.**

Vergleichen Sie deshalb nach dem Druckvorgang unbedingt die Ausdrucke mit der Bildschirmdarstellung. Korrigieren Sie die Ausdrucke im Fehlerfall so, daß der Inhalt der Bildschirmdarstellung zutreffend wiedergegeben wird.

WARNING
Danger of losing text-figure correspondence when printing out.

- **For technical reasons, it can currently not be ruled out that the correspondence between text and associated figure can be lost when it is printed out, even though the display on the screen is correct.**
- **If the fault is not noticed, there is the danger that work will not be performed correctly which can cause injury and damage.**

Therefore, always compare printouts with the screen display after printing them out. Correct the printouts if they are faulty so that the content of the screen display matches that on the

96 65 19 Removing and installing the alarm siren - as of MY 2005

- Preliminary work
- Removing the alarm siren
- Installing the alarm siren
- Subsequent work

top of page

Preliminary work

Preliminary work

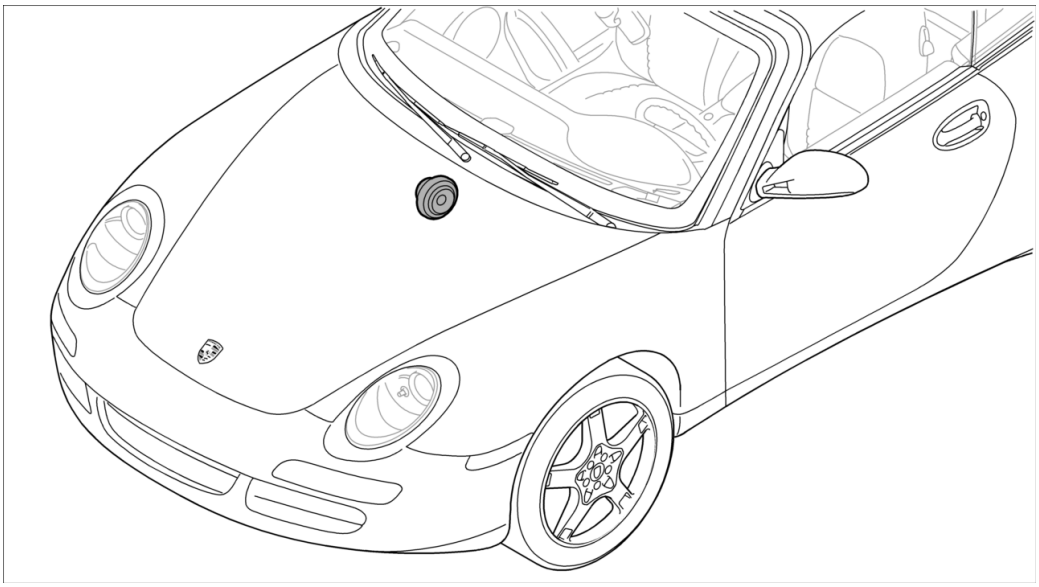
1. Remove battery cover. 271219 Removing and installing battery cover - chapter on "Removing"
2. Disconnect battery. 2706IN Working instructions after disconnecting the battery

top of page

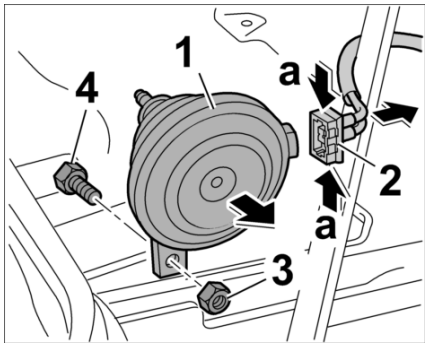
Removing the alarm siren

Removing alarm horn

Installation Location:



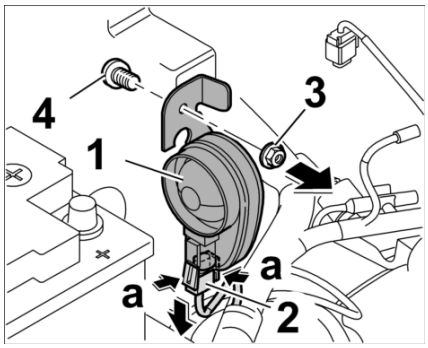
Installation position for alarm horn



Removing alarm horn

1. Release connector **-2-** and remove it **-Arrows a-** .
2. Counter fastening screw **-4-** and unscrew fastening nut **-3-** .
3. Remove alarm horn **-1-** .

Removing alarm siren



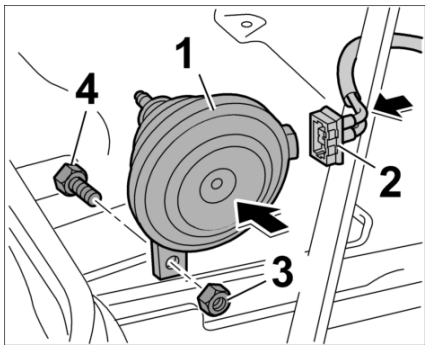
Removing alarm siren

1. Release connector **-2-** and remove it **-Arrows a-** .
2. Counter fastening screw **-4-** and unscrew fastening nut **-3-** .
3. Remove alarm siren **-1-** .

top of page

Installing the alarm siren

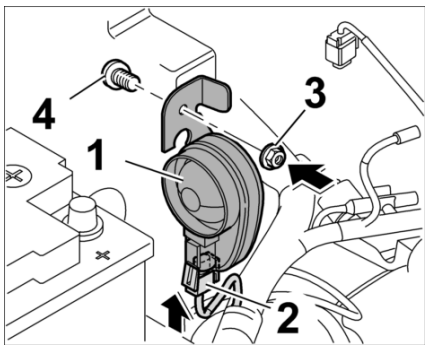
Installing alarm horn.



Installing alarm horn

1. Position alarm horn **-1-** . Insert and counter fastening screw **-4-** and tighten fastening nut **-3-** .
   Tightening torque: 10 (7.5 ftlb.) Nm
2. Push on connector **-2-** until it is felt to engage.

Installing alarm siren



Installing alarm siren

1. Position alarm siren **-1-** . Insert and counter fastening screw **-4-** and tighten fastening nut **-3-** .

Tightening torque: 20 (15 ftlb.) Nm

2. Push on connector **-2-** until it is felt to engage.

top of page

Subsequent work

Subsequent work

1. Connect the battery. 2706IN Working instructions after disconnecting the battery
2. Remove battery cover. 271219 Removing and installing battery cover - chapter on "Installing"

997110, 997111, 997120, 997121, 997310, 997311, 997320, 997321, 997410, 997411, 997430, 997431, 997610, 997611, 997620, 997621

as of MY 2005
Country C00, C02, C05, C07, C08, C09, C10, C11, C12, C13, C14, C15, C16, C18, C19, C20, C21, C22, C23, C24, C25, C26, C27, C28, C32, C33, C34, C35, C36, C37, C38, C39, C45, C46, C98, C99

WARNUNG

Gefahr des Verlusts der Text-Bild-Zuordnung beim Ausdruck.

- **Aus technischen Gründen kann derzeit nicht ausgeschlossen werden, dass trotz einwandfreier Darstellung auf dem Bildschirm beim Ausdruck der Zusammenhang von Text und zugehörigem Bild verloren geht.**
- **Wird der Fehler nicht bemerkt, besteht die Gefahr, daß Arbeiten nicht korrekt durchgeführt werden und es dadurch zu Personen- und Sachschäden kommt.**

Vergleichen Sie deshalb nach dem Druckvorgang unbedingt die Ausdrucke mit der Bildschirmdarstellung. Korrigieren Sie die Ausdrucke im Fehlerfall so, daß der Inhalt der Bildschirmdarstellung zutreffend wiedergegeben wird.

WARNING

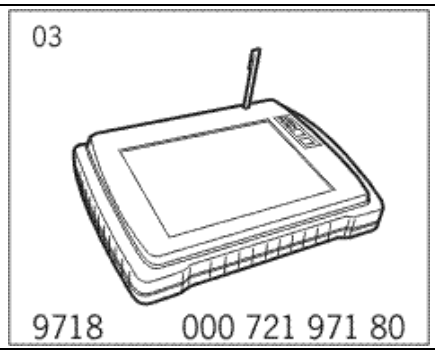
Danger of losing text-figure correspondence when printing out.

- **For technical reasons, it can currently not be ruled out that the correspondence between text and associated figure can be lost when it is printed out, even though the display on the screen is correct.**
- **If the fault is not noticed, there is the danger that work will not be performed correctly which can cause injury and damage.**

96 66 19 Removing and installing KESSY/PAS control unit - as of MY 2005

- Information
- Programming KESSY/PAS control unit
- Removing KESSY/PAS control unit
- Installing KESSY/PAS control unit
- Programming KESSY/PAS control unit

Tools

Designation	Type	Number	Explanation	
PIWIS Tester	special tool	9718		

top of page

Information

Control unit information for KESSY/PAS

Note

If the KESSY/PAS control unit is replaced, it must be programmed using the Porsche System Tester. This will ensure that the control module is taught for the relevant vehicle, country version and equipment.
If possible, before the control unit is removed and replaced, a read-out of the vehicle data should be obtained from the Porsche **PIWIS Tester 9718** System Tester.

- *Follow the instructions for the Porsche System Tester.*

The KESSY/PAS control unit can only be taught once for one vehicle. Switching is not possible.

top of page

Programming KESSY/PAS control unit

Obtaining read-out and saving vehicle data from control unit

1. Connect the **PIWIS Tester 9718** to the vehicle and start the System Tester. Switch on ignition. Press >> to continue.
2. Select vehicle type using the cursor keys.
3. Switch to Control units.

Note

In order to guarantee the function of the control unit after teaching, the coding value in the old control unit must be read out or determined again. This value must be written into the new control unit after teaching. If the control unit cannot be read out again, it must be coded according to the vehicle equipment after the control unit has been replaced manually. **PAS** menu - **Coding**.

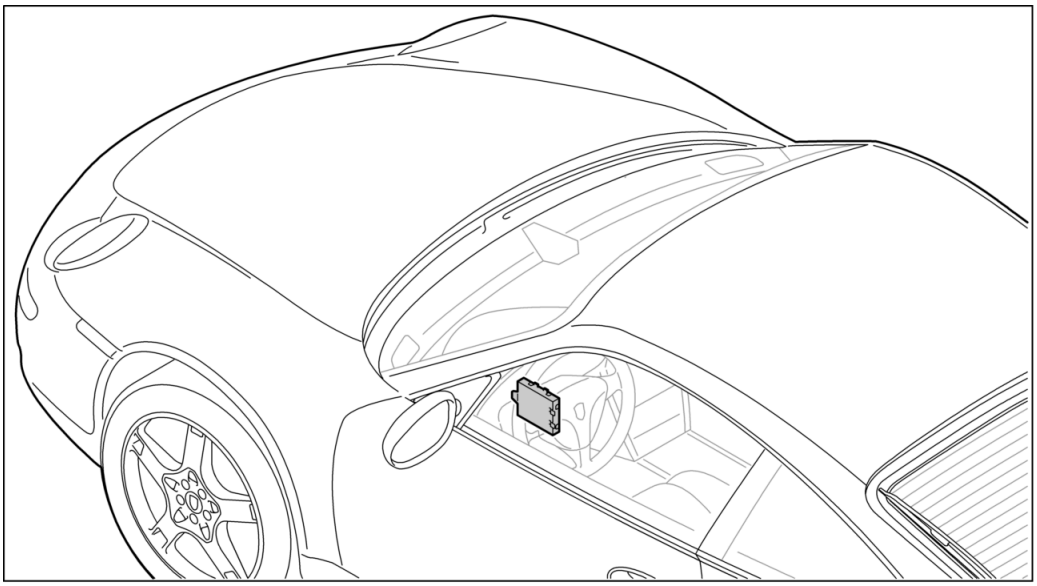
4. Select **PAS** with the cursor keys and press the >> key.
5. Select **Control unit replacement** with the cursor keys and press the >> key.
6. Select **Read-out values** (vehicle data) with the cursor keys and press the >> key.
7. The note **Coding read-out complete** will appear on the screen of the Porsche System Tester.
8. After the PAS/KESSY/Immobiliser control unit has been replaced, the data that is read out is loaded in via the **Control unit replacement** - **Write in data** menu (see Item 6).
9. The KESSY/PAS control unit and vehicle keys must then be taught. 966619 Removing and installing KESSY control unit - "Programming" section

top of page

Removing KESSY/PAS control unit

Removing KESSY/PAS control unit

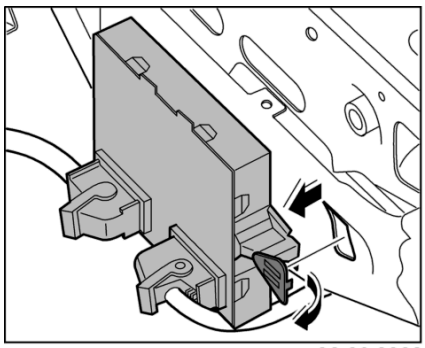
Installation Location:



96 66 0001

Installation position shown on the 911

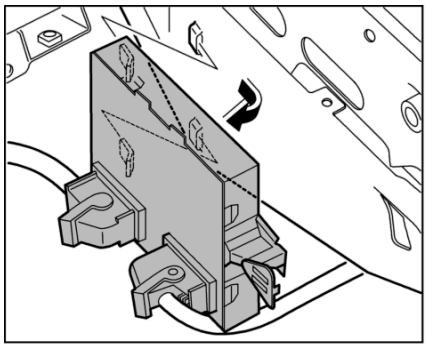
To provide a clearer picture, the illustrations are shown from the bulkhead view.



96 66 0002

Pivotting out securing bolt and unclipping control unit

1. Release and open the locking lever located "in the forward direction of travel".
2. Lift control unit at front out of the support for the steering wiring.



96 66 0004

Disengaging control unit at both plates

3. Push control unit forward in "direction of travel" and disengage it from the support for the steering wiring.

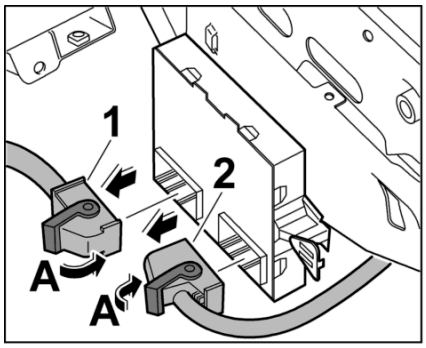
WARNING

Risk of damage to electronic control modules.

- **If care is not taken, electrical and electronic components may be destroyed.**

Before removing the control module, switch off the ignition and remove the ignition key.

Note
Depending on the vehicle equipment, the control unit has one or two connectors.



96 66 0006

Releasing and unplugging connectors

4. Release both electrical connectors **-1, 2-** **-A-** and unplug them from the control unit.
5. Take out the control unit.

top of page

Installing KESSY/PAS control unit

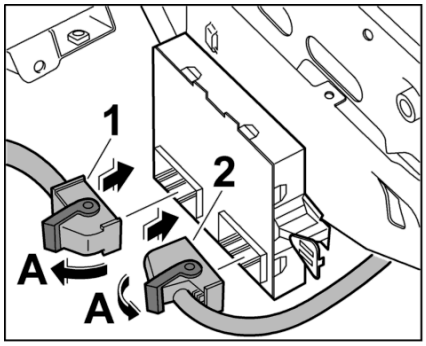
Installing KESSY/PAS control unit

WARNING
Risk of damage to electronic control modules.

- **If care is not taken, electrical and electronic components may be destroyed.**

Before removing the control module, switch off the ignition and remove the ignition key.

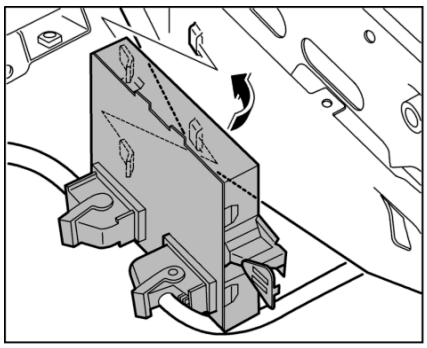
Note
Depending on the vehicle equipment, the control unit has one or two connectors.



96 66 0007

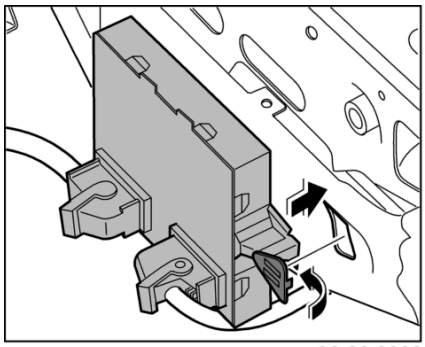
Inserting the connectors

1. Press both electrical connectors **-1, 2-** into control unit and lock them until they are felt to engage.


96 66 0005

Engaging control units at both retaining lugs

2. Engage control unit in support for wiring harness with both retaining lugs.


96 66 0003

Clipping in control unit + pivotting out securing bolt

3. Clip in control unit on the support for the steering wiring and engage the locking mechanism for the lock.

top of page

Programming KESSY/PAS control unit

Programming new KESSY/PAS control unit

Note
All original keys are required for teaching.

Note
If a new KESSY/PAS control unit is installed in a vehicle, the immobiliser code, Teach Enable Code (TEC), ELV Secret Key, Transponder password and Transponder Secret Key specified in IPAS must be entered. You can get the codes from IPAS or from your importer by specifying the vehicle identification number.
During programming, it is essential to guarantee the power supply for the Porsche System tester. It is essential to connect a battery charger with a current rating of at least 40 A to the vehicle battery.
The Porsche System Tester instructions take precedence and in the event of a discrepancy these are the instructions that must be followed. Deviations may occur with later software versions.
The procedure described here has been structured generally, different text or additions may appear in the Porsche System Tester.
In order to guarantee the function of the control unit after teaching, the coding value in the old control unit must be read out or determined again. This value must be written into the new control unit after teaching.
AZ Removing and installing KESSY control unit - "Reading out" section

1. Ignition
   off.
2. Replace control unit. *21 Removing and installing KESSY control unit "Removing" section*; *23 Removing and installing KESSY control unit "Installing" section*

Note
Once a new KESSY/PAS control unit has been installed, the ignition can no longer be switched on. In order for the Tester to be able to identify the new control unit, the warning indicator light must remain switched on during the teaching procedure. This will activate CAN.

3. Insert ignition key and switch on hazard warning light switch.
4. Select vehicle type.
5. Switch to the control units >> .
6. Select **PAS** with the cursor keys and press the >> key.
7. Switch to the menu **Teaching functions** and **Teach CU**, continue >> .
8. Enter the Teach Enable Code **TEC** from IPAS >> and confirm by pressing F7 .
9. Enter **vehicle identification number** >> and confirm by pressing F7 .
10. Enter the **ELV Secret Key** from IPAS >> and confirm by pressing F7 .
11. Enter **immobiliser code** from IPAS >> and confirm by pressing F7 .
12. Enter the **Transponder password** >> and confirm by pressing F7 .

13. Enter the **Transponder Secret Key** >> and confirm by pressing F7 .
14. Tester advises: **Control unit taught, Teach keys**. Select the **Teach keys** >> menu.
15. Enter the Teach Enable Code **TEC** from IPAS >> and confirm by pressing F7 .
16. Enter the **Number of keys** >> and confirm by pressing F7 .
17. Enter the **Transponder password** >> and confirm by pressing F7 .
18. Enter the **Transponder Secret Key** >> and confirm by pressing F7 .
19. Tester requests: **Insert key 1** >> , **Insert key 2** >> etc., until the relevant number of keys is reached.
20. Tester information regarding **Synchronisation of keys** is no longer necessary.
21. Switch on the ignition, read out the fault memory of all control units, and erase if necessary.
22. << Return to vehicle type, select the **Special functions** on the control unit side, and carry out a **vehicle handover**.
23. Then read out the fault memory again, and erase fault memory for each faulty control unit.
24. Start engine with all keys, one after the other.

Note

In order to guarantee the function of the control unit after teaching, the coding value in the old control unit must be read out or determined again. This value must be written into the new control unit after teaching. If the control unit cannot be read out again, it must be coded according to the vehicle equipment after the control unit has been replaced manually. **PAS** menu - **Coding**.

25. In the menu **PAScodings** select the coding desired by the customer and code with F8 .
26. The Kessy/PAS has been taught. Check the remote controls on the vehicle for proper function.

997110, 997111, 997120, 997121, 997310, 997311, 997320, 997321, 997410, 997411, 997430, 997431, 997610, 997611, 997620, 997621

as of MY 2005
Country C00, C02, C05, C07, C08, C09, C10, C11, C12, C13, C14, C15, C16, C18, C19, C20, C21, C22, C23, C24, C25, C26, C27, C28, C32, C33, C34, C35, C36, C37, C38, C39, C45, C46, C98, C99

WARNUNG

Gefahr des Verlusts der Text-Bild-Zuordnung beim Ausdruck.

- **Aus technischen Gründen kann derzeit nicht ausgeschlossen werden, dass trotz einwandfreier Darstellung auf dem Bildschirm beim Ausdruck der Zusammenhang von Text und zugehörigem Bild verloren geht.**
- **Wird der Fehler nicht bemerkt, besteht die Gefahr, daß Arbeiten nicht korrekt durchgeführt werden und es dadurch zu Personen- und Sachschäden kommt.**

Vergleichen Sie deshalb nach dem Druckvorgang unbedingt die Ausdrucke mit der Bildschirmdarstellung. Korrigieren Sie die Ausdrucke im Fehlerfall so, daß der Inhalt der Bildschirmdarstellung zutreffend wiedergegeben wird.

WARNING

Danger of losing text-figure correspondence when printing out.

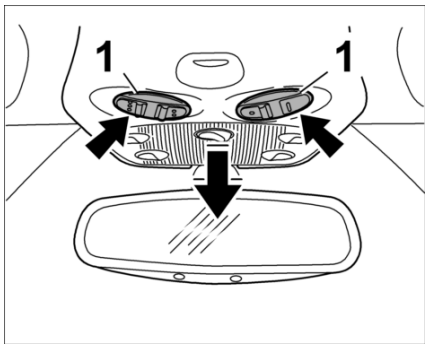
96 78 19 Removing and installing control unit for garage door opener - as of MY 2005

- Removing control unit for garage door opener
- Installing control unit for garage door opener

top of page

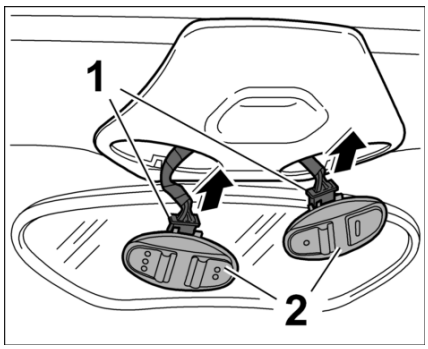
Removing control unit for garage door opener

Removing control unit for garage door opener



Removing control unit for garage door opener

1. Carefully unclip control units **-1-** at the openings provided **-arrows-** with a small screwdriver and remove.



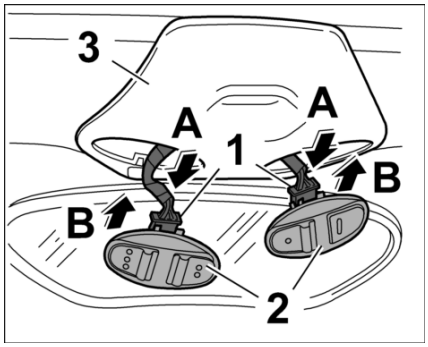
Pulling off connector for control units.

2. Pull off connector **-1-** for control units **-2-** **-arrows-** and remove control units **-2-** .

top of page

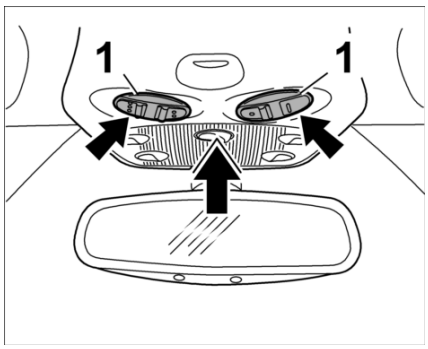
Installing control unit for garage door opener

Installing control unit for garage door opener



Pushing on connector for control units

1. Push on connector **-1-** for control units **-2-** **-Arrows A-** .
2. Insert control units **-2-** with electric connecting lines into the assembly openings of the cover **-3-** in an upwards direction **-Arrows B-** .



Installing control unit for garage door opener

3. Insert control units **-1-** and press in until the latches **-arrows-** are felt to engage.

997110, 997111, 997120, 997121, 997310, 997311, 997320, 997321, 997410, 997411, 997430, 997431, 997610, 997611, 997620, 997621

as of MY 2005
Country C00, C02, C05, C07, C08, C09, C10, C11, C12, C13, C14, C15, C16, C18, C19, C20, C21, C22, C23, C24, C25, C26, C27, C28, C32, C33, C34, C35, C36, C37, C38, C39, C45, C46, C98, C99

WARNUNG

Gefahr des Verlusts der Text-Bild-Zuordnung beim Ausdruck.

96 79 19 Removing and installing control unit for garage door opener/HomeLink - as of MY 2005

- Preliminary work
- Removing control unit for garage door opener/HomeLink
- Installing control unit for garage door opener/HomeLink
- Subsequent work
- Teaching control unit for garage door opener/HomeLink
- Assigning garage door opener/HomeLink signals to buttons

top of page

Preliminary work

Preliminary work for control unit for garage door opener/HomeLink

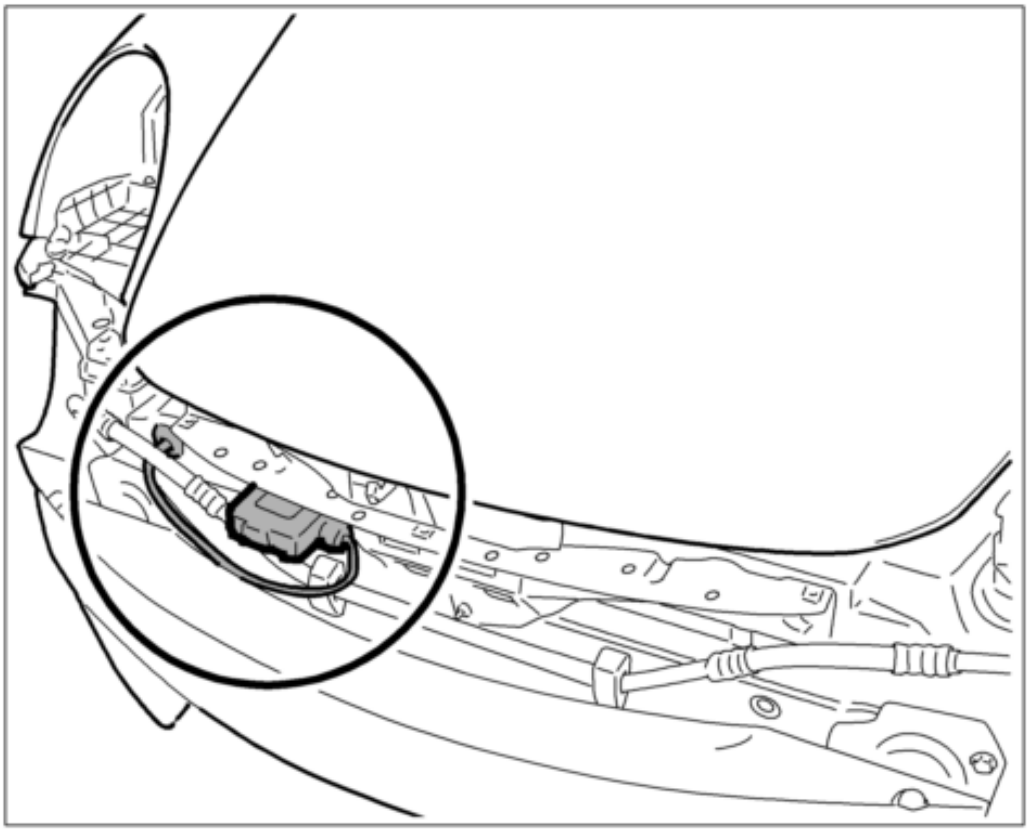
Removing front apron. 631519 Removing and installing front apron - section on "Removing"

top of page

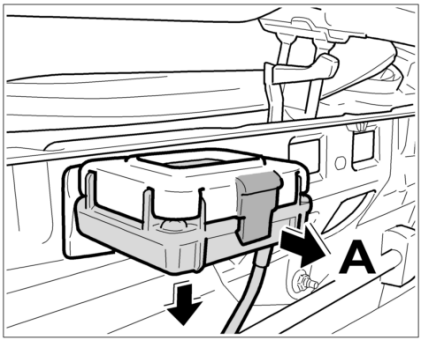
Removing control unit for garage door opener/HomeLink

Removing control unit for garage door opener/HomeLink

Installation Location:

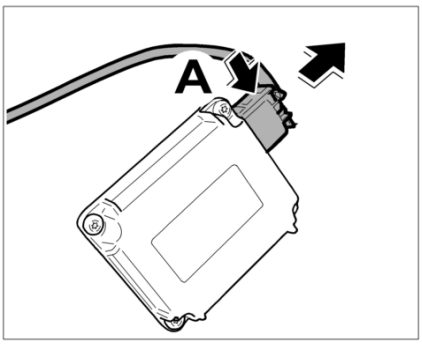


Installation position



Unclipping control unit

1. Unclip control unit from the holder **-A-** .



Releasing electric connector

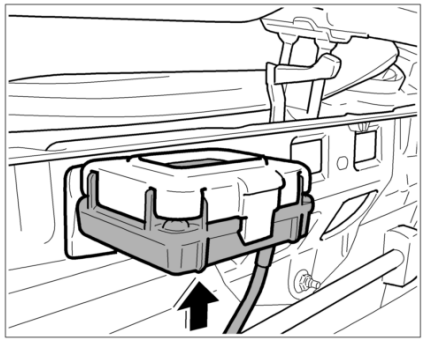
2. Release electric connector **-A-** and remove it from control unit.

top of page

Installing control unit for garage door opener/HomeLink

Installing control unit for garage door opener/HomeLink

1. Push electric connector onto control unit until it is felt to engage.



Engaging and clipping in control unit

2. Engage and clip control unit into holder.

top of page

Subsequent work

Subsequent work for control unit for garage door opener/HomeLink

Installing front apron. 631519 Removing and installing front apron - section on "Installing"

top of page

Teaching control unit for garage door opener/HomeLink

HomeLink

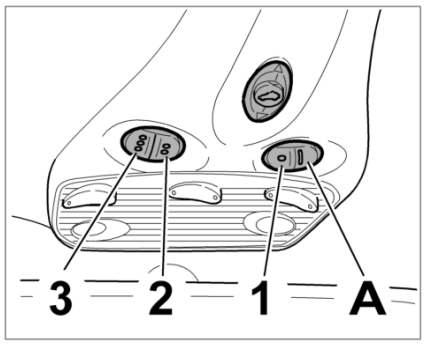
WARNING

Danger of accidents if persons, animals or objects lie in the swinging range of the controlled mechanism during operation of the garage door opener.

Ensure that there are no persons, animals or objects in the swinging range of the controlled mechanism during operation of the garage door opener.

Observe the safety instructions for the original hand-held transmitter.

The programmable HomeLink replaces up to three original remote controls for operating various equipment (e.g. garage door, gate to property, alarm system).



Overview of button assignment for garage door opener

The buttons **-1 to 3-** can be programmed with a frequency of an original remote control.

Prerequisites for operating and programming the HomeLink:

- The ignition is switched on.
- The fog lights are switched off.

To activate the required equipment:

Press the relevant button **-1, 2 or 3-** . The LED **-A-** lights up during signal transmission.

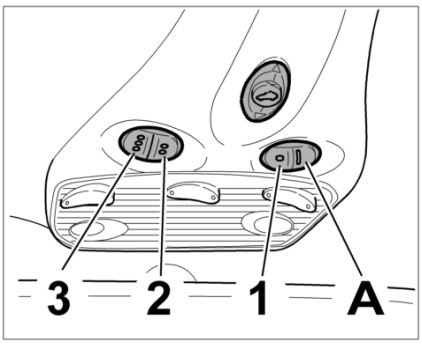
Operating instructions:

Always use the garage door opener in the direction of travel. Otherwise range limitations cannot be ruled out.
Before selling the vehicle, erase the programmed garage door opener signals on the keypad.
To determine whether the original remote control has a fixed or variable code, please read the instructions for the original remote control.
In the case of a standard fixed code, the LED in the roof console is permanently lit during the transmission process. No further steps are necessary for the operation of compatible systems.
If the system set is not activated by the garage door opener control unit, this may be because the original remote control has a variable code.

top of page

Assigning garage door opener/HomeLink signals to buttons

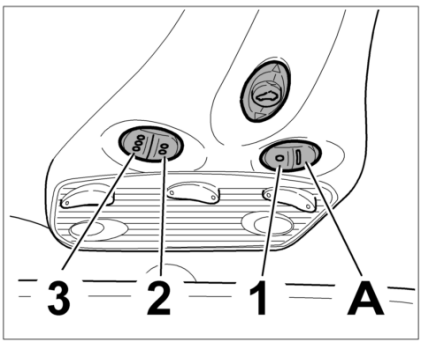
Garage door opener/HomeLink with fixed code system



Overview of button assignment for garage door opener

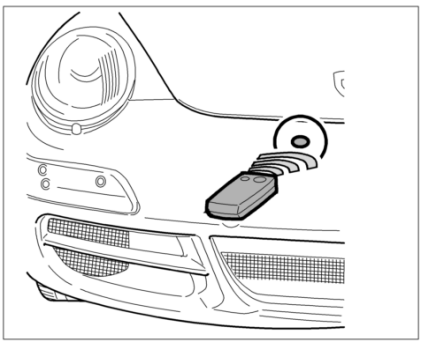
Note

- *This operation erases the standard codes set in the factory. Do not repeat this operation if additional buttons are to be programmed.*
- *Hold the two outer buttons **-1 and 3-** down for around 20 seconds until the LED **-A-** starts to flash quickly. All programmed signals for the buttons **-1 to 3-** are erased.*



Overview of button assignment for garage door opener

1. Press the required button until the LED flashes slowly. You then have around 5 minutes to complete steps 2 and 3.



Teaching position for remote control

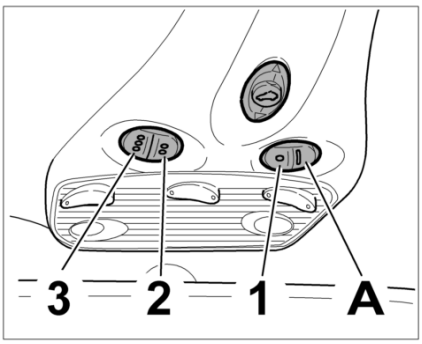
2. Hold the original remote control approx. 0 - 30 cm in front of the marked position on the vehicle.
3. Press the Send button on the original remote control until the fog lights flash three times (up to approx. 45 seconds).
4. Repeat steps 1 to 3 to assign further buttons.

Note

A number of attempts may be necessary at different distances between the vehicle and original remote control. The fog lights flash once after 5 minutes. The programming operation must then be started from scratch.

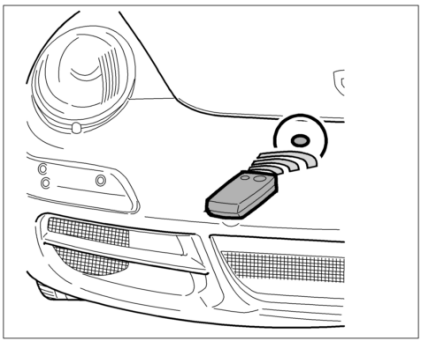
Garage door opener/HomeLink with variable code system

Check operating instructions for the garage door drive (or other system) for specification of a variable code. If the garage door opener control unit has been programmed to a variable code system, it will still have to be synchronised with this system on completion of programming before it will work correctly.



Button assignment for garage door opener

1. Press the required button until the LED flashes slowly. You then have around 5 minutes to complete steps 2 and 3.



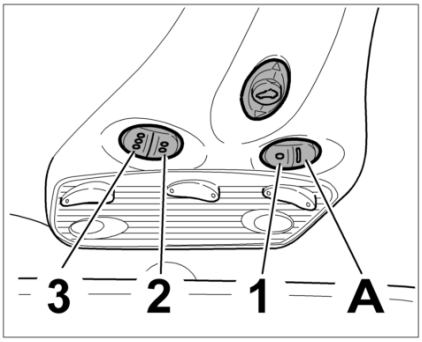
Teaching position for remote control

2. Hold the original remote control approx. 0 - 30 cm in front of the marked position on the vehicle.
3. Press the Send button on the original remote control until the fog lights flash three times (up to approx. 45 seconds).
4. To synchronise the system: press the programming button on the garage door drive receiver. You then have 30 seconds to initiate step 5.
5.

Press assigned button on the HomeLink twice. (You may have to press the button to be assigned a third time on some equipment in order to complete the setting.)

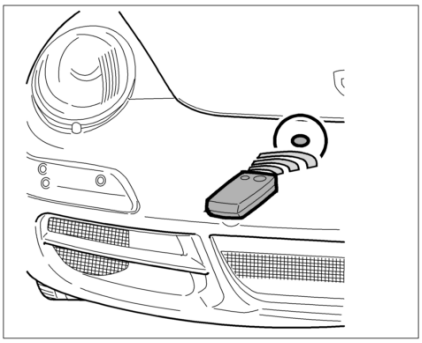
6. Repeat the programming steps to assign further buttons.

Re-programming an individual button



Button assignment for garage door opener

1. Press the required button until the LED flashes slowly (approx. 20 seconds). You then have around 5 minutes to complete steps 2 and 3.



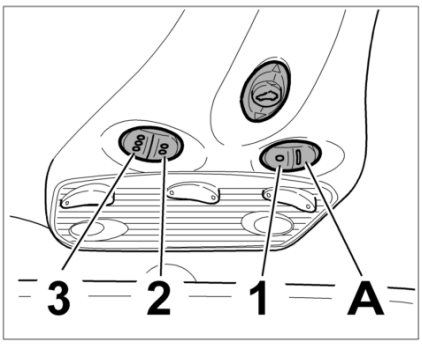
Teaching position for remote control

2. Hold the original remote control approx. 0 - 30 cm in front of the marked position on the vehicle.
3. Press the Send button on the original remote control until the fog lights flash three times (up to approx. 45 seconds).
4. Repeat steps 1 to 3 to assign further buttons.

Note

A number of attempts may be necessary at different distances between the vehicle and original remote control. The fog lights flash once after 5 minutes. The programming operation must then be started from scratch.

Erasing programmed signals on the HomeLink



Button assignment for garage door opener

Note

This operation erases the standard codes set in the factory. Do not repeat this operation if additional buttons are to be programmed.
Hold the two outer buttons **-1 and 3-** down for around 20 seconds until the LED **-A-** starts to flash quickly.
All programmed signals for the buttons **-1 to 3-** are erased.

Do this before selling the vehicle, for example.

997110, 997111, 997120, 997121, 997310, 997311, 997320, 997321, 997410, 997411, 997430, 997431, 997610, 997611, 997620, 997621

as of MY 2005
Country C00, C02, C05, C07, C08, C09, C10, C11, C12, C13, C14, C15, C16, C18, C19, C20, C21, C22, C23, C24, C25, C26, C27, C28, C32, C33, C34, C35, C36, C37, C38, C39, C45, C46, C98, C99

WARNUNG

Gefahr des Verlusts der Text-Bild-Zuordnung beim Ausdruck.

- **Aus technischen Gründen kann derzeit nicht ausgeschlossen werden, dass trotz einwandfreier Darstellung auf dem Bildschirm beim Ausdruck der Zusammenhang von Text und zugehörigem Bild verloren geht.**
- **Wird der Fehler nicht bemerkt, besteht die Gefahr, daß Arbeiten nicht korrekt durchgeführt werden und es dadurch zu Personen- und Sachschäden kommt.**

Vergleichen Sie deshalb nach dem Druckvorgang unbedingt die Ausdrucke mit der Bildschirmdarstellung. Korrigieren Sie die Ausdrucke im Fehlerfall so, daß der Inhalt der Bildschirmdarstellung zutreffend wiedergegeben wird.

WARNING

Danger of losing text-figure correspondence when printing out.

96 85 19 Removing and installing interior monitoring sensor - as of MY 2005

- Preliminary work
- Removing interior monitoring sensor
- Installing interior monitoring sensor
- Subsequent work

top of page

Preliminary work

Preliminary work for interior monitoring sensor

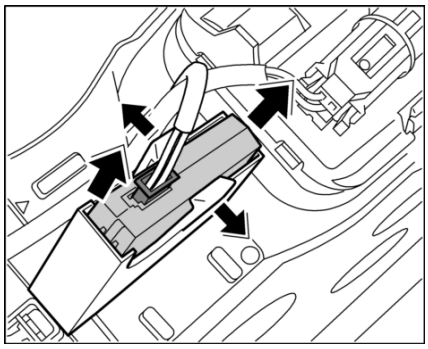
Remove centre console. 681719 Removing and installing centre console - chapter on "Removing"

top of page

Removing interior monitoring sensor

Removing interior monitoring sensor

1. To protect it, set the centre console down on a suitable base.



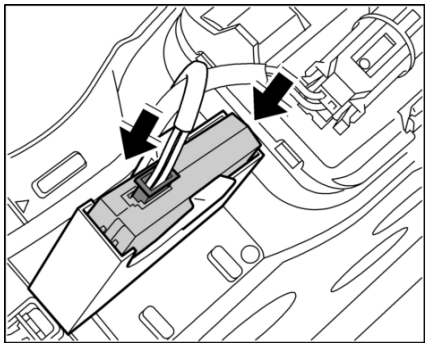
Disengaging sensor

2. Lift the two retaining tabs aside and pull out the sensor.
3. Unplug electric plug connection and remove sensor.

top of page

Installing interior monitoring sensor

Installing interior monitoring sensor



Inserting sensor

1. Insert sensor into the centre console until it clicks into place.
2. Plug electric connector into sensor.

top of page

Subsequent work

Subsequent work for interior monitoring sensor

Install centre console. 681719 Removing and installing centre console - chapter on "Installing"

997110, 997111, 997120, 997121, 997310, 997311, 997320, 997321, 997410, 997411, 997430, 997431, 997610, 997611, 997620, 997621

as of MY 2005
Country C00, C02, C05, C07, C08, C09, C10, C11, C12, C13, C14, C15, C16, C18, C19, C20, C21, C22, C23, C24, C25, C26, C27, C28, C32, C33, C34, C35, C36, C37, C38, C39, C45, C46, C98, C99

WARNUNG

Gefahr des Verlusts der Text-Bild-Zuordnung beim Ausdruck.

- **Aus technischen Gründen kann derzeit nicht ausgeschlossen werden, dass trotz einwandfreier Darstellung auf dem Bildschirm beim Ausdruck der Zusammenhang von Text und zugehörigem Bild verloren geht.**

97 09 19 Removing and installing main wire harness - as of MY 2005

- Preliminary work
- Removing main wire harness
- Installing main wire harness
- Subsequent work

Tools

Designation	Type	Number	Explanation	
Disassembly tool, universal	commercially available tool	NR.21		

top of page

Preliminary work

Preliminary work

1. Remove battery. 270619 Removing and installing battery - section on "Removing"
2. Remove plenum panel cover. 852219 Removing and installing cover - section on "Removing"
3. Remove CD changer. 916019 Removing and installing CD changer - section on "Removing" [997110 997111 997120 997121 997310 997311 997320 997321] 916019 Removing and installing CD changer - section on "Removing" [997410 997411 997430 997431 997610 997611 997620 997621]
4. Remove navigation unit with retaining bracket. 911219 Removing and installing navigation unit - section on "Removing" [997410 997411 997430 997431 997610 997611 997620 997621] 911219 Removing and installing navigation unit - section on "Removing" [997110 997111 997120 997121 997310 997311 997320 997321]
5. Remove loudspeaker amplifier. 914419 Removing and installing loudspeaker amplifier - section on "Removing" [997110 997111 997120 997121 997310 997311 997320 997321] 914419 Removing and installing loudspeaker amplifier - section on "Removing" [997410 997411 997430 997431 997610 997611 997620 997621]
6. Remove luggage compartment trim panels *700519 21 Removing and installing trim panel for front luggage compartment - section on "Removing"*
7. Remove front-end control unit. 944919 Removing and installing front-end control unit - section on "Removing"

8. Remove front wheel housing liner on left and right. 505619 Removing and installing front wheel housing liner - section on "Removing" [997110 997111 997120 997121 997310 997311 997320 997321] 505619 Removing and installing front wheel housing liner - section on "Removing" [997621] 505619 Removing and installing front wheel housing liner - section on "Removing" [997410 997411 997430 997431 997610 997611 997620]
9. Remove front cover. 519219 Removing and installing front cover - section on "Removing"
10. Remove tank for windscreen washer system. 926019 Removing and installing tank for windscreen washer system - section on "Removing"
11. Remove dashboard. 701819 Removing and installing dashboard - section on "Removing"
12. Remove heating/fresh-air unit. 851519 Removing and installing heating/fresh-air unit - section on "Removing"
13. Remove front seat at left and right. 720119 Removing and installing front seat - section on "Removing" [997110 997120 997310 997320 997410 997430 997610 997620] 720119 Removing and installing front seat - section on "Removing" [997111 997121 997311 997321 997411 997431 997611 997621]
14. Remove left and right scuff plate. 680519 Removing and installing inner door sill trim - section on "Removing"
15. Remove rear side trim panel at left and right. 707519 Removing and installing rear side trim panel - section on "Removing" [997310 997311 997320 997321 997610 997611 997620 997621] 707519 Removing and installing rear side trim panel - section on "Removing" [997110 997111 997120 997121 997410 997411 997430 997431]
16. Loosen fuse box. 978409 Loosening and securing fuse box - section on "Loosening"
17. Remove B+ line from power distributor to transmission connection point. 974519 Installing and removing wire harness for starter battery - section on "Removing"
18. Remove relay carrier 1. 978319 Removing and installing relay carrier 1 - section on "Removing"
19. Remove vehicle electrical system control unit. 971019 Removing and installing vehicle electrical system control unit - section on "Removing"
20. Remove operator control unit for garage door opener. 967819 Removing and installing operator control unit for garage door opener - section on "Removing"
21. Remove sunroof motor. 601419 Removing and installing sunroof motor - section on "Removing" [997110 997111 997120 997121 997410 997411 997430 997431] *601419 21 Removing and installing sunroof motor - section on "Removing" [997310 997311 997320 997321 997610 997611 997620 997621]*
22. Loosen front headliner in windscreen area. 708419 Removing and installing headliner - section on "Removing" [997110 997111 997120 997121 997410 997411 997430 997431] *708419 21 Removing and installing headliner - section on "Removing" [997310 997311 997320 997321 997610 997611 997620 997621]*

Note

Only in the cabriolet.

23. Remove front headliner. *708319 21 Removing and installing front headliner - section on "Removing"*

top of page

Removing main wire harness

Removing main wire harness

ATTENTION

Damage caused by improper handling of main wire harness.

The main wire harness contains all airbag lines, antenna lines and optical waveguides.

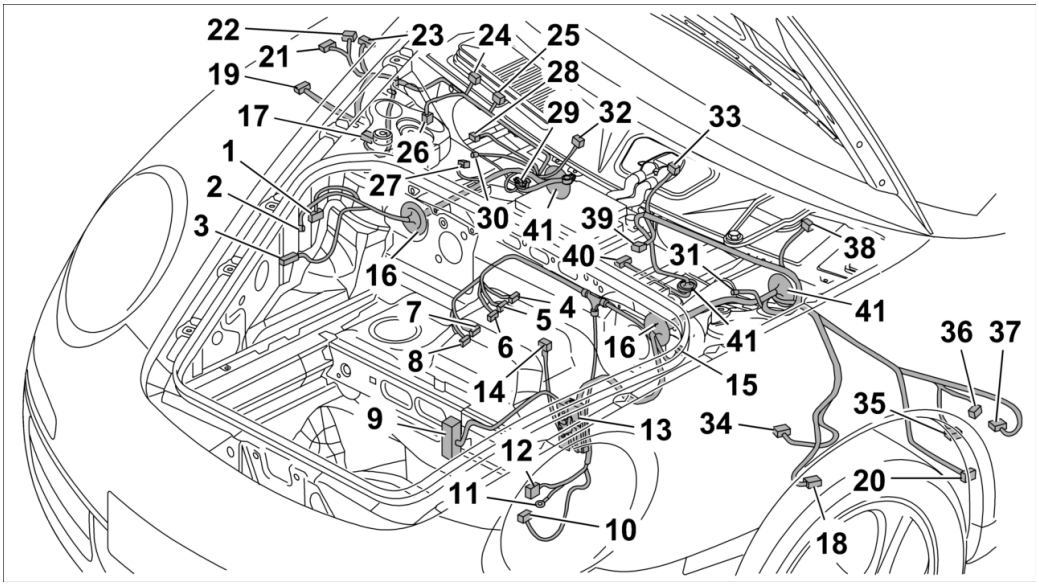
The main wire harness must therefore not be cut for major repair work and must be replaced complete.

If individual wires are damaged, these must be "shut down" (disconnect wires, remove plug-in contacts from plug connections, etc.) and replaced by installing new wires. Lay the new wires along the main wire harness and tie them to it.

Note

Depending on the equipment I No., the installation positions of the audio components in the front luggage compartment differ.

Installation Location:



Overview of connectors for front main wire harness, shown on the 911

1 - Plug connection between main wire harness and front-end wire harness right

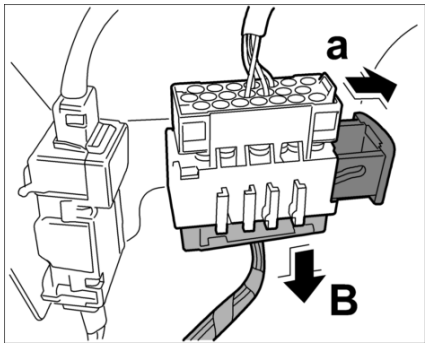
2 - Fuse box for fan

3 - Connector for front-end control unit

4-6 - Connector for navigation unit

7-8 - Connector for CD changer

9 - Connector for loudspeaker amplifier
10 - Connector for luggage compartment light
11 - Ground point
12 - Plug connection between main wire harness and front-end wire harness left
13 - Connector for hydraulic unit
14 - Connector for brake fluid sender
15 - Connector for tyre pressure monitoring system control unit
16 - Grommet
17-18 - Plug connection for ABS wire harness, front left and right
19-20 - Connector for tyre pressure monitoring system antenna, left and right
21 - Connector for filler flap switching element
22 - Connector for tank filler neck
23 - Connector for rod antenna
24 - Connector for GPS antenna
25 - Connector for radio antenna
26 - Connector for vertical sensor
27 - Connector for pressure switch
28 - Connector for alarm siren
29 - B+ line to power distributor
30-31 - Plug connection for PASM, front left and right
32-33 - Connector for windscreen washer system spray nozzle, left and right
34 - Connector for headlight beam adjustment angle sensor
35 - Connector for fluid level indicator sender
36 - Connector for windscreen washer system pump
37 - Connector for headlight washer pump
38 - Connector for wiper motor
39 - Connector for alarm horn
40 - Connector for fuel level sensor
41 - Grommet



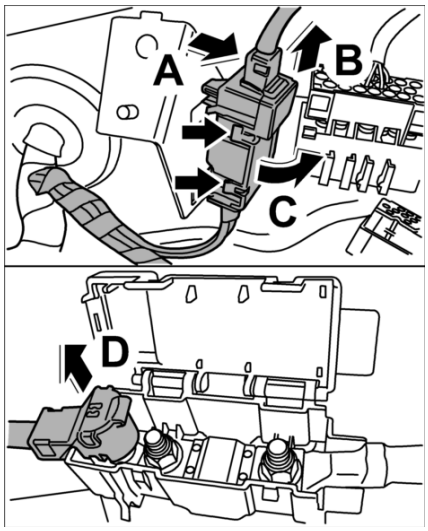
Disconnecting plug connection between front-end wire harness and main wire harness, right

1. Disconnect plug connection between main wire harness and front-end wire harness, right **-1-** .

1.1. Release plug connection between front-end wire harness and main wire harness, right **-Arrow a-**

and disconnect **-Arrow B-** .

1.2. Turn socket 90° clockwise and remove.



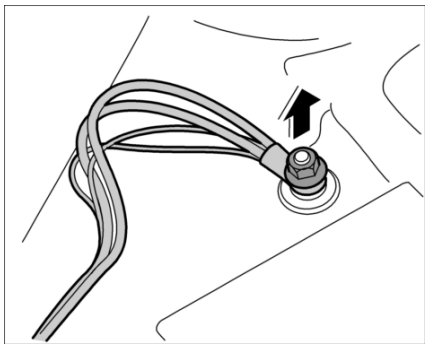
Pulling off connector on fuse box for fan

2. Pull off connector on fuse box for fan **-2-** .

2.1. Unclip fuse box for fan **-Arrow A-** and lift up and off **-Arrow B-** .

2.2. Release lid **-arrows-** and open **-Arrow C-** .

2.3. Pull off connector on fuse box for fan **-Arrow D-** .



Loosening ground point

3. Loosen ground point left **-11-** .

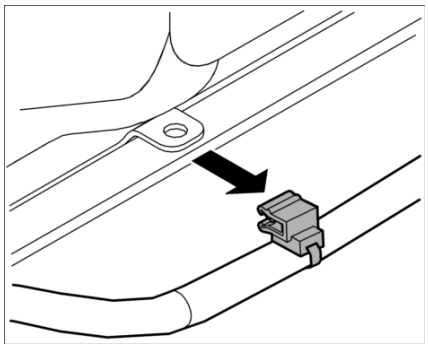
3.1. Screw off fastening nut and remove ground straps.

4. Release plug connection between main wire harness and front-end wire harness, left **-12-** and disconnect. Unclip connector socket.

5. Release connector on hydraulic unit **-13-** and pull it off. *453019 21 Removing and installing hydraulic unit - chapter on "Removing"*

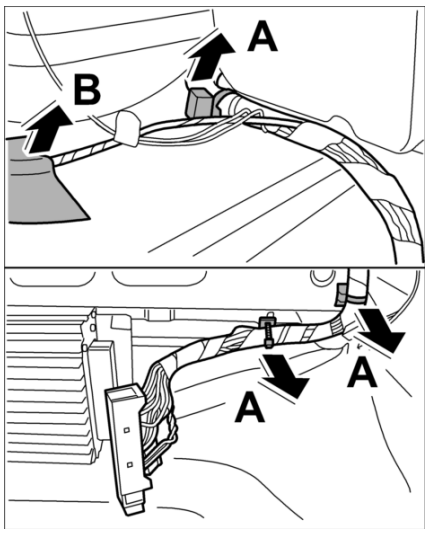
6. Release connector on brake fluid sender **-14-** and pull it off.

7. Release connector for tyre pressure monitoring system control unit **-15-** and pull it off. 443419 Removing and installing control unit for tyre pressure monitoring system - chapter on "Removing"



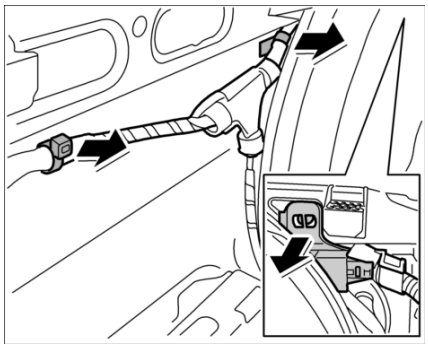
Unclipping wire harness

8. Unclip wire harness for front end control unit **-arrow-** .



Unclipping wire harness to loudspeaker amplifier

9. Unclip wire harness to loudspeaker amplifier **-Arrows A-** and remove adhesive tape **-Arrow B-** .



Unclipping wire harness to CD changer/navigation unit

10. Unclip wire harness to CD changer/navigation unit **-arrows-** .
11. Remove grommets **-16-** left and right.
12. Pull through main wire harness in direction of plenum panel.
13. Disconnect and release ABS wire harness front left and right **-17 and 18-** . 976555 Replacing ABS wire harness - chapter on "Removing" [997110 997111 997120 997121 997310 997311 997320 997321] 976555 Replacing ABS wire harness - chapter on "Removing" [997410 997411 997430 997431 997610 997611 997620 997621]

13.1. Release and disconnect plug connection for wheel sensor at left and right.

13.2. Unscrew fastening screw of connector socket.

13.3. Release rear wire harness.

14. Release and pull off connectors on front antenna for tyre pressure monitoring system **-19 and 20-** at left and right. 443819 Removing and installing antenna for tyre pressure monitoring system - chapter on "Removing"

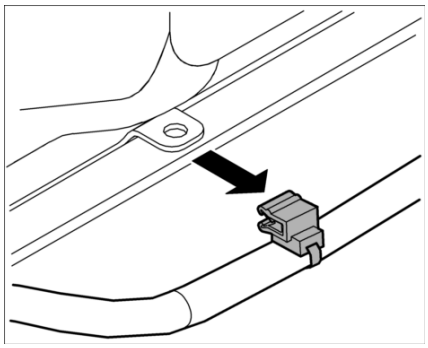
15. Release and pull off connector of switching element for filler flap **-21-** . 553819 Removing and installing switching element for filler flap - chapter on "Removing"

16. Pull off connector from tank filler neck **-22-** . 200719 Removing and installing filler neck - chapter on "Removing"

Note

Only in the cabriolet.

17. Release connector on rod antenna **-23-** and pull it off.



Unclipping wire harness

18. Unclip wire harness on end plate under windscreen at the three retaining clips **-arrow-** .

19. Release connector on GPS antenna **-24-** and pull it off. 911319 Removing and installing GPS antenna - chapter on "Removing"

20. Release connector on radio antenna **-25-** and pull it off. 914719 Removing and installing radio antenna - chapter on "Removing"

21. Release connector for vertical sensor **-26-** and pull it off.

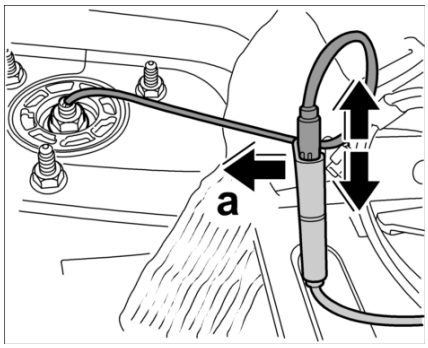
22. Release connector for pressure switch **-27-** and pull it off. 878319 Removing and installing pressure switch - chapter on "Removing"

Note

Only for vehicles with I number 536

23. Release connector for alarm siren **-28-** and pull it off. 966519 Removing and installing alarm siren - chapter on "Removing"

24. Release and pull off B+ line **-29-** from power distributor. 978919 Removing and installing power distributor - chapter on "Removing"



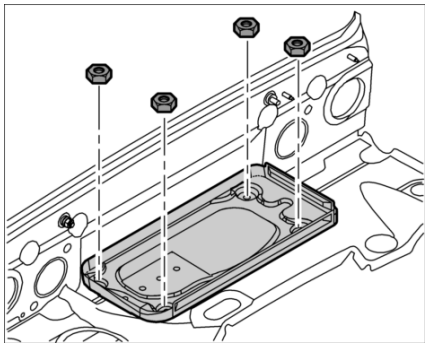
Disconnecting PASM plug connection

25. Release plug connections for PASM, front left and right **-30 und 31-** **-Arrow a-** and disconnect.
26. Release and pull off connectors for windscreen washer system spray nozzle, left and right **-32 and 33-** . 926619 Removing and installing spray nozzle for windscreen washer system - chapter on "Removing"

Note

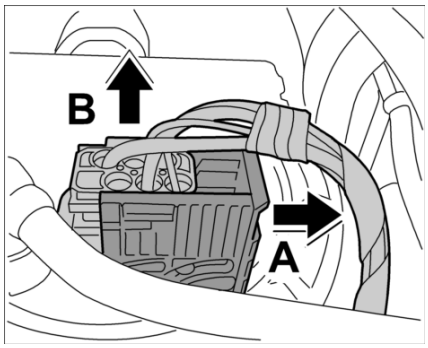
Only for vehicles with HBA.

27. Release and pull off connector on front angle sensor for headlight beam adjustment **-34-** . 947819 Removing and installing front angle sensor for headlight beam adjustment - chapter on "Removing"
28. Release and pull off connector on wiper motor **-38-** . 921519 Removing and installing wiper motor - chapter on "Removing"
29. Release and pull off connector on alarm horn **-39-** . 966519 Removing and installing alarm siren - chapter on "Removing"



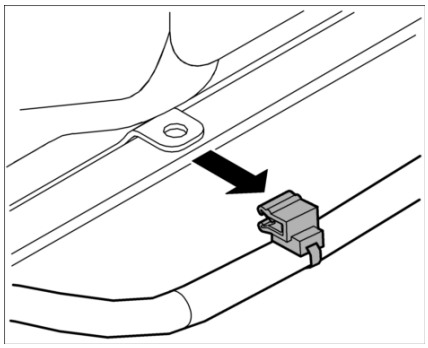
Removing and installing battery retaining bracket

30. Undo the four fastening nuts on the battery retaining bracket and remove the battery retaining bracket.



Pulling off tank connector

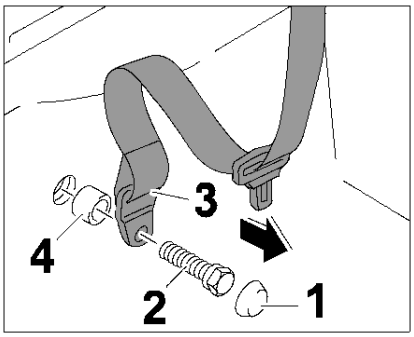
31. Release connector on fuel level sender **-40-** **-Arrow A-** and pull it off **-Arrow B-** .



Unclipping wire harness

32. Unclip wire harness on end plate under windscreen at the two retaining clips **-arrow-** .
33. Remove grommets **-41-** in centre, and on left and right.
34. Pull through main wire harness in direction of interior.

Exposing main wire harness in passenger compartment

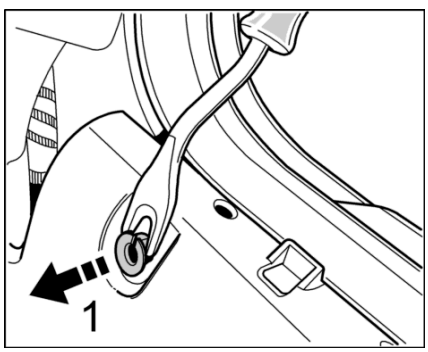


Undoing seat belt and fitting

1. Loosen seat belt mount at left and right.

1.1. Press off cap **-1-** with a screwdriver and unscrew the fastening screw **-2-** . Remove seat belt with fitting **-3-** and spacer sleeve **-4-** .

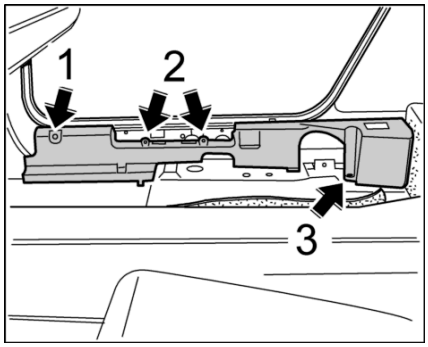
2. Disengage floor covering at the support and lay it in the vehicle interior.



Unlocking locating peg using the removal tool

3. Remove left and right support.

3.1. Unlock locating peg **-1-** of the support using the commercially available removal tool **Disassembly tool, universal NR.21**.

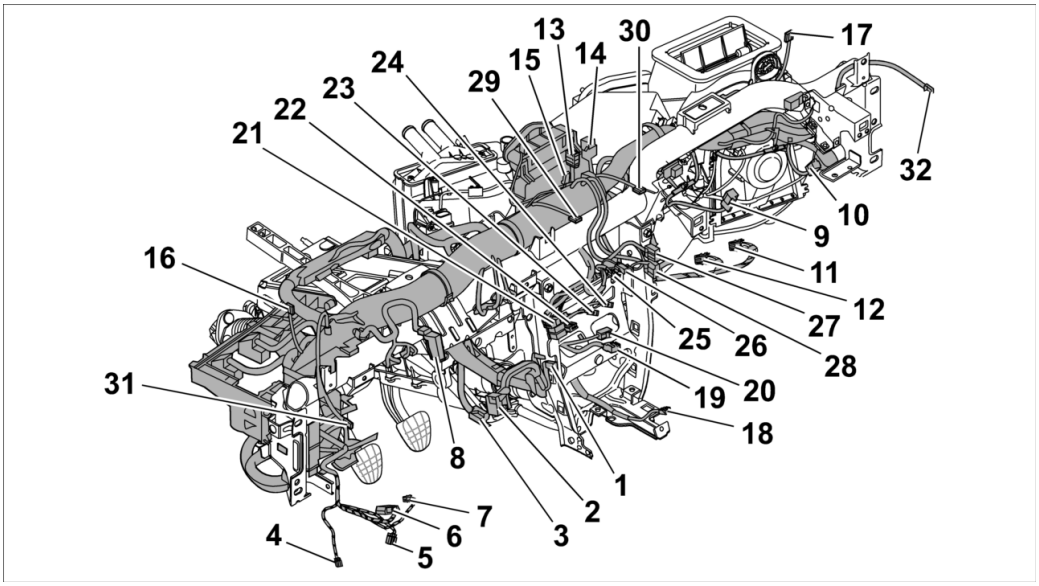


Unscrewing fastening screws

3.2. Unscrew fastening screws **-2-** and nuts **-3-** and carefully pull the support up and out of the retaining points.

Removing main wire harness in passenger compartment

Installation Location:

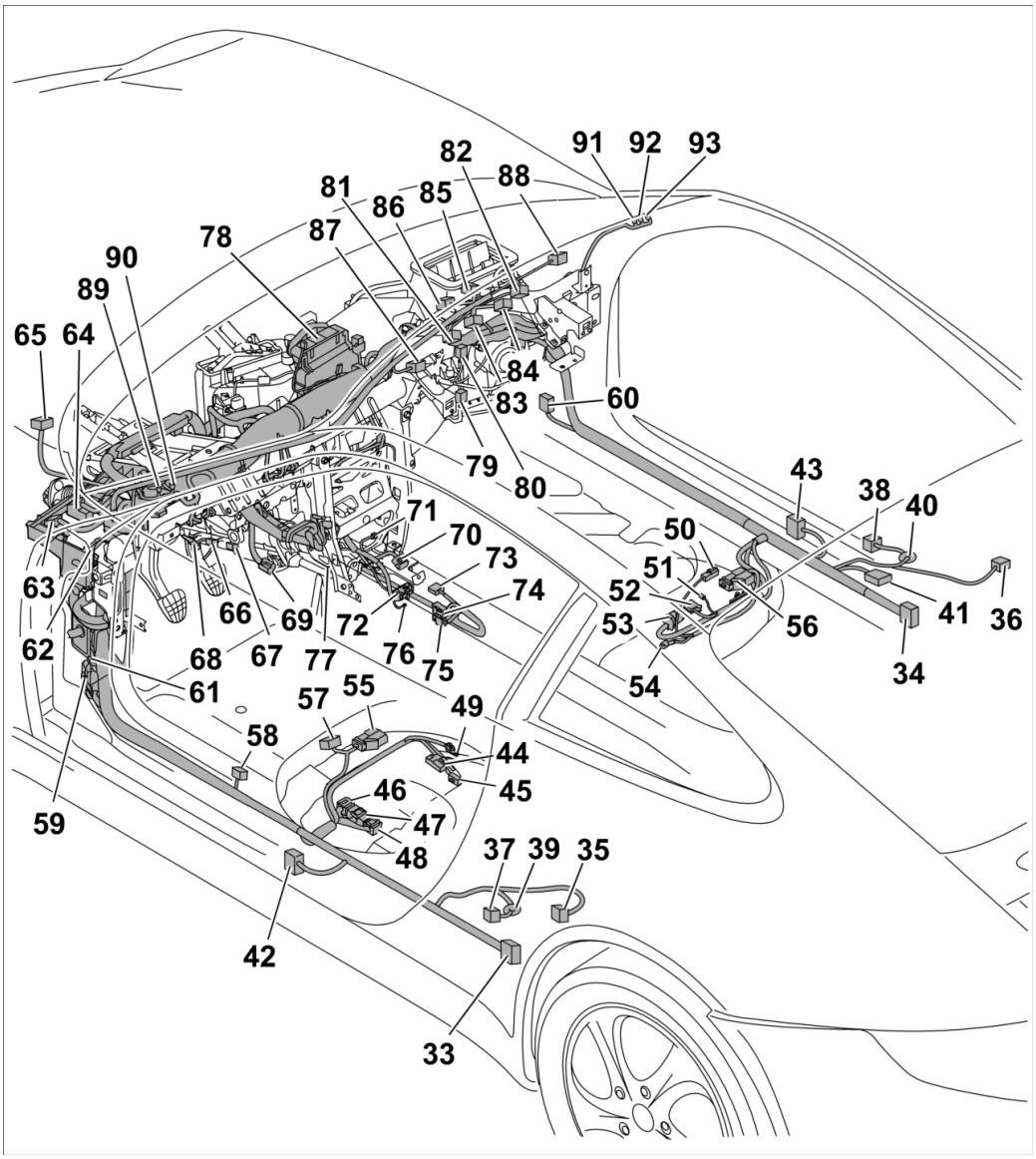


Overview of main wire harness for dashboard

1-3 - Connector for steering column switch
4 - Connector for main light switch
5 - Connector for ignition lock
6 - Connector for diagnostic box
7 - Connector for floor light left
8 - Connector for instrument cluster
9-10 - Connector for passenger's airbag, stage 1 and stage 2

11 - Connector for floor light right
12 - Plug connection for glove compartment
13 - Connector for stopwatch
14 - Connector for sun sensor
15 - Connector for centre speaker
16-17 - Connector for loudspeaker, left and right
18 - Connector for switch console
19-20 - Connector for climate control
21-26 - Connector for PCM
27 - Connector for central locking
28 - Connector for hazard warning light switch
29-30 - Plug connection for illumination of centre nozzle
31-32 - Plug connection for illumination of left and right nozzle

Installation Location:



Overview of connectors for main wire harness in passenger compartment

33-34 - Plug connection between main wire harness and rear end wire harness, left and right

35-36 - Connector for loudspeaker, rear left and right

37-38 - Connector for seat-belt tensioner, front left and right

39-40 - Rubber sleeve

41 - Tiptronic control module connector

42-43 - Connector for airbag sensor, centre left and right

44-45 - Connector for ParkAssist control unit

46-48 - Connector for rear end convenience systems control unit

49 - Ground point under driver's seat

50-53 - Connector for telephone control unit

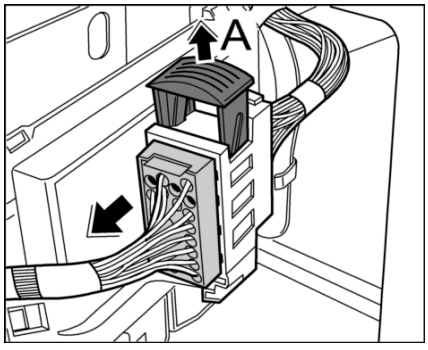
54 - Ground point under passenger's seat

55-56 - Connector for front seat, left and right

57 - Connector for driver's seat with memory

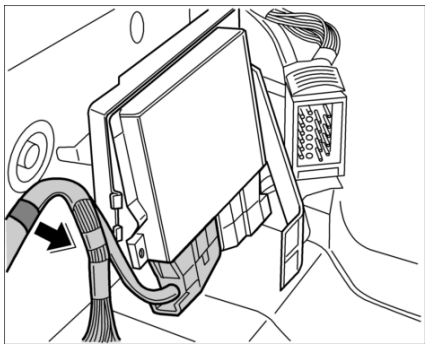
58 - Connector for door sill button module

59-60 - Plug connection between main wire harness and wire harness for door, left and right
61 - Fusebox
62 - Relay carrier
63-64 - Connector for vehicle electrical system control unit
65 - Connector for gateway control unit
66-67 - Connector for KESSY/PAS control unit
68 - Connector for stop light switch
69 - Connector for pedal sensor
70 - Plug connection between main wire harness and wire harness for centre console
71 - Plug connection for telephone handset
72 - Connector for airbag triggering unit
73 - Connector for parking-brake lever contact switch
74-75 - Tiptronic position switch
76 - Ground point under unit carrier
77 - Connector for tilt sensor control unit
78 - Power distributor
79-80 - Plug connection between main wire harness and wire harness for heater/air-conditioning unit
81-82 - Connector for garage door opener control unit
83 - Connector for sunroof switch
84 - Connector for interior light
85 - Connector for sunroof motor
86 - Plug connection for rain sensor
87-88 - Plug connection for make-up mirror, left and right
89-93 - Connector for antenna unit, left and right



Releasing plug connection between main wire harness and rear-end wire harness

1. Release plug connection between main wire harness and rear-end wire harness, left and right **-33 und 34-** **-Arrow A-** and disconnect.
2. Pull off connector for seat-belt tensioner, front left and right **-37 und 38-** and remove rubber sleeves **-39 und 40-** . 691319 Removing and installing front three-point seat belt with tensioner - chapter on "Removing" [997310 997311 997320 997321 997610 997611 997620 997621] 691319 Removing and installing front three-point seat belt with tensioner - chapter on "Removing" [997110 997111 997120 997121 997410 997411 997430 997431]



Unclipping wire harness for Tiptronic control module

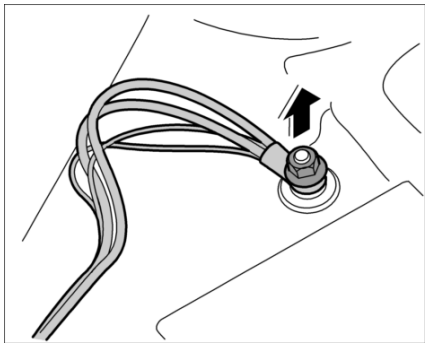
3. Release and pull off connector on Tiptronic control module **-41-** . 373019 Removing and installing transmission control module - chapter on "Removing"

3.1. Unclip wire harness for Tiptronic control module.

4. Release and pull off connector for airbag sensor, centre left and right **-42 and 43-** . 695119 Removing and installing airbag sensor - chapter on "Removing"

5. Release and pull off connector for ParkAssist control unit **-44 and 45-** . 917419 Removing and installing ParkAssist control unit - chapter on "Removing"

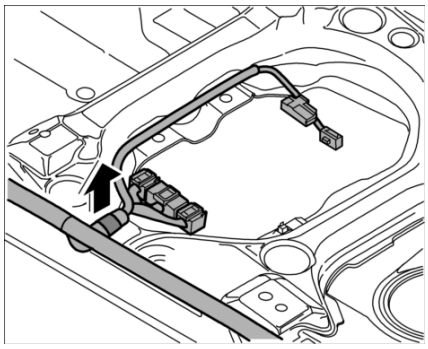
6. Release and pull off connector for rear end convenience systems control unit **-46 to 48-** . 578919 Removing and installing control unit for rear end convenience systems - chapter on "Removing".



Loosening ground point

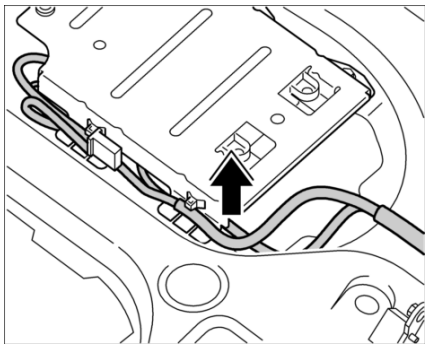
7. Loosen ground point under the driver's seat **-49-** .

7.1. Screw off fastening nut and remove ground straps.



Unclipping ground point under driver's seat

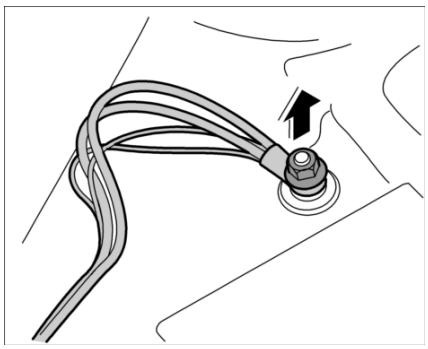
8. Unclip ground point under driver's seat.



Unclipping wire harness for telephone control unit

9. Release and remove connectors for telephone control unit **-50 to 53-** . 919019 Removing and installing telephone control unit - chapter on "Removing"

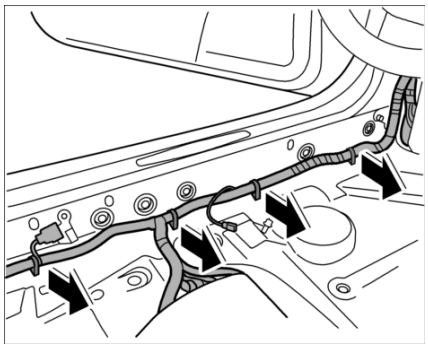
9.1. Unclip wire harness for telephone control unit.



Loosening ground point

10. Loosen ground point under the passenger's seat **-54-** .

10.1. Screw off fastening nut and remove ground straps.

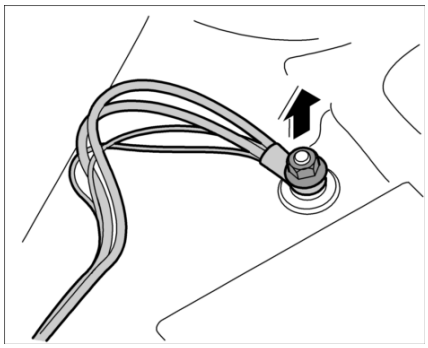


Unclipping wire harness at door sill

11. Unclip wire harness at door sill.
12. Release and disconnect plug connection between main wire harness and wire harness for door, left and right **-59 and 60-** . 973219 Removing and installing wire harness for door - chapter on "Disconnecting"
13. Release and pull off connector for gateway control unit **-65-** . 903519 Removing and installing gateway control unit - chapter on "Removing"
14. Release and pull off connectors for KESSY/PAS control unit **-66 and 67-** . 966619 Removing and installing KESSY control unit - chapter on "Removing"
15.

Release and pull off connector for stop light switch **-68-** . 943619 Removing and installing stop light switch - chapter on "Removing".

16. Release and pull off connector for pedal sensor **-69-** . *207819 21 Removing and installing pedal sensor - chapter on "Removing"*

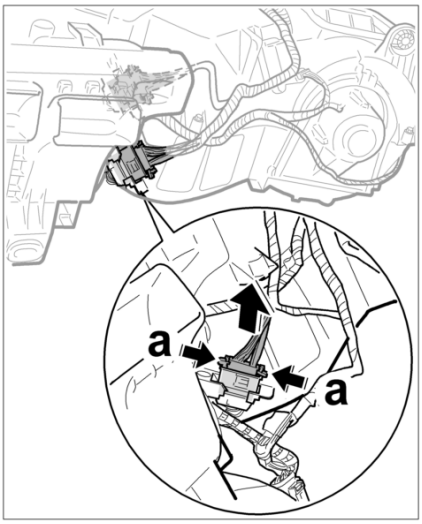


Loosening ground point

17. Loosen ground point under the unit carrier **-76-** .

17.1. Screw off fastening nut and remove ground straps.

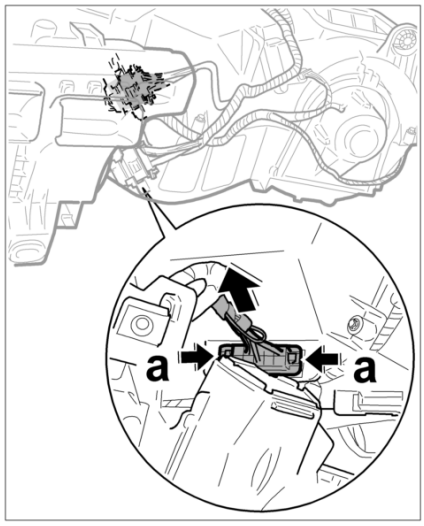
18. Release and pull off connector for tilt sensor control unit **-77-** . 966319 Tilt sensor control unit - chapter on "Removing"



Releasing electric plug connection

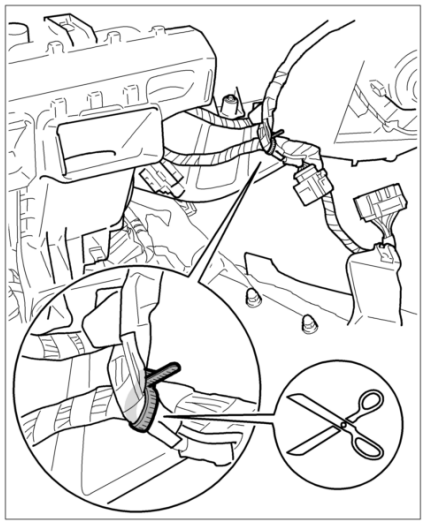
19. Disconnect plug connections between main wire harness and wire harness for heater/air-conditioning unit **-79 and 80-** .

19.1. Release lower plug connection on heater/air-conditioning unit **-Arrows a-** and disconnect.



Releasing plug connection

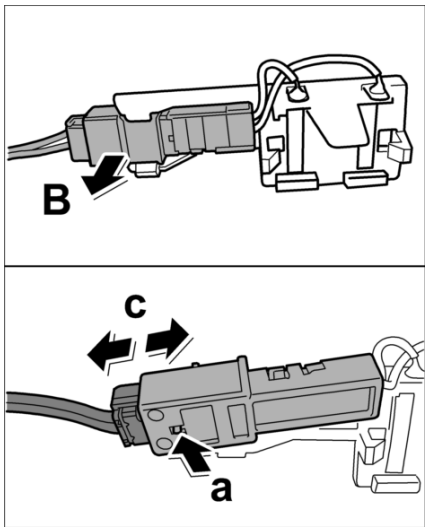
19.2. Release upper plug connection on heater/air-conditioning unit **-Arrows a-** and disconnect.



Cutting tie-wraps

19.3. Cut tie-wraps (main wire harness to heater/air-conditioning unit wire harness) with side cutters. Remove main wire harness.

20. Release and disconnect plug connection for rain sensor **-86-** . 921219 Removing and installing rain sensor - chapter on "Removing"

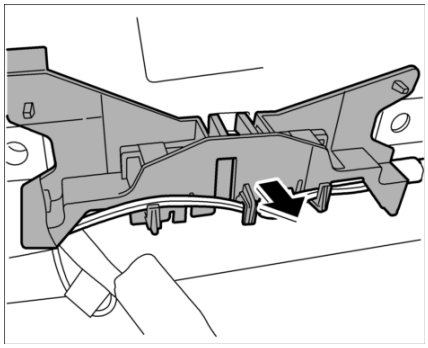


Disconnecting plug connection of make-up mirror

21. Disconnect plug connection of make-up mirror, left and right **-87 and 88-** .

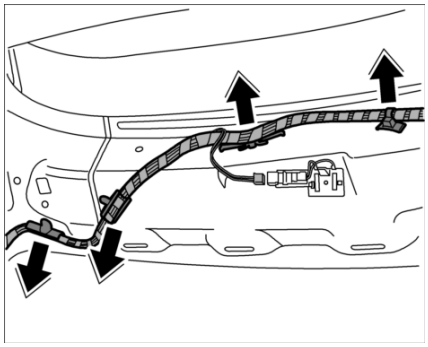
21.1. Unclip plug connection from console **-Arrow B-** .

21.2. Release plug connection **-Arrow a-** and disconnect it **-Arrows C-** .



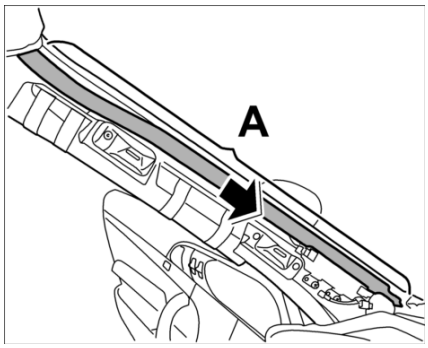
Unclipping cable duct at front of roof frame

22. Unclip cable duct at front of roof frame.



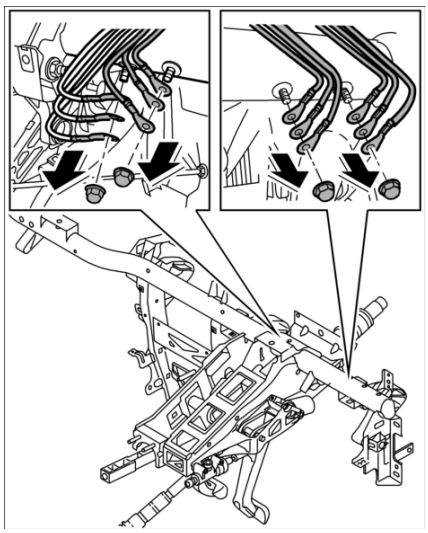
Unclipping main wire harness at front of roof frame

23. Unclip main wire harness at front of roof frame.



Removing main wire harness from A-pillar

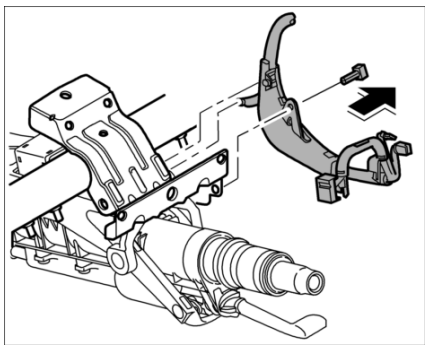
24. Remove main wire harness from A-pillar **-Area A-** .
25. Pull off connector for antenna amplifier, left and right **-89 bis 93-** . 918419 Removing and installing antenna amplifier - chapter on "Removing"



Loosening ground points on dashboard bracket

26. Loosen ground points on dashboard bracket.

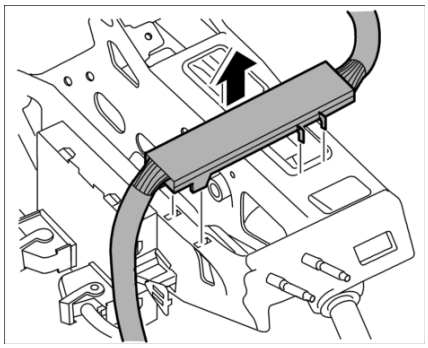
26.1. Unscrew fastening nuts and remove ground straps.



Unclipping length compensation

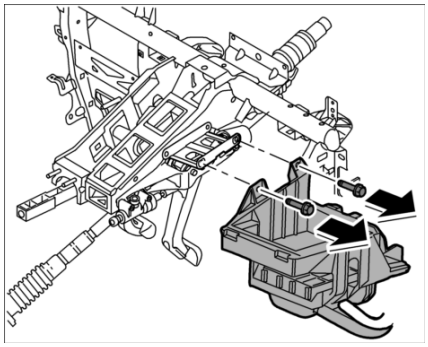
27. Unclip length compensation at the steering column.

27.1. Remove expansion rivet and length compensation.



Unclipping cable guide

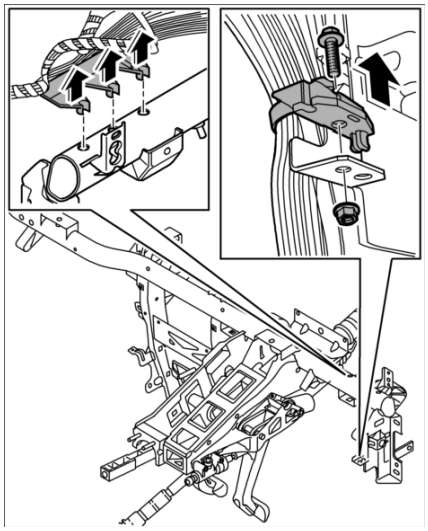
28. Unclip cable guide on dashboard bracket.



Loosening holder for relay carrier

29. Loosen holder for relay carrier.

29.1. Unscrew the two fastening screws and remove the relay carrier holder from the dashboard bracket.

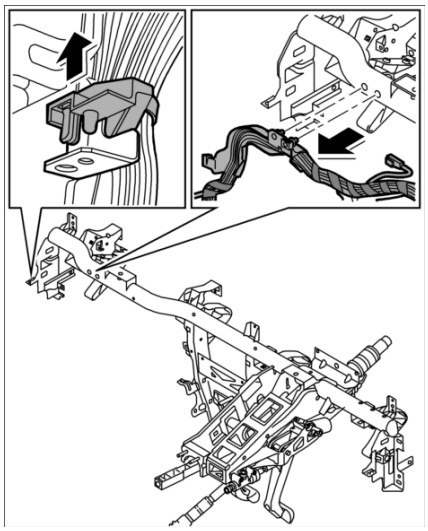


Loosening main wire harness at left dashboard bracket

30. Loosen main wire harness at left dashboard bracket.

30.1. Screw off fastening nut and remove fastening screw.

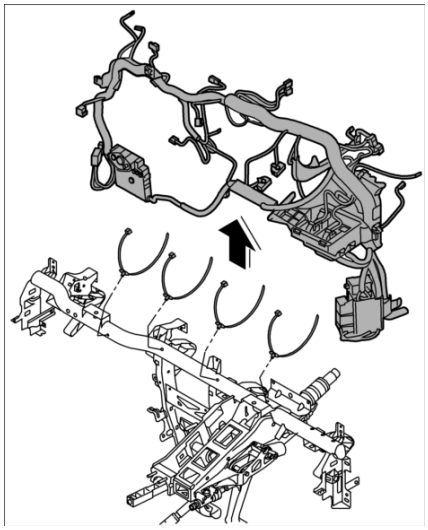
30.2. Unclip main wire harness on cable guide.



Loosening main wire harness at right dashboard bracket

31. Loosen main wire harness at right dashboard bracket.

31.1. Unclip main wire harness on both cable guides.



Loosening main wire harness at centre dashboard bracket

32. Loosen main wire harness at centre dashboard bracket.

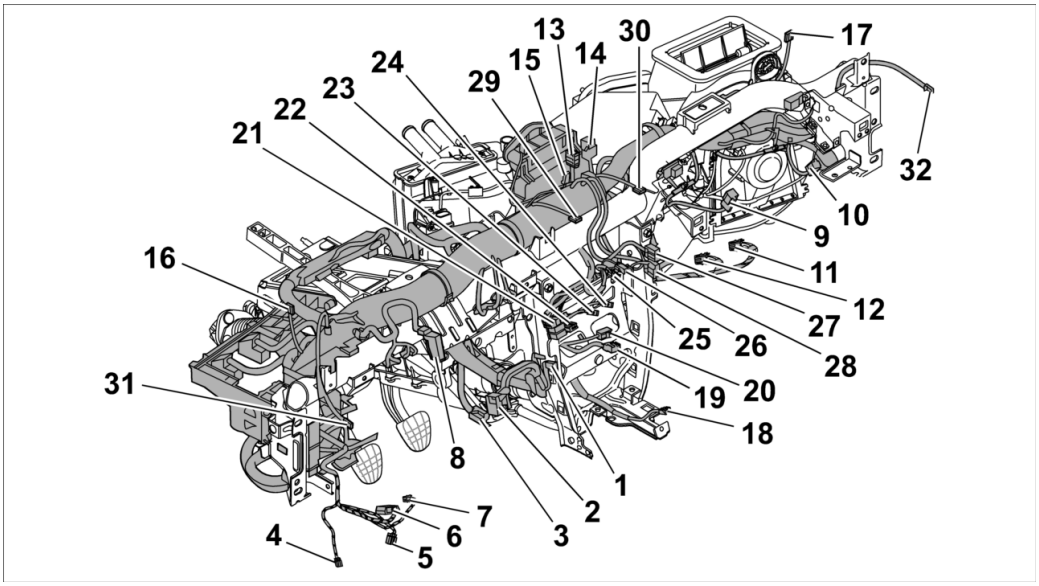
32.1. Undo the four tie-wraps and remove main wire harness.

top of page

Installing main wire harness

Installing main wire harness in passenger compartment

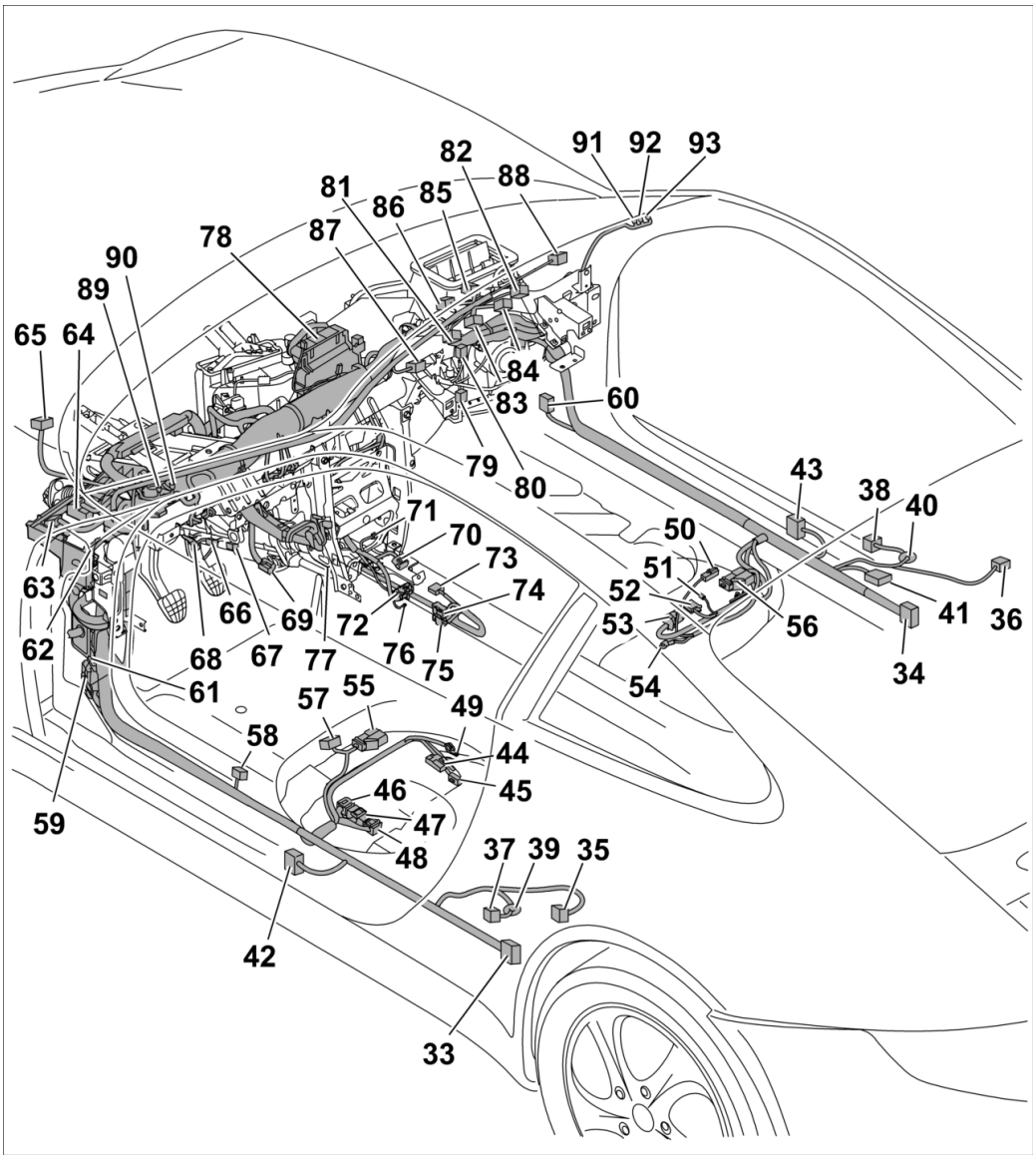
Installation Location:



Overview of main wire harness for dashboard

1-3 - Connector for steering column switch
4 - Connector for main light switch
5 - Connector for ignition lock
6 - Connector for diagnostic box
7 - Connector for floor light left
8 - Connector for instrument cluster
9-10 - Connector for passenger's airbag, stage 1 and stage 2
11 - Connector for floor light right
12 - Plug connection for glove compartment
13 - Connector for stopwatch
14 - Connector for sun sensor
15 - Connector for centre speaker
16-17 - Connector for loudspeaker, left and right
18 - Connector for switch console
19-20 - Connector for climate control
21-26 - Connector for PCM
27 - Connector for central locking
28 - Connector for hazard warning light switch
29-30 - Plug connection for illumination of centre nozzle
31-32 - Plug connection for illumination of left and right nozzle

Installation Location:



Overview of connectors for main wire harness in passenger compartment

33-34 - Plug connection between main wire harness and rear end wire harness, left and right

35-36 - Connector for loudspeaker, rear left and right

37-38 - Connector for seat-belt tensioner, front left and right

39-40 - Rubber sleeve

41 - Tiptronic control module connector

42-43 - Connector for airbag sensor, centre left and right

44-45 - Connector for ParkAssist control unit

46-48 - Connector for rear end convenience systems control unit

49 - Ground point under driver's seat

50-53 - Connector for telephone control unit

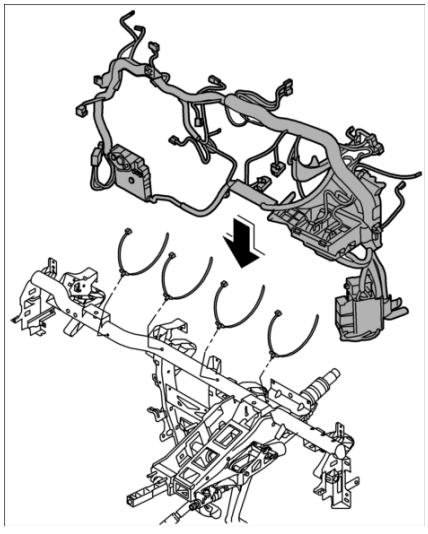
54 - Ground point under passenger's seat

55-56 - Connector for front seat, left and right

57 - Connector for driver's seat with memory

58 - Connector for door sill button module

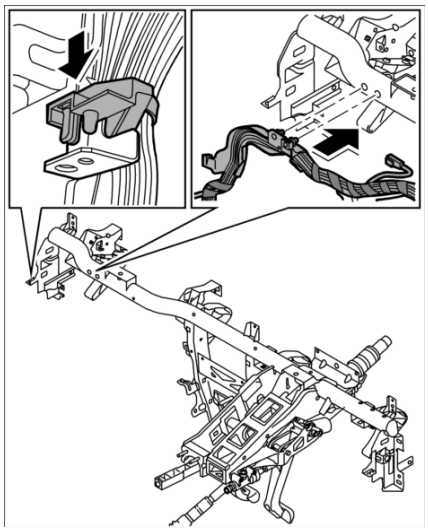
59-60 - Plug connection between main wire harness and wire harness for door, left and right
61 - Fuse box
62 - Relay carrier
63-64 - Connector for vehicle electrical system control unit
65 - Connector for gateway control unit
66-67 - Connector for KESSY/PAS control unit
68 - Connector for stop light switch
69 - Connector for pedal sensor
70 - Plug connection between main wire harness and wire harness for centre console
71 - Plug connection for telephone handset
72 - Connector for airbag triggering unit
73 - Connector for parking-brake lever contact switch
74-75 - Tiptronic position switch
76 - Ground point under unit carrier
77 - Connector for tilt sensor control unit
78 - Power distributor
79-80 - Plug connection between main wire harness and wire harness for heater/air-conditioning unit
81-82 - Connector for garage door opener control unit
83 - Connector for sunroof switch
84 - Connector for interior light
85 - Connector for sunroof motor
86 - Plug connection for rain sensor
87-88 - Plug connection for make-up mirror, left and right
89-93 - Connector for antenna unit, left and right



Fastening main wire harness at centre dashboard bracket

1. Fasten main wire harness at centre dashboard bracket.

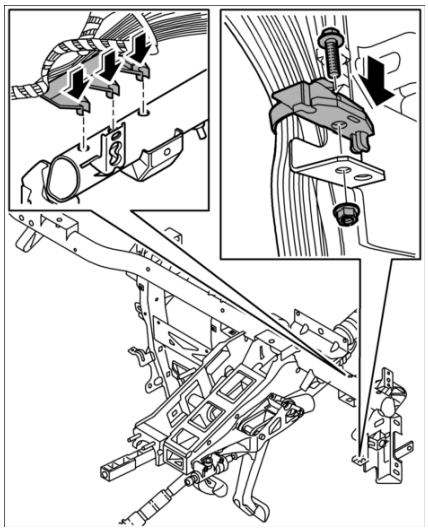
1.1. Lay main wire harness and fasten with four new tie-wraps .



Fastening main wire harness at right dashboard bracket

2. Fasten main wire harness at right dashboard bracket.

2.1. Clip in main wire harness on both cable guides.

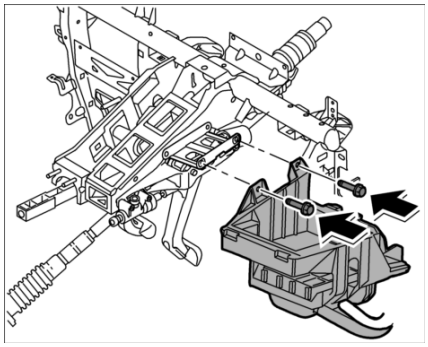


Fastening main wire harness at left dashboard bracket

3. Fasten main wire harness at left dashboard bracket.

3.1. Clip in main wire harness on cable guide.

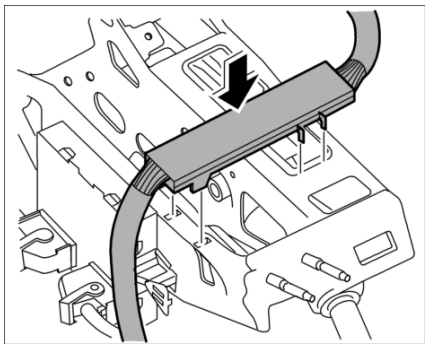
3.2. Insert fastening screw and tighten fastening nut. **Tightening torque: 3.5 (2.5 ftlb.) Nm**



Fastening holder for relay carrier

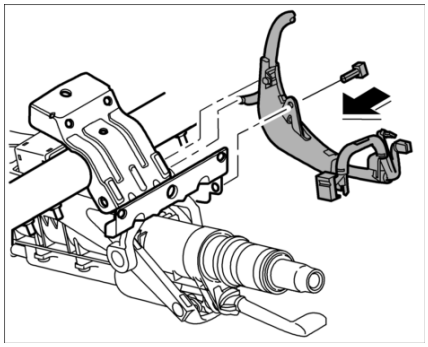
4. Fasten holder for relay carrier.

4.1. Position holder for relay carrier and tighten with the two fastening screws to the dashboard bracket. **Tightening torque: 3.5 (2.5 ftlb.) Nm**



Clipping in cable guide

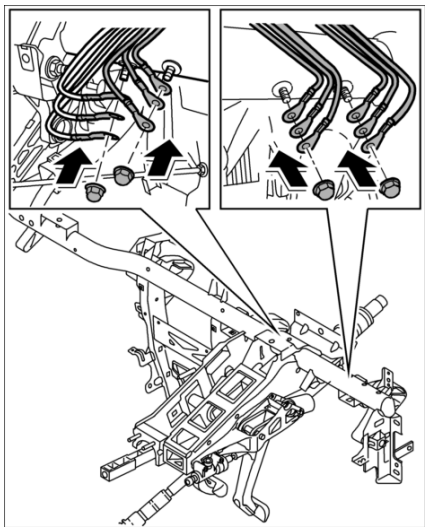
5. Clip in cable guide on dashboard bracket.



Clipping in length compensation

6. Clip in length compensation at the steering column.

6.1. Position length compensation at the steering column and fasten with the expansion rivet.

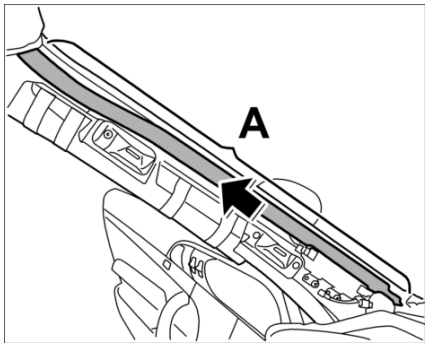


Fastening ground points on dashboard bracket

7. Fasten ground points on dashboard bracket.

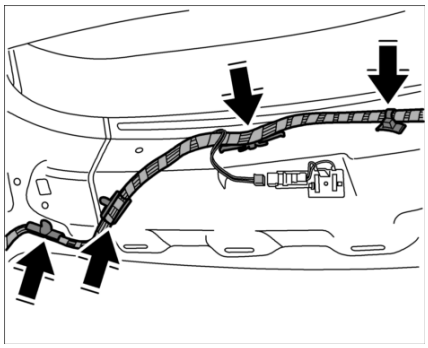
7.1. Fit ground straps and tighten with fastening nuts. **Tightening torque: 9 (6.5 ftlb.) Nm**

8. Push on connector for antenna amplifier, left and right **-89 to 93-** . 918419 Removing and installing antenna amplifier - chapter on "Installing"



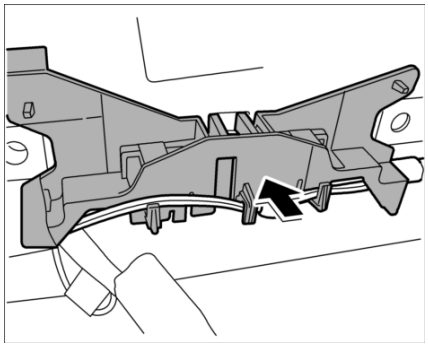
Affixing main wire harness to A-pillar

9. Remove protective film of adhesive strip on main wire harness **-Area A-** and affix main wire harness to A-pillar.



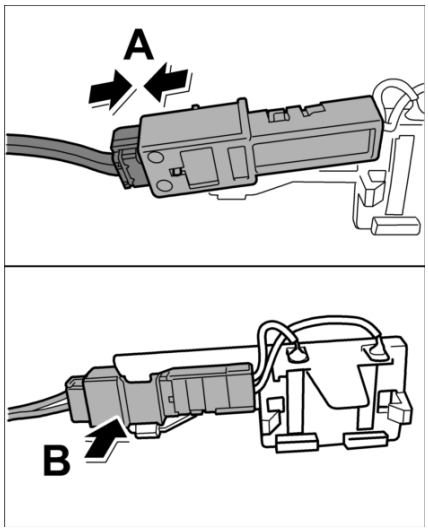
Clipping in main wire harness at front of roof frame

10. Clip in main wire harness at front of roof frame.



Clipping in cable duct at front of roof frame

11. Clip in cable duct at front of roof frame.



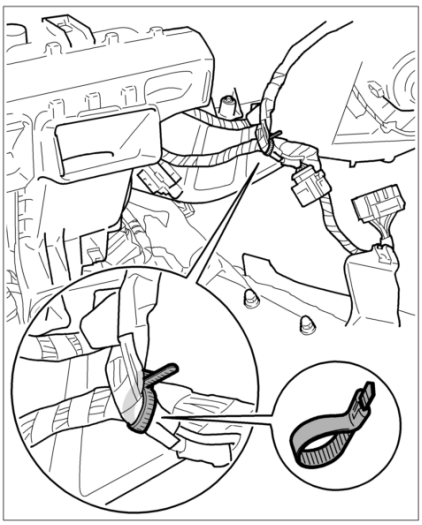
Connecting plug connection of make-up mirror

12. Connect plug connection of make-up mirror, left and right **-87 and 88-** .

12.1. Push together plug connection **-Arrows A-** until it is felt to engage.

12.2. Clip plug connection into console **-Arrow B-** .

13. Push together plug connection **-86-** until it is felt to engage. 921219 Removing and installing rain sensor - chapter on "Installing"



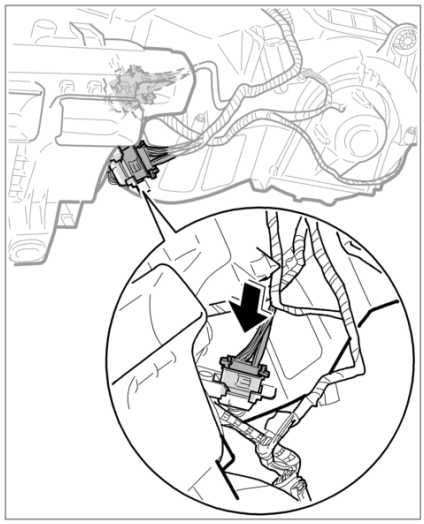
Fastening electric line

14. Connect plug connections between main wire harness and wire harness for heater/air-conditioning unit **-79 and 80-** .

14.1. Lay main wire harness to heater/air-conditioning unit wire harness and fix with a tie-wrap.

Connecting upper electrical plug connection

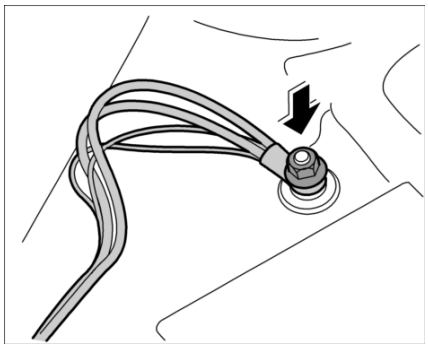
14.2. Push in upper electric plug connection at heater/air-conditioning unit until it is felt to engage.



Connecting lower electrical plug connection

14.3. Push in lower electric plug connection at heater/air-conditioning unit until it is felt to engage.

15. Push on connector for tilt sensor control unit **-77-** until it is felt to engage. 966319 Tilt sensor control unit - chapter on "Removing"

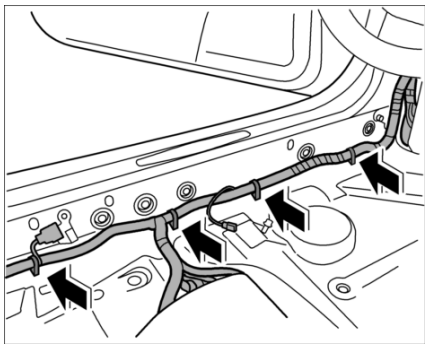


Securing ground point

16. Fasten ground point under the unit carrier **-76-** .

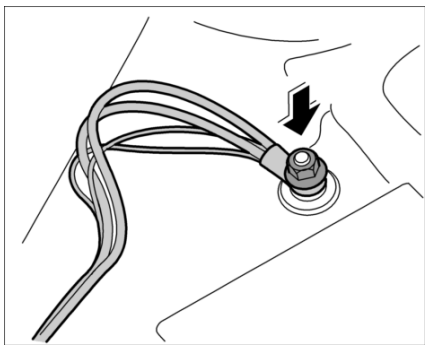
16.1. Connect ground straps and tighten with the fastening nut. **Tightening torque: 9 (6.5 ftlb.) Nm**

17. Push on connector for pedal sensor **-69-** until it is felt to engage. *207819 23 Removing and installing pedal sensor - chapter on "Installing"*
18. Push on connector for stop light switch **-68-** until it is felt to engage. 943619 Removing and installing stop light switch - chapter on "Installing".
19. Push on connectors of KESSY/PAS control unit **-66 and 67-** until they are felt to engage. 966619 Removing and installing KESSY control unit - chapter on "Installing"
20. Push on connector of Gateway control unit **-65-** until it is felt to engage. 903519 Removing and installing gateway control unit - chapter on "Installing"
21. Push together plug connection between main wire harness and wire harness for door, left and right **-59 und 60-** until they are felt to engage. 973219 Removing and installing wire harness for door - chapter on "locking"



Clipping in wire harness at door sill

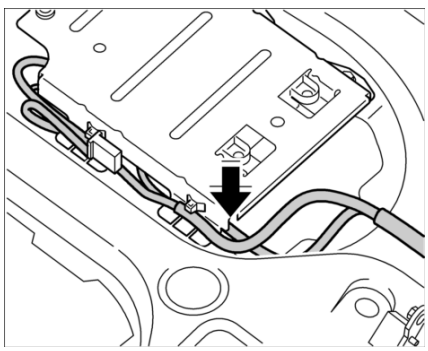
22. Clip in wire harness at door sill.



Securing ground point

23. Fasten ground point under the passenger seat **-54-** .

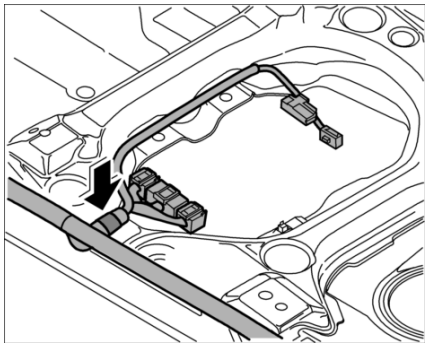
23.1. Connect ground straps and tighten with the fastening nut. **Tightening torque: 9 (6.5 ftlb.) Nm**



Clipping in wire harness for telephone control unit

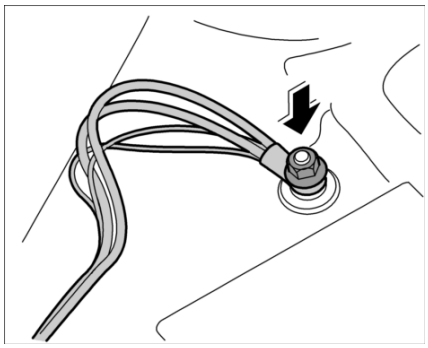
24. Push on connectors for telephone control unit **-50 to 53-** until they are felt to engage. 919019 Removing and installing control unit for telephone - chapter on "Installing"

24.1. Clip in wire harness for telephone control unit.



Clipping in wire harness under driver's seat

25. Clip in wire harness under driver's seat.



Securing ground point

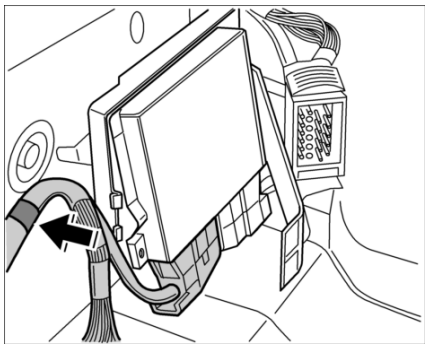
26. Fasten ground point under the driver's seat **-49-** .

26.1. Connect ground straps and tighten with the fastening nut. **Tightening torque: 9 (6.5 ftlb.) Nm**

27. Push on connectors for rear end convenience systems control unit **-46 to 48-** until they are felt to engage. 578919 Removing and installing control unit for rear end convenience systems - chapter on "Installing".

28. Push on connectors for ParkAssist control unit **-44 and 45-** until they are felt to engage. 917419 Removing and installing ParkAssist control unit - chapter on "Installing"

29. Push on connectors for airbag sensor, centre left and right **-42 und 43-** until they are felt to engage. 695119 Removing and installing airbag sensor - chapter on "Installing"



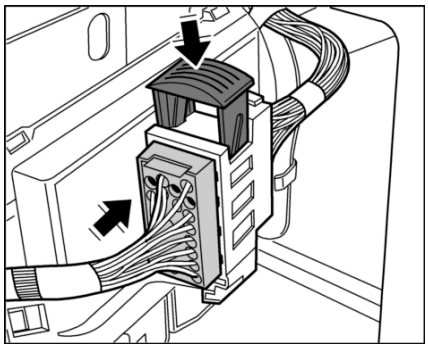
Clipping in wire harness for Tiptronic control module

30.

Push on connector for Tiptronic control module **-41-** until it is felt to engage, and lock it. 373019 Removing and installing transmission control module - chapter on "Installing"

30.1. Clip in wire harness for Tiptronic control module.

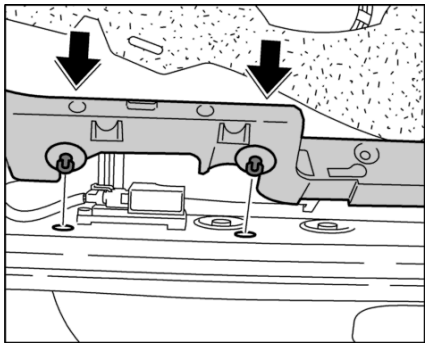
31. Fit rubber sleeves **-39 and 40-** and push on connector for seat-belt tensioner, front left and right **-37 and 38-** . 691319 Removing and installing front three-point seat belt with tensioner - chapter on "Installing" [997310 997311 997320 997321 997610 997611 997620 997621] 691319 Removing and installing front three-point seat belt with tensioner - chapter on "Installing" [997110 997111 997120 997121 997410 997411 997430 997431]



Connecting plug connection for main wire harness to rear wire harness

32. Connect plug connection between main wire harness and rear-end wire harness, left and right **-33 and 34-** and lock.

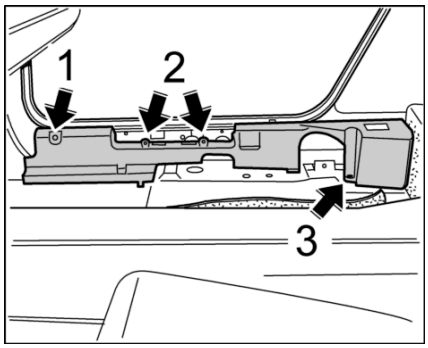
Completing the vehicle



Engaging the support

1. Install left and right support.

1.1. Position the support and engage in lower side member.



Securing the support

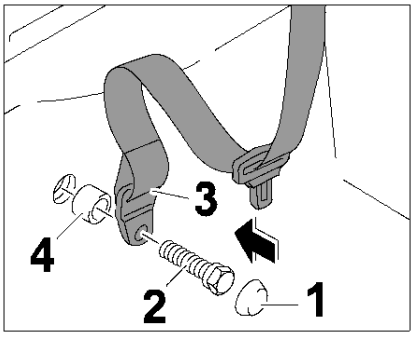
1.2. Press in the locating peg **-1-** of the support and check it is seated correctly.

1.3. Tighten the fastening nut **-3-** and fastening screws **-2-** . **Tightening torque: 7.2 (5.5 ftlb.) Nm**

2. Lay the floor covering over the support and engage.

Note

Ensure that belt strap can run properly!



Installing seat belt and fitting

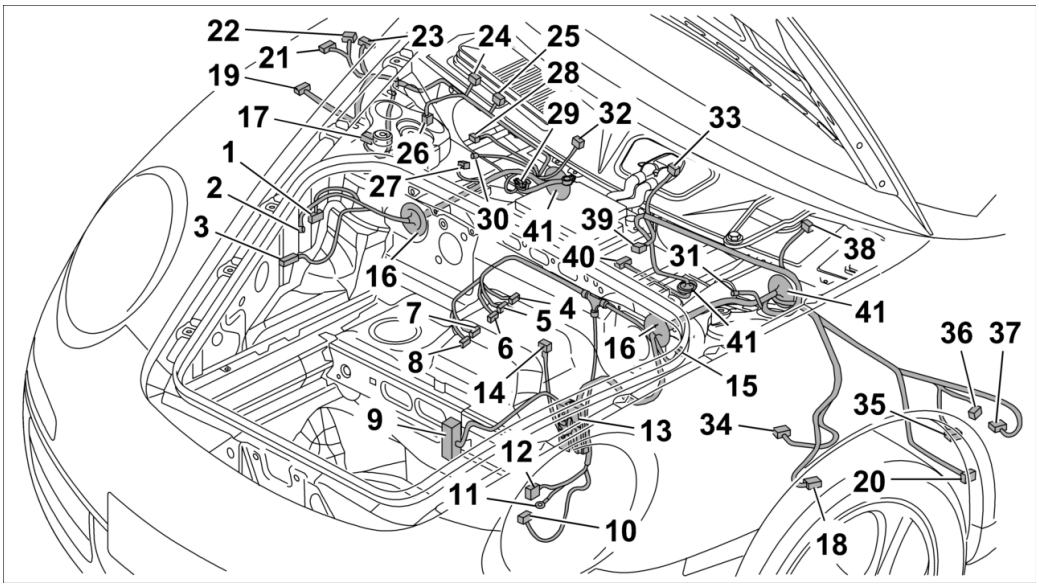
3. Fasten seat belt mount at left and right.

3.1. Tighten fastening screw **-2-** , seat belt with fitting **-3-** and spacer sleeve **-4-** on inner lower side member. **Tightening torque: 50 (37 ftlb.) Nm**

3.2. Press in **-1-** cap.

Installing front main wire harness

Installation Location:

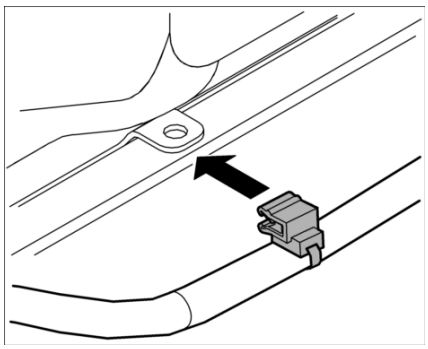


Overview of connectors for front main wire harness, shown on the 911

1 - Plug connection between main wire harness and front-end wire harness right
2 - Fuse box for fan
3 - Connector for front-end control unit
4-6 - Connector for navigation unit
7-8 - Connector for CD changer
9 - Connector for loudspeaker amplifier
10 - Connector for luggage compartment light
11 - Ground point
12 - Plug connection between main wire harness and front-end wire harness left
13 - Connector for hydraulic unit
14 - Connector for brake fluid sender
15 - Connector for tyre pressure monitoring system control unit
16 - Grommet
17-18 - Plug connection for ABS wire harness, front left and right
19-20 - Connector for tyre pressure monitoring system antenna, left and right
21 - Connector for filler flap switching element
22 - Connector for tank filler neck
23 - Connector for rod antenna
24 - Connector for GPS antenna
25 - Connector for radio antenna
26 - Connector for vertical sensor
27 - Connector for pressure switch
28 - Connector for alarm siren
29 - B+ line to power distributor
30-31 - Plug connection for PASM, front left and right
32-33 - Connector for windscreen washer system spray nozzle, left and right
34 - Connector for headlight beam adjustment angle sensor

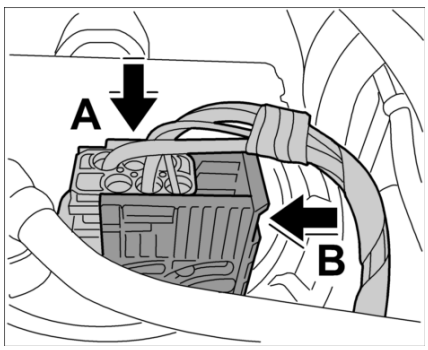
35 - Connector for fluid level indicator sender
36 - Connector for windscreen washer system pump
37 - Connector for headlight washer pump
38 - Connector for wiper motor
39 - Connector for alarm horn
40 - Connector for fuel level sensor
41 - Grommet

1. Push through main wire harness in direction of plenum panel.
2. Fit grommets **-41-** centre, left and right.



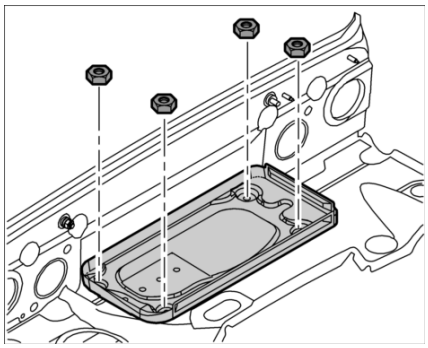
Clipping in wire harness

3. Clip in wire harness on end plate under windscreen at the two retaining clips **-arrow-** .



Pushing on tank connector

4. Push on connector for fuel level sender **-40-** **-Arrow A-** and lock **-Arrow B-** .



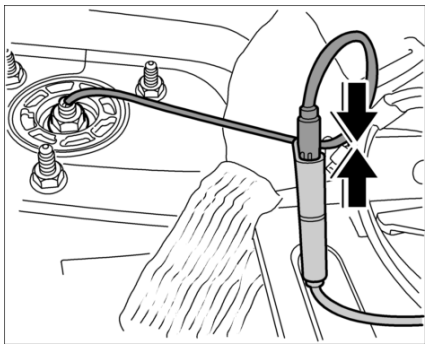
Removing and installing battery retaining bracket

5. Position battery retaining bracket and secure with the four fastening nuts. **Tightening torque: 10 (7.5 ftlb.) Nm**
6. Push on connector for alarm horn **-39-** until it is felt to engage. 966519 Removing and installing alarm siren - chapter on "Installing"
7. Push on connector for wiper motor **-38-** until it is felt to engage. 921519 Removing and installing wiper motor - chapter on "Installing"

Note

Only for vehicles with HBA.

8. Push connector onto front angle sensor for headlight beam adjustment **-34-** until it is felt to engage. 947819 Removing and installing front angle sensor for headlight beam adjustment - chapter on "Installing"
9. Push on connectors for windscreen washer system spray nozzle, left and right **-32 and 33-** until they are felt to engage. 926619 Removing and installing spray nozzle for windscreen washer system - chapter on "Installing"



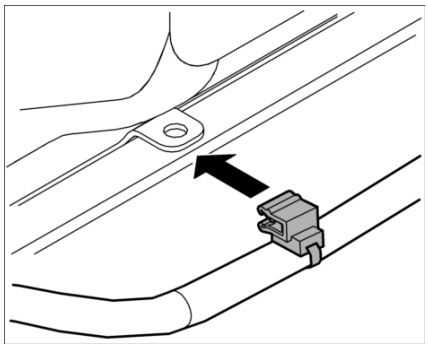
Connecting PASM plug connection

10. Connect plug connections for PASM, front left and right **-30 und 31-** until they are felt to engage.
11. Push B+ line **-29-** onto mounting point at the power distributor as far as the stop. Check B+ line sits firmly. 978919 Removing and installing power distributor - chapter on "Installing"

Note

Only for vehicles with I number 536

12. Push on connector for alarm siren **-28-** until it is felt to engage. 966519 Removing and installing alarm siren - chapter on "Installing"
13. Push on connector for pressure switch **-27-** until it is felt to engage. 878319 Removing and installing pressure switch - chapter on "Installing"
14. Push on connector of vertical sensor **-26-** until it is felt to engage.
15. Push on connector for radio antenna **-25-** until it felt to engage. 914719 Removing and installing radio antenna - chapter on "Installing"
16. Push on connector for GPS antenna **-24-** until it is felt to engage. 914719 Removing and installing radio antenna - chapter on "Installing"



Clipping in wire harness

17. Clip in wire harness for end plate under windscreen at the three retaining clips **-arrow-** .

Note

Only in the cabriolet.

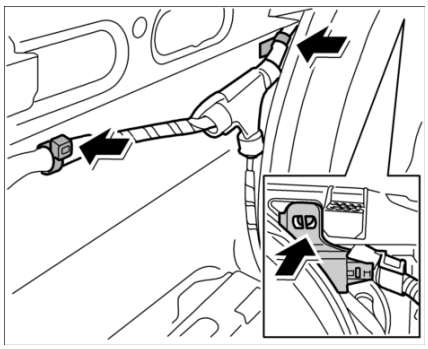
18. Push in connector for rod antenna **-23-** until it is felt to engage.
19. Push on connector for tank filler neck **-22-** . 200719 Removing and installing filler neck - chapter on "Installing"
20. Push on connector for filler flap switching element **-21-** until it is felt to engage. 553819 Removing and installing switching element for filler flap - chapter on "Installing"
21. Push on connectors of front antenna for tyre pressure monitoring system **-19 and 20-** at left and right until they are felt to engage. 443819 Removing and installing antenna for tyre pressure monitoring system - chapter on "Installing"
22. Lay and connect ABS wire harness, front left and right **-17 and 18-** . 976555 Replacing ABS wire harness - chapter on "Installing" [997110 997111 997120 997121 997310 997311 997320 997321] 976555 Replacing ABS wire harness - chapter on "Installing" [997410 997411 997430 997431 997610 997611 997620 997621]

22.1. Laying ABS wire harness

22.2. Tighten fastening screw of connector socket. **Tightening torque: 10 (7.5 ftlb.) Nm**

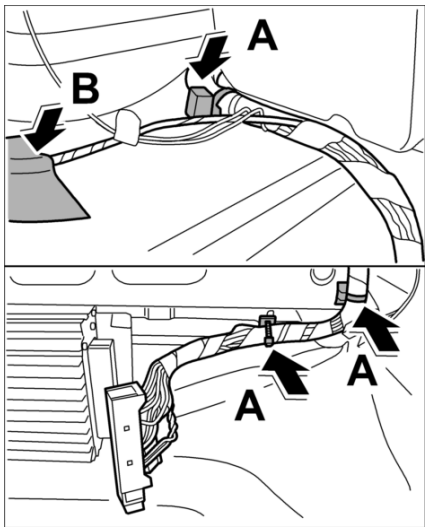
22.3. Lock the plug connection securely.

23. Push through main wire harness in direction of luggage compartment.
24. Fit grommets **-16-** left and right.



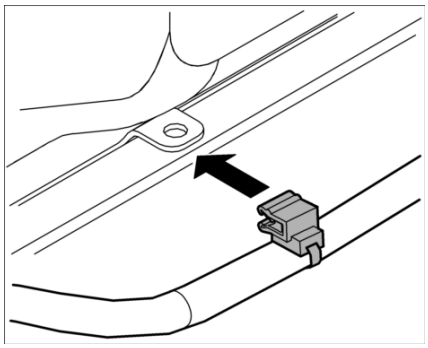
Clipping in wire harness to CD changer/navigation unit.

25. Clip in wire harness to CD changer/navigation unit **-arrows-** .



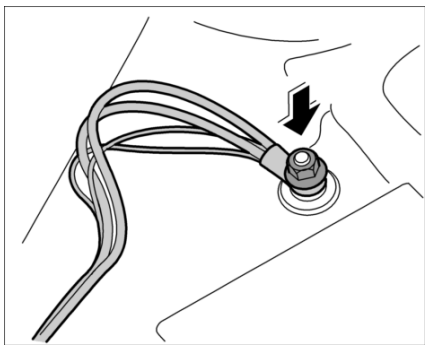
Clipping in wire harness to loudspeaker amplifier

26. Clip in wire harness to loudspeaker amplifier **-Arrows A-** and fix with new adhesive tape **-Arrow B-** .



Clipping in wire harness

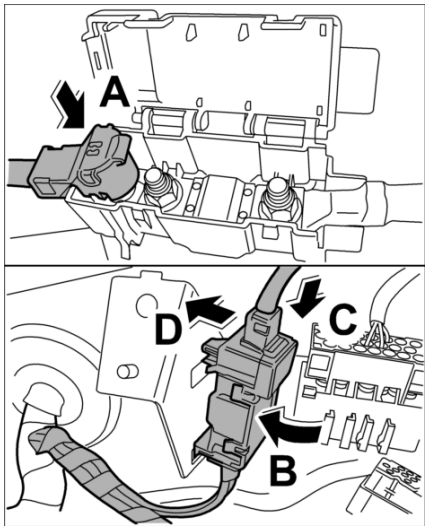
27. Clip in wire harness for front end control unit **-arrow-** .
28. Push on connector for tyre pressure monitoring system control unit **-15-** until it is felt to engage.
    443419 Removing and installing control unit for tyre pressure monitoring system - chapter on "Installing"
29. Push on connector for brake fluid sender **-14-** until it is felt to engage.
30. Push on connector for hydraulic unit **-13-** and lock it. *453019 23 Removing and installing hydraulic unit - chapter on "Installing"*
31. Push together plug connection between main wire harness and front-end wire harness, left **-12-** until it engages securely. Clip in connector socket.



Securing ground point

32. Secure ground point left **-11-** .

32.1. Connect ground straps and tighten fastening nut. **Tightening torque: 9 (6.5 ftlb.) Nm**



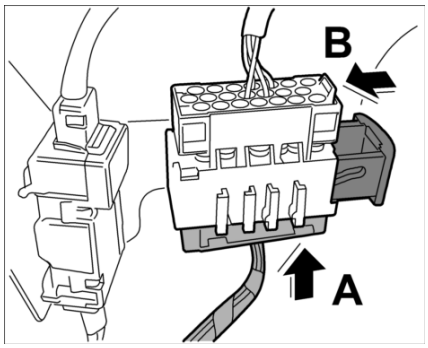
Pushing connector onto fuse box for fan

33. Push connector onto fuse box for fan **-2-** .

33.1. Push connector onto fuse box for fan **-Arrow A-** .

33.2. Close lid **-Arrow B-** until it is felt to engage.

33.3. Position bottom of fuse box for fan on the clip **-Arrow C-** and clip in **-Arrow D-** .



Pushing together plug connection between front end wire harness and main wire harness, right

34. Push together plug connection between main wire harness and front end wire harness, right **-1-** .

34.1. Insert connector socket in the holder and turn anti-clockwise 90°.

34.2. Push together plug connection between front-end wire harness and main wire-harness right **-Arrow A-** and lock **-Arrow B-** .

top of page

Subsequent work

Subsequent work

Note

Only in the cabriolet.

1. Install front headliner. *708319 23 Removing and installing front headliner - section on "Installing"*
2. Secure front headliner in windscreen area. 708419 Removing and installing headliner - section on "Installing" [997110 997111 997120 997121 997410 997411 997430 997431] *708419 23 Removing and installing headliner - section on "Installing" [997310 997311 997320 997321 997610 997611 997620 997621]*
3. Install sunroof motor. 601419 Removing and installing sunroof motor - section on "Installing" [997110 997111 997120 997121 997410 997411 997430 997431] *601419 23 Removing and installing sunroof motor - section on "Installing" [997310 997311 997320 997321 997610 997611 997620 997621]*
4. Install operator control unit for garage door opener. 967819 Removing and installing operator control unit for garage door opener - section on "Installing"
5. Install vehicle electrical system control unit. 971019 Removing and installing vehicle electrical system control unit - section on "Installing"
6. Install relay carrier 1. 978319 Removing and installing relay carrier 1 - section on "Installing"
7. Install B+ line from power distributor to transmission connection point. 974519 Installing and removing wire harness for starter battery - section on "Installing"
8. Secure fuse box. 978409 Loosening and securing fuse box - section on "Securing"
9. Install rear side trim panel at left and right. 707519 Removing and installing rear side trim panel - section on "Installing" [997310 997311 997320 997321 997610 997611 997620 997621] 707519 Removing and installing rear side trim panel - section on "Installing" [997110 997111 997120 997121 997410 997411 997430 997431]
10. Install left and right scuff plate. 680519 Removing and installing inner door sill trim - section on "Installing"
11. Install front seat at left and right. 720119 Removing and installing front seat - section on "Installing" [997110 997120 997310 997320 997410 997430 997610 997620] 720119 Removing and installing front seat - section on "Installing" [997111 997121 997311 997321 997411 997431 997611 997621]
12. Install heating/fresh-air unit. 851519 Removing and installing heating/fresh-air unit - section on "Installing"
13. Install dashboard. 701819 Removing and installing dashboard - section on "Installing"
14. Install tank for windscreen washer system. 926019 Removing and installing tank for windscreen washer system - section on "Installing"
15. Install front cover. 519219 Removing and installing front cover - section on "Installing"
16. Install front wheel housing liner on left and right. 505619 Removing and installing front wheel housing liner - section on "Installing" [997110 997111 997120 997121 997310 997311 997320 997321] 505619 Removing and installing front wheel housing liner - section on "Installing" [997621] 505619 Removing and installing front wheel housing liner - section on "Installing" [997410 997411 997430 997431 997610 997611 997620]
17. Install front-end control unit. 944919 Removing and installing front-end control unit - section on "Installing"

18. Install trim panels for luggage compartment. *700519 23 Removing and installing trim panel for front luggage compartment - section on "Installing"*
19. Install loudspeaker amplifier. 914419 Removing and installing loudspeaker amplifier - section on "Installing" [997110 997111 997120 997121 997310 997311 997320 997321] 914419 Removing and installing loudspeaker amplifier - section on "Installing" [997410 997411 997430 997431 997610 997611 997620 997621]
20. Install navigation unit with retaining frame. 911219 Removing and installing navigation unit - section on "Installing" [997410 997411 997430 997431 997610 997611 997620 997621] 911219 Removing and installing navigation unit - section on "Installing" [997110 997111 997120 997121 997310 997311 997320 997321]
21. Install CD changer. 916019 Removing and installing CD changer - section on "Installing" [997110 997111 997120 997121 997310 997311 997320 997321] 916019 Removing and installing CD changer - section on "Installing" [997410 997411 997430 997431 997610 997611 997620 997621]
22. Install plenum panel cover. 852219 Removing and installing cover - section on "Installing"
23. Install battery. 270619 Removing and installing battery - section on "Installing"

997110, 997111, 997120, 997121, 997310, 997311, 997320, 997321, 997410, 997411, 997430, 997431, 997610, 997611, 997620, 997621

as of MY 2005
Country C00, C02, C05, C07, C08, C09, C10, C11, C12, C13, C14, C15, C16, C18, C19, C20, C21, C22, C23, C24, C25, C26, C27, C28, C32, C33, C34, C35, C36, C37, C38, C39, C45, C46, C98, C99

WARNUNG

Gefahr des Verlusts der Text-Bild-Zuordnung beim Ausdruck.

- **Aus technischen Gründen kann derzeit nicht ausgeschlossen werden, dass trotz einwandfreier Darstellung auf dem Bildschirm beim Ausdruck der Zusammenhang von Text und zugehörigem Bild verloren geht.**
- **Wird der Fehler nicht bemerkt, besteht die Gefahr, daß Arbeiten nicht korrekt durchgeführt werden und es dadurch zu Personen- und Sachschäden kommt.**

Vergleichen Sie deshalb nach dem Druckvorgang unbedingt die Ausdrucke mit der Bildschirmdarstellung. Korrigieren Sie die Ausdrucke im Fehlerfall so, daß der Inhalt der Bildschirmdarstellung zutreffend wiedergegeben wird.

WARNING

Danger of losing text-figure correspondence when printing out.

- **For technical reasons, it can currently not be ruled out that the correspondence between text and associated figure can be lost when it is printed out, even though the display on the screen is correct.**
- **If the fault is not noticed, there is the danger that work will not be performed correctly which can cause injury and damage.**

97 10 19 Removing and installing vehicle electrical system control unit - as of MY 2005

- Preliminary work
- Removing vehicle electrical system control unit
- Installing vehicle electrical system control unit
- Subsequent work for vehicle electrical system control unit
- Coding vehicle electrical system control unit

top of page

Preliminary work

Preliminary work - vehicle electrical system control unit

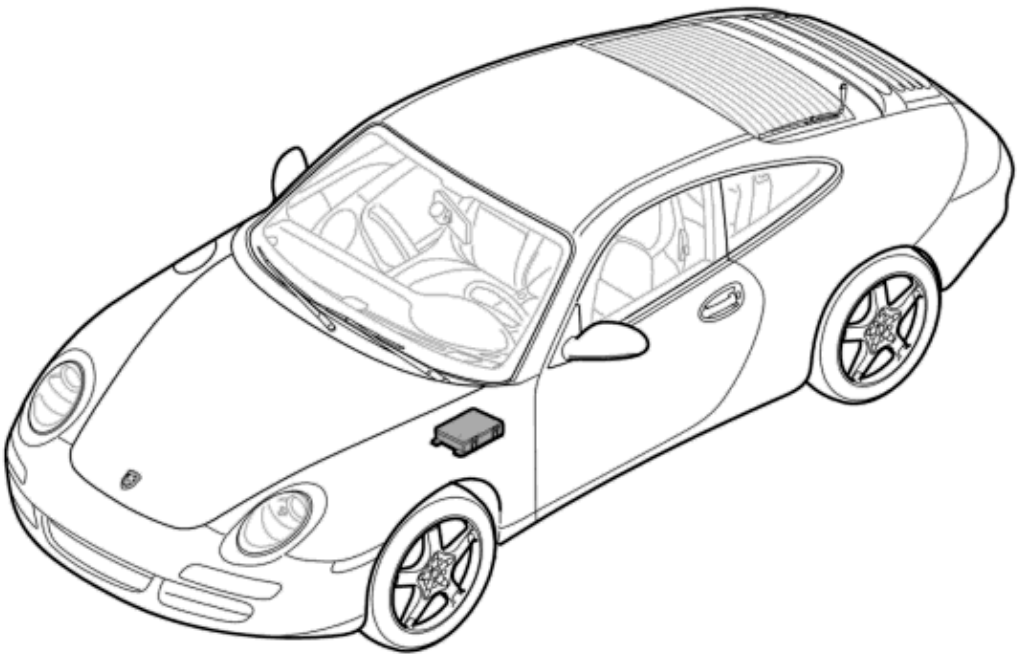
Detach relay carrier 1. 978319 Removing and installing relay carrier 1 - "removing"

top of page

Removing vehicle electrical system control unit

Removing vehicle electrical system control unit

Installation Location:



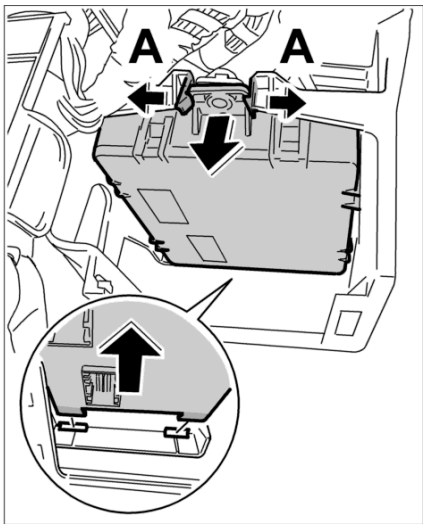
Install location

WARNING

Risk of damage to electronic control modules.

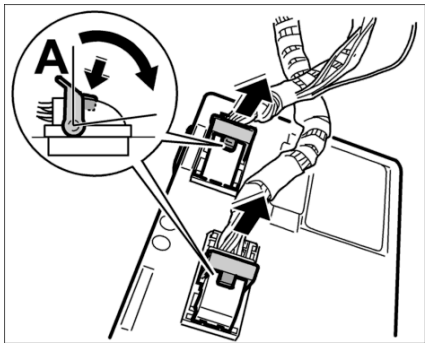
- **If care is not taken, electrical and electronic components may be destroyed.**

Before removing the control module, switch off the ignition and remove the ignition key.



Bracket for the vehicle electrical system control unit

1. Pull apart the locking tabs **-A-** for the vehicle electrical system control unit, pull the control unit forward and down with connectors still attached then pull it out of its holder at the rear.



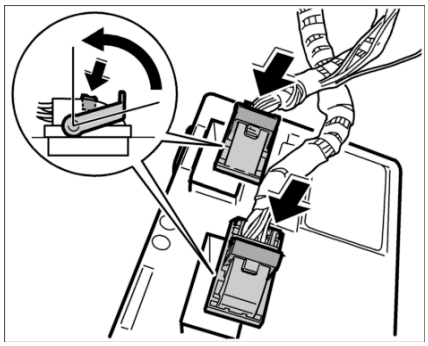
Release connector A and disconnect.

2. Release both electrical connectors **-A-** and unplug them.
3. Take out the control unit.

top of page

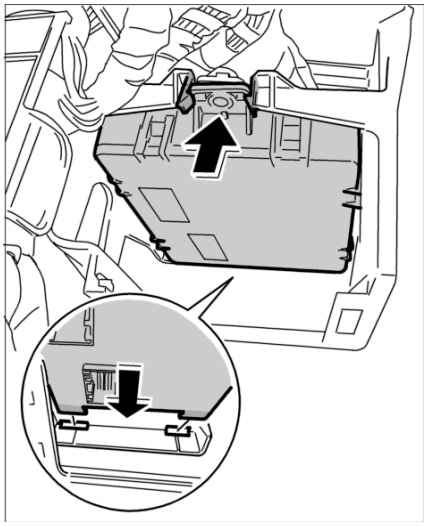
Installing vehicle electrical system control unit

Installing vehicle electrical system control unit



Inserting the connectors

1. Press electrical plugs into control unit and lock them **-arrow-** so they are felt to engage.



Push the electrical system wiring into its retaining bracket so that it engages.

2. Push vehicle electrical system control unit upwards into the holder. It must engage properly. Make sure the electrical leads are not pinched.

top of page

Subsequent work for vehicle electrical system control unit

Subsequent work - vehicle electrical system control unit

Attach relay carrier 1. 978319 Removing and installing relay carrier 1 - "installing"

top of page

Coding vehicle electrical system control unit

Programming the vehicle electrical system control unit:

Reading out and printing out values

WARNING

Sudden voltage interruption of the power supply to the control module.

- **Destruction of the control module.**

During programming, it is essential to guarantee the power supply for the Porsche System tester. It is essential to connect a battery charger with a current rating of at least 40 A to the vehicle battery.

Prior to disconnecting the control module, switch off the ignition and remove the ignition key.

Note

Follow the instructions on the Tester.
Later versions of the software may display slightly different text or require a slightly different procedure. The instructions you receive from the tester itself take precedence over this description.

1. Connect the Porsche System Tester to the vehicle and start the System Tester. Switch on the ignition. >> Continue.
2. Select vehicle type using the cursor keys.
3. Switch from vehicle type to list of control units >> .
4. Select the relevant control unit with the cursor keys and press the >> key.
5. Select Control Unit Replacement with the cursor keys and press the >> key.
6. Select Read Out Values (Code) with the cursor keys and press the >> key.
7. The message "Reading code" will appear on the screen of the Porsche System Tester. Press the >> key.
8. Switch off ignition and replace control unit.
9. Switch on ignition. After replacement of the control unit, the vehicle data that has been read out is transferred to the new unit using the "Write data" menu option (see Section 6). Press the >> key.
10. System Tester displays Coding write-in complete. Press the >> key.
11. Read out fault memory again and erase.

Coding (programming) the control module

Note

The procedure described must be applied when a control unit has to be replaced and the tester function **Control unit replacement** cannot be used.

WARNING

Sudden voltage interruption of the power supply to the control module.

- **Destruction of the control module.**

During programming, it is essential to guarantee the power supply for the Porsche System tester. It is essential to connect a battery charger with a current rating of at least 40 A to the vehicle battery.

Prior to disconnecting the control module, switch off the ignition and remove the ignition key.

Note

Follow the instructions on the Tester.
Later versions of the software may display slightly different text or require a slightly different procedure. The instructions you receive from the tester itself take precedence over this description.

1. Connect the Porsche System Tester to the vehicle and start the System Tester. Switch on the ignition. >> Continue.
2. Select vehicle type using the cursor keys.
3. Using the >> key, move from the vehicle type to the list of control modules. Perform the automatic control module search.
4. Select the relevant control module with the cursor keys and press the >> key.
5. Select **Control unit replacement** with the cursor keys and press the >> key.
6. Select **Write in data** and write in the relevant data. (Even if no data was read out, the required data is loaded for the control unit.)
7. Select Coding with the cursor keys and press the >> key.
8. Select the version required for the vehicle in question and follow the instructions on the Tester.
9. In the menu **Vehicle type**, select **Control units** and then select the menu **Special functions**.
10. Perform**Vehicle handover** and follow the instructions of the Tester.
11. Read out and erase fault memory.

997110, 997111, 997120, 997121, 997310, 997311, 997320, 997321, 997410, 997411, 997430, 997431, 997610, 997611, 997620, 997621

as of MY 2005
Country C00, C02, C05, C07, C08, C09, C10, C11, C12, C13, C14, C15, C16, C18, C19, C20, C21, C22,

97 15 19 Removing and installing front wiring harness - as of MY 2005

- Preliminary work
- Removing front wiring harness
- Installing front wiring harness
- Subsequent work

top of page

Preliminary work

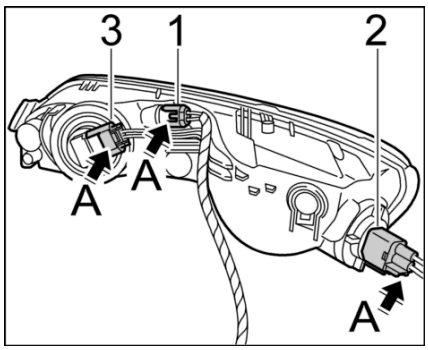
Preliminary work for front wiring harness

Removing front apron. 631519 Removing and installing front apron - chapter on "Removing"

top of page

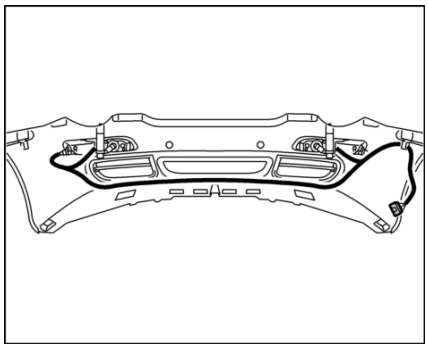
Removing front wiring harness

Removing front wiring harness



Releasing electric connector on auxiliary headlight, shown here on 911 headlight

1. Release electric connector on auxiliary headlight
   -A-



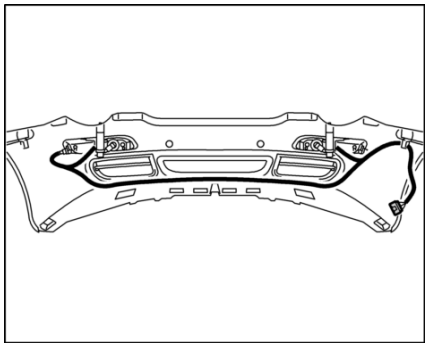
Laying the wiring harness

2. Disengage electric lines from auxiliary headlight and front apron.
3. Remove wiring harness.

top of page

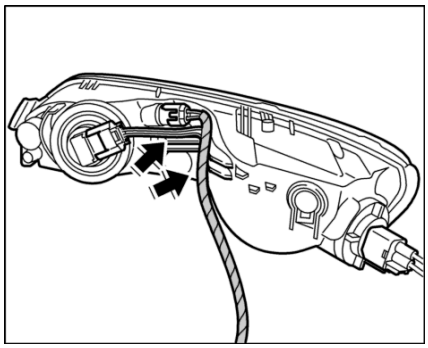
Installing front wiring harness

Installing front wiring harness



Laying the wiring harness

1. Position and engage wiring harness in front apron.



Engaging lines on auxiliary headlight, shown here on 911 headlight

2. Connect plug connection to auxiliary headlight and engage the lines on the auxiliary headlight.

top of page

Subsequent work

Subsequent work for front wiring harness

Installing front apron. 631519 Removing and installing front apron - chapter on "Installing"

997110, 997111, 997120, 997121, 997310, 997311, 997320, 997321, 997410, 997411, 997430, 997431, 997610, 997611, 997620, 997621

as of MY 2005
Country C00, C02, C05, C07, C08, C09, C10, C11, C12, C13, C14, C15, C16, C18, C19, C20, C21, C22, C23, C24, C25, C26, C27, C28, C32, C33, C34, C35, C36, C37, C38, C39, C45, C46, C98, C99

WARNUNG

Gefahr des Verlusts der Text-Bild-Zuordnung beim Ausdruck.

- **Aus technischen Gründen kann derzeit nicht ausgeschlossen werden, dass trotz einwandfreier Darstellung auf dem Bildschirm beim Ausdruck der Zusammenhang von Text und zugehörigem Bild verloren geht.**
- **Wird der Fehler nicht bemerkt, besteht die Gefahr, daß Arbeiten nicht korrekt durchgeführt werden und es dadurch zu Personen- und Sachschäden kommt.**

Vergleichen Sie deshalb nach dem Druckvorgang unbedingt die Ausdrucke mit der Bildschirmdarstellung. Korrigieren Sie die Ausdrucke im Fehlerfall so, daß der Inhalt der Bildschirmdarstellung zutreffend wiedergegeben wird.

WARNING

Danger of losing text-figure correspondence when printing out.

- **For technical reasons, it can currently not be ruled out that the correspondence between text and associated figure can be lost when it is printed out, even though the display on the screen is correct.**
- **If the fault is not noticed, there is the danger that work will not be performed correctly which can cause injury and damage.**

Therefore, always compare printouts with the screen display after printing them out. Correct the printouts if they are faulty so that the content of the screen display matches that on the printouts.

97 16 19 Removing and installing wire harness for front-end - as of MY 2005

- Preliminary work
- Removing wire harness for front-end
- Installing wire harness for front-end
- Subsequent work

top of page

Preliminary work

Preliminary work

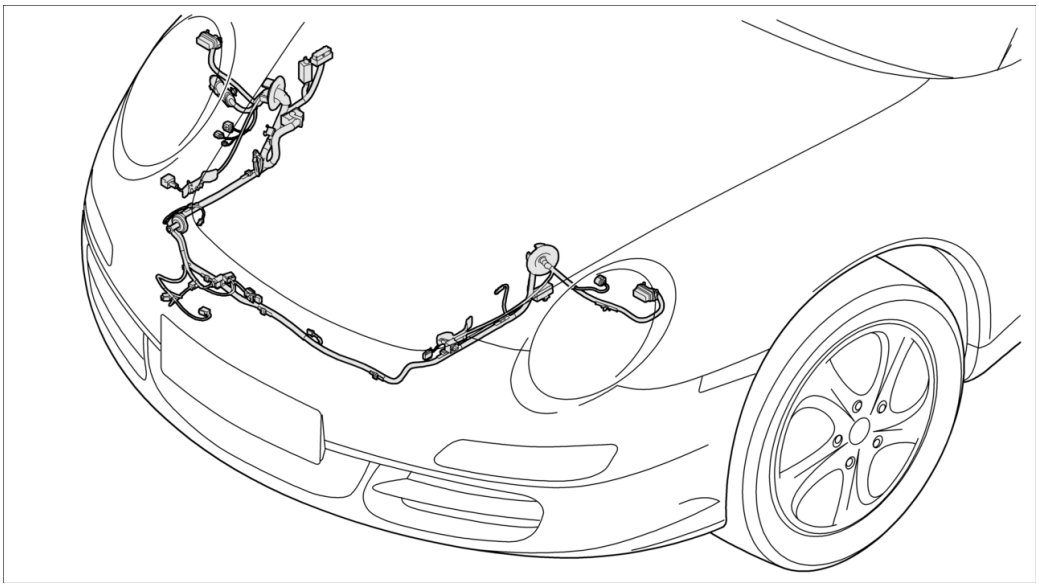
1. Disconnect battery. *271000 Work instructions after disconnecting the battery*
2. Remove luggage compartment linings 703019 Removing and installing luggage-compartment cover - chapter on "Removing" [997110 997111 997120 997121 997310 997311 997320 997321] *703019 21 Removing and installing luggage-compartment cover - chapter on "Removing" [997410 997411 997430 997431 997610 997611 997620 997621]*
3. Remove front-end control unit. 944919 Removing and installing front-end control unit - chapter on "Removing"
4. Remove left and right headlight. 941519 Removing and installing headlight - chapter on "Removing"
5. Remove front apron. 631519 Removing and installing front apron - chapter on "Removing"

top of page

Removing wire harness for front-end

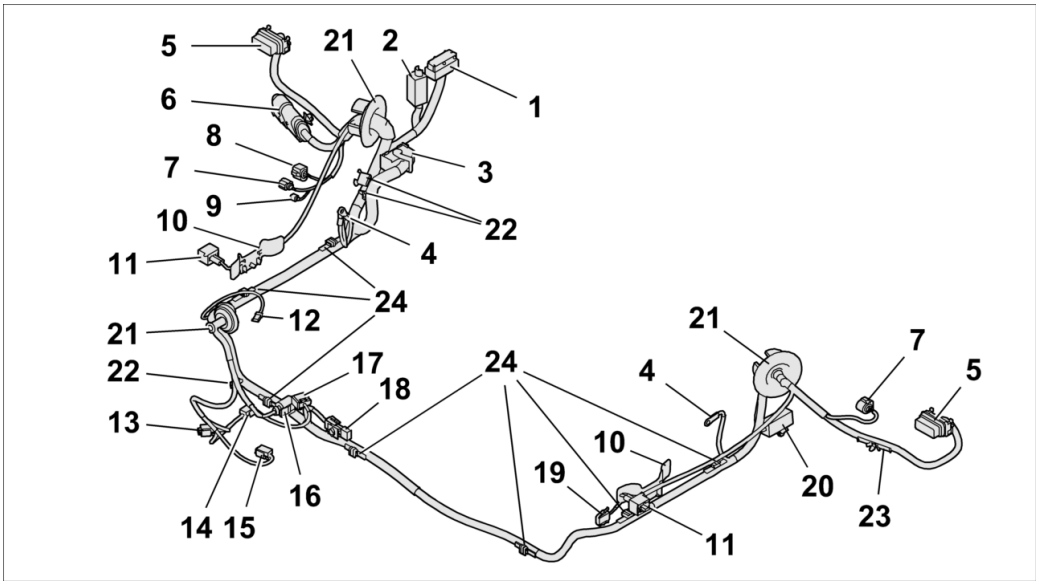
Removing wire harness for front-end

Installation Location:



Installation position for wire harness at front end of car, shown on 911

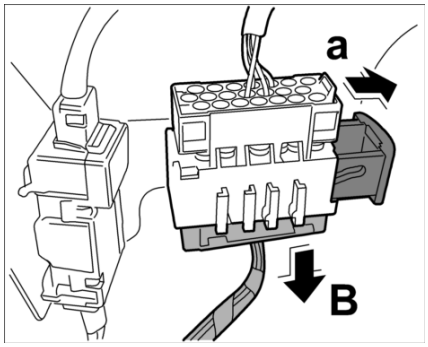
Installation Location:



Overview of connectors for front-end wire harness

1 - Plug connection for front-end wire harness to main wire harness, right
2 - Fuse box for fan
3 - Connector for front-end control unit
4 - Ground point, left and right
5 - Connector for headlight, left and right
6 - Plug connection between front-end wire harness and front apron wire harness
7 - Plug connection for coolant fan
8 - Connector for control unit for coolant control
9 - Connector for control unit for coolant control
10 - Cable guide for sensor line for airbag, front left and right
11 - Connector for sensor line for airbag, front left and right

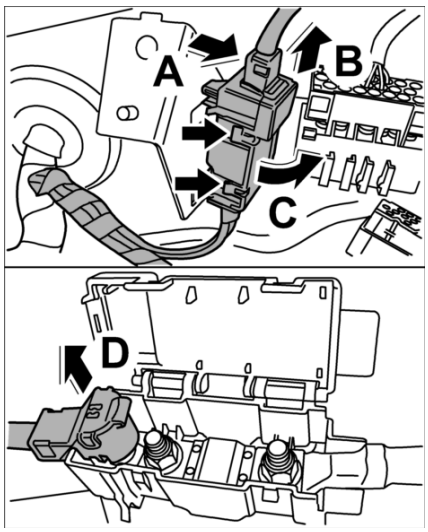
12 - Connector for emergency release, front
13 - Connector for outside temperature sensor
14 - Connector for horn, high-pitch
15 - Connector for horn, low-pitch
16 - Connector for servo motor for front lid release
17 - Connector for control unit for garage door opener/HomeLink
18 - Plug connection for microswitch for roof lock, front
19 - Connector for servo motor for lid, front
20 - Plug connection between front-end wire harness and main wire harness, left
21 - Grommet
22 - Tie-wrap
23 - Line holder
24 - Line holder



Disconnecting plug connection between front-end wire harness and main wire harness, right

1. Disconnect plug connection between front-end wire harness and main wire harness, right **-1-** .

1.1. Release plug connection between front-end wire harness and main wire harness, right **-arrow a-** and disconnect **-arrow B-** .



Pulling off connector on fuse box for fan

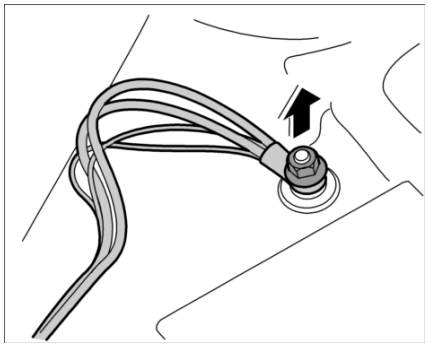
2. Pull off connector on fuse box for fan **-2-** .

2.1.

Unclip fuse box for fan **-arrow A-** and lift up and off **-arrow B-** .

2.2. Release lid **-arrows-** and open **-arrow C-** .

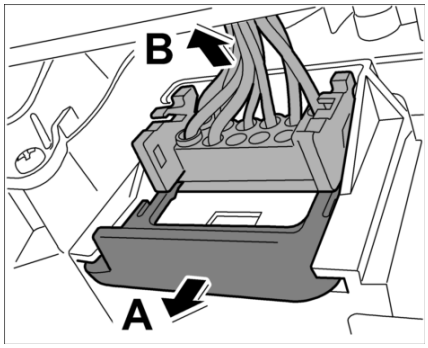
2.3. Pull off connector on fuse box for fan **-arrow D-** .



Loosening ground point

3. Loosen ground point **-4-** at left and right.

3.1. Screw off fastening nut and remove ground straps.

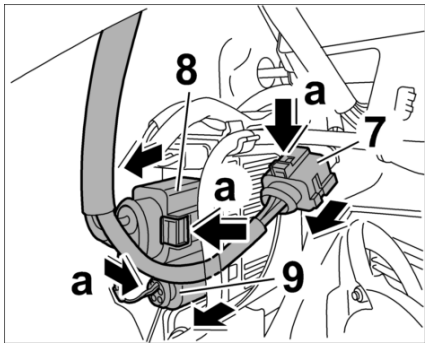


Pulling off connector on headlight

4. Pull off connector on headlight **-5-** at left and right.

4.1. Pull securing clip down and out **-arrow A-** .

4.2. Pull off connector on headlight at left and right **-arrow B-** .



Removing plug on control unit for coolant control

5. Pull off connector and plug connection on control unit for coolant control **-7 to 9-** .

5.1. Release and remove plug connection to coolant fan **-7-** .

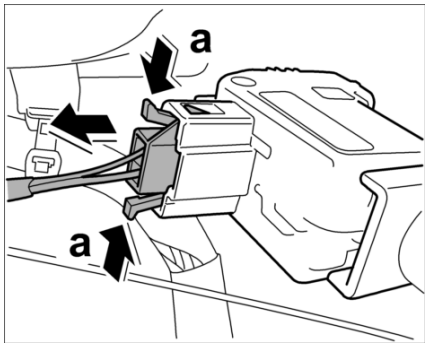
5.2. Release and remove connector on control unit for coolant control **-8 and 9-** .

6. Unclip cable guide for sensor line for front airbag **-10-** .
7. Release connectors on both sensors for front airbag **-11-** and pull them off. 695119 Removing and installing airbag sensor - chapter on "Removing"
8. Unclip front-end wire harness on right side at tie-wraps **-22-** .
9. Unclip front-end wire harness on left side at holders **-23-** .

Note

Only for USA/Canada version vehicles

10. Release connector on front emergency release **-12-** and pull it off. 556219 Removing and installing front emergency release - chapter on "Removing" [997410 997430 997610 997620] 556219 Removing and installing front emergency release - chapter on "Removing" [997110 997120 997310 997320] *556219 21 Removing and installing front emergency release - chapter on "Removing" [997111 997121 997311 997321 997411 997431 997611 997621]*
11. Release connector for outside temperature sensor **-13-** and pull it off. 916819 Removing and installing outside temperature sensor - chapter on "Removing"
12. Release connectors on both horns **-14 and 15-** and pull them off. 905019 Removing and installing horn - chapter on "Removing"
13. Release and pull off connector on servo motor for front lid release **-16-** . 551319 Removing and installing release for front lid - chapter on "Removing"
14. Release and pull off connector on control unit for garage door opener/HomeLink **-17-** . 967919 Removing and installing control unit for garage door opener - chapter on "Removing"
15. Unclip front-end wire harness on right side at tie-wraps **-22-** .
16. Release and disconnect plug connection on microswitch for front lid lock lower part **-18-** . 551719 Removing and installing front lid lock lower part - chapter on "Removing"



Pull off connector on servo motor for front lid

17. Release connector on servo motor for front lid **-19-** and **-arrows a-** pull it off.
18. Release plug connection for front-end wire harness to main wire harness, left **-20-** and disconnect.
19. Pull off holders **-24-** .
20. Remove the three grommets **-21-** and pull the wire harness through the openings in the body.
21. Remove wire harness for front-end.

top of page

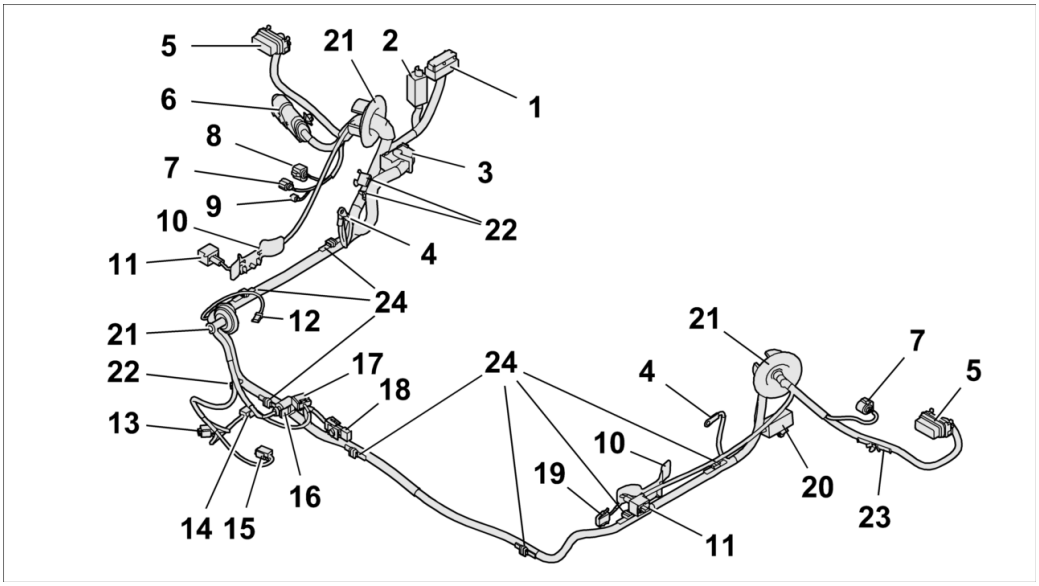
Installing wire harness for front-end

Installing wire harness for front-end

Note

The wire harness for front end spare parts scope means the scope for fully-equipped vehicles. Depending on the vehicle equipment, connectors not required are tied to the wire harness for front end using tie-wraps. When doing this, ensure the lines are routed correctly so that no line becomes trapped or damaged.

Installation Location:

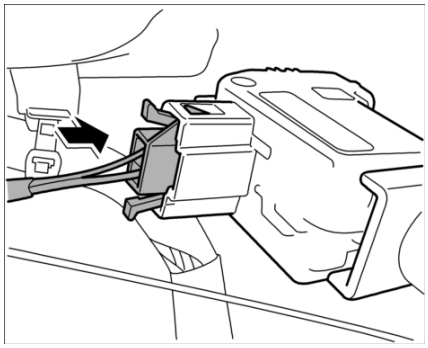


Overview of connectors for front-end wire harness

1 - Plug connection for front-end wire harness to main wire harness right
2 - Fuse box for fan
3 - Connector for front-end control unit
4 - Ground point, left and right
5 - Connector for headlight, left and right
6 - Plug connection between front-end wire harness and front apron wire harness
7 - Plug connection for coolant fan
8 - Connector for control unit for coolant control
9 - Connector for control unit for coolant control
10 - Cable guide for sensor line for airbag, front left and right
11 - Connector for sensor line for airbag, front left and right
12 - Connector for emergency release, front
13 - Connector for outside temperature sensor
14 - Connector for horn, high-pitch

15 - Connector for horn, low-pitch
16 - Connector for servo motor for front lid release
17 - Connector for control unit for garage door opener/HomeLink
18 - Plug connection for microswitch for roof lock, front
19 - Connector for servo motor for lid, front
20 - Plug connection for front-end wire harness to main wire harness, left
21 - Grommet
22 - Tie-wrap
23 - Line holder
24 - Line holder

1. Lay wire harness for front-end.
2. Push the wire harness for the front-end through the openings in the body and fit the three grommets **-21-** .
3. Fasten wire harness for the front-end with the holders **-24-** to the body.
4. Push together plug connection for front-end wire harness to main wire harness, left **-20-** until it engages securely.



Pushing connector onto servo motor for front lid

5. Push connector onto servo motor for front lid **-19-** .

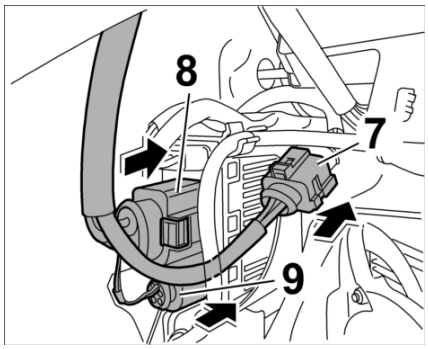
5.1. Push connector onto servo motor for front lid until it is felt to engage.

6. Push together plug connection on microswitch for front lid lock lower part **-18-** until it is felt to engage. 551719 Removing and installing front lock lower part - chapter on "Installing"
7. Clip in front-end wire harness on right side at tie-wraps **-22-** .
8. Push connector onto control unit for garage door opener/HomeLink **-17-** until it is felt to engage. 967919 Removing and installing control unit for garage door opener - chapter on "Installing"
9. Push connector onto servo motor for front lid release **-16-** until it is felt to engage. 551319 Removing and installing release for front lid - chapter on "Installing"
10. Push connectors onto the two horns **-14 and 15-** until they click into place. 905019 Removing and installing horn - chapter on "Installing"
11. Push connector onto outside temperature sensor **-13-** until it is felt to engage. 916819 Removing and installing outside temperature sensor - chapter on "Installing"

Note

Only for USA/Canada version vehicles

12. Push connector onto front emergency release **-12-** until it is felt to engage. 556219 Removing and installing front emergency release - chapter on "Installing" [997410 997430 997610 997620] 556219 Removing and installing front emergency release - chapter on "Installing" [997110 997120 997310 997320] *556219 23 Removing and installing front emergency release - chapter on "Installing" [997111 997121 997311 997321 997411 997431 997611 997621]*
13. Clip in front-end wire harness on left side at holder **-23-** .
14. Clip in front-end wire harness on right side at tie-wraps **-22-** .
15. Push connectors onto both sensors for front airbag **-11-** until they are felt to engage. 695119 Removing and installing airbag sensor - chapter on "Installing"
16. Clip in cable guide for sensor line for front airbag **-10-** .

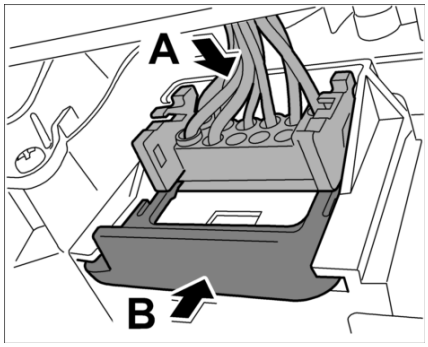


Pushing connectors onto control unit for coolant control.

17. Push connector and plug connection onto control unit for coolant control **-7 to 9-** .

17.1. Push the two connectors onto the control unit for coolant control **-8 and 9-** until they are felt to engage.

17.2. Push on plug connection to coolant fan **-7-** until it is felt to engage.

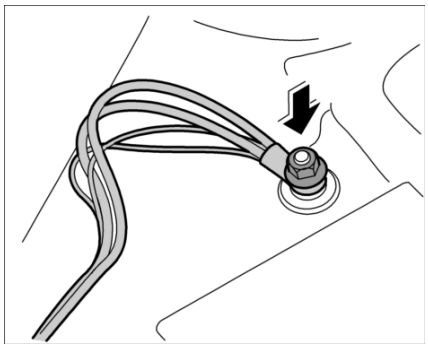


Pushing connector onto headlight

18. Push connector onto headlight **-5-** at left and right.

18.1. Push connector onto headlight at left and right **-Arrow A-** .

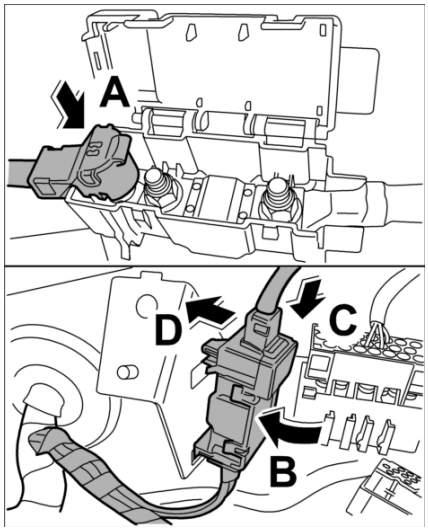
18.2. Push on securing clip from below until it is felt to engage **-Arrow B-**
.



Securing ground point

19. Fasten ground point **-4-** at left and right.

19.1. Connect ground straps and screw down fastening nut. **Tightening torque: 9 (6.5 ftlb.) Nm**



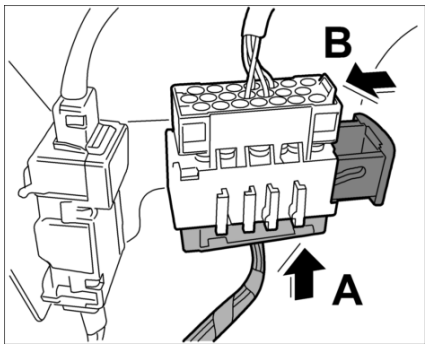
Pushing connector onto fuse box for fan

20. Push connector onto fuse box for fan **-2-** .

20.1. Push connector onto fuse box for fan **-Arrow A-** .

20.2. Close lid **-Arrow B-** until it is felt to engage.

20.3. Position fuse box below on the clip **-Arrow C-** and clip in **-Arrow D-** .



Pushing together plug connection between front end wire harness and main wire harness, right

21. Push together plug connection between front end wire harness and main wire harness, right **-1-** .

21.1. Push together plug connection between front end wire harness and main wire harness, right **-Arrow A-** and lock **-Arrow B-** until it is felt to engage.

top of page

Subsequent work

Subsequent work

1. Install front apron. 631519 Removing and installing front apron - chapter on "Installing"
2. Install headlight at left and right. 941519 Removing and installing headlight - chapter on "Installing"
3. Installing front-end control unit 944919 Removing and installing front-end control unit - chapter on "Installing"
4. Install linings for luggage compartment. 703019 Removing and installing luggage compartment cover - chapter on "Installing" [997110 997111 997120 997121 997310 997311 997320 9973211] *703019 23 Removing and installing luggage compartment cover - chapter on "Installing" [997410 997411 997430 997431 997610 997611 997620 997621]*
5. Carry out work instructions after disconnecting the battery. *271000 Work instructions after disconnecting the battery*

997110, 997111, 997120, 997121, 997310, 997311, 997320, 997321, 997410, 997411, 997430, 997431, 997610, 997611, 997620, 997621

as of MY 2005
Country C00, C02, C05, C07, C08, C09, C10, C11, C12, C13, C14, C15, C16, C18, C19, C20, C21, C22, C23, C24, C25, C26, C27, C28, C32, C33, C34, C35, C36, C37, C38, C39, C45, C46, C98, C99

WARNUNG

Gefahr des Verlusts der Text-Bild-Zuordnung beim Ausdruck.

- **Aus technischen Gründen kann derzeit nicht ausgeschlossen werden, dass trotz einwandfreier Darstellung auf dem Bildschirm beim Ausdruck der Zusammenhang von Text und zugehörigem Bild verloren geht.**
- **Wird der Fehler nicht bemerkt, besteht die Gefahr, daß Arbeiten nicht korrekt durchgeführt werden und es dadurch zu Personen- und Sachschäden kommt.**

Vergleichen Sie deshalb nach dem Druckvorgang unbedingt die Ausdrucke mit der Bildschirmdarstellung. Korrigieren Sie die Ausdrucke im Fehlerfall so, daß der Inhalt der Bildschirmdarstellung zutreffend wiedergegeben wird.

WARNING

Danger of losing text-figure correspondence when printing out.

- **For technical reasons, it can currently not be ruled out that the correspondence between text and associated figure can be lost when it is printed out, even though the display on the screen is correct.**

97 20 19 Removing and installing wiring harness for centre console - as of MY 2005

- Preliminary work
- Removing wiring harness for centre console
- Installing wiring harness for centre console
- Subsequent work

top of page

Preliminary work

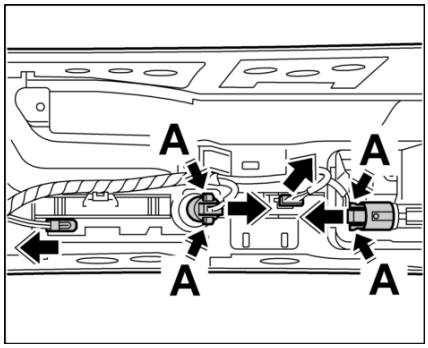
Preliminary work for interior monitoring sensor

Remove centre console. 681719 Removing and installing centre console - chapter on "Removing"

top of page

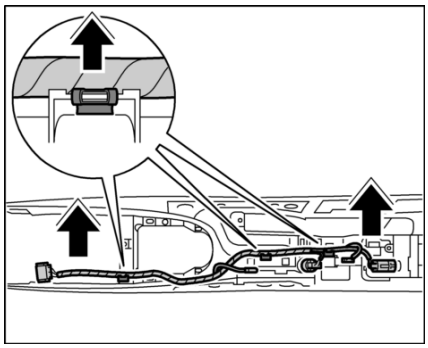
Removing wiring harness for centre console

Removing wiring harness for centre console



Releasing and unplugging connectors

1. Release electric connectors for the equipment versions (e.g. cigarette lighter, interior sensor etc. **-A-** and unplug.



Disengaging wiring harness

2. Disengage retaining clips with wiring harness on centre console and remove the harness.

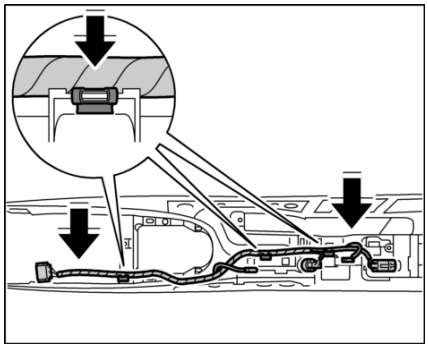
top of page

Installing wiring harness for centre console

Installing wiring harness for centre console

Note

The wire harness for centre console spare parts scope means the scope for fully-equipped vehicles. Depending on the vehicle equipment, connectors not required are tied to the wire harness for centre console using tie-wraps.
When doing this, ensure the lines are routed correctly so that no line becomes trapped or damaged.



Laying wiring harness

1. Lay wiring harness with retaining clips in centre console and push on retaining clips at the points provided.
2. Push electric connectors onto equipment versions until they are felt to engage.

top of page

Subsequent work

Subsequent work for interior monitoring sensor

Install centre console. 681719 Removing and installing centre console - chapter on "Installing"

997110, 997111, 997120, 997121, 997310, 997311, 997320, 997321, 997410, 997411, 997430, 997431, 997610, 997611, 997620, 997621

as of MY 2005
Country C00, C02, C05, C07, C08, C09, C10, C11, C12, C13, C14, C15, C16, C18, C19, C20, C21, C22, C23, C24, C25, C26, C27, C28, C32, C33, C34, C35, C36, C37, C38, C39, C45, C46, C98, C99

WARNUNG

Gefahr des Verlusts der Text-Bild-Zuordnung beim Ausdruck.

- **Aus technischen Gründen kann derzeit nicht ausgeschlossen werden, dass trotz einwandfreier Darstellung auf dem Bildschirm beim Ausdruck der Zusammenhang von Text und zugehörigem Bild verloren geht.**
- **Wird der Fehler nicht bemerkt, besteht die Gefahr, daß Arbeiten nicht korrekt durchgeführt werden und es dadurch zu Personen- und Sachschäden kommt.**

Vergleichen Sie deshalb nach dem Druckvorgang unbedingt die Ausdrucke mit der Bildschirmdarstellung. Korrigieren Sie die Ausdrucke im Fehlerfall so, daß der Inhalt der Bildschirmdarstellung zutreffend wiedergegeben wird.

WARNING

Danger of losing text-figure correspondence when printing out.

- **For technical reasons, it can currently not be ruled out that the correspondence between text and associated figure can be lost when it is printed out, even though the display on the screen is correct.**
- **If the fault is not noticed, there is the danger that work will not be performed correctly which can cause injury and damage.**

Therefore, always compare printouts with the screen display after printing them out. Correct the printouts if they are faulty so that the content of the screen display matches that on the printouts.

AVERTISSEMENT

Risque de perte de la correspondance texte-illustration lors de l'impression papier.

97 25 19 Removing and installing rear wire harness - as of MY 2005

- Preliminary work
- Removing rear wire harness
- Installing rear wire harness
- Subsequent work

Tools

Designation	Type	Number	Explanation	
Disassembly tool, universal	commercially available tool	NR.21		

top of page

Preliminary work

Preliminary work

1. Disconnect battery. *271000 Work instructions after disconnecting the battery*
2. Remove front seat at left and right. 720119 Removing and installing front seat - section on "Removing" [997310 997320 997610 997620] 720119 Removing and installing front seat - section on "Removing" [997311 997321 997611 997621]
3. Remove left and right scuff plate. 680519 Removing and installing inner door sill trim - section on "Removing"
4. Remove rear side trim panel at left and right. 707519 Removing and installing rear side trim panel - section on "Removing"

Note

Only in the coupé.

5. Remove C-pillar trim panel. *706819 21 Removing and installing C-pillar trim panel - section on "Removing"*
6. Removing rear wall trim panel 703119 Removing and installing trim panel for rear wall - section on "Removing" [997310 997311 997320 997321] *703119 21 Removing and installing trim panel for rear wall - section on "Removing" [997610 997611 997620 997621]*

7. Remove trim panel for seat well. *702919 21 Removing and installing trim panel for seat well - section on "Removing"*
8. Remove relay carrier. 979019 Removing and installing relay carrier - section on "Removing"

Note

Only in the cabriolet.

9. Remove frame for roll-over protection system. 697719 Removing and installing frame for roll-over protection system - section on "Removing"

Note

Only in the cabriolet.

10. Remove rear window lifter. 647119 Removing and installing rear power windows - section on "Removing"

Note

Only in the cabriolet.

11. Remove roll-over bar. 697219 Removing and installing roll-over bar - section on "Removing" [997610] 697219 Removing and installing roll-over bar - section on "Removing" [997310 997311 997320 997321 997611 997620 997621]
12. Remove auxiliary brake light. 947019 Removing and installing auxiliary brake light - section on "Removing"
13. Remove rear light at left and right. 943119 Removing and installing rear light - section on "Removing"
14. Remove rear spoiler. 635519 Removing and installing rear spoiler - section on "Removing" [997310 997311 997610 997611] 635519 Removing and installing rear spoiler - section on "Removing" [997320 997321 997620 997621]
15. Remove air cleaner housing. 242519 Removing and installing air cleaner housing - section on "Removing"
16. Remove reservoir. 194019 Removing and installing reservoir - section on "Removing"
17. Remove rear underbody cover. 519419 Removing and installing rear cover - section on "Removing"

Note

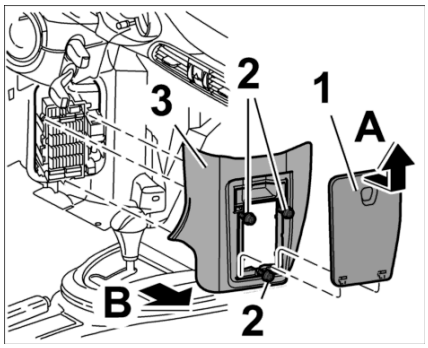
Only for vehicles with tyre pressure monitoring

18. Remove rear wheel housing liner. 536919 Removing and installing rear wheel housing liner - section on "Removing" [997610 997611 997620 997621] 536919 Removing and installing rear wheel housing liner - section on "Removing" [997310 997311 997320 997321]

top of page

Removing rear wire harness

Exposing rear wire harness

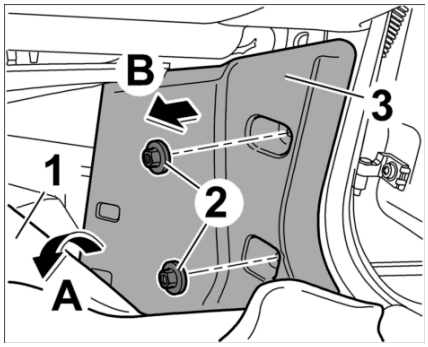


Removing lateral footwell trim on driver's side

1. Remove left footwell trim panel.

1.1. Remove fuse carrier cover **-1-** (**-arrow A-**).

1.2. Unscrew the three fastening screws **-2-** and take off the footwell trim panel **-3-** (**-arrow B-**).

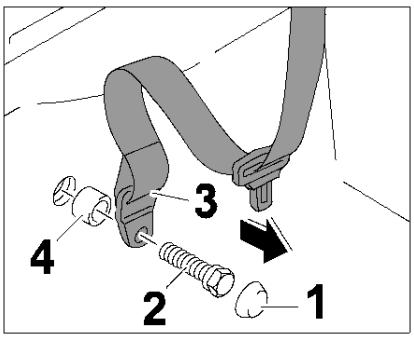


Removing lateral footwell trim on passenger's side

2. Remove right footwell trim panel.

2.1. Partly loosen floor covering **-1-** at the bottom in the area of the A-pillar **-arrow A-**
.

2.2. Unscrew both plastic nuts **-2-** and take off the footwell trim panel **-3-** (**-arrow B-**).

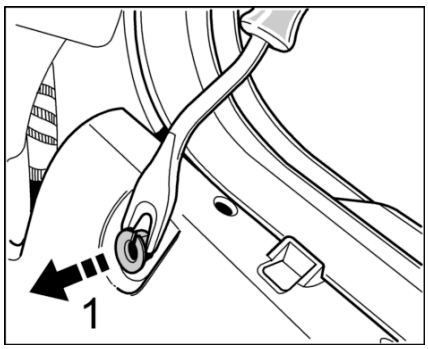


Undoing seat belt and fitting

3. Loosen seat belt mount at left and right.

3.1. Press off cap **-1-** with a screwdriver and unscrew the fastening screw **-2-** . Remove seat belt with fitting **-3-** and spacer sleeve **-4-** .

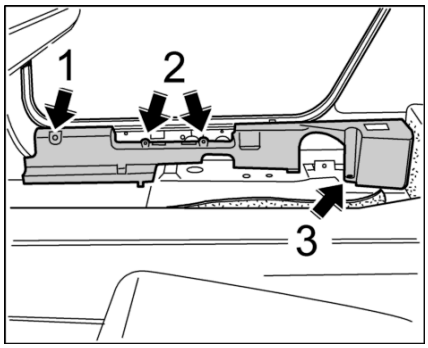
4. Disengage floor covering at the support and lay it in the vehicle interior.



Unlocking locating peg using the removal tool

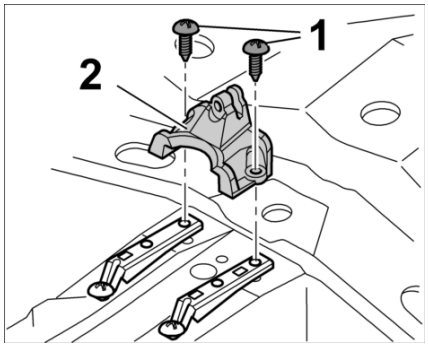
5. Remove left and right support.

5.1. Unlock locating peg **-1-** of the support using the commercially available removal tool **Disassembly tool, universal NR.21**.



Unscrewing fastening screws

5.2. Unscrew fastening screws **-2-** and nuts **-3-** and carefully pull the support up and out of the retaining points.



Removing mounting saddle for rear-seat backrest

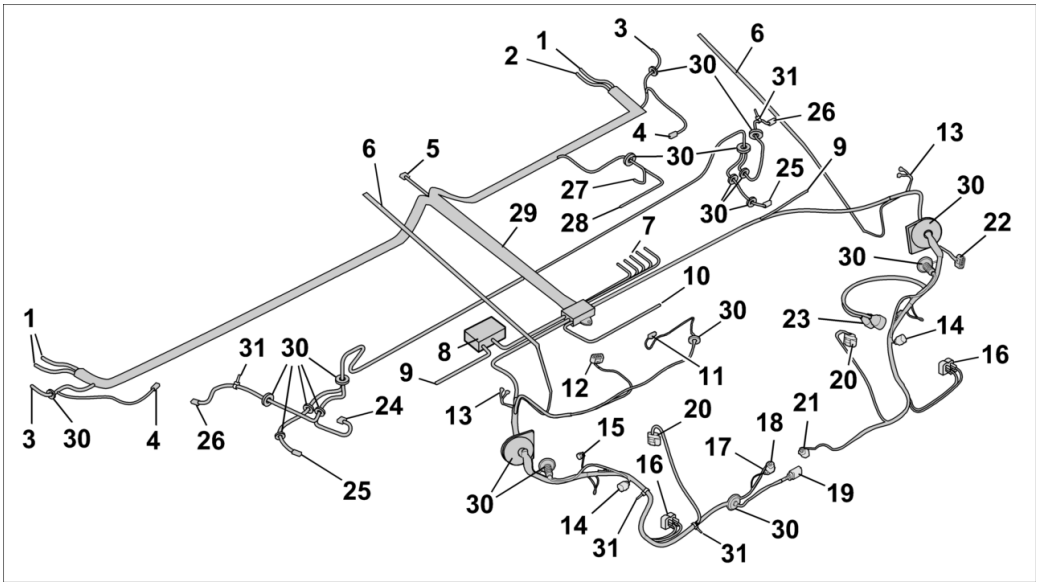
6. Remove mounting saddle for rear-seat backrest.

6.1. Unscrew the two fastening screws **-1-** and remove mounting saddle for rear-seat backrest **-2-** .

7. Remove insulating elements in the area of the rear wire harness.

Removing rear wire harness

Installation Location:



Overview of plugs for rear wire harness

1 - Plug connection for main wire harness to rear wire harness, left and right
2 - Tiptronic control unit connector
3 - Connector for seat-belt tensioner, left and right
4 - Connector for rear loudspeaker, left and right
6 - Plug connection for rear window heating, left and right
7 - DME control module connector
8 - Rear relay carrier
9 - PASM connector, left and right
10 - Subwoofer connector
11 - Connector for auxiliary brake light
12 - Connector for wiper motor for rear window washer
13 - Ground point, left and right
14 - Connector for rear light, left and right
15 - Connector for engine coolant level switch
16 - Plug connection for oxygen sensor, left and right
17 - Plug connection for rear lock lower part
18 - Connector for motor for rear lid release
19 - Plug connection for wire harness for number plate light
20 - Plug for hot-film mass air flow meter
21 - Connector for air cleaner flap
22 - Plug connection for rear wire harness to wire harness for rear lid
23 - Plug connection for rear wire harness to engine wire harness
24 - Plug for angle sensor for HBA, rear left

25 - Plug connection for rear wheel sensor, left and right

26 - Connector for tyre pressure monitoring system antenna, rear left and right

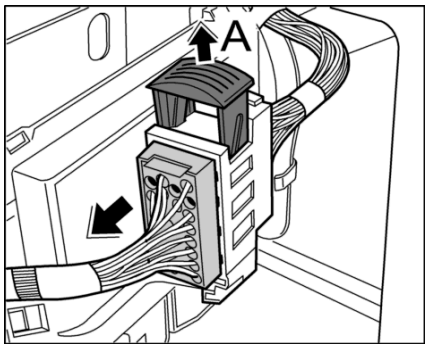
27 - B+ lead for transmission

28 - Connector for reversing light switch

29 - Cable duct

30 - Rubber sleeves

31 - Tie-wrap



Releasing plug connection for main wire harness to rear wire harness

1. Disconnect plug connection for main wire harness to rear wire harness **-1-** at left and right.

1.1. Release and disconnect plug connection for main wire harness to rear wire harness **-1-** (**-arrow A-**).

2. Release and pull off connector on Tiptronic control unit **-2-** . 373019 Removing and installing transmission control module - section on "Removing"

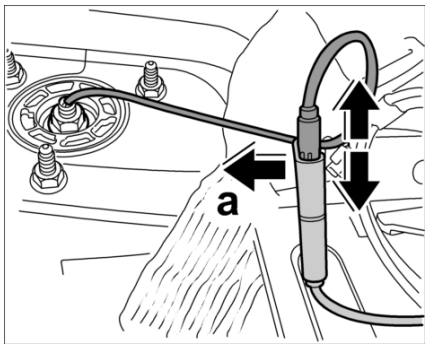
3. Pull off connector on seat-belt tensioner **-3-** at left and right. 691319 Removing and installing front three-point seat belt with tensioner - section on "Removing"

3.1. Release and pull off connector on seat-belt tensioner **-3-** at left and right.

3.2. Remove rubber sleeve **-30-** .

4. Release and disconnect plug connection for rear window heating **-6-** at left and right. 648619 Removing and installing rear window - section on "Removing"

5. Release and pull off connector on DME control module **-7-** . 247019 Removing and installing DME control module - section on "Removing" [997310 997311 997320 997321 997611 997620 997621] 247019 Removing and installing DME control module - section on "Removing" [997610]



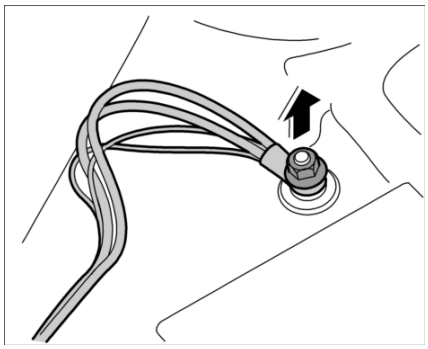
Disconnecting PASM plug connection

6. Disconnect PASM plug connection **-9-** at left and right.

6.1.

Release and disconnect PASM plug connection **-9-** (**-arrow a-**).

7. Release and pull off connector on subwoofer **-10-** . 913619 Removing and installing subwoofer - section on "Removing"
8. Release and pull off connector on wiper motor for rear window washer **-12-** . 923419 Removing and installing wiper motor for rear window washer - section on "Removing"

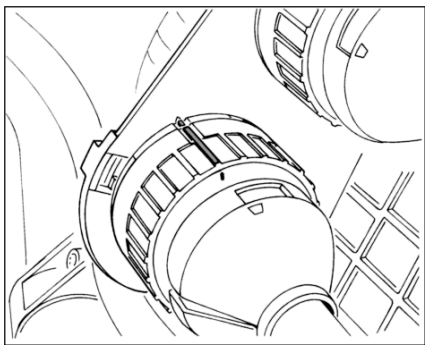


Loosening ground point

9. Loosen ground point **-13-** at left and right.

9.1. Screw off fastening nut and remove ground straps.

10. Unclip cable duct **-29-** .
11. Unclip tie-wrap **-31-** .
12. Release and disconnect plug connection for oxygen sensor **-16-** at left and right. 246919 Removing and installing oxygen sensor ahead of catalytic converter - section on "Removing"
13. Release and disconnect plug connection on rear lock lower part **-17-** . 558619 Removing and installing rear lock lower part - section on "Removing"
14. Release and pull off connector on motor for rear lid release **-18-** . 558419 Removing and installing motor for rear lid release - section on "Removing"
15. Release and disconnect plug connection for rear wire harness to wire harness for rear lid **-22-** . 559019 Removing and installing rear lid - section on "Removing"



Round connectors for engine wire harness

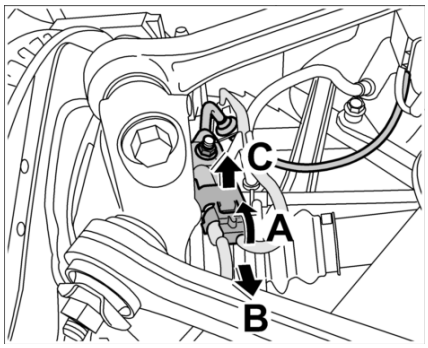
16. Disconnect plug connection for rear wire harness to engine wire harness **-23-** . 100119 Removing and installing engine - section on "Removing"

16.1. Release rear wire harness at the two plug connections and disconnect it by turning the bayonet locks anti-clockwise.

17. Disconnect plug on angle sensor for HBA at rear left **-24-** . 947919 Removing and installing rear angle sensor for headlight levelling system - section on "Removing"

17.1. Release and pull off connector on angle sensor for HBA at rear left **-24-** .

17.2. Remove rubber sleeve **-30-** .



Disconnecting plug connection for rear wheel sensor

18. Disconnect plug connection for rear wheel sensor **-25-** at left and right.

18.1. Release the cable retainer **-arrow A-** and pull off the two connectors **-arrow B-** .

18.2. Unscrew the fastening nut and remove the connector socket **-arrow C-** .

18.3. Remove rubber sleeve **-30-** .

19. Pull off connector on rear antenna for tyre pressure monitoring system **-26-** at left and right. 443819 Removing and installing antenna for tyre pressure monitoring system - section on "Removing"

19.1. Unclip tie-wrap **-31-** .

19.2. Release and pull off connector on rear antenna for tyre pressure monitoring system **-26-** at left and right.

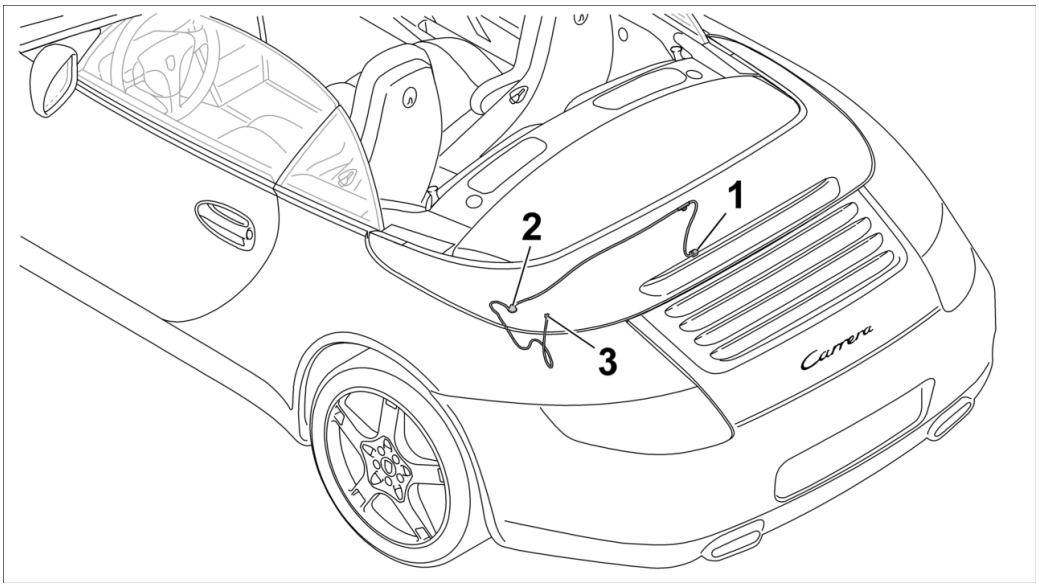
19.3. Remove rubber sleeve **-30-** .

20. Screw off B+ lead **-27-** on transmission. 343519 Removing and installing transmission - section on "Removing" [997610 997611 997620 997621] 343519 Removing and installing transmission - section on "Removing" [997310 997311 997320 997321]

21. Release and pull off connector on reversing light switch **-28-** . 947219 Removing and installing reversing light switch - section on "Removing"

22. Pull rear wire harness out of the engine compartment through the opening in the rear wall into the interior of the vehicle and remove it.

Removing wire harness for auxiliary stop light (Cabriolet)

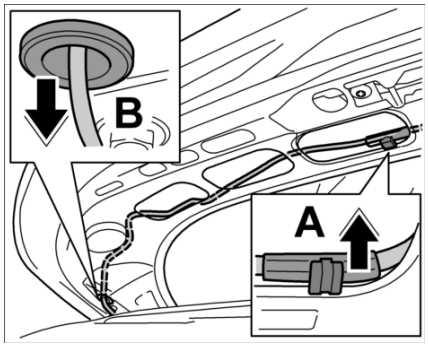


Overview of wire harness for auxiliary stop light

1 - Connector for auxiliary stop light

2 - Rubber sleeve

3 - Plug connection between wire harness for auxiliary stop light and rear wire harness

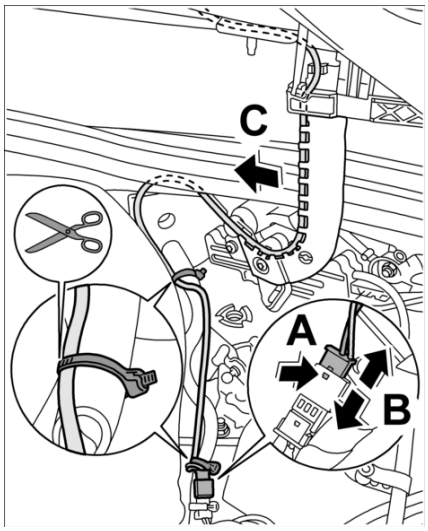


Removing rubber sleeve on wire harness for auxiliary stop light

1. Loosen wire harness for auxiliary stop light on convertible top compartment lid and remove rubber sleeve **-2-** .

1.1. Remove wire harness for auxiliary stop light on holder from convertible top compartment lid **-arrow A-** .

1.2. Remove rubber sleeve of wire harness for auxiliary stop light on convertible top compartment lid **-arrow B-** and pull out wire harness for auxiliary stop light downward from the convertible top compartment lid.



Disconnecting plug connection between wire harness for auxiliary stop light and rear wire harness

2. Disconnect wire harness plug connection for auxiliary stop light to rear wire harness **-3-** and expose wire harness for auxiliary stop light.

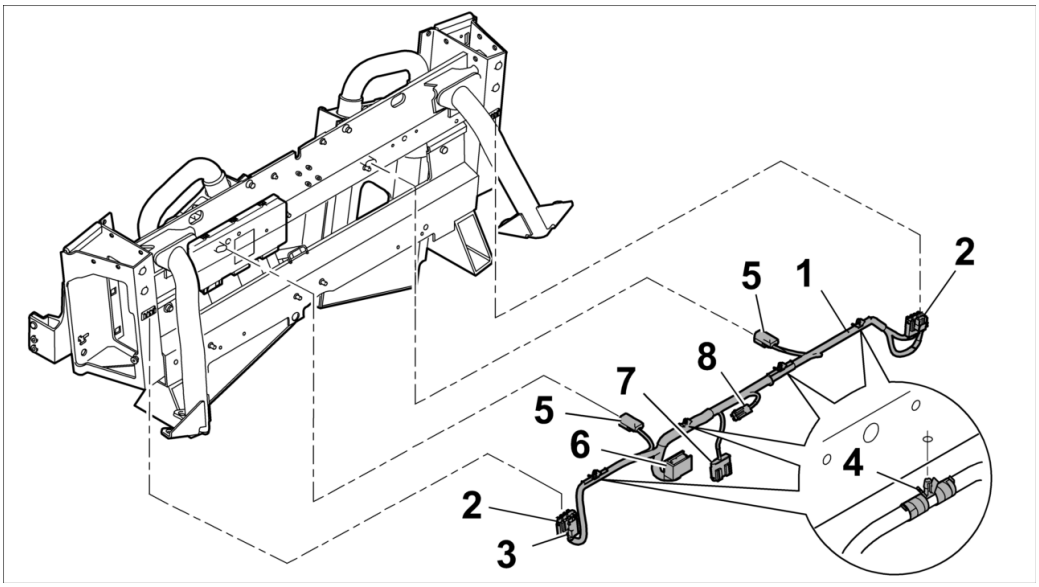
2.1. Cut both tie-wraps on the wire harness for auxiliary stop light.

2.2. Release wire harness plug connection for auxiliary stop light to rear wire harness **-arrow A-** and disconnect **-arrows B-** .

2.3. Pull wire harness for auxiliary stop light out of the fastening part **-arrow C-** .

Removing wire harness for roll-over protection system (cabriolet)

Installation Location:



Overview of plugs for wire harness for roll-over protection system

1 - Wire harness for roll-over protection system

2 - Plug connection for rear side panel flap

3 - Hardtop mount plug connection

4 - Retaining clips
5 - Roll-over bar connector
6 - Convertible top control unit connector
7 - Plug connection for wire harness for roll-over protection system to rear wire harness
8 - Plug connection for motor for convertible-top compartment lid drive mechanism

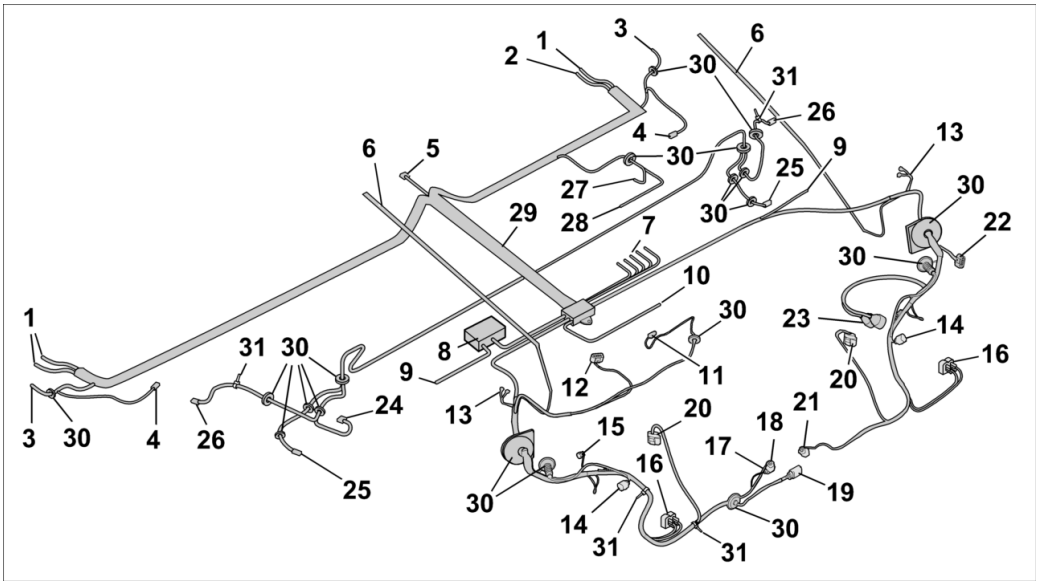
1. Release and disconnect plug connection for hardtop mount **-3-** . 611719 Removing and installing hardtop mount - section on "Removing"
2. Release and disconnect plug connections for rear side panel flap **-2-** at left and right. 614219 Removing and installing rear side panel flap - section on "Removing"
3. Unclip and remove wire harness for roll-over protection system **-1-** at the retaining clips **-4-** .

top of page

Installing rear wire harness

Installing rear wire harness

Installation Location:



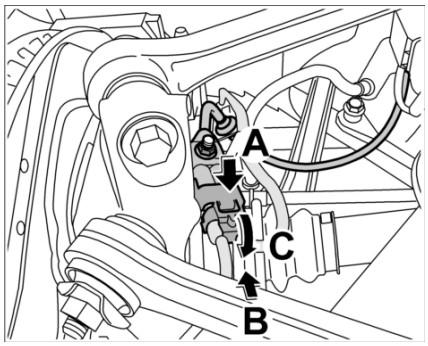
Overview of plugs for rear wire harness

1 - Plug connection for main wire harness to rear wire harness, left and right
2 - Tiptronic control unit connector
3 - Connector for seat-belt tensioner, left and right
4 - Connector for rear loudspeaker, left and right
6 - Plug connection for rear window heating, left and right
7 - DME control module connector

8 - Rear relay carrier
9 - PASM connector, left and right
10 - Subwoofer connector
11 - Connector for auxiliary brake light
12 - Connector for wiper motor for rear window washer
13 - Ground point, left and right
14 - Connector for rear light, left and right
15 - Connector for engine coolant level switch
16 - Plug connection for oxygen sensor, left and right
17 - Plug connection for rear lock lower part
18 - Connector for motor for rear lid release
19 - Plug connection for wire harness for number plate light
20 - Plug for hot-film mass air flow meter
21 - Connector for air cleaner flap
22 - Plug connection for rear wire harness to wire harness for rear lid
23 - Plug connection for rear wire harness to engine wire harness
24 - Plug for angle sensor for HBA, rear left
25 - Plug connection for rear wheel sensor, left and right
26 - Connector for tyre pressure monitoring system antenna, rear left and right
27 - B+ lead for transmission
28 - Connector for reversing light switch
29 - Cable duct
30 - Rubber sleeves
31 - Tie-wrap

1. Lay rear wire harness in interior of vehicle and push it into the engine compartment through the opening in the rear wall. Lay rear wire harness in engine compartment.
2. Plug in connector on reversing light switch **-28-** until it engages correctly. 947219 Removing and installing reversing light switch - section on "Installing"
3. Screw down B+ lead **-27-** on transmission. **Tightening torque: 10 (7.5 ftlb.) Nm** 343519 Removing and installing transmission - section on "Installing" [997610 997611 997620 997621] 343519 Removing and installing transmission - section on "Installing" [997310 997311 997320 997321]
4. Plug in connector on rear antenna for tyre pressure monitoring system **-26-** at left and right. 443819 Removing and installing antenna for tyre pressure monitoring system - section on "Installing"

4.1. Fit rubber sleeve **-30-** .
4.2. Plug in connector on rear antenna for tyre pressure monitoring system **-26-** at left and right until it engages securely.
4.3. Clip tie-wrap **-31-** into place.



Connecting plug connection for rear wheel sensor

5. Connect plug connection for rear wheel sensor **-25-** at left and right.

5.1. Fit rubber sleeve **-30-** .

5.2. Place socket in installation position **-arrow A-** and screw on the fastening nut. **Tightening torque: 10 (7.5 ftlb.) Nm**

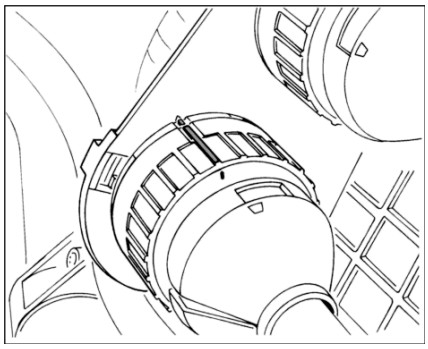
5.3. Plug in the two connectors **-arrow B-** .

5.4. Fold back the cable retainer **-arrow C-** until it engages correctly at the connectors.

6. Connect plug on angle sensor for HBA at rear left **-24-** . 947919 Removing and installing rear angle sensor for headlight levelling system - section on "Installing"

6.1. Fit rubber sleeve **-30-** .

6.2. Plug in connector on rear left angle sensor for HBA **-24-** until it engages firmly.



Round connectors for engine wire harness

7. Push plug connection for rear wire harness to engine wire harness **-23-** together. 100119 Removing and installing engine - section on "Installing"

7.1. Connect rear wire harness at the two plug connections and lock it by turning the bayonet locks clockwise.

8. Push plug connection for rear wire harness to wire harness for rear lid together **-22-** until it engages securely. 559019 Removing and installing rear lid - section on "Installing"

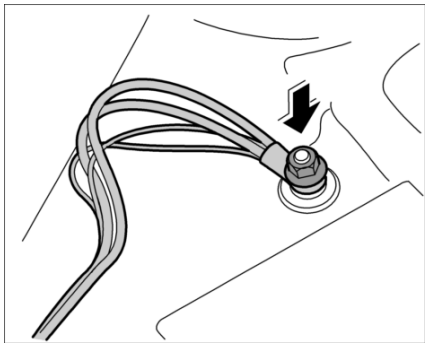
9. Plug in connector on motor for rear lid release **-18-** until it engages firmly. 558419 Removing and installing motor for rear lid release - section on "Installing"

10. Push plug connection on rear lock lower part **-17-** together until it engages securely. 558619 Removing and installing rear lock lower part - section on "Installing"

11. Push in plug connection for oxygen sensor **-16-** at left and right until it engages securely. 246919 Removing and installing oxygen sensor ahead of catalytic converter - section on "Installing"

12. Clip tie-wrap **-31-** into place.

13. Clip in cable duct **-29-** .



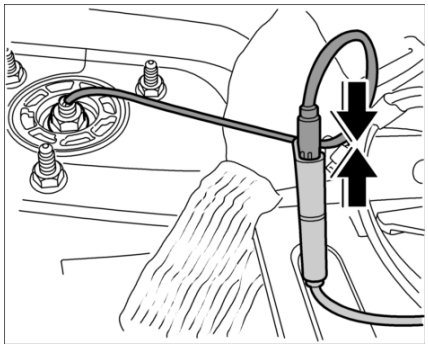
Securing ground point

14. Secure ground point **-13-** at left and right.

14.1. Connect ground straps and screw down fastening nut. **Tightening torque: 9 (6.5 ftlb.) Nm**

15. Plug in connector on wiper motor for rear window washer **-12-** until it engages correctly. 923419 Removing and installing wiper motor for rear window washer - section on "Installing"

16. Plug in connector on subwoofer **-10-** until it engages firmly. 913619 Removing and installing subwoofer - section on "Installing"



Connecting PASM plug connection

17. Connect PASM plug connection **-9-** at left and right.

17.1. Connect PASM plug connection **-9-** until it engages securely.

18. Plug in connector on DME control module **-7-** until it engages securely. 247019 Removing and installing DME control module - section on "Installing" [997310 997311 997320 997321 997611 997620 997621] 247019 Removing and installing DME control module - section on "Installing" [997610]

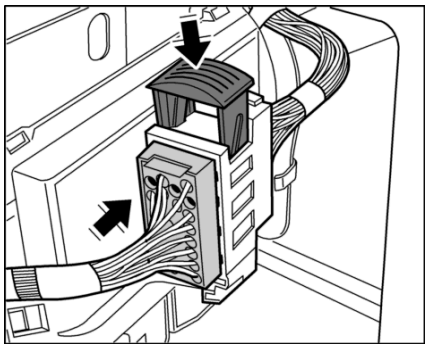
19. Push in plug connection for rear window heating **-6-** at left and right until it engages securely. 648619 Removing and installing rear window - section on "Installing"

20. Plug in connector on seat-belt tensioner **-3-** at left and right. 691319 Removing and installing front three-point seat belt with tensioner - section on "Installing"

20.1. Fit rubber sleeve **-30-** .

20.2. Plug in connector on seat-belt tensioner **-3-** at left and right until it engages securely.

21. Attach connector to Tiptronic control unit **-2-** and lock it until it engages firmly. 373019 Removing and installing transmission control module - section on "Installing"

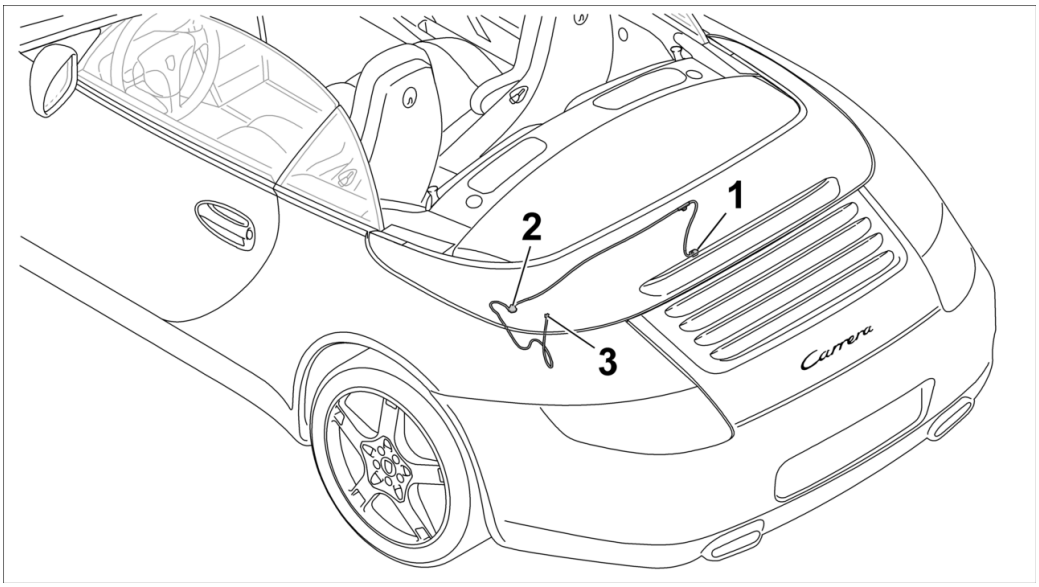


Connecting plug connection for main wire harness to rear wire harness

22. Push plug connection for main wire harness to rear wire harness **-1-** together at left and right.

22.1. Push plug connection for main wire harness to rear wire harness **-1-** together and lock it.

Installing wire harness for auxiliary stop light (Cabriolet)

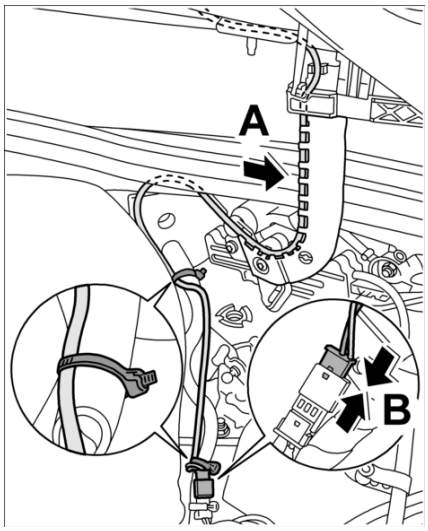


Overview of wire harness for auxiliary stop light

1 - Connector for auxiliary stop light

2 - Rubber sleeve

3 - Plug connection between wire harness for auxiliary stop light and rear wire harness



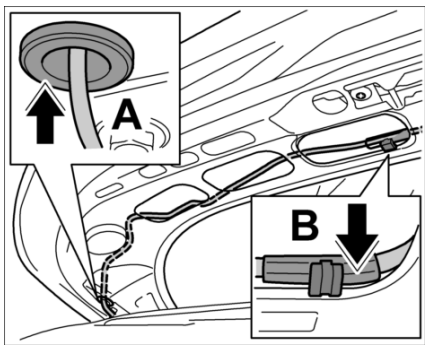
Pushing together plug connection between wire harness for auxiliary stop light and rear wire harness

1. Route wire harness for auxiliary stop light and push together wire harness plug connection for auxiliary stop light to rear wire harness **-3-** .

1.1. Press wire harness for auxiliary stop light into fastening part **-arrow A-** .

1.2. Push together plug connection between wire harness for auxiliary stop light and rear wire harness **-arrows B-** .

1.3. Fasten wire harness for auxiliary stop light with two new tie-wraps.



Fitting rubber sleeve on wire harness for auxiliary stop light

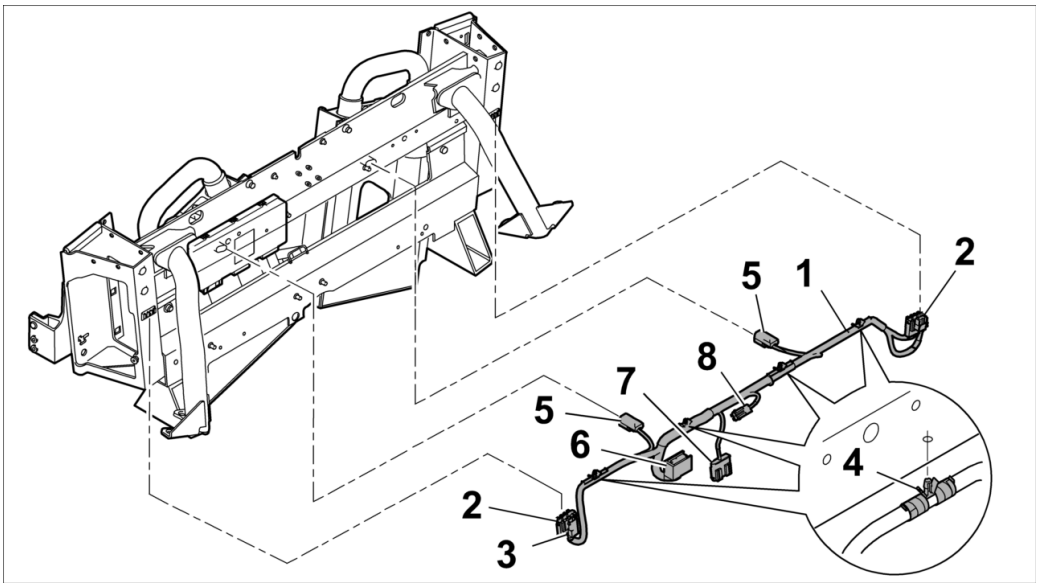
2. Fit rubber sleeve **-2-** of the wire harness for auxiliary stop light and fasten wire harness for auxiliary stop light.

2.1. Slide in wire harness for auxiliary stop light from below into the convertible top compartment lid and fit rubber sleeve **-arrow A-** .

2.2. Push on wire harness for auxiliary stop light with the holder onto the convertible top compartment lid **-arrow B-** .

Installing wire harness for roll-over protection system (cabriolet)

Installation Location:



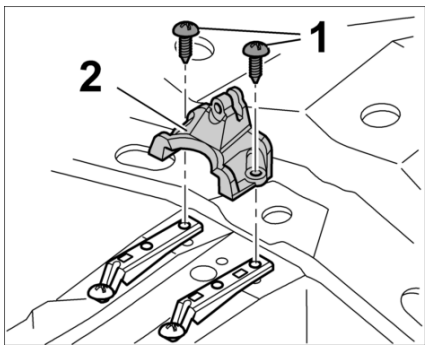
Overview of plugs for wire harness for roll-over protection system

1 - Wire harness for roll-over protection system
2 - Plug connection for rear side panel flap
3 - Hardtop mount plug connection
4 - Retaining clips
5 - Roll-over bar connector
6 - Convertible top control unit connector
7 - Plug connection for wire harness for roll-over protection system to rear wire harness
8 - Plug connection for motor for convertible-top compartment lid drive mechanism

1. Position wire harness for roll-over protection system **-1-** on the frame and clip in at the retaining clips **-4-** .
2. Push in plug connections for rear side panel flap **-2-** at left and right until they engage securely. 614219 Removing and installing rear side panel flap - section on "Installing"
3. Push in hardtop mount plug connection **-3-** until it engages securely. 611719 Removing and installing mount for hardtop - section on "Installing"

Completing the vehicle

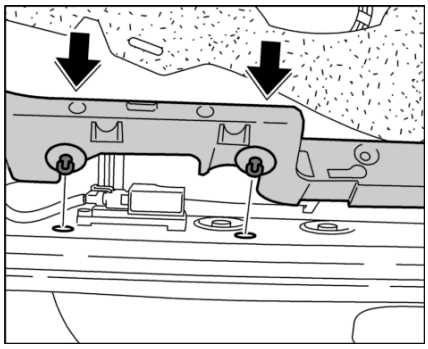
1. Insert insulating elements in the area of the rear wire harness.



Installing mounting saddle for rear-seat backrest

2. Install mounting saddle for rear-seat backrest.

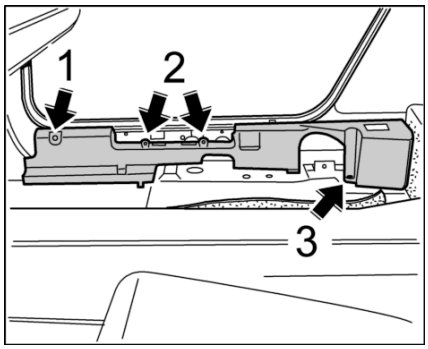
2.1. Position mounting saddle for rear-seat backrest **-2-** and secure with the two fastening screws **-1-** .
Tightening torque: 10 (7.5 ftlb.) Nm



Engaging the support

3. Install left and right support.

3.1. Position the support and engage in lower side member.



Securing the support

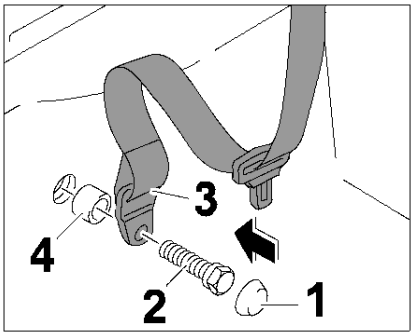
3.2. Push in the locating peg **-1-** of the support and check that it is seated correctly.

3.3. Tighten the fastening nuts **-3-** and fastening screws **-2-** . **Tightening torque: 7.2 (5.5 ftlb.) Nm**

4. Lay the floor covering over the support and engage.

Note

Ensure that belt strap can run properly!

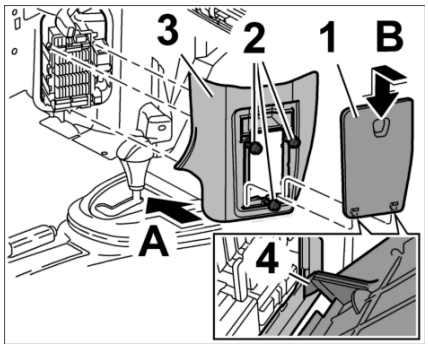


Installing seat belt and fitting

5. Secure seat belt mount at left and right.

5.1. Screw in fastening screw **-2-** , seat belt and fitting **-3-** and spacer sleeve **-4-** on inner lower side member. **Tightening torque: 50 (37 ftlb.) Nm**

5.2. Press in cap **-1-** .

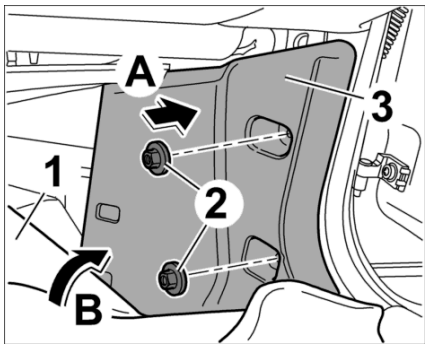


Installing lateral footwell trim on driver's side

6. Install left footwell trim panel.

6.1. Insert footwell trim panel **-3-** (**-arrow A-**) and screw in the three fastening screws **-2-** . **Tightening torque: 3 (2 ftlb.) Nm**

6.2. Insert the fuse carrier cover **-1-** with both clips **-4-** into the lateral footwell trim panel **-2-** and clip in **-arrow B-** .



Installing lateral footwell trim on passenger's side

7. Install right footwell trim panel.

7.1. Position footwell trim panel **-3-** (**-arrow A-**) and screw down with both plastic nuts **-2-** .

7.2. Secure floor covering **-1-** at the bottom in the area of the A-pillar **-arrow B-** .**Use double-sided adhesive tape or suitable adhesive**.

top of page

Subsequent work

Subsequent work

Note

Only for vehicles with tyre pressure monitoring

1. Install rear wheel housing liner. 536919 Removing and installing rear wheel housing liner - section on "Installing" [997610 997611 997620 997621] 536919 Removing and installing rear wheel housing liner - section on "Installing" [997310 997311 997320 997321]
2. Install rear underbody cover. 519419 Removing and installing rear cover - section on "Installing"
3. Install reservoir. 194019 Removing and installing reservoir - section on "Installing"
4. Install air cleaner housing. 242519 Removing and installing air cleaner housing - section on "Installing"
5. Install rear spoiler. 635519 Removing and installing rear spoiler - section on "Installing" [997310 997311 997610 997611] 635519 Removing and installing rear spoiler - section on "Installing" [997320 997321 997620 997621]
6. Install rear light at left and right. 943119 Removing and installing rear light - section on "Installing"
7. Install auxiliary brake light. 947019 Removing and installing auxiliary brake light - section on "Installing"

Note

Only in the cabriolet.

8. Install roll-over bar. 697219 Removing and installing roll-over bar - section on "Installing" [997610] 697219 Removing and installing roll-over bar - section on "Installing" [997310 997311 997320 997321 997611 997620 997621]

Note

Only in the cabriolet.

9. Install frame for roll-over protection system. 697719 Removing and installing frame for roll-over protection system - section on "Installing"

Note

Only in the cabriolet.

10. Install frame for roll-over protection system. 697719 Removing and installing frame for roll-over protection system - section on "Installing"
11. Install relay carrier. 979019 Removing and installing relay carrier - section on "Installing"
12. Install trim panel for seat well. *702919 23 Removing and installing trim panel for seat well - section on "Installing"*

13. Install rear wall trim panel 703119 Removing and installing trim panel for rear wall - section on "Installing" [997310 997311 997320 997321] *703119 23 Removing and installing trim panel for rear wall - section on "Installing" [997610 997611 997620 997621]*

Note

Only in the coupé.

14. Install C-pillar trim panel. *706819 23 Removing and installing C-pillar trim panel - section on "Installing"*
15. Install rear side trim panel at left and right. 707519 Removing and installing rear side trim panel - section on "Installing"
16. Install left and right scuff plate. 680519 Removing and installing inner door sill trim - section on "Installing"
17. Install front seat at left and right. 720119 Removing and installing front seat - section on "Installing" [997310 997320 997610 997620] 720119 Removing and installing front seat - section on "Installing" [997311 997321 997611 997621]
18. Carry out work instructions after disconnecting the battery. *271000 Work instructions after disconnecting the battery*

997310, 997311, 997320, 997321, 997610, 997611, 997620, 997621

as of MY 2005
Country C00, C02, C05, C07, C08, C09, C10, C11, C12, C13, C14, C15, C16, C18, C19, C20, C21, C22, C23, C24, C25, C26, C27, C28, C32, C33, C34, C35, C36, C37, C38, C39, C45, C46, C98, C99

WARNUNG

Gefahr des Verlusts der Text-Bild-Zuordnung beim Ausdruck.

- **Aus technischen Gründen kann derzeit nicht ausgeschlossen werden, dass trotz einwandfreier Darstellung auf dem Bildschirm beim Ausdruck der Zusammenhang von Text und zugehörigem Bild verloren geht.**
- **Wird der Fehler nicht bemerkt, besteht die Gefahr, daß Arbeiten nicht korrekt durchgeführt werden und es dadurch zu Personen- und Sachschäden kommt.**

Vergleichen Sie deshalb nach dem Druckvorgang unbedingt die Ausdrucke mit der Bildschirmdarstellung. Korrigieren Sie die Ausdrucke im Fehlerfall so, daß der Inhalt der Bildschirmdarstellung zutreffend wiedergegeben wird.

WARNING

Danger of losing text-figure correspondence when printing out.

- **For technical reasons, it can currently not be ruled out that the correspondence between text and associated figure can be lost when it is printed out, even though the display on the screen is correct.**
- **If the fault is not noticed, there is the danger that work will not be performed correctly which can cause injury and damage.**

97 25 19 Removing and installing rear wire harness - as of MY 2005

- Preliminary work
- Removing rear wire harness
- Installing rear wire harness
- Subsequent work

Tools

Designation	Type	Number	Explanation	
Disassembly tool, universal	commercially available tool	NR.21		

top of page

Preliminary work

Preliminary work

1. Disconnect battery. *271000 Work instructions after disconnecting the battery*
2. Remove front seat at left and right. 720119 Removing and installing front seat - section on "Removing" [997110 997120 997410 997430] 720119 Removing and installing front seat - section on "Removing" [997111 997121 997411 997431]
3. Remove left and right scuff plate. 680519 Removing and installing inner door sill trim - section on "Removing"
4. Remove rear side trim panel at left and right. 707519 Removing and installing rear side trim panel - section on "Removing"

Note

Only in the coupé.

5. Remove C-pillar trim panel. 706819 Removing and installing C-pillar trim panel - section on "Removing"
6. Removing rear wall trim panel *703119 21 Removing and installing trim panel for rear wall - section on "Removing"*
7.

Remove trim panel for seat well. *702919 21 Removing and installing trim panel for seat well - section on "Removing"*

8. Remove relay carrier. 979019 Removing and installing relay carrier - section on "Removing"

Note

Only in the cabriolet.

9. Remove frame for roll-over protection system. *697719 21 Removing and installing frame for roll-over protection system - section on "Removing"*

Note

Only in the cabriolet.

10. Remove rear window lifter. *647119 21 Removing and installing rear power windows - section on "Removing"*

Note

Only in the cabriolet.

11. Remove roll-over bar. *697219 21 Removing and installing roll-over bar - section on "Removing"*
12. Remove auxiliary brake light. 947019 Removing and installing auxiliary brake light - section on "Removing"
13. Remove rear light at left and right. 943119 Removing and installing rear light - section on "Removing"
14. Remove rear spoiler. 635519 Removing and installing rear spoiler - section on "Removing" [997110 997111 997410 997411] 635519 Removing and installing rear spoiler - section on "Removing" [997120 997121 997430 997431]
15. Remove air cleaner housing. 242519 Removing and installing air cleaner housing - section on "Removing"
16. Remove reservoir. 194019 Removing and installing reservoir - section on "Removing"
17. Remove rear underbody cover. 519419 Removing and installing rear cover - section on "Removing"

Note

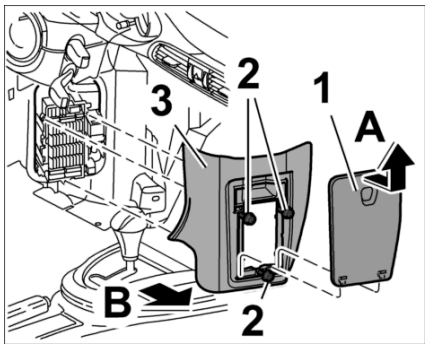
Only for vehicles with tyre pressure monitoring

18. Remove rear wheel housing liner. 536919 Removing and installing rear wheel housing liner - section on "Removing" [997410 997411 997430 997431] 536919 Removing and installing rear wheel housing liner - section on "Removing" [997110 997111 997120 997121]

top of page

Removing rear wire harness

Exposing rear wire harness

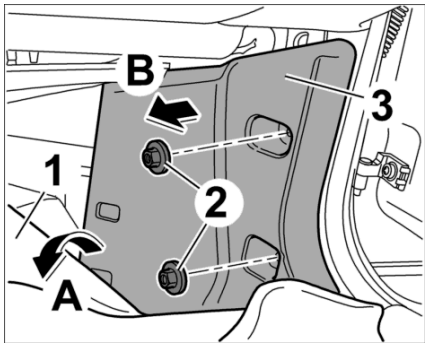


Removing lateral footwell trim on driver's side

1. Remove left footwell trim panel.

1.1. Remove fuse carrier cover **-1-** (**-arrow A-**).

1.2. Unscrew the three fastening screws **-2-** and take off the footwell trim panel **-3-** (**-arrow B-**).

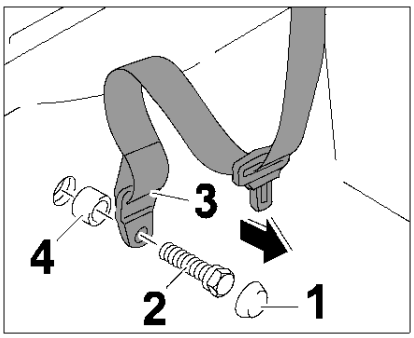


Removing lateral footwell trim on passenger's side

2. Remove right footwell trim panel.

2.1. Partly loosen floor covering **-1-** at the bottom in the area of the A-pillar **-arrow A-**
.

2.2. Unscrew both plastic nuts **-2-** and take off the footwell trim panel **-3-** (**-arrow B-**).

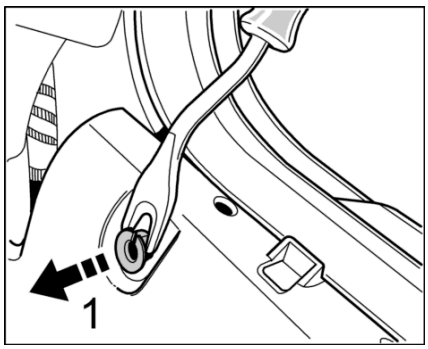


Undoing seat belt and fitting

3. Loosen seat belt mount at left and right.

3.1. Press off cap **-1-** with a screwdriver and unscrew the fastening screw **-2-** . Remove seat belt with fitting **-3-** and spacer sleeve **-4-** .

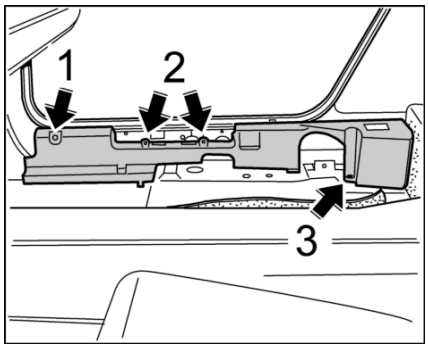
4. Disengage floor covering at the support and lay it in the vehicle interior.



Unlocking locating peg using the removal tool

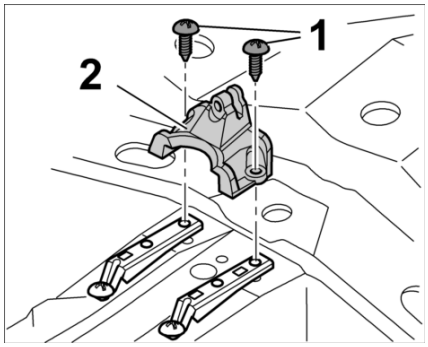
5. Remove left and right support.

5.1. Unlock locating peg **-1-** of the support using the commercially available removal tool **Disassembly tool, universal NR.21**.



Unscrewing fastening screws

5.2. Unscrew fastening screws **-2-** and nuts **-3-** and carefully pull the support up and out of the retaining points.



Removing mounting saddle for rear-seat backrest

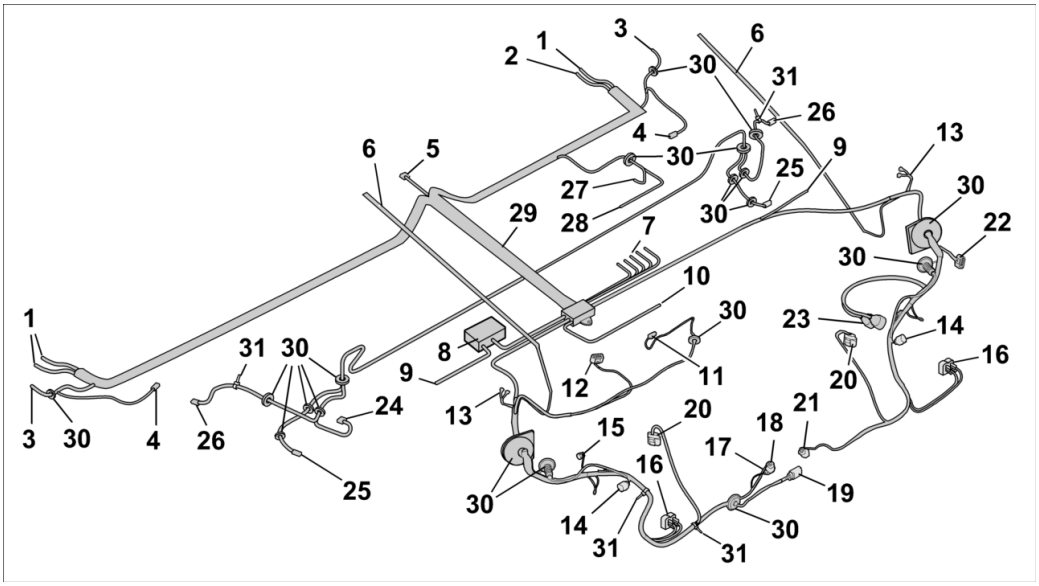
6. Remove mounting saddle for rear-seat backrest.

6.1. Unscrew the two fastening screws **-1-** and remove mounting saddle for rear-seat backrest **-2-** .

7. Remove insulating elements in the area of the rear wire harness.

Removing rear wire harness

Installation Location:



Overview of plugs for rear wire harness

1 - Plug connection for main wire harness to rear wire harness, left and right
2 - Tiptronic control unit connector
3 - Connector for seat-belt tensioner, left and right
4 - Connector for rear loudspeaker, left and right
6 - Plug connection for rear window heating, left and right
7 - DME control module connector
8 - Rear relay carrier
9 - PASM connector, left and right
10 - Subwoofer connector
11 - Connector for auxiliary brake light
12 - Connector for wiper motor for rear window washer
13 - Ground point, left and right
14 - Connector for rear light, left and right
15 - Connector for engine coolant level switch
16 - Plug connection for oxygen sensor, left and right
17 - Plug connection for rear lock lower part
18 - Connector for motor for rear lid release
19 - Plug connection for wire harness for number plate light
20 - Plug for hot-film mass air flow meter
21 - Connector for air cleaner flap
22 - Plug connection for rear wire harness to wire harness for rear lid
23 - Plug connection for rear wire harness to engine wire harness
24 - Plug for angle sensor for HBA, rear left

25 - Plug connection for rear wheel sensor, left and right

26 - Connector for tyre pressure monitoring system antenna, rear left and right

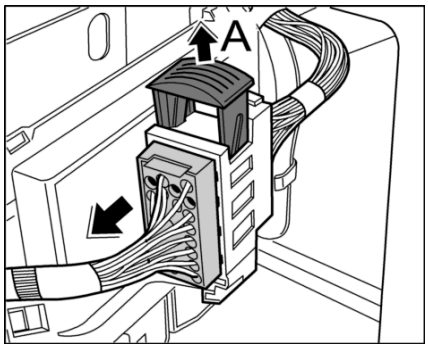
27 - B+ lead for transmission

28 - Connector for reversing light switch

29 - Cable duct

30 - Rubber sleeves

31 - Tie-wrap



Releasing plug connection for main wire harness to rear wire harness

1. Disconnect plug connection for main wire harness to rear wire harness **-1-** at left and right.

1.1. Release and disconnect plug connection for main wire harness to rear wire harness **-1-** (**-arrow A-**).

2. Release and pull off connector on Tiptronic control unit **-2-** . 373019 Removing and installing transmission control module - section on "Removing"

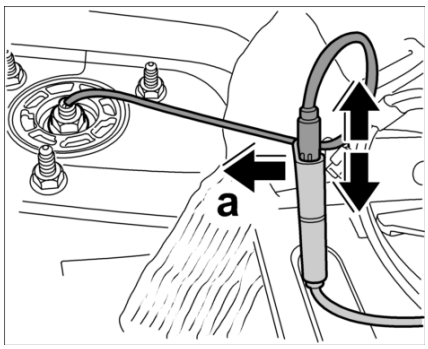
3. Pull off connector on seat-belt tensioner **-3-** at left and right. 691319 Removing and installing front three-point seat belt with tensioner - section on "Removing"

3.1. Release and pull off connector on seat-belt tensioner **-3-** at left and right.

3.2. Remove rubber sleeve **-30-** .

4. Release and disconnect plug connection for rear window heating **-6-** at left and right. 648619 Removing and installing rear window - section on "Removing"

5. Release and pull off connector on DME control module **-7-** . 247019 Removing and installing DME control module - section on "Removing"

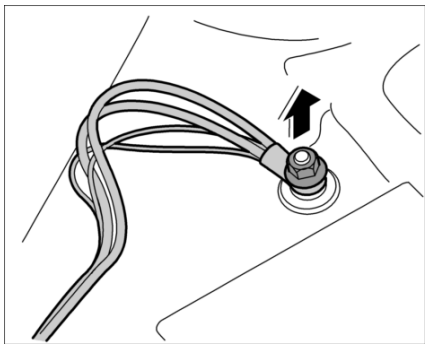


Disconnecting PASM plug connection

6. Disconnect PASM plug connection **-9-** at left and right.

6.1. Release and disconnect PASM plug connection **-9-** (**-arrow a-**).

7. Release and pull off connector on subwoofer **-10-** . 913619 Removing and installing subwoofer - section on "Removing"
8. Release and pull off connector on wiper motor for rear window washer **-12-** . 923419 Removing and installing wiper motor for rear window washer - section on "Removing"

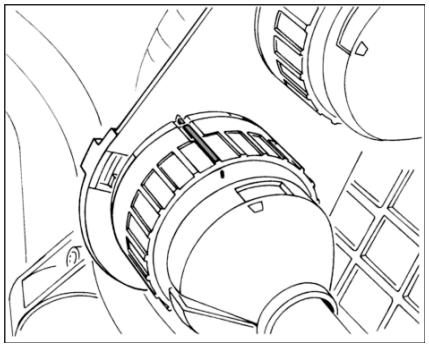


Loosening ground point

9. Loosen ground point **-13-** at left and right.

9.1. Screw off fastening nut and remove ground straps.

10. Unclip cable duct **-29-** .
11. Unclip tie-wrap **-31-** .
12. Release and disconnect plug connection for oxygen sensor **-16-** at left and right. 246919 Removing and installing oxygen sensor ahead of catalytic converter - section on "Removing"
13. Release and disconnect plug connection on rear lock lower part **-17-** . 558619 Removing and installing rear lock lower part - section on "Removing"
14. Release and pull off connector on motor for rear lid release **-18-** . 558419 Removing and installing motor for rear lid release - section on "Removing"
15. Release and disconnect plug connection for rear wire harness to wire harness for rear lid **-22-** . 559019 Removing and installing rear lid - section on "Removing"



Round connectors for engine wire harness

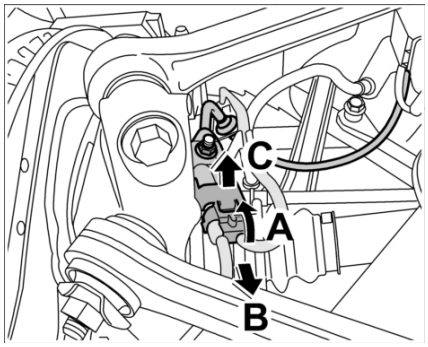
16. Disconnect plug connection for rear wire harness to engine wire harness **-23-** . 100119 Removing and installing engine - section on "Removing"

16.1. Release rear wire harness at the two plug connections and disconnect it by turning the bayonet locks anti-clockwise.

17. Disconnect plug on angle sensor for HBA at rear left **-24-** . 947919 Removing and installing rear angle sensor for headlight levelling system - section on "Removing"

17.1. Release and pull off connector on angle sensor for HBA at rear left **-24-** .

17.2. Remove rubber sleeve **-30-** .



Disconnecting plug connection for rear wheel sensor

18. Disconnect plug connection for rear wheel sensor **-25-** at left and right.

18.1. Release the cable retainer **-arrow A-** and pull off the two connectors **-arrow B-** .

18.2. Unscrew the fastening nut and remove the connector socket **-arrow C-** .

18.3. Remove rubber sleeve **-30-** .

19. Pull off connector on rear antenna for tyre pressure monitoring system **-26-** at left and right. 443819 Removing and installing antenna for tyre pressure monitoring system - section on "Removing"

19.1. Unclip tie-wrap **-31-** .

19.2. Release and pull off connector on rear antenna for tyre pressure monitoring system **-26-** at left and right.

19.3. Remove rubber sleeve **-30-** .

20. Screw off B+ lead **-27-** on transmission. 343519 Removing and installing transmission - section on "Removing" [997410 997411 997430 997431] 343519 Removing and installing transmission - section on "Removing" [997110 997111 997120 997121]

21. Release and pull off connector on reversing light switch **-28-** . 947219 Removing and installing reversing light switch - section on "Removing"

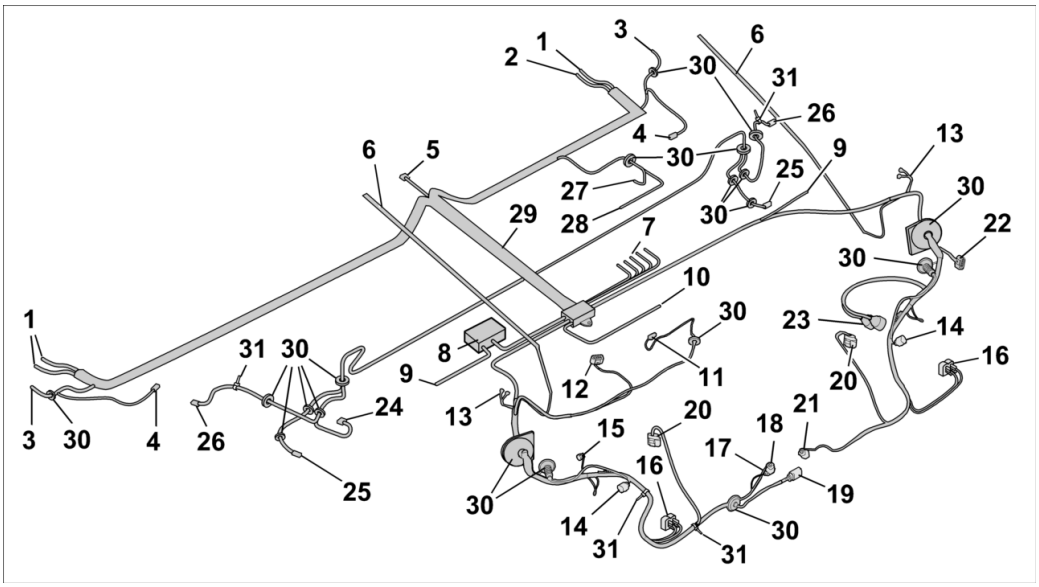
22. Pull rear wire harness out of the engine compartment through the opening in the rear wall into the interior of the vehicle and remove it.

top of page

Installing rear wire harness

Installing rear wire harness

Installation Location:



Overview of plugs for rear wire harness

1 - Plug connection for main wire harness to rear wire harness, left and right
2 - Tiptronic control unit connector
3 - Connector for seat-belt tensioner, left and right
4 - Connector for rear loudspeaker, left and right
6 - Plug connection for rear window heating, left and right
7 - DME control module connector
8 - Rear relay carrier
9 - PASM connector, left and right
10 - Subwoofer connector
11 - Connector for auxiliary brake light
12 - Connector for wiper motor for rear window washer
13 - Ground point, left and right
14 - Connector for rear light, left and right
15 - Connector for engine coolant level switch
16 - Plug connection for oxygen sensor, left and right
17 - Plug connection for rear lock lower part
18 - Connector for motor for rear lid release
19 - Plug connection for wire harness for number plate light
20 - Plug for hot-film mass air flow meter
21 - Connector for air cleaner flap
22 - Plug connection for rear wire harness to wire harness for rear lid
23 - Plug connection for rear wire harness to engine wire harness
24 - Plug for angle sensor for HBA, rear left
25 - Plug connection for rear wheel sensor, left and right
26 - Connector for tyre pressure monitoring system antenna, rear left and right
27 - B+ lead for transmission
28 - Connector for reversing light switch

29 - Cable duct

30 - Rubber sleeves

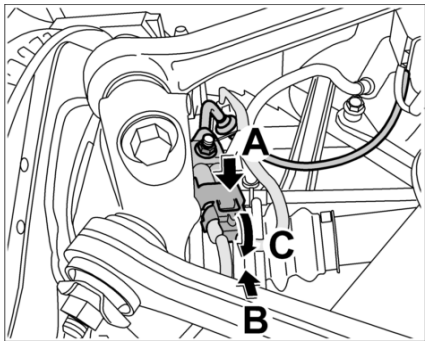
31 - Tie-wrap

1. Lay rear wire harness in interior of vehicle and push it into the engine compartment through the opening in the rear wall. Lay rear wire harness in engine compartment.
2. Plug in connector on reversing light switch **-28-** until it engages correctly. 947219 Removing and installing reversing light switch - section on "Installing"
3. Screw down B+ lead **-27-** on transmission. **Tightening torque: 10 (7.5 ftlb.) Nm** 343519 Removing and installing transmission - section on "Installing" [997410 997411 997430 997431] 343519 Removing and installing transmission - section on "Installing" [997110 997111 997120 997121]
4. Plug in connector on rear antenna for tyre pressure monitoring system **-26-** at left and right. 443819 Removing and installing antenna for tyre pressure monitoring system - section on "Installing"

4.1. Fit rubber sleeve **-30-** .

4.2. Plug in connector on rear antenna for tyre pressure monitoring system **-26-** at left and right until it engages securely.

4.3. Clip tie-wrap **-31-** into place.



Connecting plug connection for rear wheel sensor

5. Connect plug connection for rear wheel sensor **-25-** at left and right.

5.1. Fit rubber sleeve **-30-** .

5.2. Place socket in installation position **-arrow A-** and screw on the fastening nut. **Tightening torque: 10 (7.5 ftlb.) Nm**

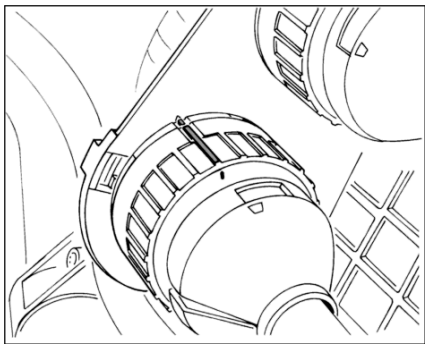
5.3. Plug in the two connectors **-arrow B-** .

5.4. Fold back the cable retainer **-arrow C-** until it engages correctly at the connectors.

6. Connect plug on angle sensor for HBA at rear left **-24-** . 947919 Removing and installing rear angle sensor for headlight levelling system - section on "Installing"

6.1. Fit rubber sleeve **-30-** .

6.2. Plug in connector on rear left angle sensor for HBA **-24-** until it engages firmly.



Round connectors for engine wire harness

7. Push plug connection for rear wire harness to engine wire harness **-23-** together. 100119 Removing and installing engine - section on "Installing"

7.1. Connect rear wire harness at the two plug connections and lock it by turning the bayonet locks clockwise.

8. Push plug connection for rear wire harness to wire harness for rear lid together **-22-** until it engages securely. 559019 Removing and installing rear lid - section on "Installing"

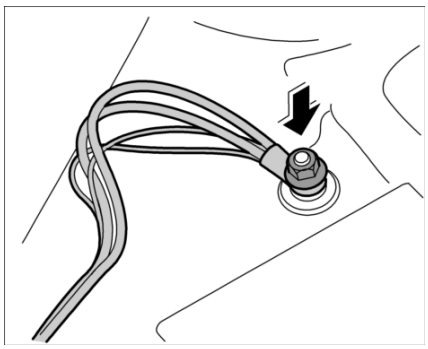
9. Plug in connector on motor for rear lid release **-18-** until it engages firmly. 558419 Removing and installing motor for rear lid release - section on "Installing"

10. Push plug connection on rear lock lower part **-17-** together until it engages securely. 558619 Removing and installing rear lock lower part - section on "Installing"

11. Push in plug connection for oxygen sensor **-16-** at left and right until it engages securely. 246919 Removing and installing oxygen sensor ahead of catalytic converter - section on "Installing"

12. Clip tie-wrap **-31-** into place.

13. Clip in cable duct **-29-** .



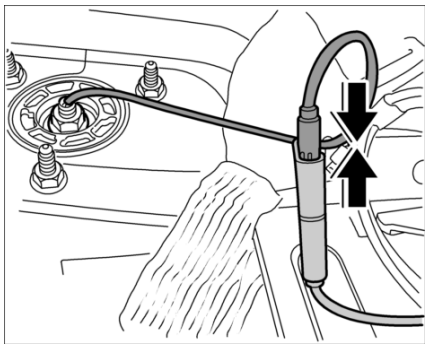
Securing ground point

14. Secure ground point **-13-** at left and right.

14.1. Connect ground straps and screw down fastening nut. **Tightening torque: 9 (6.5 ftlb.) Nm**

15. Plug in connector on wiper motor for rear window washer **-12-** until it engages correctly. 923419 Removing and installing wiper motor for rear window washer - section on "Installing"

16. Plug in connector on subwoofer **-10-** until it engages firmly. 913619 Removing and installing subwoofer - section on "Installing"



Connecting PASM plug connection

17. Connect PASM plug connection **-9-** at left and right.

17.1. Connect PASM plug connection **-9-** until it engages securely.

18. Plug in connector on DME control module **-7-** until it engages securely. 247019 Removing and installing DME control module - section on "Installing"

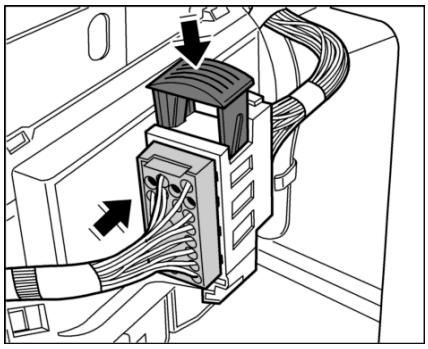
19. Push in plug connection for rear window heating **-6-** at left and right until it engages securely. 648619 Removing and installing rear window - section on "Installing"

20. Plug in connector on seat-belt tensioner **-3-** at left and right. 691319 Removing and installing front three-point seat belt with tensioner - section on "Installing"

20.1. Fit rubber sleeve **-30-** .

20.2. Plug in connector on seat-belt tensioner **-3-** at left and right until it engages securely.

21. Attach connector to Tiptronic control unit **-2-** and lock it until it engages firmly. 373019 Removing and installing transmission control module - section on "Installing"



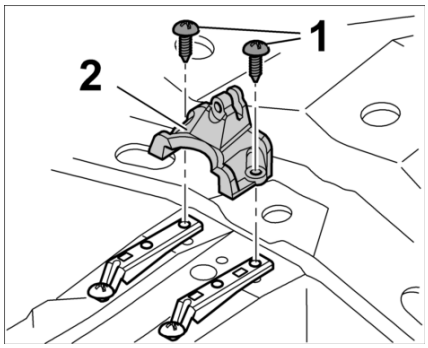
Connecting plug connection for main wire harness to rear wire harness

22. Push plug connection for main wire harness to rear wire harness **-1-** together at left and right.

22.1. Push plug connection for main wire harness to rear wire harness **-1-** together and lock it.

Completing the vehicle

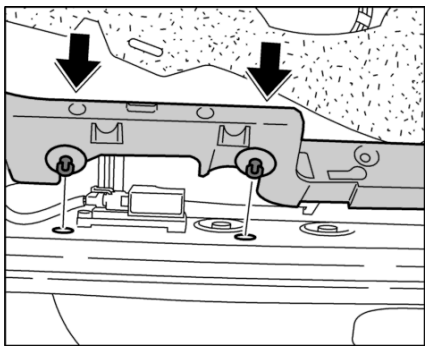
1. Insert insulating elements in the area of the rear wire harness.



Installing mounting saddle for rear-seat backrest

2. Install mounting saddle for rear-seat backrest.

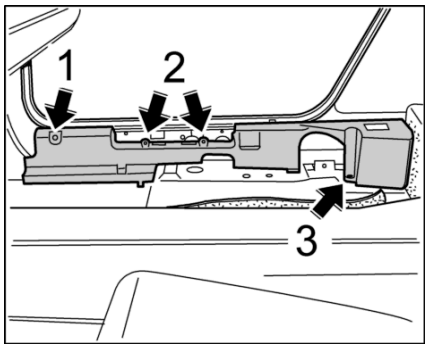
2.1. Position mounting saddle for rear-seat backrest **-2-** and secure with the two fastening screws **-1-** .
Tightening torque: 10 (7.5 ftlb.) Nm



Engaging the support

3. Install left and right support.

3.1. Position the support and engage in lower side member.



Securing the support

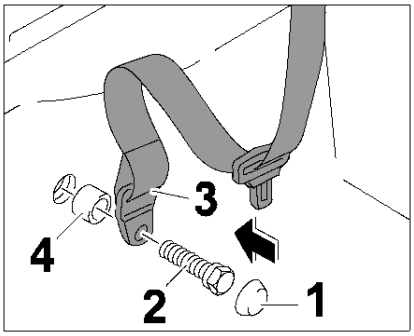
3.2. Push in the locating peg **-1-** of the support and check that it is seated correctly.

3.3. Tighten the fastening nuts **-3-** and fastening screws **-2-** . **Tightening torque: 7.2 (5.5 ftlb.) Nm**

4. Lay the floor covering over the support and engage.

Note

Ensure that belt strap can run properly!

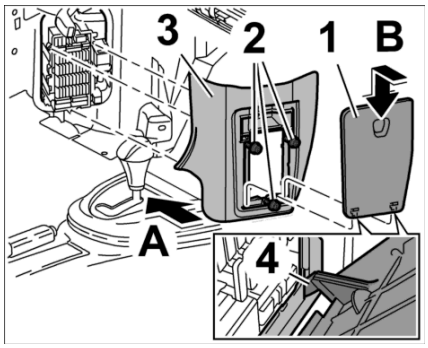


Installing seat belt and fitting

5. Secure seat belt mount at left and right.

5.1. Screw in fastening screw **-2-** , seat belt and fitting **-3-** and spacer sleeve **-4-** on inner lower side member. **Tightening torque: 50 (37 ftlb.) Nm**

5.2. Press in cap **-1-** .

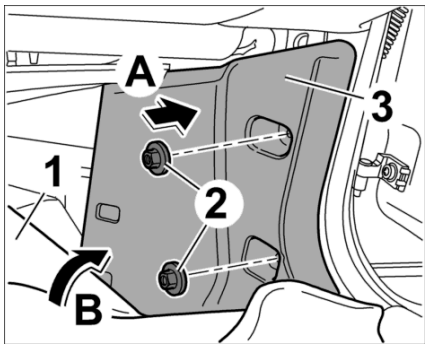


Installing lateral footwell trim on driver's side

6. Install left footwell trim panel.

6.1. Insert footwell trim panel **-3-** (**-arrow A-**) and screw in the three fastening screws **-2-** . **Tightening torque: 3 (2 ftlb.) Nm**

6.2. Insert the fuse carrier cover **-1-** with both clips **-4-** into the lateral footwell trim panel **-2-** and clip in **-arrow B-** .



Installing lateral footwell trim on passenger's side

7. Install right footwell trim panel.

7.1. Position footwell trim panel **-3-** (**-arrow A-**) and screw down with both plastic nuts **-2-** .

7.2. Secure floor covering **-1-** at the bottom in the area of the A-pillar **-arrow B-** .**Use double-sided adhesive tape or suitable adhesive**.

top of page

Subsequent work

Subsequent work

Note

Only for vehicles with tyre pressure monitoring

1. Install rear wheel housing liner. 536919 Removing and installing rear wheel housing liner - section on "Installing" [997410 997411 997430 997431] 536919 Removing and installing rear wheel housing liner - section on "Installing" [997110 997111 997120 997121]
2. Install rear underbody cover. 519419 Removing and installing rear cover - section on "Installing"
3. Install reservoir. 194019 Removing and installing reservoir - section on "Installing"
4. Install air cleaner housing. 242519 Removing and installing air cleaner housing - section on "Installing"
5. Install rear spoiler. 635519 Removing and installing rear spoiler - section on "Installing" [997110 997111 997410 997411] 635519 Removing and installing rear spoiler - section on "Installing" [997120 997121 997430 997431]
6. Install rear light at left and right. 943119 Removing and installing rear light - section on "Installing"
7. Install auxiliary brake light. 947019 Removing and installing auxiliary brake light - section on "Installing"

Note

Only in the cabriolet.

8. Install roll-over bar. *697219 23 Removing and installing roll-over bar - section on "Installing"*

Note

Only in the cabriolet.

9. Install frame for roll-over protection system. *697719 23 Removing and installing frame for roll-over protection system - section on "Installing"*

Note

Only in the cabriolet.

10. Install frame for roll-over protection system. *697719 23 Removing and installing frame for roll-over protection system - section on "Installing"*
11. Install relay carrier. 979019 Removing and installing relay carrier - section on "Installing"
12. Install trim panel for seat well. *702919 23 Removing and installing trim panel for seat well - section on "Installing"*
13.

Install rear wall trim panel *703119 23 Removing and installing trim panel for rear wall - section on "Installing"*

Note

Only in the coupé.

14. Install C-pillar trim panel. 706819 Removing and installing C-pillar trim panel - section on "Installing"
15. Install rear side trim panel at left and right. 707519 Removing and installing rear side trim panel - section on "Installing"
16. Install left and right scuff plate. 680519 Removing and installing inner door sill trim - section on "Installing"
17. Install front seat at left and right. 720119 Removing and installing front seat - section on "Installing" [997110 997120 997410 997430] 720119 Removing and installing front seat - section on "Installing" [997111 997121 997411 997431]
18. Carry out work instructions after disconnecting the battery. *271000 Work instructions after disconnecting the battery*

997110, 997111, 997120, 997121, 997410, 997411, 997430, 997431

as of MY 2005
Country C00, C02, C05, C07, C08, C09, C10, C11, C12, C13, C14, C15, C16, C18, C19, C20, C21, C22, C23, C24, C25, C26, C27, C28, C32, C33, C34, C35, C36, C37, C38, C39, C45, C46, C98, C99

WARNUNG

Gefahr des Verlusts der Text-Bild-Zuordnung beim Ausdruck.

- **Aus technischen Gründen kann derzeit nicht ausgeschlossen werden, dass trotz einwandfreier Darstellung auf dem Bildschirm beim Ausdruck der Zusammenhang von Text und zugehörigem Bild verloren geht.**
- **Wird der Fehler nicht bemerkt, besteht die Gefahr, daß Arbeiten nicht korrekt durchgeführt werden und es dadurch zu Personen- und Sachschäden kommt.**

Vergleichen Sie deshalb nach dem Druckvorgang unbedingt die Ausdrucke mit der Bildschirmdarstellung. Korrigieren Sie die Ausdrucke im Fehlerfall so, daß der Inhalt der Bildschirmdarstellung zutreffend wiedergegeben wird.

WARNING

Danger of losing text-figure correspondence when printing out.

- **For technical reasons, it can currently not be ruled out that the correspondence between text and associated figure can be lost when it is printed out, even though the display on the screen is correct.**
- **If the fault is not noticed, there is the danger that work will not be performed correctly which can cause injury and damage.**

97 32 19 Removing and installing wiring harness for door - as of MY 2005

- Preliminary work
- Removing wiring harness for door
- Installing wiring harness for door
- Subsequent work

top of page

Preliminary work

Preliminary work for door wiring harness

1. Disconnect battery. *271000 Work instructions after disconnecting the battery*
2. Remove door trim panel. 705919 Removing and installing door trim panel - chapter on "removing"
3. Remove power window motor. 645419 Removing and installing power window motor - chapter on "removing"
4. Remove head airbag. 696619 Removing and installing head airbag - chapter on "removing"

Preliminary work for wiring harness for door trim panel

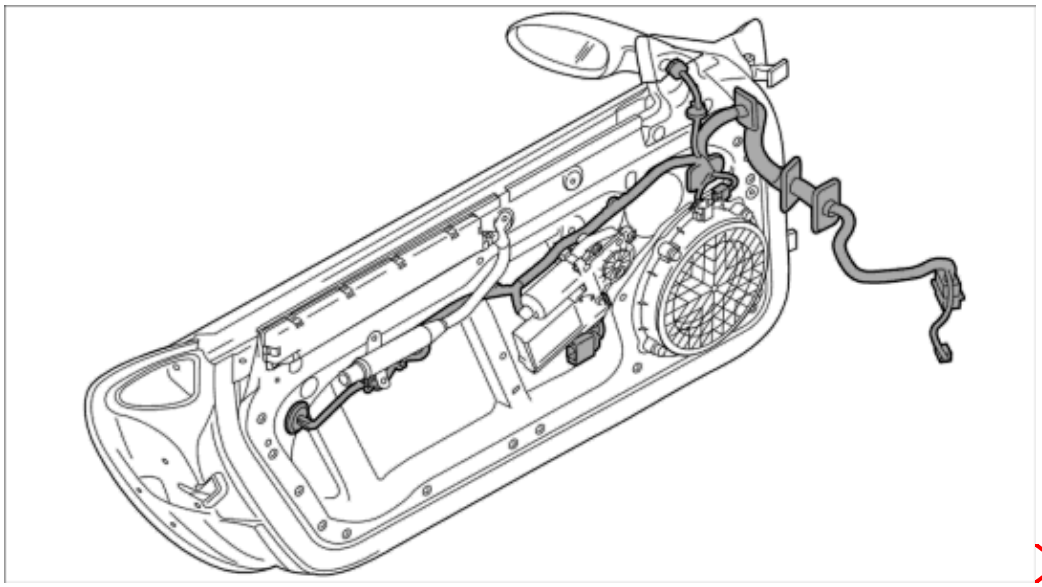
1. Disconnect battery. *271000 Work instructions after disconnecting the battery*
2. Remove door trim panel. 705919 Removing and installing door trim panel - section on "Removing"

top of page

Removing wiring harness for door

Removing lateral footwell trim on driver's side

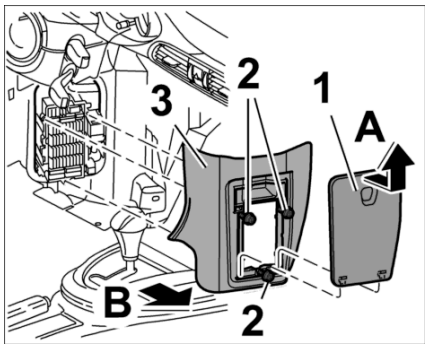
Installation Location:



Overview of wire harness for door

Note

Work is only necessary for removing or installing the wire harness for the driver's door.

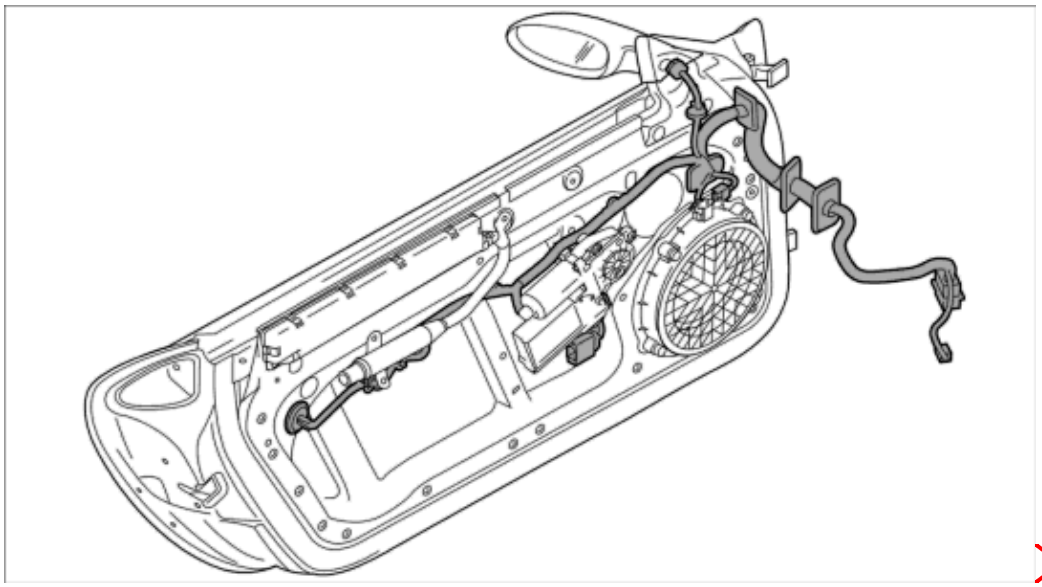


Removing lateral footwell trim on driver's side

1. Remove fuse carrier cover **-1-** **-arrow A-** .
2. Unscrew the three fastening screws **-2-** and take off the footwell trim panel **-3-** **-arrow B-** .

Removing lateral footwell trim on passenger's side

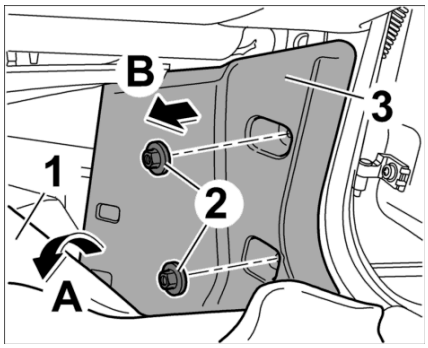
Installation Location:



Overview of wire harness for door

Note

Work is only necessary for removing or installing the wire harness for the passenger's door.

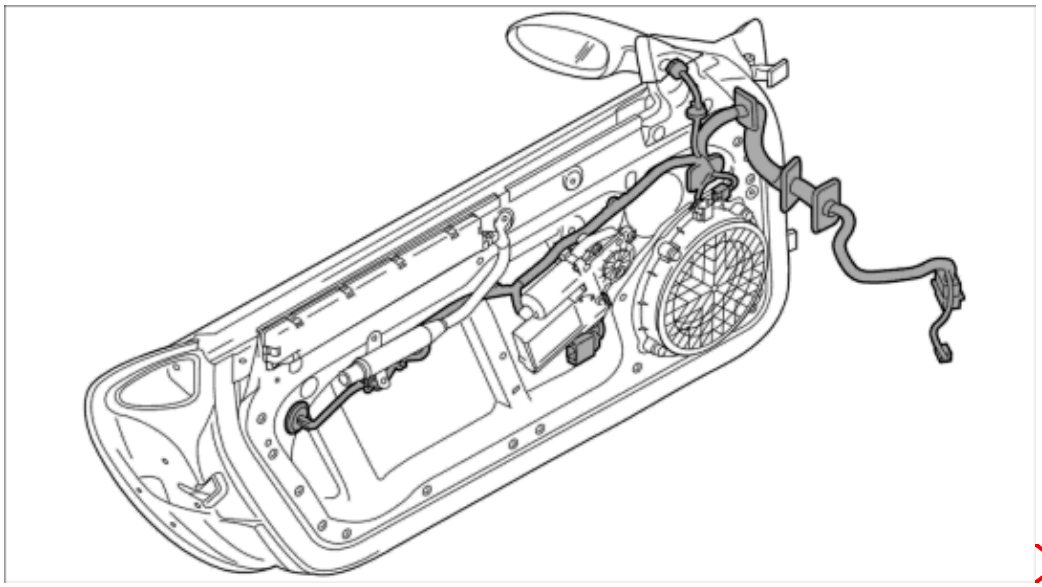


Removing lateral footwell trim on passenger's side

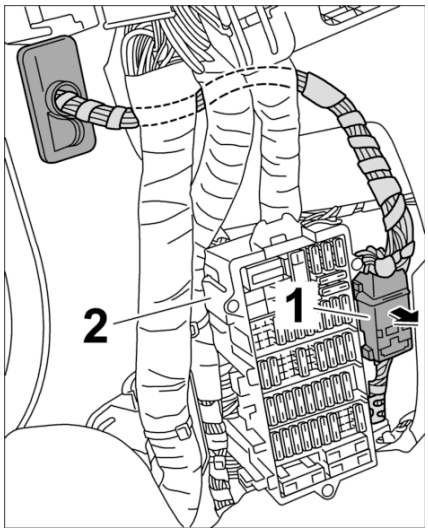
1. Partly loosen carpet **-1-** at the bottom in the area of the A-pillar **-arrow A-** .
2. Unscrew both plastic nuts **-2-** and take off the footwell trim panel **-3-** **-arrow B-** .

Disconnect wire harness for door (driver's side) at the A-pillar

Installation Location:

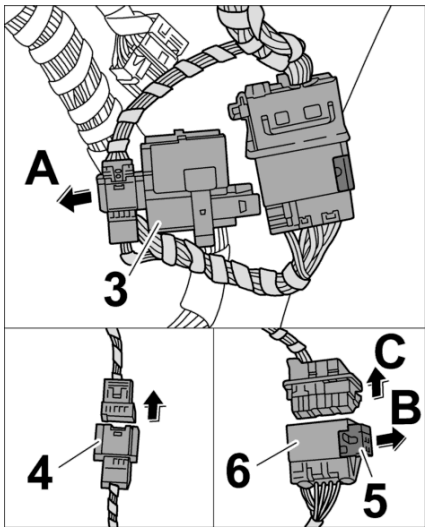


Overview of wiring harness for door



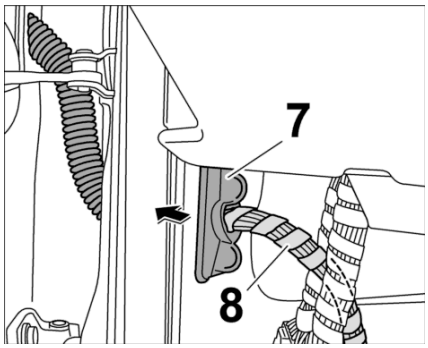
Unclipping plug connection

1. Unclip wire harness plug connection for door **-1-** at the fuse carrier **-2-** .



Disconnecting plug connection

2. Release locking mechanism **-5-** on the wire harness plug connection for door **-6-** **-arrow B-** and disconnect **-arrow C-** .

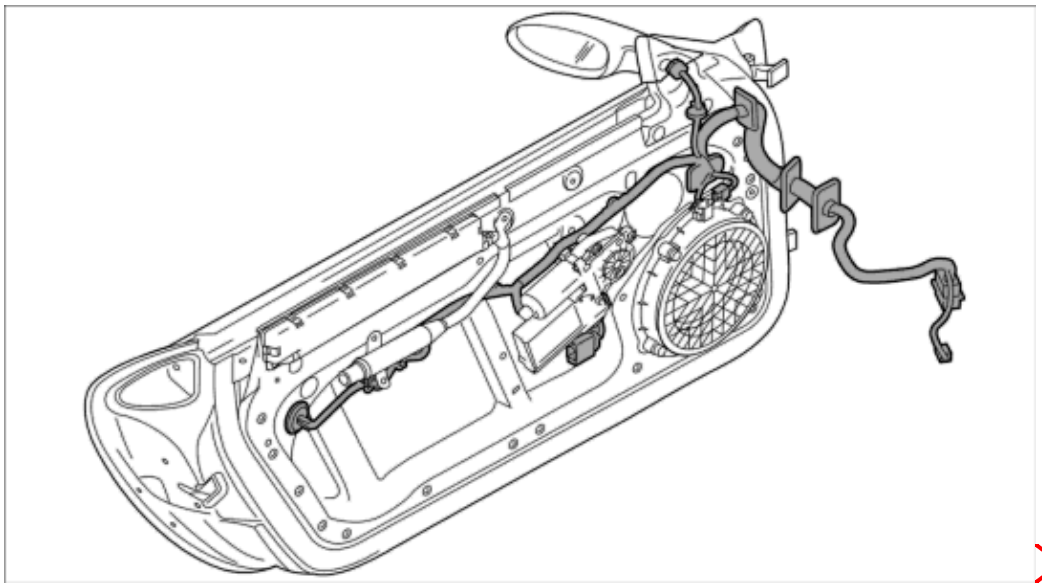


Removing rubber sleeve

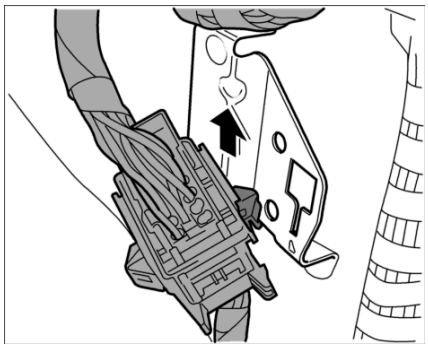
3. Remove rubber sleeve **-7-** and pull out together with the wire harness for door **-8-** from the A-pillar.

Disconnect wire harness for door (passenger's side) at the A-pillar

Installation Location:

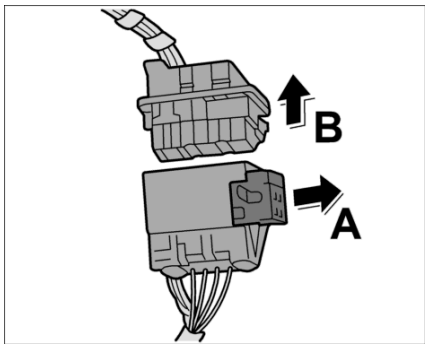


Overview of wiring harness for door



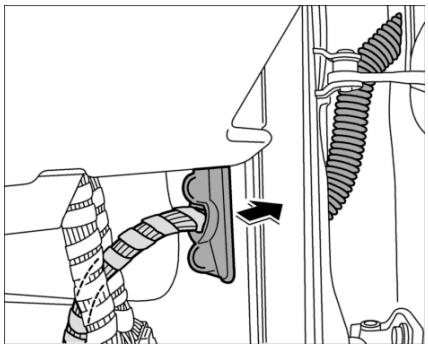
Disengaging wire harness plug connection for door to the body

1. Disengage wire harness plug connection for door to the body.



Disconnecting wire harness plug connection for door

2. Release locking mechanism on the wire harness plug connection for door **-arrow A-** and disconnect wire harness plug connection for door **-arrow B-** .

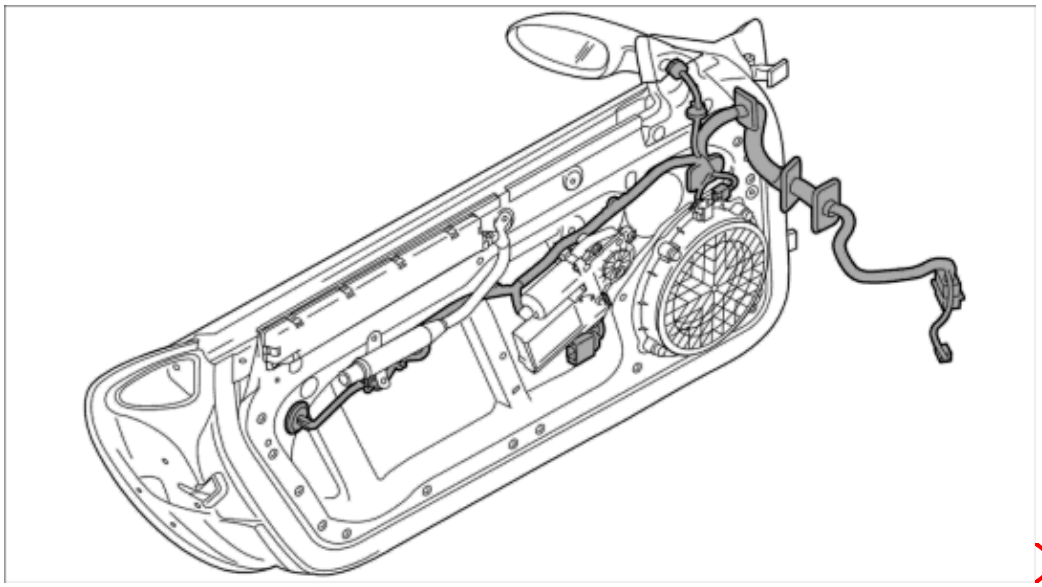


Removing rubber sleeve

3. Remove rubber sleeve and pull out together with the wire harness for door from the A-pillar.

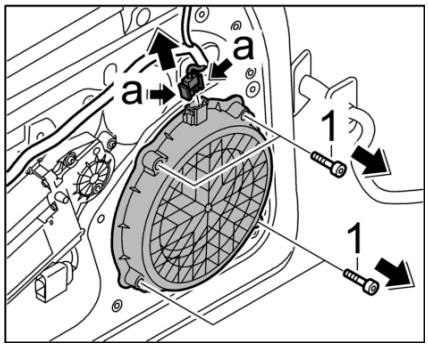
Removing wiring harness for door

Installation Location:



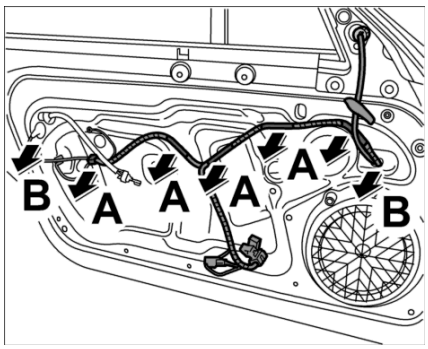
Overview of wiring harness for door

1. Remove door sub-frame. 573019 Removing and installing door sub-frame - chapter on "removing"



Bass speaker

2. Release connector on woofer **-arrows a-** and pull off.

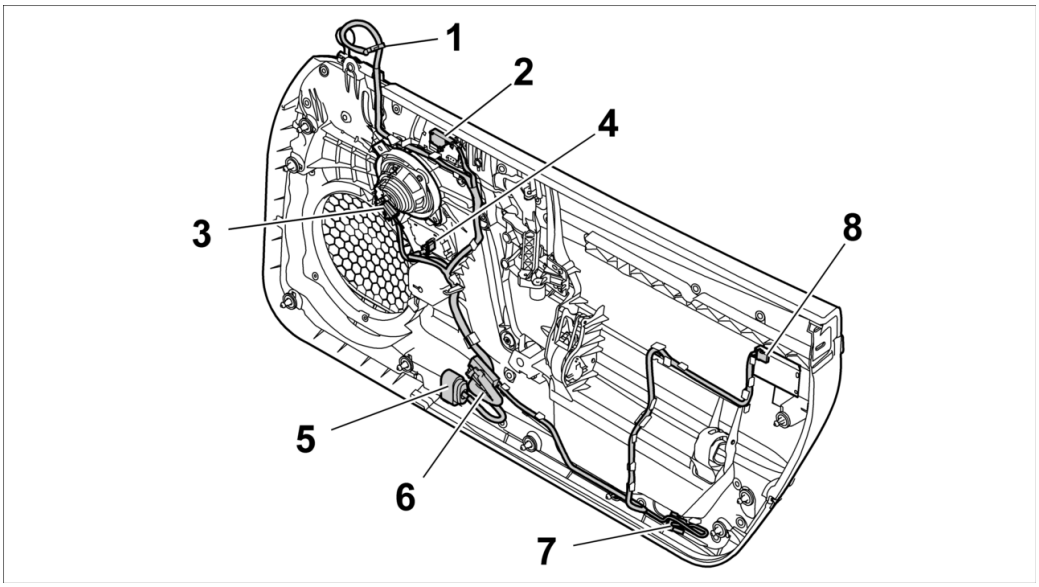


Removing wiring harness for door

3. Unclip wire harness for door to the five retaining clips **-arrows A-** . Remove both rubber sleeves **-arrow B-** and take off wire harness for door.

Removing wiring harness for door trim panel

Installation Location:

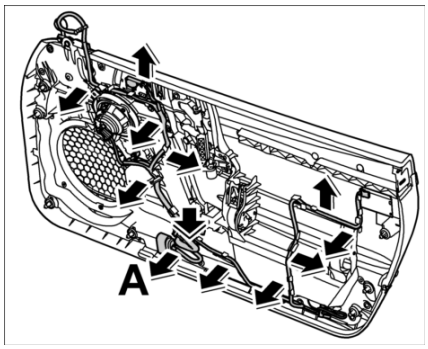


Overview of wiring harness for door trim panel

1 - Mirror adjustment switch connector
2 - Overview of switch connector for power windows
3 - Midrange loudspeaker connector
4 - Switch connector for memory seat adjustment
5 - Wire harness plug connection for door trim panel to door wire harness
6 - Door control module connector
7 - Door warning light connector

1. Release connector to switch for power windows **-2-** and remove. 645819 Removing and installing switch for power windows - chapter on "Removing"

2. Release connector on midrange loudspeaker **-3-** and pull off. 914119 Removing and installing loudspeakers for front doors - chapter on "Removing"
3. Release connector on switch for memory seat adjustment **-4-** and remove. 729419 Removing and installing switch for memory seat adjustment - chapter on "Removing"
4. Pull off plug on door warning light **-7-** . 961619 Removing and installing door warning light - chapter on "Removing"



Removing wiring harness for door trim panel

5. Unclip connector of wire harness plug connection for door trim panel to door wire harness to the door trim panel **-arrow A-** .
6. Remove wire harness in **-direction of arrow-** from the clips of door trim panel.

top of page

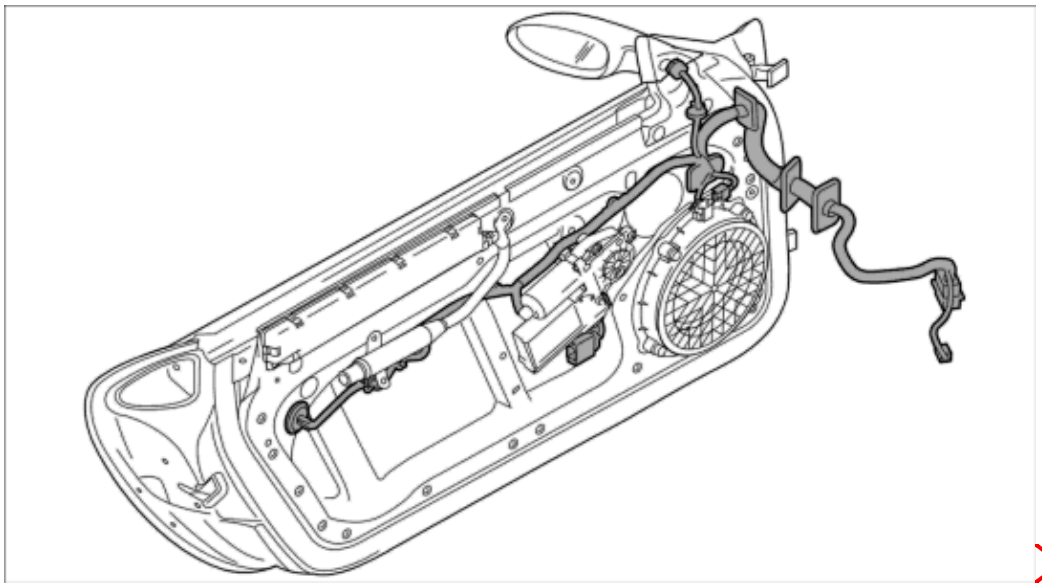
Installing wiring harness for door

Installing wiring harness for door

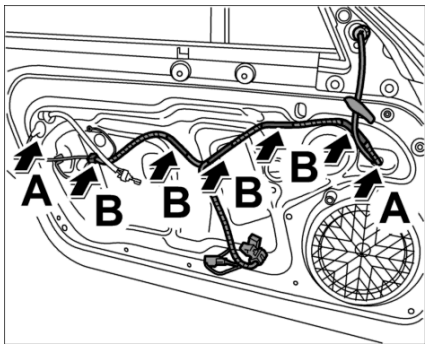
Note

The wire harness for door spare parts scope means the scope for fully-equipped vehicles. Depending on the vehicle equipment, connectors not required are tied to the wire harness for door using tie-wraps.
When doing this, ensure the lines are routed correctly so that no line becomes trapped or damaged.

Installation Location:

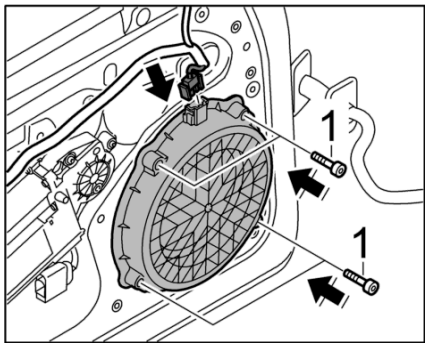


Overview of wiring harness for door



Installing wiring harness for door

1. Route wire harness for door. Fit both rubber sleeves **-Arrows A-** and clip in the wire harness for door with five retaining clips **-Arrows B-** .

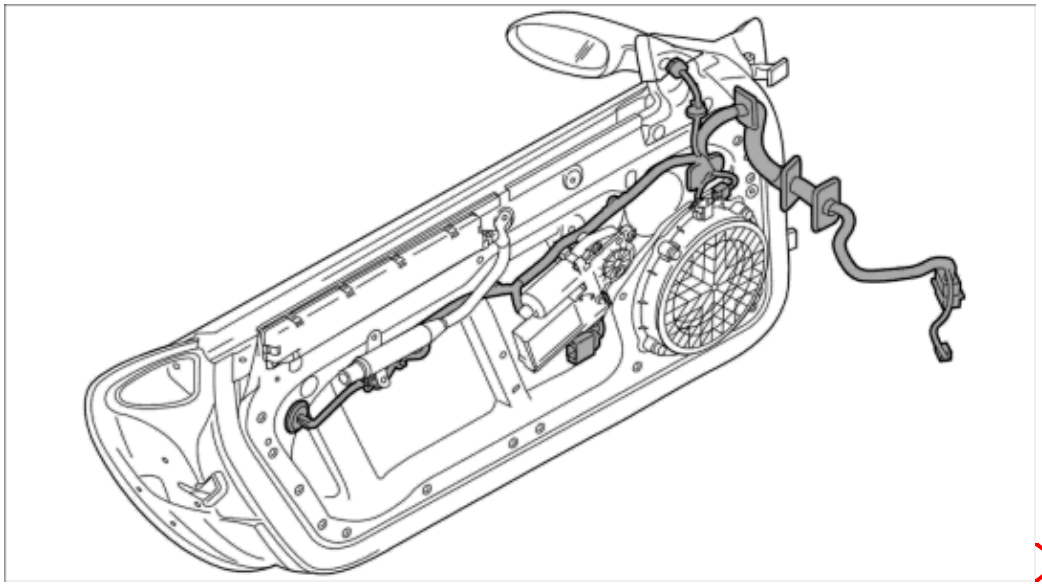


Bass speaker

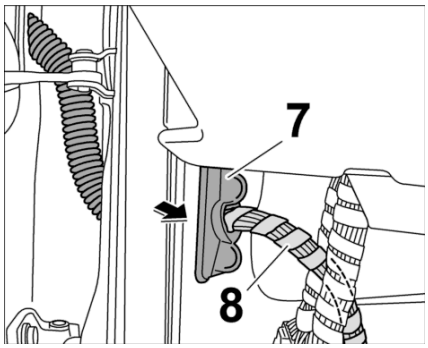
2. Connect connector on woofer until connector is felt to engage.
3. Install door sub-frame. 573019 Removing and installing door sub-frame - chapter on "installing"

Locking wire harness for door (driver's side) at the A-pillar

Installation Location:

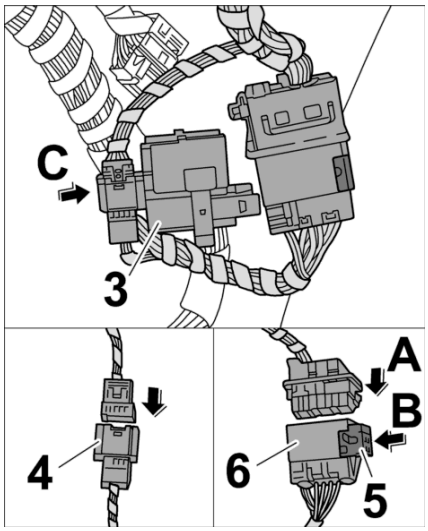


Overview of wiring harness for door



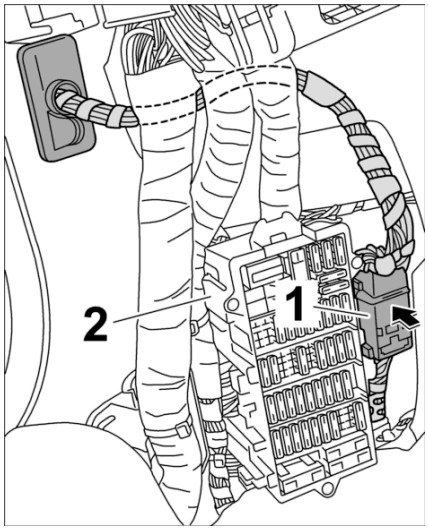
Installing rubber sleeve

1. Push wire harness for door **-8-** through the A-pillar and mount rubber sleeve **-8-** .



Connecting plug connection

2. Push together wire harness plug connection for door **-6-** **-arrow A-** and lock **-arrow B-**

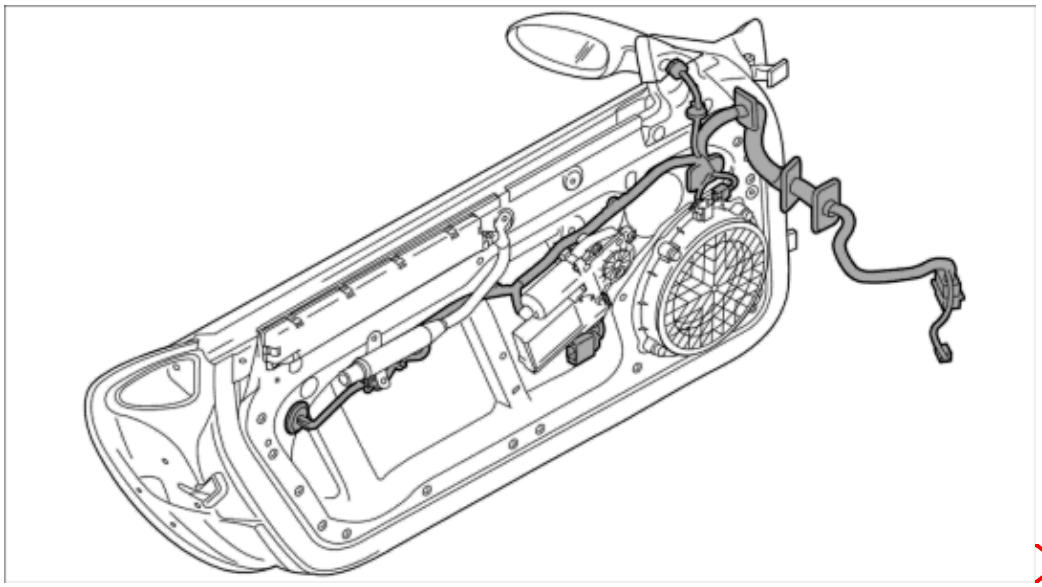


Clipping in the plug connection

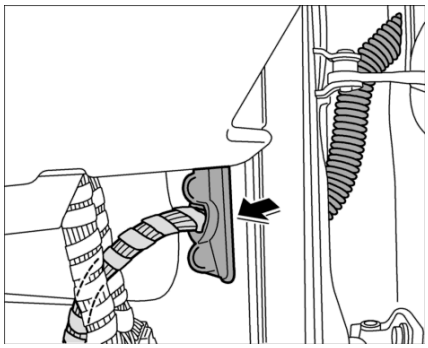
3. Unclip wire harness plug connection for door **-1-** at the fuse carrier **-2-** .

Locking wire harness for door (passenger's side) at the A-pillar

Installation Location:

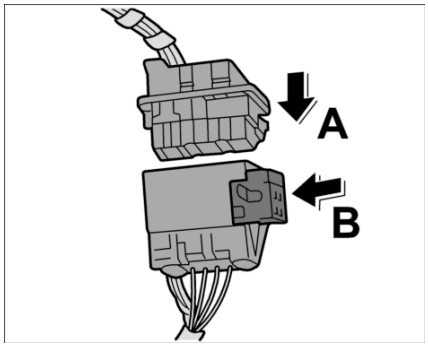


Overview of wiring harness for door



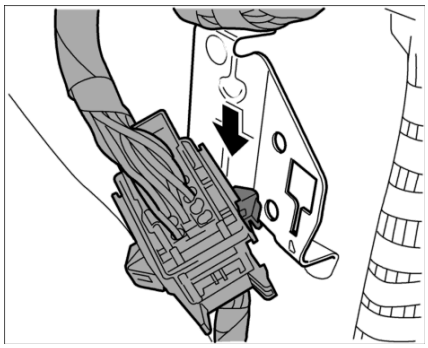
Fitting rubber sleeve

1. Push wire harness for door through the A-pillar and mount rubber sleeve.



Connecting wire harness plug connection for door

2. Push together wire harness plug connection for door **-arrow A-** and lock **-arrow B-** .

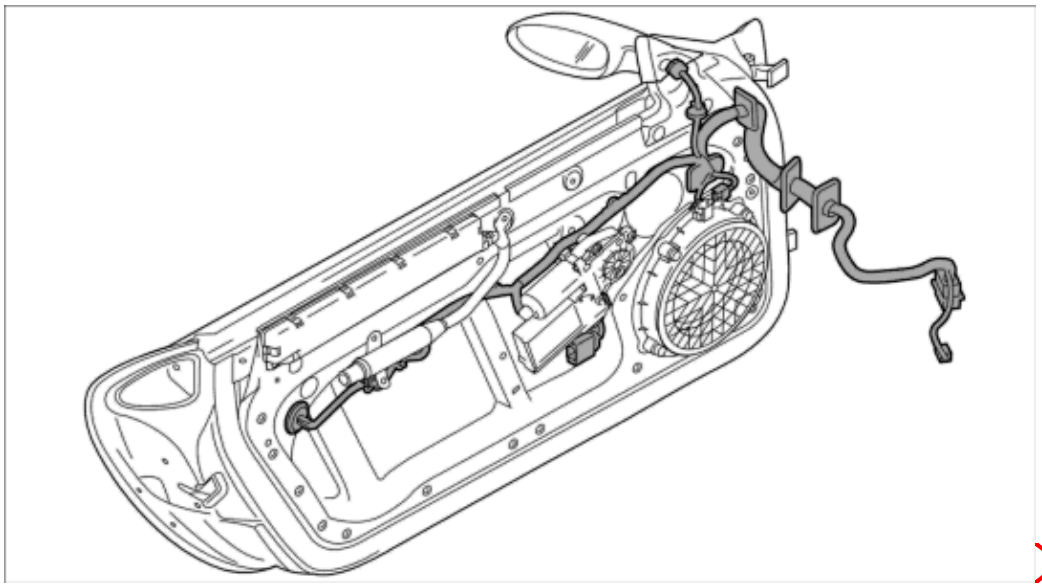


Engaging wire harness plug connection for door to the body

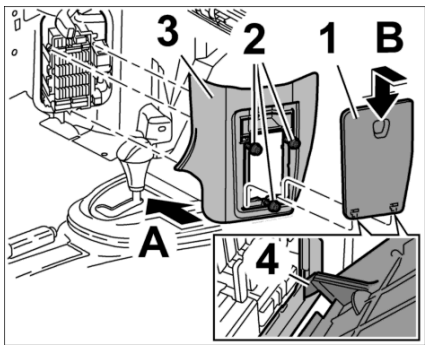
3. Engage wire harness plug connection for door to the body.

Installing lateral footwell trim on driver's side

Installation Location:



Overview of wiring harness for door



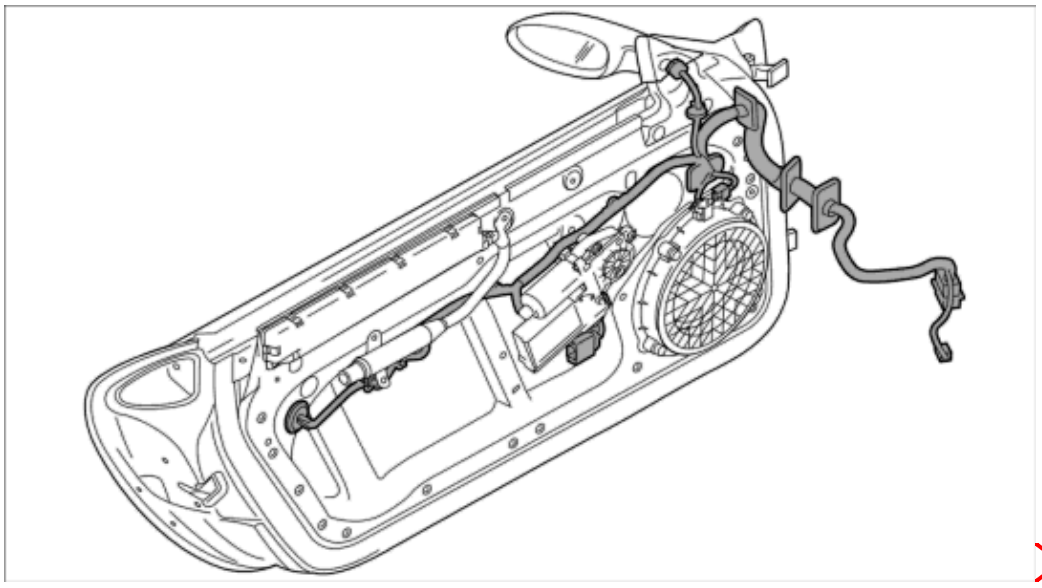
Installing lateral footwell trim on driver's side

1. Insert footwell trim panel **-3-** **-arrow A-** and screw down with the three fastening screws **-2-** .
   Tightening torque: 2 ftlb.

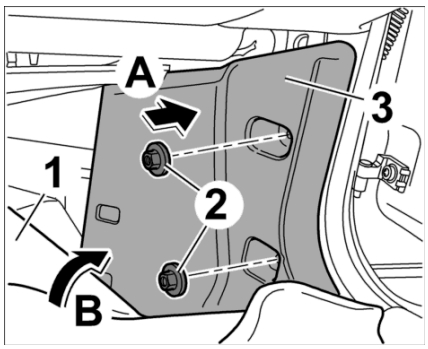
2. Insert the fuse carrier cover **-1-** with both clips **-4-** into the lateral footwell trim panel **-2-** and clip in **-arrow B-** .

Installing lateral footwell trim on passenger's side

Installation Location:



Overview of wiring harness for door



Installing lateral footwell trim on passenger's side

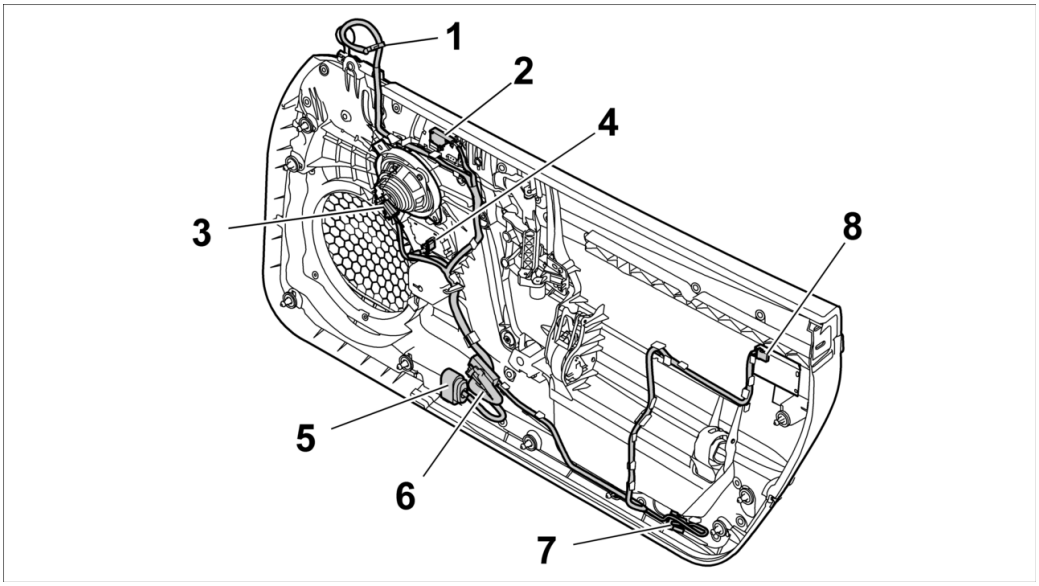
1. Position footwell trim panel **-3-** **-arrow A-** and screw down with both plastic nuts **-2-** .
2. Fasten carpet **-1-** at the bottom in the area of the A-pillar **-arrow B-** **Double-sided adhesive tape or suitable adhesive**.

Installing wiring harness for door trim panel

Note

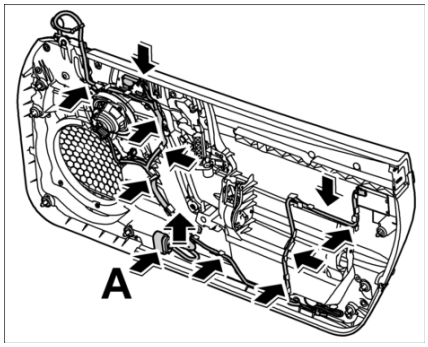
The wire harness for door trim panel spare parts scope means the scope for fully-equipped vehicles.
Depending on the vehicle equipment, connectors not required are tied to the wire harness for door trim panel using tie-wraps.
When doing this, ensure the lines are routed correctly so that no line becomes trapped or damaged.

Installation Location:



Overview of wiring harness for door trim panel

1 - Mirror adjustment switch connector
2 - Overview of switch connector for power windows
3 - Midrange loudspeaker connector
4 - Switch connector for memory seat adjustment
5 - Wire harness plug connection for door trim panel to door wire harness
6 - Door control module connector
7 - Door warning light connector



Installing wiring harness for door trim panel

1. Insert wire harness in **-direction of arrow-** in the clips of the door trim panel.
2. Clip connector of wire harness plug connection for door trim panel to door wire harness in the door trim panel **-arrow A-** .

3. Push connector on to door warning light **-7-** . 961619 Removing and installing door warning light - chapter on "Installing"
4. Attach connector to switch for memory seat adjustment **-4-** until it engages firmly. 729419 Removing and installing switch for memory seat adjustment - chapter on "Installing"
5. Push connector on midrange loudspeaker **-3-** until it is felt to engage. 914119 Removing and installing loudspeakers for front doors - chapter on "Installing"
6. Push on connector to switch for power windows **-2-** until it is felt to engage. 645819 Removing and installing switch for power windows - chapter on "Installing"

top of page

Subsequent work

Subsequent work for door wiring harness

1. Install head airbag. 696619 Removing and installing head airbag - chapter on "installing"
2. Install power window motor. 645419 Removing and installing power window motor - chapter on "installing"
3. Install door trim panel. 705919 Removing and installing door trim panel - chapter on "installing"
4. Connect the battery and carry out "Work instructions after disconnecting the battery". *271000 Work instructions after disconnecting the battery*

Subsequent work for wiring harness for door trim panel

1. Install door trim panel. 705919 Removing and installing door trim panel - section on "Installing"
2. Connect the battery and carry out "Work instructions after disconnecting the battery". *271000 Work instructions after disconnecting the battery*

997110, 997111, 997120, 997121, 997310, 997311, 997320, 997321, 997410, 997411, 997430, 997431, 997610, 997611, 997620, 997621

as of MY 2005
Country C00, C02, C05, C07, C08, C09, C10, C11, C12, C13, C14, C15, C16, C18, C19, C20, C21, C22, C23, C24, C25, C26, C27, C28, C32, C33, C34, C35, C36, C37, C38, C39, C45, C46, C98, C99

WARNUNG

Gefahr des Verlusts der Text-Bild-Zuordnung beim Ausdruck.

- **Aus technischen Gründen kann derzeit nicht ausgeschlossen werden, dass trotz einwandfreier Darstellung auf dem Bildschirm beim Ausdruck der**

97 37 55 Replacing wire harness for PASM - as of MY 2005

- Preliminary work
- Removing wire harness for PASM
- Installing wire harness for PASM
- Subsequent work

Tools

Designation	Type	Number	Explanation	
repair kit for harnesses	commercially available tool	NR.155-1		

top of page

Preliminary work

Preliminary work for wire harness for front PASM

1. Disconnect battery. 2706IN Work instructions after disconnecting the battery
2. Remove plenum panel cover. 852219 Removing and installing cover - section on "Removing"

Preliminary work for wire harness for rear PASM

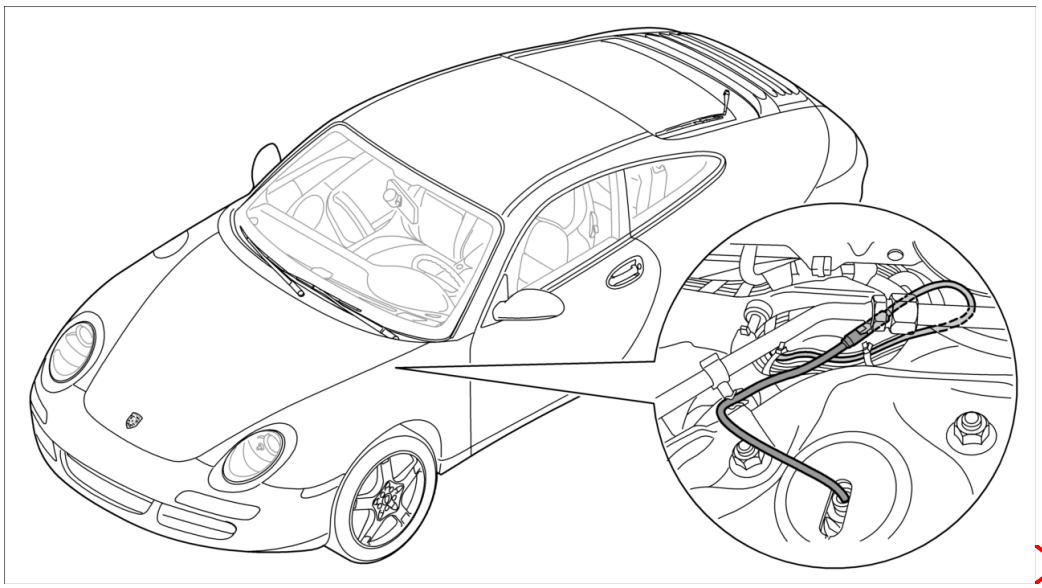
1. Disconnect battery. 2706IN Work instructions after disconnecting the battery
2. Remove subwoofer for BOSE sound system (I No. 680). 913619 Removing and installing subwoofer - section on "Removing".
3. Lift up and remove carpet lining behind the backrest.

top of page

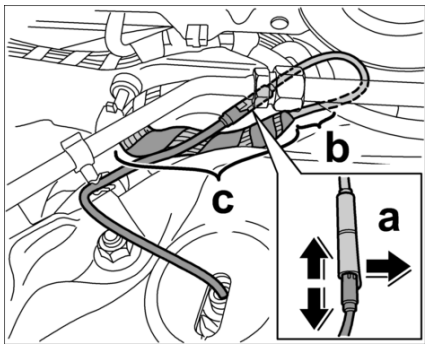
Removing wire harness for PASM

Removing wire harness for front PASM

Installation Location:



Installation position of wire harness for front PASM, shown on the 911



Exposing wire harness for front PASM

1. Unlock PASM plug connection **-Arrow a-** and disconnect it.

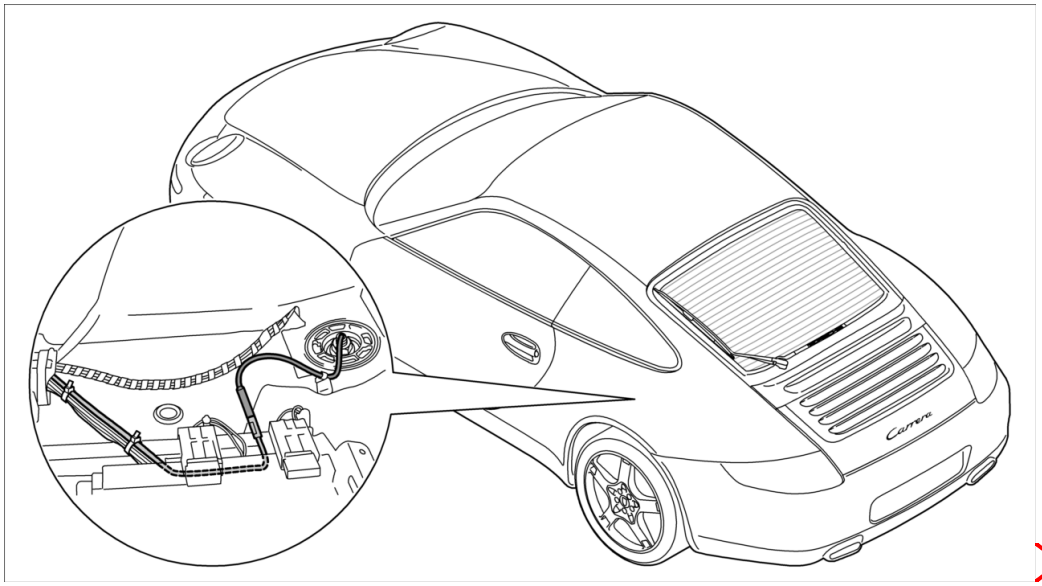
Note

When cutting the PASM wire harness, make sure there is enough length of cable left to join to the new lines.

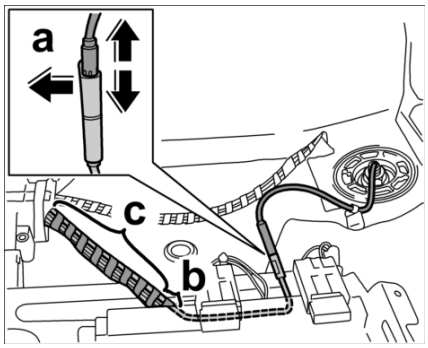
2. Cut wire harness for PASM at **-b-** and remove it.
3. Cut through the fabric tape at **-c-** and expose the remaining PASM wires.

Removing wire harness for rear PASM

Installation Location:



Installation position of wire harness for rear PASM



Exposing wire harness for rear PASM

1. Unlock PASM plug connection **-Arrow a-** and disconnect it.

Note

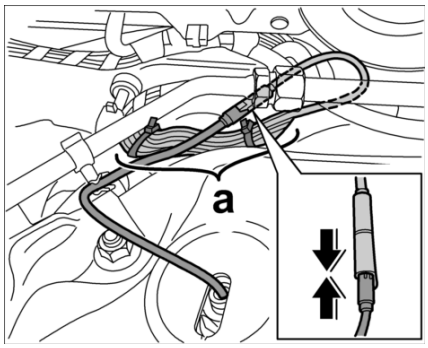
When cutting the PASM wire harness, make sure there is enough length of cable left to join to the new lines.

2. Cut wire harness for PASM at **-b-** and remove it.
3. Cut through the fabric tape at **-c-** and expose the remaining PASM wires.

top of page

Installing wire harness for PASM

Installing wire harness for front PASM



Routing and connecting wire harness for rear PASM

1. Press the PASM plug connection together until it clicks into place.

Note

Select a place for the joint where there is enough space to join all the lines present.
Do not cut the lines too short in case they have to be laid in a different position if there is insufficient space in the area of the joint.

Note

The electric lines are located in the plenum panel and are thus exposed to the highest demands.
The greatest care must be used in the individual work steps for stripping insulation from, crimping, and shrinking/insulating the electric lines.
The procedure for stripping insulation from, crimping, and shrinking/insulating the electric lines must be complied with and observed. The procedures are described in detail in the **repair kit for harnesses NR.155-1**.
Crimping samples are to be prepared before beginning work.

2. Crimp the lines at
   -a- .

2.1. Cut off lines in different lengths (due to the shrink-fit connections).

2.2. Slide shrink-fit hoses onto the lines.

2.3. Strip 10 mm of insulation off the lines.

2.4. Crimp the lines using crimping sleeves and the **manual crimping pliers** from the **repair kit for wire harnesses NR.155-1**.

2.5. Slide the shrink-fit hoses over the crimp connections and carefully shrink them using the **hot-air blower with special nozzle** (recommended accessories for the repair kit for wire harnesses) so that they are watertight.

2.6. Wrap commercially available PVC tape all around the area of the connection points.

3. Secure the repaired area **-a-** to the main wire harness with tie-wraps.

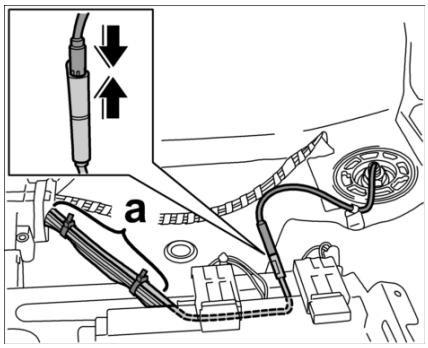
Installing wire harness for rear PASM

Note

Select a place for the joint where there is enough space to join all the lines present.
Do not cut the lines too short in case they have to be laid in a different position if there is insufficient space in the area of the joint.

Note

The greatest care must be used in the individual work steps for stripping insulation from, crimping, and shrinking/insulating the electric lines.
The procedure for stripping insulation from, crimping, and shrinking/insulating the electric lines must be complied with and observed. The procedures are described in detail in the **repair kit for wire harnesses NR.155-1**.
Crimping samples are to be prepared before beginning work.



Routing and connecting wire harness for rear PASM

1. Press the PASM plug connection together until it clicks into place.

Note

Select a place for the joint where there is enough space to join all the lines present.
Do not cut the lines too short in case they have to be laid in a different position if there is insufficient space in the area of the joint.

Note

The electric lines are located in the plenum panel and are thus exposed to the highest demands.
The greatest care must be used in the individual work steps for stripping insulation from, crimping, and shrinking/insulating the electric lines.
The procedure for stripping insulation from, crimping, and shrinking/insulating the electric lines must be complied with and observed. The procedures are described in detail in the **repair kit for harnesses NR.155-1**.
Crimping samples are to be prepared before beginning work.

2. Crimp the lines at
   -a- .

2.1. Cut off lines in different lengths (due to the shrink-fit connections).

2.2. Slide shrink-fit hoses onto the lines.

2.3. Strip 10 mm of insulation off the lines.

2.4. Crimp the lines using crimping sleeves and the **manual crimping pliers** from the **repair kit for wire harnesses NR.155-1**.

2.5. Slide the shrink-fit hoses over the crimp connections and carefully shrink them using the **hot-air blower with special nozzle** (recommended accessories for the repair kit for wire harnesses) so that they are watertight.

2.6. Wrap commercially available PVC tape all around the area of the connection points.

3. Secure the repaired area **-a-** to the main wire harness with tie-wraps.

top of page

Subsequent work

Subsequent work for wire harness for front PASM

1. Install plenum panel cover. 852219 Removing and installing cover - section on "Installing"
2. Carry out work instructions after disconnecting the battery. 2706IN Work instructions after disconnecting the battery

Subsequent work for rear PASM

1. Fit carpet lining behind the backrest.
2. Install subwoofer for BOSE sound system (I No. 680). 913619 Removing and installing subwoofer - section on "Installing"
3. Carry out work instructions after disconnecting the battery. 2706IN Work instructions after disconnecting the battery

---

997110, 997111, 997120, 997121, 997410, 997411, 997430, 997431

as of MY 2005
Country C00, C02, C05, C07, C08, C09, C10, C11, C12, C13, C14, C15, C16, C18, C19, C20, C21, C22, C23, C24, C25, C26, C27, C28, C32, C33, C34, C35, C36, C37, C38, C39, C45, C46, C98, C99

WARNUNG

Gefahr des Verlusts der Text-Bild-Zuordnung beim Ausdruck.

97 37 55 Replacing wire harness for PASM - as of MY 2005

- Preliminary work
- Removing wire harness for PASM
- Installing wire harness for PASM
- Subsequent work

Tools

Designation	Type	Number	Explanation	
repair kit for harnesses	commercially available tool	NR.155-1		
removal tool, universal	commercially available tool	NR.21		

top of page

Preliminary work

Preliminary work for wire harness for front PASM

1. Disconnect battery. 2706IN Work instructions after disconnecting the battery
2. Remove plenum panel cover. 852219 Removing and installing cover - section on "Removing"

Preliminary work for wire harness for rear PASM

1. Disconnect battery. 2706IN Work instructions after disconnecting the battery
2. Move convertible top to service position. 6101IN IN -Convertible top in service position
3. Removing cover over the motor

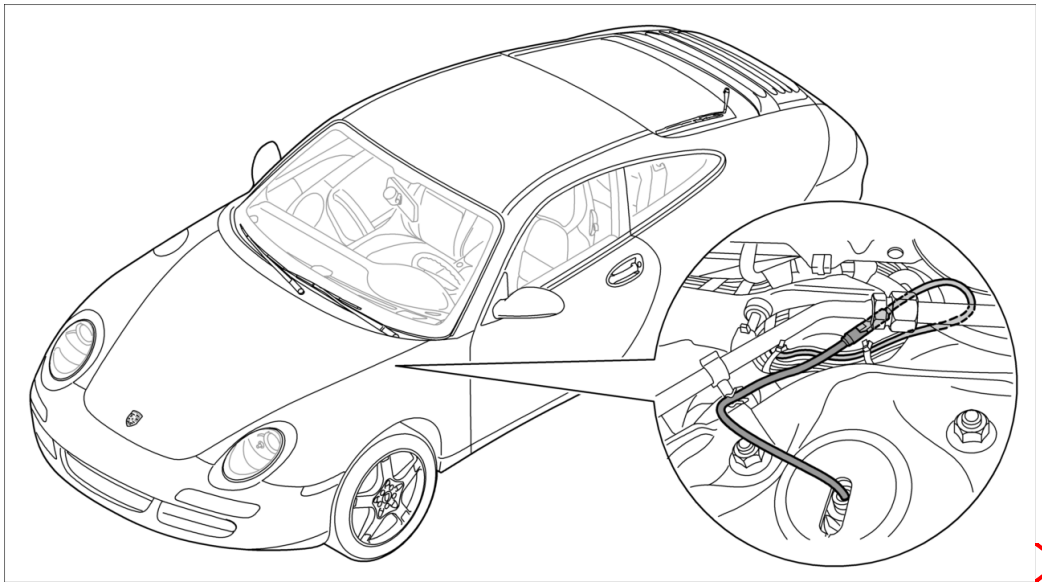
3.1. To loosen the carpet, pull out the plastic clips with the **removal tool, universal NR.21** and remove the carpet.

top of page

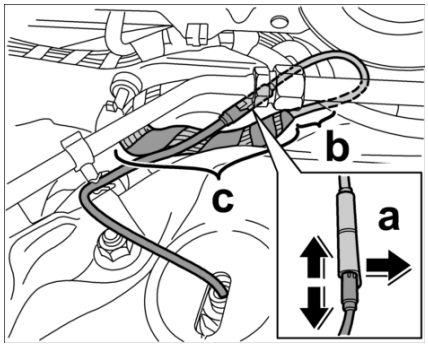
Removing wire harness for PASM

Removing wire harness for front PASM

Installation Location:



Installation position of wire harness for front PASM, shown on the 911



Exposing wire harness for front PASM

1. Unlock PASM plug connection **-Arrow a-** and disconnect it.

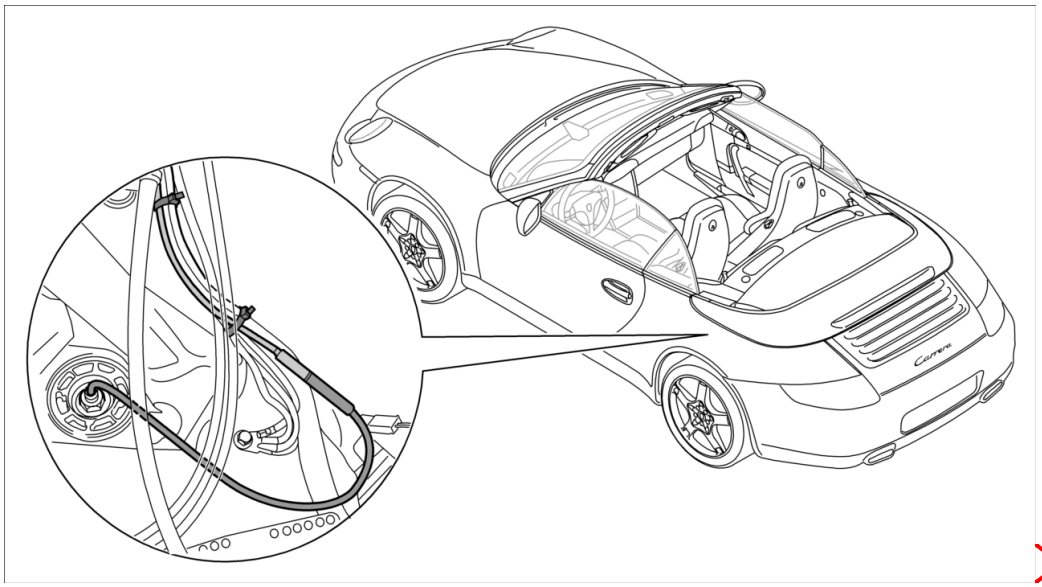
Note

When cutting the PASM wire harness, make sure there is enough length of cable left to join to the new lines.

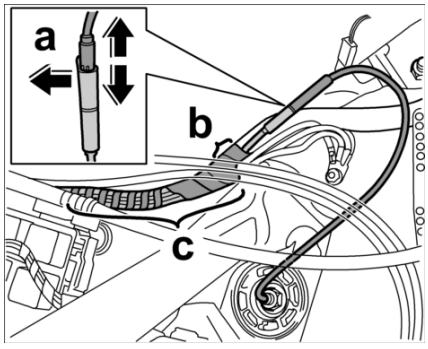
2. Cut wire harness for PASM at **-b-** and remove it.
3. Cut through the fabric tape at **-c-** and expose the remaining PASM wires.

Removing wire harness for rear PASM

Installation Location:



Installation position of wire harness for rear PASM



Exposing wire harness for rear PASM

1. Unlock PASM plug connection **-Arrow a-** and disconnect it.

Note

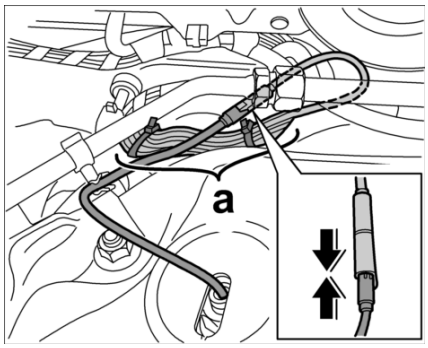
When cutting the PASM wire harness, make sure there is enough length of cable left to join to the new lines.

2. Cut wire harness for PASM at **-b-** and remove it.
3. Cut through the fabric tape at **-c-** and expose the remaining PASM wires.

top of page

Installing wire harness for PASM

Installing wire harness for front PASM



Routing and connecting wire harness for rear PASM

1. Press the PASM plug connection together until it clicks into place.

Note

Select a place for the joint where there is enough space to join all the lines present.
Do not cut the lines too short in case they have to be laid in a different position if there is insufficient space in the area of the joint.

Note

The electric lines are located in the plenum panel and are thus exposed to the highest demands.
The greatest care must be used in the individual work steps for stripping insulation from, crimping, and shrinking/insulating the electric lines.
The procedure for stripping insulation from, crimping, and shrinking/insulating the electric lines must be complied with and observed. The procedures are described in detail in the **repair kit for harnesses NR.155-1**.
Crimping samples are to be prepared before beginning work.

2. Crimp the lines at **-a-** .

2.1. Cut off lines in different lengths (due to the shrink-fit connections).

2.2. Slide shrink-fit hoses onto the lines.

2.3. Strip 10 mm of insulation off the lines.

2.4. Crimp the lines using crimping sleeves and the **manual crimping pliers** from the **repair kit for wire harnesses NR.155-1**.

2.5. Slide the shrink-fit hoses over the crimp connections and carefully shrink them using the **hot-air blower with special nozzle** (recommended accessories for the repair kit for wire harnesses) so that they are watertight.

2.6. Wrap commercially available PVC tape all around the area of the connection points.

3. Secure the repaired area **-a-** to the main wire harness with tie-wraps.

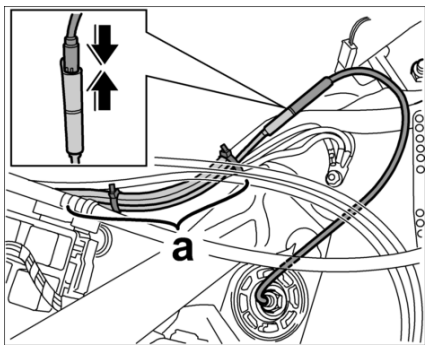
Installing wire harness for rear PASM

Note

Select a place for the joint where there is enough space to join all the lines present.
Do not cut the lines too short in case they have to be laid in a different position if there is insufficient space in the area of the joint.

Note

The greatest care must be used in the individual work steps for stripping insulation from, crimping, and shrinking/insulating the electric lines.
The procedure for stripping insulation from, crimping, and shrinking/insulating the electric lines must be complied with and observed. The procedures are described in detail in the **repair kit for wire harnesses NR.155-1**.
Crimping samples are to be prepared before beginning work.



Routing and connecting wire harness for rear PASM

1. Press the PASM plug connection together until it clicks into place.

Note

Select a place for the joint where there is enough space to join all the lines present.
Do not cut the lines too short in case they have to be laid in a different position if there is insufficient space in the area of the joint.

Note

The electric lines are located in the plenum panel and are thus exposed to the highest demands.
The greatest care must be used in the individual work steps for stripping insulation from, crimping, and shrinking/insulating the electric lines.
The procedure for stripping insulation from, crimping, and shrinking/insulating the electric lines must be complied with and observed. The procedures are described in detail in the **repair kit for harnesses NR.155-1**.
Crimping samples are to be prepared before beginning work.

2. Crimp the lines at
   -a- .

2.1. Cut off lines in different lengths (due to the shrink-fit connections).

2.2. Slide shrink-fit hoses onto the lines.

2.3. Strip 10 mm of insulation off the lines.

2.4. Crimp the lines using crimping sleeves and the **manual crimping pliers** from the **repair kit for wire harnesses NR.155-1**.

2.5. Slide the shrink-fit hoses over the crimp connections and carefully shrink them using the **hot-air blower with special nozzle** (recommended accessories for the repair kit for wire harnesses) so that they are watertight.

2.6. Wrap commercially available PVC tape all around the area of the connection points.

3. Secure the repaired area **-a-** to the main wire harness with tie-wraps.

top of page

Subsequent work

Subsequent work for wire harness for front PASM

1. Install plenum panel cover. 852219 Removing and installing cover - section on "Installing"
2. Carry out work instructions after disconnecting the battery. 2706IN Work instructions after disconnecting the battery

Subsequent work for wire harness for rear PASM

1. Fit carpet over the motor.

1.1. Lay the carpet over the motor and secure with the plastic clips.

2. Move convertible top from service position. 6101IN IN - convertible top service position
3. Carry out work instructions after disconnecting the battery. 2706IN Work instructions after disconnecting the battery

97 45 19 Removing and installing wire harness for battery wiring - as of MY 2005

- Preliminary work
- Removing wire harness for battery wiring
- Installing wire harness for battery wiring
- Subsequent work

Tools

Designation	Type	Number	Explanation	
repair kit for harnesses	commercially available tool	NR.155-1		
transmission jack	workshop equipment	WE1082		

top of page

Preliminary work

Preliminary work for ground strap and B+ line of battery

1. Disconnect battery. 2706IN Working instructions after disconnecting the battery

Preliminary work for B+ line from power distributor to transmission connection point

1. Disconnect battery. *271000 Work instructions after disconnecting the battery*

2. Remove current distributor. 978919 Removing and installing power distributor - chapter on "Removing"
3. Unscrew triggering unit. 695319 Removing and installing triggering unit for airbag - chapter on "Removing"

Note

For vehicles with manual transmission.

4. Remove shift console. 340819 Removing and installing gearshift bracket - chapter on "Removing"

Note

For vehicles with automatic transmission.

5. Remove selector support. 370819 Removing and installing selector support - chapter on "Removing"
6. Remove parking-brake lever. *466119 21 Removing and installing parking-brake lever - section on "Removing"*
7. Remove rear underbody cover. 519419 Removing and installing rear cover - section on "Removing"
8. Remove cover for centre underbody. 519319 Removing and installing centre cover - chapter on "Removing"

Preliminary work for B+ line from starter to transmission connection point

1. Disconnect battery. *271000 Work instructions after disconnecting the battery*
2. Remove throttle housing. 244219 Removing and installing throttle housing - chapter on "Removing"
3. Remove generator. 272219 Removing and installing three-phase generator - section on "Removing"
4. Remove rear underbody cover. 519419 Removing and installing rear cover - section on "Removing"

Preliminary work for engine ground strap

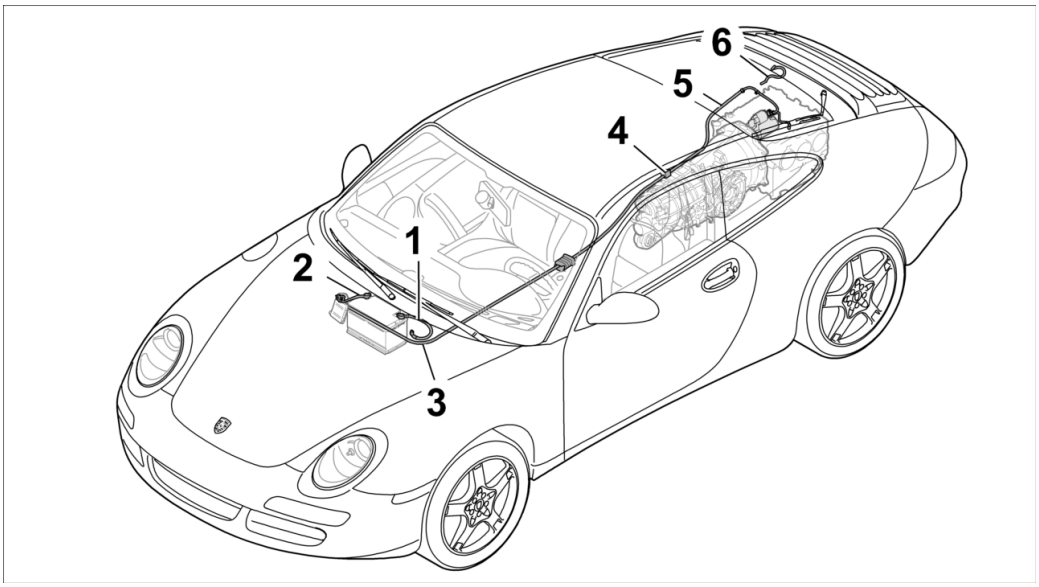
1. Lift the vehicle. *401000 Raising the vehicle*

top of page

Removing wire harness for battery wiring

Removing ground strap and B+ line of battery

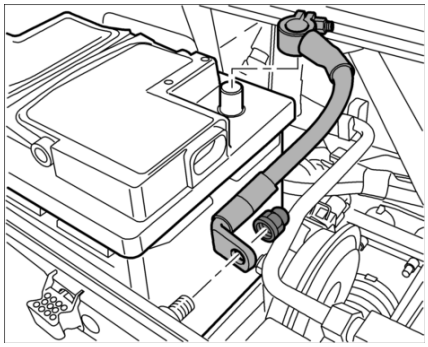
Installation Location:



Installation position of wire harness for battery wiring

1 - Ground strap for battery

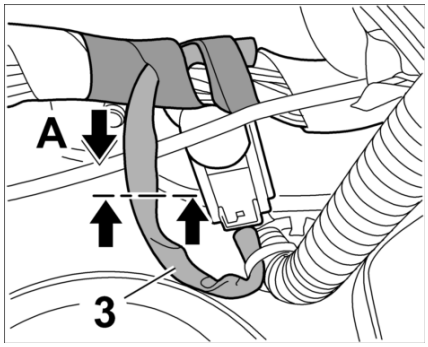
2 - B+ line for battery



Ground strap from battery to body

1. Remove ground strap for battery **-1-** .

1.1. Unscrew fastening nut of battery ground strap to body and remove ground strap for battery.



Cut through the positive cable.

2. Remove B+ line for battery **-2-** .

2.1. Cut through the positive cable of main wire harness **-3-** at the place indicated **-arrows-** .

2.2.

Remove binding band from main wire harness until the sheathing of the positive cable **-3-** can be removed **-Arrow A-** .

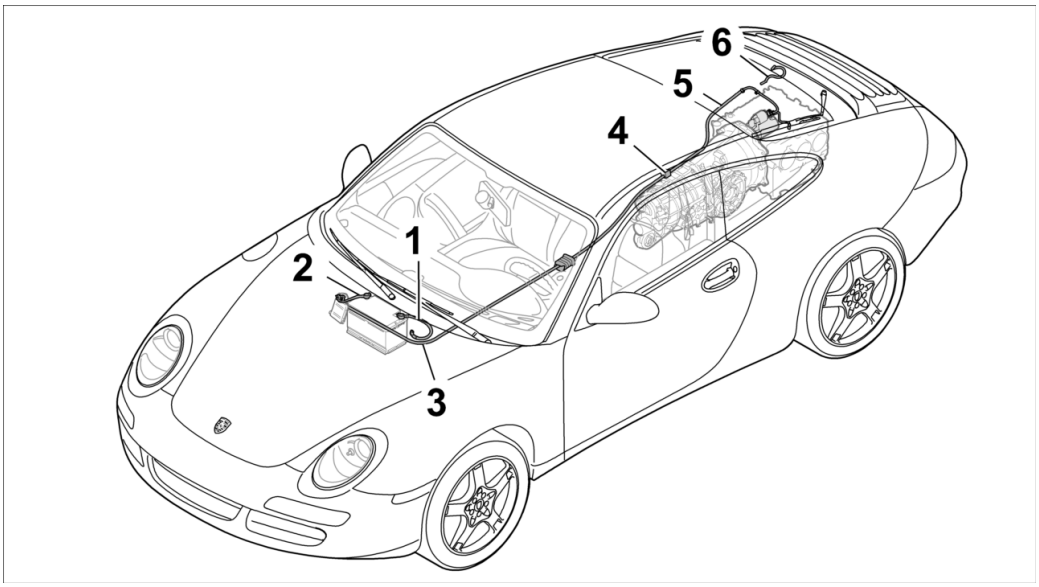
2.3. Unscrew B+ line from battery. 270619 Removing and installing battery - chapter on "Removing"

2.4. Release and pull off B+ line from power distributor 978919 Removing and installing power distributor - chapter on "Removing"

2.5. Remove B+ line for battery.

Remove B+ line from power distributor to transmission connection point

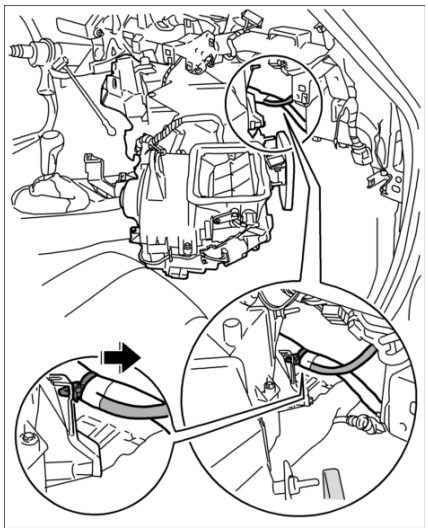
Installation Location:



Installation position of wire harness for battery wiring

3 - B+ line from power distributor to transmission connection point

4 - Connection point of B+ box on transmission

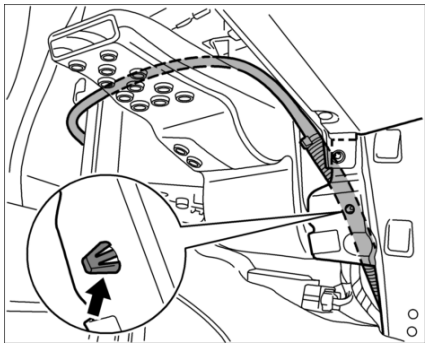


Unclipping B+ line from heater/air-conditioning unit

1. Unclip B+ line **-3-** from heater/air-conditioning unit.

1.1. Unclip B+ line at tie-wrap from heater/air-conditioning unit.

1.2. Disconnect B+ line from main wire harness. To do this, remove the tie-wrap and the binding band.

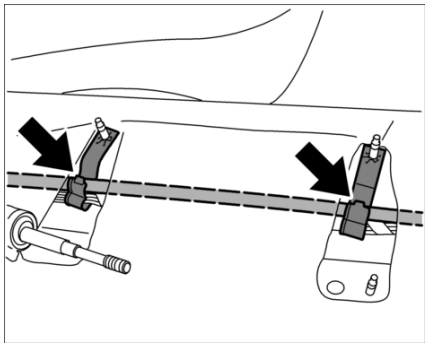


Fastening of B+ line at unit carrier.

2. Unclip B+ line **-3-** at unit carrier.

2.1. Unclip B+ line at retaining clip **-arrow-** from unit carrier.

2.2. Pull B+ line through unit carrier.

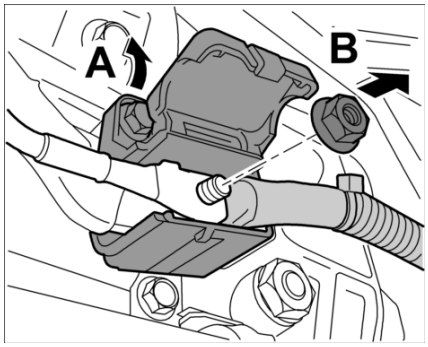


Fastening of B+ line at centre tunnel

3. Loosen B+ lead **-3-** at centre tunnel.

3.1. Pull B+ line out of the two holders **-arrows-** .

3.2. Push B+ line under the carpet away from the direction of travel.



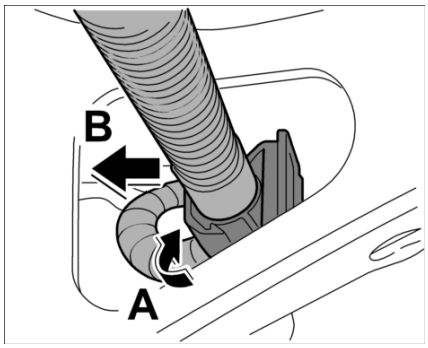
Unscrewing B+ line at box for B+ line

4. Unscrew B+ line **-3-** at box for B+ line.

4.1. Open box for B+ line at transmission **-Arrow A-** , unscrew fastening nut **-Arrow B-** and remove the B+ line.

Note

For vehicles with manual transmission.



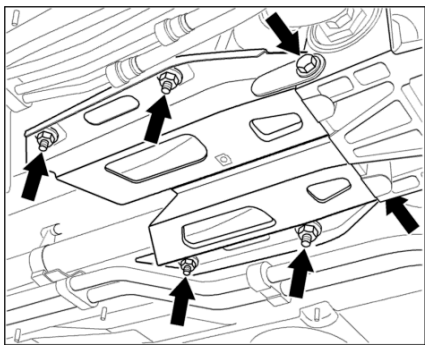
Unclipping B+ line from transmission bracket

5. Unclip B+ line **-3-** from transmission bracket.

5.1. Open holder **-Arrow A-** and remove B+ line **-Arrow B-** .

Note

For vehicles with automatic transmission.



Transmission bracket

6. Remove transmission bracket.

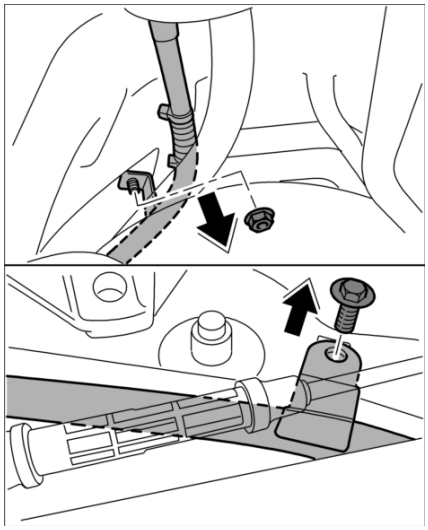
6.1. Support automatic transmission with **transmission jack WE1082**.

6.2. Unscrew the four fastening screws and the two fastening nuts.

6.3. Remove transmission bracket.

Note

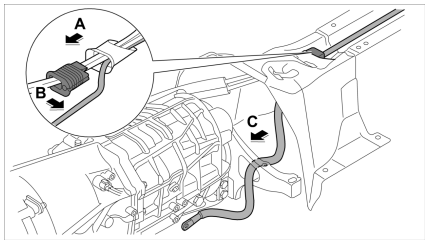
For vehicles with automatic transmission.



Unscrewing guide tube of B+ line

7. Unscrew guide tube of B+ line **-3-** from body.

7.1. Unscrew fastening screw and fastening nut on guide tube of B+ line.



Removing B+ line

8. Remove B+ line **-3-** .

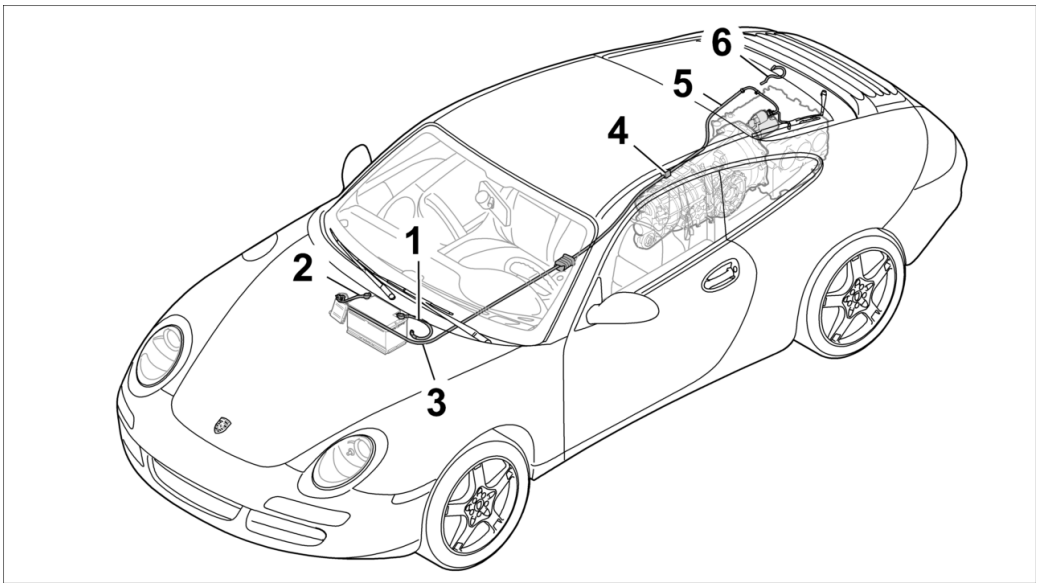
8.1. Remove grommet **-Arrow A-** .

8.2. Remove B+ line from grommet **-Arrow B-** .

8.3. Pull B+ line out of the vehicle interior and remove **-Arrow C-** .

Removing B+ line from starter to transmission connection point

Installation Location:

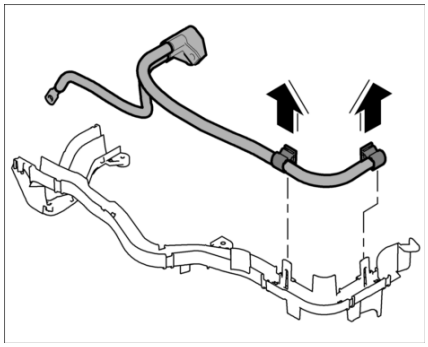


Installation position of wire harness for battery wiring

4 - Connection point of B+ box on transmission

5 - B+ line from starter to transmission connection point

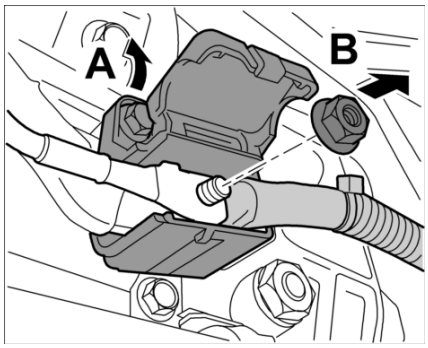
1. Screw off fastening nut on starter lead at terminal 30 and remove it. 276019 Removing and installing starter - chapter on "Removing"



Unclipping B+ line to starter at cable duct

2. Unclip B+ line **-5-** at cable duct for engine wire harness.

2.1. Unclip B+ line at cable duct **-arrows-** .



Unscrewing B+ line at box for B+ line

3. Unscrew B+ line **-5-** at box for B+ line **-4-** .

3.1. Open box for B+ line at transmission **-Arrow A-** , unscrew fastening nut **-Arrow B-** and remove the B+ line.

Note

For vehicles with manual transmission.

4. Remove cable duct of B+ line **-5-** at manual transmission. 343519 Removing and installing transmission - chapter on "Removing" [997410 997411 997430 997431 997610 997611 997620 997621] 343519 Removing and installing transmission - chapter on "Removing" [997110 997111 997120 997121 997310 997311 997320 9973211]

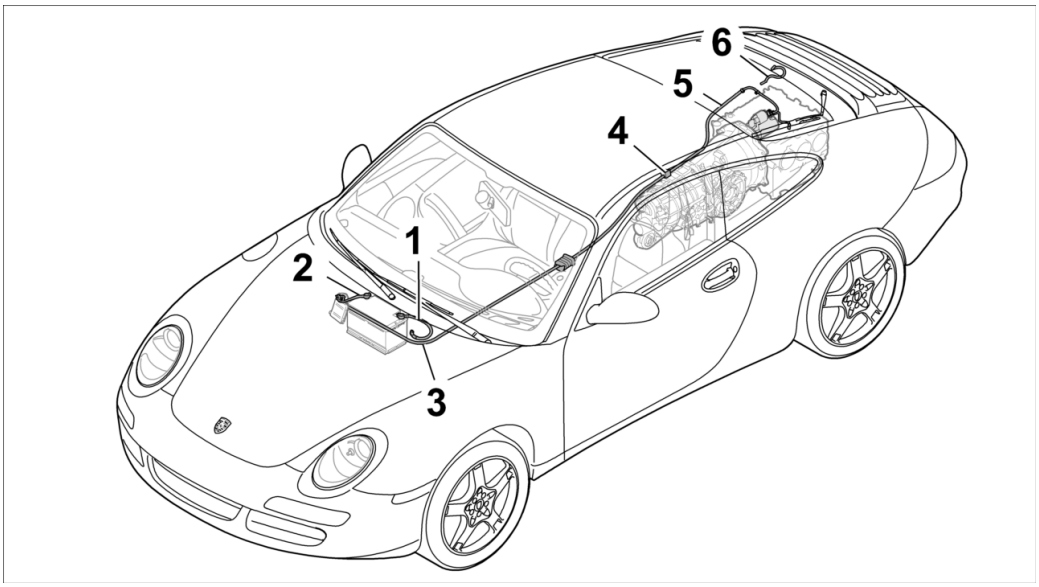
Note

For vehicles with automatic transmission.

5. Remove cable duct of B+ line **-5-** at automatic transmission. 373527 Removing and mounting automatic transmission - chapter on "Mounting" [997110 997111 997120 997121 997310 997311 997320 997321] *373527 27 Removing and mounting automatic transmission - chapter on "Mounting" [997410 997411 997430 997431 997610 997611 997620 997621]*
6. Remove B+ line **-5-** .

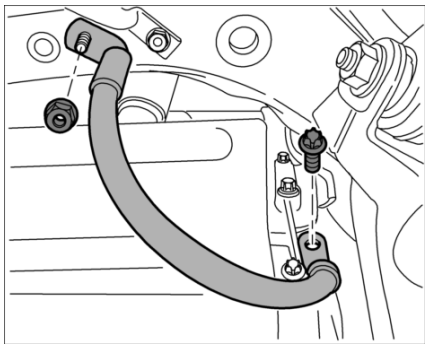
Removing engine ground strap

Installation Location:



Installation position of wire harness for battery wiring

6 - Engine ground strap



Fastening engine ground strap

1. Remove engine ground strap **-6-** .

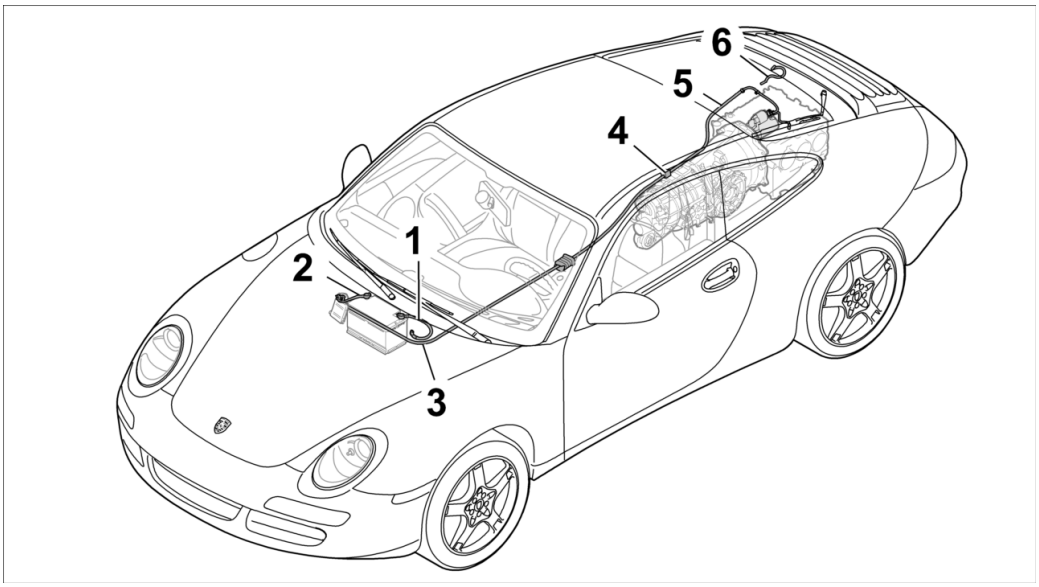
1.1. Unscrew fastening screws on engine, fastening nut on body, and remove ground strap.

top of page

Installing wire harness for battery wiring

Installing ground strap and B+ line of battery

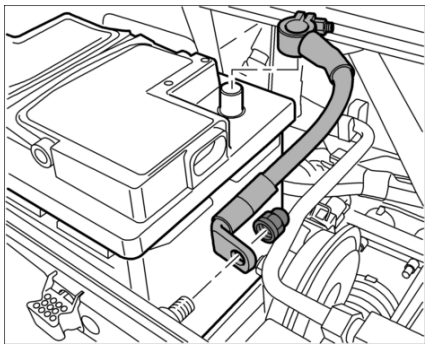
Installation Location:



Installation position of wire harness for battery wiring

1 - Ground strap for battery

2 - B+ lead for battery



Ground strap from battery to body

1. Install ground strap for battery **-1-** .

1.1. Screw down battery ground strap on the body with the fastening nut. **Tightening torque: 5 (3.5 ftlb.) Nm**

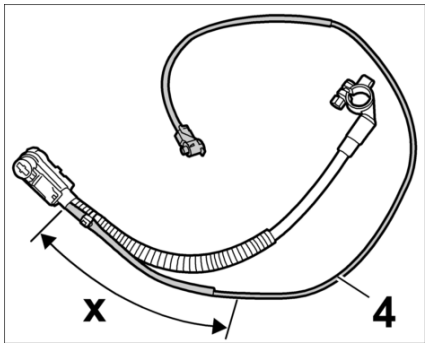
2. Install B+ line for battery **-2-** .

2.1. Push the B+ line of the battery onto the mounting point at the power distributor as far as the stop. Check that the B+ line sits firmly. 978919 Removing and installing power distributor - chapter on "Installing"

2.2. Screw B+ line tightly to battery. **Tightening torque: 5 (3.5 ftlb.) Nm** 270619 Removing and installing battery - chapter on "Removing"

Note

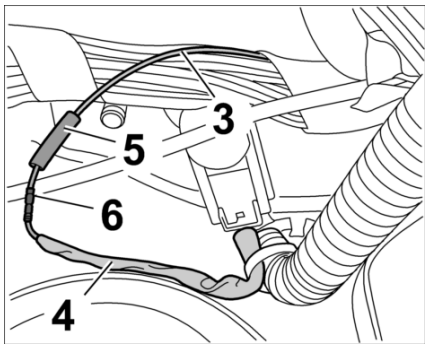
The electric lines are located in the plenum panel and are thus exposed to the highest demands.
The greatest care must be used in the individual work steps for stripping insulation from, crimping, and shrinking/insulating the electric lines.
The procedure for stripping insulation from, crimping, and shrinking/insulating the electric lines must be complied with and observed. The procedures are described in detail in the **repair kit for harnesses NR.155-1**.
Crimping samples are to be prepared before beginning work.



Trimming the positive cable.

3. Crimp the positive cable.

3.1. Trim the new positive cable **-4-** to the **-dimension X = approx. 20 cm-** and strip the insulation.



Crimping the positive cable

3.2. Strip insulation off original positive cable of main wire harness **-3-** and push on the shrink-fit hose **-5-** .

3.3. Crimp crimping sleeve **-6-** using the **hand crimping pliers** from the **repair kit for harnesses NR.155-1** to the positive cable **-3-** .

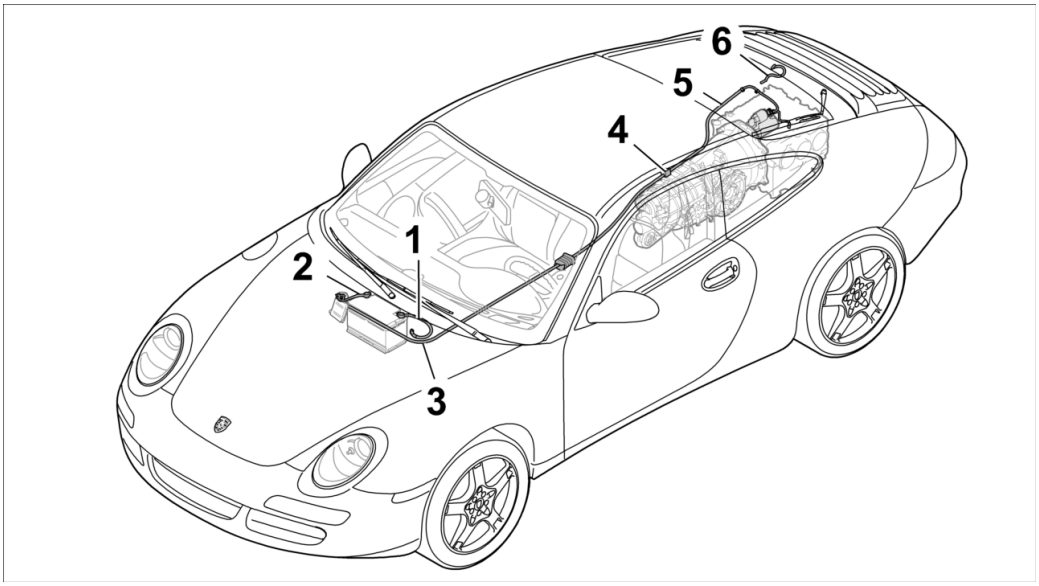
3.4. Crimp crimping sleeve **-6-** using the **hand crimping pliers** from the **repair kit for harnesses NR.155-1** to the new positive cable **-4-** . Check the crimp connection carefully.

3.5. Slide the shrink-fit hose over the crimp connection and carefully shrink it using the **hot-air blower with special nozzle** (recommended accessories for the repair kit for harnesses) so that it is watertight.

3.6. Tie positive cable to the main wire harness with adhesive tape.

Install B+ line from power distributor to transmission connection point

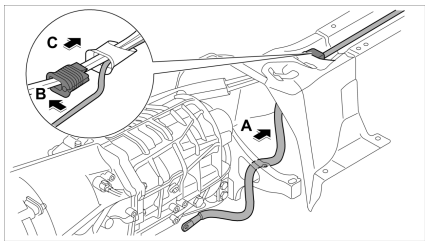
Installation Location:



Installation position of wire harness for battery wiring

3 - B+ line from power distributor to transmission connection point

4 - Connection point of B+ box on transmission



Installing B+ line

1. Install B+ line **-3-** .

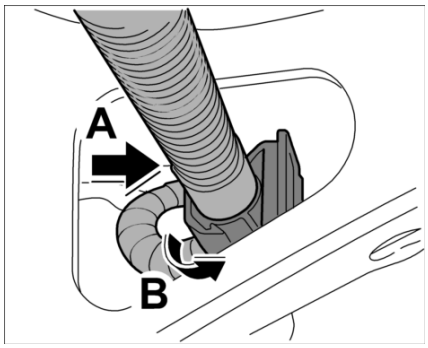
1.1. Lay B+ line to transmission and push into the vehicle interior **-Arrow A-** .

1.2. Press B+ line into the grommet **-Arrow B-** .

1.3. Fit grommet **-Arrow C-** .

Note

For vehicles with manual transmission.



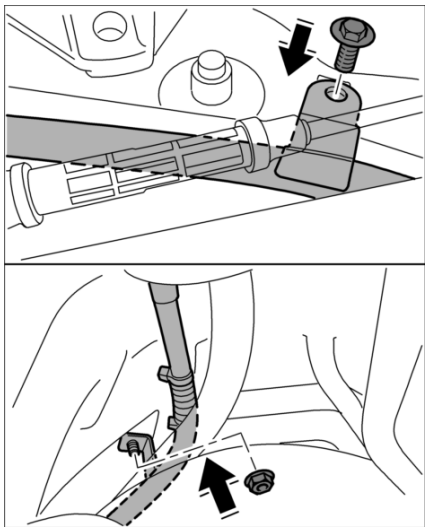
Clip B+ line onto transmission bracket.

2. Clip B+ line **-3-** onto transmission bracket.

2.1. Insert B+ line into holder **-Arrow A-** and close holder **-Arrow B-**

Note

For vehicles with automatic transmission.



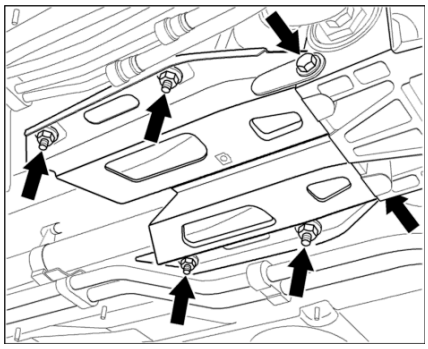
Fastening guide tube of B+ line

3. Screw down guide tube of B+ line **-3-** on the body.

3.1. Position guide tube of B+ line on the body and screw down with fastening screw and fastening nut. **Tightening torque: 10 (7.5 ftlb.) Nm** **Tightening torque: 10 (7.5 ftlb.) Nm**

Note

For vehicles with automatic transmission.

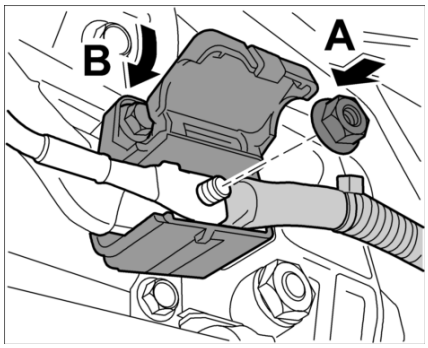


Transmission support

4. Install transmission support.

4.1. Position the transmission support and secure with the four fastening screws and the two fastening nuts. **Tightening torque: 65 (48 ftlb.) Nm**

4.2. Lower **transmission jack WE1082** and remove from under the vehicle.

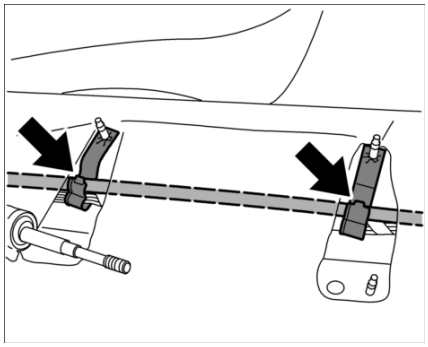


Screw down B+ line at box for B+ line.

5. Screw down B+ line **-3-** at box for B+ line **-4-** .

5.1. Insert B+ line into the box and tighten with the fastening nut **-Arrow A-** . **Tightening torque: 23 (17 ftlb.) Nm**

5.2. Close box for B+ line on transmission **-Arrow B-** .

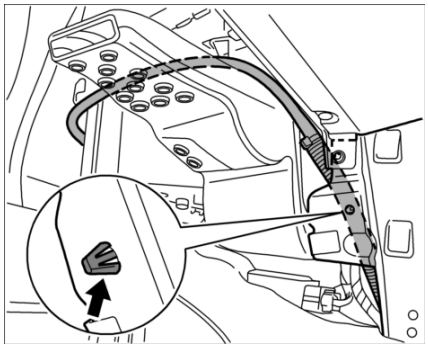


Fastening of B+ line at centre tunnel

6. Fasten B+ lead **-3-** at centre tunnel.

6.1. Push B+ line under the carpet in the direction of travel.

6.2. Insert B+ line into the two holders **-arrows-** .

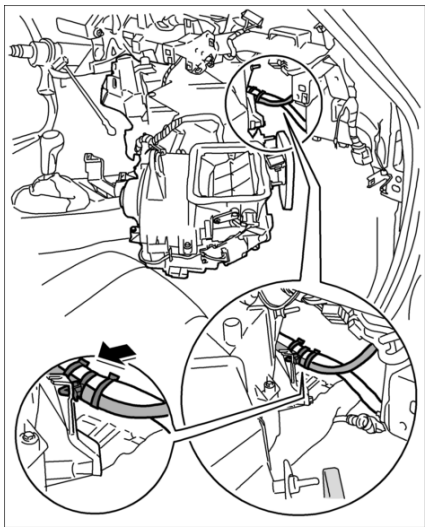


Fastening of B+ line at unit carrier.

7. Clip in B+ line **-3-** at unit carrier.

7.1. Push B+ line through the unit carrier and across the footwell air vent.

7.2. Clip in B+ line **-arrow-** at unit carrier with the retaining clip.



Fastening B+ line at heater/air-conditioning unit

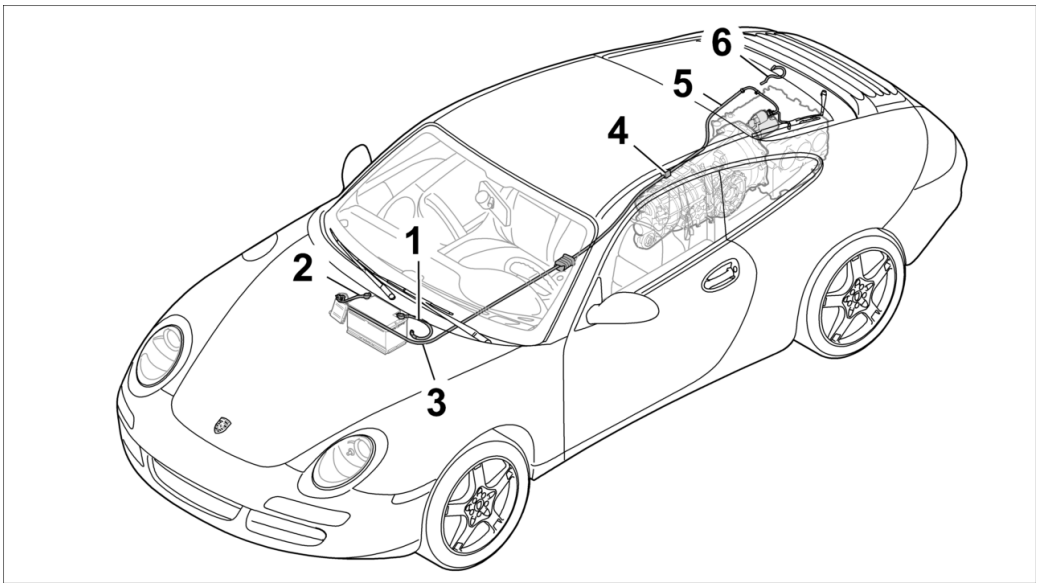
8. Clip in B+ line **-3-** at heater/air-conditioning unit.

8.1. Secure the B+ line to the main wire harness with the two new tie-wraps.

8.2. Clip in B+ line at heater/air-conditioning unit with the tie-wraps.

Installing B+ line from starter to transmission connection point

Installation Location:



Installation position of wire harness for battery wiring

4 - Connection point of B+ box on transmission

5 - B+ line from starter to transmission connection point

1. Lay B+ line **-5-** .

Note

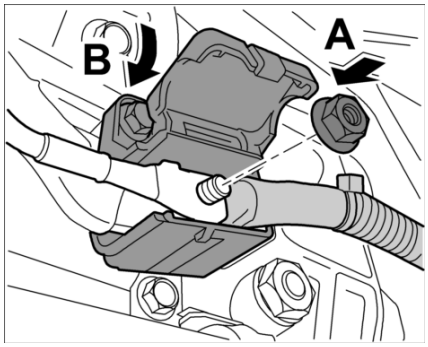
For vehicles with manual transmission.

2. Install cable duct of B+ line **-5-** at manual transmission. 343519 Removing and installing transmission - chapter on "Installing" [997410 997411 997430 997431 997610 997611 997620 997621] 343519 Removing and installing transmission - chapter on "Installing" [997110 997111 997120 997121 997310 997311 997320 997321]

Note

For vehicles with automatic transmission.

3. Install cable duct of B+ line **-5-** at automatic transmission. 373527 Removing and mounting the automatic transmission - chapter on "Removing and Mounting" [997110 997111 997120 997121 997310 997311 997320 997321] *373527 27 Removing and mounting the automatic transmission - chapter on "Removing and Mounting" [997410 997411 997430 997431 997610 997611 997620 997621]*

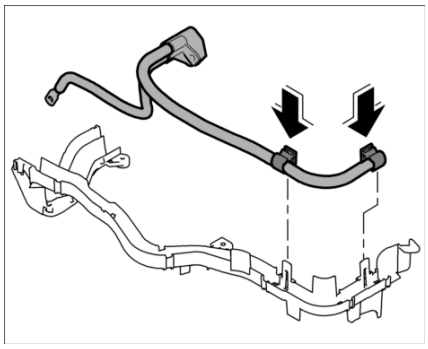


Screwing down B+ line at box for B+ line

4. Screw down B+ line **-5-** at box for B+ line **-4-** .

4.1. Insert B+ line into the box and tighten with the fastening nut **-Arrow A-** . **Tightening torque: 23 (17 ftlb.) Nm**

4.2. Close box for B+ line on transmission **-Arrow B-** .



Clipping in starter lead at cable duct

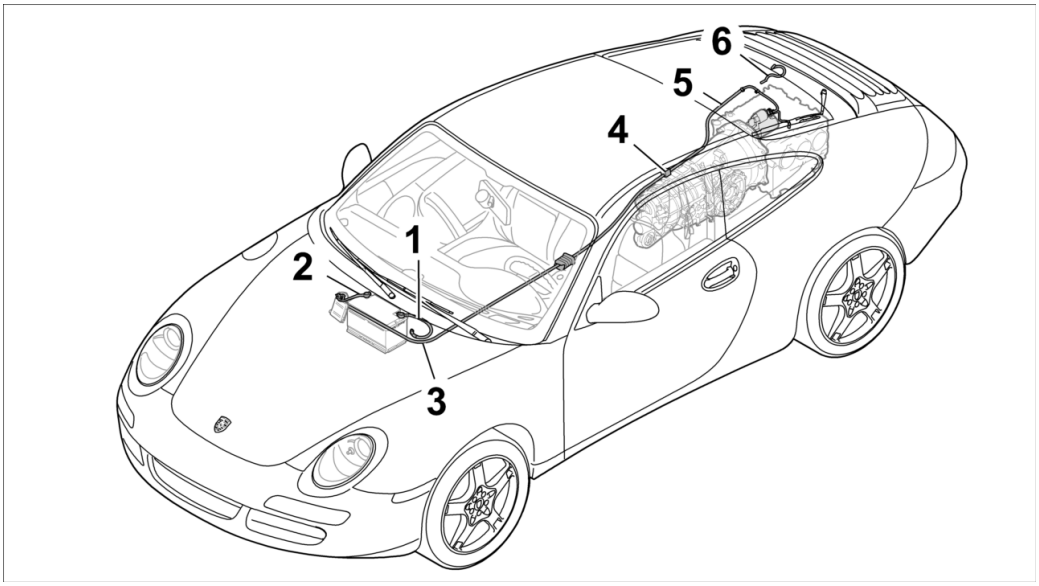
5. Clip in B+ line **-5-** at cable duct for engine wire harness.

5.1. Clip in B+ line at cable duct **-arrows-** .

6. Position starter lead for terminal 30 and secure with fastening nut. **Tightening torque: 18 (13.0 ftlb.) Nm** 276019 Removing and installing starter - chapter on "Installing"

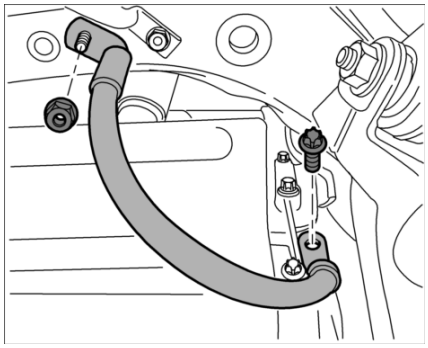
Fitting ground strap to engine

Installation Location:



Installation position of wire harness for battery wiring

6 - Engine ground strap



Fastening engine ground strap

1. Fit engine ground strap **-6-** .

1.1. Position ground strap and screw down with the fastening screw and fastening nut. **Tightening torque: 23 (17 ftlb.) Nm** **Tightening torque: 23 (17 ftlb.) Nm**

top of page

Subsequent work

Subsequent work for ground strap and B+ line of battery

1. Carry out work instruction after disconnecting the battery. 2706IN Work instructions after disconnecting the battery

Subsequent work for B+ line from power distributor to transmission connection point

1. Install cover for centre underbody. 519319 Removing and installing centre cover - chapter on "Installing"
2. Install rear underbody cover. 519419 Removing and installing rear cover - section on "Installing"
3. Install parking-brake lever. *466119 23 Removing and installing parking-brake lever - section on "Installing"*

Note

For vehicles with automatic transmission.

4. Install selector support. 370819 Removing and installing selector support - chapter on "Installing"

Note

For vehicles with manual transmission.

5. Install gearshift bracket. 340819 Removing and installing gearshift bracket - chapter on "Installing"
6. Fasten triggering unit. 695319 Removing and installing triggering unit for airbag - chapter on "Installing"
7. Install power distributor. 978919 Removing and installing power distributor - chapter on "Installing"
8. Carry out work instructions after disconnecting the battery. *271000 Work instructions after disconnecting the battery*

Subsequent work for B+ line from starter to transmission connection point

1. Install the generator. 272219 Removing and installing three-phase generator - section on "Installing"
2. Install throttle housing. 244219 Removing and installing throttle housing - chapter on "Installing"
3. Install rear underbody cover. 519419 Removing and installing rear cover - section on "Installing"
4. Carry out work instructions after disconnecting the battery. *271000 Work instructions after disconnecting the battery*

Subsequent work for engine ground strap

1. Lower the vehicle.

97 52 19 Removing and installing wire harness for engine - as of MY 2005

- Preliminary work
- Removing wire harness for engine
- Installing wire harness for engine
- Subsequent work

top of page

Preliminary work

Preliminary work

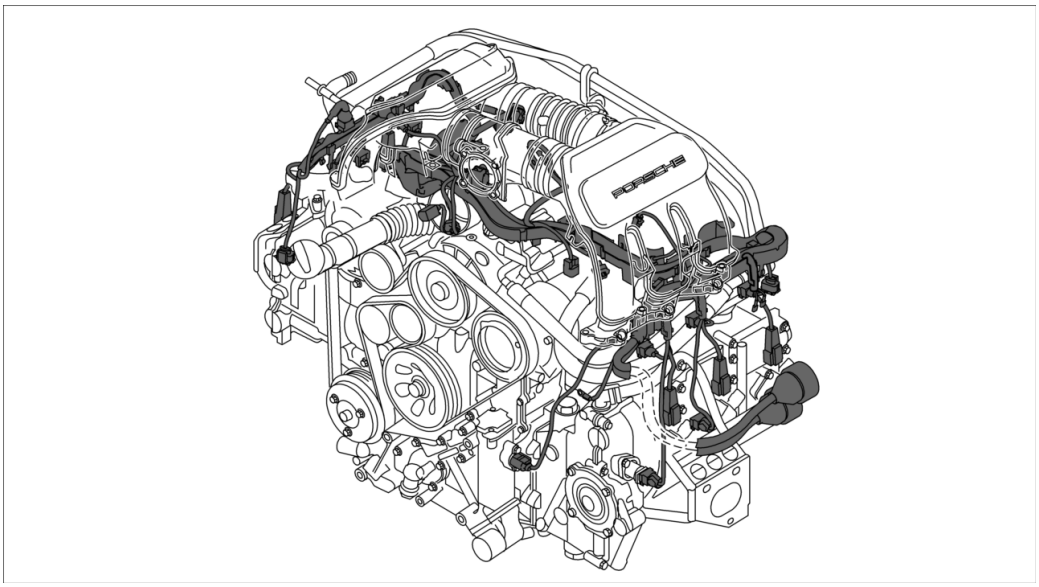
1. Remove rear wheels. 440519 Removing and installing wheel - section on "Removing"
2. Disconnect battery. *271000 Work instructions after disconnecting the battery*
3. Remove generator. 272219 Removing and installing three-phase generator - section on "Removing"
4. Remove intake-air distributor. 244619 Removing and installing intake-air distributor - section on "Removing"

top of page

Removing wire harness for engine

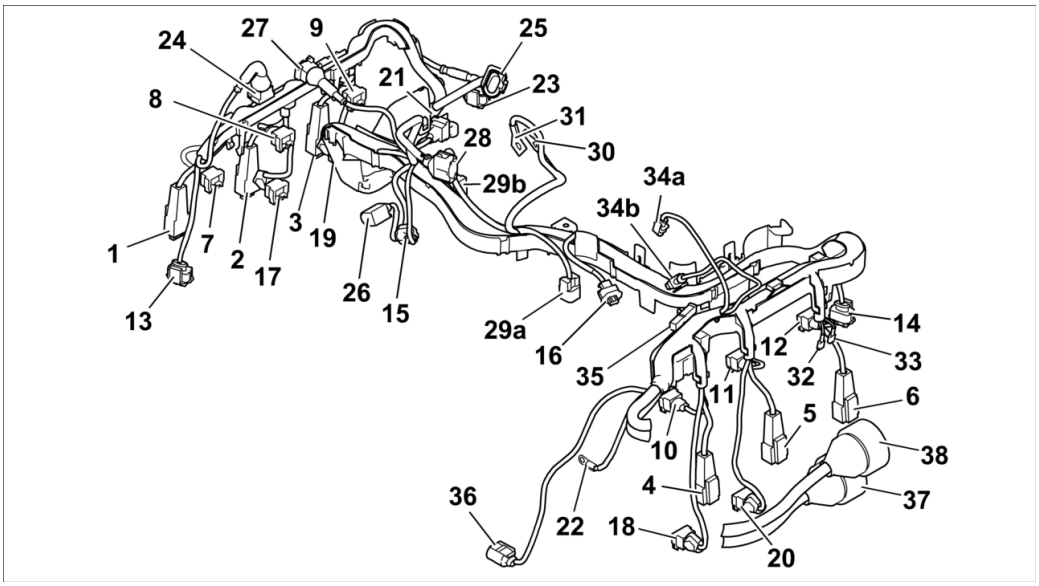
Removing wire harness for engine

Installation Location:



Installation position of engine wire harness

Installation Location:

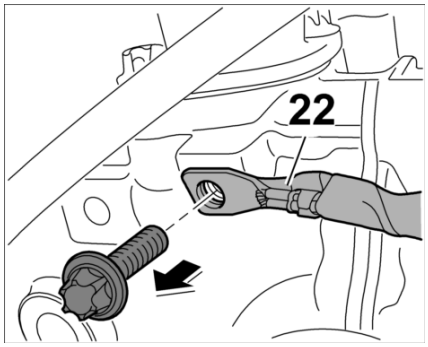


Overview of plugs for engine wire harness

1-3 - Ignition coil plug, cylinder 1 - 3
4-6 - Ignition coil plug, cylinder 4 - 6
7-9 - Fuel injector plug, cylinder 1 - 3
10-12 - Fuel injector plug, cylinder 4 - 6
13 - Camshaft sensor plug, cylinder row 1 - 3
14 - Camshaft sensor plug, cylinder row 4 - 6
15 - Knock sensor connector, cylinder row 1 - 3
16 - Knock sensor connector, cylinder row 4 - 6
17 - Solenoid hydraulic-valve plug (camshaft timing), cylinder row 1 - 3
18 - Solenoid hydraulic-valve plug (camshaft timing), cylinder row 4 - 6
19 - Solenoid hydraulic-valve plug (valve lift control), cylinder row 1 - 3

20 - Solenoid hydraulic-valve plug (valve lift control), cylinder row 4 - 6
21 - Ground strap
22 - Ground strap
23 - Speed sender
24 - Connector for intake-pipe change-over switch
25 - Secondary air blower plug
26 - Generator plug
27 - Tank vent connector
28 - Throttle valve connector
29A - Oil level sensor connector, M9605
29B - Oil level sensor connector, M9701
30 - Starter lead for terminal 30
31 - Starter lead for terminal 50
32-33 - Pressure sensor plug
34A - Engine-temperature sensor connector, M9605
34B - Engine-temperature sensor connector, M9701
35 - A/C compressor connector
36 - Water-temperature sensor connector
37-38 - Plug connections for engine wire harness to rear wire harness

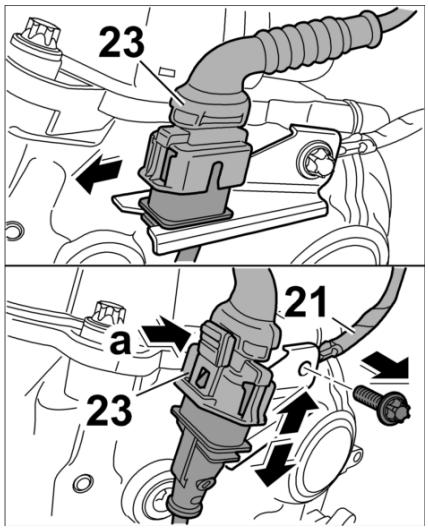
1. Release plugs on the six ignition coils **-1 to 6-** and pull them off. 287020 Removing and installing spark plug - section on "Removing"
2. Release plugs on the six fuel injectors **-7 to 12-** and pull them off. 244019 Removing and installing fuel injector - section on "Removing"
3. Release connectors on both knock sensors **-15 and 16-** and pull them off. 287219 Removing and installing knock sensor - section on "Removing"
4. Release plugs on both solenoid hydraulic valves (camshaft timing) **-17 and 18-** and pull them off. 153719 Removing and installing solenoid hydraulic valve (camshaft timing) - section on "Removing"
5. Release plugs on both solenoid hydraulic valves (valve lift control) **-19 and 20-** and pull them off. 155519 Removing and installing solenoid hydraulic valve (valve lift control) - section on "Removing"



Unscrewing ground straps on engine

6. Unscrew ground straps **-22-** .

6.1. Unscrew fastening screw and remove ground straps **-22-** .



Disconnecting plug connection on speed sender

7. Disconnect plug connection on speed sender **-23-** and unscrew ground straps **-21-** .

7.1. Pull plug connection **-23-** out of holder.

7.2. Release plug connection **-23-** (**-Arrows a-**) and disconnect it.

7.3. Unscrew fastening screw and remove ground straps **-21-** .

8. Release securing clip and pull off connector on intake-pipe change-over switch **-24-** .

9. Release plug on secondary air blower **-25-** and pull it off. 266519 Removing and installing secondary air pump - section on "Removing"

10. Release securing clip and pull off connector on tank vent **-27-** .

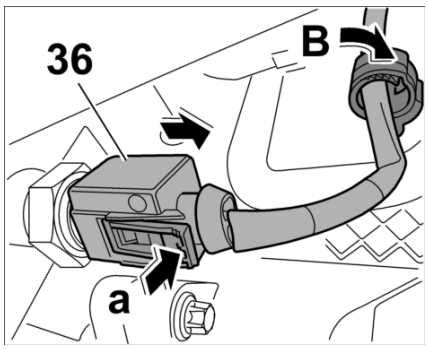
11. Release connector on oil level sensor **-29-** and pull it off.

12. Screw off fastening nut on starter lead for terminal 50 **-31-** and remove it. 276019 Removing and installing starter - section on "Removing"

13. Pull off plugs on pressure sensor **-32 and 33-** .

14. Release connector on engine temperature sensor **-34-** and pull it off.

15. Release and disconnect plug connection to compressor **-35-** . 873419 Removing and installing compressor - section on "Removing"

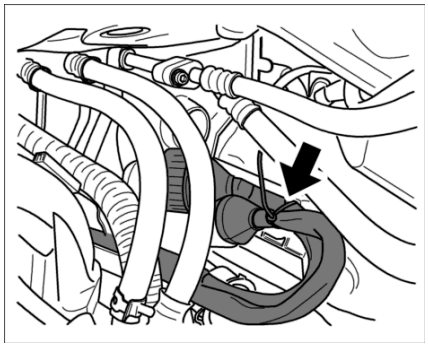


Pulling off connector on water temperature sensor

16. Pull off connector on water temperature sensor **-36-** .

16.1. Open holder **-Arrow B-** and remove lead.

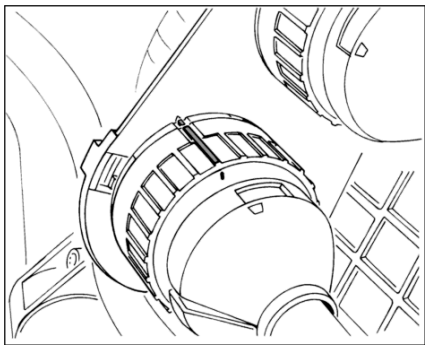
16.2. Release connector on water temperature sensor **-36-** (**-Arrow a-**) and pull it off.



Engine wire harness attachment

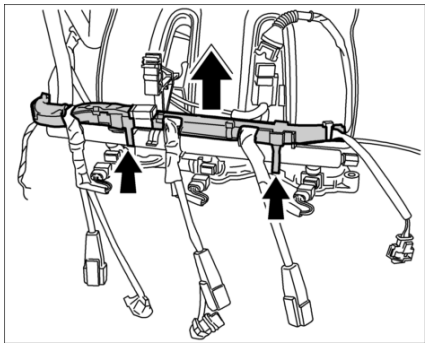
17. Disconnect plug connection for engine wire harness to rear wire harness **-37 and 38-** . 100119 Removing and installing engine - section on "Removing"

17.1. Remove tie-wrap **-Arrow-** .



Round connectors for engine wire harness

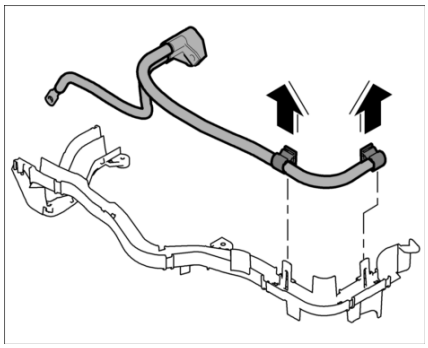
17.2. Release engine wire harness at the two plug connections and disconnect it by turning the bayonet locks anti-clockwise.



Unclipping cable duct on left and right

18. Unclip cable duct on the left and right.

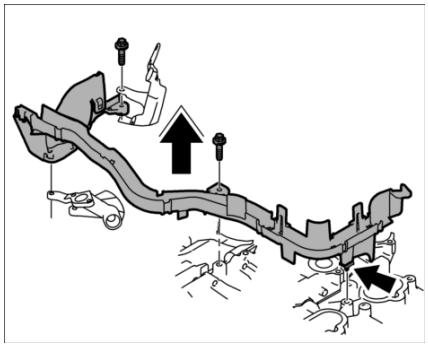
18.1. Unclip cable duct on the left and right at the fuel distributor pipes **-Arrows-** .



Unclipping starter lead at cable duct

19. Unclip starter lead.

19.1. Unclip starter lead at cable duct **-Arrows-** .



Removing cable duct

20. Remove cable duct.

20.1. Unscrew fastening screws, unclip cable duct **-Arrow-** and remove it.

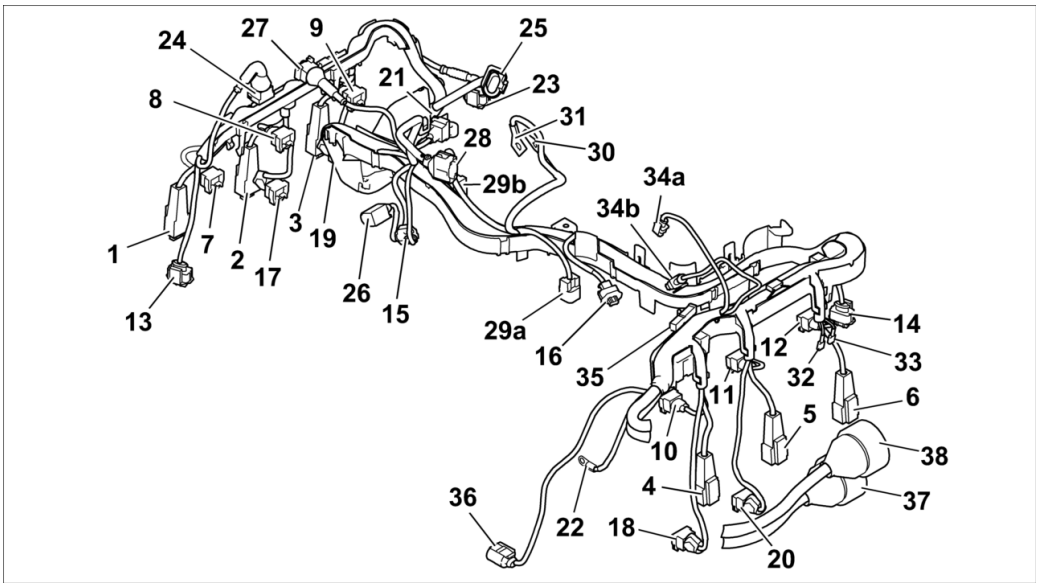
21. Remove wire harness for engine.

top of page

Installing wire harness for engine

Installing wire harness for engine

Installation Location:



Overview of plugs for engine wire harness

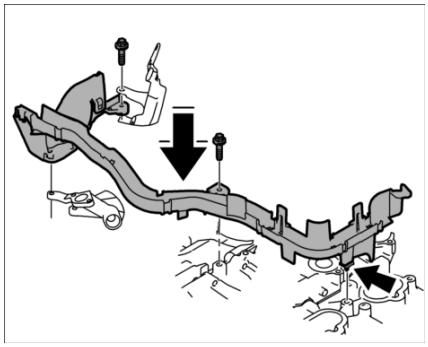
1-3 - Ignition coil plug, cylinder 1 - 3
4-6 - Ignition coil plug, cylinder 4 - 6
7-9 - Fuel injector plug, cylinder 1 - 3
10-12 - Fuel injector plug, cylinder 4 - 6
13 - Camshaft sensor plug, cylinder row 1 - 3
14 - Camshaft sensor plug, cylinder row 4 - 6
15 - Knock sensor connector, cylinder row 1 - 3
16 - Knock sensor connector, cylinder row 4 - 6
17 - Solenoid hydraulic-valve plug (camshaft timing), cylinder row 1 - 3
18 - Solenoid hydraulic-valve plug (camshaft timing), cylinder row 4 - 6
19 - Solenoid hydraulic-valve plug (valve lift control), cylinder row 1 - 3
20 - Solenoid hydraulic-valve plug (valve lift control), cylinder row 4 - 6
21 - Ground strap
22 - Ground strap
23 - Speed sender
24 - Connector for intake-pipe change-over switch
25 - Secondary air blower plug
26 - Generator plug
27 - Tank vent connector
28 - Throttle valve connector
29A - Oil level sensor connector, M9605
29B - Oil level sensor connector, M9701
30 - Starter lead for terminal 30
31 - Starter lead for terminal 50
32-33 - Pressure sensor plug
34A - Engine-temperature sensor connector, M9605
34B - Engine-temperature sensor connector, M9701

35 - A/C compressor connector

36 - Water-temperature sensor connector

37-38 - Plug connections for engine wire harness to rear wire harness

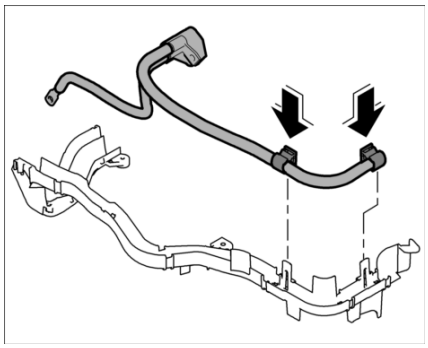
1. Lay out wire harness for engine.



Installing cable duct

2. Install cable duct.

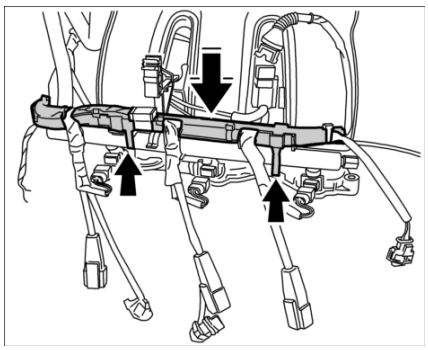
2.1. Clip in cable duct **-Arrows-** and secure with the fastening screws. **Tightening torque: 10 (7.5 ftlb.) Nm**



Clipping in starter lead at cable duct

3. Clip in starter lead.

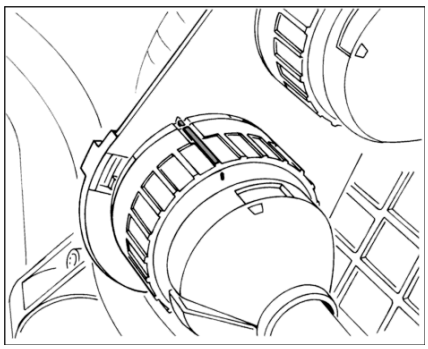
3.1. Clip in starter lead at cable duct **-Arrows-** .



Clipping in cable duct at left and right

4. Clip in cable duct at the left and right.

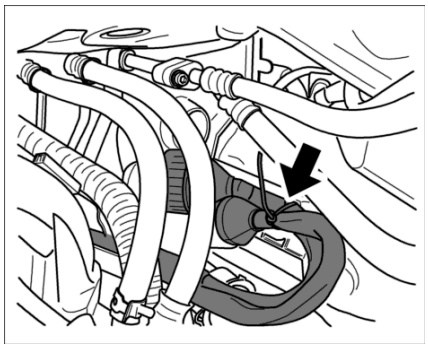
4.1. Position and clip in cable duct on the left and right at the fuel distributor pipes **-Arrows-** .



Round connectors for engine wire harness

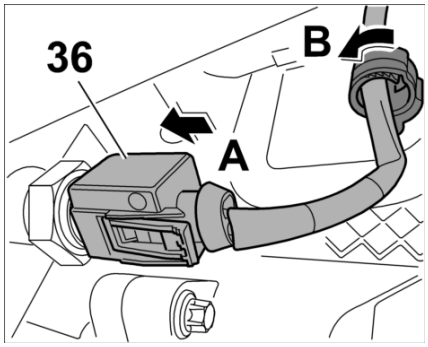
5. Push plug connection for engine wire harness to rear wire harness **-37 and 38-** together. 100119 Removing and installing engine - section on "Installing"

5.1. Connect engine wire harness at the two plug connections and lock it by turning the bayonet locks clockwise.



Engine wire harness attachment

5.2. Fit new tie-wrap **-Arrow-** .



Attaching connector on water temperature sensor

6. Attach connector on water temperature sensor **-36-** .

6.1. Plug in connector on water temperature sensor **-36-** (**-Arrow A-**) until it engages firmly.

6.2. Insert wire into the holder and close holder **-Arrow B-** .

7. Press plug connection for compressor **-35-** together until it is felt to engage. 873419 Removing and installing compressor - section on "Installing"

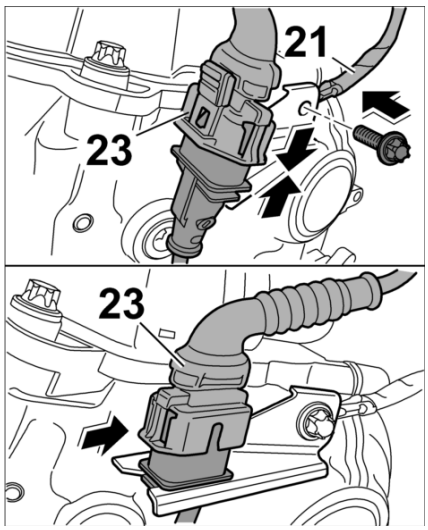
8. Plug in connector on engine temperature sensor **-34-** until it engages firmly.

9. Connect plugs on pressure sensor **-32 and 33-** .

10.

Position starter lead for terminal 50 **-31-** and secure with fastening nut. **Tightening torque: 6.5 (5.0 ftlb.) Nm** 276019 Removing and installing starter - section on "Installing"

11. Plug in connector on oil level sensor **-29-** until it engages securely.
12. Plug in connector on tank vent **-27-** until the securing clip engages securely.
13. Connect plug on secondary air blower **-25-** until it engages firmly. 266519 Removing and installing secondary air pump - section on "Installing"
14. Plug in connector on intake-pipe change-over switch **-24-** until the securing clip engages securely.



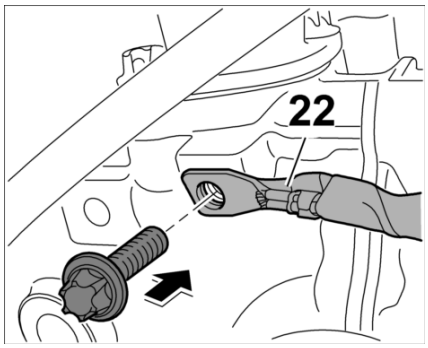
Connecting plug connection on speed sender

15. Screw down ground straps **-21-** and connect plug connection on speed sender **-23-** .

15.1. Position ground straps **-21-** and screw down the fastening screw. **Tightening torque: 10 (7.5 ftlb.) Nm**

15.2. Push the plug connection **-23-** together until it is felt to engage.

15.3. Push plug connection **-23-** into holder.



Screwing down ground straps on engine

16. Screw down ground straps **-22-** .

16.1. Position ground straps **-22-** and screw down the fastening screw. **Tightening torque: 10 (7.5 ftlb.) Nm**

17. Connect plugs on the two solenoid hydraulic valves (valve lift control) **-19 and 20-** until they click into place. 155519 Removing and installing solenoid hydraulic valve (valve lift control) - section on "Installing"
18. Connect plugs on the two solenoid hydraulic valves (camshaft timing) **-17 and 18-** until they click into place. 153719 Removing and installing solenoid hydraulic valve (camshaft timing) - section on

"Installing"

19. Plug in connectors on the two knock sensors **-15 and 16-** until they click into place. 287219 Removing and installing knock sensor - section on "Installing"
20. Connect plugs on the six fuel injectors **-7 to 12-** until they engage securely. 244019 Removing and installing fuel injector - section on "Installing"
21. Connect plugs on the six ignition coils **-1 to 6-** until they engage securely. 287020 Removing and installing spark plug - section on "Installing"

top of page

Subsequent work

Subsequent work

1. Install intake-air distributor. 244619 Removing and installing intake-air distributor - section on "Installing"
2. Install the generator. 272219 Removing and installing three-phase generator - section on "Installing"
3. Carry out work instructions after disconnecting the battery. *271000 Work instructions after disconnecting the battery*
4. Mount rear wheels. 440519 Removing and installing wheel - section on "Installing"

997110, 997111, 997120, 997121, 997310, 997311, 997320, 997321, 997410, 997411, 997430, 997431, 997610, 997611, 997620, 997621

as of MY 2005
Country C00, C02, C05, C07, C08, C09, C10, C11, C12, C13, C14, C15, C16, C18, C19, C20, C21, C22, C23, C24, C25, C26, C27, C28, C32, C33, C34, C35, C36, C37, C38, C39, C45, C46, C98, C99

WARNUNG

Gefahr des Verlusts der Text-Bild-Zuordnung beim Ausdruck.

- **Aus technischen Gründen kann derzeit nicht ausgeschlossen werden, dass trotz einwandfreier Darstellung auf dem Bildschirm beim Ausdruck der Zusammenhang von Text und zugehörigem Bild verloren geht.**
- **Wird der Fehler nicht bemerkt, besteht die Gefahr, daß Arbeiten nicht korrekt durchgeführt werden und es dadurch zu Personen- und Sachschäden kommt.**

Vergleichen Sie deshalb nach dem Druckvorgang unbedingt die Ausdrucke mit der Bildschirmdarstellung. Korrigieren Sie die Ausdrucke im Fehlerfall so, daß der Inhalt der Bildschirmdarstellung zutreffend wiedergegeben wird.

WARNING

97 53 19 Removing and installing wire harness for seat heater - as of MY 2005

- Information

top of page

Information

Spare parts information

Note
The seat-heating wire harness is only available as a spare part together with the heating element. The heating element is stuck to the padding and can only be replaced together with the padding. Depending on the I number, the padding spare part is only supplied with the heating element and seat-heating wire harness attached.

Replace padding for front seat. 741019 Removing and installing padding for front seat

---

997110, 997111, 997120, 997121, 997310, 997311, 997320, 997321, 997410, 997411, 997430, 997431, 997610, 997611, 997620, 997621

as of MY 2005
Country C00, C02, C05, C07, C08, C09, C10, C11, C12, C13, C14, C15, C16, C18, C19, C20, C21, C22, C23, C24, C25, C26, C27, C28, C32, C33, C34, C35, C36, C37, C38, C39, C45, C46, C98, C99

WARNUNG
Gefahr des Verlusts der Text-Bild-Zuordnung beim Ausdruck.

- **Aus technischen Gründen kann derzeit nicht ausgeschlossen werden, dass trotz einwandfreier Darstellung auf dem Bildschirm beim Ausdruck der Zusammenhang von Text und zugehörigem Bild verloren geht.**
- **Wird der Fehler nicht bemerkt, besteht die Gefahr, daß Arbeiten nicht korrekt durchgeführt werden und es dadurch zu Personen- und Sachschäden kommt.**

Vergleichen Sie deshalb nach dem Druckvorgang unbedingt die Ausdrucke mit der Bildschirmdarstellung. Korrigieren Sie die Ausdrucke im Fehlerfall so, daß der Inhalt der Bildschirmdarstellung zutreffend wiedergegeben wird.

WARNING

97 55 19 Removing and installing wire harness for convertible top - as of MY 2005

- Preliminary work
- Removing wire harness for convertible top
- Installing wire harness for convertible top
- Subsequent work

top of page

Preliminary work

Preliminary work for convertible top wiring harness

1. Remove convertible-top covering. 612819 Removing and installing convertible top covering - chapter on "Removing"

Preliminary work for wiring harness for roll-over protection system

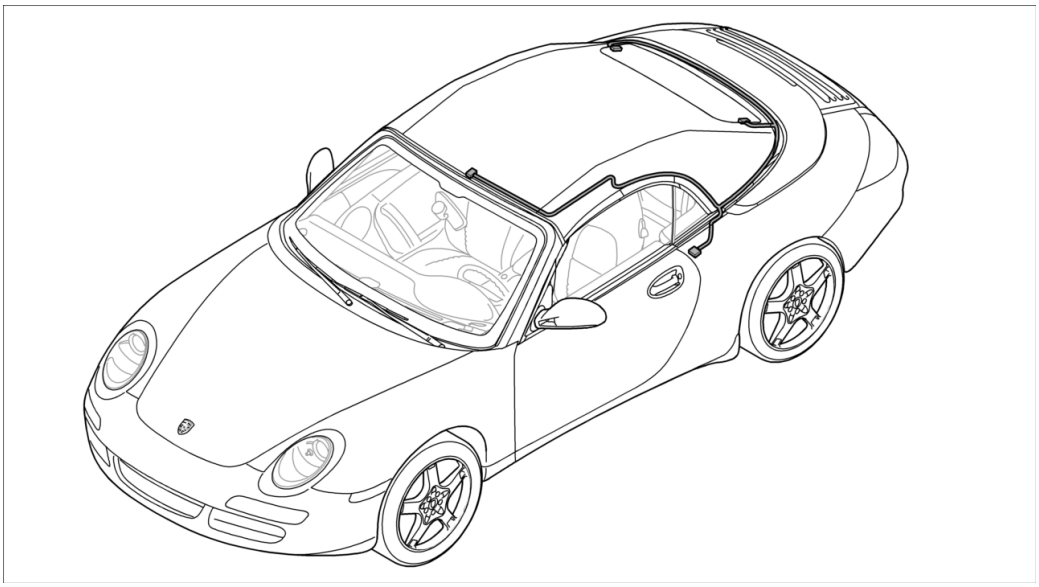
1. Disconnect battery. *271000 Work instructions after disconnecting the battery*
2. Remove roll-over bar. 697219 Removing and installing roll-over bar - chapter on "Removing" [997610] 697219 Removing and installing roll-over bar - chapter on "Removing" [997310 997311 997320 997321 997611 997620 997621]

top of page

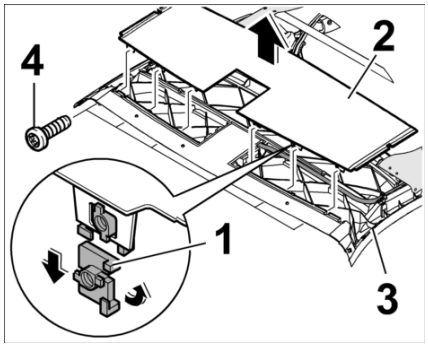
Removing wire harness for convertible top

Removing plastic panel

Installation Location:



Installation position of convertible top wire harness



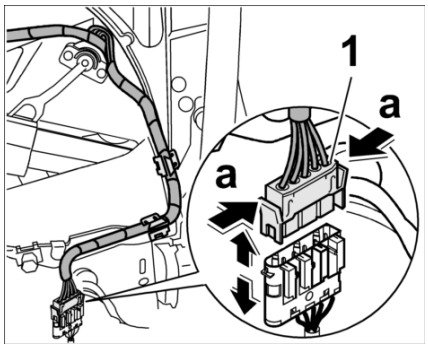
Removing plastic panel

1. Remove plastic panel.

1.1. Unscrew fastening screws **-4-** and remove plastic bracket **-2-** from roof frame 1 **-3-** .

1.2. Turn fixing clip **-1-** 90° counterclockwise and remove to the rear from the plate of the plastic panel **-2-** .

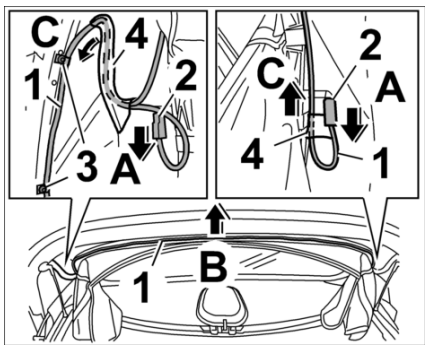
Disconnecting wire harness plug connection for convertible top



Disconnecting wire harness plug connection for convertible top

1. Release electric plug connection **-1-** of wire harness **-Arrow a-** and disconnect.

Removing wire harness for convertible top



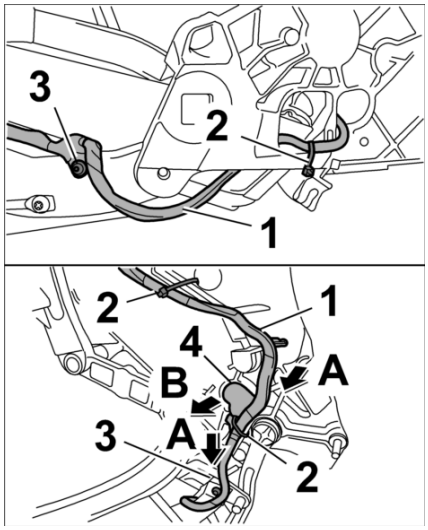
Removing wire harness at rear window

1. Remove wire harness at rear window.

1.1. Pull off both connectors **-2-** at the rear window **-Arrows A-** .

1.2. Pull out wire harness **-1-** from the rear window frame **-Arrow B-** .

1.3. Unscrew the two fastening screws **-3-** and remove the wire harness **-1-** from the fabric plate **-4-** .



Removing wire harness convertible top support

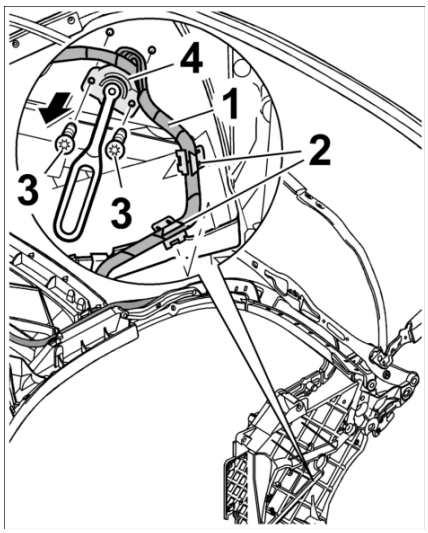
2. Remove wire harness convertible top support.

2.1. Remove the three tie-wraps **-2-** .

2.2. Unscrew the two fastening screws **-3-** .

2.3. Unclip wire harness **-1-** from the two retaining clips **-Arrows A-** .

2.4. Remove foam part **-4-** **-Arrow B-** .

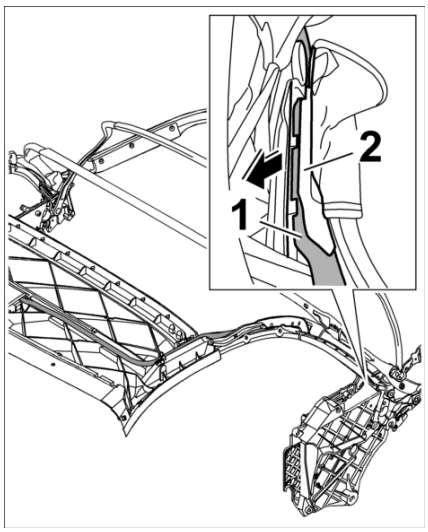


Removing potentiometer

3. Remove potentiometer.

3.1. Remove wire harness **-1-** from the two clamps **-2-** .

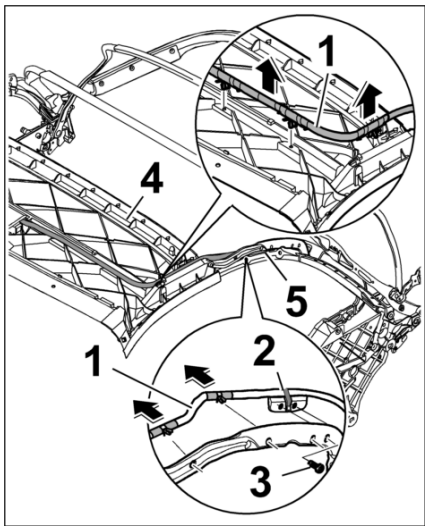
3.2. Unscrew the two fastening screws **-3-** and remove the potentiometer **-4-** .



Removing wire harness from cable duct

4. Remove wire harness from cable duct.

4.1. Remove wire harness **-1-** from cable duct **-2-** .



Removing wire harness at roof frame 1 and roof frame 3

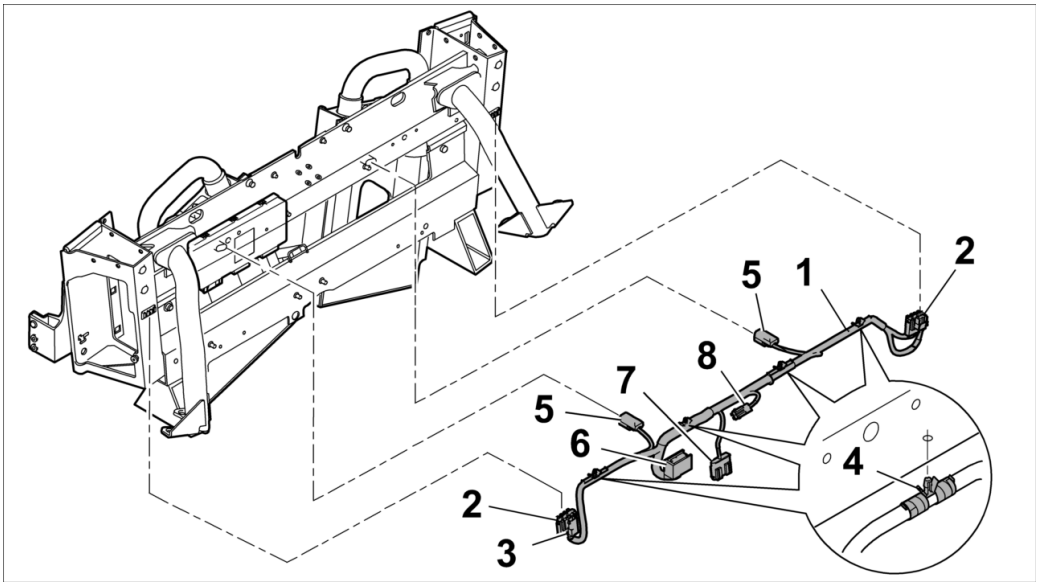
5. Removing wire harness at roof frame 1 and roof frame 3

5.1. Unscrew the two fastening screws **-3-** and remove plastic bracket **-2-** on roof frame 3 **-5-**
.

5.2. Unclip wire harness **-1-** at roof frame 3 **-5-** and at roof frame 1 **-4-**
.

Removing wire harness for roll-over protection system

Installation Location:



Overview of plugs for wire harness for roll-over protection system

1 - Wire harness for roll-over protection system

2 - Plug connection for rear side panel flap

3 - Hardtop mount plug connection

4 - Retaining clips

5 - Roll-over bar connector

6 - Convertible top control unit connector

7 - Plug connection for wire harness for roll-over protection system to rear wire harness

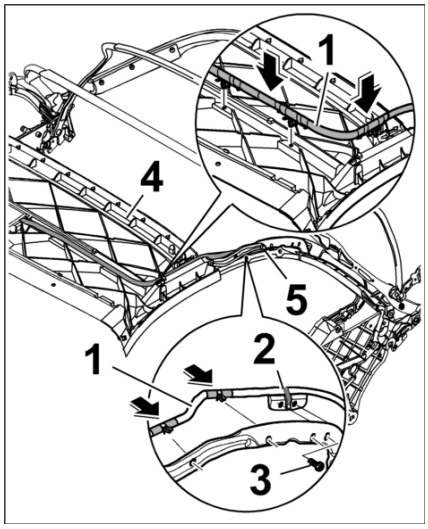
8 - Plug connection for motor for convertible-top compartment lid drive mechanism

1. Release and disconnect plug connections for rear side panel flap **-2-** at left and right. 614219 Removing and installing rear side section flap - chapter on "Removing"
2. Release and disconnect plug connection for hardtop mount **-3-** . 611719 Removing and installing hardtop mount - chapter on "Removing"
3. Release connector on convertible top control unit **-6-** and pull off. 619619 Removing and installing control unit for convertible top - chapter on "Removing"
4. Release and disconnect plug connection for roll-over protection system wire harness to rear wire harness **-7-** . 697719 Removing and installing frame for roll-over protection system - chapter on "Removing"
5. Release plug connection on motor for convertible-top compartment lid drive **-8-** and disconnect. 617019 Removing and installing drive motor - chapter on "Removing"
6. Unclip and remove wire harness for roll-over protection system **-1-** at the retaining clips **-4-** .

top of page

Installing wire harness for convertible top

Installing wire harness for convertible top

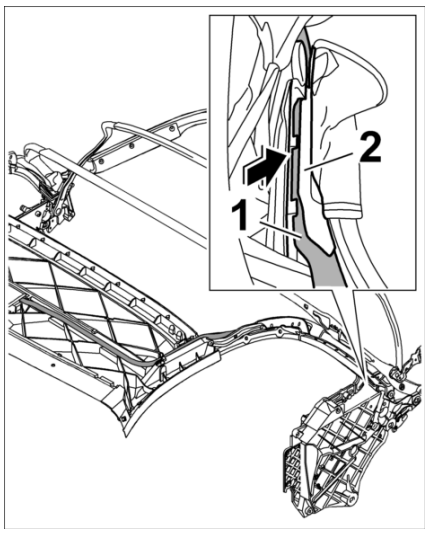


Installing wire harness at roof frame 1 and roof frame 3

1. Install wire harness at roof frame 1 and roof frame 3.

1.1. Lay wire harness **-1-** and clip in at roof frame 1 **-4-** and at roof frame 3 **-5-** .

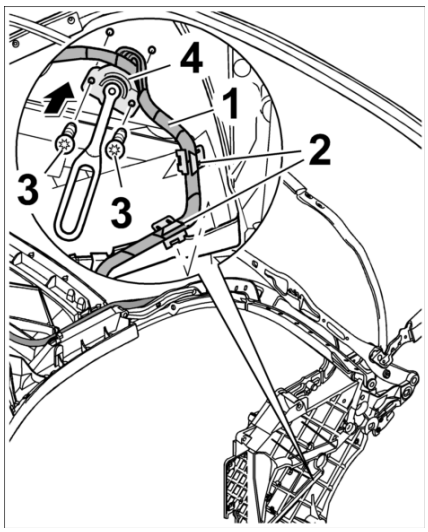
1.2. Position plastic bracket **-2-** on roof frame 3 **-8-** and screw down with the two fastening screws **-3-** .
Tightening torque: 3 (2 ftlb.) Nm



Pressing wire harness into cable duct

2. Press wire harness into cable duct.

2.1. Press wire harness into cable duct.



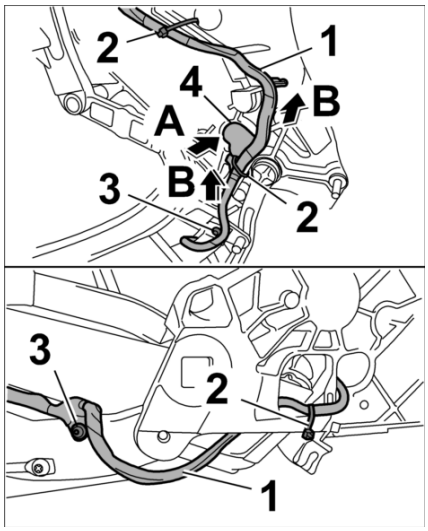
Installing potentiometer.

3. Install potentiometer.

3.1. Insert potentiometer fork into the pins of the hydraulic housing.

3.2. Position potentiometer **-4-** on convertible top support and screw down with the two fastening screws **-3-** . **Tightening torque: 3 (2 ftlb.) Nm**

3.3. Lay wire harness **-1-** and press into the two clamps **-2-** .



Installing wire harness on convertible-top support

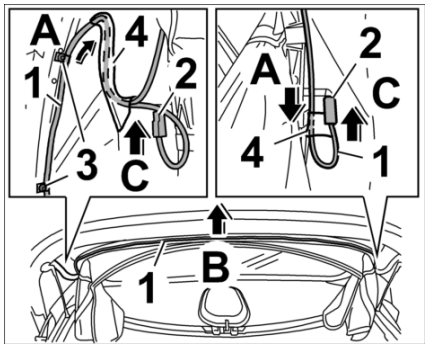
4. Install wire harness on convertible-top support.

4.1. Lay wire harness **-1-** and insert foam part **-4-** **-Arrow A-** .

4.2. Clip in wire harness **-1-** at the two retaining clips **-Arrows B-** .

4.3. Secure wire harness **-1-** with the two fastening screws **-3-** .

4.4. Fit three new tie-wraps **-2-** .



Installing wire harness at rear window

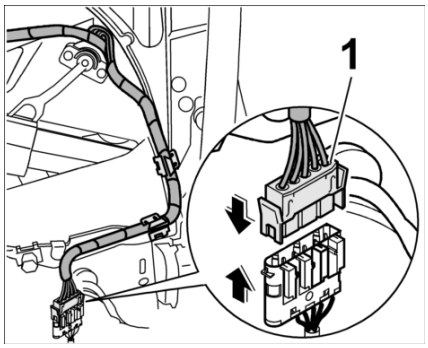
5. Install wire harness at rear window.

5.1. Push wire harness **-1-** through the fabric plate **-4-** **-Arrow A-** and secure with the two fastening screws **-3-** .

5.2. Lay wire harness **-1-** and press into the rear window frame **-Arrow B-** .

5.3. Push on both connectors **-2-** at the rear window **-Arrows C-** .

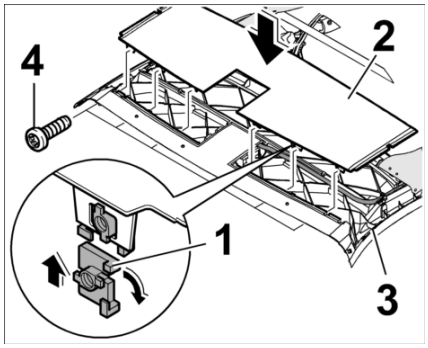
Connecting wire harness plug connection for convertible top



Connecting wire harness plug connection for convertible top

1. Push together the electric plug connection **-1-** of the wire harness until it is felt to engage.

Installing plastic panel



Installing plastic panel

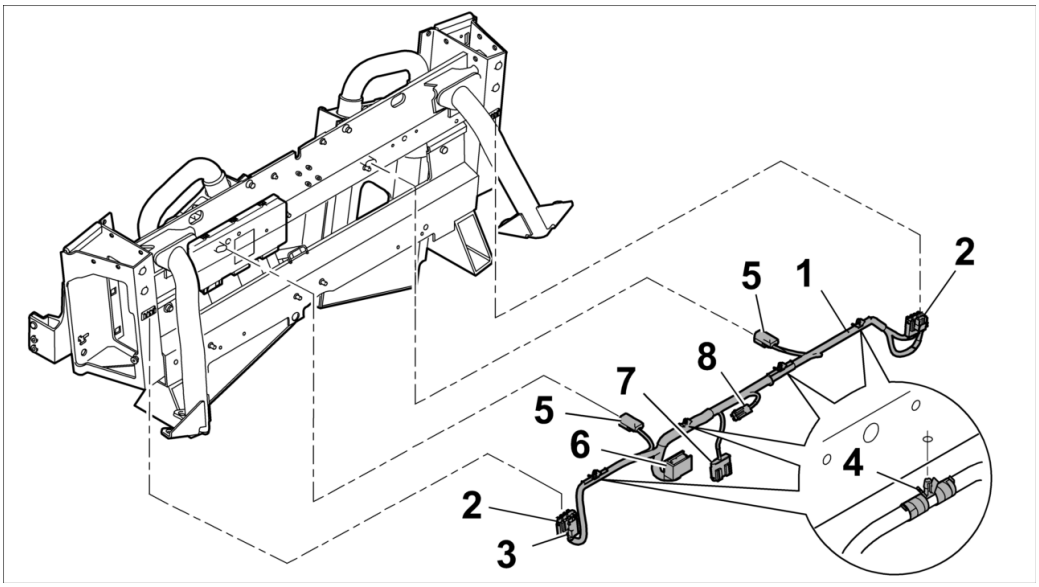
1. Install plastic panel.

1.1. Insert fixing clip **-1-** onto plate of plastic panel from behind **-2-** and turn 90° clockwise.

1.2. Position plastic panel **-2-** on roof frame 1 **-3-** and screw down with the fastening screws **-4-** . Tightening torque **Tightening torque : 5 (3.5 ftlb.) Nm**

Installing wire harness for roll-over protection system

Installation Location:



Overview of plugs for wire harness for roll-over protection system

1 - Wire harness for roll-over protection system

2 - Plug connection for rear side panel flap

3 - Hardtop mount plug connection

4 - Retaining clips

5 - Roll-over bar connector

6 - Convertible top control unit connector

7 - Plug connection for wire harness for roll-over protection system to rear wire harness

8 - Plug connection for motor for convertible-top compartment lid drive mechanism

1. Position wire harness for roll-over protection system **-1-** on the frame and clip in at the retaining clips **-4-** .
2. Press motor plug connection for convertible-top compartment lid drive **-8-** together until it is felt to engage. 617019 Removing and installing drive motor - chapter on "Removing"
3. Push together plug connection for roll-over protection system wire harness to rear wire harness **-7-** until it is felt to engage. 697719 Removing and installing frame for roll-over protection system - chapter on "Installing"
4. Connect connector to convertible top control unit **-6-** and lock it until it engages firmly. 619619 Removing and installing control unit for convertible top - chapter on "Installing"
5. Push in hardtop mount plug connection **-3-** until it engages securely. 611719 Removing and installing mount for hardtop - chapter on "Installing"
6. Push in plug connections for rear side panel flap **-2-** at left and right until it is felt to engage. 614219 Removing and installing rear side section flap - "Installing" chapter

top of page

Subsequent work

Subsequent work for convertible top wiring harness

1. Install convertible-top covering. 612819 Removing and installing convertible top covering - chapter on "Installing"

Subsequent work for wiring harness for roll-over protection system

1. Install roll-over bar. 697219 Removing and installing roll-over bar - chapter on "Installing" [997610] 697219 Removing and installing roll-over bar - chapter on "Installing" [997310 997311 997320 997321 997611 997620 997621]
2. Carry out work instructions after disconnecting the battery. *271000 Work instructions after disconnecting the battery*

997310, 997311, 997320, 997321, 997610, 997611, 997620, 997621

as of MY 2005
Country C00, C02, C05, C07, C08, C09, C10, C11, C12, C13, C14, C15, C16, C18, C19, C20, C21, C22, C23, C24, C25, C26, C27, C28, C32, C33, C34, C35, C36, C37, C38, C39, C45, C46, C98, C99

WARNUNG

Gefahr des Verlusts der Text-Bild-Zuordnung beim Ausdruck.

- **Aus technischen Gründen kann derzeit nicht ausgeschlossen werden, dass trotz einwandfreier Darstellung auf dem Bildschirm beim Ausdruck der Zusammenhang von Text und zugehörigem Bild verloren geht.**
- **Wird der Fehler nicht bemerkt, besteht die Gefahr, daß Arbeiten nicht korrekt durchgeführt werden und es dadurch zu Personen- und Sachschäden kommt.**

Vergleichen Sie deshalb nach dem Druckvorgang unbedingt die Ausdrucke mit der Bildschirmdarstellung. Korrigieren Sie die Ausdrucke im Fehlerfall so, daß der Inhalt der Bildschirmdarstellung zutreffend wiedergegeben wird.

WARNING

Danger of losing text-figure correspondence when printing out.

- **For technical reasons, it can currently not be ruled out that the correspondence between text and associated figure can be lost when it is printed out, even though the display on the screen is correct.**
- **If the fault is not noticed, there is the danger that work will not be performed correctly which can cause injury and damage.**

Therefore, always compare printouts with the screen display after printing them out. Correct the printouts if they are faulty so that the content of the screen display matches that on the printouts.

97 56 19 Removing and installing wire harness for backrest (front seat) - as of MY 2005

- Preliminary work
- Removing wire harness for backrest (front seat)
- Installing wire harness for backrest (front seat)
- Subsequent work

top of page

Preliminary work

Preliminary work

1. Remove cushion carrier for front backrest. 722419 Removing and installing cushion carrier for front backrest - section on "Removing"
2. Remove cover for backrest. 722619 Removing and installing cover for backrest - section on "Removing"

Note

Only for vehicles with adaptive sports seats.

3. Remove air cushion for backrest. 721719 Removing and installing air cushion for backrest - section on "Removing"

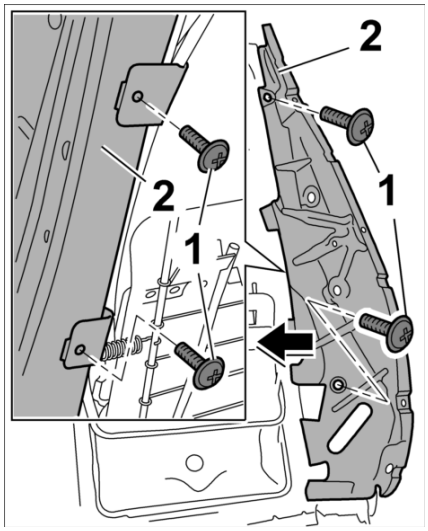
top of page

Removing wire harness for backrest (front seat)

Removing support for left backrest side part

Installation Location:

Installation position of motor for lumbar support



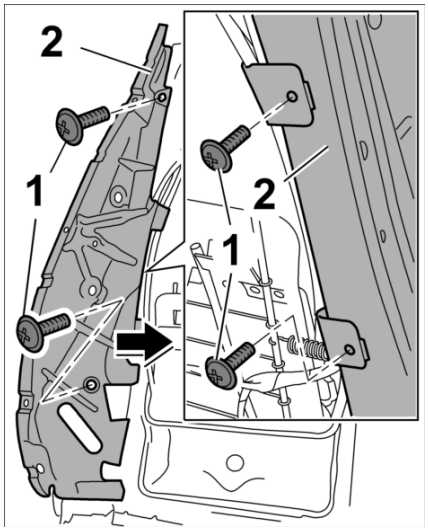
Removing support for left backrest side part

1. Unscrew the four fastening screws **-1-** and remove support for backrest side part **-2-** .

Removing backrest side support

Installation Location:

Installation position of motor for backrest adjustment



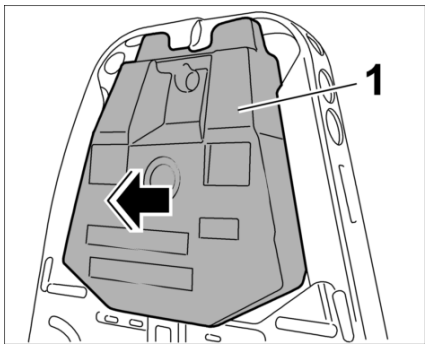
Removing backrest side support

1. Unscrew the four fastening screws **-1-** and remove backrest side support **-2-** .

Taking off foam part

Installation Location:

Installation position of control valve for lumbar support adjustment



Taking off foam part

1. Remove foam part **-1-** at the headrest.

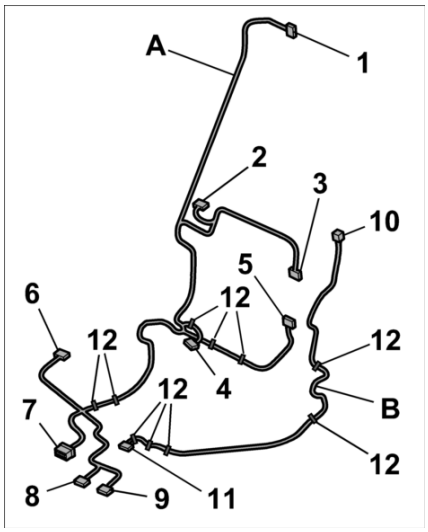
Removing wire harness for backrest (front seat)

Note

The description covers a wire harness for maximum equipment. Some plug connections will not be present if the vehicle has less equipment.

Installation Location:

Installation position of wire harness for backrest (front seat)



Overview of plugs for wire harness for backrest

Overview of plugs for wire harness for backrest

A - Wire harness for backrest (front seat)

B - Wire harness for airbag

1 - Connector for control valve for lumbar support adjustment (only for lumbar support)

2 - Connector for sensor for lower air cushion on lumbar support (only for lumbar support with memory)

3 - Connector for sensor for upper air cushion on lumbar support (only for lumbar support with memory)

4 - Connector for motor for backrest adjustment

5 - Plug connection for motor for lumbar support adjustment (only for lumbar support)

6 - Plug connection for air cushion switch (only for sports seats)

7 - Connector for control unit for memory seat adjustment (only for seats with memory)

8 - Plug connection for air cushion motor (only for sports seats)

9 - Connector for air cushion control valve (only for sports seats)

10 - Connector for airbag

11 - Connector for central plug

12 - Tie-wraps

1. Release and pull off connector **-1-** on control valve for lumbar support adjustment. 723319 Removing and installing control valve for lumbar support adjustment - section on "Removing"
2. Release and pull off connectors **-2 and 3-** on sensors for lumbar support. 723419 Removing and installing lumbar support - section on "Removing"
3. Release and pull off connector **-4-** on motor for backrest adjustment. 728919 Removing and installing motor for backrest adjustment - section on "Removing"
4. Release and disconnect plug connection **-5-** on motor for lumbar support adjustment. 723619 Motor for lumbar support - section on "Removing"
5. Release and disconnect plug connection **-6-** on air cushion switch. 728619 Removing and installing switch for seat adjustment - section on "Removing"
6. Release and pull off connector **-7-** on control unit for memory seat adjustment. 729319 Removing and installing control unit for memory seat adjustment - section on "Removing"
7. Release and disconnect plug connection **-8-** on air cushion motor. 723919 Removing and installing air cushion motor - section on "Removing"
8. Release and disconnect connector **-9-** on control valve for air cushion. 723819 Removing and installing air cushion control valve - section on "Removing"
9. Remove tie-wrap **-12-** and remove wire harness for backrest **-A-** .

Note

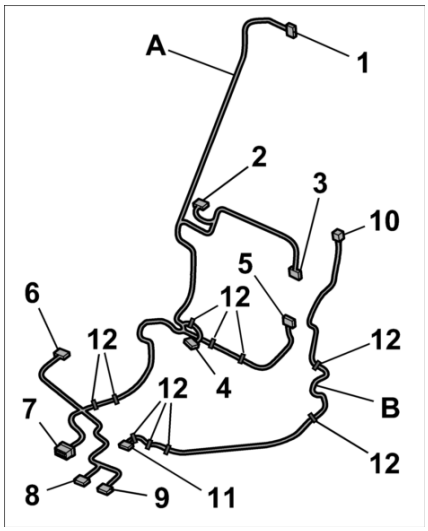
For standard vehicle equipment, the wire harness for airbags is incorporated into the wire harness for the backrest.

10. Remove connector **-11-** on central plug. 692419 Removing and installing front belt lock - section on "Removing"
11. Remove tie-wrap **-12-** and remove wire harness for airbag **-B-** .

top of page

Installing wire harness for backrest (front seat)

Installing wire harness for backrest (front seat)



Overview of plugs for wire harness for backrest

Overview of plugs for wire harness for backrest

A - Wire harness for backrest (front seat)

B - Wire harness for airbag

1 - Connector for control valve for lumbar support adjustment (only for lumbar support)

2 - Connector for sensor for lower air cushion on lumbar support (only for lumbar support with memory)

3 - Connector for sensor for upper air cushion on lumbar support (only for lumbar support with memory)

4 - Connector for motor for backrest adjustment

5 - Plug connection for motor for lumbar support adjustment (only for lumbar support)

6 - Plug connection for air cushion switch (only for sports seats)

7 - Connector for control unit for memory seat adjustment (only for seats with memory)

8 - Plug connection for air cushion motor (only for sports seats)

9 - Connector for control valve for air cushion (only for sports seats)

10 - Connector for airbag

11 - Connector for central plug

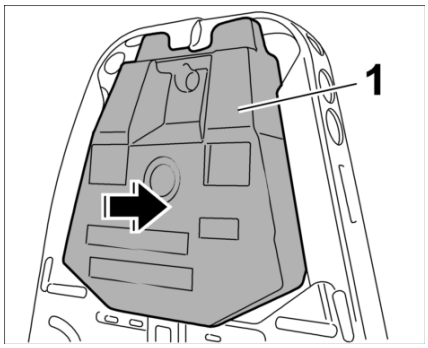
12 - Tie-wraps

1. Route wire harness for airbag **-B-** and secure with new tie-wraps **-12-** .
2. Fit connector **-11-** on central plug. 692419 Removing and installing front belt lock - section on "Installing"
3. Route wire harness for backrest **-A-** and secure with new tie-wraps **-12-** .
4. Push connector **-9-** onto air cushion control valve until it engages firmly. 723819 Removing and installing air cushion control valve - section on "Installing"
5. Push plug connection **-8-** onto motor for air cushion until it engages firmly. 723919 Removing and installing air cushion motor - section on "Installing"
6. Attach connector **-7-** to control unit for memory seat adjustment until it engages firmly. 729319 Removing and installing control unit for memory seat adjustment - section on "Installing"
7. Push plug connection **-6-** onto air cushion switch until it engages firmly. 728619 Removing and installing switch for seat adjustment - section on "Installing"
8.

Connect plug connection **-5-** on motor for lumbar support adjustment until it engages firmly. 723619 Motor for lumbar support - section on "Installing"

9. Attach connector **-4-** to motor for backrest adjustment until it engages firmly. 728919 Removing and installing motor for backrest adjustment - section on "Installing"
10. Push connectors **-2 and 3-** onto sensors for lumbar support until they click into place. 723419 Removing and installing lumbar support - section on "Installing"
11. Push connector **-1-** onto control valve for lumbar support adjustment until it engages firmly. 723319 Removing and installing control valve for lumbar adjustment - section on "Installing"

Fitting foam part



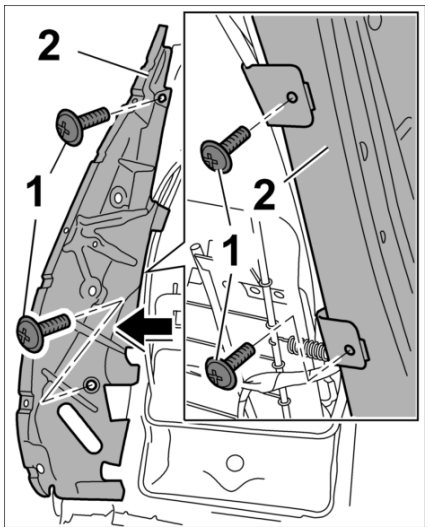
Fitting foam part

Note

Observe the installation position of the hoses!
Make sure that the hoses are not pinched. Insert hoses exactly into the cut-outs on the foam part.

1. Fit foam part **-1-** at the headrest.

Installing backrest side support



Installing backrest side support

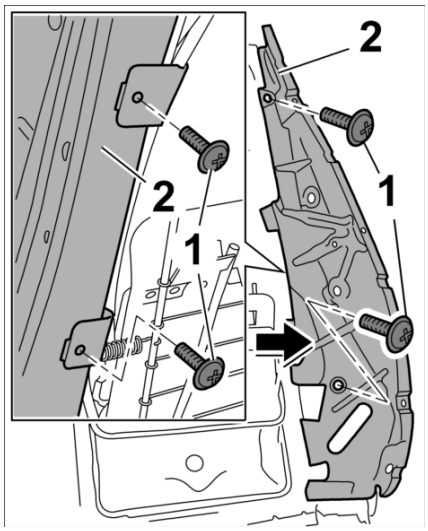
Note

Observe hose routing!

In vehicles with lumbar support, make sure the hoses are routed correctly in the area of the backrest side support.

1. Fit backrest side support **-2-** and screw down with the four fastening screws **-1-** .

Installing support for left backrest side part



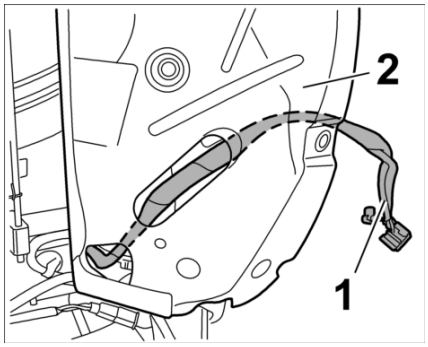
Installing support for left backrest side part

Note

Observe hose routing!

In vehicles with lumbar support, make sure the hoses are routed correctly in the area of the backrest side support.

1. Insert support for backrest side part **-2-** and secure with the four fastening screws **-1-** .



Routing wire harness for airbag

2. Route wire harness for airbag **-1-** as shown behind the backrest side part support **-2-** .

top of page

Subsequent work

Subsequent work

1. Install air cushion for backrest. 721719 Removing and installing air cushion for backrest - section on "Installing"
2. Install cover for left backrest. 722619 Removing and installing cover for backrest - section on "Installing"
3. Install cushion carrier for front backrest. 722419 Removing and installing cushion carrier for front backrest - section on "Installing"

997110, 997111, 997120, 997121, 997310, 997311, 997320, 997321, 997410, 997411, 997430, 997431, 997610, 997611, 997620, 997621

as of MY 2005
Country C00, C02, C05, C07, C08, C09, C10, C11, C12, C13, C14, C15, C16, C18, C19, C20, C21, C22, C23, C24, C25, C26, C27, C28, C32, C33, C34, C35, C36, C37, C38, C39, C45, C46, C98, C99

WARNUNG

Gefahr des Verlusts der Text-Bild-Zuordnung beim Ausdruck.

- **Aus technischen Gründen kann derzeit nicht ausgeschlossen werden, dass trotz einwandfreier Darstellung auf dem Bildschirm beim Ausdruck der**

97 57 19 Removing and installing wire harness for electrically adjustable seat - as of MY 2005

- Preliminary work
- Removing wire harness for electrically adjustable seat
- Installing wire harness for electrically adjustable seat
- Subsequent work

top of page

Preliminary work

Preliminary work

Remove front seat. 720119 Removing and installing front seat - section on "Removing" [997110 997120 997310 997320 997410 997430 997610 997620] 720119 Removing and installing front seat - section on "Removing" [997111 997121 997311 997321 997411 997431 997611 997621]

top of page

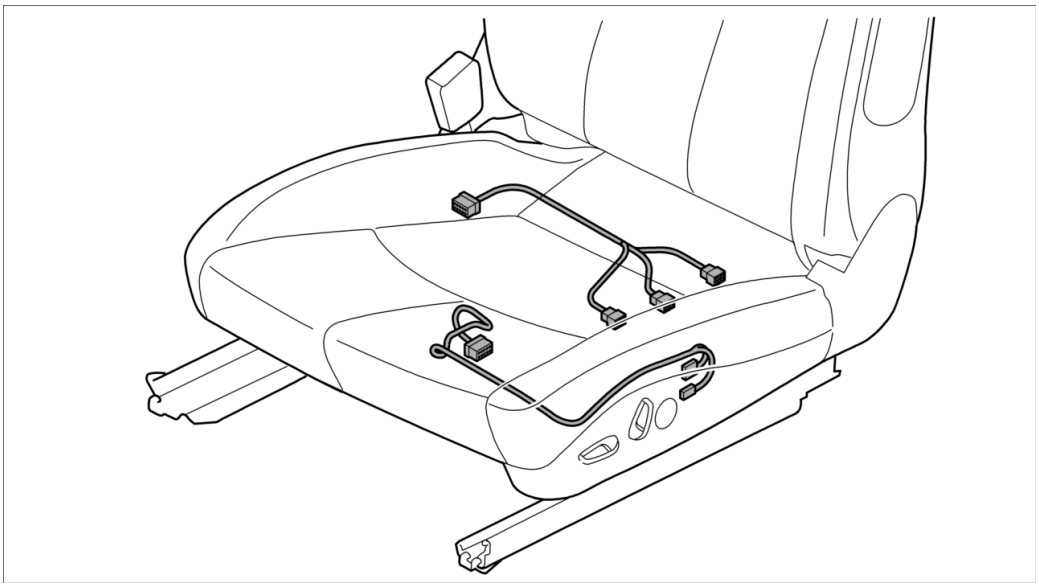
Removing wire harness for electrically adjustable seat

Removing wire harness for electrically adjustable seat

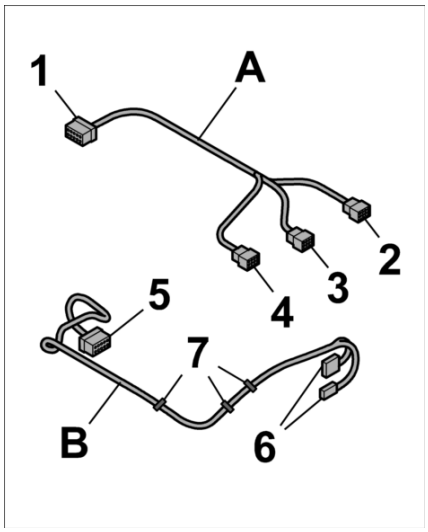
Note

This description covers the two-piece wire harness for an electrically adjustable seat with memory. Some plug connections will not be present on a single-piece wire harness without memory.

Installation Location:



Installation position of wire harness for electrically adjustable seat



Connector overview for wire harness for electrically adjustable seat

Connector overview for wire harness for electrically adjustable seat

A - Wire harness for control unit for memory seat adjustment - seat adjustment motors

B - Wire harness for seat adjustment switch - control unit for memory seat adjustment

1 - Connector (grey) for control unit for memory seat adjustment (with memory only)

2 - Connector for seat adjustment motor

3 - Connector for motor for rear vertical adjustment

4 - Connector for motor for front vertical adjustment

5 - Connector (black) for control unit for memory seat adjustment (with memory only)

6 - Connector for seat adjustment switch

7 - Tie-wraps

1. Release and pull off connector **-1-** on control unit for memory seat adjustment. 729319 Removing and installing control unit for memory seat adjustment - section on "Removing"
2.

Release and pull off connector **-2-** on motor for seat adjustment. 728719 Removing and installing motor for seat adjustment - section on "Removing"

3. Release and pull off connector **-3-** on motor for rear vertical adjustment. 729219 Removing and installing motor for rear vertical adjustment - section on "Removing"
4. Release and pull off connector **-4-** on motor for front vertical adjustment. 728819 Removing and installing motor for front vertical adjustment - section on "Removing"
5. Remove wire harness **-A-** .
6. Release and pull off connector **-5-** on control unit for memory seat adjustment. 729319 Removing and installing control unit for memory seat adjustment - section on "Removing"
7. Release and pull off connector on seat adjustment switch **-6-** . 721619 Removing and installing control module trim panel - section on "Removing"
8. Remove tie-wraps **-7-** and pull out wire harness **-B-** .

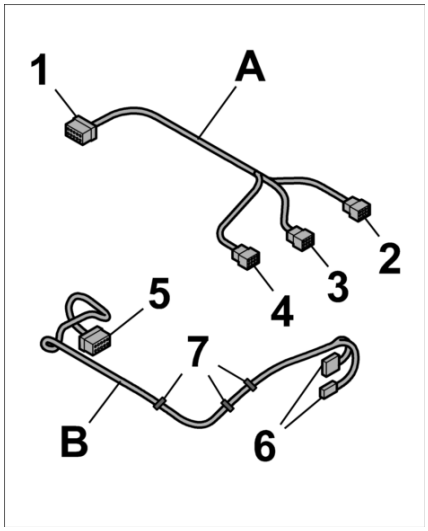
top of page

Installing wire harness for electrically adjustable seat

Installing wire harness for electrically adjustable seat

Note

Observe connector assignment!
Connect **blue** connector to the motor for fore-and-aft adjustment.
Connect **white** connector to the motor for front vertical adjustment.
Connect **yellow** connector to the motor for rear vertical adjustment.



Connector overview for wire harness for electrically adjustable seat

Connector overview for wire harness for electrically adjustable seat

A - Wire harness for control unit for memory seat adjustment - seat adjustment motors
B - Wire harness for seat adjustment switch - control unit for memory seat adjustment
1 - Connector (grey) for control unit for memory seat adjustment (with memory only)
2 - Connector for seat adjustment motor
3 - Connector for motor for rear vertical adjustment
4 - Connector for motor for front vertical adjustment
5 - Connector (black) for control unit for memory seat adjustment (with memory only)
6 - Plug connections for seat adjustment switch
7 - Tie-wraps

1. Route wire harness **-B-** and secure with new tie-wraps **-7-** .
2. Push on connector **-6-** on seat adjustment switch until it engages firmly. 721619 Removing and installing control module trim panel - section on "Installing"
3. Attach connector **-5-** to control unit for memory seat adjustment until it engages firmly. 729319 Removing and installing control unit for memory seat adjustment - section on "Installing"
4. Route the wire harness **-A-** .
5. Attach connector **-4-** (**white**) to motor for front vertical adjustment until it engages firmly. 728819 Removing and installing motor for front vertical adjustment - section on "Installing"
6. Attach connector **-3-** (**yellow**) to motor for rear vertical adjustment until it engages firmly. 729219 Removing and installing motor for rear vertical adjustment - section on "Installing"
7. Attach connector **-2-** (**blue**) to motor for seat adjustment until it engages firmly. 728719 Removing and installing motor for seat adjustment - section on "Installing"
8. Attach connector **-1-** to control unit for memory seat adjustment until it engages firmly. 729319 Removing and installing control unit for memory seat adjustment - section on "Installing"

top of page

Subsequent work

Subsequent work

Install front seat. 720119 Removing and installing front seat - section on "Installing" [997110 997120 997310 997320 997410 997430 997610 997620] 720119 Removing and installing front seat - section on "Installing" [997111 997121 997311 997321 997411 997431 997611 997621]

997110, 997111, 997120, 997121, 997310, 997311, 997320, 997321, 997410, 997411, 997430, 997431, 997610, 997611, 997620, 997621

as of MY 2005
Country C00, C02, C05, C07, C08, C09, C10, C11, C12, C13, C14, C15, C16, C18, C19, C20, C21, C22, C23, C24, C25, C26, C27, C28, C32, C33, C34, C35, C36, C37, C38, C39, C45, C46, C98, C99

97 65 55 Replacing wire harness for anti-lock brake system (ABS) - as of MY 2005

- Preliminary work
- Removing wire harness for anti-lock brake system (ABS)
- Installing wire harness for anti-lock brake system (ABS)
- Subsequent work

Tools

Designation	Type	Number	Explanation	
repair kit for harnesses	commercially available tool	NR.155-1		

top of page

Preliminary work

Preliminary work on front ABS wire harness

1. Disconnect battery. 2706IN Working instructions after disconnecting the battery
2. Remove front wheel housing liner (rear section). 505619 Removing and installing front wheel housing liner - section on "Removing"
3. Remove plenum panel cover. 852219 Removing and installing cover - section on "Removing"

Preliminary work on rear ABS wire harness

1. Disconnect battery. 2706IN Working instructions after disconnecting the battery
2. Remove wheel. 440519 Removing and installing wheel - removing
3. Remove rear backrest. 724719 Removing and installing rear backrest - section on "Removing"
4. Remove the rear side trim panel. 707519 Removing and installing rear side trim panel - section on "Removing" [997310 997311 997320 997321] 707519 Removing and installing rear side trim panel - section on "Removing" [997110 997111 997120 997121]
5.

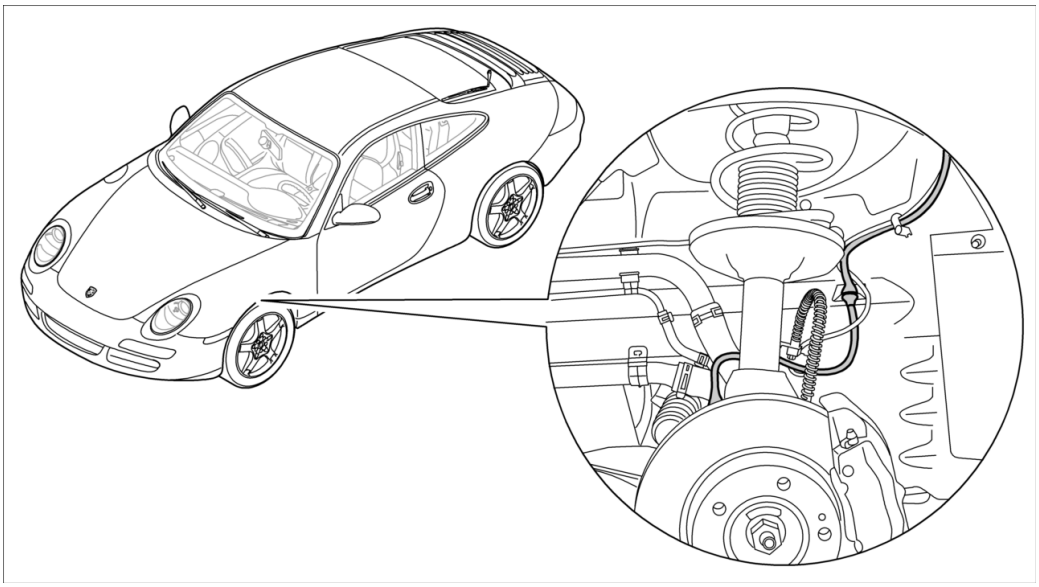
Remove trim panel for seat well. *702919 21 Removing and installing trim panel for seat well - section on "Removing"*

top of page

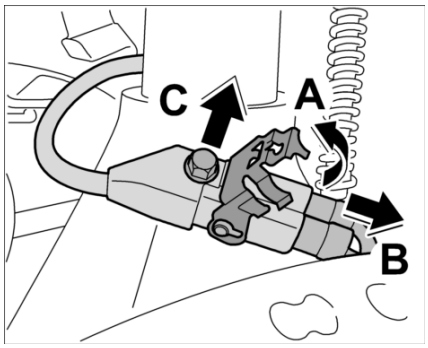
Removing wire harness for anti-lock brake system (ABS)

Removing front ABS wire harness

Installation Location:

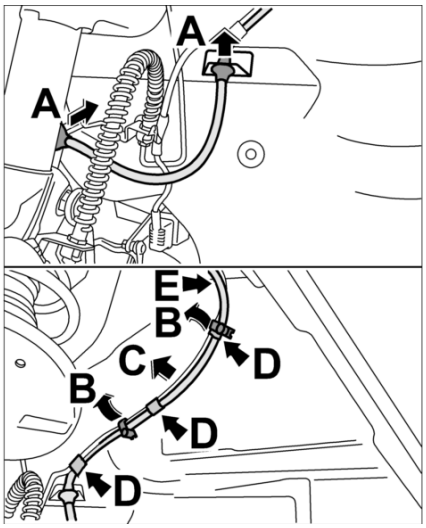


Installation position for front ABS wire harness



Disconnecting plug connection for front wheel sensor

1. Release the cable retainer **-arrow A-** and pull off the two connectors **-arrow B-** .
2. Unscrew the fastening screw and remove the connector socket **-arrow C-** .



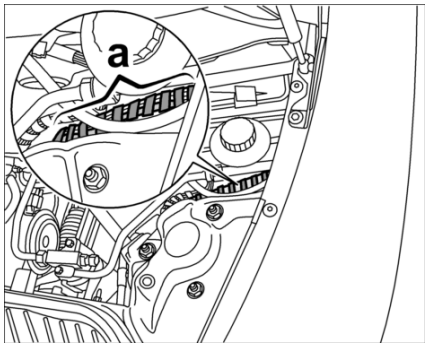
Removing the ABS wire harness from the brackets

3. Remove the ABS wire harness from the brackets **-arrows A-** .
4. Open the clips **-arrows B-** and remove the ABS wire harness **-arrow C-** .
5. Remove the fabric tape **-D-** .

Note

When cutting the ABS wire harness, make sure that there is enough line length left to join to the new lines.

6. Cut off the ABS wire harness around **-E-** and remove it.

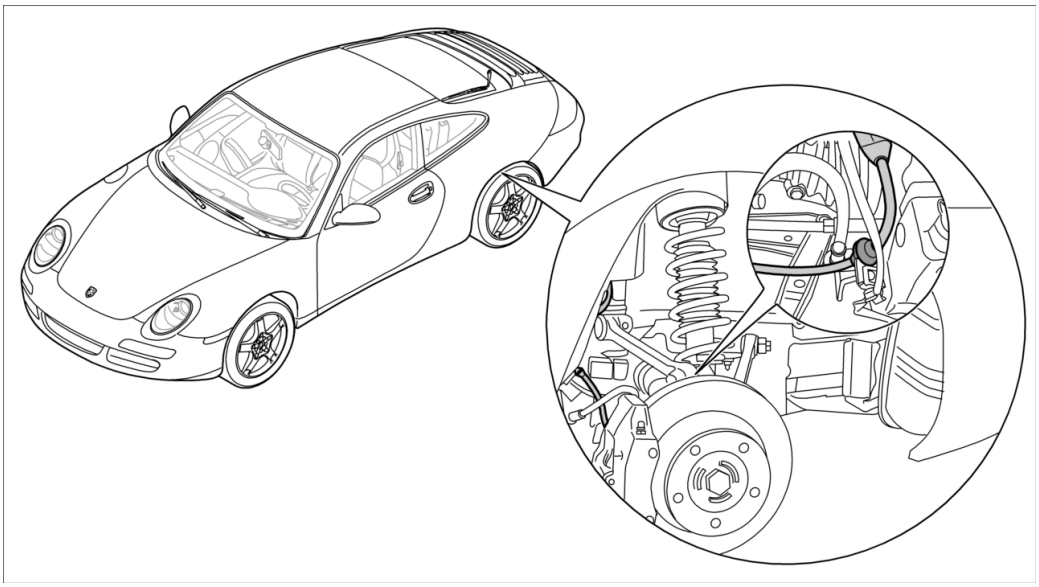


Exposing ABS wire harness

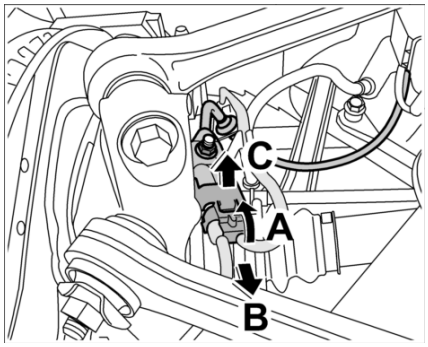
7. Cut through the fabric tape in the plenum panel, in the area around **-a-** , and expose the remaining ABS lines.

Removing rear ABS wire harness

Installation Location:

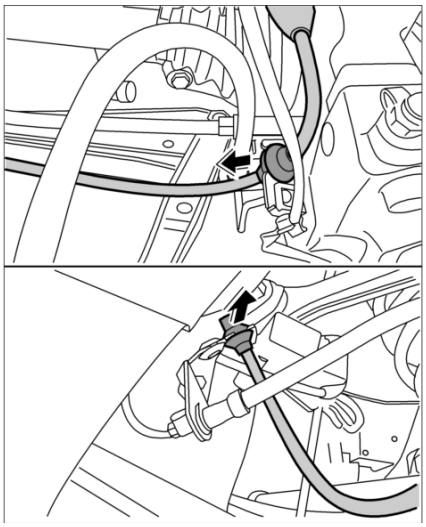


Installation position for rear ABS wire harness



Disconnecting plug connection for rear wheel sensor

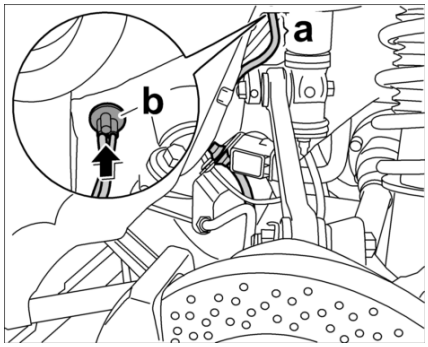
1. Release the cable retainer **-arrow A-** and pull off the two connectors **-arrow B-** .
2. Unscrew the fastening nut and remove the connector socket **-arrow C-** .



Removing the ABS wire harness from the brackets

3. Remove the ABS wire harness from the brackets

-arrows- .

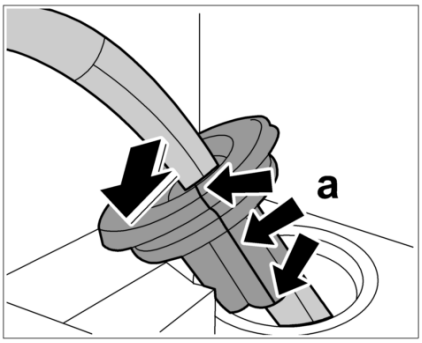


Cutting off ABS wire harness

Note

When cutting the ABS wire harness, make sure that there is enough line length left to join to the new lines.

4. Cut off the ABS wire harness around **-a-** and press inward with the rubber sleeve **-b-** **-arrow-** .



Cutting off rubber sleeve

Note

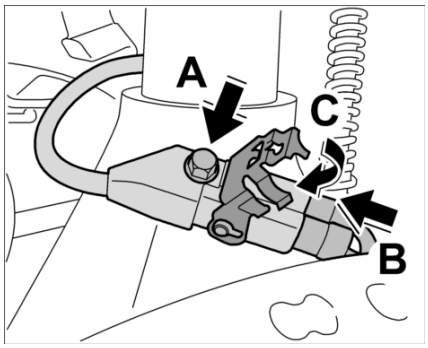
Only for vehicles with HBA.

5. Cut through the rubber sleeve at the side of the HBA line **-a-** and remove the HBA line **-arrow-** .

top of page

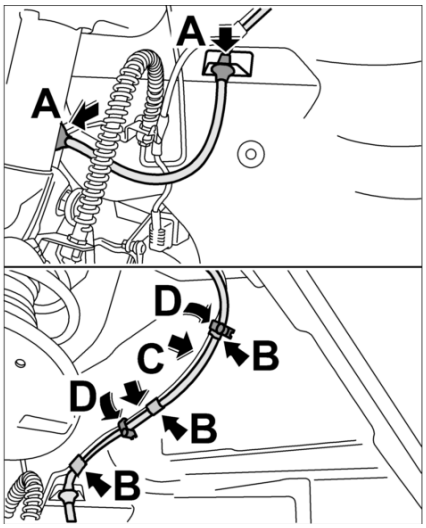
Installing wire harness for anti-lock brake system (ABS)

Installing front ABS wire harness



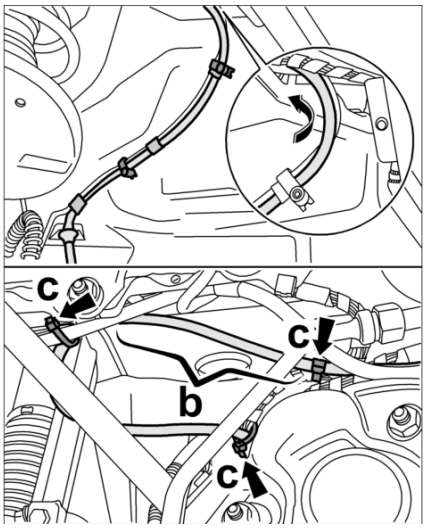
Connecting plug connection for front wheel sensor

1. Place socket in installation position **-arrow A-** and screw on the fastening screw. **Tightening torque: 10 (7.5 ftlb.) Nm**
2. Plug in the two connectors **-arrow B-** .
3. Fold back the cable retainer **-arrow C-** until it engages correctly at the connectors.



Pressing ABS wire harness into supports

4. Press the ABS wire harness into the supports by pressing on the rubber sleeves **-arrows A-** .
5. Secure line for headlight levelling system to the ABS wire harness using fabric tape **-B-** .
6. Place ABS wire harness in installation position **-arrows C-** and close clip **-arrows D-** .



Routing and connecting ABS wire harness

7. Push through ABS wire harness to plenum panel **-arrow-** .

Note

Select a place for the joint where there is enough space to join all the lines present.
Do not cut the lines too short in case they have to be laid in a different position if there is insufficient space in the area of the joint.

Note

The electric lines are located in the plenum panel and are thus exposed to the highest demands.
The greatest care must be used in the individual work steps for stripping insulation from, crimping, and shrinking/insulating the electric lines.
The procedure for stripping insulation from, crimping, and shrinking/insulating the electric lines must be complied with and observed. The procedures are described in detail in the **repair kit for harnesses NR.155-1**.
Crimping samples are to be prepared before beginning work.

8. Crimp lines in area around **-b-** .

8.1. Cut off lines in different lengths (due to the shrink-fit connections).

8.2. Slide shrink-fit hoses onto the lines.

8.3. Strip 10 mm of insulation off the wires.

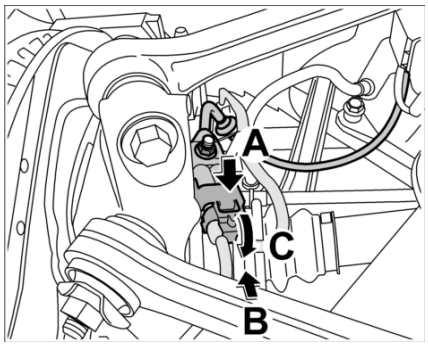
8.4. Crimp lines using crimping sleeves and the **hand crimping pliers** from the **repair kit for harnesses NR.155-1**.

8.5. Slide the shrink-fit hoses over the crimp connections and carefully shrink them using the **hot-air blower with special nozzle** (recommended accessories for the repair kit for harnesses) so that they are watertight.

8.6. Wrap commercially available PVC tape all around the area of the connection points.

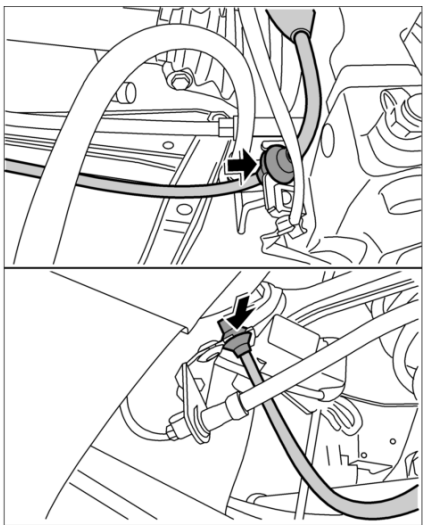
9. Secure the repaired area to the neighbouring wire harnesses using tie-wraps **-c-** .

Installing rear ABS wire harness



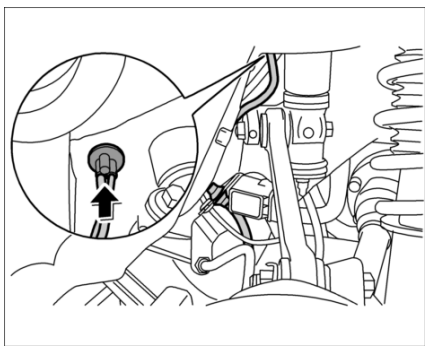
Connecting plug connection for rear wheel sensor

1. Place socket in installation position **-arrow A-** and screw on the fastening nut. **Tightening torque: 10 (7.5 ftlb.) Nm**
2. Plug in the two connectors **-arrow B-** .
3. Fold back the cable retainer **-arrow C-** until it engages correctly at the connectors.



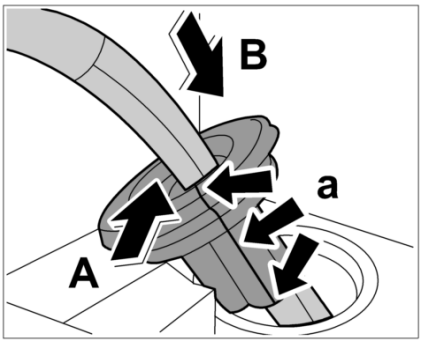
Pressing ABS wire harness into supports

4. Press the ABS wire harness into the supports by pressing on the rubber sleeves **-arrows-** .



Pushing the ABS wire harness inward

5. Push the ABS wire harness inward **-arrow-** .

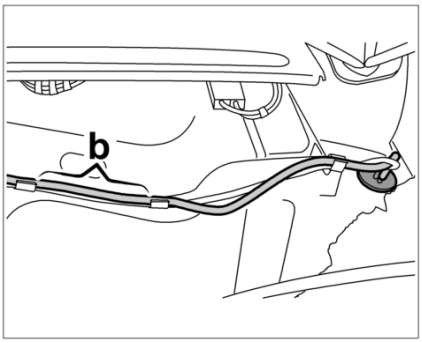


Stick rubber sleeve together.

Note

Only for vehicles with HBA.

6. Cut through the rubber sleeve **-a-** and insert the HBA line **-arrow A-** . Stick the rubber sleeve together at the cut edge **-a-** using a commercially available PUR adhesive and seal. Press the rubber seal into the opening **-arrow B-** .



Crimping lines

Note

Select a place for the joint where there is enough space to join all the lines present.
Do not cut the lines too short in case they have to be laid in a different position if there is insufficient space in the area of the joint.

Note

The greatest care must be used in the individual work steps for stripping insulation from, crimping, and shrinking/insulating the electric lines.
The procedure for stripping insulation from, crimping, and shrinking/insulating the electric lines must be complied with and observed. The procedures are described in detail in the **repair kit for harnesses NR.155-1**.
Crimping samples are to be prepared before beginning work.

7. Crimp lines in area around **-b-** .

7.1. Cut off lines in different lengths (due to the shrink-fit connections).

7.2. Slide shrink-fit hoses onto the lines.

7.3. Strip 10 mm of insulation off the wires.

7.4. Crimp lines using crimping sleeves and the **hand crimping pliers** from the **repair kit for harnesses NR.155-1**.

7.5. Slide the shrink-fit hoses over the crimp connections and carefully shrink them using the **hot-air blower with special nozzle** (recommended accessories for the repair kit for harnesses) so that they are watertight.

7.6. Wrap commercially available PVC tape all around the area of the connection points.

top of page

Subsequent work

Subsequent work on front ABS wire harness

1. Install plenum panel cover. 852219 Removing and installing cover - section on "Installing"
2. Install front wheel housing liner (rear section). 505619 Removing and installing front wheel housing liner - section on "Installing"
3. Carry out work instruction after disconnecting the battery. 2706IN Work instructions after disconnecting the battery

Subsequent work on rear ABS wire harness

1. Install trim panel for seat well. *702919 23 Removing and installing trim panel for seat well - section on "Installing"*
2. Install rear side trim panel. 707519 Removing and installing rear side trim panel - section on "Installing" [997310 997311 997320 997321] 707519 Removing and installing rear side trim panel - section on "Installing" [997110 997111 997120 997121]
3. Remove rear backrest. 724719 Removing and installing rear backrest - section on "Installing"
4. Install wheel. 440519 Removing and installing wheel - installing
5. Carry out work instruction after disconnecting the battery. 2706IN Work instructions after disconnecting the battery

---

997110, 997111, 997120, 997121, 997310, 997311, 997320, 997321

as of MY 2005
Country C00, C02, C05, C07, C08, C09, C10, C11, C12, C13, C14, C15, C16, C18, C19, C20, C21, C22, C23, C24, C25, C26, C27, C28, C32, C33, C34, C35, C36, C37, C38, C39, C45, C46, C98, C99

WARNUNG

97 65 55 Replacing wire harness for anti-lock brake system (ABS) - as of MY 2005

- Preliminary work
- Removing wire harness for anti-lock brake system (ABS)
- Installing wire harness for anti-lock brake system (ABS)
- Subsequent work

Tools

Designation	Type	Number	Explanation	
repair kit for harnesses	commercially available tool	NR.155-1		

top of page

Preliminary work

Preliminary work on front ABS wire harness

1. Disconnect battery. 2706IN Working instructions after disconnecting the battery
2. Remove front wheel housing liner (rear section). 505619 Removing and installing front wheel housing liner - section on "Removing" [997621] 505619 Removing and installing front wheel housing liner - section on "Removing" [997410 997411 997430 997431 997610 997611 997620]
3. Remove plenum panel cover. 852219 Removing and installing cover - section on "Removing"

Preliminary work on rear ABS wire harness

1. Disconnect battery. 2706IN Working instructions after disconnecting the battery
2. Remove wheel. 440519 Removing and installing wheel - removing
3. Remove rear backrest. 724719 Removing and installing rear backrest - section on "Removing"
4. Remove the rear side trim panel. 707519 Removing and installing rear side trim panel - section on "Removing" [997610 997611 997620 997621] 707519 Removing and installing rear side trim

panel - section on "Removing" [997410 997411 997430 997431]

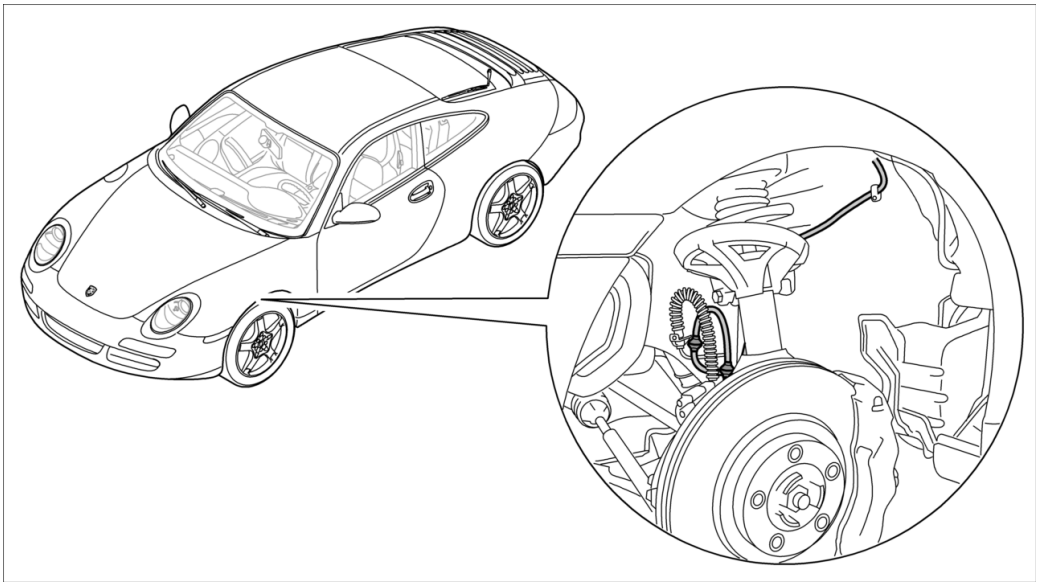
5. Remove trim panel for seat well. *702919 21 Removing and installing trim panel for seat well - section on "Removing"*

top of page

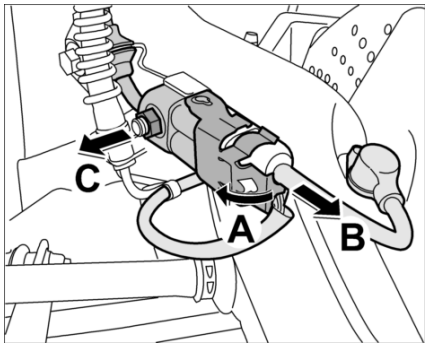
Removing wire harness for anti-lock brake system (ABS)

Removing front ABS wire harness

Installation Location:

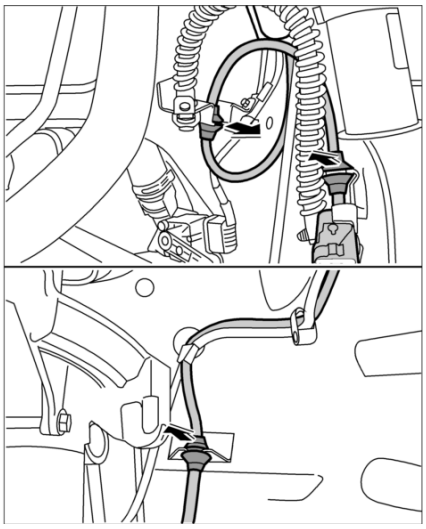


Installation position for front ABS wire harness



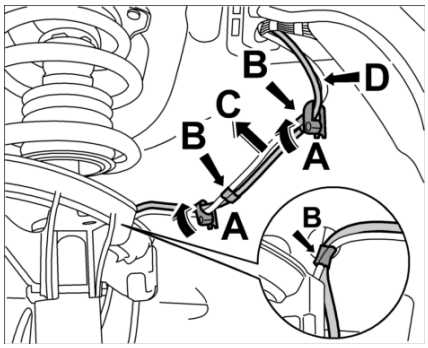
Disconnecting plug connection for front wheel sensor

1. Release the cable retainer **-arrow A-** and pull off the two connectors **-arrow B-** .
2. Unscrew the fastening nut and remove the connector socket **-arrow C-** .



Removing the ABS wire harness from the brackets

3. Remove the ABS wire harness from the brackets **-arrows-** .



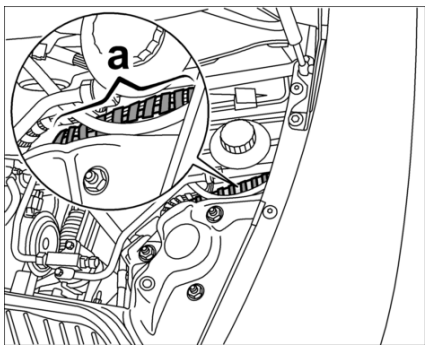
Unclipping ABS wire harness

4. Open clip **-arrows A-** .
5. Remove fabric tape **-B-** and take out ABS wire harness **-arrow C-** .

Note

When cutting the ABS wire harness, make sure that there is enough line length left to join to the new lines.

6. Cut off the ABS wire harness around **-D-** and remove it.



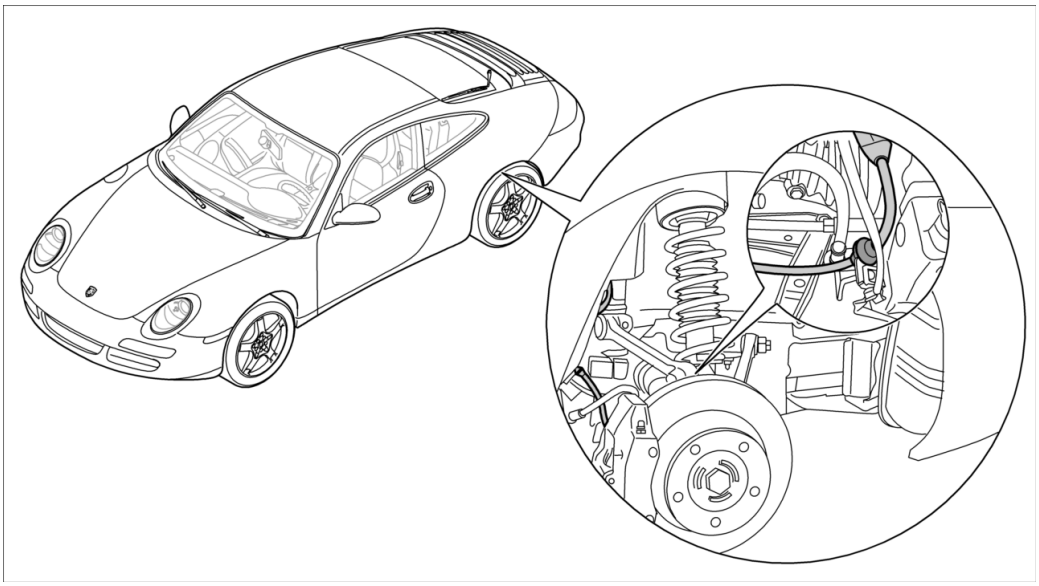
Exposing ABS wire harness

7.

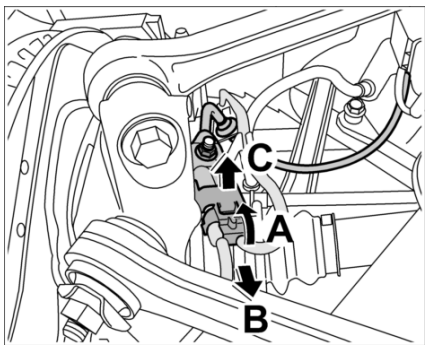
Cut through the fabric tape in the plenum panel, in the area around **-a-** , and expose the remaining ABS lines.

Removing rear ABS wire harness

Installation Location:

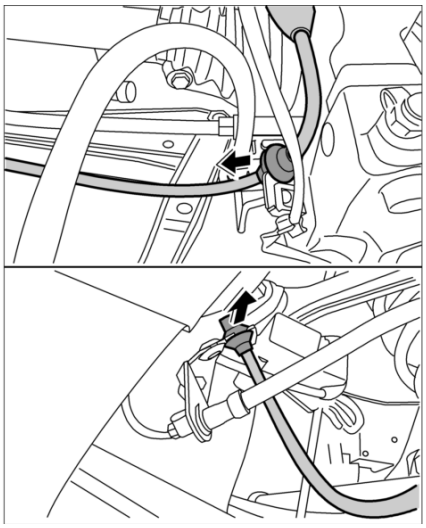


Installation position for rear ABS wire harness



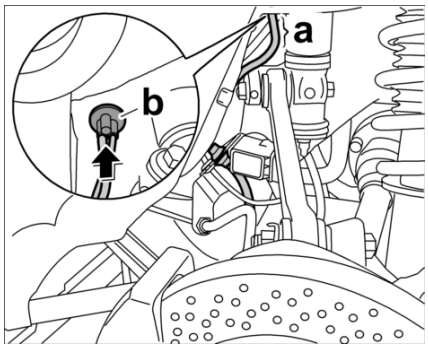
Disconnecting plug connection for rear wheel sensor

1. Release the cable retainer **-arrow A-** and pull off the two connectors **-arrow B-** .
2. Unscrew the fastening nut and remove the connector socket **-arrow C-** .



Removing the ABS wire harness from the brackets

3. Remove the ABS wire harness from the brackets **-arrows-** .

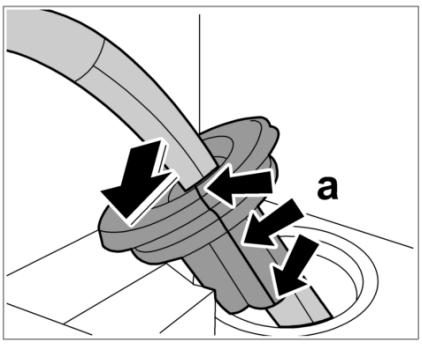


Cutting off ABS wire harness

Note

When cutting the ABS wire harness, make sure that there is enough line length left to join to the new lines.

4. Cut off the ABS wire harness around **-a-** and press inward with the rubber sleeve **-b-** **-arrow-** .



Cutting off rubber sleeve

Note

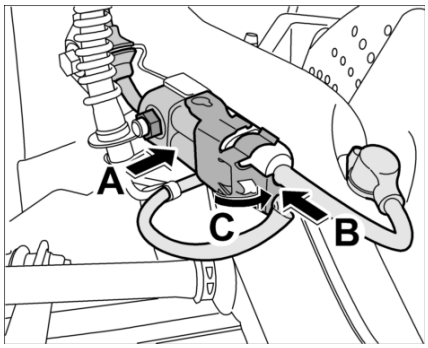
Only for vehicles with HBA.

5. Cut through the rubber sleeve at the side of the HBA line **-a-** and remove the HBA line **-arrow-** .

top of page

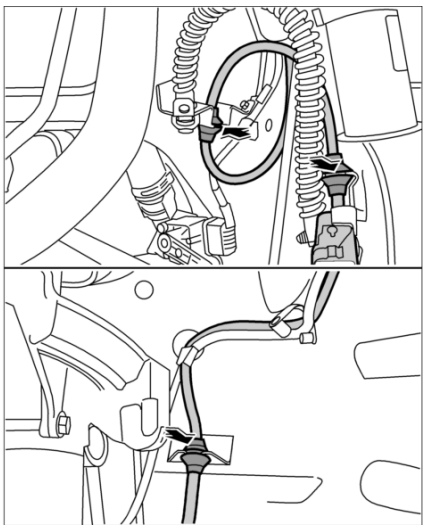
Installing wire harness for anti-lock brake system (ABS)

Installing wire harness for front airbag



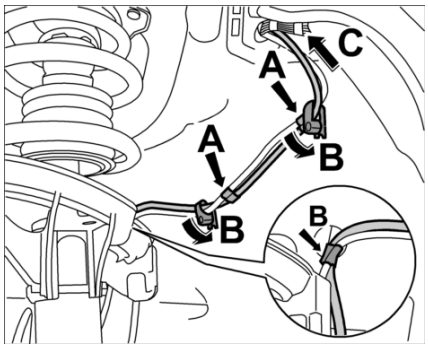
Connecting plug connection for front wheel sensor

1. Place socket in installation position **-arrow A-** and screw on the fastening nut. **Tightening torque: 10 (7.5 ftlb.) Nm**
2. Plug in the two connectors **-arrow B-** .
3. Fold back the cable retainer **-arrow C-** until it engages correctly at the connectors.



Pressing ABS wire harness into supports

4. Press the ABS wire harness into the supports by pressing on the rubber sleeves **-arrows-** .



Clipping in ABS wire harness

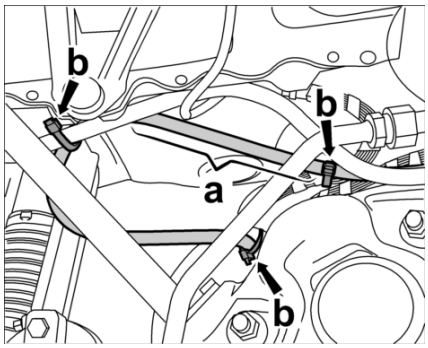
5. Secure line for headlight levelling system to the ABS wire harness using fabric tape **-A-** .
6. Place ABS wire harness in installation position and close clip **-arrows B-** .
7. Push through ABS wire harness to plenum panel **-arrow C-** .

Note

Select a place for the joint where there is enough space to join all the lines present.
Do not cut the lines too short in case they have to be laid in a different position if there is insufficient space in the area of the joint.

Note

The electric lines are located in the plenum panel and are thus exposed to the highest demands.
The greatest care must be used in the individual work steps for stripping insulation from, crimping, and shrinking/insulating the electric lines.
The procedure for stripping insulation from, crimping, and shrinking/insulating the electric lines must be complied with and observed. The procedures are described in detail in the **repair kit for harnesses NR.155-1**.
Crimping samples are to be prepared before beginning work.



Routing and connecting ABS wire harness

8. Crimp lines in area around **-a-** .

8.1. Cut off lines in different lengths (due to the shrink-fit connections).

8.2. Slide shrink-fit hoses onto the lines.

8.3. Strip 10 mm of insulation off the wires.

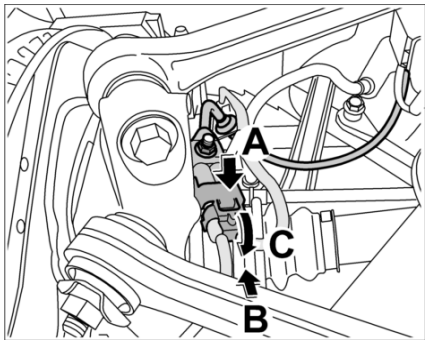
8.4. Crimp lines using crimping sleeves and the **hand crimping pliers** from the **repair kit for harnesses NR.155-1**.

8.5. Slide the shrink-fit hoses over the crimp connections and carefully shrink them using the **hot-air blower with special nozzle** (recommended accessories for the repair kit for harnesses) so that they are watertight.

8.6. Wrap commercially available PVC tape all around the area of the connection points.

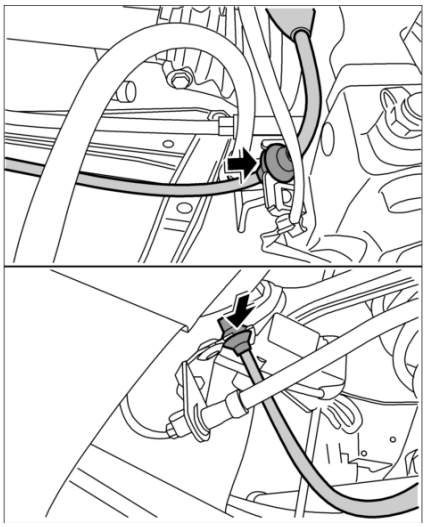
9. Secure the repaired area to the neighbouring wire harnesses using tie-wraps **-b-** .

Installing rear ABS wire harness



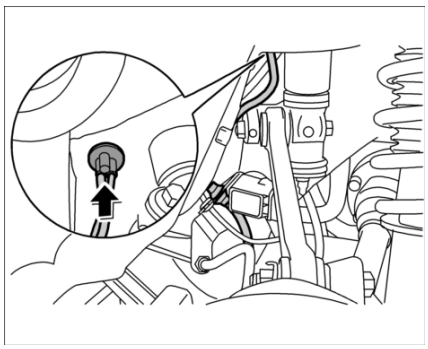
Connecting plug connection for rear wheel sensor

1. Place socket in installation position **-arrow A-** and screw on the fastening nut. **Tightening torque: 10 (7.5 ftlb.) Nm**
2. Plug in the two connectors **-arrow B-** .
3. Fold back the cable retainer **-arrow C-** until it engages correctly at the connectors.



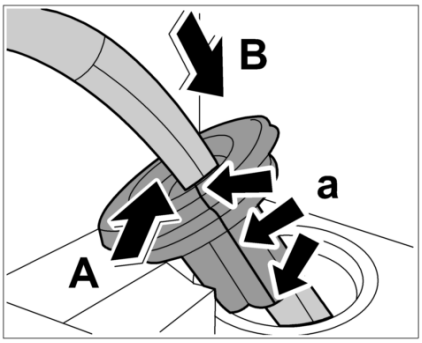
Pressing ABS wire harness into supports

4. Press the ABS wire harness into the supports by pressing on the rubber sleeves **-arrows-** .



Pushing the ABS wire harness inward

5. Push the ABS wire harness inward **-arrow-** .

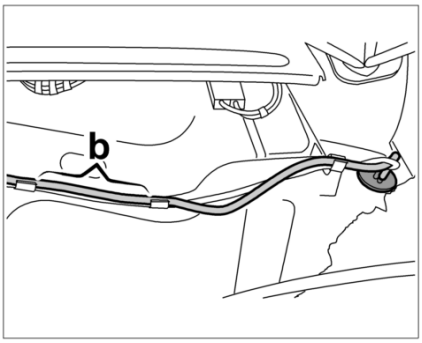


Stick rubber sleeve together.

Note

Only for vehicles with HBA.

6. Cut through the rubber sleeve **-a-** and insert the HBA line **-arrow A-** . Stick the rubber sleeve together at the cut edge **-a-** using a commercially available PUR adhesive and seal. Press the rubber seal into the opening **-arrow B-** .



Crimping lines

Note

Select a place for the joint where there is enough space to join all the lines present.
Do not cut the lines too short in case they have to be laid in a different position if there is insufficient space in the area of the joint.

Note

The greatest care must be used in the individual work steps for stripping insulation from, crimping, and shrinking/insulating the electric lines.
The procedure for stripping insulation from, crimping, and shrinking/insulating the electric lines must be complied with and observed. The procedures are described in detail in the **repair kit for harnesses NR.155-1**.
Crimping samples are to be prepared before beginning work.

7. Crimp lines in area around **-b-** .

7.1. Cut off lines in different lengths (due to the shrink-fit connections).

7.2. Slide shrink-fit hoses onto the lines.

7.3. Strip 10 mm of insulation off the wires.

7.4. Crimp lines using crimping sleeves and the **hand crimping pliers** from the **repair kit for harnesses NR.155-1**.

7.5. Slide the shrink-fit hoses over the crimp connections and carefully shrink them using the **hot-air blower with special nozzle** (recommended accessories for the repair kit for harnesses) so that they are watertight.

7.6. Wrap commercially available PVC tape all around the area of the connection points.

top of page

Subsequent work

Subsequent work on front ABS wire harness

1. Install plenum panel cover. 852219 Removing and installing cover - section on "Installing"
2. Install front wheel housing liner (rear section). 505619 Removing and installing front wheel housing liner - section on "Installing" [997621] 505619 Removing and installing front wheel housing liner - section on "Installing" [997410 997411 997430 997431 997610 997611 997620]
3. Carry out work instruction after disconnecting the battery. 2706IN Work instructions after disconnecting the battery

Subsequent work on rear ABS wire harness

1. Install trim panel for seat well. *702919 23 Removing and installing trim panel for seat well - section on "Installing"*
2. Install rear side trim panel. 707519 Removing and installing rear side trim panel - section on "Installing" [997610 997611 997620 997621] 707519 Removing and installing rear side trim panel - section on "Installing" [997410 997411 997430 997431]
3.

Remove rear backrest. 724719 Removing and installing rear backrest - section on "Installing"

4. Install wheel. 440519 Removing and installing wheel - installing
5. Carry out work instruction after disconnecting the battery. 2706IN Work instructions after disconnecting the battery

---

997410, 997411, 997430, 997431, 997610, 997611, 997620, 997621

as of MY 2005
Country C00, C02, C05, C07, C08, C09, C10, C11, C12, C13, C14, C15, C16, C18, C19, C20, C21, C22, C23, C24, C25, C26, C27, C28, C32, C33, C34, C35, C36, C37, C38, C39, C45, C46, C98, C99

WARNUNG

Gefahr des Verlusts der Text-Bild-Zuordnung beim Ausdruck.

- **Aus technischen Gründen kann derzeit nicht ausgeschlossen werden, dass trotz einwandfreier Darstellung auf dem Bildschirm beim Ausdruck der Zusammenhang von Text und zugehörigem Bild verloren geht.**
- **Wird der Fehler nicht bemerkt, besteht die Gefahr, daß Arbeiten nicht korrekt durchgeführt werden und es dadurch zu Personen- und Sachschäden kommt.**

Vergleichen Sie deshalb nach dem Druckvorgang unbedingt die Ausdrucke mit der Bildschirmdarstellung. Korrigieren Sie die Ausdrucke im Fehlerfall so, daß der Inhalt der Bildschirmdarstellung zutreffend wiedergegeben wird.

WARNING

Danger of losing text-figure correspondence when printing out.

- **For technical reasons, it can currently not be ruled out that the correspondence between text and associated figure can be lost when it is printed out, even though the display on the screen is correct.**
- **If the fault is not noticed, there is the danger that work will not be performed correctly which can cause injury and damage.**

Therefore, always compare printouts with the screen display after printing them out. Correct the printouts if they are faulty so that the content of the screen display matches that on the printouts.

AVERTISSEMENT

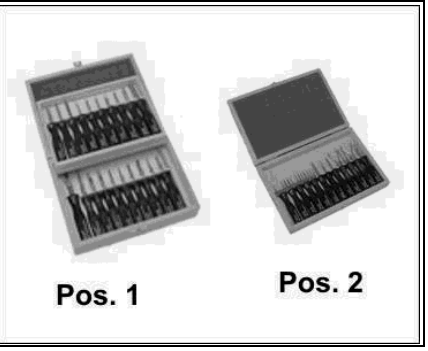
Risque de perte de la correspondance texte-illustration lors de l'impression papier.

- **Pour des raisons techniques, il ne peut pas être exclu à l'heure actuelle que, même en cas d'affichage correct à l'écran, la correspondance entre le texte et l'illustration puisse être erronée sur l'impression papier.**

97 66 23 Installing wire harness for airbag - as of MY 2005

- Preliminary work
- Tools and materials
- Installing wire harness for airbag
- Subsequent work

Tools

Designation	Type	Number	Explanation	
press-out and unlocking tools for flat and round plug connections of all sizes	commercially available tool	NR.155		

top of page

Preliminary work

Preliminary work for wire harness for passenger's airbag unit

1. Disconnect battery. *271000 A7 Work instructions after disconnecting the battery - sectionn on "Disconnecting and connecting"*
2. Remove cover of console at the left and right. 681419 Removing and installing centre console cover - section on "Removing"
3. Remove centre console cover. 681919 Removing and installing centre console cover - section on "Removing"
4. Remove centre console. 681719 Removing and installing centre console - section on "Removing"
5. If installed, remove control unit for tilt sensor. 966319 Removing and installing control unit for tilt sensor - section on "Removing"
6. Remove glove compartment. 681519 Removing and installing glove compartment - section on "Removing"

Preliminary work for wire harness for left seat-belt tensioner

1. Disconnect battery. *271000 A7 Work instructions after disconnecting the battery - section on "Disconnecting and connecting"*

2. Remove cover of console at the left and right. 681419 Removing and installing centre console cover - section on "Removing"
3. Remove centre console cover. 681919 Removing and installing centre console cover - section on "Removing"
4. Remove centre console. 681719 Removing and installing centre console - section on "Removing"
5. If installed, remove control unit for tilt sensor. 966319 Removing and installing control unit for tilt sensor - section on "Removing"
6. Remove trim panel under dashboard on left. 701919 Removing and installing trim panel under dashboard - section on "Removing"
7. Remove front side section trim. 702419 Removing and installing front side section trim - section on "Removing"
8. Remove front seat. *Removing and installing front seat*
9. Remove the rear side-panel lining. 707519 Removing and installing rear side-panel lining [997310 997311 997320 997321 997610 997611 997620 997621] 707519 Removing and installing rear side-panel lining [997110 997111 997120 997121 997410 997411 997430 997431]
10. Remove sill. 680519 Removing and installing inner sill
11. Remove sill support. 695119 Removing and installing airbag sensor - section on "Removing"

Preliminary work for wire harness for right seat-belt tensioner

1. Disconnect battery. *271000 A7 Work instructions after disconnecting the battery - section on "Disconnecting and connecting"*
2. Remove cover of console at the left and right. 681419 Removing and installing centre console cover - section on "Removing"
3. Remove centre console cover. 681919 Removing and installing centre console cover - section on "Removing"
4. Remove centre console. 681719 Removing and installing centre console - section on "Removing"
5. If installed, remove control unit for tilt sensor. 966319 Removing and installing control unit for tilt sensor - section on "Removing"
6. Remove glove compartment. 681519 Removing and installing glove compartment - section on "Removing"
7. Remove front side section trim. 702419 Removing and installing front side section trim - section on "Removing"
8. Remove front seat. *Removing and installing front seat*
9. Remove the rear side-panel lining. 707519 Removing and installing rear side-panel lining [997310 997311 997320 997321 997610 997611 997620 997621] 707519 Removing and installing rear side-panel lining [997110 997111 997120 997121 997410 997411 997430 997431]
10. Remove sill. 680519 Removing and installing inner sill
11. Remove sill support. 695119 Removing and installing airbag sensor - section on "Removing"

Preliminary work for wire harness for left head airbag (triggering unit to A-pillar connection point)

1. Disconnect battery. *271000 A7 Work instructions after disconnecting the battery - section on "Disconnecting and connecting"*
2. Remove cover of console at the left and right. 681419 Removing and installing centre console cover - section on "Removing"
3. Remove centre console cover. 681919 Removing and installing centre console cover - section on "Removing"
4. Remove centre console. 681719 Removing and installing centre console - section on "Removing"
5. If installed, remove control unit for tilt sensor. 966319 Removing and installing control unit for tilt sensor - section on "Removing"
6. Remove trim panel under dashboard on left. 701919 Removing and installing trim panel under dashboard - section on "Removing"
7. Remove front side section trim. 702419 Removing and installing front side section trim - section on "Removing"

Preliminary work for wire harness for right head airbag (triggering unit to A-pillar connection point)

1. Disconnect battery. *271000 A7 Work instructions after disconnecting the battery - section on "Disconnecting and connecting"*
2. Remove cover of console at the left and right. 681419 Removing and installing centre console cover - section on "Removing"
3. Remove centre console cover. 681919 Removing and installing centre console cover - section on "Removing"
4. Remove centre console. 681719 Removing and installing centre console - section on "Removing"
5. If installed, remove control unit for tilt sensor. 966319 Removing and installing control unit for tilt sensor - section on "Removing"
6. Remove glove compartment. 681519 Removing and installing glove compartment - section on "Removing"
7. Remove front side section trim. 702419 Removing and installing front side section trim - section on "Removing"

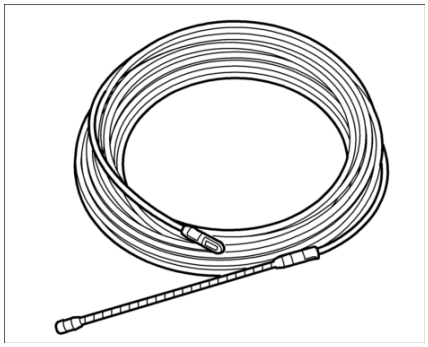
Preliminary work for head airbag wire harness (head airbag to A-pillar connection point)

1. Remove front side section trim. 702419 Removing and installing front side section trim - section on "Removing"
2. Remove door trim panel. 705919 Removing and installing door trim panel - section on "Removing"

top of page

Tools and materials

Tools



Wire puller

Commercially available tool for pulling electric wires through.

top of page

Installing wire harness for airbag

Installing components for airbag from triggering unit to passenger's airbag unit or seat-belt tensioner

WARNING

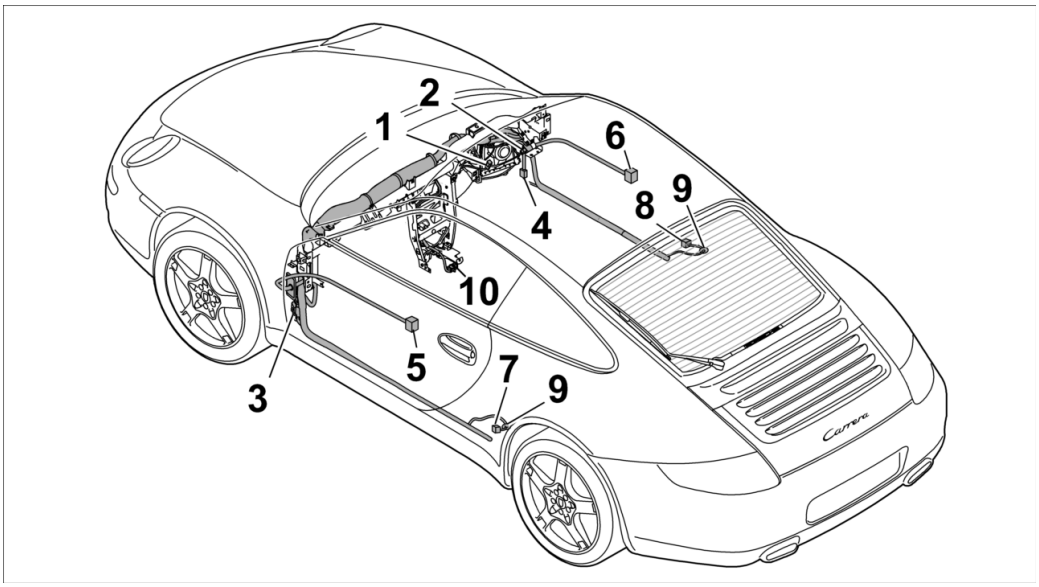
Danger of injury and material damage if airbag units are not handled correctly.

Always observe the safety regulations for handling airbag units *691000 Safety regulations for handling airbag and belt tensioner units*

Remove ignition key. Disconnect battery. Route or isolate the ground strap so that all contact with a ground carrier (e.g. body, seat frame) is avoided. 2706IN Working instructions after disconnecting the battery

After the battery is disconnected, always wait for 1 minute before disconnecting the airbag plugs.

Installation Location:



Connector overview for airbag wire harness, shown on the 911

1-2 - Connectors for stage 1 and stage 2 of passenger's airbag unit

7-8 - Connector for seat-belt tensioner, left and right

9 - Rubber sleeve

10 - Connector for airbag triggering unit

1. Release connector on triggering unit for airbag **-10-** and fold open the locking lever. 695319 Removing and installing triggering unit for airbag - chapter on "Removing"
2. Remove connector from the relevant component.

2.1. **Connectors for stage 1 and stage 2 of passenger's airbag unit -1 and 2-**

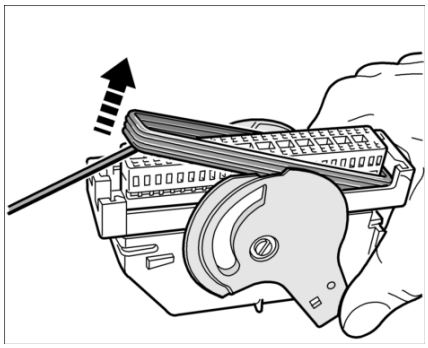
Release and remove connectors for stage 1 and stage 2 of passenger's airbag unit 695919 Removing and installing passenger's airbag unit - chapter on "Removing"

2.2. **Connector for seat-belt tensioner, left -7- and right -8-**

Release and remove connector on seat-belt tensioner. 691319 Removing and installing front three-point belt with seat-belt tensioner - chapter on "Removing" [997310 997311 997320 997321 997610 997611 997620 997621] 691319 Removing and installing front three-point belt with seat-belt tensioner - chapter on "Removing" [997110 997111 997120 997121 997410 997411 997430 997431]

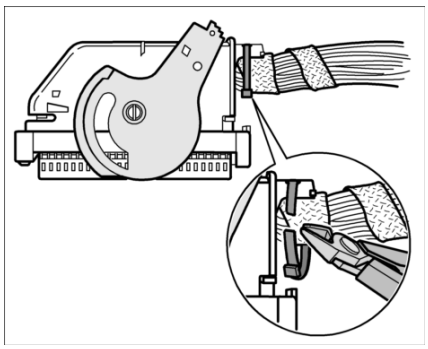
Remove rubber sleeves
-9- .

2.3. Cut off the connector of the damaged wire harness, isolate it and secure it to the main wire harness with tie-wraps.



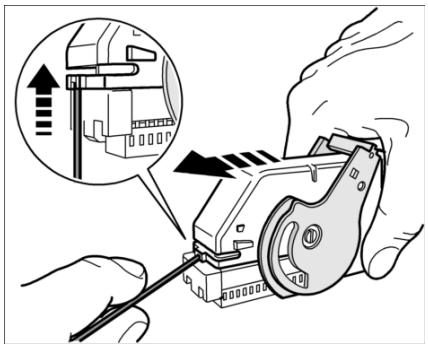
Levering out seal from connector housing

3. Using a small screwdriver, lever the seal out of the connector housing.



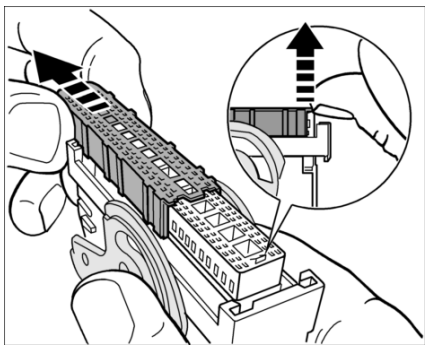
Removing tie-wrap at connector housing

4. Cut and remove tie-wrap for fixing the wire harness to the connector housing.



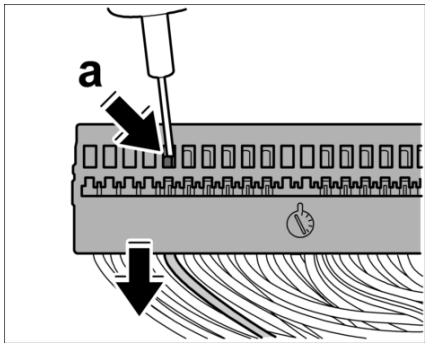
Removing connector housing from connector

5. Release connector housing with a small screwdriver, lift upwards and remove from connector.



Removing connector guide from connector

6. Lift connector guide and remove from connector.



Pressing out the contacts

Note

Allocation of lines - see wiring diagram.

7. Release contact of the damaged line using the **press-out tool 1575-1P** of the **press-out and unlocking tools for flat and round plug connections of all sizes NR.155** **-Arrow a-** and pull out of the contact strip.
8. Push connector of the new wire harness on the relevant component until it is felt to engage.

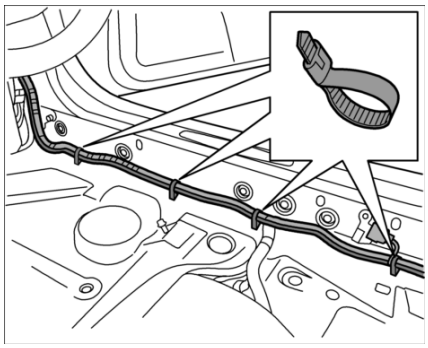
8.1. **Connectors for stage 1 and stage 2 of passenger's airbag unit -1 and 2-**

Push on connectors for stage 1 and stage 2 of passenger's airbag unit until they are felt to engage. 695919 Removing and installing passenger's airbag unit - chapter on "Installing"

8.2. **Connector for seat-belt tensioner, left -7- and right -8-**

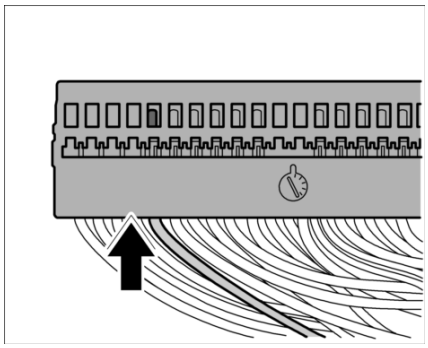
Push on connector for the seat-belt tensioner until it is felt to engage. 691319 Removing and installing front three-point belt with seat-belt tensioner - chapter on "Installing" [997310 997311 997320 997321 997610 997611 997620 997621] 691319 Removing and installing front three-point belt with seat-belt tensioner - chapter on "Installing" [997110 997111 997120 997121 997410 997411 997430 997431]

Fit rubber sleeve **-9-** .



Securing wire harness to the main wire harness

9. Route the new wire harness along the main wire harness, guide it through existing cable ducts and tie it to the main wire harness using tie-wraps.

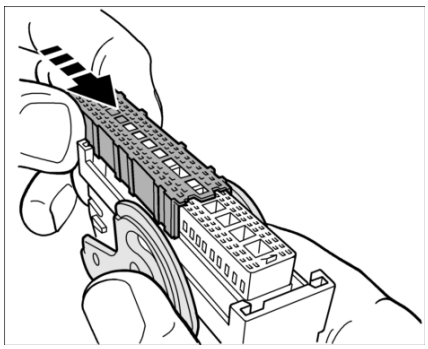


Pressing in the contacts

Note

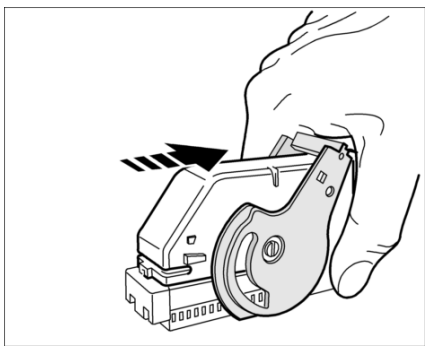
Allocation of lines - see wiring diagram.

10. Plug new line into the contact strip until the contact is felt to engage.



Pushing connector guide onto the connector

11. Push connector guide onto the connector until it is felt to engage.

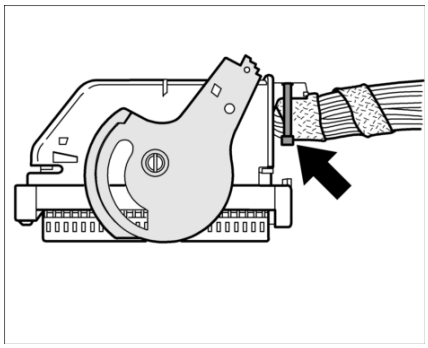


Pushing connector housing onto the connector

12. Push connector housing onto the connector

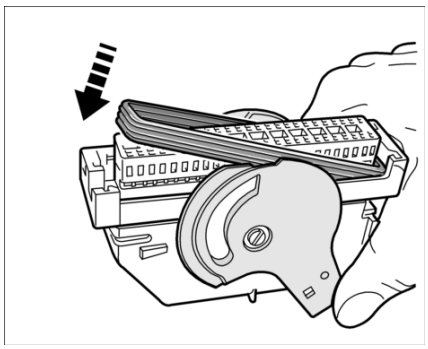
12.1. Before fitting the connector housing, check for signs of damage, and replace if necessary. *976600*
Airbag warning light activated: seal in plug connection of triggering unit defective

12.2. Push connector housing onto the connector until it is felt to engage.



Fitting tie-wrap at connector housing

13. Fasten wire harness with a new tie-wrap **-arrow-** to the connector housing.



Inserting seal of connector housing

14. Insert seal into the connector.

14.1. Before inserting the seal, check for signs of damage, and replace if necessary. *976600 Airbag warning light activated: seal in plug connection of triggering unit defective*

14.2. Insert seal into the connector and press down as far as it will go. Check seal is seated properly.

15. Push on connector of triggering unit for airbag **-10-** until it is felt to engage, and lock it. 695319 Removing and installing triggering unit for airbag - chapter on "Installing"

Installing wire harness for airbag from the triggering unit to the A-pillar connection point

WARNING

Danger of injury and material damage if airbag units are not handled correctly.

Always observe the safety regulations for handling airbag units *691000 Safety regulations for handling airbag and belt tensioner units*

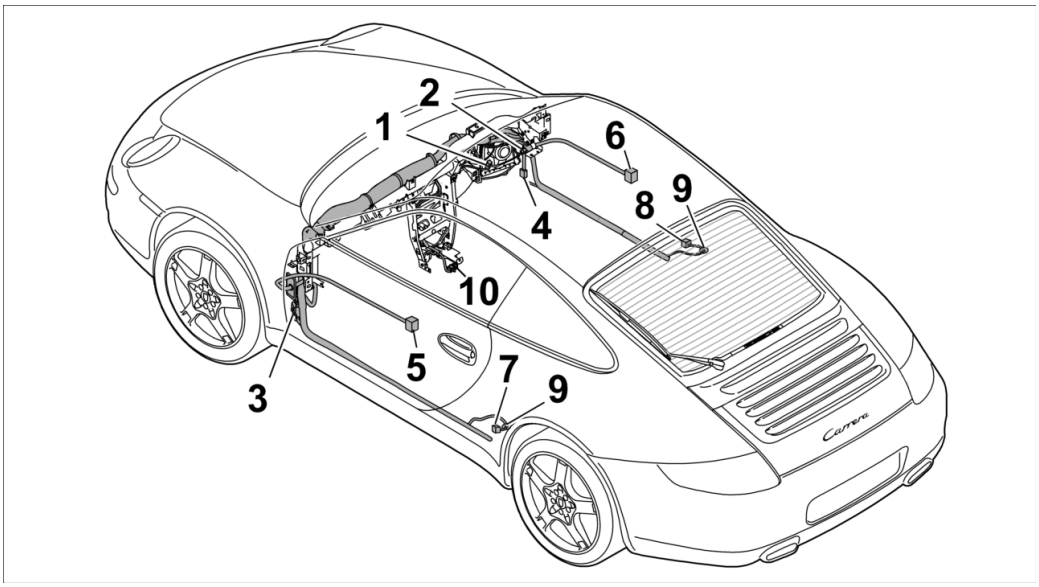
Remove ignition key. Disconnect battery. Route or isolate the ground strap so that all contact with a ground carrier (e.g. body, seat frame) is avoided. 2706IN Working instructions after disconnecting the battery

After the battery is disconnected, always wait for 1 minute before disconnecting the airbag plugs.

Note

Allocation of lines - see wiring diagram.

Installation Location:

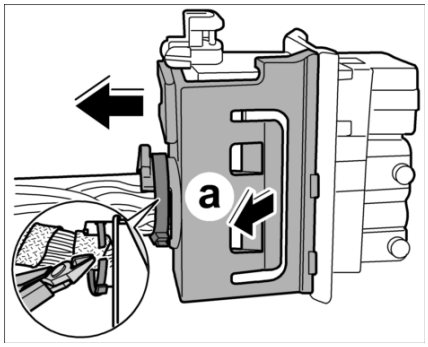


Connector overview for airbag wire harness, shown on the 911

3-4 - Plug connections between main wire harness and wire harness for door, left and right

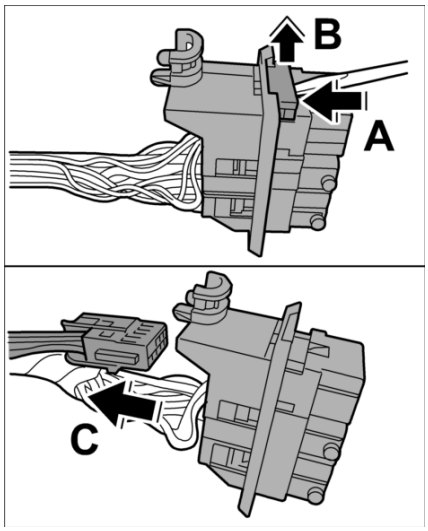
10 - Connector for airbag triggering unit

1. Release and disconnect plug connection for main wire harness to wire harness for door **-3 and 4-** .
   973219 Removing and installing wire harness for door - chapter on "Removing"



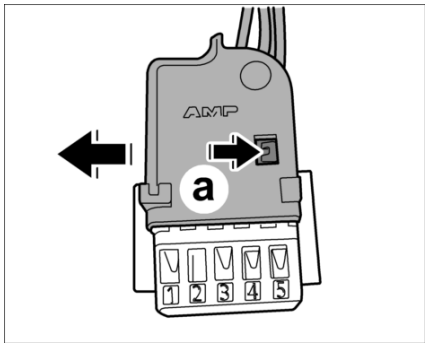
Removing cap from connector housing.

2. Cut and remove tie-wrap for fixing the wire harness to the connector housing.
3. Release cap on both sides **-arrow a-** and remove from the connector housing.



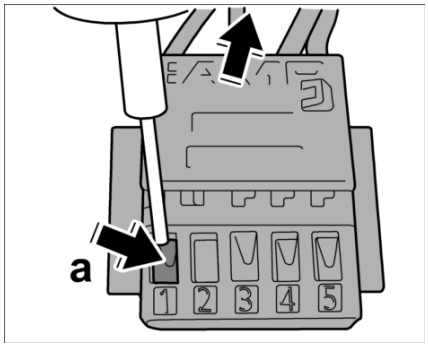
Removing connector from connector housing

4. Release locking mechanism on connector housing with a small screwdriver **-arrow A-** and remove **-arrow B-** .
5. Remove connector from connector housing **-arrow C-** .



Pushing down connector guide from the contact strip

6. Release connector guide on both sides **-arrow a-** and remove from the contact strip.



Pressing out contacts from the contact strip

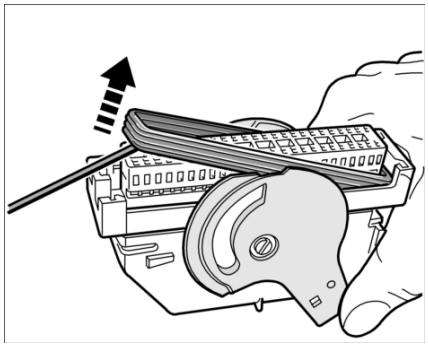
Note

Allocation of lines - see wiring diagram.

7. Release contacts of the damaged lines using the **press-out tool 1575-1P** of the **press-out and unlocking tools for flat and round plug connections of all sizes NR.155** **-arrow a-** and pull out

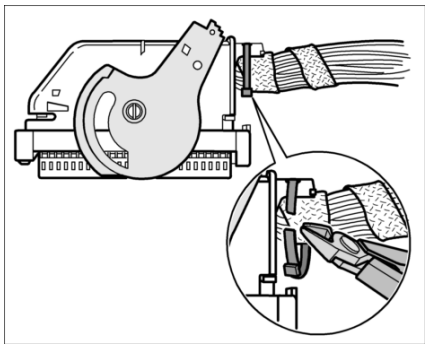
of the contact strip.

8. Cut off the contacts of the damaged lines, isolate them and secure them to the main wire harness with tie-wraps.
9. Release connector on triggering unit for airbag **-10-** and fold open the locking lever. 695319 Removing and installing triggering unit for airbag - chapter on "Removing"



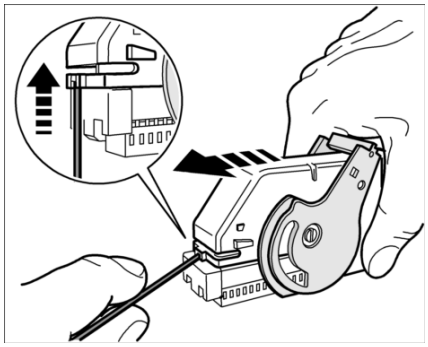
Levering out seal from connector housing

10. Using a small screwdriver, lever the seal out of the connector housing.



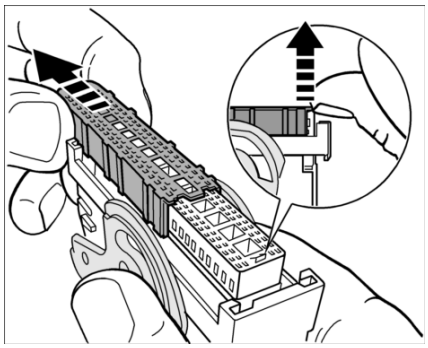
Removing tie-wrap at connector housing

11. Cut and remove tie-wrap for fixing the wire harness to the connector housing.



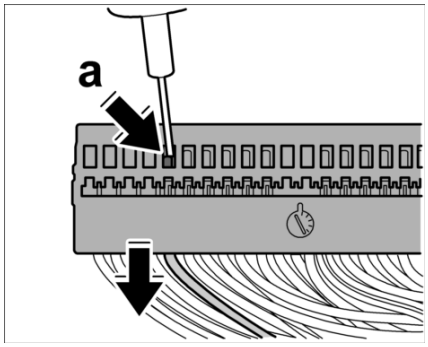
Removing connector housing from connector

12. Release connector housing with a small screwdriver, lift upwards and remove from connector.



Removing connector guide from connector

13. Lift connector guide and remove from connector.

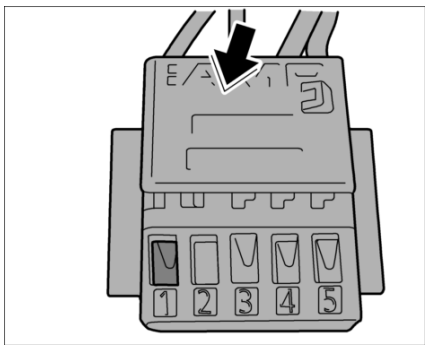


Pressing out the contacts

Note

Allocation of lines - see wiring diagram.

14. Release contact of the damaged line using the **press-out tool 1575-1P** of the **press-out and unlocking tools for flat and round plug connections of all sizes NR.155 -arrow a-** and pull out of the contact strip.
15. Cut off the contacts of the damaged lines, isolate them and secure them to the main wire harness with tie-wraps.

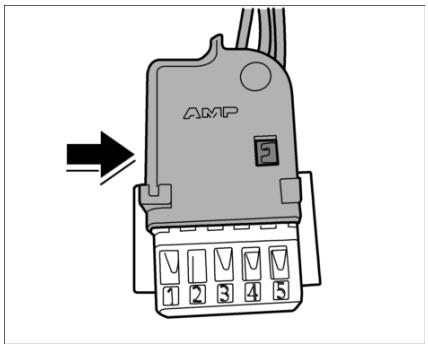


Pressing in contacts on the contact strip

Note

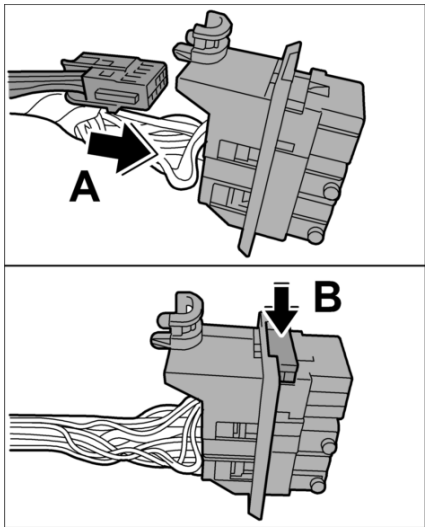
Allocation of lines - see wiring diagram.

16. Push new lines into the contact strip until the contacts are felt to engage.



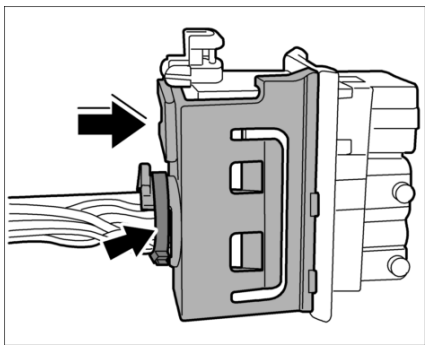
Pushing connector guide onto the contact strip

17. Push connector guide onto the contact strip until it is felt to engage.



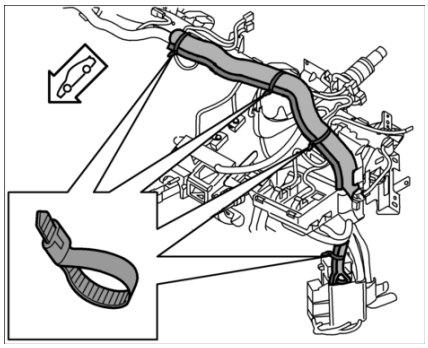
Inserting connector into the connector housing

18. Insert connector into the connector housing **-arrow A-** .
19. Insert locking mechanism into the connector housing and press in **-arrow B-** until it is felt to engage.



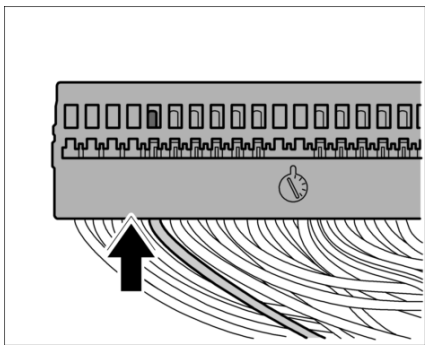
Pressing cap onto the connector housing

20. Press cap onto the connector housing until it is felt to engage.
21. Secure wire harness with a new tie-wrap **-arrow-** to the connector housing.



Securing wire harness to the main wire harness

22. Route the new wire harness along the main wire harness, guide it through existing cable ducts and tie it to the main wire harness using tie-wraps.

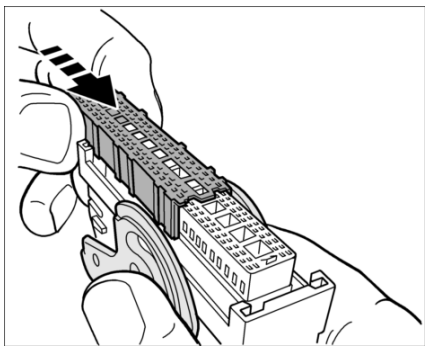


Pressing in the contacts

Note

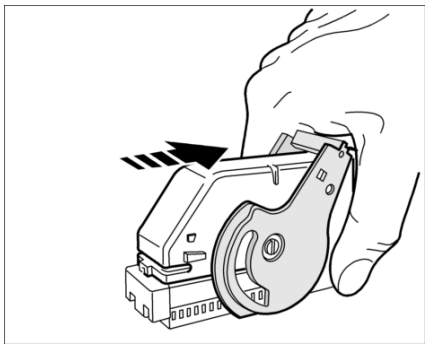
Allocation of lines - see wiring diagram.

23. Plug new line into the contact strip until the contact is felt to engage.



Pushing connector guide onto the connector

24. Push connector guide onto the connector until it is felt to engage.

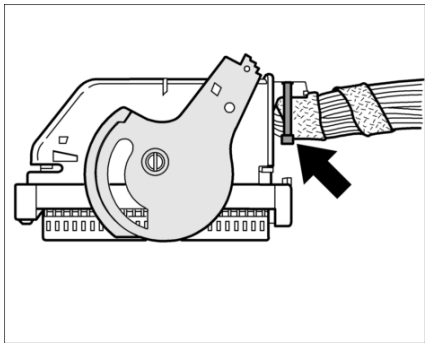


Pushing connector housing onto the connector

25. Push connector housing onto the connector

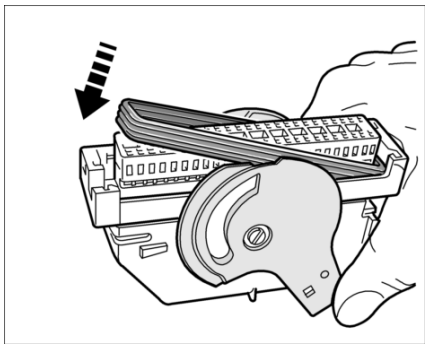
25.1. Before fitting the connector housing, check for signs of damage, and replace if necessary. *976600 Airbag warning light activated: seal in plug connection of triggering unit defective*

25.2. Push connector housing onto the connector until it is felt to engage.



Fitting tie-wrap at connector housing

26. Fasten wire harness with a new tie-wrap **-arrow-** to the connector housing.



Inserting seal of connector housing

27. Insert seal into the connector.

27.1. Before inserting the seal, check for signs of damage, and replace if necessary. *976600 Airbag warning light activated: seal in plug connection of triggering unit defective*

27.2. Insert seal into the connector and press down as far as it will go. Check seal is seated properly.

28. Push on connector of triggering unit for airbag **-10-** until it is felt to engage, and lock it. 695319 Removing and installing triggering unit for airbag - chapter on "Installing"

Installing wire harness for airbag from the A-pillar connection point to the head airbag

WARNING

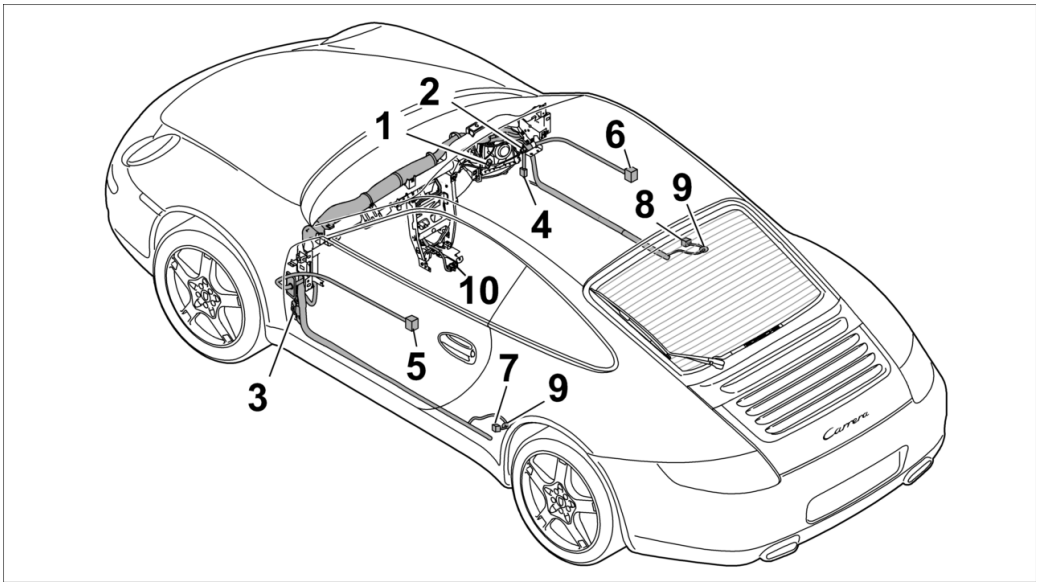
Danger of injury and material damage if airbag units are not handled correctly.

Always observe the safety regulations for handling airbag units *691000 Safety regulations for handling airbag and belt tensioner units*

Remove ignition key. Disconnect battery. Route or isolate the ground strap so that all contact with a ground carrier (e.g. body, seat frame) is avoided. 2706IN Working instructions after disconnecting the battery

After the battery is disconnected, always wait for 1 minute before disconnecting the airbag plugs.

Installation Location:

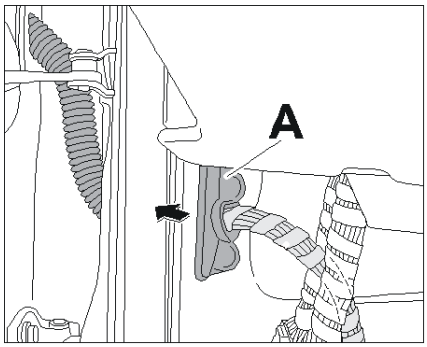


Connector overview for airbag wire harness, shown on the 911

3-4 - Plug connections between main wire harness and wire harness for left and right doors

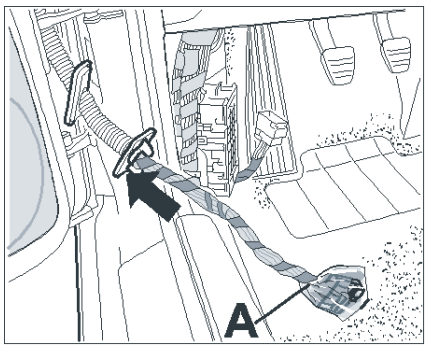
5-6 - Connector for head airbag, left and right

1. Release and disconnect plug connection for main wire harness to door wire harness **-3 and 4-** . 973219 Removing and installing wire harness for door - section on "Removing"
2. Release and pull off connector on head airbag on the left **-5-** and right **-6-** . 696619 Removing and installing head airbag - section on "Removing"
3. Cut off the head airbag connector on the damaged wire harness, insulate it and secure it to the door wire harness with tie-wraps.



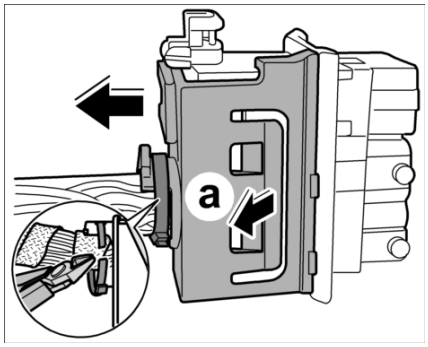
Removing rubber sleeve

4. Remove rubber sleeve **-A-** and carefully pull it and the door wire harness out of the A-pillar.



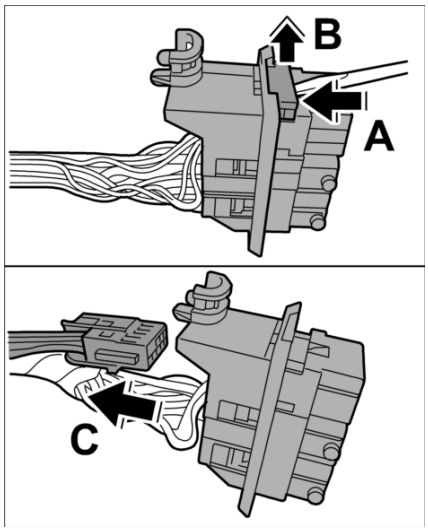
Removing foil hose

5. Push rubber sleeve back slightly **-Arrow-** , remove adhesive tape and pull off foil hose **-A-** .



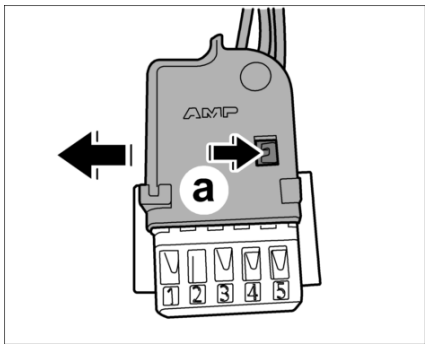
Removing cap from connector housing.

6. Cut and remove tie-wraps for fixing the wire harness to the connector housing.
7. Release cap on both sides **-Arrow a-** and remove from the connector housing.



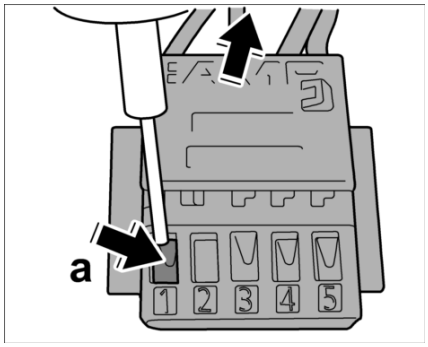
Removing connector from connector housing

8. Release locking mechanism on connector housing with a small screwdriver **-Arrow A-** and remove it **-Arrow B-** .
9. Pull connector out of the connector housing **-Arrow C-** .



Pushing down connector guide from the contact strip

10. Release connector guide on both sides **-Arrow a-** and slide down from the contact strip.



Pressing out contacts from the contact strip

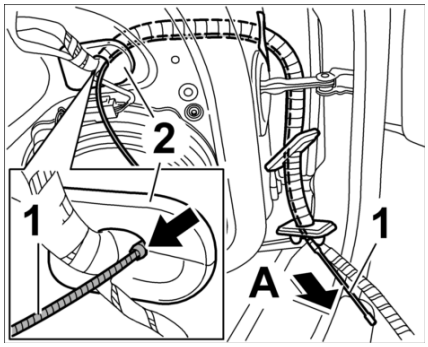
Note

Allocation of lines - see wiring diagram.

11. Release contacts of the damaged lines using the **press-out tool 1575-1P** of the **press-out and unlocking tools for flat and round plug connections of every size NR.155** (**-Arrow a-**) and pull out of the

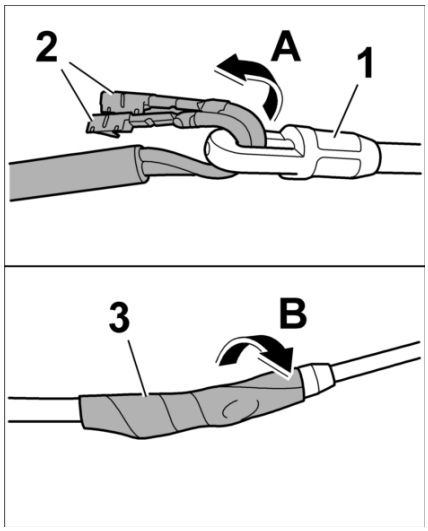
contact strip.

12. Cut off the contacts of the damaged lines, insulate them and secure them to the main wire harness with tie-wraps.

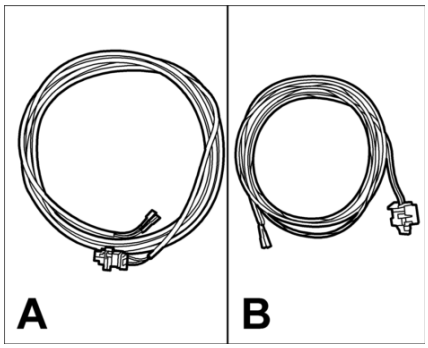


Sliding wire puller through the sleeve

13. Insert wire puller **-1-** with the flexible end on the right side **-Arrow-** into the rubber sleeve **-2-** . Coat the wire puller **-1-** with soapy water and slide it through the rubber sleeve **-2-** (**-Arrow A-**). 976623 Installing wire harness for airbag - section on "Tools and materials"



Securing new lines on the wire puller



Wire harness spare part

Note

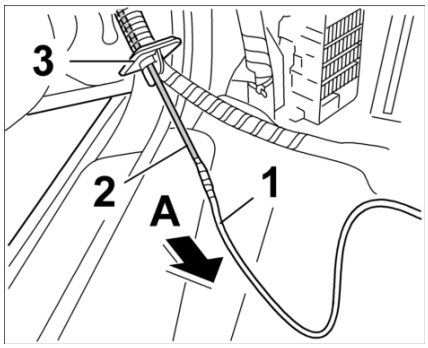
Two different wire harnesses are available as spare parts, depending on the model year. Up to model year 05, the wire harness **-A-** comes with insulation as standard. From model year 2006 onwards, the wire harness **-B-**

no longer has this insulation.

Note

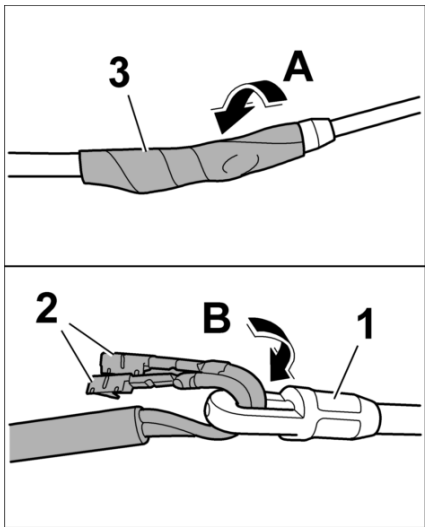
Observe wrapping direction of adhesive tape! To keep the resistance as low as possible when pulling the new wire harness through, always start wrapping the tape around at the new wire harness and end at the wire puller.

14. Push new lines **-2-** through the eye in the back of the wire puller **-1-** (**-Arrow A-**), fold them over and secure with adhesive tape **-3-** (**-Arrow B-**).



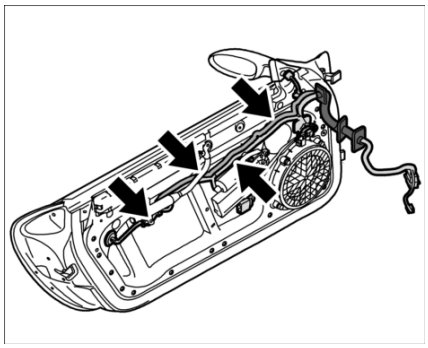
Pulling new wire harness through the rubber sleeve

15. Coat the new wire harness **-2-** with soapy water and use the wire puller **-1-** to pull it through the rubber sleeve **-3-** (**-Arrow A-**). Push carefully on the new wire harness at the same time to make it easier to pull the lines through.



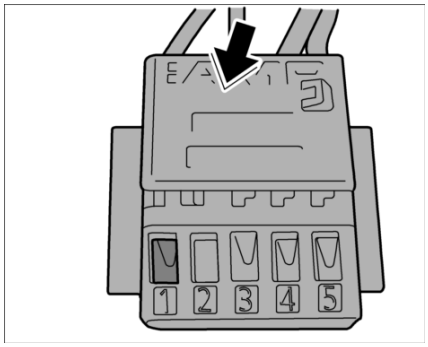
Releasing new line on wire puller

16. Remove adhesive tape **-3-** (**-Arrow A-**) and carefully pull the lines **-2-** out of the eye on the wire puller **-1-** (**-Arrow B-**). Make sure that the insulation on the new lines is not damaged.



Securing line for head airbag at door sub-frame

17. Route new wire harness along the door wire harness and secure at the standard attachment points on the door sub-frame.
18. Push on connector of new wire harness for head airbag at the left **-5-** and right **-6-** until it is felt to engage.
    696619 Removing and installing head airbag - section on "Installing"

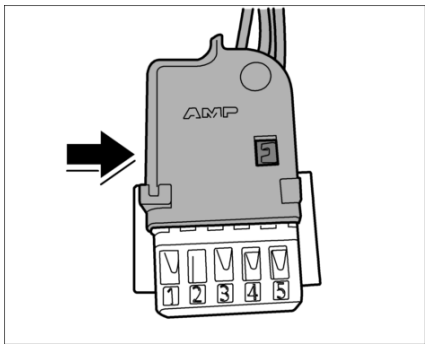


Pressing in contacts on the contact strip

Note

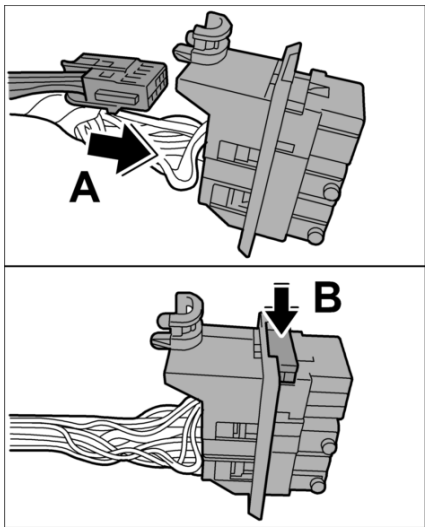
Allocation of lines - see wiring diagram.

19. Push new lines into the contact strip until the contacts are felt to engage.



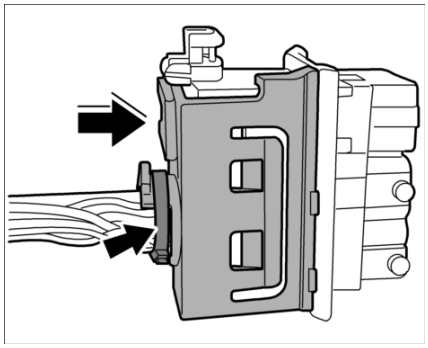
Pushing connector guide onto the contact strip

20. Push connector guide onto the contact strip until it is felt to engage.



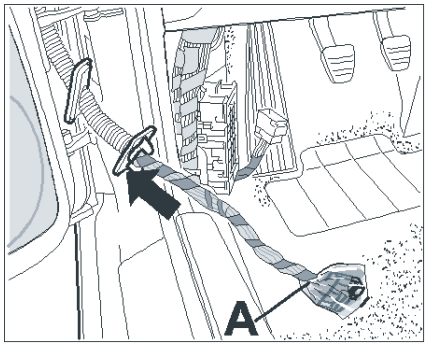
Inserting connector into the connector housing

21. Slide connector into the connector housing **-Arrow A-** .
22. Insert locking mechanism into the connector housing and press in **-Arrow B-** until it is felt to engage.



Pressing cap onto the connector housing

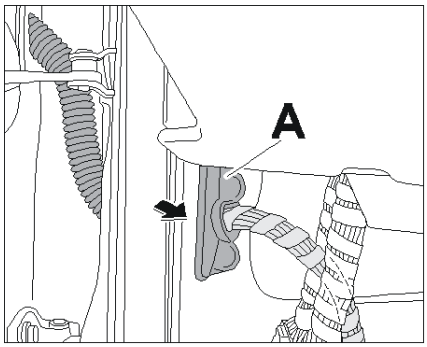
23. Press cap onto the connector housing until it is felt to engage.
24. Secure wire harness to the connector housing with a new tie-wrap **-Arrow-** .



Attaching foil hose

25. Push the rubber sleeve back slightly **-Arrow-** , then pull the foil hose (500 mm in length) over the door wire harness up to the rubber sleeve and secure in this position with insulating tape.

    Pull foil hose tight and wrap it tightly over its entire length from the rubber sleeve up to the connector **-A-** of the door wire harness with insulating tape.



Fitting rubber sleeve

Note

Route the door wire harness carefully through the A-pillar in the vehicle interior, so that the foil hose and the door wire harness are not damaged!

26. Push wire harness for door through the A-pillar and fit rubber sleeve **-A-** . Check rubber sleeve for correct installation position.

top of page

Subsequent work

Subsequent work for wire harness for passenger's airbag unit

1. Install glove compartment. 681519 Removing and installing glove compartment - section on "Installing"
2. If required, install control unit for tilt sensor. 966319 Removing and installing control unit for tilt sensor - section on "Installing"
3. Connect the battery. *271000 Work instructions after disconnecting the battery*
4. Install centre console. 681719 Removing and installing centre console - section on "Installing"
5. Install centre console cover. 681919 Removing and installing centre console cover - section on "Installing"
6. Install cover of console at the left and right. 681419 Removing and installing centre console cover - section on "Installing"

Subsequent work for wire harness for left seat-belt tensioner

1. Install support under the sill. 695119 Removing and installing airbag sensor - section on "Installing"
2. Install sill. 680519 Removing and installing inner sill
3. Install the rear side-panel lining. 707519 Removing and installing rear side-panel lining [997310 997311 997320 997321 997610 997611 997620 997621] 707519 Removing and installing rear side-panel lining [997110 997111 997120 997121 997410 997411 997430 997431]
4. Installing front seat. *Removing and installing front seat*

5. Install front side section trim. 702419 Removing and installing front side section trim - section on "Installing"
6. Install trim panel under dashboard on the left. 701919 Removing and installing trim panel under dashboard - section on "Installing"
7. If required, install control unit for tilt sensor. 966319 Removing and installing control unit for tilt sensor - section on "Installing"
8. Connect battery. *271000 Work instructions after disconnecting the battery*
9. Install centre console. 681719 Removing and installing centre console - section on "Installing"
10. Install centre console cover. 681919 Removing and installing centre console cover - section on "Installing"
11. Install cover of console at the left and right. 681419 Removing and installing centre console cover - section on "Installing"

Subsequent work for wire harness for right seat-belt tensioner

1. Install support under the sill. 695119 Removing and installing airbag sensor - section on "Installing"
2. Install sill. 680519 Removing and installing inner sill
3. Install the rear side-panel lining. 707519 Removing and installing rear side-panel lining [997310 997311 997320 997321 997610 997611 997620 997621] 707519 Removing and installing rear side-panel lining [997110 997111 997120 997121 997410 997411 997430 997431]
4. Install front seat. *Removing and installing front seat*
5. Install front side section trim. 702419 Removing and installing front side section trim - section on "Installing"
6. Install glove compartment. 681519 Removing and installing glove compartment - section on "Installing"
7. If required, install control unit for tilt sensor. 966319 Removing and installing control unit for tilt sensor - section on "Installing"
8. Connect the battery. *271000 Work instructions after disconnecting the battery*
9. Install centre console. 681719 Removing and installing centre console - section on "Installing"
10. Install centre console cover. 681919 Removing and installing centre console cover - section on "Installing"
11. Install cover of console at the left and right. 681419 Removing and installing centre console cover - section on "Installing"

Subsequent work for wire harness for left head airbag (triggering unit to A-pillar connection point)

1. Install front side section trim. 702419 Removing and installing front side section trim - section on "Installing"
2. Install trim panel under dashboard on the left. 701919 Removing and installing trim panel under dashboard - section on "Installing"
3. If required, install control unit for tilt sensor. 966319 Removing and installing control unit for tilt sensor - section on "Installing"

4. Connect the battery. *271000 Work instructions after disconnecting the battery*
5. Install centre console. 681719 Removing and installing centre console - section on "Installing"
6. Install centre console cover. 681919 Removing and installing centre console cover - section on "Installing"
7. Install cover of console at the left and right. 681419 Removing and installing centre console cover - section on "Installing"

Subsequent work for wire harness for right head airbag (triggering unit to A-pillar connection point)

1. Install front side section trim. 702419 Removing and installing front side section trim - section on "Installing"
2. Install glove compartment. 681519 Removing and installing glove compartment - section on "Installing"
3. If required, install control unit for tilt sensor. 966319 Removing and installing control unit for tilt sensor - section on "Installing"
4. Connect the battery. *271000 Work instructions after disconnecting the battery*
5. Install centre console. 681719 Removing and installing centre console - section on "Installing"
6. Install centre console cover. 681919 Removing and installing centre console cover - section on "Installing"
7. Install cover of console at the left and right. 681419 Removing and installing centre console cover - section on "Installing"

Subsequent work for head airbag wire harness (head airbag to A-pillar connection point)

1. Install door trim panel. 705919 Removing and installing door trim panel - section on "Installing"
2. Install front side section trim. 702419 Removing and installing front side section trim - section on "Installing"

997110, 997111, 997120, 997121, 997310, 997311, 997320, 997321, 997410, 997411, 997430, 997431, 997610, 997611, 997620, 997621

as of MY 2005
Country C00, C02, C05, C07, C08, C09, C10, C11, C12, C13, C14, C15, C16, C18, C19, C20, C21, C22, C23, C24, C25, C26, C27, C28, C32, C33, C34, C35, C36, C37, C38, C39, C45, C46, C98, C99

WARNUNG

Gefahr des Verlusts der Text-Bild-Zuordnung beim Ausdruck.

- **Aus technischen Gründen kann derzeit nicht ausgeschlossen werden, dass trotz einwandfreier Darstellung auf dem Bildschirm beim Ausdruck der Zusammenhang von Text und zugehörigem Bild verloren geht.**

97 67 19 Removing and installing wiring harness for rear spoiler - as of MY 2005

- Information

top of page

Information

Note on removing and installing wiring harness for rear spoiler

Note
The wire harness for rear spoiler is not available as spare part.
If the wire harness for the rear spoiler must be replaced, this is only possible together with the spoiler drive.
667219 Removing and installing spoiler drive

997110, 997111, 997120, 997121, 997310, 997311, 997320, 997321, 997410, 997411, 997430, 997431, 997610, 997611, 997620, 997621

as of MY 2005
Country C00, C02, C05, C07, C08, C09, C10, C11, C12, C13, C14, C15, C16, C18, C19, C20, C21, C22, C23, C24, C25, C26, C27, C28, C32, C33, C34, C35, C36, C37, C38, C39, C45, C46, C98, C99

WARNUNG
Gefahr des Verlusts der Text-Bild-Zuordnung beim Ausdruck.

- **Aus technischen Gründen kann derzeit nicht ausgeschlossen werden, dass trotz einwandfreier Darstellung auf dem Bildschirm beim Ausdruck der Zusammenhang von Text und zugehörigem Bild verloren geht.**
- **Wird der Fehler nicht bemerkt, besteht die Gefahr, daß Arbeiten nicht korrekt durchgeführt werden und es dadurch zu Personen- und Sachschäden kommt.**

Vergleichen Sie deshalb nach dem Druckvorgang unbedingt die Ausdrucke mit der Bildschirmdarstellung. Korrigieren Sie die Ausdrucke im Fehlerfall so, daß der Inhalt der Bildschirmdarstellung zutreffend wiedergegeben wird.

WARNING
Danger of losing text-figure correspondence when printing out.

97 70 19 Removing and installing wiring harness for number plate light - as of MY 2005

- Preliminary work
- Removing wiring harness for number plate light
- Installing wiring harness for number plate light
- Subsequent work

top of page

Preliminary work

Preliminary work

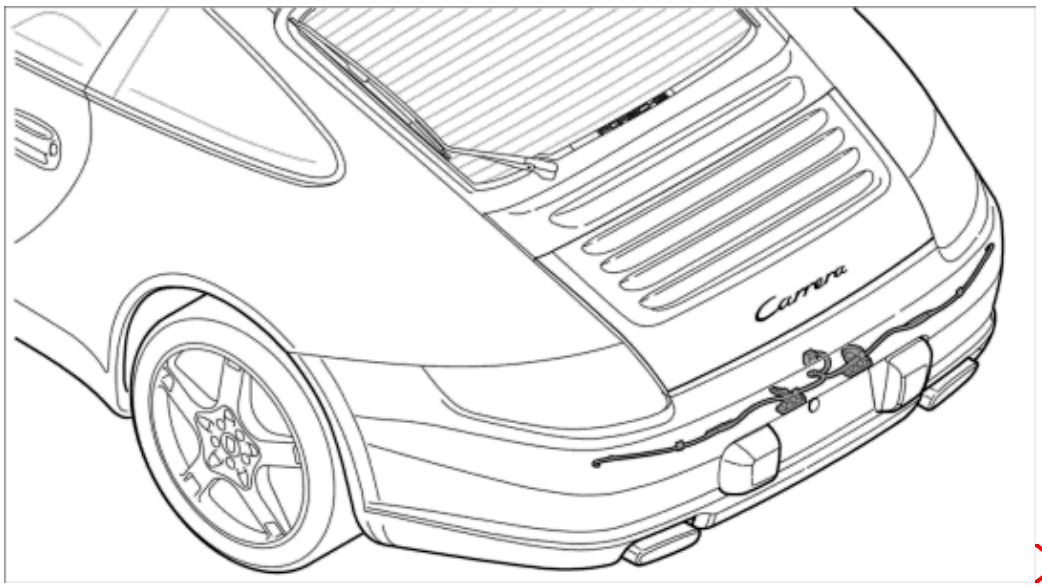
Remove rear spoiler. *21 Removing and installing rear apron - removing*

top of page

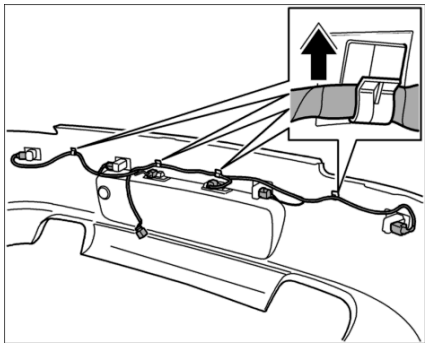
Removing wiring harness for number plate light

Removing wiring harness for number plate light

Installation Location:

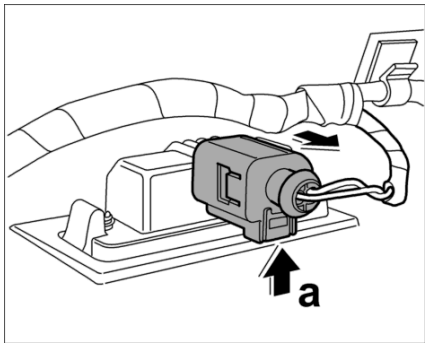


Overview of wiring harness for number plate light



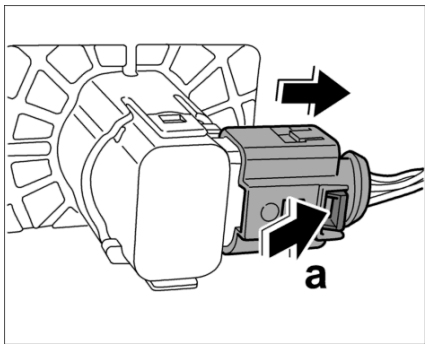
Removing wiring harness for number plate light from the four line holders

1. Remove wiring harness for number plate light from the four line holders.



Pulling off number plate light connectors

2. Release the connectors for the two number plate lights **-arrow a-** and pull them off.



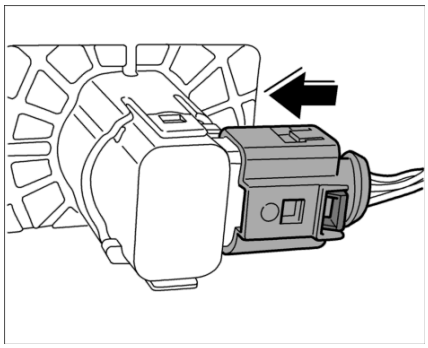
Pulling off connectors for ParkAssist sensors

3. Release the connectors for the four ParkAssist sensors **-arrow a-** and pull them off.

top of page

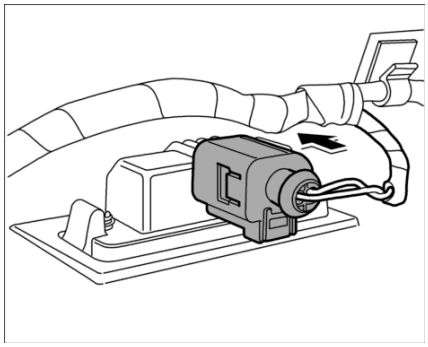
Installing wiring harness for number plate light

Installing wiring harness for number plate light



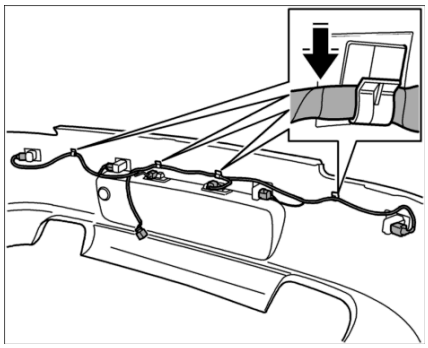
Attaching connectors for ParkAssist sensors

1. Attach the connectors to the four ParkAssist sensors until they are felt to engage.



Inserting number plate light connectors

2. Insert the connectors for the two number plate lights until they are felt to engage.



Inserting wiring harness for number plate light into the line holders

3. Insert the wiring harness for the number plate light into the four line holders.

top of page

Subsequent work

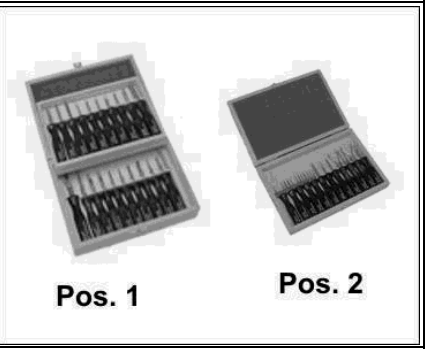
Subsequent work

Install rear apron. *23 Removing and installing rear apron - installing*

97 72 23 Installing optical waveguide - as of MY 2005

- Preliminary work
- Optical waveguide variants
- Installing optical waveguide
- Subsequent work

Tools

Designation	Type	Number	Explanation	
press-out and unlocking tools for tab and round plug connectors of all sizes	commercially available tool	NR.155		

top of page

Preliminary work

Preliminary work

Note

Release the main wire harness only until the damaged optical waveguide has been released and the new optical waveguide can be attached to the main wire harness.

Expose main wire harness. 970919 Removing and installing main wire harness - chapter on "Removing"

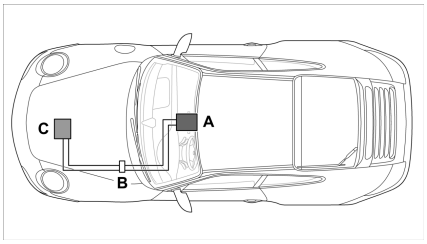
top of page

Optical waveguide variants

Optical waveguide variants

Note

Depending on the equipment I No., the installation positions of the audio components in the front luggage compartment differ.



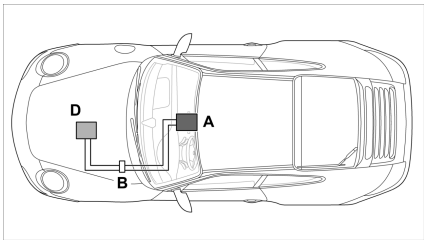
MOST control units, variant A - B - C, shown on the 911

MOST control units, variant A - B - C

A - Radio/PCM

B - Connection point interior/luggage compartment

C - Loudspeaker amplifier



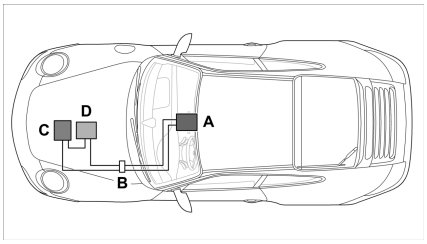
MOST control units, variant A - B - D, shown on the 911

MOST control units, variant A - B - D

A - Radio/PCM

B - Connection point interior/luggage compartment

D - CD changer



MOST control units, variant A - B - C - D, shown on the 911

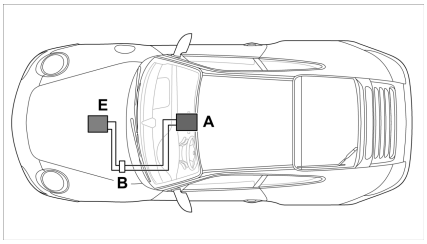
MOST control units, variant A - B - C - D

A - Radio/PCM

B - Connection point interior/luggage compartment

C - Loudspeaker amplifier

D - CD changer



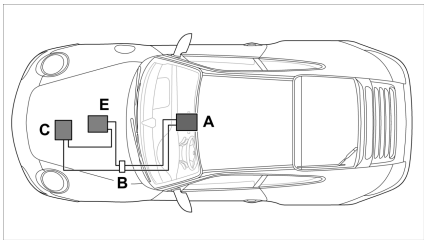
MOST control units, variant A - B - E, shown on the 911

MOST control units, variant A - B - E

A - Radio/PCM

B - Connection point interior/luggage compartment

E - Navigation unit



MOST control units, variant A - B - C - E, shown on the 911

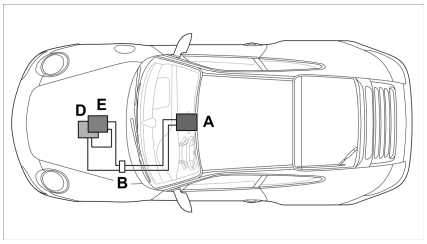
MOST control units, variant A - B - C - E

A - Radio/PCM

B - Connection point interior/luggage compartment

C - Loudspeaker amplifier

E - Navigation unit



MOST control units, variant A - B - D - E, shown on the 911

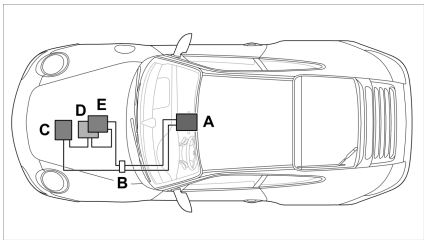
MOST control units, variant A - B - D - E

A - Radio/PCM

B - Connection point interior/luggage compartment

D - CD changer

E - Navigation unit



MOST control units, variant A - B C - D - E, shown on the 911

MOST control units, variant A - B - C - D - E

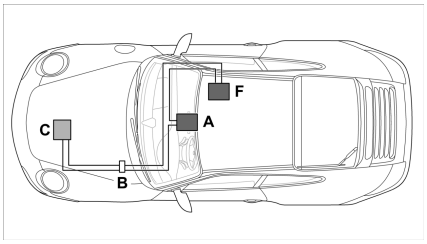
A - Radio/PCM

B - Connection point interior/luggage compartment

C - Loudspeaker amplifier

D - CD changer

E - Navigation unit



MOST control units, variant A - B - C - F, shown on the 911

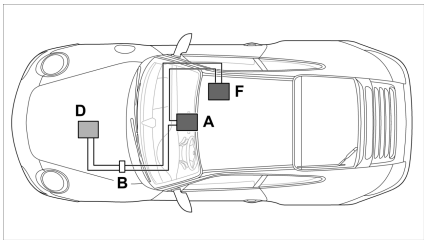
MOST control units, variant A - B - C - F

A - Radio/PCM

B - Connection point interior/luggage compartment

C - Loudspeaker amplifier

F - Telephone control module



MOST control units, variant A - B - D - F, shown on the 911

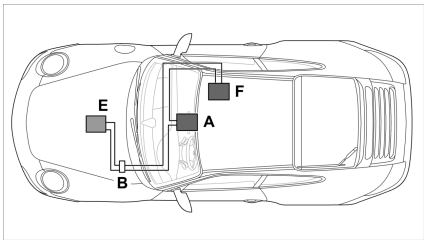
MOST control units, variant A - B - D - F

A - Radio/PCM

B - Connection point interior/luggage compartment

D - CD changer

F - Telephone control module



MOST control units, variant A - B - E - F, shown on the 911

MOST control units, variant A - B - E - F

A - Radio/PCM

B - Connection point interior/luggage compartment

E - Navigation unit

F - Telephone control module

top of page

Installing optical waveguide

Disconnecting optical waveguide

Note

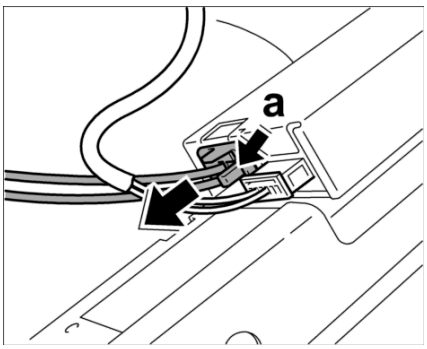
Observe the general information on optical waveguides. *General information on optical waveguides - MOST bus*

ATTENTION

Risk of destruction when removing electric components with the ignition on.

Switch off ignition and remove ignition key.

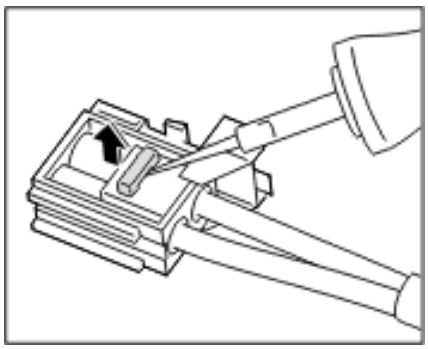
1.



Disconnecting connector for optical waveguide

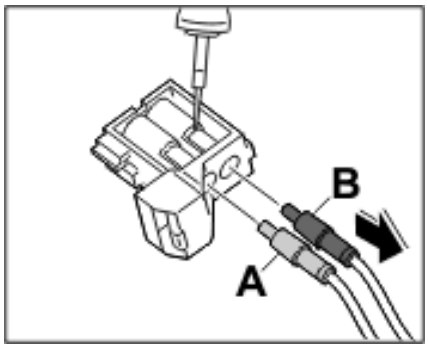
2. Release the connectors of the damaged optical waveguides on the affected components **-Arrow a-** and disconnect them. The illustration shows the connector on the CD changer as an example.
3. Cut off the connector of the damaged optical waveguide, isolate it and tie it to the main wire harness.

Removing and installing optical contacts on connector side



Unlocking secondary locking of the optical contacts (connector side)

1. Open the secondary locking mechanism using the **press-out and unlocking tools for tab and round plug connectors of all sizes NR.155**. Insert the tool in the opening provided and lift the locking mechanism. The locking mechanism engages in the upper position.



Unlocking primary locking of the optical contacts (connector side)

2. Position the **press-out and unlocking tools for tab and round plug connectors of all sizes NR.155** on the primary locking mechanism and lift the locking mechanism.

A - Optical contact, grey

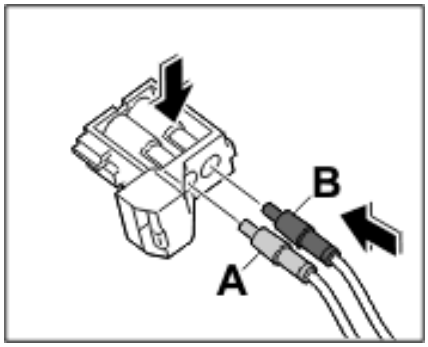
B - Optical contact, black

3. Carefully pull on the optical waveguide **-A and B-** in **-direction of arrow-** . If it is not possible to pull out the optical waveguide, check again if the secondary locking mechanism is completely released and if the primary locking mechanism is raised sufficiently.

Perform visual inspection of locking mechanisms, connector housings and contacts for possible damage, and exchange the damaged parts, if necessary.

Installing optical contacts on connector side

Remove the dust boot right before plugging.
Check the proper condition of the contacts.

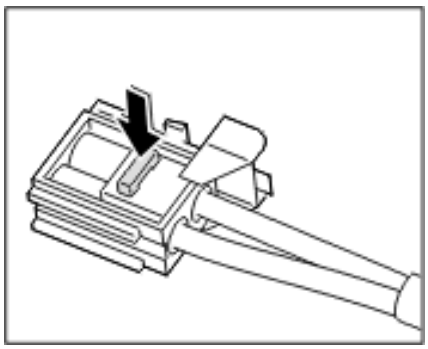


Locking primary locking of the optical contacts (connector side)

1. Insert the optical contact **-A and B-** in the connector until it engages audibly.

A - Optical contact, grey

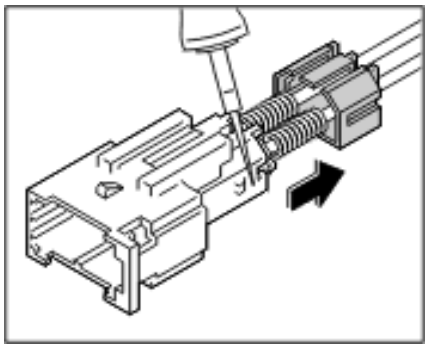
B - Optical contact, black



Locking secondary locking of the optical contacts (connector side)

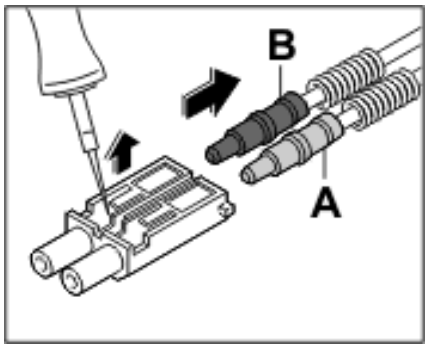
2. Lock the secondary locking and check the optical contacts for tightness.

Removing and installing optical contacts on socket side



Unlocking spring cap of the optical contacts (on the socket side)

1. Release the spring cap on both sides using the **press-out and unlocking tools for tab and round plug connectors of all sizes NR.155** and remove it.
2. Remove optical waveguide module from connector.



Unlocking contact locking of the optical contacts (on the socket side)

3. Position the **press-out and unlocking tools for flat-type and round plug connectors of all sizes NR.155** for releasing the contact locking mechanism of the optical waveguide module and lift up the locking mechanism.

A - Optical contact, grey

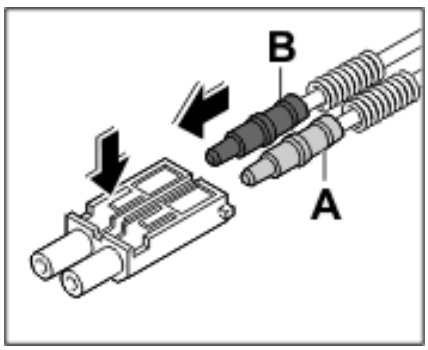
B - Optical contact, black

4. Carefully pull on the optical waveguide **-A and B-** in **-direction of arrow-** . If it is not possible to pull out the optical waveguide, check again if the locking mechanism is completely released.

Perform visual inspection of locking mechanisms, connector housings and contacts for possible damage, and exchange the damaged parts, if necessary.

Installing optical contacts on socket side

Remove the dust boot right before plugging.
Check the proper condition of the contact.
At a force of 10 N (7.5 lb.) the springs installed in the connection point will be compressed. This leads to an increase in attenuation, which could lead to system impairment and system failure. Therefore a maximum force of 10 N (7.5 lb.) may be used to pull on optical waveguides at connection points.



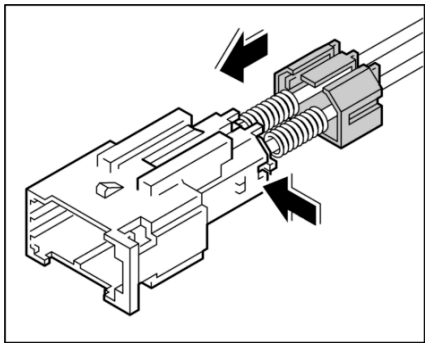
Locking contact locking of the optical contacts (on the socket side)

1. Insert optical contact **-B-** into the optical waveguide module until it is felt to engage, and check the optical contact is seated securely.

A - Optical contact, grey

B - Optical contact, black

2. Insert optical waveguide module into the connection point on the socket side.



Locking spring cap of the optical contacts (on the socket side)

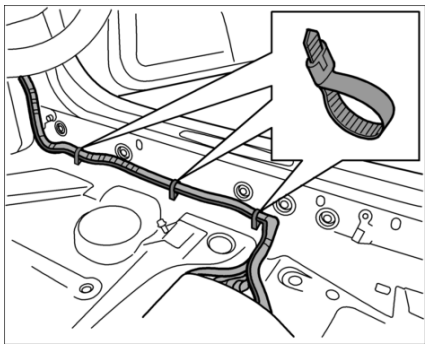
3. Slide the spring cap on the connection point until it can be felt to engage **-arrow-** .

Installing optical waveguide

Note

Observe the general information on optical waveguides. *General information on optical waveguides - MOST bus*

1. Cut off the opticsl contacts of the damaged optical waveguide, isolate it and tie it to the main wire harness.

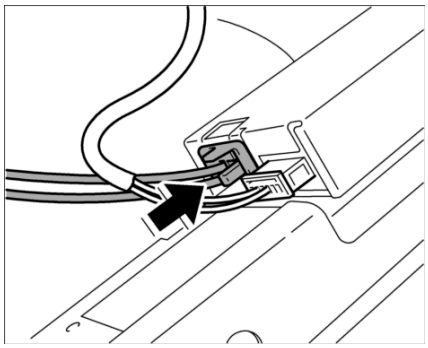


Tying optical waveguide to main wire harness

Note

The range of spare parts available for optical waveguides depends on the vehicle equipment. Depending on the vehicle equipment, there is a specific set containing the individual optical waveguides.
Select the required optical waveguide and remove it from the set.

2. Route the new optical waveguide along the main wire harness, guide it through the existing cable ducts and tie it to the main wire harness using tie-wraps.



Connecting connector for optical waveguide

3. Connect the connectors for the new optical waveguide to the affected parts until the connectors are felt to engage. The illustration shows the connector on the CD changer as an example.
4. Read out fault memory and erase if required.
5. Check operation of audio components.

top of page

Subsequent work

Subsequent work

Install components for releasing main wire harness. 970919 Removing and installing main wire harness - chapter on "Installing"

997110, 997111, 997120, 997121, 997310, 997311, 997320, 997321, 997410, 997411, 997430, 997431, 997610, 997611, 997620, 997621

as of MY 2005
Country C00, C02, C05, C07, C08, C09, C10, C11, C12, C13, C14, C15, C16, C18, C19, C20, C21, C22, C23, C24, C25, C26, C27, C28, C32, C33, C34, C35, C36, C37, C38, C39, C45, C46, C98, C99

WARNUNG

Gefahr des Verlusts der Text-Bild-Zuordnung beim Ausdruck.

- **Aus technischen Gründen kann derzeit nicht ausgeschlossen werden, dass trotz einwandfreier Darstellung auf dem Bildschirm beim Ausdruck der Zusammenhang von Text und zugehörigem Bild verloren geht.**
- **Wird der Fehler nicht bemerkt, besteht die Gefahr, daß Arbeiten nicht korrekt durchgeführt werden und es dadurch zu Personen- und Sachschäden kommt.**

Vergleichen Sie deshalb nach dem Druckvorgang unbedingt die Ausdrucke mit der Bildschirmdarstellung. Korrigieren Sie die Ausdrucke im Fehlerfall so, daß der Inhalt der Bildschirmdarstellung zutreffend wiedergegeben wird.

97 81 19 Removing and installing wire harness for Tiptronic transmission - as of MY 2005

- Preliminary work
- Removing wire harness for Tiptronic transmission
- Installing wire harness for Tiptronic transmission
- Subsequent work

top of page

Preliminary work

Preliminary work

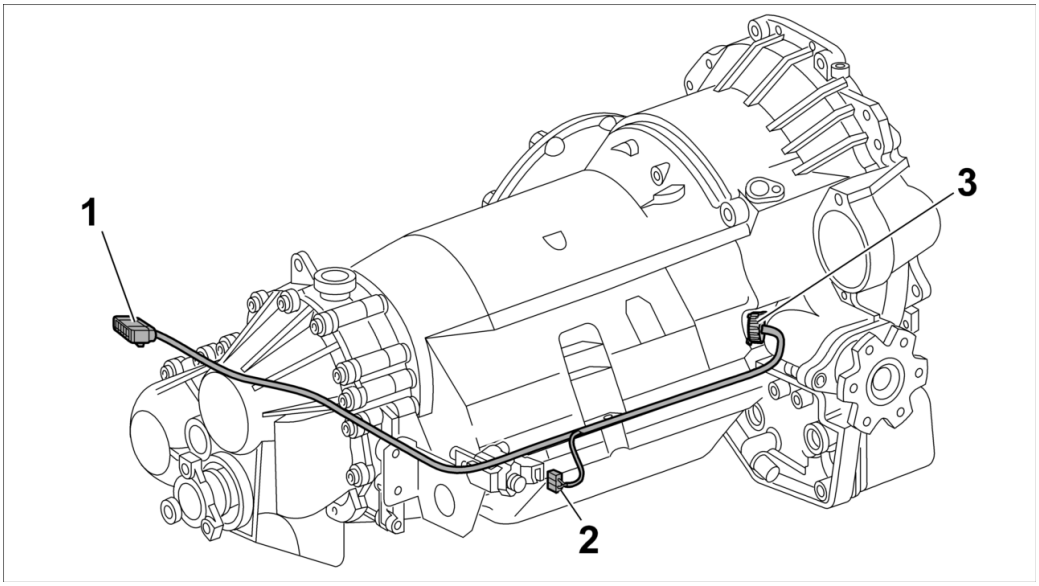
1. Remove rear underbody cover. 519419 Removing and installing rear cover - section on "Removing"

top of page

Removing wire harness for Tiptronic transmission

Removing wire harness for Tiptronic transmission

Installation Location:

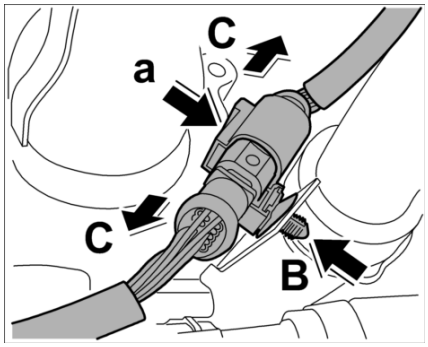


Installation position of wiring harness for Tiptronic transmission

1 - Plug connection between wire harness for Tiptronic transmission and rear wire harness

2 - Connector for change-over valve

3 - Connector for Tiptronic transmission

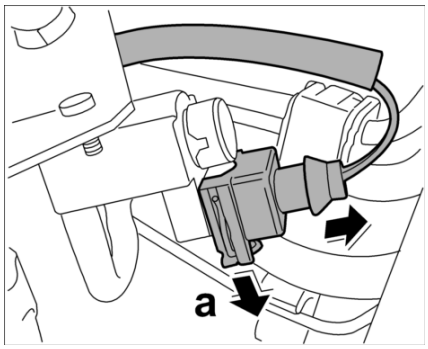


Disconnecting plug connection between wire harness for Tiptronic transmission and rear wire harness

1. Disconnect plug connection between wire harness for Tiptronic transmission and rear wire harness **-1-** .

1.1. Unclip plug connection between wire harness for Tiptronic transmission and rear wire harness **-Arrow B-**

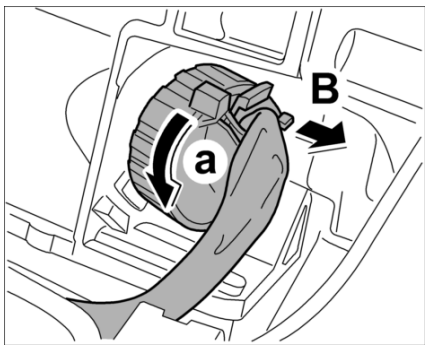
1.2. Disconnect plug connection between wire harness for Tiptronic transmission and rear wire harness **-Arrow a-** **-Arrows C-** .



Pulling off connector on change-over valve

2. Pull off connector on change-over valve **-2-** .

2.1. Release connector on change-over valve **-Arrow a-** and pull off.

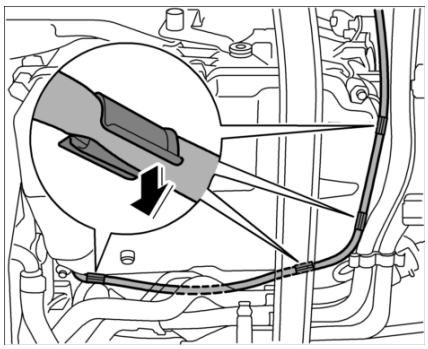


Pulling off connector on Tiptronic transmission

3. Pull off connector on Tiptronic transmission **-3-** .

3.1.

Release connector on Tiptronic transmission by turning anti-clockwise **-Arrow a-** and remove **-Arrow B-** .



Removing wire harness for Tiptronic transmission

4. Remove wire harness for Tiptronic transmission.

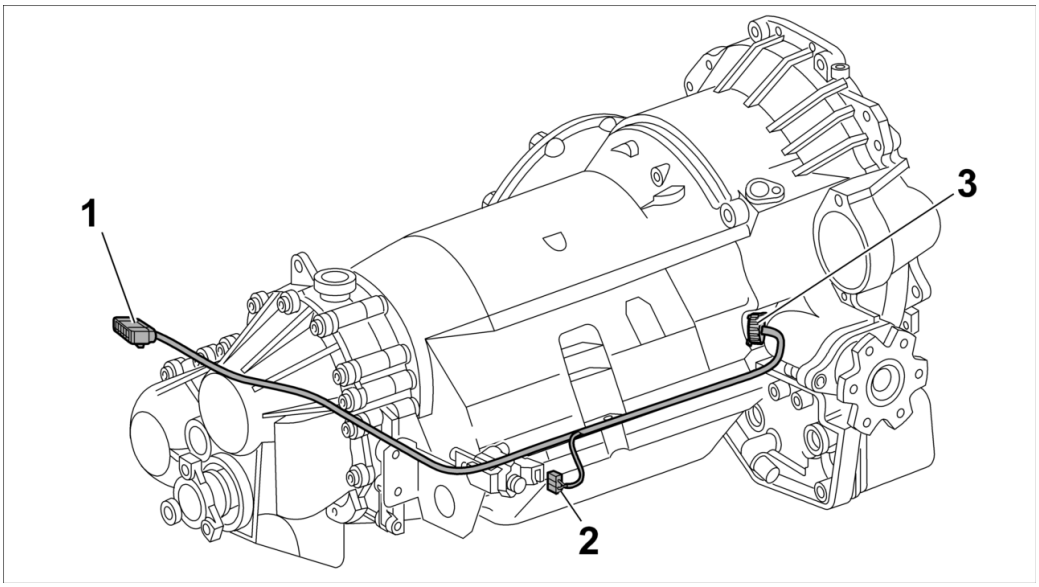
4.1. Unclip and remove wire harness for Tiptronic transmission from the sheetmetal clips.

top of page

Installing wire harness for Tiptronic transmission

Installing wire harness for Tiptronic transmission

Installation Location:

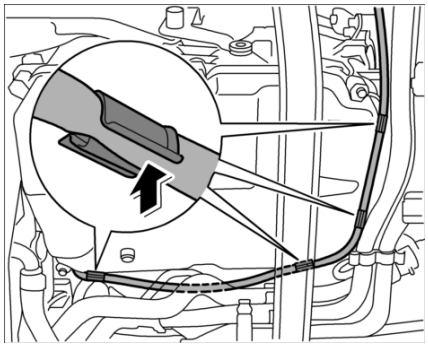


Installation position of wire harness for Tiptronic transmission

1 - Plug connection between wire harness for Tiptronic transmission and rear wire harness

2 - Connector for change-over valve

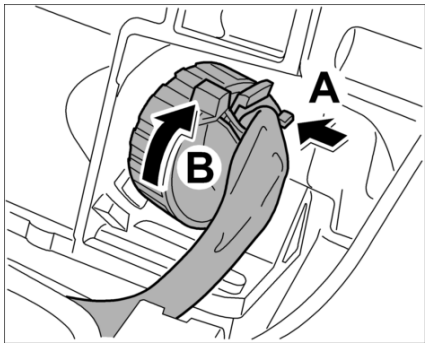
3 - Connector for Tiptronic transmission



Installing wire harness for Tiptronic transmission

1. Install wire harness for Tiptronic transmission.

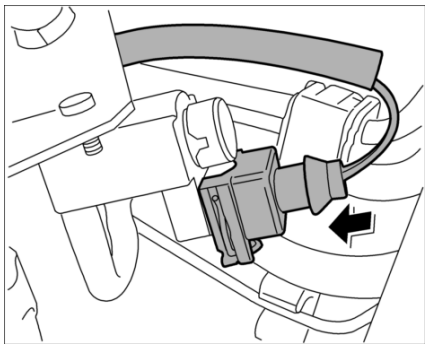
1.1. Lay wire harness for Tiptronic transmission and clip into the sheetmetal clips.



Pushing connector onto Tiptronic transmission

2. Push connector onto Tiptronic transmission **-3-** .

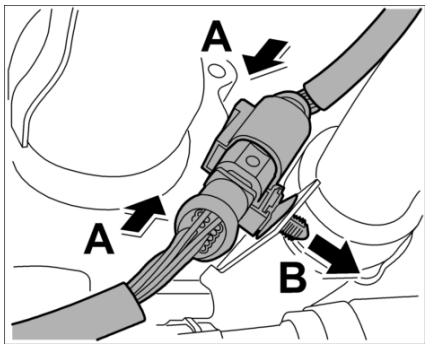
2.1. Push connector onto Tiptronic transmission **-Arrow A-** and lock by turning clockwise **-Arrow B-**



Pushing connector onto change-over valve

3. Push connector onto change-over valve **-2-** .

3.1. Push connector onto change-over valve until it is felt to engage.



Pushing together plug connection between wire harness for Tiptronic transmission and rear wire harness

4. Push together plug connection between wire harness for Tiptronic transmission and rear wire harness **-1-** .

4.1. Push together plug connection between wire harness for Tiptronic transmission and rear wire harness until it is felt to engage **-Arrows A-** .

4.2. Clip in plug connection between wire harness for Tiptronic transmission and rear wire harness **-Arrow B-** .

top of page

Subsequent work

Subsequent work

1. Install rear underbody cover. 519419 Removing and installing rear cover - section on "Installing"

997110, 997111, 997120, 997121, 997310, 997311, 997320, 997321, 997410, 997411, 997430, 997431, 997610, 997611, 997620, 997621

as of MY 2005
Country C00, C02, C05, C07, C08, C09, C10, C11, C12, C13, C14, C15, C16, C18, C19, C20, C21, C22, C23, C24, C25, C26, C27, C28, C32, C33, C34, C35, C36, C37, C38, C39, C45, C46, C98, C99

WARNUNG

Gefahr des Verlusts der Text-Bild-Zuordnung beim Ausdruck.

- **Aus technischen Gründen kann derzeit nicht ausgeschlossen werden, dass trotz einwandfreier Darstellung auf dem Bildschirm beim Ausdruck der Zusammenhang von Text und zugehörigem Bild verloren geht.**
- **Wird der Fehler nicht bemerkt, besteht die Gefahr, daß Arbeiten nicht korrekt durchgeführt werden und es dadurch zu Personen- und Sachschäden kommt.**

Vergleichen Sie deshalb nach dem Druckvorgang unbedingt die Ausdrucke mit der Bildschirmdarstellung. Korrigieren Sie die Ausdrucke im Fehlerfall so, daß der Inhalt der

97 83 19 Removing and installing relay carrier 1 - as of MY 2005

- Preliminary work
- Removing relay carrier 1
- Installing relay carrier 1
- Subsequent work

top of page

Preliminary work

Preliminary work for relay carrier 1

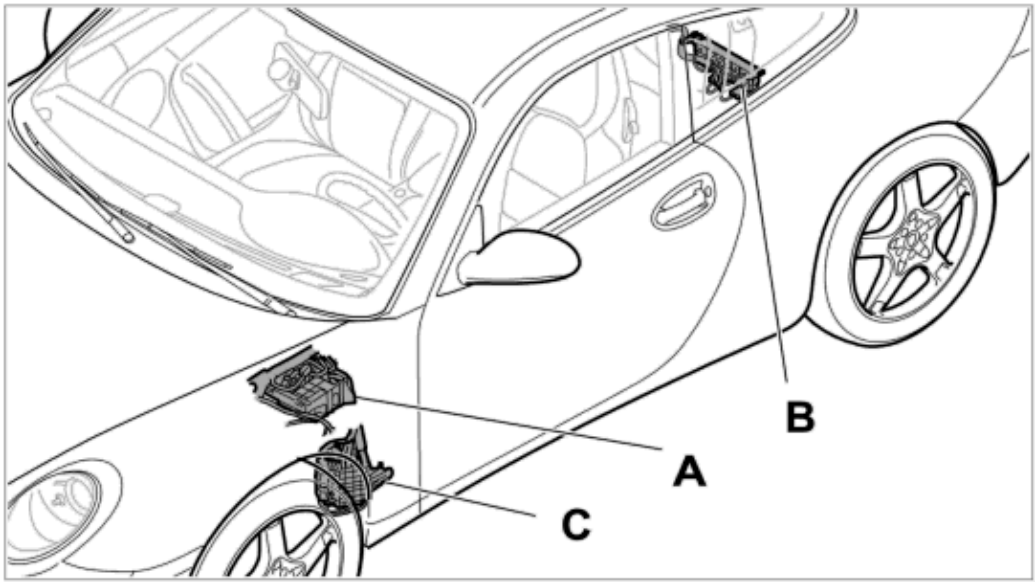
Remove front side section trim. 702419 Removing and installing front side section trim - section on "Removing"
Remove trim panel under dashboard on driver's side. 701919 Removing and installing trim under instrument panel - section on "Removing"

top of page

Removing relay carrier 1

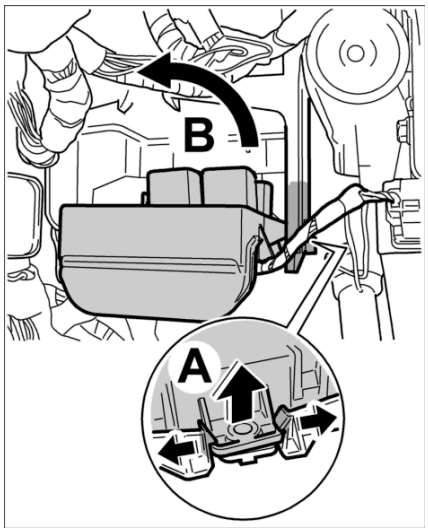
Removing relay carrier 1 from the retaining frame

Installation Location:



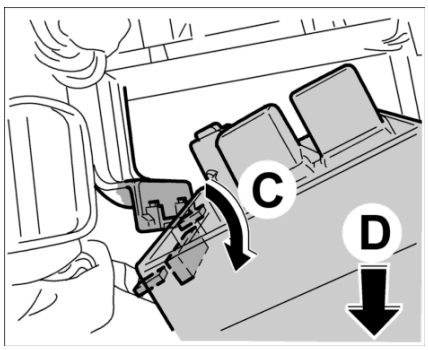
Installation position shown on the 911

A - Relay carrier 1



Removing relay carrier

1. **-A-** Pull apart both retaining lugs on relay carrier support and press the relay carrier upward.
2. **-B-** Press relay carrier upward approx. 45° on the right side.



Pulling relay carrier out of the retaining frame

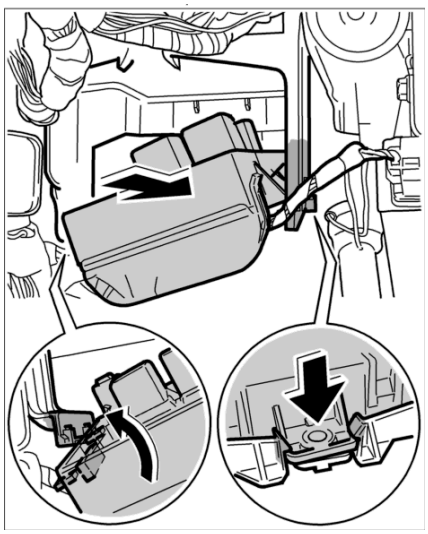
Removing relay carrier 1 from the retaining frame

3. **-C-** Pull out the support lugs of the relay carrier from the support and **-D-** pull out the relay carrier downward.

top of page

Installing relay carrier 1

Installing relay carrier 1 in the retaining frame



Pushing and engaging the relay carrier into its retaining frame

1. Slide in the relay carrier from below at approx. 45° slant into the support.
2. Secure the support lugs from the relay carrier into the support and engage the relay carrier in the support.

top of page

Subsequent work

Subsequent work on relay carrier 1

Install trim under dashboard on driver's side. 701919 Removing and installing trim under instrument panel - section on "Installing"
Install front side section trim. 702419 Removing and installing front side section trim - section on "Installing"

97 84 09 Undoing and securing fusebox - as of MY 2005

- Preliminary work
- Undoing fusebox
- Securing fusebox
- Subsequent work

top of page

Preliminary work

Preliminary work for fusebox

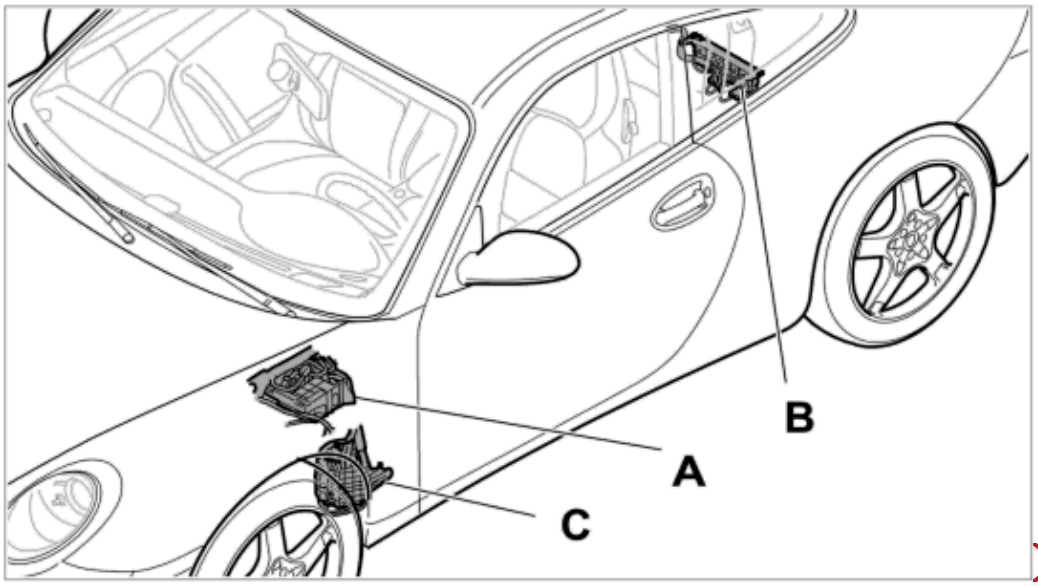
Remove front left side section trim. 702419 Removing and installing front side section trim - chapter on "Removing"

top of page

Undoing fusebox

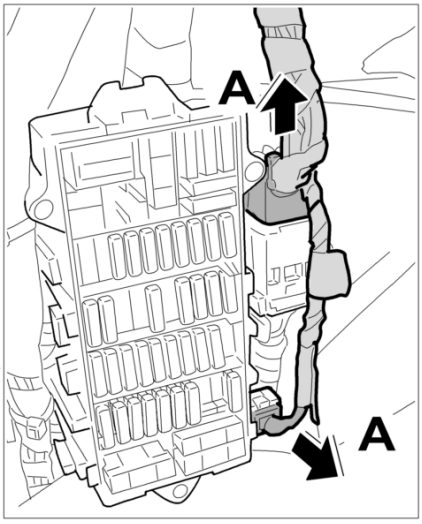
Undoing fusebox

Installation Location:



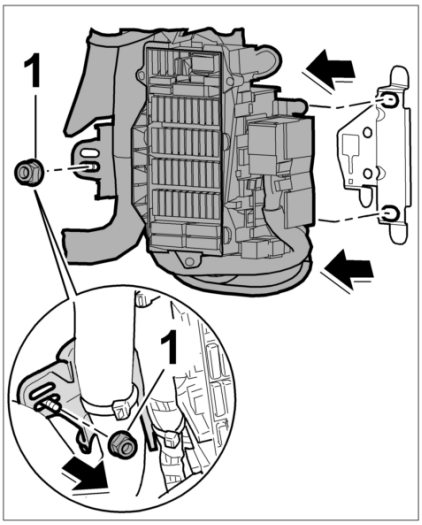
Installation position shown on the 911

C - Fusebox



Disconnecting electrical plug connection

1. Releasing and unplugging electric plug connection



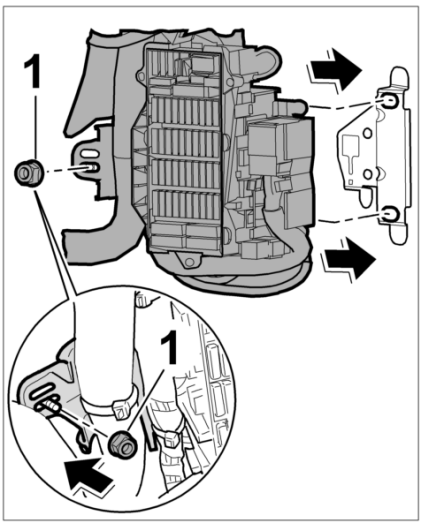
Unscrewing fastening nuts

2. Unscrew the fastening nuts **-1-** , pull the fusebox forward and disengage it from the support.

top of page

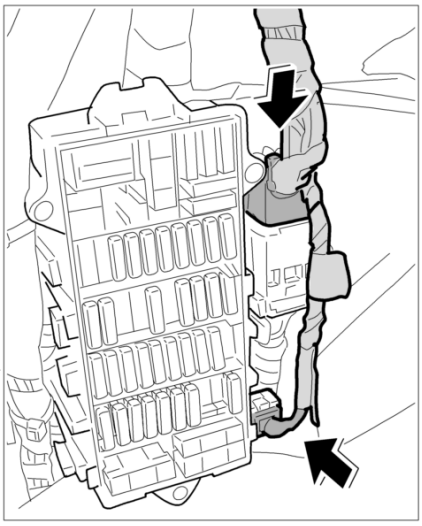
Securing fusebox

Securing fusebox



Tightening the fastening nut

1. Engage the fusebox on the support and secure with the fastening nut **-1-** . Ensure that the electrical lines are not trapped or installed live. **Tightening torque: 9.7 (7 ftlb.) Nm**



Connecting electrical connectors

2. Insert the electrical connectors until they perceptibly engage.

top of page

Subsequent work

Subsequent work on fusebox

Install front left side section trim. 702419 Removing and installing front side section trim - chapter on "Installing"

997110, 997111, 997120, 997121, 997310, 997311, 997320, 997321, 997410, 997411, 997430, 997431, 997610, 997611, 997620, 997621

as of MY 2005
Country C00, C02, C05, C07, C08, C09, C10, C11, C12, C13, C14, C15, C16, C18, C19, C20, C21, C22, C23, C24, C25, C26, C27, C28, C32, C33, C34, C35, C36, C37, C38, C39, C45, C46, C98, C99

WARNUNG

Gefahr des Verlusts der Text-Bild-Zuordnung beim Ausdruck.

- **Aus technischen Gründen kann derzeit nicht ausgeschlossen werden, dass trotz einwandfreier Darstellung auf dem Bildschirm beim Ausdruck der Zusammenhang von Text und zugehörigem Bild verloren geht.**
- **Wird der Fehler nicht bemerkt, besteht die Gefahr, daß Arbeiten nicht korrekt durchgeführt werden und es dadurch zu Personen- und Sachschäden kommt.**

Vergleichen Sie deshalb nach dem Druckvorgang unbedingt die Ausdrucke mit der Bildschirmdarstellung. Korrigieren Sie die Ausdrucke im Fehlerfall so, daß der Inhalt der Bildschirmdarstellung zutreffend wiedergegeben wird.

WARNING

Danger of losing text-figure correspondence when printing out.

- **For technical reasons, it can currently not be ruled out that the correspondence between text and associated figure can be lost when it is printed out, even though the display on the screen is correct.**
- **If the fault is not noticed, there is the danger that work will not be performed correctly which can cause injury and damage.**

Therefore, always compare printouts with the screen display after printing them out. Correct the printouts if they are faulty so that the content of the screen display matches that on the printouts.

AVERTISSEMENT

Risque de perte de la correspondance texte-illustration lors de l'impression papier.

- **Pour des raisons techniques, il ne peut pas être exclu à l'heure actuelle que, même en cas d'affichage correct à l'écran, la correspondance entre le texte et l'illustration puisse être erronée sur l'impression papier.**
- **Si l'erreur passe inaperçue, on court le risque d'exécuter certaines opérations de manière incorrecte pouvant conduire à des dommages corporels et matériels.**

97 89 19 Removing and installing power distributor - as of MY 2005

- Preliminary work
- Removing power distributor
- Installing power distributor
- Subsequent work

top of page

Preliminary work

Preliminary work for power distributor

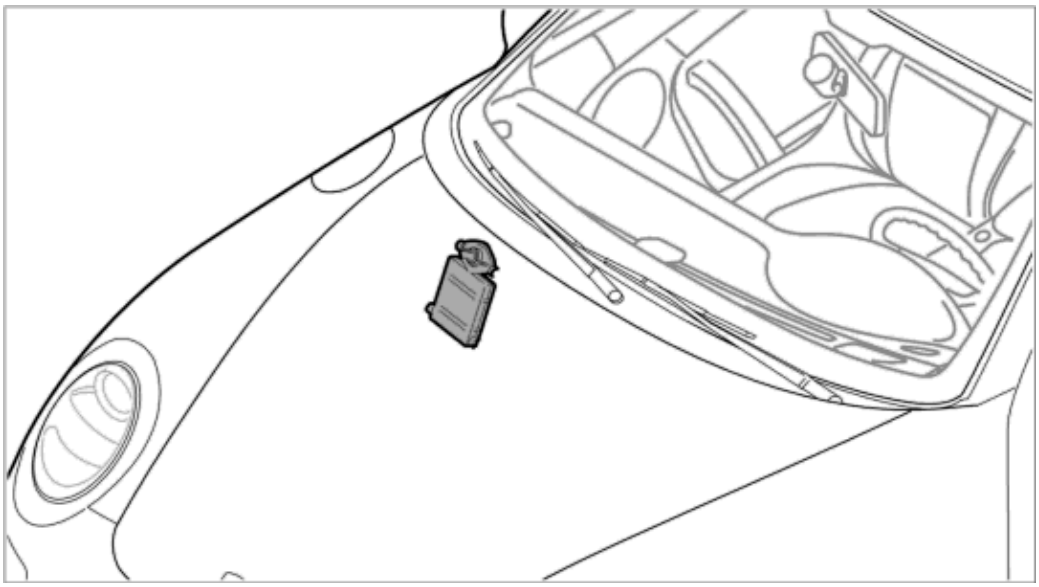
Disconnect and cover the ground terminal on the battery. *271000 Work instruction after disconnecting the battery*

top of page

Removing power distributor

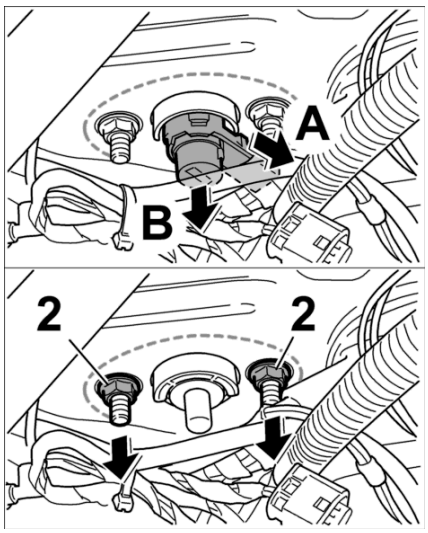
Removing power distributor

Installation Location:



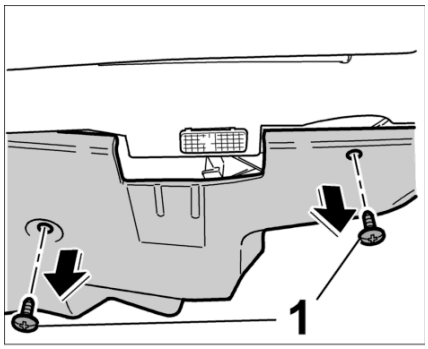
Installation position shown on the 911

1. Switch off ignition and remove ignition key.



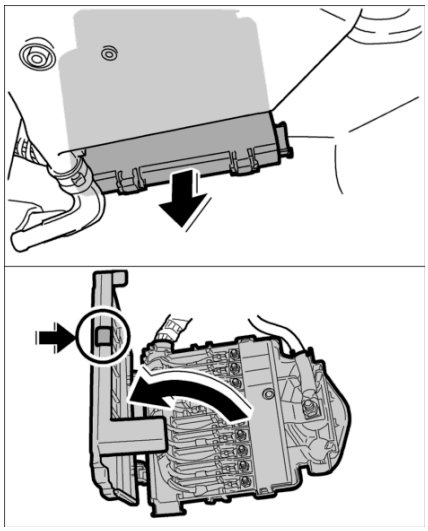
Releasing locking mechanism of the B+ line

2. Release the locking mechanism of the B+ line **-A-** and pull off the B+ connection from the power distributor **-B-** .
3. Unscrew the two fastening nuts **-2-** .



Unscrewing fastening screws

4. Unscrew both plastic screws **-1-** for the cover in the passenger's footwell and remove the cover downwards.



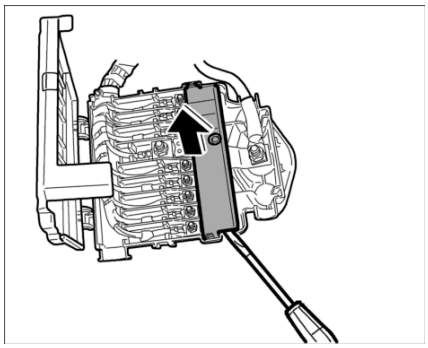
Disengage the power distributor and pull it down and out.

5. Pull the power distributor away from the firewall and lower it down into the passenger's footwell.

Note

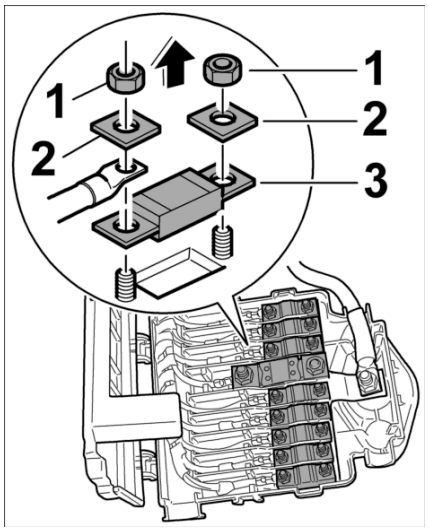
If a new power distributor needs to be installed or a fuse element replaced, then a new cover for the fuse elements (blue) and a new seal label (red) must be fitted. The spare parts are summarised in the PET as a package.

6. Disengage the lock and fold the cover open. Pull off the original seal label **-arrow-** .



Unclipping cover with a screwdriver

7. Unclip the cover for the fuse elements with a screwdriver.



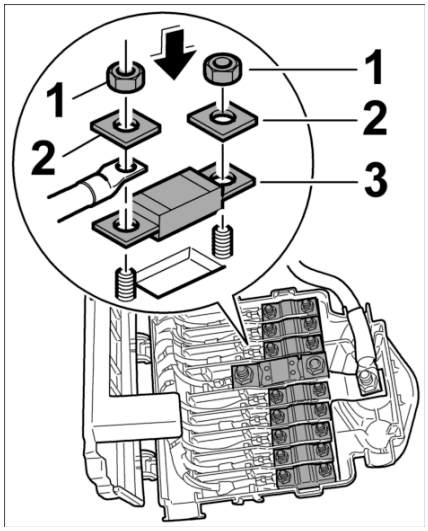
Unscrewing fastening nuts and removing fuse element

8. Mark the connection leads to the relevant fuse element.
9. Unscrew the fastening nuts **-1-** , remove the washer **-2-** and take out the fuse element **-3-** .
10. Unscrew fastening nut for the B+ line and remove the power distributor.

top of page

Installing power distributor

Installing the current distributor



Tightening a fuse element

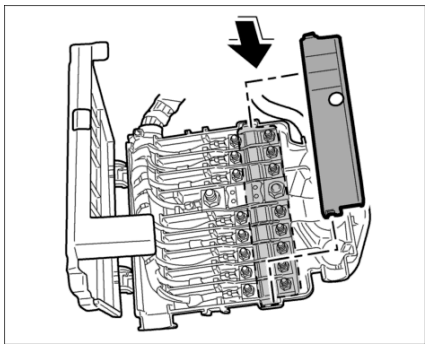
1.

Position the fuse elements **-3-** in the power distributor in accordance with the wiring diagram and position the marked connection leads in turn, fit the washer **-2-** and tighten with the fastening nuts **-1-** .
Tightening torque: 6 ftlb. Tightening torque: 11 ftlb.

2. Position the B+ line on the power distributor and tighten with the fastening screws. **Tightening torque: 11 ftlb.**

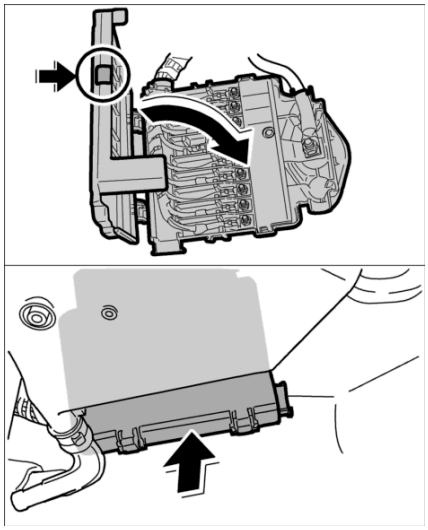
Note

If a new power distributor needs to be installed or a fuse element replaced, then a new cover for the fuse elements (blue) and a new seal label (red) must be fitted. The spare parts are summarised in the PET as a package.



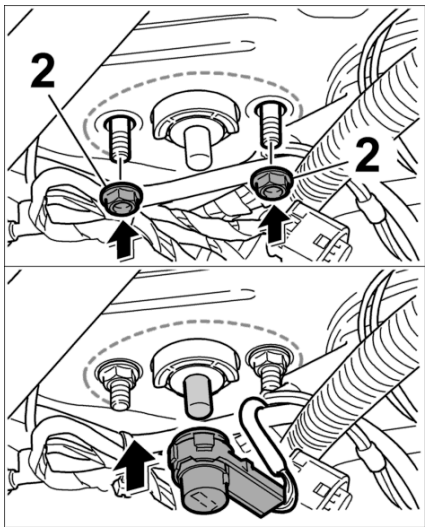
Positioning the cover.

3. Insert the blue cover in power distributor and clip in place.



Closing the power distributor and pushing upwards

4. Close the power distributor until the lid is felt to engage and seal with the red seal label.
5. Check the plastic seal on the power distributor for damage; replace it if in doubt.
6. Slide the power distributor upwards between the heater/air-conditioning unit and the bulkhead, and engage in the bulkhead.



Screwing down the power distributor

7. Screw down power distributor with the two fastening screws **-2-** . **Tightening torque: 11 ftlb.**
8. Push the B+ of the battery onto the mounting point as far as the stop. Check that the B+ line sits firmly.

top of page

Subsequent work

Subsequent work for power distributor

Connect the battery and carry out "Work instructions after disconnecting the battery". *271000 Work instructions after disconnecting the battery*

997110, 997111, 997120, 997121, 997310, 997311, 997320, 997321, 997410, 997411, 997430, 997431, 997610, 997611, 997620, 997621

as of MY 2005
Country C00, C02, C05, C07, C08, C09, C10, C11, C12, C13, C14, C15, C16, C18, C19, C20, C21, C22, C23, C24, C25, C26, C27, C28, C32, C33, C34, C35, C36, C37, C38, C39, C45, C46, C98, C99

WARNUNG

Gefahr des Verlusts der Text-Bild-Zuordnung beim Ausdruck.

- **Aus technischen Gründen kann derzeit nicht ausgeschlossen werden, dass trotz einwandfreier Darstellung auf dem Bildschirm beim Ausdruck der Zusammenhang von Text und zugehörigem Bild verloren geht.**
- **Wird der Fehler nicht bemerkt, besteht die Gefahr, daß Arbeiten nicht korrekt durchgeführt werden und es dadurch zu Personen- und Sachschäden kommt.**

97 90 19 Removing and installing relay carrier - as of MY 2005

- Preliminary work
- Removing relay carrier
- Installing relay carrier
- Subsequent work

top of page

Preliminary work

Preliminary work for relay carrier

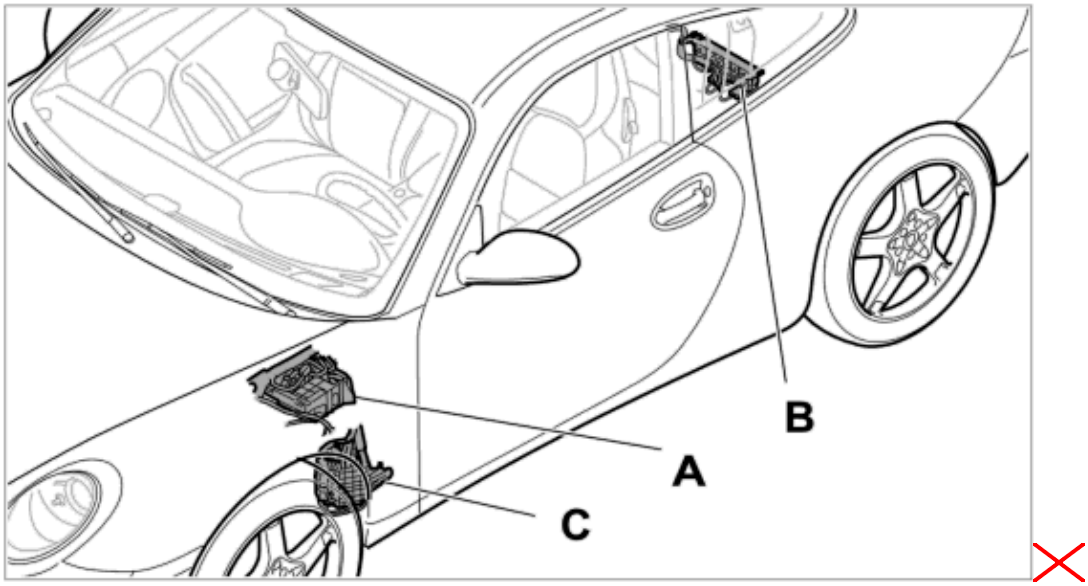
Remove subwoofer for BOSE sound system, I No. 680. 913619 Removing and installing subwoofer - chapter on "Removing".
Lift carpet lining behind backrest and remove.

top of page

Removing relay carrier

Removing relay carrier

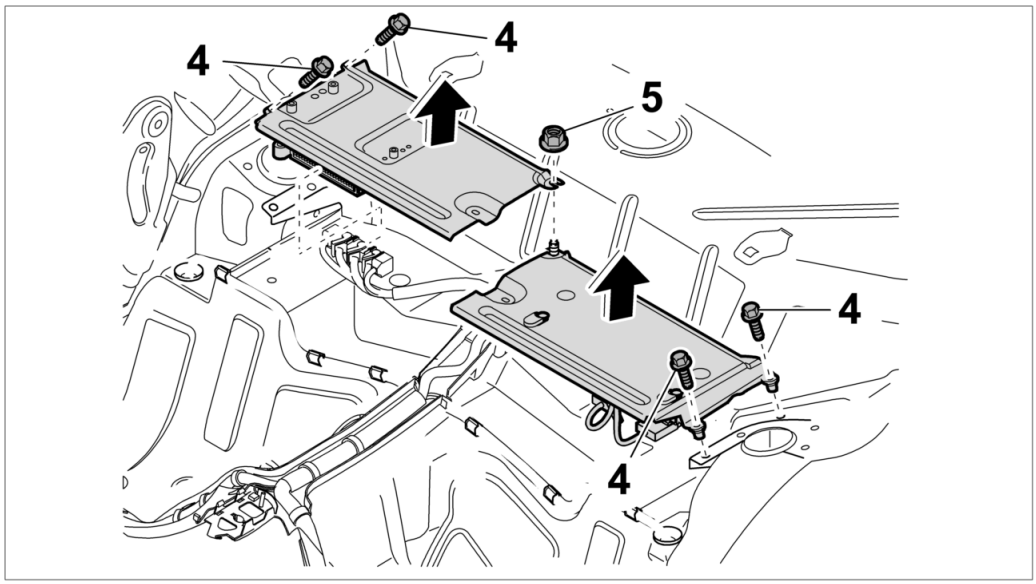
Installation Location:



Installation position for 911 Coupe

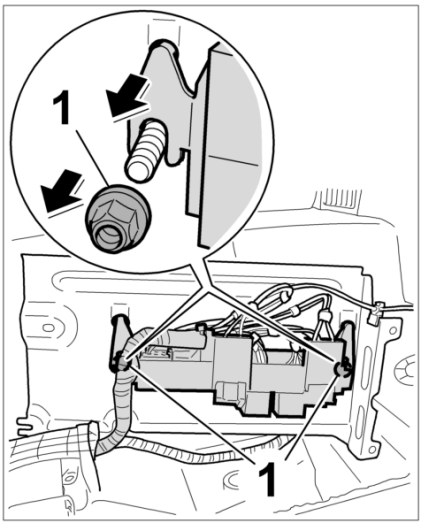
B - Relay carrier

Installation Location:



Unscrewing retaining bracket

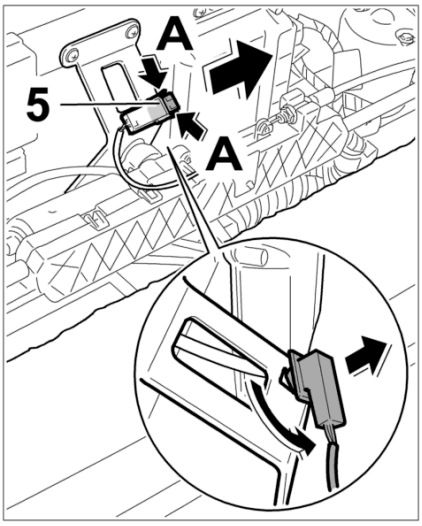
1. Unscrew the four fastening screws **-4-** and the fastening nut **-5-** and lift the retaining brackets for the DME control module and the relay carrier.



Unscrewing fastening nuts

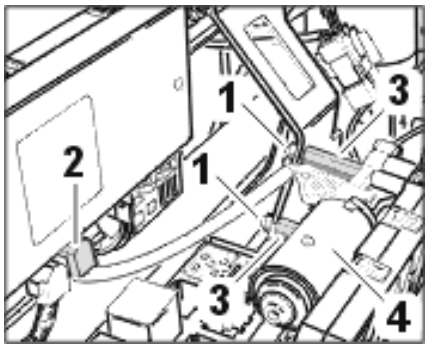
2. Unscrew the two fastening nuts for the relay carrier and disengage the relay carrier from the retaining bracket.

Removing relay carrier for cabriolet



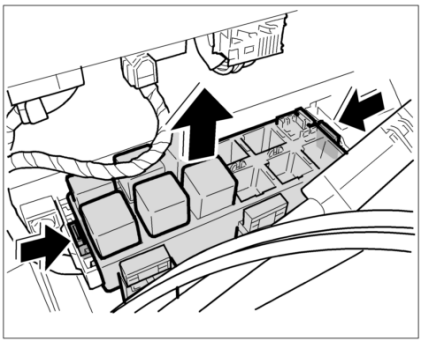
Disconnecting plug connection

1. Disengage electric plug connection for microswitch **-5-** on holder, release **-A-** and disconnect



Unscrewing fastening nuts

2. Loosen the two fastening nuts **-1-** , release electric plug connection **-2-** and unplug from control unit.
3. Remove motor together with drive to the rear out the bracket.



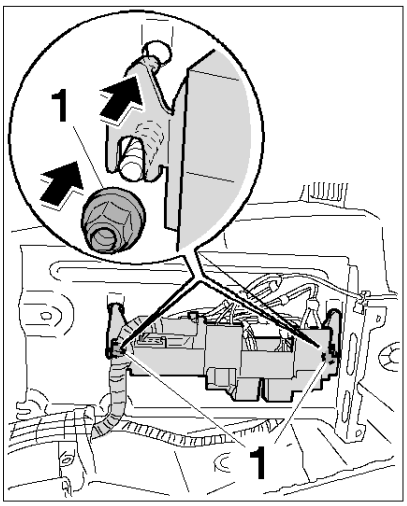
Releasing relay carrier

4. Release both locking hooks and pull the relay carrier up and out of the retaining frame.

top of page

Installing relay carrier

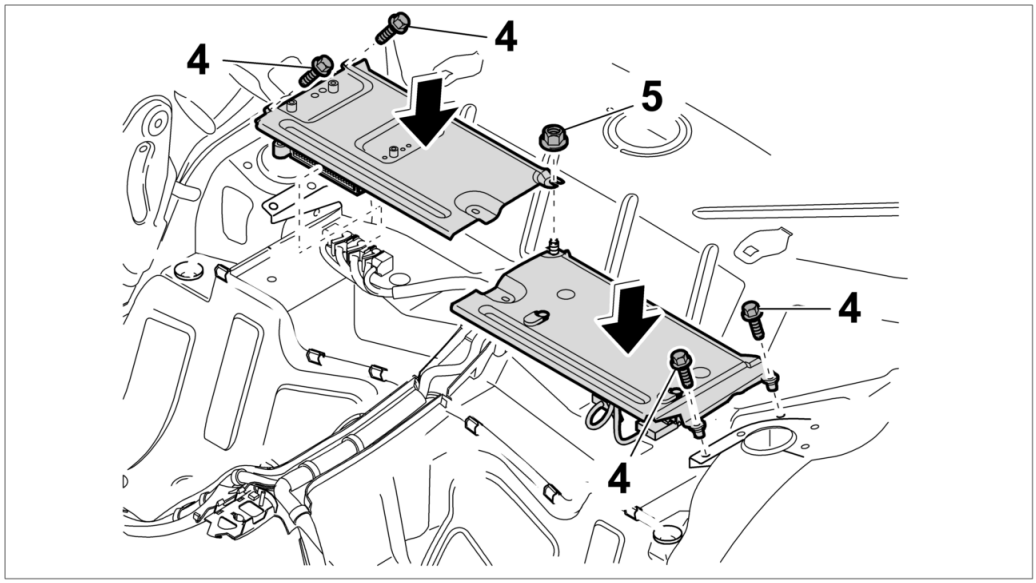
Installing relay carrier



Engaging and screwing down relay carrier

1. Engage relay carrier on retaining bracket and screw down with the two fastening screws **-1-** .
   Tightening torque: 4.5 (3.5 ftlb.) Nm

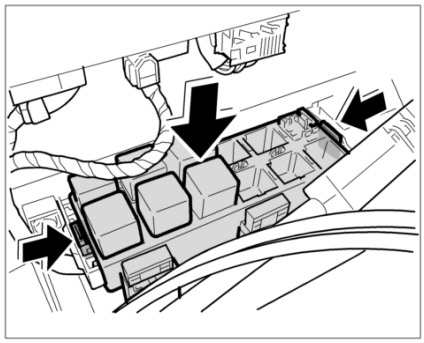
Installation Location:



Screwing down retaining brackets

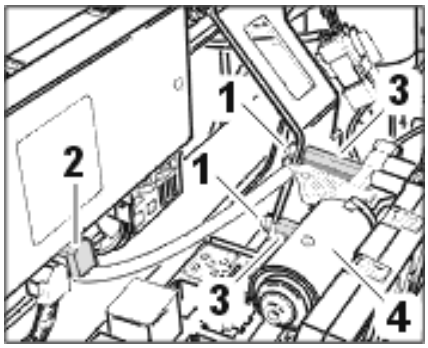
2. Place retaining brackets on the body and screw down with the four fastening screws **-4-** and the fastening nut **-5-** . **Tightening torque: 2.2 (1.5 ftlb.) Nm Tightening torque: 4.5 (3.5 ftlb.) Nm**

Installing relay carrier for cabriolet



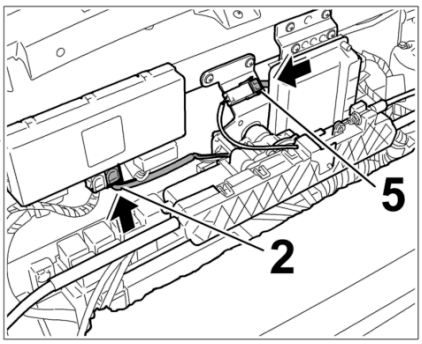
Engaging relay carrier

1. Push and engage the relay carrier into its retaining frame.



Tightening fastening nuts

2. Push motor for convertible top compartment lid together with potentiometer onto the bracket and screw tight with the fastening nuts **-1-** . **Tightening torque: 10 (7.5 ftlb.) Nm**



Plugging in electrical plug connections

3. Plug in the electric plug connection for potentiometer **-2-** at control unit until the connector is felt to engage.
4. Plug in the electric plug connection for microswitch **-5-** and engage on the bracket.

top of page

Subsequent work

Subsequent work for relay carrier

Install carpet lining behind backrest.
Install subwoofer for BOSE sound system, I No. 680. 913619 Removing and installing subwoofer - chapter on "Installing"

997110, 997111, 997120, 997121, 997410, 997411, 997430, 997431

as of MY 2005
Country C00, C02, C05, C07, C08, C09, C10, C11, C12, C13, C14, C15, C16, C18, C19, C20, C21, C22, C23, C24, C25, C26, C27, C28, C32, C33, C34, C35, C36, C37, C38, C39, C45, C46, C98, C99

WARNUNG

Gefahr des Verlusts der Text-Bild-Zuordnung beim Ausdruck.

- **Aus technischen Gründen kann derzeit nicht ausgeschlossen werden, dass trotz einwandfreier Darstellung auf dem Bildschirm beim Ausdruck der Zusammenhang von Text und zugehörigem Bild verloren geht.**
- **Wird der Fehler nicht bemerkt, besteht die Gefahr, daß Arbeiten nicht korrekt durchgeführt werden und es dadurch zu Personen- und Sachschäden kommt.**

Vergleichen Sie deshalb nach dem Druckvorgang unbedingt die Ausdrucke mit der Bildschirmdarstellung. Korrigieren Sie die Ausdrucke im Fehlerfall so, daß der Inhalt der Bildschirmdarstellung zutreffend wiedergegeben wird.

WARNING

Danger of losing text-figure correspondence when printing out.

- **For technical reasons, it can currently not be ruled out that the correspondence between text and associated figure can be lost when it is printed out, even though the display on the screen is correct.**
- **If the fault is not noticed, there is the danger that work will not be performed correctly which can cause injury and damage.**

Therefore, always compare printouts with the screen display after printing them out. Correct the printouts if they are faulty so that the content of the screen display matches that on the printouts.

AVERTISSEMENT

Risque de perte de la correspondance texte-illustration lors de l'impression papier.

97 90 19 Removing and installing relay carrier - as of MY 2005

- Preliminary work
- Removing relay carrier
- Installing relay carrier
- Subsequent work

Tools

Designation	Type	Number	Explanation	
Disassembly tool, universal	commercially available tool	NR.21		

top of page

Preliminary work

Preliminary work for relay carrier of cabriolet

1. Move convertible top to service position. 6101IN IN -Convertible top in service position
2. Removing carpet over the motor.

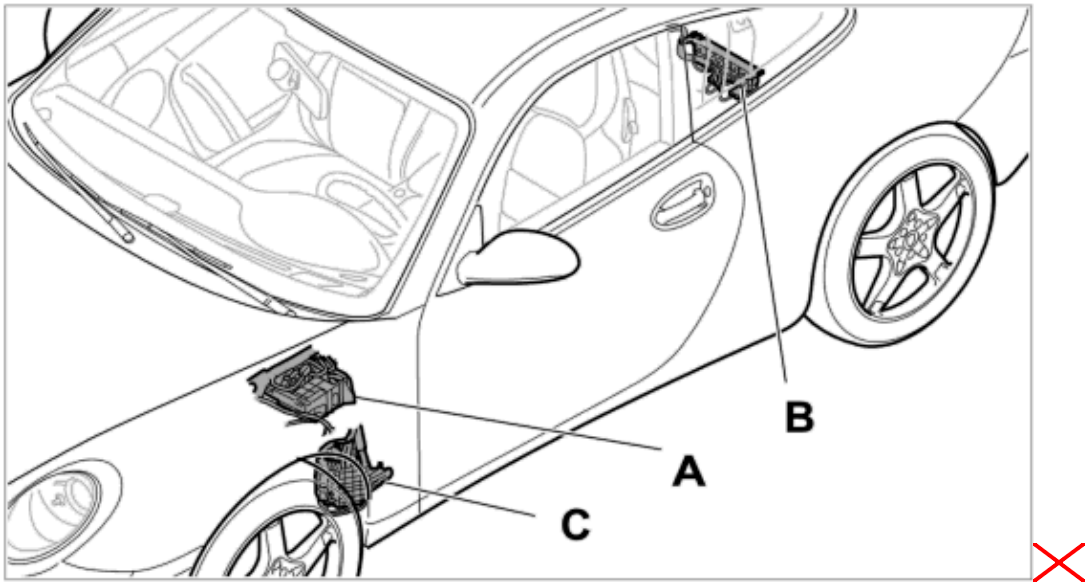
2.1. To loosen the carpet, pull out the plastic clips with special tool 21 and remove the carpet. **Disassembly tool, universal NR.21**

top of page

Removing relay carrier

Removing relay carrier

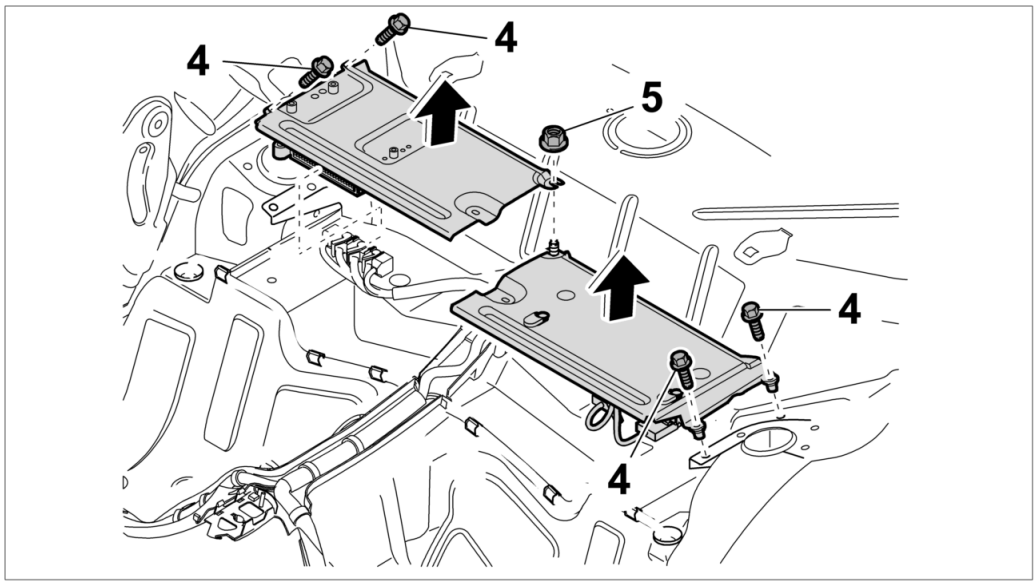
Installation Location:



Installation position for 911 Coupe

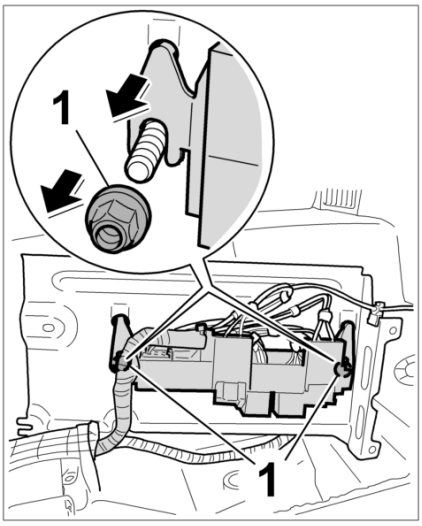
B - Relay carrier

Installation Location:



Unscrewing retaining bracket

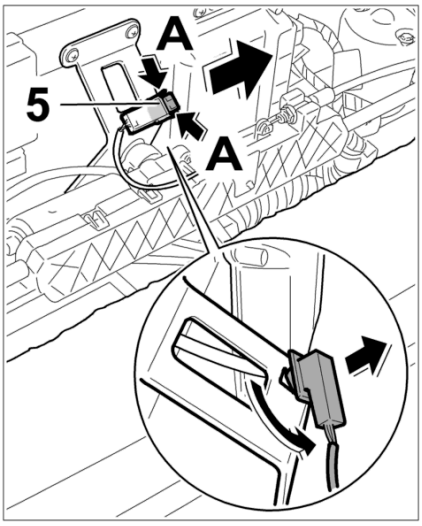
1. Unscrew the four fastening screws **-4-** and the fastening nut **-5-** and lift the retaining brackets for the DME control module and the relay carrier.



Unscrewing fastening nuts

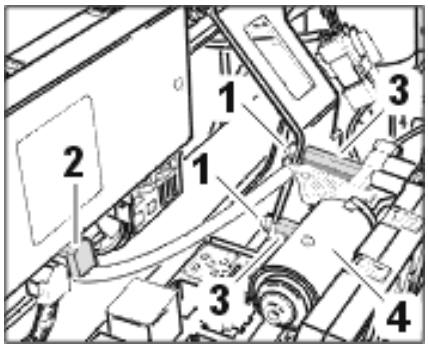
2. Unscrew the two fastening nuts for the relay carrier and disengage the relay carrier from the retaining bracket.

Removing relay carrier for cabriolet



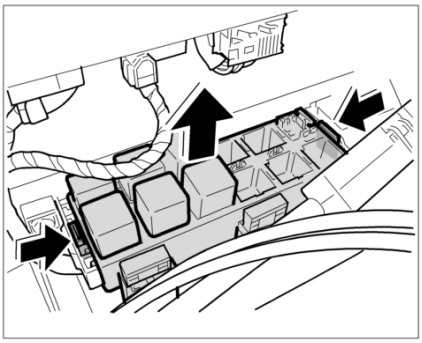
Disconnecting plug connection

1. Disengage electric plug connection for microswitch **-5-** on holder, release **-A-** and disconnect



Unscrewing fastening nuts

2. Loosen the two fastening nuts **-1-** , release electric plug connection **-2-** and unplug from control unit.
3. Remove motor together with drive to the rear out the bracket.



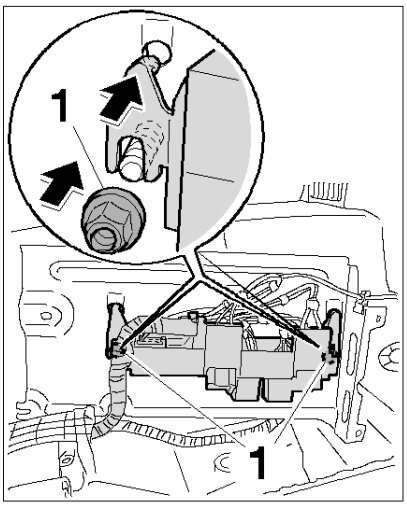
Releasing relay carrier

4. Release both locking hooks and pull the relay carrier up and out of the retaining frame.

top of page

Installing relay carrier

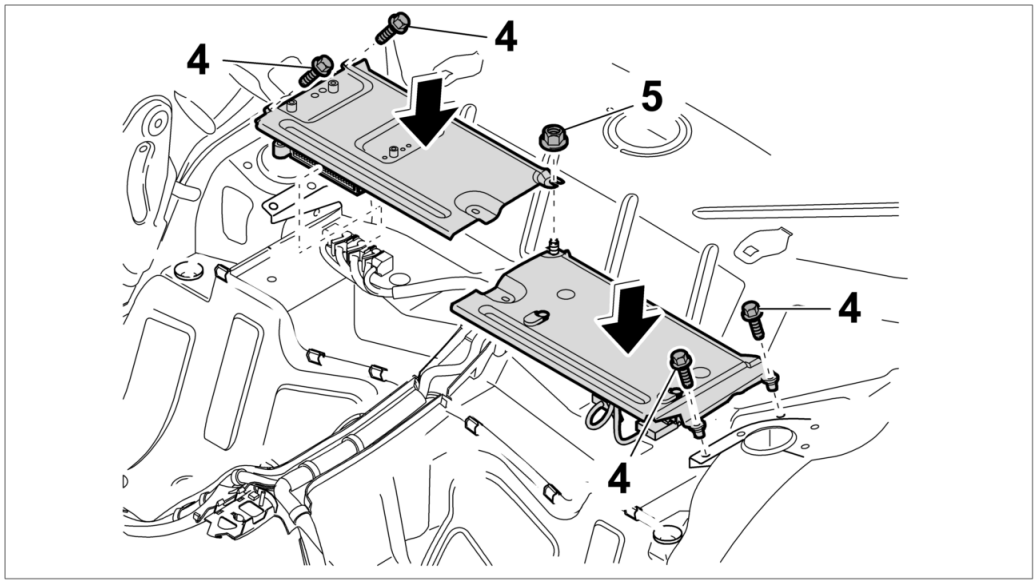
Installing relay carrier



Engaging and screwing down relay carrier

1. Engage relay carrier on retaining bracket and screw down with the two fastening screws **-1-** .
   Tightening torque: 4.5 (3.5 ftlb.) Nm

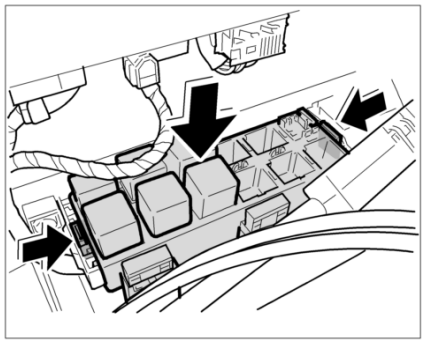
Installation Location:



Screwing down retaining brackets

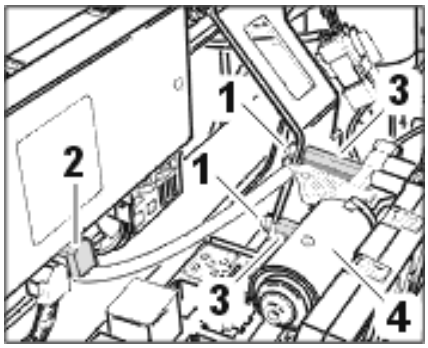
2. Place retaining brackets on the body and screw down with the four fastening screws **-4-** and the fastening nut **-5-** . **Tightening torque: 2.2 (1.5 ftlb.) Nm Tightening torque: 4.5 (3.5 ftlb.) Nm**

Installing relay carrier for cabriolet



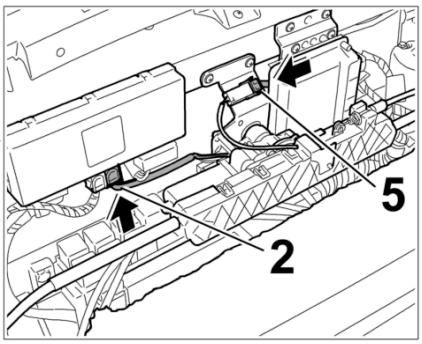
Engaging relay carrier

1. Push and engage the relay carrier into its retaining frame.



Tightening fastening nuts

2. Push motor for convertible top compartment lid together with potentiometer onto the bracket and screw tight with the fastening nuts **-1-** . **Tightening torque: 10 (7.5 ftlb.) Nm**



Plugging in electrical plug connections

3. Plug in the electric plug connection for potentiometer **-2-** at control unit until the connector is felt to engage.
4. Plug in the electric plug connection for microswitch **-5-** and engage on the bracket.

top of page

Subsequent work

Subsequent work for relay carrier of cabriolet

1. Reinstall carpet over motor.
2. Move convertible top from service position. 6101IN IN - convertible top service position

---

997310, 997311, 997320, 997321, 997610, 997611, 997620, 997621

as of MY 2005
Country C00, C02, C05, C07, C08, C09, C10, C11, C12, C13, C14, C15, C16, C18, C19, C20, C21, C22, C23, C24, C25, C26, C27, C28, C32, C33, C34, C35, C36, C37, C38, C39, C45, C46, C98, C99

WARNUNG

Gefahr des Verlusts der Text-Bild-Zuordnung beim Ausdruck.

- **Aus technischen Gründen kann derzeit nicht ausgeschlossen werden, dass trotz einwandfreier Darstellung auf dem Bildschirm beim Ausdruck der Zusammenhang von Text und zugehörigem Bild verloren geht.**
- **Wird der Fehler nicht bemerkt, besteht die Gefahr, daß Arbeiten nicht korrekt durchgeführt werden und es dadurch zu Personen- und Sachschäden kommt.**

Vergleichen Sie deshalb nach dem Druckvorgang unbedingt die Ausdrucke mit der Bildschirmdarstellung. Korrigieren Sie die Ausdrucke im Fehlerfall so, daß der Inhalt der Bildschirmdarstellung zutreffend wiedergegeben wird.

WARNING

Danger of losing text-figure correspondence when printing out.

- **For technical reasons, it can currently not be ruled out that the correspondence between text and associated figure can be lost when it is printed out, even though the display on the screen is correct.**
- **If the fault is not noticed, there is the danger that work will not be performed correctly which can cause injury and damage.**

Therefore, always compare printouts with the screen display after printing them out. Correct the printouts if they are faulty so that the content of the screen display matches that on the printouts.

AVERTISSEMENT

Risque de perte de la correspondance texte-illustration lors de l'impression papier.

97 92 55 Replacing fuse element - as of MY 2005

- Preliminary work
- Replacing fuse element
- Subsequent work

top of page

Preliminary work

Preliminary work for fuse element

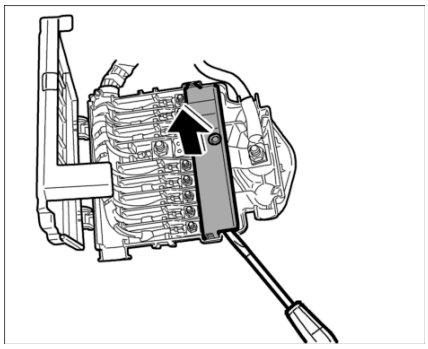
Remove and open power distributor. 978919 Removing and installing power distributor - section on "Removing"

top of page

Replacing fuse element

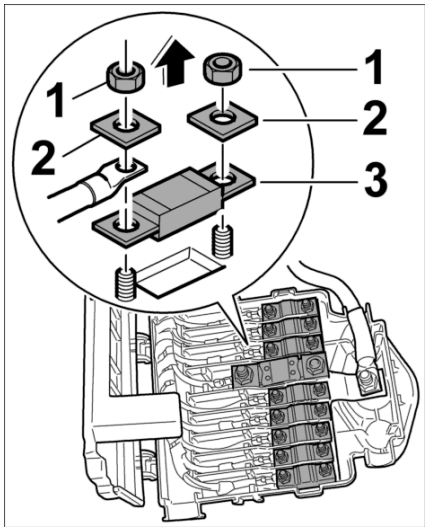
Replacing fuse element

Note
If a fuse element needs to be replaced, you must also fit a new cover for the fuse elements (blue) and a new seal label (red). The spare parts are grouped together as one package in the PET.



Unclipping cover with a screwdriver

1. Unclip the cover for the fuse elements with a screwdriver.

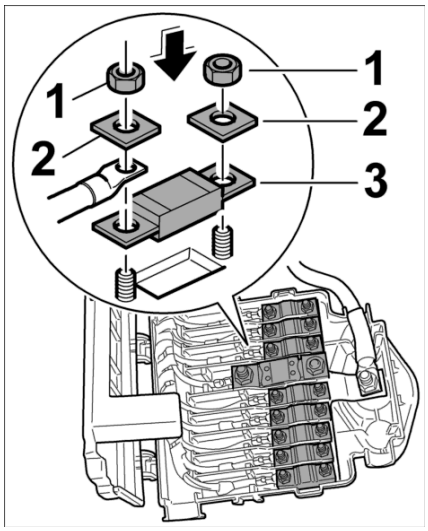


Unscrewing fastening nuts and removing fuse element

2. Unscrew the fastening nuts on the faulty fuse element **-1-** , remove the washer **-2-** and take out the fuse element **-3-** .

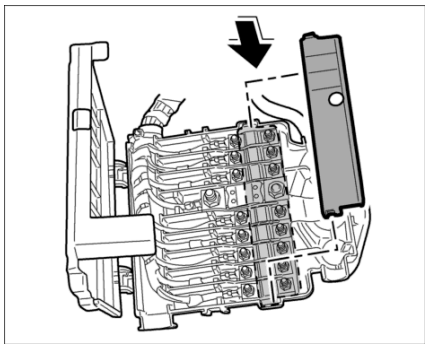
Note

If a fuse element needs to be replaced, you must also fit a new cover for the fuse elements (blue) and a new seal label (red). The spare parts are grouped together as one package in the PET.



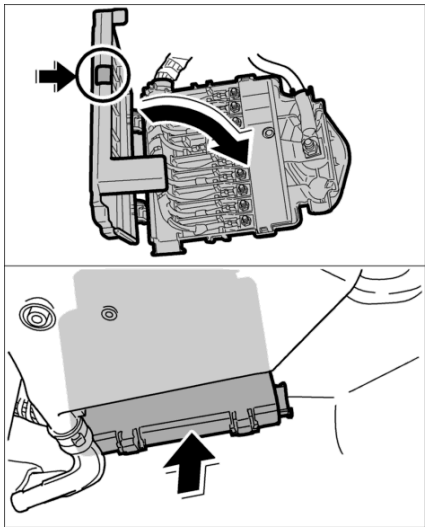
Tightening a fuse element

3. Place the fuse element **-3-** into position, fit the washer **-2-** and secure with the fastening nuts **-1-** .
Tightening torque: M6>> 8 (6 ftlb.) Nm Tightening torque: M8 >> 15 (11 ftlb.) Nm



Positioning the cover.

4. Insert the blue cover in power distributor and clip in place.



Closing the power distributor and pushing upwards

5. Close the power distributor until the lid is felt to engage and seal with the red seal label.

top of page

Subsequent work

Subsequent work for fuse element

Install power distributor. 978919 Removing and installing power distributor - section on "Installing"

997110, 997111, 997120, 997121, 997310, 997311, 997320, 997321, 997410, 997411, 997430, 997431, 997610, 997611, 997620, 997621

as of MY 2005
Country C00, C02, C05, C07, C08, C09, C10, C11, C12, C13, C14, C15, C16, C18, C19, C20, C21, C22, C23, C24, C25, C26, C27, C28, C32, C33, C34, C35, C36, C37, C38, C39, C45, C46, C98, C99

64 IN General information on installing and removing car windows - as of MY 2005

- Removing glass with cutting wire separator

Tools

Designation	Type	Number	Explanation	
Glass separating tool	commercially available tool	VAG 1474 B		

top of page

Removing glass with cutting wire separator

Danger of injury when working on car windows

DANGER

Danger of cut injuries when removing and installing car windows!

- **Cutting out glued car windows may lead to cut injuries to the skin and eyes due to flying glass splinters and may result in cut injuries from the knife of the cutter.**

Always wear protective gloves when working on car windows.

Wear protective goggles when cutting out car windows.

Only replace the cutting knife with the power supply disconnected so that the cutter is not switched on accidentally.

Material damage when removing the glass from car windows

ATTENTION

Danger of damage to the label with the vehicle identification number!

- **Danger of paint damage and damage to the label with the vehicle identification number if windscreen is removed incorrectly!**

When cutting out the windscreen, ensure that the label with the vehicle identification number is not damaged!

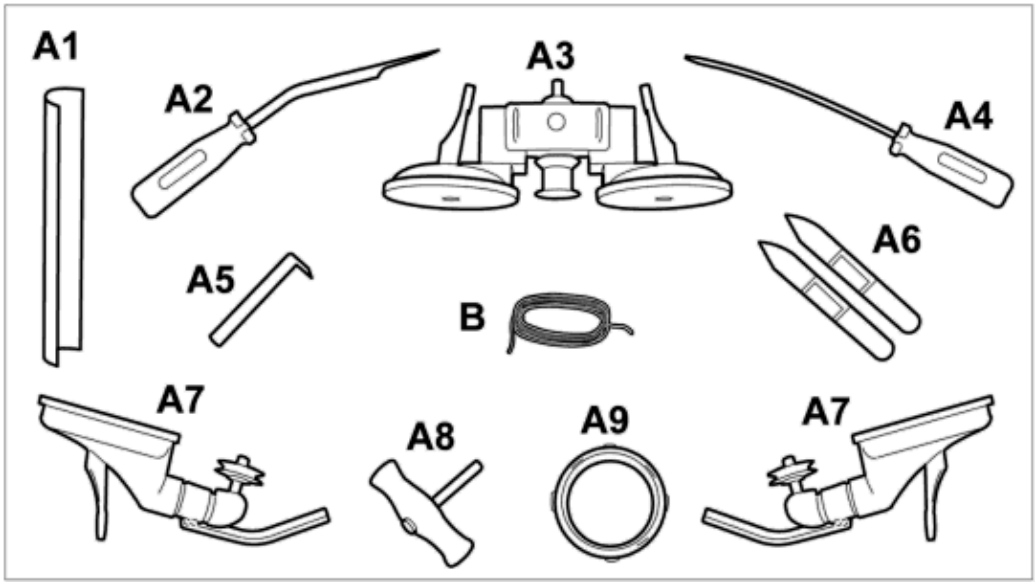
Removing glass with cutting device - wire separator

Note

- *The following instructions describe the general procedure for removing car windows with the glass separating tool VAG 1474 B.*
- *Information on procedures relating to specific vehicles can be obtained from the instructions in the corresponding chapters in the Technical Manual.*

Note

- *It is generally possible to remove the windscreen with the cutting wire and the optional cutting thread contained in the tool set.*
- *In contrast to cutting threads, however, the cutting wire has the following disadvantages:*
- *Danger of injury when tearing off the cutting wire.*
- *Danger of damage to materials on paint surfaces and interior equipment parts.*
- *For the reasons outlined above we recommend using the cutting thread.*



Glass separating tool

A **Glass separating tool VAG 1474 B**)1)
B Cutting thread
A1 Guide rail
A2 Cutting tool (wire holder)
A3 Spooling device
A4 Awl
A5 Guide rail
A6 Filler
A7 Steering roller with arm bracket
A8 Handle
A9 Square cutting wire
1) Contains component set A1-A9 and protective film for dashboard

Applying protective film to the dashboard

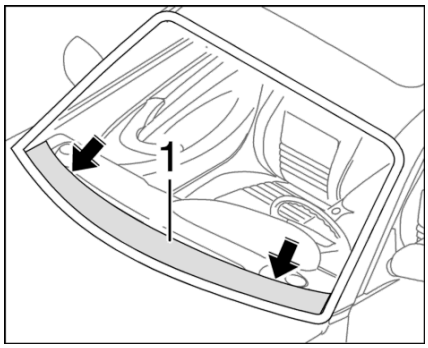
Note

- *In order to guarantee an optimum fastening intake grip, it is advisable to clean the inside of the glass before removal.*

Note

- *The film protects the damping mat against damage when removing the glass.*

1. Cleaning glass on the inside



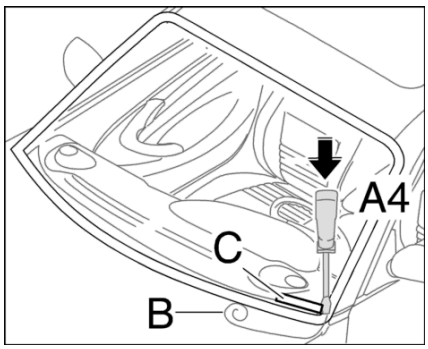
Applying protective film to the dashboard

2. Apply protective film to the dashboard. Select the appropriate film **-1-** and insert between windscreen and damping mat.

Guiding cutting thread into the passenger compartment

Note

- *In order to prevent damage, make sure that the vehicle identification number is completely covered by the protective film when pushing through the adhesive bead.*
- *Warm awl beforehand with the hot-air gun for pushing this through.*



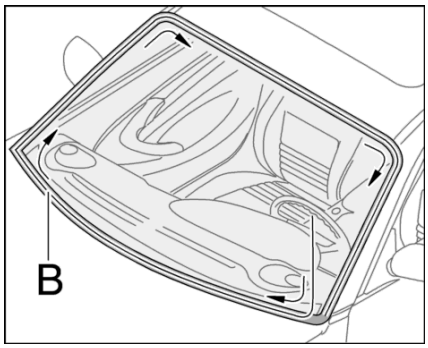
Guiding cutting thread into the passenger compartment

1. Push through adhesive bead on the glass on the edge of the vehicle identification number **-C-** with the awl **-A4-** from the inside to the outside.
2. Pass cutting thread **-B-** through the eyelet on the awl **-A4-** .
3. Pull cutting thread **-B-** into the passenger compartment.
4. Pull cutting thread **-B-** out of the awl **-A4-** .
5. Draw cutting thread **-B-** approx. 1m into the passenger compartment.

Guiding cutting thread into the gap in the glass

Note

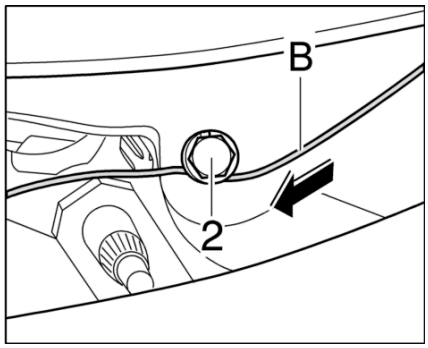
- *The cutting thread should be positioned under the rim as far as possible. The sealing lip must be raised slightly in the upper part of the glass in order to pull the cutting thread through.*



Guiding cutting thread into the gap in the glass

1. Pull cutting thread **-B-** in the direction of the arrow through the gap between the glass and the body. Use filler if necessary.

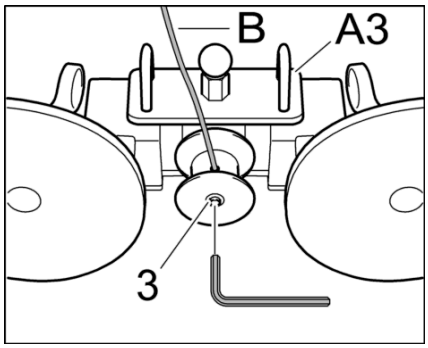
Attaching cutting thread to the body



Attaching cutting thread to the body

1. Attach the loose end of the cutting thread **-B-** firmly at a suitable point on the body with the fastening screw **-2-** of a component (e.g. wiper motor fastening). To do this, unscrew the fastening screw, wind the cutting thread **-B-** around the screw and tighten the fastening screw again.

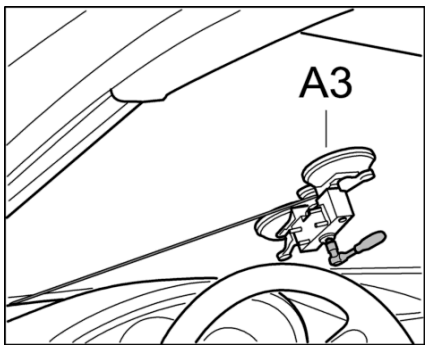
Attaching cutting thread to the spooling device



Attaching cutting thread to the spooling device

1. Undo clamping screw **-3-** .
2. Insert cutting thread **-B-** into the bore on the spooling device **-A3-** .
3. Attach cutting thread **-B-** firmly with the clamping screw **-3-** .

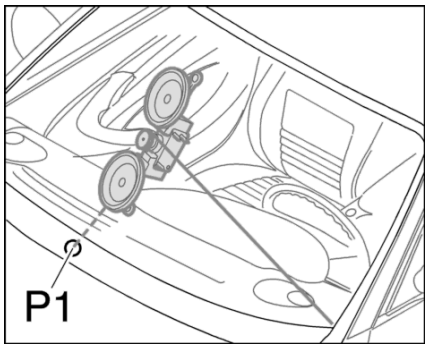
Installing spooling device and deflection rollers on the glass



Installing spooling device and deflection rollers on the glass

1. Position spooling device **-A3-** diagonally in the centre of the glass.
2. Press spooling device **-A3-** with the fastening intakes firmly against the glass.
3. Fix fastening intake onto the glass by moving the actuating lever.

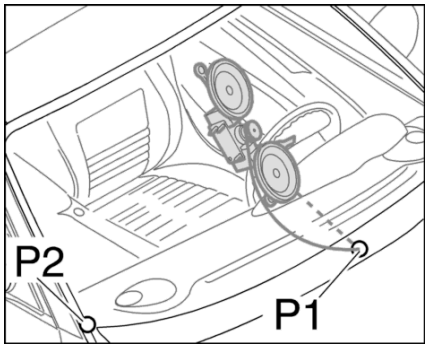
Separating glass as far as P1



Separating glass as far as P1

1. Separate glass by spooling the cutting thread on the spooling device as far as point **-P1-** .

Repositioning spooling device



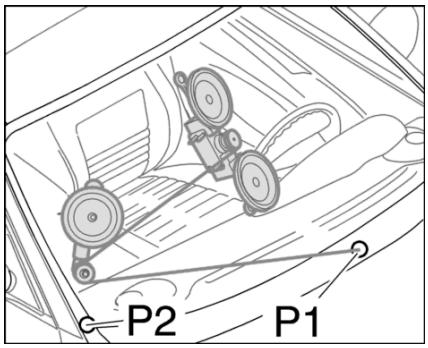
Repositioning spooling device

1. Release spooling device.
2. Release the lower fastening intake on the spooling device.
3. Pull cutting thread through onto the other side of the fastening intake.
4. Fix fastening intake onto the glass by moving the actuating lever.

Separating glass as far as P2

Note

- *The fastening force can be increased by moistening the fastening intake.*



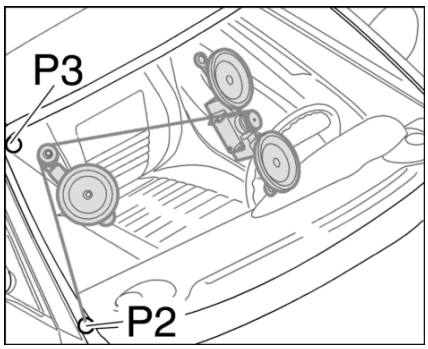
Separating glass as far as P2

1. Position deflection roller in the lower right corner.
2. Press deflection roller with fastening intake firmly against the glass.
3. Fix fastening intake onto the glass by moving the actuating lever.
4. Pass cutting thread over the deflection roller onto the spooling device.
5. Separate glass by spooling the cutting thread on the spooling device as far as point **-P2-** .

Separating glass as far as P3

Note

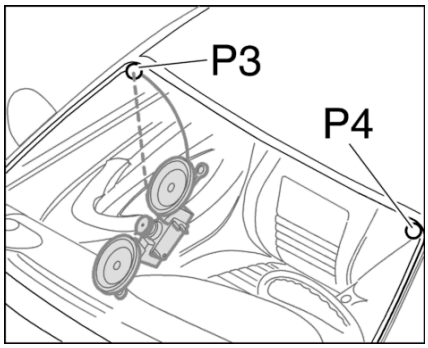
- *The fastening force can be increased by moistening the fastening intake.*



Separating glass as far as P3

1. Release spooling device.
2. Position deflection roller in the upper right corner.
3. Press deflection roller with fastening intake firmly against the glass.
4. Fix fastening intake onto the glass by moving the actuating lever.
5. Pass cutting thread over the deflection roller onto the spooling device.
6. Separate glass by spooling the cutting thread on the spooling device as far as point **-P3-** .

Repositioning spooling device



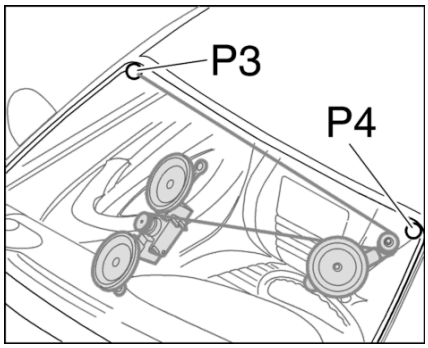
Repositioning spooling device

1. Release spooling device.
2. Release the upper fastening intake on the spooling device.
3. Pull cutting thread through onto the other side of the fastening intake.
4. Fix fastening intake onto the glass by moving the actuating lever.

Separating glass as far as P4

Note

- *The fastening force can be increased by moistening the fastening intake.*



Separating glass as far as P4

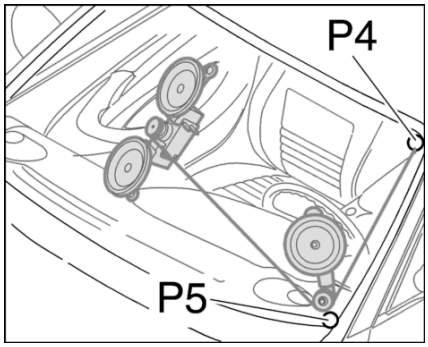
1. Position deflection roller in the upper left corner.
2. Press deflection roller with fastening intake firmly against the glass.
3. Fix fastening intake onto the glass by moving the actuating lever.
4. Pass cutting thread over the deflection roller onto the spooling device.

5. Separate glass by spooling the cutting thread on the spooling device as far as point **-P4-** using the guide rails.

Separating glass as far as P5

Note

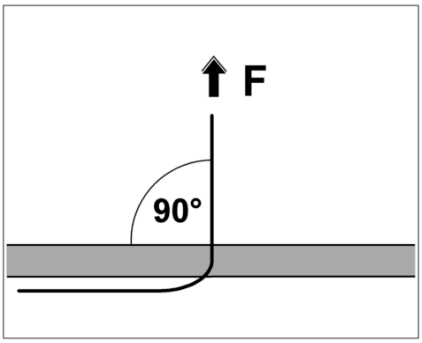
- *The fastening force can be increased by moistening the fastening intake.*



Separating glass as far as P5

1. Release spooling device.
2. Position deflection roller in the lower left corner.
3. Press deflection roller with fastening intake firmly against the glass.
4. Fix fastening intake onto the glass by moving the actuating lever.
5. Pass cutting thread over the deflection roller onto the spooling device.
6. Separate glass by spooling the cutting thread on the spooling device as far as point **-P5-** .
7. Remove the windscreen.

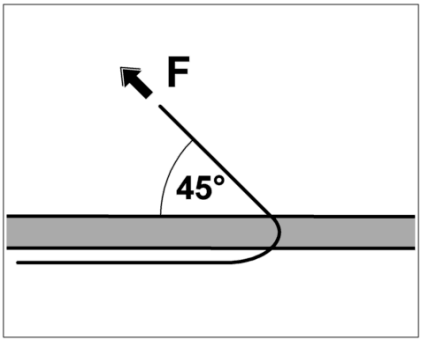
Cutting power when removing glass with cutting thread



High cutting power

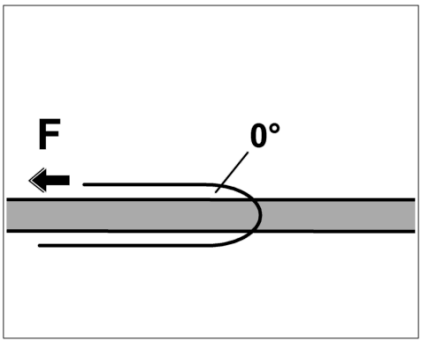
Note

- *The power for separating the glass is weaker when the cutting thread is deflected to its maximum point. An angle greater than 90° should be avoided.*



Average cutting power

Unfavourable angle (strong traction required)



Low cutting power

Favourable angle (average traction required)
Optimum angle (minimum traction required)

997110, 997111, 997120, 997121, 997310, 997311, 997320, 997321, 997410, 997411, 997430, 997431, 997610, 997611, 997620, 997621

60 AW Safety instructions - as of MY 2005

- Safety instructions for work on car windows
- Safety instructions for installation work

top of page

Safety instructions for work on car windows

Danger of injury when working on car windows

DANGER

Danger of cut injuries when removing and installing car windows!

- **Cutting out glued car windows may lead to cut injuries to the skin and eyes due to flying glass splinters and may result in cut injuries from the knife of the cutter.**

Always wear protective gloves when working on car windows.

Wear protective goggles when cutting out car windows.

Only replace the cutting knife with the power supply disconnected so that the cutter is not switched on accidentally.

Material damage when removing the glass from car windows

ATTENTION

Danger of damage to the label with the vehicle identification number!

- **Danger of paint damage and damage to the label with the vehicle identification number if windscreen is removed incorrectly!**

When cutting out the windscreen, ensure that the label with the vehicle identification number is not damaged!

Material damage when inserting the glass into car windows

ATTENTION

Danger of material damage if specified curing time of adhesive is not observed!

- **There will not be a proper adhesive bond if the prescribed curing time of the adhesive is not observed!**

The vehicle must not be used until the curing time has elapsed.
Curing time: 3 hours
Temperature: at least 10°C
Fixing time: approx. 1 hour

top of page

Safety instructions for installation work

Safety instructions for airbag system

ATTENTION
Danger of injury due to unintentional activation of airbag units!

- **Serious injury due to unintentional activation of airbag units!**

The ground strap of the battery must be disconnected during work on the airbag system and alignment bench jobs when the body is being repaired!
After the battery is disconnected, assembly work or work on the vehicle with a hammer or similar tools must not be started until after a waiting period of 1 minute!

Safety instructions for sliding roof

ATTENTION
Danger of material damage to seats!

- **Danger of damage to the seats during the removal and fitting of the sliding roof frame!**

Fold the rear seat assembly forward and tip the front seat backrest backwards during the removal and fitting of the sliding roof frame.

ATTENTION

Damage to rear water drainage channel or sliding roof mechanism!

- **Damage to rear water drainage channel or to the sliding roof mechanism when the sliding roof panel is removed and when moving the sliding/tilting roof trim.**

The sliding roof frame must not be moved to the "Open" position when the sliding roof panel has been removed.

The sliding/tilting roof trim must be shifted without the use of force.

Safety instructions for the heat shield

ATTENTION

The installation of deformed heat shields will cause damage!

- **The installation of deformed heat shields will cause damage due to parts heating up!**

Damaged or distorted heat shields must be straightened or replaced.

Check heat shields for deformation, fixing of the aluminium braided cord, tears and missing or damaged fixing tabs.

After fitting the bumper, check heat shields and aluminium braided cord for leaks.

997110, 997111, 997120, 997121, 997310, 997311, 997320, 997321, 997410, 997411, 997430, 997431, 997610, 997611, 997620, 997621

as of MY 2005
Country C00, C02, C05, C07, C08, C09, C10, C11, C12, C13, C14, C15, C16, C18, C19, C20, C21, C22, C23, C24, C25, C26, C27, C28, C32, C33, C34, C35, C36, C37, C38, C39, C45, C46, C98, C99

WARNUNG

Gefahr des Verlusts der Text-Bild-Zuordnung beim Ausdruck.

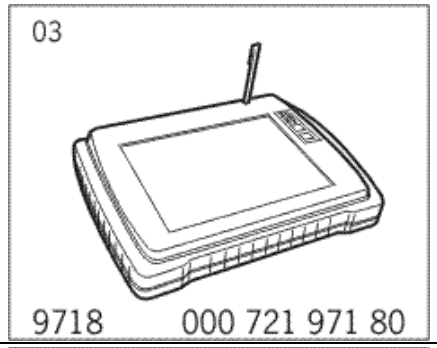
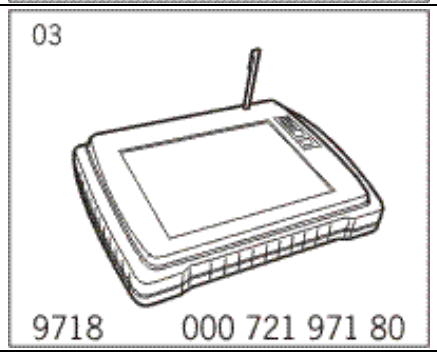
- **Aus technischen Gründen kann derzeit nicht ausgeschlossen werden, dass trotz einwandfreier Darstellung auf dem Bildschirm beim Ausdruck der Zusammenhang von Text und zugehörigem Bild verloren geht.**
- **Wird der Fehler nicht bemerkt, besteht die Gefahr, daß Arbeiten nicht korrekt durchgeführt werden und es dadurch zu Personen- und Sachschäden kommt.**

Vergleichen Sie deshalb nach dem Druckvorgang unbedingt die Ausdrucke mit der Bildschirmdarstellung. Korrigieren Sie die Ausdrucke im Fehlerfall so, daß der Inhalt der Bildschirmdarstellung zutreffend wiedergegeben wird.

69 Safety regulations for airbag and belt tensioner units - as of MY 2005

- Tools and materials
- General warning notes
- Information for airbag and belt tensioner units

Tools

Designation	Type	Number	Explanation	
PIWIS Tester	special tool	9718		
PIWIS Tester	special tool	97180		

top of page

Tools and materials

Materials

Use Porsche work clothing. See Workshop Equipment Manual, Group 2.6.

top of page

General warning notes

General warnings for handling airbag and belt tensioner units

ATTENTION

Danger of injury and material damage if airbag unit is not handled correctly!

- **Triggering of airbag unit!**

The airbag units are pyrotechnical items in hazard class T 1!

Handling, transport and storage of these units must conform to hazardous goods regulation and explosives legislation!

The listed statutory requirements refer to the Federal Republic of Germany. The relevant valid regulations must be observed in all other countries. Enquire of the importer for the country concerned!

The commencement of work with pyrotechnical items must be reported 14 days in advance to the Trade Supervisory Office (responsible authority)!

Airbag units must only be dispatched in transport packaging officially approved for that purpose!

Internally and otherwise, they must always be transported in the luggage compartment or cargo hold of a vehicle using the above-mentioned transport packaging!

They must not be transported in the passenger compartment!

Airbag units must be stored in accordance with the second ordinance of the explosives legislation!

This ordinance stipulates that small quantities of materials and items may be stored at certain locations without special storage approval!

Airbag units must be kept in a locked place!

When storing airbag units, ensure that the airbag opening faces upwards (risk of injury caused by inflation of the airbag units in the event of accidental ignition)!

Airbag units must be stored in a dry place and must not be stored together with other hazardous goods (varnishes, etc.)!

Loose airbag units or airbag units located in a removed steering wheel must never become the actual (physical) property of the customer!

The possession of loose airbag units not installed in the vehicle is not permissible in the private sector!

Airbag units may become the property of the customer only when installed in the vehicle!

Warnings about assembly and straightening work

ATTENTION

Danger of personal injury and material damage as a result of malfunction of the airbag system!

- **Malfunction of the airbag system**

Never drive with an airbag triggering unit that has not been taught.

The airbag triggering unit must be taught using the **PIWIS Tester 97180**! Until the airbag triggering unit has been taught, the warning light lights up continuously.

Inspection and assembly work must only be carried out by specialist staff!

Before working on the airbag system and also when working on neighbouring parts where there is a risk because live parts are close to the airbag system, always implement the following safety measures:

Remove ignition key.

Disconnect and cover the negative terminal of the battery.

After the battery is disconnected, assembly work or work on the vehicle with a hammer or similar tools must not be started until after a waiting period of 1 minute! This is necessary in order to interrupt the power supply to the airbag system and to ensure it is not triggered accidentally!

Airbag units must be fitted immediately after being removed from their storage location!

Airbag units must never be left lying around unattended!

If work is interrupted, airbag units must immediately be locked away again!

Airbag units must not come into contact with grease, oil, detergents, liquids, or similar substances!

Airbag units must not be exposed to temperatures above 90 °C!

Airbag units and control units which have fallen from a low height must no longer be installed!

Additional linings, stickers or similar must not be attached in the vicinity of the airbag units!

Changes must not be made to the wiring or the components of the airbag system!

The battery must always be disconnected before starting straightening and welding work with an electrical welding unit!

Electrostatic charge: In general, suitable work clothing and footwear are to be worn. *WM Safety regulations for handling tools and materials for airbag and belt tensioner units*

Do not remove the short-circuit spring of the plug contacts.

Never connect airbag units to electrical power sources not in accordance with regulations (danger of immediate ignition). Only use testers prescribed by the manufacturer. Airbag diagnosis 6901.

If you have to perform welding in the immediate vicinity of the airbag triggering unit, ensure it is removed before starting work!

Airbag components must not be repaired!

Airbag components must always be replaced!

Cleanse your hands after touching ignited airbag units.

top of page

Information for airbag and belt tensioner units

Dangers for persons and the environment

Note

Dangers for persons and the environment

Injury caused by incorrect triggering of the installed unit.
Injury caused by spinning away, e.g. of the entire unit.
Burns caused by touching the hot surfaces of a triggered unit.
Damage to hearing due to the explosion when gas is released.
Irritation caused by breathing in fuel particles.
Irritation caused by skin and eye contact with fuel particles.
Airbag/belt tensioner components must not be opened nor repaired; always use only new parts.
Injury caused by incorrect triggering due to tampering with the short circuit bridges.

Protective measures and rules of behaviour

Note

Protective measures and rules of behaviour

Assembly work only by trained staff.
Carry out tests only with the **PIWIS Tester 97180** diagnostic module; do not use test lamps, voltmeters or ohmmeters.
Do not bring into contact with grease, solvents, cleaning agents, or liquids.
Do not expose to temperatures above 100 °C.
Keep the unfolding area of the airbag clear; e.g. do not hang test devices over the steering wheel. When carrying, hold the airbag with the blow-out direction facing away from the body. Lay the airbag unit aside with the airbag pointing upwards.
Electrostatic charge: In general, wear appropriate work clothing and footwear. *WM Safety regulations for handling tools and materials for airbag and belt tensioner units*
Do not remove the short-circuit spring of the plug contacts.
Never connect an airbag unit to electrical power sources not in accordance with regulations (danger of ignition). Only use testers prescribed by the manufacturer. Airbag diagnosis 6901.
During installation/removal or work on the vehicle involving vibrations: switch off ignition, disconnect and cover the negative terminal of the battery, wait 1 minute and only then disconnect the plug connection.
Transport: In transport packaging. Forbidden in passenger compartment!
Storage in the workshop: max. 10 kg (=100 driver's or 50 passenger's airbags); protect against theft!
The installation of the airbag/belt tensioner unit must be carried out immediately after removal from the transport container.
If work is interrupted, the airbag/belt tensioner unit must be stored in the transport container again.
Leaving the airbag/belt tensioner unit unsupervised is not permitted.

Behaviour in cases of malfunction or danger

Note

Behaviour in cases of malfunction or danger

Protect from flames and heat.
In case of fire, inform the fire brigade on arrival about the units present.
Do not install mechanically damaged units or units that have fallen, even from a low height.
Always replace units that are mechanically damaged (bulges, cracks).
Because of the irritating combustion residues, only handle triggered airbags with protective gloves and goggles.
In the case of contact with combustion residues, wash the affected skin with soap and water.
In the case of eye contact, wash the eyes out with water.

General information

Note

Airbags - general
A period of 10 seconds is required to enable the triggering unit to identify all faults in the system!
In order to guarantee that every possible fault source is checked during the vehicle test, the ignition must be switched on for at least 10 seconds!
The fault memory must be cleared following a fault in the airbag system and after it has been remedied!
The replacement of a component must be noted in the Guarantee and Maintenance booklet!
To do this, attach the documentation number in a free panel intended for that purpose!
The documentation number is attached to the replacement part as a tear-off sticker!
Exchanged airbag units or airbag modules must be taken into possession by the Porsche Centre or by a dealer authorised by Porsche and must not be handed over to the customer (customer has no right to possess them).
They must be destroyed, disposed of or returned to the manufacturer in accordance with the explosives ordinance and the hazardous materials ordinance!
When the steering wheel is exchanged, e.g. to install a steering wheel from the Tequipment product range, the airbag unit of the replaced steering wheel must be removed and destroyed, disposed of or returned to the manufacturer before the steering wheel is handed over to the customer!

The airbag system is constantly monitored by a diagnosis unit in the triggering unit. Any fault is signalled by a warning light. The warning light for the airbag system lights up in the event of a fault. The airbag warning light lights for approx. 3 seconds after the ignition is switched on and goes out if no fault has been entered in the fault memory. If it lights up again, this indicates a fault in the system. The fault can be read out with the **PIWIS Tester 9718**.

Component exchange after airbag/belt tensioner triggering

The following components must be removed and replaced after the airbag system is triggered:
Airbag unit, driver's side:

1. Contact unit.
2. Airbag unit, driver's side.
3. Triggering unit after the third time the airbag is triggered.

Airbag unit, passenger's side:

1. Airbag unit, passenger's side.
2. Triggering unit after the third time the airbag is triggered.
3. Instrument panel.
4. Check instrument panel bracket for deformation and replace if necessary.

Side-airbag unit, seat:

1. Side-airbag unit, seat.
6. Seat covering, deformed seat components.
7. Sensor for the side-airbag unit after the third time the side-airbag is triggered

Head airbag unit, door:

1. Head airbag unit.
9. Check door unit carrier for deformation and replace if necessary.
10. Sensor for the side-airbag unit after the third time the side-airbag is triggered

Belt tensioner:

1. All belt tensioner units.

Because it is difficult to visually determine if one or more belt tensioners has been triggered, check the following points:

– Using the **PIWIS Tester 9718**, read out the fault memory.
– Check plug connection on the belt tensioner for damage.
– Pull out the belt strap as far as possible and check for wear.
– Perform a function test on the automatic belt device.

997110, 997111, 997120, 997121, 997310, 997311, 997320, 997321, 997410, 997411, 997430, 997431, 997610, 997611, 997620, 997621

as of MY 2005
Country C00, C02, C05, C07, C08, C09, C10, C11, C12, C13, C14, C15, C16, C18, C19, C20, C21, C22, C23, C24, C25, C26, C27, C28, C32, C33, C34, C35, C36, C37, C38, C39, C45, C46, C98, C99

WARNUNG

Gefahr des Verlusts der Text-Bild-Zuordnung beim Ausdruck.

- **Aus technischen Gründen kann derzeit nicht ausgeschlossen werden, dass trotz einwandfreier Darstellung auf dem Bildschirm beim Ausdruck der Zusammenhang von Text und zugehörigem Bild verloren geht.**
- **Wird der Fehler nicht bemerkt, besteht die Gefahr, daß Arbeiten nicht korrekt durchgeführt werden und es dadurch zu Personen- und Sachschäden kommt.**

Vergleichen Sie deshalb nach dem Druckvorgang unbedingt die Ausdrucke mit der Bildschirmdarstellung. Korrigieren Sie die Ausdrucke im Fehlerfall so, daß der Inhalt der Bildschirmdarstellung zutreffend wiedergegeben wird.

50 IN General information and notes on quality - as of MY 2005

- Measures for maintaining long-term body protection
- Electronic control modules

top of page

Measures for maintaining long-term body protection

Note

- *After repair work, the standard corrosion-inhibiting coating should only be restored with the corrosion-inhibiting agents approved by the manufacturer. The following points must be observed for body repairs.*

- Always apply welding primer to both sides of the welding flange when resistance spot welding.
- Prime repair areas from outside. Prime on both sides in the accessible areas.
- Seal all sheetmetal overlaps, sheetmetal edges, butt joints, weld seams etc. with body sealant.
- When replacing structurally bonded body parts, proceed according to the information in the respective repair instructions.
- Only apply body sealant to primed sheetmetal parts.
- Apply top coat paint to the inside of the outer sheetmetal shell before welding. See "Paint build-up": "Paint Manual"
- Build up paint on bare sheetmetal panels according to the painting methods described in the "Paint Manual".
- Repair or create standard undersealing by applying long-life undersealing material.
- Preserve cavities in the repair area with cavity preservative after applying a top coat paint.
- Check that the standard water drains (plugs) function correctly or clean them after the cavity preservation material has dried.

Prerequisite for maintaining the long-life guarantee

All body repair work must be carried out correctly and according to the specific Porsche instructions for sheetmetal, paint and corrosion protection/preservation work. To avoid jeopardising the long-life guarantee, a Paint Condition Report is prepared two years after delivery of the vehicle. This condition report must be updated annually by every Official Porsche Centre.

top of page

Electronic control modules

Note

- *If electronic components, e.g. ABS control module, have been removed for repair work and are then reused, they must undergo a functional check after fitting in accordance with existing specifications.*

Battery trickle charge

Note

- *To prevent the vehicle battery from discharging while at the workshop, a battery charging unit with a rated current of at least 40 A must be connected as soon as the vehicle is unlocked.*

Refer to *Battery trickle charge* for instructions about connecting the battery charging unit.

Protection against overvoltage when performing welding work

To protect electronic control units from overvoltage during electric arc welding, the following work regulations must be observed:

- When welding work is extensive, the electronic control units must be removed. Ensure that there are no electrically insulated parts between the ground connection and the welding point.
- Remove clamp from negative terminal of battery and cover negative terminal of battery.
- Connect the ground connection of the electric arc welding equipment as near as possible to the welding point on the part to be welded.
- Do not touch electronic control units or electric cables with the ground connection or the welding electrode.

Replacing control modules

The replacement of electronic control modules after an accident is necessary if at least one of the following conditions is met:
The housing is noticeably deformed or damaged.
The supporting surface or bracket is deformed (the unit shows no external damage).
The plug connection is damaged or corroded by moisture.
Functional checks or self-diagnosis of the unit reveals the fault "Control module faulty".

997110, 997111, 997120, 997121, 997310, 997311, 997320, 997321, 997410, 997411, 997430, 997431, 997610, 997611, 997620, 997621

50 IN Diagram - body gap dimensions - as of MY 2005

- Diagram - body front gap dimensions
- Diagram - body centre gap dimensions
- Diagram - body rear gap dimensions
- Diagram - Cabriolet gap dimensions

Tools

Designation	Type	Number	Explanation	
Star gauges for body gap dimensions	commercially available tool	NR.127-1		

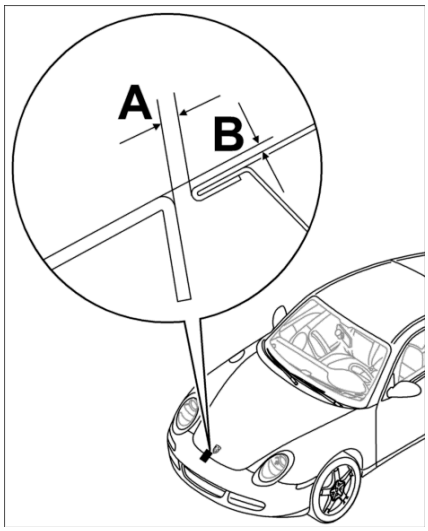
top of page

Diagram - body front gap dimensions

Gap dimensions, body front

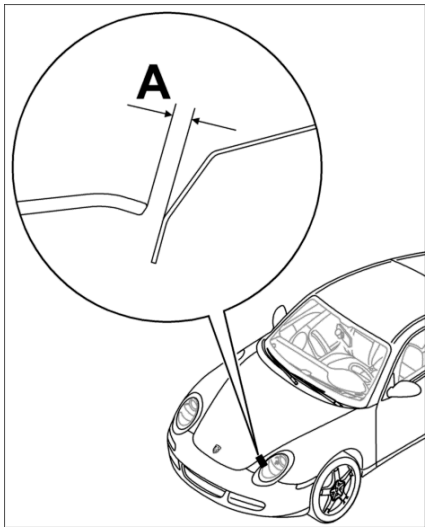
Note

- *Set gap dimensions on the lids, doors and covers, or accessories in accordance with the gap specifications.*
- *Given a clearance in the opening that is too great or too small, the movable body or the accessories must be centred accordingly.*
- *Ensure that the gaps do not taper or do not narrow at local points.*
- *The given values are guidelines which should be observed as far as possible.*
- *The guidelines apply to repair and assembly work.*
- *Use star gauges to measure the gap dimensions,* ***Star gauges for body gap dimensions NR.127-1***



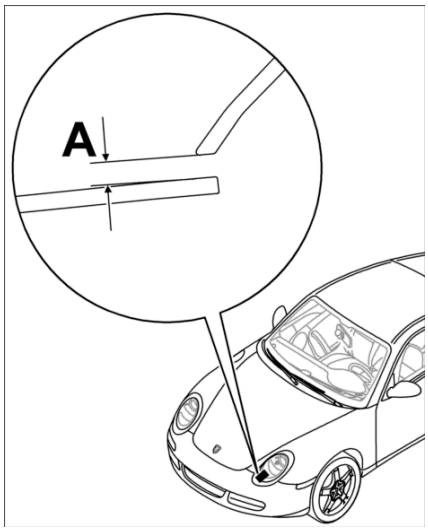
Front lid to front apron

Location	Explanation	Type	Basic value	Tolerance 1	Tolerance 2
Front lid to front apron		Gap dimension A	4.5 mm	+/-1 mm	
Front lid to front apron	Lid only lowered	Gap dimension B	2 mm		



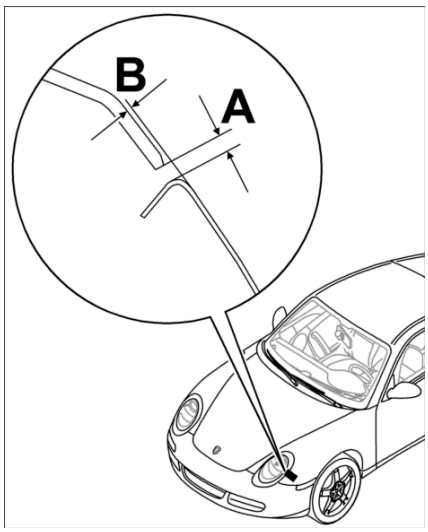
Main headlight to inner wing

Location	Explanation	Type	Basic value	Tolerance 1	Tolerance 2
Main headlight to inner wing	Determine left and right gap	Gap dimension A	4.5 mm	+/-1 mm	



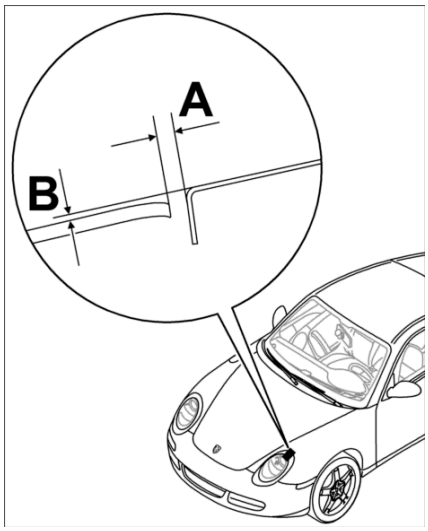
Main headlight to front apron

Location	Explanation	Type	Basic value	Tolerance 1	Tolerance 2
Main headlight to front apron		Gap dimension A	4 mm	+/-1.5 mm	



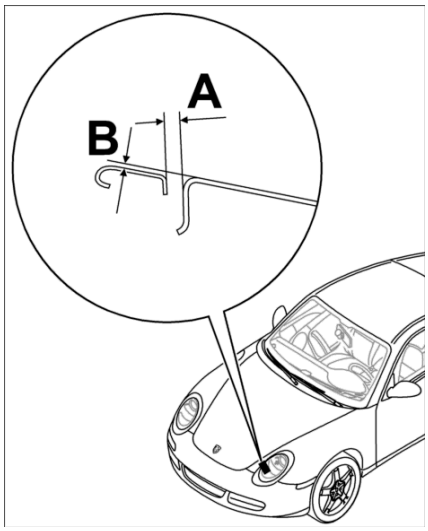
Main headlight to external wing

Location	Explanation	Type	Basic value	Tolerance 1	Tolerance 2
Main headlight to external wing		Gap dimension A	4 mm	+1 mm	
Main headlight to external wing	Only lowered	Gap dimension B	1 mm		



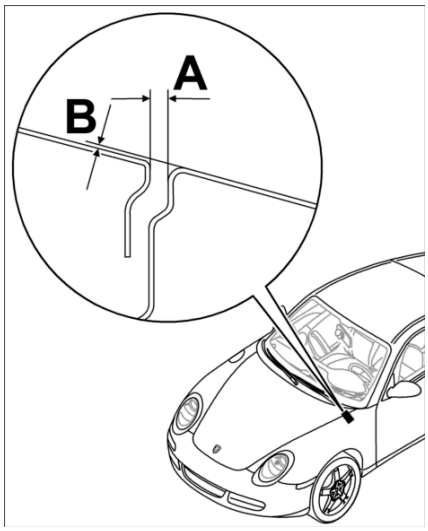
Main headlight to top wing

Location	Explanation	Type	Basic value	Tolerance 1	Tolerance 2
Main headlight to top wing		Gap dimension A	4 mm	+/-1 mm	
Main headlight to top wing	Only lowered	Gap dimension B	1 mm		



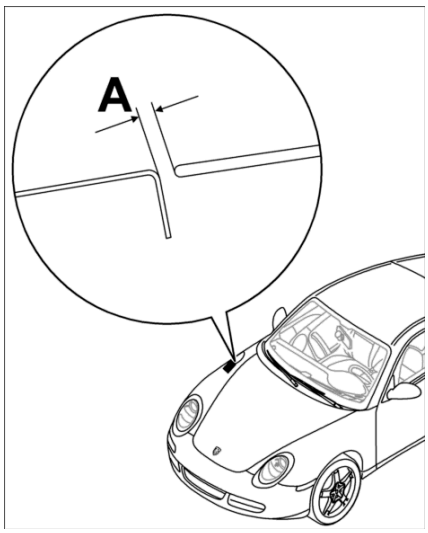
Front lid to wing

Location	Explanation	Type	Basic value	Tolerance 1	Tolerance 2
Front lid to wing		Gap dimension A	4 mm	+/-1 mm	
Front lid to wing	Only lowered	Gap dimension B	0.5 mm		



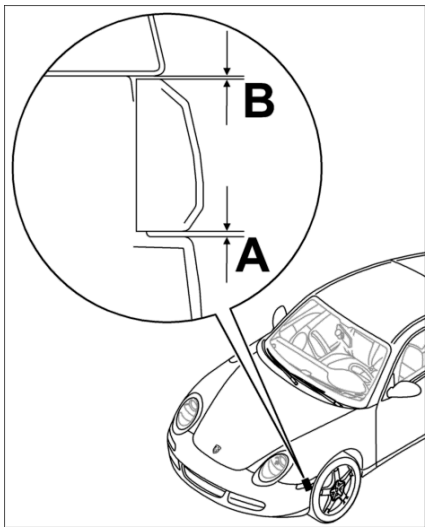
Wing to front lid

Location	Explanation	Type	Basic value	Tolerance 1	Tolerance 2
Wing to front lid	Determine left and right gap	Gap dimension A	4 mm	+1 mm	
Wing to front lid	Only lowered	Gap dimension B	0.5 mm		



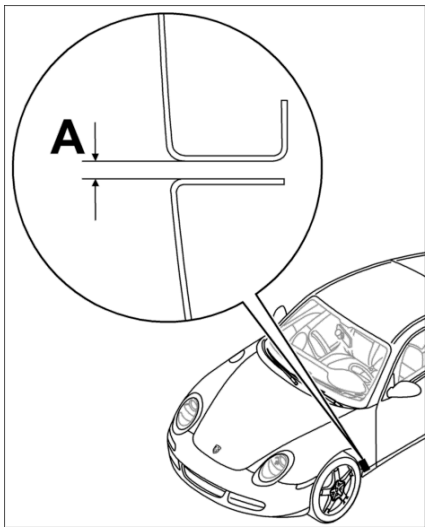
Filler flap to wing

Location	Explanation	Type	Basic value	Tolerance 1	Tolerance 2
Filler flap to wing	All the way round	Gap dimension A	3.5 mm	+/-0.5 mm	



Front apron to side direction indicator

Location	Explanation	Type	Basic value	Tolerance 1	Tolerance 2
Front apron to side direction indicator		Gap dimension A	1.5 mm		
Wing to side direction indicator		Gap dimension B	0.5 mm	+0.5 mm	



Wing to outer side panel

Location	Explanation	Type	Basic value	Tolerance 1	Tolerance 2
Wing to outer side panel	Even transition from front to rear	Gap dimension A	4.5 mm	+/-1 mm	

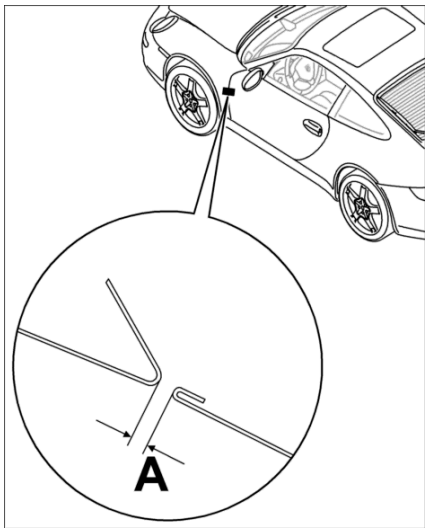
top of page

Diagram - body centre gap dimensions

Gap dimensions, body centre

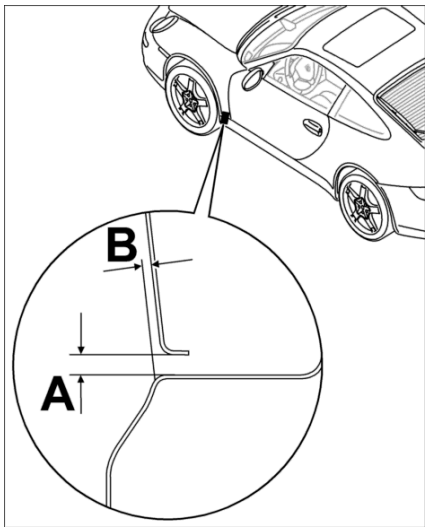
Note

- *Set gap dimensions on the lids, doors and covers, or accessories in accordance with the gap specifications.*
- *Given a clearance in the opening that is too great or too small, the movable body or the accessories must be centred accordingly.*
- *Ensure that the gaps do not taper or do not narrow at local points.*
- *The given values are guidelines which should be observed as far as possible.*
- *The guidelines apply to repair and assembly work.*
- *Use star gauges to measure the gap dimensions,* ***Star gauges for body gap dimensions NR.127-1***



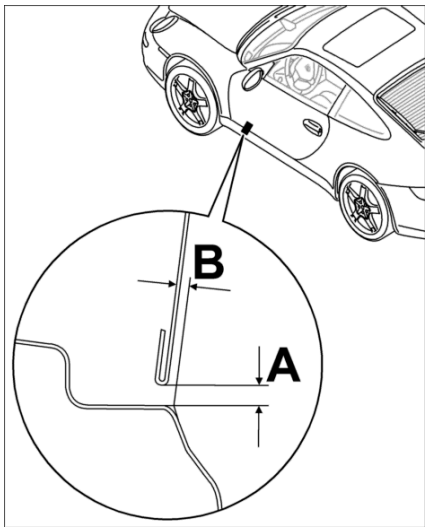
Door to wing

Location	Explanation	Type	Basic value	Tolerance 1	Tolerance 2
Door to wing		Gap dimension A	4 mm	+/-0.5 mm	



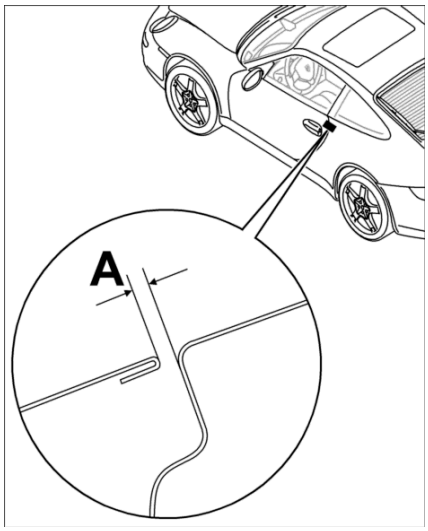
Wing to outer side panel

Location	Explanation	Type	Basic value	Tolerance 1	Tolerance 2
Wing to outer side panel		Gap dimension A	4.5 mm	+/-1 mm	
Wing to outer side panel	Only lowered	Gap dimension B	2 mm		



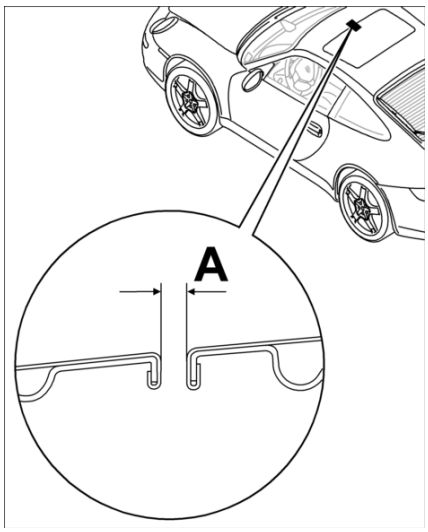
Door to outer side panel

Location	Explanation	Type	Basic value	Tolerance 1	Tolerance 2
Door to outer side panel		Gap dimension A	4.5 mm	+/-1 mm	
Door to outer side panel	Doors only lowered	Gap dimension B	2 mm		



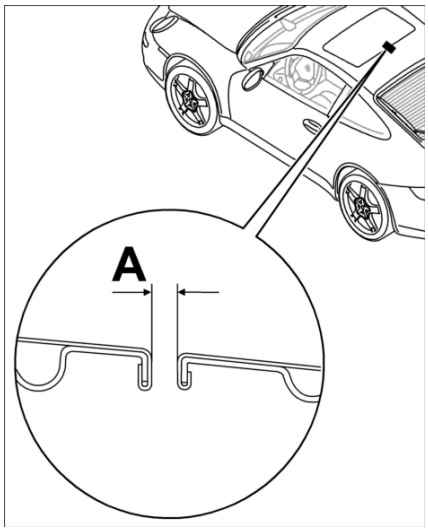
Door to outer side panel

Location	Explanation	Type	Basic value	Tolerance 1	Tolerance 2
Door to outer side panel	Doors only raised	Gap dimension A	4 mm	+/-0.8 mm	



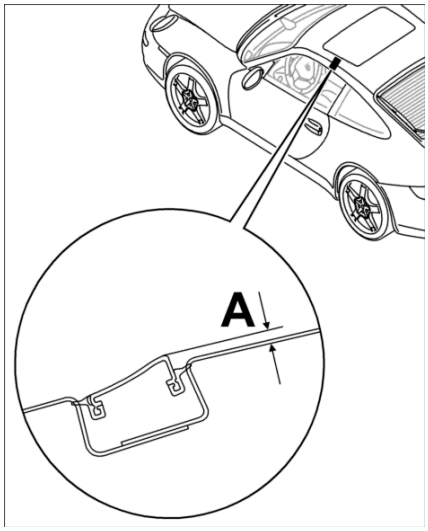
Sliding-roof panel at front to outer roof panel

Location	Explanation	Type	Basic value	Tolerance 1	Tolerance 2
Sliding roof panel at front to outer roof panel	Only lowered at front	Gap dimension A	5 mm		



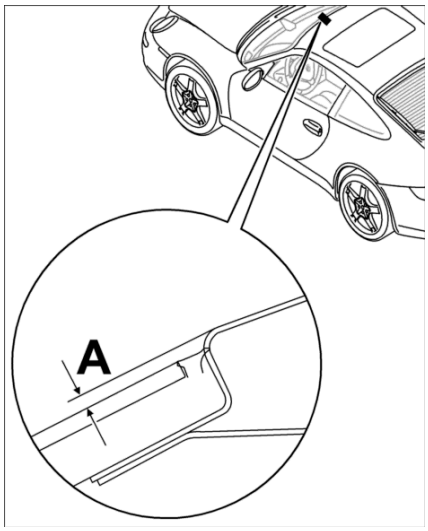
Sliding roof panel at rear to outer roof panel

Location	Explanation	Type	Basic value	Tolerance 1	Tolerance 2
Sliding roof panel at rear to outer roof panel	Only raised at rear	Gap dimension A	6 mm		



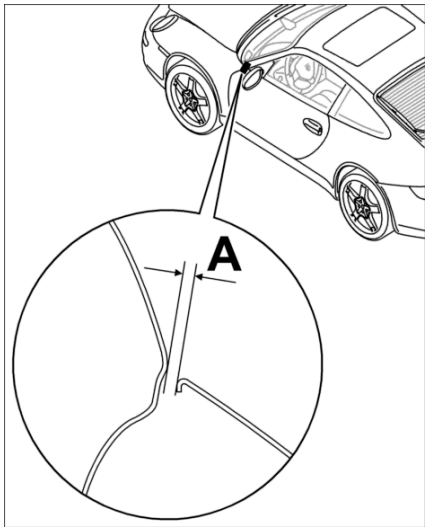
Roof joint strip to outer roof panel

Location	Explanation	Type	Basic value	Tolerance 1	Tolerance 2
Roof joint strip to outer roof panel		Gap dimension A	2 mm		



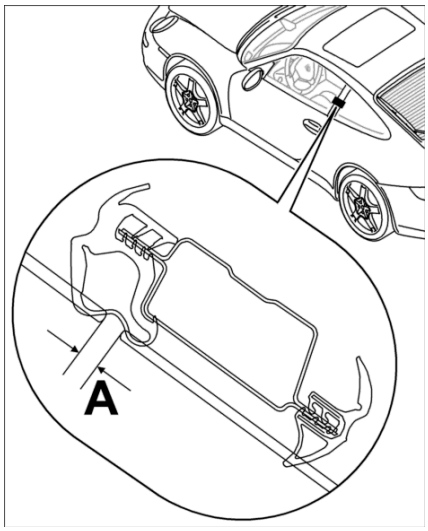
Windscreen to windscreen frame

Location	Explanation	Type	Basic value	Tolerance 1	Tolerance 2
Windscreen to windscreen frame	Only lowered	Gap dimension A	2 mm		



Cowl panel frame to wing

Location	Explanation	Type	Basic value	Tolerance 1	Tolerance 2
Cowl panel frame to wing	Continuous transition	Gap dimension A	3 mm	+/-1 mm	



Door window to side window

Location	Explanation	Type	Basic value	Tolerance 1	Tolerance 2
Door window to side window	Door window lowered by max. 1 mm	Gap dimension A	7 mm	+/-1 mm	

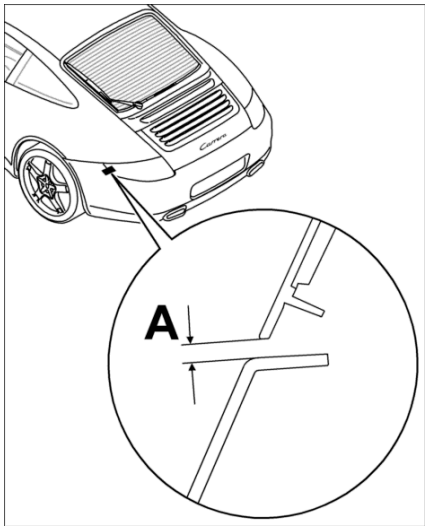
top of page

Diagram - body rear gap dimensions

Gap dimensions, body rear

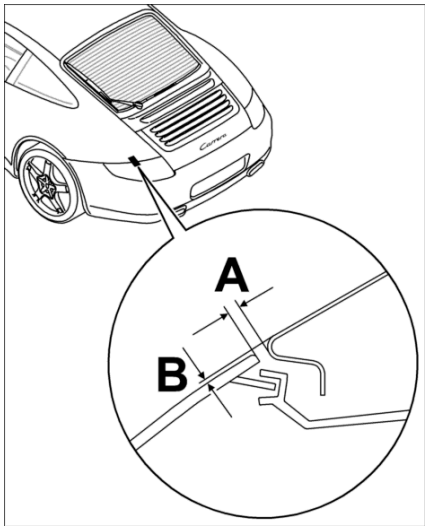
Note

- *Set gap dimensions on the lids, doors and covers, or accessories in accordance with the gap specifications.*
- *Given a clearance in the opening that is too great or too small, the movable body or the accessories must be centred accordingly.*
- *Ensure that the gaps do not taper or do not narrow at local points.*
- *The given values are guidelines which should be observed as far as possible.*
- *The guidelines apply to repair and assembly work.*
- *Use star gauges to measure the gap dimensions,* ***Star gauges for body gap dimensions NR.127-1***



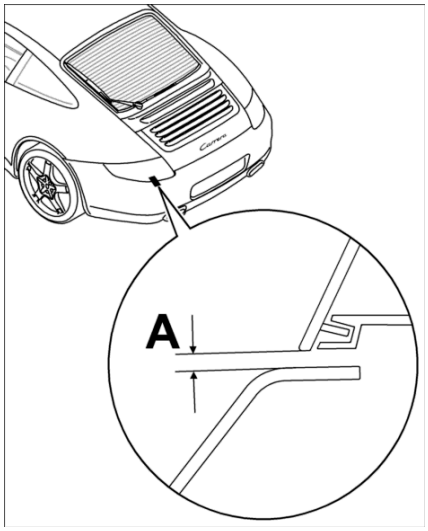
Tail light to outer side panel

Location	Explanation	Type	Basic value	Tolerance 1	Tolerance 2
Tail light to outer side panel	Tail light only lowered	Gap dimension A	4 mm	+/-1.5 mm	



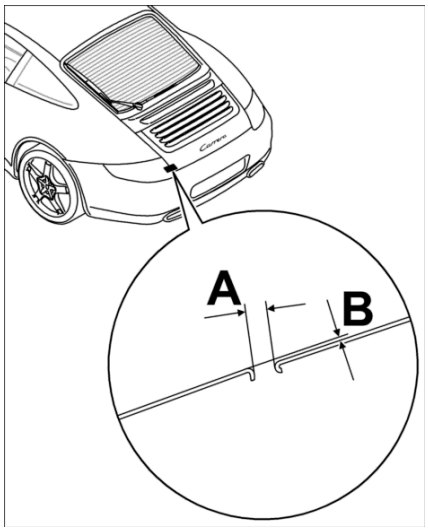
Tail light to centre side panel

Location	Explanation	Type	Basic value	Tolerance 1	Tolerance 2
Tail light to centre side panel		Gap dimension A	3 mm	+/-0.8 mm	
Tail light to centre side panel	Tail light only lowered	Gap dimension B	1 mm		



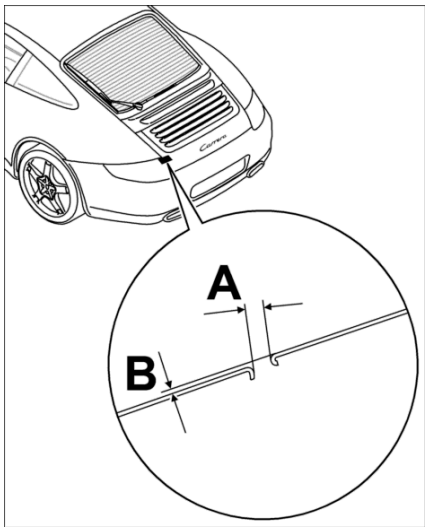
Rear apron to tail light

Location	Explanation	Type	Basic value	Tolerance 1	Tolerance 2
Rear apron to tail light		Gap dimension A	4 mm	+/-1.5 mm	



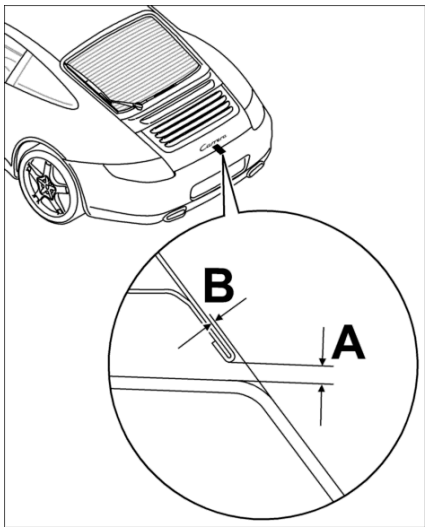
Tail light to rear lid

Location	Explanation	Type	Basic value	Tolerance 1	Tolerance 2
Tail light to rear lid	Determine gap	Gap dimension A	4.9 mm	+/-1 mm	
Tail light to rear lid	Only lowered	Gap dimension B	0.4 mm		



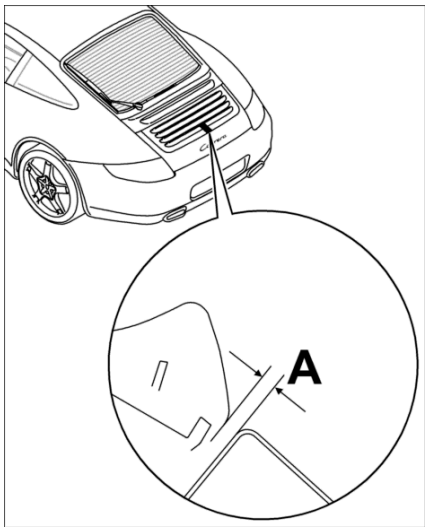
Tail light to rear lid

Location	Explanation	Type	Basic value	Tolerance 1	Tolerance 2
Tail light to rear lid	Determine gap	Gap dimension A	4.5 mm	+/-1 mm	
Tail light to rear lid	Only lowered	Gap dimension B	1.8 mm		



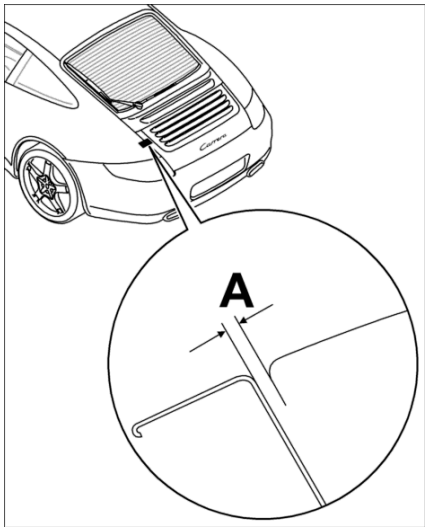
Rear lid to rear spoiler

Location	Explanation	Type	Basic value	Tolerance 1	Tolerance 2
Rear lid to rear spoiler		Gap dimension A	4 mm	+/-1.5 mm	
Rear lid to rear spoiler	Only lowered	Gap dimension B	1 mm		



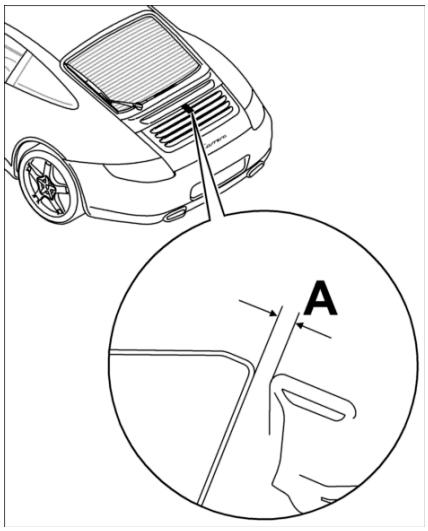
Rear lid to spoiler top section

Location	Explanation	Type	Basic value	Tolerance 1	Tolerance 2
Rear lid to spoiler top section	Rear lid only lowered (max. 1 mm)	Gap dimension A	3.5 mm		



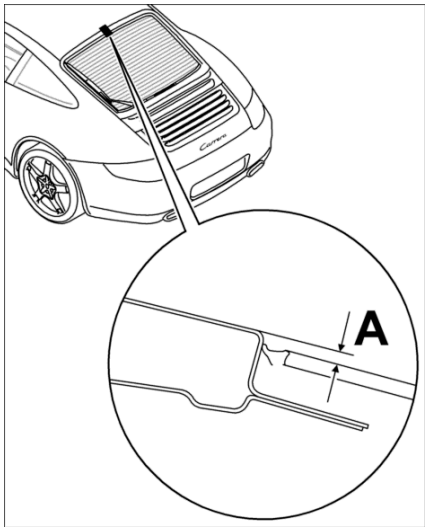
Rear lid to spoiler top section

Location	Explanation	Type	Basic value	Tolerance 1	Tolerance 2
Rear lid to spoiler top section	Rear lid only lowered (max. 1 mm)	Gap dimension A	3.5 mm	+/-0.5 mm	



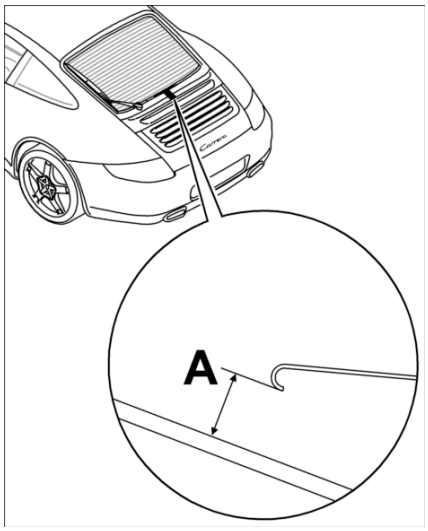
Rear centre panel to spoiler top section

Location	Explanation	Type	Basic value	Tolerance 1	Tolerance 2
Rear centre panel to spoiler top section	Rear lid only lowered (max. 1 mm)	Gap dimension A	3.5 mm		



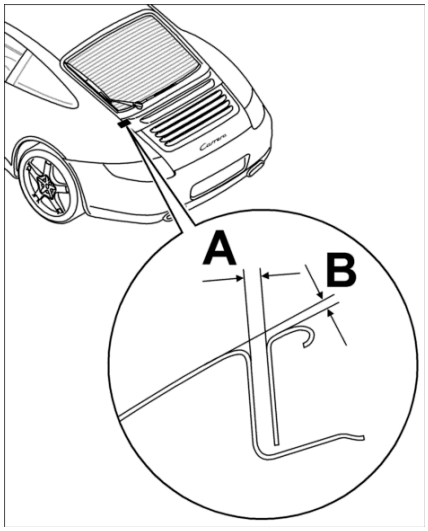
Rear window to outer roof panel

Location	Explanation	Type	Basic value	Tolerance 1	Tolerance 2
Rear window to outer roof panel	Only lowered	Gap dimension A	2 mm		



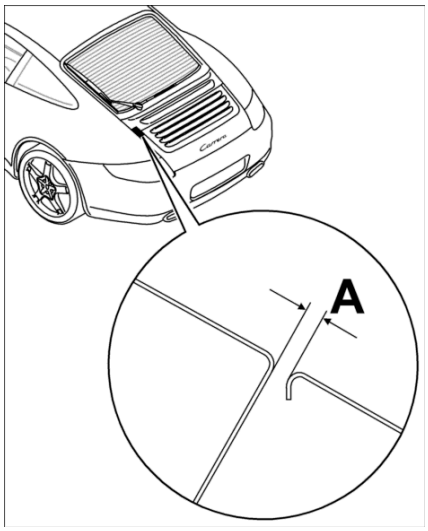
Rear centre panel to rear window

Location	Explanation	Type	Basic value	Tolerance 1	Tolerance 2
Rear centre panel to rear window		Gap dimension A	15.5 mm		



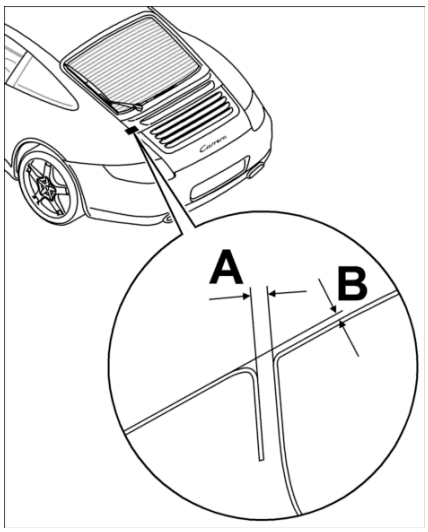
Rear centre panel to outer side panel

Location	Explanation	Type	Basic value	Tolerance 1	Tolerance 2
Rear centre panel to outer side panel		Gap dimension A	4 mm	+/-1 mm	
Rear centre panel to outer side panel	Only lowered	Gap dimension B	1.9 mm	+/-1 mm	



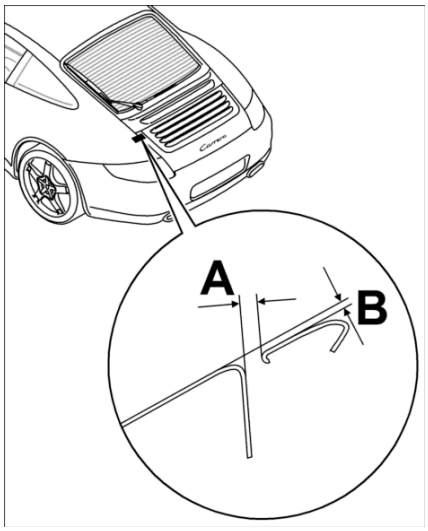
Rear centre panel to rear lid

Location	Explanation	Type	Basic value	Tolerance 1	Tolerance 2
Rear centre panel to rear lid		Gap dimension A	4 mm	+/-1.5 mm	



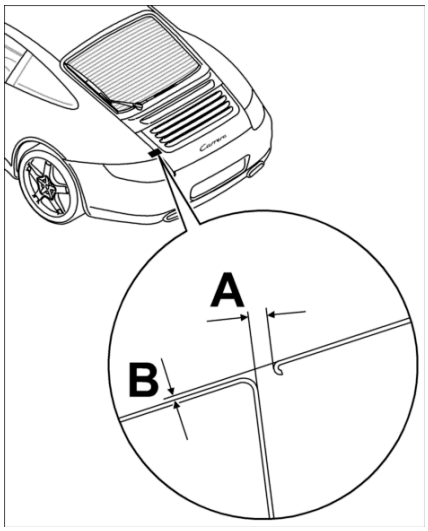
Outer side panel to rear centre panel lid

Location	Explanation	Type	Basic value	Tolerance 1	Tolerance 2
Outer side panel to rear centre panel lid		Gap dimension A	4 mm	+/-1 mm	
Outer side panel to rear centre panel lid	Only lowered	Gap dimension B	1.3 mm		



Outer side panel to rear lid

Location	Explanation	Type	Basic value	Tolerance 1	Tolerance 2
Outer side panel to rear lid		Gap dimension A	4 mm	+/-1 mm	
Outer side panel to rear lid	Only lowered	Gap dimension B	1.3 mm		



Outer side panel to rear lid

Location	Explanation	Type	Basic value	Tolerance 1	Tolerance 2
Outer side panel to rear lid		Gap dimension A	4.2 mm	+/-1 mm	
Outer side panel to rear lid	Only lowered	Gap dimension B	0.6 mm		

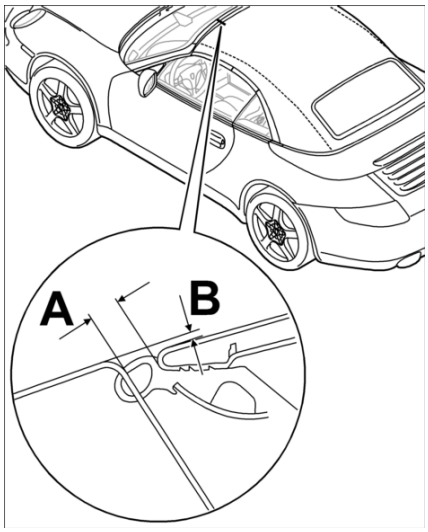
top of page

Diagram - Cabriolet gap dimensions

Convertible-top gap dimensions

Note

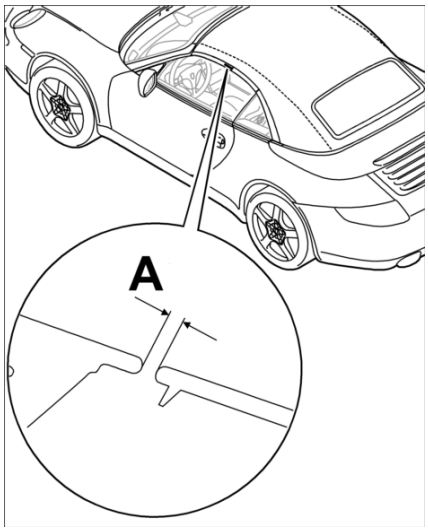
- *Set gap dimensions on the lids, doors and covers, or accessories in accordance with the gap specifications.*
- *Given a clearance in the opening that is too great or too small, the movable body or the accessories must be centred accordingly.*
- *Ensure that the gaps do not taper or do not narrow at local points.*
- *The given values are guidelines which should be observed as far as possible.*
- *The guidelines apply to repair and assembly work.*
- *Use star gauges to measure the gap dimensions,* ***Star gauges for body gap dimensions NR.127-1***



Cowl panel frame to front roof frame

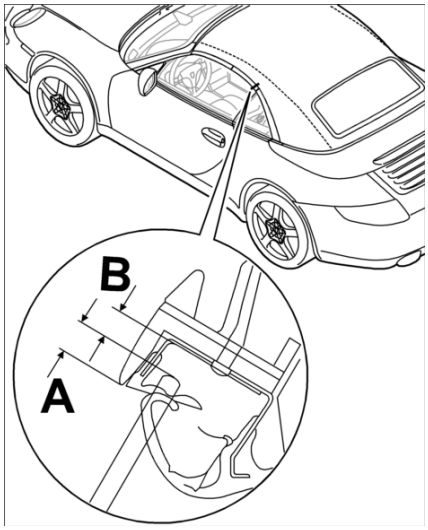
Location	Explanation	Type	Basic value	Tolerance 1	Tolerance 2
Cowl panel frame to front roof frame	Roof frame only lowered	Gap dimension A	7 mm	+/-1 mm	
			1.7 mm		

Cowl panel frame to front roof frame	Roof frame only lowered	Gap dimension B			



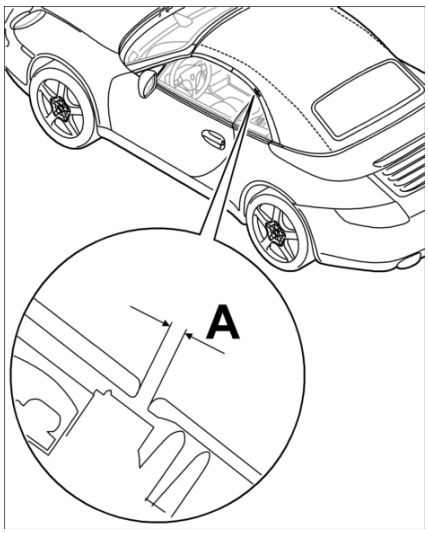
Front roof frame to centre roof frame

Location	Explanation	Type	Basic value	Tolerance 1	Tolerance 2
Front roof frame to centre roof frame		Gap dimension A	3 mm	+/-0.5 mm	



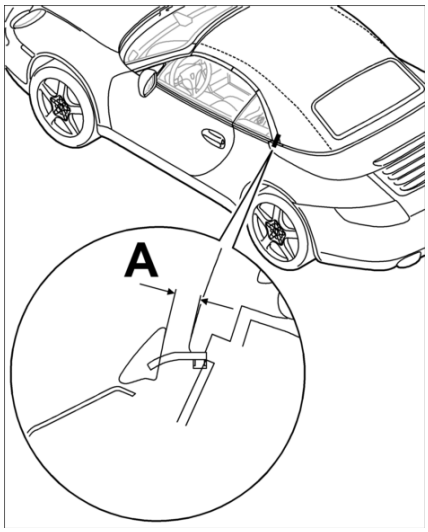
Door window to side of roof frame

Location	Explanation	Type	Basic value	Tolerance 1	Tolerance 2
Door window to side of roof frame		Gap dimension A	7 mm	+/-1 mm	
Door window to side of roof frame		Gap dimension B	6 mm	+/-1 mm	



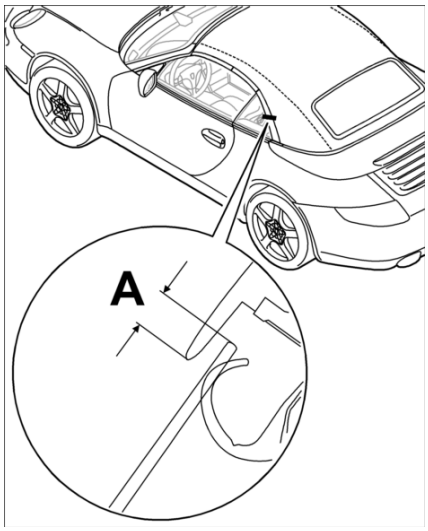
Centre roof frame to rear roof frame

Location	Explanation	Type	Basic value	Tolerance 1	Tolerance 2
Centre roof frame to rear roof frame		Gap dimension A	3.2 mm	+0.5 mm	



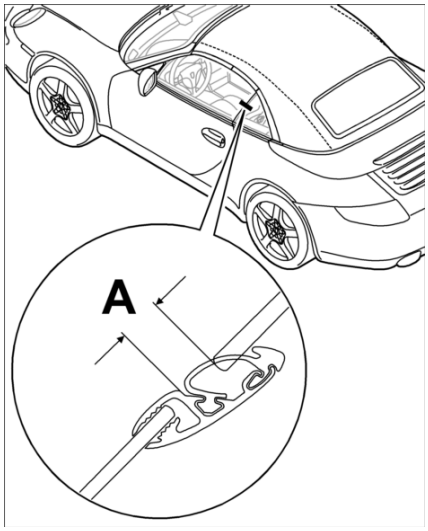
Rear roof frame to side of convertible-top compartment lid

Location	Explanation	Type	Basic value	Tolerance 1	Tolerance 2
Rear roof frame to side of convertible-top compartment lid		Gap dimension A	5 mm		



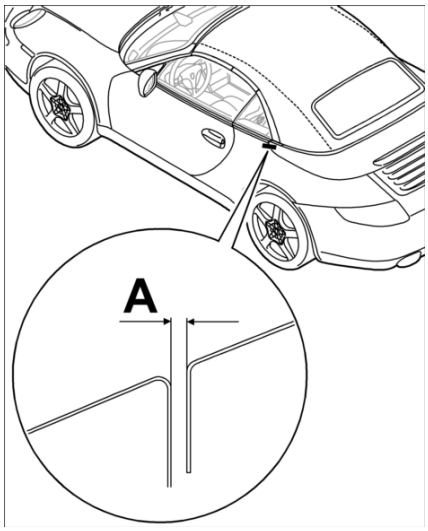
Rear roof frame to side window

Location	Explanation	Type	Basic value	Tolerance 1	Tolerance 2
Rear roof frame to side window	Max. closing depth	Gap dimension A	10 mm	+9 mm	



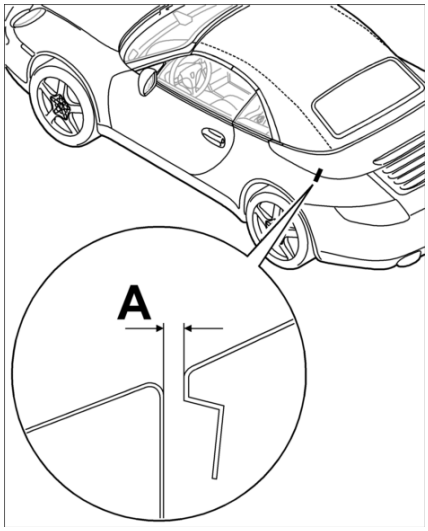
Door window to side window

Location	Explanation	Type	Basic value	Tolerance 1	Tolerance 2
Door window to side window		Gap dimension A	9 mm	+/-1 mm	



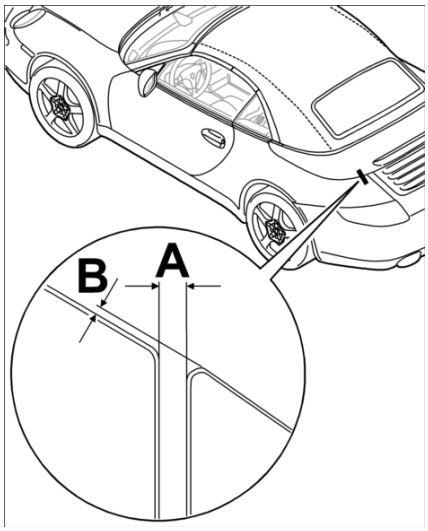
Convertible-top compartment lid to side panel

Location	Explanation	Type	Basic value	Tolerance 1	Tolerance 2
Convertible-top compartment lid to side panel	Continuous seam joining line	Gap dimension A	4 mm	+/-1 mm	



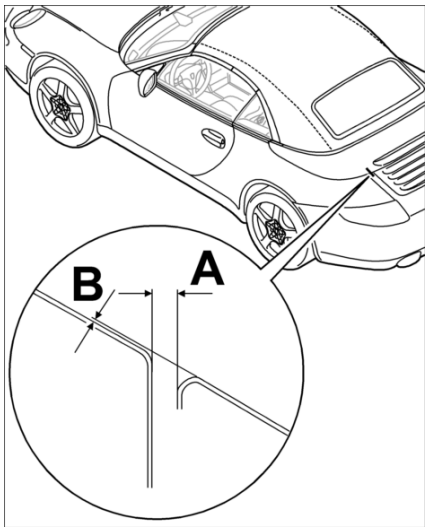
Convertible-top compartment lid to side panel

Location	Explanation	Type	Basic value	Tolerance 1	Tolerance 2
Convertible-top compartment lid to side panel	Continuous seam joining line	Gap dimension A	4 mm	+/-1 mm	



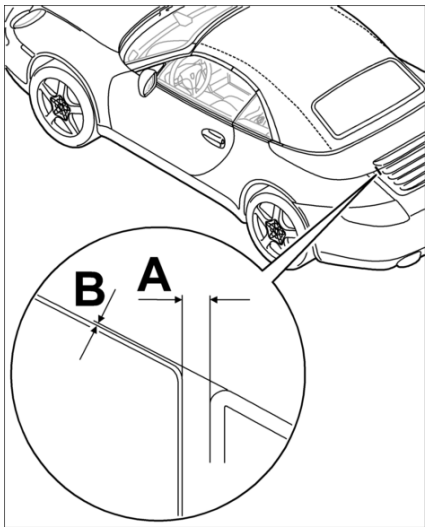
Convertible-top compartment lid to side panel

Location	Explanation	Type	Basic value	Tolerance 1	Tolerance 2
Convertible-top compartment lid to side panel	Continuous seam joining line	Gap dimension A	5 mm	+/-1 mm	
Convertible-top compartment lid to side panel	Only lowered	Gap dimension B	1.5 mm		



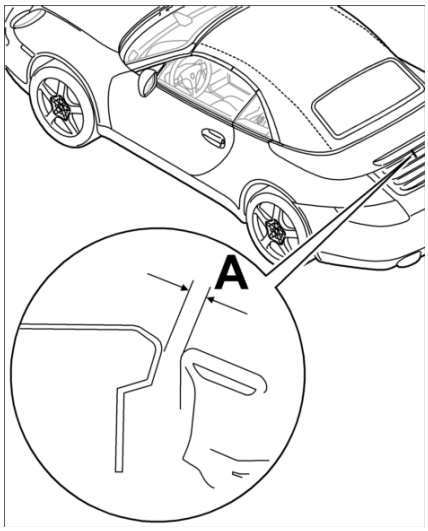
Convertible-top compartment lid to rear lid

Location	Explanation	Type	Basic value	Tolerance 1	Tolerance 2
Convertible-top compartment lid to rear lid		Gap dimension A	5 mm	+/-1 mm	
Convertible-top compartment lid to rear lid	Only lowered	Gap dimension B	0.4 mm		



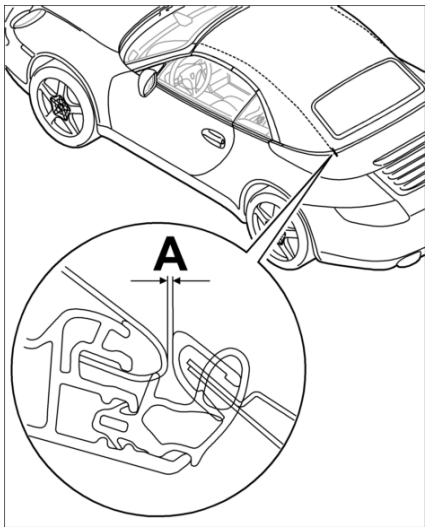
Convertible-top compartment lid to spoiler top section

Location	Explanation	Type	Basic value	Tolerance 1	Tolerance 2
Convertible-top compartment lid to spoiler top section		Gap dimension A	4 mm	+/-1 mm	
Convertible-top compartment lid to spoiler top section	Only lowered	Gap dimension B	0.3 mm		



Convertible-top compartment lid to spoiler top section

Location	Explanation	Type	Basic value	Tolerance 1	Tolerance 2
Convertible-top compartment lid to spoiler top section		Gap dimension A	4 mm	+/-1 mm	



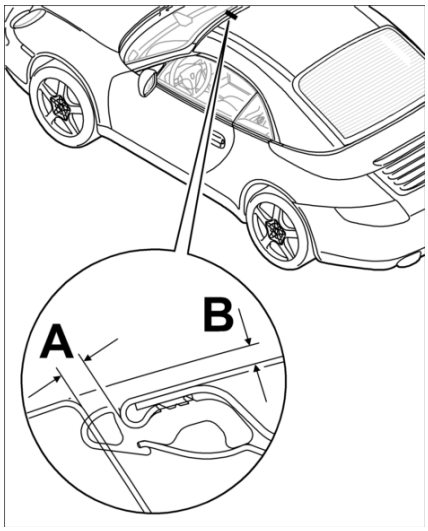
Convertible top to convertible-top compartment lid

Location	Explanation	Type	Basic value	Tolerance 1	Tolerance 2
Convertible-top compartment lid to spoiler top section	Continuous seam joining line	Gap dimension A	1 mm	+4 mm	

Gap dimensions, hardtop

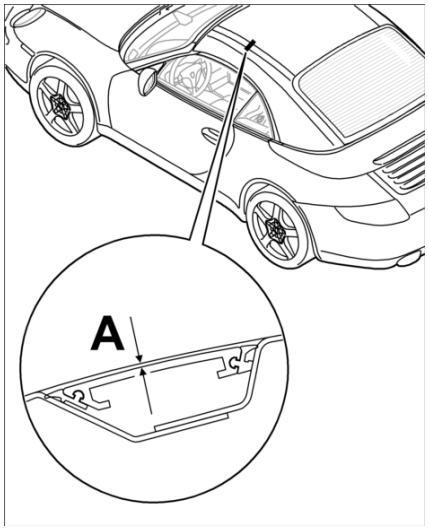
Note

- *Set gap dimensions on the lids, doors and covers, or accessories in accordance with the gap specifications.*
- *Given a clearance in the opening that is too great or too small, the movable body or the accessories must be centred accordingly.*
- *Ensure that the gaps do not taper or do not narrow at local points.*
- *The given values are guidelines which should be observed as far as possible.*
- *The guidelines apply to repair and assembly work.*
- *Use star gauges to measure the gap dimensions,* ***Star gauges for body gap dimensions NR.127-1***



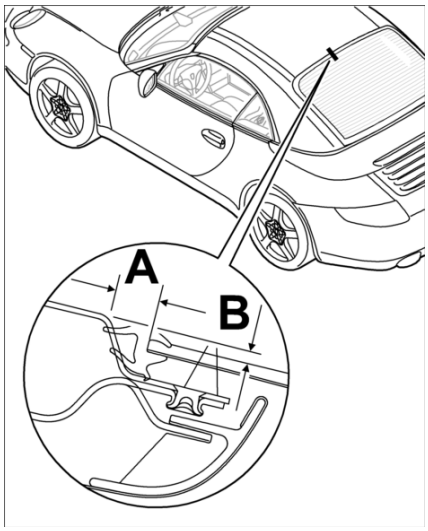
Windscreen frame to hardtop

Location	Explanation	Type	Basic value	Tolerance 1	Tolerance 2
Windscreen frame to hardtop	Hardtop only lowered	Gap dimension A	5.5 mm	+/-1 mm	
Windscreen frame to hardtop		Gap dimension B	4 mm	-2 mm	



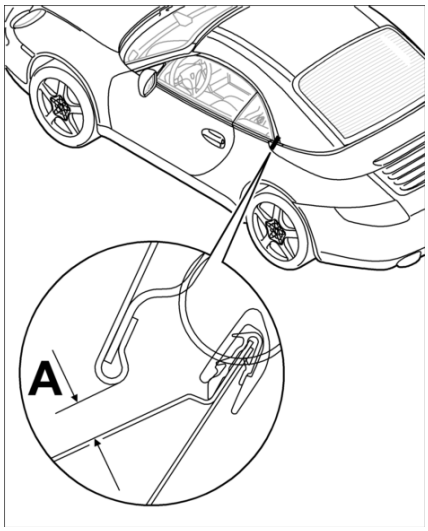
Roof joint strip to hardtop

Location	Explanation	Type	Basic value	Tolerance 1	Tolerance 2
Roof joint strip to hardtop	Only lowered	Gap dimension A	1 mm		



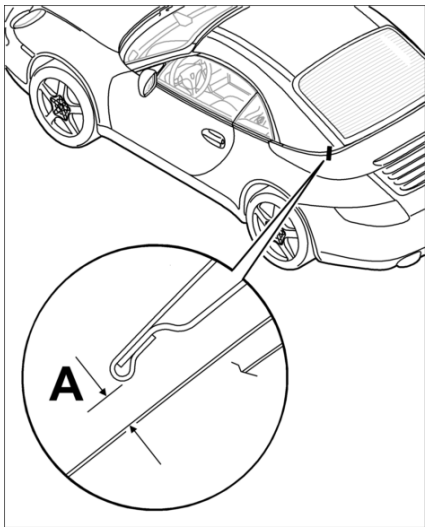
Rear window to roof frame (hardtop)

Location	Explanation	Type	Basic value	Tolerance 1	Tolerance 2
Rear window to roof frame (hardtop)	Rear window only lowered	Gap dimension A	10 mm		
Rear window to roof frame (hardtop)		Gap dimension B	3 mm	+/-1.5 mm	



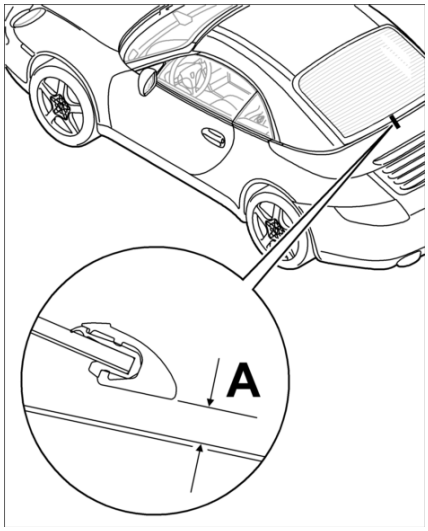
Hardtop to convertible-top compartment lid

Location	Explanation	Type	Basic value	Tolerance 1	Tolerance 2
Hardtop to convertible-top compartment lid		Gap dimension A	8 mm	+/-4 mm	



Hardtop to convertible-top compartment lid

Location	Explanation	Type	Basic value	Tolerance 1	Tolerance 2
Hardtop to convertible-top compartment lid		Gap dimension A	8 mm	+/-4 mm	



Hardtop to convertible-top compartment lid

Location	Explanation	Type	Basic value	Tolerance 1	Tolerance 2
Hardtop to convertible-top compartment lid		Gap dimension A	6 mm	+/-3 mm	

997310, 997311, 997320, 997321

as of MY 2005
Country C00, C02, C05, C07, C08, C09, C10, C11, C12, C13, C14, C15, C16, C18, C19, C20, C21, C22,

50 IN Diagram - body gap dimensions - as of MY 2005

- Diagram - body front gap dimensions
- Diagram - body centre gap dimensions
- Diagram - body rear gap dimensions
- Diagram - Cabriolet gap dimensions

Tools

Designation	Type	Number	Explanation	
Star gauges for body gap dimensions	commercially available tool	NR.127-1		PORSCHE siehe Handbuch Werkstattausrüstung Voir le Manuel Equipement d´atelier Refer to the Workshop Equipment manual Vease Manual de Equipamiento de Taller Vedere il Manuale dell´attrezzatura d´officina ワークショップ・イクイップメント・マニュアルを参照

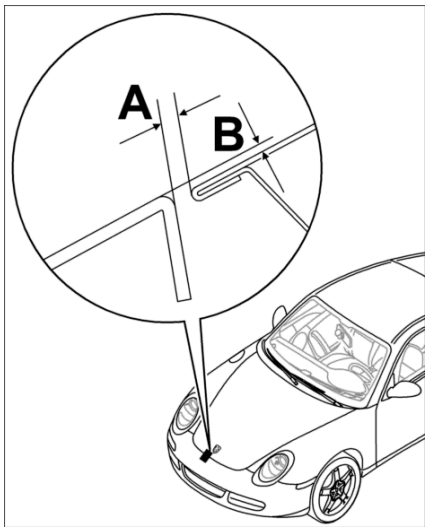
top of page

Diagram - body front gap dimensions

Gap dimensions, body front

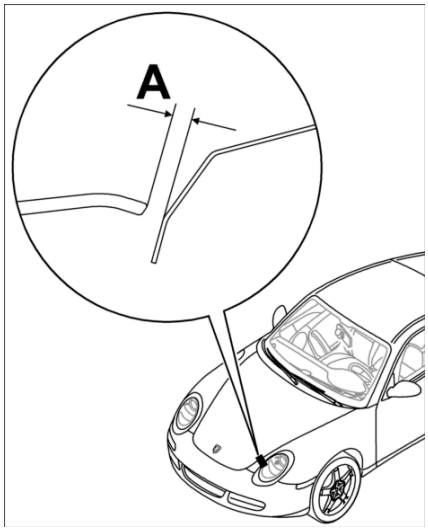
Note

- *Set gap dimensions on the lids, doors and covers, or accessories in accordance with the gap specifications.*
- *Given a clearance in the opening that is too great or too small, the movable body or the accessories must be centred accordingly.*
- *Ensure that the gaps do not taper or do not narrow at local points.*
- *The given values are guidelines which should be observed as far as possible.*
- *The guidelines apply to repair and assembly work.*
- *Use star gauges to measure the gap dimensions,* ***Star gauges for body gap dimensions NR.127-1***



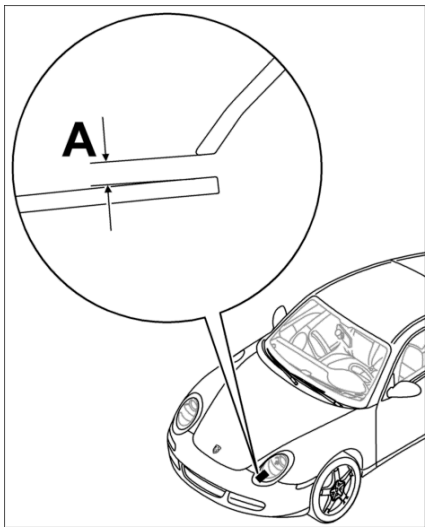
Front lid to front apron

Location	Explanation	Type	Basic value	Tolerance 1	Tolerance 2
Front lid to front apron		Gap dimension A	4.5 mm	+/-1 mm	
Front lid to front apron	Lid only lowered	Gap dimension B	2 mm		



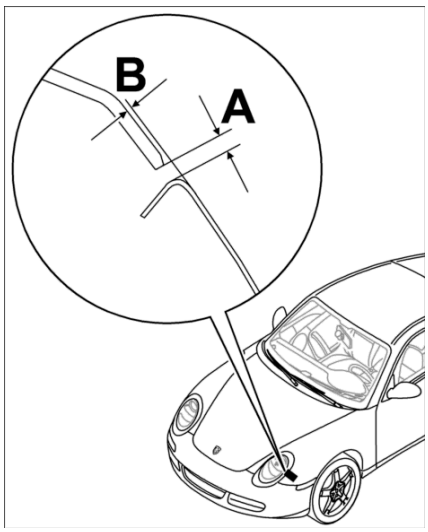
Main headlight to inner wing

Location	Explanation	Type	Basic value	Tolerance 1	Tolerance 2
Main headlight to inner wing	Determine left and right gap	Gap dimension A	4.5 mm	+/-1 mm	



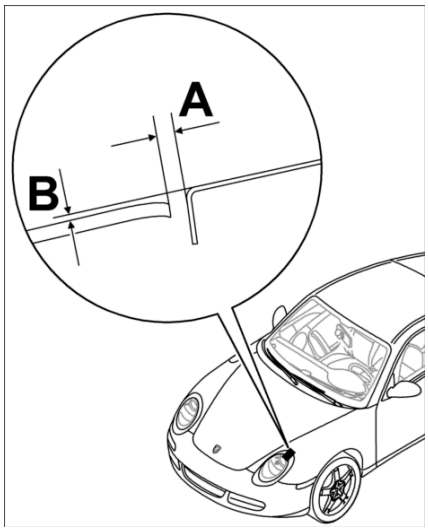
Main headlight to front apron

Location	Explanation	Type	Basic value	Tolerance 1	Tolerance 2
Main headlight to front apron		Gap dimension A	4 mm	+/-1.5 mm	



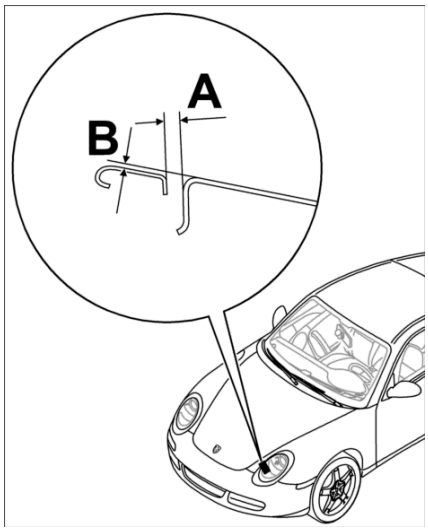
Main headlight to external wing

Location	Explanation	Type	Basic value	Tolerance 1	Tolerance 2
Main headlight to external wing		Gap dimension A	4 mm	+1 mm	
Main headlight to external wing	Only lowered	Gap dimension B	1 mm		



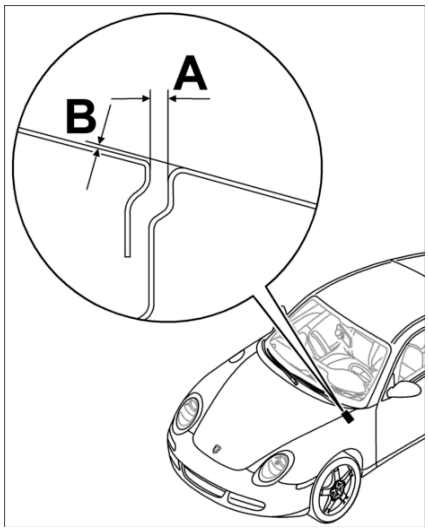
Main headlight to top wing

Location	Explanation	Type	Basic value	Tolerance 1	Tolerance 2
Main headlight to top wing		Gap dimension A	4 mm	+/-1 mm	
Main headlight to top wing	Only lowered	Gap dimension B	1 mm		



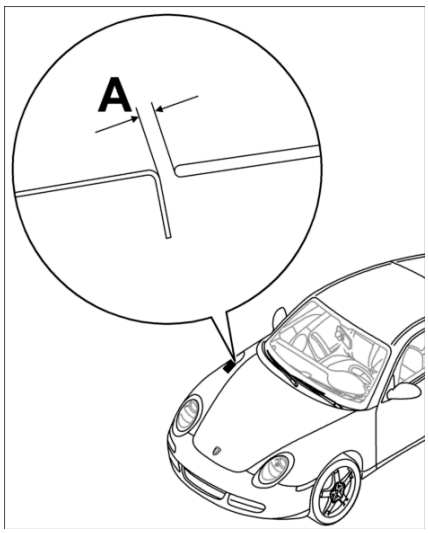
Front lid to wing

Location	Explanation	Type	Basic value	Tolerance 1	Tolerance 2
Front lid to wing		Gap dimension A	4 mm	+/-1 mm	
Front lid to wing	Only lowered	Gap dimension B	0.5 mm		



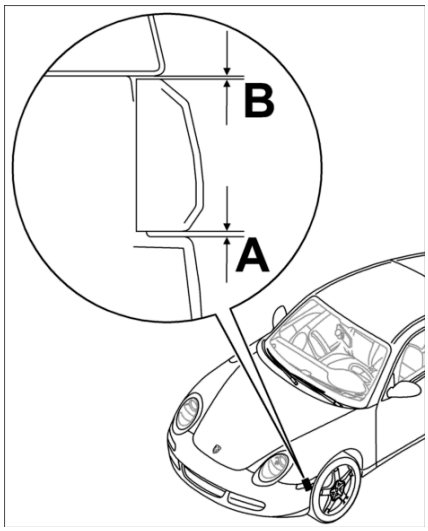
Wing to front lid

Location	Explanation	Type	Basic value	Tolerance 1	Tolerance 2
Wing to front lid	Determine left and right gap	Gap dimension A	4 mm	+1 mm	
Wing to front lid	Only lowered	Gap dimension B	0.5 mm		



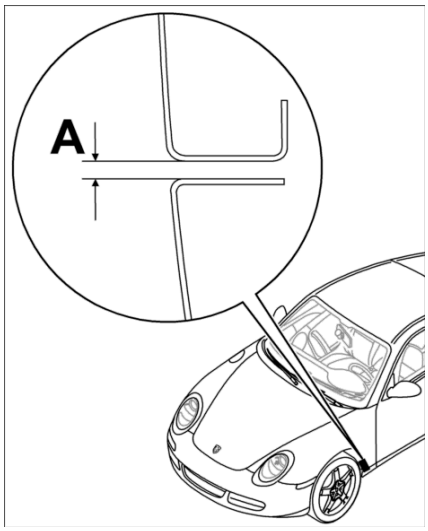
Filler flap to wing

Location	Explanation	Type	Basic value	Tolerance 1	Tolerance 2
Filler flap to wing	All the way round	Gap dimension A	3.5 mm	+/-0.5 mm	



Front apron to side direction indicator

Location	Explanation	Type	Basic value	Tolerance 1	Tolerance 2
Front apron to side direction indicator		Gap dimension A	1.5 mm		
Wing to side direction indicator		Gap dimension B	0.5 mm	+0.5 mm	



Wing to outer side panel

Location	Explanation	Type	Basic value	Tolerance 1	Tolerance 2
Wing to outer side panel	Even transition from front to rear	Gap dimension A	4.5 mm	+/-1 mm	

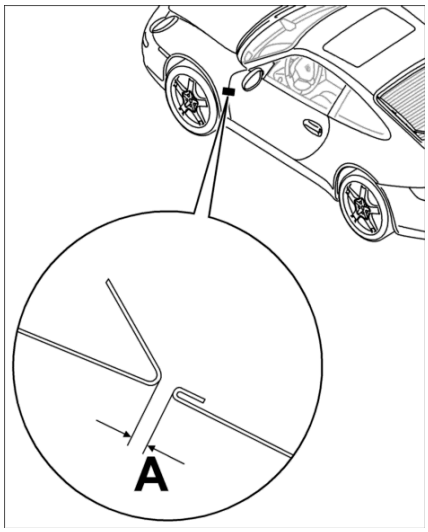
top of page

Diagram - body centre gap dimensions

Gap dimensions, body centre

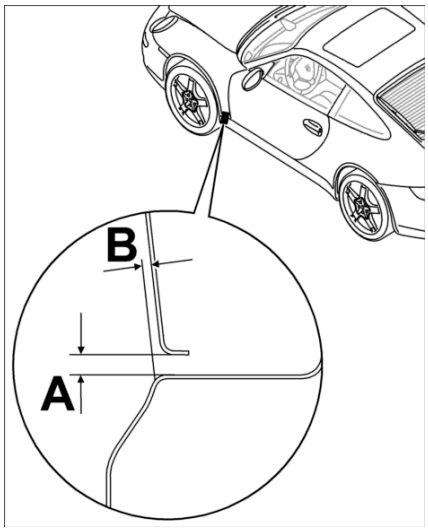
Note

- *Set gap dimensions on the lids, doors and covers, or accessories in accordance with the gap specifications.*
- *Given a clearance in the opening that is too great or too small, the movable body or the accessories must be centred accordingly.*
- *Ensure that the gaps do not taper or do not narrow at local points.*
- *The given values are guidelines which should be observed as far as possible.*
- *The guidelines apply to repair and assembly work.*
- *Use star gauges to measure the gap dimensions,* ***Star gauges for body gap dimensions NR.127-1***



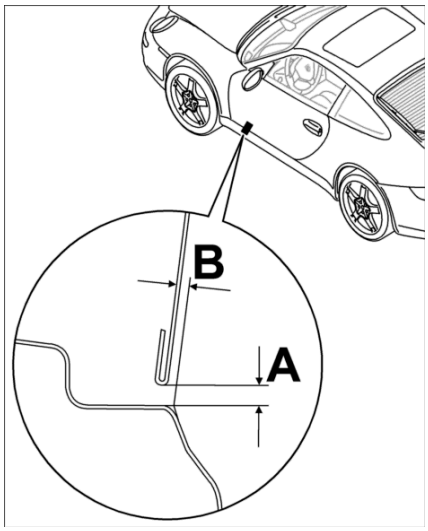
Door to wing

Location	Explanation	Type	Basic value	Tolerance 1	Tolerance 2
Door to wing		Gap dimension A	4 mm	+/-0.5 mm	



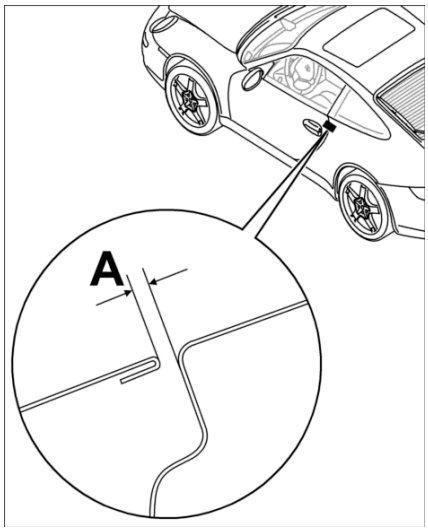
Wing to outer side panel

Location	Explanation	Type	Basic value	Tolerance 1	Tolerance 2
Wing to outer side panel		Gap dimension A	4.5 mm	+/-1 mm	
Wing to outer side panel	Only lowered	Gap dimension B	2 mm		



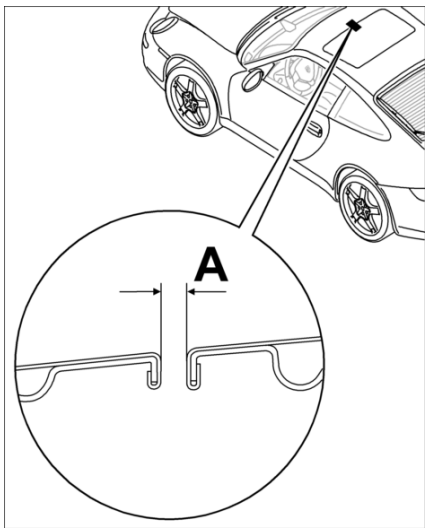
Door to outer side panel

Location	Explanation	Type	Basic value	Tolerance 1	Tolerance 2
Door to outer side panel		Gap dimension A	4.5 mm	+/-1 mm	
Door to outer side panel	Doors only lowered	Gap dimension B	2 mm		



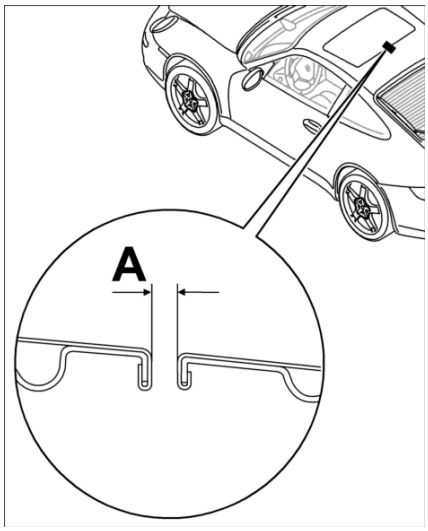
Door to outer side panel

Location	Explanation	Type	Basic value	Tolerance 1	Tolerance 2
Door to outer side panel	Doors only raised	Gap dimension A	4 mm	+/-0.8 mm	



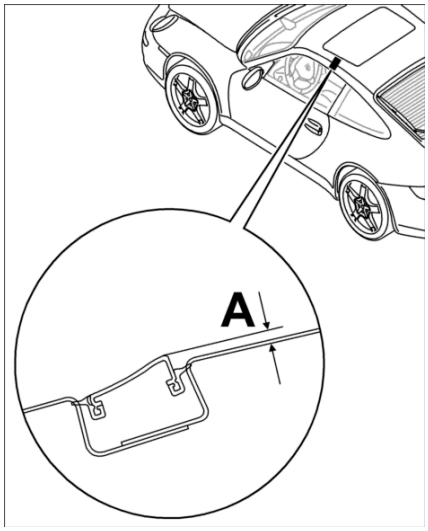
Sliding-roof panel at front to outer roof panel

Location	Explanation	Type	Basic value	Tolerance 1	Tolerance 2
Sliding roof panel at front to outer roof panel	Only lowered at front	Gap dimension A	5 mm		



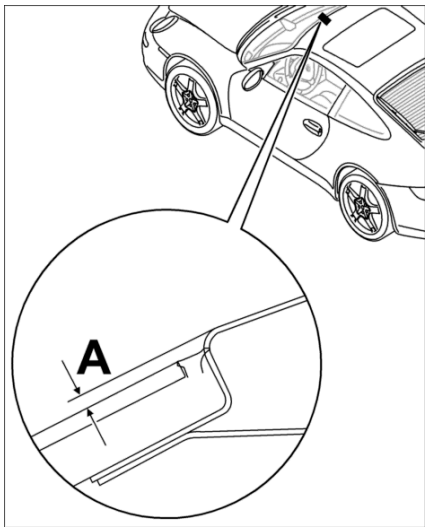
Sliding roof panel at rear to outer roof panel

Location	Explanation	Type	Basic value	Tolerance 1	Tolerance 2
Sliding roof panel at rear to outer roof panel	Only raised at rear	Gap dimension A	6 mm		



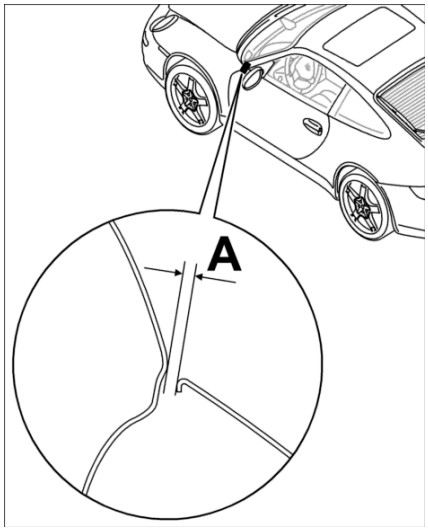
Roof joint strip to outer roof panel

Location	Explanation	Type	Basic value	Tolerance 1	Tolerance 2
Roof joint strip to outer roof panel		Gap dimension A	2 mm		



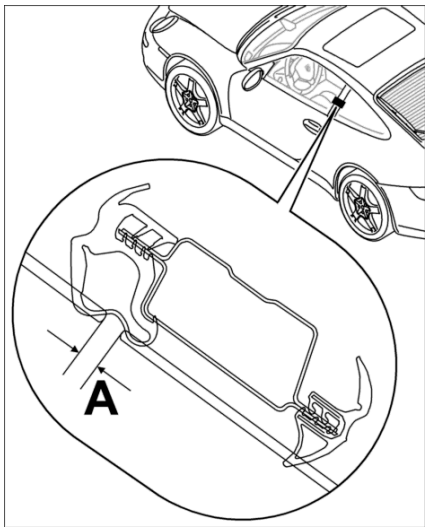
Windscreen to windscreen frame

Location	Explanation	Type	Basic value	Tolerance 1	Tolerance 2
Windscreen to windscreen frame	Only lowered	Gap dimension A	2 mm		



Cowl panel frame to wing

Location	Explanation	Type	Basic value	Tolerance 1	Tolerance 2
Cowl panel frame to wing	Continuous transition	Gap dimension A	3 mm	+/-1 mm	



Door window to side window

Location	Explanation	Type	Basic value	Tolerance 1	Tolerance 2
Door window to side window	Door window lowered by max. 1 mm	Gap dimension A	7 mm	+/-1 mm	

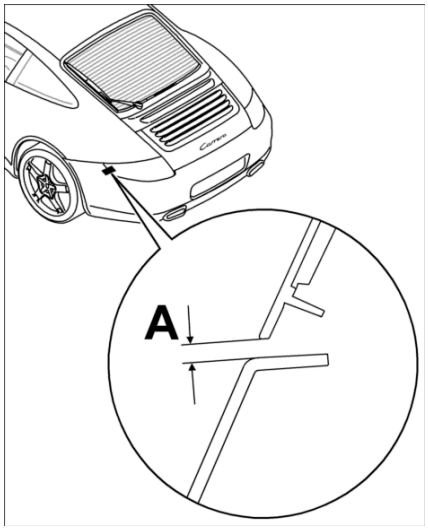
top of page

Diagram - body rear gap dimensions

Gap dimensions, body rear

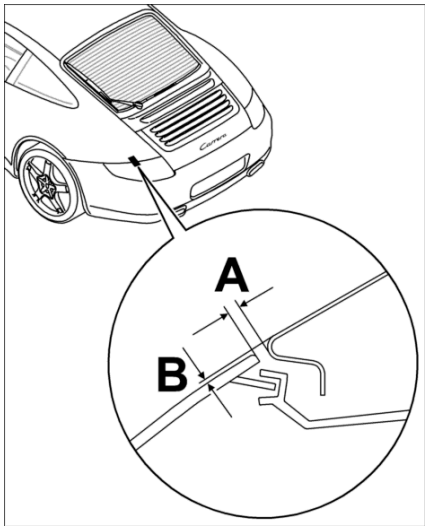
Note

- *Set gap dimensions on the lids, doors and covers, or accessories in accordance with the gap specifications.*
- *Given a clearance in the opening that is too great or too small, the movable body or the accessories must be centred accordingly.*
- *Ensure that the gaps do not taper or do not narrow at local points.*
- *The given values are guidelines which should be observed as far as possible.*
- *The guidelines apply to repair and assembly work.*
- *Use star gauges to measure the gap dimensions,* ***Star gauges for body gap dimensions NR.127-1***



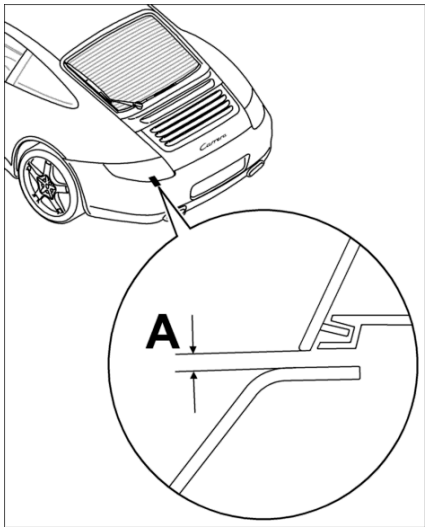
Tail light to outer side panel

Location	Explanation	Type	Basic value	Tolerance 1	Tolerance 2
Tail light to outer side panel	Tail light only lowered	Gap dimension A	4 mm	+/-1.5 mm	



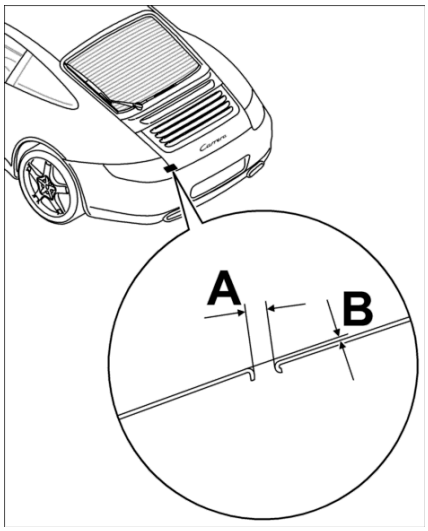
Tail light to centre side panel

Location	Explanation	Type	Basic value	Tolerance 1	Tolerance 2
Tail light to centre side panel		Gap dimension A	3 mm	+/-0.8 mm	
Tail light to centre side panel	Tail light only lowered	Gap dimension B	1 mm		



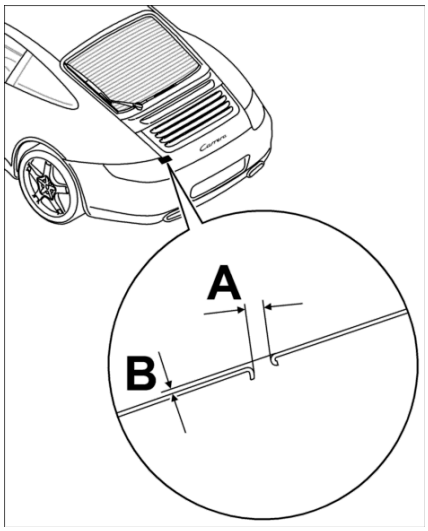
Rear apron to tail light

Location	Explanation	Type	Basic value	Tolerance 1	Tolerance 2
Rear apron to tail light		Gap dimension A	4 mm	+/-1.5 mm	



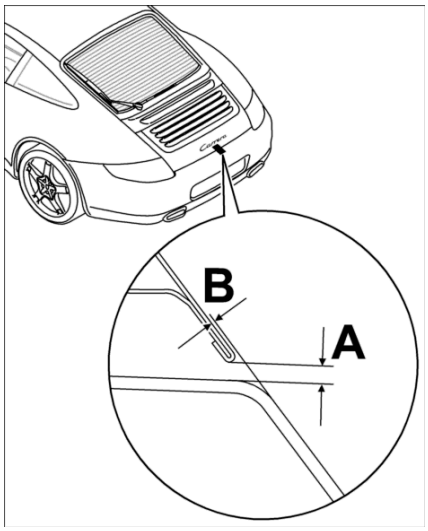
Tail light to rear lid

Location	Explanation	Type	Basic value	Tolerance 1	Tolerance 2
Tail light to rear lid	Determine gap	Gap dimension A	4.9 mm	+/-1 mm	
Tail light to rear lid	Only lowered	Gap dimension B	0.4 mm		



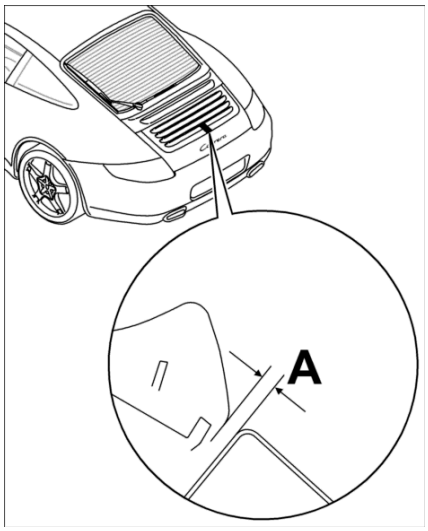
Tail light to rear lid

Location	Explanation	Type	Basic value	Tolerance 1	Tolerance 2
Tail light to rear lid	Determine gap	Gap dimension A	4.5 mm	+/-1 mm	
Tail light to rear lid	Only lowered	Gap dimension B	1.8 mm		



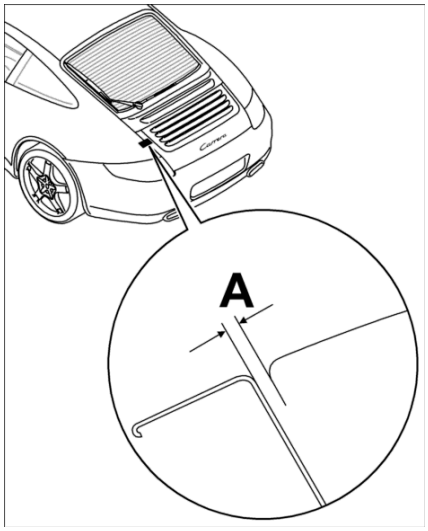
Rear lid to rear spoiler

Location	Explanation	Type	Basic value	Tolerance 1	Tolerance 2
Rear lid to rear spoiler		Gap dimension A	4 mm	+/-1.5 mm	
Rear lid to rear spoiler	Only lowered	Gap dimension B	1 mm		



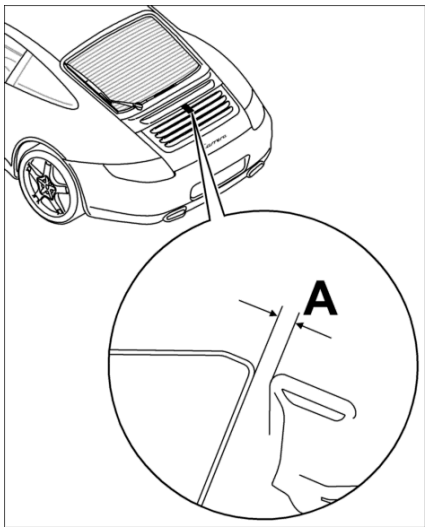
Rear lid to spoiler top section

Location	Explanation	Type	Basic value	Tolerance 1	Tolerance 2
Rear lid to spoiler top section	Rear lid only lowered (max. 1 mm)	Gap dimension A	3.5 mm		



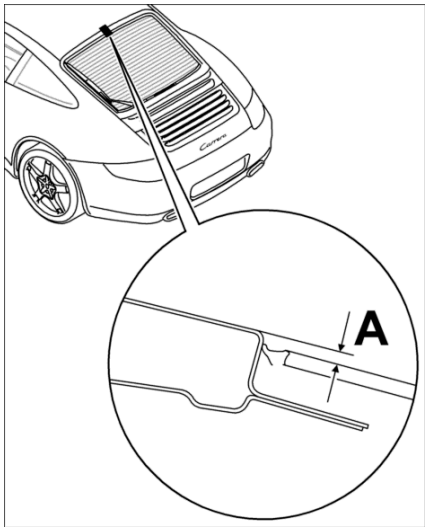
Rear lid to spoiler top section

Location	Explanation	Type	Basic value	Tolerance 1	Tolerance 2
Rear lid to spoiler top section	Rear lid only lowered (max. 1 mm)	Gap dimension A	3.5 mm	+/-0.5 mm	



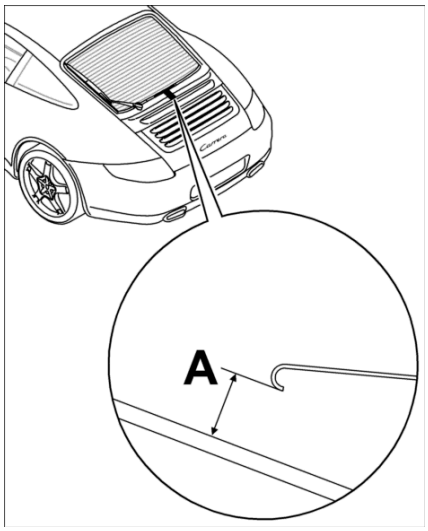
Rear centre panel to spoiler top section

Location	Explanation	Type	Basic value	Tolerance 1	Tolerance 2
Rear centre panel to spoiler top section	Rear lid only lowered (max. 1 mm)	Gap dimension A	3.5 mm		



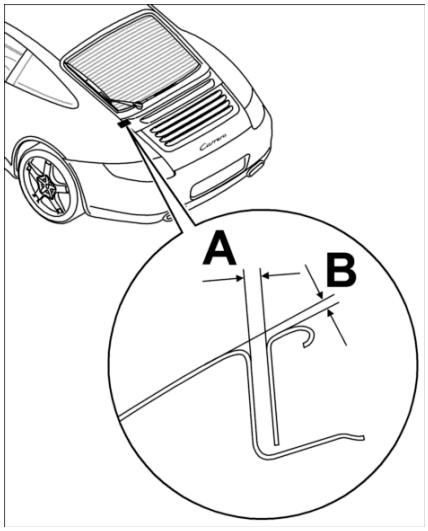
Rear window to outer roof panel

Location	Explanation	Type	Basic value	Tolerance 1	Tolerance 2
Rear window to outer roof panel	Only lowered	Gap dimension A	2 mm		



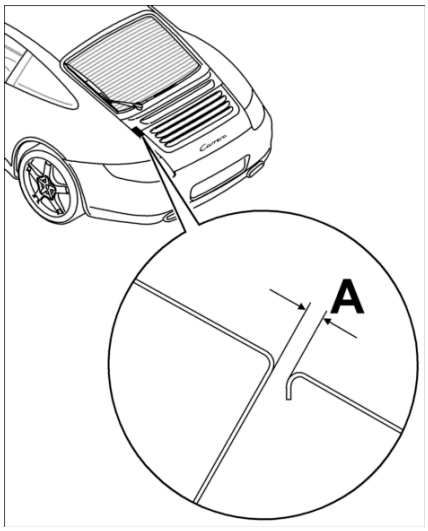
Rear centre panel to rear window

Location	Explanation	Type	Basic value	Tolerance 1	Tolerance 2
Rear centre panel to rear window		Gap dimension A	15.5 mm		



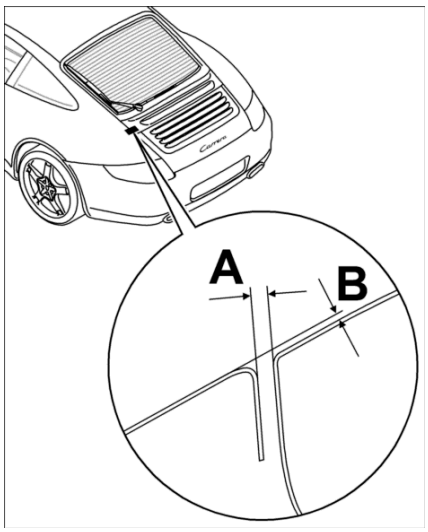
Rear centre panel to outer side panel

Location	Explanation	Type	Basic value	Tolerance 1	Tolerance 2
Rear centre panel to outer side panel		Gap dimension A	4 mm	+/-1 mm	
Rear centre panel to outer side panel	Only lowered	Gap dimension B	1.9 mm	+/-1 mm	



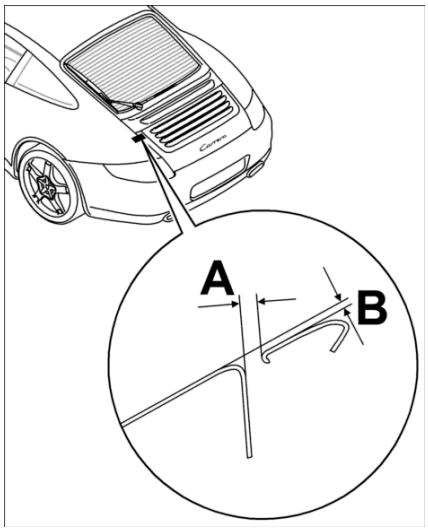
Rear centre panel to rear lid

Location	Explanation	Type	Basic value	Tolerance 1	Tolerance 2
Rear centre panel to rear lid		Gap dimension A	4 mm	+/-1.5 mm	



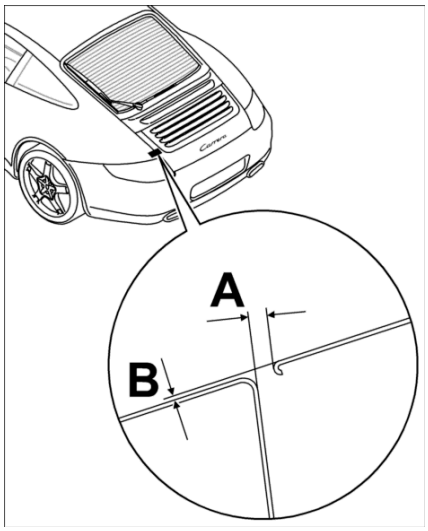
Outer side panel to rear centre panel lid

Location	Explanation	Type	Basic value	Tolerance 1	Tolerance 2
Outer side panel to rear centre panel lid		Gap dimension A	4 mm	+/-1 mm	
Outer side panel to rear centre panel lid	Only lowered	Gap dimension B	1.3 mm		



Outer side panel to rear lid

Location	Explanation	Type	Basic value	Tolerance 1	Tolerance 2
Outer side panel to rear lid		Gap dimension A	4 mm	+/-1 mm	
Outer side panel to rear lid	Only lowered	Gap dimension B	1.3 mm		



Outer side panel to rear lid

Location	Explanation	Type	Basic value	Tolerance 1	Tolerance 2
Outer side panel to rear lid		Gap dimension A	4.2 mm	+/-1 mm	
Outer side panel to rear lid	Only lowered	Gap dimension B	0.6 mm		

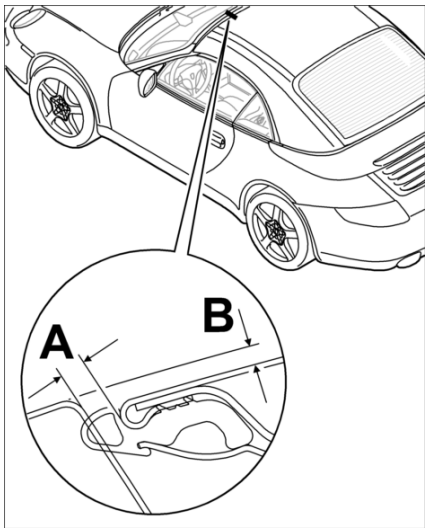
top of page

Diagram - Cabriolet gap dimensions

Gap dimensions, hardtop

Note

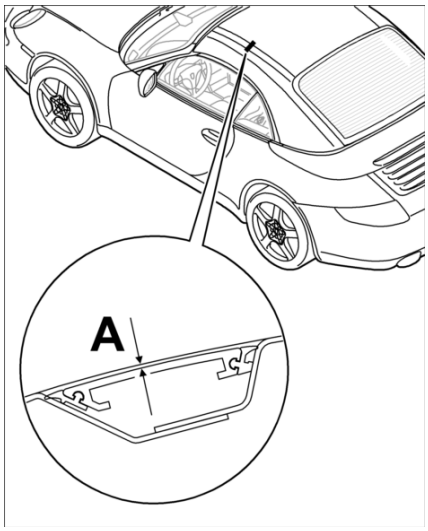
- *Set gap dimensions on the lids, doors and covers, or accessories in accordance with the gap specifications.*
- *Given a clearance in the opening that is too great or too small, the movable body or the accessories must be centred accordingly.*
- *Ensure that the gaps do not taper or do not narrow at local points.*
- *The given values are guidelines which should be observed as far as possible.*
- *The guidelines apply to repair and assembly work.*
- *Use star gauges to measure the gap dimensions,* ***Star gauges for body gap dimensions NR.127-1***



Windscreen frame to hardtop

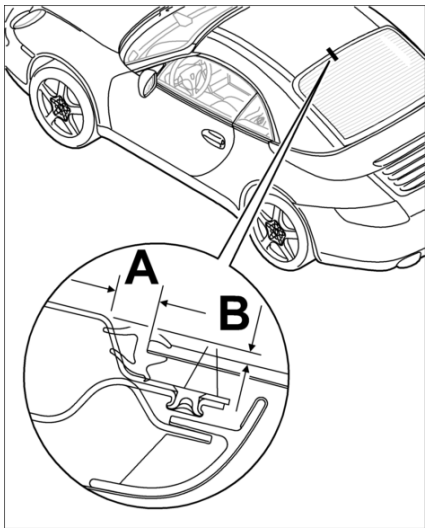
Location	Explanation	Type	Basic value	Tolerance 1	Tolerance 2
Windscreen frame to hardtop	Hardtop only lowered	Gap dimension A	5.5 mm	+/-1 mm	
			4 mm	-2 mm	

Windscreen frame to hardtop		Gap dimension B			



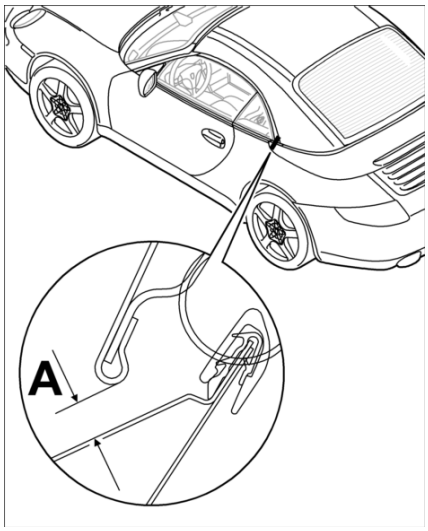
Roof joint strip to hardtop

Location	Explanation	Type	Basic value	Tolerance 1	Tolerance 2
Roof joint strip to hardtop	Only lowered	Gap dimension A	1 mm		



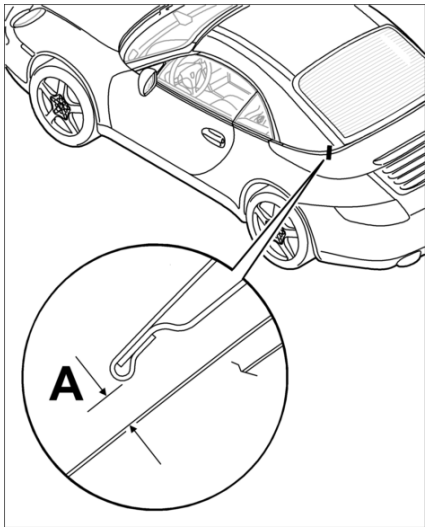
Rear window to roof frame (hardtop)

Location	Explanation	Type	Basic value	Tolerance 1	Tolerance 2
Rear window to roof frame (hardtop)	Rear window only lowered	Gap dimension A	10 mm		
Rear window to roof frame (hardtop)		Gap dimension B	3 mm	+/-1.5 mm	



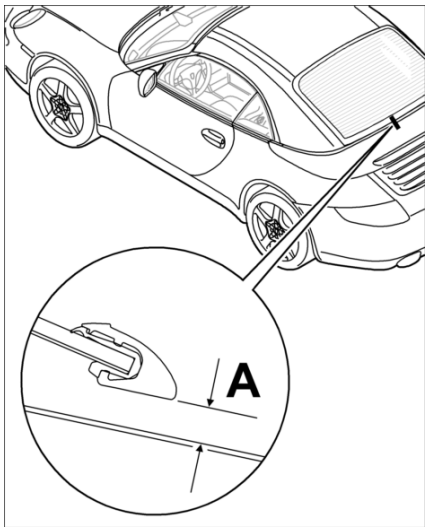
Hardtop to convertible-top compartment lid

Location	Explanation	Type	Basic value	Tolerance 1	Tolerance 2
Hardtop to convertible-top compartment lid		Gap dimension A	8 mm	+/-4 mm	



Hardtop to convertible-top compartment lid

Location	Explanation	Type	Basic value	Tolerance 1	Tolerance 2
Hardtop to convertible-top compartment lid		Gap dimension A	8 mm	+/-4 mm	



Hardtop to convertible-top compartment lid

Location	Explanation	Type	Basic value	Tolerance 1	Tolerance 2
Hardtop to convertible-top compartment lid		Gap dimension A	6 mm	+/-3 mm	

997110, 997111, 997120, 997121

as of MY 2005
Country C00, C02, C05, C07, C08, C09, C10, C11, C12, C13, C14, C15, C16, C18, C19, C20, C21, C22, C23, C24, C25, C26, C27, C28, C32, C33, C34, C35, C36, C37, C38, C39, C45, C46, C98, C99

WARNUNG
Gefahr des Verlusts der Text-Bild-Zuordnung beim Ausdruck.

- **Aus technischen Gründen kann derzeit nicht ausgeschlossen werden, dass trotz einwandfreier Darstellung auf dem Bildschirm beim Ausdruck der Zusammenhang von Text und zugehörigem Bild verloren geht.**
- **Wird der Fehler nicht bemerkt, besteht die Gefahr, daß Arbeiten nicht korrekt durchgeführt werden und es dadurch zu Personen- und Sachschäden kommt.**

Vergleichen Sie deshalb nach dem Druckvorgang unbedingt die Ausdrucke mit der Bildschirmdarstellung. Korrigieren Sie die Ausdrucke im Fehlerfall so, daß der Inhalt der Bildschirmdarstellung zutreffend wiedergegeben wird.

WARNING
Danger of losing text-figure correspondence when printing out.

- **For technical reasons, it can currently not be ruled out that the correspondence between text and associated figure can be lost when it is printed out, even though the display on the screen is correct.**

50 IN Diagram - body gap dimensions - as of MY 2005

- Diagram - body front gap dimensions
- Diagram - body centre gap dimensions
- Diagram - body rear gap dimensions
- Diagram - Cabriolet gap dimensions

Tools

Designation	Type	Number	Explanation	
Star gauges for body gap dimensions	commercially available tool	NR.127-1		PORSCHE siehe Handbuch Werkstattausrüstung Voir le Manuel Equipement d´atelier Refer to the Workshop Equipment manual Vease Manual de Equipamiento de Taller Vedere il Manuale dell´attrezzatura d´officina ワークショップ・イクイップメント・マニュアルを参照

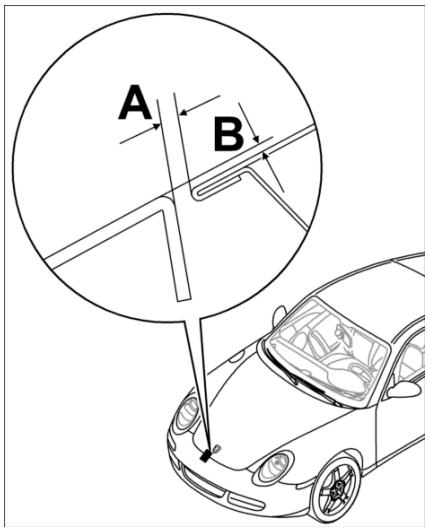
top of page

Diagram - body front gap dimensions

Gap dimensions, body front

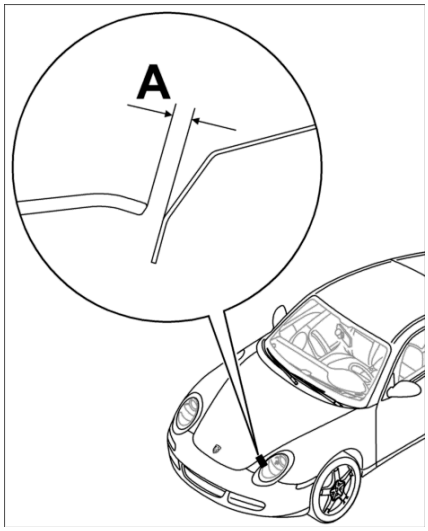
Note

- *Set gap dimensions on the lids, doors and covers, or accessories in accordance with the gap specifications.*
- *Given a clearance in the opening that is too great or too small, the movable body or the accessories must be centred accordingly.*
- *Ensure that the gaps do not taper or do not narrow at local points.*
- *The given values are guidelines which should be observed as far as possible.*
- *The guidelines apply to repair and assembly work.*
- *Use star gauges to measure the gap dimensions,* ***Star gauges for body gap dimensions NR.127-1***



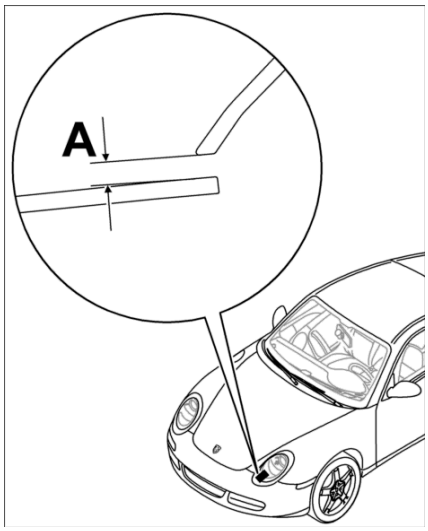
Front lid to front apron

Location	Explanation	Type	Basic value	Tolerance 1	Tolerance 2
Front lid to front apron		Gap dimension A	4.5 mm	+/-1 mm	
Front lid to front apron	Lid only lowered	Gap dimension B	2 mm		



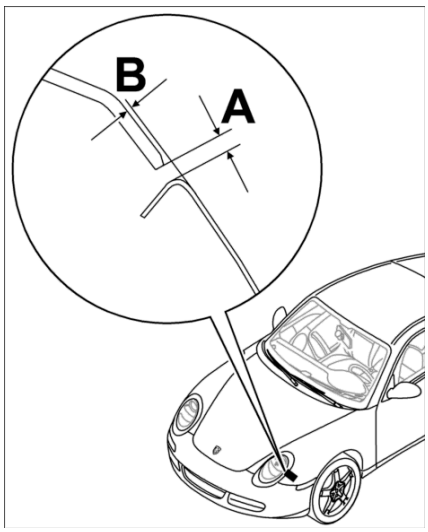
Main headlight to inner wing

Location	Explanation	Type	Basic value	Tolerance 1	Tolerance 2
Main headlight to inner wing	Determine left and right gap	Gap dimension A	4.5 mm	+/-1 mm	



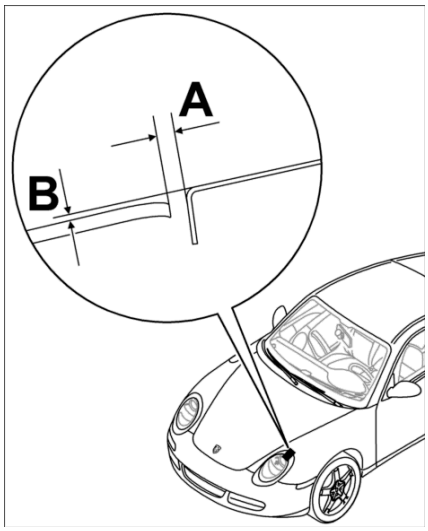
Main headlight to front apron

Location	Explanation	Type	Basic value	Tolerance 1	Tolerance 2
Main headlight to front apron		Gap dimension A	4 mm	+/-1.5 mm	



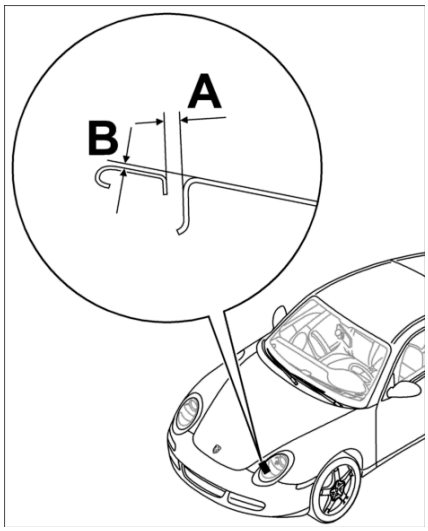
Main headlight to external wing

Location	Explanation	Type	Basic value	Tolerance 1	Tolerance 2
Main headlight to external wing		Gap dimension A	4 mm	+1 mm	
Main headlight to external wing	Only lowered	Gap dimension B	1 mm		



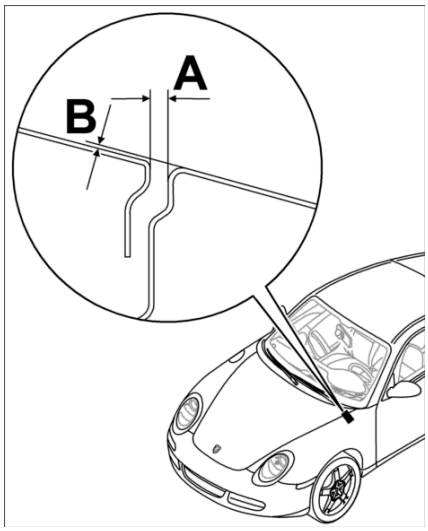
Main headlight to top wing

Location	Explanation	Type	Basic value	Tolerance 1	Tolerance 2
Main headlight to top wing		Gap dimension A	4 mm	+/-1 mm	
Main headlight to top wing	Only lowered	Gap dimension B	1 mm		



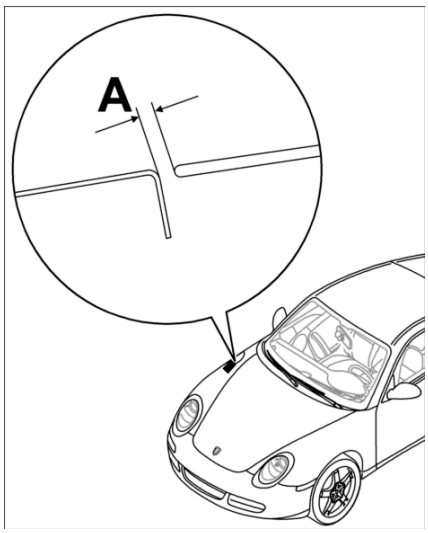
Front lid to wing

Location	Explanation	Type	Basic value	Tolerance 1	Tolerance 2
Front lid to wing		Gap dimension A	4 mm	+/-1 mm	
Front lid to wing	Only lowered	Gap dimension B	0.5 mm		



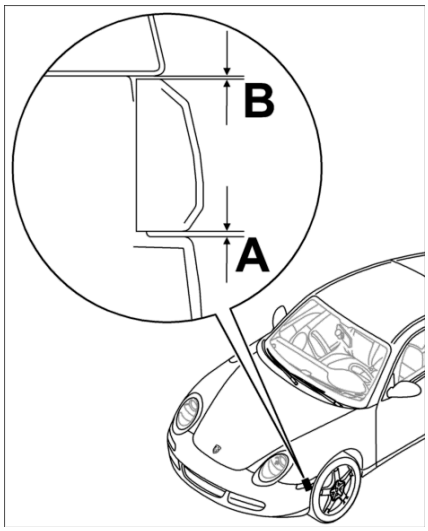
Wing to front lid

Location	Explanation	Type	Basic value	Tolerance 1	Tolerance 2
Wing to front lid	Determine left and right gap	Gap dimension A	4 mm	+1 mm	
Wing to front lid	Only lowered	Gap dimension B	0.5 mm		



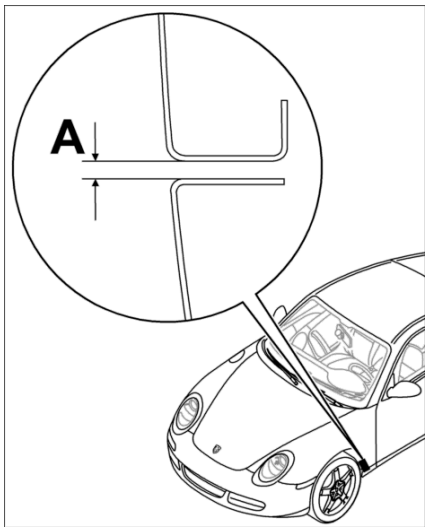
Filler flap to wing

Location	Explanation	Type	Basic value	Tolerance 1	Tolerance 2
Filler flap to wing	All the way round	Gap dimension A	3.5 mm	+/-0.5 mm	



Front apron to side direction indicator

Location	Explanation	Type	Basic value	Tolerance 1	Tolerance 2
Front apron to side direction indicator		Gap dimension A	1.5 mm		
Wing to side direction indicator		Gap dimension B	0.5 mm	+0.5 mm	



Wing to outer side panel

Location	Explanation	Type	Basic value	Tolerance 1	Tolerance 2
Wing to outer side panel	Even transition from front to rear	Gap dimension A	4.5 mm	+/-1 mm	

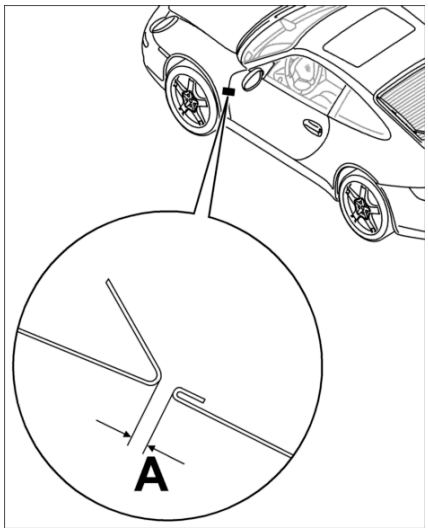
top of page

Diagram - body centre gap dimensions

Gap dimensions, body centre

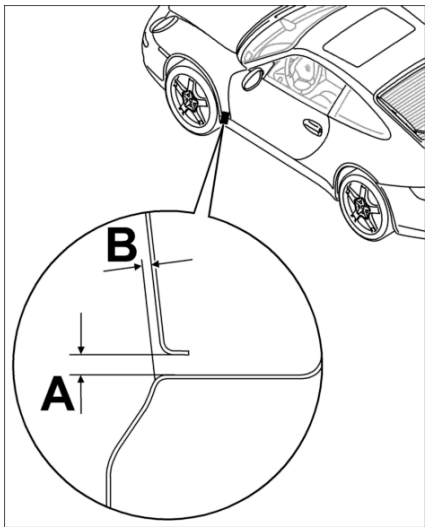
Note

- *Set gap dimensions on the lids, doors and covers, or accessories in accordance with the gap specifications.*
- *Given a clearance in the opening that is too great or too small, the movable body or the accessories must be centred accordingly.*
- *Ensure that the gaps do not taper or do not narrow at local points.*
- *The given values are guidelines which should be observed as far as possible.*
- *The guidelines apply to repair and assembly work.*
- *Use star gauges to measure the gap dimensions,* ***Star gauges for body gap dimensions NR.127-1***



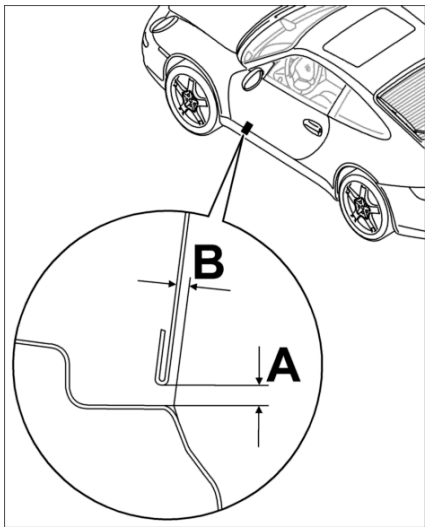
Door to wing

Location	Explanation	Type	Basic value	Tolerance 1	Tolerance 2
Door to wing		Gap dimension A	4 mm	+/-0.5 mm	



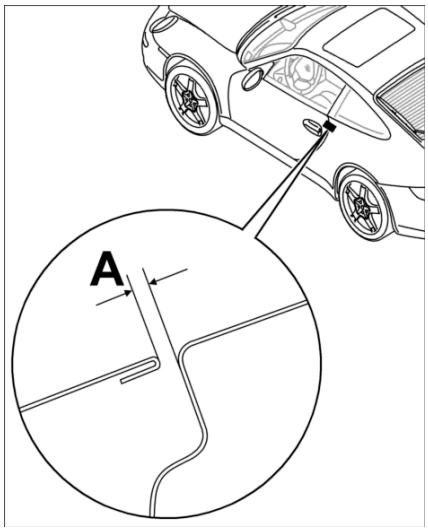
Wing to outer side panel

Location	Explanation	Type	Basic value	Tolerance 1	Tolerance 2
Wing to outer side panel		Gap dimension A	4.5 mm	+/-1 mm	
Wing to outer side panel	Only lowered	Gap dimension B	2 mm		



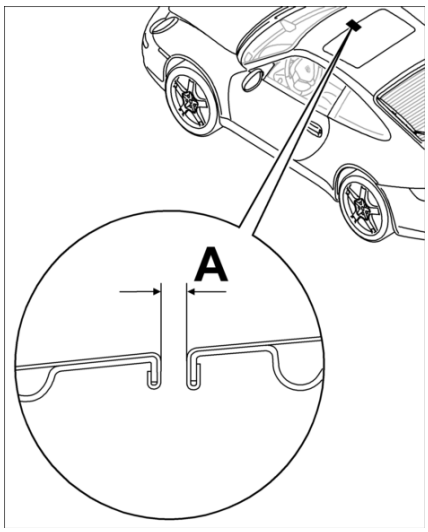
Door to outer side panel

Location	Explanation	Type	Basic value	Tolerance 1	Tolerance 2
Door to outer side panel		Gap dimension A	4.5 mm	+/-1 mm	
Door to outer side panel	Doors only lowered	Gap dimension B	2 mm		



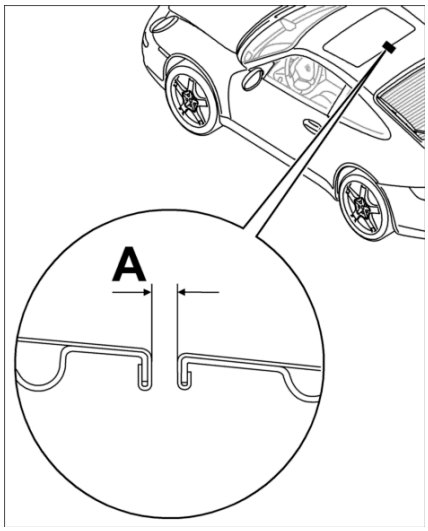
Door to outer side panel

Location	Explanation	Type	Basic value	Tolerance 1	Tolerance 2
Door to outer side panel	Doors only raised	Gap dimension A	4 mm	+/-0.8 mm	



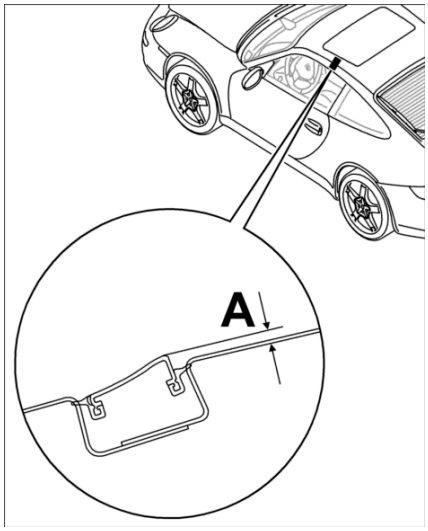
Sliding-roof panel at front to outer roof panel

Location	Explanation	Type	Basic value	Tolerance 1	Tolerance 2
Sliding roof panel at front to outer roof panel	Only lowered at front	Gap dimension A	5 mm		



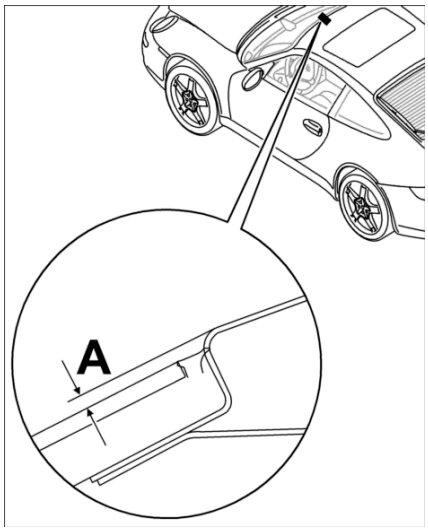
Sliding roof panel at rear to outer roof panel

Location	Explanation	Type	Basic value	Tolerance 1	Tolerance 2
Sliding roof panel at rear to outer roof panel	Only raised at rear	Gap dimension A	6 mm		



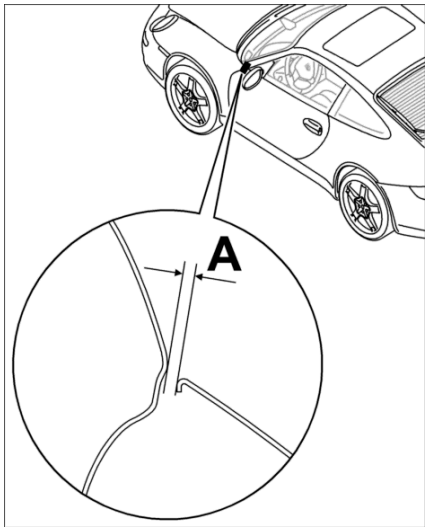
Roof joint strip to outer roof panel

Location	Explanation	Type	Basic value	Tolerance 1	Tolerance 2
Roof joint strip to outer roof panel		Gap dimension A	2 mm		



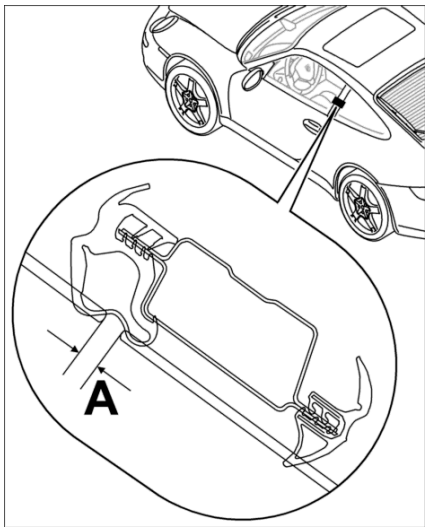
Windscreen to windscreen frame

Location	Explanation	Type	Basic value	Tolerance 1	Tolerance 2
Windscreen to windscreen frame	Only lowered	Gap dimension A	2 mm		



Cowl panel frame to wing

Location	Explanation	Type	Basic value	Tolerance 1	Tolerance 2
Cowl panel frame to wing	Continuous transition	Gap dimension A	3 mm	+/-1 mm	



Door window to side window

Location	Explanation	Type	Basic value	Tolerance 1	Tolerance 2
Door window to side window	Door window lowered by max. 1 mm	Gap dimension A	7 mm	+/-1 mm	

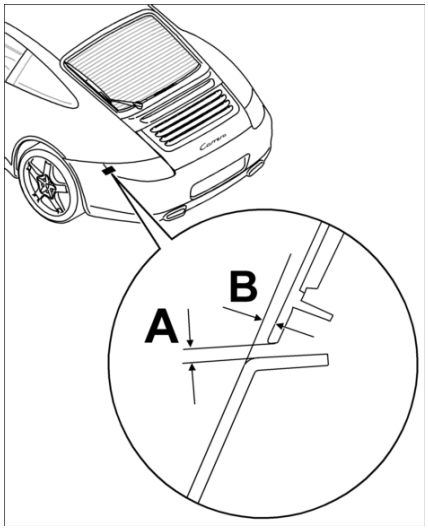
top of page

Diagram - body rear gap dimensions

Gap dimensions, body rear

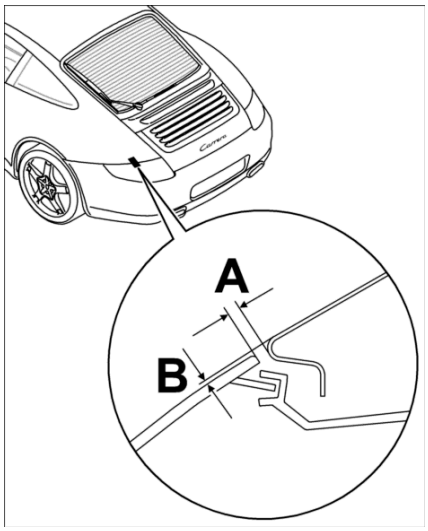
Note

- *Set gap dimensions on the lids, doors and covers, or accessories in accordance with the gap specifications.*
- *Given a clearance in the opening that is too great or too small, the movable body or the accessories must be centred accordingly.*
- *Ensure that the gaps do not taper or do not narrow at local points.*
- *The given values are guidelines which should be observed as far as possible.*
- *The guidelines apply to repair and assembly work.*
- *Use star gauges to measure the gap dimensions,* ***Star gauges for body gap dimensions NR.127-1***



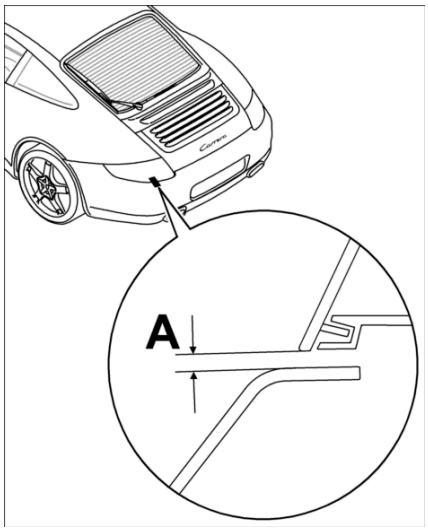
Tail light to outer side panel

Location	Explanation	Type	Basic value	Tolerance 1	Tolerance 2
Tail light to outer side panel		Gap dimension A	4 mm	+/-1.5 mm	
Tail light to outer side panel		Gap dimension B	3.5 mm	+/-2 mm	



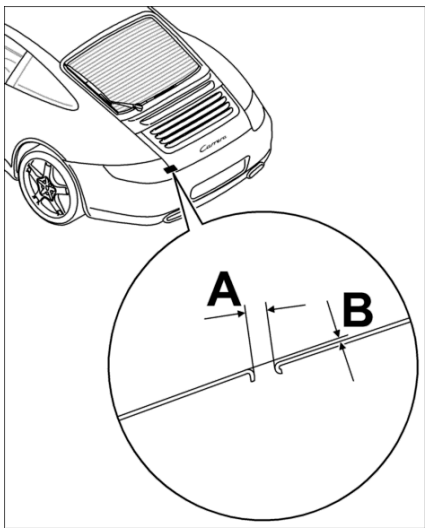
Tail light to centre side panel

Location	Explanation	Type	Basic value	Tolerance 1	Tolerance 2
Tail light to centre side panel		Gap dimension A	3 mm	+/-0.8 mm	
Tail light to centre side panel	Tail light only lowered	Gap dimension B	0.8 mm	-1 mm	



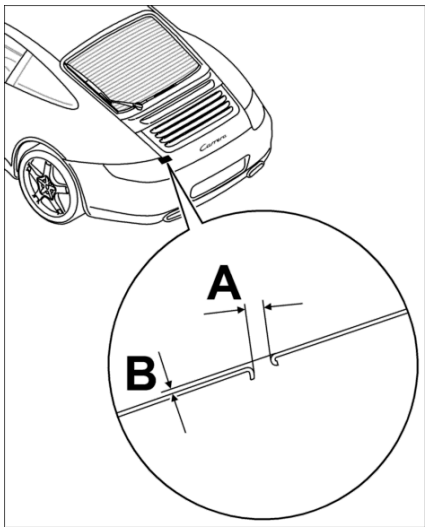
Rear apron to tail light

Location	Explanation	Type	Basic value	Tolerance 1	Tolerance 2
Rear apron to tail light		Gap dimension A	4 mm	+/-1.5 mm	



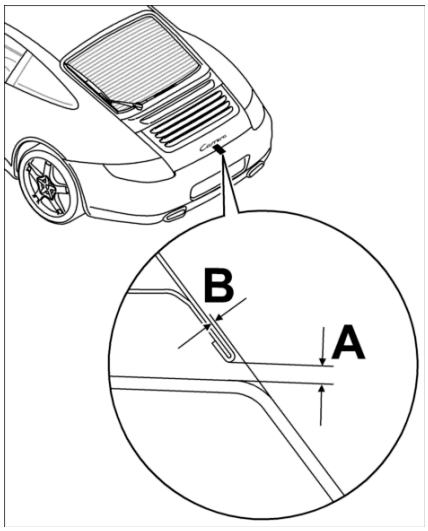
Tail light to rear lid

Location	Explanation	Type	Basic value	Tolerance 1	Tolerance 2
Tail light to rear lid	Determine gap	Gap dimension A	4.9 mm	+/-1 mm	
Tail light to rear lid	Only lowered	Gap dimension B	0.4 mm		



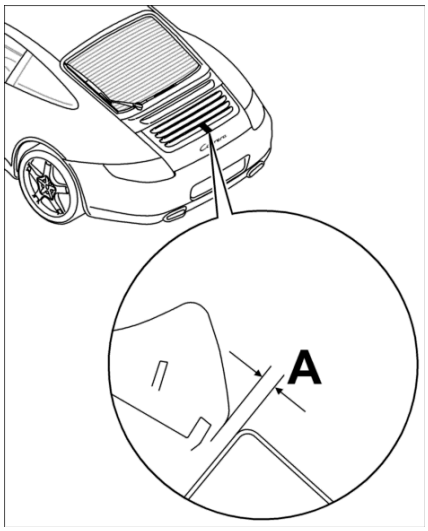
Tail light to rear lid

Location	Explanation	Type	Basic value	Tolerance 1	Tolerance 2
Tail light to rear lid	Determine gap	Gap dimension A	4.5 mm	+/-1 mm	
Tail light to rear lid	Only lowered	Gap dimension B	1.8 mm		



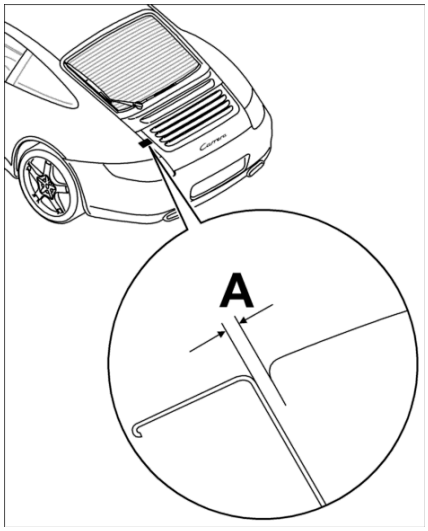
Rear lid to rear spoiler

Location	Explanation	Type	Basic value	Tolerance 1	Tolerance 2
Rear lid to rear spoiler		Gap dimension A	4 mm	+/-1.5 mm	
Rear lid to rear spoiler	Only lowered	Gap dimension B	1 mm		



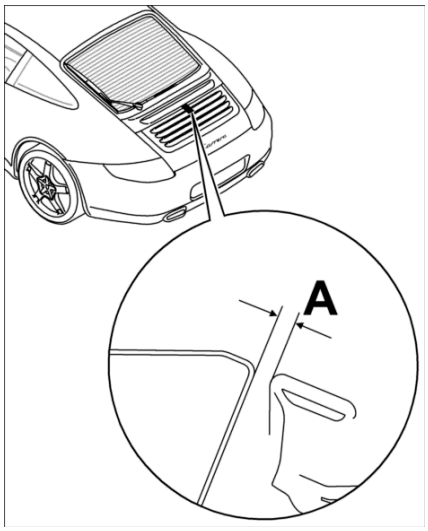
Rear lid to spoiler top section

Location	Explanation	Type	Basic value	Tolerance 1	Tolerance 2
Rear lid to spoiler top section	Rear lid only lowered (max. 1 mm)	Gap dimension A	3.5 mm		



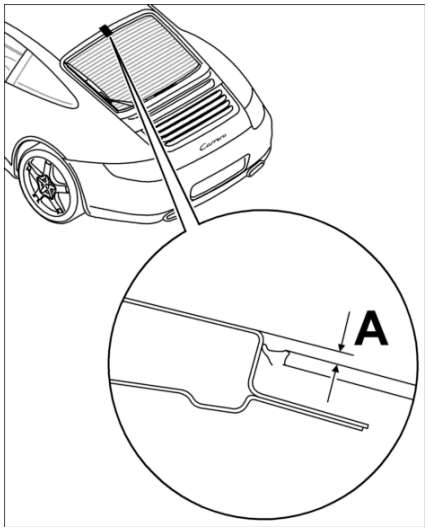
Rear lid to spoiler top section

Location	Explanation	Type	Basic value	Tolerance 1	Tolerance 2
Rear lid to spoiler top section	Rear lid only lowered (max. 1 mm)	Gap dimension A	3.5 mm	+/-0.5 mm	



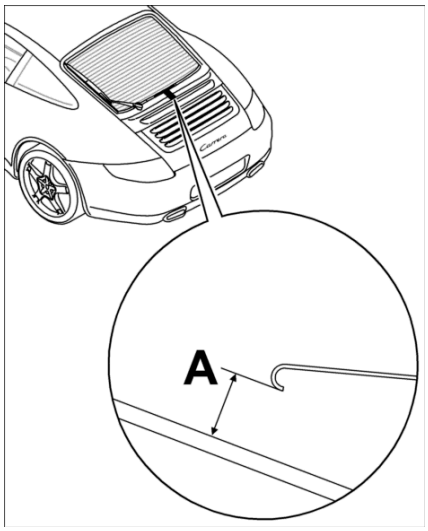
Rear centre panel to spoiler top section

Location	Explanation	Type	Basic value	Tolerance 1	Tolerance 2
Rear centre panel to spoiler top section	Rear lid only lowered (max. +1 mm, - 3 mm)	Gap dimension A	4 mm	+/-1.5 mm	



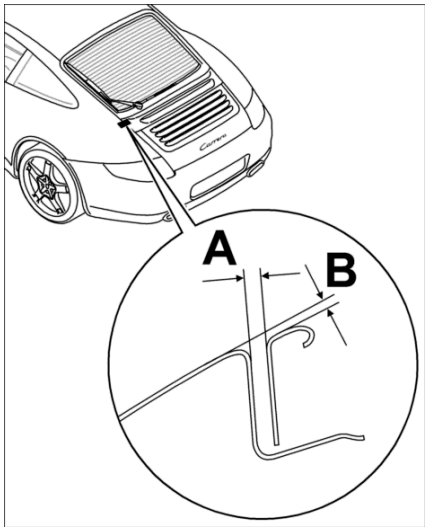
Rear window to outer roof panel

Location	Explanation	Type	Basic value	Tolerance 1	Tolerance 2
Rear window to outer roof panel	Only lowered	Gap dimension A	2 mm		



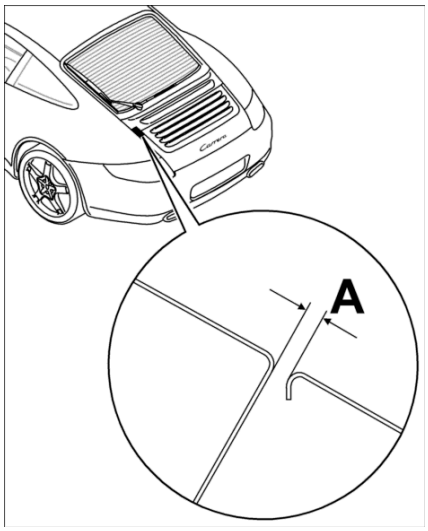
Rear centre panel to rear window

Location	Explanation	Type	Basic value	Tolerance 1	Tolerance 2
Rear centre panel to rear window		Gap dimension A	15.5 mm		



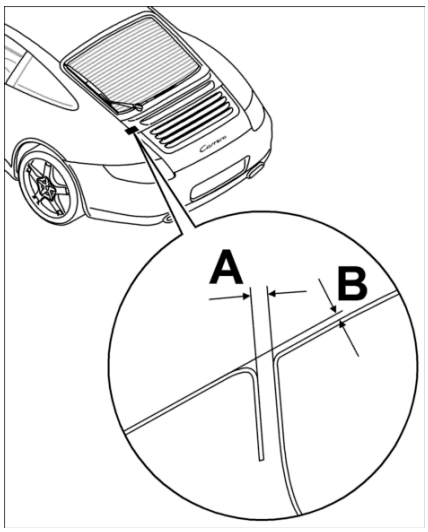
Rear centre panel to outer side panel

Location	Explanation	Type	Basic value	Tolerance 1	Tolerance 2
Rear centre panel to outer side panel		Gap dimension A	4 mm	+/-1 mm	
Rear centre panel to outer side panel	Only lowered	Gap dimension B	1.9 mm	+/-1 mm	



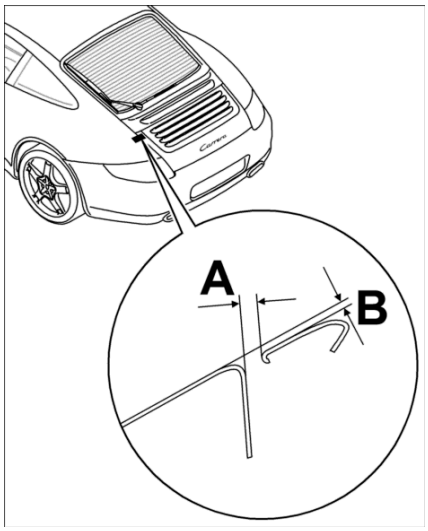
Rear centre panel to rear lid

Location	Explanation	Type	Basic value	Tolerance 1	Tolerance 2
Rear centre panel to rear lid		Gap dimension A	4 mm	+/-1.5 mm	



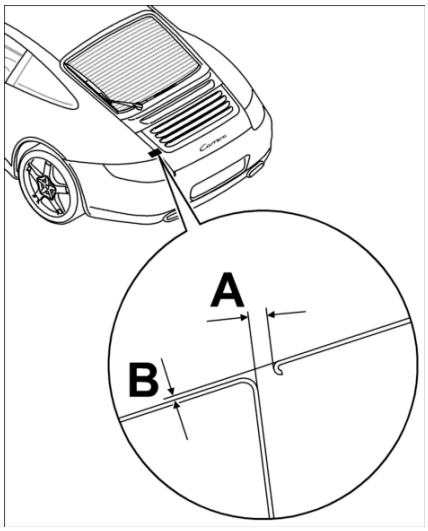
Outer side panel to rear centre panel lid

Location	Explanation	Type	Basic value	Tolerance 1	Tolerance 2
Outer side section to rear centre panel		Gap dimension A	4 mm	+/-1 mm	
Rear centre panel to outer side panel	Only lowered	Gap dimension B	1.7 mm	+/-1 mm	



Outer side panel to rear lid

Location	Explanation	Type	Basic value	Tolerance 1	Tolerance 2
Outer side panel to rear lid		Gap dimension A	4 mm	+/-1 mm	
Outer side panel to rear lid	Only lowered	Gap dimension B	1.7 mm	+/-1 mm	



Outer side panel to rear lid

Location	Explanation	Type	Basic value	Tolerance 1	Tolerance 2
Outer side panel to rear lid		Gap dimension A	4.2 mm	+/-1 mm	
Outer side panel to rear lid	Only lowered	Gap dimension B	0.3 mm		

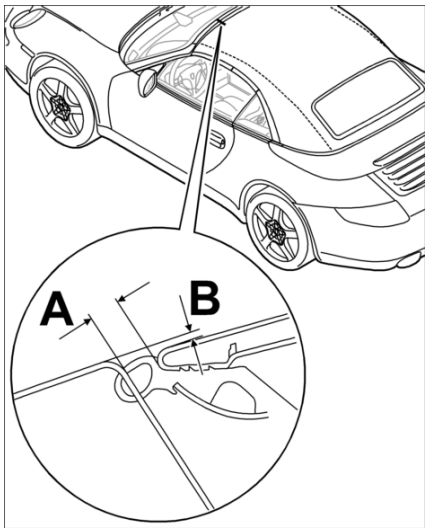
top of page

Diagram - Cabriolet gap dimensions

Convertible-top gap dimensions

Note

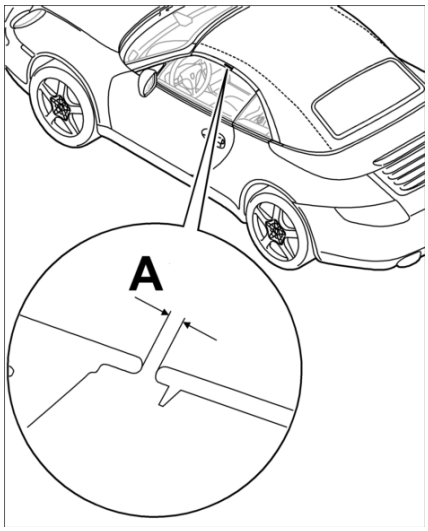
- *Set gap dimensions on the lids, doors and covers, or accessories in accordance with the gap specifications.*
- *Given a clearance in the opening that is too great or too small, the movable body or the accessories must be centred accordingly.*
- *Ensure that the gaps do not taper or do not narrow at local points.*
- *The given values are guidelines which should be observed as far as possible.*
- *The guidelines apply to repair and assembly work.*
- *Use star gauges to measure the gap dimensions,* ***Star gauges for body gap dimensions NR.127-1***



Cowl panel frame to front roof frame

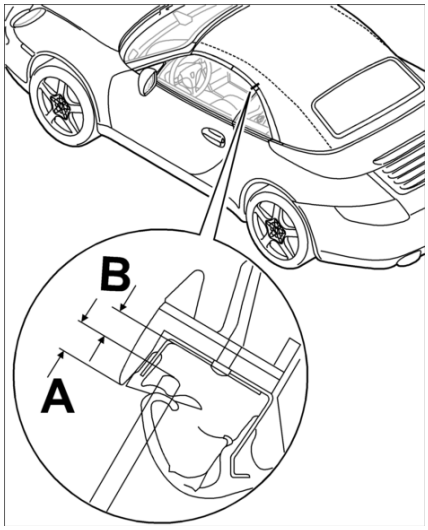
Location	Explanation	Type	Basic value	Tolerance 1	Tolerance 2
Cowl panel frame to front roof frame	Roof frame only lowered	Gap dimension A	7 mm	+/-1 mm	
			1.7 mm		

Cowl panel frame to front roof frame	Roof frame only lowered	Gap dimension B			



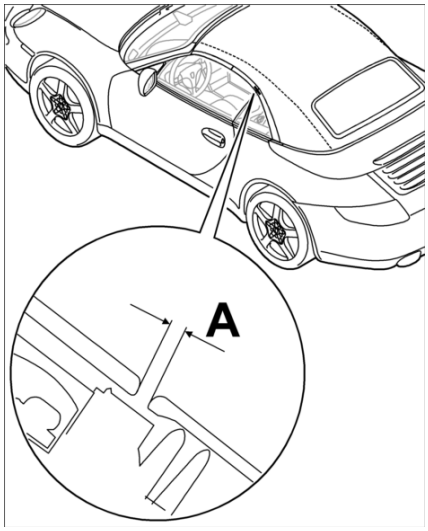
Front roof frame to centre roof frame

Location	Explanation	Type	Basic value	Tolerance 1	Tolerance 2
Front roof frame to centre roof frame		Gap dimension A	3 mm	+/-0.5 mm	



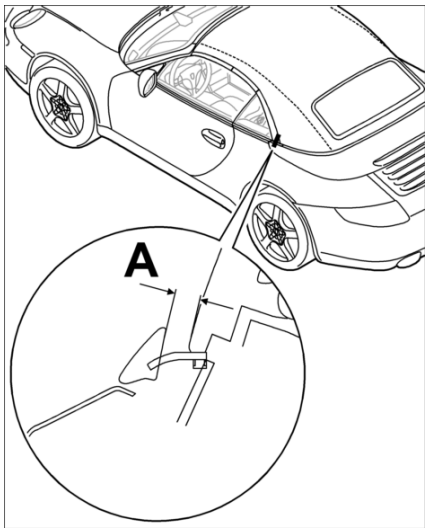
Door window to side of roof frame

Location	Explanation	Type	Basic value	Tolerance 1	Tolerance 2
Door window to side of roof frame		Gap dimension A	7 mm	+/-1 mm	
Door window to side of roof frame		Gap dimension B	6 mm	+/-1 mm	



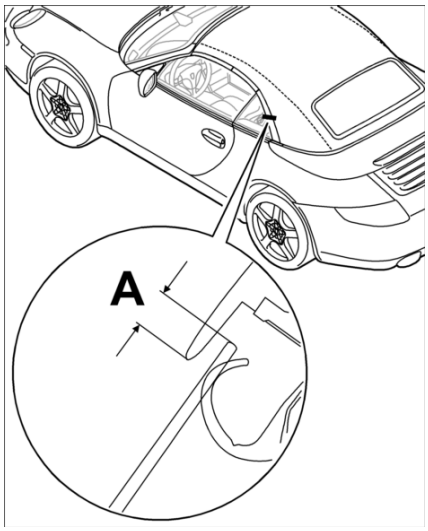
Centre roof frame to rear roof frame

Location	Explanation	Type	Basic value	Tolerance 1	Tolerance 2
Centre roof frame to rear roof frame		Gap dimension A	3.2 mm	+0.5 mm	



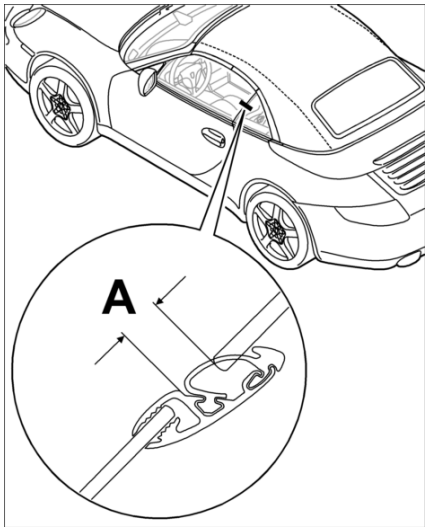
Rear roof frame to side of convertible-top compartment lid

Location	Explanation	Type	Basic value	Tolerance 1	Tolerance 2
Rear roof frame to side of convertible-top compartment lid		Gap dimension A	5 mm		



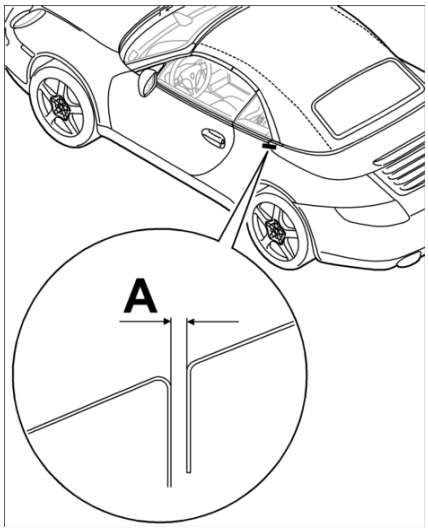
Rear roof frame to side window

Location	Explanation	Type	Basic value	Tolerance 1	Tolerance 2
Rear roof frame to side window	Max. closing depth	Gap dimension A	10 mm	+9 mm	



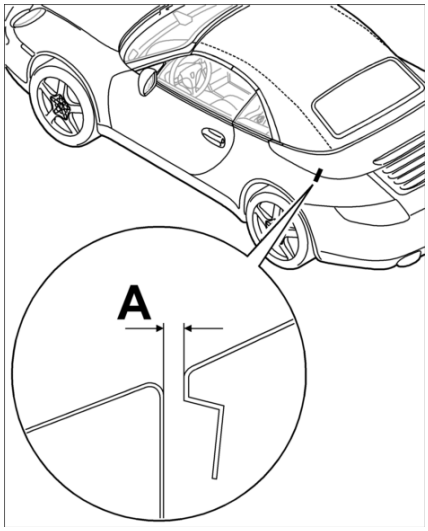
Door window to side window

Location	Explanation	Type	Basic value	Tolerance 1	Tolerance 2
Door window to side window		Gap dimension A	9 mm	+/-1 mm	



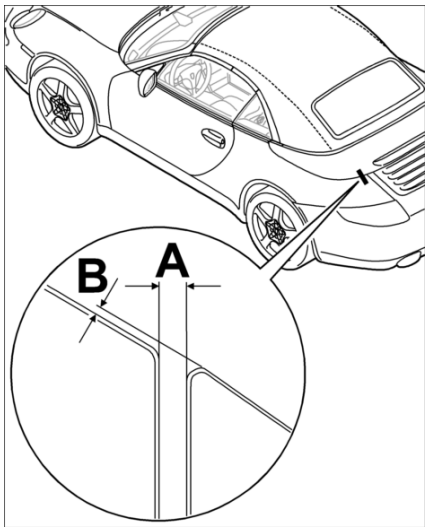
Convertible-top compartment lid to side panel

Location	Explanation	Type	Basic value	Tolerance 1	Tolerance 2
Convertible-top compartment lid to side panel	Continuous seam joining line	Gap dimension A	4 mm	+/-1 mm	



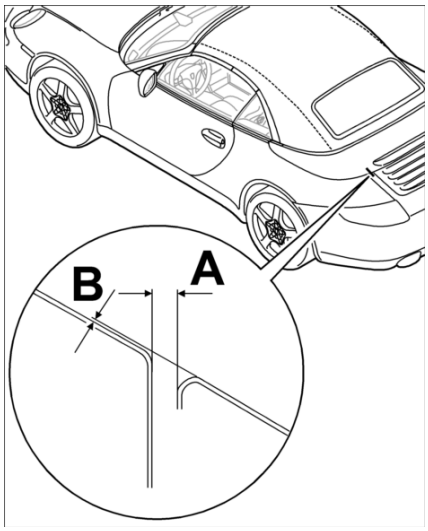
Convertible-top compartment lid to side panel

Location	Explanation	Type	Basic value	Tolerance 1	Tolerance 2
Convertible-top compartment lid to side panel	Continuous seam joining line	Gap dimension A	4 mm	+/-1 mm	



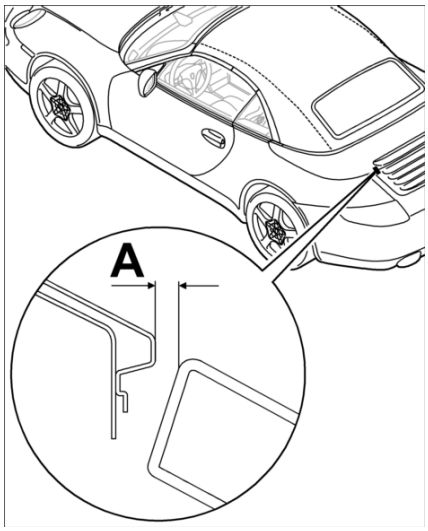
Convertible-top compartment lid to side panel

Location	Explanation	Type	Basic value	Tolerance 1	Tolerance 2
Convertible-top compartment lid to side panel	Continuous seam joining line	Gap dimension A	5 mm	+/-1 mm	
Convertible-top compartment lid to side panel	Only lowered	Gap dimension B	1.5 mm		



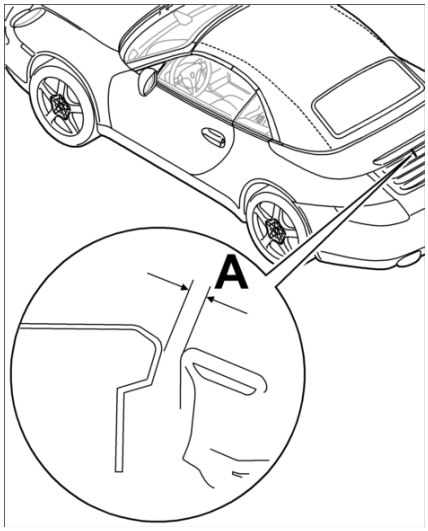
Convertible-top compartment lid to rear lid

Location	Explanation	Type	Basic value	Tolerance 1	Tolerance 2
Convertible-top compartment lid to rear lid		Gap dimension A	5 mm	+/-1 mm	
Convertible-top compartment lid to rear lid	Only lowered	Gap dimension B	0.4 mm		



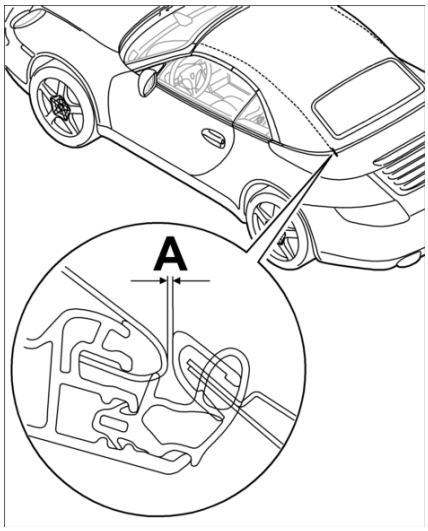
Convertible top compartment lid to spoiler top section

Location	Explanation	Type	Basic value	Tolerance 1	Tolerance 2
Convertible-top compartment lid to spoiler top section		Gap dimension A	5 mm		



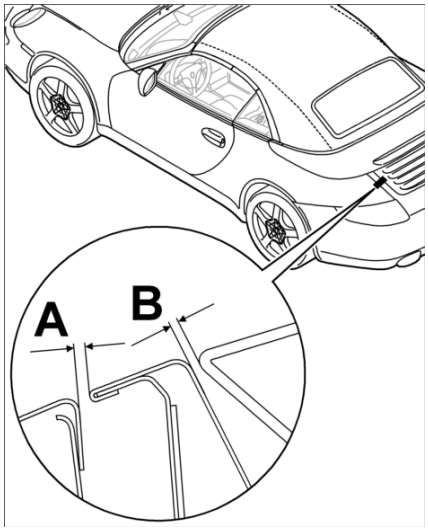
Convertible-top compartment lid to spoiler top section

Location	Explanation	Type	Basic value	Tolerance 1	Tolerance 2
Convertible-top compartment lid to spoiler top section		Gap dimension A	5 mm		



Convertible top to convertible-top compartment lid

Location	Explanation	Type	Basic value	Tolerance 1	Tolerance 2
Convertible-top compartment lid to spoiler top section	Continuous seam joining line	Gap dimension A	1 mm	+4 mm	



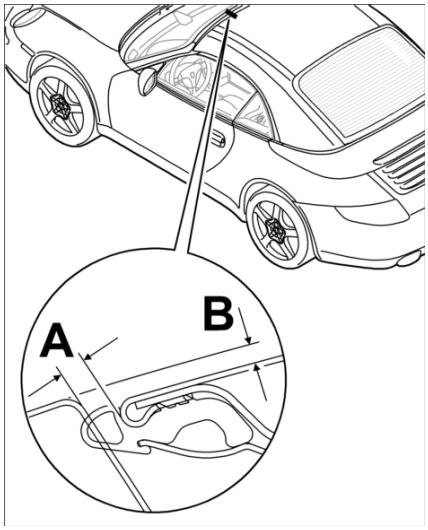
Side panel to rear lid and spoiler top section

Location	Explanation	Type	Basic value	Tolerance 1	Tolerance 2
Side panel to rear lid and spoiler top section		Gap dimension A	4 mm		
Side panel to rear lid and spoiler top section		Gap dimension A	3.5 mm		

Gap dimensions, hardtop

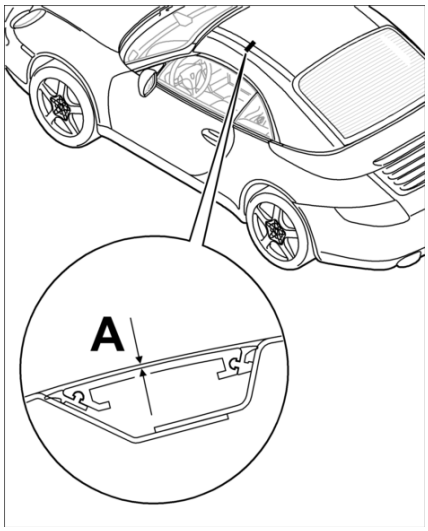
Note

- *Set gap dimensions on the lids, doors and covers, or accessories in accordance with the gap specifications.*
- *Given a clearance in the opening that is too great or too small, the movable body or the accessories must be centred accordingly.*
- *Ensure that the gaps do not taper or do not narrow at local points.*
- *The given values are guidelines which should be observed as far as possible.*
- *The guidelines apply to repair and assembly work.*
- *Use star gauges to measure the gap dimensions,* ***Star gauges for body gap dimensions NR.127-1***



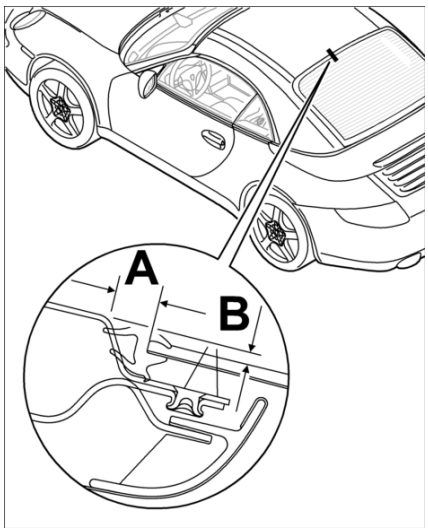
Windscreen frame to hardtop

Location	Explanation	Type	Basic value	Tolerance 1	Tolerance 2
Windscreen frame to hardtop	Hardtop only lowered	Gap dimension A	5.5 mm	+/-1 mm	
Windscreen frame to hardtop		Gap dimension B	4 mm	-2 mm	



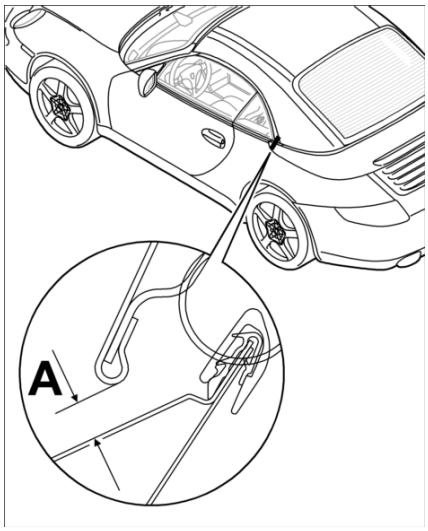
Roof joint strip to hardtop

Location	Explanation	Type	Basic value	Tolerance 1	Tolerance 2
Roof joint strip to hardtop	Only lowered	Gap dimension A	1 mm		



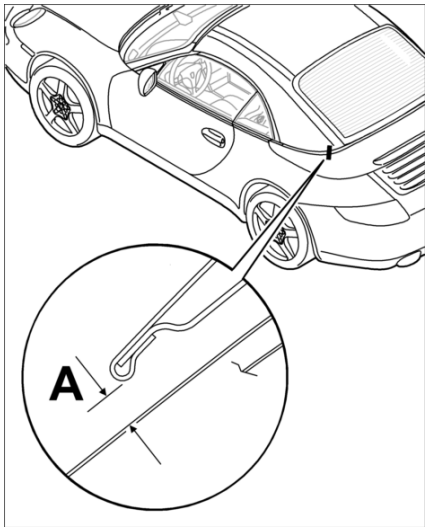
Rear window to roof frame (hardtop)

Location	Explanation	Type	Basic value	Tolerance 1	Tolerance 2
Rear window to roof frame (hardtop)	Rear window only lowered	Gap dimension A	10 mm		
Rear window to roof frame (hardtop)		Gap dimension B	3 mm	+/-1.5 mm	



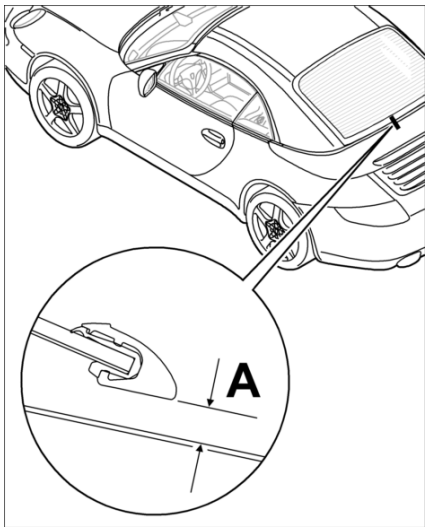
Hardtop to convertible-top compartment lid

Location	Explanation	Type	Basic value	Tolerance 1	Tolerance 2
Hardtop to convertible-top compartment lid		Gap dimension A	8 mm	+/-4 mm	



Hardtop to convertible-top compartment lid

Location	Explanation	Type	Basic value	Tolerance 1	Tolerance 2
Hardtop to convertible-top compartment lid		Gap dimension A	8 mm	+/-4 mm	



Hardtop to convertible-top compartment lid

Location	Explanation	Type	Basic value	Tolerance 1	Tolerance 2
Hardtop to convertible-top compartment lid		Gap dimension A	6 mm	+/-3 mm	

997610, 997611, 997620, 997621

as of MY 2005
Country C00, C02, C05, C07, C08, C09, C10, C11, C12, C13, C14, C15, C16, C18, C19, C20, C21, C22, C23, C24, C25, C26, C27, C28, C32, C33, C34, C35, C36, C37, C38, C39, C45, C46, C98, C99

WARNUNG
Gefahr des Verlusts der Text-Bild-Zuordnung beim Ausdruck.

- **Aus technischen Gründen kann derzeit nicht ausgeschlossen werden, dass trotz einwandfreier Darstellung auf dem Bildschirm beim Ausdruck der Zusammenhang von Text und zugehörigem Bild verloren geht.**
- **Wird der Fehler nicht bemerkt, besteht die Gefahr, daß Arbeiten nicht korrekt durchgeführt werden und es dadurch zu Personen- und Sachschäden kommt.**

Vergleichen Sie deshalb nach dem Druckvorgang unbedingt die Ausdrucke mit der Bildschirmdarstellung. Korrigieren Sie die Ausdrucke im Fehlerfall so, daß der Inhalt der Bildschirmdarstellung zutreffend wiedergegeben wird.

WARNING
Danger of losing text-figure correspondence when printing out.

- **For technical reasons, it can currently not be ruled out that the correspondence between text and associated figure can be lost when it is printed out, even though the display on the screen is correct.**

50 IN Diagram - body gap dimensions - as of MY 2005

- Diagram - body front gap dimensions
- Diagram - body centre gap dimensions
- Diagram - Cabriolet gap dimensions

Tools

Designation	Type	Number	Explanation	
Star gauges for body gap dimensions	commercially available tool	NR.127-1		PORSCHE siehe Handbuch Werkstattausrüstung Voir le Manuel Equipement d´atelier Refer to the Workshop Equipment manual Vease Manual de Equipamiento de Taller Vedere il Manuale dell´attrezzatura d´officina ワークショップ・イクイップメント・マニュアルを参照

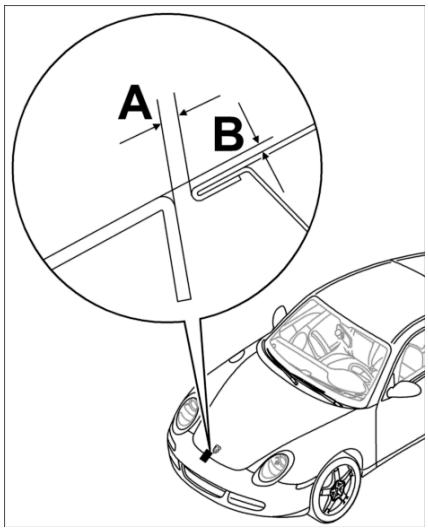
top of page

Diagram - body front gap dimensions

Gap dimensions, body front

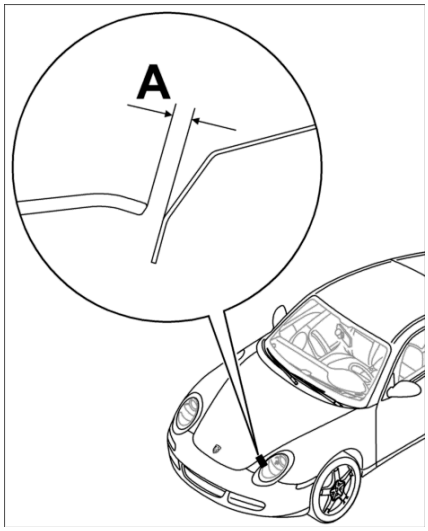
Note

- *Set gap dimensions on the lids, doors and covers, or accessories in accordance with the gap specifications.*
- *Given a clearance in the opening that is too great or too small, the movable body or the accessories must be centred accordingly.*
- *Ensure that the gaps do not taper or do not narrow at local points.*
- *The given values are guidelines which should be observed as far as possible.*
- *The guidelines apply to repair and assembly work.*
- *Use star gauges to measure the gap dimensions,* ***Star gauges for body gap dimensions NR.127-1***



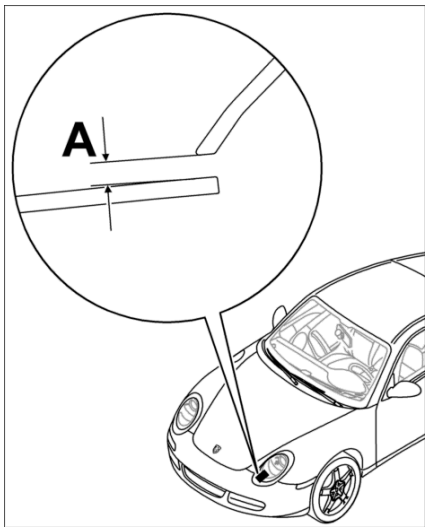
Front lid to front apron

Location	Explanation	Type	Basic value	Tolerance 1	Tolerance 2
Front lid to front apron		Gap dimension A	4.5 mm	+/-1 mm	
Front lid to front apron	Lid only lowered	Gap dimension B	2 mm		



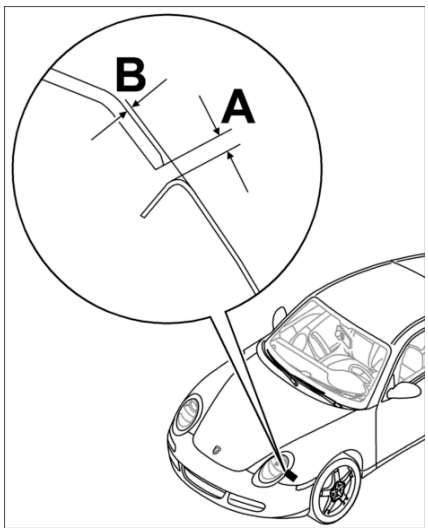
Main headlight to inner wing

Location	Explanation	Type	Basic value	Tolerance 1	Tolerance 2
Main headlight to inner wing	Determine left and right gap	Gap dimension A	4.5 mm	+/-1 mm	



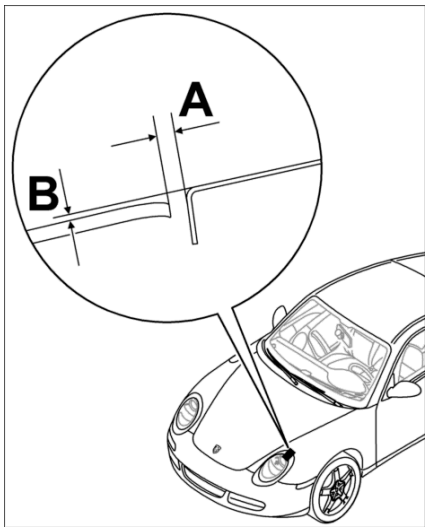
Main headlight to front apron

Location	Explanation	Type	Basic value	Tolerance 1	Tolerance 2
Main headlight to front apron		Gap dimension A	4 mm	+/-1.5 mm	



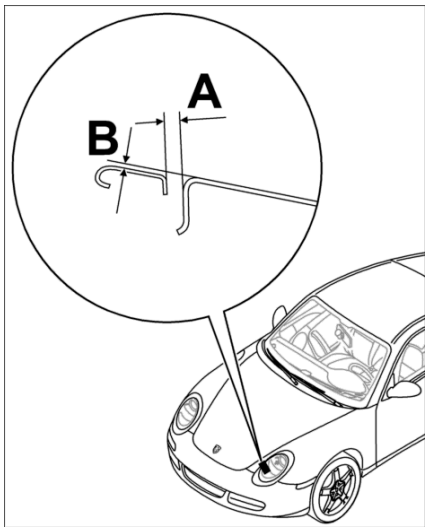
Main headlight to external wing

Location	Explanation	Type	Basic value	Tolerance 1	Tolerance 2
Main headlight to external wing		Gap dimension A	4 mm	+1 mm	
Main headlight to external wing	Only lowered	Gap dimension B	1 mm		



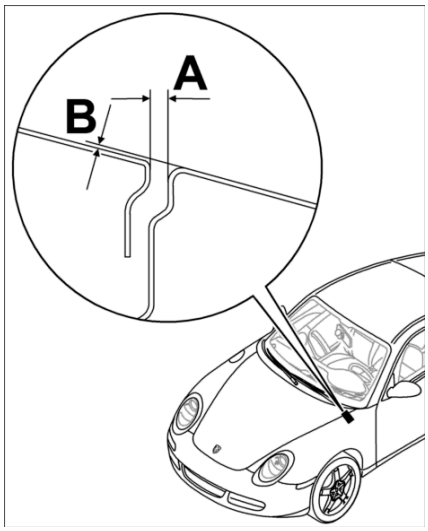
Main headlight to top wing

Location	Explanation	Type	Basic value	Tolerance 1	Tolerance 2
Main headlight to top wing		Gap dimension A	4 mm	+/-1 mm	
Main headlight to top wing	Only lowered	Gap dimension B	1 mm		



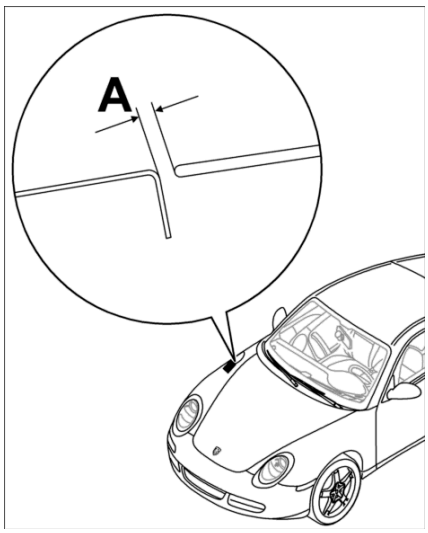
Front lid to wing

Location	Explanation	Type	Basic value	Tolerance 1	Tolerance 2
Front lid to wing		Gap dimension A	4 mm	+/-1 mm	
Front lid to wing	Only lowered	Gap dimension B	0.5 mm		



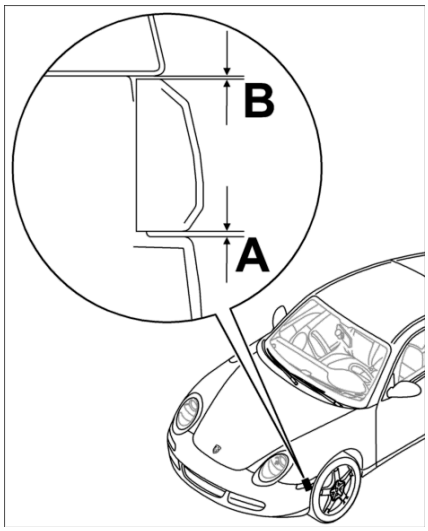
Wing to front lid

Location	Explanation	Type	Basic value	Tolerance 1	Tolerance 2
Wing to front lid	Determine left and right gap	Gap dimension A	4 mm	+1 mm	
Wing to front lid	Only lowered	Gap dimension B	0.5 mm		



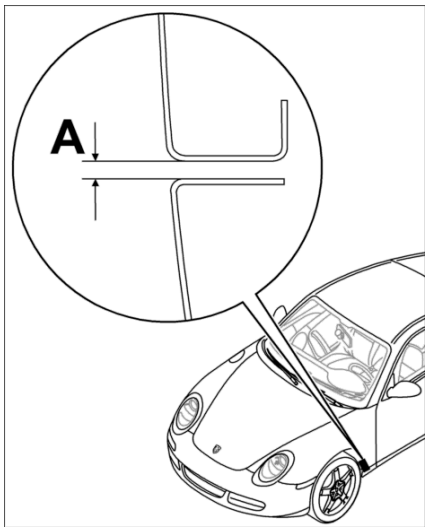
Filler flap to wing

Location	Explanation	Type	Basic value	Tolerance 1	Tolerance 2
Filler flap to wing	All the way round	Gap dimension A	3.5 mm	+/-0.5 mm	



Front apron to side direction indicator

Location	Explanation	Type	Basic value	Tolerance 1	Tolerance 2
Front apron to side direction indicator		Gap dimension A	1.5 mm		
Wing to side direction indicator		Gap dimension B	0.5 mm	+0.5 mm	



Wing to outer side panel

Location	Explanation	Type	Basic value	Tolerance 1	Tolerance 2
Wing to outer side panel	Even transition from front to rear	Gap dimension A	4.5 mm	+/-1 mm	

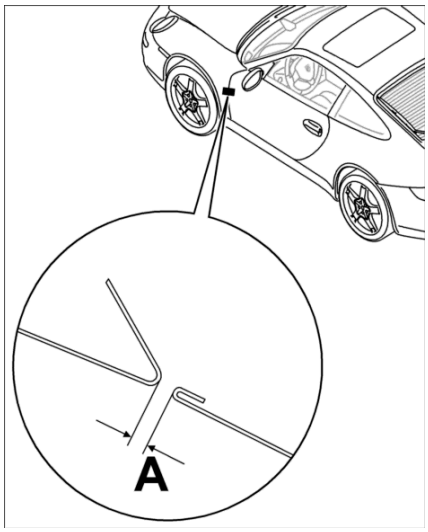
top of page

Diagram - body centre gap dimensions

Gap dimensions, body centre

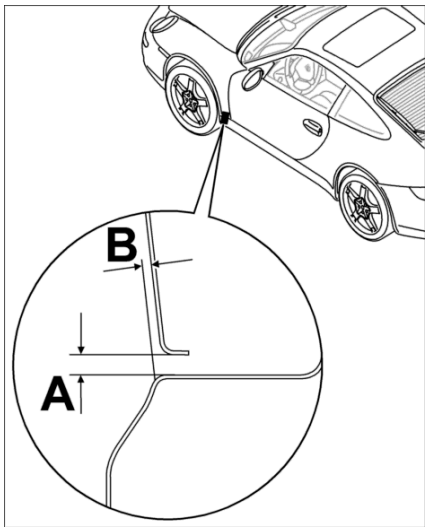
Note

- *Set gap dimensions on the lids, doors and covers, or accessories in accordance with the gap specifications.*
- *Given a clearance in the opening that is too great or too small, the movable body or the accessories must be centred accordingly.*
- *Ensure that the gaps do not taper or do not narrow at local points.*
- *The given values are guidelines which should be observed as far as possible.*
- *The guidelines apply to repair and assembly work.*
- *Use star gauges to measure the gap dimensions,* ***Star gauges for body gap dimensions NR.127-1***



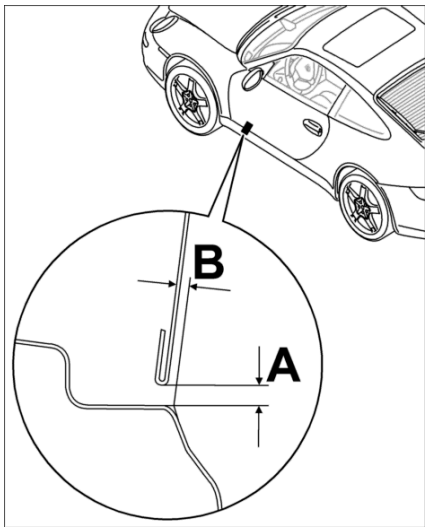
Door to wing

Location	Explanation	Type	Basic value	Tolerance 1	Tolerance 2
Door to wing		Gap dimension A	4 mm	+/-0.5 mm	



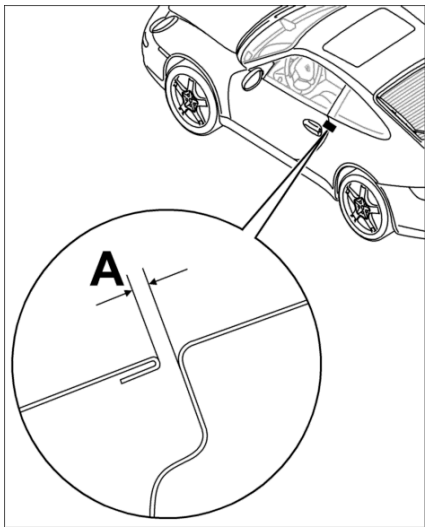
Wing to outer side panel

Location	Explanation	Type	Basic value	Tolerance 1	Tolerance 2
Wing to outer side panel		Gap dimension A	4.5 mm	+/-1 mm	
Wing to outer side panel	Only lowered	Gap dimension B	2 mm		



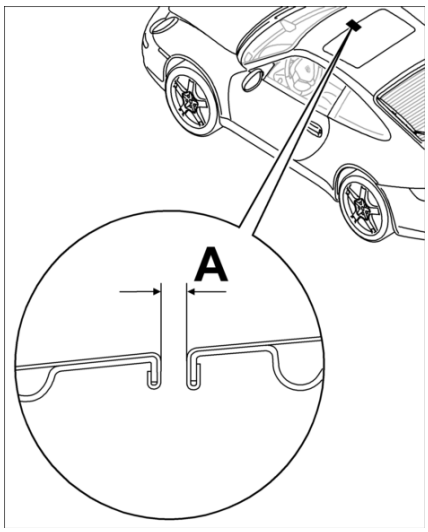
Door to outer side panel

Location	Explanation	Type	Basic value	Tolerance 1	Tolerance 2
Door to outer side panel		Gap dimension A	4.5 mm	+/-1 mm	
Door to outer side panel	Doors only lowered	Gap dimension B	2 mm		



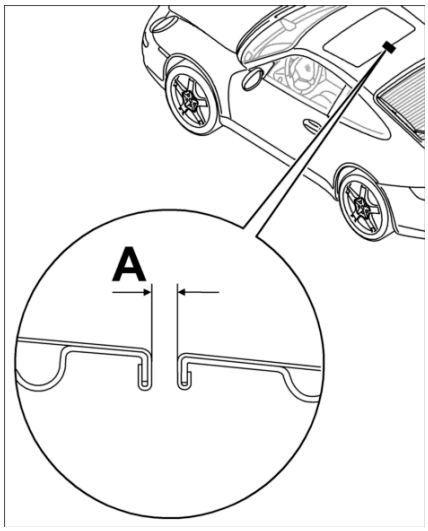
Door to outer side panel

Location	Explanation	Type	Basic value	Tolerance 1	Tolerance 2
Door to outer side panel	Doors only raised	Gap dimension A	4 mm	+/-0.8 mm	



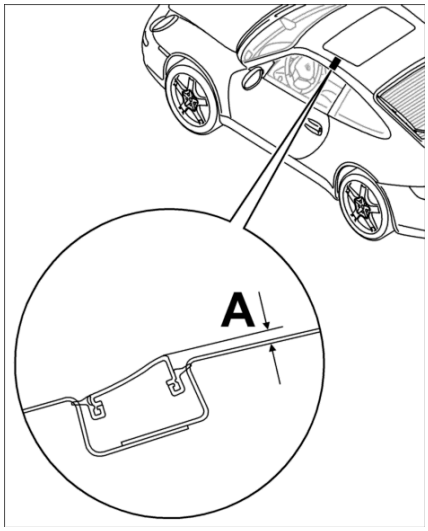
Sliding-roof panel at front to outer roof panel

Location	Explanation	Type	Basic value	Tolerance 1	Tolerance 2
Sliding roof panel at front to outer roof panel	Only lowered at front	Gap dimension A	5 mm		



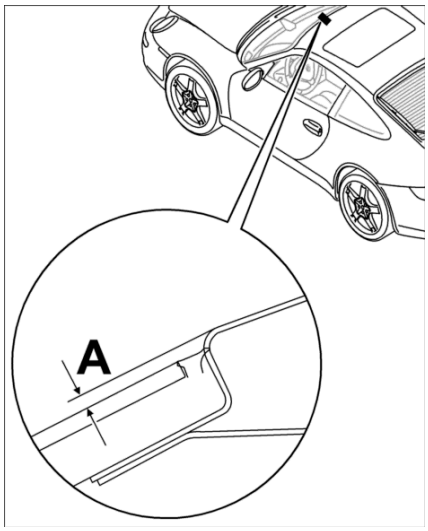
Sliding roof panel at rear to outer roof panel

Location	Explanation	Type	Basic value	Tolerance 1	Tolerance 2
Sliding roof panel at rear to outer roof panel	Only raised at rear	Gap dimension A	6 mm		



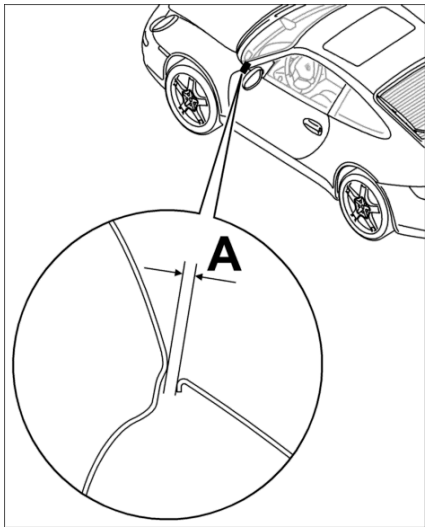
Roof joint strip to outer roof panel

Location	Explanation	Type	Basic value	Tolerance 1	Tolerance 2
Roof joint strip to outer roof panel		Gap dimension A	2 mm		



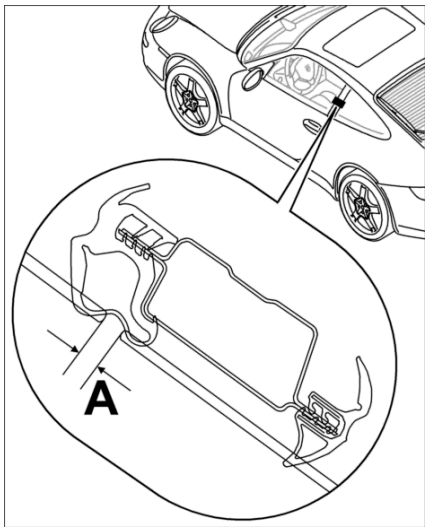
Windscreen to windscreen frame

Location	Explanation	Type	Basic value	Tolerance 1	Tolerance 2
Windscreen to windscreen frame	Only lowered	Gap dimension A	2 mm		



Cowl panel frame to wing

Location	Explanation	Type	Basic value	Tolerance 1	Tolerance 2
Cowl panel frame to wing	Continuous transition	Gap dimension A	3 mm	+/-1 mm	



Door window to side window

Location	Explanation	Type	Basic value	Tolerance 1	Tolerance 2
Door window to side window	Door window lowered by max. 1 mm	Gap dimension A	7 mm	+/-1 mm	

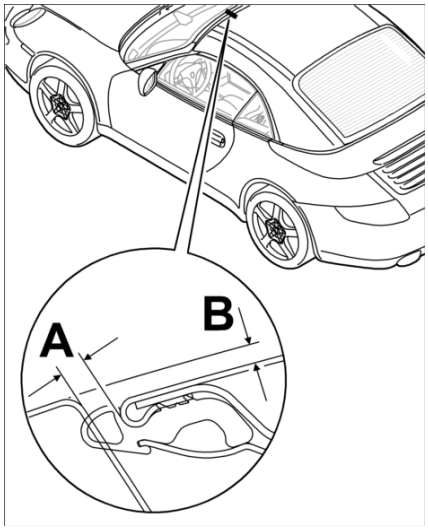
top of page

Diagram - Cabriolet gap dimensions

Gap dimensions, hardtop

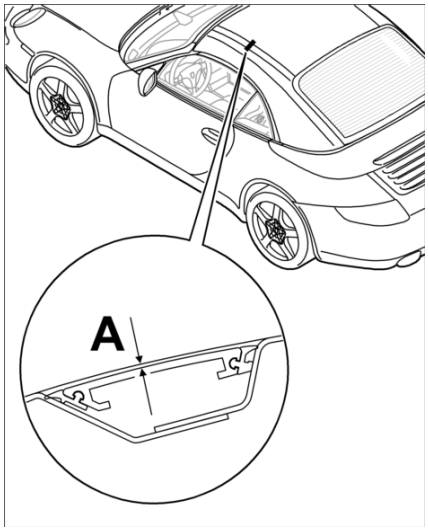
Note

- *Set gap dimensions on the lids, doors and covers, or accessories in accordance with the gap specifications.*
- *Given a clearance in the opening that is too great or too small, the movable body or the accessories must be centred accordingly.*
- *Ensure that the gaps do not taper or do not narrow at local points.*
- *The given values are guidelines which should be observed as far as possible.*
- *The guidelines apply to repair and assembly work.*
- *Use star gauges to measure the gap dimensions,* ***Star gauges for body gap dimensions NR.127-1***



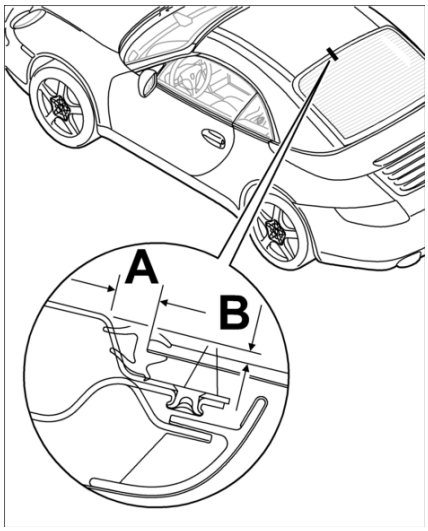
Windscreen frame to hardtop

Location	Explanation	Type	Basic value	Tolerance 1	Tolerance 2
Windscreen frame to hardtop	Hardtop only lowered	Gap dimension A	5.5 mm	+/-1 mm	
Windscreen frame to hardtop		Gap dimension B	4 mm	-2 mm	



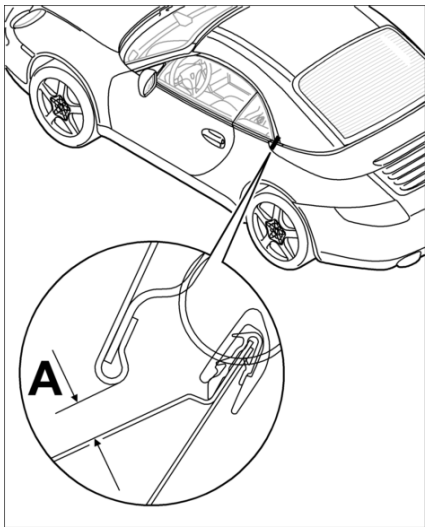
Roof joint strip to hardtop

Location	Explanation	Type	Basic value	Tolerance 1	Tolerance 2
Roof joint strip to hardtop	Only lowered	Gap dimension A	1 mm		



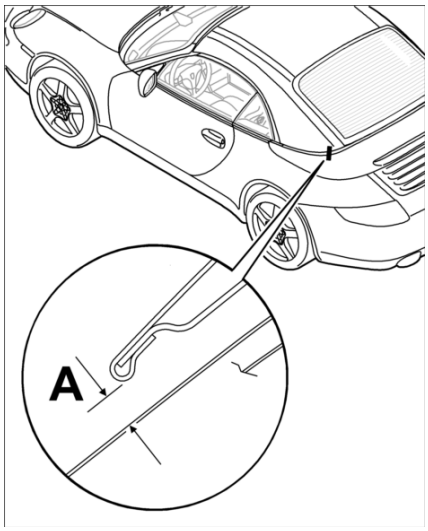
Rear window to roof frame (hardtop)

Location	Explanation	Type	Basic value	Tolerance 1	Tolerance 2
Rear window to roof frame (hardtop)	Rear window only lowered	Gap dimension A	10 mm		
Rear window to roof frame (hardtop)		Gap dimension B	3 mm	+/-1.5 mm	



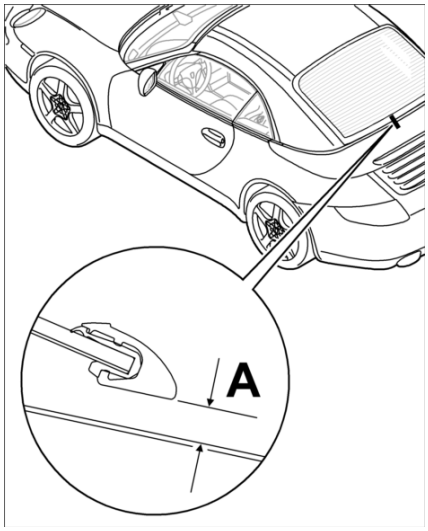
Hardtop to convertible-top compartment lid

Location	Explanation	Type	Basic value	Tolerance 1	Tolerance 2
Hardtop to convertible-top compartment lid		Gap dimension A	8 mm	+/-4 mm	



Hardtop to convertible-top compartment lid

Location	Explanation	Type	Basic value	Tolerance 1	Tolerance 2
Hardtop to convertible-top compartment lid		Gap dimension A	8 mm	+/-4 mm	



Hardtop to convertible-top compartment lid

Location	Explanation	Type	Basic value	Tolerance 1	Tolerance 2
Hardtop to convertible-top compartment lid		Gap dimension A	6 mm	+/-3 mm	

997410, 997411

as of MY 2005
Country C00, C02, C05, C07, C08, C09, C10, C11, C12, C13, C14, C15, C16, C18, C19, C20, C21, C22,

50 IN Diagram - body gap dimensions - as of MY 2005

- Diagram - body front gap dimensions
- Diagram - body centre gap dimensions
- Diagram - body rear gap dimensions
- Diagram - Cabriolet gap dimensions

Tools

Designation	Type	Number	Explanation	
Star gauges for body gap dimensions	commercially available tool	NR.127-1		

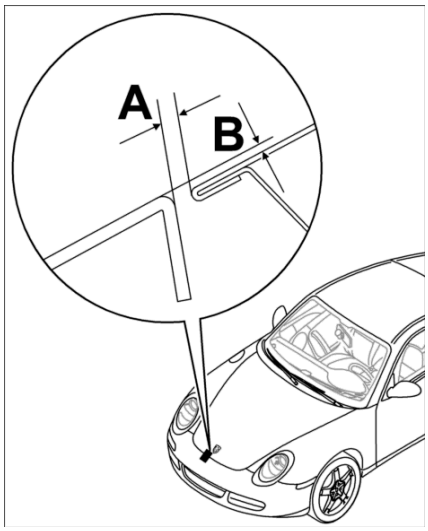
top of page

Diagram - body front gap dimensions

Gap dimensions, body front

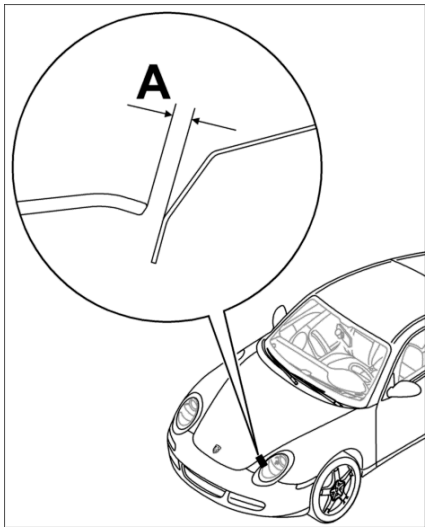
Note

- *Set gap dimensions on the lids, doors and covers, or accessories in accordance with the gap specifications.*
- *Given a clearance in the opening that is too great or too small, the movable body or the accessories must be centred accordingly.*
- *Ensure that the gaps do not taper or do not narrow at local points.*
- *The given values are guidelines which should be observed as far as possible.*
- *The guidelines apply to repair and assembly work.*
- *Use star gauges to measure the gap dimensions,* ***Star gauges for body gap dimensions NR.127-1***



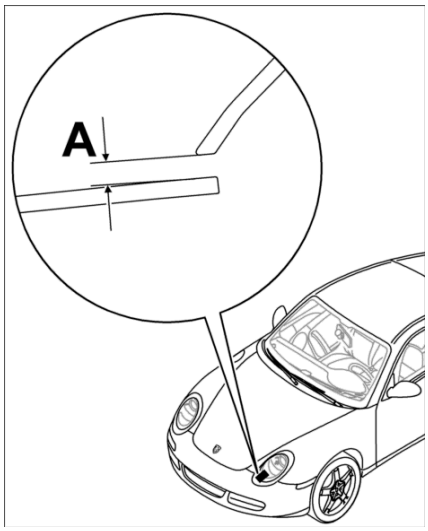
Front lid to front apron

Location	Explanation	Type	Basic value	Tolerance 1	Tolerance 2
Front lid to front apron		Gap dimension A	4.5 mm	+/-1 mm	
Front lid to front apron	Lid only lowered	Gap dimension B	2 mm		



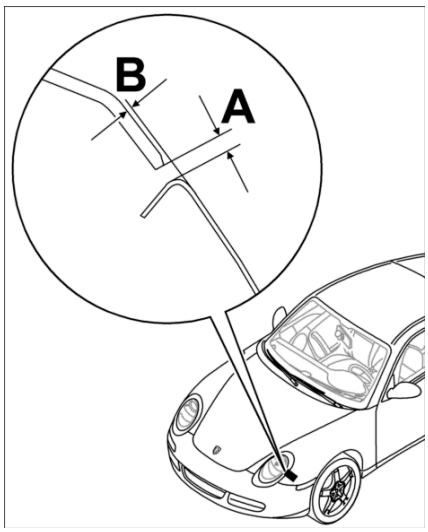
Main headlight to inner wing

Location	Explanation	Type	Basic value	Tolerance 1	Tolerance 2
Main headlight to inner wing	Determine left and right gap	Gap dimension A	4.5 mm	+/-1 mm	



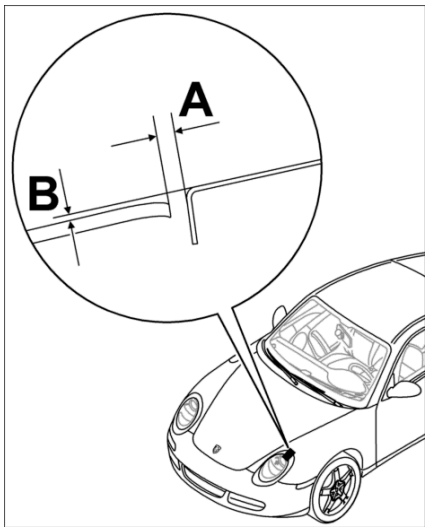
Main headlight to front apron

Location	Explanation	Type	Basic value	Tolerance 1	Tolerance 2
Main headlight to front apron		Gap dimension A	4 mm	+/-1.5 mm	



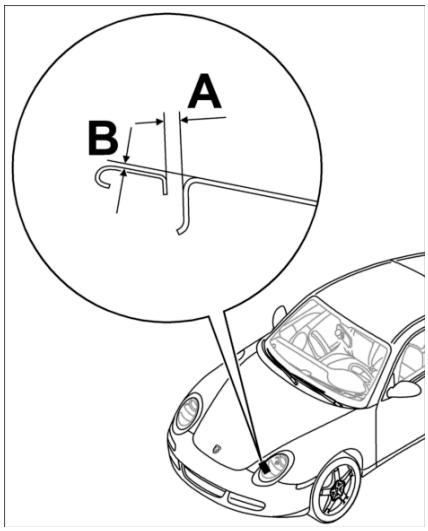
Main headlight to external wing

Location	Explanation	Type	Basic value	Tolerance 1	Tolerance 2
Main headlight to external wing		Gap dimension A	4 mm	+1 mm	
Main headlight to external wing	Only lowered	Gap dimension B	1 mm		



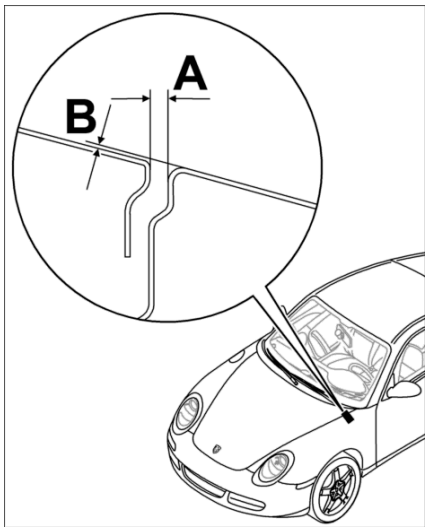
Main headlight to top wing

Location	Explanation	Type	Basic value	Tolerance 1	Tolerance 2
Main headlight to top wing		Gap dimension A	4 mm	+/-1 mm	
Main headlight to top wing	Only lowered	Gap dimension B	1 mm		



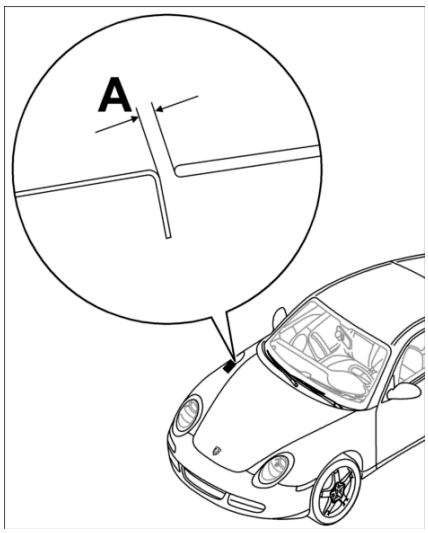
Front lid to wing

Location	Explanation	Type	Basic value	Tolerance 1	Tolerance 2
Front lid to wing		Gap dimension A	4 mm	+/-1 mm	
Front lid to wing	Only lowered	Gap dimension B	0.5 mm		



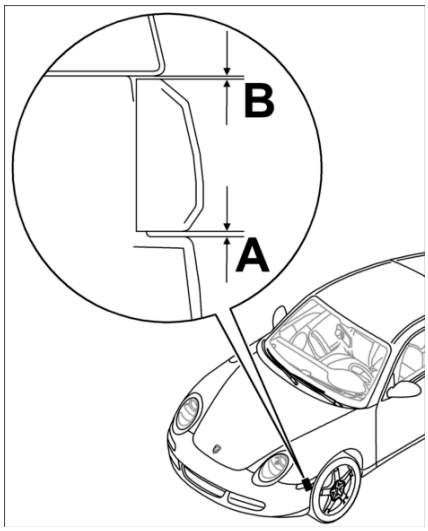
Wing to front lid

Location	Explanation	Type	Basic value	Tolerance 1	Tolerance 2
Wing to front lid	Determine left and right gap	Gap dimension A	4 mm	+1 mm	
Wing to front lid	Only lowered	Gap dimension B	0.5 mm		



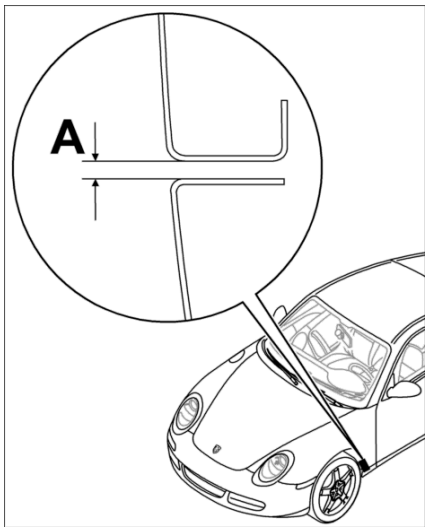
Filler flap to wing

Location	Explanation	Type	Basic value	Tolerance 1	Tolerance 2
Filler flap to wing	All the way round	Gap dimension A	3.5 mm	+/-0.5 mm	



Front apron to side direction indicator

Location	Explanation	Type	Basic value	Tolerance 1	Tolerance 2
Front apron to side direction indicator		Gap dimension A	1.5 mm		
Wing to side direction indicator		Gap dimension B	0.5 mm	+0.5 mm	



Wing to outer side panel

Location	Explanation	Type	Basic value	Tolerance 1	Tolerance 2
Wing to outer side panel	Even transition from front to rear	Gap dimension A	4.5 mm	+/-1 mm	

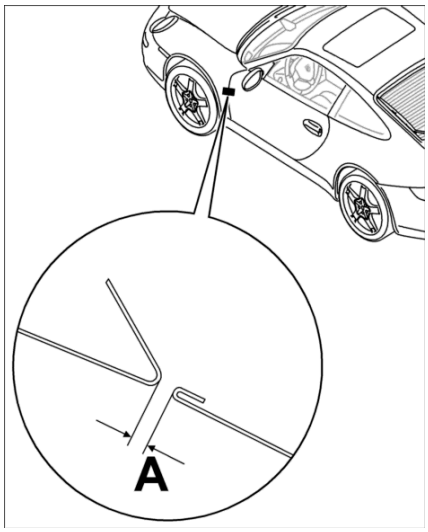
top of page

Diagram - body centre gap dimensions

Gap dimensions, body centre

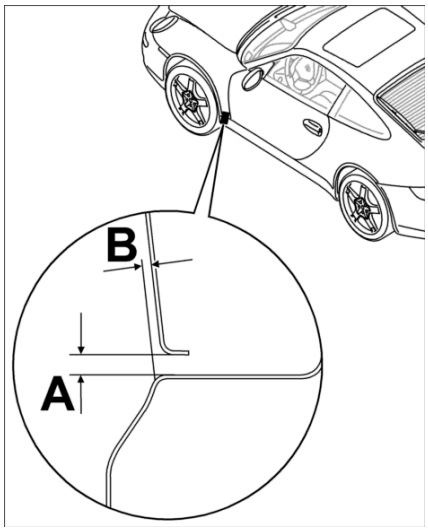
Note

- *Set gap dimensions on the lids, doors and covers, or accessories in accordance with the gap specifications.*
- *Given a clearance in the opening that is too great or too small, the movable body or the accessories must be centred accordingly.*
- *Ensure that the gaps do not taper or do not narrow at local points.*
- *The given values are guidelines which should be observed as far as possible.*
- *The guidelines apply to repair and assembly work.*
- *Use star gauges to measure the gap dimensions,* ***Star gauges for body gap dimensions NR.127-1***



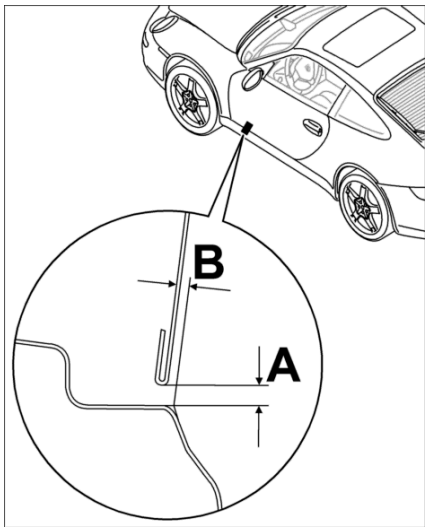
Door to wing

Location	Explanation	Type	Basic value	Tolerance 1	Tolerance 2
Door to wing		Gap dimension A	4 mm	+/-0.5 mm	



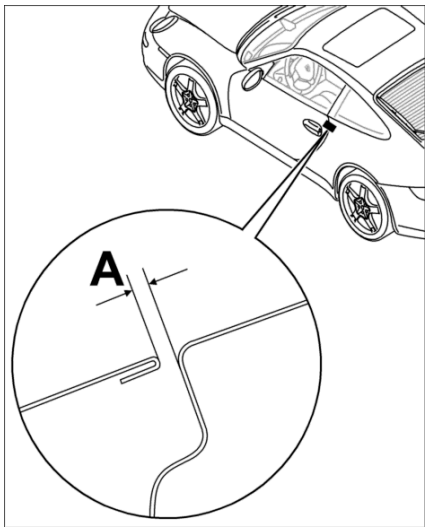
Wing to outer side panel

Location	Explanation	Type	Basic value	Tolerance 1	Tolerance 2
Wing to outer side panel		Gap dimension A	4.5 mm	+/-1 mm	
Wing to outer side panel	Only lowered	Gap dimension B	2 mm		



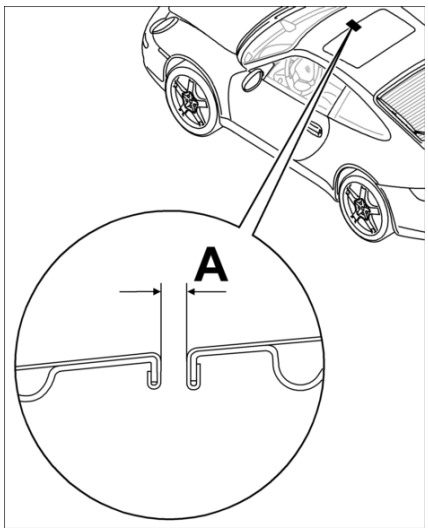
Door to outer side panel

Location	Explanation	Type	Basic value	Tolerance 1	Tolerance 2
Door to outer side panel		Gap dimension A	4.5 mm	+/-1 mm	
Door to outer side panel	Doors only lowered	Gap dimension B	2 mm		



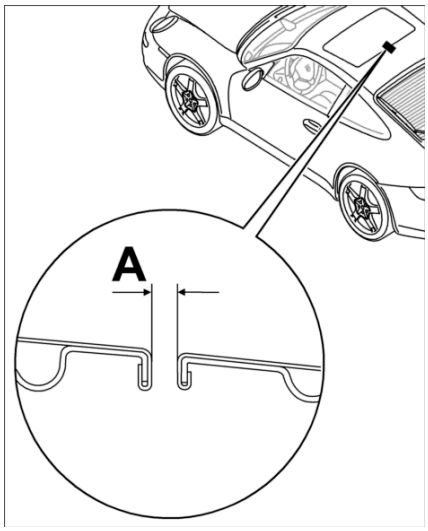
Door to outer side panel

Location	Explanation	Type	Basic value	Tolerance 1	Tolerance 2
Door to outer side panel	Doors only raised	Gap dimension A	4 mm	+/-0.8 mm	



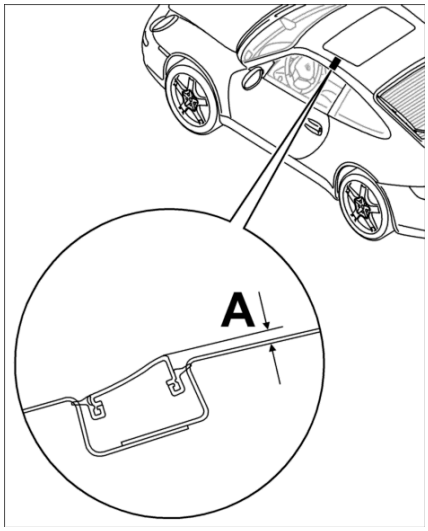
Sliding-roof panel at front to outer roof panel

Location	Explanation	Type	Basic value	Tolerance 1	Tolerance 2
Sliding roof panel at front to outer roof panel	Only lowered at front	Gap dimension A	5 mm		



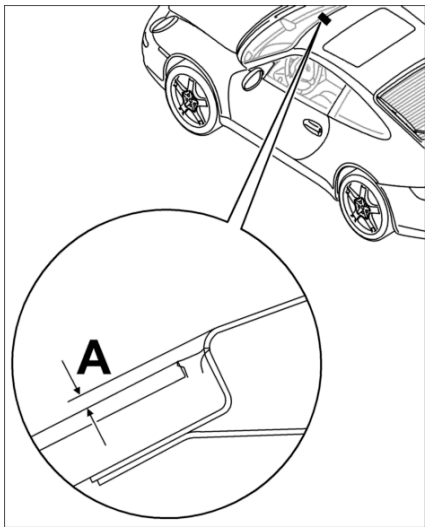
Sliding roof panel at rear to outer roof panel

Location	Explanation	Type	Basic value	Tolerance 1	Tolerance 2
Sliding roof panel at rear to outer roof panel	Only raised at rear	Gap dimension A	6 mm		



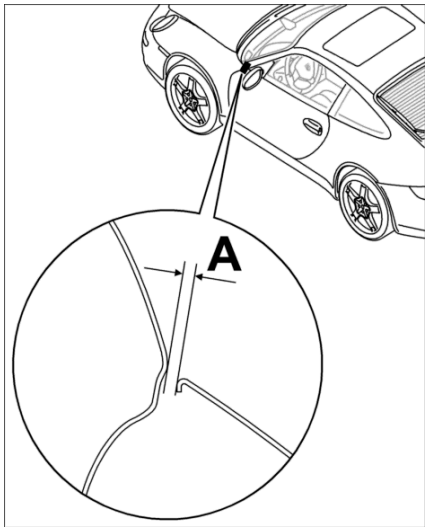
Roof joint strip to outer roof panel

Location	Explanation	Type	Basic value	Tolerance 1	Tolerance 2
Roof joint strip to outer roof panel		Gap dimension A	2 mm		



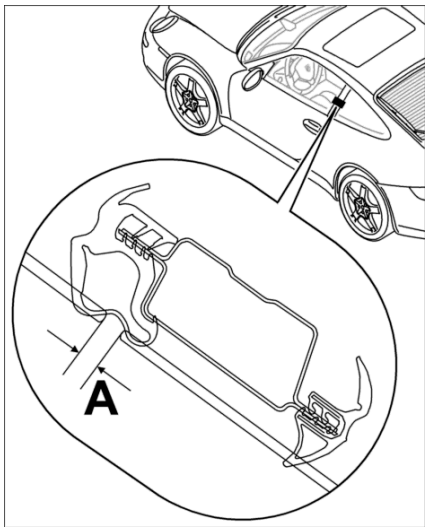
Windscreen to windscreen frame

Location	Explanation	Type	Basic value	Tolerance 1	Tolerance 2
Windscreen to windscreen frame	Only lowered	Gap dimension A	2 mm		



Cowl panel frame to wing

Location	Explanation	Type	Basic value	Tolerance 1	Tolerance 2
Cowl panel frame to wing	Continuous transition	Gap dimension A	3 mm	+/-1 mm	



Door window to side window

Location	Explanation	Type	Basic value	Tolerance 1	Tolerance 2
Door window to side window	Door window lowered by max. 1 mm	Gap dimension A	7 mm	+/-1 mm	

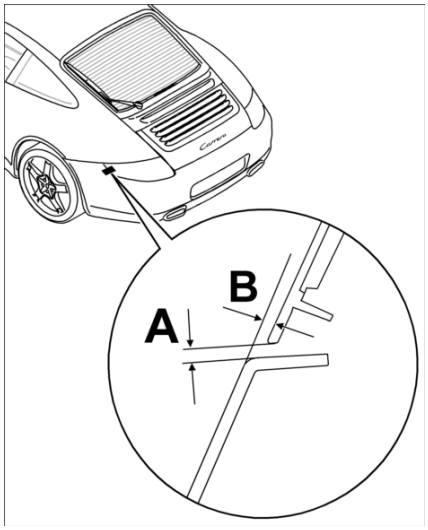
top of page

Diagram - body rear gap dimensions

Gap dimensions, body rear

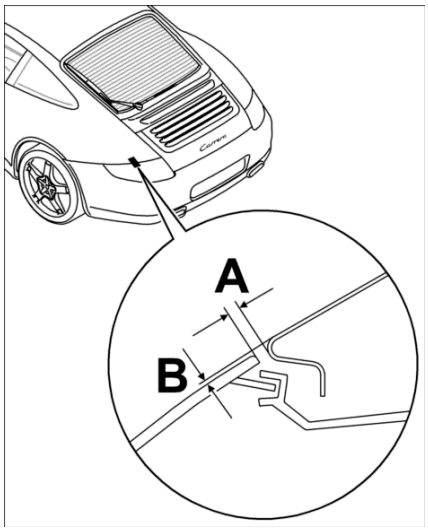
Note

- *Set gap dimensions on the lids, doors and covers, or accessories in accordance with the gap specifications.*
- *Given a clearance in the opening that is too great or too small, the movable body or the accessories must be centred accordingly.*
- *Ensure that the gaps do not taper or do not narrow at local points.*
- *The given values are guidelines which should be observed as far as possible.*
- *The guidelines apply to repair and assembly work.*
- *Use star gauges to measure the gap dimensions,* ***Star gauges for body gap dimensions NR.127-1***



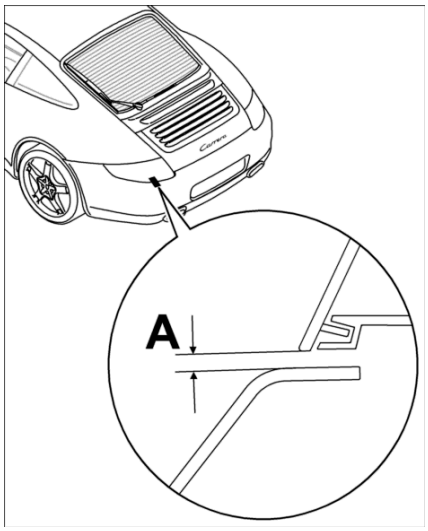
Tail light to outer side panel

Location	Explanation	Type	Basic value	Tolerance 1	Tolerance 2
Tail light to outer side panel		Gap dimension A	4 mm	+/-1.5 mm	
Tail light to outer side panel		Gap dimension B	3.5 mm	+/-2 mm	



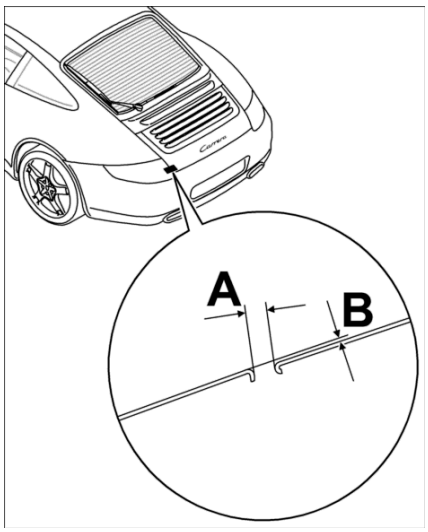
Tail light to centre side panel

Location	Explanation	Type	Basic value	Tolerance 1	Tolerance 2
Tail light to centre side panel		Gap dimension A	3 mm	+/-0.8 mm	
Tail light to centre side panel	Tail light only lowered	Gap dimension B	0.8 mm	-1 mm	



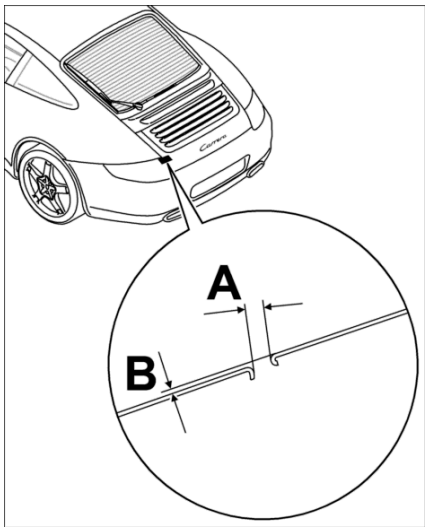
Rear apron to tail light

Location	Explanation	Type	Basic value	Tolerance 1	Tolerance 2
Rear apron to tail light		Gap dimension A	4 mm	+/-1.5 mm	



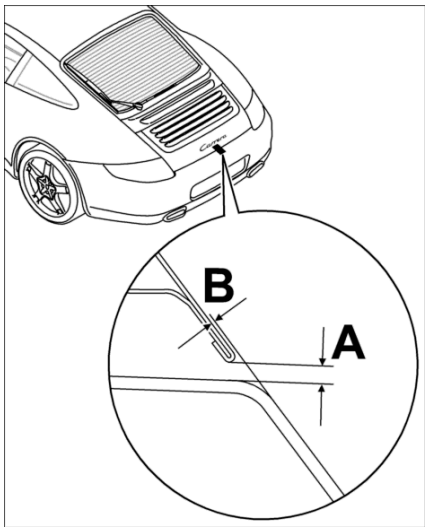
Tail light to rear lid

Location	Explanation	Type	Basic value	Tolerance 1	Tolerance 2
Tail light to rear lid	Determine gap	Gap dimension A	4.9 mm	+/-1 mm	
Tail light to rear lid	Only lowered	Gap dimension B	0.4 mm		



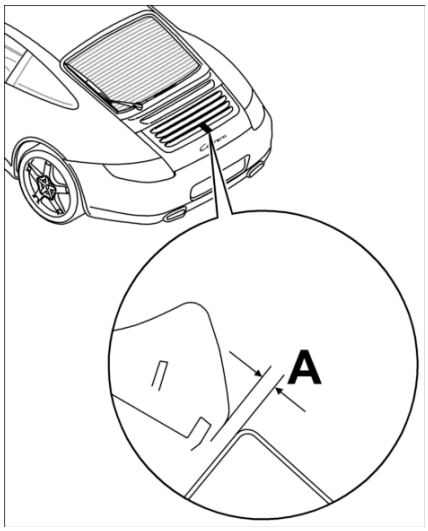
Tail light to rear lid

Location	Explanation	Type	Basic value	Tolerance 1	Tolerance 2
Tail light to rear lid	Determine gap	Gap dimension A	4.5 mm	+/-1 mm	
Tail light to rear lid	Only lowered	Gap dimension B	1.8 mm		



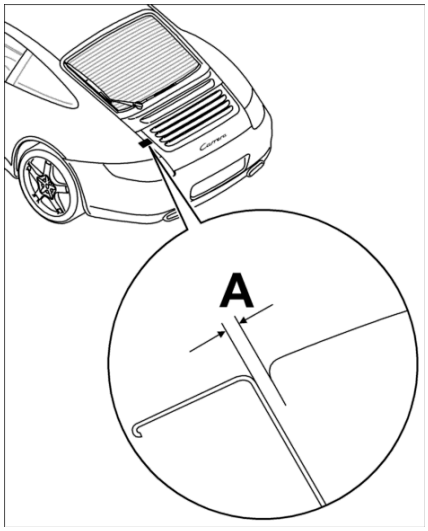
Rear lid to rear spoiler

Location	Explanation	Type	Basic value	Tolerance 1	Tolerance 2
Rear lid to rear spoiler		Gap dimension A	4 mm	+/-1.5 mm	
Rear lid to rear spoiler	Only lowered	Gap dimension B	1 mm		



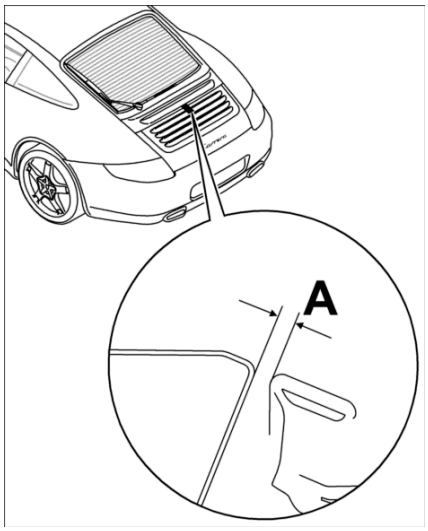
Rear lid to spoiler top section

Location	Explanation	Type	Basic value	Tolerance 1	Tolerance 2
Rear lid to spoiler top section	Rear lid only lowered (max. 1 mm)	Gap dimension A	3.5 mm		



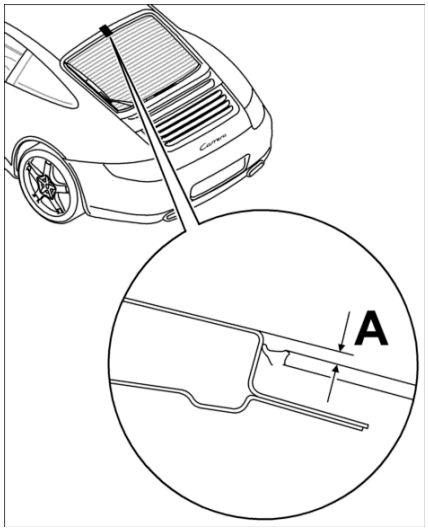
Rear lid to spoiler top section

Location	Explanation	Type	Basic value	Tolerance 1	Tolerance 2
Rear lid to spoiler top section	Rear lid only lowered (max. 1 mm)	Gap dimension A	3.5 mm	+/-0.5 mm	



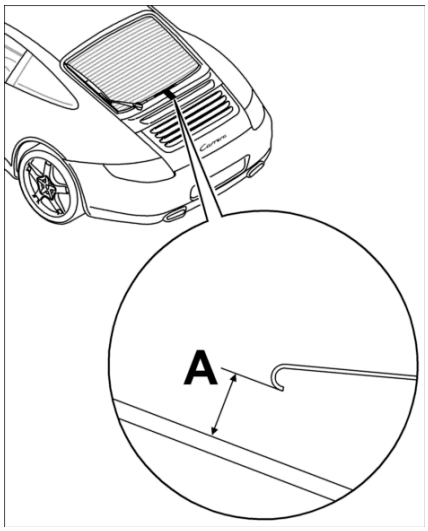
Rear centre panel to spoiler top section

Location	Explanation	Type	Basic value	Tolerance 1	Tolerance 2
Rear centre panel to spoiler top section	Rear lid only lowered (max. +1 mm, - 3 mm)	Gap dimension A	4 mm	+/-1.5 mm	



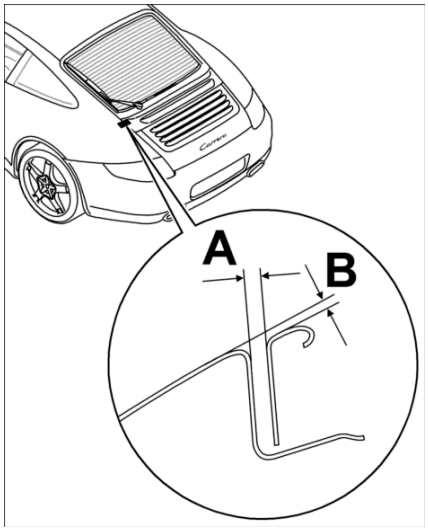
Rear window to outer roof panel

Location	Explanation	Type	Basic value	Tolerance 1	Tolerance 2
Rear window to outer roof panel	Only lowered	Gap dimension A	2 mm		



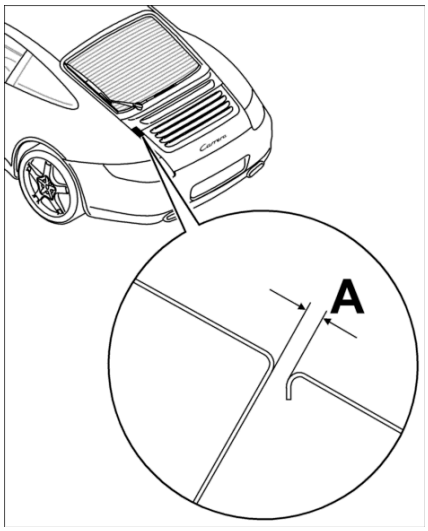
Rear centre panel to rear window

Location	Explanation	Type	Basic value	Tolerance 1	Tolerance 2
Rear centre panel to rear window		Gap dimension A	15.5 mm		



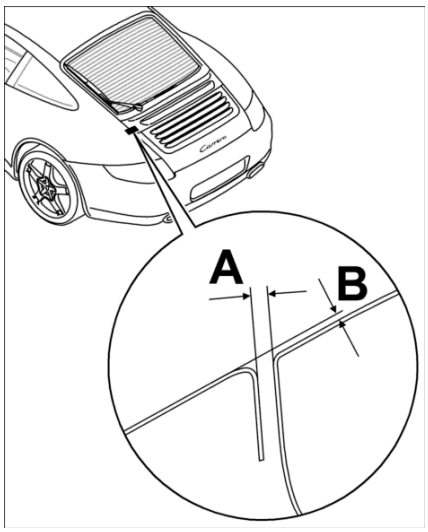
Rear centre panel to outer side panel

Location	Explanation	Type	Basic value	Tolerance 1	Tolerance 2
Rear centre panel to outer side panel		Gap dimension A	4 mm	+/-1 mm	
Rear centre panel to outer side panel	Only lowered	Gap dimension B	1.9 mm	+/-1 mm	



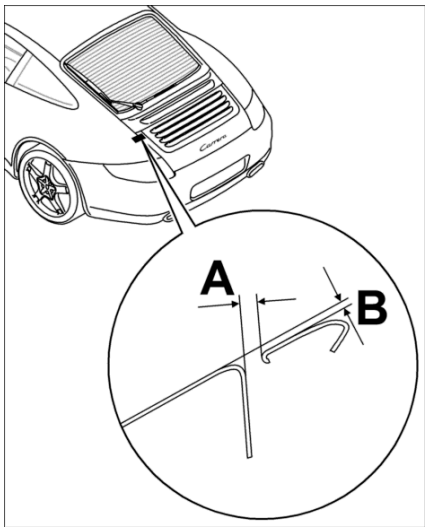
Rear centre panel to rear lid

Location	Explanation	Type	Basic value	Tolerance 1	Tolerance 2
Rear centre panel to rear lid		Gap dimension A	4 mm	+/-1.5 mm	



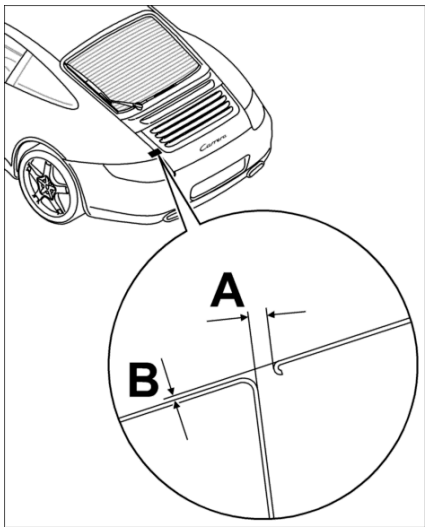
Outer side panel to rear centre panel lid

Location	Explanation	Type	Basic value	Tolerance 1	Tolerance 2
Outer side section to rear centre panel		Gap dimension A	4 mm	+/-1 mm	
Rear centre panel to outer side panel	Only lowered	Gap dimension B	1.7 mm	+/-1 mm	



Outer side panel to rear lid

Location	Explanation	Type	Basic value	Tolerance 1	Tolerance 2
Outer side panel to rear lid		Gap dimension A	4 mm	+/-1 mm	
Outer side panel to rear lid	Only lowered	Gap dimension B	1.7 mm	+/-1 mm	



Outer side panel to rear lid

Location	Explanation	Type	Basic value	Tolerance 1	Tolerance 2
Outer side panel to rear lid		Gap dimension A	4.2 mm	+/-1 mm	
Outer side panel to rear lid	Only lowered	Gap dimension B	0.3 mm		

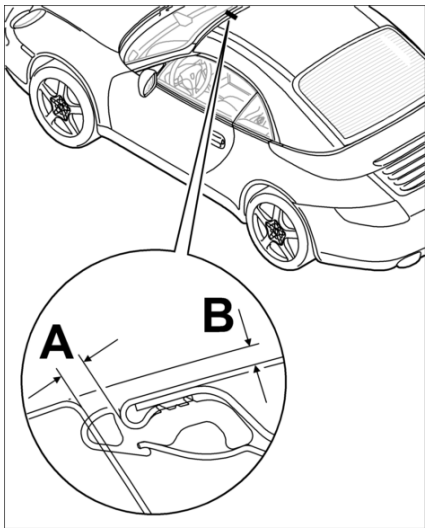
top of page

Diagram - Cabriolet gap dimensions

Gap dimensions, hardtop

Note

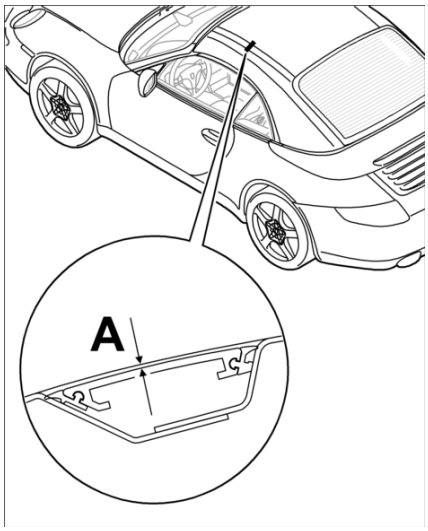
- *Set gap dimensions on the lids, doors and covers, or accessories in accordance with the gap specifications.*
- *Given a clearance in the opening that is too great or too small, the movable body or the accessories must be centred accordingly.*
- *Ensure that the gaps do not taper or do not narrow at local points.*
- *The given values are guidelines which should be observed as far as possible.*
- *The guidelines apply to repair and assembly work.*
- *Use star gauges to measure the gap dimensions,* ***Star gauges for body gap dimensions NR.127-1***



Windscreen frame to hardtop

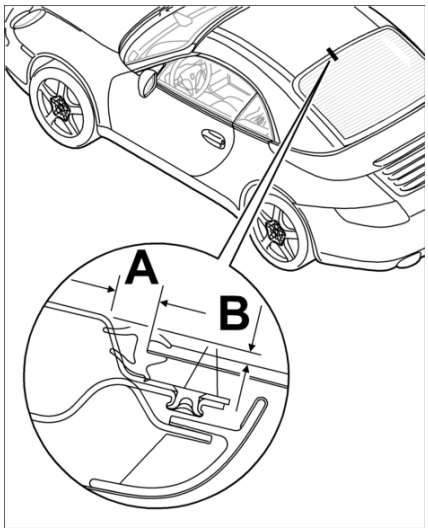
Location	Explanation	Type	Basic value	Tolerance 1	Tolerance 2
Windscreen frame to hardtop	Hardtop only lowered	Gap dimension A	5.5 mm	+/-1 mm	
			4 mm	-2 mm	

Windscreen frame to hardtop		Gap dimension B			



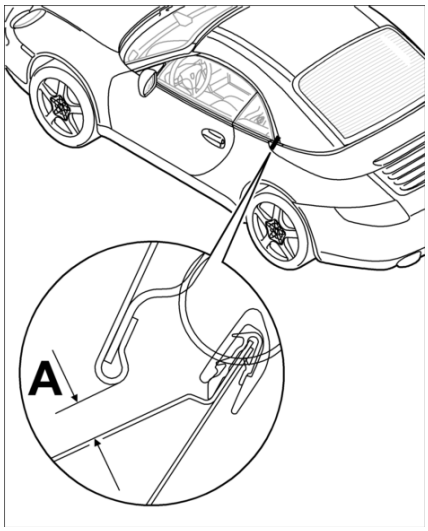
Roof joint strip to hardtop

Location	Explanation	Type	Basic value	Tolerance 1	Tolerance 2
Roof joint strip to hardtop	Only lowered	Gap dimension A	1 mm		



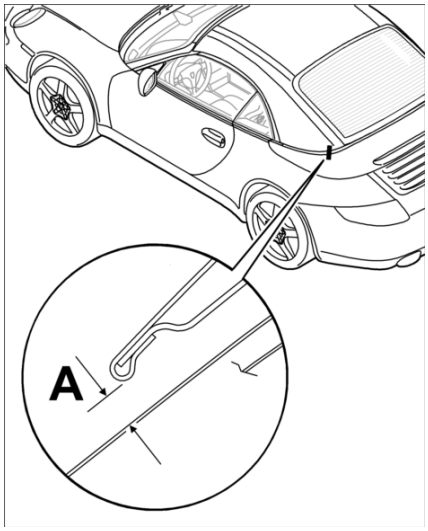
Rear window to roof frame (hardtop)

Location	Explanation	Type	Basic value	Tolerance 1	Tolerance 2
Rear window to roof frame (hardtop)	Rear window only lowered	Gap dimension A	10 mm		
Rear window to roof frame (hardtop)		Gap dimension B	3 mm	+/-1.5 mm	



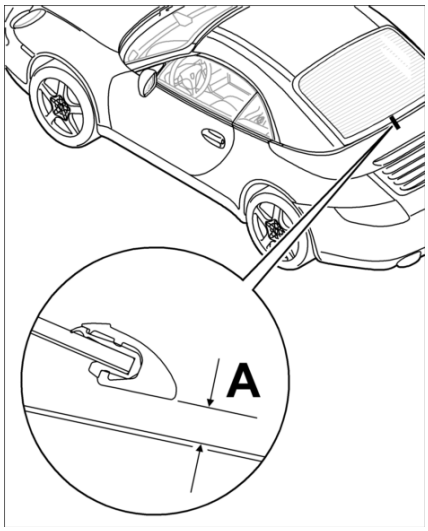
Hardtop to convertible-top compartment lid

Location	Explanation	Type	Basic value	Tolerance 1	Tolerance 2
Hardtop to convertible-top compartment lid		Gap dimension A	8 mm	+/-4 mm	



Hardtop to convertible-top compartment lid

Location	Explanation	Type	Basic value	Tolerance 1	Tolerance 2
Hardtop to convertible-top compartment lid		Gap dimension A	8 mm	+/-4 mm	



Hardtop to convertible-top compartment lid

Location	Explanation	Type	Basic value	Tolerance 1	Tolerance 2
Hardtop to convertible-top compartment lid		Gap dimension A	6 mm	+/-3 mm	

997430, 997431

as of MY 2005
Country C00, C02, C05, C07, C08, C09, C10, C11, C12, C13, C14, C15, C16, C18, C19, C20, C21, C22, C23, C24, C25, C26, C27, C28, C32, C33, C34, C35, C36, C37, C38, C39, C45, C46, C98, C99

WARNUNG
Gefahr des Verlusts der Text-Bild-Zuordnung beim Ausdruck.

- **Aus technischen Gründen kann derzeit nicht ausgeschlossen werden, dass trotz einwandfreier Darstellung auf dem Bildschirm beim Ausdruck der Zusammenhang von Text und zugehörigem Bild verloren geht.**
- **Wird der Fehler nicht bemerkt, besteht die Gefahr, daß Arbeiten nicht korrekt durchgeführt werden und es dadurch zu Personen- und Sachschäden kommt.**

Vergleichen Sie deshalb nach dem Druckvorgang unbedingt die Ausdrucke mit der Bildschirmdarstellung. Korrigieren Sie die Ausdrucke im Fehlerfall so, daß der Inhalt der Bildschirmdarstellung zutreffend wiedergegeben wird.

WARNING
Danger of losing text-figure correspondence when printing out.

- **For technical reasons, it can currently not be ruled out that the correspondence between text and associated figure can be lost when it is printed out, even though the display on the screen is correct.**

50 IN Diagram: Plug plan - as of MY 2005

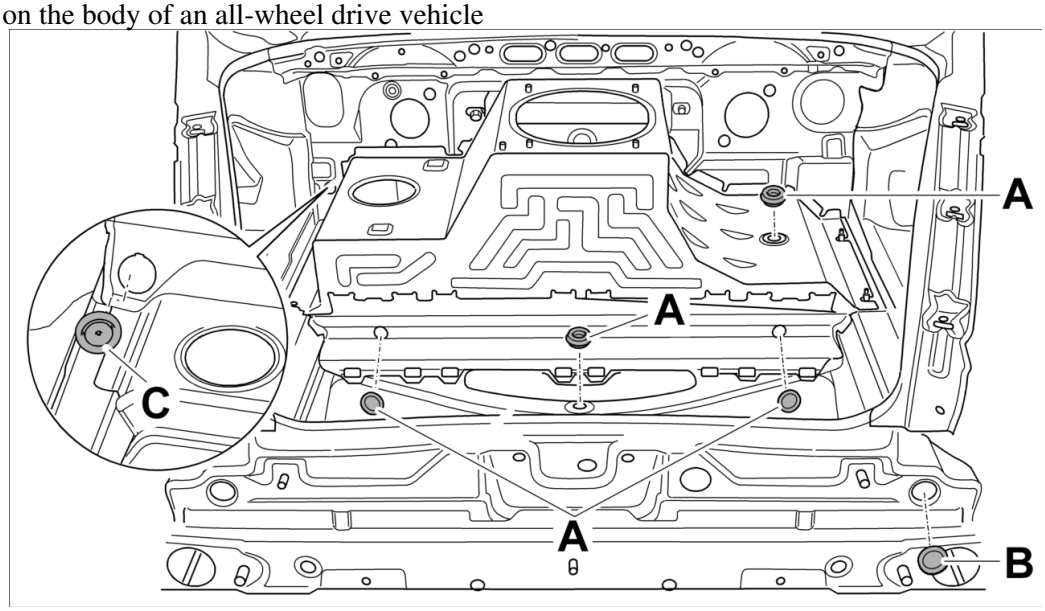
- Diagram: Plug plan

top of page

Diagram: Plug plan

Top of front of vehicle

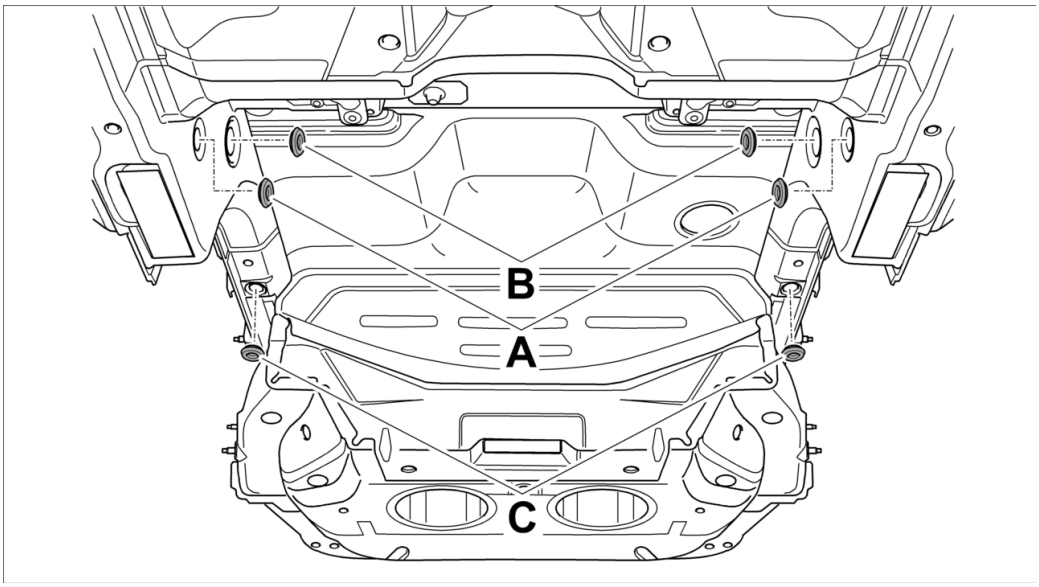
Illustrated on the body of an all-wheel drive vehicle



Top of front of vehicle

A - Rubber grommet hole Ø 20 mm
B - Rubber grommet hole Ø 30 mm
C - Plug hole Ø 35 mm

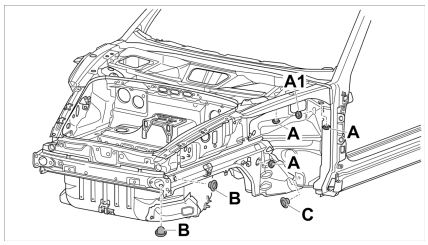
Bottom of front of vehicle



Bottom of front of vehicle

A - Rubber grommet hole Ø 20 mm
B - Rubber grommet hole Ø 30 mm
C - Plug hole Ø 20 mm

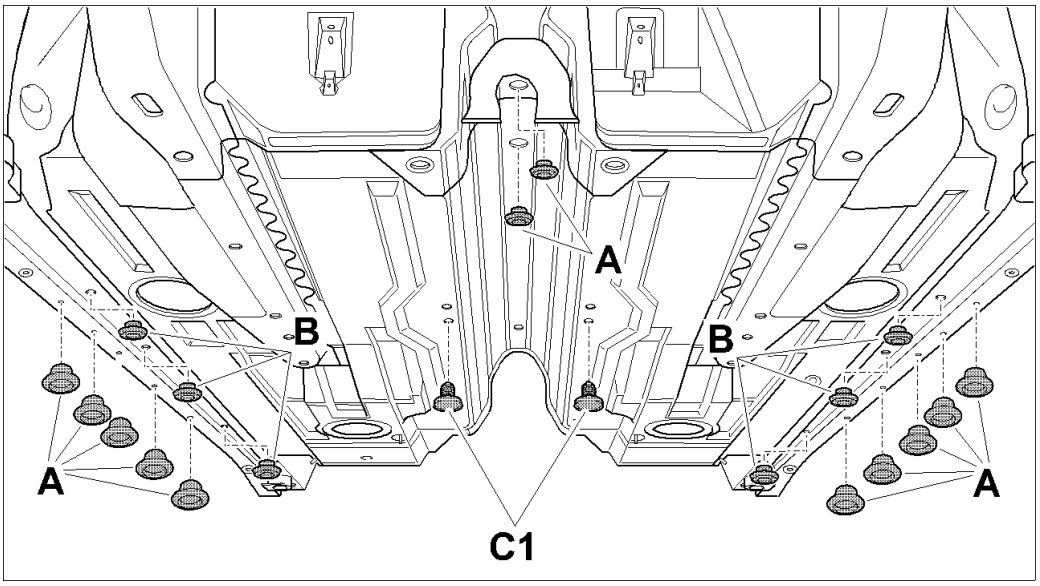
Side of front of vehicle



Side of front of vehicle

A - Rubber grommet hole Ø 20 mm
A1 - Rubber grommet hole (only when no sliding roof) Ø 20 mm
B - Plug hole Ø 10 mm
C - Plug hole Ø 15 mm

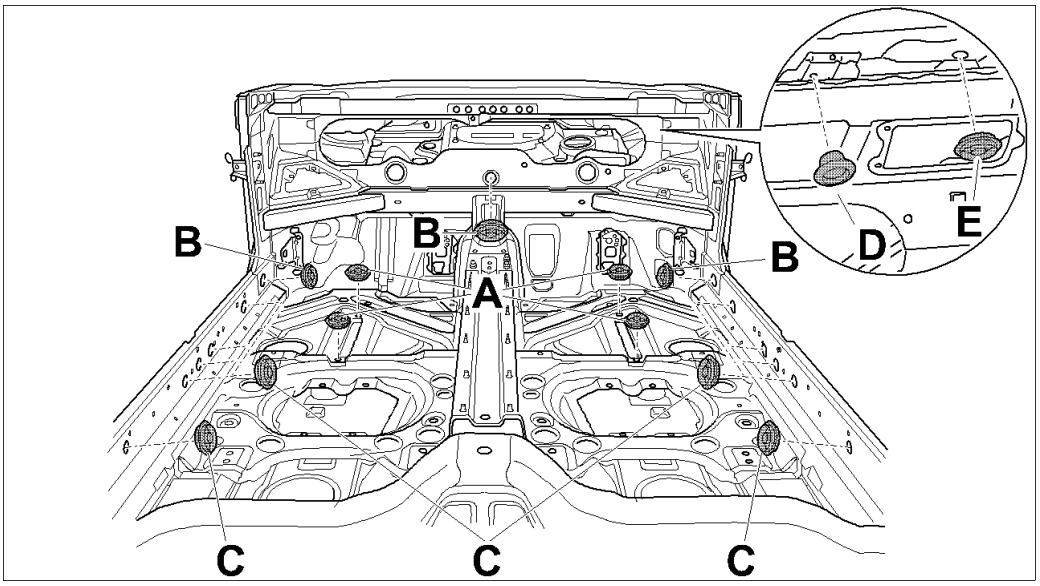
Bottom of lower side member and floor



Bottom of lower side member and floor

A - Cap hole Ø 15 mm
B - Cap hole Ø 20 mm
C1 - Plug hole (only rear-wheel drive) Ø 10 mm

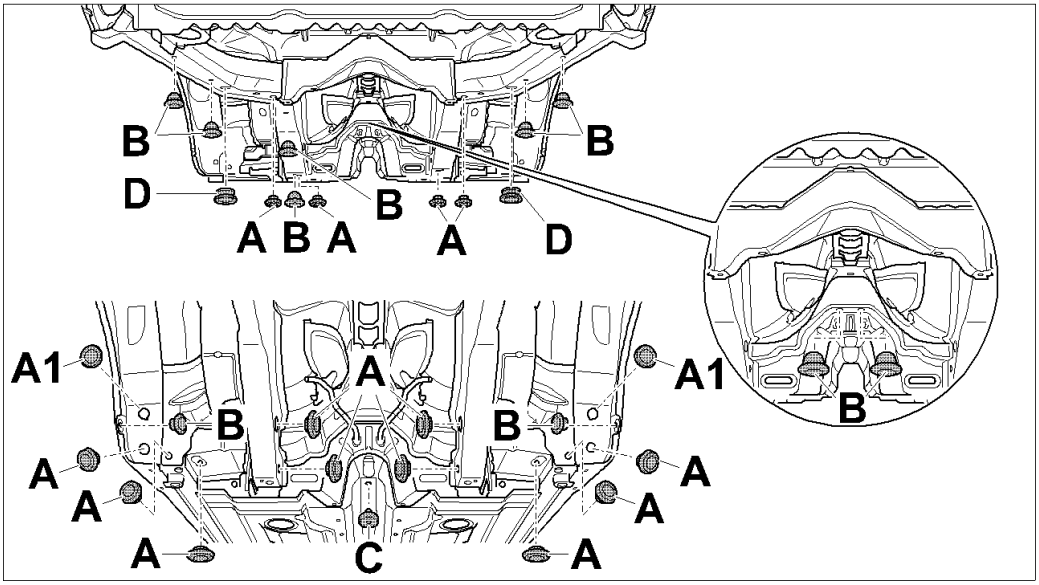
Top of lower side member and floor



Top of lower side member and floor

A - Rubber grommet hole Ø 20 mm
B - Rubber grommet hole Ø 30 mm
C - Cap hole Ø 30 mm
D - Plug hole Ø 10 mm
E - Cap hole Ø 20 mm

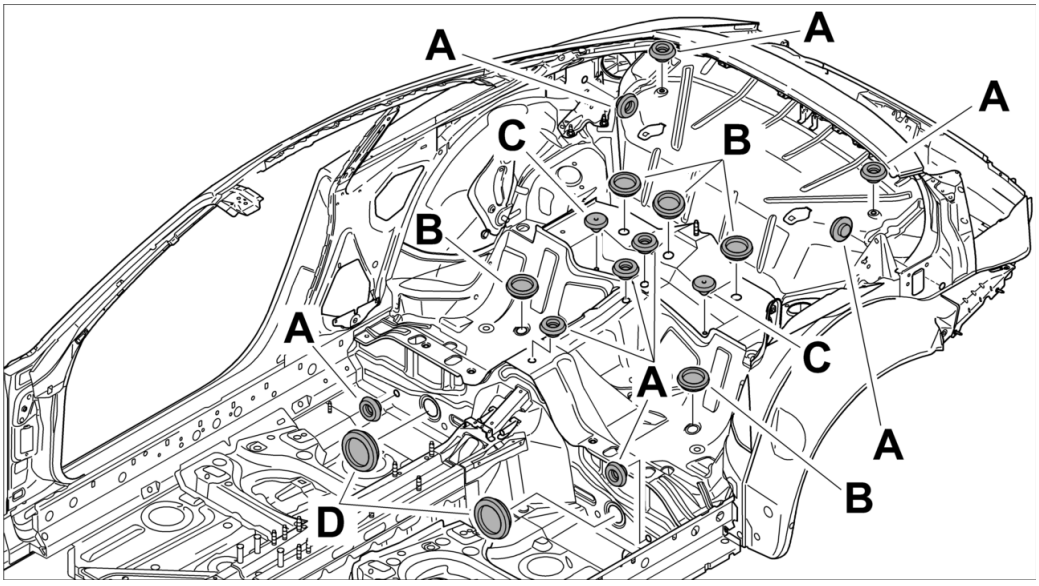
Bottom of rear end



Bottom of rear end

A - Rubber grommet hole Ø 20 mm
A1 - Plug (Coupé only) Ø 33 mm
B - Plug Ø 10 mm
C - Plug hole Ø 15 mm
D - Plug hole Ø 20mm

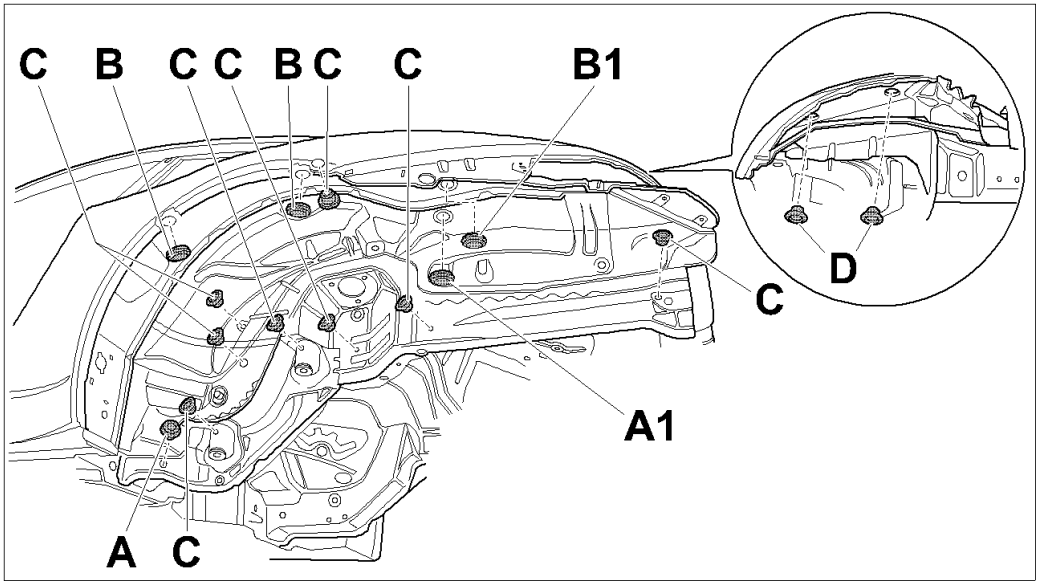
Top of rear end



Top of rear end

A - Rubber grommet hole Ø 20 mm
B - Rubber grommet hole Ø 30 mm
D - Plug hole Ø 10 mm
L - Plug hole Ø 55 mm

Side of rear end



Side of rear end

A - Rubber grommet hole Ø 20 mm
A1 - Rubber grommet hole (only when no sliding roof) Ø 20 mm
B - Rubber grommet hole Ø 30 mm
B1 - Rubber grommet hole (Coupé only) Ø 30 mm
C - Plug (right side only) Ø 10 mm
D - Plug hole Ø 20 mm

997110, 997111, 997120, 997121, 997410, 997411, 997430, 997431

as of MY 2005
Country C00, C02, C05, C07, C08, C09, C10, C11, C12, C13, C14, C15, C16, C18, C19, C20, C21, C22, C23, C24, C25, C26, C27, C28, C32, C33, C34, C35, C36, C37, C38, C39, C45, C46, C98, C99

WARNUNG
Gefahr des Verlusts der Text-Bild-Zuordnung beim Ausdruck.

- **Aus technischen Gründen kann derzeit nicht ausgeschlossen werden, dass trotz einwandfreier Darstellung auf dem Bildschirm beim Ausdruck der Zusammenhang von Text und zugehörigem Bild verloren geht.**
- **Wird der Fehler nicht bemerkt, besteht die Gefahr, daß Arbeiten nicht korrekt durchgeführt werden und es dadurch zu Personen- und Sachschäden kommt.**

Vergleichen Sie deshalb nach dem Druckvorgang unbedingt die Ausdrucke mit der Bildschirmdarstellung. Korrigieren Sie die Ausdrucke im Fehlerfall so, daß der Inhalt der Bildschirmdarstellung zutreffend wiedergegeben wird.

WARNING
Danger of losing text-figure correspondence when printing out.

50 IN Diagram: Plug plan - as of MY 2005

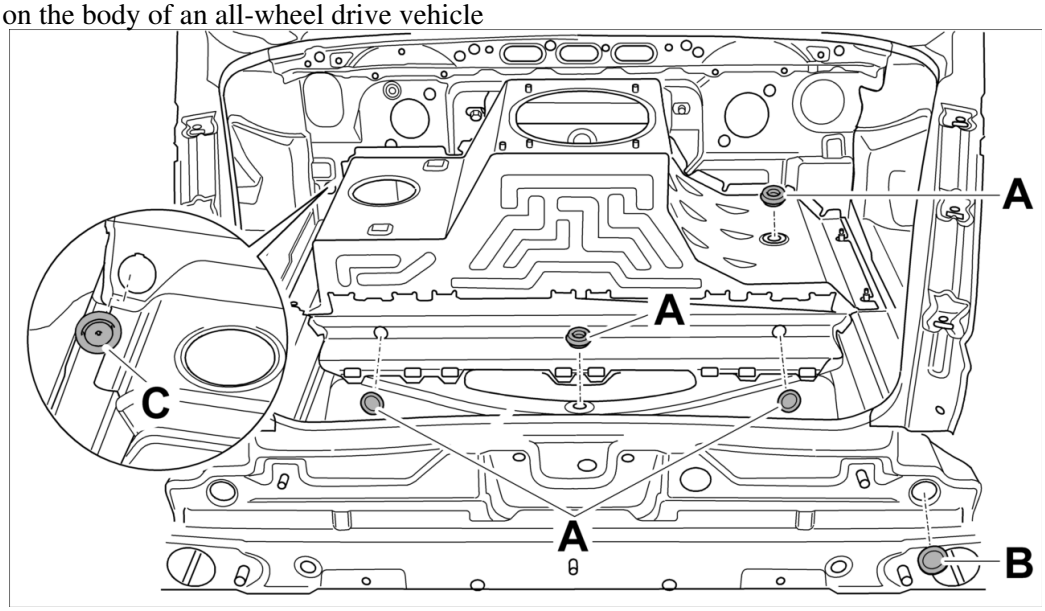
- Diagram: Plug plan

top of page

Diagram: Plug plan

Top of front of vehicle

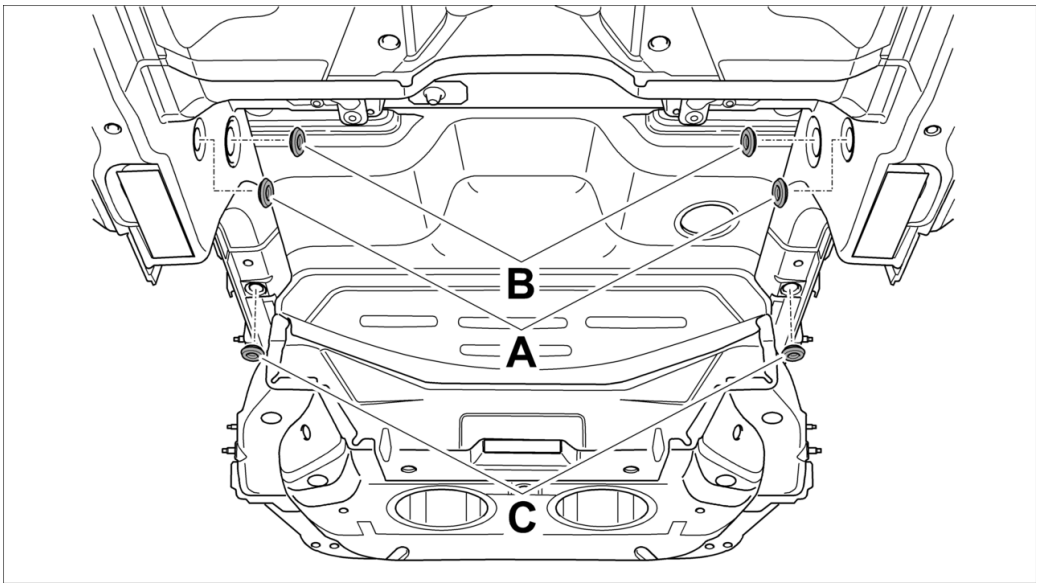
Illustrated on the body of an all-wheel drive vehicle



Top of front of vehicle

A - Rubber grommet hole Ø 20 mm
B - Rubber grommet hole Ø 30 mm
C - Plug hole Ø 35 mm

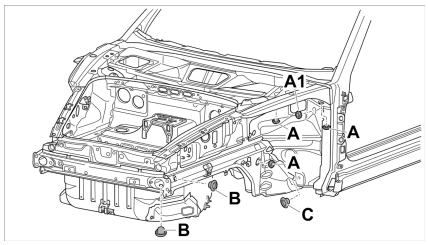
Bottom of front of vehicle



Bottom of front of vehicle

A - Rubber grommet hole Ø 20 mm
B - Rubber grommet hole Ø 30 mm
C - Plug hole Ø 20 mm

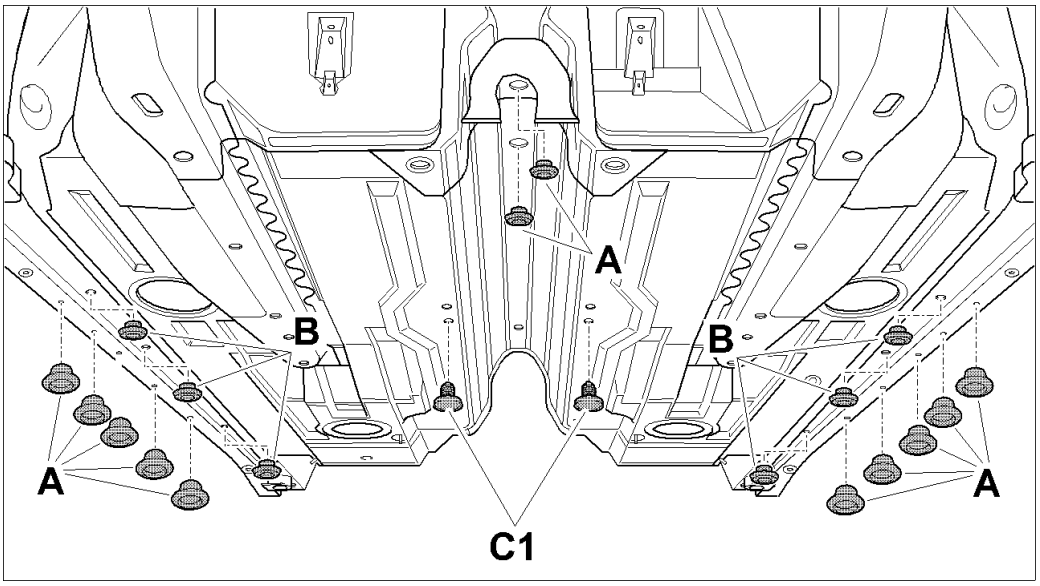
Side of front of vehicle



Side of front of vehicle

A - Rubber grommet hole Ø 20 mm
A1 - Rubber grommet hole (only when no sliding roof) Ø 20 mm
B - Plug hole Ø 10 mm
C - Plug hole Ø 15 mm

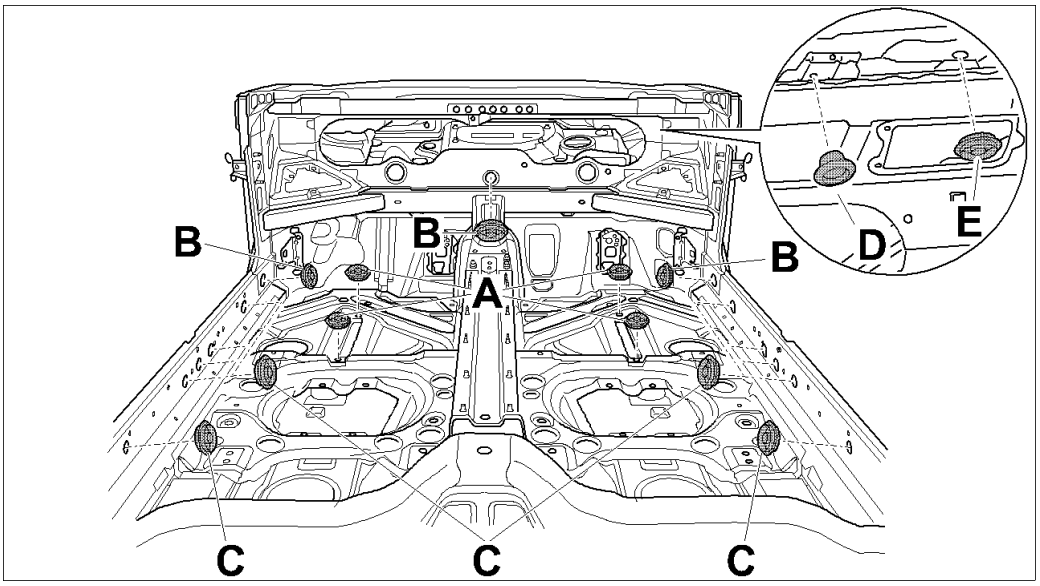
Bottom of lower side member and floor



Bottom of lower side member and floor

A - Cap hole Ø 15 mm
B - Cap hole Ø 20 mm
C1 - Plug hole (only rear-wheel drive) Ø 10 mm

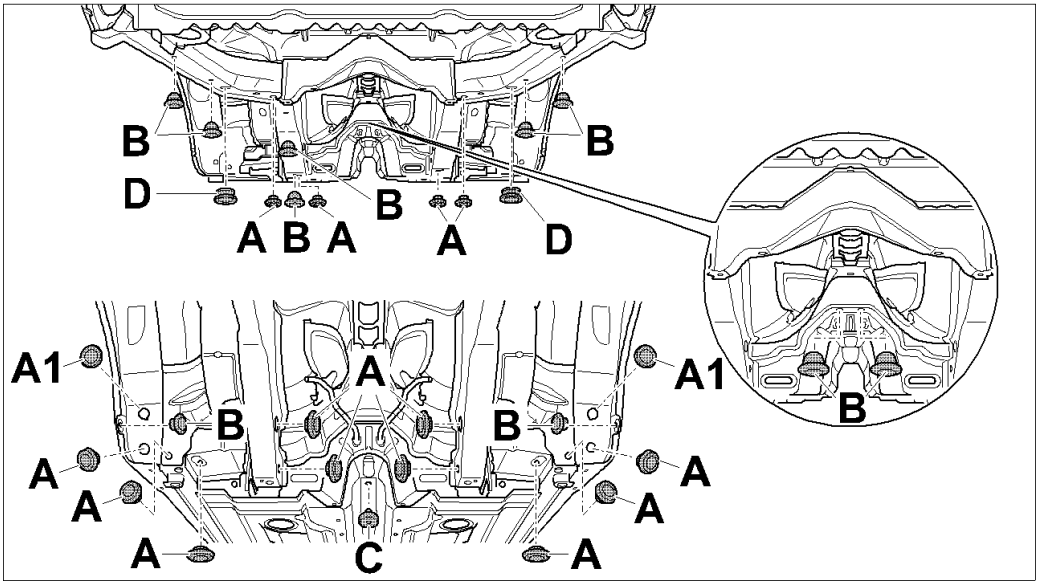
Top of lower side member and floor



Top of lower side member and floor

A - Rubber grommet hole Ø 20 mm
B - Rubber grommet hole Ø 30 mm
C - Cap hole Ø 30 mm
D - Plug hole Ø 10 mm
E - Cap hole Ø 20 mm

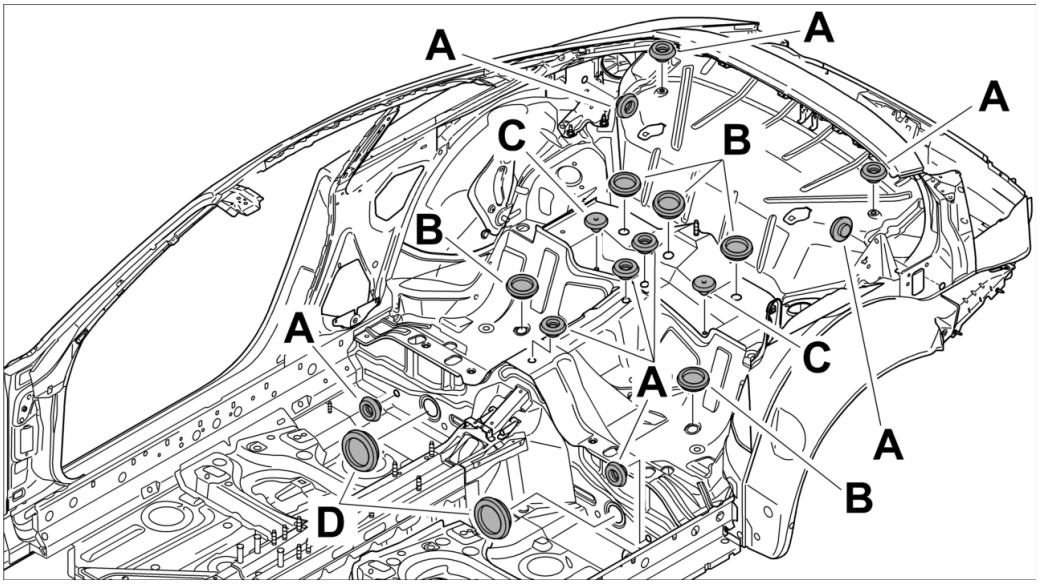
Bottom of rear end



Bottom of rear end

A - Rubber grommet hole Ø 20 mm
A1 - Plug (Coupé only) Ø 33 mm
B - Plug Ø 10 mm
C - Plug hole Ø 15 mm
D - Plug hole Ø 20mm

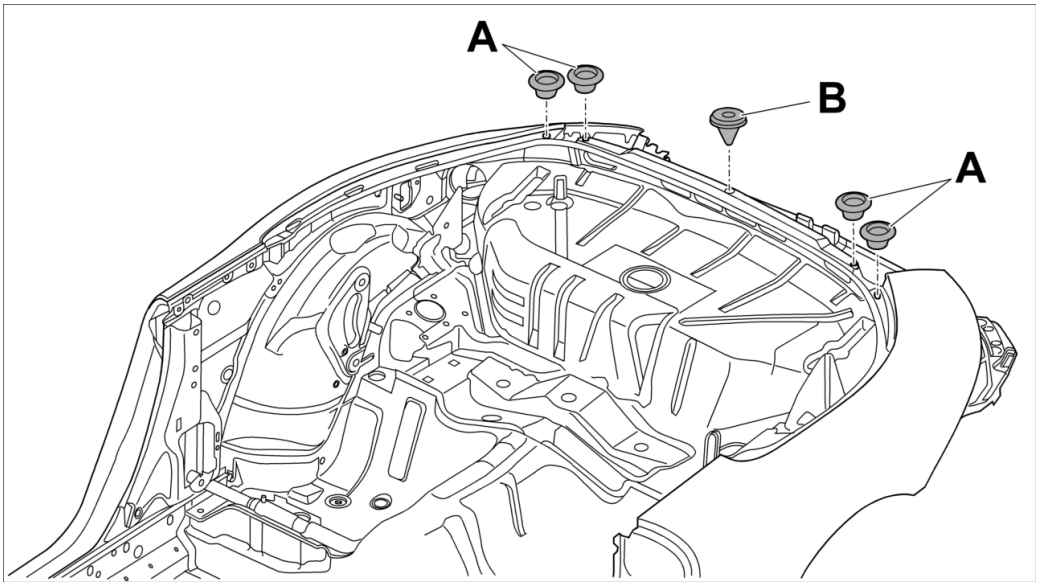
Top of rear end



Top of rear end

A - Rubber grommet hole Ø 20 mm
B - Rubber grommet hole Ø 30 mm
D - Plug hole Ø 10 mm
L - Plug hole Ø 55 mm

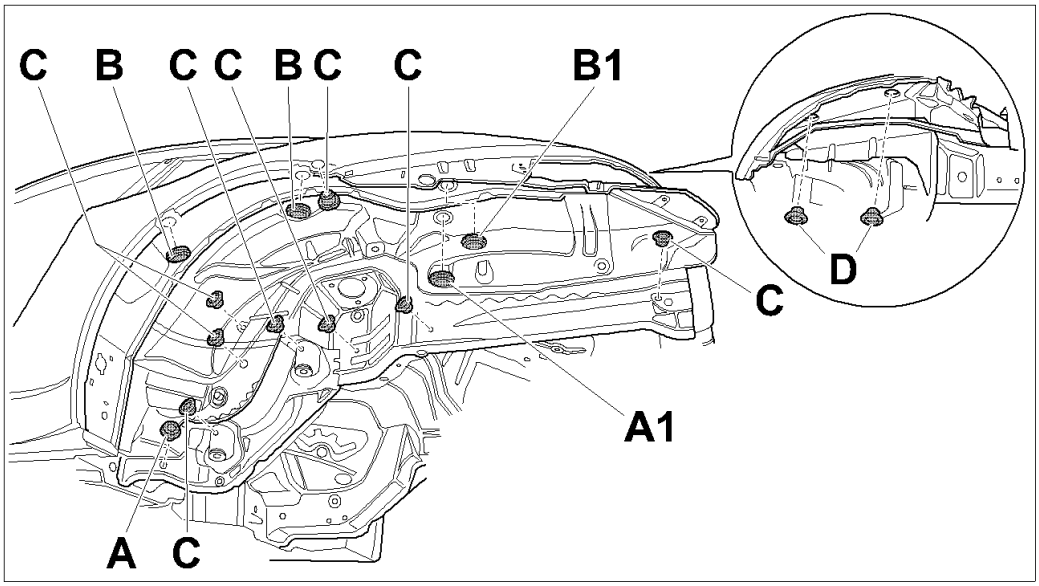
Top of rear end



Top of rear end

A - Plug hole Ø 10 mm
B - Plug hole Ø 15 mm

Side of rear end



Side of rear end

A - Rubber grommet hole Ø 20 mm
A1 - Rubber grommet hole (only when no sliding roof) Ø 20 mm
B - Rubber grommet hole Ø 30 mm
B1 - Rubber grommet hole (Coupé only) Ø 30 mm
C - Plug (right side only) Ø 10 mm
D - Plug hole Ø 20 mm

50 IN Diagram - keys to symbols for welding work - as of MY 2005

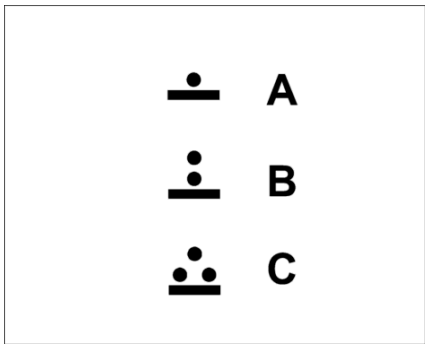
- Diagram - keys to symbols for welding work

top of page

Diagram - keys to symbols for welding work

Resistance spot welding

A - Spot seam, single row
B - Spot seam, double row

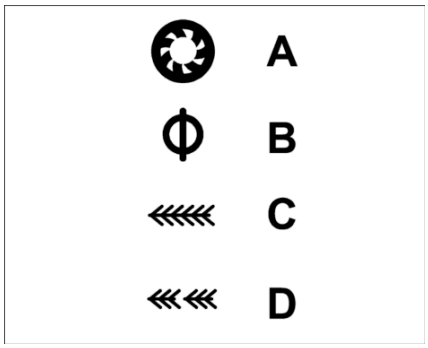


Resistance spot welding

C - Spot seam, double row offset

Inert-gas arc welding (MAG procedure)

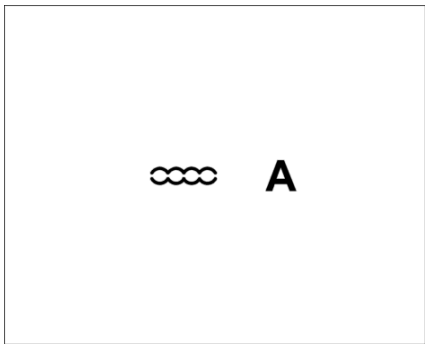
A- Plug weld
B - Stitch weld
C- Full weld



Inert-gas arc welding (MAG procedure)

D- Intermittent full weld

Gas welding



Gas welding

A- Brazing

997110, 997111, 997120, 997121, 997310, 997311, 997320, 997321, 997410, 997411, 997430, 997431, 997610, 997611, 997620, 997621

as of MY 2005
Country C00, C02, C05, C07, C08, C09, C10, C11, C12, C13, C14, C15, C16, C18, C19, C20, C21, C22, C23, C24, C25, C26, C27, C28, C32, C33, C34, C35, C36, C37, C38, C39, C45, C46, C98, C99

WARNUNG

Gefahr des Verlusts der Text-Bild-Zuordnung beim Ausdruck.

- **Aus technischen Gründen kann derzeit nicht ausgeschlossen werden, dass trotz einwandfreier Darstellung auf dem Bildschirm beim Ausdruck der Zusammenhang von Text und zugehörigem Bild verloren geht.**
- **Wird der Fehler nicht bemerkt, besteht die Gefahr, daß Arbeiten nicht korrekt durchgeführt werden und es dadurch zu Personen- und Sachschäden kommt.**

Vergleichen Sie deshalb nach dem Druckvorgang unbedingt die Ausdrucke mit der Bildschirmdarstellung. Korrigieren Sie die Ausdrucke im Fehlerfall so, daß der Inhalt der Bildschirmdarstellung zutreffend wiedergegeben wird.

WARNING

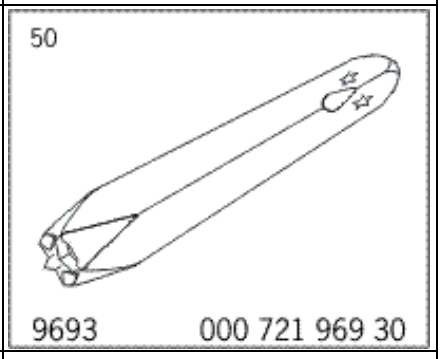
Danger of losing text-figure correspondence when printing out.

- **For technical reasons, it can currently not be ruled out that the correspondence between text and associated figure can be lost when it is printed out, even though the display on the screen is correct.**
- **If the fault is not noticed, there is the danger that work will not be performed correctly which can cause injury and damage.**

50 IN Vehicle identification number - as of MY 2005

- Re-imprinting new vehicle identification number

Tools

Designation	Type	Number	Explanation	
Handschlagstempel	special tool	96930		
8 mm letter/digit embossing tool with DIN 1451 closely spaced lettering, letter set	commercially available tool	NR.128-1		

top of page

Re-imprinting new vehicle identification number

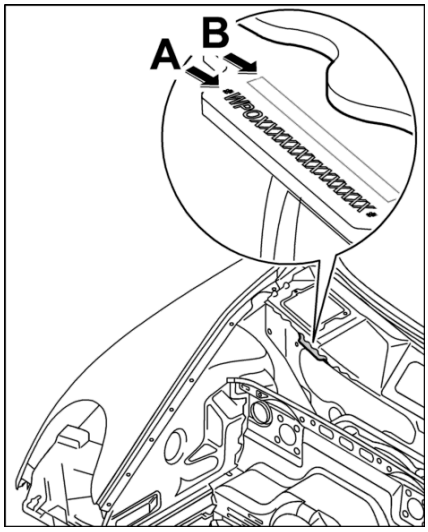
Vehicle identification number

After replacing the body or the sheetmetal parts in the area of the vehicle identification number (firewall), the original vehicle identification number must be reimprinted onto the new body or the new sheet metal part.
The documentation of the imprinted vehicle identification number in the vehicle supplementary document or legally permissible treatment can be obtained from the importer of the respective country.
An incorrectly imprinted (stamped) vehicle identification number should be permanently crossed through with a X so that it remains legible. The vehicle identification number to be newly imprinted should be imprinted above the crossed through identification number.

Spacer for replacing the vehicle identification number

The spacer for applying the vehicle identification number is in the front, right firewall. Two sections are intended for use.

– Section 1 **-A-** is the standard spacer.



Vehicle identification number

– Section 2 **-B-** is the spare spacer for a corrected vehicle identification number.

Re-imprinting new vehicle identification number

Note

- *Only imprint vehicle identification number in a cathodic-dip coated sheetmetal part. 1)*
- *The area should be countered when imprinting the vehicle identification number.*

1. Stamp the vehicle identificaiton number to be replaced with **8 mm letter/digit embossing tool with DIN 1451 closely spaced lettering, letter set NR.128-1** and the Porsche star **Handschlagstempel 96930** in den Platzhalter einschlagen.
2. Mask imprinted vehicle identification number.
3. Apply exterior paintwork.
4. Remove the vehicle identification number mark.
5. Paint repair area with clear lacquer.

1) Cathodic-dip coating is the primer applied to the sheetmetal parts at the factory

---

997110, 997111, 997120, 997121, 997310, 997311, 997320, 997321, 997410, 997411, 997430, 997431, 997610, 997611, 997620, 997621

as of MY 2005
Country C00, C02, C05, C07, C08, C09, C10, C11, C12, C13, C14, C15, C16, C18, C19, C20, C21, C22, C23, C24, C25, C26, C27, C28, C32, C33, C34, C35, C36, C37, C38, C39, C45, C46, C98, C99

50 IN Corrosion protection measures during repairs - as of MY 2005

- Measures for maintaining long-term body protection
- Prerequisite for ensuring validity of the long-life guarantee

top of page

Measures for maintaining long-term body protection

Measures for maintaining long-term body protection

Note

- *After repair work, the standard corrosion-inhibiting coating should only be restored with the corrosion-inhibiting agents approved by the manufacturer. The following points must be observed for body repairs.*

- Always apply welding primer to both sides of the welding flange when resistance spot welding.
- Prime repair areas from outside. Prime on both sides in the accessible areas.
- Seal all sheetmetal overlaps, sheetmetal edges, butt joints, weld seams etc. with body sealant.
- Only apply body sealant to primed sheetmetal parts.
- Apply top coat paint to the inside of the outer sheetmetal shell before welding. See "Paint build-up": "Paint Manual"
- Build up paint on bright sheetmetal panels according to the painting methods described in the "Paint manual".
- Repair or create standard undersealing by applying long-life undersealing material.
- Preserve cavities in the repair area with cavity preservative after applying a top coat paint.
- Check that the standard water drains (plugs) function correctly or clean them after the cavity preservation material has dried.

top of page

Prerequisite for ensuring validity of the long-life guarantee

Prerequisite for ensuring validity of the long-life guarantee

Porsche long-life guarantee conditions

- All body repair work must be carried out correctly and according to the specific Porsche instructions for sheetmetal, paint and corrosion protection/preservation work.
- To prevent jeopardising the long-life guarantee, a Paint Condition Report is made out 2 years after delivery of the vehicle. This condition report must be drafted annually be every Official Porsche Centre.

997110, 997111, 997120, 997121, 997310, 997311, 997320, 997321, 997410, 997411, 997430, 997431, 997610, 997611, 997620, 997621

as of MY 2005
Country C00, C02, C05, C07, C08, C09, C10, C11, C12, C13, C14, C15, C16, C18, C19, C20, C21, C22, C23, C24, C25, C26, C27, C28, C32, C33, C34, C35, C36, C37, C38, C39, C45, C46, C98, C99

WARNUNG

Gefahr des Verlusts der Text-Bild-Zuordnung beim Ausdruck.

- **Aus technischen Gründen kann derzeit nicht ausgeschlossen werden, dass trotz einwandfreier Darstellung auf dem Bildschirm beim Ausdruck der Zusammenhang von Text und zugehörigem Bild verloren geht.**
- **Wird der Fehler nicht bemerkt, besteht die Gefahr, daß Arbeiten nicht korrekt durchgeführt werden und es dadurch zu Personen- und Sachschäden kommt.**

Vergleichen Sie deshalb nach dem Druckvorgang unbedingt die Ausdrucke mit der Bildschirmdarstellung. Korrigieren Sie die Ausdrucke im Fehlerfall so, daß der Inhalt der Bildschirmdarstellung zutreffend wiedergegeben wird.

WARNING

Danger of losing text-figure correspondence when printing out.

- **For technical reasons, it can currently not be ruled out that the correspondence between text and associated figure can be lost when it is printed out, even though the display on the screen is correct.**
- **If the fault is not noticed, there is the danger that work will not be performed correctly which can cause injury and damage.**

Therefore, always compare printouts with the screen display after printing them out. Correct the printouts if they are faulty so that the content of the screen display matches that on the printouts.

AVERTISSEMENT

Risque de perte de la correspondance texte-illustration lors de l'impression papier.

50 IN Seam seals - as of MY 2005

- Accessories
- Unpainted bodyshell

top of page

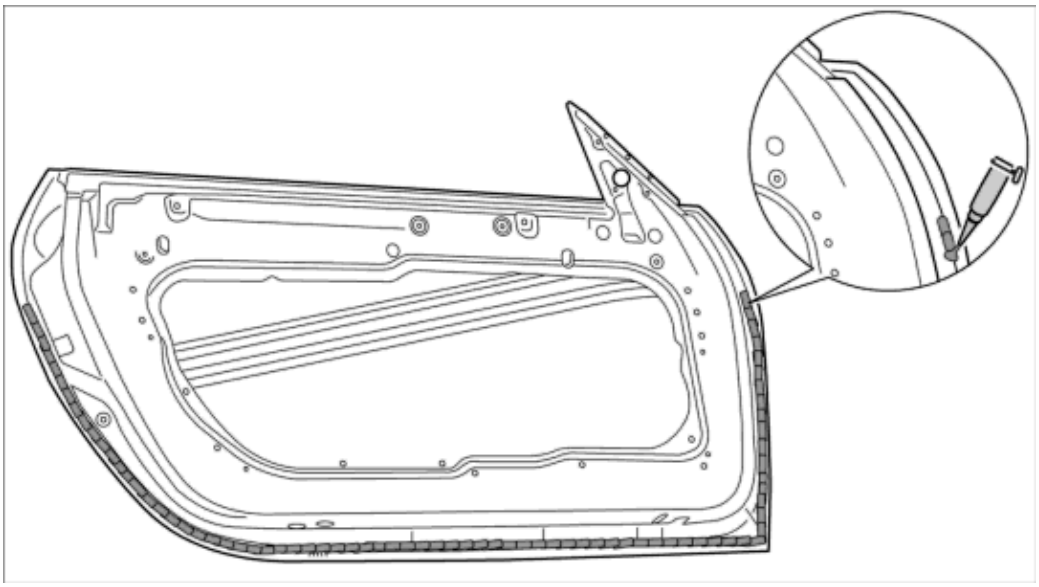
Accessories

Note on seam seals

Note

- *Due to modifications to the spare part range, in the case of repair work, accessories must be sealed before assembly (painting) according to the following illustrations.*
- *The sealing material SEALING MATERIAL can be applied directly to accessories coated with KTL paint (cathodic dipbath coating).*
- *The seam seal can be painted over when it has reached approx. 70 % hardness (approx. 4 - 5 h at 20 °C, 50 % relative air humidity. Higher air humidity or dampening with water accelerates the hardening process).*
- *The hardening can be checked with a nail test. Press a finger nail gently into the hardened sealing mass; if this causes no damage to the sealing mass surface, the seam seal can be painted.*

Door

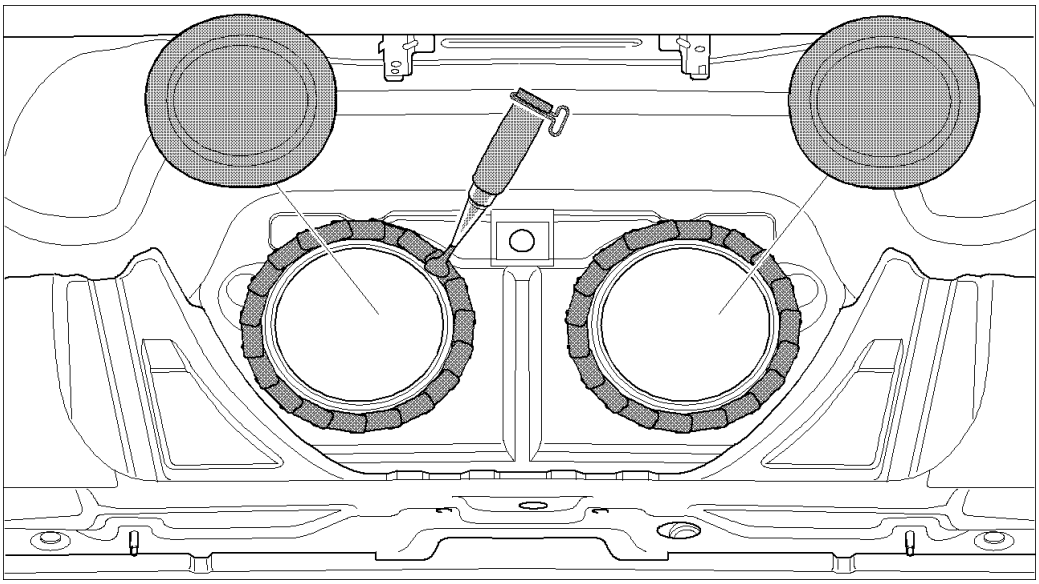


Door seam seal

top of page

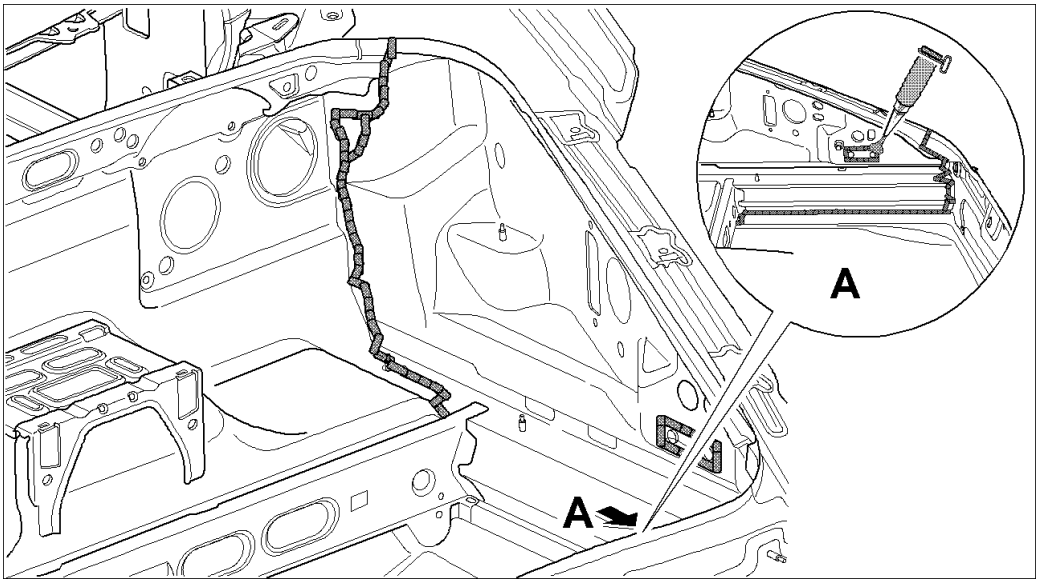
Unpainted bodyshell

Top of front of vehicle



Seam seal, top of front of vehicle

Top of front of vehicle, front

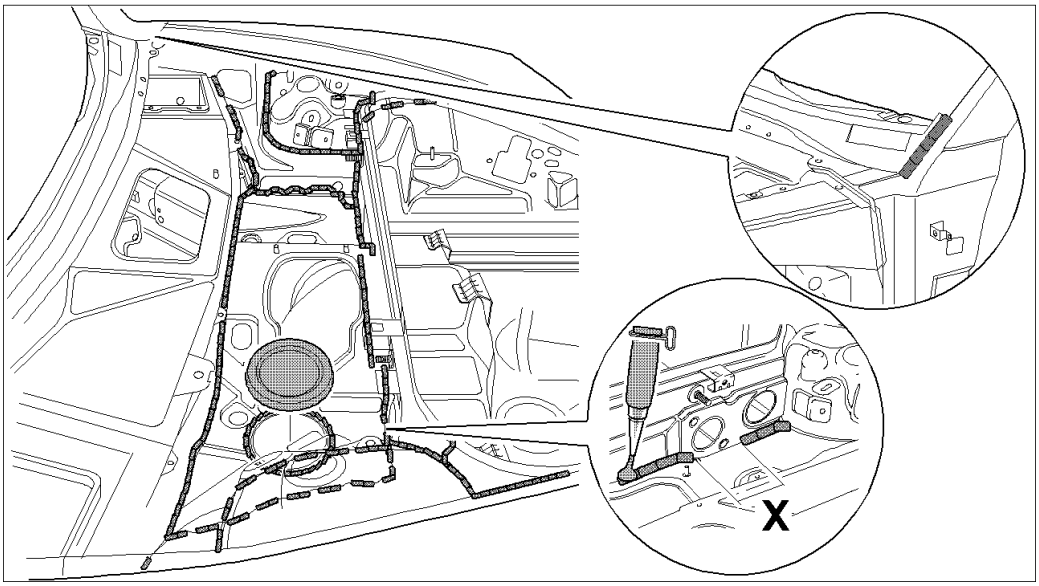


Seam seal, top of front of vehicle, front

Top of front of vehicle, (radiator tank)

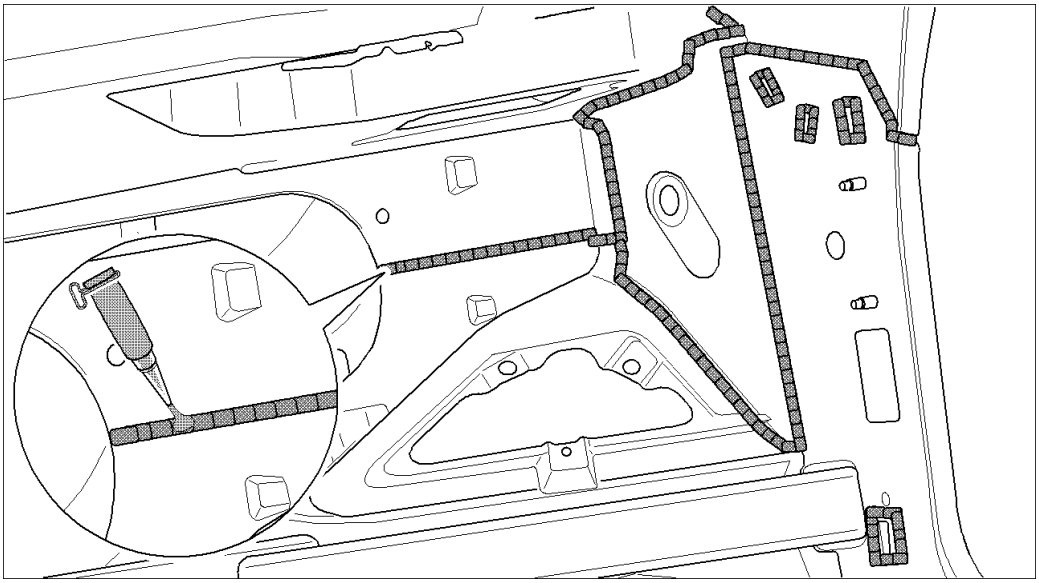
Note

- *The designated area* ***-X-*** *must be kept clear.*



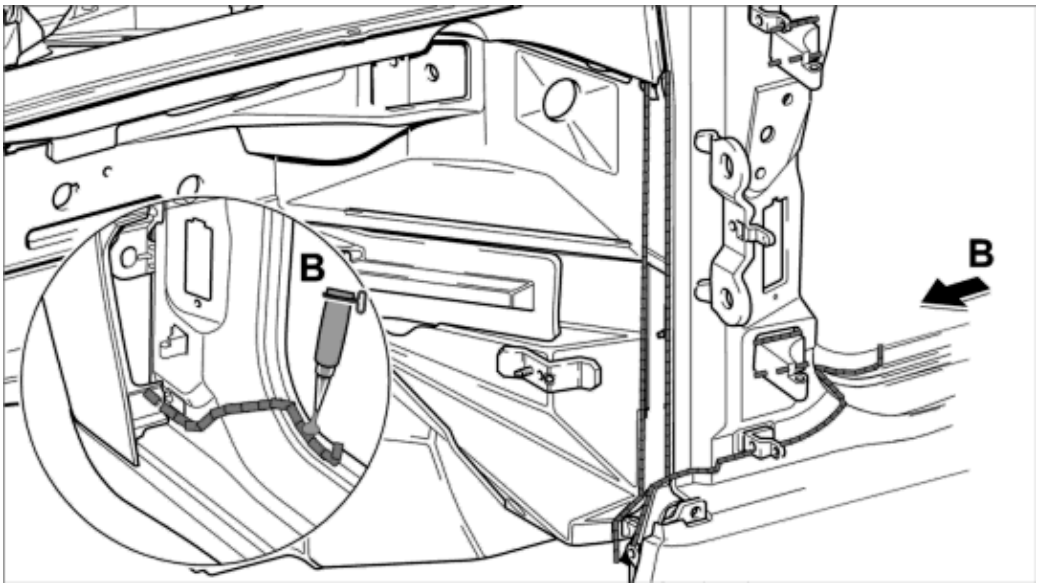
Seam seal, top of front of vehicle, (radiator tank)

Front of vehicle and inside A-pillars



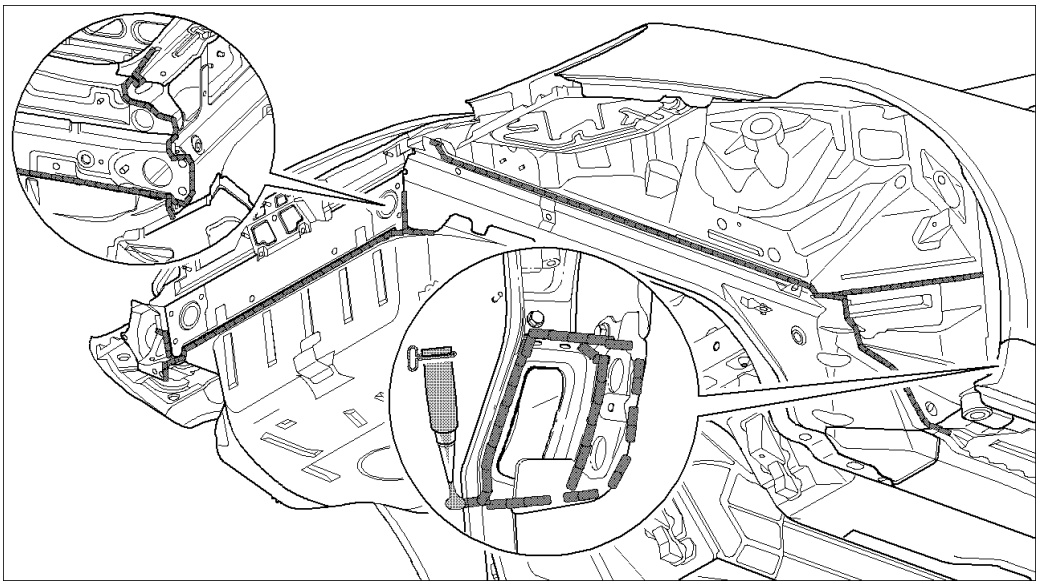
Seam seal, front of vehicle and inside A-pillars

Front of vehicle and outside A-pillars



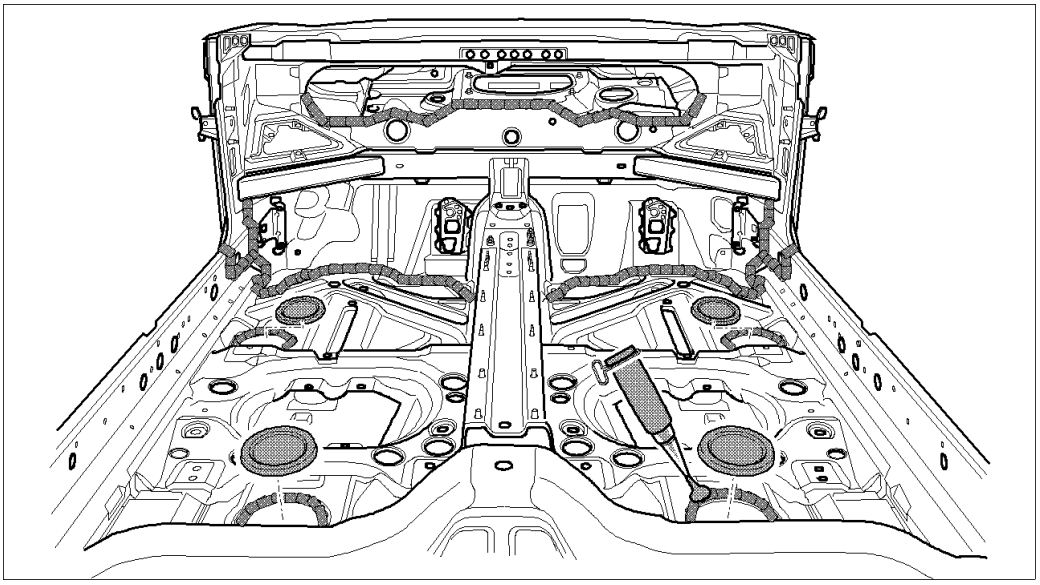
Seam seal, front of vehicle and outside A-pillars

Side of front of vehicle



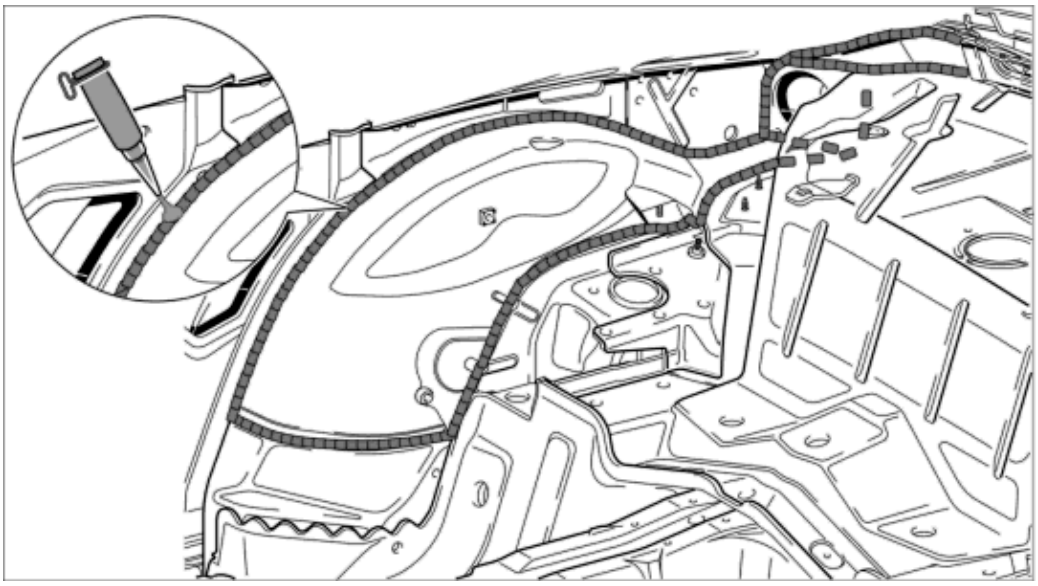
Seam seal, side of front of vehicle

Top of inside front of vehicle and floor



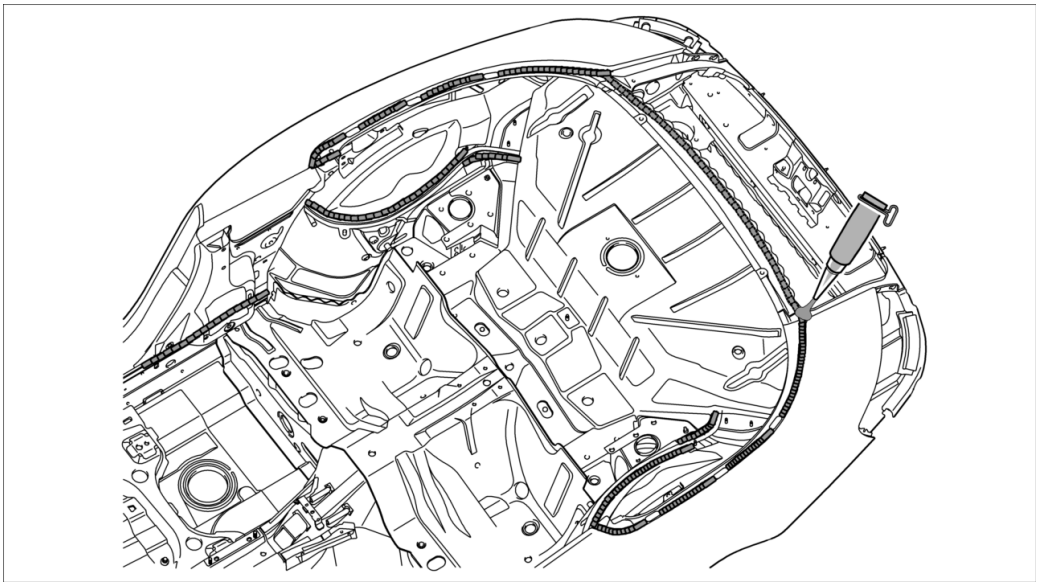
Seam seal, top of inside front of vehicle and floor

Wheel housing and upper rear side section



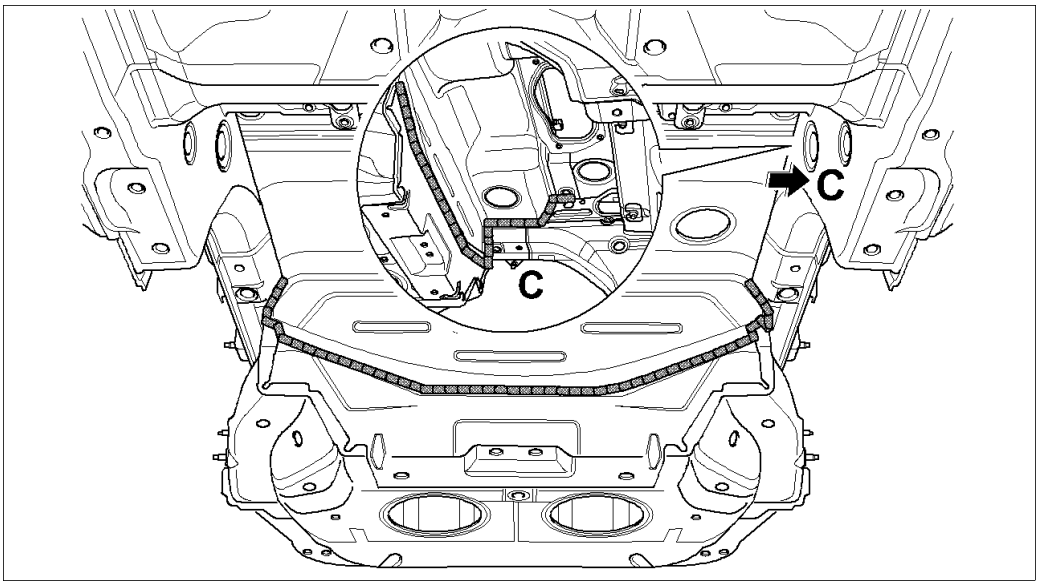
Seam seal, wheel housing and upper rear side section

Wheel housing and upper rear side section



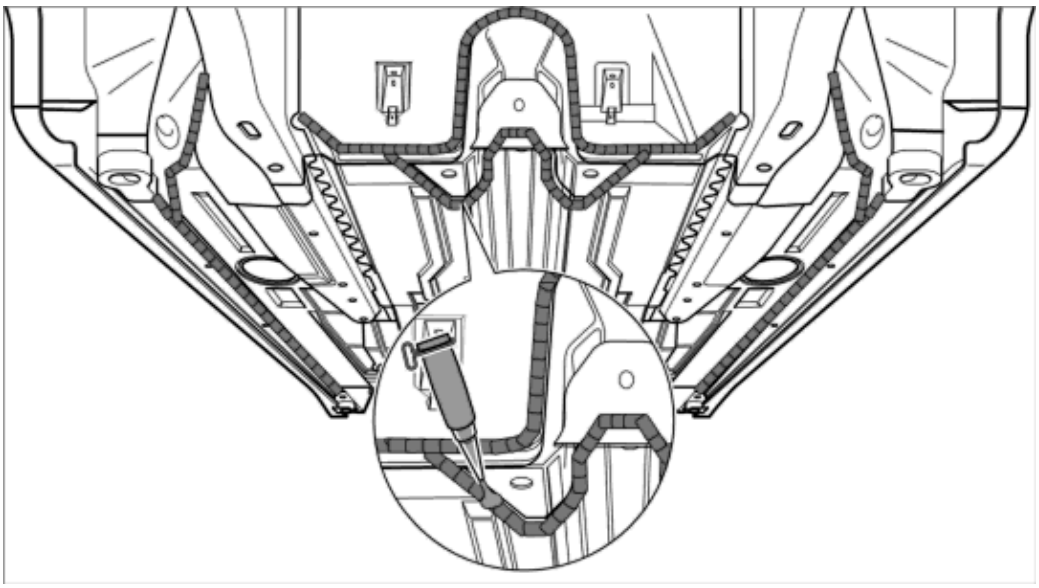
Seam seal, wheel housing and upper rear side section

Bottom of front of vehicle



Seam seal, bottom of front of vehicle

Bottom of lower side member and floor



Seam seal, bottom of lower side member and floor

997321

as of MY 2005
Country C00, C02, C05, C07, C08, C09, C10, C11, C12, C13, C14, C15, C16, C18, C19, C20, C21, C22, C23, C24, C25, C26, C27, C28, C32, C33, C34, C35, C36, C37, C38, C39, C45, C46, C98, C99

WARNUNG

Gefahr des Verlusts der Text-Bild-Zuordnung beim Ausdruck.

50 IN Seam seals - as of MY 2005

- Accessories
- Unpainted bodyshell

top of page

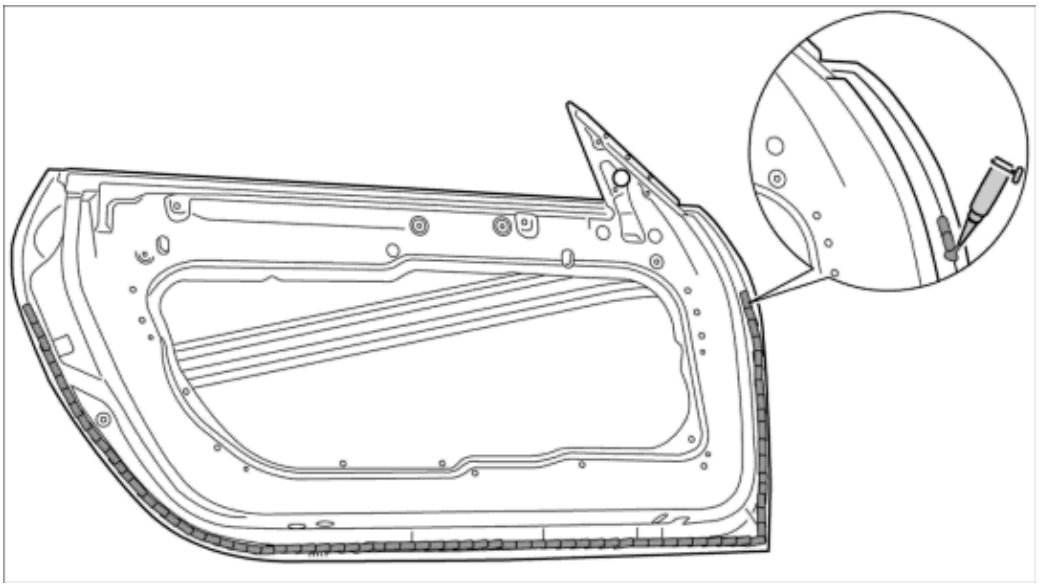
Accessories

Note on seam seals

Note

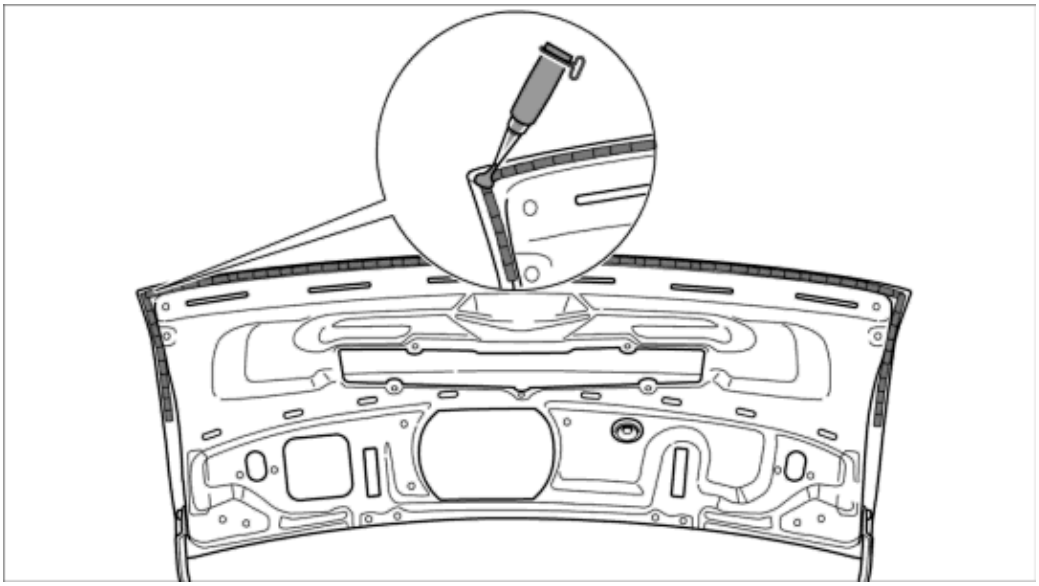
- *Due to modifications to the spare part range, in the case of repair work, accessories must be sealed before assembly (painting) according to the following illustrations.*
- *The sealing material SEALING MATERIAL can be applied directly to accessories coated with KTL paint (cathodic dipbath coating).*
- *The seam seal can be painted over when it has reached approx. 70 % hardness (approx. 4 - 5 h at 20 °C, 50 % relative air humidity. Higher air humidity or dampening with water accelerates the hardening process).*
- *The hardening can be checked with a nail test. Press a finger nail gently into the hardened sealing mass; if this causes no damage to the sealing mass surface, the seam seal can be painted.*

Door



Door seam seal

Rear lid

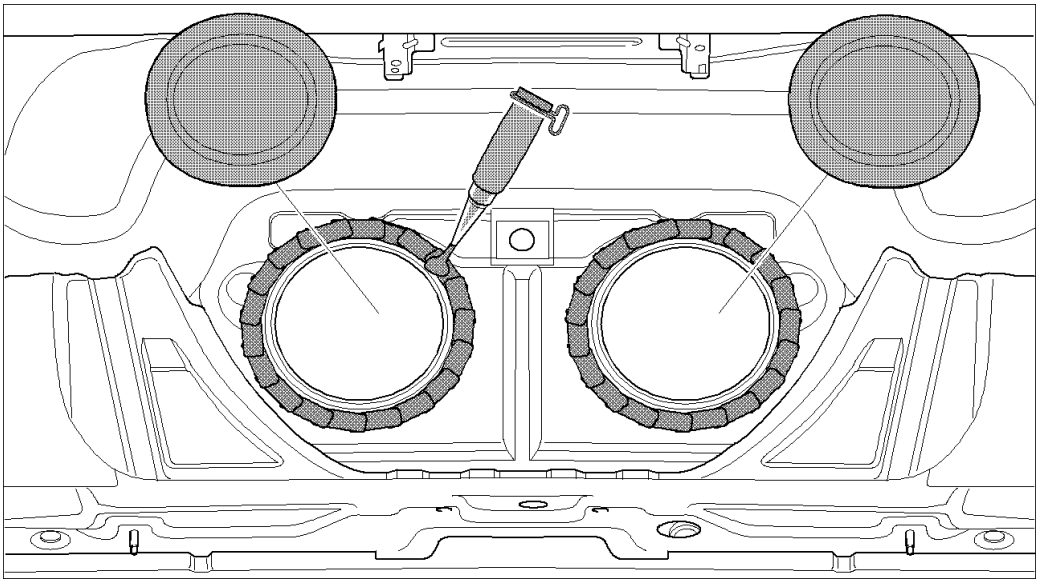


Rear lid seam seal

top of page

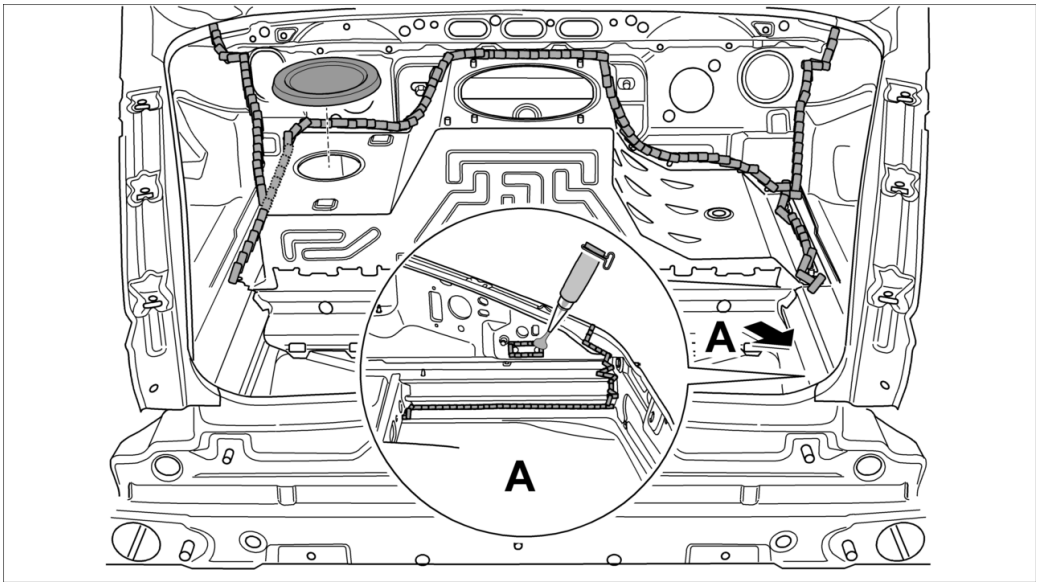
Unpainted bodyshell

Top of front of vehicle



Seam seal, top of front of vehicle

Top of front of vehicle, front

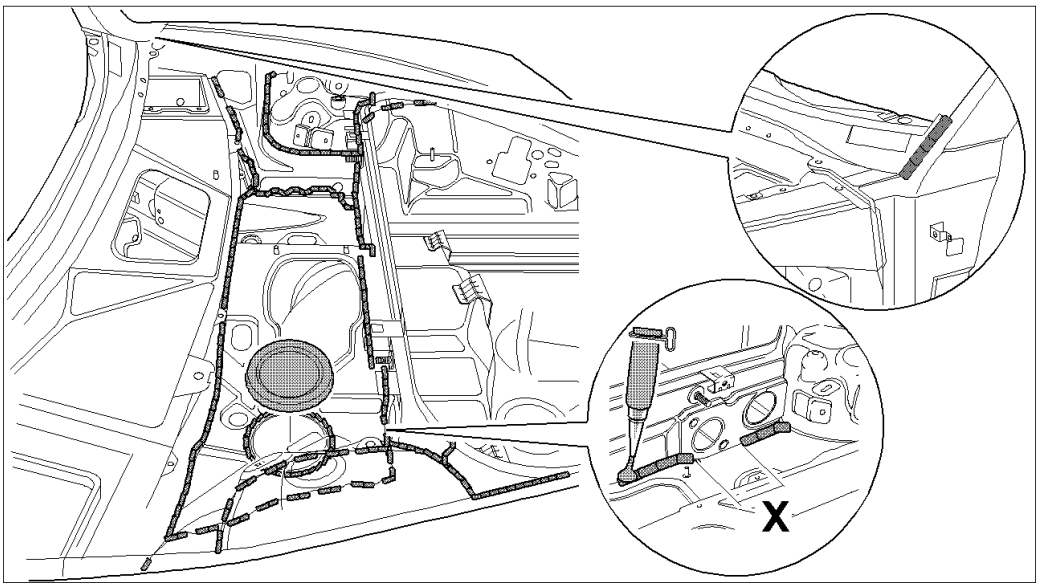


Seam seal, top of front of vehicle, front

Top of front of vehicle, (radiator tank)

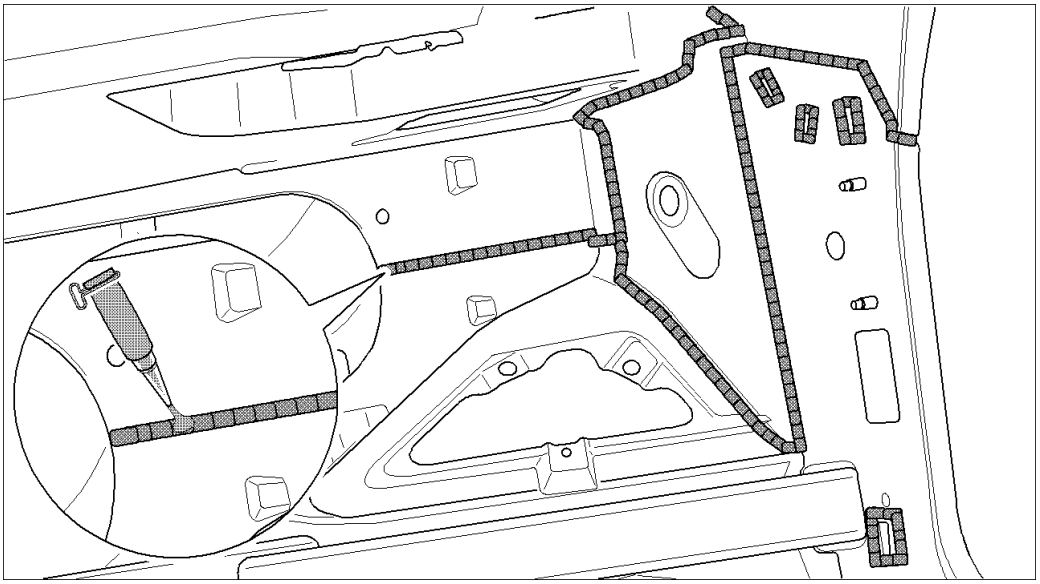
Note

- *The designated area **-X-** must be kept clear.*



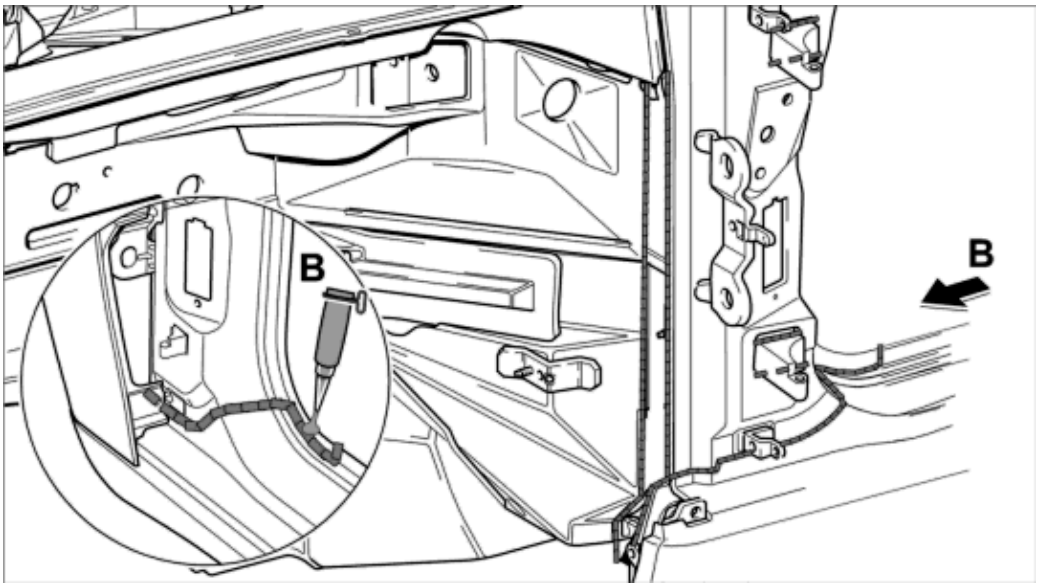
Seam seal, top of front of vehicle, (radiator tank)

Front of vehicle and inside A-pillars



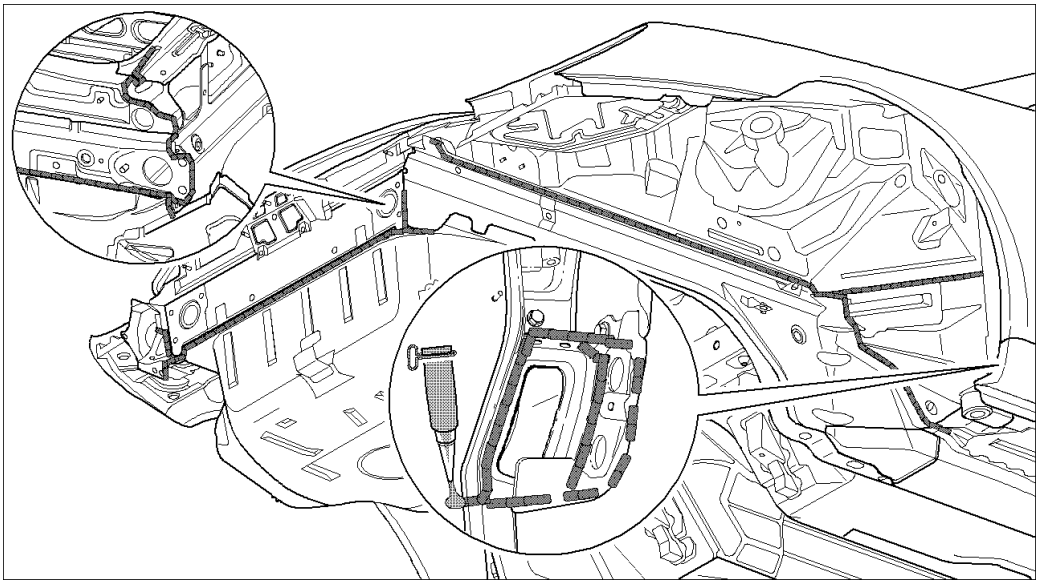
Seam seal, front of vehicle and inside A-pillars

Front of vehicle and outside A-pillars



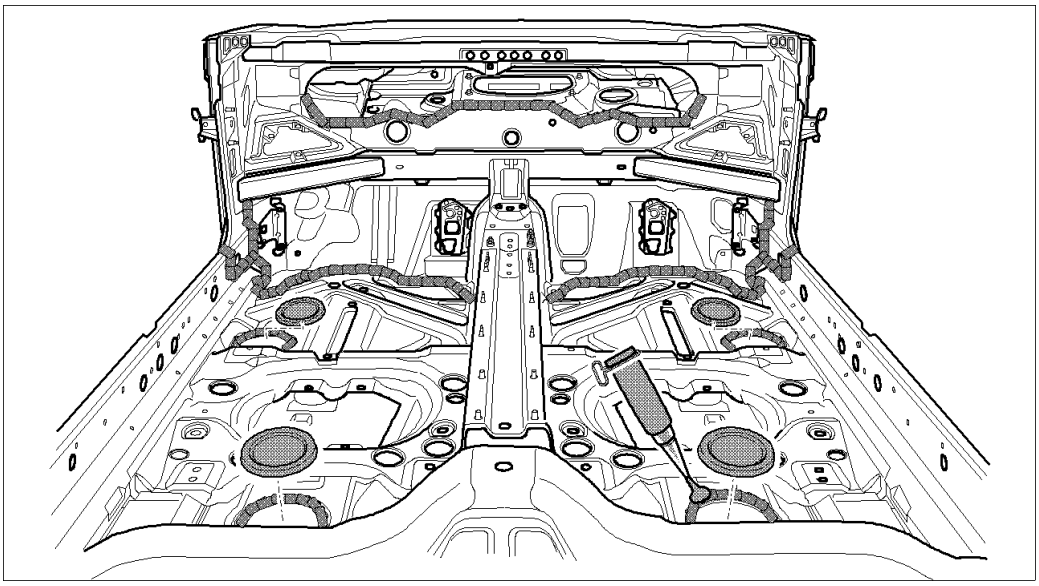
Seam seal, front of vehicle and outside A-pillars

Side of front of vehicle



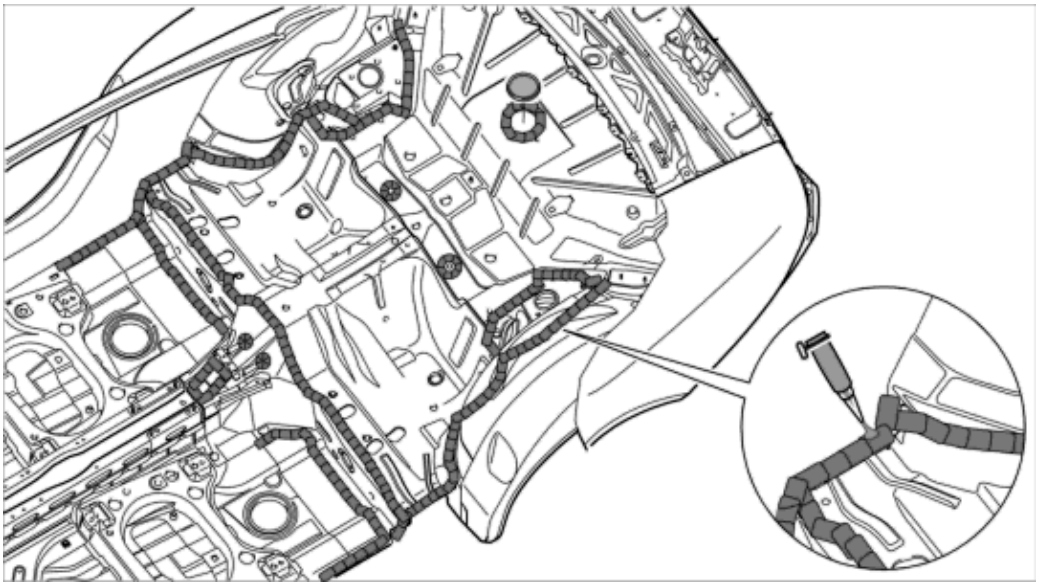
Seam seal, side of front of vehicle

Top of inside front of vehicle and floor



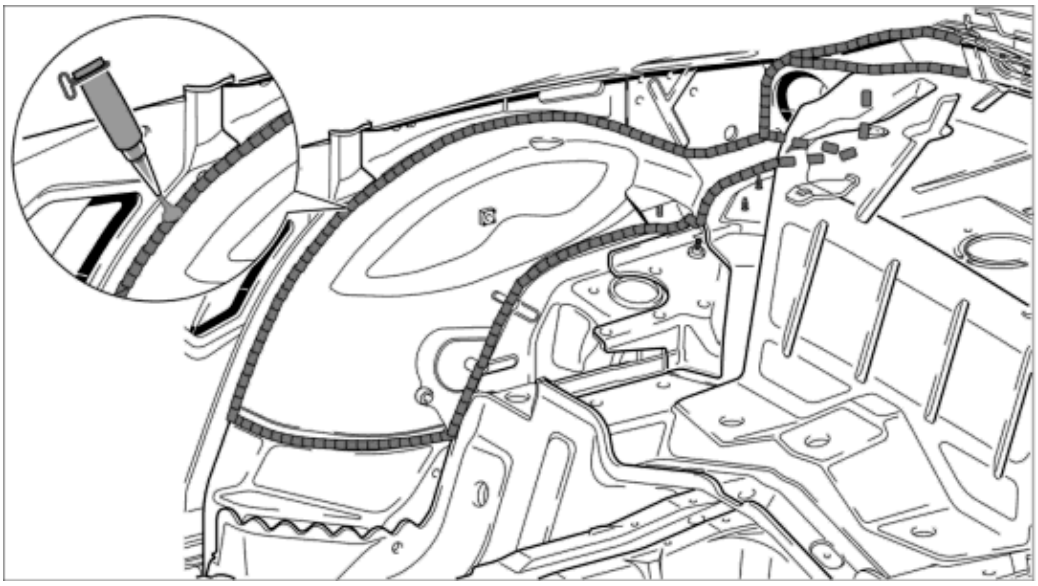
Seam seal, top of inside front of vehicle and floor

Top of lower side member and floor



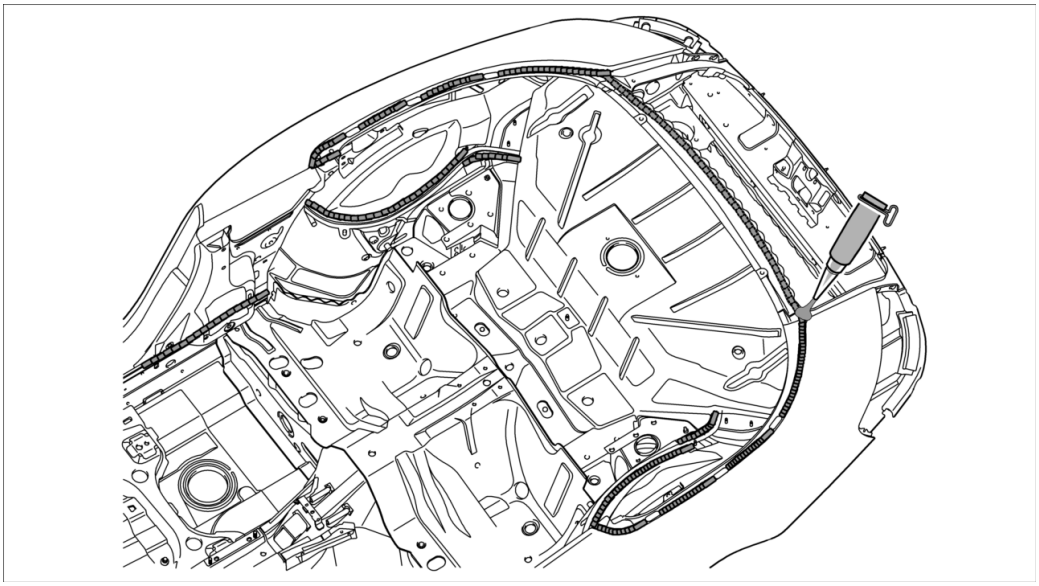
Seam seal, top of lower side member and floor

Wheel housing and upper rear side section



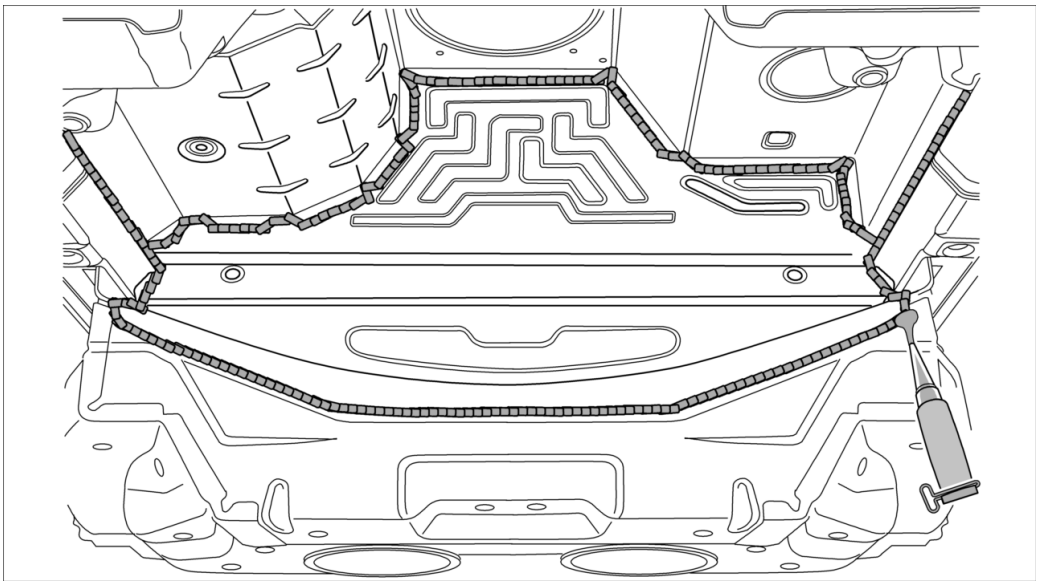
Seam seal, wheel housing and upper rear side section

Wheel housing and upper rear side section



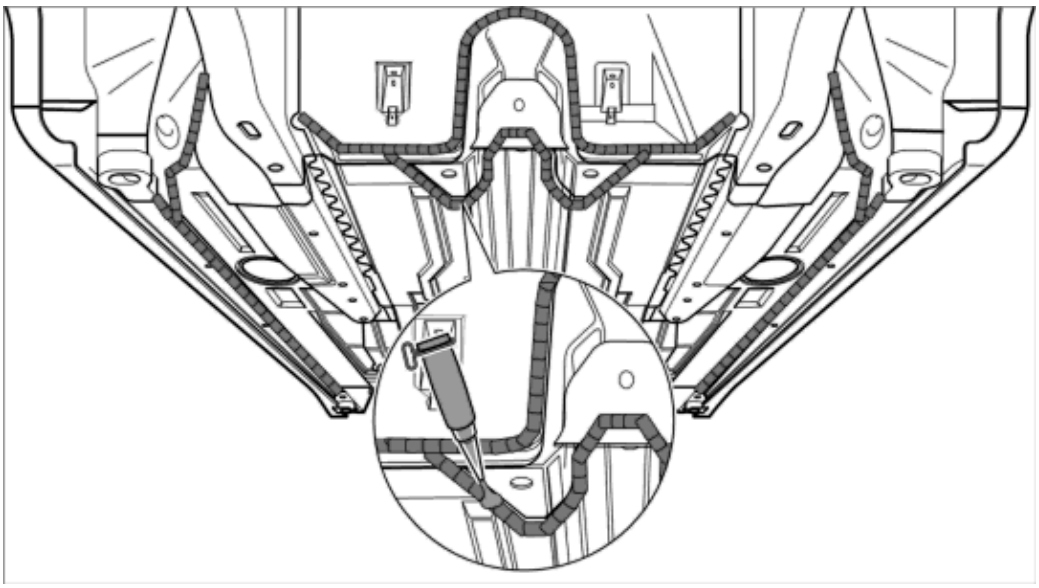
Seam seal, wheel housing and upper rear side section

Bottom of front of vehicle



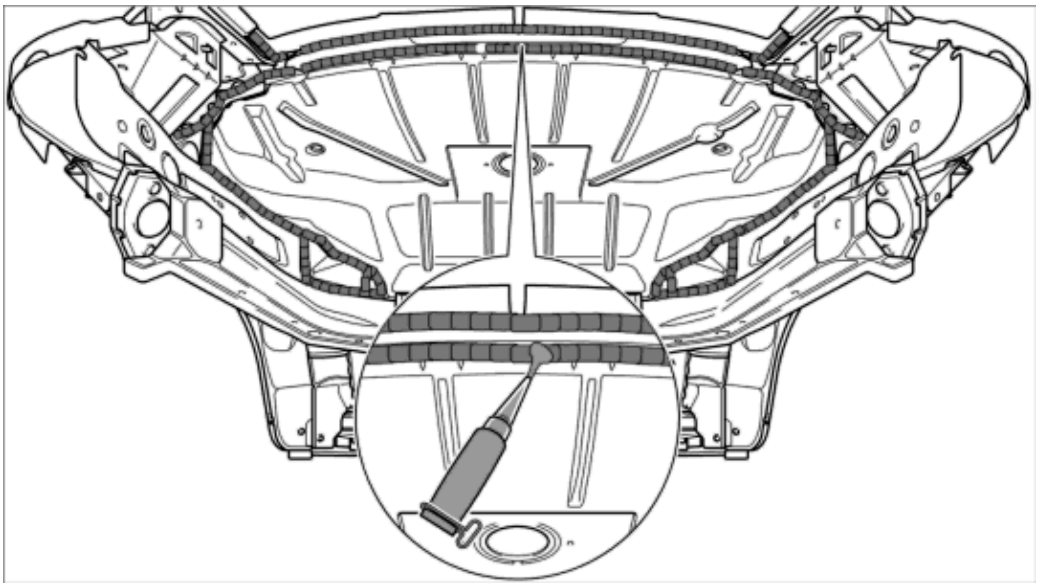
Seam seal, bottom of front of vehicle

Bottom of lower side member and floor



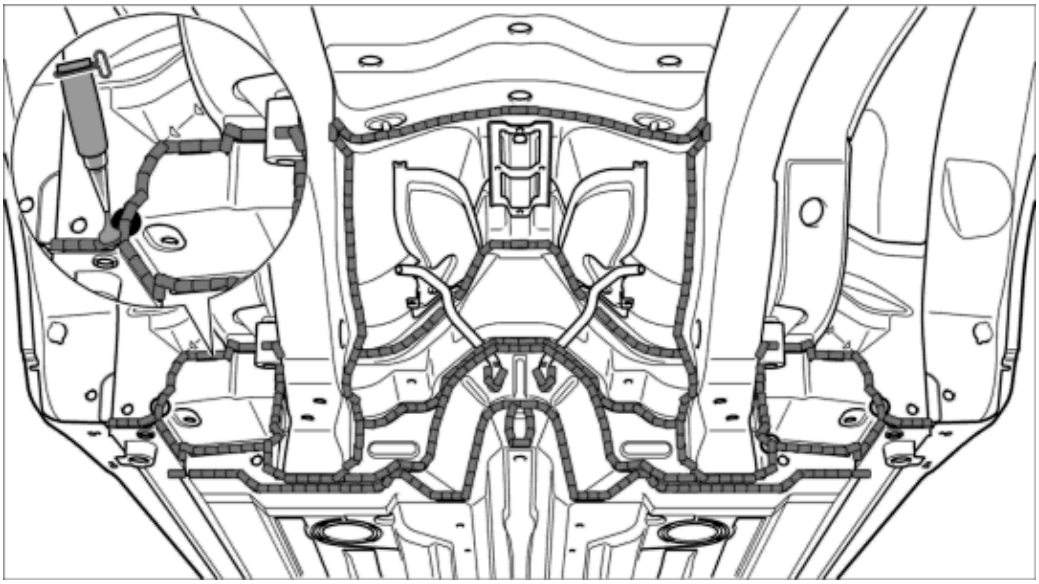
Seam seal, bottom of lower side member and floor

Top of rear end



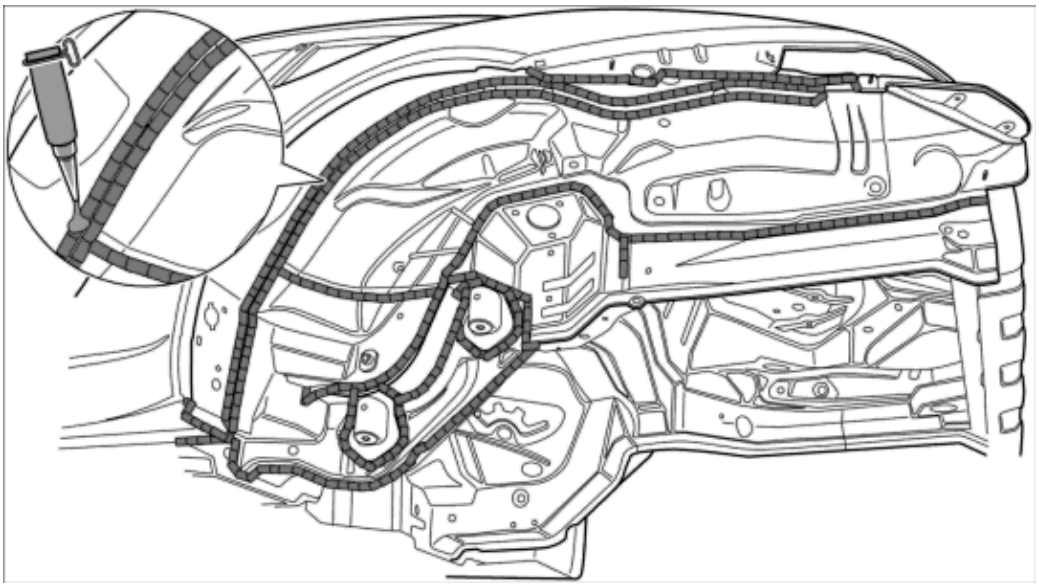
Seam seal, top of rear end

Bottom of rear end



Seam seal, bottom of rear end

Side of rear end



Seam seal, side of rear end

997610, 997611, 997620, 997621

as of MY 2005
Country C00, C02, C05, C07, C08, C09, C10, C11, C12, C13, C14, C15, C16, C18, C19, C20, C21, C22, C23, C24, C25, C26, C27, C28, C32, C33, C34, C35, C36, C37, C38, C39, C45, C46, C98, C99

WARNUNG

Gefahr des Verlusts der Text-Bild-Zuordnung beim Ausdruck.

- **Aus technischen Gründen kann derzeit nicht ausgeschlossen werden, dass trotz einwandfreier Darstellung auf dem Bildschirm beim Ausdruck der Zusammenhang von Text und zugehörigem Bild verloren geht.**
- **Wird der Fehler nicht bemerkt, besteht die Gefahr, daß Arbeiten nicht korrekt durchgeführt werden und es dadurch zu Personen- und Sachschäden kommt.**

Vergleichen Sie deshalb nach dem Druckvorgang unbedingt die Ausdrucke mit der Bildschirmdarstellung. Korrigieren Sie die Ausdrucke im Fehlerfall so, daß der Inhalt der Bildschirmdarstellung zutreffend wiedergegeben wird.

WARNING

Danger of losing text-figure correspondence when printing out.

- **For technical reasons, it can currently not be ruled out that the correspondence between text and associated figure can be lost when it is printed out, even though the display on the screen is correct.**
- **If the fault is not noticed, there is the danger that work will not be performed correctly which can cause injury and damage.**

50 IN Seam seals - as of MY 2005

- Accessories
- Unpainted bodyshell

top of page

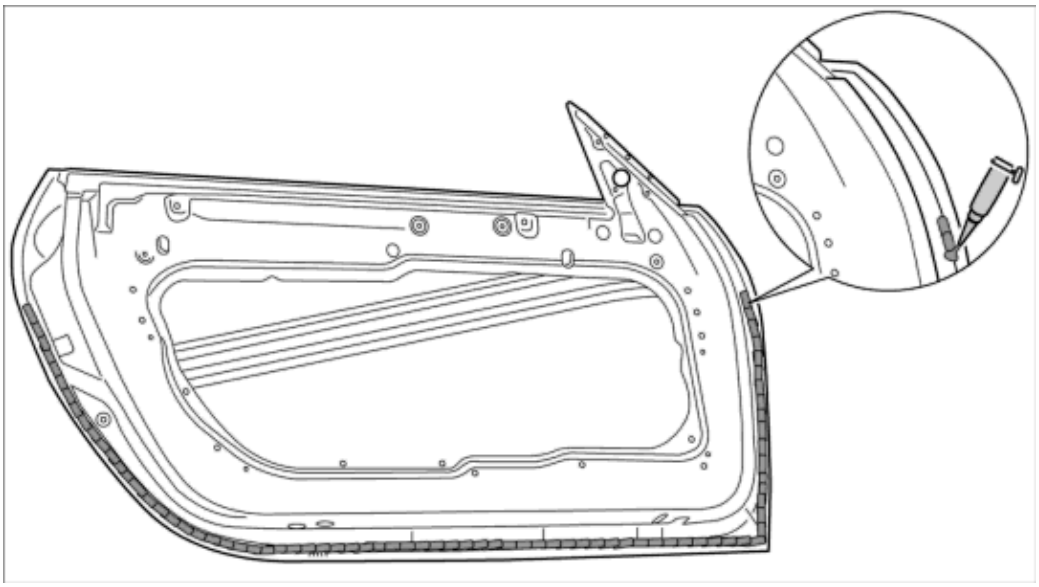
Accessories

Note on seam seals

Note

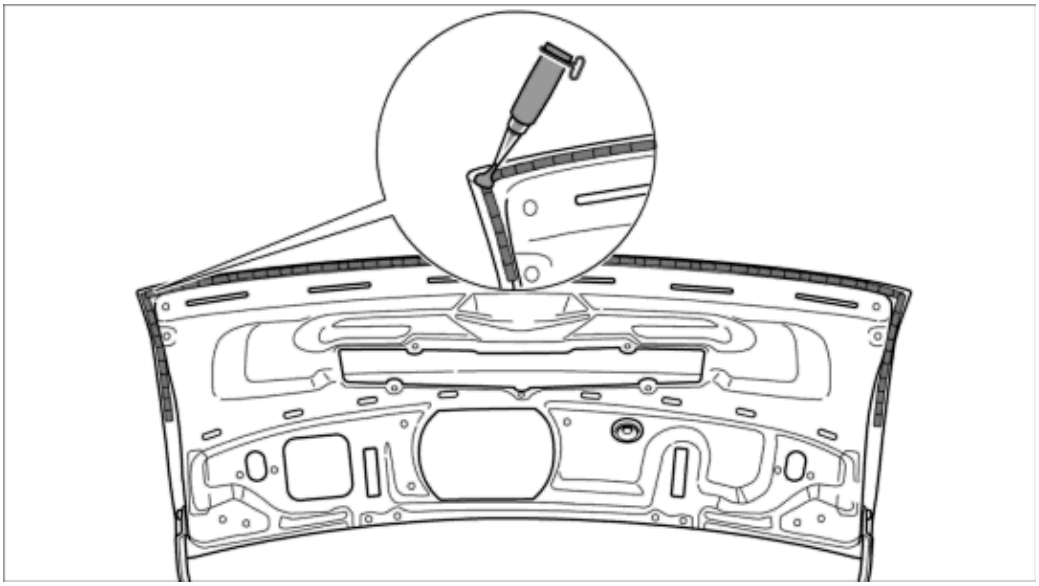
- *Due to modifications to the spare part range, in the case of repair work, accessories must be sealed before assembly (painting) according to the following illustrations.*
- *The sealing material SEALING MATERIAL can be applied directly to accessories coated with KTL paint (cathodic dipbath coating).*
- *The seam seal can be painted over when it has reached approx. 70 % hardness (approx. 4 - 5 h at 20 °C, 50 % relative air humidity. Higher air humidity or dampening with water accelerates the hardening process).*
- *The hardening can be checked with a nail test. Press a finger nail gently into the hardened sealing mass; if this causes no damage to the sealing mass surface, the seam seal can be painted.*

Door



Door seam seal

Rear lid

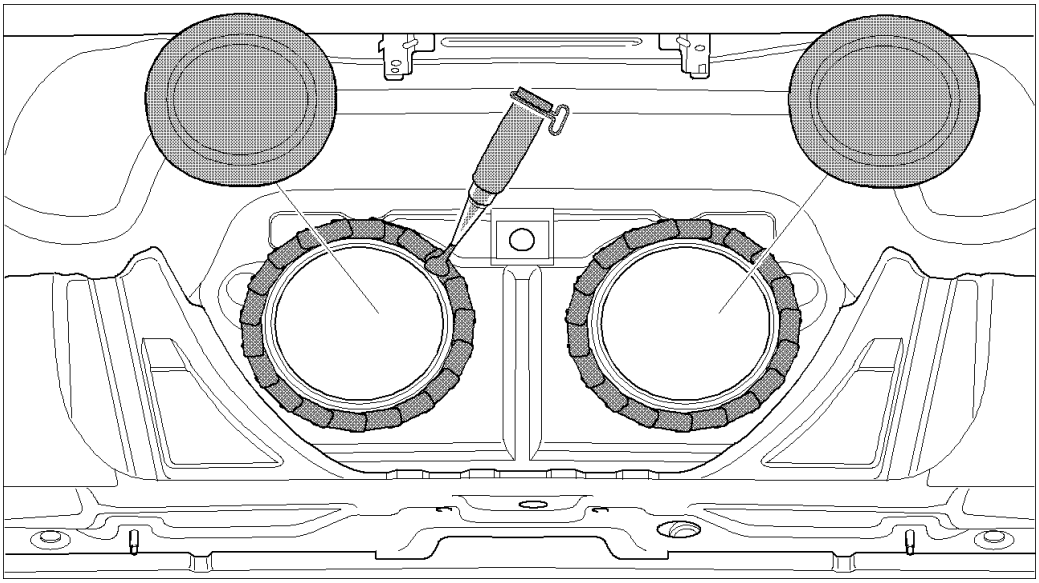


Rear lid seam seal

top of page

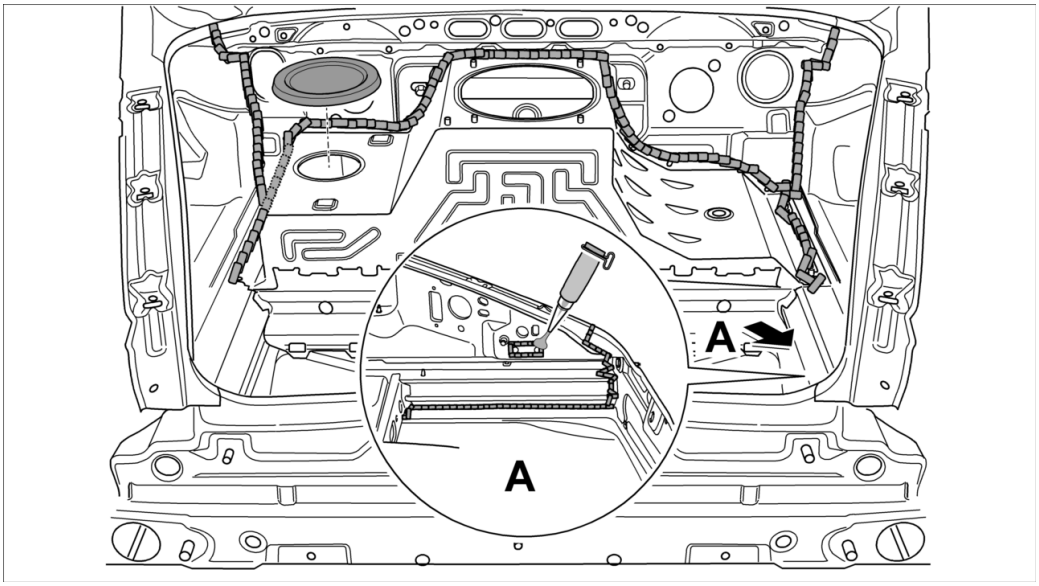
Unpainted bodyshell

Top of front of vehicle



Seam seal, top of front of vehicle

Top of front of vehicle, front

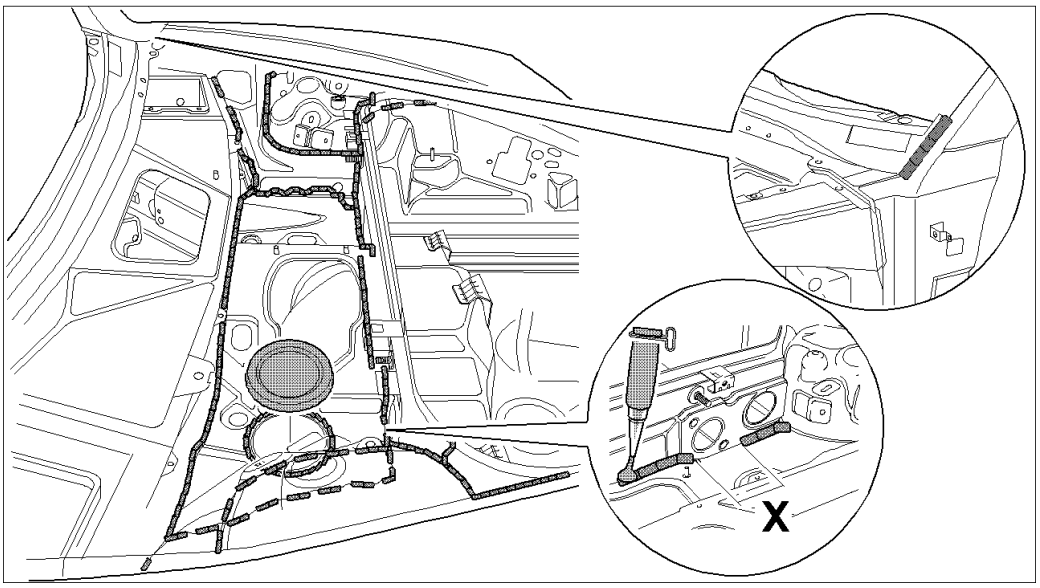


Seam seal, top of front of vehicle, front

Top of front of vehicle, (radiator tank)

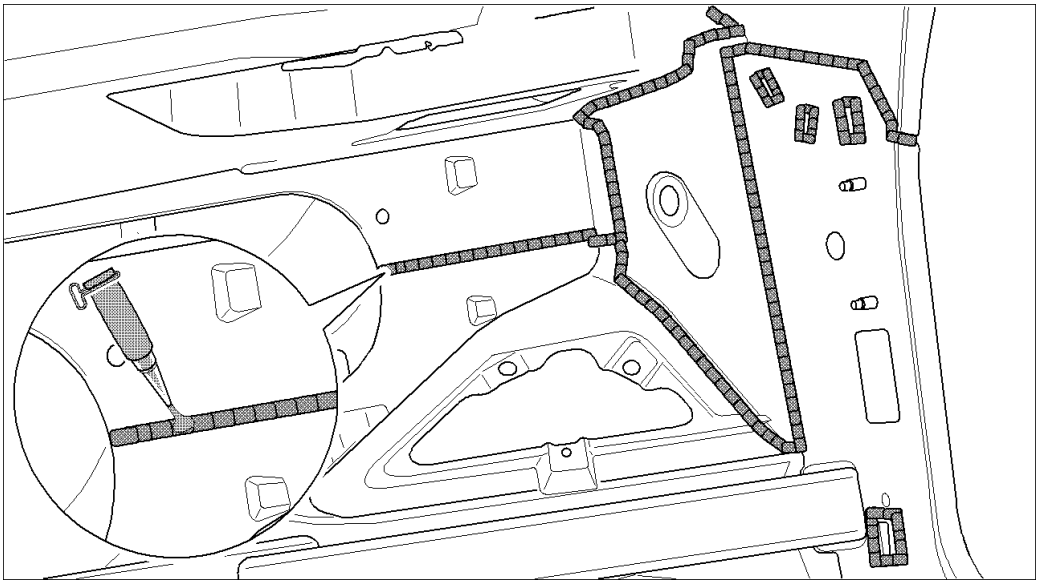
Note

- *The designated area **-X-** must be kept clear.*



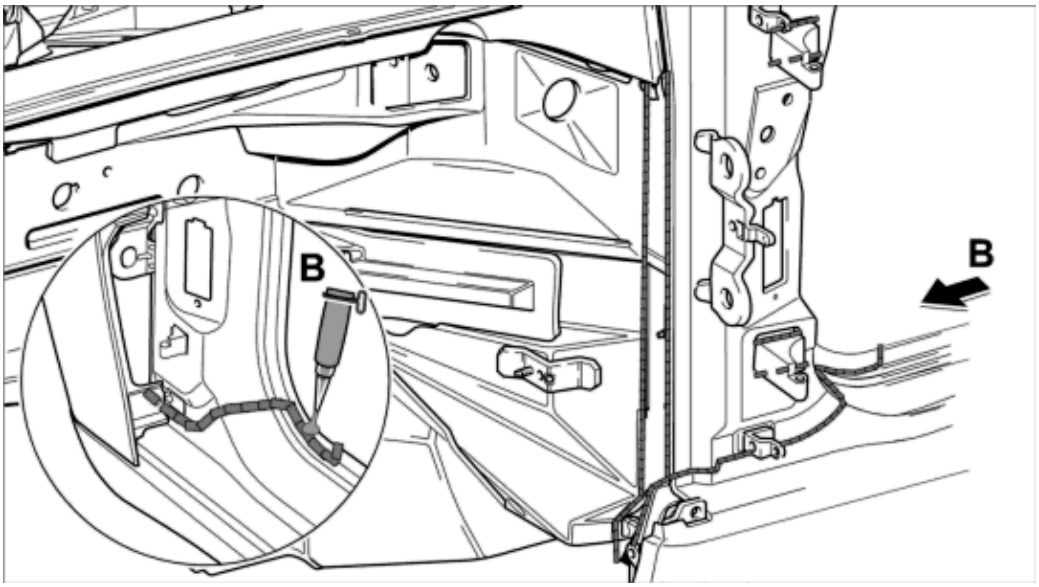
Seam seal, top of front of vehicle, (radiator tank)

Front of vehicle and inside A-pillars



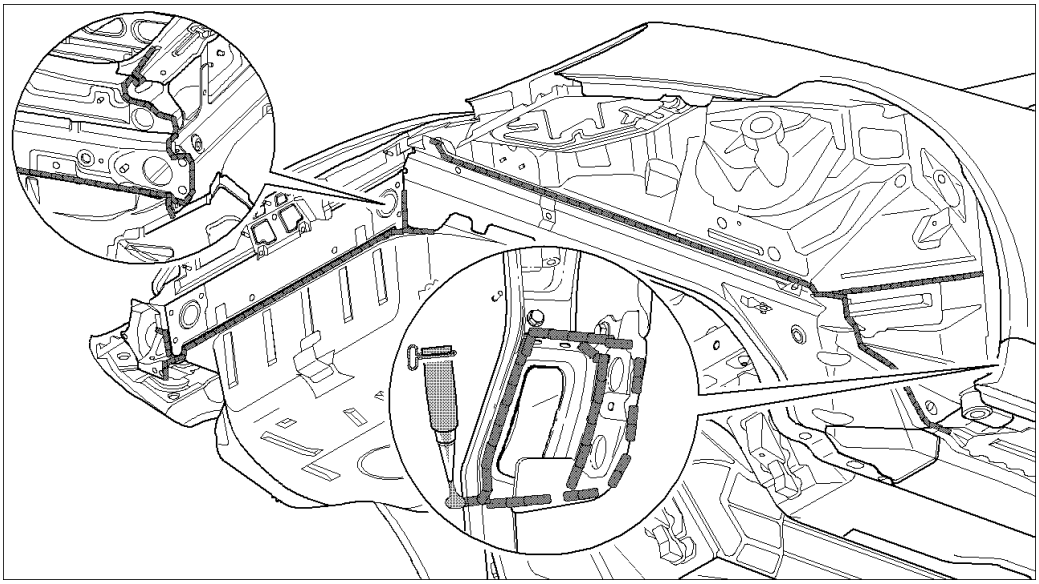
Seam seal, front of vehicle and inside A-pillars

Front of vehicle and outside A-pillars



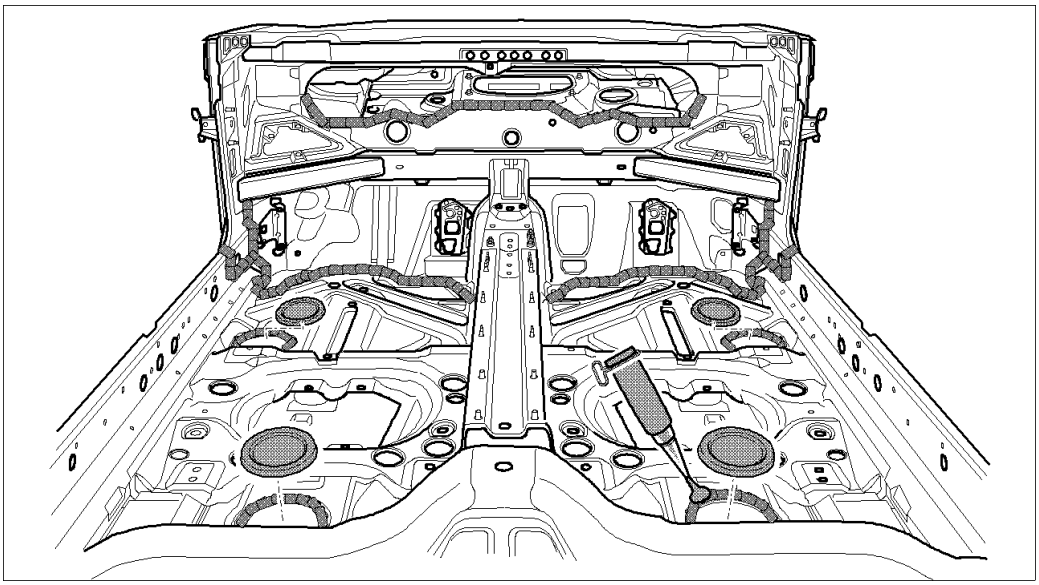
Seam seal, front of vehicle and outside A-pillars

Side of front of vehicle



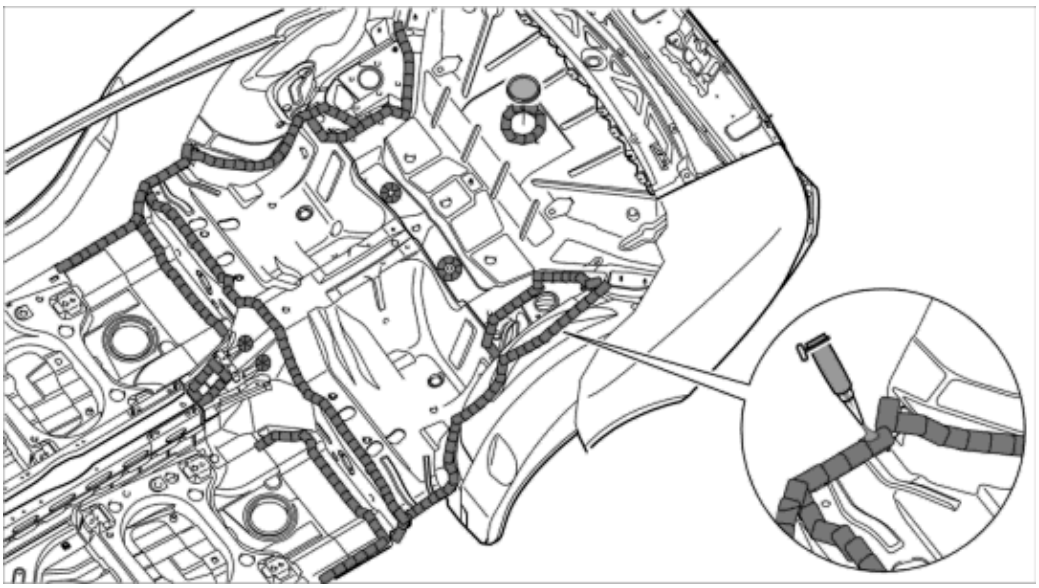
Seam seal, side of front of vehicle

Top of inside front of vehicle and floor



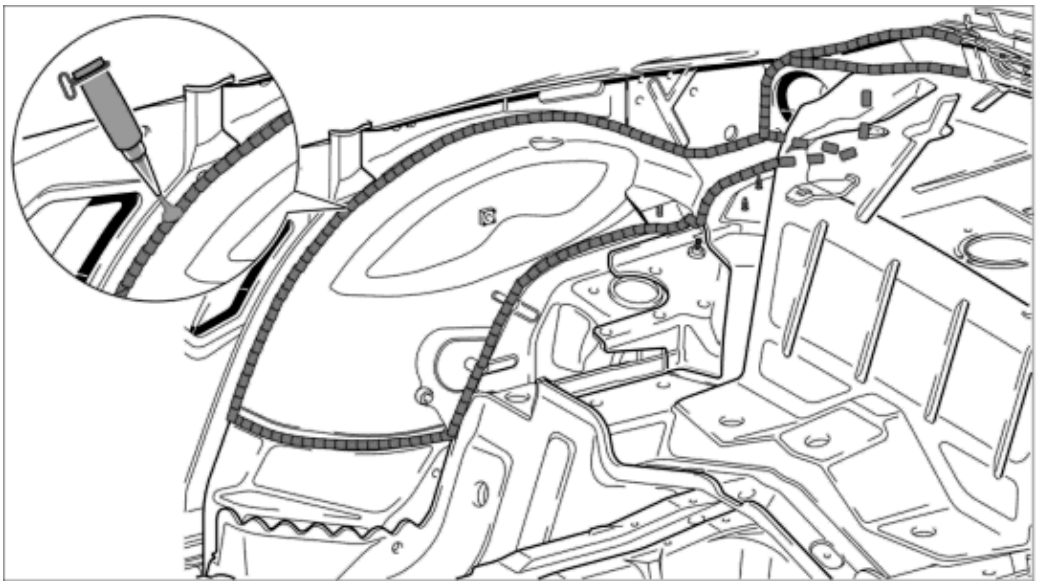
Seam seal, top of inside front of vehicle and floor

Top of lower side member and floor



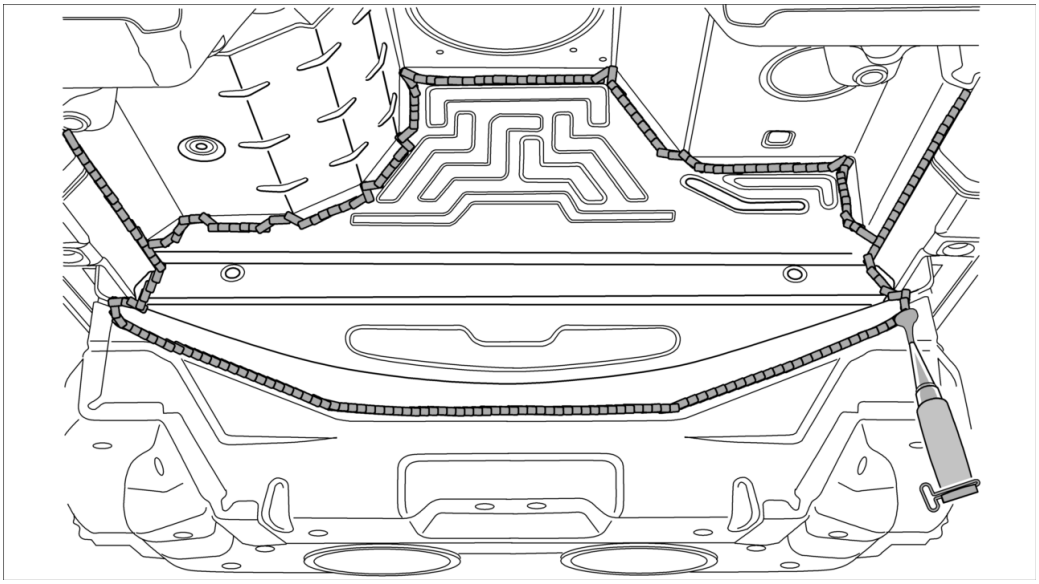
Seam seal, top of lower side member and floor

Wheel housing and upper rear side section



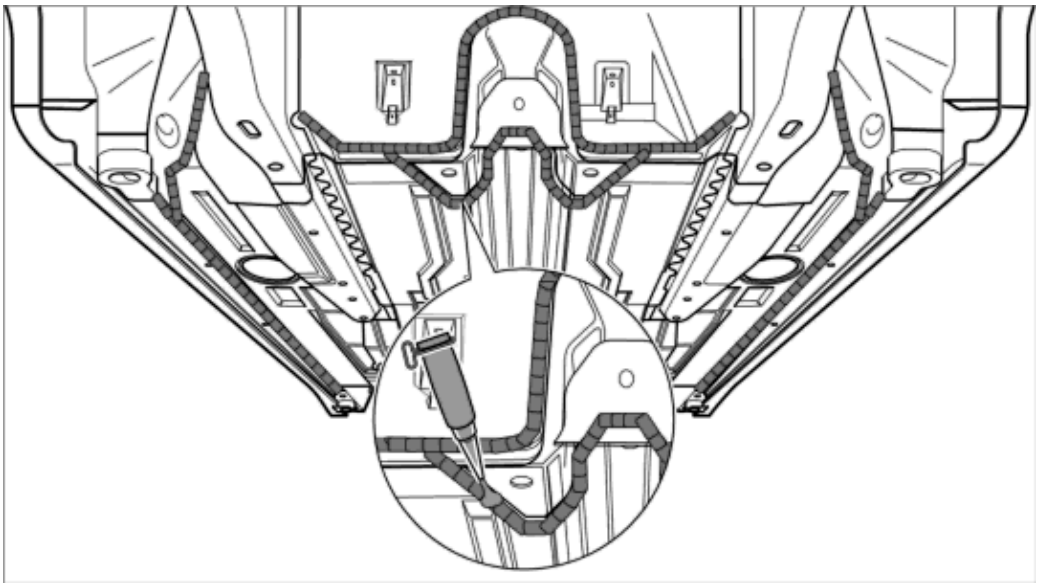
Seam seal, wheel housing and upper rear side section

Bottom of front of vehicle



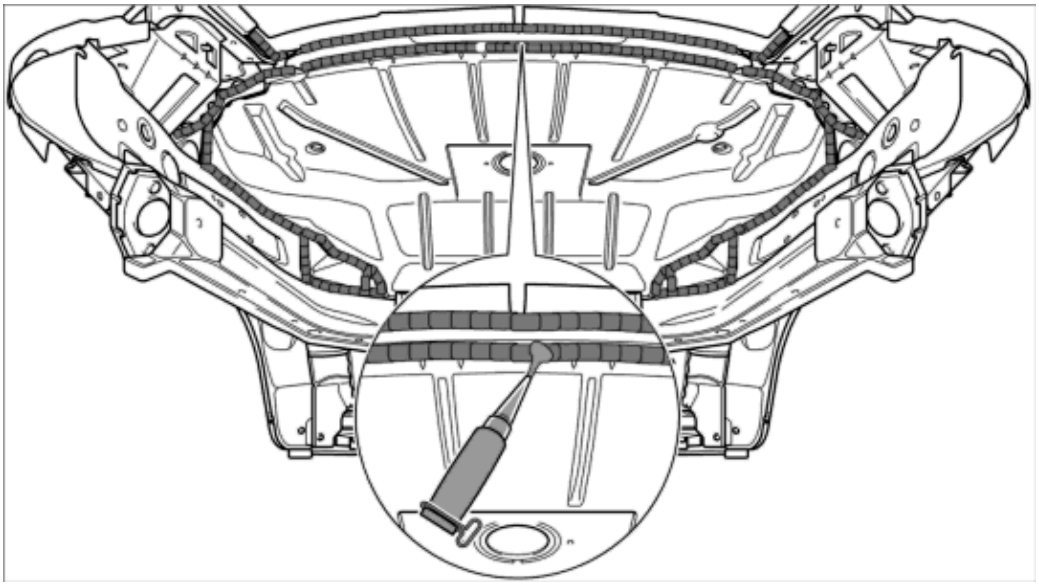
Seam seal, bottom of front of vehicle

Bottom of lower side member and floor



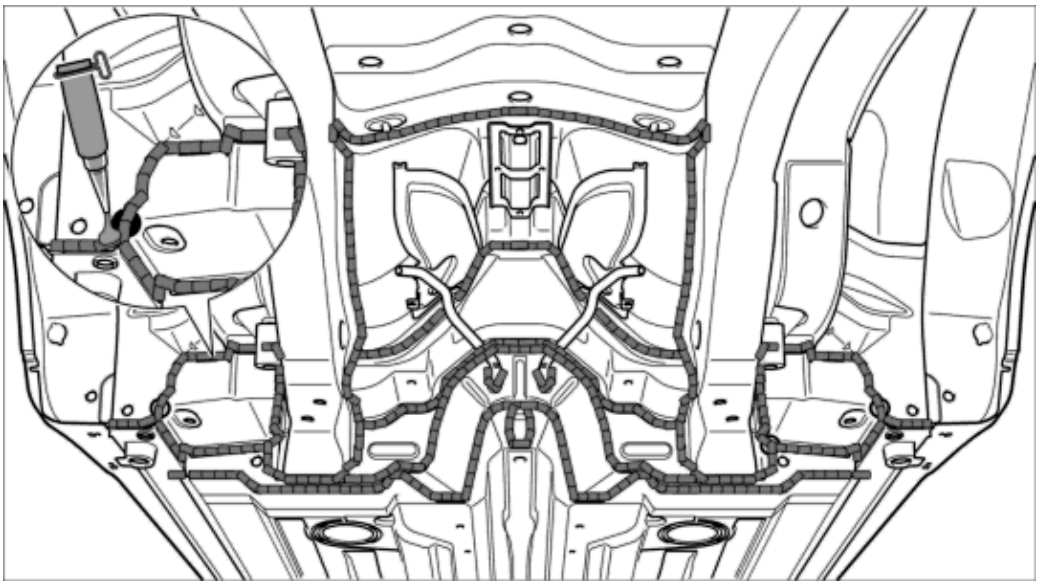
Seam seal, bottom of lower side member and floor

Top of rear end



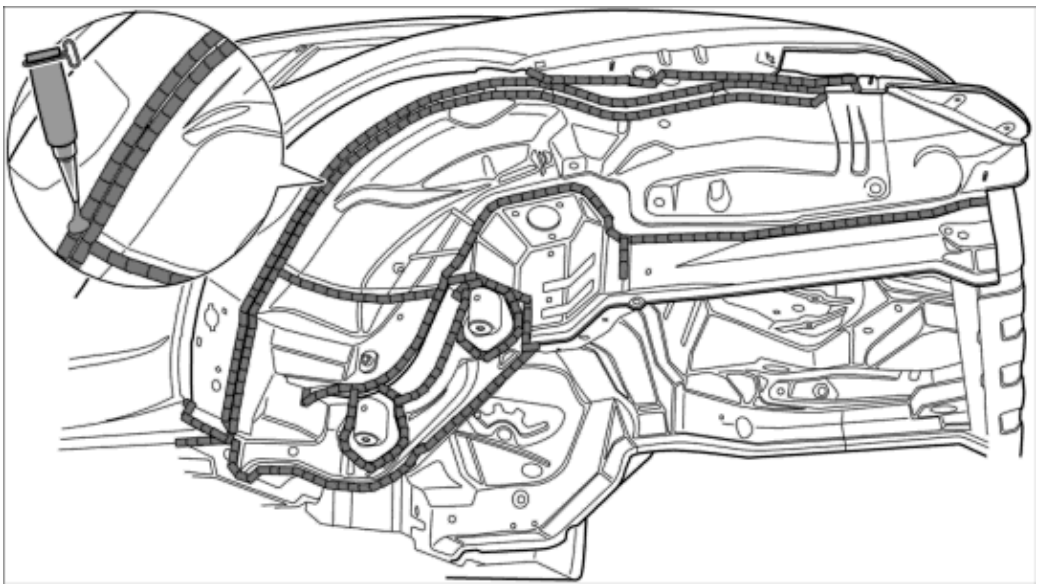
Seam seal, top of rear end

Bottom of rear end



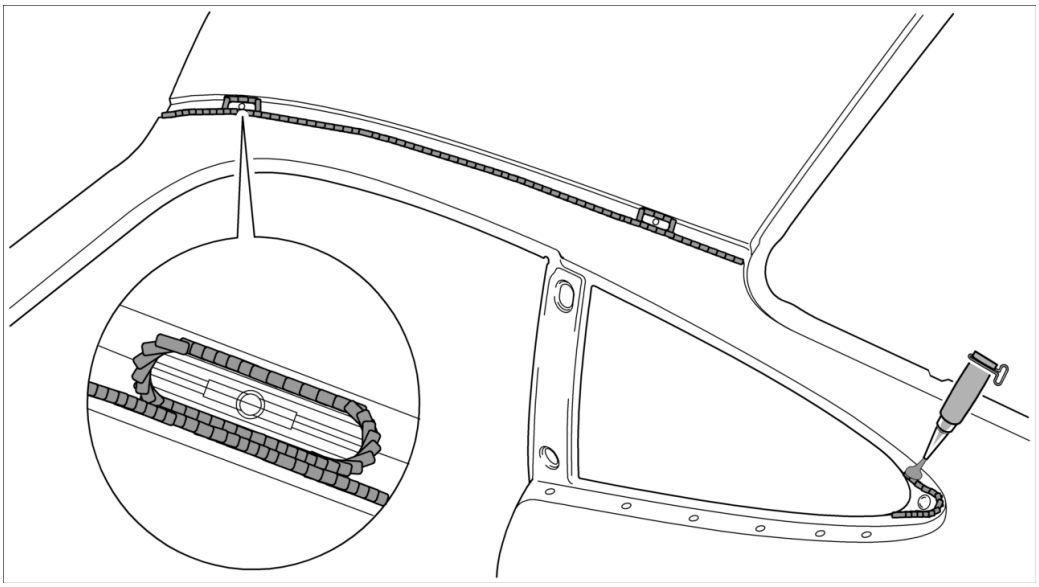
Seam seal, bottom of rear end

Side of rear end



Seam seal, side of rear end

Roof



Outer roof panel seam seals

997410, 997411, 997430, 997431

as of MY 2005
Country C00, C02, C05, C07, C08, C09, C10, C11, C12, C13, C14, C15, C16, C18, C19, C20, C21, C22, C23, C24, C25, C26, C27, C28, C32, C33, C34, C35, C36, C37, C38, C39, C45, C46, C98, C99

WARNUNG

Gefahr des Verlusts der Text-Bild-Zuordnung beim Ausdruck.

- **Aus technischen Gründen kann derzeit nicht ausgeschlossen werden, dass trotz einwandfreier Darstellung auf dem Bildschirm beim Ausdruck der Zusammenhang von Text und zugehörigem Bild verloren geht.**
- **Wird der Fehler nicht bemerkt, besteht die Gefahr, daß Arbeiten nicht korrekt durchgeführt werden und es dadurch zu Personen- und Sachschäden kommt.**

Vergleichen Sie deshalb nach dem Druckvorgang unbedingt die Ausdrucke mit der Bildschirmdarstellung. Korrigieren Sie die Ausdrucke im Fehlerfall so, daß der Inhalt der Bildschirmdarstellung zutreffend wiedergegeben wird.

WARNING

Danger of losing text-figure correspondence when printing out.

- **For technical reasons, it can currently not be ruled out that the correspondence between text and associated figure can be lost when it is printed out, even though the display on the screen is correct.**
- **If the fault is not noticed, there is the danger that work will not be performed correctly which can cause injury and damage.**

50 IN Seam seals - as of MY 2005

- Accessories
- Unpainted bodyshell

top of page

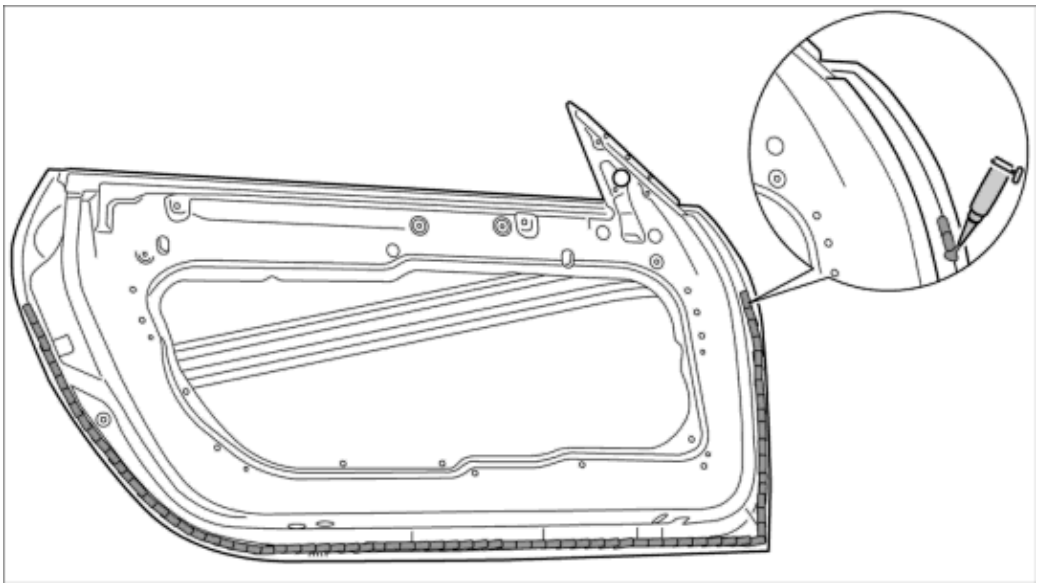
Accessories

Note on seam seals

Note

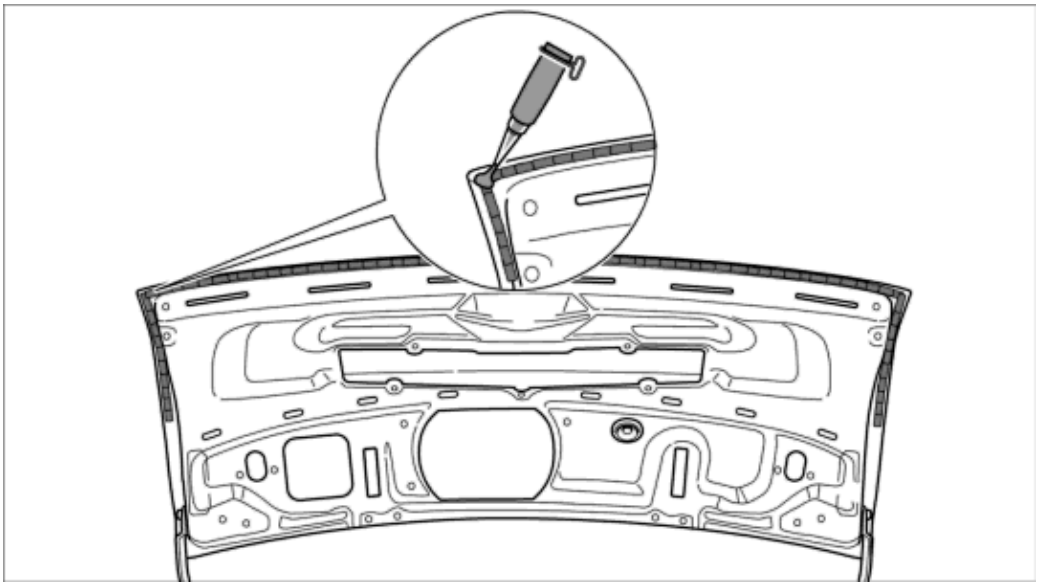
- *Due to modifications to the spare part range, in the case of repair work, accessories must be sealed before assembly (painting) according to the following illustrations.*
- *The sealing material SEALING MATERIAL can be applied directly to accessories coated with KTL paint (cathodic dipbath coating).*
- *The seam seal can be painted over when it has reached approx. 70 % hardness (approx. 4 - 5 h at 20 °C, 50 % relative air humidity. Higher air humidity or dampening with water accelerates the hardening process).*
- *The hardening can be checked with a nail test. Press a finger nail gently into the hardened sealing mass; if this causes no damage to the sealing mass surface, the seam seal can be painted.*

Door



Door seam seal

Rear lid

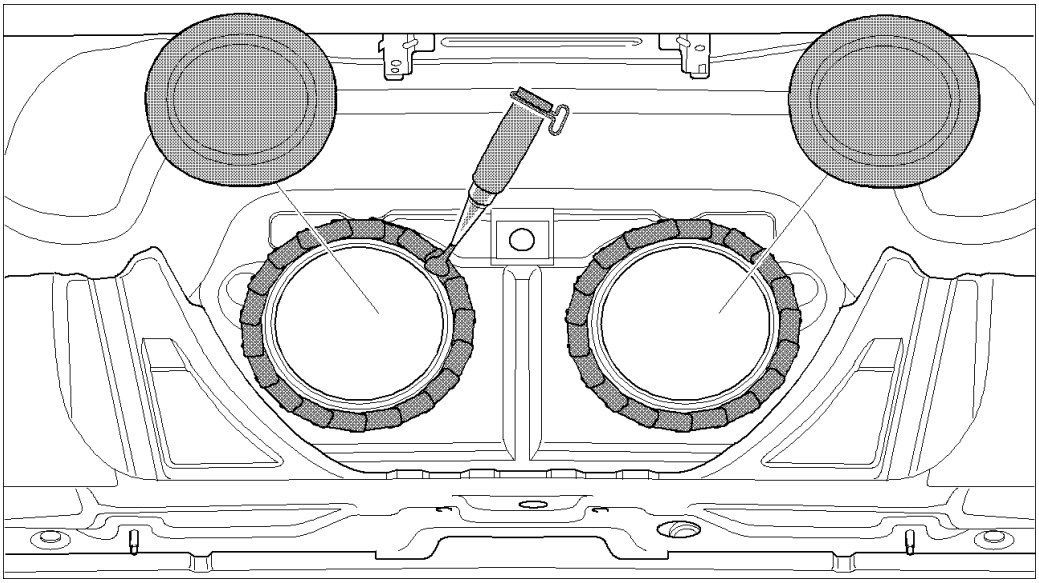


Rear lid seam seal

top of page

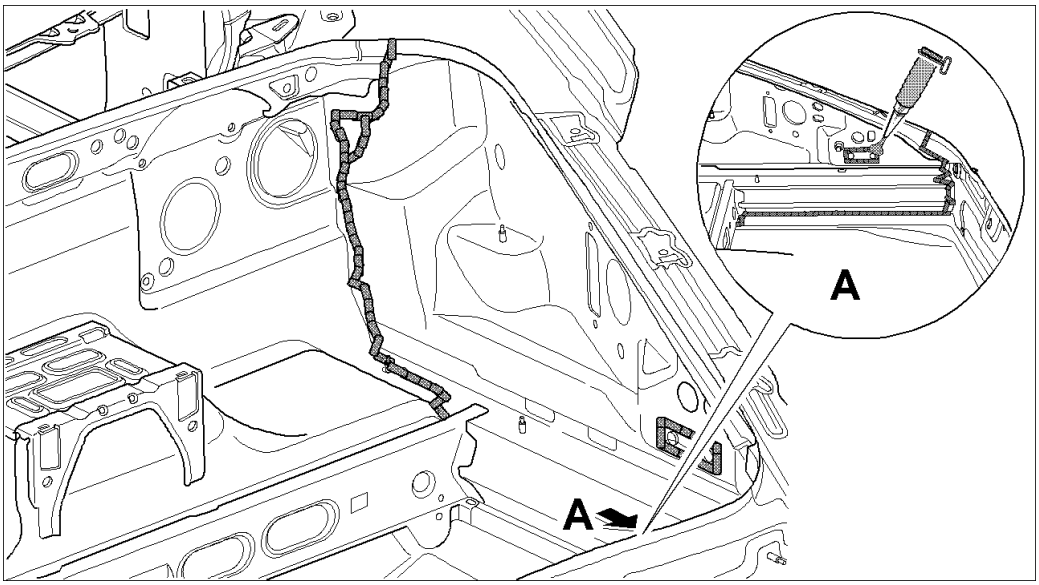
Unpainted bodyshell

Top of front of vehicle



Seam seal, top of front of vehicle

Top of front of vehicle, front

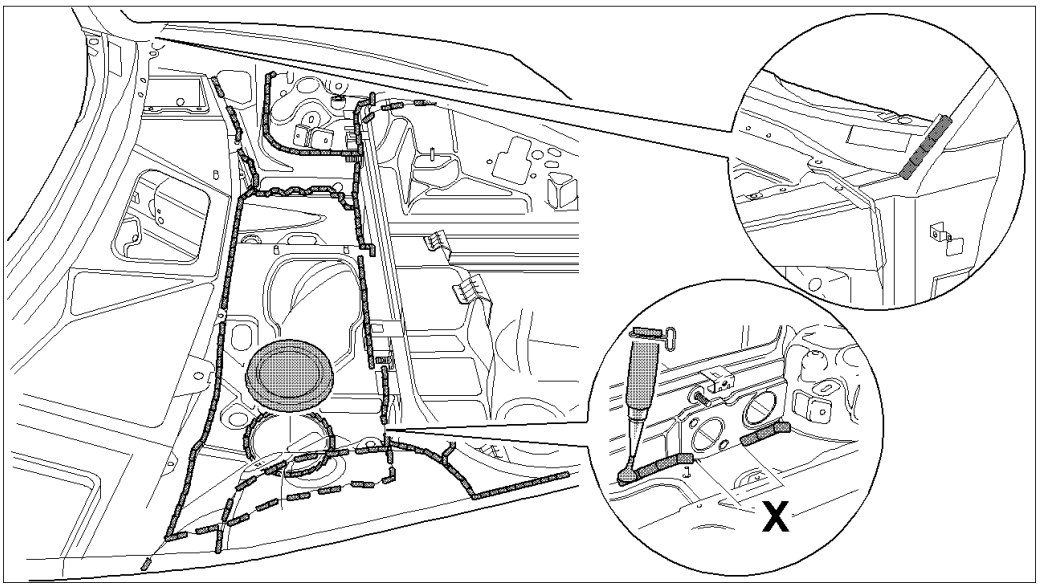


Seam seal, top of front of vehicle, front

Top of front of vehicle, (radiator tank)

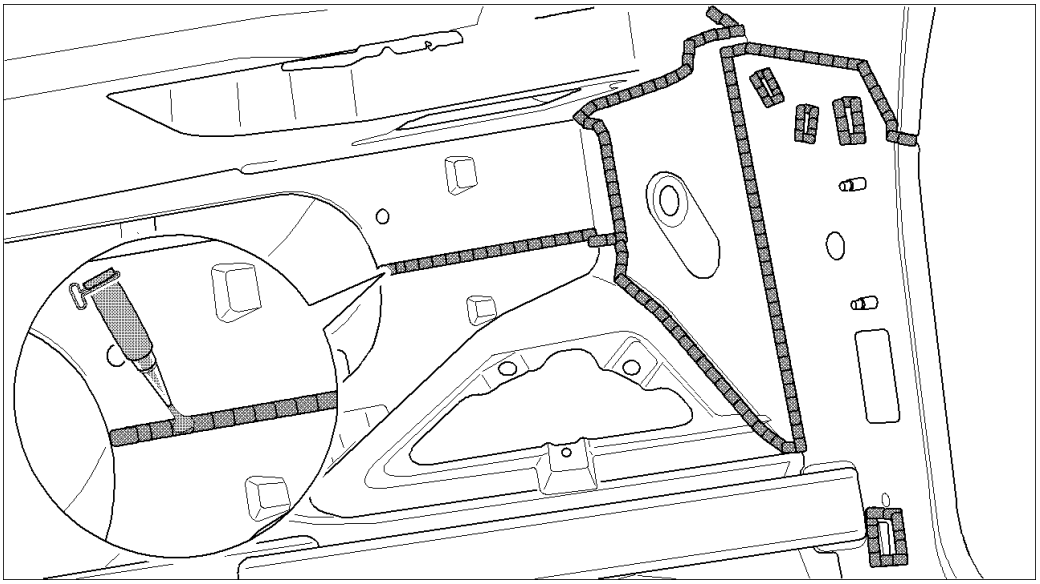
Note

- *The designated area **-X-** must be kept clear.*



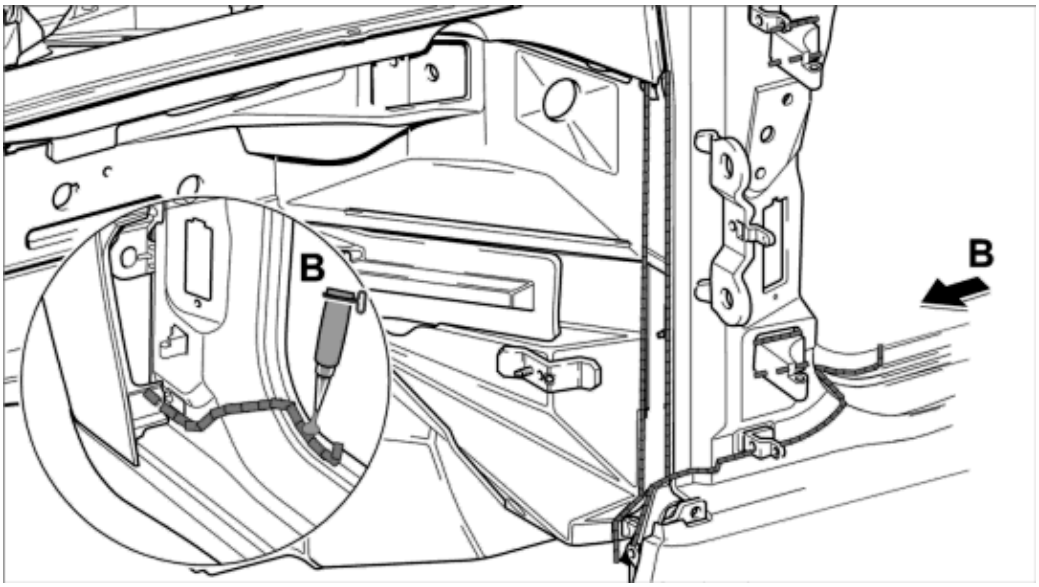
Seam seal, top of front of vehicle, (radiator tank)

Front of vehicle and inside A-pillars



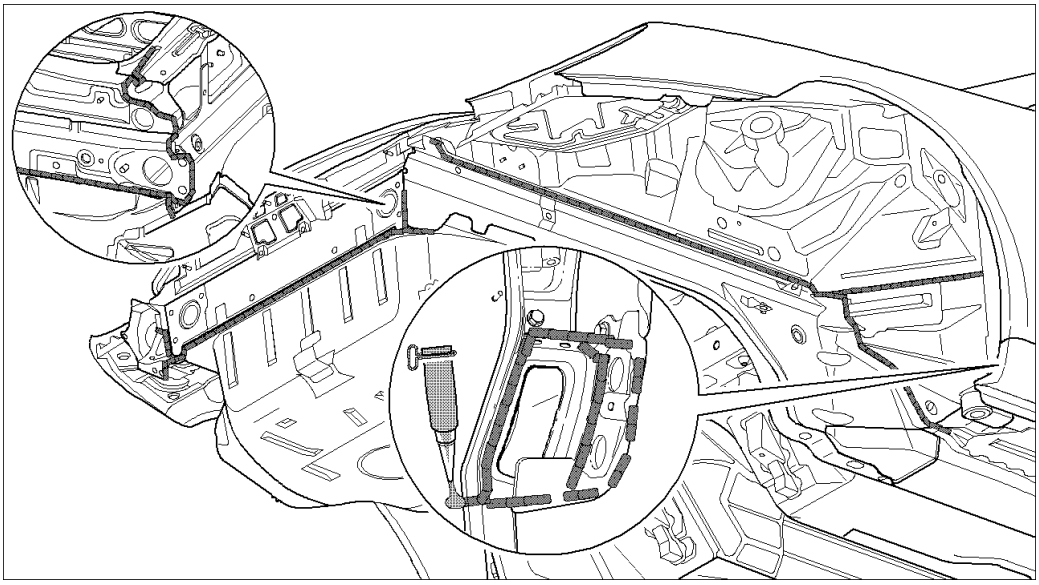
Seam seal, front of vehicle and inside A-pillars

Front of vehicle and outside A-pillars



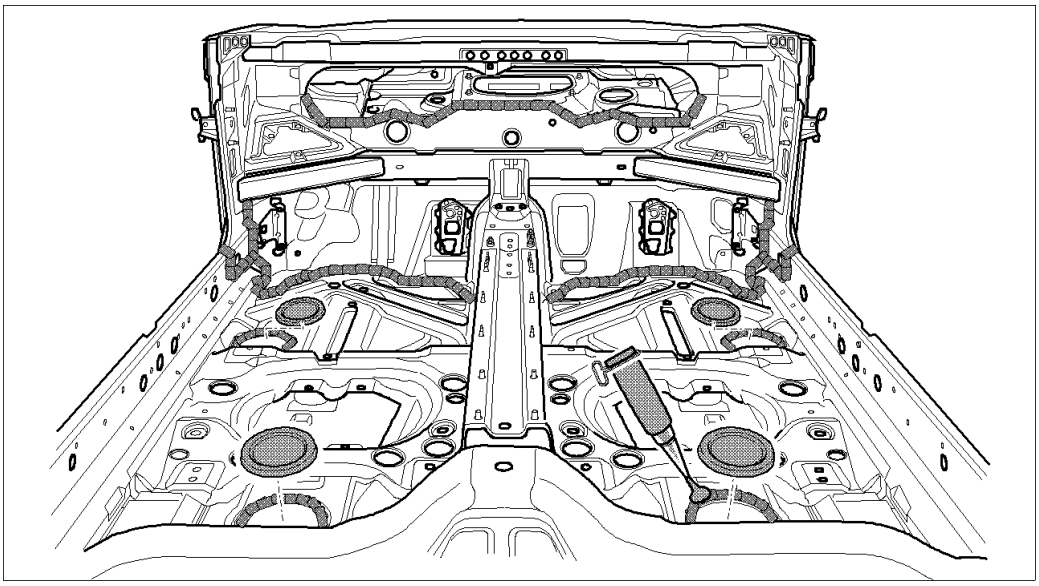
Seam seal, front of vehicle and outside A-pillars

Side of front of vehicle



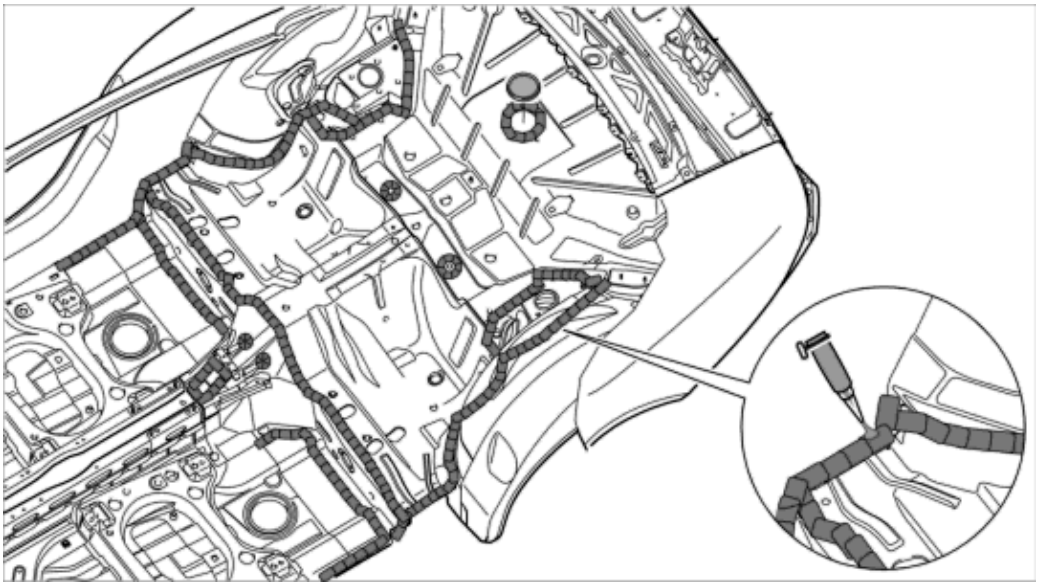
Seam seal, side of front of vehicle

Top of inside front of vehicle and floor



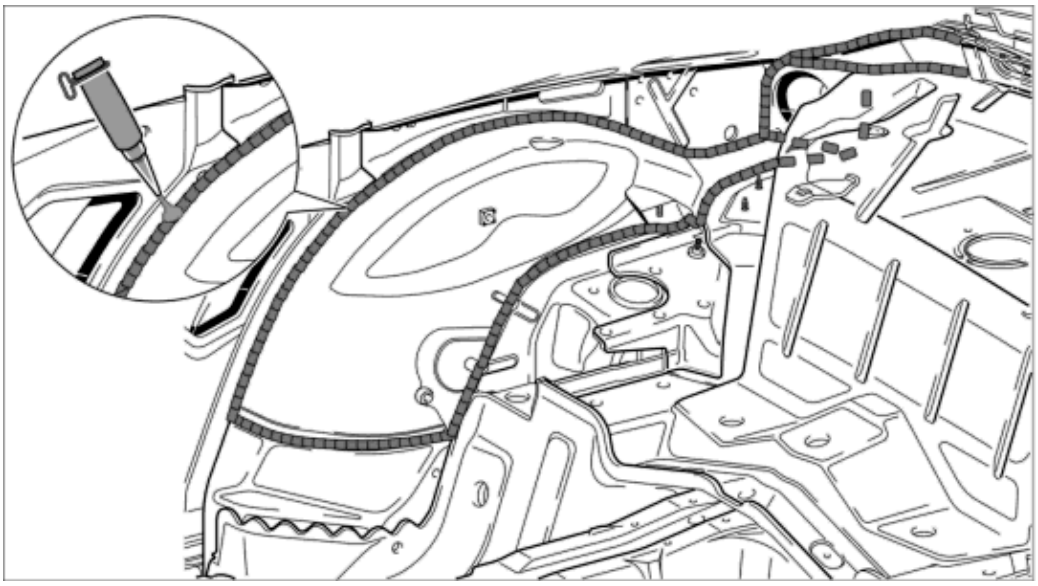
Seam seal, top of inside front of vehicle and floor

Top of lower side member and floor



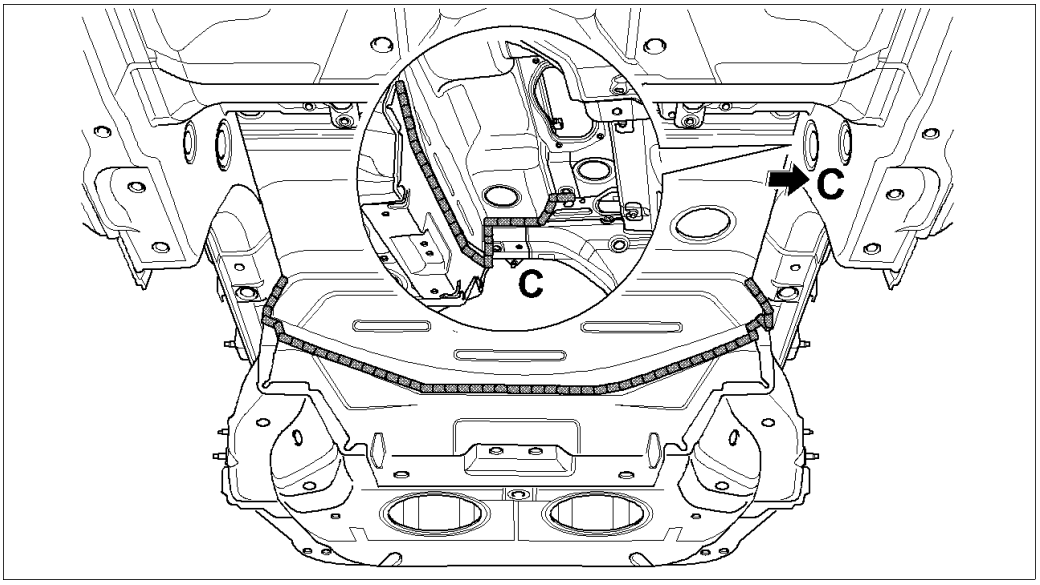
Seam seal, top of lower side member and floor

Wheel housing and upper rear side section



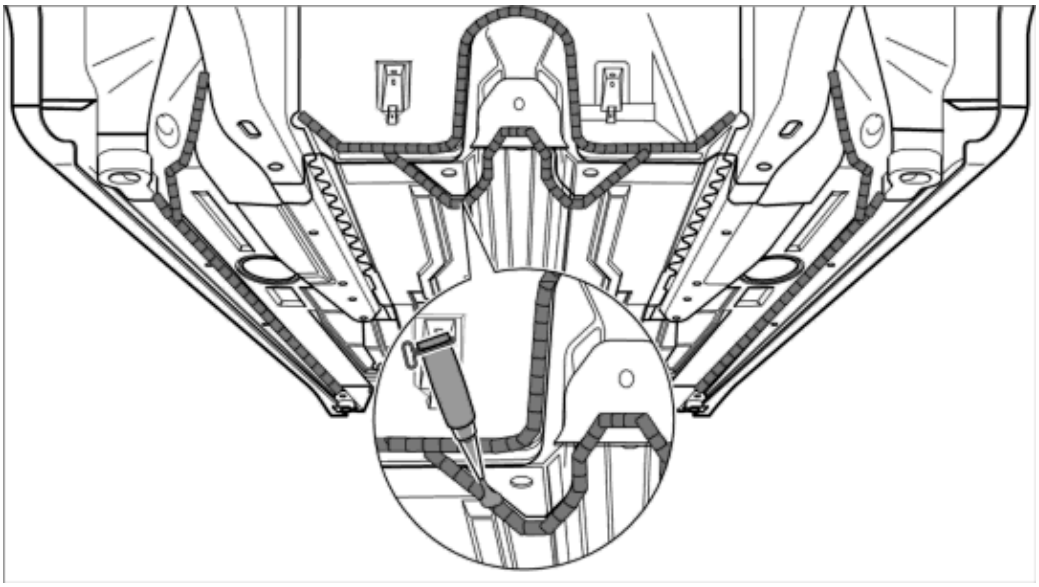
Seam seal, wheel housing and upper rear side section

Bottom of front of vehicle



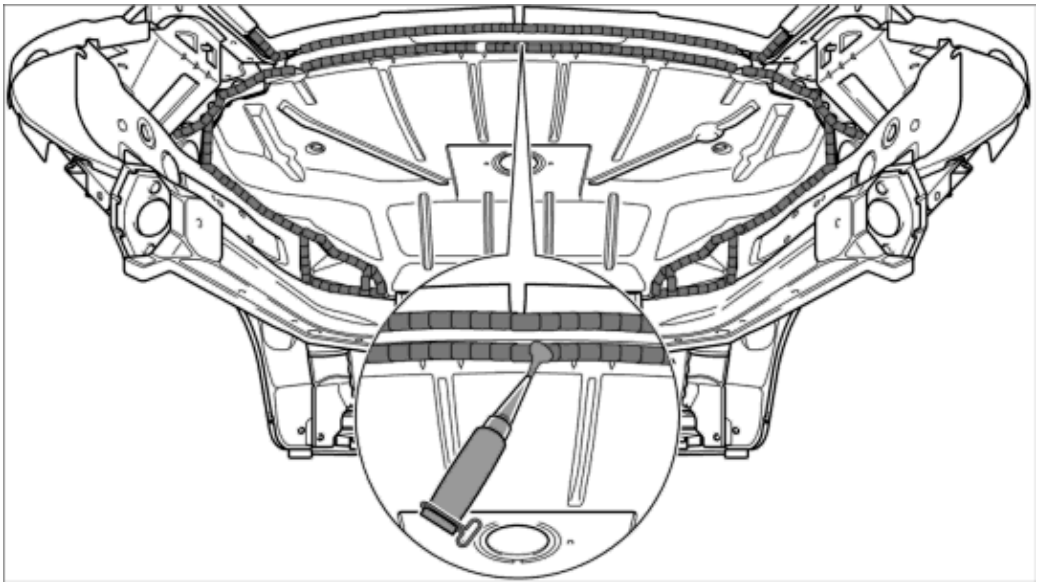
Seam seal, bottom of front of vehicle

Bottom of lower side member and floor



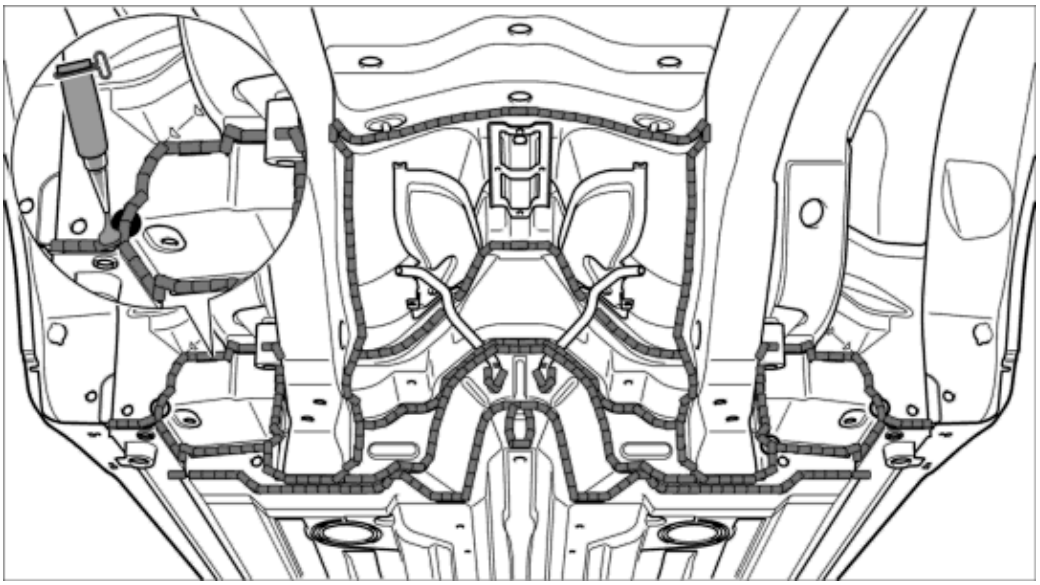
Seam seal, bottom of lower side member and floor

Top of rear end



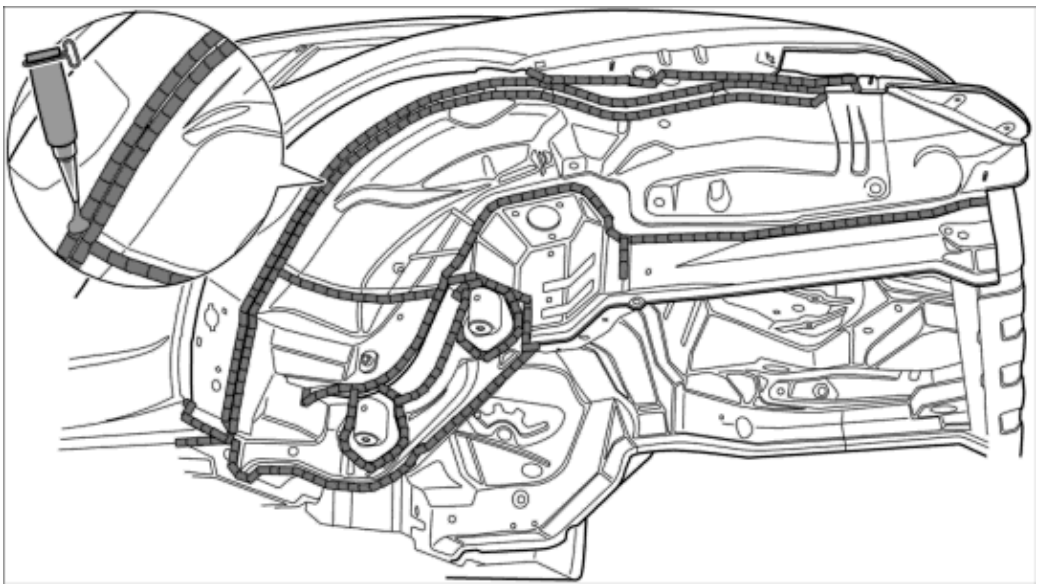
Seam seal, top of rear end

Bottom of rear end



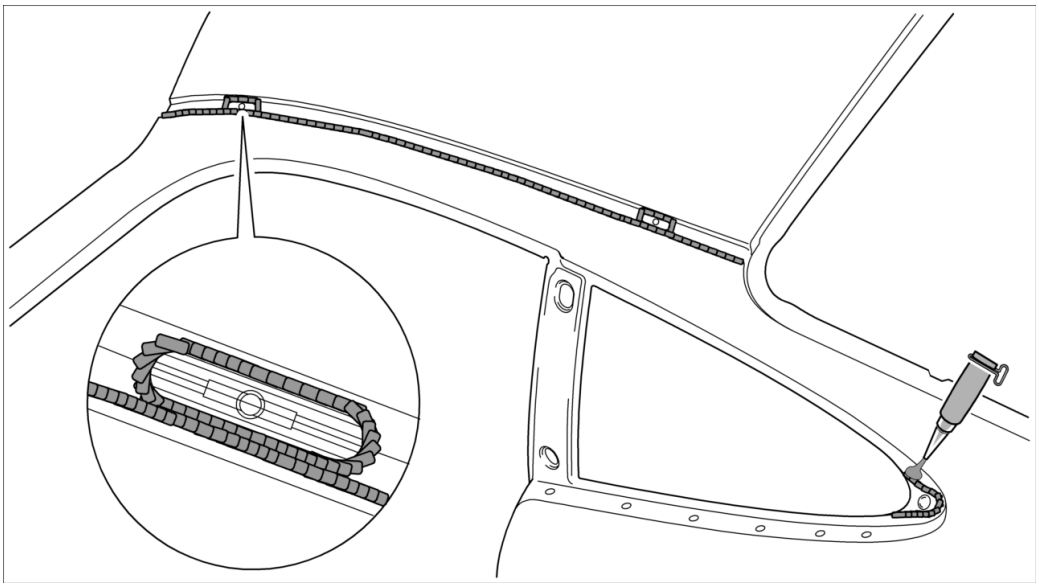
Seam seal, bottom of rear end

Side of rear end



Seam seal, side of rear end

Roof



Outer roof panel seam seals

997110, 997111, 997120, 997121

as of MY 2005
Country C00, C02, C05, C07, C08, C09, C10, C11, C12, C13, C14, C15, C16, C18, C19, C20, C21, C22, C23, C24, C25, C26, C27, C28, C32, C33, C34, C35, C36, C37, C38, C39, C45, C46, C98, C99

WARNUNG

Gefahr des Verlusts der Text-Bild-Zuordnung beim Ausdruck.

- **Aus technischen Gründen kann derzeit nicht ausgeschlossen werden, dass trotz einwandfreier Darstellung auf dem Bildschirm beim Ausdruck der Zusammenhang von Text und zugehörigem Bild verloren geht.**
- **Wird der Fehler nicht bemerkt, besteht die Gefahr, daß Arbeiten nicht korrekt durchgeführt werden und es dadurch zu Personen- und Sachschäden kommt.**

Vergleichen Sie deshalb nach dem Druckvorgang unbedingt die Ausdrucke mit der Bildschirmdarstellung. Korrigieren Sie die Ausdrucke im Fehlerfall so, daß der Inhalt der Bildschirmdarstellung zutreffend wiedergegeben wird.

WARNING

Danger of losing text-figure correspondence when printing out.

- **For technical reasons, it can currently not be ruled out that the correspondence between text and associated figure can be lost when it is printed out, even though the display on the screen is correct.**
- **If the fault is not noticed, there is the danger that work will not be performed correctly which can cause injury and damage.**

50 IN Seam seals - as of MY 2005

- Accessories
- Unpainted bodyshell

top of page

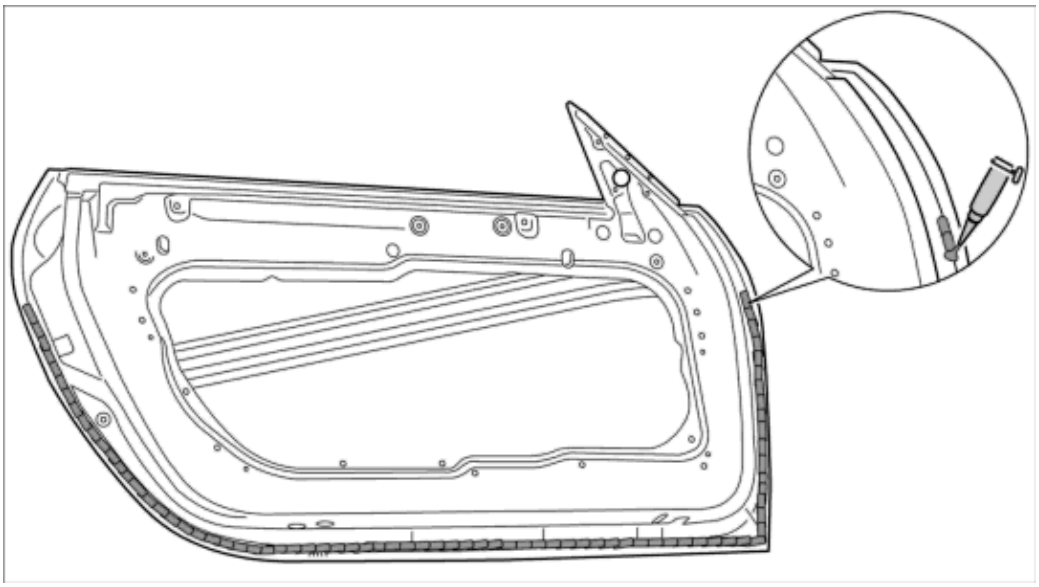
Accessories

Note on seam seals

Note

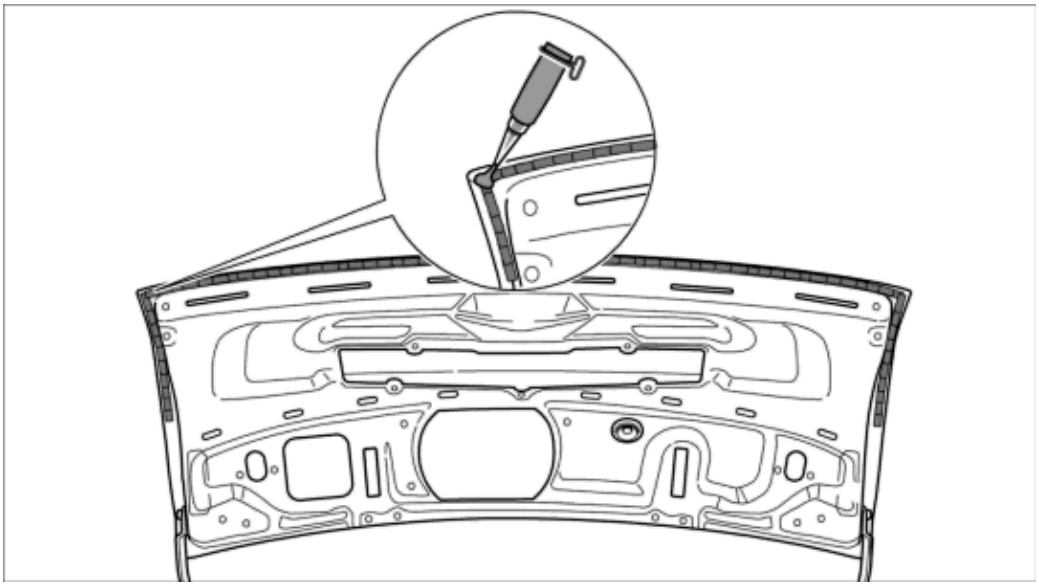
- *Due to modifications to the spare part range, in the case of repair work, accessories must be sealed before assembly (painting) according to the following illustrations.*
- *The sealing material SEALING MATERIAL can be applied directly to accessories coated with KTL paint (cathodic dipbath coating).*
- *The seam seal can be painted over when it has reached approx. 70 % hardness (approx. 4 - 5 h at 20 °C, 50 % relative air humidity. Higher air humidity or dampening with water accelerates the hardening process).*
- *The hardening can be checked with a nail test. Press a finger nail gently into the hardened sealing mass; if this causes no damage to the sealing mass surface, the seam seal can be painted.*

Door



Door seam seal

Rear lid

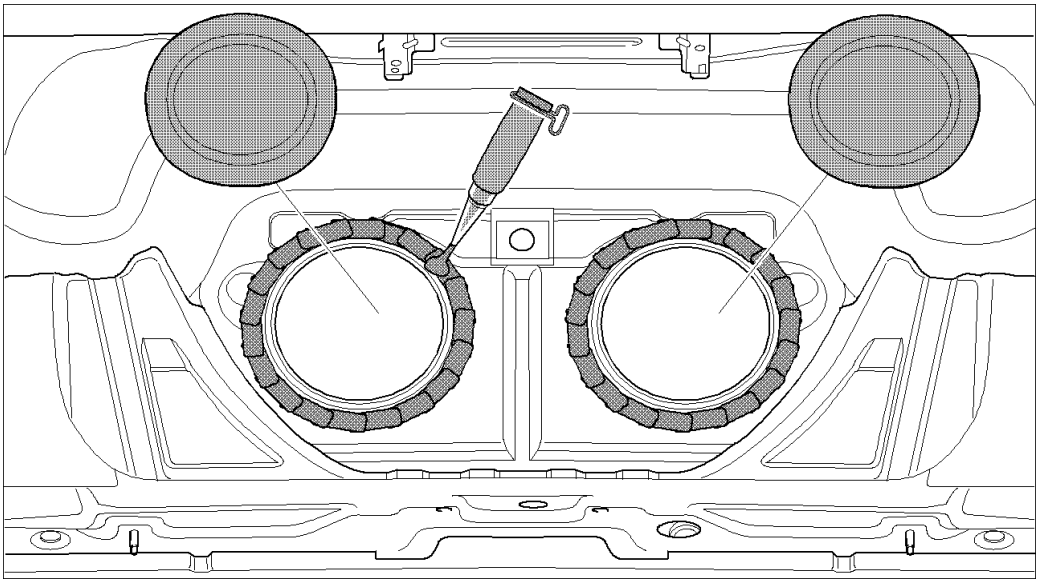


Rear lid seam seal

top of page

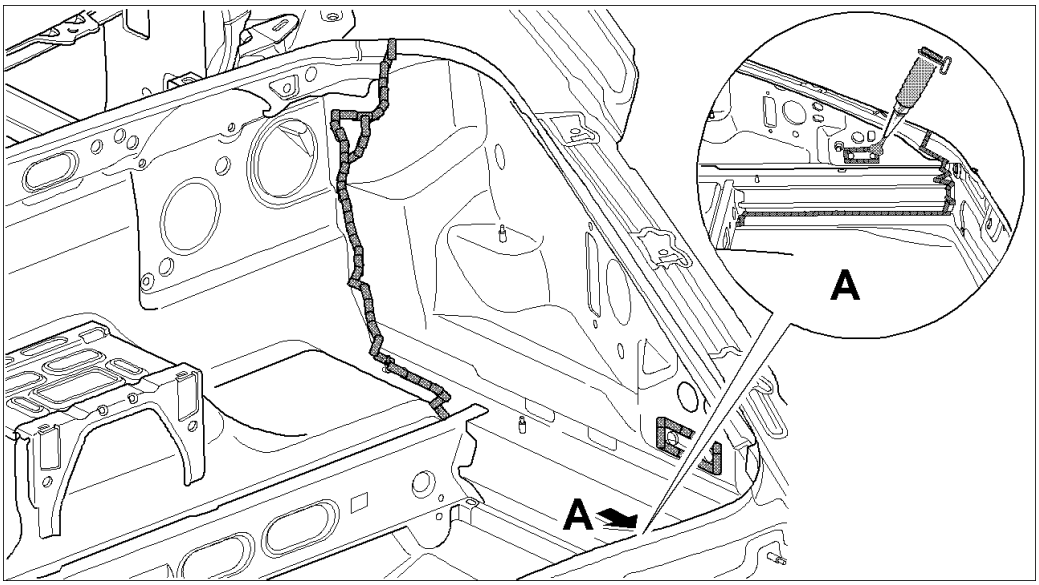
Unpainted bodyshell

Top of front of vehicle



Seam seal, top of front of vehicle

Top of front of vehicle, front

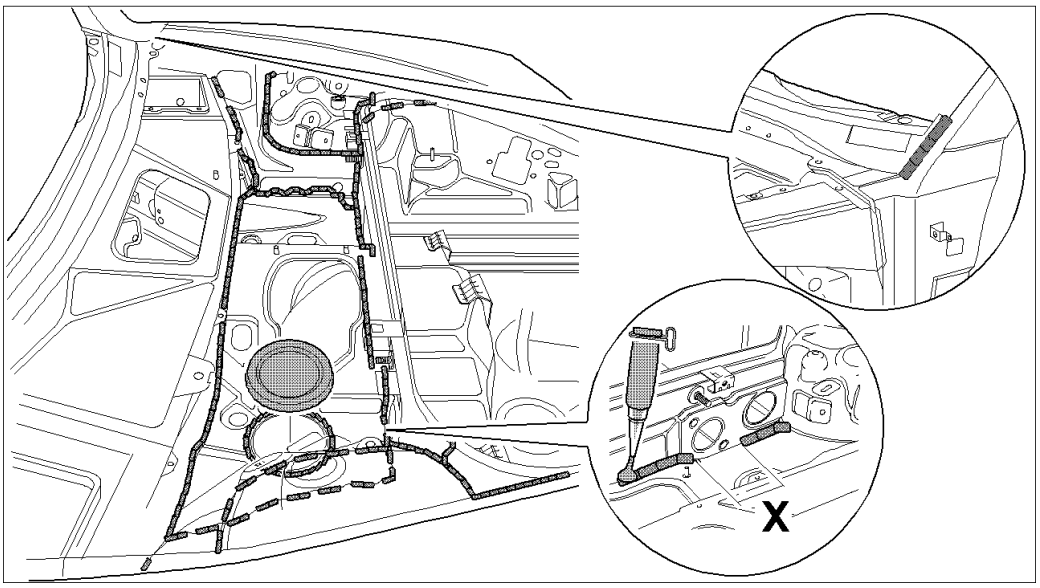


Seam seal, top of front of vehicle, front

Top of front of vehicle, (radiator tank)

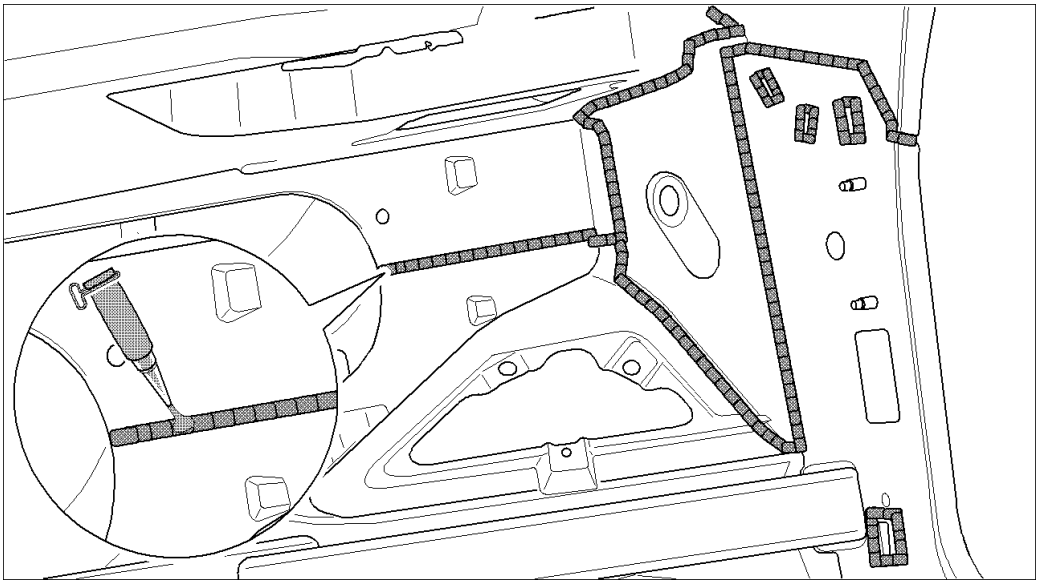
Note

- *The designated area **-X-** must be kept clear.*



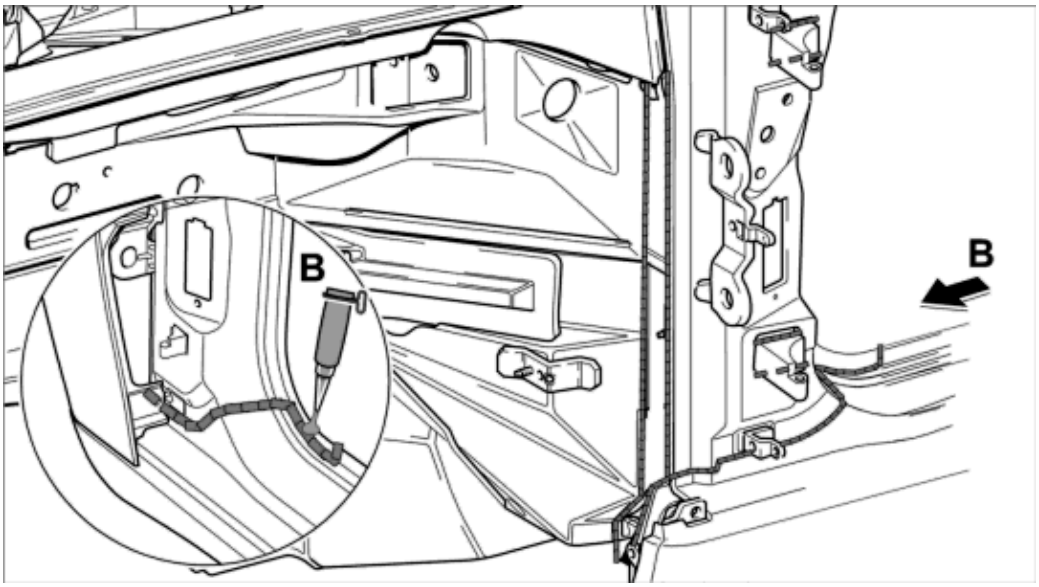
Seam seal, top of front of vehicle, (radiator tank)

Front of vehicle and inside A-pillars



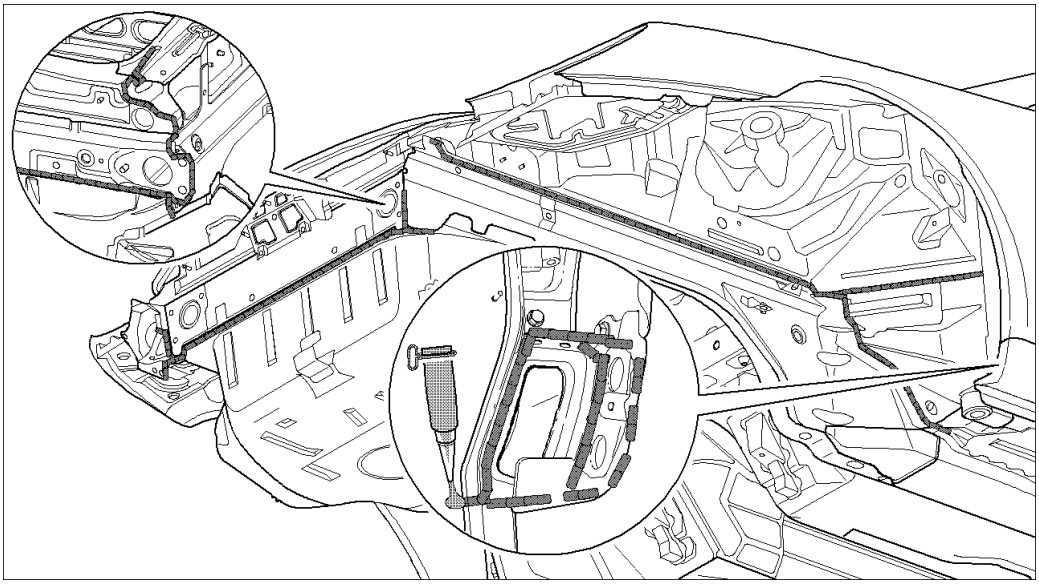
Seam seal, front of vehicle and inside A-pillars

Front of vehicle and outside A-pillars



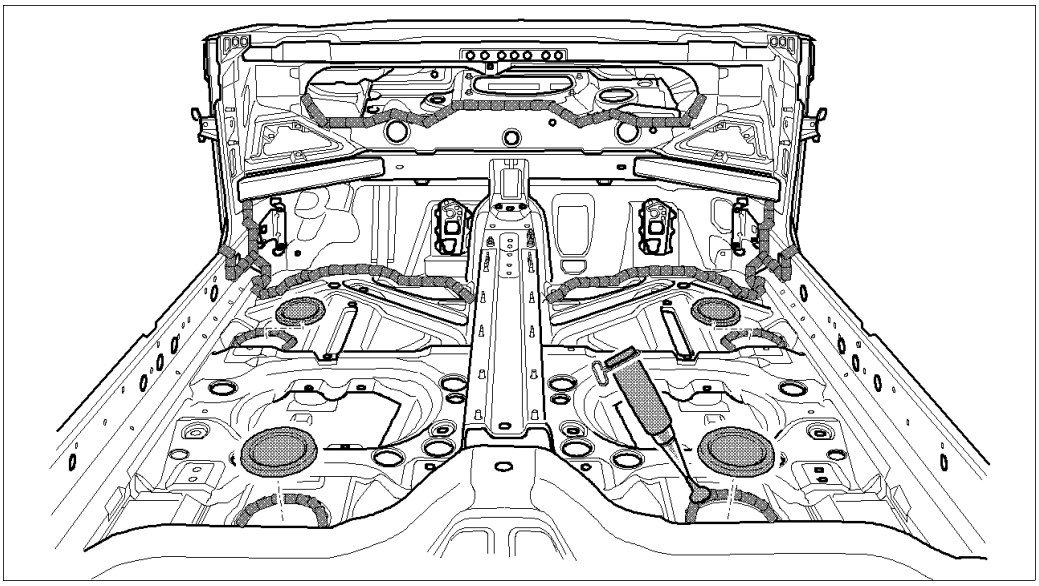
Seam seal, front of vehicle and outside A-pillars

Side of front of vehicle



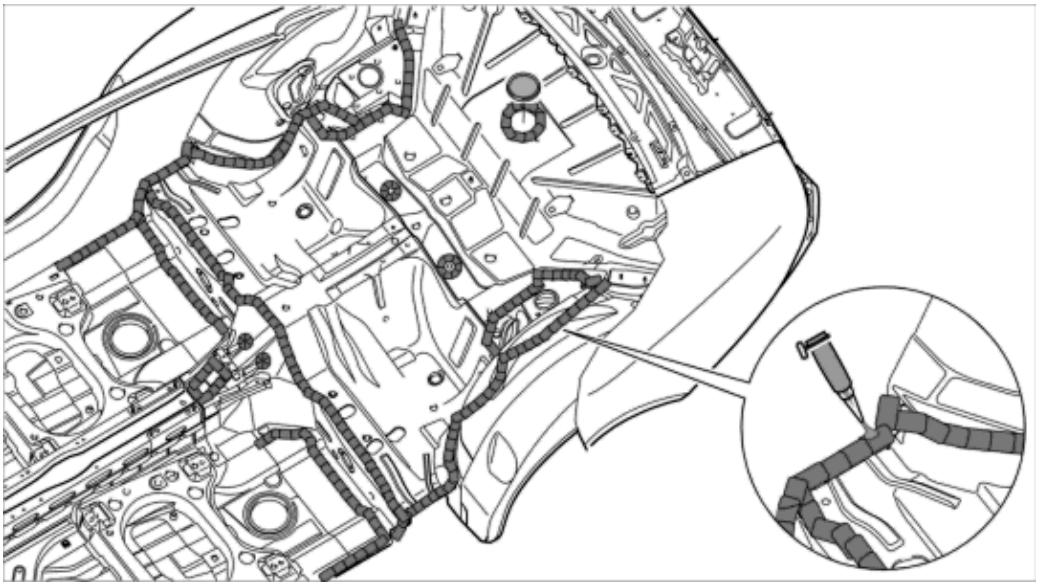
Seam seal, side of front of vehicle

Top of inside front of vehicle and floor



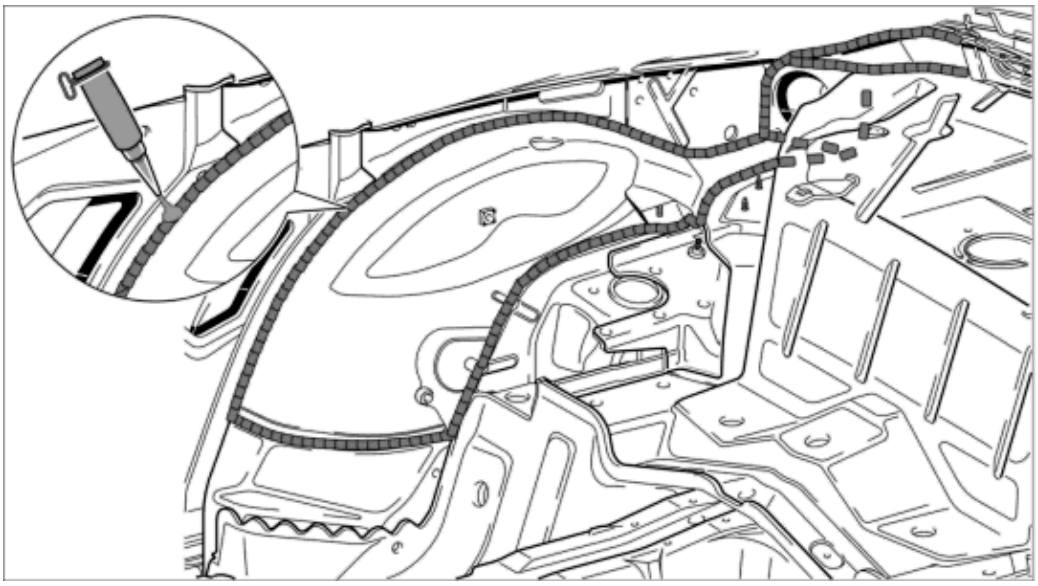
Seam seal, top of inside front of vehicle and floor

Top of lower side member and floor



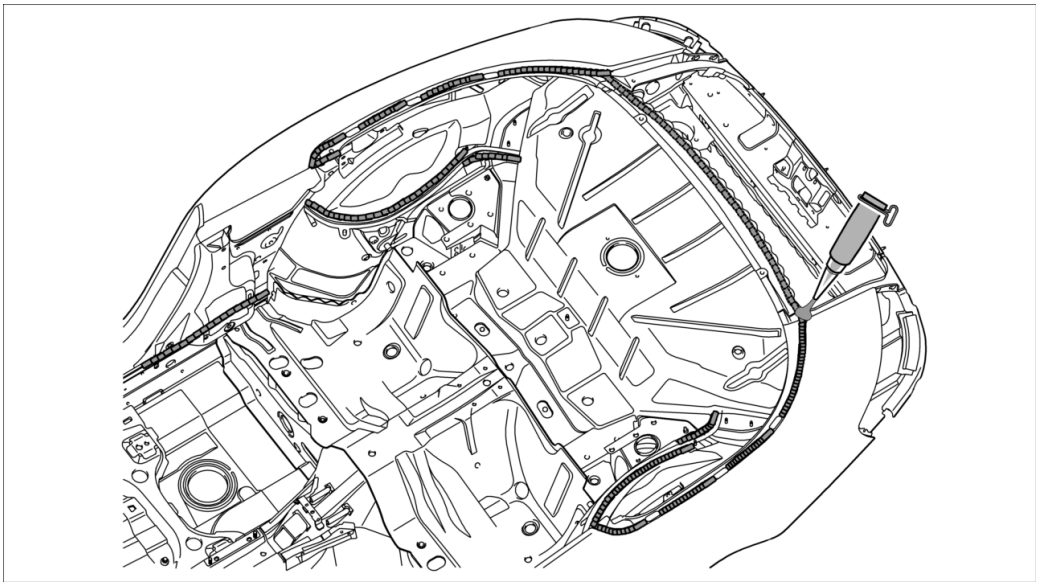
Seam seal, top of lower side member and floor

Wheel housing and upper rear side section



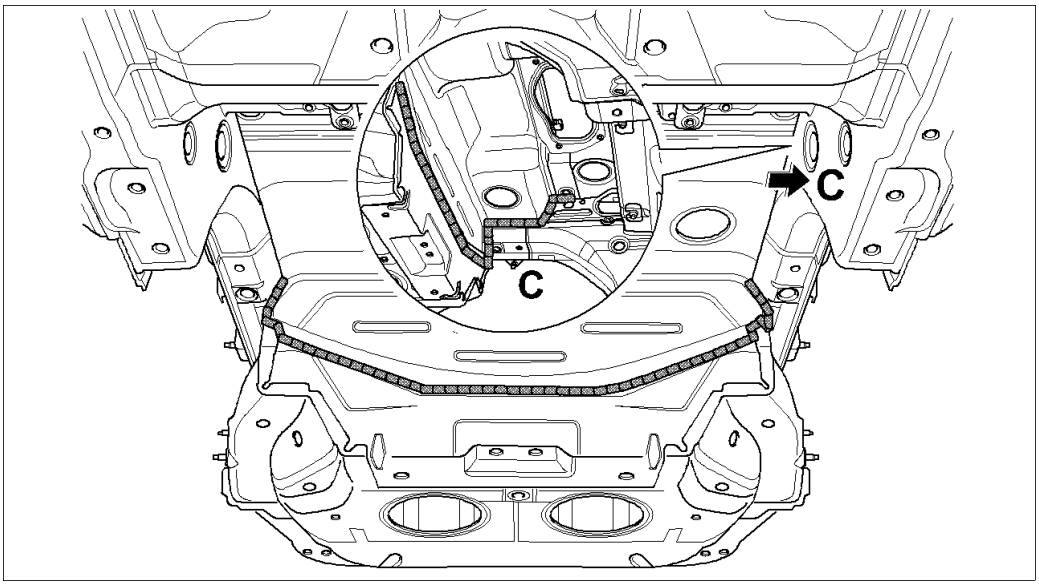
Seam seal, wheel housing and upper rear side section

Wheel housing and upper rear side section



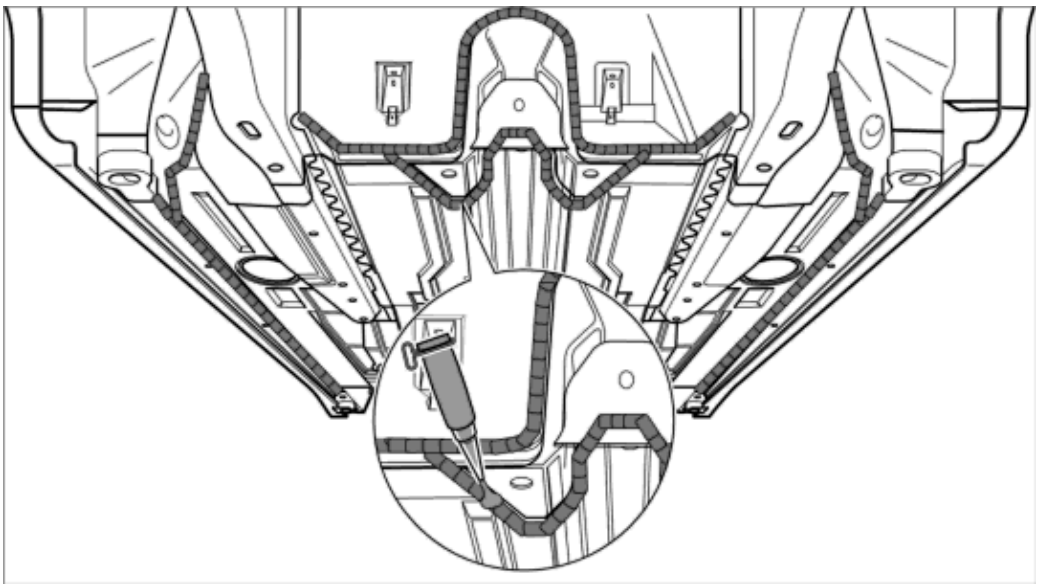
Seam seal, wheel housing and upper rear side section

Bottom of front of vehicle



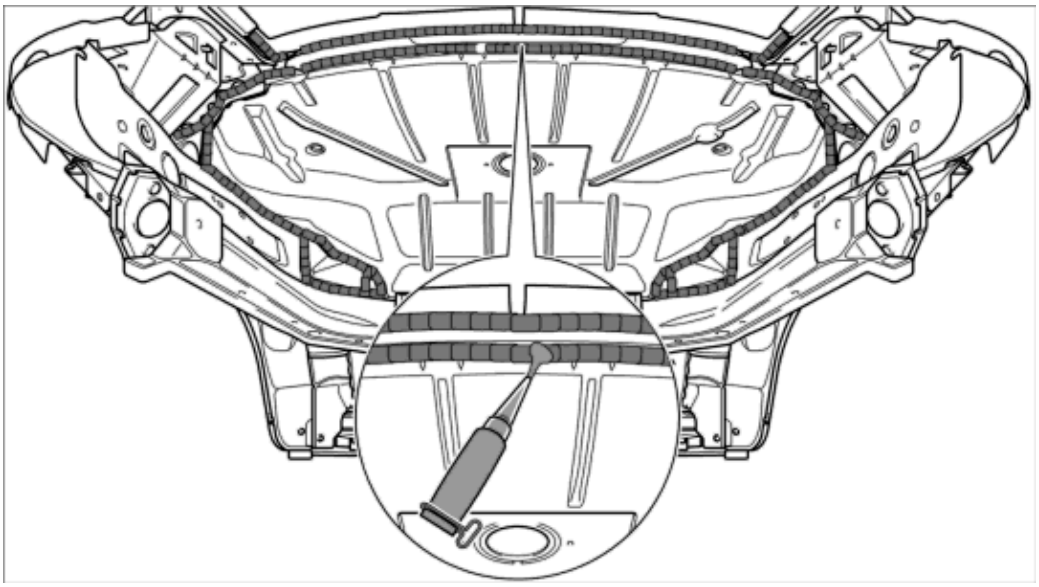
Seam seal, bottom of front of vehicle

Bottom of lower side member and floor



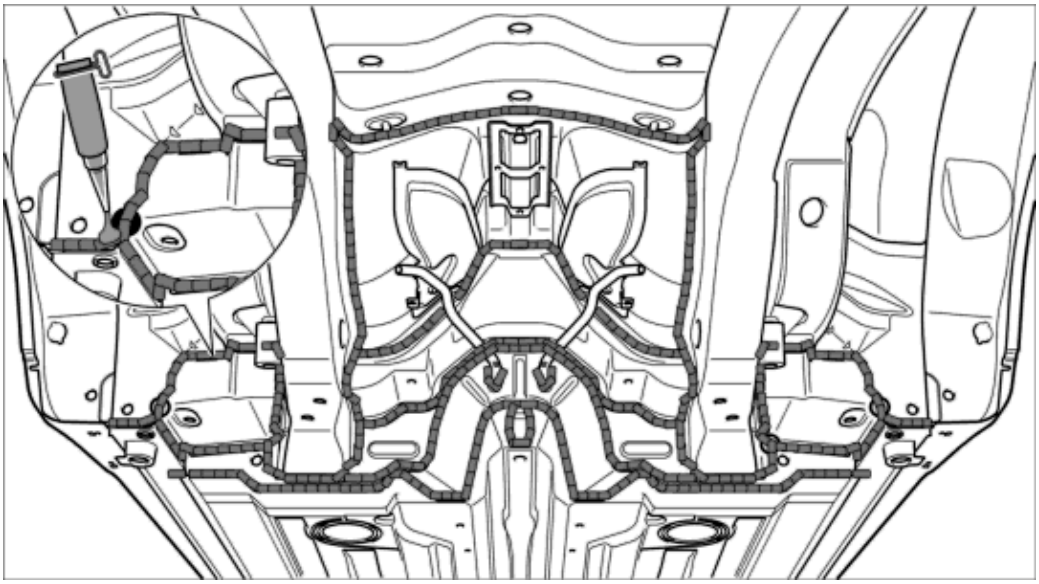
Seam seal, bottom of lower side member and floor

Top of rear end



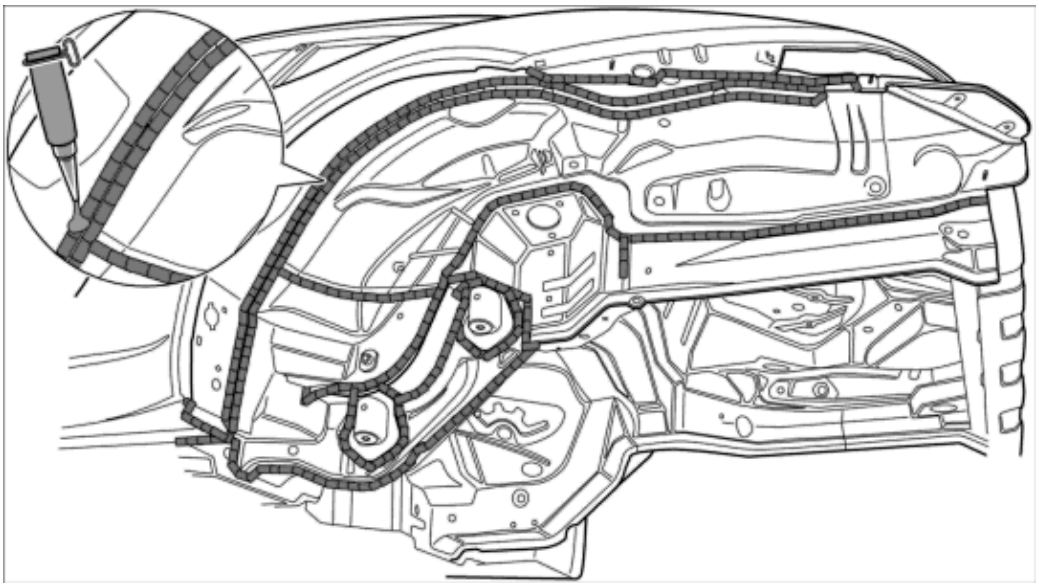
Seam seal, top of rear end

Bottom of rear end



Seam seal, bottom of rear end

Side of rear end



Seam seal, side of rear end

997310, 997311, 997320

as of MY 2005
Country C00, C02, C05, C07, C08, C09, C10, C11, C12, C13, C14, C15, C16, C18, C19, C20, C21, C22, C23, C24, C25, C26, C27, C28, C32, C33, C34, C35, C36, C37, C38, C39, C45, C46, C98, C99

WARNUNG

Gefahr des Verlusts der Text-Bild-Zuordnung beim Ausdruck.

- **Aus technischen Gründen kann derzeit nicht ausgeschlossen werden, dass trotz einwandfreier Darstellung auf dem Bildschirm beim Ausdruck der Zusammenhang von Text und zugehörigem Bild verloren geht.**
- **Wird der Fehler nicht bemerkt, besteht die Gefahr, daß Arbeiten nicht korrekt durchgeführt werden und es dadurch zu Personen- und Sachschäden kommt.**

Vergleichen Sie deshalb nach dem Druckvorgang unbedingt die Ausdrucke mit der Bildschirmdarstellung. Korrigieren Sie die Ausdrucke im Fehlerfall so, daß der Inhalt der Bildschirmdarstellung zutreffend wiedergegeben wird.

WARNING

Danger of losing text-figure correspondence when printing out.

- **For technical reasons, it can currently not be ruled out that the correspondence between text and associated figure can be lost when it is printed out, even though the display on the screen is correct.**
- **If the fault is not noticed, there is the danger that work will not be performed correctly which can cause injury and damage.**

50 IN Change identification data plate - as of MY 2005

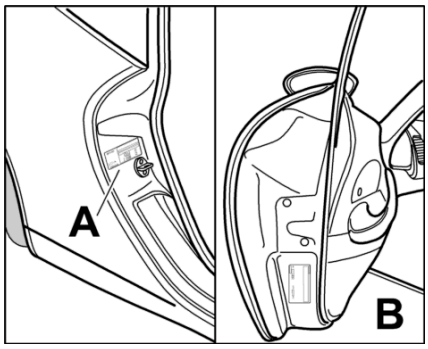
- Change identification data plate

top of page

Change identification data plate

Installation location of identification data plate on the vehicle

A new type data plate must be affixed after replacing the side section or door sheetmetal parts.
The identification data plate must be ordered from the importer of the respective country.

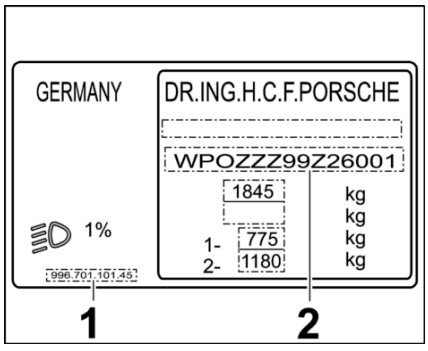


Installation location of identification data plate on the vehicle

When ordering the identification data plate, the item number and vehicle identification number must be specified.
A- Right side section RoW
B- Left doors USA/Canada

Identification data plate RoW

1- Item number

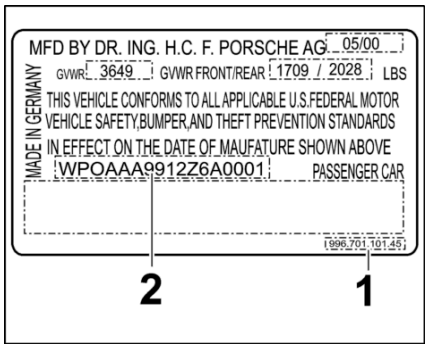


Identification data plate RoW

2- Vehicle identification number

Identification data plate USA

1- Item number

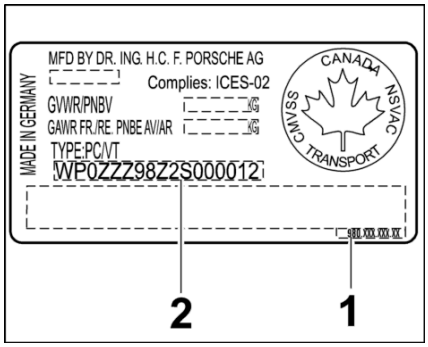


Identification data plate USA

2- Vehicle identification number

Identification data plate Canada

1- Item number



Identification data plate Canada

2- Vehicle identification number

997110, 997111, 997120, 997121, 997310, 997311, 997320, 997321, 997410, 997411, 997430, 997431, 997610, 997611, 997620, 997621

as of MY 2005
Country C00, C02, C05, C07, C08, C09, C10, C11, C12, C13, C14, C15, C16, C18, C19, C20, C21, C22, C23, C24, C25, C26, C27, C28, C32, C33, C34, C35, C36, C37, C38, C39, C45, C46, C98, C99

WARNUNG

Gefahr des Verlusts der Text-Bild-Zuordnung beim Ausdruck.

- **Aus technischen Gründen kann derzeit nicht ausgeschlossen werden, dass trotz einwandfreier Darstellung auf dem Bildschirm beim Ausdruck der Zusammenhang von Text und zugehörigem Bild verloren geht.**

50 IN Undersealing - as of MY 2005

- Tools and materials
- Diagram: Undersealing

Tools

Designation	Type	Number	Explanation	
Multi-press telescopic spray gun	commercially available tool	9320		

top of page

Tools and materials

Tools

Recommendation **Multi-press telescopic spray gun 9320** For working with Terostat 9320
Manufacturer: Henkel Teroson GmbH
Postfach 10 56 20
69046 Heidelberg
www.teroson.com

Materials

Recommendation **Terostat multi-functional sealant 9320** Sprayable seam and compartment sealant
Manufacturer: Henkel Teroson GmbH
Postfach 10 56 20
69046 Heidelberg
www.teroson.com

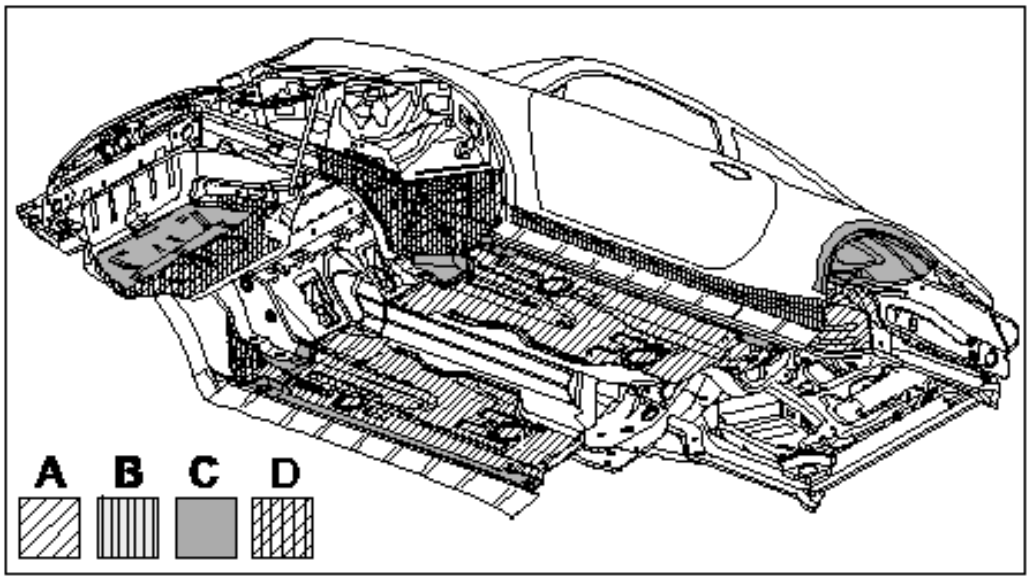
top of page

Diagram: Undersealing

Overview, undersealing

Note

- *In the case of repair work, the standard stone shield/undersealing of the body structure must be restored before painting or unit assembly, according to the following illustrations.*
- *The undersealing can only be applied to primed sheetmetal.*



Overview, undersealing

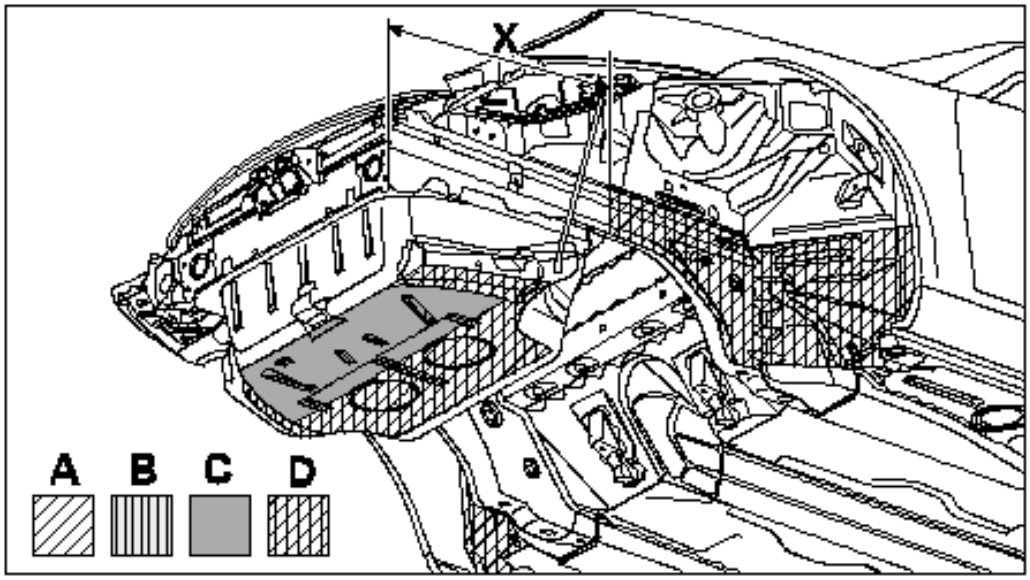
A - 0.2 mm to 0.4 mm

B - 0.5 mm to 0.7 mm

C - 1 mm to 1.3 mm

D - 0.4 mm to 0.6 mm

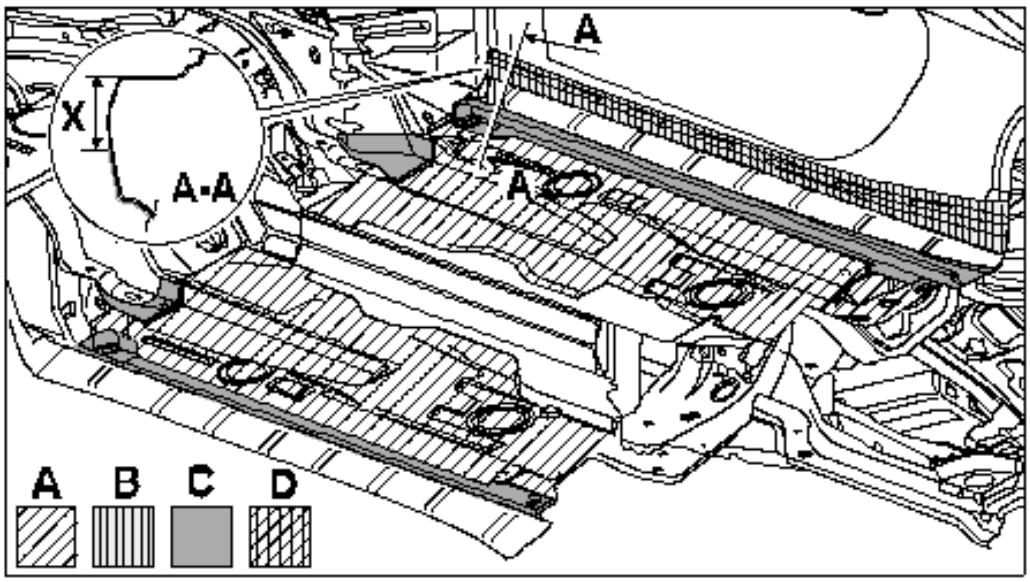
Bottom of front of vehicle, layout plan



Bottom of front of vehicle, layout plan

A - 0.2 mm to 0.4 mm
B - 0.5 mm to 0.7 mm
C - 1 mm to 1.3 mm
D - 0.4 mm to 0.6 mm
X - 550 mm

Lower side member and floor, layout plan

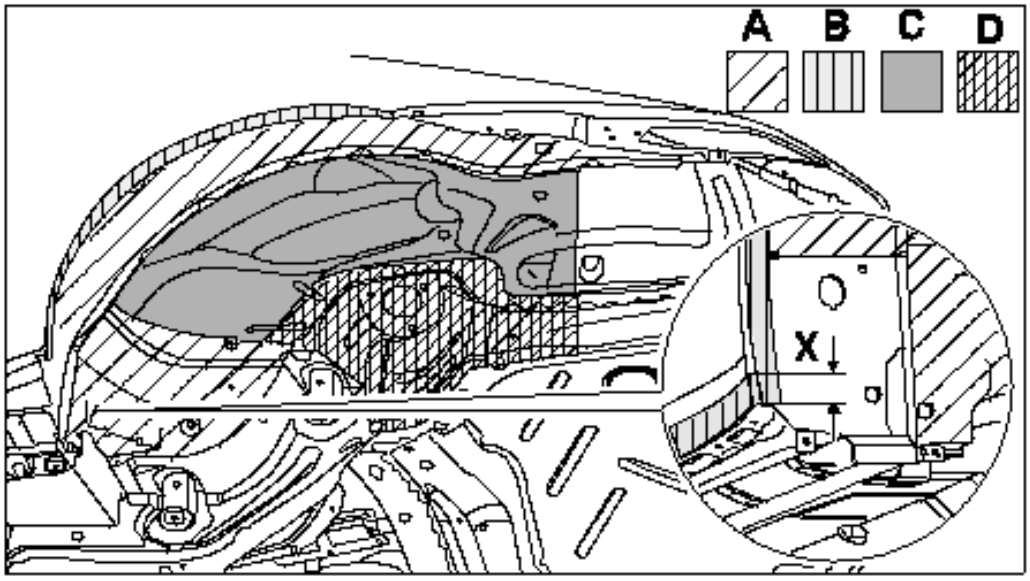


Lower side member and floor, layout plan

A - 0.2 mm to 0.4 mm
B - 0.5 mm to 0.7 mm
C - 1 mm to 1.3 mm
D - 0.4 mm to 0.6 mm

X - 35.5 mm

Bottom of rear end, layout plan



Bottom of rear end, layout plan

A - 0.2 mm to 0.4 mm
B - 0.5 mm to 0.7 mm
C - 1 mm to 1.3 mm
D - 0.4 mm to 0.6 mm
X - 32 mm

997410, 997411, 997430, 997431, 997610, 997611, 997620, 997621

as of MY 2005
Country C00, C02, C05, C07, C08, C09, C10, C11, C12, C13, C14, C15, C16, C18, C19, C20, C21, C22, C23, C24, C25, C26, C27, C28, C32, C33, C34, C35, C36, C37, C38, C39, C45, C46, C98, C99

WARNUNG

Gefahr des Verlusts der Text-Bild-Zuordnung beim Ausdruck.

- **Aus technischen Gründen kann derzeit nicht ausgeschlossen werden, dass trotz einwandfreier Darstellung auf dem Bildschirm beim Ausdruck der Zusammenhang von Text und zugehörigem Bild verloren geht.**
- **Wird der Fehler nicht bemerkt, besteht die Gefahr, daß Arbeiten nicht korrekt durchgeführt werden und es dadurch zu Personen- und Sachschäden kommt.**

Vergleichen Sie deshalb nach dem Druckvorgang unbedingt die Ausdrucke mit der Bildschirmdarstellung. Korrigieren Sie die Ausdrucke im Fehlerfall so, daß der Inhalt der

50 IN Undersealing - as of MY 2005

- Tools and materials
- Diagram: Undersealing

Tools

Designation	Type	Number	Explanation	
Multi-press telescopic spray gun	commercially available tool	9320		

top of page

Tools and materials

Tools

Recommendation **Multi-press telescopic spray gun 9320** For working with Terostat 9320
Manufacturer: Henkel Teroson GmbH
Postfach 10 56 20
69046 Heidelberg
www.teroson.com

Materials

Recommendation **Terostat multi-functional sealant 9320** Sprayable seam and compartment sealant
Manufacturer: Henkel Teroson GmbH
Postfach 10 56 20
69046 Heidelberg
www.teroson.com

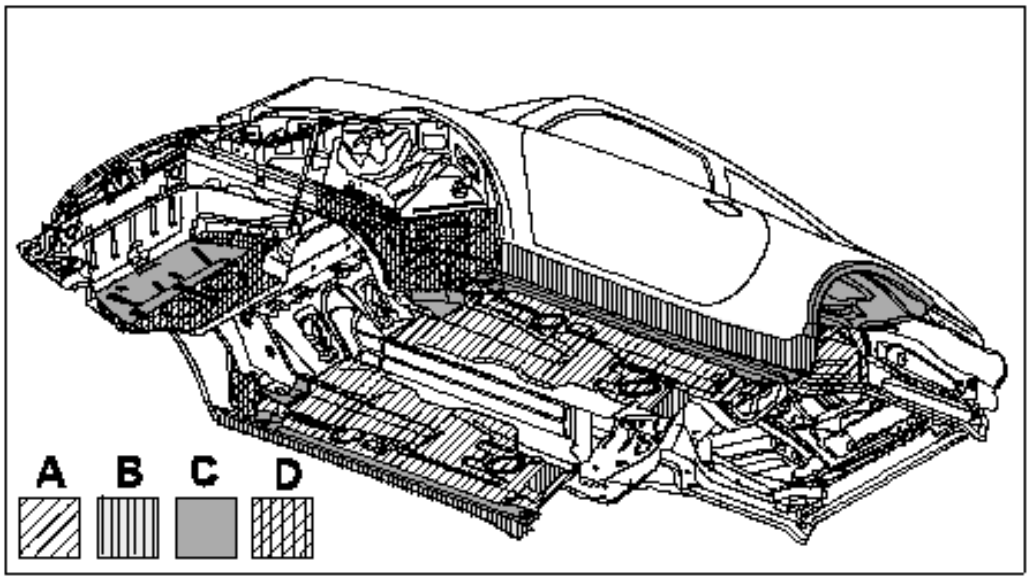
top of page

Diagram: Undersealing

Overview, undersealing

Note

- *In the case of repair work, the standard stone shield/undersealing of the body structure must be restored before painting or unit assembly, according to the following illustrations.*
- *The undersealing can only be applied to primed sheetmetal.*



Overview, undersealing

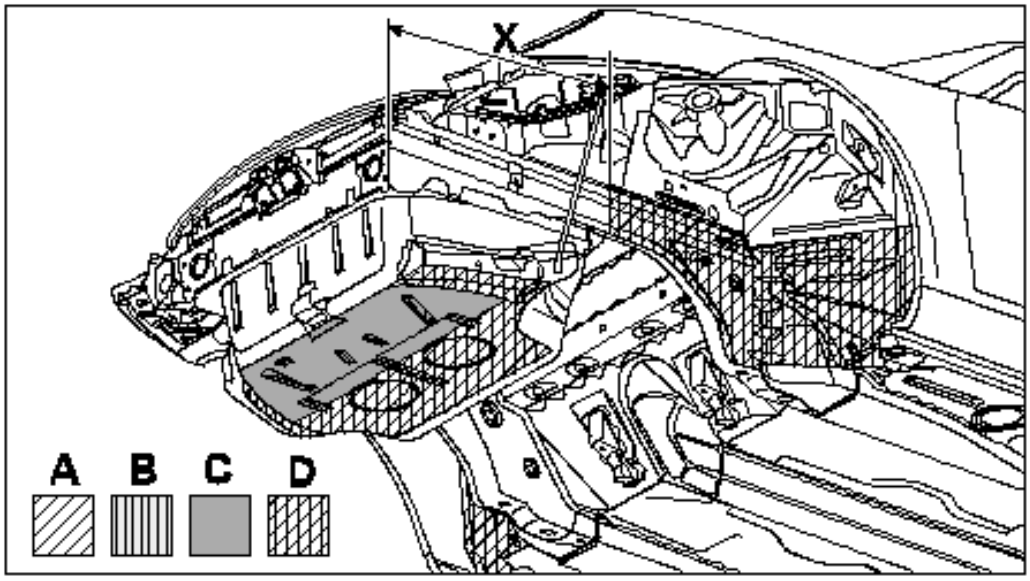
A - 0.2 mm to 0.4 mm

B - 0.5 mm to 0.7 mm

C - 1 mm to 1.3 mm

D - 0.4 mm to 0.6 mm

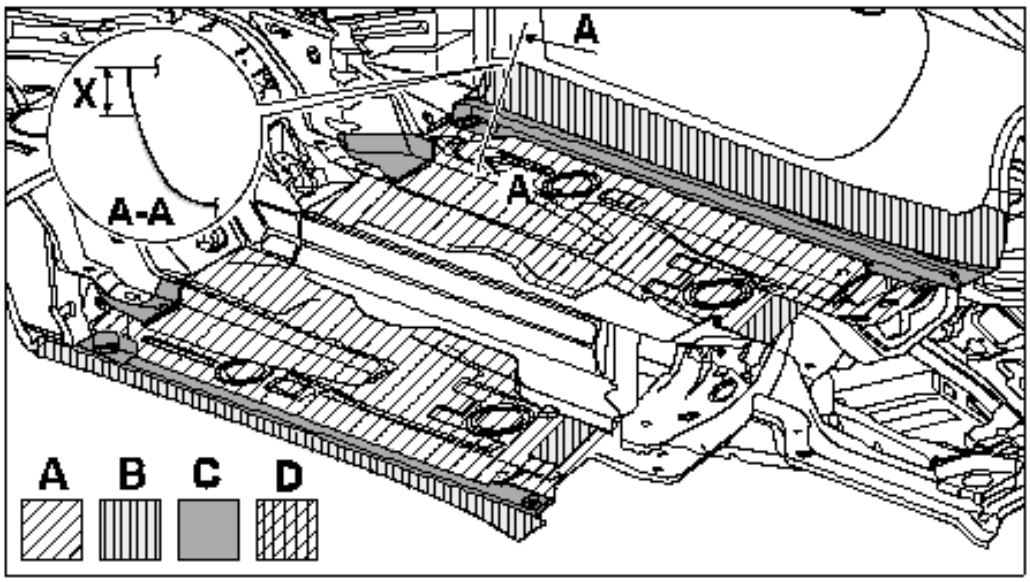
Bottom of front of vehicle, layout plan



Bottom of front of vehicle, layout plan

A - 0.2 mm to 0.4 mm
B - 0.5 mm to 0.7 mm
C - 1 mm to 1.3 mm
D - 0.4 mm to 0.6 mm
X - 550 mm

Lower side member and floor, layout plan

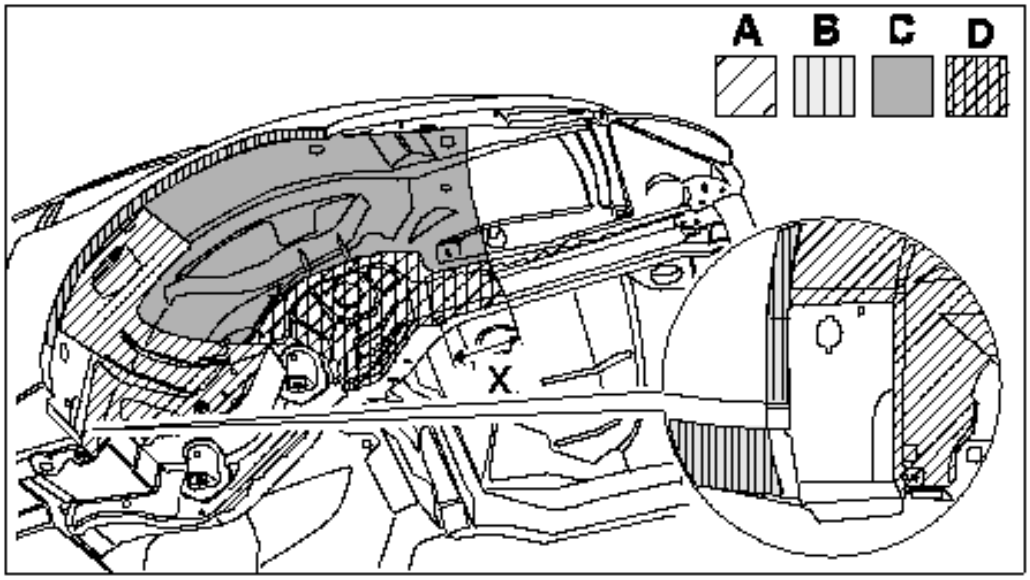


Lower side member and floor, layout plan

A - 0.2 mm to 0.4 mm
B - 0.5 mm to 0.7 mm
C - 1 mm to 1.3 mm
D - 0.4 mm to 0.6 mm

X - 34 mm

Bottom of rear end, layout plan



Bottom of rear end, layout plan

A - 0.2 mm to 0.4 mm
B - 0.5 mm to 0.7 mm
C - 1 mm to 1.3 mm
D - 0.4 mm to 0.6 mm
X - 145 mm

997110, 997111, 997120, 997121, 997310, 997311, 997320, 997321

as of MY 2005
Country C00, C02, C05, C07, C08, C09, C10, C11, C12, C13, C14, C15, C16, C18, C19, C20, C21, C22, C23, C24, C25, C26, C27, C28, C32, C33, C34, C35, C36, C37, C38, C39, C45, C46, C98, C99

WARNUNG

Gefahr des Verlusts der Text-Bild-Zuordnung beim Ausdruck.

- **Aus technischen Gründen kann derzeit nicht ausgeschlossen werden, dass trotz einwandfreier Darstellung auf dem Bildschirm beim Ausdruck der Zusammenhang von Text und zugehörigem Bild verloren geht.**
- **Wird der Fehler nicht bemerkt, besteht die Gefahr, daß Arbeiten nicht korrekt durchgeführt werden und es dadurch zu Personen- und Sachschäden kommt.**

Vergleichen Sie deshalb nach dem Druckvorgang unbedingt die Ausdrucke mit der Bildschirmdarstellung. Korrigieren Sie die Ausdrucke im Fehlerfall so, daß der Inhalt der

50 IN Work sequence for accident repair - as of MY 2005

- Work sequence for accident repair

top of page

Work sequence for accident repair

Procedure for accident repairs.

1. Determine scope of damage
2. Expose the area to be repaired
3. Make an economic or technical decision: Should parts be repaired or replaced?
4. Determine the scope of replacement parts and order the parts
   See Repair
   See Replacement
5. If necessary, prime and seal the seam areas
6. If necessary, renew the stone impact protection
7. Paint the repaired area
8. If necessary, touch up the undersealing
9. Seal cavities
10. Fit accessories

Repair

1. Cover undamaged areas of the vehicle
2. Reshape damaged areas
3. Fill or soak reshaped areas
4. Apply fine filler on repair areas

Replacement

1. Cover undamaged areas of the vehicle so that they are protected against fire
2. Disconnect battery
3. Pre-paint new parts from the inside

4. Reshape damaged area by straightening so that adjacent contours or gap dimensions correspond to the standard condition
5. Roughly cut out damaged areas
6. Cut out remaining pieces
7. Fit new parts in, then check the gap dimensions with the accessories fitted
8. Protect spot-welded flanges against corrosion
9. Observe safety and quality instructions for welding
   5 Safety instructions
10. Weld in new parts
11. Grind visible weld seams flat; if necessary apply body solder or filler

---

997110, 997111, 997120, 997121, 997310, 997311, 997320, 997321, 997410, 997411, 997430, 997431, 997610, 997611, 997620, 997621

as of MY 2005
Country C00, C02, C05, C07, C08, C09, C10, C11, C12, C13, C14, C15, C16, C18, C19, C20, C21, C22, C23, C24, C25, C26, C27, C28, C32, C33, C34, C35, C36, C37, C38, C39, C45, C46, C98, C99

WARNUNG

Gefahr des Verlusts der Text-Bild-Zuordnung beim Ausdruck.

- **Aus technischen Gründen kann derzeit nicht ausgeschlossen werden, dass trotz einwandfreier Darstellung auf dem Bildschirm beim Ausdruck der Zusammenhang von Text und zugehörigem Bild verloren geht.**
- **Wird der Fehler nicht bemerkt, besteht die Gefahr, daß Arbeiten nicht korrekt durchgeführt werden und es dadurch zu Personen- und Sachschäden kommt.**

Vergleichen Sie deshalb nach dem Druckvorgang unbedingt die Ausdrucke mit der Bildschirmdarstellung. Korrigieren Sie die Ausdrucke im Fehlerfall so, daß der Inhalt der Bildschirmdarstellung zutreffend wiedergegeben wird.

WARNING

Danger of losing text-figure correspondence when printing out.

- **For technical reasons, it can currently not be ruled out that the correspondence between text and associated figure can be lost when it is printed out, even though the display on the screen is correct.**
- **If the fault is not noticed, there is the danger that work will not be performed correctly which can cause injury and damage.**

Therefore, always compare printouts with the screen display after printing them out. Correct the printouts if they are faulty so that the content of the screen display matches that on the printouts.

50 IN Work sequence for determining scope of damage to vehicles involved in an accident - as of MY 2005

- Work sequence for determining scope of damage to vehicles involved in an accident

top of page

Work sequence for determining scope of damage to vehicles involved in an accident

Notes

Note

- *A body is constructed so that it has deformable zones in the front and rear areas. These deformable zones enable absorption of impact energy through their special design. The bearing structure in these areas is adapted by a specific cross section reduction to provide optimum energy reduction in the event of an impact.*
- *Due to the vehicle dimensions in the side area of the body, deformable zones cannot be provided for absorbing energy. The impact energy can only be absorbed to a lesser extent here through the deformation of doors and pillars. This is also the case for the roof area where only the roof skin can absorb impact energy to a very small extent. In these areas, passenger protection is guaranteed by a rigid design of the passenger cell.*
- *The aim of this design is to absorb the impact energy in defined areas to keep the passenger cell as free of damage as possible in the event of an accident. If the passenger cell has been deformed in the event of an accident, extremely large reshaping forces can be expected. Repair work is often only possible in this case by replacing body parts.*
- *In general, an impact occurs diagonally or offset to the vehicle axle so that mixed forms are usually the result of a front and side impact or a rear and side impact. The deformation is not always restricted to the impact area. Due to inertia forces of masses, such as running gear, drive line, occupants of the vehicle and load or the body itself, deformation can also occur in the opposite areas.*
- *The following work sequence should provide assistance to correctly determine the scope of damage of vehicles damaged in an accident.*

Work sequence for determining scope of damage to vehicles involved in an accident

1. Identify impact points on the outer shell or the wheels
2. Remove accessories which limit view of the impact area
3. Check unit mounts, running gear parts and steering parts for deformation and cracks
4. Determine scope of damage on the body

See Identifiable deformations on the body structure
See No identifiable deformations on the body structure

5. Repair vehicle, if necessary.

Identifiable deformations on the body structure

1. Visual inspection of the structural parts for creasing and bending, starting from the point of impact toward the centre of the vehicle
2. Visual inspection of the structural parts at the joints for gaping panel connections (e.g. entry area at the side member under the rubber seal of the door)
3. Drive vehicle onto a lifting platform and raise. Measure the measuring points or reference points specified in the repair check dimensions table diagonally, horizontally and vertically using a beam compass or an electronic measuring system and compare with the specified values.
   5 Check dimensions for body repair
4. Decide whether vehicle is technically repairable
5. Decide whether vehicle is economically repairable

Repair vehicle, if necessary.

No identifiable deformations on the body structure

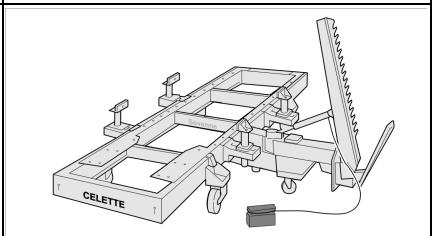
1. Check seam joining line on the accessories
   5 Diagram - Body gap dimensions
2. Check accessories for paint abrasion (accessories which have been in contact during the impact)
3. Drive vehicle onto a lifting platform and raise. Measure the measuring points or reference points specified in the repair check dimensions table diagonally, horizontally and vertically using a beam compass or an electronic measuring system and compare with the specified values.
   5 Check dimensions for body repair
4. Determine scope of any existing damage to vehicle parts
   If necessary, measure running gear electronically
   449503 Performing front and rear suspension alignment
5. Decide whether vehicle has to be repaired

Repair vehicle, if necessary.

50 IN Tools and metalworking tools for body repairs - as of MY 2005

- Straightening systems
- Metalworking tools

Tools

Designation	Type	Number	Explanation	
Celette type straightening system	commercially available tool	we1121		
Car Bench	commercially available tool	we1122		

top of page

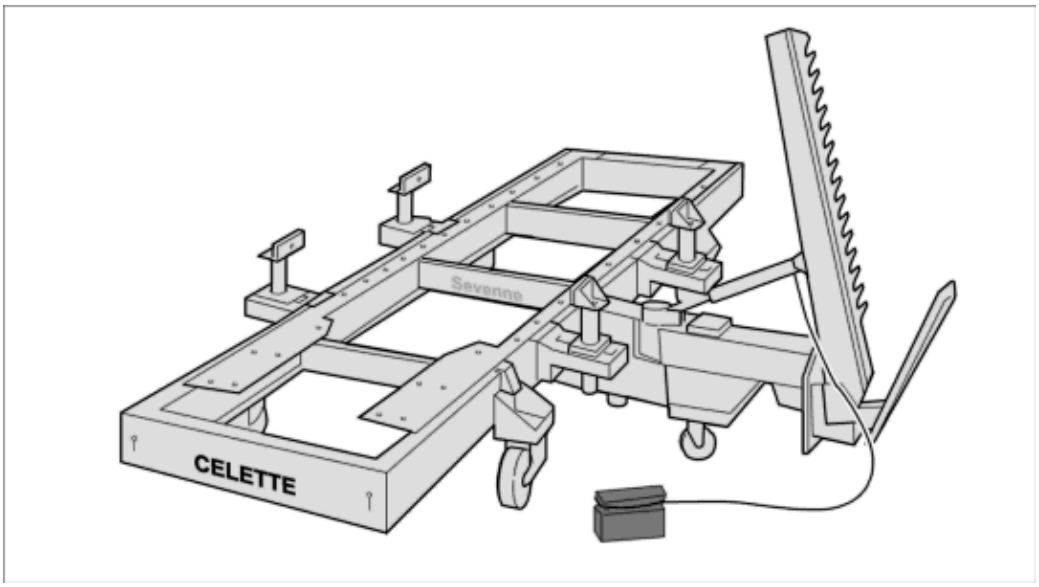
Straightening systems

Straightening systems

Note

- *Detailed and additional information about tools and equipment can be found in the "Workshop Equipment" manual.*

Shown on Celette type



Straightening systems

Celette type straightening system we1121
Car Bench we1122

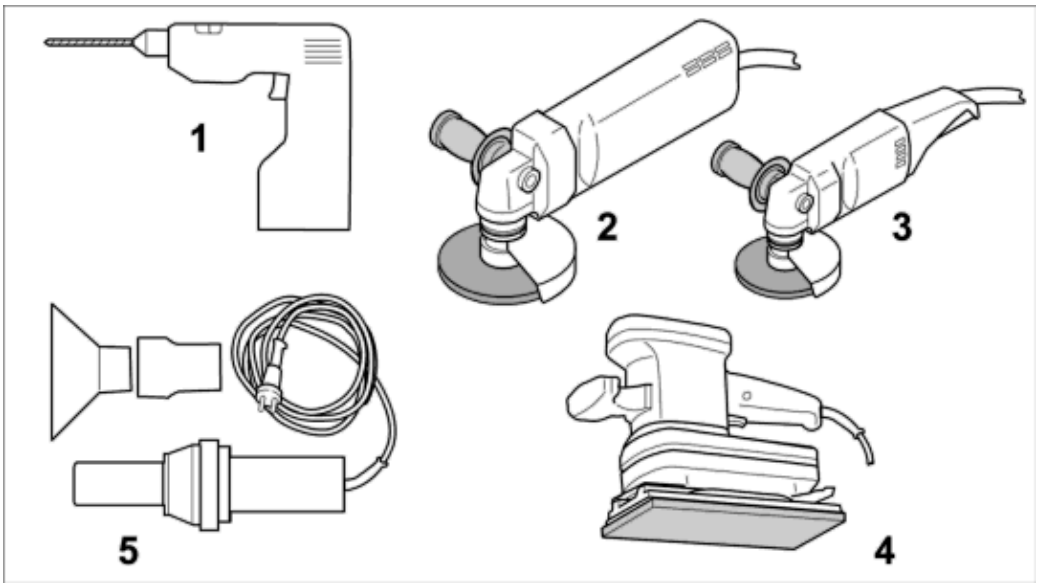
top of page

Metalworking tools

Electrical equipment

Note

- *Detailed and additional information about tools and equipment can be found in the "Workshop Equipment" manual.*



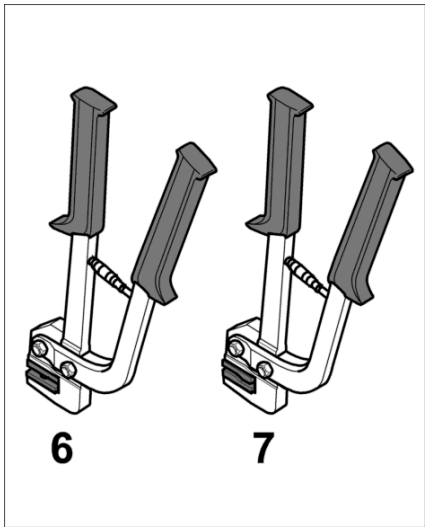
Electrical equipment

1 - Drill
2 - Angle grinder, large
3 - Angle grinder, small
4 - Sander
5 - Hot-air gun

Mechanical equipment

Note

- *Detailed and additional information about tools and equipment can be found in the "Workshop Equipment" manual.*

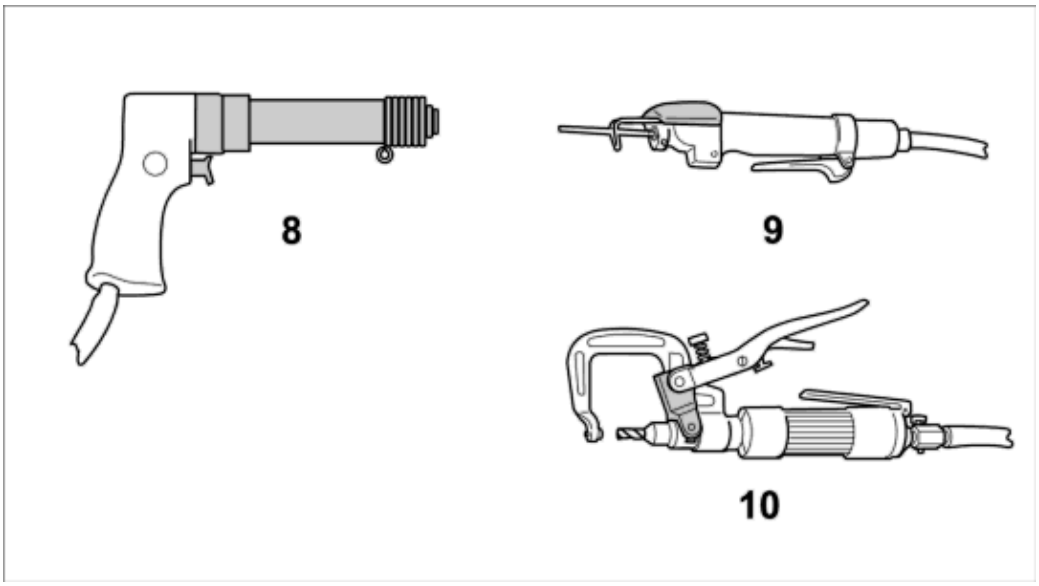


6 - Hole punch
7 - Edge setter

Compressed-air equipment

Note

- *Detailed and additional information about tools and equipment can be found in the "Workshop Equipment" manual.*



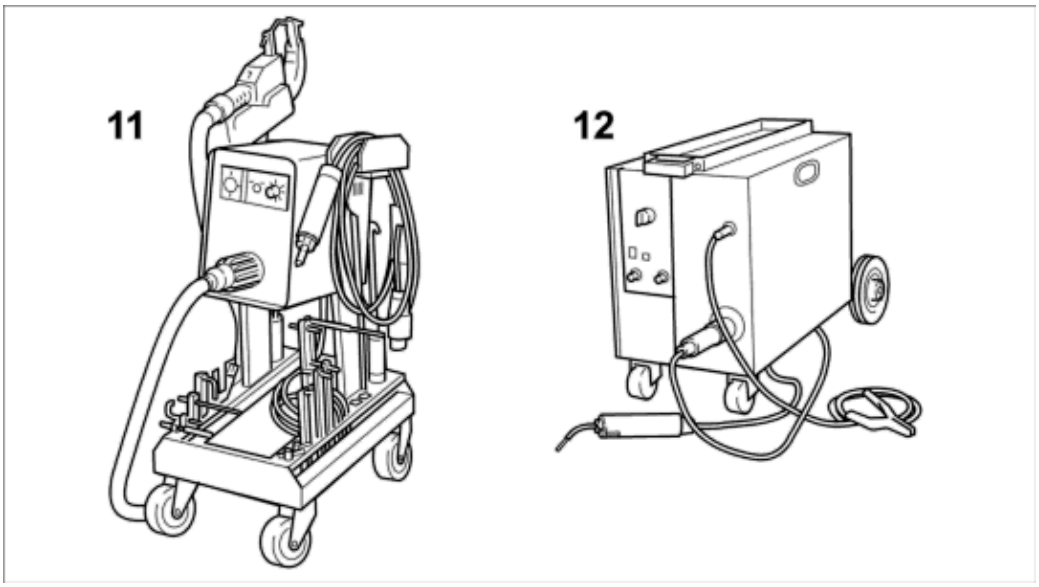
Compressed-air equipment

8 - Air chisel
9 - Body saw
10 - Spot-weld remover

Welding equipment

Note

- *Detailed and additional information about tools and equipment can be found in the "Workshop Equipment" manual.*



Welding equipment

11 - Spotweld device and Multispot metalworking tool
12 - MIG welder

997110, 997111, 997120, 997121, 997310, 997311, 997320, 997321, 997410, 997411, 997430, 997431, 997610, 997611, 997620, 997621

as of MY 2005
Country C00, C02, C05, C07, C08, C09, C10, C11, C12, C13, C14, C15, C16, C18, C19, C20, C21, C22, C23, C24, C25, C26, C27, C28, C32, C33, C34, C35, C36, C37, C38, C39, C45, C46, C98, C99

WARNUNG

Gefahr des Verlusts der Text-Bild-Zuordnung beim Ausdruck.

- **Aus technischen Gründen kann derzeit nicht ausgeschlossen werden, dass trotz einwandfreier Darstellung auf dem Bildschirm beim Ausdruck der Zusammenhang von Text und zugehörigem Bild verloren geht.**
- **Wird der Fehler nicht bemerkt, besteht die Gefahr, daß Arbeiten nicht korrekt durchgeführt werden und es dadurch zu Personen- und Sachschäden kommt.**

Vergleichen Sie deshalb nach dem Druckvorgang unbedingt die Ausdrucke mit der Bildschirmdarstellung. Korrigieren Sie die Ausdrucke im Fehlerfall so, daß der Inhalt der Bildschirmdarstellung zutreffend wiedergegeben wird.

WARNING

Danger of losing text-figure correspondence when printing out.

- **For technical reasons, it can currently not be ruled out that the correspondence between text and associated figure can be lost when it is printed out, even though the display on the screen is correct.**

01 Test drive - as of MY 2005

- Test drive - sales check

top of page

Test drive - sales check

The following test items are included in the test drive.

- Check footbrake operation and actuation travel.
- Activate clutch, check operation.
- Perform steering, check operation.
- Check end-position of rear spoiler
- Shift gear, check operation.
- Activate the automatic cruise control during the test drive and check operation.
- Parking assistant: Select reverse gear and check operation.
- Check operation of heating adjustment when engine is warm.
- Check operation of air-conditioning system when engine is running.
- Check operation of instruments.

997110, 997111, 997120, 997121, 997310, 997311, 997320, 997321, 997410, 997411, 997430, 997431, 997610, 997611, 997620, 997621

as of MY 2005
Country C00, C02, C05, C07, C08, C09, C10, C11, C12, C13, C14, C15, C16, C18, C19, C20, C21, C22, C23, C24, C25, C26, C27, C28, C32, C33, C34, C35, C36, C37, C38, C39, C45, C46, C98, C99

WARNUNG

Gefahr des Verlusts der Text-Bild-Zuordnung beim Ausdruck.

- **Aus technischen Gründen kann derzeit nicht ausgeschlossen werden, dass trotz einwandfreier Darstellung auf dem Bildschirm beim Ausdruck der Zusammenhang von Text und zugehörigem Bild verloren geht.**
- **Wird der Fehler nicht bemerkt, besteht die Gefahr, daß Arbeiten nicht korrekt durchgeführt werden und es dadurch zu Personen- und Sachschäden kommt.**

Vergleichen Sie deshalb nach dem Druckvorgang unbedingt die Ausdrucke mit der Bildschirmdarstellung. Korrigieren Sie die Ausdrucke im Fehlerfall so, daß der Inhalt der Bildschirmdarstellung zutreffend wiedergegeben wird.

WARNING

03 Test drive - as of MY 2005

- Test drive - maintenance

top of page

Test drive - maintenance

The following test items are included in the test drive.

- Actuate remote control of central locking and check operation.
- Seats: check operation of adjustments.
- Check footbrake operation and actuation travel.
- Start engine, check operation.
- Actuate clutch, check operation.
- Actuate steering, check operation.
- Shift transmission, check operation.
- ParkAssist: select reverse gear and check operation.
- Activate cruise control during the test drive and check operation.
- Actuate PSM switch during the test drive and check operation.
- Actuate PASM switch during the test drive and check operation.
- Check operation of heating adjustment when engine is warm.
- Check operation of air-conditioning system when engine is running.
- Check operation of instruments.

997110, 997111, 997120, 997121, 997310, 997311, 997320, 997321, 997410, 997411, 997430, 997431, 997610, 997611, 997620, 997621

as of MY 2005
Country C00, C02, C05, C07, C08, C09, C10, C11, C12, C13, C14, C15, C16, C18, C19, C20, C21, C22, C23, C24, C25, C26, C27, C28, C32, C33, C34, C35, C36, C37, C38, C39, C45, C46, C98, C99

WARNUNG

Gefahr des Verlusts der Text-Bild-Zuordnung beim Ausdruck.

- **Aus technischen Gründen kann derzeit nicht ausgeschlossen werden, dass trotz einwandfreier Darstellung auf dem Bildschirm beim Ausdruck der Zusammenhang von Text und zugehörigem Bild verloren geht.**
- **Wird der Fehler nicht bemerkt, besteht die Gefahr, daß Arbeiten nicht korrekt durchgeführt werden und es dadurch zu Personen- und Sachschäden kommt.**

03 Visual inspection : Brake lines/brake pads/brake discs - as of MY 2005

- Information
- Technical values

top of page

Information

Brake hoses and lines

– Carry out visual inspection for leaks, damage, routing and corrosion.

Brake system: visual inspection of the brake pads and brake discs for wear

WARNING

Risk of accident if brake pads and/or brake discs are not replaced in time.

- **Injury and material damage due to impaired braking effect.**

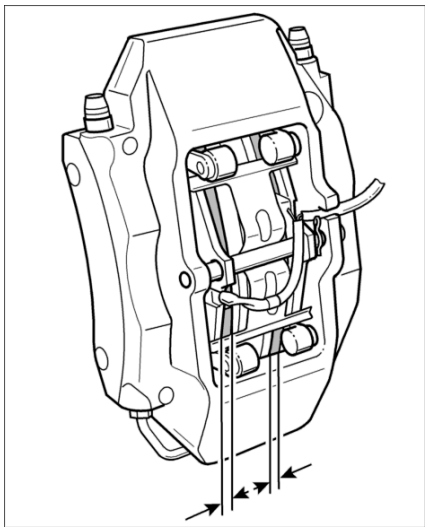
The brake pads must be replaced when the brake pad warning indicator lights up, but no later than when there is a residual pad thickness of 2 mm.

Brake discs must be replaced on reaching the wear limits.

Note

- *If brake pad wear is indicated by the warning light, the warning contact (sender including wire and plug connection) must also be replaced.*
- *Replacing the warning contact can be avoided by replacing the brake pads no later than when the pad thickness is 2.5 mm.*
- *Warning contacts must be replaced if the core of the line is worn.*
- *However, if only the plastic part of the warning contact is worn, there is no need to replace it.*

1. To check the brake pads, remove the wheels 440519 Removing and installing wheel.



Checking brake pads

2. Visually inspect the brake pads for wear **-arrows-** (wear limit 2 mm).
3. Carry out visual inspection of the brake discs for wear *03 TW Running gear maintenance: visual inspection - brake lines/brake pads/brake discs - chapter on "Technical values"*

top of page

Technical values

Technical values

Designation	Type	Note, dimensions	Wear limit
Pad thickness, front			
	Carrera	approx. 12 mm	approx. 2 mm
	Carrera S	approx. 12 mm	approx. 2 mm
Pad thickness, rear			
	Carrera	approx. 10.5 mm	approx. 2 mm
	Carrera S	approx. 12 mm	approx. 2 mm
Brake disc thickness, new front			
	Carrera	28 mm	26 mm
	Carrera S	34 mm	32 mm
Brake disc thickness, new rear			
	Carrera	24 mm	22 mm
	Carrera S	28 mm	26 mm

27 TW Technical data, engine electronics - as of MY 2005

- Technical values

top of page

Technical values

Engine electronics

Designation	997	997 S
Rated voltage	12 volts	
Battery voltage	70 Ah / 340 A	
Three-phase generator	2.1 kW	
Starter	1.7 kW	

Engine electronics tightening torques

Designation	997	997 S
Starter	**Tightening torque: 33 ftlb.**	
Speed sender	**Tightening torque: 7.5 ftlb. +/-0.25 ftlb.**	
Generator	**Tightening torque: 33 ftlb.**	
Deflection roller	**Tightening torque: 33 ftlb.**	
Hall sender	**Tightening torque: 7.5 ftlb. +/-0.25 ftlb.**	
Knock sensor	**Tightening torque: 15 ftlb. +/-1.5 ftlb.**	

997110, 997111, 997120, 997121, 997310, 997311, 997320, 997321, 997410, 997411, 997430, 997431, 997610, 997611, 997620, 997621

28 TW Technical data, ignition system - as of MY 2005

- Technical values

top of page

Technical values

Ignition system

Designation	997	997 S
Ignition	DME, individual spark coils, knock control	
Firing order	1 - 6 - 2 - 4 - 3 - 5	
Spark plugs	Bosch FRG 5KQEO	
Electrode gap	1.6 ± 0.05 mm	

Ignition system tightening torques

Designation	997	997 S
Spark plug	**Tightening torque: 22 ftlb +2 ftlb**	
Spark plug	**Tightening torque: 19 ftlb +2 ftlb**	
Ignition coil	**Tightening torque: 7.5 ftlb**	

997110, 997111, 997120, 997121, 997310, 997311, 997320, 997321, 997410, 997411, 997430, 997431, 997610, 997611, 997620, 997621

as of MY 2005
Country C00, C02, C05, C07, C08, C09, C10, C11, C12, C13, C14, C15, C16, C18, C19, C20, C21, C22, C23, C24, C25, C26, C27, C28, C32, C33, C34, C35, C36, C37, C38, C39, C45, C46, C98, C99

WARNUNG

47 Tightening torques for brake hydraulics - as of MY 2005

- Technical values

top of page

Technical values

Brake pressure line

Location	Explanation	Type	Basic value	Tolerance 1	Tolerance 2
Screw connection for securing brake pressure line to brake master cylinder M12 x 1		Tightening torque	15 ftlb.		
Screw connection for securing brake pressure line to hydraulic unit M12 x 1		Tightening torque	12 ftlb.		
Screw connection for securing brake pressure line to hydraulic unit M10 x 1		Tightening torque	9 - 10.5 ftlb.		
Screw connection for securing brake pressure line to distributor, brake hose and brake calliper M10 x 1		Tightening torque	9 - 10.5 ftlb.		
Screw connection for securing brake pressure line to intermediate piece M10 x 1	Centre underbody	Tightening torque	9 - 10.5 ftlb.		
Screw connection for securing brake pressure line to intermediate piece M12 x 1	Centre underbody	Tightening torque	15 ftlb.		

Master brake cylinder / brake booster

Location	Explanation	Type	Basic value	Tolerance 1	Tolerance 2
Brake booster to body screw connection M8		tightening torque	17 ftlb		

Brake unit support to body screw connection M8		tightening torque	17 ftlb		
Brake master cylinder to brake booster screw connection M14		tightening torque	36 ftlb		
Brake pressure line to brake master cylinder screw connection M12 x 1		tightening torque	15 ftlb		

Hydraulic unit

Location	Explanation	Type	Basic value	Tolerance 1	Tolerance 2
Screw connection for securing bracket for hydraulic unit to body M6		Tightening torque	3 ftlb.		
Screw connection for securing hydraulic unit to bracket M6		Tightening torque	4 ftlb.		
Screw connection for securing brake pressure line to hydraulic unit M10 x 1		Tightening torque	9 - 10.5 ftlb.		
Screw connection for securing brake pressure line to hydraulic unit M12 x 1		Tightening torque	12 ftlb.		

Brake calliper

Location	Explanation	Type	Basic value	Tolerance 1	Tolerance 2
Screw connection for securing brake calliper to wheel carrier M12 x 1.5	Replace screws on front and rear axle whenever removed.	Tightening torque	63 ftlb.		
Screw connection for securing brake pressure line to brake calliper M10 x 1		Tightening torque	9 - 10.5 ftlb.		
Screw connection for securing connecting line to brake calliper M10 x 1		Tightening torque	9 ftlb.		
Screw connection for securing bleeder screw to brake calliper M10 x 1		Tightening torque	6 - 9 ftlb.		

46 Tightening torques for mechanical brake - as of MY 2005

- Technical values

top of page

Technical values

Tightening torques for mechanical brake

Location	Explanation	Type	Basic value	Tolerance 1	Tolerance 2
Replace brake calliper to front and rear axle screw connection M12 x 1.5	bolts on front and rear axle after each removal.	tightening torque	63 ftlb		
Brake disc to wheel hub screw connection (front and rear axle) M6		tightening torque	7.5 ftlb		
Brake cover plate to front and rear axle screw connection M6		tightening torque	7.5 ftlb		
speed sensor to front and rear axle screw connection M6		tightening torque	7.5 ftlb		
Brake unit to body screw connection (aluminium interm. part) M8		tightening torque	17 ftlb		
Brake unit support to body screw connection M8		tightening torque	17 ftlb		
			17 ftlb		

Parking brake console to body screw connection M8		tightening torque			
Bracket for hydraulic unit to body screw connection M6		tightening torque	3 ftlb		
Hydraulic unit to holder screw connection M6		tightening torque	4 ftlb		
Wheel to wheel hub screw connection	Thinly grease thread, shank and under head (between screw head bearing surface and spherical cap ring) of the wheel bolts with Optimoly TA (aluminium paste). Do not grease bearing surface of the spherical cap facing wheel. If heavily contaminated, clean bolts first with a lint-free cloth.	tightening torque	96 ftlb		

Tightening torques for brake pedal/pedal bearing axle

Location	Explanation	Type	Basic value	Tolerance 1	Tolerance 2
Brake pedal to brake pushrod (threaded bolt M8x1)		Tightening torque	7.5 ftlb.		
Brake pushrod to brake booster (collar nut M6)		Tightening torque	7.5 ftlb.		
Brake pushrod to adjusting piece (lock nut) M12 x 1.5		Tightening torque	22 ftlb.		
Pedal bearing axle in pedal block		Tightening torque	6 to 7.5 ftlb.		
Locknut pedal bearing axle to pedal block right M8		Tightening torque	7.5 ftlb.		
Locknut pedal bearing axle to pedal block left M14		Tightening torque	34 ftlb.		

997110, 997111, 997120, 997121, 997310, 997311, 997320, 997321, 997410, 997411, 997430, 997431, 997610, 997611, 997620, 997621

42 Tightening torques for rear axle - as of MY 2005

- Tightening torques for rear axle

top of page

Tightening torques for rear axle

Tightening torques for carrier side section/cross member

Location	Explanation	Type	Basic value	Tolerance 1	Tolerance 2
Stud screw connection for securing carrier side section to body (front) M12 x 1.5 x 133	Please note: Do not grease screwed connections in Dacromet finish - aluminium colour.	Screw-in torque	34 ftlb.		
Screw connection for securing carrier side section to body (front) M12 x 1.5	Please note: Do not grease screwed connections in Dacromet finish - aluminium colour.	Tightening torque	81.5 ftlb.		
Screw connection for securing carrier side section to body (middle and rear) M12 x 1.5	Please note: Do not grease screwed connections in Dacromet finish - aluminium colour.	Tightening torque	81.5 ftlb.		
Screw connection for securing cross member to carrier side section M12 x 1.5	Please note: Do not grease screwed connections in Dacromet finish - aluminium colour.	Tightening torque	81.5 ftlb.		
Screw connection for securing transverse strut to carrier side section (front) M10 x 1.5	Please note: Do not grease screwed connections in Dacromet finish - aluminium colour.	Tightening torque	48 ftlb.		
Screw connection for securing brake hose holder to carrier side section M6	Please note: Do not grease screwed connections in Dacromet finish - aluminium colour.	Tightening torque	7.5 ftlb.		
Screw connection for securing diagonal brace to body M10 x 1.5	Please note: Do not grease screwed connections in Dacromet finish - aluminium colour.	Tightening torque	48 ftlb.		

Screw connection for securing diagonal brace to cross member M12 x 1.5	Please note: Do not grease screwed connections in Dacromet finish - aluminium colour.	Tightening torque	81.5 ftlb.		
Screw connection for securing diagonal brace to carrier side section (collar nut) M10 x 1.5	Please note: Do not grease screwed connections in Dacromet finish - aluminium colour.	Tightening torque	17 ftlb.		

Tightening torques for axle strut

Location	Explanation	Type	Basic value	Tolerance 1	Tolerance 2
Screw connection for securing control arm 2 (toe control arm) to wheel carrier M12 x 1.5	Please note: Do not grease screwed connections in Dacromet finish - aluminium colour.	Tightening torque	56 ftlb.		
Screw connection for securing control arm 2 (toe control arm) to cross member (toe eccentric) M12 x 1.5	Please note: Do not grease screwed connections in Dacromet finish - aluminium colour.	Tightening torque	74 ftlb.		
Screw connection for securing control arm (lower control arm) to wheel carrier M12 x 1.5	Please note: Do not grease screwed connections in Dacromet finish - aluminium colour.	Tightening torque	56 ftlb.		
Screw connection for securing control arm (lower control arm) to carrier side section (camber eccentric) M12 x 1.5	Please note: Do not grease screwed connections in Dacromet finish - aluminium colour.	Tightening torque	74 ftlb.		
Screw connection for securing diagonal arm to control arm M14 x 1.5	Please note: Do not grease screwed connections in Dacromet finish - aluminium colour.	Tightening torque	118 ftlb.		
Screw connection for securing diagonal arm to carrier side section M14 x 1.5	Please note: Do not grease screwed connections in Dacromet finish - aluminium colour.	Tightening torque	133 ftlb.		
Screw connection for securing control arm 3 and control arm 4 (upper control arm) to carrier side section M12 x 1.5	Please note: Do not grease screwed connections in Dacromet finish - aluminium colour.	Tightening torque	81.5 ftlb.		

Screw connection for securing control arm 3 and control arm 4 (upper control arm) to wheel carrier M12 x 1.5	Please note: Do not grease screwed connections in Dacromet finish - aluminium colour.	Tightening torque	81.5 ftlb.		

Tightening torques for wheel carrier

Location	Explanation	Type	Basic value	Tolerance 1	Tolerance 2
Screw connection for securing wheel bearing to wheel carrier (lid) M8	Please note: Do not grease screwed connections in Dacromet finish - aluminium colour.	Tightening torque	27 ftlb.		
Screw connection for securing speed sensor to wheel carrier M6	Please note: Do not grease screwed connections in Dacromet finish - aluminium colour.	Tightening torque	7.5 ftlb.		
Screw connection for securing brake cover plate to wheel carrier M6	Please note: Do not grease screwed connections in Dacromet finish - aluminium colour.	Tightening torque	7.5 ftlb.		
Screw connection for securing brake disc to wheel hub M6	Please note: Do not grease screwed connections in Dacromet finish - aluminium colour.	Tightening torque	7.5 ftlb.		
Screw connection for securing brake calliper to wheel carrier M12 x 1.5	Please note: Do not grease screwed connections in Dacromet finish - aluminium colour. Replace screws on front and rear axle whenever they have been removed.	Tightening torque	63 ftlb.		
Screw connection for securing combination wire holder to wheel carrier M6	Please note: Do not grease screwed connections in Dacromet finish - aluminium colour.	Tightening torque	7.5 ftlb.		

Tightening torques for spring strut

Location	Explanation	Type	Basic value	Tolerance 1	Tolerance 2
Screw connection for securing spring strut to body M10	Please note: Do not grease screwed connections in	Tightening torque	46 (34 ftlb.)		

	Dacromet finish - aluminium colour.		Nm		
Screw connection for securing spring strut to wheel carrier M12 x 1.5	Please note: Do not grease screwed connections in Dacromet finish - aluminium colour.	Tightening torque	110 (81.5 ftlb.) Nm		
Screw connection for securing shock absorber to mount (piston rod) - with and without PASM (M12 x 1 fastening nut)	Please note: Do not grease screwed connections in Dacromet finish - aluminium colour.	Tightening torque	32 (24 ftlb.) Nm		

Tightening torques for stabilizer

Location	Explanation	Type	Basic value	Tolerance 1	Tolerance 2
Screw connection for securing stabiliser to side section M8	Please note: Do not grease screwed connections in Dacromet finish - aluminium colour.	Tightening torque	17 ftlb.		
Threaded connection for securing stabilizer mount to stabilizer (collar nut M10)	Please note: Observe three-stage tightening procedure! Do not grease threaded connection in Dacromet finish - aluminium colour.	Three-stage tightening procedure (First stage: initial tightening to 37 ftlb. Second stage: loosen by 90 degrees. Third stage: final tightening to 48 ftlb.)	48 ftlb.		
Threaded connection for securing stabiliser mount to wheel carrier M10	Please note: Observe three-stage tightening procedure! Do not grease threaded connections in Dacromet finish - aluminium colour.	Three-stage tightening procedure (First stage: initial tightening to 37 ftlb. Second stage: loosen by 90 degrees. Third stage: final tightening to 48 ftlb.)	48 ftlb.		

Tightening torques for unit mount

Location	Explanation	Type	Basic value	Tolerance 1	Tolerance 2

Screw connection for securing engine mount to body M8	Please note: Do not grease screwed connections in Dacromet finish - aluminium colour.	Tightening torque	17 ftlb.		
Screw connection for securing engine carrier to engine M10	Please note: Do not grease screwed connections in Dacromet finish - aluminium colour.	Tightening torque	34 ftlb.		
Screw connection for securing engine mount to engine carrier M12 x 1.5	Please note: Do not grease screwed connections in Dacromet finish - aluminium colour.	Tightening torque	63 ftlb.		
Screw connection for securing transmission support to body M10 x 1.5	Please note: Do not grease screwed connections in Dacromet finish - aluminium colour.	Tightening torque	48 ftlb.		
Stud for securing transmission support to body M10	Please note: Do not grease screwed connections in Dacromet finish - aluminium colour.	Tightening torque	15 ftlb.		
Screw connection for securing longitudinal support to body M10	Please note: Do not grease screwed connections in Dacromet finish - aluminium colour.	Tightening torque	48 ftlb.		
Screw connection for securing mount to longitudinal support M10	Please note: Do not grease screwed connections in Dacromet finish - aluminium colour.	Tightening torque	48 ftlb.		

Tightening torques for drive shaft

Location	Explanation	Type	Basic value	Tolerance 1	Tolerance 2
Screw connection for securing drive shaft to transmission M10	Please note: Do not grease screwed connections in Dacromet finish - aluminium colour.	Tightening torque	60 ftlb.		
Screw connection for securing drive shaft to wheel hub M22 x 1.5	Please note: Do not grease screwed connections in Dacromet finish - aluminium colour.	Tightening torque	340 ftlb.		

Tightening torques for plug-in couplings for steering hydraulics

Location	Explanation	Type	Basic value	Tolerance 1	Tolerance 2
Steering pressure line	Wrench size 15 mm	Tightening torque	30 (22 ftlb.) Nm		
Steering return line	Wrench size 19 mm	Tightening torque	40 (30 ftlb.) Nm		

Tightening torques for plug-in couplings for clutch hydraulic system

Location	Explanation	Type	Basic value	Tolerance 1	Tolerance 2
Clutch line	Wrench size 15 mm	Tightening torque	30 (22 ftlb.) Nm		

Tightening torques for wheel mounting

Location	Explanation	Type	Basic value	Tolerance 1	Tolerance 2
Wheel to wheel hub M14 x 1.5	Thinly grease thread, shank and under head (between screw head bearing surface and spherical cap ring) of the wheel bolts with Optimoly TA (aluminium paste). Do not grease bearing surface of the spherical cap facing wheel. If heavily contaminated, clean bolts first with a lint-free cloth.	tightening torque	96 ftlb		

997110, 997111, 997120, 997121, 997310, 997311, 997320, 997321, 997410, 997411, 997430, 997431, 997610, 997611, 997620, 997621

as of MY 2005
Country C00, C02, C05, C07, C08, C09, C10, C11, C12, C13, C14, C15, C16, C18, C19, C20, C21, C22, C23, C24, C25, C26, C27, C28, C32, C33, C34, C35, C36, C37, C38, C39, C45, C46, C98, C99

WARNUNG

Gefahr des Verlusts der Text-Bild-Zuordnung beim Ausdruck.

48 Tightening torques for steering - as of MY 2005

- Tightening torques for steering

top of page

Tightening torques for steering

Tightening torques for power-steering gear

Location	Explanation	Type	Basic value	Tolerance 1	Tolerance 2
Steering gear to cross member M10 x 45	Replace screws after each removal.	Tightening torque	48 ftlb.		
Universal joint (steering shaft) to steering gear M8 x 35	Replace fit bolt after each removal.	Tightening torque	17 ftlb.		
Tie rod (axial joint) to steering rack M16 x 1.5		Tightening torque	59 ftlb.		
Aluminium tie rod to axial joint (lock nut) M14 x 1.5		Tightening torque	37 ftlb.		
Tie rod (ball joint) to wheel carrier (at steering arm) M12 x 1.5		Tightening torque	56 ftlb.		
Steering line to upper steering gear (union nut) M10		Tightening torque	7.5 ftlb.		
Steering line to lower steering gear (union nut) M10		Tightening torque	7.5 ftlb.		
Combination holder for pressure and return lines to engine M6 x 12		Tightening torque	7.5 ftlb.		
Pressure and return lines to steering gear (tension shackle) M10 x 20		Tightening torque	17 ftlb.		
Threaded connection, plug-in couplings for steering hydraulics M16 x 1.5 (a/f 15)	a/f = width across flats a/f 15 pressure line	Tightening torque	22 ftlb.		
Threaded connection, plug-in couplings for steering hydraulics	a/f = width across flats a/f 19 return line	Tightening torque	30 ftlb.		

M20 x 1.5 (a/f 19)					

Tightening torques for steering train/steering wheel

Location	Explanation	Type	Basic value	Tolerance 1	Tolerance 2
Upper universal joint to steering shaft M8 x 35	Replace fit bolt after each removal.	Tightening torque	17 ftlb.		
Steering train to upper pedal block M10 x 100		Tightening torque	34 ftlb.		
Steering train to lower pedal block (pedal bearing axle in pedal block)		Tightening torque	6 to 7.5 ftlb.		
Steering train to lower pedal block (locknut pedal bearing axle to pedal block right M8)		Tightening torque	7.5 ftlb.		
Steering train to lower pedal block (locknut pedal bearing axle to pedal block left M8)		Tightening torque	34 ftlb.		
Locking-mechanism housing to steering outer tube upper and lower M6 x 18		Tightening torque	5.5 ftlb.		
Steering lock to steering train		Tightening torque	4.5 ftlb.		
Transverse support to retaining frame M6		Tightening torque	7.5 ftlb.		
Steering wheel to steering shaft M18 x 26	Replace internal serration screw after each removal.	Tightening torque	37 ftlb.		
Tab washer to steering wheel M6		Tightening torque	4.5 ftlb.		

997110, 997111, 997120, 997121, 997310, 997311, 997320, 997321, 997410, 997411, 997430, 997431, 997610, 997611, 997620, 997621

as of MY 2005
Country C00, C02, C05, C07, C08, C09, C10, C11, C12, C13, C14, C15, C16, C18, C19, C20, C21, C22, C23, C24, C25, C26, C27, C28, C32, C33, C34, C35, C36, C37, C38, C39, C45, C46, C98, C99

WARNUNG

40 Tightening torques for front axle - as of MY 2005

-

top of page

Tightening torques for cross member/side member (one component)

Location	Explanation	Type	Basic value	Tolerance 1	Tolerance 2
Threaded connection, cross member to body (front) M12 x 1.5	Caution: Do not grease threaded connection in Dacromet finish - aluminium colour.	tightening torque	74 ftlb.		
Threaded connection, cross member with diagonal arm to body (front) M 14 x 1.5	Caution: Do not grease threaded connection in Dacromet finish - aluminium colour.	Tightening torque	118 ftlb.		
Threaded connection, cross member to body rear (two screws each side) M 14 x 1.5	Caution: Do not grease threaded connections in Dacromet finish - aluminium colour.	Tightening torque	118 ftlb.		

Tightening torques for diagonal brace

Location	Explanation	Type	Basic value	Tolerance 1	Tolerance 2
Diagonal brace to body screw connection M12 x 1.5	Caution: Do not grease screw connection with Dacromet finish - aluminium colour.	tightening torque	74 ftlb		
Diagonal brace to cross member / side member hexagon nut screw connection M12	Caution: Do not grease screw connection with Dacromet finish - aluminium colour.	tightening torque	74 ftlb		

Tightening torques for axle strut

Location	Explanation	Type	Basic value	Tolerance 1	Tolerance 2
Control arm to cross member / side member screw connection M12 x 1.5	Caution: Do not grease screw connection with Dacromet finish - aluminium colour.	tightening torque	89 ftlb		
Control arm to diagonal arm screw connection M14 x 1.5	Caution: Do not grease screw connection with Dacromet finish - aluminium colour.	tightening torque	118 ftlb		
Control arm to wheel carrier (ball joint) screw connection M12 x 1.5	Caution: Do not grease screw connection with Dacromet finish - aluminium colour.	tightening torque	56 ftlb		

Tightening torques for spring strut

Location	Explanation	Type	Basic value	Tolerance 1	Tolerance 2
Spring strut on wheel carrier (stabiliser mount to shock absorber pipe) M12 x 1.5 (911 Carrera)	Caution: Do not grease screwed connections in Dacromet finish - aluminium colour.	Tightening torque	85 (63 ftlb.) Nm		
Spring strut on wheel carrier (shock-absorber tube clamp to wheel carrier) M12 x 1.5 (911 Carrera 4)	Caution: Do not grease screwed connections in Dacromet finish - aluminium colour.	Tightening torque	85 (63 ftlb.) Nm		
Spring strut mount to body M8	Caution: Do not grease screwed connections in Dacromet finish - aluminium colour.	Tightening torque	33 (24 ftlb.) Nm		
Spring strut mount to piston rod M14 x 1.5	Caution: Do not grease screwed connections in Dacromet finish - aluminium colour.	Tightening torque	80 (59 ftlb.) Nm		

Tightening torques for wheel carrier

Location	Explanation	Type	Basic value	Tolerance 1	Tolerance 2
Threaded connection, brake cover plate to wheel carrier M6	Caution: Do not grease threaded connection in Dacromet finish - aluminium colour.	tightening torque	7.5 ftlb.		
Threaded connection, brake disc to wheel hub M6	Caution: Do not grease threaded connection in Dacromet finish - aluminium colour.	tightening torque	7.5 ftlb.		
Threaded connection, brake caliper to wheel carrier M12 x 1.5	Caution: Do not grease threaded connection in Dacromet finish - aluminium colour. Replace bolts on front and rear axle after each removal.	tightening torque	63 ftlb.		
Threaded connection, speed sensor to wheel carrier M6	Caution: Do not grease threaded connection in Dacromet finish - aluminium colour.	tightening torque	7.5 ftlb.		
Threaded connection, combination coupling to wheel carrier M6	Caution: Do not grease threaded connection in Dacromet finish - aluminium colour.	tightening torque	7.5 ftlb.		
Threaded connection, brake hose bracket to wheel carrier M6	Caution: Do not grease threaded connections in Dacromet finish - aluminium colour.	Tightening torque	7.5 ftlb.		
Threaded connection, retainer plate for wheel bearing to wheel carrier M8	Caution: Do not grease threaded connection in Dacromet finish - aluminium colour.	tightening torque	27 ftlb.		
Threaded connection, wheel hub to wheel carrier (tension bolt) M22 x 1.5	Caution: Do not grease threaded connection in Dacromet finish - aluminium colour! Replace lock nut after each removal.	tightening torque	340 ftlb.		

Tightening torques for stabilizer

Location	Explanation	Type	Basic value	Tolerance 1	Tolerance 2
Stabilizer to cross member M10 x 60	Caution: Do not grease threaded connection in	Tightening torque	65 (48 ftlb.)		

	Dacromet finish - aluminium colour.		Nm		
Suspension/stabiliser mount to stabilizer M10	Please note: Observe three-stage tightening procedure! Do not grease screwed connection in Dacromet finish - aluminium colour.	Three-stage tightening procedure (1st stage: tighten to 50 Nm (37 ftlb.). 2. stage: loosen 90 degrees. 3. stage: tighten to 65 Nm (48 ftlb.).	65 (48 ftlb.) Nm		
Suspension/stabiliser to absorber pipe/wheel carrier M12 x 1.5	Caution: Do not grease screwed connections in Dacromet finish - aluminium colour.	Tightening torque	85 (63 ftlb.) Nm		
Suspension/stabiliser to spring strut plate M10 (911 Carrera 4)	Caution: Do not grease screwed connections in Dacromet finish - aluminium colour.	Tightening torque	65 (48 ftlb.) Nm		

Tightening torques for steering

Location	Explanation	Type	Basic value	Tolerance 1	Tolerance 2
Tie rod(ball-joint pin) on lever M12 x 1.5	Caution: Do not grease screwed connections in Dacromet finish - aluminium colour.	Tightening torque	75 (56 ftlb.) Nm		
Aluminium tie rod to axial joint (lock nut) M14 x 1.5	Caution: When using special tool P9730 (socket wrench insert), observe the changed tightening torque! 50 Nm (37 ftlb.) at the lock nut corresponds to a setting of approx. 32.5 Nm (24 ftlb.) on the torque wrench.	Tightening torque	50 (37 ftlb.) Nm		
Universal joint (steering shaft) to steering gear M8 x 35	Caution: Do not grease threaded connection in Dacromet finish - aluminium colour! Replace fit bolt after each removal.	Tightening torque	23 (17 ftlb.) Nm		
Steering gear to cross member M10 x 1.5	Caution: Do not grease threaded connection in Dacromet finish - aluminium colour! Replace fastening screws after each removal.	Tightening torque	65 (48 ftlb.) Nm		

Tightening torques for wheel mounting

Location	Explanation	Type	Basic value	Tolerance 1	Tolerance 2
Threaded connection, wheel to wheel hub M14 x 1.5	Caution: Do not grease threaded connection in Dacromet finish - aluminium colour! Thinly grease thread, shank and under head (between screw head bearing surface and spherical cap ring) of the wheel bolts with Optimoly TA (aluminium paste). Do not grease bearing surface of the spherical cap facing the wheel. If heavily contaminated, clean bolts first with a lint-free cloth. Replace damaged wheel bolts (no rework permitted).	Tightening torque	96 ftlb.		

997110, 997111, 997120, 997121, 997310, 997311, 997320, 997321, 997410, 997411, 997430, 997431, 997610, 997611, 997620, 997621

as of MY 2005
Country C00, C02, C05, C07, C08, C09, C10, C11, C12, C13, C14, C15, C16, C18, C19, C20, C21, C22, C23, C24, C25, C26, C27, C28, C32, C33, C34, C35, C36, C37, C38, C39, C45, C46, C98, C99

WARNUNG

Gefahr des Verlusts der Text-Bild-Zuordnung beim Ausdruck.

- **Aus technischen Gründen kann derzeit nicht ausgeschlossen werden, dass trotz einwandfreier Darstellung auf dem Bildschirm beim Ausdruck der Zusammenhang von Text und zugehörigem Bild verloren geht.**
- **Wird der Fehler nicht bemerkt, besteht die Gefahr, daß Arbeiten nicht korrekt durchgeführt werden und es dadurch zu Personen- und Sachschäden kommt.**

Vergleichen Sie deshalb nach dem Druckvorgang unbedingt die Ausdrucke mit der Bildschirmdarstellung. Korrigieren Sie die Ausdrucke im Fehlerfall so, daß der Inhalt der Bildschirmdarstellung zutreffend wiedergegeben wird.

WARNING

Danger of losing text-figure correspondence when printing out.

- **For technical reasons, it can currently not be ruled out that the correspondence between text and associated figure can be lost when it is printed out, even though the display on the screen is correct.**
- **If the fault is not noticed, there is the danger that work will not be performed correctly which can cause injury and damage.**

44 Adjustment values for suspension alignment - C2/C2S - as of MY 2005

Vehicle height

Note

- *The following values relate to the empty weight, i.e. full fuel tank, vehicle with tools, but without driver and without additional weights!*

Vehicle height	RoW/USA: Series C2/C2S	RoW/USA: PASM C2/C2S	RoW: Performance C2/C2S
Front axle			
Height with 18-inch wheels	**Nominal value: 141 mm +/-10 mm**	**Nominal value: 131 mm +/-10 mm**	**Nominal value: 121 mm +/-10 mm**
Height with 19-inch wheels	**Nominal value: 143 mm +/-10 mm**	**Nominal value: 133 mm +/-10 mm**	**Nominal value: 123 mm +/-10 mm**
From road contact surface to lower edge of hexagon-head bolt of cross-member screw connection to the body.			
Rear axle			
Height with 18-inch wheels	**Nominal value: 165 mm +/-10 mm**	**Nominal value: 155 mm +/-10 mm**	**Nominal value: 145 mm +/-10 mm**
Height with 19-inch wheels	**Nominal value: 163 mm +/-10 mm**	**Nominal value: 153 mm +/-10 mm**	**Nominal value: 143 mm +/-10 mm**
From wheel contact surface to the locating bore in the rear-axle side section (between toe and camber eccentrics).			

Wheel alignment values

WARNING

Risk of accident due to incorrect functioning of steering angle sensor if it is uncalibrated or incorrectly calibrated.

- **There is a risk of accidents causing physical damage to persons or objects in the PSM testing area.**

After working on wheel suspension parts, when replacing the steering-angle sensor and after changing the wheel alignment values, calibrate the steering angle sensor with the front wheels in straight-ahead position using the PIWIS tester.

Check the actual value of the steering angle sensor after a suspension alignment where no changes were made to the wheel alignment values.

Note

- *The following values relate to the empty weight, i.e. full fuel tank, vehicle with tools but without driver or additional weights.*
- *The toe-difference angle value is also influenced by the vehicle height. For this reason the measured result must be evaluated accordingly. No action is necessary in the case of small deviations from the toe-difference angle's required value as long as the value to the right and left is almost the same.*

Wheel alignment values	RoW/USA: Series C2/C2S	RoW/USA: PASM C2/C2S	RoW: Performance C2/C2S
Front axle			
Toe unpressed (total)	+ 5' ± 5'	+ 5' ±5'	+ 5' ± 5'
Toe difference angle at 20° lock	- 1° 40' ± 30'	- 1° 50' ± 30'	- 2° 15' ± 30'
Camber (with wheels in straight-ahead position)	- 15' ± 15'	- 15' ± 15'	- 30' ± 15'
max. difference, left to right	20'	20'	20'
Caster	8° 00' ± 30'	8° 10' ± 30'	8° 20' ± 30'
max. difference, left to right	40'	40'	40'
Rear axle			
Toe per wheel	+ 10' ± 5'	+ 10' ± 5'	+ 10' ± 5'
max. difference, left to right	10'	10'	10'
Camber	- 1° 10' ± 15'	- 1° 10' ± 15'	- 1° 40' ± 15'
max. difference, left to right	20'	20'	20'

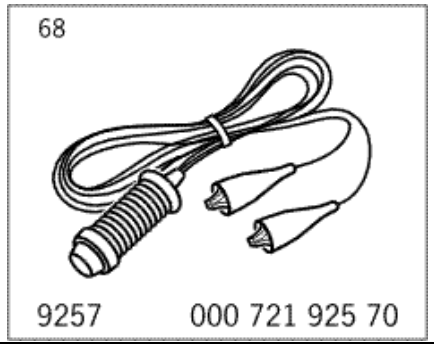
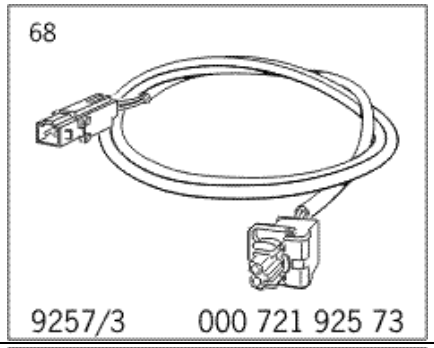
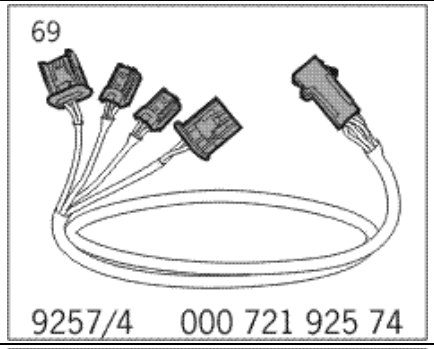
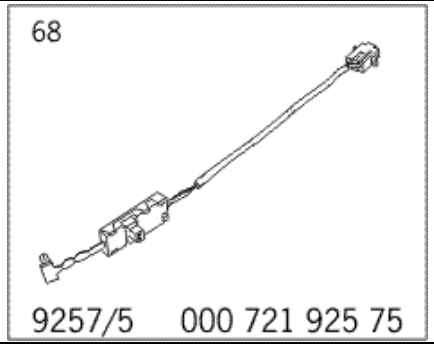
997110, 997111, 997120, 997121, 997310, 997311, 997320, 997321

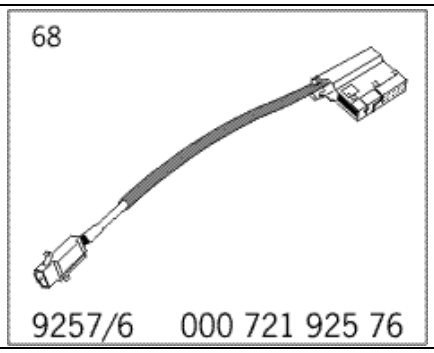
as of MY 2005
Country C00, C02, C05, C07, C08, C09, C10, C11, C12, C13, C14, C15, C16, C18, C19, C20, C21, C22, C23, C24, C25, C26, C27, C28, C32, C33, C34, C35, C36, C37, C38, C39, C45, C46, C98, C99

69 AW Disposal of airbag and belt tensioner units - as of MY 2005

- General warning notes for airbag and belt tensioner units
- Tools and materials
- Connecting ignition tool

Tools

Designation	Type	Number	Explanation	
ignition device	special tool	9257		
adapter cable	special tool	9257/3		
adapter cable	special tool	9257/4		
adapter cable	special tool	9257/5		

adapter cable	special tool	9257/6		

top of page

General warning notes for airbag and belt tensioner units

Disposal of airbag and belt tensioner units

Note

Country-specific statutory regulations and legislation based on them which go beyond these instructions must always be observed and take precedence over these instructions!

- *Airbag units are pyrotechnical items and can pose an environmental hazard!*
- *For this reason, non-ignited airbag units or entire vehicles must not be disposed of as normal scrap, refuse or in other final storage facilities!*
- *If the vehicle suffered fire damage which caused one or several airbags or belt tensioners to be triggered, additional ignition with the adapter cable must be carried out in order to ensure that only parts without pyrotechnical contents are scrapped!*
- *In the case of airbag units which cannot be ignited or if the conditions for safe ignition are insufficient, always return the airbag units to Porsche or the respective importer in their original packaging!*

Safety procedures when igniting airbag units

ATTENTION

Uncontrolled triggering of airbag units.

- **Danger of injury and damage to property as a result of incorrect handling of airbag units.**

Before disposal, render the airbag units harmless by electrical ignition and while observing all precautionary measures, thereby preventing them being used incorrectly!

Ignition and preparations may only be carried out by skilled staff, supervised by a second responsible person!

Other normal accident prevention regulations must also be observed!

Ignite airbag units only in their securely installed, original condition in the vehicle!

Carry out ignition only in suitable, free areas!

Use only the ignition tool intended for that purpose!

All loose objects must first be removed from the expansion area of the airbag!

Each ignition circuit of all airbag units and belt tensioners must be ignited individually.

Persons possibly affected must be informed of the resulting noise beforehand!

Use ear protectors!

Maintain a safety distance by utilising the entire cable length of the ignition tool!

Do not connect the voltage source until all other preparations are complete!

Choose a place in front of the vehicle. This also applies to persons not involved!

Perform ignition with the doors closed and the side windows open!

Do not approach the vehicle until after a waiting period (approx. 3 minutes) if ignition fails!

Allow airbag units to cool down under observation following ignition!

Avoid skin contact with ignited airbag units!

ATTENTION

Unintentional triggering when ignition tool is connected.

- **Danger of injury and damage to property as a result of incorrect handling of airbag units.**

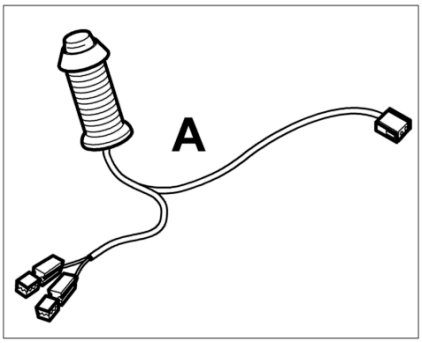
Remove ignition key. Disconnect and insulate the ground line on the battery. *Work instructions after disconnecting the battery*

After the battery is disconnected, always wait for 1 minute before disconnecting the airbag plugs.

top of page

Tools and materials

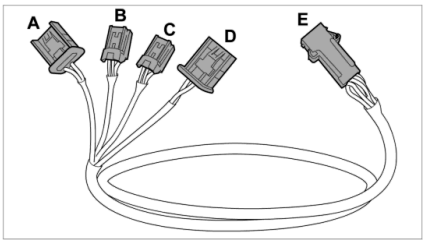
Tools for airbag units and belt tensioners



Ignition device 9257

The **ignition device 9257** is used for triggering the airbag units.

A - Ignition device 9257



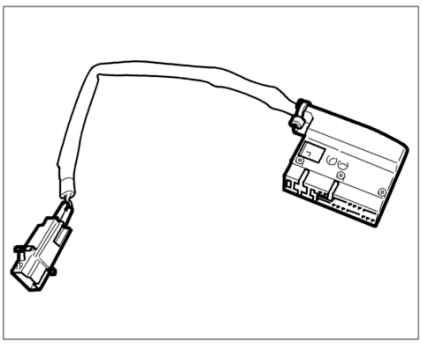
Driver's airbag adapter cable 9257/4

The **adapter cable 9257/4** is used for the driver's airbag.

B - Marking A - adapter for 1st stage of driver's airbag unit

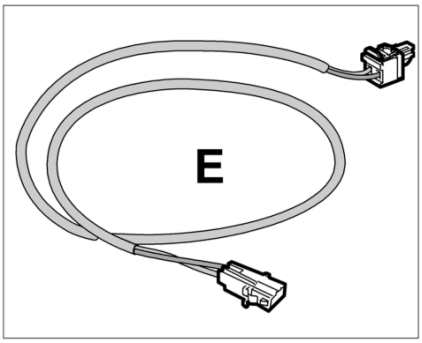
C - Marking B - adapter for 2nd stage of driver's airbag unit

E - Adapter for ignition device



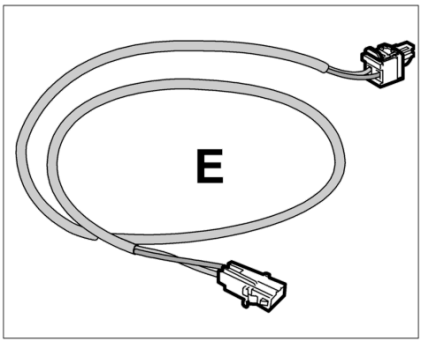
Adapter cable of side airbag in the seat

Adapter cable of side airbag in the seat



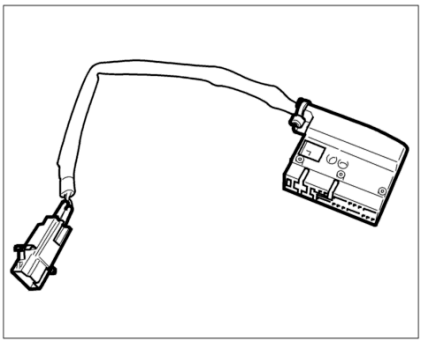
Passenger's airbag adapter cable, left side

The **adapter cable 9257/3 -E-** is used for the passenger's airbag, **left side**.
The **adapter cable 9257/5** is used for the passenger's airbag, **right side**.



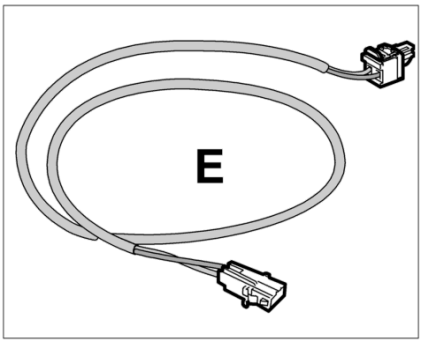
Head airbag adapter cable

The **adapter cable 9257/3 -E-** is used for the head airbag.



Adapter cable of side airbag in the seat

The **adapter cable 9257/6** is used for the side airbag in the seat.



Belt tensioner adapter cable

The **adapter cable 9257/3 -E-** is used for the belt tensioner.

Designation	Special tool	Explanation
Ignition device	9257	
Adapter cable	9257/4	For driver's airbag
Adapter cable	9257/3	Passenger's airbag, **left side**
Adapter cable	9257/5	Passenger's airbag, **right side**
Adapter cable	9257/3	Head airbag
Adapter cable	9257/6	Side airbag
Adapter cable	9257/3	Belt tensioner

top of page

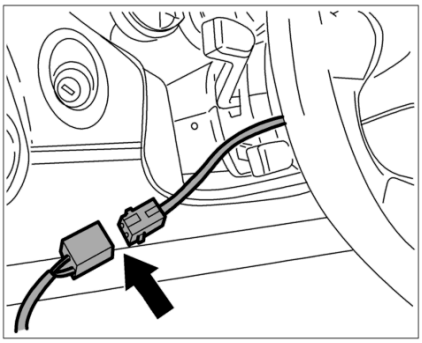
Connecting ignition tool

Driver's side

Note

This is a two-stage airbag module which must be ignited separately.

- *Remove trim panel for steering column. 481319 Removing and installing trim.*



Driver's side

1. Disconnect plug from the airbag at the steering column switch and first insert the plug with marking **A** (1st stage) of adapter cable No. 9257/4.
2. Connect ignition device No. 9257 to the 2-pin plug **E** of adapter cable No. 9257/4.
3. Place the ignition device in front of the vehicle through the door gap.
4. After triggering, repeat the work step with the plug with the marking **B** (2nd stage).

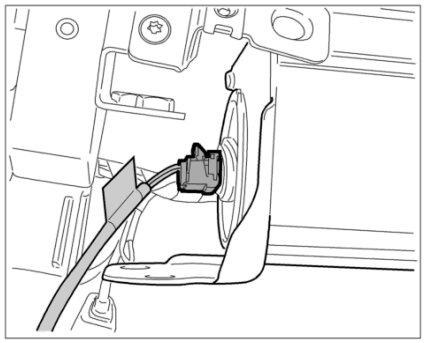
Passenger's side

Note

Deformation of the instrument panel bracket must be expected after triggering of the passenger's airbag unit.
An installed airbag unit should be intentionally triggered in installed state only if the vehicle is to be scrapped.
If the instrument panel bracket is deformed in the area of the airbag mount, the instrument panel bracket will have to be replaced.
This is a two-stage airbag module which must be ignited separately.

- *Remove glove compartment* *681519 Removing and installing glove compartment*
- *Remove passenger's airbag unit.* *21 Removing and installing passenger's airbag unit - Removing*

1. If the instrument panel is to be re-used, remove the instrument panel. 701819 Removing and installing the instrument panel - Removing

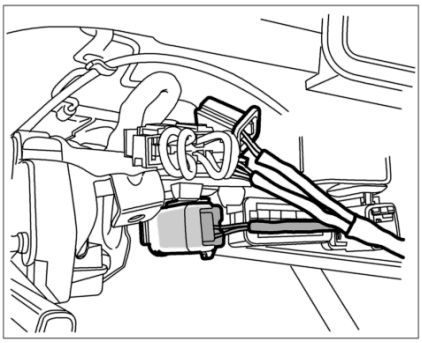


2. Connect the adapter cables 9257/3 (left) and 9257/5 (right) to the removed airbag unit. Re-install airbag unit with the adapter cables.
3. Connect ignition device No. 9257 to the 2-pin plug **E** of adapter cable No. 9257/3.
4. Place the ignition device in front of the vehicle through the door gap.
5. After triggering, repeat the work step with adapter cable No. 9257/5.

Side airbag

Note

Before disconnecting the battery, move the seat to the uppermost position.



Side airbag

1. Unlock and separate the electrical plug for the seat.
2. Connect plug of adapter cable 9257/6 to the electrical plug for the seat.
3. Connect ignition device No. 9257 to the 2-pin plug of adapter cable No. 9257/6.
4. Place the ignition device in front of the vehicle through the door gap and trigger it.

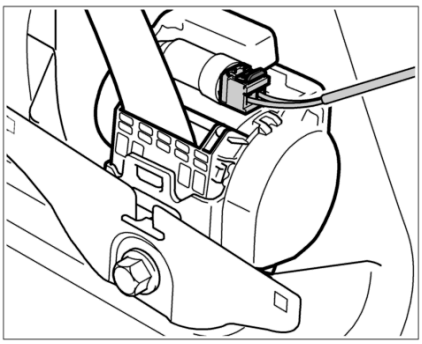
Head airbag

Remove door trim panel. *21 Removing and installing the door trim panel - Removing*

1. Connect plug of adapter cable 9257/3 to the head airbag.
2. Connect ignition device No. 9257 to the 2-pin plug of adapter cable No. 9257/3.
3. Place the ignition device in front of the vehicle through the door gap and trigger it.

Belt tensioner

Remove the side panel lining at rear. 707519 Removing and installing rear side panel lining [997310 997311 997320 997321 997610 997611 997620 997621] 707519 Removing and installing rear side panel lining [997110 997111 997120 997121 997410 997411 997430 997431]



1. Connect plug of adapter cable 9257/3 to the belt tensioner.
2. Connect ignition device No. 9257 to the 2-pin plug of adapter cable No. 9257/3.
3. Place the ignition device in front of the vehicle through the door gap and trigger it.

Triggering of airbag units

WARNING

Detonation of airbag units.

- **Danger of injury from emerging objects, e.g. splinters.**
- **Hearing impairment by explosion noises.**
- **Danger of burns from hot airbag units.**
- **Danger of poisoning by emerging gases.**

Observe a safety distance of at least 10 m.

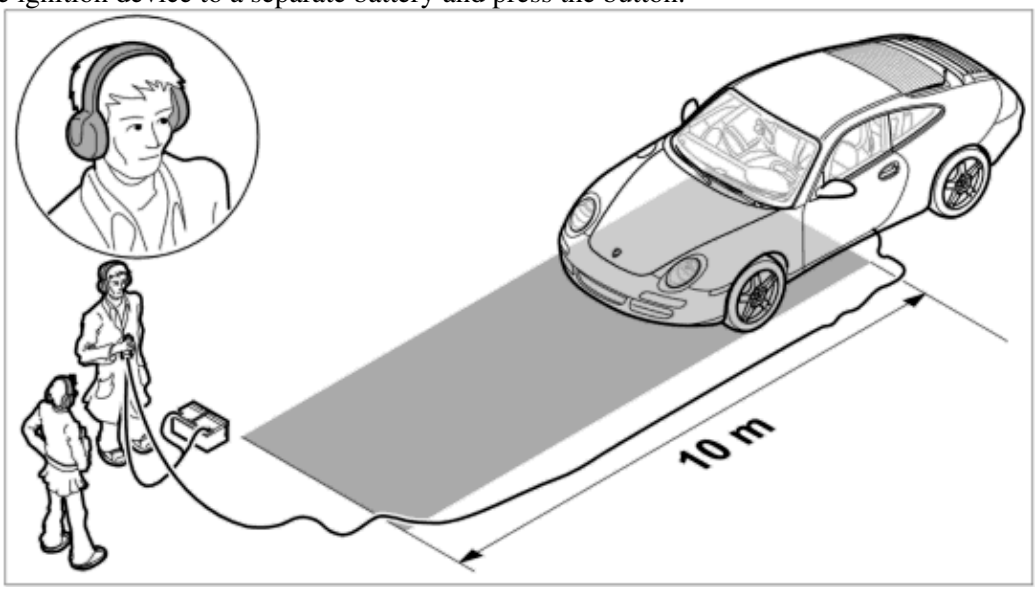
Wear hearing protection.

Each airbag unit, the respective ignition stages 1 and 2, and each belt tensioner must be triggered individually.

Allow airbag units to cool down for the appropriate time.

Open the vehicle doors to allow the gases to escape.

Connect the ignition device to a separate battery and press the button.



Triggering of airbag units

997110, 997111, 997120, 997121, 997310, 997311, 997320, 997321, 997410, 997411, 997430, 997431, 997610, 997611, 997620, 997621

as of MY 2005
Country C00, C02, C05, C07, C08, C09, C10, C11, C12, C13, C14, C15, C16, C18, C19, C20, C21, C22, C23, C24, C25, C26, C27, C28, C32, C33, C34, C35, C36, C37, C38, C39, C45, C46, C98, C99

WARNUNG

Gefahr des Verlusts der Text-Bild-Zuordnung beim Ausdruck.

40 Lifting the vehicle - as of MY 2005

- Preliminary work

top of page

Preliminary work

Lifting the vehicle

WARNING

Inappropriate raising of the vehicle or inaccuracy driving onto the platform.

- **Risk of damage to property, e.g. damage to door sills and side member panels.**

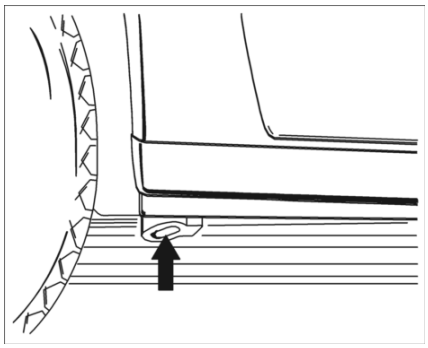
Lift vehicle only at the take-up points shown .

Make sure the screw connections for the diagonal braces are accessible.

When driving onto a lifting platform, ensure that there is sufficient distance between the lifting platform and the vehicle.

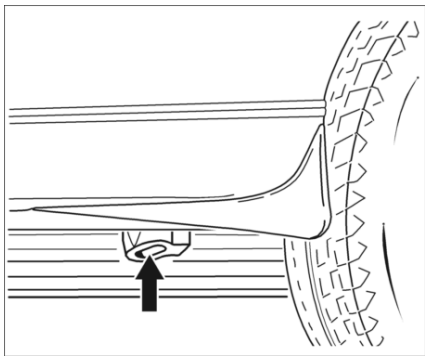
In order to avoid damage to the side members and side member panels, the mounting plates of the platform lift must be raised.

Under no circumstances should the vehicle be lifted by the engine, transmission or axles.



Mounting point front

Align the platform of the platform lift so that it lines up with the illustrated jacking point **-arrow-** . Repeat procedure on the other side.



Jacking point rear

Align the platform of the platform lift so that it lines up with the illustrated jacking point **-arrow-** . Repeat procedure on the other side.

997110, 997111, 997120, 997121, 997310, 997311, 997320, 997321, 997410, 997411, 997430, 997431, 997610, 997611, 997620, 997621

as of MY 2005
Country C00, C02, C05, C07, C08, C09, C10, C11, C12, C13, C14, C15, C16, C18, C19, C20, C21, C22, C23, C24, C25, C26, C27, C28, C32, C33, C34, C35, C36, C37, C38, C39, C45, C46, C98, C99

WARNUNG

Gefahr des Verlusts der Text-Bild-Zuordnung beim Ausdruck.

- **Aus technischen Gründen kann derzeit nicht ausgeschlossen werden, dass trotz einwandfreier Darstellung auf dem Bildschirm beim Ausdruck der Zusammenhang von Text und zugehörigem Bild verloren geht.**
- **Wird der Fehler nicht bemerkt, besteht die Gefahr, daß Arbeiten nicht korrekt durchgeführt werden und es dadurch zu Personen- und Sachschäden kommt.**

Vergleichen Sie deshalb nach dem Druckvorgang unbedingt die Ausdrucke mit der Bildschirmdarstellung. Korrigieren Sie die Ausdrucke im Fehlerfall so, daß der Inhalt der Bildschirmdarstellung zutreffend wiedergegeben wird.

WARNING

Danger of losing text-figure correspondence when printing out.

- **For technical reasons, it can currently not be ruled out that the correspondence between text and associated figure can be lost when it is printed out, even though the display on the screen is correct.**
- **If the fault is not noticed, there is the danger that work will not be performed correctly which can cause injury and damage.**

Therefore, always compare printouts with the screen display after printing them out. Correct the printouts if they are faulty so that the content of the screen display matches that on the printouts.

01 Checking vehicle identification number - as of MY 2005

Checking Vehicle Ident. No. for conformity

- Check Vehicle Ident. No. on windscreen on the lower left in the direction of travel.
- Check the Vehicle Ident. No. in the front right luggage compartment.
- Check the Vehicle Ident. No. on the data bank self-adhesive label on front inner cover.
- Stick the lower data bank self-adhesive label on the front inner cover in the on-board literature (Guarantee and Maintenance booklet).
- Check Vehicle Ident. No. in the vehicle registration documents.

997110, 997111, 997120, 997121, 997310, 997311, 997320, 997321, 997410, 997411, 997430, 997431, 997610, 997611, 997620, 997621

as of MY 2005
Country C00, C02, C05, C07, C08, C09, C10, C11, C12, C13, C14, C15, C16, C18, C19, C20, C21, C22, C23, C24, C25, C26, C27, C28, C32, C33, C34, C35, C36, C37, C38, C39, C45, C46, C98, C99

WARNUNG

Gefahr des Verlusts der Text-Bild-Zuordnung beim Ausdruck.

- **Aus technischen Gründen kann derzeit nicht ausgeschlossen werden, dass trotz einwandfreier Darstellung auf dem Bildschirm beim Ausdruck der Zusammenhang von Text und zugehörigem Bild verloren geht.**
- **Wird der Fehler nicht bemerkt, besteht die Gefahr, daß Arbeiten nicht korrekt durchgeführt werden und es dadurch zu Personen- und Sachschäden kommt.**

Vergleichen Sie deshalb nach dem Druckvorgang unbedingt die Ausdrucke mit der Bildschirmdarstellung. Korrigieren Sie die Ausdrucke im Fehlerfall so, daß der Inhalt der Bildschirmdarstellung zutreffend wiedergegeben wird.

WARNING

Danger of losing text-figure correspondence when printing out.

- **For technical reasons, it can currently not be ruled out that the correspondence between text and associated figure can be lost when it is printed out, even though the display on the screen is correct.**
- **If the fault is not noticed, there is the danger that work will not be performed correctly which can cause injury and damage.**

01 Interior equipment: visual inspection for damage and soiling - as of MY 2005

- Checking seat belts

Check interior equipment

Note

- *The following items can be checked by simple visual inspection, no assembly work required.*

1. Check whether transport protection has been completely removed and ensure that no film remains in the component joints or under seals.
2. Check interior equipment of vehicle for noticeable damage such as scores, scratches, notches and scrapes.
3. Check interior equipment of vehicle for soiling.

top of page

Checking seat belts

Functional Check

Note

- *The following requirements must be met when fitting the seat belt*
- *If one of the requirements listed below is not met, the seat belt or the buckle must be replaced.*

It must be possible to unroll the belt strap smoothly from the belt retractor via the deflector fitting by pulling evenly.
The tongue of the seat belt must engage audibly in the buckle.
An abrupt pull on the belt strap must lock the belt retractor.

Condition inspection

Visually inspect the belt strap for damage by unrolling it completely.
If it displays evidence of damage in the form of cuts, fraying, seam tears etc., the seat belt must be replaced.

44 Wheels and tyres/tyre pressure - as of MY 2005

-

top of page

Wheels, tyres: visual inspection for damage

Check tyres for sufficient tread depth, foreign bodies, pricks, cracks and bulges in the sidewall (ply breakage). Check age of the tyres. Replace tyres if necessary.

Checking wheel mounting

Use suitable commercially available tools (wrench size 19 mm) together with a tested torque wrench, covering the range up to 130 Nm (96 ftlb.). Never use an impact bolter.
Do not undo the wheel bolts to check whether they are secure. Tighten the wheel bolts to 130 Nm (96 ftlb.) and check that they fit securely.

Tyre pressure for cold tyres (approx. 20 °C)

DANGER
Tyre damage due to insufficient tyre pressure in conjunction with driving at high speeds, due to tyres that are too old and/or tyres which do not meet Porsche requirements.

- **Increased risk of accidents.**

Adjust the tyre pressure according to specifications. Never allow the pressure to fall below the minimum pressure.

Carry out a visual inspection and check tyre age. Replace tyres older than 6 years .

Use only tyres recommended by Porsche.

Note

- *Valve caps protect the valve from dust and dirt and therefore from leaks! Always screw caps tight and replace any missing caps.*

Summer and winter tyres - 911 Carrera, 911 Carrera S

18-inch front wheels	**: 2.5 bar**
18-inch rear wheels	**: 3,0 bar**

19-inch front wheels	**partially loaded: 2.3 bar**
19-inch front wheels	**fully loaded: 2.5 bar**
19-inch rear wheels	**partially loaded: 2.7 bar**
19-inch rear wheels	**fully loaded: 3.0 bar**

Partially loaded applies to up to 2 persons without luggage. Fully loaded applies to more than 2 persons with luggage.

Summer and winter tyres - 911 Carrera 4, 911 Carrera 4S.

18-inch and 19-inch front wheels	**partially loaded: 2.3 bar**
18-inch and 19-inch front wheels	**fully loaded: 2.5 bar**
18-inch and 19-inch rear wheels	**partially loaded: 2.7 bar**
18-inch and 19-inch rear wheels	**fully loaded: 3.0 bar**

Partially loaded applies to up to 2 persons without luggage. Fully loaded applies to more than 2 persons with luggage.

- Spare wheel/collapsible wheel not available! However there is a tire repair kit in the luggage compartment which can be used to repair the damaged tire in the event of damage!
- For repairs in the event of damage, observe without fail the safety and operating instructions !

The chart of tyres and wheels for summer and winter should be taken from Technical Information (TI) Group 4!
When replacing summer tyres, pay close attention to the tyre specification number! The specification characters N1, N2, N3 or N0 distinguish the summer tyres specially authorised by Porsche from other models of the same tyre type and size!

Notes on mounting tyres

- When fitting tyres, the direction of rotation and the inner and outer sides should be noted!
- If there are no mounting instructions on the tyre sidewall, the tyre must be mounted so that the DOT code is visible from the outside.

997110, 997111, 997120, 997121, 997310, 997311, 997320, 997321, 997410, 997411, 997430, 997431, 997610, 997611, 997620, 997621

24 AW Precautionary measures when handling oxygen sensors - as of MY 2005

Precautionary measures when handling oxygen sensors

ATTENTION

Improper handling of oxygen sensors.

- **Material damage**

Do not remove the plastic cap on the thread until just prior to fitting the oxygen sensor. The thread grease must never come into contact with the connector.

Protect sensors - before and after fitting - against mechanical shocks.

Sensors that were dropped on the floor must not be used owing to the risk of a broken ceramic insulator.

The cables must not be twisted or kinked when the sensors are screwed in. Avoid pulling on the cable and connector.

Cleanliness in the housing of the plug connections is of utmost importance for the oxygen sensor to function properly. Particles of dirt can impair the function of the oxygen sensor. The connector must therefore be protected against any and all types of soiling.

Sensors with a soiled or damaged connector must no longer be used.

Protect the cables and plugs when carrying or moving the exhaust system with the sensors already fitted.

High-pressure cleaning equipment must not be used in the area of the sensors and plug connections.

Contact and corrosion agents, e.g. Stabilant, must not be applied to the plug contacts of the oxygen sensors.

997110, 997111, 997120, 997121, 997310, 997311, 997320, 997321, 997410, 997411, 997430, 997431, 997610, 997611, 997620, 997621

as of MY 2005
Country C00, C02, C05, C07, C08, C09, C10, C11, C12, C13, C14, C15, C16, C18, C19, C20, C21, C22, C23, C24, C25, C26, C27, C28, C32, C33, C34, C35, C36, C37, C38, C39, C45, C46, C98, C99

WARNUNG

Gefahr des Verlusts der Text-Bild-Zuordnung beim Ausdruck.

- **Aus technischen Gründen kann derzeit nicht ausgeschlossen werden, dass trotz einwandfreier Darstellung auf dem Bildschirm beim Ausdruck der Zusammenhang von Text und zugehörigem Bild verloren geht.**

03 IN Additional maintenance - as of MY 2005

- Additional maintenance

top of page

Additional maintenance

Notes

Note

- *The engine oil and oil filter must be changed every 10,000 km (6,000 mls) in vehicles which are operated in countries where leaded fuel is used.*
- *Maintenance item > Check drive belt< must always be performed 60,000 km (40,000 mls) after replacement of the drive belt.*

Maintenance every 2 years

Maintenance every 2 years	OK
Prepare Long-Life Guarantee Condition Report	
Change brake fluid __ 470855 Changing brake fluid	

Maintenance every 2 years

Maintenance every 2 years	OK
Checking roll-over protection system__ Checking roll-over protection system [997310 997311 997320 997321 997611 997620 997621] *Checking roll-over protection system [997610]*	

Maintenance every 4 years

Maintenance every 4 years	OK
Replace tyre sealant	

Maintenance after 4 then every 2 years

Maintenance after 4 then every 2 years	OK
Check tyre pressure monitoring system battery	

Maintenance after 4, 8, 10 then every 2 years

Maintenance after 4, 8, 10 then every 2 years	OK
Check the airbag system __ 690101 Airbag diagnosis.	
Ancillary unit mounts and running gear: visual inspection of all rubber mounts for damage	

997310, 997311, 997320, 997321, 997610, 997611, 997620, 997621

as of MY 2005
Country C00, C02, C05, C07, C08, C09, C10, C11, C12, C13, C14, C15, C16, C18, C19, C20, C21, C22, C23, C24, C25, C26, C27, C28, C32, C33, C34, C35, C36, C37, C38, C39, C45, C46, C98, C99

WARNUNG

Gefahr des Verlusts der Text-Bild-Zuordnung beim Ausdruck.

- **Aus technischen Gründen kann derzeit nicht ausgeschlossen werden, dass trotz einwandfreier Darstellung auf dem Bildschirm beim Ausdruck der Zusammenhang von Text und zugehörigem Bild verloren geht.**

03 IN Additional maintenance - as of MY 2005

- Additional maintenance

top of page

Additional maintenance

Notes

Note

- *The engine oil and oil filter must be changed every 10,000 km (6,000 mls) in vehicles which are operated in countries where leaded fuel is used.*
- *Maintenance item > Check drive belt< must always be performed 60,000 km (40,000 mls) after replacement of the drive belt.*

Maintenance every 2 years

Maintenance every 2 years	OK
Prepare Long-Life Guarantee Condition Report	
Change brake fluid __ 470855 Changing brake fluid	

Maintenance every 4 years

Maintenance every 4 years	OK
Replace tyre sealant	

Maintenance after 4 then every 2 years

Maintenance after 4 then every 2 years	OK
Check tyre pressure monitoring system battery	

Maintenance after 4, 8, 10 then every 2 years

Maintenance after 4, 8, 10 then every 2 years	OK
Check the airbag system 690101 Airbag diagnosis.	
Ancillary unit mounts and running gear: visual inspection of all rubber mounts for damage	

997110, 997111, 997120, 997121, 997410, 997411, 997430, 997431

as of MY 2005
Country C00, C02, C05, C07, C08, C09, C10, C11, C12, C13, C14, C15, C16, C18, C19, C20, C21, C22, C23, C24, C25, C26, C27, C28, C32, C33, C34, C35, C36, C37, C38, C39, C45, C46, C98, C99

WARNUNG

Gefahr des Verlusts der Text-Bild-Zuordnung beim Ausdruck.

- **Aus technischen Gründen kann derzeit nicht ausgeschlossen werden, dass trotz einwandfreier Darstellung auf dem Bildschirm beim Ausdruck der Zusammenhang von Text und zugehörigem Bild verloren geht.**
- **Wird der Fehler nicht bemerkt, besteht die Gefahr, daß Arbeiten nicht korrekt durchgeführt werden und es dadurch zu Personen- und Sachschäden kommt.**

Vergleichen Sie deshalb nach dem Druckvorgang unbedingt die Ausdrucke mit der Bildschirmdarstellung. Korrigieren Sie die Ausdrucke im Fehlerfall so, daß der Inhalt der Bildschirmdarstellung zutreffend wiedergegeben wird.

WARNING

Danger of losing text-figure correspondence when printing out.

- **For technical reasons, it can currently not be ruled out that the correspondence between text and associated figure can be lost when it is printed out, even though the display on the screen is correct.**

27 06 Check battery - as of MY 2005

- General warning notes

top of page

General warning notes

General warning notes for the battery

ATTENTION
Emerging battery acid.

- **Danger of injury and risk of damage to materials coming into contact with battery acid.**

Wear suitable protective clothing and goggles!

Do not tip battery; acid can emerge from the vent openings!

Only illuminate the inside of the battery with a torch. Danger of explosion!

Do not handle a naked flame or lit cigarette near the battery!

Do not tilt battery when removing it. Risk of caustic burns as a result of emerging acid!

Protect the vehicle exterior and interior against battery acid. Cover areas if necessary.

Rinse acid splashes in the eyes immediately with clean water for a few minutes. Consult a doctor immediately.

Neutralise acid splashes on the skin, clothing or objects immediately with soap suds and rinse again with plenty of water.

If acid has been drunk unintentionally, consult a doctor immediately.

ATTENTION
Ignition of the battery during charging.

- **Danger of injury and risk of damage to materials coming into contact with battery acid when the battery is being charged.**

The battery plugs must always be screwed in correctly when charging and during voltage measurement and load measurement.

Rooms in which batteries are being charged should not be entered with a naked flame or when smoking. Gases form through the charging process in the batteries which are highly flammable.

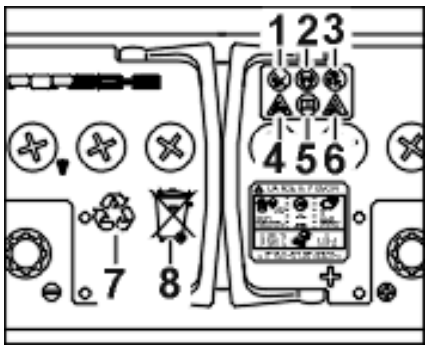
Note

To prevent contact corrosion, only approved bolts, nuts, washers, etc. should be used. These elements have a special surface coating and must be stored separately.
The battery is one of the most important electrical components in the vehicle. Fault-free functioning of the battery contributes greatly to customer satisfaction. To guarantee long and efficient operation, the battery must be checked and maintained according to the description in this chapter.
Besides the starting function, the battery also has the tasks of buffer and supplier of electrical energy for the entire vehicle electrical system.

Note

Warning notes and safety regulations for lead-acid batteries
-1- Fire, sparks, naked flames and smoking are forbidden:

- *Avoid sparking when using cables and electrical devices.*
- *Avoid short circuits.*
- *In batteries with central venting, there is an increased concentration of oxyhydrogen gas at the hose opening. The venting hose should not be bent or blocked by dirt.*



Battery with warnings and safety regulations

- *In batteries with central venting, there is an increased concentration of oxyhydrogen gas at the hose opening.*

-2- Wear eye protection.
Lead-acid **-3-** , Keep children away from acid and batteries.
-4- Danger of caustic burns:

- *Battery acid is highly caustic, therefore wear protective gloves.*
- *Do not tip battery; acid can emerge from the vent openings.*

First aid: Rinse acid splashes in the eyes immediately with clean water for a few minutes. Consult a doctor immediately. Neutralise acid splashes on the skin, clothing or objects immediately with soap suds and rinse

again with plenty of water. If acid has been drunk unintentionally, consult a doctor immediately.
-5- Observe information on the battery, in the Technical Manual and in the Driver's Manual.
-6- Danger of explosion:

- *A highly explosive detonating gas mixture is formed when charging batteries.*

-7- Disposal:

- *Hand in old batteries at a collection point.*

-8- Never dispose of old batteries in the domestic rubbish.

Battery handling requirements

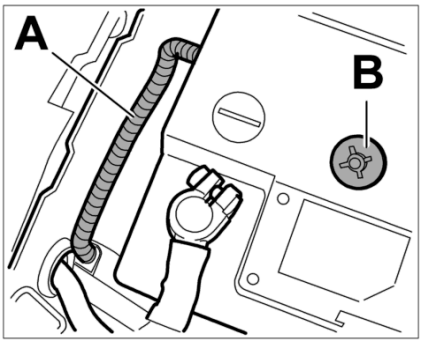
Low-maintenance battery

- Battery terminals do not need to be greased.
- The battery terminal clamps should only be attached manually, without excessive force, to prevent damage to the battery housing.
- The tightening torque for the battery terminals is 5 Nm (3.5 ftlb.).
- If the battery is to be reconnected, proceed according to *Work instructions after disconnecting the battery*.
- To ensure that the battery does not leak, it is essential to ensure that the original plugs supplied with the battery are screwed into the battery openings.
- In the event of loss or damage, only original plugs of the same design should be used.
- The plugs must be fitted with an O-ring seal.

Battery central venting

Note

- *State of the art batteries are fitted with central venting* ***-A-*** .
- *The gas generated during charging emerges centrally through an opening on the upper cover side. The backfire protection is integrated at the same position, which prevents the ignition of the combustible gas present in the battery.*



Central venting

- *In batteries with hose/pipe **-A-** for the central venting, ensure that the hose is not pinched. Only then can the battery be freely vented.*

Visual inspection of battery

Before measurements such as open-circuit voltage, gravity of electrolyte or the battery load test are carried out, a visual inspection of the battery must be performed.
Through this check, it can be determined:

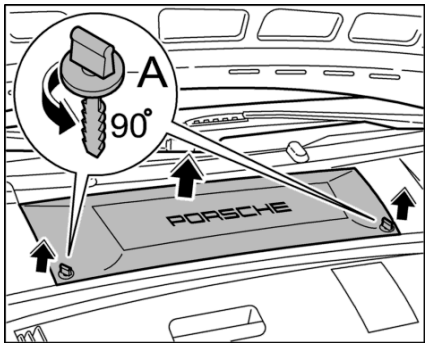
- Whether the housing of the battery is damaged. Acid can leak out due to damage of the housing.
- Whether the battery terminals (battery line connections) are damaged. Contact of the line connections cannot be guaranteed if the battery terminals are damaged. This can cause a line fire and malfunctions in the electrical system.

Checking acid level of low-maintenance battery

Note

- *Use a commercially available battery filling bottle.*
- *The correct acid level of the battery is an important factor for long and efficient operation of the battery.*
- *When the acid level is too low, a capacity loss (performance loss) of the battery occurs, which is caused by the cell plates drying out. If the cell plates are not surrounded by electrolyte (battery acid), this will lead to corrosion of the lead plates, the plate bridges and the cell connectors. The result of the corrosion is that battery functioning cannot be guaranteed. The battery will become unserviceable.*
- *If the acid level is too high, damage can occur by the battery acid (sulphuric acid/water mixture) leaking out of the battery.*

1. Switch off ignition and remove ignition key.



Removing battery cover

2. Remove battery cover.

Emerging battery acid. Observe 270601 Checking battery - General warning notes.

3. Unscrew battery plugs.
4. Shine a torch into the battery. The acid level of the battery must be at the protruding lug.

– If the acid level is too low, refill with distilled water using the battery filling bottle.

5. Screw in battery plugs again and ensure that they are seated correctly.
6. Remount battery cover.

Checking gravity of electrolyte

Note

- *Only for low-maintenance batteries.*

Note

- *Use commercially available battery acid tester.*
- *The acid density test provides information about the state of the battery in conjunction with the battery load test.*
- *The temperature of the battery acid must be at least 10°C .*

The gravity of electrolyte must be checked as follows in all battery cells (low-maintenance battery) :

1. Switch off ignition and remove ignition key.

Emerging battery acid. Observe 270601 Checking battery - General warning notes.

2. Unscrew all battery plugs (plugs of the battery cells).
3. Dip the acid siphon or the pipette into the battery cell and take up the battery acid.
4. Read off the gravity of electrolyte in kg/dm³ on the scale of the battery acid tester and compare with the following table.

Battery charge state in normal climatic zones	Spec. gravity in kg/dm³
discharged	1.12
half charged	1.20
well charged	1.28

Battery charge state in tropical climatic zones (hot countries)	Spec. gravity in kg/dm³
discharged	1.08
half charged	1.16
well charged	1.23

The gravity of electrolyte must be at least 1.24 kg/dm³ in normal climatic zones.

– If the gravity of electrolyte is too low, charge battery.
– After charging the battery, repeat the electrolyte gravity test.

The measured values for the gravity of electrolyte of the individual battery cells should not deviate by more than 0.03 kg/dm³ from each other.

Examples of non-permissible specific gravity of electrolyte deviations:						
Battery cell:	1	2	3	4	5	6
	Gravity of electrolyte per cell in kg/dm³					
Example 1:	1.24	1.25	1.25	1.10	1.24	1.25
Example 2:	1.26	1.26	1.25	1.14	1.18	1.24

Example 1: The gravity of electrolyte in cell 4 is too low.
Example 2: The gravity of electrolyte in cells 4 and 5 is too low. The specific gravity of electrolyte deviations between the battery cells is greater than 0.03 kg/dm³.

– If the nominal values are not achieved, replace battery.
– If the nominal values are achieved, screw in the original plugs again.

Open-circuit voltage measurement

Note

- *Use a hand-held multimeter to measure the battery voltage.*

Note

- *After charging and waiting for at least 2 hours, during which time the battery should neither be loaded nor charged:*

1. Switch off ignition and remove ignition key.
2. Disconnect ground strap on the battery.
3. Measure the battery voltage with a hand-held multimeter.

– The battery open-circuit voltage should not fall below 12.5V.
– If the hand-held multimeter shows 12.5V or more, the battery voltage is OK.
– If the hand-held multimeter shows a battery voltage below 12.5V: Charge battery.

Battery load test

Note

- *The acid density test provides information about the state of the battery in conjunction with the battery load test.*
- *A battery test device is required for the load test.*
- *The battery need not be removed or disconnected.*
- *The battery must be charged before the load test is performed.*

Carrying out battery load test:

1. Switch off ignition and remove ignition key.
2. Observe the information in the operating instructions of the battery test device.
3. Connect the clamps of the test lines to the battery terminals as described in the operating instructions of the test device.

– As the load current varies, the current must be set depending on the battery capacity (operating instructions of test device).

4. Perform the battery load test in accordance with the operating instructions.

– The result of the battery load test is a voltage value that must be compared with the specified minimum voltage (limit value).

Table:	
Battery capacity:	80 Ah
Cold test current	380A
Load current	300A
Minimum voltage (limit value)	9.5V

5. If the minimum voltage is not attained, replace battery.

Remarks on battery load test:
The battery voltage sinks during this test due to the severe load on the battery.
If the battery is in order, the voltage value only decreases to the minimum voltage.
If the battery is faulty, the battery voltage will sink very quickly below the specified minimum voltage.
After the test has taken place, the low voltage value remains over a long period of time; the voltage increases again slowly.

Charging battery

Note

- *A battery charging device is required.*
- *Observe charging device operating instructions.*
- *The battery must have a minimum temperature of 10°C.*
- *If possible, do not fast charge batteries as this can damage them.*
- *If exhaustively discharged batteries are charged quickly, they will not take up a charge current or they will be identified too early as full due to the so-called "surface charge".*

1. Switch off battery charging device.
2. Switch off ignition and remove ignition key.
3. First disconnect the ground strap of the battery, then the positive battery line.
4. Connect positive line of the battery charging device to the positive terminal of the battery.
5. Connect negative line of the battery charging device to the negative terminal of the battery.
6. Set the charge current on the battery charging device according to the battery capacity.
7. Switch on battery charging device.

Procedure for charging totally discharged batteries:
Batteries which are not in operation for a long period of time discharge.
A battery is totally discharged if the open-circuit voltage has sunk below 11.6 V.
In totally discharged batteries, the battery acid (sulphuric acid and water mixture) consists of virtually only water, as the sulphuric acid proportion is considerably reduced.
Totally discharged batteries sulphatise, i.e. the entire plate surfaces of the batteries harden.
If totally discharged batteries are immediately recharged after an exhaustive discharge, the sulphatisation recedes again.
If these batteries are not recharged, the plates continue to harden and charge take-up ability is limited. A reduction in the battery performance is the result.
Totally discharged batteries must be charged with a low charge current as follows:
–

Set charge current at maximum 10% of battery capacity, i.e. with a 80 Ah battery the charge current is maximum 8 A.

8. Charge battery.

997110, 997111, 997120, 997121, 997310, 997311, 997320, 997321, 997410, 997411, 997430, 997431, 997610, 997611, 997620, 997621

as of MY 2005
Country C00, C02, C05, C07, C08, C09, C10, C11, C12, C13, C14, C15, C16, C18, C19, C20, C21, C22, C23, C24, C25, C26, C27, C28, C32, C33, C34, C35, C36, C37, C38, C39, C45, C46, C98, C99

WARNUNG

Gefahr des Verlusts der Text-Bild-Zuordnung beim Ausdruck.

- **Aus technischen Gründen kann derzeit nicht ausgeschlossen werden, dass trotz einwandfreier Darstellung auf dem Bildschirm beim Ausdruck der Zusammenhang von Text und zugehörigem Bild verloren geht.**
- **Wird der Fehler nicht bemerkt, besteht die Gefahr, daß Arbeiten nicht korrekt durchgeführt werden und es dadurch zu Personen- und Sachschäden kommt.**

Vergleichen Sie deshalb nach dem Druckvorgang unbedingt die Ausdrucke mit der Bildschirmdarstellung. Korrigieren Sie die Ausdrucke im Fehlerfall so, daß der Inhalt der Bildschirmdarstellung zutreffend wiedergegeben wird.

WARNING

Danger of losing text-figure correspondence when printing out.

- **For technical reasons, it can currently not be ruled out that the correspondence between text and associated figure can be lost when it is printed out, even though the display on the screen is correct.**
- **If the fault is not noticed, there is the danger that work will not be performed correctly which can cause injury and damage.**

Therefore, always compare printouts with the screen display after printing them out. Correct the printouts if they are faulty so that the content of the screen display matches that on the printouts.

AVERTISSEMENT

Risque de perte de la correspondance texte-illustration lors de l'impression papier.

- **Pour des raisons techniques, il ne peut pas être exclu à l'heure actuelle que, même en cas d'affichage correct à l'écran, la correspondance entre le texte et l'illustration puisse être erronée sur l'impression papier.**
- **Si l'erreur passe inaperçue, on court le risque d'exécuter certaines opérations de manière incorrecte pouvant conduire à des dommages corporels et matériels.**

50 AW Safety notes - as of MY 2005

- Safety instructions for raising vehicles
- Safety instructions for welding
- Safety instructions for adhesive bonding
- Safety instructions for installation work
- Safety instructions for corrosion protection

top of page

Safety instructions for raising vehicles

Danger of injury when raising vehicles

DANGER

Risk of fatal injury due to vehicles slipping or tilting off lifting platforms!

- **Risk of injury due to vehicles slipping or tilting off lifting platforms may be caused by improper alignment of the lifting platform arms or support plates, and by raising, supporting or removing units on raised vehicles!**

Align the vehicle evenly between the lifting platform columns.

Lift the vehicle only at the take-up points provided.

Check the correct seating of the support plates by raising the vehicle slightly and conducting a visual inspection.

In order to ensure that the vehicle is not lifted off the support plates during assembly work, the vehicle must be secured on the lifting platform, or the shift in the centre of gravity must be offset by a corresponding load in the vehicle, when units are removed or supported.

In addition, the guidelines of the lifting platform manufacturers and the legal accident prevention regulations and those of the mutual indemnity association (VGB 14) must be observed.

Damage when raising vehicles

ATTENTION

Danger of material damage if the vehicle is raised incorrectly!

- **Lift the vehicle only at the approved take-up points!**
- **Raising the vehicle in the sill area will lead to the deformation of body parts and to leakage in the underbody area!**

Lifting or supporting the vehicle at unsuitable take-up points can lead to material damage on the vehicle!

top of page

Safety instructions for welding

Danger of injury when welding

DANGER

Risk of fatal injury from high voltage during electric welding!

- **Danger of explosion and fire when welding in the area of highly inflammable materials.**
- **Irritation to respiratory tracts from toxic zinc oxide emitted when welding galvanised steel!**
- **Danger of injury from weld spatters and UV light when welding!**
- **Danger of injury from unintentional triggering of pyrotechnical safety components!**

Do not perform welding work in a damp environment or on wet ground; there is a risk of fatal injury from the voltage being conducted through the human body. Persons with heart pacemakers should not perform welding work. Use insulating underlays.

Remove highly flammable materials from the work area; if necessary, remove units with fuel-carrying parts and protect work areas in the vehicle that are at risk of catching fire using fire-proof covers.

Ventilate the work area well.

Remove smoke gases with a suitable extraction system (refer to Workshop Equipment Manual).

Wear suitable protective equipment, such as protective clothing, gloves, a welding shield and, if necessary, a protective mask.

For welding work, always disconnect both terminals on the battery. In the case of welding work in the immediate vicinity of the control modules for pyrotechnical safety systems, remove the control modules before beginning work.

In addition, the guidelines of the welding equipment manufacturer and the legal accident prevention regulations and those of the mutual indemnity association (BGV D1) must be observed.

Safety instructions for flying sparks during grinding and welding work

ATTENTION

Danger of explosion and fire from flying sparks during grinding and welding work!

- **Danger of injury and danger of damage to vehicle parts and other vehicles due to flying sparks!**

Cover vehicle parts such as battery, fuel system, paintwork, glass and passenger compartment parts with fire-proof covers and, if necessary, remove batteries and fuel-carrying components.

No other vehicles may be left unprotected in areas used for body repair!

Safety instructions for fuel tank

ATTENTION

Risk of fire and explosion due to open flames and sparks in area of fuel tank!

- **Danger of fire due to fuel tank or fuel-carrying parts heating up during grinding and welding work!**

When carrying out grinding and welding work near the fuel tank or fuel-carrying parts, make sure that these parts do not heat up!

It is recommended to remove endangered parts!

Cover the welding area generously with fire-proof covers!

Safety instructions for air conditioning

ATTENTION

Danger of injury due to the filled air-conditioning system bursting!

- **Danger of injury due to the filled air-conditioning system bursting during welding and brazing work!**
- **In the case of extreme heating of filled air-conditioning systems, a very strong overpressure may be caused in the system which may lead to an explosion.**

No welding, braying or hot-air heating may be performed on parts of the filled air-conditioning system!

While drying after painting work, the temperature burden on the vehicle must not exceed two hours at a maximum temperature of 80 °C!

Make sure that parts of the air-conditioning system do not heat up during welding or brazing work on the vehicle!

top of page

Safety instructions for adhesive bonding

Danger of poisoning and injury when adhesive bonding

ATTENTION

Danger of poisoning and injury when handling adhesive!

- **Danger of poisoning when breathing in vapours or from swallowing adhesive.**
- **Risk of injury due to contact with skin or eyes.**

Ventilate the work area well.

Do not eat, drink, or smoke while carrying out work.

Avoid direct contact with eyes and skin. Wear suitable protective equipment, such as protective clothing, gloves, and if necessary, a protective mask.

If clothing is soiled with resin residues, change clothing immediately and only use again after they have been cleaned.

Also observe the product-specific processing and safety instructions on the packing container and packing container imprints.

In case of eye contact: Rinse eyes immediately and thoroughly with luke-warm running water and consult an eye doctor.

In case of skin contact: Rinse contacted skin areas immediately with luke-warm running water and soap.

If adhesive is swallowed: Rinse mouth and consult a doctor.

Safety instructions for Teromix-6700 two-component adhesive

ATTENTION

Material damage! Setting time of adhesive is not observed!

- **Danger of damage to side section if setting time of adhesive is not observed!**

The new part must be welded in within 30 minutes!

top of page

Safety instructions for installation work

Safety instructions for sharp-edged body and unit parts

ATTENTION

Danger of injury! Sharp-edge burrs on body and unit parts!

- **Danger of injury from sharp edges on body and unit parts!**

Wear protective gloves when working in the area of sharp-edged body and unit parts!

Safety instructions for airbag system

ATTENTION

Danger of injury! Unintentional activation of airbag units!

- **Serious injury due to unintentional activation of airbag units!**

The ground strap of the battery must be disconnected during work on the airbag system and alignment bench jobs when the body is being repaired!

After the battery is disconnected, assembly work or work on the vehicle with a hammer or similar tools must not be started until after a waiting period of 1 minute!

Safety instructions for door

ATTENTION

Material damage! Incorrect installation of the door lock!

- **Danger of material damage if the door lock is installed incorrectly! Malfunctions in the alarm system!**

The door lock should be installed only when the actuating lever is in basic position!

ATTENTION

Damage to plug connection lugs during door removal!

- **Damage to plug connection lugs during door removal! Damage to lugs when pulling the plug connection out of the A-pillar!**

The locking element at the bottom part of the plug connection must be pulled out before the plug connection is disconnected!

ATTENTION

Damage to the bowden cable when removing door trim panel!

- **Damage to the bowden cable when removing door trim panel! Damage by bending the bowden cable at the hook!**

Pull the hook out of the end piece only after installation in the inner door release!

ATTENTION

Danger of injury! Malfunction of the door window!

- **There is a danger of injury if fingers or hands are trapped by the door window when the comfort function is triggered: lower and raise door window!**

When carrying out assembly work in the area of the connection piece, the door handle and the door lock, the fuse No. 1 in row D must be removed!

top of page

Safety instructions for corrosion protection

Safety instructions for plug location plan (body)

ATTENTION

Material damage when removing plugs!

- **Danger of corrosion and of uncontrolled water penetration when removing plugs!**

The body apertures are sealed with plugs at the factory, and must be sealed with the plugs provided once more following disassembly or repair work!

Safety instructions for water drains (body)

ATTENTION

Danger of material damage when cleaning the water drainage hoses!

- **Water drainage hoses can be pushed out or pressed in by blowing them out of the body during cleaning!**

When cleaning, only blow the water drainage hoses out with light compressed-air pressure!
The water hoses should only be blown out when the sliding/tilting roof is closed.

Safety instruction for deformation element

ATTENTION

Danger of injury by damaged deformation elements!

- **Danger of injury by damaged deformation elements after an accident!**

It is impermissible to perform repairs on the deformation element.
The deformation elements must be replaced in the event of visible damage or pressure marks.

Possible separation points on inner side member

WARNING

Possible separation points on inner side member

- **Danger of material damage and injury**

The possible separation points on the inner side member are **30 mm in front of the tailored blanks (laser weld) against the direction of travel.**

Baked hardening

WARNING

This affects torsion resistance, resistance to bending and crash safety

- **Danger of injury and material damage**

The spare parts are heat-treated. "Original Porsche parts" attain their final strength only after the production stage of cathodic immersion painting and drying.

Only "Original Porsche parts" or sections of "Original Porsche parts" may be used for repair work!

The indicated body parts attain their final strength only through the temperature effects of the production stage of cathodic immersion painting and drying.

997110, 997111, 997120, 997121, 997310, 997311, 997320, 997321, 997410, 997411, 997430, 997431, 997610, 997611, 997620, 997621

as of MY 2005
Country C00, C02, C05, C07, C08, C09, C10, C11, C12, C13, C14, C15, C16, C18, C19, C20, C21, C22, C23, C24, C25, C26, C27, C28, C32, C33, C34, C35, C36, C37, C38, C39, C45, C46, C98, C99

WARNUNG

Gefahr des Verlusts der Text-Bild-Zuordnung beim Ausdruck.

- **Aus technischen Gründen kann derzeit nicht ausgeschlossen werden, dass trotz einwandfreier Darstellung auf dem Bildschirm beim Ausdruck der Zusammenhang von Text und zugehörigem Bild verloren geht.**
- **Wird der Fehler nicht bemerkt, besteht die Gefahr, daß Arbeiten nicht korrekt durchgeführt werden und es dadurch zu Personen- und Sachschäden kommt.**

Vergleichen Sie deshalb nach dem Druckvorgang unbedingt die Ausdrucke mit der Bildschirmdarstellung. Korrigieren Sie die Ausdrucke im Fehlerfall so, daß der Inhalt der Bildschirmdarstellung zutreffend wiedergegeben wird.

WARNING

Danger of losing text-figure correspondence when printing out.

- **For technical reasons, it can currently not be ruled out that the correspondence between text and associated figure can be lost when it is printed out, even though the display on the screen is correct.**
- **If the fault is not noticed, there is the danger that work will not be performed correctly which can cause injury and damage.**

Therefore, always compare printouts with the screen display after printing them out. Correct the printouts if they are faulty so that the content of the screen display matches that on the printouts.

01 Checking the function of the vehicle's lights - as of MY 2005

Check lighting

Turn on ignition, switch on all vehicle lights one after another and check that the individual lights are working.
Lights to be checked:

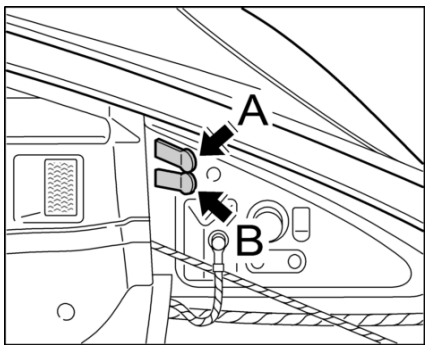
- Main headlights
- Fog lights
- Side direction indicator light
- Tail light
- Number plate light
- Additional brake light

Adjusting main headlights

Note

- *The distance between the headlights and the adjustment unit should be as small as possible!*
- *It should not exceed 30 cm, because at greater distances it is no longer possible to define the formation of the light/dark limit in the adjustment unit clearly!*

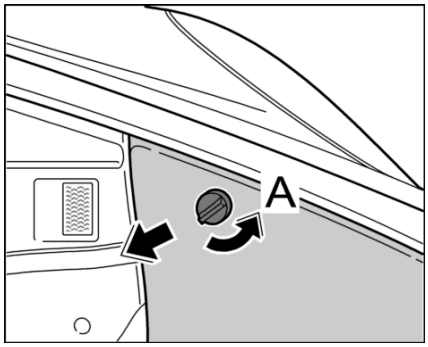
The vehicle must be on a horizontal surface!
Make the adjustment with the regulator switch set to 0 (headlight beam adjustment)!
Use a standard 5 mm ball-head screwdriver to make the headlight adjustment (free blade length 150 mm).
Only the lower screw may be turned for height adjustment; for lateral adjustment the upper and lower screws must be turned in the same direction and for the same number of rotations!



Make the adjustment with the vehicle ready for driving (fuel tank full, driver's seat occupied by a person or **: 75 kg** , the tyre pressure must correspond to the specified values) using a headlight adjustment unit.

A - Lateral adjustment

B - Height and lateral adjustment



1. Undo and pull out the plastic nut **-A-** for the carpet trim.
2. Turn on the ignition, turn on dipped beam and high beam headlights.
3. Check setting and adjust if necessary.

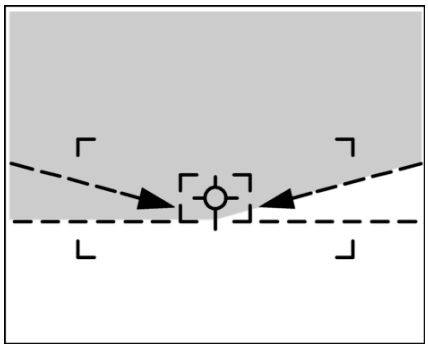
Adjusting:

Set headlight adjustment unit to 10 cm/10 m (1%)!

With this alignment, preference must be given to the central zone around the salient point of the light/dark limit!

First, make the height/side adjustment of the dipped beam/high beam.

4. To do this, line up the light/dark borderline running upwards at an angle on the right-hand side with the dotted 15° line of the adjustment unit.
5. Next, perform the horizontal adjustment of the dipped beam headlights.



To do this, line up the left, horizontal section of the light/dark limit (when driving on the right) with the dotted horizontal line of the adjustment unit.

6. In the case of Xenon headlights, the ignition must be switched off and on after the adjustment has been made with the lights switched on.
7. After this, the adjustment must be checked again.
8. Fit the carpet again and insert plastic nut.

Adjusting the main headlights, USA version

– Vertical and horizontal adjustment must be carried out with a headlight adjustment unit.

Checking horn function

Press horn actuation on steering wheel and check the function and sound of horn.

Check and adjust clock

Check current time, adjust if necessary.

1. The clock is set in the multi-function display.
2. Press clock button on instrument cluster.
3. Set the time using the rocker switch on the wiper switch.
4. Press reset switch on the wiper switch.

Compare time displayed in instrument cluster with time displayed in PCM (if available) and adjust the time in PCM also if necessary.

997110, 997111, 997120, 997121, 997310, 997311, 997320, 997321, 997410, 997411, 997430, 997431, 997610, 997611, 997620, 997621

as of MY 2005
Country C00, C02, C05, C07, C08, C09, C10, C11, C12, C13, C14, C15, C16, C18, C19, C20, C21, C22, C23, C24, C25, C26, C27, C28, C32, C33, C34, C35, C36, C37, C38, C39, C45, C46, C98, C99

WARNUNG

Gefahr des Verlusts der Text-Bild-Zuordnung beim Ausdruck.

- **Aus technischen Gründen kann derzeit nicht ausgeschlossen werden, dass trotz einwandfreier Darstellung auf dem Bildschirm beim Ausdruck der Zusammenhang von Text und zugehörigem Bild verloren geht.**
- **Wird der Fehler nicht bemerkt, besteht die Gefahr, daß Arbeiten nicht korrekt durchgeführt werden und es dadurch zu Personen- und Sachschäden kommt.**

Vergleichen Sie deshalb nach dem Druckvorgang unbedingt die Ausdrucke mit der Bildschirmdarstellung. Korrigieren Sie die Ausdrucke im Fehlerfall so, daß der Inhalt der Bildschirmdarstellung zutreffend wiedergegeben wird.

WARNING

Danger of losing text-figure correspondence when printing out.

01 Windscreen washer/headlight cleaning system: Check operation, nozzle settings - as of MY 2005

- Windscreen washer/headlight cleaning system: Check operation, nozzle settings

top of page

Windscreen washer/headlight cleaning system: Check operation, nozzle settings

Windscreen washer/headlight cleaning system: Check operation, nozzle settings

ATTENTION

Surface of headlights can be damaged if not cleaned correctly.

Use only soapy water to clean the exterior lights and the plastic headlight lenses.

Never use chemical cleaning agents.

To avoid scratches, do not rub with dry or only damp cloths, paper towels or insect-removal sponges.

Note

- *The headlight washer nozzles are pre-set!*
- *Generally, it is not necessary to adjust them!*

Note

The spray nozzles for the windscreen washer system are not adjustable!
Sharp objects (needles) must not be inserted in the nozzle holes!

– Check function, fluid levels and nozzle settings. If the settings of the spray nozzles for the windscreen washer system are not okay, they must be replaced.

Mix ratio of fluids for windscreen washer system

Fluid:	Mix ratio:
Water	Undiluted
Water/isopropanol	1 : 1
	2 : 1
	3 : 1
Water/ethanol	1 : 1
	2 : 1
	3 : 1

Checking wiper blades

Check the wiper blades for any deformities and tears.

1. Turn on the ignition, operate the spray nozzles and check the quality of the wipers.

997110, 997111, 997120, 997121, 997310, 997311, 997320, 997321, 997410, 997411, 997430, 997431, 997610, 997611, 997620, 997621

as of MY 2005
Country C00, C02, C05, C07, C08, C09, C10, C11, C12, C13, C14, C15, C16, C18, C19, C20, C21, C22, C23, C24, C25, C26, C27, C28, C32, C33, C34, C35, C36, C37, C38, C39, C45, C46, C98, C99

WARNUNG

Gefahr des Verlusts der Text-Bild-Zuordnung beim Ausdruck.

- **Aus technischen Gründen kann derzeit nicht ausgeschlossen werden, dass trotz einwandfreier Darstellung auf dem Bildschirm beim Ausdruck der Zusammenhang von Text und zugehörigem Bild verloren geht.**
- **Wird der Fehler nicht bemerkt, besteht die Gefahr, daß Arbeiten nicht korrekt durchgeführt werden und es dadurch zu Personen- und Sachschäden kommt.**

Vergleichen Sie deshalb nach dem Druckvorgang unbedingt die Ausdrucke mit der Bildschirmdarstellung. Korrigieren Sie die Ausdrucke im Fehlerfall so, daß der Inhalt der Bildschirmdarstellung zutreffend wiedergegeben wird.

WARNING

Danger of losing text-figure correspondence when printing out.

- **For technical reasons, it can currently not be ruled out that the correspondence between text and associated figure can be lost when it is printed out, even though the display on the screen is correct.**

01 IN Alarm system: checking that the control equipment is working - as of MY 2005

check operation of indicators

Vehicle must be unlocked and the sales check item - Diagnosis system: systems activated and fault memory read out - must be performed.

1. Lock vehicle with the remote control. Shortly after locking, no warning tone must be emitted by the alarm system horn. If a warning tone is emitted, check exterior covers, glove compartment cover, centre console cover and all doors; open and close these items in turn.
2. As soon as the vehicle is locked, the LED - between the two air vents at the centre of the instrument panel - must flash quickly for several seconds and then flash slowly.

Fault display:

3. LED flashes quickly for 2 seconds, lights up for 28 seconds and then flashes slowly >> connect the System Tester and read out the fault memory.

997110, 997111, 997120, 997121, 997310, 997311, 997320, 997321, 997410, 997411, 997430, 997431, 997610, 997611, 997620, 997621

as of MY 2005
Country C00, C02, C05, C07, C08, C09, C10, C11, C12, C13, C14, C15, C16, C18, C19, C20, C21, C22, C23, C24, C25, C26, C27, C28, C32, C33, C34, C35, C36, C37, C38, C39, C45, C46, C98, C99

WARNUNG

Gefahr des Verlusts der Text-Bild-Zuordnung beim Ausdruck.

- **Aus technischen Gründen kann derzeit nicht ausgeschlossen werden, dass trotz einwandfreier Darstellung auf dem Bildschirm beim Ausdruck der Zusammenhang von Text und zugehörigem Bild verloren geht.**
- **Wird der Fehler nicht bemerkt, besteht die Gefahr, daß Arbeiten nicht korrekt durchgeführt werden und es dadurch zu Personen- und Sachschäden kommt.**

Vergleichen Sie deshalb nach dem Druckvorgang unbedingt die Ausdrucke mit der Bildschirmdarstellung. Korrigieren Sie die Ausdrucke im Fehlerfall so, daß der Inhalt der Bildschirmdarstellung zutreffend wiedergegeben wird.

WARNING

Danger of losing text-figure correspondence when printing out.

- **For technical reasons, it can currently not be ruled out that the correspondence between text and associated figure can be lost when it is printed out, even though the display on the screen is correct.**

01 IN Checking electrical equipment such as control and warning lights for functionality. - as of MY 2005

Checking electrical equipment

- Turn ignition key and check function of warning and indicator lights (visual inspection).
- Actuate power windows and check operation.
- Check that rear window heater is in working order.
- Adjust heater blower and fans to high and low and check the air vents for air throughput.
- Check operation of front seats.
- Check audio function.
- Check operation of door mirror, check adjustment options.
- Check operation of orientation lights.
- Actuate central locking and check operation.
- Operate cigarette lighter and check that it is in working order.

997110, 997111, 997120, 997121, 997310, 997311, 997320, 997321, 997410, 997411, 997430, 997431, 997610, 997611, 997620, 997621

as of MY 2005
Country C00, C02, C05, C07, C08, C09, C10, C11, C12, C13, C14, C15, C16, C18, C19, C20, C21, C22, C23, C24, C25, C26, C27, C28, C32, C33, C34, C35, C36, C37, C38, C39, C45, C46, C98, C99

WARNUNG

Gefahr des Verlusts der Text-Bild-Zuordnung beim Ausdruck.

- **Aus technischen Gründen kann derzeit nicht ausgeschlossen werden, dass trotz einwandfreier Darstellung auf dem Bildschirm beim Ausdruck der Zusammenhang von Text und zugehörigem Bild verloren geht.**
- **Wird der Fehler nicht bemerkt, besteht die Gefahr, daß Arbeiten nicht korrekt durchgeführt werden und es dadurch zu Personen- und Sachschäden kommt.**

Vergleichen Sie deshalb nach dem Druckvorgang unbedingt die Ausdrucke mit der Bildschirmdarstellung. Korrigieren Sie die Ausdrucke im Fehlerfall so, daß der Inhalt der Bildschirmdarstellung zutreffend wiedergegeben wird.

WARNING

Danger of losing text-figure correspondence when printing out.

- **For technical reasons, it can currently not be ruled out that the correspondence between text and associated figure can be lost when it is printed out, even though**

87 IN Instructions for repairing air-conditioning systems and storing spare parts - as of MY 2005

Instructions for repairing air-conditioning systems and storing spare parts

Note

Close all openings immediately upon starting work on the refrigerant circuit.
Store all spare parts in a dry and sealed-off area.
Blast air-conditioning components with nitrogen before refitting.
When fitting parts, do not remove plugs until shortly before installation. Do not remove the protective foil from the dryer until shortly before installation. The dryer absorbs moisture from the air and is then useless.
Do not carry out repairs in the open in damp weather.
Replace the dryer after each occasion of working on the refrigerant circuit.
Moisture in the refrigerant circuit not only leads to poor cooling. Supersaturation can also cause the dryer to disintegrate and contaminate the air-conditioning from inside. This may lead to expensive and complicated repairs.
Replace the dryer every 3-4 years.
Evacuate the refrigerant circuit according to regulations.
Use a pressure reducer when working with nitrogen.

997110, 997111, 997120, 997121, 997310, 997311, 997320, 997321, 997410, 997411, 997430, 997431, 997610, 997611, 997620, 997621

as of MY 2005
Country C00, C02, C05, C07, C08, C09, C10, C11, C12, C13, C14, C15, C16, C18, C19, C20, C21, C22, C23, C24, C25, C26, C27, C28, C32, C33, C34, C35, C36, C37, C38, C39, C45, C46, C98, C99

WARNUNG

Gefahr des Verlusts der Text-Bild-Zuordnung beim Ausdruck.

- **Aus technischen Gründen kann derzeit nicht ausgeschlossen werden, dass trotz einwandfreier Darstellung auf dem Bildschirm beim Ausdruck der Zusammenhang von Text und zugehörigem Bild verloren geht.**
- **Wird der Fehler nicht bemerkt, besteht die Gefahr, daß Arbeiten nicht korrekt durchgeführt werden und es dadurch zu Personen- und Sachschäden kommt.**

Vergleichen Sie deshalb nach dem Druckvorgang unbedingt die Ausdrucke mit der Bildschirmdarstellung. Korrigieren Sie die Ausdrucke im Fehlerfall so, daß der Inhalt der Bildschirmdarstellung zutreffend wiedergegeben wird.

WARNING

87 AW Safety regulations for working on air-conditioned vehicles and dealing with refrigerant R134a - as of MY 2005

General safety regulations for refrigerants

ATTENTION

Extreme heating of air-conditioning system e.g. from sunlight shining into the vehicle or as a result of welding and soldering work.

- **Danger of fire due to excessive heating of air conditioning.**
- **Danger of environmental pollution due to emerging refrigerant.**

When carrying out repairs on the air-conditioning system, the system must be emptied by suction and the refrigerant must be purified. Chlorine-free refrigerants must also not be allowed to escape into the atmosphere and must be disposed of correctly.

Due to their chemical composition, different refrigerants must not be mixed with each other! This also applies for smaller quantities.

No welding, soldering or hot-air heating may take place on parts of the filled air-conditioning system or in its immediate vicinity.

While drying after painting work, the temperature burden on the vehicle must not exceed two hours at a maximum temperature of 80°C.

Whether or not the system is filled with refrigerant, the heating causes a very strong overpressure which can cause damage to the system or even lead to an explosion.

R 134a is completely non-toxic at normal temperatures, but it decomposes upon contact with a flame or at high temperatures.

Refrigerant bottles must not be thrown and must not be subjected to direct sunlight or other heat sources for an extended period when full.

The maximum permissible temperature of a filled refrigerant bottle must not exceed 45 °C.

Risk of injury! High temperatures from open flames or hot solids causes chemical breakdown of refrigerant gas. Inhalation of the resulting breakdown products leads to coughing and nausea.

WARNING

Contact with liquid or gaseous refrigerant.

- **The refrigerant attacks the skin and damages the skin's surface.**

Wear rubber gloves to protect your hands.

Treat affected skin in the same way as in the case of freezing. Rinse immediately and then consult a physician.

Wear safety goggles to protect your eyes.

If refrigerant still gets in your eyes, consult a physician immediately.

WARNING

The intensive effect of refrigerant on unprotected body parts can cause freezing.

Keep an eye-rinse bottle with clear water at hand.

If liquid refrigerant gets into your eyes, rinse them thoroughly with water for about 15 minutes.

Then consult a doctor immediately.

The physician must be informed which refrigerant has caused the freezing.

Note

- *The following safety measures should be followed for refrigerant R134a (additional regulations may apply in certain countries).*

If repair work necessitates opening the refrigerant circuit, the refrigerant circuit is first to be emptied. Avoid all contact with liquid or gaseous refrigerants. If refrigerant should escape despite all safety measures having been taken, the resulting refrigerant/air mixture should not be breathed in. Therefore, switch on extraction systems, protect hands with rubber gloves and protect eyes with protective goggles.
If refrigerant gets onto any other body parts despite all safety measures having been taken, these should also be rinsed immediately and thoroughly with water for at least 15 minutes.
Although refrigerant R134a is non-flammable, smoking, welding, soldering and hard-soldering is prohibited in a room containing refrigerant.

Emptying the refrigerant circuit

Note

Refrigerant R134a contributes to the greenhouse effect as soon as it is released into the Earth's atmosphere. Refrigerant should not be released into the environment but is to be extracted from the refrigerant circuit using an extraction or service station. The extracted refrigerant is then prepared again on-site or returned to the manufacturer for environmentally-friendly disposal (varying or additional regulations may apply in certain countries).

Working on the refrigerant circuit

ATTENTION

Emerging refrigerant in poorly ventilated rooms and erection pits.

- **Danger of suffocation from odourless refrigerant.**

The leaking refrigerant is not only colourless and odourless, but is also heavier than air and therefore displaces oxygen. In poorly ventilated rooms and erection pits there is therefore an undetectable risk of suffocation.

The gas/air mixture formed when refrigerant escapes should not be breathed in but rather extracted via suitable extraction systems (workshop extraction system).

There should be no erection pits, shafts or cellar stairs within a radius of 5 metres.

Painting work on vehicles with air-conditioning

WARNING

Painting work on vehicles with air-conditioning

- **Material damage due to the air-conditioning system bursting.**

When carrying out repairs involving painting work, object temperatures in the drying oven or its preheating zone should not exceed 80 °C.

Notes on general repairs

The refrigerant circuit of the air-conditioning is only to be emptied and opened if this is necessary due to safety measures or if components of the refrigerant circuit have to be replaced.
The air-conditioning refrigerant circuit also remains closed during all other standard vehicle repair work.
Contact corrosion!
For this reason, the manufacturer only fits connecting elements with a special surface coating.
Contact corrosion can occur if unsuitable connecting elements (screws, nuts, washers, rivets, plugs, adhesives, etc.) are used.
Only use original Porsche parts!

997110, 997111, 997120, 997121, 997310, 997311, 997320, 997321, 997410, 997411, 997430, 997431, 997610, 997611, 997620, 997621

as of MY 2005
Country C00, C02, C05, C07, C08, C09, C10, C11, C12, C13, C14, C15, C16, C18, C19, C20, C21, C22, C23, C24, C25, C26, C27, C28, C32, C33, C34, C35, C36, C37, C38, C39, C45, C46, C98, C99

WARNUNG

Gefahr des Verlusts der Text-Bild-Zuordnung beim Ausdruck.

- **Aus technischen Gründen kann derzeit nicht ausgeschlossen werden, dass trotz**

87 Safety regulations for extraction and filling systems - as of MY 2005

Safety regulations for extraction and filling systems

WARNING

Improper handling of the filling system for the air conditioning.

- **Unnecessary damage to the environment due to emerging refrigerant.**

Before connecting the filling system to the air-conditioning, make sure that the manual shut-off valves are closed.

Before disconnecting the filling system from the air-conditioning, make sure that the process is complete so that no refrigerant can escape into the atmosphere.

After the purified refrigerant has been filled into an external compressed gas bottle from the filling system, the manual shut-off valves on the bottle and on the filling system should be closed.

Do not expose the filling system to moisture or use in a damp environment.

Shut off the power supply at the filling system before carrying out maintenance work.

An extension cable with cross-sectional area of at least 2.5 mm ^{2} should be used only when absolutely necessary.

In the case of fire, the external bottle should be removed.

Fill the oil extracted from the air-conditioning system into a suitable closable container (the refrigerant oil contains small quantities of refrigerant).

The filling system must be secured to prevent rolling.

997110, 997111, 997120, 997121, 997310, 997311, 997320, 997321, 997410, 997411, 997430, 997431, 997610, 997611, 997620, 997621

as of MY 2005
Country C00, C02, C05, C07, C08, C09, C10, C11, C12, C13, C14, C15, C16, C18, C19, C20, C21, C22, C23, C24, C25, C26, C27, C28, C32, C33, C34, C35, C36, C37, C38, C39, C45, C46, C98, C99

WARNUNG

Gefahr des Verlusts der Text-Bild-Zuordnung beim Ausdruck.

- **Aus technischen Gründen kann derzeit nicht ausgeschlossen werden, dass trotz einwandfreier Darstellung auf dem Bildschirm beim Ausdruck der Zusammenhang von Text und zugehörigem Bild verloren geht.**
- **Wird der Fehler nicht bemerkt, besteht die Gefahr, daß Arbeiten nicht korrekt durchgeführt werden und es dadurch zu Personen- und Sachschäden kommt.**

87 IN Technical data, air-conditioning system - as of MY 2005

Technical data for air-conditioning system

Air conditioning	Refrigerant quantity	Filling capacity of refrigerant oil
Climatronic	900g R134a	195 +/- 15 cm^3 ND 8

General pressures	bar
High-pressure cut-off	32
Low-pressure cut-off at ambient temperature > 5 °C	1.4 (1.0)
High-pressure cut-off at ambient temperature < 5 °C	0,5
Pressure relief valve purge pressure	40

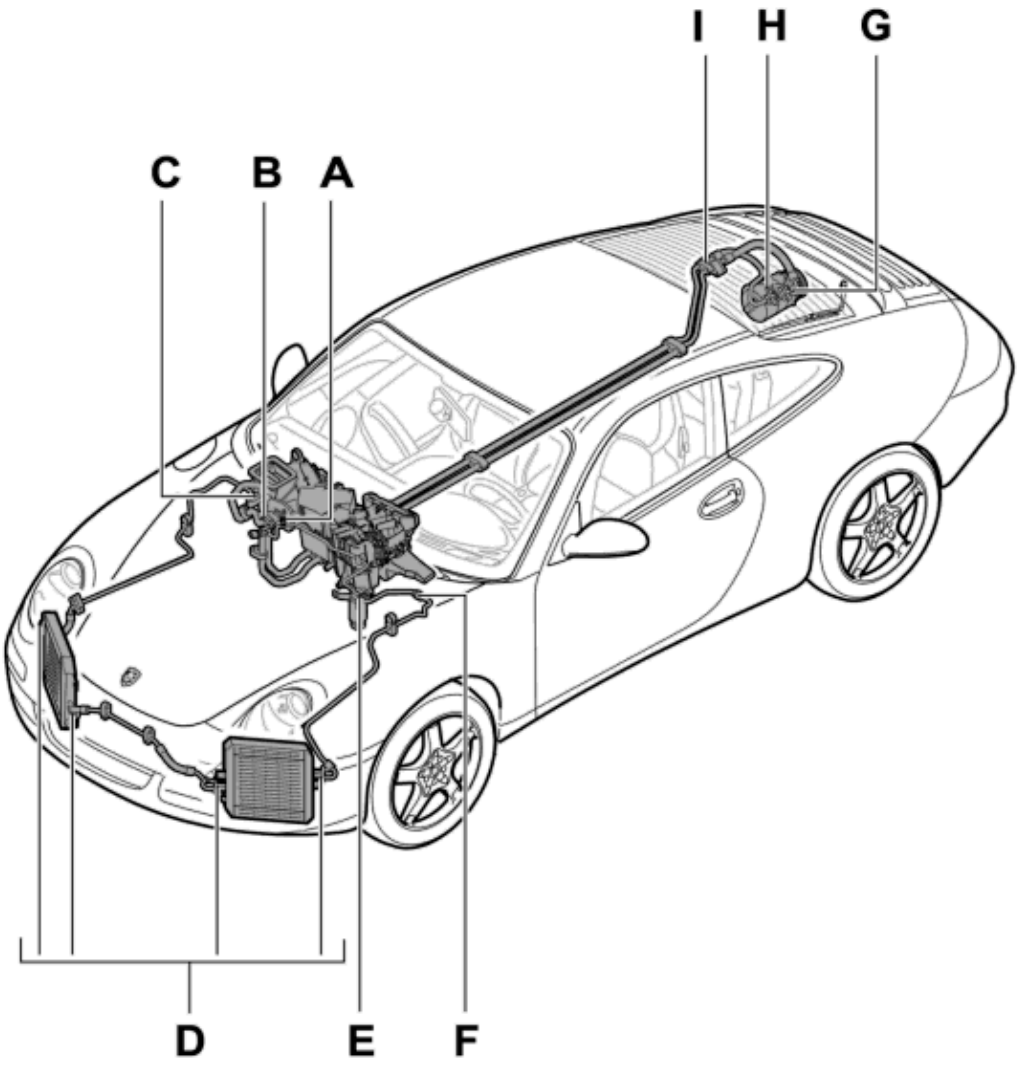
Refrigerant distribution in circuit	approx. cm^3
Compressor	50
Condenser (2 x 20 cm^3)	40
Evaporator	30
Fluids with containers	30
Circulating oil quantity in the refrigerant circuit	60

Tightening torques for air-conditioning system

Note

When installing the refrigerant lines, the screw connections must always be wet with refrigerant oil.
The extracted refrigerant oil must be disposed of as special-category waste.

Installation Location:



Summary graphic

-A- - **M5: 3.5 ftlb.**
-B- - **M6: 6.5 ftlb.**
-C- - **M8: 10.5 ftlb.**
-D- - **M8: 10.5 ftlb.**
-E- - **M6: 4.5 ftlb.**
-F- - **M8: 10.5 ftlb.**
-G- - **M8: 17 ftlb.**
-H- - **M10: 19 ftlb.**
-I- - **M8: 17 ftlb.**

997110, 997111, 997120, 997121, 997310, 997311, 997320, 997321, 997410, 997411, 997430, 997431, 997610, 997611, 997620, 997621

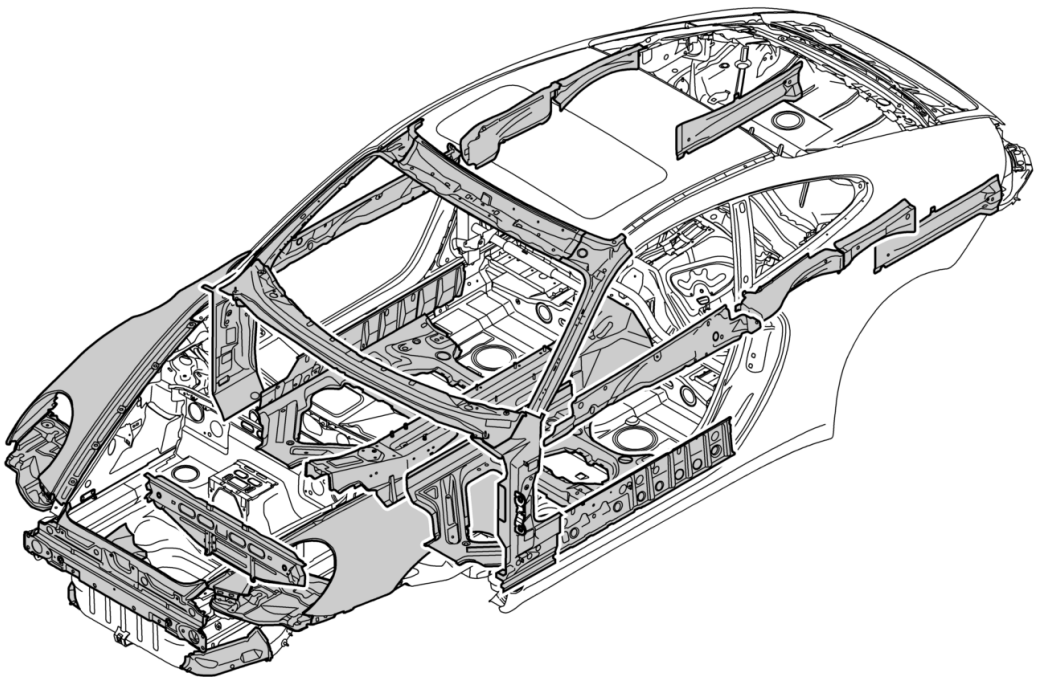
50 Body parts of various sheet-steel strengths - as of MY 2005

High-strength steel plates

Note

- *Only "Original Porsche parts" must be used for repair work!*

Body parts of high-strength steel contribute to better protection of the passenger compartment and thus increase protection of the passengers. In addition to improved crash safety, these parts also have a positive influence on fatigue strength. In terms of crash behaviour, body parts made from high-strength sheet steel are characterised by their higher energy absorption. But this also means that higher reshaping force must be applied in reshaping work.



High-strength steel plates

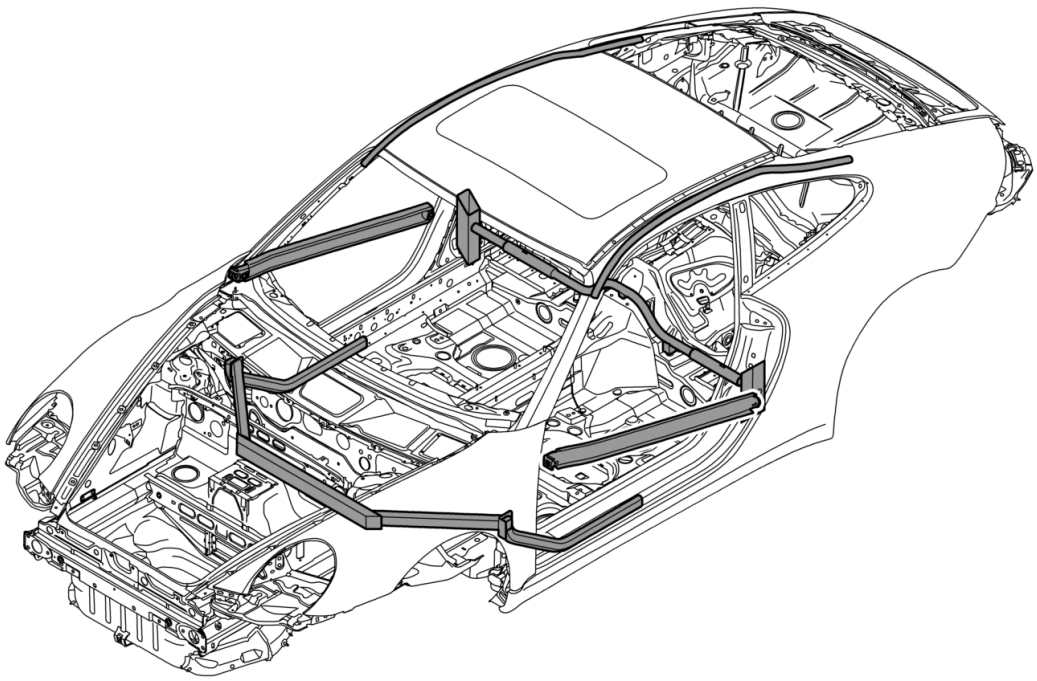
Highest-strength steel plates

WARNING

This affects torsion resistance, resistance to bending and crash safety

- **Danger of injury and material damage**

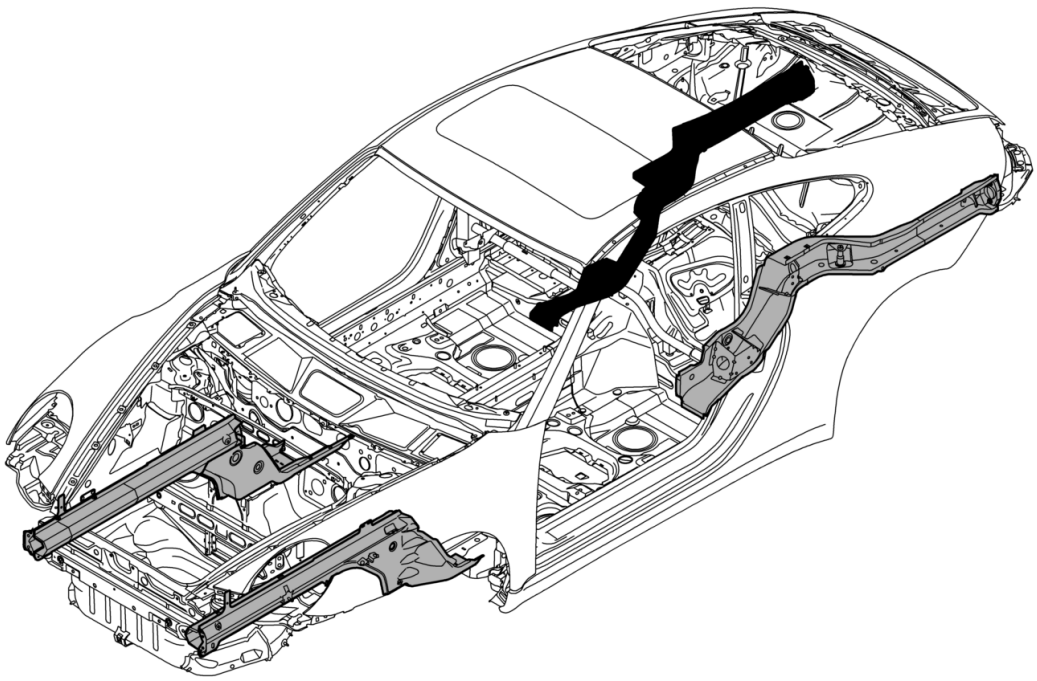
Body parts made of highest-strength steel plate cannot be reshaped. Highest-strength body parts cannot be straightened or reshaped!



Highest-strength steel plates

Tailored blanks

The indicated body parts are made by welding together plates of different thicknesses and characteristics and then deep-drawing these parts. In their crash behaviour, these body parts are characterised by their high energy absorption.



Tailored blanks

Baked hardening

WARNING

This affects torsion resistance, resistance to bending and crash safety

- **Danger of injury and material damage**

The spare parts are heat-treated. "Original Porsche parts" attain their final strength only after the production stage of cathodic immersion painting and drying.

Only "Original Porsche parts" or sections of "Original Porsche parts" may be used for repair work!

The indicated body parts attain their final strength only through the temperature effects of the production stage of cathodic immersion painting and drying.

Straightening body parts

Note

Only "Original Porsche parts" or sections of "Original Porsche parts" may be used!

The body and floor assembly are produced in series from deep-drawn panels. For this reason, accident damage must be reshaped in the same way. Body repairs by reshaping are not possible if these body parts are correspondingly deformed. Here, the repair must be carried out using new parts or by means of sectional repairs. The separation of damaged body parts after reshaping against the accident direction should not take place until after connection pieces have been straightened.

Welding work

Note

- *The use of the oxyacetylene welding process is not permissible for body parts made of high-strength steel!*
- *Test welding must be carried out in the case of resistance spotwelding (RP) of different panel strengths!*

The body parts made from high-strength steel can be welded using the RP resistance spot-welding and MIG welding processes that are customary in workshops.

Reshaping

Note

- *Only "Original Porsche parts" or sections of "Original Porsche parts" may be used for repair work!*
- *The separation of damaged body parts should not take place until after reshaping against the accident direction has taken place and connection pieces have been straightened!*

Body repairs by reshaping are not possible if these body parts are correspondingly deformed. Here, the repair must be carried out using new parts or by means of sectional repairs.

Separation points

Note

- *Separation points which influence the strength of the body, and thus also the operating and traffic safety of the vehicle, must be carried out according to the specifications of the relevant Technical Manual covering body repair!*

- *Body reinforcements can be separated or joined together only if this is specified in the method descriptions. Otherwise, a damaged reinforcement must always be replaced with a new one!*

997110, 997111, 997120, 997121, 997310, 997311, 997320, 997321, 997410, 997411, 997430, 997431, 997610, 997611, 997620, 997621

as of MY 2005
Country C00, C02, C05, C07, C08, C09, C10, C11, C12, C13, C14, C15, C16, C18, C19, C20, C21, C22, C23, C24, C25, C26, C27, C28, C32, C33, C34, C35, C36, C37, C38, C39, C45, C46, C98, C99

WARNUNG
Gefahr des Verlusts der Text-Bild-Zuordnung beim Ausdruck.

- **Aus technischen Gründen kann derzeit nicht ausgeschlossen werden, dass trotz einwandfreier Darstellung auf dem Bildschirm beim Ausdruck der Zusammenhang von Text und zugehörigem Bild verloren geht.**
- **Wird der Fehler nicht bemerkt, besteht die Gefahr, daß Arbeiten nicht korrekt durchgeführt werden und es dadurch zu Personen- und Sachschäden kommt.**

Vergleichen Sie deshalb nach dem Druckvorgang unbedingt die Ausdrucke mit der Bildschirmdarstellung. Korrigieren Sie die Ausdrucke im Fehlerfall so, daß der Inhalt der Bildschirmdarstellung zutreffend wiedergegeben wird.

WARNING
Danger of losing text-figure correspondence when printing out.

- **For technical reasons, it can currently not be ruled out that the correspondence between text and associated figure can be lost when it is printed out, even though the display on the screen is correct.**
- **If the fault is not noticed, there is the danger that work will not be performed correctly which can cause injury and damage.**

Therefore, always compare printouts with the screen display after printing them out. Correct the printouts if they are faulty so that the content of the screen display matches that on the printouts.

AVERTISSEMENT
Risque de perte de la correspondance texte-illustration lors de l'impression papier.

01 Removing transport lock (spring strut locking devices) - as of MY 2005 - as of MY 2005

- General
- Removing spring strut locking devices

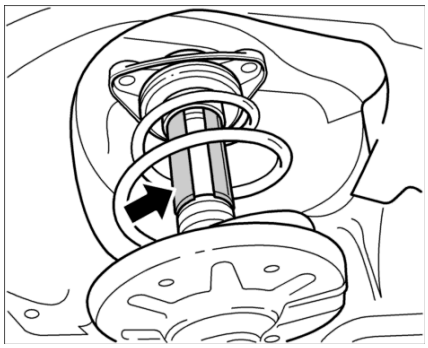
top of page

General

WARNING
Increased risk of accident due to installed spring strut locking devices.

- **Worsening of handling and driving safety.**

Remove spring strut locking devices before a test drive or before the vehicle is handed over to the customer.



Front spring strut locking devices

Note
In order to avoid damage to the floorpan assembly during transport (e.g. during loading and unloading), spring strut locking devices (new version) **-arrow-** are installed in new vehicles on the front axle. This increases the ground clearance of the vehicle.
Depending on the vehicle equipment, the spring strut locking devices are coloured white, yellow, green, blue, red, or orange.
On the rear axle, no spring strut locking devices are necessary.
Do not send removed spring strut locking devices back to Porsche. Dispose of them on-site.

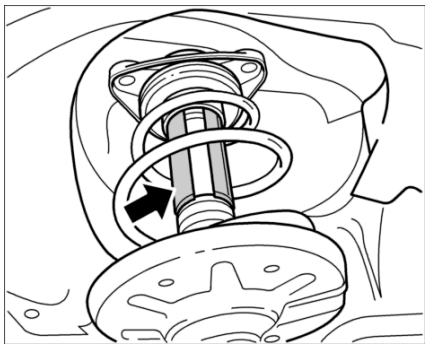
top of page

Removing spring strut locking devices

Note

- *The wheels need not be removed!*

1. Lift the vehicle (wheels at the front axle must be free). *401000 Lifting the vehicle*



Front spring strut locking device

2. Remove the spring strut locking device **-arrow-** . To do this, twist the spring strut locking device until the slot points toward the luggage compartment.
3. Beginning at the lower end, press the spring strut locking device away from the piston rod via the slot and guide it out of the spring.
4. Repeat the procedure on the spring strut.

997110, 997111, 997120, 997121, 997310, 997311, 997320, 997321, 997410, 997411, 997430, 997431, 997610, 997611, 997620, 997621

as of MY 2005
Country C00, C02, C05, C07, C08, C09, C10, C11, C12, C13, C14, C15, C16, C18, C19, C20, C21, C22, C23, C24, C25, C26, C27, C28, C32, C33, C34, C35, C36, C37, C38, C39, C45, C46, C98, C99

WARNUNG

Gefahr des Verlusts der Text-Bild-Zuordnung beim Ausdruck.

- **Aus technischen Gründen kann derzeit nicht ausgeschlossen werden, dass trotz einwandfreier Darstellung auf dem Bildschirm beim Ausdruck der Zusammenhang von Text und zugehörigem Bild verloren geht.**
- **Wird der Fehler nicht bemerkt, besteht die Gefahr, daß Arbeiten nicht korrekt durchgeführt werden und es dadurch zu Personen- und Sachschäden kommt.**

Vergleichen Sie deshalb nach dem Druckvorgang unbedingt die Ausdrucke mit der Bildschirmdarstellung. Korrigieren Sie die Ausdrucke im Fehlerfall so, daß der Inhalt der Bildschirmdarstellung zutreffend wiedergegeben wird.

45 60 Initialising and calibrating steering-angle sensor - as of MY 2005

- General warning notes
- Checking steering-angle sensor
- Adjusting steering-angle sensor

top of page

General warning notes

ATTENTION

Increased risk of accident whever power supply is interrupted. PSM does not function.

The steering-angle sensor must be initialised (taught) whenever the battery is disconnected.

Note

- *The steering-angle sensor is integrated into the steering column switch and records the movements of the steering wheel (steering wheel angle) using light switches. The data is transmitted to the PSM control unit via the CAN bus.*
- *During initialisation, the steering angle sensor learns its current position (straight-ahead position).*
- *The steering-angle sensor must always be initialised if terminal 30 was interrupted (for example, battery replacement, undervoltage, steering column switch disconnected, relevant fuse removed)!*
- *Calibration must be performed when working on or carrying out subsequent work on the chassis. This is described in detail in the next chapter 456005 15 Initialising and calibrating steering-angle sensor - section on "Calibrating".*
- *The calibration results in zero point balancing (exactly straight ahead).*
- *The steering angle sensor is calibrated when first fitted and when any work has been carried out on steering and chassis. Examples of this would be opening the steering wiring and alterations to toe and camber.*
- *Calibration includes initialisation.*

top of page

Checking steering-angle sensor

Initialise steering-angle sensor

1. Turn wheels to straight-ahead position.
2. Start
   engine.
3. From the straight-ahead position, turn steering wheel approx. 20° to the left and 20° to the right (past straight-ahead position).
4. Drive the vehicle straight ahead for at least three seconds at a speed above 6 km/h (3.7 mph).

After successful initialisation, the stored fault code is erased from the fault memory. The PSM indicator light in the instrument cluster goes out.
After initialisation has been completed, the battery must not be disconnected, the relevant fuse must not be removed and there must not be undervoltage. Otherwise, initialisation will have to be carried out again.

top of page

Adjusting steering-angle sensor

Calibrating steering-angle sensor

Note

- *The steering-angle sensor must be recalibrated on the measuring platform following repairs to or work on the chassis/steering or if the steering-angle sensor/steering column switch/hydraulic unit is replaced.*
- *In order to be able to calibrate the steering angle sensor correctly, the vehicle must be on the measuring platform, the wheel alignment values correct and the steering in the straight-ahead position.*
- *The security code is displayed in thePIWIS tester under Menu >> PSM >> Actual values.*

The steering angle sensor must be calibrated using the menu with PIWIS tester under the specified test conditions:

1. Switch on ignition.
2. Turn wheels or steering wheel to straight-ahead position. In the straight-ahead position, the steering wheel must deviate by no more than ± 2.0° from the horizontal position (steering centre position).
3. Before calibrating, first turn the steering wheel from the straight-ahead position approx. 20° to the left and 20° to the right (past straight-ahead position).

4. Turn wheels or steering wheel to straight-ahead position and calibrate the steering-angle sensor. To calibrate, you must enter the security code in the actual values menu.

997110, 997111, 997120, 997121, 997310, 997311, 997320, 997321, 997410, 997411, 997430, 997431, 997610, 997611, 997620, 997621

as of MY 2005
Country C00, C02, C05, C07, C08, C09, C10, C11, C12, C13, C14, C15, C16, C18, C19, C20, C21, C22, C23, C24, C25, C26, C27, C28, C32, C33, C34, C35, C36, C37, C38, C39, C45, C46, C98, C99

WARNUNG

Gefahr des Verlusts der Text-Bild-Zuordnung beim Ausdruck.

- **Aus technischen Gründen kann derzeit nicht ausgeschlossen werden, dass trotz einwandfreier Darstellung auf dem Bildschirm beim Ausdruck der Zusammenhang von Text und zugehörigem Bild verloren geht.**
- **Wird der Fehler nicht bemerkt, besteht die Gefahr, daß Arbeiten nicht korrekt durchgeführt werden und es dadurch zu Personen- und Sachschäden kommt.**

Vergleichen Sie deshalb nach dem Druckvorgang unbedingt die Ausdrucke mit der Bildschirmdarstellung. Korrigieren Sie die Ausdrucke im Fehlerfall so, daß der Inhalt der Bildschirmdarstellung zutreffend wiedergegeben wird.

WARNING

Danger of losing text-figure correspondence when printing out.

- **For technical reasons, it can currently not be ruled out that the correspondence between text and associated figure can be lost when it is printed out, even though the display on the screen is correct.**
- **If the fault is not noticed, there is the danger that work will not be performed correctly which can cause injury and damage.**

Therefore, always compare printouts with the screen display after printing them out. Correct the printouts if they are faulty so that the content of the screen display matches that on the printouts.

AVERTISSEMENT

Risque de perte de la correspondance texte-illustration lors de l'impression papier.

- **Pour des raisons techniques, il ne peut pas être exclu à l'heure actuelle que, même en cas d'affichage correct à l'écran, la correspondance entre le texte et l'illustration puisse être erronée sur l'impression papier.**
- **Si l'erreur passe inaperçue, on court le risque d'exécuter certaines opérations de manière incorrecte pouvant conduire à des dommages corporels et matériels.**

01 Mobile roofs: checking operation - as of MY 2005

- Checking sunroof

top of page

Checking sunroof

Checking sliding roof

1. By operating the tip switch, return to original tilting, opening and closing positions. During operation, check for malfunctions and noises.

997110, 997111, 997120, 997121, 997310, 997311, 997320, 997321, 997410, 997411, 997430, 997431, 997610, 997611, 997620, 997621

as of MY 2005
Country C00, C02, C05, C07, C08, C09, C10, C11, C12, C13, C14, C15, C16, C18, C19, C20, C21, C22, C23, C24, C25, C26, C27, C28, C32, C33, C34, C35, C36, C37, C38, C39, C45, C46, C98, C99

WARNUNG

Gefahr des Verlusts der Text-Bild-Zuordnung beim Ausdruck.

- **Aus technischen Gründen kann derzeit nicht ausgeschlossen werden, dass trotz einwandfreier Darstellung auf dem Bildschirm beim Ausdruck der Zusammenhang von Text und zugehörigem Bild verloren geht.**
- **Wird der Fehler nicht bemerkt, besteht die Gefahr, daß Arbeiten nicht korrekt durchgeführt werden und es dadurch zu Personen- und Sachschäden kommt.**

Vergleichen Sie deshalb nach dem Druckvorgang unbedingt die Ausdrucke mit der Bildschirmdarstellung. Korrigieren Sie die Ausdrucke im Fehlerfall so, daß der Inhalt der Bildschirmdarstellung zutreffend wiedergegeben wird.

WARNING

Danger of losing text-figure correspondence when printing out.

- **For technical reasons, it can currently not be ruled out that the correspondence between text and associated figure can be lost when it is printed out, even though the display on the screen is correct.**
- **If the fault is not noticed, there is the danger that work will not be performed correctly which can cause injury and damage.**

01 Checking exterior equipment and paintwork - as of MY 2005

- Checking exterior equipment and paintwork

top of page

Checking exterior equipment and paintwork

Checking exterior equipment

Note

- *The following items can be checked by simple visual inspection, no assembly work is required.*

Check that the vehicle transport protection has been completely removed and ensure that no film remains in the body joints or under seals.

1. Check vehicle for secure fit of accessories such as trim strips, doors mirrors, front and rear spoilers.
2. Check underbody for noticeable areas where undersealing material is missing (e.g. scrapes).
3. Check lower side member of body flange for deformation of jacking points.
4. Check outer shell of vehicle for noticeable soiling by cavity sealing wax.

Checking paintwork

1. Check outer shell of vehicle for noticeable sheetmetal damage such as dents and bulges.
2. Check painted surfaces of vehicle for noticeable defects such as scores, scratches, notches, scrapes, pores, bubbles or signs that the bodywork is coming through the paint.

997110, 997111, 997120, 997121, 997310, 997311, 997320, 997321, 997410, 997411, 997430, 997431, 997610, 997611, 997620, 997621

as of MY 2005
Country C00, C02, C05, C07, C08, C09, C10, C11, C12, C13, C14, C15, C16, C18, C19, C20, C21, C22, C23, C24, C25, C26, C27, C28, C32, C33, C34, C35, C36, C37, C38, C39, C45, C46, C98, C99

WARNUNG
Gefahr des Verlusts der Text-Bild-Zuordnung beim Ausdruck.

01 Checking glazing - as of MY 2005

- Check glazing

top of page

Check glazing

Check glazing

Note

- *The following items can be checked by simple visual inspection, no assembly work required.*

1. Check whether transport protection has been completely removed and ensure that no film remains in the body joints or under seals.
2. Check vehicle glazing for stone damage and scratches.
3. Check surrounds and rubber sections of vehicle glazing for damage and cracks.

997110, 997111, 997120, 997121, 997310, 997311, 997320, 997321, 997410, 997411, 997430, 997431, 997610, 997611, 997620, 997621

as of MY 2005
Country C00, C02, C05, C07, C08, C09, C10, C11, C12, C13, C14, C15, C16, C18, C19, C20, C21, C22, C23, C24, C25, C26, C27, C28, C32, C33, C34, C35, C36, C37, C38, C39, C45, C46, C98, C99

WARNUNG
Gefahr des Verlusts der Text-Bild-Zuordnung beim Ausdruck.

- **Aus technischen Gründen kann derzeit nicht ausgeschlossen werden, dass trotz einwandfreier Darstellung auf dem Bildschirm beim Ausdruck der Zusammenhang von Text und zugehörigem Bild verloren geht.**
- **Wird der Fehler nicht bemerkt, besteht die Gefahr, daß Arbeiten nicht korrekt durchgeführt werden und es dadurch zu Personen- und Sachschäden kommt.**

Vergleichen Sie deshalb nach dem Druckvorgang unbedingt die Ausdrucke mit der Bildschirmdarstellung. Korrigieren Sie die Ausdrucke im Fehlerfall so, daß der Inhalt der Bildschirmdarstellung zutreffend wiedergegeben wird.

WARNING

01 Checking lid and doors - as of MY 2005

- Checking lid and doors

top of page

Checking lid and doors

Checking lid lock, front and rear

Check that the lid locks engage when the lids (front and rear) are closed by engaging the lock upper parts and that they disengage again when the lid releases are activated.

Checking safety hook, front lid

1. Check that the front lid is held down by the safety hook (locking hook) after the lid lock is opened.
2. Check whether the return spring on the upper part of the lock pulls back the safety hook as far as the stop.

Door lock function test

Check that the door locks engage in two stages when the doors are closed and that they disengage again when the door handles are operated (inside and outside).

Functional check of tank cap lock

Lock the vehicle.
Check that tank cap is locked by the tank cap lock in the closed position.

997110, 997111, 997120, 997121, 997310, 997311, 997320, 997321, 997410, 997411, 997430, 997431, 997610, 997611, 997620, 997621

as of MY 2005
Country C00, C02, C05, C07, C08, C09, C10, C11, C12, C13, C14, C15, C16, C18, C19, C20, C21, C22, C23, C24, C25, C26, C27, C28, C32, C33, C34, C35, C36, C37, C38, C39, C45, C46, C98, C99

WARNUNG

Gefahr des Verlusts der Text-Bild-Zuordnung beim Ausdruck.

- **Aus technischen Gründen kann derzeit nicht ausgeschlossen werden, dass trotz einwandfreier Darstellung auf dem Bildschirm beim Ausdruck der**

48 13 Removing and installing trim panel (steering-column switch) - as of MY 2005

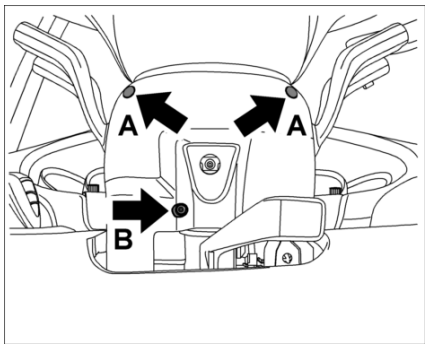
- Removing and installing

top of page

Removing and installing

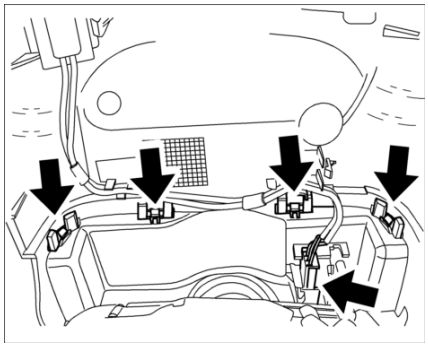
Removing and installing trims

1. Adjust steering wheel to lower position.



Fastening points trims

2. For the top trim panel, unscrew the two Torx screws (T10) **-A-** .



Unclip top trim panel

3. Pull upper trim panel upwards, disconnect plug, remove wiring harness from the guide and unclip leather trim panel **-arrows-** .
4. For removing the lower trim panel, unclip right wiring harness and unscrew the Torx screw (T10) **-B-** .

Install in reverse order. Check wiring harness for correct routing.

997110, 997111, 997120, 997121, 997310, 997311, 997320, 997321, 997410, 997411, 997430, 997431,

03 IN Running gear maintenance: steering gear - visual inspection of bellows and tie rod joints: - as of MY 2005

- Checking

top of page

Checking

Checking bellows

Note

- *The bellows on the steering gear can be damaged by outside influences, for example by stone damage or during assembly work.*
- *The steering gear can become leaky if dirt or moisture enters a leaky bellows.*

– Visually inspect the bellows for damage.

Tie rod ends: check play and dust bellows

1. Lift vehicle *40 Lifting the vehicle*.

Note

- *The rubber dust bellows and tie rods can be damaged by external influences, e.g. stone impact, or during assembly work.*
- *If a rubber dust bellow leaks, the joint or the tie rod must be replaced because any dirt or moisture that seeps in will destroy the joint.*

2. Check play and dust bellows.
3. Check dust bellows and joints are in working order and free of leaks.

997110, 997111, 997120, 997121, 997310, 997311, 997320, 997321, 997410, 997411, 997430, 997431, 997610, 997611, 997620, 997621

03 IN Running gear maintenance: axle joints/drive shafts - as of MY 2005

- Information

top of page

Information

Axle joints: checking play and dust boots

1. Check play.
2. Visually inspect the dust boots for damage.

Note

- *When doing so, the rubber dust boots should be pressed down with the fingers to reveal hidden cracks.*
- *If a rubber dust boot leaks, the corresponding joint or control arm must be replaced, because any dirt or moisture that seeps in will destroy the joint.*

3. Inspect the dust boots of the axle joints (ball joints) on the wheel suspension (front and rear) as follows:

- Place the vehicle on a lifting platform with the steering lock disengaged.
- Perform a visual inspection after cleaning.

Note

- *Over a small area in the vicinity of the brake cover panels, no visual inspection is possible.*
- *Check this area by touch.*

The procedure for the front axle is as follows:

- Turn the front wheels as far as they will go
- Perform a visual inspection of the visible surfaces on the left and right
- After turning the front wheels to the other steering stop, check the other half of each rubber dust boot.

Drive shafts: visual inspection of boots

– Perform a visual inspection of the boots for leaks and damage.

997110, 997111, 997120, 997121, 997310, 997311, 997320, 997321, 997410, 997411, 997430, 997431, 997610, 997611, 997620, 997621

as of MY 2005
Country C00, C02, C05, C07, C08, C09, C10, C11, C12, C13, C14, C15, C16, C18, C19, C20, C21, C22, C23, C24, C25, C26, C27, C28, C32, C33, C34, C35, C36, C37, C38, C39, C45, C46, C98, C99

WARNUNG

Gefahr des Verlusts der Text-Bild-Zuordnung beim Ausdruck.

- **Aus technischen Gründen kann derzeit nicht ausgeschlossen werden, dass trotz einwandfreier Darstellung auf dem Bildschirm beim Ausdruck der Zusammenhang von Text und zugehörigem Bild verloren geht.**
- **Wird der Fehler nicht bemerkt, besteht die Gefahr, daß Arbeiten nicht korrekt durchgeführt werden und es dadurch zu Personen- und Sachschäden kommt.**

Vergleichen Sie deshalb nach dem Druckvorgang unbedingt die Ausdrucke mit der Bildschirmdarstellung. Korrigieren Sie die Ausdrucke im Fehlerfall so, daß der Inhalt der Bildschirmdarstellung zutreffend wiedergegeben wird.

WARNING

Danger of losing text-figure correspondence when printing out.

- **For technical reasons, it can currently not be ruled out that the correspondence between text and associated figure can be lost when it is printed out, even though the display on the screen is correct.**
- **If the fault is not noticed, there is the danger that work will not be performed correctly which can cause injury and damage.**

Therefore, always compare printouts with the screen display after printing them out. Correct the printouts if they are faulty so that the content of the screen display matches that on the printouts.

AVERTISSEMENT

Risque de perte de la correspondance texte-illustration lors de l'impression papier.

- **Pour des raisons techniques, il ne peut pas être exclu à l'heure actuelle que, même en cas d'affichage correct à l'écran, la correspondance entre le texte et l'illustration puisse être erronée sur l'impression papier.**
- **Si l'erreur passe inaperçue, on court le risque d'exécuter certaines opérations de manière incorrecte pouvant conduire à des dommages corporels et matériels.**

50 IN Processing structural body adhesive - as of MY 2005

- Tools and materials
- Information on the use of structural adhesives in vehicle construction
- Processing adhesives
- Handling primer
- Handling processing devices

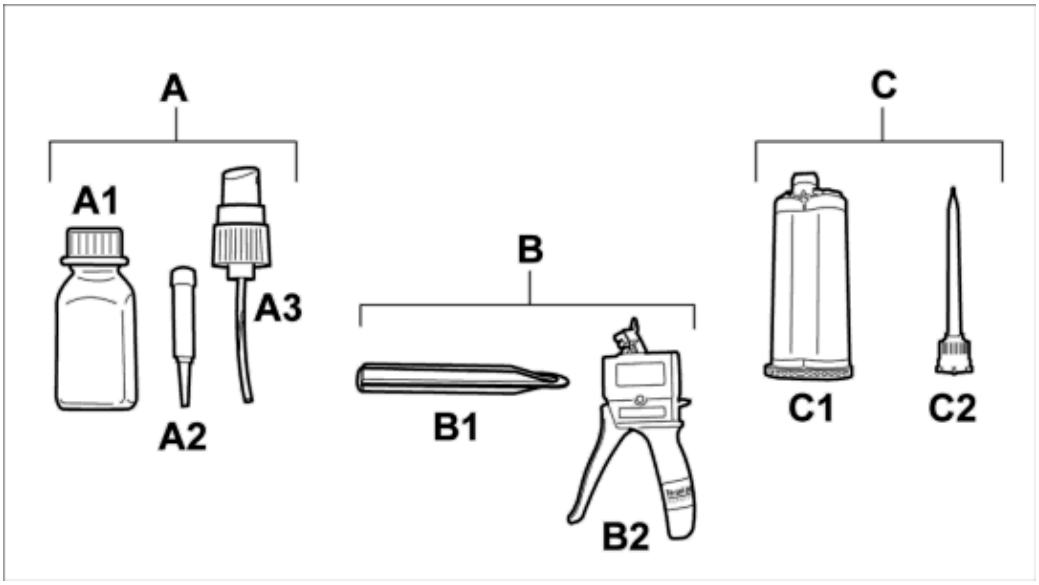
Tools

Designation	Type	Number	Explanation	
Primer	commercially available tool			

top of page

Tools and materials

Processing structural body adhesive



Tools and materials for structural bonding

Item	Designation	Source	Explanation
-A-	**Primer**	"See Parts Catalogue in Main Group 8 "	
-B-	**Processing gun**	"See Parts Catalogue in Main Group 8 "	
-C-	**Betamate 2096 adhesive set**	"See Parts Catalogue in Main Group 8 "	

Item	Designation	Item	Designation
-B1-	Piston rod	**-C1-**	Double cartridge
-B2-	Gun grip	**-C2-**	Processing nozzle

top of page

Information on the use of structural adhesives in vehicle construction

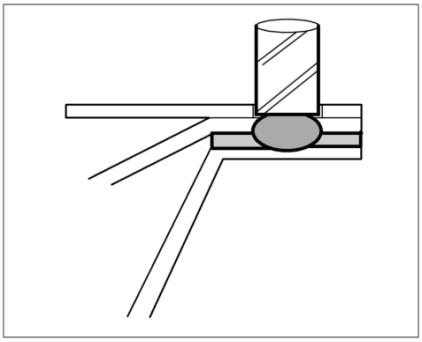
General

Structural bonding in the body shell means that the adhesive assumes functions of stiffness, crash strength and endurance strength, whereby the characteristics of the body shell are positively influenced in a significant way. In a conventional steel body shell, use is made of a high-strength, heat-hardening single-component epoxy resin adhesive that fully hardens in the cathodic immersion paint drying oven. In the case of a repair, this adhesive is replaced by a cold-hardening two-component epoxy resin adhesive, since the hardening temperatures necessary for the single-component epoxy resin adhesive are not conceivable on an assembled vehicle. For both series production of bodies-in-white and repair, structural bonded joints are regularly used in combined jointing processes.

Resistance spot-welding combined with adhesive bonding and mechanical jointing processes

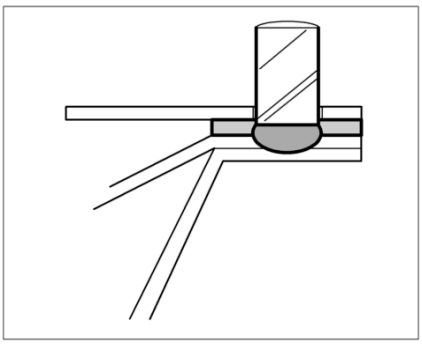
In the case of spot weld bonding for repair and series production, the entire extent of adhesive surfaces and spot welds is replaced. In this case, before actually spot weld bonding, the unhardened adhesive must be displaced from the joint area by an appropriate squeeze time. In the case of two-component adhesives, the hardening reaction starts immediately after mixing and application; this increases the viscosity and so there is only a certain time window in which spot weld bonding can be performed if the process is to be reliable. For this reason, all time-intensive preliminary work (drilling, cutting to size, fixing etc.) on the parts to be joined must be performed before application of adhesive and jointing. This also applies to mechanical jointing processes where the adhesive has to be displaced from the joint area.

Separating body components



Separating body components

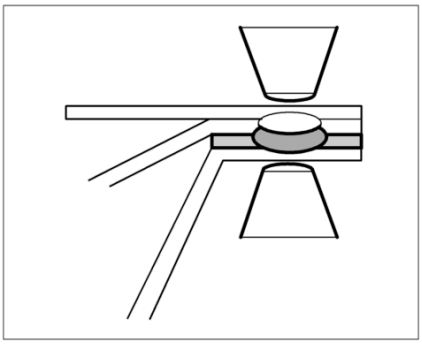
In the case of 3-layer spot-welded panel joints with a hardened bonded layer in which only the outer panel needs to be replaced, drill the outer panel in the area of the spotwelds sufficiently well without damaging the spotweld and bonded joint in the second component layer.



Separating bonded body components

In the case of 3-layer spot-welded panel joints with a hardened bonded layer on the outer panel, drill the outer panel in the area of the spotwelds sufficiently well without damaging the spotweld in the second component layer. After removing the loosened body part, old adhesive must be removed and any uneven spots sanded down. The flange area must then be pre-treated for bonding.

Welding in body components



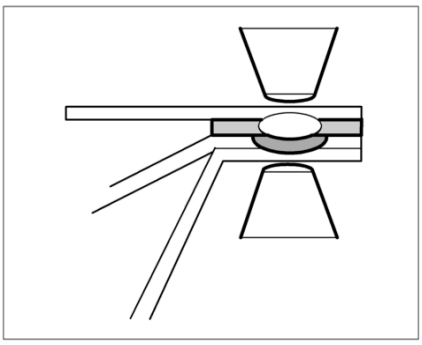
Spot-welding body components

Note

- *In areas in which bonded flanges are spot-welded in an unhardened state, suction devices must be used due to combustion products.*
- *Areas that can only be accessed from one side must be joined with MAG plug-welds or MAG welded seams. In these cases, no adhesive can be used in the vicinity of the welded seam because this would burn and would have a negative effect on the joint.*
- *The areas without adhesive must be protected using appropriate anti-corrosion and sealing measures.*

Once the spare parts have been attached, repair spotwelds must be placed on the old spotwelds because there

is no current flow possible in areas with a hardened bonded layer. Welding procedures other than resistance spot-welding are not permitted since the thermal effect would destroy the bonded joint over a wide area.



Spot-welding body components

top of page

Processing adhesives

ATTENTION

Danger of poisoning and injury when handling adhesive!

- **Danger of poisoning from breathing in vapours or from swallowing adhesive.**
- **Risk of injury due to contact with skin or eyes.**

Ventilate the work area well.

Do not eat, drink, or smoke while carrying out work.

Avoid direct contact with eyes and skin. Wear suitable protective equipment, such as protective clothing, gloves, and if necessary, a protective mask.

If clothing is soiled with adhesive, change clothing immediately and only use again after they have been cleaned.

Also observe the product-specific processing and safety instructions on the packing container and packing container imprints.

In case of eye contact: Rinse eyes immediately and thoroughly with lukewarm running water and consult an eye doctor.

In case of skin contact: Rinse contacted skin areas immediately with lukewarm running water and soap.

If adhesive is swallowed: Rinse mouth and consult a doctor.

Note

- *Bonding surfaces must be free from oil, old adhesive, dirt, moisture, and layers of paint and oxide.*
- *Body structural adhesive and primer must only be used on bare metal parts.*

- *Ensure that clean gloves are worn when touching cleaned surfaces to avoid transferring sweat from the hands and dirt onto the bonding area.*

- *The jointing operation must take place directly after application of the adhesive in order to guarantee a high quality and reliable bond. Otherwise the adhesive bead must be removed, with pre-treatment of the surface and application of the adhesive being repeated.*

- *After adhesive has hardened, carefully prime accessible bonding areas and seal with body sealant. Protect bonding areas in cavities with cavity preservation against corrosion.*

Preparing adhesive flanges
To improve adhesion, the bonding surfaces must be roughened using sandpaper with a grain of 100 to 150. Remove paint layers (cathodic immersion painting) using dry sandpaper or fibre discs with a grain of 100 to 150. The bare bonding surface must then be cleaned with a lint-free cloth soaked in acetone. Leave cleaned areas to dry for approx. 1 - 2 minutes; bonding surfaces must be completely dry. Apply primer to the cleaned surfaces. 2-K-SIP
Bonding operation
Minimum ambient and material temperature during working and hardening is 18° C. The coating thickness of approx. 1 mm should not be exceeded; if necessary, spread the mixed adhesive on the bonding surface with a spatula. Areas not covered by cathodic immersion painting and exposed body panels in cavities must be brushed or filled with structural adhesive.
Jointing operation
Join, fix and resistance spot-weld parts within the working time. The jointing operation must take place directly after application of the adhesive in order to guarantee a high quality and reliable bond. Otherwise the adhesive bead must be removed, with pre-treatment of the surface and application of the adhesive being repeated.
Remove excess material
Remove most of the excess material with paper or cloth. Finish cleaning visible surfaces with a cloth soaked in acetone. Hardened material can only be removed mechanically.
Hardening
The body structural adhesive used hardens at room temperature. Hardening can be accelerated by heat (e.g. with an infra-red radiator in a painting booth). Do not load bonded parts until hardening is complete.

	Betamate 2096 adhesive set
Initial strength at 23 °C	Approx. 10 h 1)
Initial strength at 60 °C	Approx. 2 h 1)
Hardening time at room temperature (23 °C)	Approx. 170 h

1) After this time assembly work is permitted

Corrosion protection
After adhesive has hardened, carefully prime accessible bonding areas and seal with body sealant. Protect bonding areas in cavities with cavity preservation against corrosion.
Further work on the vehicle
The time from joining the repaired components to handing over the vehicle to the customer must be at least 48 hours. After repairs with adhesive, allow at least ten hours before moving or carrying out further work on the vehicle (leave standing overnight) to avoid damage to the bonded joint by premature loading.

Disposal
Small amounts remaining after mixing and complete hardening may be disposed of as industrial waste.
Dispose of used acetone-soaked cleaning cloths as special-category waste.

top of page

Handling primer

General

For processing during body repairs, the following primer system is recommended by Porsche AG.

2-component SIP

ATTENTION
Adhesion of the bonded joint will be impaired if the primer is not processed correctly.

Process mixed primer within eight hours; do not keep any leftover primer.
The adhesive flange must be coated thinly and evenly with primer. Remove excess material.
Protect primed surfaces from soiling.

Note

- *Primed surfaces can be stored in the open for a maximum of three days before undergoing further processing. When doing so, make sure that the surfaces are not soiled by the surrounding environment. After standing in the open for more than three days, the primer must be removed and reapplied. For this reason, body parts must be stuck immediately after the primer has been applied.*

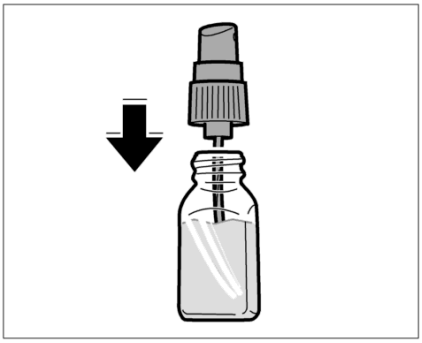
1. Prepare adhesive flange for sticking. (see Processing adhesives)

Opening bottle

2. Open bottle for component A.

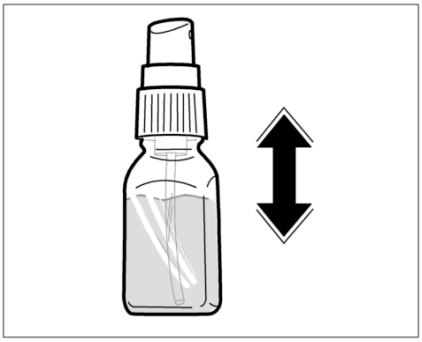
Filling with component B

3. Fill bottle completely with component B.



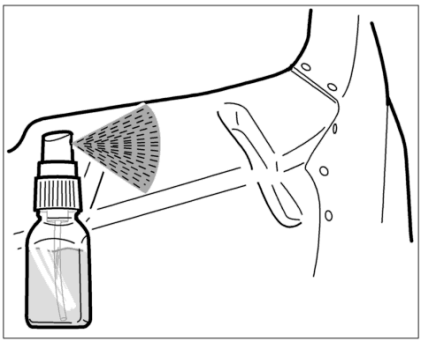
Screwing on spray head

4. Screw on spray head.



Mixing components

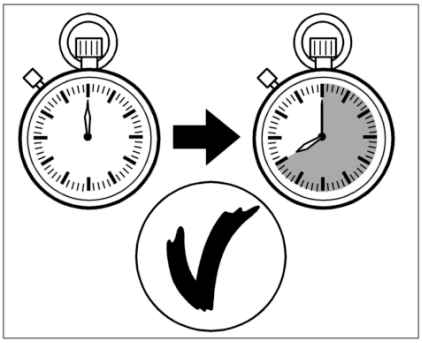
5. Mix components together by shaking vigorously.
6. Clean adhesive flange with isopropanol and allow it to flash off.



Applying primer

7. Spray on primer in the area around the adhesive flange.

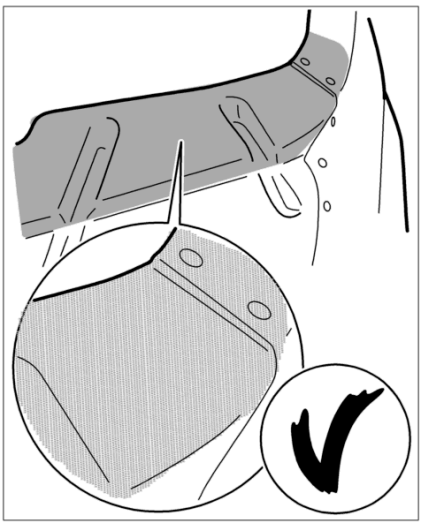
7.1. Process mixed primer within eight hours; do not keep any leftover primer.



Working time of 2-component SIP

8. Check primer application.

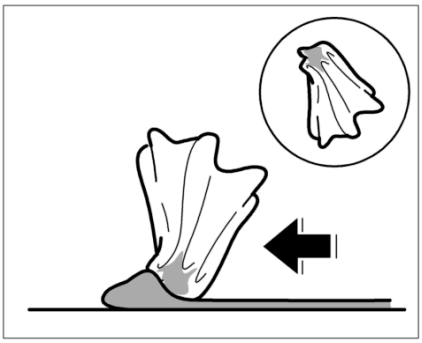
Adhesive flanges are coated evenly with primer:



Primer application OK

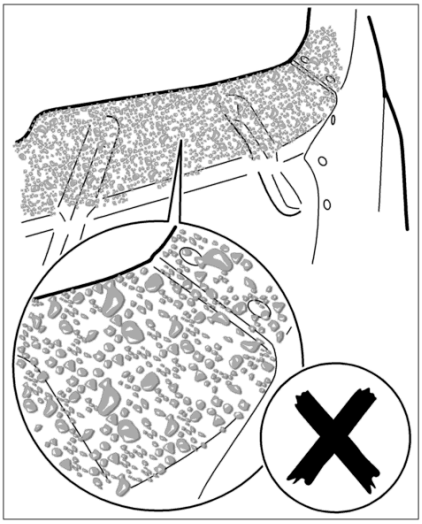
result is OK.

Remove excess primer with a clean, dry cloth.



Removing excess primer

A thin, violet-coloured coating of primer is sufficient for the adhesive flanges.
Adhesive flanges are not evenly coated (droplet formation):
result is not OK.



Primer application incorrect

Using wet sandpaper (approx. 200 grit) or a sanding fleece, rub the primer film, which is still damp, around the flange area until an even application of primer is achieved. If an even application of primer is not obtained, the adhesive flange must be completely cleaned, sanded and primed once again.

9. Dry primer.

9.1. Allow primer to flash off; it must be dust-dry before any adhesive is applied.

Location	Explanation	Type	Basic value	Tolerance 1	Tolerance 2
Primer		Flash-off time	5 min		

10. Process adhesive.

top of page

Handling processing devices

Processing nozzle

ATTENTION

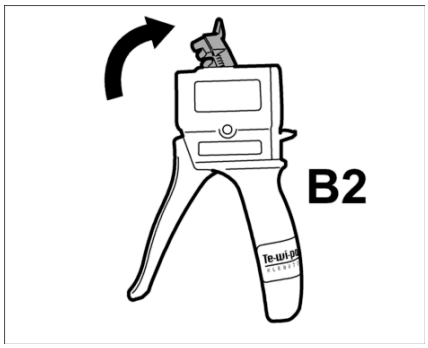
Observe the safety instructions of the individual adhesive set components.

Note

- *In addition to this manual, observe the relevant job descriptions for body repairs!*

Note

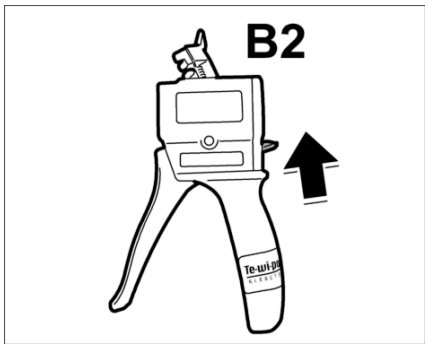
- *In addition to this manual, observe the relevant job descriptions for body repairs!*



Releasing holder

1. Open holder.

1.1. Release holder **-arrow-** and fold up.



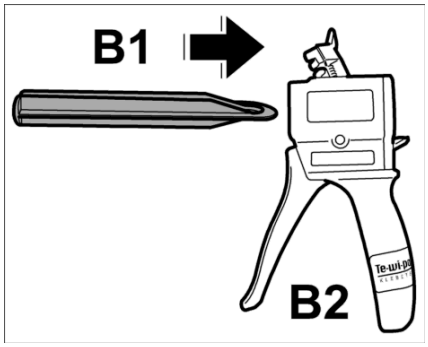
Pressing sliding lock

2. Press sliding lock upwards

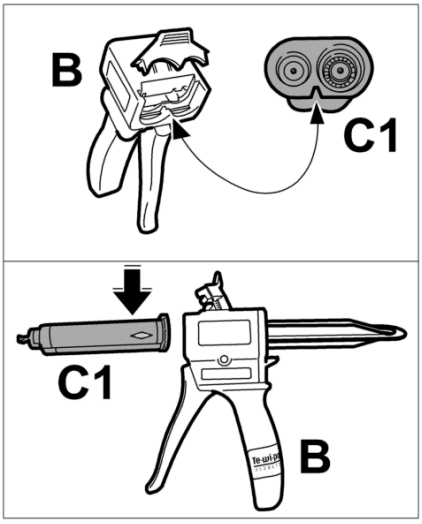
2.1. Press sliding lock upwards in direction of arrow **-arrow-** .

3. Insert piston rod.

3.1. Hold sliding lock pressed and insert piston rod **-B1-** completely into the gun grip **-B1-** .



Inserting piston rod



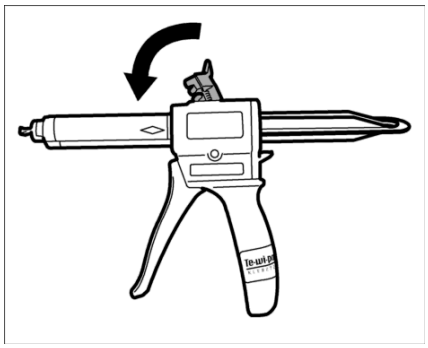
Inserting cartridge

4. Insert mixing cartridge.

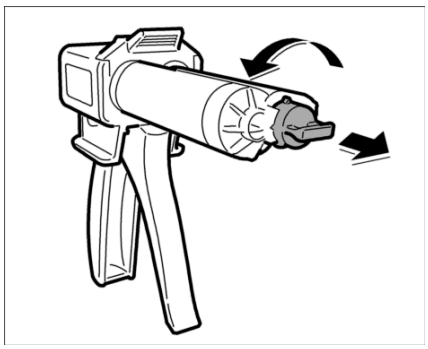
4.1. Insert double cartridge **-C1-** into the gun **-B-** from above. Insert the cartridge until the muzzle of the gun engages in the groove of the cartridge.

5. Engage holder.

5.1. Swivel holder downward and engage on handle of gun.



Engaging holder



Opening cartridge

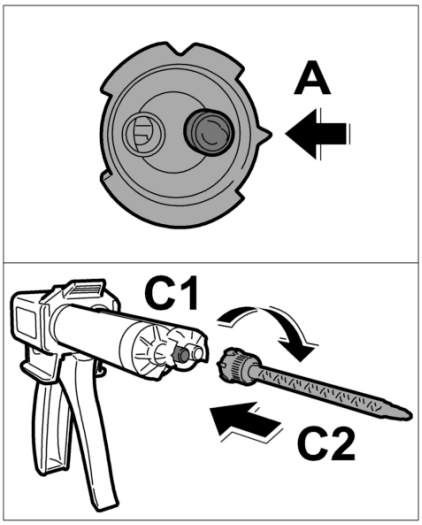
6. Open cartridge.

6.1. Turn screw cap 90 ° counter-clockwise and remove.

7. Squeeze adhesive to the front.

7.1. By activating the valve of the gun grip, allow the piston rod to move out slowly until both components emerge equally.

7.2. Wipe off any adhesive that emerges.



Fitting processing nozzle

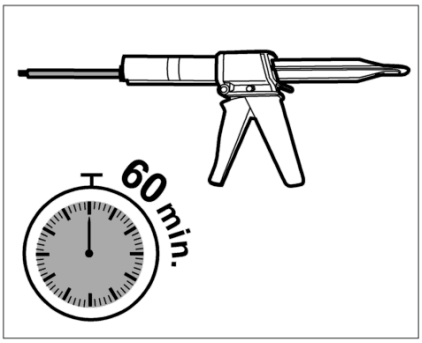
8. Fit processing nozzle.

8.1. Before fitting the processing nozzle, ensure that the muzzle **-A-** and the mixing channels are aligned on one level, if necessary turn the bayonet locking mechanism on the processing nozzle through 90°.

8.2. Position processing nozzle **-C2-** and turn clockwise 90°.

9. Mix adhesive components.

9.1. By activating the valve of the gun grip, allow the piston rod to move out slowly until the adhesive is visible in the processing pipe.



Working time of structural adhesive

10. Bond the body part.

Note

- *In order to ensure that the substance is completely mixed, apply a 30 mm long adhesive bead of fresh adhesive to a piece of cardboard before processing.*
- *Process the adhesive within the processing period. The adhesive must be applied and the body part must be jointed within this period. Any resistance welding to be carried out in the area of the bonding must be performed within this period as well.* ***Working time: 60 min***
- *Do not load bonded parts until hardening is complete!*
- *If the contents of the cartridge are not used up completely, the processing nozzle must be kept on the cartridge until the adhesive hardens. In the event of later processing, a new processing nozzle must be used.*

10.1.

997110, 997111, 997120, 997121, 997310, 997311, 997320, 997321, 997410, 997411, 997430, 997431, 997610, 997611, 997620, 997621

as of MY 2005
Country C00, C02, C05, C07, C08, C09, C10, C11, C12, C13, C14, C15, C16, C18, C19, C20, C21, C22, C23, C24, C25, C26, C27, C28, C32, C33, C34, C35, C36, C37, C38, C39, C45, C46, C98, C99

WARNUNG

Gefahr des Verlusts der Text-Bild-Zuordnung beim Ausdruck.

- **Aus technischen Gründen kann derzeit nicht ausgeschlossen werden, dass trotz einwandfreier Darstellung auf dem Bildschirm beim Ausdruck der Zusammenhang von Text und zugehörigem Bild verloren geht.**
- **Wird der Fehler nicht bemerkt, besteht die Gefahr, daß Arbeiten nicht korrekt durchgeführt werden und es dadurch zu Personen- und Sachschäden kommt.**

Vergleichen Sie deshalb nach dem Druckvorgang unbedingt die Ausdrucke mit der Bildschirmdarstellung. Korrigieren Sie die Ausdrucke im Fehlerfall so, daß der Inhalt der Bildschirmdarstellung zutreffend wiedergegeben wird.

01 Checking vehicle equipment for completeness - as of MY 2005

- Checking vehicle equipment for completeness
- Tools and materials

top of page

Checking vehicle equipment for completeness

Ensure that vehicle equipment is complete for Carrera and Carrera S

Designation	Number	Restriction	Position in the vehicle
Warning triangle	1x	Europe only	Luggage compartment
Emergency kit	1x	Germany only	Luggage compartment
Set of vehicle keys	1x	Standard	Spare key inside luggage compartment
Torch and torch holder	1x	Japan only	
On-board information folder containing technical information Guarantee and Maintenance booklet 1) Driver's manual for vehicle, PCM/CDR, 2) Navigation CD 3)	1x	Standard	Glove compartment
Vehicle tool kit	1x	Standard	Luggage compartment
Compressor	1x	Standard	Luggage compartment
Sealant bottle for tyres	1x	Standard	Luggage compartment

1) Except for German-speaking countries, the on-board information folder containing technical information (Driver's Manual and Guarantee and Maintenance booklet) must be supplied by the dealer or importer.
2) The PCM/CDR manual must be supplied by the dealer or importer in all non-German-speaking countries.
3) The navigation CD must be supplied by the dealer or importer in the U.S.

top of page

Tools and materials

Tools

Designation	Number	Limitations	Position in the vehicle
Open-ended wrench 10x13	1x	Standard	Vehicle tool kit inside luggage compartment
Screwdriver	1x		
Socket wrench for fitting main headlight	1x		
Towing eye	1x	Standard	Luggage compartment
Socket for security wheel bolts	1x		
Allen key for emergency operation of sliding roof panel	1x	Vehicles with sliding roof	Underneath the tilting/sliding roof drive cover

---

997110, 997111, 997120, 997121

as of MY 2005
Country C00, C02, C05, C07, C08, C09, C10, C11, C12, C13, C14, C15, C16, C18, C19, C20, C21, C22, C23, C24, C25, C26, C27, C28, C32, C33, C34, C35, C36, C37, C38, C39, C45, C46, C98, C99

WARNUNG

Gefahr des Verlusts der Text-Bild-Zuordnung beim Ausdruck.

- **Aus technischen Gründen kann derzeit nicht ausgeschlossen werden, dass trotz einwandfreier Darstellung auf dem Bildschirm beim Ausdruck der Zusammenhang von Text und zugehörigem Bild verloren geht.**
- **Wird der Fehler nicht bemerkt, besteht die Gefahr, daß Arbeiten nicht korrekt durchgeführt werden und es dadurch zu Personen- und Sachschäden kommt.**

Vergleichen Sie deshalb nach dem Druckvorgang unbedingt die Ausdrucke mit der Bildschirmdarstellung. Korrigieren Sie die Ausdrucke im Fehlerfall so, daß der Inhalt der Bildschirmdarstellung zutreffend wiedergegeben wird.

WARNING

Danger of losing text-figure correspondence when printing out.

- **For technical reasons, it can currently not be ruled out that the correspondence between text and associated figure can be lost when it is printed out, even though the display on the screen is correct.**
- **If the fault is not noticed, there is the danger that work will not be performed correctly which can cause injury and damage.**

Therefore, always compare printouts with the screen display after printing them out. Correct the printouts if they are faulty so that the content of the screen display matches that on the printouts.

01 Removing transport protection - as of MY 2005

- Removing transport lock (spring strut locking devices) - as of MY 2005
- Removing main switch for power supply
- Information

Removing external transport protection

– **Installation position:**front lid
– 1. **Material:**PP film, white
– **Installation position:**roof
– 1. **Material:**PP film, white
– **Installation position:**left and right wing
– 1. **Material:**PP film, white
– **Installation position:**left and right side section
– 1. **Material:**PP film, white
– **Installation position:**left and right door
– 1. **Material:**PP film, white
– **Installation position:**left and right door
– 1. **Material:**PE profile strip
– **Installation position:**front spoiler
– 1. **Material:**PE profile strip
– **Installation position:**rims
– 1. **Material:**PVC EVA film
1. **Installation position:**engine compartment air cleaner housing
1.1. **Material:**PP film, blue

Removing internal transport protection

– **Installation location:** Seats (front)
– 1. **Material:**PE film covering
– **Installation location:** Inner sill
– 1. **Material:**IKS adhesive tape, blue
– **Installation location:** Inner side member
– 1. **Material:**Polypropylene film
– **Installation location:** Lower door trim panel
– 1. **Material:** Transparent film, red
– **Installation location:** Footwell
– 1. **Material:** Cardboard protection

top of page

Removing transport lock (spring strut locking devices) - as of MY 2005

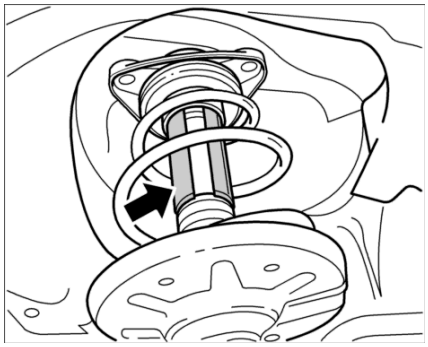
General information on removing the transport arrangement (spring strut locking device)

WARNING

Increased risk of accident due to installed spring strut locking devices.

- **Worsening of handling and driving safety.**

Remove spring strut locking devices before a test drive or before the vehicle is handed over to the customer.



Front spring strut locking devices

Note

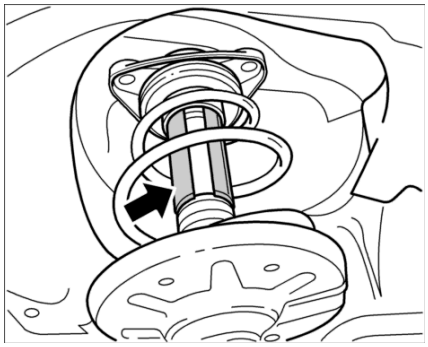
In order to avoid damage to the floorpan assembly during transport (e.g. during loading and unloading), spring strut locking devices (new version) **-arrow-** are installed in new vehicles on the front axle. This increases the ground clearance of the vehicle.
Depending on the vehicle equipment, the spring strut locking devices are coloured white, yellow, green, blue, red, or orange.
On the rear axle, no spring strut locking devices are necessary.
Do not send removed spring strut locking devices back to Porsche. Dispose of them on-site.

Removing spring strut locking devices

Note

- *The wheels need not be removed!*

1. Lift the vehicle (wheels at the front axle must be free). *401000 Lifting the vehicle*



Front spring strut locking device

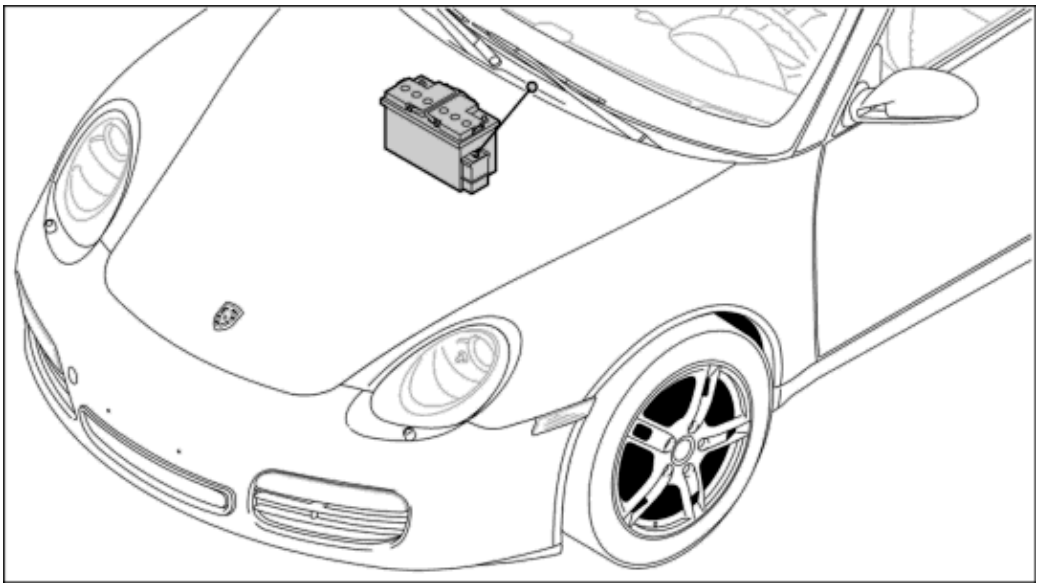
2. Remove spring strut locking device **-arrow-** . To do this, twist the spring strut locking device until the slot points toward the luggage compartment.
3. Beginning at the lower end, press the spring strut locking device away from the piston rod via the slot and guide it out of the spring.
4. Repeat the procedure on the spring strut.

top of page

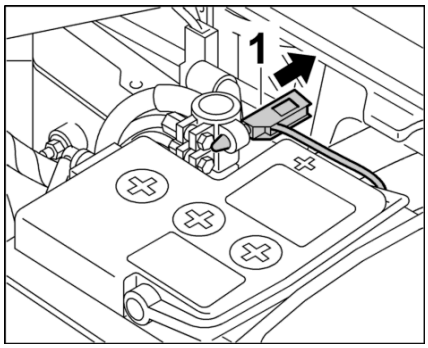
Removing main switch for power supply

Removing main power supply switch

Installation Location:

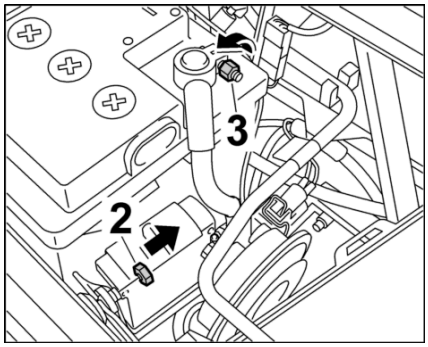


Installation position



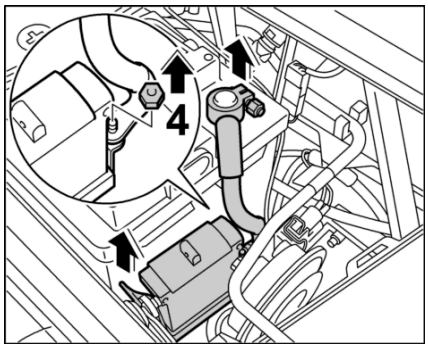
Plug for the main switch

1. Pull off the B+ plug **-1-** for the main switch (battery disconnect switch) from the battery positive terminal.



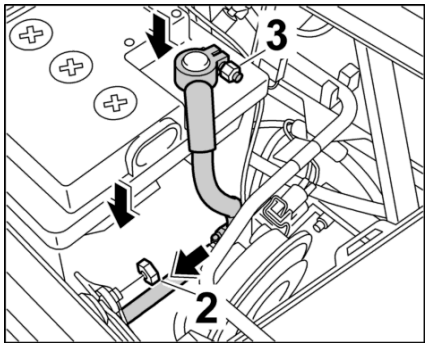
Unscrewing the ground point

2. Unscrew the fastening nut **-2-** for the ground point on the body and disconnect the negative terminal **-3-** from the battery.
3. Cover the negative terminal on the battery with a soft, dry cloth.



Removing the battery disconnect switch

4. Remove battery disconnect switch together with the lead for the negative terminal and unscrew the fastening nut **-4-** . Remove lead for the negative terminal.



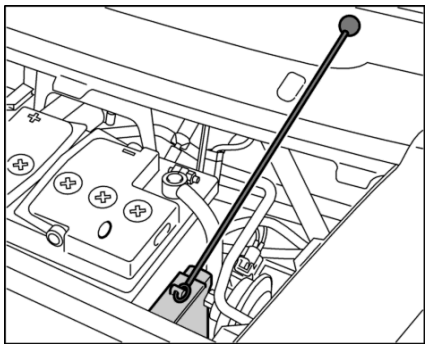
Routing and securing lead for negative terminal

5. Position lead for the negative terminal on the battery again and screw it firmly into place **-3-** .
   Tightening torque: 3.5 ftlb.
6. Position lead for the negative terminal on the bulkhead and secure with the fastening nut **-2-** .
   Tightening torque: 11 ftlb.
7. Place and fit the battery cover included with the vehicle.
8. Carry out *271000 Work instructions after disconnecting the battery*.

top of page

Information

Vehicle electrical system - switching on

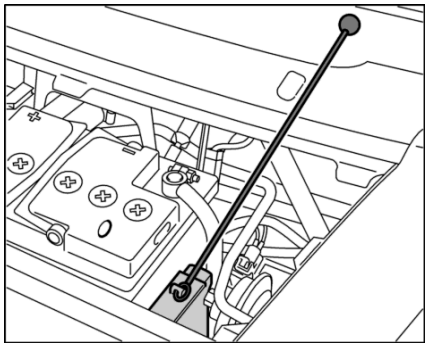


Battery disconnect switch with external switch lever

The battery disconnect switch, which is supplied via the positive terminal, is closed manually using the external switch lever and locked electromagnetically. The luggage compartment lid must not be open when doing this.

Vehicle electrical system - switching off

The vehicle electrical system switches off:
If the battery voltage falls below 12.6 V for approx. 10 min.
Immediately, if the voltage supply of the main power supply switch (battery disconnect switch) is disconnected from the positive terminal.



Vehicle electrical system - switching off

Immediately, if the main power supply switch (battery disconnect switch) is mechanically released.

997110, 997111, 997120, 997121, 997310, 997311, 997320, 997321, 997410, 997411, 997430, 997431, 997610, 997611, 997620, 997621

as of MY 2005
Country C00, C02, C05, C07, C08, C09, C10, C11, C12, C13, C14, C15, C16, C18, C19, C20, C21, C22, C23, C24, C25, C26, C27, C28, C32, C33, C34, C35, C36, C37, C38, C39, C45, C46, C98, C99

WARNUNG

Gefahr des Verlusts der Text-Bild-Zuordnung beim Ausdruck.

- **Aus technischen Gründen kann derzeit nicht ausgeschlossen werden, dass trotz einwandfreier Darstellung auf dem Bildschirm beim Ausdruck der**

97 IN Measurement of closed-circuit current - as of MY 2005

- Tools and materials
- Measurement of closed-circuit current

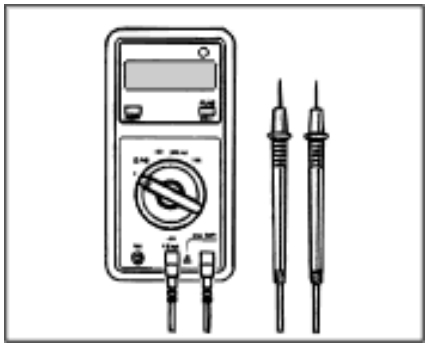
Tools

Designation	Type	Number	Explanation	
Multimeter	commercially available tool	155		PORSCHE siehe Handbuch Werkstattausrüstung Voir le Manuel Equipement d´atelier Refer to the Workshop Equipment manual Vease Manual de Equipamiento de Taller Vedere il Manuale dell´attrezzatura d´officina ワークショップ・イクイップメント・マニュアルを参照

top of page

Tools and materials

Tools



Closed-circuit current should be measured using an analogue ammeter or a digital multimeter with a long integration time (to filter out voltage peaks).

Item	Special tool designation	Explanation
-1-	**Multimeter 155**	"Gr. 2,5; Workshop Equipment Manual "

top of page

Measurement of closed-circuit current

Preliminary work on vehicle

Note

Before measuring the closed-circuit current, determine the vehicle equipment (I numbers) and establish the expected closed-circuit current with the aid of the attached table.

1. Open the front luggage compartment.
2. Using a suitable tool, e.g. upper part of lock with a suitable handle, close lower part of luggage compartment lock while keeping the luggage compartment lid open.
3. Remove ignition key, close doors and rear lid, **do not lock** vehicle.
4. Set the measuring instrument to the highest possible current-measuring range.
5. With two alligator clips, connect the measuring instrument to the battery ground and to the unoccupied second body ground which is always available for RHD or LHD.
6. Remove ground strap from the body and secure against contact with the body. The entire vehicle current now flows through the ammeter.

Testing

Select a measuring range which ensures that the pointer of the instrument is in the upper third of the scale, as far as possible. Switch over measuring range without interruption. Read off the measuring values after the waiting period specified in the table.
Do not switch on any electrical loads when measuring.

Note

- *If the value of the closed-circuit current is higher than the value determined in the table, the cause must be established systematically.*
- *Recommended troubleshooting procedure: With the measuring device connected, remove the fuses of terminal 30 and the relays successively. Observe the display values of the measuring instrument when removing in order to recognise a reduction in current.*
- *After troubleshooting, screw the ground strap back onto the body in the proper manner.*
- *The measured values could vary by approx. 20%.*
- *The values listed in the table depend on the condition of the battery, the room temperature and the engine temperature.*

Reading off the measuring range:
Read off the measuring range only after at least 60 minutes have passed since locking the vehicle.

From	to	mA
Approx. 60 min	until battery is empty	up to approx.

Control unit	Equipment	Closed-circuit current in mA	System reaches closed-circuit current after X sec
Generator	Standard	0.3	instantaneous
DME	Standard	0.31	66
Instrument cluster	Standard	1.75	958
Driver ID/PAS	Standard	0.8	223
Passenger compartment sensor	I No.	1.93	60
Tilt sensor	I No.	1.15	instantaneous
Door control unit, right	Standard	0.1	221
Door control unit, left	Standard	0.1	221
Tiptronic*	I No.	0.4	
On-board control unit	Standard	0.41	226
PSM	Standard	0.1	61
Front end control unit	Standard	0.52	226
CD changer	I No.	0.25	80
Bose amplifier	I No.	0.47	226
Navi DVD	I No.	3.18	117
ASK sound package	I No.	0.1	
PCM	I No.	0.59	308
Telephone	I No.	0.15	104
Seat memory, both	I No.	0.15	221
Air-conditioning control unit	Standard	0.1	3506
Ignition lock	Standard	0.1	instantaneous
Gateway control unit	Standard	0.1	308
Rear control unit	Standard	1.27	222
Steering column module	Standard	0.71	221
Fan control unit	Standard	0.1	instantaneous
PASM	I No.	0.1	62
RDK (tyre pressure monitoring system)	I No.	0.12	221
Sport Chrono	I No.	0.1	308
Alarm siren	I No.	0.2	

Total current	**calculated**	**15.66**	
Total current	**max.**	**20**	**after 60 minutes**

997110, 997111, 997120, 997121, 997310, 997311, 997320, 997321, 997410, 997411, 997430, 997431, 997610, 997611, 997620, 997621

as of MY 2005
Country C00, C02, C05, C07, C08, C09, C10, C11, C12, C13, C14, C15, C16, C18, C19, C20, C21, C22, C23, C24, C25, C26, C27, C28, C32, C33, C34, C35, C36, C37, C38, C39, C45, C46, C98, C99

WARNUNG

Gefahr des Verlusts der Text-Bild-Zuordnung beim Ausdruck.

- **Aus technischen Gründen kann derzeit nicht ausgeschlossen werden, dass trotz einwandfreier Darstellung auf dem Bildschirm beim Ausdruck der Zusammenhang von Text und zugehörigem Bild verloren geht.**
- **Wird der Fehler nicht bemerkt, besteht die Gefahr, daß Arbeiten nicht korrekt durchgeführt werden und es dadurch zu Personen- und Sachschäden kommt.**

Vergleichen Sie deshalb nach dem Druckvorgang unbedingt die Ausdrucke mit der Bildschirmdarstellung. Korrigieren Sie die Ausdrucke im Fehlerfall so, daß der Inhalt der Bildschirmdarstellung zutreffend wiedergegeben wird.

WARNING

Danger of losing text-figure correspondence when printing out.

- **For technical reasons, it can currently not be ruled out that the correspondence between text and associated figure can be lost when it is printed out, even though the display on the screen is correct.**
- **If the fault is not noticed, there is the danger that work will not be performed correctly which can cause injury and damage.**

Therefore, always compare printouts with the screen display after printing them out. Correct the printouts if they are faulty so that the content of the screen display matches that on the printouts.

AVERTISSEMENT

Risque de perte de la correspondance texte-illustration lors de l'impression papier.

- **Pour des raisons techniques, il ne peut pas être exclu à l'heure actuelle que, même en cas d'affichage correct à l'écran, la correspondance entre le texte et l'illustration puisse être erronée sur l'impression papier.**
- **Si l'erreur passe inaperçue, on court le risque d'exécuter certaines opérations de manière incorrecte pouvant conduire à des dommages corporels et matériels.**

70 IN Notes for the care of soft-look paint surfaces - as of MY 2005

- Light soiling (e.g. dust)
- Information

ATTENTION

Risk of damage to the soft-look paint coat if the cleaning agents or solvents available as accessories for cleaning the vehicle interior are used. This also applies to the use of plastic polish from the Tequipment care set. The contents of these agents etch the paint coat (paint swells, rubber-like texture).

- **Consequently, the paint coat can separate from the substrate when a mechanical load is applied. Furthermore, the surface may shine brightly after using the cleaning agents.**

The following procedure is recommended for the care or cleaning of soft-look paint surfaces.

top of page

Light soiling (e.g. dust)

It is possible to clean light soiling by selecting an option from the following cleaning tools and cleaning fluids:

Cleaning tools	Cleaning fluid	Cleaning procedure
Soft household sponge	Clear water	Gentle wiping movements, do not apply pressure
Soft, lint-free cloth	Water with small amount of commercially available washing-up liquid added	
	Interior window cleaner (from Porsche care set) Note Observe cleaning instructions, wipe down with clear water if necessary	

top of page

Information

It is possible to clean heavy soiling by selecting an option from the following cleaning tools and cleaning fluids:

Cleaning tools	Cleaning fluid	Cleaning procedure
Soft household sponge	Water with small amount of commercially available washing-up liquid added	Gentle wiping movements, do not apply pressure
Soft, lint-free cloth	Interior window cleaner (from Porsche care set) Note Observe cleaning instructions, wipe down with clear water if necessary	
	Solvent naphtha Note: Use solvent naphtha only, other solvents are not permissible!	

997110, 997111, 997120, 997121, 997310, 997311, 997320, 997321, 997410, 997411, 997430, 997431, 997610, 997611, 997620, 997621

as of MY 2005
Country C00, C02, C05, C07, C08, C09, C10, C11, C12, C13, C14, C15, C16, C18, C19, C20, C21, C22, C23, C24, C25, C26, C27, C28, C32, C33, C34, C35, C36, C37, C38, C39, C45, C46, C98, C99

WARNUNG

Gefahr des Verlusts der Text-Bild-Zuordnung beim Ausdruck.

- **Aus technischen Gründen kann derzeit nicht ausgeschlossen werden, dass trotz einwandfreier Darstellung auf dem Bildschirm beim Ausdruck der Zusammenhang von Text und zugehörigem Bild verloren geht.**
- **Wird der Fehler nicht bemerkt, besteht die Gefahr, daß Arbeiten nicht korrekt durchgeführt werden und es dadurch zu Personen- und Sachschäden kommt.**

Vergleichen Sie deshalb nach dem Druckvorgang unbedingt die Ausdrucke mit der Bildschirmdarstellung. Korrigieren Sie die Ausdrucke im Fehlerfall so, daß der Inhalt der Bildschirmdarstellung zutreffend wiedergegeben wird.

WARNING

Danger of losing text-figure correspondence when printing out.

- **For technical reasons, it can currently not be ruled out that the correspondence between text and associated figure can be lost when it is printed out, even though the display on the screen is correct.**
- **If the fault is not noticed, there is the danger that work will not be performed correctly which can cause injury and damage.**

Therefore, always compare printouts with the screen display after printing them out. Correct the printouts if they are faulty so that the content of the screen display matches that on the printouts.

50 IN Diagram of body bonding points and sealing elements - as of MY 2005

Diagram of body bonding points and sealing elements

Installation Location:

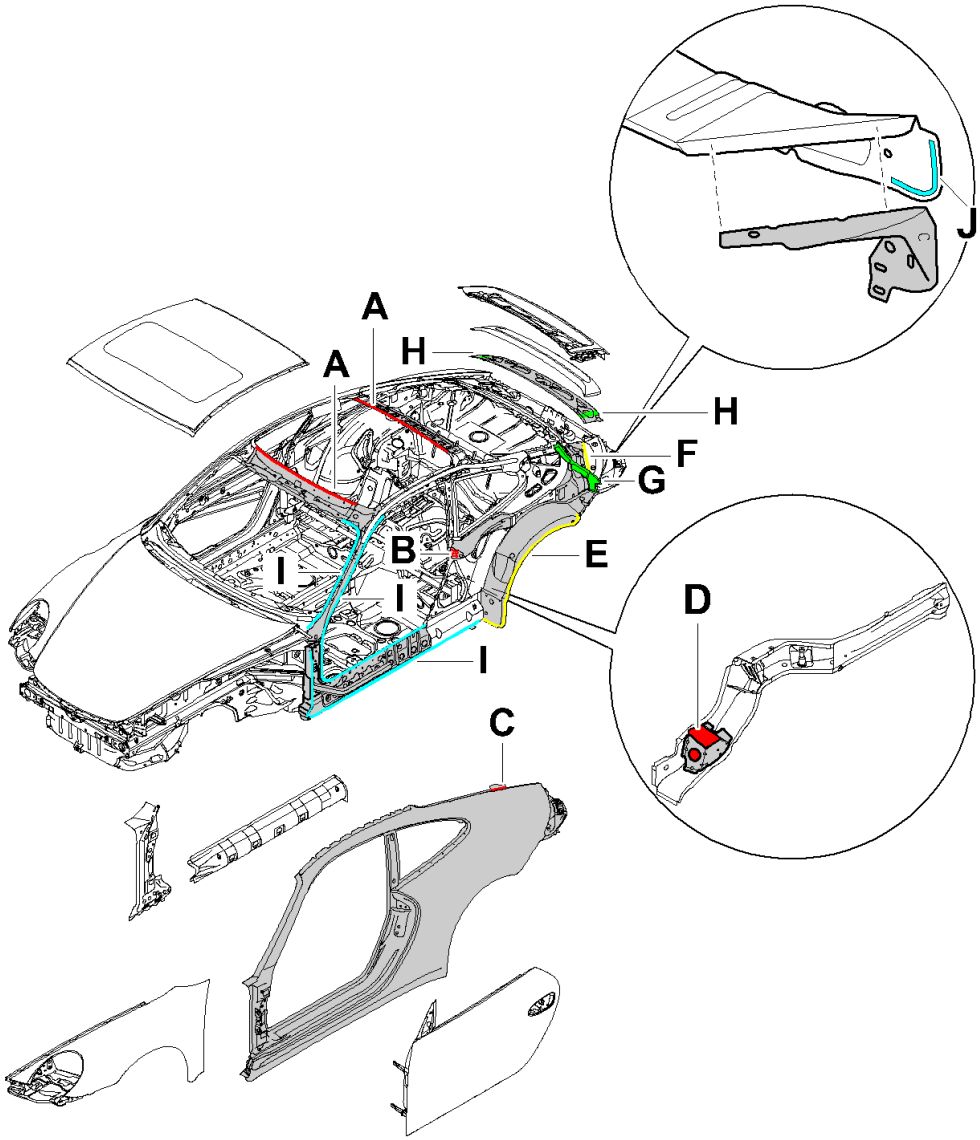


Diagram of body bonding points

A - Bonding area for cowl panel frame, roof frame 510355 Replacing roof frame [997110 997111 997120 997121] *510355 Replacing roof frame [997410 997411 997430 997431]*

B - Bonding area for window slot reinforcement *536155 Replacing the inner side section*

C - Bonding area for side section *536155 Replacing the inner side section*

D - Expanded sealant in rear side member. If the side member is replaced for repairs, the side member is sealed with a 2K acoustic filling foam. 534855 Replacing rear side member

E - Spot welding/bonding method in area of wheel housing, inner side section and outer side section. 535555 Replacing side section

F - Bonding area for light housing 535555 Replacing side section

G - Seal (moulded part) in area of inner side section and outer side section. 535555 Replacing side section

H - Expanded sealant riveted to rear centre panel.

I - Spot welding/bonding method in area of inner side member *514700 Replacing inner side member*

I - Spot welding/bonding method in area of inner A-pillar and cowl panel frame *513755 Replacing outer hinge pillar*

J - Spot welding/bonding method in area of lateral reinforcement *531755 Lateral reinforcement*

The bonding and sealing elements must be replaced during repairs. The procedure is described in the relevant chapter on body repairs.

997110, 997111, 997120, 997121, 997410, 997411, 997430, 997431

as of MY 2005
Country C00, C02, C05, C07, C08, C09, C10, C11, C12, C13, C14, C15, C16, C18, C19, C20, C21, C22, C23, C24, C25, C26, C27, C28, C32, C33, C34, C35, C36, C37, C38, C39, C45, C46, C98, C99

WARNUNG

Gefahr des Verlusts der Text-Bild-Zuordnung beim Ausdruck.

- **Aus technischen Gründen kann derzeit nicht ausgeschlossen werden, dass trotz einwandfreier Darstellung auf dem Bildschirm beim Ausdruck der Zusammenhang von Text und zugehörigem Bild verloren geht.**
- **Wird der Fehler nicht bemerkt, besteht die Gefahr, daß Arbeiten nicht korrekt durchgeführt werden und es dadurch zu Personen- und Sachschäden kommt.**

Vergleichen Sie deshalb nach dem Druckvorgang unbedingt die Ausdrucke mit der Bildschirmdarstellung. Korrigieren Sie die Ausdrucke im Fehlerfall so, daß der Inhalt der Bildschirmdarstellung zutreffend wiedergegeben wird.

WARNING

Danger of losing text-figure correspondence when printing out.

- **For technical reasons, it can currently not be ruled out that the correspondence between text and associated figure can be lost when it is printed out, even though the display on the screen is correct.**
- **If the fault is not noticed, there is the danger that work will not be performed correctly which can cause injury and damage.**

Therefore, always compare printouts with the screen display after printing them out. Correct the printouts if they are faulty so that the content of the screen display matches that on the printouts.

50 IN Diagram of body bonding points and sealing elements - as of MY 2005

Diagram of body bonding points and sealing elements

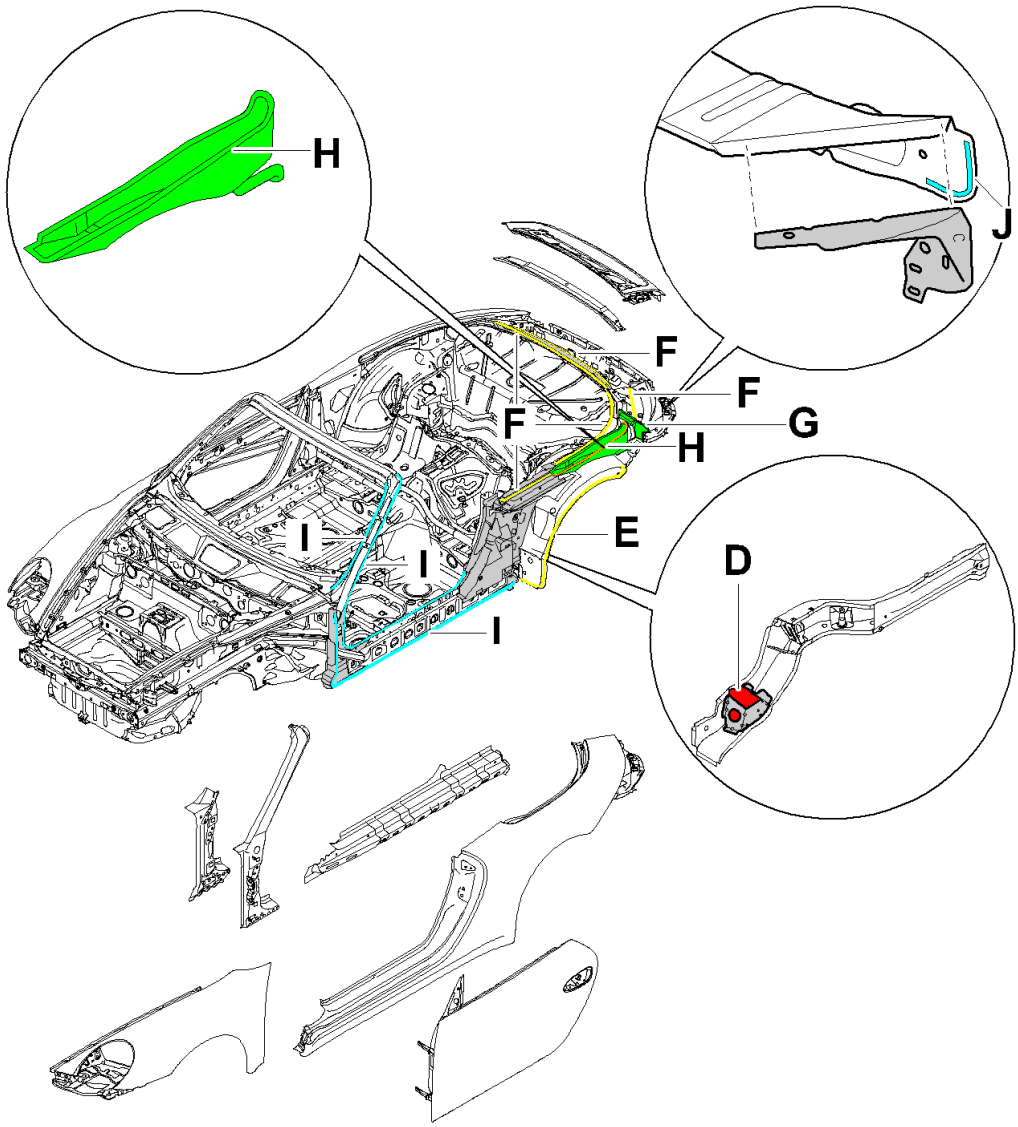


Diagram of body bonding points and sealing elements

D - Expanded sealant in rear side member. If the side member is replaced for repairs, the side member is sealed with a 2K acoustic filling foam. 534855 Replacing rear side member

E - Spot welding/bonding method in area of wheel housing, inner side section and outer side section. 535555 Replacing side section - Cabriolet [997310 997311 997320 997321] *535555 Replacing side section - Cabriolet [997610 997611 997620 997621]*

F - Spot welding/bonding method in area of window slot reinforcement 535555 Replacing side section - Cabriolet [997310 997311 997320 997321] *535555 Replacing side section - Cabriolet [997610 997611 997620 997621]*

F - Spot welding/bonding method in area of inner side section __ 535555 Replacing side section - Cabriolet [997310 997311 997320 997321] *535555 Replacing side section - Cabriolet [997610 997611 997620 997621]*

F - Spot welding/bonding method in area of light housing __ 535555 Replacing side section - Cabriolet [997310 997311 997320 997321] *535555 Replacing side section - Cabriolet [997610 997611 997620 997621]*

F - Spot welding/bonding method in area of cross member convertible top rest

G - Seal (moulded part) in area of inner side section and outer side section. __ 535555 Replacing side section - Cabriolet [997310 997311 997320 997321] *535555 Replacing side section - Cabriolet [997610 997611 997620 997621]*

H - Water drip pan glued in. When the side panel is replaced for repairs, the water drip pan is glued in on the inner side section.

I - Spot welding/bonding method in area of inner lower side member and A-pillar.

J - Spot welding/bonding method in area of lateral reinforcement *531755 Lateral reinforcement*

The bonding and sealing elements must be replaced during repairs. The procedure is described in the relevant chapter on body repairs.

997310, 997311, 997320, 997321, 997610, 997611, 997620, 997621

as of MY 2005
Country C00, C02, C05, C07, C08, C09, C10, C11, C12, C13, C14, C15, C16, C18, C19, C20, C21, C22, C23, C24, C25, C26, C27, C28, C32, C33, C34, C35, C36, C37, C38, C39, C45, C46, C98, C99

WARNUNG

Gefahr des Verlusts der Text-Bild-Zuordnung beim Ausdruck.

- **Aus technischen Gründen kann derzeit nicht ausgeschlossen werden, dass trotz einwandfreier Darstellung auf dem Bildschirm beim Ausdruck der Zusammenhang von Text und zugehörigem Bild verloren geht.**
- **Wird der Fehler nicht bemerkt, besteht die Gefahr, daß Arbeiten nicht korrekt durchgeführt werden und es dadurch zu Personen- und Sachschäden kommt.**

Vergleichen Sie deshalb nach dem Druckvorgang unbedingt die Ausdrucke mit der Bildschirmdarstellung. Korrigieren Sie die Ausdrucke im Fehlerfall so, daß der Inhalt der Bildschirmdarstellung zutreffend wiedergegeben wird.

WARNING

Danger of losing text-figure correspondence when printing out.

- **For technical reasons, it can currently not be ruled out that the correspondence between text and associated figure can be lost when it is printed out, even though the display on the screen is correct.**
- **If the fault is not noticed, there is the danger that work will not be performed correctly which can cause injury and damage.**

46 Brake disc measurement sheet - as of MY 2005

- Information

top of page

Information

Brake disc measurement sheet

Note

Notes on checking and measurement points can be found in:

- *461000 Technical data/Brake wear limit*
- *465002 Checking front brake disc*
- *465302 Checking rear brake discs (wear assessment)*

To document the measured result, a copy or print of the data card illustrated can be used. The data cards cannot be ordered.

1. Make a copy or print of the data card shown.

Note

- *Actual values that are identical in all versions are already entered!*
- *In the course of further development these values may change. If necessary, carry out a check and insert the new values accordingly. 461000 Technical data/Brake wear limit*

2. Before measurement (Test 1 through Test 3), enter the general data, vehicle type and the missing nominal values (new brake disc thickness / brake disc wear limit) into the data card.
3. Carry out measurements (actual status) and enter the values in the alignment card.
4. If brake discs are to be replaced, carry out Test 2 with the new discs again and enter the latest values in a new data card.

Measuring prerequisites

– Note the labour operation numbers.
– Measuring brake discs: 80 time units per axle.

Brake disc measurement

Customer:		Rep. Order No.:		
Street:		Vehicle Ident No.:		
Place:		Reg. number:		
Telephone:		Date of first registration:		
Vehicle type:		Odometer reading [km/miles]		
Checker		Date/Signature		
Nominal values				
Test 1 = brake disc thickness				
- Brake disc thickness, new [mm]:			Front:	Rear:
- Wear limit [mm]:			Front:	Rear:
Test 2 = lateral runout				
- Brake disc installed [mm]			max.: 0.06	
- Wheel hub			max.:	
- Brake disc removed [mm]			max.: 0.03	
Test 3 = Thickness tolerance of brake disc				
Thickness tolerance of brake disc [mm]			max.:	
Measured values (actual values) [mm]	front left	front right	rear left	rear right
Test 1 = Brake disc thickness (measured at 3 points, each offset by 120°)				
Measurement point A				
Measurement point B				
Measurement point C				
Test 2 = lateral runout				
- Brake disc installed				
- Wheel hub				
- Brake disc removed (difference wheel hub/brake disc installed)				
Test 3 = Thickness tolerance of brake disc				
Thickness tolerance				

997110, 997111, 997120, 997121, 997310, 997311, 997320, 997321, 997410, 997411, 997430, 997431, 997610, 997611, 997620, 997621

as of MY 2005
Country C00, C02, C05, C07, C08, C09, C10, C11, C12, C13, C14, C15, C16, C18, C19, C20, C21, C22, C23, C24, C25, C26, C27, C28, C32, C33, C34, C35, C36, C37, C38, C39, C45, C46, C98, C99

WARNUNG

Gefahr des Verlusts der Text-Bild-Zuordnung beim Ausdruck.

- **Aus technischen Gründen kann derzeit nicht ausgeschlossen werden, dass trotz einwandfreier Darstellung auf dem Bildschirm beim Ausdruck der Zusammenhang von Text und zugehörigem Bild verloren geht.**

44 Adjustment values for suspension alignment - C4/C4S - as of MY 2006

Vehicle height

Note

- *The following values relate to the empty weight, i.e. full fuel tank, vehicle with tools, but without driver and without additional weights!*

Vehicle height	RoW/USA: Series C4/C4S	RoW/USA: PASM C4/C4S	RoW: Performance C4/C4S
Front axle			
Height with 18-inch wheels	**Nominal value: 141 mm +/-10 mm**	**Nominal value: 131 mm +/-10 mm**	**Nominal value: 121 mm +/-10 mm**
Height with 19-inch wheels	**Nominal value: 143 mm +/-10 mm**	**Nominal value: 133 mm +/-10 mm**	**Nominal value: 123 mm +/-10 mm**
From road contact surface to lower edge of hexagon-head bolt of cross-member screw connection to the body.			
Rear axle			
Height with 18-inch wheels	**Control value: 164 mm +/-10 mm**	**Control value: 154 mm +/-10 mm**	**Control value: 144 mm +/-10 mm**
Height with 19-inch wheels	**Control value: 165 mm +/-10 mm**	**Control value: 155 mm +/-10 mm**	**Control value: 145 mm +/-10 mm**
From wheel contact surface to the locating bore in the rear-axle side section (between toe and camber eccentrics).			

Wheel alignment values

WARNING

Risk of accident due to incorrect functioning of steering angle sensor if it is uncalibrated or incorrectly calibrated.

- **There is a risk of accidents causing physical damage to persons or objects in the PSM testing area.**

After working on wheel suspension parts, when replacing the steering-angle sensor and after changing the wheel alignment values, calibrate the steering angle sensor with the front wheels in straight-ahead position using the PIWIS tester.

Check the actual value of the steering angle sensor after a suspension alignment where no changes were made to the wheel alignment values.

Note

- *The following values relate to the empty weight, i.e. full fuel tank, vehicle with tools but without driver or additional weights.*
- *The toe-difference angle value is also influenced by the vehicle height. For this reason the measured result must be evaluated accordingly. No action is necessary in the case of small deviations from the toe-difference angle's required value as long as the value to the right and left is almost the same.*

Wheel alignment values	RoW/USA: Series C4/C4S	RoW/USA: PASM C4/C4S	RoW: Performance C4/C4S
Front axle			
Toe unpressed (total)	+ 5' ± 5'	+ 5' ± 5'	+ 5' ± 5'
Toe difference angle at 20° lock	- 1° 15' ± 30'	- 1° 38' ± 30'	- 2° 02' ± 30'
Camber (with wheels in straight-ahead position)	- 15' ± 15'	- 15' ± 15'	- 30' ± 15'
max. difference, left to right	20'	20'	20'
Caster	8° 00' ± 30'	8° 10' ± 30'	8° 20' ± 30'
max. difference, left to right	40'	40'	40'
Rear axle			
Toe per wheel	+ 10' ± 5'	+ 10' ± 5'	+ 10' ± 5'
max. difference, left to right	10'	10'	10'
Camber	- 1° 30' ± 15'	- 1° 30' ± 15'	- 1° 40' ± 15'
max. difference, left to right	20'	20'	20'

997410, 997411, 997430, 997431, 997610, 997611, 997620, 997621

as of MY 2006
Country C00, C02, C05, C07, C08, C09, C10, C11, C12, C13, C14, C15, C16, C18, C19, C20, C21, C22, C23, C24, C25, C26, C27, C28, C32, C33, C34, C35, C36, C37, C38, C39, C45, C46, C98, C99

40 09 Removing and installing front-axle cross member - as of MY 2006

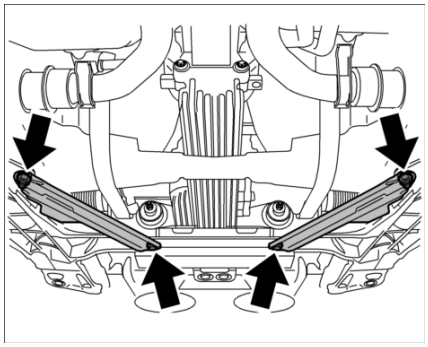
- Preliminary work
- Removal
- Installation
- Subsequent work

top of page

Preliminary work

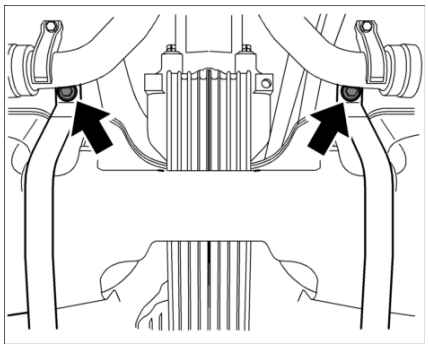
Preliminary work

1. Put steering wheel with wheels in straight ahead position and remove ignition key (steering wheel fixed.)
2. Raise the vehicle *401000 Lifting the vehicle* and remove front wheels 440519 Removing and installing wheel.
3. Remove front cover and centre cover (underbody protection) 519219 Removing and installing front cover 519319 Removing and installing centre cover.



Diagonal braces

4. Remove diagonal braces. Also remove crash support for the Carrera 4.



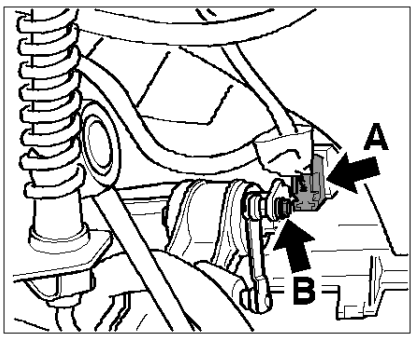
Cover

5. Remove front cover.

top of page

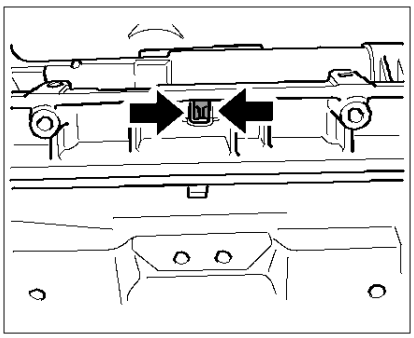
Removal

Removing front-axle cross member



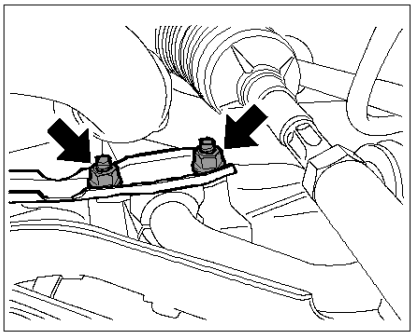
HBA sensor

1. Pull connector **-A-** from sensor for HBA and loosen threaded joint **-B-** on control lever.



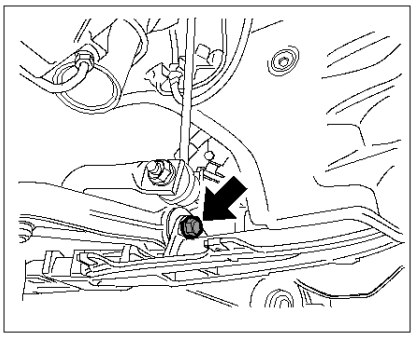
Support for coolant pipes

2. Loosen support for coolant pipes (screwed on 4x) and press together the support for coolant pipes in the centre **-arrows-** and unclip.



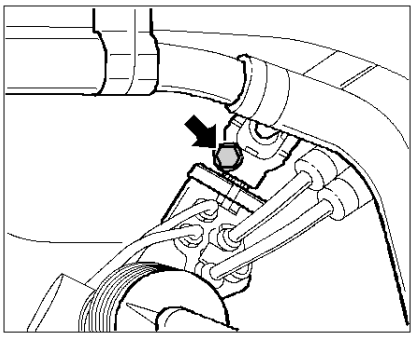
Front anti-roll-bar mount

3. Loosen anti-roll-bar mount **-arrows-** and allow anti-roll bar to hang.



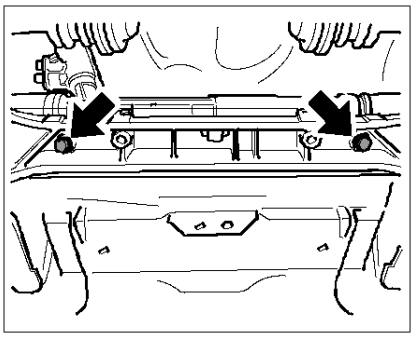
Trailing arm mount for axle cross member

4. Loosen trailing arm on front-axle cross member **-arrow -** and pull out of the mount.



Universal joint

5. Remove screw **-arrow-** from universal joint (steering column). Carefully push steering column upward until the universal joint loosens from the steering gear.



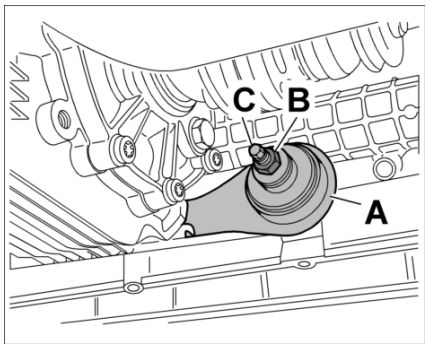
Fastening points for the steering

6. Remove the steering mount **-arrows -** .

Note

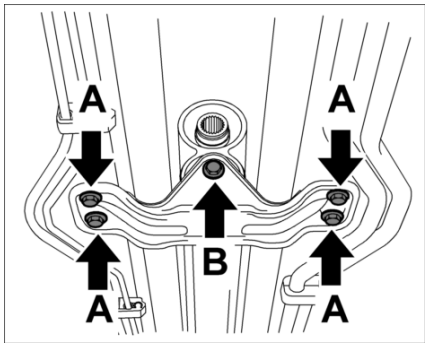
Step 7, 8, and 9 are only for Carrera 4.

7. Front-axle final drive with transmission jack.



Final drive mount

8. Loosen fastening nuts **-B-** for front bracket **-A-** and unscrew the studs **-C-** .



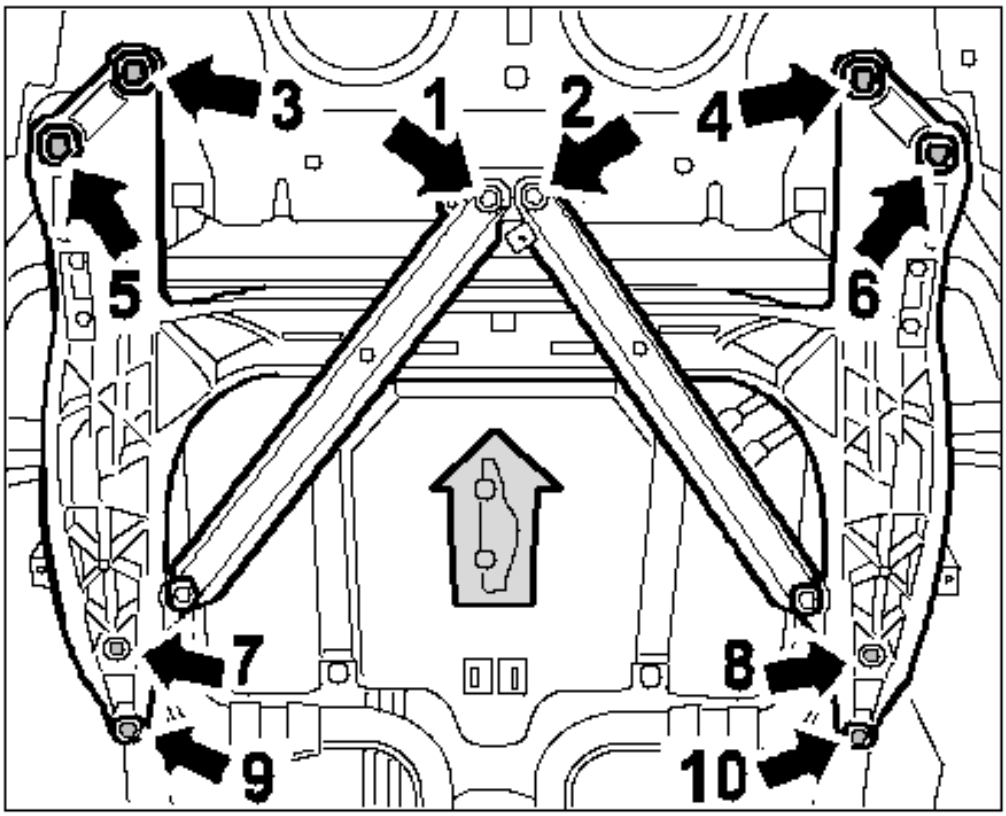
Fastening screws for support (for the sake of clarity, cardan shaft removed in figure!)

9. Unscrewing fastening screws **-A-** for support.

A - Fastening screws for support

B - Support/transmission mount screw. Do not loosen!

10. Remove the front-axle cross member mounts **-3 to 10-** and carefully lower (2 workers required!). If necessary for the Carrera 4, slightly lower the front-axle final drive and extend the front-axle cross member forward (2 workers required!).



Cross member with diagonal brace to body

top of page

Installation

Installing front-axle cross member

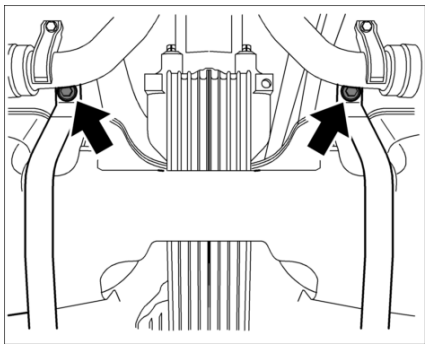
Note
Always replace the screw for the universal joint of the steering column.
Observe correct tightening torques.

Installation is in reverse order.

top of page

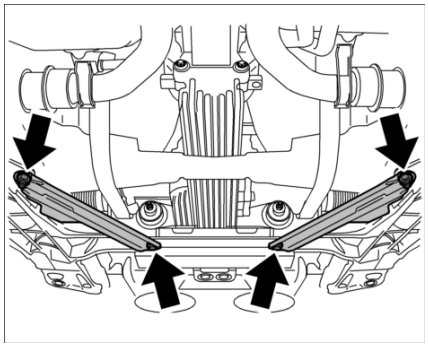
Subsequent work

Subsequent work



Cover

Install front cover.



Diagonal braces

Fit diagonal braces. Also install crash support for the Carrera 4.
Fit front cover and centre cover (underbody protection) 519219 Removing and installing front cover 519319 Removing and installing centre cover.
Fit front wheels 440519 Removing and installing wheel.

Note

Check the steering-angle sensor setting.

Adjust toe 449503 Performing front and rear suspension alignment. Calibrate steering-angle sensor if necessary.

997410, 997411, 997430, 997431, 997610, 997611, 997620, 997621

as of MY 2006
Country C00, C02, C05, C07, C08, C09, C10, C11, C12, C13, C14, C15, C16, C18, C19, C20, C21, C22, C23, C24, C25, C26, C27, C28, C32, C33, C34, C35, C36, C37, C38, C39, C45, C46, C98, C99

WARNUNG

Gefahr des Verlusts der Text-Bild-Zuordnung beim Ausdruck.

51 87 Repairing threaded bushings for seat cross member - as of MY 2005

- Installing the threaded bushing

Tools

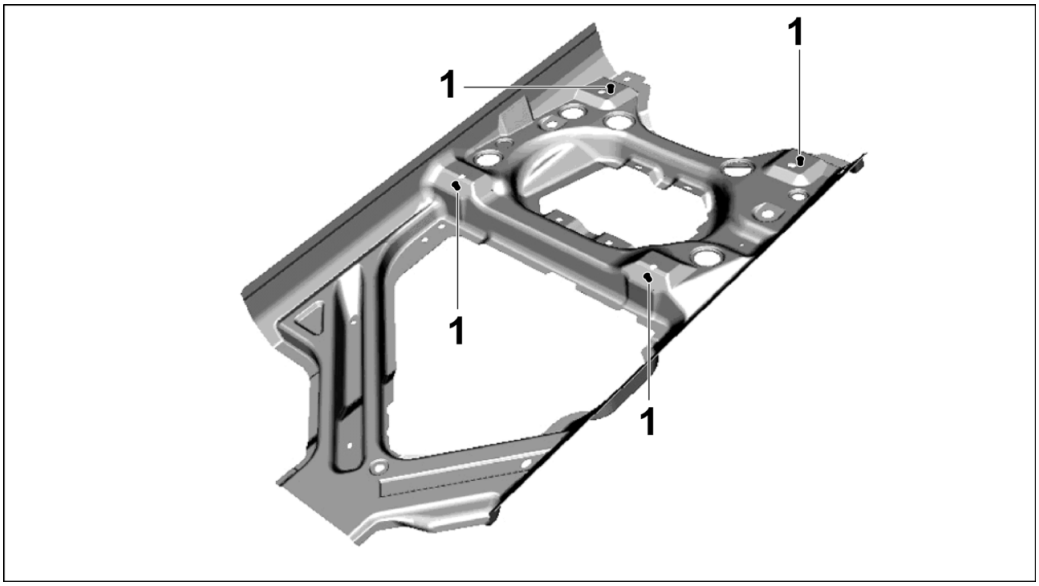
Designation	Type	Number	Explanation	
Spot facer for Time-Sert thread repair kit	commercially available tool	NR.122-2		PORSCHE siehe Handbuch Werkstattausrüstung Voir le Manuel Equipement d´atelier Refer to the Workshop Equipment manual Vease Manual de Equipamiento de Taller Vedere il Manuale dell´attrezzatura d´officina ワークショップ・イクイップメント・マニュアルを参照

top of page

Installing the threaded bushing

Installing repair threaded bushing for seat cross member

Installation Location:



Installation position of threaded bushing for seat cross member

1 - Pickup point for seat mounting

WARNING

Danger of material damage and personal injury when repairing threads!

- **Danger of material damage and personal injury!**

Thread repairs must only be performed using the Time-Sert thread repair kit

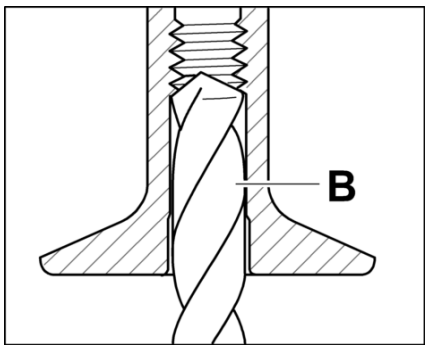
Note

The repair bushing must be installed recessed. To mill in the respective shoulder, the tool with the designation **Spot facer for Time-Sert thread repair kit NR.122-2** for M8, M10, M12 or M14 must be used. The tool provided with the complete set supplied must not be used in this case!

Note

While pressing in the base thread, a noticeably larger amount of force is required on the screw-in tool to form the internal thread. Pressing is finished when the screw-in tool can be turned further more easily.

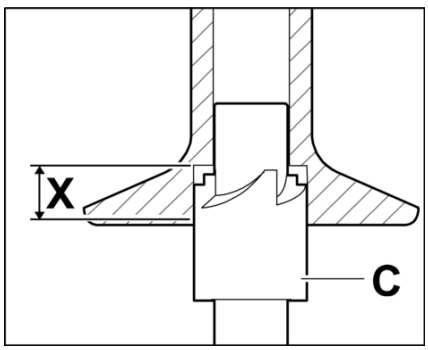
1. Drilling out thread



Drilling out thread

Select kit M10.
Drill out old thread with drill contained in kit M10 **B** as far as the base of the thread.

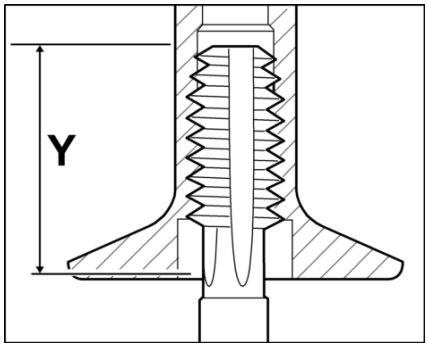
2. Milling in shoulder



Milling in shoulder

Select kit M10.
Mill out bore hole with spot facer **C** up to dimension **X**, see: Table. Milling in can only be performed using the tool **Spot facer for Time-Sert thread repair kit NR.122-2**. For milling, use an electronically controlled power drill set to a speed of approx. 250 $^{1}/_{min}$.

3. Cutting thread



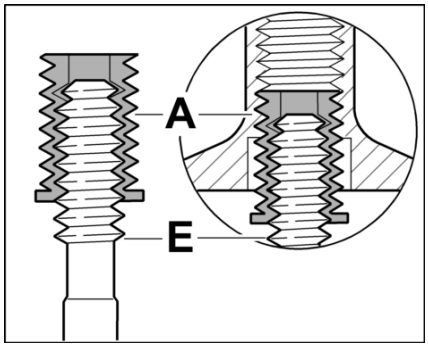
Cutting thread

Cut thread using a cutting tool **D** up to dimension **Y** into the chassis bushing, see Table ?????. Clean the thread on the chassis bushing (blow it out).

4. Positioning threaded bushing on the screw-in tool

Clean the thread on the bushing and screw-in tool.

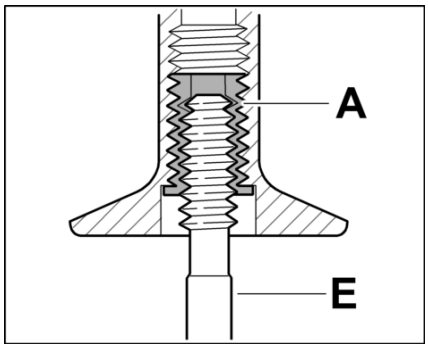
Oil the screw-in tool **E**.



Positioning threaded bushing on the screw-in tool

Screw the threaded bushing **A** onto the screw-in tool **E** by hand.

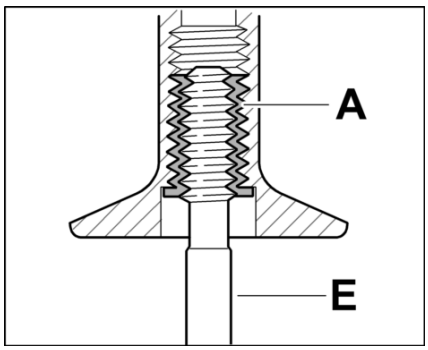
5. Screwing in threaded bushing



Screwing in threaded bushing

Completely screw in threaded bushing **A** (note bushing length classification) with the screw-in tool **E**.

6. Pressing threaded bushing



Pressing threaded bushing

Form and press threaded bushing **E** by turning further with the screw-in tool **D** in the base thread.

7. Unscrewing the screw-in tool

   Unscrew screw-in tool **E** from the threaded bushing **A**.

Table classification for seat cross member repairs

Designation	Bore stroke measured from outer edge of sheet to tip of drill bit	Milling depth **X**	Thread depth **Y**	Bushing length	Note
Threaded bushing **1** screwed point, mounting for front and rear seat	20 mm	2.5 mm	13 mm	14 mm	Measured from the outer edge of sheetmetal thread M10 x 1.5

as of MY 2005
Country C00, C02, C05, C07, C08, C09, C10, C11, C12, C13, C14, C15, C16, C18, C19, C20, C21, C22, C23, C24, C25, C26, C27, C28, C32, C33, C34, C35, C36, C37, C38, C39, C45, C46, C98, C99

Preconditions for using workshop documentation for Porsche vehicles

This data comprises technical information as well as instructions on repairs for Porsche vehicles and documentation for training purposes. The descriptions are intended for the exclusive use by workshops and their workshop staff.

Note

- The Dr. Ing. h.c. F. Porsche AG retains sole ownership of the copyright.
- It may not be transmitted to third parties.
- Graphics and text may not be duplicated or used in other electronic or printed publications without the express consent of the Dr. Ing. h.c. F. Porsche AG.

General preconditions for repairing Porsche vehicles

The descriptions form the basis for professional and correct maintenance and repair work. The content of the work procedures described is based on the level of training of a fitter with a sound knowledge of the product. The fitter must have obtained knowledge of the product at training programs and courses offered by the Dr. Ing. h.c.F. Porsche AG which are specific to the product and assembly before carrying out any of the work. This level of knowledge is the precondition for carrying out the work described. The Dr. Ing. h.c. F. Porsche AG will not be held liable if the described repair work is carried out without this knowledge.

Preconditions for body work on Porsche vehicles

The described repair work only applies to standard cases. Body repairs must only be carried out by skilled persons who are specialised for such work. Given the overall picture of the damages, the workshop itself must decide whether it is possible to return the vehicle to its proper condition. Repair works on Porsche vehicles must be carried out with the tools and workshop equipment recommended and approved by the Dr. Ing. h.c. F. Porsche AG. All body repair work must be carried out correctly and according to the Dr. Ing. h.c. F. Porsche AG instructions for sheetmetal, paint and corrosion protection/preservation work.

Warning notes and safety instructions

The warning notes and safety instructions are classified by the respective signalising word (Danger, Warning, Caution) beside the warning symbol.

DANGER

Warns against death or very serious injury which will certainly occur if the instructions are not observed.

WARNING

Warns against death or very serious injury which may occur if the instructions are not observed.

CAUTION

Warns against minor injury or damage to property if the instructions are not observed.

To prevent injury and restricted operating and traffic safety of the vehicle, or damage to the vehicle as the result of incorrect work, read these warning notes and safety instructions carefully and observe them without fail.

It is not possible for Dr. Ing. h.c. F. Porsche AG to give a detailed evaluation of all danger situations for the persons carrying out the work. It is therefore imperative that all persons carrying out repair and maintenance work on Porsche vehicles use their specialist knowledge to ensure that their own safety is not at risk and the procedure chosen will not have any negative effects on the vehicle - especially with regard to safety.

It is therefore expressly specified that all work involved in the work procedures described should be carried out only in accordance with the valid guidelines and regulations of the local authorities responsible with

respect to health and accident prevention and environmental protection, and in compliance with the applicable legal requirements and regulations.

Notes

Notes contain advisory information related to the work procedure which makes the fitter's work easier. The following pictogram indicates this information:

Note

- Contains advisory information which makes the work procedure easier.

Due to the continuous development and improvement of our vehicles, there may be discrepancies between the actual technical status of the vehicles and the work descriptions. Any existing deviations are corrected by means of supplements, and the scope of the descriptions is extended with supplements.

The Dr. Ing. h.c. F. Porsche AG retains the right to implement changes at any time and without prior notice.

997110, 997111, 997120, 997121, 997310, 997311, 997320, 997321, 997410, 997411, 997430, 997431, 997610, 997611, 997620, 997621