

TRUCK 1 TON 4x4
GENERAL SERVICE
FORWARD CONTROL



TRUCK 1 TON 4x4 GENERAL SERVICE FORWARD CONTROL

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INTRODUCTION -----

In the current General Service vehicle range there is a large gap in capacity between the Truck $\frac{3}{4}$ ton 4x4 GS Mark 9 Landrover and the Truck 4 ton 4x4 GS Bedford. There is an increasing requirement by Specialist Users for a vehicle of greater capacity than the Truck $\frac{3}{4}$ ton with higher power, increased towing capability, greater pay-load capacity and a larger platform, which can only be met by the introduction of a new 1 ton 4x4 GS Class

The components of the Truck $\frac{3}{4}$ ton Landrover Mark 9 have now reached the limit of their design potential, and, furthermore, the normal control configuration inhibits the optimisation of front and rear axle load distribution. Significant additional load space could only be achieved with the normal control configuration by a substantial increase in overall dimensions.

This Brochure describes the concept of a Forward Control 1 ton 4x4 Truck based on the use of contemporary commercially available components to meet the requirement stated in the General Staff Requirement No. 3463.

To prove the feasibility of the concept, FVRDE has purchased an engineering model of the 1 ton 4 x 4, which, within the limits of available components, generally meets the requirements of the OSR.



Data of the engineering model is also included in this Brochure and where it does not comply in full with the requirement, appropriate note has been made.

VEHICLE CHARACTERISTICS

2/1 AIRPORTABILITY

2/1/1 Helicopter Lift

The vehicle is reducible in weight to 1588 Kg (3500 lb) by the removal of:

Cab and body superstructure and tilt;

Windscreen;

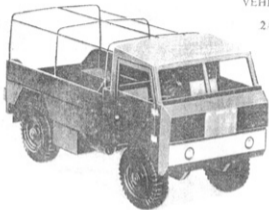
Body sides and tailboard;

Cab doors;

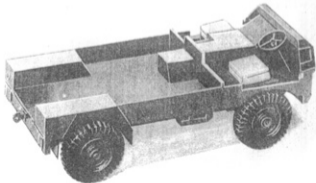
Spare wheel;

Bumpers;

All except 23 litres (5 gallons) reserve of fuel

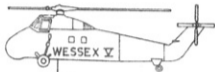


The resultant stark vehicle is functionally operational, both as a load carrier and as a tractor





3,500lb. (1588 Kg.) MAX.



3,500lb. (1588 Kg.) MAX.



5,000lb. (2268 Kg.) MAX.

HEAVY LIFT HELICOPTER.

ASR 358

20,000 - 24,000 lb. MAX.
(9072 - 10886 Kg.)

HELICOPTER SLUNG LOADS AT ISA + 20°

MAX. PAYLOAD/RANGE.

MAX. RANGE/PAYLOAD.

3,500lb. (1588 Kg.)
AT
20 NAUTICAL MILES.
(37 Km)

75 NAUTICAL MILES
(139 Km)
AT
2250lb. (1021 Kg.)

3,500lb. (1588 Kg.)
AT
20 NAUTICAL MILES.
(37 Km)

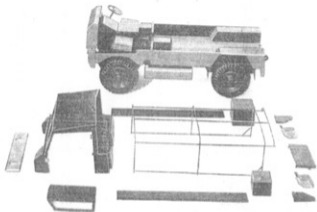
75 NAUTICAL MILES
(139 Km)
AT
2250lb. (1021 Kg.)

5,000lb. (2268 Kg.)
AT
20 NAUTICAL MILES.
(37 Km)

75 NAUTICAL MILES
(139 Km)
AT
3,600lb. (1633 Kg.)

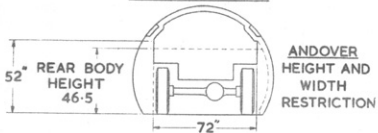
NOTE:- THE FIGURES CAN VARY BY UP TO 5% OF THE AIRCRAFT WEIGHT DEPENDING ON A NUMBER OF FACTORS. FOR EXAMPLE, ROLE EQUIPMENT CARRIED.

NOTE:- THESE FIGURES SHOULD BE USED FOR PLANNING PURPOSES AND FOR PREPARATION OF GST'S AND GSR'S ONLY.



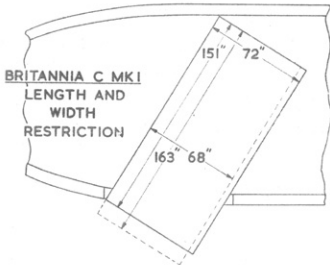
STRIPPING FOR AIRPORTABILITY

DIMENSIONAL LIMITATIONS IMPOSED
BY AIRPORTABILITY



2/1/2 Fixed Wing Aircraft

The vehicle dimensions are reducible in plan to permit loading into the Britannia, and reducible in elevation to permit carriage in the Andover.



FIXED - WING AIRPORTING DATA

CARGO COMPARTMENT DIMS. mm			MAX PAYLOAD RANGE		MAX RANGE PAYLOAD	
LENGTH	WIDTH	HEIGHT	kg (lb)	AT km (NAUTICAL MILES)	km AT (NAUTICAL MILES)	kg (lb)
21641 (71' 0")	2845 (9' 4")	1803 (5' 11")	25809 (56900)	6634 (3580)	9062 (4890)	13372 (29480)
19304 (63' 4")	3607 (11' 10")	3912 (12' 10")	35153 (77500)	1853 (1000)	7820 (4220)	13154 (29000)
16129 (52' 11")	2895 (9' 6")	1829 (6' 0")	14879 (32800)	5189 (2800)	6857 (3700)	9525 (21000)

STRATEGIC

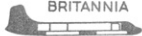
VC 10



BELFAST



BRITANNIA



C 130
HERCULES



ARGOSY



TACTICAL
MEDIUM RANGE

12497
(41' 0")

2972
(9' 9")

2743
(9' 0")

20412
(45000)

4058
(2190)

8015
(4325)

8845
(19500)

11887
(39' 0")

2642
(8' 8")

2438
(8' 0")

12474
(27500)

371
(200)

2965
(1600)

2268
(5000)

ANDOVER



TACTICAL
SHORT RANGE

11278
(37' 0")

1880
(6' 2")

1727
(5' 8")

5126
(11300)

834
(450)

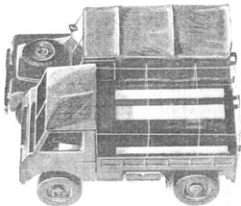
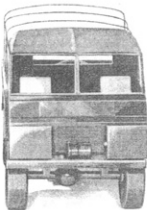
2502
(1350)

1361
(3000)

VEHICLE OR VEHICLE TRAIN CONDITION	No. OF TRUCKS OR TRAINS IN AIRCRAFT					
	VC 10	BELFAST	BRITANNIA	C 130 HERCULES	ARGOSY	ANDOVER
1 LADEN VEHICLE - NO STRIPPING	NO	5	NO	2	1	NO
2 LADEN VEHICLE - CAB & TILT REMOVED	5	5	3	2	2	1
3 UNLADEN VEHICLE - NO STRIPPING	NO	5	NO	2	1	NO
4 UNLADEN VEHICLE - CAB & TILT REMOVED	5	5	3	2	2	2
5 LADEN VEHICLE + LIGHT GUN	2	2	2	1	1	1
6 LADEN VEHICLE + LIMBER TRAILER	2	2	2	1	1	1
7 LADEN VEHICLE + RAPIER FIRE UNIT	3	3	2	1	1	1

2.2 CAPACITY

Within an overall length of 4267 mm (168") and an overall width of 1803mm(71"), the forward control configuration of this vehicle permits a platform space of 4.3 sq metres (46.2 sq ft), which is 65 per cent larger than that of the Landrover Mark 9



The payload capacity is at least 1016 Kg (1 ton) and it is likely that this will be increased to 1270 Kg, (1 $\frac{1}{4}$ tons).

A trailer towing capability of up to 1814 Kg (4000 lb) gross weight.

The vehicle is equipped with a NATO Standard towing hook at a height of 658.8 mm \pm 50.8 mm (26" \pm 2").

2/3 MOBILITY.

The vehicle has a power/weight ratio of at least 37.4 PS/Tonne (38.6 BHP/ton).

When laden, the vehicle has a maximum speed of at least 97 Kph (60 mph) and will climb a gradient of 37° (7%) where adhesion can be obtained.

On 9 x 16 tyres, which is the standard equipment, the vehicle cone index is 55 (compared with Stalwart which has a VCI of 61).

The laden vehicle, with an undriven trailer of 1588 Kg (3500 lb) gross weight has a gradient capability marginally superior to that of the reference train which is Truck $\frac{1}{2}$ ton 4x4 GS Landrover Mark 8 towing a $\frac{3}{4}$ ton capacity trailer.

The angle of approach is 60°; the angle of departure 45°; ground clearance is 267 mm (10.5") beneath axles and 330 mm (13") beneath chassis between the wheels.

The vehicle is operational within the climatic limits of -18°C (0°F) and 52°C (125°F).

The laden vehicle has a range of 480 Km (300 miles) when operating at an average speed on the road of 48 Kph (30 mph) over gradients not exceeding 1 in 10 (6°).

The laden vehicle towing a laden 1 ton trailer has a cruising speed of 72 Kph (45 mph) with a maximum of not less than 97 Kph (60 mph).

2.4 FORDING AND FLOTATION.

The vehicle components permit shallow fording to 760 m.m. (30"), without preparation. Deep fording up to 1680 m.m. (60") is achievable by the use of an applique kit.

For reasons of economy, the vehicle design is not inherently amphibious. If a water crossing capability is required, it would be possible to design an applique flotation kit.

2.5 SPECIALIST EXTRAS.

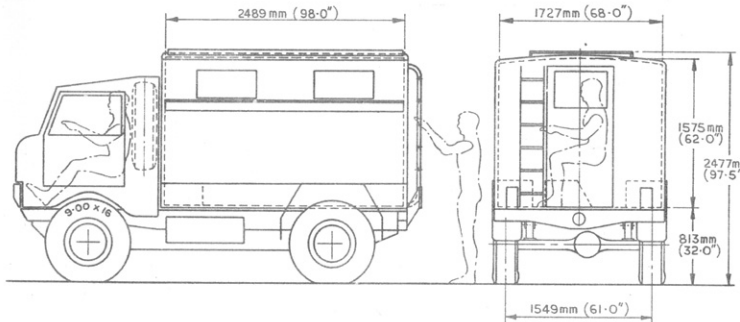
The basic vehicle will be capable of accepting the following specialist extras:-

2/5/1 Winch

Accommodation is provided for the fitting of a winch ahead of the engine above the front bumper. It is driven from the engine crankshaft and can be used for forward or rearward winching. The capacity is 2722 Kg (6000 lb) single line pull, and the 9.5 mm ($\frac{3}{8}$ in) rope is 30 m (100 ft) long.

2/5/2 Hardtop

As an alternative to the superstructure and canvas top fitted to the General Purpose vehicle, a hardtop can be fitted for Command Post, Workshops or Radio Stations. It is sufficiently robust to permit wall and roof mounting of all envisaged equipment installations. (Hardtop wt. penalty 300lb)



TRUCK 1 TON 4 X 4 HARDTOP

2/5/3 Fitted for Radio

For the FFR role, an AC 7/90 Alternator and 24 volt screened electrical system will be provided, together with all the fittings necessary to carry the radio combinations currently fitted in the Landrover Mark 9, certain radio installations originally planned to be carried in the 1 ton transportable container and the proposed Clansman installations.

2/5/4 Front Towing Hook

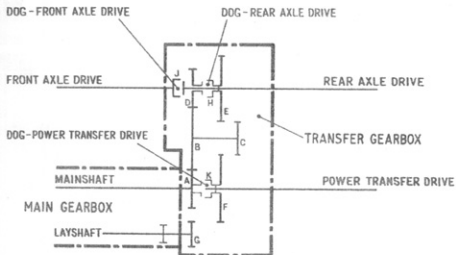
When required, a front towing hook fitted to the front bumper at a height of 610 mm (24") can be provided.

2/5/5 Power Take Off

Alternative power take off facilities can be provided for the drive of "on vehicle" equipment and/or a drive to the trailer to drive the trailer wheels, trailer mounted power tools or auxiliary machinery.

Alternative speeds of power take off are available as a function of engine speed or as a function of tractor road speed. (See Appendix 2 for description of power take off facilities).

TRANSFER GEARBOX LAYOUT



TO PROVIDE:-

- 4 x 2 HIGH RANGE ——— ABD+H
- 4 x 4 HIGH RANGE ——— ABD+H & J
- 4 x 4 HIGH RANGE + PT — ABD+H, J & K
- 4 x 4 LOW RANGE ——— ABCE + J
- 4 x 4 LOW RANGE + PT — ABC(E&F) + J
- PT ONLY HIGH RANGE ——— K
- PT ONLY LOW RANGE ——— ABCF

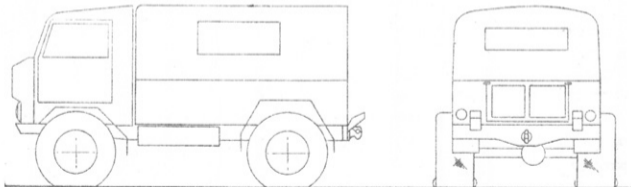
(PT - POWER TRANSFER)

- A - OUTPUT GEAR ——— MAINSHAFT F - POWER TRANSFER GEAR - MAINSHAFT DRIVE
- B - INTERMEDIATE GEAR - IDLER SHAFT G - OUTPUT GEAR - LAYSHAFT
- C - INTERMEDIATE GEAR - IDLER SHAFT H - DOG - REAR AXLE DRIVE
- D - HIGH RANGE GEAR - OUTPUT SHAFT J - DOG - FRONT AXLE DRIVE
- E - HIGH RANGE GEAR - OUTPUT SHAFT K - DOG - POWER TRANSFER DRIVE

2/5/6 Terra Tyres and Sand Tyres

With only minor modifications the vehicle is capable of accepting terra tyres or sand tyres up to 970 mm (38") outside diameter and 470 mm (18.6") wide, albeit with some increase in turning circle. The improved mobility obtained is significant when operating over sand and soils having low cohesive strength. The degree of improvement can be gauged from the following vehicle cone index figures:-

Vehicle with standard type equipment	55
" " special tyres	35
Stalwart	61
Dodge Power Wagon	47



TRUCK 1 TON 4x4 GS. FITTED WITH 38x20.00-16A. TERRA TYRES

TECHNICAL DATA

OF

1 TON 4x4 FORWARD CONTROL
ENGINEERING MODEL

TECHNICAL DATA OF 1 TON 4x4 FORWARD CONTROL ENGINEERING MODEL
(12 Volt Cargo Version with Winch)

The vehicle data detailed below refers to the Engineering model only and as such does not meet all the vehicle characteristics i.e. reducible in weight to permit Wessex helicopter lift, reducible in length/width to permit airloading into Britannia.

Weights Kg (lb)

Unladen weight	2227	(4910)
Payload	1016	(2240)
Crew allowance	200	(440)
Gross Vehicle Weight	3443	(7590)
Stripped weight (minimum)	1707	(3764)
Towed Load Capacity	1814	(4000)
Winch Capacity	2722	(6000)

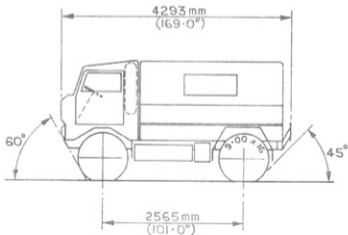
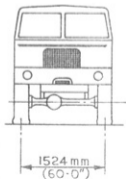
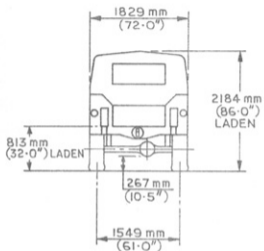
Performance

Speed (at 5000 rpm)	121 Kph	(75 mph)
Range (surfaced roads) solo	800 Km	(500 miles)
Turning Circle	14.46 m	(47.0 ft)
Tractive Effort (at 8% efficiency)	3325 Kg	(7330 lb)
Grade Performance	+60%	(31°)

Dimensions

Overall length	4293 mm	(169 ins)
Overall width	1829 mm	(72 ins)
Overall height (laden)	2194 mm	(86 ins)
Reducible height (")	1194 mm	(47 ins)
Cargo Body length	2489 mm	(98 ins)
Cargo Body width	1727 mm	(68 ins)
Cargo Body height	1321 mm	(52 ins)
Cargo Body area	4.29 m ²	46.2ft ²
Track, front	1524 mm	(60 ins)
Track, rear	1549 mm	(61 ins)
Wheelbase	2565 mm	(101 ins)
Towing Height (laden)	610 mm	(24 ins)
Approach angle	60°	
Departure angle	45°	
Minimum Ground Clearance	267 mm	(10.5 ins)
Standard Tyres	9.00x16	cross country

TRUCK 1 TON 4 X 4 - FORWARD CONTROL - ENGINEERING MODEL

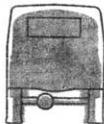
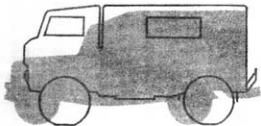


COMPARATIVE VEHICLE DATA

APP. JDIK 1

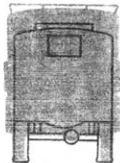
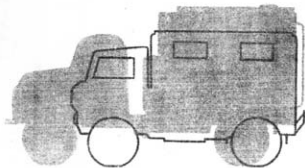
	TRUCK 3/4 TON 4x4 LANDROVER	TRUCK 1 TON 4x4 GENERAL SERVICE	TRUCK 1 TON 4x4 AUSTIN SIGNAL BODY
Overall length (in)	183	168	214
" width "	64	71	86.5
" height "	81	86	116
Cargo Body length (in)	72	98	96
" " width "	56	68	76
" " height "	48	52	67
" " Area (ft ²)	28.0	46.2	50.7
Track, front (in)	51.5	61	71
" rear "	51.5	61	61
Wheelbase "	109	101	137
Unladen Weight (lb)	3686	4640	8288
Laden " "	5766	7320	11312
Towing capacity (lb)	2464	4000	4000
Power/Weight ration. (bhp/ton)	30	38.6	18.2
Standard tyres	7.50 x 16	9.00 x 16	9.00 x 20

TRUCK 1 TON 4x4 AND TRUCK $\frac{1}{2}$ TON 4x4 LANDROVER



— 1 TON
▨ $\frac{1}{2}$ TON
LANDROVER

TRUCK 1 TON 4x4 AND 1 TON 4x4 AUSTIN



— 1 TON
▨ 1 TON
AUSTIN