



Ministry of Defence

Army Equipment Support Publication

Truck Utility Light (TUL) HS, Truck Utility Medium (TUM) HS and (TUM) Battlefield Ambulance HS, All Variants

2320-D-128-201

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PREFACE

Sponsor: Operational Support Vehicles Programme (OSVP)
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INTRODUCTION

1 Service users should forward any comments on this publication through the channels prescribed in AESP 0100-P-011-013. An AESP Form 10 is provided after the preliminary pages of this publication; it should be photocopied and used for forwarding comments on this AESP.

2 AESPs are issued under Defence Council authority and where AESPs specify action to be taken, the AESP will of itself be sufficient authority for such action and also for the demanding of the necessary stores.

3 The subject matter of this publication may be affected by Defence Council Instructions (DCis), by Standing Operating Procedures (SOPs) or by local regulations. When any such instruction, Order or regulation contradicts any portion of this publication it is to be taken as the overriding authority.

RELATED AND ASSOCIATED PUBLICATIONS**Related publications**

4 The AESP Octad for the subject equipment consists of the publications shown below. All references are prefixed with the first eight digits of this publication.

Associated publications

5 The Octad for the subject equipment consists of the publications shown overleaf. All references are prefixed with the first eight digits of this publication. The availability of the publications can be checked by reference to the relevant Group Index (see AESP 0100-A-001-013).

Reference	Title
AESP 2320-D-128-Octad	Truck Utility Light (TUL) HS, Truck Utility Medium (TUM) HS, and (TUM) Ambulance HS.
AESP 2540-A-100-201	Operating Instructions for Pintle Towing Rotatable

Category/Subcategory			Information Level			
			1 User/ Operator	2 Unit Maintenance	3 Field Maintenance	4 Base Maintenance
1	0	Purpose and Planning Information	101	*	*	*
	1	Equipment Support Policy Directive	111	*	*	*
	2	Cancellation Instruction	121	*	*	*
2	0	Operating Information	201	*	*	*
	1	Aide-Memoir	*	*	*	*
	2	Training Aids	*	*	*	*
3	0	Technical Description	201	302	*	*
4	1	Installation Instructions	411	*	*	*
	2	Preparation for Special Environments	421	*	*	*
5	1	Failure Diagnosis	*	512	512	*
	2	Maintenance Instructions	*	522	523	524
	3	Inspection Standards	*	532	533	534
	4	Calibration Procedures	*	*	*	*
6	0	Maintenance Schedule	601	*	*	*
7	1	Illustrated Parts Catalogue	711	*	*	*
	2	Commercial Parts List	721	*	*	*
	3	Complete Equipment Schedule, Production	731	*	*	*
	4	Complete Equipment Schedule, Service Edition (Simple Equipment)	741	*	*	*
	5	Complete Equipment Schedule, Service Edition (Complex Equipment)	751	*	*	*
8	1	Modification Instructions	811	*	*	*
	2	General Instructions, Special Technical Instructions and Servicing Instructions	821	*	*	*
	3	Service Engineered Modification Instructions (RAF only)	*	*	*	*

*Category / Subcategory not published.

WARNINGS AND CAUTIONS**HAZARDOUS SUBSTANCES**

6 Before using any hazardous substance or material, the user must be conversant with the safety precautions and first aid instructions:

- 6.1 On the label of the container it was supplied in;
- 6.2 On the material Safety Data Sheet;
- 6.3 In local Safety Orders and Regulations

WARNINGS

- (1) **THIS VEHICLE HAS A 2.5 LITRE DIRECT INJECTED TURBOCHARGED ENGINE, WHICH IS VERY POWERFUL.**
- (2) **CARE MUST BE TAKEN TO READ ALL INSTRUCTIONS AND CONDITIONS WITHIN THIS PUBLICATION.**
- (3) **WHEN READING THIS PUBLICATION TAKE NOTE OF THE DRIVING CONDITIONS FOR OFF ROAD OPERATIONS.**

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CHAPTER 1

GENERAL DESCRIPTION

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INTRODUCTION

1 This is Chapter 1. This Chapter gives a General Description of the Truck Utility Light (TUL) HS, Truck Utility Medium (TUM) HS and (TUM) Ambulance HS variants listed in the following sub-chapters:

- 1.1 Chapter 1-1 Basic vehicle
- 1.2 Chapter 1-2 Fitted For Radio (FFR)
- 1.3 Chapter 1-3 Field Ambulance
- 1.4 Chapter 1-4 Winterised/Waterproofed
- 1.5 Chapter 1-5 Winterised
- 1.6 Chapter 1-6 Air drop
- 1.7 Chapter 1-7 Helicopter Support Platform
- 1.8 Chapter 1-8 Commanders IK

- 1.9 Chapter 1-9 Weapons Mounted Installation Kit
- 1.10 Chapter 1-10 Tropical Field Ambulance
- 1.11 Chapter 1-11 Winterised/Waterproofed Field Ambulance
- 1.12 Chapter 1-12 Waterised Weapons Mounted Installation Kit

General

2 The information given in this chapter is applicable to both left and right hand drive vehicles.



MHB0001

Fig 1 Truck Utility Light



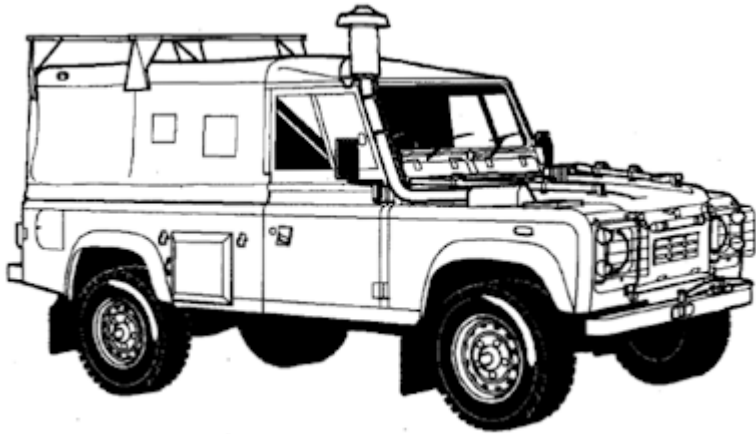
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Fig 2 Truck Utility Medium



MHB0141

Fig 3 Field Ambulance



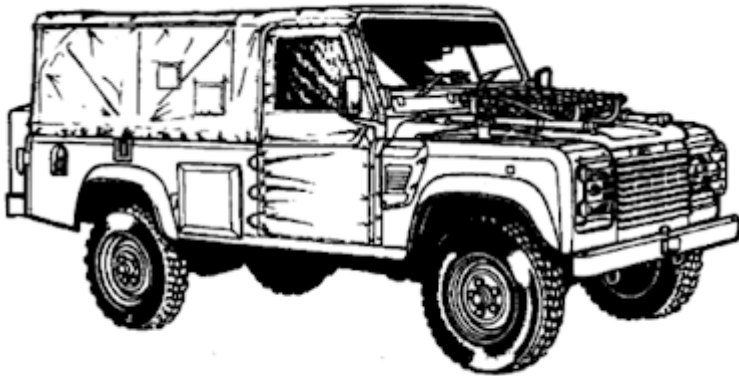
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Fig 4 Winterised/Waterproofed



MHB0753

Fig 5 Commanders IK



RIC201.1

Fig 6 Weapons Mounted Installation Kit

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CHAPTER 1-1

BASIC VEHICLE

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- 9 Differential lock warning label
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- 15 Spare wheel lifting harness label
- 16 Vehicle identification number (VIN)
- 17 Vehicle weight plate
- 18 Running-in period
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- 50 Small arms clip
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- 52 Electrical system
- 53 Alternator
- 54 Fuses
- 55 Batteries
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- 59 Fuel sedimenter
- 60 Fuel filter
- 61 Engine cooling system
- 62 Expansion tank
- 63 Radiator
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INTRODUCTION

1 Sub-chapter 1-1 gives a General Description for all items common to the Truck Utility Light (TUL) HS and Truck Utility Medium (TUM) HS vehicles.

TECHNICAL DATA

2 The technical data for the TUL and TUM vehicles are as follows:

Technical data (TUL)

Length	3835 mm (150.9 ins)
Width	1910 mm (75.2 ins)
Height (unladen)	2150 mm (84.6 ins)
Track (front and rear)	1521 mm (59.9 ins)
Gross Vehicle Weight (GVW)	SSSS
Fuel capacity	55.0 litres (12.0 gals)

Technical data (TUM)

Length	4550 mm (179.1 ins)
Width	1910 mm (75.2 ins)
Height (unladen)	2200 mm (84.6 ins)
Track (front and rear)	1521mm (59.9 ins)
Gross Vehicle Weight (GVW)	SSSS

Fuel capacity

82.0 litres (18.0 gals)

LABELS

3 There are, around the vehicle, labels of various kinds, some for information purposes, others to guard the user when operating the vehicle.

Rotating blades warning label

4 The label is located under the bonnet, on top of the radiator cowling (Fig 2).

Brake fluid warning label

5 The label is located under the bonnet (Fig 2), moulded into the brake fluid reservoir.

Radiator filler plug warning label

6 The label is located on the top of the radiator adjacent to the plug (Fig 2).

Anti-freeze label

7 There are two labels, one of which is attached to the windscreen (Fig 7) and the other can be found under the bonnet (Fig 2), affixed to the top of the radiator.

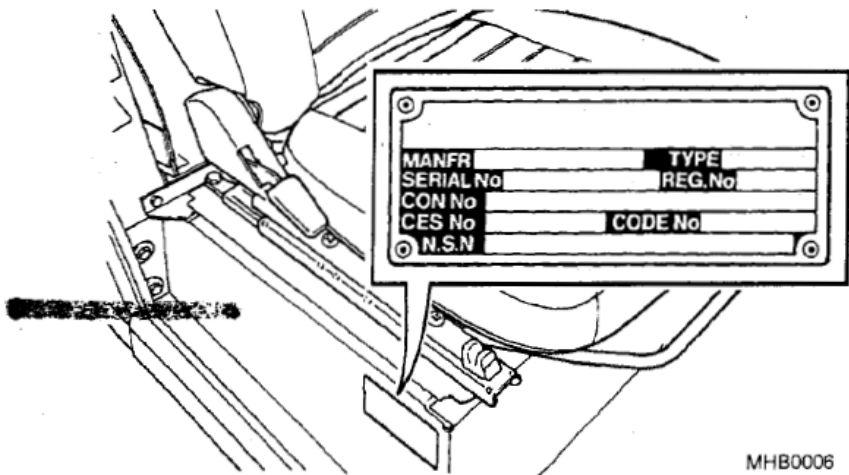


Fig 1 Nomenclature label

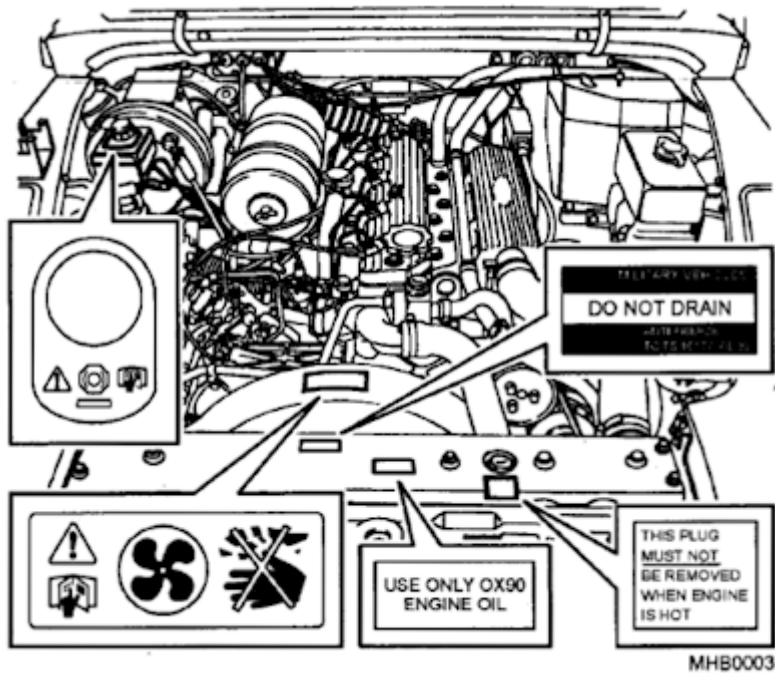


Fig 2 Under bonnet labels

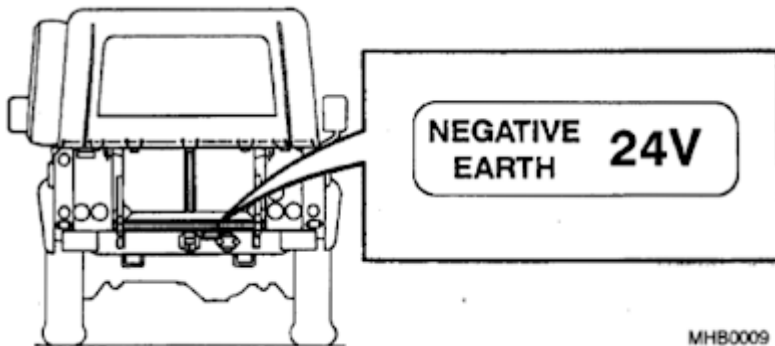


Fig 3 24 volt warning label (NATO socket)

Engine oil label

8 The label is located on top of the radiator and advised that only OX90 grade of oil is put into the engine.

Differential lock warning label

9 The label is located to the left of the steering wheel, mounted to the right of the auxiliary instrument panel (Fig 4).

Nomenclature label

10 The label is located on the side of the heel box, driver's side only (Fig 1).

Vehicle identification number plate (VIN)

11 The label is located under the bonnet on top of the brake pedal box (Fig 8).

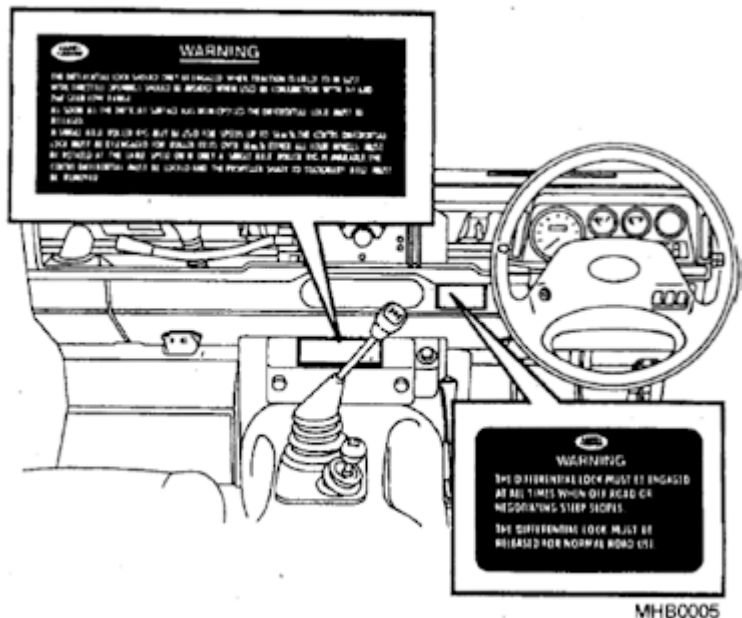


Fig 4 Differential lock warning label

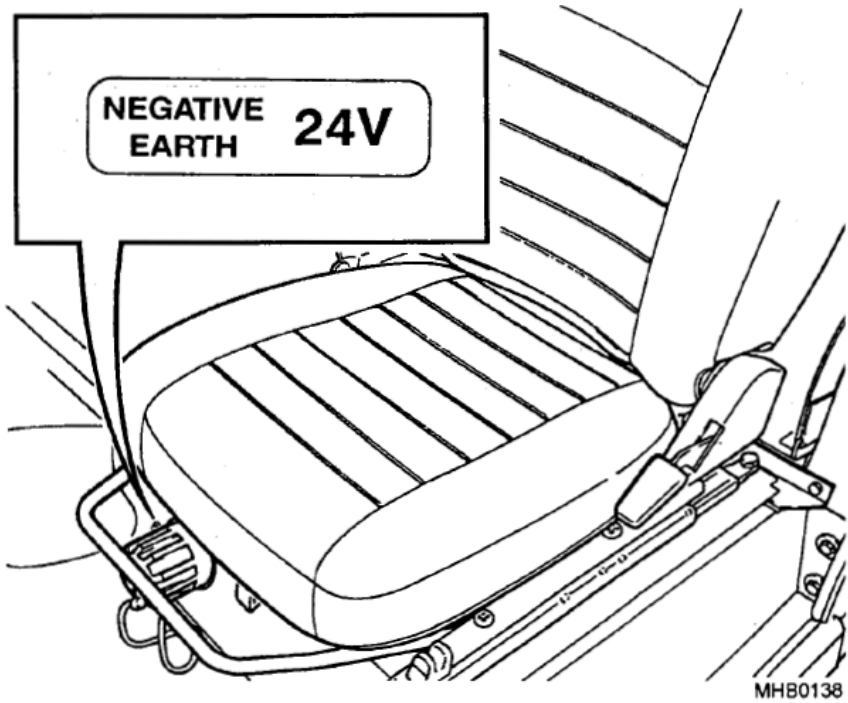


Fig 5 24 volt warning label (IVSS)

Fuel label

12 The label is located under the filler cap.

24 volt warning labels

13 The labels are located on the rear crossmember (Fig 3) adjacent to the 12 pin NATO socket and the Inter Vehicle Starting Socket (IVSS) (Fig 5) and inform the user that the vehicle system is 24 volts only.

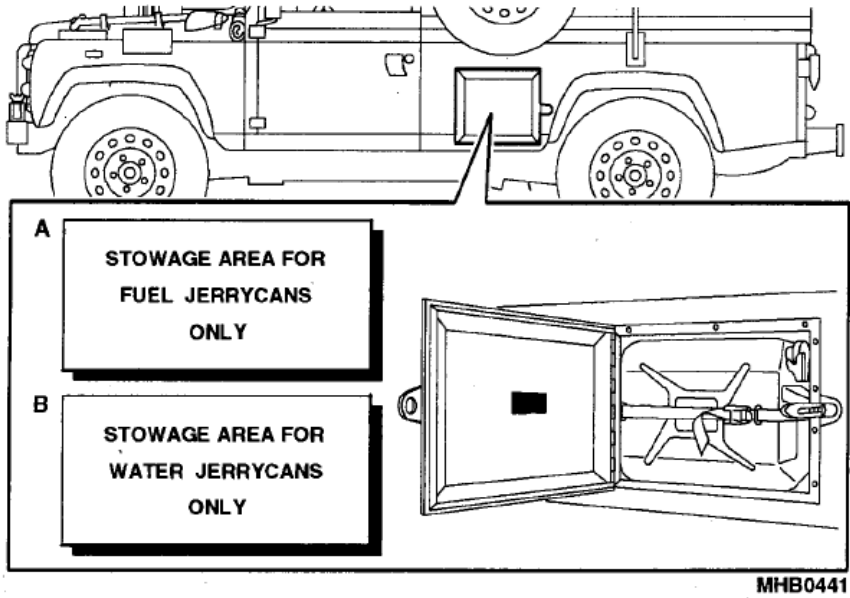


Fig 6 Jerry can labels

Jerry can labels

- 14 The labels are located on the inside of the respective compartment doors (Fig 6).

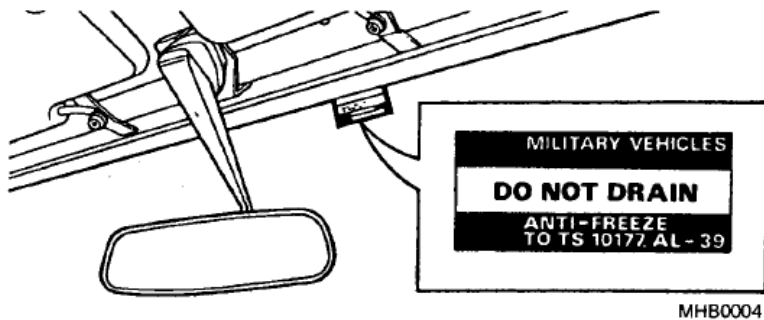
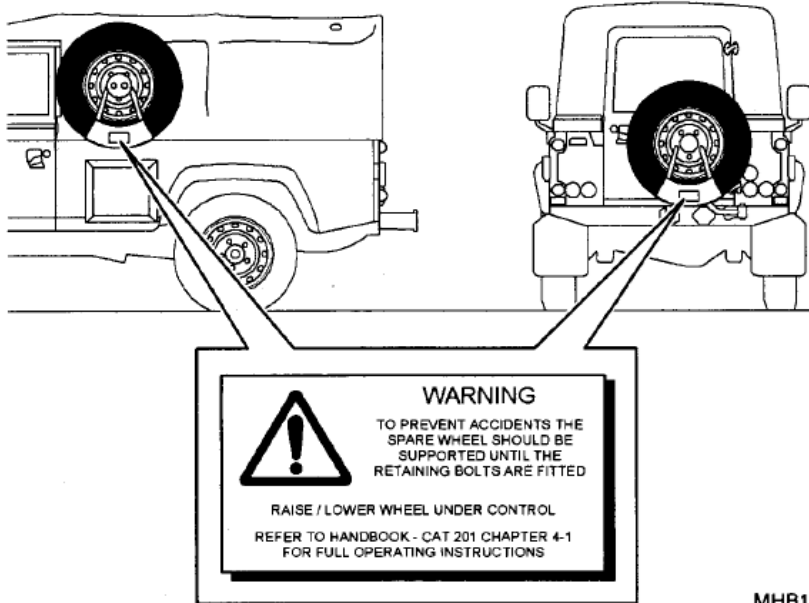


Fig 7 Anti-freeze label on windscreen

Spare wheel lifting harness label

15 The label is located on the harness and is visible when the spare wheel is in it's stowed position.



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Fig 8 Spare wheel lifting harness label

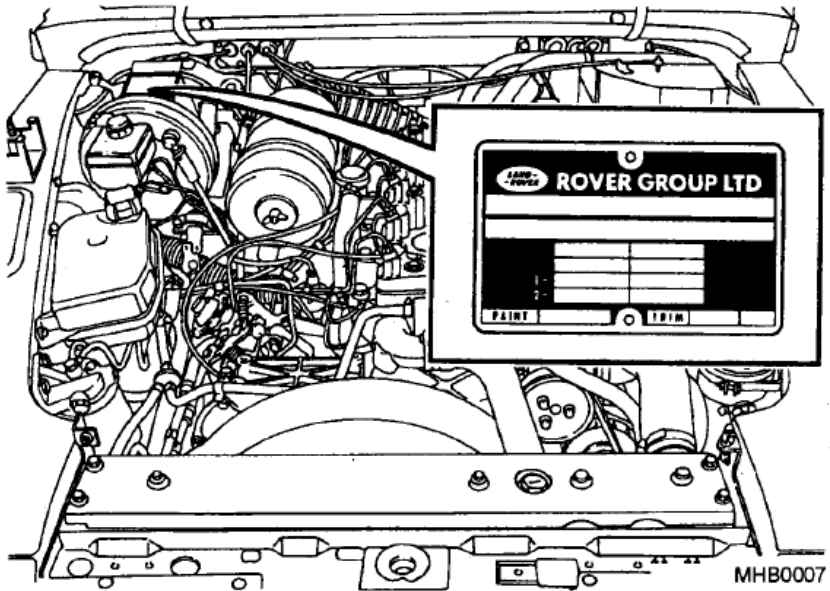


Fig 9 Vehicle identification label (VIN)

VEHICLE IDENTIFICATION NUMBER (VIN)

16 The vehicle identification number and the recommended maximum vehicle weights are stamped on a plate (Fig 10) riveted to the top of the brake pedal box in the engine compartment. The number is also stamped on the right-hand side of the chassis forward of the spring mounting turret and on a plate fixed between the dash and the windscreen located on the passenger side. Check for a weight plate on the heel box to confirm if the VIN plate weights have been superseded.

VEHICLE WEIGHT PLATE

17 The vehicle weight plate is located on the side of the drivers heel box (Fig 11).

RUNNING-IN PERIOD

18 Progressive running-in of the vehicle is most important and has a direct bearing on reliability and smooth running throughout its life. The most important point is not to hold the vehicle on a large throttle opening for any sustained periods. To start with, the maximum speed

should be limited to 65 to 80 km/h (40 to 50 mph) on a light throttle and this may be progressively increased over the first 2,500km (1550 miles).

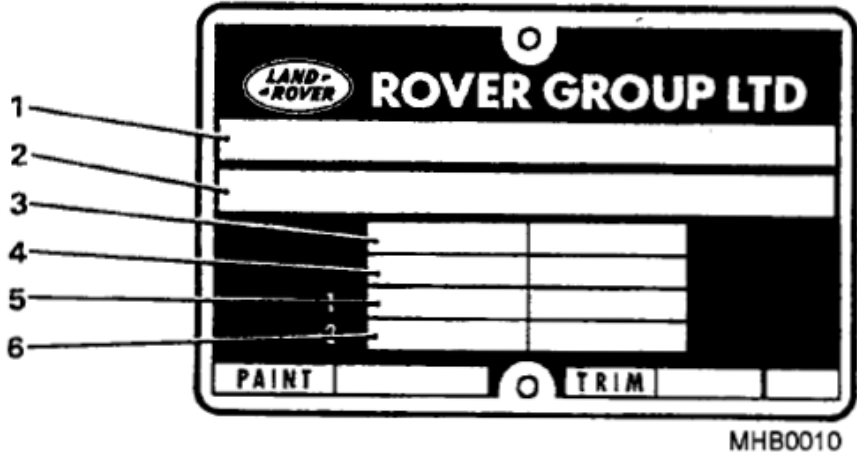


Fig 10 Vehicle identification number plate

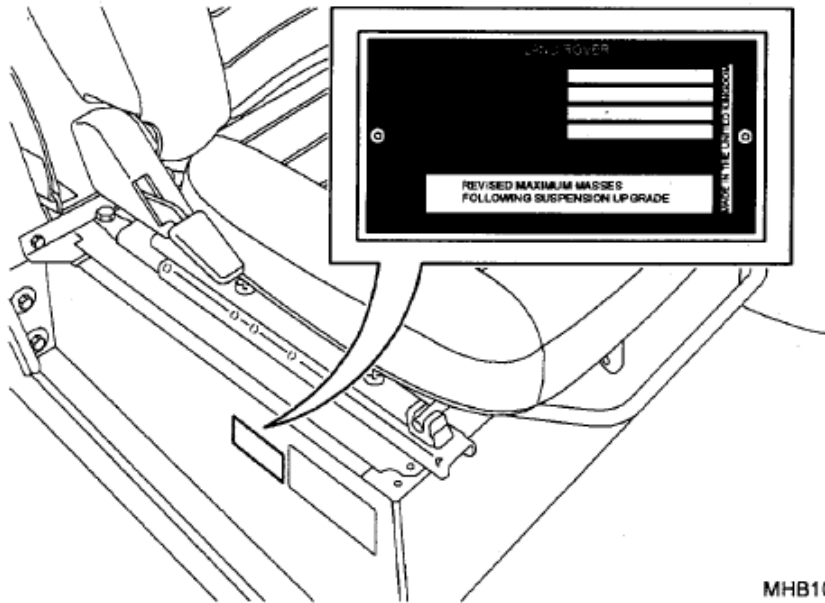


Fig 11 Vehicle weight plate

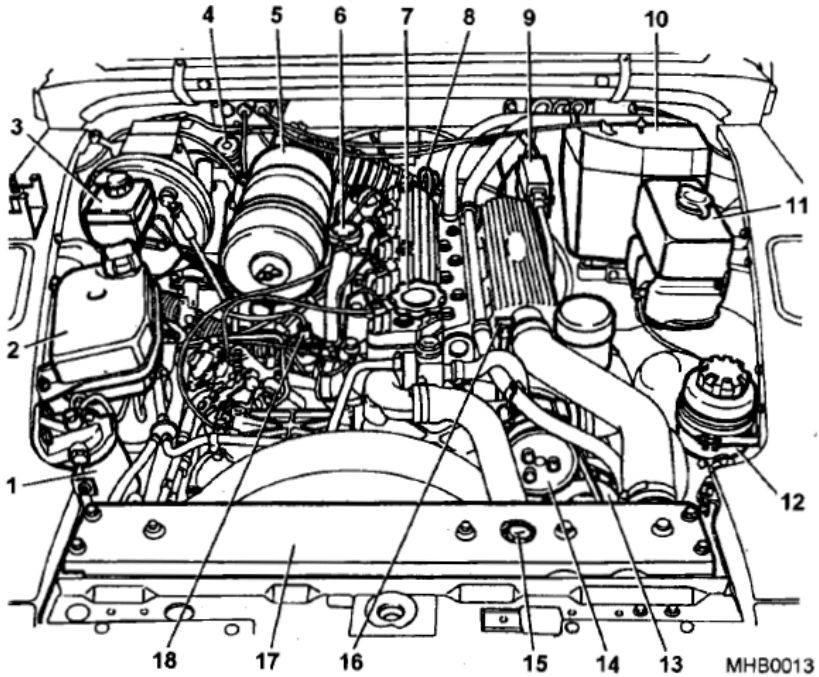
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WARNINGS

- (1) **TYRES. DO NOT MIX CROSS-PLY AND RADIAL-PLY TYRES ON THIS VEHICLE.**
- (2) **FILLER CAP. DO NOT REMOVE THE EXPANSION TANK FILLER CAP WHEN THE ENGINE IS HOT, BECAUSE THE COOLING SYSTEM IS PRESSURISED AND PERSONAL SCALDING COULD RESULT.**
- (3) **LIQUIDS. MANY LIQUIDS AND SUBSTANCES USED IN MOTOR VEHICLES ARE POISONOUS; THEY MUST NOT BE CONSUMED UNDER ANY CIRCUMSTANCES AND MUST BE KEPT AWAY FROM OPEN WOUNDS. THESE SUBSTANCES INCLUDE BRAKE FLUID, FUEL, WINDSCREEN WASHER ADDITIVES, LUBRICANTS, BATTERY CONTENTS, VARIOUS ADHESIVES, COOLING SYSTEM CORROSION INHIBITOR AND POWER ASSISTED STEERING FLUID.**

CAUTIONS

- (1) **SERVICING.** Regular servicing, as described in (Cat 601) and (Cat 111) is essential to help provide safe, dependable and economical motoring.
- (2) **SEATS AND SAFETY HARNESS.** All crew/passengers must occupy the designated seats and wear the safety harness provided, even for the shortest journey.
- (3) **LAYOUT.** Before driving, learn the layout and use of all controls, gears and switches.
- (4) **SEATING.** Adjust the seat to achieve a comfortable driving position with full control over the vehicle.
- (5) **CONTROLS.** Always start the vehicle and operate the controls from the driving position.
- (6) **BRAKING.** Ensure that the vehicle speed is low enough for an emergency stop to be made safely under all road and vehicle loading conditions.
- (7) **VISION.** Keep the windscreen and side windows clean to give a clear vision. Use a solvent in the screen washer reservoir.
- (8) **LIGHTS.** Maintain all external lights in good working order and ensure correct setting of headlamp beams.
- (9) **TYRES.** Maintain the correct tyre pressures. These should be checked as described in (Cat 601).
- (10) **WADING.** Before wading make sure that the timing cover drain plug and the flywheel housing drain plug are in position. When wading ensure that the vehicle does not move above 5 Kph (3 mph)



- | | | | |
|---|------------------------|----|-----------------------------|
| 1 | Fuel filter | 10 | Heater matrix |
| 2 | Expansion tank | 11 | Windscreen washer reservoir |
| 3 | Brake fluid reservoir | 12 | Power steering reservoir |
| 4 | Clutch fluid reservoir | 13 | 24 volt ducted alternator |
| 5 | Air cleaner | 14 | Water pump |
| 6 | Crankcase breather | 15 | Radiator filler cap |
| 7 | Engine oil filler cap | 16 | Dipstick |
| 8 | Breather pipes | 17 | Radiator |
| 9 | Auxiliary fuses | 18 | Fuel lift pump |

Fig 12 Under the bonnet layout

KEY TO FIG 13

- 1 Bumperettes
- 2 Rear stop lights
- 3 Rear number plate light
- 4 Full length hood
- 5 Convoy flag holders
- 6 Air intake
- 7 Side repeaters
- 8 TUUAM Coaxial stowage
- 9 Door handles
- 10 Fuel cap
- 11 Windscreen wipers
- 12 Spare wheel
- 13 Shovel
- 14 Front side lights
- 15 Headlights
- 16 Turn lights
- 17 Gearbox oil cooler
- 18 Front towing pintle
- 19 Convoy flag holders
- 20 Pick head
- 21 Door mirrors
- 22 Helve
- 23 Rear side light
- 24 Reversing light
- 25 12 pin trailer socket
- 26 Rotating towing hook
- 27 Turn lights
- 28 Rear fog lights

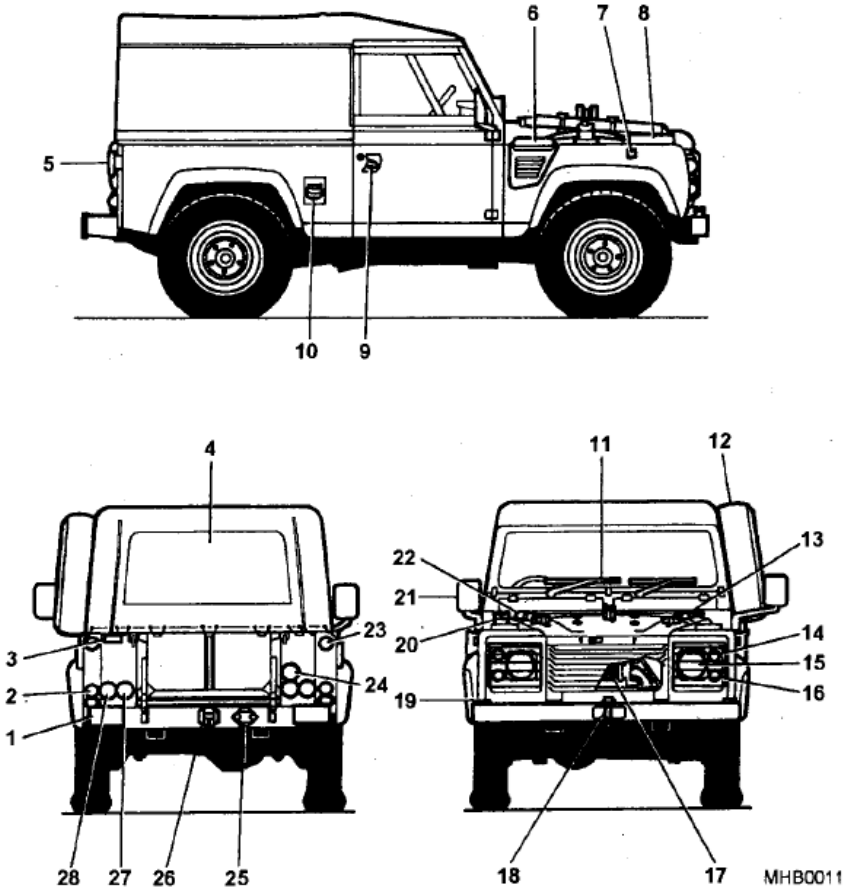


Fig 13 Truck Utility Light (TUL)

KEY TO FIG 14

- 1 Bumperettes
- 2 Rear stop lights
- 3 Rear number plate light
- 4 Full length canvas hood
- 5 Convoy flag holders
- 6 Air intake
- 7 Side repeaters
- 8 TUUAM Coaxial stowage
- 9 Door handles
- 10 Jerry can stowage
- 11 Fuel cap
- 12 Windscreen wipers
- 13 Spare wheel
- 14 Shovel
- 15 Front side lights
- 16 Headlights
- 17 Turn lights
- 18 Gearbox oil cooler
- 19 Front towing pintle
- 20 Pick head
- 21 Door mirrors
- 22 Helve
- 23 Rear side light
- 24 Reversing light
- 25 12 pin trailer socket
- 26 Rotating towing hook
- 27 Turn lights
- 28 Rear fog lights

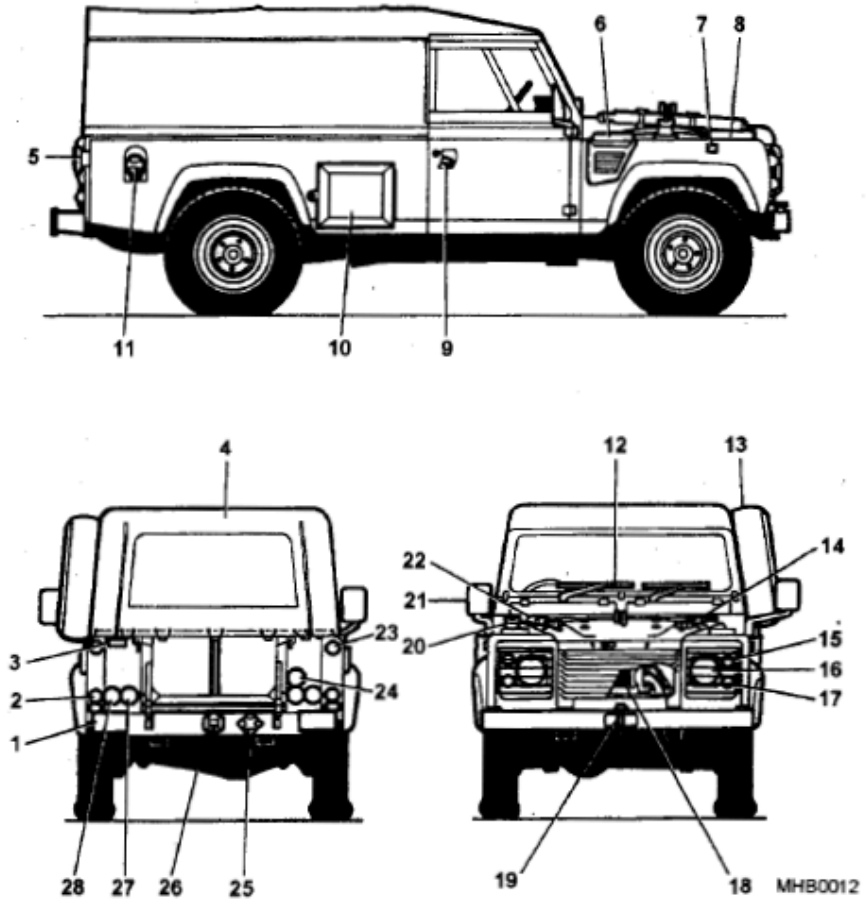


Fig 14 Truck Utility Medium (TUM)

KEY TO FIG 15

- 1 Front towing pintle
- 2 Front tie down shackles
- 3 Steering protection plate
- 4 Front axle breather
- 5 Engine sump
- 6 Exhaust pipe and catalyst
- 7 Main gearbox
- 8 Transmission brake drum
- 9 Rear axle breather
- 10 Rear tie down shackles
- 11 Rear bumperettes including anti-jack
knife attachment points
- 12 Towing hook
- 13 Trailer socket
- 14 Convoy light
- 15 Rear brakes
- 16 Rear differential axle
- 17 Fuel sedimenter
- 18 Fuel filler pipe
- 19 Fuel tank
- 20 Rear propeller shaft
- 21 Transfer gearbox
- 22 Front propeller shaft
- 23 Engine oil filter
- 24 Track rod protection plate
- 25 Front brake and swivel pin housing
- 26 Front differential axle
- 27 Steering box
- 28 Front bumper

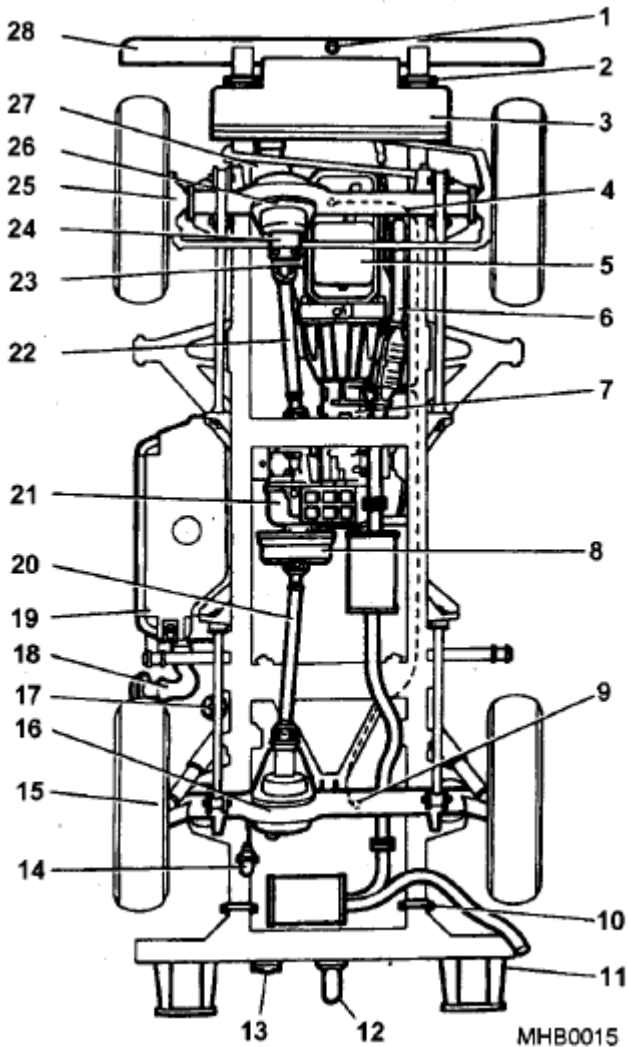


Fig 15 Under the vehicle (TUL)

KEY TO FIG 16

- 1 Front towing pintle
- 2 Front tie down shackles
- 3 Steering protection plate
- 4 Front axle breather
- 5 Engine sump
- 6 Engine oil filter
- 7 Exhaust pipe and catalyst
- 8 Rear axle breather
- 9 Rear tie down shackles
- 10 Rear bumperettes including anti-jack
knife attachment points
- 11 Towing hook
- 12 Trailer socket
- 13 Fuel tank
- 14 Fuel filler pipe
- 15 Convoy light
- 16 Rear brakes
- 17 Rear differential axle
- 18 Rear propeller shaft
- 19 Fuel sedimenter
- 20 Transmission brake drum
- 21 Transfer gearbox
- 22 Main gearbox
- 23 Front propeller shaft
- 24 Anti roll bars
- 25 Track rod protection plate
- 26 Front brake and swivel pin housing
- 27 Front differential axle
- 28 Steering box
- 29 Front bumper

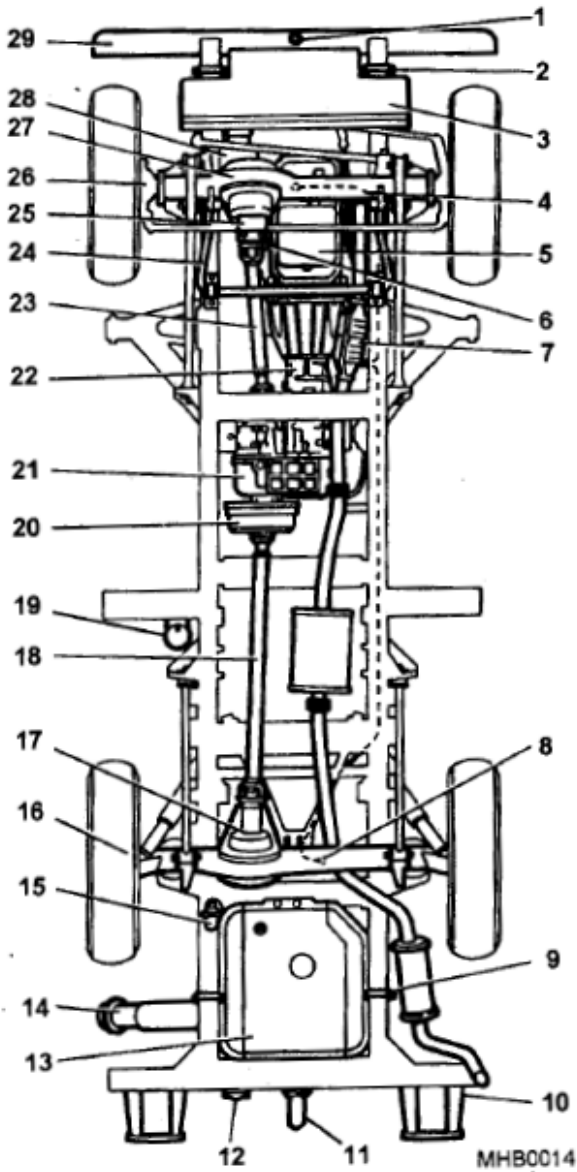


Fig 16 Under the vehicle (TUM)

KEY TO FIG 17

- 1 Map reading light
- 2 Ventilator control
- 3 Main lighting switch
- 4 Inspection sockets
- 5 Heater fan control
- 6 Speedometer
- 7 Fuel indicator
- 8 Coolant temperature indicator
- 9 Warning lights panel
- 10 Temperature control lever
- 11 Distribution control lever
- 12 Windscreen wash/wipe switch
- 13 Rear fog guard light switch
- 14 Headlamp levelling switch
- 15 Hazard warning lights switch
- 16 Accelerator pedal
- 17 Brake pedal
- 18 Starter switch
- 19 Clutch pedal
- 20 Headlight dip, direction indicators,
horn and flasher switch
- 21 Hand brake
- 22 Hand throttle (FFR only)
- 23 Fuse box
- 24 Transfer gear/differential lock lever
- 25 Main gear change lever
- 26 Ammeter (FFR only)
- 27 Footwell air vents

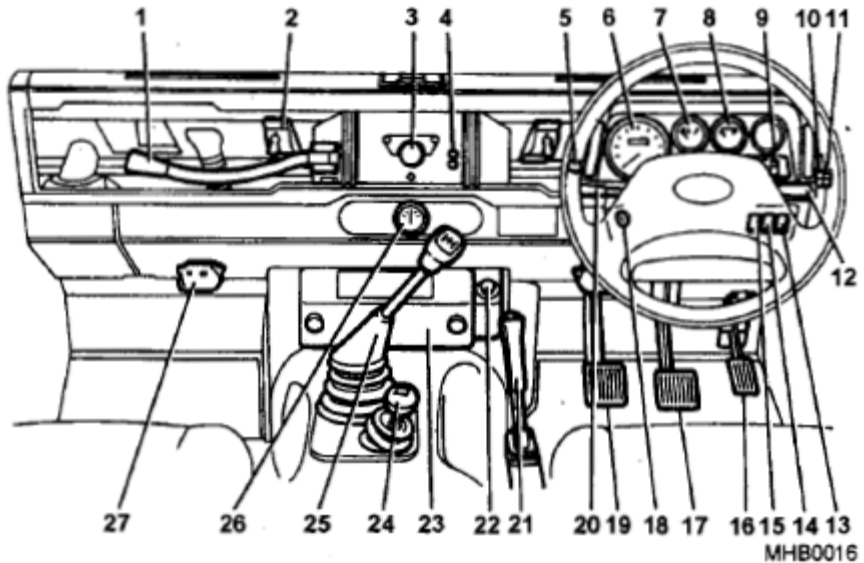


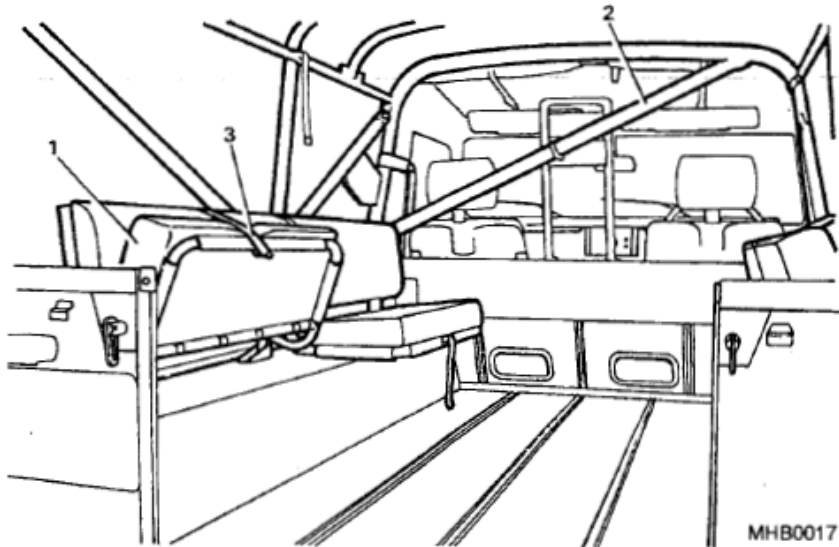
Fig 17 Vehicle dash layout

THE VEHICLE

19 The vehicle is of the four wheeled type, permanently driving through all four wheels and is available in right or left hand drive. It is capable of leaving made up road surfaces and travelling on to unmade ground the vehicle is capable of towing, when laden, the appropriate trailers without disproportionate loss of performance.

POWER TRAIN

20 The engine is a four cylinder, four stroke, compression ignition type with direct injection, turbocharged and intercooled with overhead valves and liquid cooling. The power is transmitted through a single dry plate clutch to a five forward and one reverse speed main gearbox and a two speed transfer gearbox with an integral central differential to both front and rear axles. With the combination of transfer gearbox and main gearbox the vehicle, in effect, has 12 gear ratios, ten forward and two reverse.



- | | | | |
|---|-----------------------|---|-------------------------|
| 1 | Fold down bench seats | 3 | Seat restraining straps |
| 2 | Roll over bar | | |

Fig 18 Inside the rear of the vehicle

CHASSIS

21 The chassis is constructed from two welded box section side members with five cross members on the TUL and seven cross members on the TUM vehicles and a detachable gearbox cross member.

Front bumper

22 Attached to the front of the chassis is a full width bumper complete with convoy flag holder facilities at each end.

Front towing pintle

23 The front towing pintle is built into the centre of the bumper and accepts a 75 mm (2.9 in.) eye.

Recovery/tie down shackles

24 Four recovery/tie down shackles are fitted to the chassis side members - two at the front and two at the rear for aircraft tie-down, lifting and recovery functions: In addition and attached to the front and rear bumpers are four lifting rings, the rear being incorporated in the bumperettes.

SUPENSION

25 The suspension is provided by four helical coil springs, one at each wheel station with double acting hydraulic dampers and rubber buffers.

BRAKES

26 The brake circuit is divided to provide braking on all four wheels using ventilated disc brakes on the front and solid disc brakes on the rear wheels, with a servo-assisted hydraulic braking system. A mechanically operated transmissionparking brake is provided, utilising the drum brake system, mounted on the rear of the transfer gearbox output shaft.

Brake actuation

27 Brake actuation is by a pendant pedal acting through a vacuum assisted servo unit on a tandem hydraulic master cylinder. A direct drive engine pump supplies vacuum. Rear feed (TUL only) passes through a pressure-reducing valve.

Brake failure warning system

28 A warning light on the pinnacle in the cab indicates hydraulic failure.

AXLES

29 The axles on the TUL and TUM vehicles are of the rigid construction type with a spiral bevel type differential at the front and rear.

Front axle

30 The front axle is made up of a two-piece pressed steel casing with offset banjo and spherical housings for universal joints in half shafts.

Half shafts

31 The half shafts are fully floating incorporating a single constant velocity joint.

Hub drive arrangement

32 The hub drive arrangements are driving flanges splined to the half shafts with taper roller hub bearings.

Steering swivels

33 These are taper roller bearings with asbestos resin upper bearings.

Axle breathers

34 The axle breathers are flexible pipes starting from the axle tubes ending in the engine compartment. There are two breathers, one from each axle.

Rear Axle

35 The rear axle has two variants one for TUL and one for TUM and are as follows:

35.1 **Rear axle (TUL).** The assembly is made up of a two-piece pressed steel casing and 6mm (0.25 in) differential bowl.

35.2 **Rear axle (TUM).** The rear axle is made up of a rigid two piece pressed steel casing with a single heavy gauge steel stiffener on the underside and 6mm (0.25 in) differential bowl.

Hub driving arrangement

36 The hub driving arrangement is via a hub-driving member splined to the half shafts with taper roller hub bearings.

BODY

37 The body is constructed from pressed and folded aluminium alloy panels, spot welded or riveted. The scuttle, door frames and other minor items are made from steel.

Windscreen

38 The windscreen is made up of a one-piece laminated glass.

Bonnet

39 The bonnet is constructed from aluminium alloy sheet with steel stiffeners. It is fitted with a central retaining device, a safety catch and an external release mechanism.

Spare wheel stowage

40 Two spare wheel stowages are provided:

40.1 The spare wheel stowage is located on the bonnet for emergency use only.

40.2 This is when the wheel cannot be stowed on the side of the vehicle for any particular reason.

40.3 The spare wheel stowage for other than above (Para 40.2) is located on the opposite side to the driver, and is secured to a mounting bracket, which is bolted to the roll cage.

40.4 The spare wheel is secured to either stowage position by two bolts.

Cab doors

41 The cab doors are constructed from aluminium alloy panels with a onepiece steel frame and fittings hung on two hinges. The upper door assembly is removable at waist level.

Door locks

42 The doors are fitted with direct action anti-burst door locks complete with a private lock set and adjustable striker plates.

Door windows

43 The door windows are made up of two-piece sliding section, of toughened glass, and are lockable in the closed position.

Scuttle

44 The scuttle divides the engine bay from the driving/passenger compartment. It is constructed from mild steel with impact surfaces designed for collapsibility and are padded. The ventilators are pivoted adjustable flaps ducted to face level outlets and are fitted with gauze fly screens.

Radiator mounting and grille

45 The radiator is rubber mounted to the chassis/body and is protected by a black plastic moulded grille.

Front wings

46 The front wings are made from aluminium alloy sheet with flat tops and steel curved inner wheel valances. Tops are reinforced to permit the fitting of TUUAM.

Bodyside and rear quarters

47 The body side and rear quarters are constructed from aluminium alloy with steel cappings.

Jerry can stowages

48 On TUM vehicles only, jerry can stowages have been built into the bodysides. The stowages are of alloy and steel construction with lockable aluminium alloy doors. The doors have a provision for padlocks.

Bulkhead

49 The bulkhead separates the driver/passenger compartment from the load compartment of the vehicle. It is constructed from aluminium alloy with steel cappings and is permanently secured into position.

Small arms clip

50 Mounted within the cab area are two sets of small arms clips. The clips are positioned for easy access.

Floor

51 The floor is constructed from aluminium alloy sheet panelled, braced underframed and rigidly attached to the chassis frame. Riveted to the floor are two full-length galvanised steel wear strips.

ELECTRICAL SYSTEM

52 The electrical system is charged by the vehicle alternator to 24 volts rectified AC negative earth with voltage compensation and ducted breathing to control water ingress. The charging control and rectifier are integral with the alternator. The system feeds all the vehicles' electrical requirements.

Alternator

53 The alternator is a 24 volt charging system with a 50 Ampere nominal output.

Fuses

54 There are two fuse boxes, a master fuse box, which is located in the engine compartment, and a subsidiary fuse box located in the fascia. There are 3 fuses in the master box and 17 in the subsidiary box which protect the vehicle circuits.

Batteries

55 The vehicle batteries are of the low maintenance type with special airportable filler caps wired in series to supply 24 volts.

Lights

56 The vehicle lights are of the commercial type and are controlled by the main lighting switch which governs whether the vehicle is in normal lighting or blackout.

FUEL SYSTEM

57 The fuel system consists of the fuel tank feeding through a sedimenter to a fuel lift pump and fuel filter located in the engine compartment, then to the engine.

Fuel lift pump

58 The engine mounted mechanical fuel lift pump is a self-priming unit and does not need any attention. The pump draws fuel up to the engine from the tank.

Fuel sedimenter

59 The fuel sedimenter is to allow excess water to be collected and, at periodic intervals, drained away to atmosphere.

Fuel filter

60 The fuel filter is a full-flow unit and contains a renewable canister. The filter cleans the fuel and collects any foreign bodies found in the fuel.

ENGINE COOLING SYSTEM

61 The cooling system is located inside the engine compartment and comprises the expansion tank connected to the radiator by way of the engine.

Expansion tank

62 The expansion tank is located on the right hand side wing valance and allows the coolant to expand when it gets hot. This prevents the system from being over pressurised.

Radiator

63 The radiator is vaned so that air can pass through, allowing the heated fluid that has circulated through the engine to cool down.

INFRARED LIGHTING SYSTEM

64 The Infrared lighting system when used in conjunction with appropriate Infrared goggles provides short range visibility enhancement at night The system consists of front and rear light units and a dash mounted control panel.

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CHAPTER 1-2

FITTED FOR RADIO (FFR)

CONTENTS

Para

- 1 Introduction
- 2 Electrical system
- 3 Alternator (FFR)
- 4 Radio equipment
- 5 Radio table and battery box
- 6 Radio equipment rack
- 7 VHF antenna leads, TUUAM mountings and storage
- 8 Antenna mast mountings
- 9 Battery isolation switch and import/export system

Fig

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1	Truck Utility Light (Fitted For Radio).....	XX
2	Truck Utility Medium (Fitted For Radio).....	XX
3	Under the bonnet layout.....	XX
4	Inside the rear of the vehicle.....	XX
5	Battery isolation switch and power import/export system.....	XX

INTRODUCTION

1 This sub-chapter describes all the items applicable to the Fitted For Radio (FFR) TUL and TUM vehicles which have not been covered in sub-chapter 1-1.

KEY TO FIG 1

- 1 Bumperettes
- 2 Rear stop lights
- 3 Rear number plate light
- 4 Radio aerial mounting base
- 5 Spare wheel
- 6 Convoy flag holder
- 7 Air intake
- 8 Side repeater lights
- 9 Aerial coaxial stowage
- 10 Door handle
- 11 Fuel cap
- 12 Windscreen wipers
- 13 Shovel
- 14 Front side lights
- 15 Headlights
- 16 Turn lights
- 17 Oil cooler
- 18 Front towing pintle
- 19 Convoy flag holder
- 20 Pick head
- 21 Door mirrors
- 22 Helve
- 23 Rear side light
- 24 Reverse light
- 25 12 pin trailer socket
- 26 Rotating towing hook
- 27 Turn lights
- 28 Rear fog lights

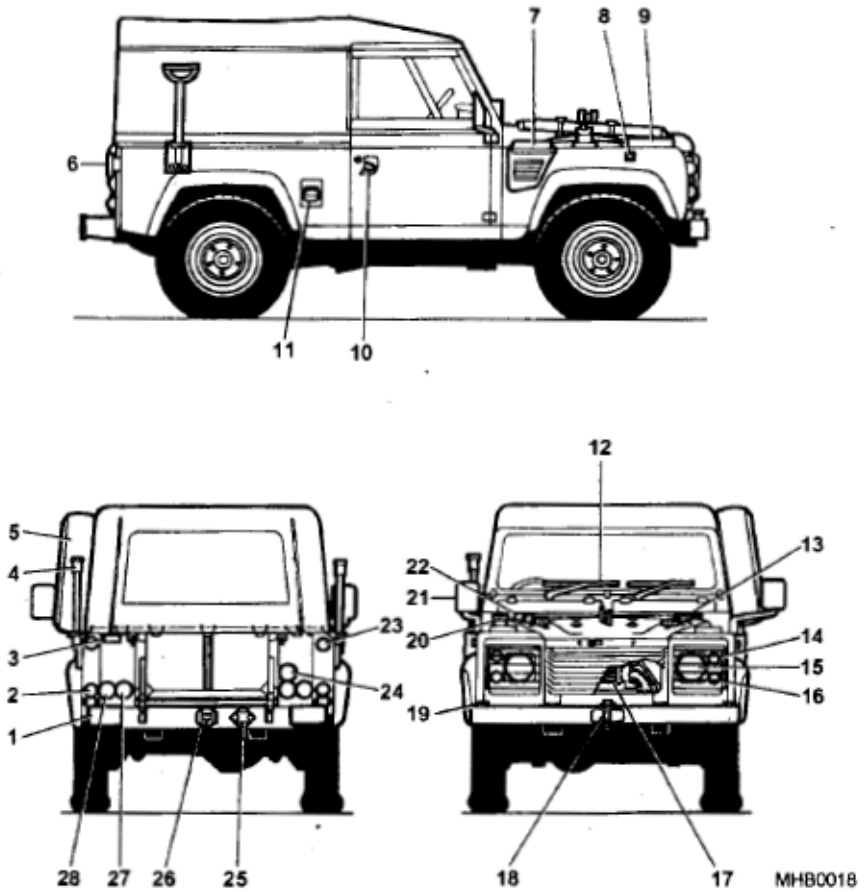


Fig 1 Truck Utility Light (Fitted For Radio)

KEY TO FIG 2

- 1 Bumperettes
- 2 Rear stop lights
- 3 Rear number plate light
- 4 Radio aerial mounting base
- 5 Spare wheel
- 6 Convoy flag holder
- 7 Air intake
- 8 Side repeater lights
- 9 Aerial coaxial stowage
- 10 Door handle
- 11 Jerry can holder
- 12 Fuel cap
- 13 Windscreen wipers
- 14 Shovel
- 15 Front side lights
- 16 Headlights
- 17 Turn lights
- 18 Oil cooler
- 19 Front towing pintle
- 20 Convoy flag holder
- 21 Pick head
- 22 Door mirrors
- 23 Helve
- 24 Rear side light
- 25 Reverse light
- 26 12 pin trailer socket
- 27 Rotating towing hook
- 28 Turn lights
- 29 Rear fog lights

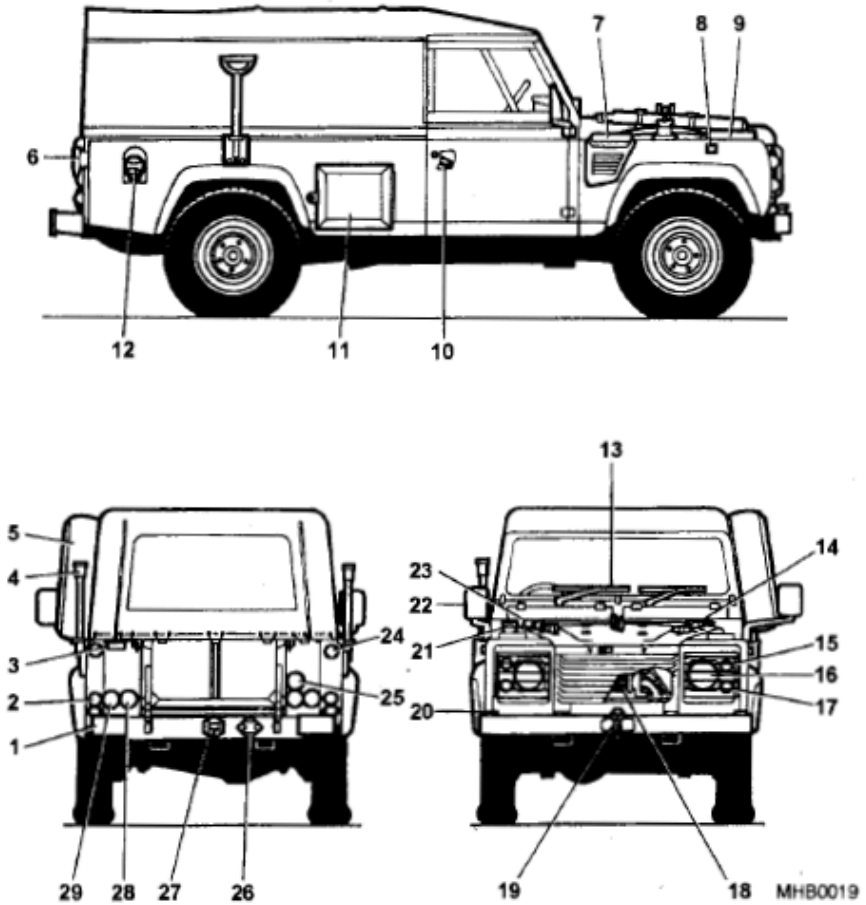
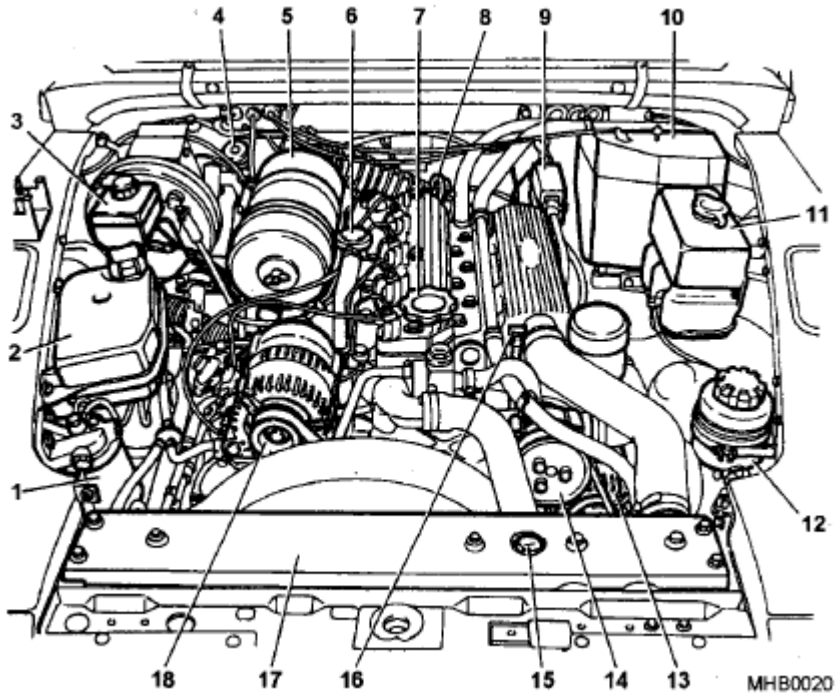
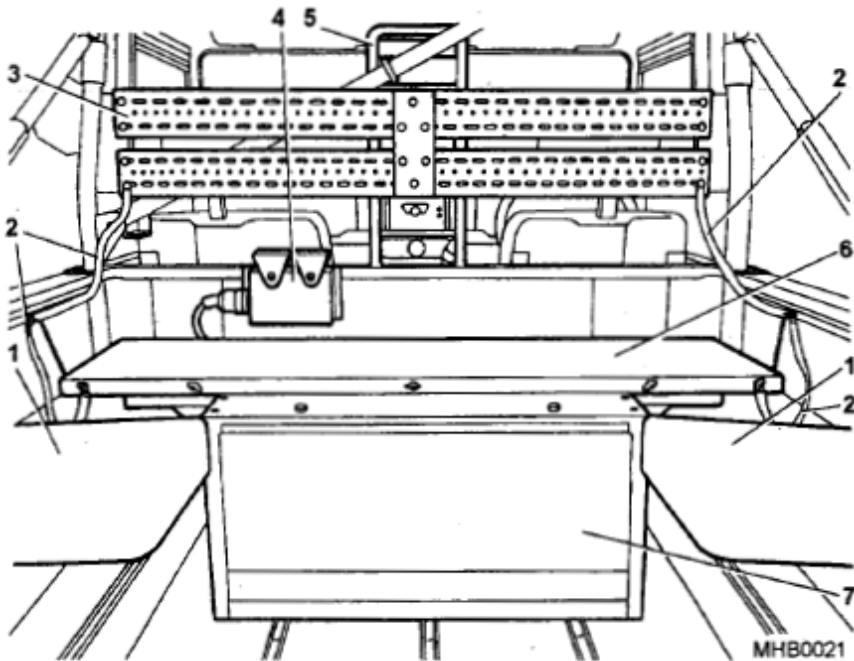


Fig 2 Truck Utility Medium (Fitted For Radio)



- | | | | |
|---|------------------------|----|-----------------------------|
| 1 | Fuel filter | 10 | Heater matrix |
| 2 | Expansion tank | 11 | Windscreen washer reservoir |
| 3 | Brake fluid reservoir | 12 | Power steering reservoir |
| 4 | Clutch fluid reservoir | 13 | 50 Amp alternator |
| 5 | Air cleaner | 14 | Water pump |
| 6 | Crankcase breather | 15 | Radiator filler cap |
| 7 | Engine oil filler cap | 16 | Dipstick |
| 8 | Breather pipes | 17 | Radiator |
| 9 | Auxiliary fuse box | 18 | 50 Amp alternator (FFR) |

Fig 3 Under the bonnet layout



- | | | | |
|---|----------------------|---|---------------------|
| 1 | Radio seats | 5 | Small arms clip |
| 2 | Earthing braids | 6 | Radio table |
| 3 | Radio equipment rack | 7 | Battery storage box |
| 4 | Terminal box | | |

Fig 4 Inside the rear of the vehicle

ELECTRICAL SYSTEM

2 A 24v 50 Amp alternator charges the auxiliary electrical system. The system feeds the vehicles' radio equipment via an in-line fuse to a terminal/shunt box mounted on the rear of the bulkhead. FFR vehicles have an additional charging system to supply radio equipment. . The two systems operate independently of each other but can assist one another when required. A control box is required to enable the load sharing facility to take place.

Alternator (FFR)

3 The alternator charging system provides a 24 volt, 50 Ampere nominal output.

RADIO EQUIPMENT

4 The radio equipment is made up of the following items:

Radio table and battery box

5 A combined radio table and battery box capable of accepting five sets of Clansmen mounting bars is fitted transversely across the vehicle behind the bulkhead. The unit has provision for up to four batteries to be stowed to operate the radio sets.

Radio equipment rack

6 The radio equipment rack is made up of two galvanised slotted angle brackets mounted transversely across the vehicle above the bulkhead.

VHF antenna leads, TUUAM mountings and storage

7 Two leads run from the TUAAM mountings and stowage boxes on each wing to the stowage boxes mounted on the front of the bulkhead directly behind the front seats.

Antenna mast mountings

8 The two brackets, one on each side of the vehicle, are for the VHF antenna mast mountings. The brackets can be detached to give a minimum width for air transportation.

Battery isolation switch and import/export system

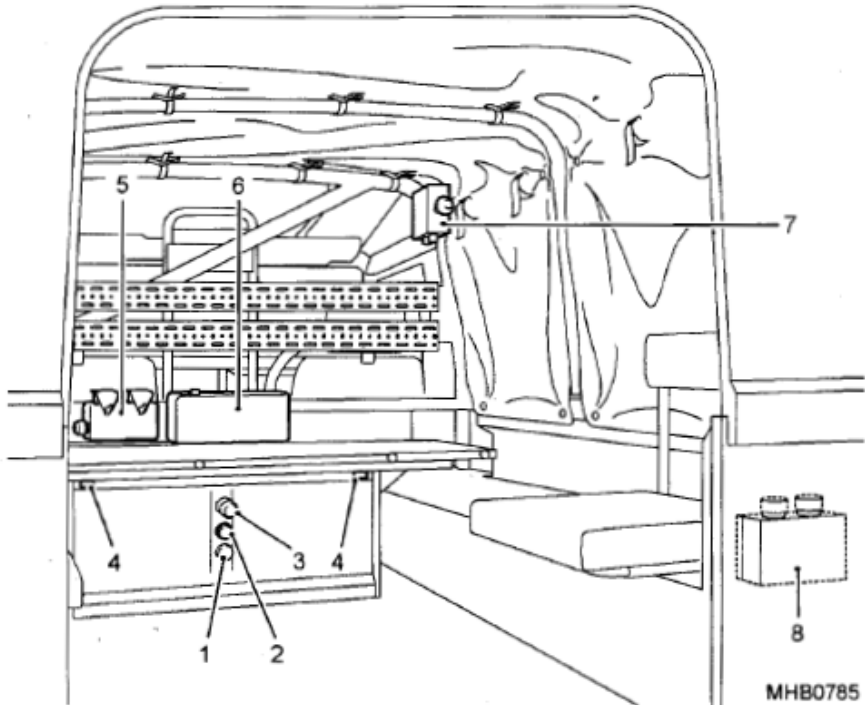
9 The power import/export system provides an interface between the vehicles charging system, communications batteries and the import export sockets.

9.1 The system allows the communications batteries to be charged by either the vehicle charging system or an external generator connected via the import socket (Fig 5 (8)). Power can also be exported from the vehicle charging circuit via the export socket (8).

9.2 Both the auxiliary terminals (5) and the power export socket can be disconnected quickly via the isolation switch (7) mounted on the roll cage. In the event that the external generator is disconnected or stops, the system reverts to the vehicle charging system.

9.3 Mounted on the top of the relay box (6) are two circuit breakers for the protection of the auxiliary terminals (100A) and the power export socket (40A).

9.4 A warning buzzer (2) and test button (1) is provided to prevent the communications batteries from being connected incorrectly after the refitting of the batteries.



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- | | | | |
|---|-------------------------------------|---|--------------------------|
| 1 | Test button | 5 | Auxiliary terminal box |
| 2 | Warning buzzer | 6 | Relay box |
| 3 | Positive battery lead stowage post | 7 | Battery isolation switch |
| 4 | Negative battery lead stowage label | 8 | Power import/export box |

Fig 5 Battery isolation switch and power import/export system

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CHAPTER 1-3

FIELD AMBULANCE

CONTENTS

Para

- 1 Introduction
- 2 Primary role
- 3 Secondary role
- 4 Technical data
- 5 Warning labels
- 6 No Smoking or naked lights
- 7 Oxygen
- 8 Upper stretcher mechanism
- 9 Upper stretcher lock mechanism
- 10 Stowing strut warning label
- 11 Emergency exit
- 12 Rear step
- 13 Heater start-up label
- 14 Heater operation labels
- 15 Chassis
- Body
- 16 Cab
- 17 Bonnet
- 18 Spare wheel stowage
- 19 Ambulance compartment
- 20 Doors
- 21 External door
- 22 Stretcher support frames
- 23 Seats
- 24 Stretchers
- 25 Blankets
- 26 Attendants' seat
- 27 Infusion bottle tracks
- 28 Resuscitator sockets
- 29 Oxygen bottle stowages
- 30 Oxygen sockets
- 31 Small arms stowage
- 32 Rear step
- 33 Heater
- 34 External jerry can stowage
- 35 Bulkhead

(continued)

CONTENTS (continued)

Para

36	Stowage in the cab
37	Rifles
38	2 Kg fire extinguisher
39	Convoy flag pole
40	Breakdown equipment
41	Personnel kit
42	Floor
43	Red crosses
44	Electrical system
45	Circuit breakers
46	Run engine device
49	Rotating beacons
50	Ambulance compartment lights
51	Distribution/control box
52	Heater control switch
53	Lighting control switch

Fig

Page

1	No smoking label.....	XX
2	Oxygen label.....	XX
3	Upper stretcher mechanism warning label.....	XX
4	Upper stretcher lock mechanism caution label.....	XX
5	Upper stretcher lock and stowing strut warning labels.....	XX
6	Emergency exit label.....	XX
7	Rear step label.....	XX
8	Heater start-up and operation labels.....	XX
9	Seat locking identifying label.....	XX
10	Equipment location - Exterior.....	XX
11	Under the vehicle.....	XX
12	Vehicle dash layout.....	XX
13	Equipment location (Interior).....	XX

INTRODUCTION

1 This subchapter describes all the items applicable to the Field Ambulance and identifies equipment locations.

PRIMARY ROLE

2 In its primary role the vehicle allows the transportation of four persons on stretchers. The stretchers are strapped to upper and lower stretcher support frames in the ambulance compartment at the rear of the vehicle. Provision is made in the ambulance compartment for the stowage of oxygen, resuscitators and other designated items of medical equipment. A single seat is also provided in the ambulance compartment for use by a medical attendant.

SECONDARY ROLE

3 When required, the upper stretcher support frames can be stowed against the walls of the ambulance compartment. This then allows six seats to be available for use by personnel/patients.

TECHNICAL DATA

4 The technical data for the vehicle is as follows:

Length	5194 mm (204.5ins)
Width	2160 mm (85 ins)
Height (unladen)	2760 mm (108 5 ins)
Track (front and rear)	1521mm (59.9 ins)
Gross Vehicle Weight (GVW)	SSSS
Fuel capacity	82.0 litres (18.0 gals)



Fig 1 No smoking label

WARNING LABELS

5 There are, inside the ambulance, labels of various kinds.

No Smoking or naked lights

6 Located on the bulkhead above the ventilator deflectors (Fig 1) This is to inform that there are highly inflammable substances within the close confines of the vehicle.

Oxygen

7 Located on either side of the bulkhead door adjacent to the oxygen outlets (F1g 2) This is to ensure that the connectors are not contaminated w1th oil or grease

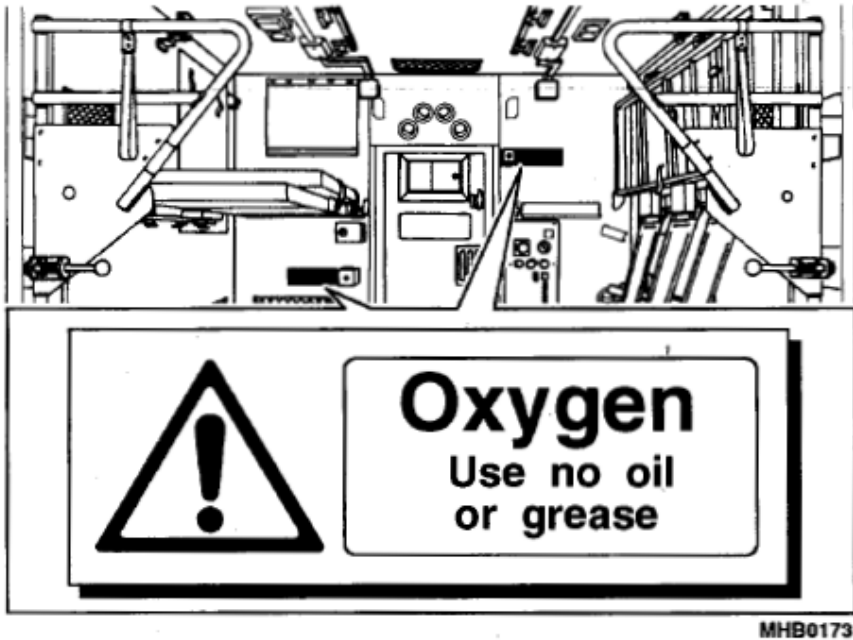


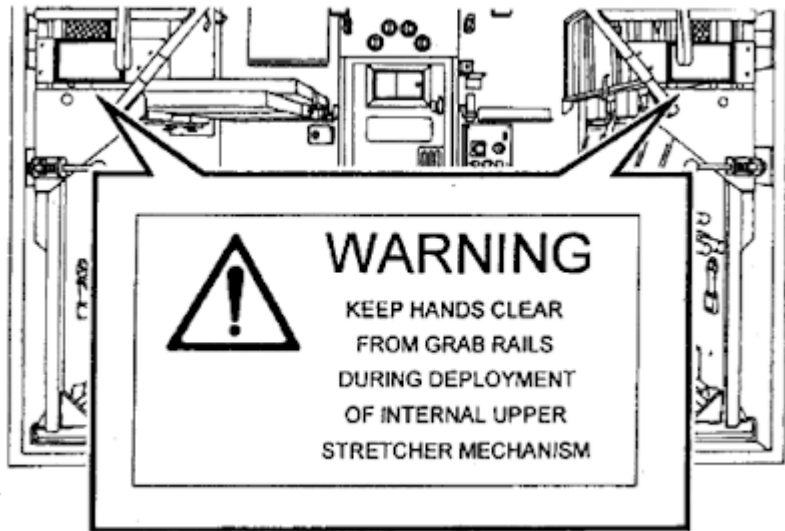
Fig 2 Oxygen label

Upper stretcher mechanism

8 There are two labels - one is a warning and the other a caution as follows:

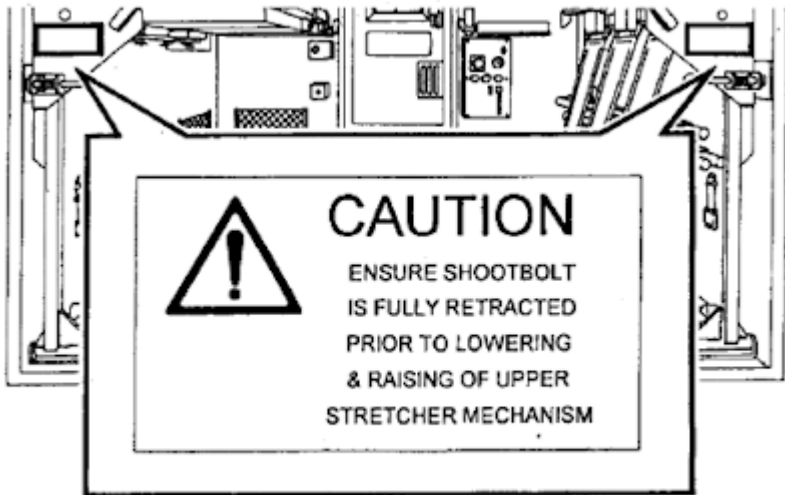
8.1 **Warning label.** To prevent personal injury when deploying upper stretcher mechanism (Fig 3).

8.2 **Caution label.** To prevent fouling of mechanism when raising/lowering stretcher mechanism (Fig 4).



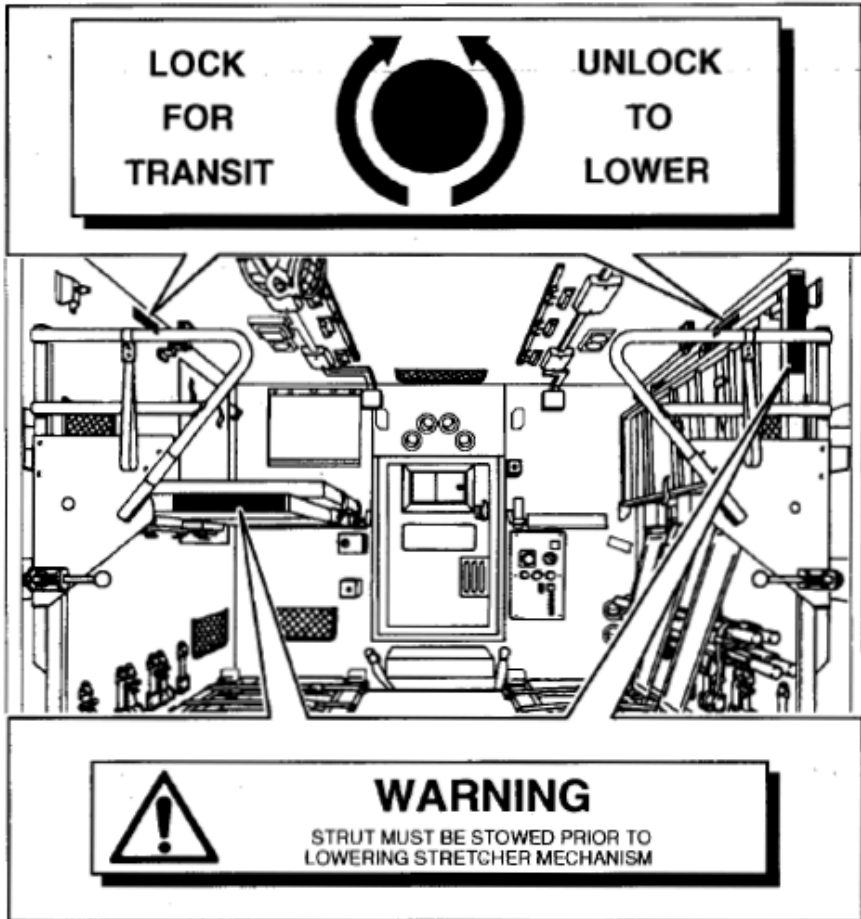
MHB0167

Fig 3 Upper stretcher mechanism warning label



MHB0168

Fig 4 Upper stretcher lock mechanism caution label



MHB0169

Fig 5 Upper stretcher lock and stowing strut warning labels

Upper stretcher lock mechanism

- 9 To ensure that equipment is released correctly and safely (Fig 5).

Stowing strut warning label

10 The label is to prevent the strut from being damaged when lowering the upper stretcher mechanism (Fig 5).

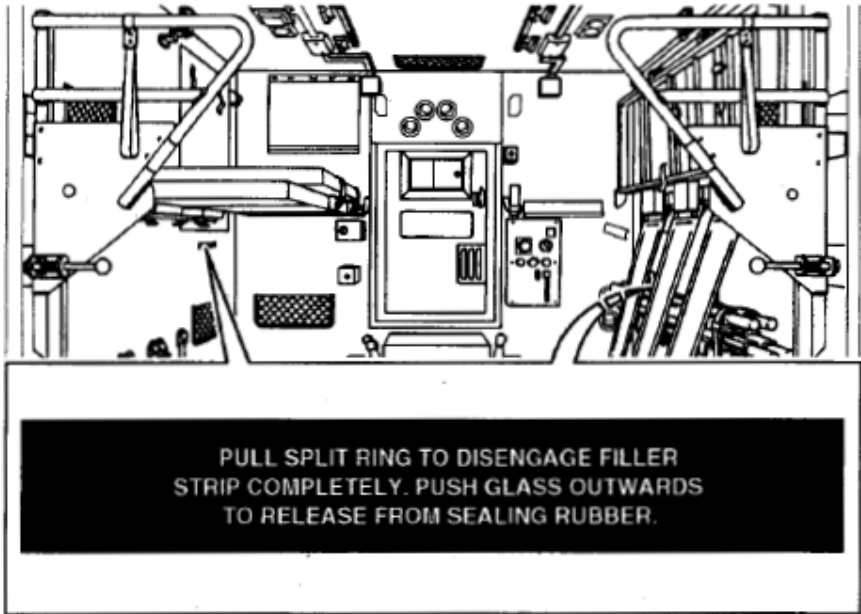


Fig 6 Emergency exit label

Emergency exit

11 To inform passengers of the correct operation in the need of emergency evacuation (Fig 6).

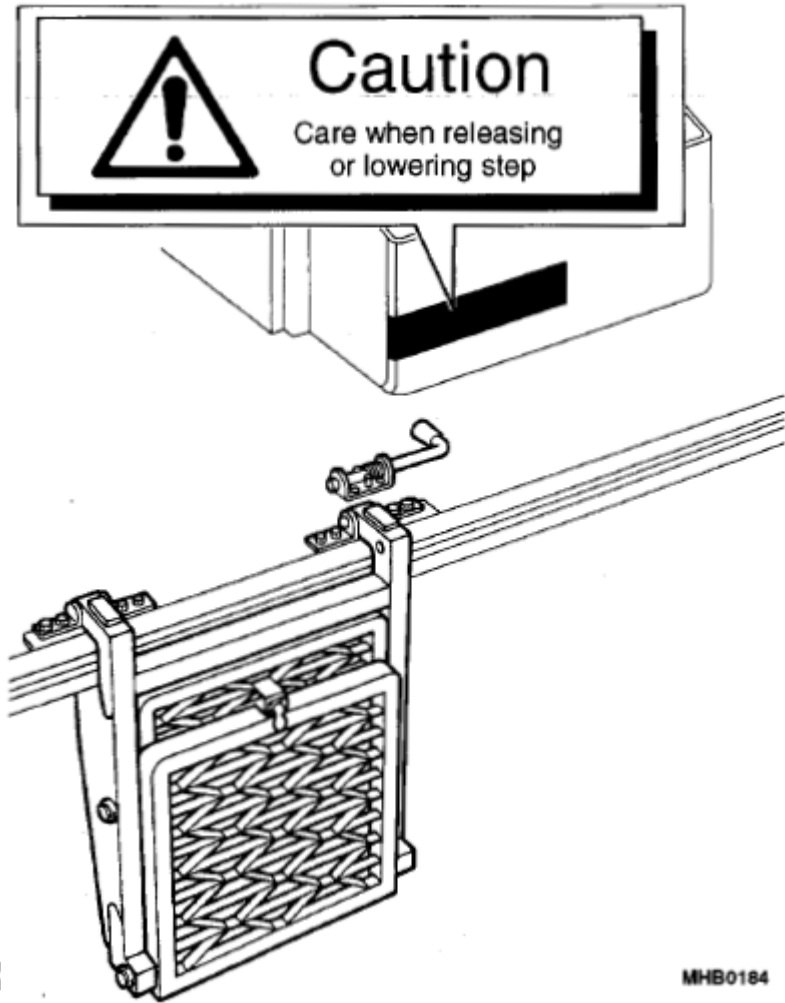
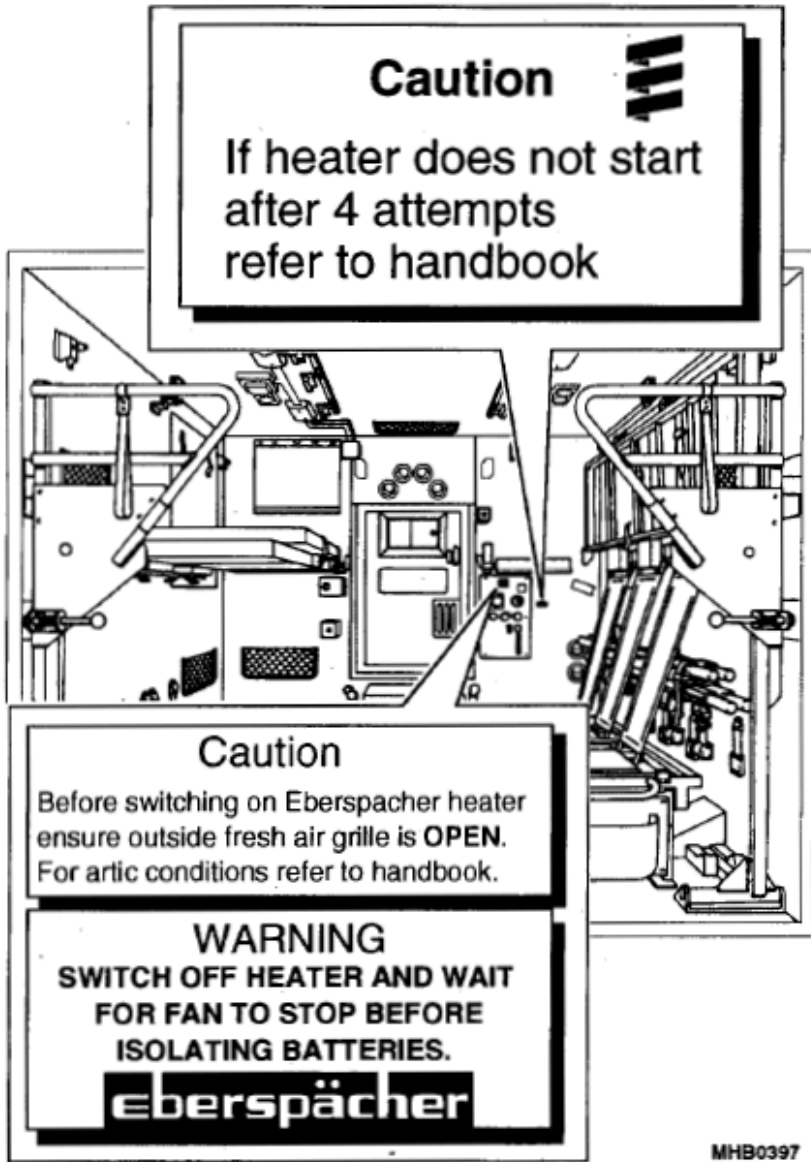


Fig 7 Rear step label

Rear step

12 Located on the front of the stretcher base, it is to prevent personal injury when lowering step (Fig 7).



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Fig 8 Heater start-up and operation labels

Heater start-up label

13 The label (Fig 8) is to prevent the heater from being locked out after four (4) attempts (refer to Chap 2-3)

Heater operation labels

14 There are two labels (Fig 9) situated on the control panel, which gives information about starting and closing down of the heater.

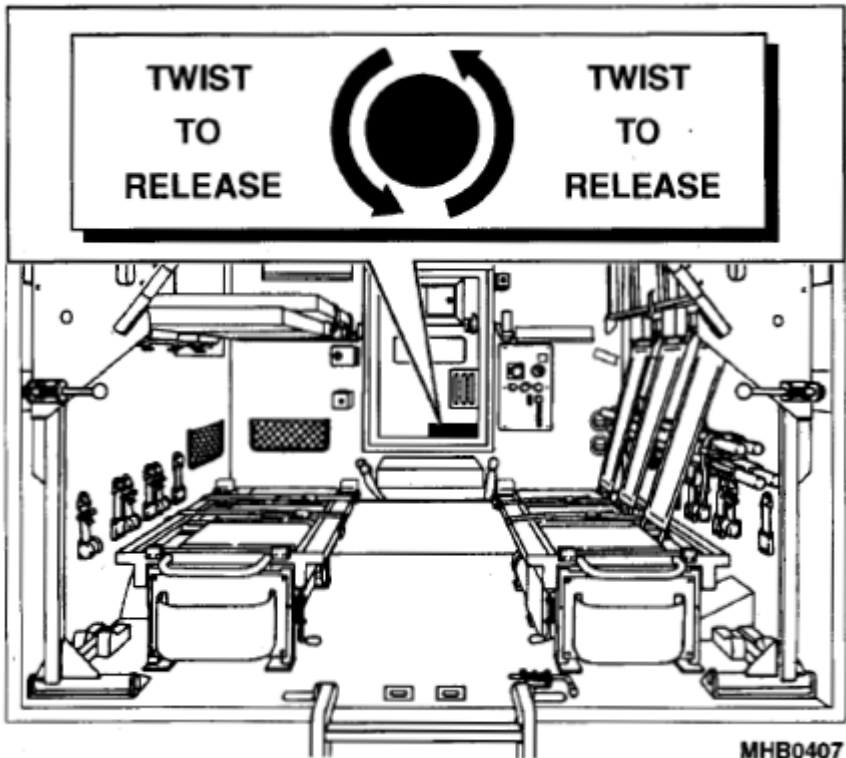


Fig 9 Seat locking identifying label

KEY TO FIG 10

- 1 Ventilator
- 2 Side window- ambulance compartment
- 3 Blue flashing beacon
- 4 Roof Ventilation unit
- 5 Side repeater
- 6 Spare wheel secondary stowage
- 7 Air intake
- 8 Door handle
- 9 Heater air intake grille
- 10 Jerry can stowage
- 11 Fuel filler cap
- 12 Rear window
- 13 Spare wheel
- 14 Rear door handle
- 15 Red cross
- 16 Step (roof access)
- 17 Grab handle
- 18 Windscreen wipers
- 19 Shovel
- 20 Gearbox oil cooler
- 21 Front towing pintle
- 22 Bonnet release catch
- 23 Convoy flag holder - front
- 24 Front turn light
- 25 Side light
- 26 Head light
- 27 Pick head
- 28 Helve
- 29 Siren
- 30 Rear view mirror
- 31 Convoy flag holder- rear
- 32 Reflector
- 33 Reversing light
- 34 Rear number plate light
- 35 Fog light
- 36 Rear turn light
- 37 Stop light
- 38 Taillight

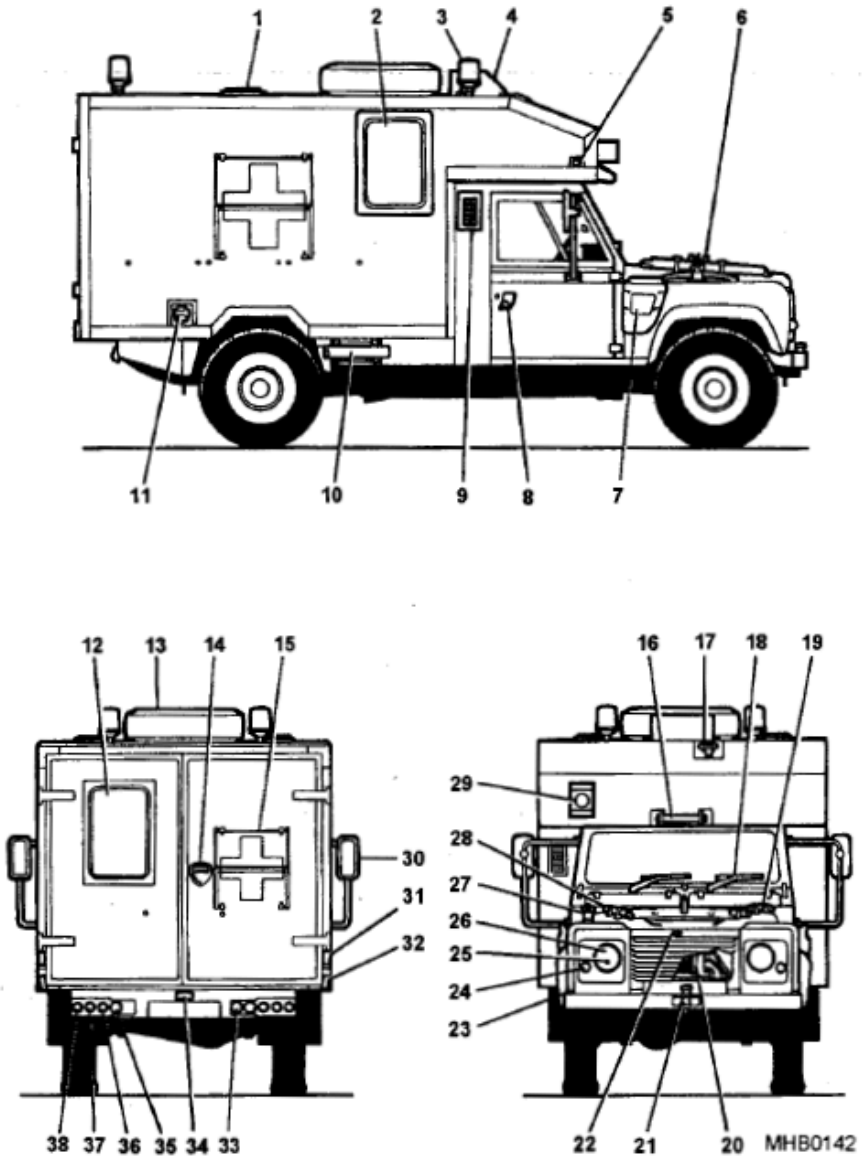


Fig 10 Equipment location - Exterior

KEY TO FIG 11

- 1 Front towing pintle
- 2 Front tie-down shackles
- 3 Steering protection plate
- 4 Front axle breather
- 5 Engine sump
- 6 Engine oil filter
- 7 Exhaust pipe
- 8 Rear axle breather
- 9 Anti-roll bar
- 10 Rear tie-down shackles
- 11 Rear lashing/towing eyes
- 12 Fuel tank
- 13 Fuel filler pipe
- 14 Convoy light
- 15 Rear brakes
- 16 Rear differential
- 17 Rear propeller shaft
- 18 Fuel sedimenter
- 19 Transmission brake drum
- 20 Transfer gearbox
- 21 Main gearbox
- 22 Front propeller shaft
- 23 Anti-roll bar
- 24 Steering protection bracket
- 25 Front brake and swivel pin housing
- 26 Front differential
- 27 Steering box
- 28 Front bumper

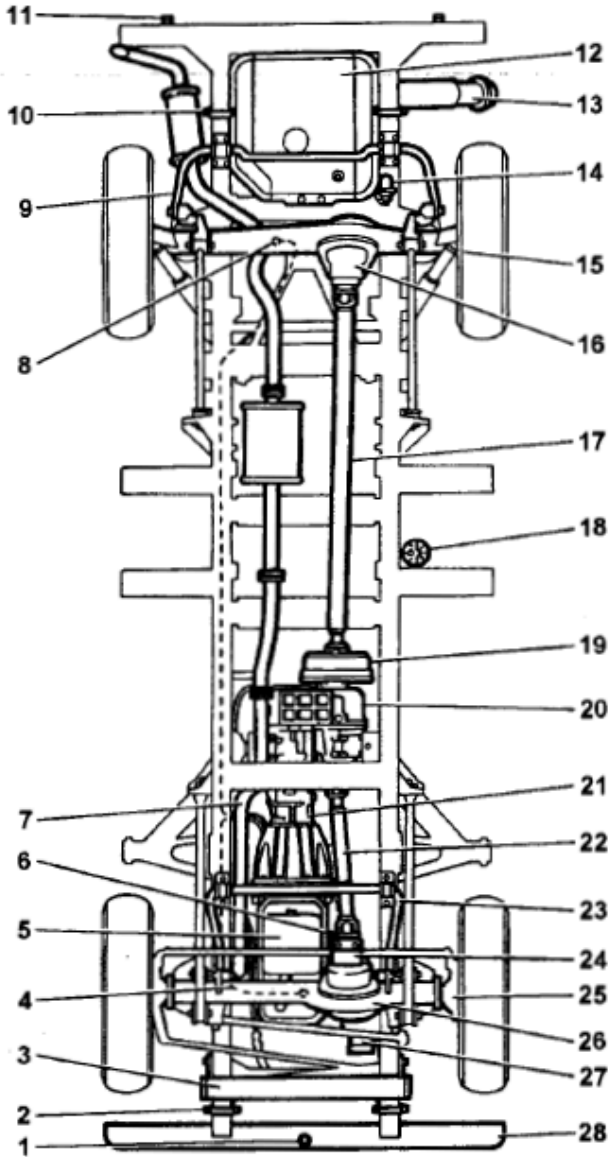


Fig 11 Under the vehicle

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KEY TO FIG 12

- 1 Map reading light
- 2 Ventilator control
- 3 Main lighting switch
- 4 Inspection light sockets
- 5 Blue flashing beacon switch
- 6 Two-tone horn switch
- 7 Headlight dip, direction indicators,
horn and flasher switch
- 8 Speedometer
- 9 Fuel indicator
- 10 Coolant temperature indicator
- 11 Interior light switch
- 12 Warning lights panel
- 13 Temperature control lever
- 14 Distribution control
- 15 Windscreen wash/wipe switch
- 16 Hazard warning switch
- 17 Rear fog guard light switch
- 18 Levelling switch
- 19 Accelerator pedal
- 20 Brake pedal
- 21 Starter switch
- 22 Clutch pedal
- 23 Heater fan control
- 24 Hand brake
- 25 Transfer gear/differential lock lever
- 26 Main gear change lever
- 27 Fuse box
- 28 Footwell air vent

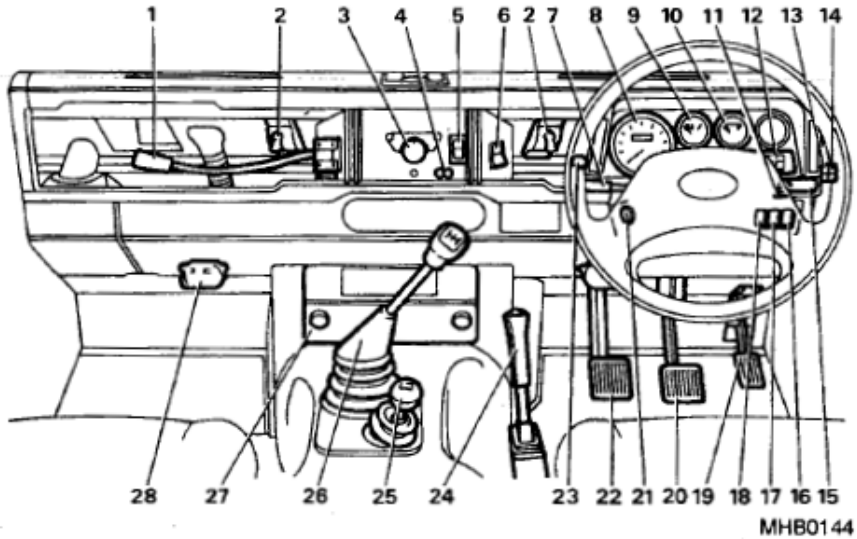


Fig 12 Vehicle dash layout

KEY TO FIG 13

1	Pivoting gate - LH	27	Seatpads
2	Flood light socket	28	Pivoting gate gas strut - RH
3	Moonlight	29	Stowage compartment
4	Flood light	30	Lower stretcher catch - RH
5	Stowage compartment	31	Drop down step catch
6	Upper stretcher catch	32	Drop down step
7	Luggage net	33	Stowage compartment
8	Ventilator deflectors	34	Oxygen cylinder
9	Walk through door	35	Upper stretcher catch
10	Infusion bottle tracks	36	Attendants seat
11	Grab handles	37	Oxygen cylinder
12	Fluorescent light	38	Oxygen socket
13	Vent grille	39	Stowage compartment
14	Upper stretcher frame- RH	40	Pivoting gate gas strut - LH
15	Small arms clip	41	Lower stretcher support frame - LH
16	Pivoting gate - RH	42	Lower stretcher frame - LH
17	Oxygen socket	43	Inertia reels
18	Side window blind	44	Stowage nets
19	Head rest	45	Pivoting gate shoot bolt - LH
20	Distribution control panel	46	Attendants headrest
21	Pivoting gate shoot bolt- RH	47	12v & 24 v resuscitator sockets
22	Directional ventilators	48	Upper stretcher support frame
23	Back supports	49	Side window blind
24	Stretcher stowage	50	Pivoting gate pull down strap
25	Heater compartment	51	Upper support frame catch
26	Lower stretcher frame - RH	52	Buffer

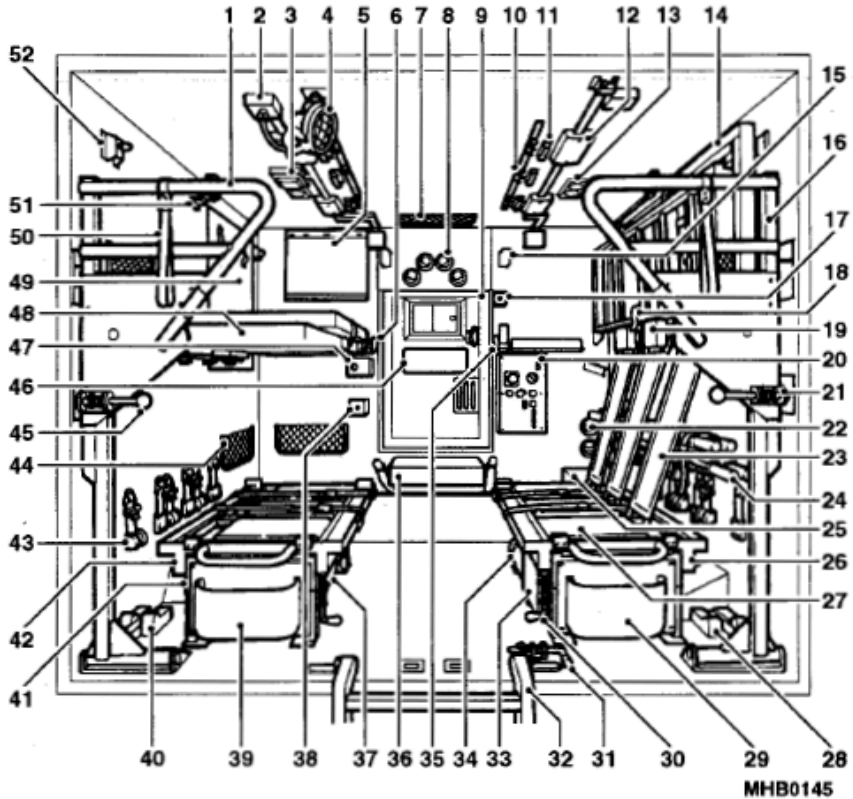


Fig 13 Equipment location (Interior)

CHASSIS

15 The chassis is made up of two welded box section side members with closed channel section cross members, with a detachable tubular cross-member.

BODY**Cab**

16 The cab is constructed from pressed and folded aluminium alloy panels, spot welded or riveted. The scuttle, door frames and other minor items are made from steel.

Bonnet

17 The bonnet is constructed from aluminium alloy sheet with steel stiffeners and is fitted with a central retaining device and a safety catch. The bonnet has a walk-on facility and also provides a secondary stowage for the spare wheel.

Spare wheel stowage

18 The spare wheel primary stowage is located on the ambulance compartment roof behind the ventilation unit. The wheel is secured to a roof-mounted bracket by two bolts and an annular ring. A secondary stowage for the spare wheel is located on the bonnet.

AMBULANCE COMPARTMENT

19 The ambulance compartment is mounted on the chassis and comprises of a box structure, which extends over the cab. The structure is formed from extruded aluminium sections, the roof, sides and floor panels, which are riveted together. Each side panel is fitted with a fixed window, which can be jettisoned to allow emergency egress.

19.1 Internally the compartment provides:

19.1.1 Stretcher support frames

19.1.2 Seats (secondary role)

19.1.3 Stretchers

19.1.4 Blankets

19.1.5 Attendants' seat

19.1.6 Infusion bottle holder tracks

19.1.7 Resuscitator sockets

19.1.8 Stowage compartments

19.1.9 Oxygen bottle stowage

- 19.1.10 Small arms stowage
- 19.1.11 Rear step
- 19.1.12 Heater
- 19.1.13 Lighting (para 48)
- 19.1.14 Distribution/control box (para 49)

Doors

20 The compartment is closed at the front by a bulkhead door and at the rear by hinged double doors.

External door

21 Normal access to the ambulance compartment is at the rear through the hinged double doors. These open outwards and swing round through 270 degrees to the sides of the vehicle. The RH door is fitted with an internal and external handle, which can be locked with a key. The LH door is fitted with an internal handle only. A microswitch is attached to the roof and controls the operation of ambulance compartment lighting when the blackout facility is in use (para 51).

Stretcher support frames

22 There are four stretcher support frames, two lower and two upper.

22.1 **Lower frame.** Each lower frame is constructed from welded, aluminium extrusions and comprises a fixed inner frame and a sliding outer frame. The fixed frame is bolted to the floor and incorporates runners at the sides. The sliding outer frame is located on top of the fixed inner frame and moves on rollers located within the runners; a catch locks the outer frame in position. A grab handle is provided on the sliding outer frame to enable the frame to be pulled rearwards.

22.2 **Upper frame.** The upper frames are also constructed from welded, aluminium extrusions and comprise of fixed and sliding frames. The frames are supported; on a transverse mounting at the bulkhead and at the rear, on a pivoting frame and gate assembly. A gas strut is attached to the pivoting frame, via a link at one end and bolted to the vehicle at the other, providing a smooth, controlled operation when the frames are being used. The frames are locked in the used position by a retaining catch on the bulkhead. When not in use the stretchers can be stowed in the upright position against the side of the body. When the pivoting gate catch is released the assembly can be pulled outwards and downwards to permit stretcher loading/unloading. When the frames are stowed away the seats can be used.

Seats

23 Seat pads are provided at six positions and can be used when the upper stretcher frames are stowed. An inertia reel lap strap is attached to the wall adjacent to the seat. Back support is provided by a flexible material which is attached to the underside of the upper stretcher support frames. When not in use the back supports are stowed under the seat pads.

Stretchers

24 In its primary role the stretchers are located on each of the lower and upper support frames. Each stretcher is retained by the same spring-pin which is used for preventing the frames from sliding apart. When the seats are in use, two stretchers are folded and stowed on either side, behind the back supports, on two sets of support brackets, one on either side.

Blankets

25 Blankets are stowed underneath and in front of the left hand side lower stretcher frame.

Attendants' seat

26 An attendants' seat is located against the bulkhead. The seat lifts up providing access to storage space underneath it. The space is used for the storage of equipment and kit. A two-point lap belt for use by the attendant is fitted to the bulkhead.

Infusion bottle tracks

27 Two infusion bottle tracks are fixed to the roof; each comprising of a rail incorporating three sliding holders to which infusion bottles are attached.

Resuscitator sockets

28 There are four resuscitator socket outlets, two 12volt and two 24 volt, in the ambulance compartment; one of each type are located on the auxiliary panel to the left of the walk through door bulkhead and also in the distribution/control box.

Oxygen bottle stowages

29 These are located on the floor of the compartment under the stretcher frames. The stowages comprise of two support brackets and straps, which hold and retain a single oxygen cylinder.

Oxygen sockets

30 Located on the bulkhead are two oxygen sockets one on either side of the walk through door. The left-hand socket is located at the lower level and the righthand socket at the upper level adjacent to the stretchers.

Small arms stowage

31 Provision is made for the stowage of SA.80 rifles on the left-hand side in front of the bulkhead.

Rear step

32 An aluminium, folding step is mounted at the rear of the vehicle just inside the doorway. When in use the step hinges down to rest against the rear of the vehicle. When not in use the step is folded up to a stowed position; it is held in this position by a spring-loaded pin.

Heater

33 Ambulance compartment heating is provided by an Eberspacher D5L air heater located in a compartment, with a screwed down cover, adjacent to the attendants' seat. The heater is a fuel burning unit and is controlled from a rotary switch located on the Distribution/Control box on the bulkhead.

EXTERNAL JERRY CAN STOWAGE

34 Two jerry can stowages are provided, one on either side of the vehicle, attached to the underside of the body forward of the rear wheels. Each stowage comprises a locker with a hinged retaining bar. Jerry cans slide into the lockers and are held in position by the retaining bars which are secured with a latch. The left hand stowage holds a 20 litre water jerry can while the right hand stowage holds a 20 litre fuel jerry can.

BULKHEAD

35 The bulkhead separates the driver/passenger compartment from the ambulance compartment. It is constructed from a three element, aluminium-foam-aluminium panel and incorporates a central walk-through door, which connects the two compartments. A microswitch attached to the doorframe controls operation of ambulance compartment lighting when using the blackout facility.

STOWAGE IN THE CAB

36 In the cab provision is made for the stowage of the following items of equipment:

Rifles

37 One rifle, held in clips on the front panel at the back of the left hand seat.

2 Kg fire extinguisher

38 Retained by a strap in a bracket located between driver's and passenger's seats.

Convoy flag pole

39 In clips behind the seats.

Breakdown equipment

40 The following items of breakdown equipment are also carried - Chocks, Jack, Jack handle, Towrope and IVSS lead.

Personnel kit

41 A stowage area is located at the right hand side of the cab above head height. Kit is prevented from falling out of this stowage area by means of a canvas cover clipped onto the roof.

FLOOR

42 The floor is constructed from three element, aluminium-foam-aluminium panels, reinforced and rigidly attached to the chassis frame. In the ambulance compartment the floor is protected with a Vinyl, non-slip covering.

RED CROSSES

43 To identify the vehicle as an ambulance, red crosses are painted on the sides, rear and top of the vehicle.

43.1 Half of each red cross is painted onto a hinged panel which has two positions. In one position the red cross is exposed. In the other, the hinged panel is folded over and the red cross is obscured. The panel is held in either of the two positions by retaining catches.

ELECTRICAL SYSTEM

44 The electrical system is charged by the vehicle alternator to 24 volts rectified AC negative earth with voltage compensation and ducted breathing to control water ingress. The charging control and rectifier are integral with the alternator. The system feeds all the vehicle's electrical requirements.

Circuit breakers

45 There are five circuit breakers contained in the Distribution/Control box in the ambulance compartment. These breakers protect the ambulance compartment circuits as follows.

- 45.1 CB 1 - Heater
- 45.2 CB2 - Blowers
- 45.3 CB3 - 12 volt socket
- 45.4 CB4 - Lights
- 45.5 CBS - 24 volt sockets

Run engine device

46 A run engine device is mounted on a double relay bracket attached to the dash behind the fascia.

47 The run engine device senses low battery voltage and automatically operates the buzzer and 24V warning light to advise of the necessity to run the engine. This occurs when the battery voltage drops below 24.4 volts, due to extended use with the engine not running. The warning light illuminates and the buzzer sounds intermittently.

48 After the engine has been run, and battery voltage rises above 26 volts, the light extinguishes and the buzzer stops. Time for engine run is variable depending on current draw in the ambulance.

Rotating beacons

49 There are two rotating beacons mounted on the roof of the vehicle controlled from a rocker switch on the fascia.

Ambulance compartment lights

50 Lighting is provided in the ambulance compartment as follows:

50.1 **Fluorescent roof lights.** Four twin tube units, two on either side of the compartment. Supplied from the rotary lighting switch on the Distribution/Control box.

50.2 **Blackout moonlight.** Roof-mounted on the left side between the fluorescent lights. Supplied from the rotary lighting switch on the Distribution/Control box.

50.3 **Inspection light socket.** An inspection light socket is mounted on the control panel and is powered by a rocker switch adjacent to it.

50.4 **Floodlight.** Mounted on a swivel-bracket on the roof above the doorway at the rear of the compartment. The floodlight electrical plug connects to a roof-mounted socket supplied through the Distribution/Control box. A 10 metre extension lead for the floodlight is stowed underneath the lower RH stretcher frame.

Distribution/control box

51 This unit is mounted to the right side of the bulkhead adjacent to the attendants locker. The unit comprises a welded box assembly with a front panel. The front panel provides mountings for a casualty bag socket, a resuscitator socket, heater control switch, lighting control switch, inspection light switch and inspection light socket.

Heater control switch

52 This is an illuminated rotary switch with graduations marked from 0 to 4 set within coloured fields. The graduations and fields indicate the mode of operation - refer to Chapter 2-3 for full instructions.

Lighting control switch

53 Ambulance compartment lighting is controlled by this 4-position rotary switch. The switch is marked OFF/BLUE/BLACK-OUT/WHITE and supplies the roof-mounted fluorescent lights and the roof-mounted, blue, moonlight.

CHAPTER 1-4

WINTERISED/WATERPROOF

CONTENTS

Para

- 1 Introduction
- 2 Warning labels
- 3 Damage limitation warning label

Fig

Page

1	Damage limitation warning label.....	XX
2	Truck Utility Medium.....	XX
3	Vehicle dash layout.....	XX
4	Under bonnet (GS).....	XX
5	Under bonnet (FFR).....	XX
6	Rear bulkhead.....	XX
7	Rear of the vehicle.....	XX

INTRODUCTION

1 This sub-chapter describes all the items applicable to the Winterised/Water proof vehicles and identifies equipment locations.

WARNING LABELS

2 There are, around the vehicle, labels over and above that which are mentioned in the previous chapters. These appertain to the Winter/water vehicles.

Damage limitation warning label

3 This label (Fig 1) advises individuals not to grab hold of items to aid them to climb onto the vehicle due to incurring damage.

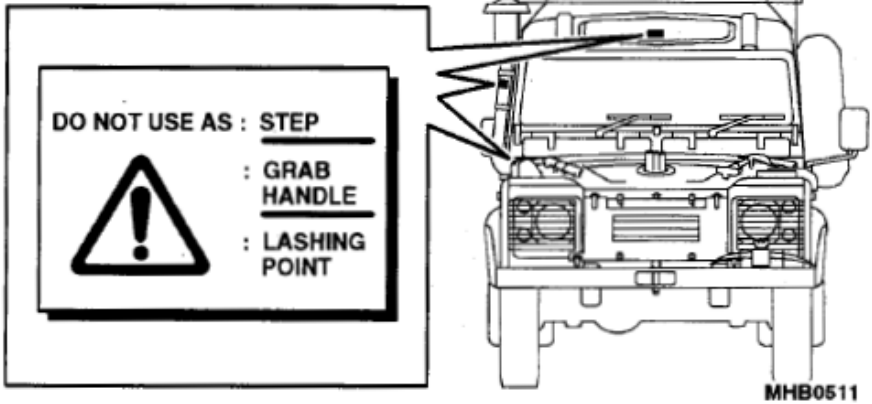
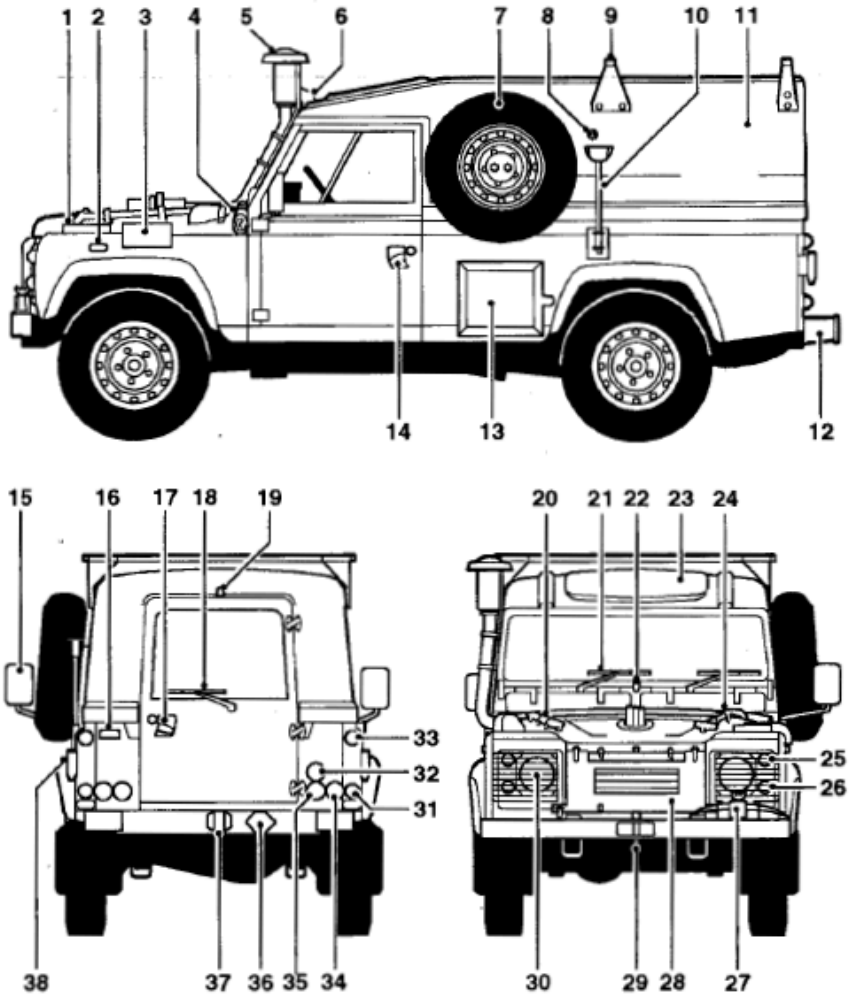


Fig 1 Damage limitation warning label

KEY TO FIG 2

- | | | | |
|----|---------------------|----|-----------------------|
| 1 | TUUAM mounting | 20 | Pick axe handle |
| 2 | Side repeater | 21 | Front screen wiper |
| 3 | Raised air intake | 22 | Front screen wash |
| 4 | Snow blind | 23 | Escape hatch |
| 5 | Air cleaner | 24 | Shovel |
| 6 | Drain tap | 25 | Front side lights |
| 7 | Spare wheel | 26 | Indicator light |
| 8 | Aerial grommet | 27 | Pick axe head |
| 9 | Roof bar (Ski rack) | 28 | Radiator snow blind |
| 10 | Aerial mounting | 29 | Towing pintle |
| 11 | GRP hardtop | 30 | Headlight |
| 12 | Rear bumperettes | 31 | Rear stop light |
| 13 | Jerry can stowage | 32 | Reversing light |
| 14 | Door handle lock | 33 | Rear side light |
| 15 | Driving mirror | 34 | Rear indicator lights |
| 16 | Number plate light | 35 | Rear fog guard lights |
| 17 | Rear door lock | 36 | 12 pin socket |
| 18 | Rear wiper | 37 | Towing hook |
| 19 | Rear wash | 38 | Convoy flag holder |



MHB0444

Fig 2 Truck Utility Medium

KEY TO FIG 3

1	Map reading light	17	Heater blower switch
2	Fuse box cover	18	Horn/dip/indicator switch
3	Centre console	19	Speedometer
4	Warning light panel	20	Fuel gauge
5	Main lighting switch	21	Temperature switch
6	Heater switch (Webasto)	22	Wash/wipe switch
7	Map reading light switch	23	Temp and distribution switch
8	Headlamp levelling	24	Accelerator pedal
9	Rear heated screen switch	25	Brake pedal
10	Front heated screen switch	26	Clutch pedal
11	Rear fog guard switch	27	Handbrake
12	Hazard warning switch	28	Hand throttle
13	Ignition switch	29	Main gearbox lever
14	Inspection sockets	30	Transfer/diff lock gearbox
15	Rear wash/wipe switch	31	Main fuse box
16	Air vent	32	Heater footwell vents

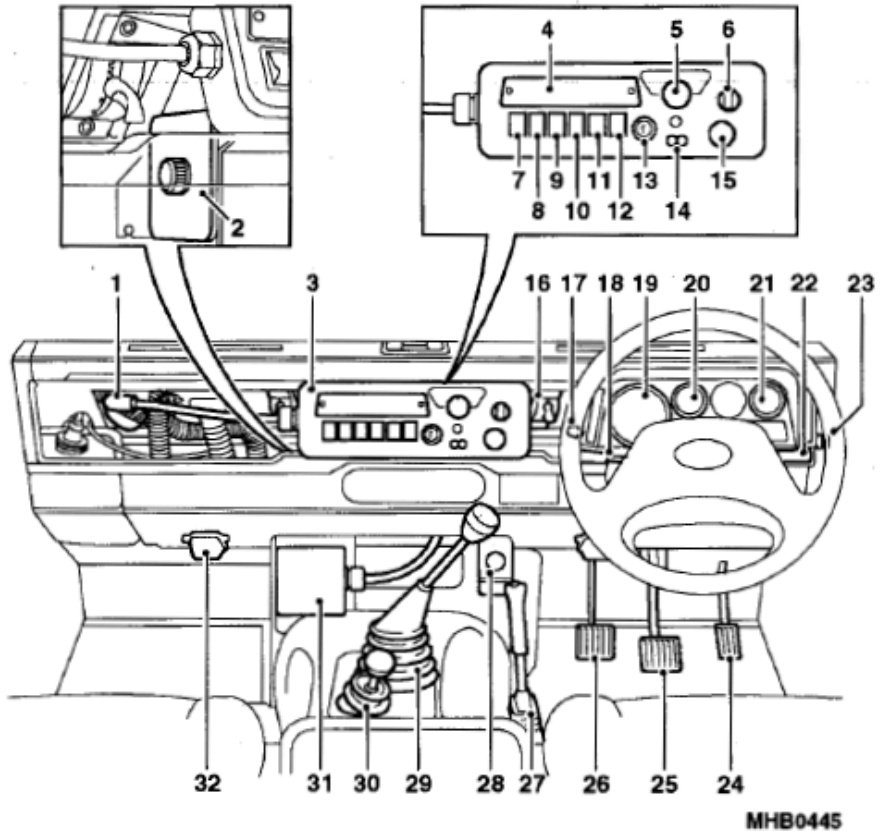
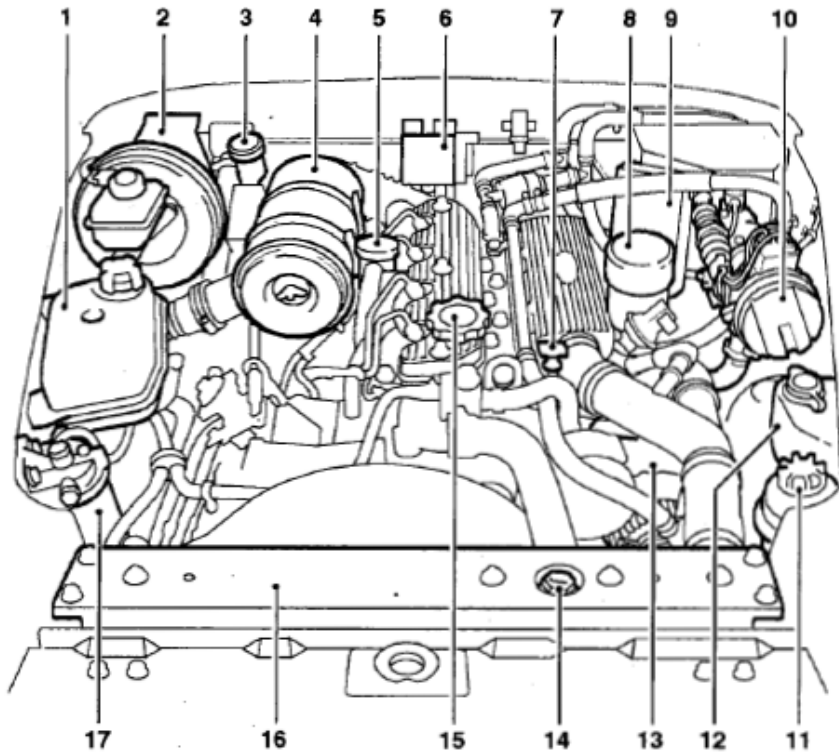


Fig 3 Vehicle dash layout

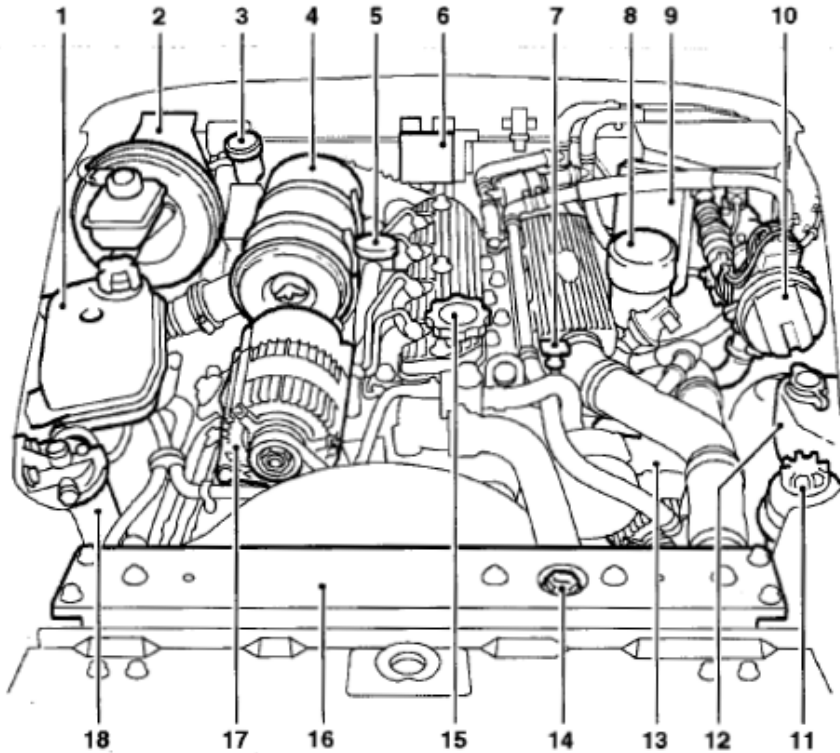
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- | | | | |
|---|--------------------------|----|---------------------------|
| 1 | Engine coolant reservoir | 10 | Webasto water heater |
| 2 | Brake fluid reservoir | 11 | Power steering reservoir |
| 3 | Clutch fluid reservoir | 12 | Windscreen wash reservoir |
| 4 | Air cleaner | 13 | Alternator |
| 5 | Cyclone (crank breather) | 14 | Radiator filler |
| 6 | RFI filter | 15 | Engine oil filler |
| 7 | Engine oil dipstick | 16 | Radiator |
| 8 | Alternator breather | 17 | Fuel filter |
| 9 | Webasto heater ECU | | |

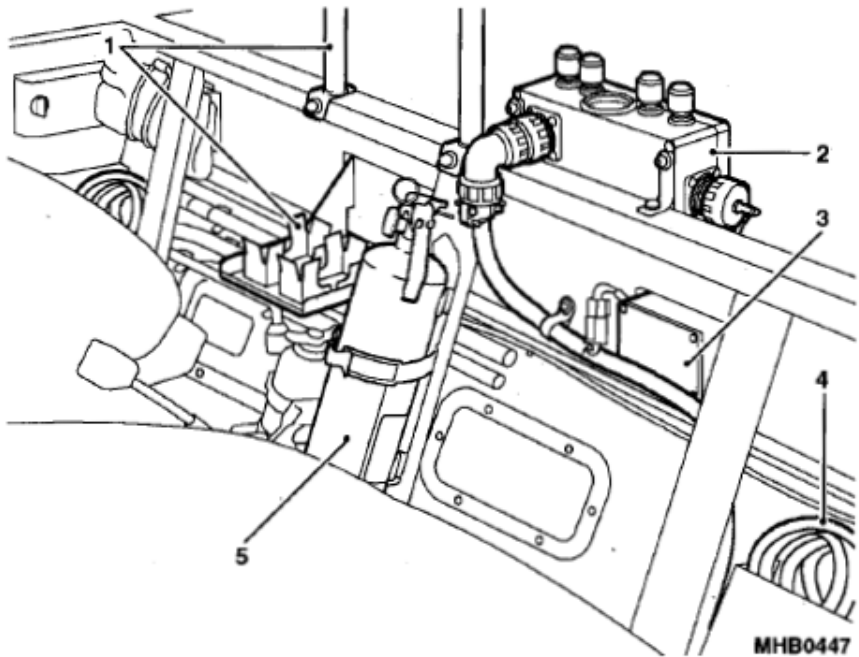
Fig 4 Under bonnet (GS)



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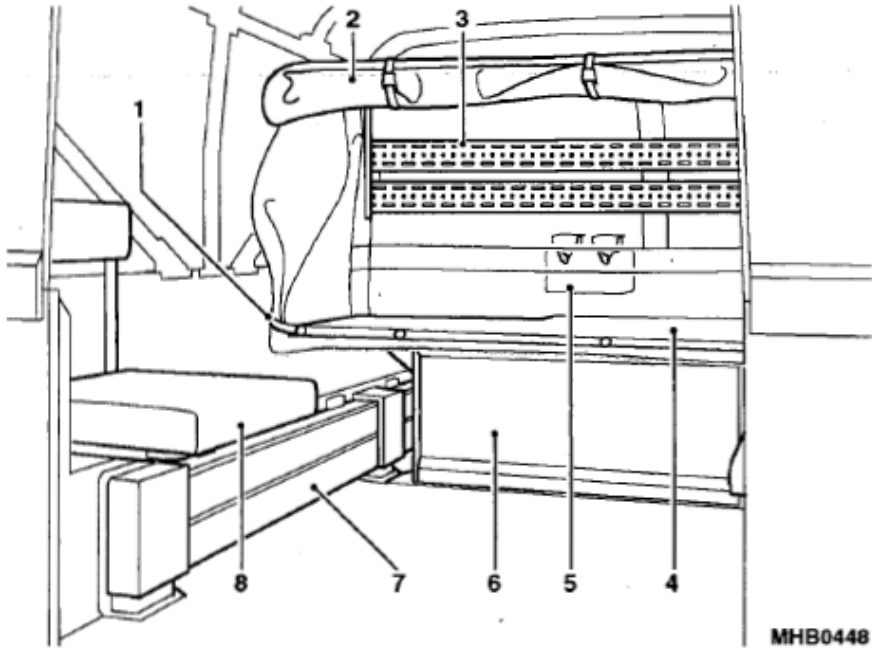
- | | | | |
|---|--------------------------|----|---------------------------|
| 1 | Engine coolant reservoir | 10 | Webasto water heater |
| 2 | Brake fluid reservoir | 11 | Power steering reservoir |
| 3 | Clutch fluid reservoir | 12 | Windscreen wash reservoir |
| 4 | Air cleaner | 13 | Alternator - lower |
| 5 | Cyclone (crank breather) | 14 | Radiator filler |
| 6 | RFI filter | 15 | Engine oil filler |
| 7 | Engine oil dipstick | 16 | Radiator |
| 8 | Alternator breather | 17 | Alternator - upper |
| 9 | Webasto heater ECU | 18 | Fuel filter |

Fig 5 Under bonnet (FFR)



- | | | | |
|---|----------------------------|---|------------------------|
| 1 | Gun clips | 4 | Coaxial cable (aerial) |
| 2 | Terminal box and Ammeter | 5 | Fire extinguisher |
| 3 | Radio charging circuit ECU | | |

Fig 6 Rear bulkhead



- | | | | |
|---|-----------------|---|----------------------|
| 1 | Earthing straps | 5 | Terminal box |
| 2 | Radio bag | 6 | Radio trays |
| 3 | Dexion racking | 7 | Heater radiators |
| 4 | Radio table | 8 | Radio operators seat |

Fig 7 Rear of the vehicle

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CHAPTER 1-5

WINTERISED

CONTENTS

Para

- 1 Introduction
- 2 General

INTRODUCTION

1 This sub-chapter describes all the items applicable to Truck Utility Light (TUL) HS and Truck Utility Medium (TUM) HS Winterised vehicles which are not covered in the previous chapters.

General

2 All information appertaining to the winterised vehicles can be found in subchapter 1-4 Winter/Water

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CHAPTER 1-6

AIR DROP

CONTENTS

Para

- 1 Introduction
- 2 General

INTRODUCTION

1 This sub-chapter describes all the items applicable to Truck Utility Light (TUL) HS Air drop vehicles, which are not covered in the previous chapters.

General

2 All information appertaining to the air drop vehicles can be found in subchapter 1-1 Basic vehicle and 1-2 Fitted for Radio (FFR).

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CHAPTER 1-7

HELICOPTER SUPPORT PLATFORM

CONTENTS

Para

- 1 Introduction
- 2 General

INTRODUCTION

1 This sub-chapter describes all the items applicable to the Truck Utility Medium (TUM) HS Helicopter Support Platform vehicles which are not covered in the previous chapters.

General

2 All information appertaining to the Helicopter support platform vehicles can be found in sub-chapter 1-1 Basic vehicle and 1-2 Fitted For Radio (FFR).

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CHAPTER 1-8

COMMANDERS IK

CONTENTS

Para

- 1 Introduction
- 2 Warning labels
- 3 Earth warning label
- 4 Voltage labels
- Warning
- Roof racks

Fig

Page

1	Earth warning label.....	XX
2	Voltage labels.....	XX
3	Truck Utility Medium (Commanders IK).....	XX
4	Inside rear of vehicle.....	XX
5	Rear bulkhead.....	XX

INTRODUCTION

1 This sub-chapter describes all the items applicable to the Truck Utility Medium (TUM) HS Commanders IK vehicles, which are not covered in the previous chapters.

WARNING LABELS

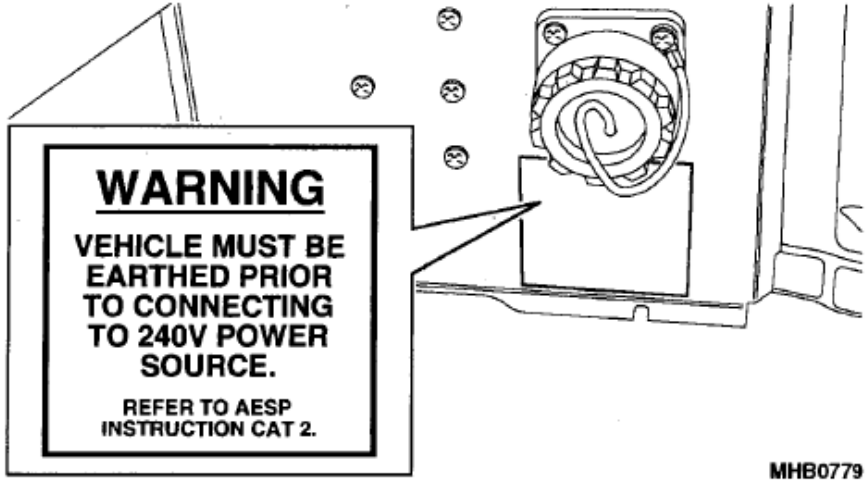
2 There are, around the vehicle, labels over and above that which are mentioned in the previous chapters. These appertain to the Commanders IK vehicles.

Earth warning label

3 The earth warning label (Fig 1) advises individuals against connecting to an outside power supply without first earthing the vehicle.

Voltage labels

4 The voltage labels (Fig 2) inform the operator of the different power supplies of each bank of sockets. This prevents equipment being plugged into the wrong supply.



MHB0779

Fig 1 Earth warning label

Roof racks**WARNING**

WITH THE EXCEPTION OF THE COMMANDERS IK, ROOF RACKS ARE PROHIBITED FROM BEING FITTED TO TUL/TUM (HS) VEHICLES.

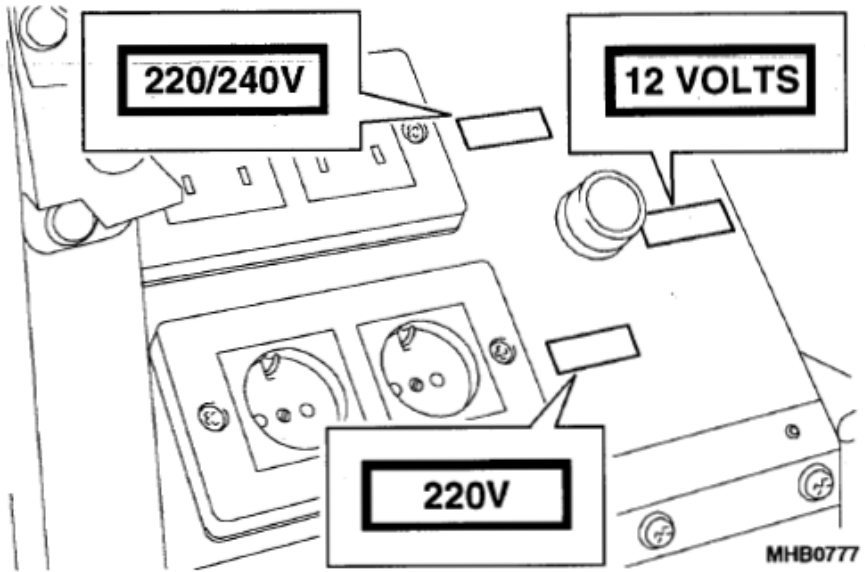
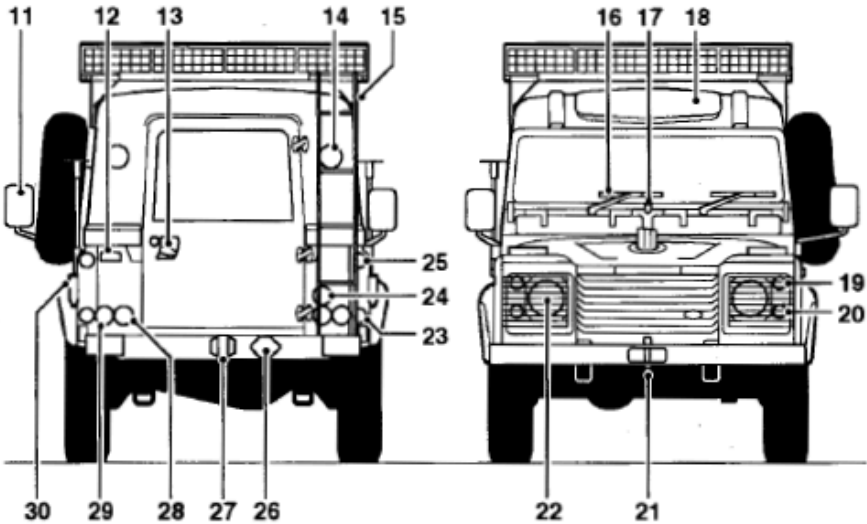
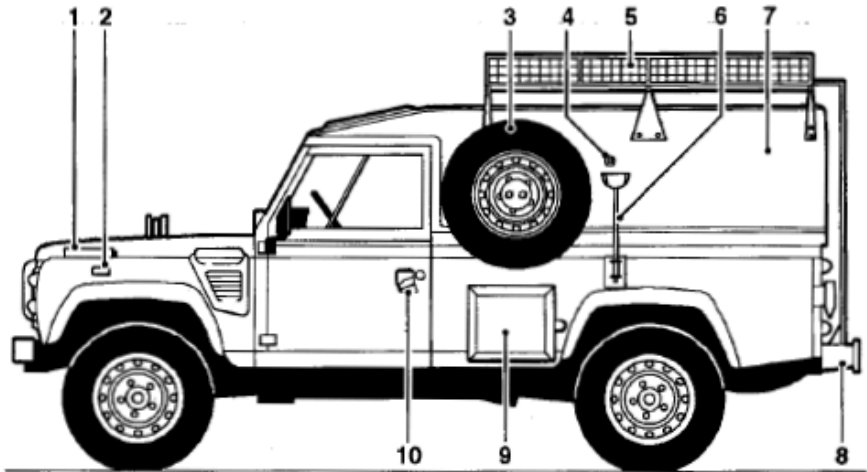


Fig 2 Voltage labels

FOR DEMONSTRATION

KEY TO FIG 3

- 1 Aerial coaxial stowage
- 2 Side indicator light
- 3 Spare wheel
- 4 Aerial outlet
- 5 Roof rack
- 6 Radio aerial mounting base
- 7 Hard top
- 8 Bumperettes
- 9 Jerry can holder
- 10 Door handle
- 11 Wing mirror
- 12 Rear number plate light
- 13 Rear door handle
- 14 Input/output sock
- 15 Mounting ladder
- 16 Windscreen wiper
- 17 Windscreen washer
- 18 Escape hatch
- 19 Front side lights
- 20 Turn lights
- 21 Front towing pintle
- 22 Headlights
- 23 Rear stop light
- 24 Reverse light
- 25 Rear side light
- 26 12 pin trailer socket
- 27 Rotating towing hook
- 28 Turn light
- 29 Rear fog light
- 30 Convoy flag holder



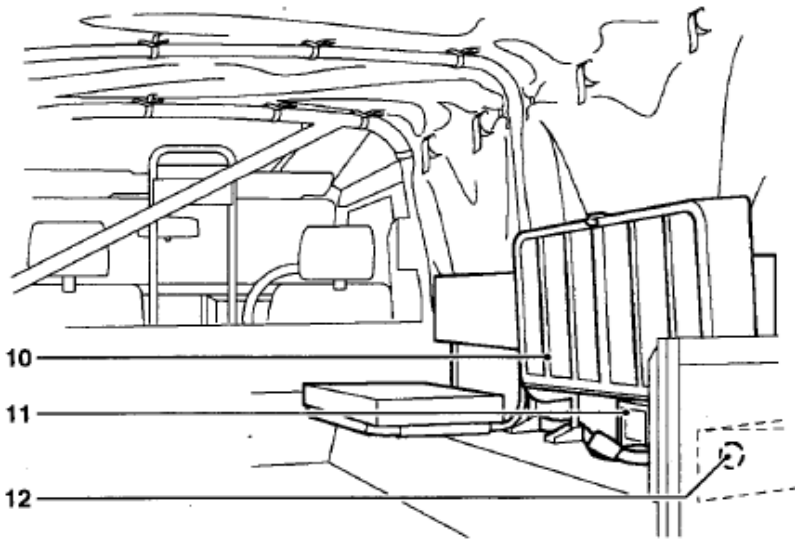
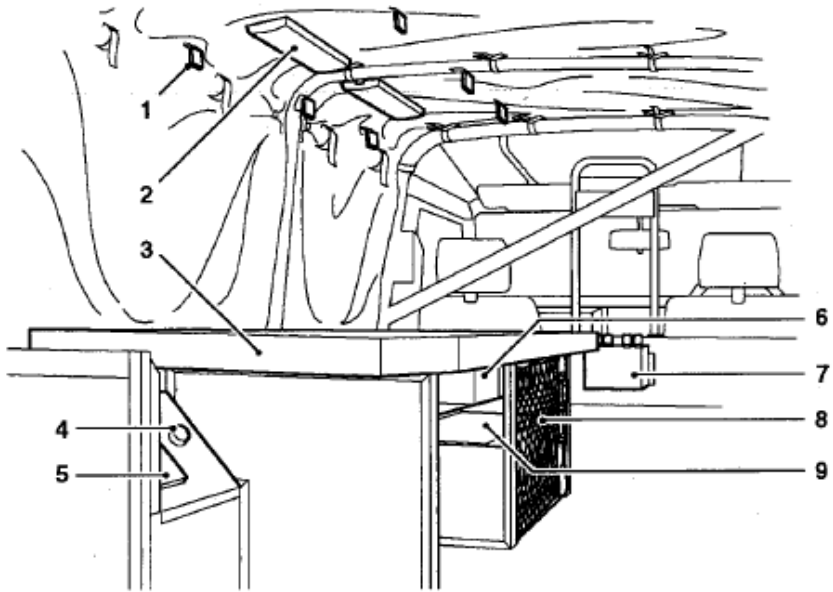
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Fig 3 Truck Utility Medium (Commanders IK)

KEY TO FIG 4

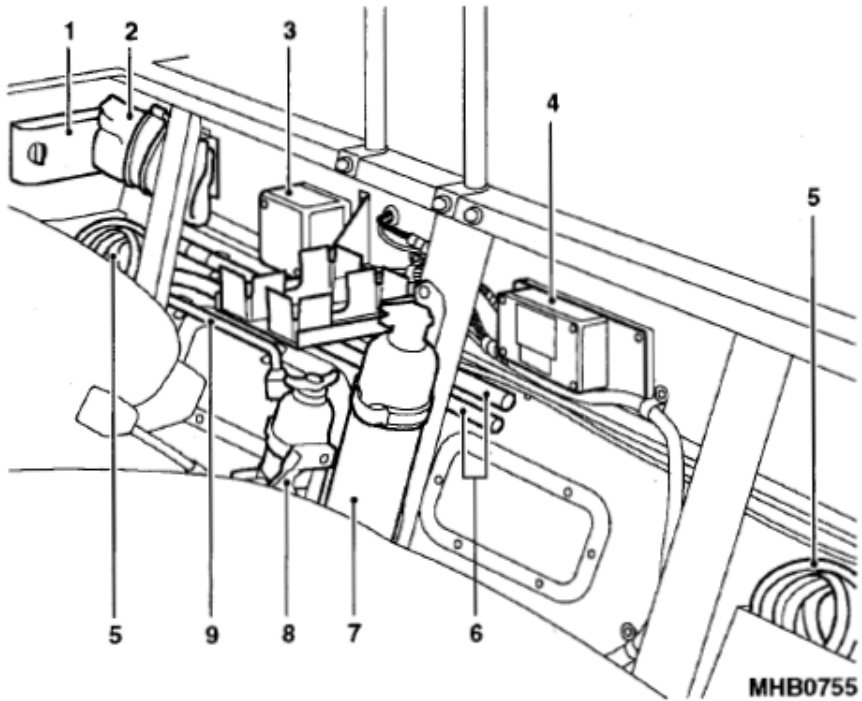
- 1 Retaining strap buckles
- 2 Interior lights
- 3 Folding mapboard/bed
- 4 Cigar lighter
- 5 Auxiliary sockets
- 6 Transformer/charger
- 7 Terminal box
- 8 Stowage nets
- 9 Battery box
- 10 Folding seats
- 11 Circuit breakers
- 12 Input socket

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MHB0756

Fig 4 Inside rear of vehicle



- | | | | |
|---|----------------------------|---|-------------------|
| 1 | Wheel chock | 6 | Jack handles |
| 2 | Tool kit | 7 | Fire extinguisher |
| 3 | Fast fuse | 8 | Vehicle jack |
| 4 | Radio charging circuit ECU | 9 | Wheel nut wrench |
| 5 | Coaxial cable (aerial) | | |

Fig 5 Rear bulkhead

CHAPTER 2

CONTROLS AND INSTRUMENTS

CONTENTS

Para

1 Introduction

INTRODUCTION

1 This is Chapter 2.

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