

**TRUCK, CARRYALL, LIGHTWEIGHT, SENIOR COMMANDER,
FFR, WINCH, MC2 - LAND ROVER 110 4X4**

TECHNICAL DESCRIPTION

This instruction is authorised for use by command of the Chief of Army. It provides direction, mandatory controls and procedures for the operation, maintenance and support of equipment. Personnel are to carry out any action required by this instruction in accordance with EMEI General A 001.

INTRODUCTION

1. This EMEI contains the technical description of the Truck, Carryall, Lightweight, Senior Commander, FFR, Winch, and should be read in conjunction with EMEI Vehicle G 102. All relevant weights, dimensions and performance figures are detailed in the Data Summary EMEI Vehicle G 140.

Associated Publications

2. Reference may be necessary to the latest issue of the following documents:
- a. [EMEI Electrical P 412](#) – Generator, Engine Accessory, 28 V DC, 100 Amp – Technical Description;
 - b. [EMEI Vehicle A 029](#) – Servicing of B Vehicles, Trailers, Motor Cycles, Stationary Equipment, Auxiliary and Small Engines;
 - c. [EMEI Vehicle A 291-5](#) – Tyres and Tubes –Australian Defence Force Tyre Guide;
 - d. [EMEI Vehicle G 102](#) – Truck, Utility, Lightweight, MC2 – Technical Description;
 - e. [EMEI Vehicle G 103](#) – Truck, Utility, Lightweight, MC2 – Light Grade Repair;
 - f. [EMEI Vehicle G 104-1](#)– Truck, Utility, Lightweight, MC2 – Medium Grade Repair;
 - g. [EMEI Vehicle G 104-2](#) – Truck, Utility, Lightweight, MC2 – Heavy Grade Repair;
 - h. [EMEI Vehicle G 140](#) – Truck, Carryall, Lightweight, Senior Commander, FFR, Winch, MC2 – Data Summary;
 - i. [EMEI Vehicle G 143](#) – Truck, Carryall, Lightweight, Senior Commander, FFR, Winch – Light Grade Repair;
 - j. [EMEI Vehicle G 144](#) – Truck, Carryall, Lightweight, Senior Commander, FFR, Winch – Medium and Heavy Grade Repairs; and
 - k. Repair Parts Scale 02194.

Identification Numbers

3. The locations of identification numbers on the subassemblies of the vehicle are described in Table 1.

Table 1 Location of Identification Numbers

Serial	Ident	Location
1	Chassis No	Right-hand side of the chassis, forward of the spring mounting turret
2	Chassis nameplate	Left-hand seat box in the cabin
3	Engine No	Left-hand side of the engine block
4	Injection pump identification	Side of the pump
5	Transmission and transfer case	Rear of the transfer case
6	Torque limiter	On the rear end of the drive plate
7	Front axle No	Adjacent to the axle breather
8	Rear axle No	Adjacent to the axle breather

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GENERAL INFORMATION

Electrical System

4. The vehicle utilizes a 12-Volt electrical system for engine starting and vehicle lighting and a completely independent 24-Volt electrical system to operate the radio equipment. The batteries for the 24-Volt system are installed in a battery box in the rear section of the vehicle behind the transverse seat.

Body

5. The vehicle's body consists of two box sections; an engine compartment and a five-door station wagon rear section. The rear section contains two single front seats, a central bench seat and an inward facing bench in the rear.

DETAILED TECHNICAL DESCRIPTION

24 V Electrical System

6. **Alternator.** The vehicle is fitted with a Generator, Engine Accessory, 28 V dc, 100 A which has three moving parts, and comprises four sub-assemblies. They are a stator assembly; an inductor rotor with cooling fan; a regulator/rectifier assembly and a rear air grille as shown in Figure 1. This is an inductor-type three phase alternator with in-built rectification and output control and is capable of continuous operation in temperatures ranging from -15° to $+105^{\circ}\text{C}$. The inductor-type alternator differs from the induction alternator in that there are no rotating windings which eliminates the need for slip-rings and brushes. Both the field excitation windings and the three phase output windings are wound on the stator. The soft iron laminated rotor induces current into the output windings by moving through the magnetic field produced by the excitation windings. A full technical description of the alternator is contained in EMEI Electrical P 412.

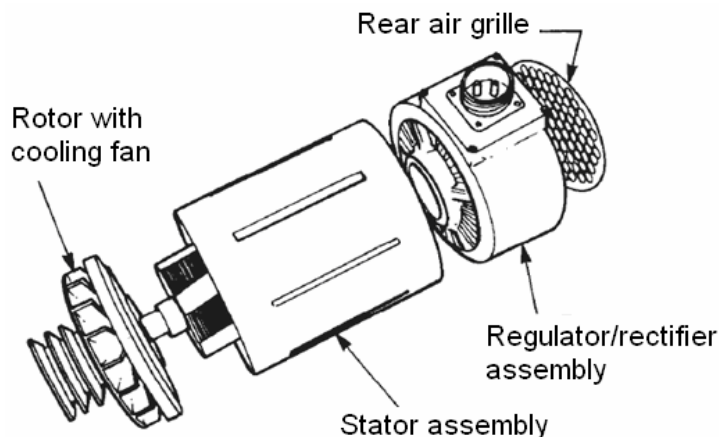


Figure 1 Alternator - Exploded View

7. **Wiring Harness.** In addition to the main wiring harnesses, a third harness is utilized to distribute the 24 V to the radio equipment and the batteries.

8. **Power Distribution Box (PDB).** A power distribution box (Figure 2) is installed in the rear compartment to enable radios, auxiliary equipment, and batteries to be interconnected. The PDB provides the following connections and controls:

- a. a 100 amp power switch and circuit breaker,
- b. four 24 V Cannon socket outlets,
- c. an external battery Cannon socket inlet,
- d. an external generator Cannon socket inlet,
- e. an auxiliary 24 V Cannon socket outlet, together with a 2 amp fuse,
- f. a voltmeter to monitor battery condition, and
- g. five internal 150 amp fuses (including two spares).

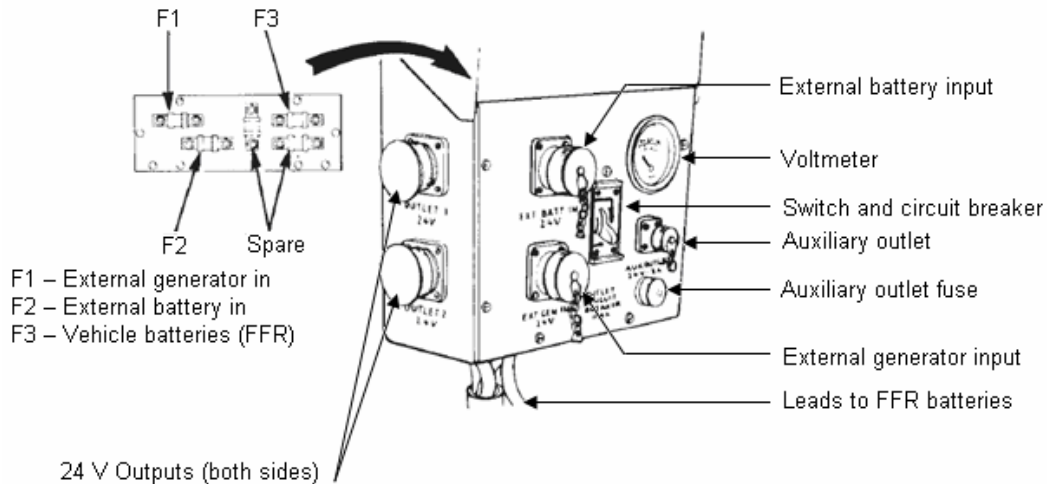


Figure 2 Power Distribution Box

9. Batteries. Two lead acid batteries are fitted in a battery box and are connected in series. These batteries are connected to the 24 V alternator and the PDB to provide power for the radios when the engine is not running.

Body

10. Front and Central Doors. The doors are constructed in one section and utilize a steel frame with aluminium sheeting shaped and clinched to the frame. Two hinges and a door lock are fitted to the lower half permitting the door to be opened or be secured in the closed position. A check-strap is fitted to the door and to the firewall side brace to limit the door opening.

11. Door Windows. The doors are provided with wind-up windows (Figure 3) and a window regulator is provided to vary the height of the glass which slides vertically in two weatherproof channels. A weatherstrip is installed in the body around the door opening. When closed, the door butts against the weatherstrip, effectively sealing against the body.

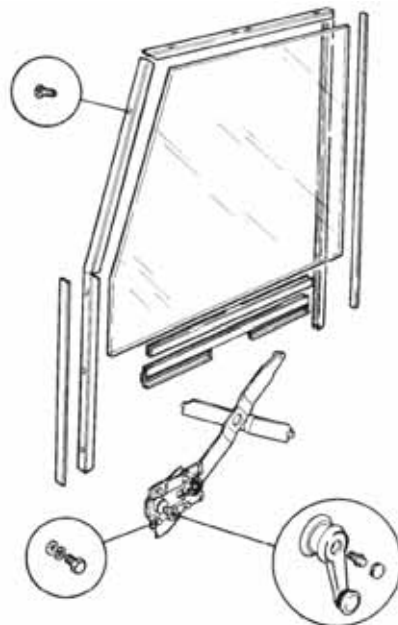


Figure 3 Front Door - Exploded View

12. Rear Body. The rear body (Figure 4) utilizes a steel frame and pressed aluminium panels. These panels are riveted together to form the rear lower body and the upper body including the roof. Access to the rear inward facing seats is provided by opening the one-piece steel frame door which is hinged to the rear body and

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roof rear panel. The rear body is secured to the chassis by four mounting brackets and to the rear crossmember by bolts.

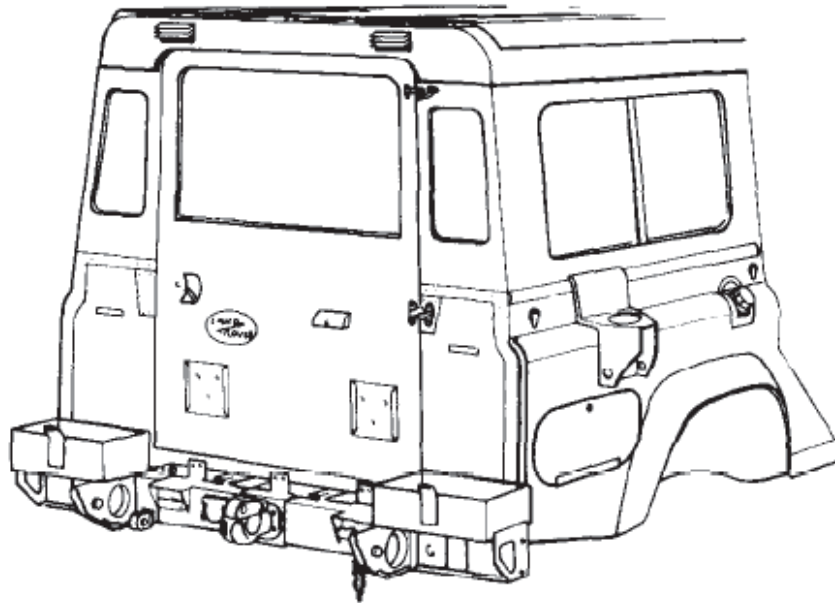


Figure 4 Rear Body

13. **Toolbox.** A toolbox is incorporated on each side of the rear body to the rear of the wheel arch (Figure 5). Each tool box is equipped with a hinged lockable lid providing storage for the hydraulic jack and the vehicle's tool kit. A wheel arch trim is positioned over each wheel arch and secured to the side panels by plastic rivets.

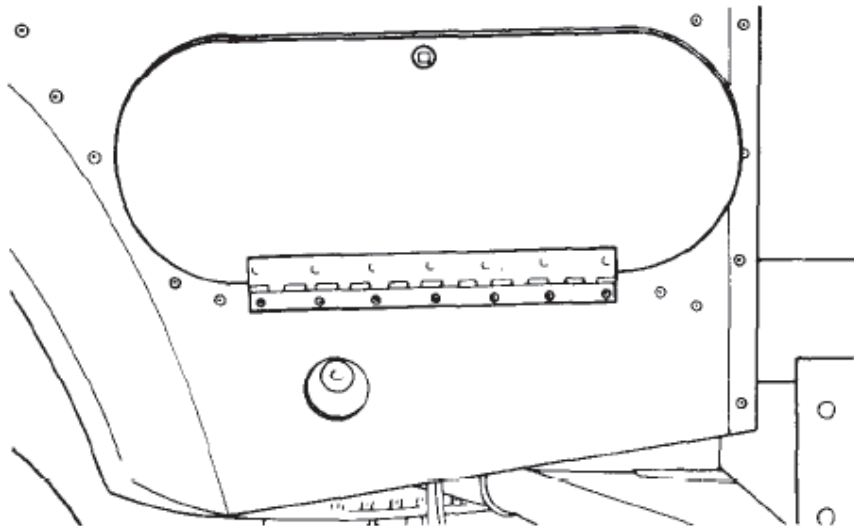


Figure 5 Tool Box and Wheel Arch Trim – Left Side

14. **Tropical Roof.** A tropical roof of fibre glass construction is attached to the roof panel by pop rivets. Its design provides an insulated space between the roof panel and the tropical roof.

END

Distribution List: **VEH G 16.6 – Code 2** (Maint Level)
(Sponsor: LV SPO, Lt B Vehicles)
(Authority: TRAMM)