

## TRUCK, CARGO, LIGHT, CREW CAB, WINCH, MC2 – LAND ROVER 110 6X6, PARAKEET

### 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, Cargo, Light, Crew Cab, Winch, MC2 - Land Rover 110 6X6 Parakeet and should be read in conjunction with EMEI Vehicle G 202. All relevant weights, dimensions and performance figures are detailed in the Data Summary EMEI Vehicle G 260.

#### Associated Publications

2. Reference may be necessary to the latest issue of the following documents:
- a. [EMEI Vehicle A 291-5](#) – Tyres and Tubes – General Service B Vehicles Tyre Guide – Operator Instructions;
  - b. EMEI Vehicle G 20 Decade – Truck, Cargo, Light, Winch, MC2 - Land Rover 110 6X6;
  - c. [EMEI Vehicle G 260](#) – Truck, Cargo, Light, Crew Cab, Winch, MC2 - Land Rover 110 6X6, Parakeet – Data Summary;
  - d. [EMEI Vehicle G 263](#) – Truck, Cargo, Light, Crew Cab, Winch, MC2 - Land Rover 110 6X6, Parakeet – Light Grade Repair; and
  - e. [EMEI Vehicle G 264-1](#) – Truck, Cargo, Light, Crew Cab, Winch, MC2 - Land Rover 110 6X6, Parakeet – Medium and Heavy Grade Repair.

#### Identification Numbers

3. The locations of identification numbers on the subassemblies of the vehicle are listed 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 front seat box, in the cab                                  |
| 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      | Intermediate axle No           | Adjacent to the axle breather   |
| 9      | Rear axle No                   | Adjacent to the axle breather   |
| 10     | Air compressor                 | Front-outer mounting point  |

#### GENERAL INFORMATION

##### Air Compressor

4. A Magnum twin-cylinder air compressor is installed on the left-hand side of the engine. Drive for the compressor comes from the alternator by means of a single V belt to a manually actuated drive clutch. The compressor has the capability of delivering air at a rate of 2.6 litres per second at a factory set pressure of 517 kPa.

**Body**

5. The vehicle's body consists of three box sections; an engine compartment, a four-door crew cab and a utility (open box) type rear section. A canvas canopy can be fitted over the rear section of the vehicle, effectively closing off the rear section to the elements. The rear body is a shortened version of the Truck, Cargo, Light, MC2 body but without seating.

**DETAILED TECHNICAL DESCRIPTION**

**Air Compressor**

6. The Magnum air compressor is constructed of machined aluminium alloy with the cylinders positioned to form a 90° vee configuration. The various components of the air compressor are shown in Figure 1.

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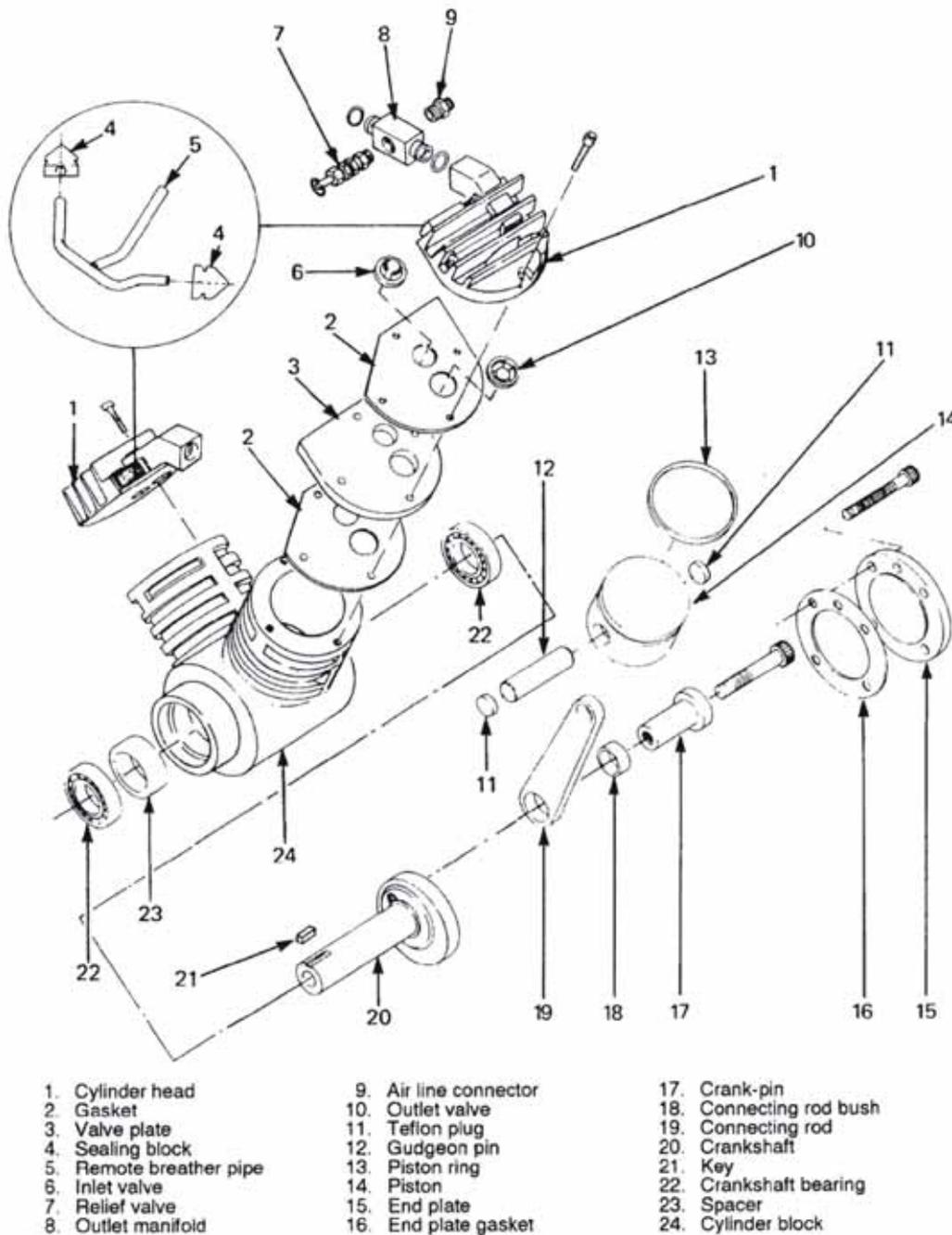
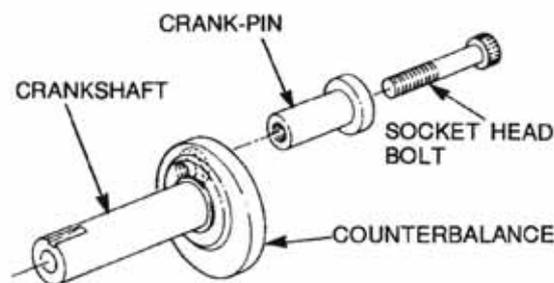


Figure 1 Air Compressor Exploded View

7. The pistons are constructed of aluminium alloy and machine finished to provide a working clearance within the cylinder bores. A groove is machined into the outer circumference of the pistons for the fitting of a single cast iron piston ring, which acts as a seal between the piston and the cylinder bore.
8. Hardened steel gudgeon pins secure the pistons to the two one-piece connecting rods, while Teflon plugs retain the gudgeon pins within the piston. A sintered bronze bush is installed in the bore at the big-end of both connecting rods to provide a bearing surface between the connecting rods and the crank-pin. Both connecting rods are mounted on the one crank-pin.
9. The crank-pin is made of case-hardened steel and secured to the crankshaft by a high tensile, socket-head cap bolt.
10. The crankshaft is a straight shaft with an offset flange (counterbalance) at one end (Figure 2). The shaft and counterbalance is machine finished. A recessed threaded hole is machined into the counterbalance 10 mm from the centre line of the crankshaft for the purpose of mounting the crank-pin. The offset crank-pin converts the rotary motion of the flange into the linear stroke to move the piston up and down the cylinder bore.

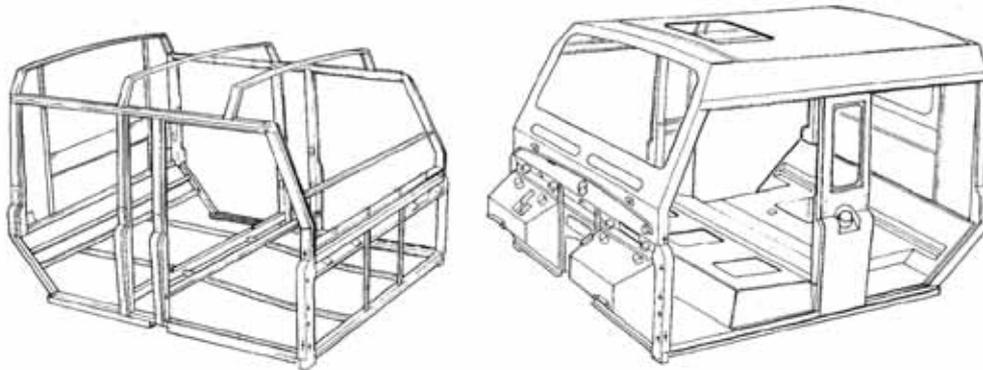


**Figure 2 Air Compressor Crankshaft Assembly**

11. When the crankshaft is installed in the crankcase, it is supported by two ball type bearings. The bearings are a press fit, both onto the crankshaft and into the crankcase, with a steel spacer positioned between the two inner races of the bearings. A high temperature bearing grease is used for the lubrication of the bearings and internal components of the compressor.
12. Valve plates are installed above each cylinder with head gaskets positioned above and below the valve plates. Two identical one-way valves are installed in the valve plates and arranged so that when the compressor is operating, air can only enter the cylinders through the inlet valves and exit through the outlet valves. A cylinder head is secured over each valve plate providing the means of directing air flow to and from the cylinders via ports which are machined into the heads and positioned directly over the valves.
13. As the pistons move down the bore of the cylinders, air is drawn into the compressor from the engine air inlet manifold via the remote breather pipe to the inlet ports. Dust and abrasive materials are extracted from the air by the engine air cleaner before the air flows to the compressor through the inlet ports and valves and into the cylinders.
14. When the pistons pass bottom-dead-centre and start moving up the bore of the cylinders, spring pressure and a slight back-flow of the air causes the inlet valve to close. As the pistons move further up the bores, slight compression of the air in the cylinders acts against the outlet valves, overcoming the spring pressure and opening the valves to allow the air to flow through the valves and outlet ports to a bridge manifold. The bridge manifold provides a common outlet for the cylinders and is capable of being rotated through 360°. An air outlet fitting and a pressure relief valve, which is preset at 517 kPa, are fitted to the bridge manifold.
15. The air compressor is mounted on a steel frame attached to the engine cylinder block. The steel frame also houses the driveshaft and provides a mounting for the drive belt pulley. The drive pulley, which is secured to the end of the driveshaft by means of a roll-pin, incorporates a manually actuated dog type clutch and a spring-loaded release lever. The clutch is engaged (only when the engine is not operating) by depressing the button on the front of the drive pulley; the release lever locks the button in position. If the compressor speed exceeds the desired operating speed, centrifugal force causes the release lever to move outward, against spring pressure, and release the clutch actuating button. Spring pressure forces the actuating button outward, releasing the dog clutch and ceasing the drive to the compressor. The release lever is normally used as a manual release for the dog clutch, but only when the engine is not operating.

**Body**

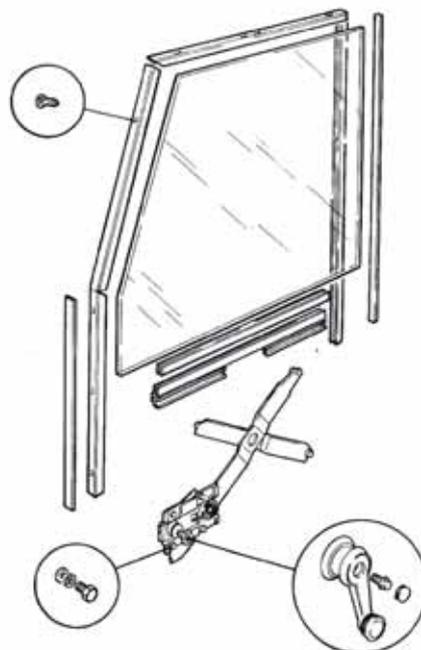
**16. Cabin.** The vehicle cabin consists of a welded steel frame to which steel panels are welded or riveted. The assembly is then hot dip galvanised for protection against rust. After this process the aluminium panels which include the roof, floor, seat boxes and the cabin rear panel are riveted into position. The two stages for cabin construction are shown in Figure 3. A roof hatch is provided in the roof of the cabin for observation purposes.



**Figure 3 Cabin Assembly**

**17. Cabin and Doors.** The doors are constructed as one section and utilise a steel frame with aluminium sheeting shaped and clinched to the frame. Two hinges and a door lock mechanism are fitted to the lower half of the doors, permitting the doors to be forward opening or locked in the closed position. A check strap is fitted to the front door and to the firewall side brace to limit the door opening. A check strap is also fitted to the rear door and the centre door pillar to limit the door opening.

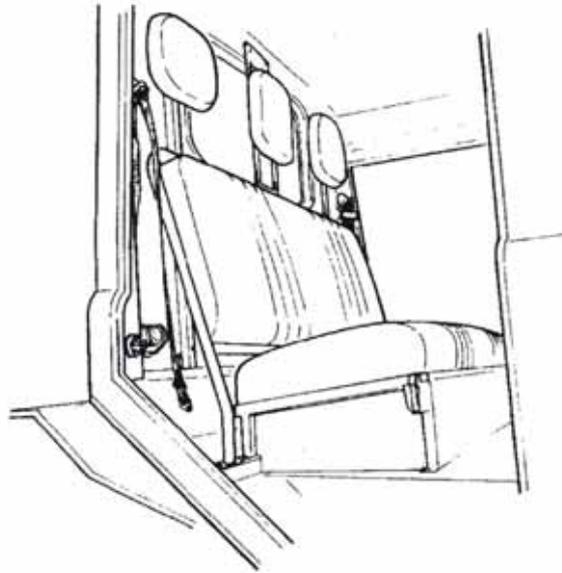
**18.** The doors are provided with windows of toughened clear glass, a wind-up mechanism and weatherproof-channel window slides (Figure 4). A weather strip is installed in the cabin body around the door opening, which effectively seals the door, when closed, to the body.



**Figure 4 Front Door Exploded View**

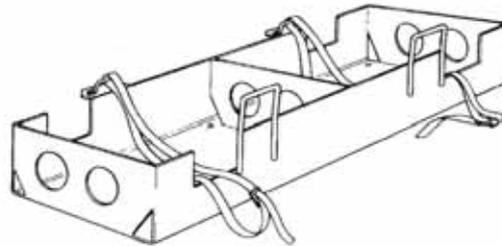
**19. Rear Seat.** Seating for three personnel is provided by the rear cabin bench seat and squab which are constructed of vinyl covering foam on a marine plywood base. Each rear seat position has a seat belt and an individual head restraint fastened to the rear cabin wall framework. The head restraints are constructed with the same materials as the rear seating. The rear cabin bench seat is hinged at the rear to allow access to the stowage area located under the seat (Figure 5).

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**Figure 5 Rear Seating**

- 20. Rear Body.** The rear body comprises a cargo tray, headboard, canopy bows and a canopy.
- 21. Cargo Tray.** The cargo tray is similar to that used on other Truck, Cargo, Light, Land Rover 110 6X6, except that there is no provision for seating and it is shorter in length. A rear step is located on each side of the rear chassis rail to assist in gaining entry to the cargo area with the tailgate closed. Additional steps are provided on the tailgate to assist in vehicle access with the tailgate in the lowered position.
- 22. Jerrican Holder.** A jerrican holder (Figure 6) is located in the cargo area at the headboard and provides stowage for two jerricans (either fuel or water).



**Figure 6 Jerrican Holder**

- 23. Brush Guard.** A heavy duty brush guard which has mounting points for a high lift jack and side bars is fitted to the vehicle. The CES for this vehicle type does not include the high lift jack and side bars, therefore, these items are not provisioned for on the vehicle.

**END**

Distribution List: **VEH G 20.7 – Code 1** (Maint Level)  
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