

**TRUCK, AMBULANCE, LIGHT, 4 LITTER, FFR, WINCH, MC2,
LAND ROVER 110 6 X 6**

LIGHT GRADE REPAIR

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.

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INTRODUCTION

1. This EMEI contains procedures for removing, dismantling, repairing, assembling and installing various components of the Truck, Ambulance, Light, 4 Litter, FFR, Winch models. Where applicable, instructions for the adjustment, lubrication and minor servicing of these items are included.



Do not use adhesive tapes to seal fuel or oil openings. The adhesive tape is soluble in fuel or oil and can cause contamination. Remove temporary covers before assembling.

2. Prevent dirt and foreign objects from entering any component by placing clean temporary coverings over all exposed openings, including hoses, tubes and lines.



Before removing any electrical system components, disconnect the battery leads.

3. When disconnecting electrical connectors, hoses and fittings, remove clamps, as required, to gain slack and avoid damage to connectors and fittings.

4. Discard all used gaskets, seals, cotter pins, tab washers, lock pins, key washers and lock washers. Discard all contaminated fuel and lubricants drained from the truck.

5. Use only those fuels and lubricants specified in the Servicing Instruction, EMEI Vehicle G 209, the User Handbook and this EMEI when replenishing fuel or lubricants.

6. Any fastenings or fittings being tightened to prescribed torques are to have dry, clean threads unless otherwise specified. When specified, thread sealants are to be applied to dry, clean, oil free threads.

7. The engine cooling system contains Nalcool corrosion inhibitor in water at a ratio of 1:12.



Precautions should be taken prior to carrying out repairs which include painting, sanding, scraping or welding. Refer to EMEI Workshop D 701 – Repair Policy for Equipment Painted in Polyurethane Paint.

8. This vehicle is painted in polyurethane paint.

Associated Publications

9. Reference may be necessary to the latest issue of the following documents:

- a. Defence Road Traffic Instructions;
- b. Complete Equipment Schedules (CES):
 - (1) SCES 12100.....Truck, Ambulance, 4 Litter, FFR – Land Rover 110 6X6;
 - (2) Equipment Kit SCES 11268 Medical Equipment Set, Field Evacuation, Ambulance;
- c. Block Scale 2406/31 Special Tools for RAEME – B Vehicles – Truck, Utility and Trucks, Light, MC2 (Land Rover Model 110);
- d. EMEI Electrical P 413 – Generator, Engine Accessory, 28 V, 100 A – Light Grade Repair;
- e. EMEI Vehicle A 029 – Servicing of B Vehicles, Trailers, Motorcycles, Stationary Equipment, Auxiliary and Small Engines;
- f. EMEI Vehicle A 291-5 – General Service B Vehicles Tyre Guide – Operating Instructions;

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- g. EMEI Vehicle A 459-2 – Hydraulic Brake Fluid Deterioration, Miscellaneous Instruction;
 - h. EMEI Vehicle G 203 – Truck, Cargo, Light, MC2 and Truck, Cargo, Light, W/Winch, MC2, Landrover 110 6X6 – Light Grade Repair;
 - i. EMEI Vehicle G 209 – Truck, Cargo, Light, MC2, Landrover 110 6X6, All Types – Servicing Instruction;
 - j. EMEI Vehicle G 220 – Truck, Ambulance, Light, 4 Litter, FFR, Winch, MC2 – Land Rover 110 6X6 – Data Summary;
 - k. EMEI Vehicle G 222 – Truck, Ambulance, Light, 4 Litter, FFR, Winch, MC2 – Land Rover 110 6X6 – Technical Description;
 - l. EMEI Vehicle G 224-1 – Truck, Ambulance, Light, 4 Litter, FFR, Winch, MC2 – Land Rover 110 6X6 – Medium and Heavy Grade Repair;
 - m. EMEI Workshop D 701 – Repair Policy for Equipment Painted in Polyurethane Paint; and
 - n. RPS 02208.
10. A number of modifications and improvements have been made during the service life of the vehicle. Reference to the following publications may be required during repair activities:

NOTE

Any effect of these publications pertaining to the technical content of this document has been included in the text.

- a. EMEI Vehicle G 227-1 – Truck, Ambulance, Light, 4 Litter, FFR, Winch, MC2 – Land Rover 110 6X6 – Relocation Of The Seven Pin Auxiliary Plug And Harness Assembly;
- b. EMEI Vehicle G 227-2 – Truck, Ambulance, Light, 4 Litter, FFR, Winch, MC2 – Land Rover 110 6X6 – Replacement Of Air Conditioner Compressor Mounting Bracket To Engine Block Mounting Bolts;
- c. EMEI Vehicle G 227-3 – Truck, Ambulance, Light, 4 Litter, FFR, Winch, MC2 – Land Rover 110 6X6 – Fitting of a Support Bracket to the Air Conditioner Compressor Hoses;
- d. EMEI Vehicle G 227-4 – Truck, Ambulance, Light, 4 Litter, FFR, Winch, MC2 – Land Rover 110 6X6 – Fitment of a Auxiliary Power Outlets and Modification Plate;
- e. EMEI Vehicle G 227-5 – Truck, Ambulance, Light, 4 Litter, FFR, Winch, MC2 – Land Rover 110 6X6 – Air-Conditioner Refrigerant Retrofit;
- f. EMEI Vehicle G 227-6 – Truck, Ambulance, Light, 4 Litter, FFR, Winch, MC2 – Land Rover 110 6X6 – Removal of Towing Pintle Hook;
- g. EMEI Vehicle G 229-1 – Truck, Ambulance, Light, 4 Litter, FFR, Winch, MC2 – Land Rover 110 6X6 – Repair of Air Conditioner Hoses;
- h. EMEI Vehicle G 297-7 – Truck, Ambulance, Light, 4 Litter, FFR, Winch, MC2 – Land Rover 110 6X6 – Fitment of a Heavy Duty Indicator Flasher Unit;
- i. EMEI Vehicle G 297-8 – Truck, Ambulance, Light, 4 Litter, FFR, Winch, MC2 – Land Rover 110 6X6 – Fitment of Center Seat Back Rubber Block; and
- j. EMEI Vehicle G 297-15 – Truck, Ambulance, Light, 4 Litter, FFR, Winch, MC2 – Land Rover 110 6X6 – Fitting of Improved Chassis Logitudinal Rails.

WARNING

All industrial safety work practices and equipment operating and maintenance instructions pertaining to this EMEI are to be adhered to.

The handling, storage and use of chemical substances are to be in accordance with MOHS, MSDS and EMEI Workshop series requirements.

Identification Numbers

11. The location of identification numbers on components of the vehicle is described in Table 1.

Table 1 Location of Identification Numbers

Serial	Identification Number	Location
1	Chassis number	Right hand side of the chassis, forward of the spring mounting turret
2	Chassis nameplate	Left hand seat box, in the cab
3	Engine number	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	Air conditioner compressor	Front outer mounting point
7	Ambulance module	Right hand rear, opposite the heater

Lubricants

12. The lubricants used with the vehicle are identified in Table 2.

Table 2 List of Lubricants

Serial	Equipment	Lubricant	Capacity (Litres)
1	Engine (including filters)	OMD-115	8.5
2	Transmission	OMD-115	2.7
3	Transfer case (with PTO)	OMD-115	5.8
4	Front axle	OEP-220	1.7
5	Intermediate axle	OEP-220	2.6
6	Rear axle	OEP-220	2.3
7	Swivel pin housings	Molytex Grease	EP00 Sachet
8	Brake master cylinder	OX (Aust) 8	Fill to level
9	Clutch master cylinder	OX (Aust) 8	Fill to level
10	Power steering system reservoir	OX-46	1.25
11	Fanbelt jockey pulley	XG-274	As required
12	Wheel bearings	XG-274	As required
13	Winch cable	Rocol wire rope lube NSN 9510-66-150-1763	As required
14	Radiator inhibitor	Nalcool	As required (1:12 ratio)
15	Clutch pedal trunion	XG-274	As required
16	Speedometer cable	XG-274	As required
17	Propeller shaft	XG-274	As required
18	Winch drive line	XG-274	As required
19	Parking brake adjuster	XG-274	As required
20	Windscreen wiper drive cable	XG-274	As required
21	Winch	OEP-220	2.1
22	Air conditioner compressor	OM-70	135 cc
23	Refrigerant	HFC-134a	As required

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ENGINE – GROUP 1

Jockey Pulley

13. **Removal.** Remove the jockey pulley as follows:

- a. Slacken the adjusting bolt on the pulley arm (refer Figure 1).

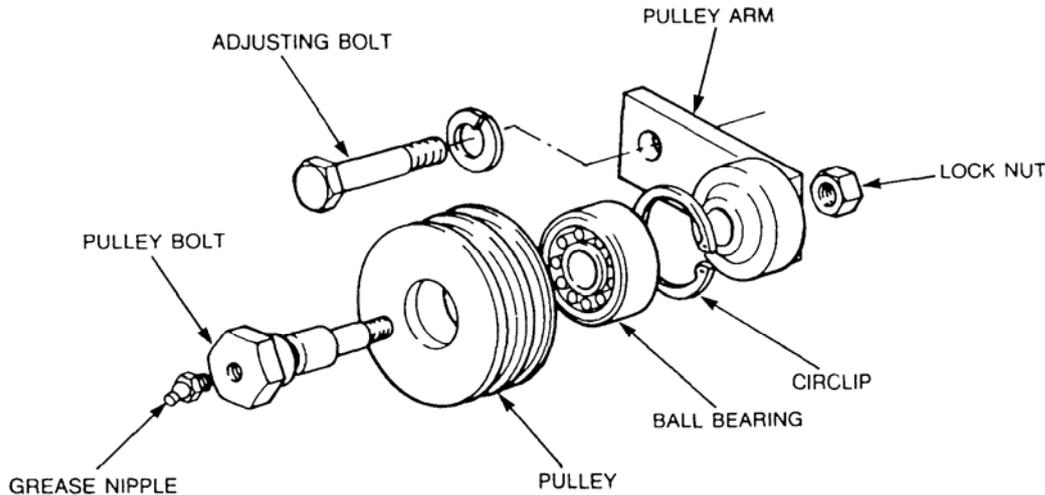


Figure 1 Jockey Pulley Exploded View

- b. Detach the two fanbelts from the pulley.
- c. Remove the adjusting bolt from the pulley arm and mounting.
- d. Remove the pulley arm and pulley from the engine.

14. **Disassembly.** Disassemble the jockey pulley as follows:

- a. Remove the grease nipple from the pulley bolt.
- b. Secure the pulley arm in a vice.
- c. Remove and discard the lock nut securing the pulley bolt.
- d. Remove the pulley bolt and pulley.
- e. Remove the internal circlip retaining the bearing in the pulley.
- f. Remove the bearing from the pulley.
- g. Clean and degrease the pulley.

15. **Reassembly.** Reassemble the jockey pulley as follows:

- a. Install the bearing in the pulley.

NOTE

Ensure that the chamfered face is installed first.

- b. Insert the circlip into the pulley.
- c. Install the pulley on the pulley arm with the circlip facing the arm boss.
- d. Insert the pulley bolt and a new lock nut.
- e. Install the grease nipple and lubricate with XG-274.

16. **Installation.** Install the jockey pulley as follows:

- a. Align the pulley arm bolt hole with the mounting hole.
- b. Insert the adjusting bolt.

- c. Fit the two fanbelts in the pulley grooves.
- d. Position the pulley arm to allow a deflection of 5–10 mm on the longest span of the belts.
- e. Tighten the adjusting bolt securely.

COOLING SYSTEM – GROUP 2

Fanbelts

17. **Replacement.** Replace the fanbelts as follows:
- a. Slacken the adjusting bolt on the pulley arm (refer Figure 1).
 - b. Detach the two fanbelts from the pulley.
 - c. Remove the two 28 volt alternator fanbelts from the crankshaft pulley.
 - d. Loosen the 12 volt alternator mounting bolts and adjusting bolt (refer Figure 2).

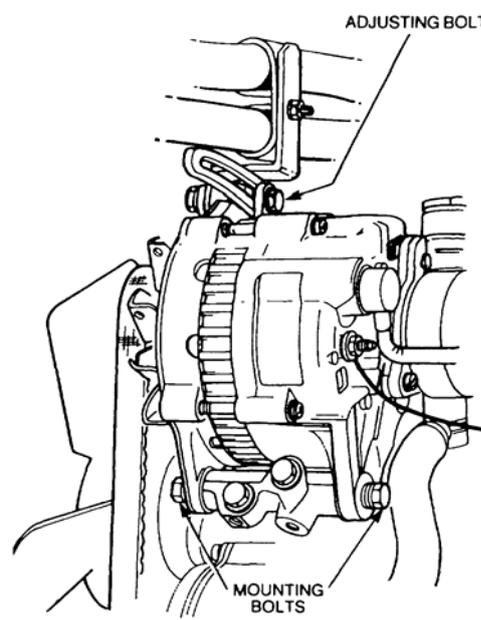


Figure 2 Fanbelt Replacement

- e. Detach the fanbelt from the 12 volt alternator drive pulley.
- f. Remove all three fanbelts from the engine.
- g. Install the inner fanbelt.

NOTE

Ensure that all three drive pulleys are correctly located.

- h. Swing the 12 volt alternator away from the engine.
- i. Check the tension of the belt by applying moderate thumb pressure to the longest span of the belt.
- j. When a belt deflection of 10–15 mm has been obtained, tighten the adjusting bolt.
- k. Tighten the mounting bolts.
- l. Install the remaining two fanbelts and ensure that the belts are correctly located on the pulleys.
- m. Position the pulley arm to allow a deflection of 5–10 mm on the longest span of the belts.
- n. Tighten the adjusting bolt securely.

Engine and Cooling Group Specifications

18. The engine and cooling specifications are detailed in Table 3.

Table 3 Engine and Cooling Group Specifications

Serial	Description	Item	Specification
1	Fanbelt deflection	12-volt alternator	10–15 mm
		28-volt alternator	5–10 mm

ELECTRICAL – GROUP 15

Alternator (28-Volt)

19. **Removal.** Remove the alternator as follows:

- a. Disconnect the vehicle and FFR system batteries.
- b. Cut the lock wire securing the cannon plug to the 28-volt alternator.
- c. Remove the cannon plug.
- d. Slacken the adjusting bolt on the pulley arm (refer Figure 1).
- e. Detach the two fanbelts from the pulley.

WARNING

The 28-volt alternator is heavy. Care must be taken when removing the alternator or personal injury may result.

- f. Support the alternator, then remove the bolts that retain the alternator clamp rings to the mounting.
- g. Carefully remove the alternator from the vehicle.
- h. Discard the lock washers.
- i. Remove the bolts, nuts and washers that secure the clamp rings on the alternator.
- j. Remove the clamp rings.
- k. Discard the lock washers.

NOTE

Repair procedures for the 28-volt alternator are detailed in EMEI Electrical P 410 series.

- l. Remove the alternator.

20. **Installation.** Install the alternator as follows:

- a. Fit the clamp rings onto the alternator and install the bolts, nuts and washers (refer Figure 3).

NOTE

Do not tighten at this stage.

- b. Support the alternator and clamp rings beside the engine mounting.

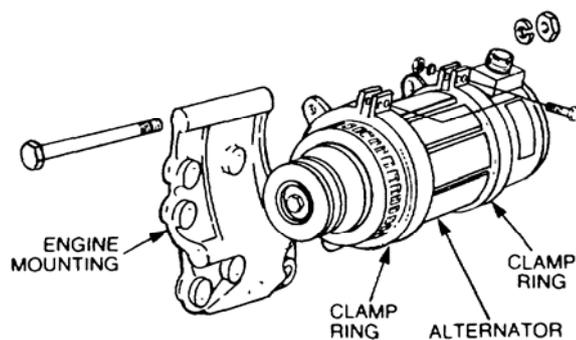


Figure 3 Alternator Installation

WARNING

The 28-volt alternator is heavy. Care must be taken on installation or personal injury may result.

- c. Insert the bolts that secure the clamp rings to the mounting.
- d. Install the nuts and new lock washers and tighten them securely.

NOTE

Ensure that the alternator and crankshaft pulleys are aligned by using a suitable straight edge.

- e. Connect the cannon plug.
- f. Tighten the nuts on the clamp rings securely.
- g. Fit the two fanbelts in the pulley grooves.
- h. Position the pulley arm to allow a deflection of 5–10 mm on the longest span of the belts.
- i. Tighten the adjusting bolt securely.
- j. Lock wire the cannon plug to the 28-volt alternator.
- k. Connect the vehicle and FFR system batteries.

Wiring Harness

21. **General Precautions.** Exercise the following precautions when working on the wiring harness:

CAUTION

Arcing wires to earth, to determine if the wire is live, will destroy solid state components.

- a. Use suitable testing meters or circuit testers to trace or locate faults and check circuits.
- b. After tracing electrical faults, before carrying out any electrical repairs, disconnect the batteries, negative terminals first.

CAUTION

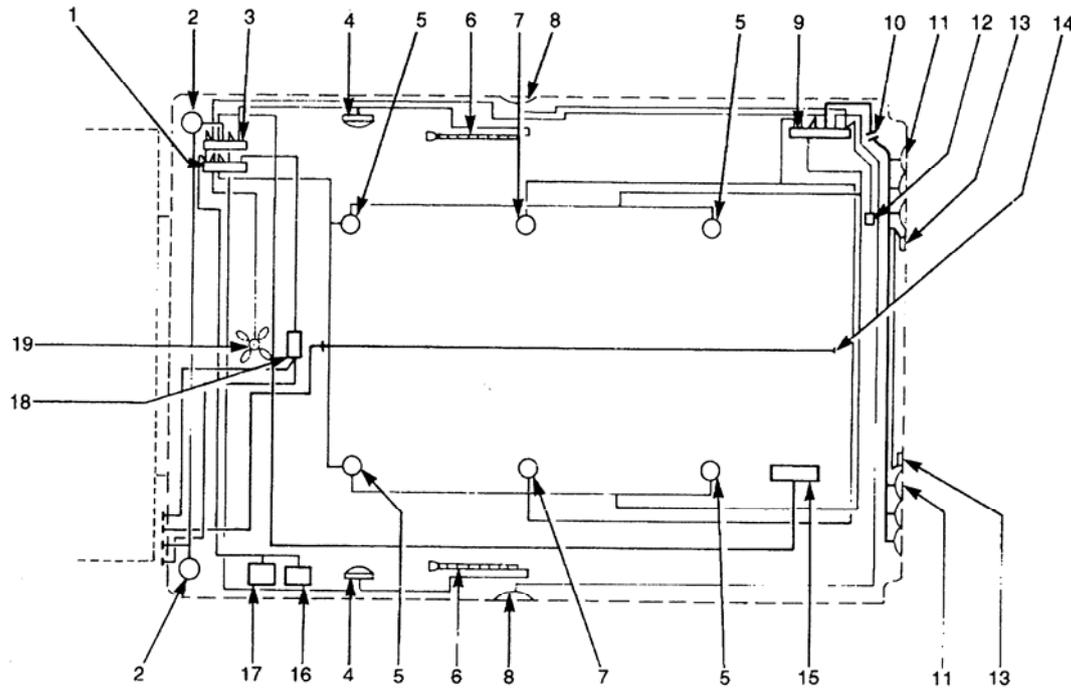
Failure to disconnect the alternators will cause the transistors and diodes to fail as a result of current flow throughout the chassis when arc welding.

- c. Before carrying out any electrical arc welding on the vehicle, disconnect the batteries and both alternators.



Reversing battery polarity will cause serious damage.

- d. When installing the batteries, ensure that the terminals are connected to the correct posts.
- e. The layout of the rear wiring harness for a vehicle fitted for radio is shown in Figure 4.



- | | | |
|-----------------------------|---------------------------------|------------------------------|
| 1. Main switch | 8. Scan lights | 15. Heater fan |
| 2. Beacon lights | 9. Secondary switch panel | 16. Suction pump |
| 3. Fuse/relay panel | 10. Rear door harness connector | 17. Rectifier assembly |
| 4. Litter lights | 11. Rear upper lights | 18. Air conditioner controls |
| 5. Dome lights | 12. 7-pin socket | 19. Condensor fan |
| 6. Additional litter lights | 13. Rear loading lights | |
| 7. Blackout lights | 14. Bell/buzzer strip | |

Figure 4 Rear Wiring Harnesses (Ambulance)

- 22. **Replacement.** Replace the wiring harness as follows:
 - a. Disconnect the batteries, negative terminals first (refer Figure 5).

NOTE

All electrical wiring in the vehicle is colour coded for identification and reference. If necessary, refer to the wiring diagram in EMEI Vehicle G 203, in conjunction with the relevant illustration, when replacing a wiring harness.

- b. Determine which harness is to be replaced and ensure that the replacement harness is of the correct capacity and that the wires are correctly colour coded.

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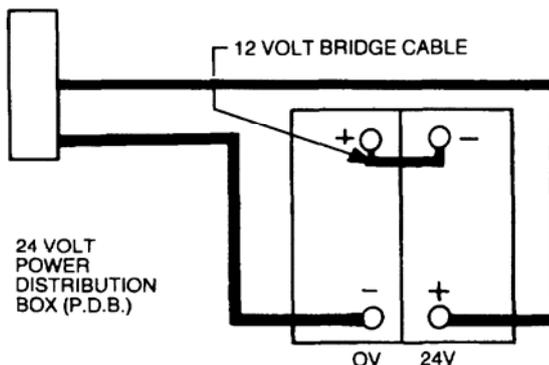


Figure 5 Batteries Installation

- c. Using the old harness and tags as a guide, connect the wires to the appropriate terminals.
- d. Reconnect the batteries.
- e. Test the function of the components associated with the wiring harness that has been replaced to ensure correct function.

Batteries (24-Volt Installation)

23. **Replacement.** Replace the batteries (24-volt installation) as follows:

- a. Switch off the master switch on the power distribution box.
- b. Remove the security clip and pin from the battery carrier (refer Figure 6).

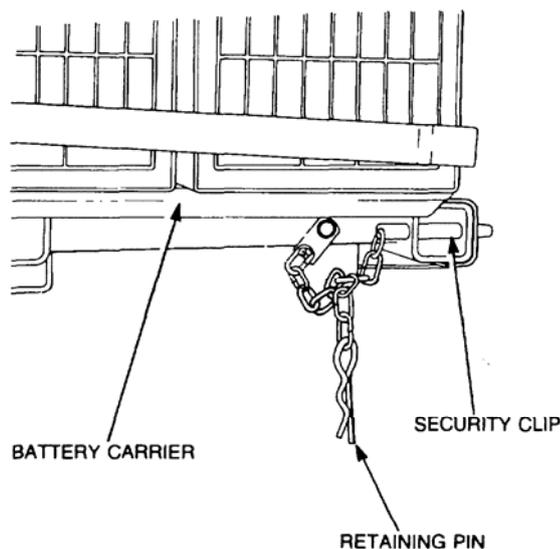


Figure 6 Battery Compartment

- c. Slide the batteries and carrier clear of the vehicle body until the small bridging cable is exposed.



When removing the bridging cable, extreme care must be taken to prevent the cable ends shorting out on the vehicle body.

- d. Disconnect the bridging cable from both the positive and negative terminals on the batteries.
- e. Remove the cable.
- f. Disconnect the remaining cables from the batteries.

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- g. Remove the nuts and washers securing the battery retaining bracket and remove the bracket.
- h. Lift the batteries out of the battery carrier.
- i. Install the new batteries in the battery carrier ensuring that the batteries are installed correctly (refer Figure 5).
- j. Secure them with the retaining bracket.
- k. Connect the battery cables and stow the battery carrier.
- l. Secure the carrier with the security clip and pin.
- m. Switch on the master switch.

Power Take-off Warning Light

24. **Bulb Replacement.** Replace the bulb as follows:

- a. Disconnect the battery located in the engine compartment.
- b. Remove the five screws retaining the instrument panel (refer Figure 7).

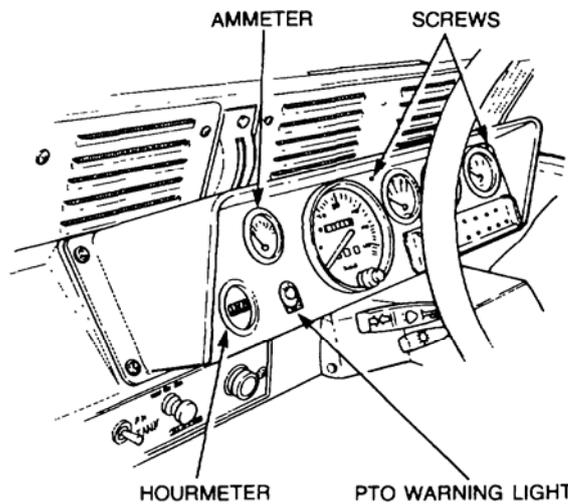


Figure 7 Instrument Panel Removal

- c. Carefully ease the panel away from the surround.

NOTE

Disconnect the speedometer cable if necessary to allow easier access.

- d. Remove the bulb holder from the socket with a pull/twist action.
- e. Replace the bulb.
- f. Insert the bulb holder with a push/twist action.
- g. Check that the speedometer cable is connected and install the instrument panel.
- h. Secure the instrument panel with the five screws.
- i. Connect the battery.

25. **Light Unit Replacement.** Replace the light unit as follows:

- a. Disconnect the battery located in the engine compartment.
- b. Remove the five screws retaining the instrument panel (refer Figure 7).
- c. Carefully ease the panel away from the surround.

NOTE

Disconnect the speedometer cable if necessary to allow easier access.

- d. Unscrew the lens to allow the light unit to be removed.
- e. Tag and disconnect the wiring harness from the light unit then remove the light unit.
- f. Connect the wiring harness to the new light unit.
- g. Install the light unit into the panel and secure it with the lens.
- h. Check that the speedometer cable is connected and install the instrument panel.
- i. Secure the instrument panel with the five screws.
- j. Connect the battery.

Hour meter

26. Replacement. Replace the hour meter as follows:

- a. Disconnect the 12-volt and 24-volt system batteries.
- b. Remove the five screws retaining the instrument panel (refer Figure 7).
- c. Carefully ease the panel away from the surround.

NOTE

Disconnect the speedometer cable if necessary to allow easier access.

- d. Tag and disconnect the electrical connections.
- e. Remove the nuts securing the gauge to the instrument panel.
- f. Remove the gauge.
- g. Insert the new gauge into the panel and secure it with the nuts.
- h. Connect the electrical connections, as tagged.
- i. Ensure that the speedometer cable is connected.
- j. Install the instrument panel and secure it with the five screws.
- k. Connect the batteries.

Ammeter

27. Replacement. Replace the ammeter as follows:

- a. Disconnect the 12-volt and 24-volt system batteries.
- b. Remove the five screws retaining the instrument panel (refer Figure 7).
- c. Carefully ease the panel away from the surround.

NOTE

Disconnect the speedometer cable if necessary to allow easier access.

- d. Remove the bulb holder from the ammeter gauge.
- e. Tag and disconnect the electrical connections.
- f. Remove the nuts securing the gauge to the instrument panel.
- g. Remove the gauge.
- h. Insert the new gauge into the panel and secure it with the nuts.
- i. Reconnect the electrical connections.
- j. Install the bulb holder on the ammeter gauge.
- k. Ensure that the speedometer cable is connected.
- l. Install the instrument panel and secure it with the five screws.

- m. Connect the batteries.

Module Interior Ceiling Lights

28. **Bulb Replacement.** Replace the bulbs as follows:

NOTE

The module interior ceiling lights utilize an identical base, festoon type bulbs and replacement procedure.

- a. Remove the three screws securing the lens to the base of the light unit (refer Figure 8).
- b. Remove the lens.

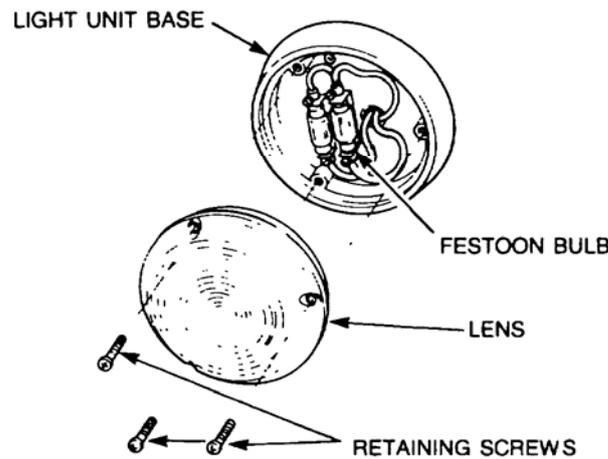


Figure 8 Interior Ceiling Light Bulb Replacement

- c. Replace the bulb.
 - d. Install the lens and secure it with the three screws.
29. **Light Unit Replacement.** Replace the light as follows:
- a. Switch off the main switch panel master switch.
 - b. Remove the three screws securing the lens to the base of the light unit (refer Figure 8).
 - c. Remove the lens.
 - d. Tag and disconnect the wiring harness from the light unit base by slackening the terminal screws.
 - e. Remove the two screws securing the base to the module ceiling.
 - f. Remove the light unit.
 - g. Insert the wiring harness through the new light unit base, and secure the base to the ceiling with the two screws.
 - h. Connect the wiring harness and ensure that the terminals are secure.
 - i. Install the bulb and the lens.
 - j. Secure the lens with the three screws.
 - k. Switch on the master switch.

Casualty Observation Stalk Lights

30. **Bulb Replacement.** Replace the bulb as follows:

- a. Slide the shroud cover down the stalk to allow access to the bulb (refer Figure 9).
- b. Remove the bulb.
- c. Install the new bulb and slide the shroud over the bulb.

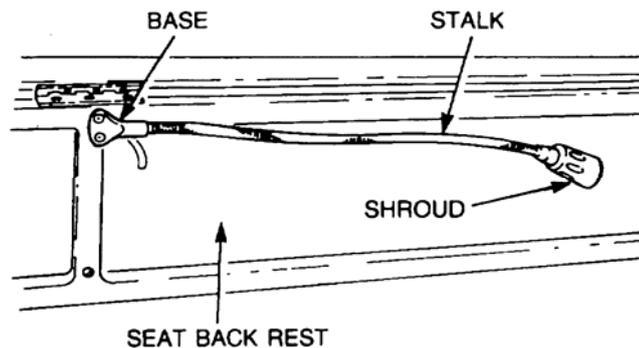


Figure 9 Casualty Observation Stalk Light Bulb Replacement

31. **Light Unit Replacement.** Replace the light unit as follows:
- Switch off the main switch panel master switch.
 - Tag and disconnect the wiring harness from the light unit base.
 - Remove the two screws securing the light unit base to the seat back rest/upper locker (refer Figure 9).
 - Remove the light unit.
 - Position the new light unit on the seat back rest/upper locker.
 - Secure the base with the two screws.
 - Connect the wiring harness, ensuring that the connections are secure and insulated.
 - Switch on the master switch.

Rear Loading Lights

32. **Bulb Replacement.** Replace the bulb as follows:
- Remove the two screws securing the lens and chrome surround to the light unit base (refer Figure 10).
 - Remove the lens and surround.

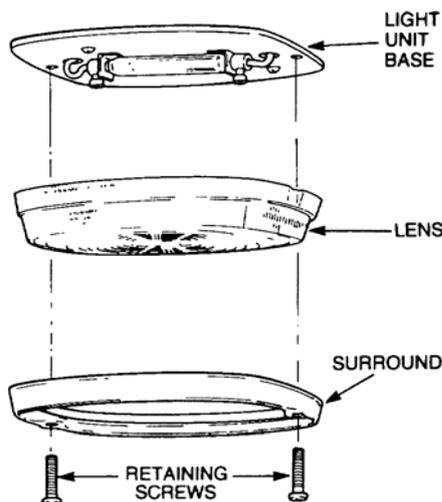


Figure 10 Loading Light Exploded View

- Replace the bulb.
 - Install the lens and surround.
 - Secure the lens and the surround with the two screws.
33. **Light Unit Replacement.** Replace the light unit as follows:
- Switch off the main switch panel master switch.

- b. Remove the two screws securing the lens and chrome surround from the light unit base (refer Figure 10).
- c. Tag and disconnect the wiring harness from the light unit base.
- d. Remove the two screws securing the light unit base to the rear door.
- e. Remove the light unit.
- f. Insert the wiring harness through the new light unit base.
- g. Secure the base to the rear door with the two screws.
- h. Connect the wiring harness and ensure that the terminals are secure.
- i. Install the bulb.
- j. Install the lens and chrome surround.
- k. Secure the lens and the surround with the two screws.
- l. Switch on the master switch.

Scan Lights

34. **Bulb Replacement.** Replace the bulb as follows:

NOTE

When handling Quartz halogen bulbs, there must be no finger contact with the glass envelope. If this occurs wipe the bulb with methylated spirits on a clean tissue to avoid premature bulb failure.

- a. Remove the three screws securing the protective grid to the module (refer Figure 11).
- b. Remove the grid.

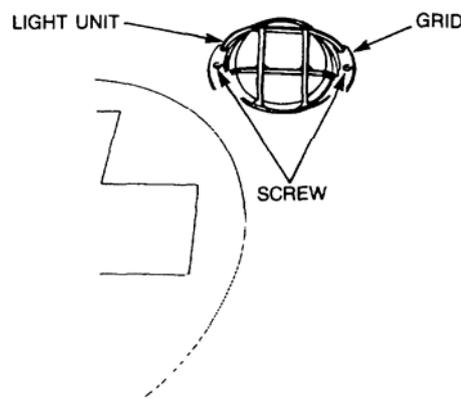


Figure 11 Scan Light Protective Grid Removal

- c. Using a small bladed screwdriver remove the rubber surround securing the lens to the light unit base.
- d. Remove the lens.
- e. Remove the spring clip retaining the bulb (refer Figure 12).
- f. Remove the bulb.

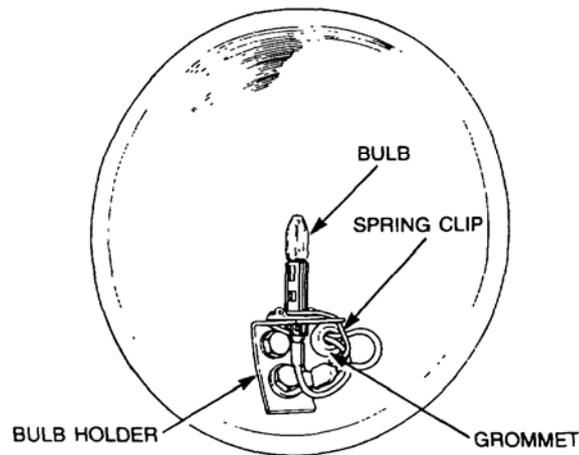


Figure 12 Scan Light Bulb Replacement

- g. Disconnect the wire from the bulb terminal.
- h. Fit the new bulb to the bulb holder and secure with the spring clip.
- i. Connect the wire to the bulb terminal.
- j. Install the lens on the light unit base and secure it with the rubber surround.
- k. Fit the protective grid over the light unit and secure it with the three screws.

35. Light Unit Replacement. Replace the light unit as follows:

- a. Switch off the master switch at the main switch panel.
- b. Remove the three screws securing the protective grid to the module (refer Figure 11).
- c. Remove the grid.
- d. Using a small bladed screwdriver remove the rubber surround securing the lens to the light unit base.
- e. Remove the lens.
- f. Tag and disconnect the two wires connected to the light unit.
- g. Remove the screws securing the light unit base to the module (refer Figure 12).
- h. Remove the base.
- i. Insert the two wires through the grommet.
- j. Secure the new light unit base to the module with the three screws.
- k. Connect the two wires to the terminals.
- l. Ensure that the light bulb is secure, then fit the lens to the light unit base.
- m. Install the rubber surround to retain the lens to the light unit base.
- n. Install the protective grid over the light unit.
- o. Secure the grid with the three screws.
- p. Switch on the master switch.

Rotating Beacon Light

36. Bulb Replacement. Replace the bulb as follows:

- a. Remove the three screws securing the protective grid to the module (refer Figure 13).
- b. Remove the grid.

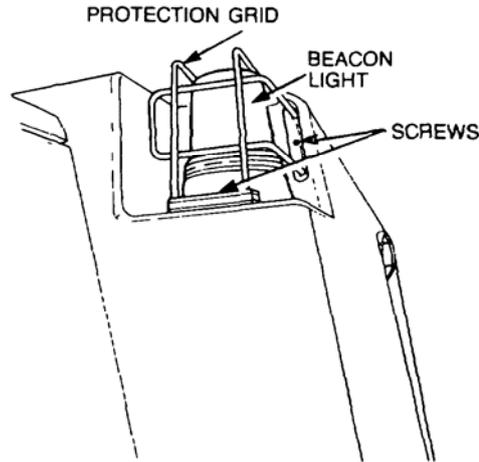


Figure 13 Rotating Beacon Light Grid Removal

- c. Using a small bladed screwdriver, press down the locking strip (refer Figure 14).
- d. Remove the lens in a counter-clockwise direction.



Take care not to lose the rubber O-ring.

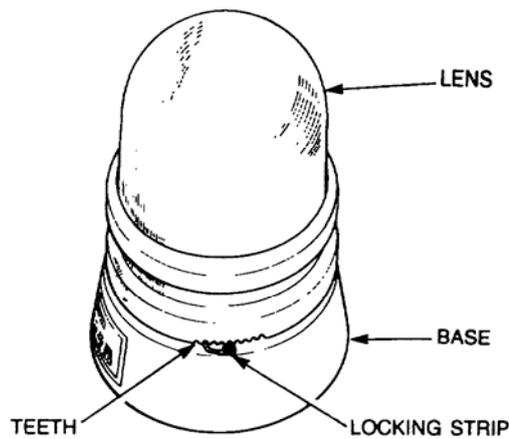


Figure 14 Rotating Beacon Light Lens Removal

NOTE

When handling Quartz halogen bulbs, there must be no finger contact with the glass envelope. If this occurs wipe the bulb with methylated spirits on a clean tissue to avoid premature bulb failure.

- e. Remove the cable connector from the bulb.
- f. Remove the spring clip securing the bulb (refer Figure 15).
- g. Replace the bulb and secure it with the retaining clip.
- h. Install the cable connector.

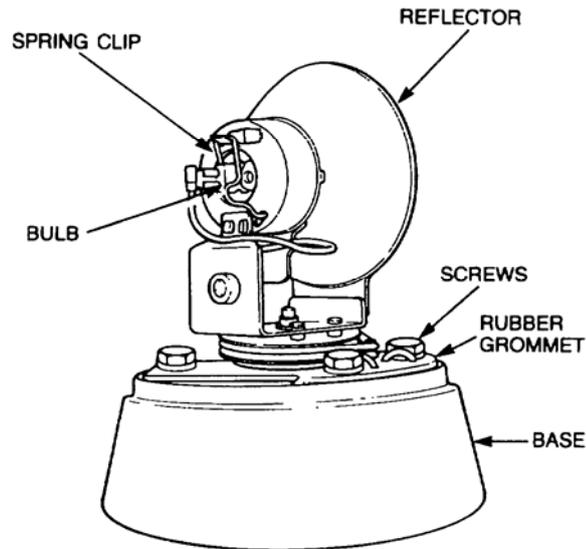


Figure 15 Rotating Beacon Light Bulb Replacement

- i. Install the lens, ensuring that the O-ring is in position.
 - j. Turn the lens in a clockwise direction and allow the locking strip to engage the teeth located on the lens (refer Figure 14).
- 37. Light Unit Replacement.** Replace the light unit as follows:
- a. Switch off the main switch panel master switch.
 - b. Remove the three screws securing the protective grid to the module (refer Figure 13).
 - c. Remove the grid.
 - d. Using a small bladed screwdriver, press down the locking strip (refer Figure 14).
 - e. Remove the lens in a counter-clockwise direction.



Take care not to lose the rubber O-ring.

- f. Tag and disconnect the wiring harness from the light unit.
- g. Remove the three screws and washers securing the light unit to the base (refer Figure 15).
- h. Remove the light unit.
- i. Position the new light unit on the base aligning the three mounting holes.
- j. Secure the light unit with the three screws and washers.
- k. Connect the wiring harness to the two terminals.

NOTE

Ensure that the bulb is secure

- l. Install the lens in a clockwise direction until the locking strip engages the teeth.
- m. Fit the protective grid to the module and secure it with the three screws.

High Level Lights (Rear Door)

38. **Bulb Replacement.** Replace the bulbs as follows:

NOTE

The module rear lights utilize an identical base and festoon type bulb fitting. Therefore the replacement procedure is identical for each light.

- a. Remove the three screws securing the lens to the base of the light unit (refer Figure 16).
- b. Remove the lens.

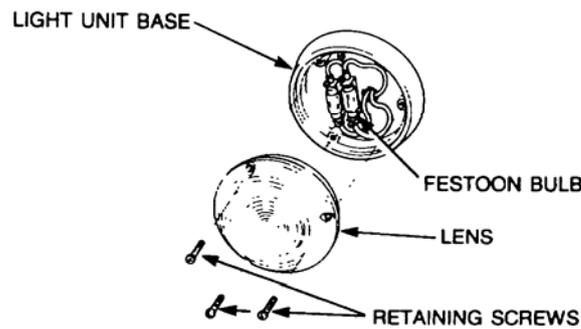


Figure 16 High Level Lights (Rear Door) Bulb Replacement

- c. Replace the bulb.
- d. Install the lens and secure it with the three screws.

39. **Light Unit Replacement.** Replace the light unit as follows:

- a. Switch off the main switch panel master switch.
- b. Remove the three screws securing the lens to the base of the light unit (refer Figure 16).
- c. Remove the lens.
- d. Tag and disconnect the wiring harness from the light unit base.
- e. Remove the two screws securing the base to the rear door.
- f. Remove the light unit.
- g. Insert the wiring harness through the light unit base.
- h. Secure the base to the rear door with the two screws.
- i. Connect the wiring harness and ensure that the terminals are secure.
- j. Install the bulb and the lens.
- k. Secure the lens with the three screws.
- l. Switch on the master switch.

Main Switch Panel

40. **Switch Replacement.** Replace the switch as follows:

- a. Disconnect the batteries.
- b. Remove the screws securing the main switch panel to the module (refer Figure 17).
- c. Move the panel away to allow access to the wiring harness.
- d. Tag and disconnect the wiring harness from the switch that is to be removed.
- e. Remove the switch by pressing the two retaining clips.

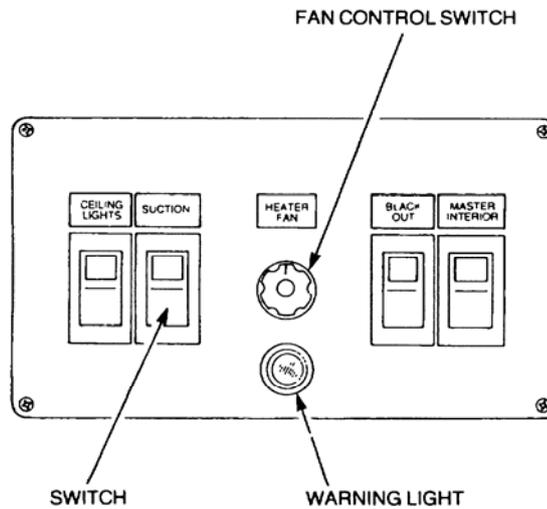


Figure 17 Main Switch Panel Removal

- f. Withdraw the switch through the panel.
- g. Press in the new switch and connect the wiring harness.
- h. Secure the main switch panel to the module with the retaining screws.
- i. Connect the batteries.

Secondary Switch Panel

41. Switch Replacement. Replace the switch as follows:

- a. Disconnect the batteries.
- b. Remove the screws securing the secondary switch panel to the module (refer Figure 18).
- c. Move the panel away to allow access to the wiring harness.
- d. Tag and disconnect the wiring harness from the switch that is to be removed.
- e. Remove the switch by pressing the two retaining clips.

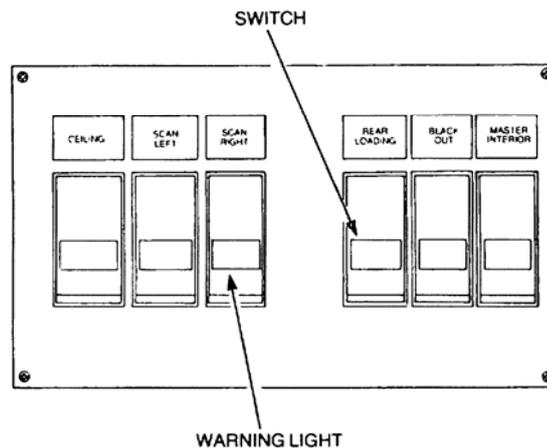


Figure 18 Secondary Switch Panel Removal

- f. Withdraw the switch through the panel.
- g. Press in the new switch and connect the wiring harness.
- h. Secure the secondary switch panel to the module with the retaining screws.
- i. Connect the batteries.

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Fuse and Relay Panel

42. **Relay Replacement.** Replace the relay as follows:
- Disconnect the batteries.
 - Remove the screws securing the fuse and relay panel to the module (refer Figure 19).
 - Move the panel away to allow access to the relays.

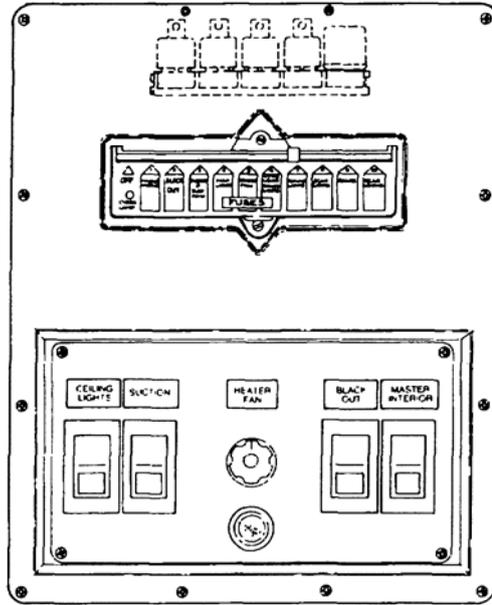


Figure 19 Relay Replacement

- Replace the relay.
- Install the fuse and relay panel to the module.
- Secure the panel with the screws.
- Connect the batteries.

Communication Switch

43. **Replacement.** Replace the switch as follows:
- Disconnect the batteries.
 - Tag and disconnect the wiring harness connectors from the communication switch.
 - Remove the rubber press strip (refer Figure 20) to allow access to the contact strip and retaining screws.

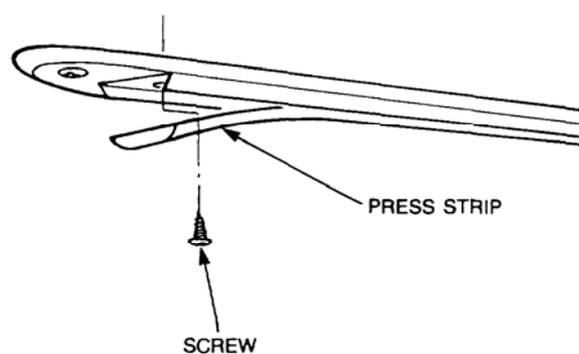


Figure 20 Communication Switch Removal

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- d. Remove the screws securing the switch base to the module ceiling.
- e. Remove the switch.
- f. Position the new switch mounting holes and secure the switch to the ceiling with the screws.
- g. Connect the wiring harness to the switch.
- h. Ensure that the contact strip is secure in the switch base.
- i. Fit the rubber press strip.
- j. Connect the batteries.

Communication Buzzer

44. **Replacement.** Replace the buzzer as follows:

- a. Disconnect the batteries.
- b. Remove the screws retaining the auxiliary switch panel to the cab (refer Figure 21).
- c. Withdraw the panel to allow access to the buzzer.

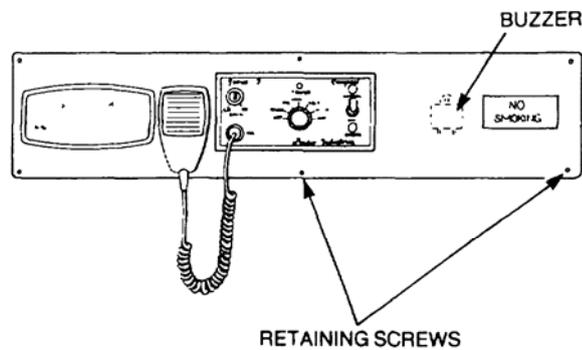


Figure 21 Auxiliary Switch Panel Removal

- d. Remove the buzzer from the mounting block.
- e. Install the new buzzer.
- f. Position the switch panel to the cab.
- g. Secure the panel with the screws.
- h. Connect the batteries.

Audible Warning Device

45. **Replacement.** Replace the warning device as follows:

NOTE

The ambulance siren power supply circuit is located at Figure 47.

- a. Disconnect the batteries.
- b. Tag and disconnect the wiring harness from the audible warning device.
- c. Remove the four bolts, washers and nuts securing the mounting bracket to the brushguard clamps (refer Figure 22).
- d. Remove the bracket and warning device.

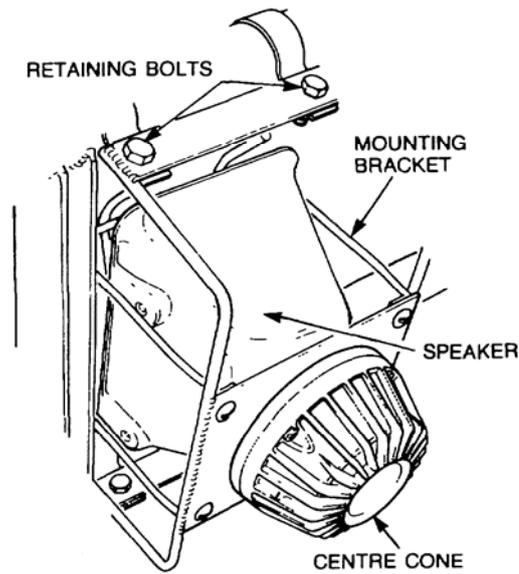


Figure 22 Audible Warning Device Removal

- e. Remove the four screws and nuts securing the protection grid to the mounting bracket.
- f. Remove the grid.
- g. Unscrew the centre cone from the mounting bracket to allow access to the speaker retaining screws.
- h. Remove the retaining screws and the speaker.
- i. Position the new speaker on the mounting bracket and secure it with the screws.
- j. Install the centre cone to the mounting bracket and tighten it securely.
- k. Fit the protection grid to the mounting bracket and secure it with the four screws and nuts.
- l. Install the mounting bracket to the brushguard clamps and secure it with the four bolts and nuts.
- m. Connect the wiring harness and the batteries.

Suction Pump

46. **Removal.** Remove the suction pump as follows:

- a. Switch off the master switch on the main switch panel.
- b. Remove the soiled linen bin.
- c. Remove the screws securing the division panel in the soiled linen locker (refer Figure 23).
- d. Remove the panel.
- e. Tag and disconnect the wiring harness from the suction pump.
- f. Disconnect the suction hose from the suction pump, plug to prevent the ingress of dirt.
- g. Remove the four nuts and washers securing the suction pump mounting bracket to the mounting rubbers.
- h. Remove the three nuts, washers and bolts securing the suction pump to the mounting bracket.

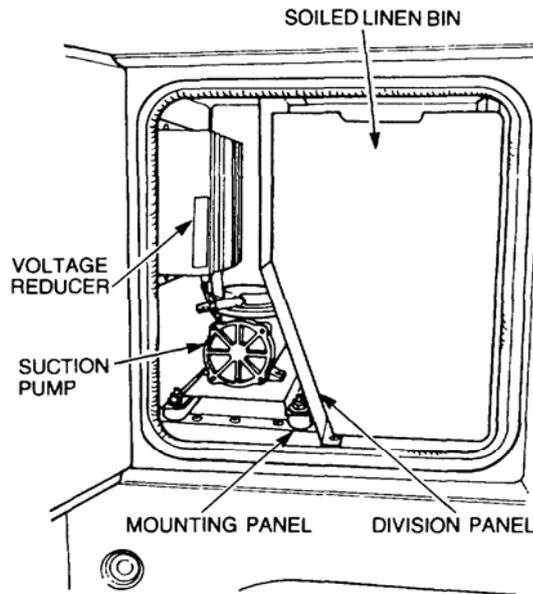


Figure 23 Suction Pump Removal

47. **Installation.** Install the suction pump as follows:
- Position the suction pump on the mounting bracket and secure with the three nuts, washers and bolts.
 - Tighten the nuts securely.
 - Install the suction pump and mounting bracket on to the mounting rubbers and secure them with the four nuts and washers.
 - Tighten the nuts securely.
 - Connect the suction hose to the suction pump.
 - Connect the wiring harness to the suction pump.
 - Install the division panel in the soiled linen locker and secure it with the screws.
 - Replace the soiled linen bin.
 - Switch on the master switch.

Module Heater Fan and Motor

48. **Removal.** Remove the heater fan and motor as follows:
- Switch off the master switch on the main switch panel.
 - Drain the cooling system into a suitable receptacle.
 - Remove the left side mudguard (refer to paragraph 85) to allow access to the hoses.
 - Slacken the two hose clamps securing the hoses to the heater unit (refer Figure 24).
 - Remove the hoses.
 - Tag and disconnect the wiring harness from the terminal block.
 - Remove the two bolts and lock nuts securing the front grille and cover to the heater.
 - Remove the screws securing the heater unit to the walkway.
 - Remove the heater unit.

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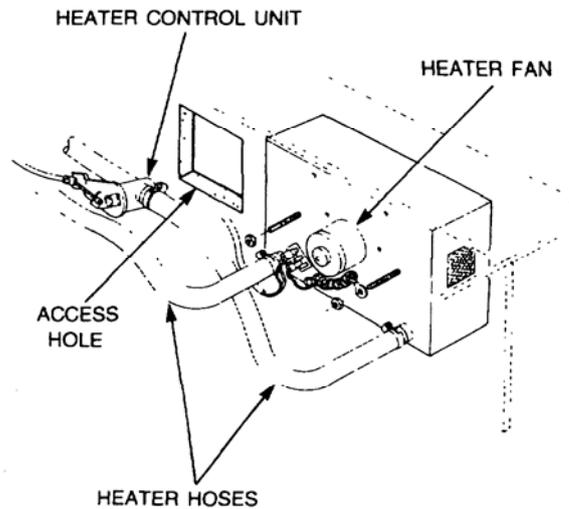


Figure 24 Heater Unit Removal

- j. Using a suitable Allen key, slacken the Allen screw and remove the fan (refer Figure 25).

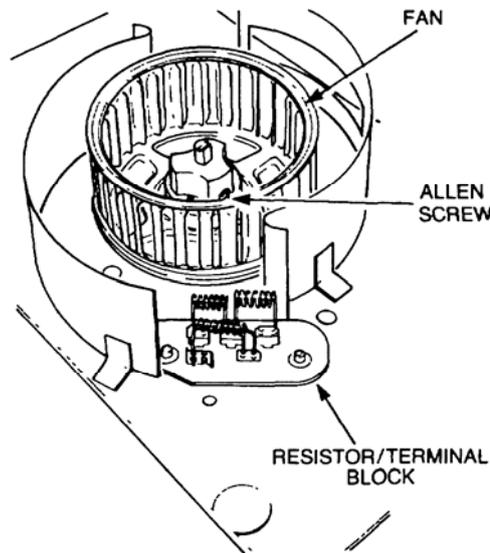


Figure 25 Heater Fan Removal

- k. Tag and disconnect the wiring harness from the resistor/terminal block.
 - l. Remove the two screws securing the motor to the casing.
 - m. Remove the motor.
- 49. Installation.** Install the heater fan and motor as follows:
- a. Install the heater motor in the casing and secure it with the two screws.
 - b. Connect the wiring harness to the resistor/terminal block, ensuring that the connectors and insulators are secure.
 - c. Fit the fan on to the motor shaft ensuring that the Allen screw aligns with the flat face provided.
 - d. Tighten the Allen screw securely.
 - e. Position the heater unit on the walkway and insert the retaining screws, tighten the screws securely.
 - f. Connect the two hoses on to the heater and tighten the hose clamps securely.
 - g. Install the front cover and grille and secure them with the two bolts.
 - h. Install the left side mudguard (refer to paragraph 85).

- i. Fill the cooling system using a mixture ratio of 1:12 Nalcool to water, ensuring that the system has no air blockages.
- j. Switch on the master switch.

Module Heater Control Valve

50. **Replacement.** Replace the heater control valve as follows:

- a. Drain the cooling system into a suitable receptacle.
- b. Remove the four screws securing the access panel (refer Figure 24).
- c. Remove the panel.
- d. Slacken the two hose clamps securing the hoses to the control valve.
- e. Remove the hoses.
- f. Slacken the screw securing the control cable outer to the valve body.
- g. Disconnect the inner cable from the lever.
- h. Position the control cable on the new valve ensuring the control cable knob is pushed in fully.
- i. Tighten the screw securing the cable outer.
- j. Fit the two hoses on the valve, ensuring that the direction of flow is correct.
- k. Tighten the two hose clamps securely.
- l. Install the access panel and secure with the four screws.
- m. Fill the cooling system using a mixture ratio of 1:12 Nalcool to water, ensuring that the system has no air blockages.

Low Power Light

51. **Switch Replacement.** Replace the switch as follows:

- a. Switch off the master switch on the main switch panel.
- b. Remove the two screws securing the switch to the ceiling (refer Figure 26).
- c. Withdraw the switch to allow access to the wiring harness.

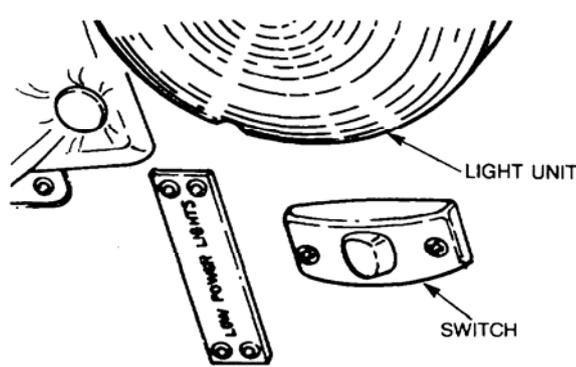


Figure 26 Low Power Light Switch Replacement

- d. Tag the wiring harnesses.
- e. Using a small bladed screwdriver, slacken each terminal to allow the wiring to be removed.
- f. Discard the switch.
- g. Install the wiring harnesses on the new switch ensuring that the terminals are secure and in the correct location.
- h. Install the switch to the ceiling and tighten it securely with the two screws.
- i. Switch on the master switch.

Electrical System (28-Volt) Fault Finding

52. The electrical system (28-Volt) fault finding is detailed in Table 4.

Table 4 Electrical System (28-Volt) Fault Finding

Serial	Symptom	Probable Cause	Action
1	Low reading on ammeter.	Loose fan belt.	Tighten to correct tension.
		Defective regulator.	Test/replace end bell assembly.
		Poor connection in charging circuit.	Rectify.
		Defective batteries.	Replace defective batteries.
		Defective rectifier.	Test/replace end bell assembly.
2	No reading on ammeter.	Open circuit regulator sensing line.	Test/rectify defective sensing line switch or relay.
		Defective fanbelt.	Replace fanbelt.
		Loose or disconnected Cannon plug.	Tighten or reconnect plug.
		Open circuit in main circuit.	Test/rectify defect.
		Defective regulator.	Test/replace end bell assembly.
		Open circuit in RF filter capacitor(s).	Test/replace end bell assembly.
		Disconnected field leads.	Reconnect and tighten plugs.
		Open circuit batteries.	Test/replace batteries.
		Defective relay.	Test/replace relay.
3	Alternator overheating.	Defective connection resulting in arcing.	Tighten connections.
		Restricted or blocked air grille.	Clean air grille.
		Alternator delivering maximum continuous output.	Check regulator sensing line for high resistance or poor connection.
		Defective regulator.	Test/replace end bell assembly.
		Rectifier diode(s) defective.	Test/replace end bell assembly.
		Defective batteries.	Test/replace batteries.
4	Alternator noisy.	Defective bearings.	Replace alternator.
		Loose fan or pulley.	Rectify.
		Loose alternator mountings.	Rectify.
		Defective rectifier.	Test/replace end bell assembly.
5	Intermittent overcharging.	High resistance or poor connection in regulator sensing line.	Rectify.
		Defective regulator.	Test/replace end bell assembly.
		Loose battery terminals.	Rectify.
6	No reading on battery condition indicator.	Defective indicator.	Replace indicator.
		Open circuit in the PDB wiring harness.	Rectify.
		Defective fuse.	Replace fuse.
		Defective circuit breaker in the PDB	Replace circuit breaker.
		Loose battery terminals.	Rectify.
7	Low reading on battery condition indicator.	Defective battery.	Replace battery.
		Defective indicator.	Replace indicator.
8	Hour meter not working.	Defective hour meter.	Replace hour meter.
		Open circuit in hour meter wiring.	Rectify.

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Wiring Circuit and Wiring Diagram

53. The wiring circuit is identified in Table 5 and the wiring diagram is shown in Figure 48.

FRAME – GROUP 16

Bumper Brushguard

54. **Removal.** Remove the brushguard as follows:
- Remove the winch assembly (refer to EMEI Vehicle G 204 – GROUP 19).
 - Remove the audible warning device from the brush guard (refer to ELECTRICAL – GROUP 15).
 - Slacken the twelve nuts, washers and bolts securing the bumper to the chassis frame (refer Figure 27).

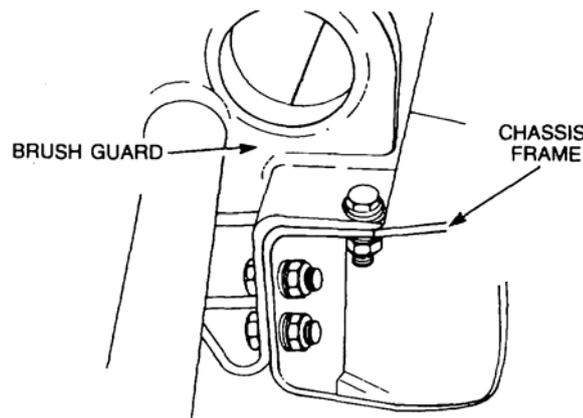


Figure 27 Bumper Brushguard Removal

- Support the bumper and remove the nuts, washers and bolts.
 - Remove the bumper from the chassis frame.
55. **Installation.** Install the brushguard as follows:
- Support the bumper on the chassis frame.
 - Install the twelve bolts, washers and nuts and tighten securely.
 - Install the audible warning device on the bumper brushguard (refer to ELECTRICAL – GROUP 15).
 - Install the winch assembly (refer to EMEI Vehicle G 204 – GROUP 19).

BODY – GROUP 17

Rear Door Pull Down Handle

56. **Removal.** Remove the handle as follows:
- Raise the rear door until the gas struts support the door.
 - Remove the roll pins securing the handle to the brackets.
 - Discard the roll pins.
 - Applying slight outward pressure to the handle and remove the handle from the supports (refer Figure 28).
57. **Inspection.** Inspect the handle for wear at the pivot ends, and for bends or distortion, replace as necessary.
58. **Installation.** Install the handle as follows:
- Apply outward pressure to the ends of the handle to allow easy installation of the handle into the brackets.
 - Install the new roll pins.

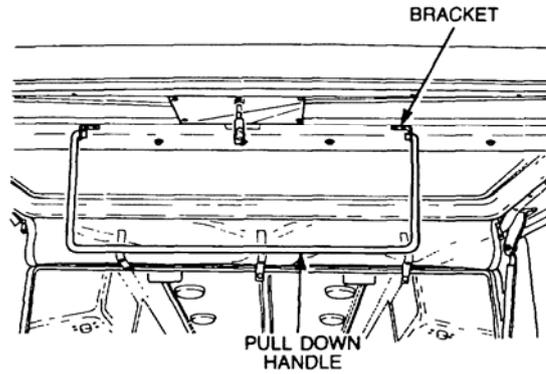


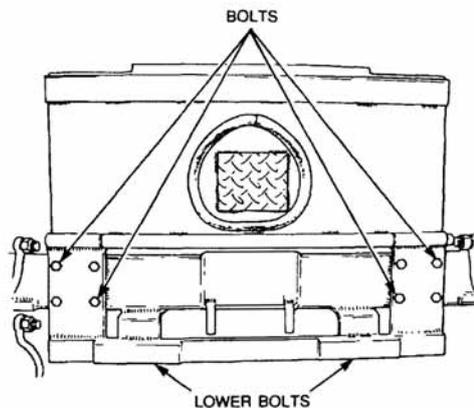
Figure 28 Rear Door Pull Down Handle Removal

Rear Door Pull Down Handle Brackets

59. **Removal.** Remove the brackets as follows:
- Remove the handle (refer to paragraph 56).
 - Remove the two countersunk screws securing the bracket to the rear door (refer Figure 28).
 - Remove the bracket.
 - Repeat the procedure for the opposite side.
60. **Inspection.** Inspect the holes in the brackets for elongation and replace as necessary.
61. **Installation.** Install the brackets as follows:
- Position the bracket on the mounting points.
 - Install the two countersunk screws and tighten them securely.
 - Repeat the procedure for the opposite side.
 - Install the handle (refer to paragraph 58).

Rear Step

62. **Removal.** Remove the rear step as follows:
- Ensure that the step assembly is in the up position (closed) to allow access to the eight screws securing the step hinges to the rear crossmember.
 - Support the step assembly with a suitable jack or similar device.
 - Remove the eight hexagon headed screws and the two lower bolts securing the step assembly to the rear crossmember (refer Figure 29).



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Figure 29 Rear Step Removal

- d. Lower the jack and remove the step.

63. Disassembly. Disassemble the rear step as follows:

- a. From the left side of the step and using a suitable drift, drive the hinge pin through the hinges (refer Figure 30).

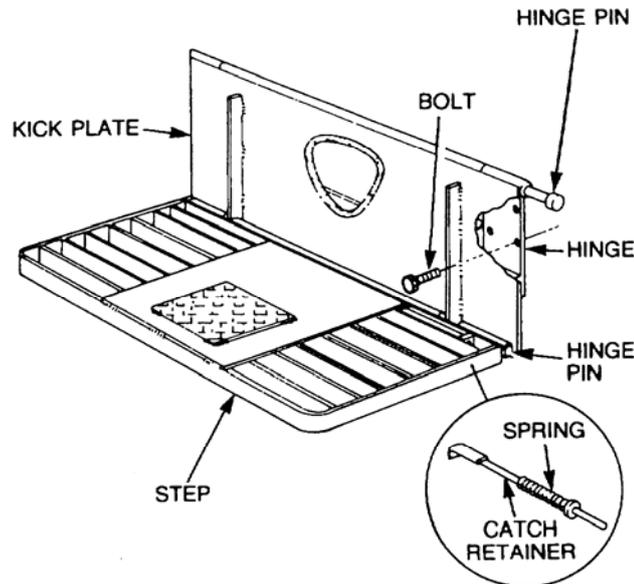


Figure 30 Rear Step Exploded View

- b. Using a suitable drift, drive the hinge pin through the hinges securing the kick plate to the tread step.
- c. Separate the step and the kick plate.
- d. Using a suitable drift, drive the roll pin from the catch retainer.
- e. Remove the spring, washer and retainer from the step.
- f. Discard the roll pin

64. Inspection. Inspect the hinge pins for wear or distortion and the eye of the hinges for ovality, replace as necessary.

65. Reassembly. Reassemble the rear step as follows:

- a. Position the spring, the washer and the catch retainer in the tread step.
- b. Install a new roll pin.
- c. Align the mounting points of the tread step and the kick plate.
- d. Using a suitable drift, drive the pin into position from the right side.
- e. Position the hinges on the kick plate.
- f. Drive the hinge pin through the hinges and the kick plate tunnel.

66. Installation. Install the rear step as follows:

- a. Ensure that the step assembly is in a closed position.
- b. Using a suitable jack, lift the step into position until the hinge holes align with the mounting points.
- c. Install the eight hexagon headed screws and the two lower bolts securing the step to the rear crossmember and tighten them securely.
- d. Check the fold out/fold in functions of the step assembly for satisfactory operation.

Rear Door

67. **Removal.** Remove the rear door as follows:

WARNING

This door is heavy. Ensure that the door is suitably supported while removing the gas struts and hinges.

- a. Position the rear door in the fully opened position.
- b. Place suitable supports beneath the door to support the weight.
- c. Switch off the master switch on the main switch panel.
- d. Disconnect the 7-pin trailer plug.
- e. Disconnect the rear door electrical wiring from the connector.
- f. Loosen the upper gas strut ball lock nut.
- g. Unscrew the ball from the rear door frame (refer Figure 31).

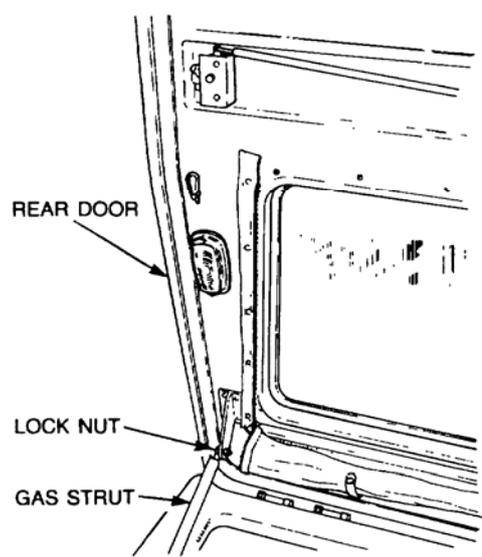


Figure 31 Upper Gas Strut Mounting Removal

- h. Repeat the procedure for the opposite side.
 - i. Lay the gas struts to one side.
 - j. Remove the sixteen screws and lock washers securing the four hinges to the upper door opening (refer Figure 32).
 - k. Discard the lock washers.
 - l. With the aid of an assistant, carefully remove the supporting stands and remove the rear door.
68. **Inspection.** Inspect the hinges and the door locking devices for damage and replace as necessary.

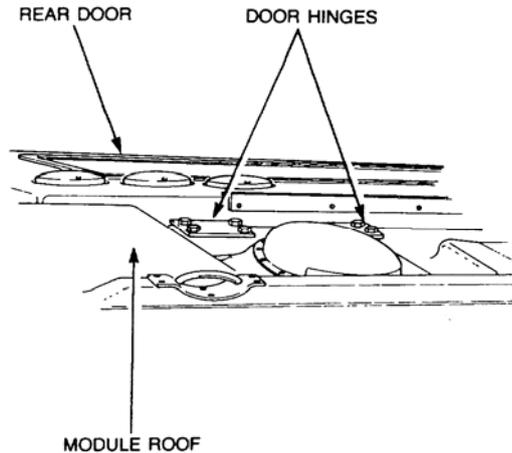


Figure 32 Rear Door Hinge Removal

- 69. Installation.** Install the rear door as follows:
- a. With the aid of an assistant, align the rear door hinges with the mounting points on the upper door opening.
 - b. Support the door on suitable stands.
 - c. Install the sixteen screws and tighten them securely (refer Figure 32).
 - d. Screw the upper gas strut and ball into the door opening frame and tighten the lock nut (refer Figure 31).
 - e. Repeat the procedure for the opposite side.
 - f. Connect the rear door electrical wiring to the connector.
 - g. Connect the 7-pin trailer plug.
 - h. Switch on the master switch at the main switch panel.
 - i. Check the operation of the rear door lights.

Rear Door Window

- 70. Replacement.** Replace the window as follows:

NOTE

It will be necessary to utilize a second person to assist in the replacement of the rear door window.

- a. Remove the rivets retaining the window extrusion to the rear door (refer Figure 33).
- b. Remove the window assembly.
- c. Apply even pressure to the inside face of the acrylic plastic (Lexan) and push the window and rubber out of the frame.
- d. Remove the old rubber from the acrylic plastic.
- e. Remove all trace of hardened sealer from window frame.
- f. Install the rear door window rubber on the acrylic plastic.

NOTE

The inside face of the acrylic plastic can be determined by the etched motif on its surface.

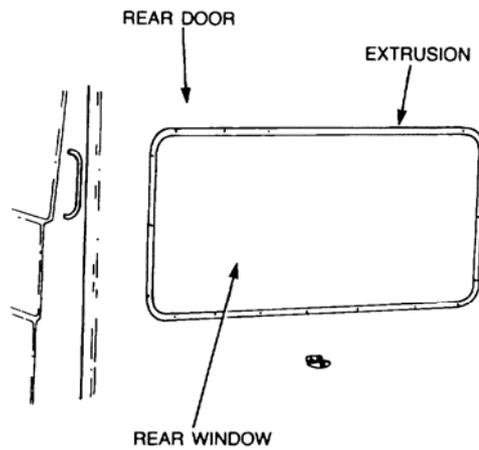


Figure 33 Rear Door Window Removal

- g.** Using approximately 5 metres of rope with a diameter of 7 mm, insert the rope into the groove of the rubber (refer Figure 34), starting at the bottom centre of the acrylic plastic and leaving enough rope at the start to enable it to be pulled on installation.

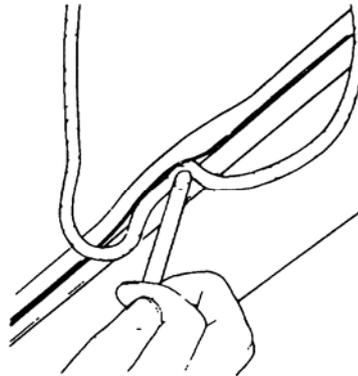


Figure 34 Rubber Seal – Installing Rope

- h.** Using a solution of soap and water, lubricate the rope and rubber thoroughly (refer Figure 35).

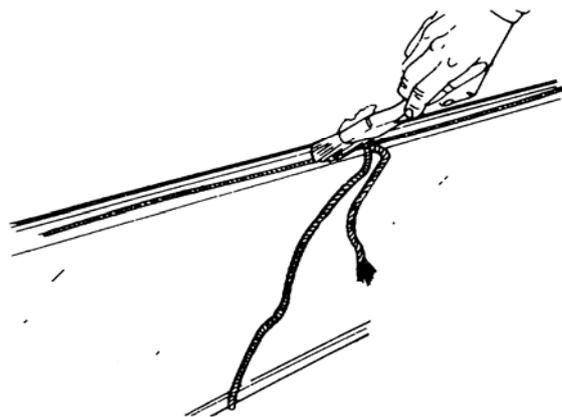


Figure 35 Rubber Seal – Applying Soap Solution

- i.** Apply a thin bead of suitable sealant to the rear face of the rear window frame flange (refer Figure 36).

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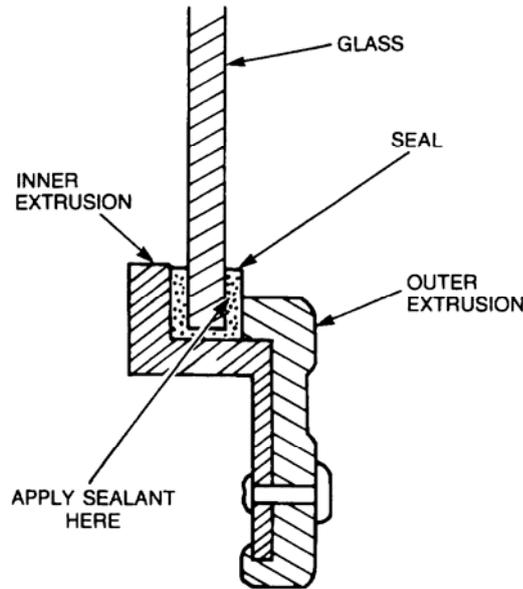


Figure 36 Rear Window Frame – Applying Sealant

- j. Position the rear door acrylic plastic and rubber in the frame (refer Figure 37) ensuring that the etched motif on the acrylic plastic is toward the bottom of the frame.

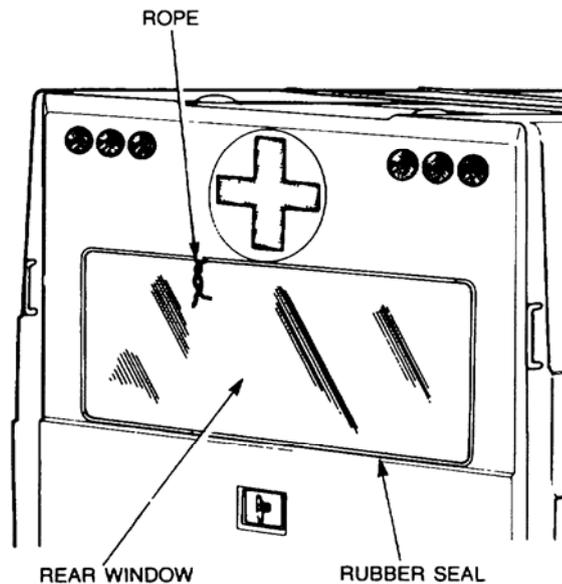


Figure 37 Rear Door – Acrylic Plastic Installation

- k. Push on the acrylic plastic continuously and pull one end of the rope around the rubber until the frame flange is correctly located.
- l. If the corners are not fitting correctly, remove the acrylic plastic, install the rope, then repeat the procedure until satisfactory installation is achieved.
- m. Press the inside face of the rubber seal to ensure that the acrylic plastic is seating correctly.

Rear Door Gas Struts

71. **Removal.** Remove the gas struts as follows:
- Position the rear door in the fully opened position.
 - Place suitable supports beneath the door to support the weight.

NOTE

It is advisable to remove one strut at a time. This allows the door to be partially supported.

- c. Remove the two spring clips locking the ball joint cup on the ball.
- d. Remove the gas strut.
- e. Unscrew the shaft ball end and remove the spring, flat washer and locking sleeve.

72. Inspection. Inspect the gas struts as follows:

- a. Check the compression pressure of the strut and replace it if the operation is not smooth.
- b. Replace the strut if oil leaks are present.

73. Installation. Install the gas struts as follows:

- a. Fit the locking sleeve, flat washer and spring on to the gas strut shaft.
- b. Install the ball end.
- c. Install the strut on the two ball ends and secure them with the spring clips.
- d. Remove the supports and lower the door.

Medical Assistant's Seat

74. Removal. Remove the seat as follows:

WARNING

Ensure that the oxygen cylinder regulators are in the fully closed position.

- a. Remove the headrest in an upward direction.
- b. Swing the seat back away from the oxygen cylinder frame.
- c. Remove the eight screws securing the seat back hinges to the storage area frame (refer Figure 38).
- d. Remove the seat back and hinges.
- e. Disconnect the regulators from the oxygen cylinders.
- f. Remove the clamps securing the cylinders in the frame.
- g. Remove the cylinders.
- h. Remove the five bolts and washers securing the gas cylinder frame to the module floor.
- i. Remove the seat cushion and frame.

75. Installation. Remove the seat as follows:

- a. Position the gas cylinder frame on the floor and install the five bolts and washers.
- b. Tighten the bolts securely.
- c. Install the cylinders in the frame and secure them with the clamps.
- d. Fit the regulators on to the oxygen cylinders.
- e. Position the seat back on to the frame (refer Figure 38) and install the eight screws.
- f. Tighten the screws securely.
- g. Install the headrest.

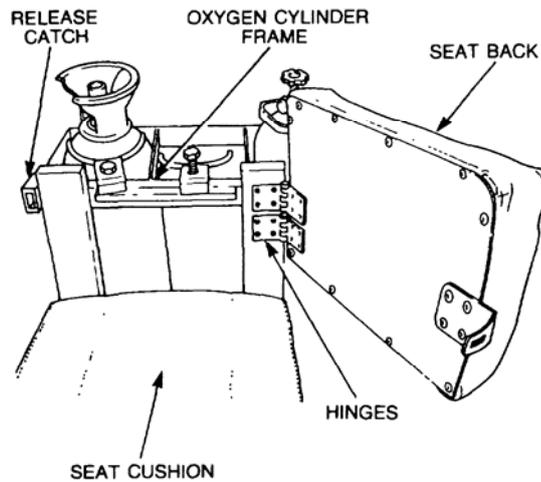


Figure 38 Seat Back Removal

Rear Door Curtain

76. Replacement. Replace the curtain as follows:

- a. Ensure that the curtain is rolled up, then remove the screws securing the curtain to the rear door panels.
- b. Release the press stud fasteners, then remove the curtain from the aluminium extrusion (refer Figure 39).

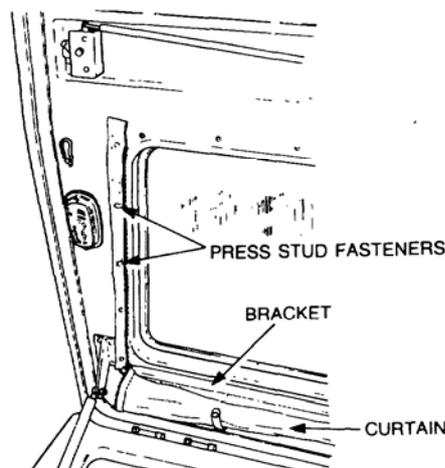


Figure 39 Rear Door Curtain Removal

- c. Inspect the curtain for damage or fading and replace as necessary.
- d. Align the curtain with the aluminium extrusion on the rear door panel and secure the press studs.
- e. Insert the screws and tighten them securely.

Communication Curtain

77. Replacement. Replace the curtain as follows:

- a. Ensure that the curtain is rolled up, then remove the three screws securing the curtain clamping strip to the front panel of the module.
- b. Inspect the curtain for damage or fading and replace as necessary.
- c. Align the holes in the curtain clamping strip with the mounting points on the front panelling of the module.
- d. Install the three screws and tighten them securely.

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Tumble Out Bins

78. **Removal.** Remove the bins as follows:
- Remove the three screws securing the bin hinge to the lower litter side rail (refer Figure 40).
 - Slide the bin along the mounting rail towards the centre of the module

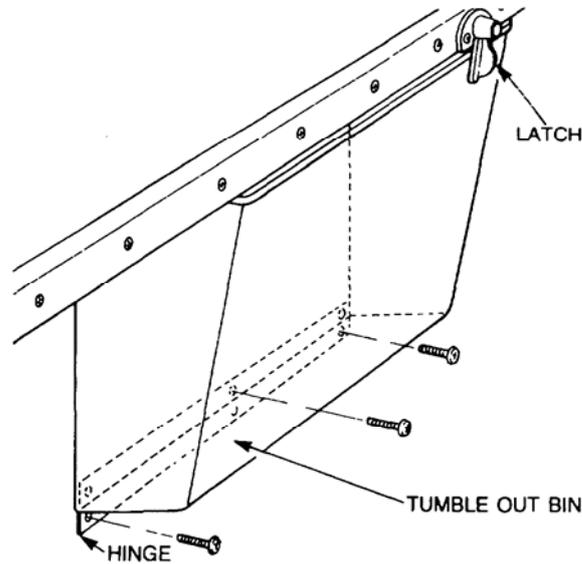


Figure 40 Tumble Out Bins Removal

- To effect complete removal of the bin, tilt the bin slightly to clear the inbuilt stop on the slide rail.

79. **Installation.** Install the bins as follows:
- Tilt and guide the bin on to the slide rails over the inbuilt stop.
 - Push the bin along the rails until the locking devices are activated.
 - Fit the hinge to the lower litter side rail and secure it with the three screws.

Main Medical Stores Locker Door

80. **Replacement.** Replace the locker door as follows:
- Open the clear plastic door on the locker.
 - Remove the rivets securing the door hinge to the locker (refer Figure 41).

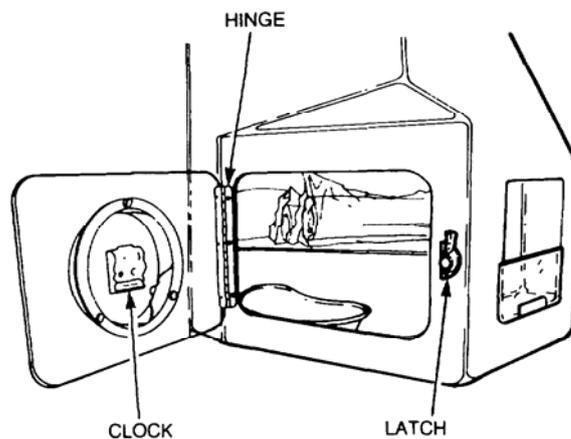


Figure 41 Medical Stores Locker Door Removal

- Transfer the locker door to a workbench.

- d. Remove the rivets securing the hinge to the door.
- e. Align the door hinge on the plastic door mounting holes.
- f. Secure the hinge with rivets.
- g. Position the new door on to the locker and secure it with rivets.

Litter Frame

81. **Removal.** Remove the litter frame as follows:

- a. Lower the upper litter frame from the stowage position.
- b. Operate the centre locking levers (refer Figure 42) to remove the litter rail assembly off the frame.

NOTE

The litter rail assembly has to be raised slightly to allow the locating lugs to be disengaged.

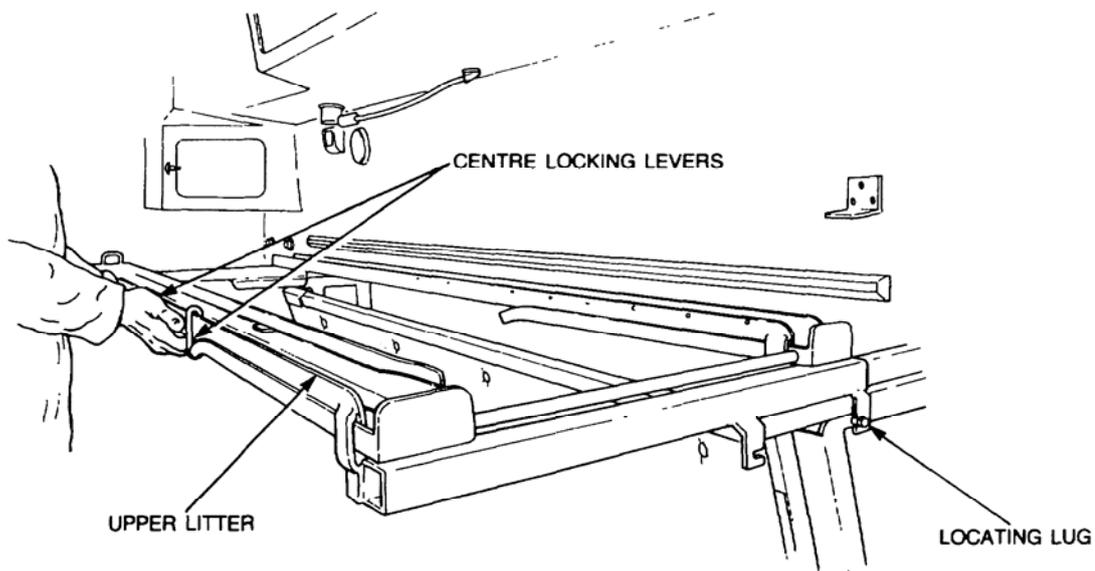


Figure 42 Upper Litter Removal

- c. Release the two catches securing the back rest in the upper position.
- d. Switch off the master switch at the main switch panel.
- e. Tag and disconnect the wiring harness located on the forward end of the litter frame.

NOTE

The wiring harness for the lower litter observation stalk lamp is located inside the back rest frame.

- f. Remove the oxygen cylinder from the mounting bracket.
- g. Remove the two bolts, nuts and washers securing the mounting bracket to the litter frame (refer Figure 43).
- h. Remove the bracket.

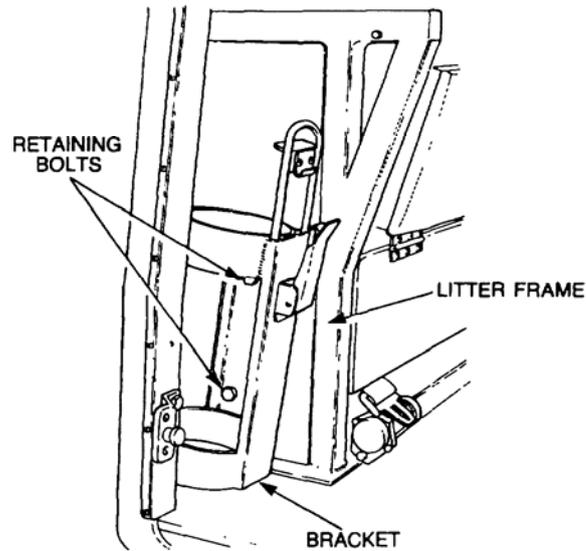


Figure 43 Oxygen Cylinder Bracket Removal

- i. Remove the screws securing the NATO litter storage base to the module side.
- j. Remove the fourteen bolts securing the litter frame to the module floor and wall (refer Figure 44).
- k. Remove the frame assembly.

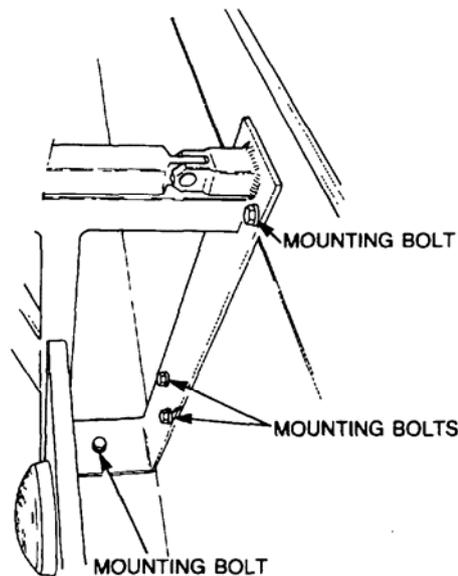


Figure 44 Litter Frame Removal

82. **Installation.** Install the litter frame as follows:
- a. Install the litter frame in the module and align the mounting bolt holes.
 - b. Fit the fourteen bolts and tighten them securely.
 - c. Install the NATO litter storage base to the module side and secure it with the screws.
 - d. Connect the lower litter observation stalk light wiring harness at the litter frame.
 - e. Switch on the master switch.
 - f. Fit the oxygen cylinder mounting bracket to the litter frame and secure it with the two bolts, washers and nuts.
 - g. Install the oxygen cylinder.

- h. Support the upper litter on the frame and engage the two slides.
- i. Operate the two centre locking levers (refer Figure 42) then push the litter towards the module wall.
- j. Ensuring that the litter is locked in the stowage position (the locking rods engage in pre-drilled holes), raise the litter frame to engage it in the two catches.
- k. Raise the back rest into the normal operating position, ensuring that the frame is secure.

83. Teflon Strip Replacement. Replace the Teflon strip as follows:

- a. Remove the three lock nuts and bolts securing the teflon strip and clamp bracket to the litter rail.
- b. Remove the strip.
- c. Position the new teflon strip against the litter rail, ensuring that the tapered end is towards the module rear door.
- d. Position the clamp plate and insert the three bolts.
- e. Fit the lock nuts on the bolts and tighten them securely.

Oxygen Lines and Outlets

84. Installation. The outlets and lines are not serviced at first line as the oxygen outlets are soldered and installed within the wall cavity of the module and surrounded by polystyrene foam (Second Line Repair).

Rear Mudguard

85. Replacement. Replace the rear mudguard as follows:

- a. Remove the bolts, washers and nuts securing the mudguard assembly to the module frame and body.
- b. Manoeuvre the mudguard over the rear wheels.

NOTE

To provide easier access to the retaining bolts, the rear wheels could be removed.

- c. Position the new mudguard on the frame and module body and secure it with the bolts, washers and nuts.

MODULE COOLING – GROUP 18

Air Conditioner Condenser Fan and Motor

86. Removal. Remove the fan and motor as follows:

- a. Switch off the master switch on the main switch panel.
- b. Remove the screws and clips securing the wire mesh to the fibreglass top panel (refer Figure 45).

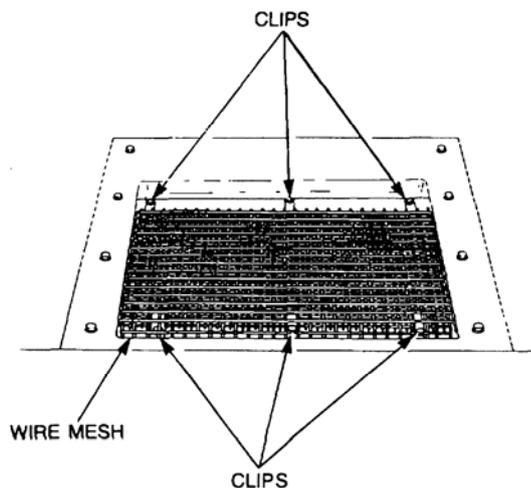


Figure 45 Condenser Wire Mesh Removal

- c. Remove the mesh.
- d. Remove the screws securing the top panel to the module roof.
- e. Remove the panel to one side to allow access to the fan motor.
- f. Slacken the Allen screw securing the fan to the motor shaft.
- g. Remove the fan and place it to one side (refer Figure 46).

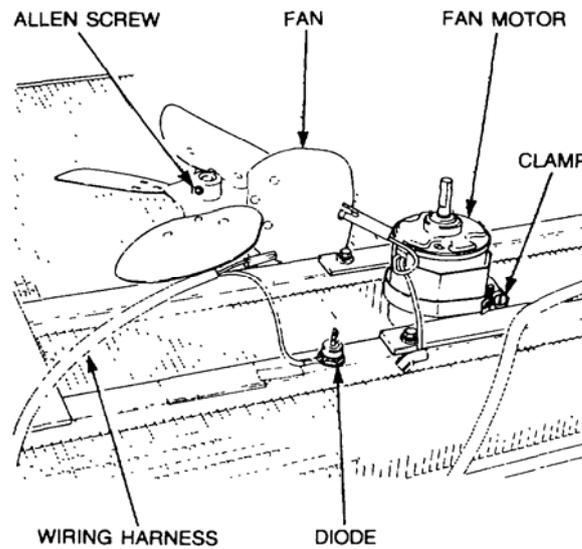


Figure 46 Condenser Motor Fan Removal

- h. Disconnect the wiring harness.
- i. Slacken the hose clamp securing the motor.
- j. Remove the motor.

87. Installation. Install the fan and motor as follows:

- a. Install the motor in the mounting bracket and tighten the hose clamp securely.
- b. Connect the wiring harness.
- c. Fit the fan on to the motor shaft, ensuring that the Allen screw aligns with the flat face provided.
- d. Tighten the Allen screw securely.
- e. Install the top panel and secure it with the screws.
- f. Install the wire mesh on to the top panel and secure it with the screws and clips.
- g. Switch on the master switch.

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AMBULANCE SIREN POWER SUPPLY CIRCUIT

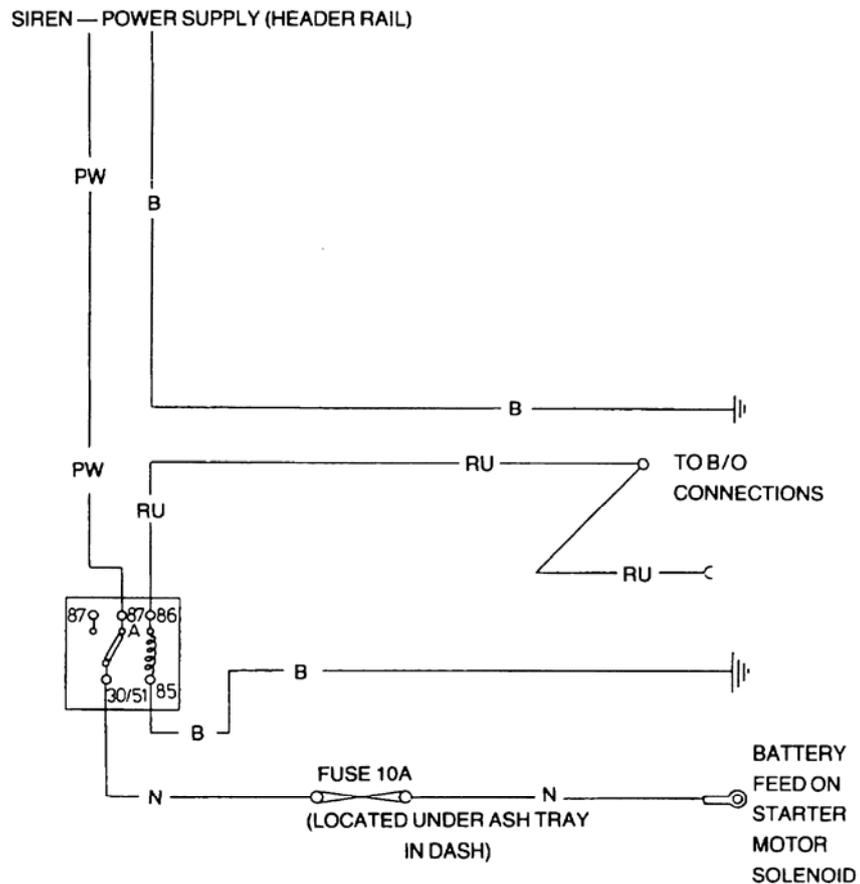


Figure 47 Siren Power Supply Circuit

Table 5 Wiring Circuit

Serial	Description	Colour	Size (mm)
1	Fuse 1 to master switch (in) / main switch panel	Brown/White	3
2	Strap, master switch / main switch panel to master switch / 2nd switch panel	Brown/White	3
3	Strap, master switch / main switch panel to master switch / 2nd switch panel	Brown/White	3
4	Master switch (Out) / 2nd switch panel to relay 1 (86) and loop to master pilot light / 2nd switch	Blue/Yellow	3
5	Relay 1 (86) to master pilot light / main switch panel	Blue/Yellow	3
6	Relay 1 (30) to fuse 1 (In)	Brown	4
7	L/Rover cab to relay 1 (30)	Yellow	3
8	Relay 1 (87) to relay 2 (30)	Blue	4
9	Relay 2 (30) to fuses 2-5 (In)	Blue	3
10	Relay 2 (37a) to fuses 6-10 (In)	White	5
11	Siren control box to relay 3 (85)	Red	5
12	Relay 3 (8n) to connector	Red	5
13	Connector to beacons (2)	Red	3
14	Relay 3 (87) to flasher unit	Red/Green	3
15	Relay 1 (30) to relay 3 (30)	Blue/Yellow	3

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Table 5 Wiring Circuit (Continued)

Serial	Description	Colour	Size (mm)
16	Relay 4 (8n) to air conditioner fan	Blue	3
17	Air conditioner control switch (in) to relay 4 (30)	Grey	5
18	Air conditioner switch (Out) to relay 4 (86)	Light Green	4
19	Flasher unit to flashing lights	Red/Green	3
20	Air conditioner control switch (Out) to receiver dryer (In)	Blue/Yellow	3
21	Receiver dryer (Out) to compressor clutch	Black/Yellow	3
22	Fuse 2 to blackout switch (In) / main switch panel	Pink/Yellow	3
23	Strap, blackout switch / main switch panel to blackout switch / 2nd switch panel	Red/Yellow	3
24	Strap, blackout switch / main switch panel to blackout switch / 2nd switch panel	Red/Yellow	3
25	Blackout switch / 2nd switch panel to relay 2 (86) and loop blackout pilot light / 2nd switch panel	Red/Yellow	3
26	Fuse 3 to buzzer switch (In)	Black/White	3
27	Buzzer switch (Out) to buzzer	Black/White	3
28	Fuse 3 to connector	Blue	3
29	Connector to reducer (In)	Red	3
30	Reducer (Out) to suction switch (In) / main switch panel (12V)	White	5
31	Reducer (Out) to 12V outlet	Red/Black	3
32	Suction switch (Out) / main switch panel to suction pump	White	5
33	Fuse 4 to map lights	Blue/White	3
34	Fuse 5 to heat fan switch (In) / main switch panel	Orange	4
35	Heat fan switch (In) / main switch panel to heat fan pilot light	White	3
36	Heat fan switch low (Out) / main switch panel to heat fan low	Brown	4
37	Heat fan switch medium (Out) / main switch panel to heat fan medium	Light Green	4
38	Heat fan switch high (Out) / main switch panel to heat fan high	Orange	4
39	Fuse 6 to reduced lighting lights at front ceiling lights	Red/Blue	3
40	Fuse 6 to litter light switches	Green/White	3
41	N/S upper litter light switch to N/S upper litter light	Green/White	3
42	N/S lower litter light switch to N/S lower litter light	Green/White	3
43	O/S upper litter light switch to O/S upper litter light	Green/White	3
44	O/S lower litter light switch to O/S lower light	Green/White	3
45	Fuse 7 to ceiling light switch (In) / main switch panel and loop to all back lighting	Pink	3
46	Strap, ceiling light switch / main switch panel to ceiling light switch / 2nd switch panel	White	3
47	Strap, ceiling light switch / main switch panel to ceiling light switch / 2nd switch panel	White	3
48	Ceiling light switch (Out) / 2nd switch panel to ceiling lights and loop to ceiling pilot light bulb / main and 2nd switch panels	Pink	3
49	Fuse 8 to scan light switches (In) / 2nd switch panel	Yellow	5
50	Scan left switch (Out) 2nd switch panel to N/S scan light	Light Green	4
51	Scan right switch (Out) / 2nd switch panel to O/S scan light	Yellow	3
52	Rear cannon plug to reverse lights (12V)	Yellow	3

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Table 5 Wiring Circuit (Continued)

Serial	Description	Colour	Size (mm)
53	Rear cannon plug to stop lights (12V)	Light Green	4
54	Rear cannon plug to park light B (12V)	Brown	4
55	Rear cannon plug to N/S indicator light (12V)	Green/White	3
56	Rear cannon plug to O/S indicator light (12V)	Blue/White	3
57	L/Rover cab supply to air conditioner control switch (In)	Grey	5
58	L/Rover supply to siren control box (12V)	Red	6
59	Siren control box to speaker	White	4
60	Siren control box to speaker	Red/White	4
61	Fuse 10 to rear loading light switch (In) / 2nd switch panel	Green/Yellow	3
62	Rear loading light switch (Out) / 2nd switch panel to rear loading lights	Blue	3

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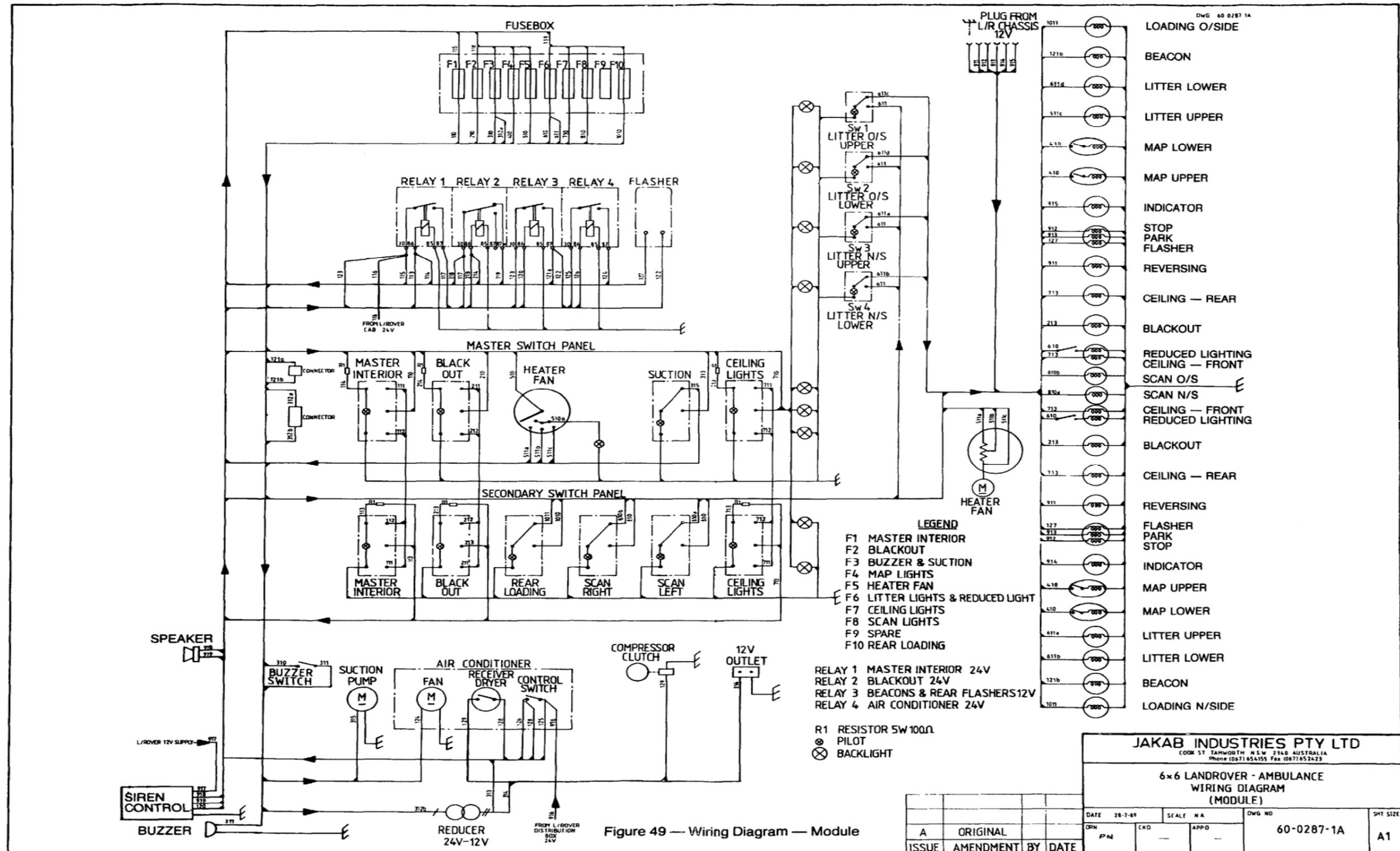


Figure 48 Wiring Diagram

END

Distribution List: VEH G 20.2 - Code 2 (Maint Level)
(Sponsor: LV SPO, Light B Vehicles)
(Authority: TRAMM)