

DISCOVERY



Body Repair Manual



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TRANSPORTING THE VEHICLE BY TRAILER

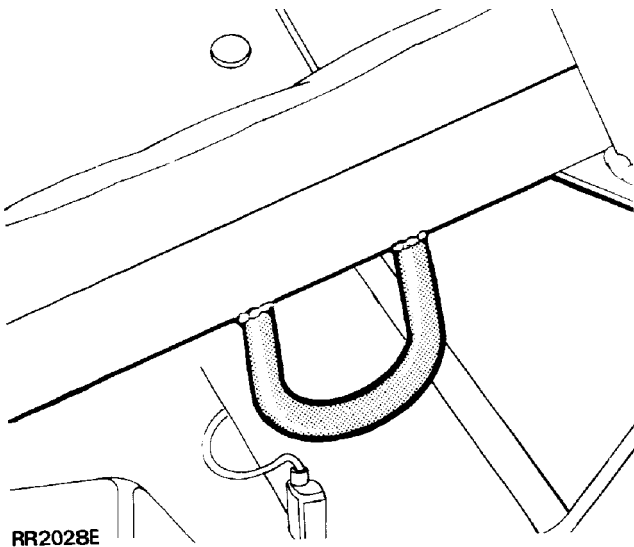
Lashing eyes are provided on front and rear of the chassis side members, to facilitate the securing of the vehicle to a trailer or other means of transportation.



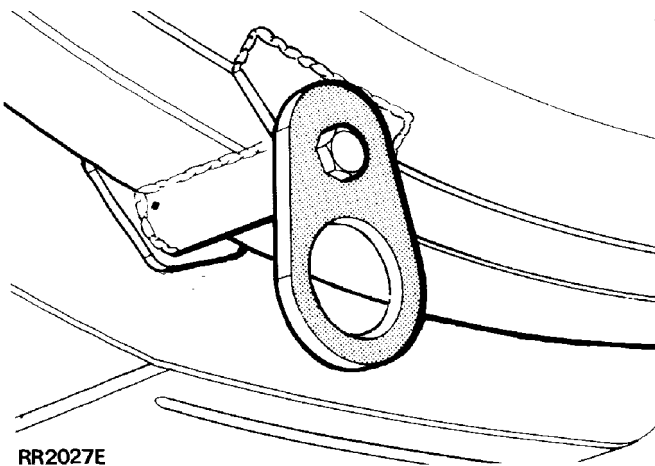
CAUTION: Underbody components must not be used as lashing points.

Install vehicle on trailer and apply park brake. Select neutral in main gearbox. Selecting 'N' will prevent damage to parking pawl of the automatic gearbox.

FRONT OF CHASSIS



REAR OF CHASSIS



JUMP STARTING



WARNING: Hydrogen and oxygen gases are produced during normal battery operation. This gas mixture can explode if flames, sparks or lighted tobacco are brought near battery. When charging or using a battery in an enclosed space, always provide ventilation and shield your eyes.

Keep out of reach of children. Batteries contain sulphuric acid. Avoid contact with skin, eyes, or clothing. Also, shield eyes when working near battery to protect against possible splashing of acid solution. In case of acid contact with skin, eyes, or clothing, flush immediately with water for a minimum of fifteen minutes. If acid is swallowed, drink large quantities of milk or water, followed by milk of magnesia, a beaten egg, or vegetable oil. **SEEK MEDICAL AID IMMEDIATELY.**

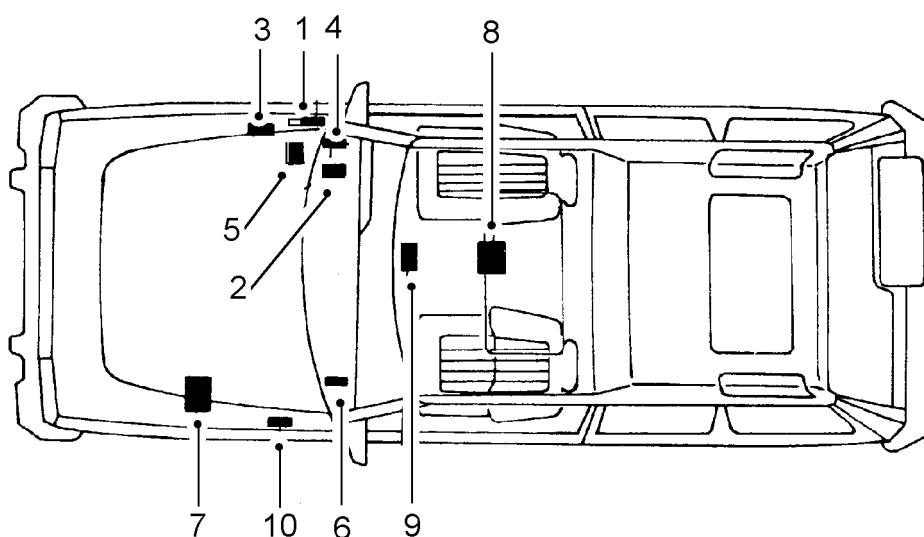
To Jump Start - Negative Ground Battery



WARNING: To avoid any possibility of injury use particular care when connecting a booster battery to a discharged battery.

1. Position vehicles so that jump leads will reach, ensuring that vehicles **DO NOT TOUCH**, alternatively a fully charged slave battery may be positioned on floor adjacent to vehicle.
2. Ensuring that ignition and all electrical accessories are switched off, that parking brake is applied and neutral is selected on a manual gearbox, with an automatic gearbox select neutral (N) or park (P) and then connect the jump leads as follows;
 - A. Connect one end of first jumper cable to positive (+) terminal of booster battery.
 - B. Connect other end of first jumper cable to positive (+) terminal of discharged battery.
 - C. Connect one end of second jumper cable to negative terminal of booster battery.

ELECTRONIC CONTROL UNITS



77M1526

- | | |
|---|--|
| 1. Engine control module (ECM) - MFi version (behind RH footwell panel) | 6. ABS ECU (behind LH of dashboard) |
| 2. Cruise control ECU (behind lower dash panel) | 7. ABS modulator unit (on LH inner wing) |
| 3. MEMS ECU - MPi version (on RH inner wing) | 8. SRS diagnostic ECU (on centre tunnel beneath console) |
| 4. EGR EDC ECU - Diesel version (behind RH end of dashboard) | 9. Sunroof ECU (on screen rail above forward switches) |
| 5. Glow plug ECU - Diesel version (on RH of bulkhead) | 10. Anti-theft alarm ECU (inside LH footwell) |

The electronic control units fitted to Land Rover vehicles make it advisable to follow suitable precautions prior to carrying out welding repair operations. Harsh conditions of heat and vibration may be generated during these operations which could cause damage to the units.

In particular, it is essential to follow the appropriate precautions when disconnecting or removing the SRS diagnostic unit. **See SUPPLEMENTARY RESTRAINT SYSTEM, Description and operation**

Cooper Pegler Falcon Junior Pneumatic (Airless)

Manufacturer and supplier:
Cooper Pegler & Co. Ltd.
Burgess Hill
Sussex RH15 9LA
Tel. (01444) 642526

Intended primarily for applying transit wax, the Falcon Junior pneumatic sprayer has a 5-litre (1.1 gal) container with integral hand pump. This high quality unit provides a simple and effective means of wax spraying without the need for compressed air or additional services.

A selection of nozzles, lances and hoses together with a trigger valve assembly incorporating a filter enable the sprayer to be used in a variety of applications. These include general maintenance, wax injection and paint application. All parts are fully replaceable and include a wide range of nozzle configurations.

The Falcon Junior is fitted with Viton seals and is guaranteed for 12 months.

3M Application Equipment

Manufacturer:
3M UK PLC
Automotive Trades Group
3M House
PO Box 1
Market Place
Bracknell
Berks. RG12 1JU
Tel. (01344) 858611

All 3M equipment is available from local trade factors or 3M refinishing factors.

3M Caulking Gun 08002

A lightweight, robust metal skeleton gun designed to accommodate 325mm (12 3/4 in) cartridge for dispensing sealants etc. This gun facilitates rapid cartridge loading and features a quick-release lever for accurate material ejection and cut-off control.

3M Pneumatic Cartridge Gun 08012

An air line fed gun for application of 3M cartridge products. Excellent ease of application for a smooth sealant bead, and incorporates a regulator valve for additional control.

3M Pneumatic Applicator Guns

Air line fed gun for application of 3M sachet sealers (Part No. 08006 for 200ml [7 fl oz] and 310ml [10 fl oz] sachets, and Part No. 08007 for all size sachets including 600ml [20 fl oz]).

3M Applicator Gun 08190

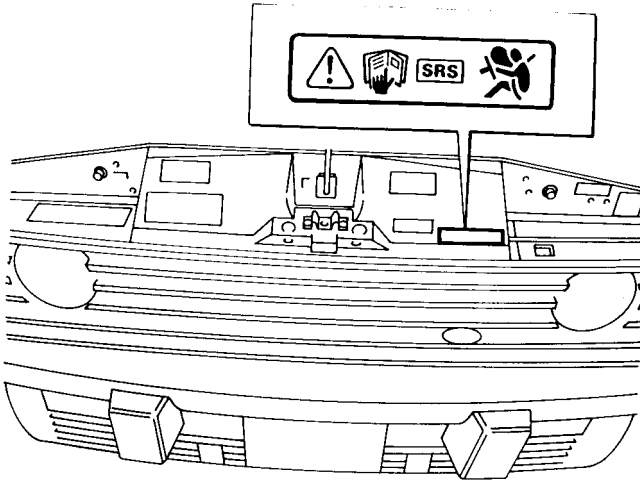
For application of 3M Structural Adhesive 08120.

3M Inner Cavity Wax Applicator Gun

Features 750mm (29 1/2 in) flexible tube and using 1-litre (1.7 pt) canisters, this approved equipment is available from all 3M refinishing factors.

Other 3M applicator equipment available:
Heavy Duty Manual Gun.

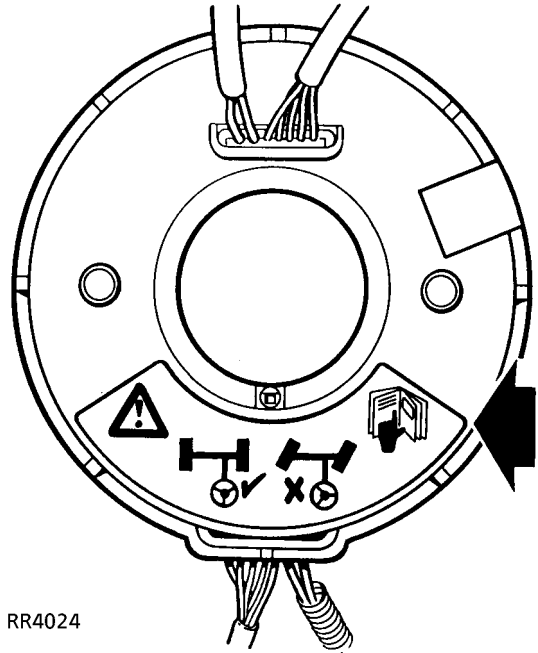
WARNING LABELS



RR4023

1. Bonnet locking platform

Refer to the Owner's Handbook for information on the airbag system.

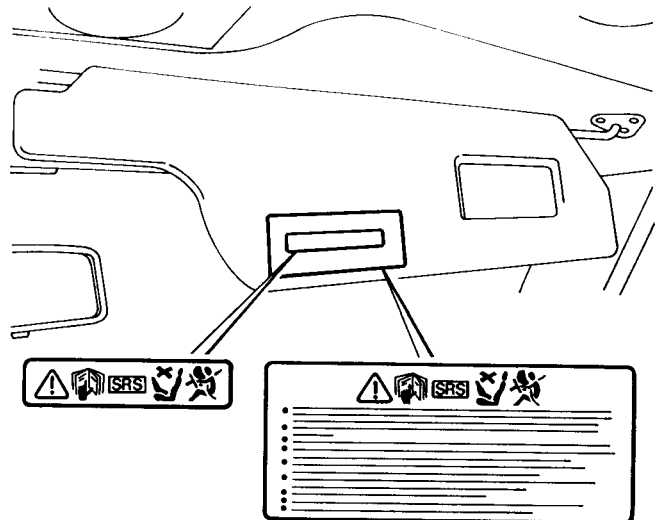


RR4024

2. Rotary coupler



CAUTION: Ensure wheels are straight ahead before removal and installation.



RR4025

3. Driver's sun visor

Refer to the Owner's Handbook for information on the airbag system.



PASSENGER'S AIRBAG MODULE

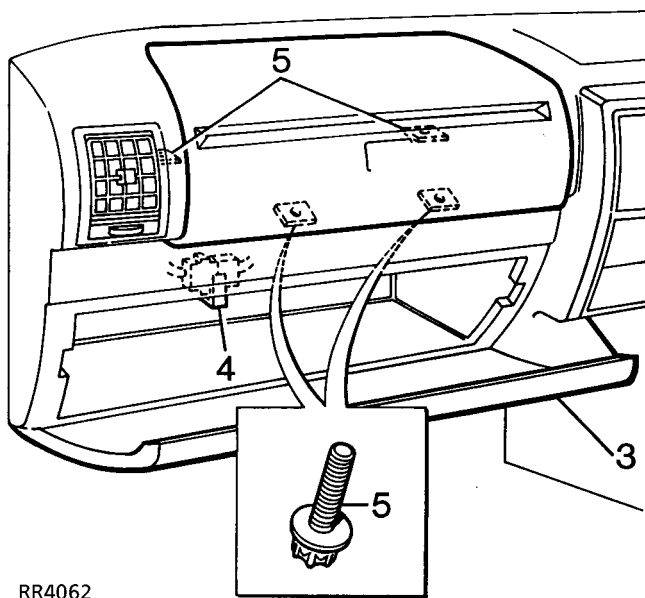
Service repair no - 76.74.02



WARNING: All the airbag system components, including the wiring harness, **MUST** be renewed after the airbags have deployed.

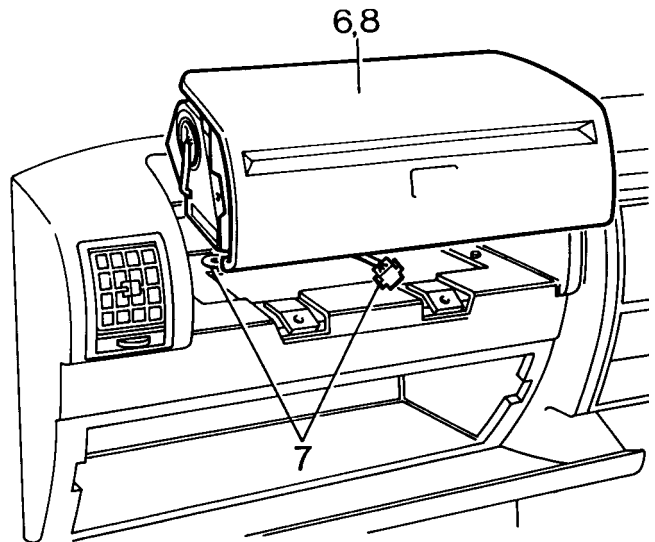
Remove

1. Switch off ignition.
2. Disconnect battery negative lead and then positive lead.



RR4062

3. Open glovebox and disconnect harness connector from airbag module.
4. Use special socket and long extension, remove 2 torx head screws securing front of airbag module to fascia panel.
5. Use special socket, remove 2 torx head screws securing rear of airbag module to fascia panel.



RR4043

6. Release airbag module from fascia panel.



CAUTION: Do not allow the airbag module to hang by the airbag harness.

7. Carefully and without pulling on connector remove airbag module.



CAUTION: Store the airbag module in accordance with the storage procedures described in Description and Operation.



NOTE: If airbag module is to be replaced the serial number must be recorded in the vehicle service record.

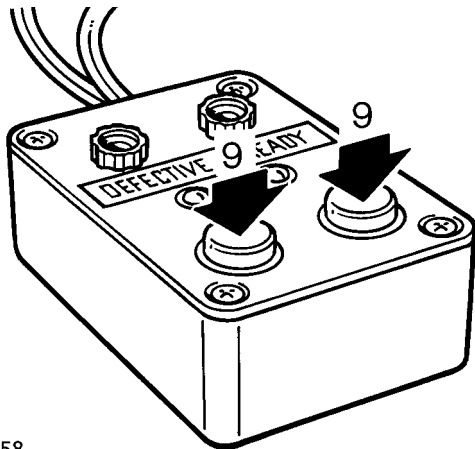
Refit

8. Reverse removal procedure.
9. Tighten airbag module securing screws to **8 Nm (6 lbf ft)**.



CAUTION: Take care not to cross thread screws.

10. Check Supplementary Restraint System using Testbook.



RR4058

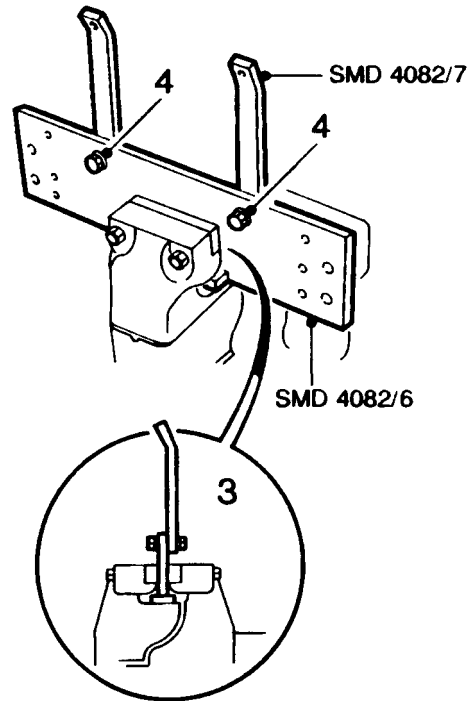
9. Press both operating buttons to deploy airbag module.
10. **DO NOT** return to airbag module for 30 minutes.
11. Using gloves and face mask, remove airbag module from tool, place airbag module in plastic bag and seal bag.
12. Wipe down tool with damp cloth.
13. Transport deployed airbag module to designated area for incineration.



NOTE: DO NOT transport airbag module in the vehicle passenger compartment. DO NOT re-use or salvage any parts of the airbag system including steering wheel or steering column.

Passenger's Airbag Module

1. Carry out deployment tool self test.
2. Remove airbag module from fascia. *See this section.*



76M1255

3. Position tool **SMD 4082/6** in vice, ensuring that vice jaws grip tool above bottom flange to prevent possibility of tool being forced upwards from vice. Tighten vice.
4. Position brackets **SMD 4082/7** to tool; lightly tighten bolts.



REAR SIDE DOORS

Service repair no - 76.28.02

Remove

1. Disconnect battery negative lead.
2. Detach the convoluted grommet from the 'B' post.
3. Withdraw the door harness multiplugs from the 'B' post and disconnect them.
4. Remove the bolts and washers securing the check strap to the 'B' post.



WARNING: Instruction 5 MUST BE carried out with assistance.

5. Remove the door hinge 'C' clips from the hinge posts and with assistance carefully lift the door from the vehicle.

Refit

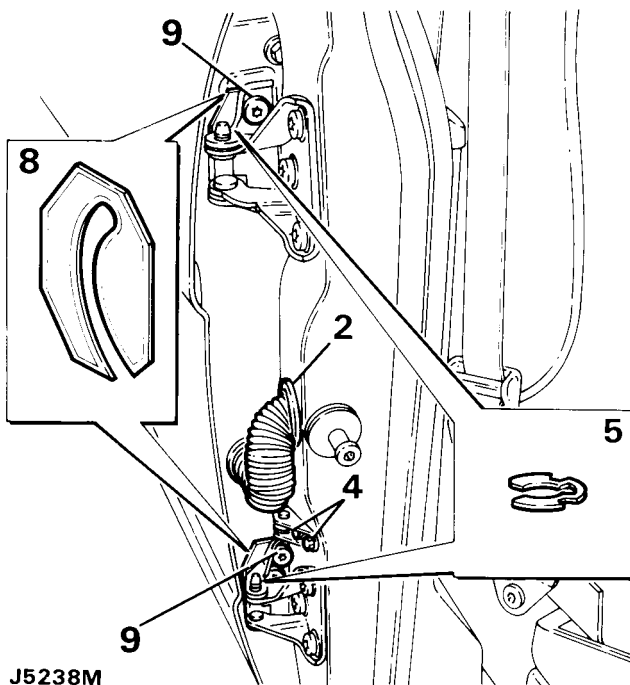
6. Reverse removal procedure. Fitting new 'C' clips if the existing ones are worn or distorted.
7. Check the operation of the door and lock. If necessary, adjust the door and striker.

Adjust

8. Adjust the door by adding or removing shims between the hinge and the door to move the door forward or rearward in the opening.
9. To adjust the door up, down or in and out of the opening, loosen the screws securing the hinges to the door, adjust as necessary and retighten the screws to the correct torque value.
10. Adjustment of the door striker is identical to the procedure for front doors.



NOTE: If it is necessary to remove the hinges from the 'B' post they must be refitted in exactly the same position, using an equal thickness of shims to those removed.



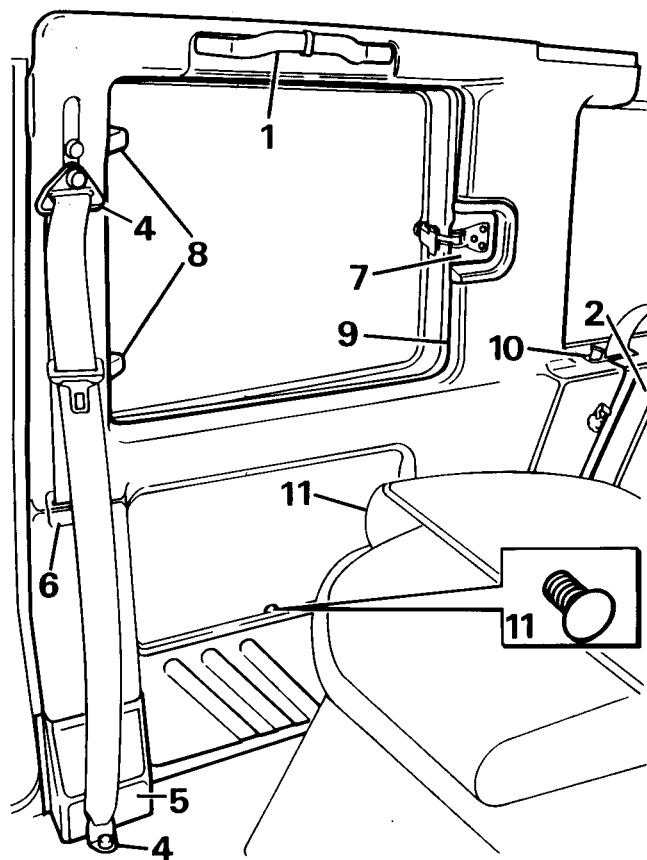


FRONT BODYSIDE TRIM CASING

Service repair no - 76.13.01

Remove

1. Remove the grab handle.
2. Remove the rear compartment lower trim panel.
See this section.
3. Remove the alpine light trim casing. **See this section.**
4. Remove the bolts securing the upper and lower seat belt mountings.
5. Remove the finisher from its location over the seat belt inertia reel.
6. Remove the front seat belt guide from the upper aperture in the casing.
7. Open the side window, remove the catch securing screws and withdraw the catch trim.
8. Remove the side window hinge finishers.
9. Release the casing from the window rubber.
10. Release the rear seat belt from the guide attached to the casing.
11. Fold down the rear seats and carefully ease the casing from the fastenings.
12. Pass the front seat belt through the upper aperture and withdraw the casing from the vehicle.



J5028 A

Refit

13. Reverse removal procedure.



NOTE: Ensure that the trim material glued to the door post is not wrinkled when the door seal is fitted.

14. Tighten upper and lower seat belt fixings to **32 Nm (24 lbf ft)**.

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REAR SEAT CUSHION COVER

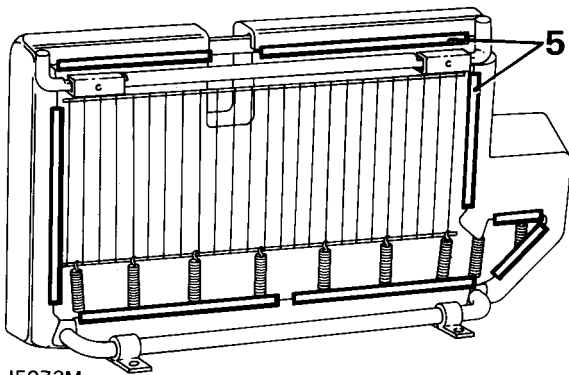
Service repair no - 76.70.88/89

Remove



NOTE: The procedure for removing both left and right hand seat cushions is the same.

1. Remove the rear seat assembly from the vehicle. **See this section.**
2. Remove the seat squab.
3. Remove the seat cushion.
4. Remove the cushion base cover retaining screws and withdraw the cover.
5. Release the seat cover securing clips at the frame and at the seat belt aperture.
6. Remove the cover from the cushion.



J5073M

Refit

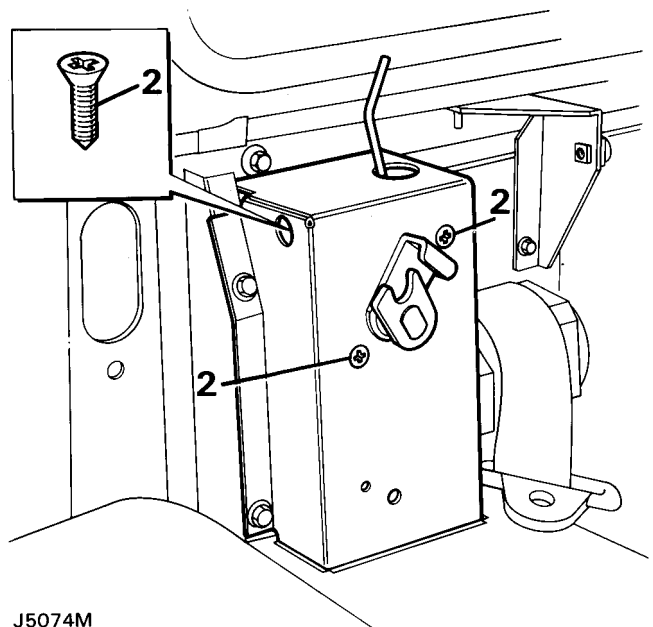
7. Reverse removal procedure.

SPLIT REAR SEAT LOCKING MECHANISM

Service repair no - 76.70.51

Remove

1. Remove the front body side trim casing. **See this section.**
2. Remove the three screws securing the latch to the tower, noting that access to the single screw is gained through the hole in the front of the tower.
3. Retrieve the latch from the opening at the rear of the tower. If necessary retrieve the single screw.



J5074M

4. The operating rod can be removed from the latch by releasing it at the plastic clip.

Refit

5. Reverse removal procedure. Setting the release button to achieve a gap of 5 - 8 mm (3/16 - 5/16 in).



SUNROOF GLASS FRONT AND REAR

Service repair no - 76.82.64

Remove

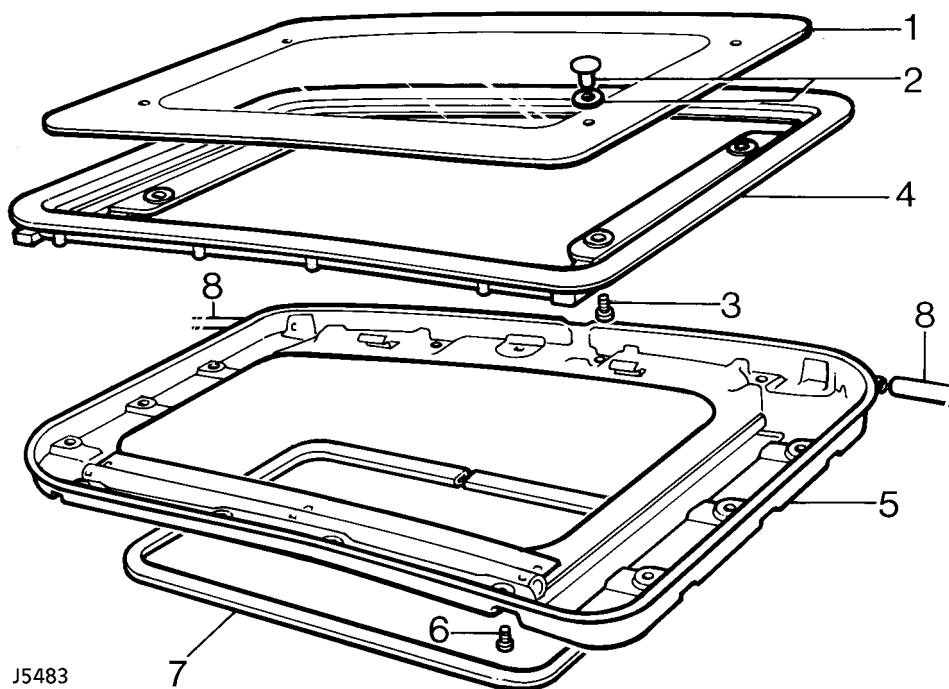
1. Open sunroof to tilt position.
2. Using a right angled screwdriver remove four retaining screws and detach sunroof glass from upper frame. Retain capnuts and washers.

Refit

3. Locate sunroof glass in upper frame complete with capnuts and loosely fit retaining screws.
4. Close sunroof and move glass centrally in upper frame.
5. Open to tilt position and tighten retaining screws.

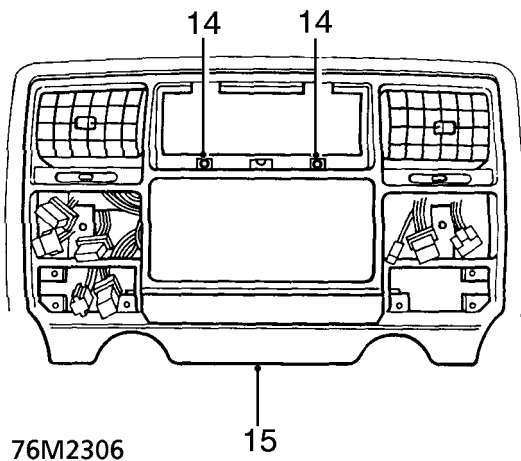


CAUTION: Ensure washers under capnuts do not twist or spread out when tightening retaining screws.



Sunroof components

- | | |
|-------------------------|----------------------------|
| 1. Glass panel | 5. Clamping frame assembly |
| 2. Capnut and washer | 6. Screw |
| 3. Screw | 7. Edging trim |
| 4. Upper frame assembly | 8. Drain tube |



14. Remove 2 screws securing louvre panel.
15. Remove louvre panel from dash panel.

Refit

16. Position louvre panel, feed harness connectors through their correct apertures, and align to dash panel.



CAUTION: When refitting avoid trapping of electrical wiring.

17. Fit and tighten screws securing louvre panel.
18. Fit panel retaining screw cover.
19. Position heater control unit to panel and secure with screws.
20. Fit heater graphic display panel and secure with screws.
21. Fit heater control and blower switch knobs.
22. Fit clock. **See ELECTRICAL, Repair.**
23. Position coin tray and secure to tags.
24. Position radio cage, feed electrical connectors and aerial through cage, and position to panel.
25. Bend back radio cage retaining tags.
26. Fit radio. **See ELECTRICAL, Repair.**
27. Connect battery negative lead.

DASH PANEL ASSEMBLY

Service repair no - 76.46.23

Remove

1. Move front seats to rearmost position.
2. Disconnect battery negative lead.
3. Disconnect air bag multiplugs under dash panel.



CAUTION: When air bags are fitted, reference must be made to the Airbag Supplementary Restraint System section.

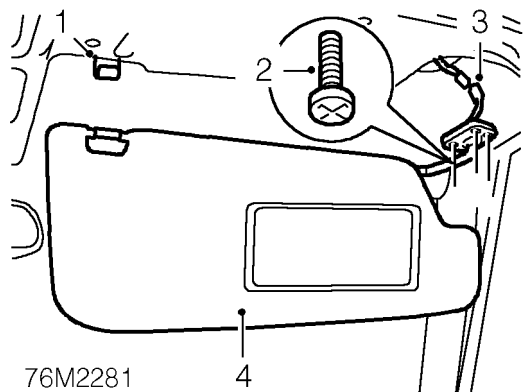
4. Remove passenger glove box.
5. Remove driver's side access panel.
6. Remove centre console assembly. **See this section.**
7. Remove airbag from steering wheel. **See SUPPLEMENTARY RESTRAINT SYSTEM, Repair.**
8. Remove passenger's airbag from dash panel. **See SUPPLEMENTARY RESTRAINT SYSTEM, Repair.**
9. Release clamp and lower steering column.
10. Remove steering wheel. **See STEERING, Repair.**
11. Remove column switch. **See SUPPLEMENTARY RESTRAINT SYSTEM, Repair.**
12. Remove instrument binnacle. **See ELECTRICAL, Repair.**
13. Remove radio. **See ELECTRICAL, Repair.**
14. Remove exterior mirrors switch panel.
15. Remove coin tray.
16. Remove switch panel.
17. Remove clock.
18. Undo screw securing mounting bracket and position passenger's side relay assembly aside.
19. Set heater controls fully clockwise.



SUN VISOR

Service repair no - 76.10.47

Remove



1. Release sun visor from headlining retaining clip.
2. Remove 3 screws securing sun visor to body.
3. Release sun visor and disconnect multiplug.
4. Remove sun visor.

Refit

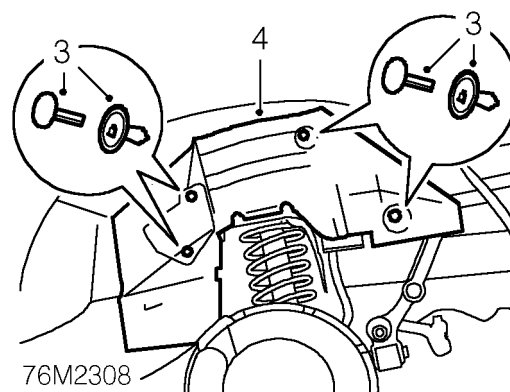
5. Position sun visor and connect multiplug.
6. Position sun visor to headlining and secure with screws.
7. Secure sun visor to headlining clip.

WHEEL ARCH LINER - FRONT

Service repair no - 76.10.48

Remove

1. Raise front of vehicle and support on safety stand.
2. Remove front road wheel.



3. Remove 4 wheel arch liner retainers.
4. Remove wheel arch liner.

Refit

5. Fit wheel arch liner and secure with retainers.
6. Fit front road wheel and tighten nuts to **126 Nm (93 lbf ft)**.
7. Remove stand and lower vehicle.

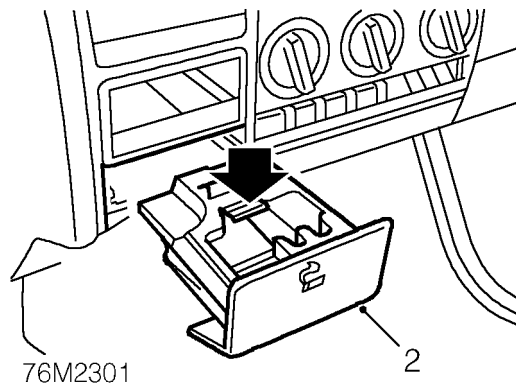


ASH TRAY - DASH PANEL CENTRAL LOUVRE PANEL

Service repair no - 76.67.26

Remove

1. Open ash tray.



2. Press release catch and remove ash tray.

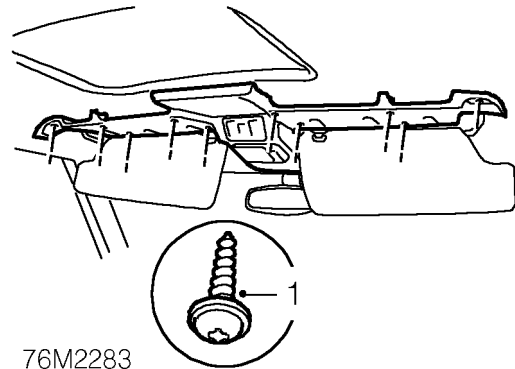
Refit

3. Fit ash tray.

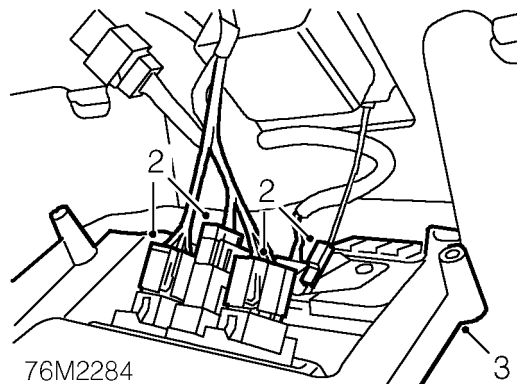
HEADLINING STOWAGE PANEL - FRONT - WITH SUN ROOF FITTED

Service repair no - 76.67.27

Remove



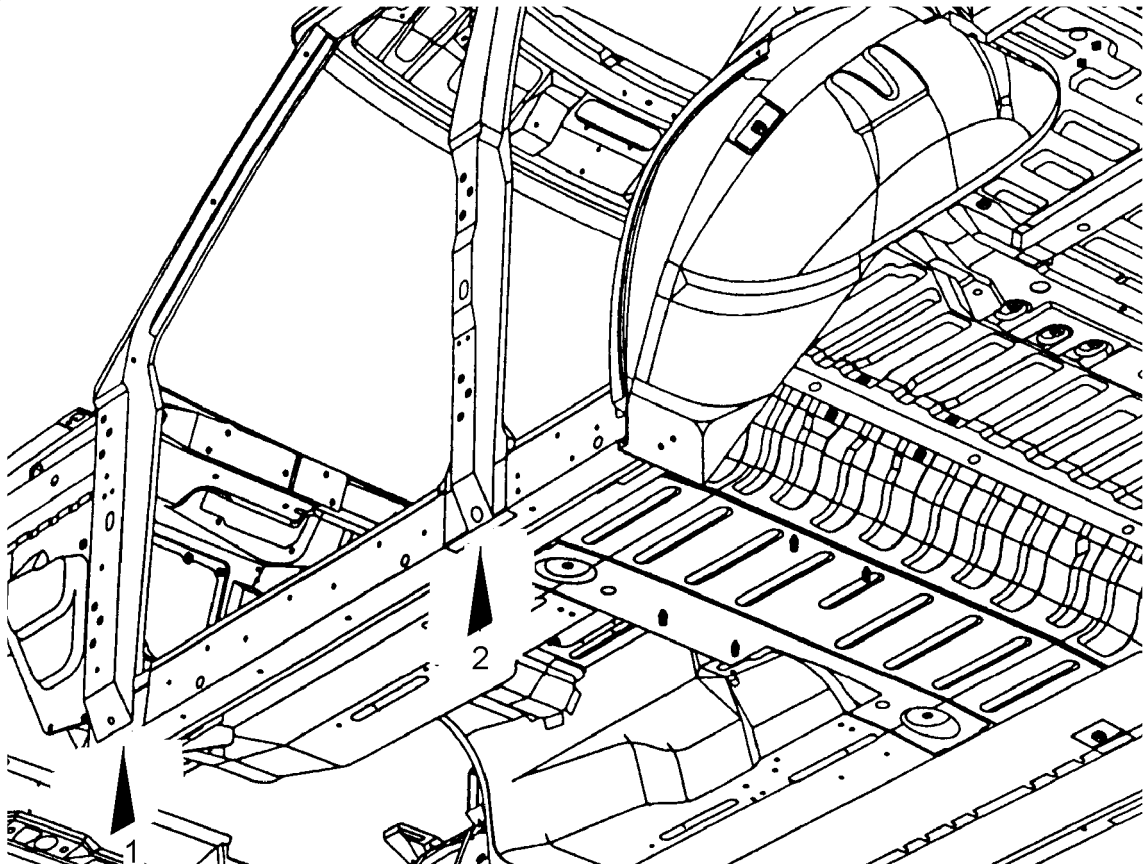
1. Remove 10 screws securing stowage panel to body.



2. Release panel and disconnect Lucar and 4 multiplugs.
3. Remove stowage panel assembly.



CAVITY WAX



77M1527

1. Injection hole at lower 'A' post.
2. Injection hole at lower 'B' post.

All areas symmetrically opposite to those shown are also treated. **See GENERAL SPECIFICATION DATA, Sealing and corrosion protection.**



All areas symmetrically opposite to those shown are also treated. **See GENERAL SPECIFICATION DATA, Sealing and corrosion protection.**



WELDING PRECAUTIONS, ALUMINIUM PANELS

The body consists of a steel frame to which alloy outer panels are attached. The front wings [fenders], door panels and body side outer panels are made from a special light magnesium-aluminium alloy.

These aluminium panels can be effectively repaired using the 'Argon Arc' process of welding. This is a specialist operation which should only be carried out by specialist body shop, or an operator skilled in welding aluminium.

Under certain conditions it may not be practical to repair an exterior damaged panel. In such circumstances replacements for all exterior panels, except for the roof, can be fitted.

Impacts which do not deploy airbags



CAUTION: Check for structural damage in the area of the impact, paying particular attention to bumper armature, longitudinals, crash cans and bracketry.

Panel beating

1. Aluminium alloy panels can be beaten out after accidental damage in the same way as sheet steel. However, under protracted hammering the material will harden and must then be annealed to prevent the possibility of cracking. Do this by heating the damaged area and allowing it to cool gradually.



CAUTION: Due to the low melting point of the material, take care to apply heat only gradually.



CAUTION: Before applying heat to any panel ensure that the panel is clean and free from underseal and that the area to be worked on is well clear of any combustible materials. Ensure that all necessary precautions are taken against fire.

Welding

General



CAUTION: Disconnect the battery negative lead before welding operations start.



WARNING: When welding near the fuel tank, drain the fuel system and remove the tank removed before welding operations start.

2. Clean off all grease and paint, and dry thoroughly. Clean the area to be repaired, including the edges, and extend this to at least 15mm (1 5/8 in) either side of the weld using a stiff wire scratch brush or steel wool for this purpose. In addition, clean the welding rod or strip using steel wool. **It is essential to observe cleanliness in order to achieve a satisfactory repair.**
3. Use only 5 per cent magnesium aluminium welding rod (5Mg/A), when carrying out repairs to the aluminium body panels.

Welding tears and patches

1. When repairing a split or crack which extends to the edge of a panel, drill a small hole at the end furthest from the panel edge to prevent the damage from spreading. When welding, start the weld at the same point and work towards the panel edge.
2. When welding a long split or crack, or making a long welded joint, tack the edges to be welded at intervals of between 50 and 100mm (2 to 4 in) with spots. Do this by melting the metal at the starting point of the weld and fusing it into a small amount of the filler rod, repeating the process at the suggested intervals. After this, weld continuously along the joint increasing the speed of the weld as the material heats up.
3. When applying a patch to a hole, cut and trim the patch to the correct shape to fit the hole but leaving a gap of 0.8mm (1/32 in) between the patch and the panel. Proceed to weld as above.



CAUTION: Never apply an overlay patch.



VALANCE AND WHEELARCH

Remove

1. Disconnect battery earth lead.
2. Raise front of vehicle.



WARNING: Support on safety stands.

3. Disconnect all ECUs.
4. Disconnect airbags and sensor system.
5. Remove driver's or passenger's airbag module.
See SUPPLEMENTARY RESTRAINT SYSTEM, Repair.
6. Disconnect alternator.
7. Remove RH or LH headlight.
8. Remove RH or LH front direction indicator.
9. Remove battery at RH inner wing.
10. Remove ignition coil and bracket at LH of radiator (petrol engine vehicles).
11. Remove power steering fluid reservoir at LH of radiator.
12. Remove RH or LH wing [fender]. **See CHASSIS AND BODY, Repair.**
13. Remove front grille.
14. Remove radiator/oil coolers.
15. Remove expansion tank and bracket on RH inner wing (RH only).
16. Remove charcoal canister and bracket on RH inner wing (RH only).
17. Remove fuse box - engine compartment and bracket at RH inner wing (RH only).
18. Remove lower steering shaft and universal joints (RH only).
19. Remove steering wheel (RH only).
20. Remove upper steering column (RH only).

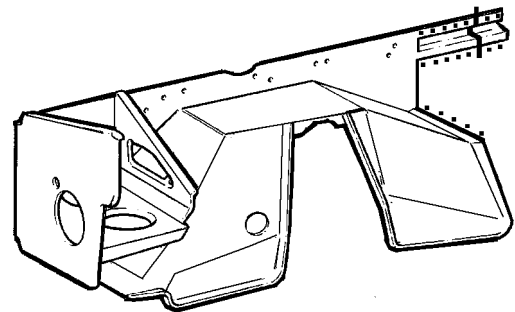
21. Remove RH or LH front shock absorber
22. Remove engine air intake box at LH inner wing (LH only).
23. Remove bonnet [hood]. **See CHASSIS AND BODY, Repair.**
24. Remove modulator unit at LH inner wing (LH only).
25. Remove brake servo assembly (RH only).
26. Remove weatherstrips at upper edge of bulkhead and inner wing.
27. Remove air intake plenum cowl. **See CHASSIS AND BODY, Repair.**

Refit



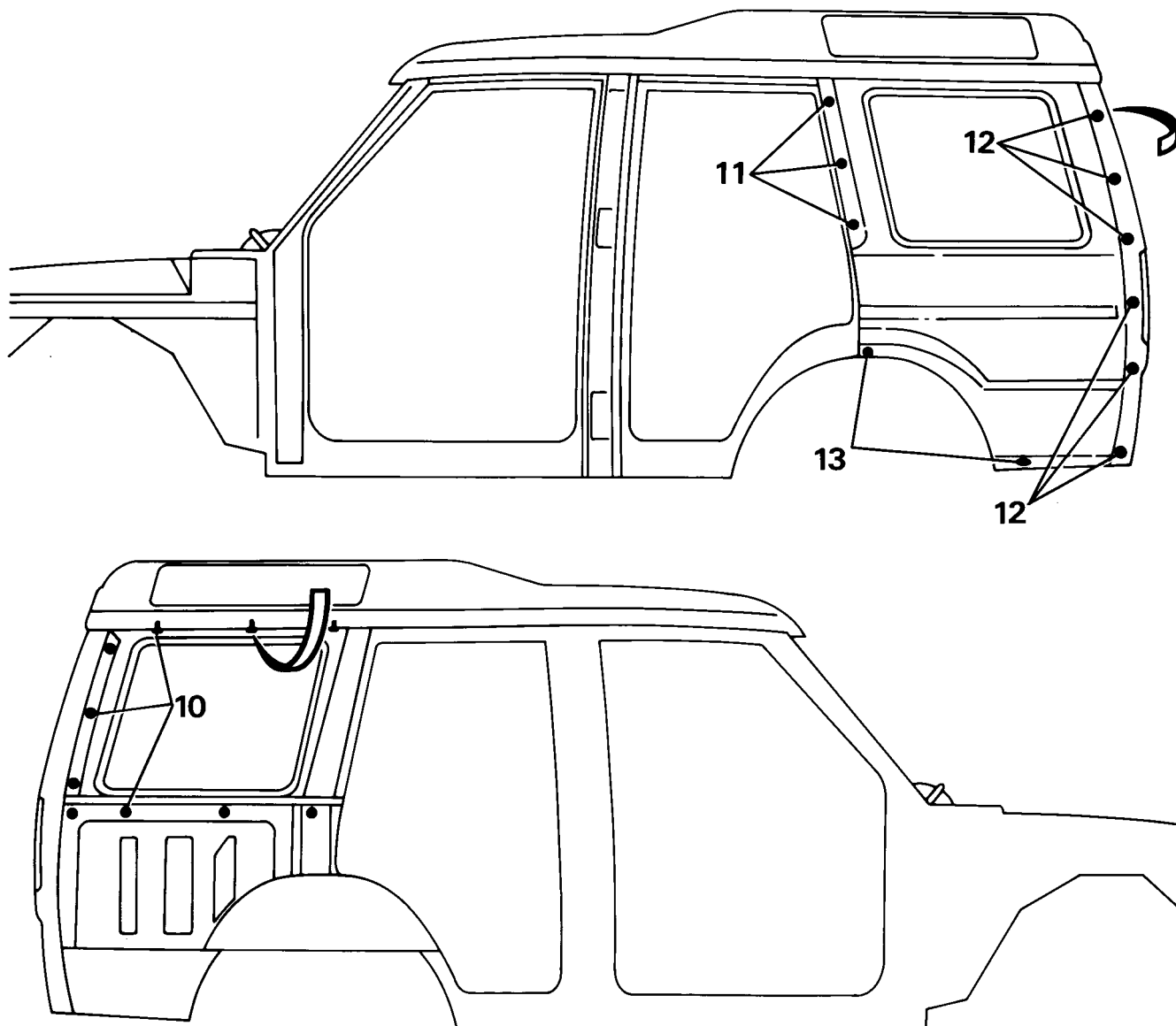
NOTE: In this operation the valance and wheelarch is fitted in combination with a front panel assembly and wing extension panel.

panel.



77M1551

28. Prepare and clean panel joint faces. Punch or drill holes in new valance and wheelarch for plug welding, and cut new panel to form seam welded butt joint with existing panel as shown.
29. Reverse removal procedure.
30. Remove stands and lower vehicle.



J5235M

10. Working through the three apertures in 'D' post, remove nuts and washers, and detach 'D' post capping.
11. Remove three countersunk self-tapping screws securing body side panel to 'D' post.
12. Remove six countersunk self-tapping screws securing rear quarter panel to 'E' post.
13. Remove two bolts; one inside wheel arch and one at lower edge of body side panel.

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