

FREELANDER



Body Repair Manual

Carrosserie
reparatiehandboek

Manuel de réparation
de carrosserie

Karosseriereparaturanleitung

Manuale delle operazioni di
riparazione della carrozzeria

Manual de reparaciones
de carrocería

Manual de reparações
da carroçaria





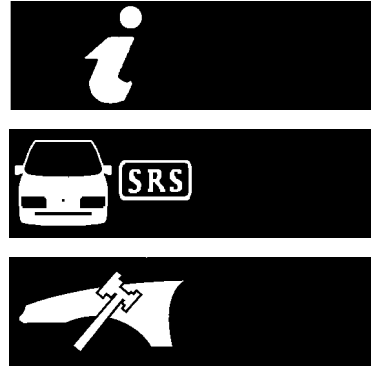
FREELANDER

**BODY REPAIR
MANUAL**

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INTRODUCTION

How to use this Manual

This Body Repair Manual is designed to provide the experienced Body Shop technician with the information required to carry out efficient and cost-effective repairs.

For ease of use, this Manual is structured to display the section title at the top of each page and the relevant sub-section at the bottom of each page. In addition, a section icon is displayed at the top outer corner of right-hand pages.

Each major section is preceded by a contents page, which lists titles of the topics and procedures contained in the relevant sub-sections.

Technical data is subject to change; to facilitate the periodic revision of technical information, each sub-section is numbered from page 1 so that revised sub-sections can be replaced if required.

The individual steps of procedures are to be performed in the sequence in which they appear. Where item numbers appear in the Figure of a procedure, those items are referred to in the text.

WARNINGS, CAUTIONS and **NOTES** have the following meanings:



WARNING: Procedures which must be followed precisely to avoid the possibility of injury.



CAUTION: Calls attention to procedures which must be followed to avoid damage to components.



NOTE: Gives helpful information.

References

References to the LH or RH side given in this Manual are made when viewing the vehicle from the rear.

Cross references may be made to sections not included in this manual. In these cases, refer to the relevant Workshop Manual for the referenced information.

Operations covered in this Manual do not include instructions for testing the vehicle after repair. It is essential that work is inspected and tested after completion and if necessary a road test of the vehicle should be conducted.



WARNING: It is particularly important to test a vehicle after repairs to safety related items have been performed.

Dimensions

The dimensions quoted are to design engineering specification with service limits where applicable.

INTRODUCTION

REPAIRS AND REPLACEMENTS

When replacement parts are required it is essential that only Land Rover recommended parts are used.

The following points concerning repairs and the fitting of replacement parts and accessories is emphasised:

- Safety features and corrosion prevention treatments embodied in the vehicle may be impaired if other than Land Rover recommended parts are fitted.
- In certain territories, legislation prohibits the fitting of parts which are not compliant with the manufacturer's specification.
- Torque figures shown in this Manual should be used where specified.
- Locking devices (circlips, split pins etc.) must be fitted where specified.
- If a locking device is damaged during removal, or its efficiency is impaired, it must be renewed.
- Owners purchasing accessories while travelling abroad should ensure that the accessory and its installation or application conform to the legal requirements of the territory.
- The Terms of the vehicle Warranty may be invalidated by the fitting of other than Land Rover recommended parts.
- All Land Rover recommended parts are covered under the terms of the vehicle Warranty.
- Land Rover Dealers are obliged to supply only Land Rover recommended parts.

SPECIFICATION

Land Rover are constantly seeking to improve the specification, design and production of their vehicles and alterations take place accordingly. While every effort has been made to ensure the accuracy of this Manual, it should not be regarded as an infallible guide to current specifications of any particular vehicle.

This Manual does not constitute an offer for sale of any particular vehicle. Land Rover Dealers are not agents of Land Rover and have no authority to bind the manufacturer by any expressed or implied undertaking or representation.

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GENERAL PRECAUTIONS

Dangerous substances

WARNING: Many liquids and other substances used in motor vehicles are poisonous and should not be consumed under any circumstances.

As far as possible, try to prevent skin contact with any potentially harmful materials. Substances to be treated with particular caution include (but is not limited to): acid, anti-freeze, asbestos, brake fluid, fuel, windscreen washer additives, lubricants, refrigerant and various adhesives.

Always read the instructions printed on labels or stamped on components carefully. Such instructions should be strictly complied with; they are included to ensure your health and personal safety is not compromised through the incorrect use of the materials to which they relate.

Synthetic rubber

WARNING: Many 'O' rings, seals, hoses, flexible pipes and other similar items which appear to be natural rubber, are in fact, made of synthetic materials called Fluoroelastomers.

Under normal operating conditions this material is safe and does not present a health hazard. However, if the material is damaged by fire or excessive heating, it can break down and produce highly corrosive Hydrofluoric acid which can cause serious burns on contact with skin.

If skin contact does occur:

- Remove any contaminated clothing immediately.
- Irrigate effected area of skin with a copious amount of cold water or limewater for 15 to 60 minutes.
- Obtain medical assistance immediately

Should any material be in a burnt or over-heated condition, handle with extreme caution and wear protective clothing (seamless industrial gloves, protective apron etc.). Decontaminate and dispose of gloves immediately after use.

GENERAL INFORMATION

Engine oils



WARNING: Prolonged and repeated contact with mineral oil can result in the removal of natural fats from the skin; this may cause dryness, irritation and dermatitis.

In particular, used engine oil contains potentially harmful carcinogenic contaminants. Adequate means of skin protection (barrier creams etc.) and washing facilities must be provided.

Avoid excessive skin contact with used engine oils and always adhere to the following health protection recommendations:

Health Protection Precautions

- **Avoid prolonged and repeated contact with oils, particularly used engine oils.**
- **Wear protective clothing, including impervious gloves where practicable.**
- **Do not put oily rags in pockets.**
- **Avoid contaminating clothes (particularly underpants) with oil.**
- **Overalls must be cleaned regularly. Discard heavily soiled clothing and oil impregnated footwear.**
- **First aid treatment should be obtained immediately for open cuts and wounds.**
- **Use barrier creams: apply before each work period to help removal of engine oil from the skin.**
- **Wash with soap and water to ensure all oil is removed (propriety skin cleansers and nail brushes will help).**
- **Use moisturisers after cleaning; preparations containing lanolin help replace the skin's natural oils which have been removed.**

- **Do not use petrol, kerosene, diesel fuel, gas, oil, thinners or solvents for cleaning skin.**
- **If skin disorders develop, obtain medical advice without delay.**
- **Where practicable, degrease components prior to handling.**
- **Wear eye protection (e.g. goggles or face shield) if there is a risk of eye contamination. Eye wash facilities should be provided in the close vicinity of the work area.**

Environmental Protection Precautions

It is illegal to pour used oil on to the ground, down sewers or drains, or into water courses.

Burning of used engine oil in small space heaters or boilers should only be considered for units of approved design and in compliance with the equipment manufacturer's recommendations. The heating system must meet the regulatory standards of HMIP for small burners of less than 0.4 MW. If in doubt check with the appropriate local authority and/or manufacturer of the approved appliance.

Dispose of used oil and filters through authorised waste disposal contractors and licensed waste disposal sites, or through the waste oil reclamation trade. If in doubt, contact the Local Authority for advice on disposal facilities.



Precautions against damage



CAUTION: Always fit wing and seat covers before commencing work. Avoid spilling brake fluid or battery acid on paintwork; immediately wash off with water if this occurs.



CAUTION: Disconnect the battery earth lead before starting work, see **ELECTRICAL PRECAUTIONS**.



CAUTION: Always use the recommended service tool or a satisfactory equivalent where specified.



CAUTION: Protect exposed bearing surfaces, sealing surfaces and screw threads from damage.

SAFETY INSTRUCTIONS

Whenever possible, use a lift or pit when working beneath vehicle, in preference to jacking. Chock wheels as well as applying parking brake.

Jacking

The recommended jacking points are shown in the **LIFTING AND TOWING** sub-section of the **INFORMATION** section.

Always ensure that any lifting apparatus has sufficient load capacity for the weight to be lifted.

Ensure the vehicle is standing on level ground prior to lifting or jacking.

Apply the handbrake and chock the wheels.



WARNING: Never rely on a jack as the sole means of support when working beneath the vehicle. Use additional safety supports beneath the vehicle.

Do not leave tools, lifting equipment, spilt oil, etc., around or on the work bench area. Always keep a clean and tidy work area.

Brake shoes and pads



WARNING: Always fit the correct grade and specification of brake linings. When renewing brake pads and brake shoes always replace as complete axle sets only.

GENERAL INFORMATION

Brake hydraulics



WARNING: It is imperative that the correct brake fittings are used and that threads of components are compatible.

- Always use two spanners when loosening or tightening brake pipe or hose connections.
- Ensure that hoses run in a natural curve and are not kinked or twisted.
- Fit brake pipes securely in their retaining clips and ensure that the pipe run cannot contact a potential chafing point.
- Containers used for hydraulic fluid must be kept absolutely clean.
- Do not store hydraulic fluid in an unsealed container, it will absorb water and in this condition would be dangerous to use due to a lowering of its boiling point.
- Do not allow hydraulic fluid to be contaminated with mineral oil, or use a container which has previously contained mineral oil.
- Do not re-use fluid from the system.
- Always use clean brake fluid or a recommended alternative to clean hydraulic components.
- Fit a blanking cap to an hydraulic union and a plug to its socket after removal to prevent the ingress of dirt.



CAUTION: Absolute cleanliness must be observed with hydraulic components.

Engine coolant caps and plugs



WARNING: Extreme care is necessary when removing engine coolant caps and plugs when the engine is hot and especially if it is overheated. To avoid the possibility of scalding allow the engine to cool before attempting coolant cap or plug removal.

GENERAL FITTING INSTRUCTIONS

Component removal

Whenever possible, clean components and surrounding area before removal.

- Blank off openings exposed by component removal.
- Immediately seal fuel, oil or hydraulic lines when apertures are exposed; use plastic caps or plugs to prevent loss of fluid and ingress of dirt.
- Close open ends of oilways exposed by component removal with tapered hardwood plugs or conspicuous plastic plugs.
- Immediately a component is removed, place it in a suitable container; use a separate container for each component and its associated parts.
- Clean bench and provide marking materials, labels, containers and locking wire before dismantling a component.



Dismantling

Observe scrupulous cleanliness when dismantling components, particularly when brake, fuel or hydraulic system parts are being worked on.



CAUTION: A particle of dirt or a cloth fragment could cause a serious malfunction if trapped in these systems.

- Blow out all tapped holes, crevices, oilways and fluid passages with an air line. Ensure that any O-rings used for sealing are correctly replaced or renewed, if disturbed during the process.
- Use marking ink to identify mating parts and ensure correct reassembly. Do not use a centre punch or scriber to mark parts, they could initiate cracks or distortion in marked components.
- Wire together mating parts where necessary to prevent accidental interchange (e.g. roller bearing components).
- Wire labels on to all parts which are to be renewed, and to parts requiring further inspection before being passed for reassembly; place these parts in separate containers from those containing parts for rebuild.
- Do not discard a part due for renewal until after comparing it with a new part, to ensure that its correct replacement has been obtained.

Cleaning components

Always use the recommended cleaning agent or equivalent.



WARNING: Ensure that adequate ventilation is provided when volatile degreasing agents are being used.



CAUTION: Do not use degreasing equipment for components containing items which could be damaged by the use of this process.

General Inspection

- Never inspect a component for wear or dimensional check unless it is absolutely clean; a slight smear of grease can conceal an incipient failure.
- When a component is to be checked dimensionally against recommended values, use the appropriate measuring equipment (surface plates, micrometers, dial gauges etc.). Ensure the measuring equipment is calibrated and in good serviceable condition.
- Reject a component if its dimensions are outside the specified tolerances, or if it appears to be damaged. A part may be refitted if its critical dimension is exactly to its tolerance limit and it appears to be in satisfactory condition.
- Use 'Plastigauge' 12 Type PG-1 for checking bearing surface clearances.

GENERAL INFORMATION

BALL AND ROLLER BEARINGS

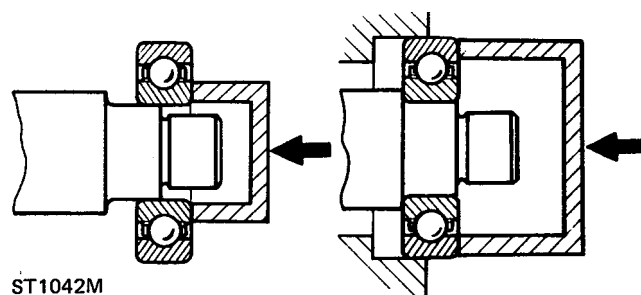


CAUTION: Never refit a ball or roller bearing without first ensuring that it is in a fully serviceable condition.



CAUTION: When hub bearings are removed or displaced, **NEW bearings must be fitted; do not attempt to refit the old hub bearings.**

- Remove all traces of lubricant from bearing under inspection by cleaning with a suitable degreaser; maintain absolute cleanliness throughout operations.
- Conduct a visual inspection for markings on rolling elements, raceways, outer surface of outer rings or inner surface of inner rings. Reject any bearings found to be marked, since marking in these areas indicates onset of wear.
- Hold inner race of bearing between finger and thumb of one hand and spin outer race to check that it revolves absolutely smoothly. Repeat, holding outer race and spinning inner race.
- Rotate outer ring gently with a reciprocating motion, while holding inner ring; feel for any check or obstruction to rotation. Reject bearing if action is not perfectly smooth.
- Lubricate bearing with generous amounts of lubricant appropriate to installation.
- Inspect shaft and bearing housing for discoloration or other markings which indicate movement between bearing and seatings.
- Ensure that shaft and housing are clean and free from burrs before fitting bearing.
- If one bearing of a pair shows an imperfection, it is advisable to replace both with new bearings; an exception could be if the faulty bearing had covered a low mileage, and it can be established that damage is confined to only one bearing.



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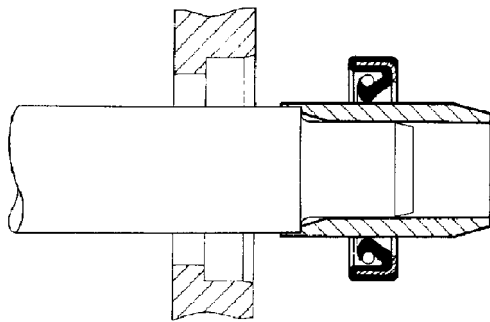
- When fitting a bearing to a shaft, only apply force to the inner ring of the bearing. When fitting a bearing into a housing, only apply force to the outer ring of the bearing.
- In the case of grease lubricated bearings (e.g. hub bearings) fill the space between bearing and outer seal with the recommended grade of grease before fitting seal.
- Always mark components of separable bearings (e.g. taper roller bearings) when dismantling, to ensure correct reassembly. Never fit new rollers in a used outer ring; always fit a complete new bearing assembly.



OIL SEALS

Always renew oil seals which have been removed from their working location (whether as an individual component or as part of an assembly).

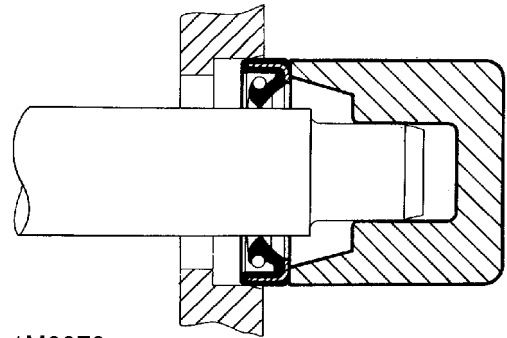
- Carefully examine seal before fitting to ensure that it is clean and undamaged.
- Ensure the surface on which the new seal is to run is free of burrs or scratches. Renew the component if the original sealing surface cannot be completely restored.
- Protect the seal from any surface which it has to pass when being fitted. Use a protective sleeve or tape to cover the relevant surface.
- Lubricate the sealing lips with a recommended lubricant before use to prevent damage during initial use. On dual lipped seals, smear the area between the lips with grease.
- If a seal spring is provided, ensure that it is fitted correctly.
- Place lip of seal towards fluid to be sealed and slide into position on shaft. Use fitting sleeve where possible to protect sealing lip from damage by sharp corners, threads or splines. If a fitting sleeve is not available, use plastic tube or tape to prevent damage to the sealing lip.



1M0072

- Grease outside diameter of seal, place square to housing recess and press into position using great care, and if possible a 'bell piece' to ensure that seal is not tilted. Never let weight of unsupported shaft rest in seal.

NOTE: In some cases it may be preferable to fit seal to housing before fitting to shaft.



1M0073

- Use the recommended service tool to fit an oil seal. If the correct service tool is not available, use a suitable tube approximately 0.4 mm (0.015 in.) smaller than the outside diameter of the seal. Use an hammer **VERY GENTLY** on drift if a suitable press is not available.
- Press or drift the seal in to the depth of its housing with the sealing lip facing the lubricant to be retained if the housing is shouldered, or flush with the face of the housing where no shoulder is provided. Ensure that the seal does not enter the housing in a tilted position.

NOTE: Most cases of failure or leakage of oil seals are due to poor fitting, which can result in damage to both seals and sealing surfaces. **NEVER** use a seal which has been improperly stored or handled, such as hung on a hook or nail.

GENERAL INFORMATION

JOINTS AND JOINT FACES

Fit joints dry unless specified otherwise.

- Always use the correct gaskets as specified.
- When jointing compound is used, apply in a thin uniform film to metal surfaces; take care to prevent jointing compound from entering oilways, pipes or blind tapped holes.
- If gaskets and/or jointing compound is recommended for use; remove all traces of old jointing material prior to reassembly. Do not use a tool which will damage the joint faces and smooth out any scratches or burrs using an oil stone. Do not allow dirt or jointing material to enter any tapped holes or enclosed parts.
- Prior to reassembly, blow through any pipes, channels or crevices with compressed air.

LOCKING DEVICES

Tab Washers



CAUTION: Always release locking tabs and fit new locking washers, do not re-use locking tabs. Ensure the new tab washer is the same design as that replaced.

Locking Nuts

Always use a backing spanner when slackening or tightening brake and fuel pipe unions.

Roll Pins

Always fit new roll pins of an interference fit in the hole.

Circlips

Always fit new circlips of the correct size for the groove.

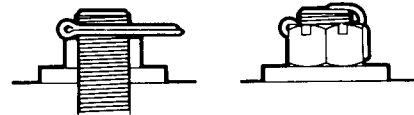
Locking wire

Always fit locking wire of the correct type. Arrange wire so that its tension tends to tighten the bolt heads or nuts to which it is fitted.

Keys and Keyways

- Remove burrs from edges of keyways with a fine file and clean thoroughly before attempting to refit key.
- Clean and inspect key closely; keys are suitable for refitting only if indistinguishable from new, as any indentation may indicate the onset of wear.

Fitting a split pin



1M0057



CAUTION: Always fit new split-pins of the correct size for the hole in the bolt or stud. Do not slacken nut to enter split-pin.



SCREW THREADS

Metric threads to ISO standards are used.

Damaged nuts, bolts and screws must always be discarded.



NOTE: Cleaning damaged threads with a die or tap impairs the strength and closeness of fit of the threads and is not recommended.



CAUTION: Always ensure that replacement bolts are at least equal in strength to those replaced.

Castellated nuts must not be slackened to accept a split-pin, except in recommended cases when this forms part of an adjustment.

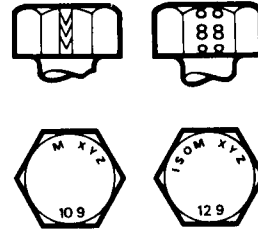
Do not allow oil or grease to enter blind threaded holes. The hydraulic action on screwing in the bolt or stud could split the housing.

Always tighten a nut or bolt to the recommended torque figure. Damaged or corroded threads can affect the torque reading.

To check or re-tighten a bolt or screw to a specified torque figure, first slacken a quarter of a turn, then retighten to the correct torque figure.

Oil thread lightly before tightening to ensure a free running thread, except in the case of threads treated with sealant / lubricant, and self-locking nuts.

BOLT IDENTIFICATION

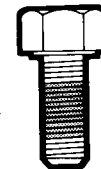


1M0055

An ISO metric bolt or screw made of steel and larger than 6 mm in diameter can be identified by either of the symbols ISO M or M embossed or indented on top of the bolt head.

In addition to marks identifying the manufacturer, the top of the bolt head is also marked with symbols indicating the strength grade, e.g. 8.8; 10.9; 12.9; 14.9. As an alternative, some bolts and screws have the M and strength grade symbol stamped on the flats of the hexagon.

Encapsulated bolts and screws



1M0062

Encapsulated bolts and screws have a micro-encapsulated locking agent pre-applied to the thread. They are identified by a coloured section which extends 360° around the thread. The locking agent is released and activated by the assembly process and is then chemically cured to provide the locking action.

GENERAL INFORMATION

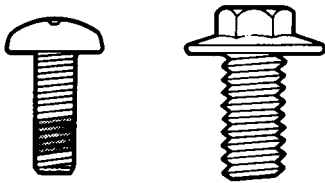
Unless a specific repair procedure states otherwise, encapsulated bolts may be re-used providing the threads are undamaged and the following procedure is adopted:

- Remove loose adhesive from the bolt and housing threads.
- Ensure threads are clean and free of oil and grease.
- Apply an approved locking agent.



NOTE: Always fit a new encapsulated bolt when replacing; or if not available, a bolt of equivalent specification treated with an approved locking agent.

Self-locking bolts and screws



1M0059

Self-locking bolts and screws, i.e. nylon patched or trilobular thread can be re-used providing resistance can be felt when the locking portion enters the female thread.

Nylon patched bolts and screws have a locking agent pre-applied to the threads. They are identified by the presence of a coloured section of thread which extends for up to 180° around the thread.

Trilobular bolts (i.e. Powerlok) have a special thread form which creates a slight interference in the tapped hole or threads of the nut into which it is screwed.

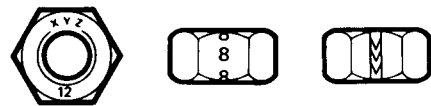
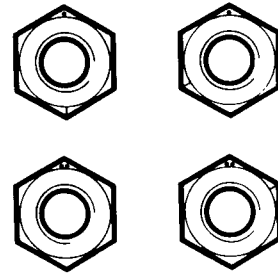


CAUTION: DO NOT re-use self-locking fasteners in critical locations (e.g. engine bearings, flywheel). Always use the correct replacement self-locking nut, bolt or screw.



CAUTION: DO NOT fit non self-locking fasteners in applications where a self-locking nut, bolt or screw is specified.

NUT IDENTIFICATION



1M0056

A nut with an ISO metric thread is marked on one face or on one of the flats of the hexagon with the strength grade symbol 8, 12, or 14. Some nuts with a strength grade 4, 5 or 6 are also marked and some have the metric symbol M on the flat opposite the strength grade marking.

A clock face system is sometimes used as an alternative method of indicating the strength grade. The external chamfers or a face of the nut is marked in a position relative to the appropriate hour mark on a clock face to indicate the strength grade.

A dot is used to locate the 12 o'clock position and a dash to indicate the strength grade. If the grade is above 12, two dots identify the 12 o'clock position.



Self-locking nuts



1M0058

Self-locking nuts, i.e. nylon insert or deferred thread nuts can be re-used providing resistance can be felt when the locking portion of the nut passes over the thread of the bolt or stud.



CAUTION: Do not apply heat in an attempt to free deferred thread nuts or fittings; as well as causing damage to protective coatings, there is a risk of damage to electronic equipment and brake linings from stray heat.

When tightening a slotted or castellated nut, never loosen it to insert a split pin or locking wire except where recommended as part of an adjustment. If difficulty is experienced, alternative washers or nuts should be selected, or the washer thickness reduced.

Where self-locking nuts have been removed, it is advisable to replace them with new ones of the same type.



NOTE: Where bearing pre-load is involved nuts should be tightened in accordance with special instructions.

FLEXIBLE HYDRAULIC PIPES AND HOSES




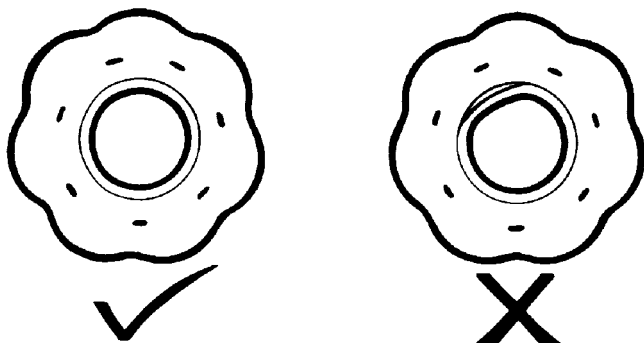
WARNING: Do not disconnect any pipes in an air conditioning refrigeration system unless trained and instructed to do so. A refrigerant is used which can cause blindness if allowed to contact eyes.

- Before removing any brake or power steering hose, clean end fittings and area surrounding them as thoroughly as possible.
- Obtain appropriate plugs or caps before detaching hose end fittings, so that the ports can be immediately covered to prevent the ingress of dirt.
- Clean hose externally and blow through with airline. Examine carefully for cracks, separation of plies, security of end fittings and external damage. Reject any faulty hoses.
- When refitting a hose, ensure that no unnecessary bends are introduced, and that hose is not twisted before or during tightening of union nuts.
- Fit a cap to seal a hydraulic union and a plug to its socket after removal to prevent ingress of dirt.
- Absolute cleanliness must be observed with hydraulic components at all times.
- After any work on hydraulic systems, carefully inspect for leaks underneath the vehicle while a second operator applies maximum brake pressure to the brakes (engine running) and operates the steering.

GENERAL INFORMATION

Fuel System Hoses

 **CAUTION:** All fuel hoses are made up of two laminations, an armoured rubber outer sleeve and an inner viton core. If any of the fuel system hoses have been disconnected, it is imperative that the internal bore is inspected to ensure that the viton lining has not become separated from the armoured outer sleeve. A new hose must be fitted if separation is evident.



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SERVICE TOOLS AND GARAGE EQUIPMENT


Special service tools have been developed to facilitate removal, dismantling and assembly of mechanical components in a cost effective and time efficient manner. The use of such special tools also helps prevent the potential for damage to components.

Some operations described in this Manual cannot be carried out properly without the aid of the relevant service tools.

Where specific garage equipment is required for diagnosis and repair, reference should be made to the Service Tools and Equipment Programme where details of the equipment recommended by Land Rover Service may be found.

DYNAMOMETER TESTING - NON ANTI-LOCK BRAKE VEHICLES

The front and rear wheels cannot be driven independently due to the viscous coupling. This eliminates the need for differential lock by progressively applying more torque to the rear wheels if the front wheels start to slip.

 **WARNING:** DO NOT attempt to drive individual wheels with vehicle supported on floor jacks or stands.

Four wheel dynamometers

Provided that front and rear dynamometer rollers are rotating at identical speeds and that normal workshop safety standards are applied, there is no speed restriction during testing, except any that may apply to the tyres.

Two wheel dynamometers

IMPORTANT: Use a four wheel dynamometer for brake testing if possible.

If brake testing on a single rig is necessary, the following procedures should be ensured:

- propeller shaft to the rear axle is removed
- neutral selected in gearbox
- hill descent control not selected.

When checking brakes, run engine at idle speed to maintain servo vacuum.



DYNAMOMETER TESTING - VEHICLES WITH ANTI-LOCK BRAKES (ABS)



WARNING: Do not attempt to test ABS function on a dynamometer

Four wheel dynamometers

NOTE: Before testing a vehicle on a four wheel dynamometer disconnect the ABS valve relay. The ABS function will not work, the ABS warning light will illuminate. Normal braking will be available.

Provided that front and rear rollers are rotating at identical speeds and that normal workshop safety standards are applied, there is no speed restriction during testing except any that may apply to the tyres.

Two wheel dynamometers

IMPORTANT: Use a four wheel dynamometer for brake testing if possible.



NOTE: ABS will not function on a two wheel dynamometer. The ABS light will illuminate during testing. Normal braking will be available.

If brake testing on a single rig is necessary, the following procedures should be ensured:

- propeller shaft to the rear axle is removed
- neutral selected in gearbox
- hill descent control not selected

If checking engine performance, ensure hill descent control is not selected and drive shaft to rear differential is disconnected.



FUEL HANDLING PRECAUTIONS

General

The following information provides basic precautions which must be observed if petrol (gasoline) is to be handled safely. It also outlines other areas of risk which must not be ignored. This information is issued for basic guidance only, if in doubt consult your local Fire Officer.

Petrol - Gasoline

Petrol/gasoline vapour is highly flammable and in confined spaces is also explosive and toxic.

When petrol/gasoline evaporates it produces 150 times its own volume in vapour, which when diluted with air becomes a readily ignitable mixture. The vapour is heavier than air and will always fall to the lowest level. The vapour can be easily distributed throughout a workshop by air currents; consequently, even a small spillage of petrol/gasoline is potentially very dangerous.



WARNING: Do not use a pit when removing fuel system components.

Always have a fire extinguisher containing FOAM, CO₂, GAS or POWDER close at hand when handling or draining fuel or when dismantling fuel systems. Fire extinguishers should also be located in areas where fuel containers are stored.

Always disconnect the vehicle battery before carrying out dismantling or draining work on a fuel system.

Whenever petrol/gasoline is being handled, drained or stored, or when fuel systems are being dismantled, all forms of ignition must be extinguished or removed; any leadlamps must be flameproof and kept clear of spillage.



WARNING: No one should be permitted to repair components associated with petrol/gasoline without first having specialist training.

Fuel tank drainage



WARNING: Petrol/gasoline must not be extracted or drained from any vehicle whilst it is standing over a pit.

Draining or extraction of petrol/gasoline from a vehicle fuel tank must be carried out in a well ventilated area.

The receptacle used to contain the petrol/gasoline must be more than adequate for the full amount of fuel to be extracted or drained. The receptacle should be clearly marked with its contents, and placed in a safe storage area which meets the requirements of local authority regulations.



WARNING: When petrol/gasoline has been extracted or drained from a fuel tank the precautions governing naked lights and ignition sources should be maintained.

Fuel tank removal

When the fuel line is secured to the fuel tank outlet by a spring steel clip, the clip must be released before the fuel line is disconnected or the fuel tank is removed. This procedure will avoid the possibility of residual petrol fumes in the fuel tank being ignited when the clip is released.

As an added precaution fuel tanks should have a 'PETROL (GASOLINE) VAPOUR' warning label attached to them as soon as they are removed from the vehicle.

GENERAL INFORMATION

Fuel tank repairs

Under no circumstances should a repair to any fuel tank be carried out without first rendering the tank SAFE, by using one of the following methods:

a. STEAMING: With the filler cap and tank unit removed, empty the tank. Steam the tank for at least two hours with low pressure steam. Position the tank so that condensation can drain away freely, ensuring that any sediment and sludge not volatilized by the steam is washed out during the steaming process.

b. BOILING: With the filler cap and tank unit removed, empty the tank. Immerse the tank completely in boiling water containing an effective alkaline degreasing agent or a detergent, with the water filling and also surrounding, the tank for at least two hours.

After steaming or boiling, a signed and dated label to this effect should be attached to the tank.

Body repairs



WARNING: When body repairs involve the use of heat, all fuel pipes which run in the vicinity of the repair area must be removed, and the tank outlet plugged, BEFORE HEAT IS APPLIED. If the repair is in the vicinity of the fuel tank, the tank must be removed.

Plastic fuel pipes are particularly susceptible to heat, even at relatively low temperature, and can be melted by heat conducted from some distance away.

Fuel lines or tanks must not be removed whilst the vehicle is over an inspection pit.



ELECTRICAL PRECAUTIONS

General

The following guidelines are intended to ensure the safety of the operator whilst preventing damage to the electrical and electronic components fitted to the vehicle. Where necessary, specific precautions are detailed in the relevant sections of this Manual which should be referred to prior to commencing repair operations.

Equipment

Prior to commencing any test procedure on the vehicle ensure that the relevant test equipment is working correctly and any harness or connectors are in good condition. It is particularly important to ensure the propriety of the lead and plugs of mains operated equipment.

Polarity

Never reverse connect the vehicle battery and always ensure the correct polarity when connecting test equipment.

High Voltage Circuits

Whenever disconnecting live ht-circuits always use insulated pliers and never allow the open end of the ht-lead to contact other components - particularly ECU's.



CAUTION: Exercise caution when measuring the voltage on the coil terminals while the engine is running, high voltage spikes can occur on these terminals.

Connectors and Harnesses

The engine compartment of a vehicle is a particularly hostile environment for electrical components and connectors. Always ensure electrically related items are dry and oil free before disconnecting and connecting test equipment.



CAUTION: Ensure disconnected multiplugs and sensors are protected from being contaminated with oil, coolant or other solutions. Contamination could impair performance or result in catastrophic failure.

Never force connectors apart using tools to prise apart or by pulling on the wiring harness.

Always ensure locking tabs are disengaged before disconnection, and match orientation to enable correct reconnection.

Ensure that any protection (covers, insulation etc.) is replaced if disturbed.

Having confirmed a component to be faulty:

- switch off the ignition and disconnect the battery.
- remove the component and support the disconnected harness.
- when replacing the component keep oily hands away from electrical connection areas and push connectors home until any locking tabs fully engage.

Battery disconnection

Before disconnecting the battery, disable the alarm system and switch off all electrical equipment. If the radio is to be serviced, ensure the security code has been deactivated.



CAUTION: To prevent damage to electrical components ALWAYS disconnect the battery when working on the vehicle electrical system. The earth lead must be disconnected first and reconnected last. Always ensure that battery leads are routed correctly and are not close to any potential chafing points.

Battery charging

Only recharge the battery with it removed from the vehicle.

Always ensure any battery charging area is well ventilated and that every precaution is taken to avoid naked flames and sparks.

GENERAL INFORMATION

Ignition system safety precautions



WARNING: Before commencing work on an ignition system, all high tension terminals, adapters and diagnostic equipment should be inspected.

Ensure all cables, connectors and components are adequately insulated and shielded. Accidental contact with a poorly insulated ignition system component could result in a severe electrical shock.

Wearers of surgically implanted pacemaker devices should not be in close proximity to ignition circuits or diagnostic equipment.

Disciplines

Switch off the ignition prior to making any connection or disconnection in the system to prevent electrical surges caused by disconnecting 'live' connections damaging electronic components.

Ensure hands and work surfaces are clean and free of grease, swarf, etc. Grease collects dirt which can cause electrical tracking (short-circuits) or high-resistance contacts.

When handling printed circuit boards, treat with care and hold by the edges only; note that some electronic components are susceptible to body static.

Connectors should never be subjected to forced removal or refit, especially inter-board connectors. Damaged contacts can cause short-circuit and open-circuit fault conditions.

Prior to commencing test, and periodically during a test, touch a good vehicle body earth to discharge static charge. Some electronic components are vulnerable to the static electricity that may be generated by the operator.

Grease for electrical connectors

Some under bonnet and under body connectors may be protected against corrosion by the application of a special grease during vehicle production. Should connectors be disturbed in service, or repaired or replaced, additional grease should be re-applied: Part No. BAU 5811, available in 150 gm tubs.



NOTE: The use of greases other than BAU 5811 must be avoided as they can migrate into relays, switches etc. contaminating the contacts and leading to intermittent operation or failure.



SUPPLEMENTARY RESTRAINT SYSTEM PRECAUTIONS

General

The Supplementary Restraint System (SRS) provides active protection for vehicle occupants in the event of a serious collision. The system components include airbags and pre-tensioner seatbelts which are automatically deployed when a severe frontal crash condition is detected.



WARNING: Do not use rear facing child seats in the front passenger seat if the vehicle is fitted with a passenger airbag.

In order to assure system integrity, it is essential that the SRS system is regularly checked and maintained so that it is ready for operation in the event of an accident.

The SRS system contains components which could be potentially hazardous to the service engineer if not serviced and handled correctly. The following guidelines are intended to alert the service engineer to potential sources of danger and emphasise the importance of ensuring integrity of the SRS components fitted to the vehicle.

Where necessary, additional specific precautions are detailed in the relevant sections of this Manual which should be referred to prior to commencing repair operations.

It should be noted that these precautions are not restricted to operations performed when servicing the SRS system, the same care should be exercised when working on ancillary systems and components located in the vicinity of SRS components; these include but are not limited to steering system (steering wheel airbag), body and trim components (passenger airbag and seat belt pre-tensioners) and electrical system components (SRS harnesses etc.).



WARNING: Always follow the Safety Guidelines and correct procedures for working on SRS components.



NOTE: Airbag modules should be replaced every ten years.

GENERAL INFORMATION

Preliminary Procedures



WARNING: Always remove the ignition key from the starter switch, disconnect the vehicle battery and wait 10 minutes before and commencing work on the SRS system.

The SRS system uses energy reserve capacitors that keep the system active in the event of electrical supply failure under crash conditions. It is necessary to allow the capacitor sufficient time to discharge (10 minutes) in order to avoid the risk of accidental deployment.



CAUTION: Always disconnect both battery leads before beginning work on the SRS system. Disconnect the negative battery cable first. Never reverse connect the vehicle battery and always ensure the correct polarity when connecting test equipment.



CAUTION: Always disconnect the vehicle battery before carrying out any electric welding on a vehicle fitted with an SRS system.



CAUTION: Do not expose an airbag module or seat belt pre-tensioner to heat exceeding 85°C (185°F).



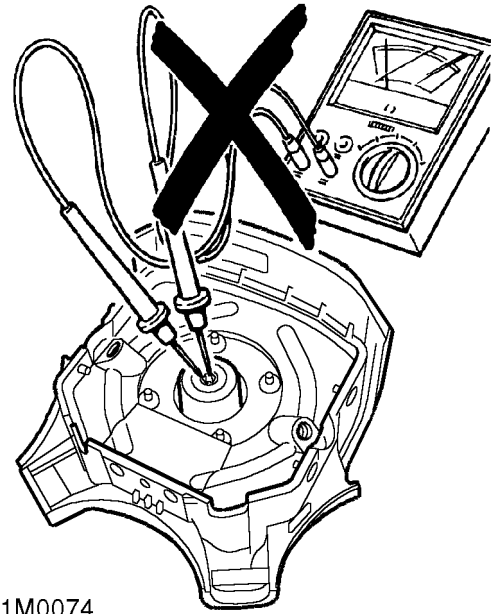
WARNING: Carefully inspect any SRS component before installation. Do not install any SRS component that shows signs of damage such as dents, cracks or deformity.



CAUTION: Ensure SRS components are not contaminated with oil, grease, detergent or water.



CAUTION: Prior to commencing any test procedure on the vehicle, ensure that only test equipment approved for the purpose is being utilised and that it is in good working order. Ensure any harness or connectors are in good condition and any warning lamps are functional.

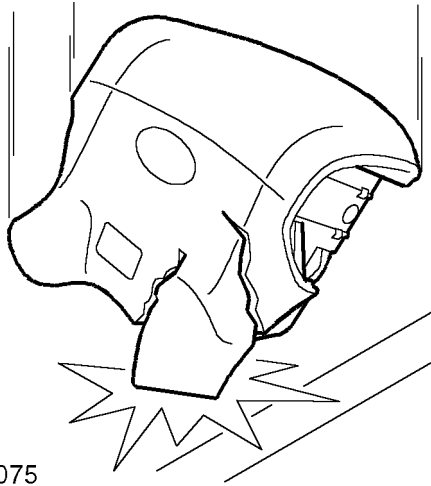


1M0074



WARNING: Never use multimeters or other general purpose test equipment on SRS system components or connectors. System faults should be diagnosed through the use of recommended test equipment only.

Component handling

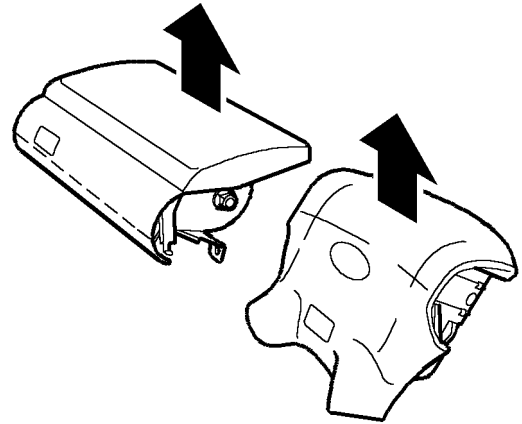


1M0075

WARNING: The SRS components are sensitive and potentially hazardous if not handled correctly; always comply with the following handling precautions:

- Never drop an SRS component. The airbag diagnostic control unit is a particularly shock sensitive device and must be handled with extreme care. Airbag modules and seat belt pre-tensioner units could deploy if subjected to a strong shock.
- Never wrap your arms around an airbag module. If an airbag module has to be carried, hold it by the cover, with the cover uppermost and the base away from your body.
- Never transport airbag modules or seat belt pre-tensioners in the cabin of a vehicle. Always use the luggage compartment of the vehicle for carrying airbag modules and seat belt pre-tensioner units.

Storage



1M0076

WARNING: Always store airbag modules with the cover face up. If the airbag module is stored face down, accidental deployment could propel the unit with enough force to cause serious injury.

WARNING: Airbag modules and seat belt pre-tensioners are classed as explosive devices. For overnight and longer term storage, they must be stored in a secure steel cabinet which has been approved as suitable for the purpose and has been registered by the local authority.

CAUTION: For the temporary storage of an airbag module or seat belt pre-tensioner during service, place in a designated storage area. If there is no designated storage area available, store in the luggage compartment of the vehicle and inform the workshop supervisor.

CAUTION: Always observe the following precautions when temporarily storing an airbag module:

- Ensure the cover is facing upwards and the luggage compartment is secured.
- Always keep components cool, dry and free from contamination.
- Do not allow anything to rest on the airbag module.
- Store any removed airbag assembly on a secure flat surface away from electrical equipment and heat sources (exceeding 85°C (185°F)).

GENERAL INFORMATION

Installation and Testing Precautions



WARNING: The integrity of SRS system components are critical for safety reasons. Ensure the following precautions are always adhered to:

- Never install used SRS components from another vehicle or attempt to repair an SRS component.
- When repairing an SRS system only use genuine new parts.
- Never apply electrical power to an SRS component unless instructed to do so as part of an approved test procedure.
- Special Torx bolts are necessary for installing the airbag assembly - do not use other bolts. Ensure bolts are tightened to the specified torque (refer to SRS section).
- Ensure that SRS component fixings are correctly positioned and torqued during service and repair.
- Always use new fixings when replacing an SRS component.
- Ensure the SRS Electronic Control Unit (ECU) is always installed correctly. There must not be any gap between the ECU and the bracket to which it is mounted. An incorrectly mounted unit could cause the system to malfunction.

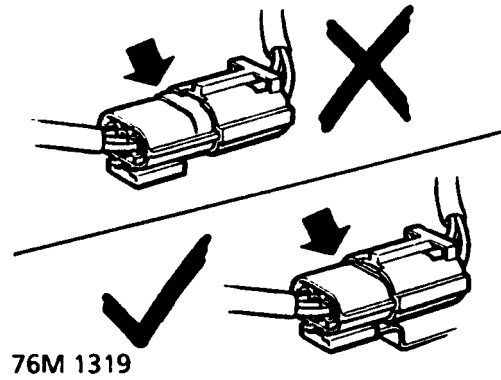
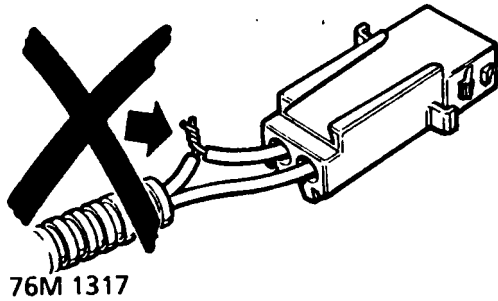
- The SRS Electronic Control Unit is a non-serviceable component and no attempt should be made to repair or modify the unit.
- Do not try to disassemble the airbag assembly. It has no serviceable parts. Once an airbag has been deployed, it cannot be repaired or reused.
- If you suspect an airbag assembly could be defective, install a new unit and dispose of the old unit. Manually deploy the old unit before disposal. See *RESTRAINT SYSTEMS, Precautions*.



WARNING: When removing, testing or installing an airbag module do not lean directly over it.



SRS Harnesses and Connectors



CAUTION: Always observe the following precautions with regards to SRS systems:

Never attempt to modify, splice or repair SRS wiring.

- Never install electronic equipment (such as a mobile telephone, two way radio or in-car entertainment system) in such a way that it could generate electrical interference in the airbag harness. Seek specialist advice when installing such equipment.

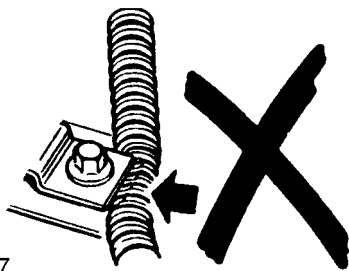


NOTE: SRS wiring can be identified by a special yellow outer protective covering (black with yellow stripe protective coverings are sometimes used).



CAUTION: Ensure all airbag harness connectors are mated correctly and securely fastened. Do not leave the connectors hanging loose.

- Do not allow SRS components to hang from their harnesses.



CAUTION: Always ensure SRS harnesses are routed correctly. Be careful to avoid trapping or pinching the SRS harness.

Route the harness to avoid possible points of chafing.

- Always use specified earth fixings tightened to the correct torque. Poor earthing can cause intermittent problems that are difficult to diagnose.

GENERAL INFORMATION

Rotary Coupler



CAUTION: Always follow the procedure for fitting and checking the rotary coupler as instructed in the SRS section of this manual. Comply with all safety and installation procedures to ensure the system functions correctly. Observe the following precautions:

- Do not install a rotary coupler if it is suspected to be defective.
- Do not attempt to service, modify or repair a rotary coupler.
- Do not cut, splice or modify the wires attached to yellow SRS connector and lead.
- Always ensure the rotary coupler connectors are mated correctly and securely fastened.
- Always ensure the battery is disconnected before working on the rotary coupler.
- Always ensure the rotary coupler is removed and installed in its centered position and with the front road wheels in the straight ahead position - refer to the SRS section of this manual for the full correct removal and installation procedure.
- If a new rotary coupler is being installed, ensure the locking tab holding the coupler's rotational position is not broken; units with a broken locking tab should not be used.

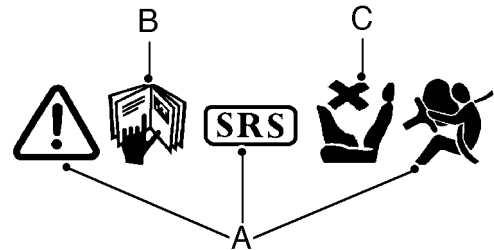
Warning Labels

Warning symbols are displayed at various positions in the vehicle (either in a suitable prominent position such as driver and passenger side glass, or attached to the component itself) to indicate SRS items which must be treated with particular care. These include:

A - The need for caution when working in close proximity to SRS components.

B - Refer to the publication where the procedures, instructions and advice can be found (usually Workshop Manual or Owner's Handbook) for working on the SRS system.

C - Do not use rear facing child seats in the front passenger seat if the vehicle is fitted with a passenger airbag.



1M0078

Driver and Passenger side windows



1M0079



NOTE: It is imperative that the appropriate publication is read thoroughly prior to any work being undertaken on the SRS system.



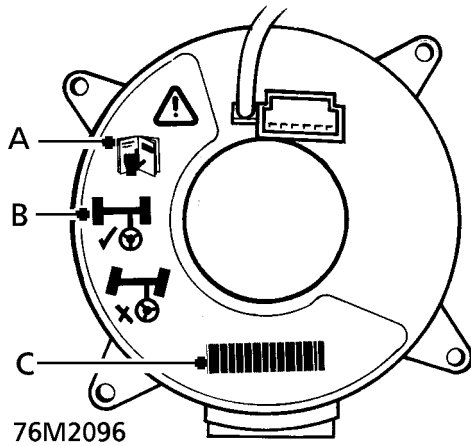
NOTE: Exact positions of SRS warning labels may vary dependent on legislation and market trends.

Refer to the Owner's Handbook for additional information regarding the SRS system.

End of Fascia



Rotary coupler



Label warning the owner not to use rear facing child seats in the front passenger seat in vehicles fitted with a passenger side airbag.

A - Refer to the Workshop Manual for detailed instructions.

B - Ensure wheels are in the straight ahead position before removal and refitting.

C - LAND ROVER Part Number/Bar code - The code must be recorded and quoted for ordering purposes.

GENERAL INFORMATION

Airbag and Pre-tensioner Deployment



WARNING: Only personnel who have undergone the appropriate training should undertake deployment of airbag and pre-tensioner modules.



WARNING: A deployed airbag is very hot, **DO NOT** return to a deployed airbag module until at least 30 minutes have elapsed since deployment.



WARNING: Deployment procedures and precautions as detailed in this service manual should be strictly adhered to. The following precautions must be complied with:

- Only use deployment equipment approved for the intended purpose.
- Before beginning deployment procedure, ensure deployment tool functions properly by performing the self test procedure detailed in SRS section of this manual.
- Deployment of airbag / pre-tensioner modules should be performed in a well ventilated area which has been designated for the purpose.
- Ensure airbag / pre-tensioner modules are not damaged or ruptured before attempting to deploy.
- Notify the relevant authorities of intention to deploy airbag and pre-tensioner units.
- When deploying airbag pre-tensioner units, ensure that all personnel are at least 15 metres away from the deployment zone.
- Ensure deployment tool is connected correctly, in compliance with the instructions detailed in the SRS section of this manual. In particular, ensure deployment tool is **NOT** connected to battery supply before connecting to airbag module connector.
- When deploying seat belt pre-tensioners, ensure pre-tensioner unit is secured correctly to seat.
- When removing deployed airbag modules and pre-tensioner units, wear protective clothing. Use gloves and seal deployed units in a plastic bag.
- Following deployment of any component of the SRS system within the vehicle, all SRS components must be replaced. **DO NOT** re-use or salvage any parts of the SRS system.
- Do not lean over airbag module when connecting deployment equipment.



WARNING: If a vehicle is to be scrapped, undeployed airbag modules and pre-tensioner units must be manually deployed. In this case airbags can be deployed in the vehicle; before deployment, ensure the airbag module is secure within its correct mounting position.



CAUTION: Deployment of the driver side airbag in the vehicle may damage the steering wheel; if the vehicle is not being scrapped, deploy the module outside of the vehicle.



COMPONENT REPLACEMENT POLICY

IMPACTS WHICH DO NOT DEPLOY AIRBAGS

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

IMPACTS WHICH DEPLOY AIRBAGS

CAUTION: Renew the following components:

- Airbag ECU.
- Airbag module(s).
- Facia harness.
- Pretensioners.
- Rotary coupler and link harness.



AIR CONDITIONING SYSTEM PRECAUTIONS

General

The air conditioning system contains fluids and components which could be potentially hazardous to the service engineer or the environment if not serviced and handled correctly. The following guidelines are intended to alert the service engineer to potential sources of danger and emphasise the importance of ensuring the integrity of the Air Conditioning operating conditions and components fitted to the vehicle.

Where necessary, additional specific precautions are detailed in the relevant sections of this Manual which should be referred to prior to commencing repair operations.

The refrigerant used in the air conditioning system is HFC-134a (Hydrofluorocarbon) R134a.



WARNING: The air conditioning system is charged with a high pressure, potentially toxic refrigerant. Repairs or servicing must only be carried out by a trained operator familiar with both the vehicle system and the charging and testing equipment.



WARNING: All operations pertaining to the air conditioning system must be carried out in a well ventilated area. Always observe the following precautions:

- R134a is odourless and colourless. Do not handle or discharge in an enclosed area, or any area where the vapour and liquid can come into contact with a naked flame or hot metal. R134a is not flammable, but it can cause a highly toxic gas.
- Do not smoke or weld in areas where R134a is in use.
- Inhalation of concentrations of vapour can cause dizziness, disorientation, incoordination, narcosis, nausea or vomiting.
- Refrigerant R134a from domestic and commercial sources must not be used in motor vehicle air conditioning systems.



WARNING: HFC-134a (R134a) is a hazardous liquid which if handled incorrectly can cause serious injury. The following precautions should be adhered to at all times when working on an air conditioning system:

- Suitable protective clothing must be worn when carrying out service operations on the air conditioning system.
- Air conditioning connections should be opened carefully to allow any liquid or pressure to bleed off slowly.
- Do not allow a refrigerant container to be heated by direct flame or to be placed near any heating appliance. A refrigerant container must not be heated above 50°C.
- Do not leave a refrigerant container without its cap fitted.
- Do not transport a refrigerant container that is unrestrained (especially in the luggage compartment of a car).
- Do not allow fluids, other than R134a or compressor lubricant, to enter the air conditioning system; spontaneous combustion could occur.
- R134a splashed onto exposed skin will cause immediate freezing of that area.
- Refrigerant cylinders and replenishment trolleys can become cooled when discharging, this could cause skin to become frozen to them if contact is made.
- The refrigerant used in an air conditioning system must be reclaimed in accordance with the recommendations stipulated by a Refrigerant Recovery, Recycling & Recharging Station.

GENERAL INFORMATION

Protective Clothing



NOTE: Suitable protective clothing comprises:

- **Wrap round safety glasses or helmet**
- **Heat proof gloves**
- **Rubber apron, or waterproof overalls**
- **Rubber boots.**

REMEDIAL ACTIONS

If an accident involving R134a should occur, conduct the following remedial actions:

- If liquid R134a enters the eye, do not rub it. Gently run large quantities of eye wash over affected eye to raise the temperature. If an eye wash is not available, cool, clean water may be used to flush the eye. After rinsing, cover the eye with a clean pad and seek immediate medical attention.
- If liquid R134a is splashed onto the skin, run large quantities of water over the affected area to raise the temperature. Implement the same action if the skin comes in contact with discharging cylinders. Wrap the contaminated body parts in blankets (or similar materials) and seek immediate medical attention.
- If the debilitating effects of inhalation of R134a vapour is suspected, seek fresh air. If the affected person is unconscious, move them away from the contaminated area to fresh air and apply artificial respiration and/or oxygen and seek immediate medical attention.



WARNING: Due to its low evaporating temperature of -30°C, R134a should be handled with extreme care.



SERVICE PRECAUTIONS



CAUTION: Observe the following precautions when handling components used in the air conditioning system:

- Air conditioning units must not be lifted by their hoses, pipes or capillary lines.
- Hoses and lines must not be subjected to any twist or stress - the efficiency of the system will be impaired by kinks or restrictions. Ensure that hoses are correctly positioned before tightening couplings, and ensure that all clips and supports are utilised.
- Flexible hoses should not be positioned close to the exhaust manifold (less than 100mm) unless protected by heat shielding.
- Completed assemblies must be checked for refrigeration lines touching metal panels. Any direct contact of components and panels may transmit noise and so must be eliminated.
- The appropriate torque wrench must be used when tightening refrigerant connections to the stipulated value. An additional spanner must be used to hold the union to prevent twisting of the pipe when tightening connections.
- Before connecting any hose or pipe, ensure that refrigerant oil is applied to the seat of the new 'O' ring seals, BUT NOT to the threads of the connection.
- All protective plugs must remain in place to seal the component until immediately prior to connection.
- Ensure components are at room temperature before uncapping, to prevent condensation of moisture from the air that enters it.
- Components must not remain uncapped for longer than 15 minutes. In the event of a delay, the caps must be fitted.
- When disconnecting, immediately cap all air conditioning pipes to prevent ingress of dirt and moisture into the system.
- The receiver/dryer contains desiccant which absorbs moisture. It must be positively sealed at all times. A receiver/drier that has been left uncapped must not be used, fit a new unit.
- The receiver/drier should be the last component connected to the system to ensure optimum dehydration and maximum moisture protection of the system.
- Whenever the refrigerant system is opened, the receiver/dryer must be renewed immediately before evacuating and recharging the system.
- Use alcohol and a clean lint-free cloth to clean dirty connections.
- Ensure that all new parts fitted are marked for use with R134a.
- When a major repair has been completed, a leak test should be conducted; refer to the air conditioning section of this manual for the correct procedure.

GENERAL INFORMATION

Refrigerant oil

Use an approved refrigerant lubricating oil:

ND Oil 8



CAUTION: Do not use any other type of refrigerant oil.



CAUTION: Refrigerant oil easily absorbs water and must not be stored for long periods. Do not pour unused oil back into the container.

When renewing system components, add the quantities of refrigerant oil recommended in the Air Conditioning section of this manual.

Compressor

A new compressor is sealed and pressurised with Nitrogen gas. When fitting a new compressor, slowly release the sealing cap; gas pressure should be heard to vent as the seal is broken.



CAUTION: A new compressor should always have its sealing cap in place and must not be removed until immediately prior to fitting the compressor air conditioning pipes.

Rapid refrigerant discharge



CAUTION: If the air conditioning system is involved in accident damage and the system is punctured, the refrigerant will discharge rapidly. The rapid discharge of refrigerant will also result in the loss of most of the oil from the system. The compressor must be removed and all the remaining oil in the compressor drained and refilled as instructed in the air conditioning section of this manual.



**PRECAUTIONS FOR REFRIGERANT RECOVERY,
RECYCLING AND RECHARGING**



WARNING: Refrigerant must always be recycled before reuse to ensure that the purity of the refrigerant is high enough for safe use in the air conditioning system.



WARNING: Recycling should always be carried out with equipment which is design certified by Underwriter Laboratory Inc. for compliance with SAE-J1991. Other equipment may not recycle refrigerant to the required level of purity.

A R134a Refrigerant, Recovery, Recycling and Recharging Station must not be used with any other type of refrigerant.



CAUTION: When using an air conditioning portable Refrigerant, Recovery, Recycling and Recharging Station the operator must adhere to the equipment manufacturer's instructions.



CAUTION: The system must be evacuated immediately before recharging commences. Delay between evacuation and recharging must not be permitted.



CAUTION: Overcharging the air conditioning system will cause excessive head pressure.



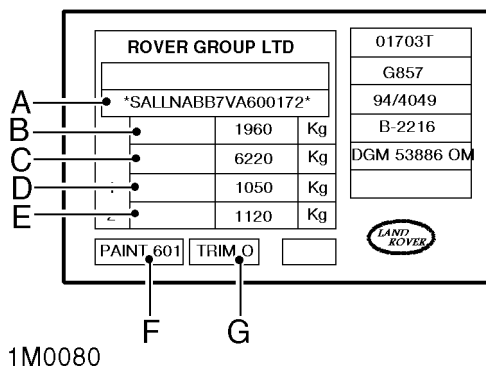
VEHICLE IDENTIFICATION NUMBER

Location

The Vehicle Identification Number (VIN) plate is attached to the LH 'B' post.

The VIN is also stamped in the following locations:

- At the centre top of the engine bulkhead.
- On a plate behind the LH lower corner of the windscreen.



- A** - Vehicle Identification Number (VIN)
- B** - Gross vehicle weight
- C** - Gross train weight
- D** - Maximum front axle load
- E** - Maximum rear axle load
- F** - Paint Code
- G** - Trim Code

Vehicle identification number

Example: **SALLNABB7VA600172**

- S** = Geographic area (S = Europe)
- A** = Country (A = UK)
- L** = Manufacturer (L = Land Rover)
- LN** = Marque/Model (LN = Freelander)
- A** = Trim Level (A = Trim Level 1)
- B** = Body

- └ A = 3 door models
- └ B = 5 door models

B = Engine

- └ A = K16 Petrol engine models
- └ B = TCIE Diesel engine models

7 = Transmission and Steering

- └ 7 = RHD manual steering
- └ 8 = LHD manual steering

V = Model change (V = 1997 Model year)

A = Assembly plant (A = Solihull)

6 figures = Serial number

Paint and Trim colour codes:

Paint Code (F) - 3-digit code identifying the original Paint colour is stamped on the VIN plate:

Example: **601**

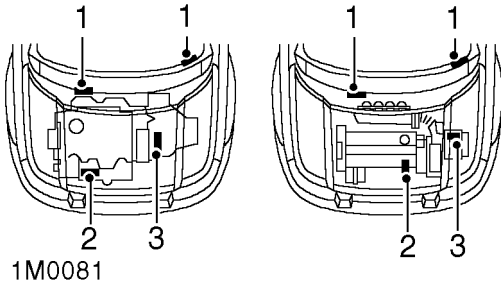
- 601** = Rioja Red
- 507** = Caledonian Blue
- 603** = Chawton White
- 624** = Cobar Blue
- 618** = White Gold
- 622** = Venetian Mauve
- 587** = Altai Silver
- 610** = Charleston Green
- 961** = Epsom Green
- 416** = Beluga Black

Refer to Parts Catalogue for full list of colour codes.

Trim (G) - a code identifying the original trim type and colour is stamped on the VIN plate, refer to the relevant Parts Catalogue for coding details:

GENERAL INFORMATION

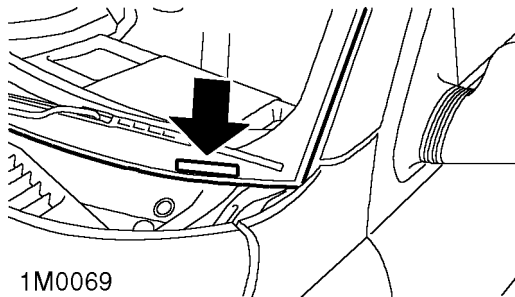
IDENTIFICATION NUMBER LOCATIONS



1. Vehicle identification number
2. Engine number
3. Gearbox number

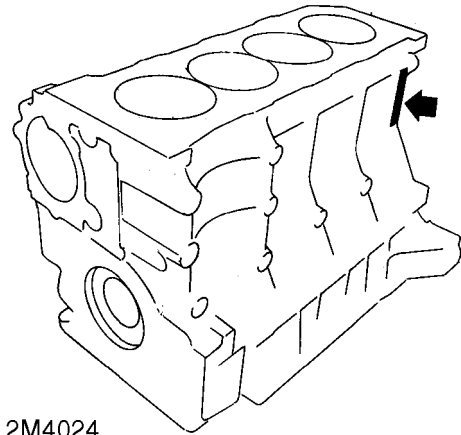
Vehicle Identification Number

The VIN is displayed at the centre top of the engine bulkhead and on a plate behind the LH lower corner of the windscreen.

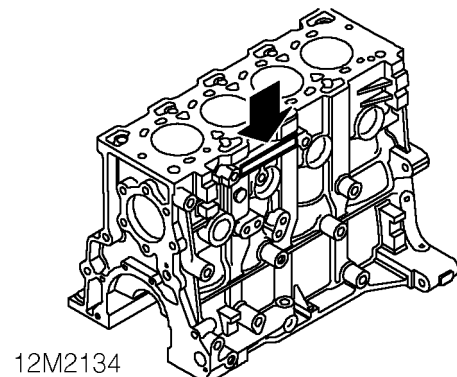


Engine number

1.8 'K' Series Engine: Stamped on the front face of the cylinder block adjacent to the gearbox.



2.0 'L' Series Engine: Stamped on the front face of the cylinder block at top centre.



Gearbox number (3)

Manual Gearbox - PG1: Stamped on a label attached to the front face of the clutch housing.

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JACKING

The following instructions must be carried out before raising the vehicle off the ground:

- Use a solid level surface.
- Apply parking brake.
- Select 1st. gear in main gearbox and ensure HDC is not selected.

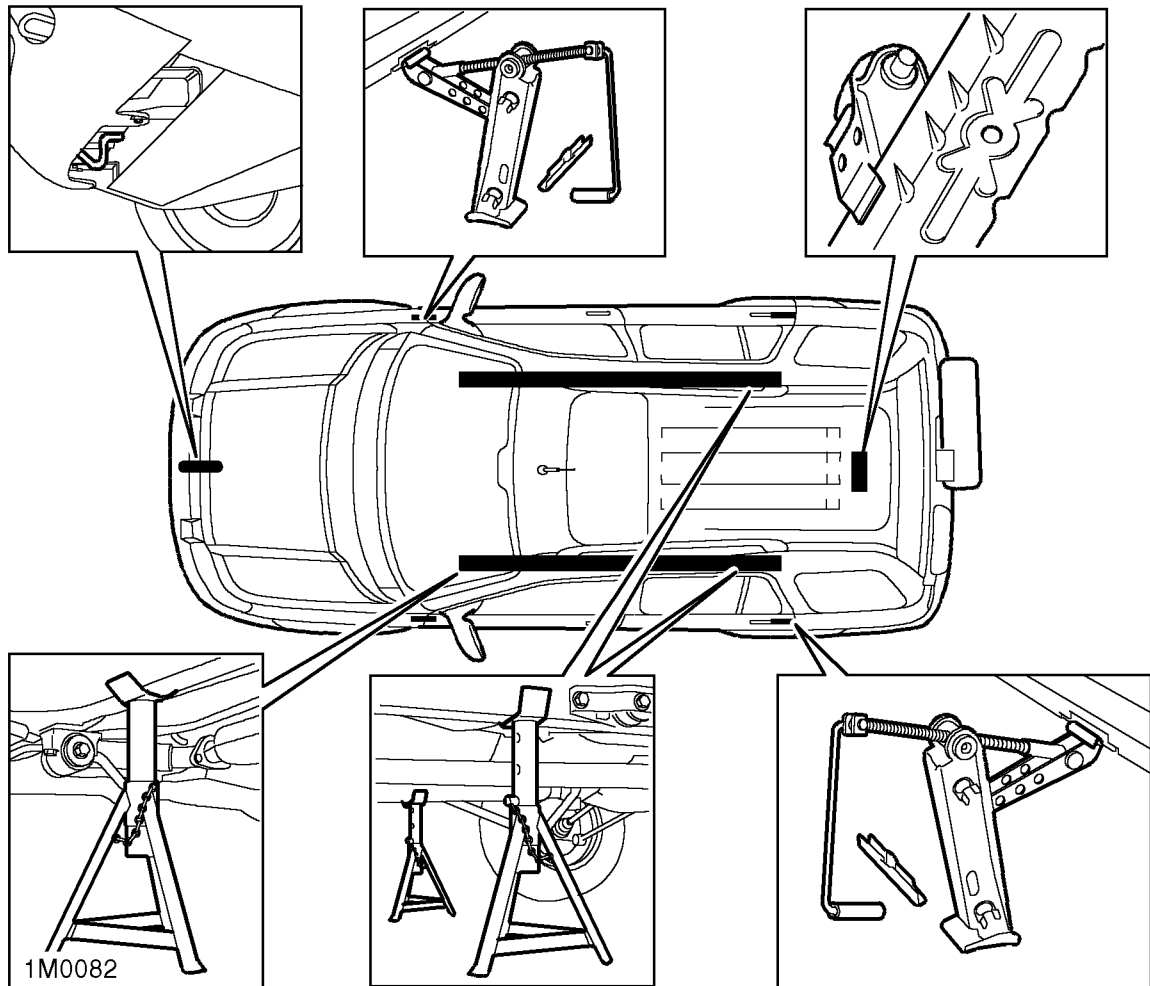


CAUTION: To avoid damage to under body components of the vehicle, adhere to the following jacking procedures:

DO NOT POSITION JACKS OR AXLE STANDS UNDER THE FOLLOWING COMPONENTS:

- Bumpers
- Brake or Fuel lines
- Exhaust pipe
- Suspension components
- Steering rack and linkages
- Fuel tank
- Engine sump
- Gearbox

Jack or support vehicle only on approved jacking points as detailed in the illustration below:





Vehicle jack

The jack provided with the vehicle is only intended to be used in an emergency, for changing a tyre. Do **NOT** use the jack for any other purpose. Refer to the Owner's Handbook for vehicle jack location points and procedure. Never work under a vehicle only supported by the vehicle jack.

Hydraulic jack

A hydraulic jack with a minimum 1500 kg (3,300 lbs) load capacity must be used.



WARNING: Do not work on the underside of a vehicle until suitable stands have been positioned.

Raising the front of a vehicle

Position the cup of the hydraulic arm under the centre of the front body crossmember assembly.

Use jack to raise front road wheels to enable safety stands to be installed under the front end of each longitudinal member as shown. Carefully lower jack until vehicle sits securely on both safety stands. Remove trolley jack.

Before working on the underside of a vehicle re-check the stability of the vehicle on the stands.

Use the reverse procedure when removing a vehicle from stands.



NOTE: For some repair operations it may be necessary to use a jack to support the engine under the sump. In this case, a block of wood should be used on the jack to protect the sump.

Raising the rear of a vehicle

Position cup of hydraulic arm under the centre of the rear subframe crossmember at the position identified by the embossed arrows.

Use jack to raise rear road wheels to enable safety stands to be installed under the rear ends of the body longitudinal members as shown. Carefully lower jack until vehicle sits securely on both safety stands. Remove trolley jack.

Before working on the underside of a vehicle, re-check the stability of the vehicle on the stands.

Use the reverse procedure when removing a vehicle from stands.

Wheel-free lift

Locate the lifting pads under the ends of the body longitudinal members shown. Raise the ramp to support the weight of the vehicle, ensure the vehicle is secure on the lifting pads, then raise the ramp to the required height.

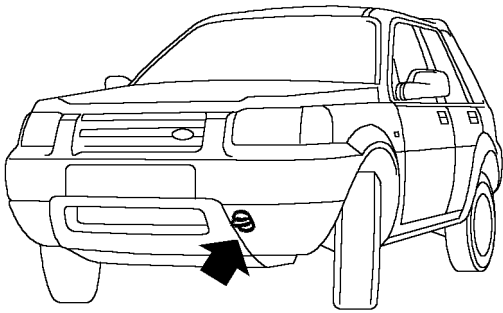
INFORMATION

TOWING



CAUTION: The vehicle has permanent four-wheel drive. The following towing instructions must be adhered to:

Towing the vehicle on all four wheels with driver operating steering and brakes.



1M0083

- Turn ignition key turn to position '1' to release steering lock and then to position 'II' to enable the brake lights, wipers and direction indicators to be operated, if necessary.
- Select neutral in gearbox and ensure HDC (hill descent control) is deselected.
- Secure tow rope, chain or cable to towing eye.
- Release the parking brake.



CAUTION: The brake servo and power assisted steering system will not be functional without the engine running. Greater pedal pressure will be required to apply the brakes and the steering system will require greater effort to turn the front road wheels. The vehicle tow connection should only be used under normal road conditions, 'snatch' recovery should be avoided.

Suspended tow by breakdown vehicle



CAUTION: To prevent vehicle damage, rear propeller shaft **MUST BE** removed.

Mark propeller shaft drive flanges and mating flanges with identification lines to enable the propeller shaft to be refitted in its original position.

Remove the propeller shaft fixings then remove the shaft from the vehicle.

If the front of the vehicle is to be trailed, turn ignition key to position 'I' to release steering lock.



CAUTION: If it is considered unsafe to turn the starter switch to position 'I' due to accident damage or an electrical fault; disconnect the battery before turning the ignition switch.



WARNING: Do not turn the starter switch to position '0' or remove the ignition key while the vehicle is being towed.



CAUTION: The steering wheel and/or linkage must be secured in a straight ahead position. **DO NOT** use the steering lock mechanism for this purpose.



CAUTION: Under no circumstances should the vehicle be towed or recovered by means of lashing to the rear subframe. Serious damage to the subframe and body could result.



CAUTION: Only use the rear towing eye for towing another vehicle.

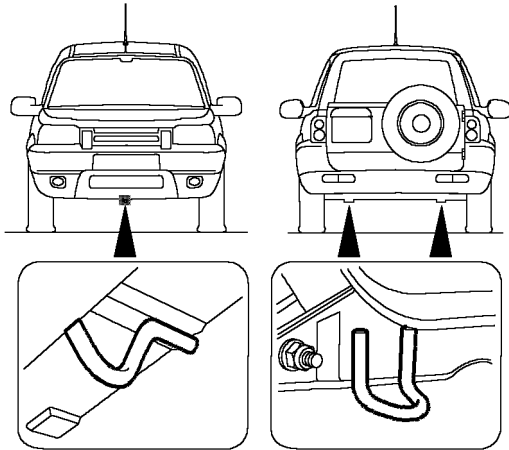


TRANSPORTING THE VEHICLE BY TRAILER

Lashing rings are provided at the front and rear of the body 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. The lashing rings must not be used for towing.



1M0084

Install the vehicle on trailer and apply the parking brake. Select neutral.

EMERGENCY STARTING



WARNING: Hydrogen and oxygen gases are produced during normal battery operation. This gas mixture can explode if sources of combustion (e.g. flames, sparks or lighted tobacco etc.) are brought near the battery. When charging or using a battery in an enclosed space, always ensure ventilation and wear eye protection (goggles etc.).



WARNING: Keep dangerous substances out of the reach of children. Batteries contain sulphuric acid; avoid contact with skin, eyes, or clothing. If handling batteries, wear a protective industrial apron and gloves and wear safety goggles to protect against possible splashing of acid solution. In case of acid contacting 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.

Position vehicles so that jump leads will reach, ensuring that vehicles **DO NOT TOUCH**, alternatively a fully charged slave battery may be positioned on the floor adjacent to the vehicle.

Ensure that:

- the ignition and all electrical accessories are switched off
- the parking brake is applied and neutral is selected on gearbox

INFORMATION

Connect the jump leads as follows:



WARNING: Making final cable connection could cause an electrical arc which if made near battery could cause an explosion.

- 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.
- D. Connect other end of second jumper cable to a good earth point on the engine, **NOT TO NEGATIVE TERMINAL OF DISCHARGED BATTERY.**



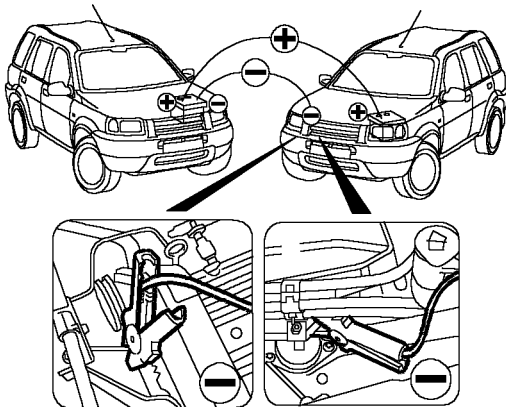
CAUTION: Keep jumper leads away from moving parts, pulleys, drive belts and fan blade assembly.



CAUTION: If vehicle fails to start within a maximum time of 12 seconds, switch ignition off and investigate cause. Failure to follow this instruction could result in irreparable damage to catalyst.

To disconnect:

- Remove negative (-) jumper cable from the engine and then terminal of booster battery.
- Remove positive (+) jumper cable from positive terminals of booster battery and discharged battery.



1M0085

If the booster battery is installed in another vehicle, start engine and allow to idle.

Start engine of vehicle with discharged battery, following starting procedure in Owners' Handbook.



STEERING

Type	Power assisted rack and pinion
Steering column	Height adjustable by 3.5° or 30 mm vertical movement of steering wheel
Turns - lock to lock:	3.16
Turning circle	11.6 m (38.1 ft) kerb to kerb

Wheel alignment (unladen)

Front:

Camber angle	- 0° 15' ± 45'
Castor angle	3° 30' ± 1°
King pin inclination	12° 18'
Toe	- 0° 10' ± 5'

Rear:

Camber angle	- 0° 30' ± 45'
Thrust angle	0° 0' ± 5'
Toe	+ 0° 20' ± 15'

Power Assistance System

Maximum Operating Pressure	9203 -300 kPa (1334 -43.5 lbf.in ²), limited by pressure relief valve in pump
Maximum flow	5.5 -0.5 litres/min. (1.45 -0.13 US gal/min), limited by flow control valve in pump
Displacement	
1.8 'K' Series	8.2 cm ³ /rev (0.50 in ³ /rev)
2.0 'L' Series	9.5 cm ³ /rev (0.58 in ³ /rev)

DIMENSIONS

Overall length (inc. spare)	4.382 m
Overall width:	
Including mirrors	2.074 m
Excluding mirrors	1.805 m
Overall height (including roof rails)*	1.757 m
Ground clearance *:	
Front	186 mm
Running	220 mm
Rear	214 mm
Wheelbase	2.555 m
Overhang:	
Front	836 mm
Rear (inc. spare wheel)	989 mm
Track:	
Front	1534 mm
Rear	1545 mm

* At unladen weight

INFORMATION

WEIGHTS

Unladen weight (no options):

Petrol models	1380 - 1425 kg	3045 - 3140 lb
Diesel models	1480 -1525 kg	3265 - 3365 lb

Unladen weight (all options):

Petrol models	1449 - 1484 kg	3195 - 3270 lb
Diesel models	1545 -1580 kg	3405 - 3485 lb

Maximum gross vehicle weight:

Petrol models	1960 kg	4322 lb
Diesel models	2050 kg	4520 lb

Maximum front axle weight 1050 kg 2315 lb

Maximum rear axle load (must NOT be exceeded) 1120 kg 2470 lb

Maximum braked trailer weight 1800 kg 3970 lb

Maximum Gross Towing Weight

Petrol models	3760 kg	8291 lb
Diesel models	3850 kg	8489 lb

Towing hitch downward load (nose weight) 140 kg 309 lb

Maximum roof rack load (includes weight of rack) . . . 75 kg 165 lb



ELECTRONIC CONTROL UNITS

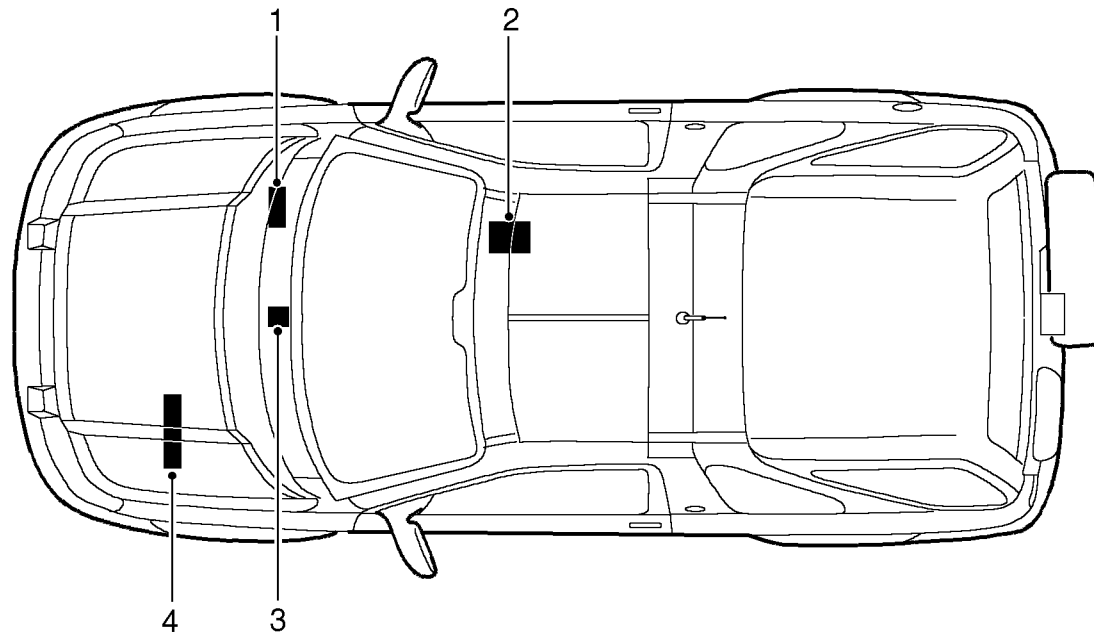
The electronic control units (ECU) fitted to vehicles make it advisable to follow suitable precautions prior to carrying out welding repair operations. Harsh conditions of heat and vibration may be generated during these operations which could cause damage to the units. **See GENERAL INFORMATION, Electrical precautions.**

In particular, it is essential to follow the appropriate precautions when disconnecting or removing the airbag ECU. **See GENERAL INFORMATION, SRS Precautions.**

Equipment

Prior to commencing any test procedure on the vehicle, ensure that the relevant test equipment is working correctly and any harness or connectors are in good condition. This particularly applies to electronic control units.

ECU locations (3 door model shown, 5 door model similar)



77M1562

- | | |
|---|---|
| <ul style="list-style-type: none"> 1. Central control unit (on forward side of passenger compartment fuse box, behind driver's glove box) 2. Airbag ECU (on transmission tunnel below heater) | <ul style="list-style-type: none"> 3. ABS ECU (below RH front seat) 4. Engine control module (rear of battery on LH side of engine compartment) |
|---|---|



BODY REPAIRS

General

Body shells are of monocoque construction. Front and rear sections of the shell are designed as 'energy absorbing' zones. This means they are designed to deform progressively when subjected to impact in order to minimise the likelihood of injury to vehicle occupants.

It is essential that design dimensions and strength are restored in accident rectification. It is important that neither structural weakness nor excessive local stiffness are introduced into the vehicle during body repair.

Repairs usually involve a combination of operations ranging from straightening procedures to renewal of individual panels or panel assemblies. The repairer will determine the repair method and this decision will take into account a balance of economics between labour and material costs and the availability of repair facilities in both equipment and skills. It may also involve considerations of the vehicles' downtime, replacement vehicle availability and repair turn-around time.

It is expected that a repairer will select the best and most economic repair method possible, making use of the facilities available. The instructions given are intended to assist a skilled body repairer by expanding approved procedures for panel replacement. The objective is to restore the vehicle to a safe running condition by carrying out a repair which is as close as is feasible to original standard. The results should not advertise to the experienced eye that the vehicle has been damaged, although the repair might not be identical in all respects to the original factory build. Commercial bodyshop repair facilities cannot always duplicate methods of construction used during production.

Operations covered in this Manual do not include reference to testing the vehicle after repair. It is essential that work is inspected and suspension geometry checked after completion. Where necessary a road test of the vehicle should be carried out, particularly where safety-related items are concerned.

Where major units have been disconnected or removed it is necessary to ensure that fluid levels are checked and topped up where necessary. It is also necessary to ensure that the repaired vehicle is in a roadworthy condition in respect of tyre pressures, lights, washer fluid etc.

Body repairs often involve the removal of mechanical and electrical units and associated wiring. Where necessary, refer to the relevant section of the Workshop Manual for removal and refitting instructions. Component removal and refitting instructions for the BODY and SRS sections are also included in this Manual.

Body components

Taking into consideration the differences in body styles, suspension systems and engine and transmission layouts, the location of the following components as applicable to a particular vehicle is critical:

- Front suspension upper damper mountings.
- Front suspension or sub frame mountings.
- Rear suspension upper damper mountings.
- Rear suspension mountings or lower pivots.

Additional points which can be used to check alignment and assembly are:

- Inner holes in crossmember - side - main floor.
- Holes in front longitudinals.
- Holes in side member.
- Holes in rear longitudinals.
- Holes in rear lower panels or extension rear floor.

Apertures for windscreen, backlight, bonnet and doors can be measured and checked using the dimensional information provided and also by offering up an undamaged component as a gauge.

INFORMATION

Straightening

Whenever possible, structural members should be cold straightened under tension. Do not attempt to straighten with a single pull but rework the damaged area using a series of pulls, releasing tension between each stage and using the opportunity to check alignment.

Body jig

Unless damage is limited to cosmetic panels, all repair work to body members must be carried out on a body jig, to ensure that impact damage has not spread into more remote parts of the structure. Mounting on a jig will also ensure that the straightening and panel replacement procedures do not cause further distortion.

If original dimensions cannot be satisfactorily restored by these methods, damaged structural members should be replaced. Damaged areas should be cut away using a high speed saw, **NOT** an oxy-acetylene torch.

As a rule, body dimensions are symmetrical about the centre line. A good initial check for distortion is therefore to measure diagonally and to investigate apparent differences in dimensions.

Inspection

Every accident produces individual variations in damage. Each repair is influenced by the extent of the damage and the facilities and equipment available for its rectification.

Most accident damage can be visually inspected and the approximate extent of damage assessed. Sometimes deformation will extend beyond the directly damaged area, and the severity of this must be accurately established so that steps can be taken to restore critical body components to their original dimensions. An initial check can be carried out by means of drop checks or, preferably, trammels. Gauges are available which will accurately check for body twist.



DIMENSIONAL INFORMATION

The following dimensional information is shown so as to assist the technician in the diagnosis and repair of body panels. The information is shown in two different ways. There are X,Y,Z dimensions and actual point to point dimensions.

The X,Y,Z dimensions are the measuring planes used within Rover Group for the measurement of body panels. The whole bodyshell is within a parallel grid system.

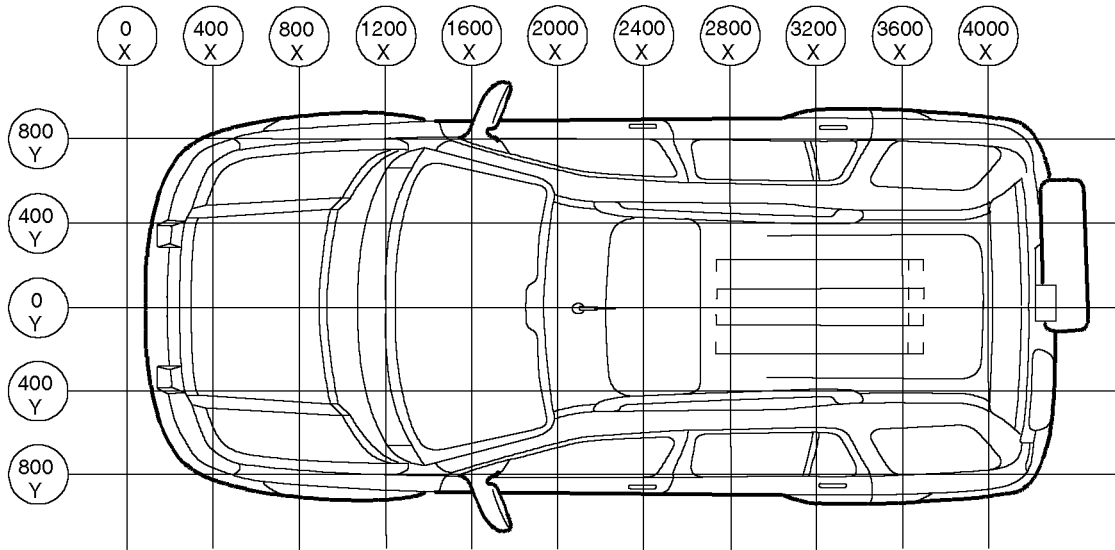
The X plane is an imaginary vertical line starting at the front of the vehicle. It is parallel to the body and measures the length of the vehicle.

The Y plane is an imaginary line through the center of the vehicle. All Y dimensions start from this line. As a rule, body dimensions are symmetrical about the centre line.

The Z plane is set at a fixed distance parallel and perpendicular to the underside of the vehicle. All Z dimensions start from this plane.

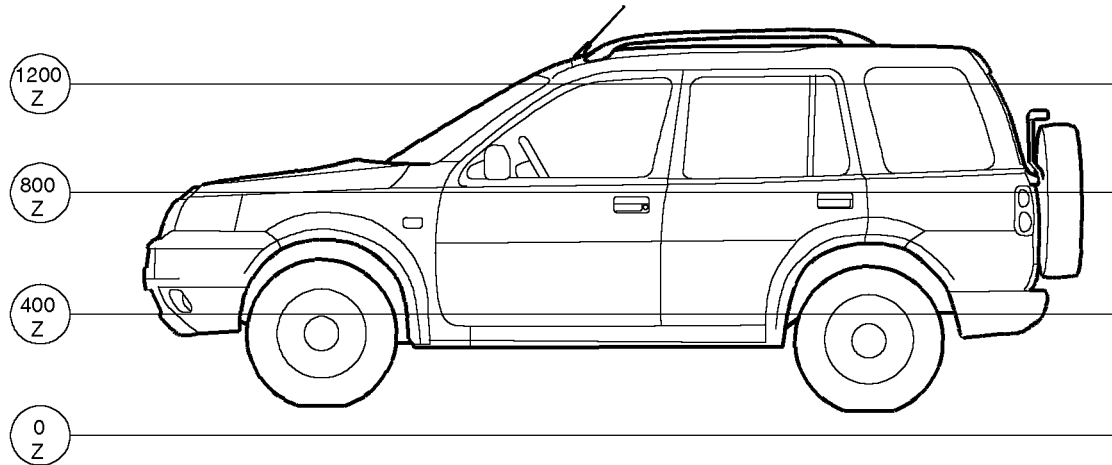
The point to point measurements are actual distances between two points. These points can be holes or intersection points. Where holes are taken, the point of measurement is always from the hole centre.

All measurements shown are in millimetres.



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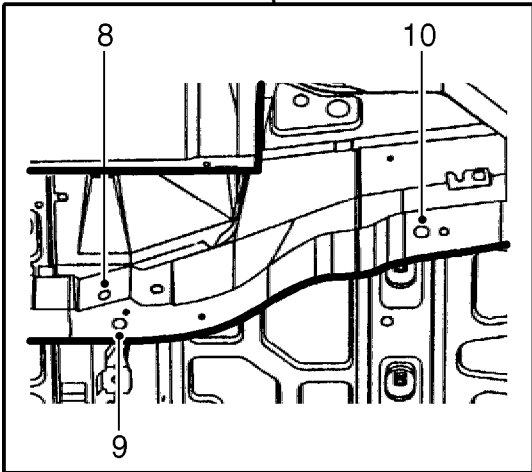
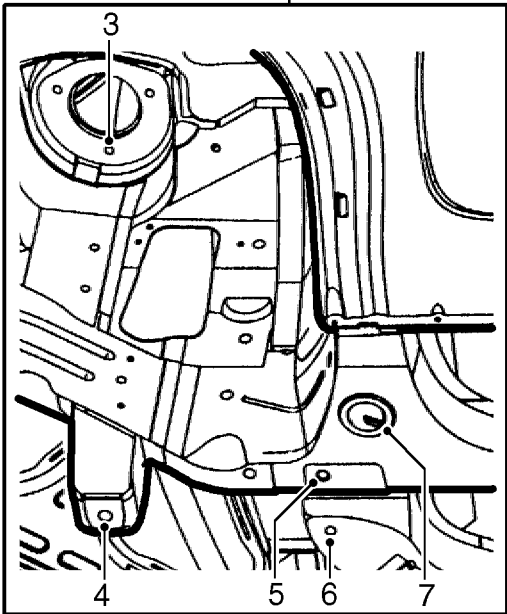
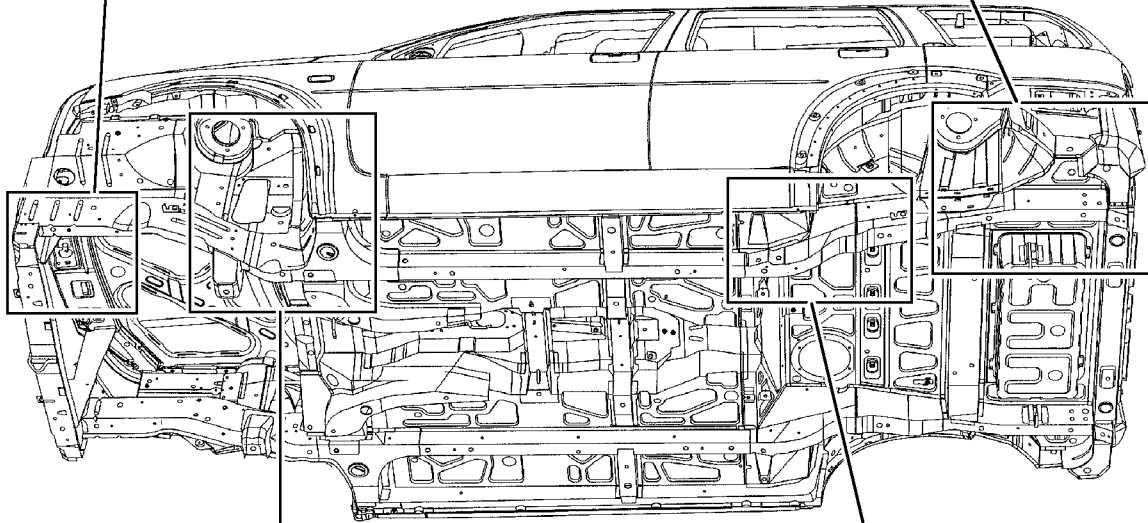
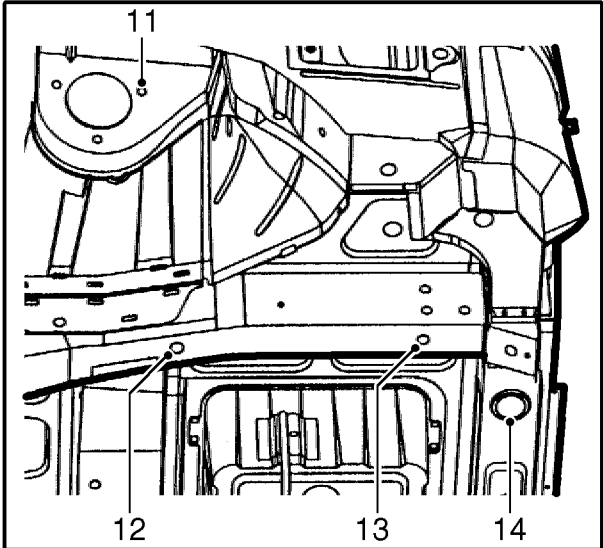
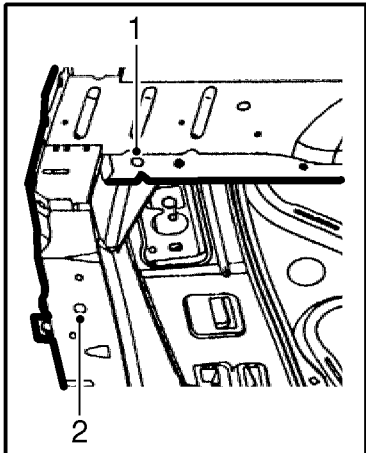
INFORMATION



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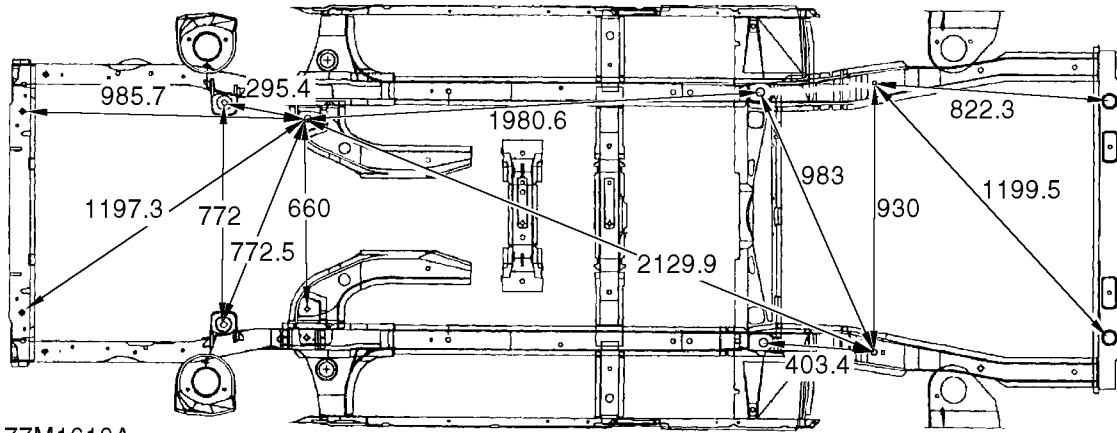
Underbody dimensional information (see following Figure)

No.	Description	X	Y	Z
1	Front sidemember, jig location hole	420	481	314
2	Front crossmember, jig location hole	340.5	350	170
3	Front damper, inboard fixing hole	975.5	515	693.5
4	Front subframe, front fixing	1036	386	98
5	Front subframe, rear outboard fixing	1326	429.5	127
6	Reinforcement outrigger, datum hole	1326	330	127
7	Front production location hole	1395	535	125
8	Trailing link fixing, centre hole	2765	463	160
9	Rear longitudinal, front jig location hole	2900	432	131.5
10	Rear subframe, front fixing	3302	465	274.5
11	Rear damper, rear fixing	3636	610	728.5
12	Rear subframe, rear fixing	3671.5	515	305
13	Rear longitudinal, rear jig location hole	4000	527	305
14	Rear production location hole	4122.5	410	301

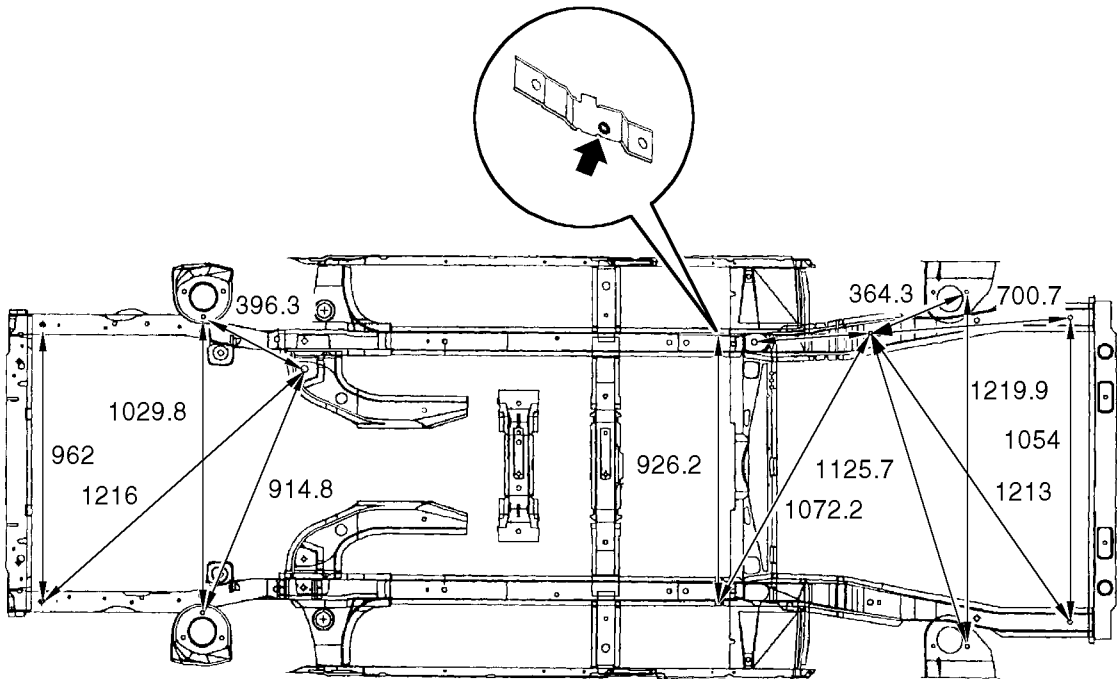


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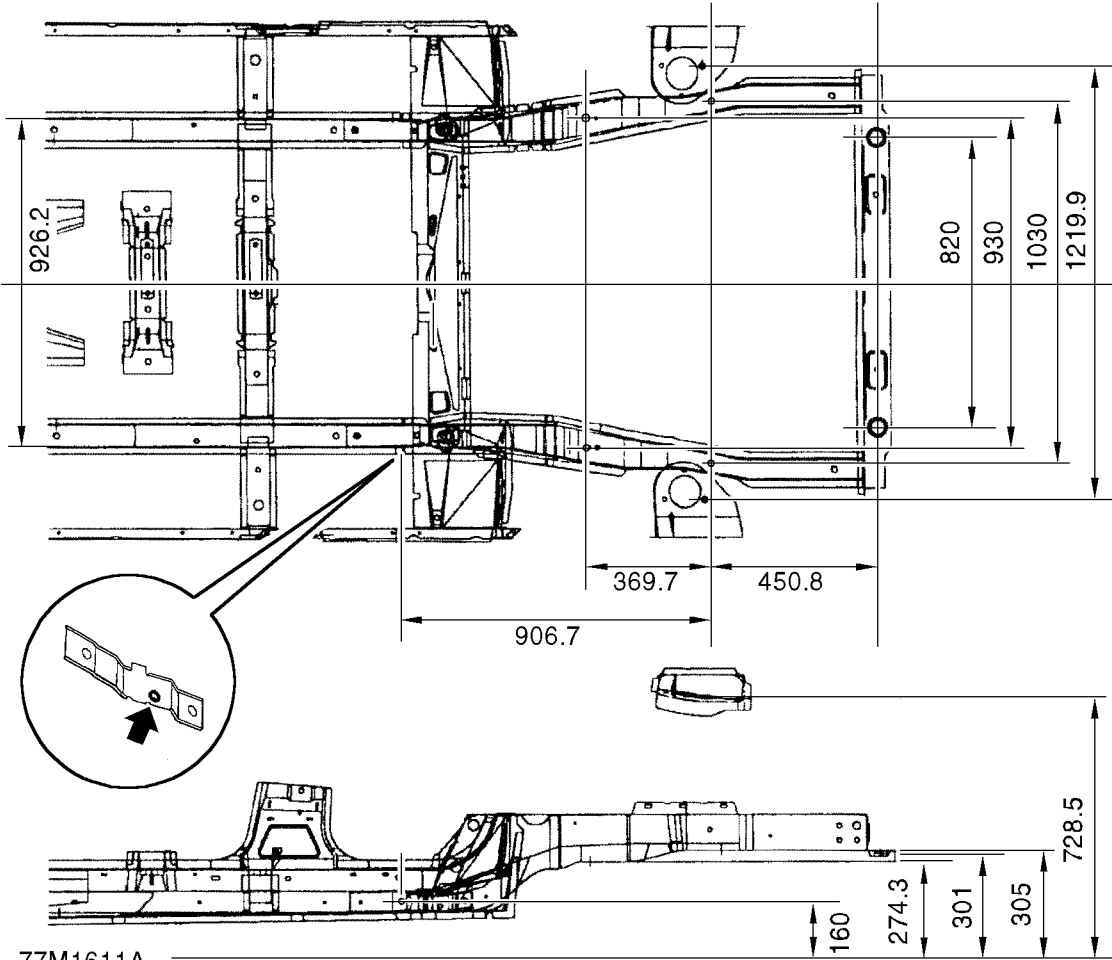
INFORMATION



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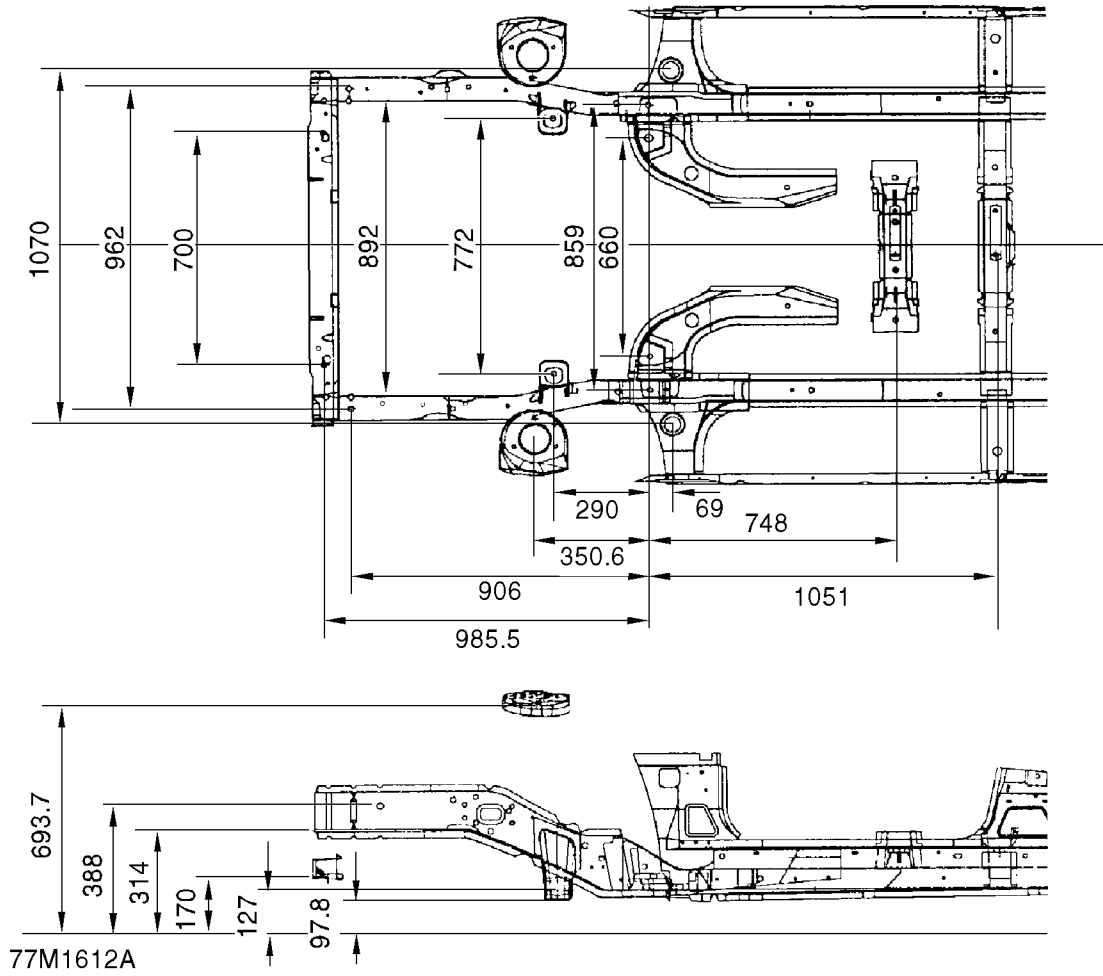


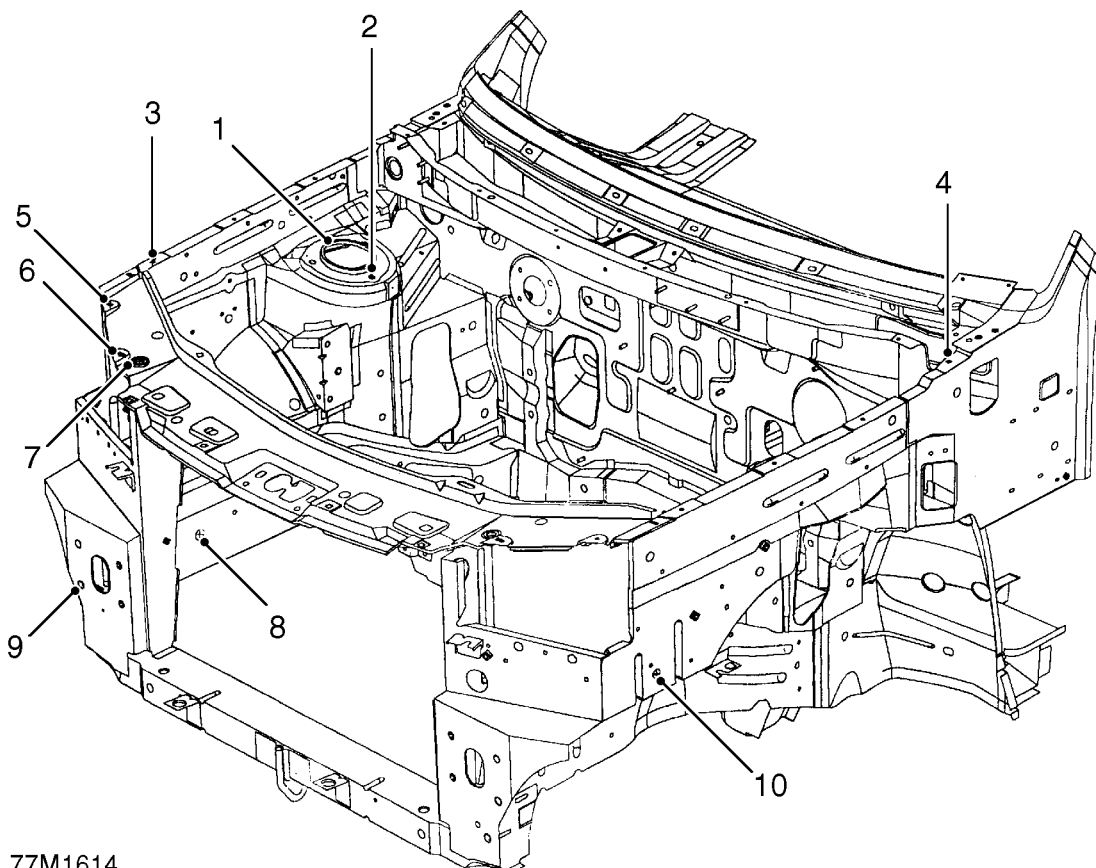
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INFORMATION



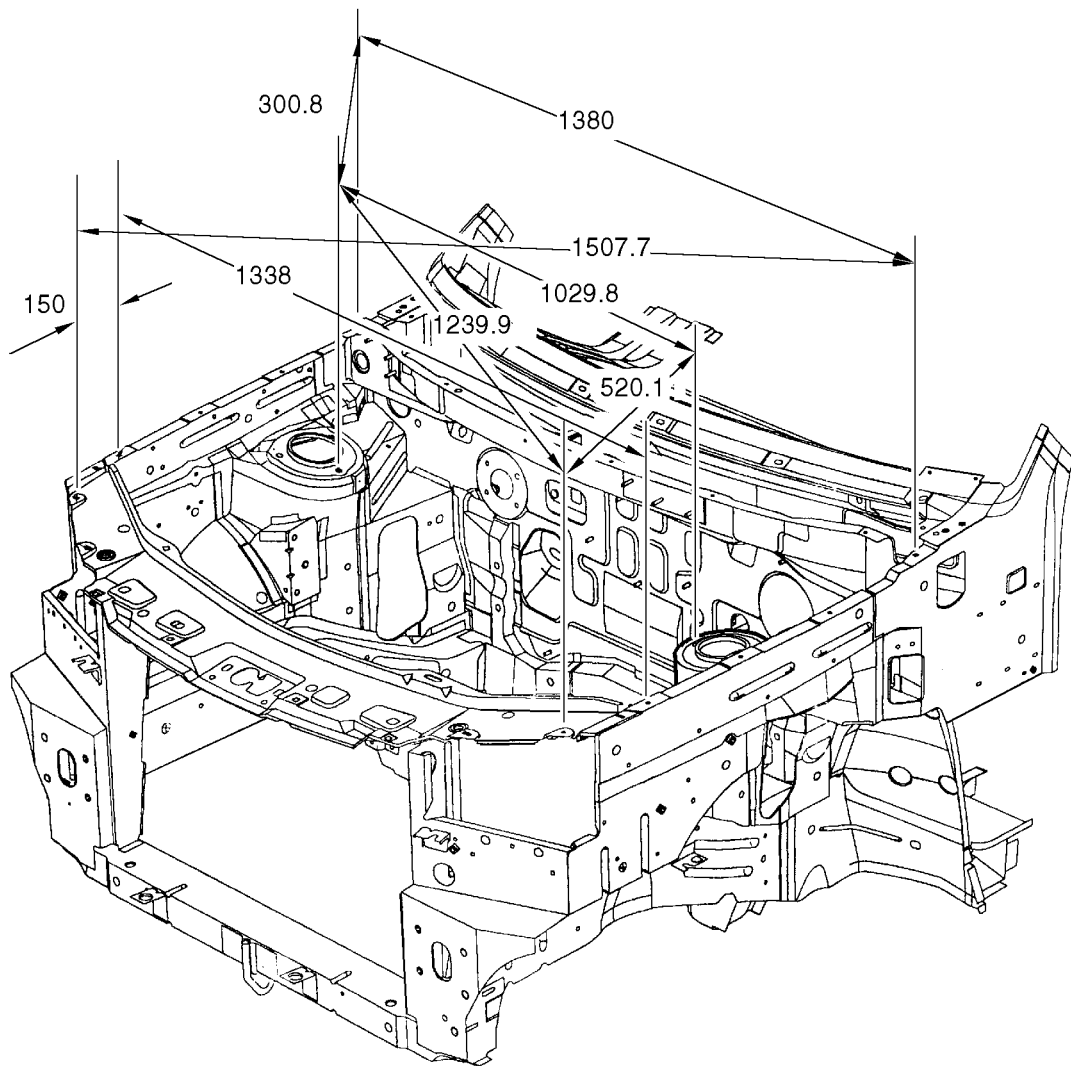


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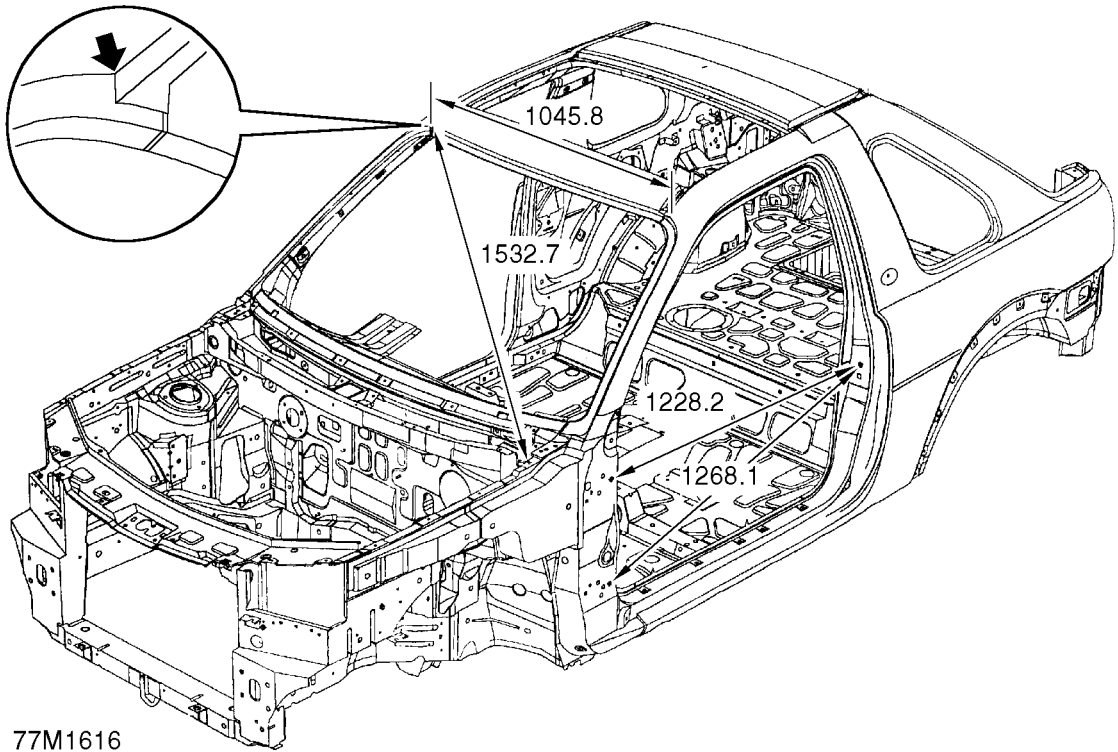
Front end dimensional information (see above Figure)

No.	Description	X	Y	Z
1	Front damper large hole	997	578.5	718.5
2	Front damper, inboard fixing hole	975.4	514.9	693.7
3	Front wing fixing	605	669	806
4	Rear wing fixing, dash side	1220	690	848.2
5	Outboard headlamp fixing hole	465	615	788.3
6	Inboard headlamp fixing hole	377	485	772
7	Bonnet locking platform, jig location hole	390	445	765
8	Sidemember jig location hole	500	446	388
9	Headlamp mounting panel, jig location hole	304	536	335
10	Front valance jig location hole	540	671.7	525

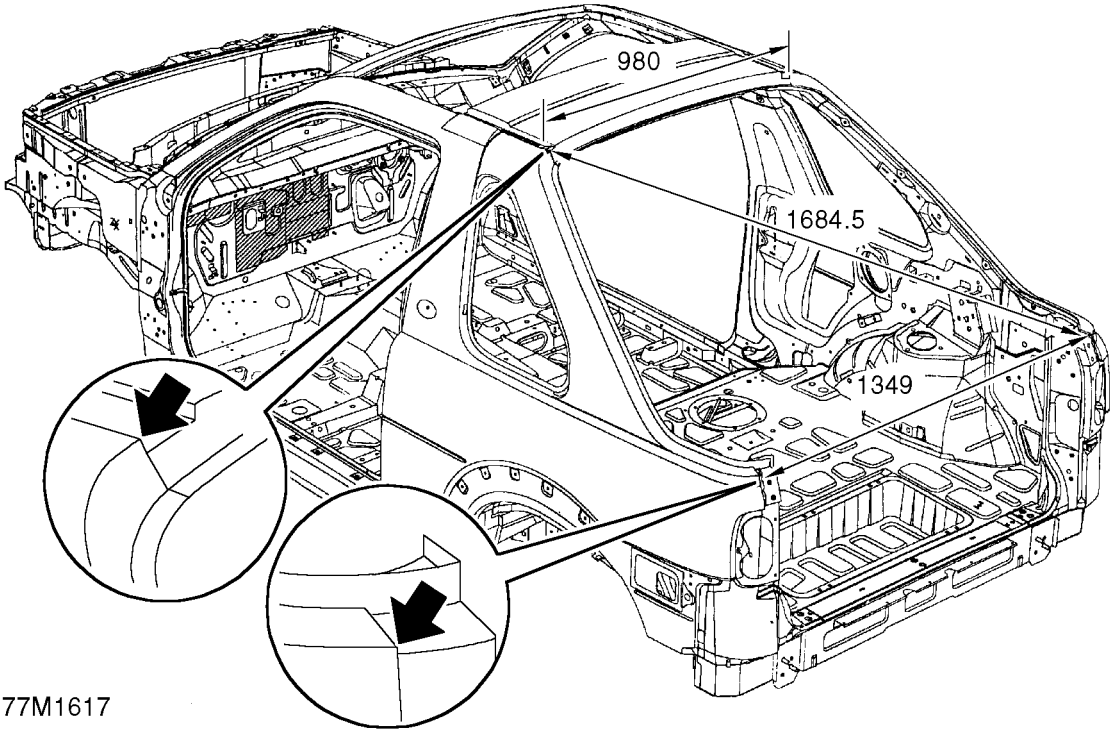
INFORMATION

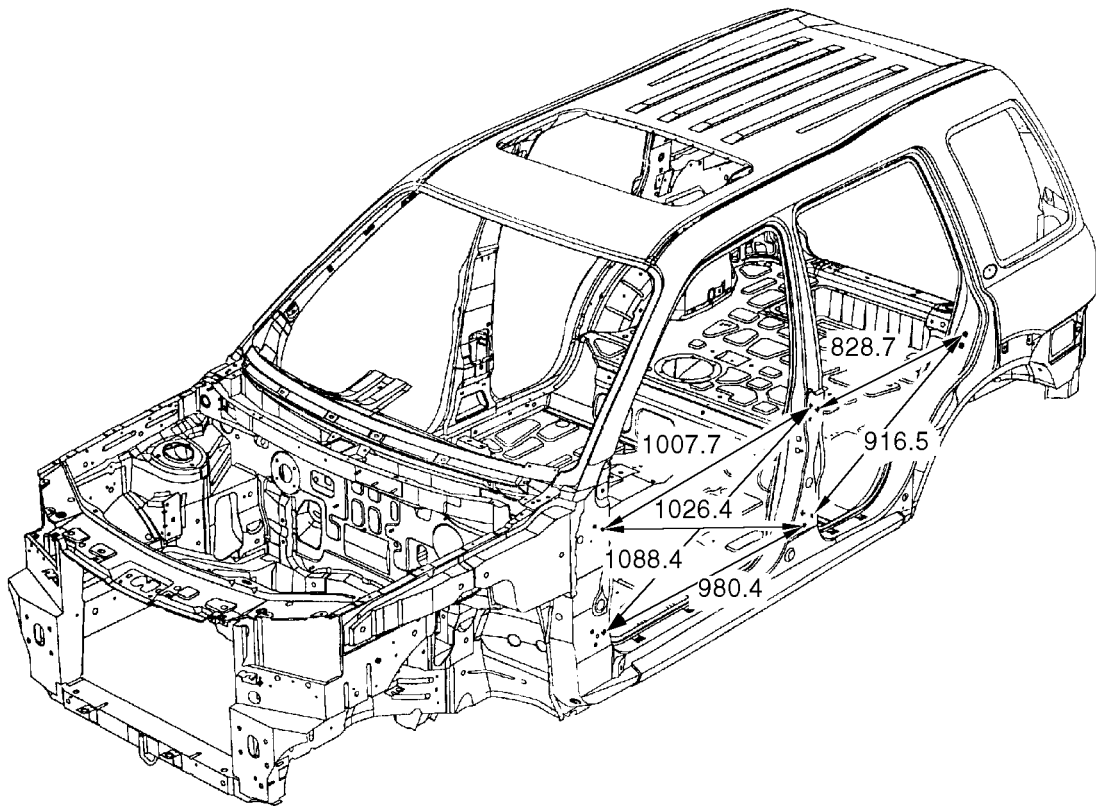


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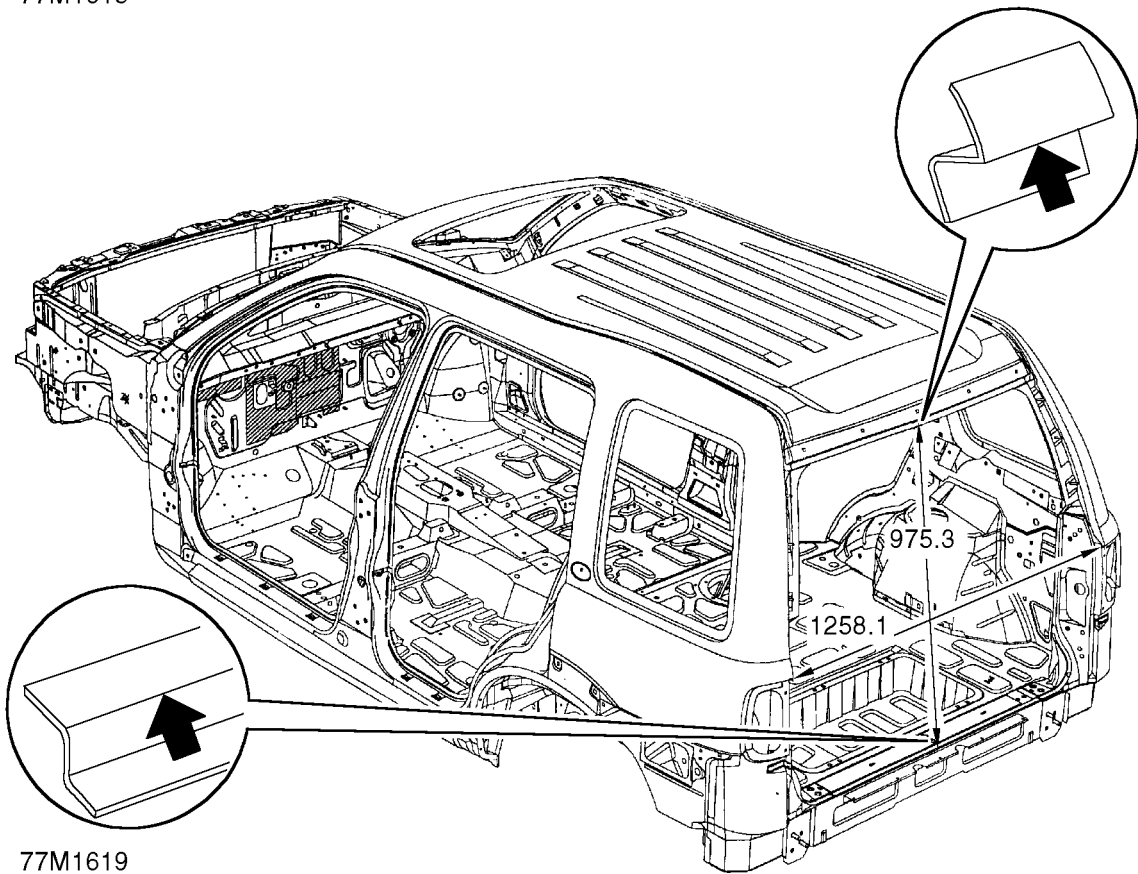


The measurements shown on the front windscreen aperture are the same for 5 door models.

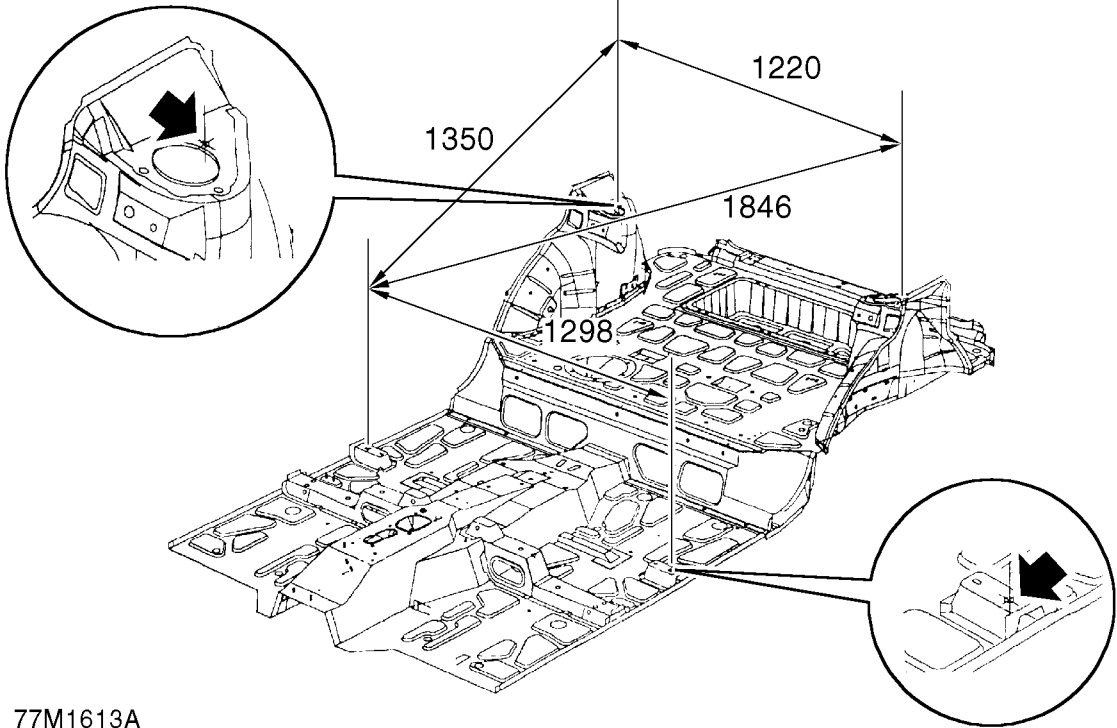




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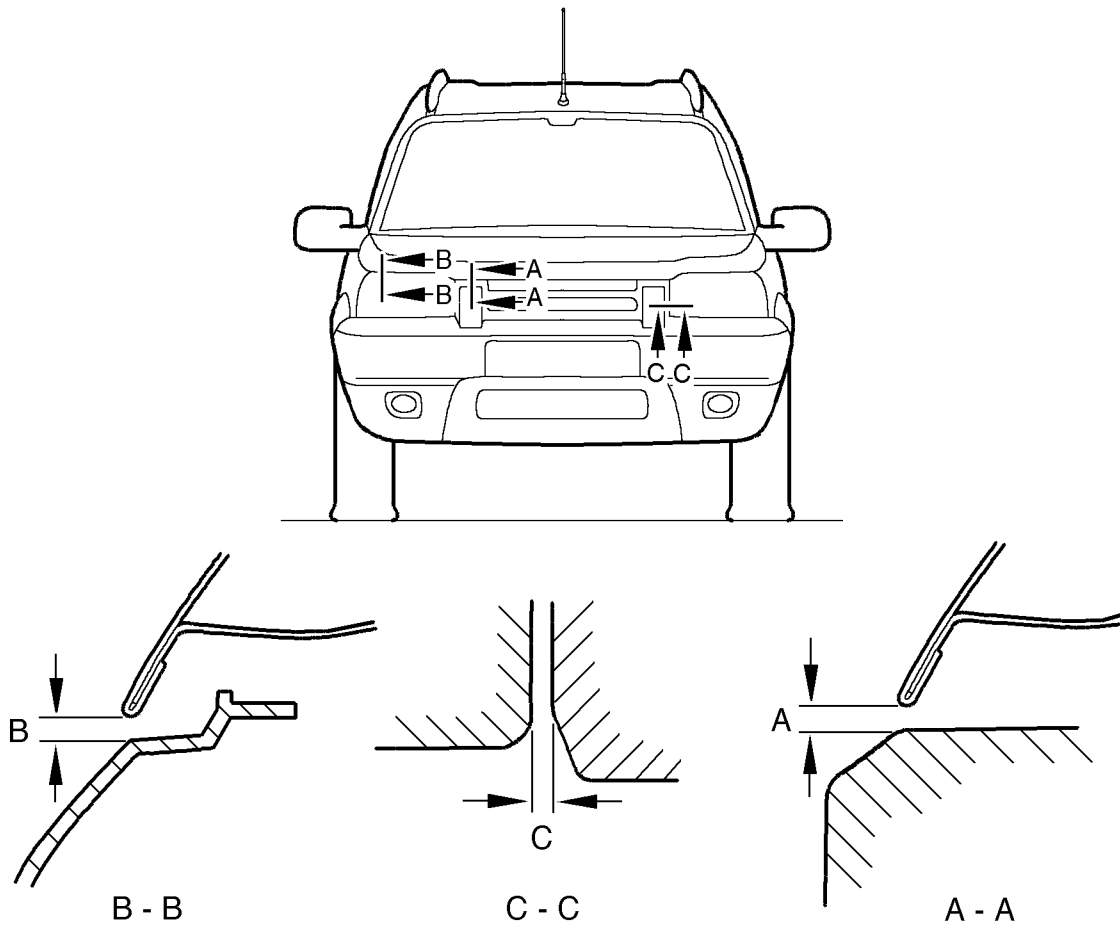


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INFORMATION

GAPS AND PROFILES

The following information is to be used as a guide to assist the technician in refitting exterior body panels and trim items so as to achieve a correctly aligned vehicle.

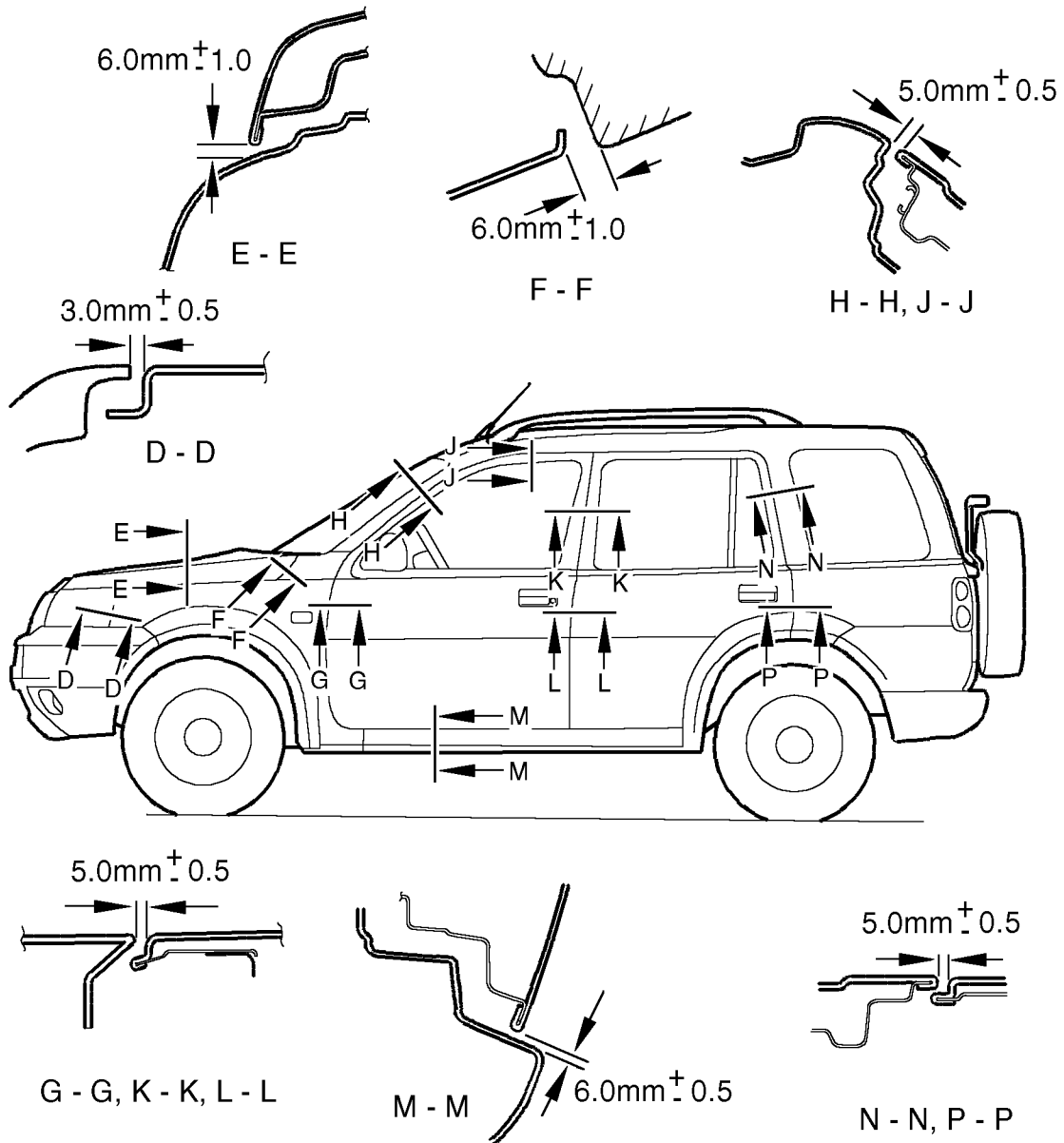


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Gap A - Bonnet to Bumper overrider. Even gaps side to side, tolerance +/- 1.0mm.

Gap C - Headlamp to Bumper overrider. Visually even gaps within 2.0mm.

Gap B - Bonnet to headlamp. Even gaps side to side, tolerance +/- 1.0mm.



77M1643

Section D-D, headlamp to wing, gap (3.0mm minimum). If the wing has been exposed to oven curing set gap to 4.4 mm to enable subsequent expansion.

Section E-E and F-F, wing to bonnet, gaps.

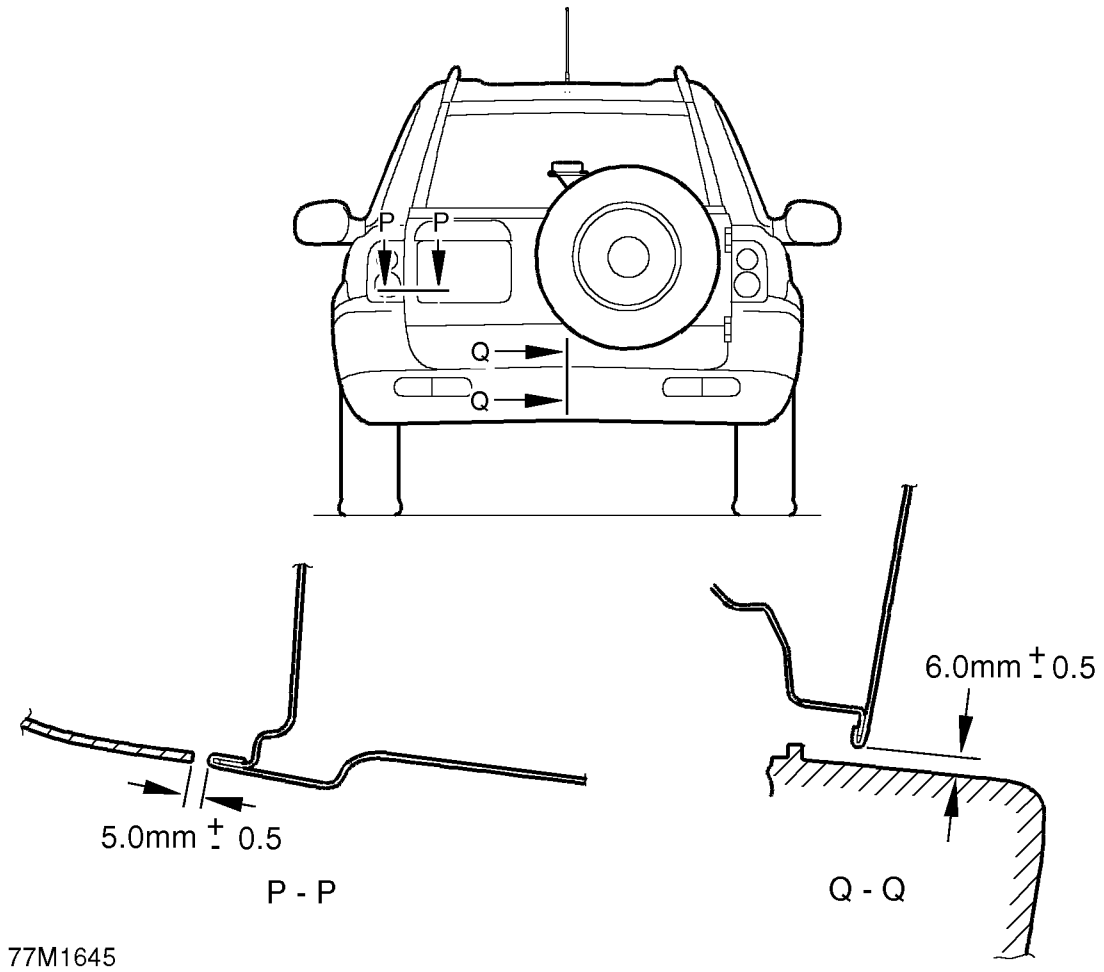
Section G-G, wing to front door, gap. Profile of wing to front door is 0.0mm nominal, tolerance +1.0/-0.0mm.

Section H-H and J-J, front door frame to body, gap. Profile of front door frame to body is -2.5mm nominal, tolerance +0.0/-1.0mm.

Section K-K and L-L, front door to rear door, gaps. Profile of front door to rear door is 0.0mm nominal, tolerance +0.0/-1.0mm.

Section M-M, bottom of door to sill, gap.

Section N-N and P-P, rear door to body, gaps. Profile of rear door to body is 0.0mm nominal, tolerance +1.0/-0.0mm.



Section P-P, taildoor to rear lamp, gap.

Section Q-Q, taildoor to rear bumper, gap.



APPROVED MATERIALS

Description - Usage	Supplier	Part Number
Cavity waxes		
Inner Cavity Wax (Amber)	3M	08901/11/21
Inner Cavity Wax (Transparent)	3M	08909/19/29
Cavity Wax	Croda	PW57
Engine bay waxes/lacquers		
Astrolan Engine Bay Wax and Cosmetic Wax	Astors	DA3243/1
Engine Bay and Cosmetic Wax/Lacquer	Croda	PW197
Engine Bay Cosmetic Wax/Lacquer	Dinol	4010
Miscellaneous materials		
Aerosol Auto Adhesive (Trim) - impact adhesive for trim parts	3M	08080
Flexible Parts Repair Material - rubber modified polypropylene parts	3M	05900
Waterproof Cloth Tape - sealing panel apertures	3M	Y387/Y3998
Sound Dampening Foam	Gurit-Essex	Betacore 7999
Water Shedder Repair (Aerosol)	Teroson	-
Seam sealers		
Body Caulking - type (b) gaps between panels	3M	08568
Bolted Panel Sealer - between bolted panels	3M	08572
Drip Chek Clear - bolted, spot welded and bonded panel edges; type (a) and (b) gaps between panels; type (c) clinch joints	3M	08401
Drip Chek Heavy - type (b) gaps between panels; type (c) clinch joints	3M	08531

Continued.....

Description - Usage	Supplier	Part Number
Seam sealers (continued)		
Polyurethane Seam Sealer - bolted, spot welded and bonded panel edges; type (a) and (b) gaps between panels; type (b) clinch joints	3M	08684/89/94
Polyurethane Sealer (Sachet) - bolted panel edges; type (b) clinch joints	3M	08703/83/88
Sprayable Sealer - lap joints	3M	08800/23
Super Seam Sealer - lap joints; type (b) clinch joints	3M	08537
Weld Thru' Sealer - between spot welded panels	3M	08626
Betafill Clinch and Brushable Sealer - type (b) clinch joints	Gurit-Essex	10211/15/20
Clinch, Joint and Underbody Coating - lap joints	Gurit-Essex	10101/10707
Leak Chek Clear - between bolted panels; spot welded and bonded panel edges; type (c) clinch joints; type (a) gaps between panels	Kent Industries	10075
Putty - type (b) gaps between panels	Kent Industries	-
Polyurethane Seam Sealer - bolted, spot welded and bonded panel edges; between bonded panels; type (a) and (b) gaps between panels	PPG	6500
Polyurethane Seam Sealer - bolted, spot welded and bonded panel edges; between bonded panels; type (b) gaps between panels	Teroson	92
Terolan Light Seam Sealer - bolted, spot welded and bonded panel edges; type (a) and (b) gaps between panels; between bonded panels; type (c) clinch joints	Teroson	-
Terolan Special Brushable Seam Sealer - lap joints	Teroson	-
Terostat Sprayable Seam Sealer - bolted, spot welded and bonded panel edges; between bonded panels; type (b) gaps between panels	Teroson	9320
Terostat 1K PU Seam Sealer (SE 20) - type (a) and (b) gaps between panels; spot welded and bonded panel edges	Teroson	-
Sealing Compound - bolted, spot welded and bonded panel edges; between bonded panels; type (b) gaps between panels	Wurths	8901001/-/6

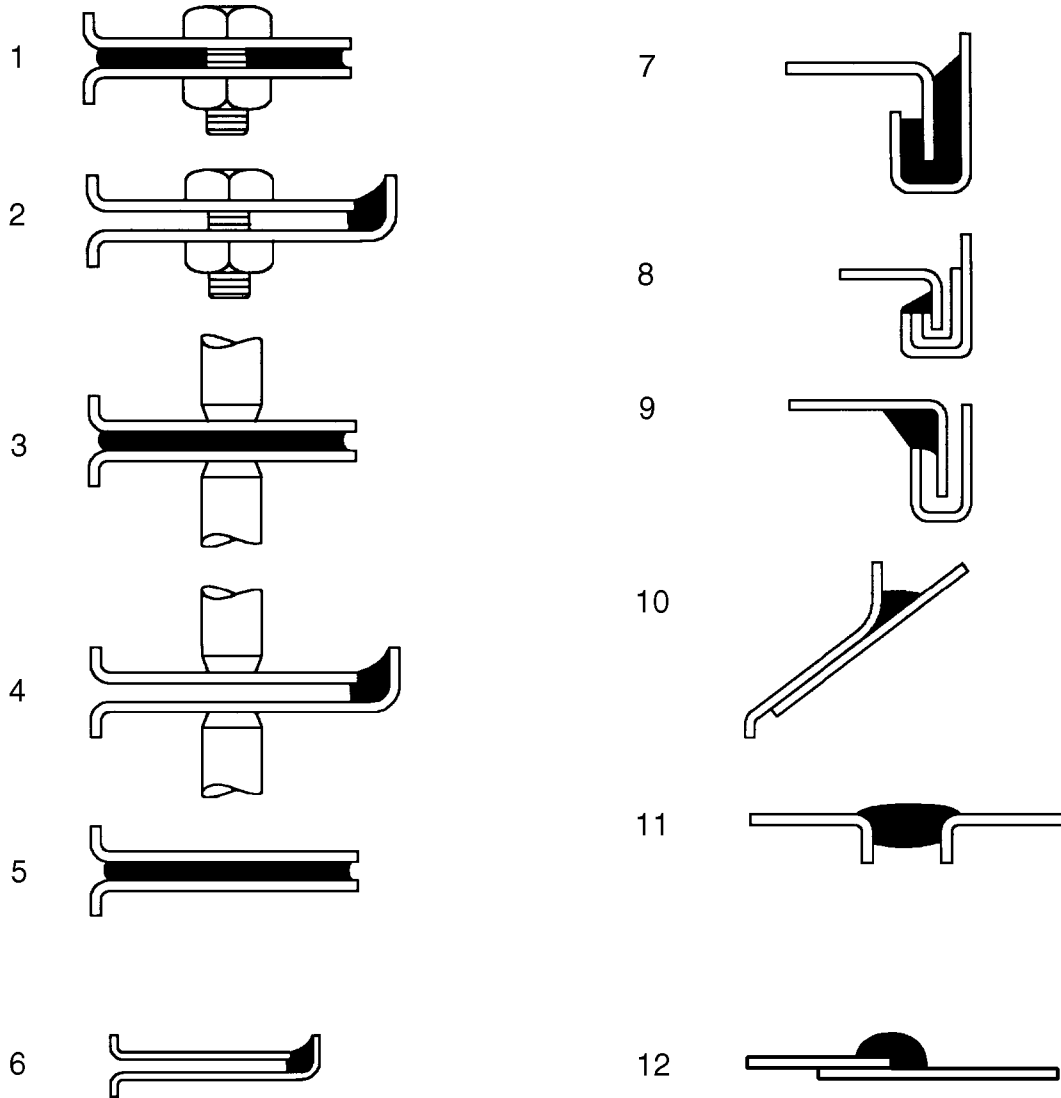
Continued.....



Description - Usage	Supplier	Part Number
<p>Structural adhesives</p> <p>Automotive Structural Adhesive - between bonded panels; type (a) clinch joints</p> <p>Two Part Structural Epoxy - between bonded and spot welded panels; type (a) clinch joints</p>	<p>3M</p> <p>Ciba-Geigy</p>	<p>08122</p> <p>XB5106/7</p>
<p>Underbody sealers</p> <p>Body Schutz</p> <p>Spray Schutz</p> <p>Crodapol Brushable Underbody Sealer</p> <p>Terotex Underseal (CP 02)</p>	<p>3M</p> <p>3M</p> <p>Croda</p> <p>Teroson</p>	<p>08861</p> <p>08877</p> <p>PV75</p> <p>9320</p>
<p>Underbody waxes</p> <p>Bodyguard (Aerosol)</p> <p>Underbody Wax</p> <p>Underbody Wax</p>	<p>3M</p> <p>Croda</p> <p>Dinol</p>	<p>08158/9</p> <p>PW61</p> <p>Tectacote 205</p>
<p>Weld-through primers</p> <p>Weld Thru' Coating</p> <p>Zinc Spray</p> <p>Zinc Rich Primer</p>	<p>3M</p> <p>3M</p> <p>ICI</p>	<p>05913</p> <p>09113</p> <p>P-565 634</p>

INFORMATION

MATERIALS APPLICATIONS



77M1584

- 1. Between panels - bolted
- 2. Panel edges - bolted
- 3. Between panels - spot welded
- 4. Panel edges - spot welded
- 5. Between panels - bonded
- 6. Panel edges - bonded
- 7. Clinch joints - type (a)
- 8. Clinch joints - type (b)
- 9. Clinch joints - type (c)
- 10. Gaps between panels - type (a)
- 11. Gaps between panels - type (b)
- 12. Lap joint



APPLICATION EQUIPMENT

Suitable application equipment is available from the following manufacturers and suppliers:

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

Cooper Pegler Burgess Hill
 Sussex RH15 9LA
 Tel. (014 446) 42526

SATA Spray Equipment Minden Industrial Ltd.
 16 Greyfriars Road
 Moreton Hall
 Bury St. Edmunds
 Suffolk IP32 7DX
 Tel. (01284) 760791

3M Body Schutz Pistol Spraygun 08004

A pistol type spraygun constructed from case and machined light alloy and designed for use with 3M screw fit Body Schutz containers.



NOTE: Always clean gun after use with appropriate solvent to maintain efficiency.

3M Caulking Gun 8002

A lightweight, robust metal skeleton gun designed to accept 325mm (13") cartridge for dispensing sealants etc. This gun provides rapid cartridge insertion and loading, with a quick-release lever for accurate control of material ejection and shut-off.

3M Pneumatic Cartridge Gun 08012

Air line-fed gun for applying 3M cartridge products. Excellent for ease of application to obtain a smooth bead. Regulator valve for additional control.

3M Pneumatic Applicator Guns

Air line-fed gun for application of 3M sachet sealers (Part Number 08006 for 200ml and 310ml sachet applications, and Part Number 08007 for all size sachets including 600ml).

Also available: **Heavy Duty Manual Gun 08013.**

3M Applicator Gun 08190.

For the application of 3M Structural Adhesive 08120.

3M Inner Cavity Wax Applicator Gun

This equipment accepts 1-litre canisters and has a 750mm flexible tube.

The approved system is available from all 3M refinishing factors.

INFORMATION

Cooper Pegler Falcon Junior Pneumatic Gun (Airless)


Intended primarily for applying transit wax, this pneumatic sprayer has a 5-litre container with integral hand pump and provides an effective means of wax spraying without the need for compressed air or additional services.

A selection of nozzles, lances, hose lengths and a trigger valve assembly with integral filter allows flexibility in use. Additional applications include general maintenance, wax injection and paint application. Heavy-bodied materials may also be applied. All parts are fully replaceable and a wide range of nozzle configurations is available.

SATA Schutz Gun Model UBE

The SATA Schutz Gun is approved for the retreatment of vehicle underbody areas with protective coatings as supplied in 1 litre, purpose-designed 'one-way' containers. The screw thread fitting (female on the gun) is standard to most Schutz-type packs.

Full operating details are supplied with the equipment.

 **NOTE: Always clean gun after use with appropriate solvent to maintain efficiency.**

SATA HKD1 Wax Injection Injection Equipment

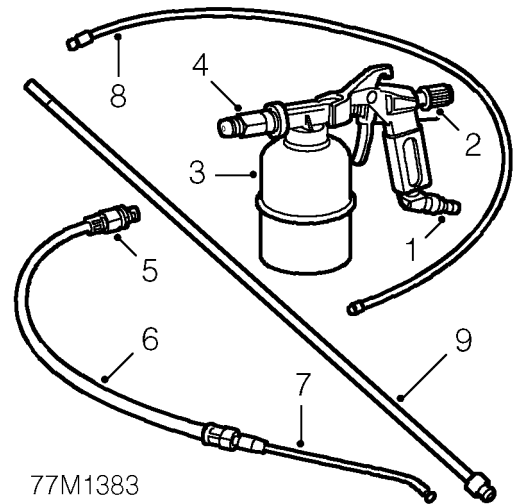
This equipment is approved for carrying out cavity wax re-treatment. The SATA HKD1 set comprises a high quality forged gun with 1-litre pressure feed container, a flexible nylon lance, a straight 1100mm steel lance and hooked- wand lance. A quick-change coupling is provided as a standard fitting to allow lances to be easily interchanged. Each lance has an integral, machined nozzle with specialised spray characteristics to suit the type of box section to be treated.

Specifications of Model UBE:

Air consumption: 7 ft³/min (200 litres/min) @ 45 lbf.in²

Weight: 23.3oz (220 grams)

Cavity wax application equipment and techniques



1. Air inlet
2. Flow control (spray pattern adjustment)
3. Pressure cup (1 litre capacity). Maximum pressure 140PSI (9.7 bar, 9.84kg/cm³)
4. Gun connector
5. Lance nipple connection
6. Flexible lance
7. Rigid directional hook wand (forward cone spray pattern)
8. Flexible nylon lance (1100mm) with 360° spray pattern
9. Rigid lance (1100mm) with 360° spray pattern



When re-treating wax-injected areas which have been disturbed during repairs, it is necessary to use a compressed air spray gun with integral pressure cup and a selection of interchangeable lances.

The following points must be observed during use, according to the attachments fitted:

- Use the rigid or flexible lance attachments with 360° spray dispersal when treating enclosed areas, to ensure maximum coverage.
- Where openings are restricted, use the hook nozzle to provide a more directional spray (e.g. inside narrow or short box sections).
- Spray exposed underbody surfaces directly from the gun less lance attachment and without disconnecting the fluid coupling.

1100mm rigid lance

The nozzle on the rigid lance produces a 360° circular spray pattern combined with a forward-directed spray. Although wax is distributed to all box section surfaces in a single stroke, effective and complete coverage is obtained in long straight structures and box section cavities by spraying on both inward and outward strokes of the lance.

The rigid lance also provides the positional accuracy required in shaped sections, by allowing visual assessment.



CAUTION: Do not force the lance into access holes when using this attachment.

1100mm flexible nylon lance

This lance is similar in pattern to the rigid version, but provides the additional penetration required for curved sections or in places where access is difficult. Its main limitation is a lack of positional accuracy inside box sections.

Carry out all spraying on the outward stroke of the lance. Withdraw the lance slowly to ensure sufficient coverage. **Do not withdraw the lance too quickly.**

Ensure that the nylon tube of the lance is kept away from the edges of the access hole to eliminate abrasion and extend the life of the tube. Take care to ensure that spraying ceases just before the nozzle emerges from the access hole. To assist in this process paint the final 30mm of the nozzle with RED paint.

Hook nozzle on flexible lance

The rigid hook produces a highly atomised, forward-directed, fully conical spray pattern having long range and good dispersion characteristics. This combination has good directional capabilities for treating short, narrow sections, and may also be used for direct spraying of inner wheel arches etc.

In use, position the flat area at the end of the lance at 180° to the nozzle spray direction. This will help to guide the spray more accurately when it is concealed in a box section or access hole.

For general spraying, move the nozzle in an arc from side to side as required, to ensure full coverage.



NOTE: Ensure that all wax injection/application equipment is kept clean. Use white spirit for this purpose immediately after wax injection operations.

INFORMATION

WATER LEAKS

Where water leakage is involved, always adopt a logical approach to the problem using a combination of skill, experience and intuition. Do not reach a conclusion based only on visual evidence, such as assuming that a wet footwell is caused by a leak emanating from the windscreen. It will often be found that the source of the leak is elsewhere. Use of the correct procedure will increase the chance of locating a leak, however obscure it may seem.

Tools and equipment

The following tools and equipment are recommended for the purpose of detection and rectification of water leaks:

1. Garden sprayer (hand-operated).
2. Wet/dry vacuum cleaner.
3. Dry, absorbent cloths.
4. Battery torch.
5. Small mirror.
6. Weatherstrip locating tool.
7. Trim panel remover.
8. Small wooden or plastic wedges.
9. Dry compressed air supply.
10. Hot air blower.
11. Sealer applicators.
12. Ultrasonic leak detector.

During leak detection, the vehicle should be considered in three basic sections:

- The front interior space.
- The rear passenger space.
- The loadspace or boot.

Testing

From the information supplied by the customer it should be possible for the bodyshop operator to locate the starting point from which the leak may be detected. After the area of the leak has been identified, find the actual point of entry into the vehicle.

A simple and effective means in the first instance is an ordinary garden spray with provision for pressure and jet adjustment, which will allow water to be directed in a jet or turned into a fine spray. Use a mirror and a battery-powered torch (NOT a mains voltage inspection lamp) to see into dark corners.

The sequence of testing is particularly important. Start at the lowest point and work slowly upwards, to avoid testing in one area while masking the leak in another. For example, if testing started at the level of the windscreen, any water cascading into the plenum chamber could leak through a bulkhead grommet and into the footwells. Even at this point it could still be wrongly assumed that the windscreen seal was at fault.

Another important part of identifying a water leak is by visual examination of door aperture seals, grommets and weatherstrips for damage, deterioration or misalignment, together with the fit of the door itself against the seals.

Sealing

When the point of the leak has been detected, it will then be necessary to rectify it using the following procedure:

1. Renew all door aperture seals and weatherstrips which have suffered damage, misalignment or deterioration.
2. Check all body seals to ensure that they are correctly located on their mounting flanges/faces using a lipping tool if necessary.
3. Dry out body seams to be treated using compressed air and/or a hot air blower as necessary.
4. Apply sealant on the outside of the joint wherever possible to ensure the exclusion of water.
5. When rectifying leaks between a screen glass and its weatherstrip (or in the case of direct glazing, between the glass and bodywork), avoid removing the glass if possible. Apply the approved material at the appropriate location (i.e. glass to weatherstrip or glass to body).

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SEAT BELTS & SUPPLEMENTARY RESTRAINT SYSTEM

Seat belts are provided as the primary restraint for all occupants. The supplementary restraint system provides additional protection for front seat occupants.

SEAT BELTS

An inertia reel, three point seat belt is installed at each seat position. The inertia reels are of the Emergency Locking Retractor (ELR) type which incorporate a liftshaft locking system with webbing sensor and car sensor activating mechanisms. The webbing sensor activates the locking system if the

webbing is subjected to a sharp pull. The car sensor activates the locking system if the vehicle is subjected to sudden deceleration or a severe tilt angle.

Front seat belts

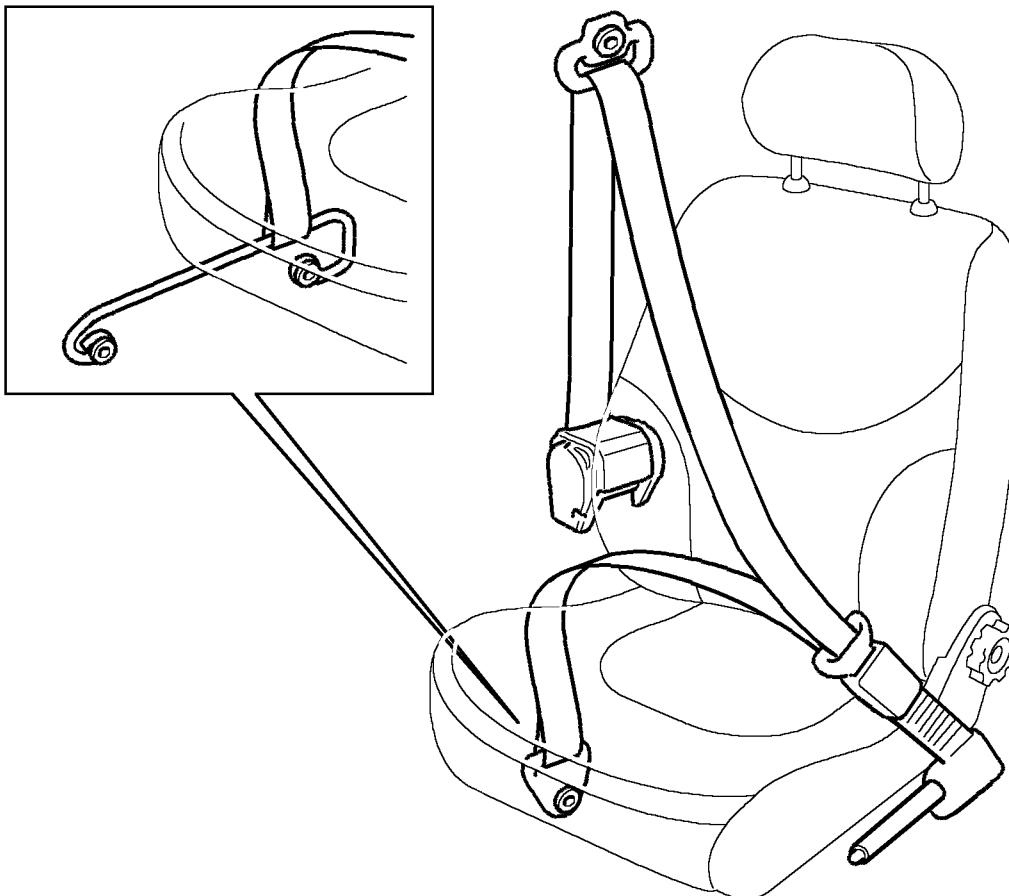
The inertia reel of each front seat belt is attached to the related B/C post, behind the finishers. The webbing runs from the inertia reel, through a height adjuster, to an anchor point either at the base of the B/C post (five door models), or on a bar attached to the inner sill (three door models).

The buckle assembly for each belt, consisting of a buckle attached to a flexible stalk and an integrated pretensioner, is secured to the inboard side of the related front seat frame.

Front seat belt components

Three door models

Five door models



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RESTRAINT SYSTEMS

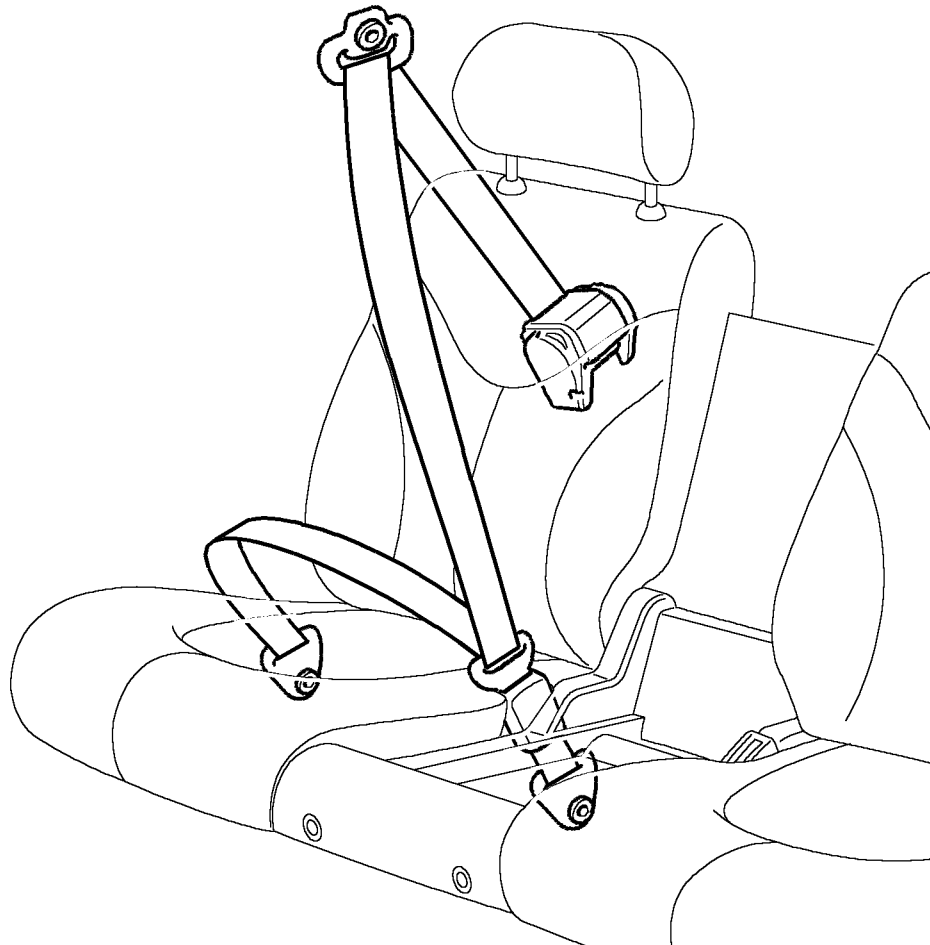
Rear seat belts

Three door models

The inertia reel of each rear seat belt is attached to a bracket on top of the related rear suspension turret, behind the loadspace rear quarter trim. The webbing runs from the inertia reel, through a loop on the D post, to an anchor point in the rear wheel arch.

The buckle for each belt is directly attached to the inboard side of the related rear seat frame.

Rear seat belt components - three door models



76M2698



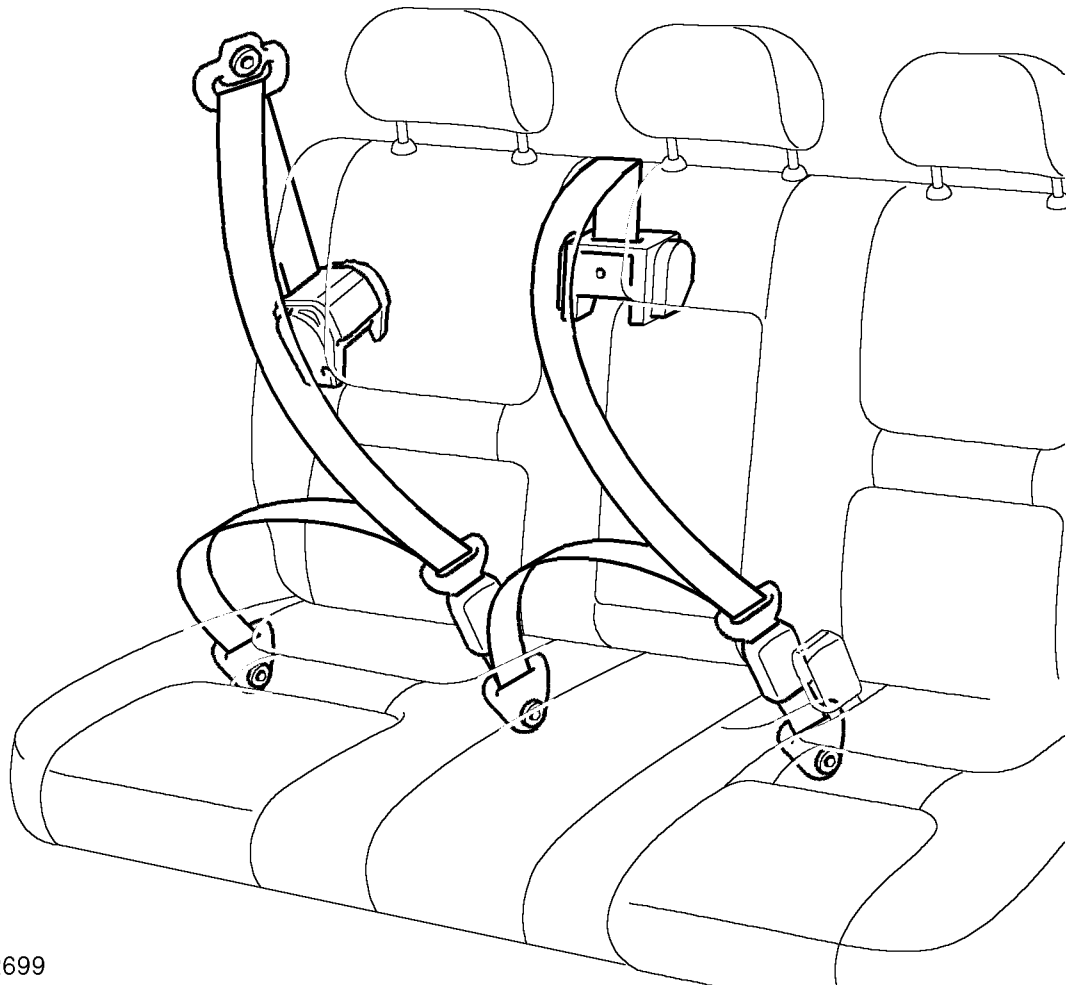
Five door models

The inertia reel of each outboard rear seat belt is attached to the related D post, behind the D/E post finisher. The webbing runs from the inertia reel, through a loop on the D post, to an anchor point in the rear wheel arch.

The inertia reel for the centre rear seat belt is installed in a recess in the back of the rear seat. The webbing runs from the inertia reel, over the top of the seat, to an anchor point in the lower frame of the right rear seat.

The buckle assembly for each belt, consisting of a buckle attached to a length of webbing, is fixed to the lower frames of the rear seats. The buckle assembly for the right seat belt shares an anchor point with the webbing of the centre seat belt.

Rear seat belt components - five door models



76M2699

RESTRAINT SYSTEMS

SUPPLEMENTARY RESTRAINT SYSTEM (SRS)

Precautions

Making the system safe

Before working on, or in the area of, the SRS, make the system safe as follows:

1. Remove the key from ignition switch.
2. Disconnect both battery leads, earth lead first.
3. Wait 10 minutes to allow the SRS back-up power to fully discharge.

General

Carefully inspect SRS parts before installation. Do not install a part that shows signs of being dropped or improperly handled, such as dents, cracks or deformation.

The airbag ECU is a shock sensitive device and must be handled with extreme care. Because the crash sensor is incorporated inside the airbag ECU, it is imperative that the bolts securing the airbag ECU and its bracket are tightened to their correct torque.


Do not install used SRS parts from another vehicle. When repairing a SRS, use only new parts.


Always use new fixings when replacing SRS parts.

Do not use a multimeter or other general test equipment to check SRS parts or connectors.

After completing work, check that the electrical connectors are installed correctly.

Handling and storage

 **WARNING: If the airbag is improperly stored face down, accidental deployment could propel the unit with enough force to cause serious injury.**

 **CAUTION: Improper handling or storage can internally damage the airbag module, making it inoperative. If you suspect the airbag module has been damaged, install a new unit and refer to the Workshop Manual for Deployment/Disposal Procedures.**

Do not allow anything to rest on an airbag module.

When carrying an airbag module, hold it by the cover, with the cover uppermost and the base away from your body. Do not wrap your arms around the module.

Do not try to disassemble an airbag module or seat belt pretensioner. They have no serviceable parts and, once deployed, cannot be repaired or reused.

Do not expose an airbag module or seat belt pretensioner to heat exceeding 85°C/185°F) or allow it to be contaminated with oil, grease, detergent or water.

For temporary storage of an airbag module or seat belt pretensioner during service, place in a designated storage area or, if no designated storage area is available, in the loadspace of the vehicle; always lock the vehicle and inform the workshop supervisor.

Airbag modules and seat belt pretensioners are classed as explosive articles. For overnight and longer term storage, they must be stored in an approved, secure steel cabinet which has been registered by the local authority.



SRS wiring

Never attempt to modify, splice or repair SRS wiring.

Never install electronic equipment such as a mobile telephone, two way radio or in car entertainment system in such a way that it interferes electrically with the SRS wiring.

Always ensure SRS wiring is routed correctly. Be careful to avoid trapping or pinching the SRS wiring. Ensure there are no possible chafing points.

Always use specified earth fixings tightened to the correct torque. Poor earthing can cause intermittent problems that are difficult to diagnose.

Ensure all SRS wiring connectors are mated correctly and securely fastened. Do not leave the connectors hanging loose.

Warning labels

Warning labels are displayed on SRS parts and prominent places on the vehicle to indicate:

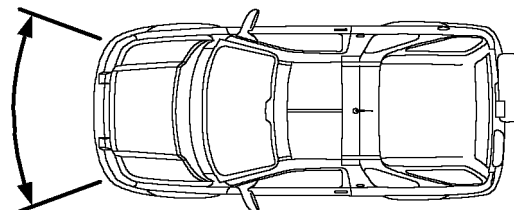
- The need for caution when working in close proximity to SRS parts.
- That, if a passenger airbag module is installed, rearward facing child seats are prohibited on front passenger seats.
- The publication where suitable reference and advice can be found (usually the Workshop Manual or Owner's Handbook).

RESTRAINT SYSTEMS

System description

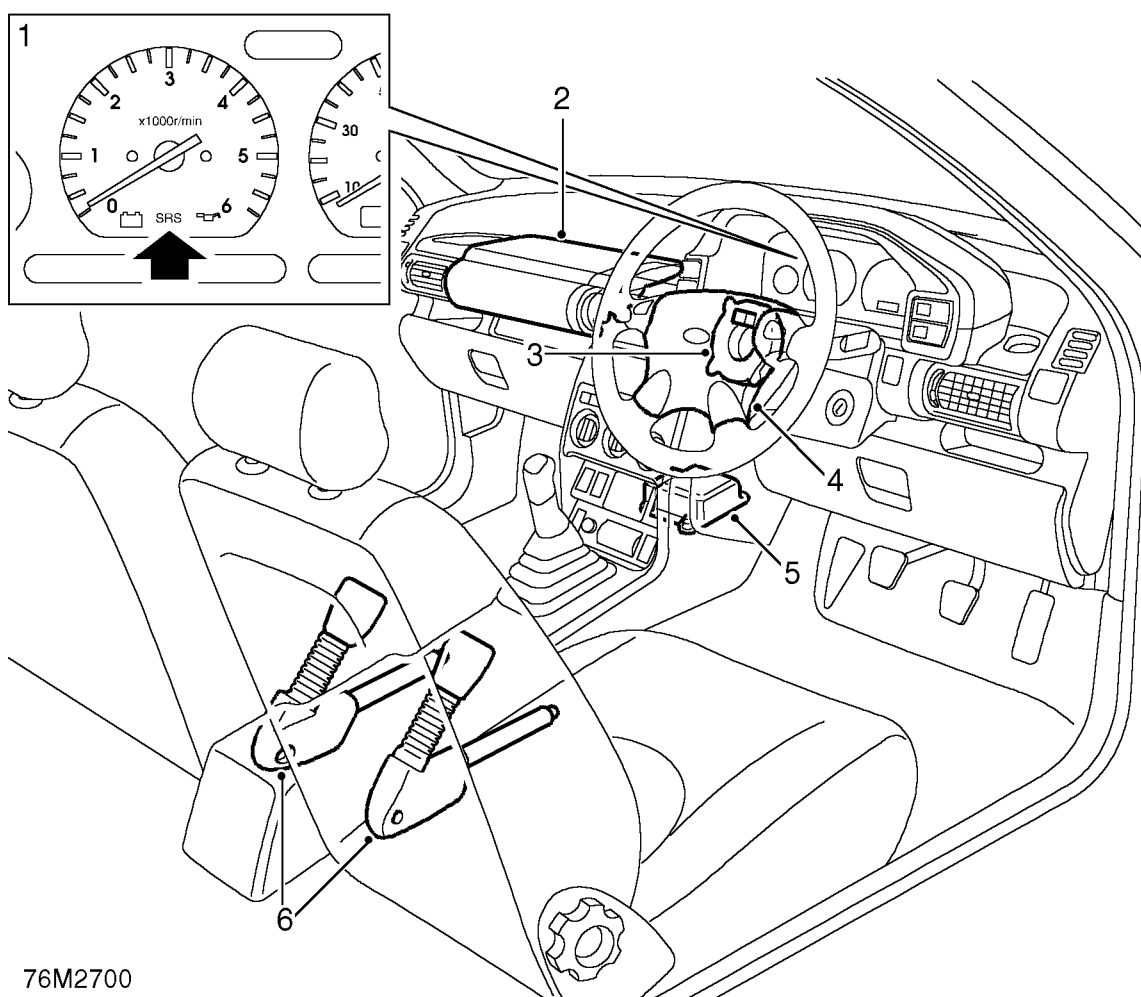
The supplementary restraint system (SRS) provides additional protection for front seat occupants during a frontal collision above a preset severity.

Impact zone for SRS activation (approximate)



76M2701

SRS component location



76M2700

- | | |
|---|----------------------------|
| 1. SRS warning lamp | 4. Driver's airbag module |
| 2. Passenger's airbag module (optional) | 5. Airbag ECU |
| 3. Rotary coupler | 6. Seat belt pretensioners |

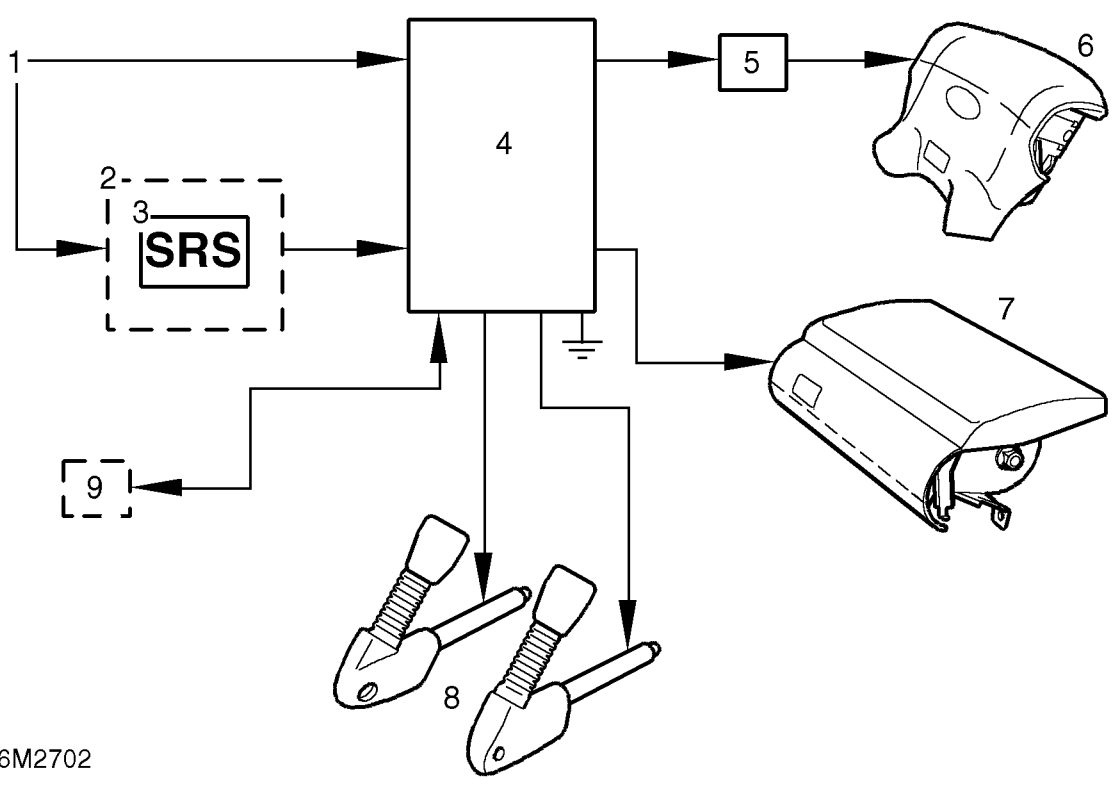


The SRS is an electronically controlled, single point sensing system. The system comprises an airbag Electronic Control Unit (ECU), a driver's airbag module, a passenger's airbag module (optional), two seat belt pretensioners and a warning lamp. Interconnecting wiring for the system is contained in yellow sleeving and integrated into the vehicle harnesses. A rotary coupler connects the vehicle harness to the driver's airbag module. On vehicles with a passenger's airbag module, a link lead connects the module to the vehicle harness. An ISO 9141 K line (bi-directional) serial communication link connects the airbag ECU to the vehicle's diagnostic socket.

The system is operational only while the ignition is on. With the ignition on, any frontal collision is detected by the airbag ECU. If the impact is above the preset severity, the ECU sends out simultaneous fire signals to the airbag modules and the seat belt pretensioners. The airbag modules then deploy protective airbags in front of the driver and front seat passenger, and the seat belt pretensioners retract to tighten the front seat belts. Collision detection to full deployment of the airbags and pretensioners takes approximately 45 milliseconds.

WARNING: All the SRS parts, including the wiring harness, link lead (where fitted) and rotary coupler, must be renewed after the airbags and pretensioners have deployed.

SRS schematic



76M2702

- 1. Ignition power supply
- 2. Instrument pack
- 3. Warning lamp
- 4. Airbag ECU
- 5. Rotary coupler

- 6. Driver's airbag module
- 7. Passenger's airbag module
- 8. Seat belt pretensioners
- 9. Diagnostic socket

RESTRAINT SYSTEMS

Airbag ECU

The airbag ECU controls the operation of the system and also contains the collision detection sensors. The airbag ECU is attached to a bracket on the transmission tunnel, directly below the heater. A vehicle earth output connects to one of the fixings. A 30 pin connector provides the airbag ECU connection with the vehicle harness.

Incorporated into the airbag ECU is a mechanical safing sensor, an electronic single point sensor and integrated circuits for control and diagnostics. The mechanical safing sensor is a normally open switch that closes at the preset deceleration limit. The single point sensor is an accelerometer that produces an output proportional to the vehicle's deceleration .

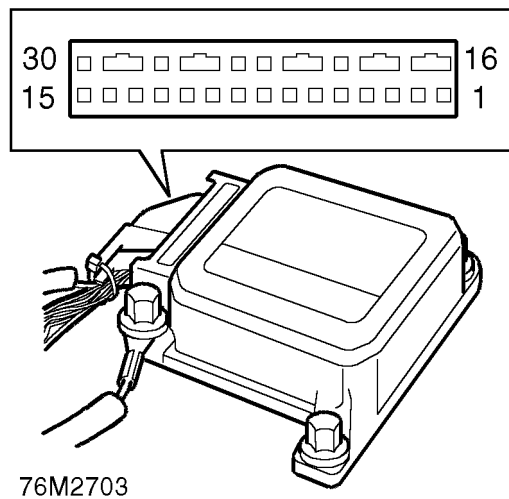
Power back-up

The airbag ECU incorporates capacitors to ensure the system will function if the external power supply is disconnected during a collision:

- A hardware capacitor provides power for 200 milliseconds to enable system operation and collision recording.
- Individual capacitors for each fire signal output provide power for 150 milliseconds.

The capacitors are kept charged while the ignition is on by a dc-dc voltage converter incorporated into the airbag ECU. It can take up to 10 minutes from the ignition being switched off for the energy stored in the capacitors to fully dissipate and make the system inert.

Airbag ECU



Airbag ECU pin connections

Pin Description

1. RH pretensioner (+ve)
2. RH pretensioner (-ve)
3. LH pretensioner (+ve)
4. LH pretensioner (-ve)
5. Vehicle supply
6. Vehicle earth
7. SRS warning lamp
8. Not used

Pin Description

9. ISO 9141 K line
10. Driver airbag module (+ve)
11. Driver's airbag module (-ve)
12. Not used
13. Passenger's airbag (+ve) - where fitted
14. Passenger's airbag (-ve) - where fitted
15. to 30. Not used



Operation

When the ignition is switched on, the airbag ECU performs a bulb check of the SRS warning lamp as part of the power up procedure. The lamp should be extinguished after approximately 5 seconds, indicating that the system is fully operational. If the lamp remains illuminated, a fault has been detected and repair action is required.

While the ignition is on, data from the single point sensor is continuously monitored by the airbag ECU. If the data from the single point sensor indicates vehicle deceleration is at or above the preset limit, and the mechanical safing sensor is closed, the ECU interprets this as a collision that requires deployment of the airbags and retraction of the seat belt pretensioners. It then activates transistors to send fire signals to the airbag modules and the seat belt pretensioners. Simultaneously, the airbag ECU records in memory the following information:

- The error code of the last permanent fault (if any) detected before the collision.
- Internal program information about the collision as seen by the airbag ECU.
- The diagnostic status of the airbag and seat belt pretensioner circuits before deployment.
- The voltage of each power backup capacitor before deployment.
- Information on the airbag ECU internal program status.

If external power is lost during the collision, recording of the last three above items only occurs if there is sufficient power in the backup capacitors after outputting the fire signals.

When deployment and collision event recording has been completed, the airbag ECU enters crash locked mode and illuminates the SRS warning lamp. In crash locked mode the airbag ECU is permanently disabled and must be replaced during subsequent repair action. Crash locked mode cannot be cleared using Testbook.

Diagnostics

While the ignition is on the diagnostic function of the airbag ECU monitors the SRS for faults. If a fault is detected, the airbag ECU stores a related fault code in memory and switches the earth output to illuminate the SRS warning lamp. With a supply voltage range fault, the warning lamp is illuminated only for the duration of the fault. With all other faults, including intermittent faults, the warning lamp is illuminated for the remainder of the drive cycle. At the next ignition on, if the fault is still present the warning lamp remains illuminated after the lamp check; if the fault does not recur, the warning lamp extinguishes but the fault code remains stored in memory. An intermittent fault will be cleared from memory if 40 drive cycles are completed without its recurrence.

After detecting a fault, the system may retain some operational capability:

- If a fault is detected in an airbag or pretensioner circuit, only that circuit is disabled; the other airbag and pretensioner circuits remain operational and their related components will still be deployed in a collision.
- If an internal or power supply fault is detected, the complete system will be disabled.
- If a fault exists in the SRS warning lamp circuit, the lamp will not illuminate during the lamp check at ignition on, but, provided there are no other faults, the system will otherwise be fully operational.

RESTRAINT SYSTEMS

Fault code retrieval and fault diagnosis of the SRS can only be done using Testbook. Additional SRS information that can be read using Testbook is the:

- Airbag ECU bar code.
- Evolution number of the hardware, software and diagnostic protocol.
- Status of the crash locked mode.
- Vehicle identification number (VIN) data.

Diagnostic checks performed by the airbag ECU include:

- Monitoring of the airbag and pretensioner circuits for open/short circuits.
- Internal errors.
- Supply voltage (limits are 8.6 to 19.0 V at power up, 6.0 to 19.0 V during drive cycle).

Airbag modules

During a frontal collision each airbag module deploys a gas filled bag to form a protective cushion between the front seat occupant and the steering wheel or fascia/windshield. The driver's airbag module is attached to the centre of the steering wheel. Where fitted, the passenger's airbag module is installed in the fascia, above the glovebox.

Each airbag module has a gas generator attached to a folded airbag installed in a housing. The driver's airbag has an inflated volume of 45 litres; the passenger's airbag has an inflated volume of 120 litres. The gas generator of the driver's airbag module is filled with a nitrocellulose based material; the gas generator of the passenger's airbag module is filled with a sodium azide based material. The outlet of the gas generators incorporates a filter screen to prevent solid combustion by-products entering the airbag during deployment. An igniter (squib) in each generator provides an ignition source when triggered by a fire signal from the airbag ECU. A 2 pin connector provides the interface between the igniter and the vehicle wiring.

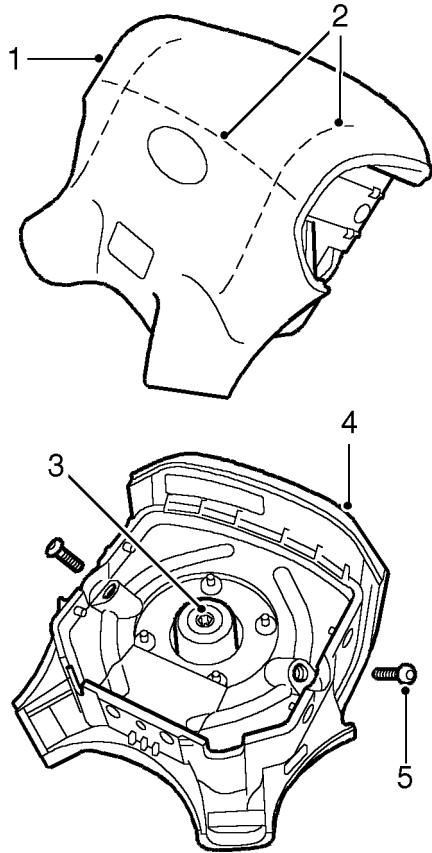
On the driver's airbag module, the housing is closed by a cover that forms the steering wheel centre pad; split lines are formed in the inner surface of the cover to direct the airbag through the required exit point during deployment. On the passenger's airbag module, the housing is closed by a trim panel profiled to match the fascia; a tethered deployment door forms an integral part of the trim panel.



Both airbag modules operate in the same way. On receipt of a fire signal from the airbag ECU, the igniter ignites the material in the gas generator. The burning material rapidly produces a large amount of nitrogen gas which passes through the filter screen into the airbag, forcing the airbag to unfold. On the driver airbag module, the unfolding airbag ruptures the cover along the split lines; on the passenger airbag module, the unfolding airbag breaks the deployment door fixings to the module housing and trim panel, and the deployment door lifts off the fascia (but remains tethered to the module housing). Once free of the housing the airbag inflates to its full extent. Vents in the airbag prevent excess pressure bursting the bag and, as soon as the material in the gas generator is exhausted, allows the airbag to instantly deflate.

RESTRAINT SYSTEMS

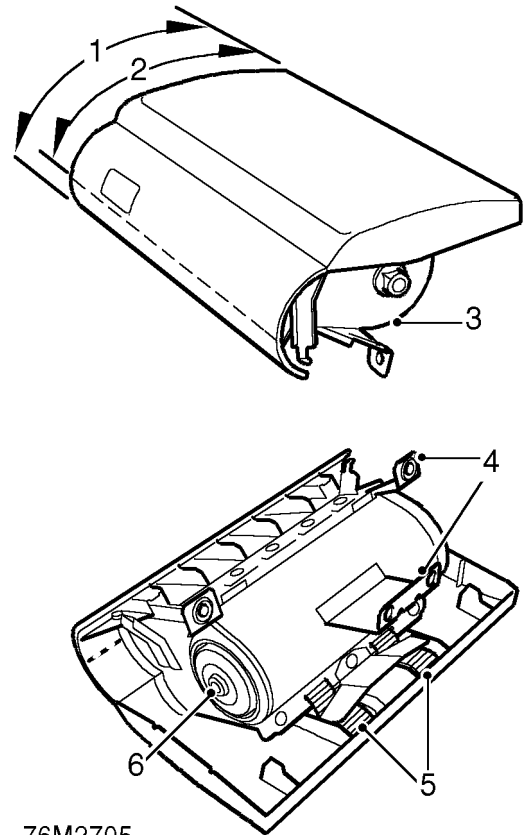
Driver's airbag module components



76M2704

1. Cover
2. Split lines
3. Electrical connector
4. Housing
5. Fixing

Passenger's airbag module components



76M2705

1. Trim panel
2. Deployment door section
3. Housing
4. Fixing bracket
5. Tethers
6. Electrical connector



Seat belt pretensioners

During a frontal collision the seat belt pretensioners tighten the front seat belts to ensure the occupants are securely held in their seats. A pretensioner is integrated into the buckle assembly of each front seat belt.

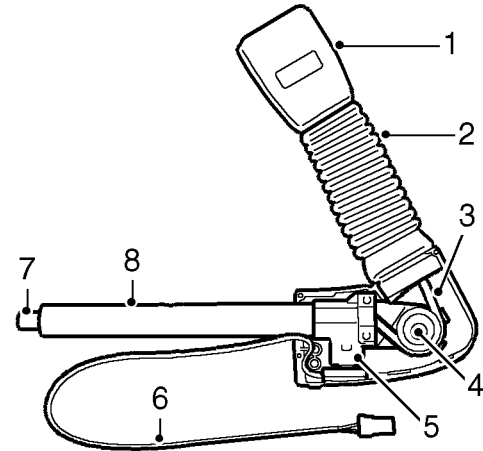
The two pretensioners are handed, but otherwise identical. Each pretensioner has a tube containing propellant and a piston. The piston is attached to a steel cable, the opposite end of which is attached to the seat belt buckle. An igniter (squib) in the base of tube provides an ignition source when triggered by a fire signal from the airbag ECU. A fly lead with a 2 pin connector links the igniter to the vehicle wiring.

On receipt of a fire signal from the airbag ECU, the igniter ignites the propellant. The burning propellant rapidly produces nitrogen gas that drives the piston along the tube, pulling on the cable and drawing the buckle towards the buckle assembly fixing point on the seat.

SRS warning lamp

The SRS warning lamp provides system status information for the driver. The lamp consists of a bulb behind a red SRS graphic at the base of the tachometer in the instrument pack. The bulb is a serviceable item that can be renewed from the rear of the instrument pack.

Seat belt pretensioner components



76M2706

1. Seat belt buckle
2. Gaiter
3. Steel cable
4. Fixing
5. Igniter
6. Fly lead
7. Vent
8. Tube

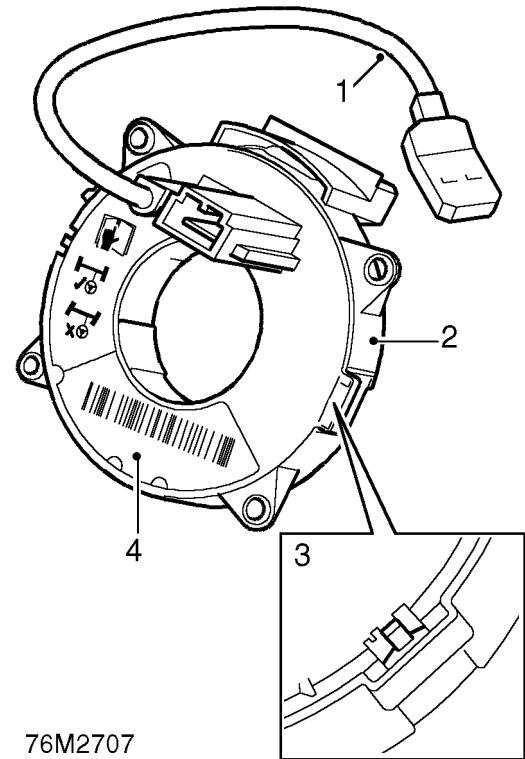
RESTRAINT SYSTEMS

Rotary coupler

The rotary coupler is installed on the steering column to provide the interface between the fixed wiring harness and the moveable driver airbag module and horn buttons on the steering wheel.

A rotating link harness is encapsulated into a plastic cassette comprising outer and inner housings with integral connectors. Screws attach the outer housing to the steering column switch assembly and the inner housing is keyed to the steering wheel by its connector. The inner housing can turn a maximum of six revolutions in relation to the outer housing. For maintenance purposes the outer housing incorporates a position indicator wheel; a white tab is visible on the wheel when the rotary coupler is centralised. To prevent breaking the rotating link harness, both the steering and the rotary coupler must be centralised when removing and installing the steering wheel.

Rotary coupler components



1. Fly lead (to airbag module)
2. Outer housing
3. Position indicator wheel
4. Inner housing

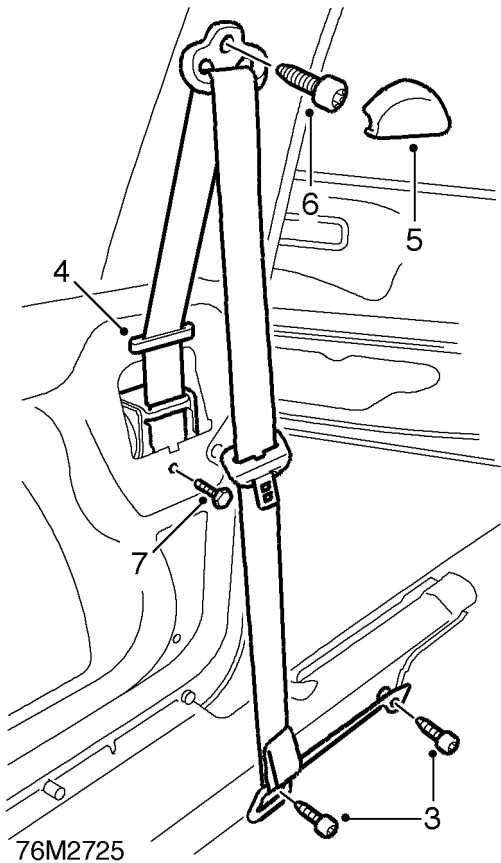


SEAT BELT - FRONT - 3 DOOR

Service repair no - 76.73.13

Remove

1. Remove seat base finisher. **See BODY, Seats and seat belts.**
2. Remove body side rear trim casing. **See BODY, Interior trim components.**



3. Remove 2 Torx bolts securing seat belt lower mounting and remove mounting from seat belt.
4. Release seat belt retaining strap.
5. Remove cover from upper mounting.
6. Remove Torx bolt from upper mounting.
7. Remove bolt from seat belt reel and remove reel.

Refit

1. Position reel and tighten bolt to 31 Nm.
2. Extend belt, position top mounting and tighten Torx bolt to 31 Nm.
3. Fit top mounting cover.
4. Secure belt retaining strap.
5. Fit lower mounting to seat belt, position mounting, fit and tighten Torx bolts to 40 Nm.
6. Fit trim casing. **See BODY, Interior trim components.**
7. Fit seat base finisher. **See BODY, Seats and seat belts.**

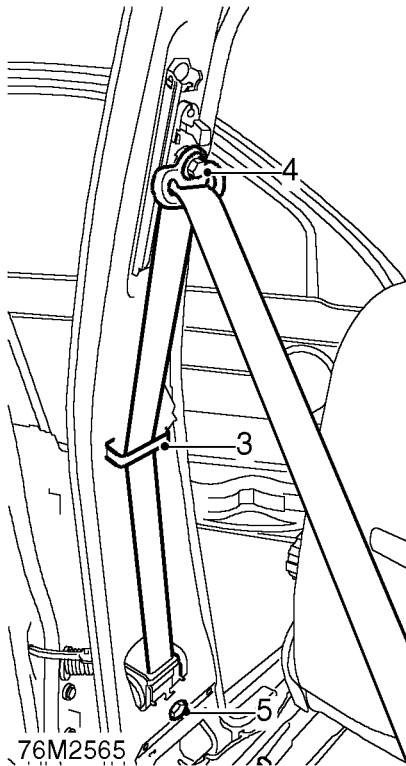
RESTRAINT SYSTEMS

SEAT BELT - FRONT - 5 DOOR

Service repair no - 76.73.13

Remove

1. Remove seat base finisher. *See BODY, Seats and seat belts.*
2. Remove 'B/C' post upper finisher. *See BODY, Interior trim components.*



3. Release seat belt retaining strap.
4. Remove nut from seat belt upper mounting.
5. Remove bolt from seat belt reel and remove reel.

Refit

1. Position reel and tighten bolt to 31 Nm.
2. Extend belt, position top mounting and tighten nut to 31 Nm.
3. Secure belt retaining strap.
4. Fit 'B/C' post upper finisher. *See BODY, Interior trim components.*
5. Fit seat base finisher. *See BODY, Seats and seat belts.*

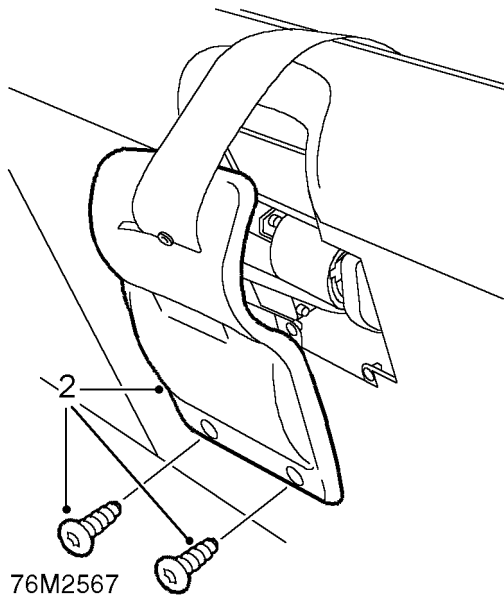


SEAT BELT - CENTRE - REAR - 5 DOOR

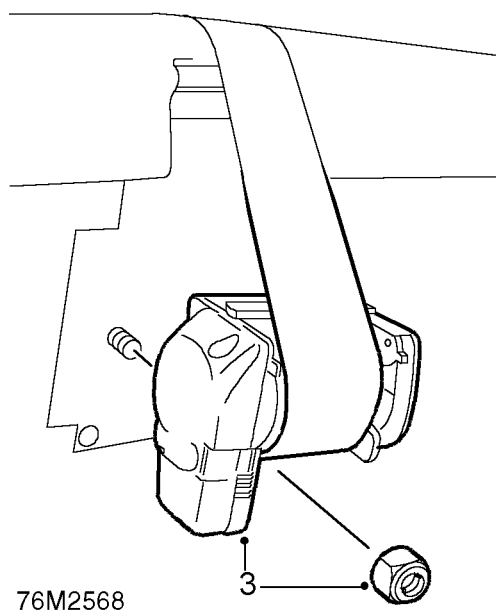
Service repair no - 76.73.20

Remove

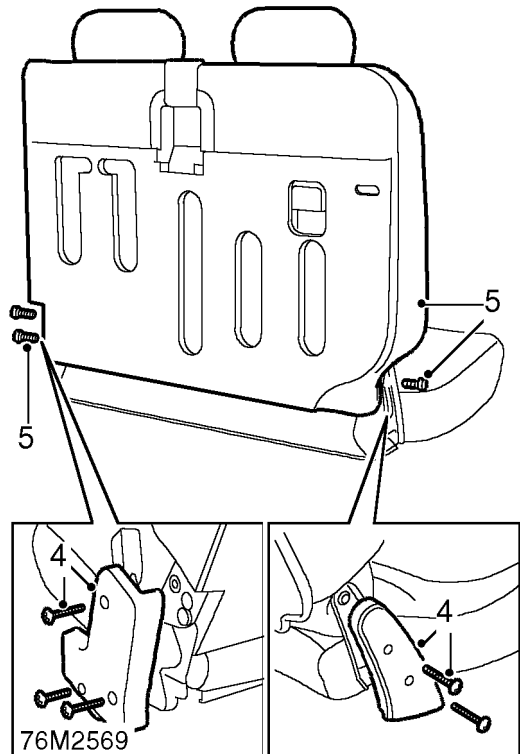
1. Remove RH rear seat. *See BODY, Seats and seat belts.*



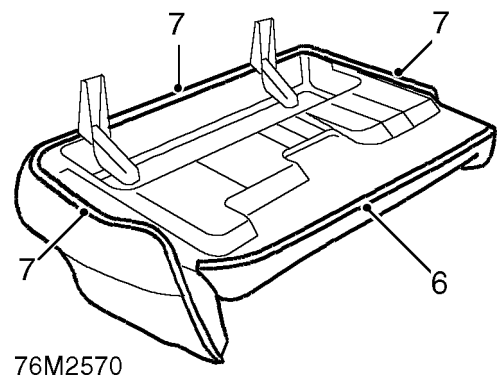
2. Remove 2 screws and remove seat belt reel cover.



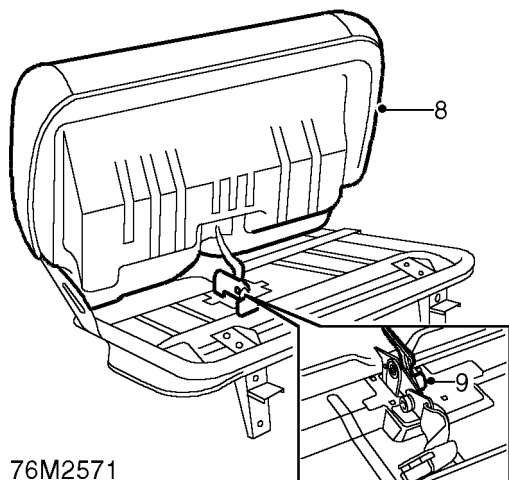
3. Remove nut and release seat belt reel.



4. Remove 5 screws and remove both end covers from seat hinges.
5. Remove 3 Torx bolts and remove squab from cushion.



6. Release rear of cushion cover from seat frame.
7. Release sides and front of cushion cover from seat frame.



76M2571

8. Release cover and pad from seat frame.
9. Remove Torx bolt from centre seat belt anchor/right seat belt buckle.
10. Remove seat belt and right seat belt buckle.

Refit

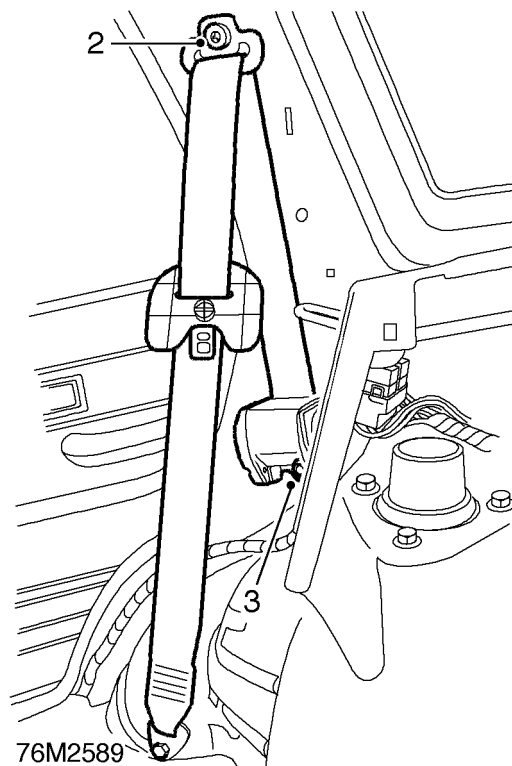
1. Position centre seat belt anchor and right seat belt buckle to seat and tighten Torx bolt to 40 Nm.
2. Fit cover and pad to seat frame.
3. Fit front and sides of cushion cover to seat frame.
4. Fit rear of cushion cover to seat frame.
5. Fit cushion to squab and tighten Torx bolts.
6. Fit end covers and tighten screws.
7. Position seat belt reel and tighten nut to 32 Nm.
8. Fit seat belt reel cover and tighten screws.
9. Fit rear seat. **See BODY, Seats and seat belts.**

SEAT BELT - SIDE - REAR - 5 DOOR

Service repair no - 76.73.23

Remove

1. Remove rear quarter upper trim casing. **See BODY, Interior trim components.**



76M2589

2. Remove Torx bolt from seat belt upper mounting.
3. Remove Torx bolt from seat belt reel and remove reel.

Refit

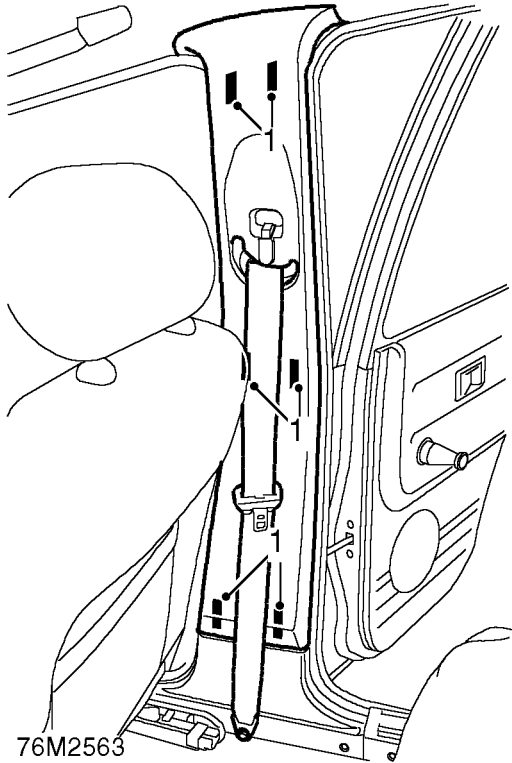
1. Position reel and tighten Torx bolt to 50 Nm.
2. Extend belt, position top mounting and tighten Torx bolt to 32 Nm.
3. Fit rear quarter upper trim casing. **See BODY, Interior trim components.**



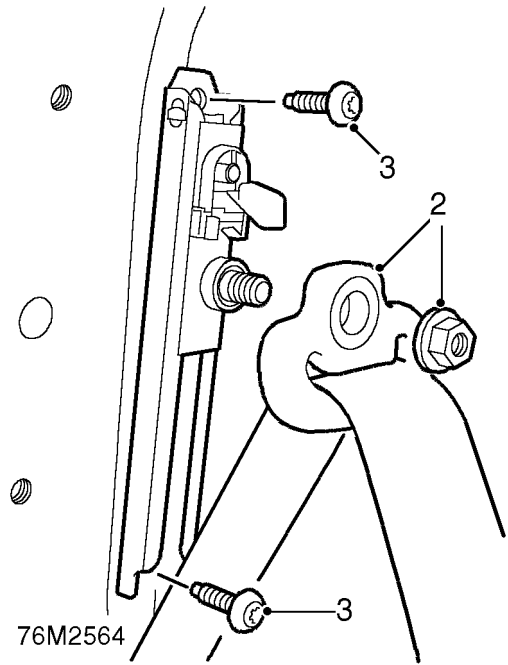
ADJUSTABLE MOUNTING - SEAT BELT - 'B/C' POST

Service repair no - 76.73.26

Remove



1. Release 'B/C' post upper finisher from 6 clips and position aside.



2. Remove nut from seat belt upper mounting and remove belt bracket.
3. Remove 2 Torx screws from mounting and remove mounting.

Refit

1. Position mounting and tighten Torx screws to 26 Nm.
2. Fit upper belt bracket and tighten nut to 31 Nm.
3. Position 'B/C' post upper finisher and secure with clips.

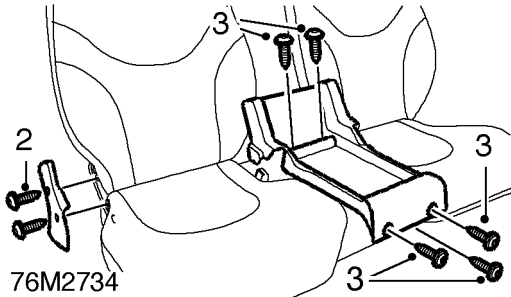
RESTRAINT SYSTEMS

SEAT BELT BUCKLE - REAR - 3 DOOR

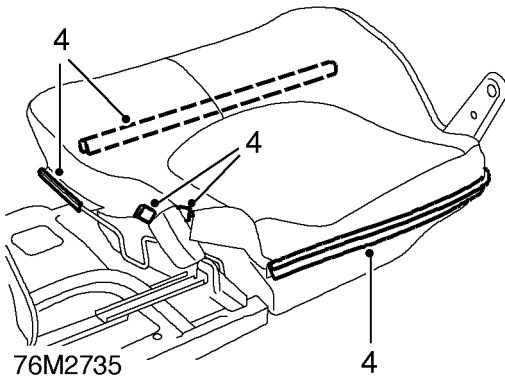
Service repair no - 76.73.32

Remove

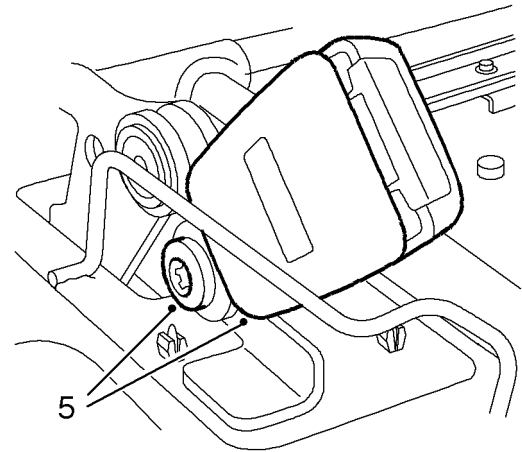
1. Remove rear seat. *See BODY, Seats and seat belts.*



2. Remove 2 screws from hinge cover and remove cover from seat hinge.
3. Remove 4 screws and remove rear seat centre console.



4. Release rear seat cushion cover retainers and position cushion aside.



76M2736

5. Remove Torx bolt and remove seat belt buckle.

Refit

1. Fit buckle to seat frame and tighten Torx bolt to 40 Nm.
2. Position seat cushion and secure cover retainers.
3. Fit centre console and tighten screws.
4. Fit hinge cover and tighten screws.
5. Fit rear seat. *See BODY, Seats and seat belts.*

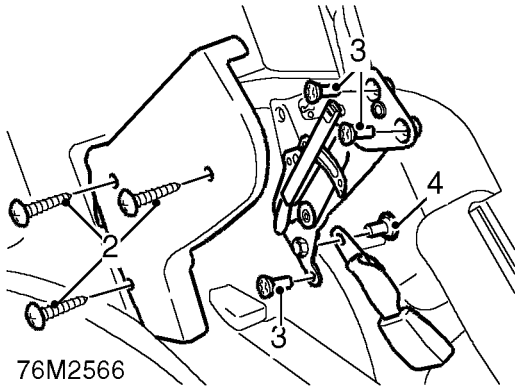


SEAT BELT BUCKLE - REAR - 5 DOOR

Service repair no - 76.73.32

Remove

1. Position rear seat forward.



76M2566

2. Remove 3 screws from end cover and remove covers from seat hinges.
3. Remove 4 Torx bolts from seat lock down catch and remove catch assembly.
4. Remove Torx bolt from seat belt buckle and remove buckle.

Refit

1. Fit buckle to catch assembly and tighten Torx bolt to 40 Nm.
2. Fit catch assembly to seat and tighten Torx bolts.
3. Fit end cover and tighten screws.
4. Reposition seat.

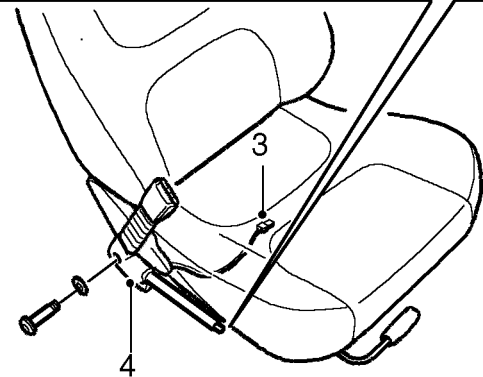
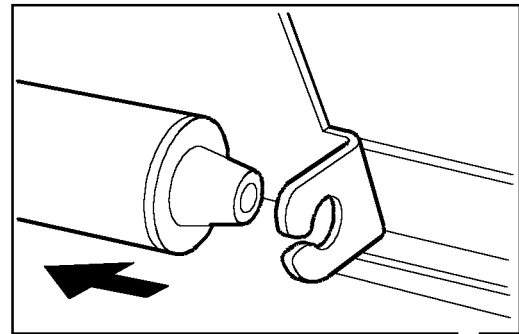
PRETENSIONER - SEAT BELT - FRONT

Service repair no - 76.73.75

Remove

WARNING: See **GENERAL INFORMATION, SRS Precautions.**

1. Make the SRS system safe. See **GENERAL INFORMATION, SRS Precautions.**
2. Remove rear console. See **BODY, Interior trim components.**



76M2573

3. Disconnect and secure pretensioner multiplug.
4. Remove Torx bolt from pretensioner, release pretensioner from seat location and remove pretensioner assembly.

WARNING: Store the pretensioner in accordance with the storage procedures. See **GENERAL INFORMATION, SRS Precautions.**

RESTRAINT SYSTEMS

Refit



NOTE: If the pretensioner is to be replaced, the bar code of the new pretensioner must be recorded.

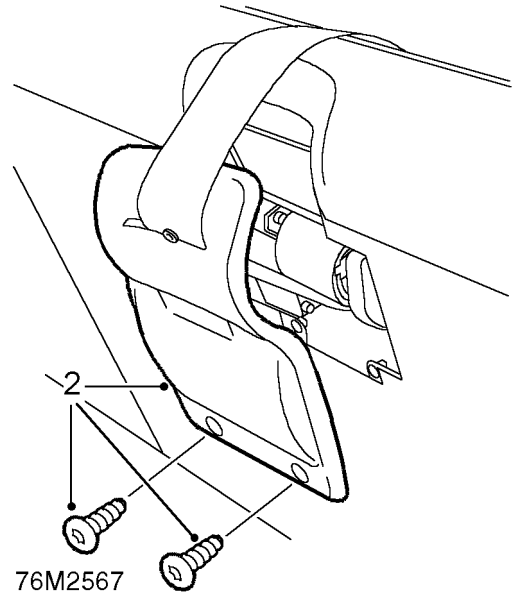
1. Position pretensioner in seat location and tighten Torx bolt to 32 Nm.
2. Connect and secure pretensioner multiplug.
3. Fit rear console. **See BODY, Interior trim components.**
4. Connect battery leads, earth lead last.
5. Carry out system check by turning the ignition on and checking that the SRS warning lamp illuminates, then extinguishes after approximately 5 seconds.

SEAT BELT BUCKLE - CENTRE - REAR - 5 DOOR

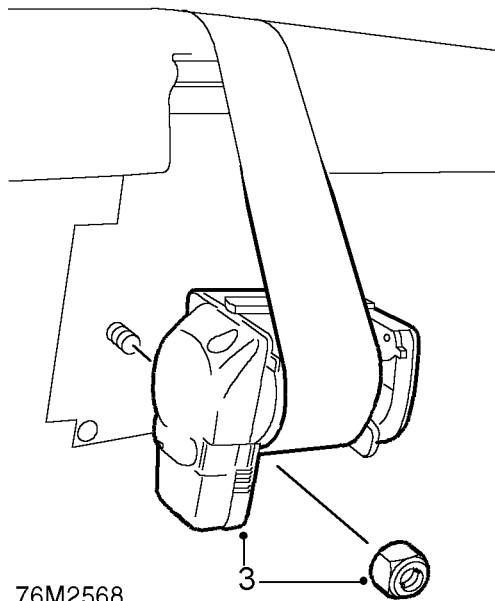
Service repair no - 76.73.98

Remove

1. Remove RH rear seat. **See BODY, Seats and seat belts.**

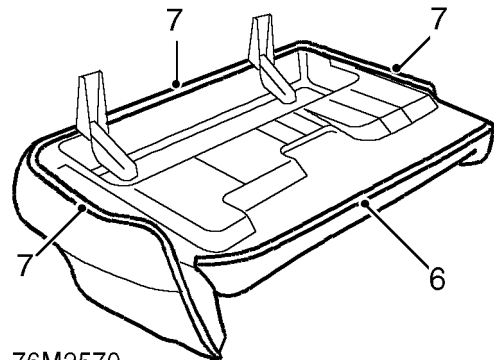


2. Remove 2 screws and remove seat belt reel cover.



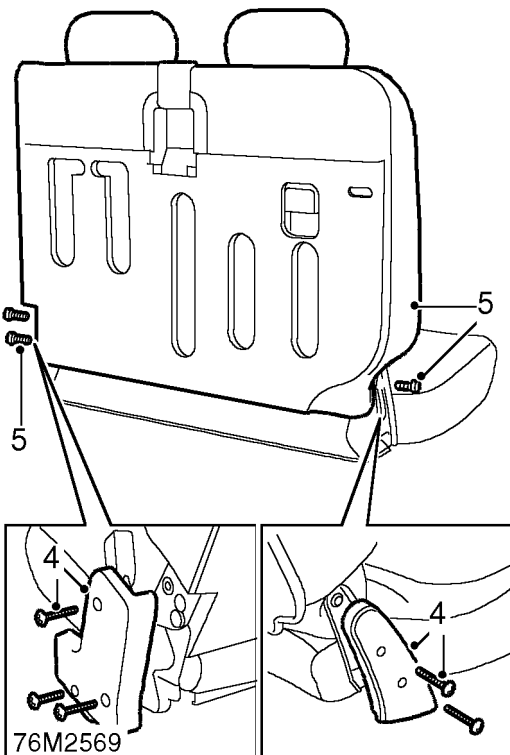
76M2568

3. Remove nut and release seat belt reel.



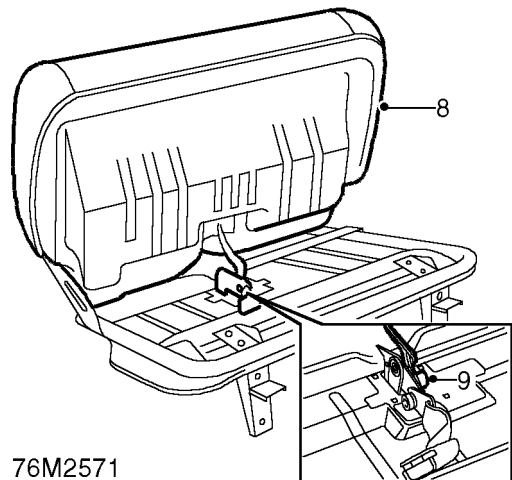
76M2570

- 6. Release rear of cushion cover from frame.
- 7. Release sides and front of cushion cover from frame.



76M2569

- 4. Remove 5 screws and remove both end covers from seat hinges.
- 5. Remove 3 Torx bolts and remove squab from cushion.



76M2571

- 8. Release cover and pad from frame.
- 9. Remove Torx bolt from seat belt buckle and remove buckle.

RESTRAINT SYSTEMS

Refit

1. Position seat belt buckle and tighten Torx bolt to 40 Nm.
2. Fit cover and pad to frame.
3. Fit front and sides of cushion cover to frame.
4. Fit rear of cushion cover to frame.
5. Fit cushion to squab and tighten Torx bolts.
6. Fit end covers and tighten screws.
7. Position seat belt reel and tighten nut to 32 Nm.
8. Fit seat belt reel cover and tighten screws.
9. Fit rear seat. **See BODY, Seats and seat belts.**

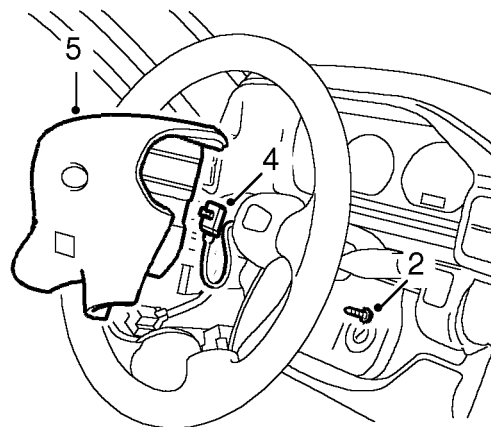
AIRBAG - STEERING WHEEL

Service repair no - 76.74.01

Remove

 **WARNING: See GENERAL INFORMATION, SRS Precautions.**

1. Make the SRS system safe. **See GENERAL INFORMATION, SRS Precautions.**




76M2594

2. Remove 2 Torx bolts securing the airbag module to steering wheel.
3. Release airbag module from steering wheel.

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

4. Disconnect harness connector from the airbag module.
5. Remove airbag module.

 **WARNING: Store the airbag module in accordance with the storage procedures. See GENERAL INFORMATION, SRS Precautions.**



Refit



NOTE: If the airbag module is to be replaced, the bar code of the new module must be recorded.

1. Position airbag module and make connection with harness upwards as shown in illustration.
2. Fit airbag to steering wheel and hand start the 2 Torx screws. Tighten screws to 9 Nm.
3. Connect battery leads, earth lead last.

AIRBAG - PASSENGER

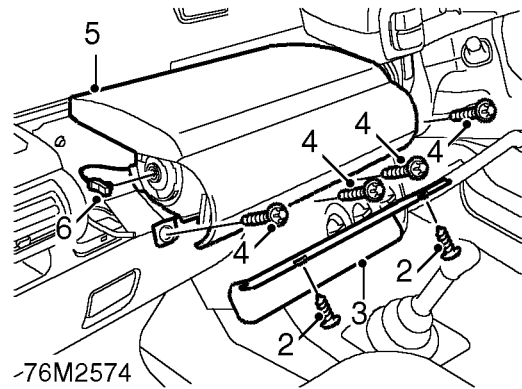
Service repair no - 76.74.02

Remove



WARNING: See **GENERAL INFORMATION, SRS Precautions.**

1. Make the SRS system safe. See **GENERAL INFORMATION, SRS Precautions.**



2. Remove 2 screws securing fascia trim.
3. Remove cover.
4. Remove 4 Torx screws securing airbag to fascia.
5. Release airbag from fascia.



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

6. Disconnect multiplug holder and multiplug from airbag.
7. Remove airbag.



WARNING: Store the airbag module in accordance with the storage procedures. See **GENERAL INFORMATION, SRS Precautions.**

RESTRAINT SYSTEMS

Refit



NOTE: If the airbag module is to be replaced, the bar code of the new module must be recorded.

1. Position airbag to fascia, connect multiplug and multiplug holder.
2. Align airbag to fascia and tighten torx screws to 9 Nm.
3. Position fascia trim and tighten screws.
4. Connect battery leads, earth lead last.

ROTARY COUPLER

Service repair no - 76.74.20

Remove



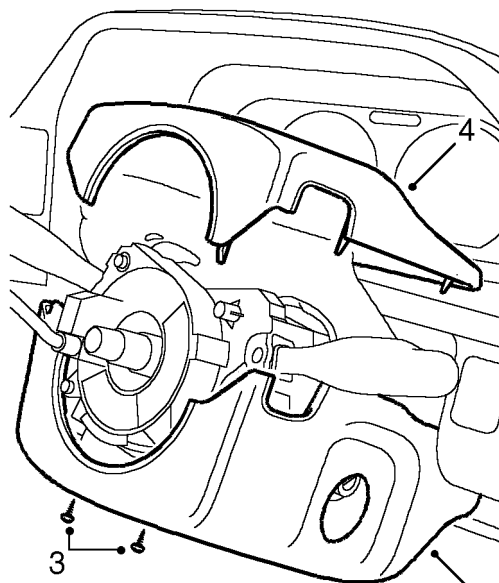
WARNING: See **GENERAL INFORMATION, SRS Precautions.**

1. Make the SRS system safe. See **GENERAL INFORMATION, SRS Precautions.**



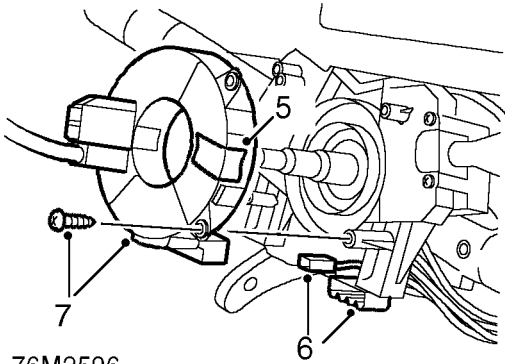
CAUTION: Ensure front road wheels are in the straight ahead position.

2. Remove steering wheel. See **STEERING, Repairs.**



76M2595

3. Remove 2 screws securing lower half of steering column nacelle.
4. Remove lower and upper halves of nacelle.



76M2596

5. If the rotary coupler is being re-used place adhesive tape around moulding to prevent rotation.
6. Disconnect 2 multiplugs from rotary coupler.
7. Remove 4 screws and remove rotary coupler.



CAUTION: Do not dismantle the rotary coupler, it has no serviceable parts and must be replaced as a complete assembly.

Refit



CAUTION: Ensure front road wheels are in the straight ahead position.

1. Ensure the rotary coupler is installed in its centred position, as indicated by the white segment on the indicator wheel.
2. Fit rotary coupler and secure with screws.
3. Connect multiplugs to rotary coupler.
4. Fit upper and lower halves of nacelle to steering column and tighten screws.
5. If fitting existing rotary coupler, remove retaining tape from rotary coupler. If fitting new rotary coupler, remove blue locking tab from rotary coupler.
6. Fit steering wheel. **See STEERING, Repairs.**

DIAGNOSTIC CONTROL UNIT (DCU)

Service repair no - 76.74.68

Service repair no - 76.74.68/20

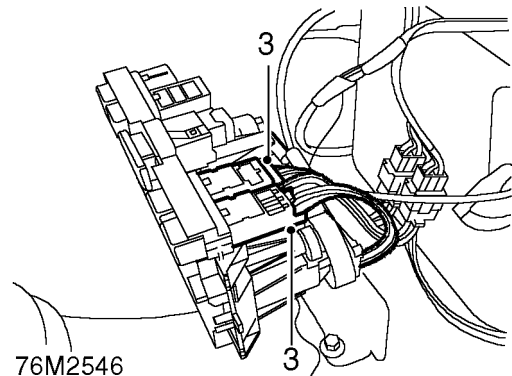
Remove



WARNING: See GENERAL INFORMATION, SRS Precautions.

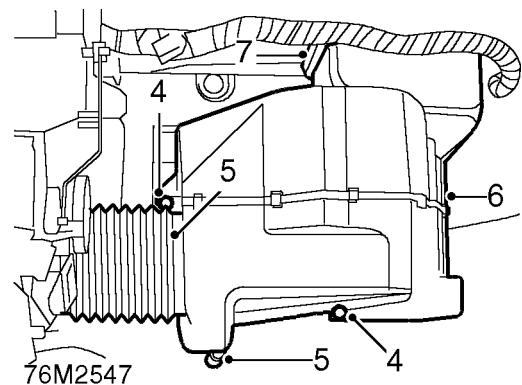
1. Make the SRS system safe. **See GENERAL INFORMATION, SRS Precautions.**
2. Remove heater assembly. **See HEATING & VENTILATION, Repairs.**

Models with air conditioning fitted



76M2546

3. Disconnect 2 multiplugs from air conditioning switches.

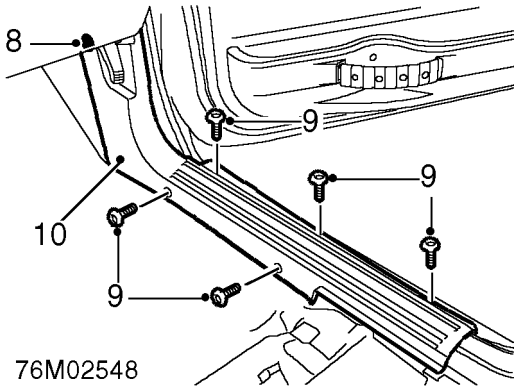


76M2547

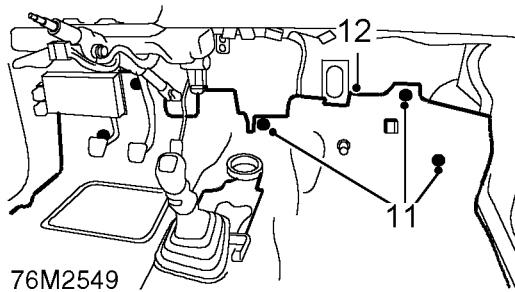
4. Remove 2 nuts securing evaporator.
5. Release evaporator from drain hose and air intake.
6. Remove evaporator.
7. Collect air duct and pipe seal.

RESTRAINT SYSTEMS

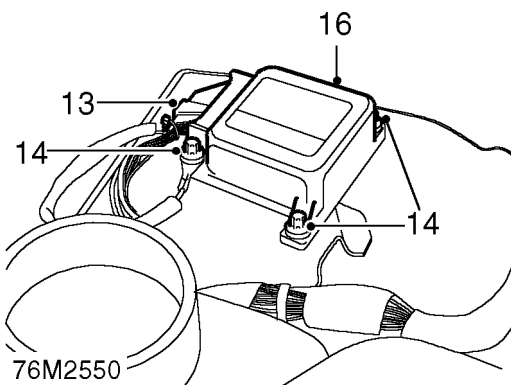
All models



8. Remove scrivet from front of passenger side carpet retainer.
9. Remove 5 Torx screws from carpet retainer.
10. Remove carpet retainer.



11. Remove 3 retainers securing carpet to bulkhead.
12. Pull carpet back for access to DCU.



13. Disconnect multiplug from DCU.
14. Remove 3 bolts securing DCU.
15. Release earth lead.
16. Remove DCU.

Refit

1. Fit DCU.
2. Fit earth lead and tighten bolts to 9 Nm.

WARNING: The vehicle crash sensor is incorporated inside the DCU, it is imperative that bolts securing the DCU are tightened to their correct torque.

3. Connect multiplug to DCU.
4. Fit carpet and secure to bulkhead.
5. Fit carpet retainer, fit and tighten Torx screws.
6. Fit scrivet to front of carpet retainer.

Models with air conditioning fitted

7. Fit air duct and pipe seal.
8. Fit evaporator assembly to drain hose and air intake.
9. Fit evaporator to studs and secure with nuts.
10. Connect multiplugs to air conditioning switches.
11. Fit NEW receiver drier. **See AIR CONDITIONING, Repairs.**

All models

12. Fit heater assembly. **See HEATING & VENTILATION, Repairs.**
13. Connect battery leads, earth lead last.

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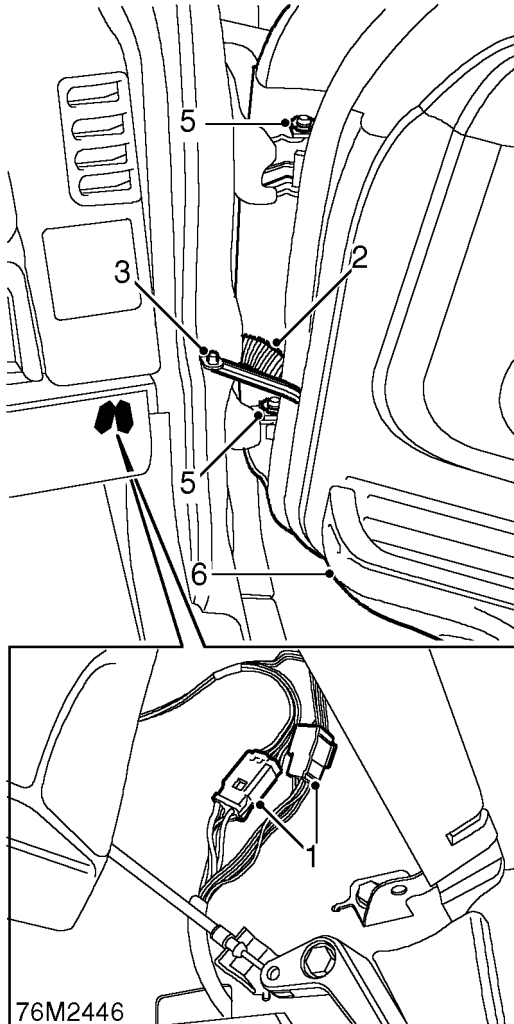
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DOOR ASSEMBLY - FRONT

Service repair no - 76.28.01/99

Remove



1. Release and disconnect 2 multiplugs from lower 'A' post.
2. Release harness sheath from 'A' post and pull door harness through 'A' post.
3. Remove roll pin from door check strap, and release check strap from 'A' post.
4. Discard roll pin.
5. Remove 2 'C' clips from door hinges.
6. With assistance raise and remove door.

Refit

1. With assistance position door to hinges.
2. Fit 'C' clips to hinge pins.
3. Position check strap to 'A' post and secure with NEW roll pin.
4. Feed door harness through 'A' post and secure harness sheath.
5. Connect and secure multiplugs at base of 'A' post.
6. Check door alignment. **See Adjustments.**

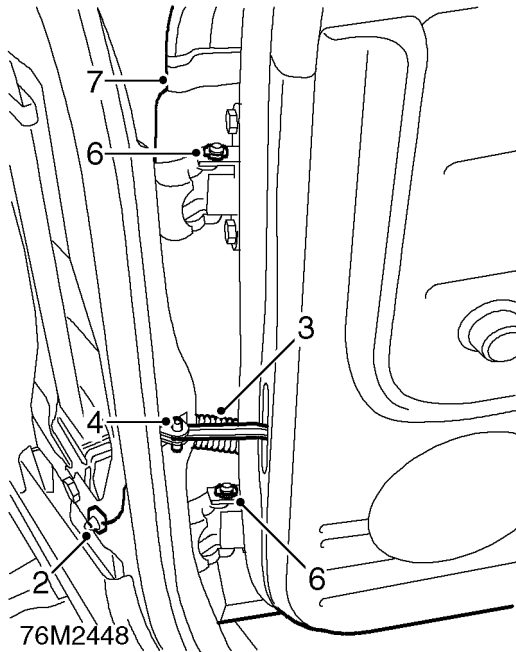
BODY

DOOR ASSEMBLY - REAR

Service repair no - 76.28.02/99

Remove

1. Release 'B/C' post upper finisher and position aside. **See Interior trim components.**



2. Release and disconnect multiplug from lower 'B/C' post.
3. Release harness sheath from 'B/C' post and pull door harness through 'B/C' post.
4. Remove roll pin from door check strap, and release check strap from 'B/C' post.
5. Discard roll pin.
6. Remove 2 'C' clips from door hinges.
7. With assistance raise and remove door.

Refit

1. With assistance position door to hinges.
2. Fit 'C' clips to hinge pins.
3. Position check strap to 'B/C' post and secure with NEW roll pin.
4. Feed door harness through 'B/C' post and secure harness sheath.
5. Connect and secure multiplug at base of 'B/C' post.
6. Fit 'B/C' post upper finisher. **See Interior trim components.**
7. Check door alignment. **See Adjustments.**

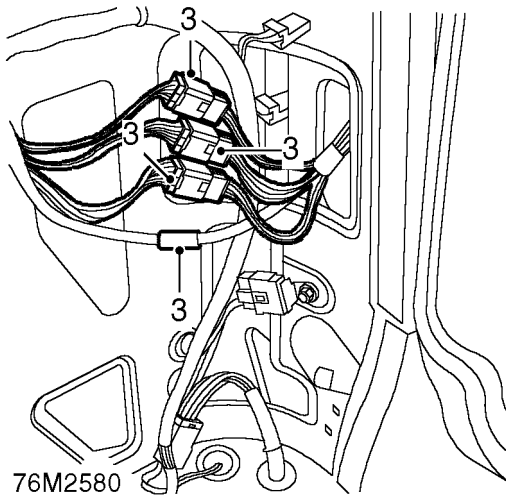


DOOR ASSEMBLY - TAIL

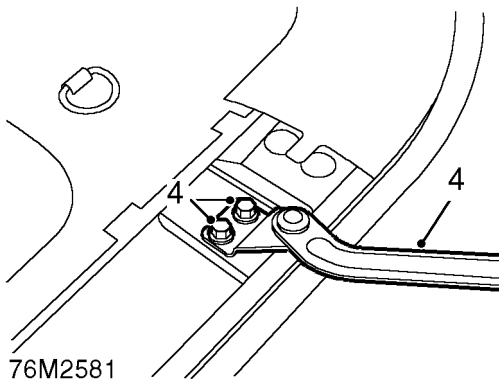
Service repair no - 76.28.29/99

Remove

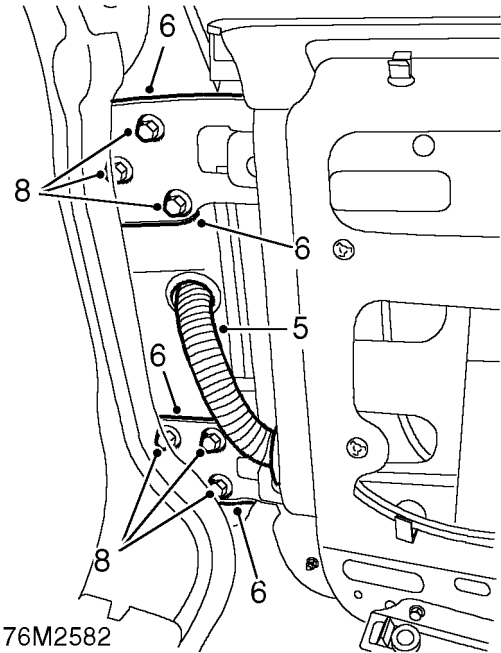
1. Remove spare wheel from tail door.
2. Remove RH rear quarter lower trim casing.
See Interior trim components.



3. Release and disconnect 3 multiplugs and rear washer tube from lower 'E' post.



4. Remove 2 screws from tail door check strap, release strap and position aside.



5. Release door harness sheath from 'E' post and pull harness through 'E' post.
6. Mark the outline of hinges to body.
7. Support the weight of the tail door.
8. Remove 6 bolts securing tail door to body.
9. With assistance remove door.

Refit

1. With assistance position door, fit but do not tighten securing bolts.
2. Position check strap, fit and tighten bolts.
3. Align hinges and tighten bolts to 30 Nm.
4. Feed door harness through 'E' post and secure harness sheath.
5. Connect and secure multiplugs and rear washer tube at 'E' post.
6. Fit rear quarter lower casing. *See Interior trim components.*
7. Fit spare wheel to tail door.

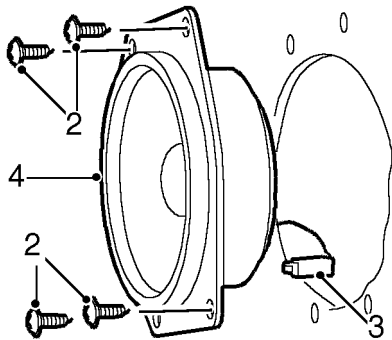
BODY

GLASS - FRONT DOOR

Service repair no - 76.31.01

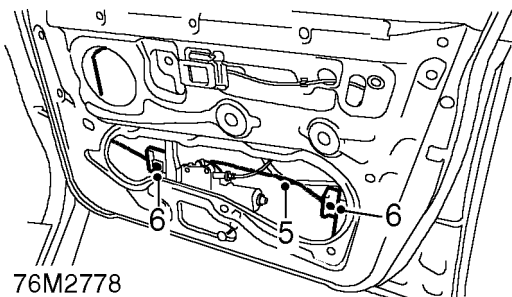
Remove

1. Remove front door water shedder. **See this section.**



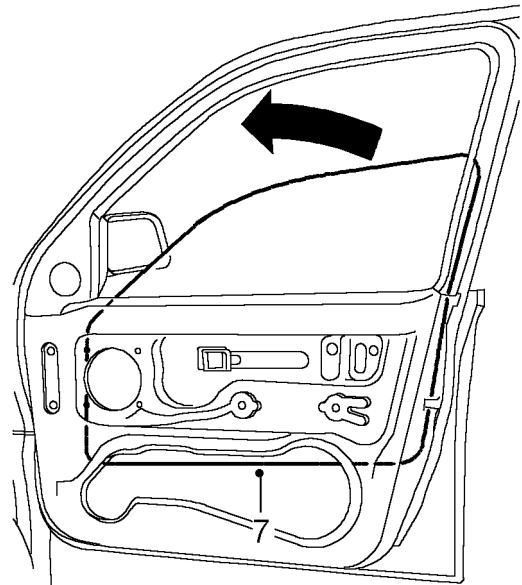
76M2777

2. Remove 4 screws securing door speaker.
3. Disconnect multiplug from door speaker.
4. Remove door speaker.



76M2778

5. Lower glass to access clamp bolts.
6. Loosen 2 bolts securing glass to clamps.



76M2460

7. Release glass from clamps, raise and rotate glass to remove from door frame.

Refit

1. Locate glass in door frame and rotate into position to engage seal and clamps.
2. Tighten bolts securing glass to 8 Nm.
3. Raise/lower glass to check operation.
4. Position door speaker, connect multiplug, fit and tighten screws.
5. Fit water shedder. **See this section.**

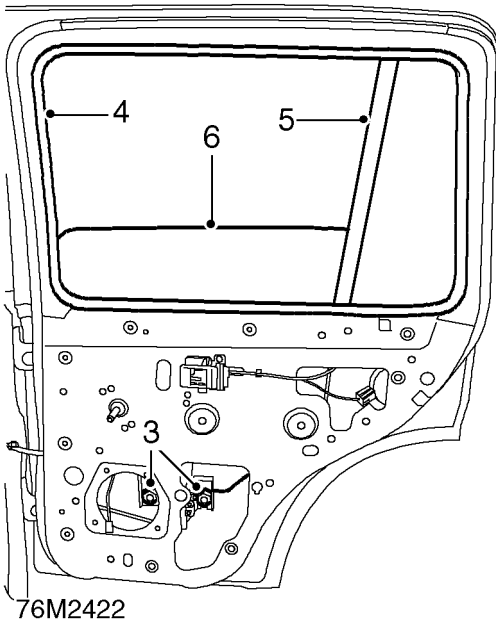


GLASS - REAR DOOR

Service repair no - 76.31.02

Remove

1. Remove rear door water shedder. **See this section.**



2. Lower glass to access nuts on clamps.
3. Loosen 2 nuts securing clamps to glass.
4. Remove seal from door.
5. Release glass from quarter light seal.
6. Raise glass and remove from door.

Refit

1. Fit glass to door and locate in quarter light seal.
2. Fit seal to door.
3. Position glass in clamps and tighten nuts to 8 Nm.
4. Raise/lower glass to check seal fit.
5. Fit water shedder. **See this section.**

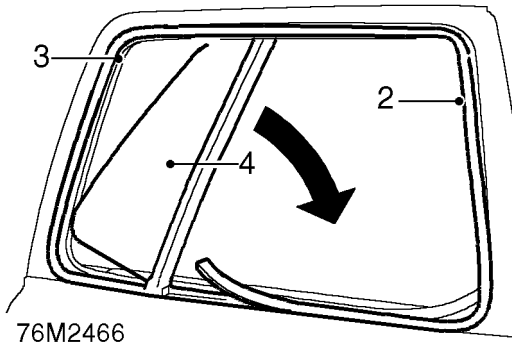
BODY

SEAL - GLASS CHANNEL - REAR DOOR


Service repair no - 76.31.14

Remove

1. Remove rear door glass. **See this section.**



2. Release seal from flange. Remove lower section first, then the front vertical section, followed by the top section.

 **CAUTION: If seal is to be re-used, do not use excessive force or seal will be damaged.**

3. Release top corner of quarter light from frame. Rotate quarter light and seal, release rest of seal from flange and remove quarter light and seal from door.
4. Remove quarter light from seal.

Refit

1. Fit quarter light to seal.
2. Lubricate seal around quarter light with soft soap.
3. Position quarter light and seal to flange at bottom rear corner of window aperture and rotate into top rear corner. Using dividing bar, pull quarter light rearwards to locate seal around quarter light on flange.

4. Starting at top of divider bar, push seal onto top flange and locate in top front corner. Ensure radius of seal matches door profile.
5. Ease seal away from front flange and locate seal in bottom front corner. Ensure radius of seal at bottom front corner matches profile of door and that seal is still correctly located in top front corner, then push seal onto front flange.
6. Push seal onto bottom flange.
7. Fit rear door glass. **See this section.**

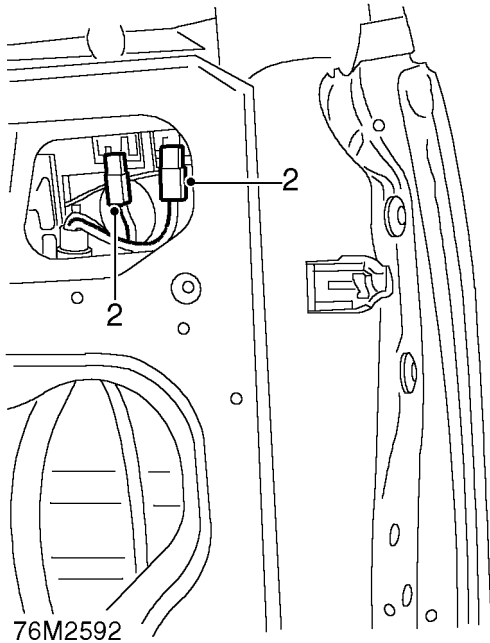


SCREEN - REAR

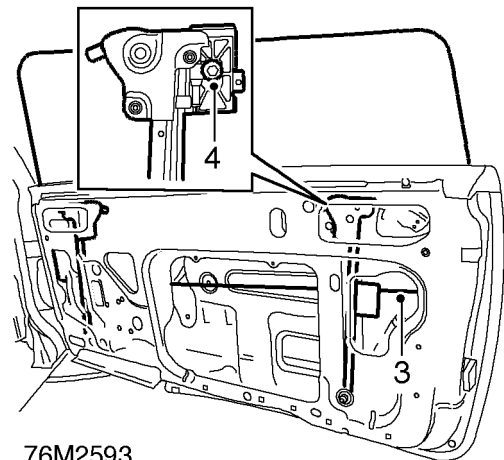
Service repair no - 76.31.20

Remove

1. Remove tail door water shedder. *See this section.*



2. Disconnect 2 Lucars from heater element.



3. Lower screen to access clamp bolts.

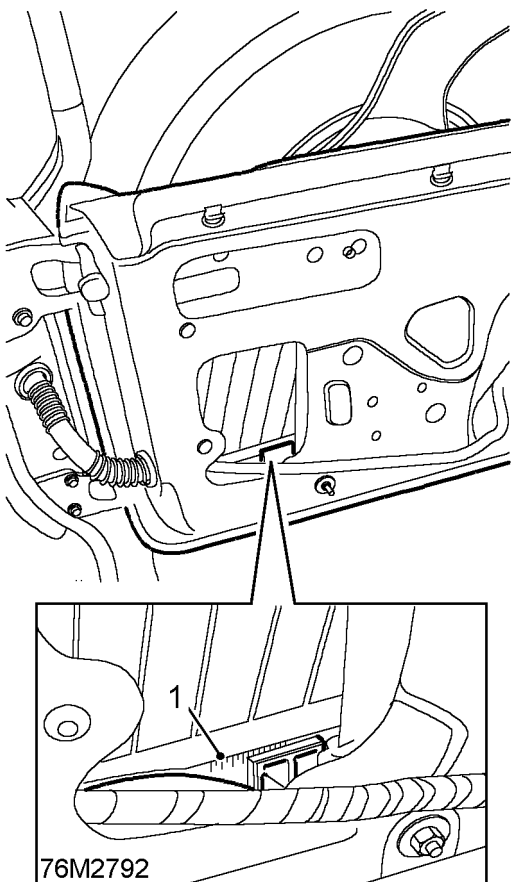
CAUTION: Remove screen carefully to avoid damaging element connections.

4. Loosen both clamp bolts, release and remove rear screen.

Refit



CAUTION: Fit screen carefully to avoid damaging heater element connections.



1. Position screen to door and align in clamps using timing marks on screen.
2. Ensure glass is fully pushed down in clamp closest to door hinge, then tighten clamp bolt. Position screen horizontally by lifting clamp closest to door latch so that screen heater element is aligned with waist seal.
3. Tighten clamp bolts to 8 Nm.
4. Raise screen and connect Lucars to screen heater element.
5. Ensure a 5mm equal gap exists between screen and both 'E' post finishers. If required, adjust screen again using timing marks.
6. Loosen lower adjuster lock nuts.
7. Loosen pre-load screws so screen clears seal.
8. Adjust pre-load screws until screen is just in contact with seal.
9. Adjust pre-load screws until screen applies a 1mm pre-load on seal.

10. Ensure there is full screen to seal contact.
11. Lower glass and tighten lock nuts to 14 Nm.



CAUTION: Always tighten lock nuts with the screen lowered.

12. Recheck pre-load.
13. Raise and lower screen to confirm correct alignment.
14. Fit water shedder. **See this section.**



QUARTER LIGHT - REAR DOOR

Service repair no - 76.31.31

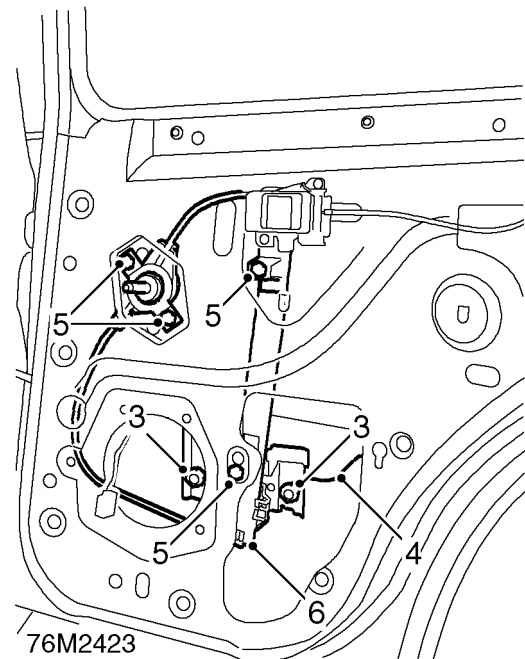
The procedure for renewing the quarter light is identical to renewing the rear door glass channel seal. **See this section.**

REGULATOR - REAR DOOR GLASS

Service repair no - 76.31.46

Remove

1. Remove water shedder from rear door. **See this section.**
2. Lower glass to access clamp nuts.



3. Loosen 2 nuts securing glass to clamps.
4. Release glass from clamps, raise glass and secure in position with a suitable wedge.
5. Remove 4 bolts securing regulator to door.
6. Manoeuvre regulator into bottom of door and remove through aperture.

Refit

1. Position regulator in door and align to bolt holes, fit and tighten bolts.
2. Remove wedge and lower glass.
3. Locate glass to clamps and tighten clamp nuts to 8 Nm .
4. Raise and lower glass to ensure correct operation.
5. Fit water shedder. **See this section.**

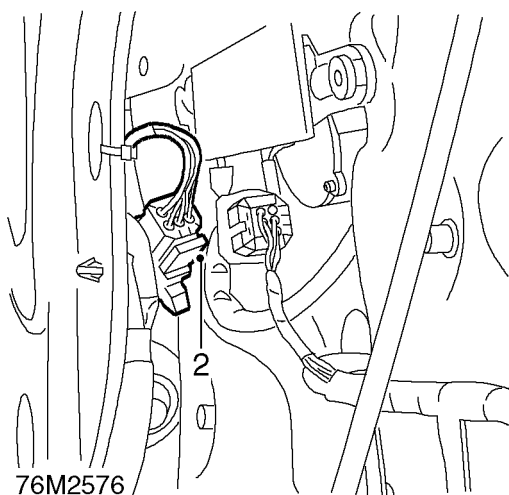
BODY

REGULATOR - REAR SCREEN

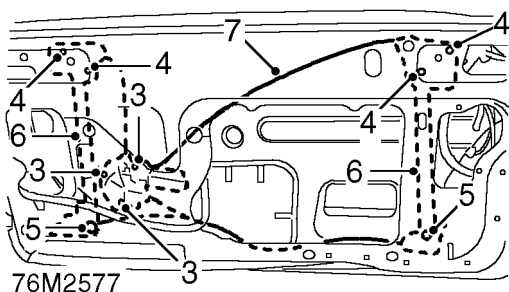
Service repair no - 76.31.65

Remove

1. Remove rear screen. **See this section.**



2. Disconnect multiplug from regulator motor.



3. Remove 3 nuts securing regulator motor.
4. Remove 4 nuts securing top of cable guides.
5. Remove 2 nuts securing pre-load adjusters.
6. Release regulator from door.
7. Remove regulator from door.

Refit

1. Position regulator to door and unclip motor transit package from rail.
2. Connect harness clip and align regulator to door.
3. Fit pre-load adjusters to cable guides and tighten nuts.
4. Fit and tighten nuts to top of cable guides.
5. Fit and tighten nuts to regulator motor.
6. Connect multiplug to regulator motor.
7. Fit rear screen. **See this section.**

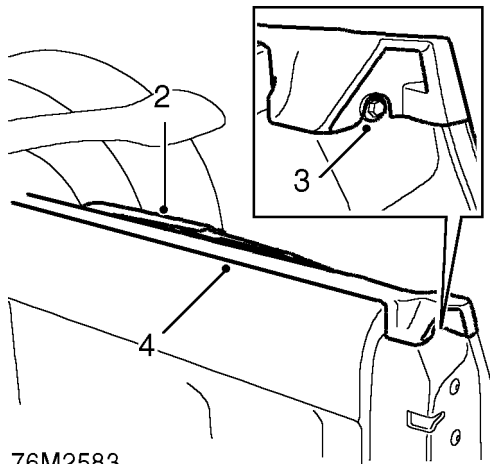


WAIST SEAL - TAIL DOOR

Service repair no - 76.31.67

Remove

1. Lower rear screen.



76M2583

2. Raise wiper blade away from seal.
3. Remove 2 screws from ends of seal.
4. Release seal from door flanges.
5. Remove waist seal.

Refit

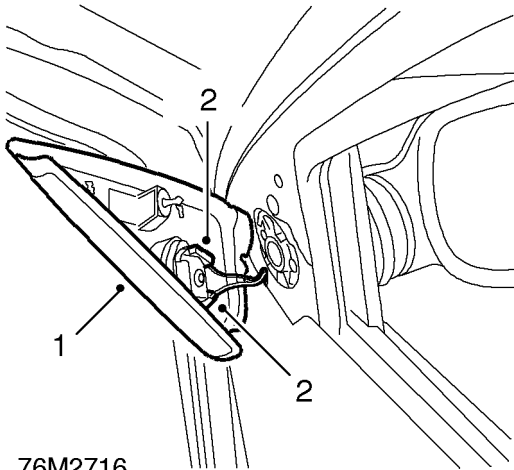
1. Position seal to door flanges.
2. Fit and tighten screws.
3. Lower wiper blade onto seal.
4. Raise rear screen.

BODY

CASING - FRONT DOOR - 3 DOOR

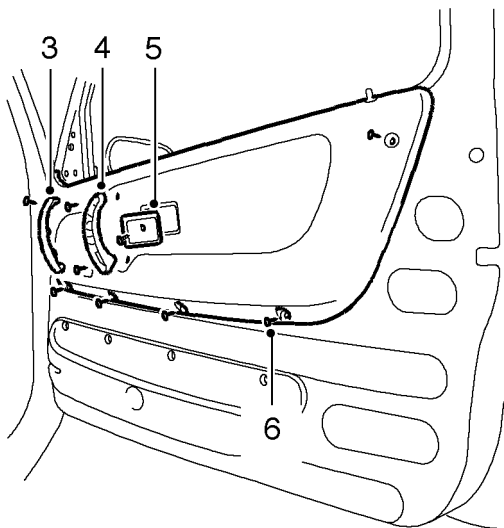
Service repair no - 76.34.01

Remove



76M2716

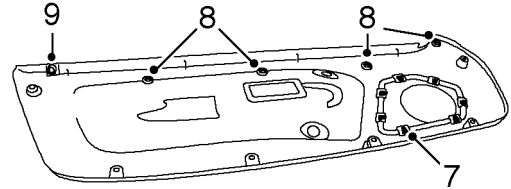
1. Release cheater panel.
2. Disconnect Lucars and remove cheater panel.



76M2717

3. Remove door pull centre trim.
4. Remove 2 screws securing door pull and remove door pull.
5. Remove screw securing door handle escutcheon and remove escutcheon.

6. Remove 6 Torx screws securing door casing, release casing from 3 studs and sill button, remove casing.



76M2718

7. Release 7 clips securing speaker grill and remove grill.
8. Remove 4 casing studs.
9. Remove sill button support.

Refit

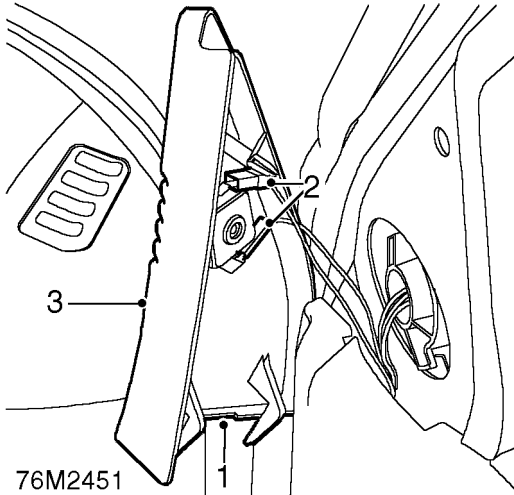
1. Position speaker grill and secure clips.
2. Fit sill button support.
3. Ensure casing studs are in position.
4. Position casing to door, locate sill button and secure in studs.
5. Fit and tighten Torx screws.
6. Position door escutcheon, fit and tighten screw.
7. Position door pull, fit and tighten screws.
8. Fit door pull centre trim.
9. Connect Lucars to cheater panel and locate panel in position.



CASING - FRONT DOOR - 5 DOOR

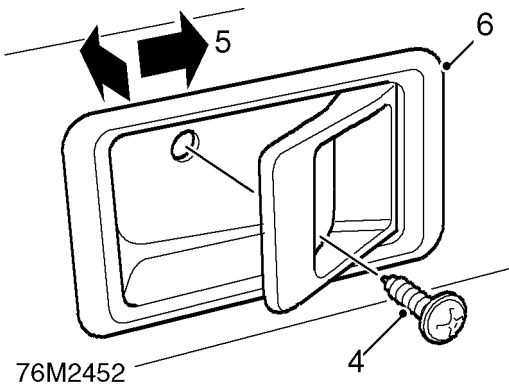
Service repair no - 76.34.01

Remove



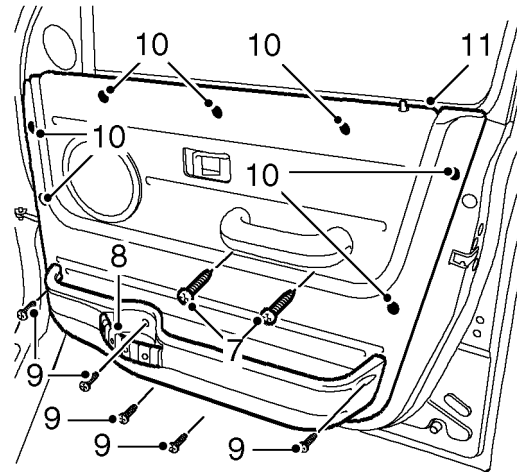
76M2451

1. Release cheater panel from door.
2. Disconnect Lucars from tweeter speaker.
3. Remove cheater panel.



76M2452

4. Remove screw securing door release escutcheon.
5. Push escutcheon in and to the rear of door to release securing catch.
6. Remove escutcheon.

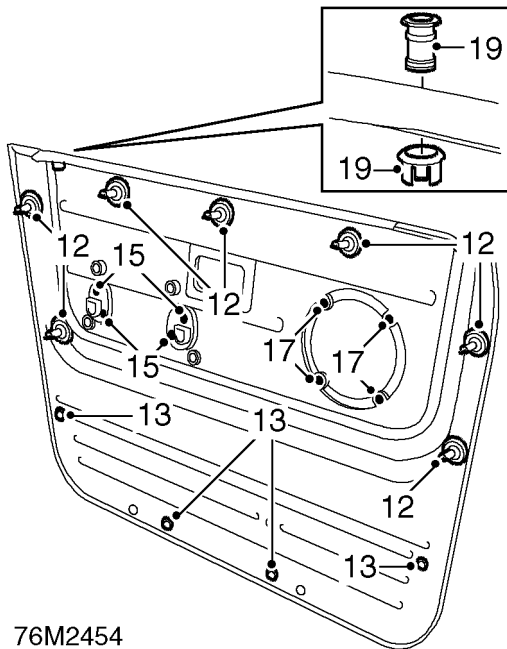


76M2453

7. Remove 2 screws from door pull.
8. Remove cup retainer.
9. Remove 5 screws securing door pocket.
10. Release 7 trim studs.
11. Remove casing.

BODY

Do not carry out further dismantling if component is removed for access only.



76M2454

Refit

1. Position casing to door and engage trim studs.
2. Fit screws securing door pocket.
3. Fit cup holder.
4. Fit door pull.
5. Position door release escutcheon and secure with screw.
6. Connect Lucars to tweeter speaker.
7. Fit cheater panel.

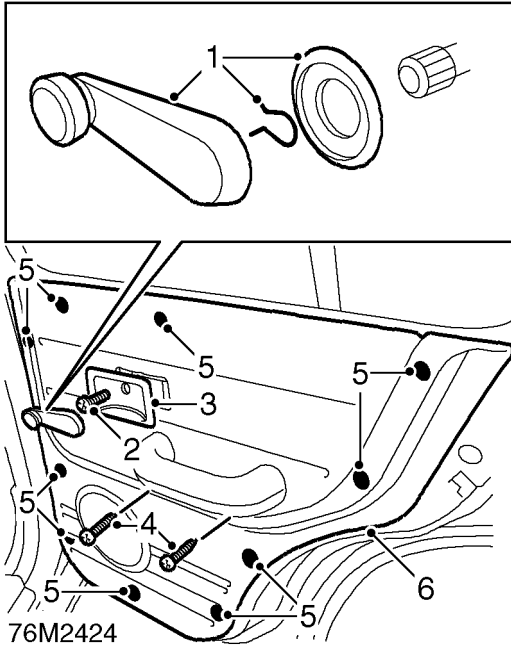
12. Remove 7 trim studs from casing.
13. Remove 4 Torx screws securing door pocket.
14. Remove door pocket.
15. Remove 4 Torx screws from door pull.
16. Remove door pull.
17. Remove 4 Torx screws from door speaker grille.
18. Remove speaker grille.
19. Release retainer and remove sill button guide.
20. Fit sill button guide to replacement casing and secure with retainer.
21. Fit speaker grille to replacement casing and secure with Torx screws.
22. Fit door pull to replacement casing and secure with Torx screws.
23. Fit door pocket to replacement casing and secure with Torx screws.
24. Fit trim studs to replacement casing.



CASING - REAR DOOR

Service repair no - 76.34.04

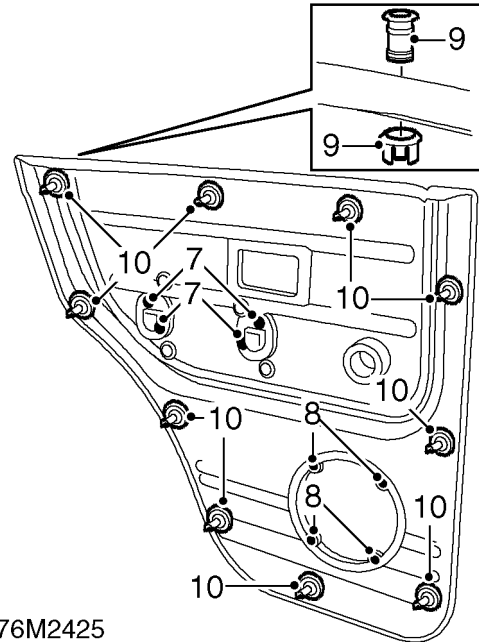
Remove



76M2424

1. Remove clip from window winder handle, remove handle and escutcheon.
2. Remove screw securing door release escutcheon.
3. Push escutcheon in and to the rear of door to release from securing catch, remove escutcheon.
4. Remove 2 screws from door pull.
5. Release 10 trim studs.
6. Remove casing.

Do not carry out further dismantling if component is removed for access only.



76M2425

7. Remove 4 Torx screws from door pull, and remove door pull.
8. Remove 4 Torx screws from speaker grille and remove grille.
9. Release retainer and remove sill button guide.
10. Remove 10 trim studs.
11. Fit trim studs to replacement trim casing.
12. Fit sill button guide to replacement casing and secure with retainer.
13. Fit speaker grille to replacement casing and secure with Torx screws.
14. Fit door pull to replacement casing and secure with Torx screws.

Refit

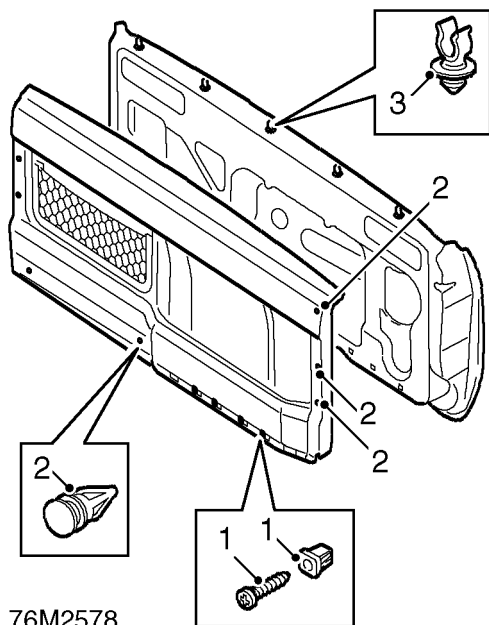
1. Position casing to door and engage trim studs.
2. Fit door pull screws.
3. Position door release escutcheon and secure with screw.
4. Fit window winder escutcheon and window winder and secure with clip.

BODY

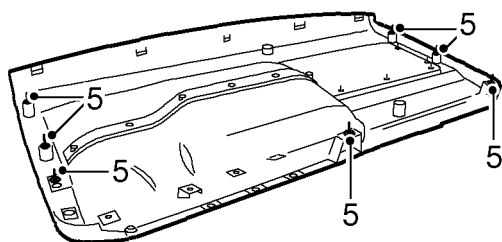
CASING - TAIL DOOR

Service repair no - 76.34.10

Remove



1. Remove 4 screws securing bottom of casing.
2. Release 7 clips securing sides and bottom of casing.
3. Release 5 clips securing top of casing.



4. Remove casing.
5. Remove 7 trim studs.

Refit

1. Ensure trim studs are in position.
2. Position casing and secure in top clips.
3. Secure clips on side and bottom of casing.
4. Fit screws to bottom of casing.



WATER SHEDDER - LOWER - 3 DOOR

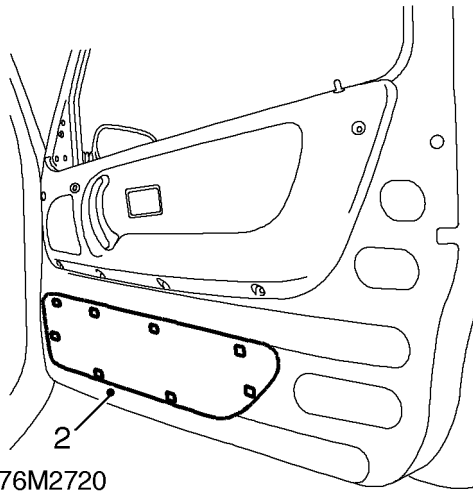
Service repair no - 76.34.18



NOTE: Always replace a damaged water shedder.

Remove

1. Remove front door pocket. **See this section.**



2. Release and discard water shedder.

Refit

1. Clean door contact area with white spirit.
2. Position NEW water shedder to door and seal in position, by applying hand pressure to centre bottom of shedder first then move out from this point in both directions applying an even pressure to the seal, smooth out any creases.



CAUTION: It is crucial that no creases are present along the base of the water shedder.



NOTE: To obtain an effective seal when fitting a new water shedder, ensure that the water shedder and door contact surface are at room temperature: 18 °C to 30 °C.

3. Fit front door pocket. **See this section.**

POCKET - FRONT DOOR - 3 DOOR

Service repair no - 76.34.19

Remove

1. Remove 8 Torx screws securing pocket to door and remove pocket.

Refit

1. Position pocket, fit and tighten Torx screws.

BODY

WATER SHEDDER - UPPER - 3 DOOR

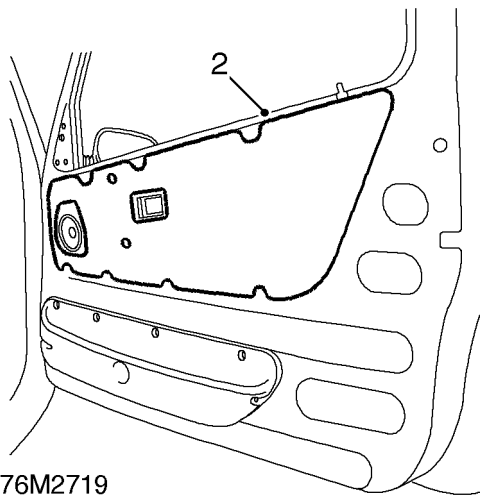
Service repair no - 76.34.24



NOTE: Always replace a damaged water shedder.

Remove

1. Remove front door casing. *See this section.*



76M2719

2. Release and discard water shedder.

Refit

1. Clean door contact area with white spirit.
2. Position NEW water shedder to door and seal in position, by applying hand pressure to centre bottom of shedder first then move out from this point in both directions applying an even pressure to the seal, smooth out any creases.



CAUTION: It is crucial that no creases are present along the base of the water shedder.



NOTE: To obtain an effective seal when fitting a new water shedder, ensure that the water shedder and door contact surface are at room temperature: 18 °C to 30 °C.

3. Fit front door casing. *See this section.*



WATER SHEDDER - TAIL DOOR

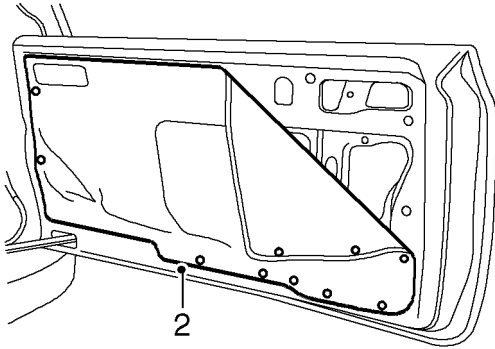
Service repair no - 76.34.25



NOTE: Always replace a damaged water shedder.

Remove

1. Remove tail door casing. *See this section.*



76M2551

2. Release and discard water shedder.

Refit

1. Clean door contact area with white spirit.
2. Position NEW water shedder to door and seal in position, by applying hand pressure to centre bottom of shedder first then move out from this point in both directions applying an even pressure to the seal, smooth out any creases.



CAUTION: It is crucial that no creases are present along the base of the water shedder.



NOTE: To obtain an effective seal when fitting a new water shedder, ensure that the water shedder and door contact surface are at room temperature: 18 °C to 30 °C.

3. Fit tail door casing. *See this section.*

BODY

WATER SHEDDER - FRONT DOOR - 5 DOOR

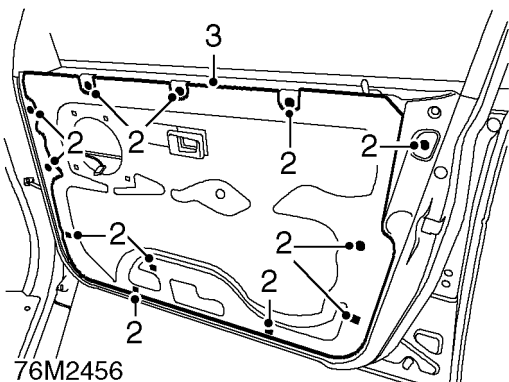
Service repair no - 76.34.26



NOTE: Always replace a damaged water shedder.

Remove

1. Remove front door speaker. **See ELECTRICAL, Repairs.**



2. Noting their fitted position, remove door casing retainers.
3. Release and discard water shedder.

Refit

1. Clean door contact area with white spirit.
2. Position NEW water shedder to door and seal in position, by applying hand pressure to centre bottom of shedder first then move out from this point in both directions applying an even pressure to the seal, smooth out any creases.



CAUTION: It is crucial that no creases are present along the base of the water shedder.



NOTE: To obtain an effective seal when fitting a new water shedder, ensure that the water shedder and door contact surface are at room temperature: 18 °C to 30 °C.

3. Fit door casing retainers.
4. Fit front door speaker. **See ELECTRICAL, Repairs.**



WATER SHEDDER - REAR DOOR

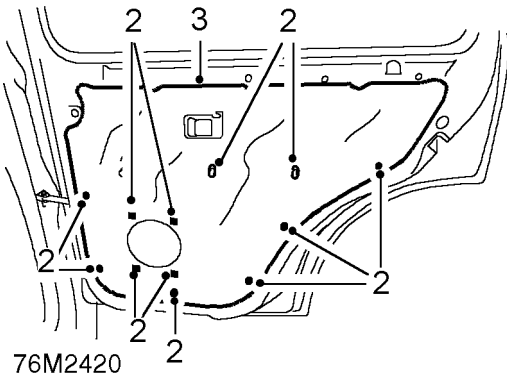
Service repair no - 76.34.28



NOTE: Always replace a damaged water shedder.

Remove

1. Remove rear door speaker. **See ELECTRICAL, Repairs.**



2. Noting their fitted position, remove 10 trim stud retainers and 2 door pull securing screw retainers.
3. Release and discard water shedder.

Refit

1. Clean door contact area with white spirit.
2. Position NEW water shedder to door and seal in position, by applying hand pressure to centre bottom of shedder first then move out from this point in both directions applying and even pressure to the seal, smooth out any creases.



CAUTION: It is crucial that no creases are present along the base of the water shedder.



NOTE: To obtain an effective seal when fitting a new water shedder, ensure that the water shedder and door contact surface are at room temperature: between 18 °C to 30 °.

3. Fit 10 trim stud retainers and 2 door pull securing screw retainers.
4. Fit rear door speaker. **See ELECTRICAL, Repairs.**

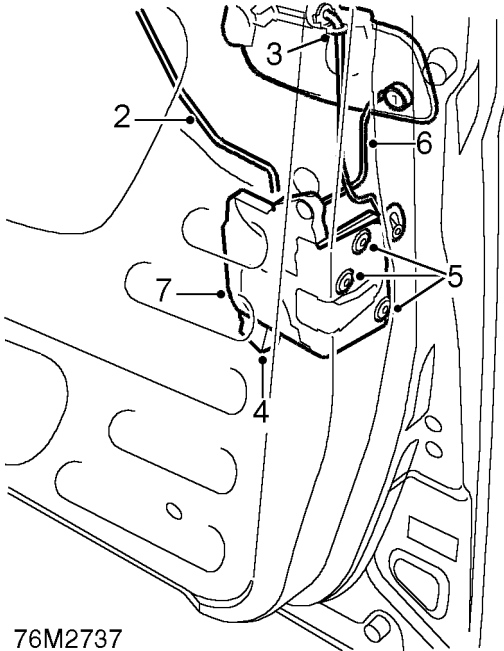
BODY

LATCH - FRONT DOOR - 3 DOOR

Service repair no - 76.37.12

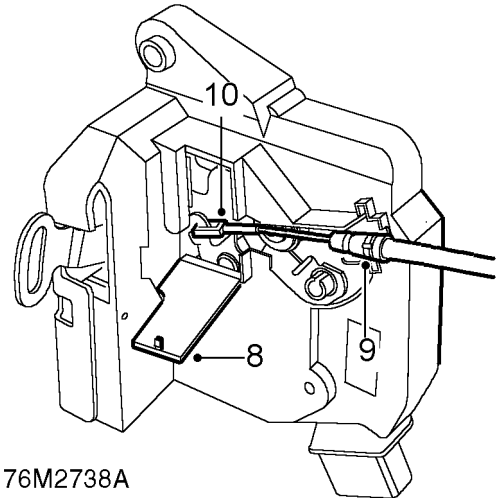
Remove

1. Remove upper water shedder. **See this section.**



76M2737

2. Remove sill button lock rod from latch.
3. Release control rod from exterior handle.
4. Disconnect multiplug from latch.
5. Remove 3 Torx screws from latch
6. On driver's door, release door lock barrel paddle from latch.
7. Remove latch from aperture.



76M2738A

8. Open latch security flap.
9. Release interior release cable clamp from latch.
10. Disengage interior release cable from latch.

Refit

1. Secure interior release cable to latch and close latch security flap.
2. Fit interior release cable clamp to latch.
3. Position latch to door. On driver's door, align lock barrel paddle to latch.
4. Fit and tighten Torx screws securing latch.
5. Connect multiplug to latch.
6. Connect exterior handle control rod to latch.
7. Fit sill button lock rod to latch.
8. Check operation of latch.
9. Fit front door water shedder. **See this section.**

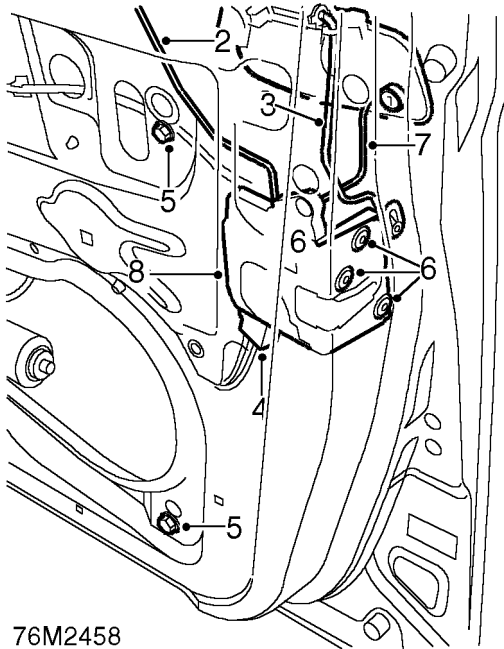


LATCH - FRONT DOOR - 5 DOOR

Service repair no - 76.37.12

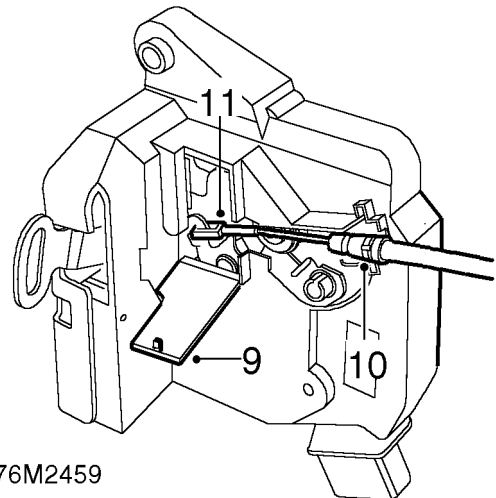
Remove

1. Remove water shedder from front door. **See this section.**



76M2458

2. Remove sill button lock rod from latch.
3. Release control rod from exterior handle.
4. Disconnect multiplug from latch.
5. Remove 2 screws securing RH glass cable guide and position guide aside.
6. Remove 3 Torx screws from latch
7. On driver's door, release door lock barrel paddle from latch.
8. Remove latch from aperture.



76M2459

9. Open latch security flap.
10. Release interior release cable clamp from latch.
11. Disengage interior release cable from latch.

Refit

1. Secure interior release cable to latch and close latch security flap.
2. Fit interior release cable clamp to latch.
3. Position latch to door. On driver's door, align lock barrel paddle to latch.
4. Fit and tighten Torx screws securing latch.
5. Position RH glass cable guide and tighten screws.
6. Connect multiplug to door latch.
7. Connect exterior handle control rod to latch.
8. Fit sill button lock rod to latch.
9. Check operation of door latch.
10. Fit front door water shedder. **See this section.**

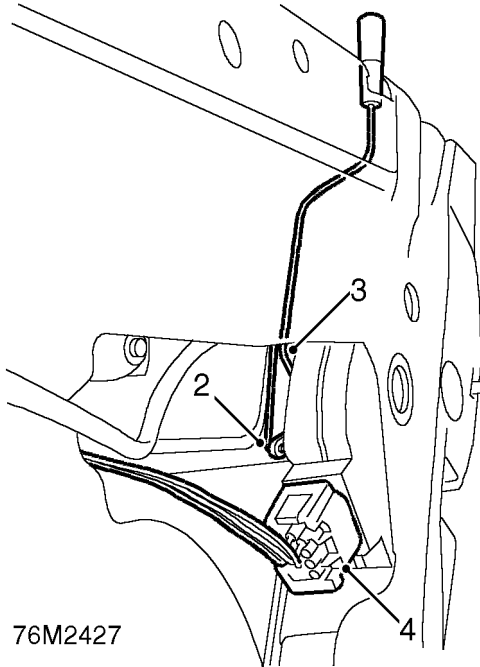
BODY

LATCH - REAR DOOR

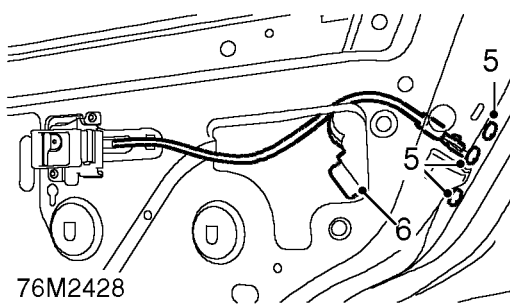
Service repair no - 76.37.13

Remove

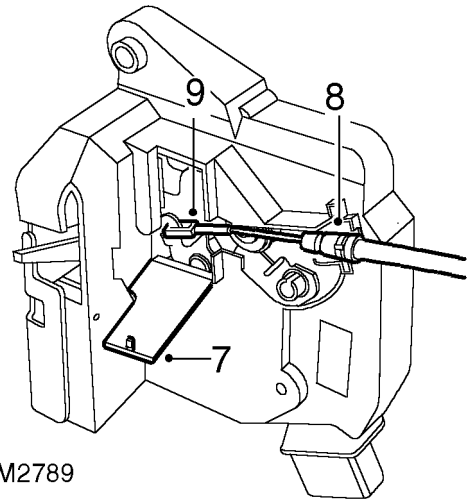
1. Remove rear door water shedder **See this section.**



2. Release exterior handle control rod from latch.
3. Release sill button lock rod and remove lock rod.
4. Disconnect multiplug from latch.



5. Remove 3 Torx screws securing latch.
6. Remove latch through aperture.



7. Open latch security flap.
8. Release interior release cable clamp from latch.
9. Disengage interior release cable from latch.

Refit

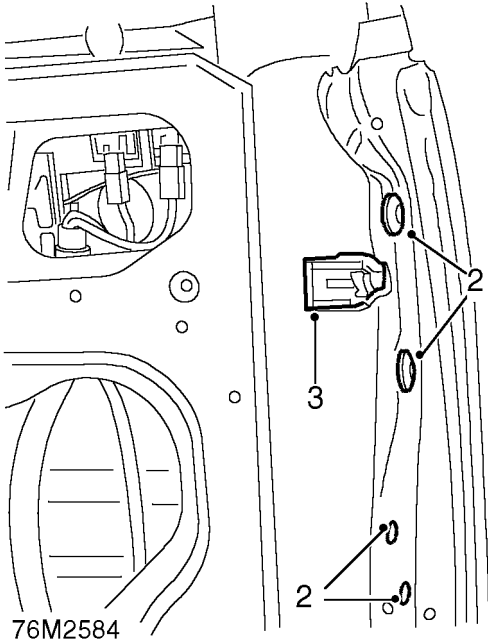
1. Secure interior release cable to latch and close latch security flap.
2. Position latch to door, fit and tighten torx screws.
3. Connect multiplug to latch.
4. Connect exterior handle control rod to latch.
5. Fit and secure sill button lock rod.
6. Check operation of latch.
7. Fit water shedder. **See this section.**

LATCH - TAIL DOOR

Service repair no - 76.37.16

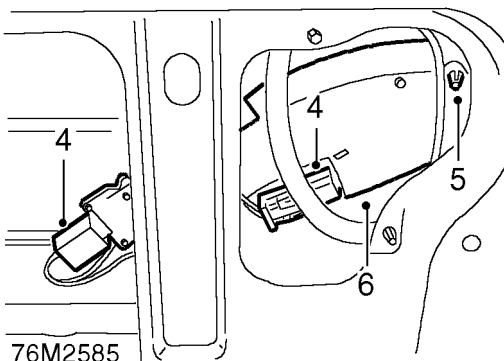
Remove

1. Remove tail door water shedder. **See this section.**



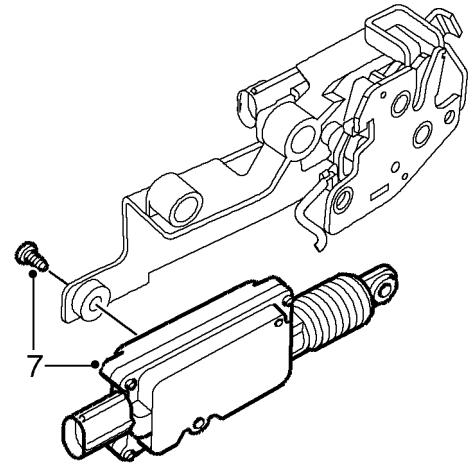
76M2584

2. Remove 4 screws securing door latch.
3. Release door latch to access harness clips and multiplugs.



76M2585

4. Disconnect 2 multiplugs from door latch.
5. Release door harness clip from latch.
6. Remove door latch.



76M2586

7. Remove screw from solenoid motor and remove motor from latch.

Refit

1. Position solenoid motor to latch, fit and tighten screw.
2. Position door latch, connect multiplugs and harness clips.
3. Locate door latch in position, fit and tighten screws.
4. Fit water shedder. **See this section.**

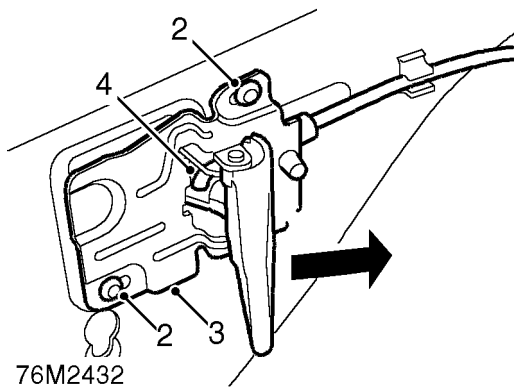
BODY

DOOR RELEASE - INTERIOR - FRONT DOOR - 3 DOOR

Service repair no - 76.37.31

Remove

1. Remove upper water shedder. **See this section.**



2. Drill out 2 rivets from door release.
3. Remove door release.
4. Release cable from door release.

Refit

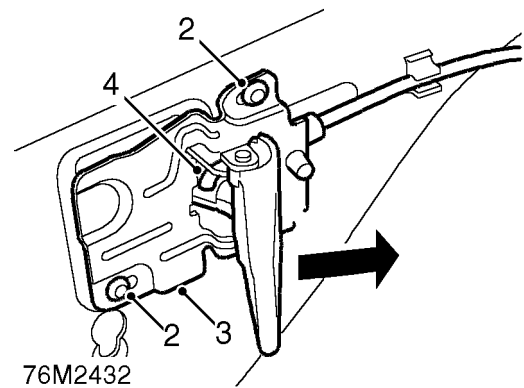
1. Connect cable to door release.
2. Position door release and secure with rivets.
3. Fit water shedder. **See this section.**

DOOR RELEASE - INTERIOR - FRONT DOOR - 5 DOOR

Service repair no - 76.37.31

Remove

1. Remove front door water shedder. **See this section.**



2. Drill out 2 rivets from door release.
3. Remove door release.
4. Release cable from door release.

Refit

1. Connect cable to door release.
2. Position door release and secure with rivets.
3. Fit water shedder. **See this section.**

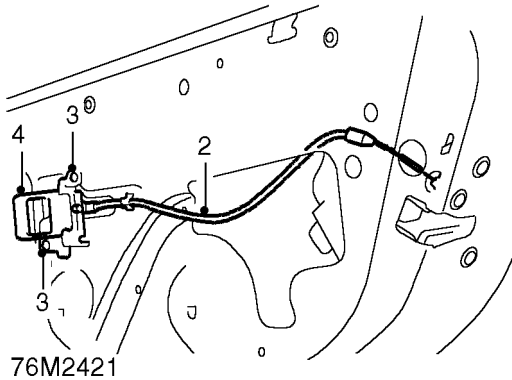


DOOR RELEASE - INTERIOR - REAR DOOR

Service repair no - 76.37.32

Remove

1. Remove rear door water shedder. **See this section.**



2. Release cable from door release.
3. Drill out 2 rivets from door release.
4. Remove door release.

Refit

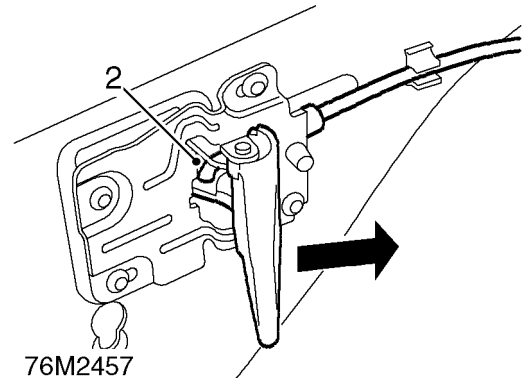
1. Connect cable to door release.
2. Position door release and secure with rivets.
3. Fit water shedder. **See this section.**

CABLE - INTERIOR DOOR RELEASE - FRONT DOOR

Service repair no - 76.37.60

Remove

1. Remove front door latch. **See this section.**



2. Release cable from interior door release and remove cable.

Refit

1. Connect cable to interior door release.
2. Fit door latch. **See this section.**

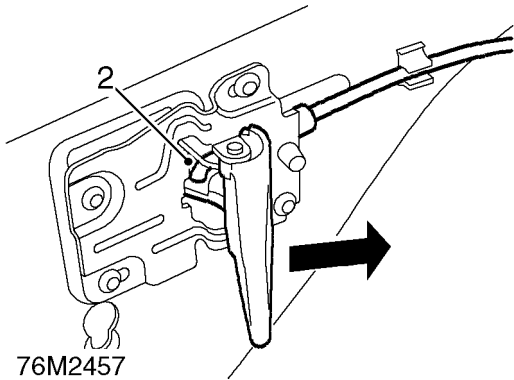
BODY

CABLE - INTERIOR DOOR RELEASE - REAR DOOR

Service repair no - 76.37.61

Remove

1. Remove rear door latch. **See this section.**



2. Release cable from door release and remove cable.

Refit

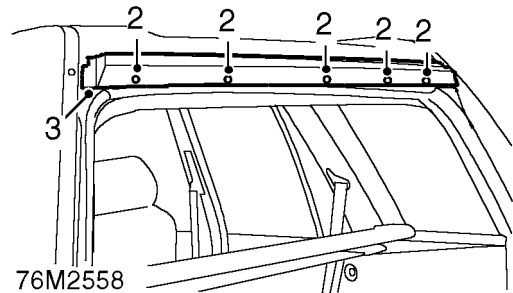
1. Connect and secure cable to door release.
2. Fit door latch. **See this section.**

FINISHER - UPPER - TAIL DOOR GLASS

Service repair no - 76.43.74

Remove

1. Remove tail door glass side finishers. **See this section.**



2. Release 5 clips securing finisher to bracket.
3. Remove tail door glass upper finisher.
4. Remove and discard clips from finisher and/or bracket.

Refit

1. Fit NEW clips to finisher.
2. Fit finisher and secure clips to bracket.
3. Fit tail door glass side finishers. **See this section.**

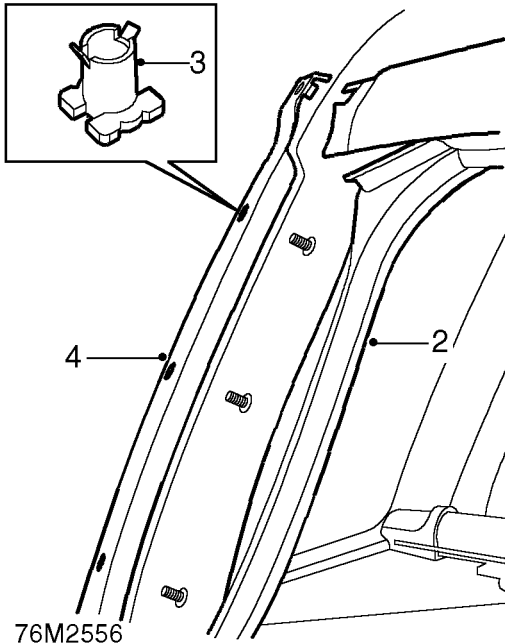


FINISHER - SIDE - TAIL DOOR GLASS

Service repair no - 76.43.81

Remove

1. Open tail door.



2. Release tail door glass seal from aperture for access to side finisher fixings.
3. Using a suitable trim stud removal tool, release 3 side finisher fixings from studs on body.
4. Remove side finisher from upper fixing.
5. Remove and discard fixings from finisher.

Refit

1. Fit NEW fixings to finisher.
2. Fit door glass seal to flange.
3. Fit finisher and secure fixings.

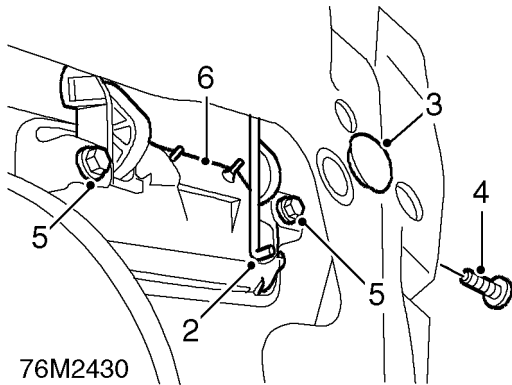
BODY

HANDLE - EXTERIOR - REAR DOOR

Service repair no - 76.58.02

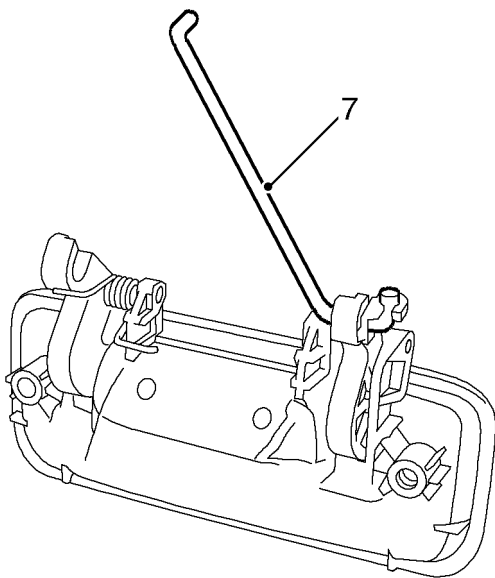
Remove

1. Remove rear door water shedder. **See this section.**



76M2430

2. Release door latch control rod.
3. Remove grommet to access screw.
4. Remove 3 Torx screws securing door latch release and lower latch to access screw.
5. Remove 2 screws securing door handle.
6. Remove door handle.



76M2431

7. Remove door latch control rod.

Refit

1. Fit door latch control rod to handle.
2. Position handle to door and tighten securing screws.
3. Position door latch, fit and tighten Torx screws.
4. Fit grommet.
5. Connect door latch control rod.
6. Fit water shedder. **See this section.**

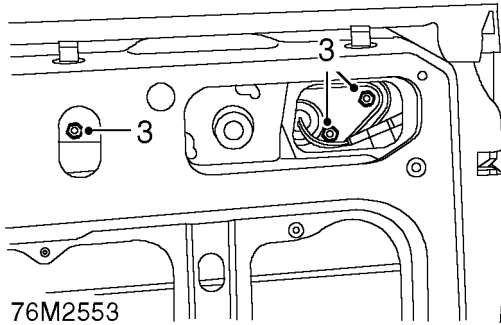


HANDLE - EXTERIOR - TAIL DOOR

Service repair no - 76.58.05

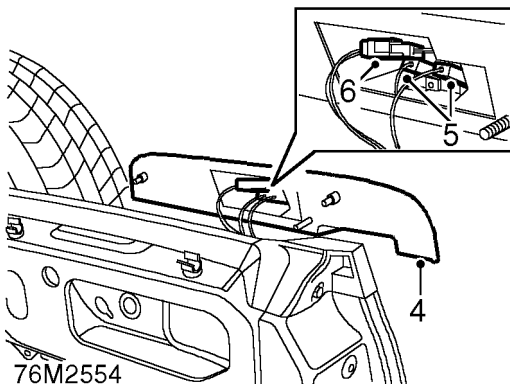
Remove

1. Remove tail door water shedder. *See this section.*
2. Raise glass by clicking latch.



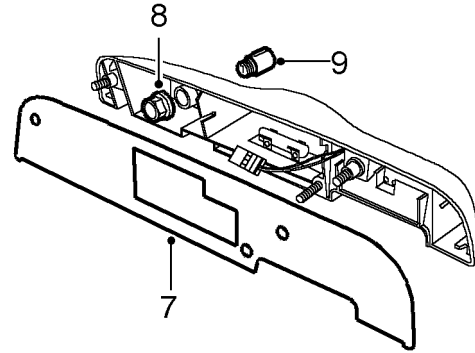
76M2553

3. Remove 3 nuts securing handle to tail door.
4. Release handle from tail door.



76M2554

5. Disconnect 2 Lucars from number plate lamp.
6. Disconnect multiplug from locking mechanism and remove handle.



76M2555

7. Collect gasket.
Do not carry out further dismantling if component is removed for access only.
8. Remove nut from lock barrel.
9. Remove lock barrel from handle.
10. Fit lock barrel to replacement handle. Fit and tighten nut.

Refit

1. Position gasket on handle.
2. Connect multiplug to handle locking mechanism.
3. Connect Lucars to number plate lamp.
4. Position housing on door, fit and tighten nuts to 5 Nm.
5. Fit water shedder. *See this section.*
6. Reset latch to lower glass.
7. Close door.

BODY

HANDLE - EXTERIOR - FRONT DOOR

Service repair no - 76.58.07

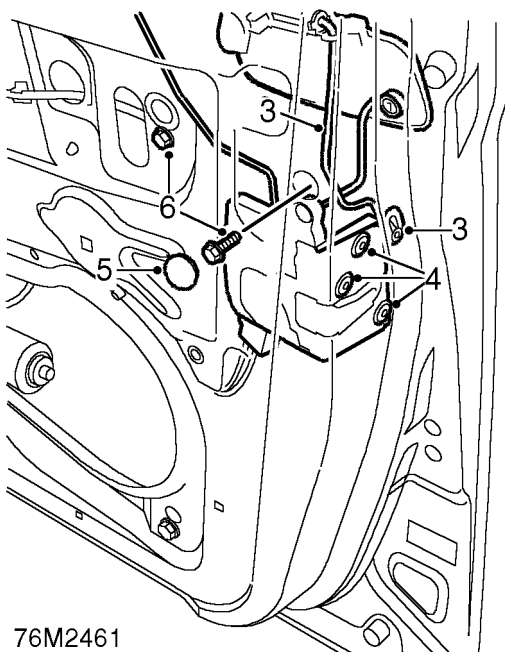
Remove

3 door models

1. Remove upper water shedder. **See this section.**

5 door models

2. Remove front door water shedder. **See this section.**



76M2461

All models

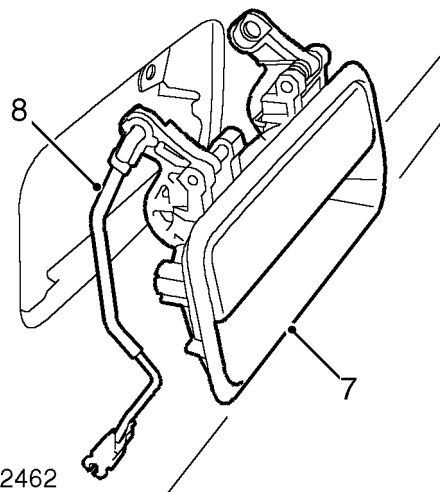
3. Release clip securing latch control rod to door latch, and release rod.

5 door models

4. Remove Torx screws securing door latch, lower latch and release door lock paddle.

All models

5. Remove grommet to access screw.
6. Remove 2 screws securing door handle.



76M2462

7. Remove door handle.
8. Remove latch control rod from handle.

Refit

1. Fit door latch control rod to handle.
2. Position handle to door, fit and tighten screws.
3. Fit grommet.

5 door models

4. Position latch, locate door lock paddle, fit and tighten Torx screws.

All models

5. Connect control rod to door latch.
6. Fit water shedder. **See this section.**

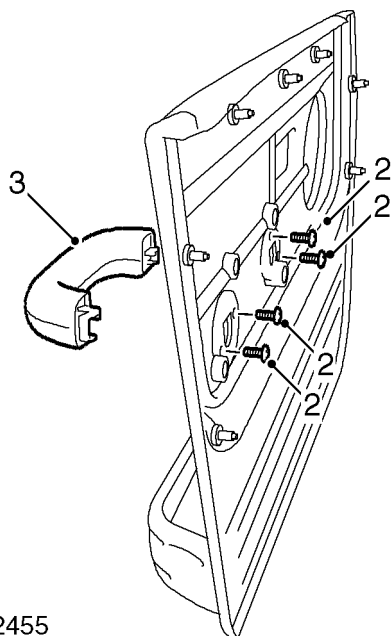


DOOR PULL - FRONT

Service repair no - 76.58.25

Remove

1. Remove front door casing. **See this section.**



76M2455

2. Remove 4 Torx screws securing door pull to door casing.
3. Remove door pull.

Refit

1. Position door pull to door casing, fit and tighten Torx screws.
2. Fit front door casing. **See this section.**

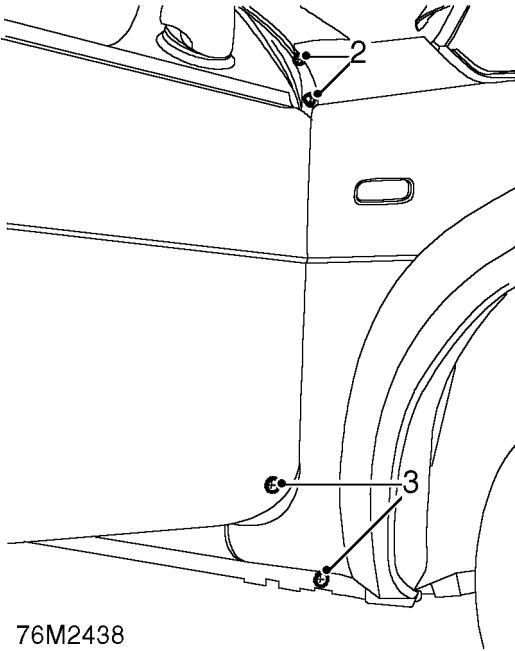


WING - FRONT

Service repair no - 76.10.24

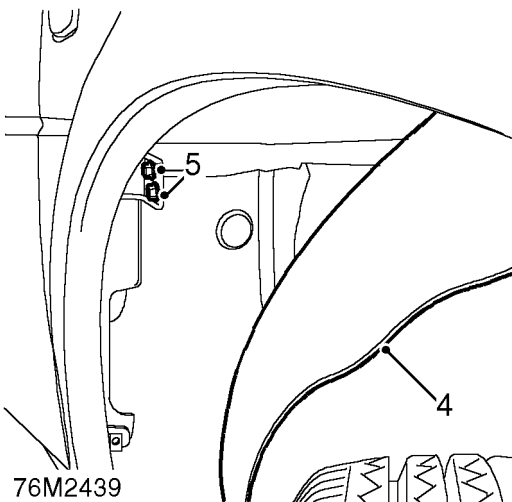
Remove

1. Remove front mud flap. *See this section.*
2. Remove lower sill finisher. *See this section.*



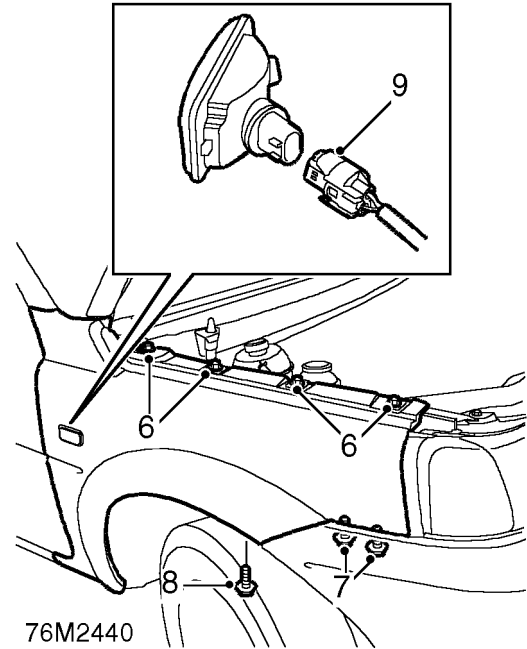
76M2438

3. Remove 3 Torx screws and 1 bolt securing rear of front wing.



76M2439

4. Release wheel arch liner from rear of front wing.
5. Remove 2 bolts securing wing bracket to 'A' post.



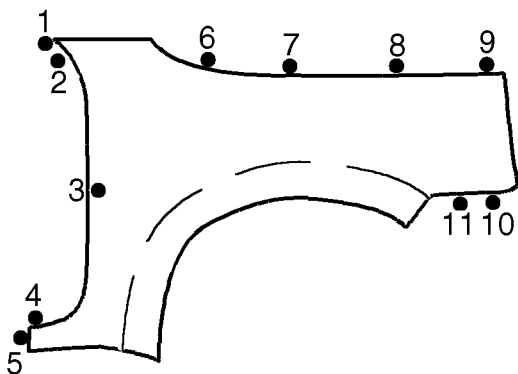
76M2440

6. Remove 4 bolts securing top of wing.
7. Remove 2 bolts securing front of wing.
8. Remove screw securing wheelarch liner to under side of wing.
9. Release wing from body, disconnect multiplug from repeater lamp.
10. Remove front wing from body.

BODY

Refit

1. Position front wing to body.
2. Connect repeater lamp multiplug.
3. Align front wing to body.
4. Fit, but do not tighten, the following:
 - Torx screws and bolt securing rear of wing to 'A' post.
 - Bolts securing wing bracket to 'A' post.
 - Bolts securing top of wing.
 - Bolts securing front of wing.



76M2791

5. Align wing and tighten bolts and Torx screws, in sequence shown above, to 5 Nm.
6. Align wheel arch liner to rear of wing.
7. Fit screw securing wheelarch liner to under side of wing.
8. Fit lower sill finisher. **See this section.**
9. Fit front mud flap. **See this section.**

WHEEL ARCH LINER - FRONT

Service repair no - 76.10.48

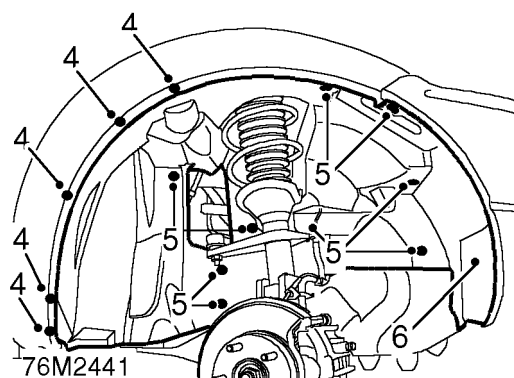
Remove

1. Raise front of vehicle, one side.



WARNING: Support on safety stands.

2. Remove road wheel(s).
3. Remove front mud flap. **See this section.**



4. Remove 5 screws securing wheel arch to front wing.
5. Remove 8 scrivenets securing wheel arch to inner wing.
6. Remove wheel arch liner from inner wing.

Refit

1. Position wheel arch liner to inner wing, locate behind wheel arch cladding.
2. Fit scrivenets securing wheel arch liner to inner wing.
3. Fit screws securing wheel arch liner to front wing.
4. Fit mud flap. **See this section.**
5. Fit road wheel(s) and tighten nuts to correct torque. **See INFORMATION, Torque wrench settings.**
6. Remove stand(s) and lower vehicle.



PANEL - UNDERBELLY

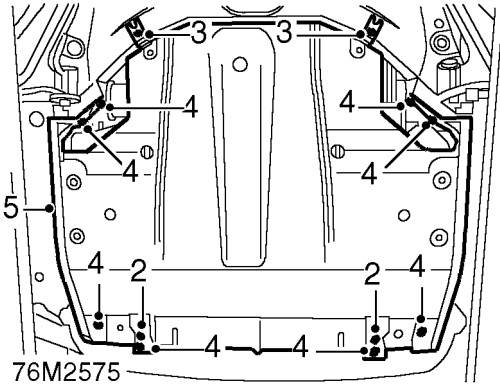
Service repair no - 76.10.50

Remove

1. Raise front of vehicle.



WARNING: Support on safety stands.



2. Remove 2 screws securing bumper valance to underbelly panel brackets.
3. Remove 2 bolts securing rear of underbelly panel.
4. Remove 8 bolts securing underbelly panel frame.
5. Remove underbelly panel.

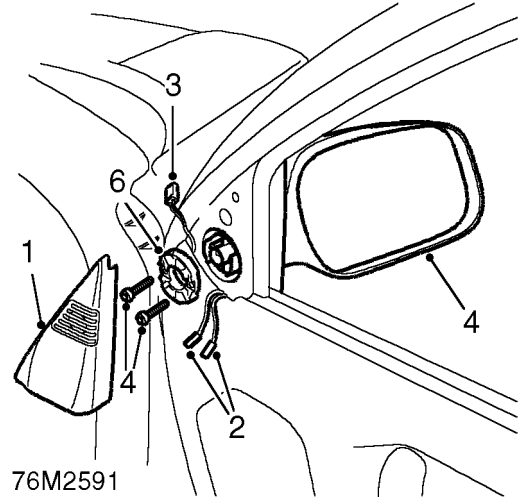
Refit

1. Position underbelly panel to vehicle.
2. Fit bolts securing frame and tighten to 45 Nm.
3. Fit bolts securing rear of panel and tighten to 8 Nm.
4. Fit screws securing bumper valance to brackets.
5. Remove stand(s) and lower vehicle.

MIRROR - EXTERIOR - ELECTRIC

Service repair no - 76.10.57

Remove



1. Remove cheater panel.
2. Disconnect 2 Lucars from tweeter and place cheater panel aside.
3. Disconnect multiplug from mirror.
4. Hold mirror and remove 2 Torx screws.
5. Remove mirror.
6. Collect clamping plate.

Refit

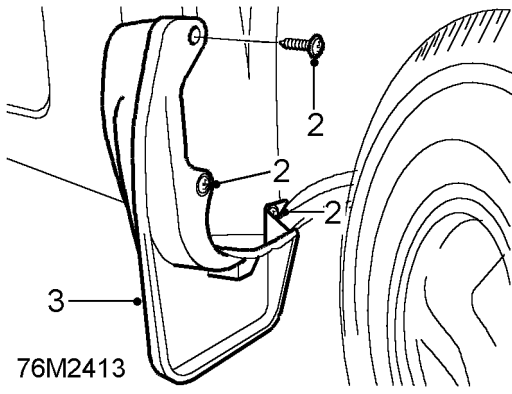
1. Position mirror, locate clamping plate, fit and tighten Torx screws to 6 Nm.
2. Connect multiplug to mirror.
3. Connect Lucars to tweeter in cheater panel.
4. Fit cheater panel.

BODY

MUD FLAP - FRONT

Service repair no - 76.10.83

Remove



1. Turn steering wheel to full lock.
2. Remove 3 screws securing mud flap.
3. Remove mud flap.

Refit

1. Position mud flap to body and secure with screws.
2. Straighten steering.

MUD FLAP - REAR

Service repair no - 76.10.85

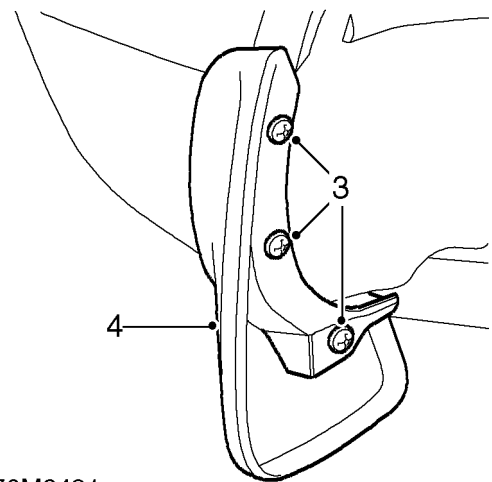
Remove

1. Raise rear of vehicle.



WARNING: Support on safety stands.

2. Remove road wheel(s).



3. Remove 3 screws securing mud flap.
4. Remove mud flap.

Refit

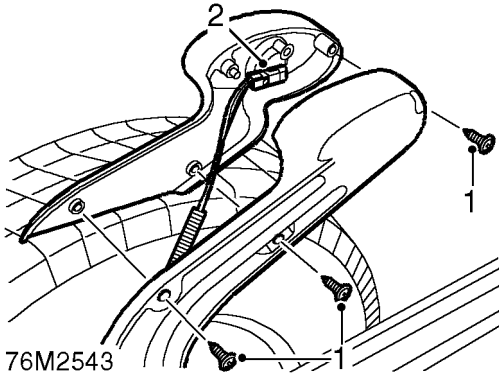
1. Position mud flap to body and secure with screws.



MOUNTING BRACKET - SPARE WHEEL

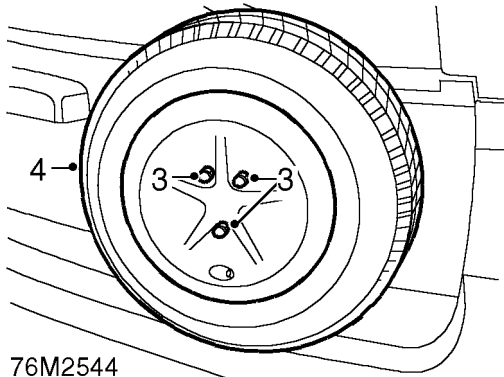
Service repair no - 76.11.18

Remove



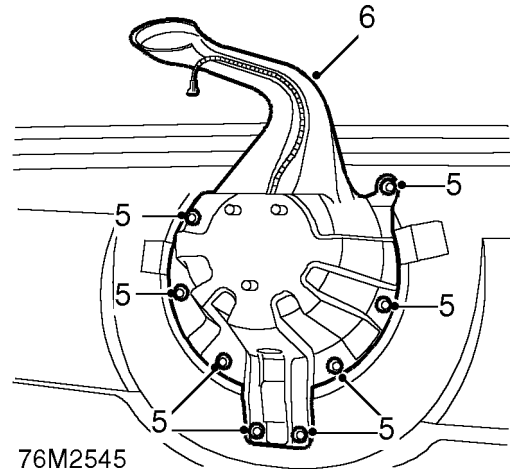
76M2543

1. Lower tail door glass and remove 3 screws securing high mounted stop lamp.
2. Disconnect multiplug and remove lamp.



76M2544

3. Remove 3 nuts securing spare wheel to mounting bracket.
4. Remove spare wheel from mounting bracket.



76M2545

5. Remove 6 bolts and 2 nuts securing spare wheel mounting bracket to tail door.
6. Remove mounting bracket.

Refit

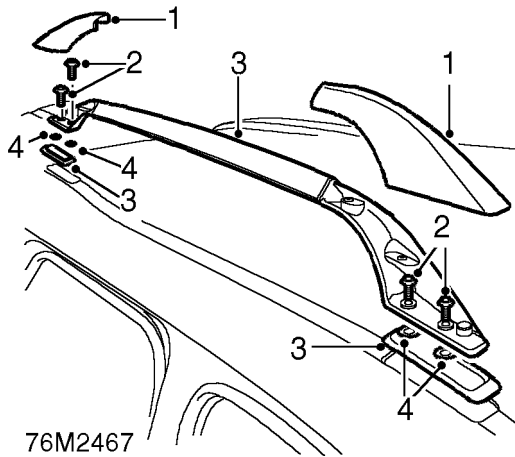
1. Position spare wheel mounting bracket to tail door and tighten bolts to Nm.
2. Tighten mounting bracket nuts to Nm.
3. Position stop lamp and connect multiplug.
4. Fit and tighten screws securing stop lamp.
5. Fit spare wheel and tighten nuts to 45 Nm.
6. Raise tail door glass.

BODY

SIDE RAIL - ROOF RACK - 5 DOOR

Service repair no - 76.11.30

Remove



1. Remove finishers from feet of side rail.
2. Unscrew 4 Torx bolts securing side rail to roof panel.
3. Remove side rail and 2 gaskets.
Do not carry out further dismantling if component is removed for access only.
4. Remove seal from each Torx bolt.
5. Remove Torx bolts from side rail.
6. Fit Torx bolts and seals to replacement side rail.

Refit

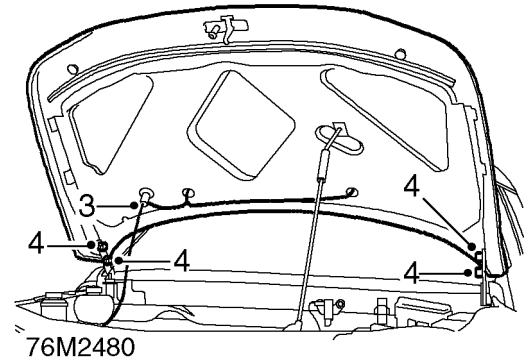
1. Fit gaskets to side rail.
2. Position side rail and tighten Torx bolts to 22 Nm.
3. Fit finishers to feet of side rail.

BONNET

Service repair no - 76.16.01/99

Remove

1. Support bonnet in open position.
2. Fit protection covers to wings and mark hinge outline on bonnet if bonnet is to be refitted.



3. Disconnect windscreen washer tube at elbow joint.
4. With assistance, remove bolts securing bonnet and remove bonnet.

Refit

1. With assistance, position bonnet and align hinges to marks on bonnet.
2. Lightly tighten bolts.
3. Connect windscreen washer tube.
4. Close bonnet to safety catch position, check that bonnet is aligned to both front wings and that gaps are equal.
5. Finally tighten hinge bolts to 9 Nm.



CABLE - BONNET RELEASE

Service repair no - 76.16.29

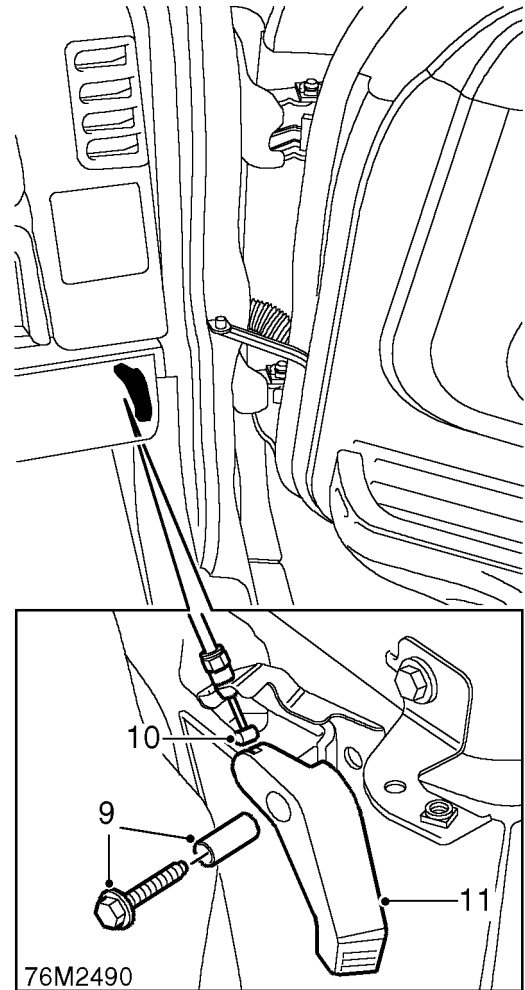
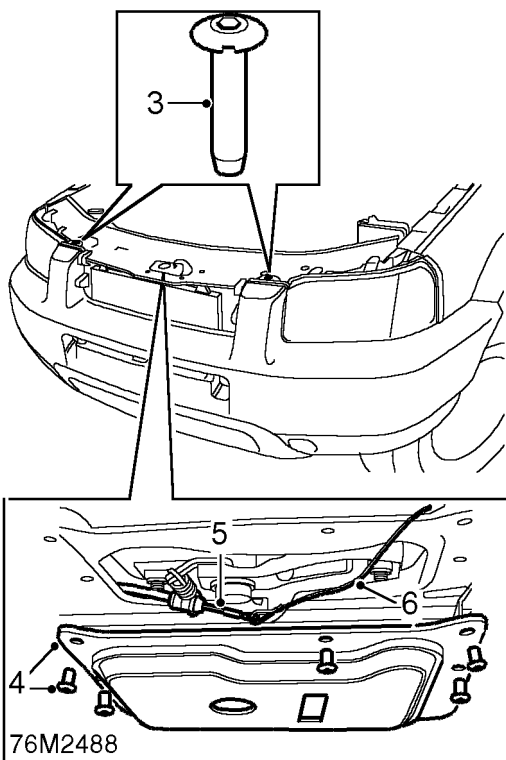
Remove

1. Remove front grille. *See this section.*

Models with air conditioning:

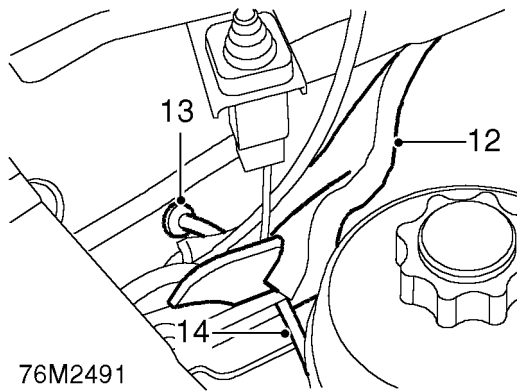
2. Remove condenser. *See AIR CONDITIONING, Repairs.*

All models:



9. Remove bolt securing bonnet release lever to 'A' post lower panel.
10. Remove bonnet release cable from lever.
11. Remove release lever.

3. Remove radiator threaded retainers from bonnet locking platform.
4. Drill out 5 rivets and remove bonnet bonnet latch shield.
5. Disconnect bonnet release cable from lock.
6. Tie a draw string to end of bonnet release cable and pull cable from bonnet locking platform.
7. Untie draw string.
8. Remove 3 cable ties securing bonnet release cable to main harness.



12. Pull sound insulation away from bulkhead for access to bonnet release cable grommet.
13. Remove grommet from bulkhead.
14. Remove bonnet release cable.

Refit

1. Fit bonnet release cable through bulkhead.
2. Position bonnet release lever.
3. Connect bonnet release cable to lever.
4. Fit release lever to 'A' post and tighten bolt to 9 Nm.
5. Fit bonnet release cable grommet to bulkhead.
6. Fit cable ties and secure bonnet release to main harness.
7. Fit sound insulation material to bulkhead.
8. Tie draw string to end of bonnet release cable.
9. Pull on draw string to feed bonnet release cable through bonnet locking platform.
10. Untie draw string and connect bonnet release cable to bonnet lock lever.
11. Fit bonnet latch shield and secure with 5 rivets.
12. Fit and tighten radiator threaded retainers in bonnet locking platform.

Models with air conditioning:

13. Fit condenser. **See AIR CONDITIONING, Repairs.**

All models:

14. Fit front grille. **See this section.**
15. Close bonnet and check for correct locking operation.

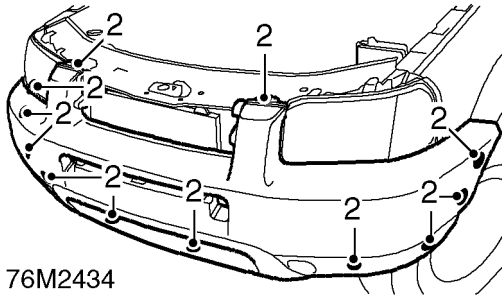


BUMPER VALANCE - FRONT

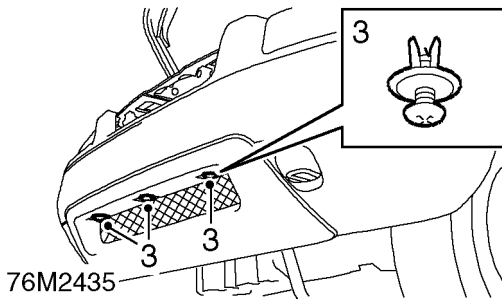
Service repair no - 76.22.72

Remove

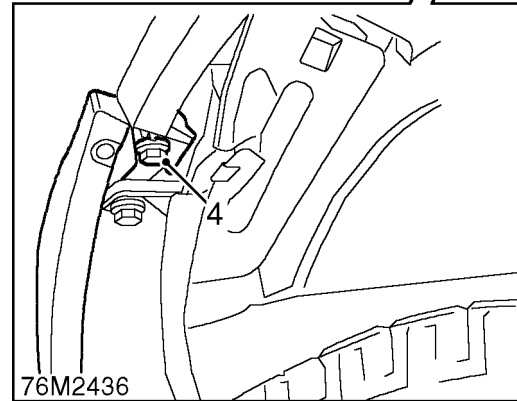
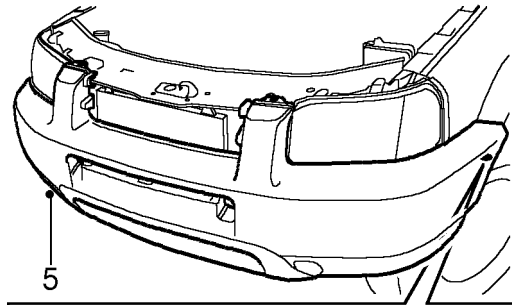
1. Remove front grille. *See this section.*



2. Remove 12 screws securing bumper valance to body.

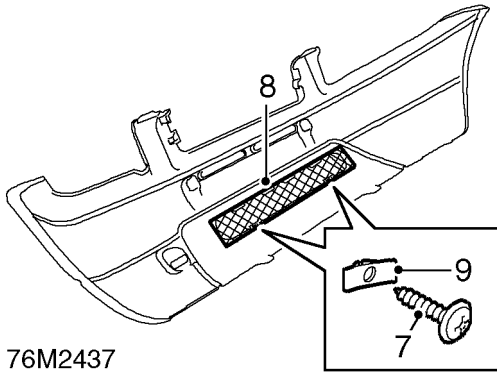


3. Remove 3 scrivenets from bumper valance.



4. Remove wheelarch liner access panel and loosen bolts under front of each wing.
5. With assistance, remove bumper valance. ***Do not carry out further dismantling if component is removed for access only.***
6. Remove number plate.

BODY



7. Remove 2 screws from bumper grille.
8. Remove bumper grille.
9. Remove 2 spire nuts.
10. Fit spire nuts to replacement bumper valance.
11. Position bumper grille on replacement bumper valance and secure with screws.
12. Fit number plate on replacement bumper valance.

Refit

1. With assistance position bumper valance to body.
2. Tighten bolts under each front wing to 5 Nm.
3. Fit wheelarch liner access panel.
4. Fit scrivets.
5. Fit screws securing bumper valance to body.
6. Fit front grille. **See this section.**

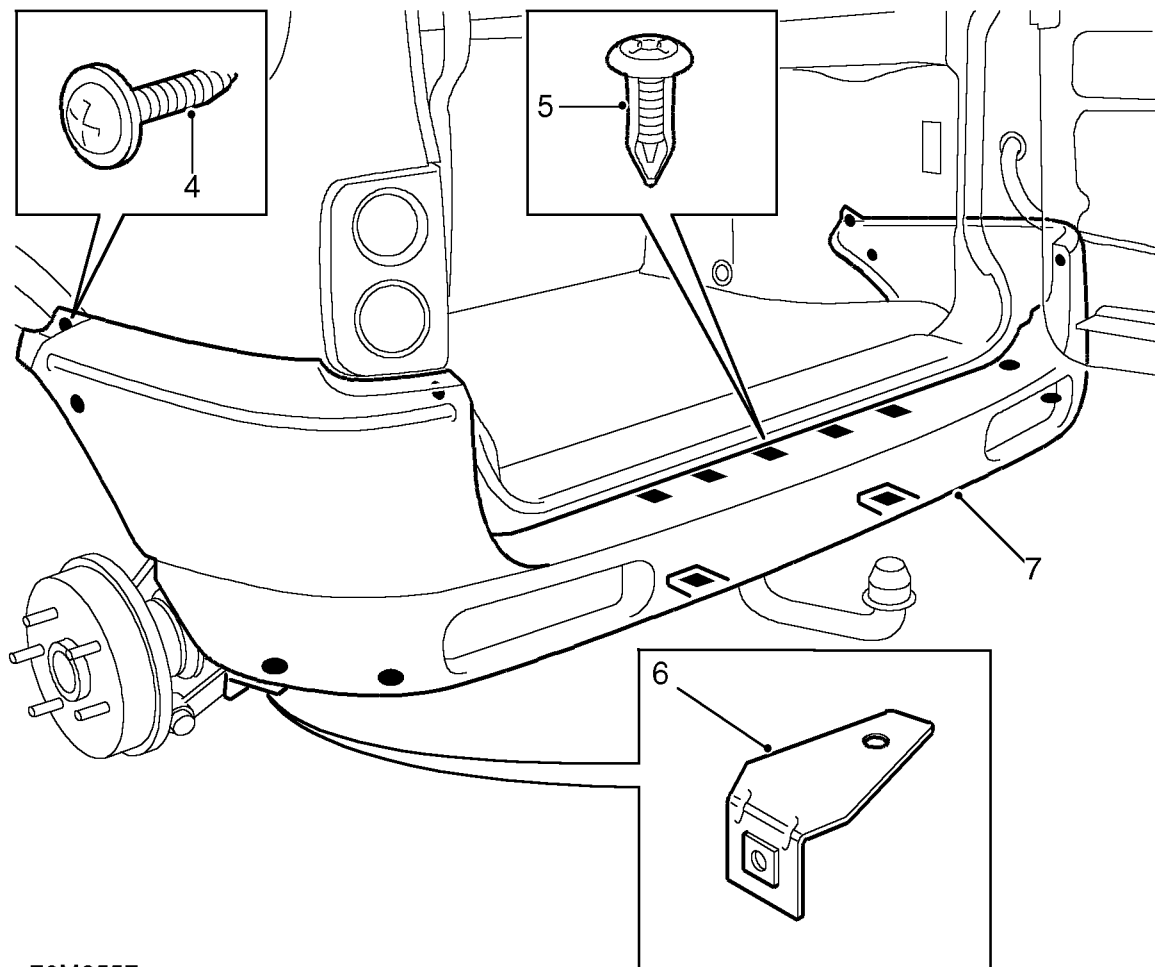


BUMPER VALANCE - REAR

Service repair no - 76.22.74

Remove

1. Remove rear mud flaps. **See this section.**
2. Remove both tail lamps. **See ELECTRICAL, Repairs.**
3. Remove rear wheel arch extensions. **See this section.**



76M2557

4. Remove 10 screws securing bumper valance.
5. Remove 5 scrivets securing bumper valance.
6. Remove 2 mud flap brackets.
7. With assistance, remove bumper valance.

BODY

Refit

1. With assistance, fit bumper valance. Secure bumper valance with scrivets and screws.
2. Fit mud flap brackets and secure with screws.
3. Fit rear wheel arch extensions. **See this section.**
4. Fit both tail lamps. **See ELECTRICAL, Repairs.**
5. Fit mud flaps. **See this section.**

FINISHER - SILL - LOWER

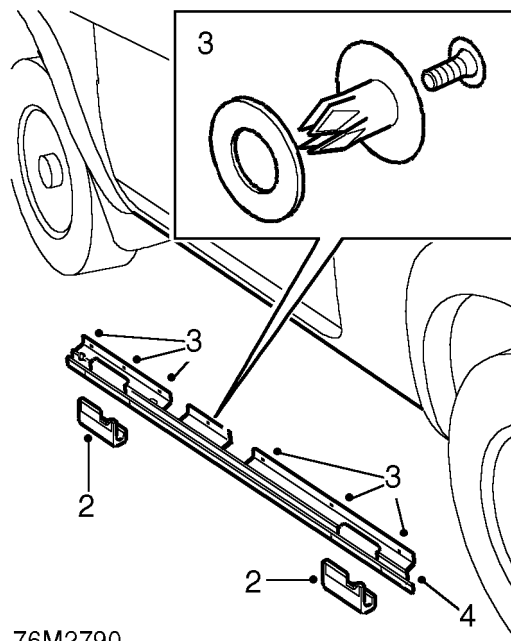
Service repair no - 76.43.28

Remove

1. Raise front of vehicle.



WARNING: Support on safety stands.



2. Remove both jacking point covers.
3. Remove 7 scrivets securing finisher.
4. Release and remove finisher from sill.

Refit

1. Clean mating faces of finisher.
2. Position finisher to sill, locate over jacking points and secure with scrivets.
3. Fit jacking point covers.
4. Remove stand(s) and lower vehicle.

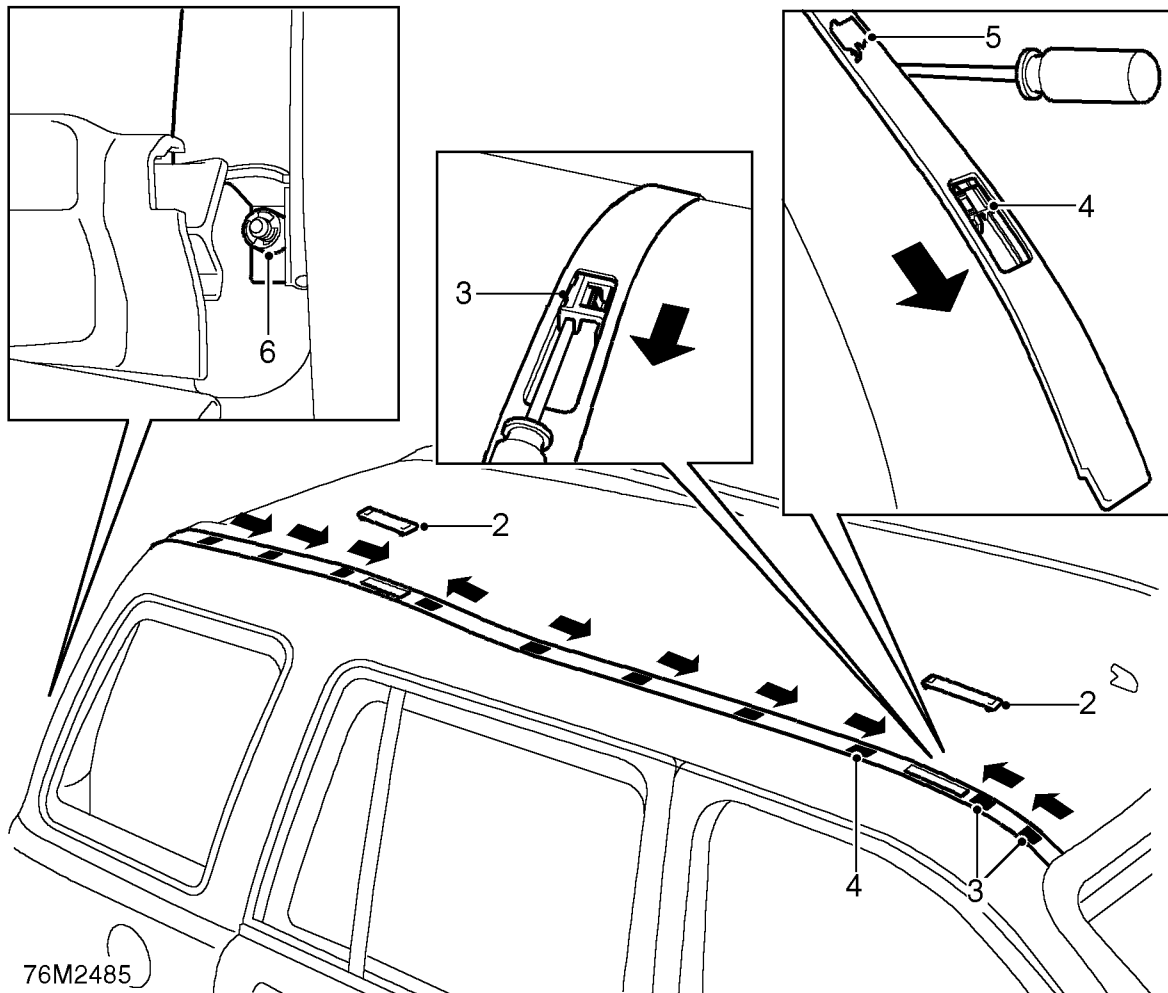


FINISHER - ROOF PANEL

Service repair no - 76.43.68

Remove

1. Remove tail door glass side finisher. **See Doors.**

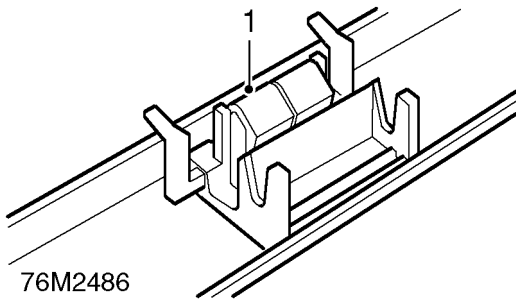


76M2485

2. Remove roof finisher caps or, if roof rack fitted, remove side rail. **See this section.**
3. Using a suitable hooked tool in the front foot hole of the roof finisher, slide the finisher's 2 front clips rearward from the roof channel.
4. Slide the clip rear of the foot hole forward from the roof channel.
5. Slide the remaining 7 clips from the roof channel.
6. Remove nut securing rear end of roof finisher.
7. Remove finisher.

BODY

Refit



1. Fit clips to finisher.
2. Fit finisher to roof channel with forward two clips.
3. Slide finisher to align with screen. Feed forward clip below screen seal.
4. Fit remaining clips to roof channel.
5. Fit nut to secure rear end of finisher.
6. Ensure full length of finisher is correctly seated in roof channel.
7. Fit roof finisher caps or roof rack side rail. **See this section.**
8. Fit tail door glass side finisher. **See Doors.**



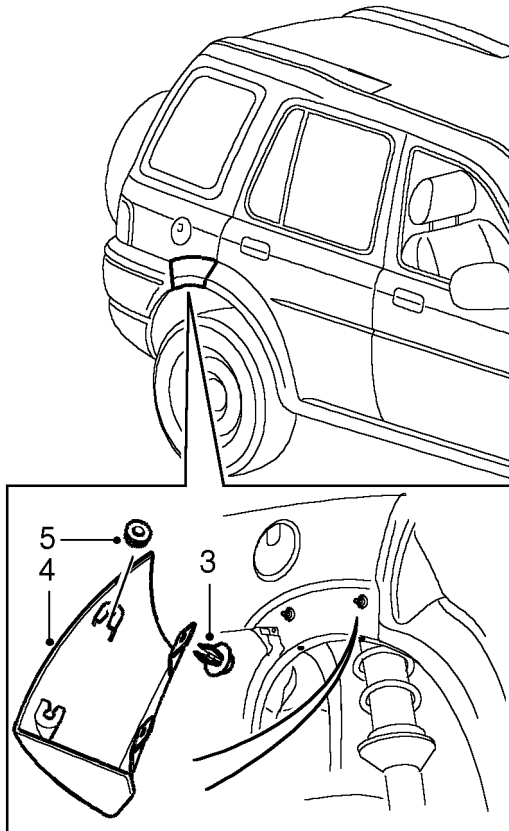
WHEEL ARCH EXTENSION - REAR

Service repair no - 76.43.94

Remove

1. Raise rear of vehicle.
2. Remove road wheel(s).

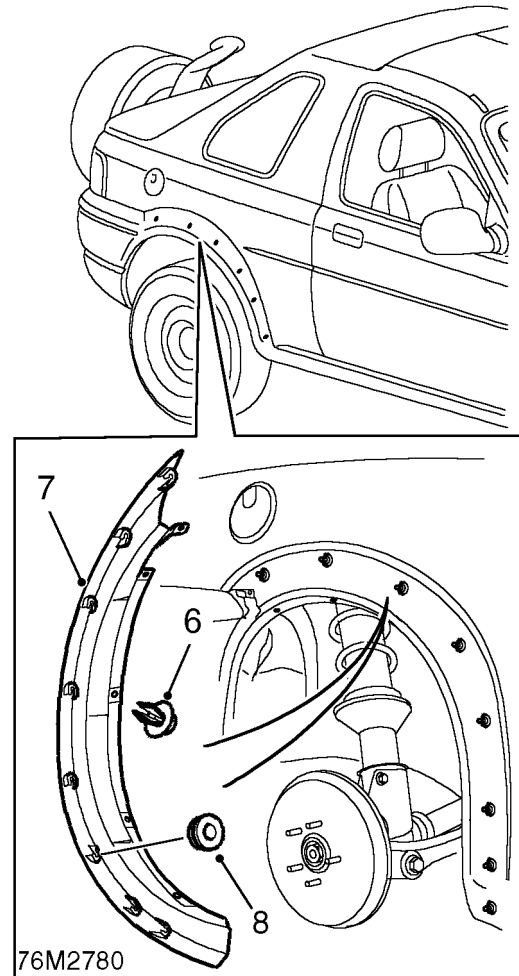
5 door models



76M2779

3. Remove 2 scrivets securing extension to edge of wheel arch.
4. Remove wheel arch extension from 2 fixing studs.
5. Remove fasteners from arch extension.

3 door models



6. Remove 6 scrivets securing extension to edge of wheel arch and sill panel.
7. Remove wheel arch extension from 8 fixing studs.
8. Remove fasteners from arch extension

BODY

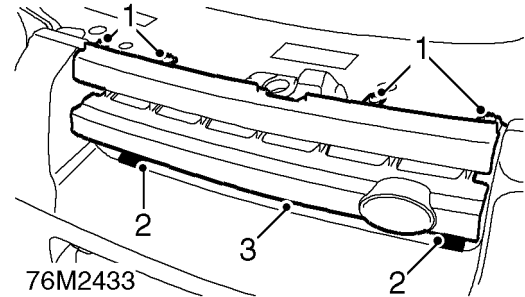
Refit

1. Fit fasteners to arch extension.
2. Fit wheel arch extension to studs.
3. Fit scrivenets securing extension to wheel arch.
4. Fit road wheel(s) and tighten nuts to correct torque. **See INFORMATION, Torque wrench settings.**
5. Remove stand(s) and lower vehicle.

GRILLE - FRONT

Service repair no - 76.55.03

Remove



1. Remove 4 screws from grille.
2. Release 2 catches securing bottom of grille.
3. Remove grille.

Refit

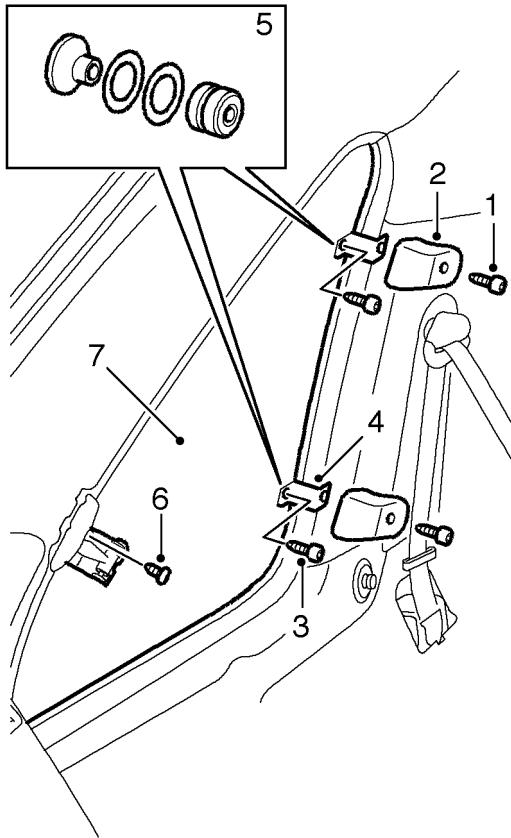
1. Position grille to body, locate with securing catches.
2. Fit and tighten screws.



VENT - REAR QUARTER

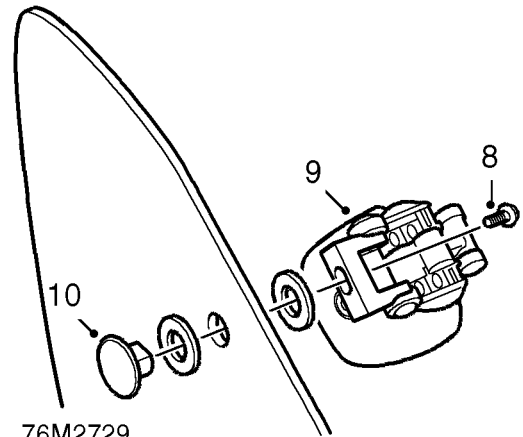
Service repair no - 76.81.24

Remove



76M2728

1. Remove 2 Torx screws securing vent hinge covers.
2. Remove covers from hinges.
3. Remove 2 screws securing hinges to vent.
4. Remove hinges from vent.
5. Remove nuts from vent and discard sealing washers.
6. With assistance remove screw securing vent catch to body.
7. Remove vent.



76M2729

8. Remove screw securing catch to vent.
9. Remove catch from vent.
10. Remove nut from vent and discard sealing washers.

Refit

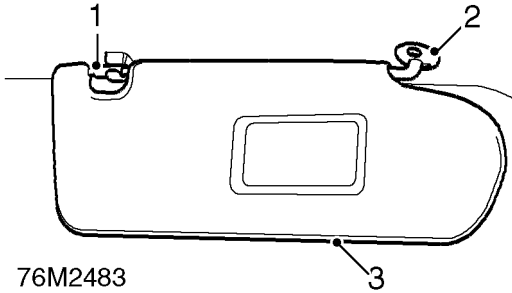
1. Fit nut and NEW sealing washer to vent.
2. Fit catch and tighten screw.
3. With assistance fit vent and tighten catch screw.
4. Using NEW sealing washers fit nuts and hinges to vent. Fit and tighten hinge screws to vent.
5. Fit hinge covers and tighten Torx screws.



SUN VISOR

Service repair no - 76.10.47

Remove



1. Release sun visor from retaining clip.
2. Remove 2 screws securing sun visor.
3. Remove sun visor.

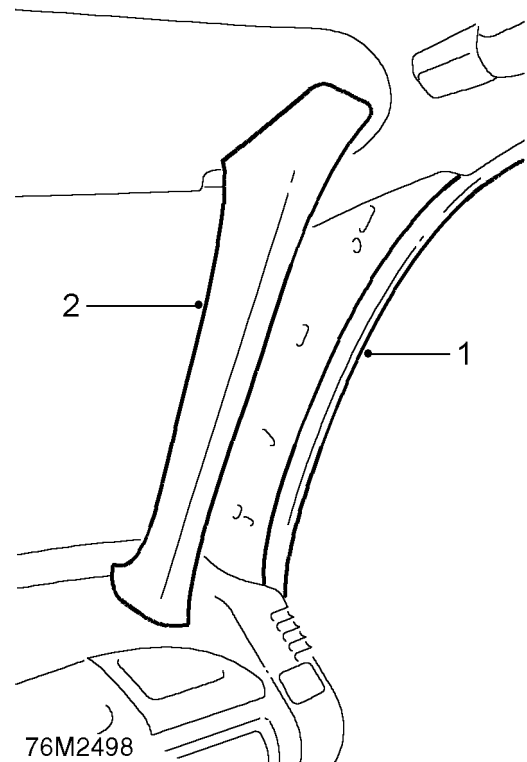
Refit

1. Fit sun visor and secure with screws.
2. Secure sun visor in clip.

FINISHER - 'A' POST

Service repair no - 76.13.07

Remove



1. Release seal from door aperture.
2. Release 4 clips and remove 'A' post finisher.
3. Remove clips from finisher.

Refit

1. Fit clips to 'A' post finisher.
2. Fit finisher to 'A' post and secure with clips.
3. Fit seal to door aperture.

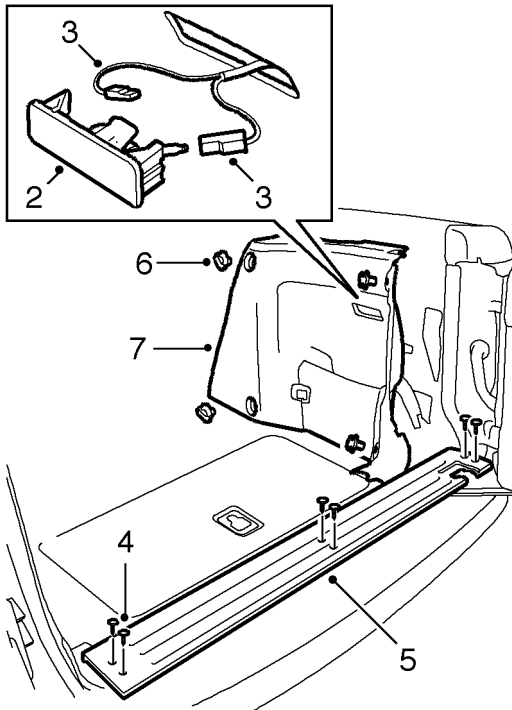
BODY

CASING - REAR QUARTER LOWER - 3 DOOR

Service repair no - 76.13.12

Remove

1. Release rear seat squab and fold seat forward.



76M2711

2. Release load space lamp from trim casing.
3. Disconnect 2 Lucars and remove load space lamp.
4. Remove 6 Torx screws securing luggage compartment carpet retainer.
5. Remove carpet retainer.
6. Release 4 turn buckles securing trim casing.
7. Release and remove trim casing from luggage compartment.

Refit

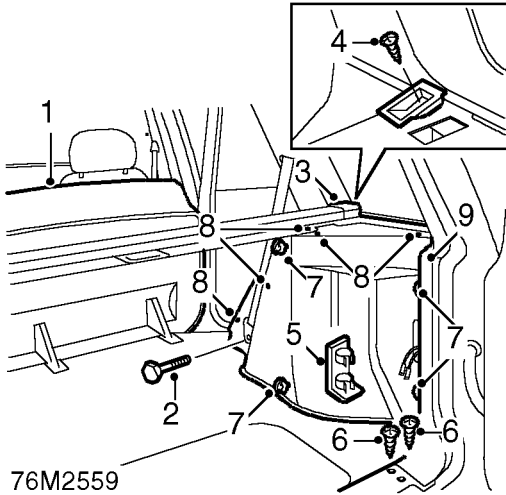
1. Position casing in luggage compartment.
2. Fit turn buckles
3. Fit luggage compartment carpet retainer and fit Torx screws.
4. Position load space lamp to casing, connect Lucars and secure lamp in casing.
5. Reposition rear seat.



CASING - REAR QUARTER LOWER - 5 DOOR

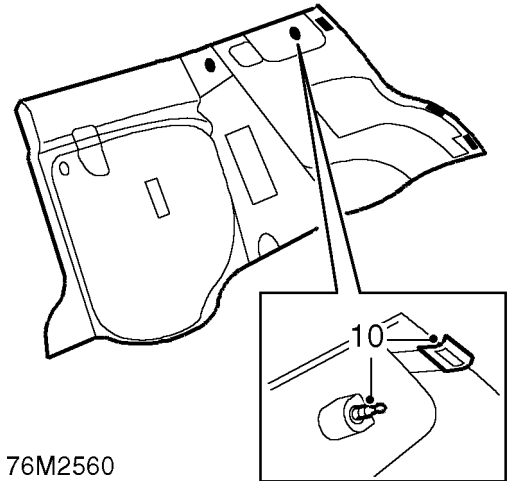
Service repair no - 76.13.12

Remove



76M2559

1. Release back of rear seat and fold forward.
2. Remove bolt securing rear seat belt lower mounting and position seat belt aside.
3. Release load space cover from retainers and remove cover.
4. Remove screw securing load space cover retainer and remove retainer.
5. Release load space lamp from trim casing. Disconnect 2 Lucars and remove load space lamp.
6. Remove 2 screws securing casing to load space carpet retainer.
7. Release 4 turn buckles securing trim casing.
8. Release trim casing from 5 retaining clips.
9. Remove trim casing from load space.



76M2560

10. Remove 5 retaining clips from casing.

Refit

1. Fit retaining clips to casing.
2. Position casing in load space, locate and secure retaining clips.
3. Fit turn buckles
4. Fit screws securing casing to carpet retainer.
5. Position load space lamp to casing, connect Lucars and secure lamp in casing.
6. Position load space cover retainer and secure with screw.
7. Fit load space cover and secure in retainers.
8. Position rear seat belt and tighten bolt to 40 Nm
9. Lower seats and secure back of seat in position.

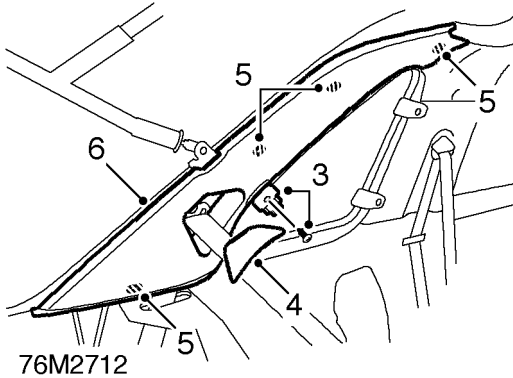
BODY

CASING - REAR QUARTER UPPER - 3 DOOR

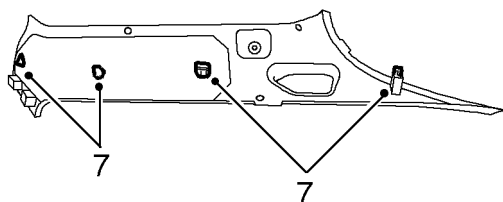
Service repair no - 76.13.13

Remove

1. Remove rear quarter lower casing. **See this section.**
2. Remove body rear side casing. **See this section.**



3. Remove screw and release rear vent catch.
4. Remove seat belt access cover from upper casing.
5. Release 4 clips securing upper casing.
6. Remove upper casing.



7. Remove 4 retaining clips from casing

Refit

1. Fit retaining clips to casing.
2. Position casing, align seat belt and secure casing retaining clips.
3. Fit seat belt access cover.
4. Position rear vent sealing rubber to upper casing.
5. Position rear vent catch and tighten screw.
6. Fit side casing. **See this section.**
7. Fit lower casing. **See this section.**

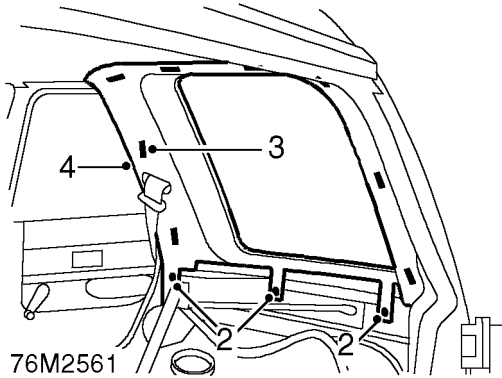


CASING - REAR QUARTER UPPER - 5 DOOR

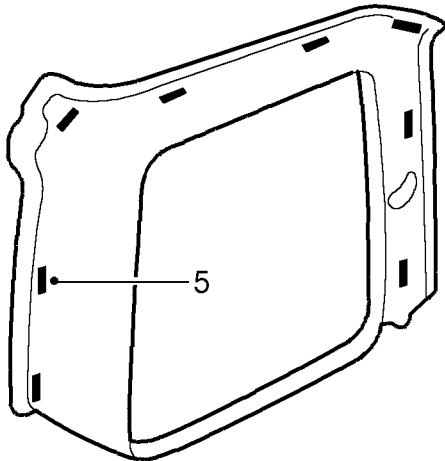
Service repair no - 76.13.13

Remove

1. Remove rear quarter lower casing. **See this section.**



2. Remove 3 screws securing upper casing to body.
3. Release casing from 8 retaining clips.
4. Remove upper casing from load space.



5. Remove 8 retaining clips from casing

Refit

1. Fit retaining clips to casing.
2. Position casing to body and secure retaining clips.
3. Fit screws securing bottom of casing.
4. Fit rear quarter lower casing. **See this section.**

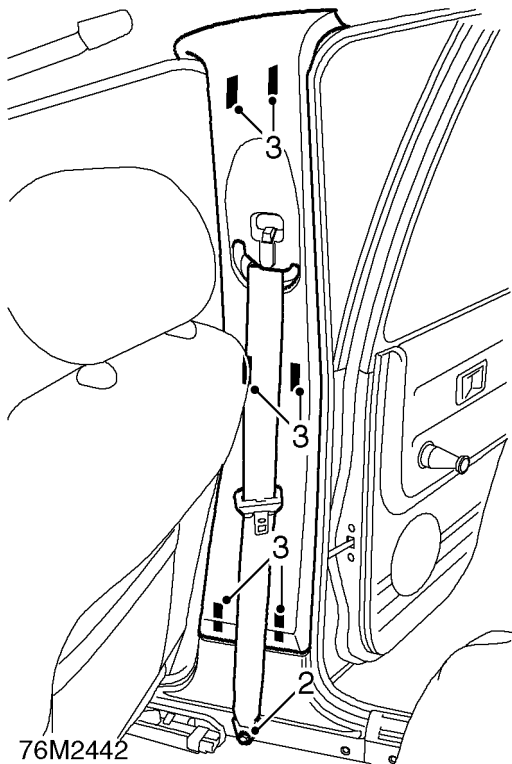
BODY

FINISHER - 'B/C' POST UPPER - 5 DOOR

Service repair no - 76.13.28

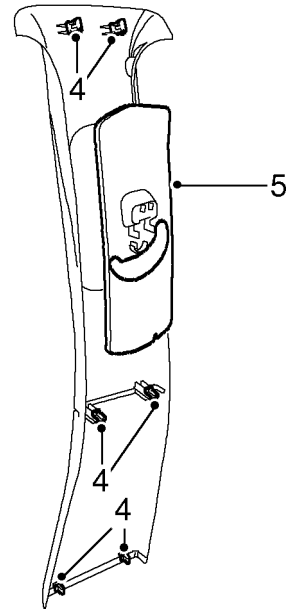
Remove

1. Remove seat base finisher. **See this section.**



2. Remove Torx bolt retaining seat belt lower mounting and position seat belt aside.
3. Release finisher from 6 retaining clips and remove finisher.

Do not carry out further dismantling if component is removed for access only.



76M2443

4. Remove 6 clips from finisher.
5. Remove seat belt slide.
6. Fit seat belt slide to replacement finisher.
7. Fit clips to replacement finisher.

Refit

1. Position finisher and engage retaining clips.
2. Position seat belt lower mounting. Fit and tighten Torx bolt to 40 Nm.
3. Fit seat base finisher. **See this section.**

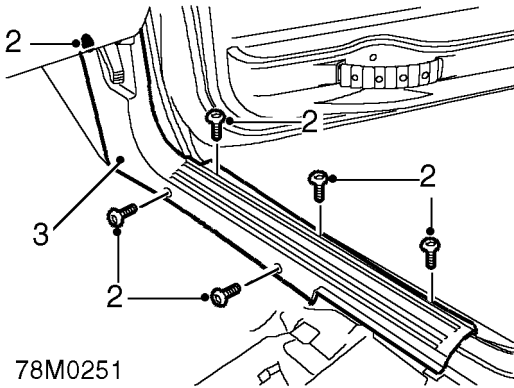


FINISHER -'B/C' POST LOWER - 5 DOOR

Service repair no - 76.13.29

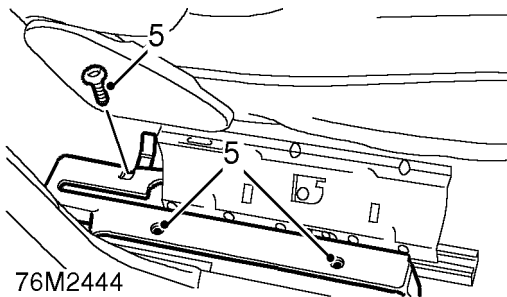
Remove

1. Remove cushion side finisher. **See Seats and seat belts.**



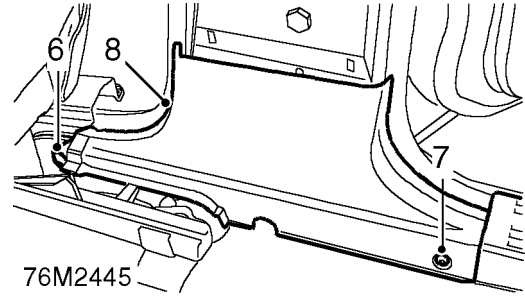
78M0251

2. Remove scrivet and 5 Torx screws from carpet retainer.
3. Remove front carpet retainer.
4. Release B/C' post upper finisher and position aside.



76M2444

5. Remove 3 Torx screws from top of seat base finisher.



76M2445

6. Remove scrivet from front of B/C' post lower finisher.
7. Remove Torx screw from rear of B/C' post lower finisher.
8. Release and remove B/C' post lower finisher from seat base finisher.

Refit

1. Locate B/C' post lower finisher under seat base finisher and rear carpet retainer.
2. Fit Torx screw to rear of B/C' post lower finisher.
3. Fit scrivet to B/C' post lower finisher.
4. Fit Torx screws to seat base finisher.
5. Align and secure B/C' post upper finisher.
6. Fit cushion side finisher. **See Seats and seat belts.**
7. Fit front carpet retainer and secure with Torx screws and scrivet.

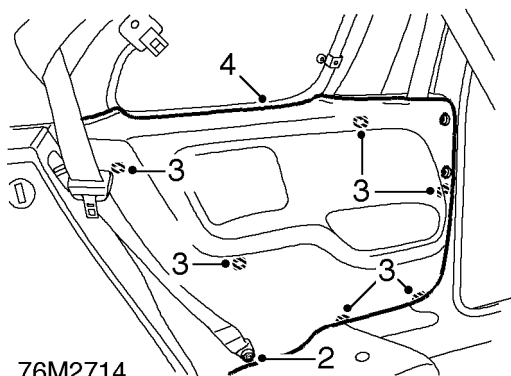
BODY

CASING - BODY SIDE - REAR

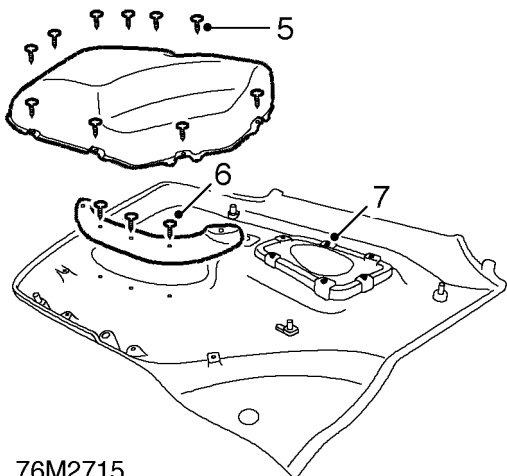
Service repair no - 76.13.57

Remove

1. Remove rear seat. *See Seats and seat belts.*



2. Remove Torx bolt securing rear seat belt lower to body and position seat belt aside.
3. Release 6 trim clips and remove trim casing.
4. Remove 6 trim fasteners from body panel.
Do not carry out further dismantling if component is removed for access only.



5. Noting the position of the 3 long screws, remove 10 Torx screws and remove pocket from trim casing.
6. Remove 3 screws and remove pocket finisher.
7. Release 6 tags and remove speaker grille.
8. Position speaker grille on replacement casing and secure tags.
9. Position pocket finisher and tighten screws.
10. Position pocket and tighten Torx screws

Refit

1. Fit trim fasteners to trim casing.
2. Position trim casing and secure clips.
3. Position seat belt and tighten Torx bolt to 50 Nm.
4. Fit rear seat. *See Seats and seat belts.*

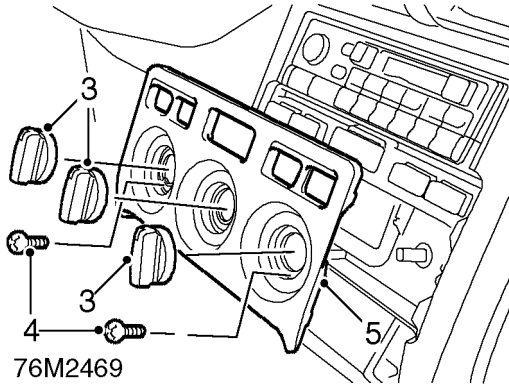


CONSOLE - FRONT

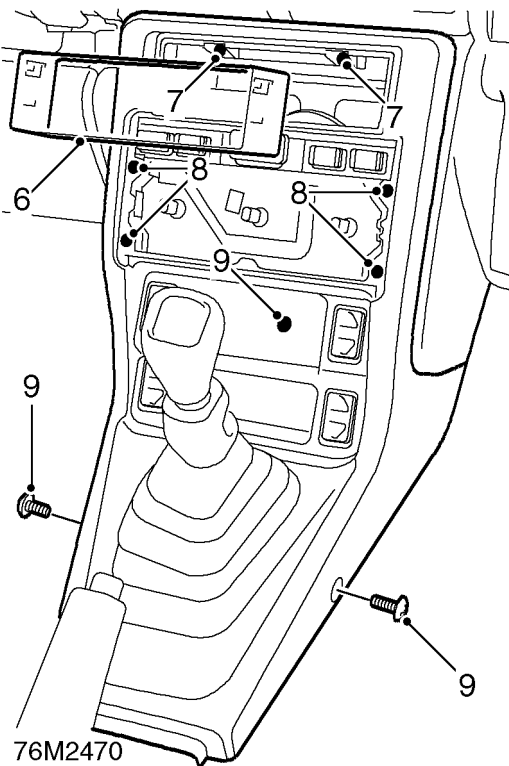
Service repair no - 76.25.01

Remove

1. Remove rear console. *See this section.*
2. Remove radio. *See ELECTRICAL, Repairs.*

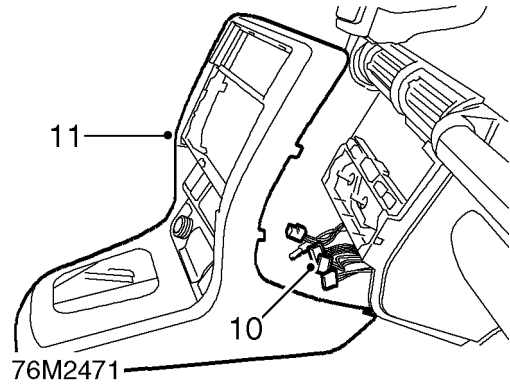


3. Remove 3 heater control knobs.
4. Remove 2 screws from heater control panel.
5. Remove heater control panel.

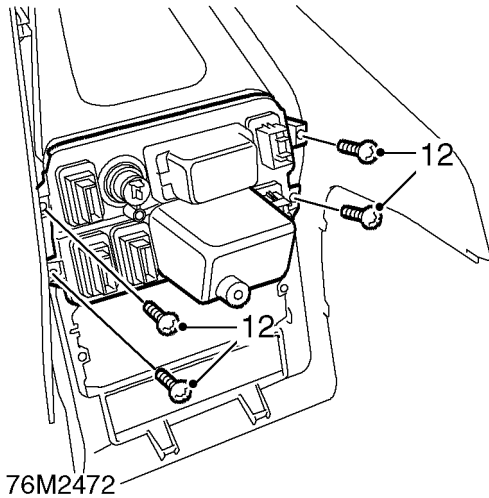


6. Release tags and remove radio cage.
7. Remove 2 screws from top of console.

8. Remove 4 screws securing switch pack to console.
9. Remove 3 screws from centre and sides of console.



10. Release 5 multiplugs and bulb holder from switch pack.
11. Remove console.



12. Remove 4 screws from switch pack assembly and remove assembly.

Refit

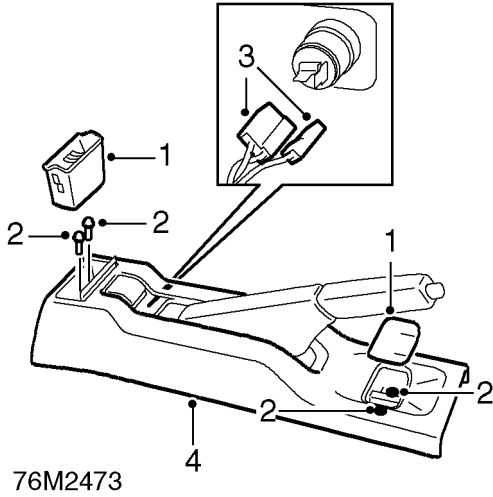
1. Position switch pack assembly, fit and tighten screws.
2. Position console to fascia.
3. Connect multiplugs and bulb holder to switch pack.
4. Fit and tighten screws securing centre and sides of console.
5. Fit and tighten screws securing switch pack to console.
6. Fit and tighten screws to top of console.
7. Position radio cage to console and secure with retaining tags.
8. Position heater control panel, fit and tighten screws.
9. Fit heater control knobs.
10. Fit radio. **See *ELECTRICAL, Repairs*.**
11. Fit rear console. **See *this section*.**



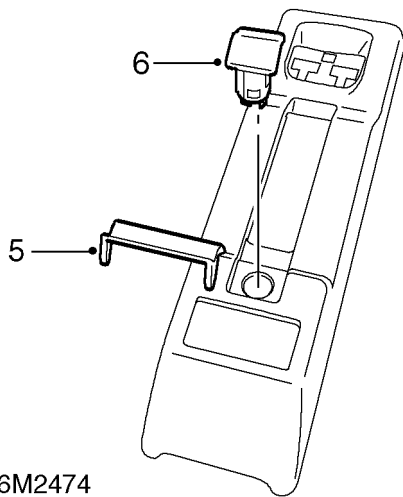
CONSOLE - REAR

Service repair no - 76.25.04

Remove



1. Remove ashtray and screw cover.
2. Remove 4 screws from console.
3. Raise console and disconnect Lucar and multiplug from cigar lighter.
4. Remove rear console.



5. Remove ashtray lid.
6. Remove cigar lighter.

Refit

1. Fit cigar lighter.
2. Fit ashtray lid.
3. Position rear console and connect Lucar and multiplug to cigar lighter.
4. Fit and tighten screws.
5. Fit ashtray and screw cover.

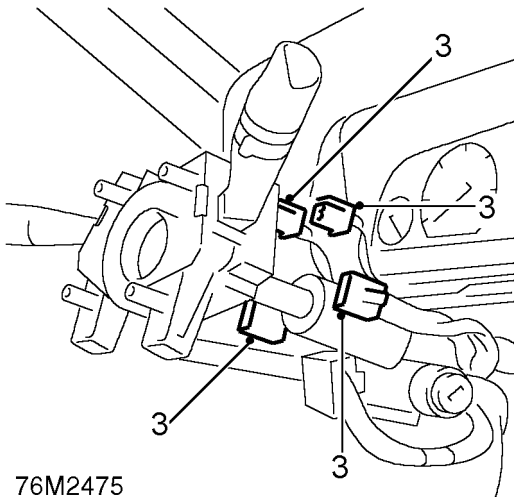
BODY

FASCIA

Service repair no - 76.46.23

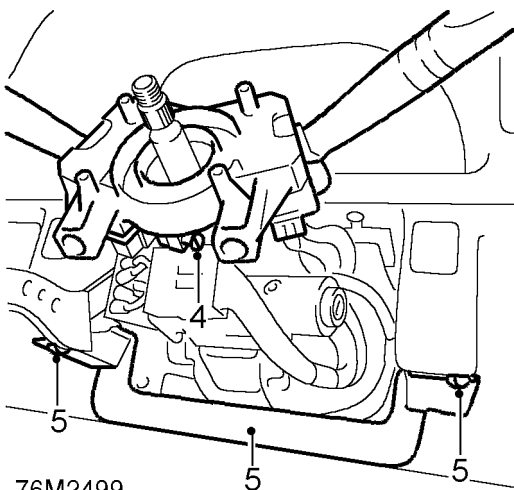
Remove

1. Remove front console. *See this section.*
2. Remove rotary coupler. *See RESTRAINT SYSTEMS, Repairs.*



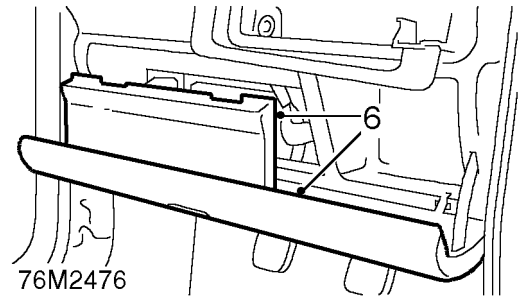
76M2475

3. Disconnect 4 multiplugs from wiper/ indicator switch.



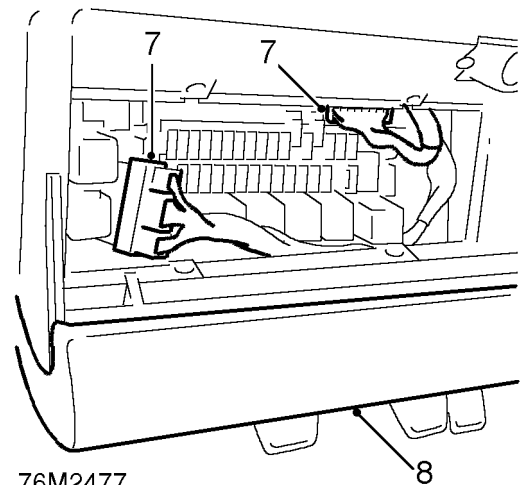
76M2499

4. Loosen clamping screw and remove wiper/ indicator switch.
5. Remove 2 screws from steering column lower finisher and remove finisher.



76M2476

6. Open driver's glove box lid and remove fuse box cover.



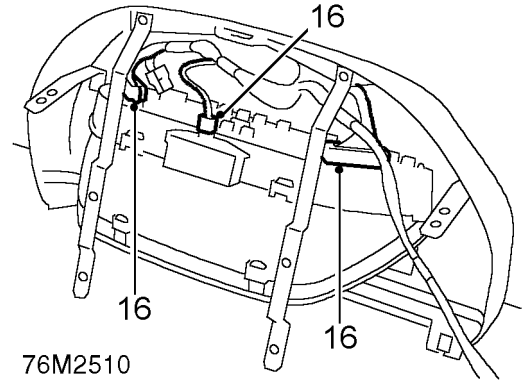
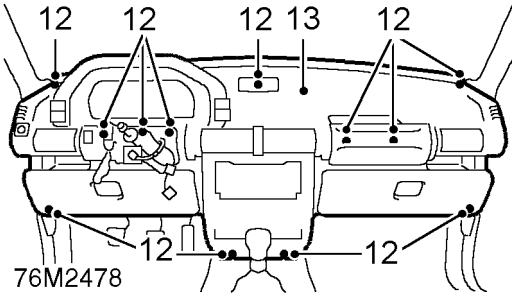
76M2477

7. Disconnect 2 multiplugs from fuse box.
8. Close glove box lid.
9. Remove clock. *See ELECTRICAL, Repairs.*
10. Remove both 'A' post finishers *See this section.*
11. **Models without passenger airbag:**
Remove fascia stowage box. *See this section.*

Models with passenger airbag:
Remove passenger airbag. *See RESTRAINT SYSTEMS, Repairs.*

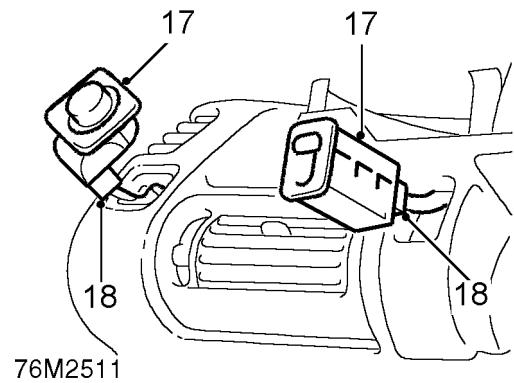
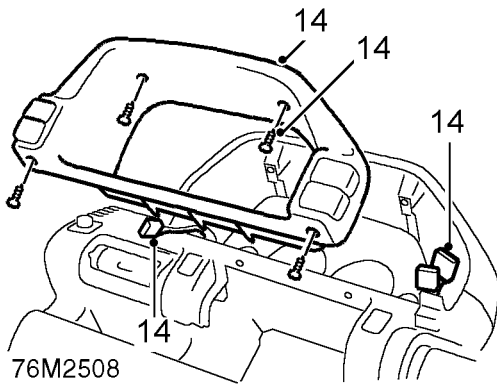


All models:



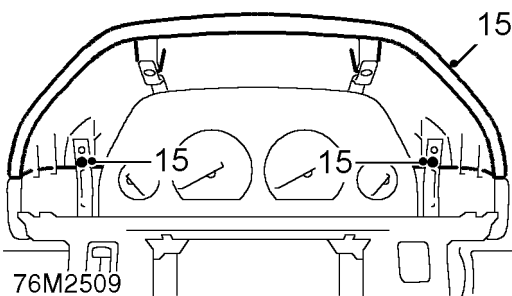
- 12. Remove 12 bolts securing fascia.
- 13. With assistance remove fascia.
Do not carry out further dismantling if component is removed for access only.

- 16. Disconnect 3 multiplugs from instrument pack.

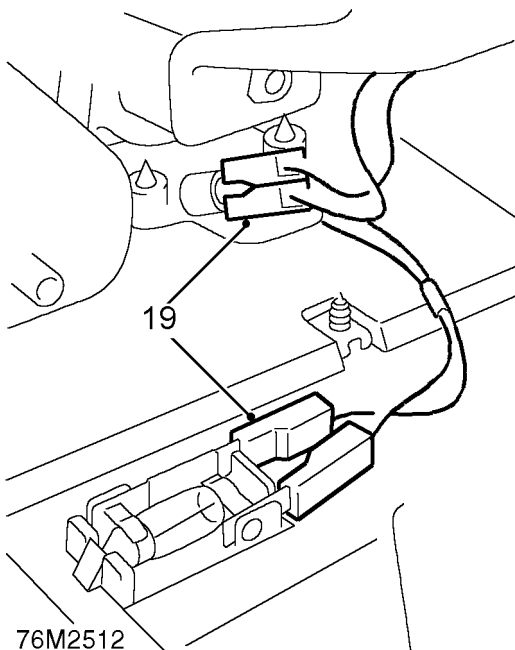


- 14. Remove 4 screws, disconnect 3 multiplugs from switches, and remove instrument bezel finisher.

- 17. Release mirror and headlamp leveling switches.
- 18. Disconnect multiplugs from mirror switch and headlamp leveling switch.

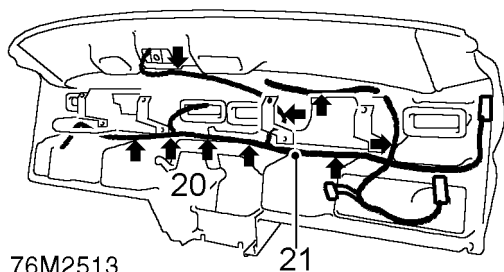


- 15. Remove 2 screws from instrument upper cover and remove cover.



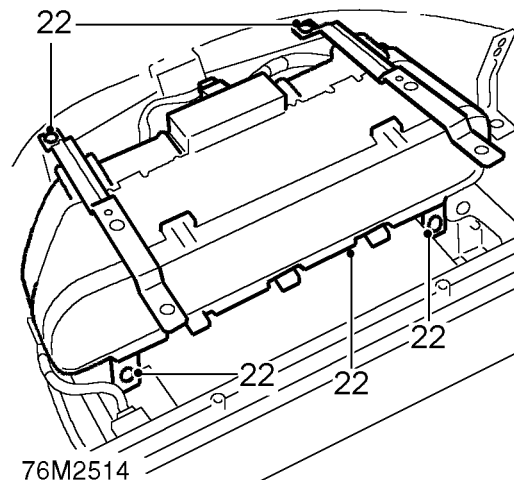
76M2512

19. Disconnect 4 Lucars from glove box lamp and switch.



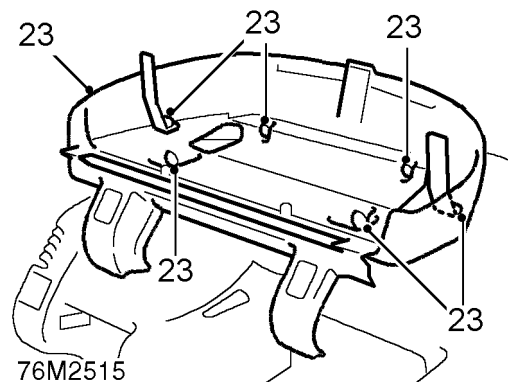
76M2513

20. Release 9 harness clips.
21. Feed harness through fascia and remove harness.



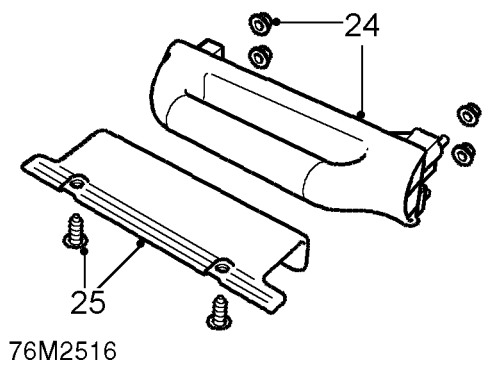
76M2514

22. Remove 4 screws from instrument pack and remove instrument pack.



76M2515

23. Remove 6 screws from instrument pack lower cover and remove cover.



76M2516

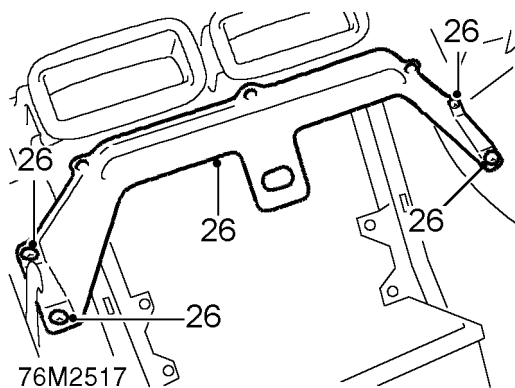
Models without passenger airbag:

- 24. Remove 4 nuts from grab handle and remove handle.

Models with passenger airbag:

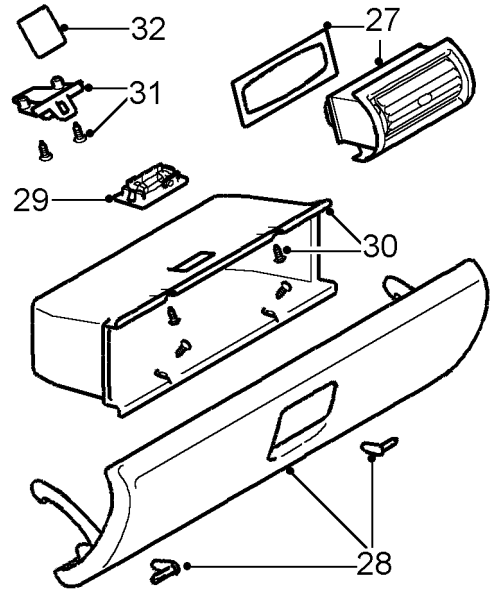
- 25. Remove 2 screws from airbag lower finisher and remove finisher.

All models:



76M2517

- 26. Remove 4 screws from centre bracket and remove bracket.



76M2518

- 27. Remove 4 face level vents and collect seals.
- 28. Remove glove box hinge pins and remove glove box lids.
- 29. Remove glove box lamp and mat.
- 30. Remove 4 screws from glove box and remove glove box.
- 31. Remove 2 screws from each glove box lock and remove locks.
- 32. Remove switch blank.
- 33. Noting their fitted positions, remove 11 spire nuts and 3 harness clips.
- 34. Remove fascia and coin tray mats.

35. Fit fascia and coin tray mats to replacement fascia. Ensure mats are fully located in position.
36. Fit spire nuts and harness clips.
37. Fit switch blank.
38. Fit glove box locks and secure with screws.
39. Fit glove box and secure with screws.
40. Fit glove box lamp and mat.
41. Fit glove box lids and secure hinge pins.
42. Position seals to face level vents and fit vents.
43. Fit centre bracket and secure with screws.

Models without passenger airbag:

44. Fit grab handle and secure with nuts.

Models with passenger airbag:

45. Fit airbag lower finisher and secure with screws.

All models:

46. Fit instrument pack lower cover and secure with screws.
47. Fit instrument pack and secure with screws.
48. Position harness and secure harness in clips.
49. Fit mirror and headlamp leveling switches.
50. Feed harness through fascia and connect multiplugs to instrument pack, mirror switch and headlamp leveling switch.
51. Connect Lucars to glove box lamp and switch.
52. Fit instrument upper cover and secure with screws.
53. Position instrument bezel finisher, connect multiplugs and secure finisher with screws.

Refit

1. With assistance position fascia.
2. Fit and tighten screws.

Models without passenger airbag:

3. Fit fascia stowage box. **See this section.**

Models with passenger airbag:

4. Fit passenger airbag. **See RESTRAINT SYSTEMS, Repairs.**

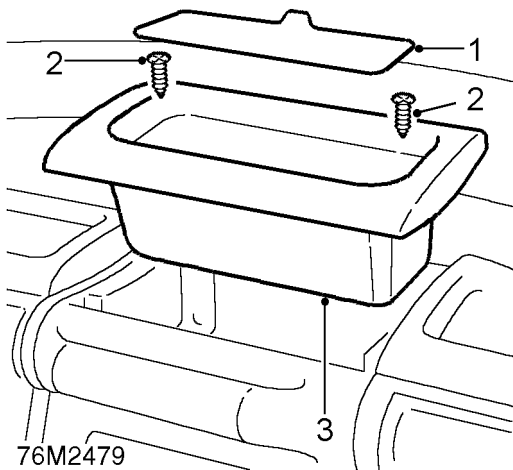
All models:

5. Fit 'A' post finishers. **See this section.**
6. Fit clock. **See ELECTRICAL, Repairs.**
7. Open driver's glove box lid and connect multiplugs to fuse box.
8. Fit fuse box cover and close glove box lid.
9. Fit steering column lower finisher and secure with screws.
10. Fit wiper/indicator switch and tighten clamping screw.
11. Connect multiplugs to wiper/indicator switch.
12. Fit rotary coupler. **See RESTRAINT SYSTEMS, Repairs.**
13. Fit front console **See this section.**



STOWAGE BOX - FASCIA

Service repair no - 76.46.45

Remove

1. Remove mat from stowage box to access screws.
2. Remove 2 screws.
3. Remove stowage box form fascia.

Refit

1. Position stowage box and secure with screws.
2. Fit mat to stowage box.

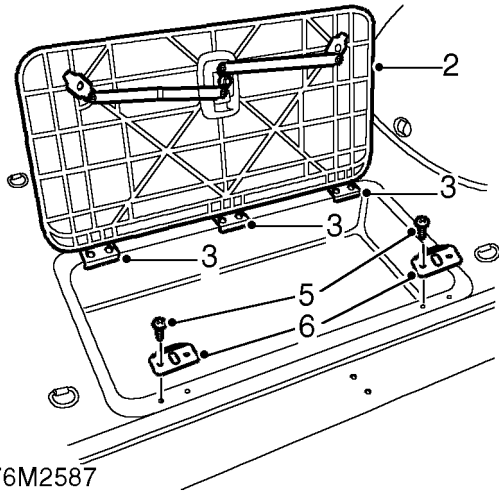
BODY

CARPET - LOADSPACE

Service repair no - 76.49.04

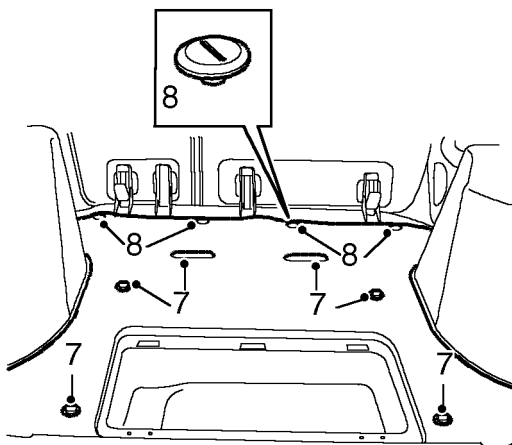
Remove

1. Remove both rear quarter lower trim casings.
See this section.



76M2587

2. Open lid on security box.
3. Remove 6 screws securing lid.
4. Remove lid.
5. Remove 4 screws securing lid latch strikers.
6. Remove both strikers.



76M2588

7. Release carpet from rear seat strikers and lashing eyes.
8. Remove 4 buckles from rear carpet.
9. Remove carpet.

Refit

1. Position carpet in loadspace.
2. Fit buckles to rear carpet.
3. Fit lid latch strikers and secure with screws.
4. Fit lid and secure with screws.
5. Close lid.
6. Fit rear quarter lower trim casings. **See this section.**

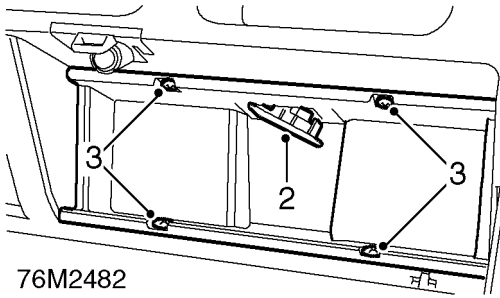


GLOVE BOX

Service repair no - 76.52.03

Remove

1. Open glove box lid.



2. Release illumination lamp from glove box.
3. Remove 4 screws and remove glove box.

Refit

1. Position glove box and tighten screws.
2. Position and secure illumination lamp.
3. Close glove box lid.

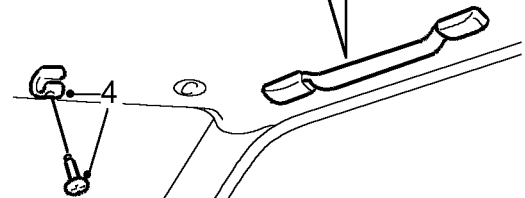
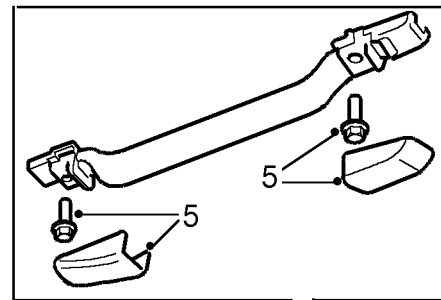
HEADLINING - 5 DOOR

Service repair no - 76.64.01

Service repair no - 76.64.15

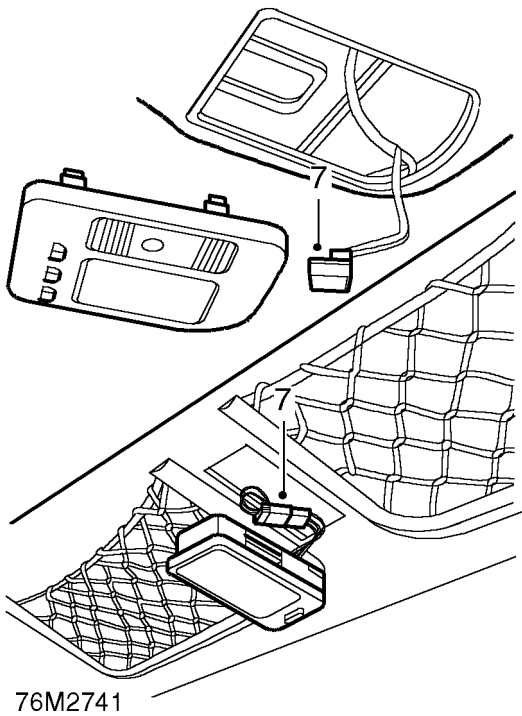
Remove

1. Remove both A' post trims. **See this section.**
2. Remove both rear quarter upper trim casings. **See this section.**
3. Remove both sun visors. **See this section.**



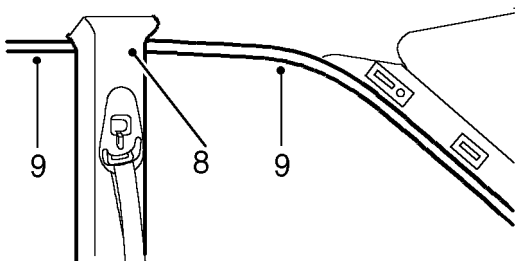
76M2740

4. Remove screw from each sun visor clip and collect clips.
5. Remove screw covers and screws from grab handles and remove grab handles.
6. Remove grab handle blanking plugs.



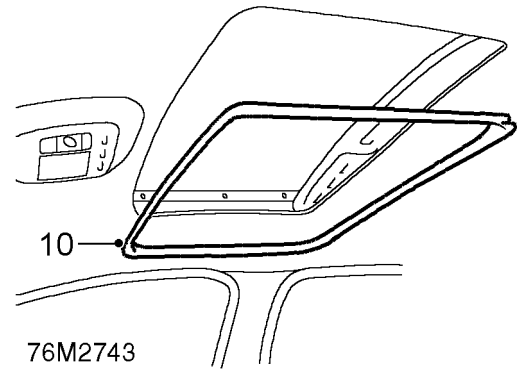
76M2741

7. Release roof lamps, disconnect multiplugs and remove roof lamps.



76M2742

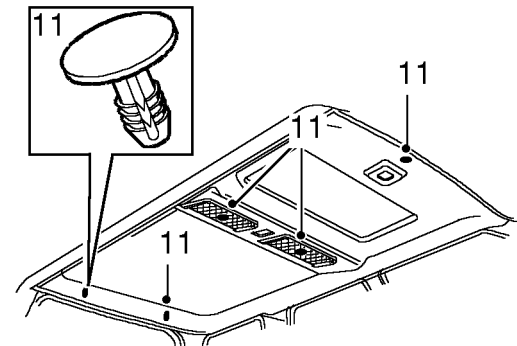
8. Release both B/C' post upper finishers and position aside.
9. Release headlining from front and rear door aperture seals.



76M2743

Models with sun roof:

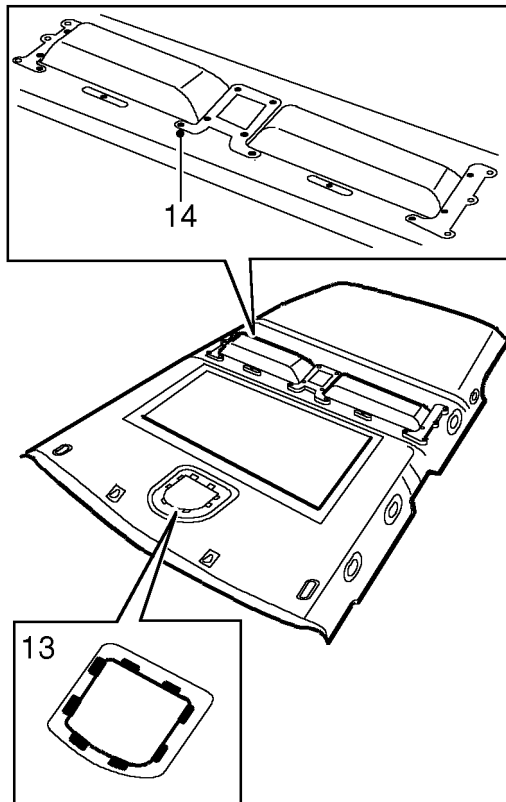
10. Release and remove sun roof surround finisher from sunroof aperture.



76M2744

All models:

11. Remove 5 retaining studs from headlining.
12. With assistance remove headlining through tail door.



76M2745

Do not carry out further dismantling if component is removed for access only.

13. Release 8 tags securing front roof lamp support and remove support.
14. Remove 14 nuts from stowage pockets, collect backing plates and remove stowage pockets.
15. Position stowage pockets and backing plates on replacement headlining and secure with nuts.
16. Position roof lamp support on replacement headlining and secure retaining tags.

Refit

1. With assistance, position headlining and secure with retaining studs.

Models with sun roof:

2. Position sunroof surround finisher and secure in position.

All models:

3. Locate headlining to front and rear door aperture seals.
4. Fit and secure 'B/C' post upper finishers.
5. Connect multiplugs and fit roof lamps.
6. Fit grab handle blanking plugs.
7. Fit grab handles, tighten screws and fit screw covers.
8. Fit sun visor clips and tighten screws.
9. Fit both sun visors. **See this section.**
10. Fit both 'A' post trims. **See this section.**
11. Fit rear quarter upper trim casings. **See this section.**

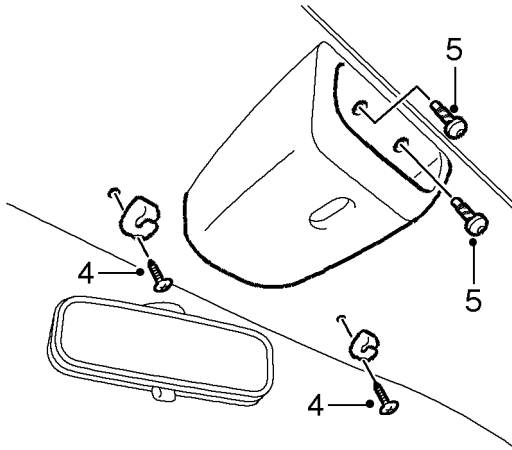
BODY

HEADLINING - 3 DOOR

Service repair no - 76.64.15

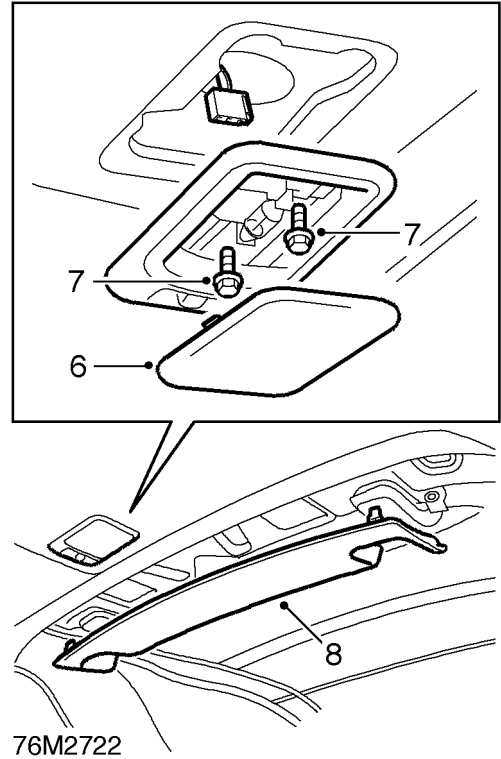
Remove

1. Fold front seat squabs forward.
2. Remove both sun visors. **See this section.**
3. Remove both 'A' post trims. **See this section.**



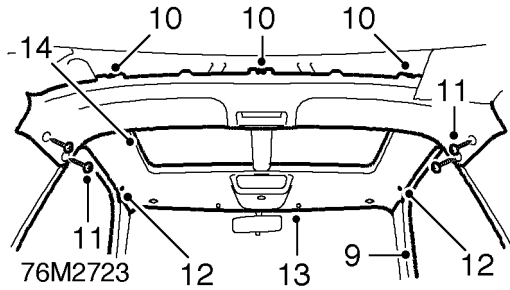
76M2721

4. Remove 2 screws from both sun visor clips and collect clips.
5. Remove 2 screws securing headlining to front end of roof panel.



76M2722

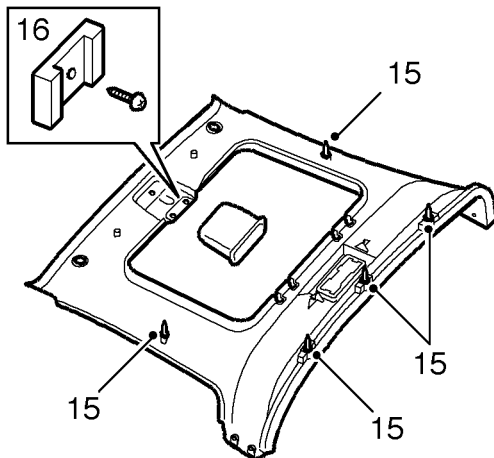
6. Remove roof lamp lens.
7. Remove 2 screws, release roof lamp and disconnect multiplug.
8. Release headlining rear finisher from roof panel and remove finisher.



9. Release door aperture seals to release headlining.
10. Release 3 studs securing rear edge of headlining to roof panel.
11. Remove 4 screws securing headlining to 'B' posts.
12. Release 2 studs at LH and RH side of headlining.
13. Lower front edge of headlining.
14. Release sun roof seal and remove headlining.

Refit

1. Fit pocket to headlining and secure with screws.
2. Fit studs to headlining.
3. Position headlining and secure studs to roof panel.
4. Fit and tighten screws to 'B' posts and roof panel.
5. Secure headlining behind rear vent rubbers.
6. Fit headlining rear finisher.
7. Refit door aperture seals.
8. Position sun roof seal to headlining.
9. Position roof lamp and connect multiplug.
10. Tighten roof lamp screws and fit lens.
11. Position sun visor clips and tighten screws.
12. Fit sun visors. **See this section.**
13. Fit both 'A' post finishers. **See this section.**
14. Reposition front seat squabs.



76M2724

15. Remove studs from headlining.
16. Remove 3 screws and remove pocket from headlining.



WINDSCREEN

Service repair no - 76.81.01



NOTE: The following equipment is required:

Cutting wire and handles

Windscreen repair kit

Sealer applicator gun

Suction cups



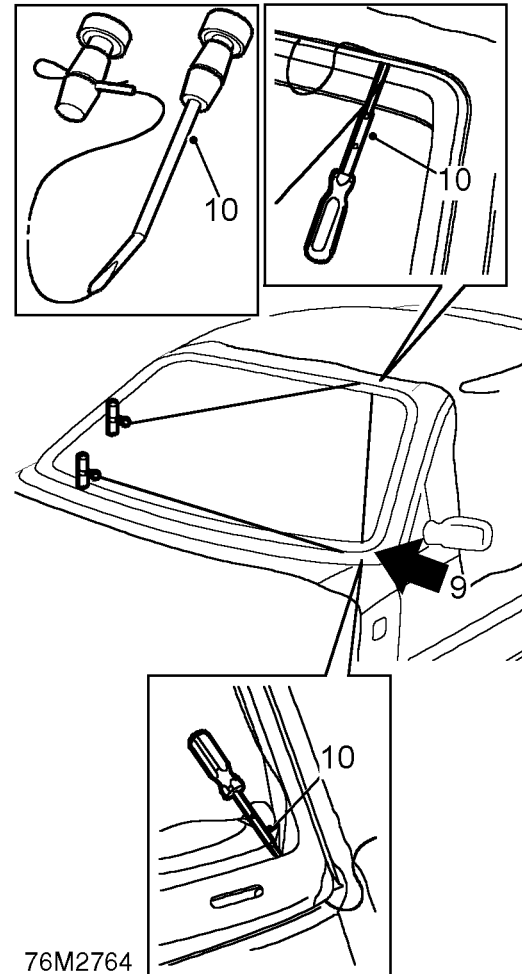
WARNING: Wear protective gloves when handling glass, solvents and primers.



WARNING: Wear suitable eye protection when removing and refitting glass.

Remove

1. Remove air intake panel and wipers. **See HEATING & VENTILATION, Repairs.**
2. Remove sun visors and sun visor retaining clips.
3. Remove 'A' post trims. **See Interior trim components.**
4. Remove retaining stud from front of headlining.
5. Remove interior mirror. **See Interior trim components.**
6. Fit protection to bonnet and areas around screen.
7. Cover heater ducts with masking tape.
8. Cover interior of vehicle with protective sheet.
9. Make knife cut in sealant at bottom of 'A' post.



10. Insert cutting wire through previously made knife cut and fit handles as shown, with approximately 200 mm of wire between handles.
11. Using suitable cutting wire, with assistance if required, carefully cut sealer. Ensure that glass is retained as last sealant is cut.



NOTE: If multi-strand cutting wire is used, a sawing action can be used to cut through heavy sealant deposits around corners.



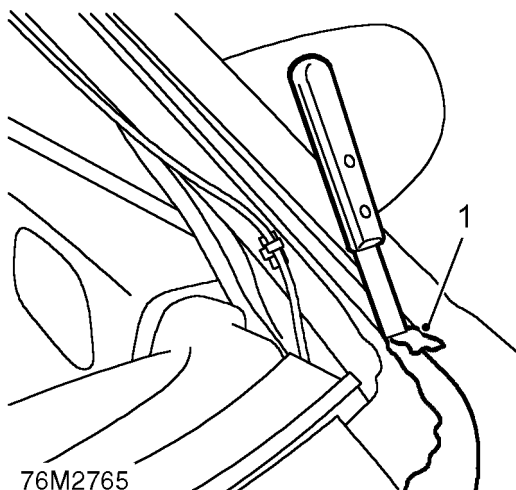
CAUTION: Use of a sawing action may overheat and break single strand wire.

12. Attach suction cups and use assistance to remove glass from body.

! **CAUTION: Lay glass on felt covered supports. Do not stand on edge. Any chipping of glass edge may develop into cracks.**

13. Collect screen support blocks.

Refit



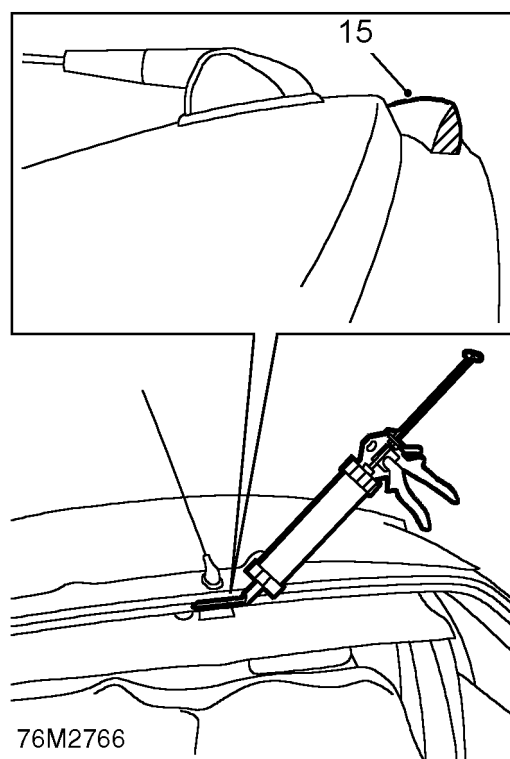
1. Carefully remove excess sealer from body leaving a smooth surface.
2. Use a vacuum cleaner to clear away any waste.
3. Original glass: Carefully cut back old sealer to obtain a smooth surface without damaging obscuration band on glass.
4. Fit spacer blocks to body.
5. With assistance, locate screen to body.
6. Apply masking tape reference marks to aid fitment.
7. With assistance, remove screen and place aside.

8. Clean frame and edge of screen with solvent.

! **CAUTION: Do not touch cleaned or primed surfaces with fingers.**

9. Apply etch primer to any bare metal on frame.
10. Apply bonding agent to screen and allow to cure.
11. Apply primer over etch primer on frame.
12. Apply activator over old sealer on frame.
13. Allow activator to cure.
14. Fit pre-cut nozzle to sealer cartridge, remove lid and shake out crystals, and install in applicator gun.

△ NOTE: Nozzle will need modification to achieve required bead section.



15. Apply a continuous bead of sealer around edge of frame as shown.
16. Check for breaks and air bubbles in sealer.



17. With assistance, lift screen into place and align to screen supports and tape. Raise screen up to roof on ratchet support blocks. Lightly press glass to fully seat sealer.
18. Remove protective covers and tape.
19. Test sealer for leaks, apply additional sealer if necessary. If water is used, allow sealer to dry before testing. Spray water around glass and check for leaks. Mark any area that leaks. Dry glass and sealer then apply additional sealer.
20. Fit 'A' post trims. **See Repairs.**
21. Fit headlining retaining stud.
22. Fit sun visor retaining clips and sun visors.
23. Fit interior mirror. **See Repairs.**
24. Fit air intake panel and wipers. **See HEATING & VENTILATION, Repairs.**



CAUTION: A curing time of 6 hours is desirable, during this time leave a window open and do not slam the doors. If the car must be used, drive slowly.

BODY

GLASS - BODY SIDE - REAR

Service repair no - 76.81.18



NOTE: The following equipment is required:

- Cutting wire and handles.
- Windscreen repair kit.
- Sealer applicator gun.
- Suction cups.



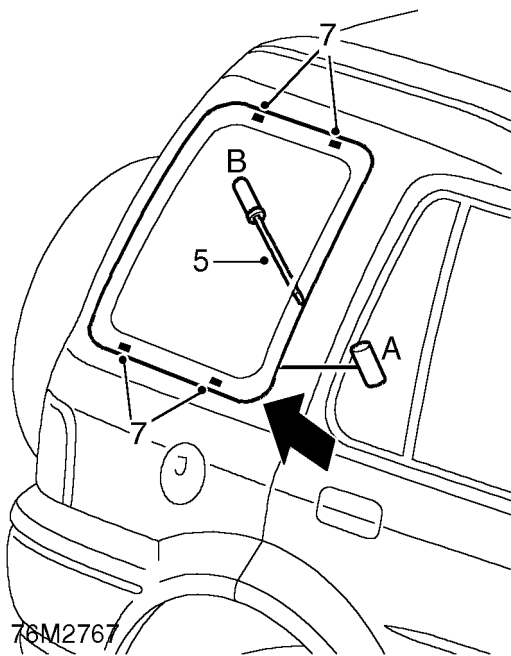
WARNING: Wear protective gloves when handling glass, solvents and primers.



WARNING: Wear suitable eye protection when removing and refitting glass.

Remove

1. Remove rear quarter upper casing. **See Interior trim components.**
2. Cover interior of vehicle with protective sheet.



3. Make knife cut in sealant at bottom of 'D' post.
4. Insert cutting wire through previously made knife cut and fit handles as shown, with approximately 200 mm of wire between handles.

5. With assistance, wedge tube of handle A between glass and body, ahead of cutting position, and carefully cut sealer using a continuous pull on handle B from the outside. Ensure that glass is retained as last sealant is cut.



NOTE: If multi-strand cutting wire is used, a sawing action can be used to cut through heavy sealant deposits around corners.



CAUTION: Use of a sawing action may overheat and break single strand wire.

6. Attach suction cup and remove glass body.

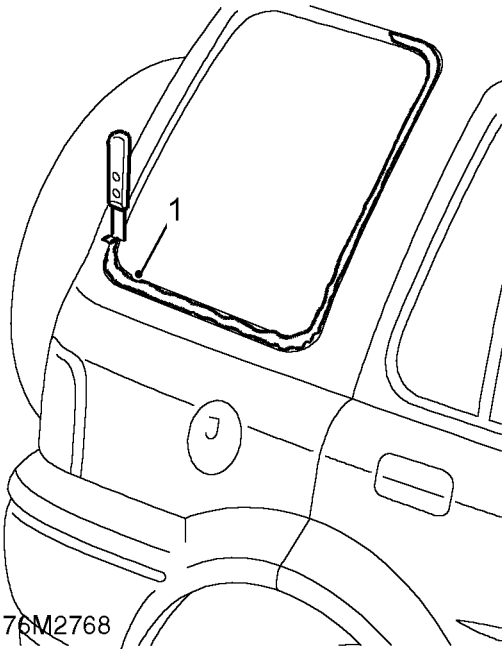


CAUTION: Lay glass on felt covered supports. Do not stand on edge. Any chipping of glass edge may develop into cracks.

7. Collect 4 spacer blocks.



Refit



1. Carefully remove excess sealer from body leaving a smooth surface.
2. Use a vacuum cleaner to clear away any waste.
3. Original glass: Carefully cut back old sealer to obtain a smooth surface without damaging obscuration band on glass.
4. Fit rubber spacer blocks to body.
5. With assistance, locate screen to body.
6. Apply masking tape reference marks to aid fitment.
7. Remove screen and place aside.
8. Clean frame and edge of screen with solvent.



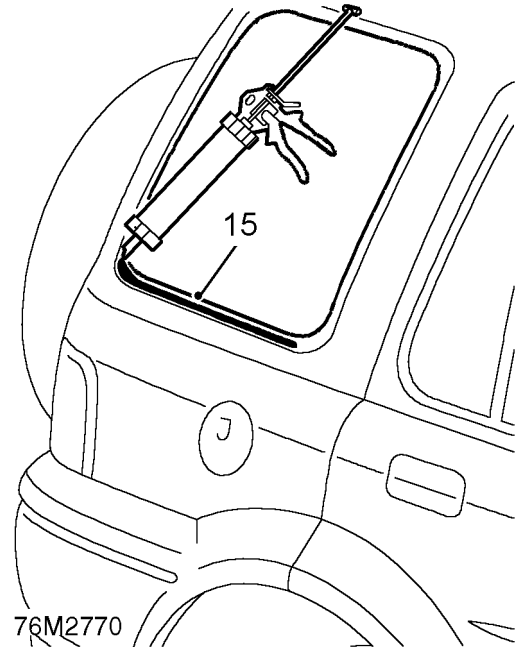
CAUTION: Do not touch cleaned or primed surfaces with fingers.

9. Apply etch primer to any bare metal on frame.
10. Apply bonding agent to screen and allow to cure.
11. Apply primer over etch primer on frame.
12. Apply activator over old sealer on frame.
13. Allow activator to cure.

14. Fit pre-cut nozzle to sealer cartridge, remove lid and shake out crystals. Install cartridge in applicator gun.



NOTE: Nozzle will need modification to achieve required bead section.



15. Apply a continuous bead of sealer around edge of frame as shown. Make bead slightly thicker at each corner.
16. Check for breaks and air bubbles in sealer.
17. Position glass to body and align to reference tape.
18. Lightly press glass to fully seat sealer.
19. Secure glass with tape until sealer has cured.
20. Remove protective covers and tape.
21. Test sealer for leaks, apply additional sealer if necessary. If water is used, allow sealer to dry before testing. Spray water around glass and check for leaks. Mark leakage points and apply additional sealer as necessary when area is completely dry.
22. Fit rear quarter upper casing. **See Interior trim components.**



SEAT - FRONT

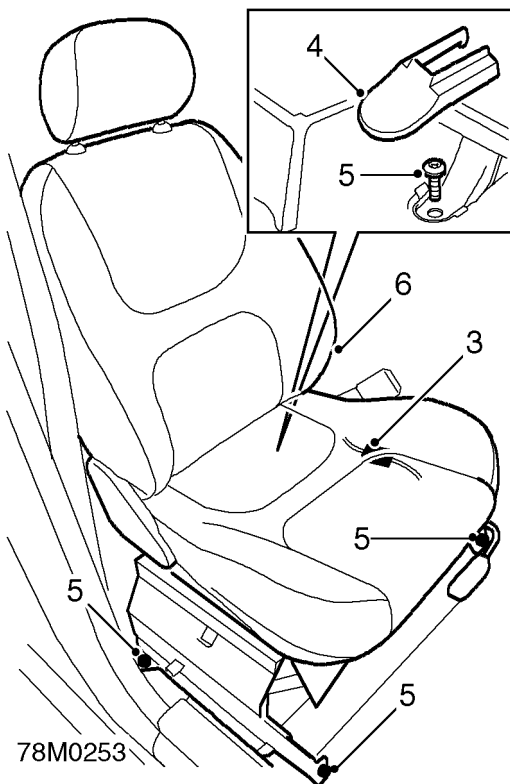
Service repair no - 78.10.44/99



WARNING: See GENERAL INFORMATION, SRS Precautions.

Remove

1. Make the SRS system safe. **See GENERAL INFORMATION, SRS Precautions.**
2. Remove seat base finisher. **See this section.**



3. Release pretensioner multiplug from seat frame. Disconnect pretensioner multiplug.
4. Remove cover from rear securing bolt.
5. Remove 4 Torx screws securing seat.
6. Remove seat.

Refit

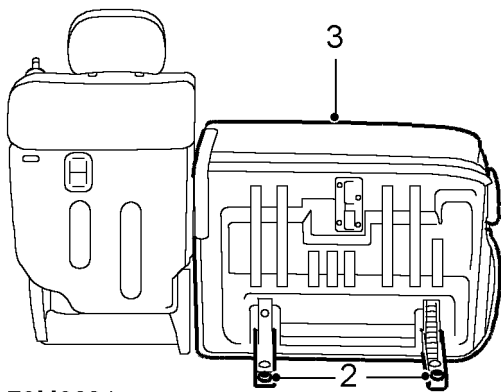
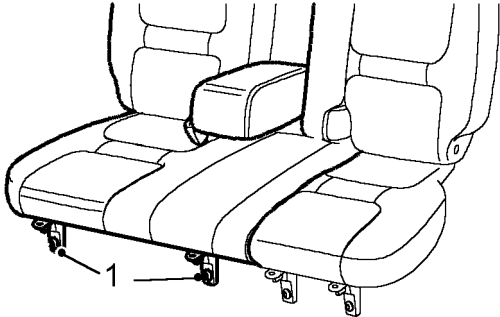
1. Position seat and secure with screws. Tighten screws to 45 Nm.
2. Fit cover to rear bolt.
3. Connect pretensioner multiplug. Secure pretensioner multiplug to seat frame.
4. Fit seat base finisher. **See this section.**

BODY

SEAT - RH REAR - 5 DOOR

Service repair no - 78.10.49/99

Remove



78M0294

1. Release carpet from heel board and remove 2 Torx bolts from seat hinges.
2. Fold seat forward and remove 2 Torx bolts from seat hinges.
3. Remove seat.

Refit

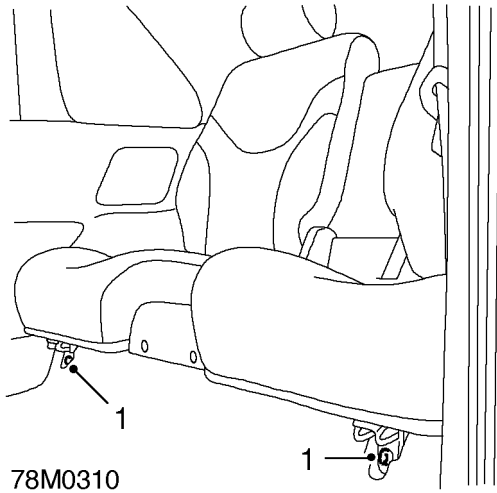
1. Position seat in vehicle and align hinges.
2. Fit Torx bolts to seat hinges. Tighten Torx bolts to 25 Nm..
3. Lower seat.
4. Fit Torx bolts to heel board. Tighten Torx bolts to 25 Nm..
5. Reposition carpet.



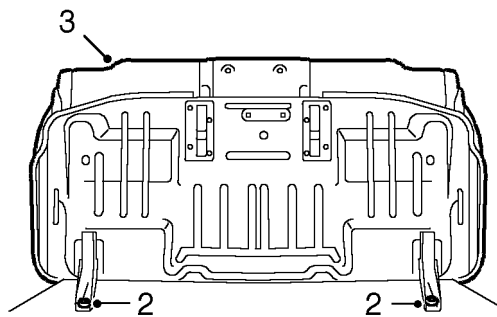
CUSHION AND SQUAB - REAR SEAT - 3 DOOR

Service repair no - 78.10.57/99

Remove



1. Remove 2 Torx bolts securing seat to heel board.



78M0311

2. Fold seat forward and remove 2 Torx bolts from seat hinges.
3. With assistance, remove seat.

Refit

1. With assistance, position seat in vehicle and align hinges.
2. Fit Torx bolts and lower seat. Tighten Torx bolts to 25 Nm..
3. Fit Torx bolts to heel board. Tighten Torx bolts to 25 Nm..

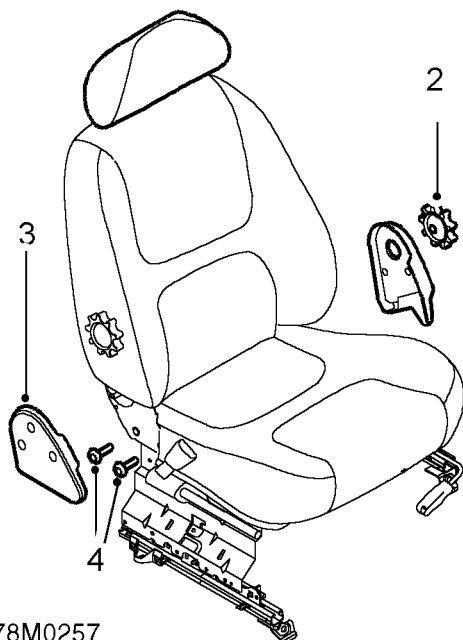
BODY

CUSHION COVER - FRONT SEAT

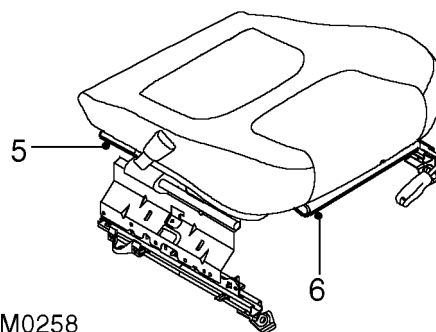
Service repair no - 78.30.01

Remove

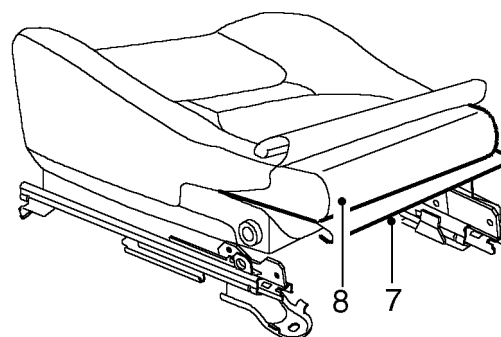
1. Remove front seat. *See this section.*



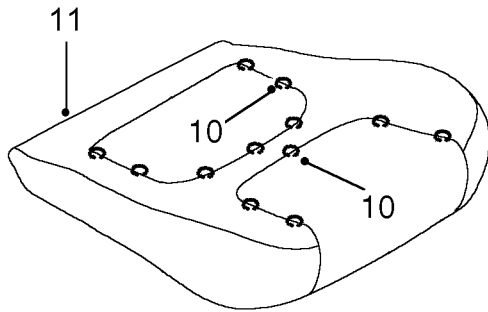
2. Remove recline control knob.
3. Release retaining studs from side covers and remove covers.
4. Remove 4 Torx bolts from squab frame and remove squab frame from cushion frame.



5. Release sides of cushion cover from frame.
6. Release front of cushion cover from frame.



7. Release rear of cushion cover from frame.
8. Release rear of cushion pad from frame.
9. Remove cushion cover and pad.



78M0260

10. Remove and discard 12 hog rings holding cushion cover to cushion pad.
11. Remove cushion cover.

Refit

1. Position cushion cover to pad.
2. Pull cover into position and secure with NEW hog rings.
3. Position cushion cover and pad and secure to frame.
4. Fit squab frame to cushion frame and tighten Torx bolts to 45etorq>.
5. Fit side covers and secure retaining studs.
6. Fit recline control knob.
7. Fit front seat. **See this section.**

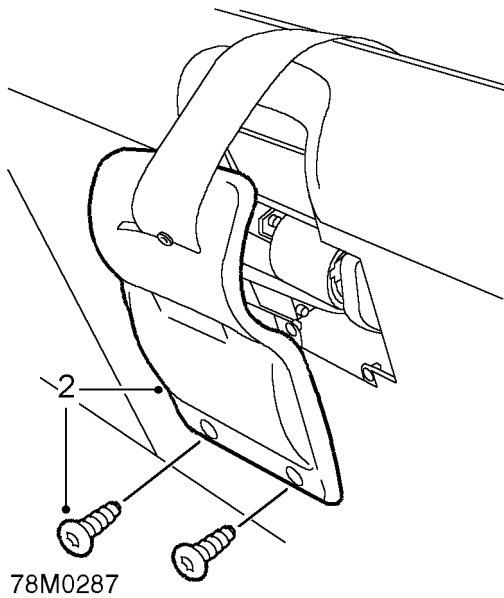
BODY

CUSHION COVER - RH REAR SEAT - 5 DOOR

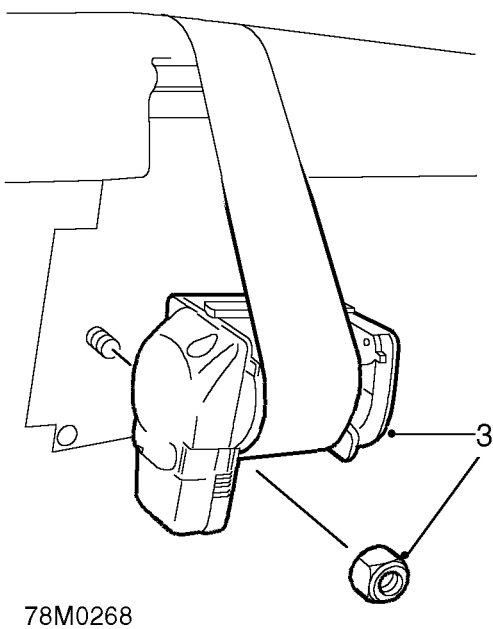
Service repair no - 78.40.04

Remove

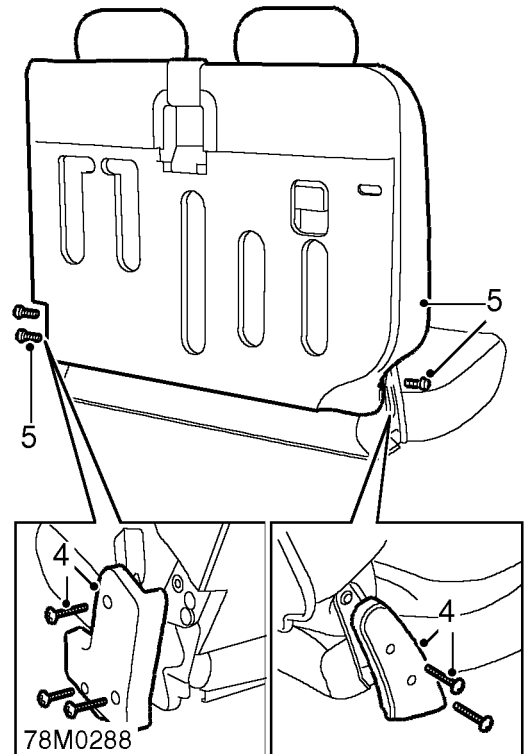
1. Remove RH rear seat. *See this section.*



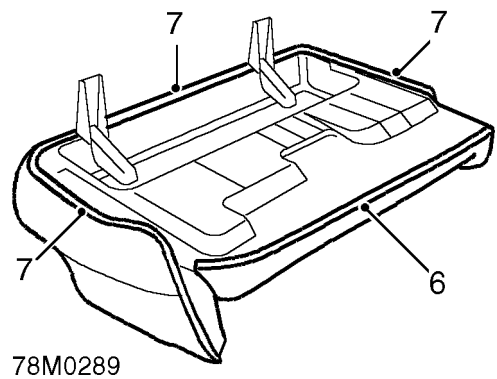
2. Remove 2 screws and remove seat belt reel cover.



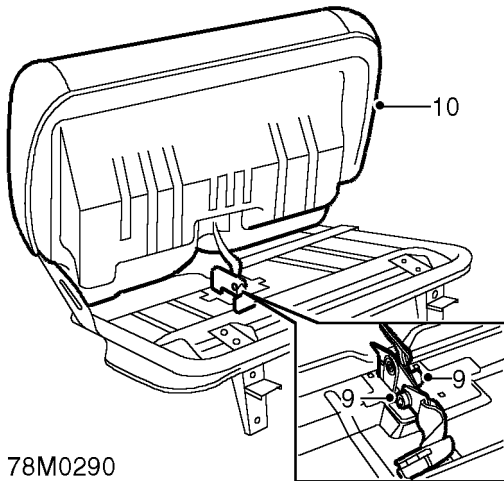
3. Remove nut and release seat belt reel.



4. Remove 5 screws and remove both end covers.
5. Remove 3 Torx bolts and remove squab from cushion.



6. Release rear of cushion cover from frame.
7. Release sides and front of cushion cover from frame.
8. Release cover and pad from frame.

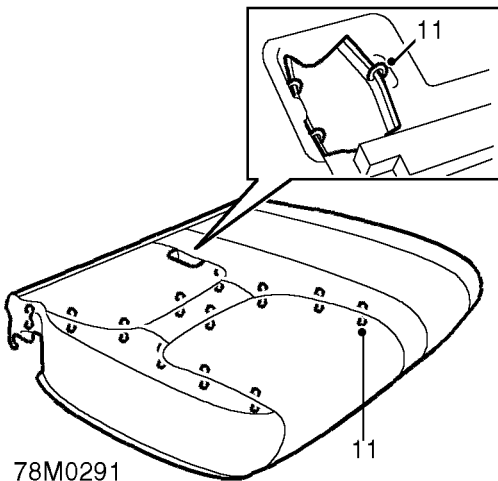


78M0290

Refit

1. Position cover to pad and secure with NEW hog rings.
2. Position seat belt/seat belt buckle on frame and tighten Torx bolts to 40 Nm.
3. Fit cover and pad to frame.
4. Fit front and sides of cushion cover to frame.
5. Fit rear of cushion cover to frame.
6. Fit cushion to squab and tighten Torx bolts.
7. Fit end covers and tighten screws.
8. Position seat belt reel in seat squab and tighten nut to 32 Nm.
9. Fit seat belt reel cover and tighten screws.
10. Fit rear seat. **See this section.**

9. Remove 2 Torx bolts from seat belt/seat belt buckle. Remove seat belt/seat belt buckle from frame.
10. Remove cover and pad from frame.



78M0291

11. Remove and discard 17 hog rings and remove cover from pad.

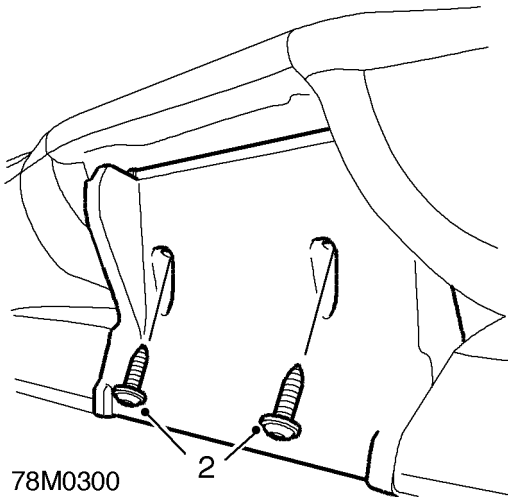
BODY

CUSHION COVER - REAR SEAT - 3 DOOR

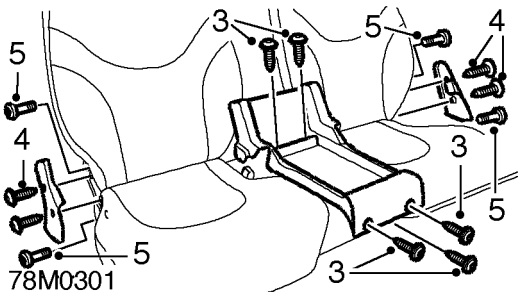
Service repair no - 78.40.05

Remove

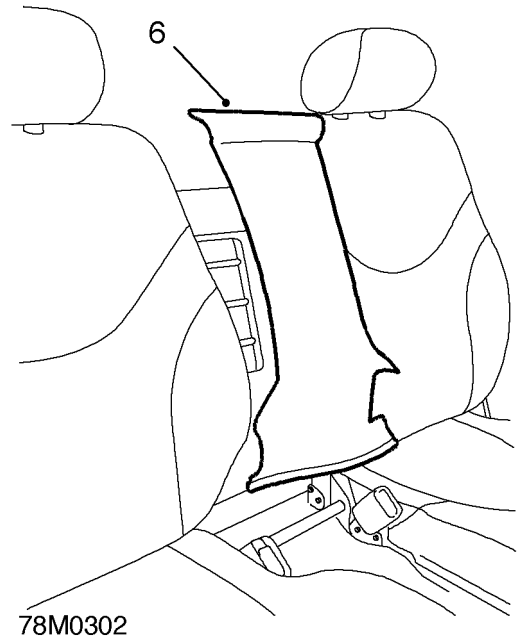
1. Remove rear seat assembly. *See this section.*



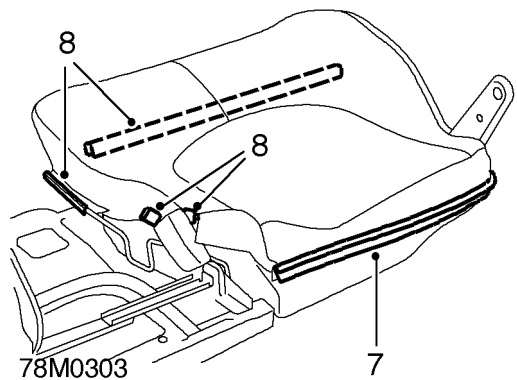
2. Remove 2 screws securing console cover and remove cover.



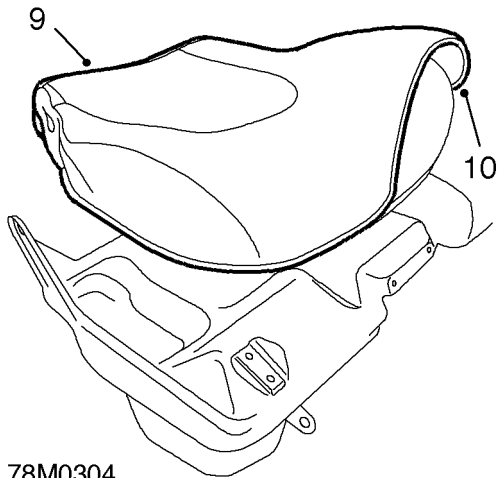
3. Remove 4 screws securing rear seat console and remove console.
4. Remove 4 screws securing end covers and remove covers.
5. Remove 4 Torx bolts and remove squab assembly from cushion assembly.



6. Release back board assembly from squab frame and remove back board.



7. Release rear of cushion cover from frame.
8. Release sides and front of cushion cover from frame.

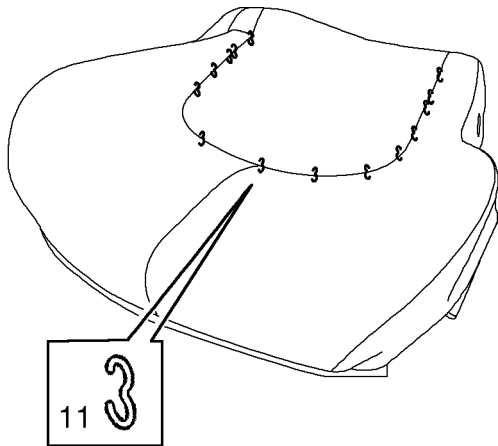


78M0304

Refit

1. Position cover to pad and secure with NEW hog rings.
2. Fit cover to pad.
3. Position cover and pad and secure to frame.
4. Fit cushion to squab and tighten Torx bolts to 45 Nm.
5. Position back board and secure to frame.
6. Fit end covers and tighten screws.
7. Position rear seat console, fit and tighten screws.
8. Position console cover, fit and tighten screws.
9. Fit rear seat. **See this section.**

9. Remove cover and pad from frame.
10. Release cushion cover from pad.



78M0305

11. Remove and discard 13 hog rings and remove cover from pad.

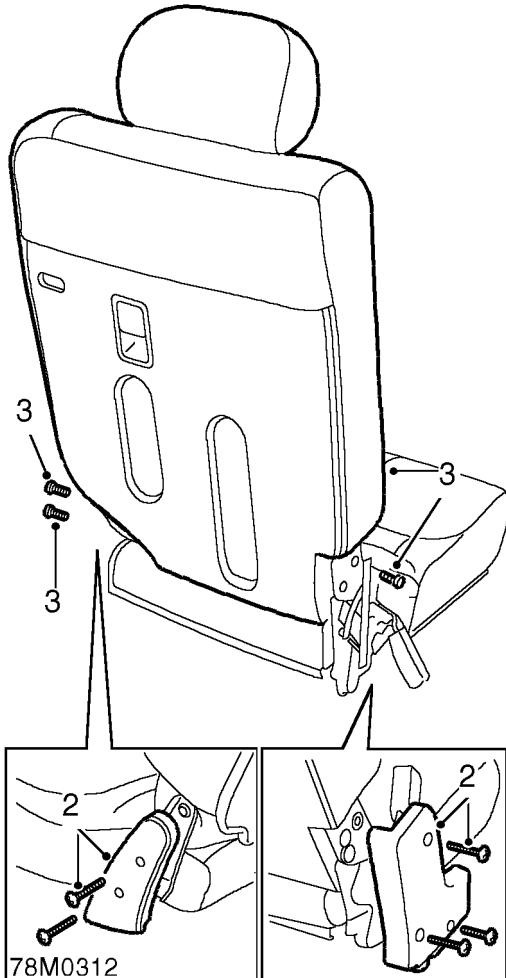
BODY

CUSHION COVER - LH REAR SEAT - 5 DOOR

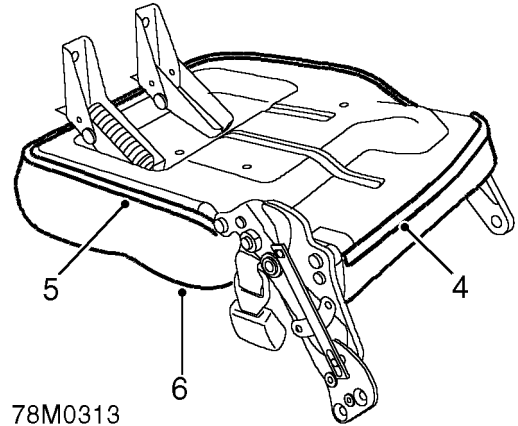
Service repair no - 78.40.05

Remove

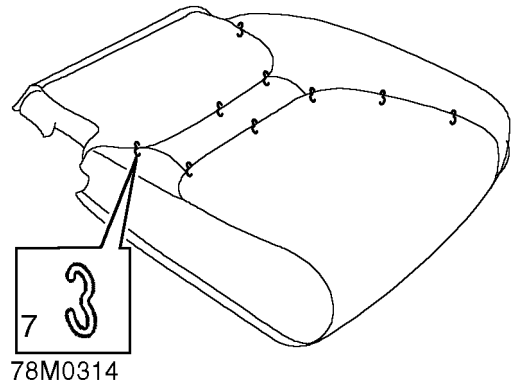
1. Remove LH rear seat. *See this section.*



2. Remove 5 screws and remove both end covers.
3. Remove 3 Torx bolts and remove squab from cushion.



4. Release rear of cushion cover from frame.
5. Release sides and front of cushion cover from frame.
6. Remove cover and pad from frame.



7. Remove and discard 16 hog rings and remove cover from pad.

Refit

1. Position cover to pad and secure with NEW hog rings.
2. Fit cover and pad to frame.
3. Fit front and sides of cushion cover to frame.
4. Fit rear of cushion cover to frame.
5. Fit cushion to squab and tighten Torx bolts to 45 Nm.
6. Fit end covers and tighten screws.
7. Fit rear seat. *See this section.*

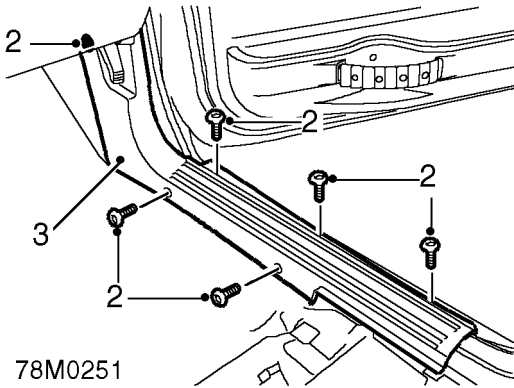


FINISHER - SEAT BASE - FRONT SEAT

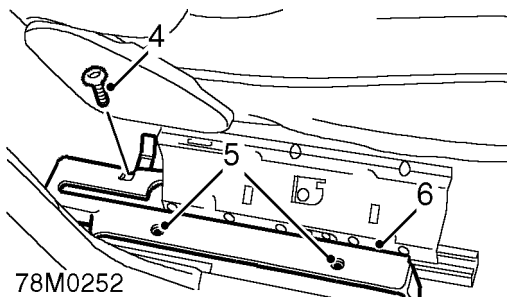
Service repair no - 78.55.01

Remove

1. Remove front seat cushion side finisher. **See this section.**



2. Remove scrivet and 5 Torx screws from carpet retainer.
3. Remove front carpet retainer.



4. Release cover to access Torx screw under front seat, remove Torx screw.
5. Remove 2 Torx screws securing finisher to seat runner.
6. Remove finisher.

Refit

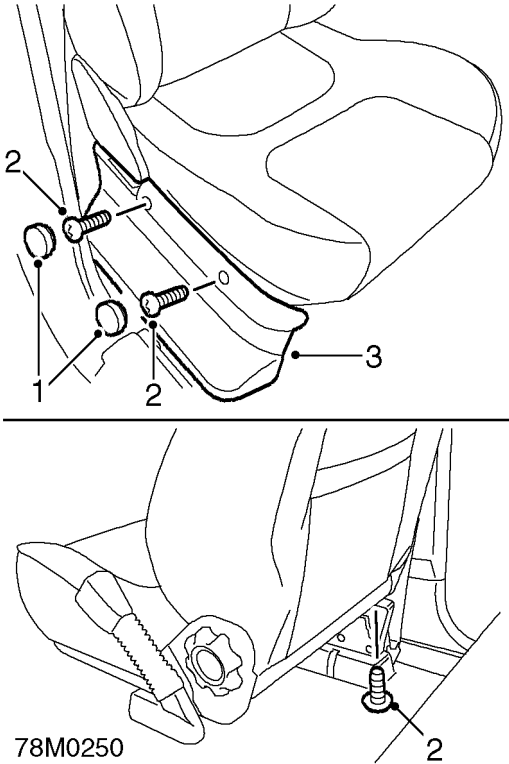
1. Position finisher to seat runner.
2. Fit and tighten Torx screws.
3. Fit and tighten Torx screw under front seat and close cover.
4. Fit front carpet retainer and secure with scrivet and Torx screws.
5. Fit front seat cushion side finisher. **See this section.**

BODY

FINISHER - CUSHION SIDE - FRONT SEAT

Service repair no - 78.55.06

Remove



1. Remove 2 covers to access screws.
2. Remove 3 screws securing finisher.
3. Release catches at front and side of seat and remove finisher.

Refit

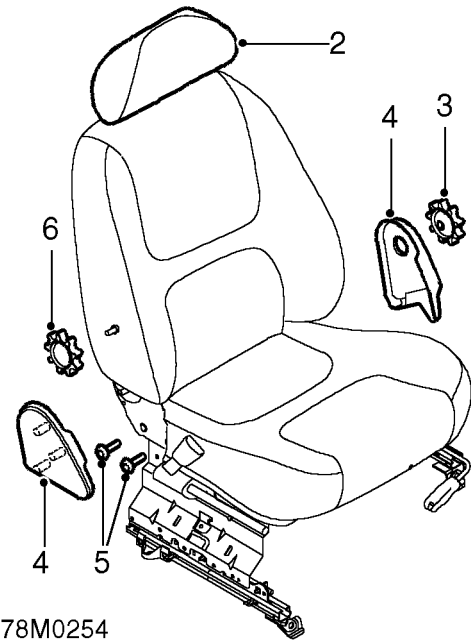
1. Position finisher to seat, locate catches, fit and tighten securing screws.
2. Fit screw covers.

LUMBAR SUPPORT - FRONT SEAT

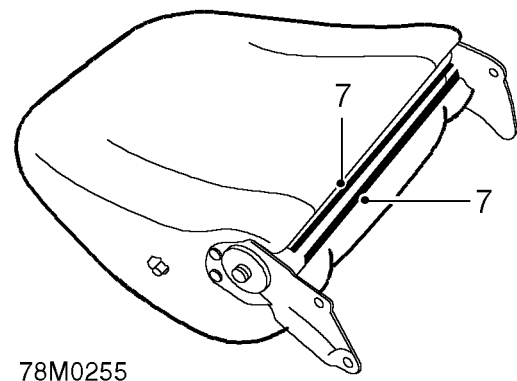
Service repair no - 78.60.07

Remove

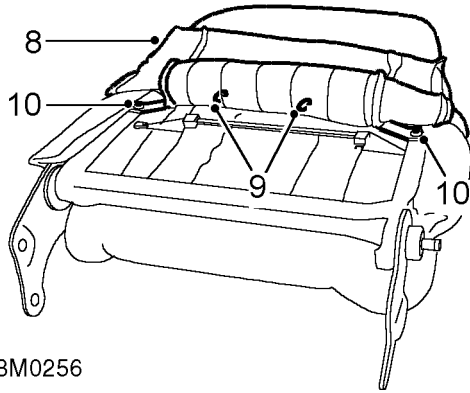
1. Remove front seat. *See this section.*



2. Release and remove head restraint.
3. Remove recline control knob.
4. Release retaining studs from side covers and remove covers.
5. Remove 4 Torx bolts from squab frame and remove squab frame from cushion frame.
6. Remove lumbar control knob.

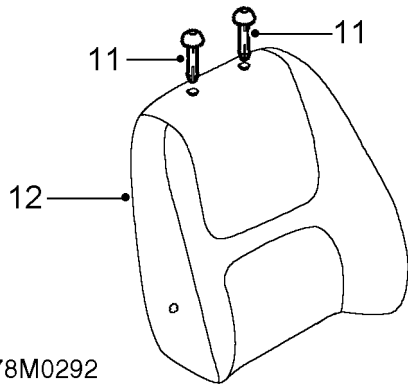


7. Release squab cover at base of seat frame.



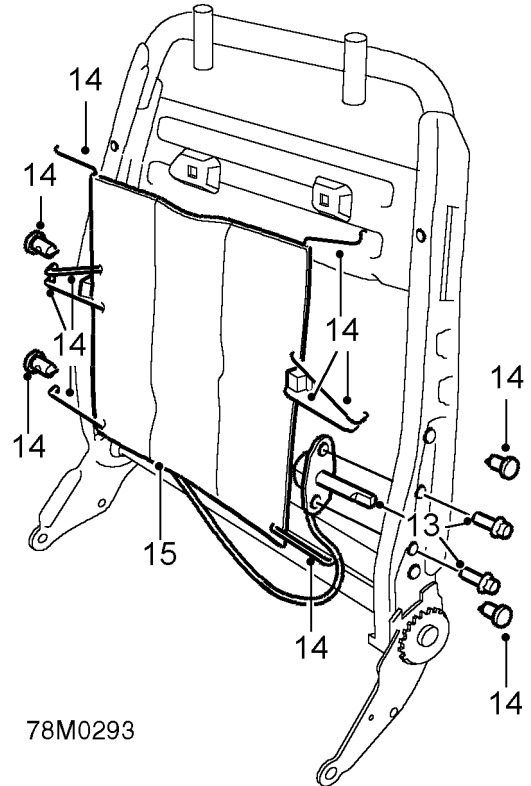
78M0256

- 8. Release squab cover from squab frame and squab pad.
- 9. Remove and discard 2 hog rings from rear of cover.
- 10. Drill out 2 pop rivet from squab frame.



78M0292

- 11. Remove head restraint guide tubes.
- 12. Remove squab cover and pad.



78M0293

- 13. Remove 2 bolts from cable control and release cable control.
- 14. Release 8 lumbar support retainers from squab frame and collect 4 hook retainers
- 15. Remove lumbar support mechanism.

Refit

- 1. Position lumbar support to squab frame, locate hook retainers.
- 2. Fit lumbar support retainers to squab frame.
- 3. Position cable control and tighten bolts.
- 4. Fit squab cover and pad to frame.
- 5. Fit head restraint guide tubes.
- 6. Fit new hog rings to rear of cover.
- 7. Position straps and secure with pop rivets.
- 8. Fit squab cover to squab pad and frame.
- 9. Secure squab cover at base of frame.
- 10. Fit lumbar support control knob.
- 11. Fit squab frame to cushion frame and tighten Torx bolts.
- 12. Fit side covers and secure retaining studs.
- 13. Fit head restraint.
- 14. Fit recline control knob.
- 15. Fit front seat. **See this section.**

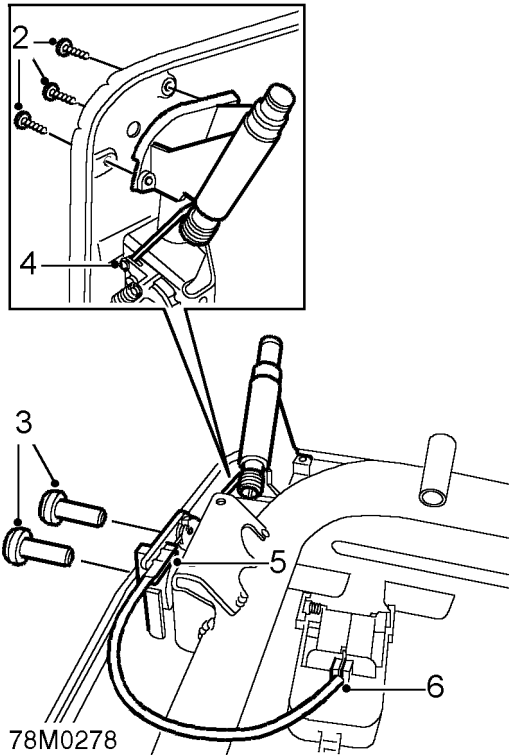
BODY

LATCH ASSEMBLY - REAR SQUAB - RH

Service repair no - 78.80.05

Remove

1. Remove rear seat squab cover. **See this section.**



2. Remove 3 screws from lock button.
3. Remove 2 Torx screws from squab lock.
4. Release lock button from lock.
5. Release cable from abutment and remove from lock.
6. Release cable from lever abutment and remove from lever.

Refit

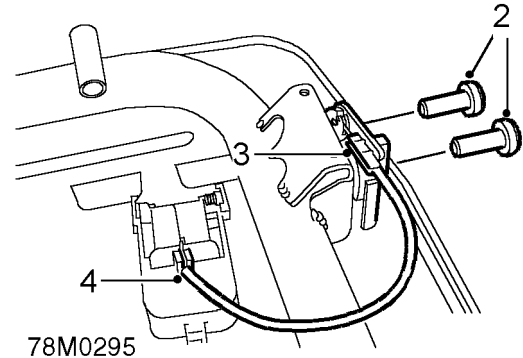
1. Position cable to lever and locate in abutment.
2. Fit cable to lock and locate in abutment.
3. Fit lock button to lock.
4. Fit Torx screws to squab lock.
5. Fit screws to lock button.
6. Fit squab cover. **See this section.**

LATCH ASSEMBLY - REAR SQUAB - LH

Service repair no - 78.80.16

Remove

1. Remove rear seat squab cover. **See this section.**



2. Remove 2 Torx screws from squab lock.
3. Release cable from abutment and remove from lock.
4. Release cable from lever abutment and remove from lever.

Refit

1. Position cable to lever and locate in abutment.
2. Fit cable to lock and locate in abutment.
3. Fit and tighten Torx screws to lock.
4. Fit squab cover. **See this section.**

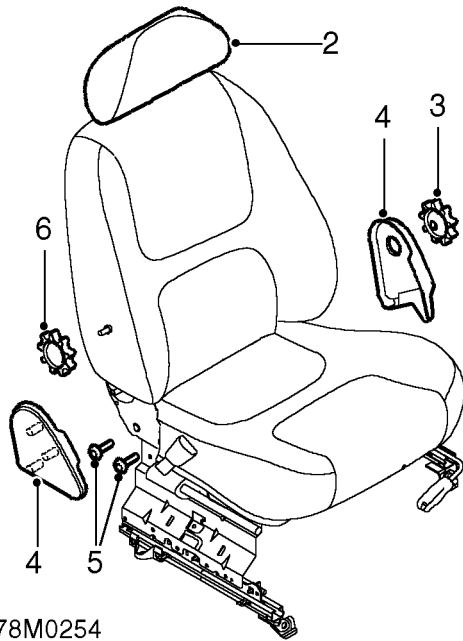


SQUAB COVER - FRONT SEAT

Service repair no - 78.90.08

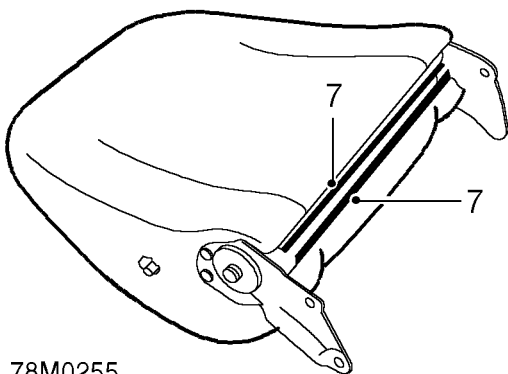
Remove

1. Remove front seat. *See this section.*



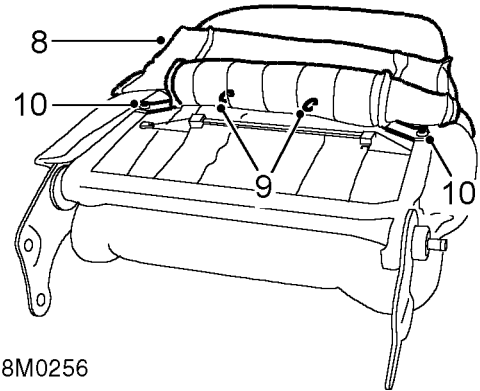
78M0254

2. Release and remove head restraint.
3. Remove recline control knob.
4. Release retaining studs from side covers and remove covers.
5. Remove 4 Torx bolts from squab frame and remove squab frame from cushion frame.
6. Remove lumbar control knob.



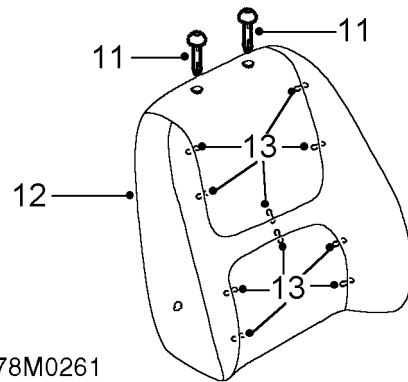
78M0255

7. Release squab cover at base of seat frame.



78M0256

8. Release squab cover from squab frame and squab pad.
9. Remove and discard 2 hog rings from rear of cover.
10. Drill out 2 pop rivet from squab frame.



78M0261

11. Remove head restraint guide tubes.
12. Remove squab cover and pad from frame.
13. Remove and discard 10 hog rings holding cover to squab pad.
14. Remove squab cover.

Refit

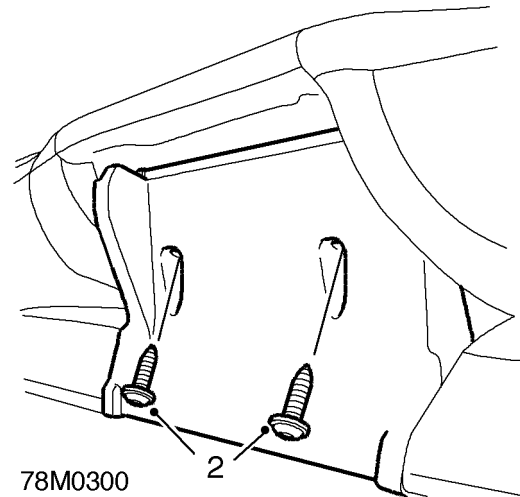
1. Position squab cover to pad.
2. Pull cover into position and secure with NEW hog rings.
3. Fit squab cover and pad to frame.
4. Fit head restraint guide tubes.
5. Fit NEW hog rings to rear of cover.
6. Position straps and secure with pop rivets.
7. Fit squab cover to squab pad and squab frame.
8. Secure squab cover at base of squab frame.
9. Fit lumbar support control knob.
10. Fit squab frame to cushion frame and tighten Torx bolts.
11. Fit side covers and secure retaining studs.
12. Fit recline control knob.
13. Fit head restraint.
14. Fit front seat. **See this section.**

SQUAB COVER - REAR SEAT - 3 DOOR

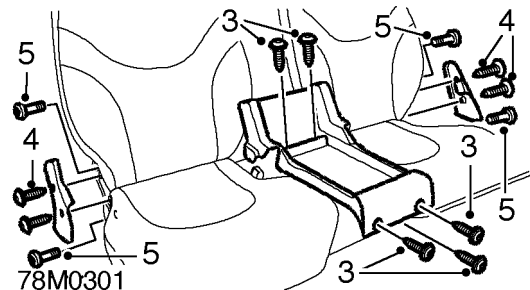
Service repair no - 78.90.12

Remove

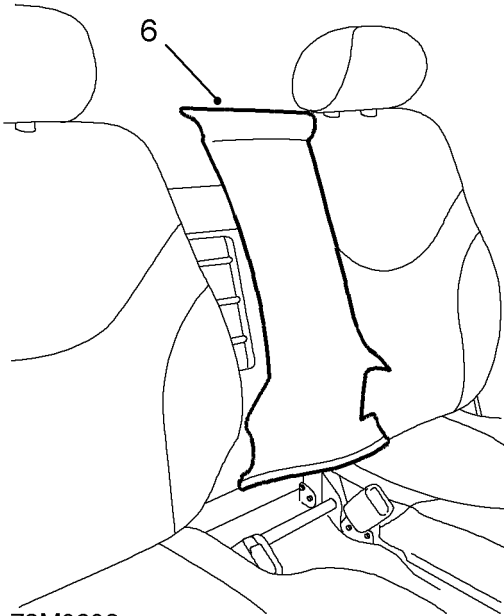
1. Remove rear seat assembly. **See this section.**



2. Remove 2 screws securing console cover and remove cover.

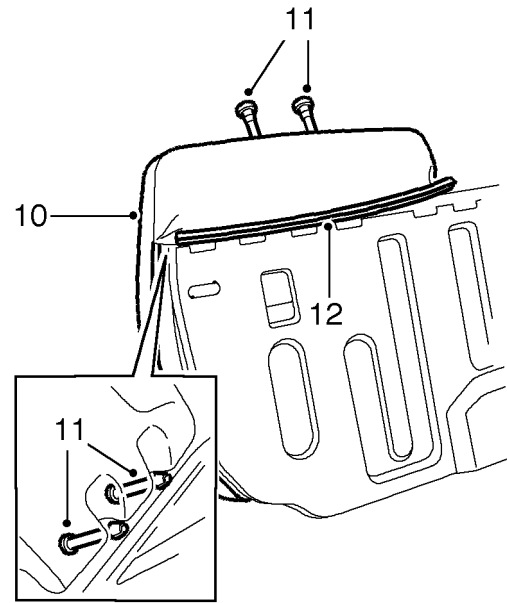


3. Remove 4 screws securing rear seat console and remove console.
4. Remove 4 screws securing end covers and remove covers.
5. Remove 4 Torx bolts and remove squab assembly from cushion assembly.



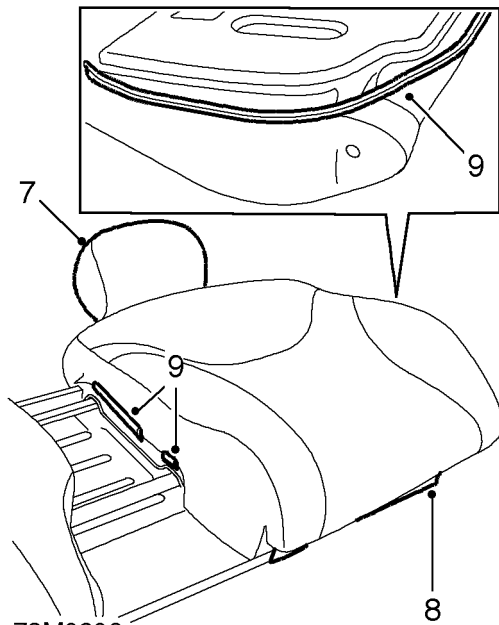
78M0302

- 6. Release back board assembly from squab frame and remove back board.



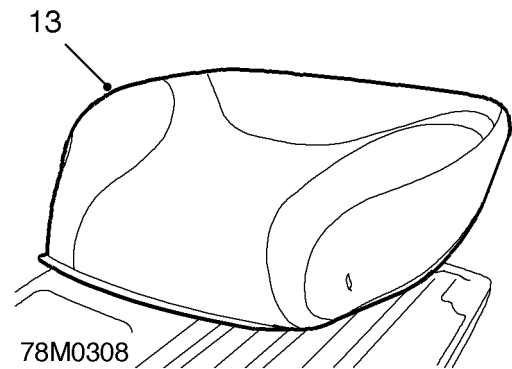
78M0307

- 10. Raise cover and pad to access head restraint guide tubes.
- 11. Remove guide tubes.
- 12. Release cover from top of frame.



78M0306

- 7. Remove head restraint.
- 8. Release bottom of squab cover from frame.
- 9. Release sides of squab cover from frame.



78M0308

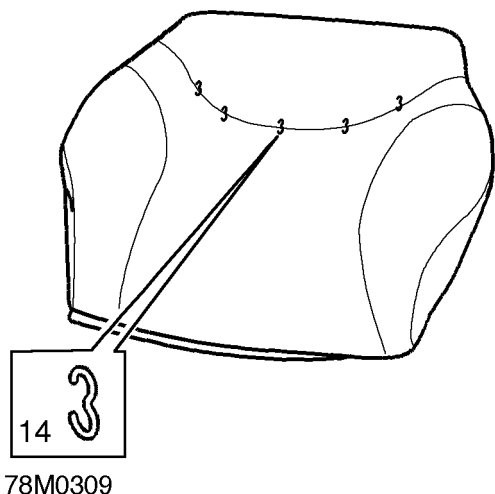
- 13. Remove cover and pad.

SQUAB COVER - LH REAR SEAT - 5 DOOR

Service repair no - 78.90.12

Remove

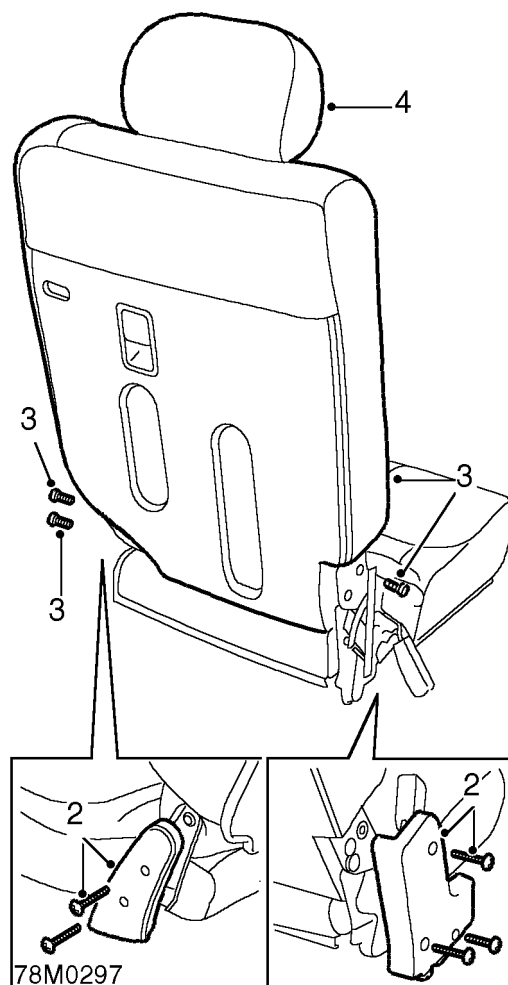
1. Fold LH rear seat forward.



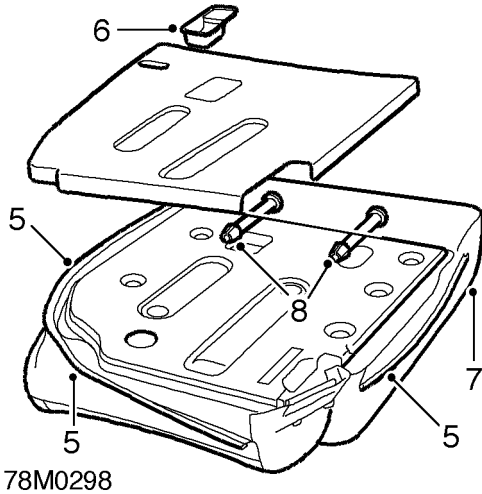
14. Release cover from pad, remove and discard 5 Hog rings.
15. Remove cover from pad.

Refit

1. Locate cover to pad and secure with NEW hog rings.
2. Fit cover to pad.
3. Secure cover to top of frame.
4. Fit guide tubes.
5. Secure sides and bottom of cover to frame.
6. Fit head restraint.
7. Fit cushion to squab and tighten Torx bolts to 45 Nm.
8. Position back board and secure to frame.
9. Fit end covers and tighten screws.
10. Position rear seat console, fit and tighten screws.
11. Position console cover, fit and tighten screws.
12. Fit rear seat. **See this section.**



2. Remove 5 screws from end covers and remove covers.
3. Remove 3 bolts from seat squab and remove squab from cushion.
4. Remove head restraint.

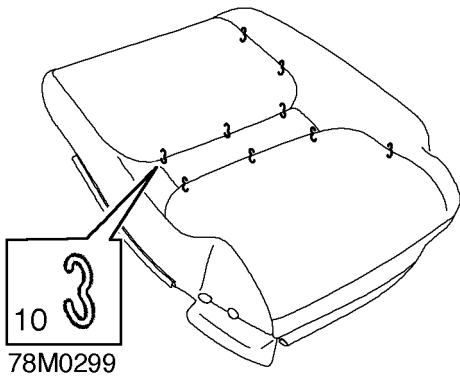


78M0298

Refit

1. Position squab cover to pad and secure hog rings.
2. Fit cover and pad to squab frame.
3. Fit head restraint guide tubes.
4. Fit cover to sides and bottom of frame.
5. Fit cover to rear of frame .
6. Fit back cloth and secure latch escutcheon.
7. Fit head restraint.
8. Fit squab to cushion and tighten bolts.
9. Fit side covers and tighten screws.
10. Secure rear seat in locked position.

5. Release squab from sides and bottom of frame.
6. Release latch escutcheon and remove seat frame back cloth.
7. Release cover from rear of frame.
8. Release and remove 2 head restraint guide tubes.
9. Remove cover and pad from frame.



78M0299

10. Remove 9 hog rings and remove cover from pad.

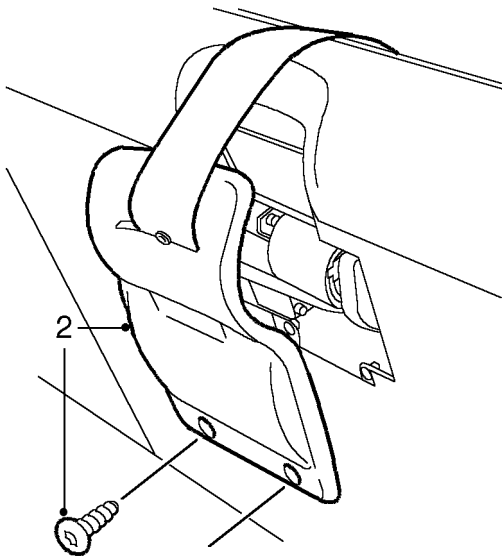
BODY

SQUAB COVER - RH REAR SEAT - 5 DOOR

Service repair no - 78.90.13

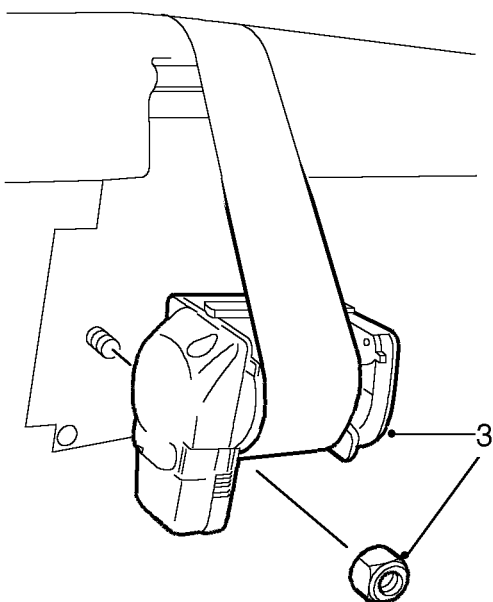
Remove

1. Fold RH rear seat forward.



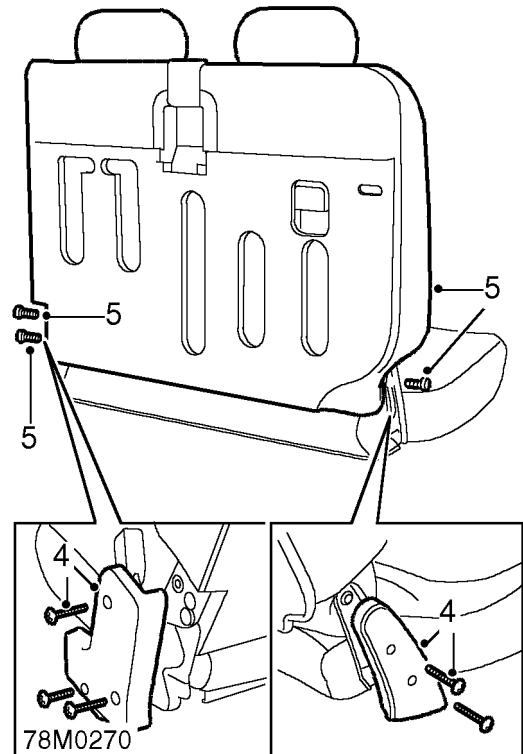
78M0267

2. Remove 2 screws from seat belt reel cover and remove cover.

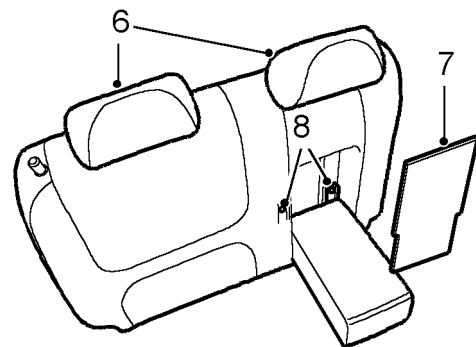


78M0268

3. Remove nut from seat belt reel, release reel and position aside.

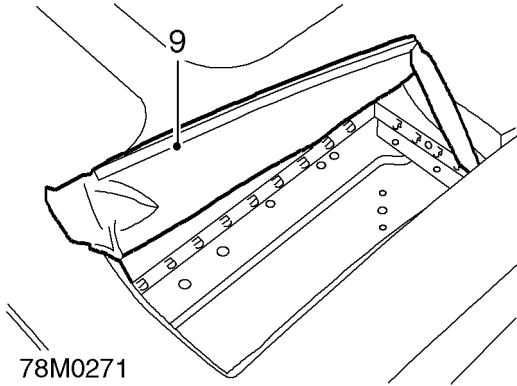


4. Remove 5 screws from end covers and remove covers.
5. Remove 3 bolts from seat squab and remove squab from cushion.



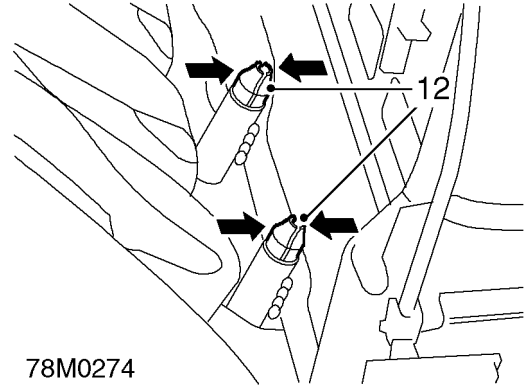
78M0269

6. Remove both head restraints.
7. Remove arm rest aperture trim.
8. Remove 2 screws from arm rest and remove arm rest.



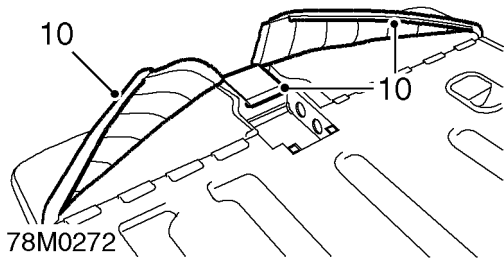
78M0271

9. Release squab from arm rest aperture.



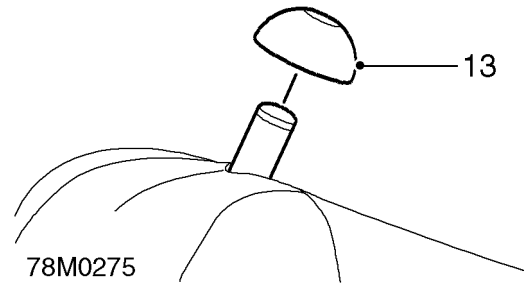
78M0274

12. Release and remove 4 head restraint guide tubes.



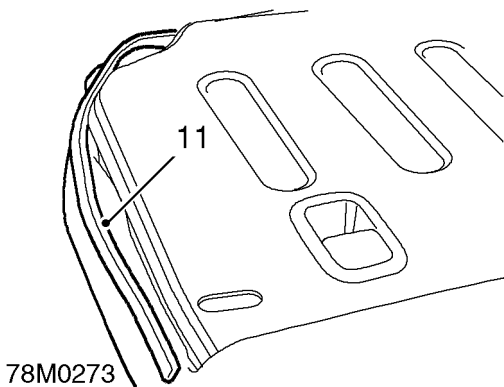
78M0272

10. Release squab from seat belt aperture and from rear of frame.



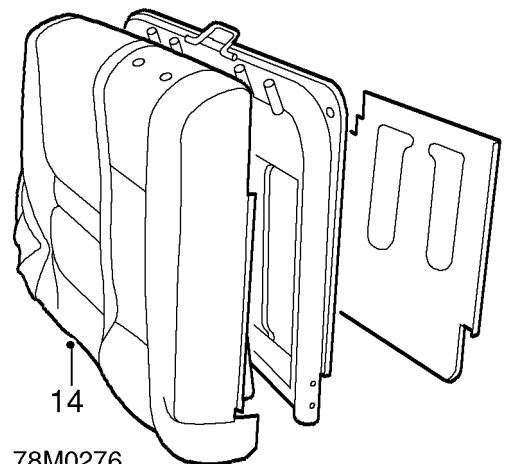
78M0275

13. Release squab lock warning button escutcheon.



78M0273

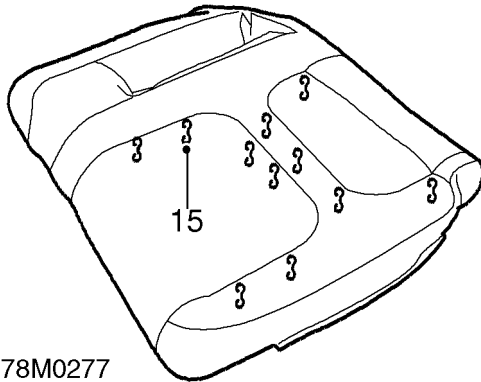
11. Release squab from sides and bottom of frame. Release latch escutcheon and remove back cloth.



78M0276

14. Remove cover and pad from frame.

BODY



15. Remove 12 hog rings and remove cover from pad.

Refit

1. Position squab cover to pad and secure hog rings.
2. Fit cover and pad to squab frame.
3. Fit head restraint guide tubes and seat lock warning button escutcheon.
4. Fit cover to sides and bottom of frame.
5. Fit cover to rear of frame and seat belt aperture.
6. Fit back cloth and secure latch escutcheon.
7. Fit cover to arm rest aperture.
8. Fit arm rest and tighten screws.
9. Fit arm rest aperture trim.
10. Fit head restraints.
11. Fit squab to cushion and tighten bolts.
12. Fit side covers and tighten screws.
13. Position seat belt reel and tighten nut to 32 Nm.
14. Fit seat belt reel cover and tighten screws.
15. Secure rear seat in locked position.



SUN ROOF ASSEMBLY - 3 DOOR

Service repair no - 76.83.01

Remove

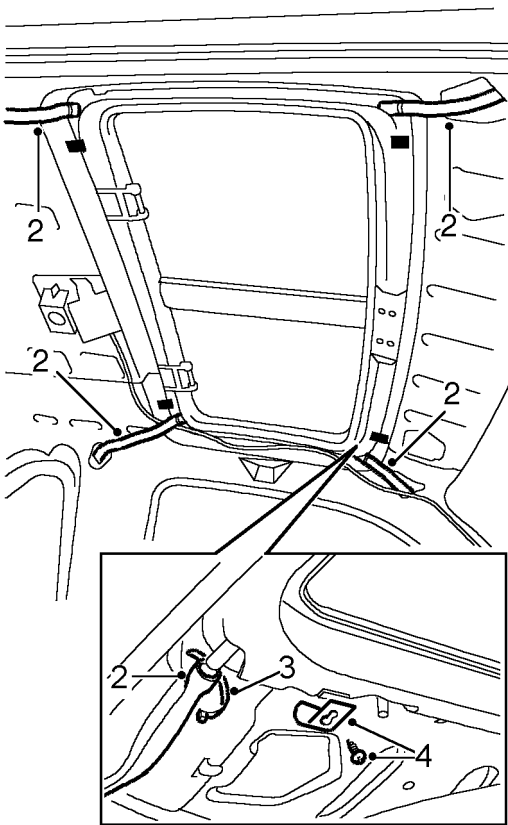


WARNING: Wear protective gloves when handling solvents and primers.



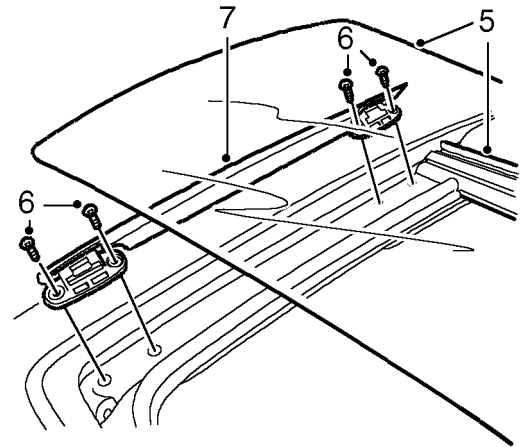
WARNING: Wear suitable eye protection when cutting out sun roof.

1. Remove headlining. *See Interior trim components.*



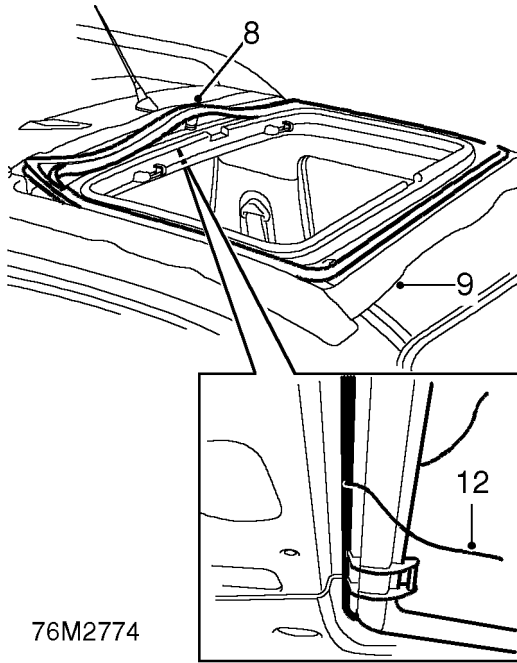
76M2772

2. Disconnect drain tubes from sun roof.
3. Remove and discard cable ties.
4. Loosen 4 Torx screws securing clamping plates and remove plates.



76M2773

5. Remove glass panels and 'T' bar.
6. Remove 8 screws securing wind deflectors.
7. Remove wind deflectors.



8. Remove sun roof tray seal. **See this section.**
9. Mask up roof and sun roof aperture.
10. Cover interior trim with protective sheet.
11. Make a cut through the sealer at the back of the sun roof, a 90° bend in the cutting tool will help.

CAUTION: Take care not to damage paint or roof aperture flange when cutting out sunroof.

12. Using suitable cutting wire, cut through PU sealer securing sunroof to roof.

NOTE: Multi-strand cutting wire is advised, as a sawing action may be required on the corners. Single strand wire may overheat and break during sawing action.

13. Remove section of sunroof.

Refit

1. Clean surrounding area with solvent.
2. Use a vacuum cleaner to clear away dust and debris.
3. Cut sealer on roof flange down to a smooth even finish.
4. Etch prime and paint any damaged areas.
5. Apply primer over etch primer on flange.
6. Apply activator over old sealer on flange.
7. Allow activator to cure.
8. Fit pre-cut nozzle to sealer cartridge, remove lid and shake out crystals, install in applicator gun.



NOTE: Modify nozzle as required.

9. Apply a continuous bead of sealer around roof flange as shown. Make bead slightly thicker at the corners.



NOTE: Sealer bead should be 8 mm by 8 mm.

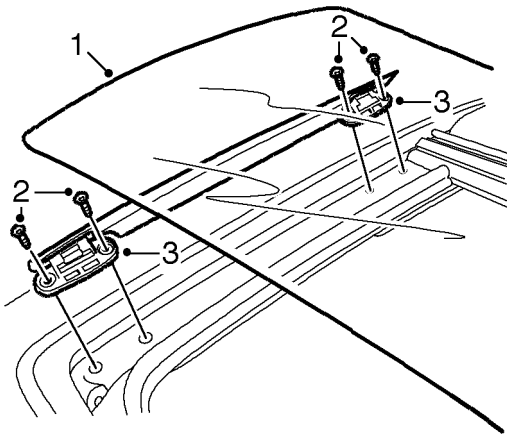
10. Check for breaks and air bubbles in the sealer.
11. With assistance position sunroof and align to roof aperture.
12. Fit sun roof tray seal. **See this section.**
13. Position sunroof clamping plates, fit and tighten screws.
14. Connect drain tubes and secure with NEW cable ties.
15. Remove body and trim protection.
16. Position wind deflectors, fit and tighten screws.
17. Fit 'T' bar and glass panels.
18. Fit headlining. **See Interior trim components.**



WIND DEFLECTOR - GLASS SUN ROOF - 3 DOOR

Service repair no - 76.83.28

Remove



76M2739

1. Release and remove sun roof glass panel.
2. Remove 4 screws securing hinges, and remove wind deflector.
3. Collect hinges.



NOTE: Hinges are handed.

Refit

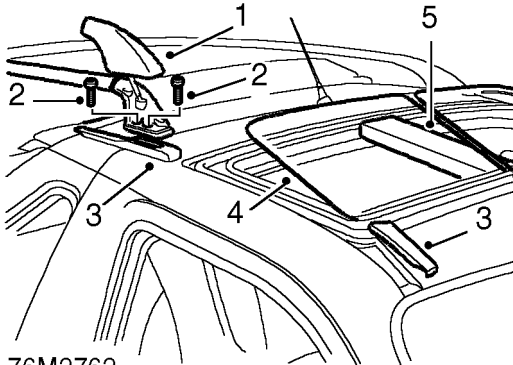
1. Locate hinges to wind deflector, position wind deflector, fit and tighten screws.
2. Position glass panel and secure catch.

BODY

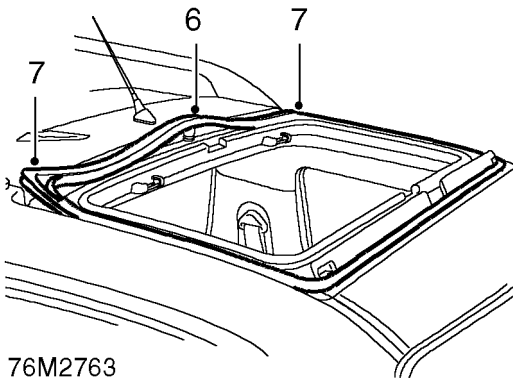
SEAL - SUN ROOF TRAY

Service repair no - 76.83.61

Remove



1. Remove side rail front end covers.
2. Unscrew 4 Torx bolts securing front of side rails and side rails.
3. Remove front and rear roof finishers.
4. Remove roof glass.
5. Remove 'T' bar.



6. Release seal from inner part of tray.
7. Release seal from corners of tray and ease from between roof and tray.
8. Remove tray seal.

Refit

1. Position seal to roof.



CAUTION: Do not use sharp tools to locate seal

2. Locate seal to corners of tray and fit between roof and tray.
3. Fit seal to inner part of tray.
4. Fit 'T' bar.
5. Fit roof glass.
6. Fit roof finishers.
7. Ensure gaskets are in position on side rails. Tighten Torx bolts to 22 Nm. to secure side rails.
8. Fit side rail end covers.

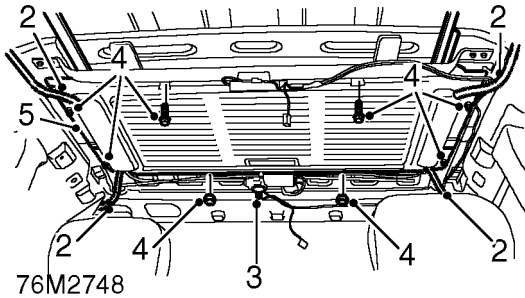


SUN ROOF ASSEMBLY - 5 DOOR

Service repair no - 76.84.01

Remove

1. Remove headlining. *See Interior trim components.*



2. Disconnect drain tubes from sun roof.
3. Disconnect multiplug from sun roof motor.
4. With assistance, remove 6 nuts and 2 bolts securing sun roof.
5. Remove sun roof assembly.

Refit

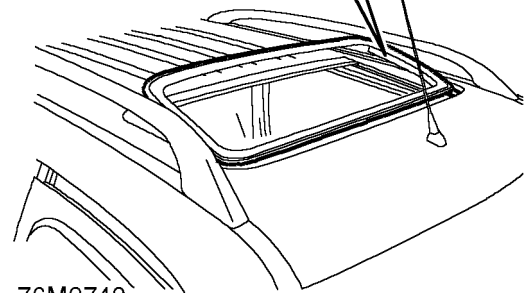
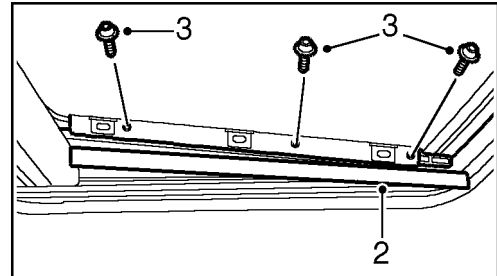
1. Ensure plastic washers and tray seal are in position.
2. With assistance position sun roof assembly, fit and tighten nuts and bolts.
3. Connect multiplug to sun roof.
4. Connect drain tubes to sun roof and secure with cable ties.
5. Fit headlining. *See Interior trim components.*

PANEL GLASS - SUN ROOF - 5 DOOR

Service repair no - 76.84.03

Remove

1. Open sun roof blind.



2. Remove covers from glass securing screws.
3. Remove 6 screws securing glass.
4. Remove glass.

Refit

1. Position glass, fit screws but do not tighten at this stage.
2. Align glass to roof and tighten screws.
3. Fit screw covers.
4. Operate sun roof to check alignment.
5. Close sun roof blind.

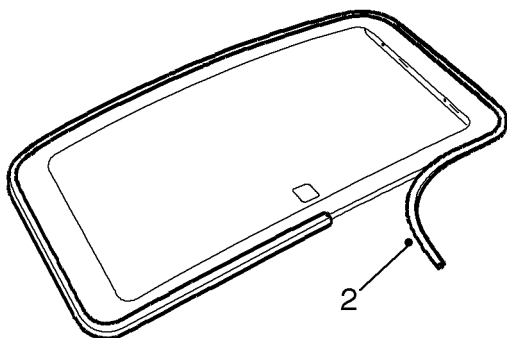
BODY

SEAL - PANEL GLASS - SUN ROOF - 5 DOOR

Service repair no - 76.84.05

Remove

1. Remove glass panel. **See this section.**



76M2752

2. Release ends of seal from glass and remove seal .

Refit

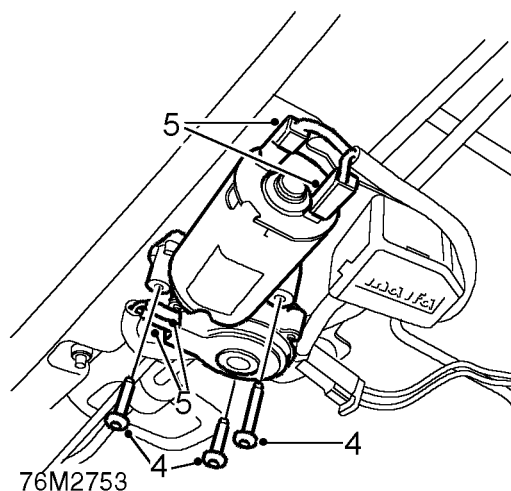
1. Clean adhesive from glass.
2. Position seal; apply adhesive to ends of seal and secure to glass panel.
3. Fit glass panel. **See this section.**

MOTOR - SUN ROOF

Service repair no - 76.84.07

Remove

1. Remove front roof lamp. **See ELECTRICAL, Repairs.**
2. Remove headlining to sun roof finisher. **See Repairs.**
3. Carefully lower front of headlining to access motor.



76M2753

4. Remove 3 Torx screws securing motor.
5. Release motor from gearbox, lower through headlining, disconnect 4 Lucars and remove motor.

Refit

1. Position motor, connect Lucars and fit motor to gearbox.
2. Position sun roof in tilt mode, power motor forward to the first stop (motor and lifting assemblies are then timed together).
3. Fit and tighten Torx screws.
4. Carefully reposition headlining.
5. Fit sun roof finisher. **See Repairs.**
6. Fit roof lamp. **See ELECTRICAL, Repairs.**

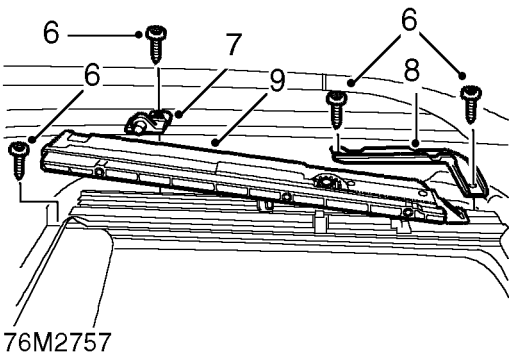


DRIVE CABLES & SLIDE ASSEMBLIES

Service repair no - 76.84.09

Remove

1. Remove sun roof motor. **See this section.**
2. Remove glass panel. **See this section.**
3. Open sun roof.
4. Release and remove wind deflector.
5. Position sun roof in tilt mode.



6. Remove 4 Torx screws securing lifting assembly to roof.
7. Collect rear cam guide.
8. Slide assembly forward, remove cable guide clamp.
9. Remove lifting assembly and cable.

Refit

1. Ensure cable tubes are in position, lightly grease the end of cable tube.
2. Engage cable in tube and fit lifting assembly to roof.
3. Fit cable guide clamp, place lifting assembly in tilt mode.
4. Fit rear cam guide.
5. Fit and tighten Torx screws.
6. Fit sun roof motor. **See this section.**
7. Open sun roof.
8. Position wind deflector and secure to sun roof.
9. Fit glass panel. **See this section.**

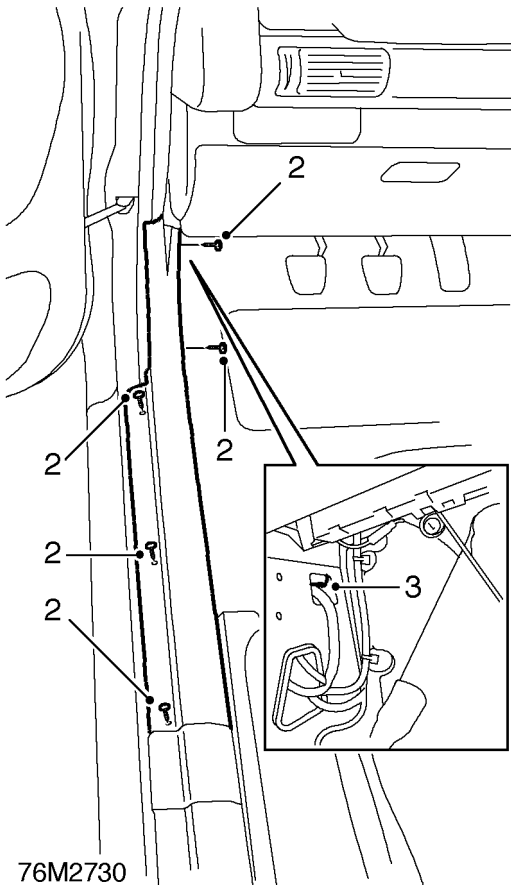
BODY

DRAIN TUBE - SUN ROOF - FRONT - 5 DOOR

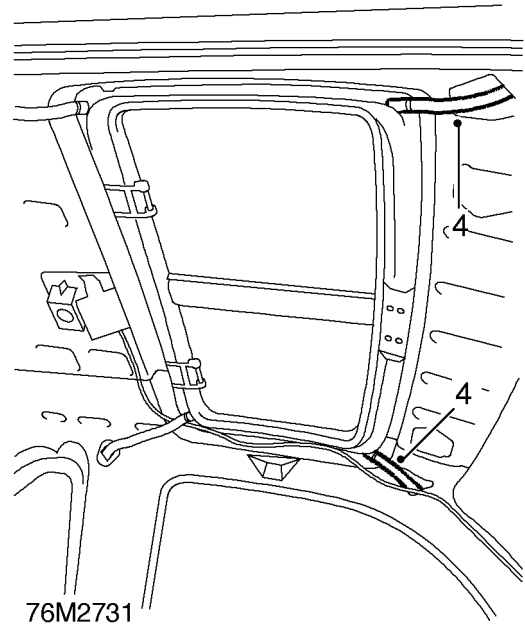
Service repair no - 76.84.20

Remove

1. Remove headlining. *See Interior trim components.*



2. Remove 5 Torx screws securing carpet retainer and remove retainer.
3. Release drain tube from wheel arch grommet.



4. Disconnect drain tube from sun roof, discard cable tie.
5. Attach draw string and remove drain tube.

Refit

1. Attach draw string to NEW drain tube and pull into position.
2. Connect drain tube to sun roof and secure with NEW cable tie.
3. Connect drain tube to wheel arch grommet.
4. Secure wheel arch grommet.
5. Position carpet retainer, fit and tighten Torx screws.
6. Fit headlining. *See Interior trim components.*

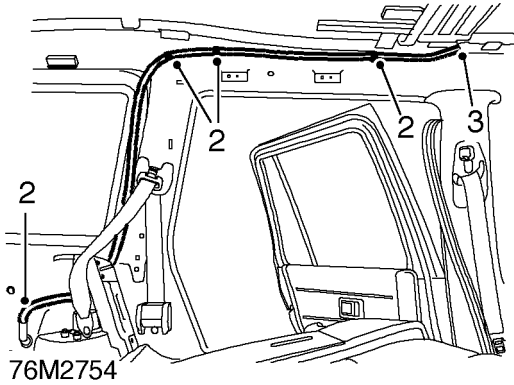


DRAIN TUBE - SUN ROOF - REAR - 5 DOOR

Service repair no - 76.84.21

Remove

1. Remove headlining. **See Interior trim components.**



2. Release drain tube from wheel arch grommet and 3 securing clips.
3. Disconnect drain tube from sun roof and discard cable tie.
4. Remove drain tube.

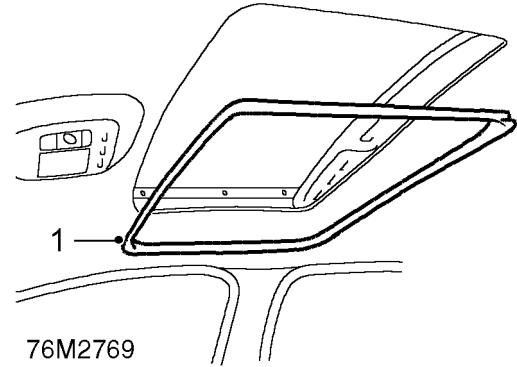
Refit

1. Position NEW drain tube.
2. Connect drain tube to sun roof and secure with NEW cable tie.
3. Connect drain tube to wheel arch grommet and secure in clips.
4. Secure wheel arch grommet.
5. Fit headlining. **See Interior trim components.**

FINISHER - SUN ROOF FLANGE TO HEADLINING

Service repair no - 76.84.25

Remove



1. Release sun roof surround finisher from sunroof aperture and remove finisher.

Refit

1. Position sunroof surround finisher and secure in position ensure locating lug is in position at the front of finisher.

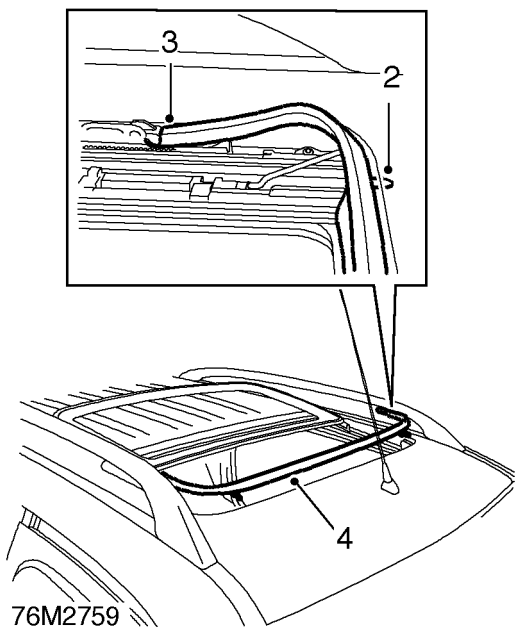
BODY

WIND DEFLECTOR - SUN ROOF - 5 DOOR

Service repair no - 76.84.28

Remove

1. Remove sun roof. **See this section.**



2. Carefully release wind deflector retaining pegs from roof.
3. Release wind deflector from lifting assemblies.
4. Remove wind deflector.

Refit

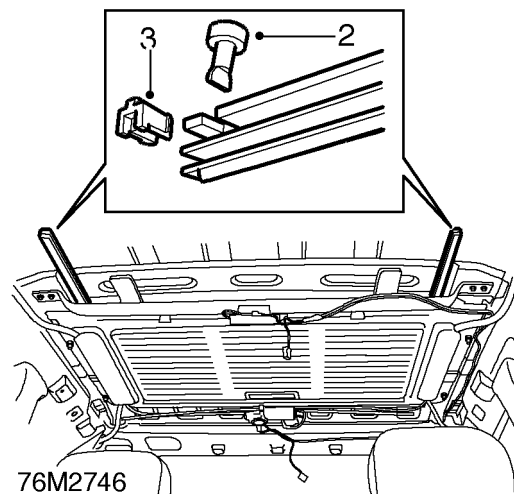
1. Position wind deflector to lifting assemblies and secure in position.
2. Carefully locate retaining pegs under roof.
3. Fit sun roof. **See this section.**

BLIND - SUN ROOF - 5 DOOR

Service repair no - 76.84.30

Remove

1. Remove headlining. **See Interior trim components.**



2. Remove 2 blind stops.
3. Remove 2 rubber buffers.
4. Slide blind to the rear of sun roof and remove from guides.

Refit

1. Lubricate guides with isoflex grease.
2. Fit blind to guides and slide into position.
3. Fit blind stops and rubber buffers.
4. Fit headlining. **See Interior trim components.**



SWITCH - SUN ROOF

Service repair no - 76.84.40

Remove

1. Remove front console. **See Interior trim components.**
2. Remove switch from console.

Refit

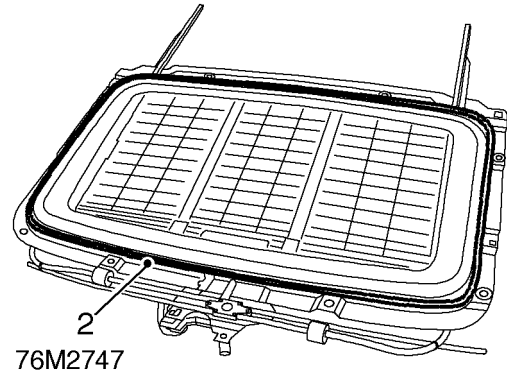
1. Fit switch to console.
2. Fit front console. **See Interior trim components.**

SEAL - SUN ROOF TRAY - 5 DOOR

Service repair no - 76.84.61

Remove

1. Remove sun roof assembly. **See this section.**



2. Remove seal from tray.

Refit

1. Clean old adhesive from tray.
2. Remove backing from NEW seal and fit seal to tray.
3. Fit sun roof assembly. **See this section.**

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CORROSION PREVENTION

Factory treatments

During production, vehicle bodies are treated with the following anti-corrosion materials:

- An application of cavity wax which is sprayed into the sill panels and the lower areas of the door panels.
- A PVC-based underbody sealer which is sprayed onto the underside of the main floor and sills, the exterior of the safe well and the forward face of the lower dash crossmember.
- A coating of underbody wax which is applied to the entire underbody inboard of the sill vertical flanges, and covers all moving and flexible components EXCEPT for wheels, tyres, brakes and exhaust.
- A coat of protective wax applied to the engine bay area.

Whenever body repairs are carried out, ensure the anti-corrosion materials in the affected area are repaired or renewed as necessary using the approved materials. **See INFORMATION, Sealing and corrosion protection.**

Cavity wax injection

Areas treated with cavity wax are shown in the following Figures. After repairs, always re-treat these areas with an approved cavity wax. In addition, treat all interior surfaces which have been disturbed during repairs whether they have been treated in production or not. This includes all box members, cavities and door interiors. It is permissible to drill extra holes for access where necessary, provided these are not positioned in load-bearing members. Ensure that such holes are treated with a suitable zinc rich primer, brushed with wax and then sealed with a rubber grommet.

Before wax injection, ensure that the cavity to be treated is free from any contamination or foreign matter. Where necessary, clear out any debris using compressed air.



CAUTION: Ensure that cavity wax is applied AFTER the final paint process and BEFORE refitting any trim components.

During application, ensure that the wax covers all flange and seam areas and that it is adequately applied to all repaired areas of both new and existing panels.

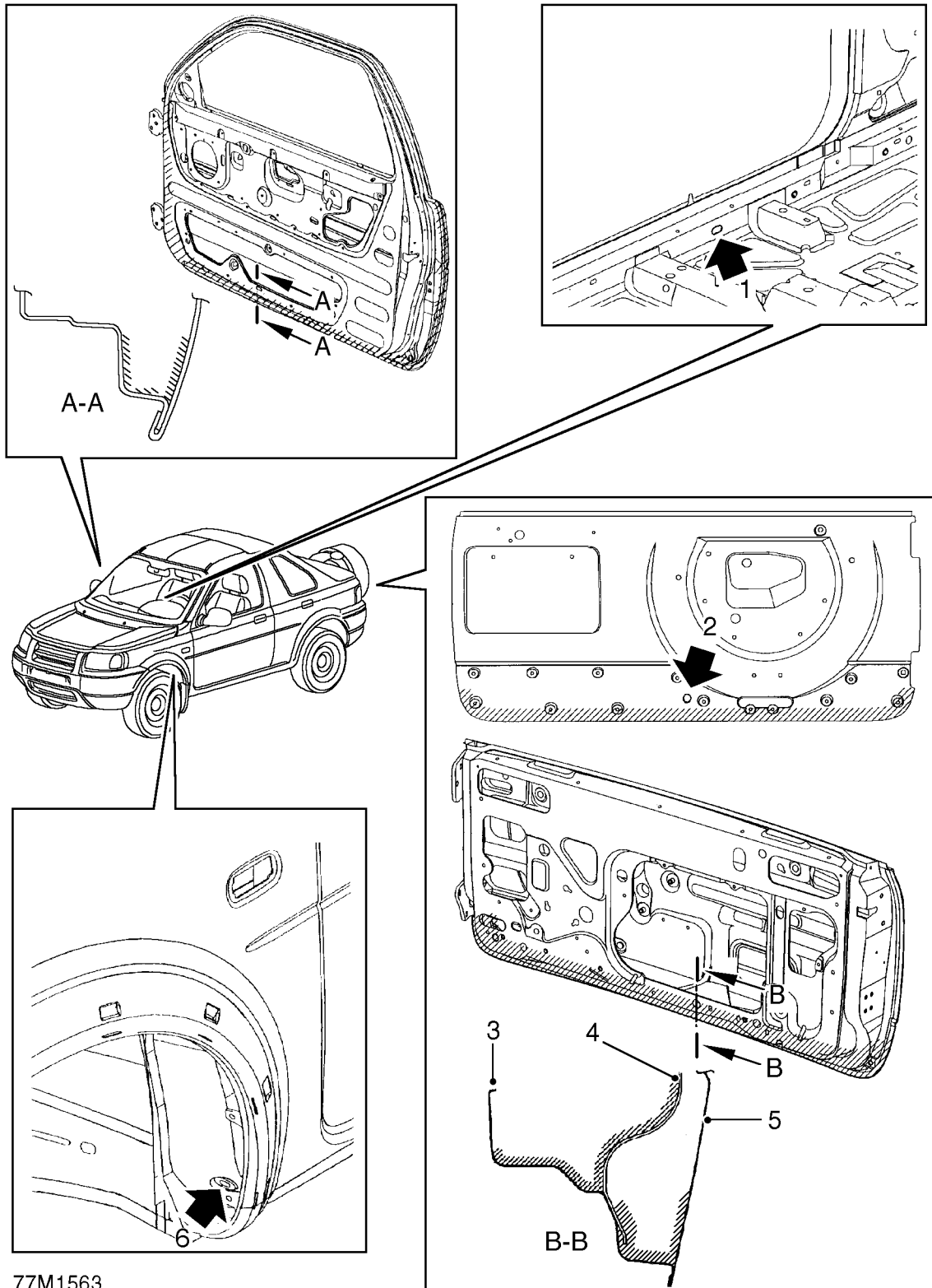
It should be noted that new panel assemblies and complete body shells are supplied without wax injection treatment. Ensure that such treatment is carried out after repairs.

Effective cavity wax protection is vital. Always observe the following points:

- Complete all paint refinish operations before wax application.
- Clean body panel areas and blow-clean cavities if necessary, before treatment.
- Maintain a temperature of 18°C during application and drying.
- Check the spray pattern of injection equipment.
- Mask off all areas not to be wax coated and which could be contaminated by wax overspray.
- Remove body fixings, such as seat belt retractors, if contamination is at all likely.
- Move door glasses to fully closed position before treating door interiors.
- Treat body areas normally covered by trim before refitting items.
- Check that body and door drain holes are clear after the protective wax has dried.
- Keep all equipment clean, especially wax injection nozzles.

PANEL REPAIRS

Cavity wax treatment areas and injection holes - 3 door



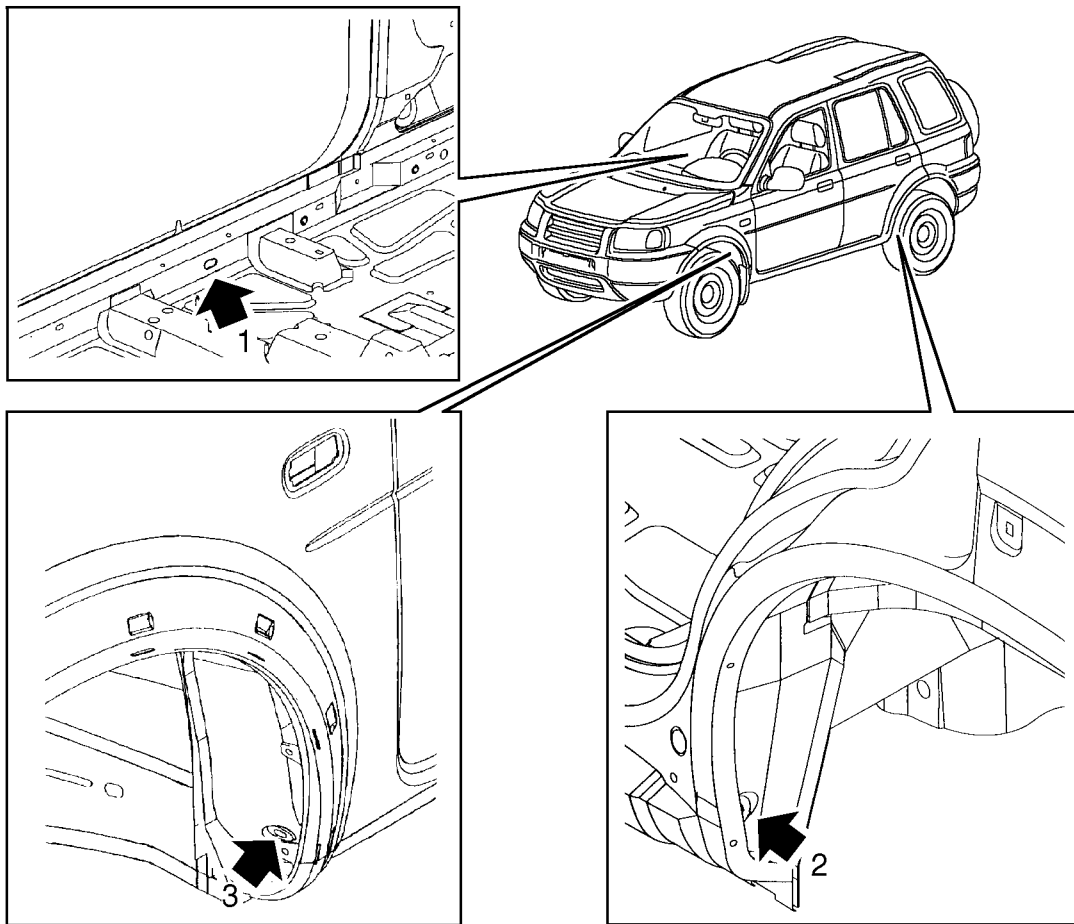
All areas symmetrically opposite to those shown are also treated.



Key to Figure, cavity wax treatment areas and injection holes - 3 door

- | | |
|--|--------------------------------|
| 1. Injection hole for inner sill | 4. Tail door reinforcing panel |
| 2. Injection hole for area between tail door outer panel and reinforcing panel | 5. Tail door outer panel |
| 3. Tail door inner panel | 6. Injection hole for sill |

Sill cavity wax injection holes - 5 door



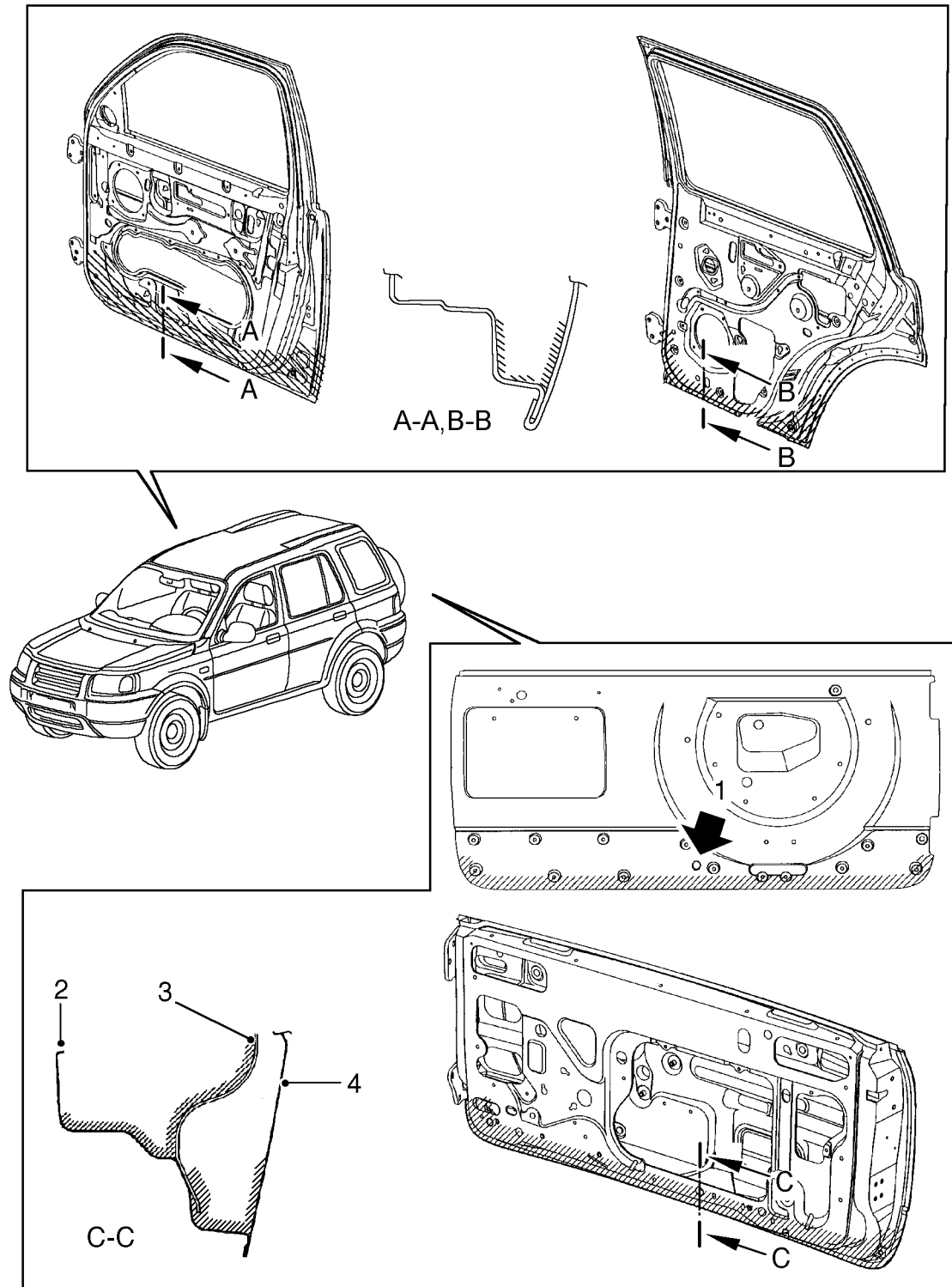
77M1565

All areas symmetrically opposite to those shown are also treated.

- | | |
|----------------------------------|----------------------------------|
| 1. Injection hole for inner sill | 3. Front injection hole for sill |
| 2. Rear injection hole for sill | |

PANEL REPAIRS

Door cavity wax treatment areas and injection hole - 5 door



77M1564

All areas symmetrically opposite to those shown are also treated.

**Key to Figure, door cavity wax treatment areas and injection holes - 5 door**

1. Injection hole for area between tail door outer panel and reinforcing panel
2. Tail door inner panel
3. Tail door reinforcing panel
4. Tail door outer panel

Underbody sealer

Underfloor areas and sill outer panels are treated with a Plastisol PVC underbody sealer. This material is not suitable for re-treatment. When repairing areas of underbody sealer, strip the factory-applied underbody sealer back to a suitable break point. Ensure that a clean metal surface is exposed and that the edge of the existing sealer adheres soundly to the panel.

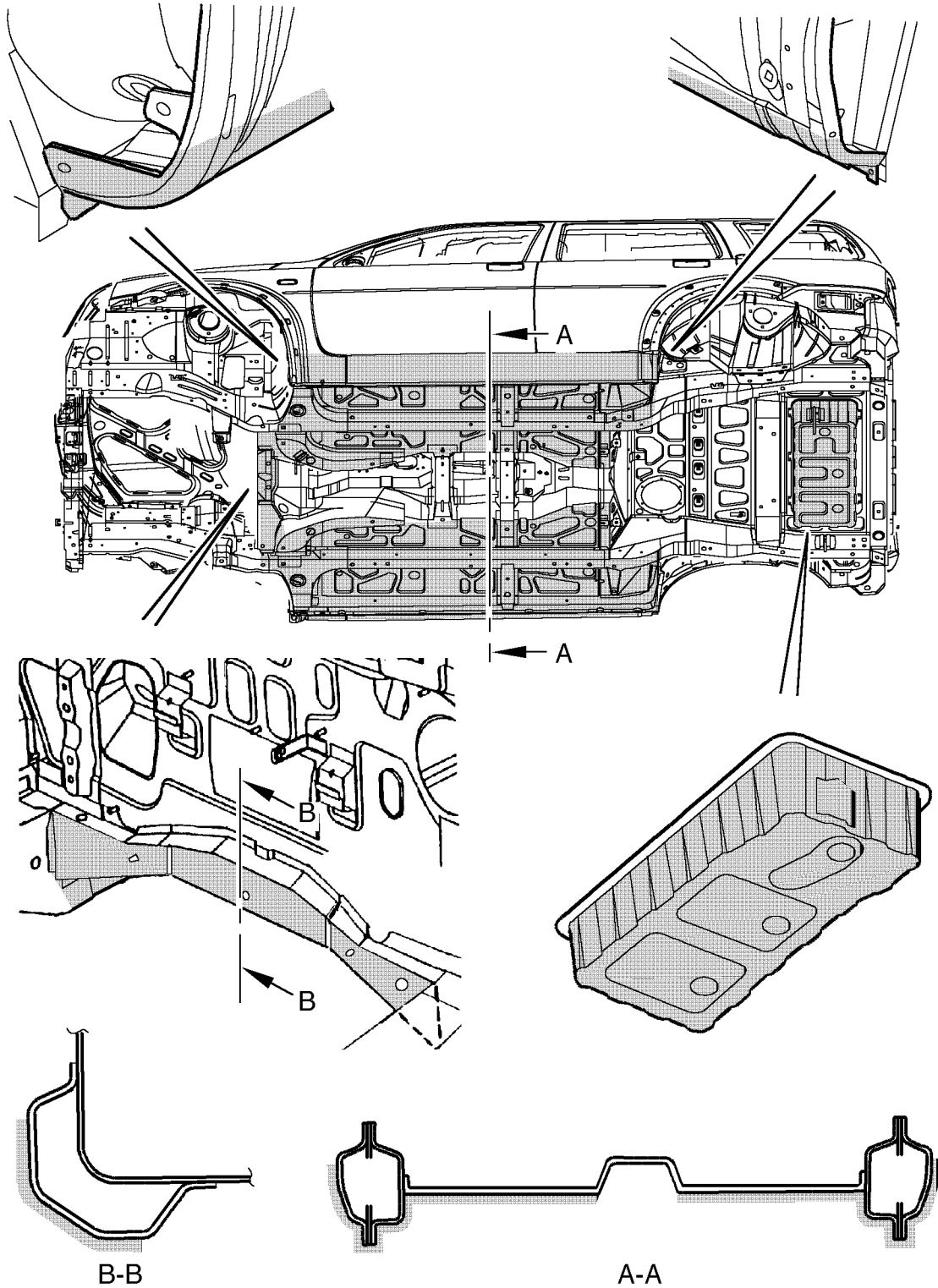
Apply new underbody sealer between primer and surfacer paint operations. Apply seam sealer as necessary before application of underbody sealer. Ensure that blanking plugs and grommets in the floor pan (except those used for wax injection) are fitted before underbody sealer application. Refit any heat-fusible plugs which have been disturbed in repair with the aid of a hot air blower, or replace with rubber grommets.



CAUTION: Ensure that suspension units, wheels, tyres, power unit, driveshafts, exhaust and brakes (including all mounting points) are shielded prior to application of fresh underbody sealer.

PANEL REPAIRS

Underbody sealer treatment areas



77M1585



Underbody wax

The underbody wax must be reinstated following all repairs affecting floor panels. The wax is applied over paints and underbody sealers.



CAUTION: Remove old underbody wax completely from a zone extending at least 200mm beyond the area where new underbody sealer is to be applied.

Engine bay wax

Reinstate all protective engine bay wax disturbed during repairs using an approved material.

Where repairs have involved replacement of engine bay panels, treat the entire engine compartment including all components, clips and other fixtures with an approved underbonnet lacquer or wax.

Precautions during body repairs and handling

Take care when handling the vehicle in the workshop. Underbody sealers, seam sealers, underbody wax and body panels may be damaged if the vehicle is carelessly lifted. **See INFORMATION, Lifting and towing.**

Proprietary anti-corrosion treatments

The application of proprietary anti-corrosion treatments in addition to the factory-applied treatment could invalidate the Corrosion Warranty and should be discouraged. This does not apply to approved, compatible, preservative waxes which may be applied on top of existing coatings.

Fitting approved accessories

When fitting accessories ensure that the vehicle's corrosion protection is not affected, either by breaking the protective coating or by introducing a moisture trap.

Do not screw self-tapping screws directly into body panels. Fit suitable plastic inserts to the panel beforehand. Always ensure that the edges of holes drilled into panels, chassis members and other body parts are protected with a suitable zinc rich or acid etch primer, and follow with a protective wax coating brushed onto the surrounding area.

Do not attach painted metal surfaces of any accessory directly to the vehicle's bodywork unless suitably protected. Where metal faces are bolted together always interpose a suitable interface material such as weldable zinc rich primer, extruded strip, or zinc tape.

Steam cleaning and dewaxing

Due to the high temperatures generated by steam cleaning equipment, there is a risk that certain trim components could be damaged and some adhesives and corrosion prevention materials softened or liquified.

Adjust the equipment so that the nozzle temperature does not exceed 90°C (194°F). Take care not to allow the steam jet to dwell on one area, and keep the nozzle at least 300mm from panel surfaces.

DO NOT remove wax or lacquer from underbody or underbonnet areas during repairs. Should it be necessary to steam clean these areas, apply a new coating of wax or underbody protection as soon as possible.

PANEL REPAIRS

Inspections during maintenance servicing

It is a requirement of the Corrosion Warranty that the vehicle body is checked for corrosion by an authorised Land Rover Dealer at least once a year, to ensure that the factory-applied protection remains effective.

Service Job Sheets include the following operations to check bodywork for corrosion:

- With the vehicle on a lift, carry out visual check of underbody sealer for damage.
- With the vehicle lowered, inspect exterior paintwork for damage and body panels for corrosion.



NOTE: The vehicle must be washed and free from deposits prior to inspection. It is part of the owner's responsibility to ensure that the vehicle is kept free of accumulations of mud which could accelerate the onset of corrosion. It will be necessary for the vehicle to be washed by the Dealer prior to inspection of bodywork if the customer has offered the vehicle in a dirty condition. Particular attention should be paid to areas where access is difficult.



NOTE: The checks described above are intended to be visual only. It is not intended that the operator should remove trim panels, finishers, rubbing strips or sound-deadening materials when checking the vehicle for corrosion and paint damage.

With the vehicle on a lift, and using an inspection or spot lamp, visually check for the following:

- Corrosion damage and damaged paintwork, condition of underbody sealer on front and rear lower panels, sills and wheel arches.
- Damage to underbody sealer. Corrosion in areas adjacent to suspension mountings and fuel tank fixings.



NOTE: The presence of small blisters in underbody sealer is acceptable, providing they do not expose bare metal.

Pay special attention to signs of damage caused to panels or corrosion protection material by incorrect jack positioning.



CAUTION: It is essential to follow the correct jacking and lifting procedures. See *INFORMATION, Lifting and towing*.

With the vehicle lowered, visually check for evidence of damage and corrosion on all visible painted areas, in particular the following:

- Front edge of bonnet.
- Visible flanges in engine compartment.
- Lower body and door panels.

Rectify any bodywork damage or evidence of corrosion found during inspection as soon as is practicable, both to minimise the extent of the damage and to ensure the long term effectiveness of the factory-applied corrosion prevention treatment. Where the cost of rectification work is the owner's responsibility, the Dealer must advise the owner and endorse the relevant documentation accordingly.

Where corrosion has become evident and is emanating from beneath a removable component (e.g. trim panel, window glass, seat etc.), remove the component as required to permit effective rectification.



Underbody protection repairs

Whenever body repairs are carried out, ensure that full sealing and corrosion protection treatments are reinstated. This applies both to the damaged areas and also to areas where protection has been indirectly impaired, as a result either of accident damage or repair operations.

Remove corrosion protection from the damaged area before straightening or panel beating. This applies in particular to panels coated with wax, PVC underbody sealer, sound deadening pads etc.



WARNING: DO NOT use oxy-acetylene gas equipment to remove corrosion prevention materials. Large volumes of fumes and gases are liberated by these materials when they burn.

Equipment for the removal of tough anti-corrosion sealers offers varying degrees of speed and effectiveness. The compressed air-operated scraper (NOT an air chisel) offers a relatively quiet mechanical method using an extremely rapid reciprocating action. Move the operating end of the tool along the work surface to remove the material.

The most common method of removal is by means of a hot air blower with integral scraper.



NOTE: High temperatures can be generated with this equipment which may cause fumes. Take care during its use.

Another tool, and one of the most efficient methods, is the rapid-cutting 'hot knife'. This tool uses a wide blade and is quick and versatile, able to be used easily in profiled sections where access is otherwise difficult.

Use the following procedure when repairing underbody coatings:

1. Remove existing underbody coatings.
2. After panel repair, clean the affected area with a solvent wipe, and treat bare metal with an etch phosphate material.
3. Re-prime the affected area.



CAUTION: DO NOT, under any circumstances, apply underbody sealer directly to bare metal surfaces.

4. Replace all heat-fusible plugs which have been disturbed. Where such plugs are not available use rubber grommets of equivalent size, ensuring that they are embedded in sealer.
5. Mask off all mounting faces from which mechanical components, hoses and pipe clips, have been removed. Underbody sealer must be applied **before** such components are refitted.
6. Brush sealer into all exposed seams.
7. Spray the affected area with an approved service underbody sealer.
8. Remove masking from component mounting faces, and touch-in where necessary. Allow adequate drying time before applying underbody wax.

After refitting mechanical components, including hoses and pipes and other fixtures, mask off the brake discs and apply a coat of approved underbody wax.



NOTE: Where repairs include the application of finish paint coats in the areas requiring underbody wax, carry out paint operations before applying wax.

PANEL REPAIRS

STRUCTURAL ADHESIVES

Metal-to-metal adhesive is applied to critical joint areas during factory assembly. The material used is a high-temperature, heat cured, nitrile phenolic which serves to bond two metal surfaces and also to seal the joint against ingress of dust, moisture and fumes. This material is not suitable for service use and, during repair, should be substituted by an approved Structural Adhesive. **See INFORMATION, Sealing and corrosion protection.**

Those joints which require the application of structural adhesive are detailed in the following Figures. Only joints applicable to service panels are included. Apply structural adhesive where indicated or to the mating panel surface.



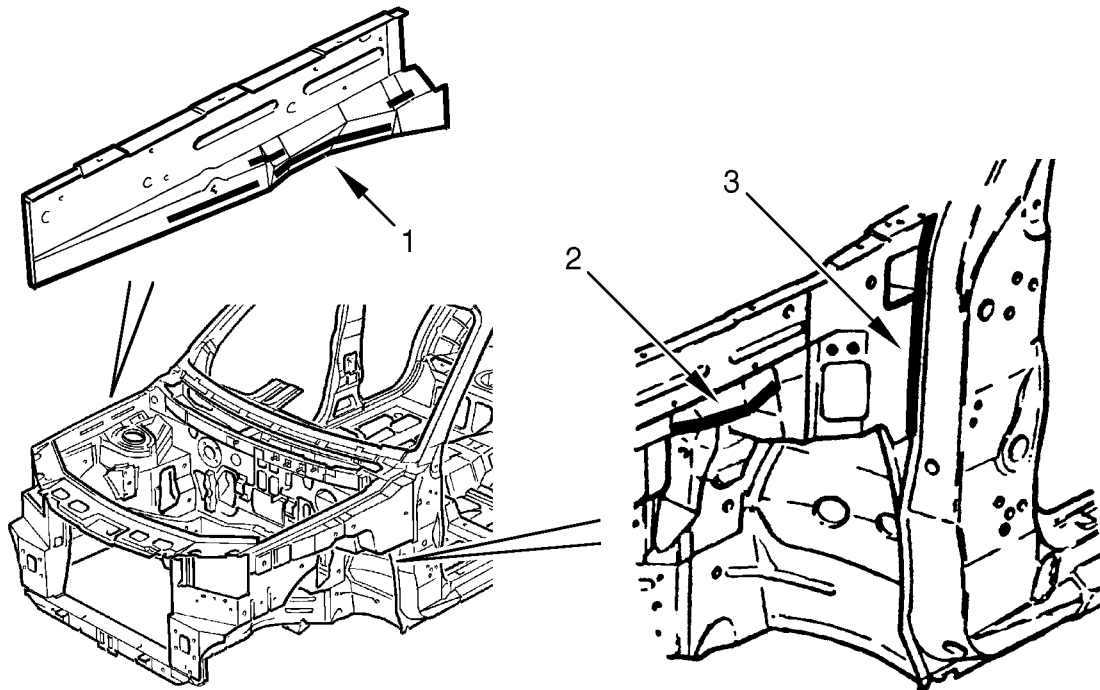
CAUTION: When separating a joint treated with metal-to-metal adhesive, it is important to avoid distortion. Heat the joint gradually until the bond weakens sufficiently to permit panel separation.



NOTE: When spot welding through metal-to-metal adhesive, take particular care to adjust the transformer setting to ensure a reliable weld.



Adhesive on front valance



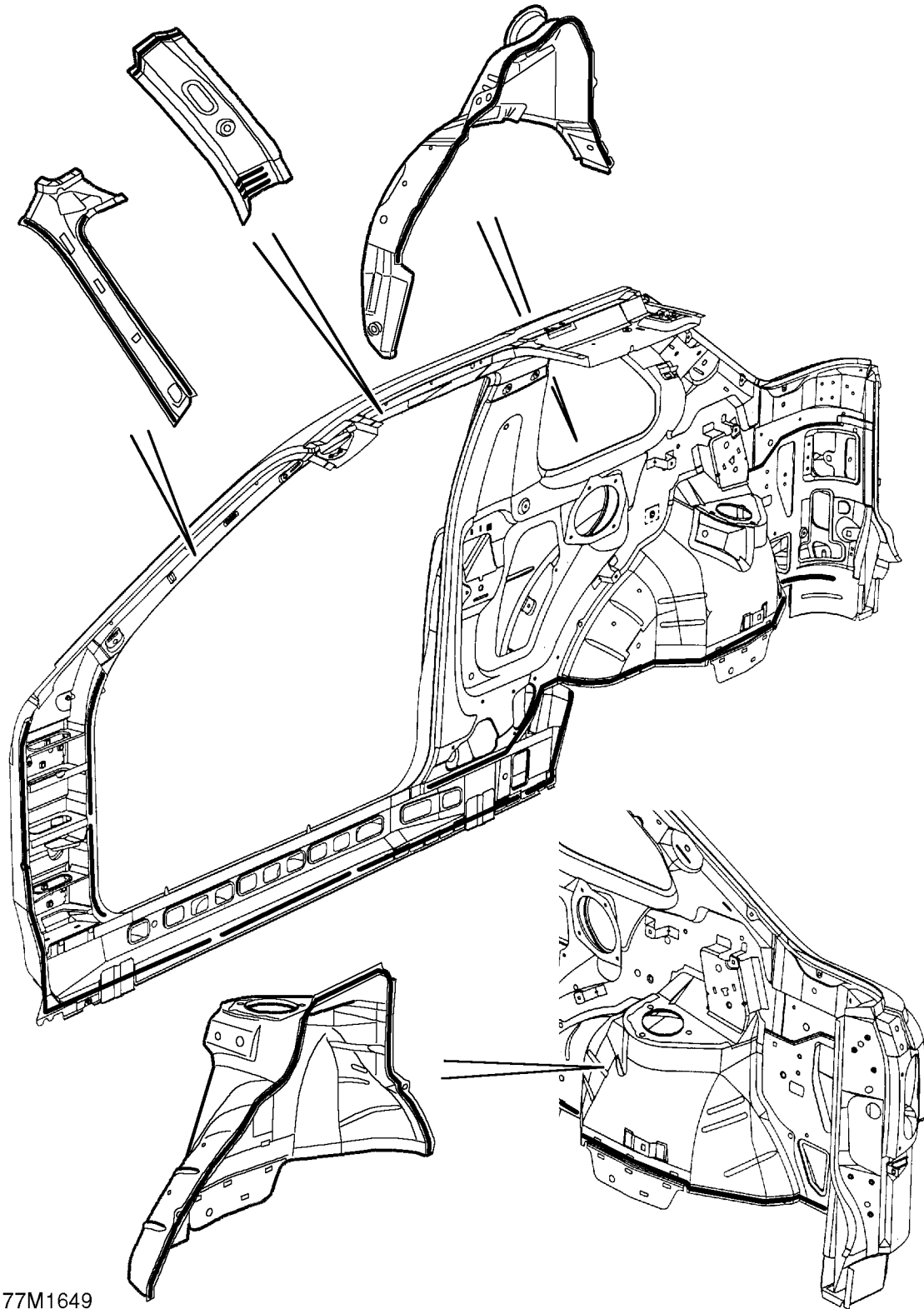
77M1648

Joints symmetrically opposite to those shown are also treated

1. Apply 3 mm diameter beads
2. Apply with brush
3. Apply with brush

PANEL REPAIRS

Adhesive on 'A' post, sill and rear quarter - 3 door

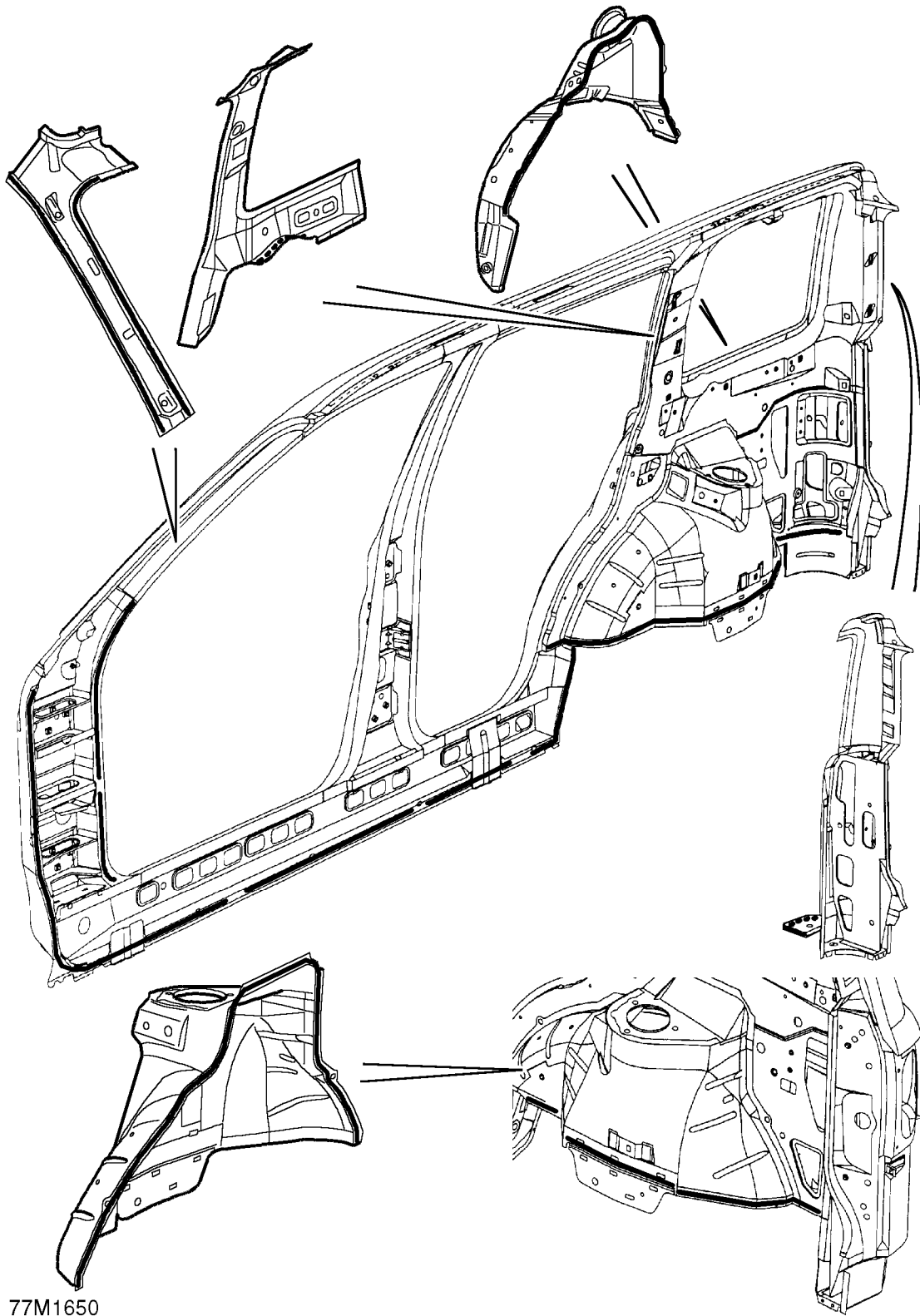


77M1649

Joints symmetrically opposite to those shown are also treated. Apply 3 mm diameter beads to all joints shown. Leave sill drain points free of adhesive.



Adhesive on 'A' post, sill and rear quarter - 5 door

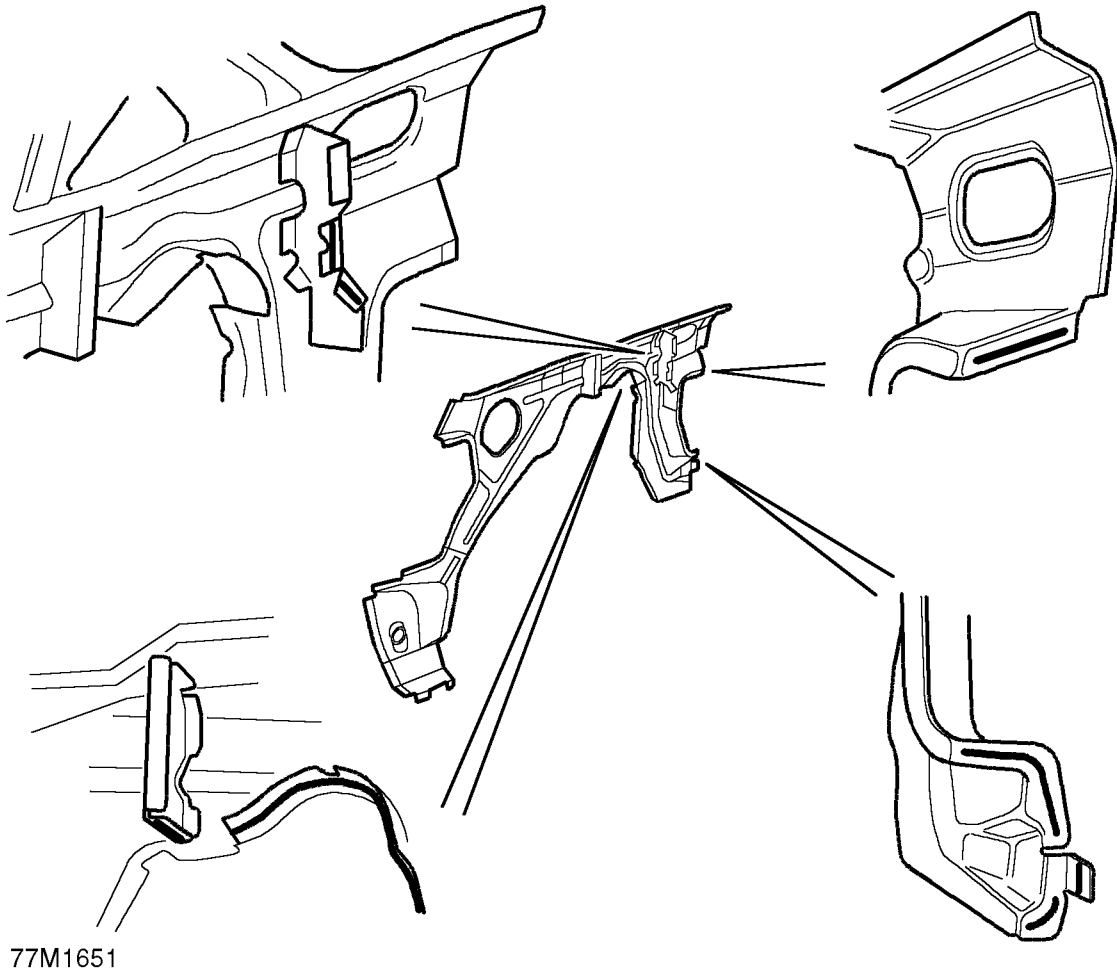


77M1650

Joints symmetrically opposite to those shown are also treated. Apply 3 mm diameter beads to all joints shown. Leave sill drain points free of adhesive.

PANEL REPAIRS

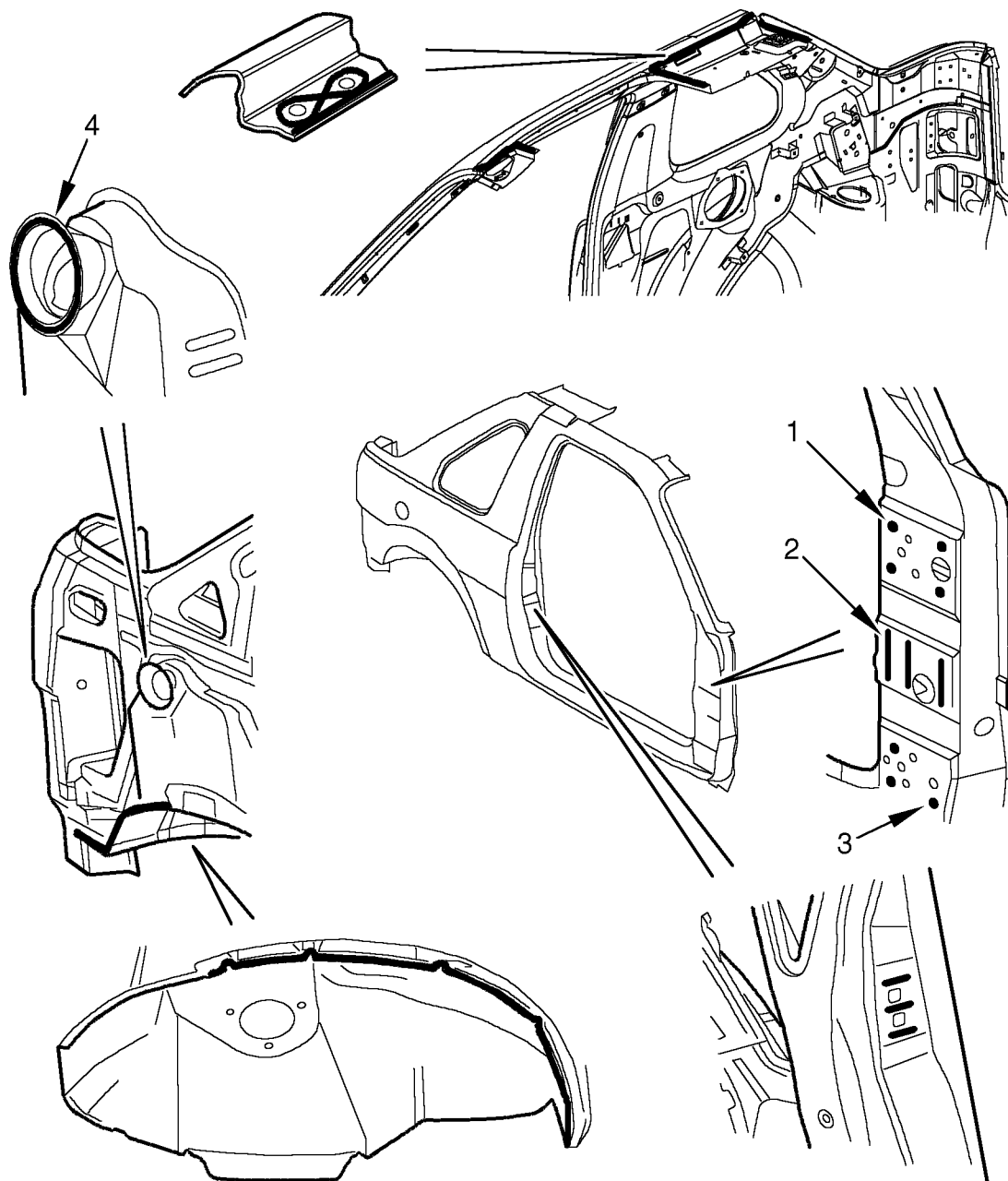
Adhesive on rear wheel arch reinforcement - 3 door



Joints symmetrically opposite to those shown are also treated. Apply 3 mm diameter beads to all joints shown.



Adhesive on body side and roof - 3 door



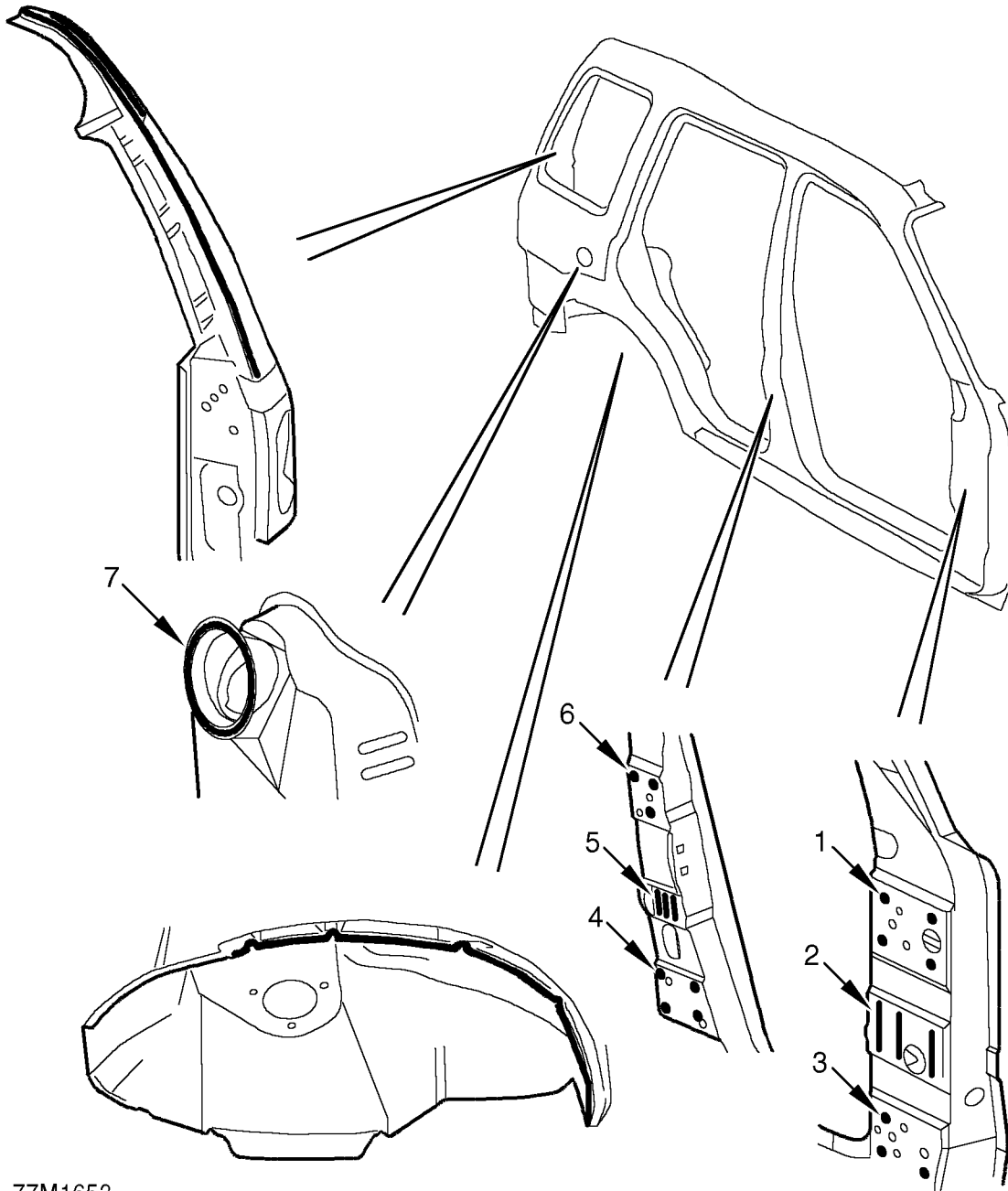
77M1652

Joints symmetrically opposite to those shown are also treated. Apply 3 mm diameter beads except where detailed otherwise (below).

- 1. Apply 4 x 10 mm diameter spots
- 2. Apply 3 x 4 mm diameter beads
- 3. Apply 3 x 10 mm diameter spots
- 4. Apply 6 mm diameter bead (fuel resistant seam sealer)

PANEL REPAIRS

Adhesive on body side - 5 door



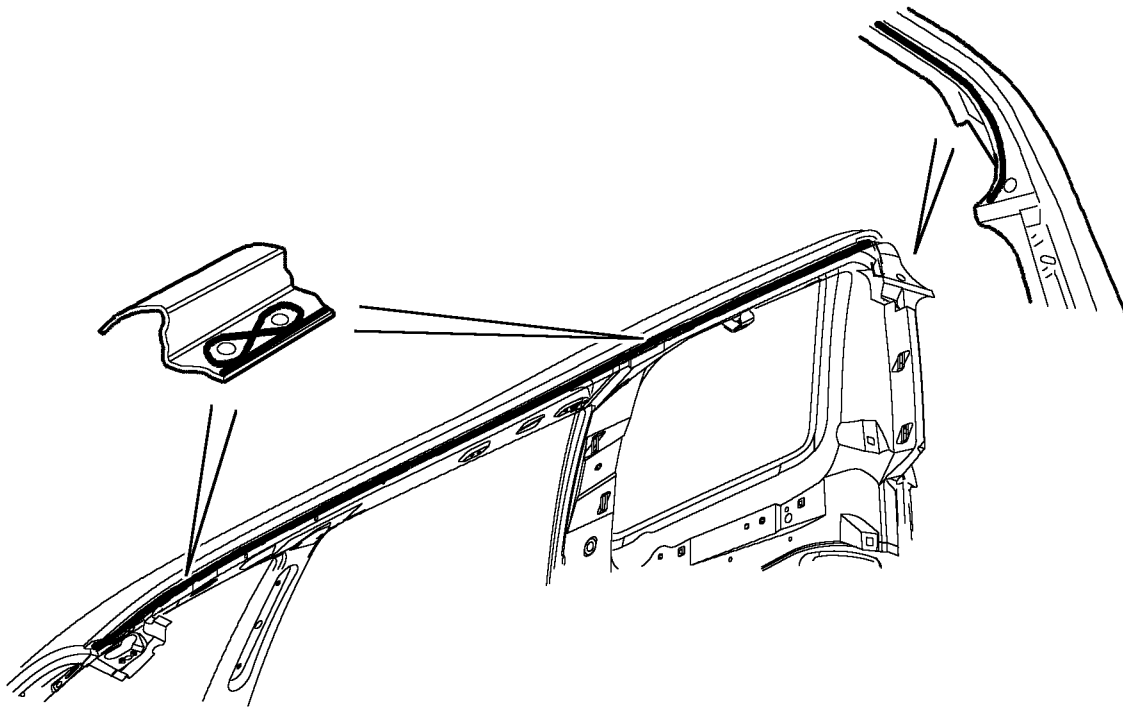
77M1653

Joints symmetrically opposite to those shown are also treated. Apply 3 mm diameter beads except where detailed otherwise (below).

- | | |
|-----------------------------------|--|
| 1. Apply 4 x 10 mm diameter spots | 5. Apply 3 x 4 mm diameter beads |
| 2. Apply 3 x 4 mm diameter beads | 6. Apply 3 x 10 mm diameter spots |
| 3. Apply 3 x 10 mm diameter spots | 7. Apply 6 mm diameter bead (fuel resistant seam sealer) |
| 4. Apply 4 x 10 mm diameter spots | |



Adhesive on roof - 5 door



77M1654

Joints symmetrically opposite to those shown are also treated. Apply 3 mm diameter beads to all joints shown.

PANEL REPAIRS

SEAM SEALERS

A heat cured, PVC based sealant is applied to specific joint seams during factory assembly. This material is not suitable for service use and, during repair, should be substituted by an approved Seam Sealer. **See *INFORMATION, Sealing and corrosion protection.***

Seams to which seam sealer is applied during factory assembly are detailed in the following Figures.

Apply seam sealers after the application of primer and before the application of surfacer and top coat. The seam sealer must form a continuous bead, with the profile of the bead dependant on the type of seam. If seam sealer is applied with a brush, take particular care to maintain the required coverage of the seam. Where shaping of the seam sealer is required, use a cloth soaked with solvent such as white spirit or Shell SBP3 to achieve the required finish.

Ensure that ALL accessible repair seams are sealed following a repair. Damage to a vehicle often flexes areas of the body remote from the impact. As a result, the seam sealer in these areas may be disturbed by subsequent straightening and repair operations. Check all seams in the vicinity of the area undergoing repair for evidence of cracked seam sealer, then clean out as required and apply fresh seam sealer using the following procedure:

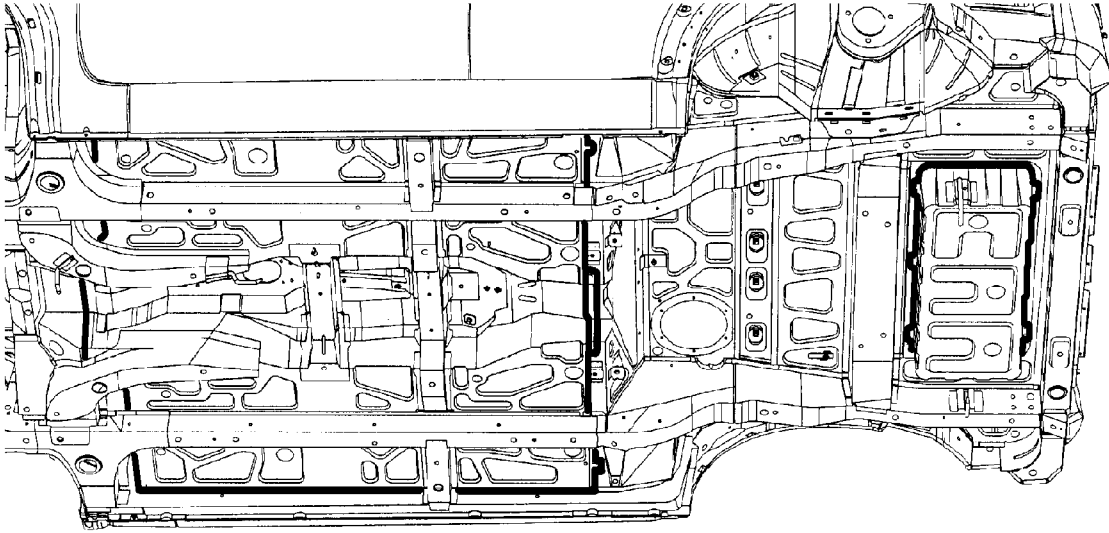
- Clean the affected seam and re-treat any exposed metal areas with a suitable etch phosphate primer.
- Treat affected area with an etch-acid primer.
- Apply appropriate seam sealer as necessary.
- Apply appropriate colour coat (and underbody sealer as applicable).

Where seams are inaccessible following the reassembly or fitting of components, ensure that a paste-type seam sealer is applied to such seams. Certain seams also become inaccessible after the completion of panel repairs. In such instances apply seam sealer and paint before final assembly.

Provided access is adequate, apply seam sealer to both sides of a repair joint. Where access is limited to one side only (e.g. box sections), treat the affected box member with cavity wax.



Seam sealer on underside

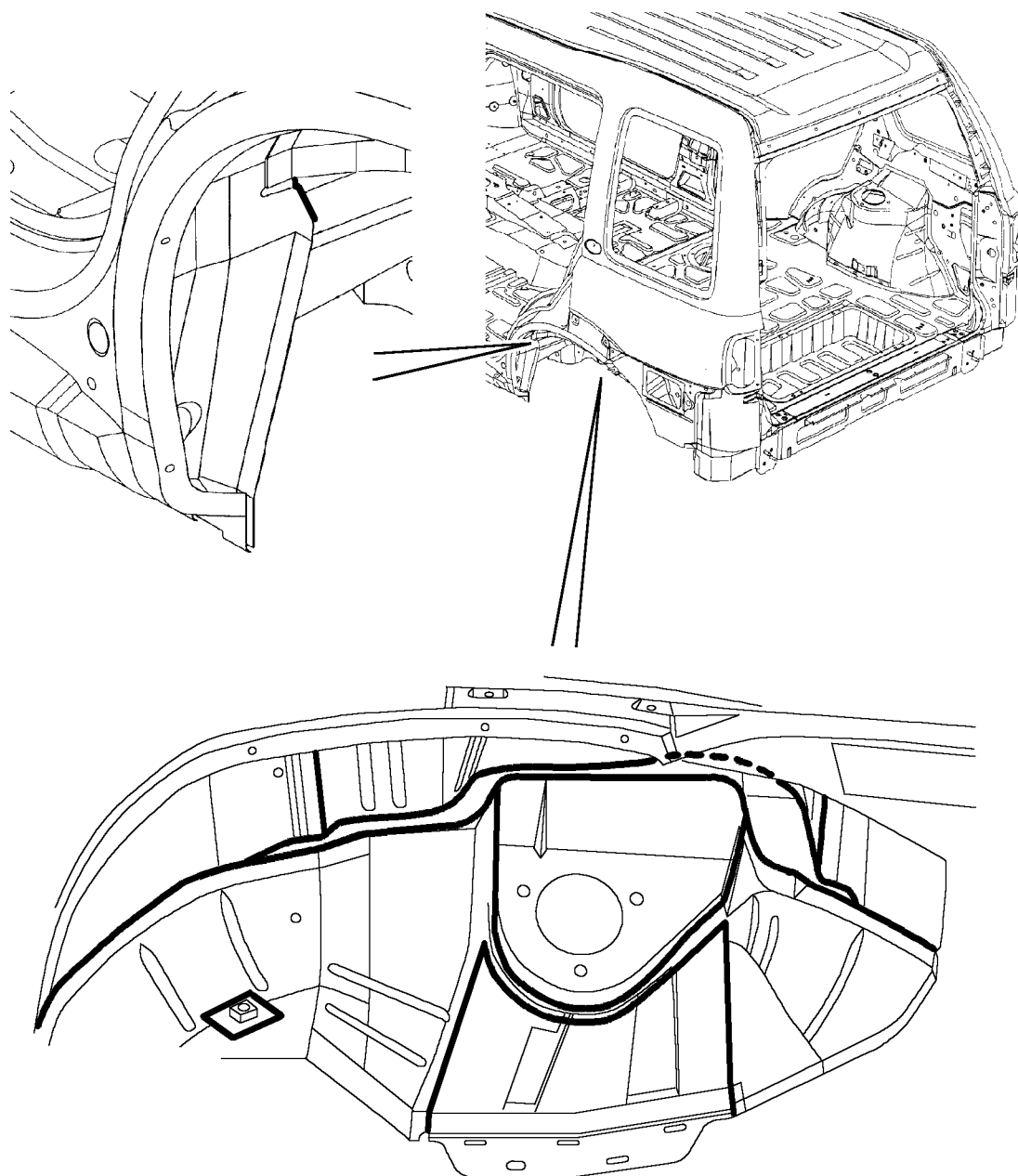


77M1571

Seams symmetrically opposite to those shown are also treated.

PANEL REPAIRS

Seam sealer on rear wheelarch

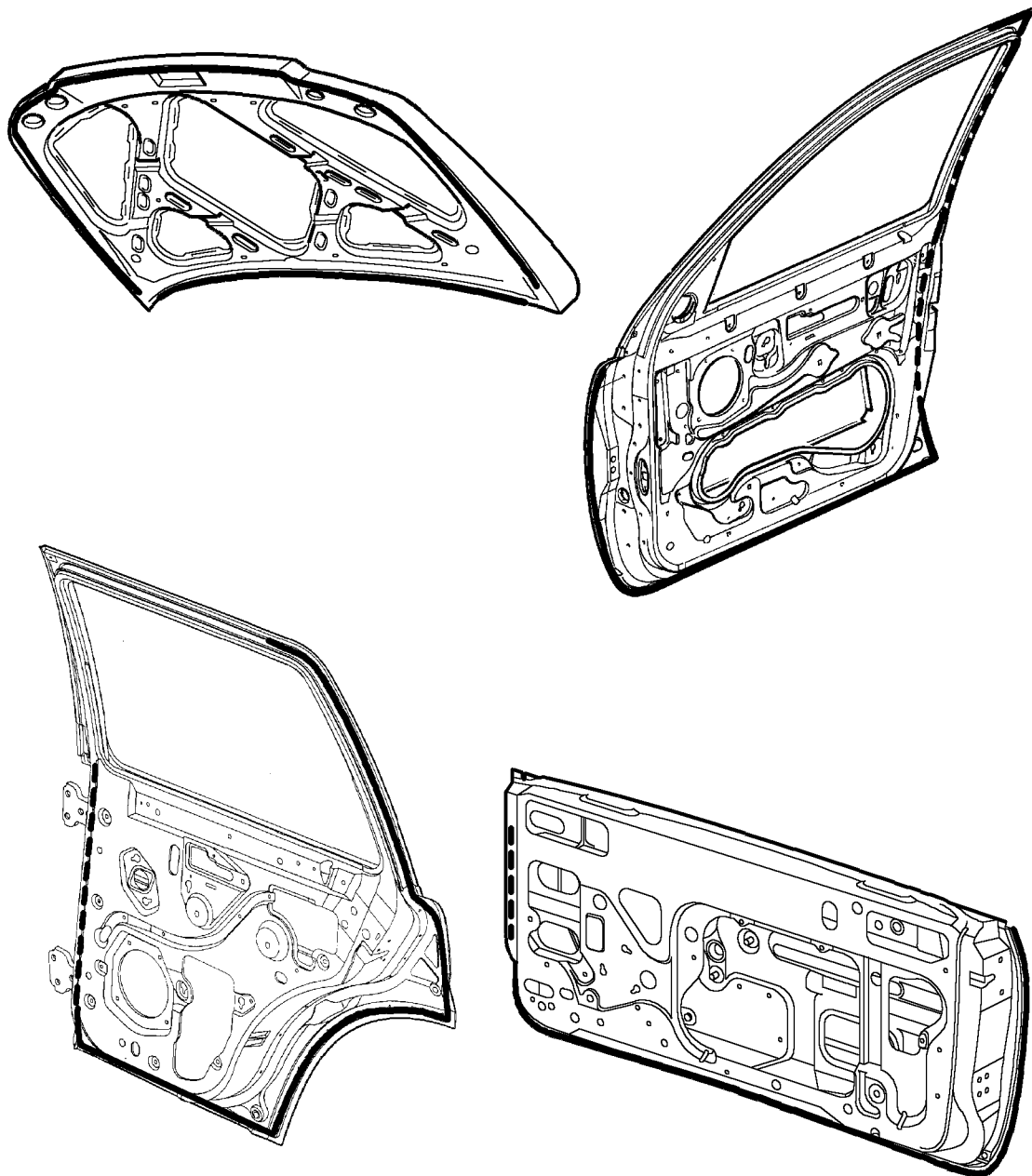


77M1570

Seams symmetrically opposite to those shown are also treated.



Seam sealer on bonnet and doors

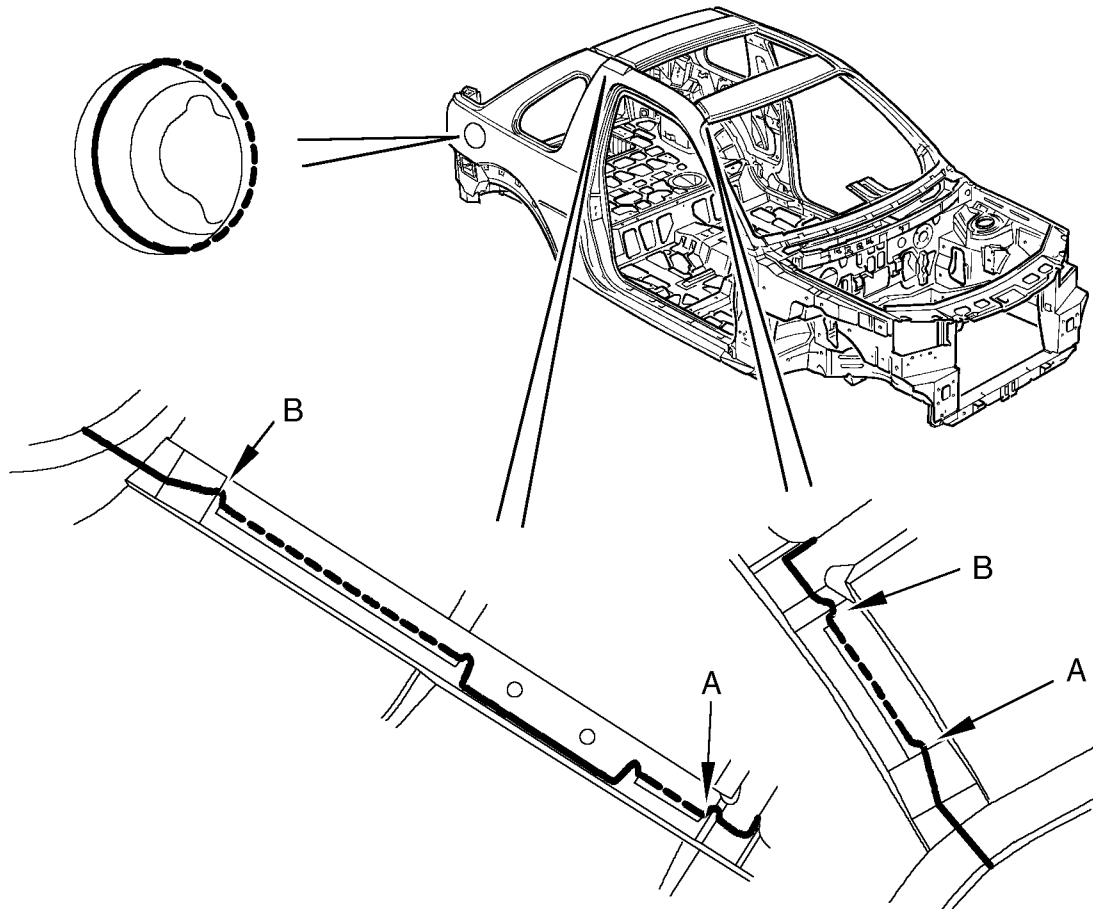


77M1569

Seams symmetrically opposite to those shown are also treated. Front door of 5 door model shown, front door of 3 door model similar. Ensure drain holes in doors are not blocked by sealant.

PANEL REPAIRS

Seam sealer on fuel filler and roof - 3 door

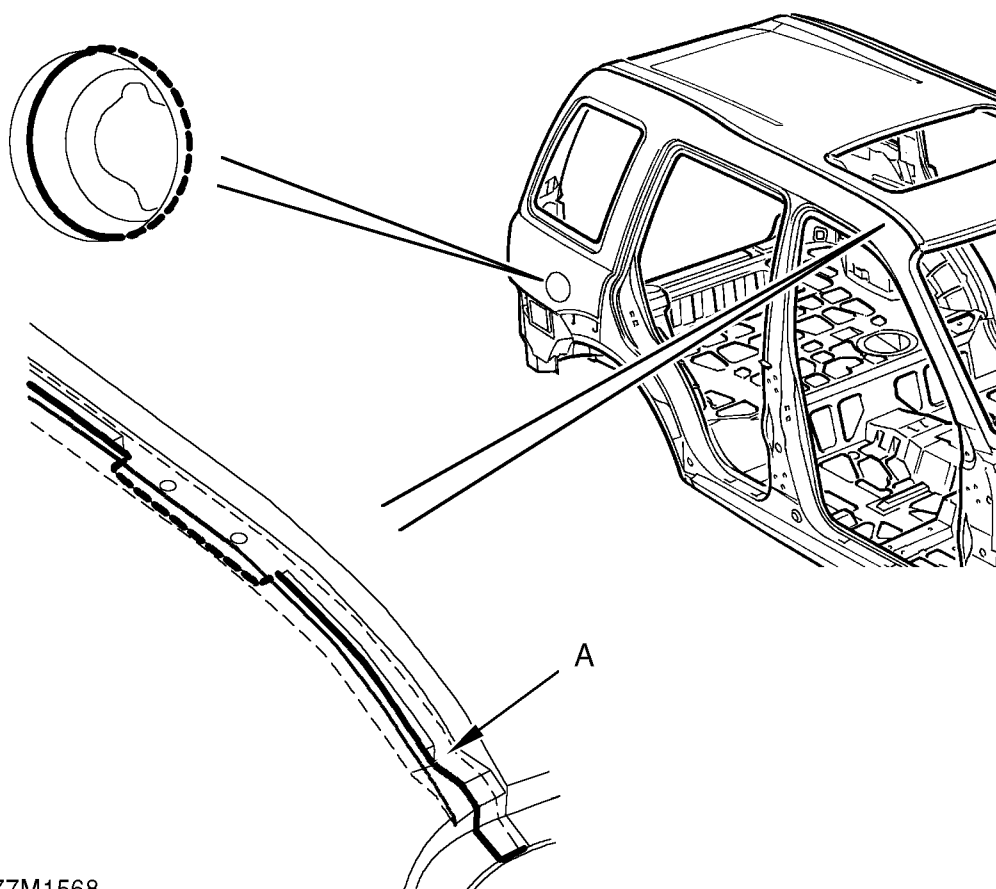


77M1567

Seams symmetrically opposite to those shown are also treated. On roof seams, sealant to be finished flush to surface forward of points 'A' and rearward of points 'B'.



Seam sealer on fuel filler and roof - 5 door

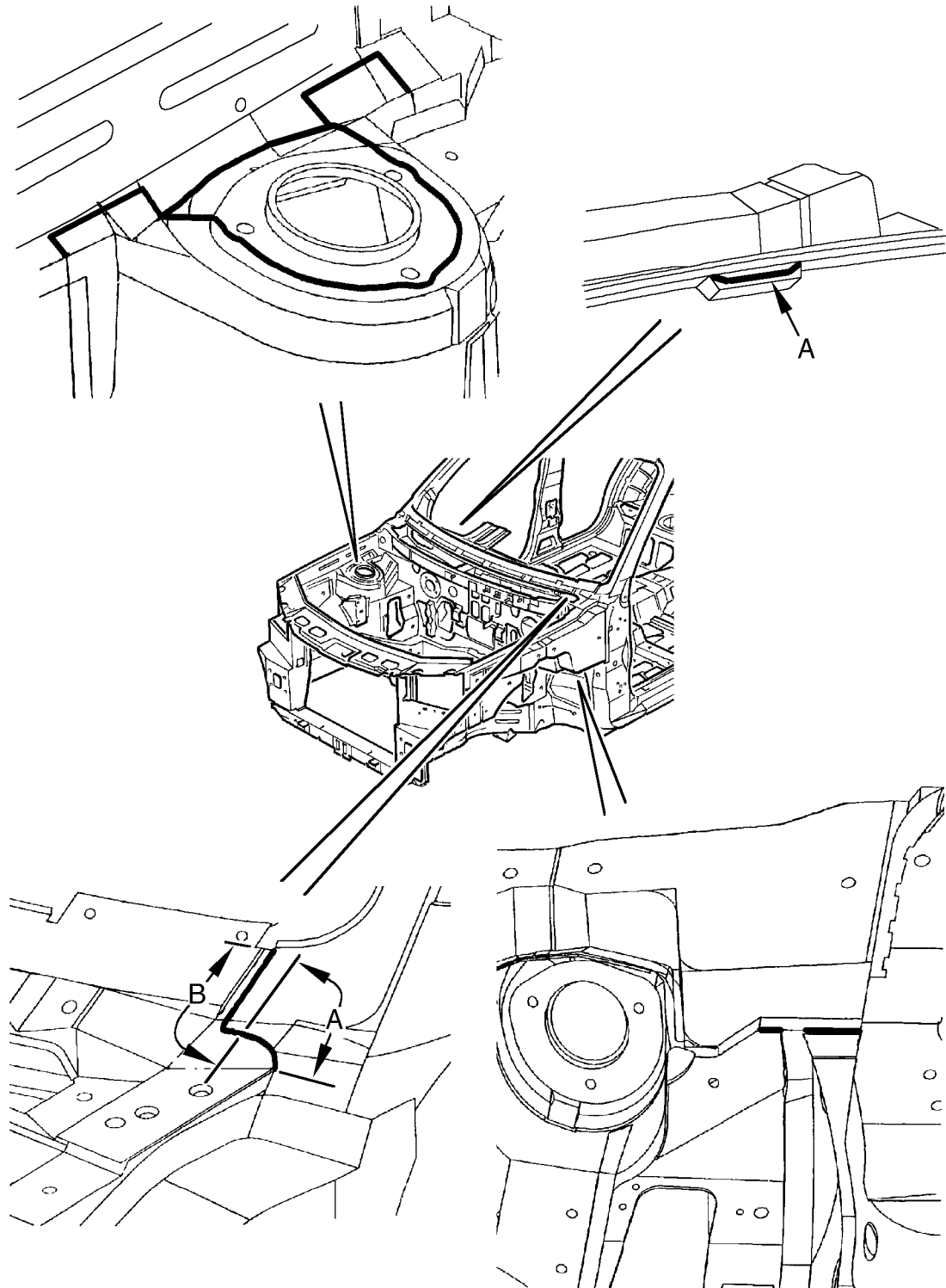


77M1568

Seams symmetrically opposite to those shown are also treated. On roof seam, sealant to be finished flush to surface forward of point 'A'.

PANEL REPAIRS

Sealed seams in front wheelarch, engine compartment and screen rail

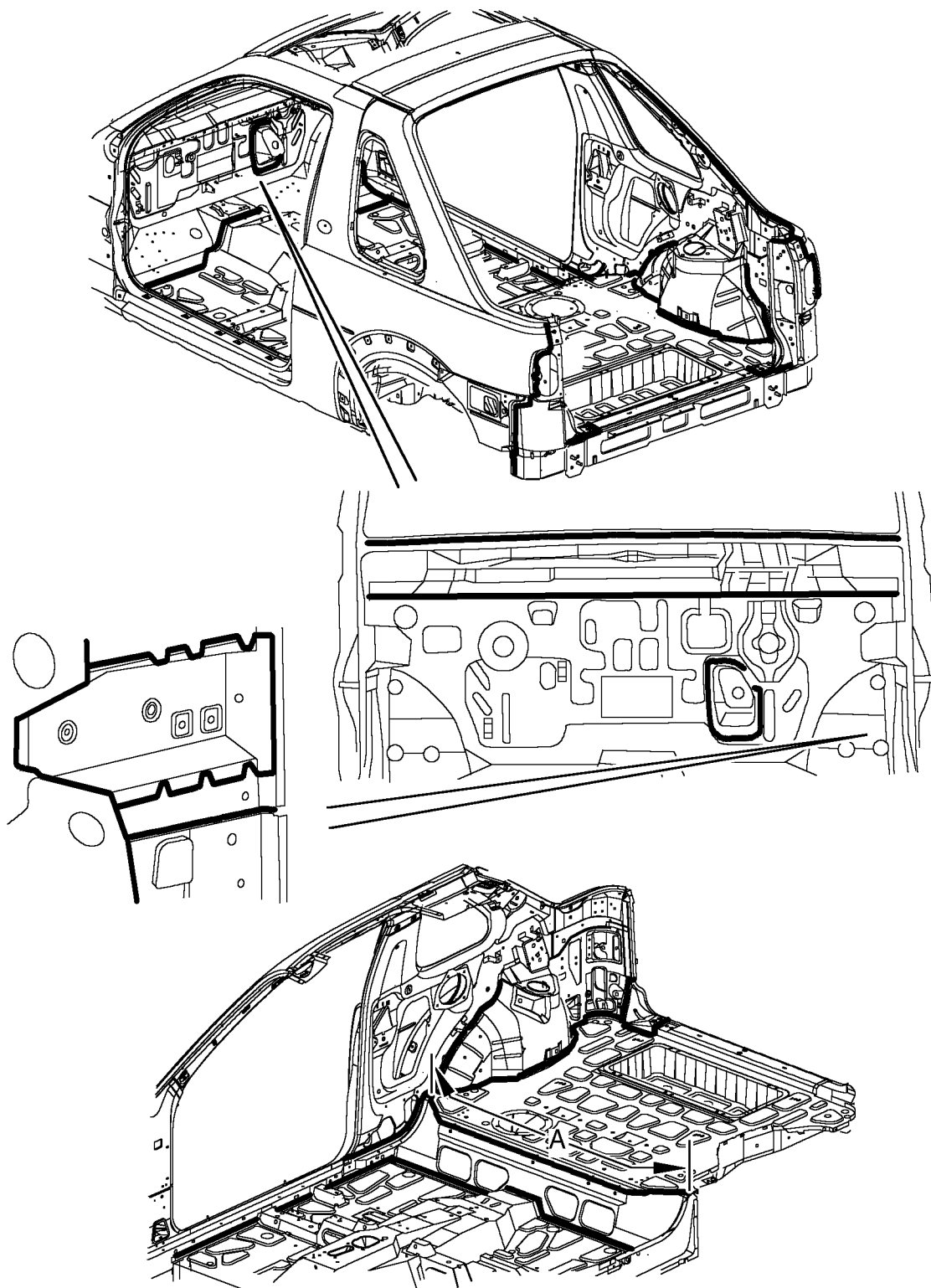


77M1566

Seams symmetrically opposite to those shown are also treated. Use putty on seams marked 'A'. On windscreen rail, sealant to be finished flush to adjacent surfaces over length 'B'. On front suspension turrets, ensure damper mounting holes are kept free of sealant.



Seam sealer on vehicle interior and rear quarter - 3 door

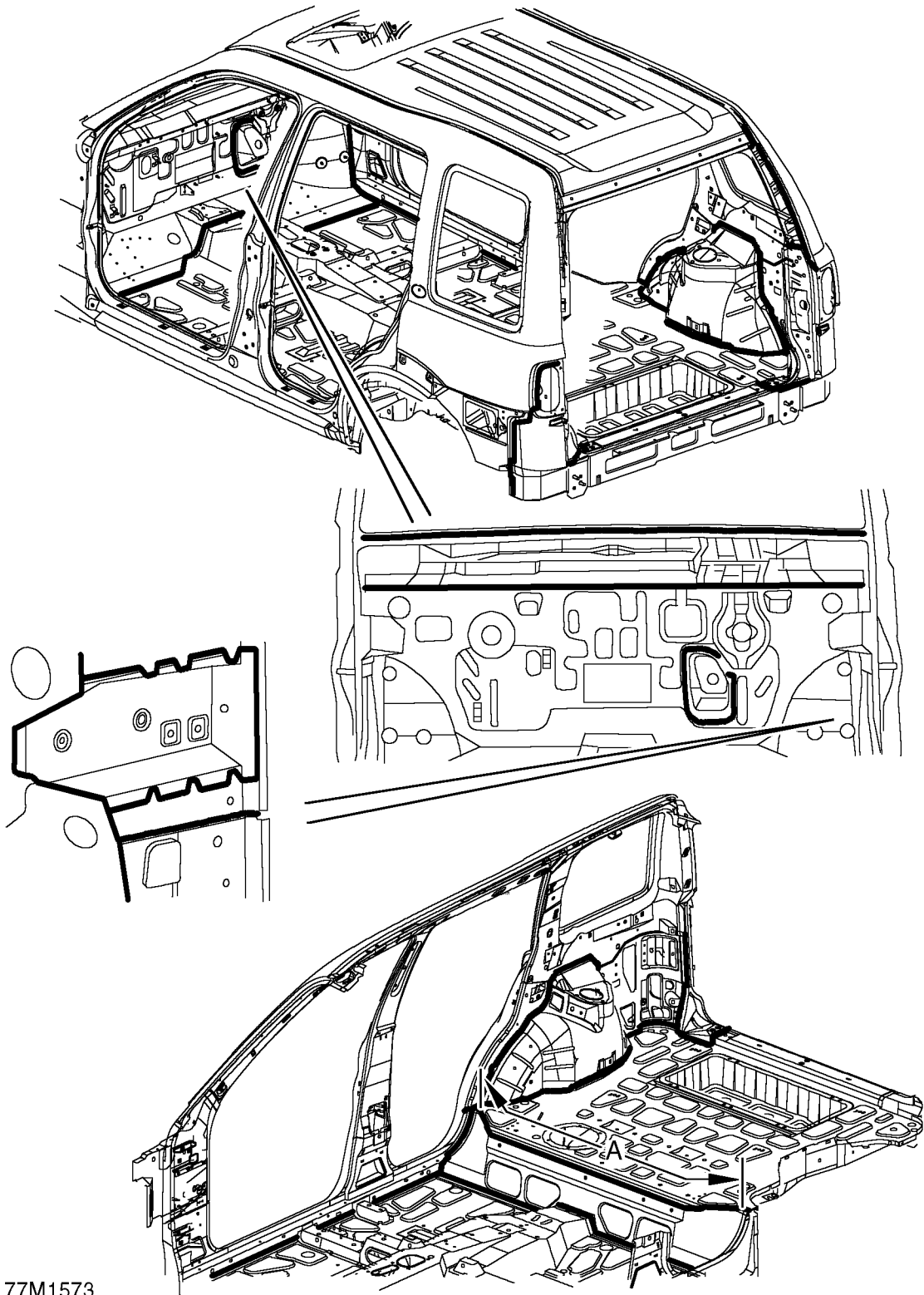


77M1572

Seams symmetrically opposite to those shown are also treated. Sealant to be wiped to a smooth finish over length 'A' (rear load floor to rear heelboard underframe).

PANEL REPAIRS

Seam sealer on vehicle interior and rear quarter - 5 door



77M1573

Seams symmetrically opposite to those shown are also treated. Sealant to be wiped to a smooth finish over length 'A' (rear load floor to rear heelboard underframe).



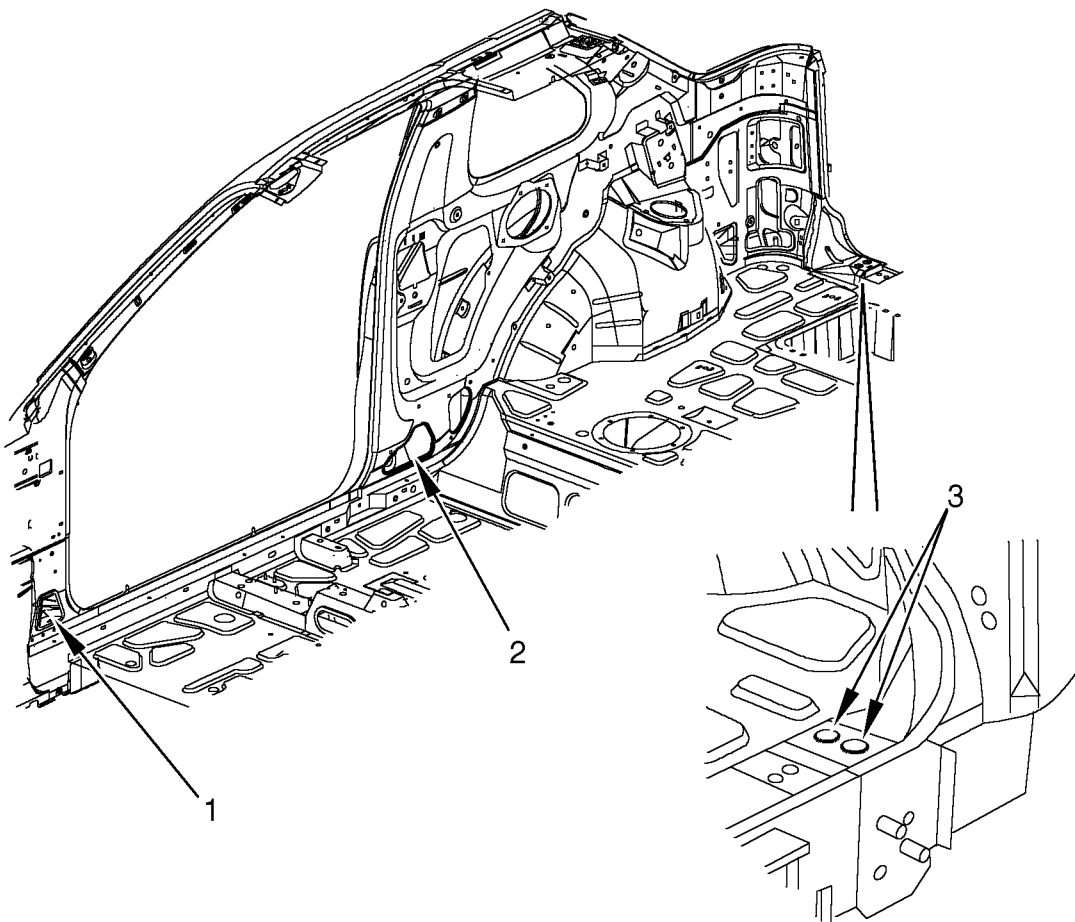
SOUND DAMPENING

During production, expanded foam is incorporated into some body cavities to reduce noise or prevent the ingress of moisture, dust and fumes. After a repair that involves replacement of a section containing expanded foam, the new section must be injected with an approved sound dampening foam.

See INFORMATION, Sealing and corrosion protection. The sound dampening foam should be injected after paint refinishing and application of cavity wax.

Accessible cavities that must be injected with sound dampening foam are detailed in the following Figures. When injecting the foam, ensure the foam fills a complete cross section of the cavity.

Sound dampening foam injection points - 3 door



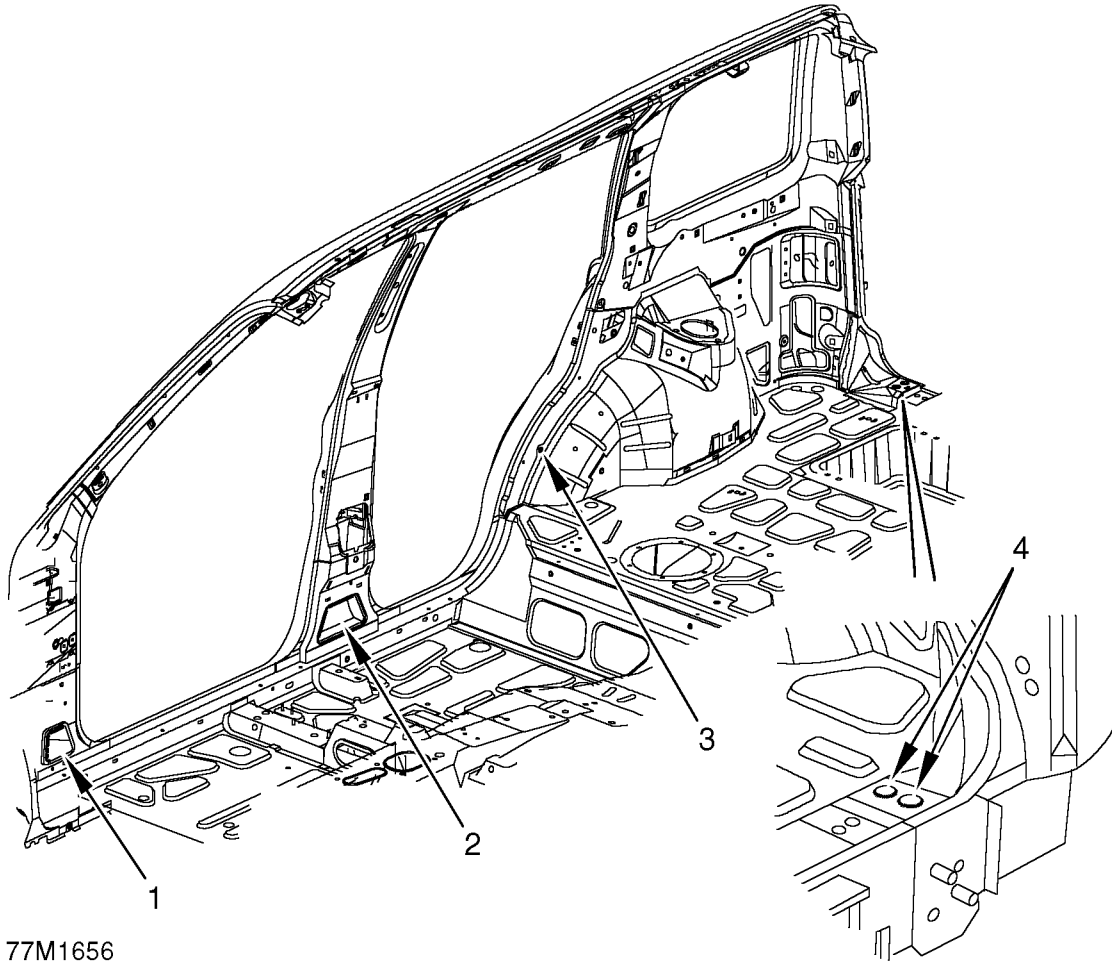
77M1655

Cavities symmetrically opposite to those shown must also be treated.

- 1. 'A' post reinforcement to sill reinforcement/inner sill
- 2. 'B' post reinforcement to sill reinforcement/inner sill
- 3. End of rear lower body closing assembly - inject through either hole, angle applicator nozzle to fill outboard end of assembly

PANEL REPAIRS

Sound dampening foam injection points - 5 door



Cavities symmetrically opposite to those shown must also be treated.

1. 'A' post reinforcement to sill reinforcement/inner sill
2. 'B/C' post reinforcement to sill reinforcement/inner sill
3. Outer wheelarch to outer body side
4. End of rear lower body closing assembly - inject through either hole, angle applicator nozzle to fill outboard end of assembly



PAINT

Replacement panels

Replacement panels are supplied with a cathodic primer coating as part of the panel protection and in compliance with the vehicle's Corrosion Warranty, where applicable. **DO NOT remove the primer before paint refinishing. In the event of localized surface damage or imperfections, ensure that only the minimum of primer is removed during rectification work for effective repair.**

Rectify damage as far as possible by panel beating or straightening. To remove corrosion or paint runs on outer surfaces, abrade the primer coat in the affected area as necessary using the following procedure:

1. Clean the panel using a solvent wipe.
2. Treat exposed areas of metal with an etch phosphate process.
3. Re-treat the affected area using either a separate acid-etch primer and two-pack surfacer, or an integrated etch primer/filler.

Panel preparation

Welded panels

1. Remove primer from the immediate vicinity of new and existing panel flanges, cleaning to bright metal finish.
2. On joints to be spot welded, apply weld-through zinc rich primer to joint faces of both flanges. Make spot welds while primer is still wet or according to the manufacturer's instructions.
3. Dress accessible weld joints.
4. Clean panel using solvent wipe.
5. Treat bare metal with an etch phosphate process.
6. Re-treat repaired areas.

Sectioned panels

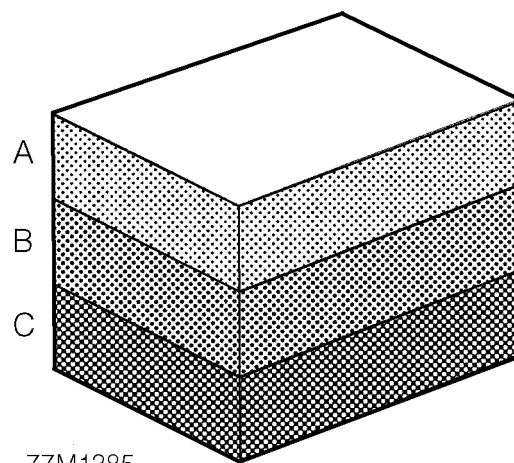
When replacing part or sectioned panels, the basic procedure is the same as for welded panels described above, with the following variations:

1. Remove primer from both new and existing joint faces, cleaning to a bright metal finish.
2. Where an overlap joint with the existing panel is to be spot welded, apply weld-through, zinc rich primer to both joint faces and spot weld while the primer is still wet, or according to the manufacturer's instructions.
3. MIG weld butt joints where applicable.
4. Clean the panel with a solvent wipe.
5. Treat bare metal areas using an etch phosphate process.
6. Re-prime affected areas as necessary as for rectifying transit damage.
7. Treat the inner faces of lap or butt joints with a suitable cavity wax. **See *Sealing and corrosion protection*.**

PANEL REPAIRS

Clinched panels

1. Abrade primer on new and existing panel joint faces, and clean using a solvent wipe.
2. Apply metal-to-metal adhesive where applicable.
3. Where joints are to be spot welded, apply suitable weld-through, zinc rich primer to weld areas.
4. Where joints are to be MIG, arc or gas welded, apply zinc rich primer in adjacent areas **but leave the welded area untreated**.
5. To retain the panel while clinching the flanges, tack spot weld or plug weld as appropriate.
6. Clean the panel with a solvent wipe.
7. Treat bare metal areas with a suitable etch phosphate process.
8. Re-prime affected areas as necessary as for rectifying transit damage.



77M1385

- A. Two-pack top coat
- B. Two-pack primer filler and etch primer
- C. Etch phosphate

Paint refinishing

1. Seal required exterior and interior seams with an approved seam sealer. **See Sealing and corrosion protection.**
2. Apply a two-pack paint refinishing system.
3. Repair any damage to underbody sealers either at this stage or before paint operations. **See Sealing and corrosion protection.**
4. Apply cavity wax to all interior surfaces which have not received refinish paint.

Paint repairs

Before carrying out paintwork repairs, clean the vehicle thoroughly using either a steam cleaner or high-pressure washer.

Wash locally repaired areas using a mild water-mixable detergent and wipe them clean with solvent, immediately before paint application.

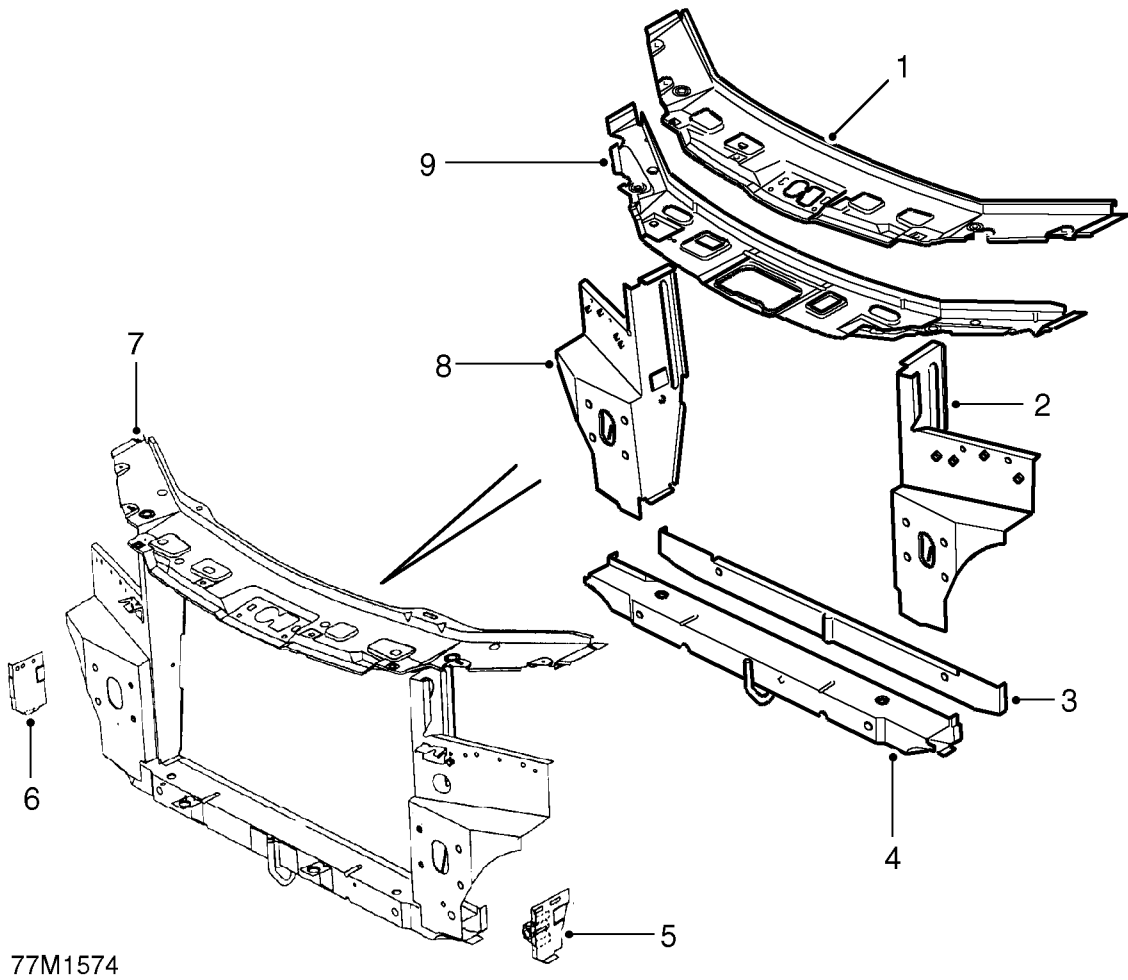
Ensure that damaged paintwork which has led to exposed metal is abraded until the metal is clean, extending beyond the area of the original damage. Treat the bare metal with an etch phosphate to remove all traces of rust and to provide a key for new paint coats. Re-treat the affected area using either a separate acid-etch primer and two-pack surfacer or an integrated etch primer/filler, and follow with a two-pack paint system. Treat those surfaces not receiving paint using an approved cavity wax, following paint operations. **See Sealing and corrosion protection.**



SERVICEABLE PANELS

The following Figures show the service panels which feature in the Body Repairs procedures. Additional panels and full body shells are also available. See Parts Fiche for details.

Front end panels

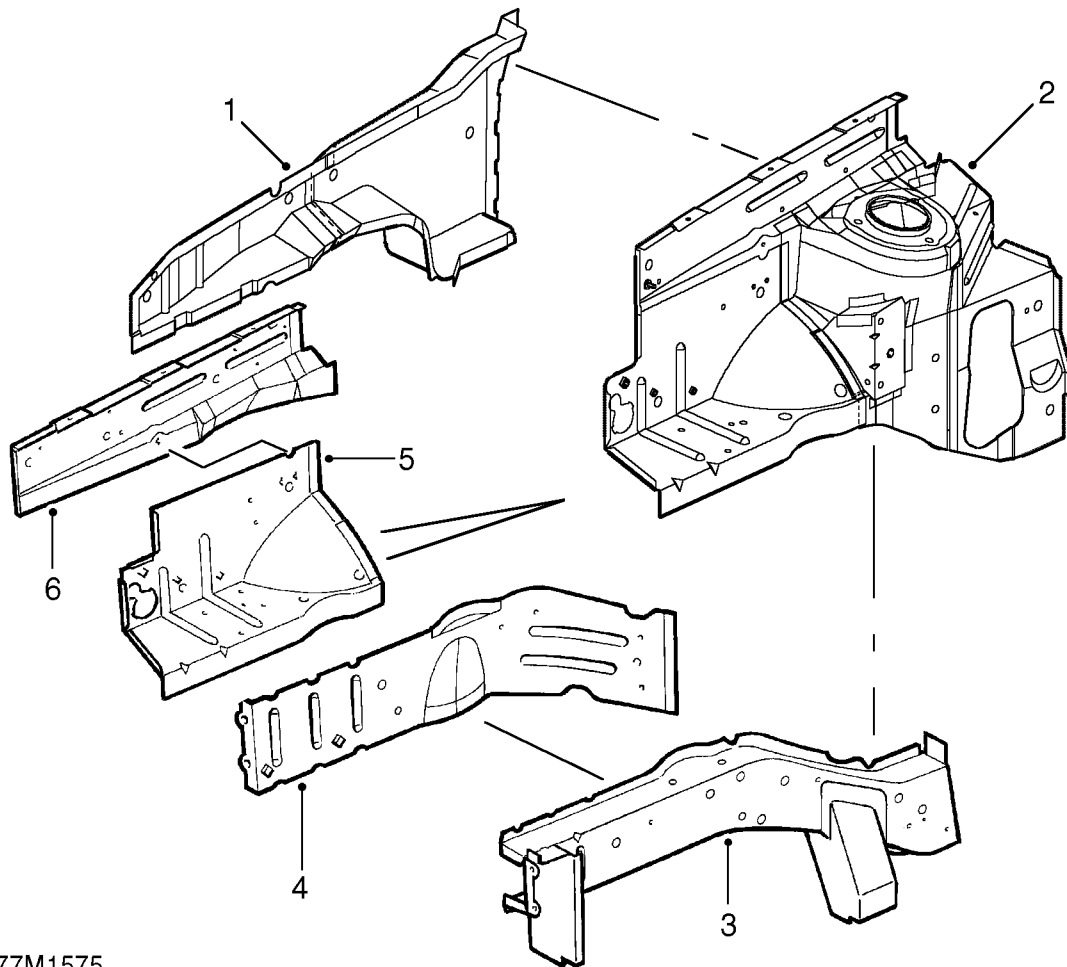


77M1574

- | | |
|---|--|
| <ul style="list-style-type: none"> 1. Bonnet locking platform and weldnut assembly 2. LH headlamp mounting panel 3. Lower closing panel 4. Front lower crossmember assembly 5. LH crossmember to sidemember gusset plate | <ul style="list-style-type: none"> 6. RH crossmember to sidemember gusset plate 7. Front bulkhead assembly 8. RH headlamp mounting panel 9. Bonnet locking platform assembly |
|---|--|

PANEL REPAIRS

Inner front end panels

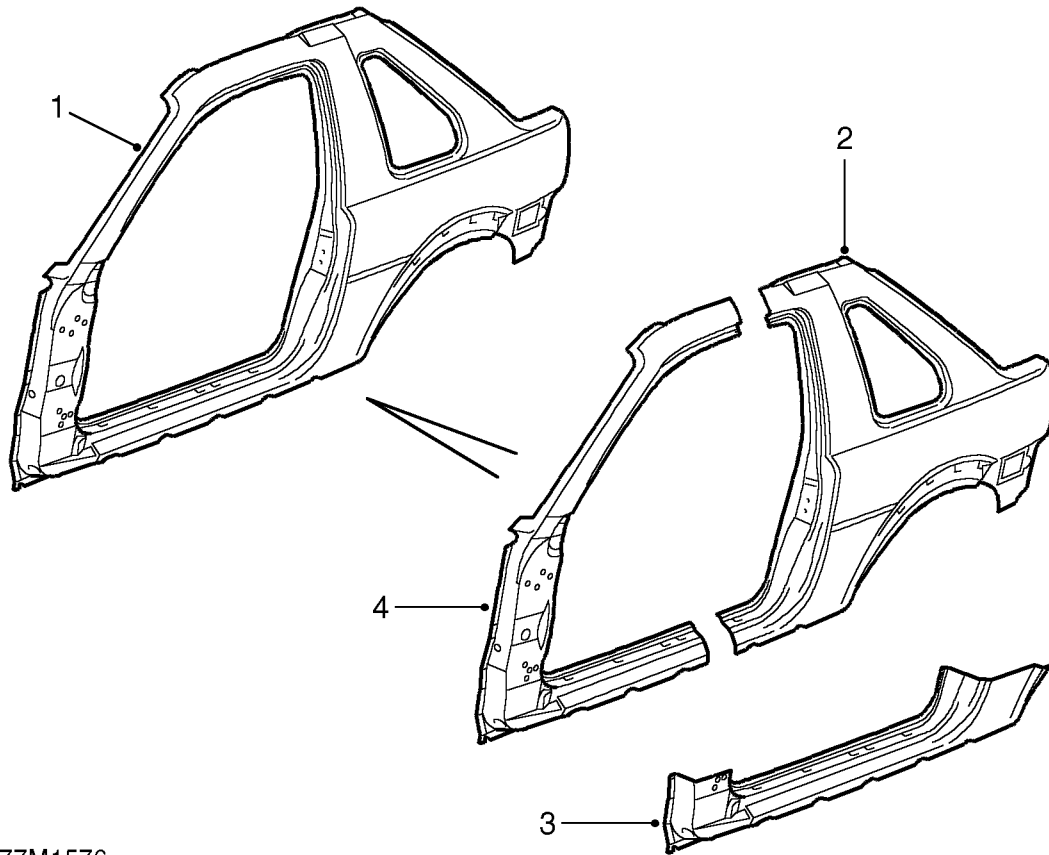


77M1575

- | | |
|---|-----------------------------------|
| 1. Valance outer reinforcement assembly | 4. Front sidemember closing panel |
| 2. Front valance assembly | 5. Valance front assembly |
| 3. Front sidemember assembly | 6. Valance upper front assembly |



Outer body side panels - 3 door



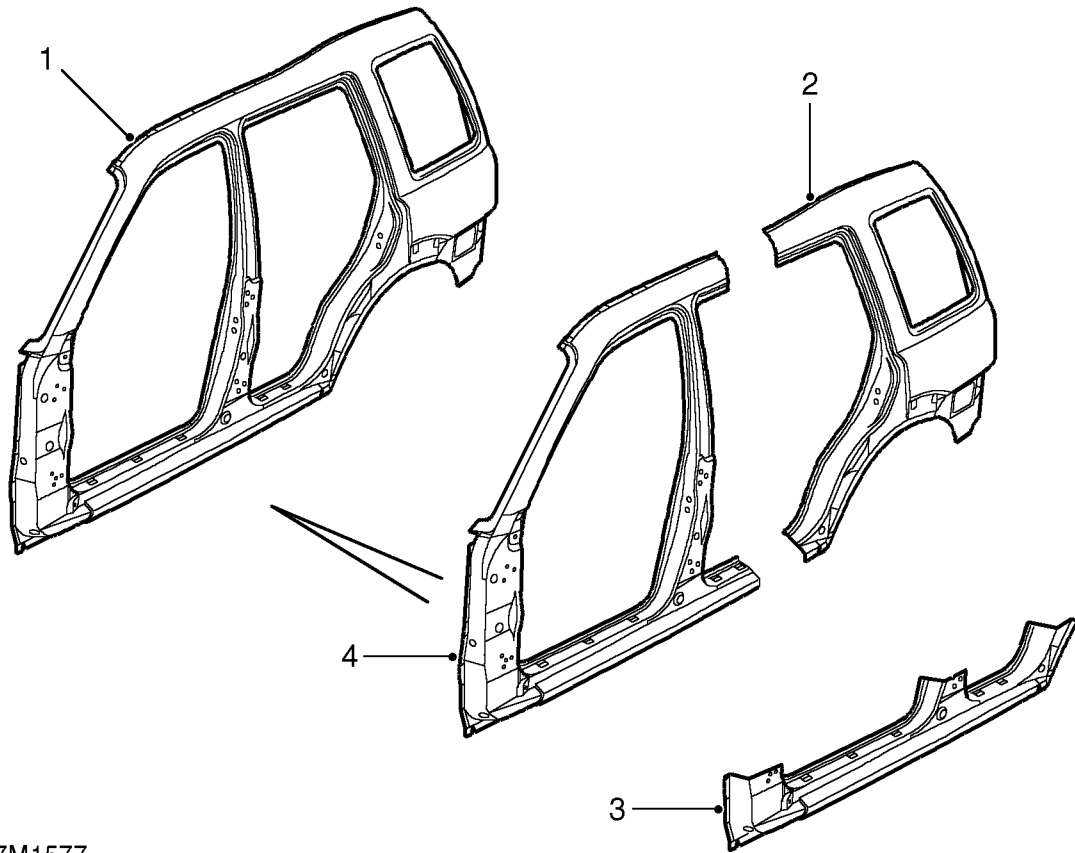
77M1576

- 1. Outer body side assembly
- 2. Rear outer body side panel

- 3. Lower outer body side panel
- 4. Front outer body side panel

PANEL REPAIRS

Outer body side panels - 5 door



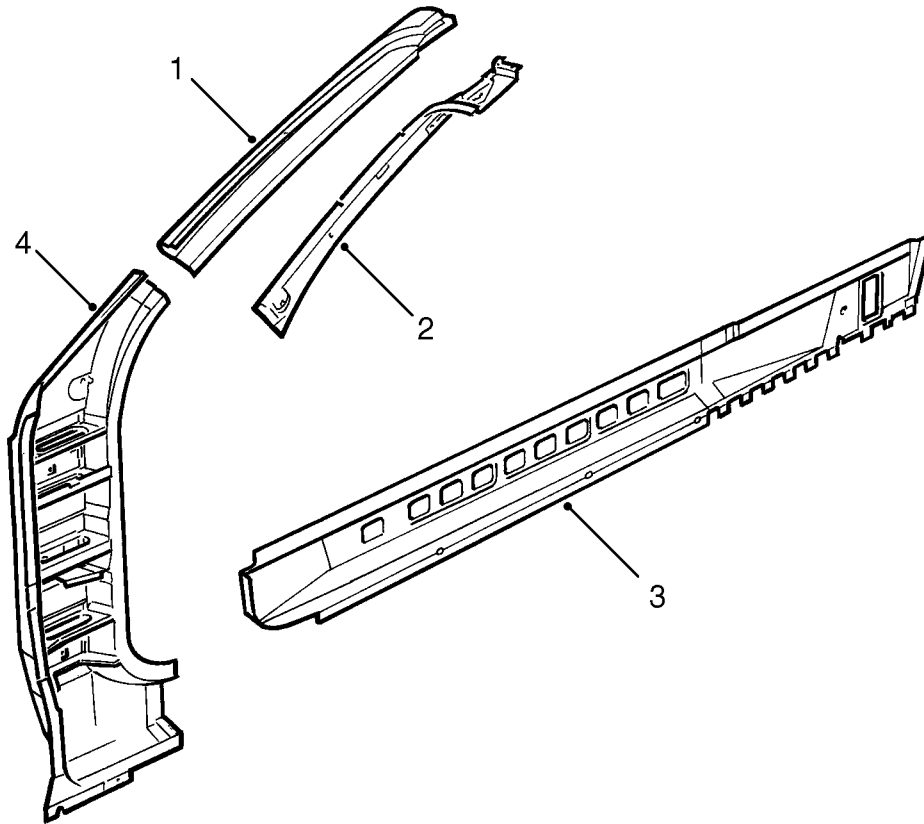
77M1577

- 1. Outer body side assembly
- 2. Rear outer body side panel

- 3. Lower outer body side panel
- 4. Front outer body side panel



Front inner body side panels - 3 door



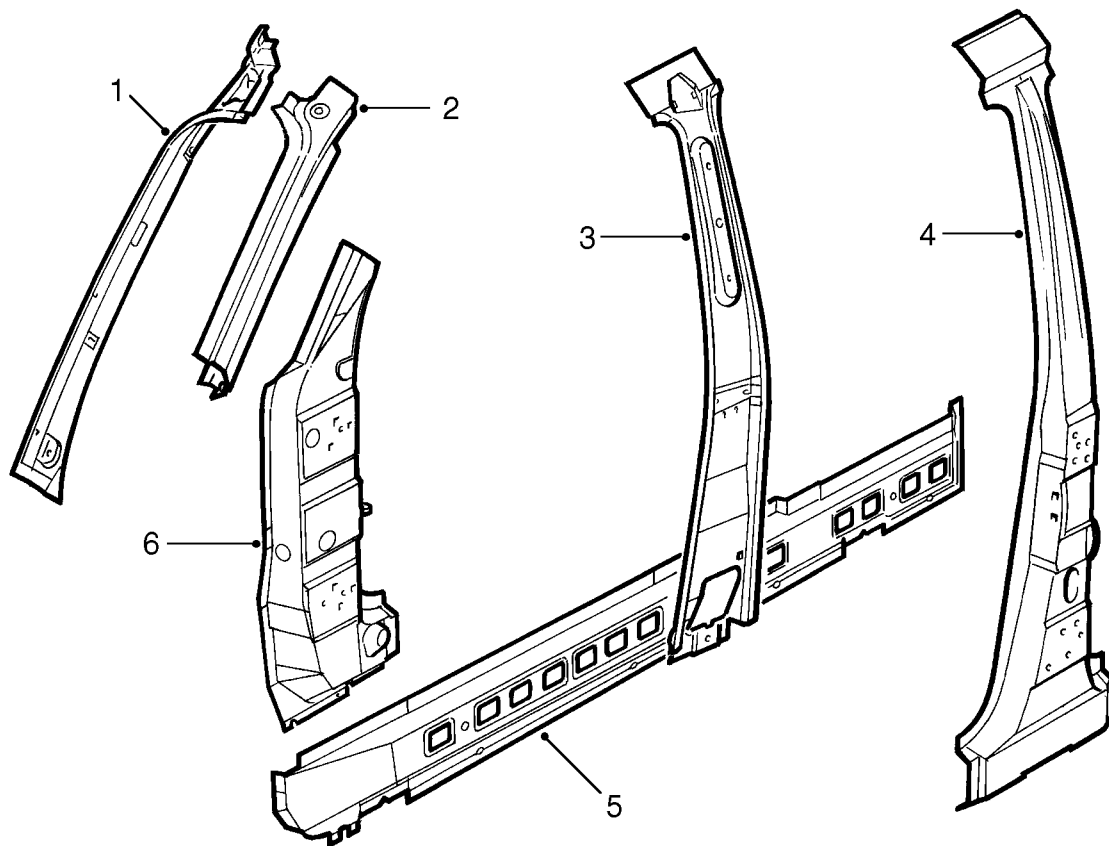
77M1578

- 1. A post reinforcement
- 2. Inner A post

- 3. Inner sill reinforcement
- 4. Lower A post reinforcement

PANEL REPAIRS

Front inner body side panels - 5 door

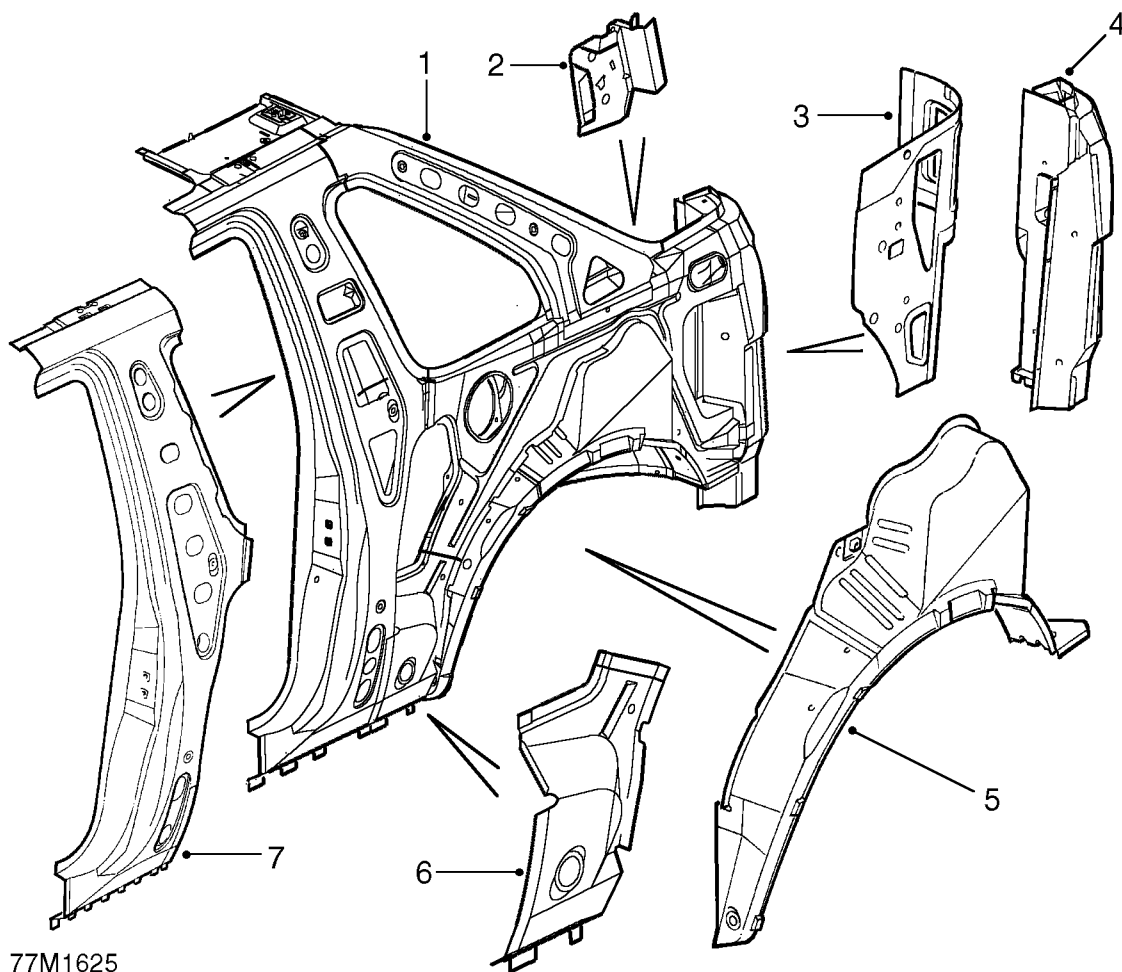


77M1579

- | | |
|---------------------------|-------------------------------|
| 1. Inner A post | 4. B/C post reinforcement |
| 2. A post reinforcement | 5. Inner sill reinforcement |
| 3. Inner (B/C post) panel | 6. Lower A post reinforcement |



Rear inner body side panels - 3 door

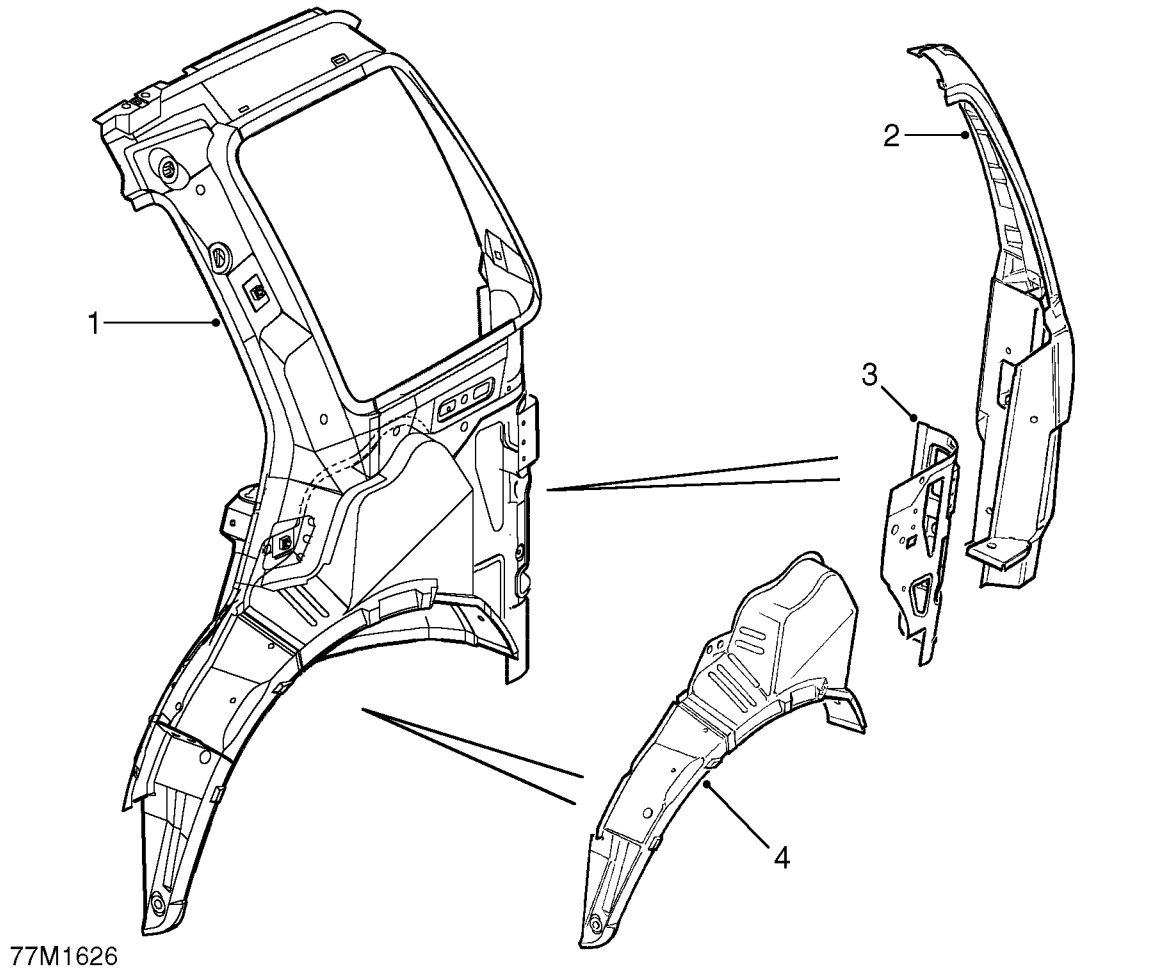


77M1625

- | | |
|--|--|
| <ul style="list-style-type: none"> 1. Complete rear quarter assembly 2. Squab side reinforcement 3. Rear body side reinforcement assembly 4. Lower inner E post assembly | <ul style="list-style-type: none"> 5. Outer rear wheelarch assembly 6. Rear quarter front lower reinforcement 7. B/C post reinforcement |
|--|--|

PANEL REPAIRS

Rear inner body side panels - 5 door

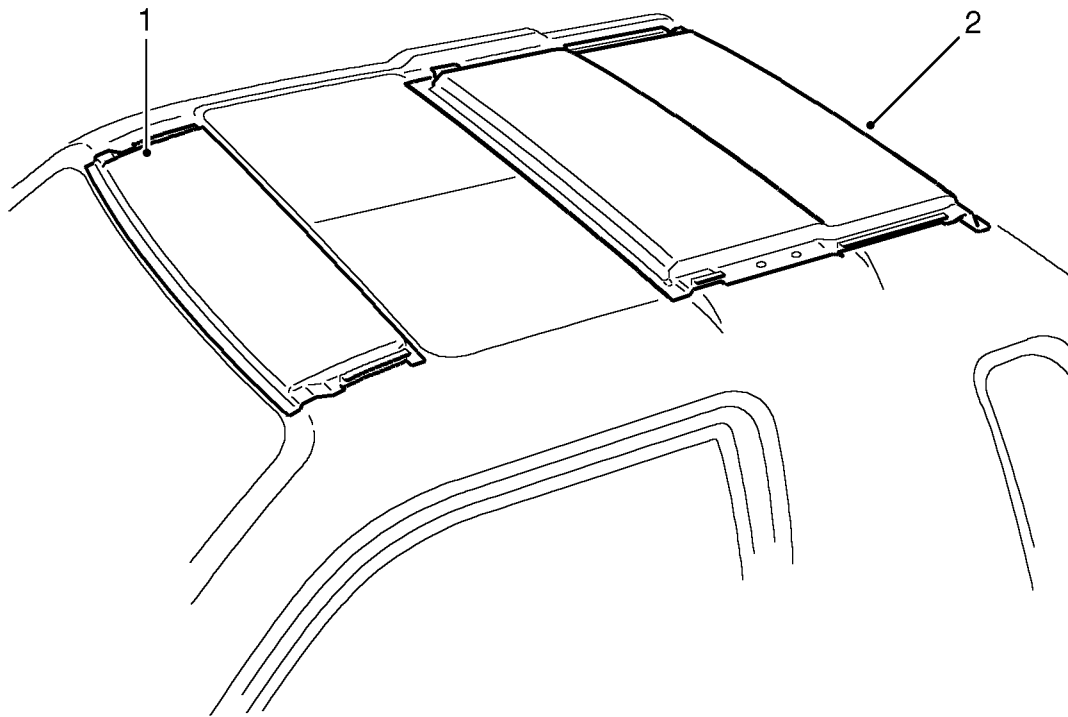


- 1. Complete rear quarter assembly
- 2. Inner E post assembly

- 3. Rear body side reinforcement assembly
- 4. Outer rear wheelarch assembly



Roof assemblies - 3 door

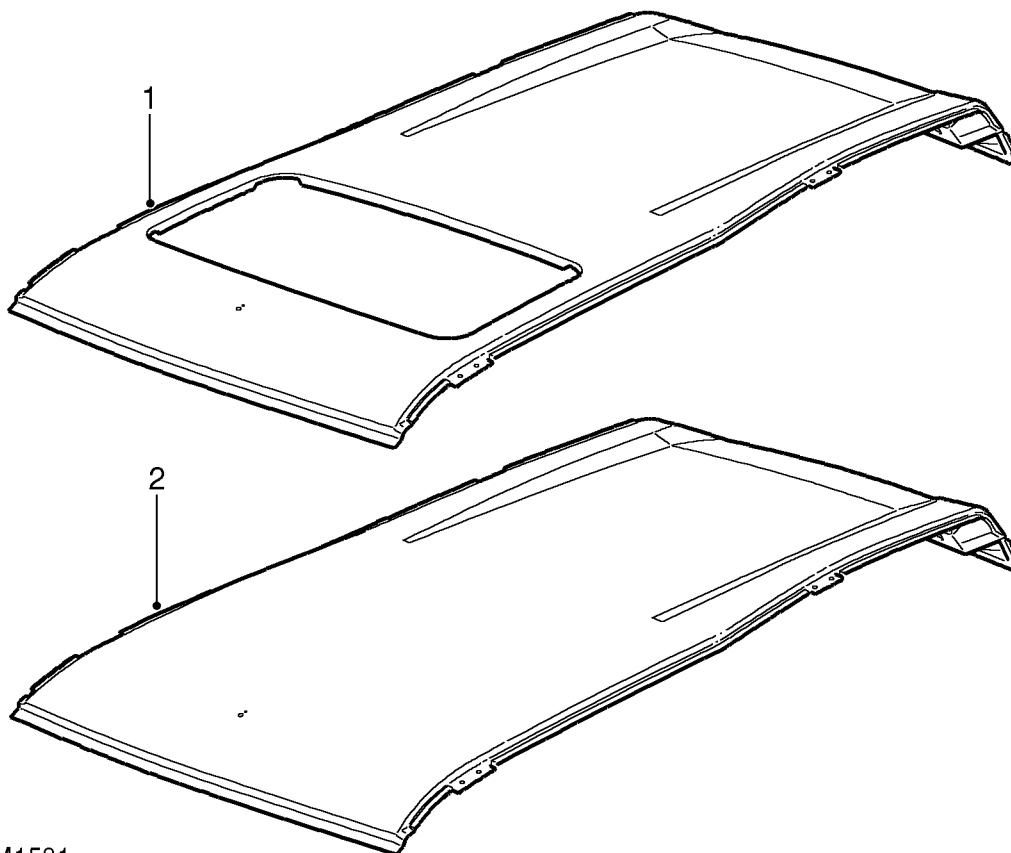


77M1580

- 1. Front roof assembly
- 2. Rear roof assembly

PANEL REPAIRS

Roof assembly - 5 door

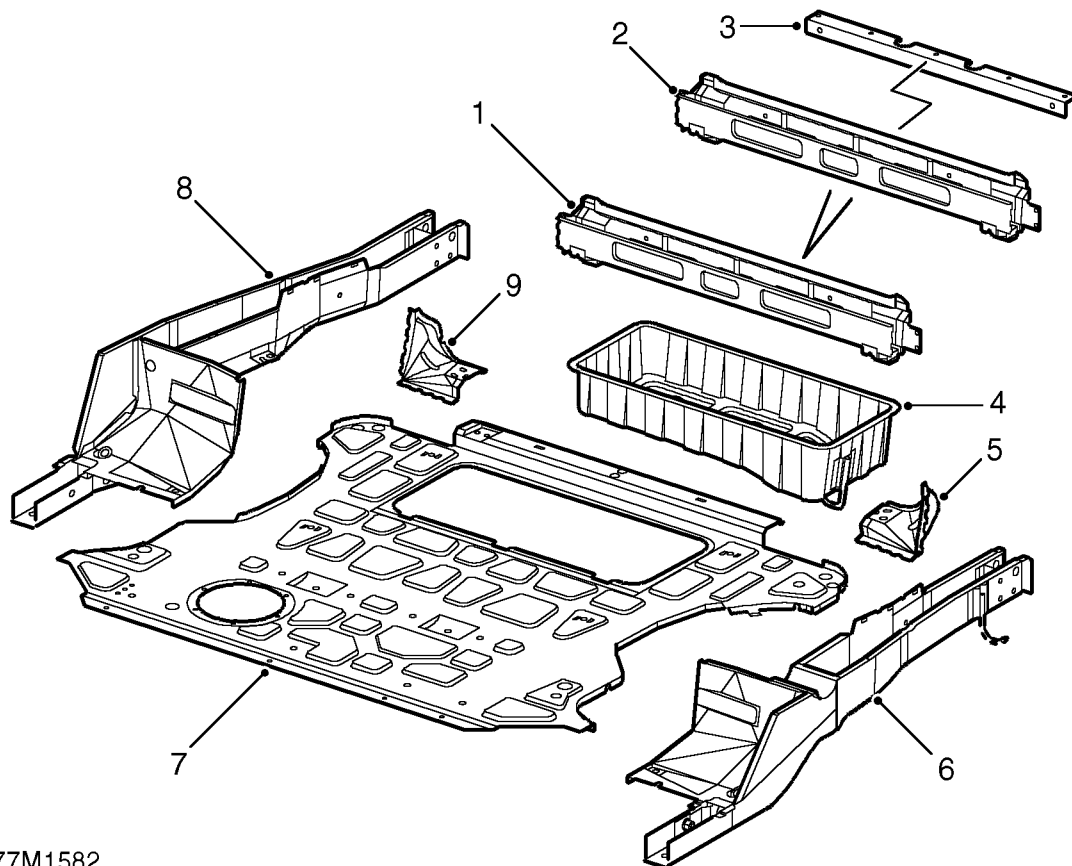


77M1581

1. Roof assembly (with sunroof)
2. Roof assembly (without sunroof)



Rear end panels

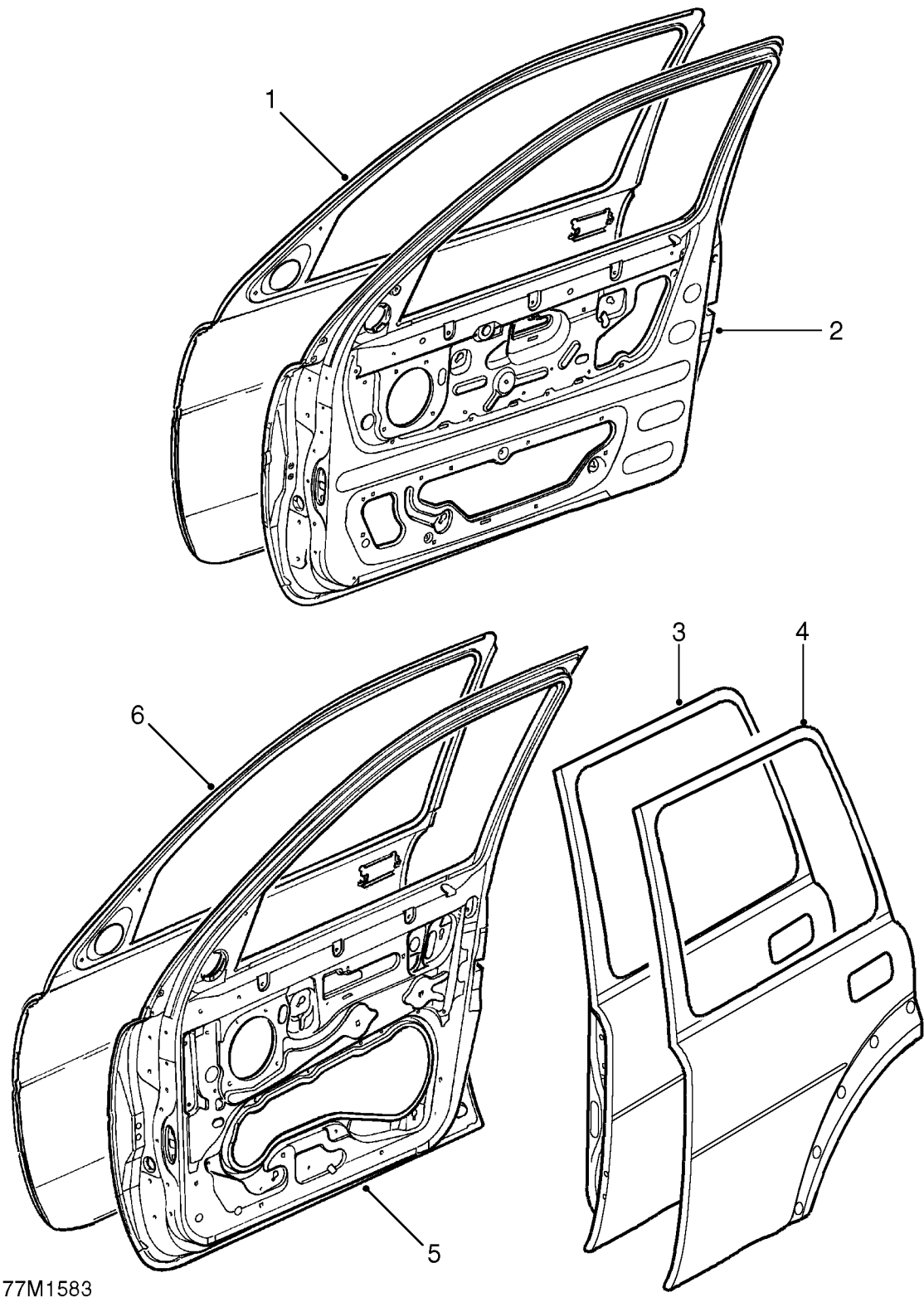


77M1582

- | | |
|---|---|
| 1. Rear floor crossmember assembly | 6. LH floor longitudinal |
| 2. Inner panel | 7. Rear floor assembly |
| 3. Bumper mounting bracket | 8. RH floor longitudinal |
| 4. Safe well assembly | 9. Gusset, rear floor to quarter inner RH |
| 5. Gusset, rear floor to quarter inner LH | |

PANEL REPAIRS

Door assemblies



77M1583

- 1. Front door outer (3 door)
- 2. Front door assembly (3 door)
- 3. Rear door assembly

- 4. Rear door outer
- 5. Front door assembly (5 door)
- 6. Front door outer (5 door)



GENERAL WELDING PRECAUTIONS

For ease of reference, the diagrams on the following pages show only the type of weld used in repair where it varies from that used in production.

The replacement welds in the welding diagrams are denoted by the following symbols:

A ■ ■ ■ ■ ■ ■ ■ ■

B 

77M1657

A = Single/Multiple thickness plug welds

B = MIG seam weld

When carrying out welding operations the following criteria must be observed:

- Where resistance spot welds have been used in production, these must be reproduced with new spot welds in replacement where possible. All such reproduction spot welds must be spaced 30mm apart.
- When spot welding, it is recommended that test coupons of the same metal gauges and materials are produced to carry out peel tests to ensure that welding equipment being used can produce a satisfactory joint. Plug welds must be used if a satisfactory spot weld cannot be produced.
- The electrode arms on hand-held spot welding guns must not exceed 300mm in length.
- Single-side spot welding is not acceptable.
- Brazing and gas welding are not acceptable EXCEPT where they have been specified in production.
- Where 3 metal thicknesses or more are to be welded together it is imperative to use MIG plug welds to ensure joint strength.

- MIG plug welds must be used in repair joints where there is no access for a resistance spot welder. To replace each production spot weld a hole must be drilled and/or punched, and a MIG plug weld then made in its place. The number of plug welds must match exactly the number of spot welds which have been removed.
- Where holes are left in an existing panel after removal of the spot welds, a single MIG plug weld will be made in each hole as appropriate.

PANEL REPAIRS

Seat belt anchorages

Seat belt anchorages are safety critical. When making repairs in these areas, it is essential to follow design specifications. Note that High Strength Low Alloy (HSLA) steel may be used for seat belt anchorages.

Where possible, the original production assembly should be used, complete with its seat belt anchorages, or the cut line should be so arranged that the original seat belt anchorage is not disturbed.

All welds within 250mm of seat belt anchorages must be carefully checked for weld quality, including spacing of spot welds.



WARNING: Body parts incorporating seat belt anchorages MUST be renewed completely if damaged beyond repair, as the welds in these areas are safety critical and cannot be disturbed.

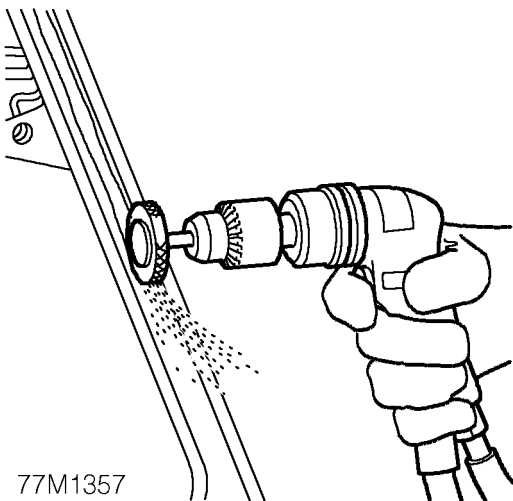


PANEL REPLACEMENT PROCEDURE

This procedure is designed to explain the basic panel removal and replacement method. The main criterion in removal and replacement of body panels is that the original standard is maintained as far as possible. While individual repairs will differ in detail, this procedure has been devised placing emphasis on ease of repair and the elimination of unnecessary work.

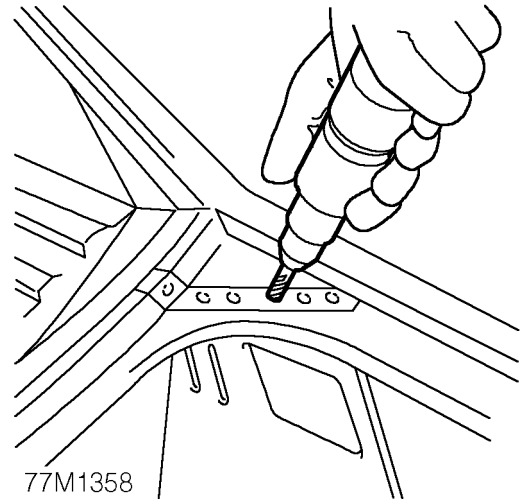
Body panels are being increasingly manufactured in high strength steels to meet design requirements for safety and weight saving. As panels in high strength steels cannot be visually identified, and as they are more sensitive to excess heat than panels manufactured from low carbon steel, it is advisable that the following procedure be observed at all times.

Remove panel

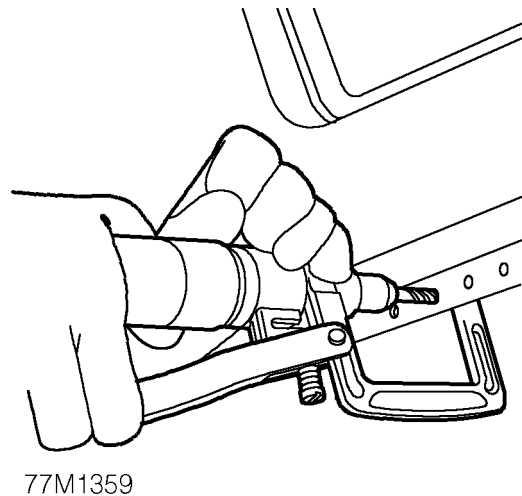


1. Expose resistance spot welds. For those spot welds which are not obviously visible, use a rotary impregnated wire brush fitted to an air drill, or alternatively a hand held wire brush.

NOTE: In wheel arch areas it may be necessary to soften underbody coating, using a hot air gun, prior to exposing spot welds.

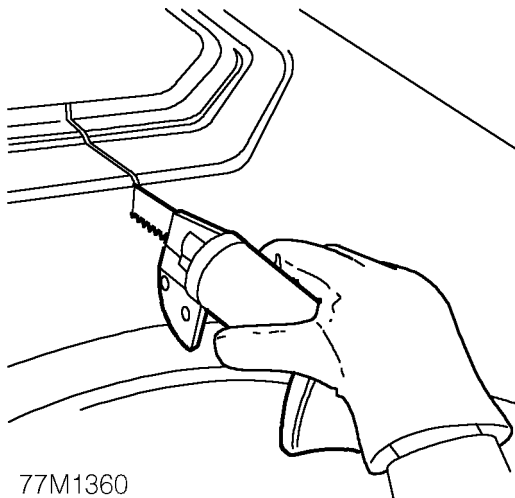


2. Cut out welds using a cobalt drill.



3. Alternatively, use a clamp-type spot weld remover.

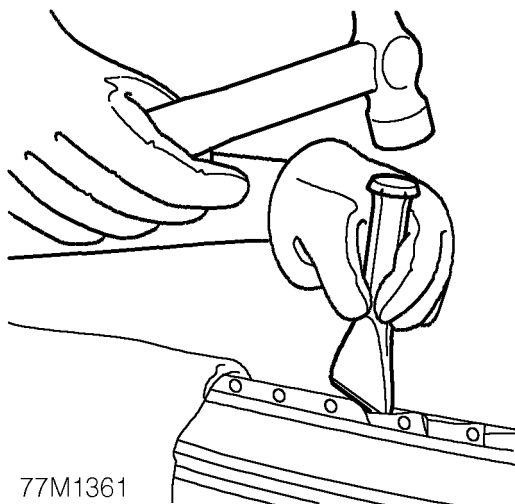
PANEL REPAIRS



4. Cut away the bulk of the panel as necessary using an air saw.



NOTE: On certain panel joints MIG welds and braze should be removed using a sander where possible, before cutting out the panel bulk.



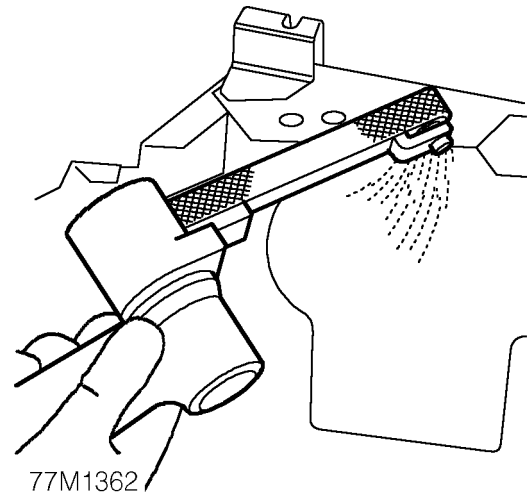
5. Separate spot welded joints and remove panel remnants using hammer, bolster chisel and pincers.

Prepare old surfaces

1. Remove any remaining sealant using a hot air gun to minimise the risk of toxic fumes caused by heat generated during welding.



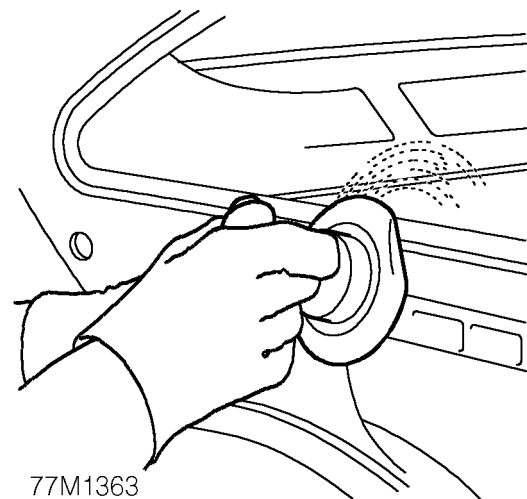
CAUTION: CARE MUST BE TAKEN TO AVOID EXCESSIVE HEAT BUILD-UP WHEN USING THE HOT AIR GUN.



2. Clean all panel joint edges to a bright smooth finish, using a belt-type sander.



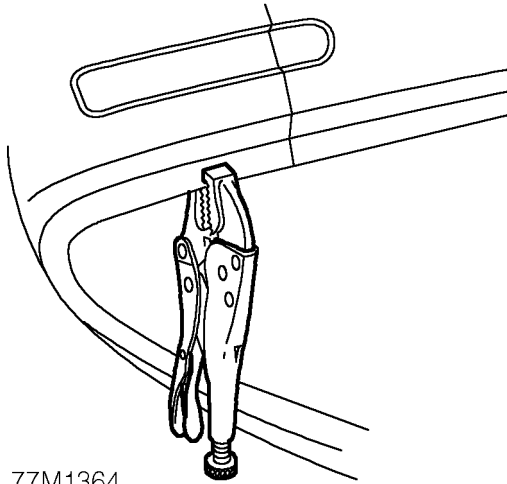
NOTE: As an alternative, a disc sander may be used.



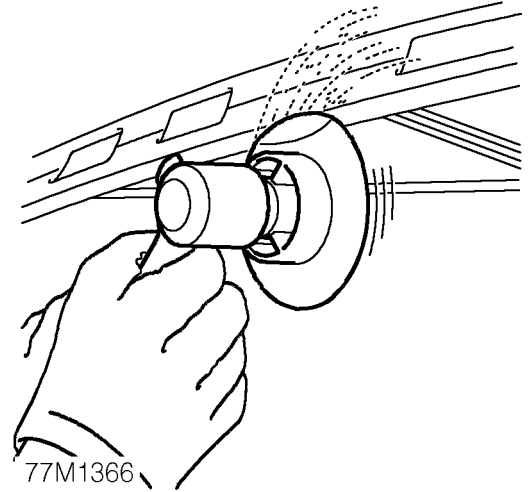
3. Straighten existing panel joint edges using shaping block and hammer.



Prepare new surfaces



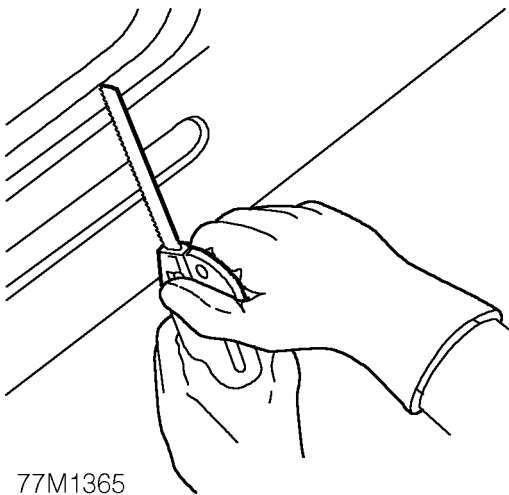
77M1364



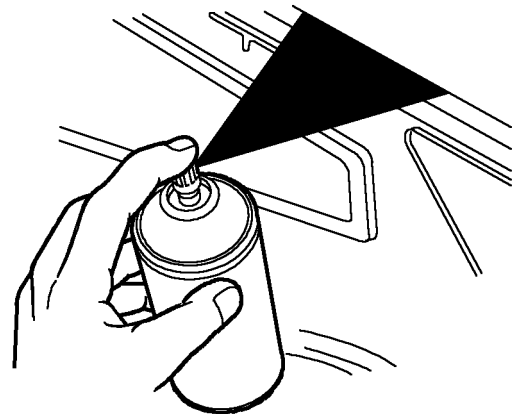
77M1366

1. Mark out bulk of new panel and trim to size, leaving approximately 50mm overlap with existing panel. Offer up new panel/section, align with associated panels (e.g. new rear quarter aligned with door and tailgate). Clamp into position.

3. Prepare new panel joint edges for welding by sanding to a bright finish. This must include inner as well as outer faces.



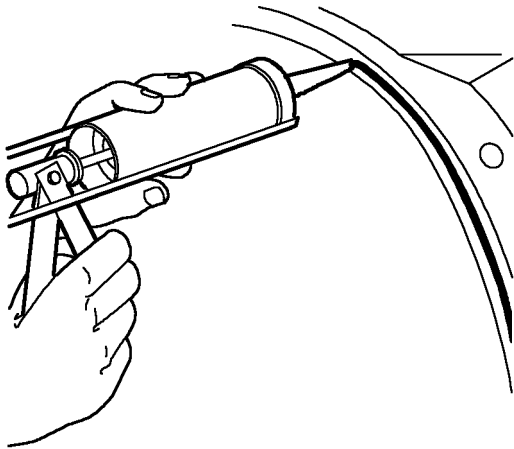
77M1365



77M1367

2. Cut new and existing panels as necessary to form butt, joggle or brace joint as required. Remove all clamps and metal remnants.

4. Apply suitable weld-through primer, to panel joint surfaces to be welded, using brush or aerosol can.



77M1368

5. Apply seam sealer or structural adhesive, as applicable, to panel joint surfaces. **See INFORMATION, Sealing and corrosion protection.**

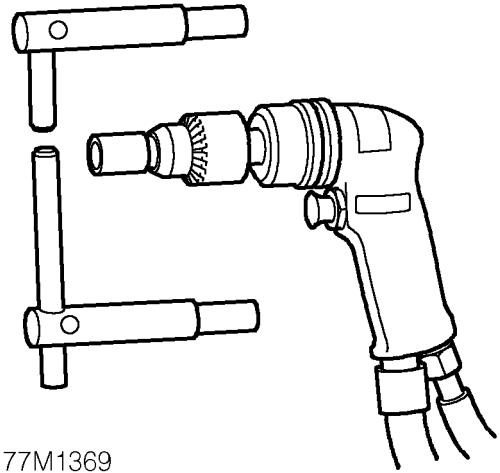
Offer up and align

Offer up new panel and align with associated panels. Clamp into position using welding clamps or Mole grips. Where a joggle or brace joint is being adopted, make a set in the original panel joint edge or insert a brace behind the joint.



NOTE: In cases where access for welding clamps is difficult, it may be necessary to use tack welds.

Welding



77M1369

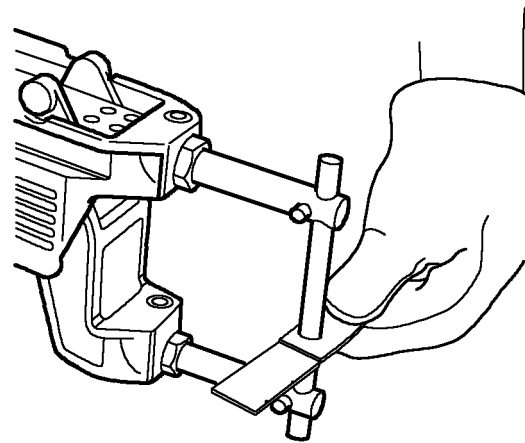
1. Select arms for resistance spot welding and shape electrode tips using a tip trimmer.



CAUTION: Use arms not exceeding 300mm in length.

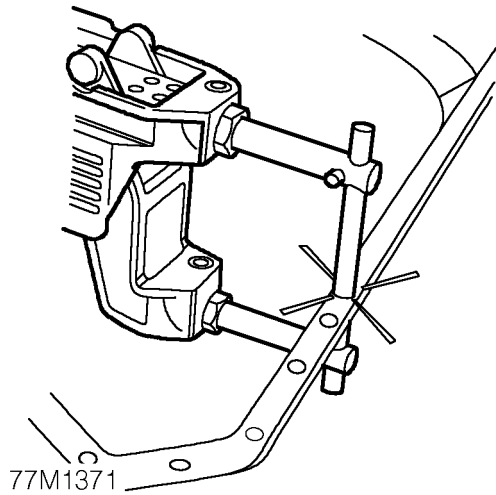


NOTE: To maintain efficiency, the tips will require regular cleaning with emery cloth.

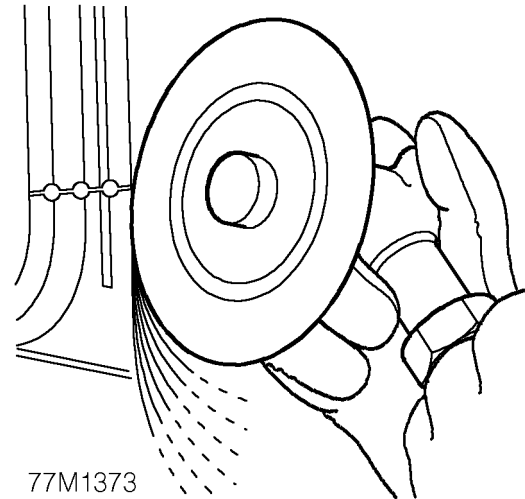


77M1370

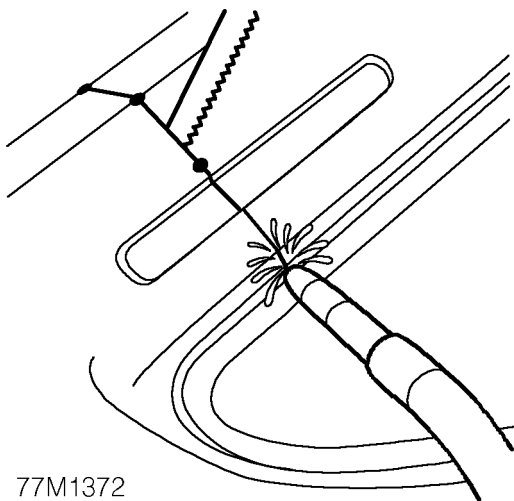
2. Fit resistance spot welding arms and test equipment for satisfactory operation, using test coupons. Where monitoring equipment is not available, verify weld strength by checking that metal around the weld puddle pulls apart under tension during pulling.



3. Use a resistance spot welder where access permits. Try to ensure weld quality by using a welding monitor where possible.

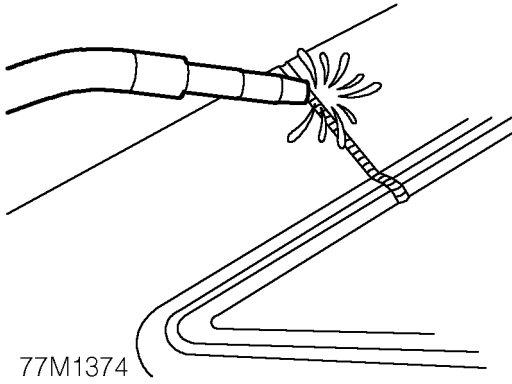


5. Dress MIG tack welds using a sander with 36 grit disc, or a belt-type sander where access is limited.

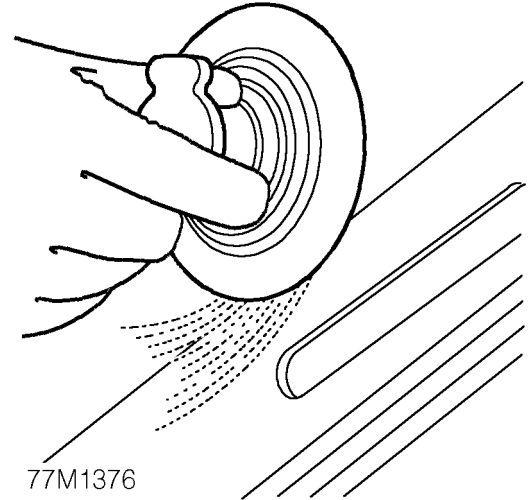


4. MIG tack weld butt joints and re-check alignment and panel contours where necessary. Ensure that a gap is maintained to minimise welding distortion, by inserting a hacksaw blade as an approximate guide.


PANEL REPAIRS

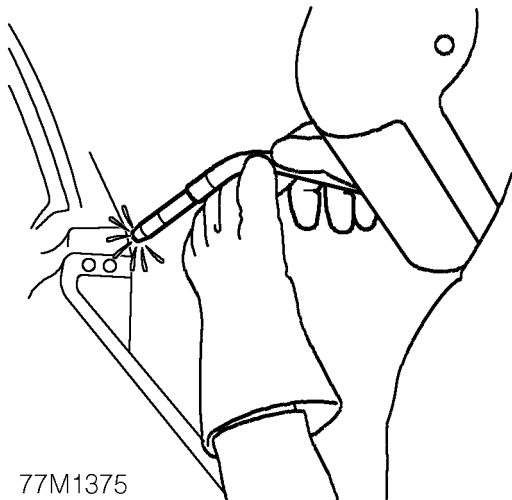


6. MIG seam weld butt joints.



8. Dress all welds using either a sander with 36 grit disc, or a belt-type sander and/or impregnated wire brush.

 **NOTE: Brazing operations, if required, must be carried out at this point.**



7. Always use MIG plug welds where excessive metal thickness or limited access make resistance spot welding impractical. Make plug welds either by using holes left by the spot weld cutter, or through holes punched and drilled for the purpose.



BODY REPAIR

The following panel repair operations itemize components which must be removed for access during repair of a base model vehicle.

Because of the unpredictable nature of accident damage, the items listed make no allowance for any difficulties which may be found in removal and only apply to an undamaged vehicle. All damaged components should be renewed following panel repairs.

FRONT BULKHEAD ASSEMBLY



NOTE: In this procedure, the crossmember to sidemember gusset plates are replaced in conjunction with the front bulkhead assembly.

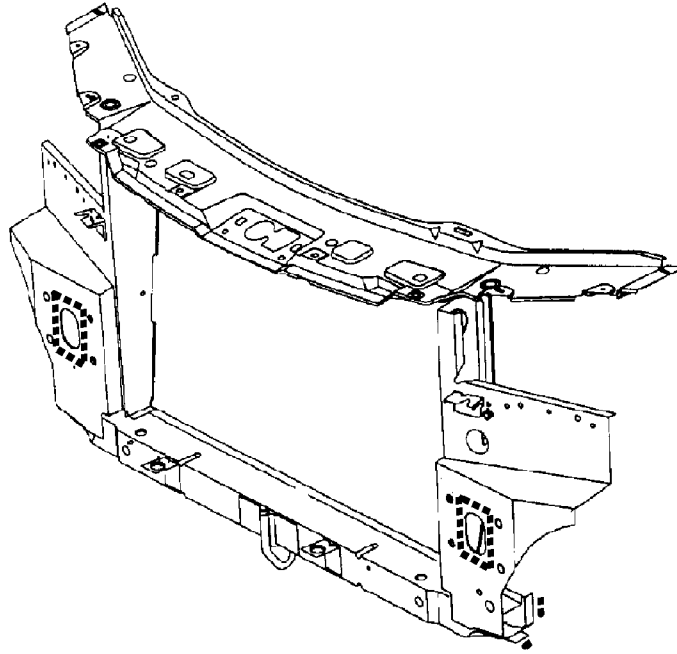
Remove

1. Disconnect battery earth lead.
2. Disconnect alternator. **See ELECTRICAL, Repairs.**
3. Disconnect all ECUs.
4. Remove front bumper valance. **See BODY, Exterior fittings.**
5. Remove front bumper armature.
6. Remove radiator. **See COOLING SYSTEM, Repairs.**
7. Remove PAS fluid cooler. **See STEERING, Repairs.**
8. Remove LH and RH headlamps. **See ELECTRICAL, Repairs.**
9. Release wiring to headlamps and position aside.
10. Remove LH and RH engine bay shields.
11. Remove bumper valance LH and RH attachment brackets.
12. Remove battery. **See ELECTRICAL, Repairs.**
13. Remove air intake hose.
14. Remove horn. **See ELECTRICAL, Repairs.**
15. Remove windscreen washer reservoir. **See WIPERS & WASHERS, Repairs.**
16. Remove bonnet lock.
17. Support bonnet in open position.
18. Remove bonnet stay.

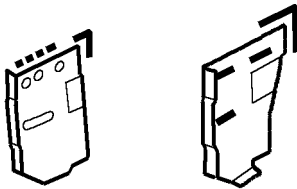
Repair

1. Remove existing panel(s), prepare panel joint faces and install new panel(s) in accordance with Panel Replacement Procedure. Punch or drill holes in new panel for plug welding as shown.

PANEL REPAIRS



77M1646



77M1642

Refit

1. Fit bonnet stay.
2. Fit bonnet lock.
3. Fit windscreen washer reservoir. **See WIPERS & WASHERS, Repairs.**
4. Fit horn. **See ELECTRICAL, Repairs.**
5. Fit air intake hose.
6. Fit battery. Do not connect earth lead. **See ELECTRICAL, Repairs.**
7. Fit bumper valance LH and RH attachment brackets.
8. Fit LH and RH engine bay shields.
9. Fit LH and RH headlamps. **See ELECTRICAL, Repairs.** Secure headlamps wiring.
10. Fit PAS fluid cooler. **See STEERING, Repairs.**
11. Fit radiator. **See COOLING SYSTEM, Repairs.**
12. Fit front bumper armature.
13. Fit front bumper valance. **See BODY, Exterior fittings.**
14. Connect all ECUs.
15. Connect alternator. **See ELECTRICAL, Repairs.**
16. Connect battery earth lead.



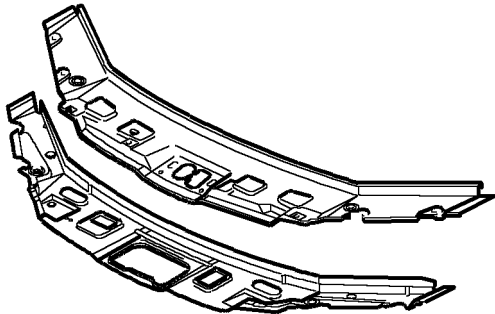
BONNET LOCKING PLATFORM

Remove

1. Disconnect battery earth lead.
2. Disconnect alternator. **See ELECTRICAL, Repairs.**
3. Disconnect all ECUs.
4. Remove front bumper valance. **See BODY, Exterior fittings.**
5. Remove radiator. **See COOLING SYSTEM, Repairs.**
6. Remove both headlamp assemblies. **See ELECTRICAL, Repairs.**
7. Remove horn. **See ELECTRICAL, Repairs.**
8. Remove battery. **See ELECTRICAL, Repairs.**
9. Remove air intake hose.
10. Remove bonnet lock.
11. Support bonnet in open position.
12. Remove bonnet stay.

Repair

1. Remove existing panel(s), prepare panel joint faces and install new panel(s) in accordance with Panel Replacement Procedure.



77M1644

Refit

1. Fit bonnet stay.
2. Fit bonnet lock.
3. Fit air intake hose.
4. Fit battery. Do not connect earth lead. **See ELECTRICAL, Repairs.**
5. Fit horn. **See ELECTRICAL, Repairs.**
6. Fit both headlamp assemblies. **See ELECTRICAL, Repairs.**
7. Fit radiator. **See COOLING SYSTEM, Repairs.**
8. Fit front bumper valance. **See BODY, Exterior fittings.**
9. Connect all ECUs.
10. Connect alternator. **See ELECTRICAL, Repairs.**
11. Connect battery earth lead.

PANEL REPAIRS

HEADLAMP MOUNTING PANEL

Remove

1. Disconnect battery earth lead.
2. Disconnect alternator. *See ELECTRICAL, Repairs.*
3. Disconnect all ECUs.
4. Remove front bumper valance. *See BODY, Exterior fittings.*
5. Remove front bumper armature.
6. Remove radiator. *See COOLING SYSTEM, Repairs.*
7. Remove headlamp assembly. *See ELECTRICAL, Repairs.*
8. Release wiring to headlamp and position aside.

For LH side

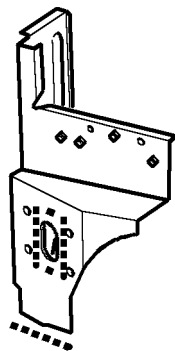
9. Remove front bumper LH support bracket.
10. Remove battery. *See ELECTRICAL, Repairs.*
11. Remove horn. *See ELECTRICAL, Repairs.*
12. Remove air intake hose.

For RH side

13. Remove front bumper RH support bracket.
14. Remove windscreen washer reservoir. *See WIPERS & WASHERS, Repairs.*
15. Remove PAS fluid cooler. *See STEERING, Repairs.*

Repair

1. Remove existing panel(s), prepare panel joint faces and install new panel(s) in accordance with Panel Replacement Procedure. Punch or drill holes in new panel for plug welding as shown.



77M1588

Refit

For LH side

1. Fit air intake hose.
2. Fit horn. *See ELECTRICAL, Repairs.*
3. Fit battery. Do not connect earth lead. *See ELECTRICAL, Repairs.*
4. Fit front bumper LH support bracket.

For RH side

5. Fit PAS fluid cooler. *See STEERING, Repairs.*
6. Fit windscreen washer reservoir. *See WIPERS & WASHERS, Repairs.*
7. Fit front bumper LH support bracket.

For both sides

8. Fit headlamp assembly. *See ELECTRICAL, Repairs.* Secure headlamp wiring.
9. Fit radiator. *See COOLING SYSTEM, Repairs.*
10. Fit front bumper armature.
11. Fit front bumper valance. *See BODY, Exterior fittings.*
12. Connect all ECUs.
13. Connect alternator. *See ELECTRICAL, Repairs.*
14. Connect battery earth lead.



FRONT LOWER CROSSMEMBER



NOTE: In this procedure, the crossmember to sidemember gusset plates are replaced in conjunction with the front lower crossmember.

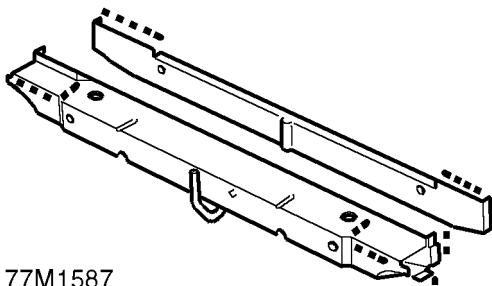
If required, the lower closing panel can be replaced separately.

Remove

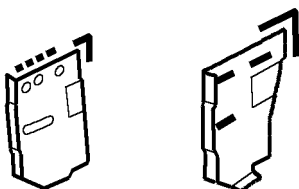
1. Disconnect battery earth lead.
2. Disconnect alternator. **See ELECTRICAL, Repairs.**
3. Disconnect all ECUs.
4. Remove LH and RH engine bay shields.
5. Remove front bumper valance. **See BODY, Exterior fittings.**
6. Remove front bumper armature.
7. Remove radiator. **See COOLING SYSTEM, Repairs.**
8. Remove PAS fluid cooler. **See STEERING, Repairs.**
9. Release wiring for LH and RH headlamps and position aside.

Repair

1. Remove existing panel(s), prepare panel joint faces and install new panel(s) in accordance with Panel Replacement Procedure. Punch or drill holes in new panel for plug welding as shown.



77M1587



77M1642

Refit

1. Secure wiring to LH and RH headlamps.
2. Fit PAS fluid cooler. **See STEERING, Repairs.**
3. Fit radiator. **See COOLING SYSTEM, Repairs.**
4. Fit front bumper armature.
5. Fit front bumper valance. **See BODY, Exterior fittings.**
6. Fit LH and RH engine bay shields.
7. Connect all ECUs.
8. Connect alternator. **See ELECTRICAL, Repairs.**
9. Connect battery earth lead.

PANEL REPAIRS

FRONT SIDEMEMBER (COMPLETE)



NOTE: In this procedure, the front sidemember closing panel and the related crossmember to sidemember gusset plate are replaced in conjunction with the front sidemember.

Remove

1. Disconnect battery earth lead.
2. Disconnect all ECUs.
3. Remove road wheel(s).
4. Remove underbelly panel. *See BODY, Exterior fittings.*
5. Remove front bumper valance. *See BODY, Exterior fittings.*
6. Remove front bumper armature.
7. Remove radiator. *See COOLING SYSTEM, Repairs.*
8. Remove PAS fluid cooler. *See STEERING, Repairs.*
9. Remove headlamp. *See ELECTRICAL, Repairs.*
10. Release wiring to headlamp and position aside.
11. Remove engine bay shield.
12. Remove front wheel arch liner. *See BODY, Exterior fittings.*
13. Remove front suspension rear beam.
14. Remove engine and gearbox. *See ENGINE, Repairs.*
15. Remove PAS rack. *See STEERING, Repairs.*
16. Remove fascia. *See BODY, Interior trim components.*

For LH side

17. Remove front bumper LH support bracket.
18. Remove LH engine mounting from body.
19. Remove battery. *See ELECTRICAL, Repairs.*
20. Remove air intake hose.
21. Remove horn. *See ELECTRICAL, Repairs.*

For RH side

22. Remove front bumper RH support bracket.
23. Remove RH engine mounting from body.
24. Remove windscreen washer reservoir. *See WIPERS & WASHERS, Repairs.*

For driver's side

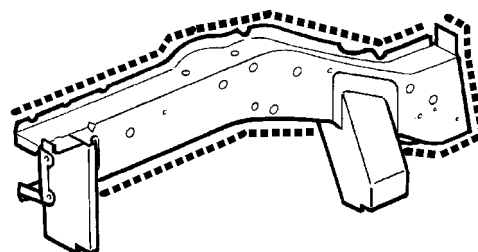
25. Remove passenger compartment fuse box.
26. Remove brake pedal box and brake servo. *See BRAKES, Repairs.*
27. Remove clutch pedal box. *See CLUTCH, Repairs.*

For both sides

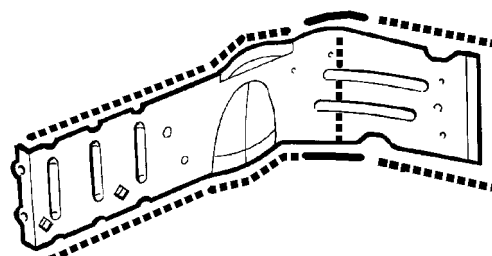
28. Remove treadplate from front door aperture. Release front carpet and position aside.
29. Remove insulation pads from engine bulkhead.

Repair

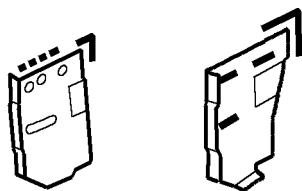
1. Remove existing panel(s), prepare panel joint faces and install new panel(s) in accordance with Panel Replacement Procedure. Punch or drill holes in new panel for plug welding as shown.



77M1594



77M1593



77M1642

Refit

1. Fit insulation pads to engine bulkhead.
2. Position front carpet and fit treadplate to front door aperture.

For driver's side

3. Fit clutch pedal box. **See CLUTCH, Repairs.**
4. Fit brake pedal box and brake servo. **See BRAKES, Repairs.**
5. Fit passenger compartment fuse box.

For LH side

6. Fit horn. **See ELECTRICAL, Repairs.**
7. Fit air intake hose.
8. Fit battery. Do not connect battery earth lead. **See ELECTRICAL, Repairs.**
9. Fit LH engine mounting to body.
10. Fit front bumper LH support bracket.

For RH side

11. Fit windscreen washer reservoir. **See WIPERS & WASHERS, Repairs.**
12. Fit RH engine mounting to body.
13. Fit front bumper RH support bracket.

For both sides

14. Fit fascia. **See BODY, Interior trim components.**
15. Fit PAS rack. **See STEERING, Repairs.**
16. Fit engine and gearbox. **See ENGINE, Repairs.**
17. Fit front suspension rear beam.
18. Fit front wheel arch liner. **See BODY, Exterior fittings.**
19. Fit engine bay shield.
20. Fit headlamp. **See ELECTRICAL, Repairs.**
Secure headlamp wiring.
21. Fit PAS fluid cooler. **See STEERING, Repairs.**

22. Fit radiator. **See COOLING SYSTEM, Repairs.**
23. Fit front bumper armature.
24. Fit front bumper valance. **See BODY, Exterior fittings.**
25. Fit underbelly panel. **See BODY, Exterior fittings.**
26. Fit road wheel(s) and tighten nuts to correct torque. **See INFORMATION, Torque wrench settings.**
27. Connect all ECUs.
28. Connect battery earth lead.

PANEL REPAIRS

FRONT SIDEMEMBER (FRONT SECTION)



NOTE: In this procedure, the front section of the front sidemember closing panel and the related crossmember to sidemember gusset plate are replaced in conjunction with the front sidemember.

Remove

1. Disconnect battery earth lead.
2. Disconnect all ECUs.
3. Remove road wheel(s).
4. Remove underbelly panel. *See BODY, Exterior fittings.*
5. Remove front bumper valance. *See BODY, Exterior fittings.*
6. Remove radiator. *See COOLING SYSTEM, Repairs.*
7. Remove PAS fluid cooler. *See STEERING, Repairs.*
8. Remove headlamp. *See ELECTRICAL, Repairs.*
9. Release wiring to headlamp and position aside.
10. Remove engine bay shield.
11. Remove front wheel arch liner. *See BODY, Exterior fittings.*

For LH side

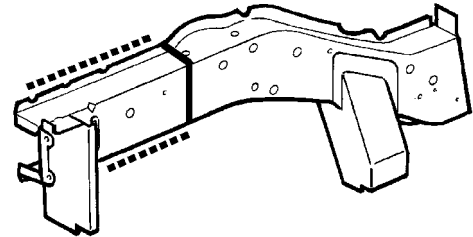
12. Remove front bumper LH support bracket.
13. Remove ECM.
14. Remove battery carrier. *See ELECTRICAL, Repairs.*
15. Remove air cleaner.
16. Remove air intake hose.
17. Remove horn. *See ELECTRICAL, Repairs.*

For RH side

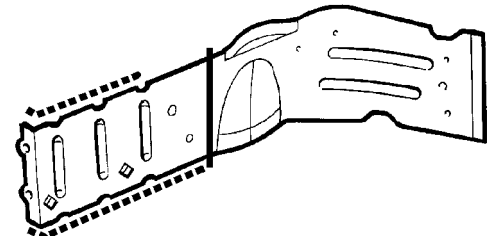
18. Remove front bumper RH support bracket.
19. Remove windscreen washer reservoir. *See WIPERS & WASHERS, Repairs.*
20. Remove alternator. *See ELECTRICAL, Repairs.*
21. Remove PAS pump. *See STEERING, Repairs.*

Repair

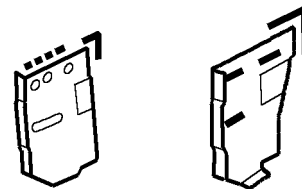
1. Remove existing panel(s), prepare panel joint faces and install new panel(s) in accordance with Panel Replacement Procedure. Punch or drill holes in new panel for plug welding as shown.



77M1637



77M1636



77M1642



Refit

For LH side

1. Fit horn. **See *ELECTRICAL, Repairs.***
2. Fit air intake hose.
3. Fit air cleaner.
4. Fit battery carrier. Do not connect battery earth lead. **See *ELECTRICAL, Repairs.***
5. Fit ECM.
6. Fit front bumper LH support bracket.

For RH side

7. Fit PAS pump. **See *STEERING, Repairs.***
8. Fit alternator. **See *ELECTRICAL, Repairs.***
9. Fit windscreen washer reservoir. **See *WIPERS & WASHERS, Repairs.***
10. Fit front bumper RH support bracket.

For both sides

11. Fit front wheel arch liner. **See *BODY, Exterior fittings.***
12. Fit engine bay shield.
13. Fit headlamp. **See *ELECTRICAL, Repairs.***
Secure headlamp wiring.
14. Fit PAS fluid cooler. **See *STEERING, Repairs.***
15. Fit radiator. **See *COOLING SYSTEM, Repairs.***
16. Fit front bumper valance. **See *BODY, Exterior fittings.***
17. Fit underbelly panel. **See *BODY, Exterior fittings. See***
18. Connect all ECUs.
19. Connect battery earth lead.

PANEL REPAIRS

FRONT VALANCE ASSEMBLY

Remove

1. Disconnect battery earth lead.
2. Disconnect all ECUs.
3. Remove road wheel(s).
4. Remove underbelly panel. *See BODY, Exterior fittings.*
5. Remove front bumper valance. *See BODY, Exterior fittings.*
6. Remove front bumper armature.
7. Remove radiator. *See COOLING SYSTEM, Repairs.*
8. Remove PAS fluid cooler. *See STEERING, Repairs.*
9. Remove headlamp. *See ELECTRICAL, Repairs.*
10. Release wiring to headlamp and position aside.
11. Remove engine bay shield.
12. Remove front wheel arch liner. *See BODY, Exterior fittings.*
13. Remove front wing. *See BODY, Exterior fittings.*
14. Remove front suspension rear beam.
15. Remove engine and gearbox. *See ENGINE, Repairs.*
16. Remove front damper. *See FRONT SUSPENSION, Repairs.*
17. Remove PAS rack. *See STEERING, Repairs.*
18. Remove fascia. *See BODY, Interior trim components.*

For LH side

19. Remove front bumper LH support bracket.
20. Remove tool kit.
21. Remove air cleaner.
22. Remove air intake hose.
23. Remove ECM.
24. Remove relay module. *See ELECTRICAL, Repairs.*
25. Remove battery carrier. *See ELECTRICAL, Repairs.*
26. Remove engine compartment fuse box and related wiring.
27. Remove LH engine mounting from body.
28. On models with 'L' series engine, remove fuel filter. *See FUEL DELIVERY SYSTEM - 'L' SERIES, Repairs.*
29. Remove LH front brake pipe.

For RH side

30. Remove front bumper RH support bracket.
31. Remove windscreen washer reservoir. *See WIPERS & WASHERS, Repairs.*
32. Remove coolant expansion tank. *See COOLING SYSTEM, Repairs.*
33. Remove RH engine mounting from body.
34. Remove PAS fluid reservoir. *See STEERING, Repairs.*
35. Remove RH front brake pipe.
36. Remove pressure conscious reducing valve and related brake pipes. *See BRAKES, Repairs.*

For driver's side

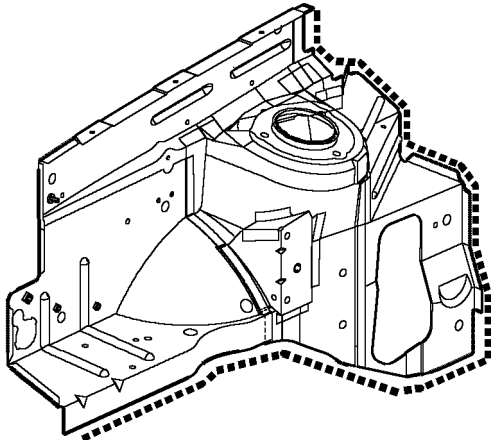
37. Remove passenger compartment fuse box.
38. Remove brake pedal box and brake servo. *See BRAKES, Repairs.*
39. Remove clutch pedal box. *See CLUTCH, Repairs.*

For both sides

40. Release vehicle harness from valance and position aside.
41. Remove treadplate from front door aperture. Release front carpet and position aside.
42. Remove insulation pads from engine bulkhead.

Repair

1. Remove existing panel(s), prepare panel joint faces and install new panel(s) in accordance with Panel Replacement Procedure. Punch or drill holes in new panel for plug welding as shown.



77M1589

Refit

1. Fit insulation pads to front and rear sides of engine bulkhead.
2. Position front carpet and fit treadplate to front door aperture.
3. Secure vehicle harness to valance.

For driver's side

4. Fit clutch pedal box. **See CLUTCH, Repairs.**
5. Fit brake pedal box and brake servo. **See BRAKES, Repairs.**
6. Fit passenger compartment fuse box.

For LH side

7. Fit LH front brake pipe. Bleed brake system. **See BRAKES, Adjustments.**
8. On models with 'L' series engine, fit fuel filter. **See FUEL DELIVERY SYSTEM - 'L' SERIES, Repairs.**
9. Fit LH engine mounting to body.
10. Fit engine compartment fuse box and related wiring.
11. Fit battery carrier. Do not connect battery earth lead. **See ELECTRICAL, Repairs.**
12. Fit relay module. **See ELECTRICAL, Repairs.**
13. Fit ECM.
14. Fit air intake hose.
15. Fit air cleaner.
16. Fit tool kit.
17. Fit front bumper LH support bracket.

For RH side

18. Fit pressure conscious reducing valve and related brake pipes. **See BRAKES, Repairs.**
19. Fit RH front brake pipe. Bleed brake system. **See BRAKES, Adjustments.**
20. Fit PAS fluid reservoir. **See STEERING, Repairs.**
21. Fit RH engine mounting to body.
22. Fit coolant expansion tank. **See COOLING SYSTEM, Repairs.**
23. Fit windscreen washer reservoir. **See WIPERS & WASHERS, Repairs.**
24. Fit front bumper RH support bracket.

For both sides

25. Fit fascia. **See BODY, Interior trim components.**
26. Fit PAS rack. **See STEERING, Repairs.**
27. Fit front damper. **See FRONT SUSPENSION, Repairs.**
28. Fit engine and gearbox. **See ENGINE, Repairs.**
29. Fit front suspension rear beam.
30. Fit front wing. **See BODY, Exterior fittings.**
31. Fit front wheel arch liner. **See BODY, Exterior fittings.**
32. Fit engine bay shield.
33. Fit headlamp. **See ELECTRICAL, Repairs.** Secure headlamp wiring.
34. Fit PAS fluid cooler. **See STEERING, Repairs.**
35. Fit radiator. **See COOLING SYSTEM, Repairs.**
36. Fit front bumper armature.
37. Fit front bumper valance. **See BODY, Exterior fittings.**
38. Fit underbelly panel. **See BODY, Exterior fittings.**
39. Fit road wheel(s) and tighten nuts to correct torque. **See INFORMATION, Torque wrench settings.**
40. Connect all ECUs.
41. Connect battery earth lead.

PANEL REPAIRS

VALANCE UPPER FRONT

Remove

1. Disconnect battery earth lead.
2. Disconnect alternator. *See ELECTRICAL, Repairs.*
3. Disconnect all ECUs.
4. Remove road wheel(s).
5. Remove front wheel arch liner. *See BODY, Exterior fittings.*
6. Remove front wing. *See BODY, Exterior fittings.*
7. Remove front bumper valance. *See BODY, Exterior fittings.*
8. Remove headlamp. *See ELECTRICAL, Repairs.*
9. Release wiring from valance and position aside.

For LH side

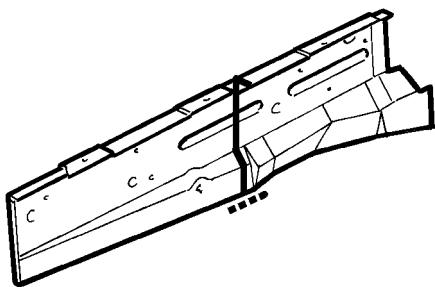
10. Remove ECM.
11. Remove battery. *See ELECTRICAL, Repairs.*

For RH side

12. Remove PAS fluid reservoir. *See STEERING, Repairs.*
13. Remove brake pipes from valance.

Repair

1. Remove existing panel(s), prepare panel joint faces and install new panel(s) in accordance with Panel Replacement Procedure. Punch or drill holes in new panel for plug welding as shown.



77M1590

Refit

For LH side

1. Fit battery. Do not connect earth lead. *See ELECTRICAL, Repairs.*
2. Fit ECM.

For RH side

3. Fit PAS fluid reservoir. *See STEERING, Repairs.*
4. Fit brake pipes to valance. Bleed brakes. *See BRAKES, Adjustments.*

For both sides

5. Secure wiring to valance.
6. Fit headlamp. *See ELECTRICAL, Repairs.*
7. Fit front bumper valance. *See BODY, Exterior fittings.*
8. Fit front wing. *See BODY, Exterior fittings.*
9. Fit front wheel arch liner. *See BODY, Exterior fittings.*
10. Fit road wheel(s) and tighten nuts to correct torque. *See INFORMATION, Torque wrench settings.*
11. Connect all ECUs.
12. Connect alternator. *See ELECTRICAL, Repairs.*
13. Connect battery earth lead.



VALANCE FRONT

Remove

1. Disconnect battery earth lead.
2. Disconnect alternator. **See ELECTRICAL, Repairs.**
3. Disconnect all ECUs.
4. Remove road wheel(s).
5. Remove front wheel arch liner. **See BODY, Exterior fittings.**
6. Remove engine bay shield.
7. Remove front wing. **See BODY, Exterior fittings.**
8. Remove front bumper valance. **See BODY, Exterior fittings.**
9. Remove front bumper support bracket.
10. Remove radiator. **See COOLING SYSTEM, Repairs.**
11. Remove headlamp. **See ELECTRICAL, Repairs.**
12. Release wiring to headlamp and position aside.

For LH side

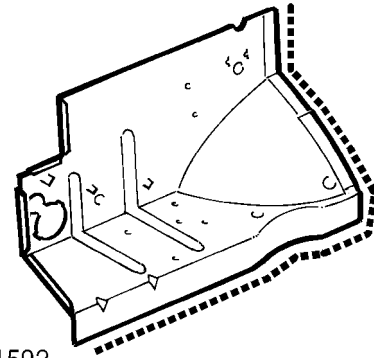
13. Remove tool kit.
14. Remove air cleaner.
15. Remove air intake hose.
16. Remove ECM.
17. Remove battery carrier. **See ELECTRICAL, Repairs.**
18. Remove engine compartment fuse box and related wiring.
19. Remove LH front brake pipe.

For RH side

20. Remove PAS fluid reservoir. **See STEERING, Repairs.**
21. Remove RH front brake pipe.
22. Remove pressure conscious reducing valve and related brake pipes. **See BRAKES, Repairs.**
23. Remove windscreen washer reservoir. **See WIPERS & WASHERS, Repairs.**
24. Remove PAS fluid cooler. **See STEERING, Repairs.**

Repair

1. Remove existing panel(s), prepare panel joint faces and install new panel(s) in accordance with Panel Replacement Procedure. Punch or drill holes in new panel for plug welding as shown.



77M1592

Refit

For LH side

1. Fit LH front brake pipe. Bleed brake system. **See BRAKES, Adjustments.**
2. Fit engine compartment fuse box and related wiring.
3. Fit battery carrier. Do not connect battery earth lead. **See ELECTRICAL, Repairs.**
4. Fit ECM.
5. Fit air intake hose.
6. Fit air cleaner.
7. Fit tool kit.

For RH side

8. Fit PAS fluid cooler. **See STEERING, Repairs.**
9. Fit windscreen washer reservoir. **See WIPERS & WASHERS, Repairs.**
10. Fit pressure conscious reducing valve and related brake pipes. **See BRAKES, Repairs.**
11. Fit RH front brake pipe. Bleed brake system. **See BRAKES, Adjustments.**
12. Fit PAS fluid reservoir. **See STEERING, Repairs.**

PANEL REPAIRS

For both sides

13. Fit headlamp. **See** *ELECTRICAL, Repairs*.
Secure headlamp wiring.
14. Fit PAS fluid cooler. **See** *STEERING, Repairs*.
15. Fit radiator. **See** *COOLING SYSTEM, Repairs*.
16. Fit front bumper support bracket.
17. Fit front bumper valance. **See** *BODY, Exterior fittings*.
18. Fit front wing. **See** *BODY, Exterior fittings*.
19. Fit front wheel arch liner. **See** *BODY, Exterior fittings*.
20. Fit road wheel(s) and tighten nuts to correct torque. **See** *INFORMATION, Torque wrench settings*.
21. Connect all ECUs.
22. Connect alternator. **See** *ELECTRICAL, Repairs*.
23. Connect battery earth lead.

VALANCE OUTER REINFORCEMENT

Remove

1. Disconnect battery earth lead.
2. Disconnect alternator. **See** *ELECTRICAL, Repairs*.
3. Disconnect all ECUs.
4. Remove road wheel(s).
5. Remove front wheel arch liner. **See** *BODY, Exterior fittings*.
6. Remove front wing. **See** *BODY, Exterior fittings*.
7. Remove front bumper valance. **See** *BODY, Exterior fittings*.
8. Remove headlamp. **See** *ELECTRICAL, Repairs*.
9. Release wiring from valance and position aside.

For LH side

10. Remove battery. **See** *ELECTRICAL, Repairs*.
11. Remove tool kit.
12. Remove ECM.
13. Remove relay module. **See** *ELECTRICAL, Repairs*.
14. Remove battery carrier. **See** *ELECTRICAL, Repairs*.
15. Remove engine compartment fuse box and related wiring.

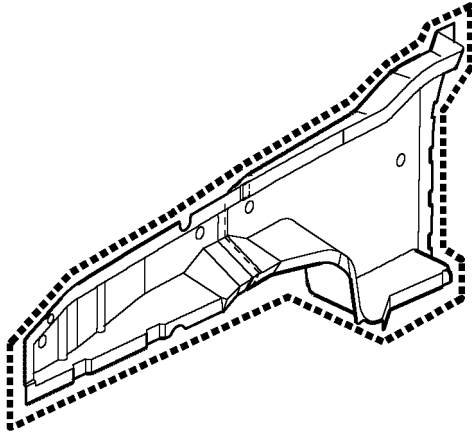
For RH side

16. Remove PAS fluid reservoir. **See** *STEERING, Repairs*.
17. Remove brake pipes from valance.



Repair

1. Remove existing panel(s), prepare panel joint faces and install new panel(s) in accordance with Panel Replacement Procedure. Punch or drill holes in new panel for plug welding as shown.



77M1591

Refit

For LH side

1. Fit engine compartment fuse box and related wiring.
2. Fit battery carrier. **See ELECTRICAL, Repairs.**
3. Fit relay module. **See ELECTRICAL, Repairs.**
4. Fit ECM.
5. Fit tool kit.
6. Fit battery. Do not connect earth lead. **See ELECTRICAL, Repairs.**

For RH side

7. Fit PAS fluid reservoir. **See STEERING, Repairs.**
8. Fit brake pipes to valance. Bleed brakes. **See BRAKES, Adjustments.**

For both sides

9. Secure wiring to valance.
10. Fit headlamp. **See ELECTRICAL, Repairs.**
11. Fit front bumper valance. **See BODY, Exterior fittings.**
12. Fit front wing. **See BODY, Exterior fittings.**
13. Fit front wheel arch liner. **See BODY, Exterior fittings.**
14. Fit road wheel(s) and tighten nuts to correct torque. **See INFORMATION, Torque wrench settings.**
15. Connect all ECUs.
16. Connect alternator. **See ELECTRICAL, Repairs.**
17. Connect battery earth lead.

PANEL REPAIRS

'A' POST - 3 DOOR



NOTE: In this procedure, the front outer body side panel is replaced in conjunction with the inner 'A' post and the 'A' post reinforcements.

Remove

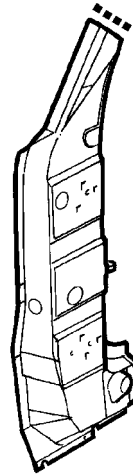
1. Disconnect battery earth lead.
2. Disconnect alternator. **See ELECTRICAL, Repairs.**
3. Disconnect all ECUs.
4. Remove road wheel(s).
5. Remove front wheel arch liner. **See BODY, Exterior fittings.**
6. Remove front wing. **See BODY, Exterior fittings.**
7. Remove front door. **See BODY, Doors.**
8. Remove front seat. **See BODY, Seats and seat belts.**
9. Remove fascia. **See BODY, Interior trim components.**
10. Remove duct of outboard face level ventilator.
11. Remove headlining. **See BODY, Interior trim components.**
12. Remove windscreen. **See BODY, Screens.**
13. Remove treadplate from front door aperture. Release front carpet and position aside.
14. Remove front door aperture seal.
15. Remove engine bulkhead insulation.

For driver's side

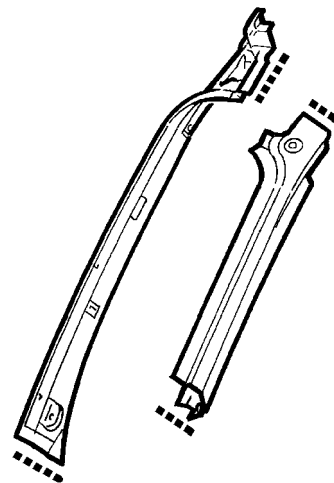
16. Remove passenger compartment fuse box.

Repair

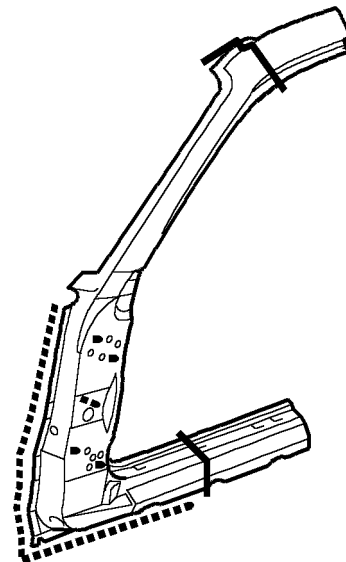
1. Remove existing panel(s), prepare panel joint faces and install new panel(s) in accordance with Panel Replacement Procedure. Punch or drill holes in new panel for plug welding as shown.



77M1595



77M1600



77M1596



Refit

For driver's side

1. Fit passenger compartment fuse box.

For both sides

2. Fit insulation pads to engine bulkhead.
3. Fit front door aperture seal.
4. Position front carpet and fit treadplate to front door aperture.
5. Fit windscreen. *See BODY, Screens.*
6. Fit headlining. *See BODY, Interior trim components.*
7. Fit duct of outboard face level ventilator.
8. Fit fascia. *See BODY, Interior trim components.*
9. Fit front seat. *See BODY, Seats and seat belts.*
10. Fit front door. *See BODY, Doors.*
11. Fit front wing. *See BODY, Exterior fittings.*
12. Fit front wheel arch liner. *See BODY, Exterior fittings.*
13. Fit road wheel(s) and tighten nuts to correct torque. *See INFORMATION, Torque wrench settings.*
14. Connect all ECUs.
15. Connect alternator. *See ELECTRICAL, Repairs.*
16. Connect battery earth lead.

'A' POST - 5 DOOR



NOTE: In this procedure, the front outer body side panel is replaced in conjunction with the inner 'A' post and the 'A' post reinforcements.

Remove

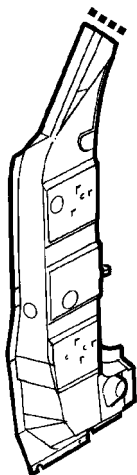
1. Disconnect battery earth lead.
2. Disconnect alternator. *See ELECTRICAL, Repairs.*
3. Disconnect all ECUs.
4. Remove road wheel(s).
5. Remove front wheel arch liner. *See BODY, Exterior fittings.*
6. Remove front wing. *See BODY, Exterior fittings.*
7. Remove front door. *See BODY, Doors.*
8. Remove front seat. *See BODY, Seats and seat belts.*
9. Remove fascia. *See BODY, Interior trim components.*
10. Remove duct of outboard face level ventilator.
11. Remove headlining. *See BODY, Interior trim components.*
12. Remove windscreen. *See BODY, Screens.*
13. Remove treadplate from front door aperture. Release front carpet and position aside.
14. Remove front door aperture seal.
15. Remove engine bulkhead insulation.

For driver's side

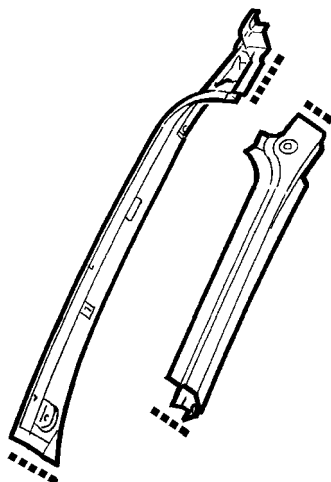
16. Remove passenger compartment fuse box.

Repair

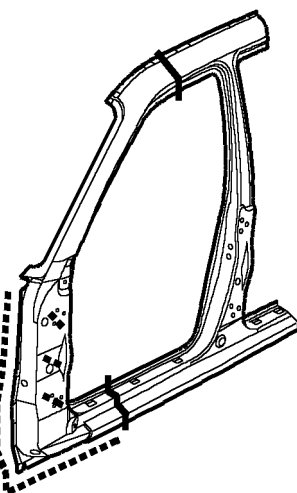
1. Remove existing panel(s), prepare panel joint faces and install new panel(s) in accordance with Panel Replacement Procedure. Punch or drill holes in new panel for plug welding as shown.



77M1595



77M1600



77M1647

Refit

For driver's side

1. Fit passenger compartment fuse box.

For both sides

2. Fit insulation pads to engine bulkhead.
3. Fit front door aperture seal.
4. Position front carpet and fit treadplate to front door aperture.
5. Fit headlining. *See BODY, Interior trim components.*
6. Fit windscreen. *See BODY, Screens.*
7. Fit duct of outboard face level ventilator.
8. Fit fascia. *See BODY, Interior trim components.*
9. Fit front seat. *See BODY, Seats and seat belts.*
10. Fit front door. *See BODY, Doors.*
11. Fit front wing. *See BODY, Exterior fittings.*
12. Fit front wheel arch liner. *See BODY, Exterior fittings.*
13. Fit road wheel(s) and tighten nuts to correct torque. *See INFORMATION, Torque wrench settings.*
14. Connect all ECUs.
15. Connect alternator. *See ELECTRICAL, Repairs.*
16. Connect battery earth lead.



SILL REINFORCEMENT - 3 DOOR



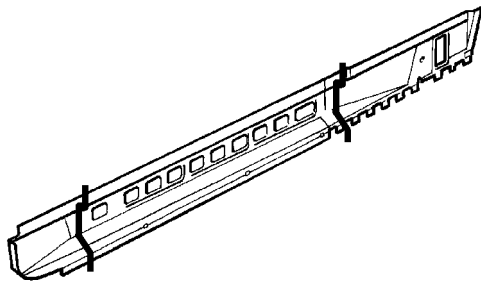
NOTE: In this procedure, the lower outer body side panel is replaced in conjunction with the sill reinforcement.

Remove

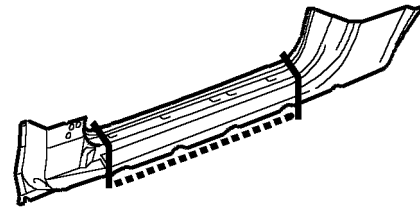
1. Disconnect battery earth lead.
2. Disconnect alternator. *See ELECTRICAL, Repairs.*
3. Disconnect all ECUs.
4. Remove road wheel(s).
5. Remove front wing. *See BODY, Exterior fittings.*
6. Remove front door. *See BODY, Doors.*
7. Remove front seat. *See BODY, Seats and seat belts.*
8. Remove rear seat. *See BODY, Seats and seat belts.*
9. Remove treadplate from front door aperture.
10. Remove side door aperture seal.
11. Remove rear body side casing. *See BODY, Interior trim components.*
12. Release carpet from inner sill and position aside.
13. Release vehicle harness from inner sill and position aside.

Repair

1. Remove existing panel(s), prepare panel joint faces and install new panel(s) in accordance with Panel Replacement Procedure. Punch or drill holes in new panel for plug welding as shown.



77M1631



77M1630

Refit

1. Secure vehicle harness to inner sill.
2. Position carpet to inner sill.
3. Fit rear body side casing. *See BODY, Interior trim components.*
4. Fit side door aperture seal(s).
5. Fit treadplate to side door aperture(s).
6. Fit rear seat. *See BODY, Seats and seat belts.*
7. Fit front seat. *See BODY, Seats and seat belts.*
8. Fit front door. *See BODY, Doors.*
9. Fit front wing. *See BODY, Exterior fittings.*
10. Fit road wheel(s) and tighten nuts to correct torque. *See INFORMATION, Torque wrench settings.*
11. Connect all ECUs.
12. Connect alternator. *See ELECTRICAL, Repairs.*
13. Connect battery earth lead.

PANEL REPAIRS

SILL REINFORCEMENT - 5 DOOR



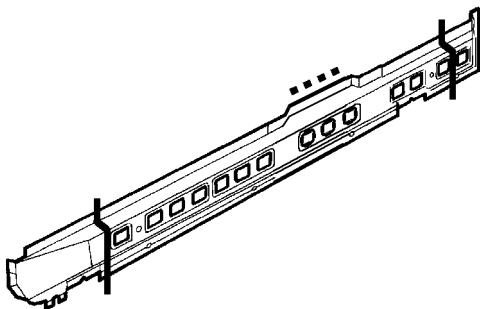
NOTE: In this procedure, the lower outer body side panel is replaced in conjunction with the sill reinforcement.

Remove

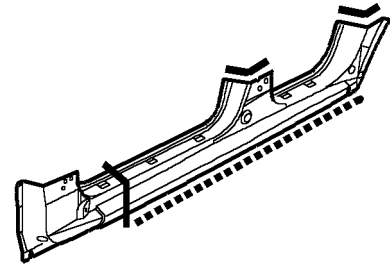
1. Disconnect battery earth lead.
2. Disconnect alternator. **See ELECTRICAL, Repairs.**
3. Disconnect all ECUs.
4. Remove road wheel(s).
5. Remove front wing. **See BODY, Exterior fittings.**
6. Remove front door. **See BODY, Doors.**
7. Remove rear door. **See BODY, Doors.**
8. Remove B/C post lower finisher. **See BODY, Interior trim components.**
9. Remove front seat. **See BODY, Seats and seat belts.**
10. Remove rear seat. **See BODY, Seats and seat belts.**
11. Remove treadplate from side door apertures.
12. Remove side door aperture seals.
13. Release carpet from inner sill and position aside.
14. Release vehicle harness from inner sill and position aside.

Repair

1. Remove existing panel(s), prepare panel joint faces and install new panel(s) in accordance with Panel Replacement Procedure. Punch or drill holes in new panel for plug welding as shown.



77M1602



77M1601

Refit

1. Secure vehicle harness to inner sill.
2. Position carpet to inner sill.
3. Fit side door aperture seals.
4. Fit treadplate to side door apertures.
5. Fit rear seat. **See BODY, Seats and seat belts.**
6. Fit front seat. **See BODY, Seats and seat belts.**
7. Fit B/C post lower finisher. **See BODY, Interior trim components.**
8. Fit rear door. **See BODY, Doors.**
9. Fit front door. **See BODY, Doors.**
10. Fit front wing. **See BODY, Exterior fittings.**
11. Fit road wheel(s) and tighten nuts to correct torque. **See INFORMATION, Torque wrench settings.**
12. Connect all ECUs.
13. Connect alternator. **See ELECTRICAL, Repairs.**
14. Connect battery earth lead.



'B/C' POST REINFORCEMENT - 3 DOOR

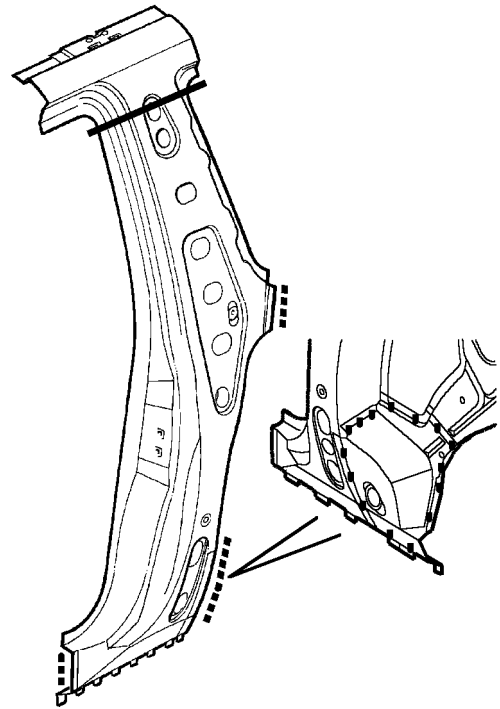
NOTE: In this procedure, the rear outer body side panel and the rear quarter front lower reinforcement are replaced in conjunction with the 'B/C' post reinforcement.

Remove

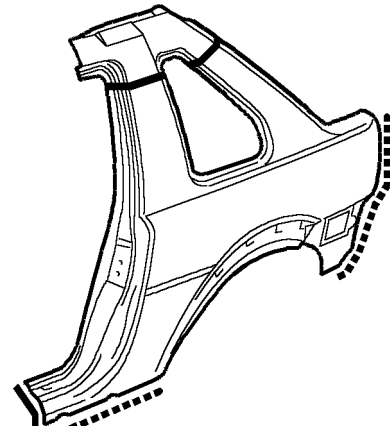
1. Disconnect battery earth lead.
2. Disconnect alternator. **See ELECTRICAL, Repairs.**
3. Disconnect all ECUs.
4. Remove road wheel(s).
5. Remove rear wheel arch extension. **See BODY, Exterior fittings.**
6. Remove rear wheel arch liner.
7. Remove front seat belt. **See RESTRAINT SYSTEMS, Repairs.**
8. Remove front door striker from B/C post.
9. Remove rear seat. **See BODY, Seats and seat belts.**
10. Remove rear body side casing. **See BODY, Interior trim components.**
11. Remove treadplate from side door aperture.
12. Remove side door aperture seal.
13. Release carpet from inner sill and position aside.
14. Remove rear quarter vent and seal. **See BODY, Exterior fittings.**
15. Remove rear roof panel finisher.
16. Remove headlining. **See BODY, Interior trim components.**
17. Release vehicle harness from inner sill and position aside.

Repair

1. Remove existing panel(s), prepare panel joint faces and install new panel(s) in accordance with Panel Replacement Procedure. Punch or drill holes in new panel for plug welding as shown.



77M1633



77M1629

PANEL REPAIRS

Refit

1. Secure vehicle harness to inner sill.
2. Fit headlining. **See BODY, Interior trim components.**
3. Fit rear roof panel finisher.
4. Fit seal and rear quarter vent. **See BODY, Exterior fittings.**
5. Secure carpet to inner sill.
6. Fit side door aperture seal.
7. Fit treadplate from side door aperture.
8. Fit rear body side casing. **See BODY, Interior trim components.**
9. Fit rear seat. **See BODY, Seats and seat belts.**
10. Fit front door striker to B/C post.
11. Fit front seat belt. **See RESTRAINT SYSTEMS, Repairs.**
12. Fit rear wheel arch liner.
13. Fit rear wheel arch extension. **See BODY, Exterior fittings.**
14. Fit road wheel(s) and tighten nuts to correct torque. **See INFORMATION, Torque wrench settings.**
15. Connect all ECUs.
16. Connect alternator. **See ELECTRICAL, Repairs.**
17. Connect battery earth lead.

'B/C' POST REINFORCEMENT - 5 DOOR



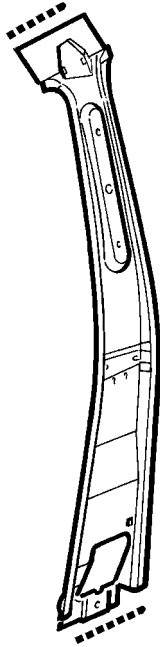
NOTE: In this procedure, the rear outer body side panel and the inner panel are replaced in conjunction with the 'B/C' post reinforcement.

Remove

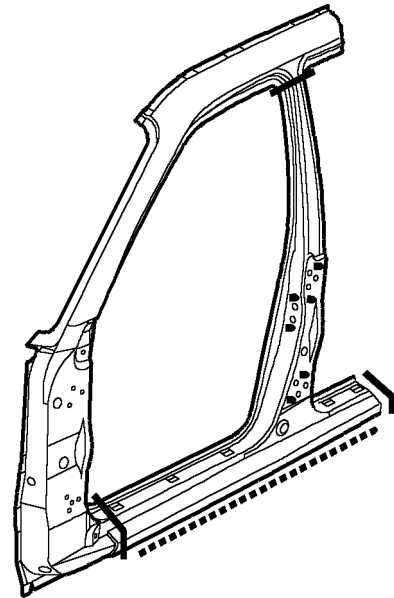
1. Disconnect battery earth lead.
2. Disconnect alternator. **See ELECTRICAL, Repairs.**
3. Disconnect all ECUs.
4. Remove rear door. **See BODY, Doors.**
5. Remove headlining. **See BODY, Interior trim components.**
6. Remove front seat belt. **See RESTRAINT SYSTEMS, Repairs.**
7. Remove B/C post lower finisher. **See BODY, Interior trim components.**
8. Remove front door striker from B/C post.
9. Remove front seat. **See BODY, Seats and seat belts.**
10. Remove rear seat. **See BODY, Seats and seat belts.**
11. Remove treadplate from side door aperture(s).
12. Remove side door aperture seal(s).
13. Release carpet from inner sill and position aside.
14. Release vehicle harness from inner sill and position aside.

Repair

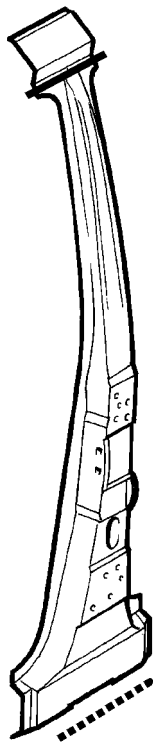
1. Remove existing panel(s), prepare panel joint faces and install new panel(s) in accordance with Panel Replacement Procedure. Punch or drill holes in new panel for plug welding as shown.



77M1597



77M1599



77M1598

Refit

1. Secure vehicle harness to inner sill.
2. Position carpet to inner sill.
3. Fit side door aperture seal(s).
4. Fit treadplate from side door aperture(s).
5. Fit rear seat. **See BODY, Seats and seat belts.**
6. Fit front seat. **See BODY, Seats and seat belts.**
7. Fit front door striker to B/C post.
8. Fit B/C post lower finisher. **See BODY, Interior trim components.**
9. Fit front seat belt. **See RESTRAINT SYSTEMS, Repairs.**
10. Fit headlining. **See BODY, Interior trim components.**
11. Fit rear door. **See BODY, Doors.**
12. Connect all ECUs.
13. Connect alternator. **See ELECTRICAL, Repairs.**
14. Connect battery earth lead.

PANEL REPAIRS

COMPLETE REAR QUARTER - 3 DOOR



NOTE: In this procedure, the rear outer body side panel is replaced in conjunction with the complete rear quarter.

Remove

1. Disconnect battery earth lead.
2. Disconnect alternator. **See ELECTRICAL, Repairs.**
3. Disconnect all ECUs.
4. Remove road wheel(s).
5. Remove sill lower finisher. **See BODY, Exterior fittings.**
6. Remove rear bumper valance. **See BODY, Exterior fittings.**
7. Remove rear wheel arch liner.
8. Remove door striker from 'B' post.
9. Remove treadplate from front door aperture.
10. Remove front door aperture seal.
11. Release carpet from inner sill and rear heelboard and position aside.
12. Remove soft/hard top.
13. Remove tail door aperture seal.
14. Remove rear roof panel finisher. **See BODY, Exterior fittings.**
15. Remove tail lamp. **See ELECTRICAL, Repairs.**
16. Remove rear quarter lower casing. **See BODY, Interior trim components.**
17. Remove rear quarter upper casing. **See BODY, Interior trim components.**
18. Remove rear side seat belt. **See RESTRAINT SYSTEMS, Repairs.**
19. Remove loadspace carpet. **See BODY, Interior trim components.**
20. Remove rear seat. **See BODY, Seats and seat belts.**
21. Remove rear body side casing. **See BODY, Interior trim components.**
22. Remove headlining. **See BODY, Interior trim components.**
23. Remove rear quarter vent and seal. **See BODY, Exterior fittings.**
24. Remove rear damper. **See REAR SUSPENSION, Repairs.**
25. Release vehicle harness from rear quarter and position aside.

For LH side

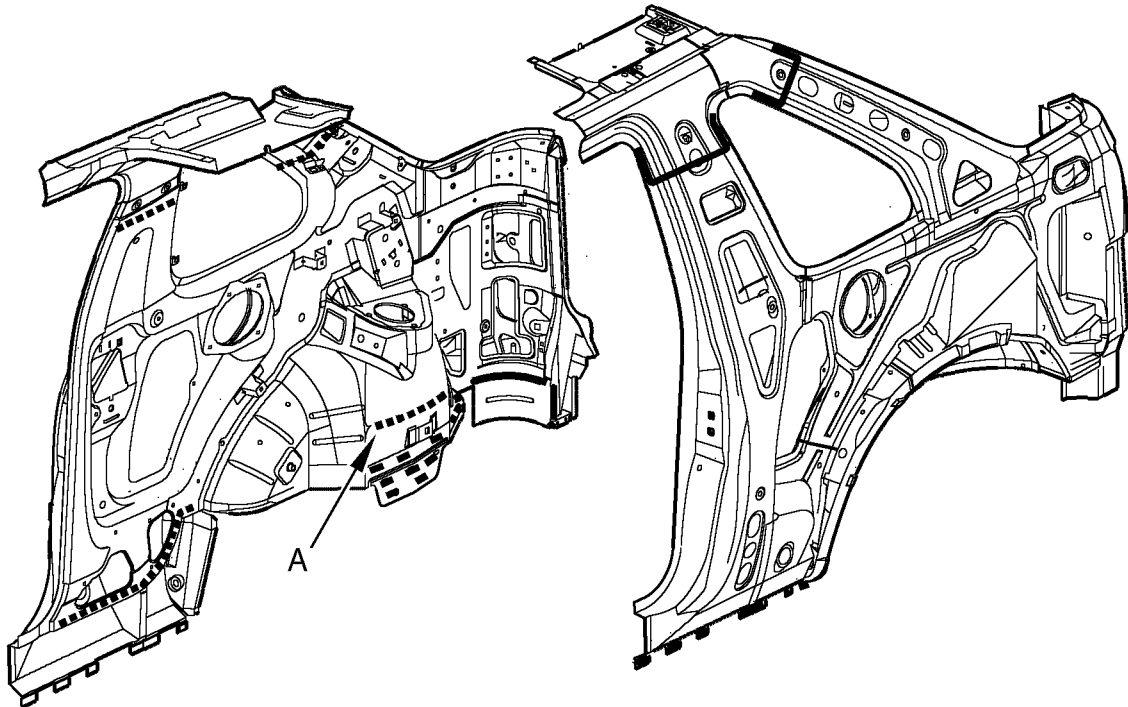
26. Remove tail door striker from 'E' post.

For RH side

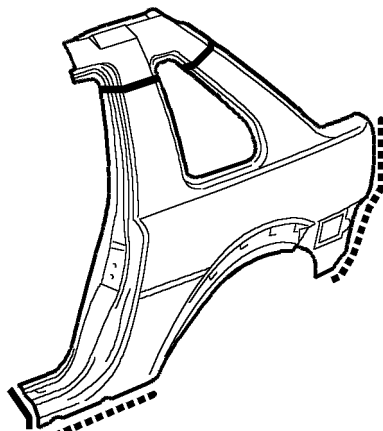
27. Remove tail door. **See BODY, Doors.**
28. Remove fuel filler neck. **See FUEL DELIVERY SYSTEM, Repairs.**
29. Remove fuel tank. **See FUEL DELIVERY SYSTEM, Repairs.**

Repair

1. Remove existing panel(s), prepare panel joint faces and install new panel(s) in accordance with Panel Replacement Procedure. Punch or drill holes in new panel for plug welding as shown.
2. Arrow A is shown to highlight the fact that there are plug welds on the other side of the inner wheelarch as well. These are to weld the rear longitudinal to the inner wheelarch.



77M1632



77M1629

Refit

For LH side

1. Fit tail door striker to 'E' post.

For RH side

2. Fit fuel tank. **See FUEL DELIVERY SYSTEM, Repairs.**
3. Fit fuel filler neck. **See FUEL DELIVERY SYSTEM, Repairs.**
4. Fit tail door. **See BODY, Doors.**

PANEL REPAIRS

For both sides

5. Secure vehicle harness to rear quarter.
6. Fit rear damper. **See REAR SUSPENSION, Repairs.**
7. Fit seal and rear quarter vent. **See BODY, Exterior fittings.**
8. Fit headlining. **See BODY, Interior trim components.**
9. Fit rear body side casing. **See BODY, Interior trim components.**
10. Fit rear seat. **See BODY, Seats and seat belts.**
11. Fit loadspace carpet. **See BODY, Interior trim components.**
12. Fit rear side seat belt. **See RESTRAINT SYSTEMS, Repairs.**
13. Fit rear quarter upper casing. **See BODY, Interior trim components.**
14. Fit rear quarter lower casing. **See BODY, Interior trim components.**
15. Fit tail lamp. **See ELECTRICAL, Repairs.**
16. Fit rear roof panel finisher. **See BODY, Exterior fittings.**
17. Fit tail door aperture seal.
18. Fit soft/hard top.
19. Secure carpet to inner sill and rear heelboard.
20. Fit front door aperture seal.
21. Fit treadplate to front door aperture.
22. Fit door striker to 'B' post.
23. Fit rear wheel arch liner.
24. Fit rear bumper valance. **See BODY, Exterior fittings.**
25. Fit sill lower finisher. **See BODY, Exterior fittings.**
26. Fit road wheel(s) and tighten nuts to correct torque. **See INFORMATION, Torque wrench settings.**
27. Connect all ECUs.
28. Connect alternator. **See ELECTRICAL, Repairs.**
29. Connect battery earth lead.

COMPLETE REAR QUARTER - 5 DOOR



NOTE: In this procedure, the rear outer body side panel is replaced in conjunction with the complete rear quarter.

Remove

1. Disconnect battery earth lead.
2. Disconnect alternator. **See ELECTRICAL, Repairs.**
3. Disconnect all ECUs.
4. Remove road wheel(s).
5. Remove sill lower finisher. **See BODY, Exterior fittings.**
6. Remove rear bumper valance. **See BODY, Exterior fittings.**
7. Remove rear wheel arch liner.
8. Remove rear door striker from 'D' post.
9. Remove treadplate from rear door aperture.
10. Remove rear door aperture seal.
11. Release carpet from inner sill and rear heelboard and position aside.
12. Remove tail door glass upper finisher. **See BODY, Doors.**
13. Remove tail door glass side finisher. **See BODY, Doors.**
14. Remove tail door aperture seal.
15. Remove roof panel finisher. **See BODY, Exterior fittings.**
16. Remove tail lamp. **See ELECTRICAL, Repairs.**
17. Remove rear quarter lower casing. **See BODY, Interior trim components.**
18. Remove rear quarter upper casing. **See BODY, Interior trim components.**
19. Remove rear side seat belt. **See RESTRAINT SYSTEMS, Repairs.**



20. Remove loadspace carpet. *See BODY, Interior trim components.*
21. Remove rear seat. *See BODY, Seats and seat belts.*
22. Remove headlining. *See BODY, Interior trim components.*
23. Remove rear body side glass. *See BODY, Screens.*
24. Remove rear damper. *See REAR SUSPENSION, Repairs.*
25. Release vehicle harness from rear quarter and position aside.

For LH side

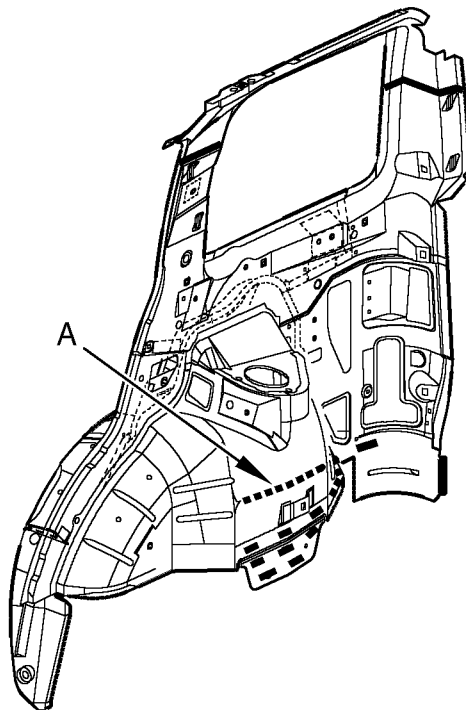
26. Remove tail door striker from 'E' post.

For RH side

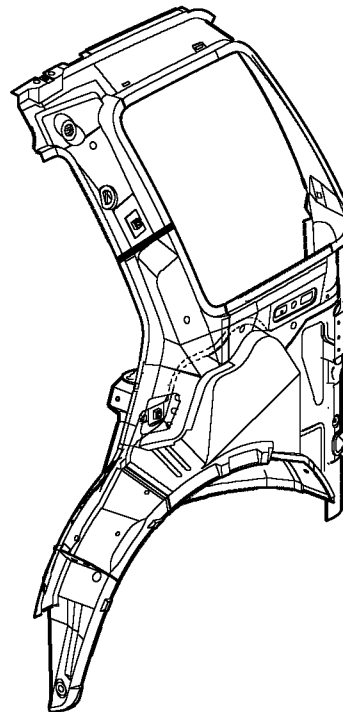
27. Remove tail door. *See BODY, Doors.*
28. Remove fuel filler neck. *See FUEL DELIVERY SYSTEM, Repairs.*
29. Remove fuel tank. *See FUEL DELIVERY SYSTEM, Repairs.*

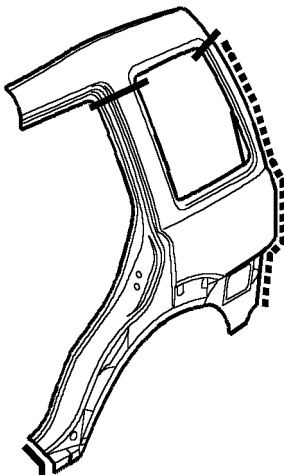
Repair

1. Remove existing panel(s), prepare panel joint faces and install new panel(s) in accordance with Panel Replacement Procedure. Punch or drill holes in new panel for plug welding as shown.
2. Arrow A is shown to highlight the fact that there are plug welds on the other side of the inner wheelarch as well. These are to weld the rear longitudinal to the inner wheelarch.



77M1638





77M1603

Refit

For LH side

1. Fit tail door striker to 'E' post.

For RH side

2. Fit fuel tank. *See FUEL DELIVERY SYSTEM, Repairs.*
3. Fit fuel filler neck. *See FUEL DELIVERY SYSTEM, Repairs.*
4. Fit tail door. *See BODY, Doors.*

For both sides

5. Secure vehicle harness to rear quarter.
6. Fit rear damper. *See REAR SUSPENSION, Repairs.*
7. Fit rear body side glass. *See BODY, Screens.*
8. Fit headlining. *See BODY, Interior trim components.*
9. Fit rear seat. *See BODY, Seats and seat belts.*
10. Fit loadspace carpet. *See BODY, Interior trim components.*
11. Fit rear side seat belt. *See RESTRAINT SYSTEMS, Repairs.*
12. Fit rear quarter upper casing. *See BODY, Interior trim components.*
13. Fit rear quarter lower casing. *See BODY, Interior trim components.*
14. Fit tail lamp. *See ELECTRICAL, Repairs.*
15. Fit roof panel finisher. *See BODY, Exterior fittings.*

16. Fit tail door aperture seal.
17. Fit tail door glass side finisher. *See BODY, Doors.*
18. Fit tail door glass upper finisher. *See BODY, Doors.*
19. Secure carpet to inner sill and rear heelboard.
20. Fit rear door aperture seal.
21. Fit treadplate to rear door aperture.
22. Fit rear door striker to 'D' post.
23. Fit rear wheel arch liner.
24. Fit rear bumper valance. *See BODY, Exterior fittings.*
25. Fit sill lower finisher. *See BODY, Exterior fittings.*
26. Fit road wheel(s) and tighten nuts to correct torque. *See INFORMATION, Torque wrench settings.*
27. Connect all ECUs.
28. Connect alternator. *See ELECTRICAL, Repairs.*
29. Connect battery earth lead.



OUTER REAR WHEEL ARCH - 3 DOOR



NOTE: In this procedure, the squab side reinforcement is replaced in conjunction with the outer rear wheel arch.

Remove

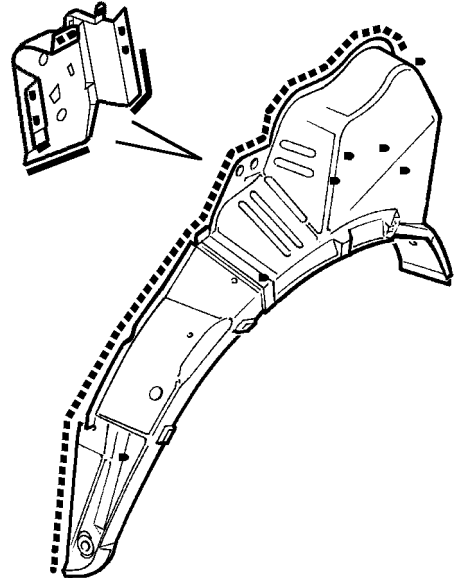
1. Disconnect battery earth lead.
2. Disconnect alternator. **See ELECTRICAL, Repairs.**
3. Disconnect all ECUs.
4. Remove road wheel(s).
5. Remove rear bumper valance. **See BODY, Exterior fittings.**
6. Remove rear wheel arch liner.
7. Remove rear quarter lower casing. **See BODY, Interior trim components.**
8. Remove rear seat. **See BODY, Seats and seat belts.**
9. Remove rear body side casing. **See BODY, Interior trim components.**
10. Remove rear damper. **See REAR SUSPENSION, Repairs.**

For RH side

11. Remove fuel filler neck. **See FUEL DELIVERY SYSTEM, Repairs.**
12. Remove fuel tank. **See FUEL DELIVERY SYSTEM, Repairs.**

Repair

1. Remove existing panel(s), prepare panel joint faces and install new panel(s) in accordance with Panel Replacement Procedure. Punch or drill holes in new panel for plug welding as shown.



77M1634

PANEL REPAIRS

Refit

For RH side

1. Fit fuel tank. *See FUEL DELIVERY SYSTEM, Repairs.*
2. Fit fuel filler neck. *See FUEL DELIVERY SYSTEM, Repairs.*

For both sides

3. Fit rear damper. *See REAR SUSPENSION, Repairs.*
4. Fit rear body side casing. *See BODY, Interior trim components.*
5. Fit rear seat. *See BODY, Seats and seat belts.*
6. Fit rear quarter lower casing. *See BODY, Interior trim components.*
7. Fit rear wheel arch liner.
8. Fit rear bumper valance. *See BODY, Exterior fittings.*
9. Fit road wheel(s) and tighten nuts to correct torque. *See INFORMATION, Torque wrench settings.*
10. Connect all ECUs.
11. Connect alternator. *See ELECTRICAL, Repairs.*
12. Connect battery earth lead.

OUTER REAR WHEEL ARCH - 5 DOOR

Remove

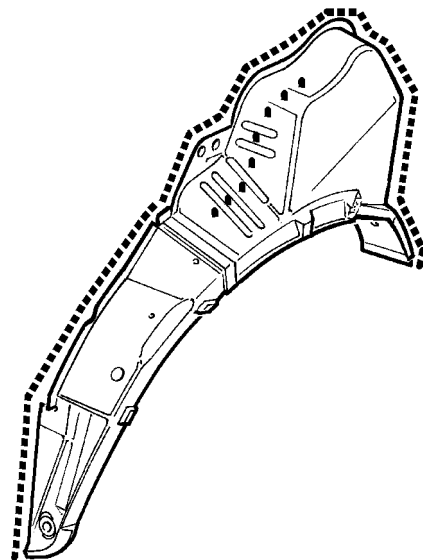
1. Disconnect battery earth lead.
2. Disconnect alternator. *See ELECTRICAL, Repairs.*
3. Disconnect all ECUs.
4. Remove road wheel(s).
5. Remove rear bumper valance. *See BODY, Exterior fittings.*
6. Remove rear wheel arch liner.
7. Remove rear quarter lower casing. *See BODY, Interior trim components.*
8. Remove rear seat. *See BODY, Seats and seat belts.*
9. Remove rear damper. *See REAR SUSPENSION, Repairs.*

For RH side

10. Remove fuel filler neck. *See FUEL DELIVERY SYSTEM, Repairs.*
11. Remove fuel tank. *See FUEL DELIVERY SYSTEM, Repairs.*

Repair

1. Remove existing panel(s), prepare panel joint faces and install new panel(s) in accordance with Panel Replacement Procedure. Punch or drill holes in new panel for plug welding as shown.



77M1627



Refit

For RH side

1. Fit fuel tank. **See FUEL DELIVERY SYSTEM, Repairs.**
2. Fit fuel filler neck. **See FUEL DELIVERY SYSTEM, Repairs.**

For both sides

3. Fit rear damper. **See REAR SUSPENSION, Repairs.**
4. Fit rear seat. **See BODY, Seats and seat belts.**
5. Fit rear quarter lower casing. **See BODY, Interior trim components.**
6. Fit rear wheel arch liner.
7. Fit rear bumper valance. **See BODY, Exterior fittings.**
8. Fit road wheel(s) and tighten nuts to correct torque. **See INFORMATION, Torque wrench settings.**
9. Connect all ECUs.
10. Connect alternator. **See ELECTRICAL, Repairs.**
11. Connect battery earth lead.

PANEL REPAIRS

INNER 'E' POST - 3 DOOR



NOTE: In this procedure, the rear outer body side panel and the rear body side reinforcement assembly is replaced in conjunction with the inner 'E' post assembly.

Remove

1. Disconnect battery earth lead.
2. Disconnect alternator. **See ELECTRICAL, Repairs.**
3. Disconnect all ECUs.
4. Remove road wheel(s).
5. Remove rear bumper valance. **See BODY, Exterior fittings.**
6. Remove rear wheel arch liner.
7. Remove tail lamp. **See ELECTRICAL, Repairs.**
8. Remove soft/hard top.
9. Remove tail door aperture seal.
10. Remove rear quarter lower casing. **See BODY, Interior trim components.**
11. Remove loadspace carpet. **See BODY, Interior trim components.**
12. Release vehicle harness from 'E' post and position aside.

For LH side

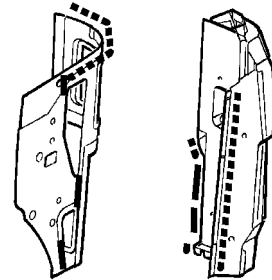
13. Remove tail door striker.

For RH side

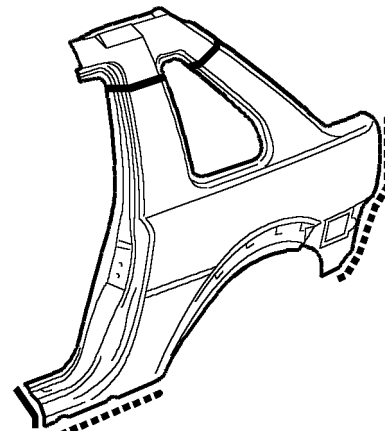
14. Remove tail door. **See BODY, Doors.**
15. Remove fuel filler neck. **See FUEL DELIVERY SYSTEM, Repairs.**
16. Remove fuel tank. **See FUEL DELIVERY SYSTEM, Repairs.**

Repair

1. Remove existing panel(s), prepare panel joint faces and install new panel(s) in accordance with Panel Replacement Procedure. Punch or drill holes in new panel for plug welding as shown.



77M1635



77M1629



Refit

For LH side

1. Fit tail door striker.

For RH side

2. Fit fuel tank. **See FUEL DELIVERY SYSTEM, Repairs.**
3. Fit fuel filler neck. **See FUEL DELIVERY SYSTEM, Repairs.**
4. Fit tail door. **See BODY, Doors.**

For both sides

5. Secure vehicle harness to 'E' post.
6. Fit loadspace carpet. **See BODY, Interior trim components.**
7. Fit rear quarter lower casing. **See BODY, Interior trim components.**
8. Fit tail door aperture seal.
9. Fit soft/hard top.
10. Fit tail lamp. **See ELECTRICAL, Repairs.**
11. Fit rear wheel arch liner.
12. Fit rear bumper valance. **See BODY, Exterior fittings.**
13. Fit road wheel(s) and tighten nuts to correct torque. **See INFORMATION, Torque wrench settings.**
14. Connect all ECUs.
15. Connect alternator. **See ELECTRICAL, Repairs.**
16. Connect battery earth lead.

PANEL REPAIRS

INNER 'E' POST - 5 DOOR



NOTE: In this procedure, the rear outer body side panel and the rear body side reinforcement assembly is replaced in conjunction with the inner 'E' post assembly.

Remove

1. Disconnect battery earth lead.
2. Disconnect alternator. **See ELECTRICAL, Repairs.**
3. Disconnect all ECUs.
4. Remove road wheel(s).
5. Remove rear bumper valance. **See BODY, Exterior fittings.**
6. Remove rear wheel arch liner.
7. Remove tail lamp. **See ELECTRICAL, Repairs.**
8. Remove roof panel finisher. **See BODY, Exterior fittings.**
9. Remove tail door glass upper finisher. **See BODY, Doors.**
10. Remove tail door glass side finisher. **See BODY, Doors.**
11. Remove tail door aperture seal.
12. Remove rear quarter lower casing. **See BODY, Interior trim components.**
13. Remove rear quarter upper casing. **See BODY, Interior trim components.**
14. Remove loadspace carpet. **See BODY, Interior trim components.**
15. Remove rear body side glass. **See BODY, Screens.**
16. Release vehicle harness from 'E' post and position aside.

For LH side

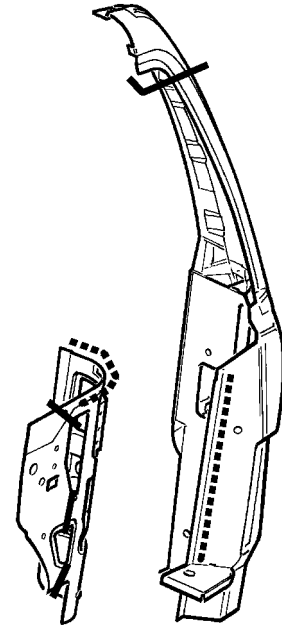
17. Remove tail door striker.

For RH side

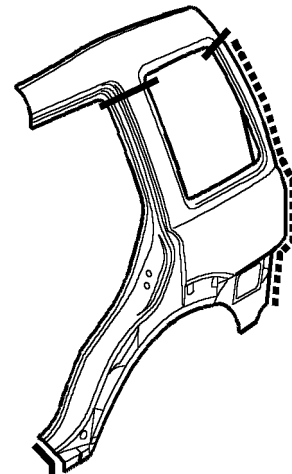
18. Remove tail door. **See BODY, Doors.**
19. Remove fuel filler neck. **See FUEL DELIVERY SYSTEM, Repairs.**
20. Remove fuel tank. **See FUEL DELIVERY SYSTEM, Repairs.**

Repair

1. Remove existing panel(s), prepare panel joint faces and install new panel(s) in accordance with Panel Replacement Procedure. Punch or drill holes in new panel for plug welding as shown.



77M1640



77M1603



Refit

For LH side

1. Fit tail door striker.

For RH side

2. Fit fuel tank. **See FUEL DELIVERY SYSTEM, Repairs.**
3. Fit fuel filler neck. **See FUEL DELIVERY SYSTEM, Repairs.**
4. Fit tail door. **See BODY, Doors.**

For both sides

5. Secure vehicle harness to 'E' post.
6. Fit rear body side glass. **See BODY, Screens.**
7. Fit loadspace carpet. **See BODY, Interior trim components.**
8. Fit rear quarter upper casing. **See BODY, Interior trim components.**
9. Fit rear quarter lower casing. **See BODY, Interior trim components.**
10. Fit tail door aperture seal.
11. Fit tail door glass side finisher. **See BODY, Doors.**
12. Fit tail door glass upper finisher. **See BODY, Doors.**
13. Fit roof panel finisher. **See BODY, Exterior fittings.**
14. Fit tail lamp. **See ELECTRICAL, Repairs.**
15. Fit rear wheel arch liner.
16. Fit rear bumper valance. **See BODY, Exterior fittings.**
17. Fit road wheel(s) and tighten nuts to correct torque. **See INFORMATION, Torque wrench settings.**
18. Connect all ECUs.
19. Connect alternator. **See ELECTRICAL, Repairs.**
20. Connect battery earth lead.

PANEL REPAIRS

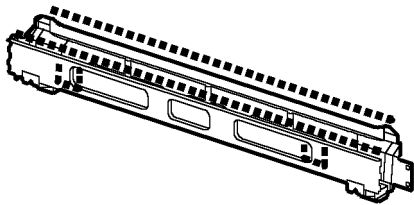
REAR FLOOR CROSSMEMBER ASSEMBLY

Remove

1. Disconnect battery earth lead.
2. Disconnect alternator. *See ELECTRICAL, Repairs.*
3. Disconnect all ECUs.
4. Remove tail door. *See BODY, Doors.*
5. Remove tail door aperture seal.
6. Remove LH and RH rear quarter lower casings. *See BODY, Interior trim components.*
7. Remove loadspace carpet. *See BODY, Interior trim components.*
8. Release vehicle harness from rear body lower closing and position aside.

Repair

1. Remove existing panel(s), prepare panel joint faces and install new panel(s) in accordance with Panel Replacement Procedure. Punch or drill holes in new panel for plug welding as shown.



77M1606

Refit

1. Secure vehicle harness to rear body lower closing.
2. Fit loadspace carpet. *See BODY, Interior trim components.*
3. Fit LH and RH rear quarter lower casings. *See BODY, Interior trim components.*
4. Fit tail door aperture seal.
5. Fit tail door. *See BODY, Doors.*
6. Connect all ECUs.
7. Connect alternator. *See ELECTRICAL, Repairs.*
8. Connect battery earth lead.



REAR FLOOR

Remove



NOTE: In this procedure, the inner quarter to rear floor gussets are replaced in conjunction with the rear floor.

If required, the safe well can be replaced separately.

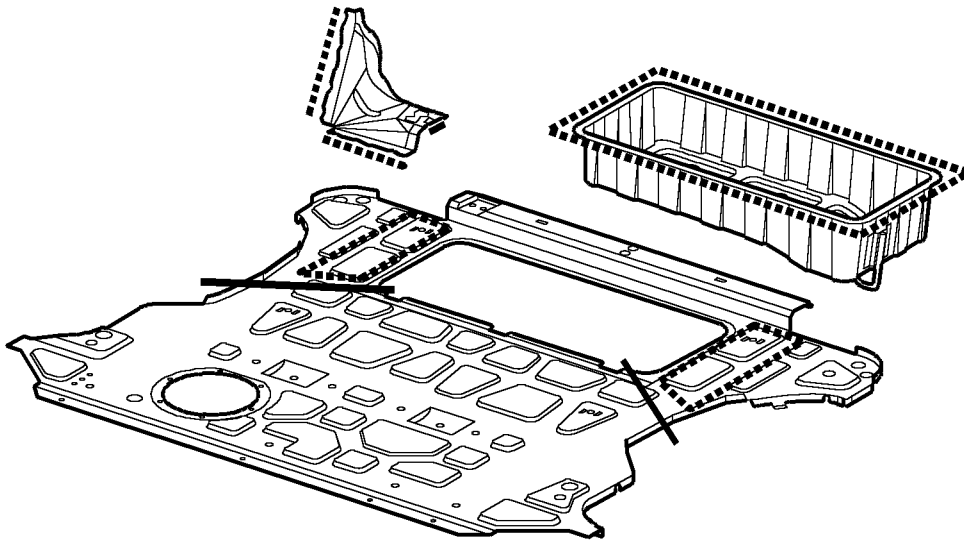
1. Disconnect battery earth lead.
2. Disconnect alternator. *See ELECTRICAL, Repairs.*
3. Disconnect all ECUs.
4. Remove tail exhaust pipe. *See MANIFOLD & EXHAUST SYSTEMS, Repairs.*
5. Remove tail door. *See BODY, Doors.*
6. Remove tail door aperture seal.
7. Remove LH and RH rear quarter lower casings. *See BODY, Interior trim components.*
8. Remove loadspace carpet. *See BODY, Interior trim components.*
9. Remove fuel tank. *See FUEL DELIVERY SYSTEM, Repairs.*
10. Release vehicle harness from rear body lower closing and position aside.

Repair

1. Remove existing panel(s), prepare panel joint faces and install new panel(s) in accordance with Panel Replacement Procedure. Punch or drill holes in new panel for plug welding as shown.

Refit

1. Secure vehicle harness to rear body lower closing.
2. Fit fuel tank. *See FUEL DELIVERY SYSTEM, Repairs.*
3. Fit loadspace carpet. *See BODY, Interior trim components.*
4. Fit LH and RH rear quarter lower casings. *See BODY, Interior trim components.*
5. Fit tail door aperture seal.
6. Fit tail door. *See BODY, Doors.*
7. Fit tail exhaust pipe. *See MANIFOLD & EXHAUST SYSTEMS, Repairs.*
8. Connect all ECUs.
9. Connect alternator. *See ELECTRICAL, Repairs.*
10. Connect battery earth lead.



77M1607

PANEL REPAIRS

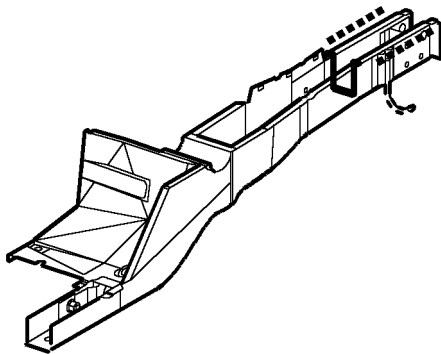
FLOOR LONGITUDINAL

Remove

1. Disconnect battery earth lead.
2. Disconnect alternator. *See ELECTRICAL, Repairs.*
3. Disconnect all ECUs.
4. Remove tail exhaust pipe. *See MANIFOLD & EXHAUST SYSTEMS, Repairs.*
5. Remove tail door. *See BODY, Doors.*
6. Remove tail door aperture seal.
7. Remove LH and RH rear quarter lower casings. *See BODY, Interior trim components.*
8. Remove loadspace carpet. *See BODY, Interior trim components.*
9. Remove fuel tank. *See FUEL DELIVERY SYSTEM, Repairs.*
10. Release vehicle harness from rear body lower closing and position aside.

Repair

1. Remove existing panel(s), prepare panel joint faces and install new panel(s) in accordance with Panel Replacement Procedure. Punch or drill holes in new panel for plug welding as shown.



77M1604

Refit

1. Secure vehicle harness to rear body lower closing.
2. Fit fuel tank. *See FUEL DELIVERY SYSTEM, Repairs.*
3. Fit loadspace carpet. *See BODY, Interior trim components.*
4. Fit LH and RH rear quarter lower casings. *See BODY, Interior trim components.*
5. Fit tail door aperture seal.
6. Fit tail door. *See BODY, Doors.*
7. Fit tail exhaust pipe. *See MANIFOLD & EXHAUST SYSTEMS, Repairs.*
8. Connect all ECUs.
9. Connect alternator. *See ELECTRICAL, Repairs.*
10. Connect battery earth lead.



FRONT ROOF ASSEMBLY - 3 DOOR

Remove

1. Disconnect battery earth lead.
2. Disconnect alternator. **See *ELECTRICAL, Repairs.***
3. Disconnect all ECUs.
4. Remove LH and RH front roof panel finishers.
5. Remove headlining. **See *BODY, Interior trim components.***
6. Remove sunroof assembly. **See *BODY, Sunroof.***
7. Remove windscreen. **See *BODY, Screens.***

Repair

1. Remove existing panel(s), prepare panel joint faces and install new panel(s) in accordance with Panel Replacement Procedure.

Refit

1. Fit windscreen. **See *BODY, Screens.***
2. Fit sunroof. **See *BODY, Sunroof.***
3. Fit headlining. **See *BODY, Interior trim components.***
4. Fit LH and RH front roof panel finishers.
5. Connect all ECUs.
6. Connect alternator. **See *ELECTRICAL, Repairs.***
7. Connect battery earth lead.

REAR ROOF ASSEMBLY - 3 DOOR

Remove

1. Disconnect battery earth lead.
2. Disconnect alternator. **See *ELECTRICAL, Repairs.***
3. Disconnect all ECUs.
4. Remove soft/hard top.
5. Remove LH and RH rear roof panel finishers.
6. Remove headlining. **See *BODY, Interior trim components.***
7. Remove sunroof. **See *BODY, Sunroof.***
8. Remove aerial. **See *ELECTRICAL, Repairs.***

Repair

1. Remove existing panel(s), prepare panel joint faces and install new panel(s) in accordance with Panel Replacement Procedure.

Refit

1. Fit aerial. **See *ELECTRICAL, Repairs.***
2. Fit sunroof. **See *BODY, Sunroof.***
3. Fit headlining. **See *BODY, Interior trim components.***
4. Fit LH and RH rear roof panel finishers.
5. Fit soft/hard top.
6. Connect all ECUs.
7. Connect alternator. **See *ELECTRICAL, Repairs.***
8. Connect battery earth lead.

PANEL REPAIRS

ROOF ASSEMBLY - 5 DOOR

Remove

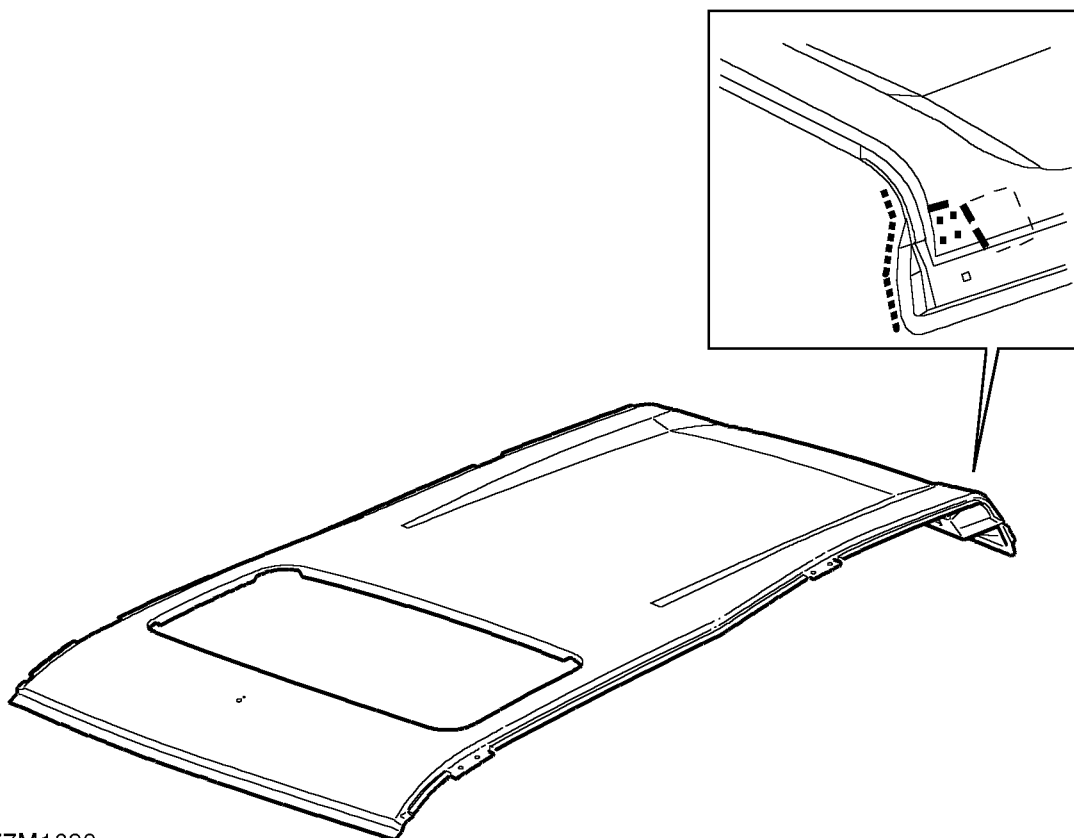
1. Disconnect battery earth lead.
2. Disconnect alternator. *See ELECTRICAL, Repairs.*
3. Disconnect all ECUs.
4. Remove tail door glass upper finisher. *See BODY, Doors.*
5. Remove LH and RH roof panel finishers. *See BODY, Exterior fittings.*
6. Remove headlining. *See BODY, Interior trim components.*
7. If applicable, remove sunroof. *See BODY, Sunroof.*
8. Remove aerial. *See ELECTRICAL, Repairs.*
9. Remove windscreen. *See BODY, Screens.*

Repair

1. Remove existing panel(s), prepare panel joint faces and install new panel(s) in accordance with Panel Replacement Procedure. Punch or drill holes in new panel for plug welding as shown.

Refit

1. Fit windscreen. *See BODY, Screens.*
2. Fit aerial. *See ELECTRICAL, Repairs.*
3. If applicable, fit sunroof. *See BODY, Sunroof.*
4. Fit headlining. *See BODY, Interior trim components.*
5. Fit LH and RH roof panel finishers. *See BODY, Exterior fittings.*
6. Fit tail door glass upper finisher. *See BODY, Doors.*
7. Connect all ECUs.
8. Connect alternator. *See ELECTRICAL, Repairs.*
9. Connect battery earth lead.



77M1628



OUTER BODY SIDE ASSEMBLY

For weld details, and components to remove for access during replacement, of the outer body side assembly, see 'A' post, 'B/C post, sill and rear quarter repair procedures.

PANEL REPAIRS

TIME SCHEDULES

The following information shows the total time taken to replace single panels and complete assemblies. This time includes removal of Mechanical, Electrical and Trim (MET) items, plus paint times based on Metallic Clear Over Base Paint.

The times shown were generated by Thatcham (the Motor Insurance Repair and Research Centre) and are to be used as a guide only.

Panel/assembly panel replacement times

5 Door

Panel Description	Total time
Body side LH	29.4
Body side RH	31.5
Bonnet	7.2
Bonnet locking platform	7.0
Door front - each	8.4
Door rear - each	8.1
Door skin front - each	12.2
Door skin rear - each	11.2
Front bulkhead assembly	12.7
Front lower crossmember	8.5
Headlamp mounting panel	6.4
Rear floor crossmember assembly	9.5
Roof assembly	23.5
Bodyside lower outer LH	16.8
Bodyside lower outer RH	16.9
Taildoor	9.0
Wing	6.9
Bodyside rear outer LH	19.3
Bodyside rear outer RH	21.5



Combination panel replacement times

The following panel combination times show the total time to remove/refit body panels, MET items and any paint processes.

5 Door - Front end combination panel times

Panel Description	Total Time
Bonnet locking platform Bumper front Headlamp mounting panel Wing	15.3
Bumper front Front Panel assembly Wing RH & LH	20.6
Bonnet locking platform Bumper front Sidemember closing panel Sidemember front section Front crossmember lower Headlamp mounting panel Wing Valance upper assembly section Valance outer reinforcement section	35.7 LH 37.9 RH
Bumper front Sidemember closing panel LH front Sidemember closing panel RH front Sidemember complete assembly LH Sidemember complete assembly RH Front bulkhead assembly Wing LH & RH Valance upper assembly LH & RH Valance outer reinforcement section LH & RH	49.1
Bonnet locking platform Bumper front Sidemember closing panel section Sidemember front section Front crossmember lower Headlamp mounting panel Valance front section Wing Valance upper assembly section Valance outer reinforcement section	27.1 LH 27.7 RH

PANEL REPAIRS

5 door - Bodyside combination panel times

Panel description	Total time
Front door Wing	11.6
Rear door Rear outer bodyside panel	23.4 LH 25.7 RH
Front door Rear door Lower outer bodyside panel	26.1 LH 26.2 RH
Front door Rear door Bodyside assembly Wing	40.5 LH 42.9 RH
Front door Front outer bodyside panel A-post reinforcement Windscreen Wing Valance outer reinforcement rear section	34.1 LH 35.5 RH

5 door - Rear end combination panel times

Panel description	Total time
Rear bumper Rear outer bodyside panel E-post inner assembly Gusset rear floor Crossmember assembly rear floor	31.2 LH 33.4 RH
Rear bumper Rear outer bodyside panel LH & RH E-post inner assembly LH & RH Gusset rear floor LH & RH Crossmember assembly rear floor	51.2
Rear bumper Rear outer bodyside panel E-post inner assembly Quarter complete rear assembly Gusset rear floor Crossmember assembly rear floor Longitudinal rear section Rear floor panel	44.7 LH 46.8 RH
Rear bumper Rear outer bodyside panel LH & RH E-post inner assembly LH & RH Quarter complete rear assembly LH & RH Gusset rear floor LH & RH Crossmember assembly rear floor Longitudinal rear section LH & RH Rear floor panel	69.2



Panel/assembly replacement times

3 Door

Panel Description	Total time
Body side LH	30.1
Body side RH	31.9
Door front - each	8.9
Door rear - each	8.1
Door skin front - each	12.9
Front bulkhead assembly	12.6
Crossmember assembly rear floor	12.1
Roof assembly	19.9
Bodyside lower outer LH	14
Bodyside lower outer RH	14.1
Bodyside rear outer LH	22.4
Bodyside rear outer RH	24.3

Combination panel replacement times

3 Door - Front end combination times will be the same as 5 door models.

3 Door - Bodyside combination panel times

Panel description	Total time
Front door Wing	12.2
Front door Rear outer bodyside panel	27.2 LH 29.7 RH
Front door Bodyside assembly	34.6 LH 36.4 RH
Front door Bodyside assembly Wing	37.7 LH 40.2 RH
Front door Front outer bodyside panel A-post reinforcement Windscreen Wing Valance outer reinforcement rear section	33.8 LH 35.1 RH

PANEL REPAIRS

3 Door - Rear end combination panel times

Panel description	Total time
Rear bumper Rear outer bodyside panel E-post inner assembly Gusset rear floor Crossmember assembly rear floor	34.4 LH 36.7 RH
Rear bumper Rear outer bodyside panel LH & RH E-post inner assembly LH & RH Gusset rear floor LH & RH Crossmember assembly rear floor	54.8
Rear bumper Rear outer bodyside panel E-post inner assembly Quarter complete rear assembly Gusset rear floor Crossmember assembly rear floor Longitudinal rear section Rear floor panel	49 LH 50.6 RH
Rear bumper Rear outer bodyside panel LH & RH E-post inner assembly LH & RH Quarter complete rear assembly LH & RH Gusset rear floor LH & RH Crossmember assembly rear floor Longitudinal rear section LH & RH Rear floor panel	75.3