
SECTION 501-00 Body System

VEHICLE APPLICATION: X100

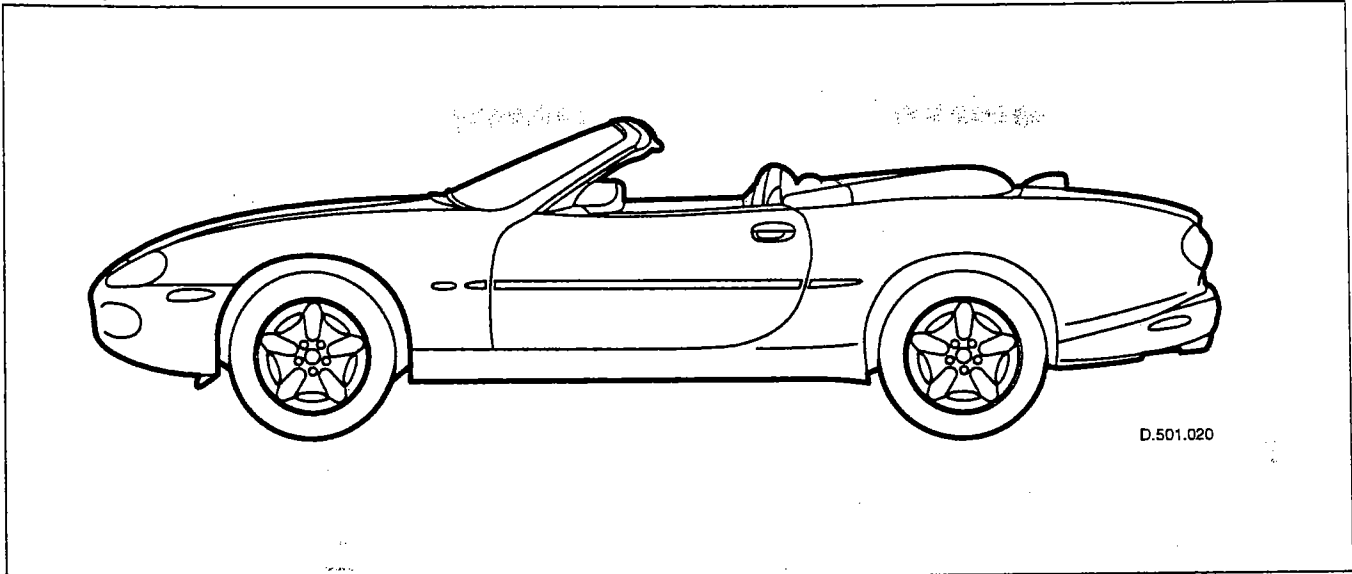
SUBJECT

PAGE

DESCRIPTION AND OPERATION

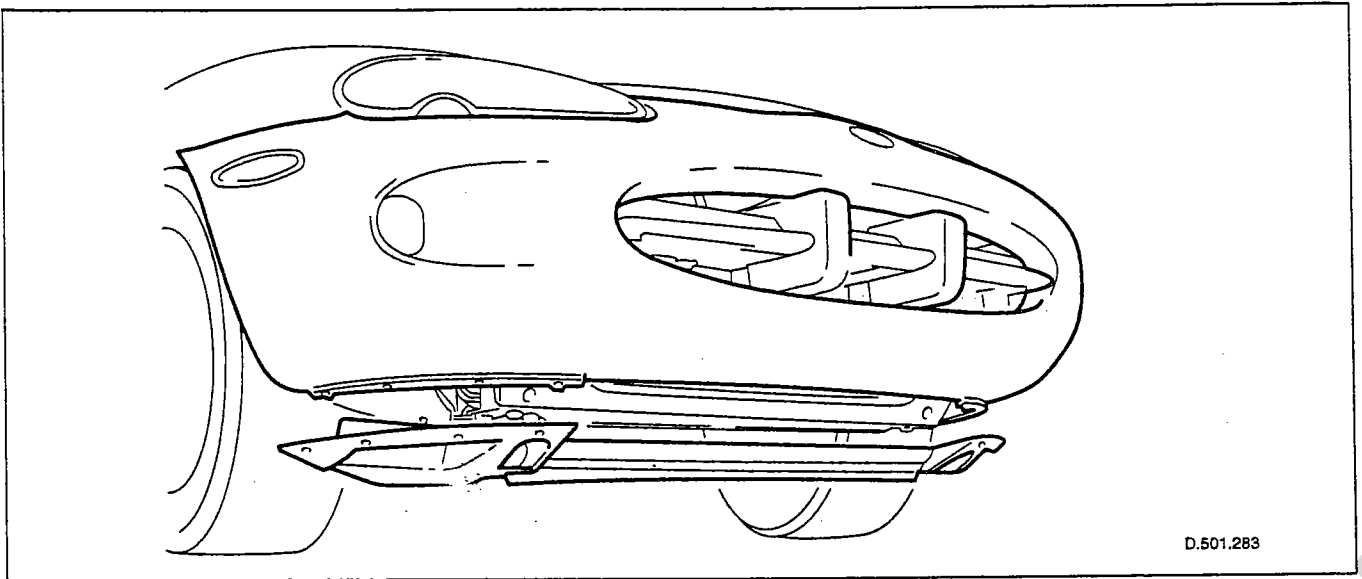
Body System 501-00-2

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DESCRIPTION AND OPERATION**Body System**

The X100 is produced in two door coupe and convertible styles.

The convertible body style is a cut-down version of the coupe with tubular internal sill reinforcements and additional structure to suit.

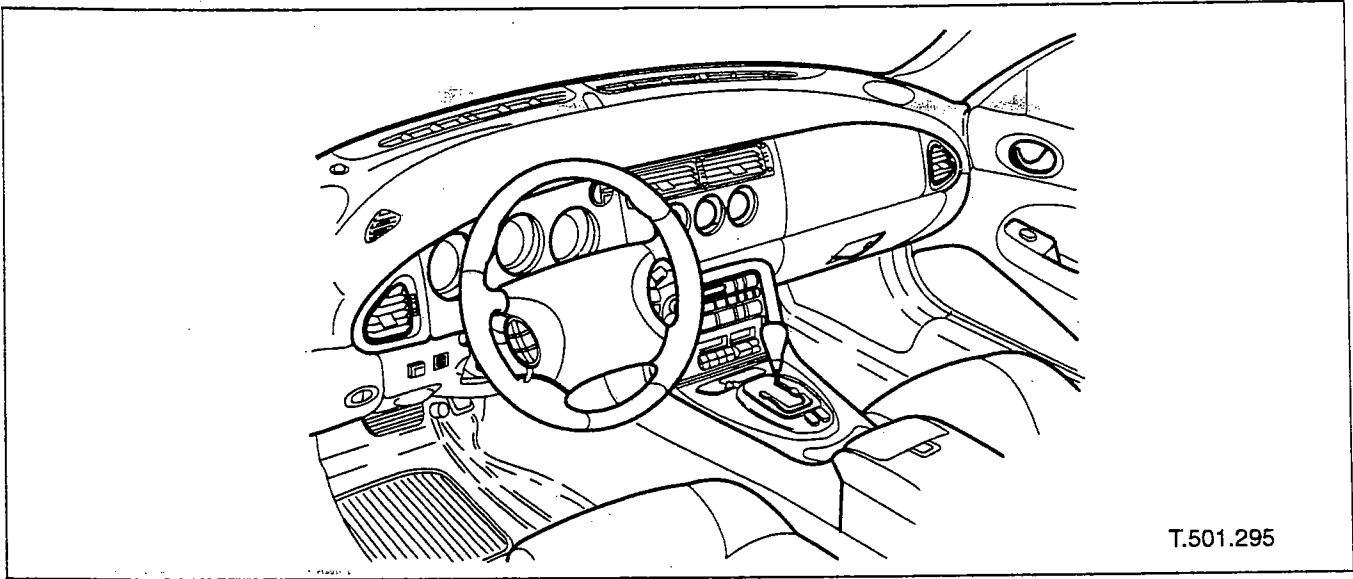
DESCRIPTION AND OPERATION (Continued)**Front**

The hood is hinged at the front and supported by two non-locking gas struts when open. Hood release is by a lever located at the LHS 'A' post.

The front bumper beam is in a GMT material or aluminum for N. American markets, and covered in polyurethane. N. American models also have energy absorbing strut mountings. Valance reinforcement is provided for front fender mounting.

The front fenders are common parts to both coupe and convertible. There is a chrome-plated splitter vane with twin polyurethane overrides fitted within the front air intake.

The front fenders carry Jaguar badges and direction indicator repeaters. A single front towing eye stored in the trunk, screws in to either the left- or right-hand side of the lower cross member.

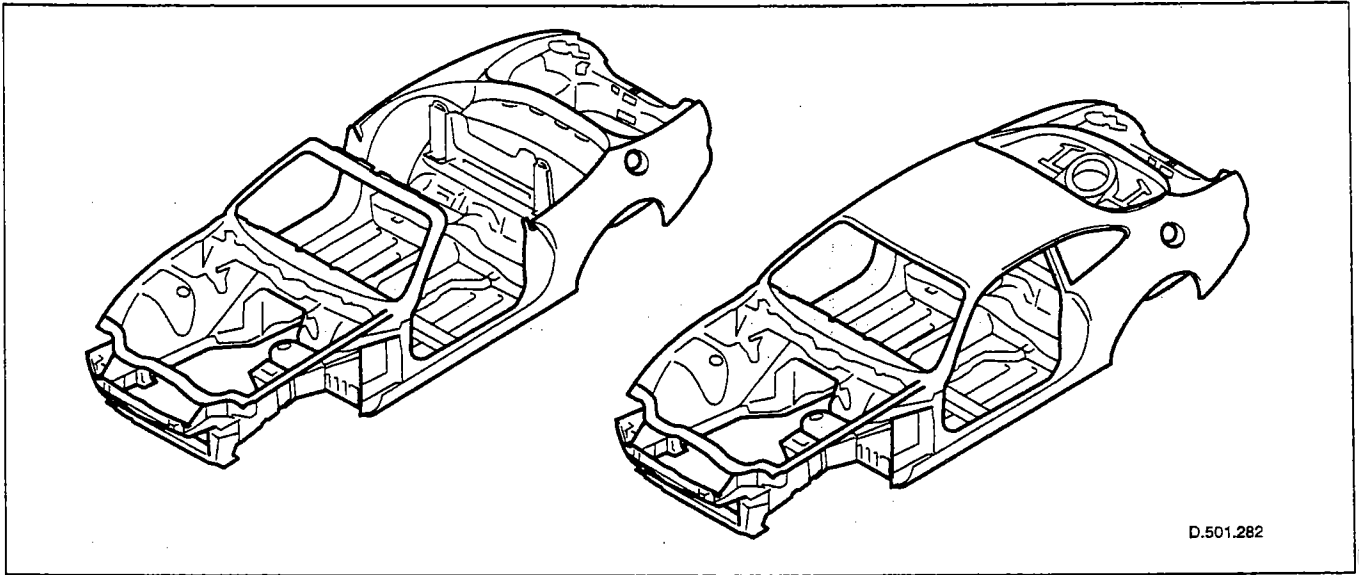
DESCRIPTION AND OPERATION (Continued)**Center**

The full width injection moulded fascia matches the 'A' posts and windshield valance assembly. Faced with a walnut burr veneer, it houses instrument panels appropriate to the market, and air conditioning vents

The toeboard supports the steering column and air conditioning unit casing.

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DESCRIPTION AND OPERATION (Continued)



D.501.282

Sill inners in the convertible have additional sill tubes for added rigidity.

'A' post inners support the windshield and body side assemblies. The coupe body sides are one-piece assemblies each incorporating part of the outer sill, 'A' and 'B' posts and cantrail reinforcement and are joined to the rear tonneau.

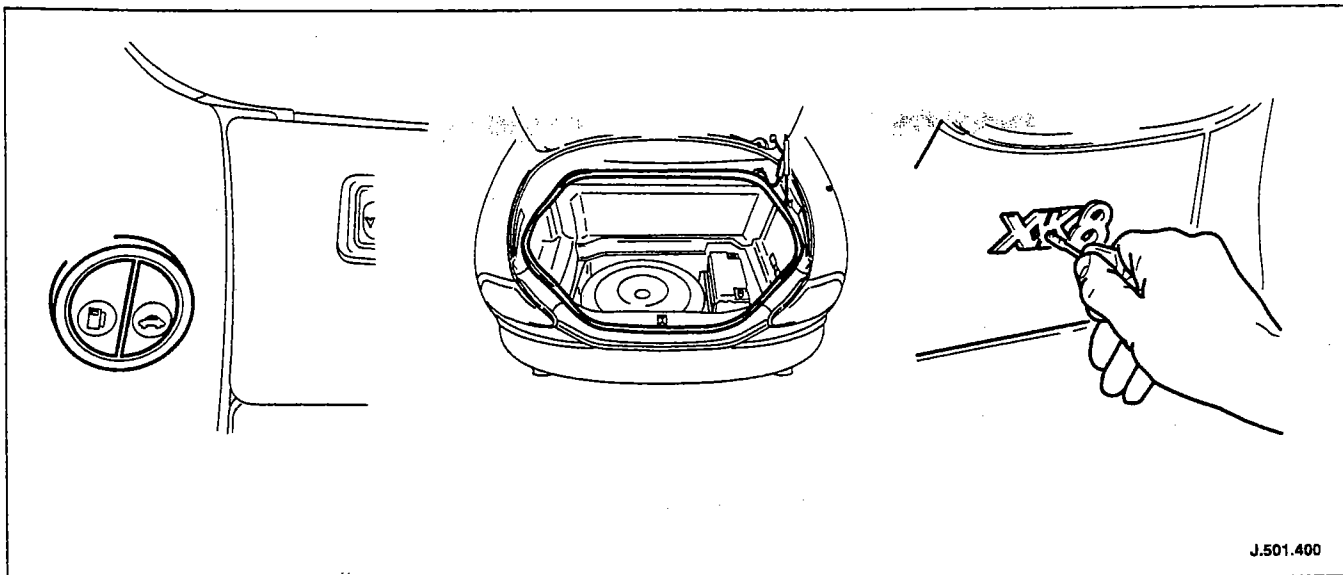
The convertible has cropped coupe monosides with the outer wheel arches bonded to the tonneau. Both treadplates are bright finish with the car designation, Jaguar XK8, inscription added. To accommodate the folded top, the convertible rear seats are of a dedicated design and are not interchangeable with the coupe seats.

A one-piece soft tonneau cover, color keyed to the vehicle interior and secured by two Tenax fasteners, two velcro pads and two press studs, is retained by the trunk lid when in place. It is stowed in a bag on the front face of the trunk.

The coupe rear parcel shelf is trimmed in headlining cloth. It has provision for air extraction and has child seat anchorage points. For some markets, the rear parcel shelf also incorporates a high mounted stop light cover. Acoustic cloth covered speakers, courtesy lamps, integral armrests and stowage trays are incorporated in the coupe one-piece, moulded rear quarter casing.

The convertible rear quarter casing is similar to the coupe but does not have armrests fitted. The body has two-piece, LHS and RHS, carpets joined at the center console. Single color moulded carpets are fitted to the trunk. The coupe roof is trimmed in a one-piece moulded 6 mm thick cloth headlining supported by four body tangs, sun visor fixings at the front, and the rear quarter casings at the rear.

The header console incorporates two courtesy lamps and switched map lights. The convertible has a padded serviceable headlining and header console. On some market versions, garage door opener switches are also fitted in the header console.

DESCRIPTION AND OPERATION (Continued)**Rear**

A welded double loop rear towing eye is installed on the right hand rear corner of the luggage floor.

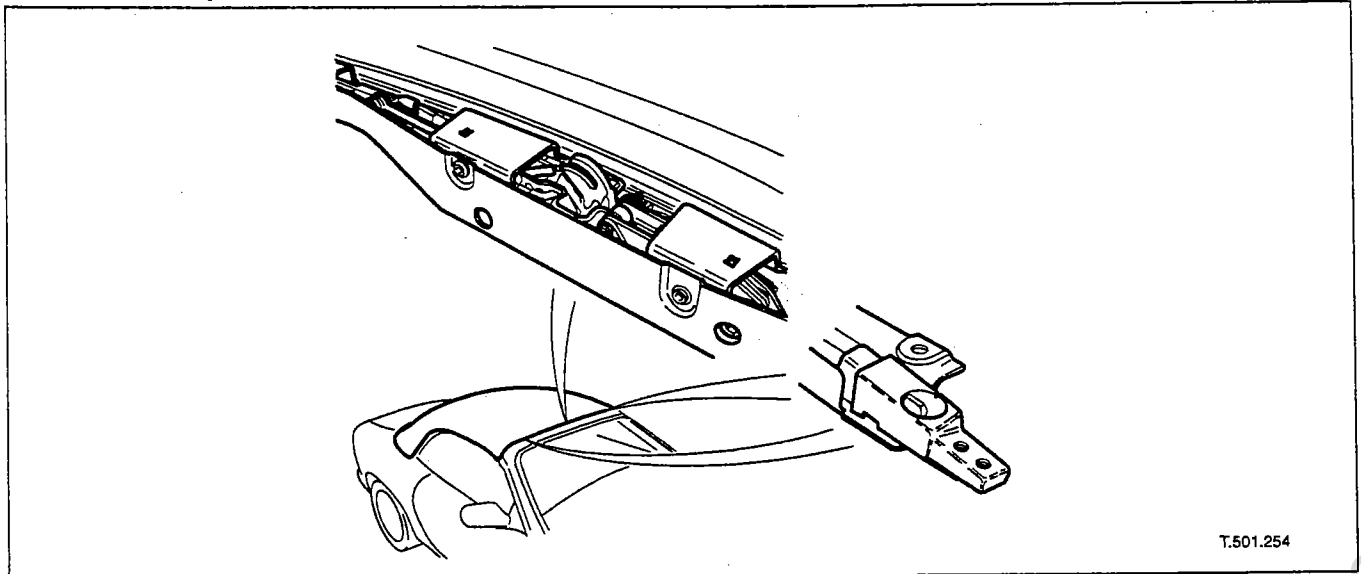
The trunk lid which is dedicated either to the coupe or the convertible, consists of inner and outer panels clinched together to minimise welding requirements. For some markets, warning triangle stowage is provided in the trunk lid liner. The trunk is opened from the car interior via a switch mounted in the driver side underscuttle. This switch is only operational when the valet mode is inactive, security disarmed (vehicle is unlocked) and the vehicle is stationary.

A key operated lock situated on the RHS of the trunk rear panel, provides emergency external access to the trunk. Non-locking gas struts support the trunk lid when open.

The fuel filler flap which incorporates a magnetic filler cap retainer, is unlocked via an illuminated switch in the driver's underscuttle. The filler flap can only be opened when the engine is not running, security is disarmed and the car is either unlocked or the key is in the ignition switch. A petrol/water drain is provided in the filler recess.

DESCRIPTION AND OPERATION (Continued)

Convertible Top



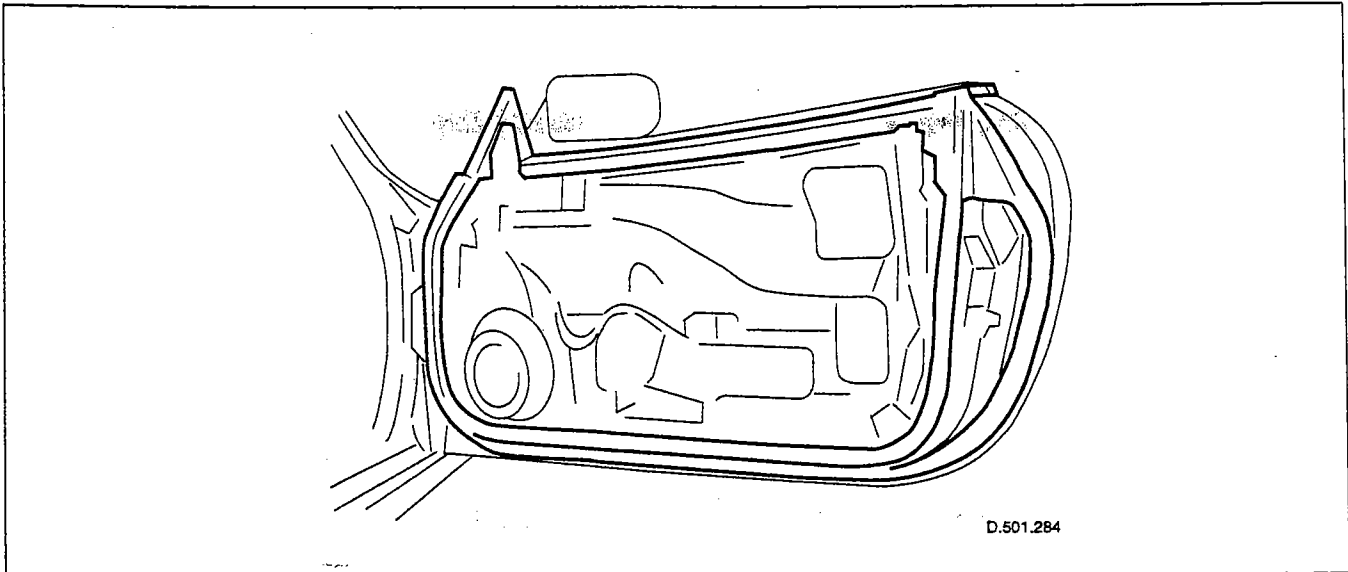
The fully lined and padded convertible top is fitted to an aluminum frame with steel linkages, providing good structural strength with light weight. The top folds down to a low stack height in the body opening of the rear quarter and has a semi-rigid cover. The top is power latched and has a green tinted, heated, glass backlight incorporating a security antenna. The convertible top operating pump is located on the right-hand side of the trunk.

In the event of latch failure when raising the top, a visual warning is illuminated on the instrument panel. A center pull down feature facilitates manual latching of the top in emergency circumstances. Provision is also made for manual raising of the top should loss of electrics occur.

To operate the top, the switch must be held depressed with the ignition switch in either position I or II. When the top starts to move, an audible warning sounds for 0.7 seconds. Latching and unlatching is automatic. Operation of the convertible top is inhibited at vehicle speeds in excess of 16 km/h (10 mph). If the vehicle exceeds this speed when the top is moving to the lowered position, it will continue to the fully down position. Should the vehicle exceed this speed when the top is being raised, further movement will be inhibited until the speed is reduced.

Raising and lowering of the convertible top is controlled from the SCP network via the Security and Locking Module (SLM) and the Body Processor Module (BPM).

WARNING: ENSURE THAT ALL PERSONNEL AND EQUIPMENT ARE CLEAR OF THE TOP BEFORE RAISING OR LOWERING IT.

DESCRIPTION AND OPERATION (Continued)**Doors**

Doors are common to both coupe and convertible, with a frameless glass system, dual door-mounted seals and demountable hinges with separate multi-stage check arms. The door casings and top rolls are UEV trimmed with cloth center pads. Leather center pads are fitted for some markets. Combined armrests/door pockets are trimmed in leather and have burr walnut veneer insets.

The colour-keyed exterior door handles each have an integrated switch for glass drop on opening. Additionally, the driver's door handle has an integrated key barrel. The cheater is formed by the door mirror base and a black injection moulded inner cheater. The cheater seal is integral with the secondary door seal. Tweeters are fitted in the inner cheater as part of the premium in-car entertainment option. Each door has a combined rearguard/puddle lamp mounted in the door pocket casing.

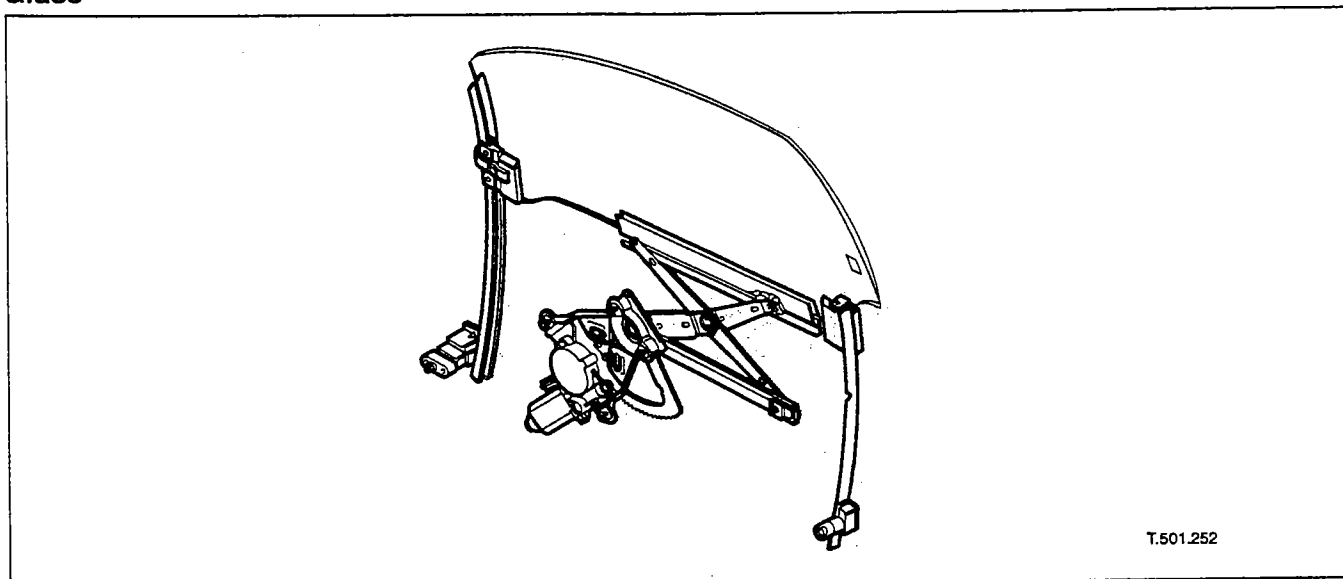
Both the driver and passenger door incorporate Door Control Modules (DDM & PDM) which are connected to the SCP network and control the raising and lowering of the window glass, locking and security, puddle lamp and door mirror movement and heating functions. A drive-away door locking function incorporated in the DDM & PDM software is activated when the transmission is taken out of Park or Neutral position.

Adjustment of driver and passenger door mirrors including memory functions is controlled by the driver door switchpack through each door module. Door mirror heating is controlled via the rear windshield heating switch on the air conditioning control panel. Electrochromic mirrors available as an option are automatically heated at very low ambient temperatures. A mirror fold back function enabling the door mirrors to fold back against the body/glass when parking the car, is featured for some markets.

Dipping of the passenger door mirror when reverse gear is selected is also featured on some vehicles/markets. Dipping is either 7 degrees in a downward direction, bottom of travel or 5 seconds dependent upon which condition is satisfied first. When the gear selector is moved from reverse the door mirror will return to the original position.

DESCRIPTION AND OPERATION (Continued)

Glass



The windshield, which is common to the coupe and convertible, is in 5 mm laminated glass with a black obscuration band and has a rear-view mirror direct-mounted. The windshield finisher is a one-piece, single color unit with seal. The backlight is 4 mm tempered glass, green tinted and heated. The windshield, backlights and quarter lights, except for the convertible model, are direct glazed to body.

The windshield and coupe backlight are supplied as assemblies complete with trim which is secured to the glass by clips and is fully demountable when the assembly is bonded to the vehicle.

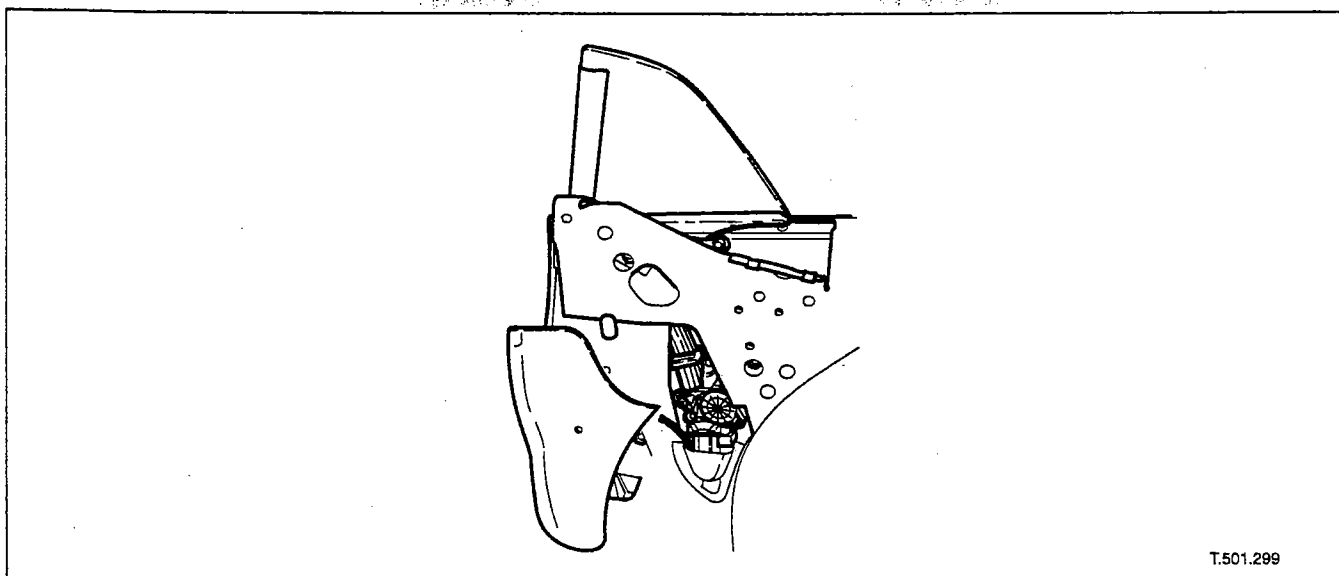
The convertible backlight and outer seal are conventionally glazed to the inner seal, which is stitched and bonded to the top. On both models, the heated backlight remains 'on' for 21 minutes after being switched on unless the driver switches it off before the time delay expires. Some backlights are fitted with a security antenna. A fine wire heated windshield offered as an option on some markets, is controlled from the air conditioning panel.

The door glass on both models is a frameless system with 5 mm green tempered glass. The door glass is operated electrically and raised and lowered by a scissor mechanism.

Each door glass automatically drops 12 mm when the door is opened or when the convertible top is raised or lowered, closing when either the door is shut or the top is fully raised and latched in position. The door glass can be closed via the remote control unit. Operation is internally controlled from switchpacks located in the driver and passenger arm rests via the driver and passenger door modules. The switchpacks are illuminated when the sidelights are on.

One-touch up operation causes the glass to fully close unless an object is detected or if the glass is already within 45 mm of top of travel when the door is opened. On detection of an object, the glass will drop fully open or to 200 mm below the obstruction. All drop-glass operates with the ignition switch in either position I or II and for 30 seconds after ignition is switched off or the associated door is opened.

DESCRIPTION AND OPERATION (Continued)



The coupe rear quarter glass is a fixed 4 mm, tempered, green-tinted unit direct glazed to the tonneau. The rear quarter lights of the convertible are 5 mm, tempered, semi-flush, green tinted units with a drum and wire lowering and raising system which provides full glass drop when the top is lowered.

Control is incorporated in the convertible top switch and operation of the rear quarter lights is as follows.

Raising with convertible top raised:

- Activate by momentarily pressing and releasing the front of the switch.

Lowering with convertible top raised:

- Press and release the rear part of the convertible top switch (one touch down).

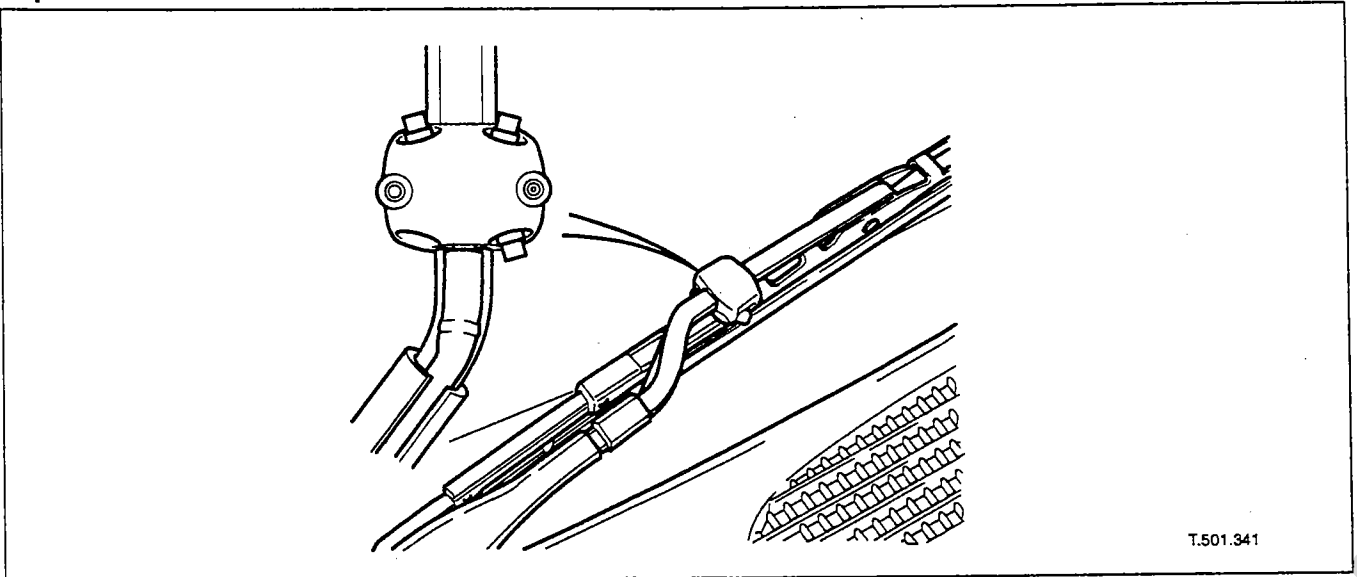
NOTE: The rear quarter lights are automatically powered to the bottom position when the top is lowered and further operation is inhibited until the top is raised and latched.

NOTE: When lowering the rear quarter lights at vehicle speeds up to 16 km/h (10 mph), failure to release the switch on operation of the audible alarm will result in lowering of the top.

The rear quarter lights are operated automatically up or down respectively when raising or lowering the convertible top. When the top is raised, with the door glass at the top of its travel, the glass will be powered down 12 mm and the rear quarter lights will be powered to the bottom of their travel. When the top is fully raised all glass will be powered up to close to form a seal with the top.

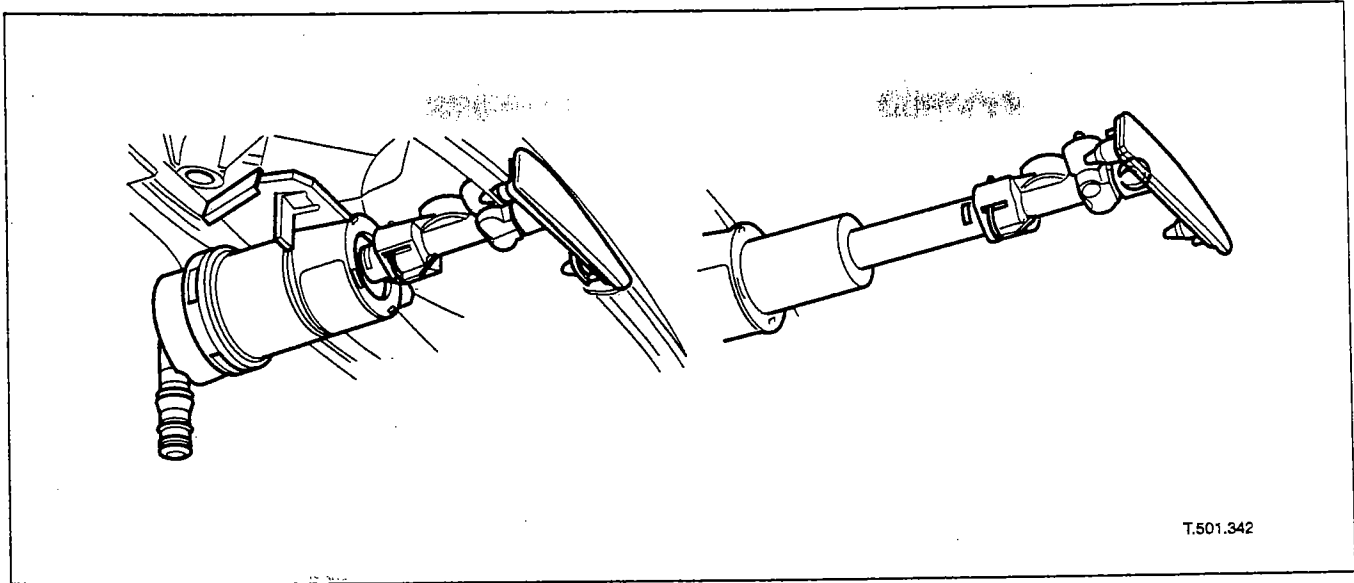
If the front glass has been either fully or partially lowered manually, the rear quarters only will be powered up. If the power supply to the driver or passenger module is disconnected (battery disconnected, module unplugged or fuse removed), then the system must re-learn the characteristics. The last known glass position is regarded as top of travel by one touch operation until re-learning has taken place. One touch down, manual up and down control and the automatic lowering of the glass for door opening are unaffected.

To re-learn the positioning characteristics, the associated door must be closed (door ajar switch inactive). The glass must then be driven fully down and held stalled at the bottom of its travel for a minimum of one second. The glass is finally driven to the fully up position and held stalled for a minimum of one second. The re-learning procedure must also be accomplished to regain the automatic closing sequence.

DESCRIPTION AND OPERATION (Continued)**Wipers/Washers**

The windshield wiper motor, with integral microswitch for overload protection, is mounted in the plenum below the windshield and is handed for market requirements. The vehicle has a conventional twin wiper arm system with synthetic rubber blades and wiper arm mounted windshield wash jets. Jets are designed to resist freezing, eliminating the need for heated nozzles. Wiper modes are 2-speed, flick wipe and six settings of intermittent wipe.

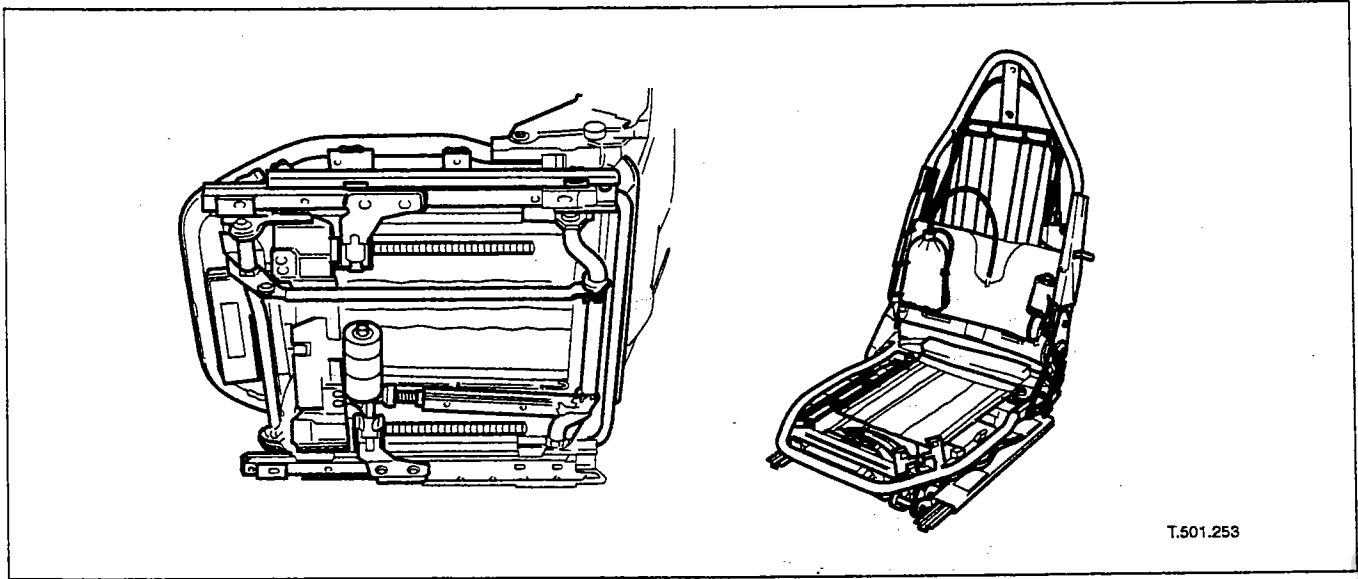
Screen wash tubing is supplied assembled in the wiper arm and is fitted to a connector which is part of the plenum cover assembly. The wipers park on the windshield. The washer fluid reservoir is located in the cavity formed by the front bumper, LH front valance and the front wing liner. The reservoir has a fluid capacity of 7 liters of liquid and is fitted with a low level sensor. When screenwash is selected, the wipers complete three cycles followed by a 4 second delay and a further cycle to clear residual fluid from the screen until either the switch is released or the ignition is moved from position II.

DESCRIPTION AND OPERATION (Continued)

Some markets and options have a headlamp telescopic power wash mounted below each lamp glass. These washers will operate in conjunction with the screen-washers, when the headlights are on dip or main beam, or daylight running is enabled, the washer fluid does not indicate low level, and the ignition switch is in position II.

When wash/wipe is selected and held, the headlamp wash pump is activated and sprays for 800 ms, waits 6 seconds and then sprays again. This spray is repeated after each six second interval until the switch is released or 20 seconds has elapsed. When the switch is released, further power wash cycles will be inhibited for the next 5 wash/wipe operations to conserve wash fluid.

All power wash fittings are snap fit, cover to jet, jet to headlamp, jet to hose. The wash/wipe system is operated from switches on the steering column via the Body Processor Module (BPM), part of the SCP network.

DESCRIPTION AND OPERATION (Continued)**Seats**

The driver and passenger seat control modules (DSM & PSM) which control seat and squab movement, and seat heating where fitted, are mounted on brackets below the seat frames and are connected to the SCP network.

The rear seats are wire-framed units trimmed to match the front seats and specifically tailored to fit either the coupe or the convertible. No adjustment of the rear seats is provided. Provision is made for the fitting of child seats where legally required.

Seat movement control switch assemblies fitted in the outboard side of both the driver and front passenger seats, are color keyed to the seats. These switches, through the seat control modules, operate motors for fore and aft, recline and raise and lower movements of the seat. On some markets/options, another motor operates the lumbar adjustment pump which is also controlled by a switch mounted in the seat. Only one of the slide, recline or height motor outputs can be driven at any one time under manual control. Additionally, some markets/options have passenger seat height adjustment, seat and squab heaters and driver's seat position memory.

On cars fitted with driver seat memory, each motor is fitted with feedback potentiometers. The illuminated on/off switches for seat heating where fitted as options or standard fit in cold climate territories, are mounted in the center console. Rear passenger access/egress is made easier by a lever mounted on the upper outside of driver and passenger seats allowing the seat squabs to fold forward. Each front seat has a rear map pocket.

SECTION 501-01 Body Structure

VEHICLE APPLICATION: X100

SUBJECT

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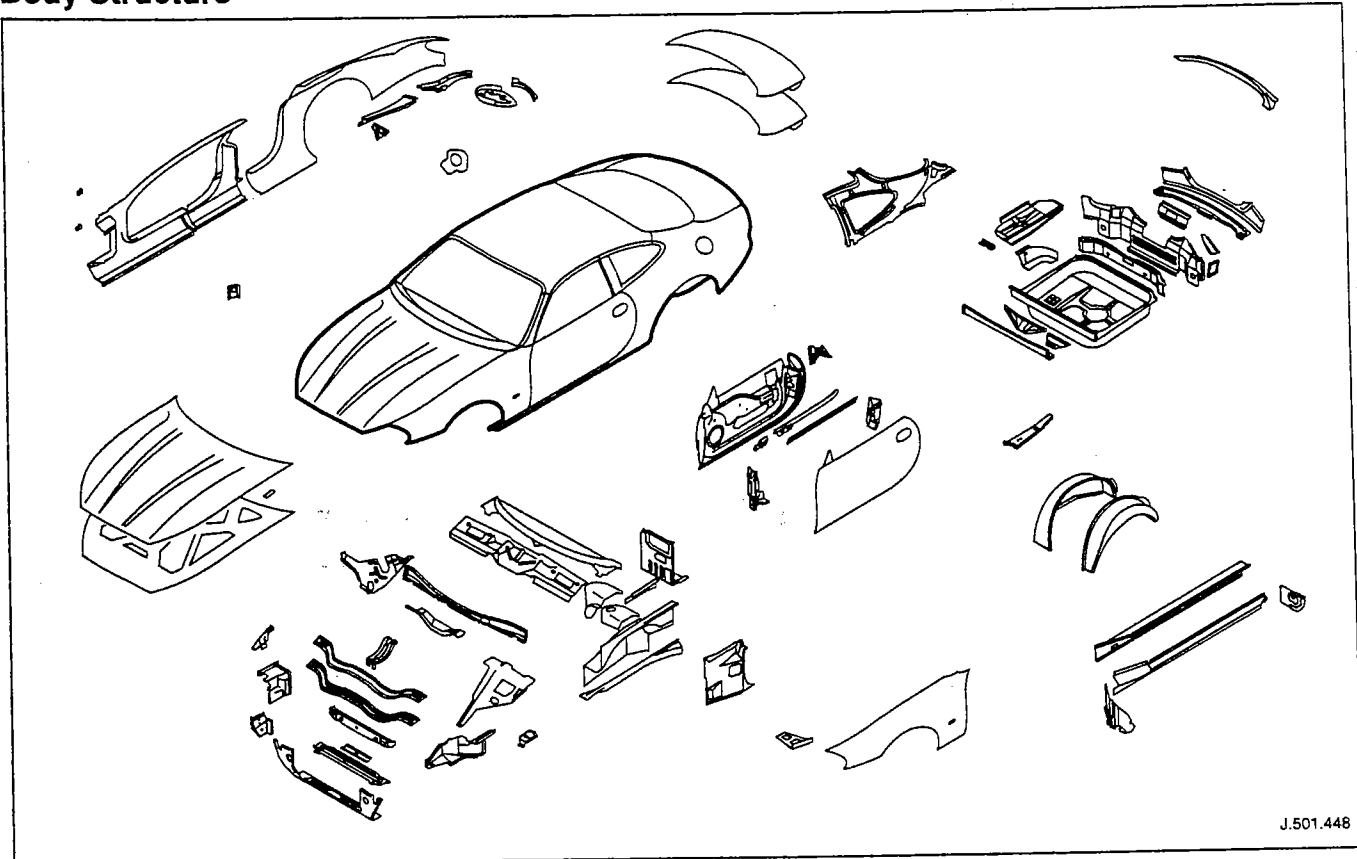
DESCRIPTION AND OPERATION

Body Structure 501-01-2

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DESCRIPTION AND OPERATION

Body Structure



J.501.448

Produced in coupe and convertible styles complete with doors, hood and trunk lid, the body comprises almost 200 components. For service requirements, each body shell is available less doors, front fenders, hood and trunk lid. The convertible body is a cut-down version of the coupe, incorporating tubular internal sill reinforcements and associated structures.

To fully satisfy requirements for a minimum of six years corrosion resistance, more than 70% by weight of steel panels are zinc coated on both sides (ref. illustration above) and all panel joints below the roof line have zinc protection between them prior to welding together. Close tolerance apertures together with water tight joints and seals ensure low interior noise levels and general travel refinement. For additional torsional strength and anti-flutter properties at key points, metal to metal adhesives or interweld seals are applied to mating surfaces before welding.

Whilst during manufacture, bodyshell aperture gaps are set to dedicated panels, these components are available as service items.

SECTION 501-02 Front End Body Panels

VEHICLE APPLICATION: X100

SUBJECT**PAGE****DESCRIPTION AND OPERATION**

Front End Body Panels 501-02-2

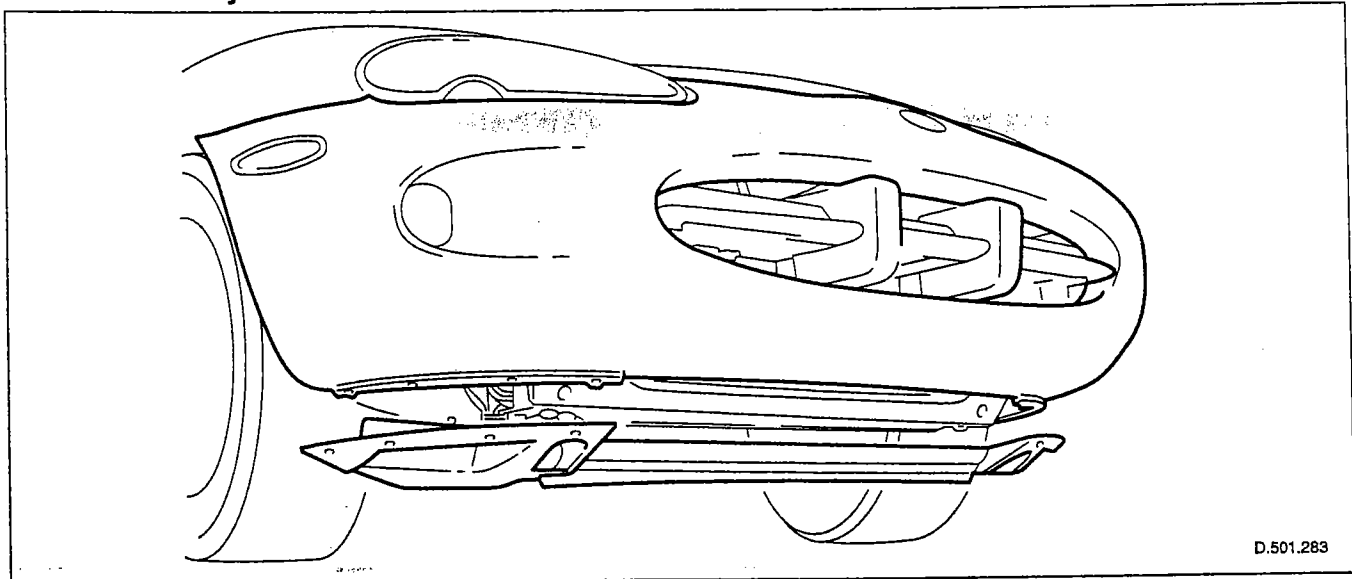
REMOVAL AND INSTALLATION

Front Wheel Arch Liner 501-02-4

Front Wheel Arch Liner Access Cover 501-02-5

Plenum Cover 501-02-6

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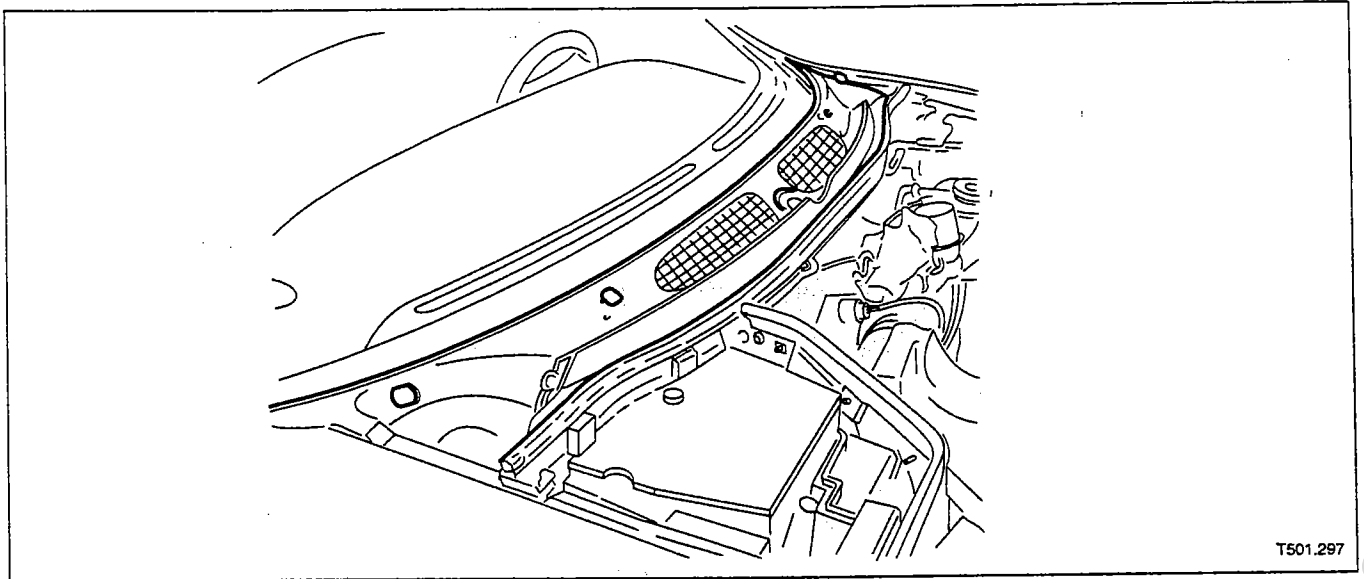
DESCRIPTION AND OPERATION**Front End Body Panels**

The front body structure is designed to satisfy bumper impact requirements and primarily comprises the front bumper assembly which is fully described in Section 501-19.

The front fenders which are common to coupe and convertible models, are each bolted to the front valance, front bumper casing and 'A' post. Removal and installation of the fenders is detailed in the Body and Paint Repair manual.

Description and removal and installation instructions for the hood are included in Section 501-03.

A GMT undertray fitted to assist air flow through the cooling pack, is secured to the bottom of the bumper casing and the body front cross-member. A small GMT air deflector is fitted to the undertray at each wheelarch to improve air flow in the front wheel area.

DESCRIPTION AND OPERATION (Continued)

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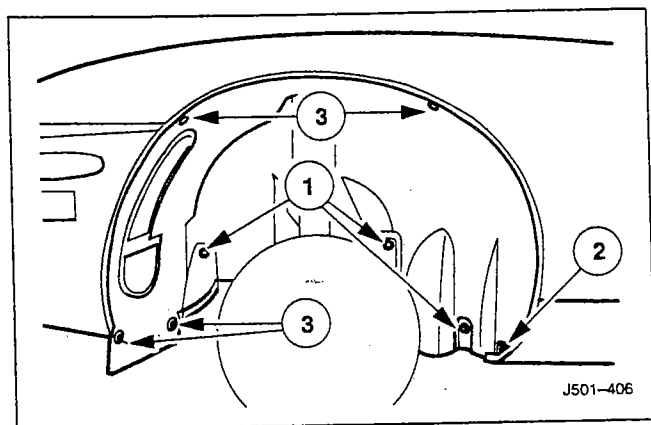
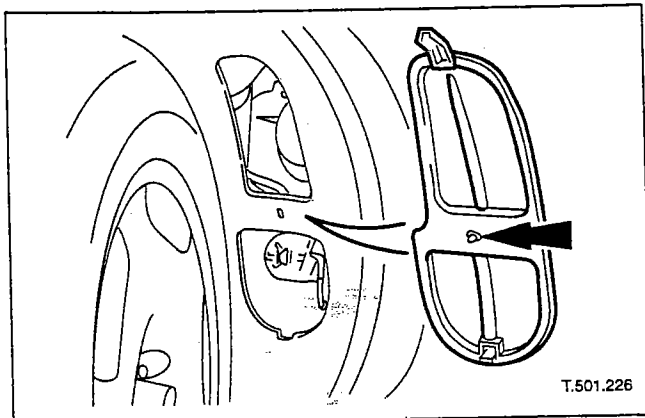
Protective GMT liners fitted in the wheelarches each incorporate a readily detachable panel for access to the headlamp assembly. An injection moulded plenum cover, painted Dorchester grey on all vehicles and secured to the bodywork by screws and plastic fasteners, incorporates windshield and fender seals, and screenwash connectors.

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REMOVAL AND INSTALLATION

Front Wheel Arch Liner (76.10.90)

Removal



1. Remove front wheel and tire assembly. Refer to Section 204-04.
2. Remove wheel arch liner access cover.
 - Rotate access cover fastener 1/4 turn and remove cover from vehicle.

3. Remove wheel arch liner.

- 1 Slacken and remove three plastic nuts longitudinally securing wheel arch liner to body.
- 2 Slacken and remove screw securing liner to front of sill.
- 3 Remove expander pegs or screws from four liner retainers, remove and discard retainers and remove liner from vehicle.

Installation

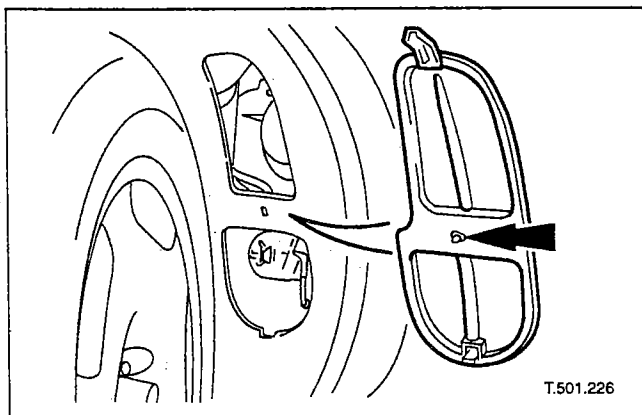
4. Fit front wheel arch liner.
 - Position and seat wheel arch liner.
 - Fit the four new wheel arch liner retainers.
 - Drive expander pegs into the liner retainers.
 - Fit and tighten screw securing liner to front of sill.
 - Fit and tighten plastic liner securing nuts.
 - Position and secure liner access cover, rotating fastener 1/4 turn.

REMOVAL AND INSTALLATION (Continued)

5. Fit wheel and tire assembly. Refer to Section 204-04.

Front Wheel Arch Liner Access Cover (76.10.91)**Removal**

1. Position road wheel for access.
 - With vehicle handbrake on, start engine.
 - Turn steering wheel until road wheel permits access to liner cover.
 - Stop engine.
2. Remove front wheel arch liner access cover.
 - Rotate liner access cover fastener 1/4 turn and remove cover from vehicle. Ensure that cover fastener is retained.

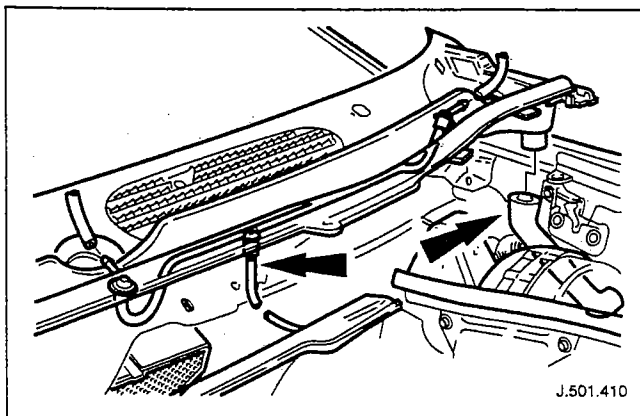
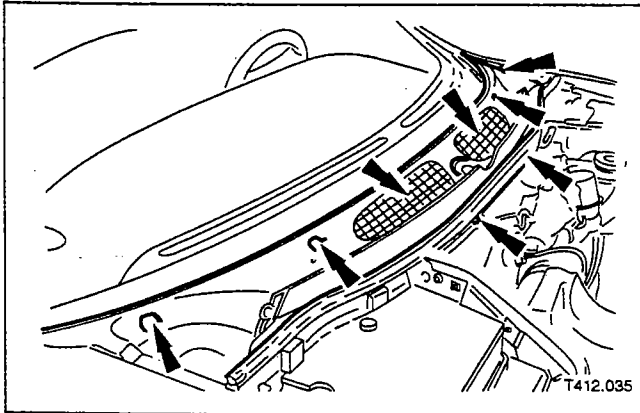
**Installation**

3. Fit front wheel arch liner access cover.
 - Position and seat access cover on wheel arch liner.
 - Fit fastener to cover and rotate 1/4 turn to secure.
4. Reposition road wheels.
 - Start engine and reposition road wheels to straight ahead position.
 - Stop engine.

REMOVAL AND INSTALLATION (Continued)

Plenum Cover (76.10.90)

Removal



1. Remove wiper arms and blades. Refer to Section 501-16.
2. Remove cover retaining screws and fasteners.
 - Remove plastic covers from the rear screw locations.
 - Slacken and remove the eight plenum cover retaining screws and two plastic central fasteners.
3. Disconnect and remove plenum cover.
 - Position plenum cover for access to drain hoses and screenwasher tubes.
 - Disconnect drain hoses and screenwasher tubes from plenum cover and remove plenum cover from vehicle.

Installation

4. Position plenum cover for access and connect drain hoses and screenwasher tubes.
5. Reposition and seat plenum cover.
6. Fit but do not tighten the retaining screws and plastic fasteners.
7. Commencing in the center, tighten the retaining screws and plastic fasteners.
8. Fit plastic covers over rear screw locations.

REMOVAL AND INSTALLATION (Continued)

9. Fit wiper arms and blades. Refer to Section 501-16.

SECTION 501-03 Body Closures

VEHICLE APPLICATION: X100

SUBJECT

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DESCRIPTION AND OPERATION

Body Closures 501-03-2

REMOVAL AND INSTALLATION

Door Seal 501-03-5

Door Aperture Seal and Draught Welt – Coupe Model Only 501-03-7

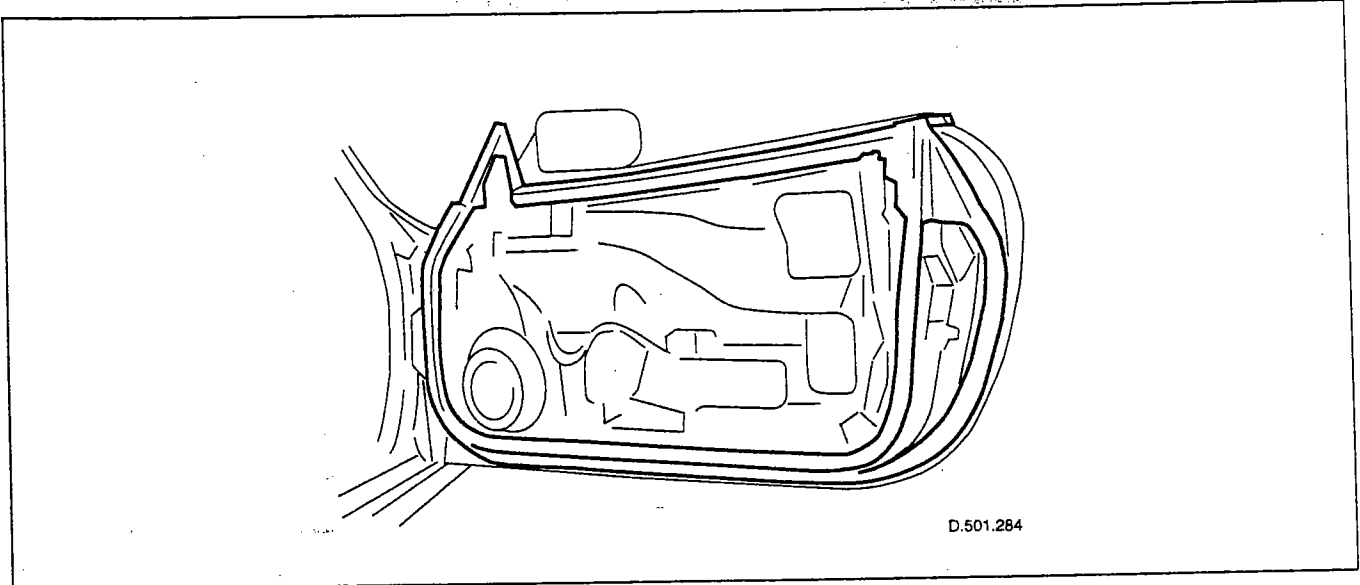
Trunk Lid Seal 501-03-8

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DESCRIPTION AND OPERATION

Body Closures

Doors

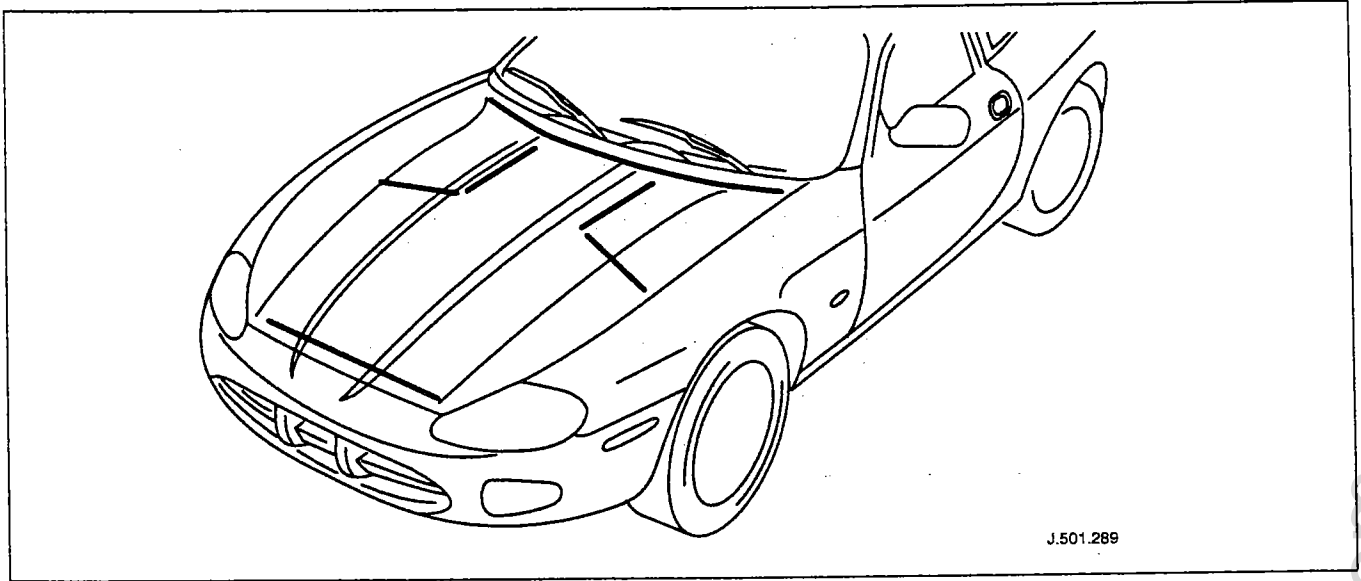


The doors, which are common to coupe and convertible models and have a frameless glass system, each comprise inner and outer panels, clinched and bonded together to form a door assembly. Both panels incorporate extensions spot welded together to form a cheater assembly and a PVC sealant is applied in cosmetic bead form to all clinch joints.

Both the door assembly and separate outer panel are available as service items.

A dual, joint-less EPDM sponge seal is installed on each door together with a water shedder and separate vacuum formed speaker cup.

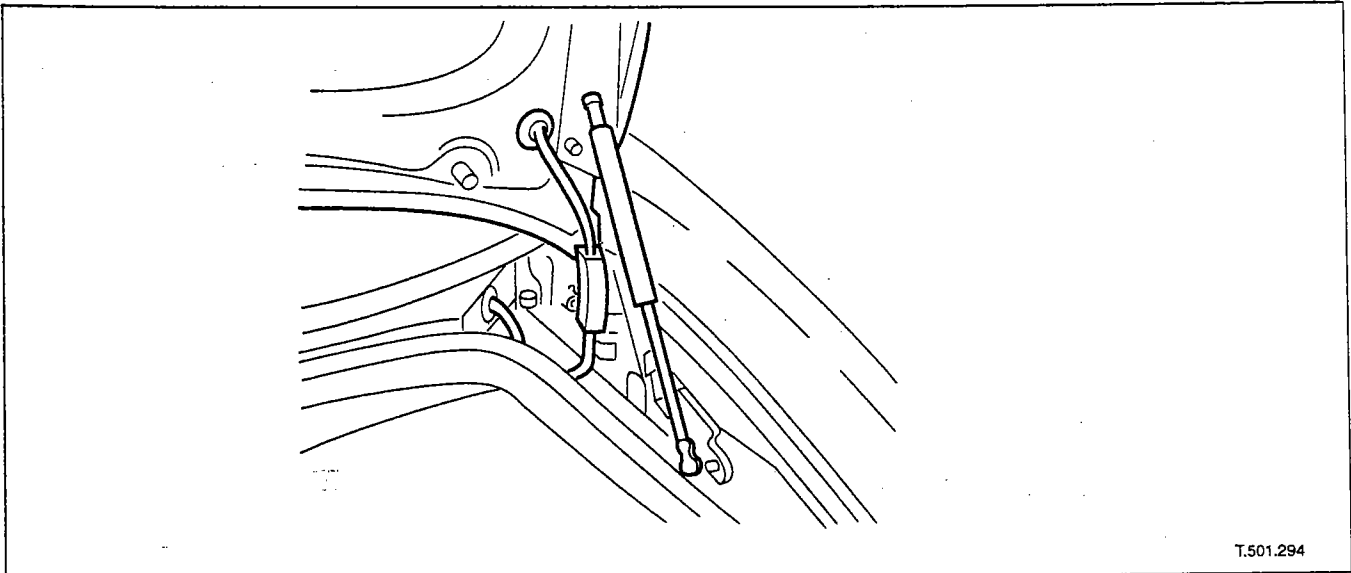
Upper and lower door hinges and multi-stage check arms require no lubrication throughout vehicle life.

DESCRIPTION AND OPERATION (Continued)**Hood**

Common to coupe and convertible models, the hood assembly consists of one piece inner and outer panels, clinched and bonded together, with cosmetic bead PVC sealant applied to all clinch joints.

Hinge assemblies, hinge reinforcements, gas strut brackets and a hood lock striker are attached to the inner panel which also accommodates a hood liner. The hinge assemblies are of double link design to permit minimum clearance between the hood leading edge and the top of the bumper casing.

The hood seats on EPDM sponge bulb seals on the BIW front cross member and four flanges on the secondary bulkhead, and on a transverse seal bonded to the plenum cover.

DESCRIPTION AND OPERATION (Continued)**Trunk Lid**

Dedicated either to the coupe or convertible, the trunk lid comprises one piece inner and outer panels clinched and bonded together, with cosmetic bead PVC sealant applied to all clinch joints.

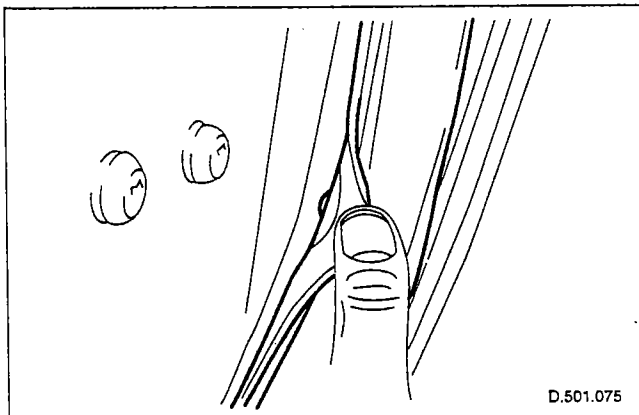
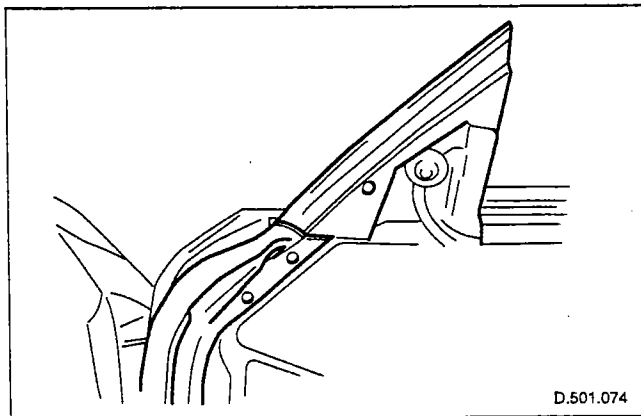
Hinge reinforcements and a lock striker mounting reinforcement are attached to the lid inner panel and combined hinge and gas strut mounting assemblies are secured by bolts to the inner panel and the tonneau/trunk flange at each side.

The trunk lid seats on a single joint, EPDM sponge, single profile bulb seal, mounted on the trunk flange.

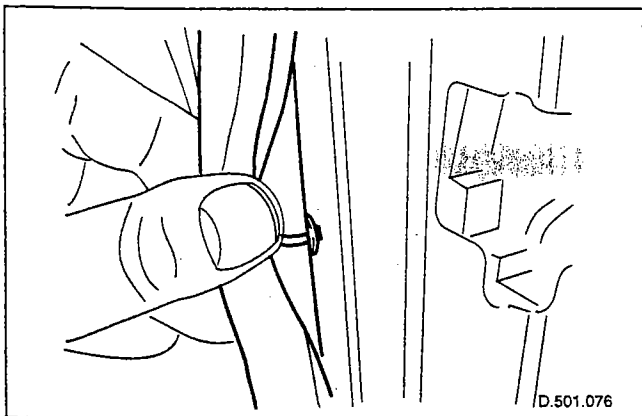
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REMOVAL AND INSTALLATION**Door Seal (76.40.01)****Removal**

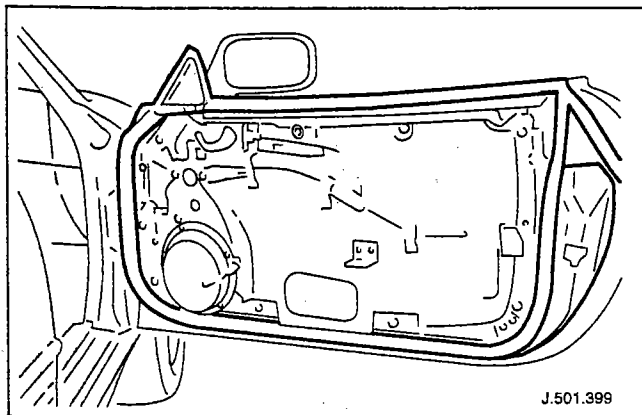
1. Remove exterior door mirror. Refer to Section 501-09.
2. Remove door casing. Refer to Section 501-05.
3. Remove door waist rail finisher.
4. Remove door inner waist seal.
5. Ensuring that door is not damaged, cut through butyl sealant between cheater seal and cheater frame.
6. Remove seal upper fixings from door hinge face.



7. Remove remaining door edge seal fixings.

REMOVAL AND INSTALLATION (Continued)

8. Remove seal fixings from door inner face and lock face.



9. Remove seal from door.

Installation

10. Fit seal to door.

- Apply suitable butyl sealant to inner leading edge of cheater seal section.
- Position seal on door ensuring that cheater seal leading edge is fully seated.
- Fit and fully seat seal upper fixings to door lock face.
- Fit seal inner face fixings to door.
- Fit seal edge fixings to door.
- Position seal at upper hinge face and fit and fully seat seal fixings.

11. Fit door waist rail finisher.

12. Fit door inner waist rail seal.

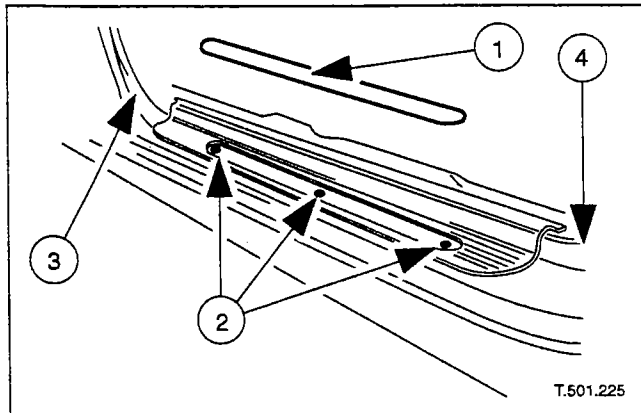
13. Fit door casing. Refer to Section 501-06.

14. Fit exterior door mirror. Refer to Section 501-09.

REMOVAL AND INSTALLATION (Continued)

Door Aperture Seal and Draught Welt – Coupe Model Only (76.40.30)

Removal



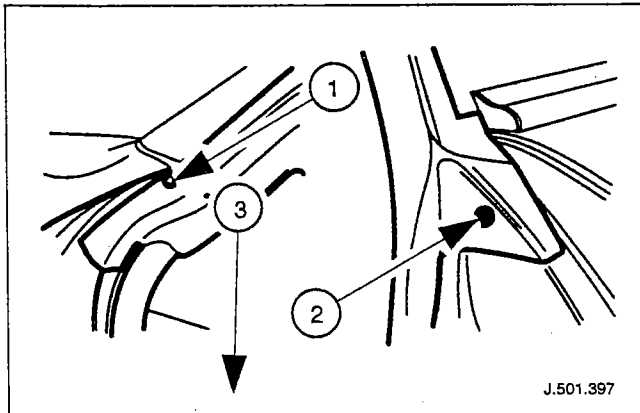
1. Remove the draught welt.

- 1 Remove the treadplate finisher.

NOTE: The finisher can be easily damaged, care must therefore be exercised during removal.

- 2 Slacken and remove treadplate securing screws and remove treadplate.
- 3 Remove front of welt from aperture flange.
- 4 Withdraw rear draught welt section from aperture flange.

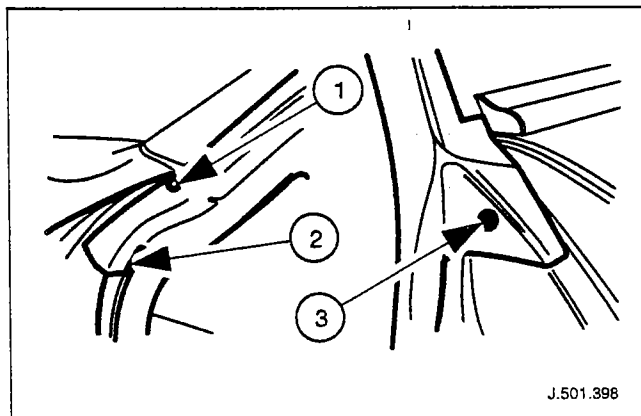
NOTE: The rear welt section is integral with the seal and must not be separated from it.



2. Remove the door aperture seal.

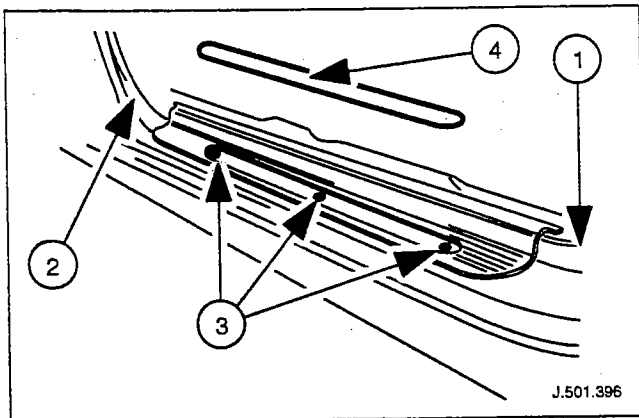
- 1 Remove the three fasteners securing seal to 'A' post.
- 2 Remove fastener securing seal to 'B' post.
- 3 Remove seal complete with rear draught welt section from door aperture.

Installation



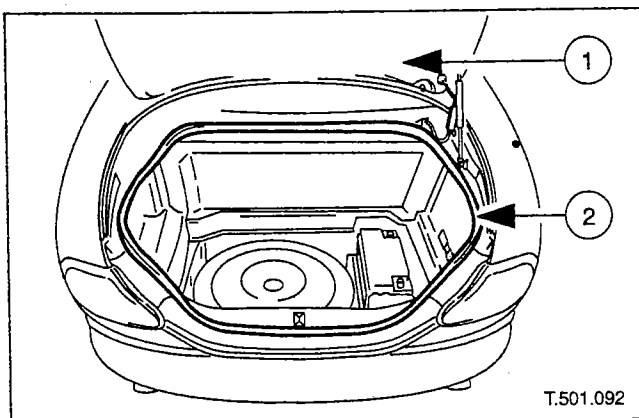
3. Fit door aperture seal.

- 1 Position seal on 'A' post and fitting lower one first, secure with three fasteners.
- 2 Fit and firmly seat seal in aperture channel.
- 3 Secure to 'B' post with fastener.

REMOVAL AND INSTALLATION (Continued)

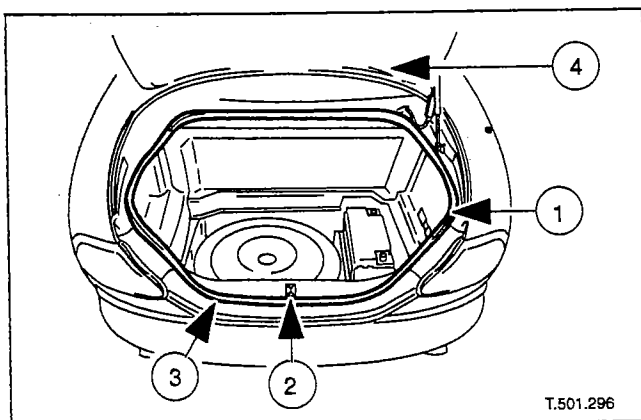
4. Fit draught walt section.

- 1 Fit and fully seat rear draught walt section over aperture flange.
- 2 Fit and fully seat front walt section over aperture flange.
- 3 Position sill tread plate and fit and tighten three securing screws.
- 4 Fit treadplate finisher. If finisher has been renewed, remove protective film.

Trunk Lid Seal (76.19.06)**Removal**

1. Remove trunk lid seal.

- 1 Open trunk lid.
- 2 Starting at front of trunk aperture, withdraw seal from flange exercising care on reaching bonded joint at rear.

Installation

2. Fit trunk lid seal.

- 1 Ensure that trunk flange is clean and free from oil or grease.
- 2 Position seal with bonded joint adjacent to trunk latch.
- 3 Commencing at bonded joint, fit and fully seat seal onto trunk flange, guiding it between rear trunk trim and rear panel.
- 4 Check that trunk lid closes correctly.

SECTION 501-05 Interior Trim and Ornamentation

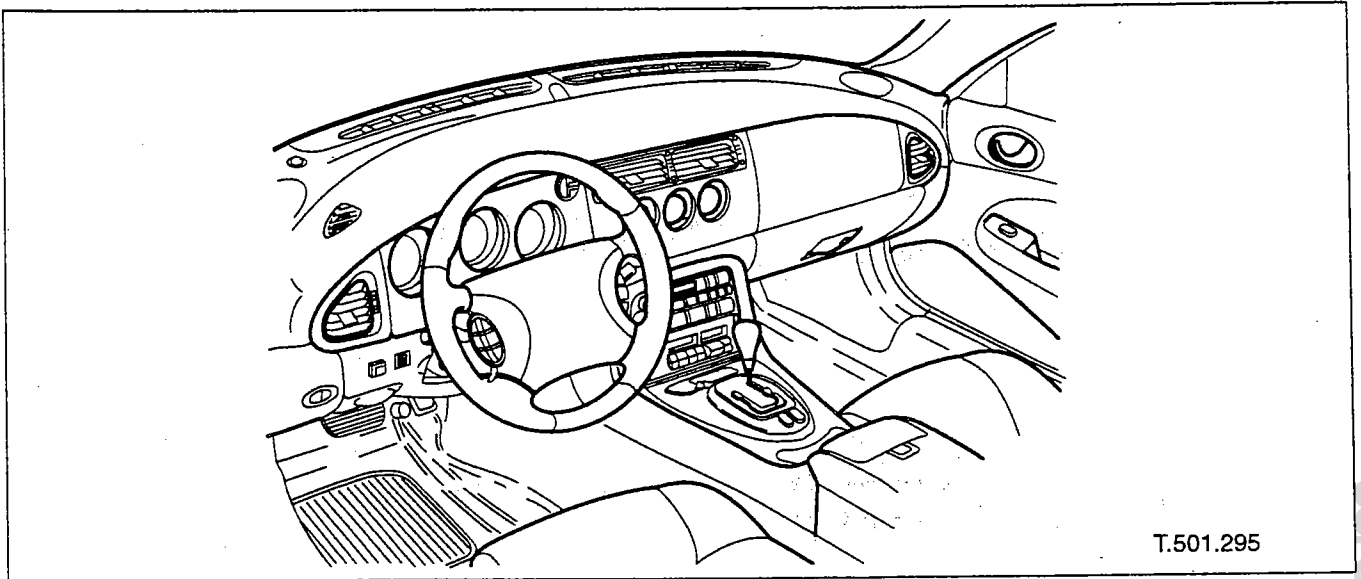
VEHICLE APPLICATION: X100

SUBJECT	PAGE
DESCRIPTION AND OPERATION	
Interior Trim	501-05-2
REMOVAL AND INSTALLATION	
Rear Quarter Casing	501-05-9
Rear Quarter Armrest/Speaker Cover Assembly – Coupe Model Only	501-05-13
Coupe Rear Parcel Shelf	501-05-14
Steering Column Lower Cowl	501-05-15
Door Casing	501-05-17
Driver's Side Underscuttle	501-05-20
Headlining	501-05-22

DESCRIPTION AND OPERATION**Interior Trim****Carpets**

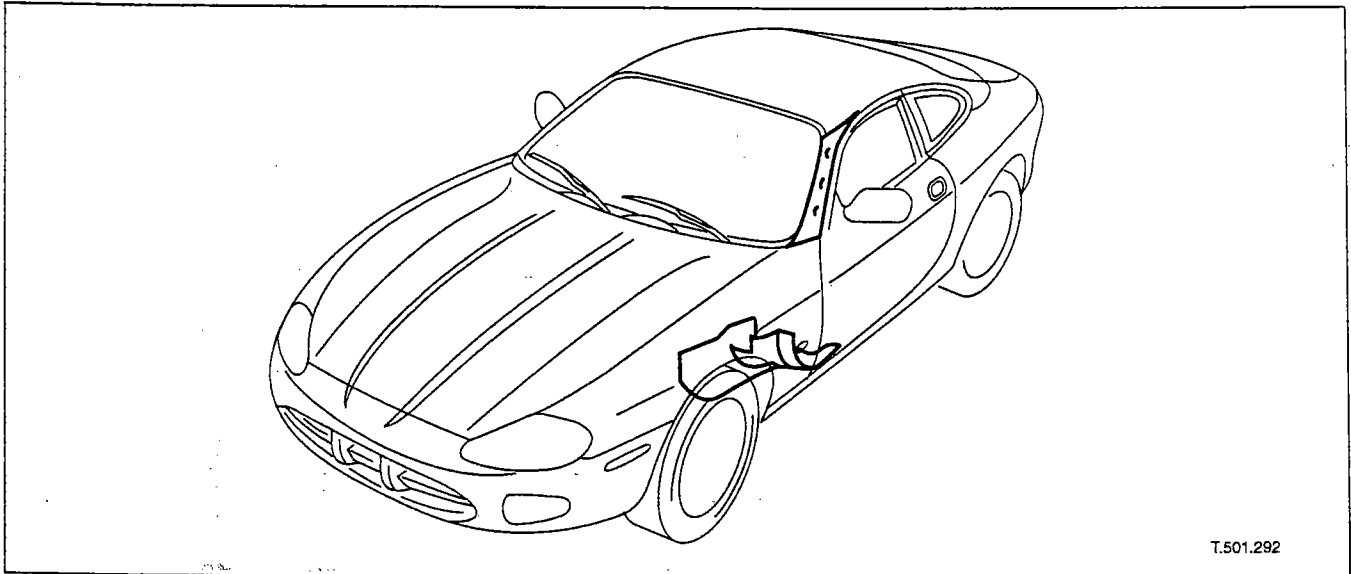
The interior carpets which incorporate floor insulation and are moulded in two pieces joined at the center line below the center console, cover the entire floor area and the inner door sills, and are color co-ordinated to the interior trim and seats. The door sills are additionally fitted with polished tread plates bearing 'Jaguar XK8' inscriptions. Whilst the floor carpets are common to the convertible and coupe models, an additional section of carpet trims the convertible top stowage area. The coupe rear parcel shelf is trimmed to match the headlining cloth. The shelf trim is secured to the rear seat squab by two screws and to the center of the shelf by four speaker or blank plate screws, and is supported at the rear by two foam blocks.

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DESCRIPTION AND OPERATION (Continued)**Fascia**

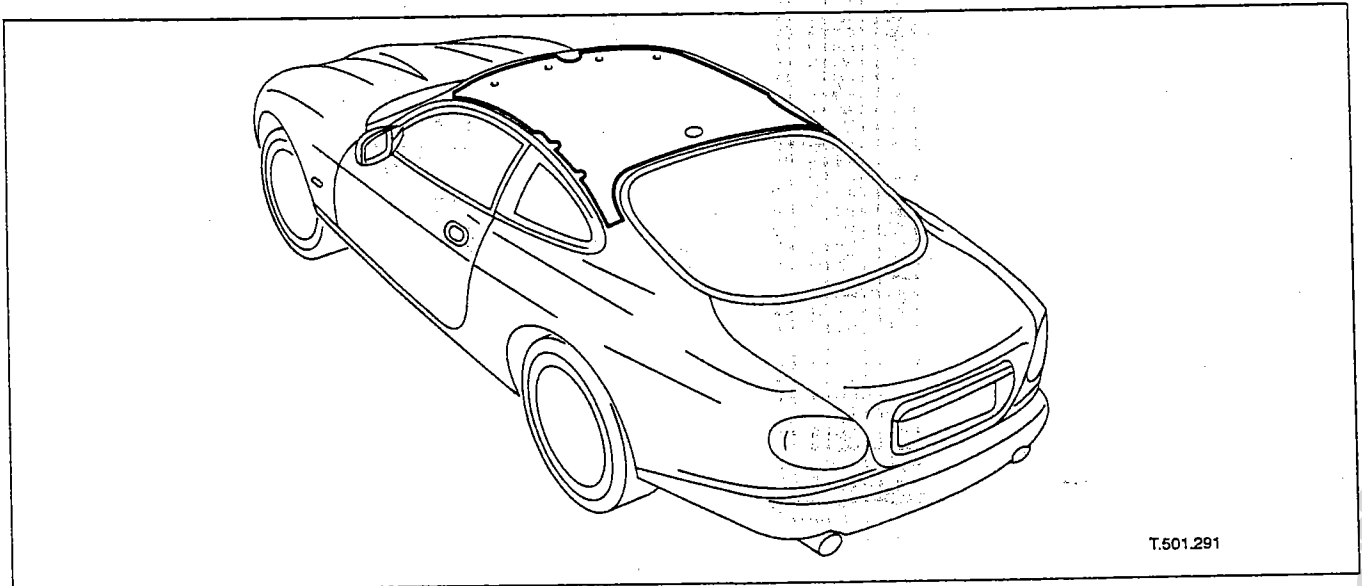
The full width, slush molded, soft feel PVC fascia is faced with maple or walnut burr veneer. In addition to the air conditioning and central, outer and demisting vents, it accepts instrument packs dedicated to market requirements. A center switchpack and the ICE head unit are also incorporated in the fascia.

A lockable and illuminated glove box is provided on the passenger side, and fuse panels are installed at each end.

DESCRIPTION AND OPERATION (Continued)**'A' Posts**

Grained UEV post finishers color matched to upper trim, are common to convertible and coupe.

The inner finishers are secured to the pillars by studs and BIW retainers, the upper finishers are moulded to the pillar contours and wiring channels and secured by steel clips inserted into BIW slots. A hood release lever is located in the LH side inner finisher.

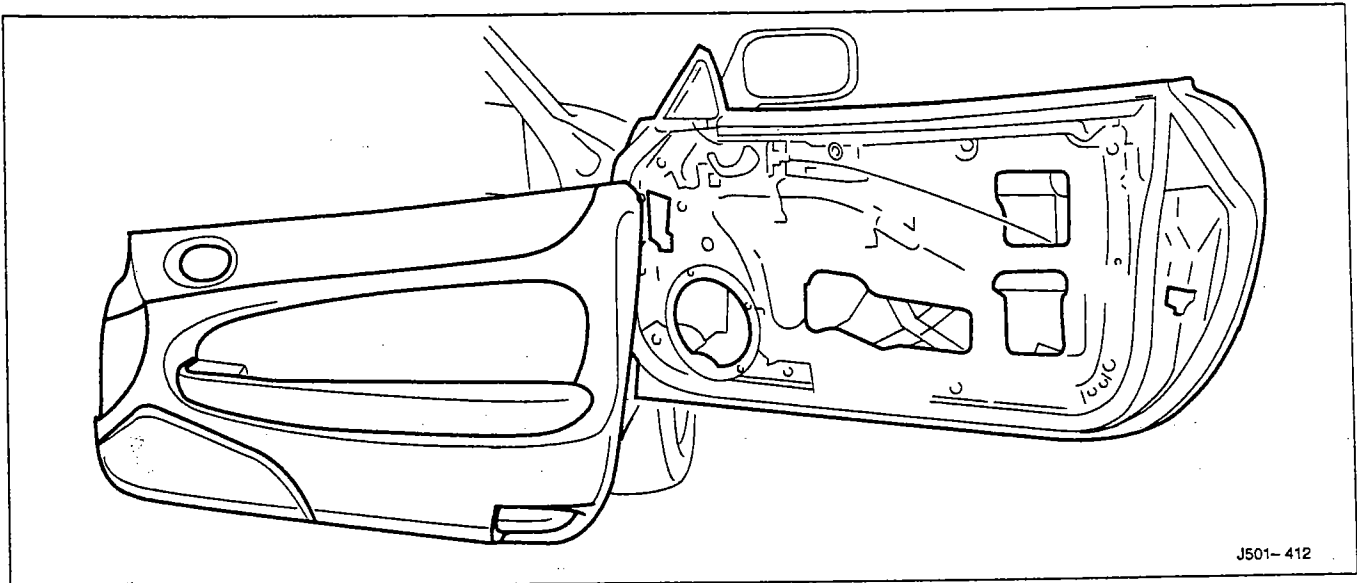
DESCRIPTION AND OPERATION (Continued)**Coupe Roof**

The 6 mm thick, moulded, single piece cloth roof lining is color keyed to the interior trim and supported by sun-visor fixings at the front, a concealed fixing behind the central interior lamp and two body tangs at each side. A header console installed centrally at the front of the roof is common to both models and incorporates two courtesy lamps, switchable map/reading lights and a glass breakage sensor. An additional courtesy lamp is installed centrally in the roof over the rear seats.

Convertible Top

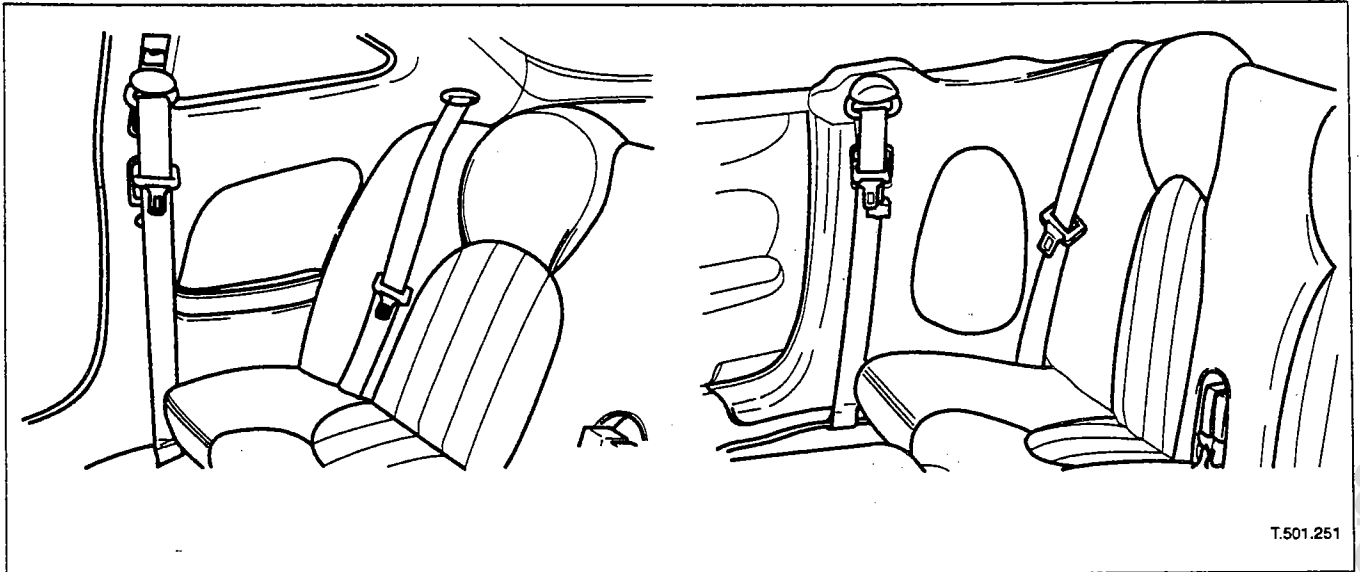
The convertible top has a transverse external seam and a fully padded interior incorporating a full length headlining with backlight surround panel. The heated backlight is bonded in position to achieve a semi-flush finish.

The windscreen header seal has been specifically designed to achieve reductions in noise levels and superior weatherproofing and aerodynamics. A grained UEV head rail finisher is secured in position by the sun visor fixings.

DESCRIPTION AND OPERATION (Continued)**Doors**

The doors are common to coupe and convertible and have dual seals and vacuum-formed water shedders with separate speaker curtains to provide internal insulation. The door casings are trimmed in UEV with cloth or ambla center pads and integral pockets are attached to the inner panels by plastic studs and retainers and a large dowel. The top rolls are integral with the door casings and trimmed to match the upper fascia.

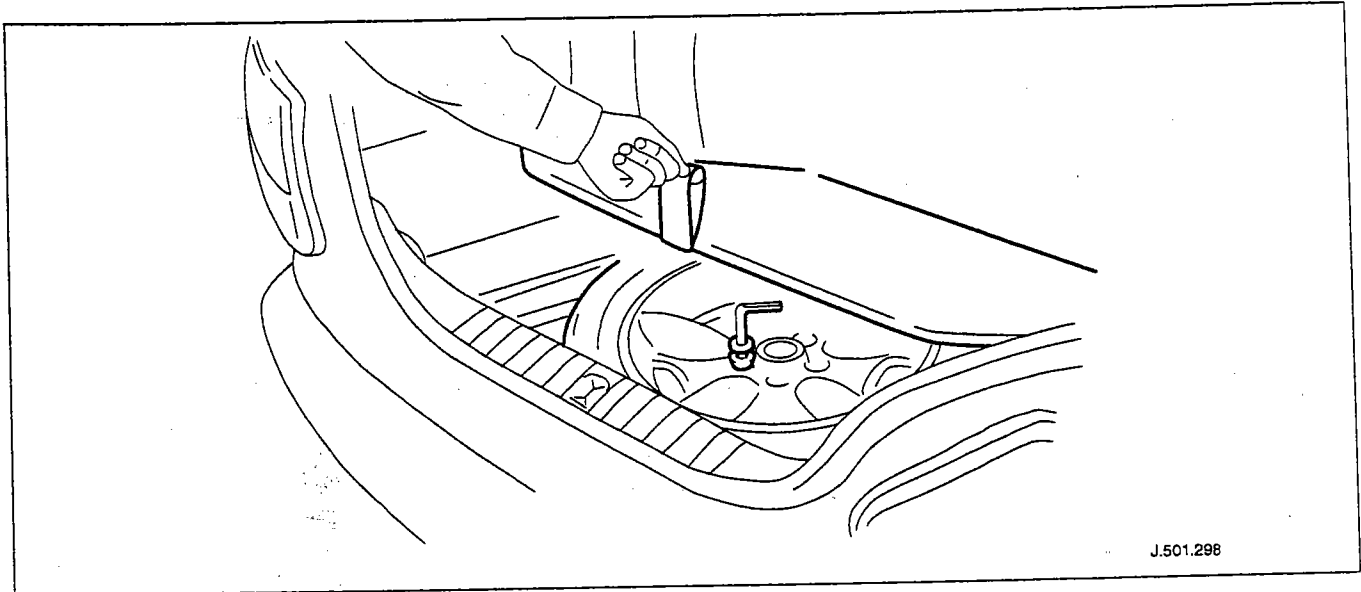
A leather trimmed armrest attached to each door casing by plastic fixings, is secured to the door by a screw passed through a pull cup into a bracket. An inset maple or burr walnut veneer switch pack is held in position by a single screw and captive nut.

DESCRIPTION AND OPERATION (Continued)**Rear Quarter Casings**

The rear quarter casings are individually styled to suit installation in either the coupe or convertible.

Both styles are trimmed in ambla and incorporate acoustic cloth-covered speakers. Coupe casings are additionally fitted with ambla-trimmed armrests and stowage trays.

Convertible rear quarter casings are secured at the rear by dowels locating in the seat squab panel, and at the front by spring steel clips locating in the 'B' posts. Coupe rear quarter casings are retained by spring steel clips located in the cantrails and 'B' posts and a screw passed through each front seat belt escutcheon. A plastic clip in each coupe rear quarter engages in the parcel shelf.

DESCRIPTION AND OPERATION (Continued)**Trunk**

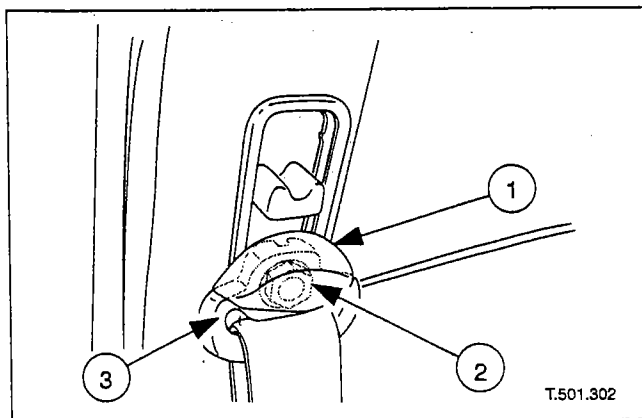
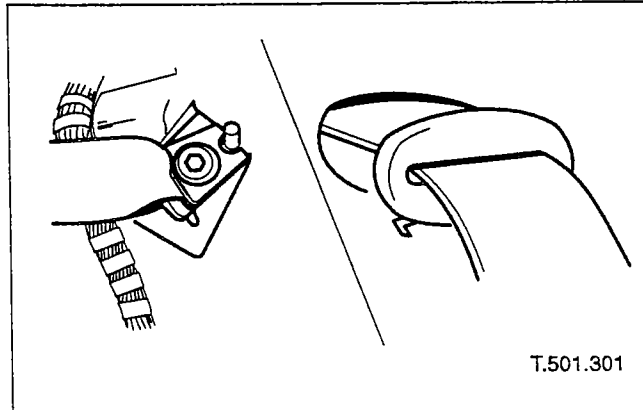
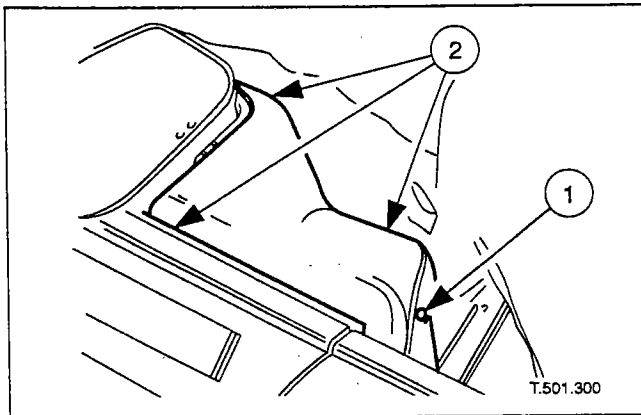
The trunk has a two-height load floor structure in order to accommodate either the full size or space-saver spare wheel. When the space saver wheel is carried, a removable center floor section is recessed in the spare wheel well. For the full size spare wheel, the floor is a one piece full-width removable section. The trunk lid, front and side casings and floor are lined with moulded single color carpet.

The trunk lid is produced in two styles to suit convertible and coupe. For some markets, a warning triangle is located in the trunk lid lining.

REMOVAL AND INSTALLATION

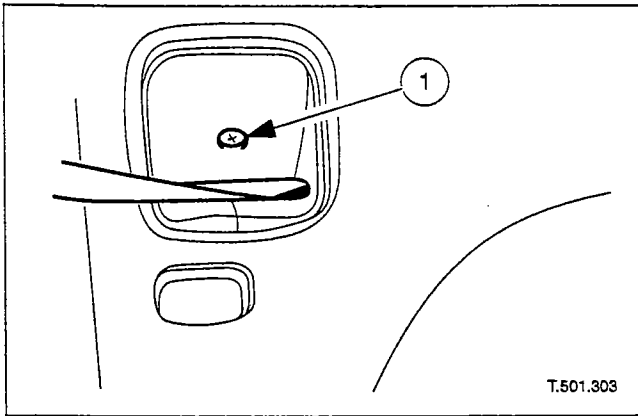
Rear Quarter Casing (76.13.73)

Removal



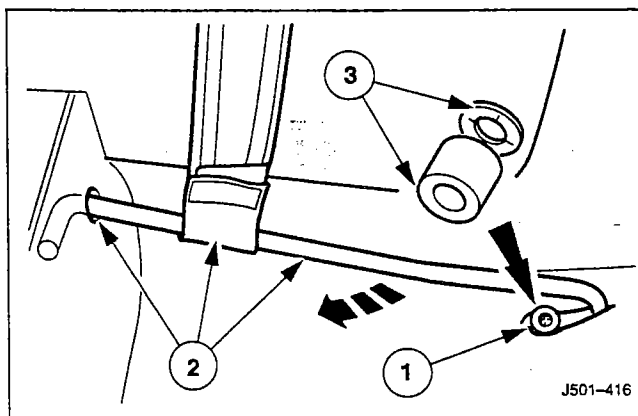
1. Remove rear seat cushion and squab. Refer to Section 501-10.
2. On coupe model, remove coat hanger hook.
3. On convertible model, remove rear quarter capping.
 - 1 Remove fastener securing rear quarter capping to 'B' post extension.
 - 2 Slacken and remove three screws securing the capping, lift capping clear and remove from vehicle.
4. On coupe model, detach rear seat belt anchor and remove escutcheon.
 - 1 Slacken and remove rear seat belt anchor plate securing bolt and retain card washer.
 - 2 Remove rear seat belt escutcheon from rear quarter casing.
5. Remove front seat belt upper anchor plate and trim.
 - 1 Unclip front seat belt upper anchor plastic cover and position for access to securing nut.
 - 2 Slacken and remove seat belt upper anchor securing nut.
 - 3 Remove seat belt upper anchor and plastic cover.

REMOVAL AND INSTALLATION (Continued)



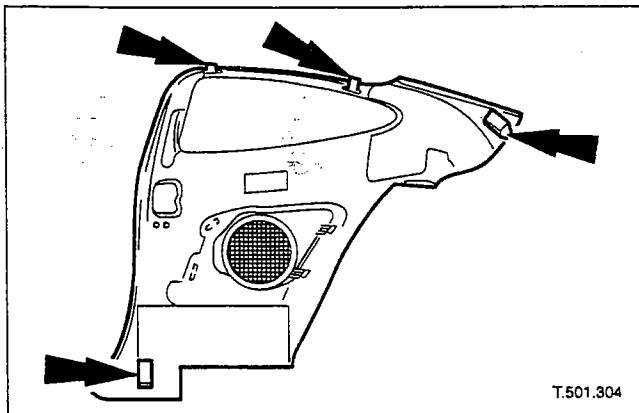
6. Remove front seat belt escutcheon.

- 1 On coupe model, slacken and remove securing screw from front seat belt upper escutcheon and remove escutcheon from rear quarter casing.

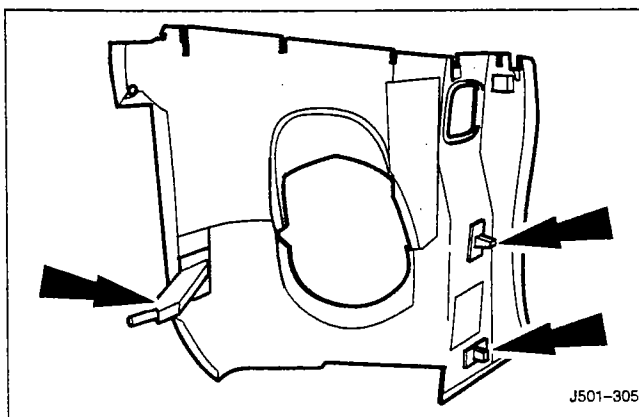


7. Detach front seat belt lower anchor bar.

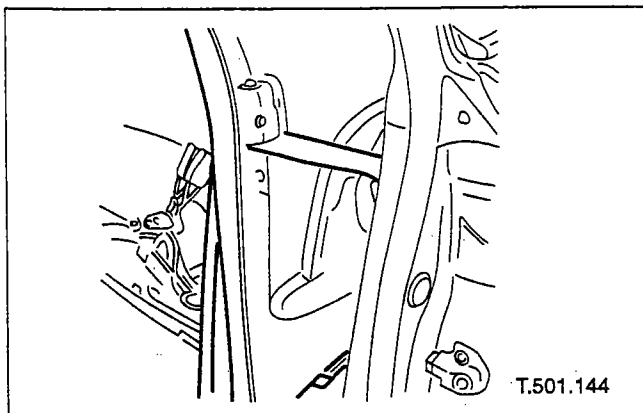
- 1 Slacken and remove front seat belt lower anchor bar securing bolt.
- 2 Remove anchor bar from body grommet and seat belt loop.
- 3 Retain anchor bar spacer and card washer.



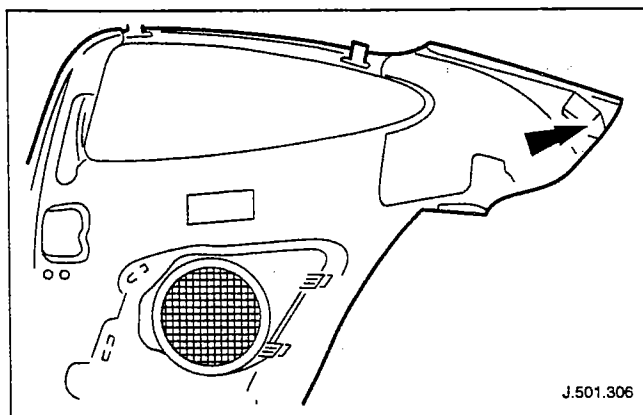
8. On coupe model rear quarter casing, release clips from locations in the cantrail, 'B' post and rear parcel shelf, and position casing for access.



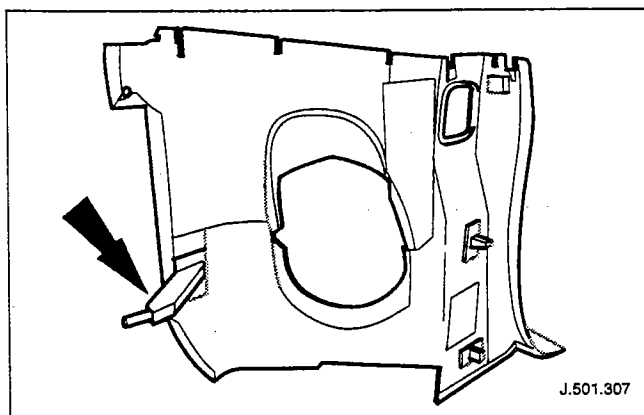
9. On convertible model rear quarter casing, release clips from locations in the 'B' post and two dowels from seat squab panel, and position casing for access.

REMOVAL AND INSTALLATION (Continued)

10. Pass seat belt anchor plates through rear quarter casing apertures and remove casing from vehicle.

Installation

11. On coupe model, position rear quarter casing and engage plastic clip in rear parcel shelf.



12. On convertible model position rear quarter casing and engage two dowels in rear seat squab panel.

13. Pass seat belt anchor plates through casing apertures.

14. Press home and fully seat the remaining casing clips in body locations.

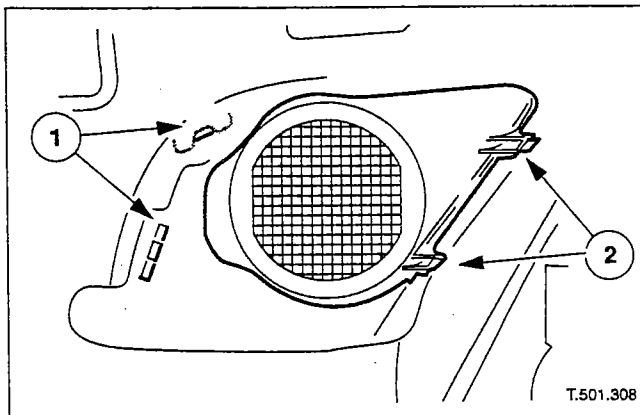
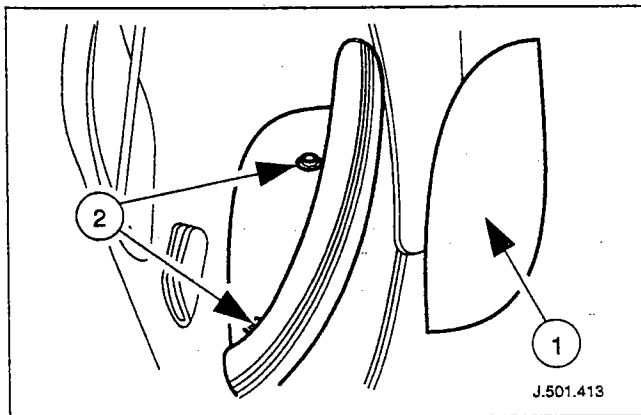
REMOVAL AND INSTALLATION (Continued)

15. Fit front seat belt anchor bar.
 - Pass front seat belt anchor bar through seat belt loop and body grommet.
 - Fit securing bolt to seat belt anchor bar.
 - Fit spacer and card washer and locate and fully tighten securing bolt.
16. Position and seat front seat belt escutcheon to casing aperture. On coupe model, fit and tighten securing screw.
17. Fit front seat belt upper anchor plate.
 - Fit plastic cover to front seat belt upper anchor plate securing stud.
 - Position upper anchor plate on securing stud and fit and tighten securing nut.
 - Fasten upper anchor plastic cover.
18. On coupe model:
 - Fit rear seat belt anchor plate.
 - Fit securing bolt to rear seat belt anchor plate.
 - Fit card washer to securing bolt.
 - Position anchor plate over bolt location and engage and fully tighten securing bolt.
 - Position and seat rear seat belt escutcheon to casing aperture.
 - Fit coat hanger hook.
19. On convertible model, position rear quarter capping, secure to 'B' post extension with fastener and fit and tighten three screws.
20. Fit rear seat squab and cushion. Refer to Section 501-10.

REMOVAL AND INSTALLATION (Continued)

Rear Quarter Armrest/Speaker Cover Assembly – Coupe Model Only (76.13.71; 76.13.66 & 76.13.70)

Removal



1. Using rear passenger entry knob, fold seat back fully forward.
2. Remove rear quarter armrest from casing.
 - 1 Remove rubber mat from stowage tray.
 - 2 Slacken and remove the two armrest securing screws and lift armrest clear of rear quarter casing.
3. Remove speaker cover from casing.
 - 1 Lift the two speaker cover front fasteners out of rear quarter casing spring clips.
 - 2 Move cover forward to release two rear plastic tangs from casing and remove cover from the vehicle.

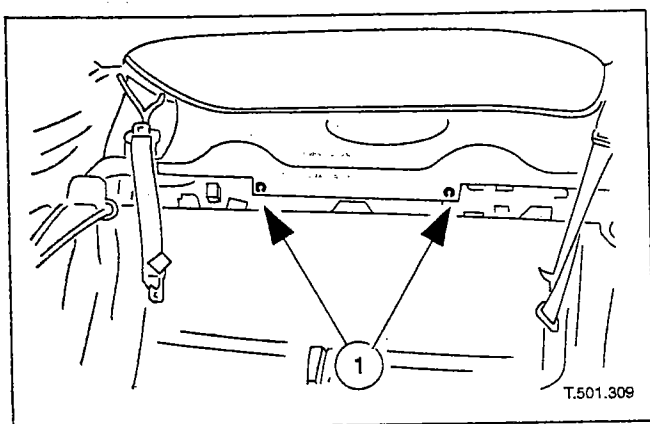
Installation

4. Fit speaker cover to rear quarter casing.
 - Position speaker cover and locate rear retaining tangs in casing.
 - Press and fully seat the two front retaining fasteners in the casing spring clips.
5. Fit armrest to rear quarter casing.
 - Position armrest on quarter casing and fit and tighten the two securing screws.
 - Fit rubber mat to stowage tray.
6. Return seat back to upright position.

REMOVAL AND INSTALLATION (Continued)**Coupe Rear Parcel Shelf (76.67.06)****Removal**

1. Remove rear seat cushion and squab. Refer to Section 501-10.
2. Remove rear quarter casings. Refer to operations in this section.
3. Remove sub-woofer speaker cover and speaker. Refer to Section 415-03.
4. Remove rear parcel shelf.

1. Slacken and remove the two rear parcel shelf securing screws, withdraw shelf and remove from vehicle.

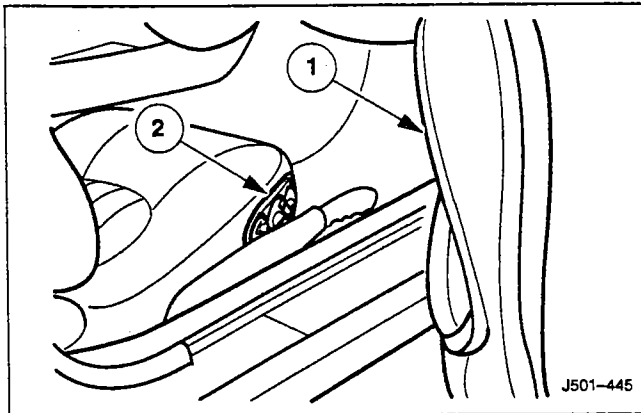
**Installation**

5. Position and fully seat rear parcel shelf.
6. Fit and tighten the two shelf securing screws.
7. Fit sub-woofer speaker and cover. Refer to Section 415-03.
8. Fit rear quarter casings. Refer to operations in this section.
9. Fit rear seat squab and cushion. Refer to Section 501-10.

REMOVAL AND INSTALLATION (Continued)

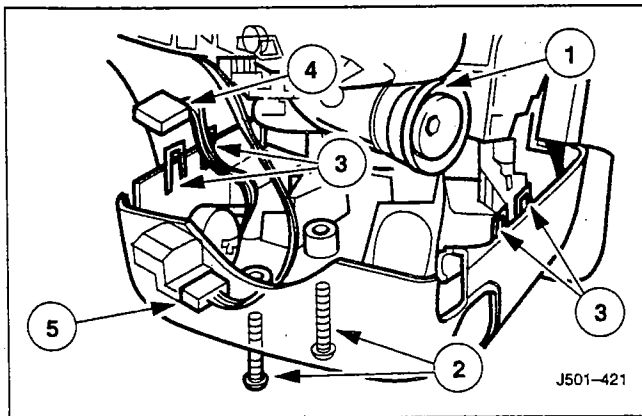
Steering Column Lower Cowl (76.46.03)

Removal



1. Move the driver's seat rearwards.

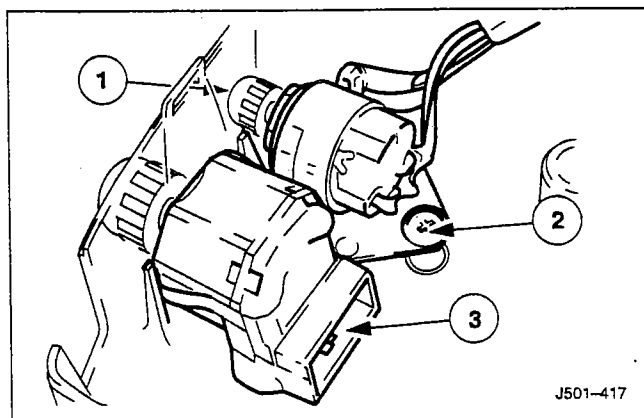
- 1 Open driver's door and ensure that it remains open.
- 2 On driver's seat switch pack, move front switch rearwards to traverse driver's seat to the rear.



2. Remove the lower cowl from the steering column.

- 1 Remove key from ignition switch.
- 2 Slacken and remove cowl securing screws.
- 3 Separate lower cowl from upper cowl (four dowels) and move lower cowl forward to access multiplugs.
- 4 Disconnect the rheostat multiplug.
- 5 Disconnect the column adjustment harness multiplug.

- Move lower cowl clear of steering column.

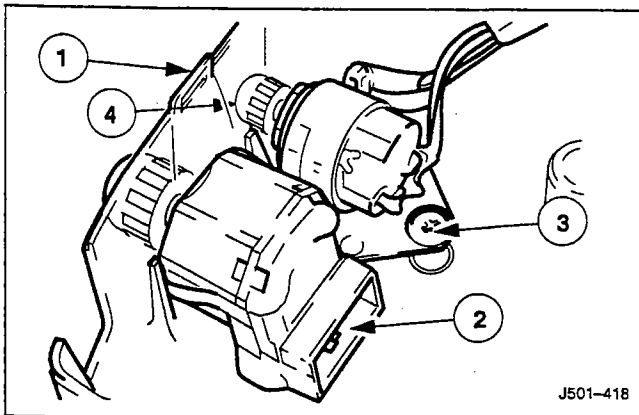


3. Remove the rheostat from the cowl.

- 1 Remove adjusting knob from rheostat.
 - 2 Slacken and remove three rheostat securing screws.
 - 3 Move retaining tangs away from the column adjustment switch and release the switch from the lower cowl.
- Remove lower cowl from the steering column.

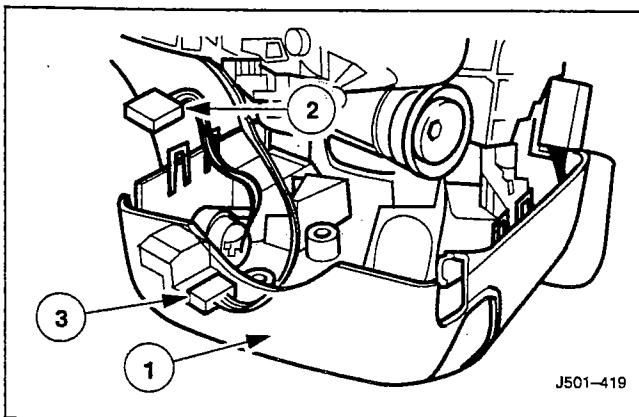
REMOVAL AND INSTALLATION (Continued)

Installation



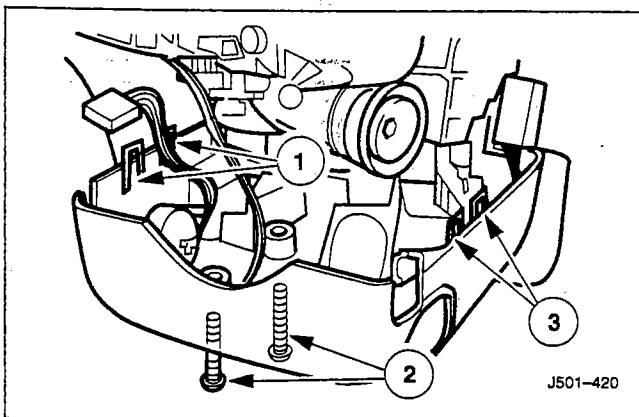
4. Fit rheostat and column switch to the lower cowl.

- 1 Position lower cowl to front of steering column.
- 2 Fit and fully seat column adjustment switch to cowl ensuring that retaining tangs fully engage.
- 3 Position rheostat in cowl and fit and tighten securing screws.
- 4 Fit and fully seat rheostat adjusting knob.



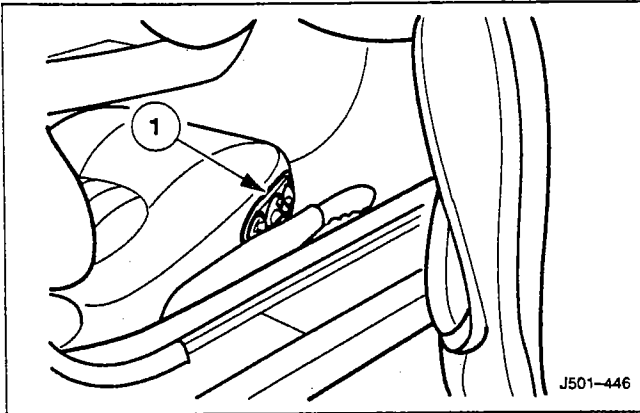
5. Connect multiplugs.

- 1 Position cowl to facilitate re-connection of multiplugs.
- 2 Connect rheostat harness multiplug.
- 3 Connect column adjustment harness multiplug.



6. Fit lower cowl.

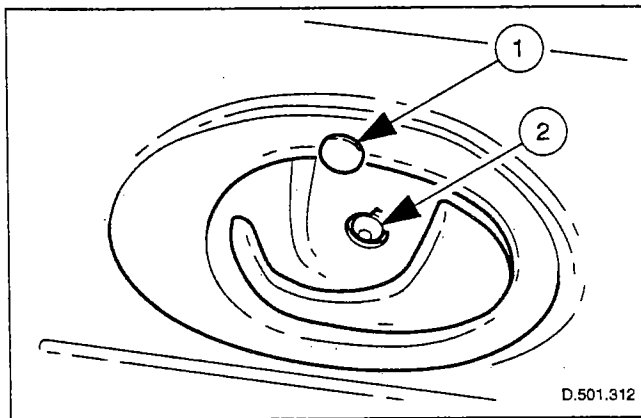
- 1 Locating four dowels, fit lower cowl to upper cowl.
- 2 Fit and tighten cowl securing screws.

REMOVAL AND INSTALLATION (Continued)

7. Re-position driver's seat.

1 On driver's seat switch pack move front switch forward to return seat to original position.

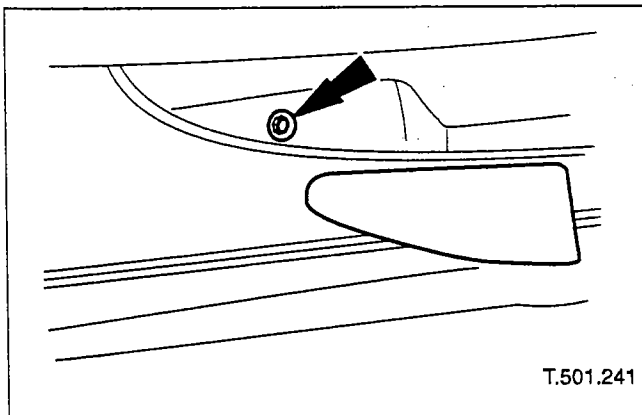
- Shut driver's door.

Door Casing (76.34.01)**Removal**

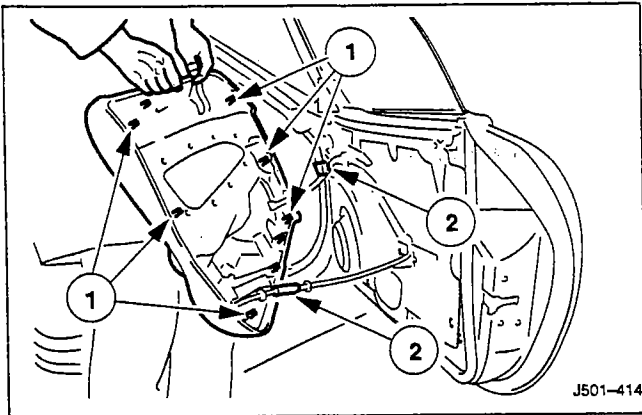
1. Remove door escutcheon.

1 Holding door handle in the open position, remove the escutcheon securing screw cover.

2 Slacken and remove the escutcheon securing screw, remove escutcheon from door casing and return door handle to closed position.



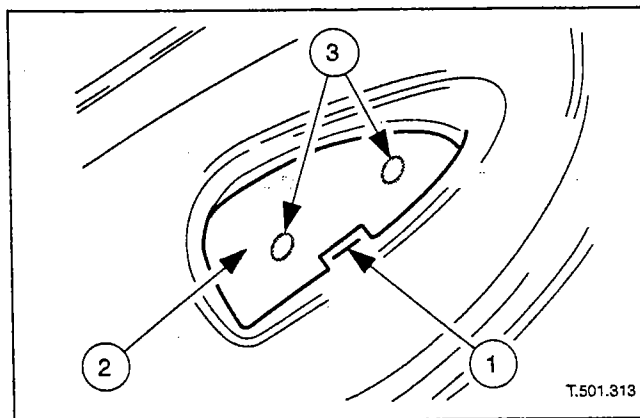
2. Remove rubber trim mat from rear of door pocket and slacken and remove the securing screw.

REMOVAL AND INSTALLATION (Continued)

3. Remove door casing for access to multiplugs.

1 Release eight studs securing the casing to the door.

2 Position the casing for access and disconnect the door switch pack and puddle lamp multiplugs.



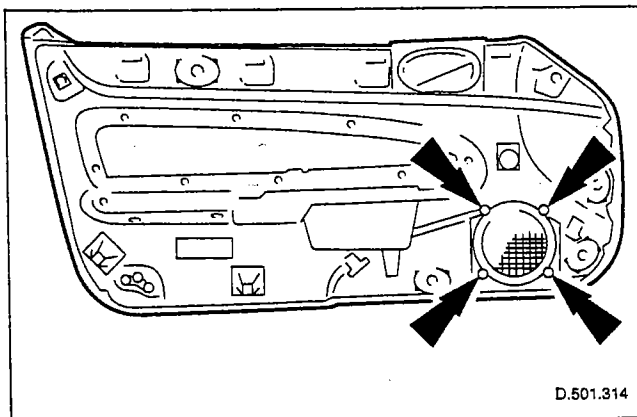
4. Remove door casing from vehicle.

5. Remove puddle lamp lens.

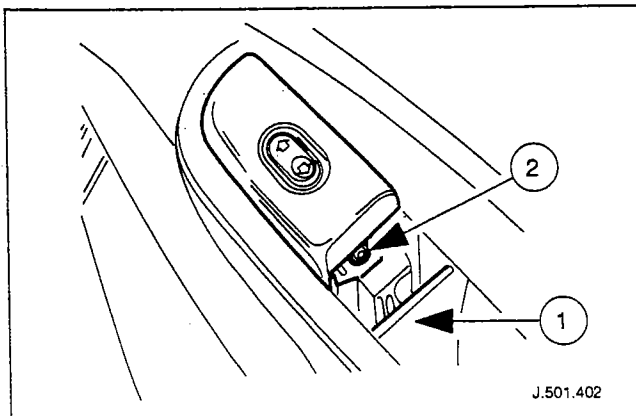
1 Move puddle lamp lens securing tab downwards.

2 Slide lens downwards to release it from the lamp assembly.

3 Slacken and remove two screws securing the puddle lamp assembly to the casing and remove puddle lamp from casing.



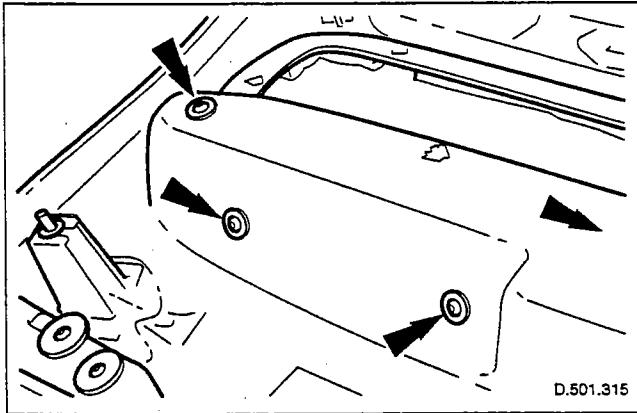
6. Slacken and remove the door speaker cover securing screws from lower face of trim pad and remove cover from casing.



7. Remove door switch pack assembly.

1 Using a suitable plastic hook, lift and remove trim from front of door pocket.

2 Slacken and remove screw securing switch pack to door casing and remove switch pack.

REMOVAL AND INSTALLATION (Continued)

8. Slacken and remove four screws securing armrest to door casing and remove armrest from casing.

9. Remove securing studs from door casing.

Installation

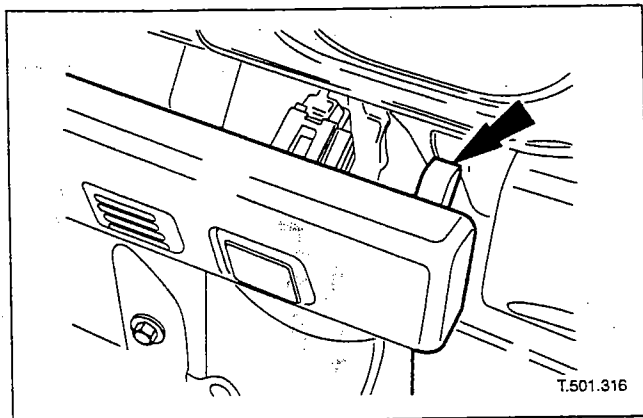
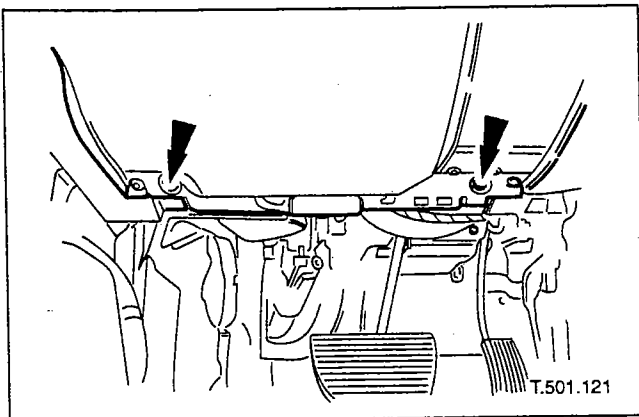
10. Fit new securing studs to casing.
11. Position armrest on casing and fit and tighten the four securing screws.
12. Position switch pack on casing and fit and tighten securing screw.
13. Fit trim to front of door pocket.
14. Position speaker cover on casing and fit and tighten securing screws.
15. Position and align puddle lamp assembly on casing and fit and tighten two securing screws.
16. Fit lens to puddle light assembly.
17. Position casing at door and connect switch pack and puddle lamp multiplugs.
18. Align casing to door and press and fully seat securing studs into door locations.
19. Fit and tighten securing screw to rear of door pocket.
20. Fit rubber trim mat to rear of door pocket.
21. Holding door handle in open position, fit escutcheon to casing and fit and tighten securing screw. Fit securing screw cover.
22. Return door handle to closed position.

REMOVAL AND INSTALLATION (Continued)

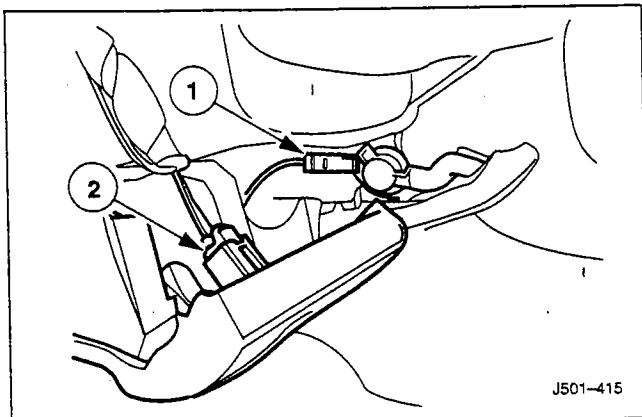
Driver's Side Underscuttle (76.46.11)

Removal

1. Remove battery cover and disconnect earth lead from terminal. Refer to operations in Section 414-01.
2. Slacken and remove the two screws securing the lower underscuttle to the fascia panel cross-member.



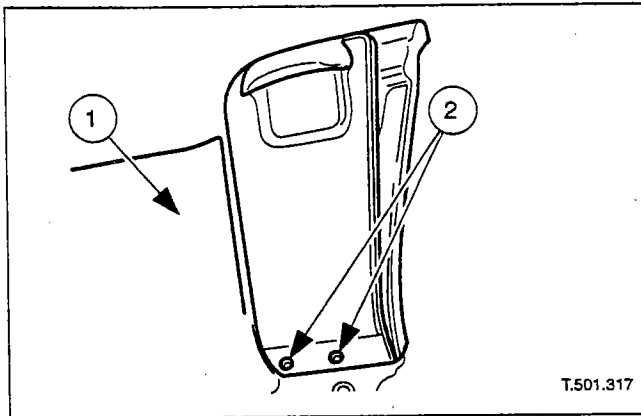
3. Withdraw the underscuttle upper fasteners from their locations in the fascia panel.



4. Position the underscuttle rearwards for access.
5. Disconnect harness multiplugs and reposition underscuttle.

1 Disconnect air conditioning aspirator harness multiplug.

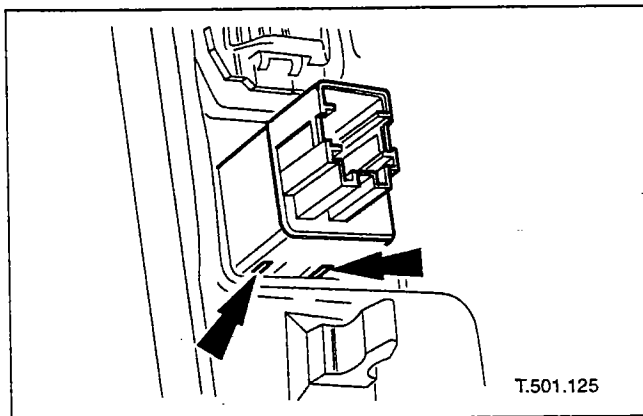
2 Disconnect valet switch harness multiplug.

REMOVAL AND INSTALLATION (Continued)

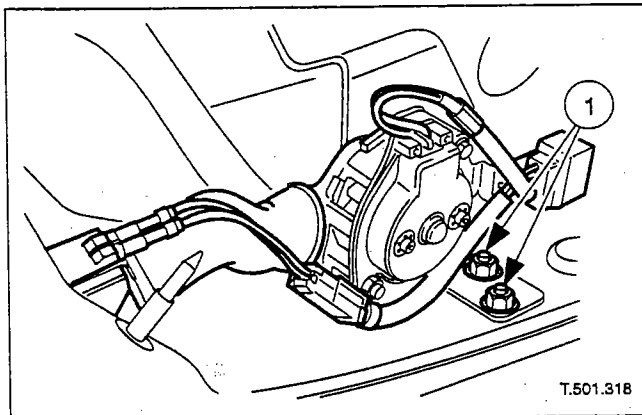
6. Remove stowage compartment lid.

1 Position underscuttle for access.

2 Slacken and remove two screws securing the stowage compartment lid to the underscuttle and remove the lid.

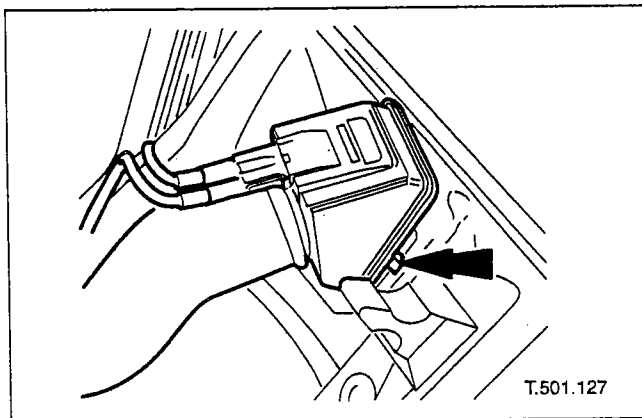


7. Release the valet switch securing tangs and remove the switch.



8. Remove air conditioning aspirator.

1 Slacken and remove the two nuts securing the air conditioning aspirator mounting bracket to the vent and remove the aspirator.



9. Release the aspirator vent securing tangs and remove the vent from the underscuttle.

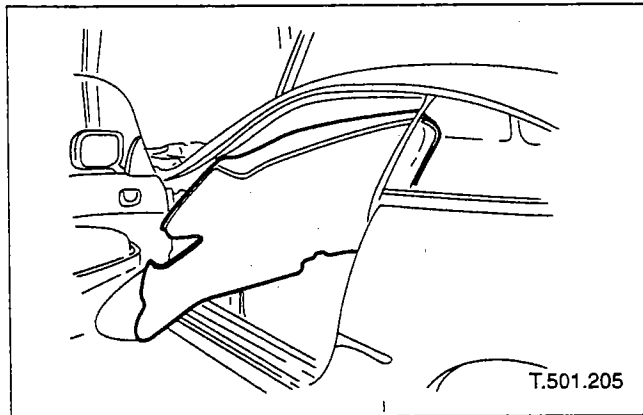
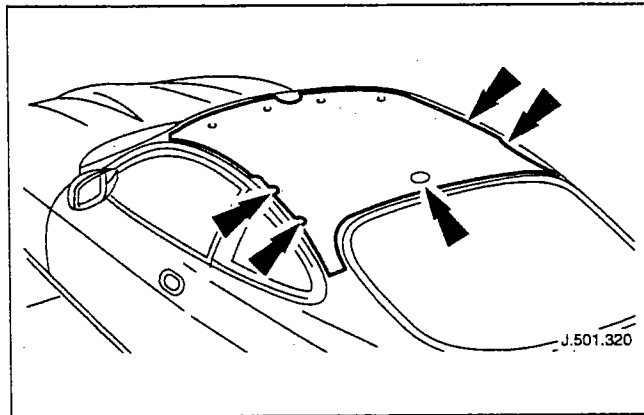
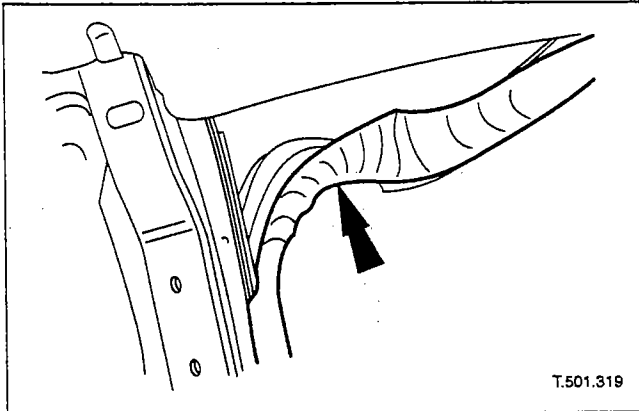
10. Remove the underscuttle from the vehicle.

REMOVAL AND INSTALLATION (Continued)**Installation**

11. Fit components to underscuttle.
 - Fit and fully seat air conditioning aspirator vents to underscuttle.
 - Fit and fully seat aspirator mounting bracket onto vent studs and fit and tighten bracket securing nuts.
 - Fit stowage compartment lid and fit and tighten securing screws.
12. Fit underscuttle to vehicle.
 - Position underscuttle below fascia.
 - Connect valet switch, and air conditioning aspirator harness multiplugs.
 - Position underscuttle and seat upper fasteners.
 - Position underscuttle on lower cross-member and fit and tighten the two securing screws.
13. Connect battery earth lead and fit battery cover. Refer to operations in Section 414-01.

Headlining (76.64.01)**Removal**

1. Remove front seats and rear seat cushion and squab. Refer to operations in this section.
2. Remove battery cover and disconnect earth cable from battery terminal. Refer to Section 414-01.
3. Remove rear quarter casings. Refer to operations in this section.
4. Remove coat hanger hook.
5. Remove 'J' gate surround. Refer to operations in this section.
6. Remove center console. Refer to operations in this section.
7. Remove 'A' post upper trim panels. Refer to operations in this section.
8. Remove sun visors.

REMOVAL AND INSTALLATION (Continued)

9. Remove roof console. Refer to operations in this section.
10. Withdraw each door aperture seal from flange upper section.

11. Position headlining for access.

- Easing the body tabs back to release the headlining, progressively move the headlining downwards to access interior light multiplug.
- Disconnect interior light multiplug and free headlining from remaining body tabs.

12. Avoiding damage to fascia, door aperture seals and door casings, lift and turn headlining through 90 degrees, tilt into passenger footwell and remove from vehicle.

13. Remove interior light from headlining.

Installation

14. Fit interior light to headlining.
15. Place headlining in vehicle tilted to position with one end in footwell and opposite end at top of door aperture.
16. Lift and rotate headlining through 90 degrees.

REMOVAL AND INSTALLATION (Continued)

17. Position headlining at roof and reposition door aperture seals to retain it.
18. Connect interior light multiplug.
19. Fully seat headlining ensuring correct positioning over backlight flange.
20. Bend body tabs into position to secure headlining.
21. Fit roof console. Refer to operations in this section.
22. Fit both sun visors.
23. Fit 'A' post upper trim panels. Refer to operations in this section.
24. Fit center console assembly. Refer to operations in this section.
25. Fit 'J' gate surround. Refer to operations in this section.
26. Fit coat hanger hooks.
27. Fit both rear quarter casings. Refer to operations in this section.
28. Fit rear seat squab and cushion. Refer to operations in this section.
29. Connect earth cable to battery terminal and fit battery cover. Refer to Section 414-01.
30. Fit front seats. Refer to operations in this section.

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SECTION 501-08 Exterior Trim and Ornamentation

VEHICLE APPLICATION: X100

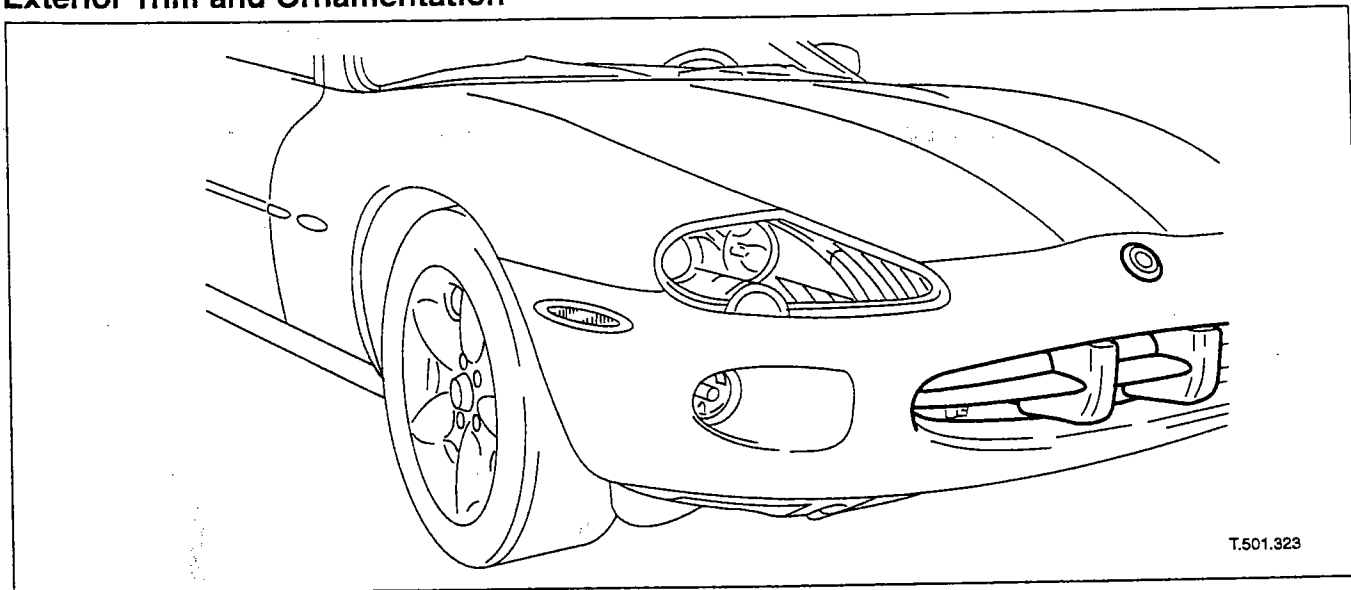
SUBJECT

PAGE

DESCRIPTION AND OPERATION

Exterior Trim and Ornamentation 501-08-2

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DESCRIPTION AND OPERATION**Exterior Trim and Ornamentation****Body Front**

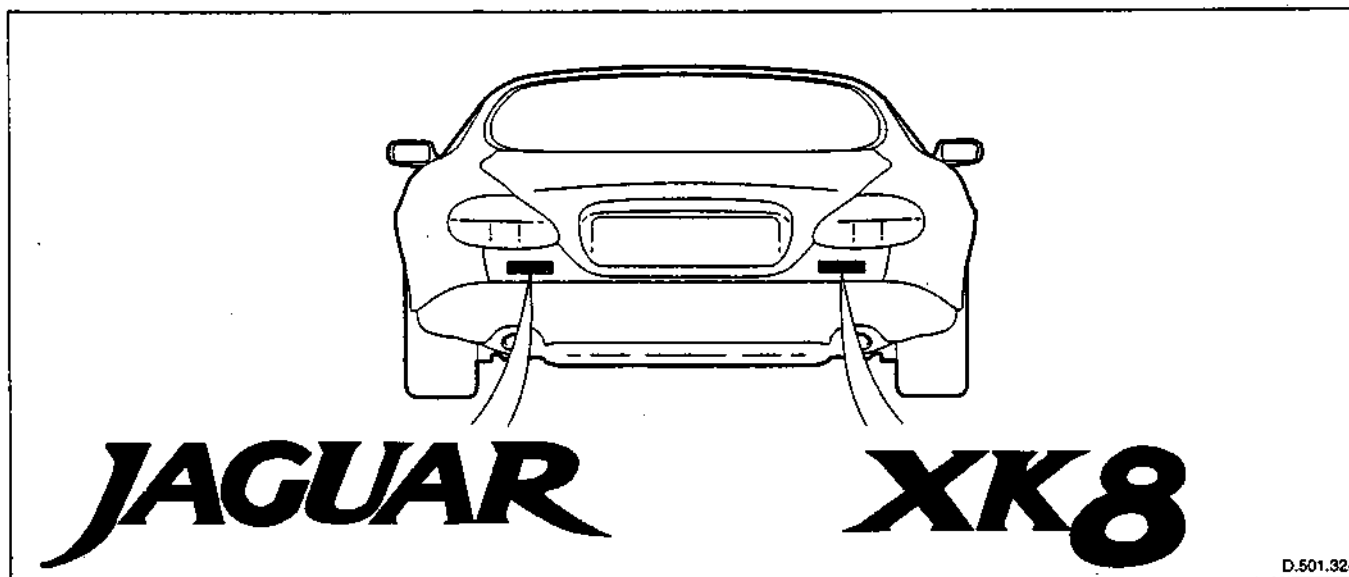
A chrome splitter vane assembly installed centrally in the bumper casing air intake incorporates polyurethane covers for the two bumper beam overriders. A Jaguar 'growler' badge is mounted centrally on the upper face of the front bumper casing.

Body Sides

For certain markets, a Jaguar 'leaper' badge is surface mounted on the rear of each fender in place of side repeater lamps. Three piece color-keyed body side mouldings are surface mounted to align with the side repeaters or Jaguar 'leaper' badges dependent upon the market. Chrome door handles are fitted for N. American markets.

Door Sills

Extruded, polished aluminum tread plates with 'Jaguar XK8' inscriptions are fitted to the door sills.

DESCRIPTION AND OPERATION (Continued)**Body Rear**

Two script badges are surface mounted on the trunk rear panel. A 'Jaguar' badge is fitted on the LH side, and an 'XK8' badge on the RH side has external trunk lock key access between the letters X and K.

Glazing

Door glass trims and one piece windshield and coupe backlight finishers are in extruded aluminum alloy and painted Dorchester grey on all cars. Coupe quarter-light trims are secured to the body at waist level by 'T' studs, and at the top by clips bonded with the glass as an assembly.

SECTION 501-09 Rear View Mirrors

VEHICLE APPLICATION: X100

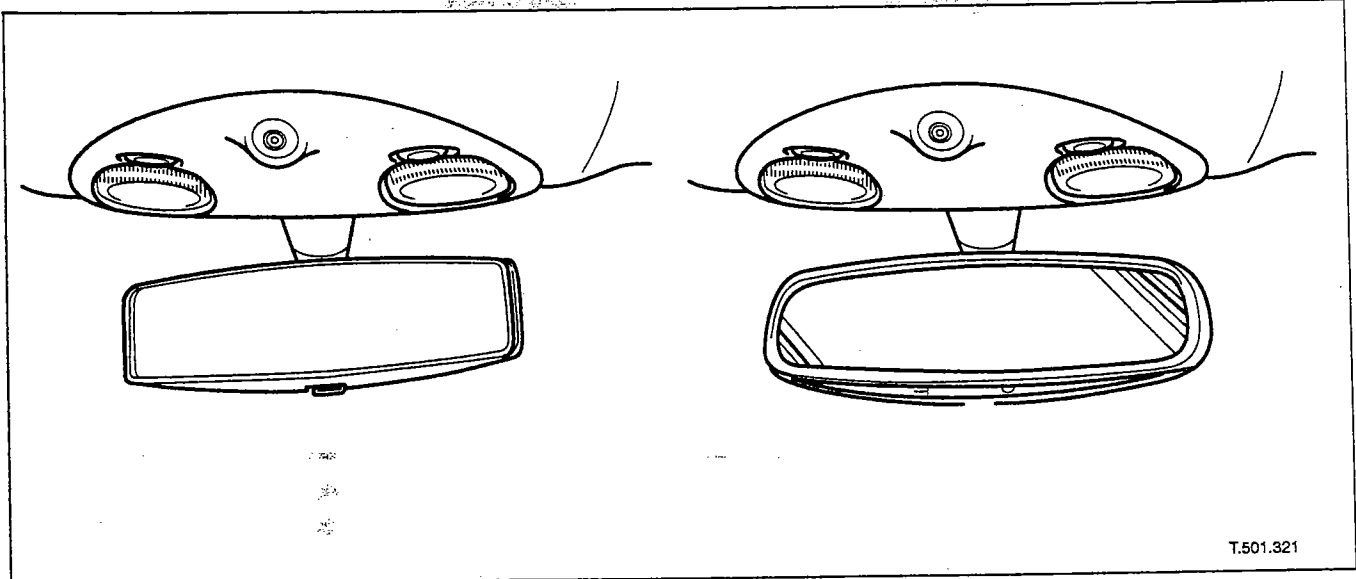
SUBJECT	PAGE
DESCRIPTION AND OPERATION	
Rear View Mirrors	501-09-2
REMOVAL AND INSTALLATION	
Exterior Mirror Glass, Exterior Mirror Cap & Exterior Mirror Assembly	501-09-4

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DESCRIPTION AND OPERATION

Rear View Mirrors

Interior Rear View Mirrors

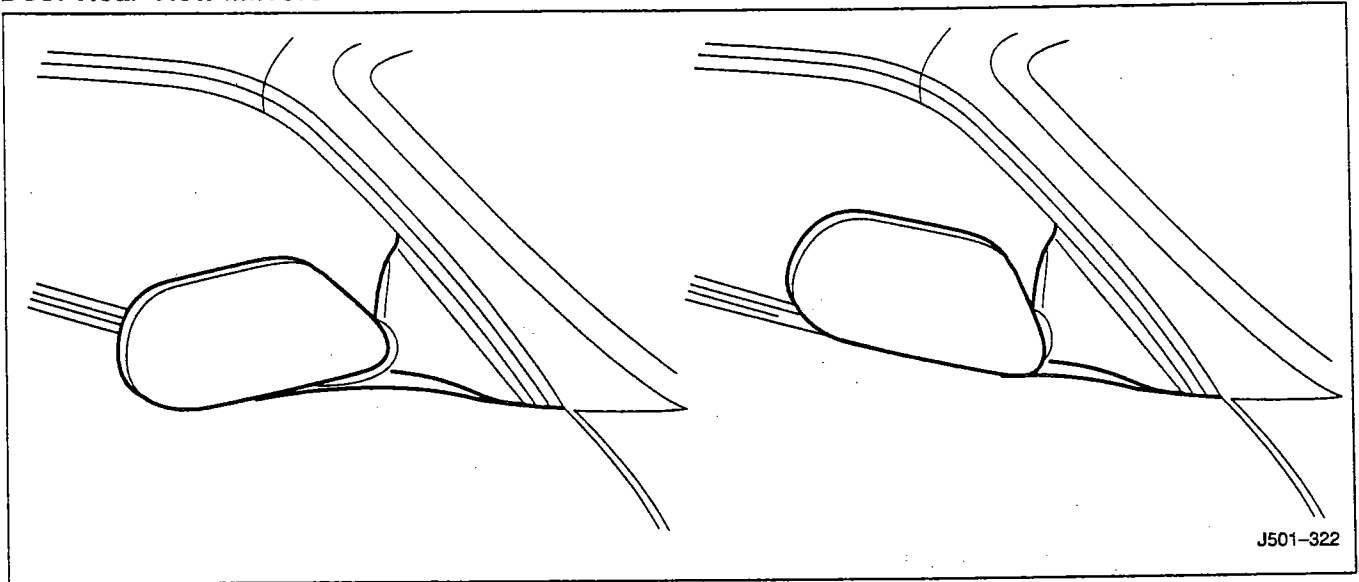


The manual dipping mirror is a prismatic unit with mirror dipping achieved by pulling lever A forward.

Where fitted, electrochromic mirrors automatically darken to prevent glare from following vehicle lights. This automatic function is selected by pressing switch B, and an LED illuminates to indicate automatic dipping is operative. Switch B is pressed again to cancel this function.

DESCRIPTION AND OPERATION (Continued)

Door Rear View Mirrors



J501-322

The door mirrors are cheater mounted, color-keyed units, remote electrically adjustable and heated. Adjustment of both mirrors is carried out from the driver's door switchpack. Selector switch B selects the mirror to be adjusted, and toggle switch A adjusts the selected mirror to the required position.

NOTE: When selector switch B is in central position, mirror adjustment is inhibited.

NOTE: Mirror adjustment can only be made when ignition switch is in position I or II, or driver's door is open.

If the electrochromic system is fitted, the door mirrors will also automatically darken under control of interior rear view mirror. Mirror heating elements operate on selection of backlight heating.

Automatic dipping of passenger door mirror for kerb view when reversing, is fitted as part of the memory pack. With the ignition switch in position II, the mirror selector switch in the left or right position and reverse gear selected, automatic dipping is initiated by moving the mirror toggle switch rearwards and releasing.

On receipt of the dip signal, the passenger door mirror is driven downwards either 7 degrees, bottom of travel, or 4,5 to 5,5 seconds, whichever occurs first. Subsequent rearward movement of the toggle switch achieves further dipping of the mirror in the same increments and sequence.

The mirror can be manually returned to the normal memorised position by moving the toggle switch forward with reverse gear selected. The mirror will automatically return to memorised position on deselection of reverse gear, or moving ignition switch from position II.

Door mirror fold-back where fitted, to facilitate parking in confined spaces, can be initiated when the ignition switch is in position I or II, the mirror selector switch is in the central position and vehicle speed is below 19 km/h (12 mph). Mirror fold-back is then initiated by moving the toggle switch rearwards and releasing it. The door mirrors are returned to the normal driving position by again moving toggle switch rearwards. There is no speed constraint on this operation.

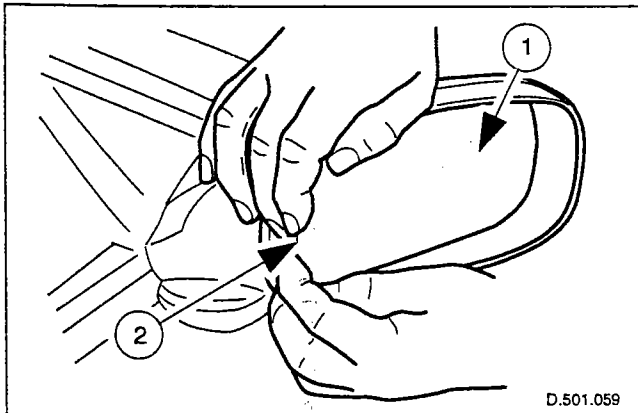
CAUTION: In the event of a fold-back mirror becoming 'out of position' due to accidental impact, it must only be re-positioned by initiating the fold-back sequence. No attempt must be made to manually return the mirror to the normal position.

Loss of power supplies will result in loss of mirror fold-back memory. In the event of such a memory loss with mirrors in the normal position, fold-back will operate on second movement of the toggle switch. On loss of memory with mirrors in the fold-back position, they will return to the normal position on next fold-back operation.

REMOVAL AND INSTALLATION

Exterior Mirror Glass (76.10.53), Exterior Mirror Cap (76.11.26) & Exterior Mirror Assembly (76.10.52)

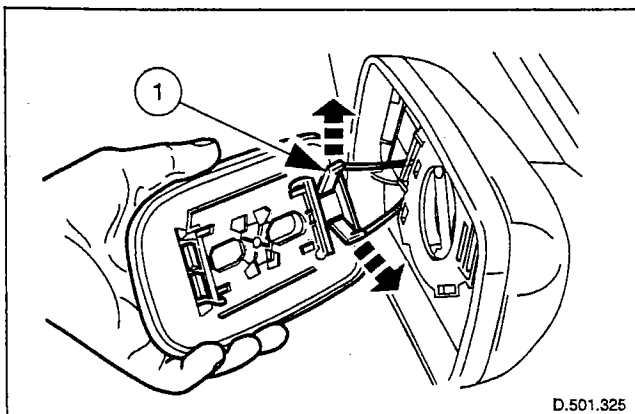
Removal



CAUTION: If as a result of accidental impact, a powered fold-back mirror is moved 'out of position', it must only be re-positioned by initiating the fold-back sequence as described in this section. No attempt must be made to manually return the mirror to the normal position. Failure to adopt this procedure will result in vibration of the unlocked mirror head and consequent loss or distortion of rear vision.

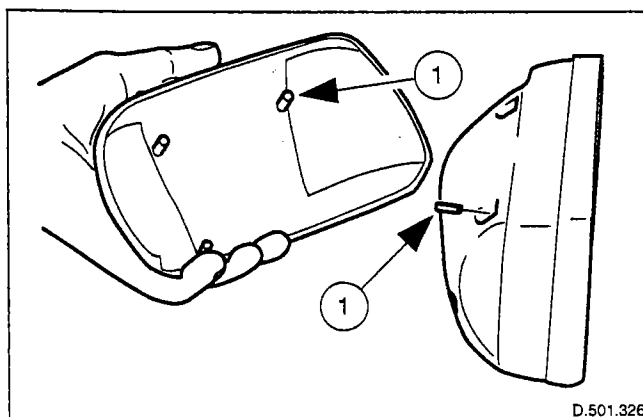
1. Remove exterior mirror glass.

- 1 Motor glass to fully outwards position.
- 2 Pressing inner edge of glass outwards, ease outer extremity rearwards away from mirror housing.



2. Disconnect and remove mirror glass.

- 1 Ease glass clear of base, disconnect the two spade connectors and remove glass from mirror housing.

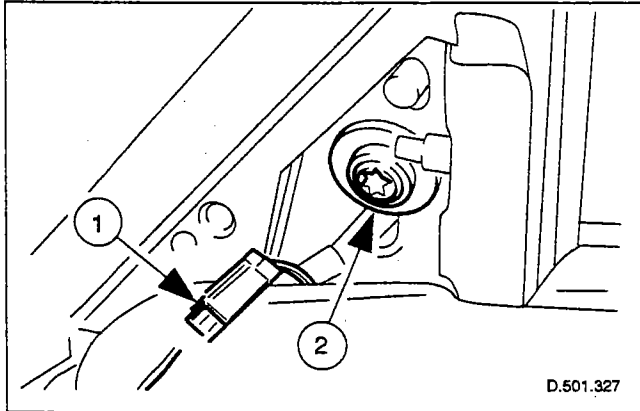


3. Remove exterior mirror cap.

- 1 From housing interior, press out the three cap dowels complete with securing clips.
- Remove mirror cap from casing.
 - Remove and discard the securing clips.

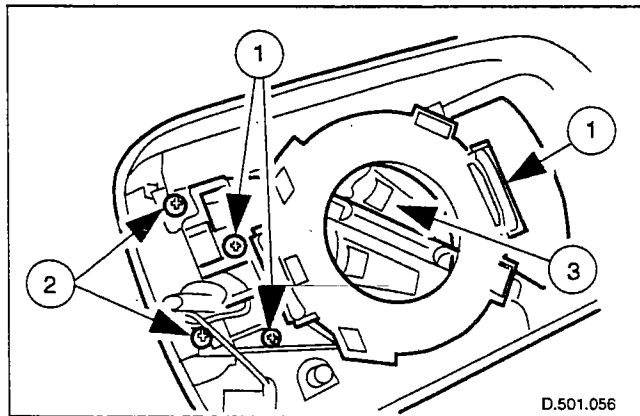
4. Fully open door glass.

REMOVAL AND INSTALLATION (Continued)



5. Remove door frame cheater trim. (Tweeter on premium ICE models).
6. Remove door casing. Refer to Section 501-05.
7. Remove mirror housing from door.

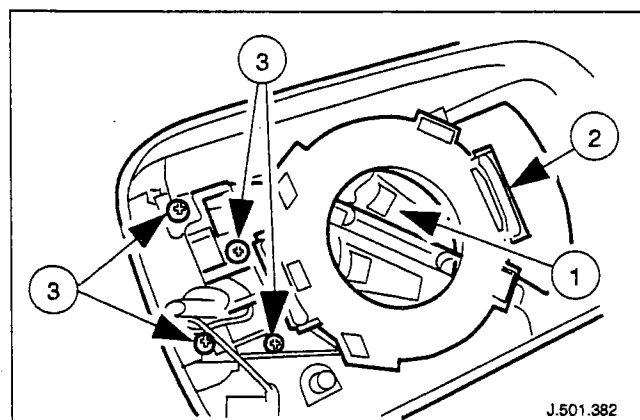
- 1 Disconnect mirror harness multiplug in door.
- 2 Supporting mirror, slacken and remove securing screw and remove mirror assembly from door.



8. Remove movement motor pack from housing.

- 1 Slacken and remove the three self tapping screws securing motor pack to housing.
- 2 Slacken and remove two screws and nuts securing motor pack to fold back mounting.
- 3 Partially withdraw motor pack, disconnect multiplug and remove motor pack from mirror housing.

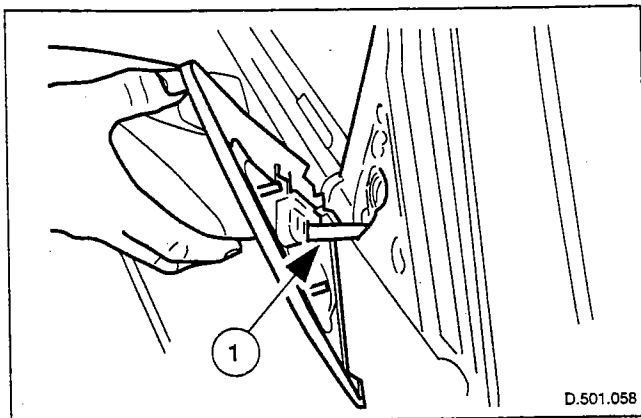
Installation



9. Fit glass movement motor pack to housing.

- 1 Position motor pack and connect multiplug.
- 2 Place motor in housing ensuring that harness is correctly routed and not trapped.
- 3 Fit and tighten the three self tapping screws and two screws and nuts securing motor pack to housing and fold back mounting.

REMOVAL AND INSTALLATION (Continued)



10. Fit exterior mirror assembly to door.

1 Pass harness and multiplug through cheater aperture and position mirror foot on cheater, locating the two dowels correctly and ensuring correct seating on seal.

- Fit and tighten the mirror assembly securing screw.
- Connect mirror assembly harness multiplug, position in door and reposition door foam.

11. Fit door frame cheater trim.

12. Fit door casing. Refer to Section 501-05.

13. Close door glass.

14. Fit glass to mirror housing.

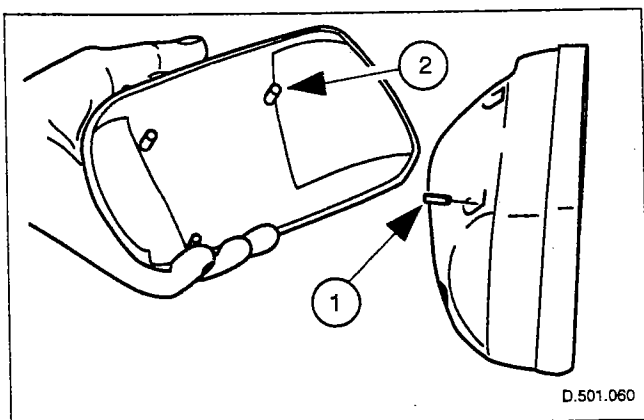
- Holding glass in position, connect the two spade connectors.
- Engage the mirror inner retainer on the motor lug and press the mirror outer edge forward to engage the outer retainer.



15. Fit cap to mirror housing.

1 Fit and fully seat three new cap securing clips to mirror base.

2 Align mirror cap dowels with the securing clips and press firmly into place.



SECTION 501-10 Seating

VEHICLE APPLICATION: X100

SUBJECT	PAGE
SPECIFICATIONS	
Torques	501-10-2
DESCRIPTION AND OPERATION	
Seating	501-10-3
REMOVAL AND INSTALLATION	
Front Seat	501-10-5
Front Seat Squab Cover & Front Seat Squab	501-10-6
Front Seat Back Finisher	501-10-8
Rear Seat Cushion	501-10-9
Rear Seat Squab	501-10-10

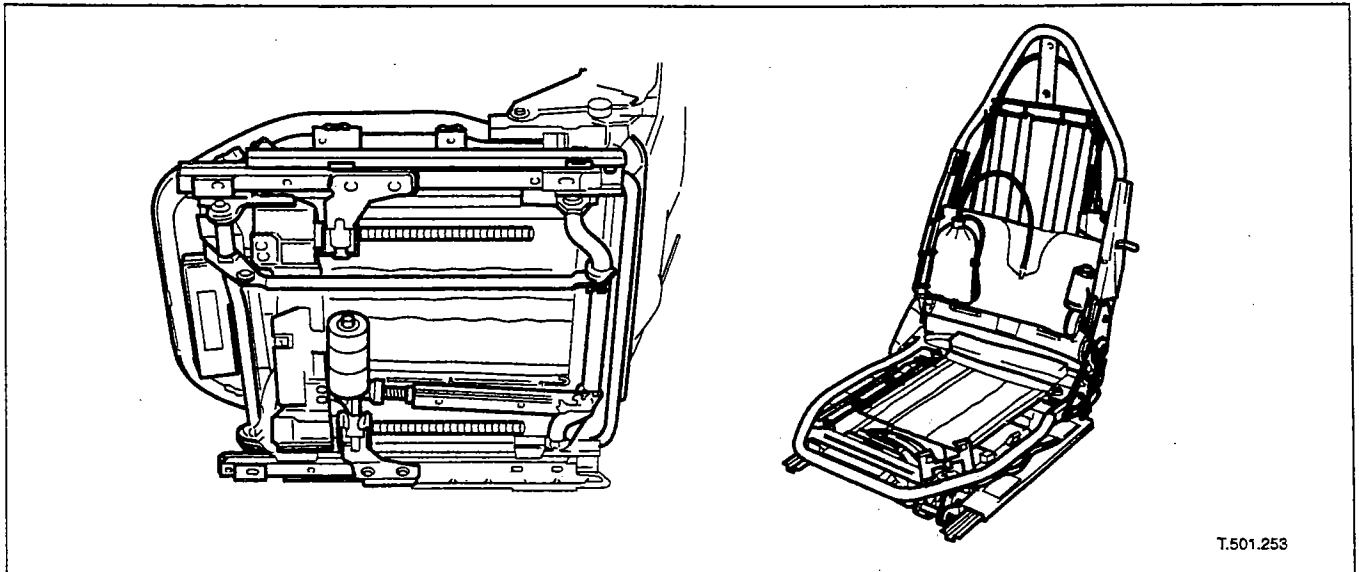
SPECIFICATIONS**Torques**

	Nm
Cushion to slide	22 - 28
Slide to floor	22 - 28
Recline to squab frame	7 - 10

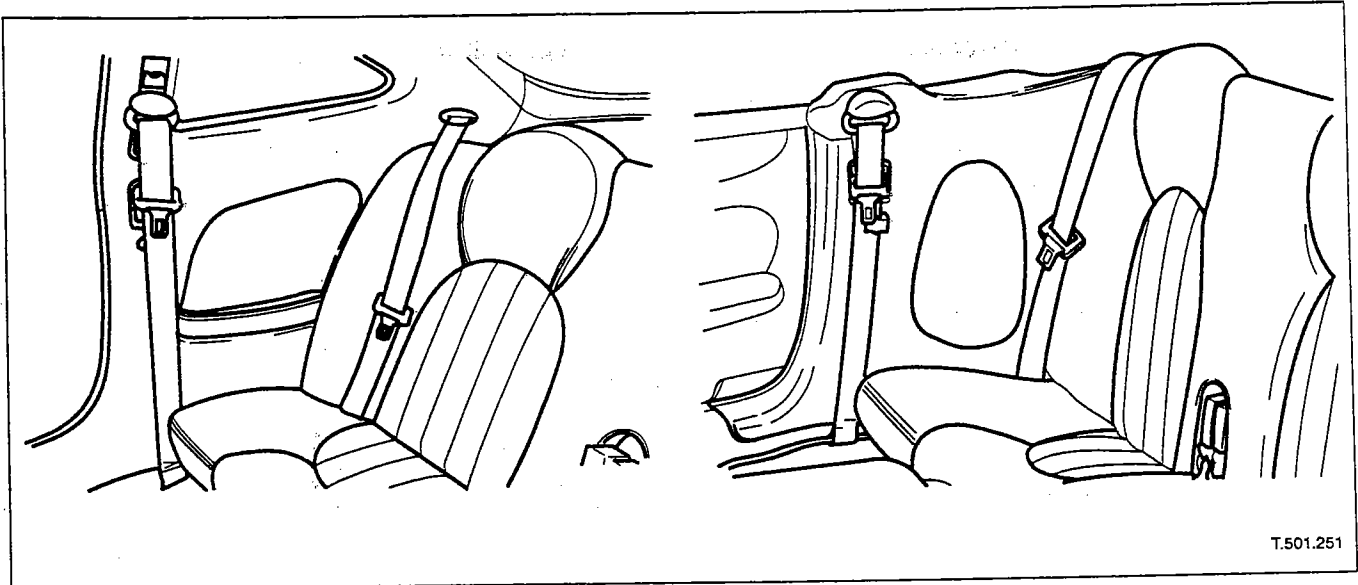
DESCRIPTION AND OPERATION

Seating

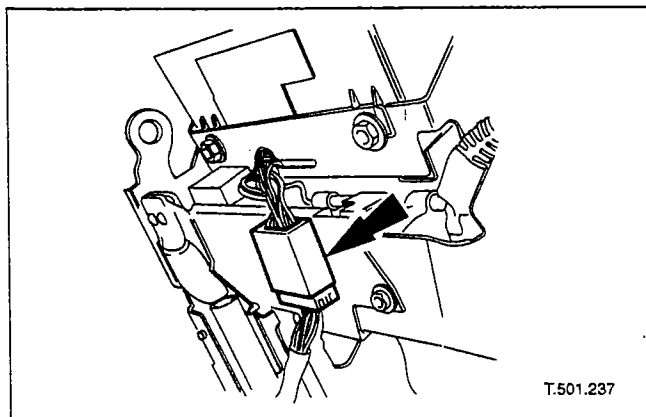
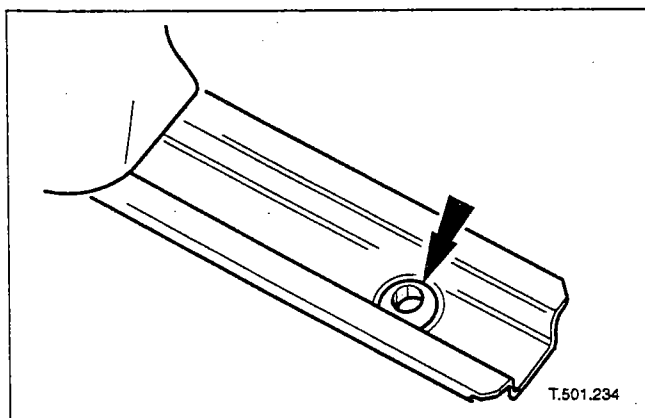
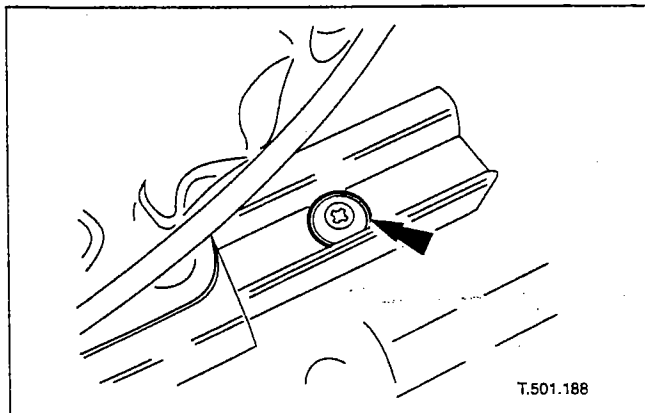
Front Seats



The front seat frames are common to the coupe and convertible. Standard seats have leather trimmed facings and cloth centers, with ambla cushions, squab borders and rear map pockets. Seat movement control switch assemblies installed in outboard side of driver and passenger seats, operate motors for fore and aft, recline and raise and lower adjustments via control modules installed below seat frames. Options and market variations include leather/ambla trim with lumbar support adjustment, seat heating, driver's seat position memory and passenger seat height adjustment. Only one of the slide recline or height adjustment motors can be driven under manual control at any one time. On vehicles fitted with driver's seat memory each motor is fitted with feedback potentiometers. When fitted, seat heating is controlled via illuminated on/off switches installed in the center console.

DESCRIPTION AND OPERATION (Continued)**Rear Seats**

Styled for dedicated installation in the coupe or convertible, the rear seats are wire framed units trimmed to match the front seats. There is no provision for rear seat adjustment on either model. Child seat mountings are provided where legally required.

REMOVAL AND INSTALLATION**Front Seat (76.70.01)****Removal**

1. Turn ignition key to position II and motor seat to fully rearward position.
2. Slacken and remove the two seat front securing bolts.
3. Motor seat to fully forward position and turn ignition key to position O.
4. Slacken and remove the two seat rear securing bolts.
5. Position front seat for access, disconnect seat harness multiplug and remove seat from vehicle.

REMOVAL AND INSTALLATION (Continued)

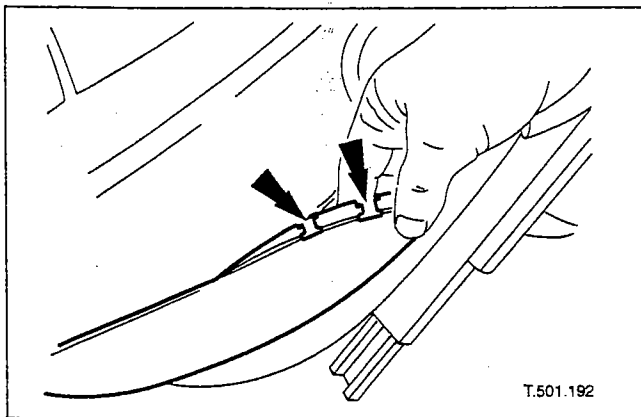
Installation

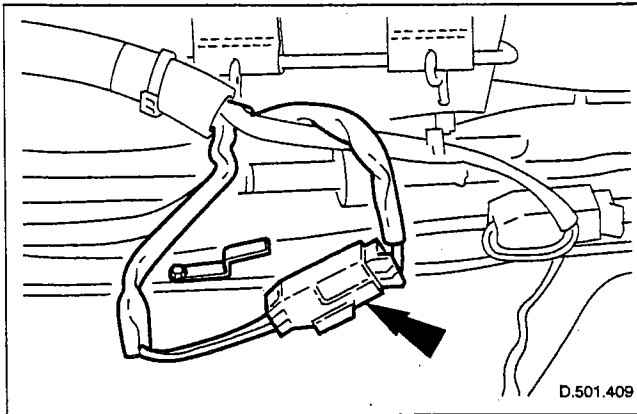
6. Position front seat in vehicle and connect seat harness multiplug.
7. Position seat to align bolt holes.
8. Fit the two seat rear securing bolts and screw them almost home but do not tighten.
9. Turn ignition key to position II and motor seat fully rearward.
10. Fit and tighten the two seat front securing bolts.
11. Motor seat fully forward and fully tighten the rear securing bolts.
12. Motor seat to original position and turn ignition key to O.

Front Seat Squab Cover (76.70.25) & Front Seat Squab (76.70.06)

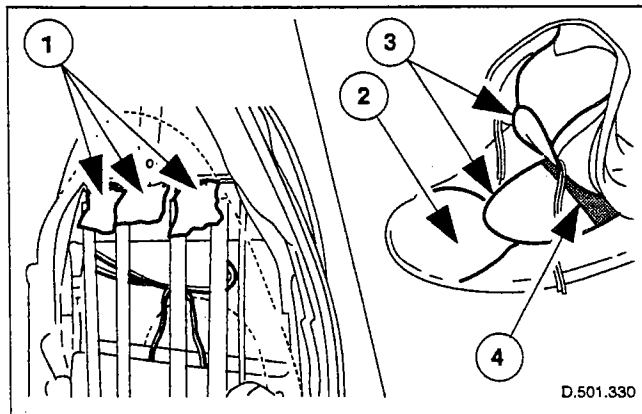
Removal

1. Remove battery cover and disconnect earth cable from terminal. Refer to Section 414-01.
2. Remove seat back finisher. Refer to operations in this section.
3. Remove the nine clips securing the squab cover to the seat frame.



REMOVAL AND INSTALLATION (Continued)

D.501.409



D.501.330

4. Remove the squab heater element harness from the mounting undo the velcro strap and disconnect the multiplug.

5. Remove squab from seat.

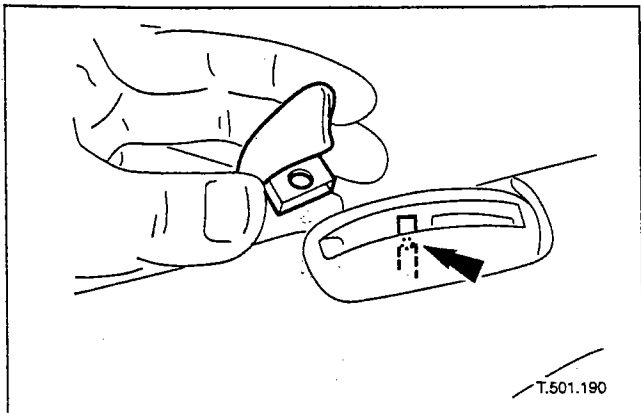
- 1 Release strap securing squab foam to frame.
- 2 Remove squab foam and cover from seat and remove from vehicle.
- 3 Undo velcro fasteners and carefully withdraw foam cushion from the squab cover.
- 4 If squab foam is to be renewed, carefully remove heater element.

Installation

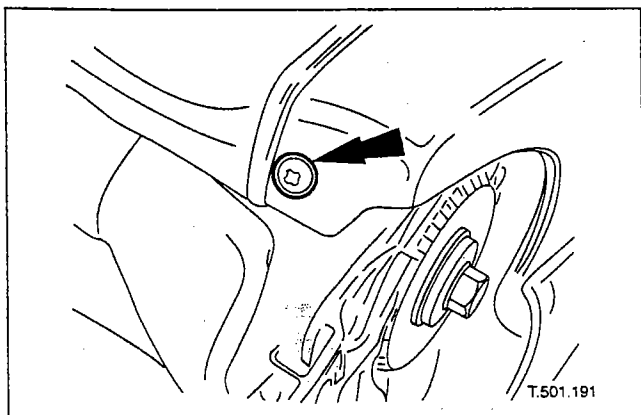
6. If squab cushion has been renewed, apply suitable adhesive to foam and fit and fully seat heating element.
7. Carefully insert and position foam cushion in squab cover and secure with velcro fasteners.
8. Fasten strap securing squab foam to seat frame.
9. Connect seat harness multiplug, position in mounting and secure with velcro fastener.
10. Position squab to seat frame and secure with the nine clips.
11. Fit seat back finisher. Refer to operations in this section.
12. Connect earth cable to battery terminal and fit battery cover. Refer to Section 414-01.

REMOVAL AND INSTALLATION (Continued)**Front Seat Back Finisher (76.70.03)****Removal**

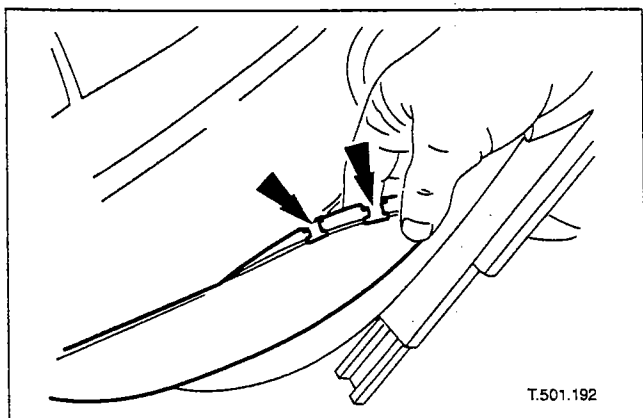
1. Using rear passenger access knob, release the seat back and move it to the fully forward position.
2. With a small flat bladed screwdriver, ease open the knob stem to clear the seat lever tang and remove the knob.

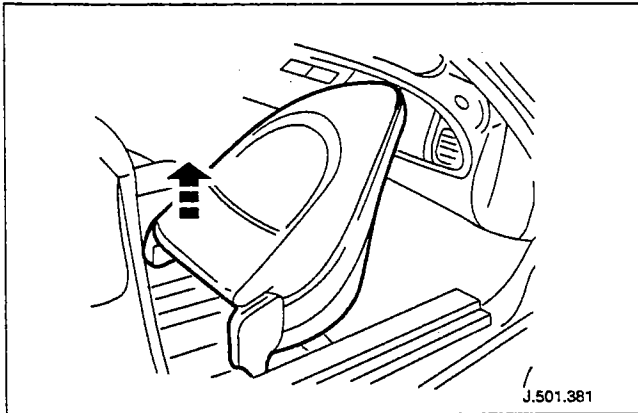


3. Slacken and remove the two screws securing the lower section of the seat back finisher to the frame.



4. Withdraw the trim and 32 clips from seat back finisher and position trim for access.

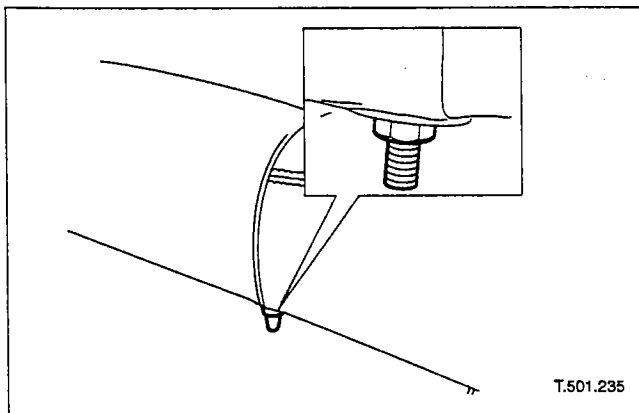


REMOVAL AND INSTALLATION (Continued)

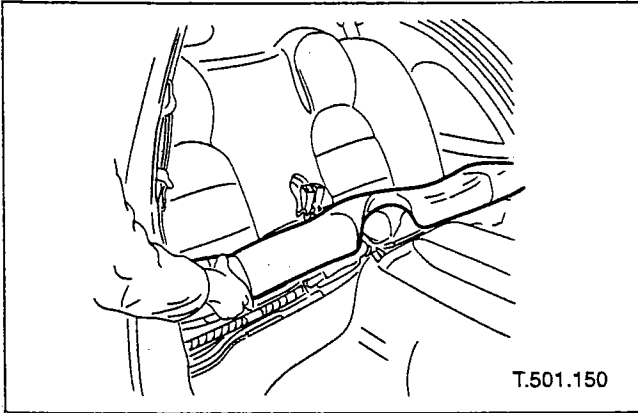
5. Remove seat back finisher from seat..

Installation

6. Align and fit back finisher to front seat.
7. Reposition back finisher trim and secure with the 32 clips.
8. Fit and tighten the two screws securing the lower section of the back finisher to the seat.
9. Fit rear passenger access knob and return seat back to the upright position.

Rear Seat Cushion (76.70.37)**Removal**

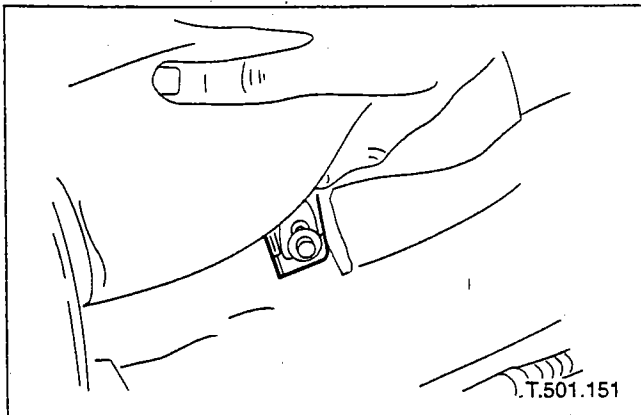
1. Using the rear passenger access knobs, position the back of each front seat fully forward.
2. Slacken and remove the two rear seat cushion securing nuts.

REMOVAL AND INSTALLATION (Continued)

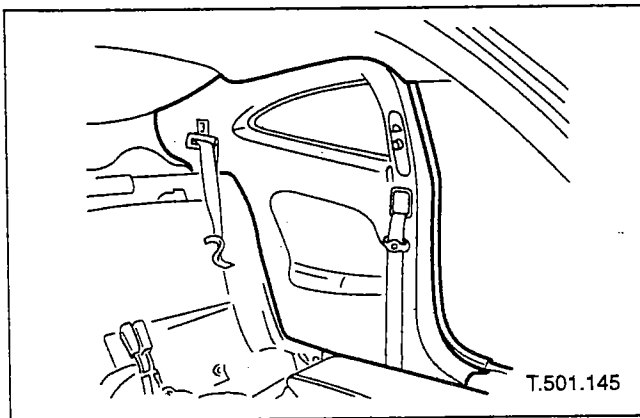
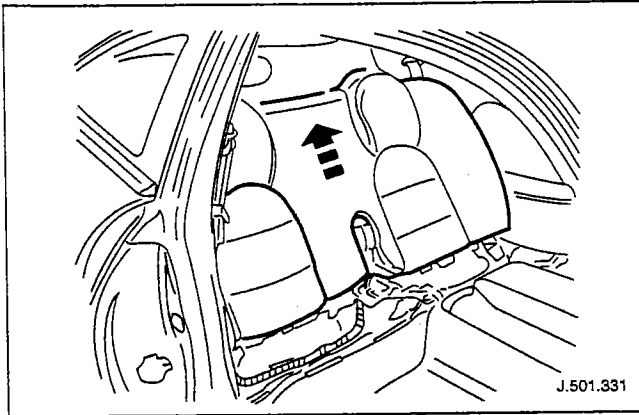
3. Raise seat cushion for access, pass seat belt anchors through central penetration and remove seat cushion from vehicle.

Installation

4. Position seat cushion for access and pass rear seat belt anchors through central penetration.
5. Finally position cushion and fit and tighten securing nuts.
6. Return front seat backs to the upright position.

Rear Seat Squab (76.70.38)**Removal**

1. Remove rear seat cushion. Refer to operations in this section.
2. Slacken and remove the two rear seat squab securing screws.

REMOVAL AND INSTALLATION (Continued)

3. Move seat squab upwards to release body tangs.

4. Position rear seat belts for access and remove squab from vehicle.

Installation

5. Position seat squab placing seat belts over.
6. Finally position squab, engaging body tangs by applying downward hand pressure.
7. Fit and tighten the two squab securing screws.
8. Fit rear seat cushion. Refer to operations in this section.

SECTION 501-11 Glass, Frames and Mechanisms

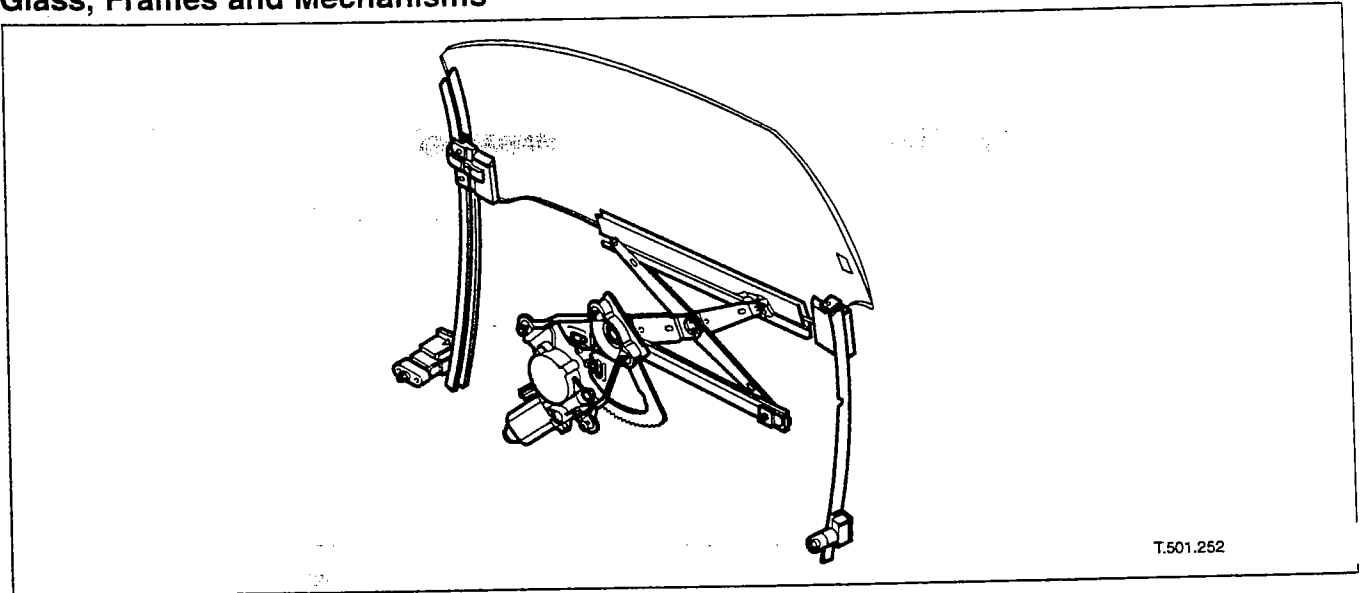
VEHICLE APPLICATION: X100

SUBJECT	PAGE
DESCRIPTION AND OPERATION	
Glass, Frames and Mechanisms	501-11-2
REMOVAL AND INSTALLATION	
Door Glass Lift Switch	501-11-4

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DESCRIPTION AND OPERATION

Glass, Frames and Mechanisms



T.501.252

The windshield, which is of 5 mm laminated glass with a black obscuration band and has the interior mirror fitted, is common to the coupe and convertible. The windshield finisher is a one-piece, single color unit with seal. The backlight is 4 mm tempered glass, green tinted and heated. The windshield, backlight and quarter lights, except for the convertible model, are direct glazed to the body.

The windshield and coupe backlight are supplied as assemblies complete with trim which is secured to the glass by clips and is fully demountable when the assembly is bonded to the vehicle.

The convertible backlight and outer seal are conventionally glazed to the inner seal, which is stitched and bonded to the top. On both models, the heated backlight remains on for 21 minutes after being switched on unless it is manually switched off before the time delay expires. Some backlights are fitted with a security antenna. A fine wire heated windshield offered as an option on some markets, is controlled from the air conditioning panel.

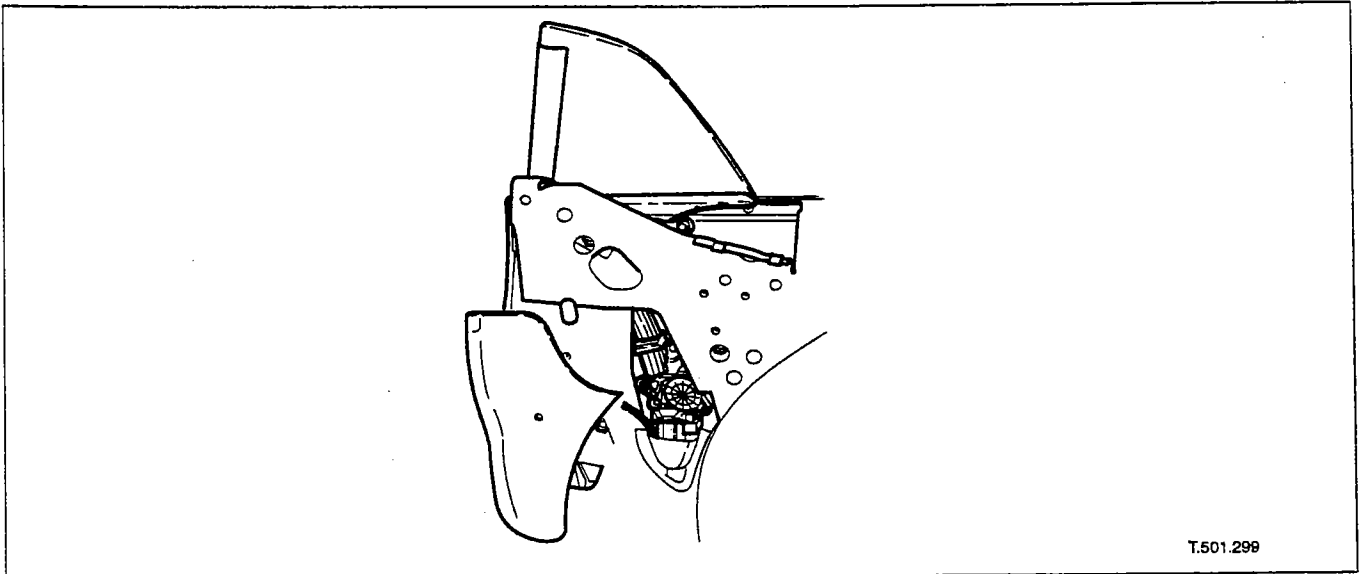
The door glass on both models is a frameless system with 5 mm green tempered glass. The window glass is operated electrically and raised and lowered by a scissor mechanism.

Each door glass automatically drops 12 mm when the door is opened or when the convertible top is raised or lowered, closing when either the door is shut or the top is fully raised and latched in position. The door glass can be closed via the remote control unit. Glass operation is internally controlled from switchpacks located in the driver and passenger arm rests via the driver and passenger door modules. The switchpacks are illuminated when the sidelights are on.

One-touch up operation causes the door glass to fully close unless an object is detected or if the glass is already within 45 mm of top of travel when the door is opened. On detection of an object, the glass will drop fully open or to 200 mm below the obstruction. All door glass operates with the ignition switch in either position I or II and after ignition is switched off, until either door is opened.

WARNING: BEFORE COMMENCING WORK WITHIN A DOOR INTERIOR, THE EARTH CABLE MUST BE DISCONNECTED FROM THE BATTERY TO PREVENT INADVERTENT ACTIVATION OF THE GLOBAL GLASS OPEN/CLOSE FEATURE.

DESCRIPTION AND OPERATION (Continued)



The coupe rear quarter glass is a fixed 4 mm, tempered, green-tinted unit direct glazed to the tonneau. The rear quarter glass of the convertible is 5 mm, tempered, semi-flush and green tinted. A drum and wire lowering and raising system provides full glass drop when the top is lowered.

Rear glass control is incorporated in the convertible top switch and operation of the rear quarters is as follows.

Raising with convertible top raised:

- Activate by pressing and releasing the front of the switch.

Lowering with convertible top raised:

- Press and release the rear part of the convertible top switch (one touch down).

NOTE: The rear quarters are automatically powered to the bottom position when the top is lowered and further operation is inhibited until the top is raised and latched.

NOTE: When lowering the rear quarters at vehicle speeds up to 16 km/h (10 mph), failure to release the switch on operation of the audible alarm will result in lowering of the top.

The rear quarters are operated automatically up or down respectively when raising or lowering the convertible top. When the top is raised, with the door glass at the top of its travel, the glass will be powered down 12 mm and the rear quarters will be powered to the bottom of their travel. When the top is fully raised all glass will be powered up to close to form a seal with the top.

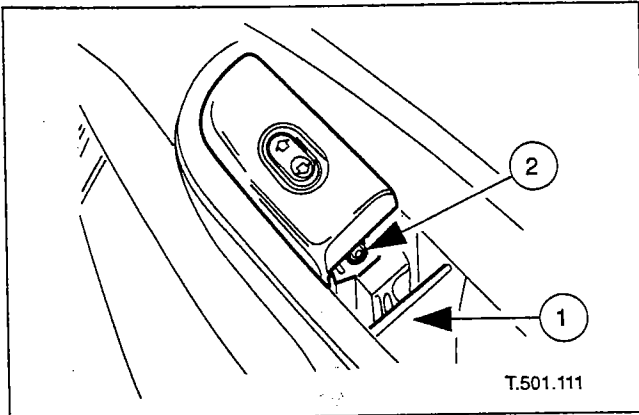
If the front glass has been either fully or partially lowered manually, the rear quarters only will be powered up. If the power supply to the driver or passenger door module is disconnected (battery disconnected, module unplugged or fuse removed) then the glass/system must re-learn the glass operating characteristics. The last known glass position is regarded as top of travel by one touch operation until re-learning has taken place. One touch down, manual up and down control and the automatic lowering of the glass for door opening are unaffected.

To re-learn the glass operating characteristics, the associated door must be closed (door ajar switch inactive). The glass must then be driven fully down and held stalled at the bottom of its travel for a minimum of one second. The glass is finally driven to the fully up position and held stalled for a minimum of one second. The re-learning procedure must also be accomplished to regain the automatic glass closing sequence.

REMOVAL AND INSTALLATION

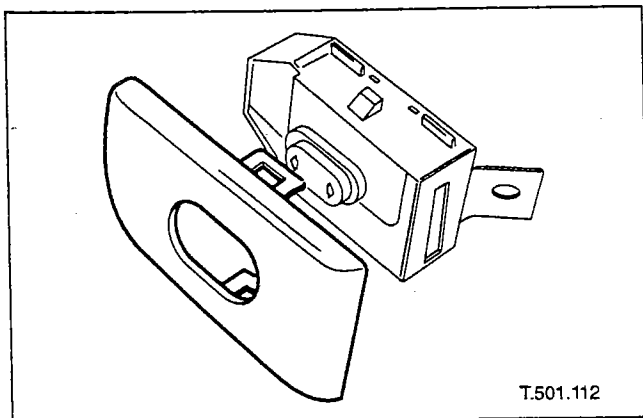
Door Glass Lift Switch (86.25.03 & 86.25.06)

Removal



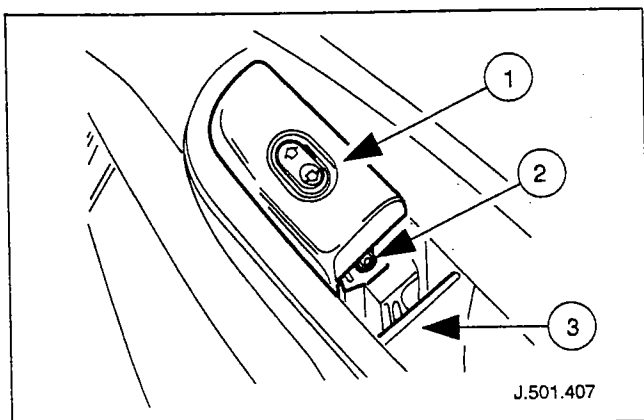
1. Remove glass lift switch.

- 1 Remove glass lift switch end cover trim pad.
- 2 Slacken and remove the switch securing screw.



2. Disconnect the switch harness multiplug.
3. If the switch is to be renewed, remove the veneer panel from clips.

Installation



4. If switch has been renewed, fit and fully seat veneer panel in retaining clips.
5. Connect harness multiplug to switch.

- 1 Position glass lift switch in door.
- 2 Fit and tighten switch securing screw.
- 3 Fit and fully seat switch end cover trim pad.

6. Connect battery earth lead and fit battery cover. Refer to Section 414-01.

SECTION 501-12 Instrument Panel and Console

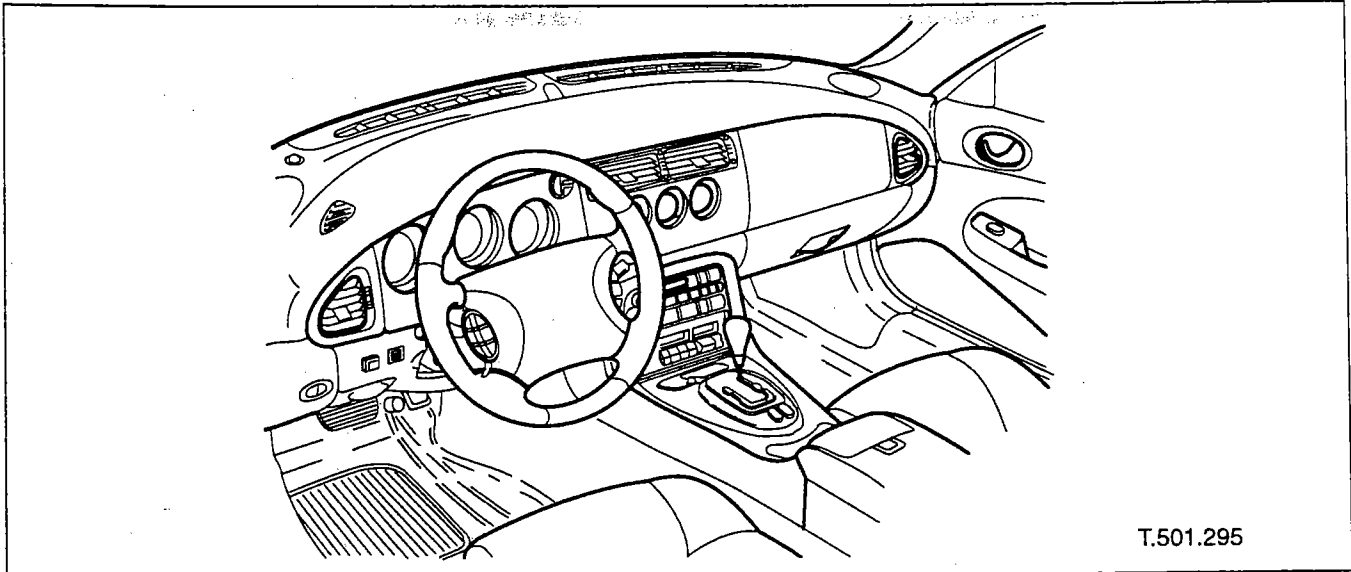
VEHICLE APPLICATION: X100

SUBJECT	PAGE
DESCRIPTION AND OPERATION	
Instrument Panel and Console	501-12-2
REMOVAL AND INSTALLATION	
Center Console	501-12-4
Center Console Veneer Panel	501-12-6
Console Glove Box	501-12-9
Glove Box, Glove Box Lid & Glove Box Handle and Lock Barrel	501-12-10
Center Console Ashtray	501-12-13
Fascia Board	501-12-14
Radio Console	501-12-28

DESCRIPTION AND OPERATION

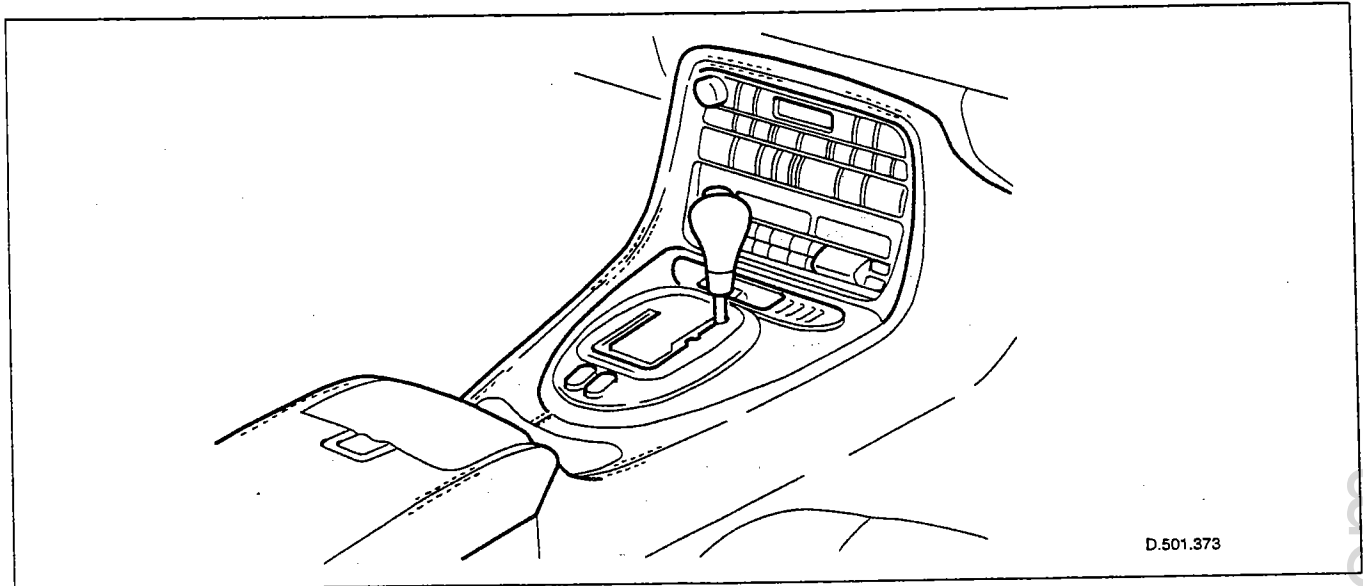
Instrument Panel and Console

Instrument Panel



The full-width, molded PVC instrument panel is located by a dowel at each 'A' post and secured by bolts at the bulkhead and 'A' posts. Faced with maple or walnut burr veneer, the panel accepts two separate instrument clusters, one containing four major instruments, the other containing three auxiliary instruments.

The major instrument cluster is situated directly ahead of driver, whilst the auxiliary cluster is located inboard from the driver, above the center console.

DESCRIPTION AND OPERATION (Continued)**Center Console**

The center console is an injection moulded armature trimmed in matching ambla with maple or burr walnut veneer top finisher. A lined stowage tray/pen holder is incorporated forward of the 'J' gate and an illuminated smoker's compendium with press and release lid is fitted at the rear of the 'J' gate. The rear section of the console forms a deep stowage box with rear hinged lid which is padded to form a central arm rest. A hinged cup holder is incorporated in the front end of the stowage box lid. A color-keyed 'J' gate surround surmounts the veneer top finisher and the 'SPORT' mode selector switch is situated immediately to the rear of the 'J' gate.

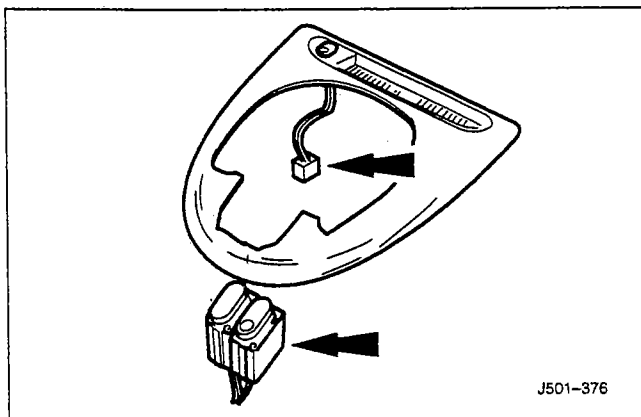
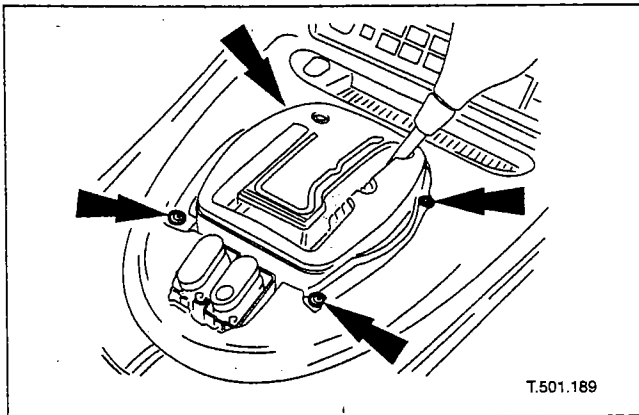
Two tongues at the front of the console locate in slots in the lower fascia, and the center and rear of the console are secured by screws to floor brackets.

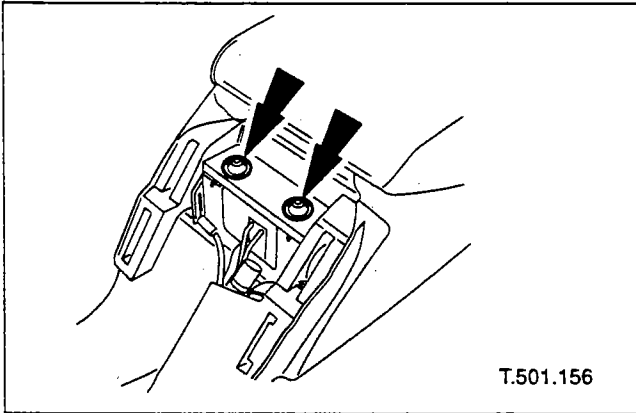
REMOVAL AND INSTALLATION

Center Console (76.25.01)

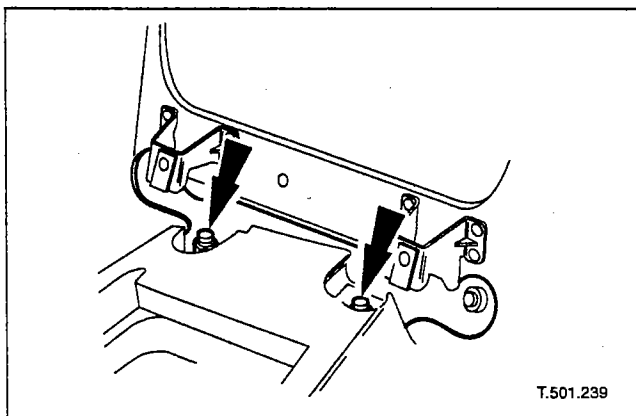
Removal

1. Position gear selector and passenger seat for access.
 - Turn ignition key to position II.
 - Apply footbrake and move gear selector to 'D'.
 - Release footbrake.
 - Power passenger seat to fully forward position and tilt squab forward.
 - Turn ignition key to O.
2. Remove battery cover and disconnect earth cable from terminal. Refer to Section 414-01.
3. Remove 'J' gate surround. Refer to Section 501-05.
4. Slacken and remove the four center console veneer panel securing screws and remove the mounting plates.
 5. Position the veneer panel for access and disconnect the panel switch multiplugs.

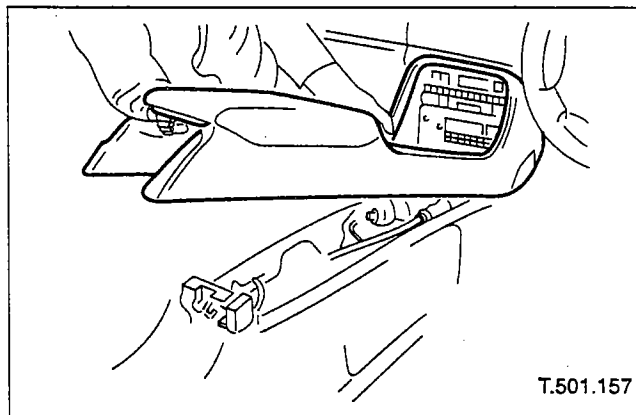


REMOVAL AND INSTALLATION (Continued)

6. Remove console end trim cover and slacken and remove the two rear securing bolts.



7. Slacken and remove the two forward securing bolts.



8. Disconnect and remove console.

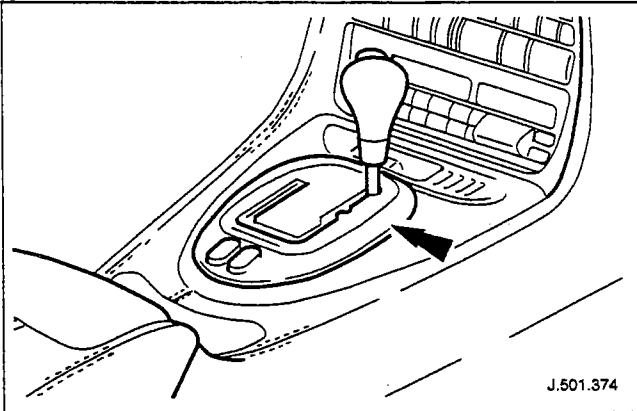
- 1 Position console for access and disconnect cigar lighter and valet switch harness multiplugs.
- Lift console clear of 'J' gate and remove from vehicle.

REMOVAL AND INSTALLATION (Continued)**Installation**

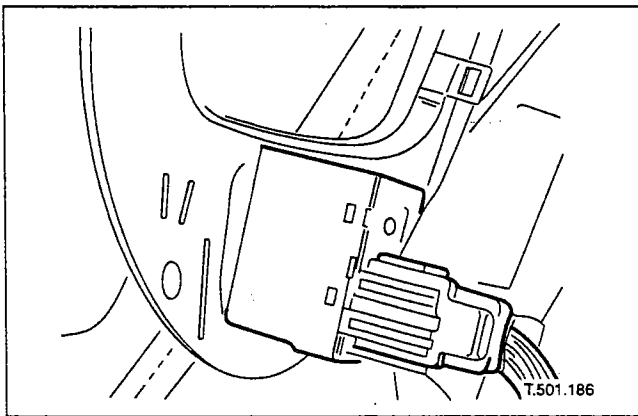
9. Install and connect center console.
 - Position console for access.
 - Connect valet switch and cigar lighter harness multiplugs.
 - Finally position console.
 - Fit and tighten forward securing bolts.
 - Fit and tighten rear securing bolts.
 - Fit and fully seat console rear trim cover.
 - Position veneer panel for access and connect panel switch harness multiplugs.
 - Reposition and seat veneer panel.
 - Align and fit panel mounting brackets.
 - Fit and tighten panel securing screws.
 - Fit 'J' gate surround. Refer to Section 501-05.
 - Connect earth cable to battery terminal and fit battery cover. Refer to Section 414-01.

Center Console Veneer Panel (76.47.26)**Removal**

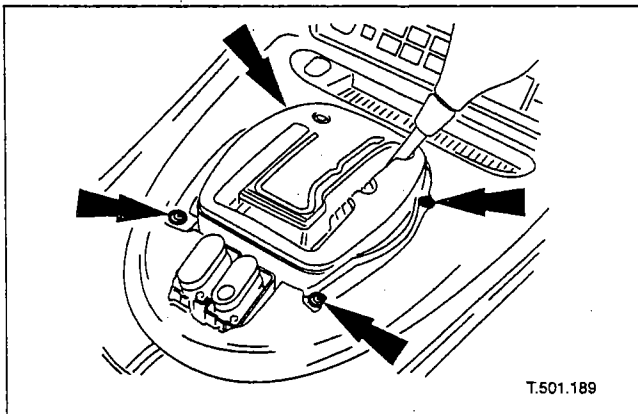
1. Apply handbrake and turn ignition key to II.
2. Depress brake pedal, move gear selector to position N and turn ignition key to O.
3. Remove battery cover and disconnect cable from earth terminal. Refer to Section 414-01.

REMOVAL AND INSTALLATION (Continued)

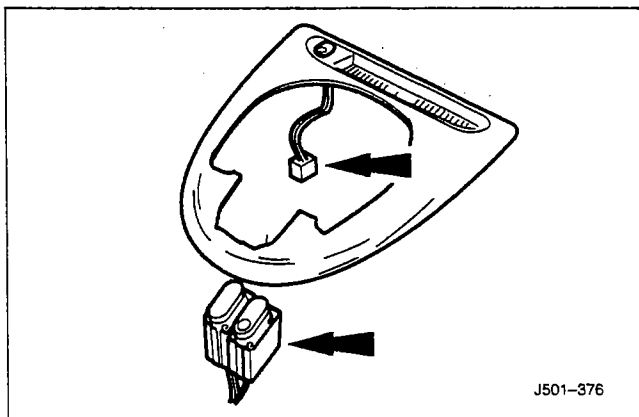
4. Remove gear selector surround finisher.



5. Remove Sport mode and Cruise Control switches from surround finisher.

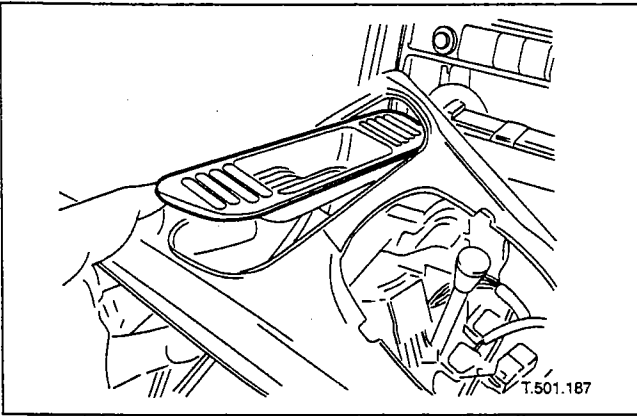


6. Slacken and remove the four screws securing the two console veneer panel clamp plates and remove the clamp plates.



7. Withdraw veneer panel, passing switches through the aperture. On the convertible model, disconnect the roof operating switch harness multiplug.

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REMOVAL AND INSTALLATION (Continued)

8. Remove oddments tray and remove veneer panel from console.

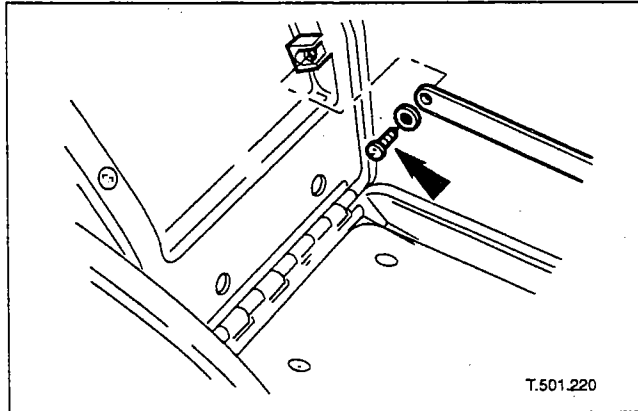
Installation

9. Position veneer panel on console.
10. Fit and fully seat oddments tray.
11. On convertible model, connect roof switch harness multiplug.
12. Route Sport mode and Cruise Control switches through panel aperture.
13. Fully seat veneer panel on console.
14. Position veneer panel clamp plates and fit and tighten securing screws.
15. Position gear selector surround finisher.
16. Fit and fully seat Sport mode and Cruise Control switches in finisher.
17. Finally fit gear selector surround finisher.
18. Move gear selector to position P.
19. Connect cable to battery earth terminal and fit battery cover. Refer to Section 414-01.

REMOVAL AND INSTALLATION (Continued)

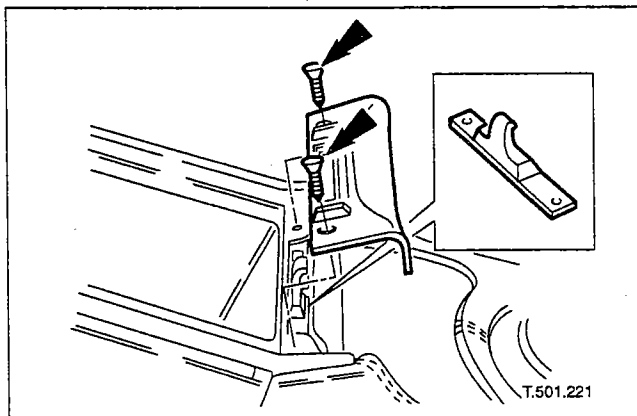
Console Glove Box (76.25.16)

Removal

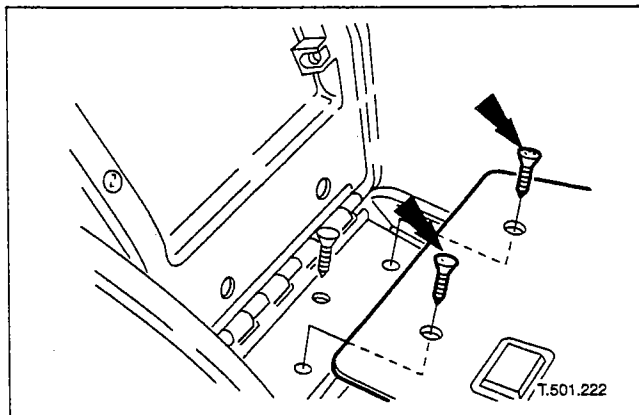


1. Remove glove box lid stay.

- Open glove box lid, slacken and remove the lid stay securing screw and remove lid stay.



2. Slacken and remove latch securing screws and remove latch assembly.



3. Slacken and remove liner rear securing screws and remove liner.

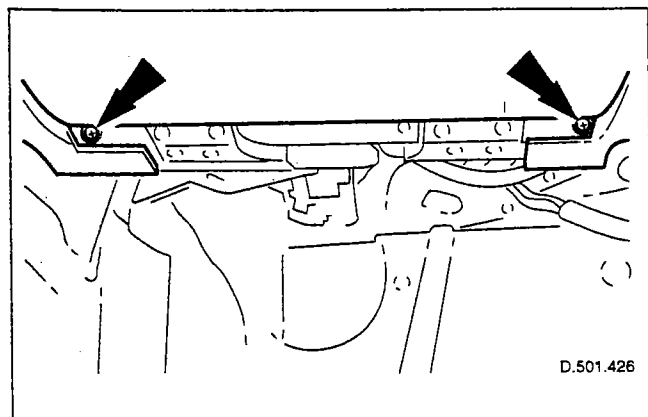
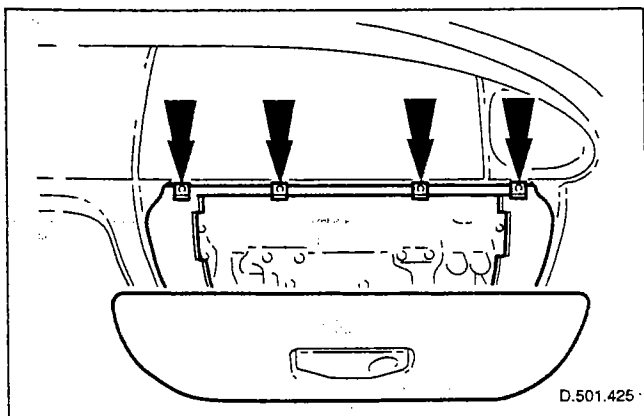
REMOVAL AND INSTALLATION (Continued)

Installation

4. Fit center console glove box.
 - Position glove box liner in console.
 - Fit and tighten liner rear securing screws.
 - Position latch assembly on liner and fit and tighten securing screws.
 - Fit lid stay, position lid to stay and fit and tighten securing screw.
 - Close glove box lid.

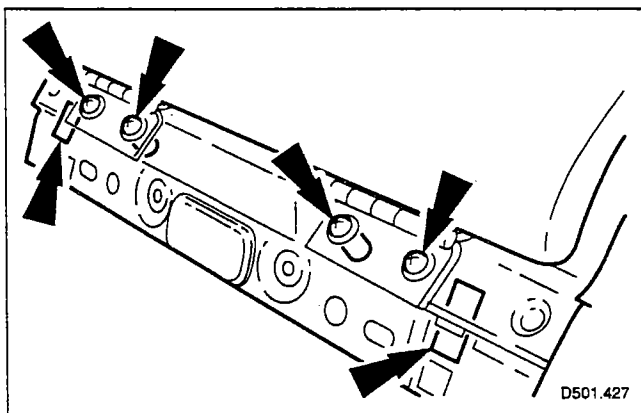
Glove Box (76.52.03), Glove Box Lid (76.52.02) & Glove Box Handle and Lock Barrel (76.52.08)

Removal



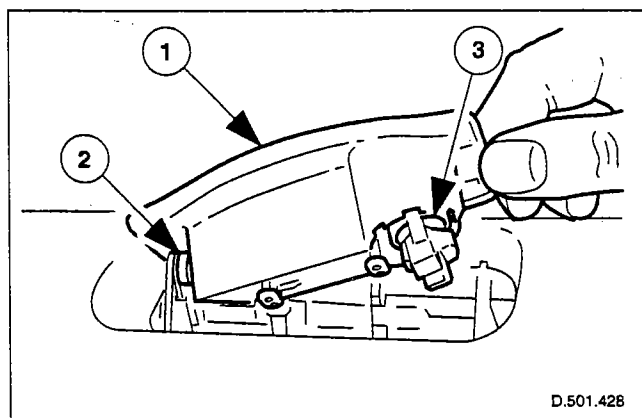
1. Open glove box lid and slacken and remove four screws securing liner to the fascia.
2. Slacken and remove two outer screws securing glovebox and cross-member to lower fascia.

REMOVAL AND INSTALLATION (Continued)

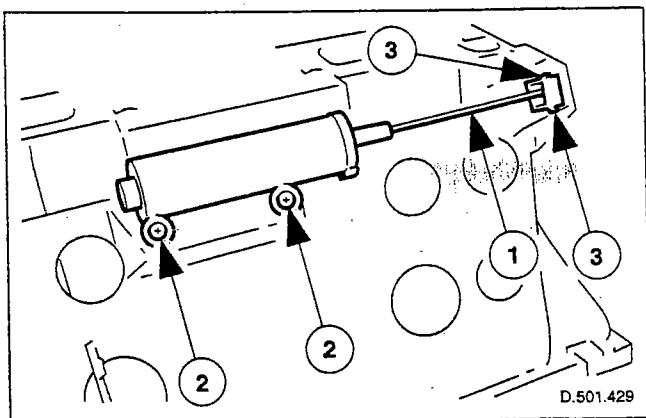


3. Position glove box for access, disconnect footwell and glovebox lamp multiplugs and withdraw the glove box assembly complete with cross-member.
4. Slacken and remove two outer screws securing glovebox to cross-member.
 - Withdraw liner tangs and dowels from cross-member and separate liner from cross-member.

5. Remove the glove box lid.
 - Move the glove box lid damper cord forward to release it from the lid.
 - Remove glove box liner from lid.
 - Slacken and remove the four hinge securing nuts.
 - Carefully withdraw the lid.
 - Remove the hinges.
6. Remove the glove box handle and lock barrel.



- 1 Holding the handle in the open position, carefully remove it from the mounting bracket.
- 2 Remove the handle return spring.
- 3 Releasing the retaining tangs, remove the lock barrel.

REMOVAL AND INSTALLATION (Continued)

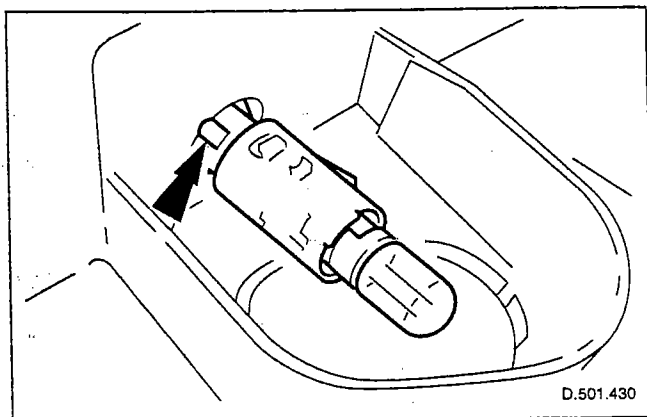
7. Remove the glove box damper.

1 Disconnect the glove box liner damper cord from the damper and route the cord through the liner guide.

2 Slacken and remove the damper securing nuts and remove the damper.

3 Releasing the retaining tangs, remove the damper cord guide.

8. Releasing the retaining tangs, carefully remove the light switch from its housing.

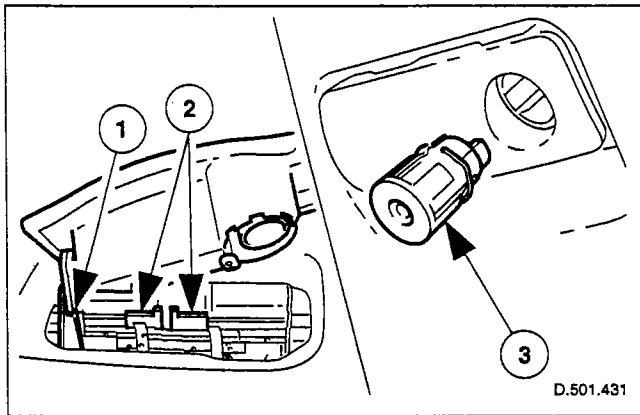


9. Remove glove box liner.

Installation

10. Fit glove box switch, damper and cord.

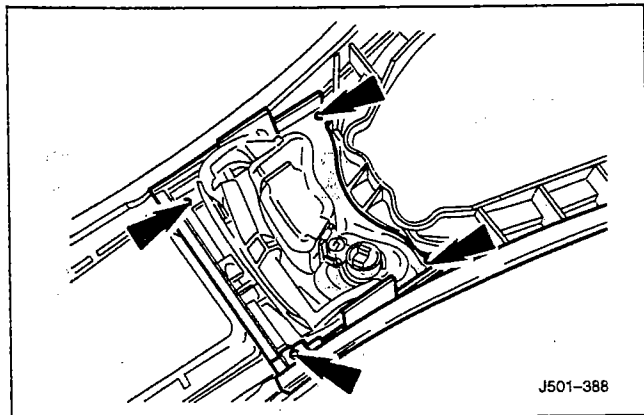
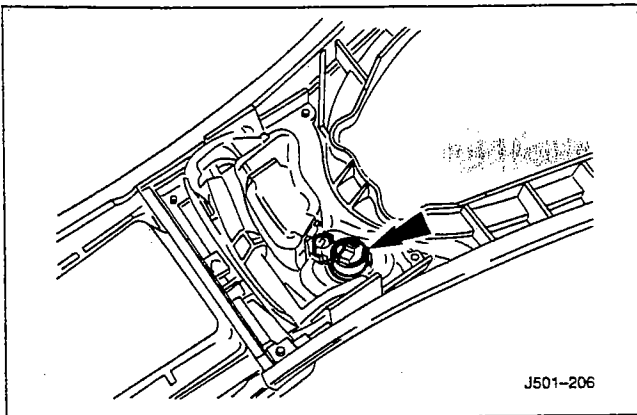
- Position glove box liner.
- Route light switch harness into switch housing.
- Connect switch to light harness multiplug.
- Fit and fully seat switch to housing.
- Secure harness in liner clips.
- Fit damper to liner and secure with two nuts.
- Fit and fully seat damper cord guide.
- Route damper cord through guide and connect to damper.

REMOVAL AND INSTALLATION (Continued)

11. Fit glove box handle and lock barrel to lid.
 - 1 Fit handle return spring ensuring that it engages in the lid mounting slot.
 - 2 Position lock rods inwards and fit and fully seat handle in right-hand mounting bracket.
 - 3 Fit lock barrel to lid.
12. Position glove box lid and secure to hinges with four screws.
13. Fit damper cord mounting clip.
14. Fit cross-member to glovebox and secure with screws.
15. Position glovebox and connect footwell and glovebox lamp multiplugs.
16. Fit liner and secure top to fascia with four screws.
17. Close glove box lid.
18. Fit and tighten the four screws securing bottom of glovebox and cross-member to lower fascia.
19. Slacken two inner screws at bottom of glovebox, adjust alignment of glovebox lid to liner and re-tighten screws.

Center Console Ashtray (76.25.25)**Removal**

1. Remove battery cover and disconnect earth lead from terminal. Refer to operations in Section 414-01.
2. Remove center console for access. Refer to operations in this section.

REMOVAL AND INSTALLATION (Continued)

3. Remove cigar lighter assembly.
 - Disconnect cigar lighter housing multiplug.
 - Slacken and remove ring from underside and remove housing from ashtray.
4. Position console for access, remove four ashtray securing screws and remove ashtray from vehicle.

Installation

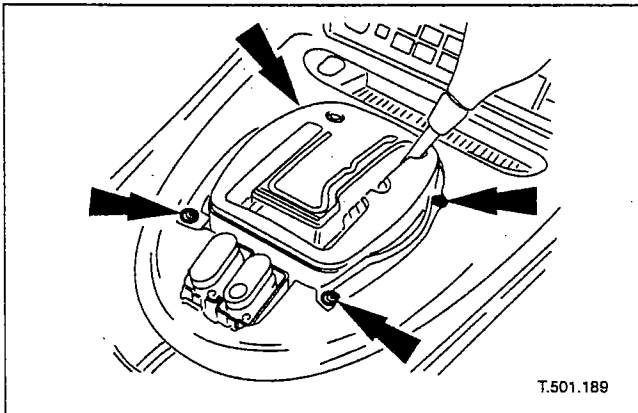
5. Position ashtray on center console.
6. Fit and tighten the four ashtray securing screws.
7. Fit and fully seat cigar lighter housing in ashtray.
8. Fit cigar lighter in housing.
9. Close ashtray lid.
10. Fit center console assembly. Refer to operations in this section.
11. Connect earth cable to battery terminal and fit battery cover. Refer to operations in Section 414-01.

Fascia Board (76.46.01.90)**Removal**

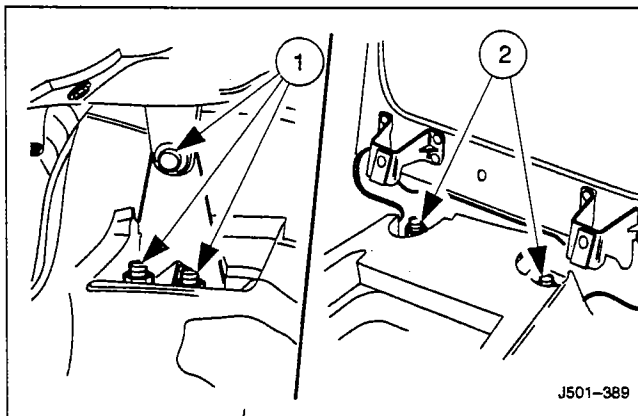
1. Remove battery cover and disconnect earth lead from terminal. Refer to Section 414-01.

REMOVAL AND INSTALLATION (Continued)

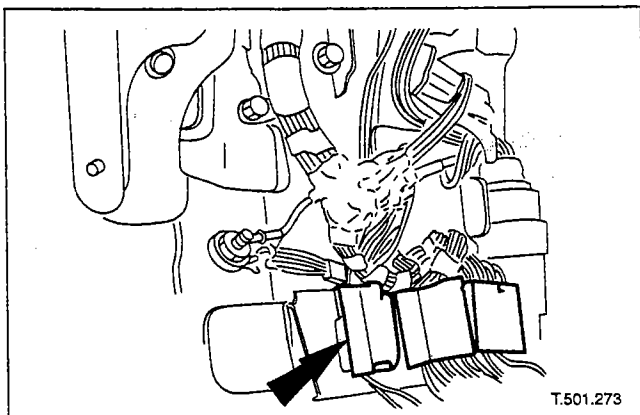
2. Remove glove box. Refer to procedures in this section.
3. Remove under-scuttle. Refer to procedures in this section.
4. Remove 'J' gate surround for access. Refer to Section 501-05.
5. Remove center console assembly. Refer to procedures in this section.
6. Remove ICE console. Refer to Section 415-01.
7. Remove driver's air bag module. Refer to Section 501-20.
8. Remove steering wheel. Refer to Section 211-06.
9. Remove steering column upper and lower cowls. Refer to Section 501-05.
10. Remove front seats. Refer to Section 501-10.
11. Detach and position 'J' gate for access.



- 1 Disconnect three 'J' gate and one gearshift interlock solenoid harness multiplugs.
- 2 Slacken and remove four nuts securing the 'J' gate assembly to the transmission tunnel and position 'J' gate assembly for access.

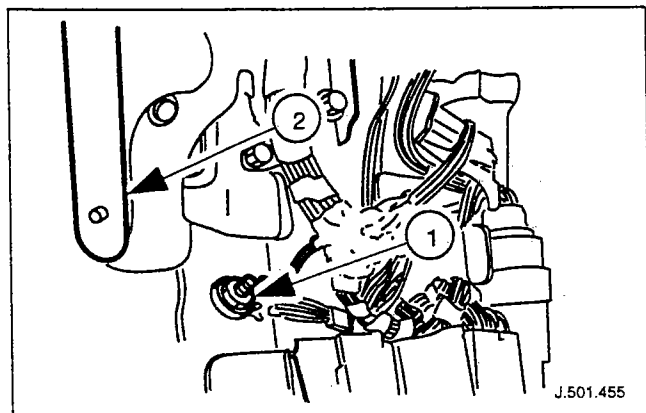


12. Remove fascia to tunnel securing bolts.
 - 1 Slacken and remove three bolts securing each fascia to transmission tunnel side bracket and remove brackets.
 - 2 Slacken and remove two bolts securing fascia central bracket to transmission tunnel.
13. Remove left-hand 'A' post lower trim pad. Refer to Section 501-05.

REMOVAL AND INSTALLATION (Continued)

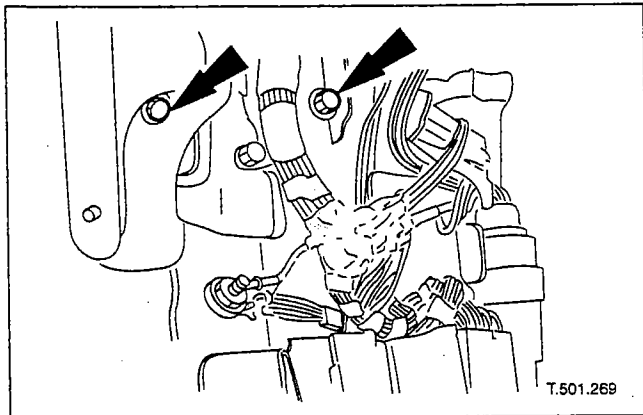
14. Disconnect fascia harness multiplug connectors at left-hand 'A' post.

- 1 Detach three fascia harness multiplugs from mounting bracket and disconnect and position them clear of obstructions ready for fascia removal.
- 2 Detach spare multiplug from mounting bracket and position clear of obstructions.

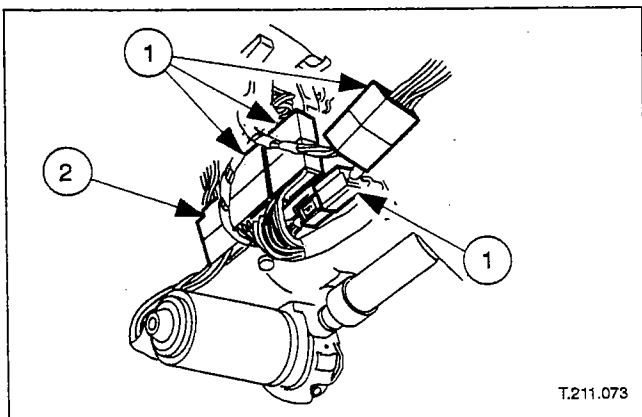


15. Disconnect cables from left-hand side of fascia.

- 1 Slacken and remove 'A' post earth cable securing nut and remove cable eyelets from stud.
- 2 Slacken and remove two nuts securing hood release lever assembly to fascia studs and position lever assembly and cable clear of fascia.

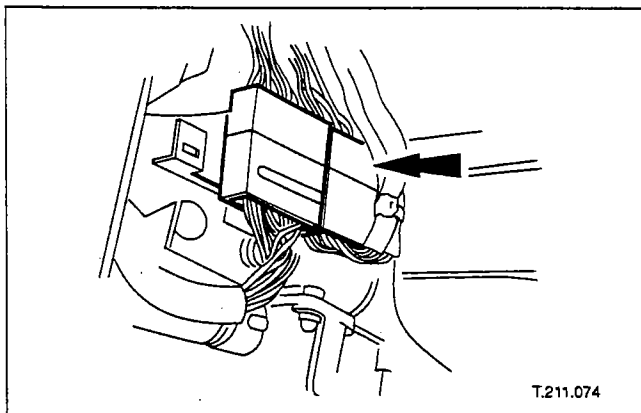


16. Slacken and remove two bolts securing fascia to left-hand 'A' post.



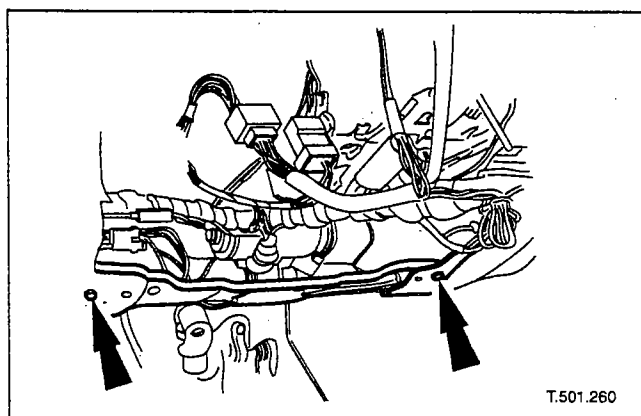
17. Disconnect steering column left-hand harness.

- 1 Detach the four harness rear multiplugs from mounting bracket and disconnect multiplugs.
- 2 Disconnect the front multiplug and position connector clear of bracket.

REMOVAL AND INSTALLATION (Continued)

18. Disconnect steering column right-hand harness.

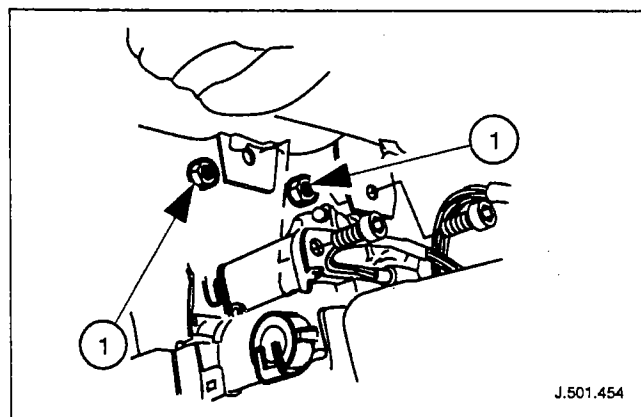
- Detach the two harness multiplugs from mounting bracket and disconnect them.



19. Ensure all column to fascia multiplugs are clear of projections.

20. Remove footwell lamp mounting bracket.

- Slacken and remove two screws securing the footwell lamp mounting bracket to the air conditioning duct and remove bracket.



21. Position steering column for access.

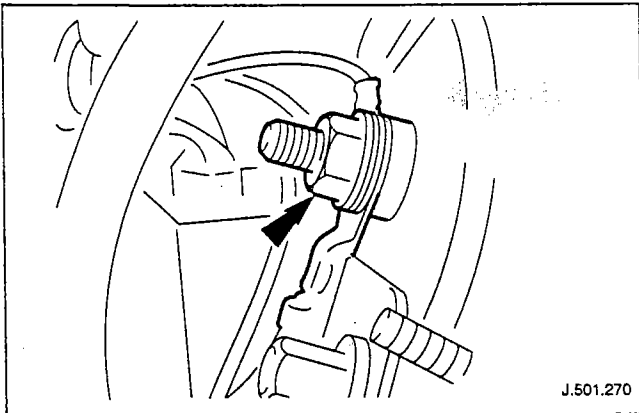
- 1 Slacken and remove the steering column upper mounting bracket securing nuts.
- Move column down from mounting bracket and reposition for access.

REMOVAL AND INSTALLATION (Continued)

22. Remove right-hand 'A' post inner trim pad.
Refer to Section 501-05.

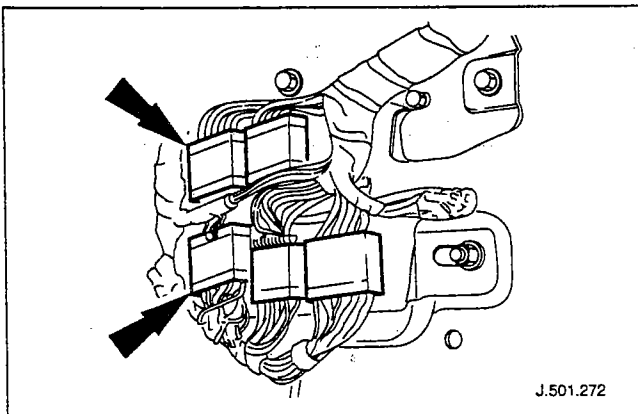
23. Disconnect right-hand 'A' post earth cable.

- At right-hand 'A' post slacken and remove the earth cable securing nut and disconnect cable from the stud.



24. Disconnect multiplugs at right-hand 'A' post.

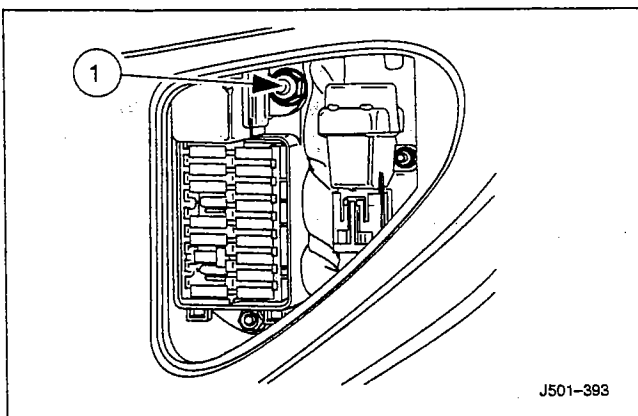
- Detach five fascia harness multiplugs from mounting bracket and disconnect and position them clear of projections.



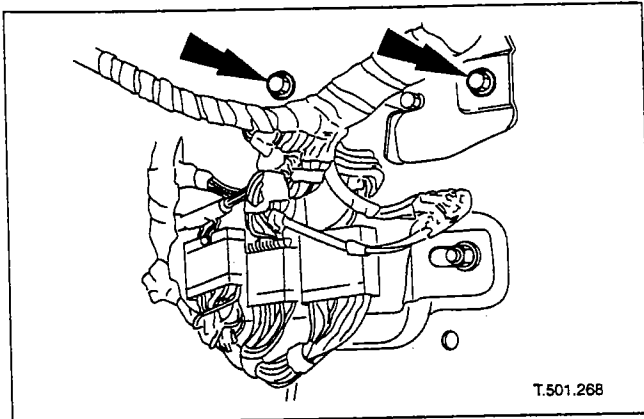
25. Disconnect fuse box power cable and remove fascia right-hand securing bolts.

- 1 Remove cover from fascia right-hand fuse box and slacken and remove nut securing power cable to fuse box.

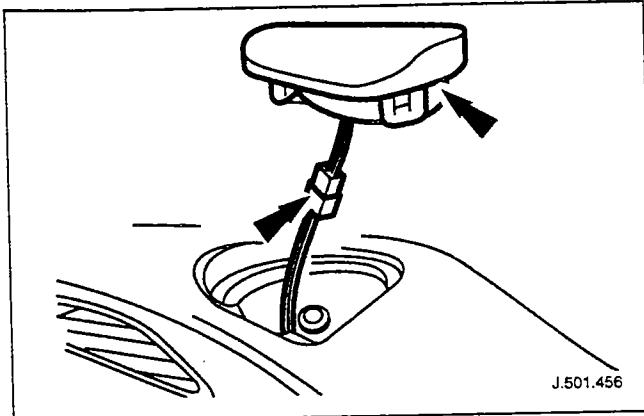
- Disconnect power cable and position clear of projections on fascia.



REMOVAL AND INSTALLATION (Continued)

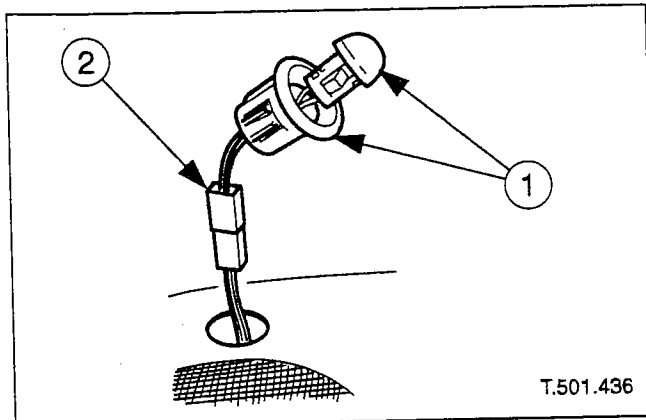


26. Slacken and remove two bolts securing fascia to right-hand 'A' post.



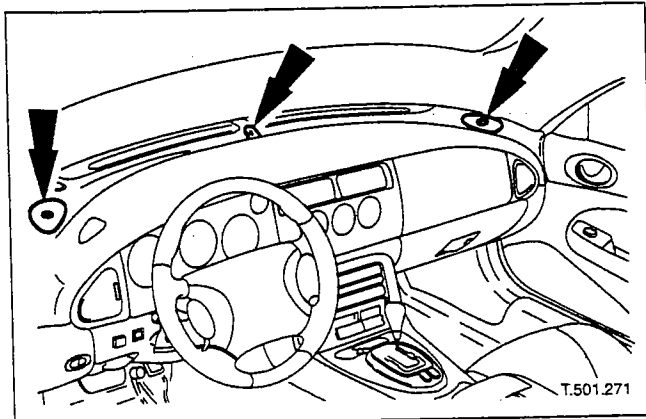
27. Remove fascia speakers and central trim cover.

- Remove fascia speaker covers and disconnect speaker harness multiplugs, remove speakers from fascia and place in protective area.



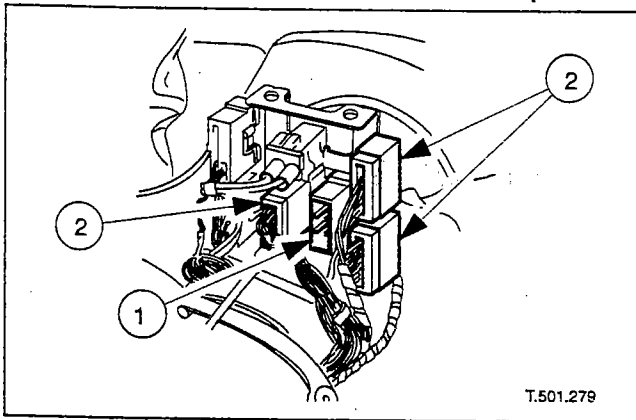
28. Remove solar sensor from fascia.

- 1 Ensuring that the fascia is protected, carefully prise the sensor upwards.
- 2 Disconnect the sensor harness multiplug, remove sensor unit from the fascia and place in protective area.



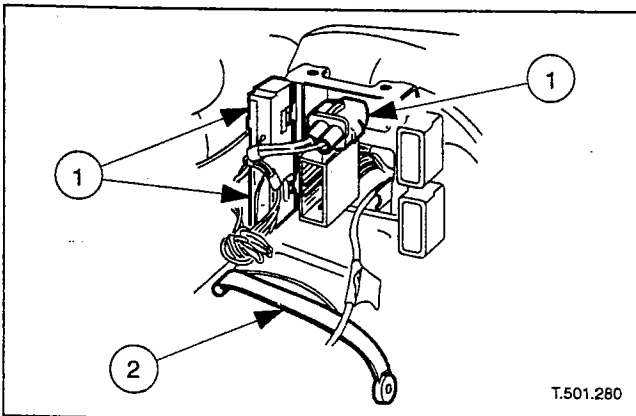
29. Slacken and remove the three screws securing upper fascia to bulkhead.

REMOVAL AND INSTALLATION (Continued)



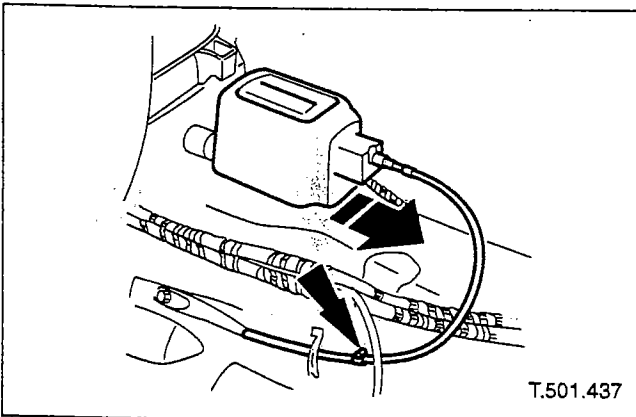
30. Disconnect left-hand harness at center console rear mounting bracket.

- 1 Detach spare central left multiplug from mounting and position clear of bracket.
- 2 Disconnect the three remaining left-hand harness multiplugs.



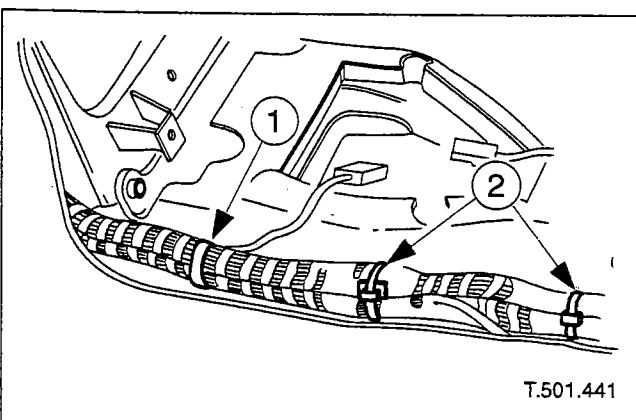
31. Disconnect right-hand harness multiplugs at center console rear mounting bracket.

- 1 Disconnect the three right-hand harness multiplugs and position clear of bracket.
- 2 Remove two rubber straps securing harnesses to tunnel.



32. Position 'J' gate for access.

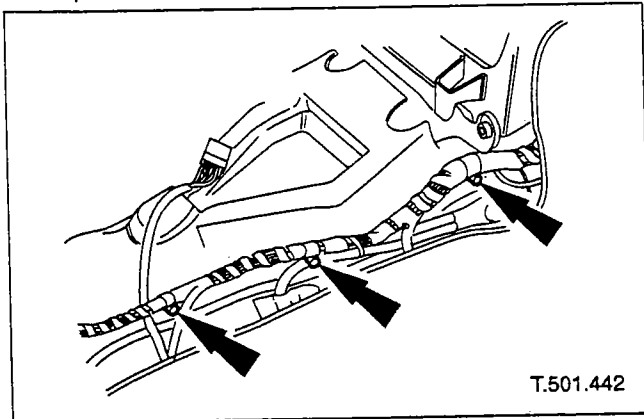
- Release stud and strap securing gear selector cable to tunnel and position 'J' gate for fascia removal.



33. Detach harness from left-hand side of tunnel.

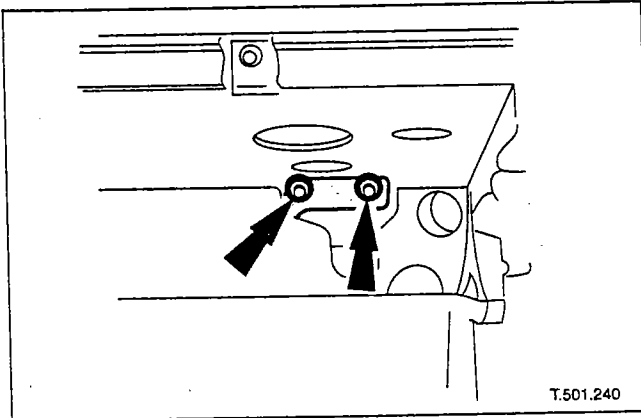
- 1 Fold back carpet from left-hand side of tunnel for access and cut through strap securing harness to ICE cable.
- 2 Release two fasteners securing harness to left-hand side of tunnel.

REMOVAL AND INSTALLATION (Continued)

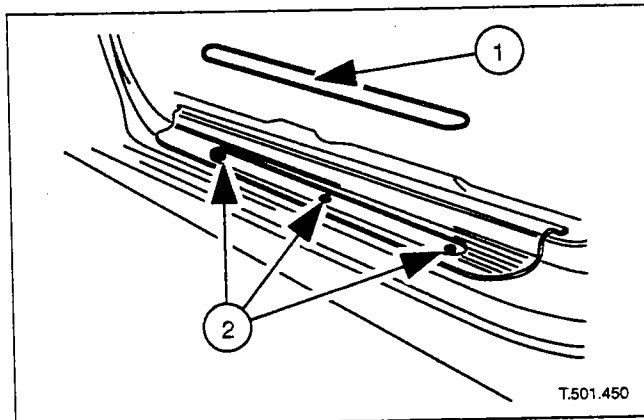


34. Detach harness from right-hand side of tunnel.

- Fold back carpet from right-hand side of tunnel for access and release three fasteners securing harness to side of tunnel.



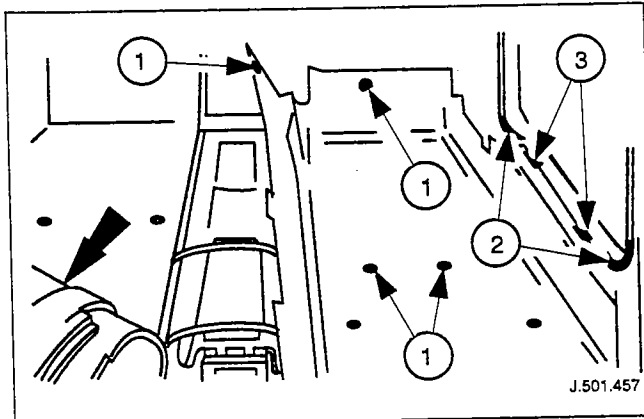
35. Via glove box aperture, slacken and remove two bolts securing fascia to bulkhead mounting bracket.



CAUTION: The treadplate finishers, can easily be deformed or otherwise damaged during removal.

36. Remove door sill treadplates.

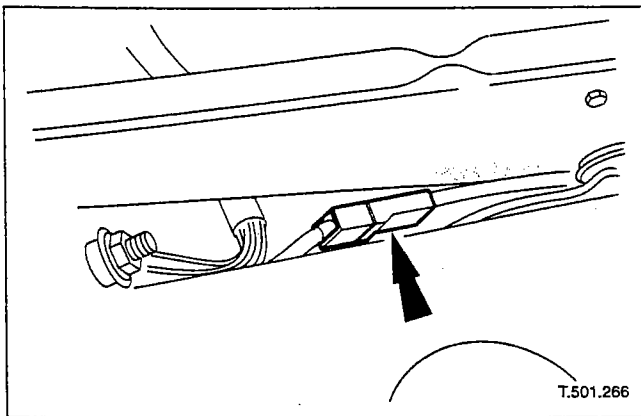
- 1 Using a suitable thin 1 inch wide scraper, carefully lift the inscribed finisher.
- 2 Slacken and remove the treadplate retaining screws and remove the treadplate.



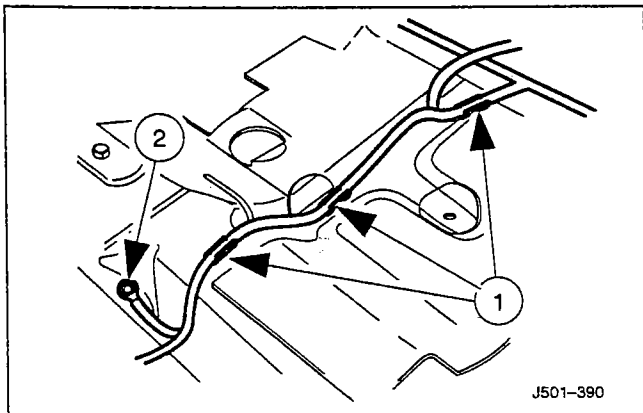
37. Withdraw carpets for access.

- 1 Remove four fasteners securing carpet to tunnel, seat location and toeboard at each side.
 - 2 Lift draught welt from each door aperture.
 - 3 Remove carpet clips from door apertures.
- At each side, lift carpet and fold to rear quarters.

REMOVAL AND INSTALLATION (Continued)

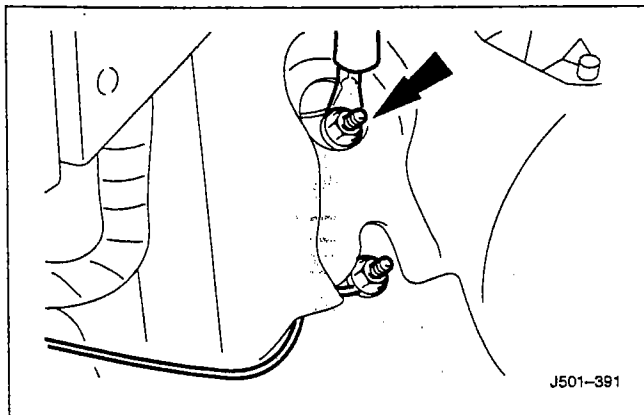


38. Disconnect handbrake switch harness multiplug.

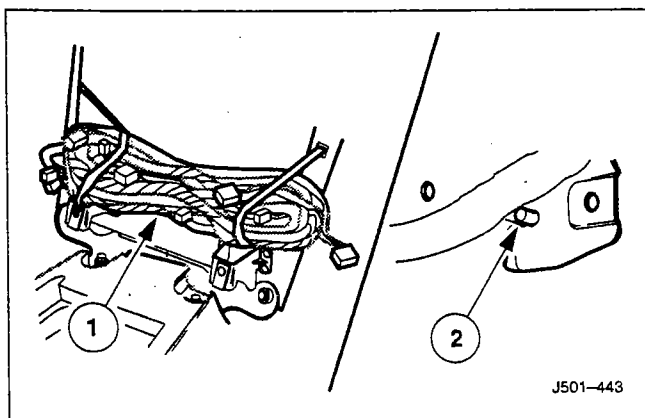


39. Detach seat harness and disconnect earth cable.

- 1 Release fasteners securing seat harness to floor.
- 2 Slacken and remove nut securing the earth cable eyelet to the floor stud and remove cable from stud.



40. At each side of tunnel, slacken and remove nut securing fascia harness earth cables and remove earth eyelets from studs.

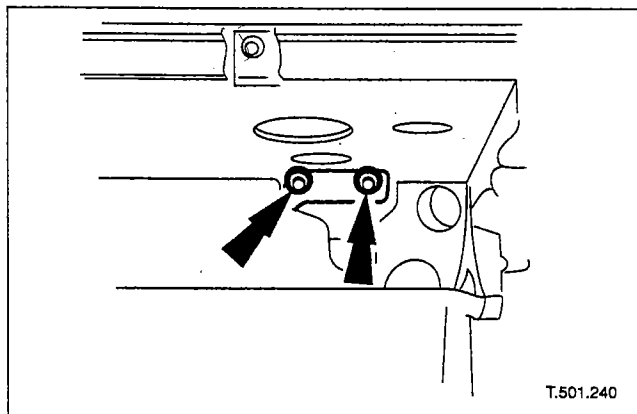
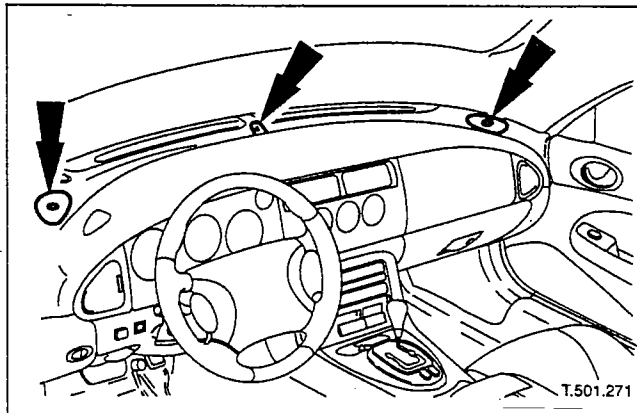
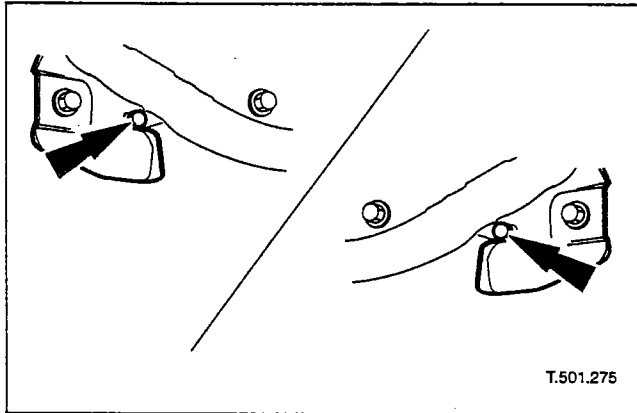


41. Remove fascia from vehicle.

- 1 Withdraw harnesses from each side of tunnel and coil and strap them to the ICE console mounting bracket.
- 2 With assistance, carefully withdraw the fascia rearwards off the support dowels, guiding the power cable through the right-hand fuse box.

REMOVAL AND INSTALLATION (Continued)

Installation



42. With assistance, align the fascia with the support dowels and position the earth cable in the right-hand fuse box.
43. With assistance, ensuring multiplugs and harnesses are not trapped or obstructed, carefully press fascia forward squarely onto dowels.

44. Fit and tighten three screws securing upper fascia to the bulkhead.

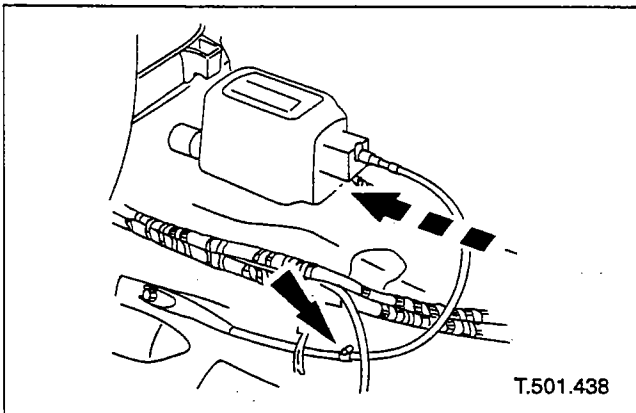
45. Via glove box aperture, fit and tighten two bolts securing fascia to bulkhead mounting bracket.

46. Fit and tighten four bolts securing fascia to 'A' posts.

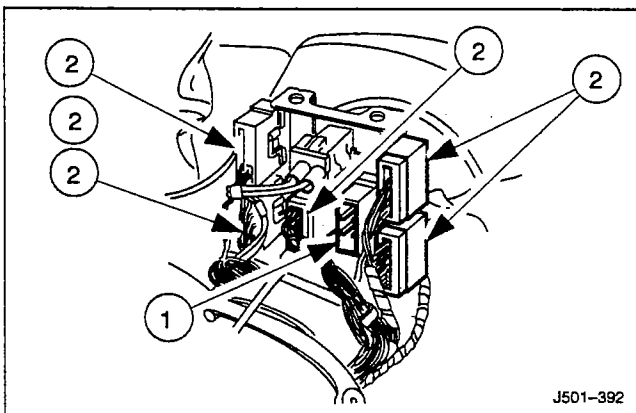
REMOVAL AND INSTALLATION (Continued)

47. Fit fascia harnesses to tunnel.
 - Remove strapping temporarily securing harnesses to fascia center bracket.
 - Route harnesses rearwards along respective sides of tunnel.
 - Connect harness earth cable eyelets to tunnel studs and fit and tighten eyelet securing nuts.
48. At left-hand side of tunnel, fit new tie strap to secure ICE cable to harness.
49. Position and fit seat harnesses.
 - Route seat harnesses to their respective positions.
 - Connect harness earth eyelets to floor studs and fit and tighten earth securing nuts.
50. Fit and fully seat fasteners securing fascia and seat harnesses to tunnel and floor.
51. Connect handbrake switch harness multiplug.
52. Position and fit carpets.
 - Roll carpets forward into position.
 - Fit and align handbrake trim cover.
 - Secure trim cover fastener.
 - Position carpet at each toeboard.
 - Fit clips securing carpet at door apertures.
 - Fit and fully seat carpet fasteners at toe-boards, tunnel and seat locations.
53. Fit draught welts and treadplates.
 - Press draught welt onto door aperture flange.
 - Align treadplate on door sill and fit and tighten four treadplate securing screws.
 - Ensure treadplate is clean and dry.
 - If treadplate finisher is being renewed, peel protective backing from adhesive.
 - Align finisher and press firmly into place.

REMOVAL AND INSTALLATION (Continued)

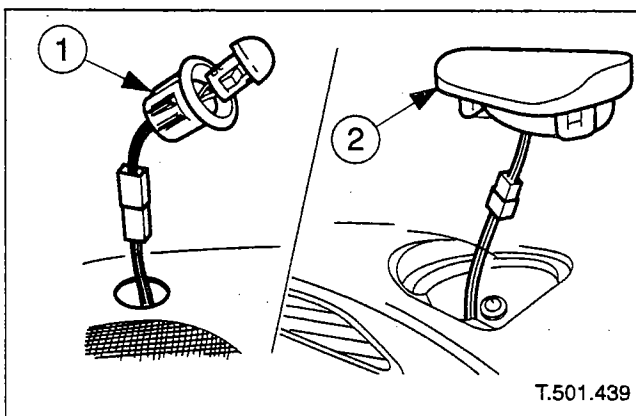


54. Position 'J' gate and fit selector cable securing strap and stud to tunnel.



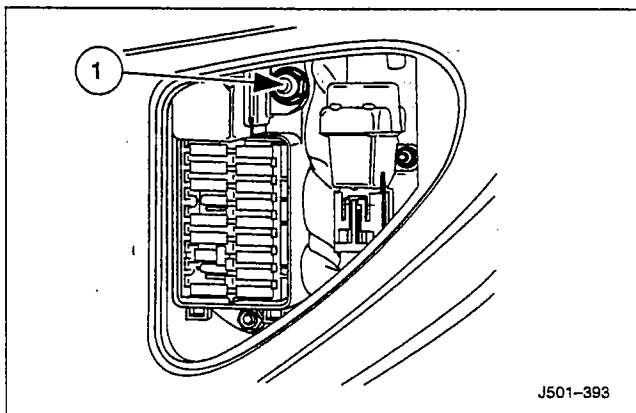
55. Fit and connect fascia harness multiplugs at center console rear mounting bracket.

- 1 Fit spare connector at center left-hand position.
- 2 Connect the six fascia harness multiplugs.



56. Fit solar sensor and speakers to fascia.

- 1 Connect solar sensor to fascia harness multiplug and carefully install sensor in fascia.
- 2 Connect speakers to ICE harness multiplugs and fit and fully seat speakers in fascia.

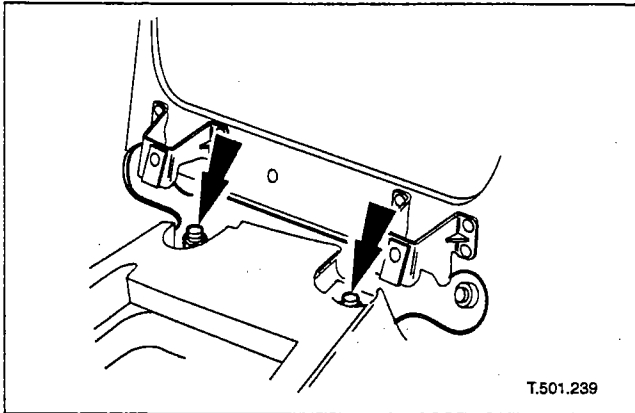


57. Connect power cable to fascia.

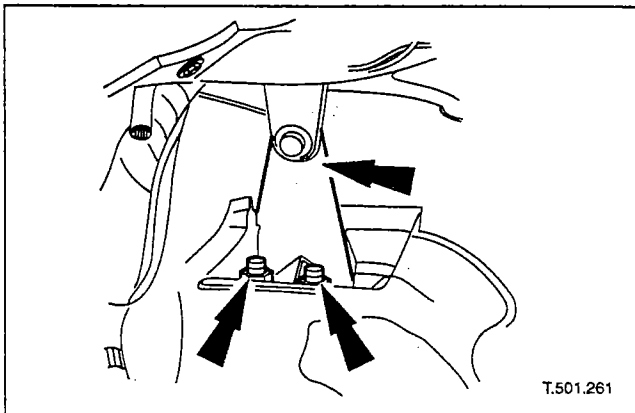
- 1 At right-hand fuse box, fit power cable eyelet onto fuse box stud and fit and tighten cable securing nut.
- Fit fuse box cover.

REMOVAL AND INSTALLATION (Continued)

58. Connect right-hand 'A' post multiplugs and earth cable.
- At right-hand lower 'A' post, connect fascia harness and PI harness multiplugs and fit multiplugs onto mounting brackets.
 - Fit PI harness earth cable eyelet onto body stud and fit and tighten securing nut.
59. Fit steering column.
- Position steering column in mounting bracket.
 - Fit yoke over bracket studs and fit and tighten securing nuts.
60. Position footwell lamp mounting bracket and secure with screws to air conditioning duct.
61. Connect steering column switch gear harness and column harness.
- Connect steering column switchgear harness and column harness multiplugs and fit multiplugs to mounting bracket.
62. Fit bonnet release lever assembly onto 'A' post studs and fit and tighten securing nuts.
63. Fit fascia harness earth cable eyelets to 'A' post stud and fit and tighten securing nut.
64. Fit spare harness multiplug to mounting bracket.
65. Fit multiplugs at left-hand 'A' post.
- Connect the three fascia harness multiplugs and position on mounting bracket.
 - Fit spare multiplug to upper bracket.

REMOVAL AND INSTALLATION (Continued)

66. Fit and tighten two bolts securing fascia center bracket to the transmission tunnel.



67. Position fascia to transmission tunnel side brackets and fit and tighten retaining bolts.

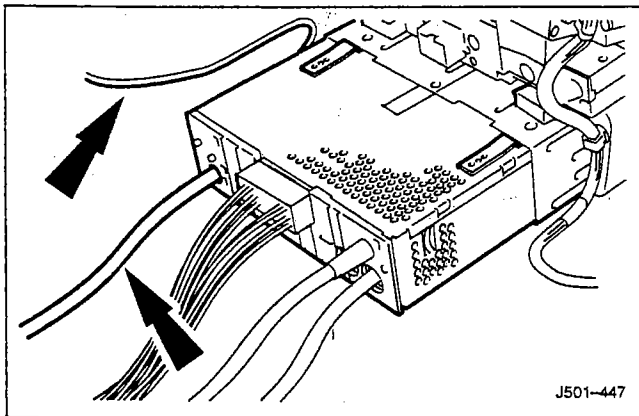
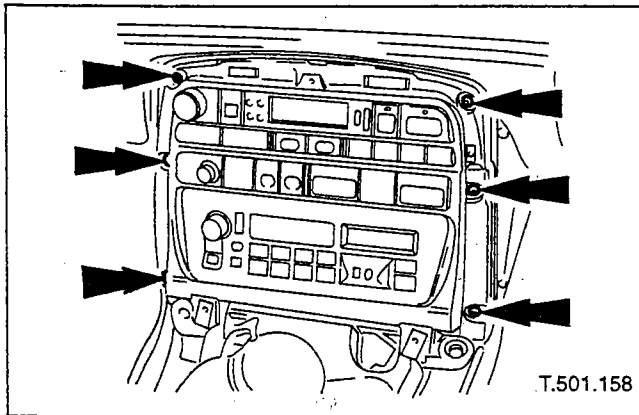
68. Position 'J' gate and fit and tighten four securing nuts.
69. Connect the three 'J' gate harness multiplugs and the gearshift solenoid harness multiplug.
70. Fit center console assembly. Refer to procedures in this section.
71. Fit front seats. Refer to Section 501-10.
72. Fit 'A' post trim pads. Refer to Section 501-05.
73. Fit steering column cowls. Refer to Section 501-05.
74. Fit steering wheel. Refer to Section 211-06.
75. Fit driver's air bag. Refer to Section 501-20.
76. Fit ICE console. Refer to Section 415-01.
77. Fit 'J' gate surround. Refer to Section 501-05.
78. Fit dash liner. Refer to procedures in this section.
79. Fit glove box. Refer to procedures in this section.
80. Connect earth cable to battery terminal and fit battery cover. Refer to Section 414-01.

REMOVAL AND INSTALLATION (Continued)

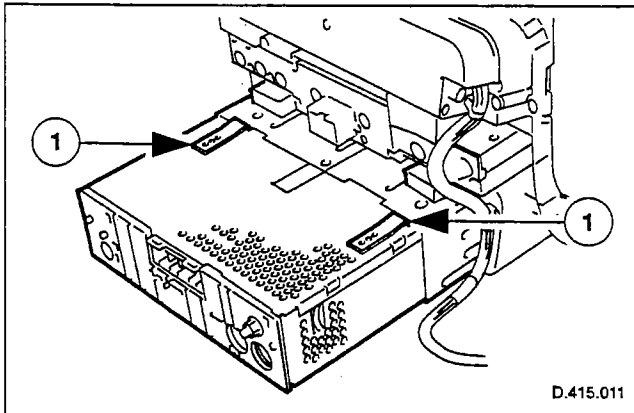
81. Remove protective film from renewed treadplate finishers.

Radio Console (76.25.15)

Removal

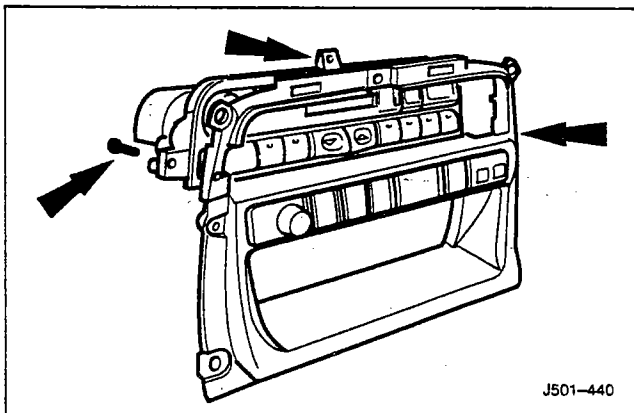


1. Remove battery cover and disconnect earth lead from terminal. Refer to operations in Section 414-01.
2. Remove 'J' gate surround. Refer to Section 501-05.
3. Remove center console assembly for access. Refer to operations in this section.
4. Slacken and remove the six radio console securing screws and partially withdraw the console for access.
5. Disconnect radio assembly.
 - Disconnect console harness multiplugs and aerial co-axial connector.
 - Slacken and remove nut securing earth lead to radio and remove lead from stud.
 - Disconnect radio harness multiplug and position harness clear of center console.

REMOVAL AND INSTALLATION (Continued)

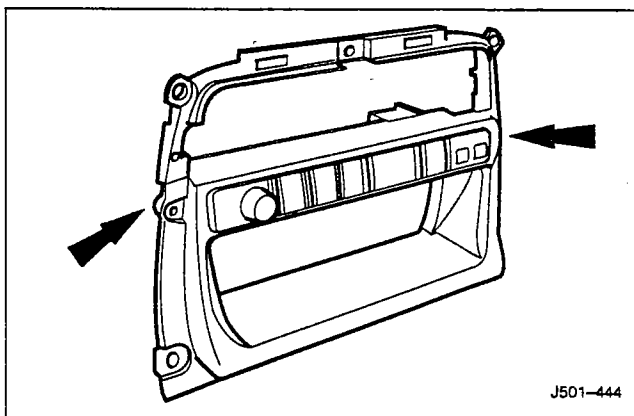
6. Remove radio.

- 1 Withdraw radio console, remove radio from console and remove radio retaining plate.



7. Remove air conditioning control module.

- Slacken and remove the three air conditioning control module securing screws and remove the module.



8. Remove center console switch module.

- Slacken and remove the three center console switch module retaining screws and remove the module.

9. Remove radio console from vehicle.

Installation

10. Connect aerial co-axial lead to radio and stow excess harness and lead lengths in radio mounting aperture.
11. Fully seat radio in console, ensuring that harnesses and leads do not obstruct.
12. Position switch module in console and fit and tighten the three securing screws.

REMOVAL AND INSTALLATION (Continued)

13. Position the air conditioning control module in the console and fit and tighten the three securing screws.
14. Fit radio retaining plate on the console.
15. Holding radio console in position, route radio harness multiplugs into center console.
16. Connect radio harness and radio console harness multiplugs.
17. Route earth and aerial leads through radio console.
18. Finally position radio console and fit and tighten the six securing screws.
19. Fit earth lead to the radio stud and fit and tighten securing nut.
20. Connect aerial lead to radio.
21. Ensuring harness and leads do not obstruct, push radio fully home.
22. Fit center console. Refer to operations in this section.
23. Fit 'J' gate surround. Refer to operations in this section.
24. Connect earth cable to battery terminal and fit battery cover. Refer to Section 414-01.

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SECTION 501-14 Handles, Locks, Latches and Mechanisms

VEHICLE APPLICATION: X100

SUBJECT**PAGE****DESCRIPTION AND OPERATION**

Handles, Locks, Latches and Mechanisms 501-14-2

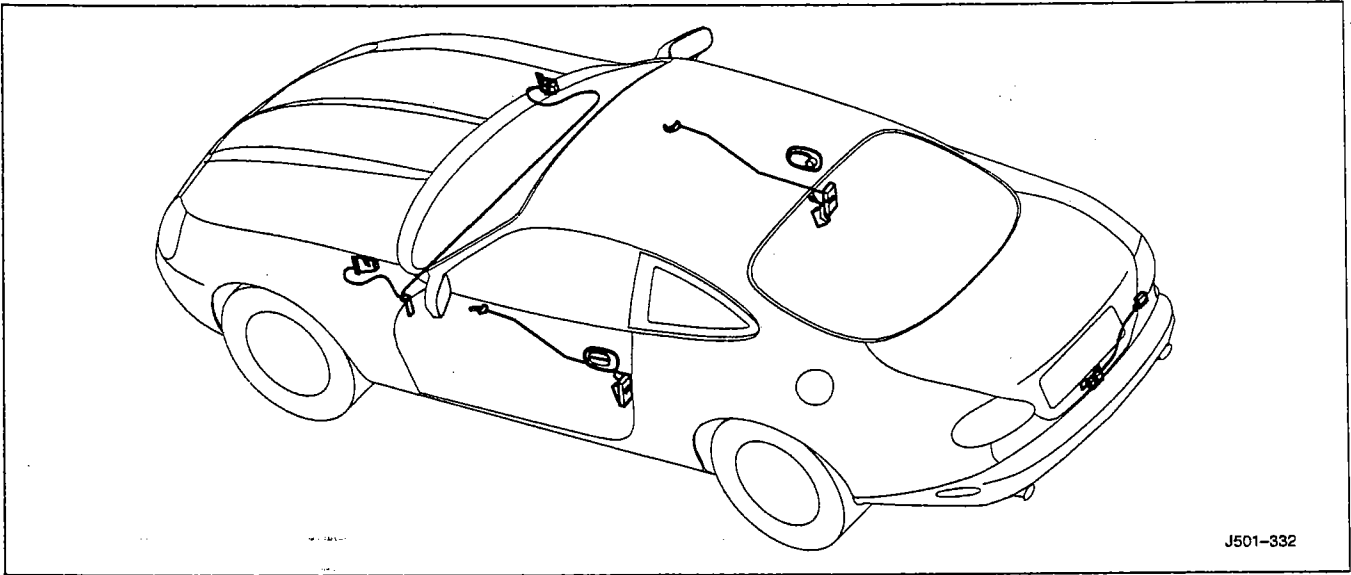
REMOVAL AND INSTALLATION

Driver's Door Handle 501-14-7

Passenger's Door Handle 501-14-9

Door Lock Barrel 501-14-11

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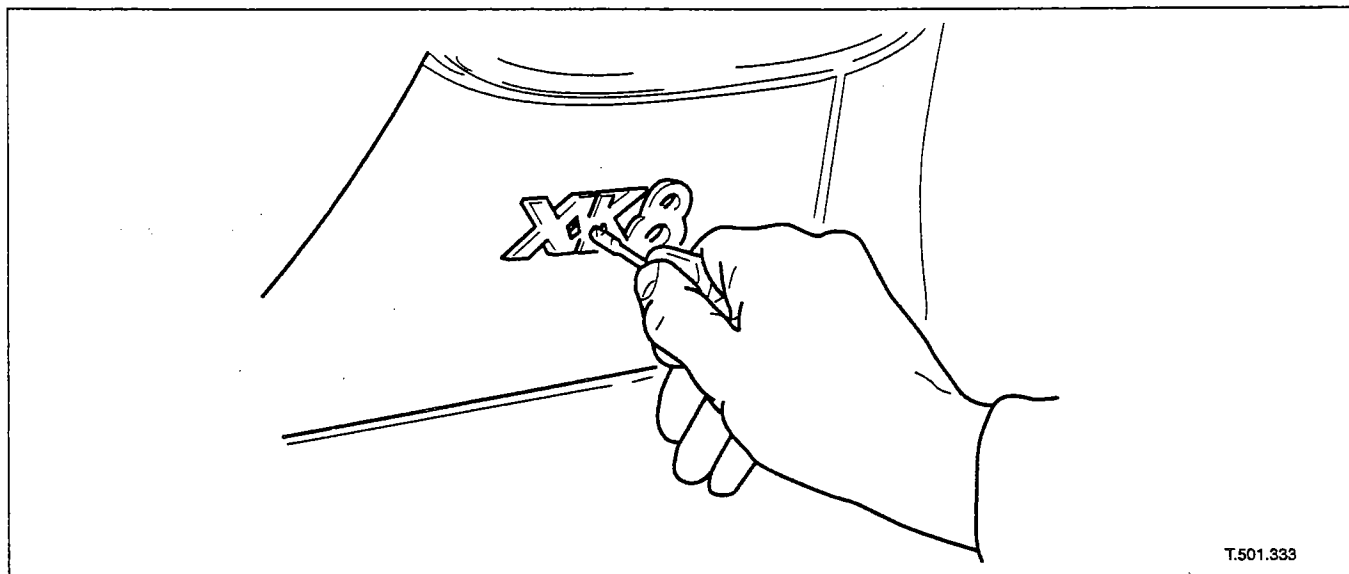
DESCRIPTION AND OPERATION**Handles, Locks, Latches and Mechanisms**

The central locking system employs single key access to the driver's door, trunk lid and ignition switch/steering column lock. An additional green headed valet or parking services key permits access via the driver's door, and ignition/start-up, but denies access to the trunk and glovebox.

A valet switch located in the underscuttle on the outboard side of the steering column, precludes normal internal access to the trunk.

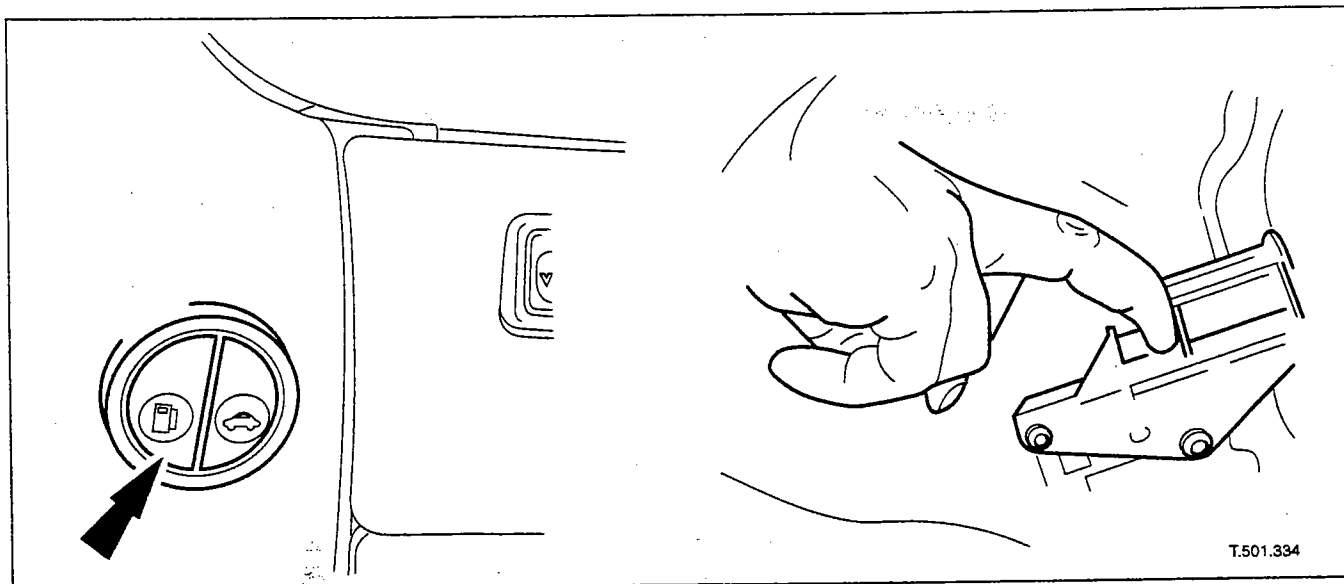
When the vehicle is not locked, each door catch can be externally released by the corresponding door handle which operates via a single rod. When unlocked, or 'single action' locked, the door catches can also be internally released by the interior handles, each of which operates via a single cable. Use of either key in the external door barrel, operates the lock via a short rod to provide locking of the door latch. These locking functions can also be achieved by use of the remote transmitter.

The trunk lid can be independently unlocked via a switch located on the driver's side underscuttle. This will only operate at vehicle speeds up to 8 km/h (5 mph).

DESCRIPTION AND OPERATION (Continued)

A lock barrel located between the X and K of the XK8 badge on the RH side of the trunk rear panel provides external access to the trunk via the black-headed key only.

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DESCRIPTION AND OPERATION (Continued)

The fuel filler flap is released via a switch located on the driver's underscuttle. This switch will only operate if the engine is not running and the vehicle is unlocked, or the ignition is in position I or II.

An emergency filler flap release lever is accessed by removing the LH side trunk lining below the filler.

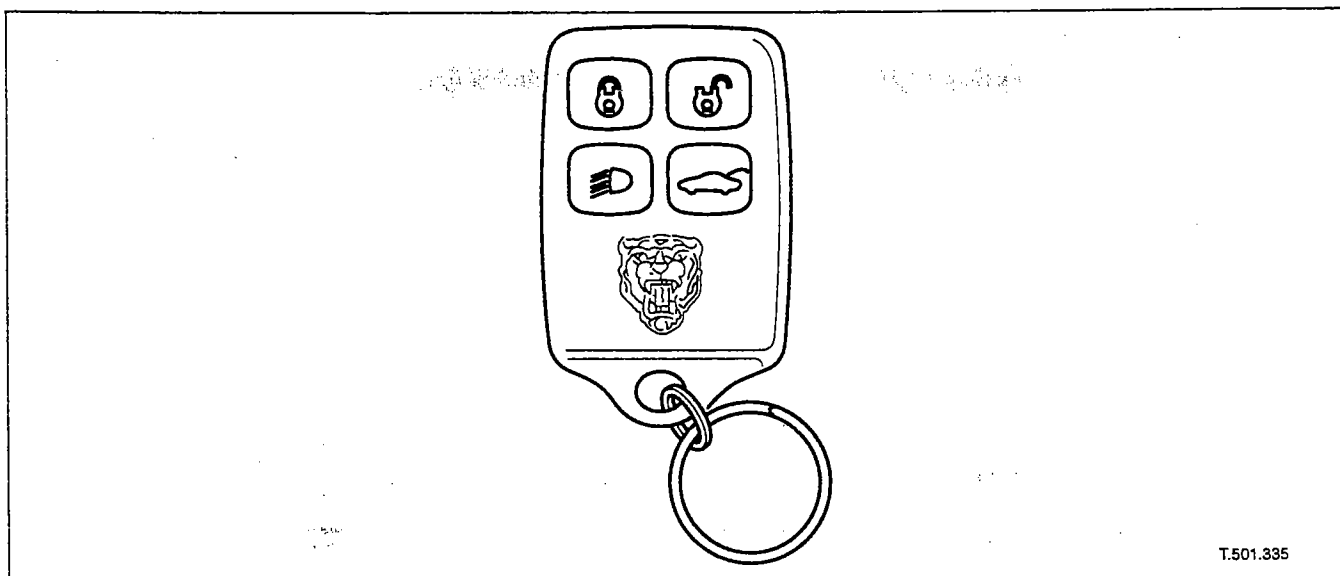
DESCRIPTION AND OPERATION (Continued)**Key Operation**

To 'single action' lock or unlock the vehicle, the key is inserted in the door lock, turned towards the front or rear of the vehicle respectively, and released.

Holding the key in the lock position will close all windows, and on convertible models, will also raise the top. Releasing the key stops all operations.

'Single action' locking of the vehicle locks both doors, the trunk lid and the fuel filler flap, and sets the alarm system.

A 'superlocking' function deadlocks both doors, preventing door opening from the interior, and provides all of the above functions. To raise the convertible top however, the key must again be held in the 'lock' position. To 'superlock' the vehicle, the key is inserted in the door lock and turned to the unlock position, then within three seconds, turned to the lock position and released.

DESCRIPTION AND OPERATION (Continued)**Remote Operation**

A four-button transmitter unit provides for remote controlled central locking of the vehicle.

The button bearing a red closed padlock symbol locks the vehicle and arms the security system. To remote 'single action' lock, the transmitter is pointed towards the vehicle and this button is pressed and released. To 'superlock' the vehicle, the above operation is repeated within three seconds. This function can also be used to remote close any windows. Completion of 'superlocking' is indicated by an audible 'chirp' from the security system and a single flash from the direction indicators. The vehicle is unlocked and the security system disarmed by pressing the button with the open padlock symbol.

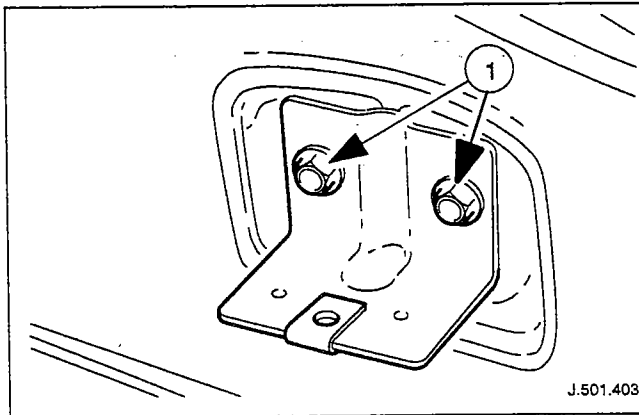
The trunk lock can also be remotely released by operating the button bearing the trunk lid open symbol.

The button with dipped headlamp symbol is for emergency use. When depressed three times within three seconds, it switches the headlamps on for 25 seconds and operates the vehicle alarm 5 times.

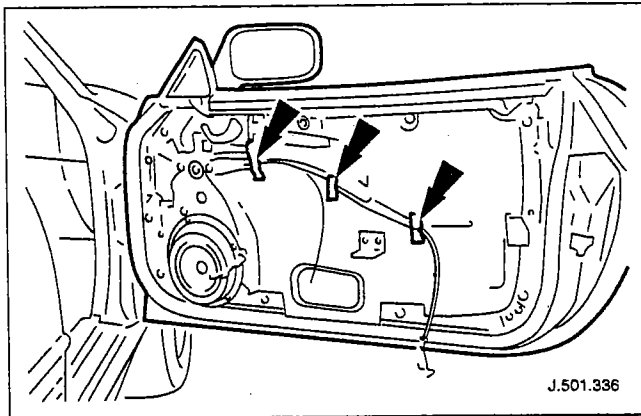
REMOVAL AND INSTALLATION**Driver's Door Handle (76.58.07)****Removal**

WARNING: BEFORE COMMENCING WORK WITHIN A DOOR INTERIOR, THE EARTH CABLE MUST BE DISCONNECTED FROM THE BATTERY TERMINAL TO PREVENT INADVERTENT ACTIVATION OF THE GLOBAL GLASS OPEN/CLOSE FEATURE.

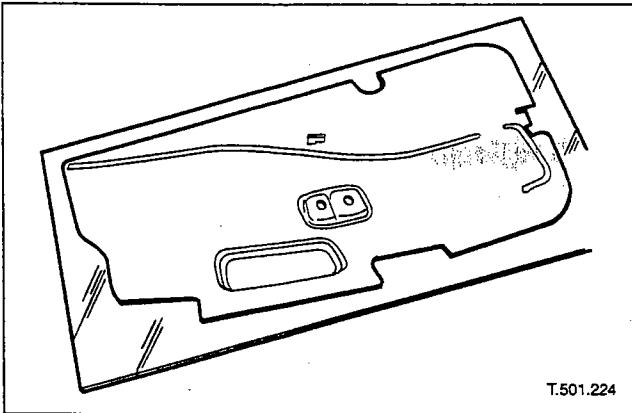
1. Ensure that door glass is fully up.
2. Remove battery cover and disconnect earth lead from terminal. Refer to Section 414-01.
3. Remove door casing. Refer to Section 501-05.
4. Remove door casing center support bracket.



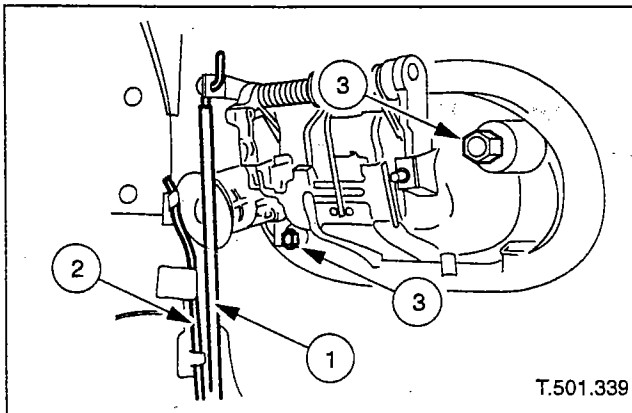
- 1 Slacken and remove the two casing support bracket securing bolts and remove bracket from door.



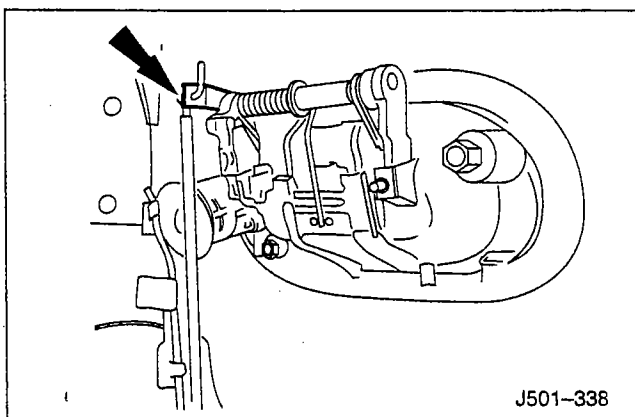
5. Remove tape securing puddle lamp harness to water shedder and reposition harness for access.

REMOVAL AND INSTALLATION (Continued)

6. Carefully peel back water shedder remove from door and place adhesive face downwards on clean dry plastic sheet.



7. Disconnect and remove door handle.
 - 1 Disconnect link rod from door handle.
 - 2 Disconnect lock barrel operating arm link rod from motor.
 - 3 Slacken and remove the two door handle securing screws and remove door handle from vehicle.
8. Remove lock assembly from door handle. Refer to operations in this section.

Installation

9. Fit lock assembly to door handle. Refer to operations in this section.
10. Connect lock barrel link rod to operating arm.

REMOVAL AND INSTALLATION (Continued)

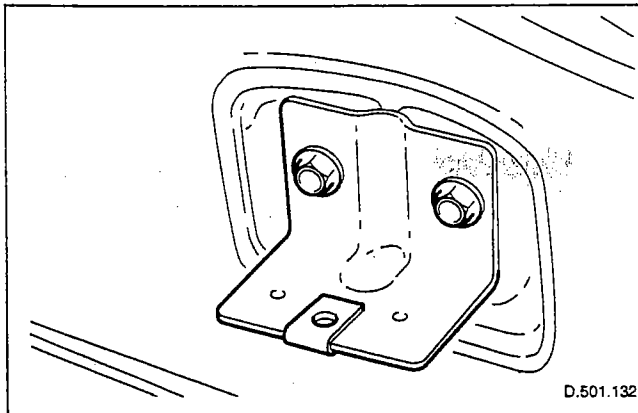
11. Fit door handle to door.
 - Position and fully seat door handle.
 - Fit and tighten the two door handle securing bolts.
 - Connect lock barrel operating arm link rod to motor.
 - Connect door handle to lock operating link rod.
12. Fit water shedder to door.
 - Ensure that adhesive face of water shedder and all door contact surfaces are clean, free of grease and oil, and absolutely dry.
 - Commencing at the top, align and fit water shedder to door.
 - Reposition puddle lamp harness and secure to water shedder using suitable tape.
 - Position door casing center support bracket and fit and tighten securing bolts.
13. Fit door casing. Refer to Section 501-05.
14. Connect earth cable to battery terminal and fit battery cover. Refer to Section 414-01.

Passenger's Door Handle (76.58.08)**Removal**

WARNING: BEFORE COMMENCING WORK WITHIN A DOOR INTERIOR, THE EARTH CABLE MUST BE DISCONNECTED FROM THE BATTERY TERMINAL TO PREVENT INADVERTENT ACTIVATION OF THE GLOBAL GLASS CLOSING FEATURE.

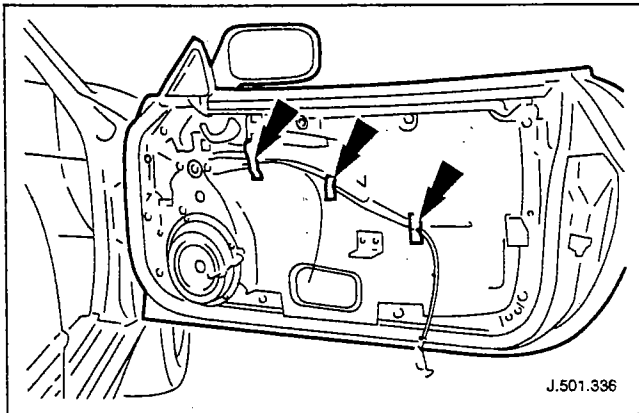
1. Ensure that door glass is fully up.
2. Remove battery cover and disconnect earth lead from terminal. Refer to operations in Section 414-01.
3. Remove door casing. Refer to Section 501-05.

REMOVAL AND INSTALLATION (Continued)

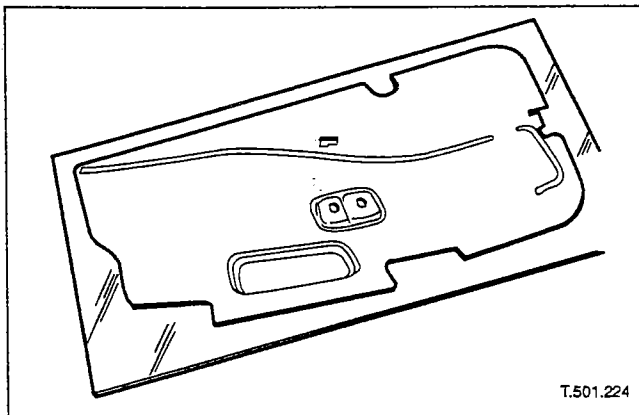


4. Remove door casing center support bracket.

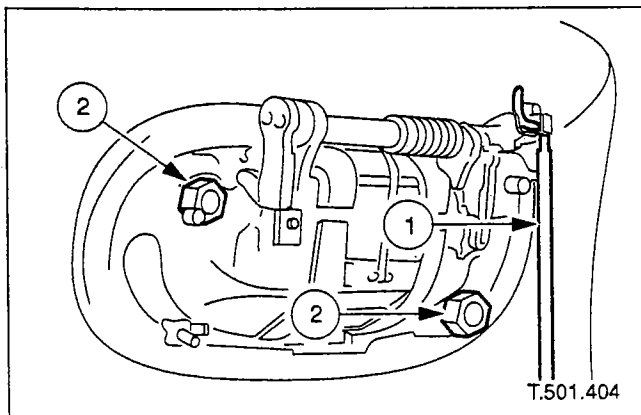
1. Slacken and remove the two casing support bracket securing screws and remove bracket from door.



5. Remove tape securing puddle lamp harness to water shedder and reposition harness for access.



6. Carefully peel back water shedder, remove from door and place adhesive face downwards on clean dry plastic sheet.

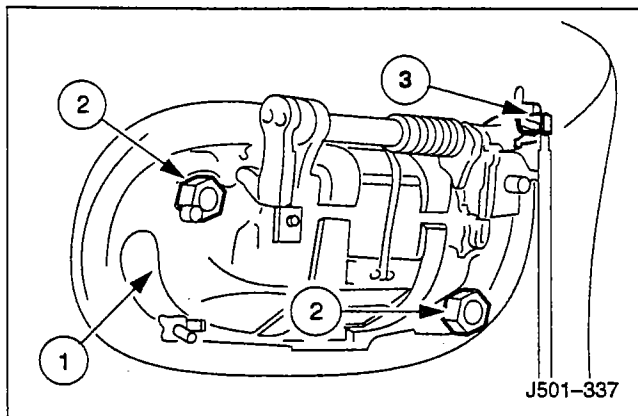


7. Disconnect and remove door handle.

1. Disconnect link rod from door handle.
 2. Slacken and remove the two door handle securing screws and remove door handle from vehicle.

REMOVAL AND INSTALLATION (Continued)

Installation



8. Fit door handle to door.
 - 1 Position and fully seat door handle.
 - 2 Fit and tighten the two door handle securing bolts.
 - 3 Connect door handle to link rod.

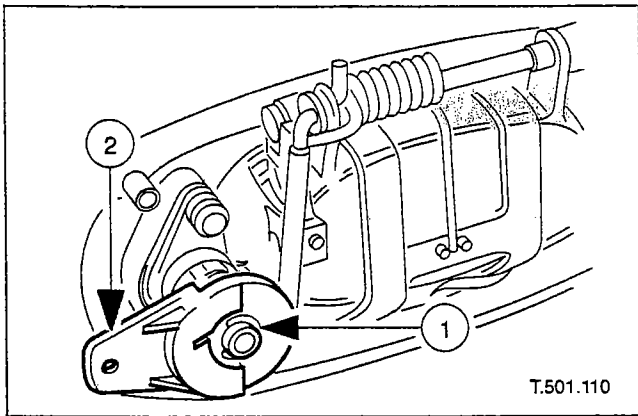
9. Fit water shedder to door.
 - Ensure that adhesive face of water shedder and all door contact surfaces are clean, free of grease and oil, and absolutely dry.
 - Commencing at the top, align and fit water shedder to door.
 - Reposition puddle lamp harness and secure to water shedder using suitable tape.
 - Position door casing center support bracket. and fit and tighten securing bolts.

10. Fit door casing. Refer to operations in Section 501-05.
11. Connect earth cable to battery terminal and fit battery cover. Refer to Section 414-01.

Door Lock Barrel (76.37.71)

Removal

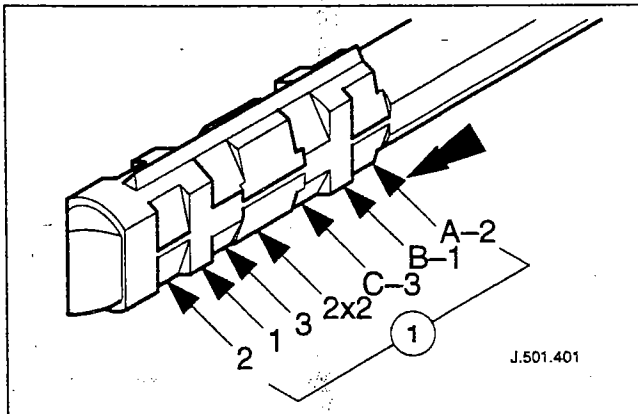
1. Remove driver's door casing. Refer to operations in Section 501-05.
2. Remove driver's door handle. Refer to operations in this section.

REMOVAL AND INSTALLATION (Continued)

3. Remove operating arm and bias spring.

- 1 Remove C clip securing plastic operating arm to barrel.
- 2 Remove operating arm and bias spring from barrel.

4. Slacken and remove screw securing barrel to housing and withdraw barrel.

Installation

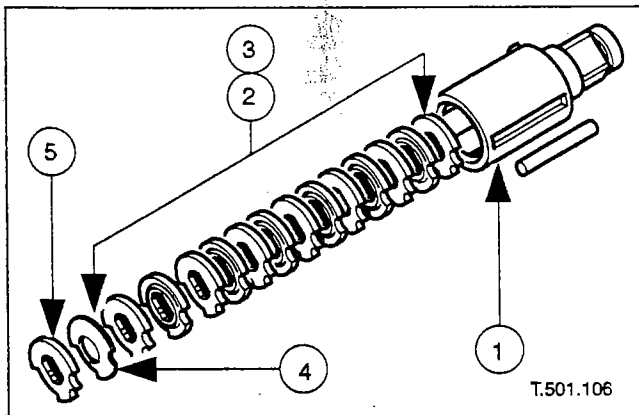
NOTE: For re-fitting of original lock barrel, refer to operations 8 to 13.

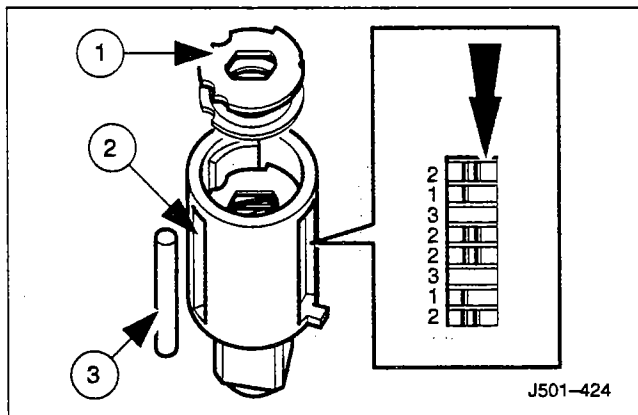
5. Identify key cut code.

- 1 Hold key so that cut outs can be identified and commencing at key grip, note and record cut out sequence.

6. Fit lock discs to barrel.

- 1 Grease bore of lock barrel.
- 2 Ensure lock discs match recorded key code.
- 3 Grease the first seven discs and install them in the barrel in sequence with embossed spacers in between and orientated to align roller locations.
- 4 Fit wavy spring spacer.
- 5 Grease and fit final disc.

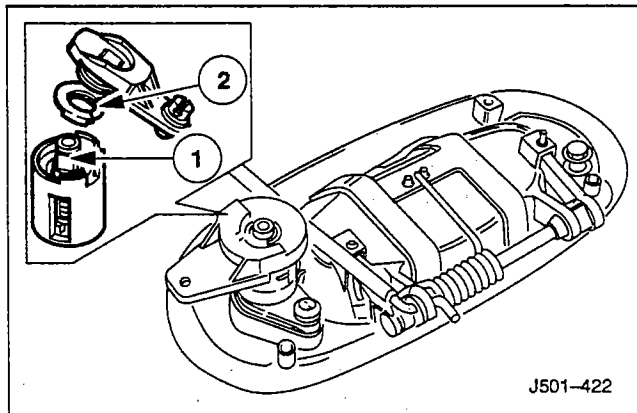


REMOVAL AND INSTALLATION (Continued)

7. Fit shutter assembly and roller to barrel.

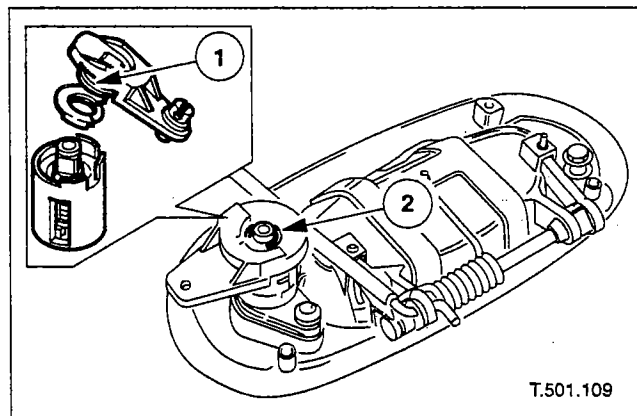
- 1 Grease shutter assembly and fit to barrel.
- 2 Align recesses in discs and spacers to accept the steel roller.
- 3 Grease steel roller and fit into recesses via barrel slot.

- Via adjacent barrel slot, check discs for correct sequence and orientation.



8. Fit lock barrel and shutter assembly to housing.

- 1 Align and fit barrel into lock housing.
- 2 Fit plastic securing ring to barrel and rotate to engage locking tangs.



9. Fit operating arm to barrel.

- 1 Fit bias spring to operating arm ensuring it is fully seated and tensioned, with ends positioned each side of pillar.
- 2 Fit operating arm and bias spring assembly to barrel and secure with 'C' clip.

10. Position lock assembly in door handle and fit and tighten securing screw.

11. Fit key and check lock function.

12. Fit driver's door handle. Refer to operations in this section.

13. Fit driver's door casing. Refer to Section 501-05.

SECTION 501-16 Wipers and Washers

VEHICLE APPLICATION: X100

SUBJECT	PAGE
SPECIFICATIONS	
Torques	501-16-2
DESCRIPTION AND OPERATION	
Wipers and Washers	501-16-3
REMOVAL AND INSTALLATION	
Windshield Wiper Arm and Blade Assembly	501-16-6
Windshield Wiper Motor/Linkage	501-16-7

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SPECIFICATIONS**Torques**

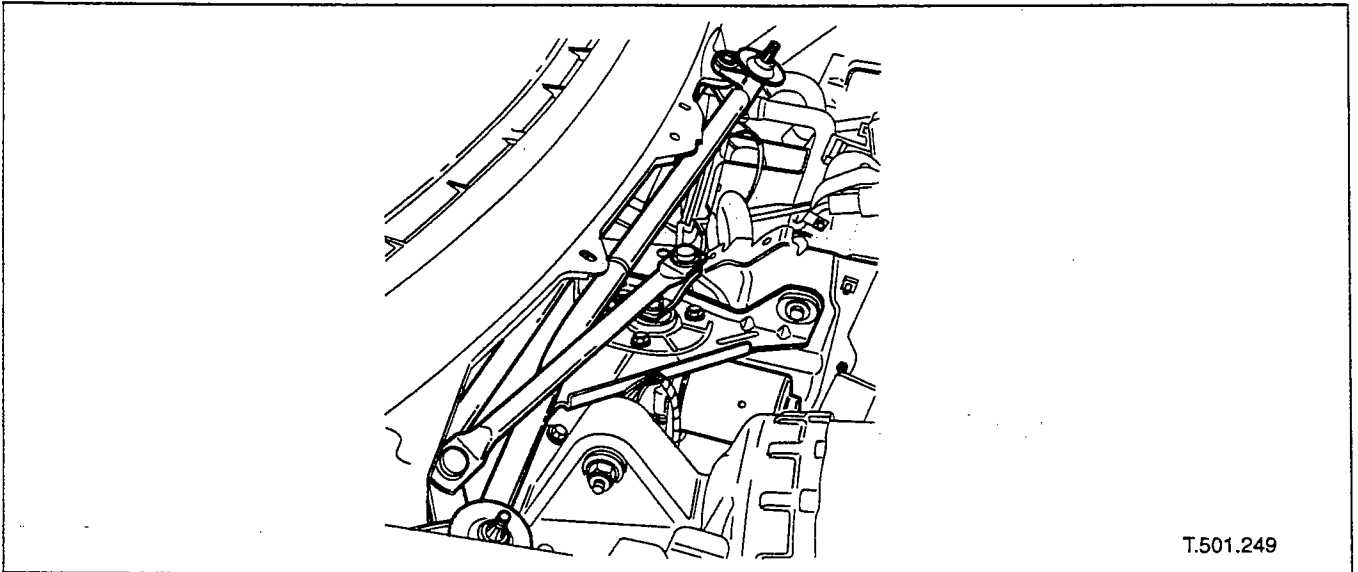
Description	Nm
Nut securing wiper arm to spindle	15,5 – 20,5

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DESCRIPTION AND OPERATION

Wipers and Washers

Windshield Wipers

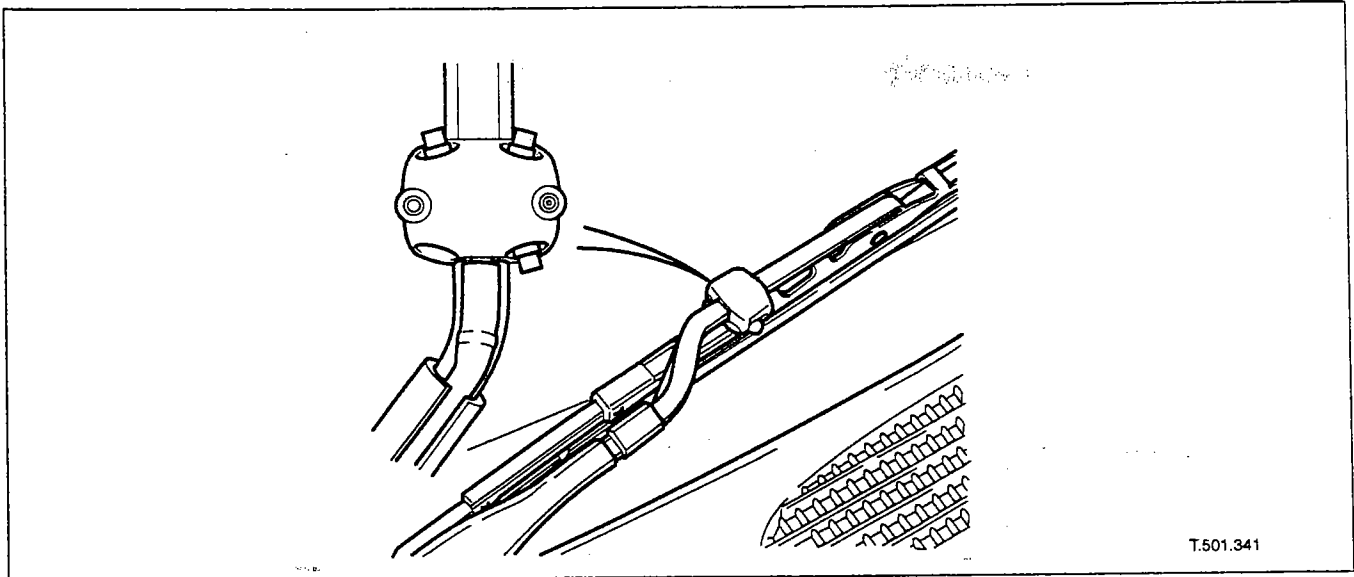


The conventional twin wiper system is driven by a single motor controlled from the right hand column stalk switch. The motor which has 'microswitch overload protection,' is mounted on a bracket below the plenum cover on the driver's side. Available only as a complete assembly including motor, the wiper system is handed to suit market requirements. The wiper arms are dedicated to either driver or passenger side installation and incorporate blade carriers that enable wipers to be parked in lowest possible position on the windshield. The wiper blades are of synthetic rubber. Windshield washer jet assemblies are mounted on the wiper arms.

Operating modes are normal, high speed, flick wipe, and six settings of intermittent operation with delays ranging from 2 to 20 seconds.

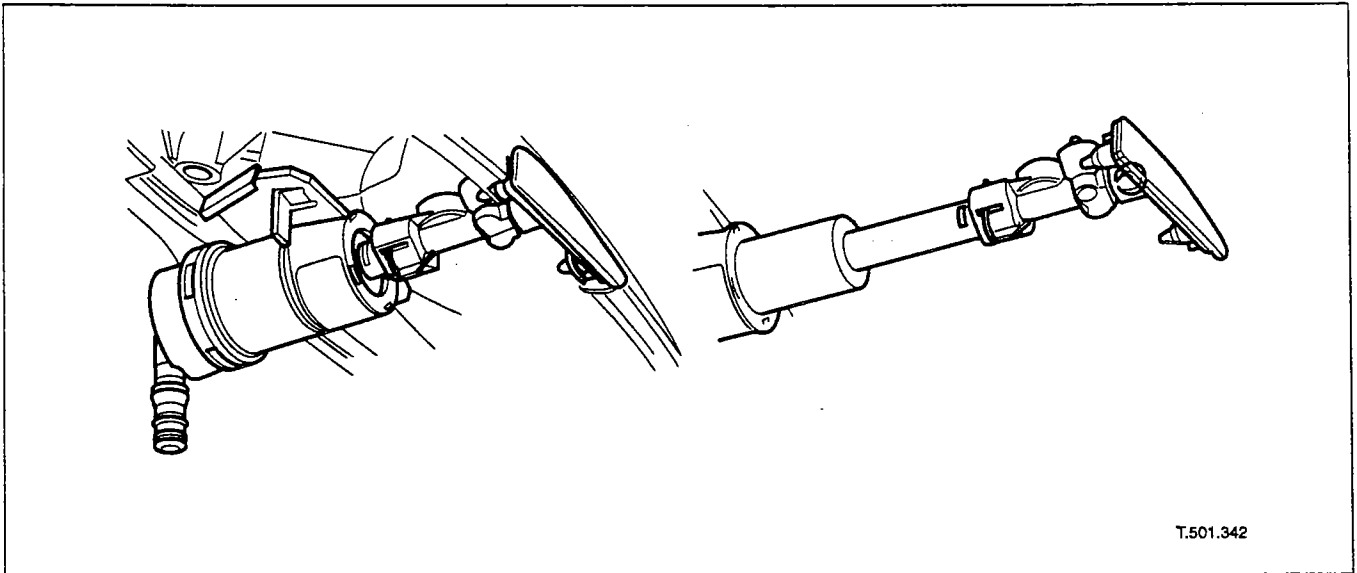
DESCRIPTION AND OPERATION (Continued)

Windshield Washers



The windshield washers are of wiper arm mounted, running jet configuration, with each jet assembly incorporating a conventional nozzle plus three nozzles of silicone rubber 'duckbill' design. If the system is initially operated at low ambient temperatures, the 'duckbill' nozzles permit any frozen residual washer fluid to be ejected under pump pressure. The windshield wash feed tubes supplied assembled in the associated wiper arms fit at their lower ends onto connectors in the plenum cover. Located on the rear face of the washer fluid reservoir the windshield wash pump is connected by feed tubes to the plenum cover. The seven liter washer fluid reservoir is situated in a cavity formed by the front bumper, LH front valance and the front wing liner.

The windshield washers are operated by pressing the button at the end of the wiper control stalk switch. Pressing and releasing the button operates the washers for 1 – 1.4 seconds and the wipers complete three sweeps. An optional drip wipe function adds a further sweep of the wipers after a 4 second delay, to clear residual fluid from the windshield. If the button is held depressed, the washers and wipers will operate continuously for up to 20 seconds.

DESCRIPTION AND OPERATION (Continued)**Headlamp Powerwash System**

The headlamp powerwash system incorporates a telescopic nozzle unit mounted in the lower section of each headlamp. Each nozzle is connected via snap fittings to a powerwash pump mounted above the windshield wash pump on the rear face of the washer fluid reservoir.

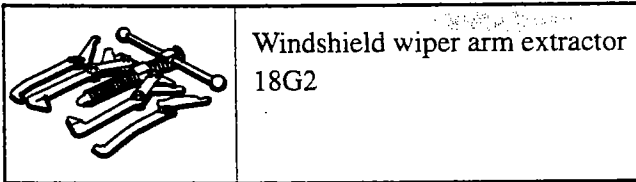
The powerwash system operates in conjunction with the windshield washers when the ignition switch is in position II and the headlamp switch is in the dip or main beam position. When the powerwash pump is activated, the nozzle units under fluid pressure, extend forward approximately 72 mm and commence the wash cycle. The wash cycle consists of two 800 ms pulses separated by a six second delay. To conserve washer fluid, headlamp powerwash will only function on every sixth operation of the windshield wash switch.

NOTE: When the 'WASHER FLUID LOW' message is illuminated, the windshield washers will continue to operate for a limited period but the headlamp power wash will not function until the fluid level is restored.

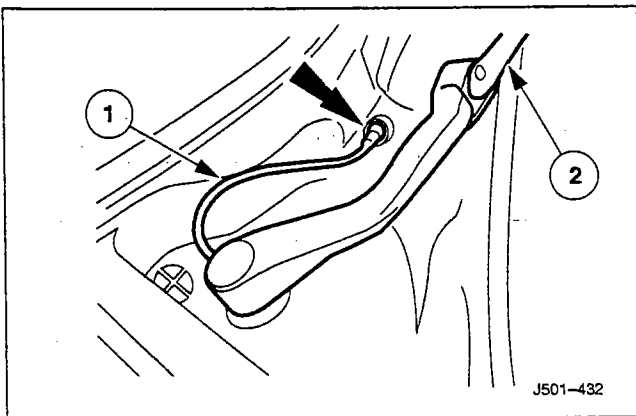
REMOVAL AND INSTALLATION

Windshield Wiper Arm and Blade Assembly (84.15.44.90)

Special Tool(s)

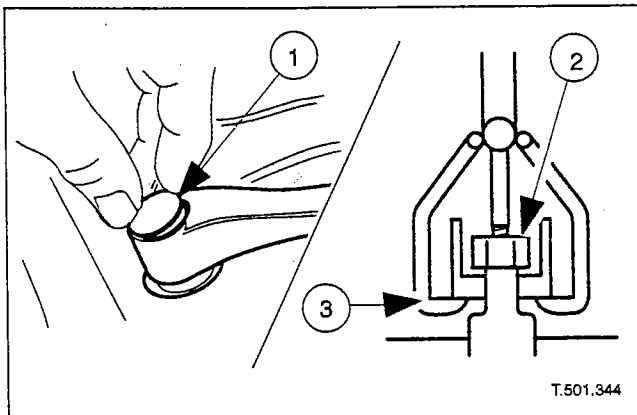


Removal



1. Disconnect windshield washer tubing.

- 1 Open the hood.
- 2 Disconnect wiper arm windshield washer tubing from plenum cover connector.
- 3 Note position of wiper blade on windshield.



2. Withdraw wiper arms from spindles.

- 1 Remove plastic cover from wiper arm securing nut.
 - 2 Slacken but do not remove wiper arm securing nut.
 - 3 Fit extractor 18G2 and ensuring that wiper and plenum cover are not damaged, release wiper arm from tapered spindle.
- Remove extractor, remove wiper arm securing nut and lift wiper arm off spindle.

REMOVAL AND INSTALLATION (Continued)

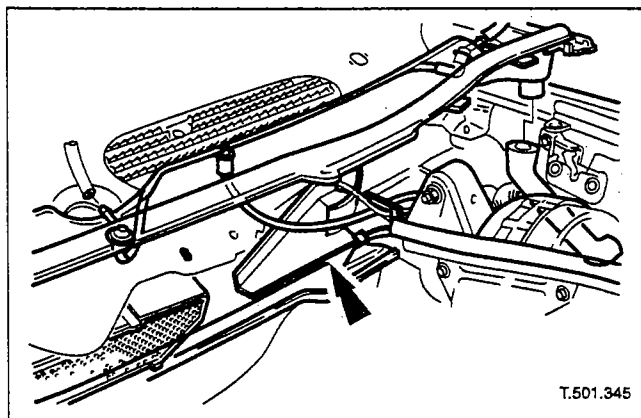
Installation

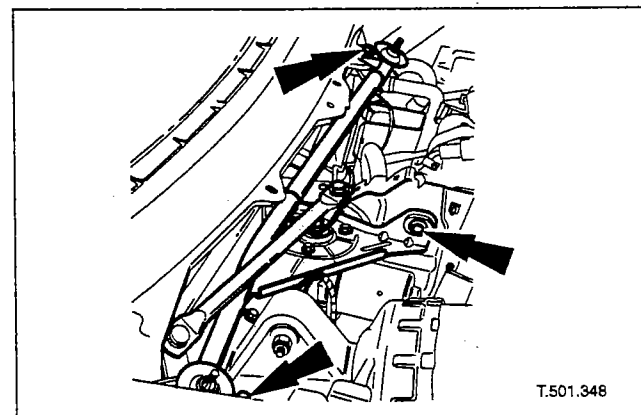
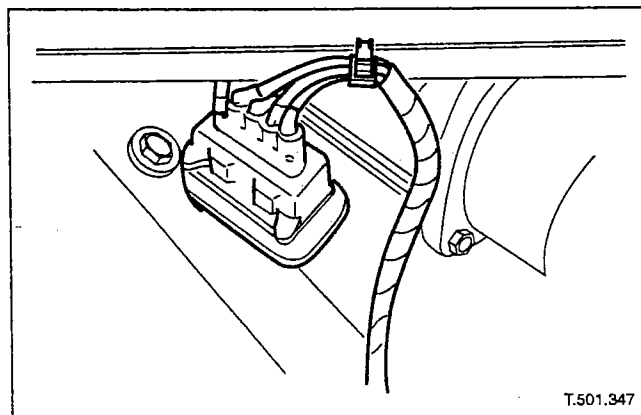
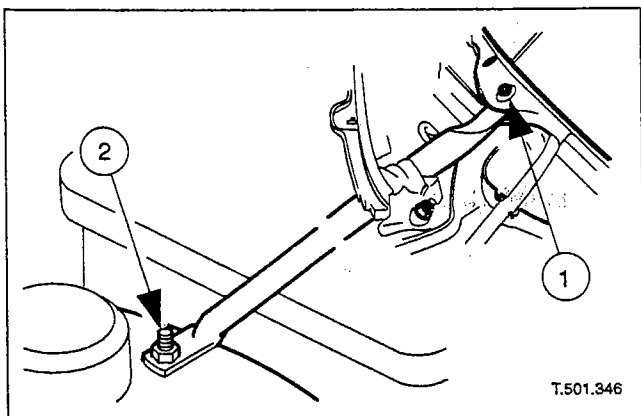
3. Fit wiper arm and blade.
 - Fit wiper arm and blade assembly onto spindle splines aligning blade to original position on windshield.
 - Fit wiper arm securing nut.
 - Supporting the wiper arm, carefully tighten the securing nut to press arm on to tapered splines.
4. Fit plastic cover over securing nut.
 - Connect washer tubing to plenum cover.
 - Close hood.

Windshield Wiper Motor/Linkage (84.15.12)

Removal

1. Remove battery cover and disconnect earth cable from battery terminal. Refer to Section 414-01.
2. Remove wiper arm and blade assemblies. Refer to operations in this section.
3. Remove plenum chamber cover. Refer to Section 501-02.
4. Slacken and remove the bolt securing the driver side water deflector to the plenum chamber and remove the deflector.



REMOVAL AND INSTALLATION (Continued)

5. Remove convertible model bulkhead brace.
 1. Slacken and remove the driver side bulkhead brace rear securing bolt.
 2. Slacken and remove the bulkhead brace front securing nut and remove brace from vehicle.
6. Sever the strap securing the wiper motor multiplug to the securing bracket and disconnect the multiplug.
7. Slacken and remove the three wiper motor/linkage securing bolts and withdraw the motor and linkage from the plenum chamber.

8. Remove and retain the wiper motor/linkage mounting rubbers and spacers.

Installation

9. Fit mounting rubbers and treat the bores with a suitable lubricant.
10. Fit spacers to mounting rubbers.
11. Position wiper motor/linkage assembly in the plenum chamber and fit and tighten securing bolts.

REMOVAL AND INSTALLATION (Continued)

12. Connect wiper motor harness multiplug and secure to bracket with new retaining strap.
13. Fit convertible model bulkhead brace.
 - Position driver side bulkhead brace, locating front on suspension turret stud and fit and tighten rear securing bolt.
 - Fit and tighten nut securing front of brace to suspension turret.
14. Position driver side water deflector in plenum chamber and fit and tighten securing bolt.
15. Fit plenum chamber cover. Refer to Section 501-02.
16. Fit wiper arm assemblies. Refer to operations in this section.
17. Connect earth cable to battery terminal and fit battery cover. Refer to Section 414-01.

SECTION 501-17 Convertible Top

VEHICLE APPLICATION: X100

SUBJECT

PAGE

DESCRIPTION AND OPERATION

Convertible Top 501-17-2

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DESCRIPTION AND OPERATION

Convertible Top

Description

The convertible top has a fully lined and padded interior, and is mounted on an aluminum frame with steel linkages providing lightness with good structural strength.

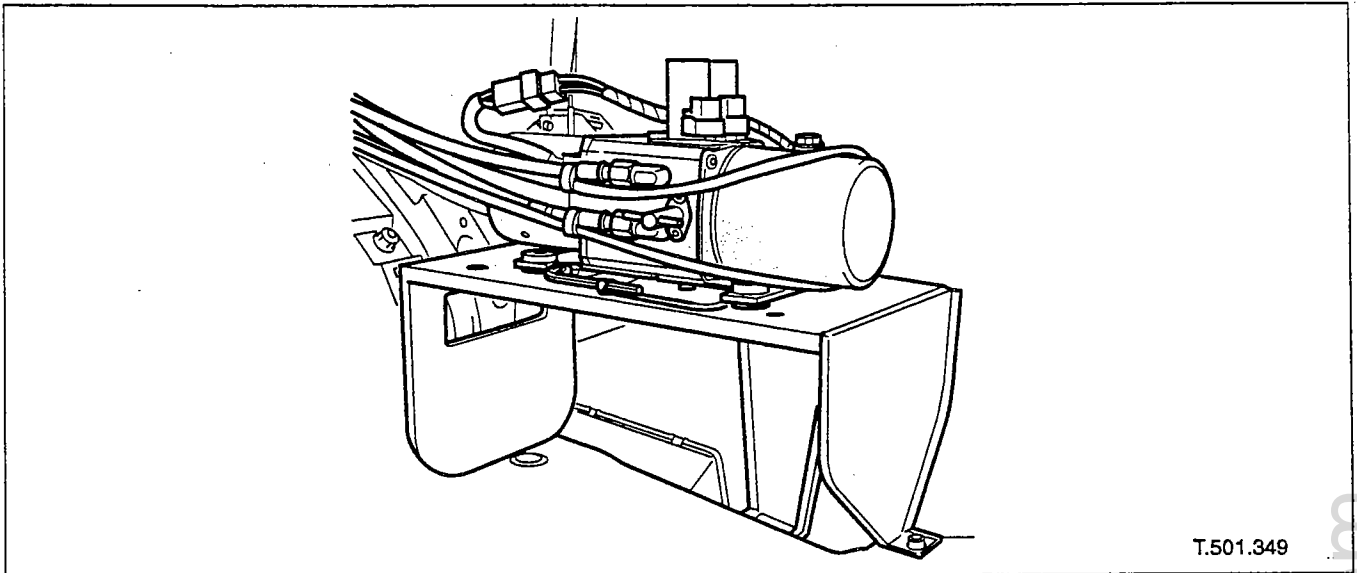
When lowered, the top folds to a low stack height in the body and is concealed by a matching soft cover. A front seal shot moulded to the windshield header and 'A' posts, achieves highly efficient weatherproofing, reduced noise levels and improved aerodynamics.

The green tinted glass backlight is bonded to the top to achieve a semi-flush finish.

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DESCRIPTION AND OPERATION (Continued)

Power Operation



T.501.349

Actuation and latching is powered by an electrically driven hydraulic pump installed in RH side of trunk.

- Ignition switch must be in position I or II to operate convertible top.
- Convertible top and rear quarter glass are operated by single switch located forward of the 'J' gate and marked 'ROOF'.
- Top is lowered by pressing and holding rear of switch until top movement ceases.

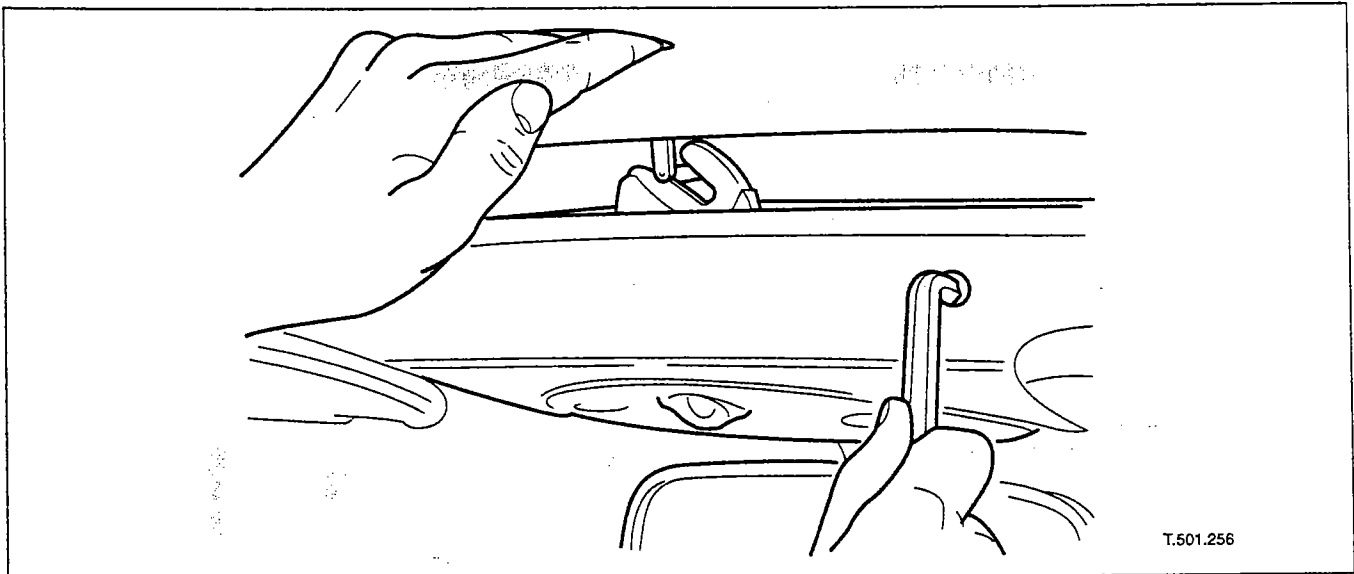
CAUTION: Operation of the convertible top is inhibited at vehicle speeds in excess of 16 km/h (10 mph). If the vehicle exceeds this speed when the top is moving to the lowered position, it will continue to the fully down position. Should the vehicle exceed this speed when the top is being raised, further movement will be inhibited until the speed is reduced.

NOTE: When top unlatches, an audible alarm sounds for 0.7 seconds, the rear quarters fully open and any fully closed door glass lowers 12 mm.

- When the top is fully lowered, the audible alarm operates and the door glass only returns to the fully closed position.
- Top is raised by pressing and holding front of switch until top is fully erected and latched.

NOTE: When the top starts to move, the audible alarm operates. If door glass is closed, the rear quarters close, then all glass lowers 12 mm.

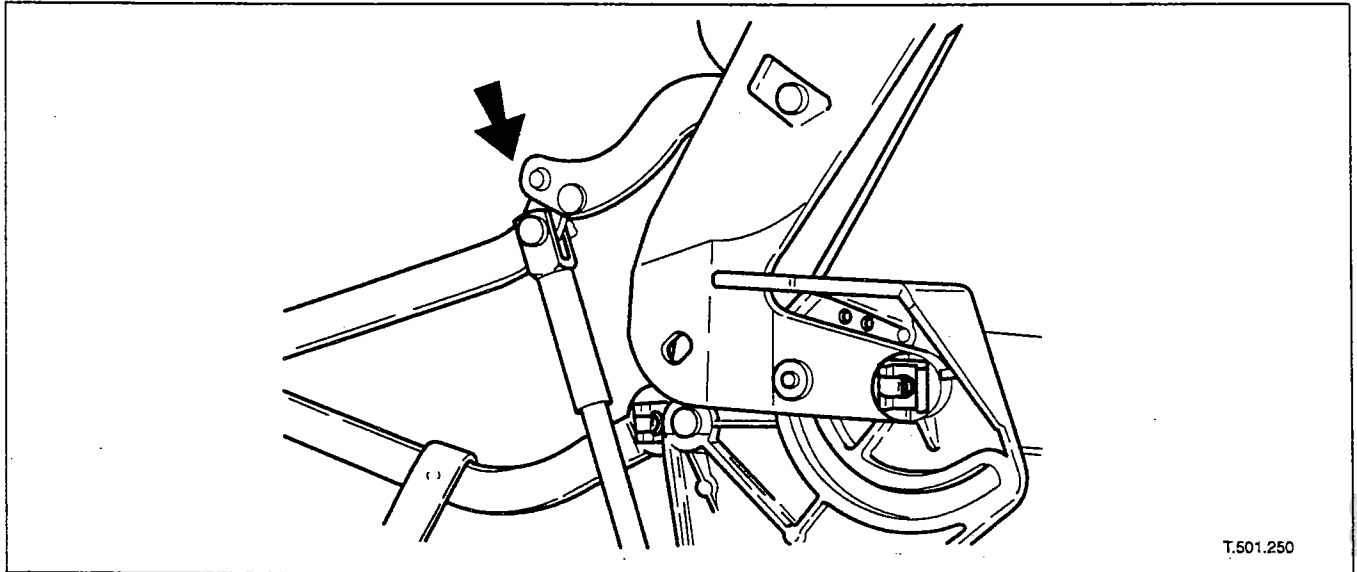
- When the top is fully raised and latched, the audible alarm operates again and all glass closes.

DESCRIPTION AND OPERATION (Continued)**Emergency Manual Raising of Top**

In the event of latch failure when the top is raised, a visual warning will illuminate on instrument panel. In such an emergency, the top must be manually positioned using a center pull down facility, then latched using a key stowed alongside top operating pump. To operate latches, key is inserted in Allen screw in windscreen header and turned anti-clockwise.

The top can also be manually raised in the event of failure to power operate.

In such a situation, the pump isolating valve must first be turned anti-clockwise to 'MANUAL' position. Manual latching is then achieved as described above, by turning the key anti-clockwise. When manually raising the top, the linkages from the frame to the wheel arches must be moved to the over-center position.

DESCRIPTION AND OPERATION (Continued)**Emergency Manual Lowering of Top**

CAUTION: In the event of failure of powered lowering of the top, it is essential that the following procedure is adopted. Failure to follow this procedure when manually lowering the top will result in severe damage to the frame and operating linkages.

1. Lower the rear quarter glass by pressing the rear of the 'ROOF' button once.
2. Rotate the pump valve (located in the RH side-well of the trunk) anti-clockwise to 'MANUAL.'
3. Remove the blanking plug from the header trim, insert the Allen key provided (stowed alongside the top pump) and unlatch the top by turning the key clockwise.
4. Reaching behind the top rear quarter curtains, pull the rams and linkages at both sides firmly downwards as far as possible.
5. Manually lower top to stowed position, if necessary repeating step 4 above.

SECTION 501-18 Body and Paint

VEHICLE APPLICATION: X100

SUBJECT

PAGE

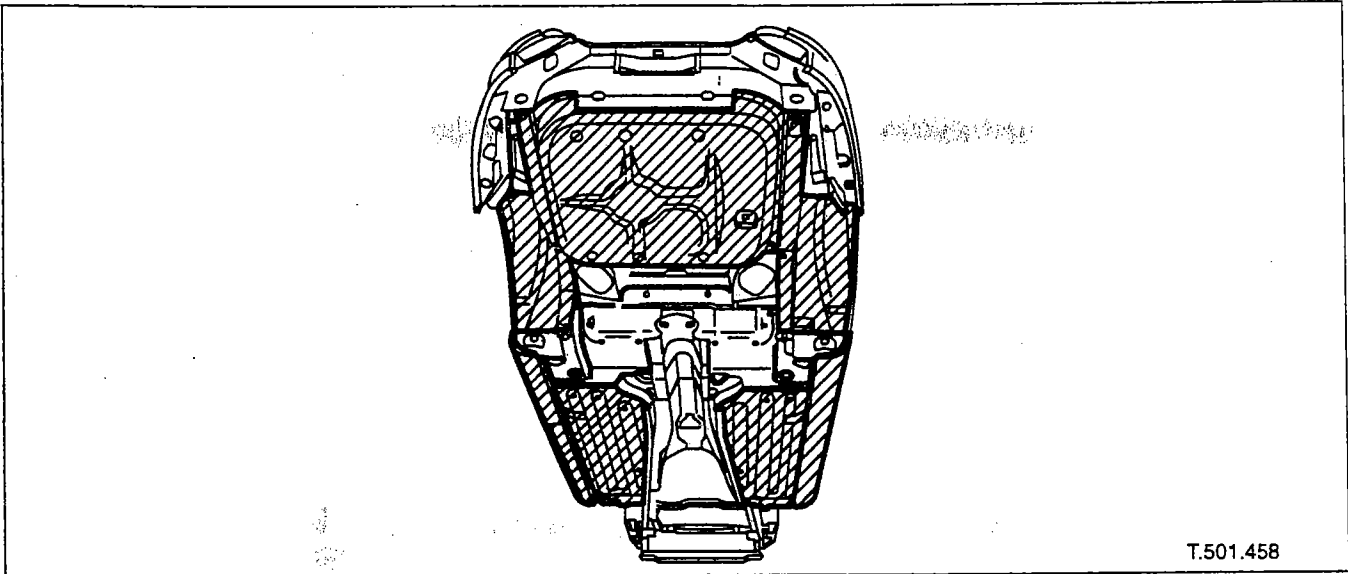
DESCRIPTION AND OPERATION

Body Pre-treatment, Painting and Sealing 501-18-2

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DESCRIPTION AND OPERATION

Body Pre-treatment, Painting and Sealing



T.501.458

The body is pre-treated to ensure high resistance to corrosion and stone chip damage. Prior to the first major pre-treatment process, the body shell is high-pressure washed to remove any metal dust and residual oil.

The first major pre-treatment process consists of phosphate and electro-paint deposition, which together with zinc coating, forms the basis of the corrosion protection. This process includes high pressure knock-off, alkali de-greasing, zinc phosphate conversion of body steel (dissolving iron and coating with zinc phosphate crystals), trivalent chrome rinsing and demineralized water rinsing, sealing all chemicals and impurities.

Both dip and spray techniques are employed and the bodies are submerged to the waistline during the first and third rinses of the main phosphate clean. Chemical strengths and solution temperatures are continuously monitored and accurately controlled throughout the process.

An 80% water primer is then cathodic electro-deposition applied to the thoroughly cleansed bodies in a uniform 'sag-free' film 18 to 32 micron thick. Optimum durability of the electroprimer is achieved by finally curing in a stoving oven at 165 °C for a period of 20 minutes.

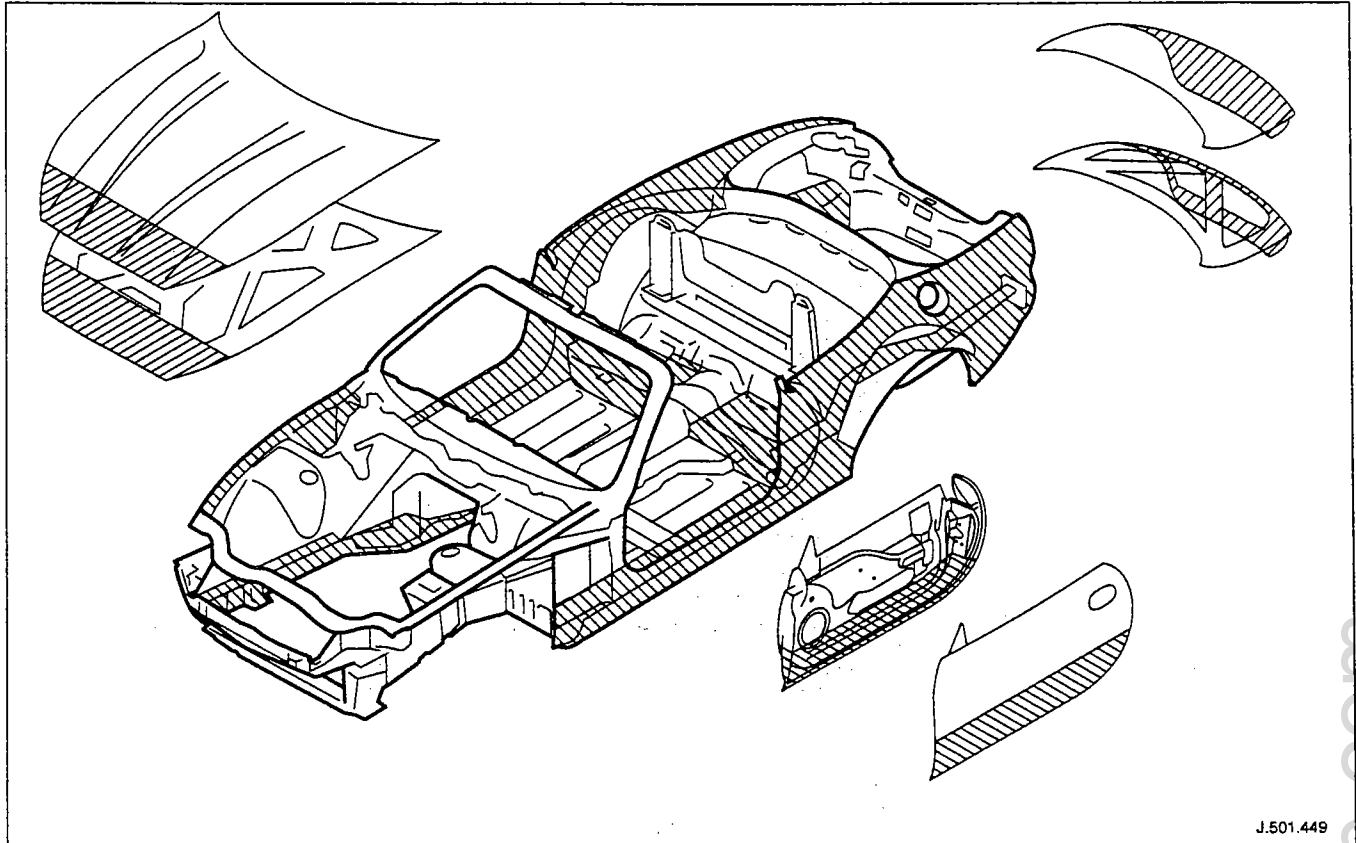
All underbody seams of the fully primed bodies are then manually sealed, to prevent water and dust ingress into the vehicle and to enhance corrosion protection.

A semi-automatic airless spray application of a PVC coating 800 to 1000 g/m², is applied to the underside of the main floor panels, trunk floor and rear wheel arches (ref. illustration above).

The upper panels of primed and externally sealed bodysells are next lightly scuffed to remove imperfections and a PVC coating is applied to all internal seams by an airless spray technique. A PVC bead seal is also applied to the doors, hood and trunk clinch joints.

Following anti-corrosion, sealing and priming treatment, the bodies enter the first stage of 'cosmetic' painting. This consists of the application of two coats of a highly chip resistant polyester surfacer, employing high voltage electrostatic 'spinning bells', to achieve a final film thickness of 35 to 50 micron. Between surfacer coats, a polyurethane coat is automatically applied to the sills to impart even greater resistance to stone chipping.

DESCRIPTION AND OPERATION (Continued)



All interior panels are then painted using a color keyed sealer, wet-on-wet with a surfacer material, after which the bodysells are stoved at 160 °C for a period of 20 minutes. Further protection against corrosion is provided by a medium solids black pigmented wax which is airless spray applied to vehicle undersides.

Critical body box-sections are similarly protected by spray injecting a high solids wax. This is then re-flowed at 70 to 90 °C to achieve optimum seam/joint penetration and form a resilient and durable internal coating (ref. illustration above).

After full wet sanding, rinsing and drying to provide a good substrate, a color-keyed semi-matt sealer coat is applied using electrostatic bells to achieve a film build of 25 to 35 micron. The bodies are then stoved for a further 20 minutes at a temperature of 145 °C and subjected to a local 'seek-and-find' de-nib operation prior to the final two coat process. The final top coat finish is achieved by using polyester base coat colors and an acrylic sag resistant clear coat. This clear over base (COB) process produces a high gloss, durable paint finish with a film thickness of 50 to 65 micron, which is finally cured at a temperature of 135 °C for 20 minutes.

The Munsell three dimensional system of color management is employed to achieve highly accurate control of vehicle colors. This system ensures that paint pigmentations are accurately maintained and facilitates vigorous final checking of finished vehicles for color match. The hue of individual panels such as trunk lids, doors and hoods is in some instances adjusted to offset the effects of differing light angles. Where applicable, coachlines are manually applied and radiant heat cured on the completed and valeted vehicle prior to hand spray application of a protective wax coat.

SECTION 501-19 Bumpers

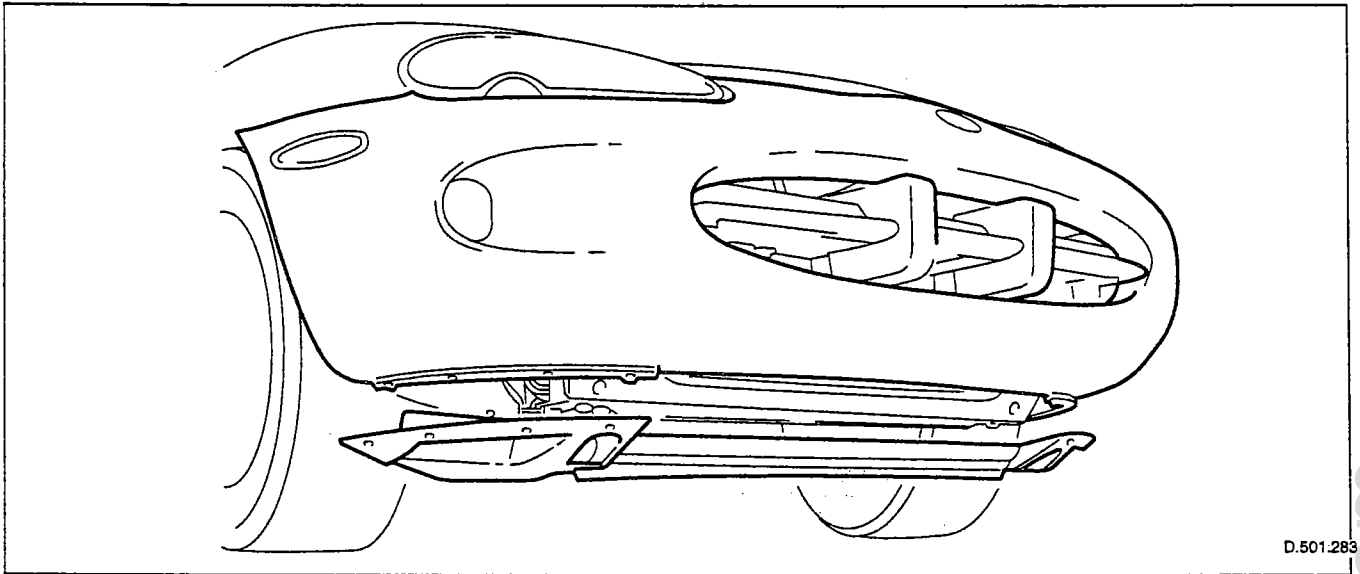
VEHICLE APPLICATION: X100

SUBJECT	PAGE
SPECIFICATIONS	
Torques	501-19-2
DESCRIPTION AND OPERATION	
Bumpers	501-19-3
REMOVAL AND INSTALLATION	
Rear Bumper Cover & Rear Bumper Beam	501-19-6
Rear Bumper Strut	501-19-9

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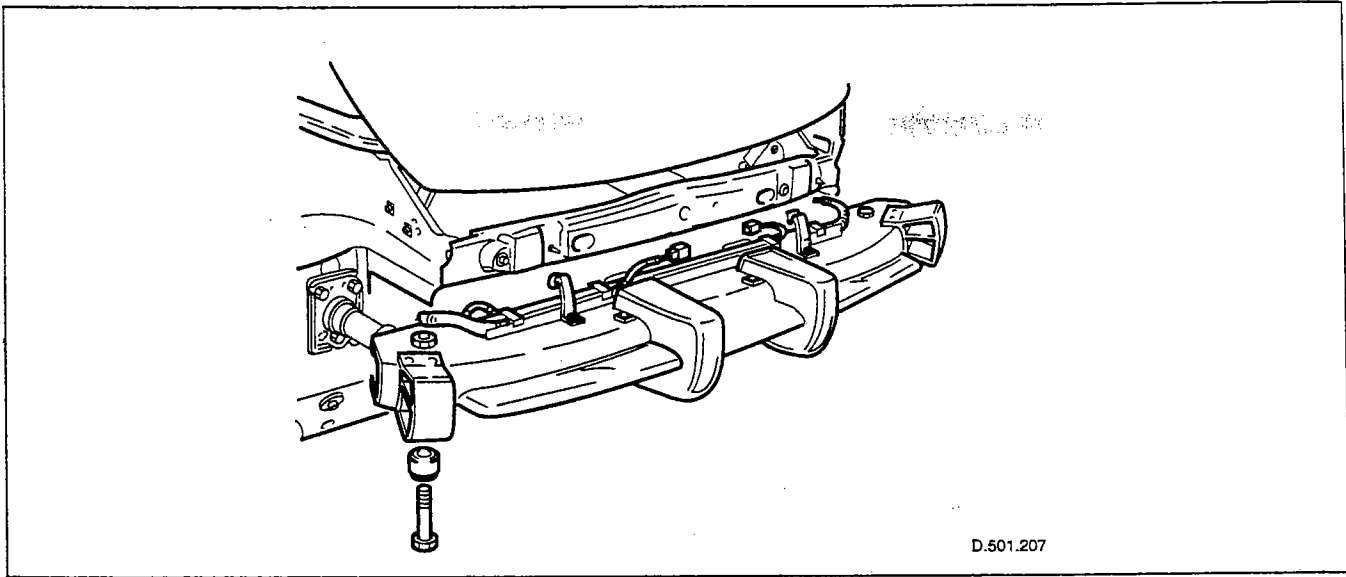
SPECIFICATIONS**Torques**

Description	Nm
Bolts securing bumper beam to strut	39 – 51
Bolts securing bumper guide to body	15,5 – 20,5
Bolts securing energy absorbing strut to body	22 – 28
Bolts securing non-energy absorbing strut to body	15,5 – 20,5

DESCRIPTION AND OPERATION**Bumpers****Front Bumper**

The front bumper is part of a fully integrated 'soft front end' that satisfies bumper impact requirements. The bumper has a polyurethane cover color-matched to the body and moulded to form an elliptical air intake. The cover is secured to the body via fixings to the fenders and the BIW upper crossmember. The lower section of the cover is supported in the center by clips integral with the overrider covers. The cover lower extremities are attached to a GMT undertray fitted to assist air flow through the cooling pack.

DESCRIPTION AND OPERATION (Continued)

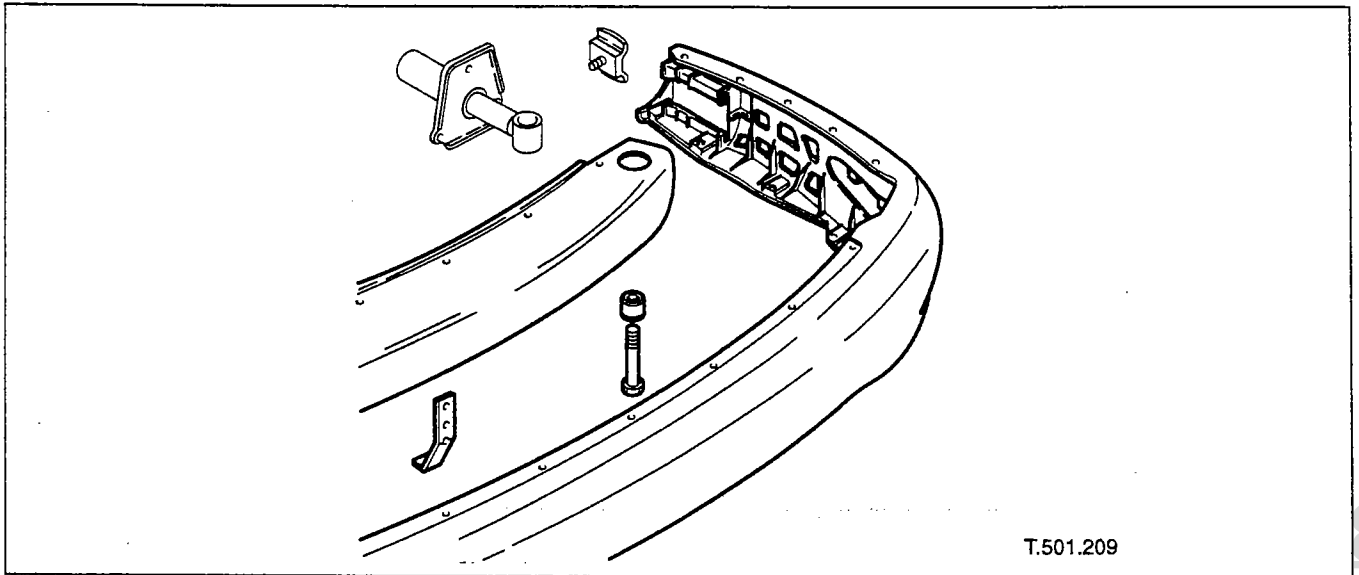


A glass mat thermoplastic (GMT) bumper beam is secured by a single bolt and nut to each of two GMT mounting brackets, each of which is in turn attached to the BIW by three bolts and nuts. An aluminum bumper beam installed for certain markets is similarly mounted, but employs menasco energy absorbing struts instead of GMT mounting brackets.

A chromed splitter vane, located centrally in the air intake, is secured to the lower bumper beam face by three rivets. Two polycarbonate override covers that fit over the splitter vane and overrides are secured by scrivenets to the upper face of the bumper beam.

A plastic air deflector is attached to the undertray in each wheelarch area to improve airflow in the front wheel area.

Left- and right-handed twin circular fog lamps installed in recesses in the lower section of the cover are accessed by removal of undertray. Side marker lamps fitted to the bumper cover for some markets, serve only as side reflectors for UK and Europe. Side marker lamps/reflectors are pressed in from outside and unclipped from inside.

DESCRIPTION AND OPERATION (Continued)**Rear Bumper**

The rear bumper has a color matched, moulded polyurethane cover mounted on GMT or aluminum beam dependent upon market. The beams are respectively mounted on two brackets or energy absorbing menasco struts, each of which is located and secured to the BIW by three bolts.

The bumper cover incorporates integral LH and RH support armatures which engage in guide blocks secured to the body by a captive bolt and a nut. Under low speed impact, this configuration enables the bumper to move forward on the guide blocks, preventing rear body damage.

Rear side marker lamps/reflectors are fitted and removed in the same manner as those at front.

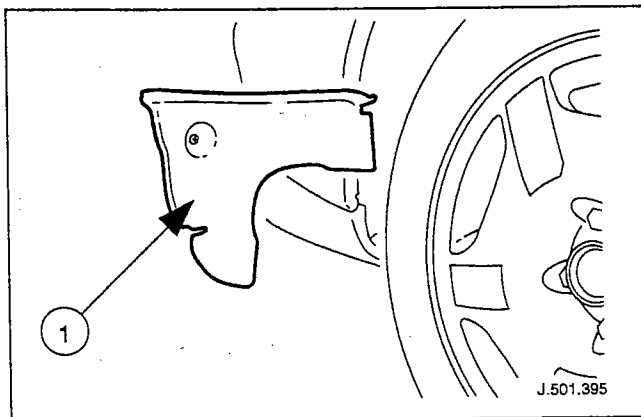
REMOVAL AND INSTALLATION

Rear Bumper Cover (76.22.77) & Rear Bumper Beam (76.22.27)

Removal

WARNING: THE REAR BUMPER IS CLOSE TO THE EXHAUST PIPES WHICH MAY BE HOT. CARE MUST THEREFORE BE EXERCISED WHEN WORKING IN THIS VICINITY.

1. Position vehicle on a 4-post ramp with handbrake on and raise ramp to working height.
2. Remove rear wheel arch liners and side marker bulb holders.



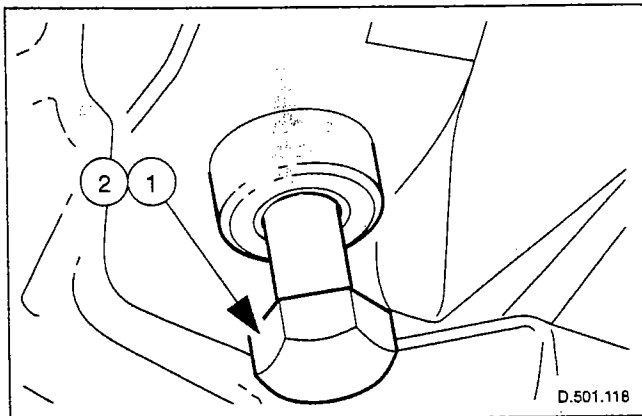
- 1 Slacken and remove rear wheel arch liner plastic nut and remove liner from wheel arch.

- On N. American vehicles, rotate side marker bulb holder 1/4 turn, withdraw from lamp and ensure that leads are free from bumper.
- Repeat operations on opposite side of vehicle.

3. Separate bumper from supports.

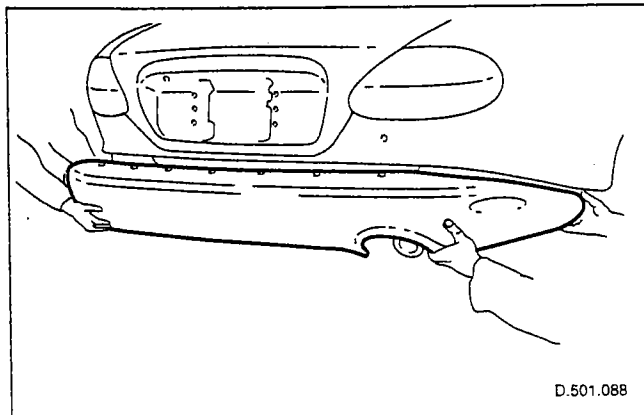
- 1 Slacken and remove bolts securing beam to support brackets (menasco struts on N. American market vehicles).

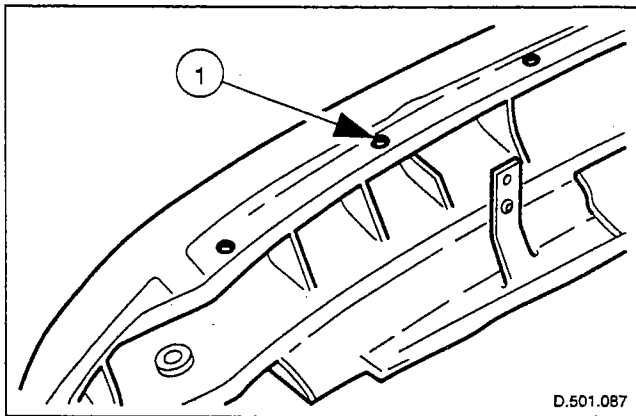
- 2 Remove beam adjustment spacers.



4. Remove rear bumper from vehicle.

- With assistance, slide bumper assembly rearwards off guide blocks, holding it clear of the exhaust trims.



REMOVAL AND INSTALLATION (Continued)

5. Remove bumper cover fasteners.

- 1 Position bumper for access to cover to beam fasteners, displace and remove center pin from each of nine fasteners and remove all fasteners.

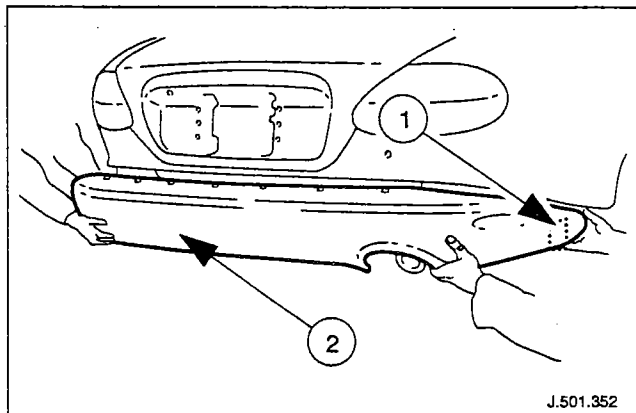
6. Remove cover from bumper beam.

Installation

7. Fit cover to bumper beam.

- With assistance, position bumper beam in cover, aligning fastener locating holes.
- Fit nine fasteners and center pins.

8. Position bumper on vehicle.

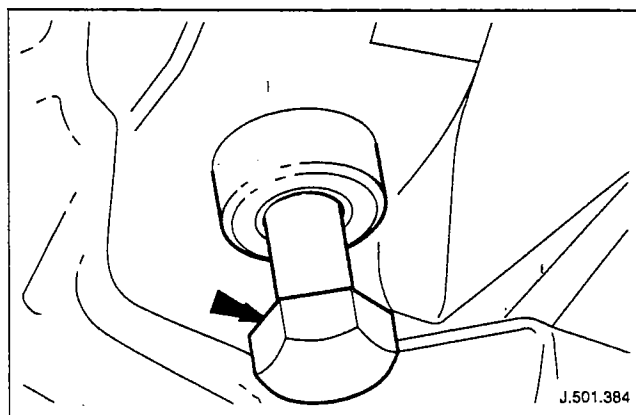


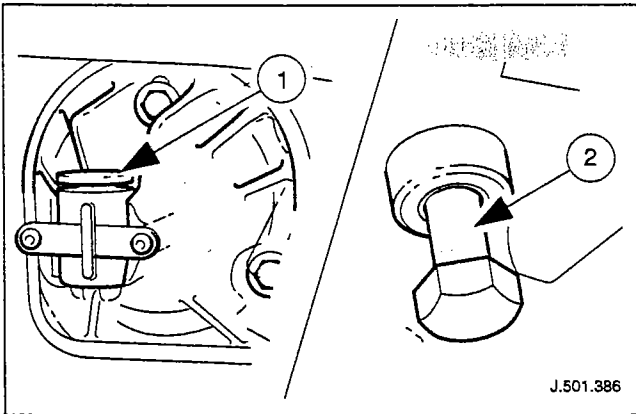
- 1 With assistance, align bumper cover side armatures with guide blocks.
- 2 Slide bumper assembly forward holding it clear of the exhaust trims.

9. Fit beam securing bolts.

- 1 Position beam adjuster spacers between bumper assembly and support brackets (menasco struts on N. American market vehicles).

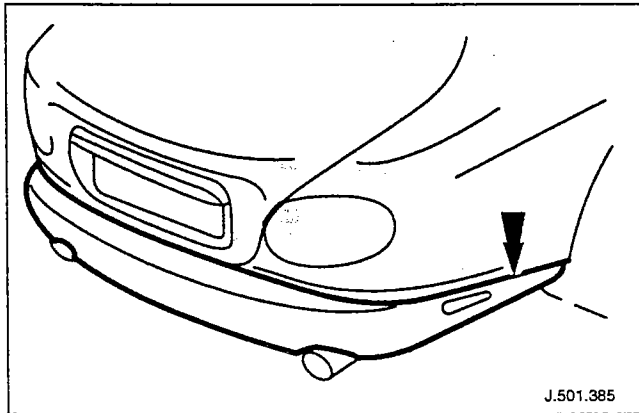
- Fit and hand tighten beam securing bolts.



REMOVAL AND INSTALLATION (Continued)

10. Adjust bumper to body clearance.

- 1 Rotate adjuster spacers to achieve required clearance between bumper and body rear upper panel.
- 2 Tighten beam securing bolts.



11. Check and adjust fender to bumper clearance.

- 1 Check clearance between lower rear fenders and bumper cover, and adjust as necessary by slackening guide block securing nuts, positioning bumper and re-tightening nuts.

12. Fit wheel arch liners and side marker bulb holders.

- Position rear wheel arch liner, fit securing nut and tighten.
- Fit bulb holder to side marker lamp and rotate 1/4 turn.
- Repeat on opposite side of vehicle.

WARNING: ENSURE THAT ALL PERSONNEL AND EQUIPMENT ARE CLEAR OF AREA BEFORE OPERATING RAMP.

13. Lower the 4-post ramp.

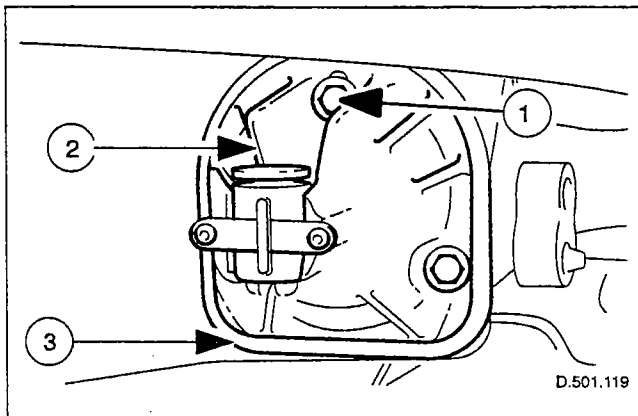
REMOVAL AND INSTALLATION (Continued)

Rear Bumper Strut (76.22.70)

Removal

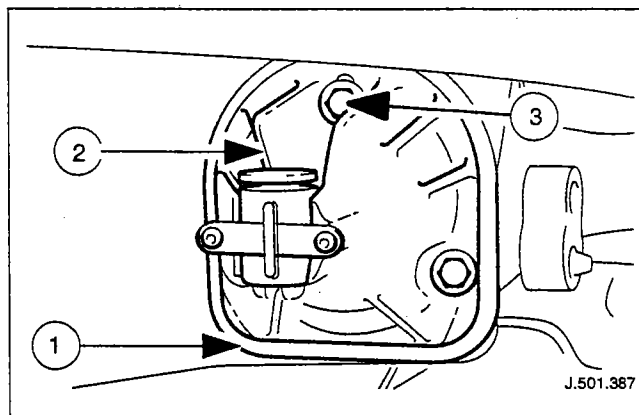
WARNING: THE REAR BUMPER IS CLOSE TO THE EXHAUST PIPES WHICH MAY BE HOT. CARE MUST THEREFORE BE EXERCISED WHEN WORKING IN THIS VICINITY.

1. Remove rear bumper assembly. Refer to operations in this section.
2. Remove rear strut.



- 1 Slacken and remove rear strut securing bolts.
- 2 Remove strut from body rear panel.
- 3 Remove and discard strut gasket.

Installation



3. Fit rear strut.
 - 1 Fit and align new strut gasket.
 - 2 Position rear strut.
 - 3 Fit and tighten strut securing bolts
4. Fit rear bumper. Refer to operations in this section.

SECTION 501-20 Occupant Restraints

VEHICLE APPLICATION: X100

SUBJECT	PAGE
SPECIFICATIONS	
Torques	501-20-2
DESCRIPTION AND OPERATION	
Occupant Restraint System	501-20-3
REMOVAL AND INSTALLATION	
Driver's Air Bag Module	501-20-7
Passenger's Air Bag Module	501-20-8
Driver's Air Bag Control Module	501-20-11
Passenger's Air Bag Control Module	501-20-13
Air Bag Primary Crash Sensors	501-20-16

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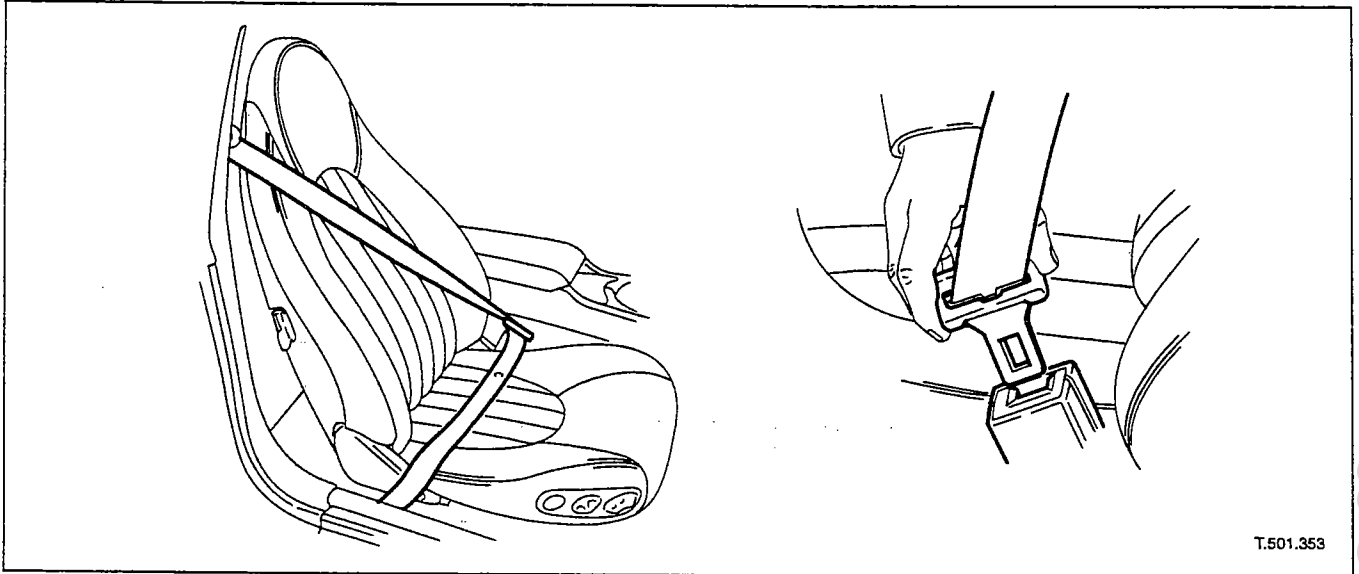
SPECIFICATIONS**Torques**

	Nm
Front seat buckle	34 – 46
Rear seat buckle	60 – 80
Height adjuster	17 – 23
Front seat belt retractor	34 – 46
Rear seat belt retractor	34 – 46
Coupe pillar loop nut	30 – 40
Pre-tensioner arming pin	7 – 10
Webbing guide bracket	7 – 10
Pre-tensioner top mounting	7 – 10
Front slider bar assembly	34 – 46

DESCRIPTION AND OPERATION

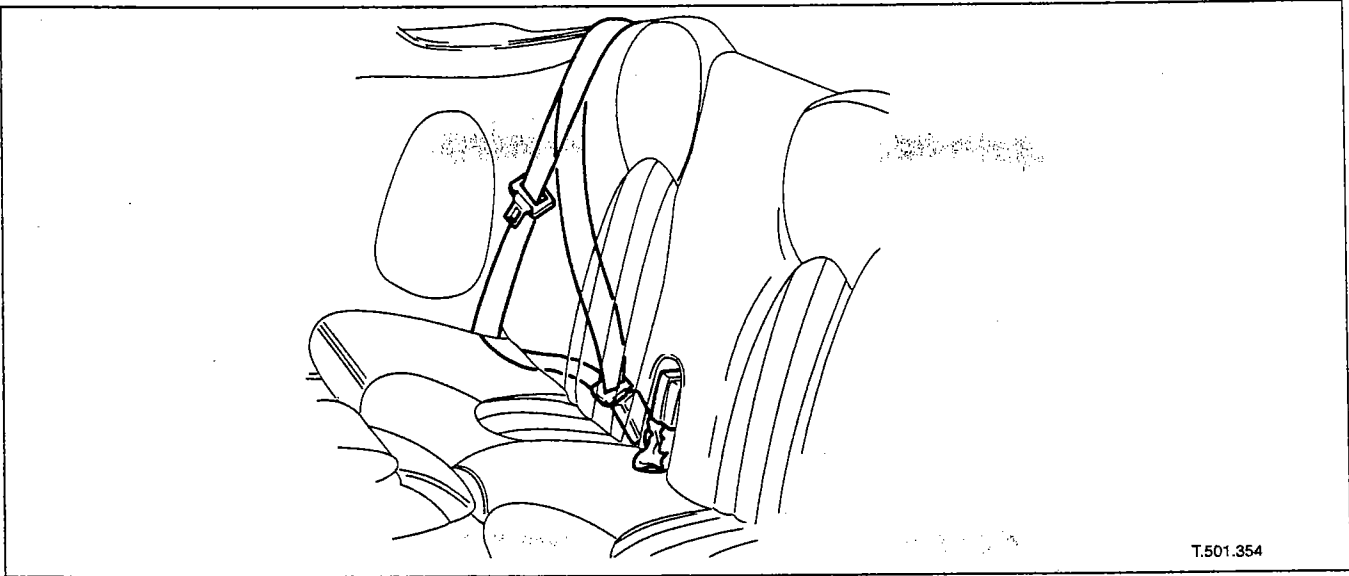
Occupant Restraint System

Front Seat Belts



Each front seat belt is in color-keyed webbing with plastic moulding on the running loop and tongue and has three anchorage points. The front seat belts are common to both coupe and convertible models. Differing top fittings are selected and fitted as appropriate on installation. The coupe also has a manual, four position, belt shoulder height adjuster installed in each 'B' post. On each model, the front belts are also left- and right-handed.

Rear passenger entry and exit is aided by slider bar outboard lower mountings and each belt buckle is secured to a moving inboard seat rail by a strap that enables the seat to be moved without adjustment or removal of the belt. Visual and audible warnings operate if the driver's seat belt is not worn when the driving seat is occupied and the ignition is switched to position I or II.

DESCRIPTION AND OPERATION (Continued)**Rear Seat Belts**

Two rear seat belts are dedicated to installation in the coupe or convertible, each have three anchorage points with emergency, and where applicable, automatic locking retractors. The belt buckles, common to both models, are each mounted on twin cables and share a single central floor anchorage. The buckle cables exit the rear seat cushion via a tailored penetration concealed by a matching gaiter.

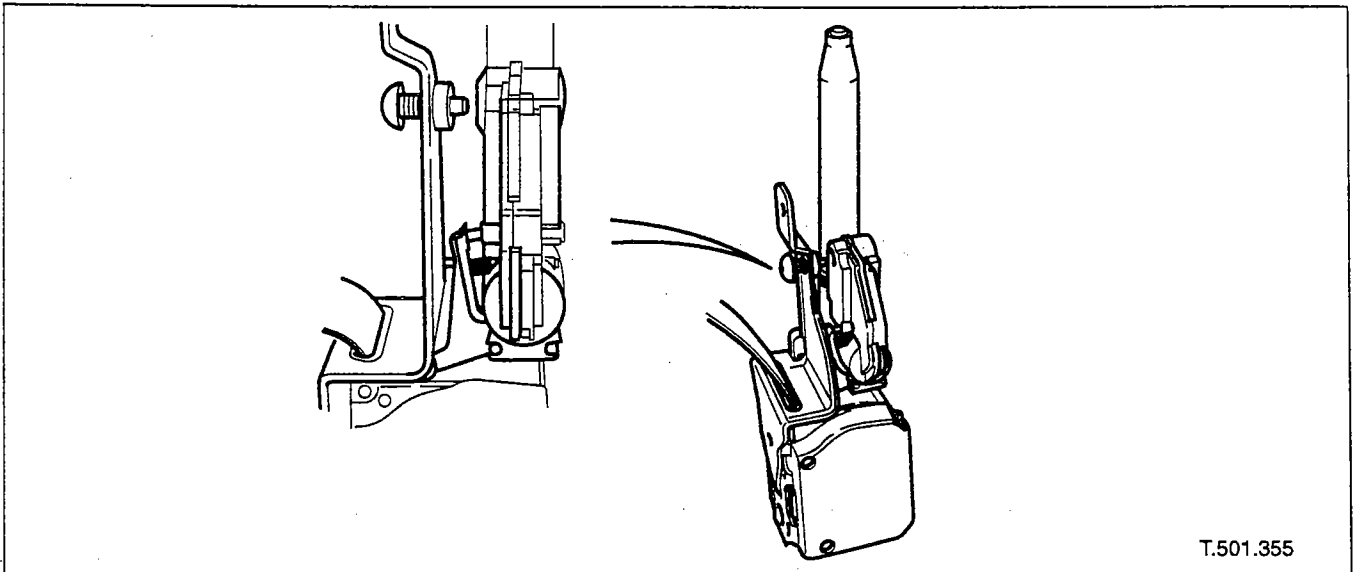
Coupe belt retractors are mounted on the outboard sides of the parcel shelf, with belt webbing exiting via color keyed escutcheons in the quarter casings. Convertible belt retractors are mounted on rear seat pan behind the seat squab. Belt webbing is routed upwards inside the seat belt tower and exits via color keyed escutcheons surmounting the rear seat squab. The lower anchorage points, located on outboard sides of the seat pan, are common to both models. All seat belt retractors incorporate emergency locking (ELR), which locks the retractor unit under rapid deceleration of the vehicle. At all other times the wearer is free to move the upper torso.

Automatic locking retractor (ALR) fitted for certain markets, enables a child seat to be secured by any passenger seat belt. When adjusted with all slack removed, the ALR locks, preventing further belt extraction. Unclipping of the buckle allows the belt to return to the normal stowed position and revert to ELR operation. For some markets, child seat anchorage points are located on the body.

Only complete seat belt assemblies are available as serviceable items.

DESCRIPTION AND OPERATION (Continued)

Pyrotechnic Seat Belt Pre-tensioning



Each front seat belt has a pyrotechnic device with independent mechanical sensing and pre-tensioning retractor unit, installed at the base of the 'B' post. In the event of severe frontal impact, this provides additional occupant protection by removing any excess slack from the seat belt. Seat belt pre-tensioning activates when a frontal impact of sufficient force occurs within 30 degrees of vehicle center line. Under such an impact, mechanical sensors in the retractor unit fire, igniting the pre-tensioner gas generator. The gas generator initiates a chemical reaction, producing gases under pressure. Gas pressure drives the piston/cable up a tube, rotating the retractor spindle and removing excess slack from the seat belt. The mechanical sensor is made live by screwing the arming pin in to fully depress the red arming button.

The pre-tensioning system can only be activated if a safety lever is re-set by fitting the associated belt to an occupant or child seat. When the pre-tensioner unit has been activated, the seat belt will lock and cannot be retracted or pulled from the reel.

WARNING: IF A PRE-TENSIONING UNIT IS INADVERTENTLY RUPTURED AND INGESTION OR INHALATION OF THE PROPELLANT OCCURS, FIRST AID MUST BE APPLIED AND MEDICAL ADVICE SOUGHT.

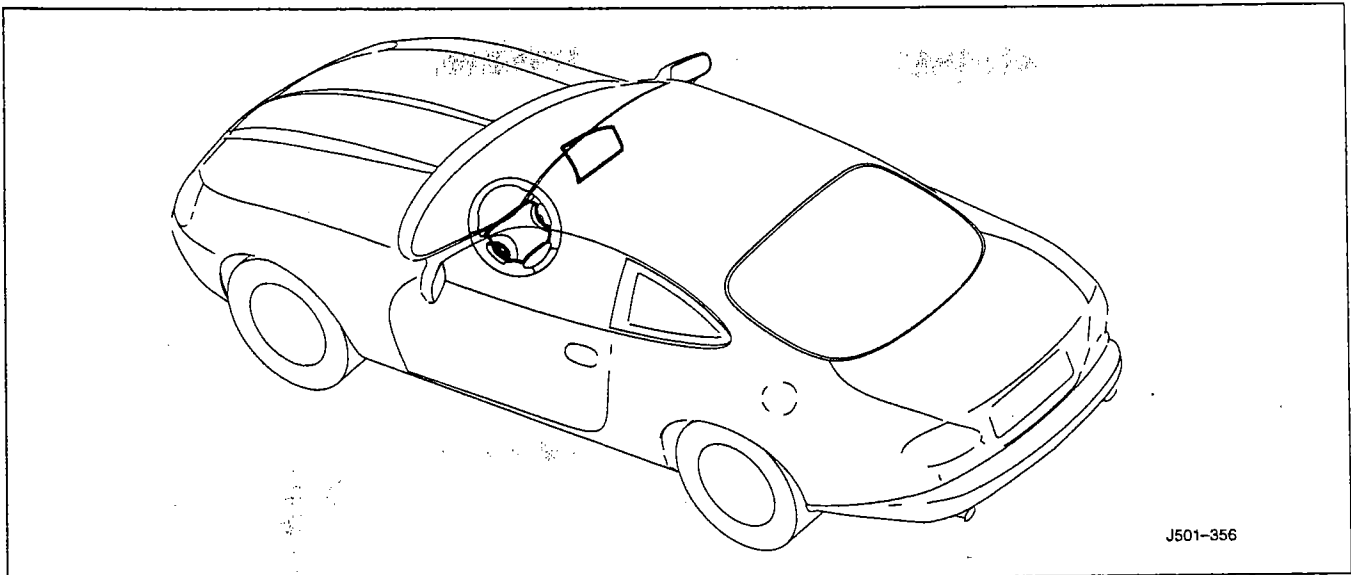
WARNING: NO ATTEMPT MUST BE MADE TO DISMANTLE A RETRACTOR UNIT. THERE ARE NO SERVICEABLE PARTS.

WARNING: WHEN HANDLING THE PISTON HOUSING, THE PISTON MUST ALWAYS BE POINTED DOWNWARDS AND AWAY FROM ONE'S SELF AND OTHER PERSONNEL. FINGERS MUST BE KEPT AWAY FROM THE TAKE-UP SPOOL MECHANISM.

WARNING: ANY UNIT DROPPED FROM A HEIGHT GREATER THAN 0.3 M (12 INCHES) MUST NOT BE FITTED TO A VEHICLE.

WARNING: UNACTIVATED PRE-TENSIONING COMPONENTS CONTAIN A SOLID, FLAMMABLE MATERIAL.

NOTE: If the seat belt pre-tensioner activates, a small quantity (less than 1 liter) of gas is produced containing nitrogen, oxygen and water vapor.

DESCRIPTION AND OPERATION (Continued)**Supplementary Restraint Air Bag System**

Airbag/SRS units provided for driver and front seat passenger, are installed in the center of the steering wheel and the passenger side fascia respectively.

The control module (ECU) with integral safing sensor and diagnostic capability is installed by the RH 'A' post. The ECU also incorporates independent back-up battery power supplies to ensure airbag deployment in the event of loss of main battery power in a crash. Two primary crash sensors hardwired to the airbags, are fitted forward of the radiator, inboard of the headlamps. Electronic extension of the primary sensors (dwell enhancement) incorporated in the ECU, maintains deployment circuitry in the event of loss of primary sensor signals. A disarm feature also incorporated in the ECU, isolates deployment power from the airbag system until a primary sensor closes. The air bags will only deploy if at least one primary sensor and the safing sensor are made.

WARNING: BEFORE ANY AIRBAG/SRS SERVICE IS PERFORMED, AT LEAST ONE MINUTE MUST ELAPSE AFTER DISCONNECTION OF THE BATTERY POSITIVE CABLE, TO ALLOW DISSIPATION OF BACK-UP POWER SUPPLY ENERGY.

The airbag/SRS system ECU continuously monitors all system components and wiring connections for faults. If a fault occurs in the airbag/SRS readiness indication line, a code written into the non-volatile memory of the ECU is transmitted to the system cluster to display a continuous LED warning. In the event of a further fault being detected during this condition, an audible tone comprising five sets of five beeps will sound. The readiness indicator line fault must be corrected before fault codes can be determined.

If a fault creates a risk of spurious airbag/SRS deployment, the ECU will attempt to remove deployment power by rupturing the 10A battery fuse via a solid state switch. To aid fault diagnosis, the ECU will not rupture the fuse again until the fault is rectified and cleared.

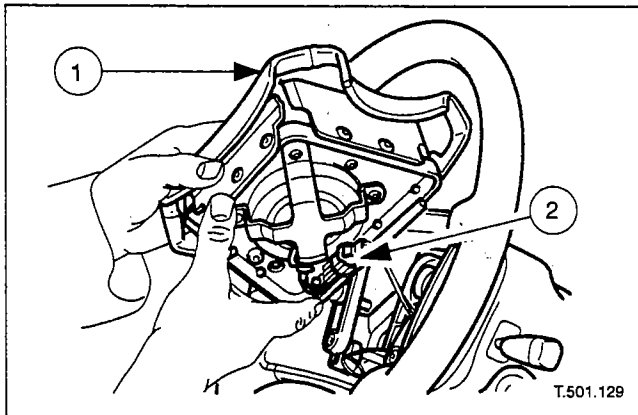
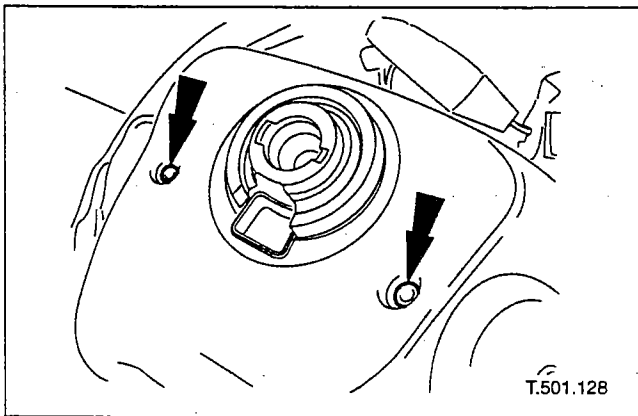
Fault codes can be read through the ISO connector.

WARNING: THE 10A BATTERY FUSE MUST NOT BE RENEWED UNTIL THE AIRBAG/SRS SYSTEM HAS BEEN DE-ACTIVATED. FUSES OF ANY OTHER VALUE MUST NEVER BE USED, AS THIS CAN CAUSE DISARM FAILURE. THE FUSE (F4) IS LOCATED IN THE FUSE-BOX AT THE DRIVER'S END OF THE FASCIA.

REMOVAL AND INSTALLATION

Driver's Air Bag Module (76.73.39)

Removal



WARNING: FOLLOWING DISCONNECTION OF THE BATTERY, A PERIOD OF AT LEAST ONE MINUTE MUST BE ALLOWED TO ELAPSE BEFORE ANY WORK IS CARRIED OUT ON AN AIR BAG MODULE.

1. Remove battery cover and disconnect earth lead from terminal. Refer to Section 414-01.
2. Remove air bag module securing bolts.
 - 1 Turn steering wheel 90 degrees to the left to provide access to module LH securing bolt.
 - 2 Fully slacken captive securing bolt
 - Turn steering wheel 90 degrees to the right to provide access to module RH securing bolt.
 - Fully slacken captive securing bolt.

WARNING: AIR BAGS CONTAIN A CHEMICAL IRRITANT. IF AN AIR BAG MODULE IS BEING RENEWED, THE ORIGINAL UNIT MUST BE DISPOSED OF IN ACCORDANCE WITH CURRENT SAFETY PROCEDURES.

3. Remove air bag module from steering wheel.
 - 1 Carefully withdraw airbag module from steering wheel and position for access.
 - 2 Disconnect air bag module harness multiplug and remove air bag module from vehicle.

Installation

4. Position air bag module and connect harness multiplug.
5. Carefully install airbag module in steering wheel.
6. Turn steering wheel 90 degrees to right and partially tighten module RH securing bolt.

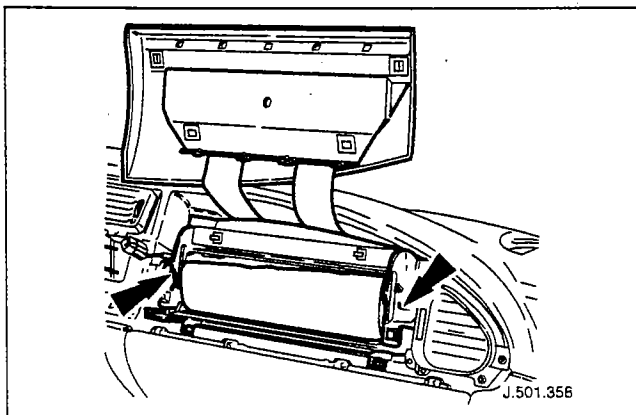
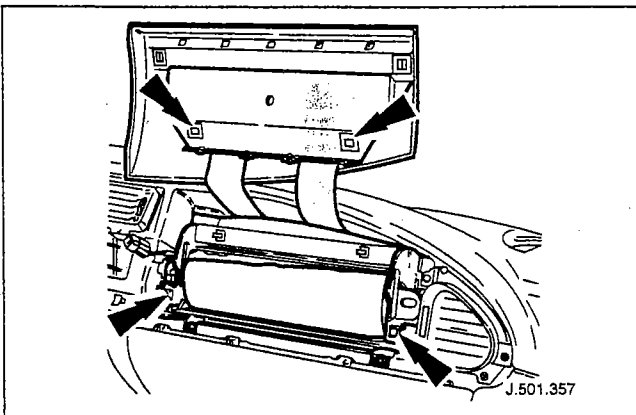
REMOVAL AND INSTALLATION (Continued)

7. Turn steering wheel 90 degrees to left and partially tighten module LH securing bolt.
8. Repeat steps 6 and 7 to fully tighten securing bolts and return steering wheel to central position.
9. Fit earth lead to battery terminal.
10. Carry out diagnosis and testing procedures detailed in the D&T Manual.

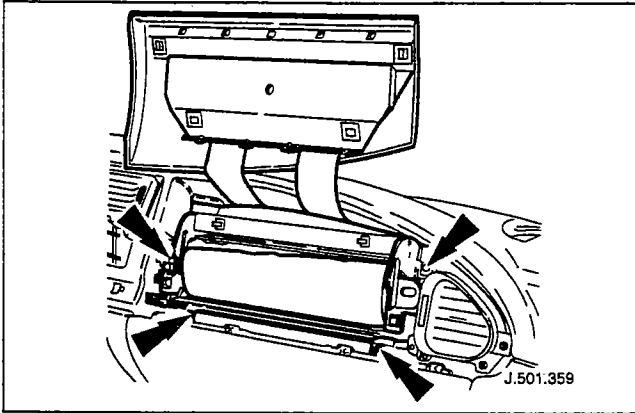
Passenger's Air Bag Module (76.73.37)**Removal**

WARNING: FOLLOWING DISCONNECTION OF THE BATTERY, A PERIOD OF AT LEAST ONE MINUTE MUST BE ALLOWED TO ELAPSE BEFORE ANY WORK IS CARRIED OUT ON AN AIR BAG.

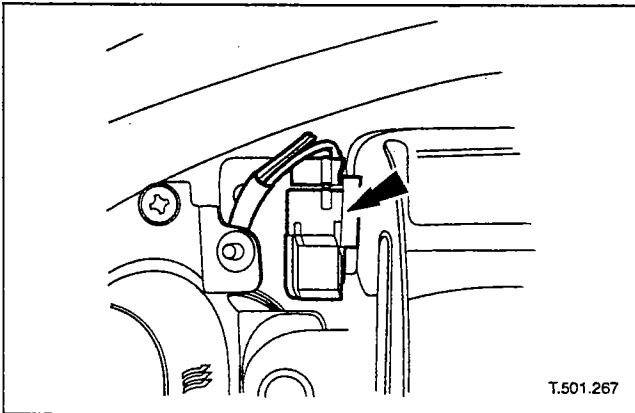
1. Remove battery cover and disconnect earth lead from terminal. Refer to operations in Section 414-01.
2. Remove glove box. Refer to Section 501-05.
3. Remove deployment door from mounting clips and position for access.
4. Slacken, remove and discard two bolts securing air bag module to fascia.



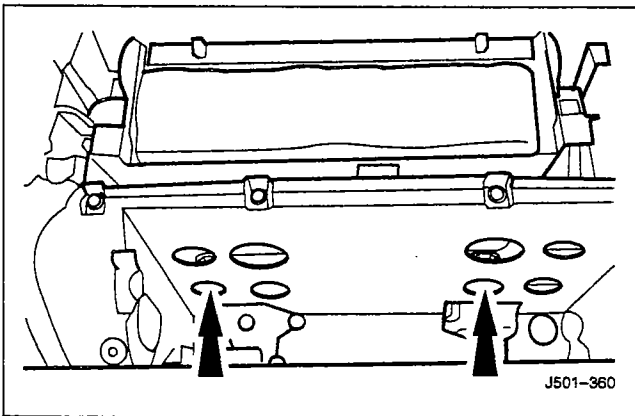
REMOVAL AND INSTALLATION (Continued)



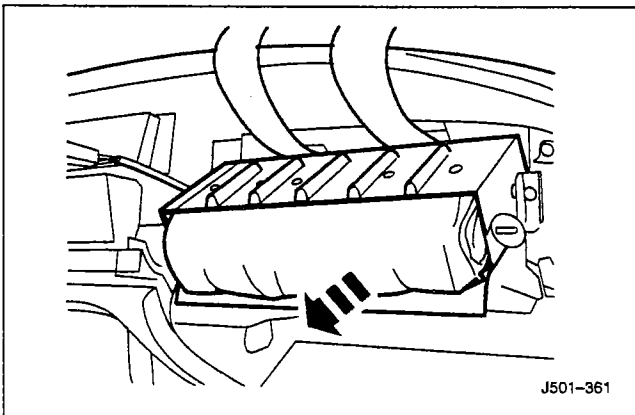
5. Slacken and remove the four deployment door mounting bracket securing bolts and partially withdraw bracket for access.



6. Remove air bag module multiplug from mounting bracket, disconnect multiplug and remove mounting bracket.

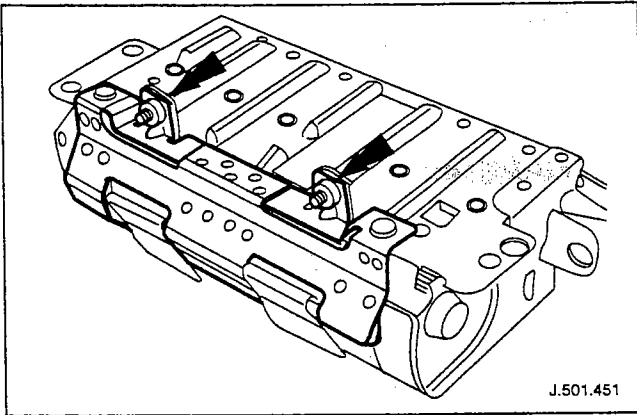


7. Slacken, remove and discard two lower bolts securing air bag module tether bracket to fascia.

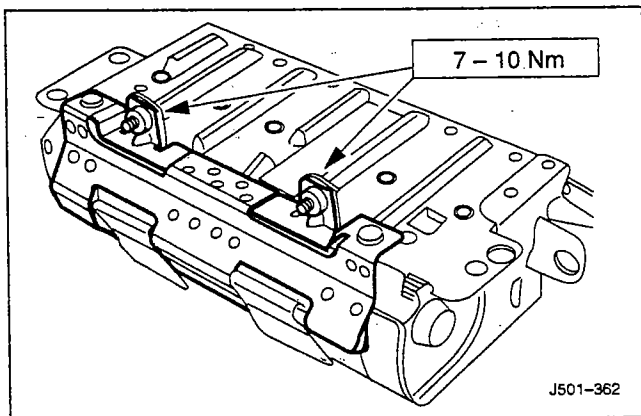


WARNING: AIR BAGS CONTAIN A CHEMICAL IRRITANT. IF AN AIR BAG MODULE IS BEING RENEWED, THE ORIGINAL UNIT MUST BE DISPOSED OF IN ACCORDANCE WITH CURRENT SAFETY PROCEDURES.

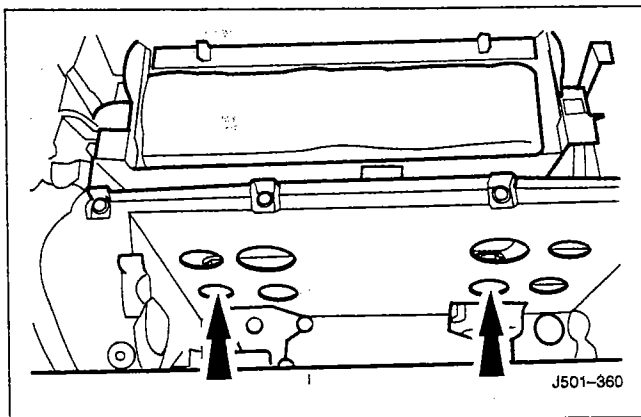
8. Withdraw air bag module and remove from vehicle.

REMOVAL AND INSTALLATION (Continued)

9. Slacken, remove and discard two bolts securing air bag tether bracket to air bag module.

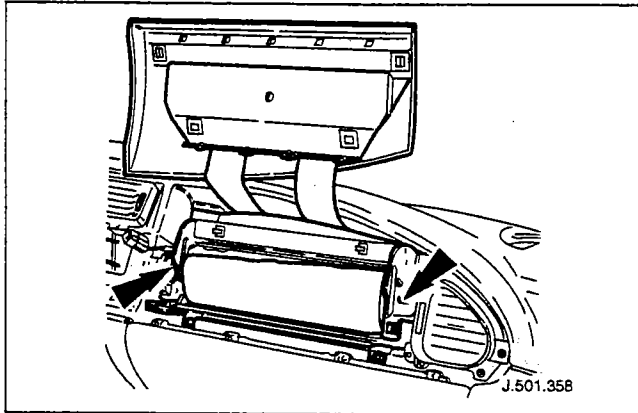
Installation

10. Position air bag module on tether bracket and fit and tighten two new securing bolts.



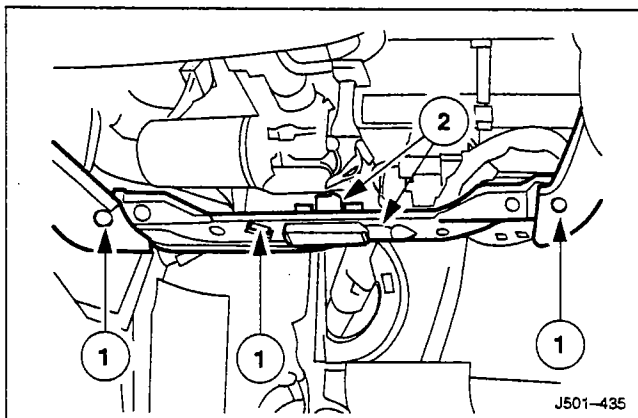
11. Position air bag module and deployment door mounting bracket in fascia.

12. Fit and tighten two new bolts securing air bag module and tether bracket to lower fascia, connect multiplug and fit to bracket.
13. Fit and tighten four bolts securing door mounting bracket to fascia.

REMOVAL AND INSTALLATION (Continued)

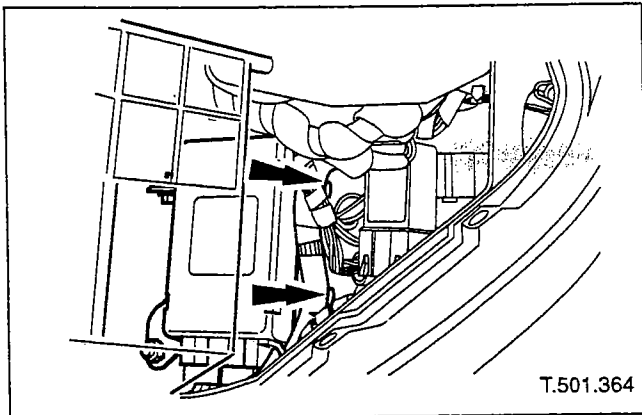
14. Fit and tighten two new bolts securing air bag module to fascia.

15. Fit air bag deployment door into mounting clips.
16. Fit glove box. Refer to Section 501-05.
17. Connect earth lead to battery terminal and fit battery cover. Refer to Section 414-01.
18. Carry out diagnosis and testing procedures detailed in the D&T Manual.

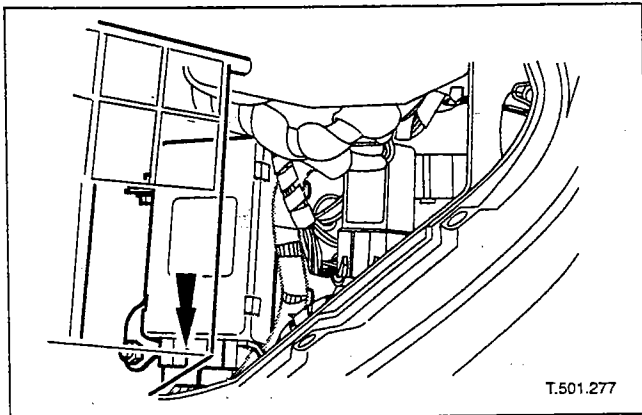
Air Bag Control Module RH Drive (76.73.41)**Removal**

1. Turn ignition key to position II, power driver's seat to fully rearward position and turn ignition key to O.
2. Remove battery cover and disconnect earth lead from terminal. Refer to Section 414-01.
3. Remove driver's side underscuttle. Refer to Section 501-05.
4. Remove footwell lamp and mounting bracket.
 - 1 Slacken and remove screw securing the footwell lamp mounting bracket to the air conditioning duct.
 - 2 Disconnect footwell lamp multiplug and remove footwell lamp and bracket.

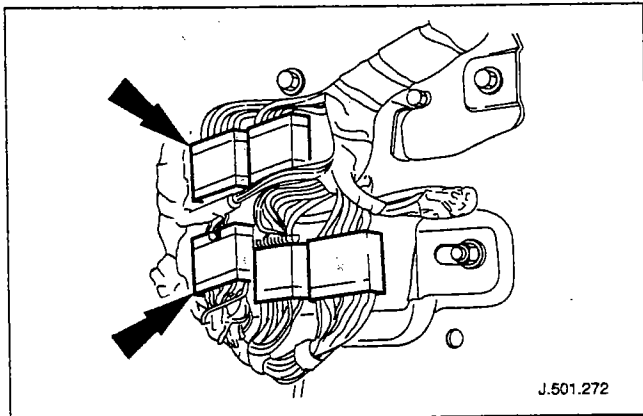
REMOVAL AND INSTALLATION (Continued)



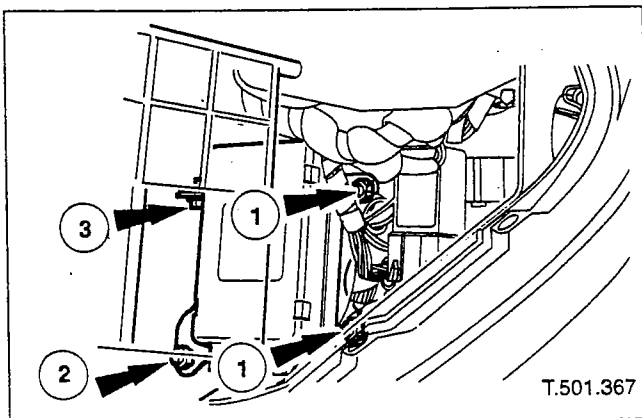
5. Detach fascia harness fasteners from fascia end panel and reposition harness for access.



6. Disconnect air bag control module harness multiplugs.



7. Remove fascia harness to forward harness multiplugs from mounting bracket and reposition for access.



8. Remove air bag control module from fascia.

- 1 Slacken and remove the two air bag control module mounting bracket to fascia outer securing bolts.
- 2 Slacken and remove module/fascia securing bolt.
- 3 Slacken and remove module upper securing bolt and remove air bag control module.

REMOVAL AND INSTALLATION (Continued)**Installation**

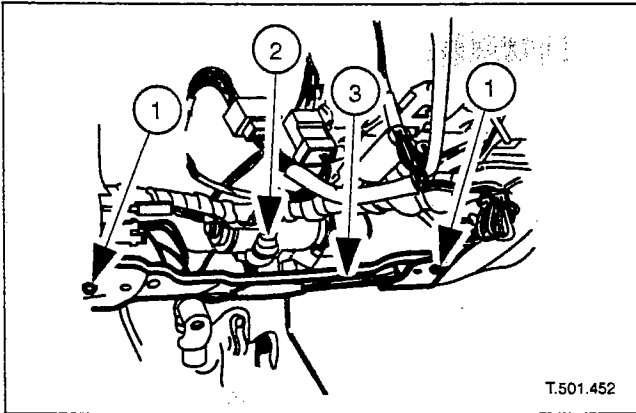
9. Fit air bag control module.
 - Position air bag control module at fascia.
 - Fit but do not tighten the two module bracket outer securing bolts.
 - Fit but do not tighten the module/fascia securing bolt.
 - Fit and tighten module upper securing bolt.
 - Tighten all module securing bolts.
10. Connect air bag control module.
 - Connect module harness multiplugs.
 - Position and fit fascia to forward harness multiplugs to mounting bracket.
11. Fit footwell lamp.
 - Align and fit footwell outlet duct.
 - Position footwell lamp mounting bracket and fit and tighten securing screws.
 - Connect footwell lamp harness multiplug.
12. Fit driver's side underscuttle. Refer to Section 501-05.
13. Connect earth cable to battery terminal. Refer to Section 414-01.
14. Power driver's seat forward to original position.

Air Bag Control Module LH Drive (76.73.41.09)**Removal**

1. Turn ignition key to position II, power passenger's seat fully rearwards and turn ignition key to position O.
2. Remove battery cover and disconnect earth cable from terminal. Refer to Section 414-01.

REMOVAL AND INSTALLATION (Continued)

3. Remove glove box. Refer to Section 501-05.
4. Remove body processor module. Refer to Section 418-01.
5. Remove footwell lamp and mounting bracket.

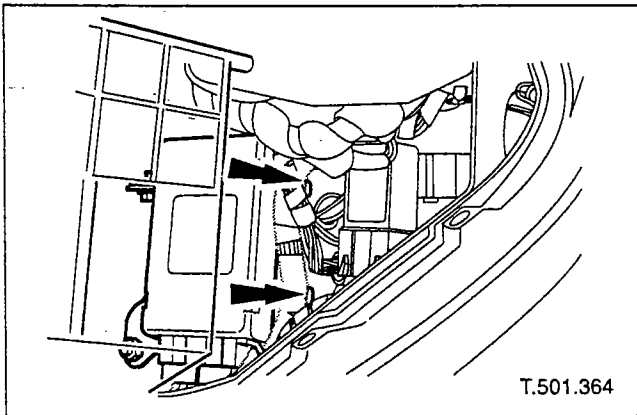


1 Slacken and remove screw securing footwell lamp mounting bracket to the air conditioning duct.

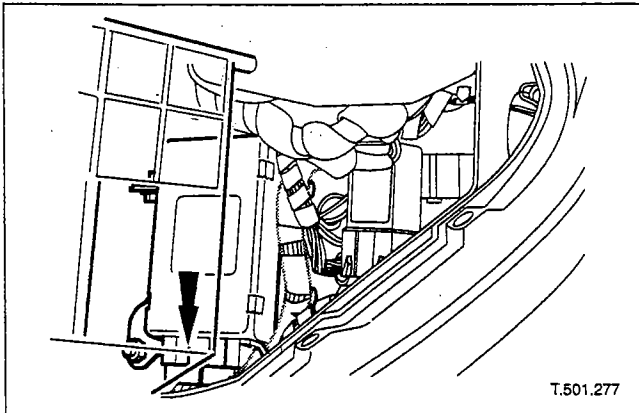
2 Disconnect footwell lamp multiplug.

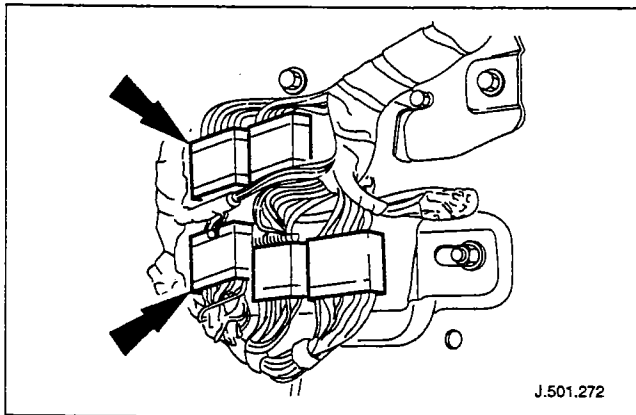
3 Remove footwell lamp and bracket.

6. Detach fascia harness fasteners from fascia RH end panel and reposition harness for access.



7. Disconnect air bag control module harness multiplugs.



REMOVAL AND INSTALLATION (Continued)

8. Remove fascia harness to cabin harness multiplugs from mounting bracket and reposition for access.

9. Remove air bag control module from fascia.
 - Slacken and remove the two air bag module mounting bracket to fascia outer securing bolts.
 - Slacken and remove module/fascia securing bolt.
 - Slacken and remove air bag control module upper securing bolt.
 - Remove air bag control module from vehicle.

Installation

10. Fit air bag control module.
 - Position air bag module at fascia.
 - Fit but do not tighten the two module mounting bracket outer securing bolts.
 - Fit but do not tighten the module/fascia securing bolt.
 - Fit and tighten module upper securing bolt.
 - Tighten all module securing bolts.
11. Connect air bag control module.
 - Connect module harness multiplugs.
 - Position and fit fascia to cabin harness multiplugs to mounting bracket.

REMOVAL AND INSTALLATION (Continued)

12. Fit footwell lamp.

- Align and fit footwell outlet duct.
- Position footwell lamp mounting bracket and fit and tighten securing screws.
- Connect footwell lamp harness multiplug.

13. Fit body processor module. Refer to Section 418-01.

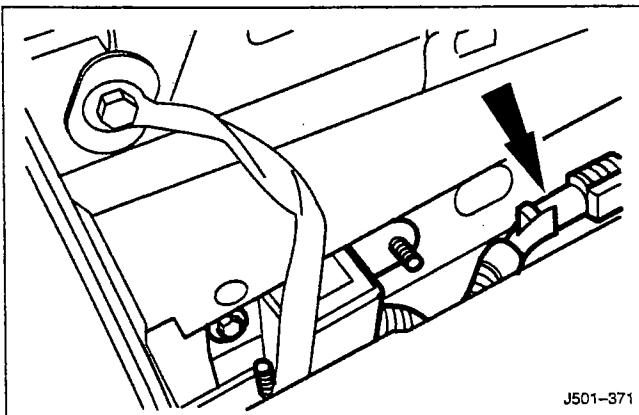
14. Fit glove box. Refer to Section 501-05.

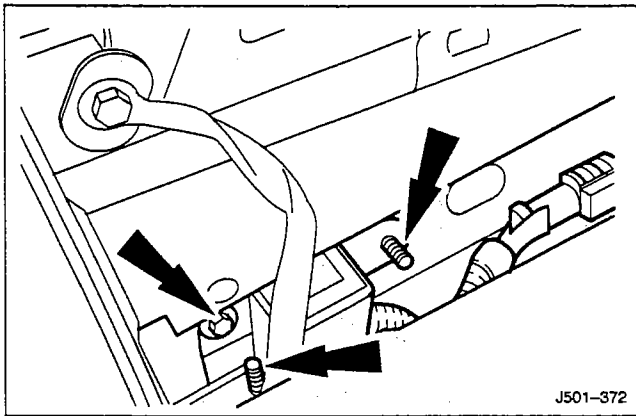
15. Connect earth cable to battery terminal. Refer to Section 414-01.

16. Turn ignition key to position II, power passenger seat to original position and turn ignition key to position O.

Air Bag Primary Crash Sensors (76.73.42 & 76.73.43)**Removal**

1. Open hood.
2. Open trunk lid.
3. Remove battery cover and disconnect earth cable from battery terminal. Refer to Section 414-01.
4. Remove air bag sensor harness from mounting bracket and disconnect multiplug.



REMOVAL AND INSTALLATION (Continued)

5. Slacken and remove three bolts securing the sensor to the front bumper beam and remove the sensor from the vehicle.

Installation

6. Position sensor on bumper beam and fit and tighten the three securing bolts.
7. Connect sensor harness multiplug and fit multiplug in mounting bracket.
8. Close hood.
9. Connect earth cable to battery terminal and fit cover to battery. Refer to Section 414-01.
10. Close trunk lid.

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SECTION 206-00 Brake System

SUBJECT	PAGE
DESCRIPTION AND OPERATION	
Brake System - Introduction	206-00-2

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DESCRIPTION AND OPERATION

Brake System – Introduction

Details of the Brake System can be found in Sections 206-03, 206-04, 206-06 and 206-09 of this manual, and also the Diagnostic and Test Manual.

SECTION 206-03 Front Disc Brakes

VEHICLE APPLICATION: X100

SUBJECT	PAGE
SPECIFICATIONS	
Torques	206-03-2
DESCRIPTION AND OPERATION	
Front Disc Brake System	206-03-3
REMOVAL AND INSTALLATION	
Front Disc	206-03-4
Front Brake Caliper	206-03-7

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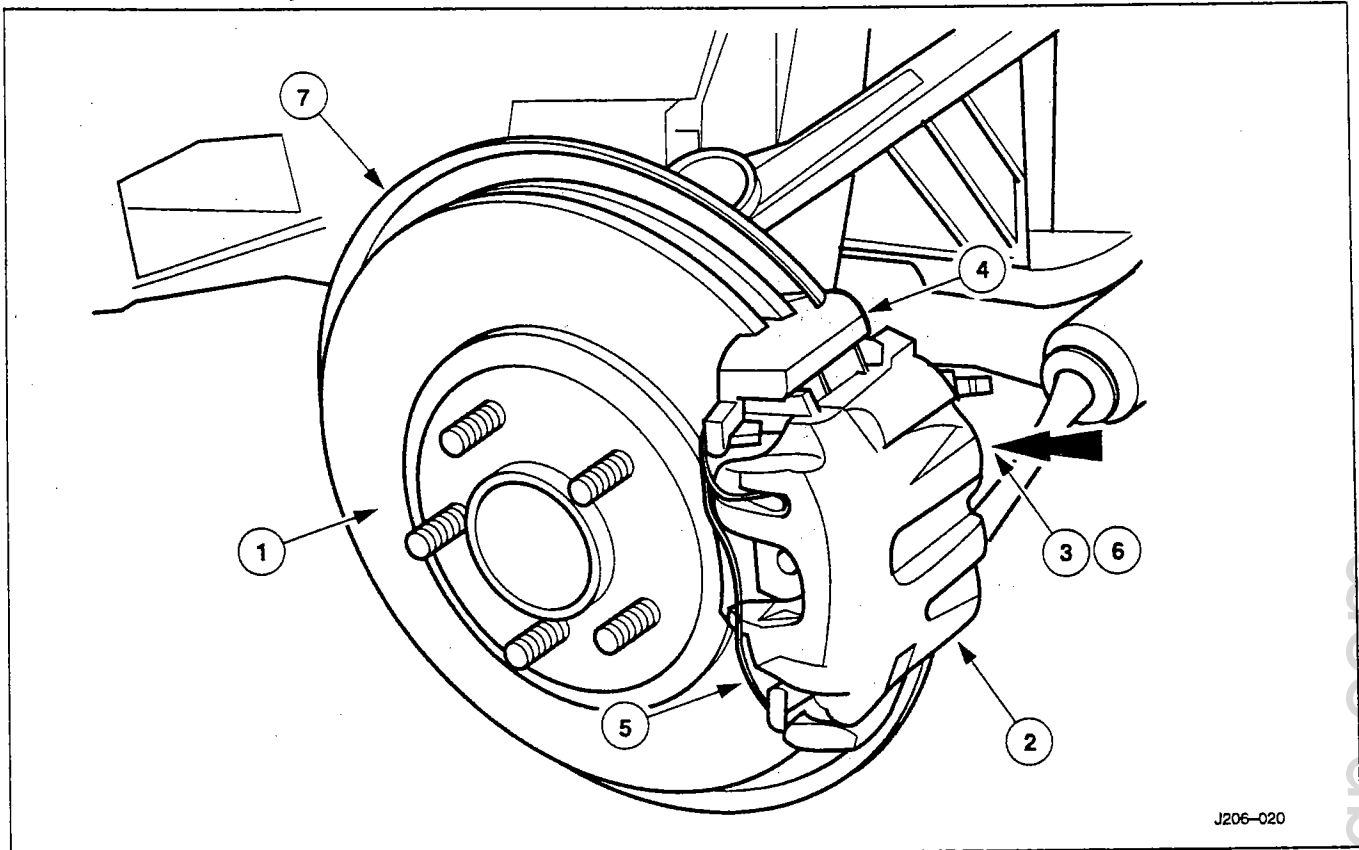
SPECIFICATIONS**Torques**

Component	Nm
Caliper Socket Head Bolts	120-160

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DESCRIPTION AND OPERATION

Front Disc Brake System



J206-020

Item	Description
1	Brake Rotor
2	Caliper
3	Caliper Guide Pins
4	Caliper Carrier
5	Caliper Retaining Clip
6	Guide Pin Dust Caps
7	Rotor Shield

The front disc brake rotor is mounted on the wheel lug studs directly behind the wheel and is clamped between the wheel and hub. It is of the ventilated type and measures 305 mm diameter and 28 mm thick.

The single piston caliper is mounted on a carrier by means of two guide pins and a caliper retaining clip. The carrier is installed on the suspension vertical link by two bolts. An ABS sensor connector is also mounted at the front of the vertical link.

The guide pins slide in bushes installed in the caliper body. The bushes have dust caps, which must always be installed when reassembling the caliper.

The hose port of the caliper faces towards the front of the vehicle and armoured hoses are installed. A rotor shield is installed and may be removed without disturbing the hub bearings. The brake pads are installed in the caliper body.

When hydraulic pressure is generated in the caliper due to a brake application, the piston pushes one of the brake pads into contact with the brake rotor. The caliper body is free to move on the two guide pins, which allows it to centralize itself to the brake rotor. This causes the other brake pad to contact the brake rotor with equal pressure. The greater the hydraulic pressure in the caliper, the the harder the brake pads grip the rotor.

REMOVAL AND INSTALLATION

Front Disc (70.10.10)

Removal

1. Raise and support the vehicle; refer to Section 100-02.
2. Remove the wheel and tire assembly; refer to Section 204-04.
3. Remove the caliper from the carrier.

1 Release the caliper to carrier securing bolt covers.

2 Unscrew the two socket head bolts.

3 Remove the caliper from the carrier.

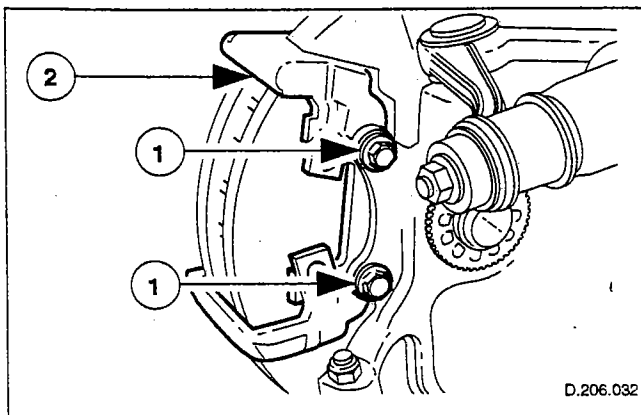
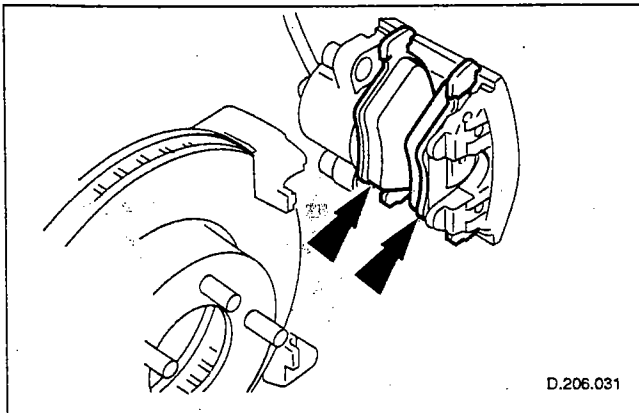
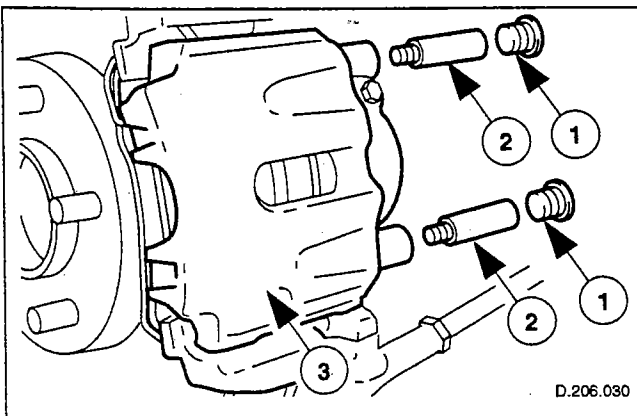
WARNING: DO NOT ALLOW THE CALIPER TO HANG UNSUPPORTED ON THE BRAKE HOSE.

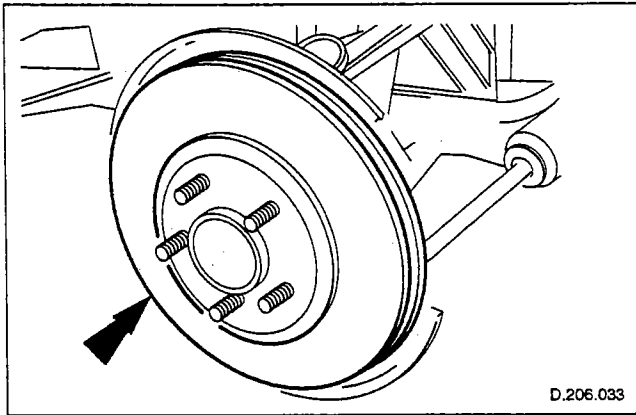
4. Remove the brake pads from the carrier.

5. Remove the carrier from the suspension vertical link.

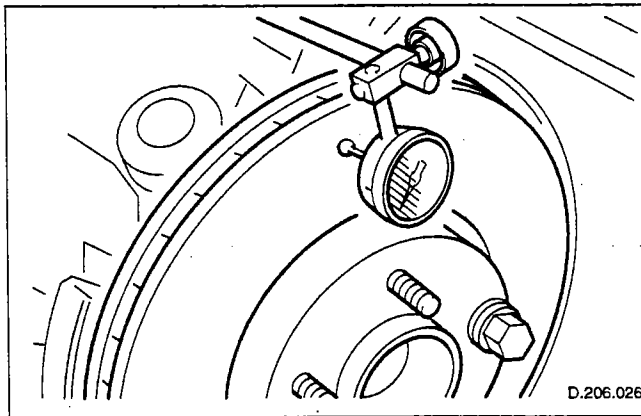
1 Unscrew the carrier securing bolts.

2 Remove the carrier from the suspension vertical link.



REMOVAL AND INSTALLATION (Continued)

WARNING: BRAKE LINING DUST CAN, IF INHALED, DAMAGE YOUR HEALTH. ALWAYS USE A VACUUM BRUSH TO REMOVE DRY BRAKE LINING DUST. NEVER USE AN AIR LINE.

Installation

6. Withdraw the brake rotor from the hub.

7. Carefully remove brake dust from the brake caliper, carrier, wheel, wheel hub and rotor.

8. Install the rotor on the lug studs and fully seat it on the wheel hub.

9. Install and tighten the wheel lug nuts.

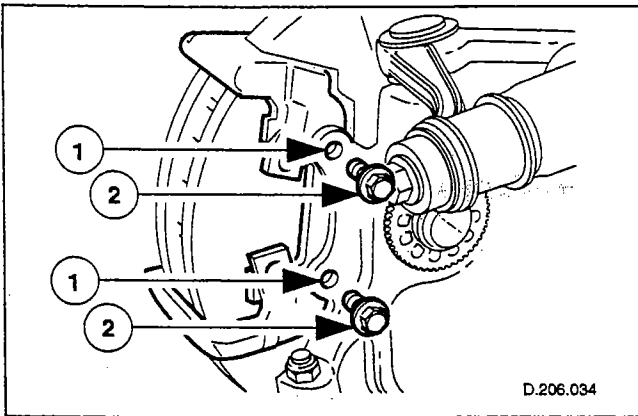
10. Install and align a magnetic base and dial gauge to measure rotor run-out.

1. Rotate the rotor to check that the run-out is within specification.

11. Remove the dial gauge and magnetic base.

12. Remove the wheel lug nuts.

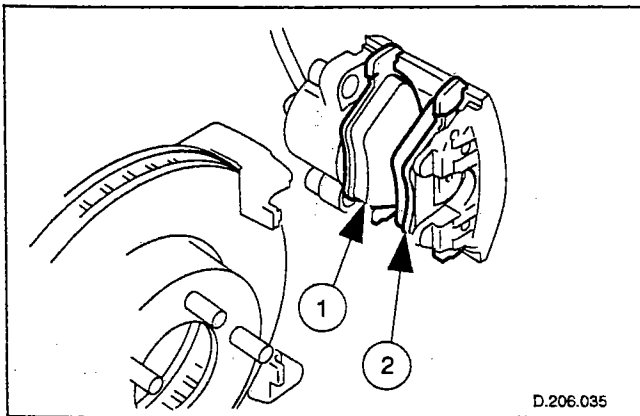
REMOVAL AND INSTALLATION (Continued)



D.206.034

13. Install the caliper carrier.

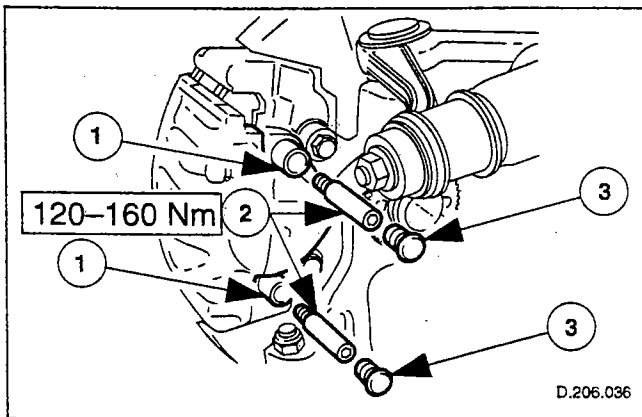
- 1 Align the caliper carrier and vertical link bolt holes.
- 2 Install and tighten the carrier securing bolts to specification.



D.206.035

14. Install the brake pads.

- 1 Install and seat the brake pad to the caliper piston.
- 2 Install and align the second brake pad.



D.206.036

15. Install the caliper on the carrier.

- 1 Align the caliper and carrier bolt holes.
- 2 Install the caliper securing socket head bolts and tighten to specification.
- 3 Install the securing bolt covers.

16. Install the road wheel; refer to Section 204-04.

17. Lower the vehicle; refer to Section 100-02.

18. Check that the lug nuts are tightened to specification.

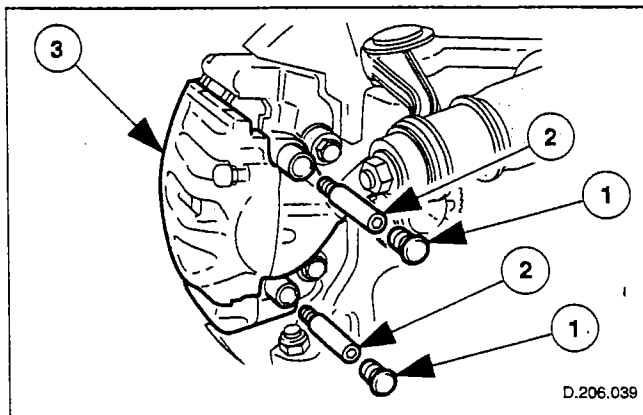
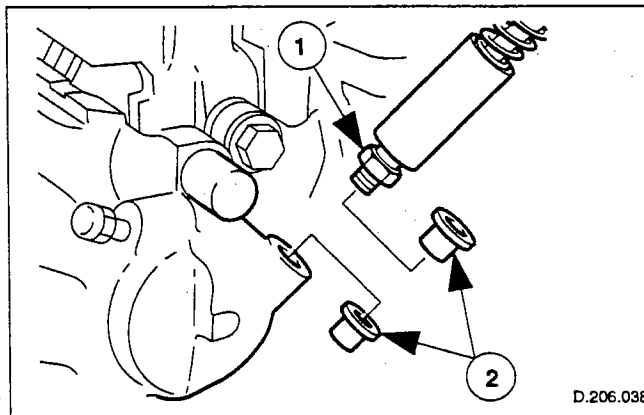
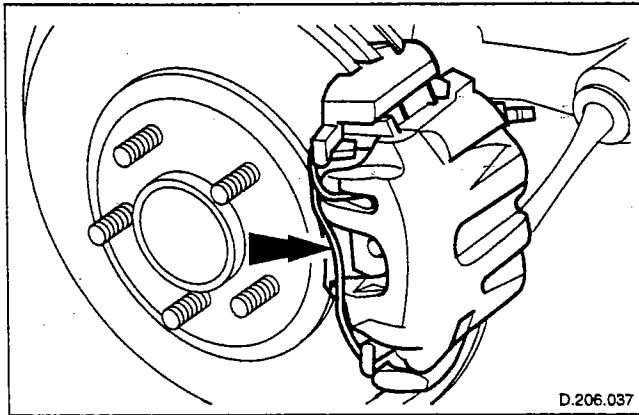
19. Start the engine and apply the brake several times to centralize the caliper and pads with the brake rotor.

REMOVAL AND INSTALLATION (Continued)

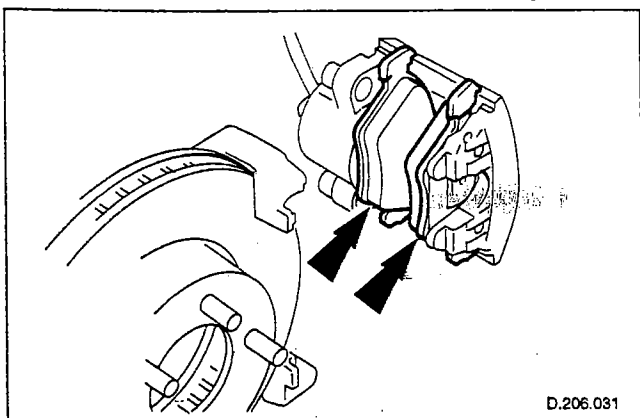
Front Brake Caliper (70.55.02)

Removal

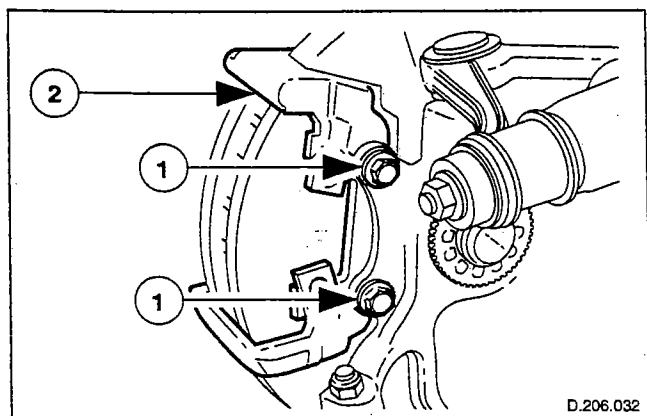
1. Raise the vehicle on a twin post ramp; refer to Section 100-02.
2. Remove the wheel and tire assembly; refer to Section 204-04.
3. Remove the caliper retaining spring.



4. Unscrew the caliper feed hose.
 - 1 Remove the feed hose.
 - 2 Install suitable plugs to the feed hose and caliper.
5. Remove the caliper from the carrier.
 - 1 Remove the caliper to carrier traverse pin dust caps.
 - 2 Unscrew the caliper to carrier traverse pins.
 - 3 Remove the caliper from the carrier.

REMOVAL AND INSTALLATION (Continued)

6. Remove the brake pads from the caliper.

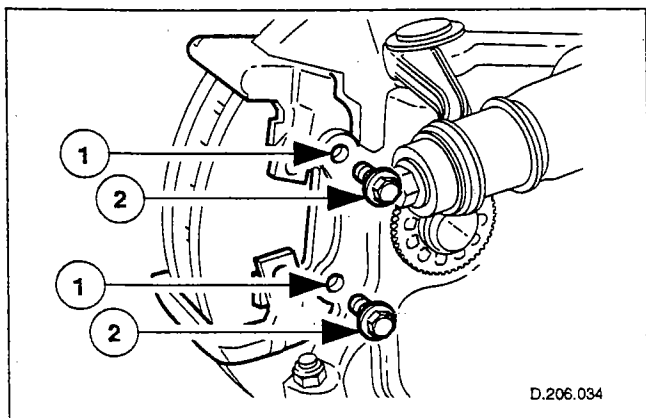


7. Remove the caliper carrier from the vertical link.

- 1 Unscrew the carrier securing bolts.
- 2 Remove the carrier from the vertical link.

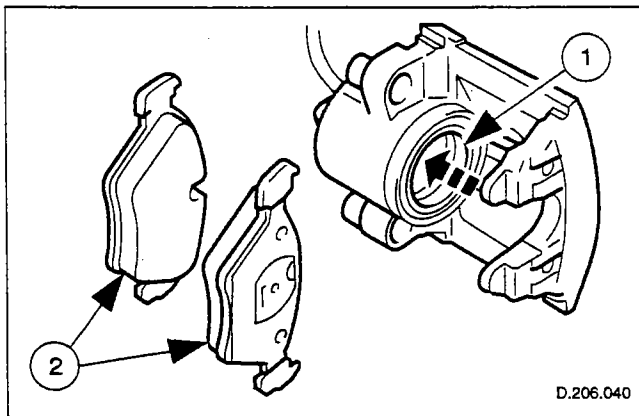
WARNING: BRAKE DUST CAN, IF INHALED, DAMAGE YOUR HEALTH. ALWAYS USE A VACUUM BRUSH TO REMOVE DRY BRAKE LINING DUST. NEVER USE AN AIR LINE.

8. Carefully remove brake dust from the brake caliper, carrier, wheel, wheel hub and rotor.

Installation

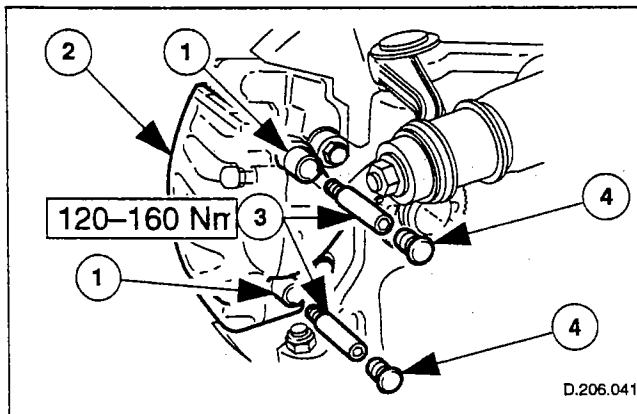
9. Install the caliper carrier on the vertical link.

- 1 Align the carrier and vertical link bolt holes.
- 2 Install the carrier securing bolts and tighten to specification.

REMOVAL AND INSTALLATION (Continued)

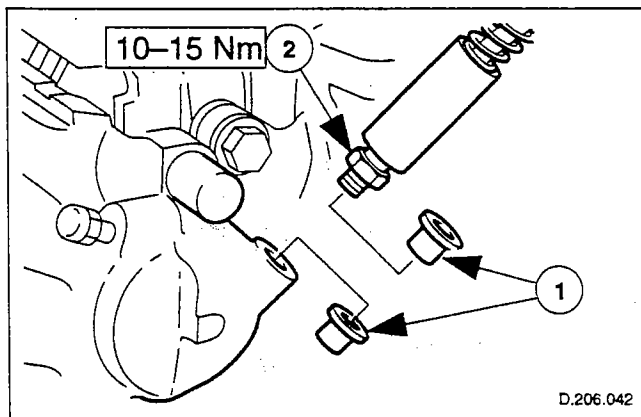
10. Install the brake pads in the caliper.

- 1 Ensure that the caliper piston is fully retracted.
- 2 Install the brake pads in the caliper.



11. Install the caliper on the carrier.

- 1 Align the caliper and carrier traverse pin holes.
- 2 Install the caliper on the carrier.
- 3 Install the traverse pins and tighten to specification.
- 4 Install and fully seat the traverse pin dust covers.



12. Install the feed hose to the caliper.

- 1 Remove the plugs from the feed hose and caliper.
- 2 Align and install the feed hose to the caliper and tighten to specification.

13. Install and fully seat the caliper retaining spring.

14. Install the wheel and tire assembly; refer to Section 204-04.

15. Bleed the ABS hydraulic system; refer to Section 206-06.

16. Lower the vehicle; refer to Section 100-02.

SECTION 206-04 Rear Disc Brakes

VEHICLE APPLICATION: X100

SUBJECT	PAGE
SPECIFICATIONS	
Torques	206-04-2
DESCRIPTION AND OPERATION	
Rear Disc Brake System	206-04-3
REMOVAL AND INSTALLATION	
Brake Pads	206-04-4

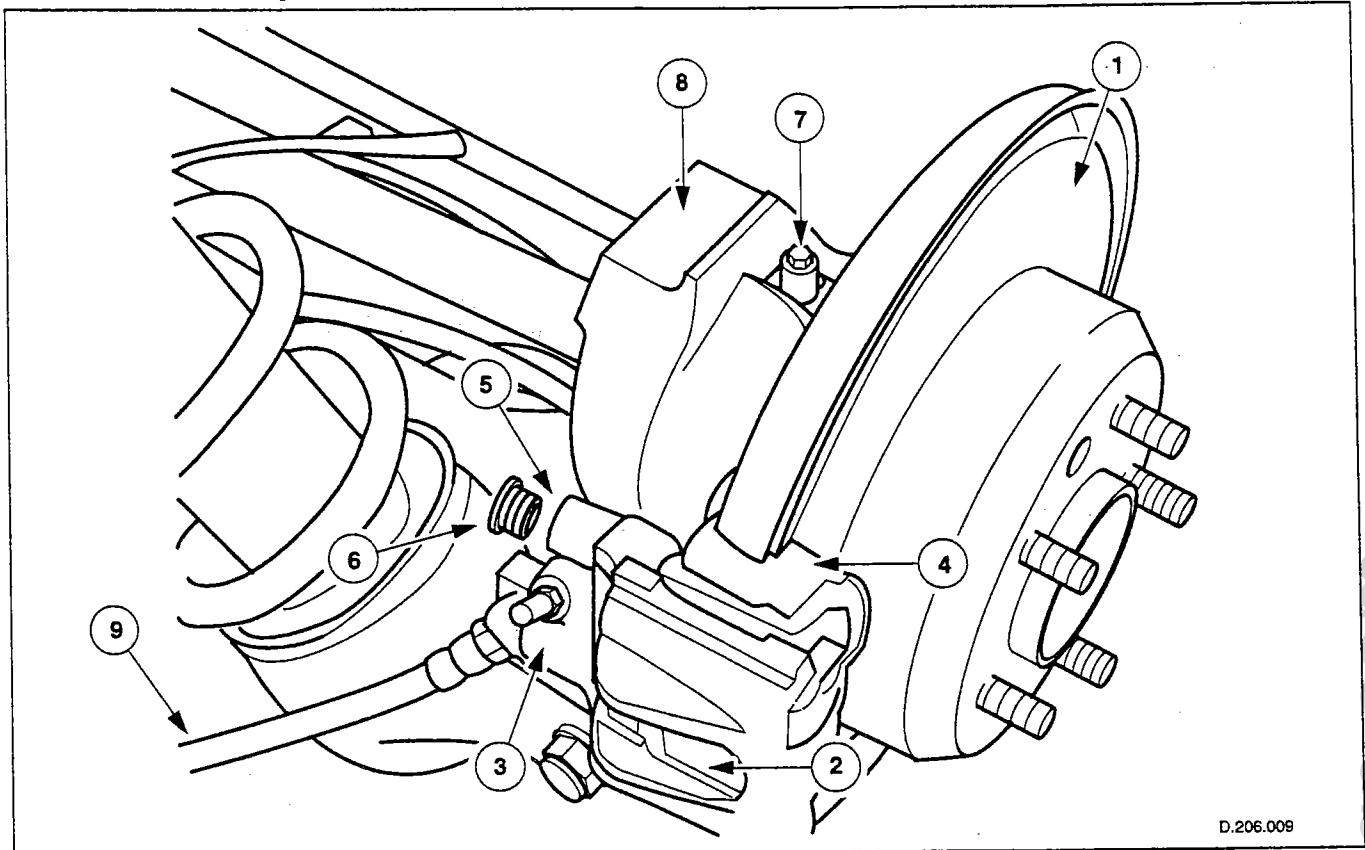
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SPECIFICATIONS**Torques**

Component	Nm
Caliper Socket Head Bolts	120-160

DESCRIPTION AND OPERATION

Rear Disc Brake System



D.206.009

Item	Description
1	Rotor
2	Brake Pads
3	Caliper
4	Caliper Carrier
5	Caliper Guide Pins
6	Guide Pin Dust Caps
7	ABS Sensor
8	Hub Carrier
9	Hydraulic Hose

The rear disc brake rotor is mounted directly behind the wheel and is clamped between the wheel and hub. It is of the ventilated type and measures 305 mm diameter and 28 mm thick. The single piston sliding caliper is mounted on the carrier by means of two guide pins and a caliper retaining clip. The guide pins slide in bushes installed in the caliper body which also houses the brake pads.

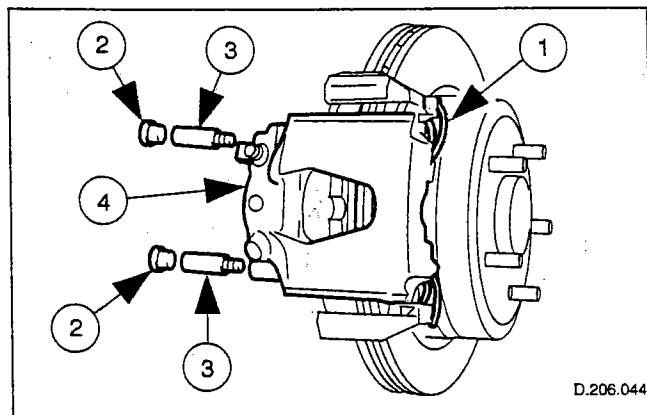
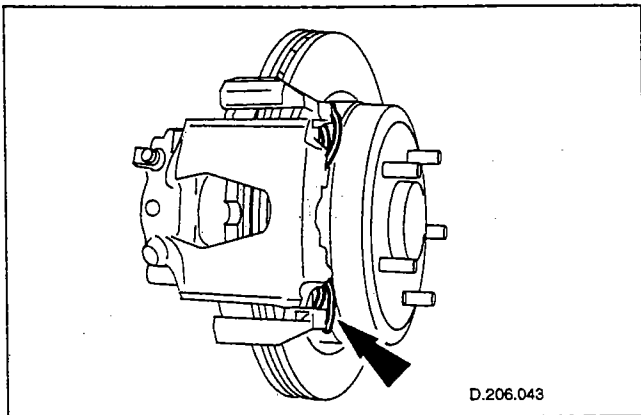
The rear disc brake rotor is mounted directly behind the wheel and is clamped between the wheel and hub. It is of the ventilated type and measures 305 mm diameter and 28 mm thick. The single piston sliding caliper is mounted on the carrier by means of two guide pins and a caliper retaining clip. The guide pins slide in bushes installed in the caliper body which also houses the brake pads. The bushes have dust caps, which must always be installed when reassembling the caliper. The carrier is installed on the rear hub carrier and secured by two bolts. An ABS sensor connector is also mounted on top of the hub carrier. The hydraulic hose port of the caliper faces inboard and an armoured hose is installed. When hydraulic pressure is generated in the caliper due to a brake application, the caliper piston moves one of the brake pads into contact with the brake rotor. The caliper body is free to move on the two guide pins, which allows it to centralize itself to the brake rotor. This causes the other brake pad to contact the brake rotor with equal pressure. The greater the hydraulic pressure in the caliper, the harder the brake pads grip the brake rotor.

REMOVAL AND INSTALLATION

Brake Pads (70.40.03)

Removal

1. Raise and support the rear of the vehicle; refer to Section 100-02.
2. Remove both rear wheel and tire assemblies; refer to Section 204-04.
3. Remove the caliper retaining spring.

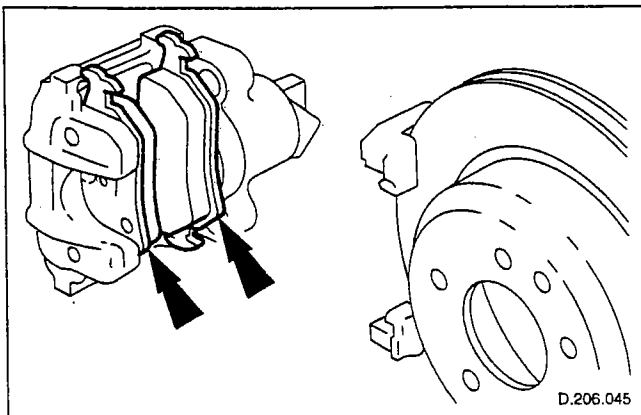


4. Remove the caliper from the carrier.

- 1 Release the caliper retaining spring.
- 2 Release the caliper to carrier securing bolt covers.
- 3 Unscrew the two socket head bolts.
- 4 Remove the caliper from the carrier.

CAUTION: Do not allow the caliper to hang unsupported on the hydraulic hose.

5. Remove the brake pads from the carrier.

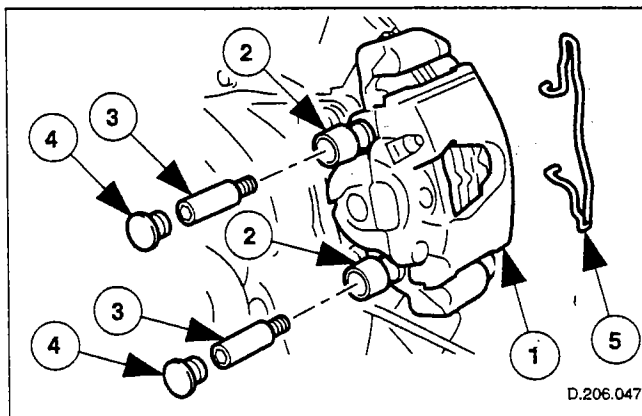
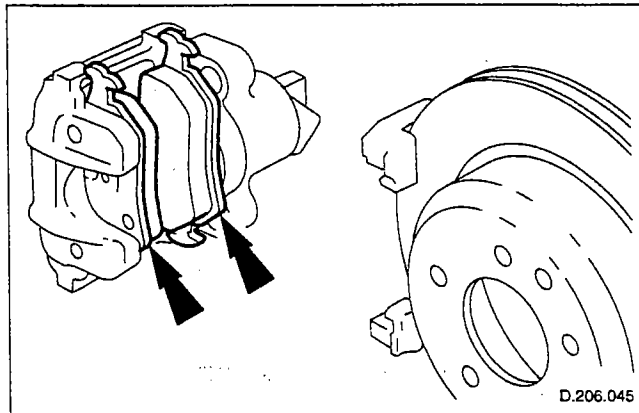
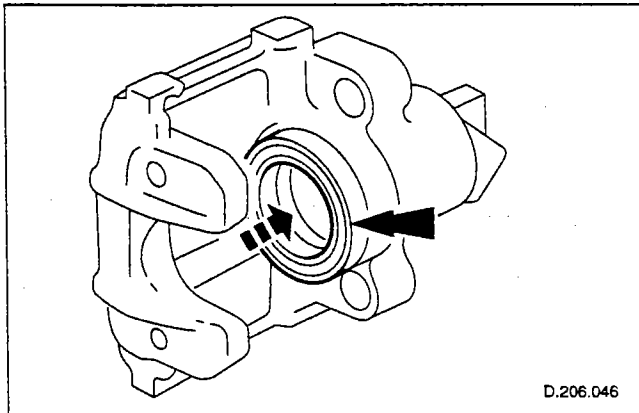


REMOVAL AND INSTALLATION (Continued)

- Carefully remove the brake dust from the brake caliper, carrier, wheel, wheel hub and rotor.

WARNING: BRAKE LINING DUST CAN, IF INHALED, DAMAGE YOUR HEALTH. ALWAYS USE A VACUUM BRUSH TO REMOVE DRY BRAKE DUST. NEVER USE AN AIR LINE.

Installation



- Ensure that the piston is fully retracted into the caliper body.

- Install and align the brake pads to the caliper.

NOTE: The brake pad with the clip locates in the piston.

- Install the caliper and pads assembly.

- Position the assembly over the brake rotor.
- Align the caliper and carrier bolt holes.
- Install the caliper socket head securing bolts and tighten to specification.
- Install and fully seat the securing bolt covers.
- Install and fully seat the caliper retaining spring.

REMOVAL AND INSTALLATION (Continued)

10. Repeat the procedure for the remaining set of brake pads.
11. Install the road wheels; refer to Section 204-04.
12. Lower the vehicle; refer to Section 100-02.
13. Check that the lug nuts are tightened to specification.
14. Start the engine and apply the brake several times to centralize the calipers and pads with the brake rotors.

SECTION 206-06 Hydraulic Brake Actuation

VEHICLE APPLICATION: X100

SUBJECT

PAGE

SPECIFICATIONS

Brake Fluid	206-06-2
Torques	206-06-2

DESCRIPTION AND OPERATION

Brake Master Cylinder	206-06-3
-----------------------------	----------

REMOVAL AND INSTALLATION

Brake System Bleeding	206-06-4
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SPECIFICATIONS**Lubricants, Fluids, Sealers and Adhesives**

Item	Specification
Brake Fluid	IPT Super Dot 4

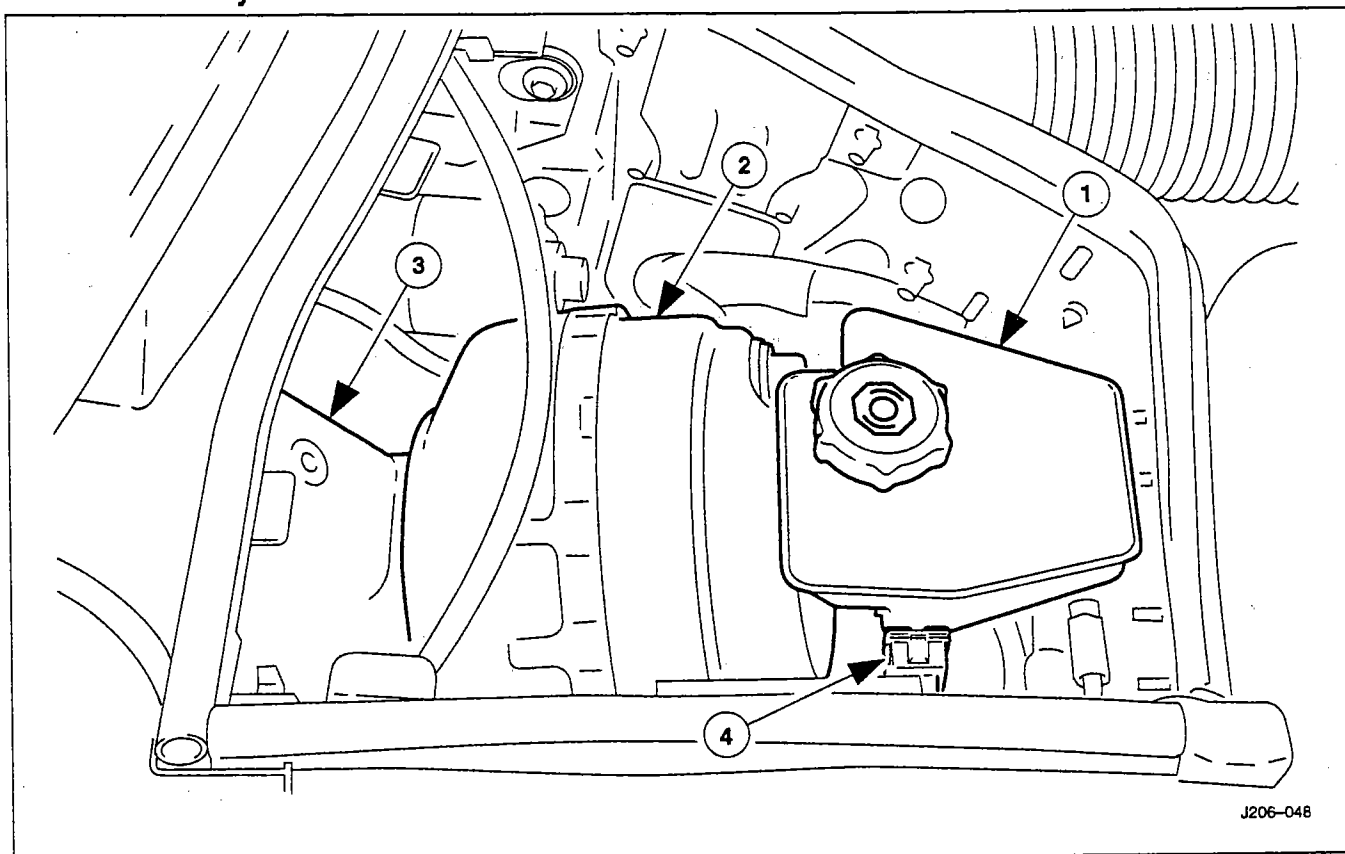
Torques

Component	Nm
Booster to Pedal Box	22-28
Brake Pedal Pivot	15,5-20,5
Brake Switch to Pedal Housing	2,5-3,5

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DESCRIPTION AND OPERATION

Brake Master Cylinder



Item	Description
1	Tandem Master Cylinder
2	Brake Booster
3	Pedal Box
4	Fluid Level Indicator Switch

The tandem brake master cylinder is mounted, together with the vacuum booster, in the forward bulkhead extension within the engine compartment. The brake operating pedal is housed with the accelerator pedal in a plastic pedal box.

The brake fluid reservoir has a fluid level indicator switch installed, which opens when the fluid level is low, causing the fluid level warning lamp to illuminate.

The applied brake pedal force is increased by the booster which activates the intermediate piston of the tandem master cylinder. As the piston moves, fluid under pressure is displaced from the master cylinder into the brake lines and caliper assemblies to apply the brakes.

The front-to-rear braking ratio is 65/35.

REMOVAL AND INSTALLATION

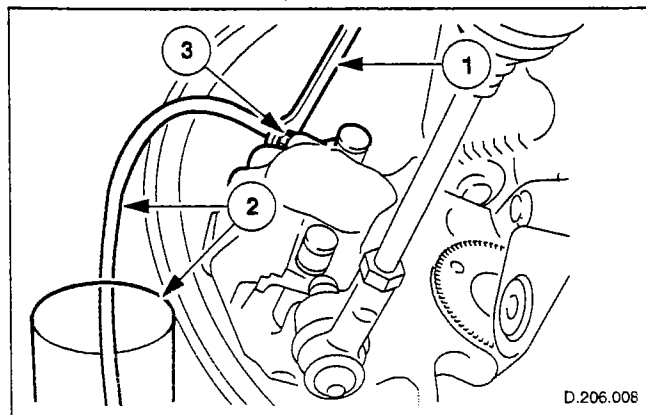
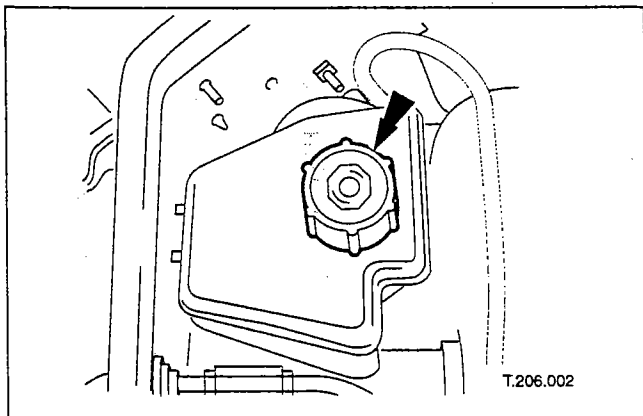
Brake System Bleeding (70.25.03)

Preparation

1. Raise the vehicle on a four post ramp.
2. Release the dust caps from all four bleed nipples.
3. An assistant will be required to help with the bleeding procedure.
4. Bleed the system in the following order:

- 1 Front left hand caliper.
- 2 Front right hand caliper.
- 3 Rear left hand caliper.
- 4 Rear right hand caliper.

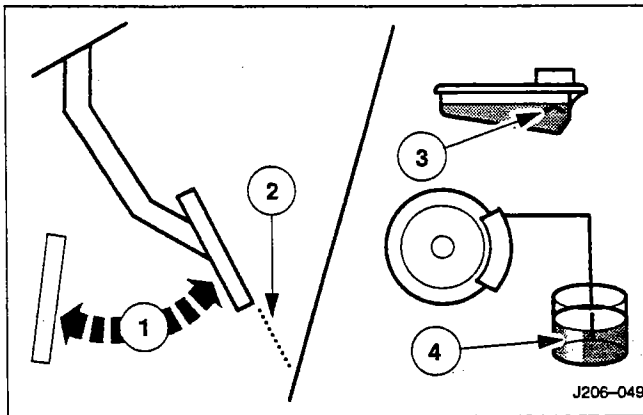
Bleed



5. Remove the master cylinder filler cap and ensure that the reservoir is full before starting bleeding.

6. Connect a bleed pipe and bottle to the left hand front caliper bleed nipple.

- 1 Locate a spanner over the bleed nipple.
- 2 Connect a bleed pipe and bottle to the bleed nipple.
- 3 Partly unscrew the bleed nipple.

REMOVAL AND INSTALLATION (Continued)

7. Operate the brake pedal to start bleeding.
 - 1 Operate the pedal approximately twenty times through its full travel.
 - 2 Pause for two seconds at the end of each return stroke to allow for priming.
 - 3 The fluid level in the reservoir must always remain above the 'minimum' level.
 - 4 Clear, bubble-free fluid will indicate that that part of the system is bled.

8. Tighten the bleed nipple with the brake pedal in the fully applied position.
9. Operate the brake pedal to build up pressure.
 - 1 Operate the pedal a further three to five times.
 - 2 Open and close the bleed nipple.
10. Disconnect and remove the bleed pipe, bottle and spanner.
11. Ensure that the fluid reservoir is full.
12. Repeat the complete procedure for the three remaining calipers.
13. Ensure that the reservoir fluid level is correct and install the filler cap.
14. IF WORKING ALONE PROCEED AS FOLLOWS;
15. Install the dust caps on both the front and rear caliper bleed nipples.
16. Lower the ramp.
17. Start the engine so that the vacuum booster is operational.
18. Check the brake pedal travel and feel.
19. Switch the ignition 'OFF'.

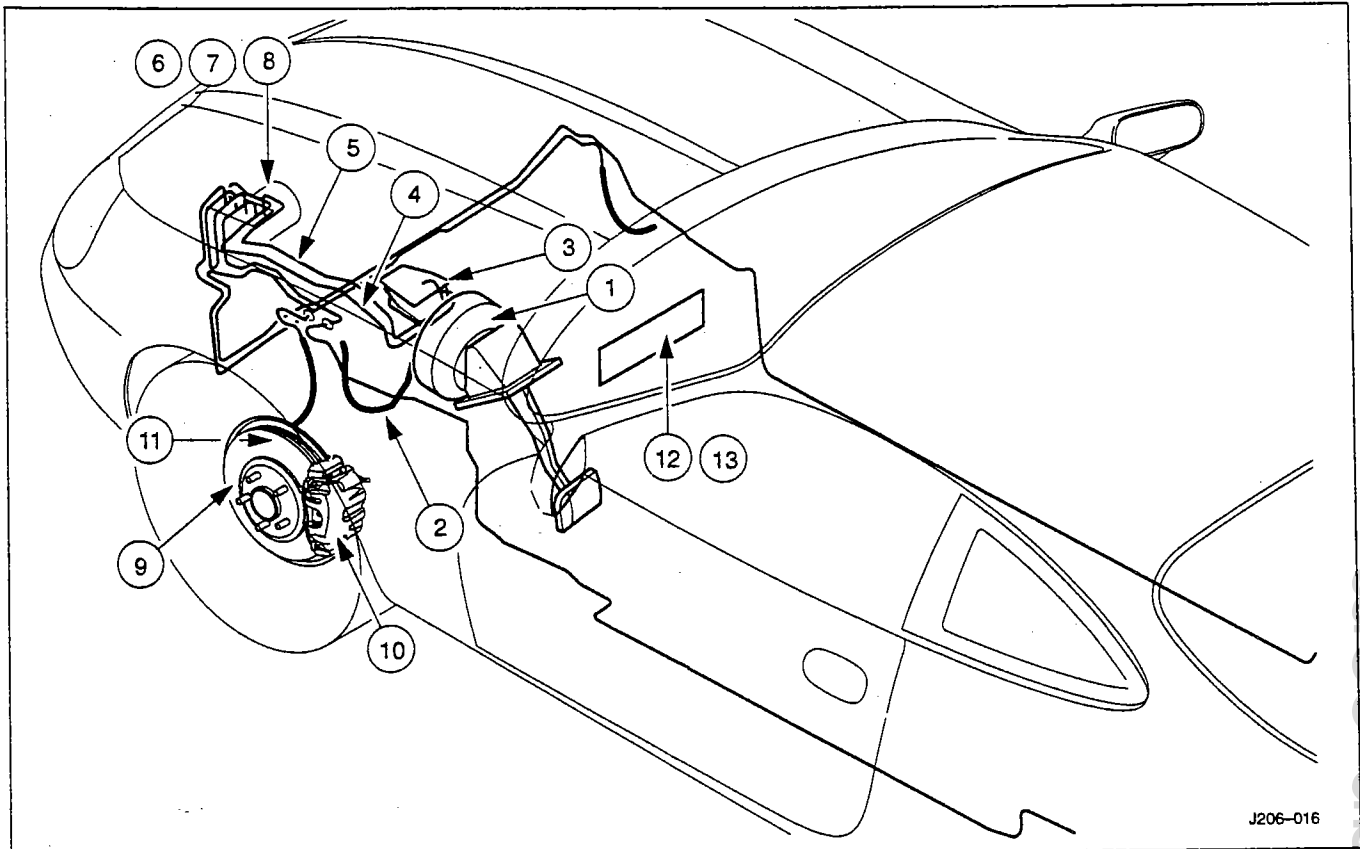
SECTION 206-09 Anti-lock Control and Anti-wheelspin Control

VEHICLE APPLICATION: X100

SUBJECT	PAGE
SPECIFICATIONS	
Torques	206-09-2
DESCRIPTION AND OPERATION	
Anti-Lock Braking Control	206-09-3
Stability Control	206-09-3
Traction Control	206-09-4
REMOVAL AND INSTALLATION	
ABS Control Module	206-09-5
Front ABS Wheel Speed Sensor	206-09-10
Rear ABS Wheel Speed Sensor	206-09-11

SPECIFICATIONS**Torques**

Component	Nm
Modulator to Mounting Bracket	6-10
Modulator Mounting Bracket to Body	17-23

DESCRIPTION AND OPERATION**Anti-Lock Braking Control**

J206-016

Item	Description
1	Vacuum Booster
2	Vacuum Hose
3	Tandem Master Cylinder
4	Primary Brake Circuit
5	Secondary Brake Circuit
6	Hydraulic Pump/Motor Unit
7	Valve Block
8	ABS/TC Control Module
9	Ventilated Brake Rotor
10	Single Piston Caliper
11	Wheel Speed Sensor
12	ABS Warning Lamp
13	Brake Fluid Level Warning Lamp

The anti-lock braking system (ABS) is used in conjunction with the conventional brakes to provide a two circuit braking system. The failure of the ABS will not effect the capability of the conventional brakes.

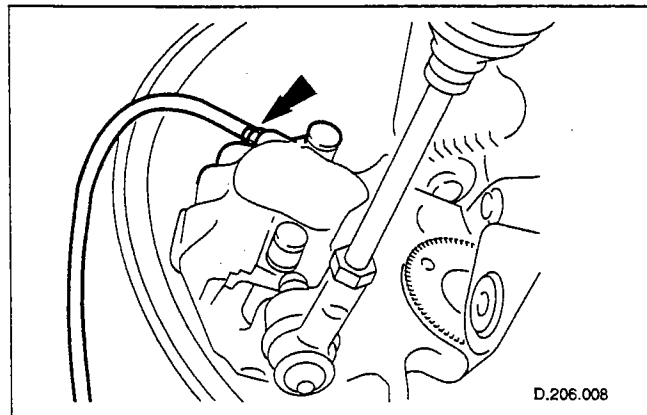
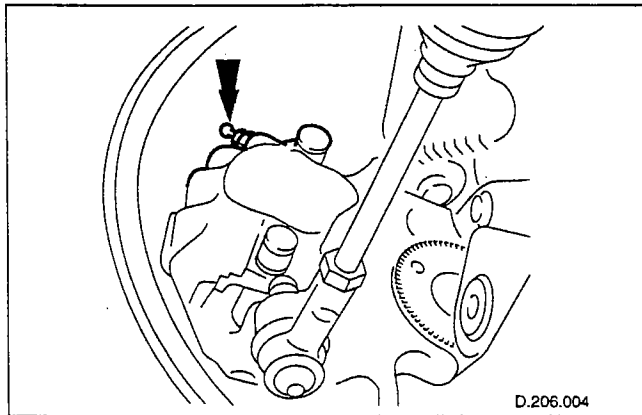
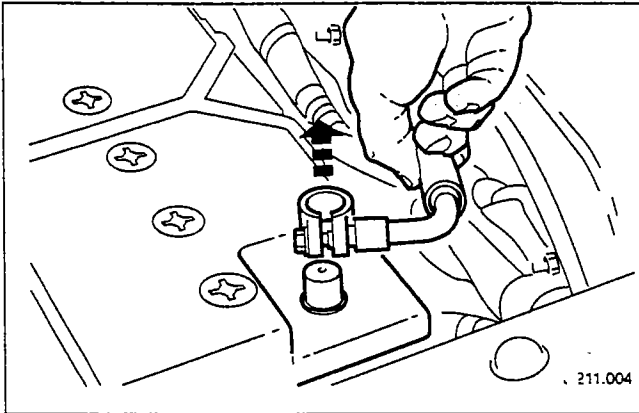
A brake control modulator is installed as standard in all vehicles and incorporates a valve block, solenoid valves, electrically driven hydraulic pump, two low pressure accumulators and damping chambers. It acts as an anti-lock braking (ABS) device and, when Traction Control is installed, as an enhanced anti-wheelspin control.

Stability Control

The Stability Control system uses the engine management system to reduce the engine torque, by controlling the throttle, fuel and ignition systems to control wheel spin.

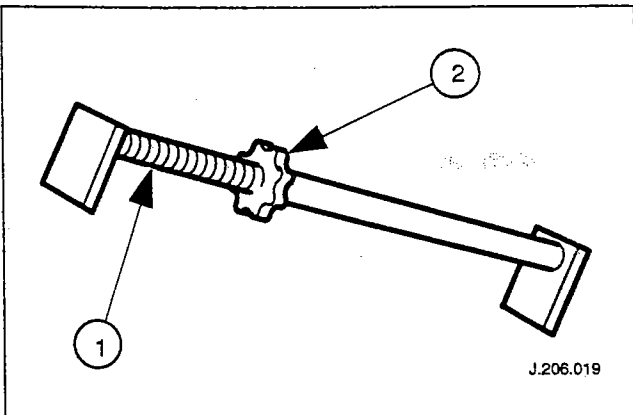
DESCRIPTION AND OPERATION (Continued)**Traction Control**

Traction Control utilises the engine management system, as used in the Stability Control system, but with brake intervention to provide individual braking for each wheel to control wheel spin.

REMOVAL AND INSTALLATION**ABS Control Module (70.60.02)****Removal**

1. Remove the battery cover.
2. Disconnect the battery.
3. Raise the vehicle on a four post ramp.
4. Remove the bleed nipple dust cap from the front left hand brake caliper.
5. Connect a bleed pipe and bottle to the bleed nipple and loosen the bleed nipple.

REMOVAL AND INSTALLATION (Continued)



6. Install pedal hold-down tool.

1 Install the tool between the pedal and the seat frame.

2 Turn the tool hand-wheel to depress and hold the pedal 60 mm down from the 'Off' position.

- This will prevent loss of fluid from the reservoir through disconnected brake pipes.

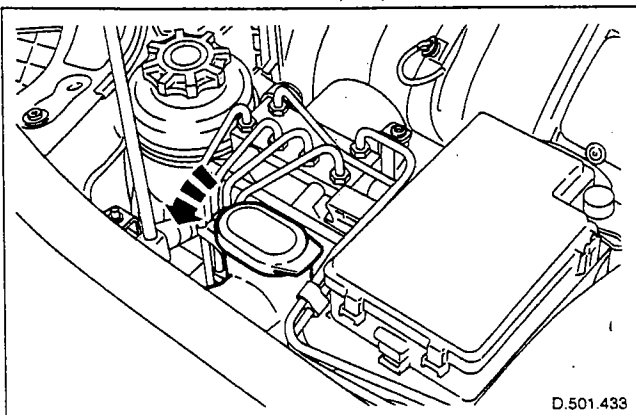
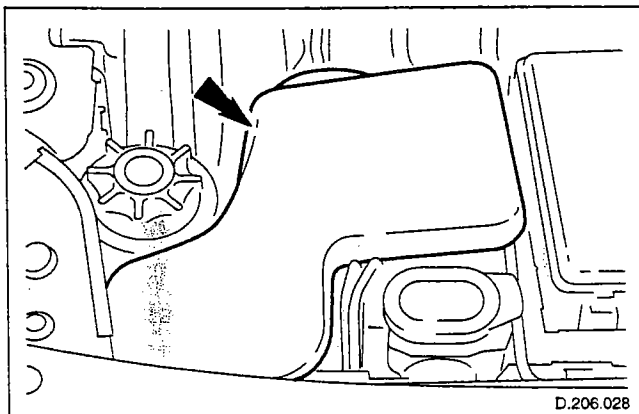
7. Remove the bleed pipe and bottle.

1 Tighten the caliper bleed nipple.

2 Disconnect and remove the bleed pipe and bottle..

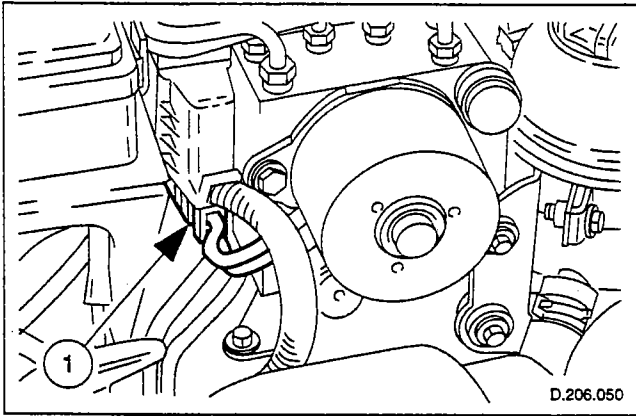
3 Install the bleed nipple dust cap.

8. Remove the ABS modulator cover.



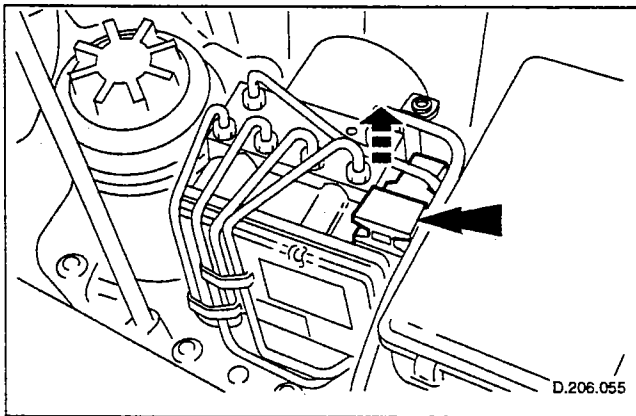
9. Remove the washer bottle filler neck.

REMOVAL AND INSTALLATION (Continued)

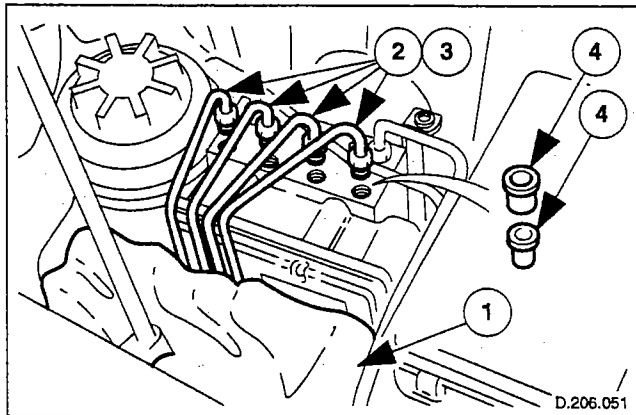


10. Disconnect the ABS control module to ABS motor multiplug.

1 Reposition the multiplug clip upwards.

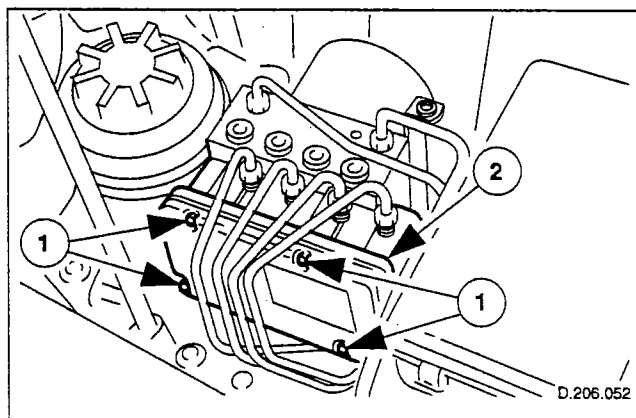


11. Disconnect the ABS harness multiplug from the ABS control module.



12. Remove the modulator outlet pipes.

- 1 Place absorbent material under the modulator to absorb any fluid spillage.
- 2 Unscrew the union nuts of the modulator outlet pipes.
- 3 Remove the modulator outlet pipes.
- 4 Immediately install blanking plugs to both the outlet pipes and modulator.

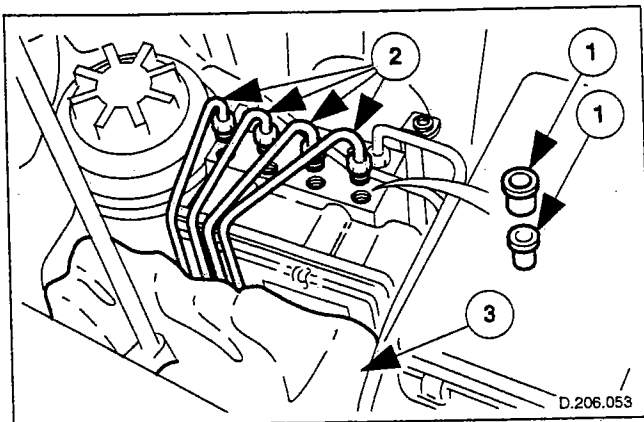


13. Remove the ABS control module.

- 1 Remove the ABS control module securing bolts.
- 2 Remove the control module from the brake modulator.

REMOVAL AND INSTALLATION (Continued)

Installation

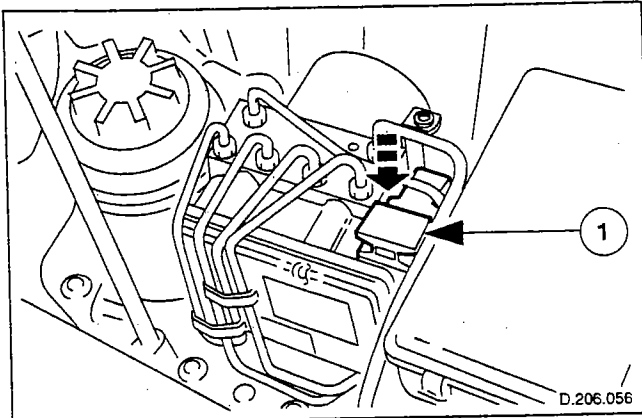


14. Install the ABS control module.

- 1 Position the control module on the brake modulator.
- 2 Install the securing bolts.

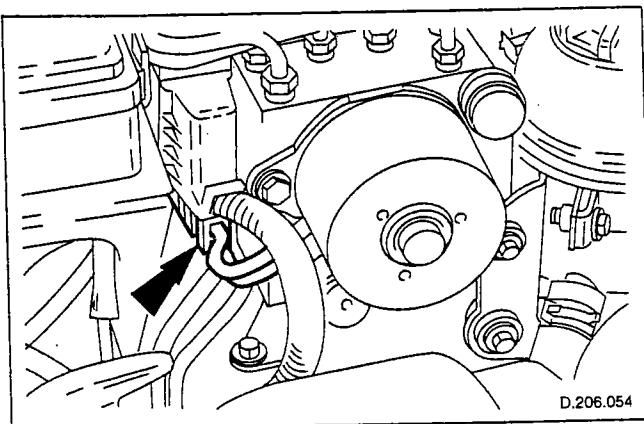
15. Install the outlet pipes to the brake modulator.

- 1 Remove the blanking plugs from the outlet pipes and brake modulator.
- 2 Install the outlet pipes and tighten the union nuts.
- 3 Remove the absorbent material from below the brake modulator.



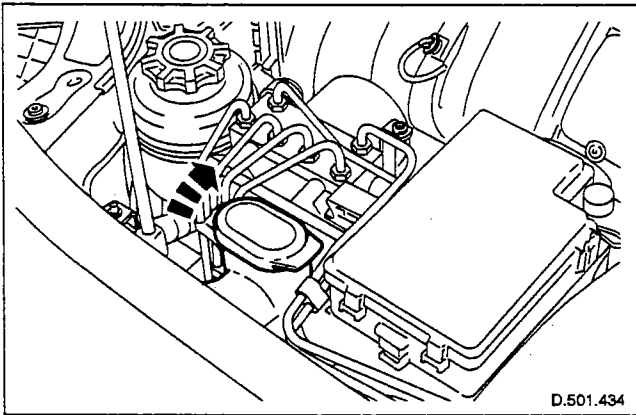
16. Reconnect the ABS control module harness multiplug.

- 1 Install the multiplug retaining clip.

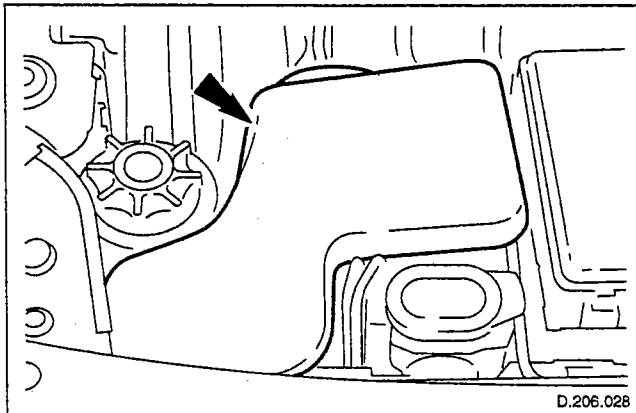


17. Reconnect the ABS motor to ABS control module multiplug.

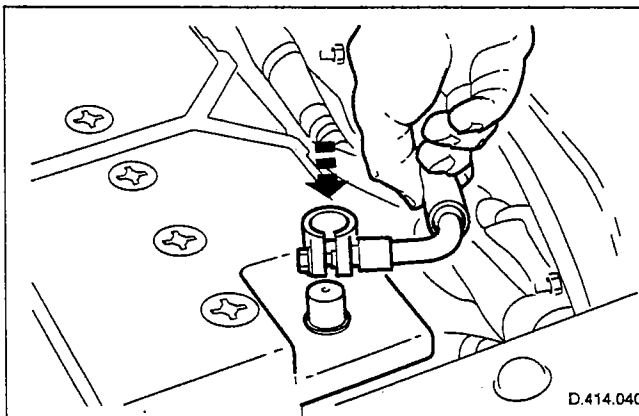
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REMOVAL AND INSTALLATION (Continued)

18. Install the washer bottle filler neck.

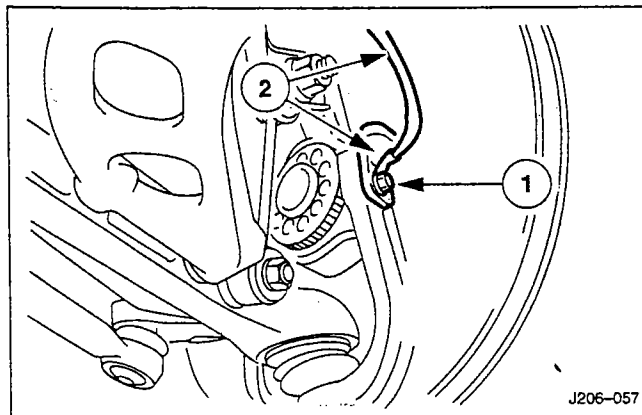
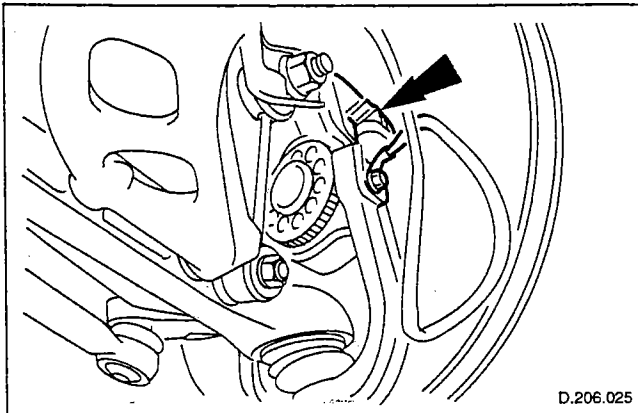


19. Install the ABS modulator cover.



20. Bleed the ABS hydraulic system; refer to Section 206-06.

21. Reconnect the battery ground cable.

REMOVAL AND INSTALLATION (Continued)**Front ABS Wheel Speed Sensor (70.60.03)****Removal**

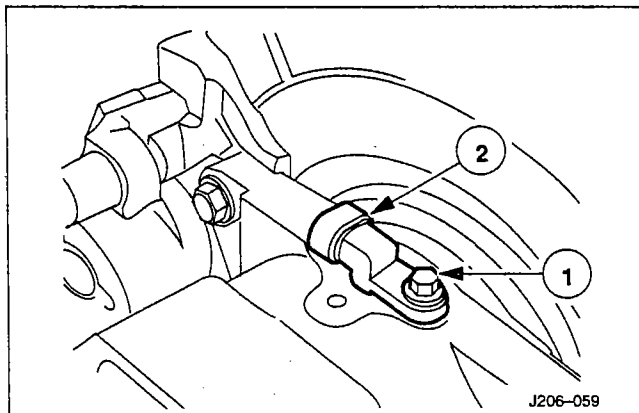
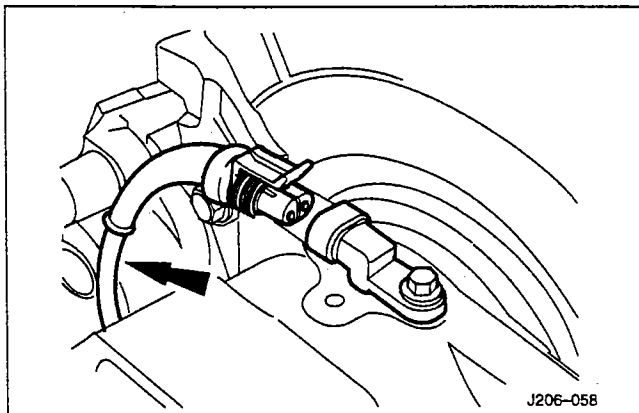
1. Raise the vehicle on a four post ramp.
2. Disconnect the ABS sensor harness multiplug.

3. Remove the ABS sensor and earthing wire.
 - 1 Unscrew the sensor and earthing wire securing bolt.
 - 2 Remove the sensor and earthing wire.

4. Clean the ABS sensor and vertical link aperture.

Installation

5. Installation is a reversal of the removal procedure.

REMOVAL AND INSTALLATION (Continued)**Rear ABS Wheel Speed Sensor (70-60-04)****Removal**

1. Raise the vehicle on a four post ramp.
2. Disconnect the ABS sensor harness multiplug.

3. Remove the ABS sensor and earthing wire.

- 1 Remove the sensor and earthing wire securing bolt.
- 2 Remove the sensor and earthing wire.

4. Clean the ABS sensor and rear hub aperture.

Installation

5. Installation is a reversal of the removal procedure.

SECTION 412-00 Climate Control System

VEHICLE APPLICATION: X100

SUBJECT

PAGE

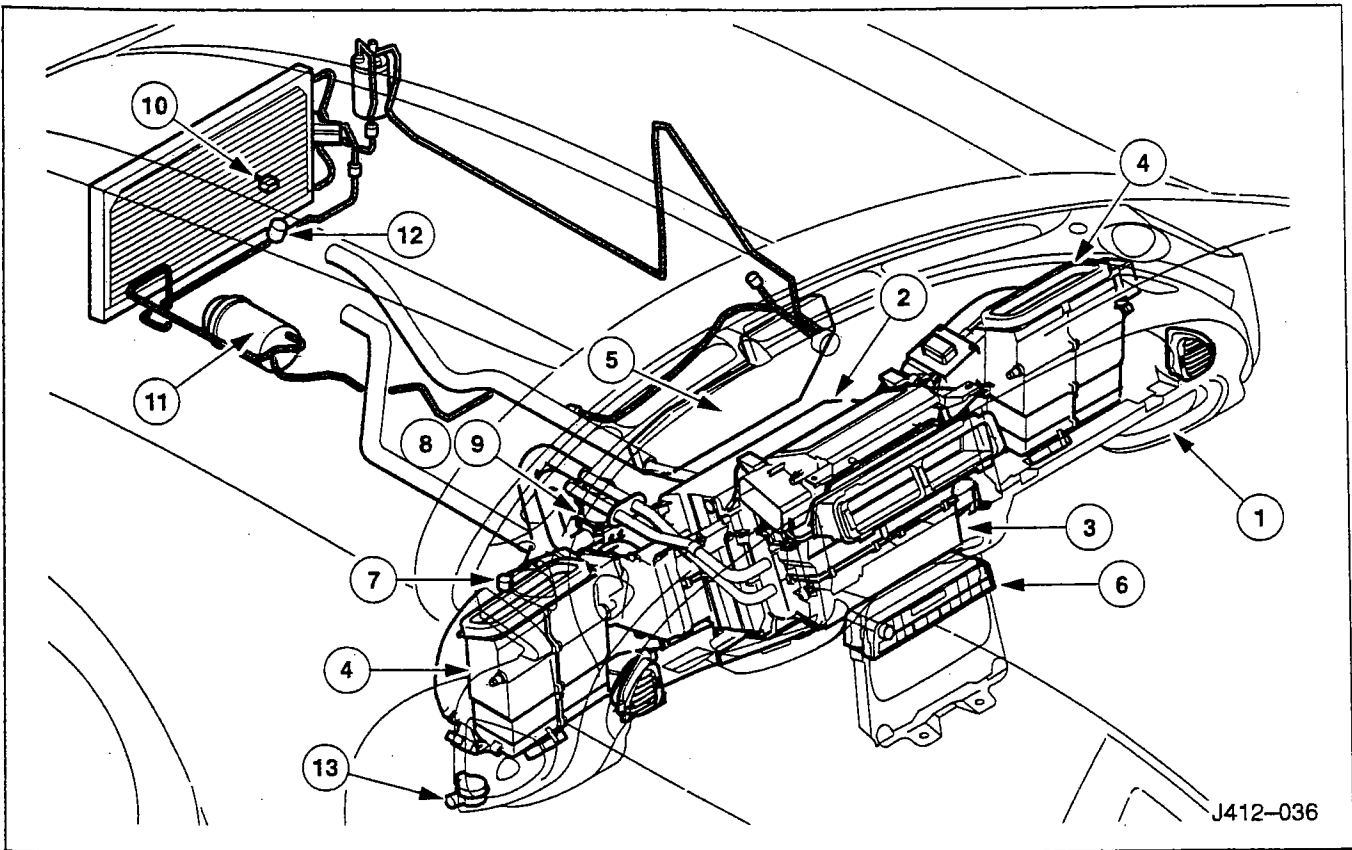
DESCRIPTION AND OPERATION

Climate Control System 412-00-2

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DESCRIPTION AND OPERATION

Climate Control System



Item	Description
1	Fascia panel incorporating air outlets and integral ducting
2	Heater/air conditioning unit
3	Air conditioning control module (A/CCM)
4	Air blowers
5	Plenum
6	Control panel
7	Solar sensor
8	Coolant flow control valve
9	Coolant pump
10	Ambient temperature sensor
11	Air conditioning compressor
12	4-level pressure switch
13	Motorized in-car aspirator

The climate control system provides a fully automatic, temperature controlled, heating and air conditioning system to maintain optimum comfort levels within the cabin.

The main features of the system are:

- Fascia mounted control panel with LCD display for driver information.
- Self-diagnostic control system with error codes displayed on control panel.
- Serial link between control panel and control module.
- Variable fan speed in both automatic and manual modes.
- Manual air flow distribution overrides.
- Servomotor self-check.
- Single control for differential air flow control by thumbwheel on fascia panel.

SECTION 412-01 Air Distribution and Filtering

VEHICLE APPLICATION: X100

SUBJECT

PAGE

DESCRIPTION AND OPERATION

Air Distribution 412-01-2

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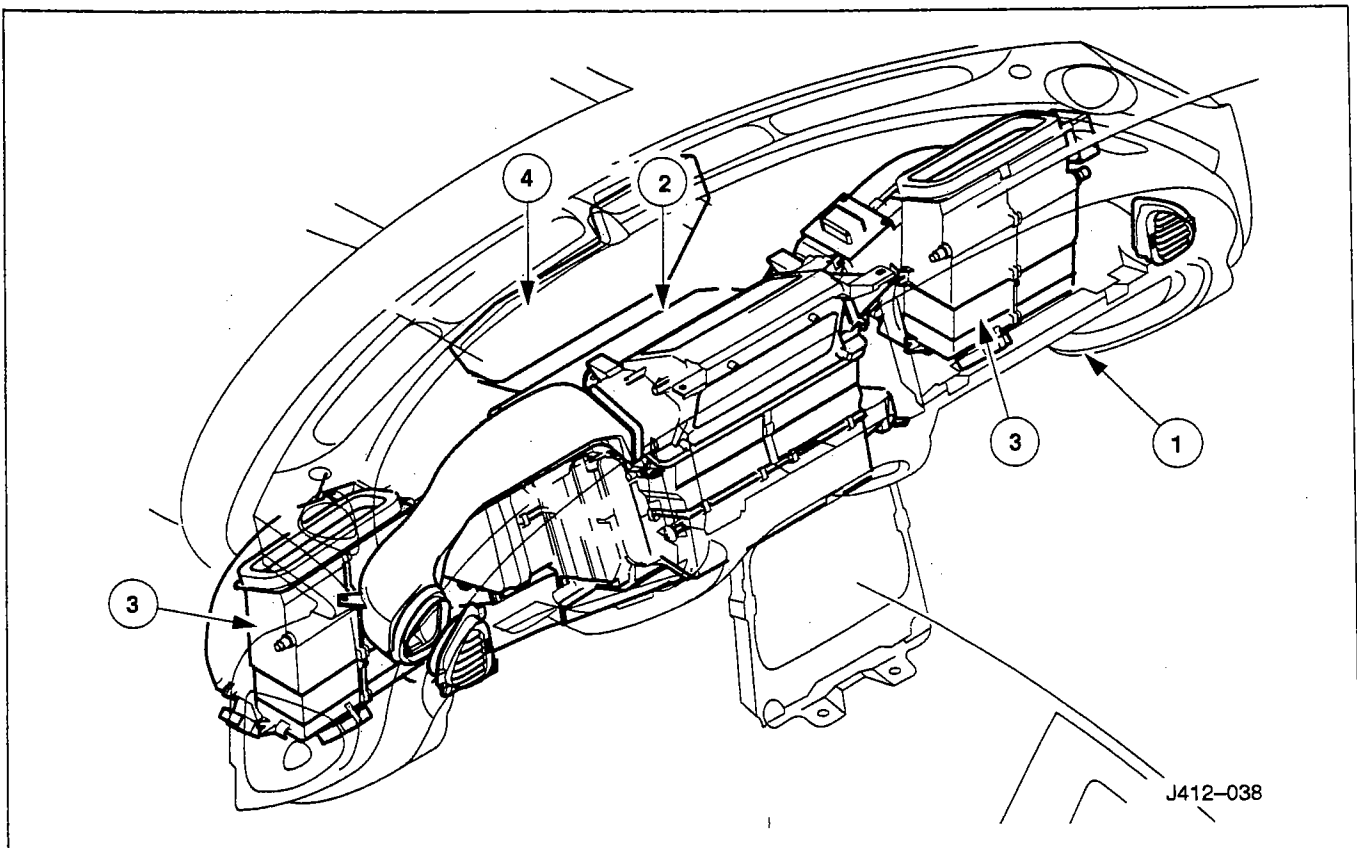
DESCRIPTION AND OPERATION

Air Distribution

Fresh air is drawn-in via the plenum to the left- and right-hand blower units, which are ducted to the heater/air conditioning unit. The air is then heated or cooled as required and delivered to the selected air outlets. After passing through the cabin, the air enters the trunk and is exhausted from the vehicle through vents under each rear wheel arch.

The air distribution system includes:

- Connecting ducts between the left- and right-hand blower units and the heater/air conditioning unit.
- Front and side window demist/defrost ducting integral with the fascia panel.
- Ducting to the front footwell.
- Ducting to the left- and right-hand fascia air outlets.



Item	Description
1	Fascia panel incorporating air outlets and integral ducting
2	Heater/air conditioning unit
3	Air blowers
4	Plenum

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SECTION 412-02 Heating/Defrosting

VEHICLE APPLICATION: X100

SUBJECT

PAGE

DESCRIPTION AND OPERATION

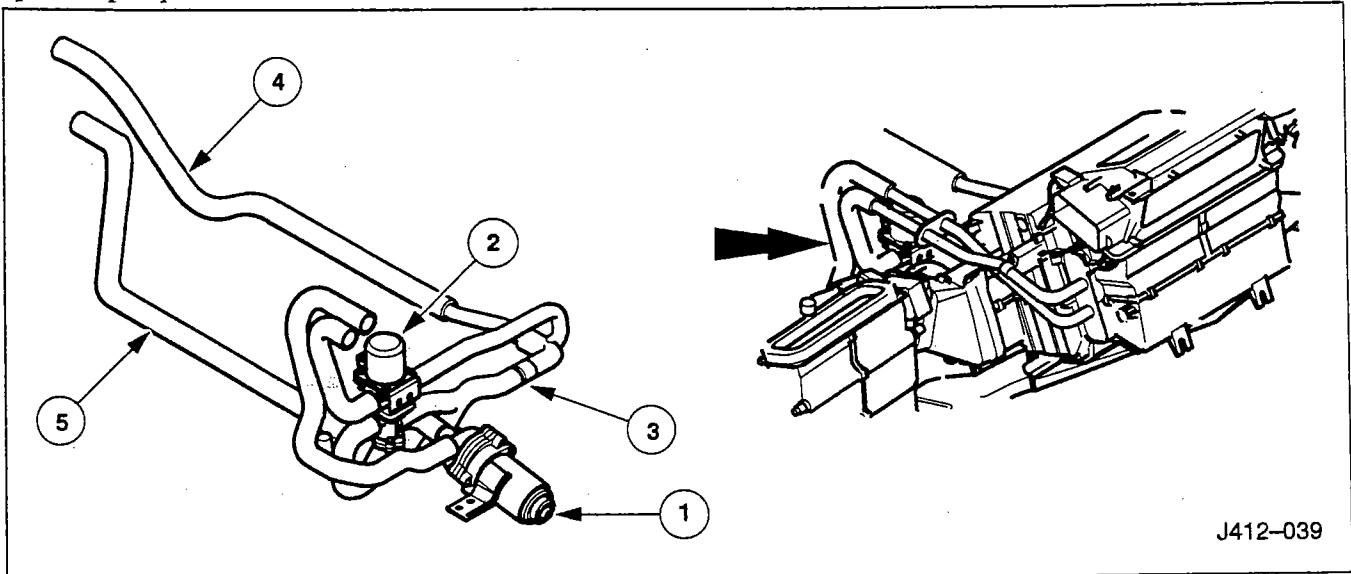
Heating System 412-02-2

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DESCRIPTION AND OPERATION

Heating System

The heater matrix is supplied with hot coolant from the engine cooling system via a solenoid-operated flow control valve and circulated by an electrically operated pump.



Item	Description
1	Coolant pump
2	Coolant flow control valve
3	Non-return valve
4	Heater take-off hose
5	Heater return hose

SECTION 412-03 Air Conditioning

VEHICLE APPLICATION: X100

SUBJECT	PAGE
SPECIFICATIONS	
Specification for Recovery/Recycle/Recharge Equipment	412-03-2
Lubricants and Fluids	412-03-2
Capacities	412-03-2
DESCRIPTION AND OPERATION	
Air Conditioning System	412-03-3
REMOVAL AND INSTALLATION	
Liquid Receiver/Drier	412-03-4
Compressor	412-03-5

SPECIFICATIONS**Specification for Recovery/Recycle/Recharge Equipment**

Feature	Requirement
Recovery rate	0,014 – 0,062 m ³ / min. (1,36 kg in 20 minutes)
Cleaning capability	15 ppm moisture; 4000 ppm oil; 330 ppm non-condensable gases in air
Oil separator	With hermetic compressor and automatic oil return
Moisture indicator	Sight-glass type, sensitive to 15 ppm minimum
Vacuum pump	Two-stage 0,07 – 0,127 m ³ / min.
Filter	Replaceable, with moisture indicator
Charge	Selectable charge weight and automatic delivery
Hoses	Dedicated HFC 134A port connections
Charge pressure	Heating element to increase pressure

ppm – parts per million

Lubricants and Fluids

	Specification
Refrigerant	HFC 134A
Compressor lubricant	Polyalkyleneglycol (PAG)

Capacities

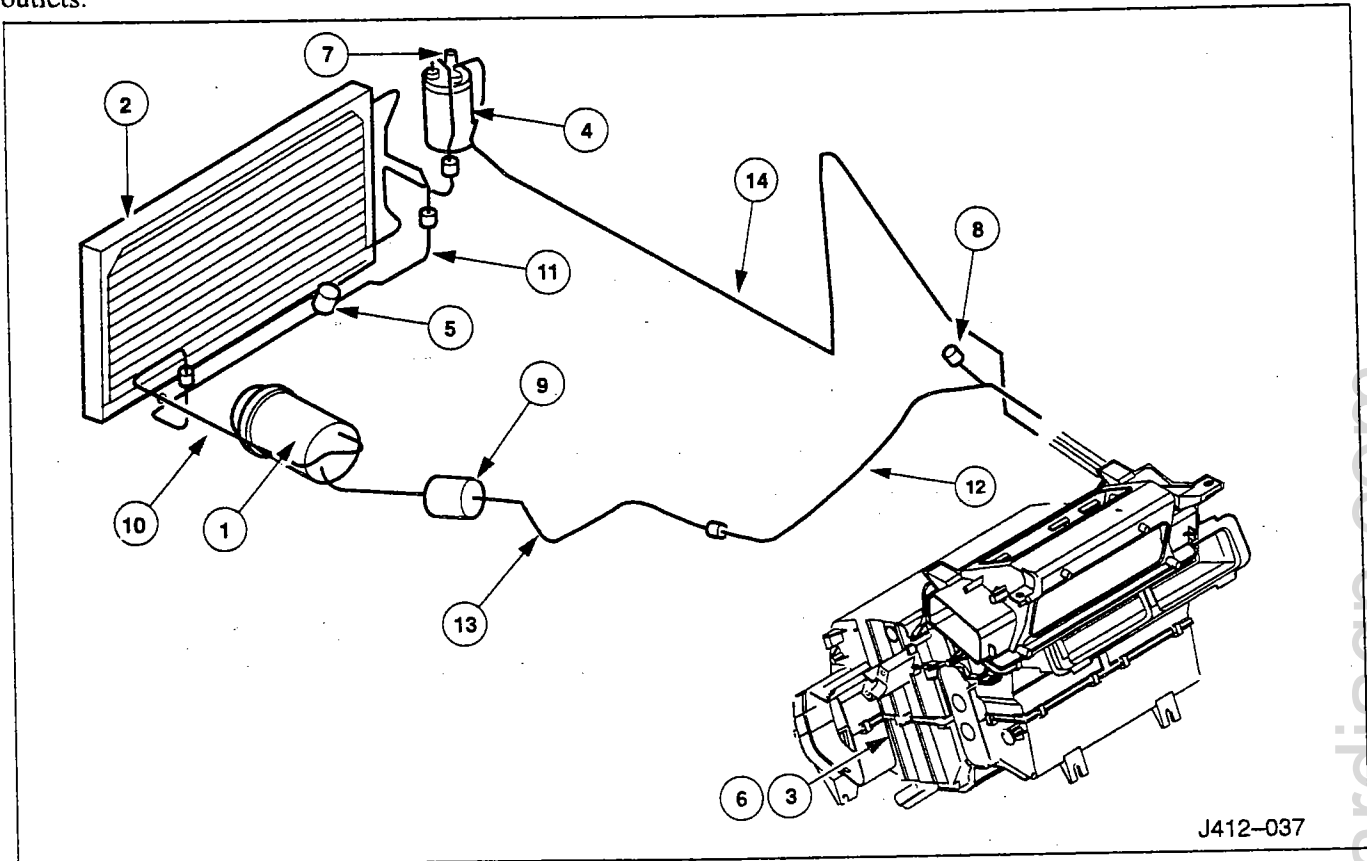
	Specification
Refrigerant charge weight	850 g ± 50 g
Compressor lubricant capacity	160 – 200 ml

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DESCRIPTION AND OPERATION
Air Conditioning System

The heater/air conditioning unit houses the evaporator, which forms part of the air conditioning circuit and cools the air delivered to the selected outlets.

The air temperature is selected via the control panel and controlled by the air conditioning control module; refer to Section 412-04.



J412-037

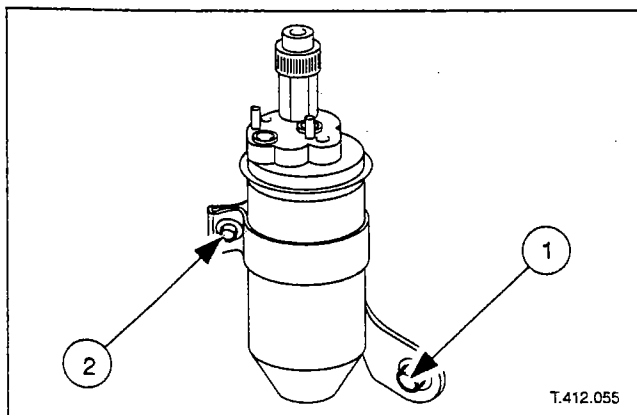
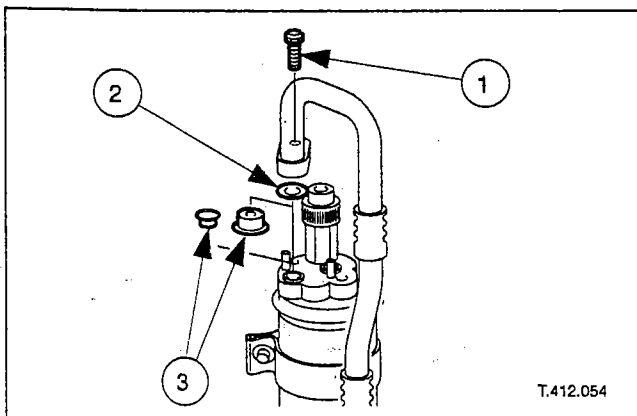
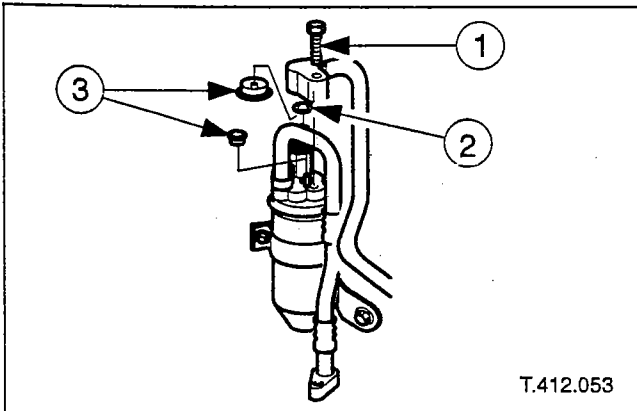
Item	Description
1	Compressor/clutch assembly
2	Condenser
3	Evaporator
4	Suction accumulator/drier
5	4-level pressure switch
6	Expansion valve
7	High-side charge port

Item	Description
8	Low-side charge port
9	Suction muffler
10	Discharge hose
11	Discharge pipe
12	Suction hose
13	Suction pipe
14	Liquid pipe

REMOVAL AND INSTALLATION

Liquid Receiver/Drier (82.17.01)

Removal



1. De-gas the air conditioning system; refer to Section 412-03 in Diagnostic & Test Manual.
2. Disconnect the evaporator hose from the drier bottle.

- 1 Remove the drier bottle securing nut.
- 2 Disconnect the hose and discard the hose O-ring seal.
- 3 Fit blanking plugs to the hose and drier bottle.

3. Disconnect the condenser hose from the drier bottle.

- 1 Remove the drier bottle securing nut.
- 2 Disconnect the hose and discard the hose O-ring seal.
- 3 Fit blanking plugs to the hose and drier bottle.

4. Remove the drier bottle.

- 1 Remove the drier bottle mounting bracket securing bolt.
- 2 Remove the drier bottle mounting bracket clamping bolt.

Installation

5. Installation is the reverse of the removal procedure

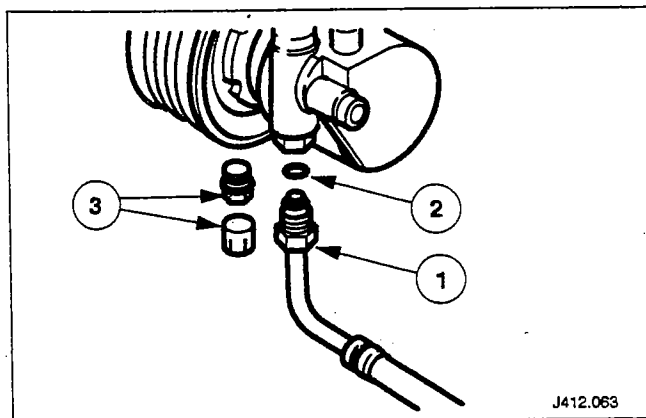
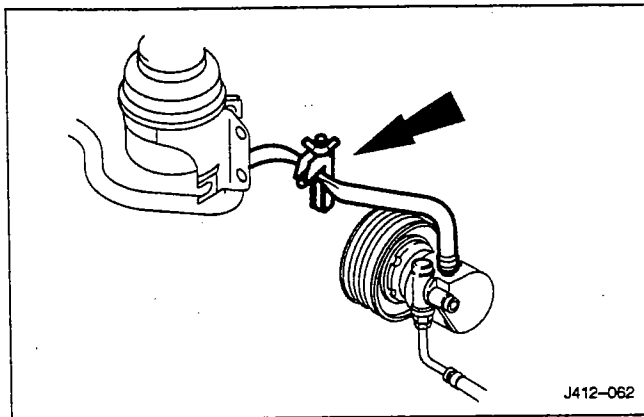
REMOVAL AND INSTALLATION (Continued)

Compressor (82.10.20)

Removal

NOTE: The door drop-glass feature will not operate after disconnection of the battery.

1. Disconnect the battery.
2. De-gas the air conditioning system; refer to Section 412-03 in the Diagnostic and Test Manual.
3. Remove the front end accessory drive belt.
4. Clamp the power steering reservoir to pump feed hose.



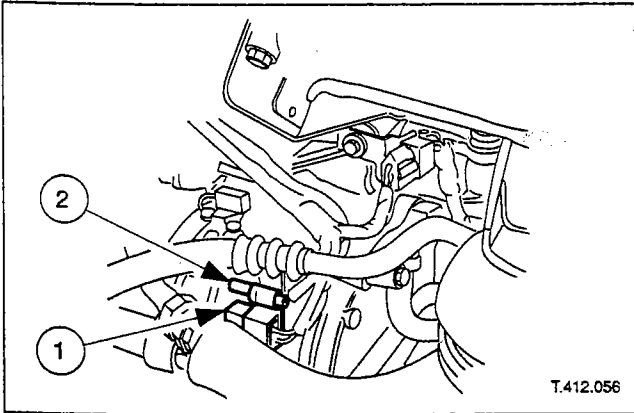
5. Raise the vehicle on a four-post ramp.

NOTE: Place a drain tin in position to receive the fluid when the union nut is released.

6. Disconnect the steering rack hose from the pump.

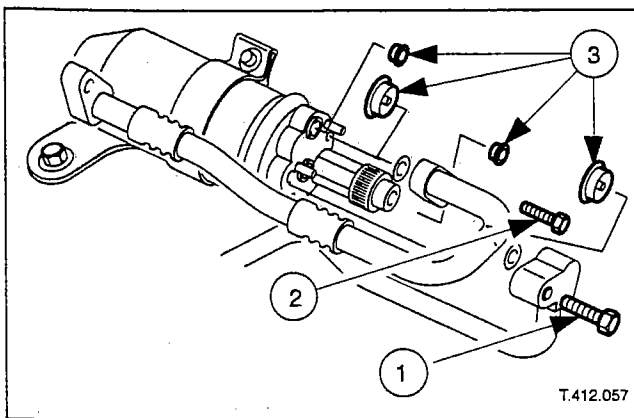
- 1 Release the union nut.
- 2 Discard the O-ring.
- 3 Fit blanking plugs to the hose and pump.

REMOVAL AND INSTALLATION (Continued)



7. Disconnect the lock sensor and clutch harness multiplugs from the compressor.

- 1 Displace the lock sensor multiplug from the mounting bracket and disconnect the multiplug.
- 2 Disconnect the clutch multiplug.



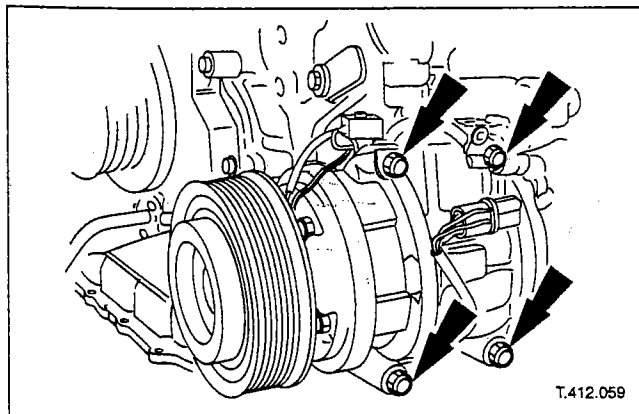
8. Remove the suction and discharge pipes from the compressor.

- 1 Remove the suction pipe securing bolt.
- 2 Remove the discharge pipe securing bolt.
- 3 Remove and discard the O-ring seals.
- 4 Fit blanking plugs to the pipes and compressor.

NOTE: Reposition the compressor after releasing the captive securing bolts to allow removal.

9. Remove the compressor.

- Remove the securing bolts.



NOTE: This step is not necessary in the case of refrigerant loss.

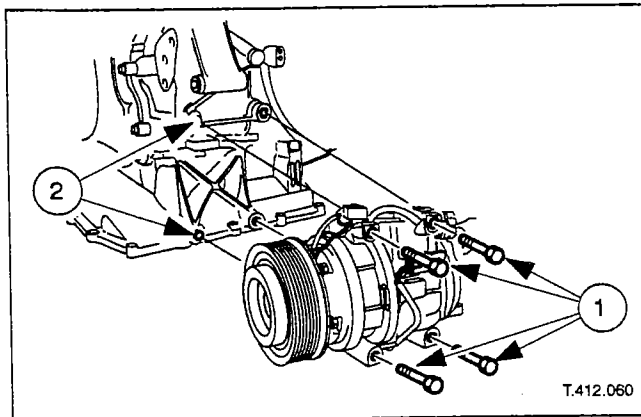
10. Measure the amount of oil held in the compressor.

- Remove the blanking plugs from the compressor.
- Pour the oil from the compressor into a suitable measuring container. Note the amount and discard the oil.
- Fit the blanking plugs to the compressor.

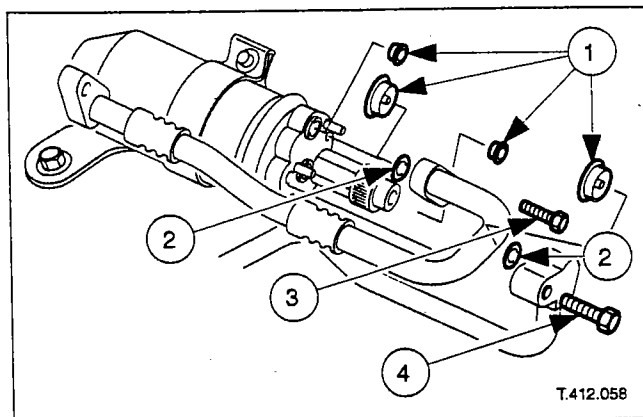
REMOVAL AND INSTALLATION (Continued)

Installation

11. Fill the new compressor with the correct amount of oil.
 - Remove the blanking plugs from the compressor.
 - Pour the oil from the compressor into a suitable container.
 - Fill the compressor with the same amount of oil that was removed from the original compressor, plus the amount recovered from the recovery equipment.
 - Fit the blanking plugs to the compressor.

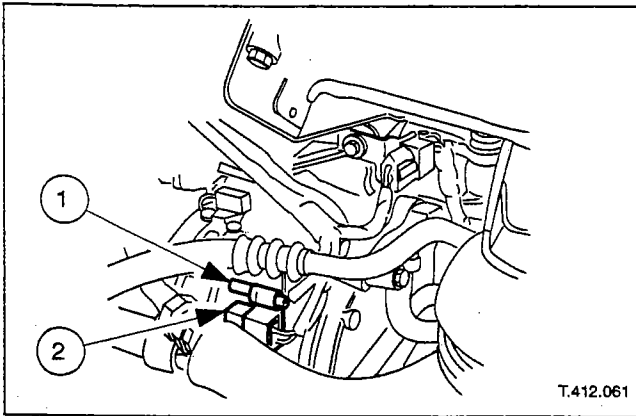


12. Install the compressor.
 - 1 Fit the captive securing bolts to the compressor body.
 - 2 Position the compressor on the mounting dowels.
 - Tighten the compressor securing bolts.



13. Install the suction and discharge pipes.
 - 1 Remove the blanking plugs from the pipes and compressor.
 - 2 Fit and lubricate new O-ring seals.
 - 3 Install the discharge pipe securing bolt.
 - 4 Install the suction pipe securing bolt.

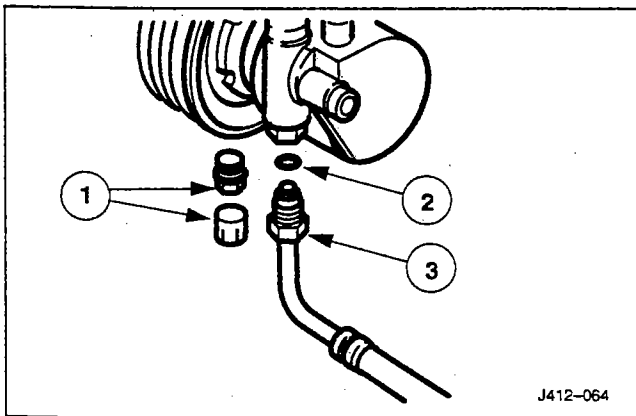
REMOVAL AND INSTALLATION (Continued)



14. Connect the lock sensor and clutch harness multiplugs.

1 Connect the clutch multiplug.

2 Connect the lock sensor multiplug and fit the multiplug to the mounting bracket.

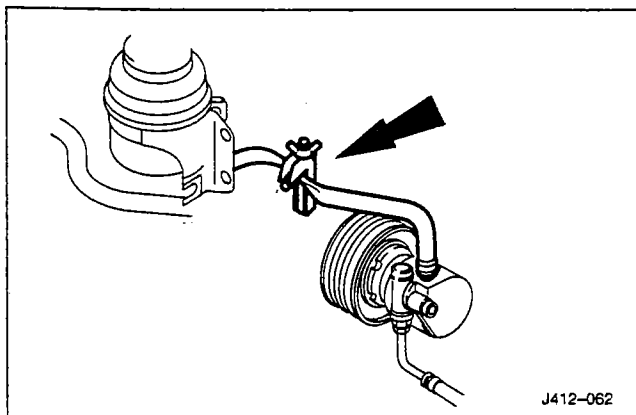


15. Connect the steering rack hose to the pump.

1 Remove the blanking plugs from the hose and pump.

2 Fit a new O-ring to the hose.

3 Tighten the union nut.



16. Lower the ramp.

17. Unclamp the power steering reservoir to pump feed hose.

18. Install the front end accessory drive belt.

19. Connect the battery; refer to Section 414-01.

20. Re-gas the air conditioning system; refer to Section 412-03 in the Diagnostic and Test Manual.

21. Check/bleed/top up the power steering fluid reservoir; refer to Section 211-02 in the Diagnostic and Test Manual.

SECTION 412-04 Climate Control System Control Components

VEHICLE APPLICATION: X100

SUBJECT

PAGE

DESCRIPTION AND OPERATION

System Controls 412-04-2

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DESCRIPTION AND OPERATION
System Controls

The climate control system is controlled by:

- The climate control panel which is located in the center of the fascia panel.
- The controls on the fascia air outlets.

SECTION 205-00 Driveline System

SUBJECT	PAGE
DESCRIPTION AND OPERATION	
Driveline System - Introduction	205-00-2

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DESCRIPTION AND OPERATION

Driveline System – Introduction

Details of the Driveline System can be found in Sections 205-01 and 205-02 of this manual.

SECTION 205-01 Driveshaft

VEHICLE APPLICATION: X100

SUBJECT	PAGE
DESCRIPTION AND OPERATION	
Driveshaft	205-01-3
REMOVAL AND INSTALLATION	
Driveshaft Removal	205-01-4
Driveshaft Installation	205-01-6

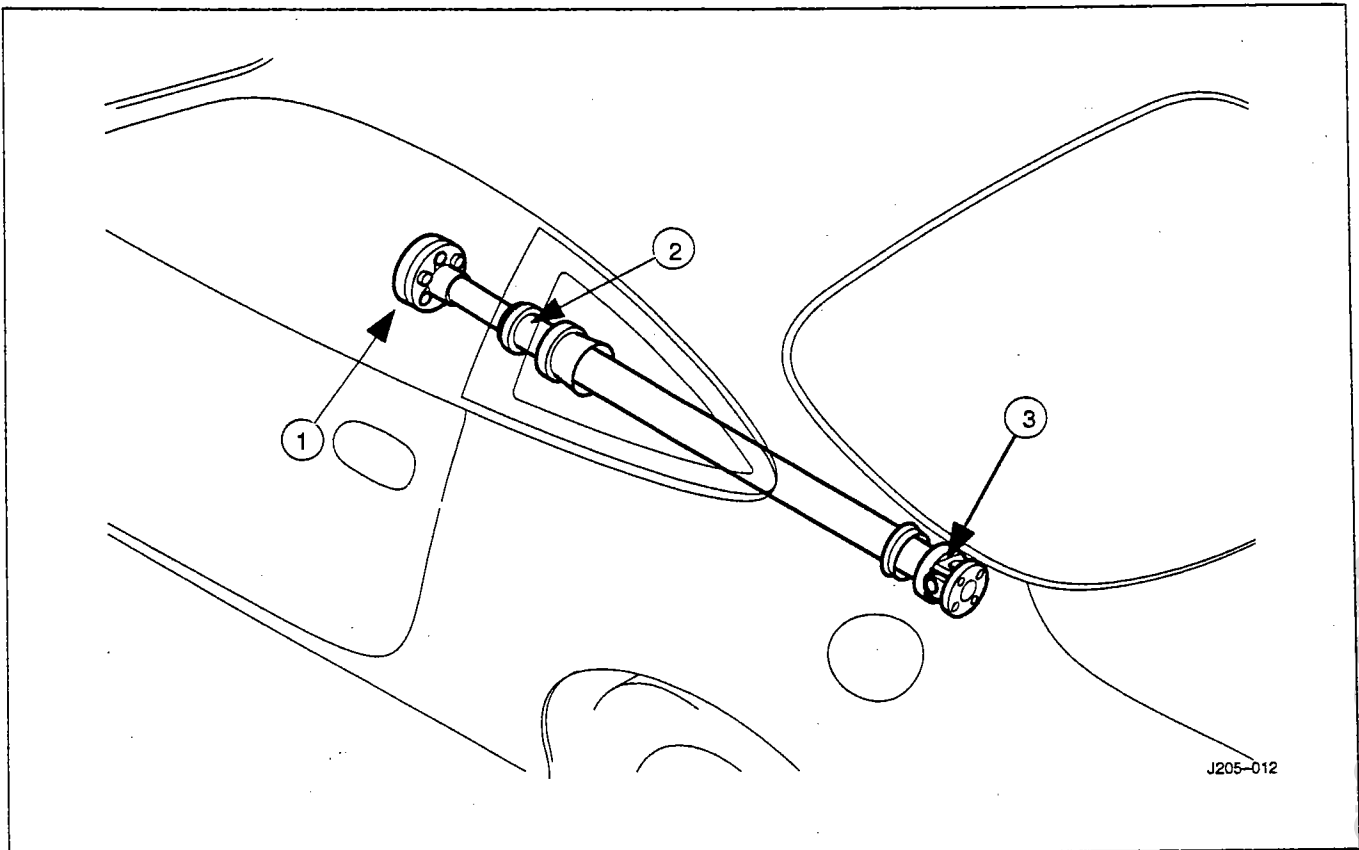
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SPECIFICATIONS**Torques**

Component	Nm
SGF Flexible Drive Coupling Bolts	77 +/- 6,5
Hookes Drive Coupling Bolts	60 +/- 9,0

DESCRIPTION AND OPERATION

Driveshaft

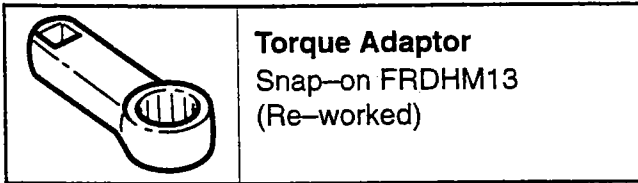


Item	Description
1	Flexible drive coupling
2	Sliding joint
3	Hookes drive coupling

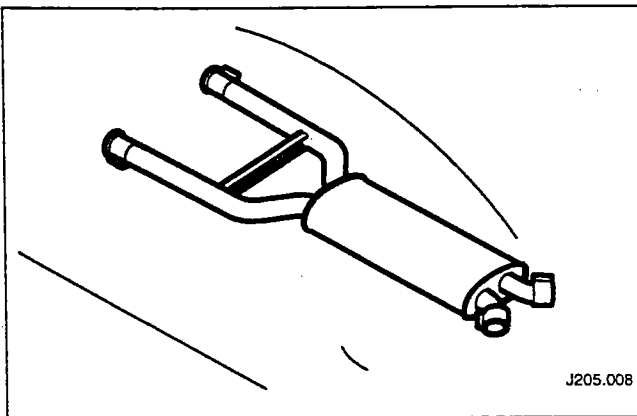
A one piece aluminum driveshaft incorporating a sliding joint, a flexible drive coupling and a Hookes drive coupling is installed.

The drive couplings and sliding joint allow for variations in the driveshaft alignment due to the relative movement of components.

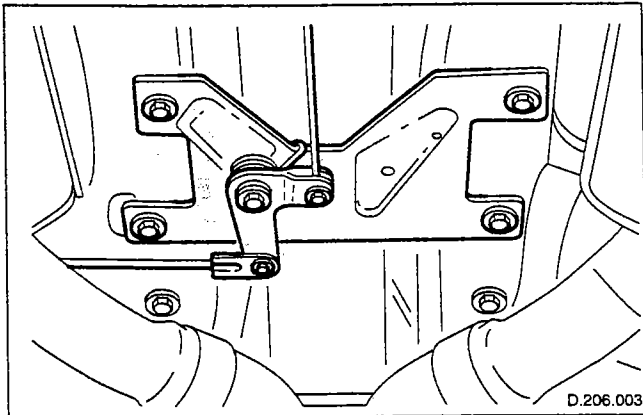
The function of the driveshaft is to transmit the drive from the automatic transmission to the final drive unit.

REMOVAL AND INSTALLATION**Driveshaft****Special Tool(s)**

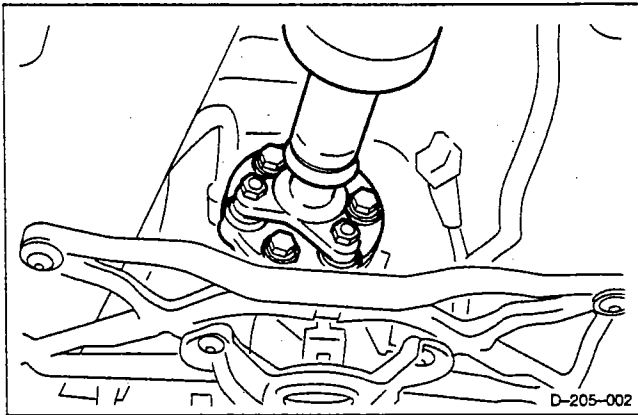
NOTE: The torque adaptor must be modified by reducing the thickness of the ring end from 9mm to 6mm. When using the tool and torque wrench, an allowance must be made for the effective increase in overall length when tightening to the specified torque.

Removal

1. Remove the exhaust system center section; refer to Section 309-03.



2. Remove the parking brake relay lever mounting bracket; refer to Section 206-05.

REMOVAL AND INSTALLATION (Continued)

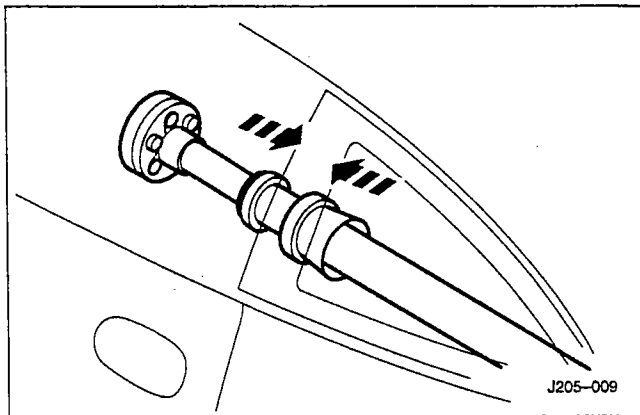
3. Remove the driveshaft from the transmission flange.

1 Match mark the automatic transmission and driveshaft flanges.

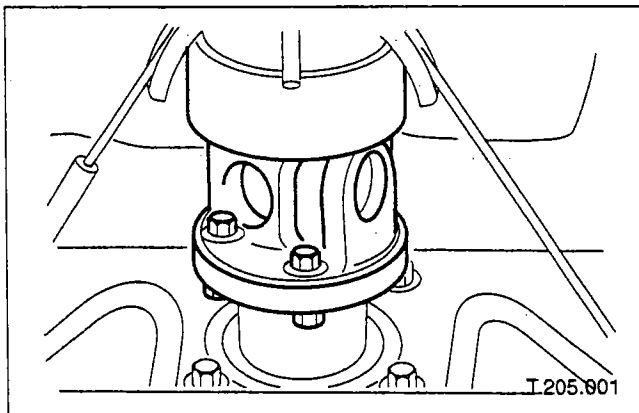
2 Match mark the driveshaft and final drive flanges.

CAUTION: Support the driveshaft when disengaging it. Do not allow it to hang unsupported.

3 Unscrew the three self-locking nuts and bolts and disengage the driveshaft from the transmission flange.



4. Move the sliding joint into the minimum length position.



5. Remove the driveshaft from the final drive flange.

CAUTION: Do not allow the driveshaft to hang unsupported.

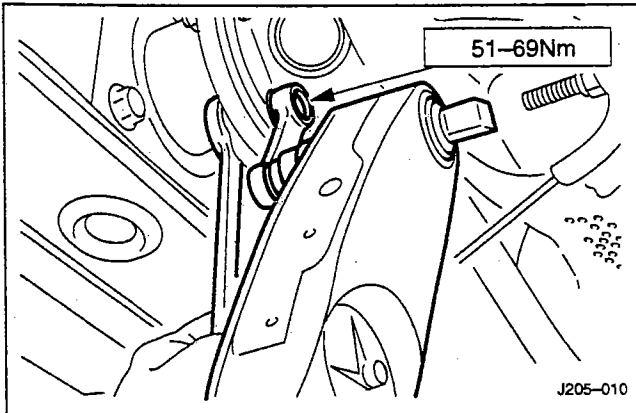
1 Unscrew the four self-locking nuts and bolts.

2 Disengage the driveshaft from the final drive flange.

3 Lower the driveshaft, taking care not to damage it.

REMOVAL AND INSTALLATION (Continued)

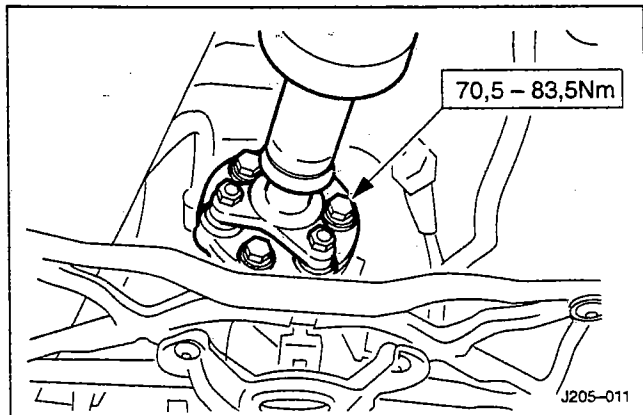
Installation



CAUTION: The driveshaft must be installed final drive end first. Do not allow it to hang unsupported.

6. Install the driveshaft to the final drive flange.

- 1 Align the match marks.
- 2 Install the four bolts.
- 3 Install the four self-locking nuts.
- 4 Install the special tool and tighten to specification.



7. Install the driveshaft to the automatic transmission flange.

- 1 Align the match marks.
- 2 Install the three bolts.
- 3 Install the three self-locking nuts and tighten to specification.

8. Install the exhaust system center section; refer to Section 309-03.

9. Install the parking brake relay lever mounting bracket; refer to Section 206-05.

SECTION 205-02 Rear Drive Axle/Differential

VEHICLE APPLICATION: X100

SUBJECT	PAGE
SPECIFICATIONS	
Lubricants	205-02-2
Capacities	205-02-2
Torques	205-02-2
DESCRIPTION AND OPERATION	
Final Drive Unit	205-02-3
REMOVAL AND INSTALLATION	
Final Drive Unit	205-02-4

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SPECIFICATIONS**Lubricants**

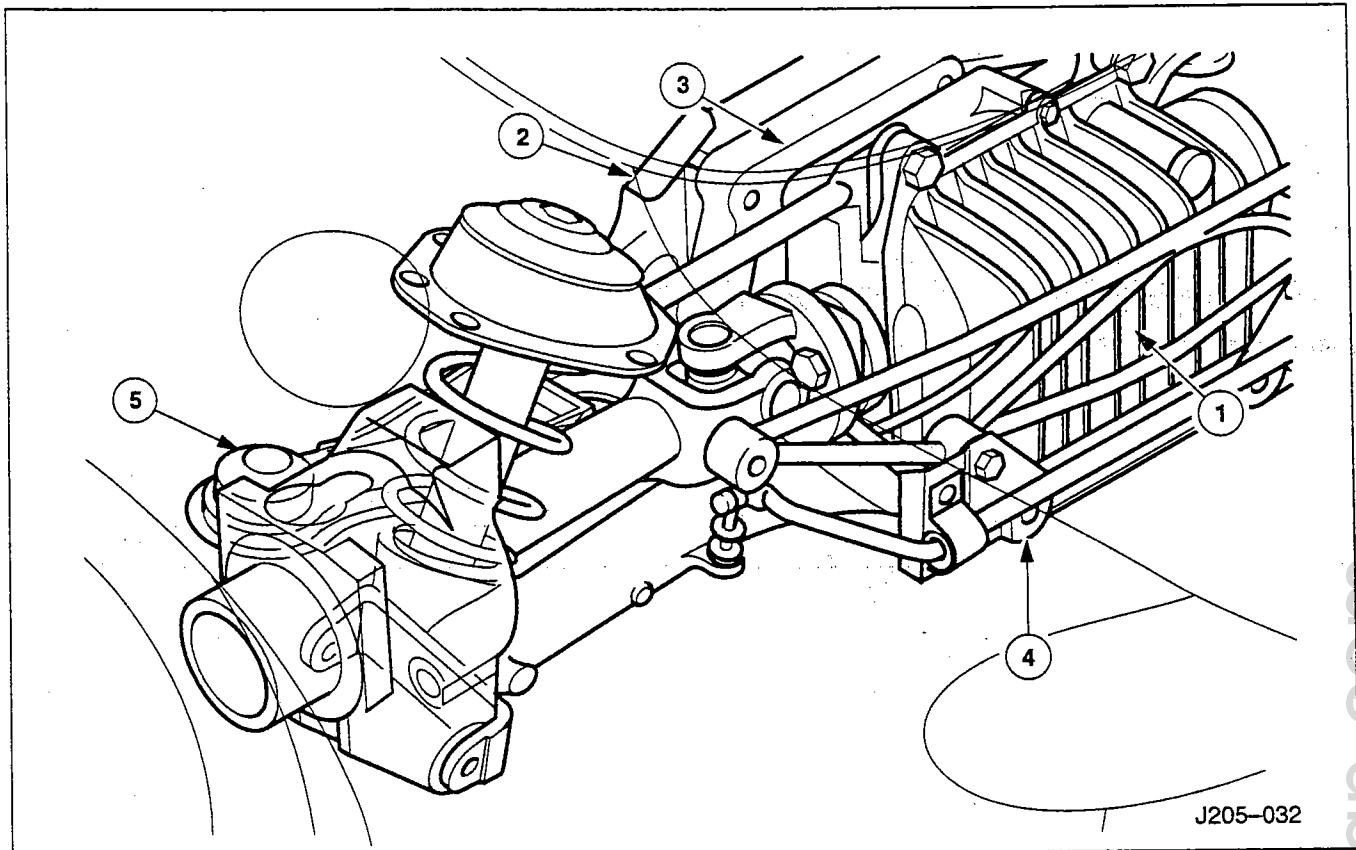
Unit	Specification
Final Drive	Shell Spirax Thermally Stable Super TS 90

Capacities

Unit	Liters
Final Drive	1,80

Torques

Component	Nm
Wheel Hub to Axle Shaft Nut	304-336
Axle-shaft Drive Joint to Final Drive Bolts	81-99

DESCRIPTION AND OPERATION**Final Drive Unit**

Item	Description
1	Final Drive Unit
2	Wide Mounting Bracket
3	Pendulum Assembly
4	Wishbone Tie Assembly
5	'A' Frame

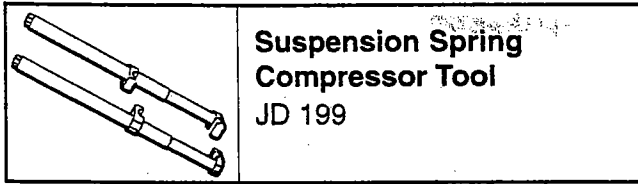
The type 14 HU final drive assembly is a hypoid unit with the pinion arranged on the centerline. It is mounted between the wide mounting bracket, pendulum assembly and the wishbone tie assembly. Two additional tie rods are installed between top rear of the final drive casing and the front of the wide mounting bracket.

The final drive is a 'filled for life' unit using a thermally stable lubricant. It incorporates a cassette type pinion oil seal and sealed output shaft bearings.

REMOVAL AND INSTALLATION

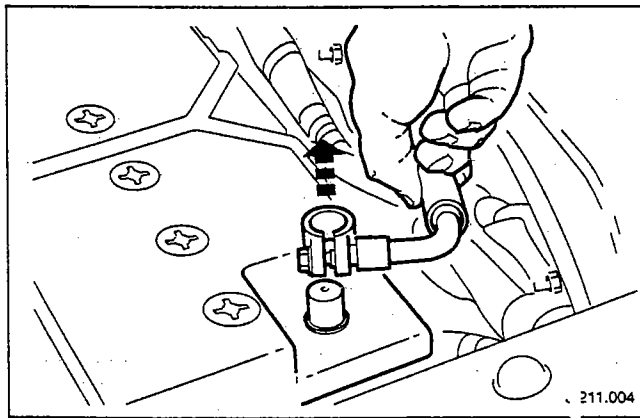
Final Drive Unit (51.25.13)

Special Tool(s)



D.WST.085

Removal

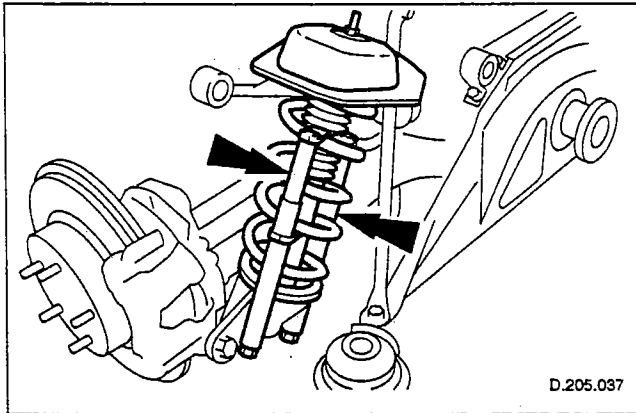


211.004

1. Remove the battery cover.
2. Disconnect the battery ground cable.

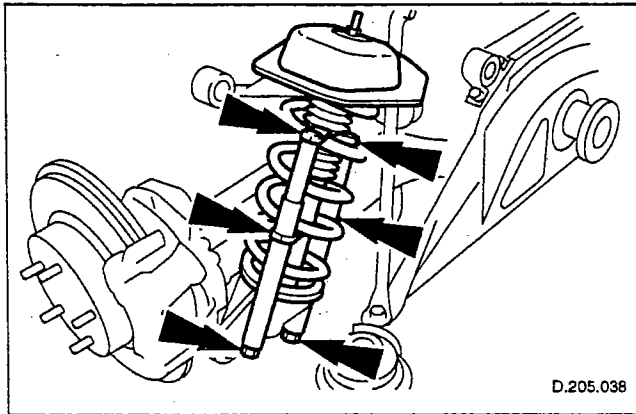
3. Raise and support the vehicle; refer to Section 100-02.
4. Remove the two rear wheel and tire assemblies; refer to Section 204-04.
5. Remove the rear suspension; refer to Section 204-02.
6. Using a suitable hoist, place the assembly onto a suitable bench.

CAUTION: Do not lift the assembly by the driveshafts alone as this may cause damage to the wishbones.

REMOVAL AND INSTALLATION (Continued)

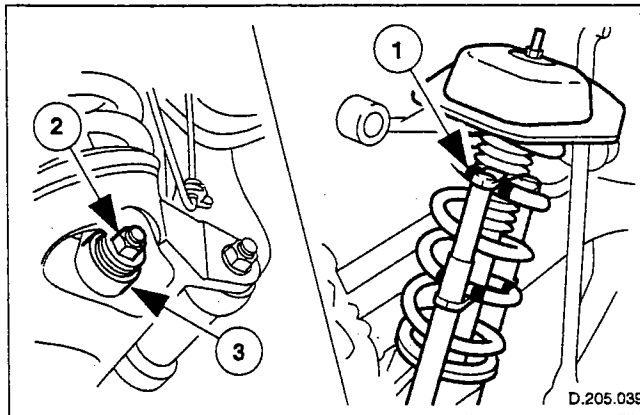
D.205.037

7. Install and align spring compressor special tool JD 199 to right hand suspension spring.



D.205.038

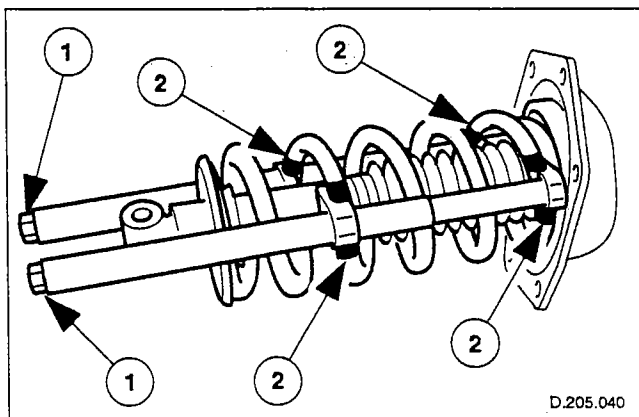
8. Tighten the tool center bolt to compress the spring, ensuring that the tool jaws are seated correctly on the spring.



D.205.039

9. Remove the damper assembly.

- 1 Use tape to mark the tool position on the spring.
- 2 Unscrew and remove the damper lower shaft securing nut and bolt.
- 3 Remove the damper assembly.



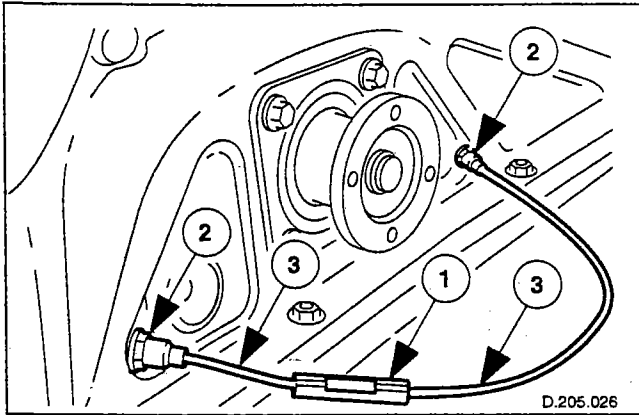
D.205.040

10. Remove the spring and special tool assembly and place on a bench.

- 1 Slacken the compressor tools evenly until all the spring pressure is released.
- 2 Remove the tools from the spring.

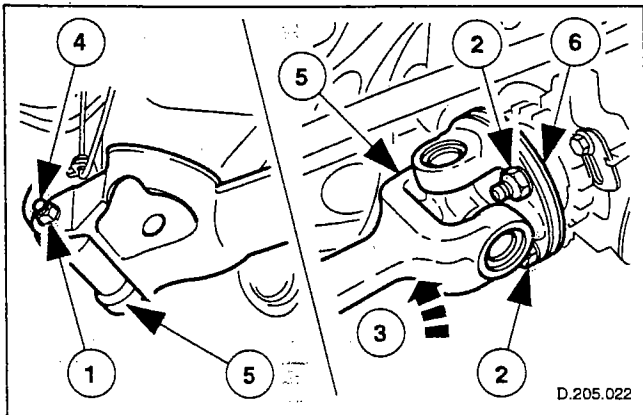
REMOVAL AND INSTALLATION (Continued)

11. Install and align the special tool JD 199 to the left hand spring.
12. Repeat the damper and spring removal procedure as for the right hand spring.



13. Position the handbrake cable through the front frame.

- 1 Disconnect the cable in-line connector.
- 2 Remove the handbrake outer cable to front frame securing clip.
- 3 Reposition the handbrake cable through the front frame.



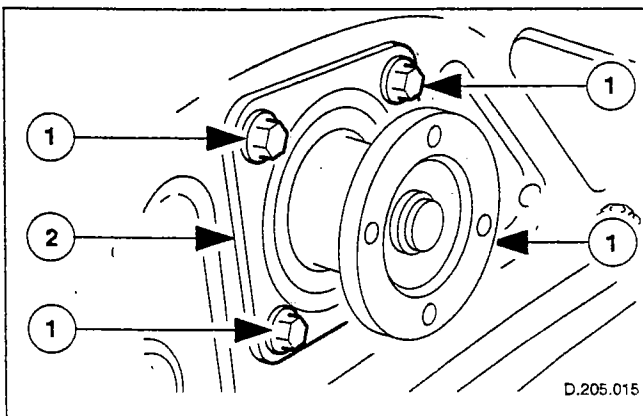
14. Remove the left hand hub/axle-shaft assembly and camber adjustment spacer.

- 1 Remove the left hand hub lower fulcrum shaft securing nut.
- 2 Remove the axle-shaft to output shaft securing nuts.
- 3 Turn the axle-shaft for access.
- 4 Support the axle-shaft assembly and remove the hub fulcrum shaft.
- 5 Remove the hub/axle-shaft assembly.
- 6 Withdraw the camber adjustment spacer.

15. Remove the right hand hub/axle-shaft assembly using the removal procedure as for the left hand assembly.

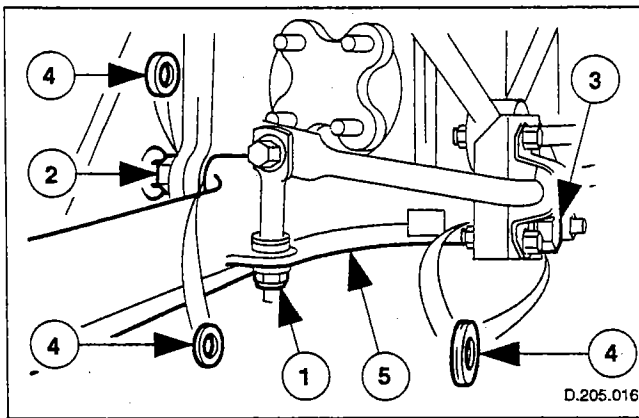
16. Remove the final drive nose plate.

- 1 Unscrew and remove the final drive nose plate securing bolts.
- 2 Remove the final drive nose plate.



17. Position the axle assembly on its left hand side and support it on wooden blocks.

REMOVAL AND INSTALLATION (Continued)

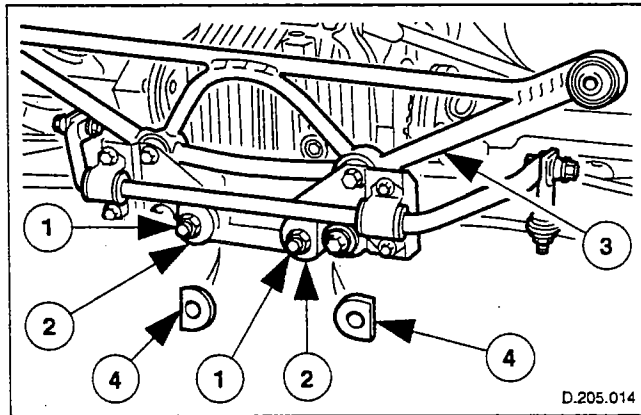


18. Remove the left hand inner pivot shaft and wishbone.

- 1 Remove the stabilizer bar link from the lower wishbone.
- 2 Unscrew and remove the wishbone inner pivot shaft securing nut.
- 3 Remove the inner pivot shaft.
- 4 Recover the front spacer and rear washers.
- 5 Remove the wishbone.

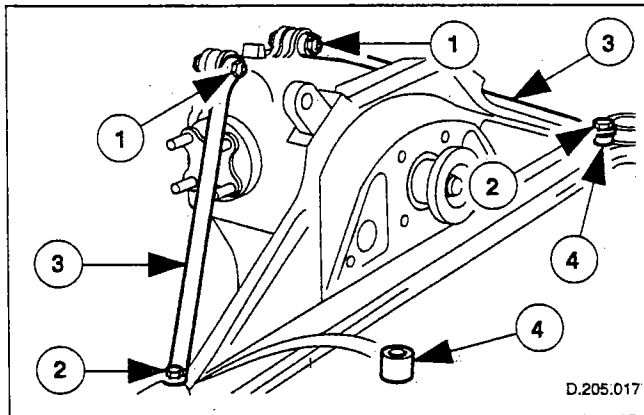
19. Remove the right hand inner pivot shaft and wishbone using the same procedure as for the left hand wishbone.

20. Remove the wishbone tie assembly.



- 1 Unscrew the wishbone tie to final drive securing nuts.
- 2 Remove the washers.
- 3 Remove the wishbone tie assembly.
- 4 Remove the washers.

21. Remove the tie rods.

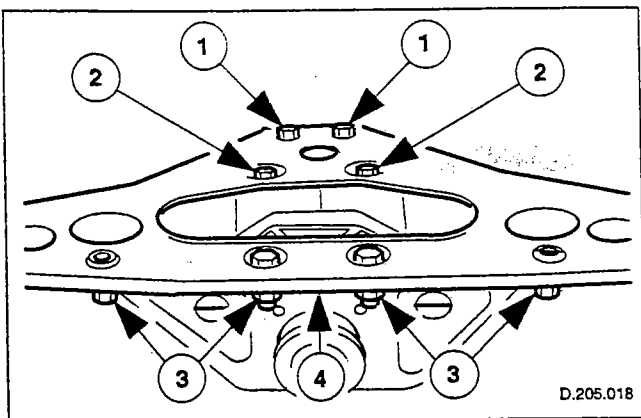


- 1 Unscrew and remove the tie rod to final drive nuts and bolts.
- 2 Unscrew and remove the tie rods to wide mounting bracket securing bolts.
- 3 Remove the tie rods.
- 4 Recover the wide mounting bracket spacers.

22. Obtain assistance to position the assembly on the bench to access the 'A' frame to final drive securing bolts.

23. Position suitable cloth to absorb any oil that may leak from the breather.

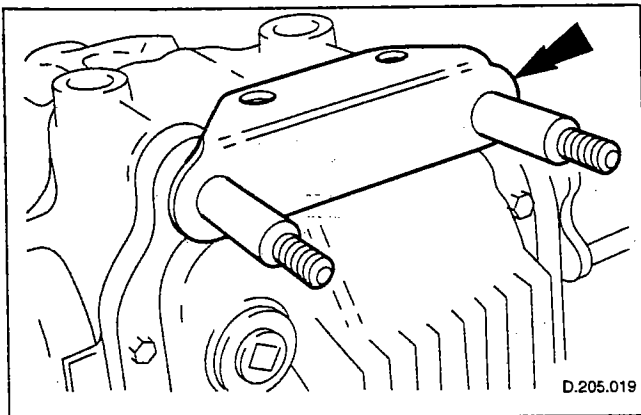
REMOVAL AND INSTALLATION



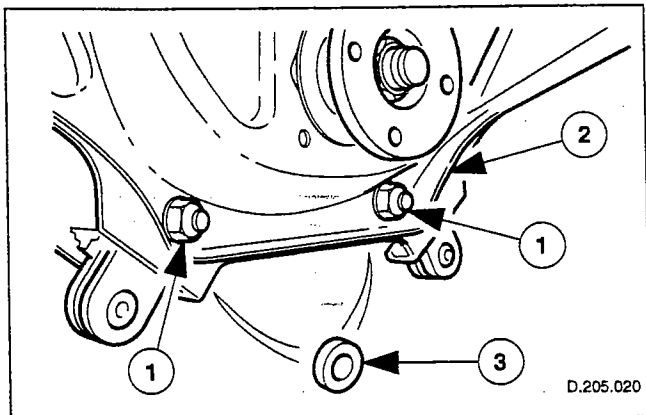
24. Remove the 'A' frame assembly.

- 1 Remove the 'A' frame to rear mounting bracket bolts and washers..
- 2 Remove the 'A' frame to final drive nuts bolts and washers.
- 3 Remove the 'A' frame to wide mounting bracket bolt and washers.
- 4 Remove the 'A' frame assembly.

25. Remove the 'A' frame rear mounting bracket.

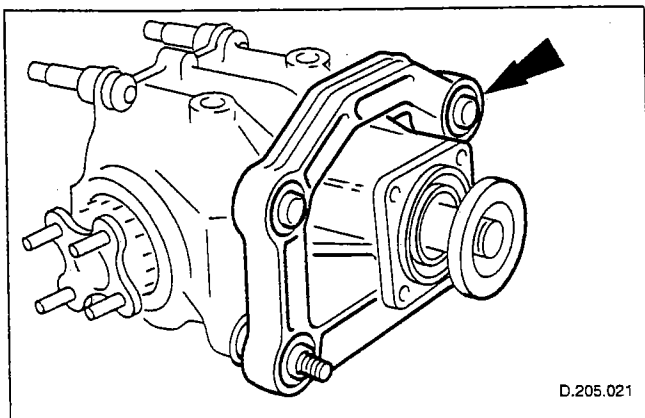


26. Remove the wide mounting bracket assembly.



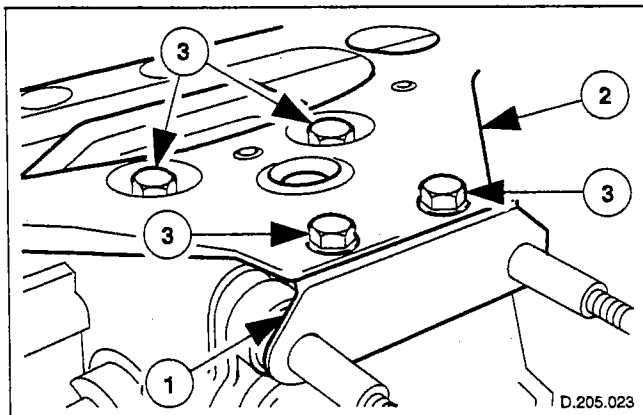
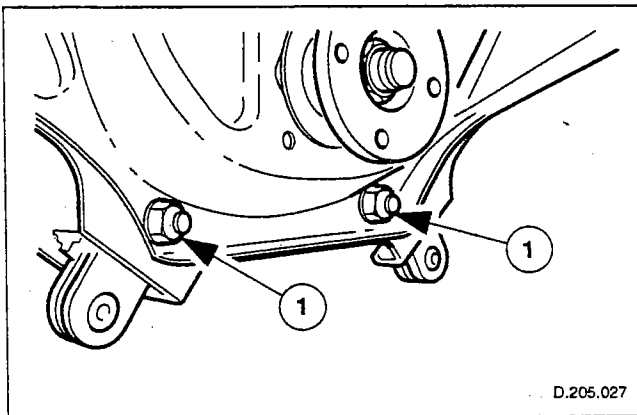
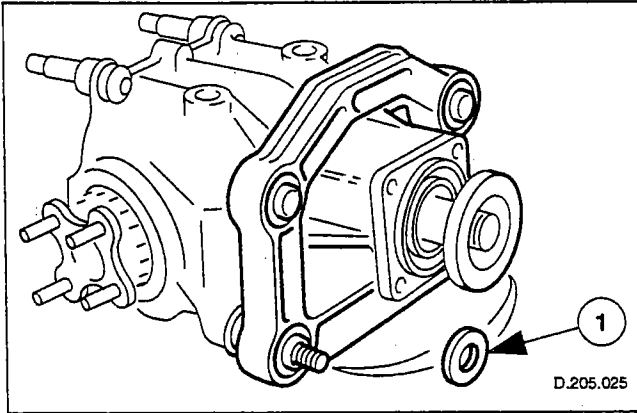
- 1 Unscrew and remove wide mounting bracket/pendulum assembly to final drive securing nuts.
- 2 Remove the wide mounting bracket assembly.
- 3 Remove the washers.

27. Remove the pendulum assembly.



REMOVAL AND INSTALLATION

Installation



28. Remove the cloth from the bench.

29. Clean all components

30. Install and fully seat the pendulum assembly to the final drive.

1 Install and align the washers.

31. Install and fully seat the wide mounting bracket to the final drive.

1 Install, but do not fully tighten, the wide mounting bracket/pendulum to final drive securing nuts.

32. Position the final drive on the bench for access to the 'A' frame securing bolt holes.

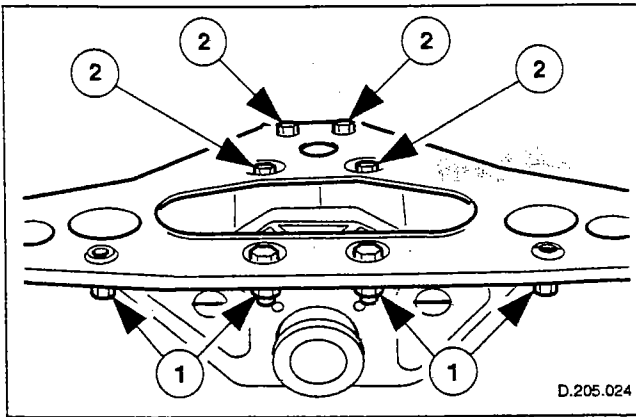
33. Install and align the 'A' frame rear bracket and 'A' frame assembly.

1 Install and align the 'A' frame rear bracket.

2 Install and align the 'A' frame assembly.

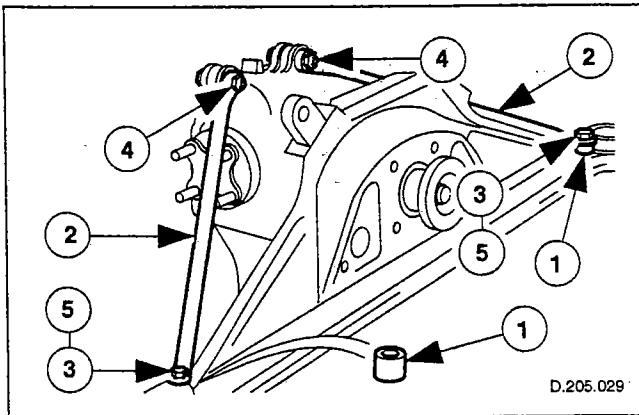
3 Install, but do not fully tighten, the 'A' frame to final drive securing nuts bolts and washers.

REMOVAL AND INSTALLATION (Continued)



34. Install and tighten the 'A' frame to wide mounting bracket securing bolts.

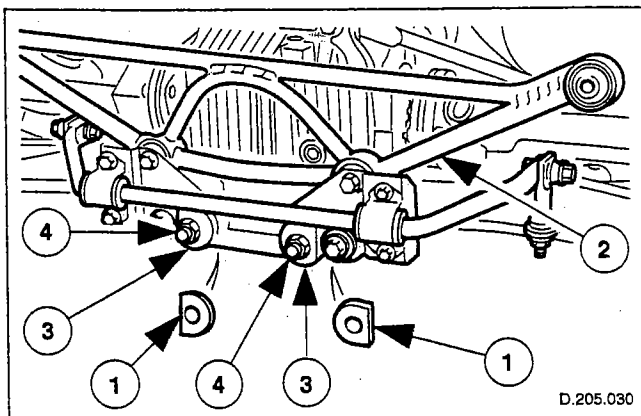
- 1 Install and tighten the 'A' frame to wide mounting bracket securing bolts.
- 2 Tighten to specification the previously installed 'A' frame to final drive securing bolts.



35. Tighten the previously installed wide mounting bracket/pendulum securing nuts.

36. Install the tie rods.

- 1 Install and align the tie rod to wide mounting bracket spacers.
- 2 Install and align the tie rods.
- 3 Install, but do not fully tighten, the tie rod to wide mounting bracket securing bolts.
- 4 Install and tighten the tie rod to final drive securing nuts and bolts.
- 5 Tighten to specification the previously installed wide mounting bracket securing bolts.

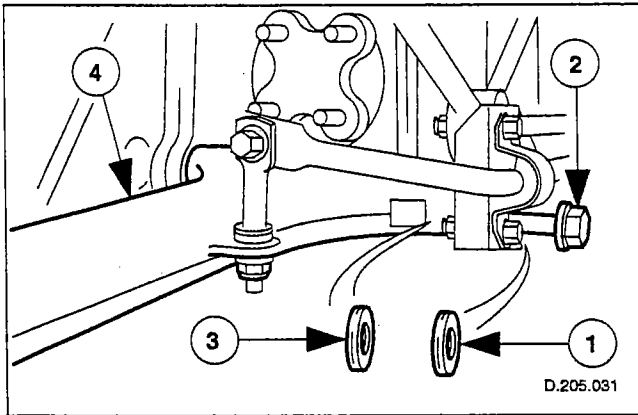


37. Install and align the rear wishbone tie assembly.

CAUTION: Ensure that the flats of the wishbone tie inner and outer washers face the wishbone pivot.

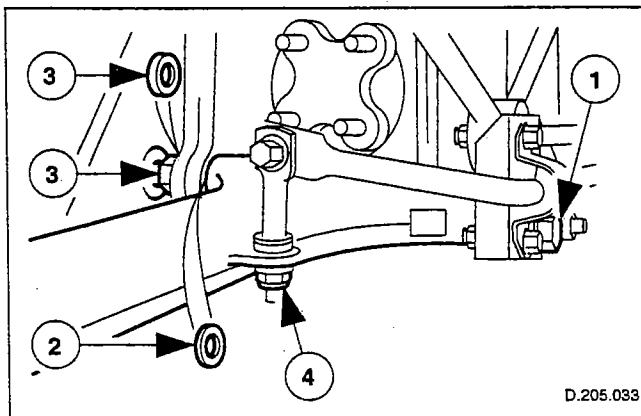
- 1 Install and align the the rear wishbone tie assembly inner washers to the final drive.
- 2 Install and align the the rear wishbone tie assembly.
- 3 Install and align the wishbone tie assembly outer washers.
- 4 Install and tighten the wishbone tie assembly securing nuts.

REMOVAL AND INSTALLATION (Continued)



38. Install and align the left hand rear wishbone.

- 1 Install and align the pivot rear washer with the nylon face to the bush.
- 2 Install the pivot shaft through the washer into the rear bush.
- 3 Install and align the pivot inner washer with the nylon face to the rear bush.
- 4 Install the shaft through the washer and into the rear wishbone.



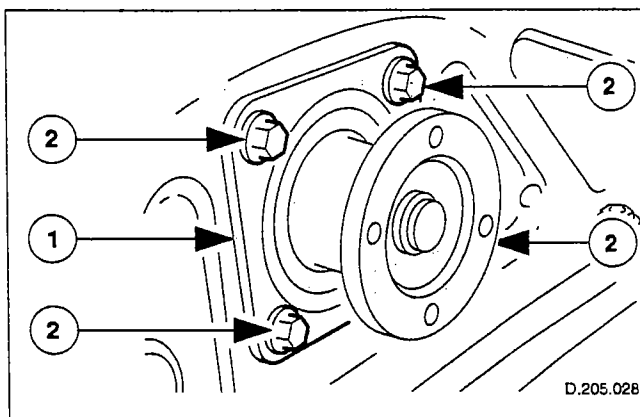
39. Install and align the front spacing washer.

- 1 Fully seat the pivot shaft.
- 2 Install the spacer.
- 3 Install the securing nut and washer and tighten to specification.
- 4 Install the stabilizer bar link to the lower wishbone.

40. Install the right hand rear wishbone as for the left hand wishbone above.

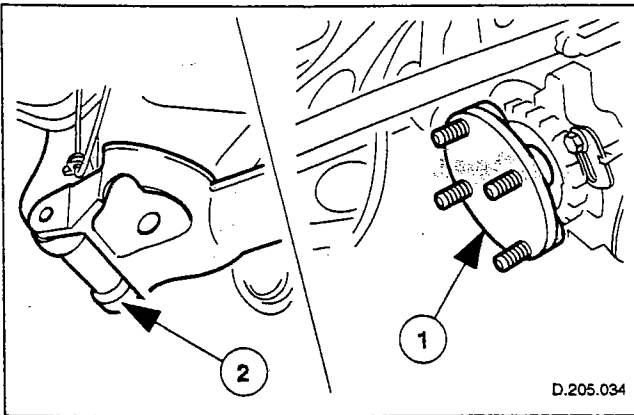
41. Reposition and install the left hand brake cable through the wide mounting bracket and fully seat to the securing clip.

42. Install the final drive nose plate.



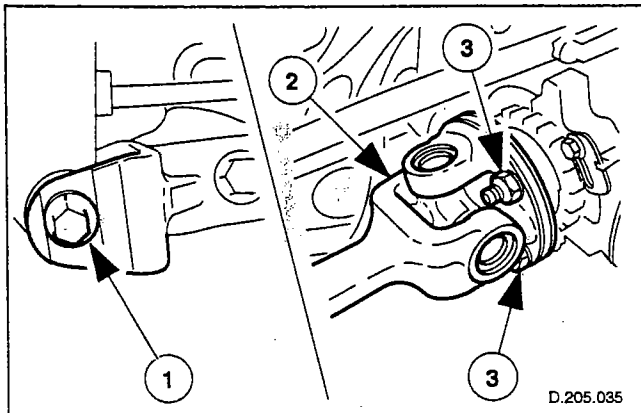
- 1 Install and align the final drive nose plate.
- 2 Install and tighten the securing bolts.

REMOVAL AND INSTALLATION (Continued)



43. Install the left hand hub/axle-shaft assembly.

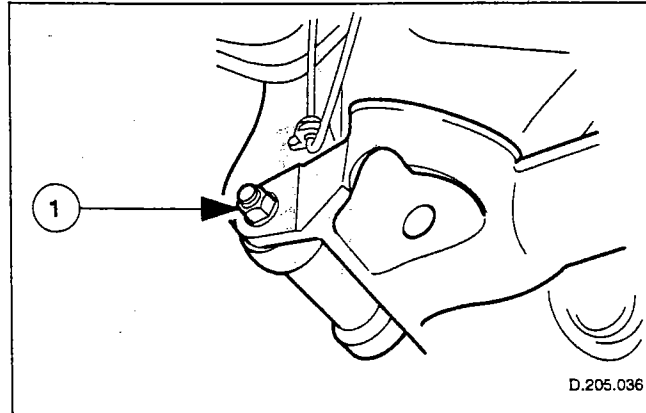
- 1 Install and align the camber shim.
- 2 Install and align the hub/axle-shaft assembly to the wishbone.



44. Install the hub fulcrum shaft.

NOTE: Ensure that the hub fulcrum bearings remain in position.

- 1 Install and fully seat the hub fulcrum shaft.
- 2 Position and install the axle-shaft to output shaft.
- 3 Install and tighten the axle-shaft securing nuts.



45. Align the arrow on the fulcrum bolt head with the milled slot in the wishbone.

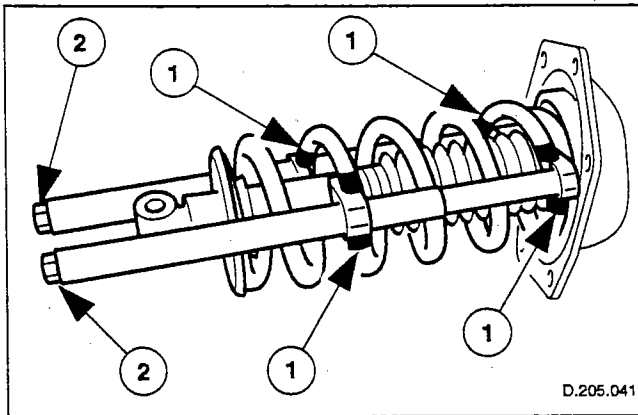
- 1 Install and tighten the fulcrum bolt securing nut.

46. Install the right hand hub/axle-shaft assembly to the wishbone as for the left hand assembly.

47. Install the right hand hub fulcrum bolt and align the arrow with the milled slot in the wishbone as for the left hand bolt.

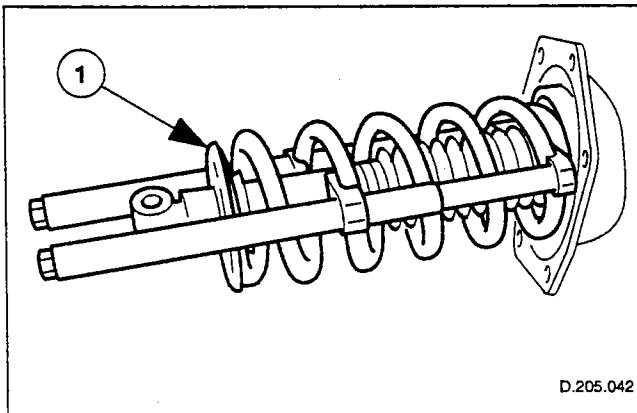
48. Install the right hand hand brake cable as for the left hand cable.

REMOVAL AND INSTALLATION (Continued)



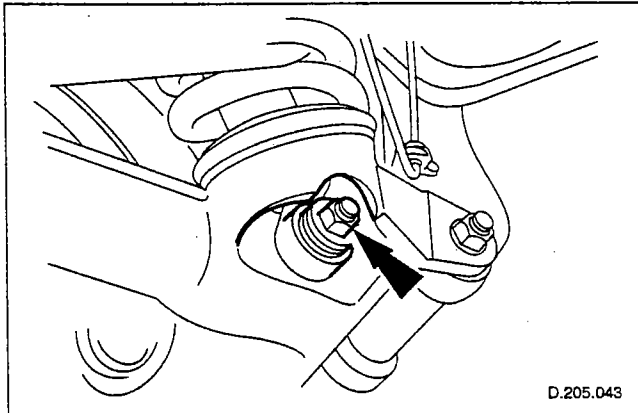
49. Install and align special tool JD 199 to the right hand spring.

- 1 Position the tools on the spring using the tape previously installed as a position marker.
- 2 Tighten the tool center bolts evenly to compress the spring.

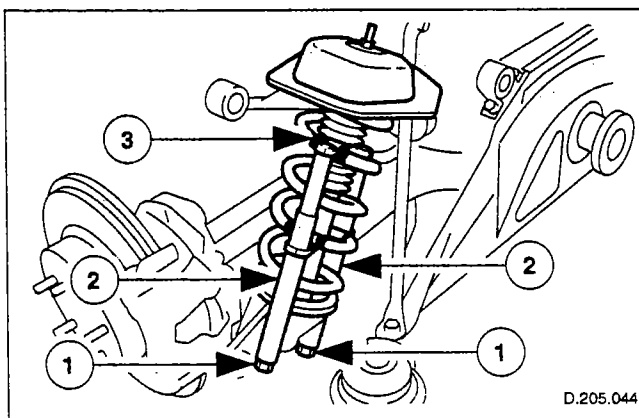


50. Align the spring/compressor tool assembly to the right hand wishbone.

- 1 Install and align the damper/spring seat/micron bush to the spring, ensuring that the spring seat is fully seated on the spring.



51. Install and fully seat the damper pivot bolt but do not fully tighten the securing nut.

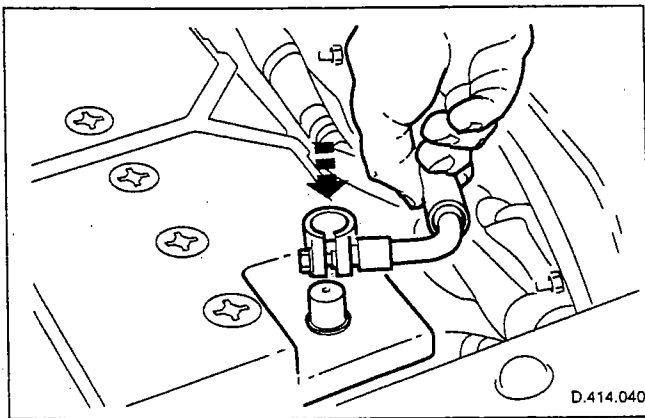


52. Remove the compressor tools.

- 1 Slacken the compressor tool bolts evenly to seat the spring.
- 2 Remove the compressor tools.
- 3 Remove the tape from the spring.

REMOVAL AND INSTALLATION (Continued)

53. Install the left hand suspension spring as for the right hand spring.
54. Tighten the damper pivot bolt securing nuts to specification.
55. Remove the final drive oil filler plug and fill the unit with the correct quantity recommended oil. Install the oil filler plug.
56. Use a suitable hoist to remove the assembly from the bench and position on a suitable jack below the vehicle.
57. Install the suspension/final drive assembly; refer to Section 204-02.
58. Install the two rear wheel and tire assemblies; refer to Section 204-04.
59. Lower the vehicle; refer to Section 100-02.
60. Reconnect the battery ground cable.



61. Install the battery cover.
62. Check and adjust the rear wheel alignment; refer to Section 204-02.

SECTION 414-00 Electrical Power Supply System

SUBJECT	PAGE
DESCRIPTION AND OPERATION	
Electrical Power Supply System – Introduction	414-00-2

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DESCRIPTION AND OPERATION**Steering – Electrical Power Supply System**

Details of the Electrical Power Supply System can be found in Sections 414-01 and 414-02 of this manual, and also the Diagnostic and Test Manual.

SECTION 414-01 Battery, Mounting and Cables

VEHICLE APPLICATION: X100

SUBJECT	PAGE
SPECIFICATIONS	
Torques	NO TAG
DESCRIPTION AND OPERATION	
Battery	414-01-3
DIAGNOSIS AND TESTING	
Refer to the Diagnostic and Test Manual	
REMOVAL AND INSTALLATION	
Battery	414-01-4
Battery Negative Lead	414-01-5
Battery Positive Lead	414-01-5
Battery Hold-Down Clamp	414-01-6
Battery Reconnection Procedure	414-01-7

SPECIFICATIONS

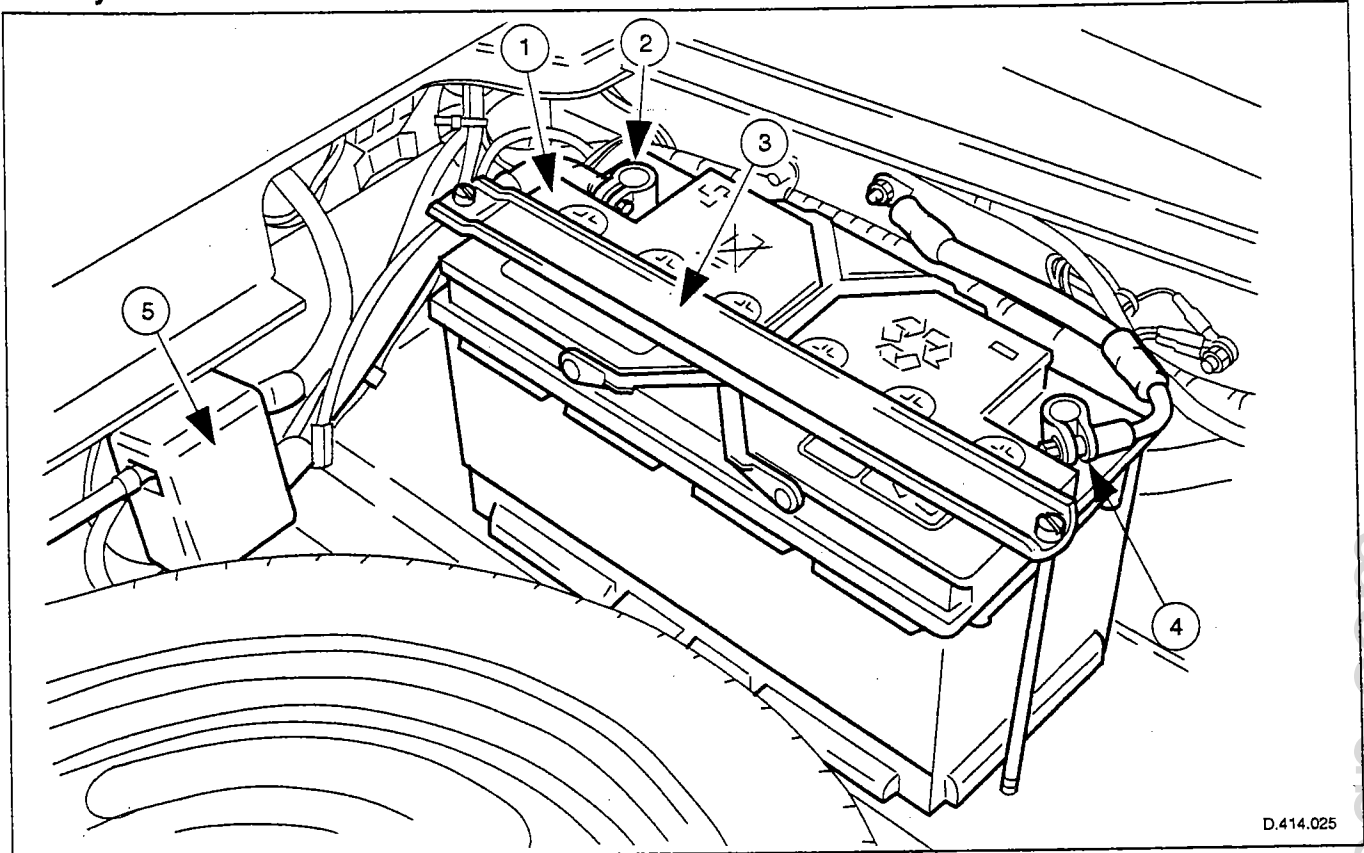
Torques

	Nm

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DESCRIPTION AND OPERATION

Battery



Item	Description
1	Battery
2	Positive Lead
3	Battery Hold-Down Clamp
4	Negative (Ground) Lead
5	High Power Protection Module (Fuses)

A low maintenance battery is located in the right hand side, on the luggage compartment floor.

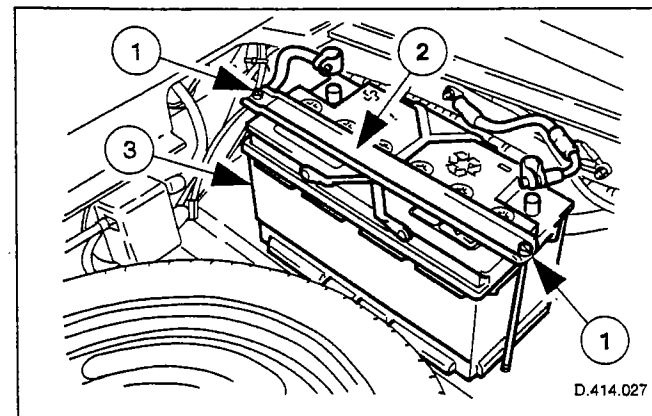
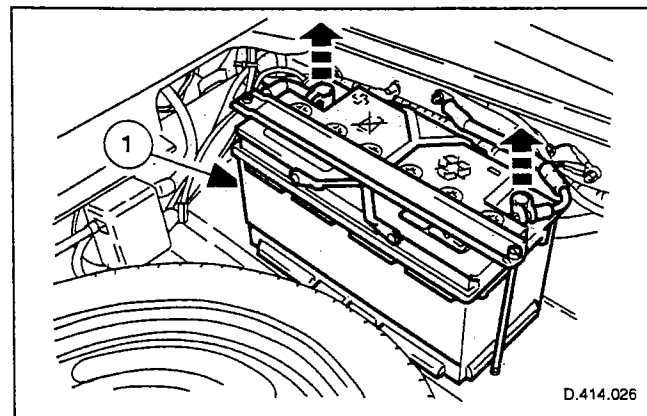
The negative (Ground) lead is connected to the vehicle body. The positive lead is connected to a high power protection module; from here power is connected to the starter motor and distributed to other systems on the vehicle.

The high power protection module comprises three fuses, each of 250A capacity. Two fuses are connected in parallel to provide protection for the starter circuit. The third one provides high level protection for fusebox supply circuits .

REMOVAL AND INSTALLATION

Battery (86.15.01)

Removal



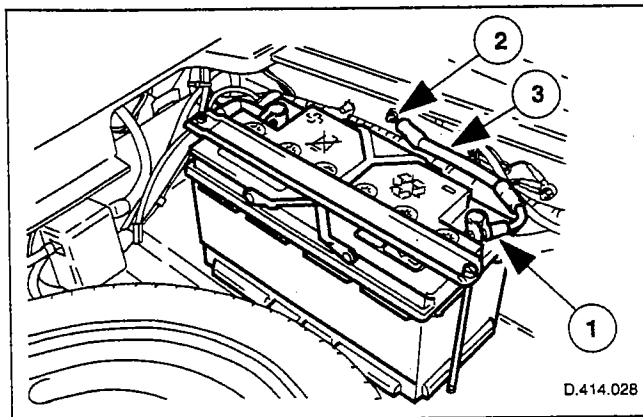
1. Open the driver's door, or both doors if necessary, to allow the side windows to drop. Ensure that the doors remain open until after the battery has been disconnected.
2. Remove the luggage compartment floor panel (when standard size spare wheel is supplied) and the cover from the battery.
3. Disconnect the battery cables.
 - Disconnect the ground cable.
 - Disconnect the positive cable.
 - 1 Disconnect the vent pipe.

4. Remove the battery.

- 1 Remove the two bolts which secure the battery clamp.
- 2 Remove the clamp.
- 3 Remove the battery.

Installation

5. Installation is the reverse of removal.
6. Perform the Battery Reconnection Procedure described in this section.

REMOVAL AND INSTALLATION (Continued)**Battery Negative Lead (86.15.19)****Removal**

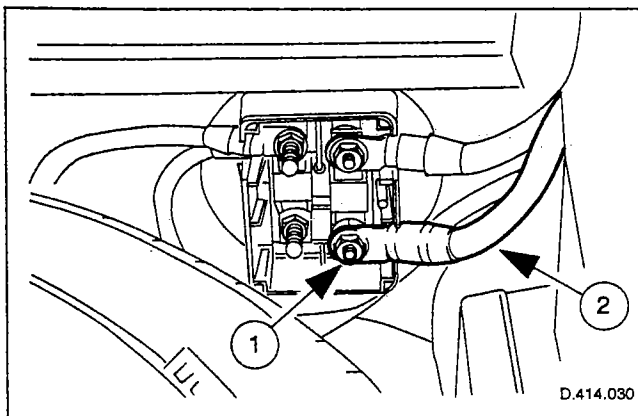
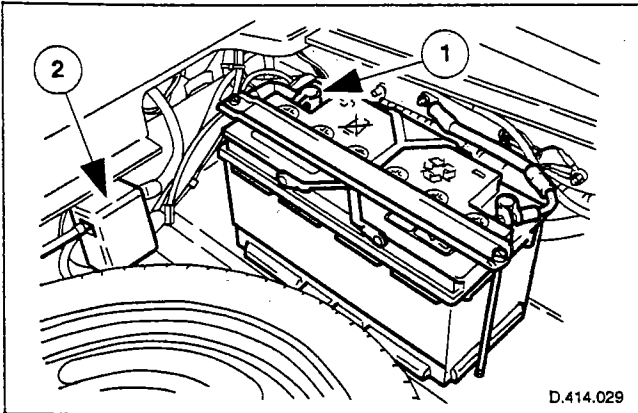
1. Open the driver's door, or both doors if necessary, to allow the side windows to drop. Ensure that the doors remain open until after the battery has been disconnected.
 2. Remove the luggage compartment floor panel (when standard size spare wheel is supplied) and the battery cover.
 3. Remove the negative lead.
- Reposition the front edge of the side trim for access to the ground stud.
 - 1 Slacken the clamp of the negative lead at the battery terminal. Disconnect the negative lead from the battery terminal.
 - 2 Remove the nut from the ground stud.
 - 3 Remove the negative lead.

Installation

4. Installation is the reverse of removal.
5. Perform the Battery Reconnection Procedure described in this section.

Battery Positive Lead (86.15.17)**Removal**

1. Open the driver's door, or both doors if necessary, to allow the side windows to drop. Ensure that the doors remain open until after the battery has been disconnected.
2. Remove the luggage compartment floor panel (when standard size spare wheel is supplied) and the battery cover.

REMOVAL AND INSTALLATION (Continued)

3. Disconnect the positive lead.

- 1 Slacken the clamp of the positive lead at the battery terminal. Disconnect the positive lead from the battery terminal.
- 2 Remove the cover from the high power protection module for access to the positive supply stud.

4. Remove the positive lead.

- 1 Remove the nut from the positive supply stud.
- 2 Remove the positive lead.

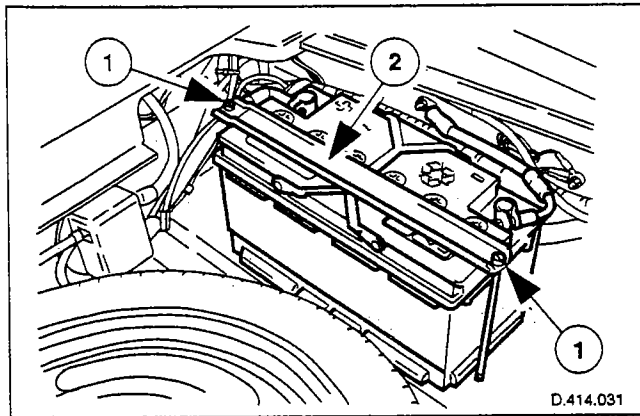
Installation

5. Installation is the reverse of removal.
6. Perform the Battery Reconnection Procedure described in this section.

Battery Hold-Down Clamp**Removal**

1. Open the driver's door, or both doors if necessary, to allow the side windows to drop. Ensure that the doors remain open until after the battery has been disconnected.
2. Remove the luggage compartment floor panel (when standard size spare wheel is supplied) and the cover from the battery.
3. Disconnect the battery terminal ground cable.

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REMOVAL AND INSTALLATION (Continued)

4. Remove the battery hold-down clamp.

- 1 Remove the two bolts which secure the battery hold-down clamp.
- 2 Remove the hold-down clamp.

Installation

5. Installation is the reverse of removal.
6. Perform the Battery Reconnection Procedure described in this section.

Battery Reconnection Procedure (86.15.15)

1. Connect the battery terminal(s).
2. Cycle both windows up and down to establish the upper and lower datum points for correct automatic glass drop when the door(s) are opened:
 - Switch ON the ignition.
 - Lower the window fully (to the stop) and hold the switch in the 'DOWN' position for a further five seconds.
 - Raise the window fully (to the stop) and hold the switch in the 'UP' position for a further five seconds.
3. Reset the radio security code. If necessary, refer to the Sound System Handbook.
4. Reset the clock.
5. Switch OFF the ignition.

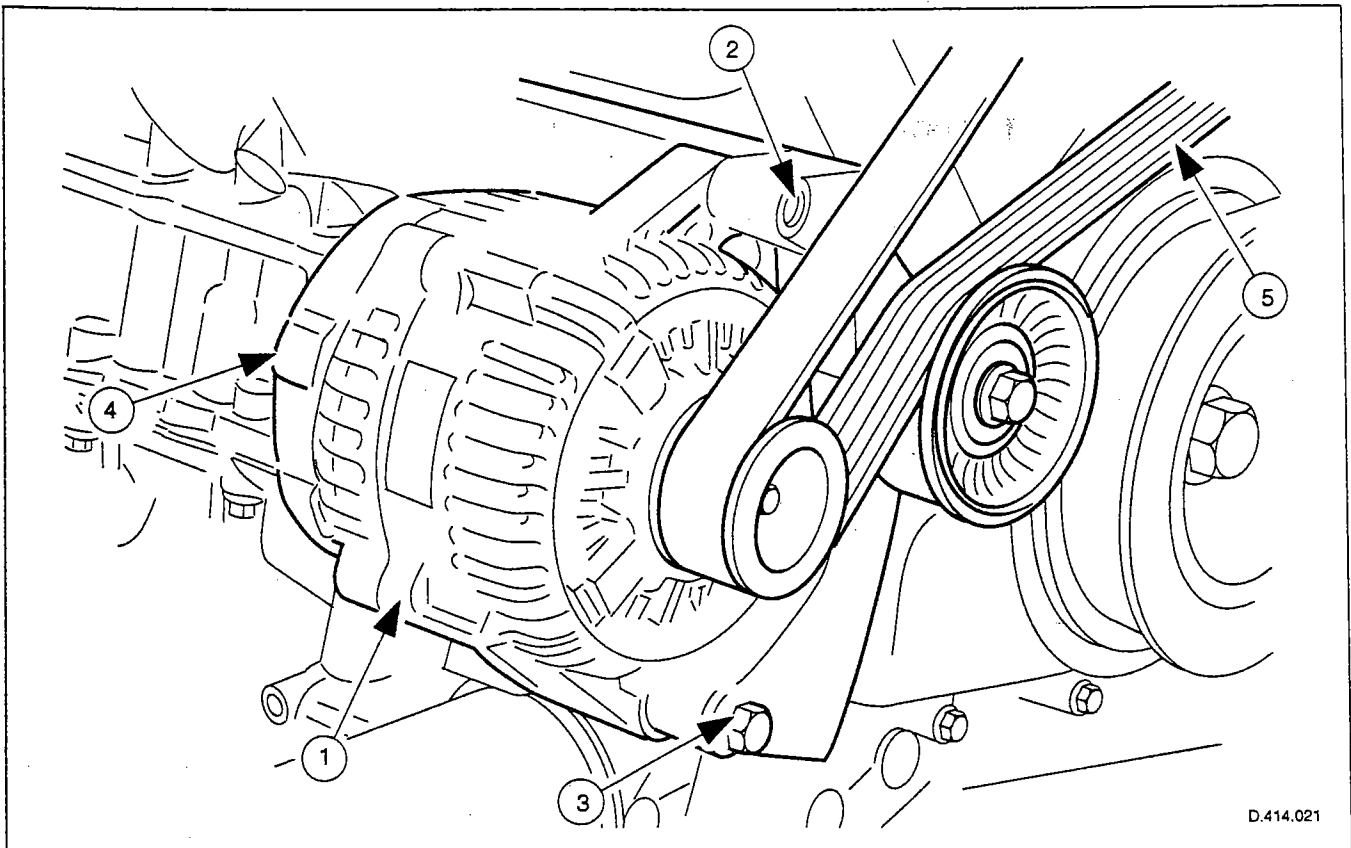
SECTION 414-02 Generator and Regulator

VEHICLE APPLICATION: X100

SUBJECT	PAGE
DESCRIPTION AND OPERATION	
Generator	414-02-2
Drive Belt Automatic Tensioner	414-02-3
Suppression Module	414-02-4
DIAGNOSIS AND TESTING	
Refer to the Diagnostic and Test Manual	
REMOVAL AND INSTALLATION	
Generator	414-02-5
Suppression Module	414-02-9

DESCRIPTION AND OPERATION

Generator



Item	Description
1	Generator
2	Upper Mounting Bolt
3	Lower Mounting Bolt
4	Voltage Regulator - Internal
5	Multi-Ribbed Drive Belt

The voltage regulator is integral with the generator body. Battery charging capability has been optimised for charging a battery which is located remotely, in the luggage compartment. The design of the generator and regulator has been finely matched, to generate charging current with very low ripple. This provides the best electrical refinement to the system.

To help to maintain the voltage regulator and diode pack at their optimum temperature, an air duct is fitted to provide ambient air into and through the generator, from the rear. The duct picks up air from below the front of the vehicle. The ducting comprises two sections; the front section is only a flat flanged plate to prevent hot air from the rear of the radiator from being collected by the rear section of the ducting.

The generator is driven by a single, multi-ribbed belt which also drives all other front-end accessories.

No special service tools are required to remove the generator from the vehicle.

Manufacturer – NipponDenso.

Type – L3B-HE.

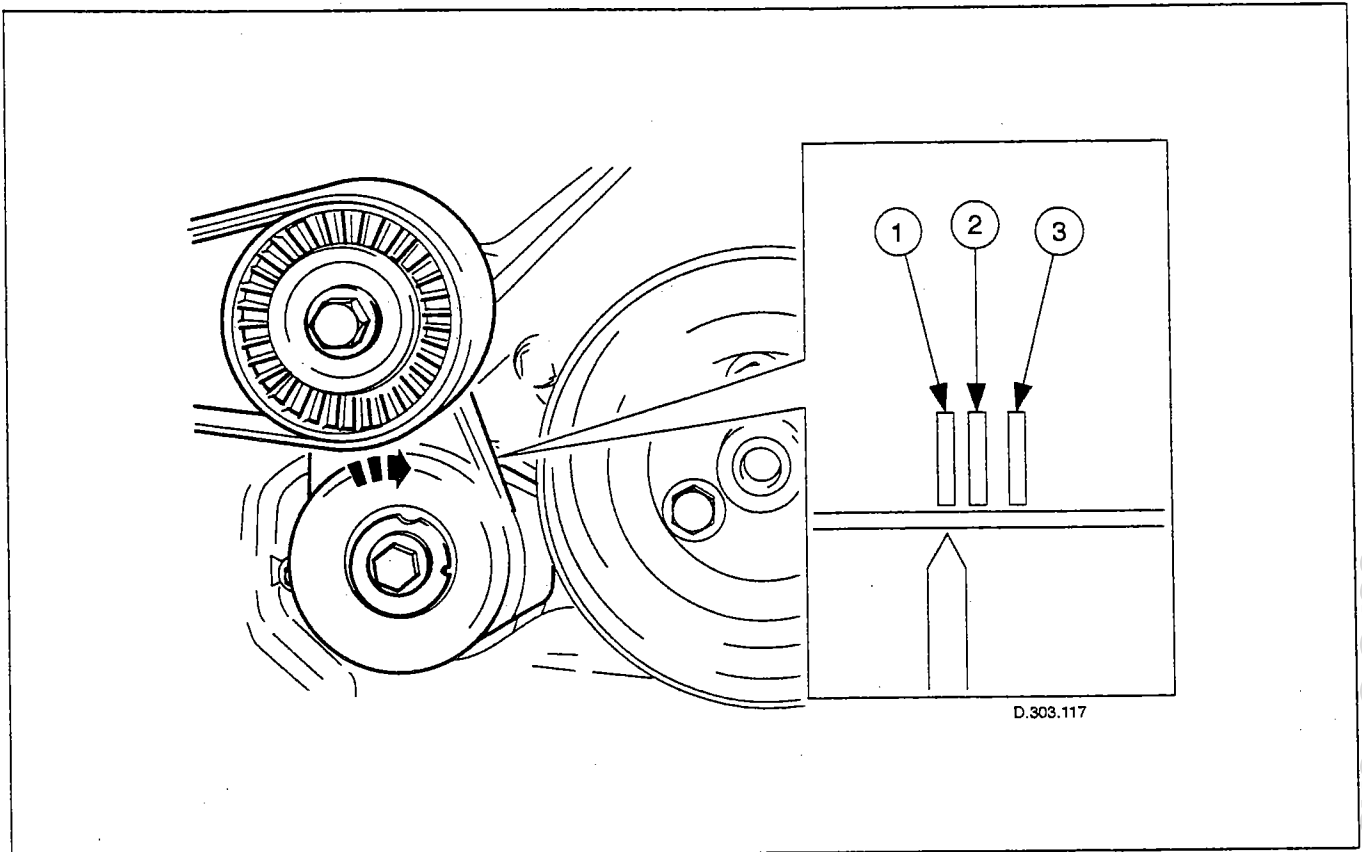
Drive Ratio – 3.04:1

Output – 120 Amps at 5000 RPM generator speed, at 25° C

The generator is fitted at the front right hand side of the engine, to a separate mounting bracket, which in turn is bolted to the cylinder block. Two bolts secure the generator to the mounting bracket; one is reached from above and one from below the vehicle.

DESCRIPTION AND OPERATION (Continued)

Drive Belt Automatic Tensioner



Item	Description
1	New Belt - Minimum Length
2	New Belt - Maximum Length
3	Replace the Belt

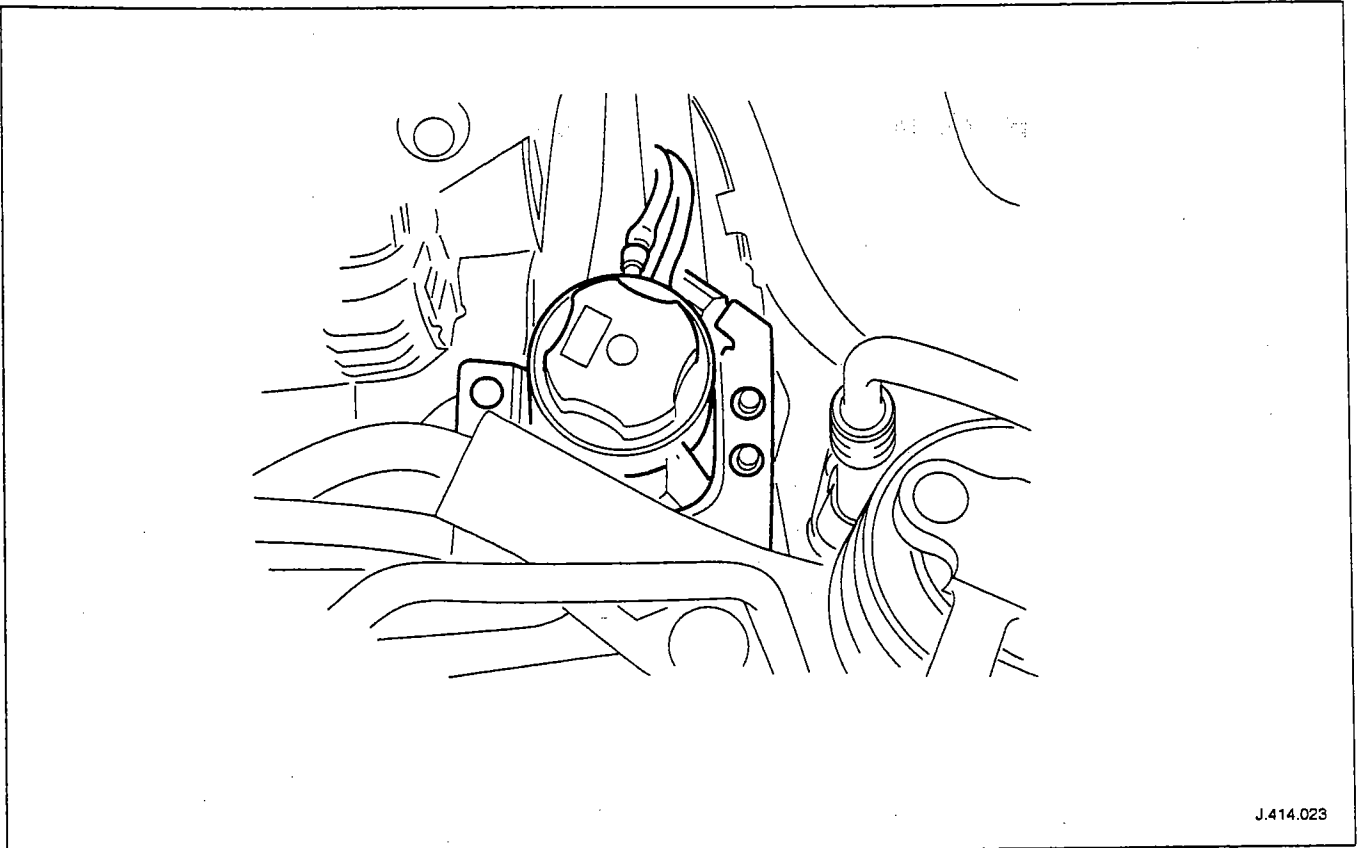
Belt tension is achieved by an automatic tensioner; neither the belt nor the tensioner require service apart from checking the belt wear indicators at each normal service interval.

The minimum service life of the drive belt is 100,000 miles.

Never apply oil to the belt or to the belt tensioner.

DESCRIPTION AND OPERATION (Continued)

Suppression Module



Although the output from the generator is finely controlled and relatively smooth, it is still a pulsed DC output at a varying frequency proportional to engine speed.

The suppression module damps out any ripple which may be sensed on the main output of the generator. This prevents possible interference via the power supply, affecting the radio reception or, where fitted, the telephone.

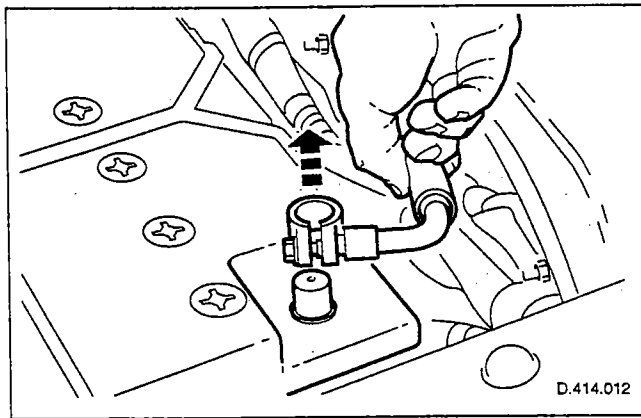
The module is located on the right hand side of the engine compartment adjacent to the generator. It is secured to a mounting bracket by three bolts. The mounting bracket is bolted to the inner panel, just above the chassis leg. The illustration shows the suppression module viewed from below the vehicle.

A fuse is fitted internally to the suppression module to protect the generator output in the event of a short circuit within the suppression module.

REMOVAL AND INSTALLATION

Generator (86.10.02)

Removal

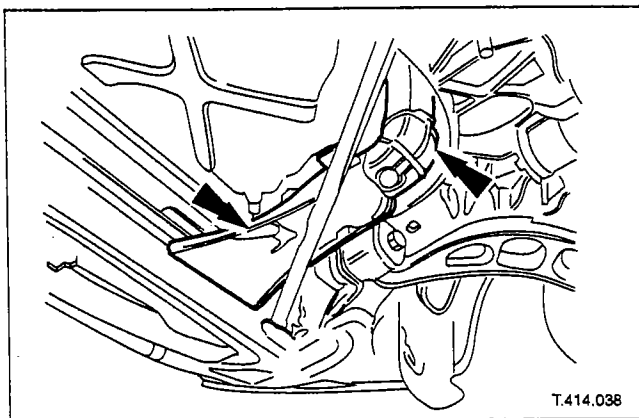


1. Open the driver's door, or both doors if necessary, to allow the side windows to drop. Ensure that the doors remain open until after the battery has been disconnected.
2. Disconnect the battery ground cable.
 - Remove the battery cover.

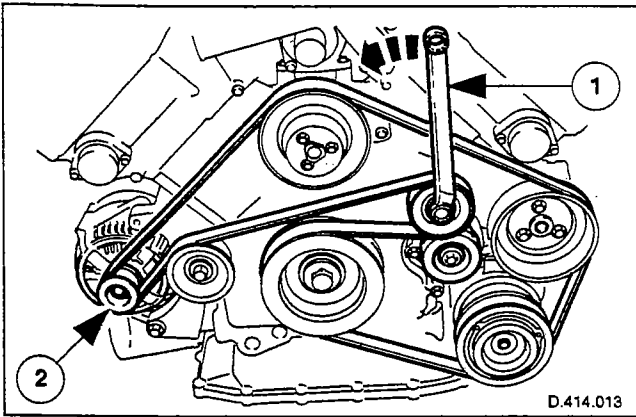
3. Remove the air cleaner assembly (including fit body paintwork protection sheets to the adjacent working area); refer to Section 303-12.
4. Remove the twin fan and motor assembly from behind the radiator; refer to Section 303-03.

- Check that the belt wear indicator is within the limit marks.
- Raise the vehicle on a ramp; refer to section 100-02

5. Remove the air intake ducting from the generator. The ducting comprises two sections; each is retained by two screws and a clip.



REMOVAL AND INSTALLATION (Continued)



6. Remove the drive belt from the generator and accessory drive,

- 1 Use a spanner e.g. Churchill JD-230 or Snap On XDHM 1415, on the centre bolt of the belt tensioner idler pulley, to turn the adjuster assembly to the left against spring tension.

- 2 Whilst holding the tensioner against spring tension, remove the drive belt from the generator pulley. Release the tensioner slowly and remove the spanner.

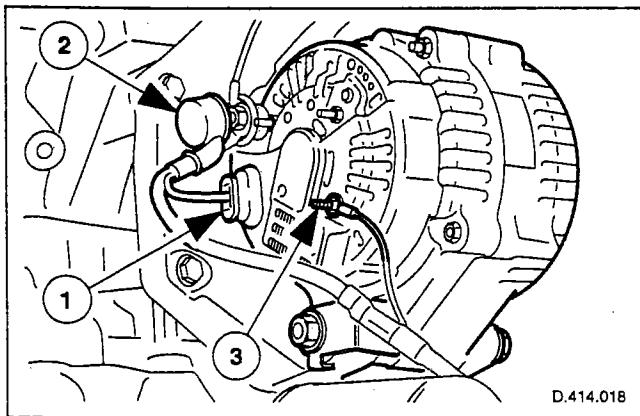
- Disconnect the belt from the other pulleys, as necessary, to move it clear of the generator.

7. Disconnect the generator harness.

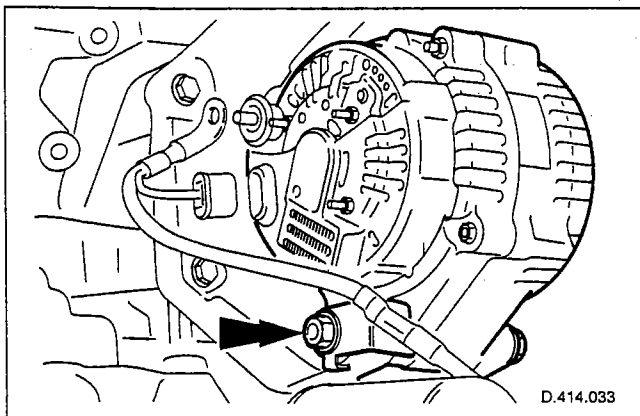
- 1 Disconnect the harness multi-plug.

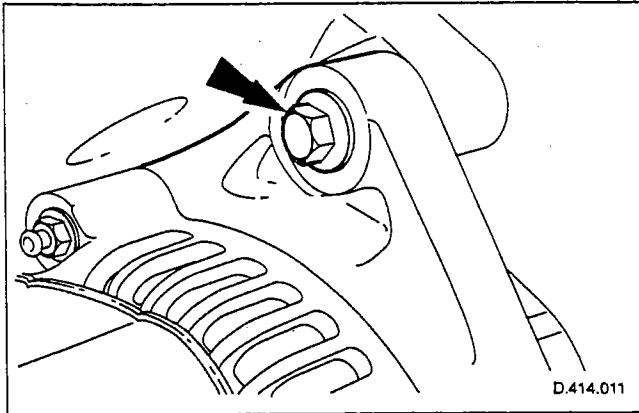
- 2 Remove the protective boot from the positive terminal, remove the terminal nut and disconnect the cable from the terminal. Disconnect the suppressor module positive cable from the positive terminal.

- 3 Remove the nut which secures the suppression module negative cable and disconnect the cable from the generator. Reposition the suppression module harness clear of the generator.

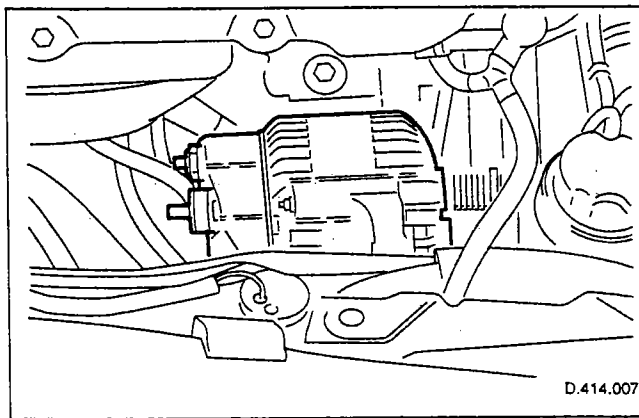


8. Remove the lower mounting bolt.

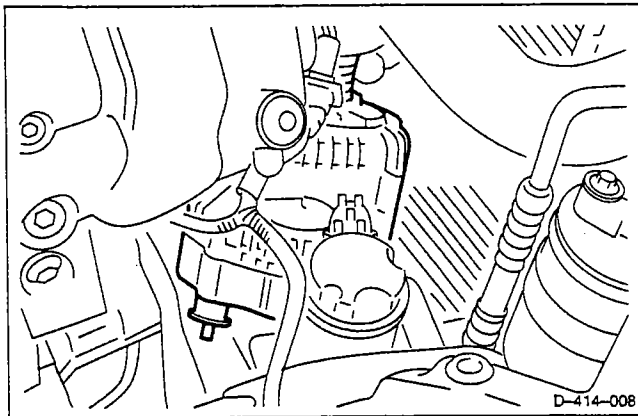


REMOVAL AND INSTALLATION (Continued)

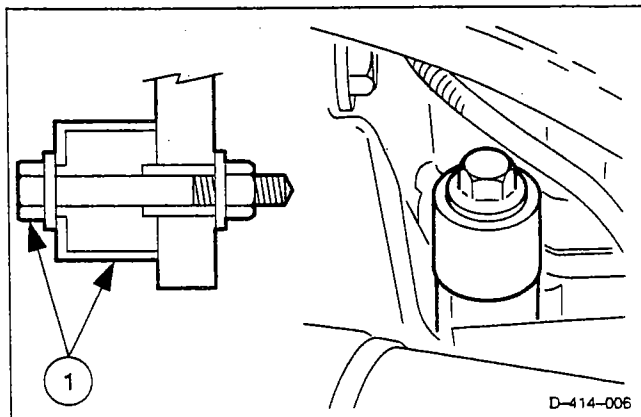
9. Remove the upper securing bolt and withdraw the generator from the mounting bracket.



10. Carefully, manoeuvre the generator forward towards the radiator.



11. Change the position of the generator and remove it upwards between the engine and the radiator.

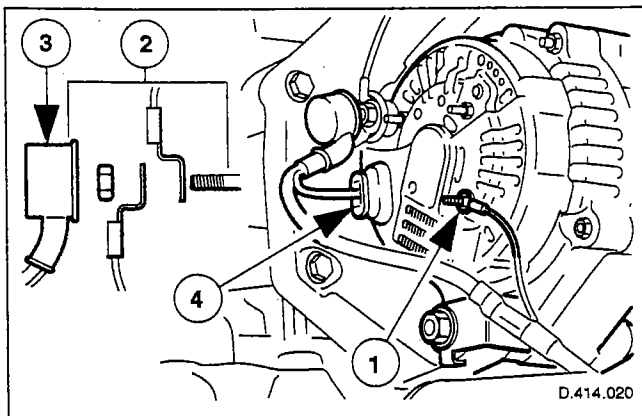
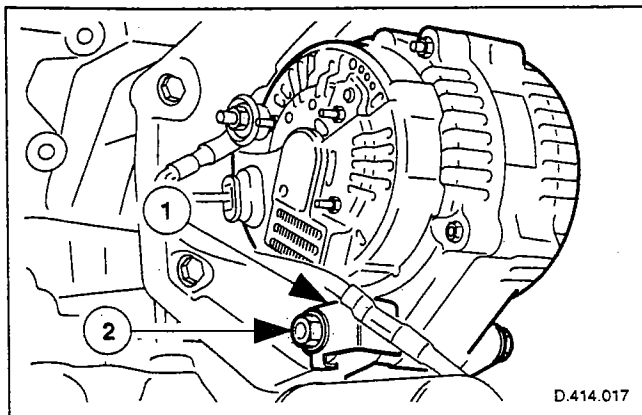
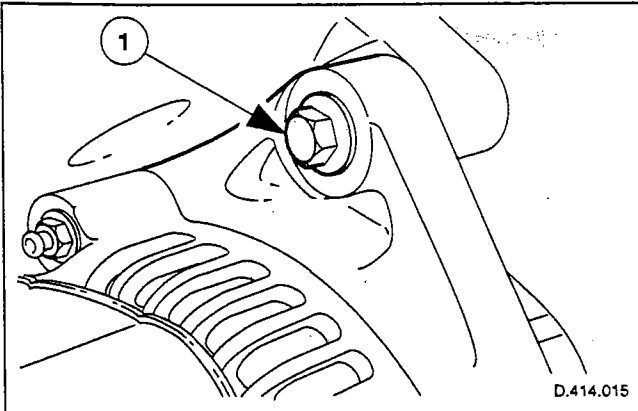


12. Move the spacing bush rearwards slightly in the generator mounting bracket, to ease fitting the new generator.

- 1 Position a suitable length bolt through the bush, fit a tubular spacer or socket spanner, fit a nut and tighten the assembly to move the bush slightly. Remove the nut, bolt and spacer.

REMOVAL AND INSTALLATION (Continued)

Installation



13. Fit the generator to the engine.

- 1 From above, position the generator and fit the upper mounting bolt and nut, but do not fully tighten.

14. Fit the generator lower mounting.

- 1 From below, reposition and align the harness mounting bracket to the generator lower mounting.
- 2 Fit the lower mounting bolt and nut.

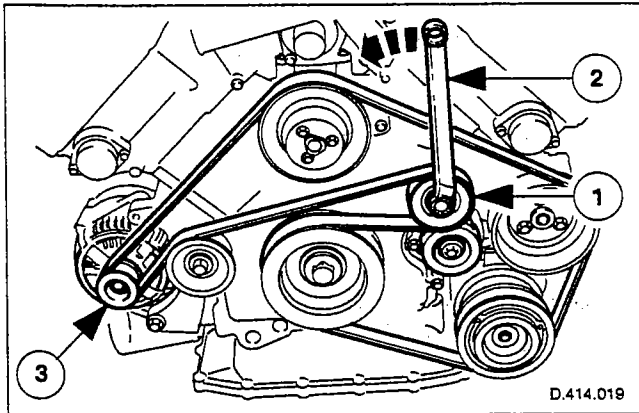
15. Connect the harness.

- 1 Reposition the suppression module harness and connect the negative cable to the generator negative terminal. Fit and tighten the terminal nut.
- 2 Connect the suppression module positive cable to the generator positive terminal. Connect the main positive cable to the generator terminal. Fit and tighten the terminal nut.
- 3 Reposition and fit the boot to the terminal.
- 4 Reconnect the generator harness multi-plug.

16. Lower the vehicle on the ramp; refer to section 100-02.

17. Fully tighten the generator upper mounting bolt.

REMOVAL AND INSTALLATION (Continued)



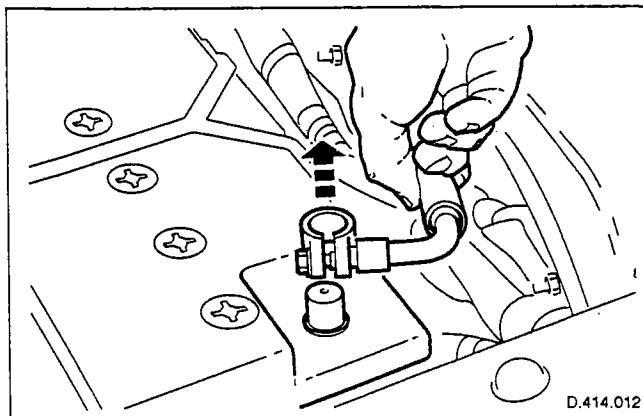
18. Refit the drive belt to the generator.

- 1 Pass the drive belt around the idler pulley.
- 2 Use a spanner e.g. Churchill JD-230 or Snap On XDHM 1415, on the centre bolt of the belt tensioner idler pulley, to turn the adjuster to the left against spring tension.
- 3 Whilst holding the tensioner against spring tension, pass the drive belt over the generator pulley and check that it is correctly located on the other pulleys. Release the tensioner slowly and remove the spanner. Check the alignment of the belt.

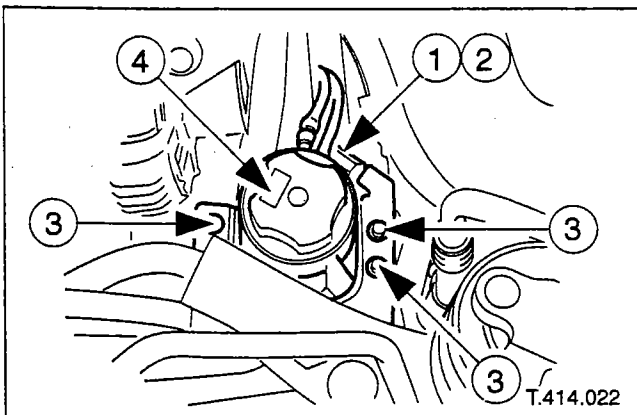
19. Refit the twin fan and motor assembly; refer to Section 303-03.
20. Refit the air cleaner assembly; refer to Section 303-12.
21. Connect the battery ground cable. Refit the battery cover.
22. Perform the Battery Reconnection Procedure; refer to Section 414-01.

Suppression Module (86.10.33)

Removal



1. Open the driver's door, or both doors if necessary, to allow the side windows to drop. Ensure that the doors remain open until after the battery has been disconnected.
2. Disconnect the battery ground cable.
 - Remove the battery cover.

REMOVAL AND INSTALLATION (Continued)

3. Raise the vehicle on a ramp.
4. Remove the suppression module.

- 1 Disconnect the multi-plug from the mounting bracket clip.
- 2 Disconnect the multi-plug.
- 3 Remove the three bolts which secure the suppression module to the mounting bracket.
- 4 Remove the suppression module.

Installation

5. Connect the battery ground cable. Refit the battery cover.
6. Perform the Battery Reconnection Procedure; refer to Section 414-01.

SECTION 418-00 Electrical Distribution and Electronic Control System

SUBJECT	PAGE
DESCRIPTION AND OPERATION	
Electrical Distribution and Electronic Control System – Introduction	418-00-2

cardiagn.com

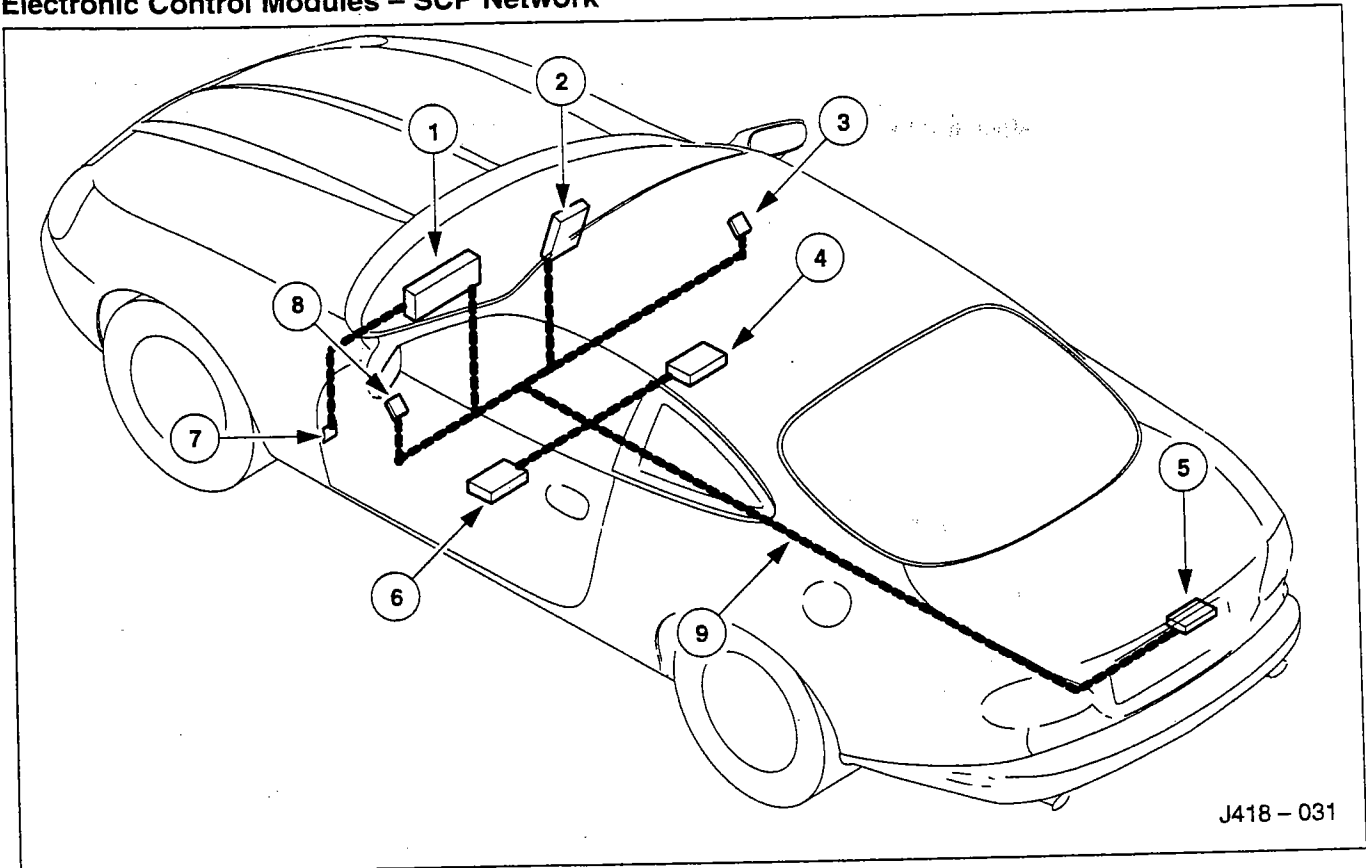
DESCRIPTION AND OPERATION**Electrical Distribution and Electronic Control System – Introduction**

Details of the Electrical Distribution and Electronic Control System can be found in Section 418-01 of this manual, and also the Diagnostic and Test Manual.

SECTION 418-01 Electrical Wiring and Circuit Protection

VEHICLE APPLICATION: X100

SUBJECT	PAGE
DESCRIPTION AND OPERATION	
Electronic Control Modules – SCP Network	418-01-2
Fuse-boxes	418-01-3
DIAGNOSIS AND TESTING	
Refer to the Diagnostic and Test Manual	
REMOVAL AND INSTALLATION	
Body Processor Module	418-01-4
Door Control Module	418-01-5
Seat Control Module	418-01-7
Underbonnet Fuse-box	418-01-8
Fascia End Fuse-box – Left Hand	418-01-10
Fascia End Fuse-box – Right Hand	418-01-12
Luggage Compartment Fuse-box	418-01-14

DESCRIPTION AND OPERATION**Electronic Control Modules – SCP Network**

J418 - 031

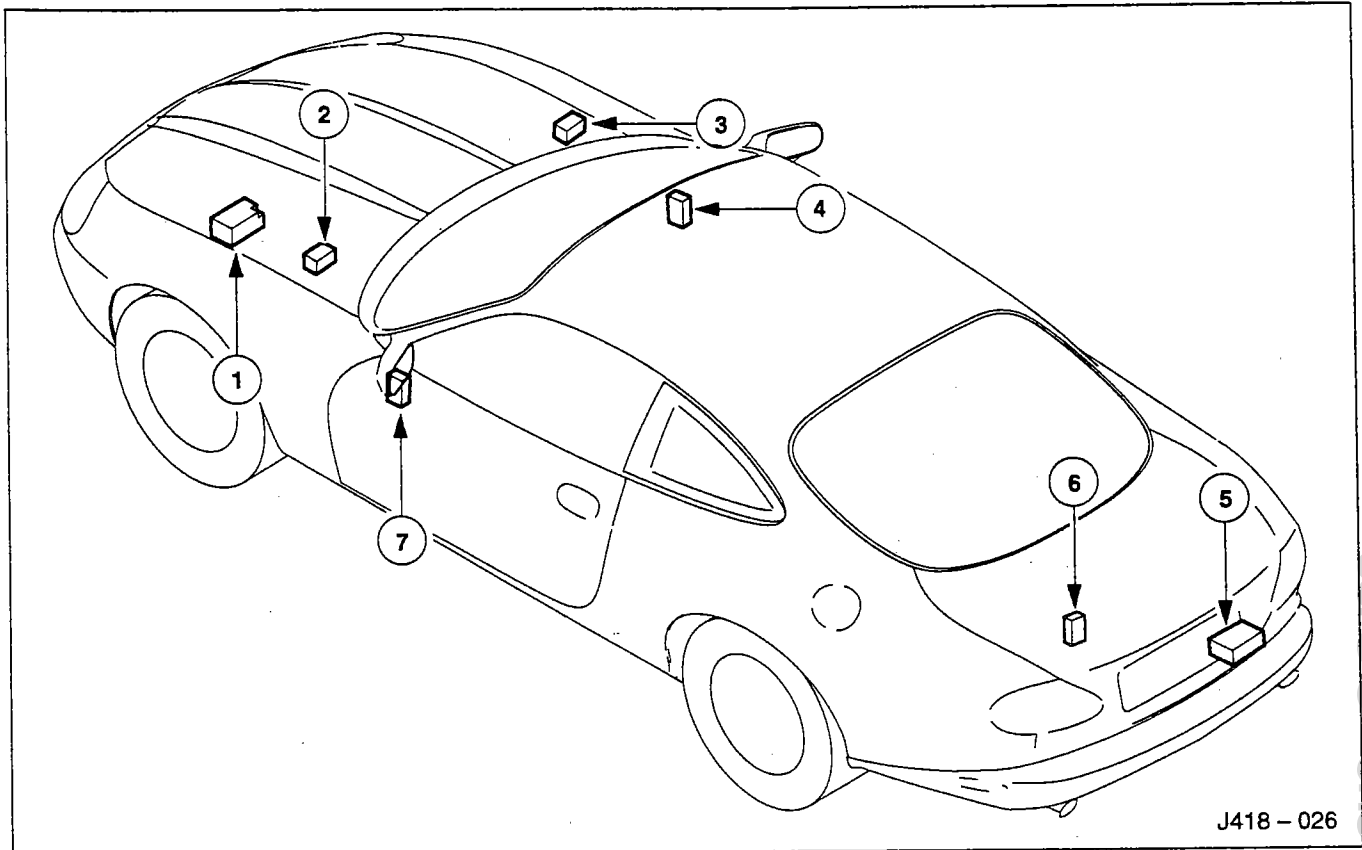
Item	Description
1	Instrument Cluster
2	Body Processor Module
3	Door Control Module
4	Seat Control Module
5	Security and Locking Control Module
6	Seat Control Module
7	Diagnostic Connector – LHD Shown
8	Door Control Module
9	SCP Network

The modules illustrated, form the body control system and are connected by a two-wire multiplexed SCP bus. The Standard Corporate Protocol (SCP) bus is a high speed, serial communications system.

Control messages and data are passed between modules at a speed of up to 785 complete messages per second. Passing information in this way between modules, saves using large amounts of copper cable which would be necessary if all modules were hardwired together around the vehicle and provides the facility for more electronic control of various functions, which were not feasible previously.

The functions performed by a particular module depend totally on its location within the vehicle (called Zonal Partitioning) and not on its name. For example, the Security and Locking Control Module, located in the luggage compartment, performs the security and locking functions, as expected, but also controls most of the rear lamps and the bulb fail module, under instructions passed to it via the SCP bus from the Body Processor Module.

A detailed description of the SCP bus and modules is given in the Diagnostic and Test Manual.

DESCRIPTION AND OPERATION (Continued)**Fuse-boxes**

J418 - 026

Item	Description
1	Engine Compartment
2	Engine Management - RHD Only
3	Engine Management - LHD Only
4	Fascia End - Right Hand Side
5	Luggage Compartment
6	High Power Protection Module
7	Fascia End - Left Hand Side

There are six fusebox assemblies per vehicle, five of which have conventional, replaceable fuses. The High Power Protection Module does not have conventional fuses.

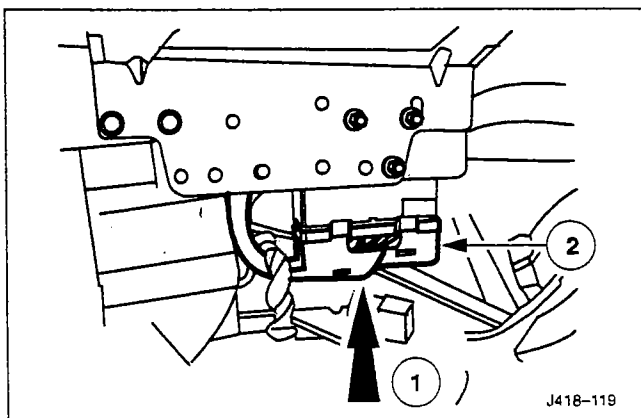
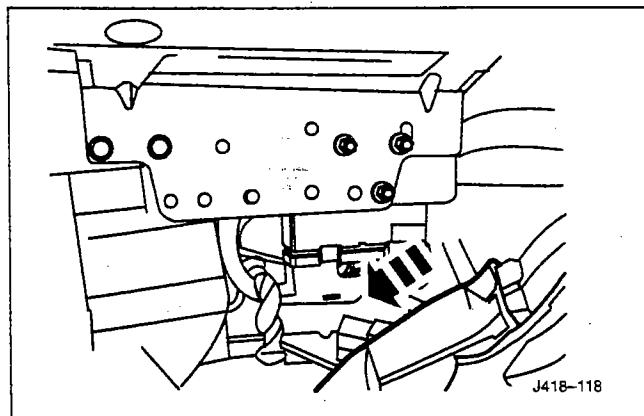
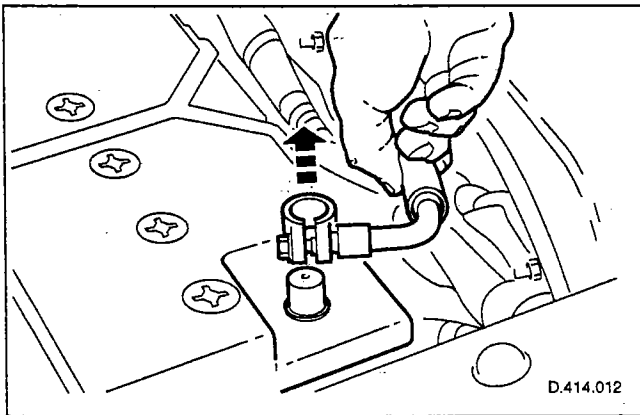
Two Engine Management fuse-boxes are shown. Only one is fitted (LHD or RHD) to any vehicle, on the opposite side to the pedal box.

The High Power Protection Module comprises three 250 Amp fusible links to protect the starting circuit (two connected in parallel) and the battery positive supply to the other fuse-boxes.

REMOVAL AND INSTALLATION

Body Processor Module (86.80.31)

Removal



1. Switch ON the ignition. Move the passenger seat fully rearwards. Switch OFF the ignition. Whilst the door(s) is still open and the window down, disconnect the battery ground cable.

2. Disconnect the battery ground cable.

- Remove the battery cover.

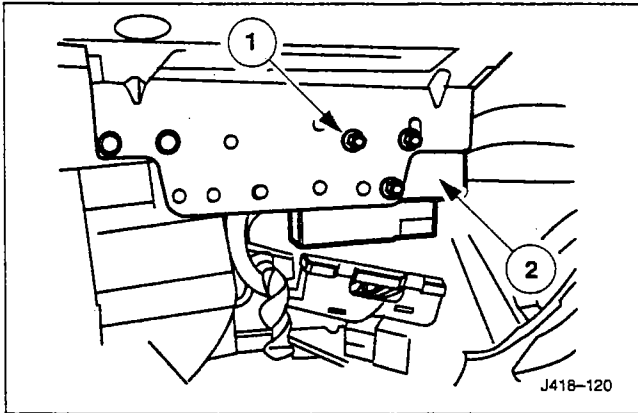
3. Remove the glove box. Refer to Section 501-01.

4. Remove the air ducting from the footwell.

5. Disconnect the harness from the module.

1 Release the bolt which secures the harness multi-plug to the module.

2 Disconnect the harness multi-plug.

REMOVAL AND INSTALLATION (Continued)

6. Remove the module.

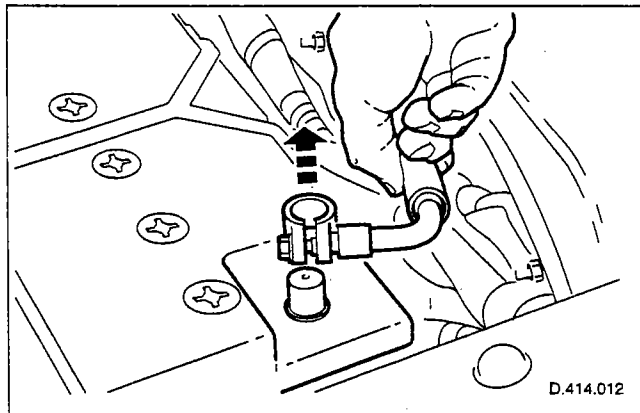
1 Remove the three nuts which secure the module to the fascia.

2 Remove the module.

Installation

7. Installation is the reverse of removal.

8. Perform the Battery Reconnection Procedure described in Section 414-01.

Door Control Module (86.80.29 / 30)**Removal**

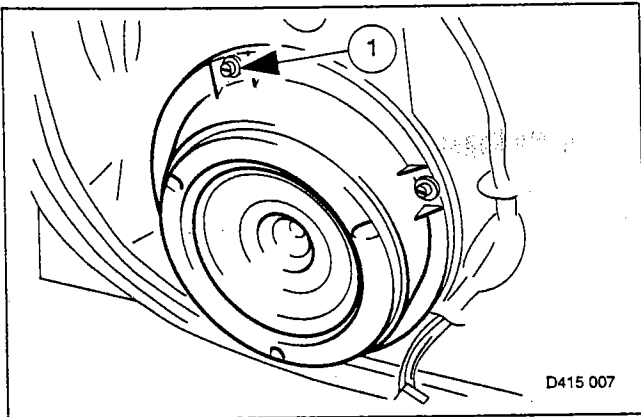
1. Open the driver's door, or both doors if necessary, to allow the side windows to drop. Ensure that the doors remain open until after the battery has been disconnected.

2. Disconnect the battery ground cable.

- Remove the battery cover.

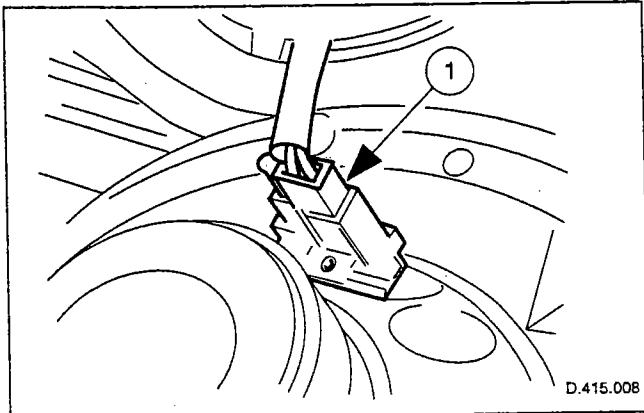
3. Remove the trim pad from the door; refer to Section 501-05.

REMOVAL AND INSTALLATION (Continued)



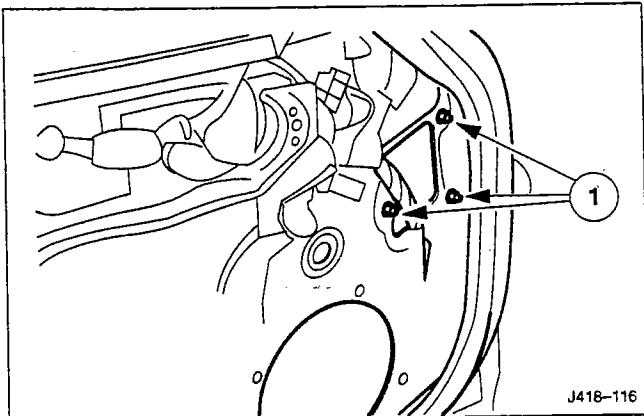
4. Remove the door speaker from the door.

- 1 Remove the four bolts which secure the speaker.



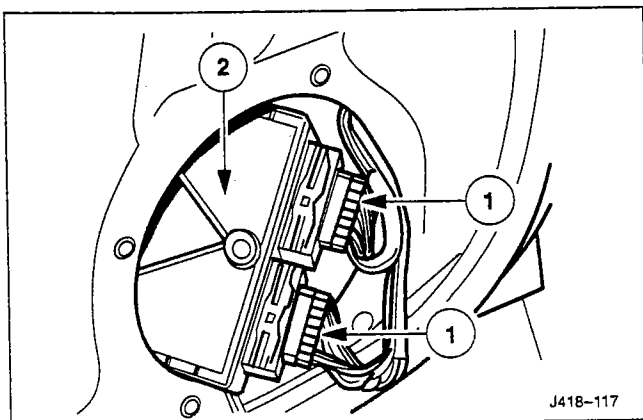
5. Disconnect and remove the speaker.

- 1 Support the speaker, disconnect the multi-plug and remove the speaker.



6. Disconnect the door module.

- 1 Remove the three screws which secure the module to the door.
- Reposition the module outwards through the speaker aperture.



7. Disconnect the harness from the module.

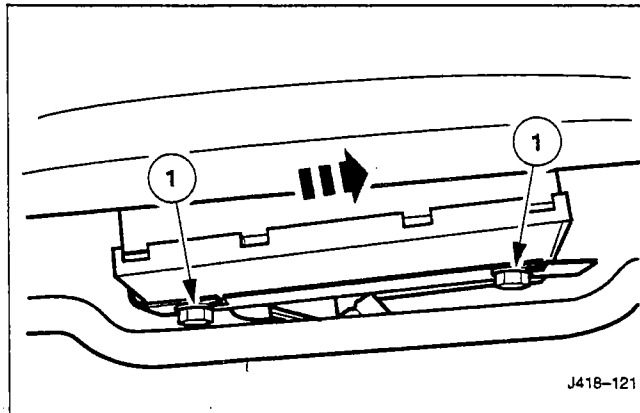
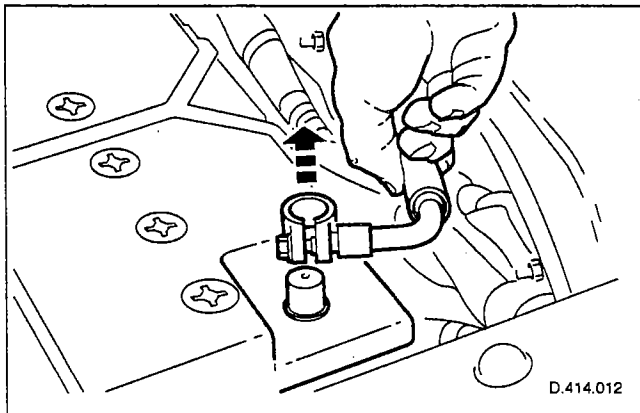
- 1 Disconnect the two multi-plugs.
- 2 Remove the module.

REMOVAL AND INSTALLATION (Continued)

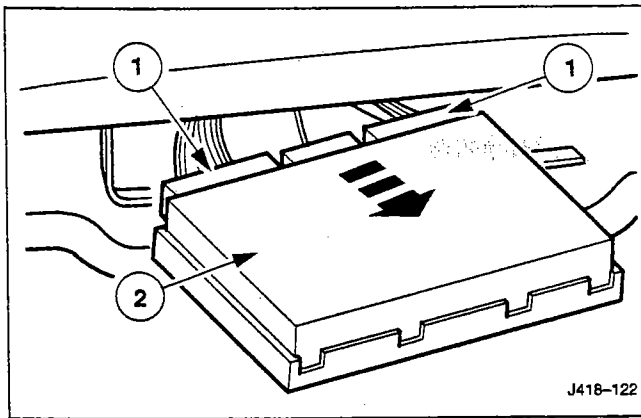
8. If necessary remove the foam gasket from the module; note that a new gasket must be fitted when installing a new module.

Installation

9. Installation is the reverse of removal.
10. Perform the Battery Reconnection Procedure described in Section 414-01.

Seat Control Module (86.75.16 / 28)**Removal**

1. Open the driver's door, or both doors if necessary, to allow the side windows to drop. Ensure that the doors remain open until after the battery has been disconnected.
 2. Disconnect the battery ground cable.
 - Remove the battery cover.
 3. Remove the module from the mounting bracket.
 - 1 Remove the two screws which secure the module to the mounting bracket.
 - Reposition the module from the mounting bracket slots.

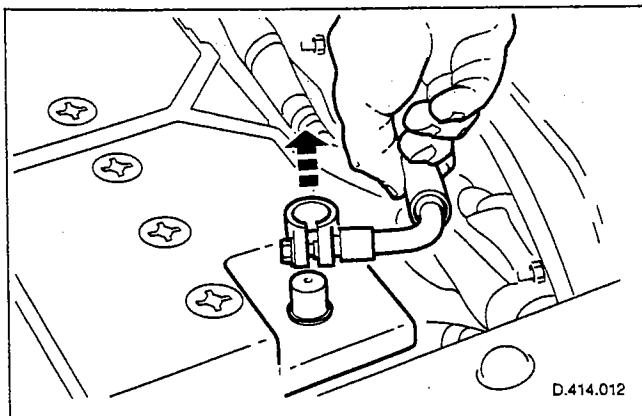
REMOVAL AND INSTALLATION (Continued)

4. Disconnect the harness from the module.

- 1 Disconnect the multi-plugs.
- 2 Remove the module.

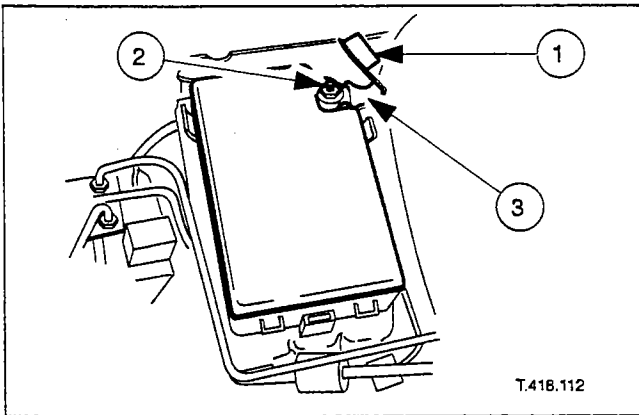
Installation

5. Installation is the reverse of removal.
6. Perform the Battery Reconnection Procedure described in Section 414-01.

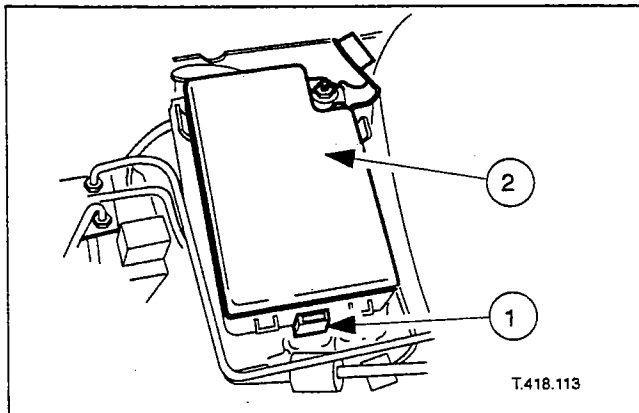
Underbonnet fuse-box (86.70.55)**Removal**

1. Open the driver's door, or both doors if necessary, to allow the side windows to drop. Ensure that the doors remain open until after the battery has been disconnected.
2. Disconnect the battery ground cable.
 - Remove the battery cover.

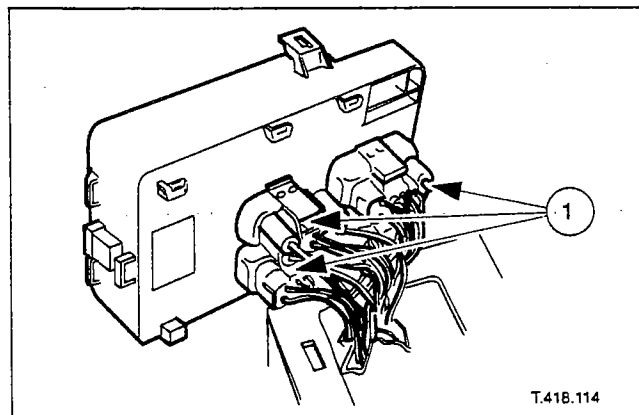
3. Open the bonnet and fit body paintwork protection sheets.

REMOVAL AND INSTALLATION (Continued)

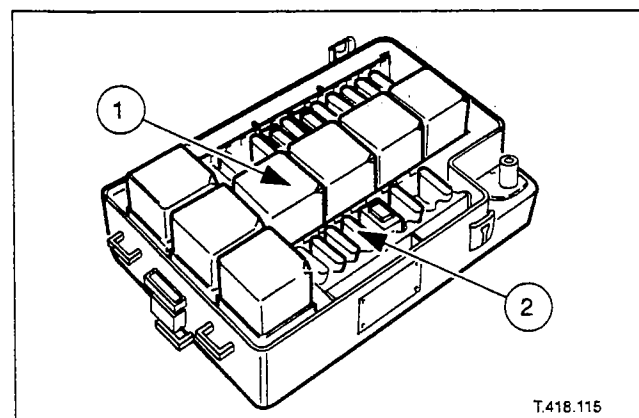
4. Remove the positive supply power cable.
 - 1 Reposition the cover from the positive cable.
 - 2 Remove the nut which secures the positive cable to the fuse-box.
 - 3 Disconnect the positive power cable.



5. Remove the fuse-box from the mounting panel.
 - 1 Release the securing latch, upwards.
 - Reposition the fuse-box, inwards.
 - Remove the fuse-box from the mounting panel.
 - 2 Releases the securing tangs and remove the cover from the fuse-box.



6. Remove the fuse-box.
 - 1 Identify and disconnect the harness multi-plugs from the fuse-box. Remove the fuse-box from the vehicle.



7. Remove the fuses and relays.
 - 1 Note the position of each relay and remove them.
 - 2 Identify each fuse and remove them. The value and position of each fuse is illustrated on the lid of the luggage compartment fuse-box – for all fuse-boxes on the vehicle.

REMOVAL AND INSTALLATION (Continued)

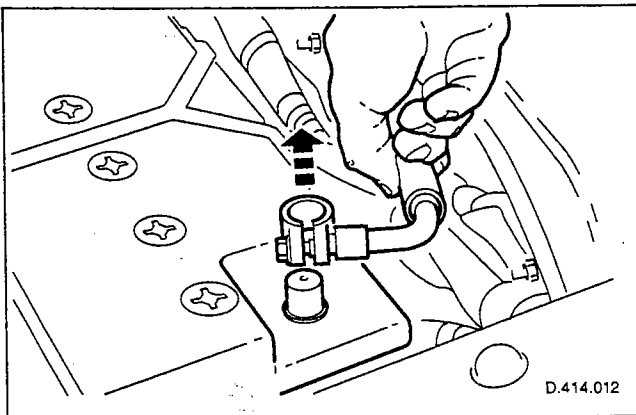
Installation

8. Installation is the reverse of removal.
9. Perform the Battery Reconnection Procedure described in Section 414-01.

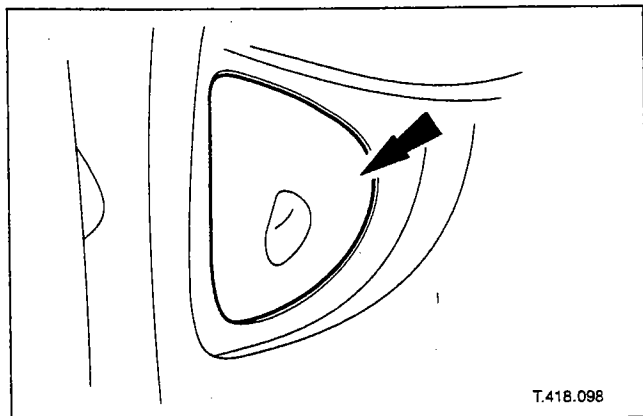
Fascia End fuse-box – Left Hand (86.70.57)

Removal

1. Open the driver's door, or both doors if necessary, to allow the side windows to drop. Ensure that the doors remain open until after the battery has been disconnected.

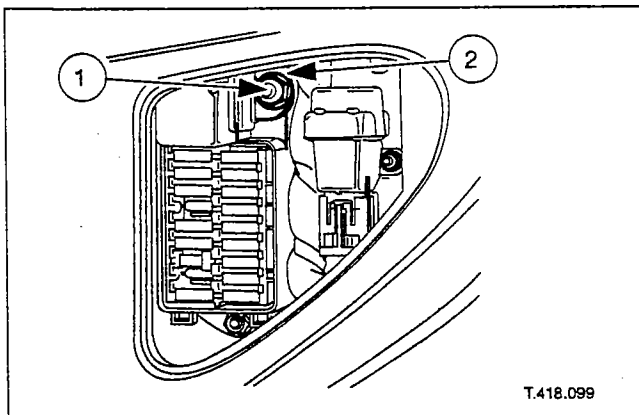


2. Disconnect the battery ground cable.
 - Remove the battery cover.

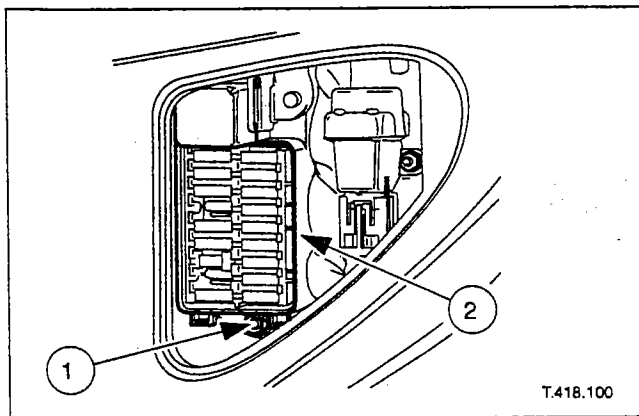


3. Remove the cover from the fuse-box.

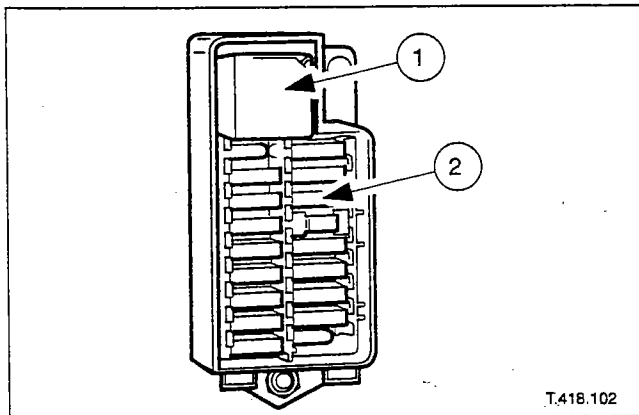
4. Remove the glovebox assembly, for access to the connectors. Refer to Section 501-12.
5. From behind the fuse-box (in the glovebox area) disconnect the harness multi-plug.

REMOVAL AND INSTALLATION (Continued)

6. Remove the positive supply power cable.
 - 1 Remove the nut which secures the positive cable to the fuse-box.
 - 2 Disconnect the positive power cable.



7. Remove the fuse-box.
 - 1 Remove the two nuts which secure the fuse-box to the fascia.
 - 2 Remove the fuse-box from the vehicle.



8. Remove the fuses and relay.
 - 1 Remove the relay.
 - 2 Identify each fuse and remove them. The value and position of each fuse is illustrated on the lid of the luggage compartment fuse-box – for all fuse-boxes on the vehicle.

Installation

9. Installation is the reverse of removal.
10. Perform the Battery Reconnection Procedure described in Section 414-01.

REMOVAL AND INSTALLATION (Continued)**Fascia End fuse-box – Right Hand (86.70.56)****Removal**

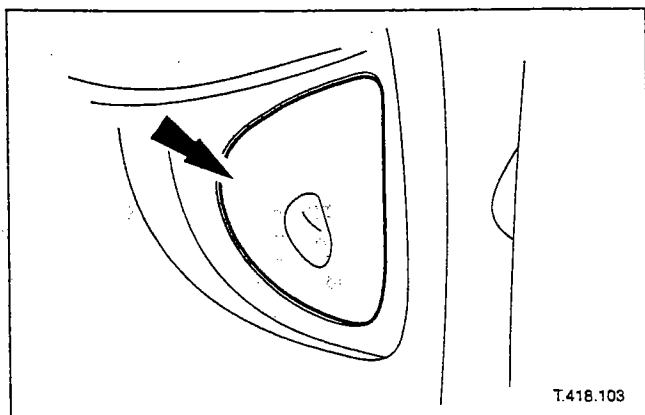
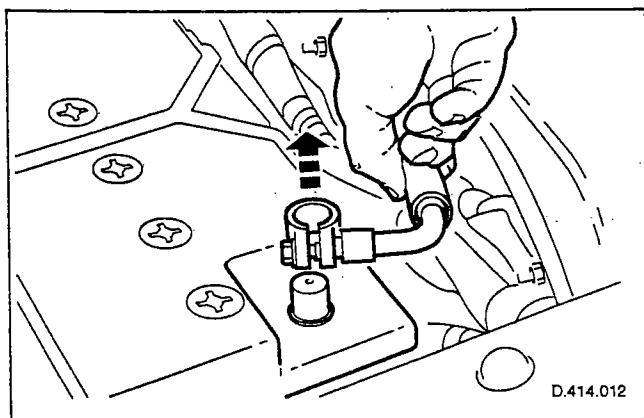
1. Open the driver's door, or both doors if necessary, to allow the side windows to drop. Ensure that the doors remain open until after the battery has been disconnected.

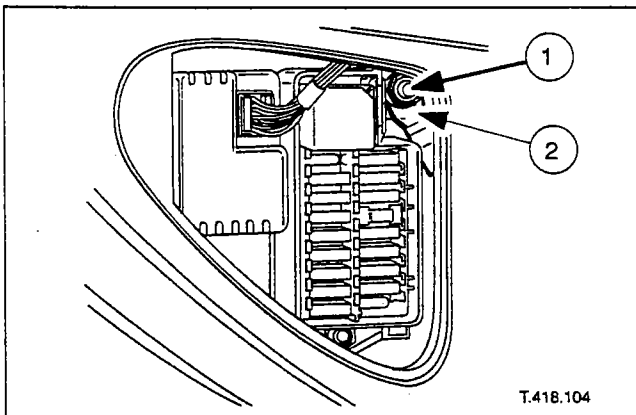
2. Disconnect the battery ground cable.

- Remove the battery cover.

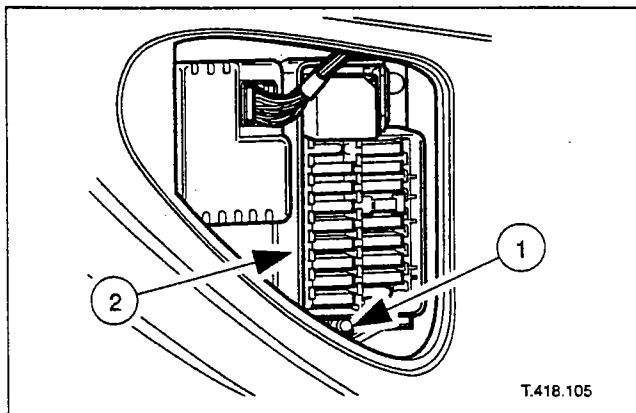
3. Remove the cover from the fuse-box.

4. Remove the underscuttle assembly, for access to the connectors. Refer to Section 501-05.
5. From behind the fuse-box (in the underscuttle area) disconnect the harness multi-plug.

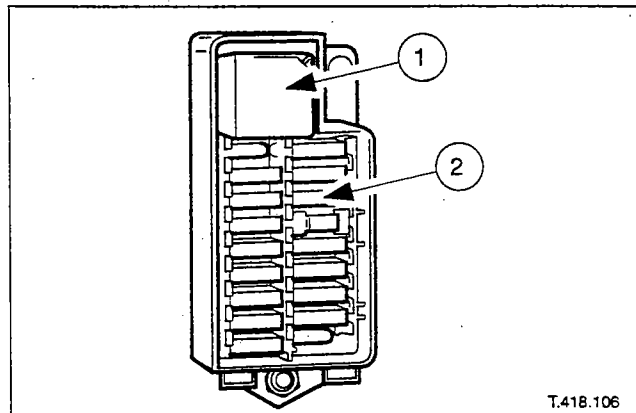


REMOVAL AND INSTALLATION (Continued)

6. Remove the positive supply power cable.
 - 1 Remove the nut which secures the positive cable to the fuse-box.
 - 2 Disconnect the positive power cable.



7. Remove the fuse-box.
 - 1 Remove the two nuts which secure the fuse-box to the fascia.
 - 2 Remove the fuse-box from the vehicle.



8. Remove the fuses and relay.
 - 1 Remove the relay.
 - 2 Identify each fuse and remove them. The value and position of each fuse is illustrated on the lid of the luggage compartment fuse-box – for all fuse-boxes on the vehicle.

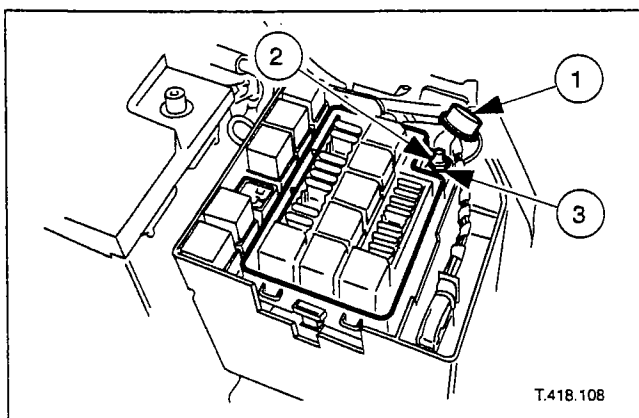
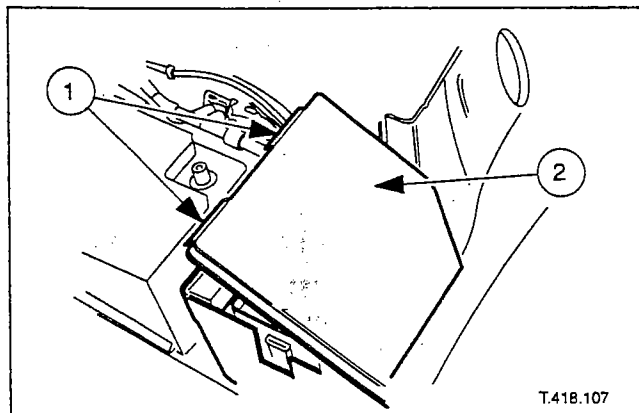
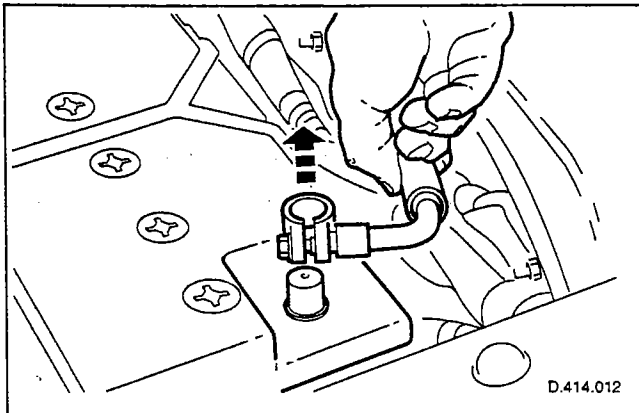
Installation

9. Installation is the reverse of removal.
10. Perform the Battery Reconnection Procedure described in Section 414-01.

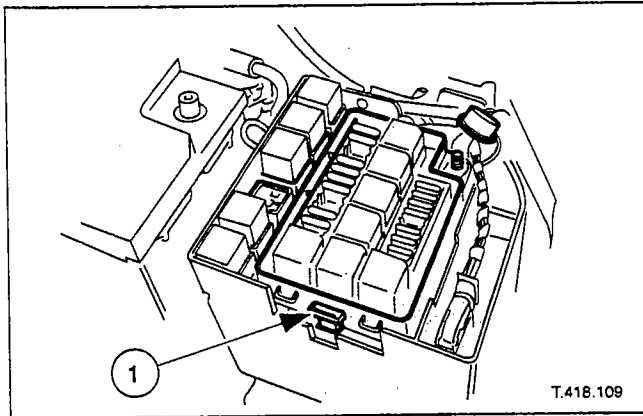
REMOVAL AND INSTALLATION (Continued)

Luggage Compartment fuse-box (86.70.69)

Removal



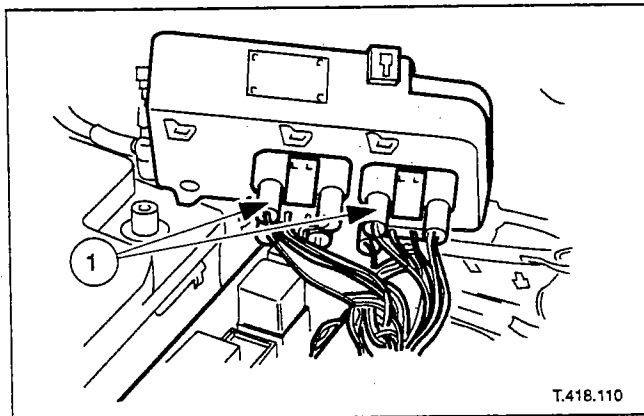
1. Open the driver's door, or both doors if necessary, to allow the side windows to drop. Ensure that the doors remain open until after the battery has been disconnected.
2. Disconnect the battery ground cable.
 - Remove the battery cover.
3. Remove the cover from the fuse-box.
 - 1 Release the securing tangs of the cover.
 - 2 Remove the cover from the fuse-box housing.
4. Remove the positive supply power cable.
 - 1 Reposition the cover from the positive cable.
 - 2 Remove the nut which secures the positive cable to the fuse-box.
 - 3 Disconnect the positive power cable.

REMOVAL AND INSTALLATION (Continued)

5. Remove the fuse-box from the mounting panel.

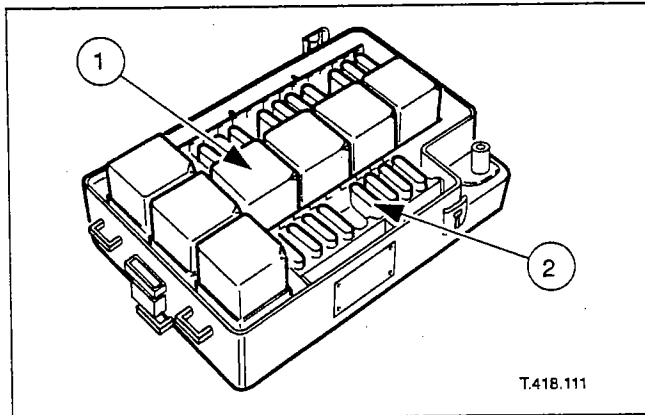
1 Release the securing latch, upwards.

- Reposition the fuse-box, inwards.
- Remove the fuse-box from the mounting panel.



6. Remove the fuse-box.

1 Identify and disconnect the harness multi-plugs from the fuse-box. Remove the fuse-box from the vehicle.



7. Remove the fuses and relays.

- 1 Note the position of each relay and remove them.
- 2 Identify each fuse and remove them. The value and position of each fuse is illustrated on the lid of the luggage compartment fuse-box -- for all fuse-boxes on the vehicle.

Installation

8. Installation is the reverse of removal.

9. Perform the Battery Reconnection Procedure described in Section 414-01.

SECTION 303-00 Engine System

VEHICLE APPLICATION: X100

SUBJECT

PAGE

SPECIFICATIONS

Engine	303-00-2
Lubricants, Fluids and Sealers	303-00-2
Capacities	303-00-2
Engine Torque	303-00-2

DESCRIPTION AND OPERATION

Engine	303-00-3
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SPECIFICATIONS**Engine**

Description	Model	Capacity
90° 'Vee' 8 Cylinder 32 Valves	AJ2619	4 Liters

Lubricants, Fluids and Sealers

Description	Specification
Engine Oil – USA/Canada	WSE-M2C-903-1 (SAE 5W-30)
Engine Oil – Non-USA/Canada	API SH ACEA A2 (SAE 10W-40)
Anti-Freeze	ESD-M97B49-A
Sealant–Engine Block-to-Bedplate and Sump-to-Bedplate (RTV Silicone)	Loctite 5699 Ultra Grey
Sealant–Engine Core Plugs and Block Stub Pipe (Anaerobic Sealant)	Loctite 5699 Ultra Grey

Capacities

Engine	Liters
Engine Oil–With Oil Cooler	7,3
Engine Oil–Without Oil Cooler	6,5
Coolant–Complete System	10
Coolant–Engine Only	3,7

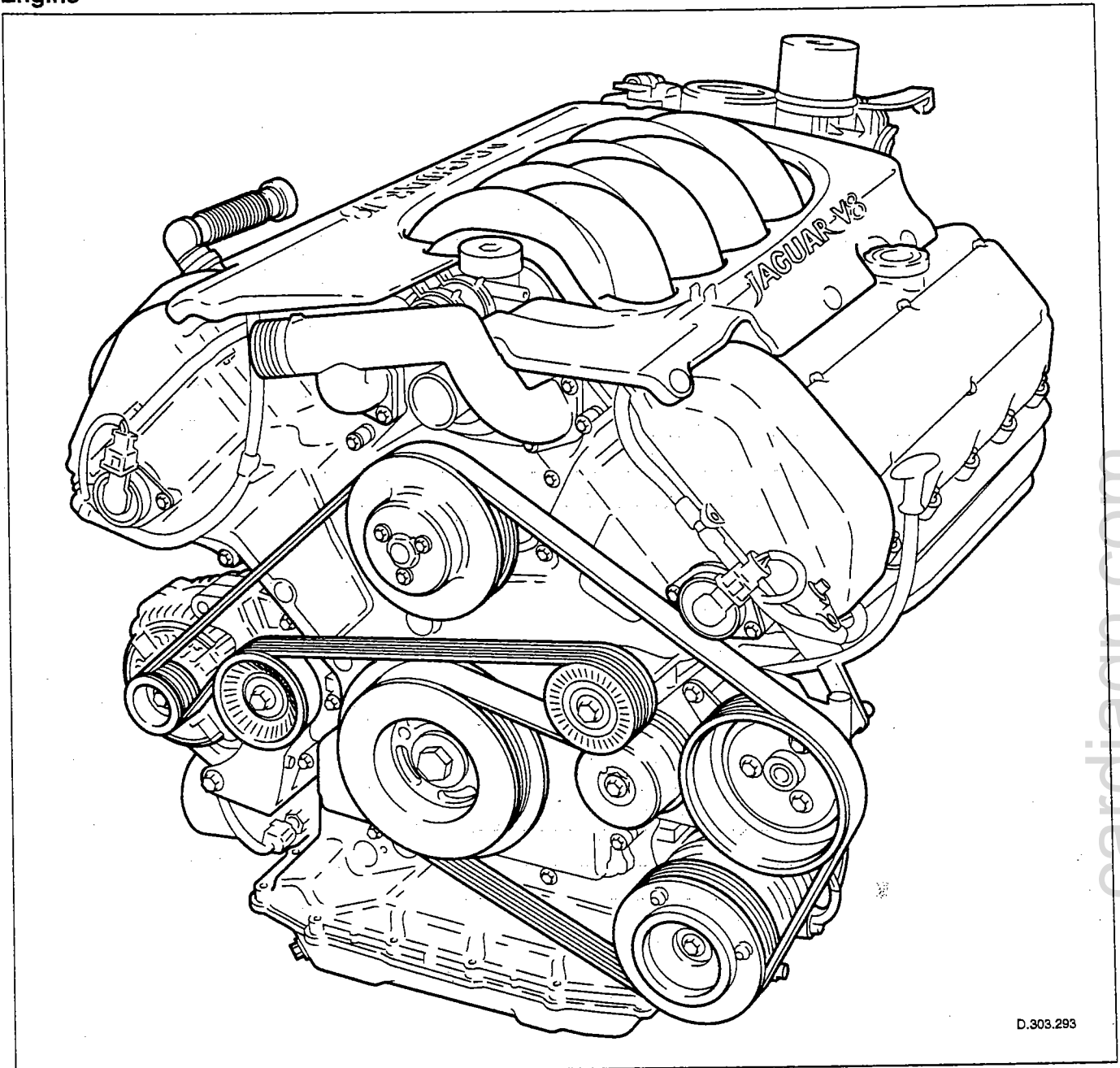
Torque

Engine	Nm/Rpm
Maximum Delivered	393 at 4250

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DESCRIPTION AND OPERATION

Engine



The AJ26 power unit is an aluminum-alloy 90° V8 liquid-cooled unit. It has a nominal capacity of 4.0 liters.

The unit meets all of the requirements of the CARB OBDII USA legislation

SECTION 309-00 Exhaust System

VEHICLE APPLICATION: X100

SUBJECT

PAGE

SPECIFICATIONS

Exhaust System Settings	309-00-2
Torques	309-00-2

DESCRIPTION AND OPERATION

Exhaust Components	309-00-3
Downpipe Assembly	309-00-4
Front Muffler Assembly	309-00-5
Intermediate Muffler Assembly	309-00-6
Rear Muffler Assembly	309-00-7
Joints and Clamps	309-00-8

REMOVAL AND INSTALLATION

Downpipe Catalytic Converter	309-00-9
Intermediate Muffler Assembly	309-00-12
Front Muffler	309-00-15
Rear Muffler and Tailpipe	309-00-17

SPECIFICATIONS**Exhaust System Settings**

Description	mm
Intermediate muffler	
Rear inside edge of muffler to rear suspension A-frame	116
Tailpipe	
Tailpipe to bumper aperture – vertical*	25 – 35
Tailpipe to bumper aperture – side to side*	Central \pm 5
Tailpipe trim surface to inside of bumper aperture*	35 – 45

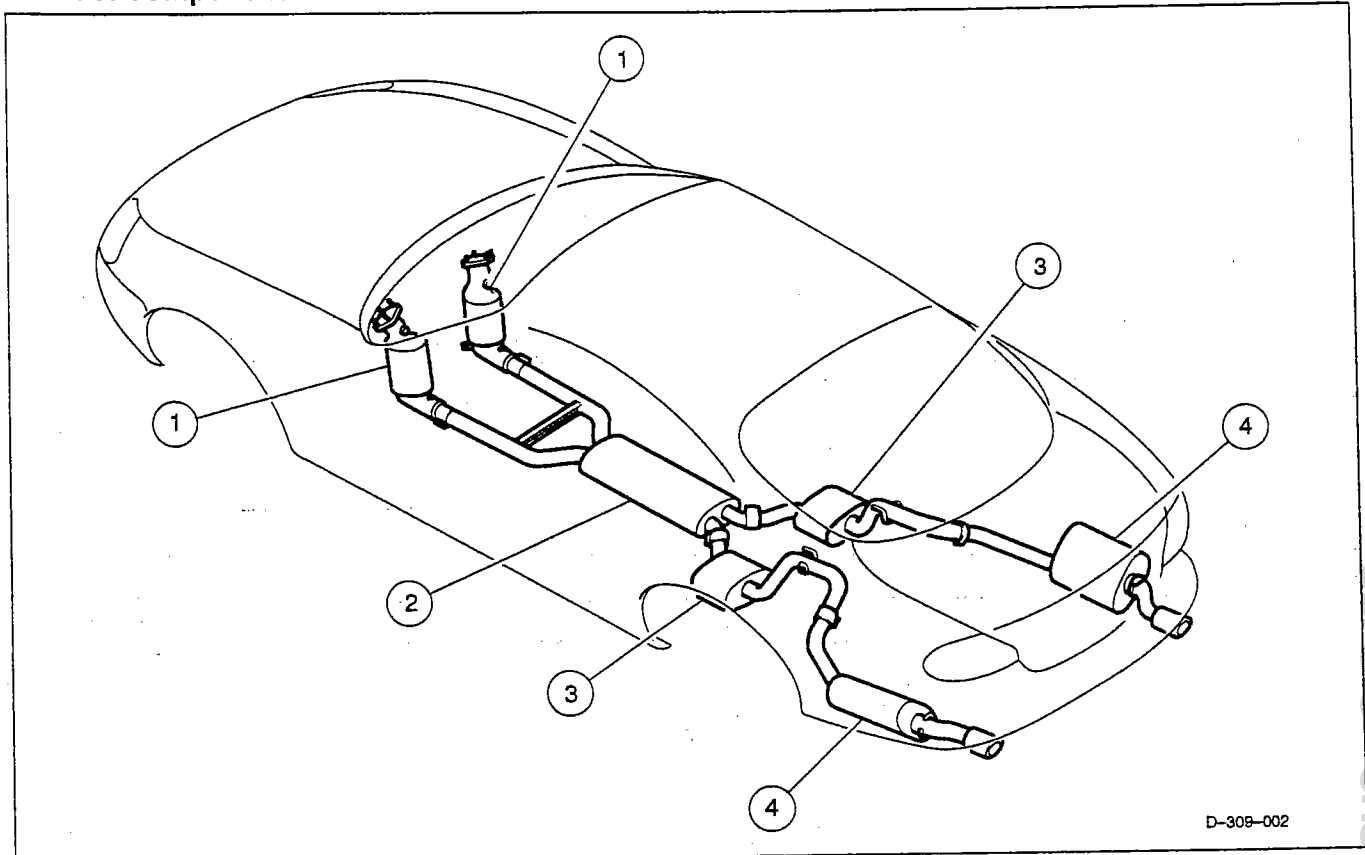
* At nominal position on slip joint

Torques

Description	Nm
Downpipe to exhaust manifold	14 – 18
Downpipe to bracket	39 – 51
Torca clamp assembly	60 – 80
Over-axle mounting cradle to rear suspension A-frame	22 – 28
Tailpipe mounting rubber upper support to body	17 – 23

DESCRIPTION AND OPERATION

Exhaust Components



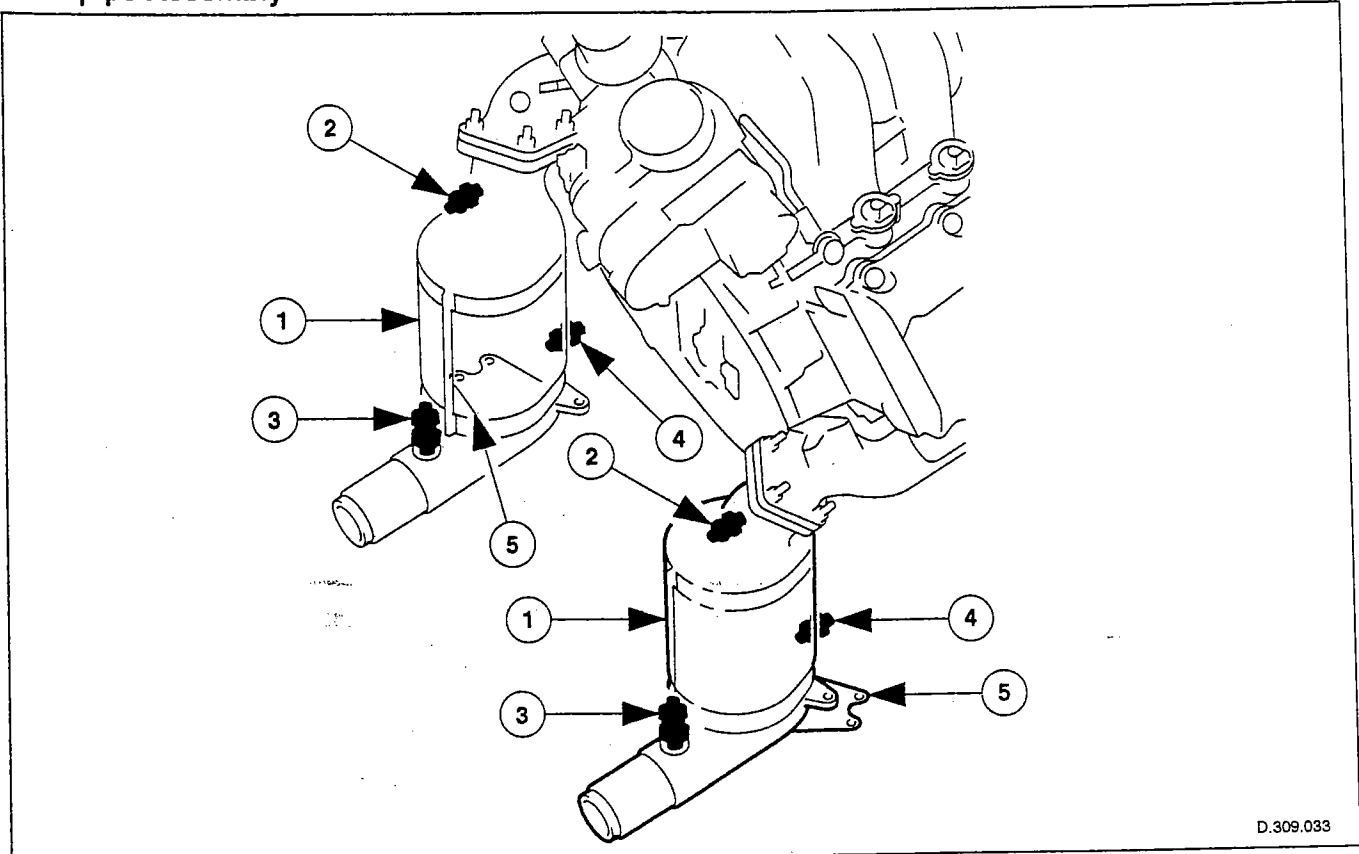
Item	Description
1	Downpipe catalytic converter assembly
2	Front muffler
3	Intermediate muffler
4	Rear muffler

All vehicles are fitted with a five-muffler, stainless steel exhaust system which features:

- Low back-pressure gas flow.
- Catalytic converters for markets having unleaded fuel.
- Front muffler common to the left- and right-hand engine cylinder banks.

DESCRIPTION AND OPERATION (Continued)

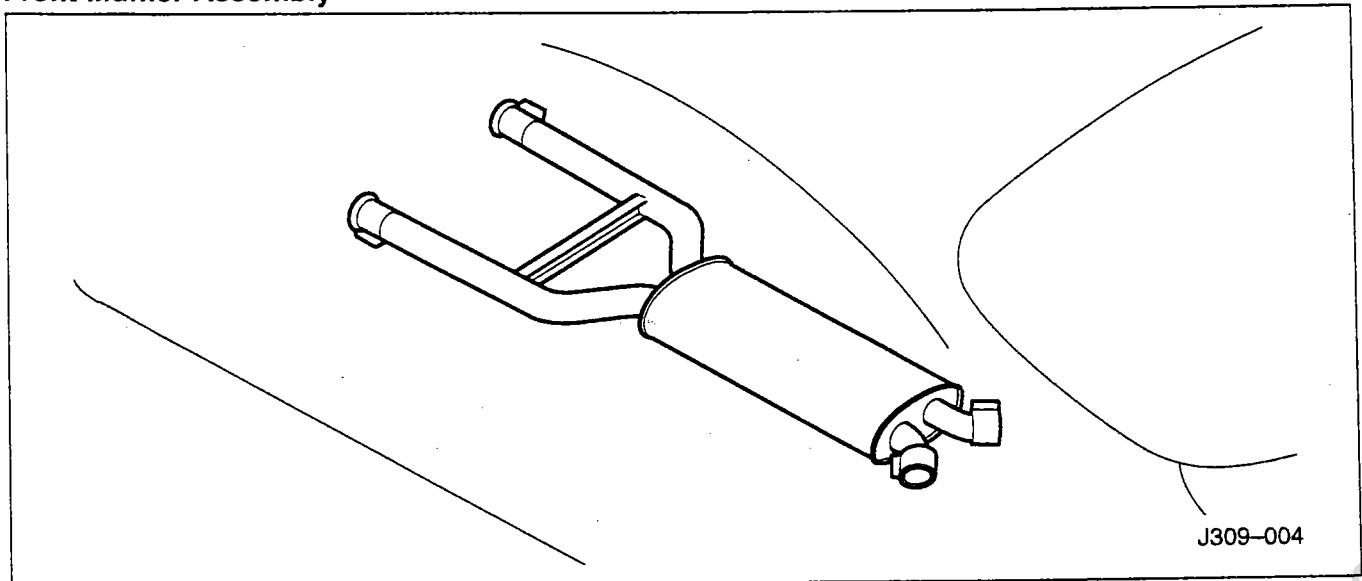
Downpipe Assembly



Item	Description
1	Downpipe catalytic converter
2	Upstream heated oxygen sensor
3	Downstream oxygen sensor (North American markets only)
4	Temperature sensor (Japanese market only)
5	Engine mounting bracket

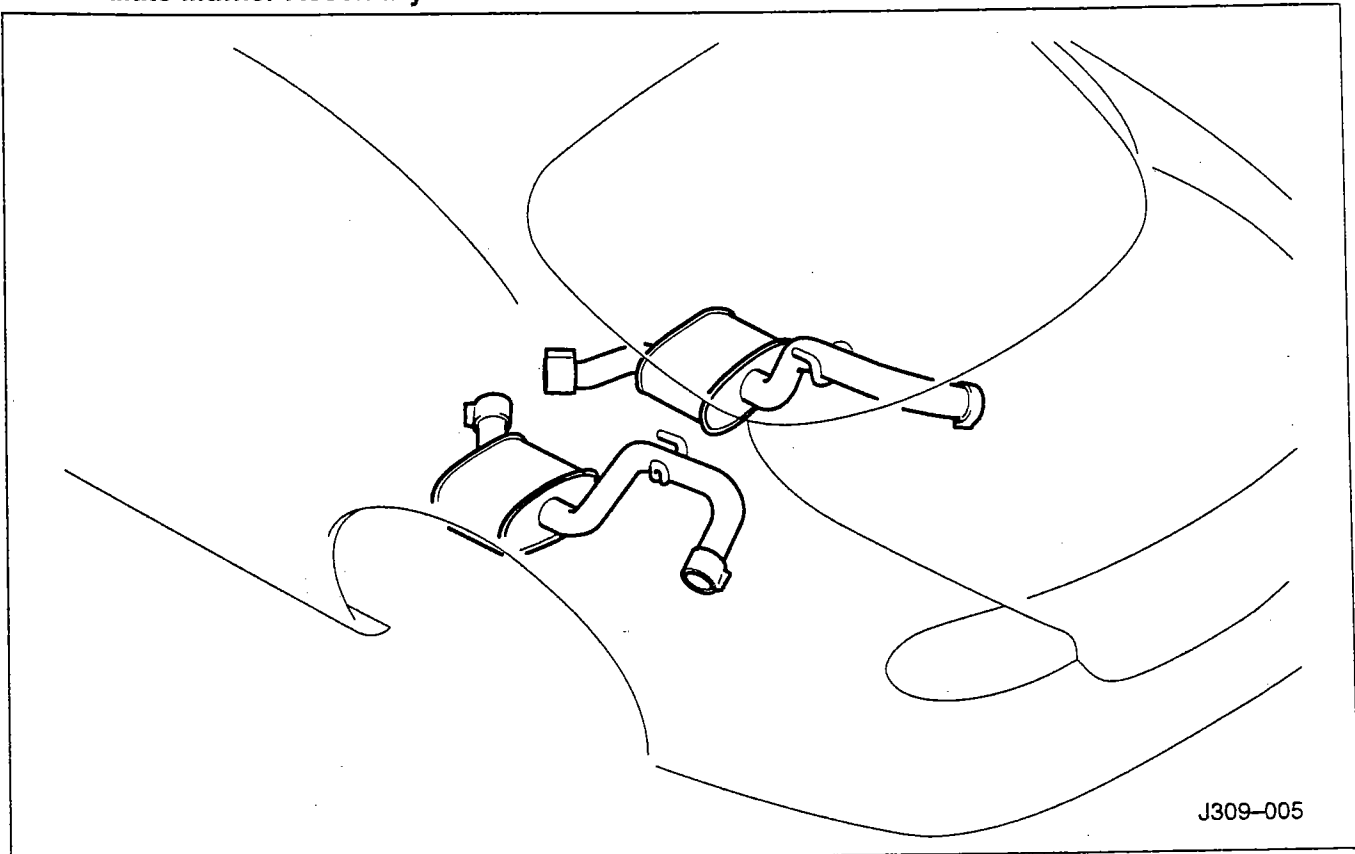
The left- and right-hand downpipe assemblies feature:

- Catalytic converter with palladium/rhodium coated elements. The elements are uncoated for markets with only leaded fuel.
- Exhaust manifold fixing by four threaded studs. Joint-to-joint sealing is with a gasket.
- Engine-mounted bracket providing downpipe mounting by two nuts and bolts.

DESCRIPTION AND OPERATION (Continued)**Front Muffler Assembly**

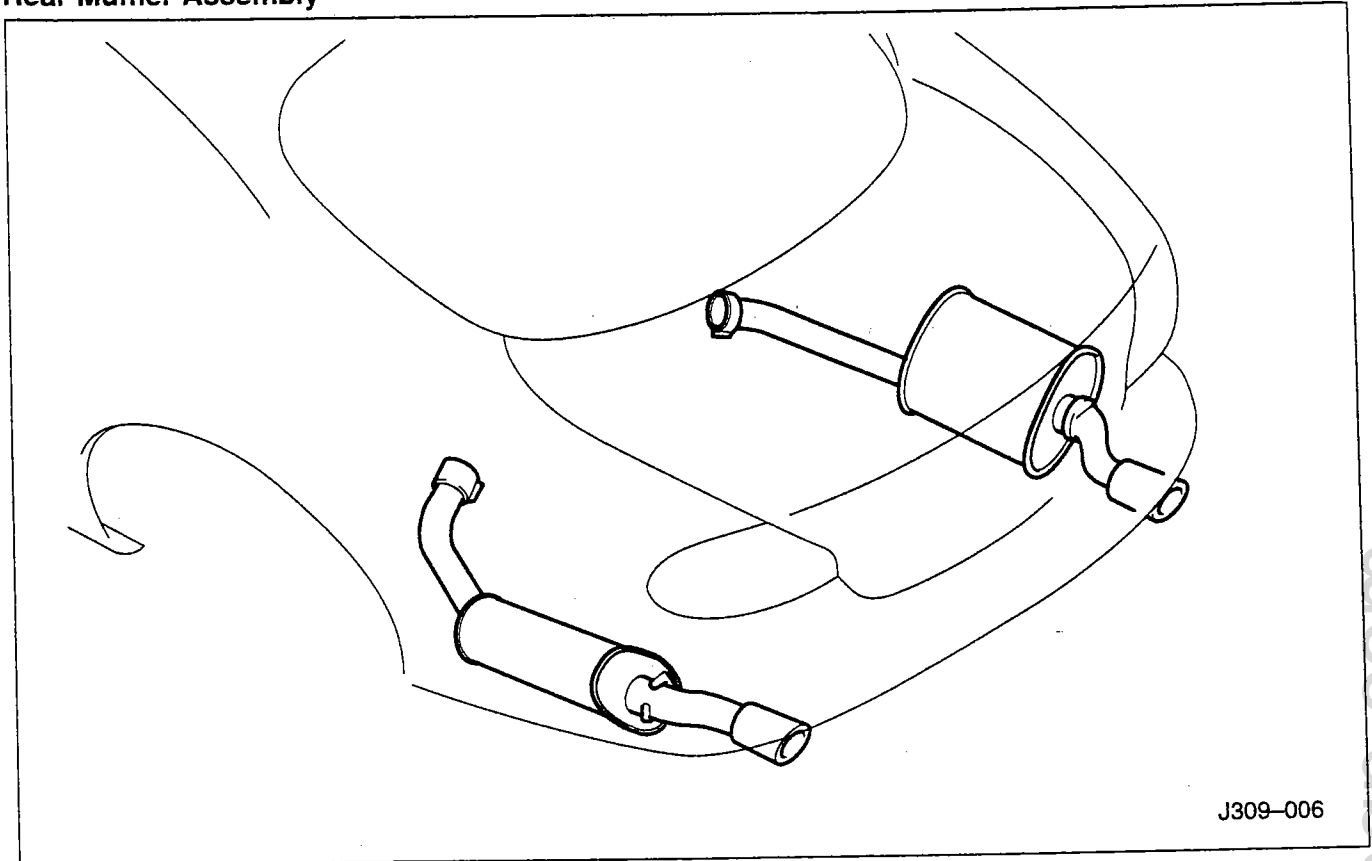
The front muffler assembly features:

- Twin-pipe absorption type muffler.
- Pipe-to-pipe pressure damping.
- Inlet and outlet pipes welded to the muffler.
- Inlet pipes joined together by a metal strap.

DESCRIPTION AND OPERATION (Continued)**Intermediate Muffler Assembly**

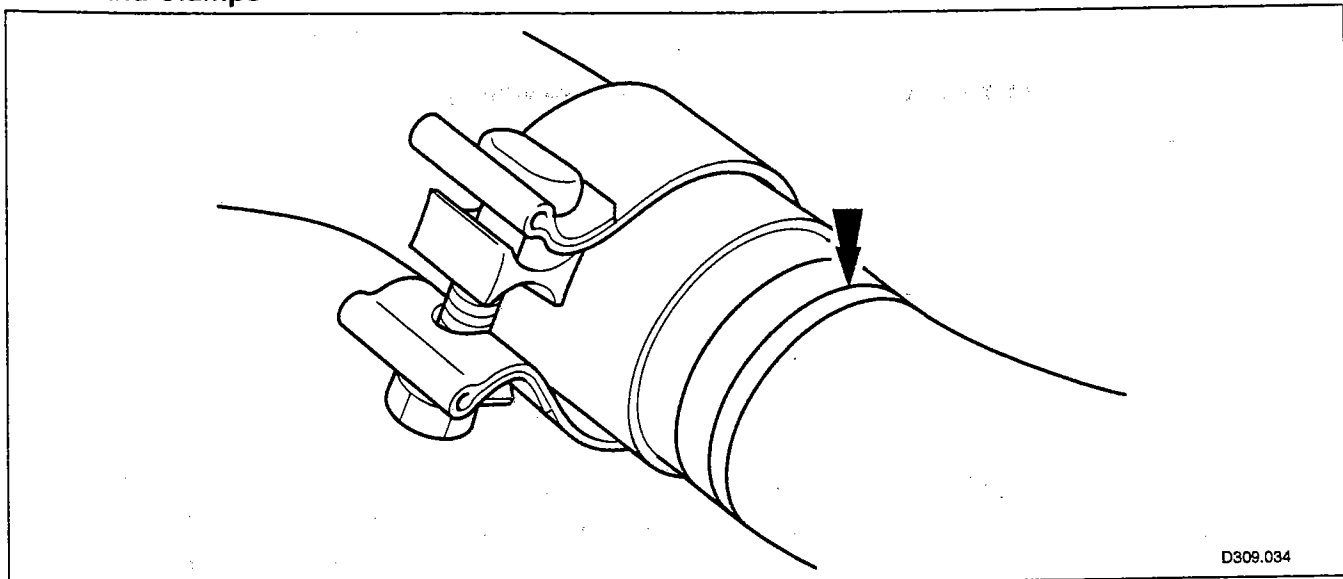
The left- and right-hand intermediate muffler assemblies comprise:

- Absorption type muffler.
- Inlet and outlet pipes welded to the muffler.
- Mounting peg welded to the outlet pipe located into a D-shaped rubber mounting bush, which is held by a cradle bolted to the rear suspension crossmember.

DESCRIPTION AND OPERATION (Continued)**Rear Muffler Assembly**

The left- and right-hand rear muffler assemblies comprise:

- Absorption type muffler.
- Inlet pipe and tailpipe welded to the muffler.
- Arrow-headed mounting peg welded to the tailpipe, held in a rubber suspension ring from a body attachment point.
- Finisher integral with the tailpipe.

DESCRIPTION AND OPERATION (Continued)**Joints and Clamps**

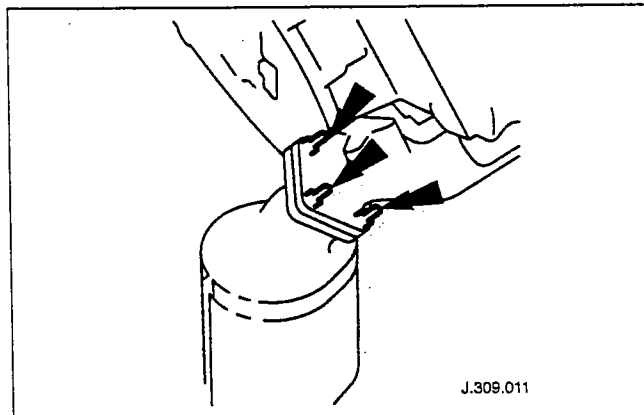
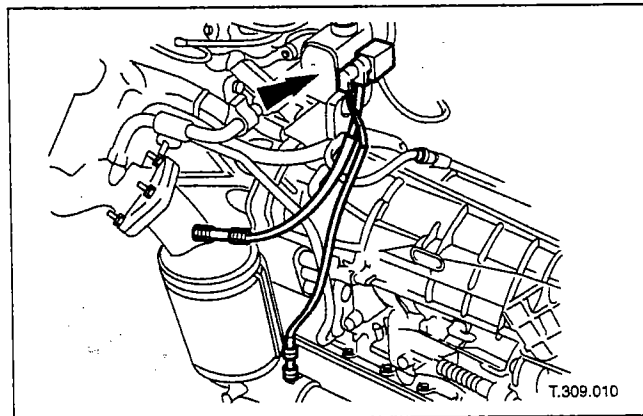
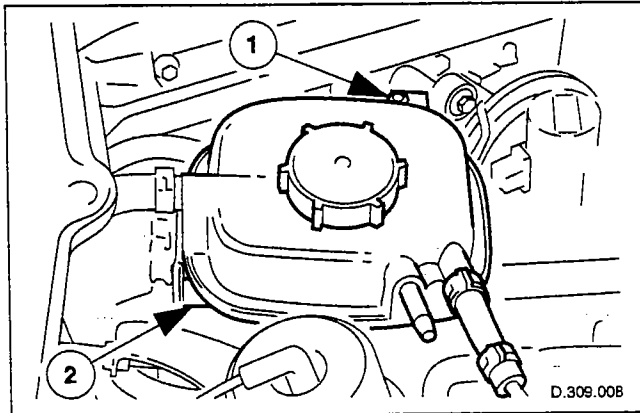
All pipe-to-pipe joints are slip joints and feature:

- Clamping by Torca strap clamp.
- Indicator rings providing maximum, minimum and nominal engagement marks.

REMOVAL AND INSTALLATION

Downpipe Catalytic Converter (17.50.09 Left-hand, 17.50.10 Right-hand)

Removal



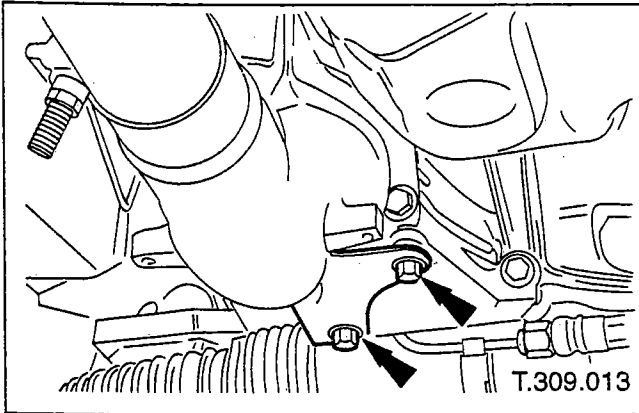
1. Remove the front muffler; refer to the procedure in this section.
2. Remove the coolant header tank (left-hand only).

- 1 Remove the securing bolt.
- 2 Detach the header tank dowels from the mounting grommets.

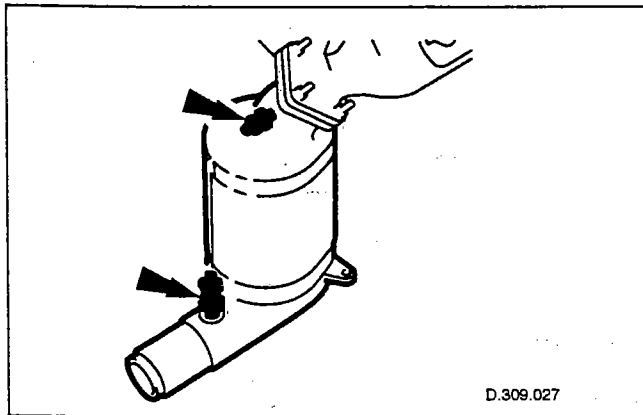
CAUTION: Note the position of the upstream and downstream oxygen sensor multiplugs for reassembly.

3. Disconnect the oxygen sensor multiplugs.
 - Displace the multiplugs from the engine mounting bracket.
4. Remove the downpipe catalytic converter to exhaust manifold securing nuts.

5. Raise the vehicle on a four-post ramp.

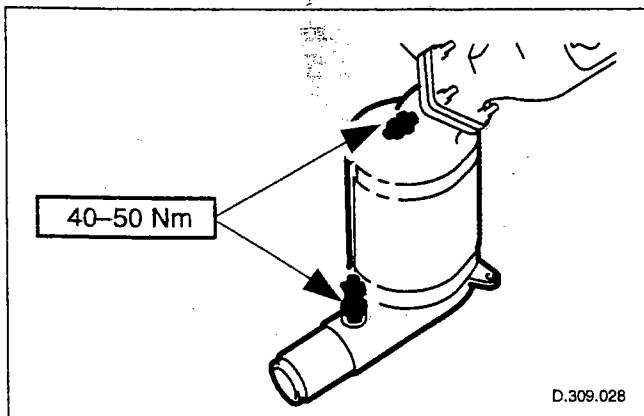
REMOVAL AND INSTALLATION (Continued)

6. Remove the downpipe catalytic converter.
 - Remove the mounting bracket securing bolts.

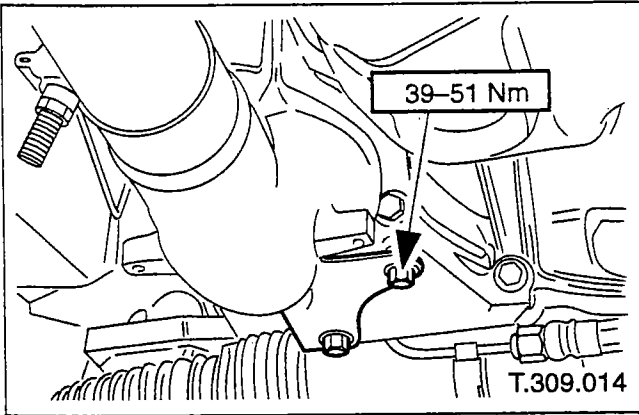


7. Remove the oxygen sensors.

8. Clean the exhaust joints.

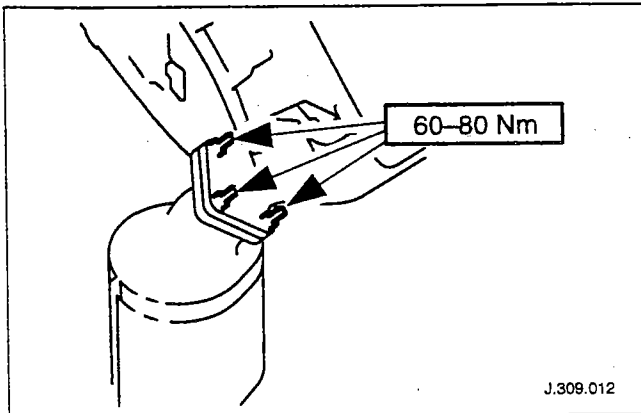
Installation

9. Install the oxygen sensors.

REMOVAL AND INSTALLATION (Continued)

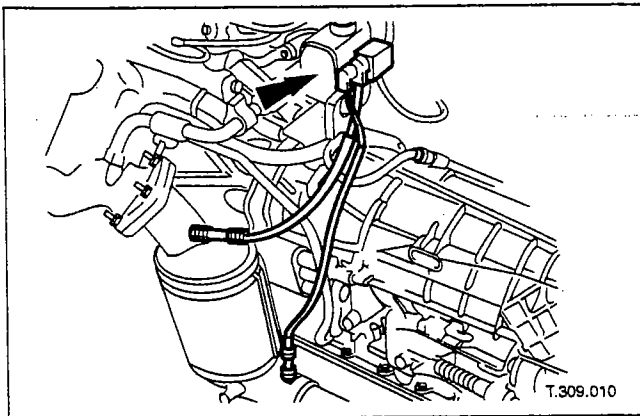
10. Install the downpipe catalytic converter.

- Install the mounting bracket securing bolts.



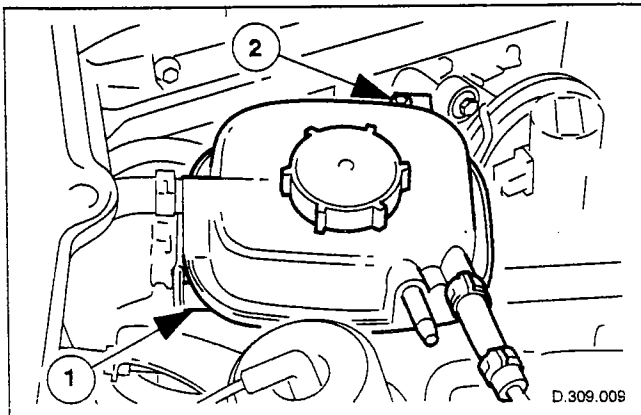
11. Lower the four-post ramp.

12. Install the downpipe catalytic converter to exhaust manifold securing nuts.



13. Connect the oxygen sensor multiplugs.

- Correctly position the multiplugs on the engine mounting bracket.



14. Install the coolant header tank (left-hand only).

- 1 Position the header tank dowels on the mounting grommets.
- 2 Install the securing bolt.

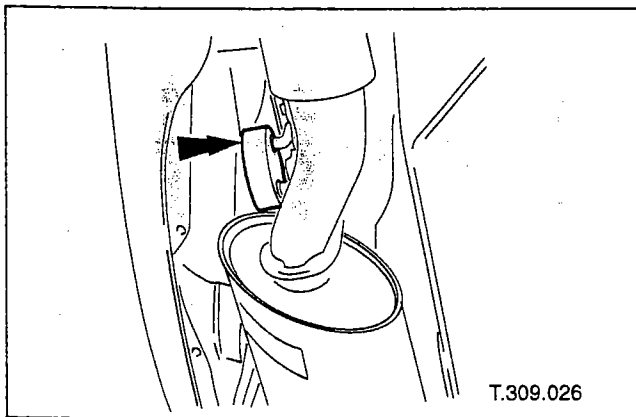
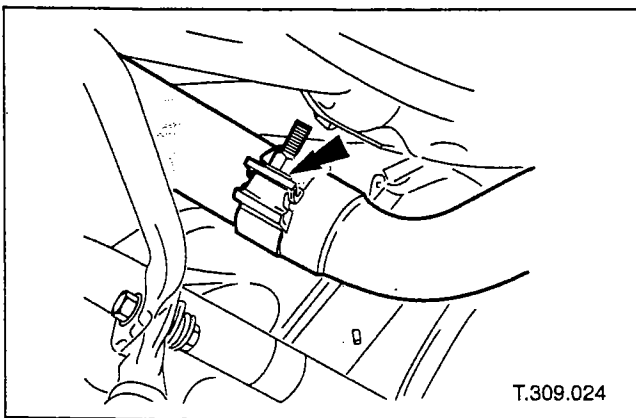
REMOVAL AND INSTALLATION (Continued)

15. Install the front muffler; refer to the procedure in this section.

Intermediate Muffler Assembly (30.10.15 Left-hand, 30.10.16 Right-hand)**Removal**

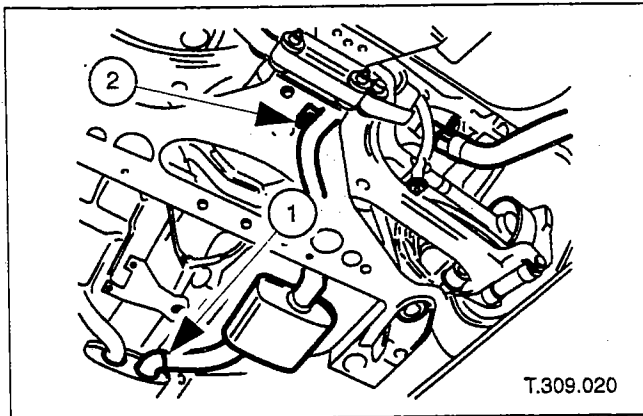
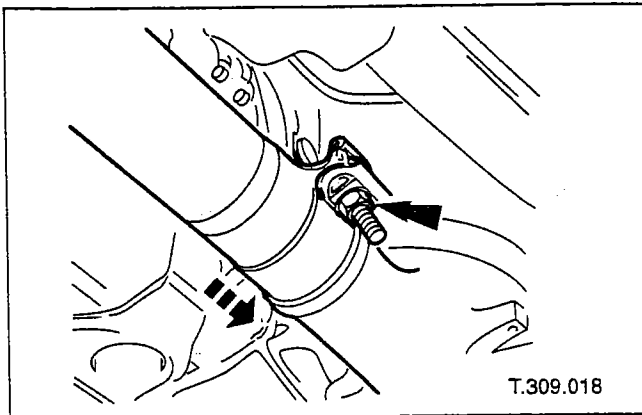
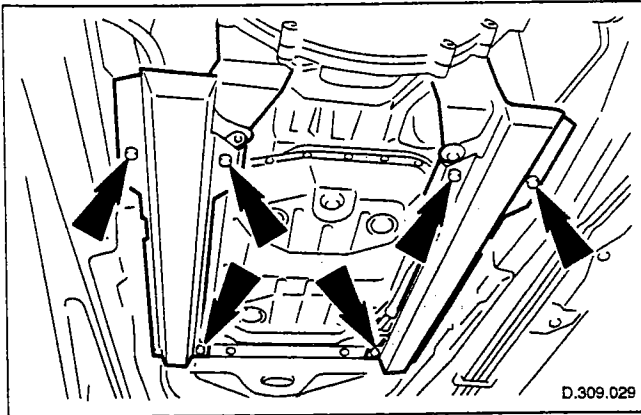
1. Position the vehicle on a four-post ramp.
2. Raise the rear of the vehicle and support on two suitable vehicle stands.
3. Raise the vehicle on the ramp.
4. Reposition the rear muffler/tailpipe assembly for access.

- Slacken the intermediate to rear muffler securing clamp.



5. Disengage the rear muffler/tailpipe assembly peg from the mounting rubber.

REMOVAL AND INSTALLATION (Continued)



6. Remove the front heatshields.
 - Remove the heatshield securing bolts.

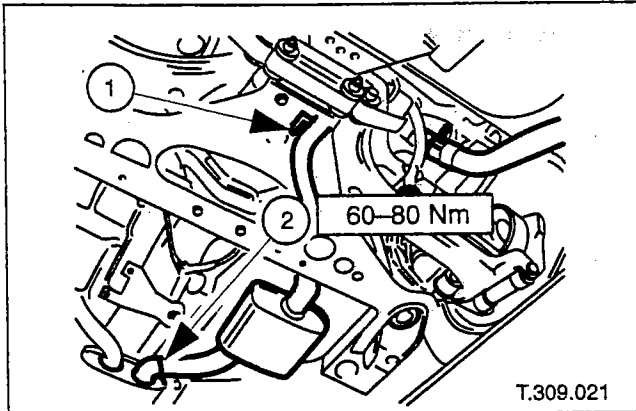
7. Move the front muffler forward to allow the intermediate muffler to be removed.
 - Slacken the front muffler to downpipe catalytic converter securing clamps (left- and right-hand sides).

8. Remove the intermediate muffler assembly.
 - 1 Slacken the intermediate to front muffler securing clamp.
 - 2 Disengage the peg from the mounting rubber.

9. Clean the exhaust joints.

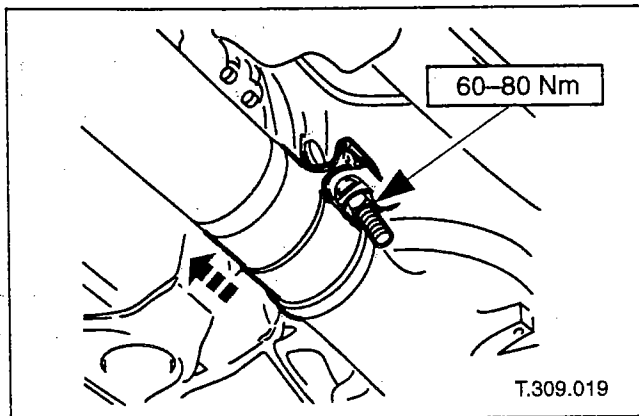
REMOVAL AND INSTALLATION (Continued)

Installation



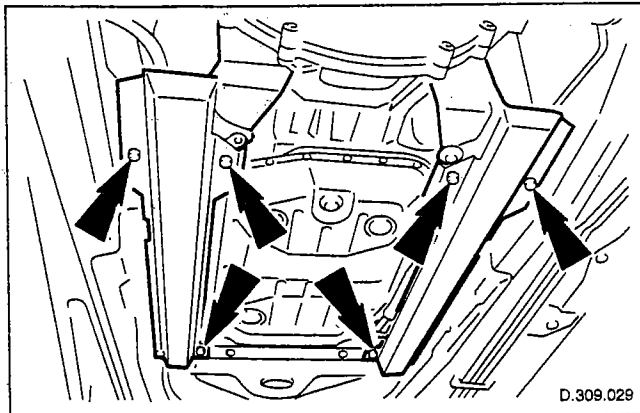
10. Install the intermediate muffler assembly.

- 1 Engage the peg with the mounting rubber.
- 2 Tighten the intermediate to front muffler securing clamp.



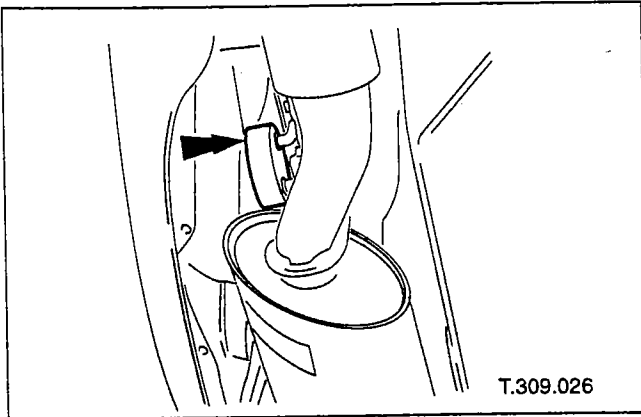
11. Correctly position the front muffler rearward.

- Tighten the muffler to downpipe catalytic converter securing clamps (left- and right-hand sides).



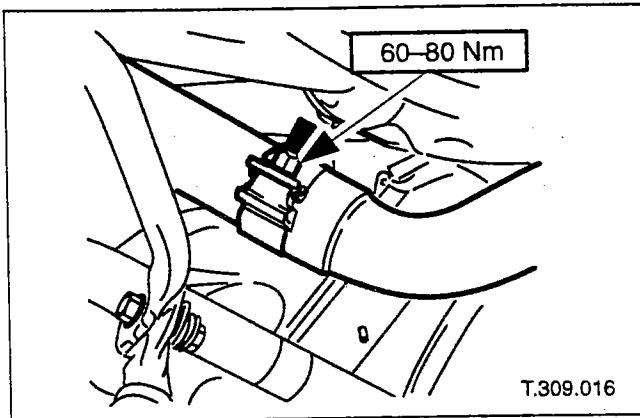
12. Install the front heatshields.

- Install the heatshield securing bolts.

REMOVAL AND INSTALLATION (Continued)

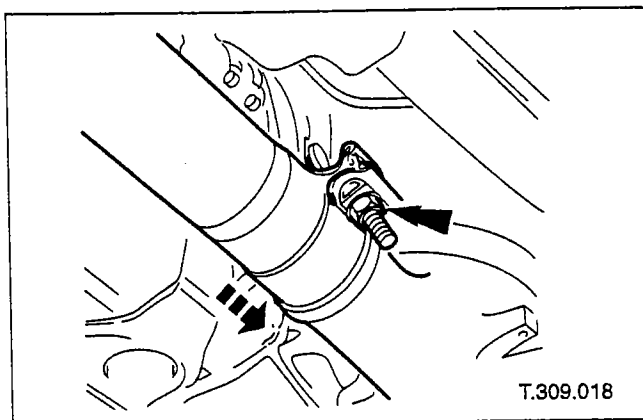
13. Correctly position the rear muffler/tailpipe assembly.

- Engage the peg with the mounting rubber.

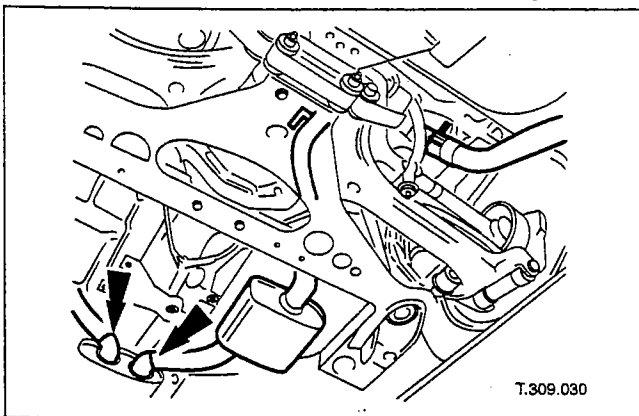


14. Tighten the intermediate to rear muffler securing clamp.

15. Lower the ramp and remove the stands.

Front Muffler (30.10.18)**Removal**

1. Raise the vehicle on a four-post ramp.
 2. Move the front muffler forward to allow the intermediate muffler to be displaced.
- Slacken the muffler to catalytic converter securing clamps (left- and right-hand sides).

REMOVAL AND INSTALLATION (Continued)

3. Slacken the front to intermediate muffler securing clamps (left- and right-hand sides) to allow the front muffler to move back.

4. Remove the front muffler.

- Disconnect the front muffler from the downpipe catalytic converters and then from the intermediate mufflers.

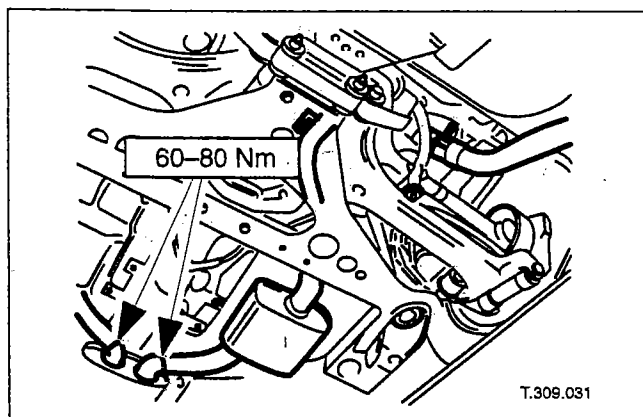
Installation

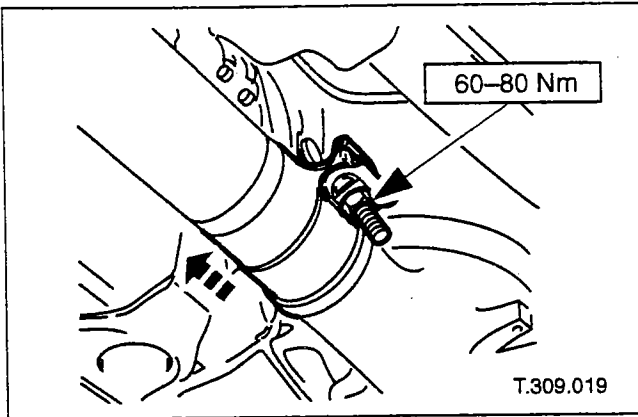
5. Install the front muffler.

- Connect the front muffler to the intermediate mufflers and then to the downpipe catalytic converters.

6. Tighten the front to intermediate muffler securing clamps (left- and right-hand sides).

- Correctly position the muffler joints.

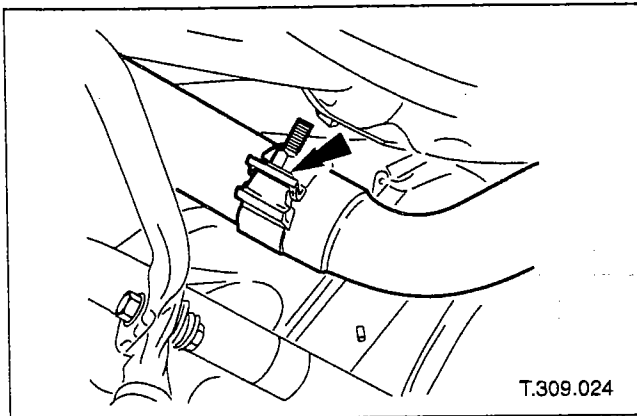


REMOVAL AND INSTALLATION (Continued)

7. Correctly position the front muffler rearward.

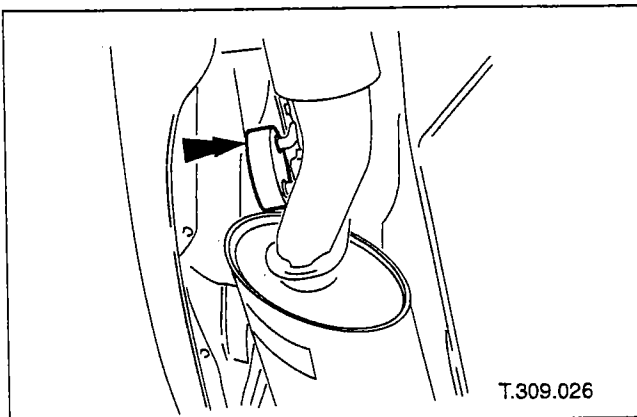
- Tighten the muffler to catalytic converter securing clamps (left- and right-hand sides).

8. Lower the ramp.

Rear Muffler and Tailpipe (30.10.22 Left-hand, 30.10.52 Right-hand)**Removal**

1. Raise the vehicle on a four-post ramp.
2. Disconnect the rear muffler from the intermediate muffler.

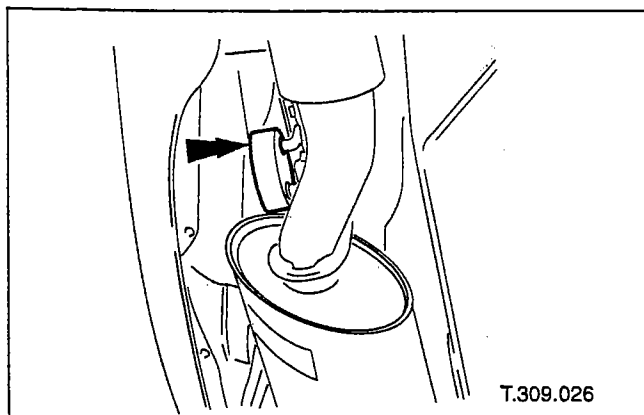
- Slacken the securing clamp.



3. Remove the rear muffler and tailpipe assembly.

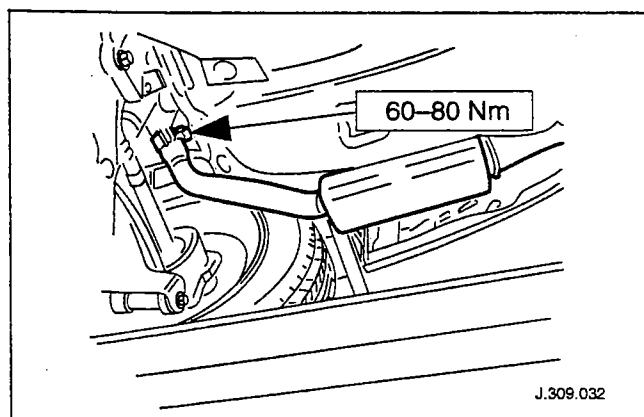
- Disengage the peg from the mounting rubber.

4. Clean the exhaust joints.

REMOVAL AND INSTALLATION (Continued)**Installation**

5. Install the rear muffler and tailpipe assembly.

- Engage the peg with the mounting rubber.



6. Connect the rear muffler to the intermediate muffler.

- Tighten the securing clamp.

7. Lower the ramp.

SECTION 100-00 General Information

VEHICLE APPLICATION: X100

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DESCRIPTION AND OPERATION	
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Notes, Cautions and Warnings	100-00-2
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Manual Organization	100-00-3
Repairs and Replacements	100-00-3
Vehicle Specifications	100-00-4
Service Repair Operation Numbering	100-00-4
References to Left- and Right-hand	100-00-4
Vehicle Identification	100-00-5
Engine Number	100-00-6
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Date of Manufacture (Australia Only)	100-00-6
Special Tools	100-00-7
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Disconnecting/Connecting the Battery	100-00-7
Use of Control Modules	100-00-7
Functional Test	100-00-7
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Preparation	100-00-7
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Safety Precautions	100-00-8
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DESCRIPTION AND OPERATION

Safety Notice

Appropriate service methods and proper repair procedures are essential for the safe, reliable operation of all motor vehicles, as well as the safety of the person doing the work. This set of manuals provides general directions for accomplishing service and repair work with tested effective techniques. Following them will help assure reliability.

There are numerous variations in procedures, techniques, tools, and parts for servicing vehicles, as well as in the skill of the person doing the work. These manuals cannot possibly anticipate all such variations and provide advice or cautions as to each. Accordingly, anyone who departs from the instructions provided in the manuals must first establish that neither personal safety nor vehicle integrity is compromised from choices of methods, tools or parts.

Notes, Cautions and Warnings

Throughout this set of manuals, important information is highlighted by the use of notes, cautions and warnings. NOTES give additional information on a topic or procedure, CAUTIONS are given to prevent damage to the vehicle, and WARNINGS are given to prevent personal injury.

Copyright Statement

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DESCRIPTION AND OPERATION (Continued)

Manual Organization

The set of manuals required to service the X100 family of vehicles comprises:

- Workshop Manual.
- Diagnostic and Test Manual.
- On-board Diagnostics Manual.

The manuals are arranged in sections, each section dealing with a specific part of a vehicle system. For example, Section 412-03 covers air conditioning, which is part of the climate control system.

The first digit of the section number indicates the group. There are six groups:

- 1. General Information.
- 2. Chassis.
- 3. Powertrain.
- 4. Electrical.
- 5. Body and Paint.
- 6. Routine Maintenance.

The second and third digits of the section number indicate the vehicle system.

The last two digits of the section number indicate the part of the system covered by the section.

The Workshop Manual contains specification, description and operation, and removal and installation sub-sections, as required, for each section. The description and operation sub-sections give a brief overview for the relevant section and may be supplemented by more detailed information in the corresponding section in the Diagnostic and Test Manual.

The Diagnostic and Test Manual contains description and operation, diagnosis and testing, and general procedure sub-sections, as required, for each section. The manual covers non-OBD mechanical and electrical components.

The On-board Diagnostics Manual covers all OBD-related components to a legally required level of description, diagnosis and renewal.

Repairs and Replacements

When service parts are required, it is essential that only genuine Jaguar/Daimler replacements are used.

Attention is drawn to the following points concerning repairs and the fitting of replacement parts and accessories:

- Safety features embodied in the vehicle may be impaired if other than genuine parts are fitted. In certain territories, legislation prohibits the fitting of parts which are not produced to the vehicle manufacturer's specification.
- Torque wrench setting figures given in this manual must be strictly adhered to.
- Locking devices, where specified, must be fitted. If the efficiency of a locking device is impaired during removal it must be renewed.
- Owners purchasing accessories while travelling abroad should ensure that the accessory and its fitted location on the vehicle conform to mandatory requirements existing in their country of origin.
- The vehicle warranty may be invalidated by the fitting of other than genuine Jaguar/Daimler parts. All Jaguar/Daimler replacements have the full backing of the factory warranty.
- Jaguar/Daimler dealers are obliged to supply only genuine service parts.

DESCRIPTION AND OPERATION (Continued)

Vehicle Specifications

Purchasers are advised that the specification details set out in these manuals apply to a range of vehicles and not to any specific one. For the specification of a particular vehicle, purchasers should consult their dealer.

The Manufacturers reserve the right to vary their specifications, with or without notice, and at such times and in such manner as they think fit. Major as well as minor changes may be involved, in accordance with the Manufacturer's policy of continuous improvement.

Whilst every effort is made to ensure the accuracy of the particulars contained in these manuals, neither the Manufacturer nor the Dealer, by whom these manuals are supplied, shall in any circumstances be held liable for any inaccuracy or the consequences thereof.

Service Repair Operation Numbering

A master index of numbered operations has been compiled for universal application to all vehicles manufactured by Jaguar Cars Ltd.

Each operation is allocated a number from the master index and cross-refers with an identical number in the Repair Operation Times schedule. The number consists of six digits arranged in three pairs.

Each maintenance procedure in these manuals is described in the sequence necessary to complete the operation in the minimum time, as specified in the Repair Operation Times schedule.

References to Left- and Right-hand

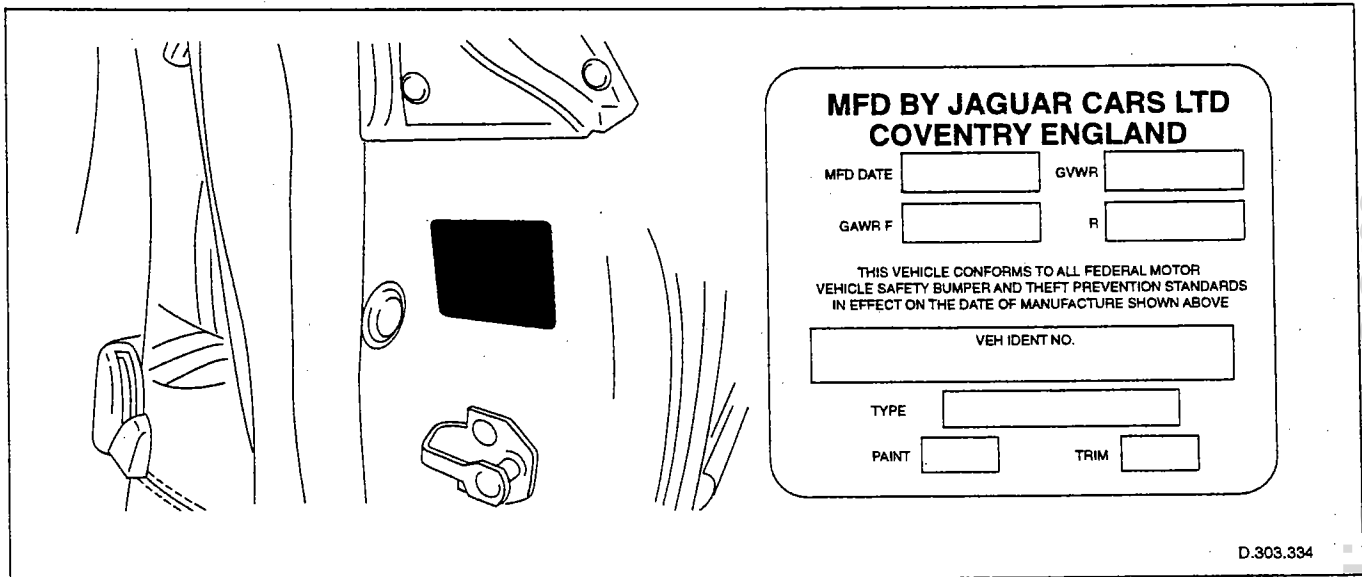
References to the left- or right-hand side of the vehicle are made as if viewing from the driver's seat.

DESCRIPTION AND OPERATION (Continued)

Vehicle Identification

It is essential that the vehicle identification number (VIN) is quoted in all correspondence and when ordering parts. The VIN, and other information according to market, is displayed on a label located on the left-hand door post above the door striker plate, visible when the door is open. The VIN is also displayed on a plate visible through the windshield.

North American Markets:

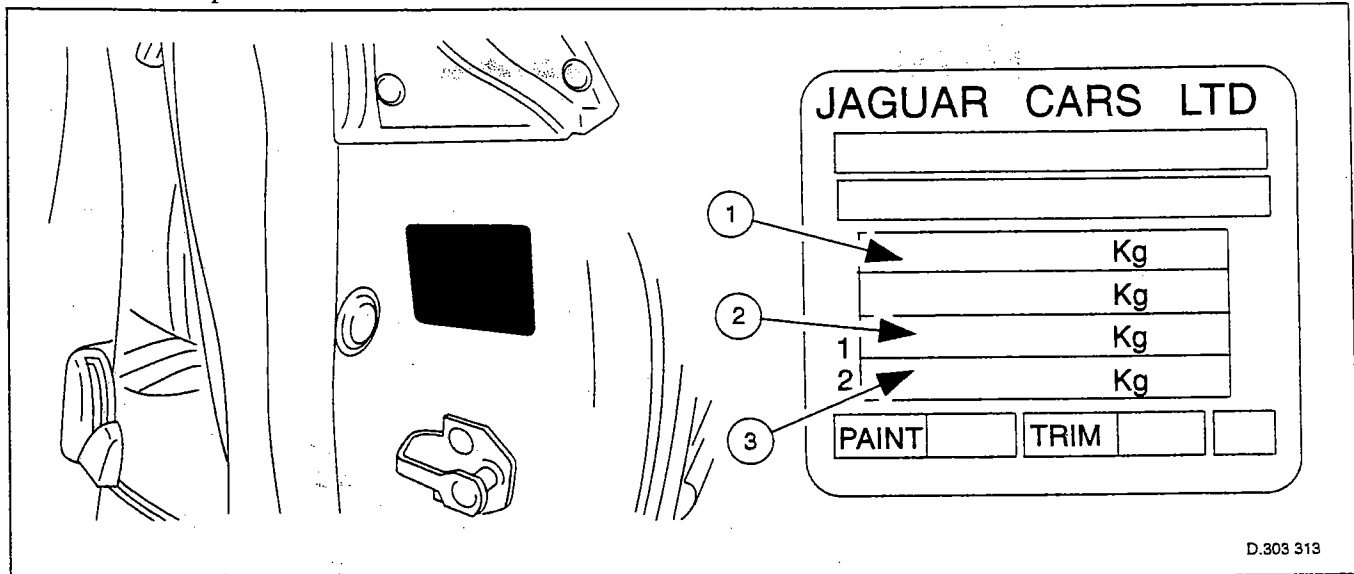


Item	Description
GVWR	Gross vehicle weight rating
GAWR F	Gross front axle weight rating
GAWR R	Gross rear axle weight rating
Paint	Paint code
Trim	Trim code

For north American markets, the label is referred to as the Certification Label and additionally carries the month and year of manufacture. For these markets, the VIN also appears on a bar code label positioned on the left-hand front door shut face edge.

DESCRIPTION AND OPERATION (Continued)

All Markets Except North America:



D.303 313

Item	Description
1	Gross vehicle weight
2	Maximum permitted front axle loading
3	Maximum permitted rear axle loading

Engine Number

The engine number (10 digits) is stamped on the front of the engine block near the thermostat housing. The piston grade reference (eight digits) is also shown.

Automatic Transmission Number

The serial number of the transmission unit is displayed on a metal label or bar code label (where fitted), attached to the left-hand side of the transmission casing.

Date of Manufacture (Australia Only)

The date of manufacture (the Build Date) is defined as the calendar month and year in which the body shell and powertrain are conjoined and the vehicle is driven from the production line. The vehicle has its Build Date displayed on a metal plate located at the top of the battery tray in the trunk.

DESCRIPTION AND OPERATION (Continued)

Special Tools

Any special tools and equipment required to perform a maintenance procedure, are shown at the beginning of each procedure.

Torque Specifications

Torque specifications are shown in maintenance procedure illustrations and also in the torque specifications chart located at the front of the relevant section.

Disconnecting/Connecting the Battery

Owing to the electronic components used on the vehicle, it is important that the battery is disconnected when specified in a maintenance procedure. Attention is drawn to the door drop-glass feature, which will not operate after disconnection of the battery.

When the battery is connected, the specified procedure must be followed, to ensure the correct operation of all vehicle systems.

Use of Control Modules

Control modules may only be used on the vehicle to which they were originally fitted. Do not attempt to use or test a control module on any other vehicle.

Functional Test

On completion of a maintenance procedure, a thorough test should be carried out, to ensure that the relevant vehicle systems are working correctly.

Protecting the Vehicle

Always fit covers to protect the fenders before commencing work in the engine compartment. Cover the seats and carpets, wear clean overalls and wash hands or wear gloves before working inside the vehicle. Avoid spilling hydraulic fluid, antifreeze or battery acid on the paintwork. In the event of spillage, wash off with water immediately. Use polythene sheets in the trunk to protect carpets. Always use the recommended service tool, or a satisfactory equivalent, where specified. Protect temporarily exposed screw threads by replacing nuts or fitting caps.

Preparation

Before disassembly, clean the surrounding area as thoroughly as possible. When components have been removed, blank off any exposed openings using grease-proof paper and masking tape. Immediately seal fuel, oil and hydraulic lines when separated, using plastic caps or plugs, to prevent loss of fluid and the entry of dirt. Close the open ends of oilways, exposed by component removal, with tapered hardwood plugs or readily visible plastic plugs. Immediately a component is removed, place it in a suitable container; use a separate container for each component and its associated parts. Before dismantling a component, clean it thoroughly with a recommended cleaning agent; check that the agent will not damage any of the materials within the component. Clean the bench and obtain marking materials, labels, containers and locking wire before dismantling a component.

Dismantling

Observe scrupulous cleanliness when dismantling components, particularly when parts of the brake, fuel or hydraulic systems are being worked on. A particle of dirt or a fragment of cloth could cause a dangerous malfunction if trapped in these systems. Clean all tapped holes, crevices, oilways and fluid passages with compressed air.

DESCRIPTION AND OPERATION (Continued)**Safety Precautions**

WARNING: DO NOT PERMIT COMPRESSED AIR TO ENTER AN OPEN WOUND. ALWAYS USE EYE PROTECTION WHEN USING COMPRESSED AIR.

Ensure that any O-rings used for sealing are correctly refitted or renewed if disturbed. Mark mating parts to ensure that they are replaced as dismantled.

Whenever possible use marking materials which avoid the possibilities of causing distortion or the initiation of cracks, which could occur if a center punch or scriber were used. Wire together mating parts where necessary to prevent accidental interchange (e.g roller bearing components). Tie labels on to all parts to be renewed and to parts requiring further inspection before being passed for reassembly.

Place labelled parts and other parts for rebuild in separate containers.

Do not discard a part which is due for renewal until it has been compared with the new part, to ensure that the correct part has been obtained.

Inspection

Before inspecting a component for wear or performing a dimensional check, ensure that it is absolutely clean; a slight smear of grease can conceal an incipient failure. When a component is to be checked dimensionally against figures quoted for it, use the correct equipment (surface plates, micrometers, dial gauges etc.) in serviceable condition. The use of makeshift equipment can be dangerous. Reject a component if its dimensions are outside the limits quoted, or if damage is apparent. A part may be refitted if its critical dimension is exactly to the limit size and it is otherwise satisfactory. Use Plastigauge 12 Type PG-1 for checking bearing surface clearance e.g. big end bearing shell to crank journal. Instructions for the use of Plastigauge and a scale giving bearing clearances in steps of 0,0025 mm (0.0001 in) are supplied with the package.

Whenever possible, use a ramp or pit whilst working beneath a vehicle, in preference to jacking. Position chocks at the wheels as well as applying the parking brake. Never rely on a jack alone to support a vehicle. Use axle stands, or blocks carefully placed at the jacking points, to provide a rigid location. Check that any lifting equipment used has adequate capacity and is fully serviceable. Ensure that a suitable form of fire extinguisher is conveniently located. When using electrical tools and equipment, inspect the power lead for damage and check that it is properly earthed. Disconnect the earth (grounded) terminal of the vehicle battery. Do not disconnect any pipes of the air conditioning refrigeration system unless you are trained and instructed to do so. A refrigerant is used which can cause blindness if allowed to come into contact with the eyes. Ensure that adequate ventilation is provided when volatile degreasing agents are being used.

WARNING: FUME EXTRACTION EQUIPMENT MUST BE IN OPERATION WHEN SOLVENTS ARE USED E.G. TRICHLOROETHANE, WHITE SPIRIT, SBP3, METHYLENE CHLORIDE, PERCHLORETHYLENE. DO NOT SMOKE IN THE VICINITY OF VOLATILE DEGREASING AGENTS.

Adhere strictly to handling and safety instructions given on containers and labels. Keep oils and solvents away from naked flames and other sources of ignition. Do not apply heat in an attempt to free seized nuts or fittings; as well as causing damage to protective coatings, there is a risk of damage from stray heat to electronic equipment and brake lines. Do not leave tools, equipment, spilt oil etc. around the work area. Wear protective overalls and use barrier cream when necessary.

DESCRIPTION AND OPERATION (Continued)

Health Protection

Prolonged and repeated contact with mineral oil will result in the removal of natural oils from the skin, leading to dryness, irritation and dermatitis. In addition, used engine oil contains potentially harmful contaminants which may cause skin cancer. Washing facilities and adequate means of skin protection should be provided.

Observe these recommendations:

- Wear protective clothing, including impervious gloves where practicable.
- Do not put oily rags in pockets.
- Avoid contaminating clothes, particularly underwear, with oil.
- Overalls must be cleaned regularly. Discard oil impregnated clothing and footwear which cannot be washed or cleaned.
- First Aid treatment should be obtained immediately for open cuts or wounds.
- Use barrier creams, applying before each work period, to enable easier removal of dirty oil and grease from the skin.
- Wash with soap and water to ensure that all oil is removed (skin cleaner and a nail brush will help). The use of preparations containing lanolin will help to replace the natural skin oils which have been removed.
- Do not use petrol, kerosene, gas oil, thinners or solvents for washing skin.
- If skin disorders develop, obtain medical advice immediately.
- Where practicable, degrease components prior to handling.
- Where there is a risk of fluids coming into contact with the eyes, eye protection should be worn, for example, goggles or a face shield. An eye wash facility should be provided.

Environmental Protection

In some countries it is illegal to pour used oil onto the ground, down sewers or drains, or into water courses. The burning of used engine oil in small space heaters or boilers is not recommended unless emission control equipment is fitted. Dispose of used oil through authorized waste disposal contractors, to licensed waste disposal sites or to the waste oil reclamation trade. If in doubt, contact the Local Authority for advice on disposal facilities.

DESCRIPTION AND OPERATION (Continued)**Glossary of Terms**

This glossary of terms is intended to cover mainly emissions-related (to SAE J 1930) terminology, and other abbreviations that may be used in this set of manuals.

The required term may be looked-up in the left-hand column, and subsequent columns give the standard acronym, unit or abbreviation, and definition.

Term(s)	Acronym / Unit / Abbreviation	Definition
A		
Accelerator Pedal	AP	
After Bottom Dead Center	ABDC	Event occurring after BDC
After Top Dead Center	ATDC	Event occurring after TDC
Airbag / Supplementary Restraint System	Airbag, SRS	Airbag restraint system for driver and front seat passenger
Air Cleaner	ACL	
Air Conditioning	A/C	
Air Conditioning Control Module	A/CCM	Module controlling air conditioning, heating and ventilation
Air Conditioning Signal	ACS	Air conditioning compressor clutch operation is signalled to the PCM which induces idle speed corrections to compensate for engine load changes
Alternating current	ac	
Ampere	A	SI unit of current
Ampere hour	Ah	One ampere flowing for one hour
Anti-Lock Braking System	ABS	System which prevents wheel lock-up under braking by sensing lack of rotation of a wheel(s) and diverting fluid pressure away from it (them)
ABS Control Module	ABS CM	
ABS / Traction Control Control Module	ABS / TC CM	
Atmosphere	atm	Unit of pressure (1.01325 bar)
B		
Barometric Absolute Pressure Sensor	BARO	Sensor measuring the pressure of surrounding air at any given temperature and altitude
Battery positive voltage	B+	The positive voltage from a battery or any circuit connected directly to it
Before Bottom Dead Center	BBDC	Event occurring before BDC
Before Top Dead Center	BTDC	Event (usually ignition) occurring before TDC
Blower	BLR	Device which supplies a current of air at moderate pressure, e.g. heater or A/C blower

DESCRIPTION AND OPERATION (Continued)

Term(s)	Acronym / Unit / Abbreviation	Definition
Body Processor Module	BPM	Control module for body electrical systems, e.g. interior lamps, windshield wash / wipe control
Bottom Dead Center	BDC	Lowest point of piston travel in a reciprocating engine
Brake horsepower	bhp	Effective horsepower developed by an engine or motor, as measured by a brake applied to its output shaft
Brake Mean Effective Pressure	BMEP	That part of the effective pressure developed in a cylinder that would result in a cylinder output equal to the bhp of the engine
Brake On/Off	BOO	Indicates the position of the brake pedal
British Standard	BS	Standard specification issued by the British Standards Institution
British Standard Automotive	BSAu	
Bus		Topology of a communication network
Bypass Air	BPA	Mechanical control of throttle bypass air
C		
Camshaft Position Sensor	CMPS	Indicates camshaft position
Canadian Motor Vehicle Safety Standard	CMVSS	
Canister Purge	CANP	Controls purging of the EVAP canister
Carbon dioxide	CO ₂	Colorless gas with a density of approximately 1.5 times that of air
Carbon monoxide	CO	Poisonous gas produced as the result of incomplete combustion
Case Ground	CSE GND	Control module casing ground
Catalytic converter		In-line exhaust system device used to reduce the level of engine exhaust emissions
Celsius	C	SI term for the Centigrade scale, with freezing point at zero and boiling point at 100°
Central Processor Unit	CPU	The section of a computer that contains the arithmetic, logic and control circuits. It performs arithmetic operations, controls instruction processing, and provides timing signals and other housekeeping operations
Closed Loop	CL	
Closed Loop System	CLS	Control system with one or more feedback loops
Column/Mirror Control Module	C/MCM	
Control Module	CM	A self-contained group of electrical/electronic components, designed as a single replaceable unit, and controlling one or more processes

DESCRIPTION AND OPERATION (Continued)

Term(s)	Acronym / Unit / Abbreviation	Definition
Controller Area Network	CAN	A communication system which allows control modules to be linked together in a network.
Crankshaft Position Sensor	CKPS	Generates crankshaft position information in conjunction with the CKPTR (also generates speed information in certain applications)
Crankshaft Position Timing Ring	CKPTR	Toothed ring which triggers the CKPS
Crankcase Ventilation System	CV	System which scavenges camshaft cover and crankcase emissions and feeds them into the inlet manifold
Cubic centimeter	cm ³	
Curb weight		Weight of vehicle with fuel, lubricants and coolant, but excluding driver, passengers or payload
D		
Data Link Connector	DLC	Connector providing access and/or control of the vehicle information, operating conditions, and diagnostic information
Data Output Line	DOL	Circuit that sends certain information from the PCM to the instrument cluster
Degree	deg, °	Angle or temperature
Department of Transportation (US)	DOT	
Department of Transport (UK)	DTp	
Deutsche Institut für Normung	DIN	German standards regulation body
Diagnostic and Test Manual	D&TM	Part of the set of documentation required to service a particular family of Jaguar vehicles. Contains description and operation, diagnosis and testing, and general procedure sub-sections for each vehicle system. See also Workshop Manual, and On-board Diagnostics Manual
Diagnostic Module	DM	Supplemental Restraint System (non-controlling) module for diagnostics overview
Diagnostic Test Mode	DTM	A level of capability in an OBD system. May include different functional states to observe signals, a base level to read DTCs, a monitor level which includes information on signal levels, bi-directional control with on/off board aids, and the ability to interface with remote diagnosis
Diagnostic Trouble Code	DTC	An alpha/numeric identifier for a fault condition identified by the On-Board Diagnostic (OBD) system
Differential pressure		Pressure difference between two regions e.g. between intake manifold and atmospheric pressures

DESCRIPTION AND OPERATION (Continued)

Term(s)	Acronym / Unit / Abbreviation	Definition
Differential Pressure Feedback EGR	DPFE	An EGR system that monitors differential EGR pressure across a remote orifice to control EGR flow
Direct current	dc	Current which flows in one direction only, though it may have appreciable pulsations in its magnitude
E		
EGR Temperature EGRT Sensor	EGRT	Sensing EGR function based on temperature change
EGR Vacuum Regulator	EVR	Controls EGR flow by changing vacuum to the EGR valve
EGR Valve Position	EVP	An EGR system that directly monitors EGR valve position to control EGR flow
Electrically Erasable Programmable Read-Only Memory	EEPROM	
Electrically Programmable Read-Only memory	EPROM	
Electronic Secondary Air Injection	EAIR	A pump-driven system for providing secondary air using an electric air pump
Engine Control Module	ECM	
Engine Coolant Level	ECL	
Engine Coolant Temperature	ECT	
ECT Sensor	ECTS	Thermistor which provides engine coolant temperature signal to the ECM to trigger enrichment circuits which increase injector 'on' time for cold start and warm-up
Engine speed	RPM	
Environmental Protection Agency	EPA	
Evaporative Emission	EVAP	System designed to prevent fuel vapor from escaping into the atmosphere. Typically includes a charcoal filled canister to absorb fuel vapor
Evaporative Emission Control Valve	EVAPP	
Exhaust Gas Recirculation	EGR	System which reduces NOx emissions by adding exhaust gases to the incoming fuel/air charge
Exhaust Gas Recirculation Solenoid Vacuum Valve	EGRS	
Exhaust Gas Recirculation Temperature Sensor	EGRT Sensor	
Exhaust Gas Recirculation Valve	EGRV	

DESCRIPTION AND OPERATION (Continued)

Term(s)	Acronym / Unit / Abbreviation	Definition
F		
Fan Control	FC	Engine cooling fan control
Federal Motor Vehicle Safety Standard (US)	FMVSS	
Figure	Fig.	Illustration reference
Flash Electrically Erasable Programmable Read-Only Memory	FEEPROM	
Flash Erasable Programmable Read-Only Memory	FEPRM	
Flywheel Sensor	CKFS	Sensor mounted so as to be triggered by each flywheel ring gear tooth to give an engine speed signal
Fuel Injectors	FI	Solenoid operated devices that spray a metered quantity of fuel into the inlet ports
Fuel Pressure Regulator Control	FPRC	Controls fuel pressure regulator; used primarily to give extra fuel at cold start-up
Fuel Pump	FP	
Fuel Pump Monitor	FPM	Monitors operation of fuel pump
Fuel Pump Relay	FPR	
Fuel rich/lean		Qualitative evaluation of air/fuel ratio based on a ratio known as stoichiometry, or 14.7:1 (Lambda)
G		
Generator	GEN	Rotating machine which converts mechanical energy into electrical energy
Gramme centimeter	gcm	
Gramme (force)	gf	
Gramme (mass)	g	
Ground	GND	Electrical conductor used as a common return for an electrical circuit or circuits, and with a relative zero potential
H		
Hard fault		A fault currently present in the system
Headlamp	HL	
Heated Oxygen Sensor	HO2S	Electrically heated oxygen sensor which induces fueling corrections
Hertz (frequency)	Hz	Frequency, one cycle per second
High Mounted Stoplamp	HMSL	
High tension (electrical)	ht	
Hour	h	
Hydrocarbon	HC	

DESCRIPTION AND OPERATION (Continued)

Term(s)	Acronym / Unit / Abbreviation	Definition
I		
Idle Air Control	IAC	Electrical control of throttle bypass air
Idle Air Control Valve	IACV	Stepper motor driven device which varies the volume of air by-passing the throttle to maintain the programmed idle speed
Ignition amplifier	IA	Device which amplifies the ignition system output
Ignition ground	IGN GND	
Inertia Fuel Shut-off	IFS	An inertia system that shuts off the fuel supply when activated by pre-determined force limits brought about by (e.g.) collision
Inertia Fuel Shut-off Switch	IFSS	Shuts down fuel and ignition systems in the event of a vehicle impact
Intake air		Air drawn through a cleaner and distributed to each cylinder for use in combustion
Intake Air Temperature	IAT	Temperature of intake air
Intake Air Temperature Sensor	IATS	Device used to measure IAT
Intake Air Temperature Sensor Ignition	IATSI	Thermistor which signals the ECM to retard the ignition timing in response to high inlet air temperatures
Intake Air Temperature Sensor Injection	IATSF	Thermistor which inputs air density information to the ECM
Internal diameter	i.dia	
International Standards Organization	ISO	
J		
K		
Kilogramme (mass)	kg	
Kilogramme (force)	kgf	
Kilogramme force per square centimeter	kgf/cm ²	
Kilometer	km	
Kilometer per hour	km/h	
Kilopascal	kPa	
Kilovolt	kV	
Knock Sensor	KS	Sensor which detects the onset of detonation, and signals the ECM to retard the ignition
L		
Left-hand	LH	
Left-hand drive vehicle	LHD	

DESCRIPTION AND OPERATION (Continued)

Term(s)	Acronym / Unit / Abbreviation	Definition
Left-hand thread	LH Thd	
Liquid Crystal Display	LCD	Optical digital display system, applied voltage to which varies the way the crystals reflect light, thereby modifying the display
Liter	L	
Low tension	lt	Primary circuit of the ignition system, linking the battery to the primary winding in the ignition coil
M		
Malfunction Indicator Lamp	MIL	A required on-board indicator to alert the driver of an emission related malfunction
Manifold Absolute Pressure	MAP	Absolute pressure of the intake manifold air
Manifold Absolute Pressure Sensor	MAPS	Sensor located in the PCM and ported to the intake manifold
Manifold Surface Temperature	MST	
Mass Air Flow	MAF	System which provides information on the mass flow rate of the intake air to the engine
Mass Air Flow Sensor	MAFS	Hot-wire sensor which monitors air flow into the intake manifold for fueling and ignition control
Maximum	max.	
Meter (measurement)	m	
Metric (screw thread, e.g. M8)	M	
Microfarad	MFD	Unit of electrical capacitance, one millionth of a farad
Millimeter	mm	
Millimeter of mercury	mmHg	
Millisecond	ms	
Minimum	min.	
Minute	minute	
Model Year	MY	
Module	M	Self contained group of electrical/electronic components which is designed as a single replaceable unit
Motorized In-Car Aspirator	MIA	Device which constantly samples cabin temperature by passing air over a sensor, and communicates with the A/CCM to modify A/C system performance to suit
Multi Protocol Adaptor	MPA	An interpreter for the various data languages present on a vehicle
N		
National Institute of Occupational Safety & Health (US)	NIOSH	
Newton	N	SI unit of force. 1 N = 0.2248 pounds force
Newton meter	Nm	SI unit of torque. Must not be confused with nm (nanometer)

DESCRIPTION AND OPERATION (Continued)

Term(s)	Acronym / Unit / Abbreviation	Definition
Nitrous Oxide	NO _x	Compounds of nitrogen and oxygen formed at high temperatures. Major source of exhaust-gas air pollution
Non-Volatile Random Access Memory	NVRAM	RAM which retains memory even if power supply is interrupted
Normally aspirated		Fueling system using intake air at atmospheric pressure; not supercharged or turbocharged
Normally Closed	NC	
Normally Open	NO	
North American Specification	NAS	Vehicles for sale in the USA and Canadian markets
Number	No.	
O		
Occupational Safety & Health Administration (US)	OSHA	
On-Board Diagnostic	OBD	A system that monitors some or all computer input and output control signals. Signal(s) outside the pre-determined limits imply a fault in the system or a related system
On-Board Diagnostics Manual	OBDM	Part of the set of documentation required to service a particular family of Jaguar vehicles. Covers all OBD-related components to a legally required level of description, diagnosis and renewal. See also Workshop Manual, and Diagnostic and Test Manual
Original Equipment Manufacturer	OEM	
Outside diameter	o. dia	
Oxides of nitrogen	NO _x	
Oxygen sensor	O ₂ S	A sensor which detects oxygen content in the exhaust gases
P		
Parameter Identifier	PID	An index number referring to a parameter within a module without knowledge of its storage location
Park Neutral Position	PNP	
Park Neutral Position Switch	PNPS	Indicates the selected non-drive modes of the (automatic) transmission
Part number	part no.	
Portable Diagnostic Unit	PDU	Comprehensive electrical diagnosis system specific to Jaguar vehicles
Power Assisted Steering	PAS	Hydraulic pump-assisted steering system
Power Steering Pressure	PSP	

DESCRIPTION AND OPERATION (Continued)

Term(s)	Acronym / Unit / Abbreviation	Definition
Programmable Electronic Control Units System	PECUS	Process whereby a common ECM is programmed on the production line to suit the market requirements of a particular vehicle
Programmable Read-Only Memory	PROM	ROM with some provision for setting the stored data after manufacture
Q		
R		
Random Access Memory	RAM	Fast access memory store which is accessible for entry or extraction of data
Read-Only Memory	ROM	Fast access memory in which data is fixed and may not be entered or extracted
Reservoir	RES	Container, usually for oils, coolants or hydraulic fluids
Return	RTN	A dedicated sensor ground circuit
Revolutions Per Minute	RPM	Shaft speed of a device, usually an engine or motor
Right-hand	RH	
Right-hand drive vehicle	RHD	
S		
Scan Tool	ST	Device that interfaces with and communicates information on a data link
Seat Control Module	SCM	Module controlling the seat motor systems (not electric raise/lower-only seats)
Secondary Air		Air provided to the exhaust system
Secondary Air Injection	AIR	System used for a period of time each time the engine is started, unless certain temperature criteria are met. Pumps air directly into the exhaust system which generates extra heat and reduces the time taken for the catalytic converters to reach operating temperature
Secondary Air Injection Bypass	AIRB	Vents secondary air to atmosphere
Secondary Air Injection Check Valve	AIRC	Valve which prevents back-flow of exhaust gas to the AIR system when the system is inoperative
Secondary Air Injection Diverter	AIRD	Diverts secondary air to either the catalyst or exhaust manifold
Secondary Air Injection Magnetic Clutch	AIRPC	Clutch mounted on the AIRP drive shaft
Secondary Air Injection Pump	AIRP	Mechanically driven rotary vane pump, driven through the AIRPC
Secondary Air Injection Relay	AIRR	Controls the injection of air into the exhaust system

DESCRIPTION AND OPERATION (Continued)

Term(s)	Acronym / Unit / Abbreviation	Definition
Secondary Air Injection Switching Valve	AIRS	Vacuum operated valve backing-up the AIRC
Security & Locking Control Module	SLCM	Module controlling the vehicle's security and closure-locking functions
Sensor	S	Generic name for a device that senses either the absolute value or a change in a physical quantity such as temperature, pressure or flow rate, and converts that change into an electrical quantity signal
Service Repair Operation (number)	SRO	Number generated by Jaguar Methods & Techniques system which relates to the time allowed to complete a repair operation. Further information on the system can be found in the separate Jaguar Publications (for each model range) entitled 'Repair Operation Times'
Shift Solenoid	SS	Controls shifting in an automatic transmission
Signal return	SIG RTN	
Sliding Roof Control Module	SRCM	
Society of Automotive Engineers	SAE	
Speed Control Control Module	SCCM	Module controlling Speed Control System
Square centimeter	cm ²	
Standard	std	
Standard Corporate Protocol	SCP	A high-speed, serial communications system linking all body system control modules. Control messages and data are passed between modules at up to 786 messages per second
Supercharger	SC	An intake system which utilizes a supercharger (mechanically driven device that pressurizes intake air, thereby increasing density of charge air and the consequent power output from a given displacement)
Supercharger Bypass	SCB	
T		
Tachometer	TACH	A circuit that provides input for an electronic tachometer display
Thermal Vacuum Valve	TVV	Controls vacuum levels or routing based on temperature
Throttle Body	TB	Device containing the throttle
Throttle Position	TP	
Throttle Position Sensor	TPS	Interprets throttle position and movement to identify idle, acceleration and full-power demands
Top Dead Center	TDC	
Torque Converter Clutch	TCC	
Transmission Control Module	TCM	Controls the shifting pattern of the (automatic) transmission

DESCRIPTION AND OPERATION (Continued)

Term(s)	Acronym / Unit / Abbreviation	Definition
Transmission Control Switch	TCS	Modifies the operation of electronically controlled transmissions
Transmission Oil Temperature	TOT	Indicates temperature of transmission fluid
Transmission Range	TR	The range in which the transmission is operating
Transmission Speed Sensor	TSS	Indicates rotational speed of transmission output shaft or turbine shaft
U		
V		
Vacuum Solenoid Valve	VSV	Vacuum operated valve used in the speed control system
Vacuum Solenoid Valve (atm)	VSV VA	Vacuum atmospheric valve used in the speed control system
Vacuum Solenoid Valve (rel)	VSV VR	Vacuum release valve used in the speed control system
Vacuum Solenoid Valve (vac)	VSV VV	Vacuum valve used in the speed control system
Variable Valve Timing	VVT	A system by which the relationship of the crankshaft and camshaft may be altered during engine running
Vehicle Battery Adapter	VBA	Provides electrical power to the PDU and supplies a battery reference level
Vehicle Condition Monitor	VCM	Instrument panel display which warns of faults
Vehicle Emission Control Information Label	VECI Label	
Vehicle Identification Number	VIN	Number assigned to the vehicle by the manufacturer, primarily for licensing and identification purposes
Vehicle Interface Adapter	VIA	Extends the PDU capability and provides a parallel interface to vehicle harnesses and ECMs
Vehicle Speed Sensor	VSS	Sensor which provides vehicle speed information
Viscosity Index	VI	
Voltage Regulator	VR	Device which regulates the variable output voltage of a generator
W		
Watt	W	SI unit of power (1 hp = 745.7 watts)
Wide Open Throttle	WOT	Full throttle position
Workshop Manual	WSM	Part of the set of documentation required to service a particular family of Jaguar vehicles. Contains specification, description and operation, and maintenance procedure sub-sections, as required, for each vehicle system. See also Diagnostic and Test Manual, and On-board Diagnostics Manual
XYZ		

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SECTION 413-00 Information, Gauge, and Warning Group

SUBJECT	PAGE
DESCRIPTION AND OPERATION	
Information, Gauge, and Warning Group – Introduction	413-00-2

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DESCRIPTION AND OPERATION

Information, Gauge, and Warning Group – Introduction

Details of the Information, Gauge, and Warning Group can be found in Sections 413-01 to 413-04 and 413-06 to 413-09 of this manual, and also the Diagnostic and Test Manual.

SECTION 413-01 Instrument Cluster

VEHICLE APPLICATION: X100

SUBJECT

PAGE

REMOVAL AND INSTALLATION

Major Gauge Module 413-01-2

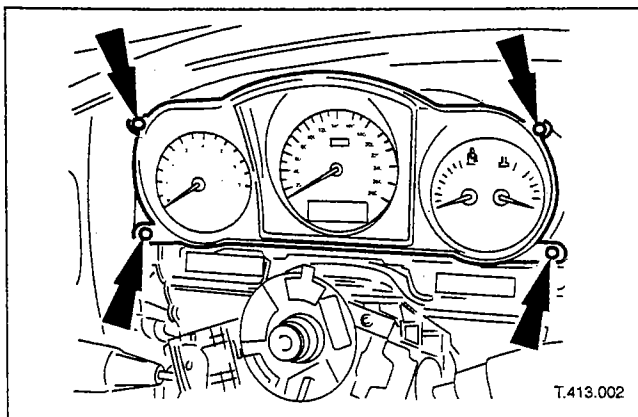
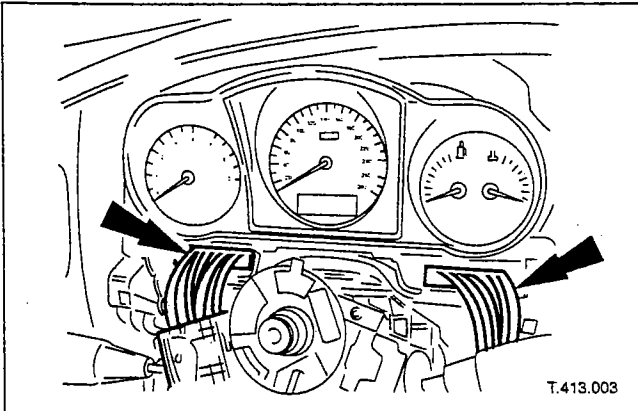
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REMOVAL AND INSTALLATION

Major Gauge Module (88.20.24)

Removal

1. Turn ignition key to position II, adjust steering column to lowest and fully extended position and turn ignition key to 'O'.
2. Remove battery cover and disconnect earth cable from battery terminal. Refer to Section 414-01.
3. Remove driver's air bag. Refer to Section 501-20.
4. Remove steering wheel from column. Refer to Section 211-04.
5. Remove driver's side underscuttle. Refer to Section 501-05.
6. Remove instrument panel veneer panel. Refer to operations in this section.
7. Accessing via underscuttle area, disconnect major gauge harness multiplugs.
8. Slacken and remove the four major gauge module securing screws and withdraw module from fascia.



REMOVAL AND INSTALLATION (Continued)**Installation**

9. Carefully position and fully seat major gauge module in fascia.
10. Fit and tighten four screws securing module to fascia.
11. Connect gauge module harness multiplugs.
12. Fit veneer panel to instrument panel.
13. Fit steering wheel to steering column. Refer to Section 211-04.
14. Fit driver's side underscuttle. Refer to Section 501-05.
15. Connect earth cable to battery terminal and fit battery cover. Refer to Section 414-01.
16. Turn ignition key to position II, return steering column to original position and turn ignition key to O.

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SECTION 415-00 In-Vehicle Entertainment

SUBJECT	PAGE
DESCRIPTION AND OPERATION	
In-Vehicle Entertainment – Introduction	415-00-2

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DESCRIPTION AND OPERATION

In-Vehicle Entertainment – Introduction

Details of the In-Vehicle Entertainment system can be found in Sections 415-01 to 415-03 of this manual, and also the Diagnostic and Test Manual.

SECTION 415-01 Receiver and Audio Media Player

VEHICLE APPLICATION: X100

SUBJECT	PAGE
SPECIFICATIONS	
Torques	415-01-2
DESCRIPTION AND OPERATION	
Radio	415-01-3
DIAGNOSIS AND TESTING	
Refer to the Diagnostic and Test Manual	
REMOVAL AND INSTALLATION	
Radio	415-01-4

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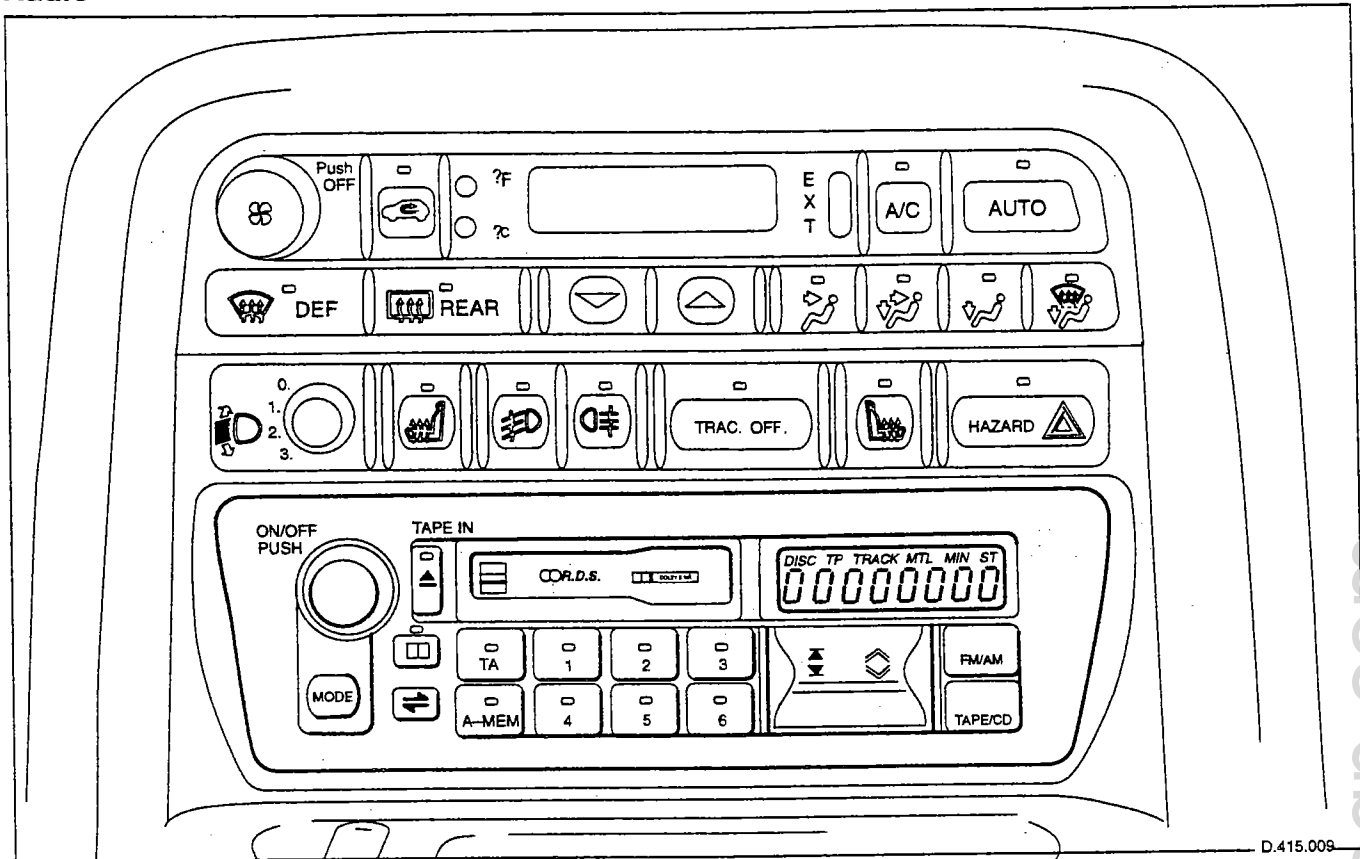
SPECIFICATIONS

Torques

	Nm

DESCRIPTION AND OPERATION

Radio



D.415.009

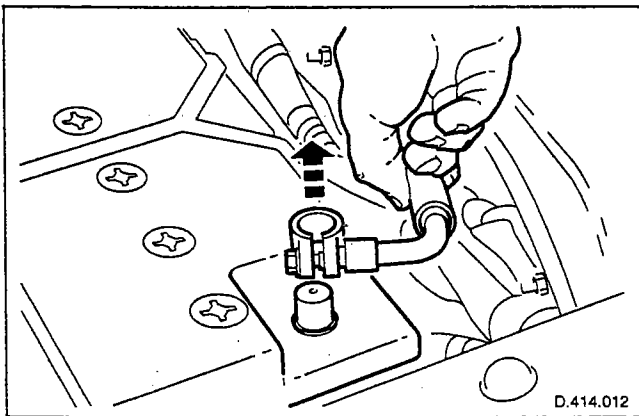
The choice of two entertainment systems is available; base or premium. Both systems use the same radio and electrically operated aerial. The premium system has the addition of a power amplifier, different speakers and a CD Autochanger. The CD Autochanger and the amplifier are located in the luggage compartment, at the right hand side.

Both systems may be operated remotely by use of switches located on the steering wheel. Refer to the Sound System Handbook for setting-up procedures and use.

REMOVAL AND INSTALLATION

Radio (86.50.03)

Removal

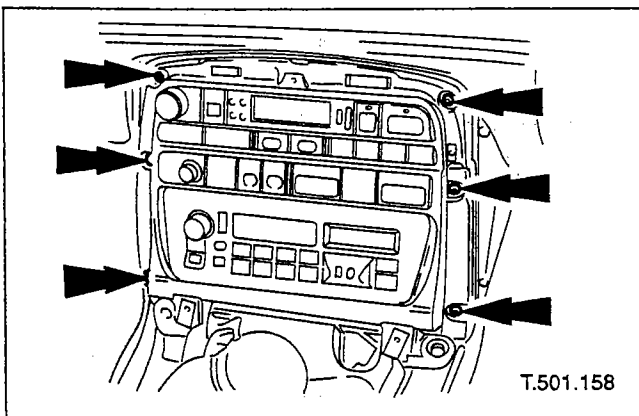


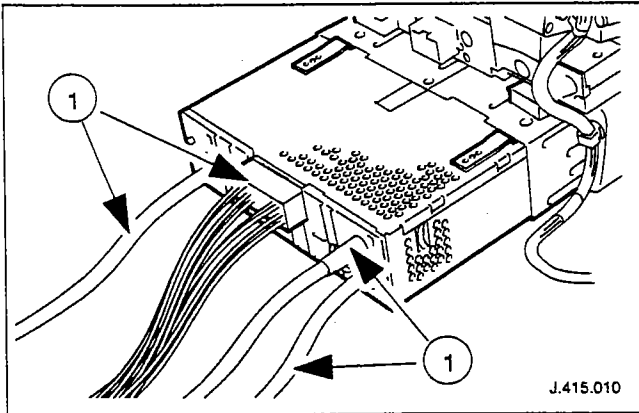
1. Set the gear selector lever to 'D'.
2. Open the driver's door, or both doors if necessary, to allow the side windows to drop. Ensure that the doors remain open until after the battery has been disconnected.
3. Disconnect the battery ground cable.

- Remove the battery cover.

4. Remove the 'J' gate surround for access; refer to Section 501-05.
5. Remove the centre console assembly for access; refer to Section 501-12.
6. Remove the radio panel.

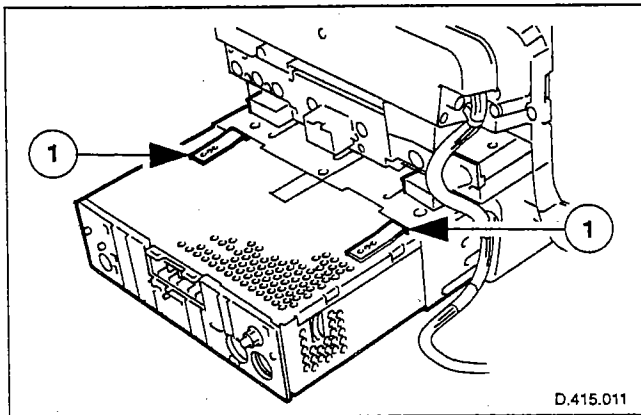
- Remove the six screws which secure the radio panel.
- Move the panel assembly clear, complete with the radio and upper control module.



REMOVAL AND INSTALLATION (Continued)

7. Disconnect the radio electrical connectors.

- 1 From the rear of the radio, disconnect the aerial, the ground cable (secured by one nut), the multi-plug and the CD data connector. If required, to remove the panel from the vehicle, disconnect the upper control module.



8. Remove the radio.

- 1 Compress the retaining spring clips and remove the radio from the mounting panel.

Installation

9. Installation is the reverse of removal.

10. Perform the Battery Reconnection Procedure; Refer to Section 414-01.

SECTION 415-02 Antenna

VEHICLE APPLICATION: X100

SUBJECT **PAGE**

SPECIFICATIONS

Torques 415-02-2

DESCRIPTION AND OPERATION

Antenna 415-02-3

DIAGNOSIS AND TESTING

Refer to the Diagnostic and Test Manual

REMOVAL AND INSTALLATION

Antenna 415-02-4

Antenna Mast 415-02-5

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SPECIFICATIONS

Torques

	Nm

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DESCRIPTION AND OPERATION
Antenna

The electrically operated antenna operates automatically when the Ignition switch is set to position 1 or 2, and the radio is switched on.

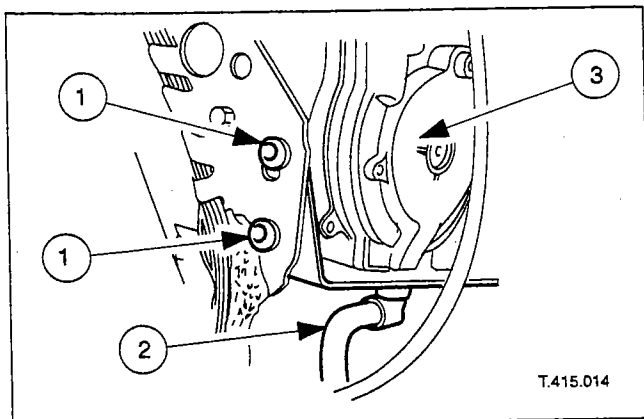
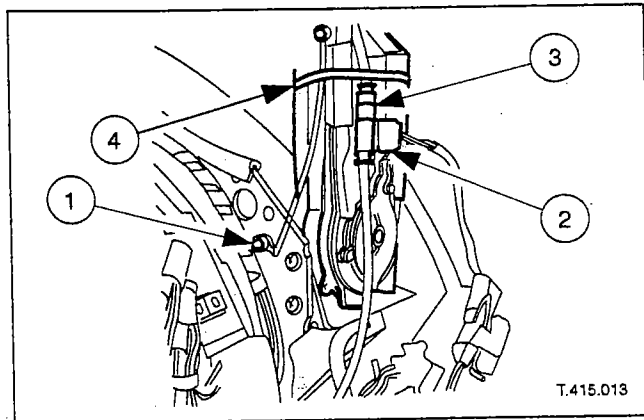
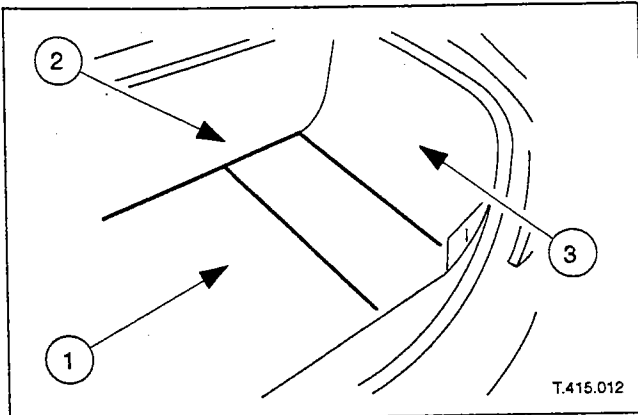
The antenna is similar to that used on previous models, but with a different mounting bracket.

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REMOVAL AND INSTALLATION

Antenna (86.50.21)

Removal



1. Remove the carpet and trim panels from the luggage compartment. For detailed information, refer to Section 501-05.

- 1 Remove the carpet.
- 2 Remove the front liner.
- 3 Remove the liner from the right hand side.

2. Disconnect the electrical connections from the antenna.

- 1 Remove the bolt which secures the ground lead to the vehicle body. Disconnect and remove the lead.

- 2 Disconnect the multi-plug from the motor.

- 3 Disconnect the antenna lead.

- 4 Remove the tie-strap which secures the harness to the antenna body.

3. Remove the antenna.

- 1 Remove the two bolts which secure the antenna mounting bracket to the vehicle body.

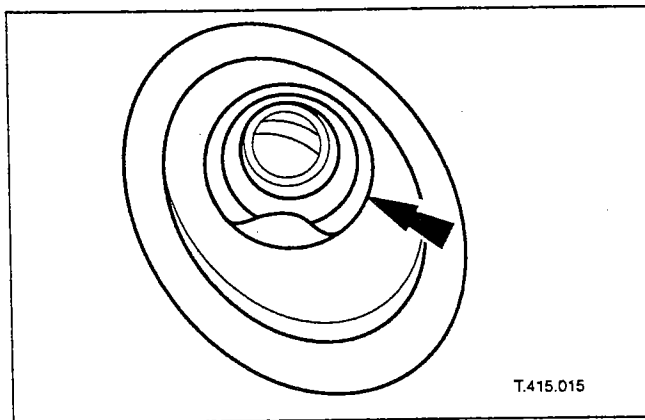
- 2 Reposition the drain tube of the antenna, through the body grommet in the luggage compartment floor.

- 3 Remove the antenna from through the body grommet. Place the antenna aside.

4. Remove the drain tube from the antenna.

REMOVAL AND INSTALLATION (Continued)**Installation**

5. Installation is the reverse of removal. Lubricate the vehicle body grommets with soap solution or rubber lubricant.

Antenna Mast (86.50.29)**Removal**

1. Loosen the mast retaining nut.

2. Remove the mast.

- Switch ON the ignition and the radio.
- Allow the antenna motor to stop at the fully 'up' position.
- Remove the mast, noting the position of the teeth on the cable – towards the side of the vehicle.
- Switch OFF the ignition.

Installation

3. Installation is the reverse of removal.

SECTION 415-03 Speaker System

VEHICLE APPLICATION: X100

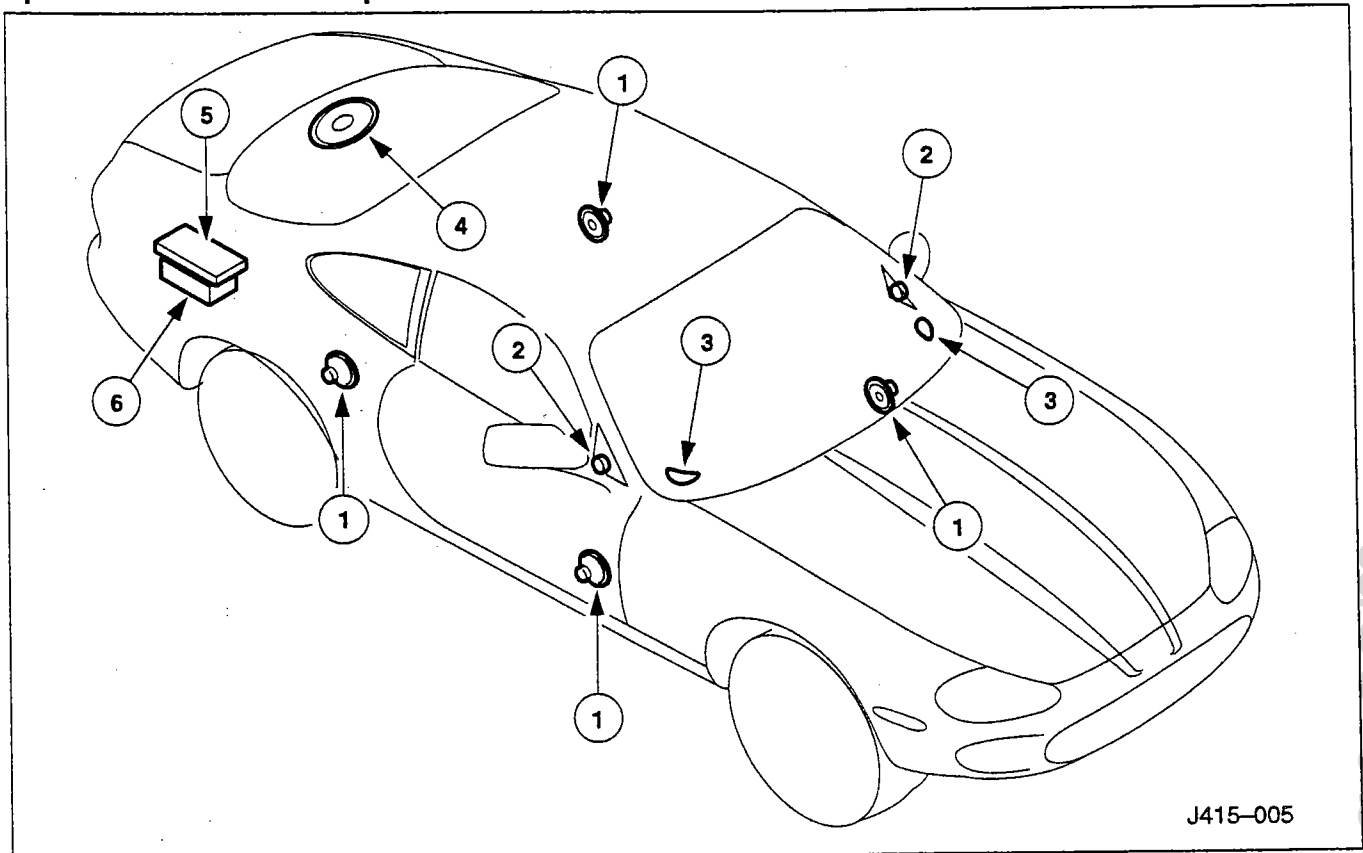
SUBJECT	PAGE
SPECIFICATIONS	
Torques	415-03-2
DESCRIPTION AND OPERATION	
Speaker Location - Coupe	415-03-3
Speaker Location - Convertible	415-03-4
DIAGNOSIS AND TESTING	
Refer to the Diagnostic and Test Manual	
REMOVAL AND INSTALLATION	
Rear Speaker	415-03-5
Door Speaker	415-03-5
Fascia Speaker	415-03-7
Fascia Speaker Grille	415-03-7
Rear Sub-Woofer Speaker, Coupe	415-03-8

SPECIFICATIONS

Torques

	Nm

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DESCRIPTION AND OPERATION**Speaker Location - Coupe**

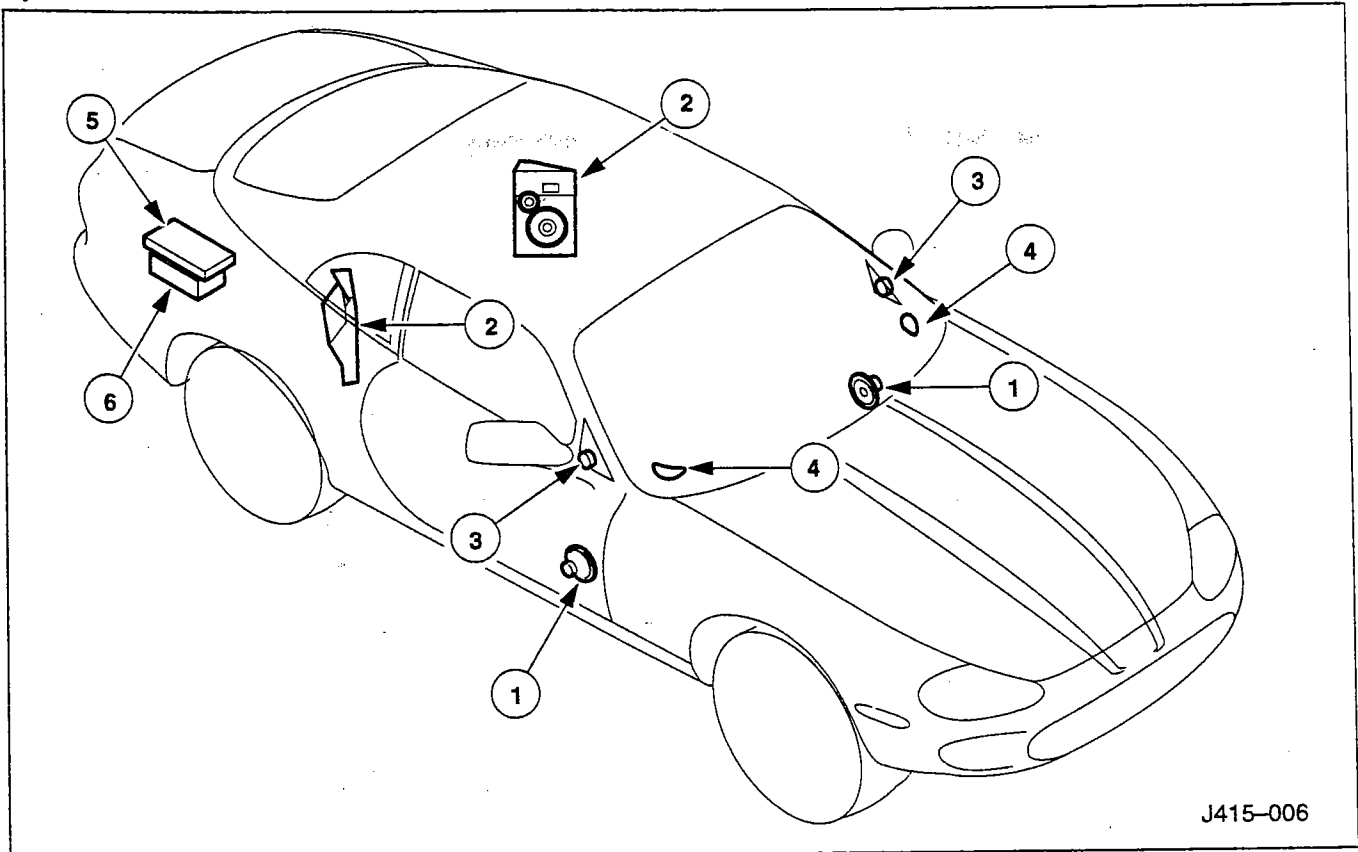
J415-005

Item	Description
1	Base System - 6" Triple Cone
1	Premium System - 6" Mid / Bass
2	Premium System - Mirror Panel Tweeter
3	Premium System - Fascia 2.5" Mid Range
4	Premium System - 8" Sub Woofer
5	Premium System - Amplifier
6	Premium System - CD Autochanger

Vehicles with the base entertainment system use the same speaker configuration for the coupe as for the convertible.

Vehicles with the premium entertainment system have a different configuration for each model.

DESCRIPTION AND OPERATION (Continued)
Speaker Location - Convertible



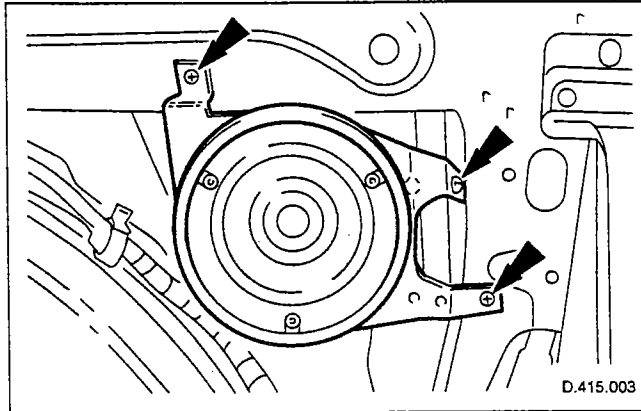
Item	Description
1	Base System - 6" Triple Cone
2	Base System - 6" Triple Cone
1	Premium System - 6" Mid / Bass
2	Premium System - Enclosure with 6" Long Throw Sub-Woofer and 2.5" Mid Range
3	Premium System - Mirror Panel Tweeter
4	Premium System - Fascia 2.5" Mid Range
5	Premium System - Amplifier
6	Premium System - CD Autochanger

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REMOVAL AND INSTALLATION

Rear Speaker (86.50.12)

Removal



1. Remove the rear quarter armrest / speaker cover for access; refer to Section 501-05.

2. Remove the rear speaker:

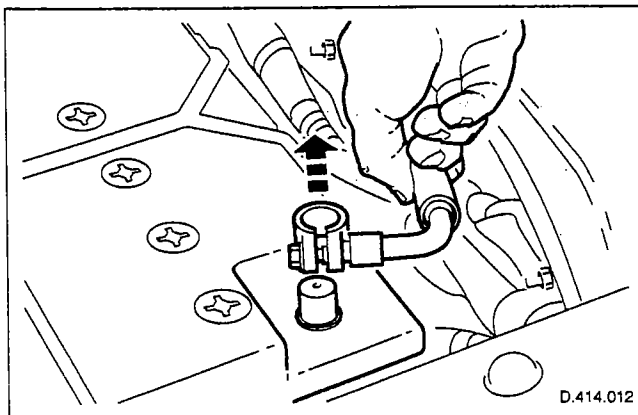
- Remove the three screws which secure the speaker.
- Support the speaker, disconnect the multi-plug and remove the speaker.

Installation

3. Installation is the reverse of removal:

Door Speaker (86.50.13)

Removal

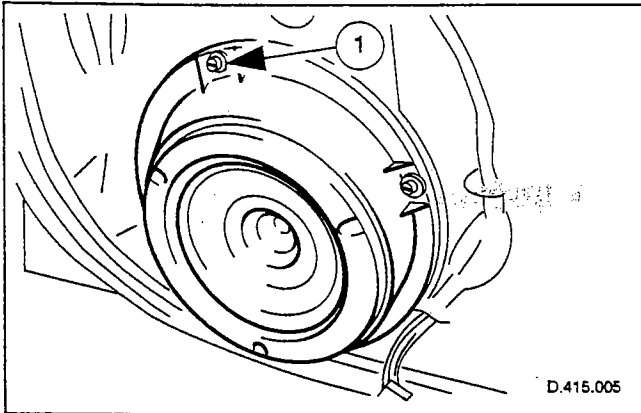


1. Open the driver's door, or both doors if necessary, to allow the side windows to drop. Ensure that the doors remain open until after the battery has been disconnected.

2. Disconnect the battery ground cable.

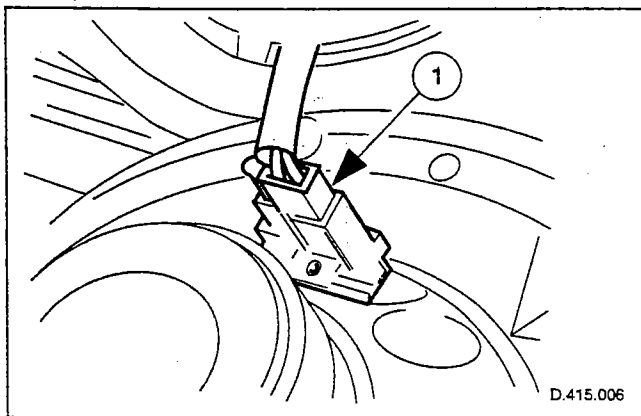
- Remove the battery cover:

3. Remove the trim pad from the door; refer to Section 501-05.

REMOVAL AND INSTALLATION (Continued)

4. Remove the door speaker from the door.

- 1 Remove the four bolts which secure the speaker.



5. Disconnect and remove the speaker.

- 1 Support the speaker, disconnect the multi-plug and remove the speaker.

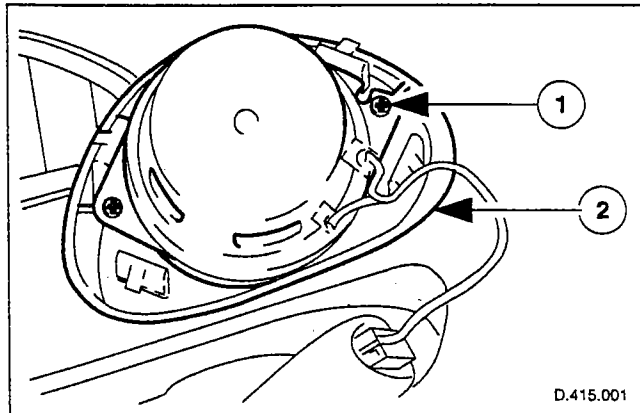
Installation

6. Installation is the reverse of removal.
7. Perform the Battery Reconnection Procedure; Refer to Section 414-01.

REMOVAL AND INSTALLATION (Continued)

Fascia Speaker (86.51.02)

Removal



1. Carefully, using a wide flat blade, ease the speaker / grille assembly from the fascia. Disconnect the speaker multi-plug.
2. Remove the speaker from the speaker grille.

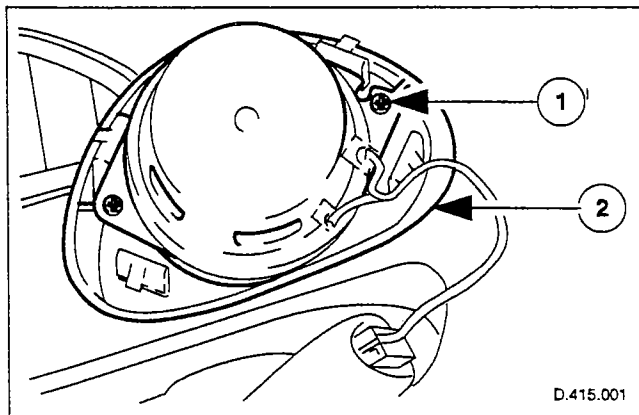
- 1 Remove the two screws which secure the speaker to the grille.
- 2 Remove the speaker from the grille and place aside.

Installation

3. Installation is the reverse of removal.

Fascia Speaker Grille (86.51.04)

Removal



1. Carefully, using a wide flat blade, ease the speaker / grille assembly from the fascia. Disconnect the speaker multi-plug.
2. Remove the speaker from the speaker grille.

- 1 Remove the two screws which secure the speaker to the grille.
- 2 Remove the grille from the speaker and place the components aside.

Installation

3. Installation is the reverse of removal.

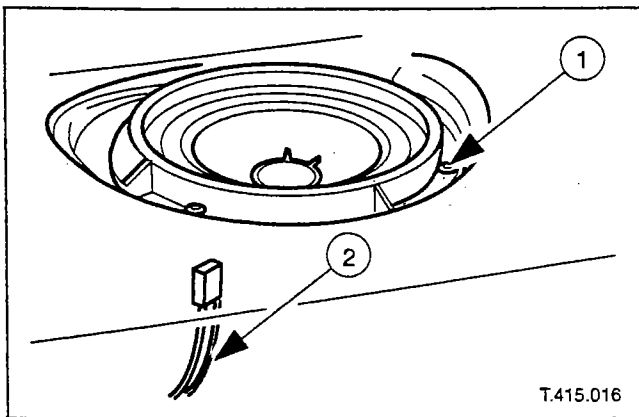
Rear Sub-Woofer Speaker, Coupe (86.51.05)**Removal**

1. Remove the cover assembly from the rear sub-woofer speaker; refer to Section 501-05.
2. Remove the rear sub-woofer speaker.

- 1 Remove the four screws which secure the sub-woofer speaker.

- 2 Reposition the speaker for access and disconnect the multi-plug.

- Remove the speaker from the rear parcel shelf and place aside.

**Installation**

3. Installation is the reverse of removal.

SECTION 417-00 Lighting System

SUBJECT	PAGE
DESCRIPTION AND OPERATION	
Lighting System – Introduction	417-00-2

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DESCRIPTION AND OPERATION

Lighting System – Introduction

Details of the Lighting system can be found in Sections 417-01 and 417-02 of this manual, and also the Diagnostic and Test Manual.

SECTION 417-01 Exterior Lighting

VEHICLE APPLICATION: X100

SUBJECT	PAGE
SPECIFICATIONS	
Bulbs	417-01-2
Torques	417-01-2
DESCRIPTION AND OPERATION	
Front Lamps	417-01-3
Rear Lamps	417-01-4
DIAGNOSIS AND TESTING	
Refer to the Diagnostic and Test Manual	
REMOVAL AND INSTALLATION	
Headlamp Assembly	417-01-5
Front Fog Lamp	417-01-6
Front Side Marker Lamp	417-01-7
Rear Side Marker Lamp	417-01-8
Side Repeater Lamp	417-01-9
Rear Lamp Assembly	417-01-9
Number Plate Lamp / Finisher Panel Assembly	417-01-10
Bulb - Main Beam	417-01-11
Bulb - Dip Beam	417-01-12
Bulb - Front Direction Indicator	417-01-13
Bulb - Front Side / Parking	417-01-14
Bulb - Front Fog Lamp	417-01-15
Bulb - Rear Lamp Assembly	417-01-16
Bulb - Number Plate Lamp	417-01-17
Bulb - Side Repeater Lamp	417-01-18
Bulb - Front Side Marker Lamp	417-01-19
Bulb - Rear Side Marker Lamp	417-01-20

SPECIFICATIONS**Bulbs**

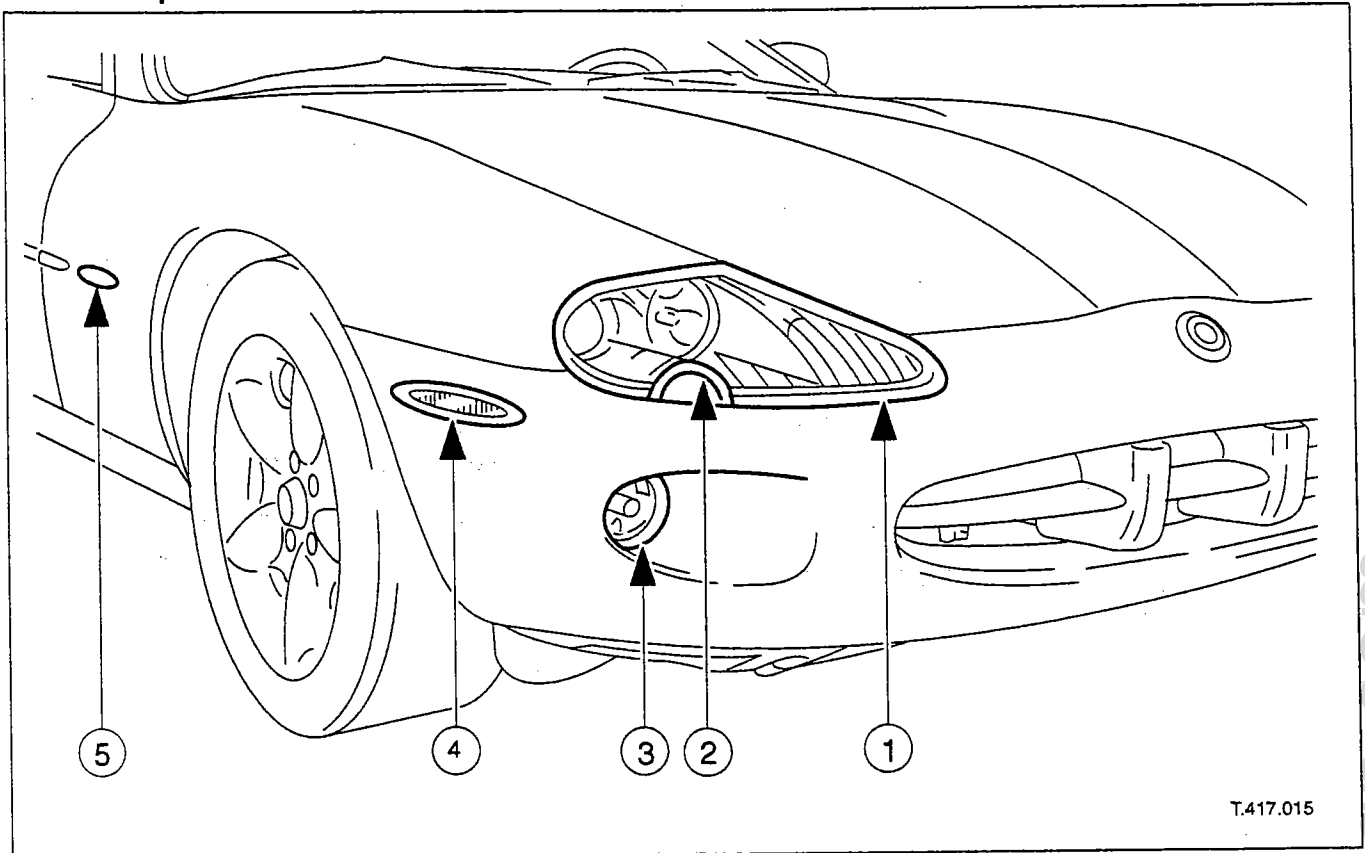
Description	Capacity	Type
Flasher Side Repeater.	12V 5W	Capless Long Life.
Fog Lamp – Front.	12V 55W	Halogen H3 Long Life.
Fog Light – Rear Guard.	12V 21W	Bayonet Long Life.
Front Direction Indicator.	12V 21W	Bayonet Amber Long Life.
Front Parking (side) Light.	12V 5W	Capless Long Life.
Headlamp – Main	12V 60W	Halogen HB3
Headlamp – Dip	12V 55W	Halogen H1 Long Life
Number Plate Light.	12V 5W	Capless Long Life.
Rear Direction Indicator.	12V 21W	Bayonet Amber Long Life.
Reverse Light.	12V 21W	Bayonet Long Life.
Stop Light.	12V 21W	Bayonet Long Life.
Tail Light.	12V 5W	Bayonet Long Life.

Torques

	Nm
Rear Lamp Assembly to Body	3

DESCRIPTION AND OPERATION

Front Lamps



T.417.015

Item	Description
1	Headlamp Assembly
2	Power Wash Jet Assembly
3	Fog Lamp
4	Side Marker / Reflex
5	Repeater Lamp

Each headlamp assembly incorporates a main beam lamp, a dipped beam lamp, a direction indicator lamp and a side lamp. Access for bulb replacement is from the engine compartment except for the dipped beam bulb, which is accessible through a panel in the wheelarch liner.

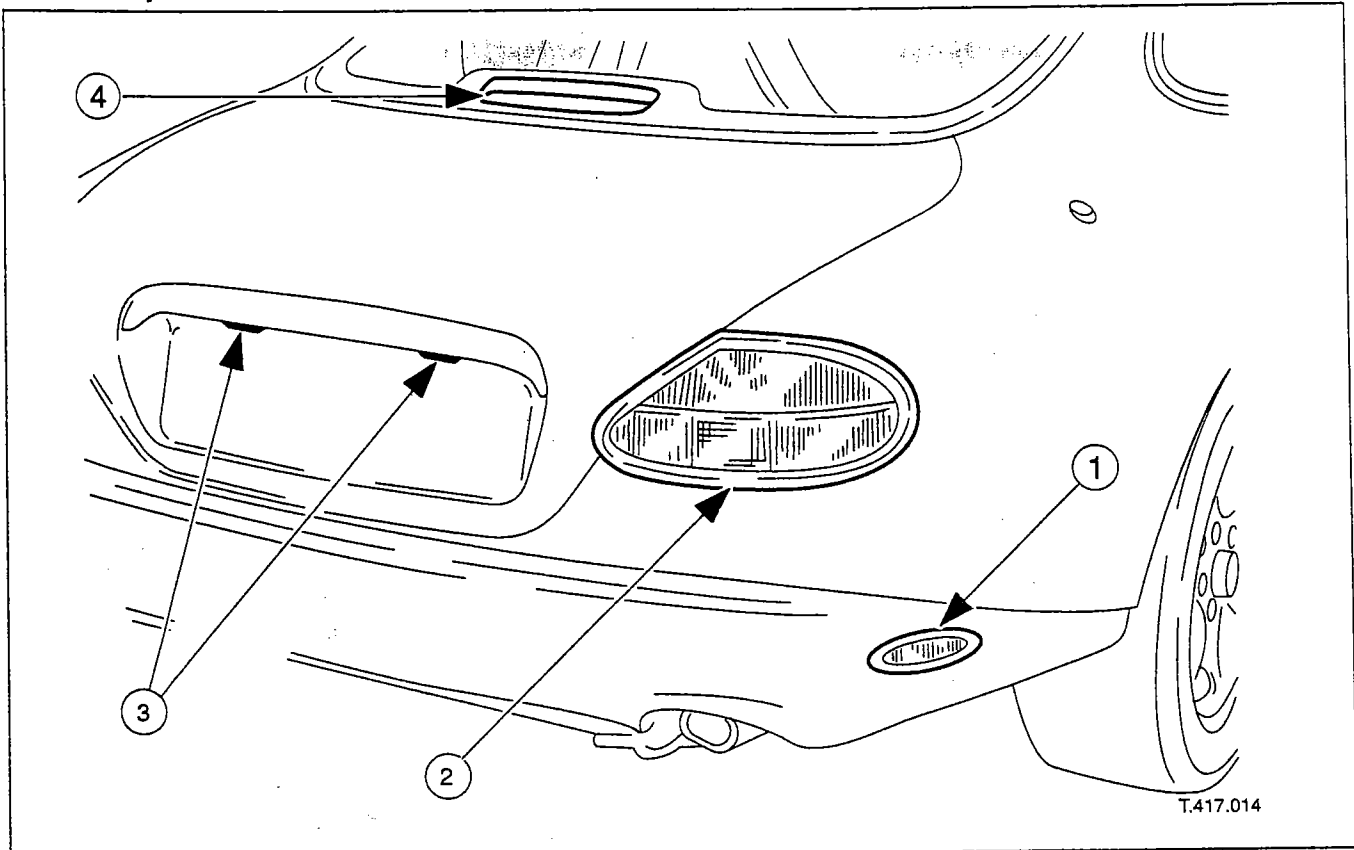
The fog lamps are located in recesses in the front bumper and secured by three screws. Access for bulb replacement is through the opening panel in the wheelarch liner. The lamps are not interchangeable, side to side, because of the orientation of the fixing holes.

Side marker lamps, incorporating reflectors, are secured by a spring clip at each end of the lamp. Access for bulb replacement is through the opening panel in the wheelarch liner. Not connected for all markets.

Repeater lamps (where fitted) are secured by a spring clip at each end of the lamp. In markets where they are not specified, a leaping Jaguar badge is fitted.

DESCRIPTION AND OPERATION (Continued)

Rear Lamps



T.417.014

Item	Description
1	Side Marker / Reflex
2	Rear Lamp Assembly
3	Licence Plate Lamps
4	High Mounted Stop Lamp

A High Mounted Stop Lamp (not fitted to all markets) is fitted inside the rear screen on coupe models (as shown above) and externally, on the luggage compartment lid, on convertible models. These lamps operate using sixteen LEDs instead of conventional bulbs. Individual LEDs cannot be replaced; the complete lamp unit must be renewed if one LED is inoperative.

Side marker lamps, incorporating reflectors, are secured by a spring clip at each end of the lamp. Access for bulb replacement is from beneath the rear of the vehicle. Not connected for all markets.

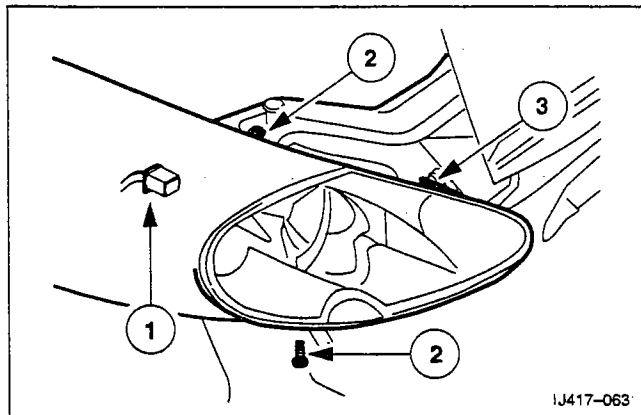
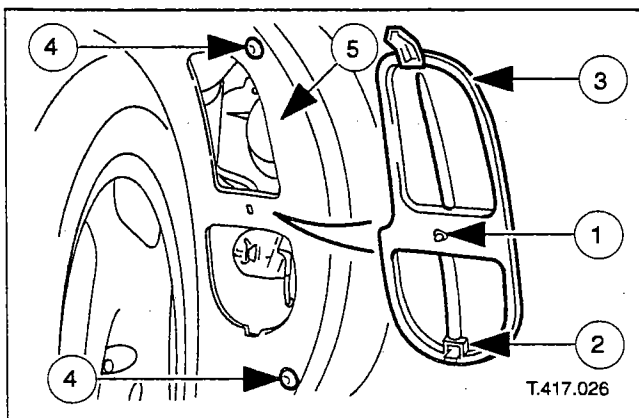
Each rear lamp assembly incorporates a stop lamp, a tail lamp, a fog lamp, a reversing lamp and a direction indicator lamp. Access for bulb replacement is from the luggage compartment.

The licence plate lamps are located on a trim finisher panel, secured to the lid by four nuts.

REMOVAL AND INSTALLATION

Headlamp Assembly (86.41.33 and 86.41.36)

Removal



1. Turn the steering to full lock, as follows:

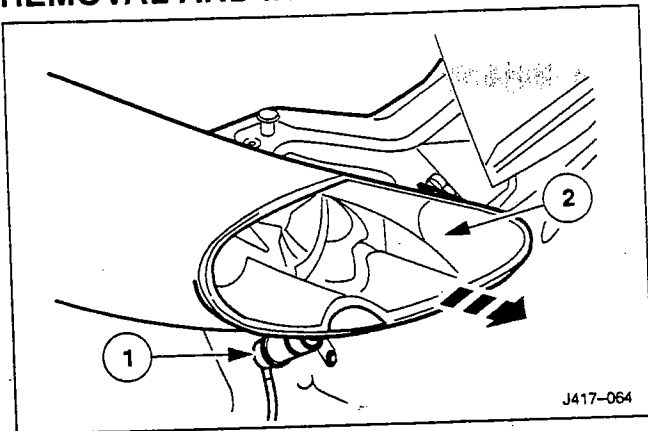
- Right hand headlamp – Left hand lock.
- Left hand headlamp – Right hand lock.

2. Displace the wheel arch liner for access.

- 1 Release the centre fastener which secures the wheel arch liner access panel.
- 2 Lift the lower retaining catch and disconnect the lower edge of the access panel from the wheel arch liner.
- 3 Remove the access panel.
- 4 Remove the fixings which secures the front of the wheel arch liner to the body.
- 5 Reposition the wheel arch liner for access.

3. Remove the headlamp fixings.

- 1 Disconnect the multi-plug from the headlamp.
 - 2 Remove the upper securing bolt and lower securing bolt.
 - 3 Slacken the headlamp securing nut.
- Carefully reposition the headlamp for access to the washer jet.

REMOVAL AND INSTALLATION (Continued)

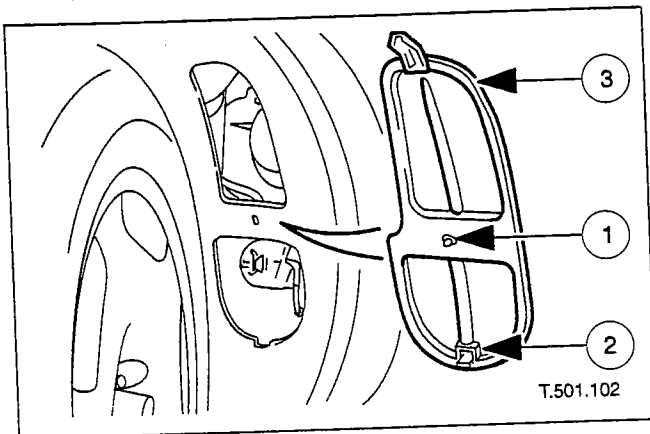
4. Remove the headlamp.

- 1 Disconnect the washer jet assembly from the headlamp and reposition clear of the lamp.
- 2 Remove the headlamp assembly.

Installation

5. Installation is the reverse of removal.

- Return steering to straight ahead position.
- Realign both headlamps.

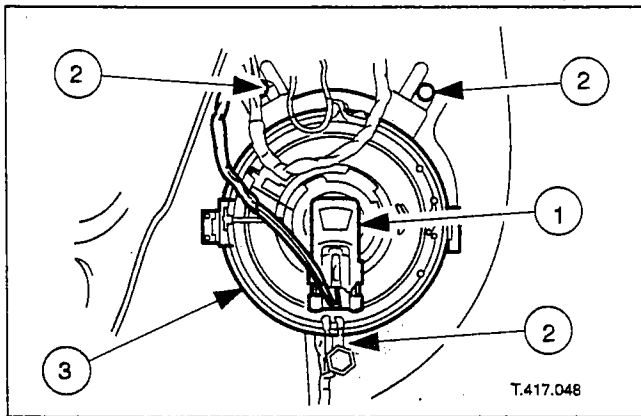
Front Fog Lamp (86.40.96)**Removal**

1. Turn the steering to full lock, as follows:

- Right hand fog lamp – Left hand lock.
- Left hand fog lamp – Right hand lock. (Access is possible around the reservoir)

2. Remove the access panel from the wheel arch liner.

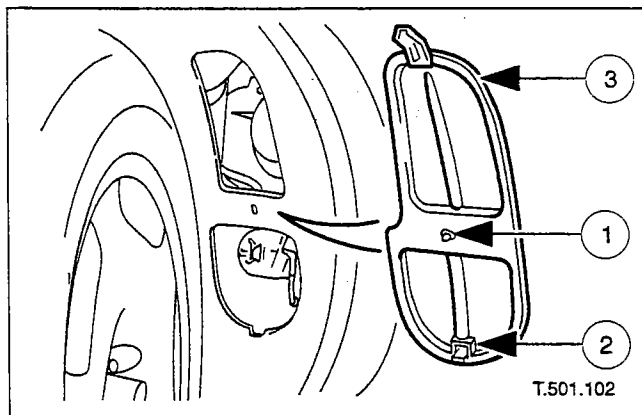
- 1 Release the centre fastener which secures the wheel arch liner access panel.
- 2 Lift the lower retaining catch and disconnect the lower edge of the access panel from the wheel arch liner.
- 3 Remove the access panel.

REMOVAL AND INSTALLATION (Continued)

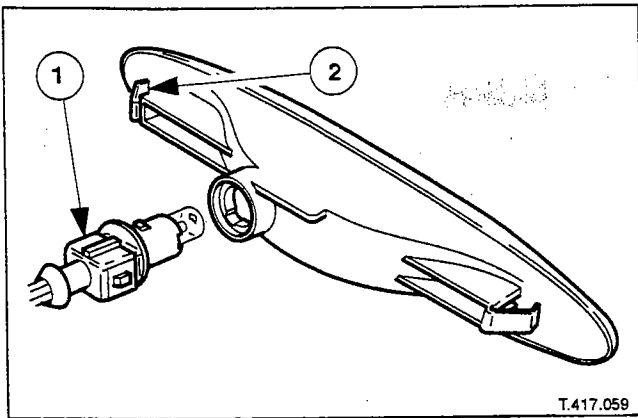
3. Remove the fog lamp from the vehicle (working through the access panel aperture).
 - 1 Disconnect the electrical connector from the bulb holder.
 - 2 Remove the three bolts which secure the lamp assembly.
 - 3 Remove the lamp from the housing, rearwards through the access panel aperture.

Installation

4. Installation is the reverse of removal.
 - Return steering to straight ahead position.

Front Side Marker Lamp (86.40.59)**Remove**

1. Turn the steering to full lock, as follows:
 - Right hand marker – Left hand lock.
 - Left hand marker – Right hand lock.
2. Remove the access panel from the wheel arch liner.
 - 1 Release the centre fastener which secures the wheel arch liner access panel.
 - 2 Lift the lower retaining catch and disconnect the lower edge of the access panel from the wheel arch liner.
 - 3 Remove the access panel.

REMOVAL AND INSTALLATION (Continued)

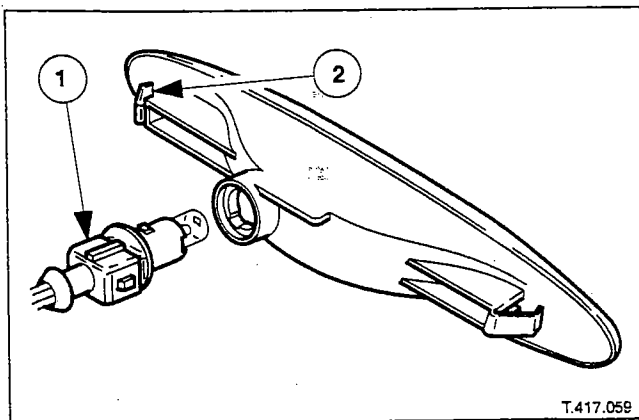
3. Remove the marker lamp.

- 1 Disconnect the connector from the rear of the lamp.
- 2 Compress one of the retaining spring clips and remove the lamp.

Installation

4. Installation is the reverse of removal.

- Return steering to straight ahead position.

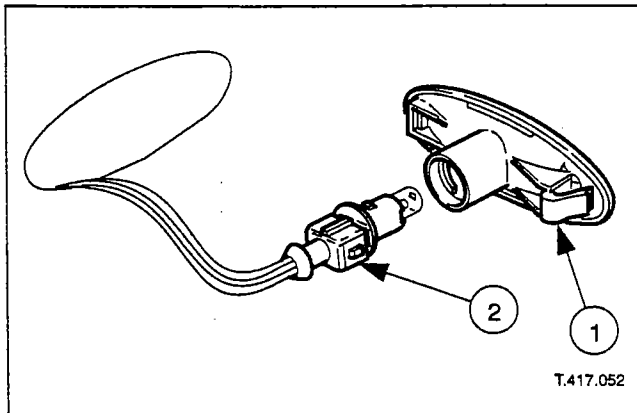
Rear Side Marker Lamp (86.41.08)**Remove**

1. Remove the marker lamp.

- 1 Working from the underside of the bumper, disconnect the multi-plug connector from the rear of the lamp.
- 2 Compress one of the retaining spring clips and carefully remove the lamp.

Installation

2. Installation is the reverse of removal.

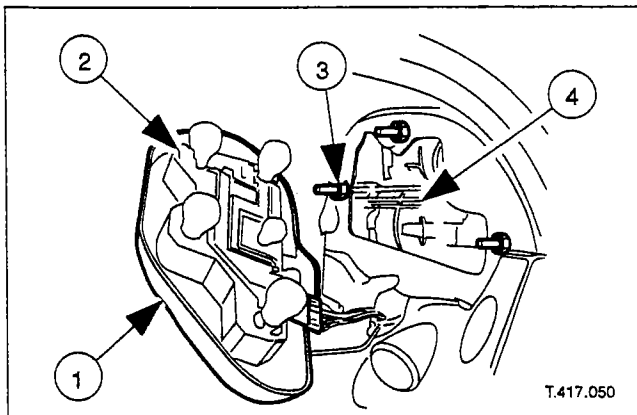
REMOVAL AND INSTALLATION (Continued)**Side Repeater Lamp (86.40.53 and 86.40.54)****Remove**

1. Remove the repeater lamp.

- 1 Carefully slide the lamp forward or rearward to compress one of the retaining spring clips and remove the lamp from the panel.
- 2 Disconnect the connector from the rear of the lamp.

Installation

2. Installation is the reverse of removal.

Rear Lamp Assembly (86.40.74)**Removal**

1. Open the luggage compartment lid.
2. Remove the rear lamp assembly.

- 1 Release the two clips which secure the bulb holder.
- 2 Remove and reposition the bulb holder, for access.
- 3 Remove the three nuts which secure the lamp assembly.
- 4 Remove the lamp assembly.

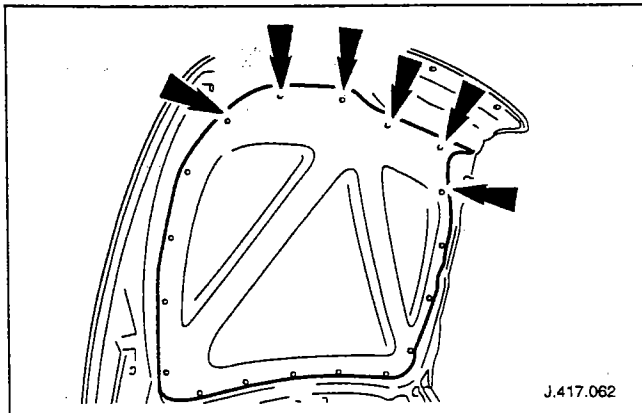
REMOVAL AND INSTALLATION (Continued)

Installation

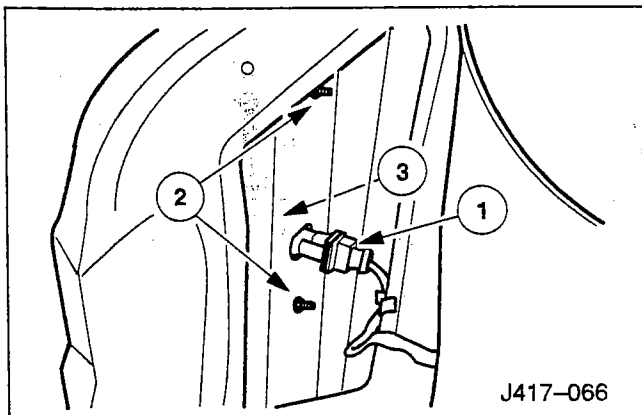
3. Installation is the reverse of removal.

Number Plate Lamp / Finisher Panel Assembly (86.40.86)

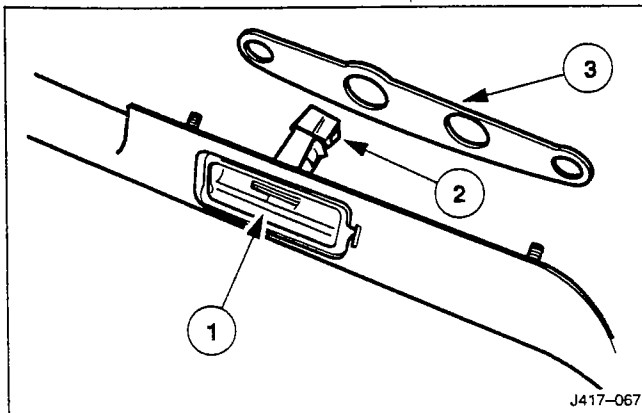
Removal



1. Open the luggage compartment lid.
2. Remove the rearward fasteners (six, fir tree type) from the luggage compartment lid trim pad. Reposition the trim pad for access.



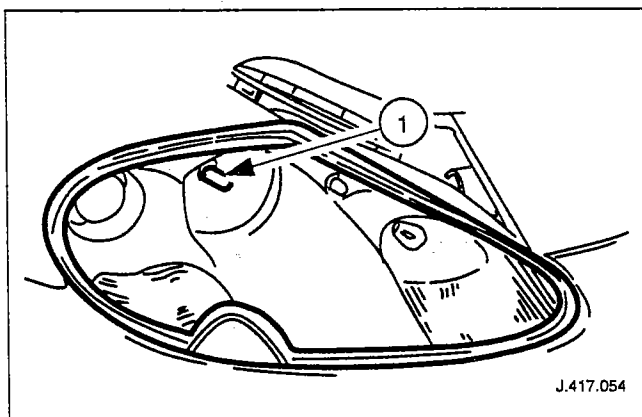
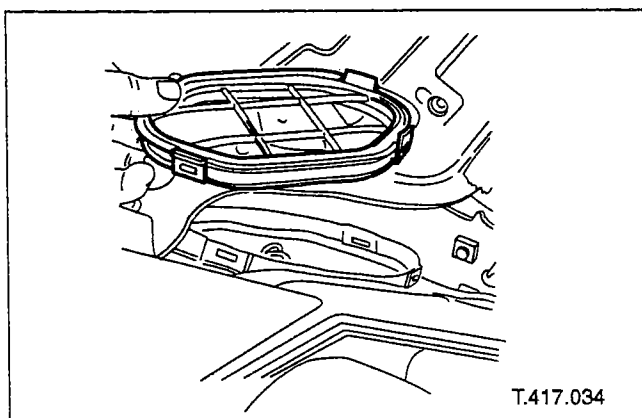
3. Remove the lamp assembly.
 - 1 Disconnect the multi-plugs.
 - 2 Remove the four nuts which secure the lamp assembly.
 - 3 Remove the lamp assembly.



4. Remove the individual lamp components.
 - 1 Remove the lamp lenses.
 - 2 Remove the bulb holders.
 - 3 Remove and discard the lamp assembly gaskets.

REMOVAL AND INSTALLATION (Continued)**Installation**

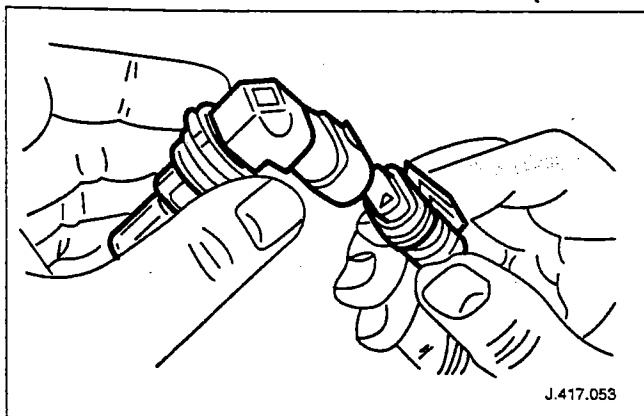
5. Installation is the reverse of removal.

Bulb - Main Beam**Removal**

1. Open the engine compartment cover.
2. Remove the access cap from the closing panel; squeeze the lower two clips to release.

CAUTION: The bulb will be damaged if touched by bare hands or contaminated with oil or grease. It is important to use clean gloves or cloth when handling a bulb. A contaminated bulb may be cleaned with methylated spirit before fitting.

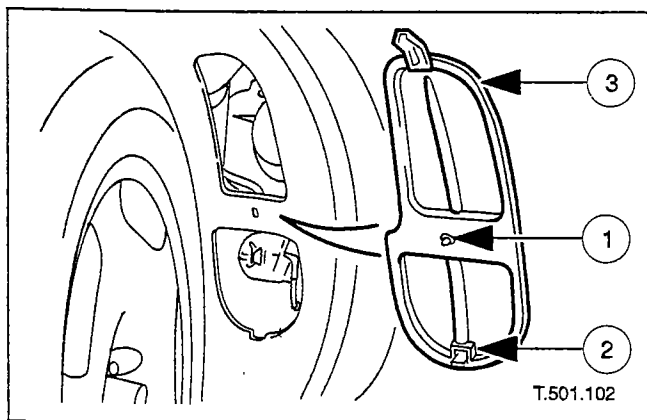
3. Remove the main beam bulb / bulb holder assembly from the vehicle (working through the access cap aperture).
- 1 Rotate the bulb holder anti-clockwise by approximately a quarter turn to release it from the lamp.

REMOVAL AND INSTALLATION (Continued)

4. Remove the bulb / bulb holder assembly from the vehicle harness.

Installation

5. Installation is the reverse of removal.
 - Check that the new bulb is orientated correctly and that the locating lugs are aligned.
 - Check that the seal is in place before fitting the access cap to the closing panel.

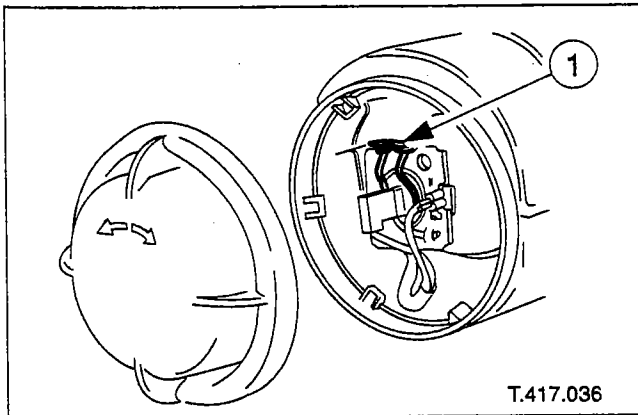
Bulb - Dip Beam**Removal**

1. Turn the steering to full lock, as follows:

- Right hand fog lamp – Left hand lock.
- Left hand fog lamp – Right hand lock.

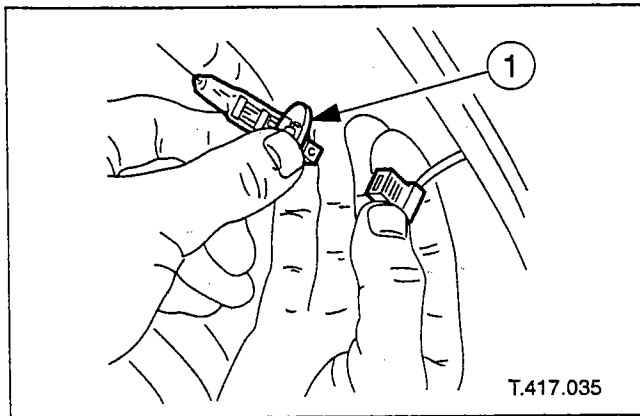
2. Remove the access panel from the wheel arch liner.

- 1 Release the centre fastener which secures the wheel arch liner access panel.
- 2 Lift the lower retaining catch and disconnect the lower edge of the access panel from the wheel arch liner.
- 3 Remove the access panel.

REMOVAL AND INSTALLATION (Continued)

3. Remove the protection cap from the rear of the lamp.

- 1 Release the spring clip and remove the bulb and harness plug from the lamp assembly.



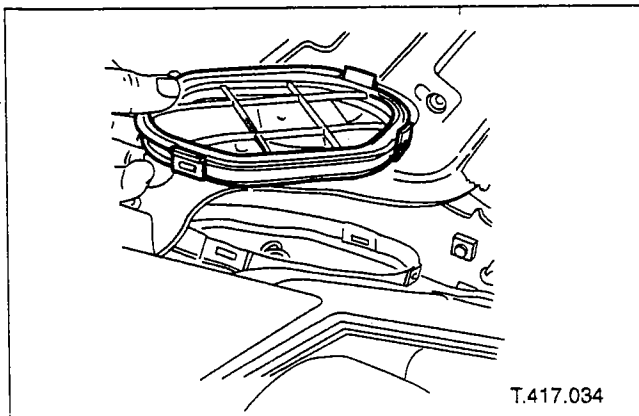
CAUTION: The bulb will be damaged if touched by bare hands or contaminated with oil or grease. It is important to use clean gloves or cloth when handling a bulb. A contaminated bulb may be cleaned with methylated spirit before fitting.

4. Remove the bulb from the harness plug (working through the access panel aperture).

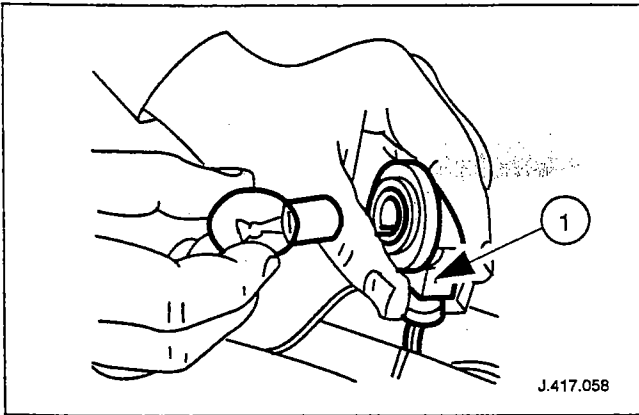
- 1 Remove the bulb from the harness plug.

Installation

5. Installation is the reverse of removal.
 - Return steering to straight ahead position.

Bulb - Front Direction Indicator**Removal**

1. Open the engine compartment cover.
2. Remove the access cap from the closing panel; squeeze the lower two clips to release.

REMOVAL AND INSTALLATION (Continued)

3. Remove the direction indicator bulb from the vehicle (working through access cap aperture).

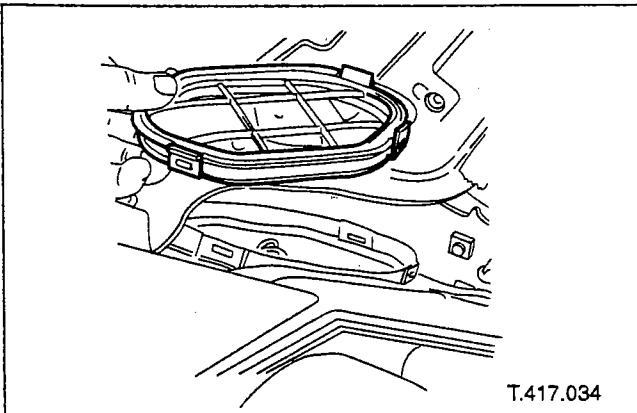
- 1 Rotate the bulb holder (quarter turn) and harness plug to remove the assembly from the lamp.

- Remove the bulb from the bulb holder assembly.

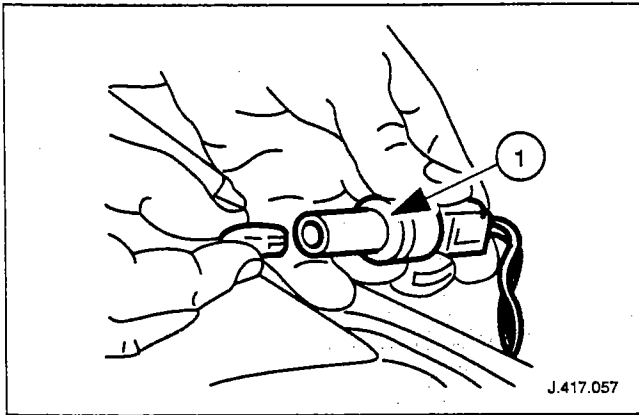
Installation

4. Installation is the reverse of removal.

- Check that the seal is in place before fitting the access cap to the closing panel.

Bulb - Front Side / Parking**Removal**

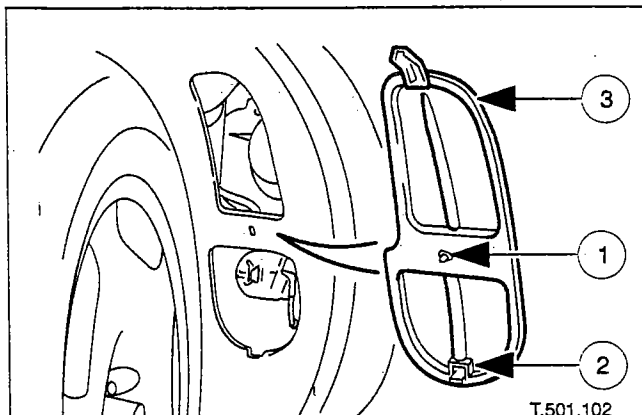
1. Open the engine compartment cover.
2. Remove the access cap from the closing panel; squeeze the lower two clips to release.

REMOVAL AND INSTALLATION (Continued)

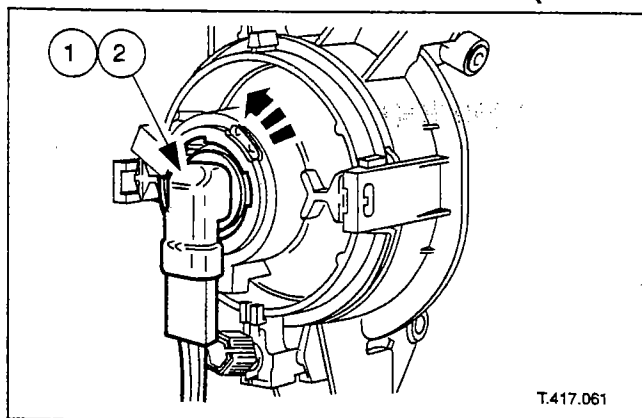
3. Remove the bulb from the vehicle (working through the access cap aperture).
 - 1 Rotate the bulb holder (quarter turn) and harness plug to remove the assembly from the lamp.
 - Pull the bulb from the bulb holder assembly.

Installation

4. Installation is the reverse of removal.
 - Check that the seal is in place before fitting the access cap to the closing panel.

Bulb - Front Fog Lamp (86.40.94)**Removal**

1. Turn the steering to full lock, as follows:
 - Right hand fog lamp – Left hand lock.
 - Left hand fog lamp – Right hand lock. (Access is possible around the reservoir)
2. Remove the access panel from the wheel arch liner.
 - 1 Release the centre fastener which secures the wheel arch liner access panel.
 - 2 Lift the lower retaining catch and disconnect the lower edge of the access panel from the wheel arch liner.
 - 3 Remove the access panel.

REMOVAL AND INSTALLATION (Continued)

CAUTION: The bulb will be damaged if touched by bare hands or contaminated with oil or grease. It is important to use clean gloves or cloth when handling a bulb. A contaminated bulb may be cleaned with methylated spirit before fitting.

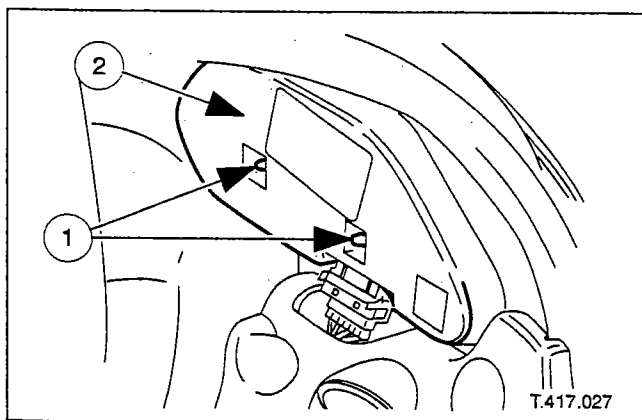
3. Remove the fog lamp bulb from the vehicle (working through the access panel aperture).

- 1 Disconnect the bulb holder (quarter turn) from the lamp.

- 2 Remove the bulb from the holder and fit a new bulb.

Installation

4. Installation is the reverse of removal.
 - Return steering to straight ahead position.

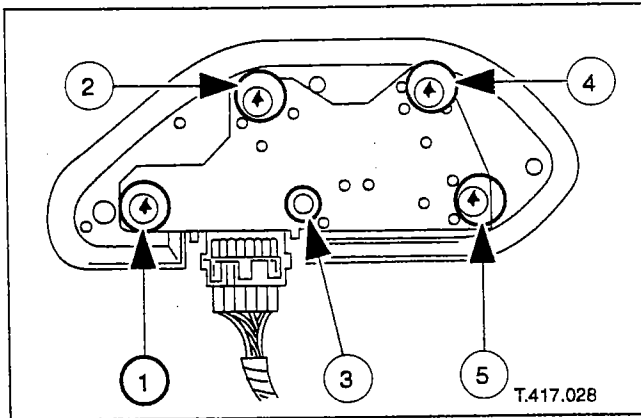
Bulb - Rear Lamp Assembly**Removal**

1. Open the luggage compartment lid.

2. Remove the bulb holder assembly.

- 1 Release the two clips which secure the bulb holder.

- 2 Remove and reposition the bulb holder, for access to the bulbs.

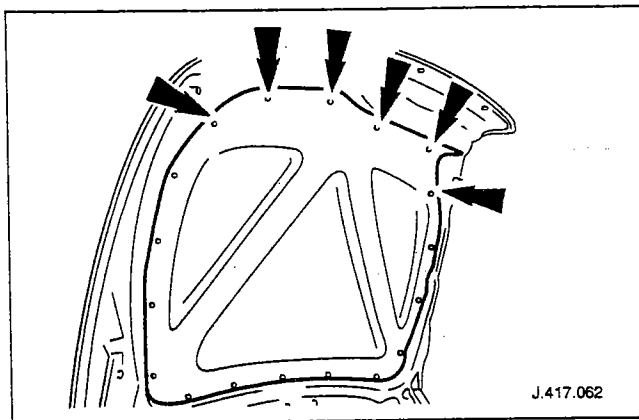
REMOVAL AND INSTALLATION (Continued)

3. Replace the bulb(s) as required.

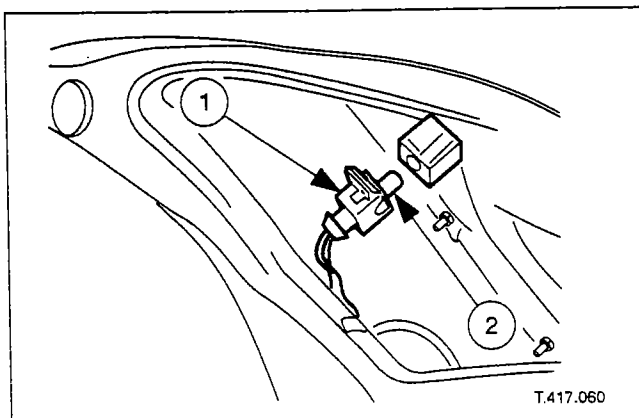
- 1 Fog - P 21W
- 2 Reverse - P 21W
- 3 Tail - P 5W
- 4 Direction Indicator - PY 21W
- 5 Stop - 21W

Installation

4. Installation is the reverse of removal.

Bulb - Number Plate Lamp (86.40.85)**Removal**

1. Open the luggage compartment lid.
2. Remove the rearward fasteners (six, fir tree type) from the luggage compartment lid trim pad. Reposition the trim pad for access.

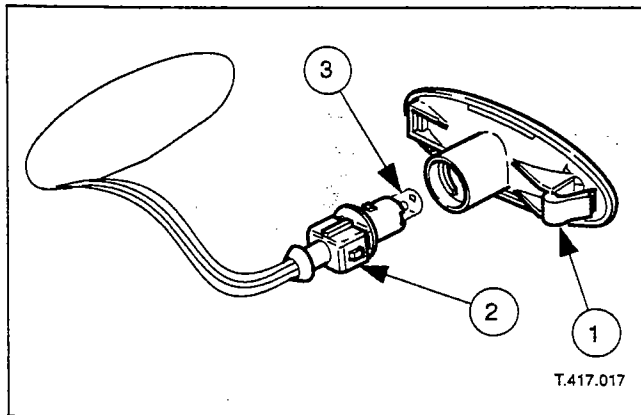


3. Remove the bulb.

- 1 Disconnect the the bulb holder from the lamp, complete with the multi-plug.
- 2 Remove the bulb.

REMOVAL AND INSTALLATION (Continued)**Installation**

4. Installation is the reverse of removal.

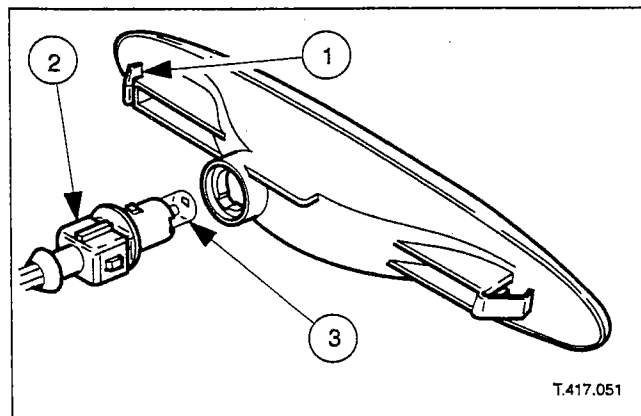
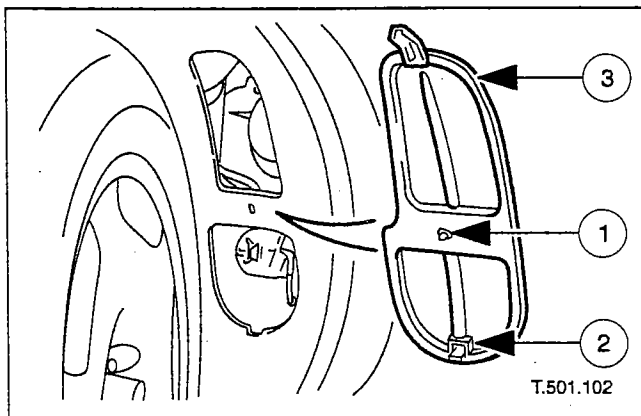
Bulb - Side Repeater Lamp (86.40.52)**Remove**

1. Remove the repeater lamp.

- 1 Carefully slide the lamp forward or rearward to compress one of the retaining spring clips and remove the lamp from the panel.
- 2 Disconnect the bulb holder from the rear of the lamp.
- 3 Remove the bulb from the bulb holder.

Installation

2. Installation is the reverse of removal.

REMOVAL AND INSTALLATION (Continued)**Bulb - Front Side Marker Lamp (86.40.58)****Remove**

1. Turn the steering to full lock, as follows:
 - Right hand marker – Left hand lock.
 - Left hand marker – Right hand lock.
2. Remove the access panel from wheel arch liner.

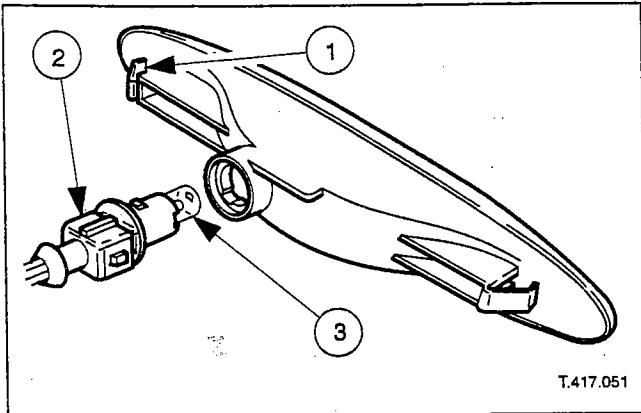
- 1 Release the centre fastener which secures the wheel arch liner access panel.
- 2 Lift the lower retaining catch and disconnect the lower edge of the access panel from the wheel arch liner.
- 3 Remove the access panel.

3. Remove the marker lamp.

- 1 Working through the wheel arch liner access panel, compress one of the retaining spring clips and remove the lamp.
- 2 Disconnect bulb holder from rear of the lamp.
- 3 Remove the bulb from the bulb holder.

Installation

4. Installation is the reverse of removal.
 - Return steering to straight ahead position.

REMOVAL AND INSTALLATION (Continued)**Bulb - Rear Side Marker Lamp (86.41.07)****Remove**

1. Remove the marker lamp.

- 1 Working from the underside of the bumper, compress one of the retaining spring clips and carefully remove the lamp.
- 2 Disconnect the bulb holder from the rear of the lamp.
- 3 Remove the bulb from the bulb holder.

Installation

2. Installation is the reverse of removal.

SECTION 417-02 Interior Lighting

VEHICLE APPLICATION: X100

SUBJECT	PAGE
SPECIFICATIONS	
Bulbs	417-02-2
DESCRIPTION AND OPERATION	
Interior Lamps	417-02-3
DIAGNOSIS AND TESTING	
Refer to the Diagnostic and Test Manual	
REMOVAL AND INSTALLATION	
Footwell Lamp / Bulb	417-02-5
Bulb - Glovebox Lamp	417-02-6
Bulb - Door Guard / Puddle Lamp	417-02-6
Bulb - Roof Console	417-02-7
Bulb - Roof Rear Lamp (Coupe)	417-02-8
Bulb - Sun Visor Vanity Mirror	417-02-9
Bulb - Luggage Compartment Lamp	417-02-10

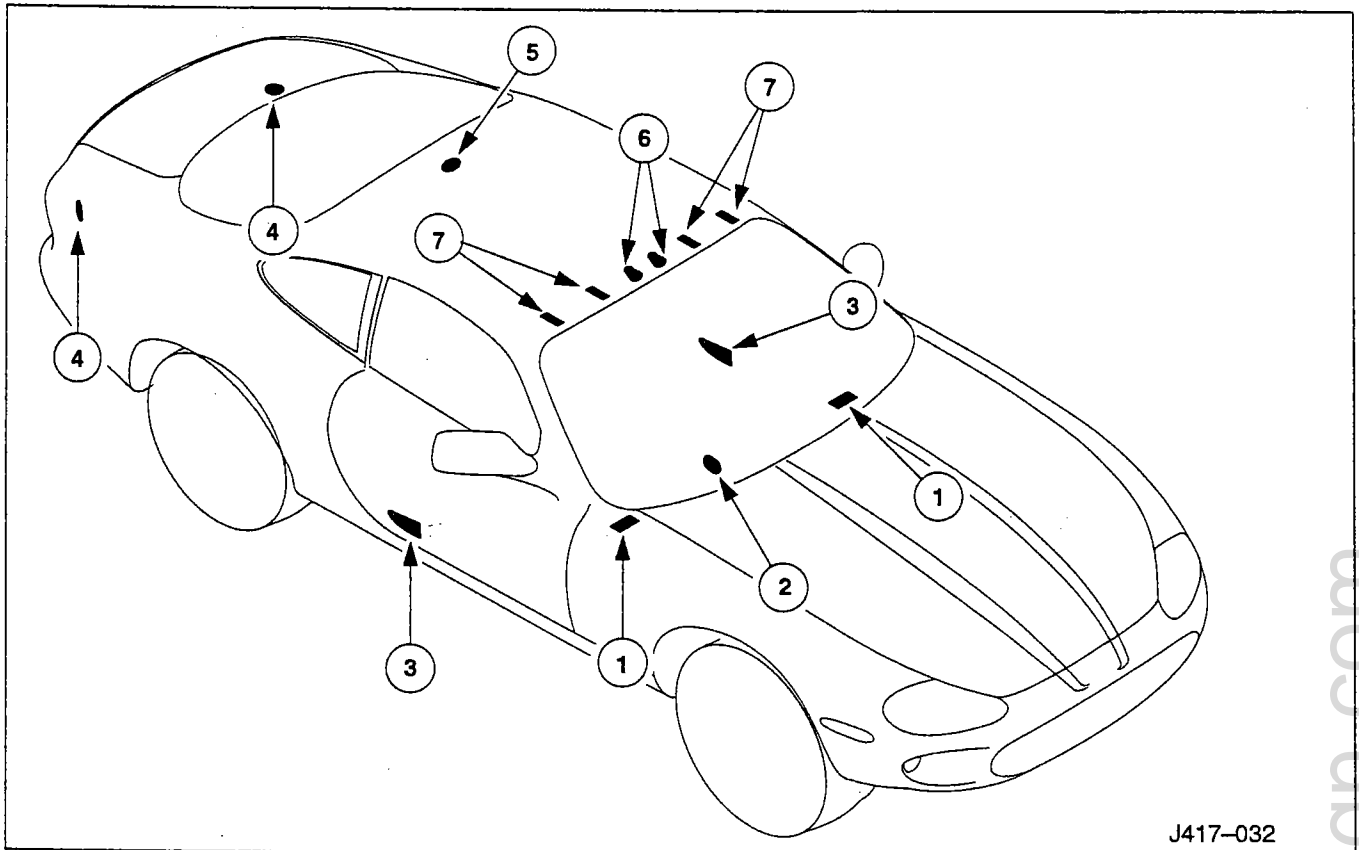
SPECIFICATIONS**Bulbs**

Description	Capacity	Type
Door Guard / Puddle Lamps	12V 5W	Capless Long Life.
Footwell Lamps	12V 5W	Capless Long Life.
Glovebox Lamp	12V 4W	Bayonet Long Life.
Luggage Compartment Lamps	12V 5W	Festoon Long Life.
Roof Rear Courtesy Lamp – Coupe	12V 5W	Festoon Long Life.
Roof Console Map / Courtesy Lamps	12V 6W	Capless.
Sun Visor Vanity Mirror Lamps	12V 3W	Festoon.

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DESCRIPTION AND OPERATION

Interior Lamps



J417-032

Item	Description
1	Footwell Lamps
2	Glovebox Lamp
3	Door Guard / Puddle Lamps
4	Luggage Compartment Lamps
5	Roof Rear Lamp (Coupe Only)
6	Roof Console Map / Courtesy Lamps
7	Sun Visor Vanity Mirror Lamps

Two footwell lamps are fitted, one at each end of the fascia lower rail. They are not fitted with manual switches and operate only when either or both doors are opened.

The glovebox lamp operates whenever the glovebox lid is opened. The lamp comprises a combined switch and bulb holder assembly, and a white lens.

A lamp is fitted to the rear lower corner of each door. Each has a double lens; red to project rearwards to warn oncoming traffic that the door is open and white to project down onto the ground. They are not fitted with manual switches and operate only when either or both doors are opened.

A lamp is fitted to each rear corner of the luggage compartment, adjacent to the rear lamp assemblies. They are operated automatically whenever the luggage compartment lid is opened; the switch is incorporated within the latch mechanism.

The roof rear lamp is fitted to the coupe only. It is not fitted with a manual switch and operates only when either or both doors are opened.

The two lamps located in the roof console, function as map reading lamps and as courtesy lamps. Individual switches control each lamp manually and the door switches control the lamps automatically to provide the courtesy lamp function

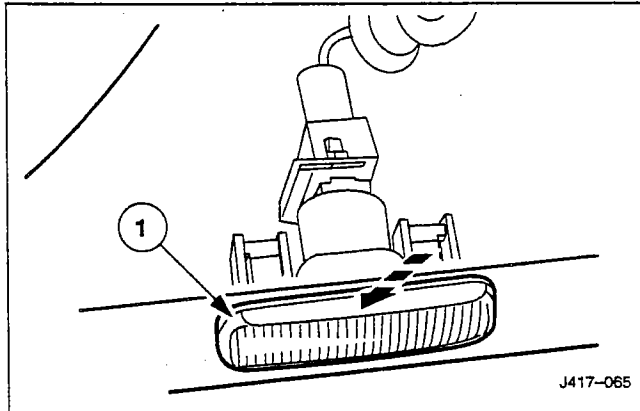
DESCRIPTION AND OPERATION (Continued)

The vanity mirror lamps, two on each sun visor, operate automatically when the mirror flap is opened. The lamps will operate only when the sun visor spindle is engaged in the stowage clip.

REMOVAL AND INSTALLATION

Footwell Lamp / Bulb (86.46.20 / 24)

Removal



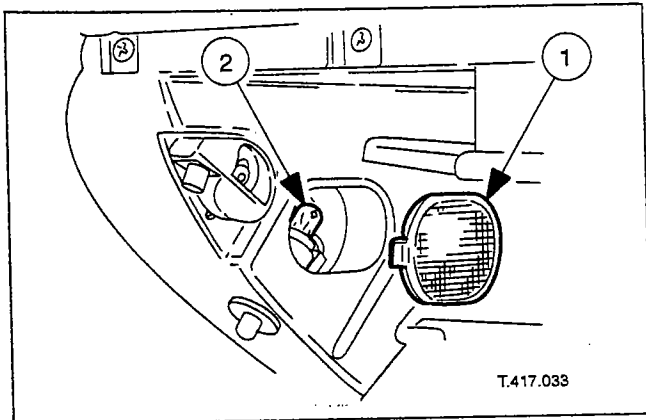
1. Remove the footwell Lamp.
 - 1 Use a screwdriver with a wide flat blade to push the lamp assembly towards the front of the car. This movement will release the rear spring clip which is adjacent to the screwdriver blade.
 - Release the front spring clip of the lamp by pulling the lamp rearwards. Remove the lamp from the aperture.
2. Turn the lamp through 90° to allow the connector to pass through the aperture, tilt it slightly and fully remove it.
3. Disconnect the harness connector and remove the lamp.
4. If required, remove the bulb holder and replace the bulb.
5. Installation is the reverse of removal. Install the new lamp so that the face marked 'REAR' is towards the rear of the vehicle; failure to do this will make the lamp very difficult to remove.

Installation

REMOVAL AND INSTALLATION (Continued)

Bulb - Glovebox Lamp

Removal



1. Remove the bulb from the glovebox lamp.

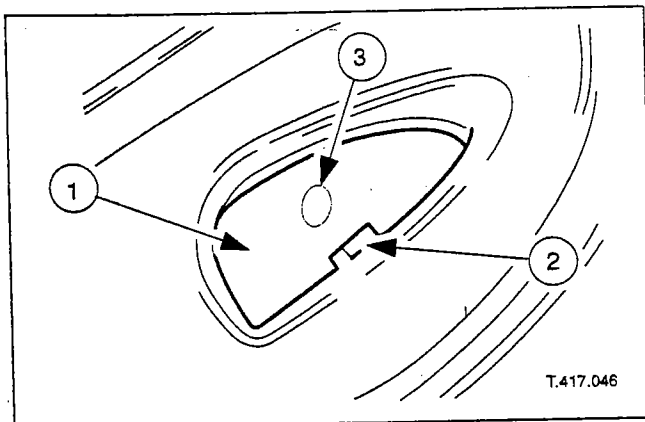
- 1 With the glovebox lid open, carefully prise away the lens.
- 2 Working through the lens aperture, carefully remove the bulb.

Installation

2. Installation is the reverse of removal.

Bulb - Door Guard / Puddle Lamp

Removal

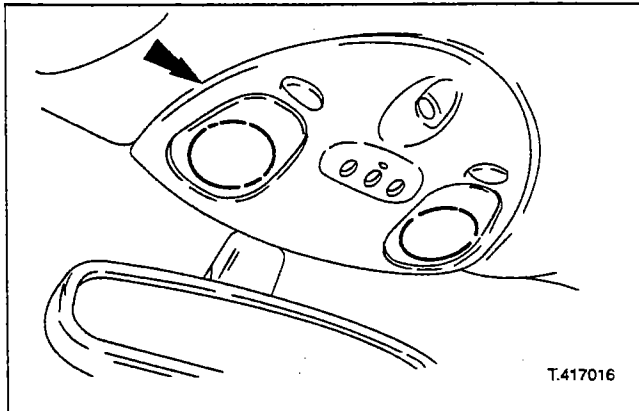


1. Remove the bulb from the door guard / puddle lamp.

- 1 Remove the lens by inserting a flat blade screwdriver into the access slot at the base of the lens, to disengage the retaining clip.
- 2 Hold the retaining clip clear and slide the lens down to remove it from the lamp.
- 3 Remove the bulb from the lamp.

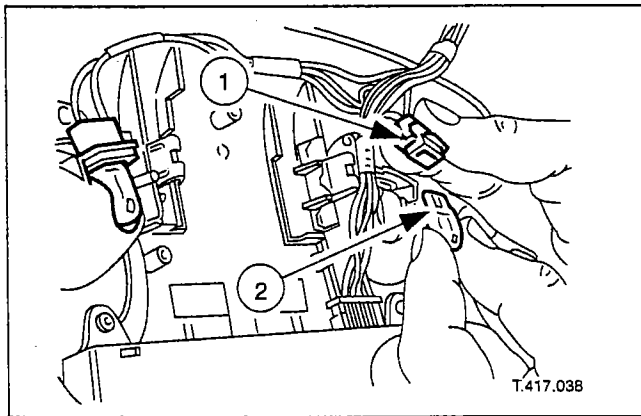
Installation

2. Installation is the reverse of removal.

REMOVAL AND INSTALLATION (Continued)**Bulb - Roof Console****Removal**

1. Remove the roof console.

- Very carefully prise the console from the roof trim panel.



2. Remove the bulb from the console.

1 Remove the relevant bulb holder.

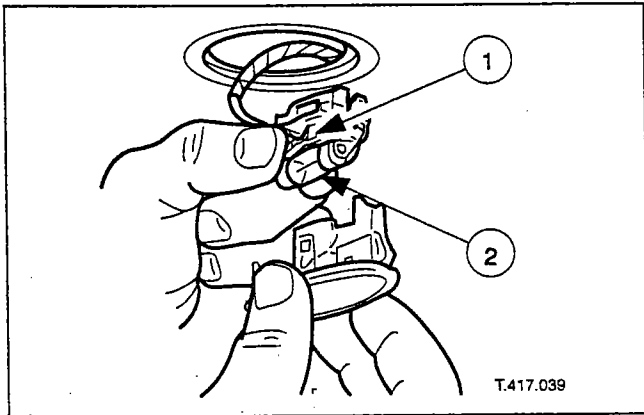
2 Remove the bulb.

Installation

3. Installation is the reverse of removal.

REMOVAL AND INSTALLATION (Continued)**Bulb - Roof Rear Lamp (Coupe)****Removal**

1. Remove the lamp from the roof.
 - Carefully prise one side of the lamp assembly from the roof panel. Lower the lamp assembly.

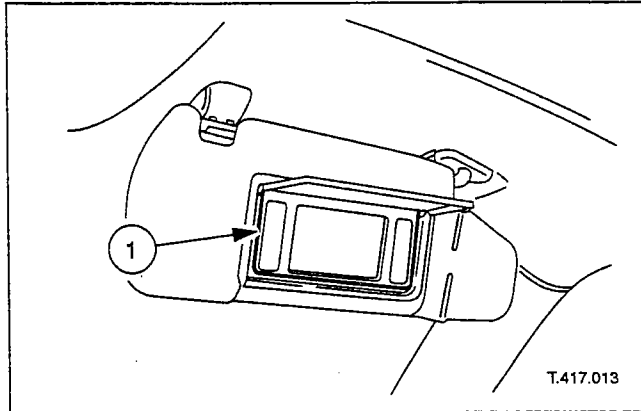


2. Remove the bulb from the roof lamp.

- 1 Squeeze the lens retaining lugs, located one each side of the bulb, and remove the lens.
- 2 Remove the bulb.

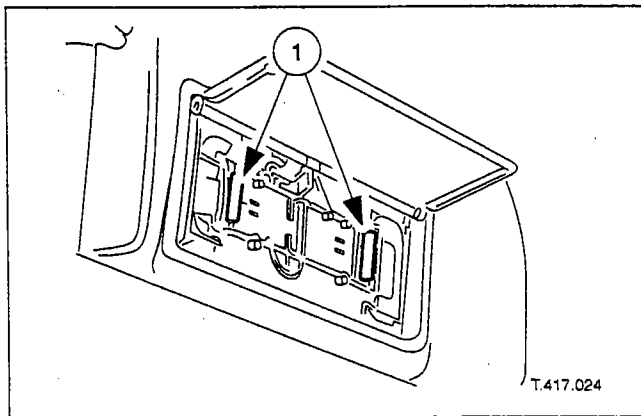
Installation

3. Installation is the reverse of removal.

REMOVAL AND INSTALLATION (Continued)**Bulb - Sun Visor Vanity Mirror****Removal**

1. Rotate the sun visor down and open the vanity mirror flap.
2. Remove the mirror / lens assembly.

1 Use a flat screwdriver to very carefully prise the mirror / lens assembly from the visor.

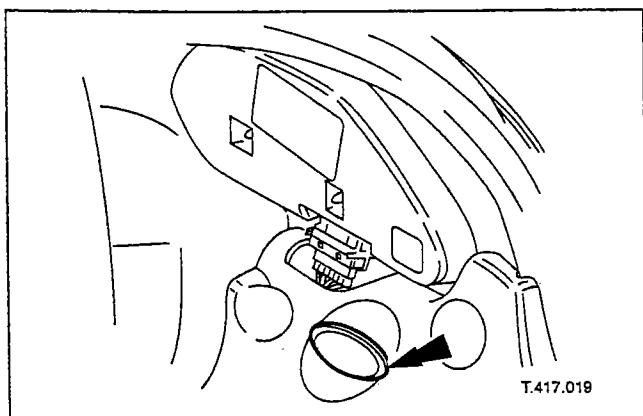


3. Remove the bulb from the vanity mirror lamp(s).

1 Remove the bulb(s) from the holder.

Installation

4. Installation is the reverse of removal.

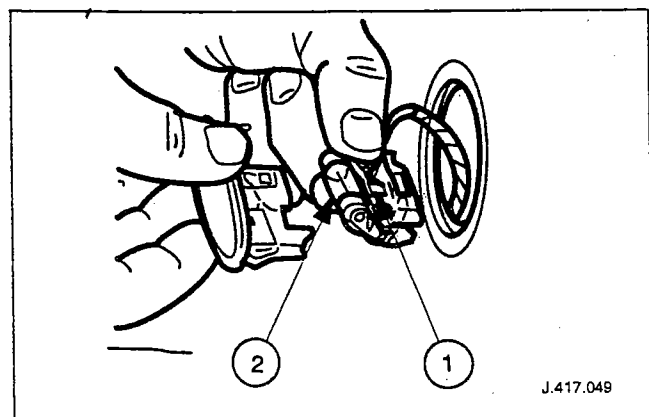
REMOVAL AND INSTALLATION (Continued)**Bulb - Luggage Compartment Lamp****Removal**

1. Carefully prise the lamp from the luggage compartment trim panel.

2. Remove the bulb.

- 1 Squeeze the lens retaining lugs, located one each side of the bulb, and remove the lens.

- 2 Remove the bulb.



3. Installation is the reverse of removal.

Installation

SECTION 600-07 Maintenance

VEHICLE APPLICATION: X100

SUBJECT	PAGE
DESCRIPTION AND OPERATION	
Introduction	600-07-2
Emissions Control	600-07-2
Jaguar/Daimler Service Parts	600-07-2
MAINTENANCE SCHEDULE	
Maintenance Information	600-07-3
Schedule	600-07-3
Fluid and Lubrication Service Points	600-07-4

DESCRIPTION AND OPERATION

Introduction

This section contains the maintenance schedule, which lists the actions that must be carried out at the appropriate intervals. The fluid and lubrication service points on the vehicle are illustrated.

Emissions Control

Some of the items in the maintenance schedule affect the vehicle emissions control. To ensure that emissions control is correctly maintained, the relevant maintenance items must be carried out correctly and at the specified intervals. For information on the emissions control system, refer to the On-board Diagnostics Manual.

Jaguar/Daimler Service Parts

When service parts are required, it is essential that only genuine Jaguar/Daimler replacements are used. Safety features embodied in the vehicle may be impaired, or the warranty invalidated, if other than genuine parts are fitted. In some markets, legislation prohibits the fitting of parts which are not produced to the vehicle manufacturer's specifications. All Jaguar/Daimler service parts have the full backing of the factory warranty.

MAINTENANCE SCHEDULE

Maintenance Information

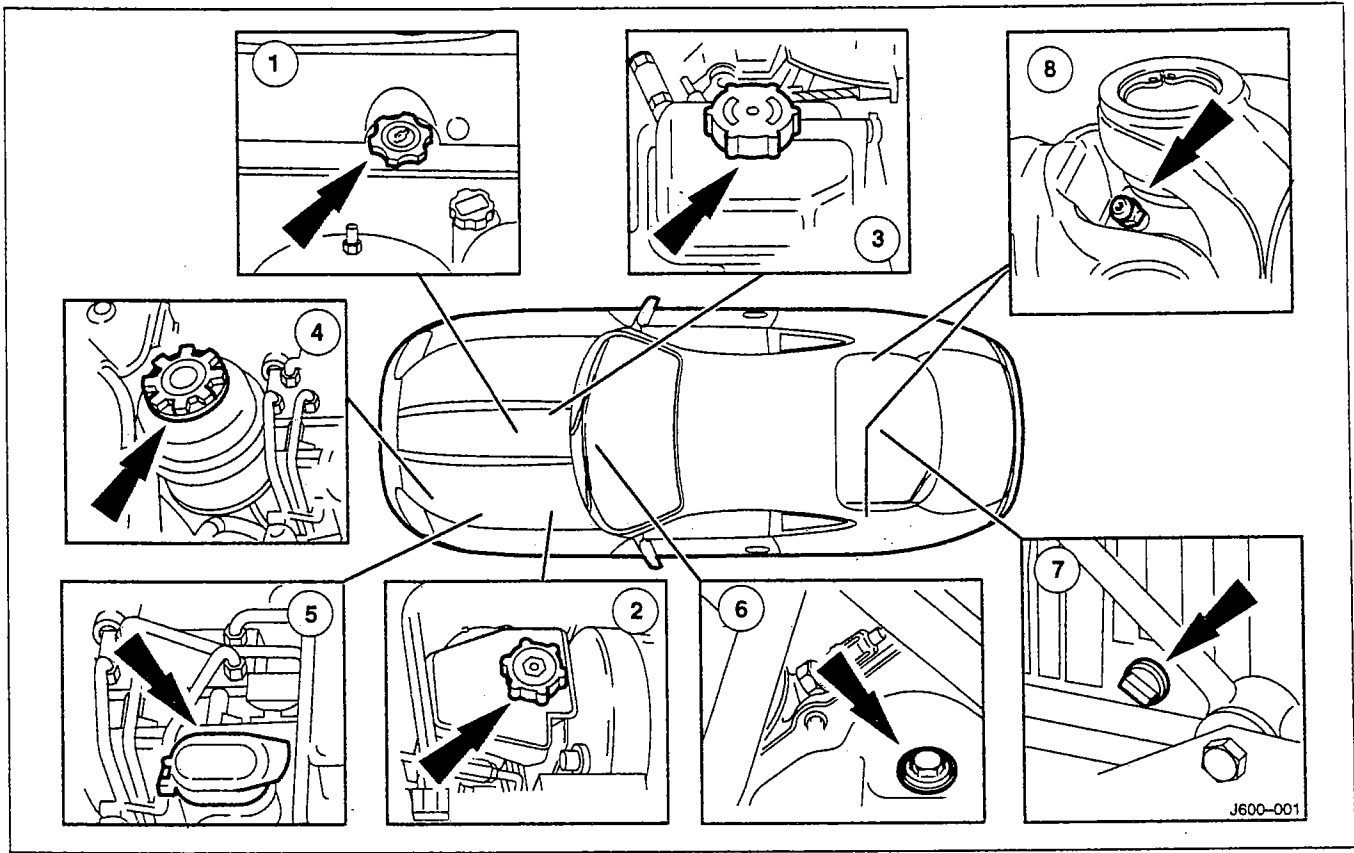
The relevant items in the maintenance schedule must be carried out at 16 000 km (10,000 mile), or 12 monthly intervals from the date of delivery, whichever comes first. For information relating to a maintenance procedure, refer to the relevant manual section.

The six year corrosion (perforation) inspection must be carried out at 12 monthly intervals from the date that the vehicle is handed over to the first owner.

Schedule

	16 000 km 10,000 miles	32 000 km 20,000 miles	48 000 km 30,000 miles	64 000 km 40,000 miles	80 000 km 50,000 miles	96 000 km 60,000 miles
Renew engine oil, oil filter and sump washer	x	x	x	x	x	x
Visually check under hood/under body for fluid leaks	x	x	x	x	x	x
Grease axle shaft universal joints	x	x	x	x	x	x
Inspect brake pads for wear. (Inspect brake rotor condition on pad change)	x	x	x	x	x	x
Renew brake fluid	Every two years					
Renew coolant	Every four years or 96 000 km (60,000 miles)					
Renew air cleaner element			x			x
Renew fuel filter						x
Renew spark plugs (unleaded fuel markets except N. America)			x			x
Renew spark plugs (N. America only)	Every 160 000 km (100,000 miles)					
Renew spark plugs (leaded fuel markets)	x		x		x	
Check drive belt tension wear indicator – replace belt if necessary	x	x	x	x	x	x
Replace drive belt	Every 160 000 km (100,000 miles)					
Check brake fluid level	x	x	x	x	x	x
Check coolant level – assure specific gravity	x	x	x	x	x	
Check/top up windshield washer reservoir	x	x	x	x	x	x
Check power assisted steering fluid level	x	x	x	x	x	x
Renew windshield wiper blade rubber inserts	x	x	x	x		x
Renew windshield wiper blades					x	
Check tire pressures, tread depth, general condition, signs of uneven wear and suitability, including spare tire	x	x	x	x	x	x
Carry out road test	x	x	x	x	x	x

Fluid and Lubrication Service Points



Item	Description
1	Engine oil filler
2	Brake fluid reservoir
3	Engine coolant header tank
4	Power assisted steering fluid reservoir
5	Windshield wash reservoir
6	Engine oil drain plug
7	Final drive oil level plug
8	Axle shaft universal joints

SECTION 211-00 Steering

SUBJECT	PAGE
DESCRIPTION AND OPERATION	
Steering - Introduction	211-00-2

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DESCRIPTION AND OPERATION

Steering – Introduction

Details of the Steering systems can be found in Sections 211-02, 211-04 and 211-05 of this manual, and also the Diagnostic and Test Manual.

SECTION 211-02 Power Steering

VEHICLE APPLICATION: X100

SUBJECT

PAGE

SPECIFICATIONS

Fluid Specification	211-02-2
System Fluid Capacity	211-02-2
Reservoir Fluid Capacity	211-02-2
Torques	211-02-2

DESCRIPTION AND OPERATION

Power Assisted Steering Components	211-02-3
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SPECIFICATIONS**PAS Fluid, Capacities and Torques**

Item	Specification
PAS Fluid	Dexron 3

Capacities

Description	Liters
PAS System	1,0
PAS Reservoir	0,4

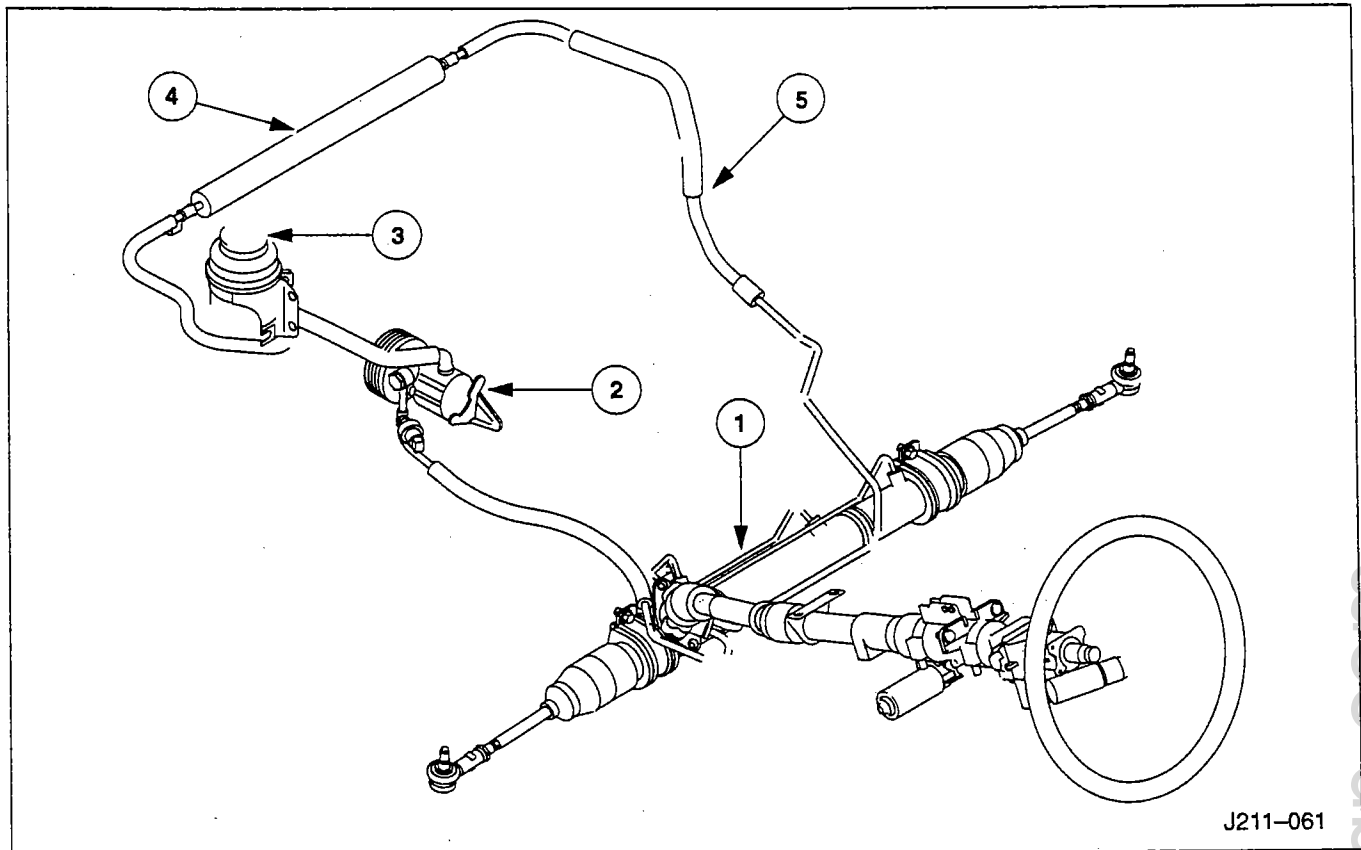
Torques

Component	Nm
Rack Mounting Bracket to Crossbeam	30-40
PAS Pump to Mounting Bracket	16-20
PAS Pump to Cylinder Block	38-48
Pulley to PAS Pump	18-24
Hoses to PAS Pump	22-28
Rack Pipe Latch Plate Bolt	8,5-11,5
Outer Tie Rod End Jam Nut	71-85
Reservoir to Brake Modulator Bracket	3,5-5
Reservoir Retention Bracket	5-7
Fluid Cooler to Bumper Beam	2,5-3,5

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DESCRIPTION AND OPERATION

Power Assisted Steering System



Item	Description
1	Rack and Pinion Assembly
2	PAS Pump
3	Fluid Reservoir with Integral Filter
4	Wire Bound Tube Type Fluid Cooler
5	Hoses and Pipework

The ZF variable ratio rack and pinion power assisted steering (PAS) system is fitted to all variants of the X100 model.

The system consists of:

- Rack and pinion assembly.
- Power assisted steering pump.
- Fluid reservoir.
- Fluid cooler.
- Associated hoses and pipework.

SECTION 211-04 Steering Column

VEHICLE APPLICATION: X100

SUBJECT	PAGE
SPECIFICATIONS	
Torques	211-04-2
DESCRIPTION AND OPERATION	
Steering Wheel	211-04-3
Upper Steering Column	211-04-3
Lower Steering Column	211-04-3
REMOVAL AND INSTALLATION	
Upper Steering Column—Electric Tilt and Reach	211-04-4
Steering Column Tilt Motor	211-04-11
Steering Column Control Module	211-04-14
Cassette and Cancellation Module	211-04-15
Steering Wheel	211-04-18
Steering Wheel Alignment	211-04-21

SPECIFICATIONS**Torques**

Component	Nm
Steering Column to Upper Bracket Securing Nuts	22-28
Steering Wheel Securing Bolt	54-46
Upper Bracket to Body Screws	22-28
Steering Column Lower Bracket Nuts	22-28
Steering Column Universal Joint Bolt	22-28
Upper and Lower Cowl Securing Screws	1,5
Steering Wheel Bolt	34-46
Column Switchgear to Column	4-5

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DESCRIPTION AND OPERATION

Steering Wheel

The steering wheel assembly incorporates:

- In-car entertainment switchpack.
- Cruise control switchpack.
- Horn operating bar.
- Air bag module.

The in-car entertainment switchpack is installed to the left of the steering wheel center.

1. Increases (+) the volume of the selected audio output.

The cruise control switchpack is installed to the right of the steering wheel center.

The horn operating bar is mounted on the center line of the steering wheel.

The air bag module is mounted below the horn operating bar adjacent to the steering wheel hub.

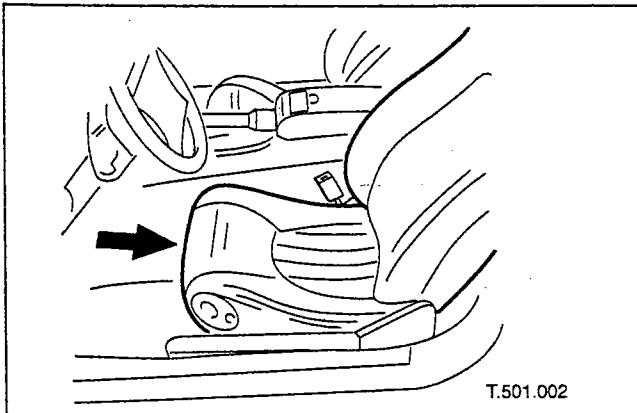
NOTE: For air bag safety and service information refer to Section 500-20.

Upper Steering Column

The upper steering column is adjustable for both tilt and reach. It is available with either manual or electrical operation of these functions.

Lower Steering Column

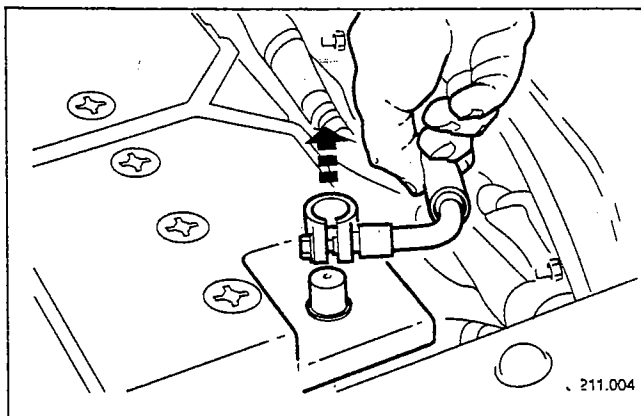
The lower steering column is a handed assembly and incorporates a column to toeboard gaiter. There are no serviceable components and no setting or adjustment of the column is required.

REMOVAL AND INSTALLATION**Upper Steering Column – Electric Tilt and Reach (57.40.02)****Removal**

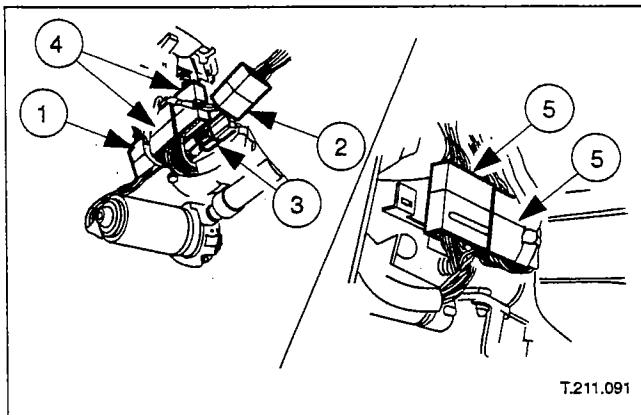
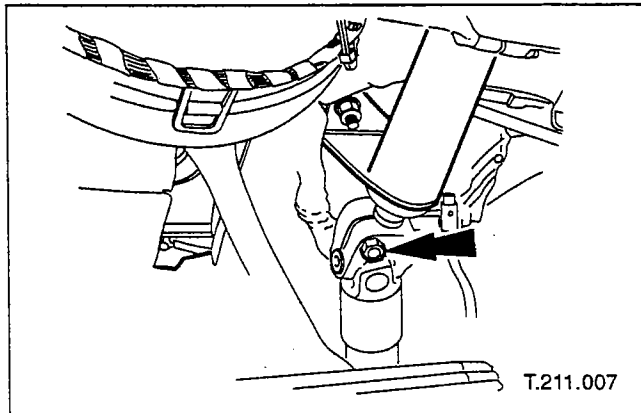
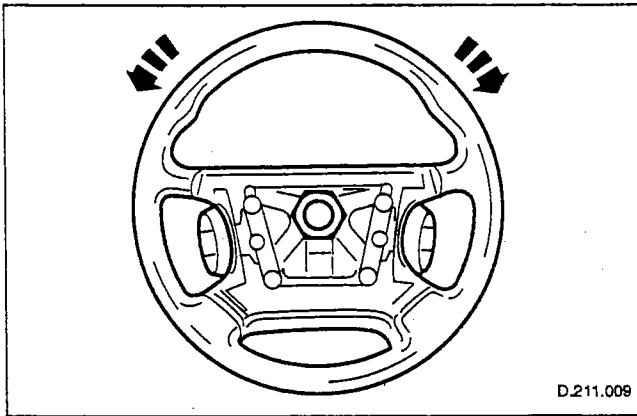
1. Power the driver's seat fully rearwards.

2. Remove the underscuttle; refer to Section 501-05.
3. Remove the steering column lower cowl; refer to Section 501-05.
4. Remove the steering column upper cowl; refer to Section 501-05.
5. Remove the battery cover.
6. Disconnect the battery ground cable.

WARNING: WAIT AT LEAST ONE MINUTE BEFORE STARTING WORK, BECAUSE THE AIR BAG IS EQUIPPED WITH A BACK-UP POWER SOURCE AND MAY BE INADVERTENTLY DEPLOYED.



REMOVAL AND INSTALLATION (Continued)



7. Center the steering.

1 Engage the steering column lock.

8. Unscrew and remove the upper steering column to universal joint bolt.

9. Remove the air bag module; refer to Section 500-20.

10. Remove the steering wheel; refer to this section.

11. Disconnect the harness multiplugs.

1 Disconnect the tilt motor to fascia harness multiplug.

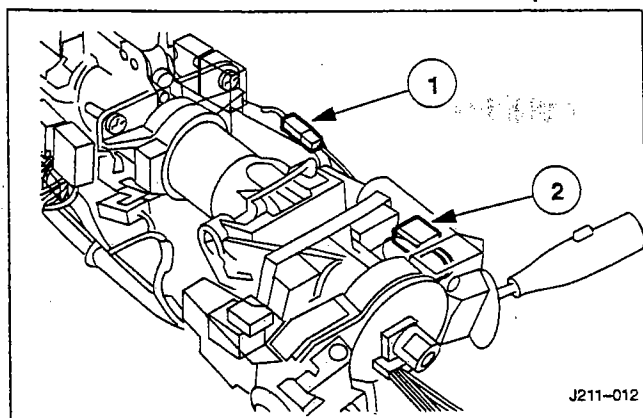
2 Disconnect the ignition switch to fascia harness multiplug.

3 Disconnect the air bag harness to cabin harness multiplug.

4 Disconnect the indicator switchgear to fascia harness multiplug.

5 Disconnect the washer switchgear to fascia harness multiplug.

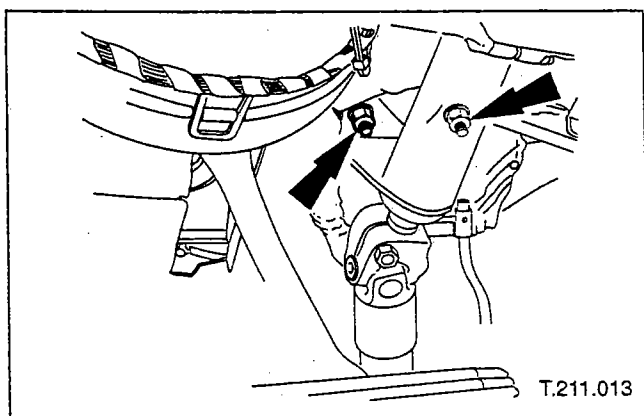
12. Cut and remove the harness securing tie straps.

REMOVAL AND INSTALLATION (Continued)

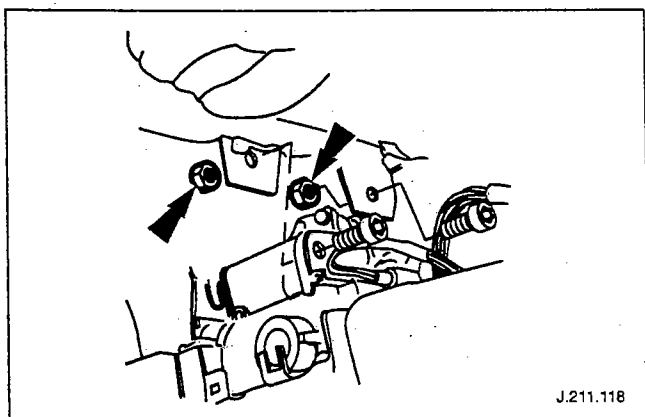
13. Disconnect the key lock solenoid and key barrel transponder harness multiplugs.

1 Disconnect the key lock solenoid harness multiplug.

2 Disconnect the key barrel transponder harness multiplug.



14. Unscrew and remove the column lower mounting bracket securing bolts.

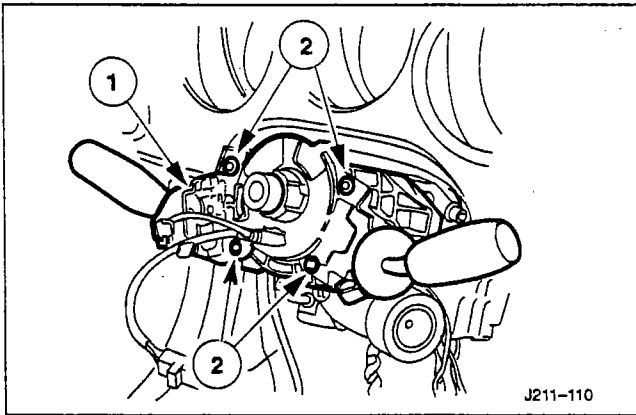


15. Unscrew and remove the column to upper mounting bracket securing nuts.

16. Remove the steering column.

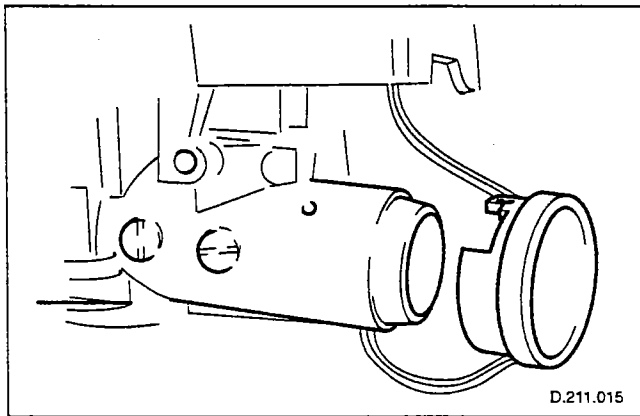
1 Release the column from the universal joint.

2 Remove the steering column.

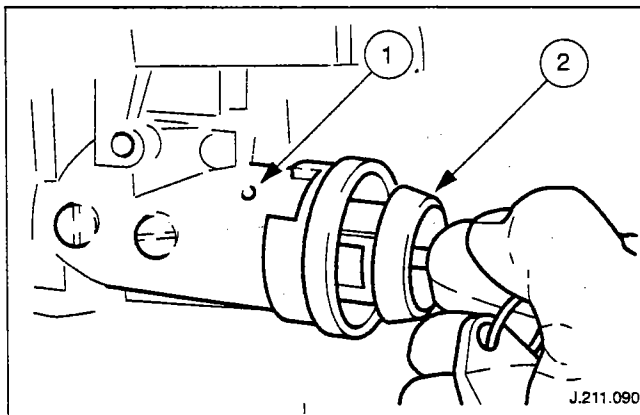
REMOVAL AND INSTALLATION (Continued)

17. Remove the switchgear mounting bracket assembly.

- 1 Unscrew and remove the bolts securing the switchgear mounting bracket assembly.
- 2 Remove the switchgear mounting bracket assembly.



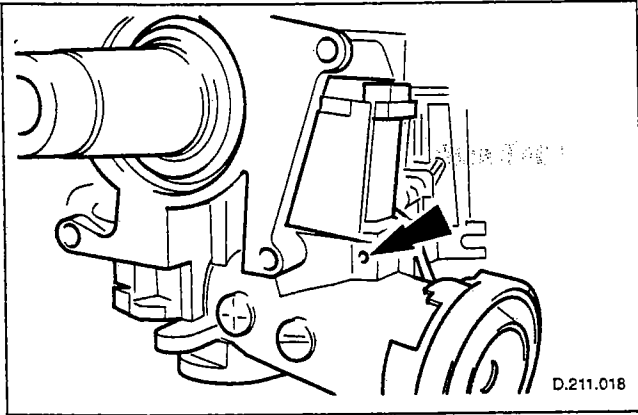
18. Remove the key transponder from the lock barrel.



19. Insert the ignition key in the steering lock barrel and turn it to the auxiliary position.

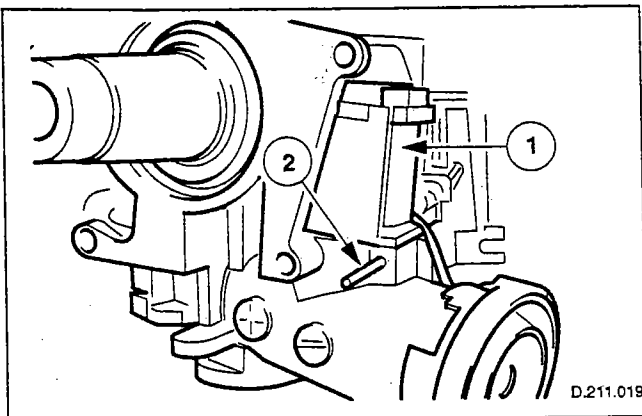
20. Remove the lock barrel assembly from the steering column.

- 1 Depress the lock barrel retaining peg.
- 2 Withdraw the lock barrel assembly.

REMOVAL AND INSTALLATION (Continued)

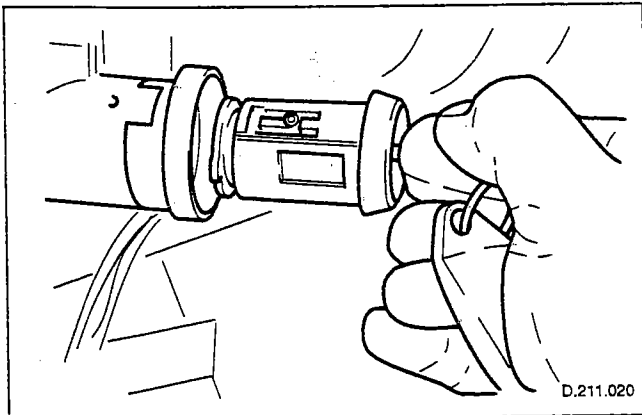
21. Remove the key lock solenoid from the steering column housing.

- 1 Use a suitable pin punch to drive out the pin securing the key lock solenoid to the housing.
- 2 Withdraw the solenoid.

Installation

22. Install the key lock solenoid to the steering column housing.

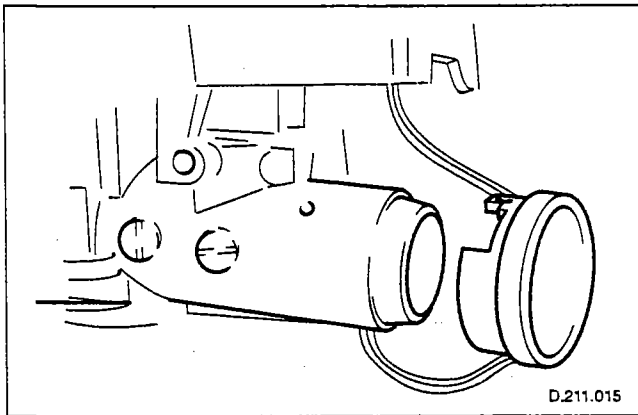
- 1 Install and fully seat the solenoid in the steering column housing.
- 2 Use a suitable drift to drive in the solenoid securing pin.



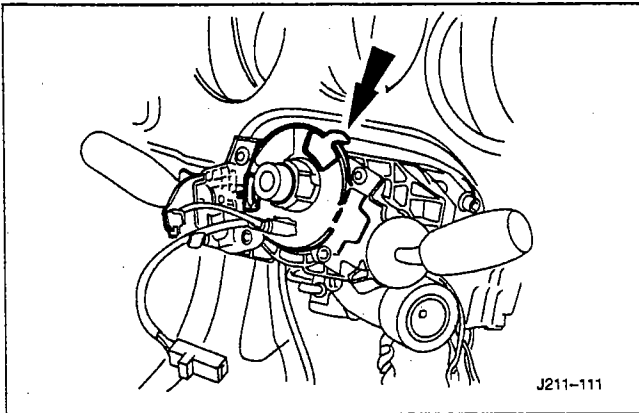
23. Install the lock barrel to the steering column lock.

- 1 Install and the lock barrel to the to the steering column lock.
- 2 Rotate the key to align lock barrel.
- 3 Fully seat the lock barrel.
- 4 Ensure that the retaining peg engages.

24. Turn the ignition key to the OFF position and remove it from the lock barrel.

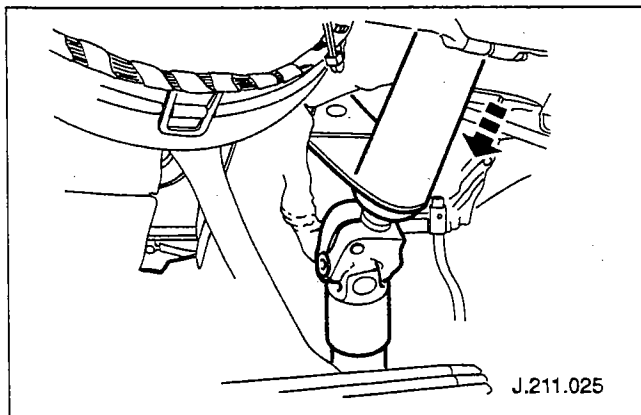
REMOVAL AND INSTALLATION (Continued)

25. Install the lock barrel transponder.



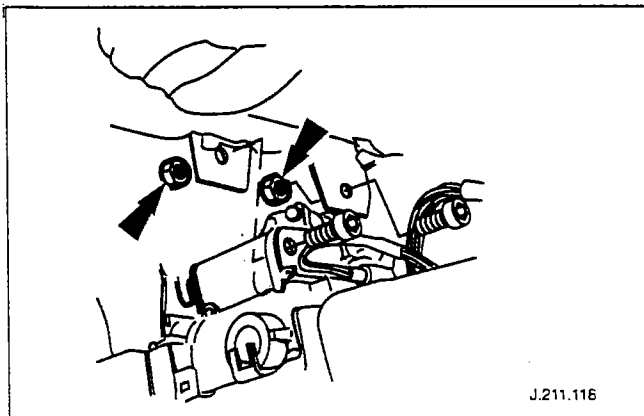
26. Install the switchgear mounting bracket on the steering column.

- 1 Align the switchgear mounting bracket.
- 2 Install and tighten the switchgear mounting bracket bolts.



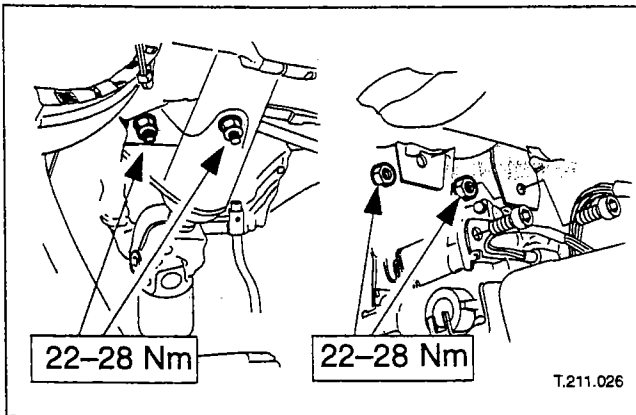
27. Place the steering column in the vehicle.

28. Align and install the steering column to the universal joint.



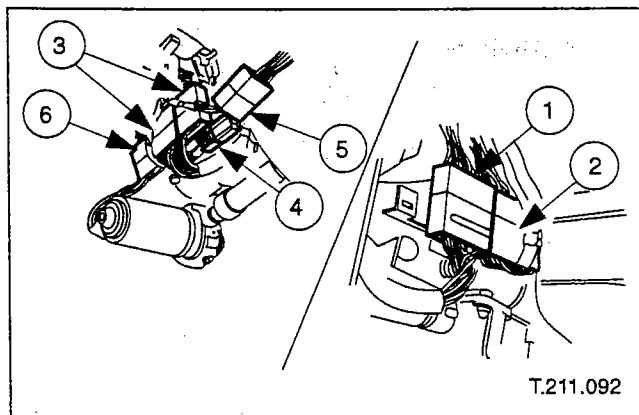
29. Install the column upper securing nuts; but do not tighten them.

REMOVAL AND INSTALLATION (Continued)



30. Install and tighten the column lower securing nut and bolt.

1 Tighten the previously installed column upper securing nuts.



31. Install the universal joint securing bolt and tighten to specification.

32. Connect the harness multiplugs.

1 Connect the washer switchgear to facia harness multiplug.

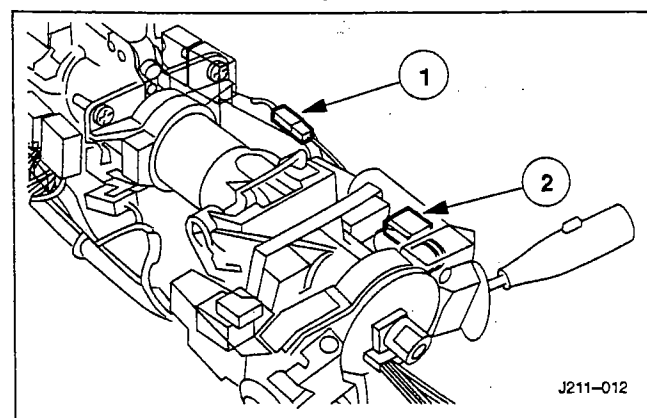
2 Connect the audible warning speaker to harness multiplug.

3 Connect the indicator switchgear to facia harness multiplug.

4 Connect the air bag harness multiplugs.

5 Connect the ignition switch to to facia harness multiplug.

6 Connect the tilt motor to facia harness multiplug.



33. Connect the key lock solenoid and transponder harness multiplugs.

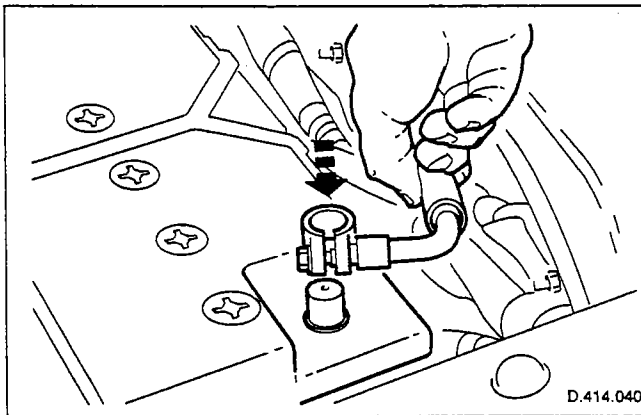
1 Connect the key lock solenoid harness multiplug.

2 Connect the key lock barrel transponder harness multiplug.

34. Install and tighten the harness securing tie straps.

35. Install the steering wheel; refer to this section.

36. Install the air bag module; refer to Section 500-20.

REMOVAL AND INSTALLATION (Continued)

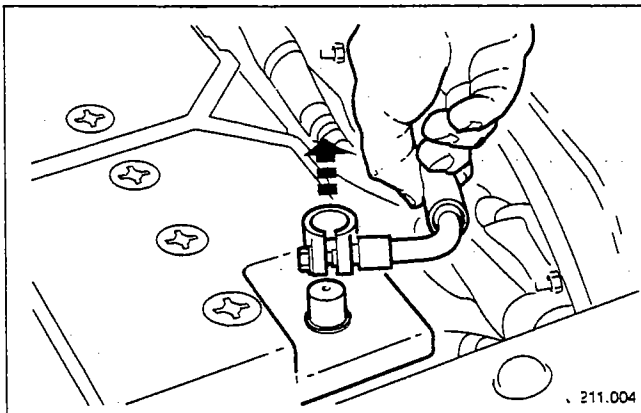
37. Reconnect the battery ground cable.

38. Install the battery cover.

39. Install the steering column upper cowl; refer to Section 501-05.

40. Install the steering column lower cowl; refer to Section 501-05.

41. Install the underscuttle; refer to Section 501-05.

Steering Column Tilt Motor (57.40.35)**Removal**

1. Remove the battery cover.

2. Disconnect the battery ground cable.

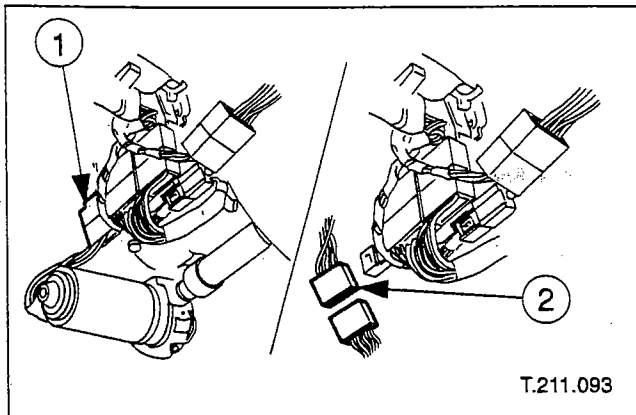
WARNING: WAIT AT LEAST ONE MINUTE BEFORE STARTING WORK, BECAUSE THE AIR BAG HAS A BACK-UP POWER SOURCE AND MAY BE INADVERTENTLY DEPLOYED.

3. Remove the air bag module; refer to Section 500-20.

4. Remove the steering wheel; refer to this section.

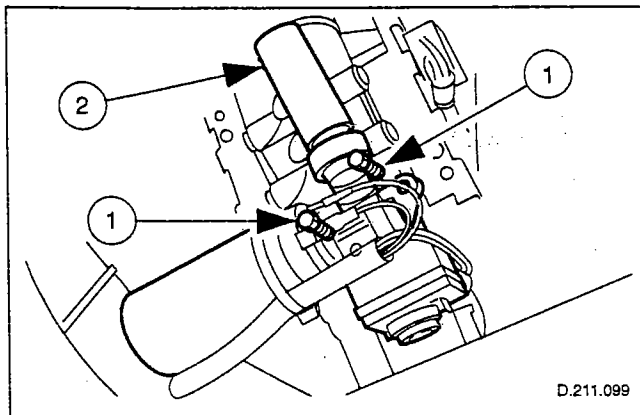
5. Remove the underscuttle; refer to Section 501-05.

REMOVAL AND INSTALLATION (Continued)



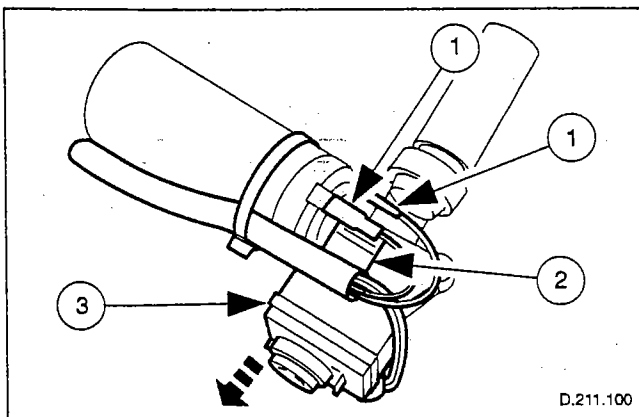
6. Disconnect the tilt motor potentiometer multiplug.

- 1 Release the multiplug from the mounting bracket.
- 2 Disconnect the multiplug.



7. Remove the tilt motor from the steering column.

- 1 Unscrew the tilt motor securing bolts.
- 2 Withdraw the tilt motor from the drive coupling.

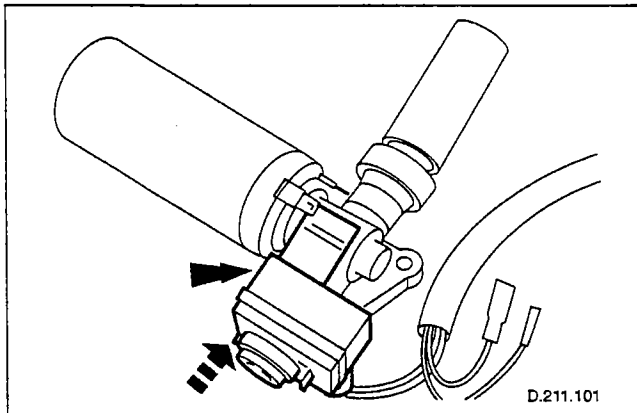


8. Cut and remove the motor harness tie straps.
9. Remove the tilt motor potentiometer.

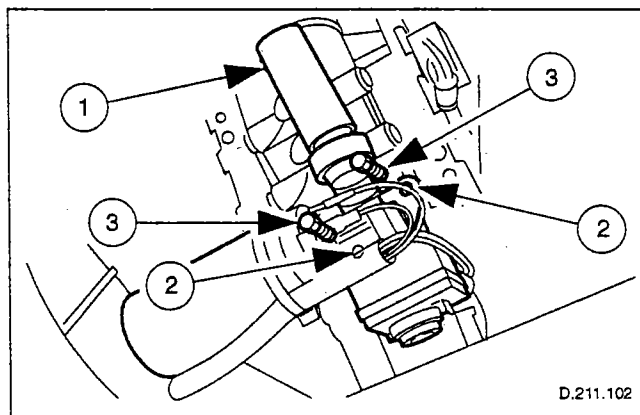
- 1 Identify and disconnect the motor harness multiplugs.
- 2 Release the potentiometer securing tang.
- 3 Remove the potentiometer from the tilt motor.

REMOVAL AND INSTALLATION (Continued)

Installation

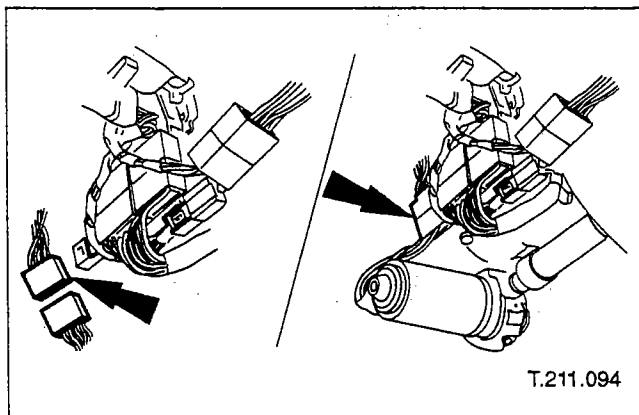


10. Install and align the potentiometer to the motor.



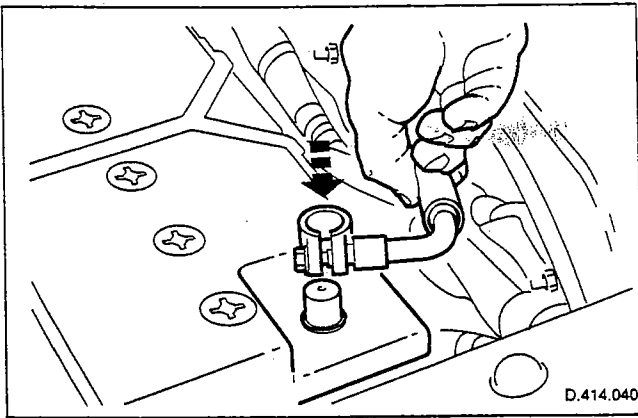
11. Connect the motor harness multiplugs.
12. Install and tighten the harness tie straps.
13. Install the tilt motor to the steering column.

- 1 Align the motor to column drive coupling.
- 2 Align the motor securing bolt holes.
- 3 Install and tighten the motor assembly securing bolts to specification.



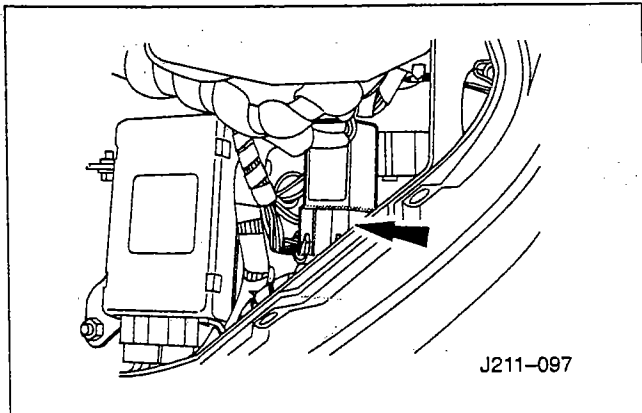
14. Connect the motor harness multiplug and install in mounting bracket.

15. Install the underscuttle; refer to Section 501-05.
16. Install the steering wheel; refer to this section.
17. Install the air bag; refer to Section 500-20

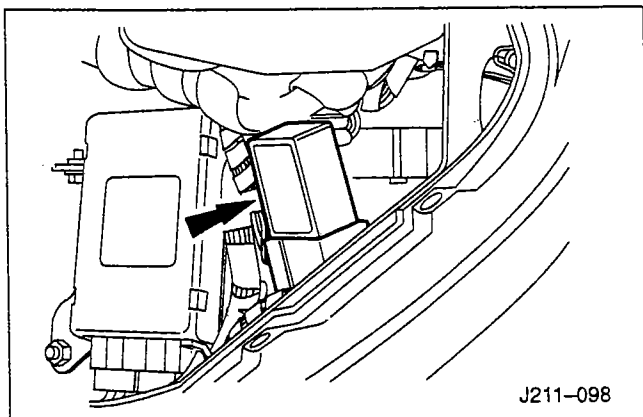
REMOVAL AND INSTALLATION (Continued)

18. Reconnect the battery ground cable.

19. Install the battery cover.

Steering Column Control Module (57.40.34)**Removal**

1. Remove the driver's side dash liner; refer to Section 501-05.
2. Remove the servotronic relay base from the mounting bracket.



3. Remove the relay from the base.

REMOVAL AND INSTALLATION (Continued)

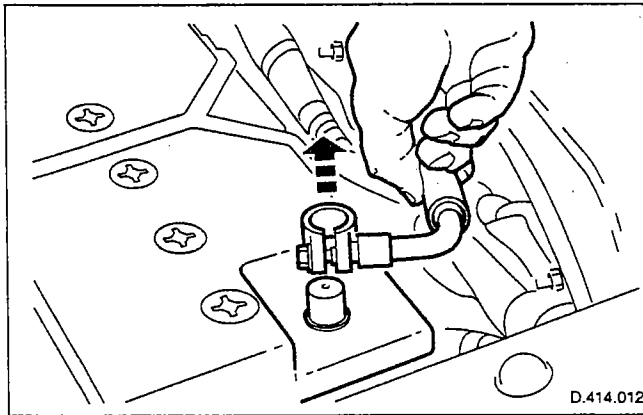
Installation

4. Installation is a reversal of the removal procedure

Cassette and Cancellation Module (86.65.92)

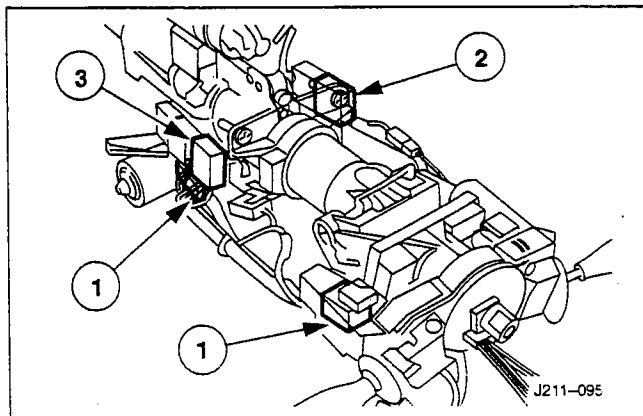
Removal

1. Remove underscuttle; refer to Section 501-05.
2. Remove the steering column lower cowl; refer to Section 501-05.
3. Remove the steering column upper cowl; refer to Section 501-05.
4. Remove the battery cover.
5. Disconnect the battery ground cable.

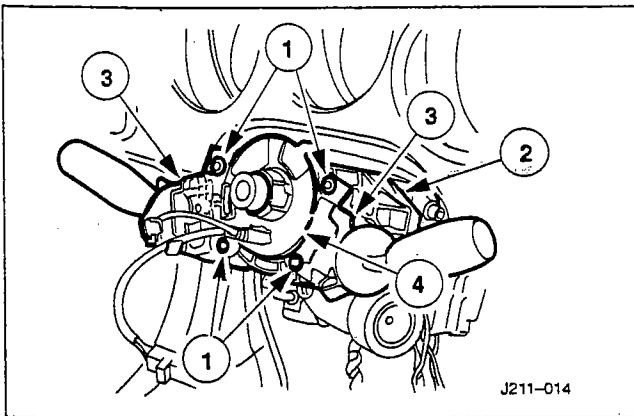


WARNING: WAIT AT LEAST ONE MINUTE BEFORE STARTING WORK, BECAUSE THE AIR BAG IS EQUIPPED WITH A BACK-UP POWER SOURCE AND MAY BE INADVERTENTLY DEPLOYED.

6. Remove the driver's air bag module; refer to Section 500-20.
7. Ensure that the steering wheel is in the straight ahead position.
8. Remove the steering wheel; refer to this section.
9. Disconnect the harness multiplugs.

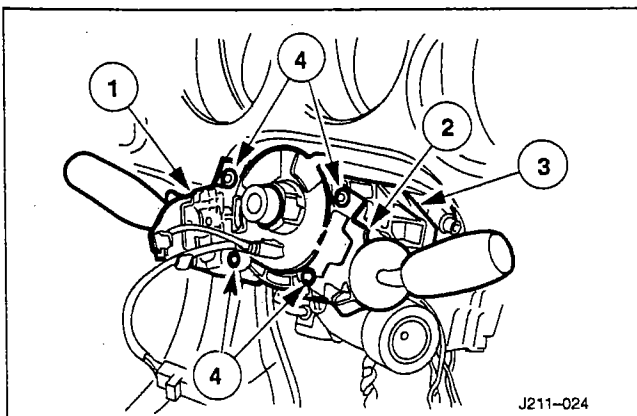


- 1 Disconnect the cancellation module multiplugs.
- 2 Release the wiper/washer multiplug from the mounting bracket and disconnect it.
- 3 Release the flasher/headlamp switch multiplug from the mounting bracket and disconnect it.

REMOVAL AND INSTALLATION (Continued)

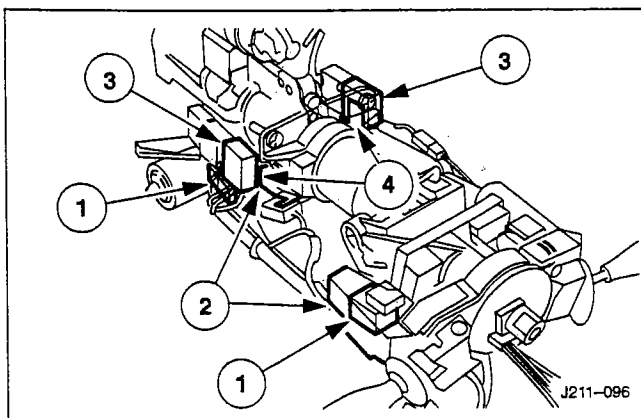
10. Remove the switch/assemblies cancellation module.

- 1 Unscrew and remove the bolts securing the switch assemblies/cancellation module to the mounting bracket.
- 2 Remove the steering column switchgear assembly.
- 3 Release the switch assemblies from the module and mounting bracket.
- 4 Remove the switch assemblies/cancellation module.

Installation

11. Install and align the cancellation module and switch assemblies to the steering column mounting bracket.

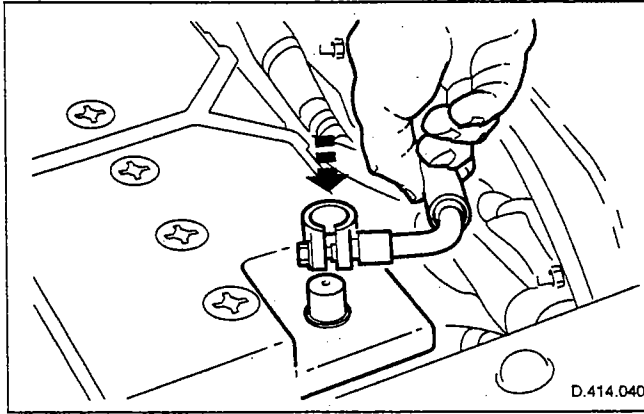
- 1 Install and align the flasher switch assembly to the module mounting bracket.
- 2 Install and align the washer switch assembly to the module mounting bracket.
- 3 Install and align the switchgear assembly to the steering column.
- 4 Install and tighten the switch assemblies/cancellation module securing screws.



12. Connect the module harness multiplugs and install in the mounting bracket.

- 1 Connect the module harness multiplugs.
- 2 Install the multiplugs in the mounting bracket.
- 3 Connect the switch assembly multiplugs.
- 4 Install the multiplugs in the mounting bracket.

13. Install the steering wheel; refer to this section.
14. Install the air bag; refer to Section 500-20.

REMOVAL AND INSTALLATION (Continued)

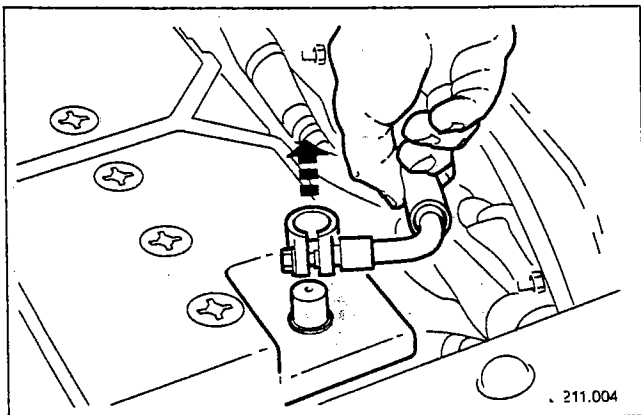
15. Install the steering column upper cowl; refer to Section 501-05.
16. Install the steering column lower cowl; refer to Section 501-05.
17. Install the underscuttle; refer to Section 501-05.
18. Reconnect the battery ground cable.

19. Install the battery cover.

REMOVAL AND INSTALLATION (Continued)

Steering Wheel (57.60.01)

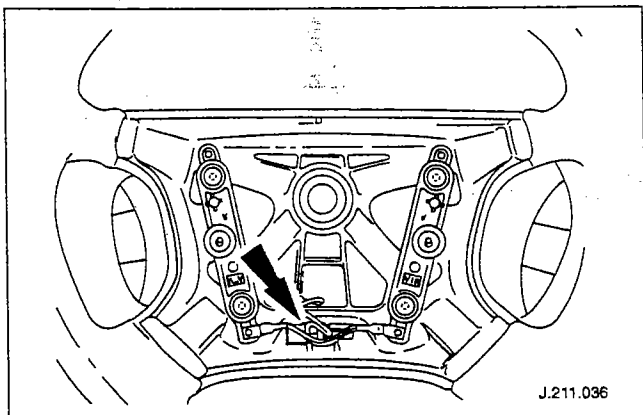
Removal



1. Remove the battery cover.
2. Disconnect the battery ground cable.

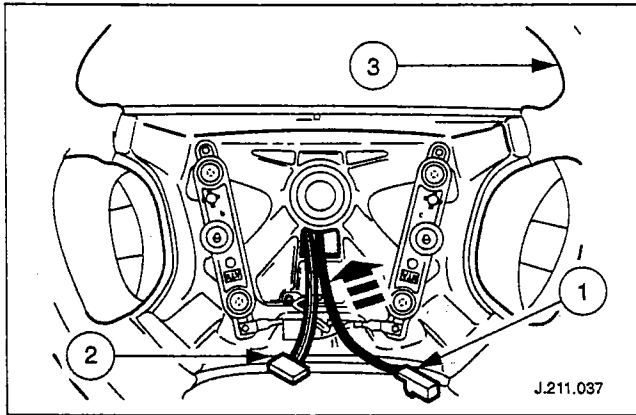
WARNING: WAIT AT LEAST ONE MINUTE BEFORE STARTING WORK, BECAUSE THE AIR BAG IS EQUIPPED WITH A BACK-UP POWER SOURCE AND MAY BE INADVERTENTLY DEPLOYED.

3. Remove the air bag module; refer to Section 500-20.
4. Release the horn harness and disconnect the multiplug.

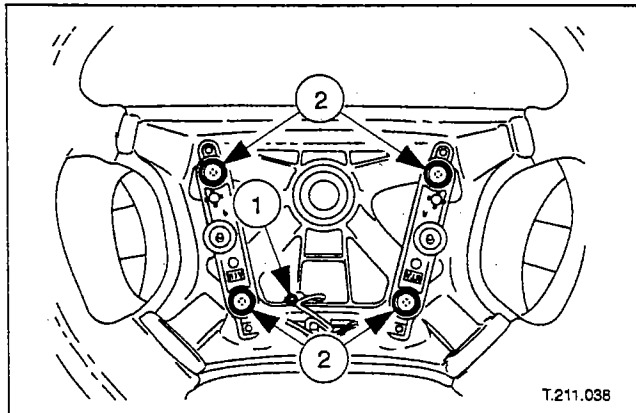


5. Remove the steering wheel; refer to this Section.

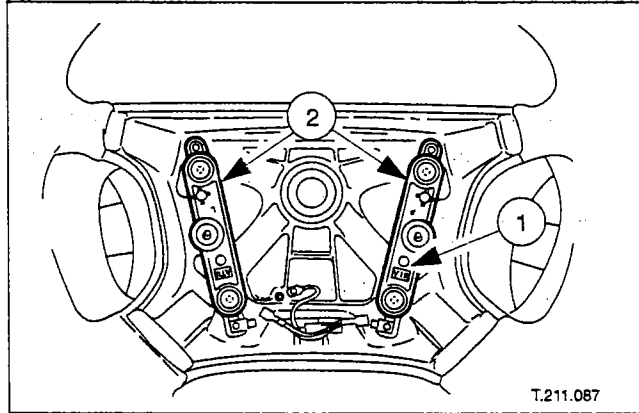
- 1 Center the steering.
- 2 Unscrew the steering wheel securing bolt.
- 3 Remove the steering wheel.

REMOVAL AND INSTALLATION (Continued)

6. Feed the harness multiplugs through the steering wheel aperture.
 - 1 Feed the air bag harness multiplug through the steering wheel aperture.
 - 2 Feed the horn harness multiplug through the steering wheel aperture.
 - 3 Place the steering wheel on the bench.



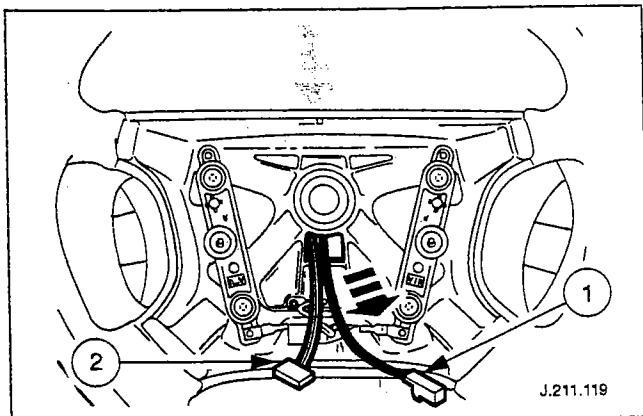
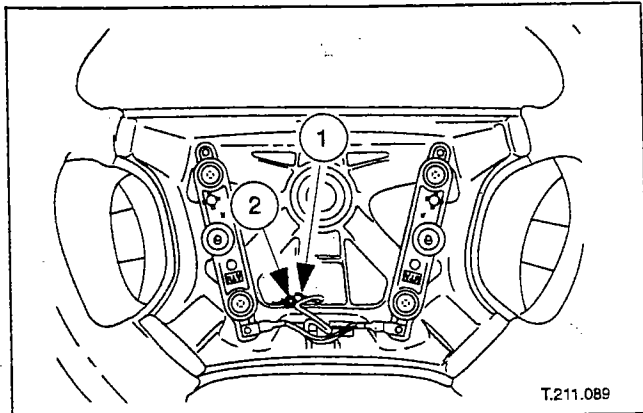
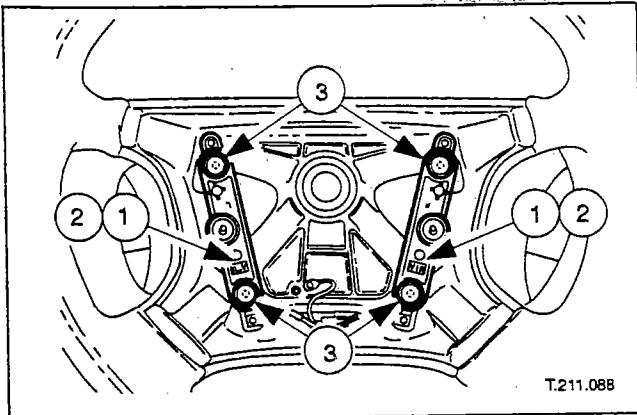
7. Remove the horn harness earth eyelet screw and horn operating bar securing screws.
 - 1 Remove the horn harness eyelet screw.
 - 2 Remove the horn operating bar securing screws.



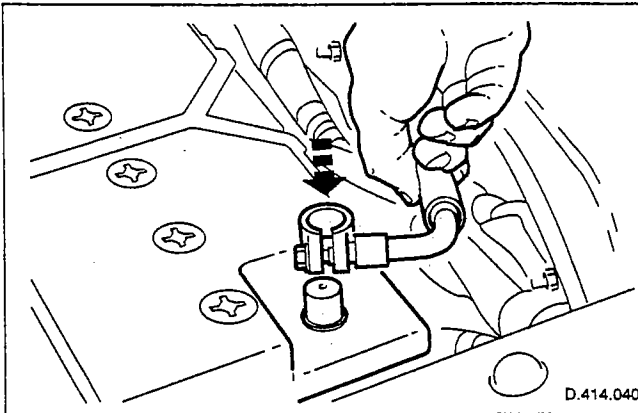
8. Remove the horn contact bars and harness assembly.
 - 1 Remove the horn contact bars.
 - 2 Ensure that the operating bar return springs remain captive in the contact bar.

REMOVAL AND INSTALLATION (Continued)

Installation



9. Install and align the horn contact bars and horn harness assembly.
 - 1 Ensure that the contact bar return springs are correctly located.
 - 2 Install the horn bars and harness assembly.
 - 3 Install and tighten the contact bar securing screws.
10. Align the horn harness earth eyelet and install the securing screw.
 - 1 Align the horn harness eyelet.
 - 2 Install and tighten the eyelet securing screw.
 - Transfer the the steering wheel from the bench to the vehicle.
11. Route the harness multiplugs through the steering wheel aperture.
 - 1 Route the air bag harness multiplug through the steering wheel aperture.
 - 2 Route the horn harness multiplug through the steering wheel aperture.
12. Install the steering wheel to the steering column.
 - 1 Install the steering wheel in the straight ahead position.
 - 2 Install the securing bolt and tighten to specification.
13. Reconnect the horn harness multiplug and secure it in position.

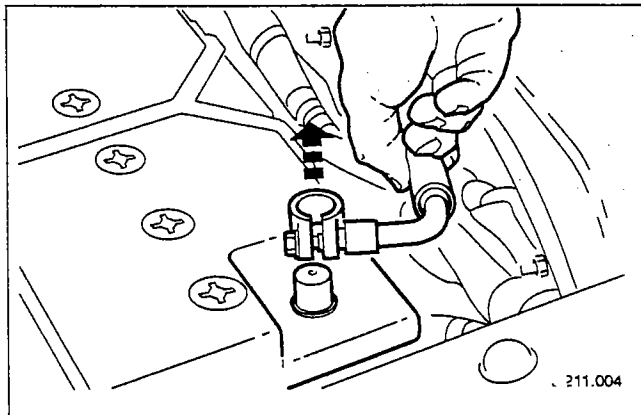
REMOVAL AND INSTALLATION (Continued)

14. Install the driver's air bag module; refer to Section 500-20.

15. Reconnect the battery ground cable.

16. Install the battery cover.

17. Install the underscuttle; refer to Section 501-05.

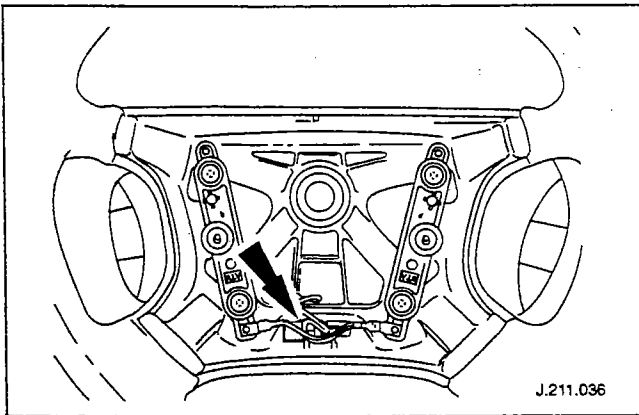
Steering Wheel Alignment (57.60.02)**Removal**

1. Remove the battery cover.

2. Disconnect the battery ground cable.

WARNING: WAIT AT LEAST ONE MINUTE BEFORE STARTING WORK, BECAUSE THE AIR BAG IS EQUIPPED WITH A BACK-UP POWER SOURCE AND MAY BE INADVERTENTLY DEPLOYED.

3. Remove the driver's air bag module; refer to Section 500-20.

REMOVAL AND INSTALLATION (Continued)

4. Release the horn harness multiplug from its secured position.

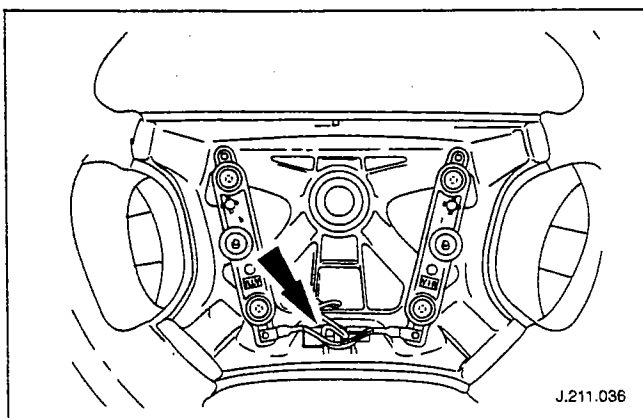
5. Align the steering to the straight ahead position.
6. Remove the steering wheel.

- 1 Unscrew and remove the securing bolt.
- 2 Remove the steering wheel from the steering column.

Installation

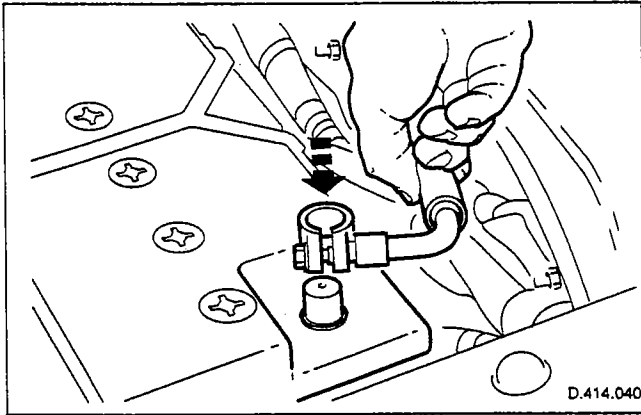
7. Install the steering wheel.

- 1 Align the steering wheel in the straight ahead position.
- 2 Install the steering wheel on the steering column.
- 3 Install the securing bolt and tighten to specification.



8. Install the horn harness multiplug.

9. Install the air bag module; refer to Section 500-20.

REMOVAL AND INSTALLATION (Continued)

10. Reconnect the battery.

11. Install the battery cover.

SECTION 211-05 Steering Column Switches

VEHICLE APPLICATION: X100

SUBJECT	PAGE
SPECIFICATIONS	
Torques	211-05-2
DESCRIPTION AND OPERATION	
Ignition switch	211-05-3
Lighting Switch	211-05-3
Wiper/Washer Switch	211-05-3
REMOVAL AND INSTALLATION	
Column Adjustment Switch	211-05-5
Steering Column Lock Barrel	211-05-6
Steering Column Switchgear Mounting Bracket	211-05-8
Ignition Key Lock Solenoid	211-05-13
Ignition Switch	211-05-15

SPECIFICATIONS**Torques**

Component	Nm
Switchgear Securing Screws	4-5
Steering Column Upper Cowl	1,5 Nominal
Steering Column Lower Cowl	1,5 Nominal

DESCRIPTION AND OPERATION

Steering Column Switches

Ignition Switch

The key operated ignition switch is located on the right hand side of the steering column and has four positions.

Position '0'. The steering column lock engages and the key may be inserted or removed.

Position 'I'. Certain circuits i.e. radio and windows, can be operated without switching on the ignition.

Position 'II'. All circuits, except the starter motor, are activated, and the key remains in this position when driving.

Position 'III'. The starter operates for as long as the key is held in this position. If the engine fails to start, the key must be returned to position 'I' before another start is attempted.

Lighting Switch

The left hand column switch controls the following functions:

Direction Indicators: The direction indicators operate when the ignition switch is in position 'II'. To indicate for a right or left turn, move the column switch stalk up or down respectively, until the switch latches in position. The switch automatically returns to the center position and the indicators cancel upon completion of the turn.

Sidelamps and Dipped Headlamps: These are controlled by a rotary collar on the switch stalk as follows:

Off Position: All exterior lamps are switched 'OFF'.

Sidelamps Position. Switches on the front sidelamps, tail, license plate and any other lamps required by local legislation.

Headlamps Position: Switches 'ON' the headlamps (with the ignition switch in position 'II') in addition to the lamps switched on in the sidelamps position.

Headlamp Main Beam Position: The main beam is selected by pushing the column switch stalk away from the steering wheel.

NOTE: The main beam only operates with the dipped headlamps switched 'ON'.

Main Beam Flash: To flash the main beam, pull the switch stalk towards the steering wheel.

Message Center Function Button: The message center function button is located in the end of the switch stalk. Select the functions by repeatedly pressing the function button.

Wiper and Washer Switch

The right hand column switch controls the following functions with the ignition in position 'II':

Position 'O': Wipers off. The windscreen wipers are 'OFF' and parked.

Position 'I': Intermittent wipe. With intermittent wipe selected, the collar can be rotated to vary the delay between wipes. Turn the collar counter-clockwise to increase the time delay.

Position 'II': The wipers operate continuously at normal speed.

Position 'III': The wipers will operate continuously at maximum speed.

Flick wipe: Pull the switch stalk towards the steering wheel for a single slow speed wipe.

Programmed Wash/Wipe: Press the button on the end of the switch stalk to obtain the wash/wipe program.

If the button is held depressed, the washers and wipers will operate continuously for up to twenty seconds.

DESCRIPTION AND OPERATION

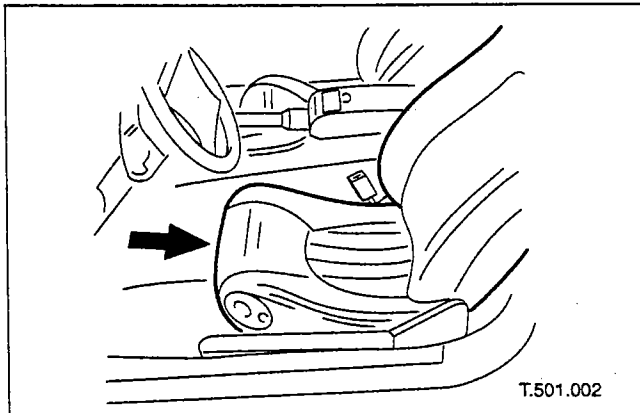
The drip wipe function will perform a single wiper sweep four seconds after the wipe/wash sequence has finished.

If the 'Washer fluid low' message is displayed and the wash/wipe is selected, the wipers will operate but not the washers.

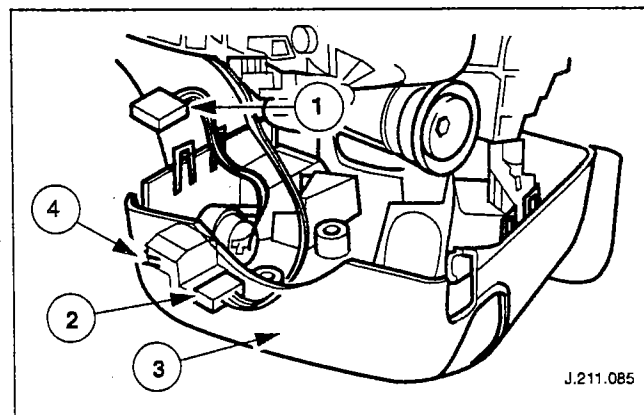
REMOVAL AND INSTALLATION

Column Adjustment Switch (57.40.33)

Removal



1. Power the driver's seat fully rearwards.



2. Remove the steering column lower cowl; refer to Section 501-05.
3. Remove the column adjustment switch.

- 1 Disconnect the rheostat multiplug.
- 2 Disconnect the column switch harness multiplug.
- 3 Remove the cowl and switch assembly.
- 4 Release the column switch retaining tangs and withdraw the switch.

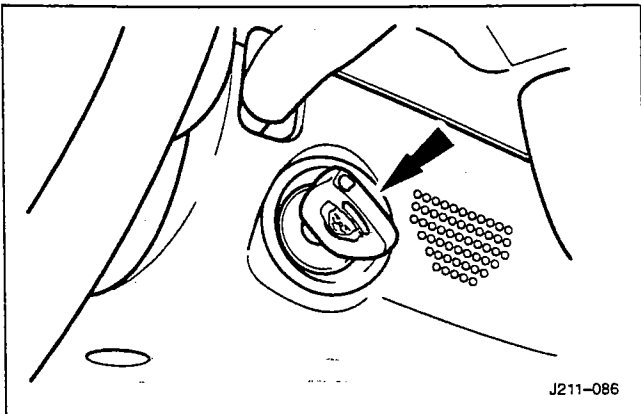
Installation

4. Installation is the reverse of the removal procedure.

REMOVAL AND INSTALLATION (Continued)

Steering Column Lock Barrel (57.40.29)

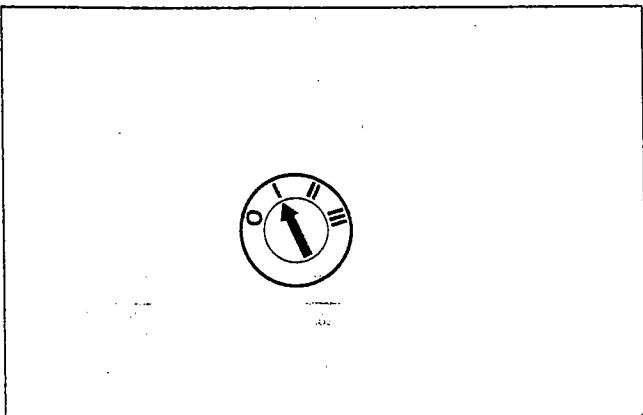
Removal



1. Remove the ignition key from the steering column lock.

2. Remove the steering column lower cowl; refer to Section 501-05.
3. Insert the ignition key into the steering column lock.

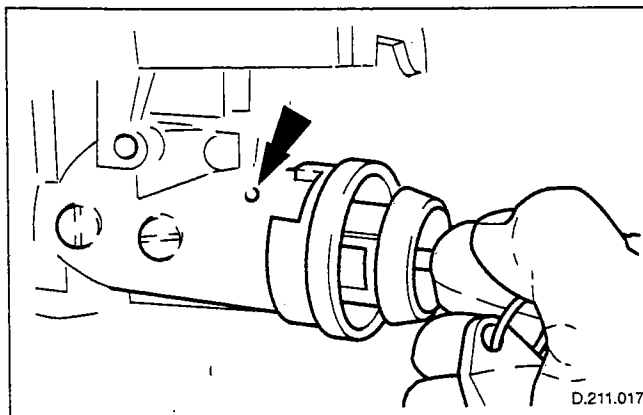
1 Turn the key to the AUXILIARY position.



4. Remove the lock barrel from the steering column lock.

1 Press the lock barrel retaining peg to release the barrel.

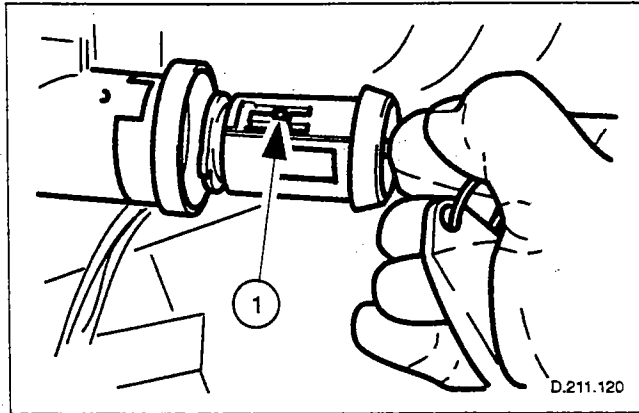
2 Withdraw the lock barrel from the steering lock.



5. Remove the ignition key.

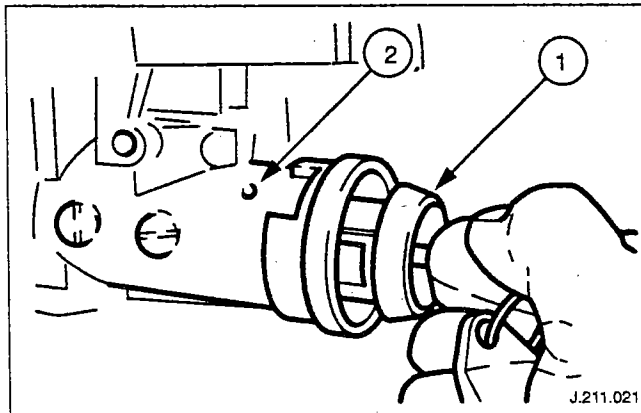
REMOVAL AND INSTALLATION (Continued)

Installation



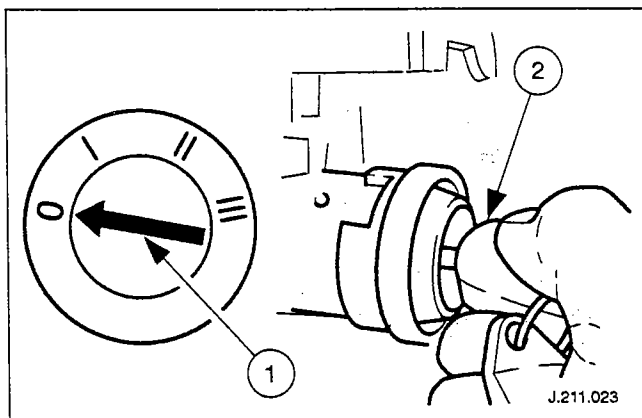
6. Insert the ignition key into the lock barrel.
7. Align the lock barrel to the steering column lock.

- 1 Rotate the ignition key until alignment of the lock barrel is attained.



8. Install the lock barrel to the steering column lock.

- 1 Fully seat the lock barrel to the steering column lock.
- 2 Ensure that the retaining peg has engaged.



9. Remove the ignition key from the lock.
 - 1 Turn the ignition key to the OFF position.
 - 2 Withdraw the ignition key from the lock.

10. Install the steering column lower cowl; refer to Section 501-05.

11. Insert the ignition key into the steering lock.

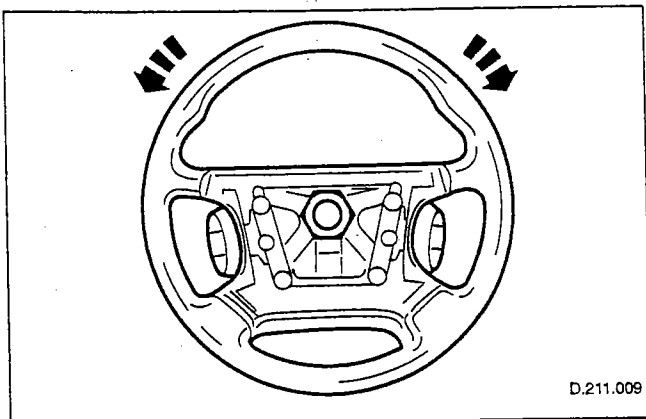
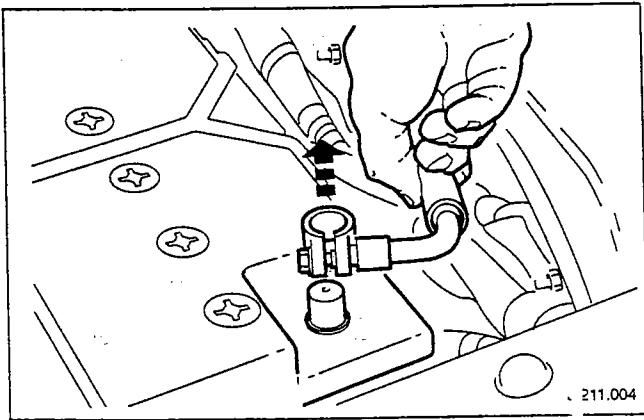
REMOVAL AND INSTALLATION (Continued)

Steering Column Switchgear Mounting Bracket (76.46.33)

Removal

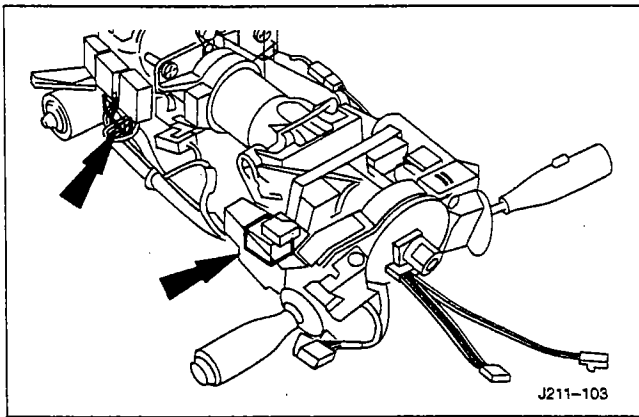
1. Remove the underscuttle; refer to Section 501-05.
2. Remove the steering column lower cowl; refer to Section 501-05.
3. Remove the steering column upper cowl; refer to Section 501-05.
4. Remove the battery cover.
5. Disconnect the battery ground cable.

WARNING: WAIT AT LEAST ONE MINUTE BEFORE STARTING WORK, BECAUSE THE AIR BAG IS EQUIPPED WITH A BACK-UP POWER SOURCE AND MAY BE INADVERTENTLY DEPLOYED.

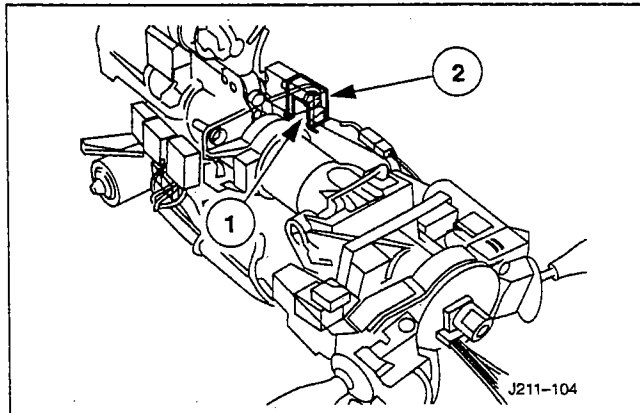


6. Remove the driver's air bag module; refer to Section 500-20.
7. Ensure that the steering is centered.

8. Remove the steering wheel; refer to Section 211-04.

REMOVAL AND INSTALLATION (Continued)

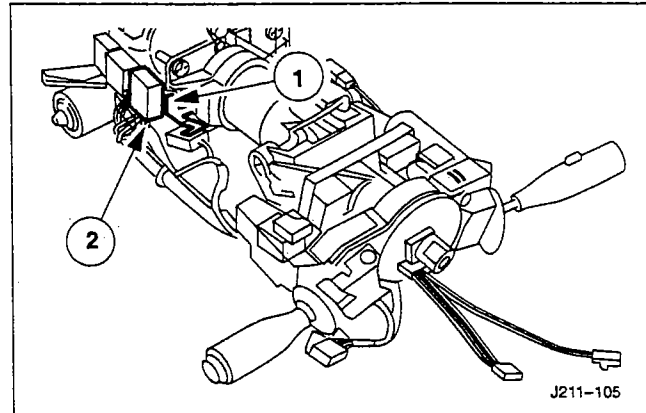
9. Disconnect the cancellation module multiplugs.



10. Remove the wiper/washer switch multiplug.

1 Release the multiplug from the mounting bracket.

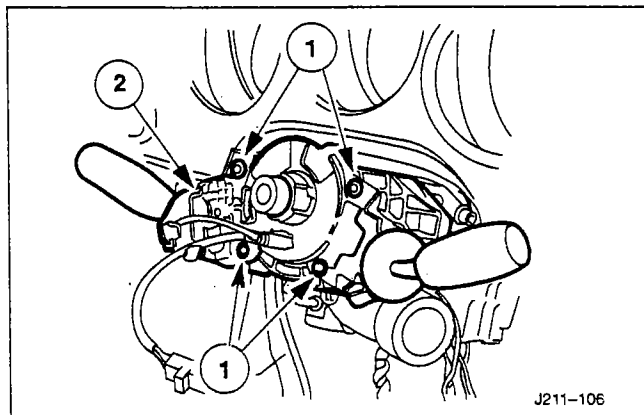
2 Disconnect the multiplug.



11. Remove the flasher/headlamp switch multiplug.

1 Release the multiplug from the mounting bracket.

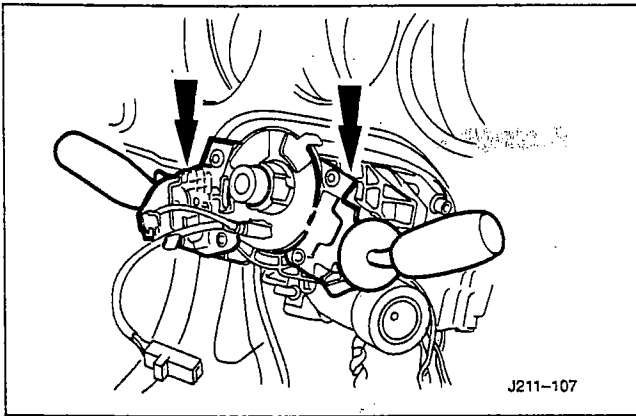
2 Disconnect the multiplug.



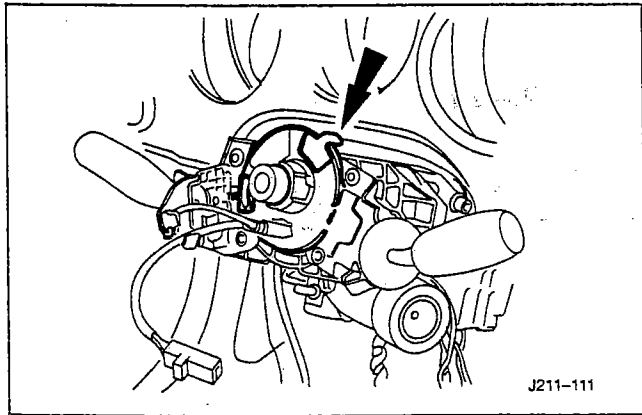
12. Remove the switch assemblies/cancellation module.

1 Unscrew the switchgear securing screws.

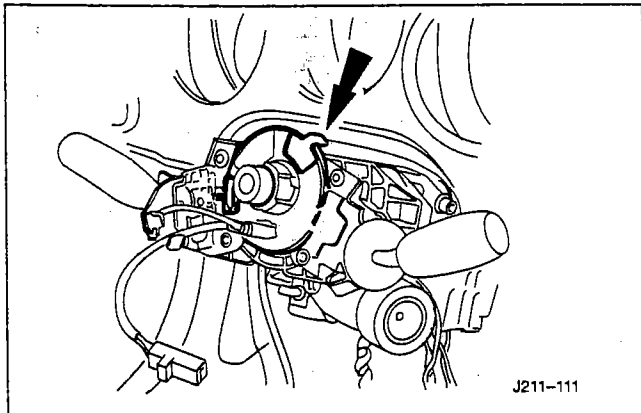
2 Remove the switchgear assembly from the mounting bracket.

REMOVAL AND INSTALLATION (Continued)

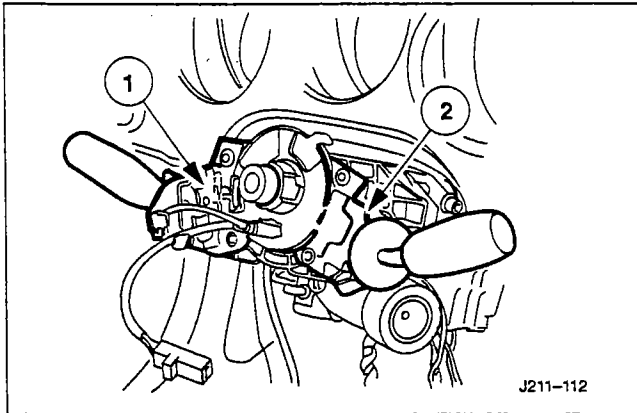
13. Remove the switch assemblies from the cancellation module and mounting bracket.



14. Remove the cancellation module from the mounting bracket.

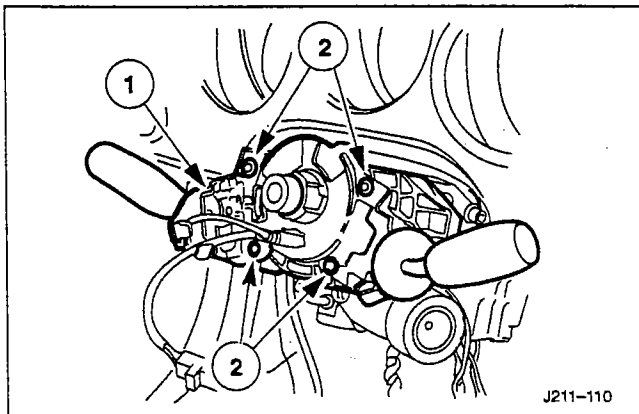
Installation

15. Install and align the cancellation module to the column mounting bracket.

REMOVAL AND INSTALLATION (Continued)

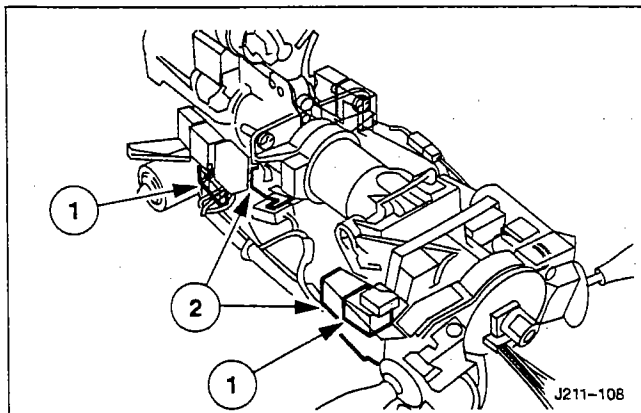
16. Install the flasher switch and washer switch assemblies to the module mounting bracket.

- 1 Install and align the flasher switch assembly.
- 2 Install and align the washer switch assembly.



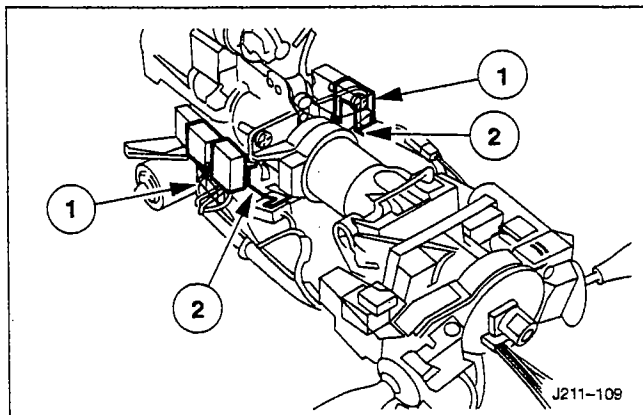
17. Install switchgear assembly to the steering column.

- 1 Install and align the switchgear assembly to the steering column.
- 2 Install and tighten the switchgear and cancellation module securing bolts.



18. Reconnect and locate the cancellation module harness multiplugs.

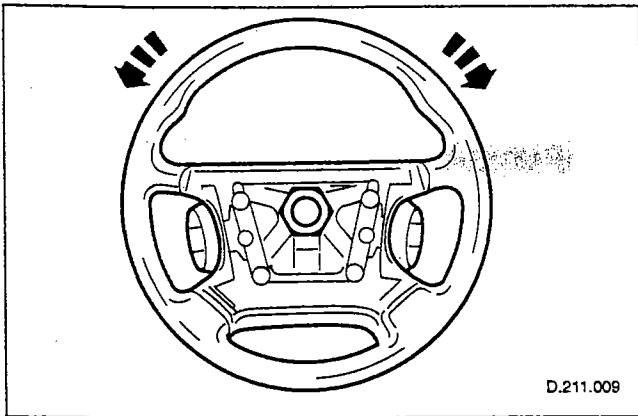
- 1 Reconnect the cancellation module harness multiplugs.
- 2 Locate the multiplugs to the mounting bracket.



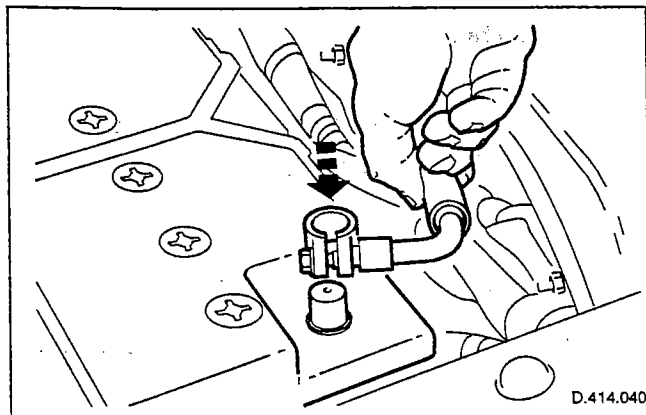
19. Reconnect and locate the switch assembly multiplugs.

- 1 Reconnect the switch assembly harness multiplug.
- 2 Locate the multiplug to the mounting bracket.

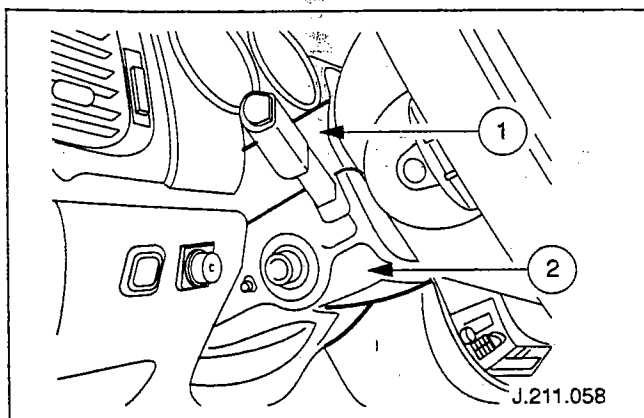
REMOVAL AND INSTALLATION (Continued)



20. Install the steering wheel to the column in the correct orientation; refer to Section 211-04



21. Install the driver's air bag; refer to Section 500-20
22. Reconnect the battery ground cable.



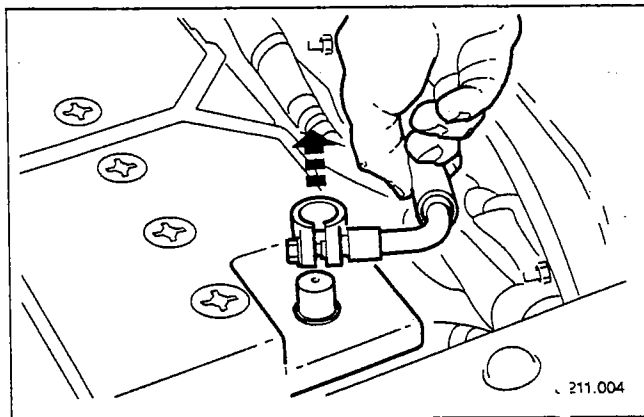
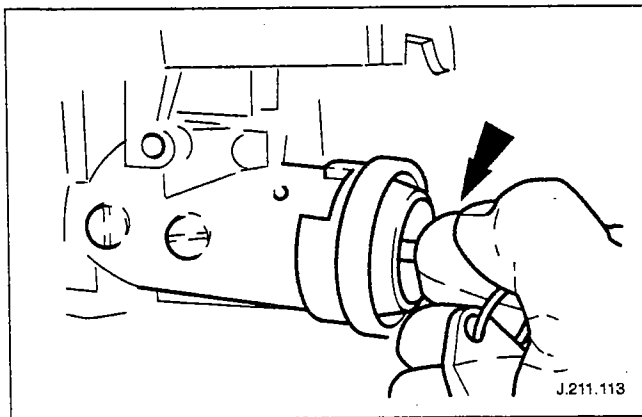
23. Install the battery cover.
24. Install the steering column upper and lower cowls.
- 1 Install the steering column upper cowl; refer to Section 501-05.
- 2 Install the steering column lower cowl; refer to Section 501-05.
25. Install the underscuttle; refer to Section 501-05.

REMOVAL AND INSTALLATION (Continued)

Ignition Key Lock Solenoid (57.40.32)

Removal

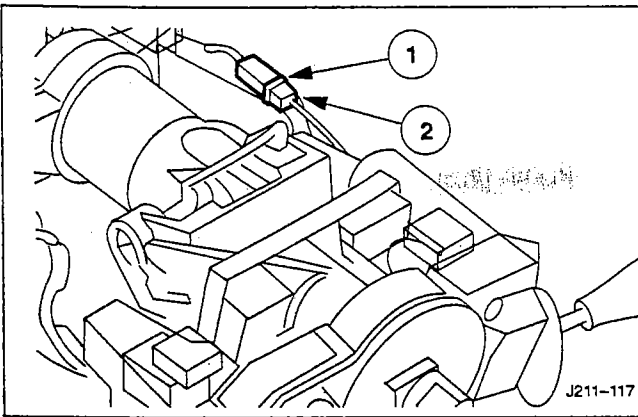
1. Remove the underscuttle; refer to Section 501-05.
2. Remove the steering column lower cowl; refer to Section 501-05.
3. Remove the steering column upper cowl; refer to Section 501-05.
4. Remove the ignition key.



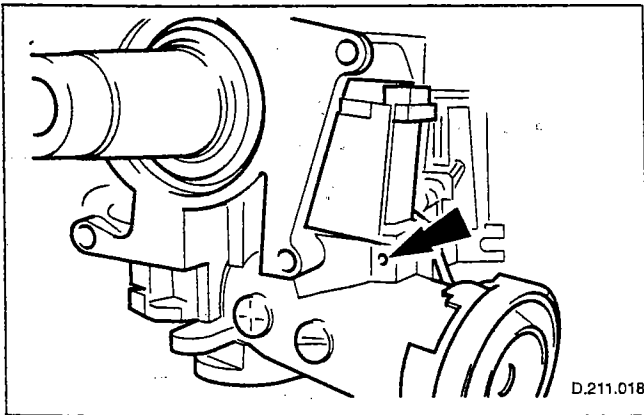
5. Remove the battery cover.
6. Disconnect the battery ground cable.

WARNING: WAIT AT LEAST ONE MINUTE BEFORE STARTING WORK, BECAUSE THE AIR BAG IS EQUIPPED WITH A BACK-UP POWER SOURCE AND MAY BE INADVERTENTLY DEPLOYED.

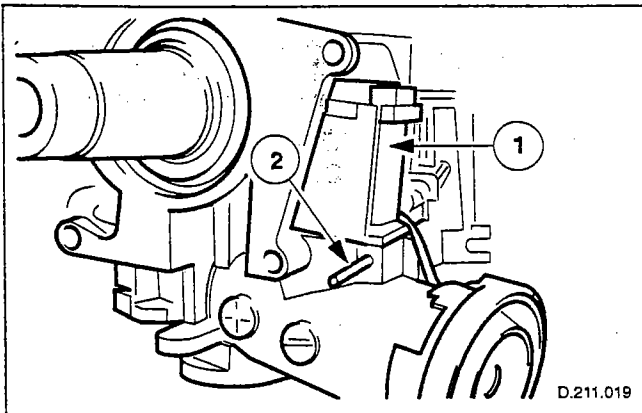
7. Remove the driver's air bag module; refer to Section 500-20.
8. Remove the steering wheel; refer to Section 211-04.
9. Remove the cassette and cancellation module; refer to Section 211-04.
10. Remove the steering column switchgear mounting bracket; refer to this section.

REMOVAL AND INSTALLATION (Continued)

11. Disconnect the wiring harness multiplug.
 - 1 Cut the solenoid harness securing strap.
 - 2 Disconnect the solenoid wiring harness multiplug.

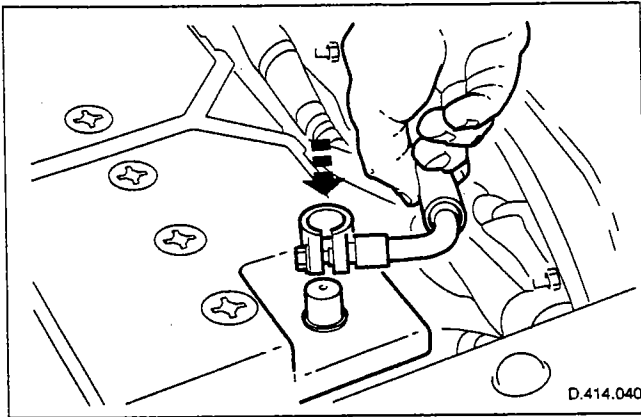


12. Remove the solenoid from the lock housing..
 - 1 Use a pin punch to drive out the pin securing the solenoid to the lock housing.
 - 2 Withdraw the solenoid from the lock housing.

Installation

13. Install the solenoid to the steering lock housing.
 - 1 Install and fully seat the solenoid to the steering lock housing.
 - 2 Use a suitable pin punch to drive in a new pin to secure the solenoid to the lock housing.

14. Install the steering column switchgear mounting bracket; refer to this section.
15. Install the cassette and cancellation module; refer to Section 211-04.
16. Install the steering wheel; refer to Section 211-04.
17. Install the air bag module; refer to Section 500-20.

REMOVAL AND INSTALLATION (Continued)

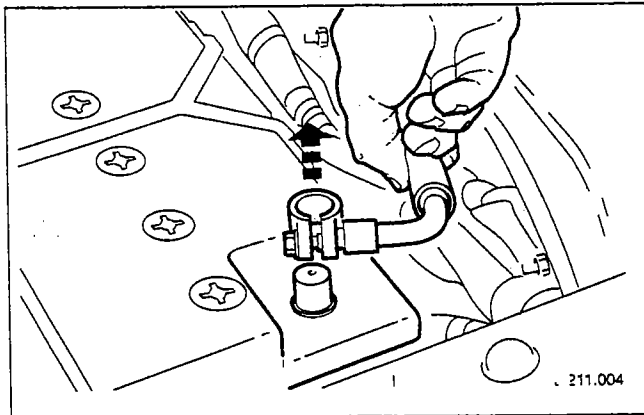
18. Reconnect the battery ground cable.

19. Install the battery cover.

20. Install the underscuttle; refer to Section 501-05.

21. Install the steering column upper cowl; refer to Section 501-05.

22. Install the steering column lower cowl; refer to Section 501-05.

Ignition Switch (86.65.03)**Removal**

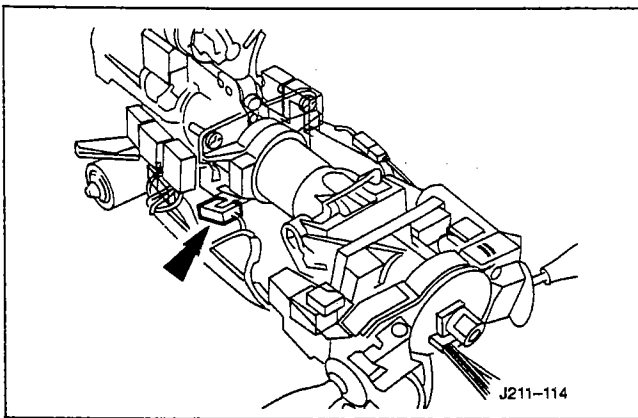
1. Remove the battery cover.

2. Disconnect the battery ground cable.

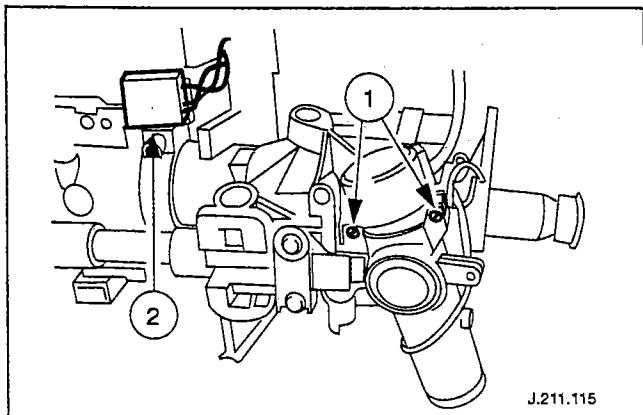
WARNING: WAIT AT LEAST ONE MINUTE BEFORE STARTING WORK, BECAUSE THE AIR BAG IS EQUIPPED WITH A BACK-UP POWER SOURCE AND MAY BE INADVERTENTLY DEPLOYED.

3. Remove the underscuttle; refer to Section 501-05.

4. Remove the steering column lower cowl; refer to Section 501-05.

REMOVAL AND INSTALLATION (Continued)

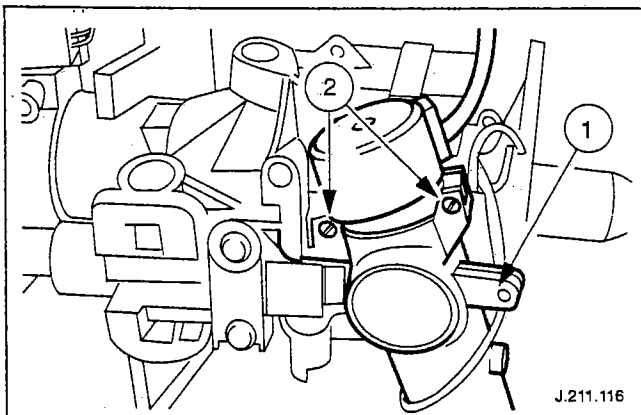
5. Release the ignition switch multiplug from the mounting bracket and disconnect it.



6. Remove the ignition switch from the lock assembly.

- 1 Unscrew the ignition switch securing screws.

- 2 Remove the ignition switch from the lock assembly.

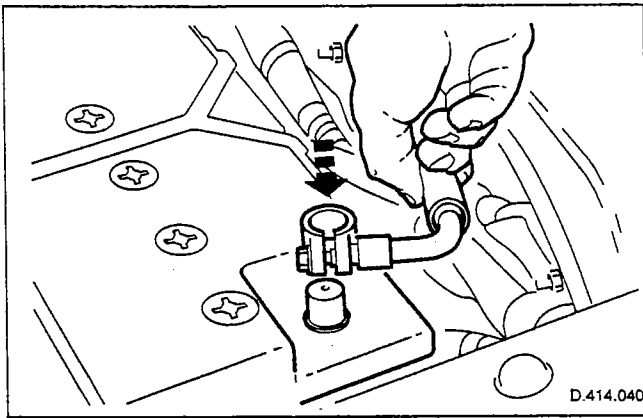
Installation

7. Install the ignition switch on the lock assembly.

- 1 Fully seat the ignition switch on the lock assembly.

- 2 Install and tighten the ignition switch securing screws.

8. Reconnect the ignition switch multiplug and locate it in the mounting bracket.
9. Install the steering column lower cowl; refer to Section 501-05.
10. Install the underscuttle; refer to Section 501-05.

REMOVAL AND INSTALLATION (Continued)

11. Reconnect the battery ground cable.

12. Install the battery cover.

SECTION 204-00 Suspension System

SUBJECT	PAGE
DESCRIPTION AND OPERATION	
Suspension System – Introduction	204-00-2

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DESCRIPTION AND OPERATION

Suspension System – Introduction

Details of the Suspension Systems (including Wheels and Tyres) can be found in Sections 204-01, 204-02 and 204-04 of this manual, and also in the Diagnostic and Test Manual.

SECTION 204-01 Front Suspension

VEHICLE APPLICATION: X100

SUBJECT	PAGE
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SPECIFICATIONS

Press-In Loads for Ball Joints	204-01-2
Torques	204-01-2

DESCRIPTION AND OPERATION

Front Suspension	204-01-3
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REMOVAL AND INSTALLATION

Wheel Bearing Renewal	204-01-5
Wheel Bearing Installation	204-01-7

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SPECIFICATIONS**Press-In Loads**

Component	Kn
Upper Ball Joint	25-50
Lower Ball Joint	25-50

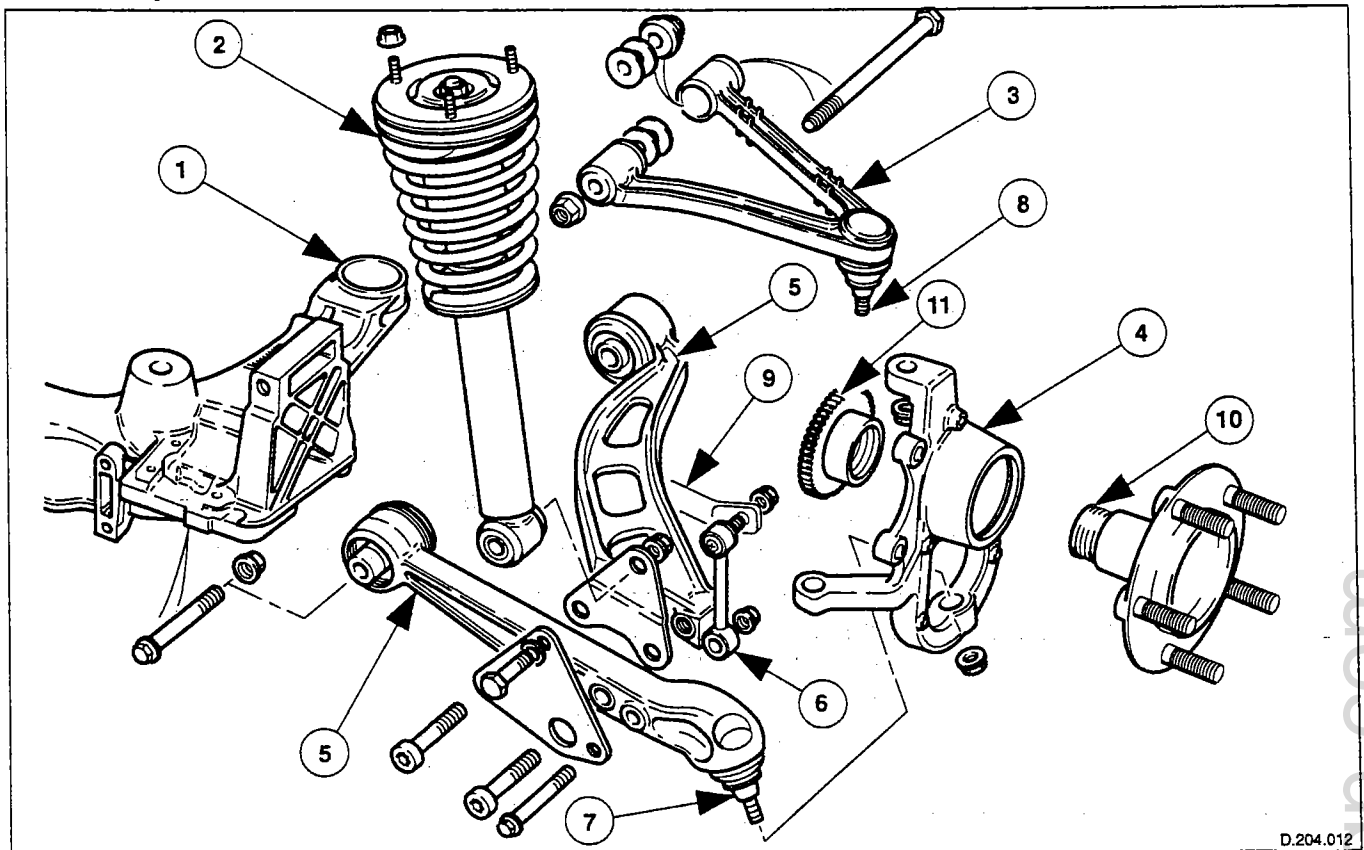
Torques

Component	Nm
Upper Ball Joint Nut	60-80
Upper Wishbone Fulcrum Bolt	60-80
Lower Ball Joint Nut	60-80
Lower Wishbone Fulcrum Bolt	95-125
Hub/ABS Rotor Nut	150-190
Crossbeam Front Mounting to Body	51-69
Crossbeam 'V' Mounting to Body	51-69
Crossbeam to 'V' Mounting	15,5-20,5
Stabilizer Bar to Crossbeam Bolts	22-28
Stabilizer Bar to Link Ball Joint	60-80
Stabilizer Bar Link to Lower Wishbone Joint	39-51
Damper Lower Pivot Bolt	60-80
Damper Rod Nut	30-40
Upper Spring Seat to Body Nuts	22-28
Disc Shield	10-12

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DESCRIPTION AND OPERATION

Front Suspension



D.204.012

Item	Description
1	Aluminum Crossbeam
2	Co-axial Spring and Damper
3	Upper Wishbone
4	Vertical Link and Bearings Assembly
5	Lower Wishbone
6	Stabilizer Bar Link
7	Lower Wishbone Ball Joint
8	Upper Wishbone Ball Joint
9	Stabilizer Bar
10	Front Hub
11	Hub Nut/ABS Rotor

The independent front suspension is of the double wishbone type and is mounted on an aluminum crossbeam. The crossbeam is a heat treated aircraft specification aluminum casting and is mounted on four resilient mountings. It carries mounting points for the upper and lower wishbones, the steel crossbeam tie bar, stabilizer bar, power steering rack and engine hydramounts.

A two piece steel forged wide base lower wishbone and a one piece steel forged upper wishbone are used. A vertical link is installed between the wishbones and carries the live front hub, combined hub nut and ABS rotor, ABS sensor and connector, cartridge wheel bearings, and brake rotor and caliper assemblies. The vertical link swivels in two ball joints which are pressed into the upper and lower wishbones.

A co-axial spring and damper unit is installed between the lower wishbone and the vehicle body.

A stabilizer bar is mounted on the crossbeam and is connected to each lower wishbone by a short link.

As the road wheel rises, the movement is transmitted to the vertical link, then through the ball joints to the upper and lower wishbones and the co-axial spring and damper assembly.

The spring absorbs the shock and the damper damps any unwanted spring frequencies, which could lead to an unstable vehicle.

When cornering, weight is transferred to the outer wheel and there is a natural tendency for the inner wheel to lift.

The stabilizer bar helps to minimise this by transferring some of the apparent rise of the outer wheel to the inner wheel through the links to the lower wishbones. This helps to provide a more level ride.

Adaptive damping may also be specified as an option.

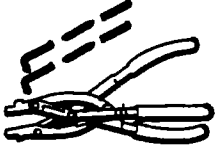
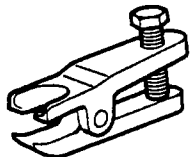
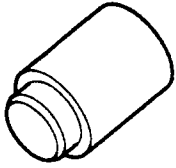
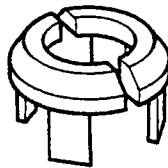
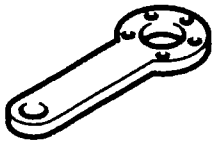
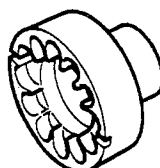
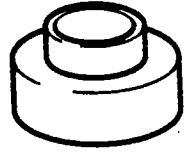
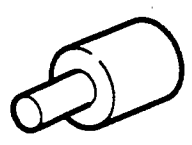
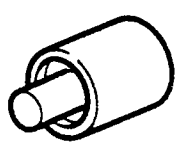
WARNING: NO ATTEMPT MUST BE MADE TO WELD OR REPAIR THE ALUMINUM CROSSBEAM. IF IT IS DAMAGED, A NEW ONE MUST BE INSTALLED.

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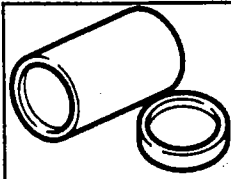
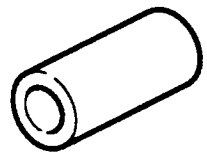
REMOVAL AND INSTALLATION

Wheel Bearing Renewal

Special Tool(s)

	Circlip Pliers 18G 1004
	Front Suspension Ball Joint Splitter JD 219
	Front Hub Remover JD224
	Front Hub Remover Tool Collets JD 225
	Hub Holding Tool JD 227
	ABS/Rotor Nut Socket JD 228
	Front Hub Replacer JD 236
	Front Hub Bearing Remover JD 237
	Front Hub Bearing Replacer JD 238

Special Tool(s)

	Upper Wishbone Ball Joint Installer JD 239
	Upper Wishbone Ball Joint Remover JD 240

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REMOVAL AND INSTALLATION (Continued)

Removal

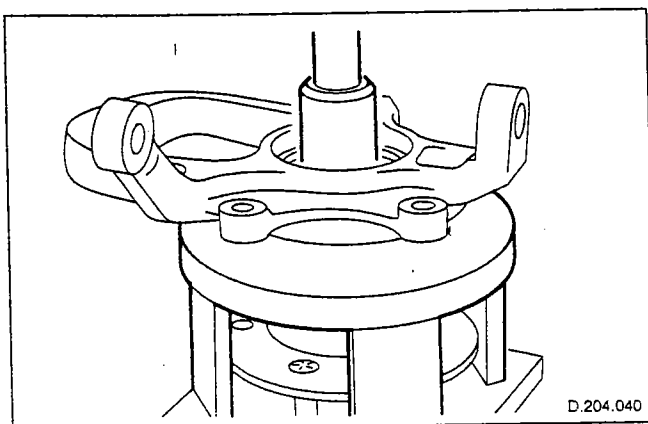
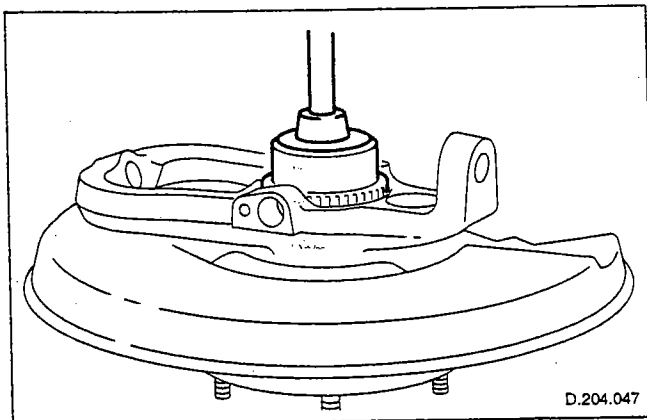
1. Raise and support the vehicle; refer to Section 100-02.
2. Remove the wheel and tire assembly; refer to Section 204-04.
3. Disconnect the ABS sensor harness connector.
4. Remove the brake caliper assembly; refer to Section 206-03.

WARNING: DO NOT ALLOW THE CALIPER TO HANG UNSUPPORTED ON THE BRAKE HOSE.

5. Remove the brake rotor from the wheel lug studs.
6. Remove the outer tie rod joint; refer to Section 211-03.
7. Remove the upper wishbone to vertical link ball joint; refer to this section.
8. Remove the lower wishbone to vertical link ball joint; refer to this section.
9. Remove the hub/ABS rotor nut using the special tool.

1 Release the spring pin.

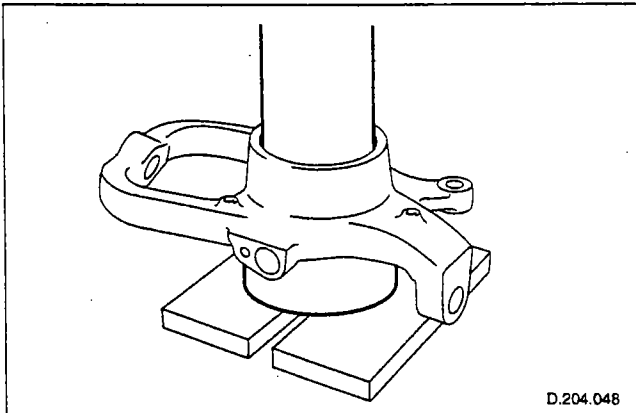
2 Unscrew the hub/ABS rotor nut, using the special tool.



10. Remove the hub from the bearings.

1 Place the vertical link assembly on the special supporting tool.

2 Using a suitable press, press the hub from the bearings.

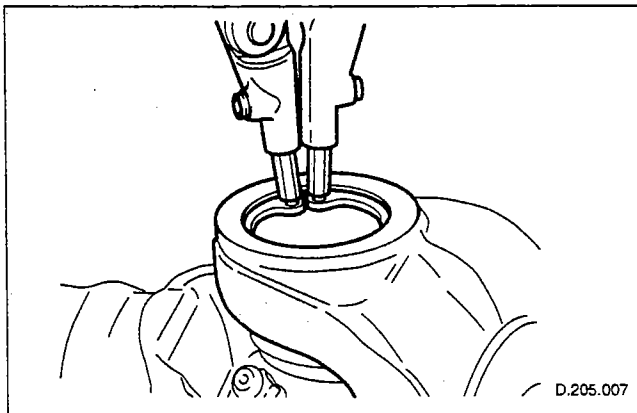
REMOVAL AND INSTALLATION (Continued)

11. Press the bearing assembly from the vertical link.

- 1 Release and withdraw the inboard circlip.
- 2 Position the special tool on the bearing inner cone.
- 3 Press the bearing assembly from the vertical link.
- 4 Scrap the bearing assembly.

12. Thoroughly clean the bearing bore in the vertical link.

13. Thoroughly clean the bearing diameter of the hub.

Installation

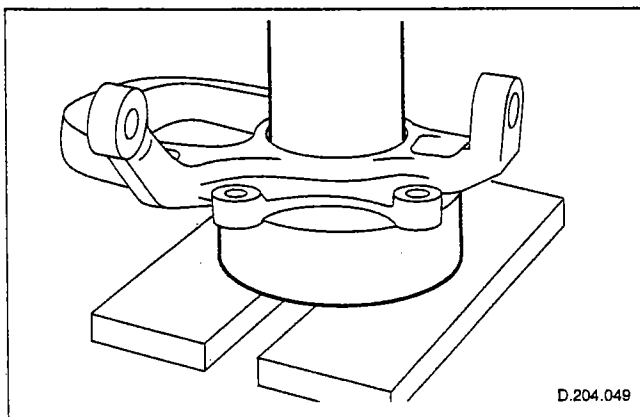
14. Install the outboard circlip in the groove of the vertical link.

- 1 Using the special blunt nosed circlip pliers, install the circlip in the groove of the vertical link.

NOTE: The ears of the circlip must be located in the lowest position to permit water drainage. Allow for the caster angle when selecting the position.

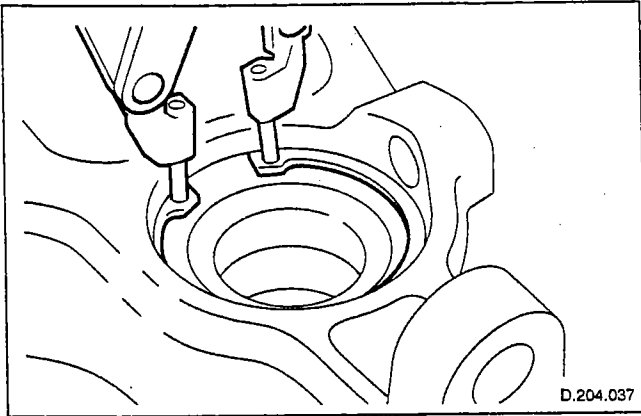
CAUTION: Do not allow the nose of the pliers to protrude beyond the circlip as this may damage the integral bearing seal.

15. Press a new bearing assembly into the vertical link.



- 1 Support the outboard face of the vertical link.
- 2 Press in the bearing assembly from the rear of the vertical link using the special tool on the bearing outer ring.
- 3 Ensure that the bearing is fully seated by applying a three tons seating load.

REMOVAL AND INSTALLATION (Continued)



16. Install the inboard circlip in the groove of the vertical link.

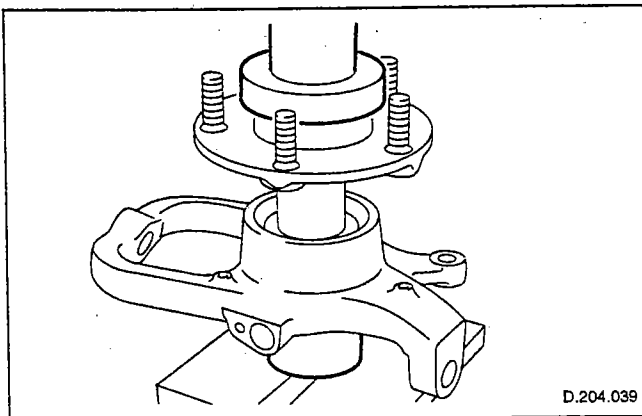
- 1 Using the special blunt-nosed circlip pliers, install the circlip in the groove of the vertical link.

NOTE: The ears of the circlip must be located in the lowest position to permit water drainage. Allow for the caster angle when selecting the position.

CAUTION: Do not allow the nose of the pliers to protrude beyond the circlip as this may damage the integral bearing seal.

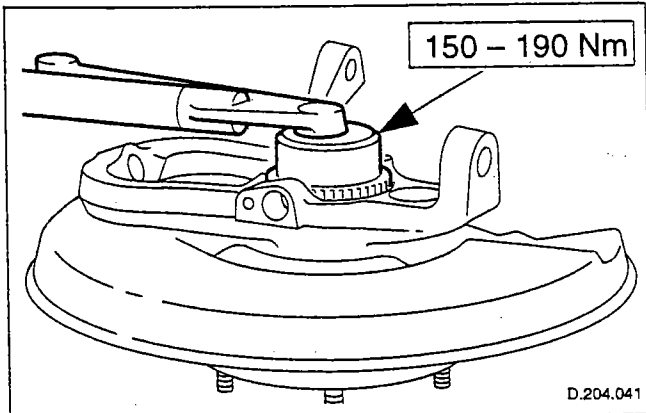
17. Install the hub into the bearing assembly.

- 1 Support the bearing inner cone from the rear of the vertical link using the special tool.
- 2 Install the hub into the bearing assembly.
- 3 Ensure that the hub is fully seated by applying a three tons seating load.



18. Install the hub/ABS rotor nut using the special tool.

- 1 Screw on the hub/ABS rotor nut and tighten to specification.
- 2 Install a new spring pin in the hole closest to the hub/ABS rotor castellation slot.
- 3 Continue to tighten the nut until the spring pin fires into the castellation slot. Do not back-off during tightening.



19. Install the lower wishbone to vertical link ball joint and tighten the securing nut to specification.

20. Install the upper wishbone to vertical link ball joint and tighten the securing nut to specification.

21. Install the outer tie rod joint; refer to Section 211-03.

REMOVAL AND INSTALLATION (Continued)

22. Install the brake rotor on the wheel lug studs.
23. Install the brake caliper assembly; refer to Section 206-03.
24. Reconnect the ABS sensor harness connector.
25. Install the wheel and tire assembly; refer to Section 204-04.
26. Lower the vehicle; refer to Section 100-02.

SECTION 204-02 Rear Suspension

VEHICLE APPLICATION: X100

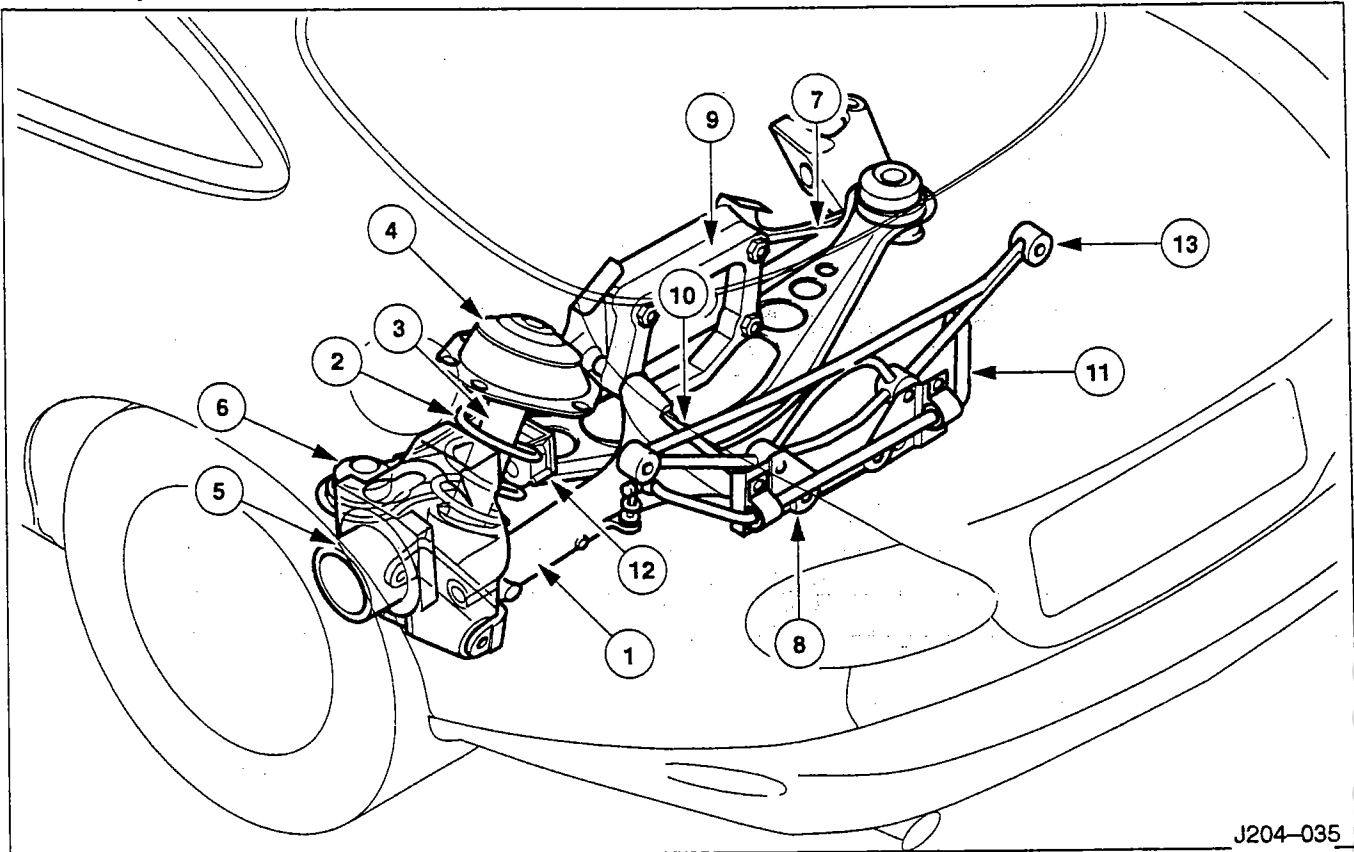
SUBJECT	PAGE
SPECIFICATIONS	
Torques	204-02-2
DESCRIPTION AND OPERATION	
Rear Suspension	204-02-3

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SPECIFICATIONS**Torques**

Component	Nm
Lower Wishbone Fulcrum Bolt	80-100
Lower Wishbone to Hub Carrier Bolt	90-110
Stabilizer Bar to Wishbone Tie Assembly Bolt	39-51
Stabilizer Bar to Link Nut	30-40
Stabilizer Bar Link to Wishbone Nut	30-40
Damper Lower Pivot Bolt	80-100
Damper Rod Nut	31-39
Spring Seat to Body Securing Nuts	17-23
Wishbone Tie to Monostrut Bolts	85-105
Wide Mounting Bracket to Body Bolts	80-100
Upper Link Assembly, Differential End	72-98
Upper Link Assembly, 'A' Frame End	85-115

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DESCRIPTION AND OPERATION**Rear Suspension**

Item	Description
1	Lower Wishbone
2	Suspension Spring
3	Damper
4	Upper Spring Seat
5	Hub Carrier
6	'A' Frame
7	Wide Mounting Frame

The independent rear suspension uses co-axial spring and damper units, an 'A' frame, wishbone tie, pendulum assembly, wide mounting frame, monostrut and cast wishbones. Positive location of the suspension is provided by the 'A' frame, wide mounting bracket and monostrut. Each wishbone inner end pivots on a fulcrum bolt which passes through the wishbone tie assembly, final drive housing and pendulum assembly.

Item	Description
8	Wishbone Tie Assembly
9	Pendulum
10	Wishbone Fulcrum Pin
11	Stabilizer Bar
12	Bump Stop
13	Monostrut

The wishbone tie and pendulum assemblies are installed at the front and rear of the final drive housing. The monostrut is also attached to wishbone tie assembly and two further tie rods are installed between the front of the 'A' frame and the top of the final drive housing.

DESCRIPTION AND OPERATION (Continued)

The outer end of the wishbone is bolted to the hub carrier assembly using a pivot bolt, allowing for toe-in adjustment. When the pivot bolt is correctly seated in the plate located on the wishbone arm, it has small clearance at the sides but full clearance at the top and bottom. Rotation of the bolt, with the eccentric constrained between vertical faces, causes the bolt shank to be moved in the horizontal plane, thus moving the hub carrier and effecting wheel alignment adjustment.

The axle-shaft acts as the the upper wishbone and the hub carrier as a vertical link.

A snubber is installed above the hub carrier to prevent the carrier contacting the vehicle body.

The suspension spring is co-axial with the damper unit and is installed between the wishbone integral spring seat and the upper spring seat mounted on the vehicle body. The damper lower end is attached to the wishbone by a bolt which forms the damper lower pivot.

A stabilizer bar is mounted at the rear of the wishbone tie assembly and its outer ends are connected to the wishbones by short links.

As the road wheel rises, the movement is transmitted through the hub carrier assembly to the wishbone and axle-shaft, which also rise. As the wishbone rises, it causes the suspension spring to be compressed and the damper to move through part of its travel. The spring absorbs the shock and the damper damps any unwanted spring frequencies.

When cornering, weight is transferred to the outer wheel and there is a natural tendency for the inner wheel to lift. The stabilizer bar helps to minimise this by transferring some of the apparent rise of the outer wheel to the inner wheel through the links to the wishbones, helping to provide a more level ride. Adaptive damping may also be specified as an option.

SECTION 204-04 Wheels and Tires

VEHICLE APPLICATION: X100

SUBJECT	PAGE
---------	------

SPECIFICATIONS

Tires	204-04-2
Normal Tire Pressures	204-04-2
Tire Pressures-Comfort	204-04-2
Torques	204-04-2

REMOVAL AND INSTALLATION

Wheel and Tire	204-04-3
Spare Wheel and Tire	204-04-4

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SPECIFICATIONS**Normal Tire Pressures – Cold**

Tire size	Front lb/in ²	Rear lb/in ²
245/50 ZR 17	32	34
245/45 ZR 18	32	–
255/45 ZR 18	–	30

Tire Pressures – Cold – for Maximum Comfort (Speeds up to 100 mph)

Tire size	Front lb/in ²	Rear lb/in ²
245/50 ZR 17	26	28
245/45 ZR 18	26	–
255/45 ZR 18	–	24

Torques

Description	Nm
Lug Nuts – Steel Wheel	68–82
Lug Nuts – Alloy Wheels	88–102
Spare Wheel Stowage – Spacesaver or Full Size Spare	7–10

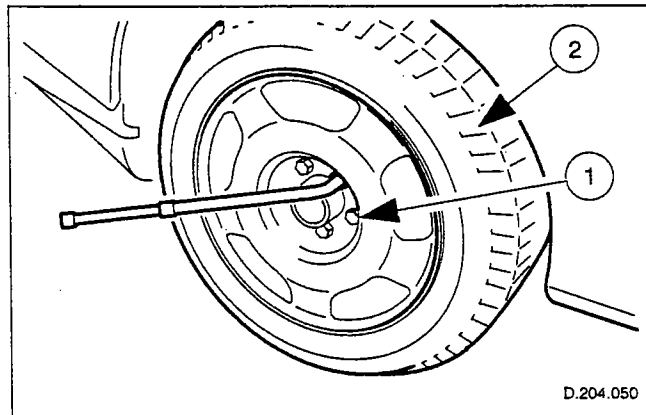
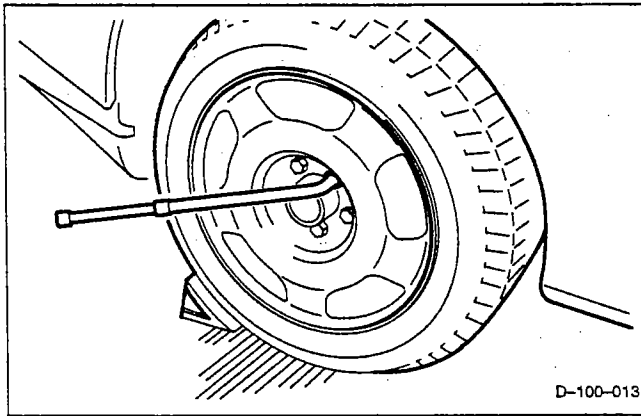
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REMOVAL AND INSTALLATION

Wheel and Tire (74.20.05)

Removal

CAUTION: Do not use heat to loosen a seized lug nut. Heat can damage the wheel and wheel bearings.



1. Loosen, but do not remove, the lug nuts with the weight of the vehicle on the wheels.

2. Raise and support the vehicle; refer to Section 100-02.

3. Remove the wheel and tire assembly.

1 Remove the lug nuts.

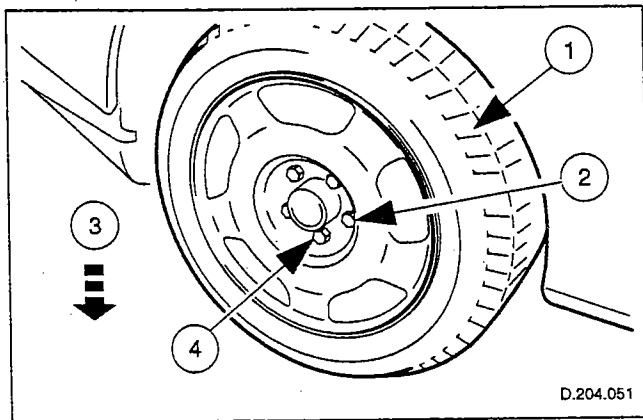
2 Remove the wheel and tire assembly.

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REMOVAL AND INSTALLATION (Continued)

Installation

WARNING: WHEN A WHEEL IS INSTALLED, ALWAYS REMOVE CORROSION, DIRT OR FOREIGN MATERIAL THAT MAY BE PRESENT ON THE MOUNTING SURFACES OF THE WHEEL, WHEEL HUB OR BRAKE ROTOR THAT CONTACTS THE WHEEL. INSTALLING WHEELS WITHOUT PROPER METAL TO METAL CONTACT AT THE MOUNTING SURFACES CAN CAUSE THE LUG NUTS TO LOOSEN AND COULD ALLOW THE WHEEL TO COME OFF WHILE IN MOTION.

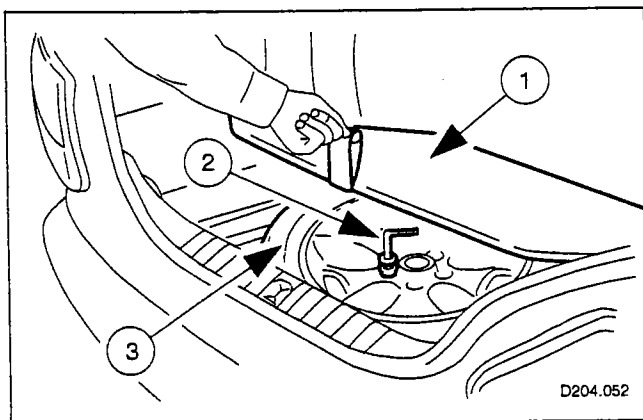


4. Install the wheel and tire assembly.

- 1 Position the wheel on the lug studs.
- 2 Install and seat the lug nuts.
- 3 Lower the vehicle.
- 4 Tighten the lug nuts to specification.

Spare wheel and tire

Removal



1. Remove the spare wheel.

- 1 Lift the carpeted trunk floor panel.
- 2 Unscrew the spare wheel securing screw.
- 3 Lift out the spare wheel.

Installation

2. To install, reverse the removal procedure.

SECTION 307-00 Transmission System

VEHICLE APPLICATION: X100

SUBJECT

PAGE

DESCRIPTION AND OPERATION

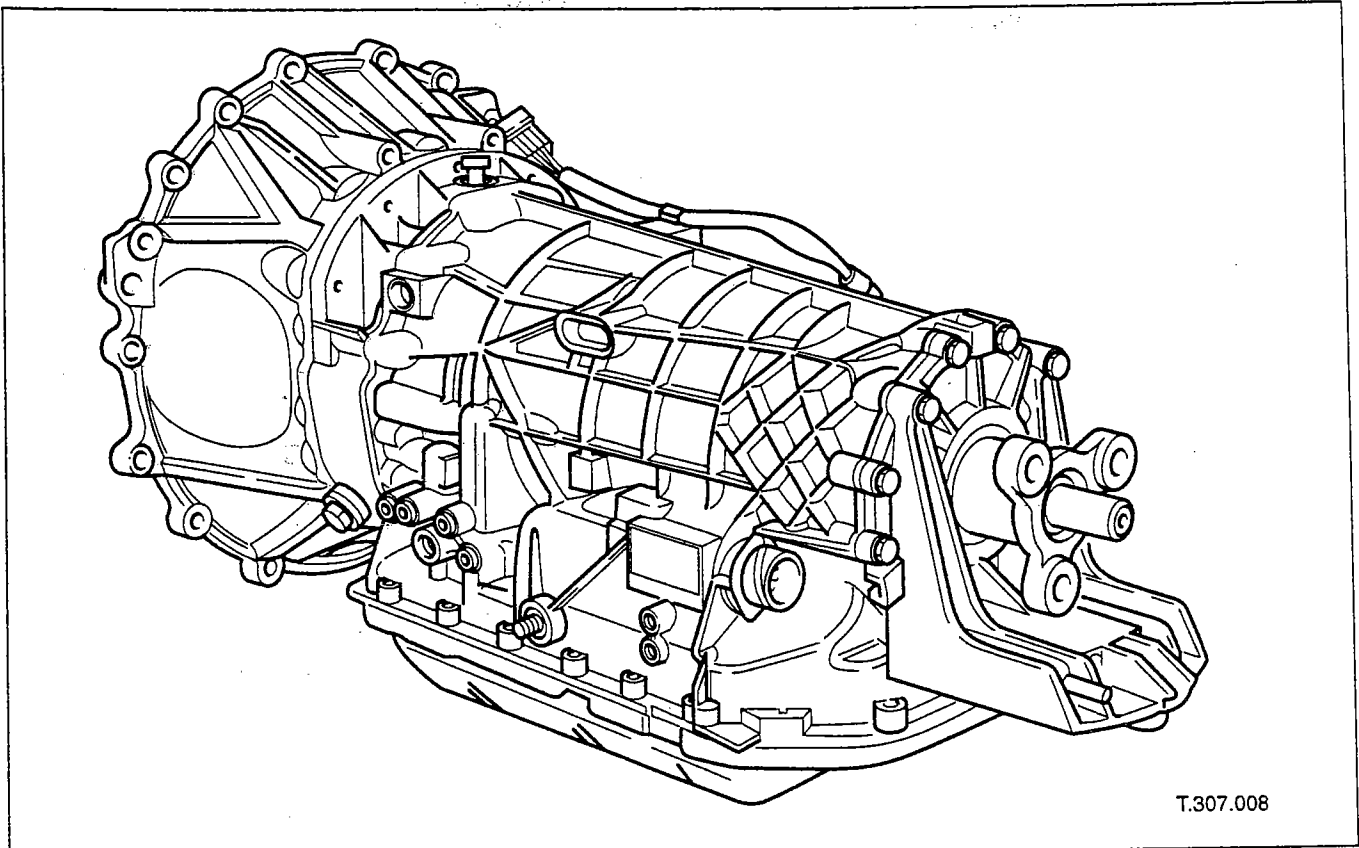
Introduction	307-00-2
Filled-for-life Fluid System	307-00-2

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DESCRIPTION AND OPERATION

Transmission System

Introduction



The automatic transmission system has the following features:

- Five forward gears and Reverse.
- Filled-for-life fluid system.
- Transmission fluid cooling by cooler mounted in the engine cooling radiator.
- Variable slip control on torque converter lock-up.
- Electronic gearshift control.
- Two driving modes, Normal and Sport.
- Special shift maps for particular driving conditions.

Filled-for-life Fluid System

The transmission fluid is filled for life and does not require changing except for prolonged driving under severe conditions. Routine level checking is not required and a dipstick is not provided. A level/filler plug is fitted for service level checking and replenishment if required; refer to the Diagnostic and Test Manual.

SECTION 307-01 Automatic Transmission

VEHICLE APPLICATION: X100

SUBJECT

PAGE

SPECIFICATIONS

Torques 307-01-4

DESCRIPTION AND OPERATION

Introduction 307-01-3

Component Descriptions 307-01-4

REMOVAL AND INSTALLATION

Automatic Transmission 307-01-7

Torque Converter 307-01-18

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SPECIFICATIONS**Torques**

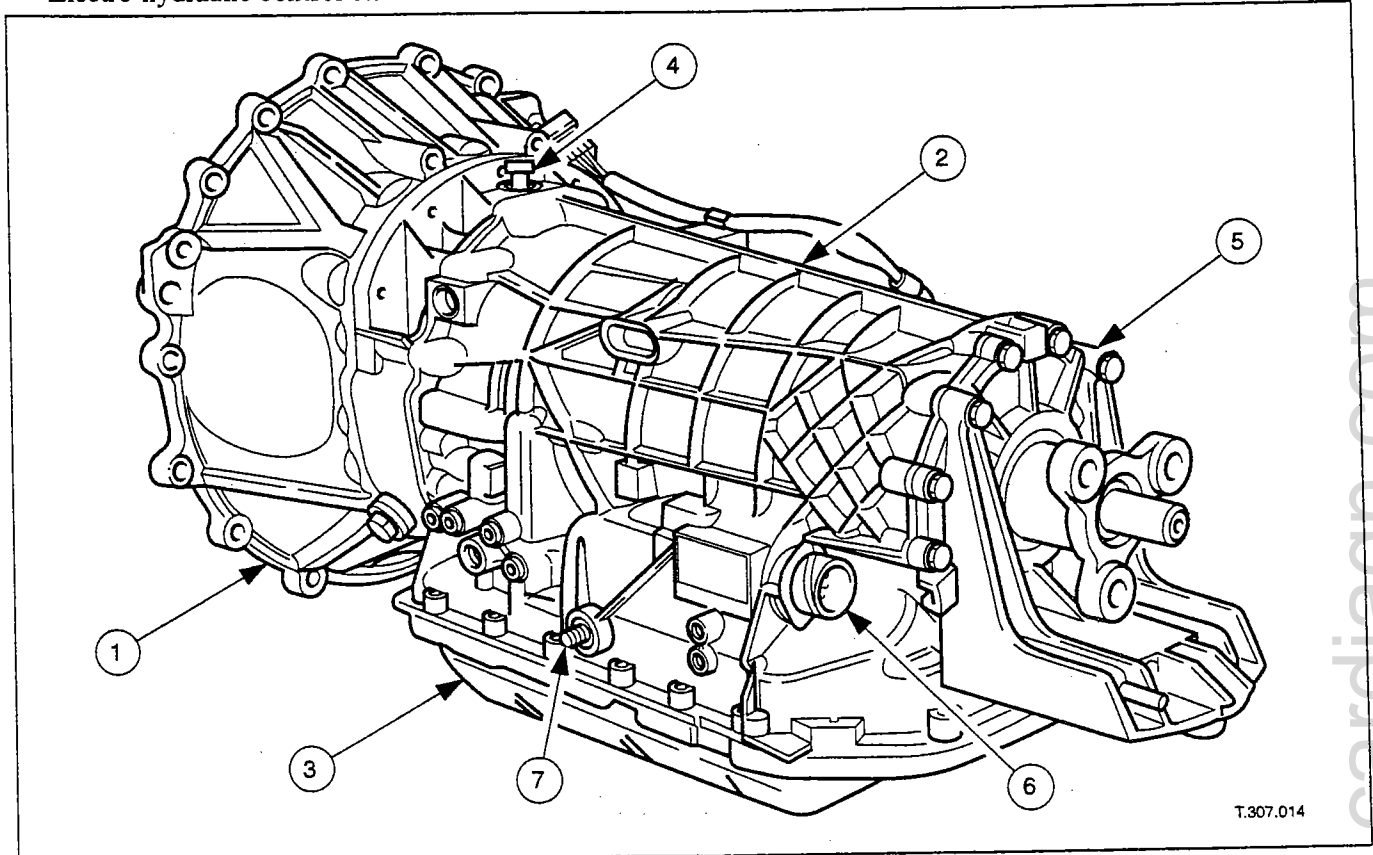
	Nm
Transmission unit to engine bolt	43 – 57
Drive plate to torque converter screw	43 – 57
Cooler pipe to transmission unit tube nut	17 – 23
Driveshaft coupling to transmission bolt	70,5 – 83,5

DESCRIPTION AND OPERATION

Introduction

The ZF 5HP24 transmission unit comprises:

- The torque converter.
- Epicyclic geartrain.
- Electro-hydraulic control unit.



T.307.014

Item	Description
1	Torque converter housing
2	Transmission casing
3	Fluid pan
4	Transmission breather
5	Rear extension housing
6	16-way connector
7	Gear selector shaft

DESCRIPTION AND OPERATION (Continued)**Component Descriptions****The torque converter:**

- Acts as a fluid coupling between the engine and transmission geartrain.
- Provides multiplication of engine torque when required.
- Consists of an impeller, turbine and stator, housed within a converter cover.
- Has a lock-up clutch with variable slip control.

The transmission casing:

- Houses the geartrain and electro-hydraulic control unit.
- Contains the input speed sensor which measures turbine speed.
- Contains the output speed sensor which measures the transmission output speed.
- Contains the hydraulic system pump.
- Contains the fluid temperature sensor.

The epicyclic geartrain:

- Provides five forward gears and Reverse.
- Has hydraulically actuated, multi-disk clutches and brakes, to select the required gear ratios.
- Features clutch operation with built-in freewheel devices to permit gear shifts with no interruption of power flow.

The electro-hydraulic control unit:

- Is located in the lower part of the unit, within the fluid pan.
- Is controlled by the transmission control module, and the manual selector valve which is operated by the gear selector lever via a Bowden cable.
- Regulates the flow of fluid to the geartrain clutches via three solenoid-operated valves and the manual selector valve.

- Has five pressure regulator valves for controlling fluid pressures within the system.
- Is connected to the transmission control module via a 16-way connector mounted on the left-hand side of the transmission casing.

The hydraulic system pump:

- Is located at the front of the transmission casing.
- Is driven from the impeller hub, pressurising the fluid whenever the engine is running.
- Supplies fluid under pressure to the torque converter, geartrain, electro-hydraulic control unit and the lubrication circuit.
- Draws fluid from the fluid pan below the transmission casing, through a replaceable filter.

The rear extension housing:

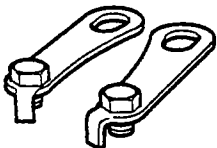
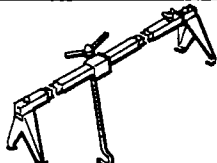
- Is bolted to the rear of the transmission casing.
- Provides the rear engine/transmission mounting point; refer to Section 303-01.
- Carries the transmission output shaft oil seal.

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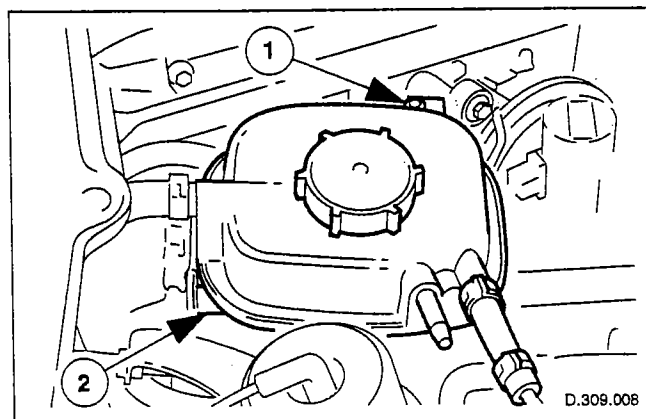
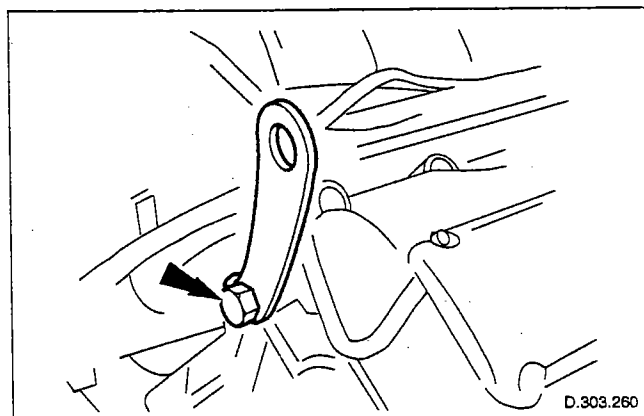
REMOVAL AND INSTALLATION

Automatic Transmission (44.20.01)

Special Tool(s)

	<p>Engine lifting brackets JD-222</p>
	<p>Engine support MS-53C</p>

Removal



1. Put the gear selector in the Neutral position.

NOTE: The door drop-glass feature will not operate after disconnection of the battery.

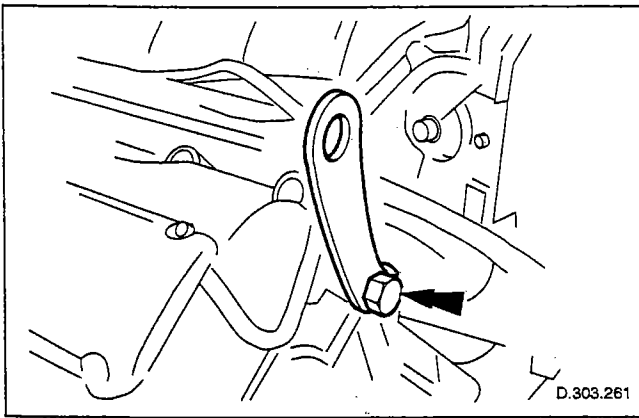
2. Disconnect the battery.
3. Remove the air intake components.
4. Install engine lifting bracket JD-222 at the rear right-hand position.

- Tighten the lifting bracket to engine securing bolt.

5. Reposition the coolant header tank for access.

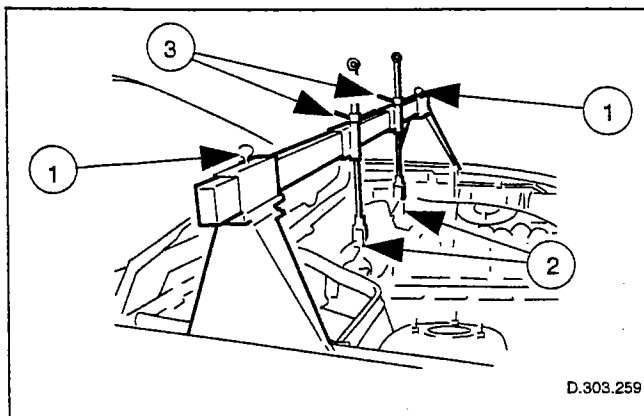
- 1 Remove the securing bolt.
- 2 Detach the header tank dowels from the mounting grommets.

REMOVAL AND INSTALLATION (Continued)



6. Install engine lifting bracket JD-222 at the rear left-hand position.

- Tighten the lifting bracket to engine securing bolt.



7. Fit engine support MS-53C.

- 1 Correctly position the channel stands and tighten the securing nuts and bolts.

- 2 Engage the support hooks in the lifting brackets.

- 3 Tighten the support hook nuts to take the weight of the engine.

8. Raise the vehicle on a four-post ramp.

9. Remove the left- and right-hand downpipe catalytic converters; refer to Section 309-00.

10. Remove the front muffler; refer to Section 309-00.

11. Drain the transmission fluid; refer to General Procedures, Section 307-01 in the Diagnostic and Test Manual.

12. Remove the rear engine mounting bracket.

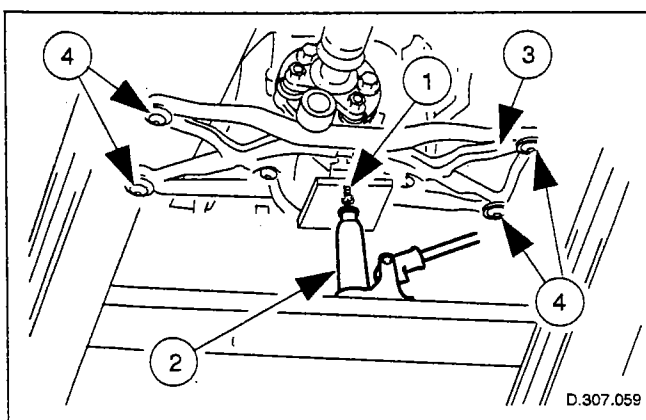
- 1 Remove the rear engine mounting to bracket securing bolt.

- 2 Using a ramp jacking channel, position a jack under the rear engine mounting point.

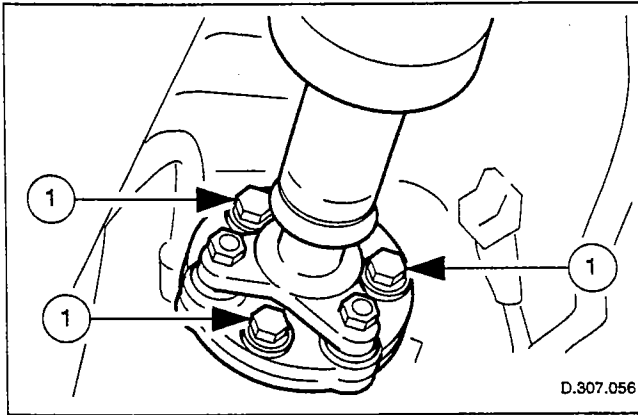
- 3 With a suitable piece of wood on the jack head, operate the jack to support the bracket.

- 4 Remove the mounting bracket to body securing bolts.

13. Lower the jack.



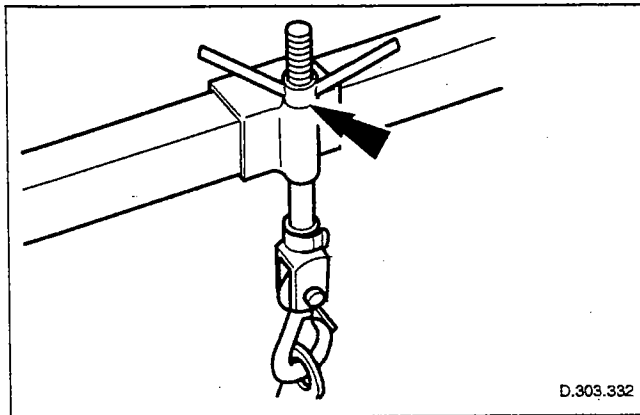
REMOVAL AND INSTALLATION (Continued)



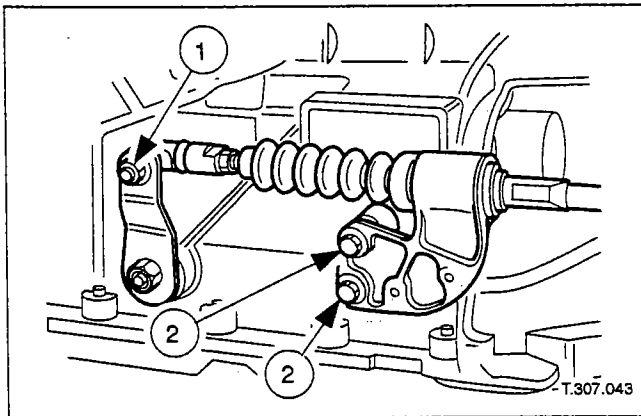
WARNING: ENSURE THAT THE RAMP END-STOPS ARE IN POSITION WHEN MOVING THE VEHICLE.

14. Detach the driveshaft from the transmission unit.

- 1 Remove the transmission drive flange to driveshaft securing nuts and bolts, moving the vehicle as required for access.

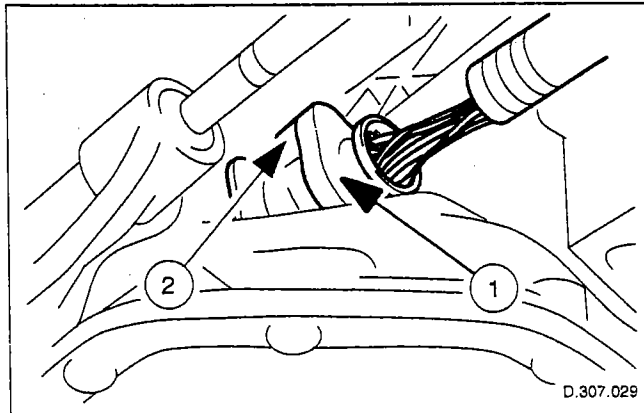


15. Slacken the engine support hook nuts to lower the transmission unit.



16. Detach the gear selector cable from the transmission unit.

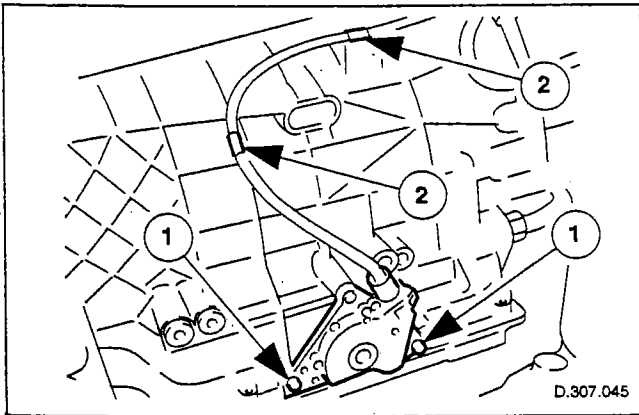
- 1 Remove the selector cable ball pin to selector lever securing nut.
- 2 Remove the selector cable to transmission casing securing bolts.



17. Reposition the transmission harness clear of the transmission unit.

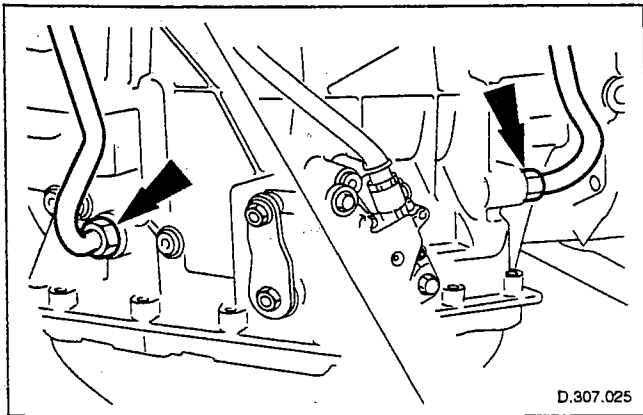
- 1 Release the harness locking lever.
- 2 Disconnect the harness multiplug.

REMOVAL AND INSTALLATION (Continued)



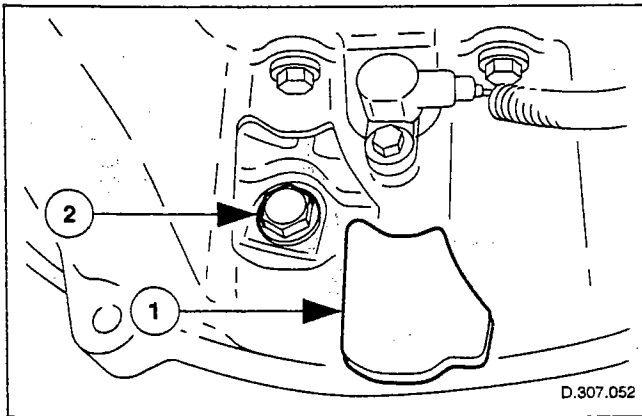
18. Reposition the rotary switch clear of the transmission unit.

- 1 Remove the switch securing bolts.
- 2 Displace the switch harness from the flange clamps.



19. Disconnect the fluid cooler pipes from the transmission unit.

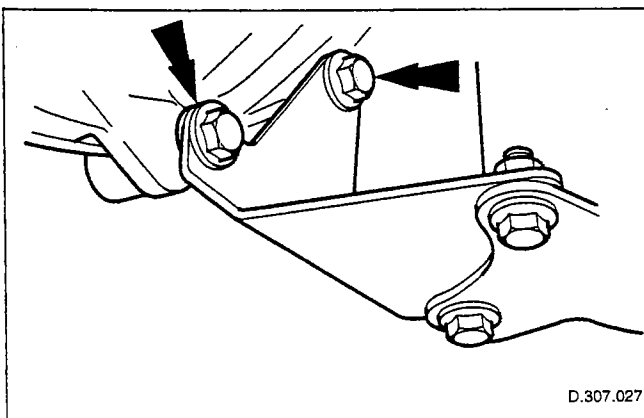
- Release the union nuts.
- Discard the O-rings.
- Fit blanking plugs to the pipes and transmission unit.



NOTE: Suitably jam the crankshaft to prevent it turning.

20. Displace the torque converter from the drive plate.

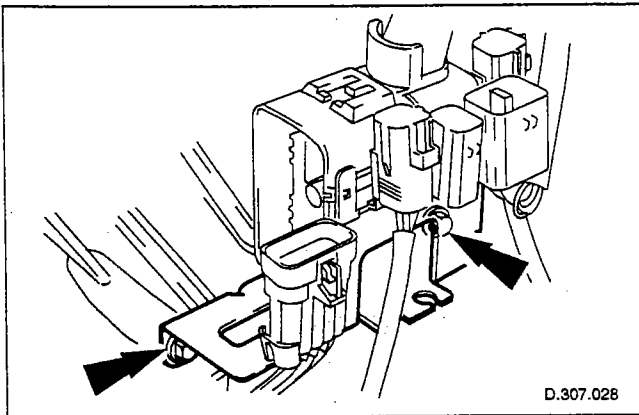
- 1 Remove the blanking plug from the cylinder block access hole.
- 2 Remove the drive plate to torque converter securing bolts.



21. Remove the left- and right- hand downpipe catalyst converter mounting brackets.

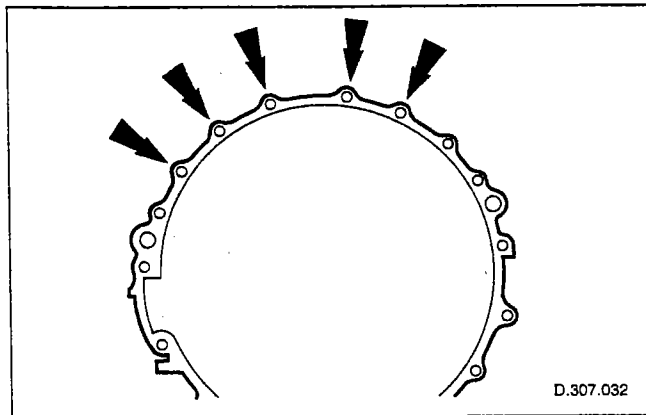
- Remove the bracket to transmission unit securing bolts.

REMOVAL AND INSTALLATION (Continued)



22. Reposition the engine harness multiplug mounting bracket for access.

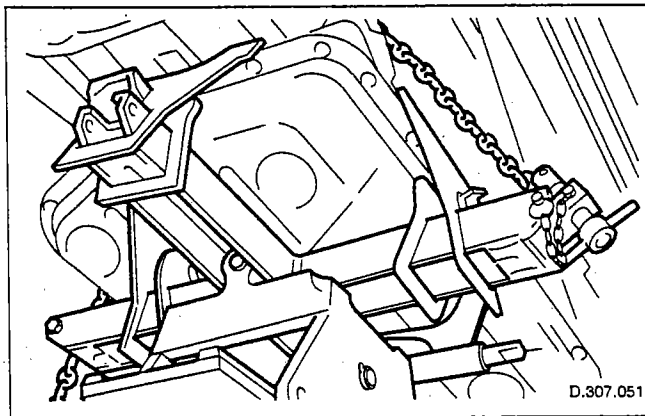
- Remove the bracket to transmission unit securing bolts.



NOTE: The arrows are shown as viewed from the rear of the vehicle.

23. Remove the upper transmission unit to engine securing bolts.

- One bolt also secures a fluid cooler pipe.



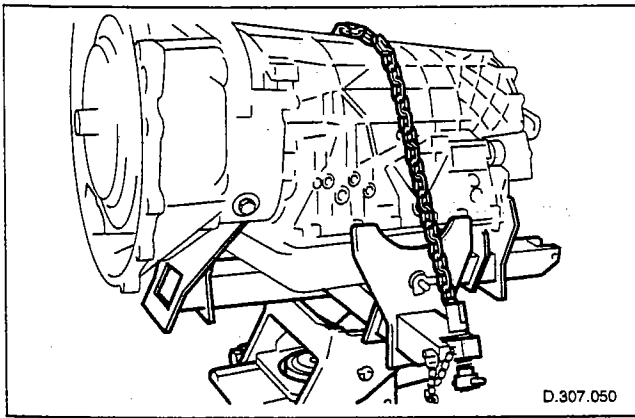
WARNING: ENSURE CORRECT USE OF LIFT INCLUDING SIDE CLAMPS, SECURING PEG AND SAFETY CHAIN AS APPROPRIATE.

24. Position an Epcos V-100 or similar lift under the ramp and take the weight of the transmission unit.

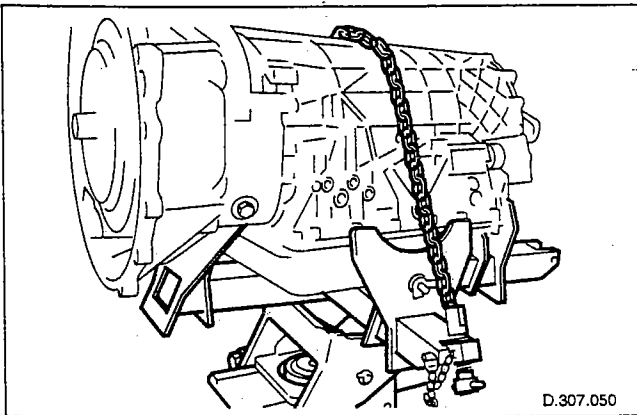
- Pass the safety chain over the transmission unit, engage in the side arm of the lift and tighten the chain adjuster.

25. Remove the transmission unit from the engine.

- Remove the remaining transmission unit to engine securing bolts.

REMOVAL AND INSTALLATION (Continued)

26. Lower the lift and remove the transmission unit.

Installation

27. Clean all mating faces and relevant parts.

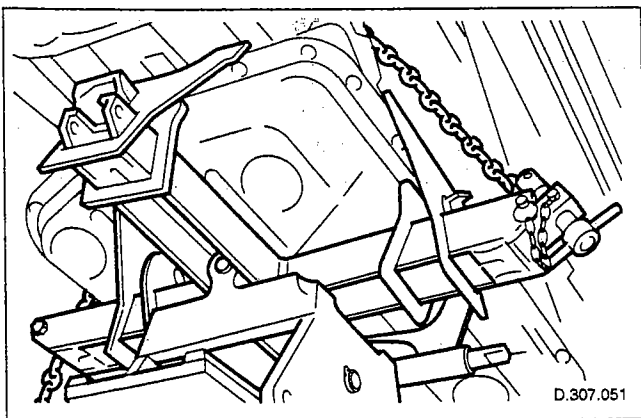
WARNING: ENSURE CORRECT USE OF LIFT INCLUDING SIDE CLAMPS, SECURING PEG AND SAFETY CHAIN AS APPROPRIATE.

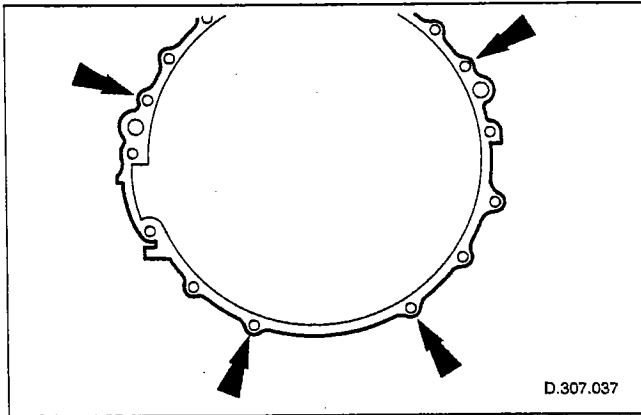
28. Position an Epcó V-100 or similar lift under the ramp with the transmission unit installed on the lift.

- Pass the safety chain over the transmission unit, engage in the side arm of the lift and tighten the chain adjuster.

29. Install the transmission unit.

- Raise the lift and position the transmission unit to the engine.



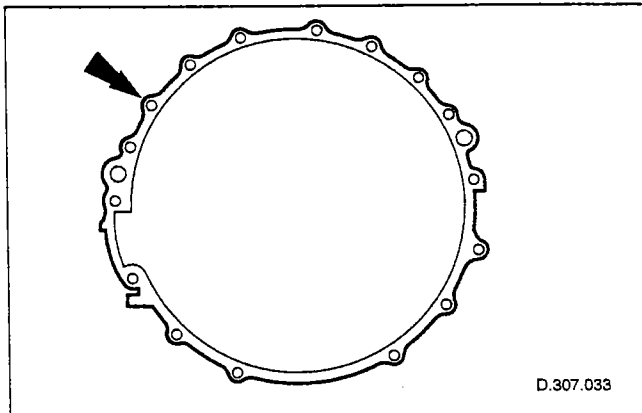
REMOVAL AND INSTALLATION (Continued)

NOTE: The arrows are shown as viewed from the rear of the vehicle.

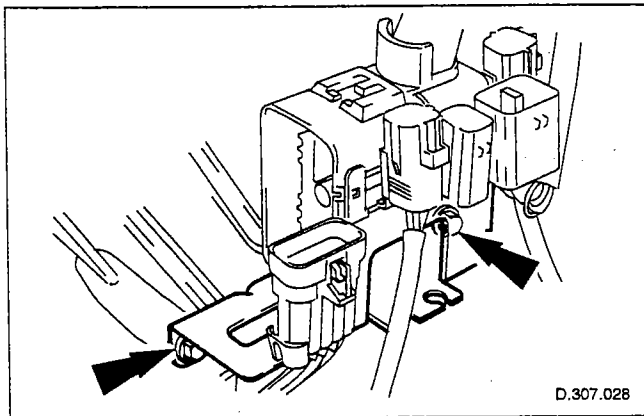
30. Install two lower and two upper transmission unit to engine securing bolts to align the unit correctly.

31. Lower and remove the lift.

- Release the safety chain and side clamps.



32. Install the transmission unit to engine securing bolt which also secures the fluid cooler pipe.

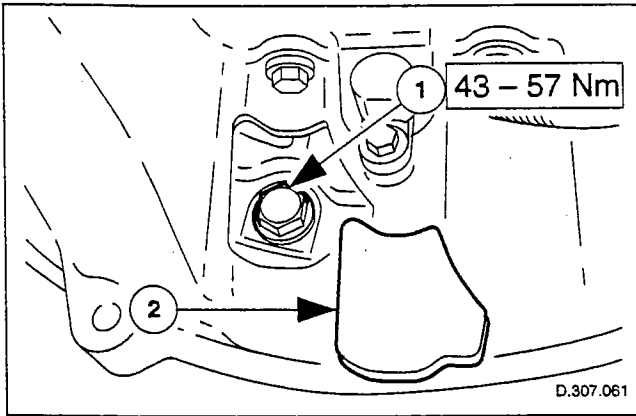


33. Install the engine harness multiplug mounting bracket.

- Install the bracket to transmission unit securing bolts.

34. Install the remaining transmission unit to engine securing bolts.

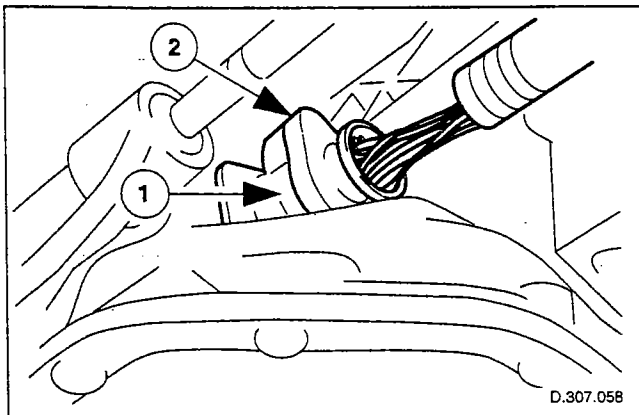
REMOVAL AND INSTALLATION (Continued)



NOTE: Suitably jam the crankshaft to prevent it turning.

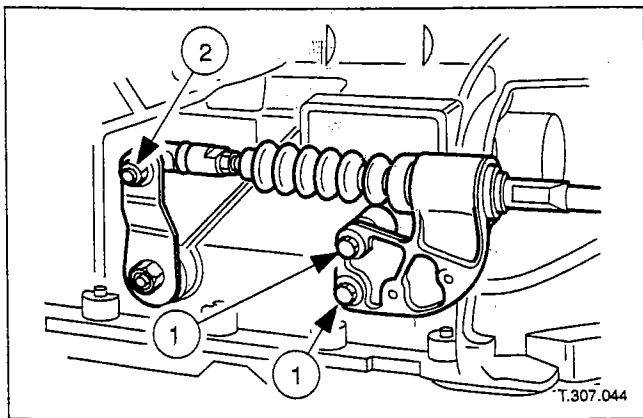
35. Fit the torque converter to the drive plate.

- 1 Align, install, but do not tighten, the first drive plate to torque converter securing bolt.
- Align, install, but do not tighten, the second securing bolt.
- Align, install and tighten, the third securing bolt.
- Re-align and tighten, the remaining securing bolts.
- 2 Fit the blanking plug to the cylinder block access hole.



36. Fit the transmission harness to the transmission unit.

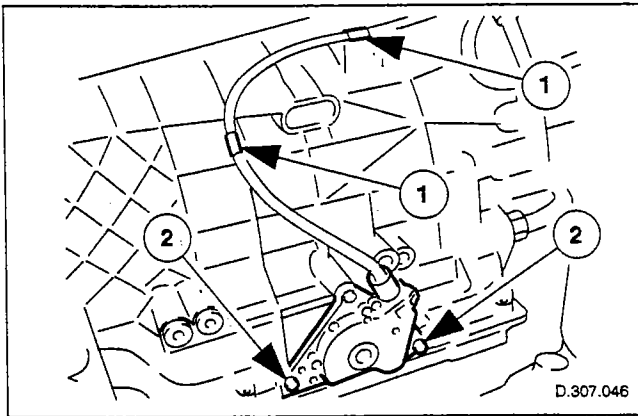
- 1 Connect the harness multiplug.
- 2 Secure the harness locking lever.



37. Fit the gear selector cable to the transmission unit.

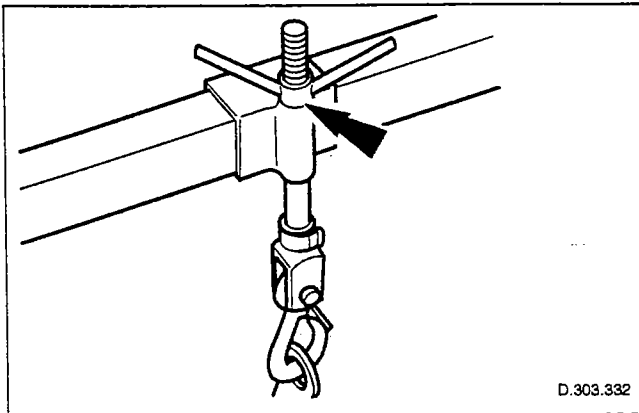
- 1 Install the selector cable to transmission casing securing bolts.
- 2 Install the selector cable ball pin to selector lever securing nut.

REMOVAL AND INSTALLATION (Continued)

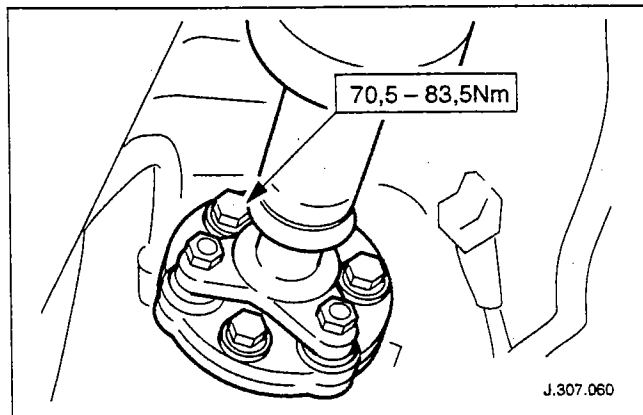


38. Install the rotary switch.

- 1 Fit the switch harness to the flange clamps.
- 2 Install the switch securing bolts.



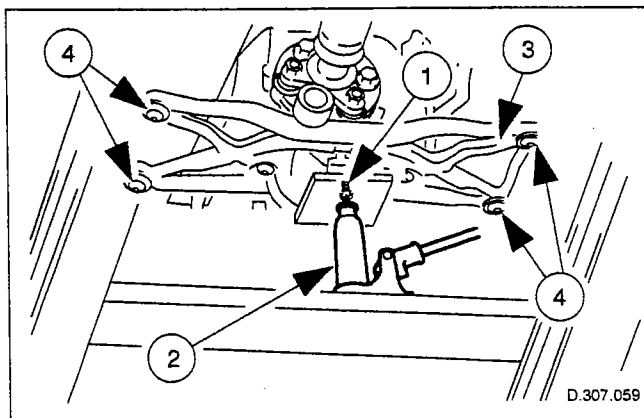
39. Tighten the engine support hook nuts to raise the transmission unit.



WARNING: ENSURE THAT THE RAMP END-STOPS ARE IN POSITION WHEN MOVING THE VEHICLE.

40. Install the driveshaft.

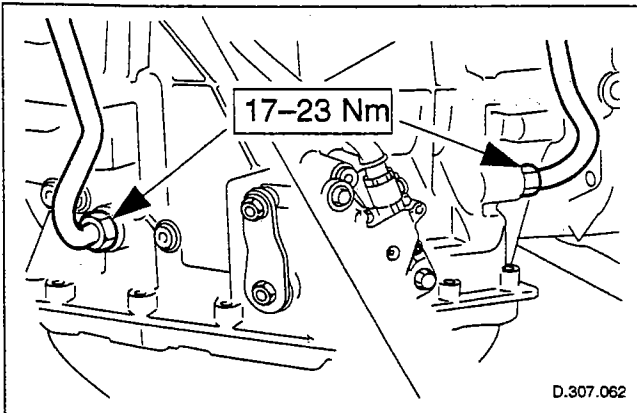
- 1 Align the driveshaft with the transmission drive flange and install the securing nuts and bolts, moving the vehicle as required for access.



41. Install the rear engine mounting bracket.

- 1 Position the rear engine mounting bracket and install the mounting to bracket securing bolt.
- 2 Using a ramp jacking channel, position a jack under the rear engine mounting point.
- 3 With a suitable piece of wood on the jack head, operate the jack to raise the mounting bracket into position.
- 4 Install the mounting bracket to body securing bolts.

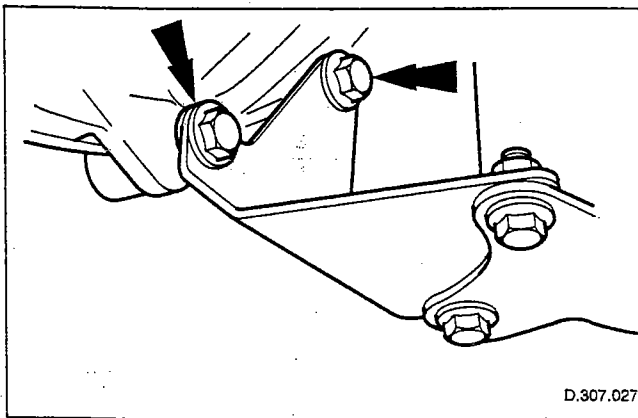
REMOVAL AND INSTALLATION (Continued)



42. Lower the jack.

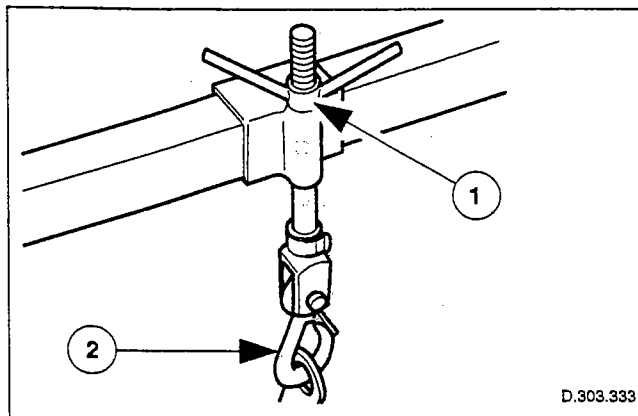
43. Connect the fluid cooler pipes to the transmission unit.

- Remove the blanking plugs from the pipes and transmission unit.
- Install new O-rings.
- Tighten the union nuts.



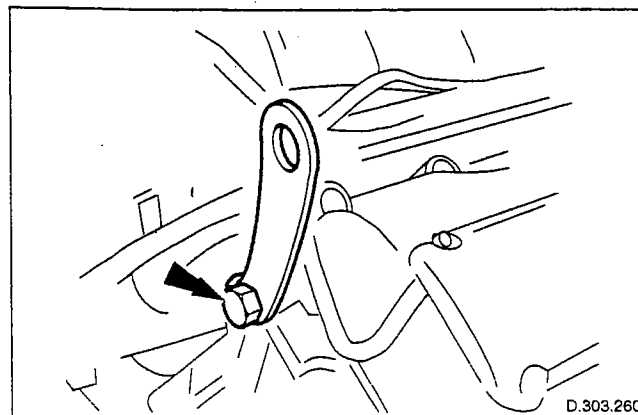
44. Install the left- and right-hand downpipe catalyst converter mounting brackets.

- Install the bracket to transmission unit securing bolts.



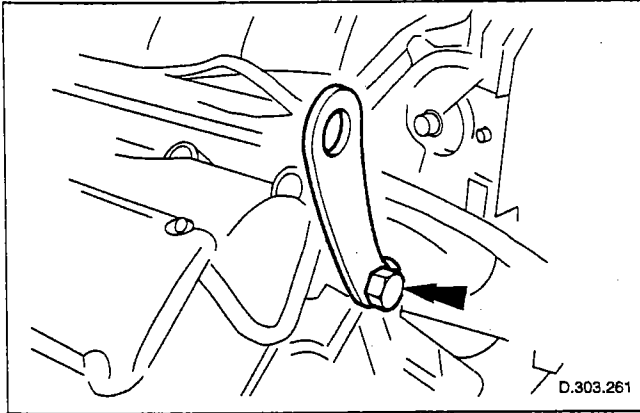
45. Remove engine support MS-53C.

- 1 Slacken the support hook nuts.
- 2 Disengage the support hooks from the lifting brackets.



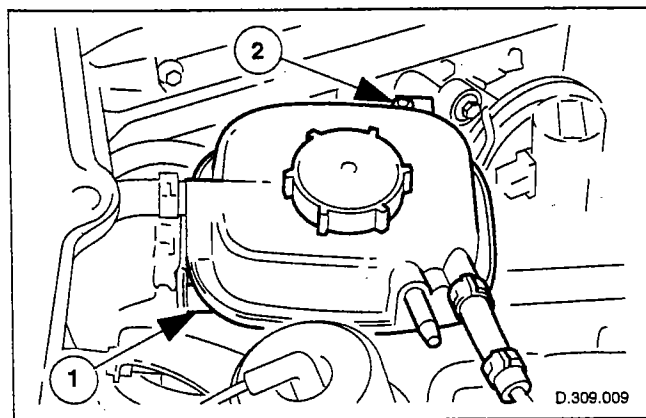
46. Remove engine lifting bracket JD-222 from the rear right-hand position.

- Remove the lifting bracket to engine securing bolt.

REMOVAL AND INSTALLATION (Continued)

47. Remove engine lifting bracket JD-222 from the rear left-hand position.

- Remove the lifting bracket to engine securing bolt.



48. Install the coolant header tank.

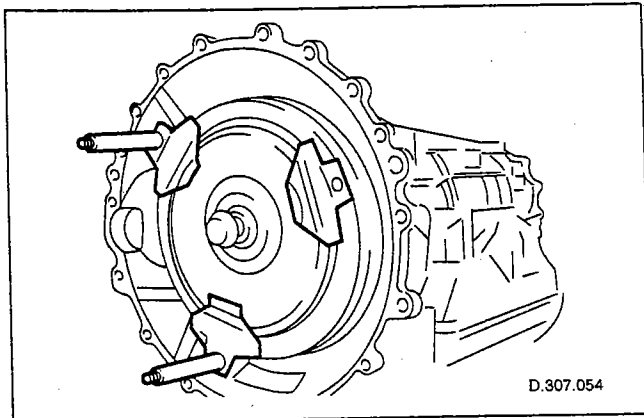
- 1 Position the header tank dowels on the mounting grommets.
- 2 Install the securing bolt.

49. Install the left- and right-hand downpipe catalytic converters; refer to Section 309-00.
50. Install the front muffler; refer to Section 309-00.
51. Install the air intake components.
52. Connect the battery; refer to Section 414-01.
53. Fill the transmission unit with fluid; refer to General Procedures, Section 307-01 in the Diagnostic and Test Manual.
54. Lower the ramp.
55. Put the gear selector in the Park position.

REMOVAL AND INSTALLATION (Continued)

Torque Converter (44.17.07)

Removal

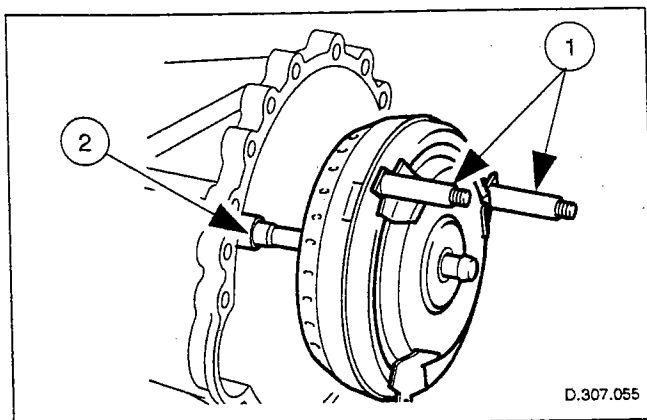


1. Remove the transmission unit from the vehicle; refer to the procedure in this section.
2. Remove the torque converter from the transmission unit.

- Install lifting handles JD-105.

3. Remove lifting handles JD-105 from the torque converter.
4. Clean the torque converter and mating faces.

Installation



5. Install the torque converter.

- 1 Install lifting handles JD-105.
- 2 Lubricate the front pump seal.

6. Remove lifting handles JD-105 from the torque converter.
7. Install the transmission unit; refer to the procedure in this section.

SECTION 307-02 Transmission Cooling

VEHICLE APPLICATION: X100

SUBJECT

PAGE

DESCRIPTION AND OPERATION

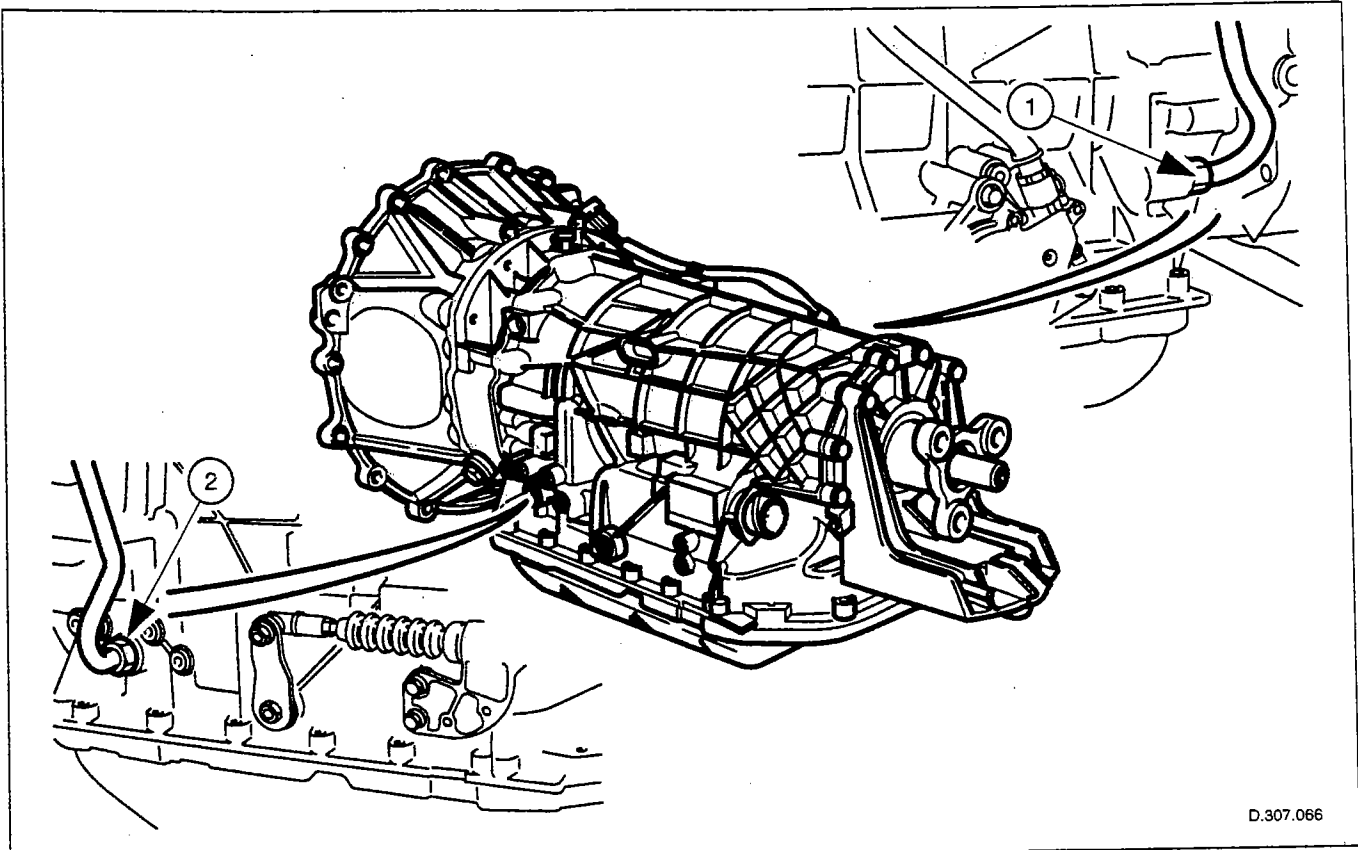
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Component Descriptions	307-02-2
Overheating Protection	307-02-2

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DESCRIPTION AND OPERATION

Introduction

The transmission fluid cooling system maintains the transmission fluid within acceptable temperature limits.



Item	Description
1	Fluid inlet pipe from cooler
2	Fluid outlet pipe to cooler

Overheating Protection

If the engine coolant or transmission fluid temperatures exceed their predefined limits, the transmission control module locks the torque converter clutch. This minimises the amount of heat transferred to the engine cooling system from the transmission fluid.

Component Descriptions

The transmission fluid pipes:

- Transfer fluid from the transmission to the cooler under the action of the hydraulic system pump.
- Return the cooled fluid from the cooler to the transmission.

The transmission fluid cooler:

- Is a plate type made from aluminum.
- Is mounted in the engine cooling radiator right-hand end tank.

SECTION 307-05 Automatic Transmission External Controls

VEHICLE APPLICATION: X100

SUBJECT

PAGE

DESCRIPTION AND OPERATION

Introduction 307-05-2

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DESCRIPTION AND OPERATION

Introduction

Gearshift control by the driver is by:

- The gear selector lever.
- The accelerator pedal position.
- The kickdown switch.
- The performance mode pushbutton.