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## Technical Guide

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# Jaguar S-TYPE Sports Sedan Introduction

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BY APPOINTMENT TO  
HER MAJESTY QUEEN ELIZABETH II  
MANUFACTURERS OF DAIMLER AND JAGUAR CARS  
JAGUAR CARS LIMITED COVENTRY



BY APPOINTMENT TO  
HER MAJESTY QUEEN ELIZABETH  
THE QUEEN MOTHER  
MANUFACTURERS OF DAIMLER AND JAGUAR CARS  
JAGUAR CARS LIMITED COVENTRY



BY APPOINTMENT TO  
HIS ROYAL HIGHNESS THE PRINCE OF WALES  
MANUFACTURERS OF DAIMLER AND JAGUAR CARS  
JAGUAR CARS LIMITED COVENTRY



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## Technical Guide

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# Jaguar S-TYPE Sports Sedan Introduction

This Technical Guide introduces the Jaguar S-TYPE sports sedan which is a new addition to the Jaguar range. It is intended to give Jaguar Dealer workshop personnel an overview of their construction and operation, and is for information purposes only. The contents of this Technical Guide must not be used as a reference source for servicing procedures; all servicing procedures must be in accordance with the appropriate Service Manual.

This Technical Guide will not be updated. While every effort is made to ensure accuracy, changes may occur between going to press and the equipment being introduced to the market. Once the equipment is in service, details of changes can be obtained from Service Bulletins and revisions to the Service Manuals.

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The following abbreviations are used in this document:

Abbreviation	Description	Abbreviation	Description
ABS	anti-lock braking system	LH(D)	left-hand (drive)
ABS/TCCM	anti-lock braking system/ traction control system control module	mile/h	mile per hour
A/C	air conditioning	mm	millimeter
A/CCM	air conditioning control module	ms	millisecond
ADCM	adaptive damping control module	NAS	North American specification
ADRC	adaptive damper ride control	NCM	navigation control module
ALR	automatic locking retractor	Nm	Newton meter
BIW	body-in-white	OBD	on-board diagnostics
°C	degree Celsius	PAS	power assisted steering
CAN	controller area network	PATS	passive anti-theft system
CATS	computer active technology suspension	PCM	powertrain control module
CD	compact disc	PDU	portable diagnostic unit
CTCM	cellular telephone control module	PSHCM	passenger seat heater control module
DATC	dual automatic temperature control	RECM	rear electronic control module
DDCM	driver door control module	RCM	restraints control module
DSC(CM)	dynamic stability control (control module)	RH(D)	right-hand (drive)
DSCM	driver seat control module	RPC(M)	reverse park control (module)
DSHCM	driver seat heater control module	RTTI	real time traffic information
ECM	electronic control module	SAE	Society of Automotive Engineers
EFT	engine fuel temperature (sensor)	SCLM	steering column lock module
EVAP	evaporative emission	SCP	standard corporate protocol
FTP	fuel tank pressure (sensor)	SRCM	sliding roof control module
GDO	garage door opener	SRS	supplementary restraints system
GECM	general electronic control module	TACM	throttle actuator control module
GPS	global positioning system	UK	United Kingdom
HO2S	heated oxygen sensor	USA	United States of America
in	inch	V	volt
IP	injection pressure (sensor)	VACM	voice-activated control module
IVD	interactive vehicle dynamics	VECM	vehicle emergency control module
kg	kilogram	VEMS	vehicle emergency messaging system
km/h	kilometer per hour	VICM	vehicle information control module
kW	kilowatt	VICS	vehicle information and communication system
lb	pound	VIN	vehicle identification number
m	meter		



# JAGUAR S-TYPE

The Jaguar S-TYPE is an all-new, luxury sports sedan with a distinctive style, refined power, agile handling, supple ride and luxurious comfort.

Powertrains are a V8 (AJ28) petrol engine, derived from the engines currently used in XJ and XK Series vehicles, with a new five-speed automatic transmission or alternatively, a V6 (AJ-V6) petrol engine coupled with either a five-speed automatic transmission or a five-speed manual transmission. The new V6 engine and transmission units and the updated variations to the V8 engine are described in the 'Jaguar S-TYPE Powertrain Introduction' Technical Guide, which compliments this Guide.

As with current vehicles, variable rate steering control is fitted and all vehicles have ABS brakes with traction control as standard. A new, optional feature with the Jaguar S-TYPE is Dynamic Stability Control (DSC), yaw control, which assists the driver in maintaining directional control of the vehicle.

Unlike current vehicles, the hood is hinged at its rear with a safety catch provided at the front of the hood. A tilt and slide sliding roof with a sunshade is an optional feature.

Both front seats have electrically operated 8-way adjustments as standard and memory equipment is available as an option. To allow a greater load to be carried in the luggage compartment, the rear seats can be folded forwards and are split in a 60/40 configuration.

Automatic climate control, with dual temperature control for the driver and front passenger, is a standard feature on all vehicles. Another new item is reverse park control, a system giving the driver audible warning of obstructions which could damage the vehicle during reversing.

A standard fit radio/cassette unit provides in-car entertainment with a CD autochanger also being offered. Other options include a phone, navigation system, vehicle emergency monitoring system and certain voice activated systems. Optional cruise control and audio switches are fitted to the steering wheel. All vehicles have a trip computer system and a message center.

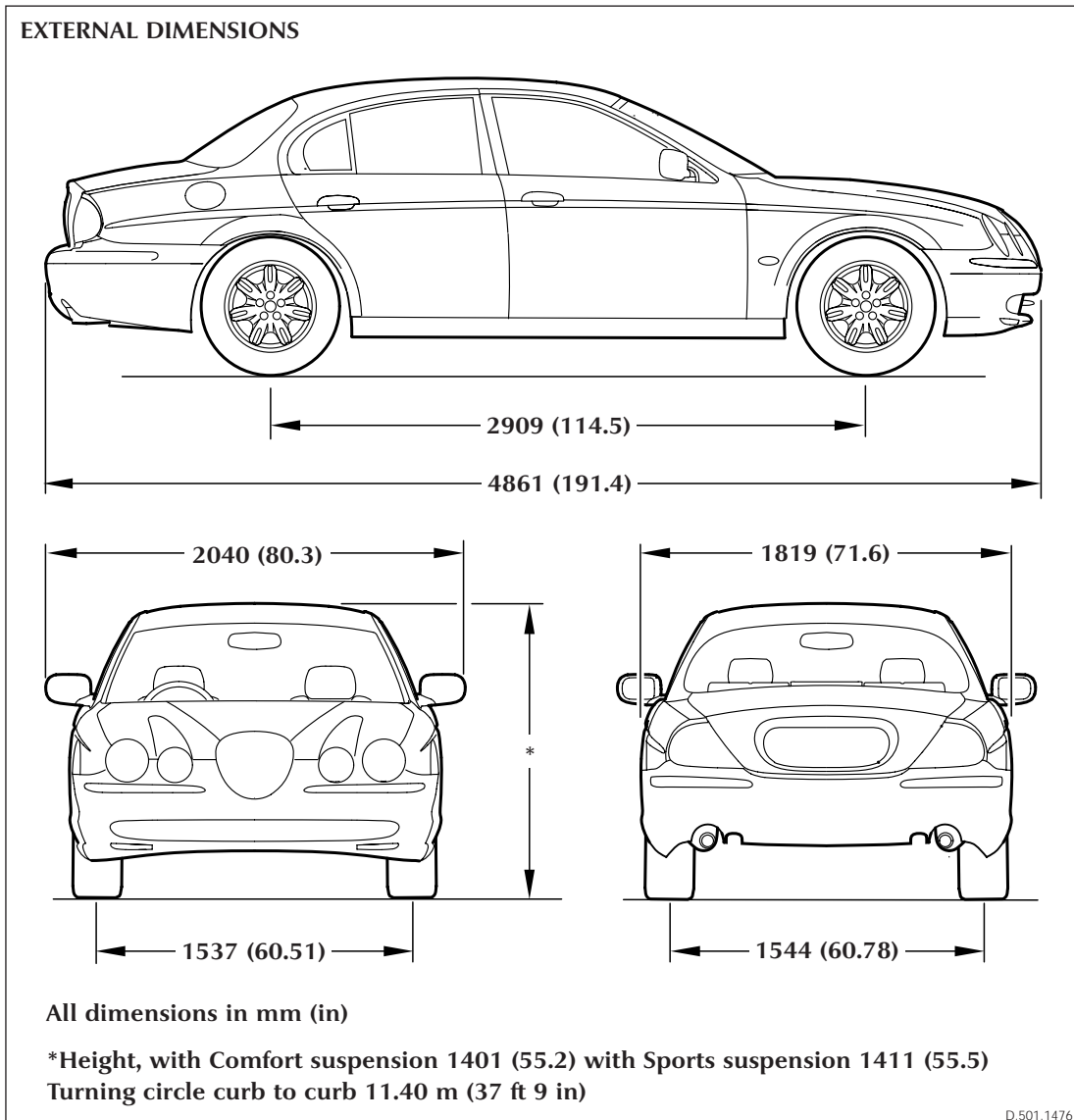
Security features are immobiliser and alarm. Optional features include intruder sensor and inclination sensor. The 3 or 4 button key-ring transmitter has radio frequency operation with an encrypted rolling code to help prevent theft of the vehicle.

Standard Corporate Protocol (SCP) is the only computer system highway for all the vehicle electronic controls, CAN is not used.

## Vehicle Weights

	Vehicles with 3.0 litre V6 engines	Vehicles with 4.0 litre V8 engines
	<b>Kgs (lbs)</b>	<b>Kgs (lbs)</b>
<b>Kerb weight</b>	1635 (3604)	1725 (3803)
Front axle kerb weight	850 (1874)	915 (2017)
Rear axle kerb weight	785 (1730)	810 (1786)
Unladen weight	1705 (3759)	1795 (3957)
<b>Gross vehicle weight</b>	2175 (4795)	2195 (4839)
Gross front axle	998 (2200)	1018 (2244)
Gross rear axle	1177 (2595)	1177 (2595)
Gross combination weight	4025 (8873)	4045 (8918)

## Dimensions



## Vehicle Features

Items detailed below include features of the Jaguar S-TYPE.

**N/A = Not Available; O = Optional; X = Standard A = Accessory**

Middle East\* includes: Abu Dhabi (GCC), Bahrain (GCC), Dubai (GCC), Kuwait (GCC), Lebanon, Oman (GCC), Qatar (GCC), Saudi Arabia (GCC), Syria and Turkey.

GCC = Gulf Coast Countries

Russia\* includes: Moscow, Belarus, Kazakhstan, Ukraine, Uzbekistan, St. Petersburg, Lithuania, Estonia and Latvia

### DYNAMICS

Feature	Applicability
Traction control	X in all markets
Power steering	X in all markets
ABS	X in all markets
Manual transmission	NA in USA, Canada and Mexico or 4.0 litre vehicles X for entry level 3.0 litre O for high specification 3.0 litre
Automatic transmission	X in all 4.0 litre vehicles, all markets X for high specification 3.0 litre (but can be exchanged for manual) O for entry level 3.0 litre
DSC	X in Canada (V8 only) and Mexico; O in USA O in all other markets
Wheels	
16 inch alloy	X in USA, Canada and Mexico, V8, O for V6 X all other markets for entry level 3.0 litre
16 inch dynamic	X in USA, Canada and Mexico, V6, O for V8 X all other markets for high level 3.0 litre and 4.0 litre
17 inch alloy	NA in USA, Canada and Mexico X for Japan only O in all other markets
Full size spare wheel	X in USA, Canada and Mexico X in Taiwan, South Africa, Spain, Portugal (not all models) O in all other markets
CATS (includes 17 inch alloy wheels)	O in all markets
Sports pack	O in USA, Canada and Mexico NA in all other markets
Locking wheel nuts	X in Mexico; A in USA and Canada

**TECHNOLOGY/COMMUNICATIONS and ENTERTAINMENT**

<b>Feature</b>	<b>Applicability</b>
Trip computer	X in all markets
Jaguar sound system	X in all markets
Premium sound (including CD)	O in USA; NA in Canada; X for V8, O for V6 in Mexico
CD player	A for USA and Mexico; X for Canada
Portable cellular phone	O in USA; A in Canada and Mexico
Factory fit phone	
Voice activated control	O in USA; NA in Canada and Mexico
Jaguar assist (VEMS)	O in USA; NA in Canada and Mexico
Navigation system	O in USA, NA in Canada and Mexico

**COMFORT/CONVENIENCE and SAFETY**

<b>Feature</b>	<b>Applicability</b>
Climate control	X in all markets
Locking system (key and remote)	X in all markets
Security system (immobiliser, alarm incl. intrusion sensing)	X in USA, Canada and Mexico (no intrusion sensing) X in Europe
Side airbags	X in all markets
Illuminated sunvisors	X in all markets
Memory pack	X in USA, Canada and Mexico for V8 only; O for V6 O for entry 3.0 litre in all other markets X for all other models/markets NA in Japan
Headlamp levelling	NA in USA, Canada, Mexico and Japan X in all other markets
Auto headlamps	X in all markets (except Denmark, Norway and Sweden with Daytime Running Lamps)
Daylight running lamps	X in Denmark, Norway, Sweden and Canada
Front fog lamps	X in USA, Canada and Mexico O for 3.0 litre entry spec vehicles in UK, Ireland, Malta, X for all other models/markets
Cruise control	NA in Japan O for all entry level 3.0 litre X for all other models/markets

<b>Feature</b>	<b>Applicability</b>
Sliding roof - electric	X in USA, Canada and Mexico for V8 only; O for V6 O in Japan and all entry level 3.0 litre X for all other models/markets
Heated front screen	X in Canada; NA in USA and Mexico O for entry level 3.0 litre (except X in Denmark, Finland, Sweden, Norway, Russia, Austria) NA in Japan X for all other models/markets
Headlamp wash	NA in USA; X in Canada and Mexico O for all other models/markets (except X in Denmark, Finland, Sweden, Norway, Russia, Austria)
Winter pack	NA in USA and Mexico; Weather pack for Canada X in Finland, Sweden, Norway, Russia, Austria NA in Japan
Reverse park control	O in USA and Mexico; NA in Canada X for Japan (V8 only) O for all other models/markets
Fold-back mirrors - electric	NA in USA, Canada and Mexico X for Japan O for all other models/markets
Rear sunblind - electric	NA in USA and Japan; X in Canada and Mexico for V8 only O for all other models/markets
Electrochromic rear view mirror	O on V6, X on V8 for USA, Canada and Mexico X in Australia, Czechoslovakia and Hungary O for all other models/markets
Rain sensitive wipers (must have electrochromic mirror)	X in Canada and Mexico; O in USA O in all other models/markets
Ski hatch	NA in USA, Canada and Mexico O in all other models/markets
Engine block heater - electric	X in Canada; NA in USA and Mexico A in Austria, Denmark, Switzerland X in Finland, Norway, Russia, Sweden NA in other markets
First aid kit	NA in USA, Canada and Mexico X in Germany, Czechoslovakia, Hungary, Bulgaria, Poland O in all other markets
Warning triangle	NA in USA and Canada; X in Mexico X in South Africa, Austria, Belgium, Bulgaria, Czechoslovakia, Finland, Germany, Greece, Hungary, Spain, Italy, Luxembourg, Norway, Poland, Portugal, Russia, Sweden, Switzerland. O in all other markets
Tool kit	A in all markets

## SEATING

Feature	Applicability
8-way electrical adjustment	X in all markets
Fold down rear seat (60/40)	X in all markets
Electric lumbar adjust	O for all entry level 3.0 litre in all markets X for all other models/markets
Heated front seats	X in Canada and Mexico; O in USA NA entry level 3.0 litre in Japan, X for all other models in Japan X in Finland, Norway, Russia, Sweden O for all other models/markets
Sports seats (leather only)	NA in USA, Canada and Mexico O for all other models/markets

## COLOR and TRIM

Feature	Applicability
Seat material cloth	NA in USA, Canada and Mexico X entry level 3.0 litre (or no cost option all other markets)
leather	X in USA, Canada and Mexico NA in Japan X in all high specification 3.0 litre and all 4.0 litre markets. O in entry level 3.0 litre markets except: X in entry level 3.0 litre Taiwan, Australia, New Zealand, Singapore, Hong Kong, Thailand, China, South Korea, Malaysia, Vietnam, Sri Lanka
Leather wheel & gear knob	NA in USA, Canada and Mexico X in all entry level 3.0 litre all markets
Wood/leather steering wheel and wood gear knob	X in USA, Canada and Mexico X in all high level 3.0 litre and 4.0 litre, all markets
Full wood steering wheel	X in USA, Canada and Mexico NA all other markets
Floor mats	X in USA, Canada and Mexico O for all other markets
Metallic paint	O in all markets

## Body Structure

A single, all-new body style, with or without a sliding roof, is manufactured for all markets.

### Body-in-white

The BIW has anti-corrosion, double sided zinc coated steel panels. The complete body has 90% zinc coated steel including 25% high strength steel, percentages by weight.

In keeping with current Jaguar ecology policy, the paint is water-based, not oil based.

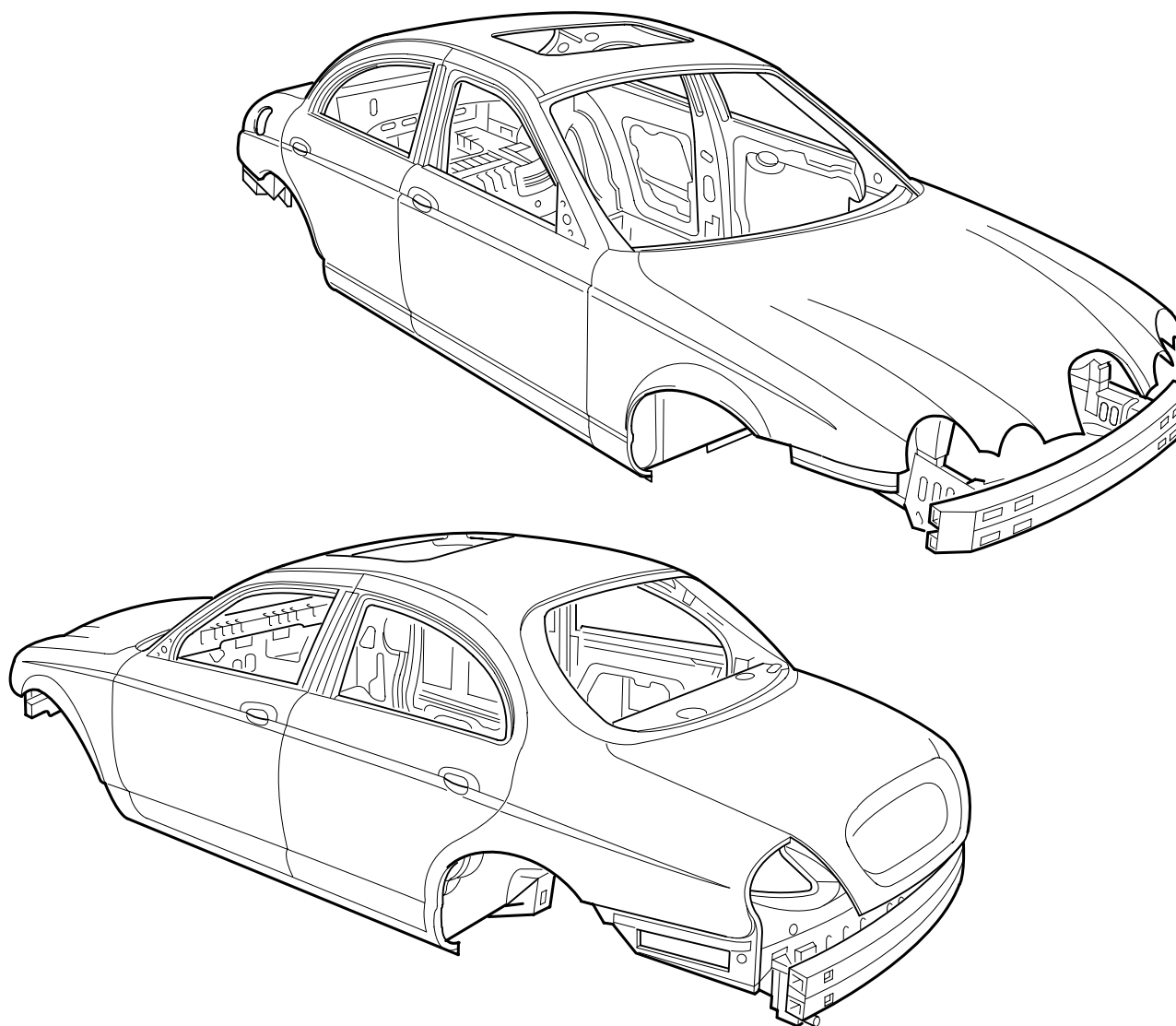
There are no visible exposed screws or fasteners

on the exterior body panels. Body side, door openings and rear quarter inner panel are all single panels.

The door lower cavities are wax injected. Underbody sealant is applied to the main floor and trunk floor areas.

The body structure subsystem meets EEC barrier crash standards and occupant zone requirements.

### BODY-IN-WHITE



J.501.1771

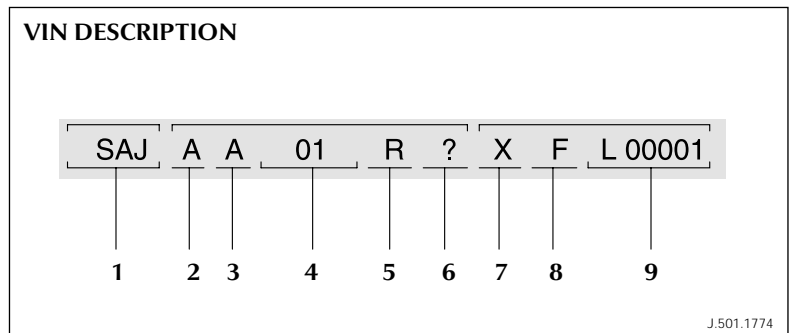
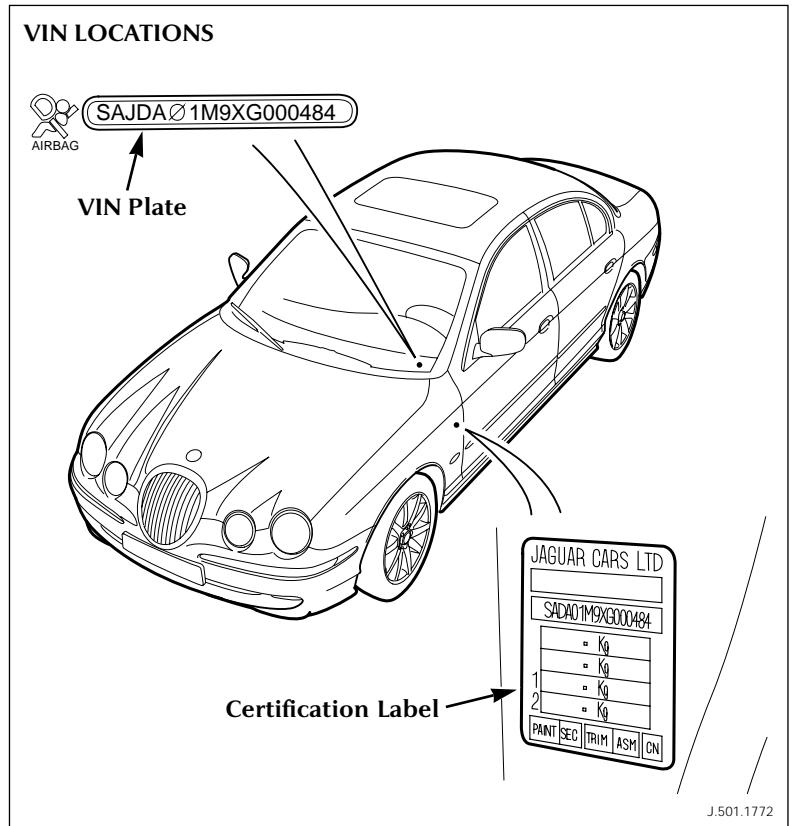
### Identification Plates and Labels

The Vehicle Identification Number (VIN) is displayed, from outside the vehicle, on a plate visible in the lower left edge of the windshield. There is also a certification label attached to the LH front door hinge pillar which gives details of vehicle weights, paint code, trim, date of manufacture and VIN.

### VIN DESCRIPTION

Key to illustration

1. World manufacturer identifier
2. Market, air bag specification
3. Transmission and steering code
4. Body code
5. Emission control system
6. Check digit
7. Model year
8. Assembly plant, model line
9. Production sequence number



### CERTIFICATION LABELS

<p><b>JAGUAR CARS LTD</b></p> <p>_____</p> <p>_____</p> <p>_____ Kg</p> <p>_____ Kg</p> <p>1 _____ Kg</p> <p>2 _____ Kg</p> <p>PAINT _____ TRIM _____</p> <p><b>Europe and ROW</b></p>	<p>MFD BY JAGUAR CARS LTD COVENTRY ENGLAND</p> <p>MFD DATE _____ GVWR _____</p> <p>GAWR F _____ R _____</p> <p><small>THIS VEHICLE CONFORMS TO ALL APPLICABLE FEDERAL MOTOR VEHICLE SAFETY BUMPER AND THEFT PREVENTION STANDARDS IN EFFECT ON THE DATE OF MANUFACTURE SHOWN BELOW</small></p> <p>VEH IDENT NO. _____</p> <p>TYPE <input type="checkbox"/> PASSENGER CAR</p> <p>PAINT _____ TRIM _____</p> <p><b>North America</b></p>	<p><b>JAGUAR CARS LTD</b></p> <p>MFD DATE _____ GVWR _____</p> <p>GAWR /PNBE F/AV _____ R/R _____</p> <p>VEH IDENT NO. _____</p> <p>TYPE <input type="checkbox"/> PC/VT</p> <p>PAINT _____</p> <p>TRIM _____</p> <p><small>969</small></p> <p><b>Canada</b></p>	<p><b>JAGUAR CARS LTD</b> COVENTRY ENGLAND</p> <p>_____</p> <p>_____</p> <p>_____</p> <p>_____</p> <p>PAINT _____ TRIM _____</p> <p><b>Saudi Arabia and Gulf States</b></p>
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**Front and Centre Floor Pan**

The floor pan is a three-piece construction with handed dash panels, welded front suspension housing, an integral centre bearing panel for the driveshaft and a large under-tunnel heatshield.

**Rear Floor Pan**

Multi-piece floor pan design, the rear tub is designed to accept either a full size or space saver spare wheel and the luggage compartment has four tie-down luggage loops. Two plastic covers are located under the rear seat and these give easy access to the fuel tank mounted components. A plastic battery tray is located below the luggage load floor.

**Roof**

Provision has been made for roof rack fixings and the roof has reinforcement for vehicles fitted with a the sliding roof.

**Sliding Roof**

The sliding roof has an exterior encapsulated glass roof panel, with sliding sunshade, and has tilt and slide operation. The sunshade is available in two colours to match the headlining. Note that the sunshade cannot be closed if the sliding roof is in the fully open position or has been partly closed from the fully open position; this is because the

pull-cup is hidden. To allow access to the sunshade pull-cup, the sliding roof must be fully closed. Special screws are used in some locations. When replacements are required these screws are supplied in packs, do not use any other screws than those supplied. Low battery voltage may prevent operation of the sliding roof although the relays may be heard operating. The sliding roof cannot be fitted as a retrofit item.

**Body Side and Quarter**

The vehicle has one piece body sides and one piece door opening panels, with full height 'A' post and 'B-C' post reinforcement. The jacking reinforcement joins the door opening panel to rear quarter inner reinforcement panel. Large vacuum-formed wheel arch liners are fitted front and rear. A sill appliqué protects the BIW sheetmetal from stone damage and an anti-chip coating is applied to the sills

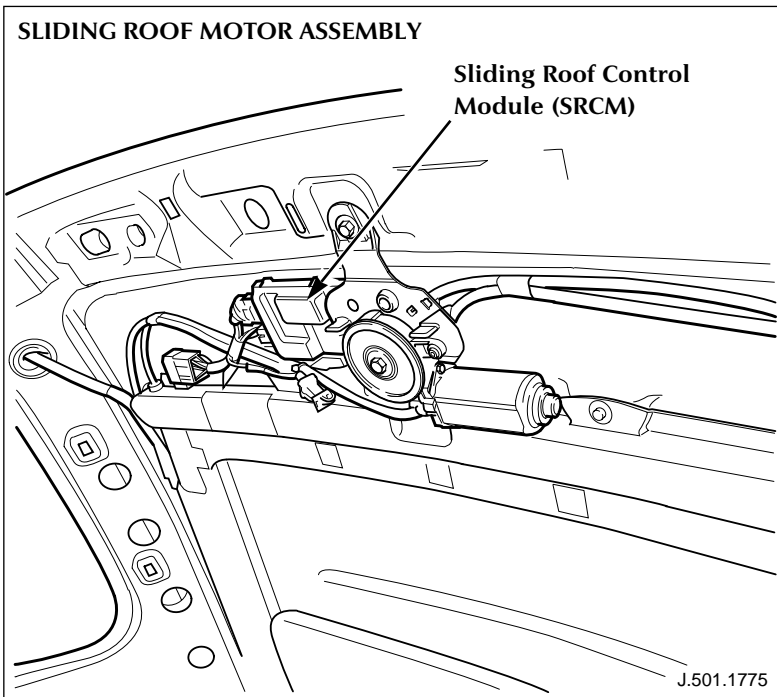
**Closures**

One piece door inner and outer pressing with side impact beams. One piece front and rear door hinge reinforcement panels.

Door sealing is a triple seal system:

- primary seals - single sponge profile with part dense rubber foot, 'C'-channel mounted on the upper door and peg mounted below the waist.
- secondary seals - body side flange mounted carrier with sponge and dense rubber, colour-keyed trim flap
- margin sealing - flange mounted roof rail/gutter seal which closes off the upper door opening line above the waist and terminates with a shaped moulding at each end.

A variety of different profiles are peg mounted to the 'A' and 'C' pillar periphery below the waist and also door bottoms. A separate 'B' pillar seal is riveted as part of the 'B' pillar appliqué.



### Front Fenders and Bumpers

Unique fenders with one style to all markets incorporating side markers/repeaters.

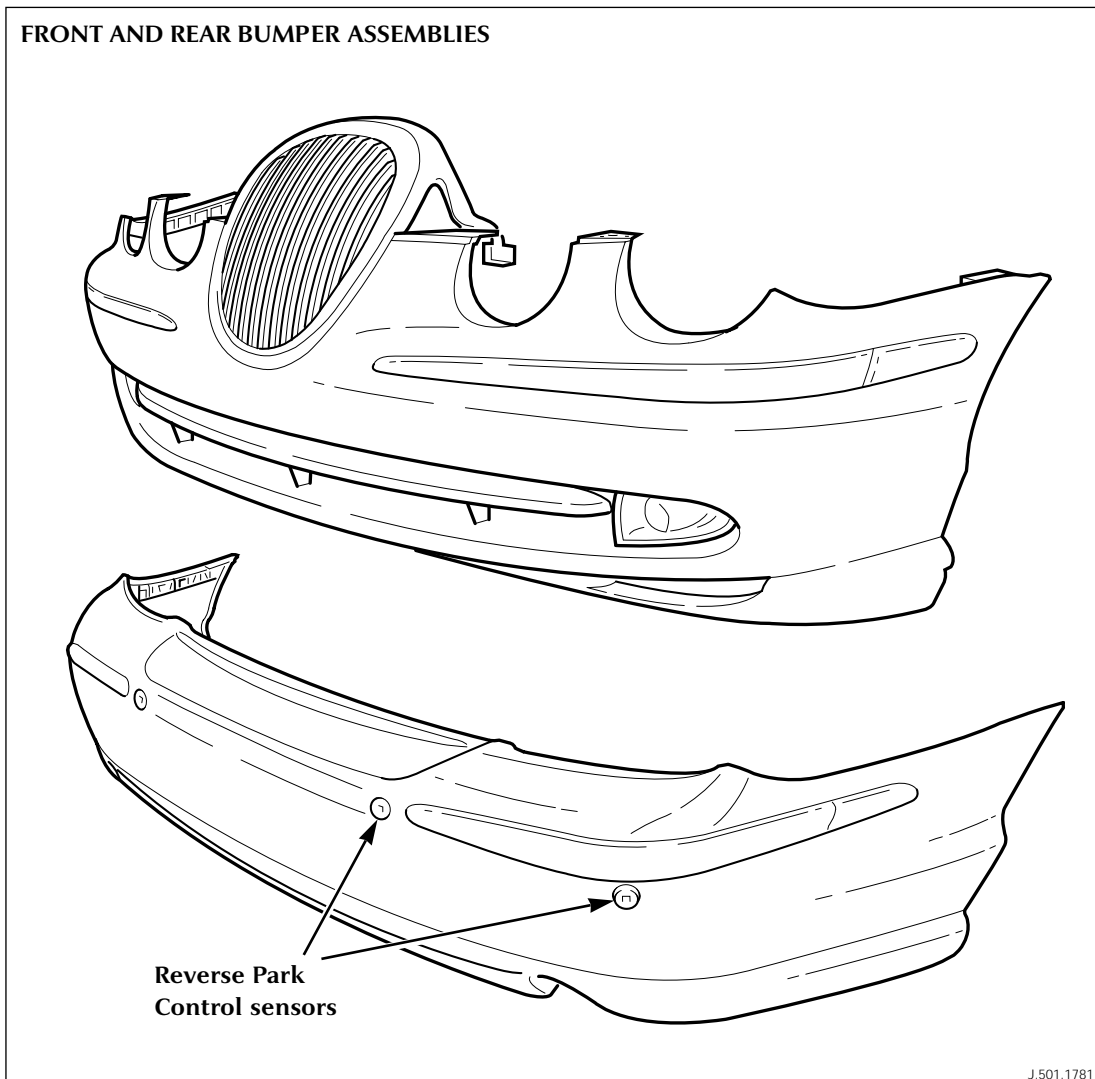
Front bumper covers are single piece, body coloured, flexible, low speed impact resistance (5 mph/8km/h) with a steel beam, attached to the cross rails and integral grille assembly. The front bumper has an energy absorbing foam core and includes provision for air ducts for brake cooling and telescopic nozzles for headlamp power wash. Chromed bumper blades and provision for front fog lamps (or blanking plates), are included. All vehicles have a removable front splitter vane. Care is required when refitting the bumper to ensure correct alignment.

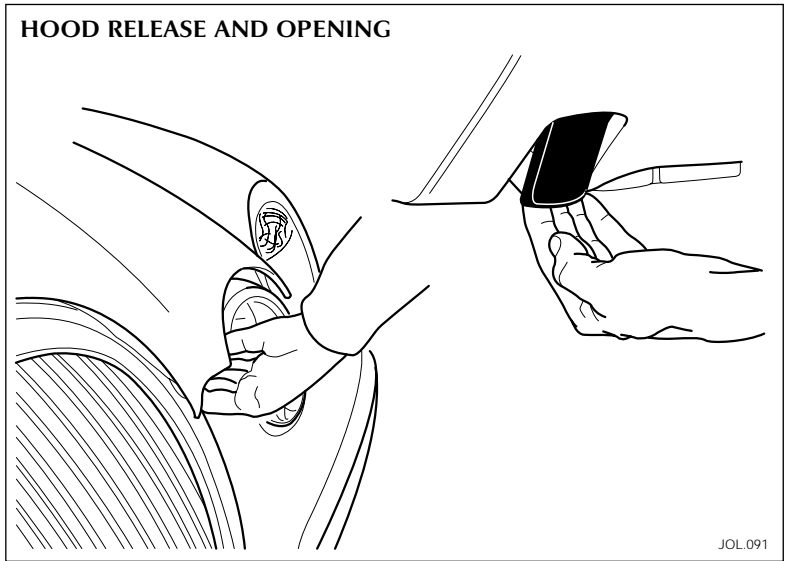
### Rear Fenders and Bumpers

The bumper beam is an aluminium extrusion, mounted to rear rail brackets (5mph (8km/h) bumper system).

As with the front bumper it has compression moulded polypropylene foam and is colour keyed with chromed inserts.

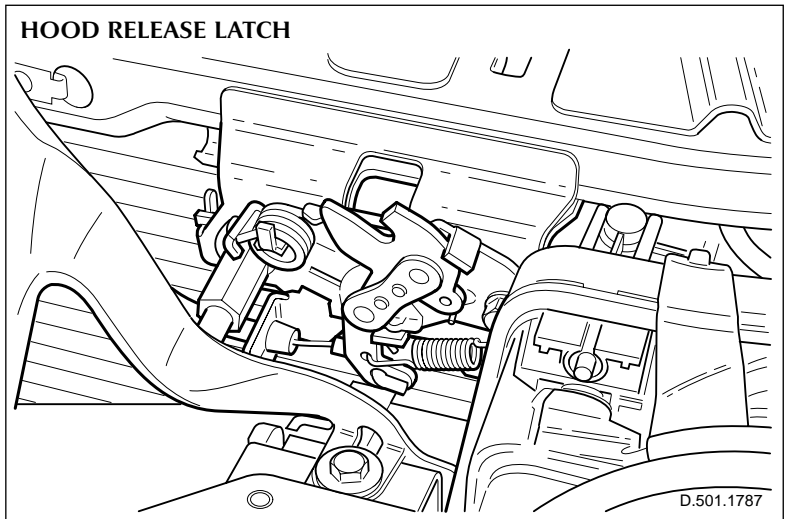
Reverse Park Control system, assisting the driver in reversing manoeuvres, operates through four sensors, bumper mounted, at the rear of the vehicle. The system provides audible warnings to indicate the distance to an object behind the vehicle (see Electrical/Electronic section).





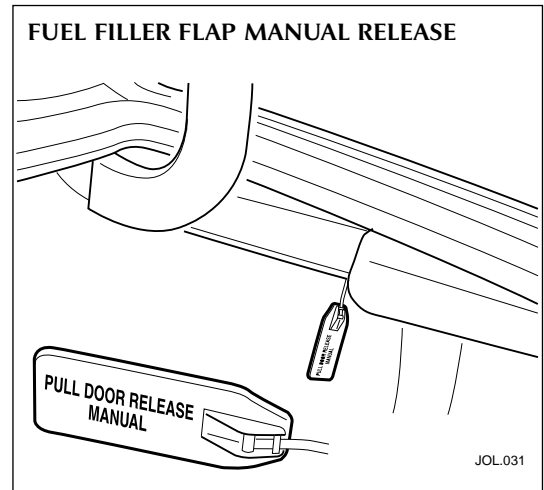
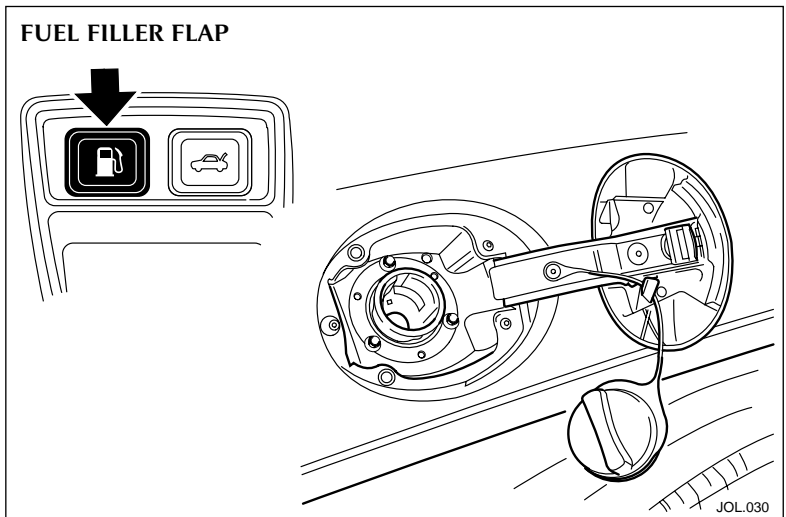
**Hood**

Unlike current Jaguar cars, the hood is hinged at the rear with single pivot hinges and gas struts. It has two primary and one secondary latch for security. The primary latches are joined with an intermediate cable and release of the primary latches is by a single cable from the hood release lever on the driver side of the vehicle. The two primary latches are handed for LHD and RHD vehicles. The secondary latch, mounted on the LH side of the hood between the grille and inner headlight, is provided for added safety and must be hand released before the hood can be fully opened. Hood sealing comprises front and rear lengths of sponge bulb, pegged to the hood inner.



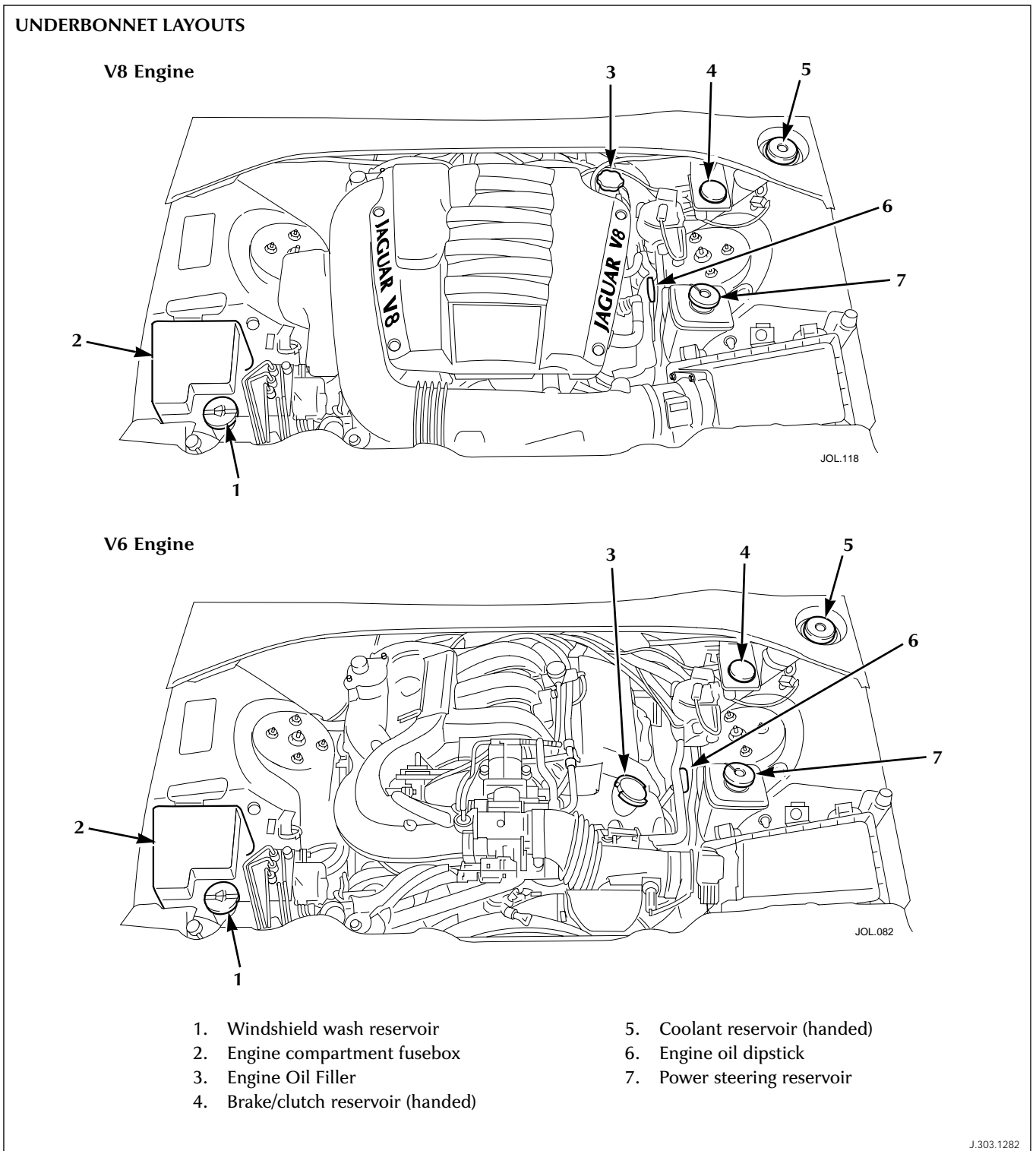
**Fuel Filler Flap**

The fuel filler flap/cap is located on the rear upper part of the right fender. Fuel filler flap operation is via an illuminated switch on the fascia or emergency manual release by tag and wire in the RH side of the luggage compartment. The cap, when removed from the filler neck, is held by a retaining strap which can be passed over the hook on the flap to allow easy access for filling the tank and to prevent scratching of the surrounding paintwork.

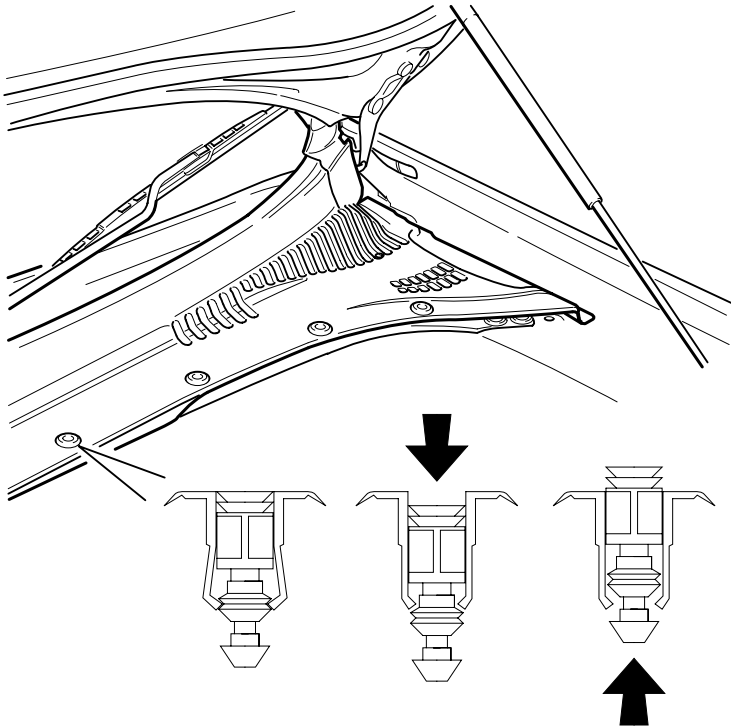


## Engine Compartment

The engine compartment layout is common for both V6 and V8 engines. The front power distribution box (fusebox) is located in the engine compartment.



**COOL AIR INLET COVER/LEAF SCREEN**

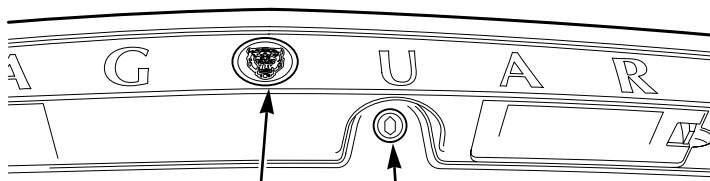
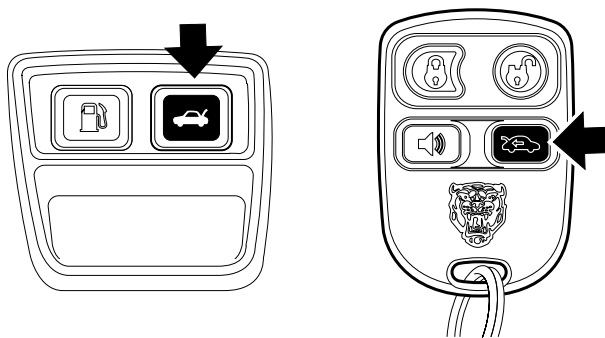


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**Cool Air Inlet**

The climate control air intake is through a plastic moulding attached to the engine compartment bulkhead. This moulding contains the air/pollen filter and is provided with water drains. It is covered by a leaf screen. The air intake cover is held on with a two piece plastic fastener (see illustration).

**TRUNK RELEASE**



Release Button

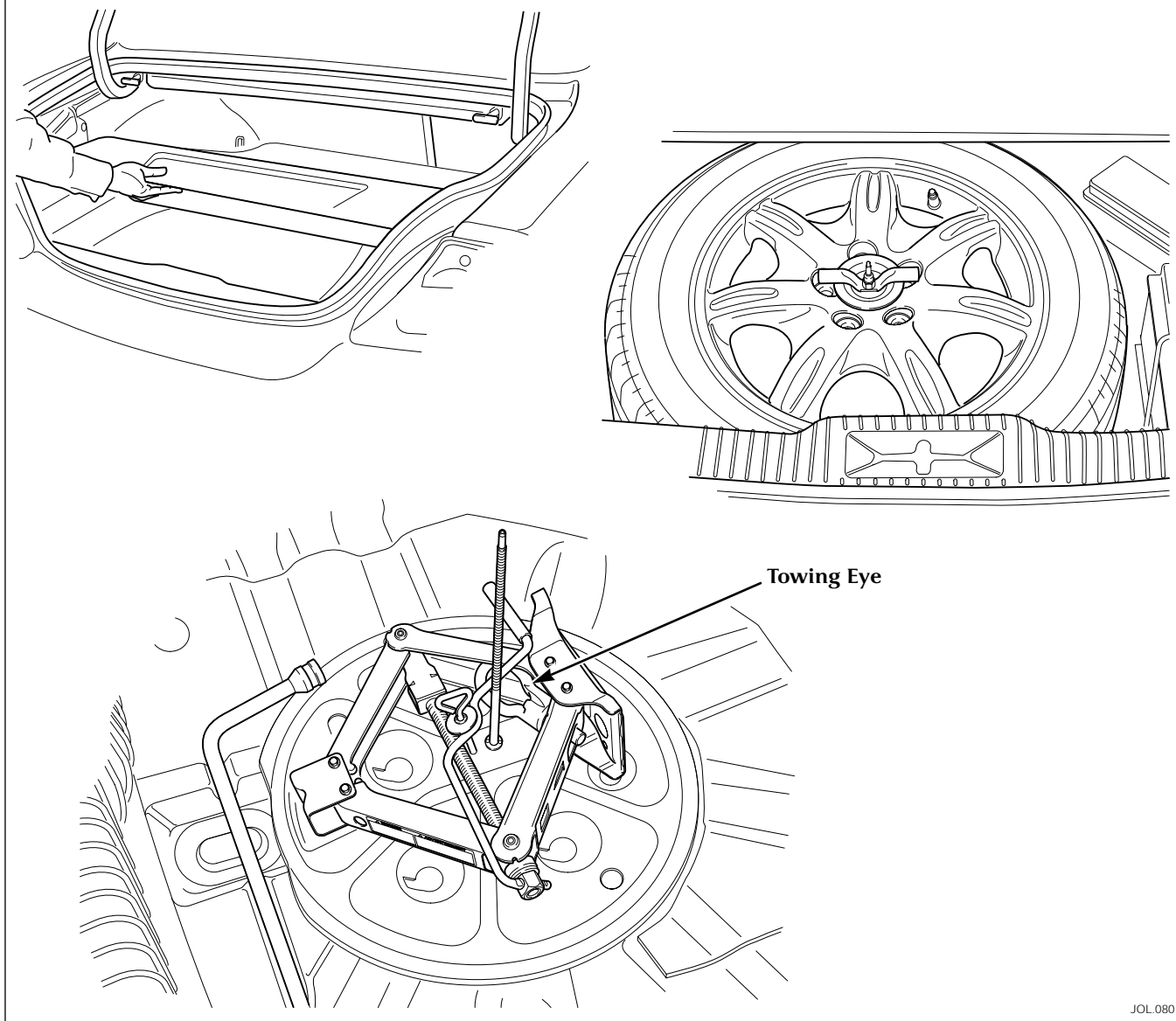
Emergency Lock

JOL.154

**Trunk**

The steel trunk lid has two hinges with one damper and covered springs to assist lid lift. The lid can be released using the switch on the fascia, using the key-ring transmitter, or, if the vehicle is unlocked, by a release button on the lid. An emergency lock, key operated, is provided for access to the trunk if, for instance, the battery is disconnected. The trunk lock barrel is mounted to the trunk lid with two flange nuts. Drive to the trunk latch is via a cable which is a snap fit to the rear of the barrel. Trunk sealing is a simple flange mounted bulb section with a single moulded joint.

SPARE WHEEL AND JACKING EQUIPMENT



JOL.080

**Spare Wheel and Jacking Equipment**

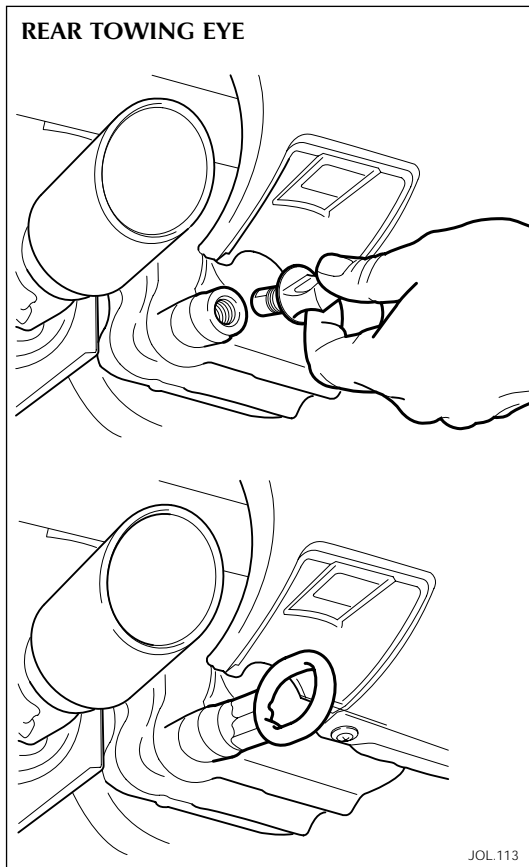
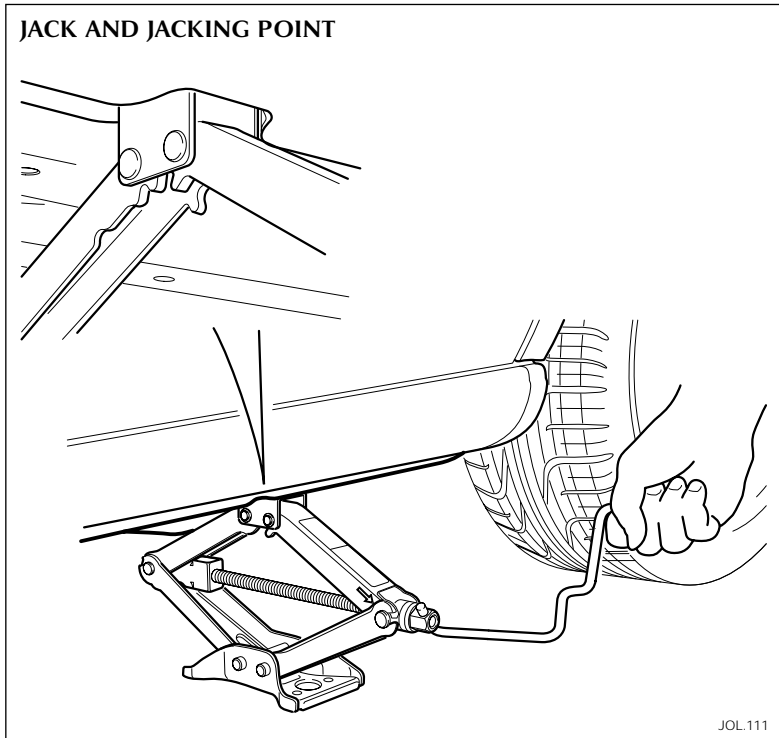
The spare wheel and jacking equipment are located in the luggage compartment floor pan. The floor carpet folds forwards to access the spare wheel, towing eye and jack.

## Jacking and Towing

The body has four jacking points located in notches in the sill structure.

**Caution:** Extreme care must be taken when positioning jacks or other lifting equipment that the sills and sill panels are not damaged as the vehicle is lifted.

For emergency short distance towing, or for mounting the vehicle on a recovery trailer, LH thread screw-in eye positions are located at both the front and rear of the vehicle. The towing eye is stowed with the vehicle jack in the luggage compartment floor pan. To secure the vehicle during road and ship transportation, tie-down brackets are located under the floor pan. As with current vehicles, the front vane must be removed before attaching the towing cable.



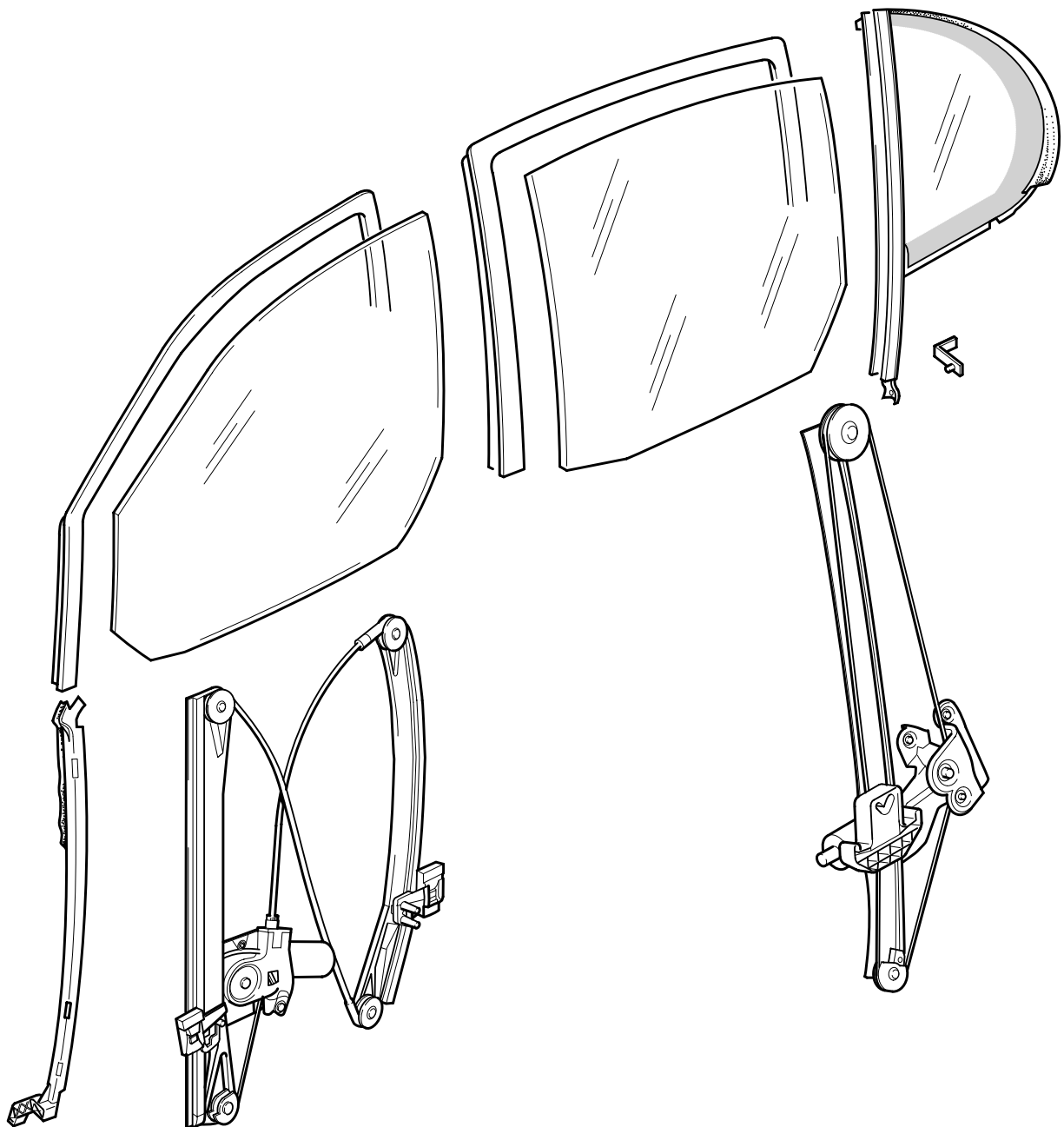
## Glazing

### Windshield

The windshield is laminated bonded glass with solar control tint and black obscuration band, having one style for both LHD and RHD markets. The windshield is direct glazed to body. Upper area trim in the form of a rubber capping is supplied as an assembly with a new windshield. Windshields have either a heated wiper park area

or, optionally fitted, a fine-wire heater over the whole area of glass. The windshield heater remains timed on for 4 minutes and the heated wiper park area is timed on for 10 minutes. At low temperatures the heated wiper park area is automatically switched on. The windshield is fitted with mounting brackets for the moisture sensitive/manual dip/electrochromic mirror wiper

FRONT AND REAR DOOR GLAZING ARRANGEMENTS



303-066



system mirrors. A clear patch in the darkened area at the bottom left of the windshield gives external visible access to the VIN.

There are three types of windshield variants:

- Rain sensing, with electrochromic mirror (NAS markets have the option of a compass fitted to the mirror head).
- Non-rain sensing with electrochromic mirror (NAS markets have the option of a compass fitted to the mirror head).
- Non-rain sensing with prismatic mirror.

Windshields are available as heated or non-heated and the rain sensing versions have a unique mirror mounting system.

### **Backlight**

The backlight is direct glazed to body. All backlights are heated and have solar control tint, integral radio and telephone antenna. The backlight heater is timed on for 10 minutes.

### **Door glass**

Each front door window is single curvature glass, 5mm thick, and operated by a twin guide cable and drum assembly with five stud fixing points. The glass is clamped to the regulator slide blocks. Access holes are provided in the inner door when the glass is raised. There are no adjustable end of travel stops.

Rear door glass is also a single curvature glass, 4mm thick, with a single guide cable and drum assembly and three stud fixing points. The glass drops fully to the door roll. The glass is located to the slider blocks by pins and has no adjustable end of travel stops.

Each front and rear cable and drum mechanisms must be replaced as individual complete units, they have no serviceable parts.

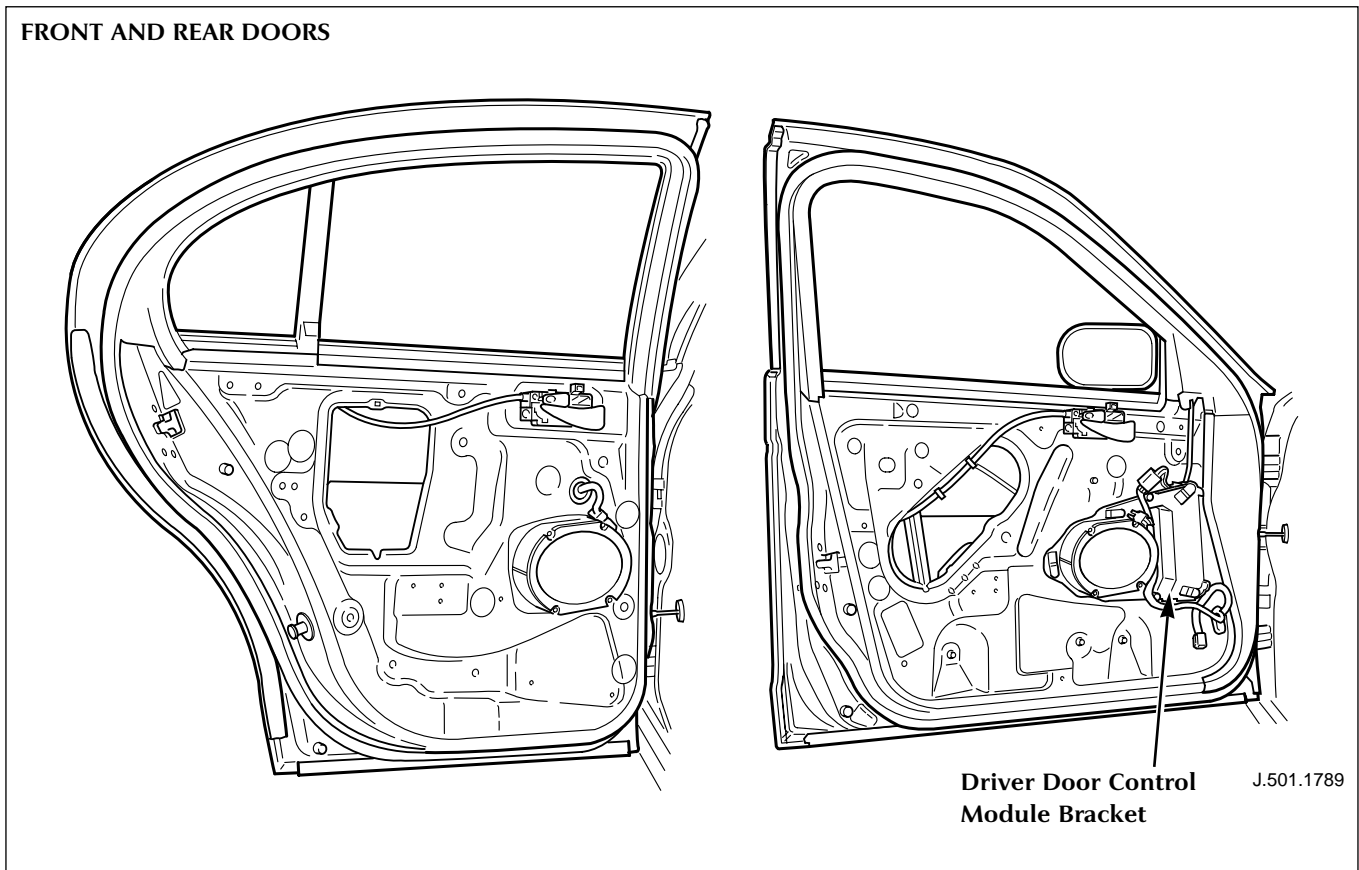
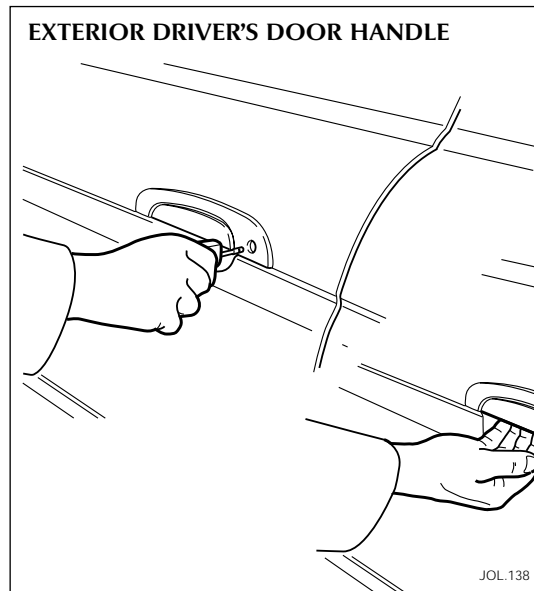
### **Quarter lights**

Quarter lights are 4mm thick with three fixings, one is a lower bracket to the door inner. Perimeter foam and butyl rubber seals are fitted to the door outer.

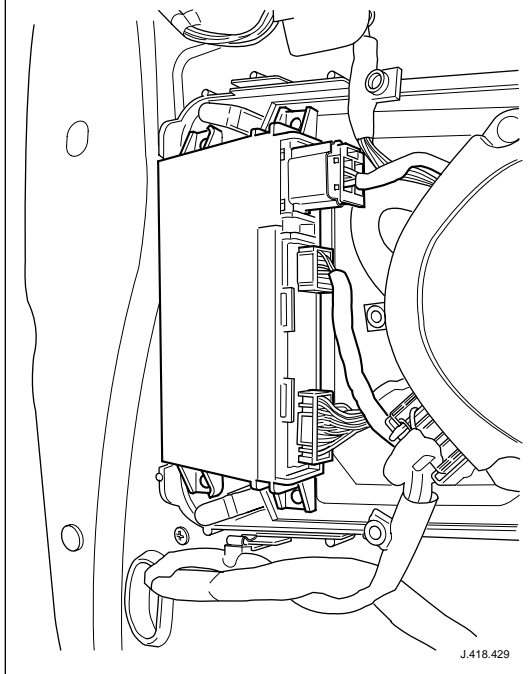
## Doors and Door Mirrors

Door exterior handles are body coloured and have semi flush door handles. The driver's door only has a door key lock barrel, barrel shield, door latch shield and lock barrel operating linkage. To replace/service the door key lock barrel requires removal of the exterior handle.

Door mirrors have body coloured caps and common 70 degree head angle, with three point fixings to the door outer panel. Various alternatives include power fold-back, electrochromic, aspheric, memory and heated. Side impact beams are mounted in the doors.



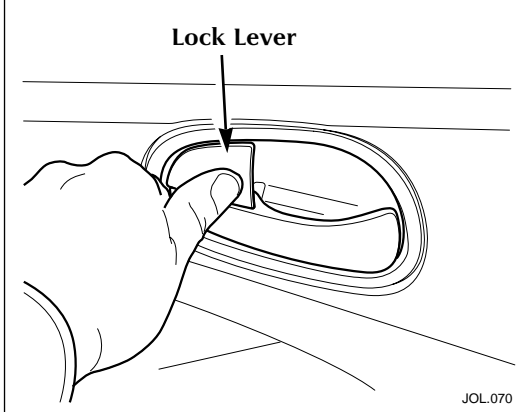
**DRIVER DOOR CONTROL MODULE**



J.418.429

The only door module, the driver door control module (DDCM) is mounted in the driver's side door adjacent to the door speaker unit. The interior door handle has a release cable to the door latch.

**INTERIOR DOOR HANDLE**



JOL.070

## Windshield Wipers and Washers

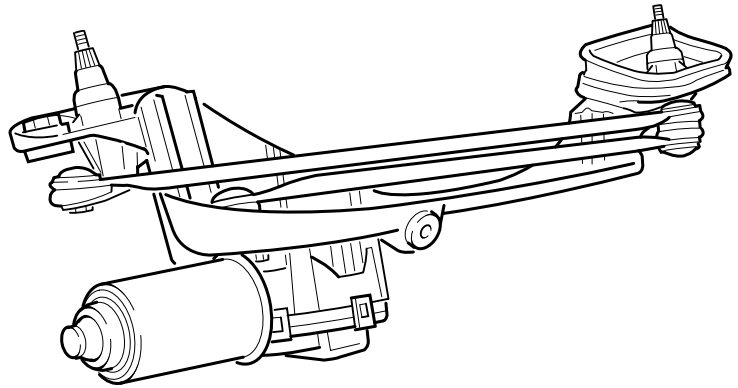
The windshield wiper linkages and motor are a combined unit with the operating logic integrated into the GECM. The wiper system has two wiper arms/blades which are handed for LHD or RHD. Wipers are twin speed with variable six speed intermittent operation and, optionally, moisture sensitive operation.

Wiper arms do not lock away from the glass, they must be held away from the windshield when cleaning the glass. A special tool (501065) is required to remove the wiper arms from the body. Windshield washer jets are hood mounted. Two sizes of washer reservoir are available, one for windshield wash only, 4.4 litres, and one for windshield wash and headlamp power wash, 6.6 litres. The reservoir is mounted forward of the RH front wheel.

Headlamp power wash jets extend by water pressure and retract by spring pressure.

A spoiler is fitted to the driver's wiper blade for UK and European markets only.

WINDSHIELD WIPER ASSEMBLY



D.501.1778

## Exterior and Interior Trim

No coach line will be applied. The optional equipment headlamp power washers are body coloured as are the door handles and body side protective mouldings. The vehicle has a chromed radiator grille surround with gunmetal vertical grille vanes.

Front license plate plinth when required is mounted to the front bumper and the rear license plate is mounted directly to the trunk drop panel

The A, B/C upper and D/E post trim are structural parts designed to absorb energy during occupant head impact. These parts must be replaced following accident damage if impacted. Damage may not be evident unless the parts are removed and examined for damage such as cracking, stress whitening or rib crushing. The headlining also contains energy absorbing elements which need to be replaced in the event of accident damage. The headlining must be removed to inspect the foam parts and if any have come loose or been damaged through cracking or crushing then the complete headlining must be replaced.

### Mirrors

The standard fit manual dip mirror has a double ball joint for adjustment. Electrochromic and rain sensing versions may be fitted. North American vehicles can also have an optional compass fitted

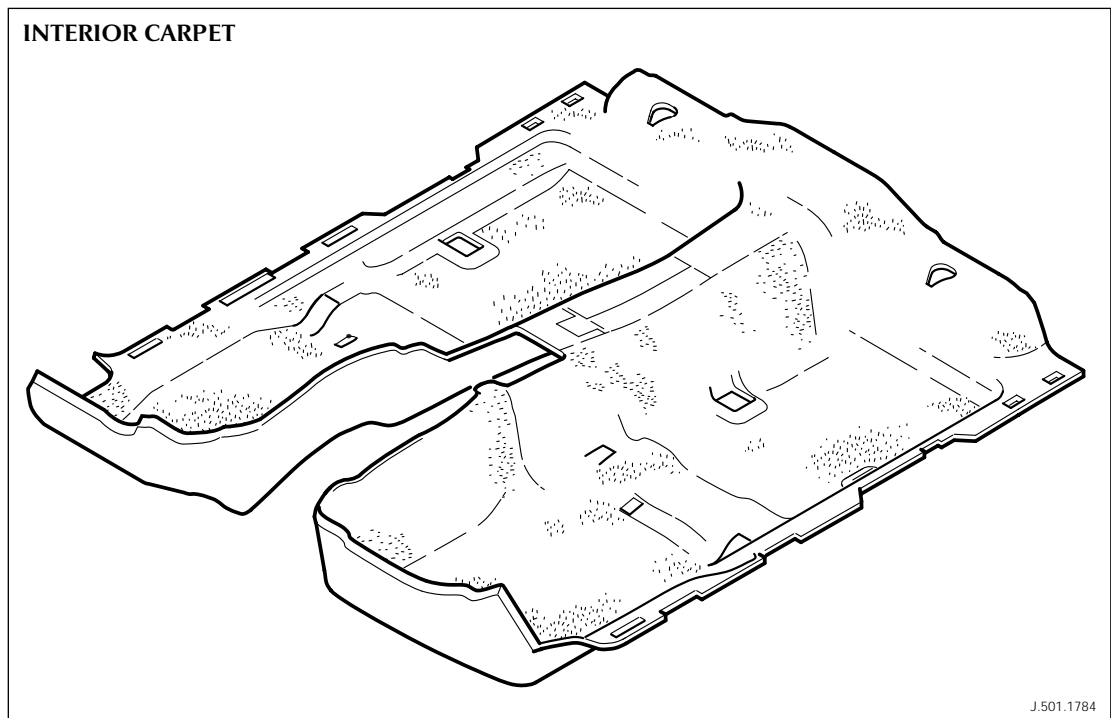
within the mirror head. The mirror mounting is supplied bonded to the windshield.

### Carpets

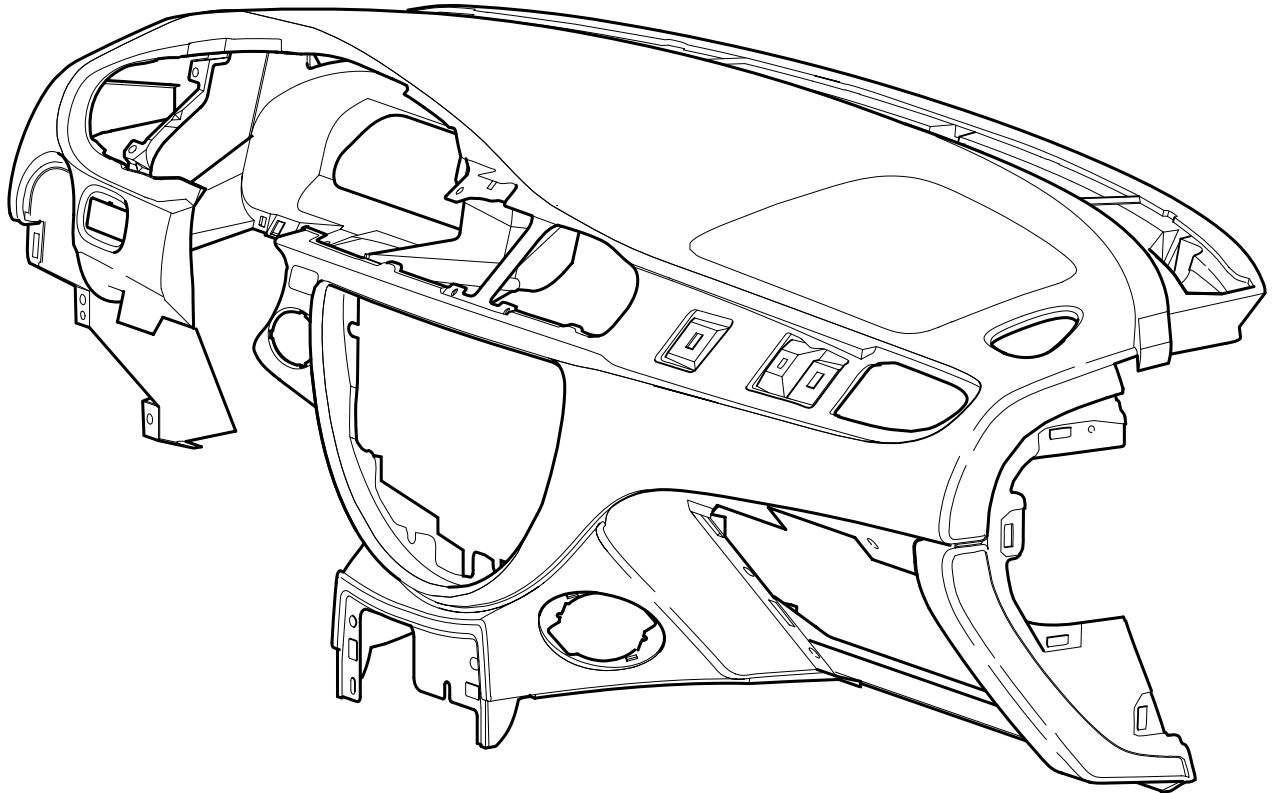
The interior carpet is a complete, one-piece design Trunk carpeting comprises

- A folding floor panel.
- Two styles of trunk LH carpet, one for Navigation CD with 4 fixings and one without CD with 3 fixings. When the Navigation CD player is fitted it has a separate carpet trim cover.
- A RH side trim carpet with 3 fixings.
- A single piece trunk lid liner with 11 fixings.

When a space saver wheel is stowed in the trunk, an under floor stowage tray is provided under the folding floor carpet.



## FASCIA



J.501.1790

**Fascia**

The fascia has 5 mounting points, left and right side of the tunnel, left and right side of the fascia and a point above the steering column. A steel structure supports the fascia pad and the upper steering column. The glovebox is used as the mounting for the CD autochanger when this option is fitted and also storage for the owners literature pack. For base models a cassette storage tray is fitted to the centre of the fascia but this is deleted when the optional phone presenter or navigation system is fitted. Unlike current models, the ignition switch is set in the fascia, not on the steering column.

## Seats

All seats are completely new to Jaguar with no commonality to previous models.

### Front Seats

The drivers seat and front passenger seat are electrically adjustable for front and rear seat height, fore and aft movement and squab tilt with optional lumbar adjustment. Optional heated cushions and squabs may be fitted with the heater switches located on the centre console. The head restraints are manually adjustable for height (four positions) and tilt. The drivers seat also has an optional two position memory facility. Side airbags are fitted to both front seat squabs (see Occupant Protection section).

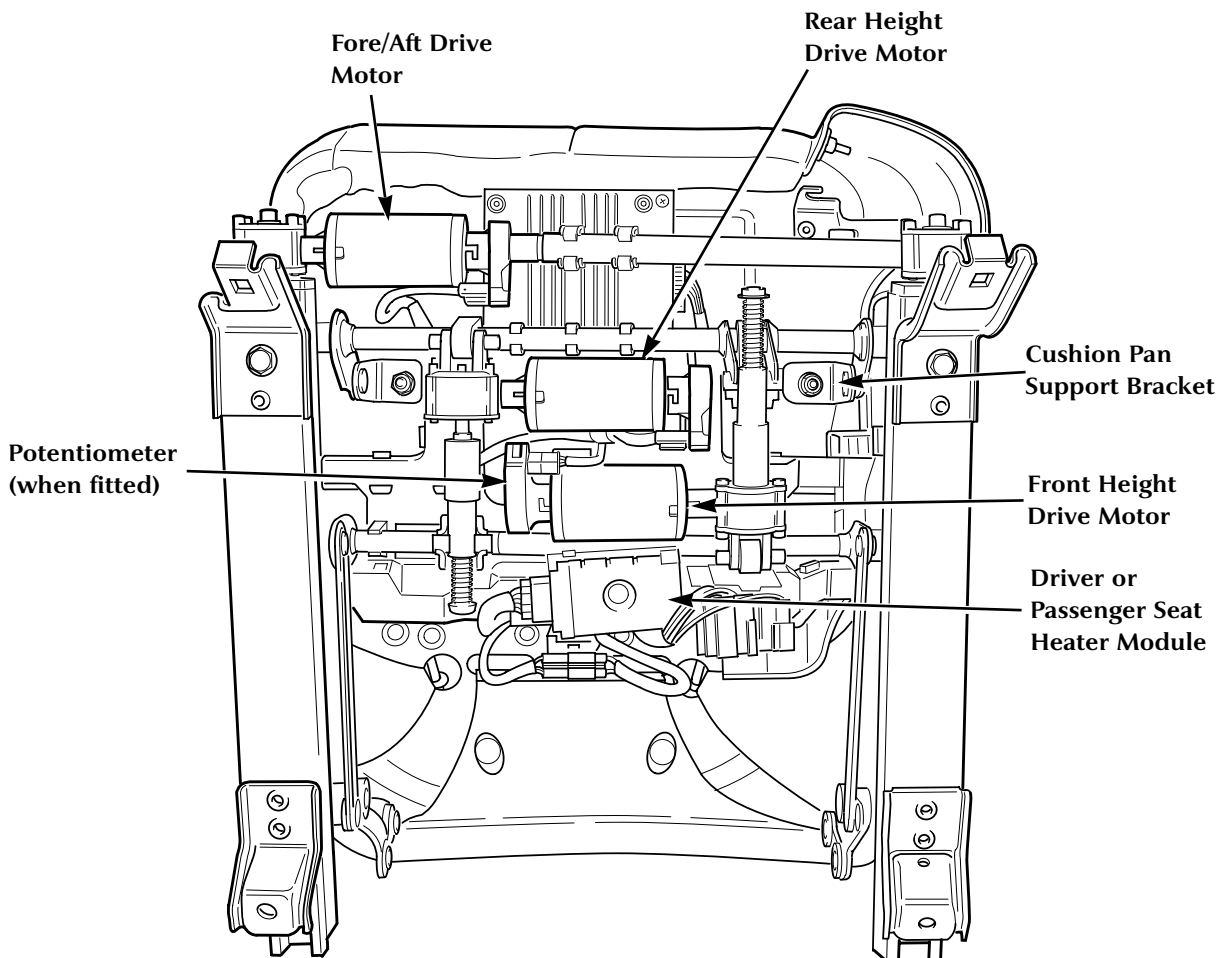
### Seat Construction

The seat track assembly consists of two slider rails, cross mounted drive mechanisms and an

electrical harness sub-assembly. The seat cushion pan is supported on four brackets attached to the height adjustment drive actuators. Two separate drive motors and screw actuator mechanisms provide raise/lower movements respectively for the front and rear of the cushion. The seat fore and aft motor and drive shaft are located across the front of the track assembly: note the drive shaft must not be used to lift the seat assembly when fitting or removing a seat. Each drive has a potentiometer to register the selected position for memory storage.

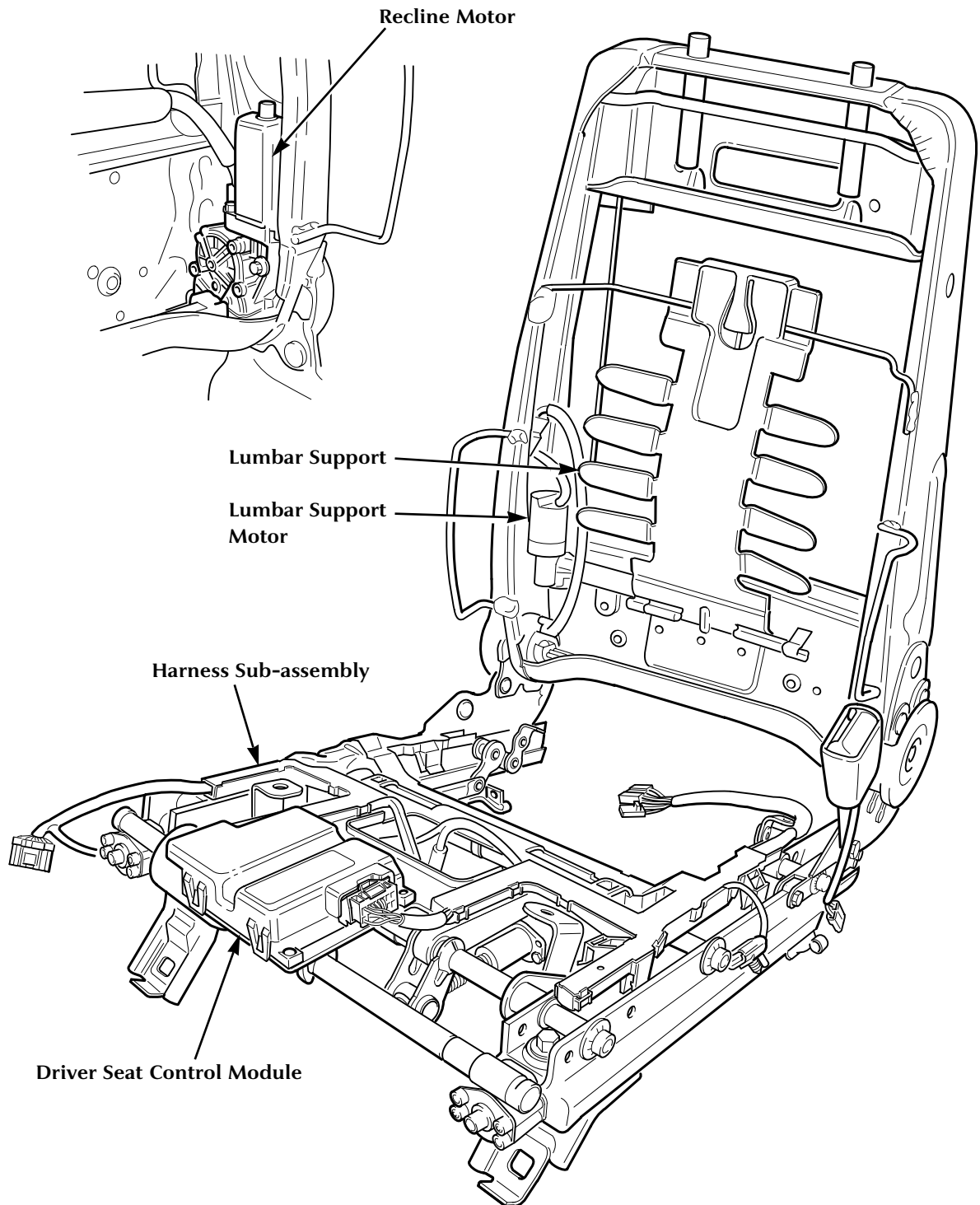
The track assembly wiring harness and driver seat control module (DSCM) (driver's side only) are fixed to a plastic tray which clips onto the frame. The squab frame is a welded steel construction which bolts to the track assembly and carries the recline drive, lumbar support mechanism and a

SEAT DRIVES



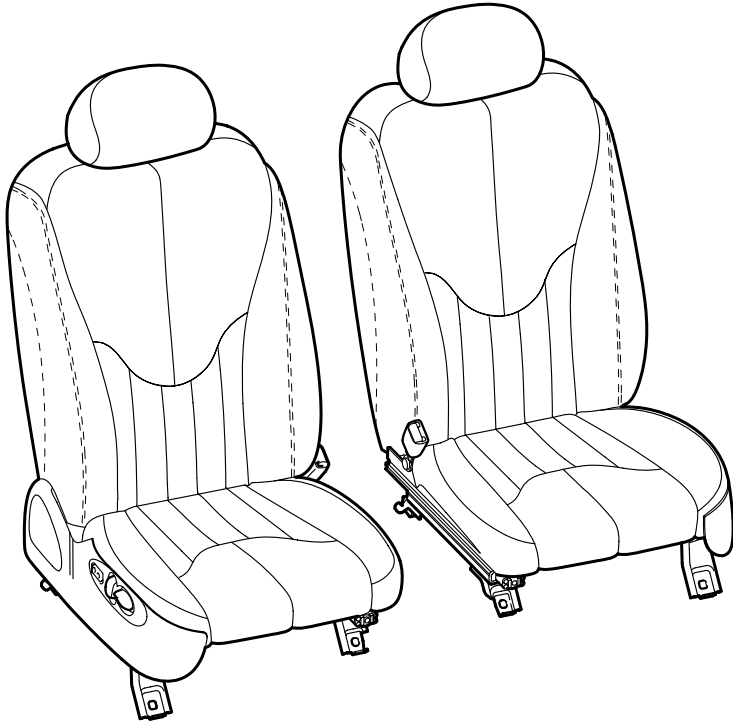
D.501.1782

FRONT SEAT FRAME





**FRONT SEATS**



J.501.1786

bracket for the airbag. The recline motor is located in the lower left side of the frame and drives both sides of the squab. The position potentiometer is mounted on the long drive shaft on the RH side.

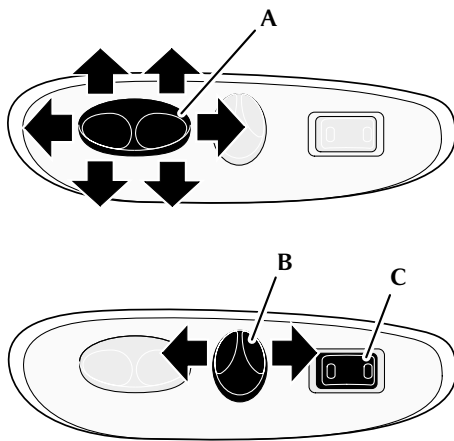
Lumbar support comprises a flexible steel lumbar plate, motor, drive cable and return spring. The top of the plate has vertical slots, fitted to a cross bar, which allows the plate to be pulled down and deformed by the drive cable to provide increased lumbar support. If powered lumbar support is not fitted, the lumbar plate is used without the drive system.

When seat heaters are fitted each front seat has a driver or passenger seat heater control module fitted (DSHCM/PSHCM).

**Seat Covers**

The cushion and squab cover are made of dual density foam and have optional heater pad inserts. The cushion and cushion pan have an anti-submarining profile for increased safety.

**FRONT SEAT ADJUSTMENT SWITCHPACK**

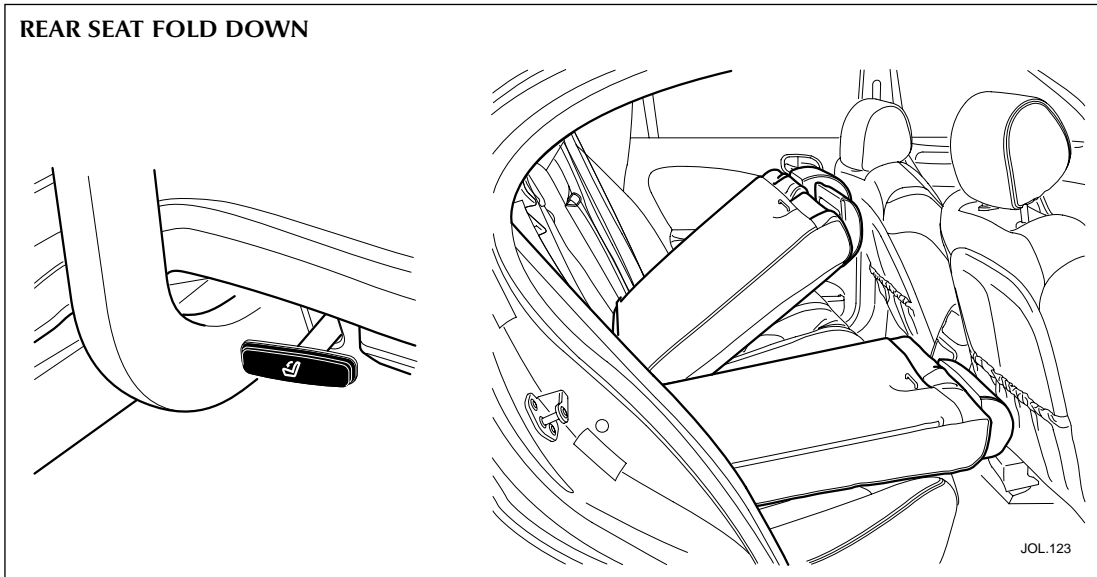


JOL.017

**Front Seat Adjustment**

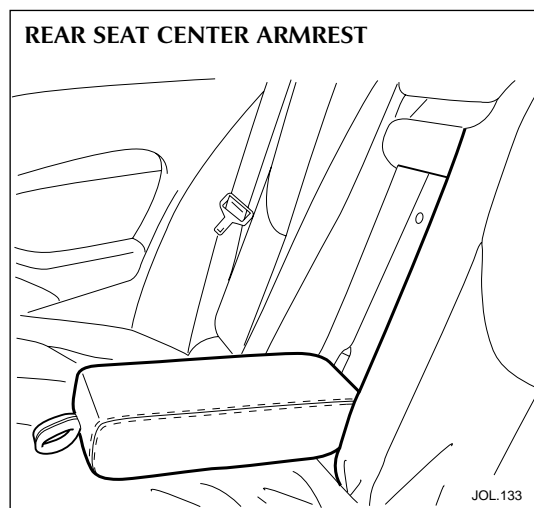
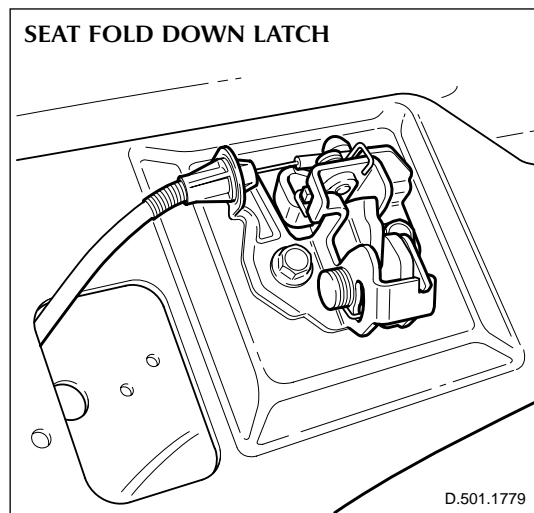
The front seats are adjusted by three switches on the seat cushion side panel. The key does not have to be in the ignition switch for seat adjustment. Referring to the diagram:

- A. Switch forward/rearward: moves seat cushion forward or rearward  
Switch up/down: raises/lowers front/rear of cushion
- B. Switch forward/rearward: raises/reclines angle of seat squab
- C. Switch front/rear: increases/reduces lumbar support.



**Rear Seats**

Bench style seats are fitted at the rear with a 60/40 split folding squab. Release handles for each seat back are in the luggage compartment under the parcel shelf.



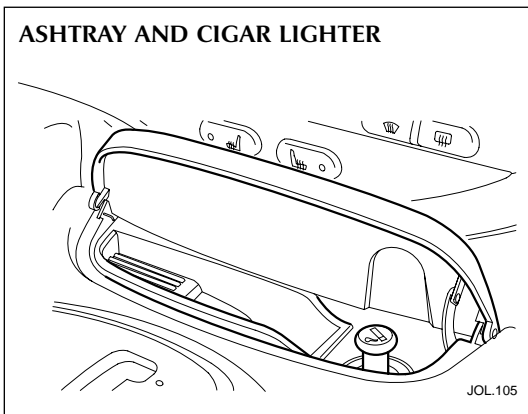
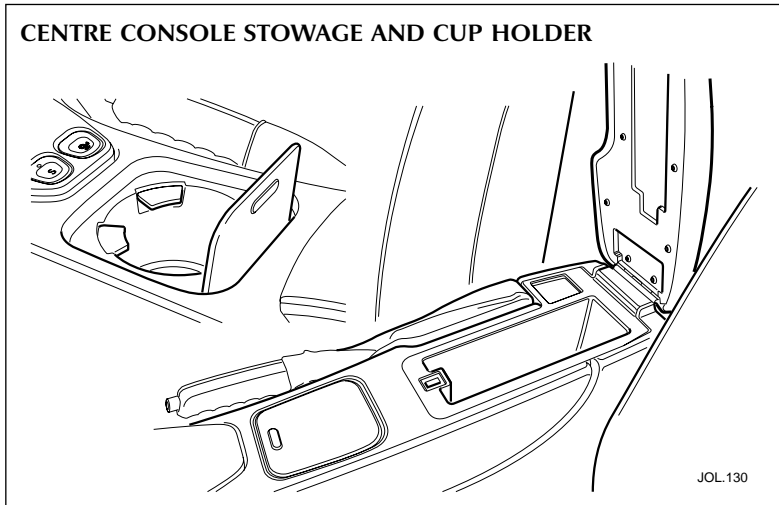
## Interior Features

### Centre Console

The centre console carries the ashtray and cigar lighter, the cupholder and the armrest/stowage compartment.

Lift the front of the hinged armrest to gain access to the stowage compartment. A telephone can also be fitted into the centre stowage compartment as an option.

Raise the lid to gain access to the cigar lighter and ashtray.

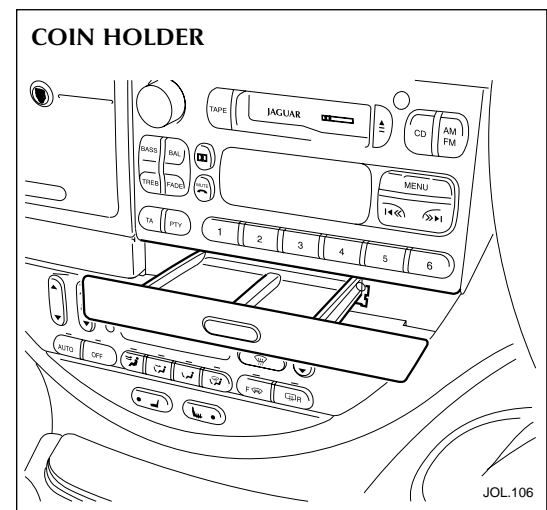
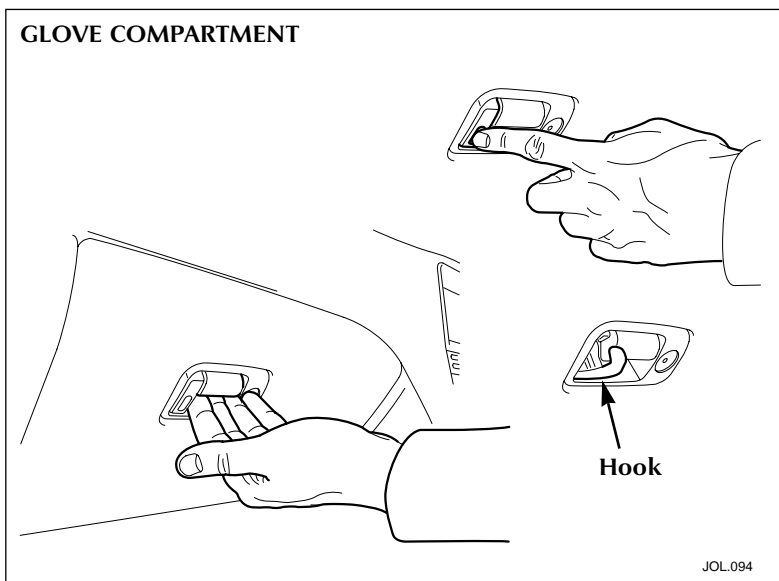


### Coin Holder

A coin holder is located beneath the audio system control panel.

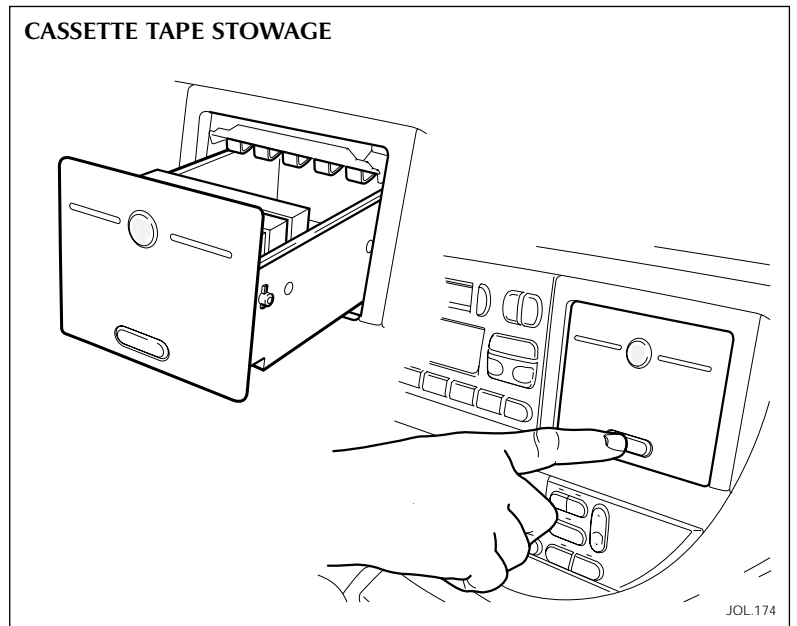
### Glove Compartment

A glove compartment is located below the passenger's airbag. Stowage is provided for the Driver's Literature Pack. A CD autochanger can be fitted within the glovebox as an option. The glovebox lid, when opened, has a pen holder and a location for a cup. A hook for holding small items forms part of the handle.



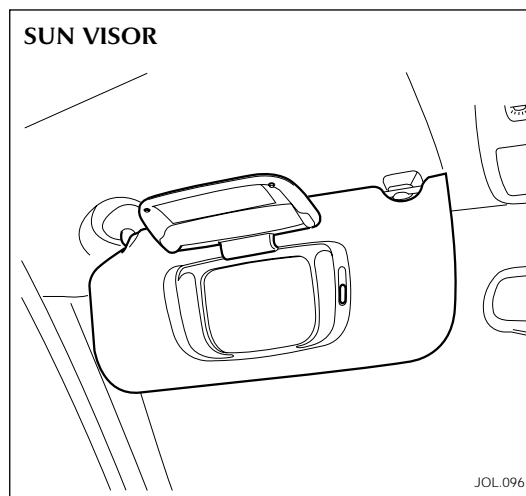
**Cassette Tape Stowage (when fitted)**

A cassette tape stowage tray is located beside the audio system control panel.

**Sun Visor and Vanity Mirror**

The sun visors can be swung downwards or unclipped and swung sideways.

Both sun visors are fitted with illuminated vanity mirrors, behind a hinged flap. The light comes on when the flap is lifted. Lamp brightness can be adjusted using the slider switch adjacent to the mirror.



## Seatbelts

### Front Seatbelts and Pre-tensioners

The front seatbelts are of the inertia reel type with integral pre-tensioners and torsion bar load limiters fitted to the reel assemblies. The lower anchorage and buckle strap are mounted on the moving seat slides to maintain optimum belt geometry. The shoulder anchorage is fixed to the B post via a four position height adjuster. An automatic locking retractor (ALR) is incorporated in the passenger belt reel assembly to provide child seat security.

A compact type of pre-tensioner is fitted to the front seatbelt reel assemblies. The reduced size is achieved by the use of rack and pinion gearing to retract the seatbelt reel when the unit is fired. The initiator is a conventional pyrotechnic device which is electrically triggered from the Restraints Control Module (RCM).

Fault diagnosis of the pre-tensioner firing circuits is carried out by the RCM and the presence of a fault is indicated by the airbag warning lamp (see Diagnostics).

The pre-tensioner is an integral part of the seatbelt assembly and is not serviceable. Normal safety procedures applicable to the handling of pyrotechnic devices must be followed.

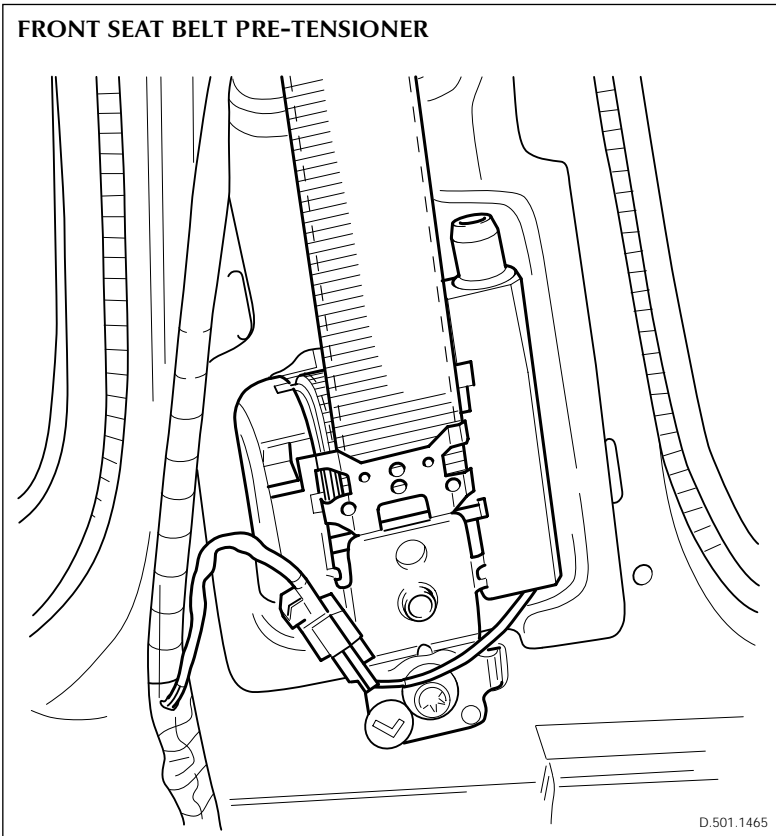
Note that plastic belt guides are fitted to the B posts: if the pre-tensioners are fired, these guides will fracture.

### Rear Seatbelts

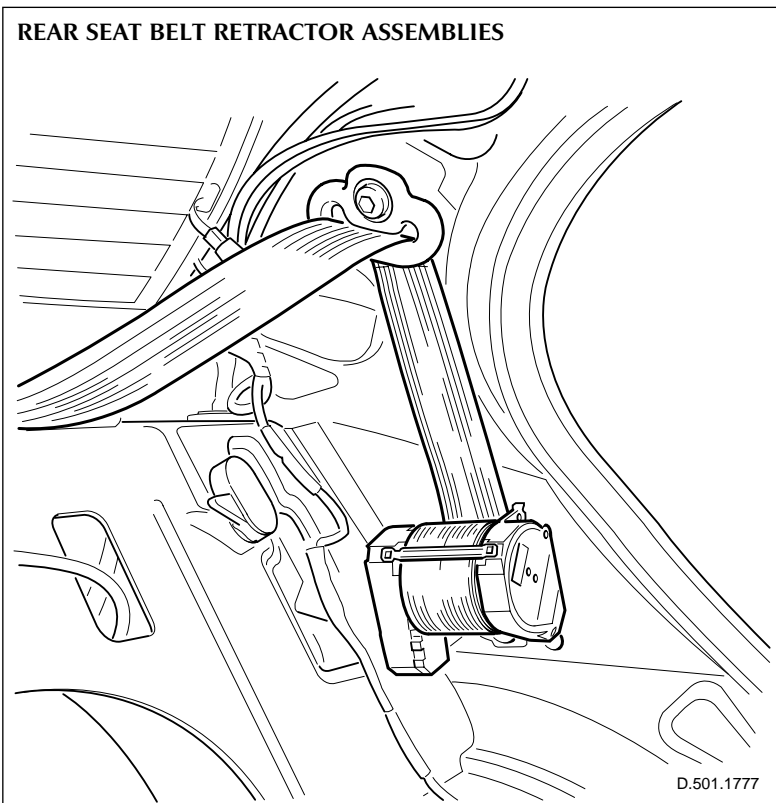
All three rear seatbelts are of the inertia reel type with child seat automatic locking retractors.

The two outboard retractor assemblies are mounted on the rear quarter panels. The centre retractor is reverse wound and mounted in a recess on the rear parcel shelf.

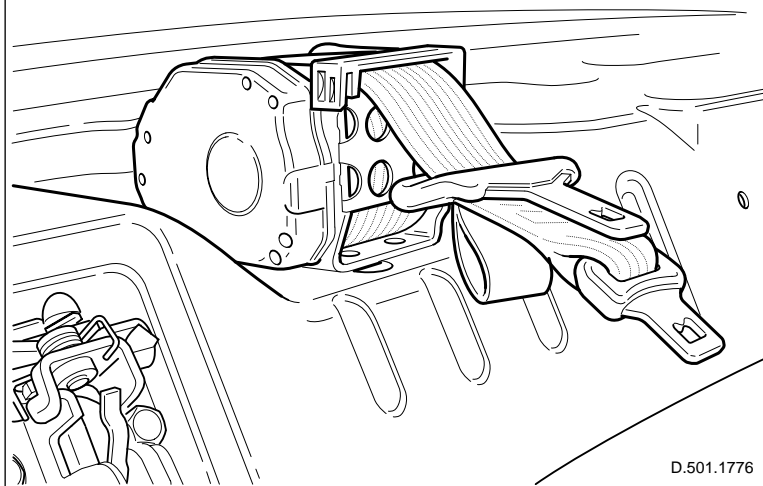
FRONT SEAT BELT PRE-TENSIONER



REAR SEAT BELT RETRACTOR ASSEMBLIES



CENTER REAR SEAT BELT RETRACTOR ASSEMBLIES



D.501.1776

## Airbags

### Driver Airbag

The driver airbag module is fitted in the centre of the steering wheel and is of conventional design. A reduced charge propellant ('de-powered') is used to minimise impact effects where the driver is seated close to the wheel.

The module is secured by two side screws on the left and right underside of the steering wheel.

### Passenger Airbag

#### WARNING:

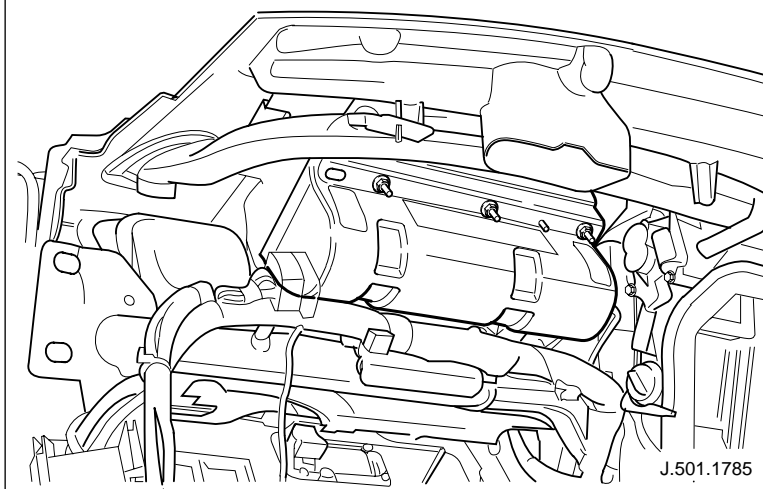
**Do not place objects on the passenger airbag deployment panel. Injury could occur if the airbag contacts an object during inflation.**

The passenger airbag uses a heated gas inflator (HGI) system instead of a solid propellant. This system is inherently 'clean' since the inflation gas is a lean hydrogen/air mixture and the by-products are water vapour and air. Although the gas is not classified as an explosive, the possible effects of accidental deployment when handling or working close to the unit are similar to those of other types of airbag. It is recommended that current safety procedures are also followed when handling the HGI modules.

The HGI airbag module has fewer components than previous types, consisting of:

- 140 litre bag

PASSENGER AIRBAG



J.501.1785

- Aluminium pressure vessel containing a mixture of 12% hydrogen/88% air at a pressure of 180 bar.
- Pressure vessel end plug with burst disc.
- Pyrotechnic igniter assembly fitted to pressure vessel end plug.

The igniter is electrically triggered from the Restraints Control Module (RCM). When triggered, the igniter fires a high speed 'dart' along the length of the pressurised cylinder, producing a heated trail (due to friction) which causes rapid and even combustion of the gas throughout the cylinder. The igniter also ruptures the burst disc in the end plug, allowing the expanding gases from

the pressure vessel to inflate the airbag. The airbag is a top mounted assembly and deploys in an upwards direction, climbing the windshield before folding downwards. After deployment, the bag deflates through two vents.

The airbag deployment door is an integral part of the top fascia moulding. The airbag module is bolted to the underside of the fascia via a steel deployment chute and is also bolted to two brackets on the tubular cross car beam which supports the fascia assembly.

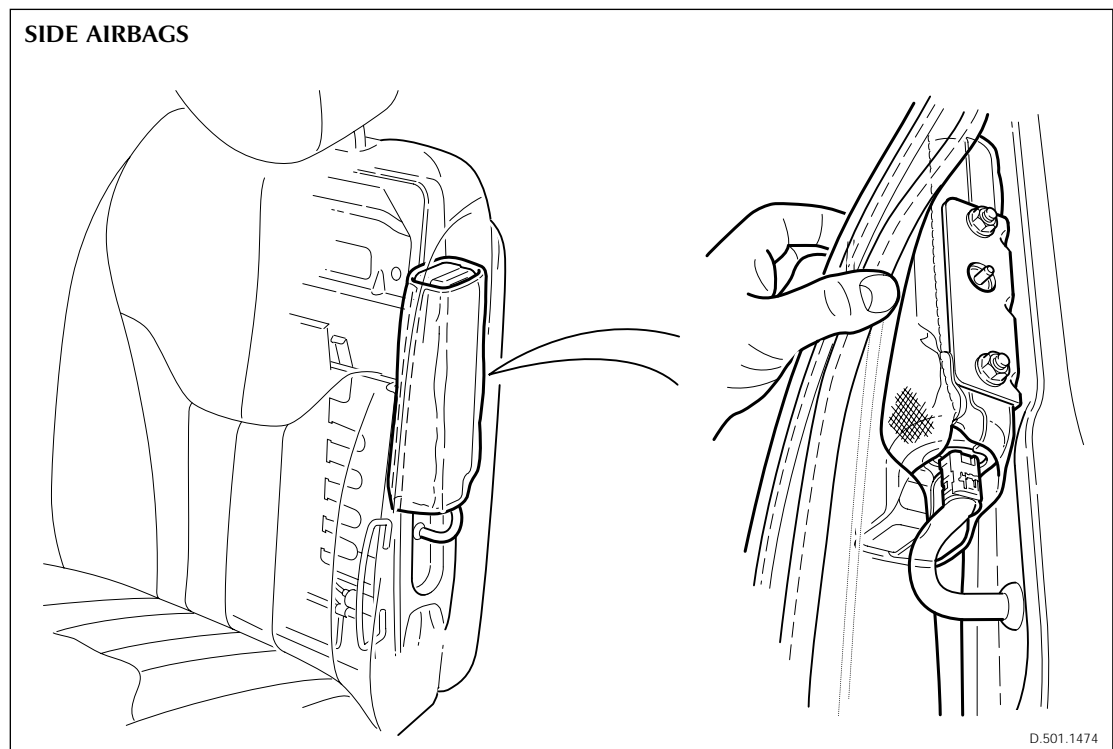
**Note:** The module is not handed. To access the airbag module, the complete fascia assembly must be removed.

## Side Airbag

Side airbags are incorporated into the driver and front passenger seat squabs and are similar to those fitted to the XJ Series, using compressed argon to provide the inflation gas. The bag has a capacity of 19 litres and provides protection to both the head and chest regions.

The side airbag module is fixed to the outer seat frame and is located within a fabric deployment pocket. The pocket is stitched to the seat cover seam and when the module is triggered, this length of seam bursts to provide the deployment exit for the airbag.

If a damaged seat cover is to be replaced, the side airbag module must be removed and re-located in the deployment pocket of the new seat cover. The complete seat must be replaced if the airbag has been deployed.



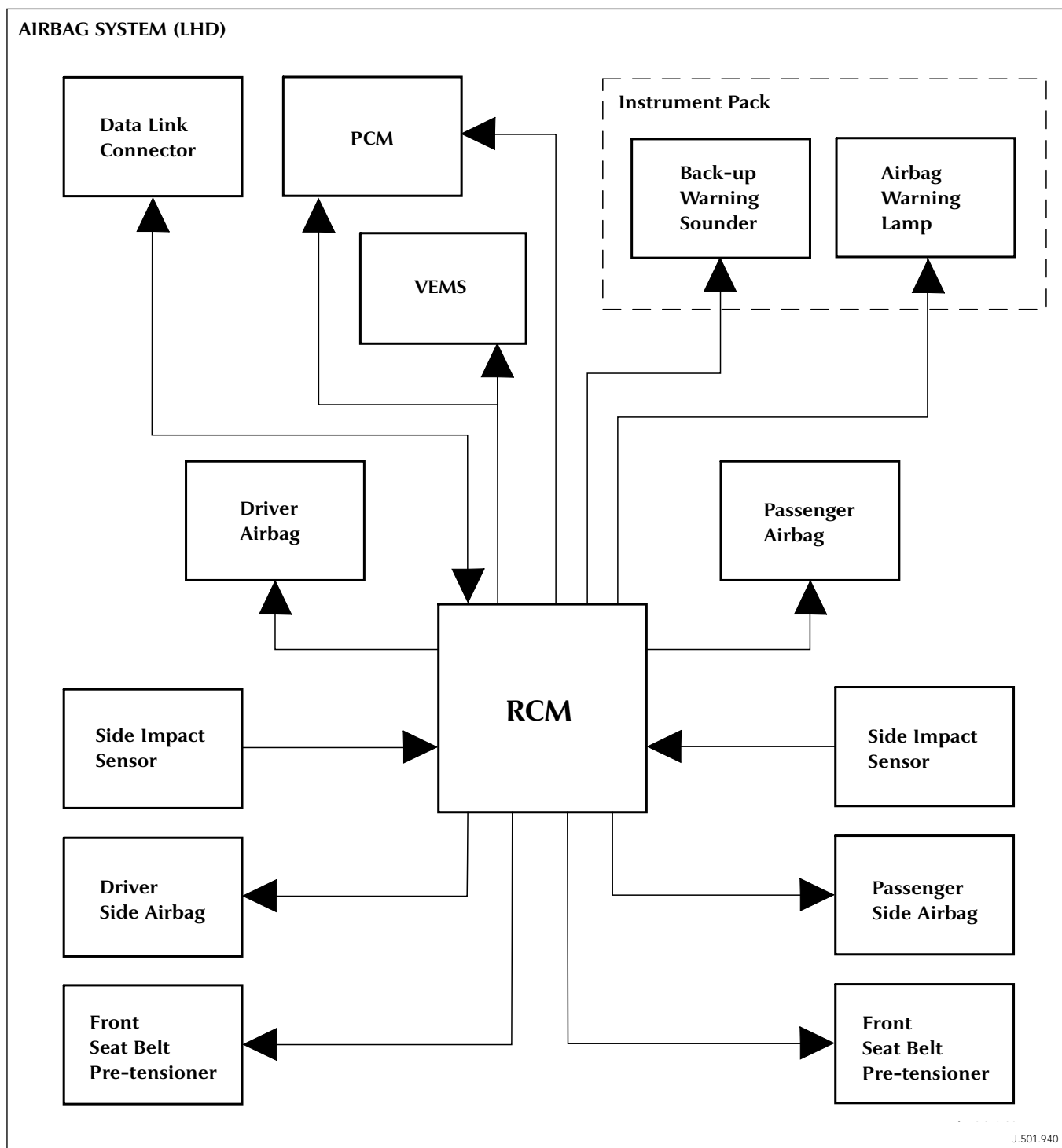
D.501.1474

## SRS Operation

The Supplementary Restraints System (SRS) provides impact sensing, control of deployment and fault diagnosis of the control module, airbags, pretensioners and associated circuits. Most of these functions are carried out by the Restraints Control Module (RCM).

A front impact triggers the driver and passenger airbags and both pre-tensioners provided the impact is above a set threshold as detected by the two longitudinal sensors in the RCM.

When a side impact occurs, the lateral sensing sensor in the RCM must also agree with an impact





detection signal received from either the LH or RH Side Impact Sensor in order to deploy the corresponding airbag.

**Note:** An impact at an oblique angle may cause both frontal and side airbags to deploy, depending on how much lateral acceleration is sensed.

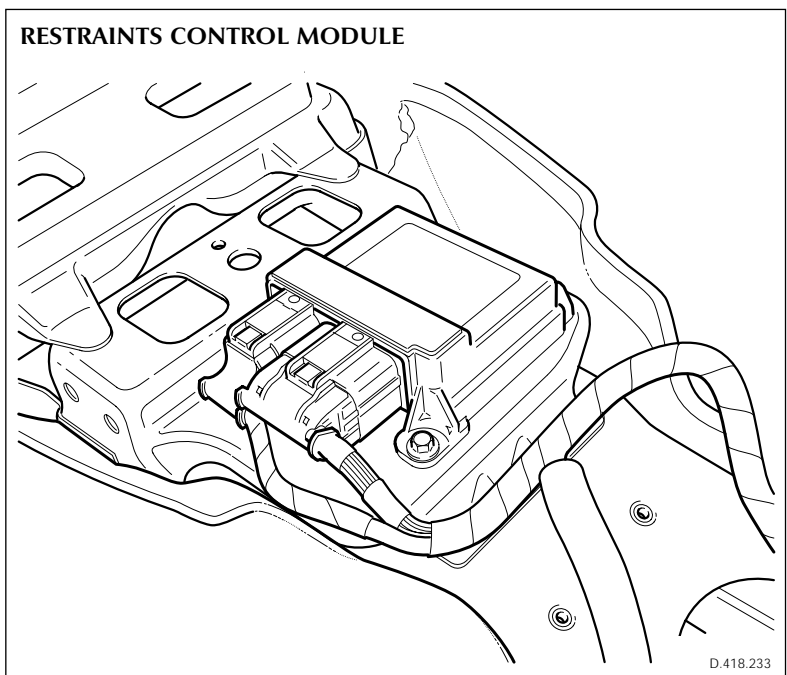
### Restraints Control Module (RCM)

The RCM:

- Houses the electro-mechanical safing sensor and electronic discrimination sensor which detect a frontal impact.
- Houses the electronic safing sensor to detect a side impact.
- Identifies severity and direction of impact and makes decision on deployment of airbags and pre-tensioners.
- Provides firing signals to all airbags and pre-tensioners.
- Performs on board testing of the airbag and pretensioner firing circuits, warning indicator circuits and module status (Side Impact Sensor performs its own internal checks).
- Stores fault codes in non-volatile memory.
- Drives the airbag warning lamp on the instrument pack: if the warning lamp is faulty (fault code recorded) an audible warning tone is sounded.
- In the event of an impact, sends a signal to the vehicle emergency message system (VEMS) and the PCM to indicate that a crash has occurred.
- Is connected to the data link connector via the SCP data bus to enable communication with an external PDU or scan tool.
- Provides temporary back-up power to operate the airbags in the event of loss of battery supply in an impact.
- In the event of an impact, records certain data for subsequent access via the data link connector. This data includes deceleration information, firing delay and fault codes.

The RCM is bolted to the top of the driveshaft tunnel below the center stack. Due to the importance of the module being securely fixed to the vehicle body, the ground connection is made via the fixing bolts and is monitored by the diagnostic system. A bad connection causes a fault code to be generated.

**Note:** The torque settings are safety critical and the figures given in the JTIS Service instructions must be adhered to.



### Side Impact Sensor

The side impact sensors are mounted on brackets attached to each inner sill.

The side impact sensor contains an electronic discriminator sensor which detects side impacts above a set threshold and signals a deployment request to the RCM. Bag deployment only occurs if the side safing sensor in the RCM has also detected an impact.

The side impact sensor monitors its own internal state, including correct ground connection, and sends a regular 'heartbeat' signal to the RCM indicating that it is functioning correctly and is available.

A 2 wire cable is connected between the RCM and the side impact sensor. The cable has a dual function, supplying power to the side impact sensor and transmitting digital data to the RCM.

### Diagnostics

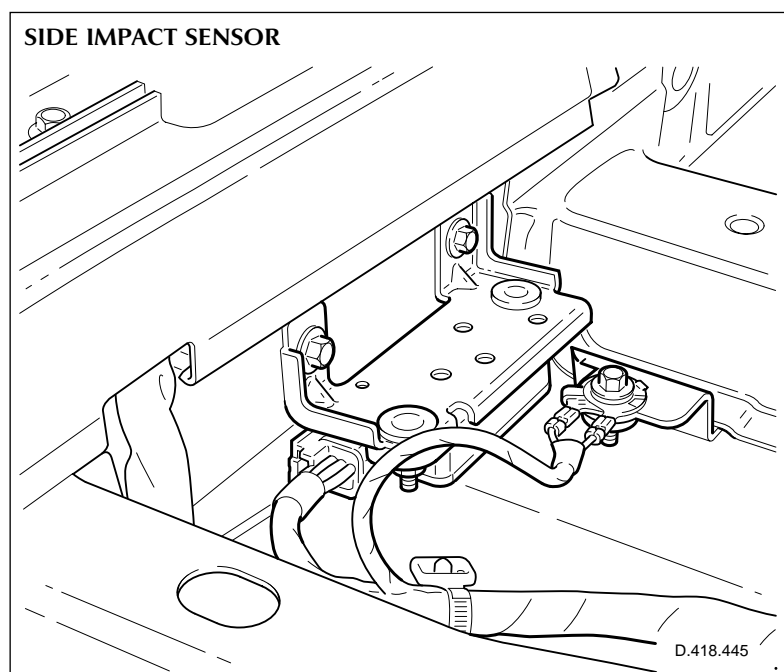
The restraints control module (RCM) performs all SRS diagnostics except those relating to the side impact sensor internal faults and grounding faults. When the ignition is switched on, the RCM carries out a system 'prove out' over an 8 second period during which the airbag warning lamp on the instrument pack is lit for the first 6 seconds. During the prove out period all circuits connected to the RCM are tested and also the state of the RCM and side impact sensors (including ground resistance and supply voltage).

If no faults are detected, the airbag warning lamp remains off after the 8 second period.

If a fault is detected the warning lamp flashes a two digit code five times and then remains lit until the ignition is switched off. This is repeated on each ignition cycle until the fault is cleared. Fault codes are allocated a priority and if more than one fault is stored in the RCM memory, the highest priority fault is flashed. When this fault is rectified, the next priority fault is indicated.

If the warning lamp itself is inoperative, the RCM stores a fault code but no other action occurs. If a system fault occurs when the lamp is inoperative, a five 'bleep' audible warning is sounded five times with 5 second intervals. The audible warning is repeated every 30 minutes and on subsequent ignition cycles until the fault is cleared.

If no faults are found during the system prove out period the RCM continues to test the SRS system during the remainder of the ignition cycle.



Fault diagnosis of the side impact sensor is normally carried out using the portable diagnostic unit (PDU). Where the PDU is not available, the flashing code on the airbag warning lamp indicates the likely circuit or component fault.

## Introduction

The fuel tank components, operation and layout are new to Jaguar and have no commonality with previous systems. The major features of the fuel delivery system are the use of a saddle type tank and a returnless fuel system. The evaporative loss management system is similar in operation to that fitted to the XJ and XK Series vehicles and on-board refuelling vapour recovery (ORVR) is a standard feature. For NAS markets only, leak test diagnostics are performed.

### Returnless Fuel System

The returnless fuel system delivers the correct amount of fuel to the engine under all conditions and at a constant pressure differential with respect to manifold pressure. This is without the need for a return line to the tank or a fuel rail pressure regulator. The use of a return line and the pressure drop across a regulator contribute to vapour formation which can affect fuelling calibration and requires a complex vapour management system to meet legislative requirements. Elimination of these components,

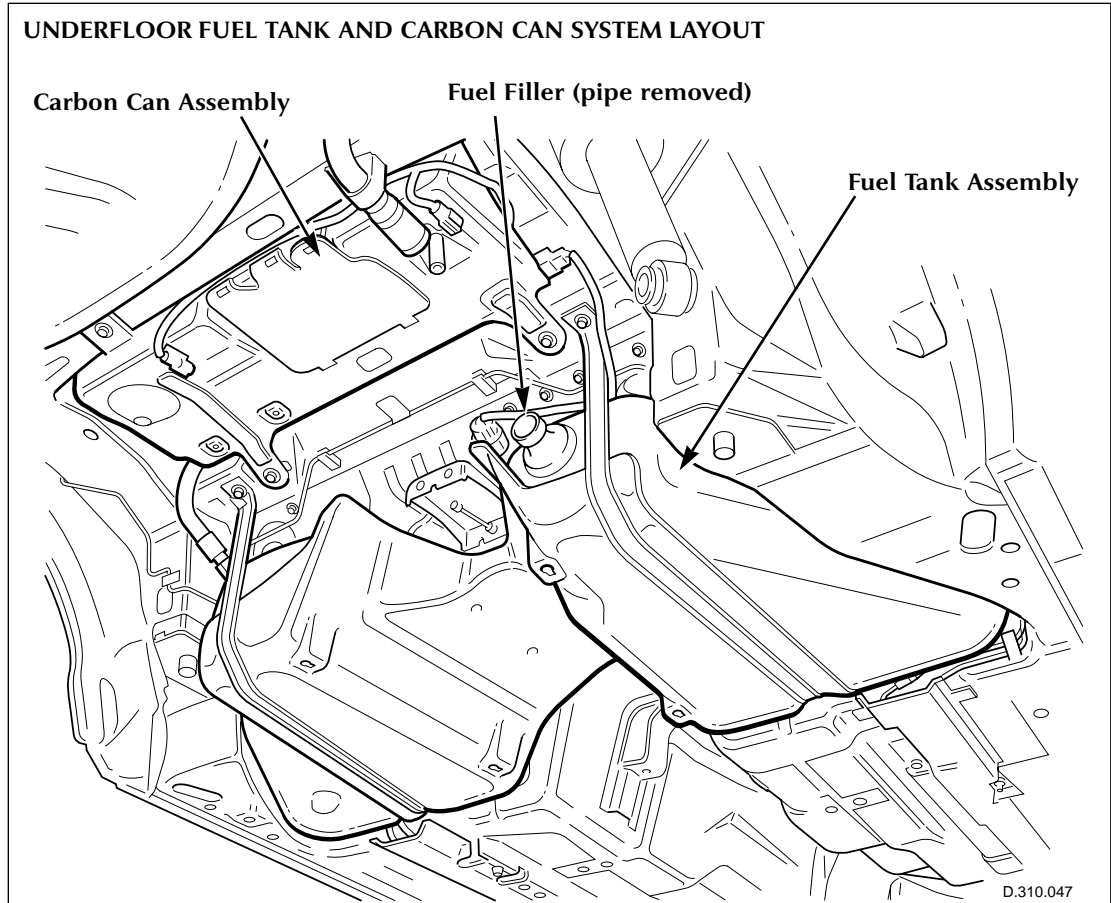
together with closed loop control of the variable speed fuel pump, causes a reduction in the vapour generated, lower fuel temperatures and better fuel pressure control. Additional advantages include a reduced load on the electrical system and improved fuel economy.

### Fuel Tank

The fuel tank is of the 'saddle' type shape with LH and RH fuel compartments and is constructed of high density polyethylene (HDPE), a plastic blow moulded material. The tank is located below the rear passenger seat with the drive shaft and exhaust running through the arch of the tank. The underside of the tank is protected by a fitted heat shield and the tank assembly is retained by two metal straps which are fixed to the underbody at the front by removeable hinge pins and at the rear by bolts.

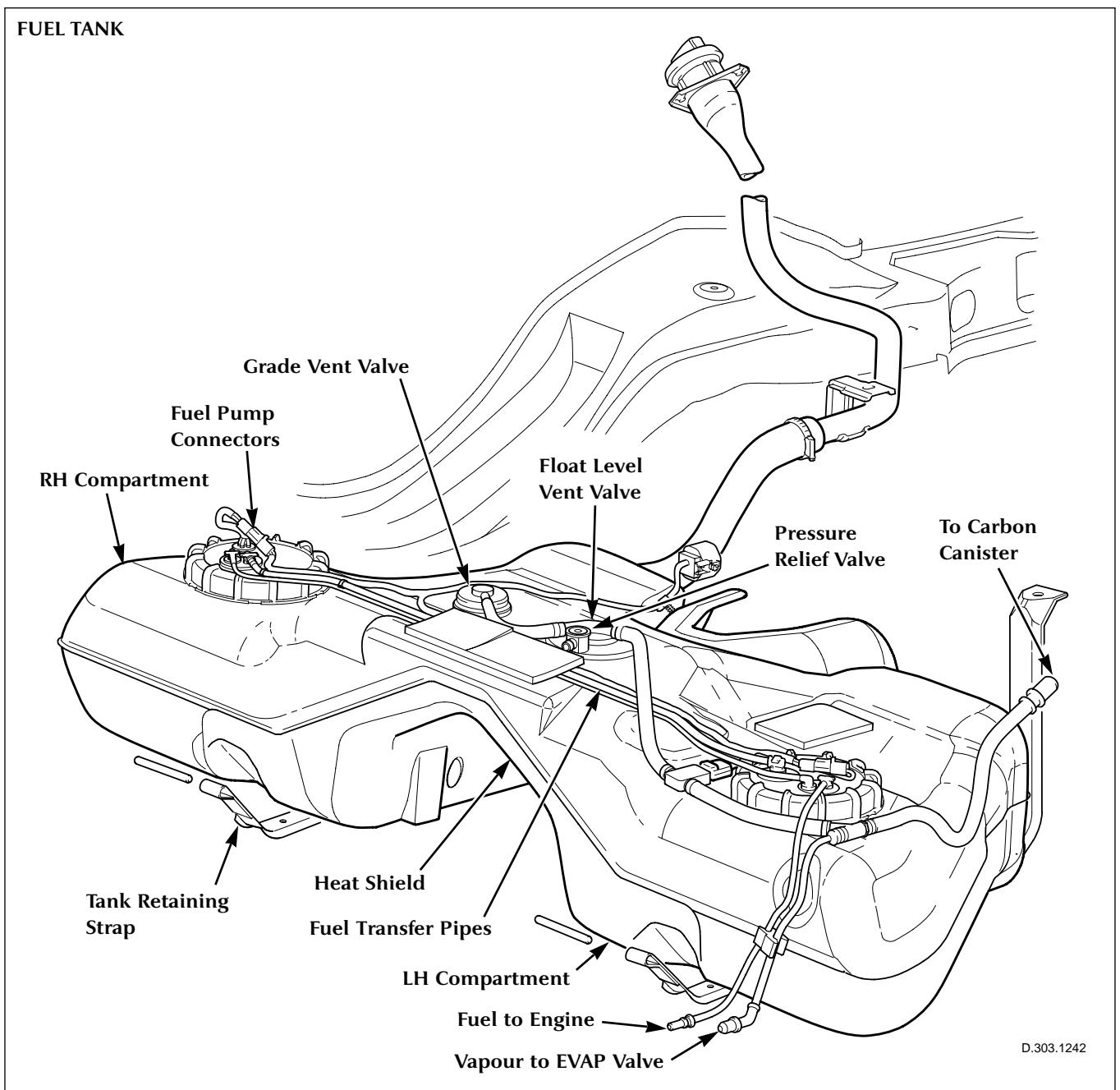
Refuelling is via a separate filler pipe and connecting hose to a stub pipe on the RH fuel compartment.

A fuel pump module is located in the RH



compartment and a transfer module in the LH compartment with external cross-over pipes for fuel transfer between the compartments. Both module assemblies have integral top plates for external pipework and electrical connectors. These are secured in the tank using screw on plastic closure rings. The closure rings are accessible from inside the vehicle via two access holes in the floor panel below the rear seat. Due to the confined working space and the possibility

of fuel spillage within the vehicle, it is advisable to remove the tank completely before attempting to remove the internal assemblies.



**Fuel Flow**

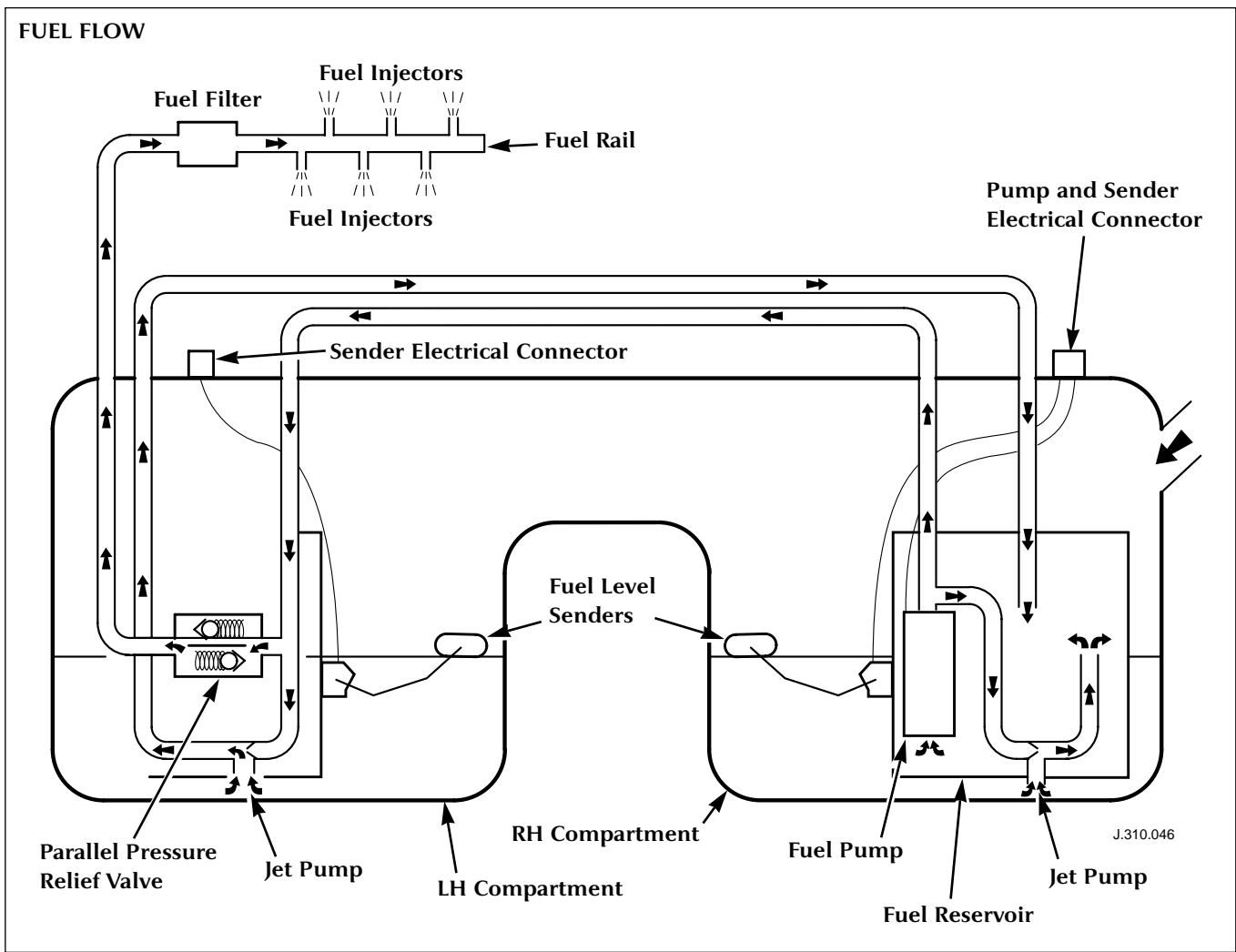
The variable speed fuel pump is contained in a fuel reservoir in the RH module assembly. Fuel is pumped from the reservoir through an external cross-over pipe to the LH compartment where it flows via a T junction to the parallel pressure relief valve and then out to the engine fuel rail. The reservoir is maintained by fuel supplied by jet pumps in the LH and RH compartments. Pressurised fuel from the variable speed pump is forced through the small jet nozzles (diameter 0.5mm) creating a suction which draws fuel up from the tank. From the LH tank, this fuel is pumped through an external cross-over pipe and then into the reservoir. In the RH tank, the jet pump is located in the base of the reservoir. The parallel pressure relief valve assembly contains two spring loaded valves which operate in opposite directions, a fuel rail feed valve which

opens at approximately 2 psi during normal operation and a second valve which opens at approximately 45-70 psi to relieve excessive rail pressure.

The main functions of the valves are:

- To help engine starting by retaining fuel in the supply lines and rail.
- To limit rail pressure due to temporary vapour increase during hot soak conditions (temperature and thus pressure drop after approximately 20 minutes).
- To limit rail pressure caused by sudden load changes such as a full to closed throttle transition.
- To prevent siphoning from the tank in the event of the fuel line being severed with the pump inactive.

Each side of the tank has an independently



operating fuel level sender assembly mounted on the respective module assembly.

## Control and Operation

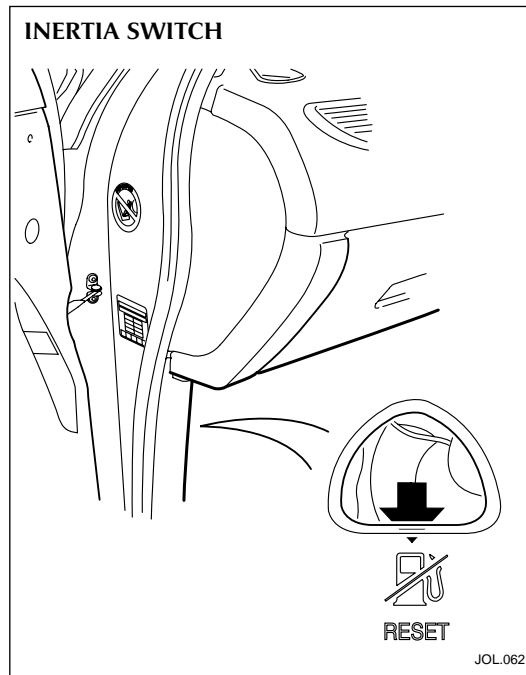
The speed of the fuel pump is varied under closed loop control so as to deliver the required fuel rail injection pressure in accordance with factors such as driver demand, manifold pressure and temperature changes. The control loop sensors, providing feedback information to the powertrain control module (PCM), are the engine fuel temperature (EFT) sensor and the injection pressure (IP) sensor which are both mounted directly on the engine fuel rail (see S-TYPE Powertrain Technical Guide). The IP sensor also has a vacuum feed from the intake manifold so as to measure the pressure differential.

The required fuel flow is determined by the PCM and sent to the rear electronic control module (RECM) which is the power driver for the fuel pump. The PCM demand to the RECM is a pulse width modulated (PWM) signal over a single line at a frequency of approximately 256 Hz and a duty cycle of 0-50%. The RECM effectively amplifies this signal by increasing the frequency by 64 and doubling the duty cycle, thus providing the necessary high current drive for the fuel pump. The fuel pump relay, located in the rear power distribution box, is energised by the PCM relay and provides a dedicated fused supply to the RECM for the pump drive.

When the ignition switch is turned from OFF to RUN or START, the PCM primes the system by running the pump for 1 second at full speed. The pump is switched off 1 second after the engine is stopped. During hot starts, fuel pressure is increased to prevent vapour lock.

Fuel pump drive status is monitored by the RECM and communicated to the PCM via the SCP network.

Outputs from the fuel senders are connected by independent wires to the RECM which sends the data to the instrument pack and the PCM.



## Inertia Switch

The inertia switch is located behind the trim on the left side of the vehicle, forward of the front door post and below the fascia. A finger access hole in the trim allows the switch to be reset.

## Evaporative Emissions System

The function and operation of the on-board refueling vapor recovery (ORVR) evaporative emissions system are similar to the system fitted to the XJ and XK Series vehicles in NAS markets but use different components. For the S-TYPE the system is fitted as standard for all markets.

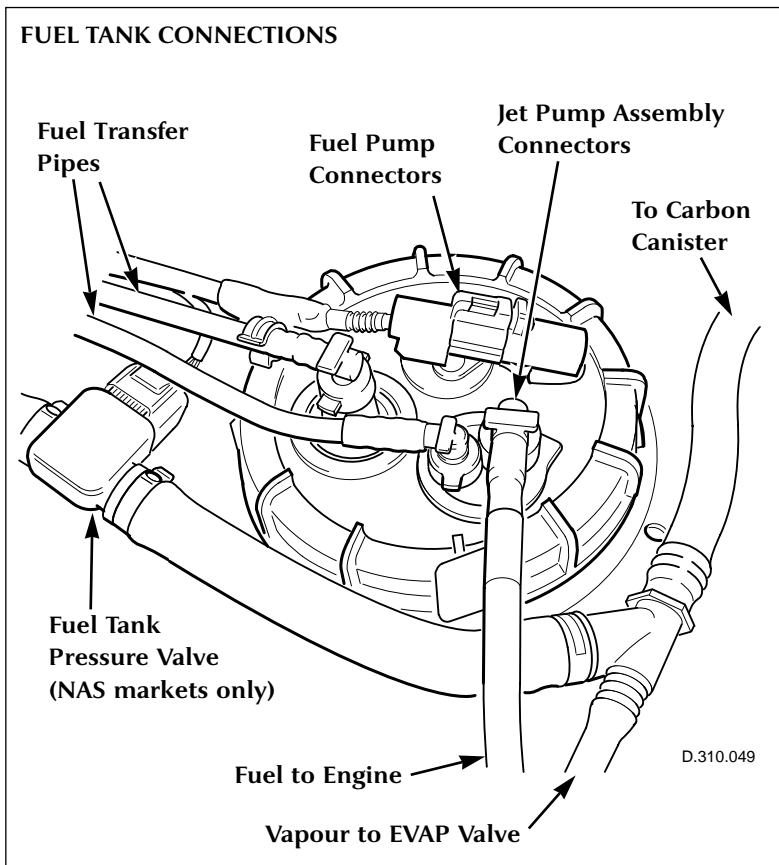
### Fuel Tank Components

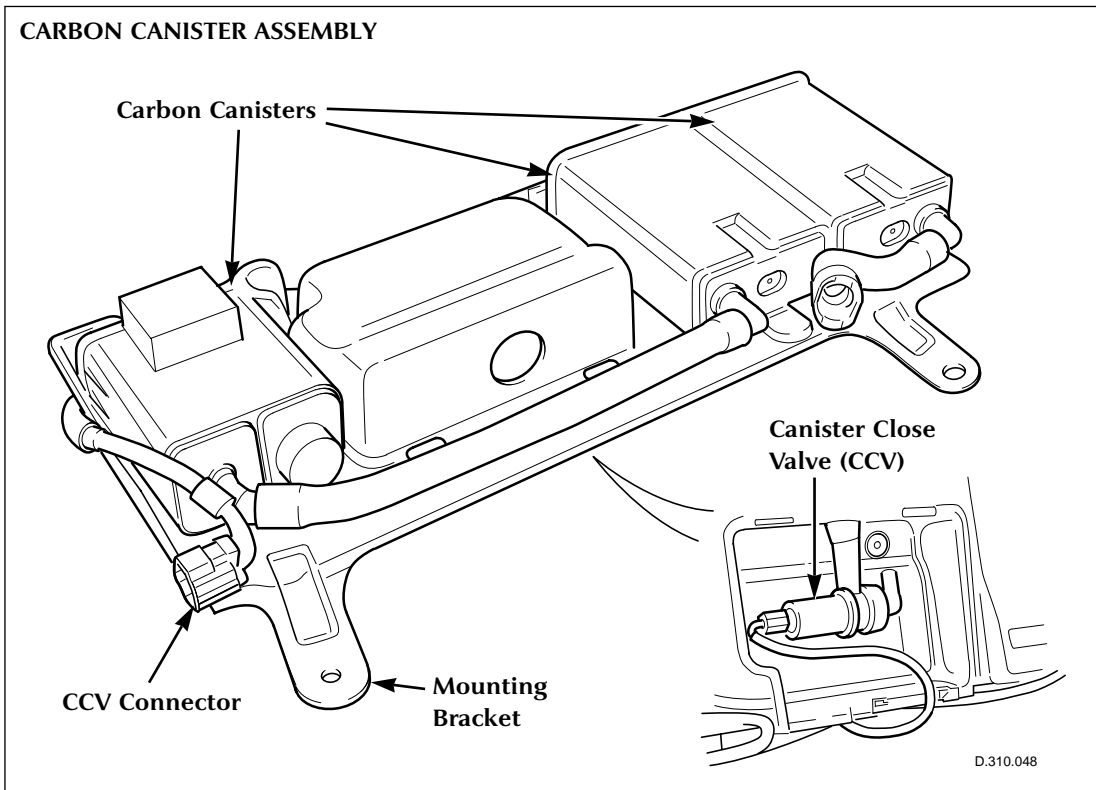
To meet ORVR evaporative emission requirements, the tank and associated components are designed to minimise vapour losses. During re-fuelling, the narrowed fuel filler tube below the nozzle region provides a liquid

seal against the escape of vapour and a check valve in the tank inlet pipe opens to incoming fuel only to prevent splashback. As the tank fills, vapour escapes through the open float level vent valve, at the top of the tank, and passes through the adsorption canisters to atmosphere. When the rising fuel level closes the float valve, the resulting back pressure causes refuelling cut-off. While the float valve is closed, any further rise in vapour pressure is relieved by the grade vent valve which connects to the canisters via the outlet of the float valve. At less than full tank level, the float valve is always open, providing an unrestricted vapour outlet to the canisters.

If the tank is over filled (eg a fault in the delivery system) an integral pressure relief valve in the float valve assembly opens to provide a direct vent to atmosphere.

The float level vent valve/pressure relief valve assembly and the grade valve are welded to the tank top and are non-serviceable. Note that both valve assemblies incorporate roll-over protection. The fuel filler cap uses a 1/8 turn action and is tethered to the body. The filler cap assembly incorporates both pressure relief and vacuum relief valves (the latter is a new feature to Jaguar).



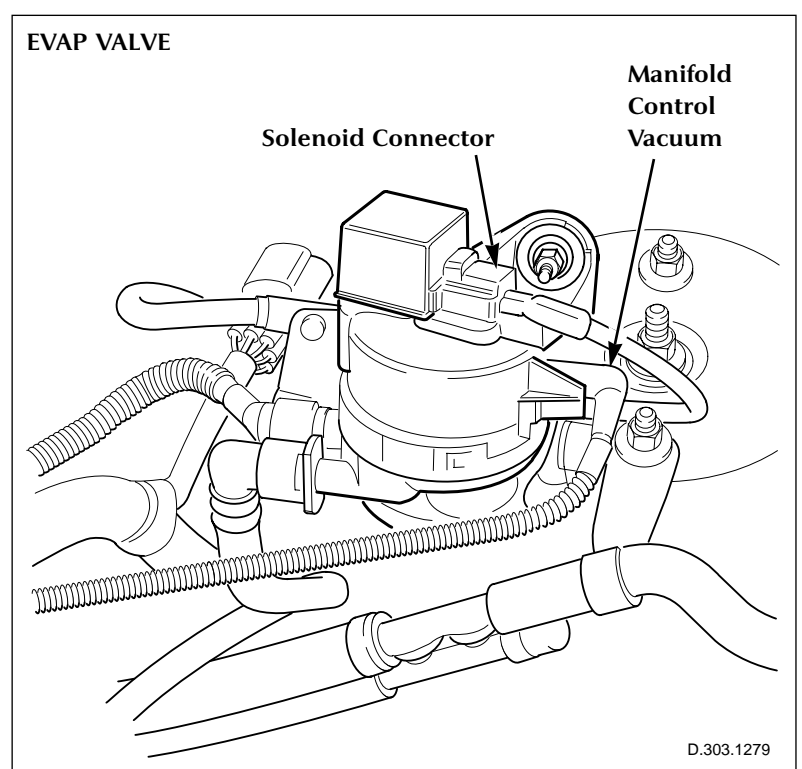


### Carbon Canister Assembly

Three series connected carbon canisters are used for vapour storage and are mounted on a plastic bracket fixed to the underbody above the rear axle. For Federal markets only, where there is a requirement for leak test diagnostics, a canister vent valve (CC valve) is also mounted on the canister bracket and a fuel tank pressure (FTP) sensor is fitted to the vapour pipe.

### Evaporative Purge Valve

The EVAP valve is mounted on the rear lefthand side of the engine bay. The valve is different to XK/XJ Series types but is controlled in a similar way by a PWM signal and manifold vacuum.





## Introduction

The exhaust systems for the V6 and V8 engines are similar, with minor tuning differences to allow for the particular flow resistance requirements and engine characteristics. The complete system is constructed of 409 stainless steel and consists of five main components, the two downpipe catalyst assemblies, the resonator and pipework assembly and the two mufflers. Brushed stainless steel end pipes are fitted.

### Downpipe Assembly

Different catalysts are fitted to the two engines:

- the V8 engine has two 44in<sup>3</sup> bricks in each downpipe assembly, each with 470 cells per square inch
- the V6 engine has two 44in<sup>3</sup> bricks in each downpipe assembly, the front brick having 350 cells and the rear brick 470 cells per square inch.

### Resonator Assembly

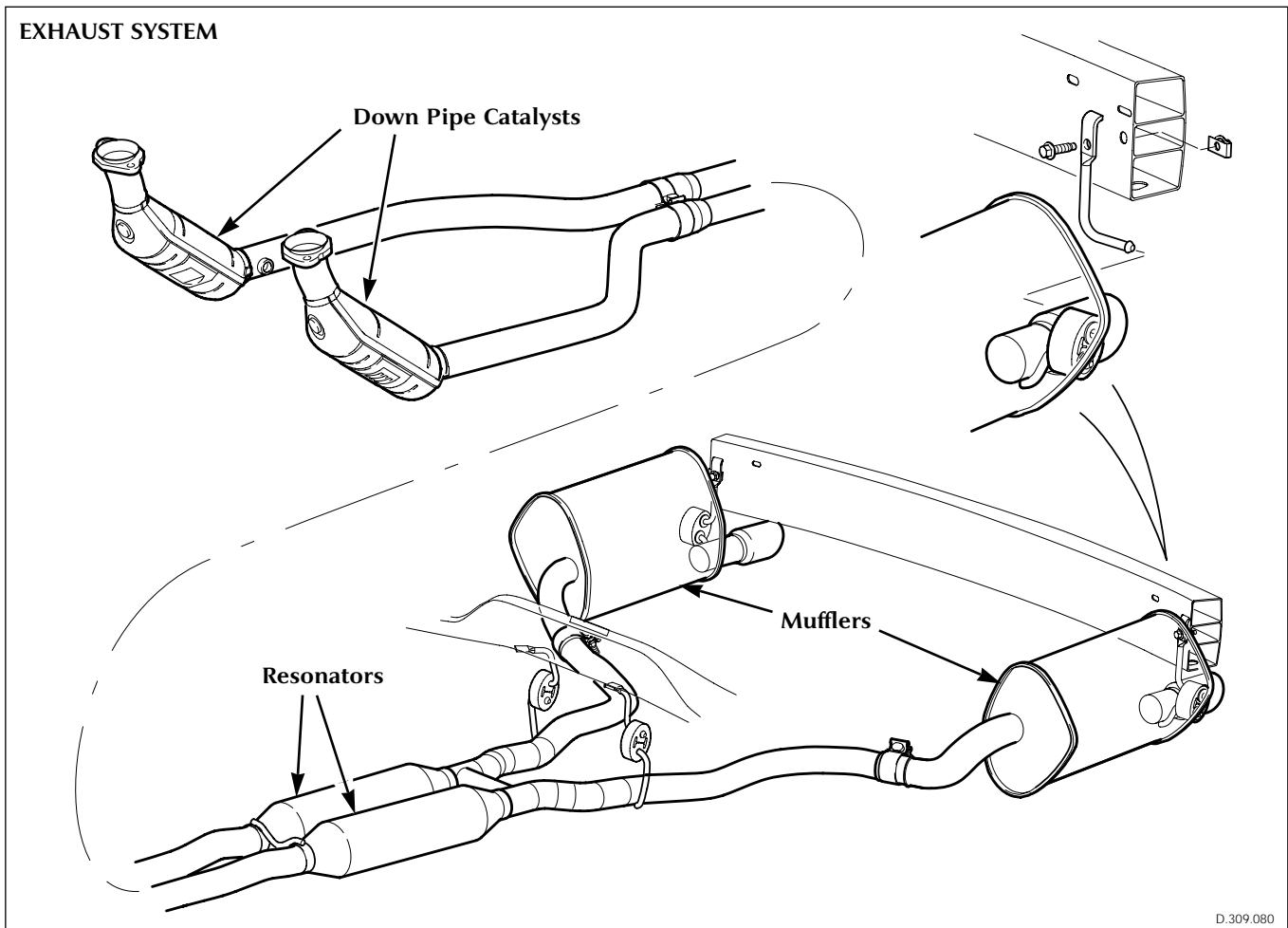
The resonator assembly is common to both engines.

### Rear Mufflers

The internal parts of the rear mufflers are different between the two engines and are designed to produce different quality sounds.

### Support and Couplings

The downpipe catalyst assemblies mate to the exhaust manifold via a two bolt self sealing flange. The resonator assembly connects to the downpipes and rear mufflers by Torca clamps. The system is supported by two isolator rubbers between the resonator boxes and the rear subframe and two isolators at the tailpipe end of the mufflers.



## Introduction

The automatic and manual transmission units are described in the 'S-TYPE Sports Sedan Powertrain Introduction' Technical Guide.

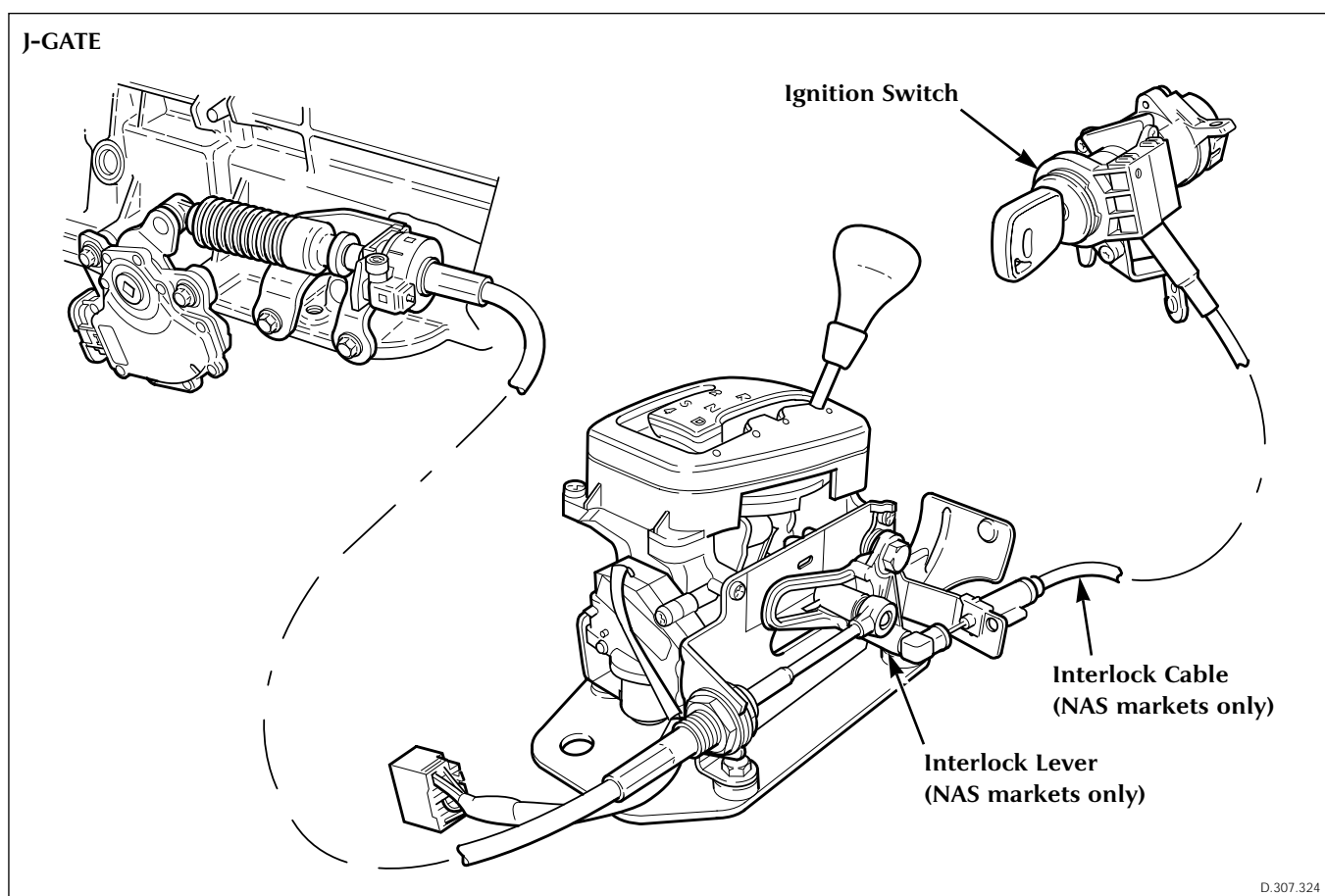
### J-Gate

The J-gate assembly is mounted on the transmission tunnel by four bolts and has a similar operating mechanism to the XJ/XK Series vehicles. The selector gate positions are, P-R-N-D on one side of the 'J' and manual gear positions 4-3-2 on the other side. Movement of the gear selector lever up and down these positions is transmitted mechanically to a cable assembly which then rotates the digital range switch on the side of the automatic transmission housing (see 'S-TYPE Powertrain Introduction' Technical Guide). Movement across the gate between D and 4 operates an electrical switch (without cable movement).

In the P position with the ignition off, the gear selector lever is locked by a solenoid plunger which inhibits a lock plate fixed to the selector mechanism. When the ignition is switched on,

pressing the brake pedal energises the solenoid and releases the lock plate, allowing the selector lever to be moved from the P position.

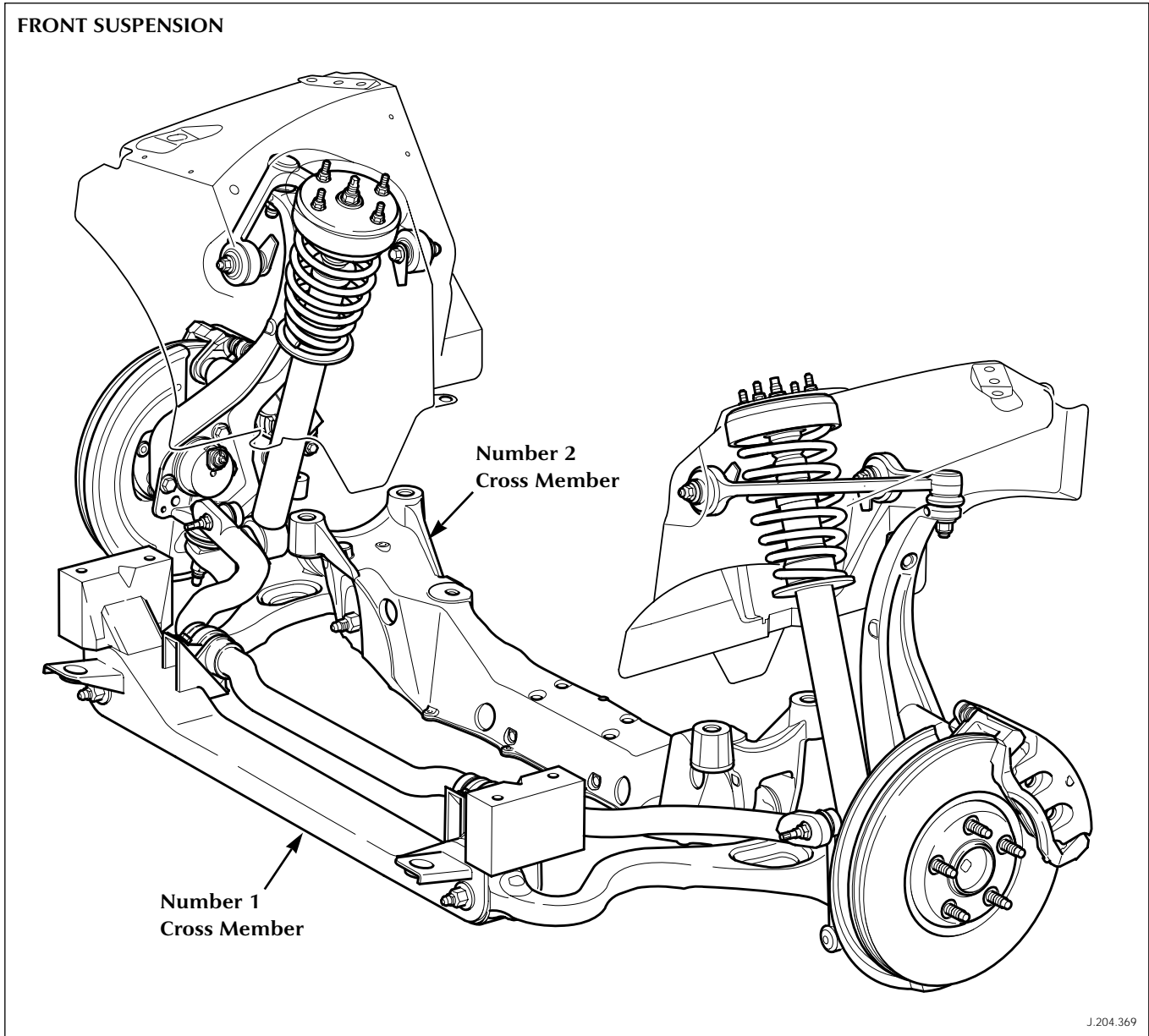
For NAS markets only, the J-gate slider actuator is linked to the ignition switch barrel to provide a mechanical interlock. The interlock lever and cable are driven by the J-gate slider to operate a locking plunger in the ignition barrel. If the gear selector lever is in any position other than P, the ignition key cannot be removed. Note when servicing, that the interlock cable adjustment is critical and the JTIS service instructions must be followed. Where the interlock function is not fitted, the interlock lever is retained without the operating cable.



### Introduction

The Jaguar S-TYPE has an all-new suspension, designed with traditional Jaguar refinement but with an added sporty feel for the driver. Both front and rear suspensions have double wishbone construction with the front having a high balljoint. Jaguar's Computer Active Technology Suspension (CATS), is offered as an optional fit to further enhance the vehicle ride and handling quality. The suspension arrangement offers a standard set-up for most markets. The front and rear control arms are set at angles to counteract dive when braking and squat when accelerating, giving a stable platform under most conditions. It is vitally

important that before removing either of the front cross members or the rear axle cross members, the vehicle body and the component being removed are marked to ensure correct realignment during assembly. The Jaguar S-TYPE body-in-white fixings have a greater clearance than previous Jaguar cars so require this extra special care with alignment on re-assembly. Vibration and ride and handling concerns may arise if alignment is not maintained.



## Front Suspension

The independent front wheel suspension is a double wishbone axle arrangement with aluminium control arms. The two arms are of different lengths, which minimises the changes in track and camber. Inclination of the upper control arm axis provides anti-dive front suspension action. There are two front cross members, known as Number 1 and Number 2.

Number 1, the forward cross member, is a steel fabrication, non-isolated, which locates the lower control arm front mounting, the anti-roll bar and the cooling module.

The rear cross member, Number 2, is an aluminium casting, non-isolated and it locates the lower control arm rear mounting, the power steering rack and the engine hydro-mounts.

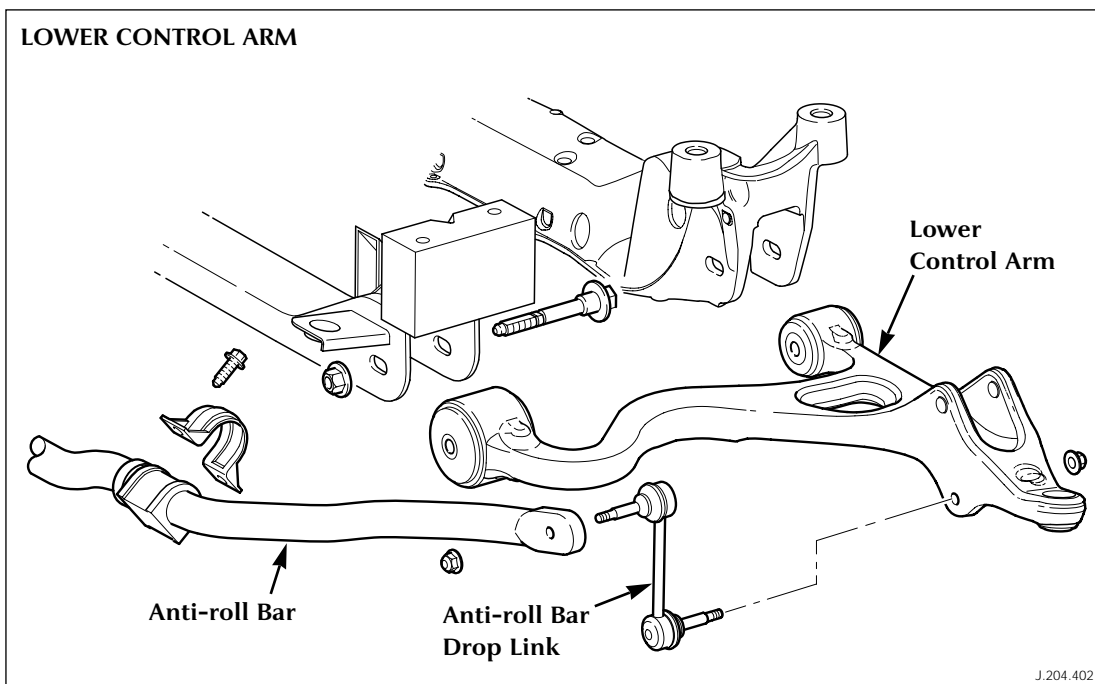
**WARNING: No attempt must be made to weld or repair the aluminium cross member. If it is damaged, a new one must be installed.**

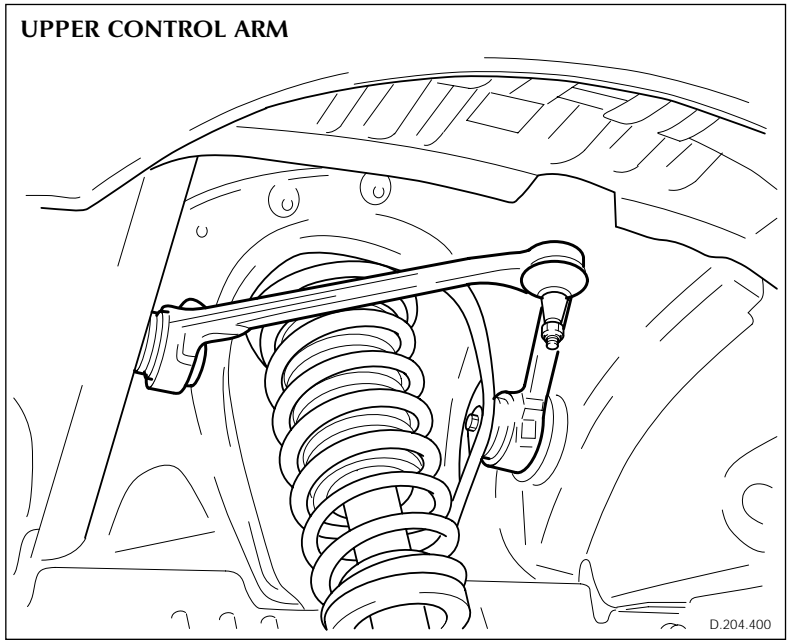
### Lower Control Arm

The lower control arm is an aluminium forging and has locations for the damper and the anti-roll bar drop link. It is mounted with one hydro-bush, the front lower bush, and one rubber bush, both serviceable. This is the first time that a hydraulic bush has been fitted to a Jaguar wishbone. The hydro-bush is tuned for refinement and helps to

reduce brake vibration.

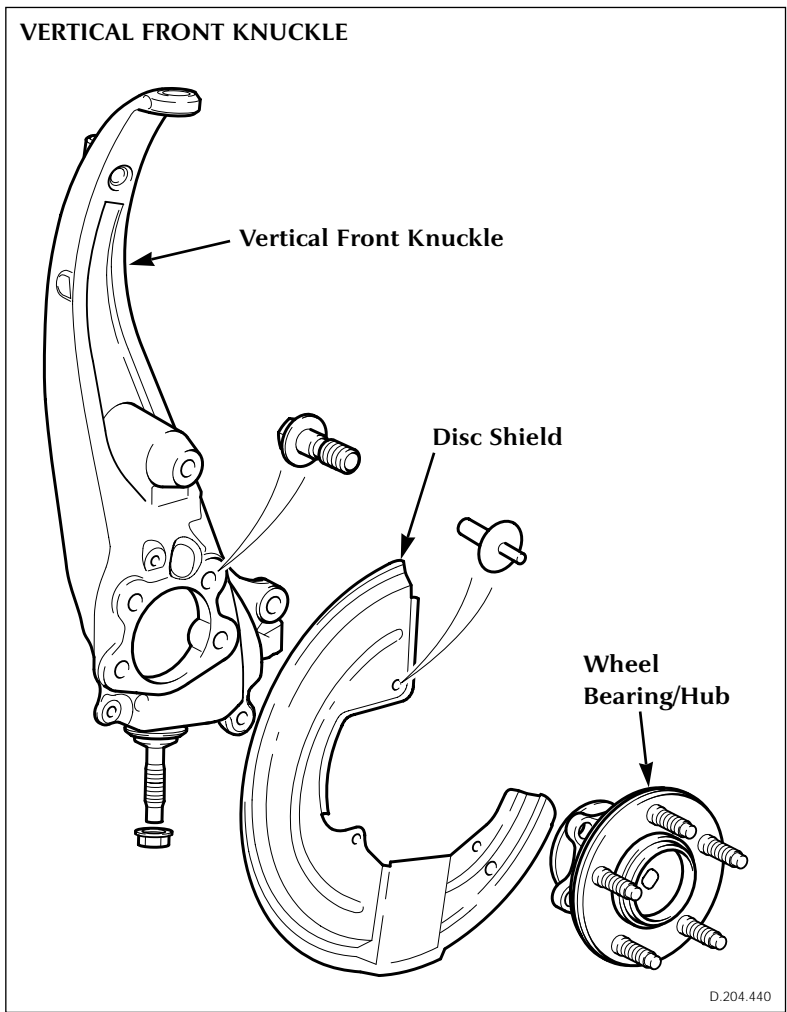
Service adjustments for caster and camber can be made to the lower control arm geometry with the addition of cam bolts (not supplied with the vehicle).





**Upper Control Arm**

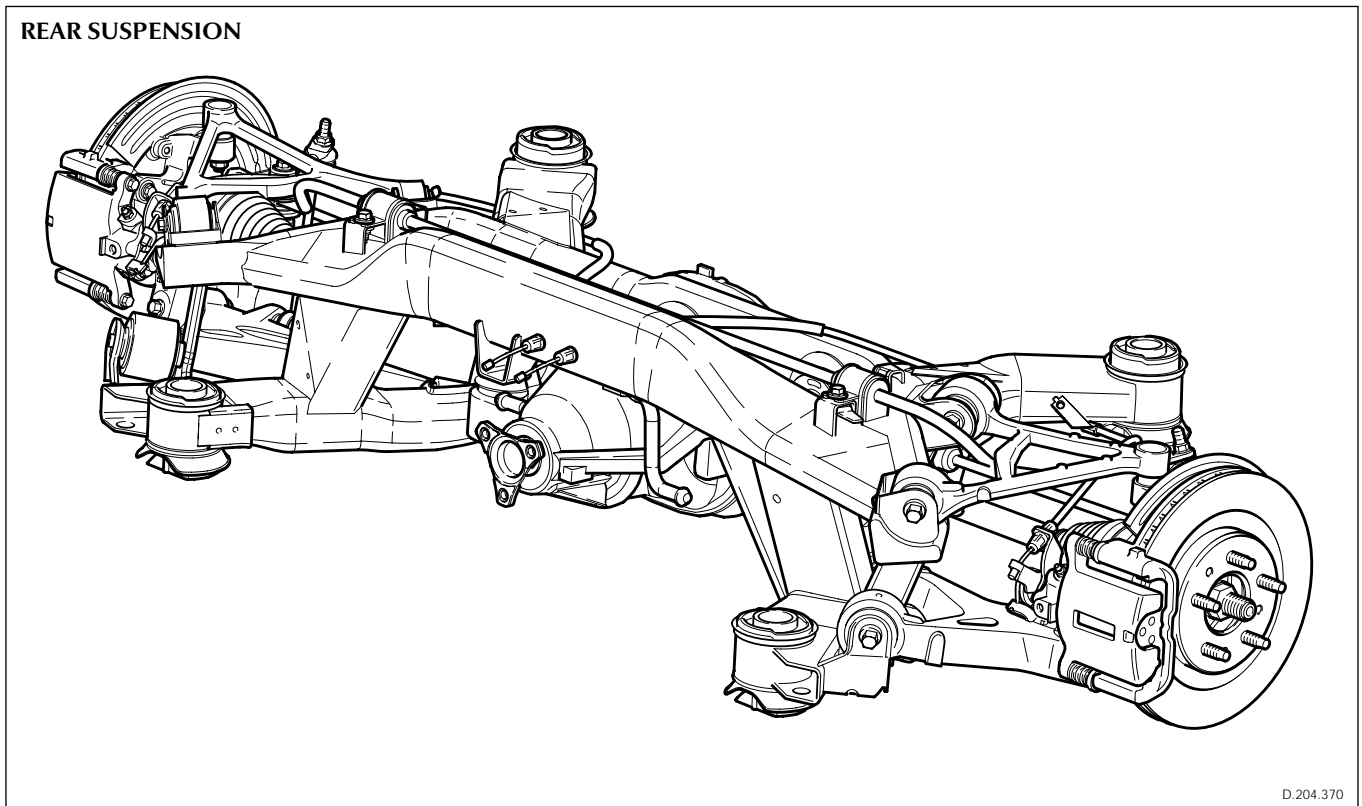
The upper control arm is also an aluminium forging, mounted with two rubber bushes and has an integral, non-serviceable ball joint.



**Vertical Front Knuckle**

The vertical front knuckle is an aluminium casting with integral steering arm, installed between the upper and lower control arms. The lower ball joint is serviceable and is a press fit. The knuckle locates the upper balljoint, riveted disk shield and brake calliper and wheel bearing/hub. The wheel bearing is a new type and contains the integral ABS rotor and sensor. The bearing is not serviceable and must be replaced as a complete unit. A service kit is available for the ABS sensor.

## Rear Suspension



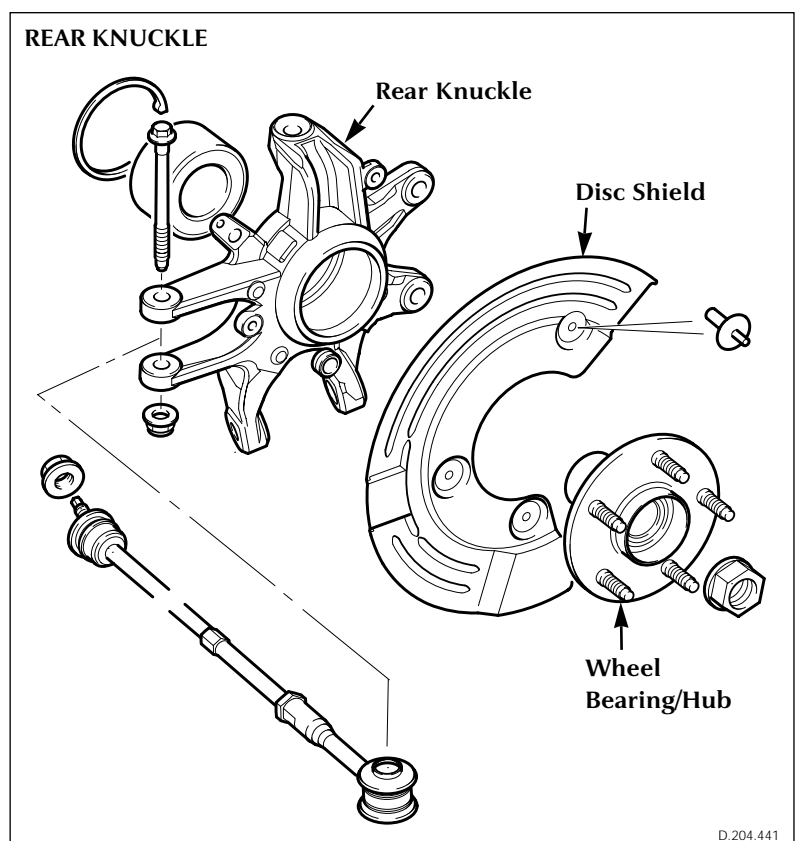
The rear suspension is a double wishbone arrangement with aluminium control arms. The rear crossbeam is steel fabricated and isolated to the body with four bushes. The crossbeam locates the upper and lower control arms and the anti-roll bar.

Control arms are aluminium castings and heavily inclined in plan view. The lower control arm locates the damper and anti-roll bar drop link. The damper fixing is tapped into the aluminium casting.

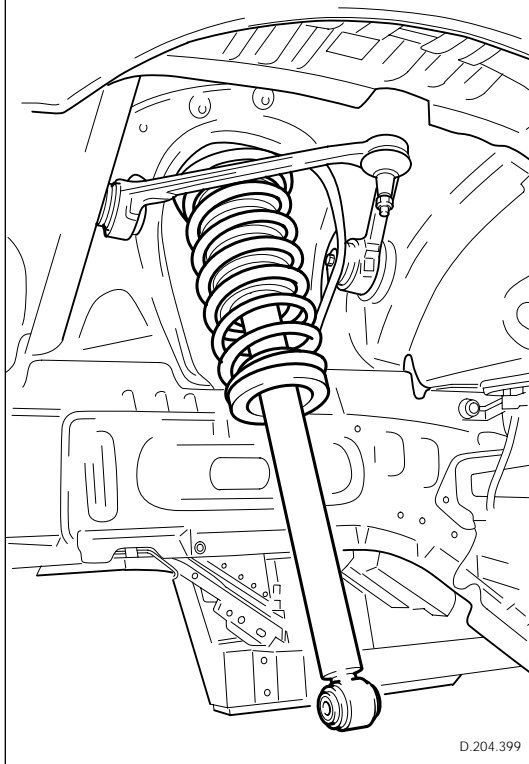
The upper control arm has one cross axis bush and one rubber bush. It contains an integral balljoint.

The rear knuckle is an aluminium casting and has a press fit cartridge bearing.

The independent rear suspension upper and lower front bushes are conventional rubber bonded bushes. The upper and lower rear bushes contain no rubber and are essentially pressed in 'rose' bearings for superior suspension geometry control. These are common components between all vehicle variants and are a similar concept to



**FRONT SPRING AND DAMPER**



the A-frame bush on current sports and saloon vehicles. The bushes are not bonded in place but require a special lubricant when assembling. Care must be taken to ensure that the replacement bushes are pushed fully home, the angular orientation of the bushes is important and it is essential to mark the position of the subframe before removing from the vehicle or else driveline alignment will be lost.

**Wheel Alignment**

Camber caster and toe are adjustable on the front suspension only. Toe is the only adjustment on the rear suspension. Camber and caster are adjusted by means of eccentric cams on the lower control arm mounting bolts. The front toe is adjusted by use of the front tie rod. The rear toe is adjusted by the use of toe link assemblies connecting the knuckles to the rear sub-frame.

**Anti-roll Bars**

There are two types of front anti-roll bars, one for all V6 and base V8 engined vehicles and one for V8 sport. There are two types of rear anti-roll bars, one for all V6 and base V8 engined vehicles and one for V8 sport.

All anti-roll bars are similar to current saloon except that the front bushes have moulded insert for tuning.

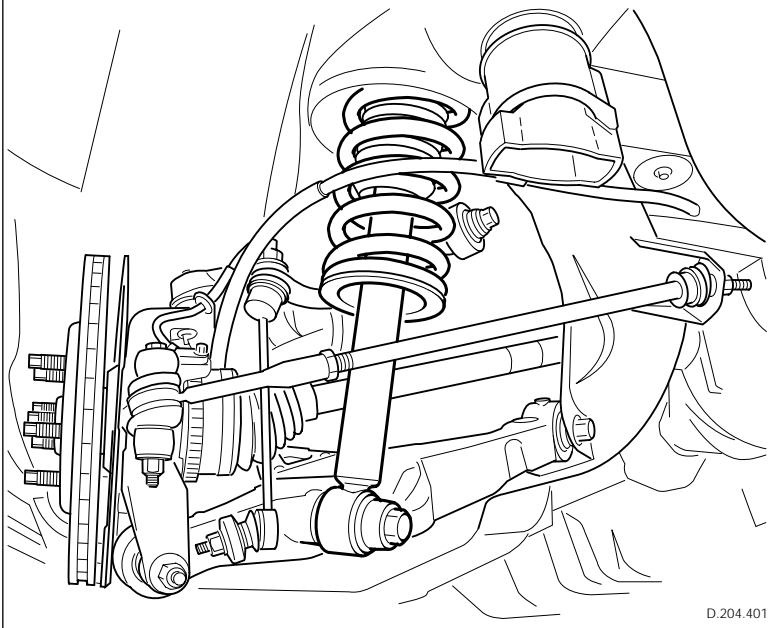
**Springs and Dampers**

There are numerous variants to suit both 'standard' and 'sport' derivatives of the V6 and V8 engined vehicles. Both front and rear springs and dampers are similar to current sports vehicles. With a strut type assembly, integrated top mount and two-position lower spring pan. The front and rear co-axial strut and spring assemblies are installed between the lower control arms and the vehicle body.

Sports dampers are CATS only, as XK series.

The CATS suspension is similar to the system introduced on the XK8. It is a two-stage adaptive damping ride control. The control module is located in the rear left-hand corner of the spare wheel well. Three accelerometers are fitted. The front vertical and lateral accelerometers are mounted as an assembly to the vapour management valve bracket. The lateral

**REAR SPRING AND DAMPER**



accelerometer is used for Dynamic Stability control (yaw control). The rear vertical accelerometer is fixed to the rear electronic control module (RECM) bracket on the rear right-hand side of the luggage compartment between the rear wheel arch and the rear lamp pack.

### **Suspension Alignment**

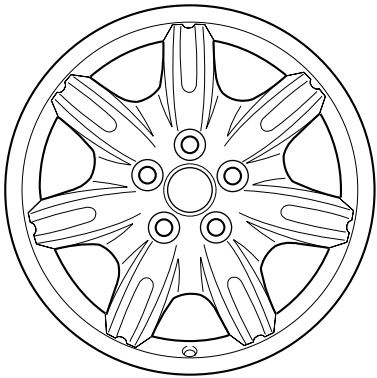
A special tool has been designed to enable correct alignment of the suspension to the body.

Connected to a personal computer, a transducer with a wire measuring device is fitted to a plate attached to the Number 2 cross member. Alignment pins are fitted to the body front and rear to the left-hand side chassis rail and to the rear suspension beam. Measurements are taken from one point on the Number 2 beam. Then the transducer is transferred to the other point on the beam and a second set of measurements taken. The PC then calculates if there is any misalignment and by how much, and displays the information on the screen. The beam(s) are then adjusted to bring the alignment back within limits and a further series of measurements are taken. This process is repeated until the alignment is correct and the beams are then tightened. A print-out of the measurements is to be attached to the job card as a permanent record of alignment. Note that camber, caster and toe may be required if any of the beams have been adjusted.

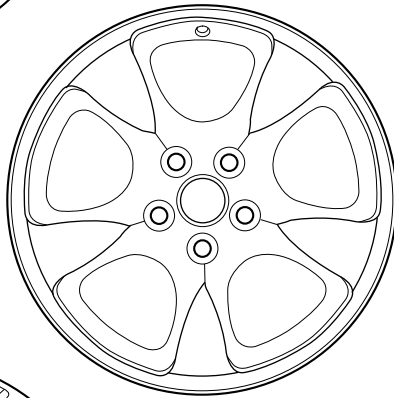


## Wheels and Tyres

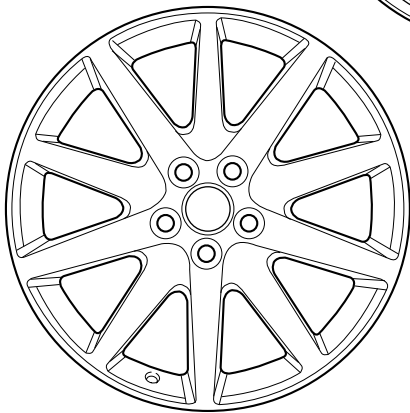
### S-TYPE WHEELS



**Classic**



**Dynamic**



**Sport**

D.501.1477,1478 & 1479

### Wheels

All wheels are alloy except for the space saver wheel which is steel. The space saver wheel is not available for USA, Canada or Mexico.

There are three wheel styles:

- 7 x 16 Classic
- 7.5 x 16 Dynamic
- 7.5 x 17 Sport (option)

Each wheel has five exposed wheel nuts which are smaller than current cars at 19mm A/F  
Locking wheel nut policy is the same as current sedan vehicles.

### Tyres

Two sizes - three types:

- 225/55R16
  - All season (NAS markets)
  - Summer (European/Rest of World)
  - Winter (accessory)
- 235/50R17
  - Summer (European/Rest of World)
  - Winter (accessory)

Tyres for the European and Rest of World markets Summer/Winter, are Pirelli.

The all season tyres are Bridgestone and for the NAS markets only.

Tyre pressures are:

- 26/28 psi comfort
- 32/34 high speed or fully laden.

## Driveline

### Introduction

The driveline is a standard type with the engine position at the front and driven rear axle. This will be the first time that Jaguar has used in-plant driveline balancing to improve noise, vibration and handling. The driveline is finely balanced at the rear driveshaft joint. The centre bearing is laser aligned during initial factory build.

The alloy rear engine mountings have two variants, one for automatic transmission and one for manual transmission. They are both serviceable items. The V6 auto is the same as the V8 but rotated in plan by 180 degrees. The rubber mountings are carry over concept from the current XJ and XK Series vehicles but are not

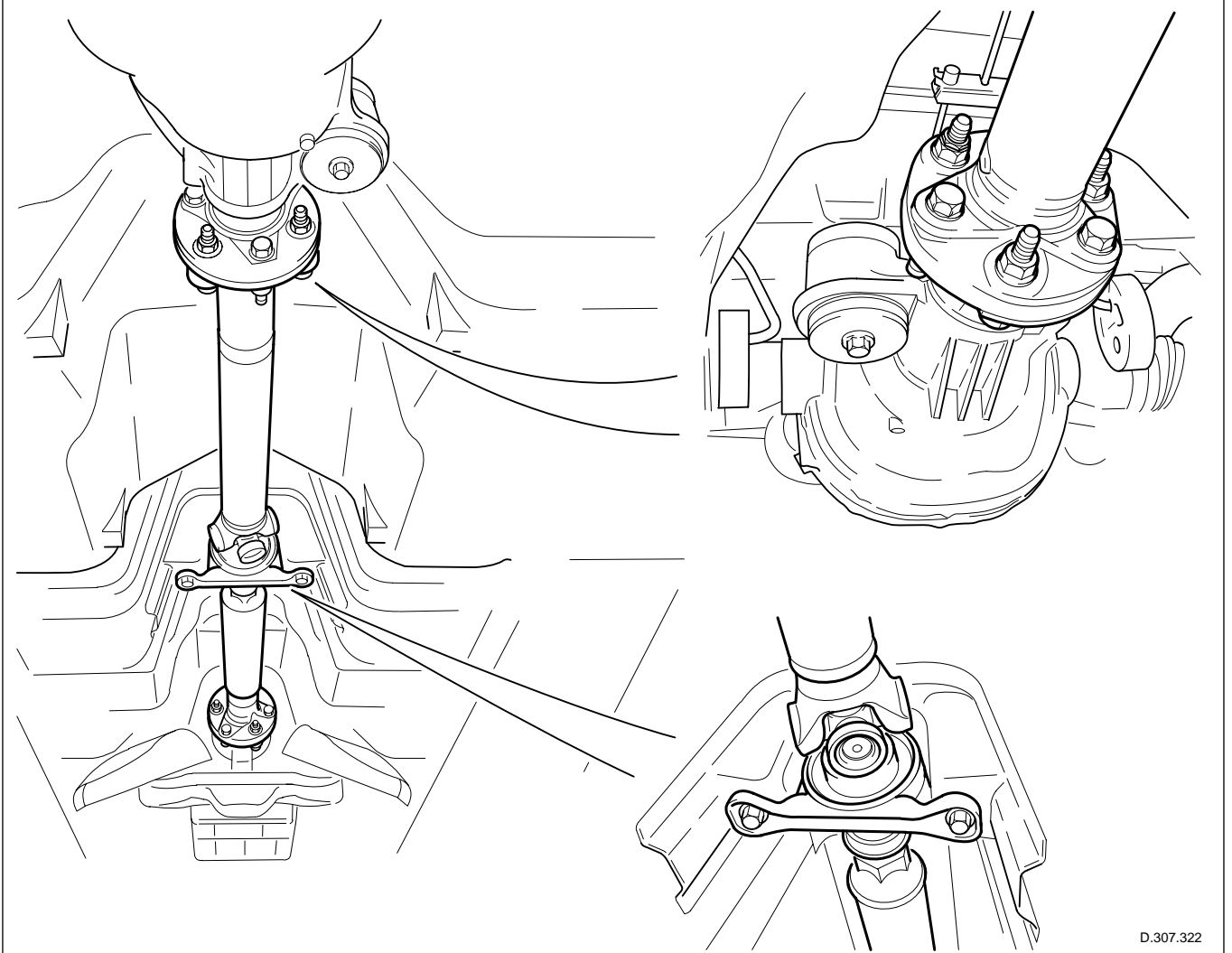
interchangeable with them. Both automatic transmission rubber mountings are common but with a softer unique mount for the manual V6 transmission.

In service if they are replaced, ensure that there are buffer gaps and that they are approximately equal. Neither will be contaminated by lubricant or automatic transmission fluid.

### Driveshaft

The S-TYPE has a two-piece welded steel tube driveshaft with a splined centre slip joint and locking collar, the whole being aligned with the body centreline. The driveshaft has rubber flex couplings and a rubber, body-mounted, centre bearing. For safety, the front tube is collapsible.

DRIVELINE ARRANGEMENT



The centre joint is a conventional hookes joint with staked lugs and the rubber flex couplings have spigoted sleeves to the transmission and rear axle final drive unit (three bolt fixings)  
 All driveshafts are balanced. If undercoating the vehicle, protect the driveshaft, universal joints and the axleshafts to prevent overspray of the undercoating material.

Driveshaft weight is:

- V6 auto 12.7 kg
- V8 auto 13.4 kg
- V6 manual 14.1 kg

Serviceable parts are the centre bearing, flex coupling, rubber boot, alignment bearing and fasteners. Lubrication of the driveshaft components is unnecessary. The universal joint is equipped with nylon thrust washers, located at the base of the bearing cup.

Balancing of the driveshaft is achieved using a PDU with the new vibration analyser. This gives details of where the shaft is out of balance and by how much and where to place the balance nuts.

## Final Drive (differential)

The final drive, differential, has a steel case and rear cover, no drain plug and has a sealed for life lubricant. Differential weight is 27 kilograms and oil capacity 1.5 litres of synthetic oil (M2C192A). The hypoid gearset is mounted in taper roller bearings. It has a two point differential assembly retained by bearing straps. The central pinion is on the body centreline. Pinion and output oil seals, the companion flange and nut and the needle roller output bearing are the only serviceable items.

Final drive ratios are:

- 3.31:1 (V6 and V8 auto)
- 2.87:1 (V6 manual)

### Differential Mountings

The crossbeam forms the mounting points for the three differential mounting bushes. All three bushes are conventional rubber bushes, common to all S-TYPE vehicles and are serviceable items. They control the driveline and isolate differential noise and vibration. Avoid disturbing the subframe mounts when servicing differential bushes. The front differential bush is a two-part bush and the RH and LH rear bushes are handed and colour coded to differentiate them

### Half-shafts

Half-shafts are unequal lengths and are therefore handed, left and right. Constant velocity joints are fitted to both ends, the outer is fixed and the inner is sliding. They are sealed for life and retained in the differential side gear with a spring clip.

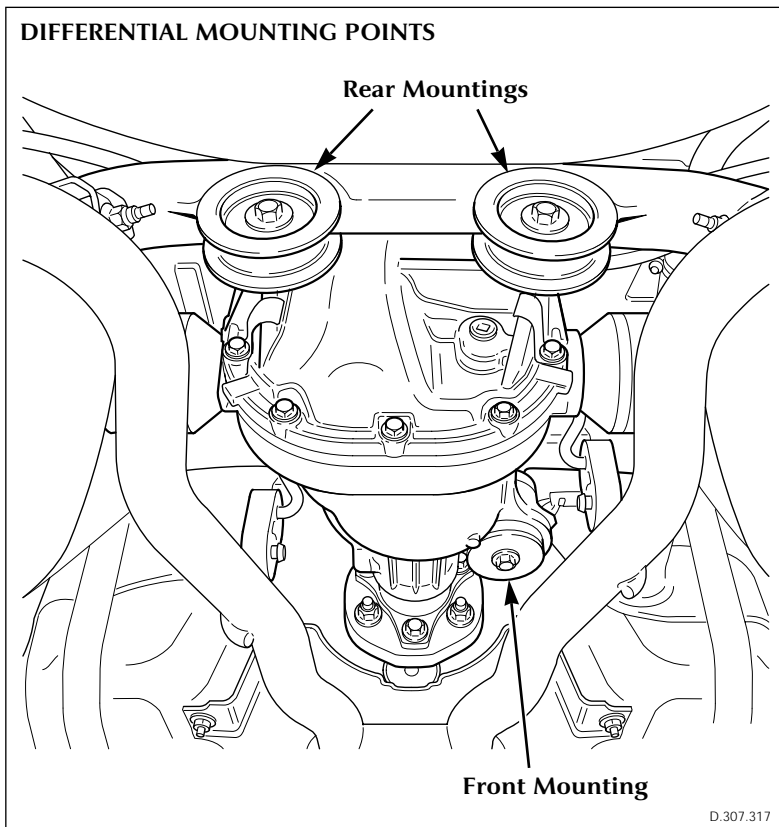
Weights are approximately

- |               |             |             |
|---------------|-------------|-------------|
| V6 size - 100 | 8.89kg (LH) | 8.76kg (RH) |
| V8 size - 104 | 9.43kg (LH) | 9.3kg (RH)  |

Serviceable parts are:

- the pinion and output oil seals
- companion flange and nut
- output bearing (needle roller)

Note: It is possible that the replacement or repair of gears, bearings or shafts may be introduced at a later date.



D.307.317

## Brakes

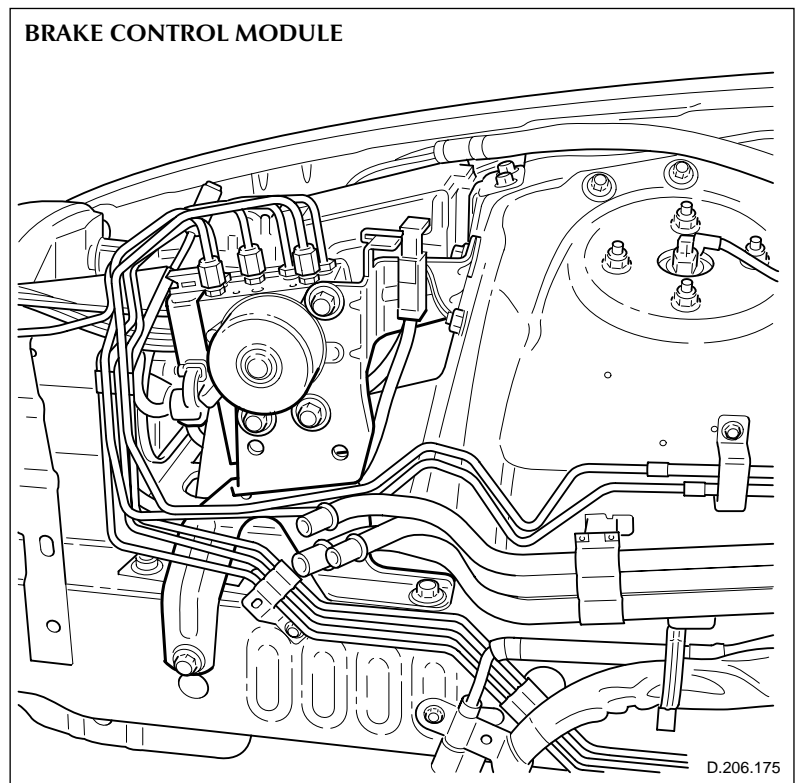
### Brake Control Module

Brakes are controlled with a Teeves Mk 20E brake modulator.

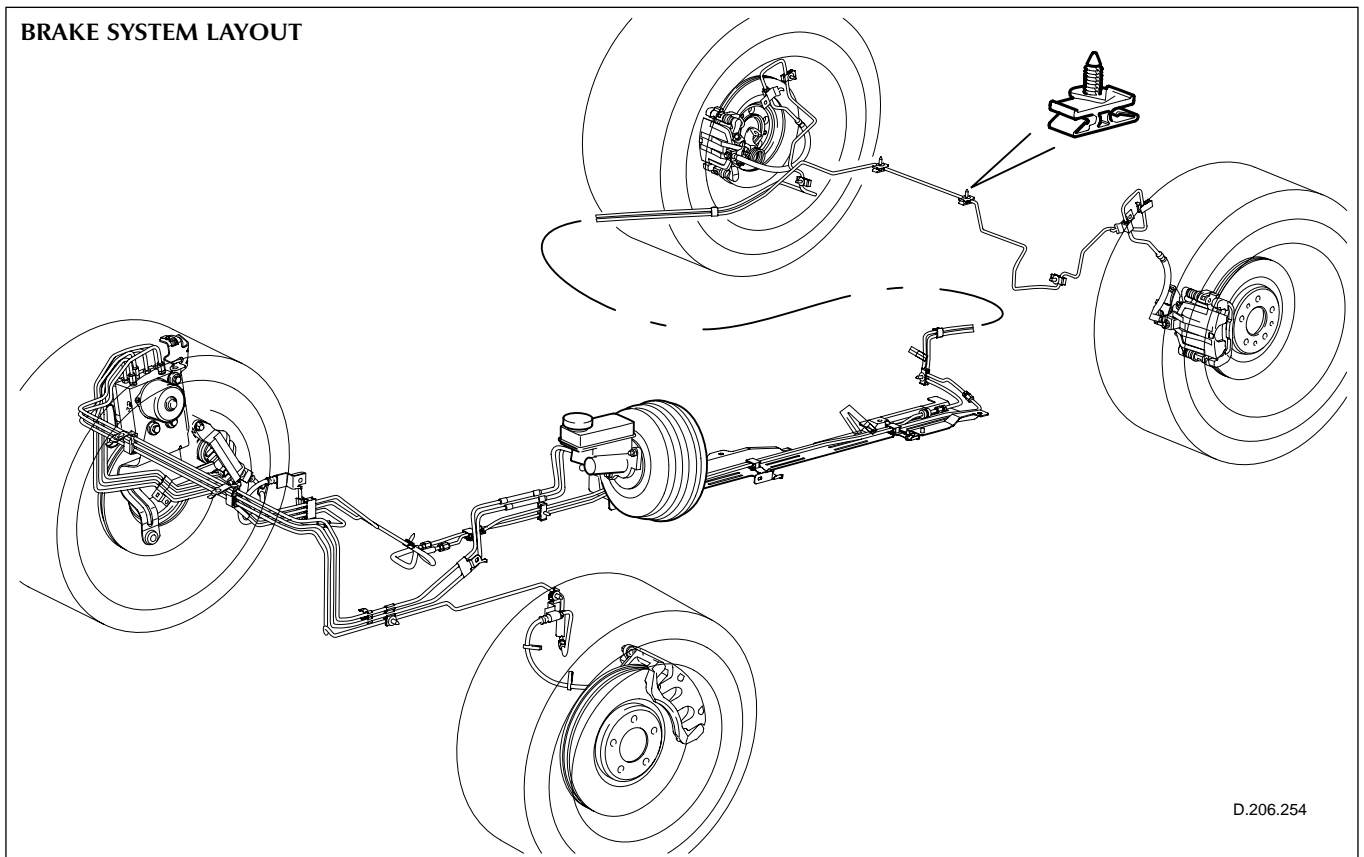
The anti-lock brake/traction control, control module (ABS/TCCM) contains the integral software for ABS and traction control, similar to current XJ and XK Series vehicles. It is supplied as a 10 valve, 4-channel module and calibration is the same to all powertrains. It is connected to the SCP bus for traction control, warnings and vehicle speed.

### Dynamic Stability Control

Dynamic stability control (DSC) is a new Jaguar safety feature, which uses ABS and traction control to control yaw movements of the vehicle. Yaw is the rotary motion of the vehicle on its vertical axis, a force that would cause oversteer or understeer or sideslip. The dynamic stability control module (DSCM) contains the same software as described but with the addition of IVD software. The modulator is supplied as a 12 valve, 4-channel module calibrated for base suspension only. The connectors differ between the two; the 10 valve unit has a 25-way with sliding cam, as



### BRAKE SYSTEM LAYOUT



**FRONT WHEEL SENSOR**



D.206.177

current vehicles and the 12 valve unit has a 47-way connector with lever cam. DSC calculates the real vehicle motion (forward and gearing) and compares it to the direction initially chosen by the driver. A steering rate sensor is located on the steering column and is used to calculate steering angle. A yaw rate sensor and lateral accelerometer are located on a bracket behind the hand brake lever and are used to calculate the vehicle under or over steer and any side slip.

As soon as DSC recognises that the driver is not reacting sufficiently to compensate a deviation, DSC intervenes by applying brake force to each of the four wheels individually to control yaw

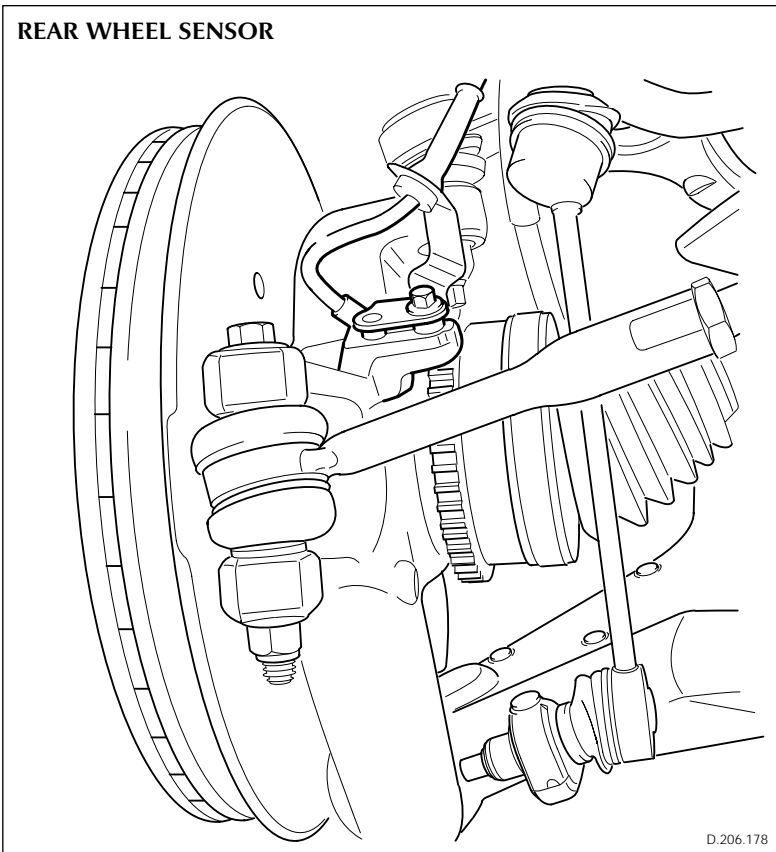
**Front Wheel Sensor**

The front wheel active ABS speed sensors are incorporated into the wheel bearings, connected via a flying lead routed along the brake hose.

**Rear Wheel Sensor**

The rear sensors are mounted on the hub carrier and connected by a flying lead routed along the control arm. None of the sensors are adjustable. Wheel speed sensors are new active sensors, which are more sensitive at lower speeds than the current saloon and sports wheel speed sensors.

**REAR WHEEL SENSOR**



D.206.178

**Front and Rear Callipers**

Front callipers are twin piston aluminium construction. The ventilated disc sizes are 300 mm x 32 mm. The rear brakes have cast iron callipers. This is because of the hand brake operation using the rear callipers. The ventilated disc sizes are 288 mm x 20 mm. Each rear calliper has a ball and ramp park brake mechanism, operating on the main calliper pads.

### Brake Booster

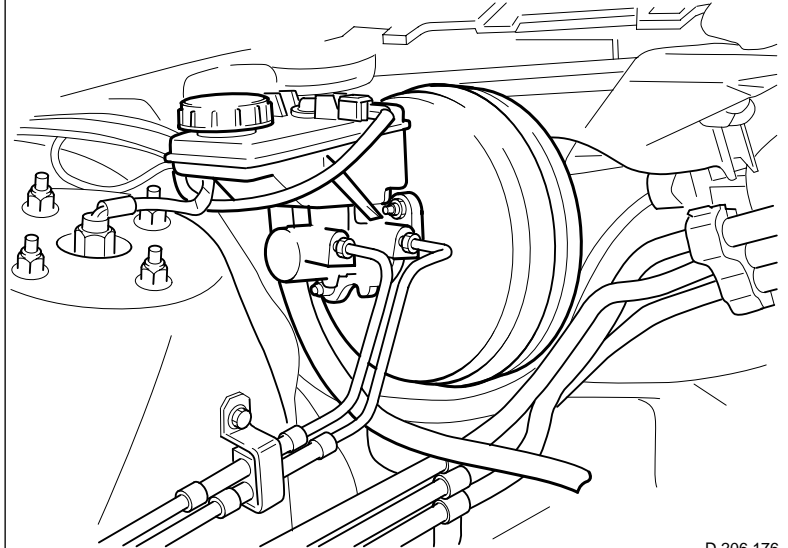
The brake booster is a Lucas unit mounted on the engine bay bulkhead with a 25.4mm diameter master cylinder and integral brake fluid reservoir. NOTE: The reservoir is also a combined brake/clutch reservoir for manual transmission vehicles.

Twin vacuum boosters of 8 inch and 9 inch sizes are fitted.

The DSC booster is different having integral pressure transducers and solenoids with air control valves for the booster. The transducers are located on the brake master cylinder and are used for pressure feedback, brake application and fail safe operation. The booster is used to supply brake pressure without driver input.

ABS operation is no different to current Jaguar vehicles.

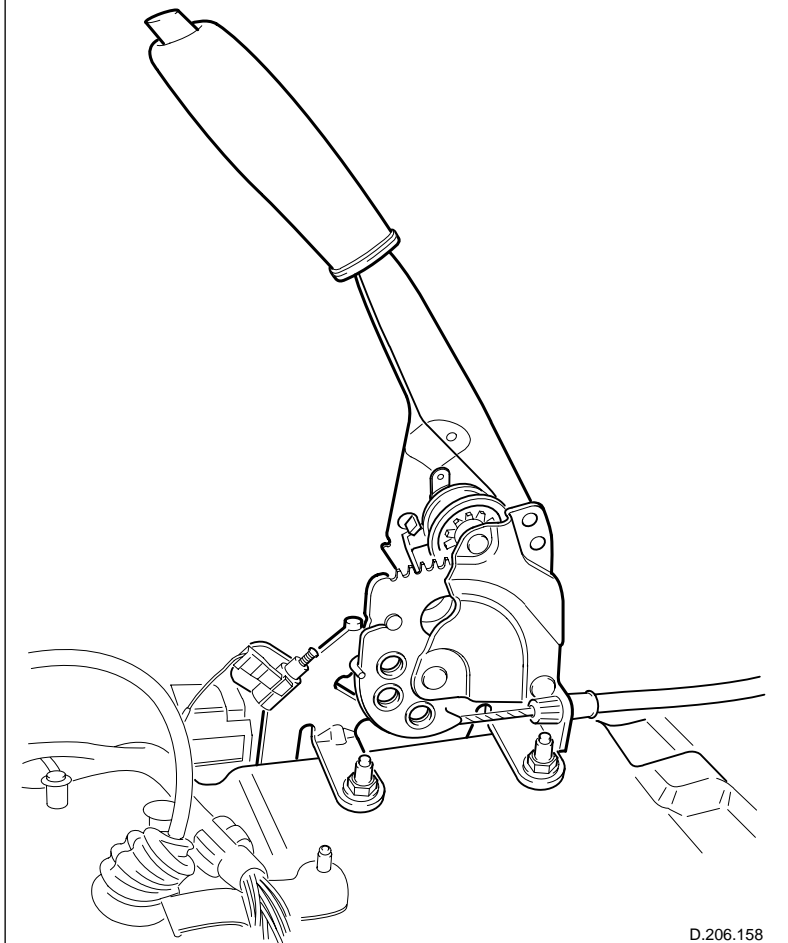
**BRAKE BOOSTER**



### Parking Brake

The parking brake lever is mounted on the RH side of the centre console for all models, with conventional button operation as current XJ sedan. It is a self-adjusting system operating on the rear brake callipers. All models have a leather grip.

**PARKING BRAKE**



## Power Assisted Steering

### Introduction

The Jaguar S-TYPE has a variable assist rack and pinion steering gear and variable rack ratio. The variable steering rack ratio reduces the number of turns from lock to lock (2.8) to enhance parking manoeuvrability whilst maintaining the on-centre steering precision required at high speed. Full power assistance is provided for parking. Steering assistance decreases smoothly at a calibrated rate to raise driver steering efforts as vehicle speed increases.

### Servicing

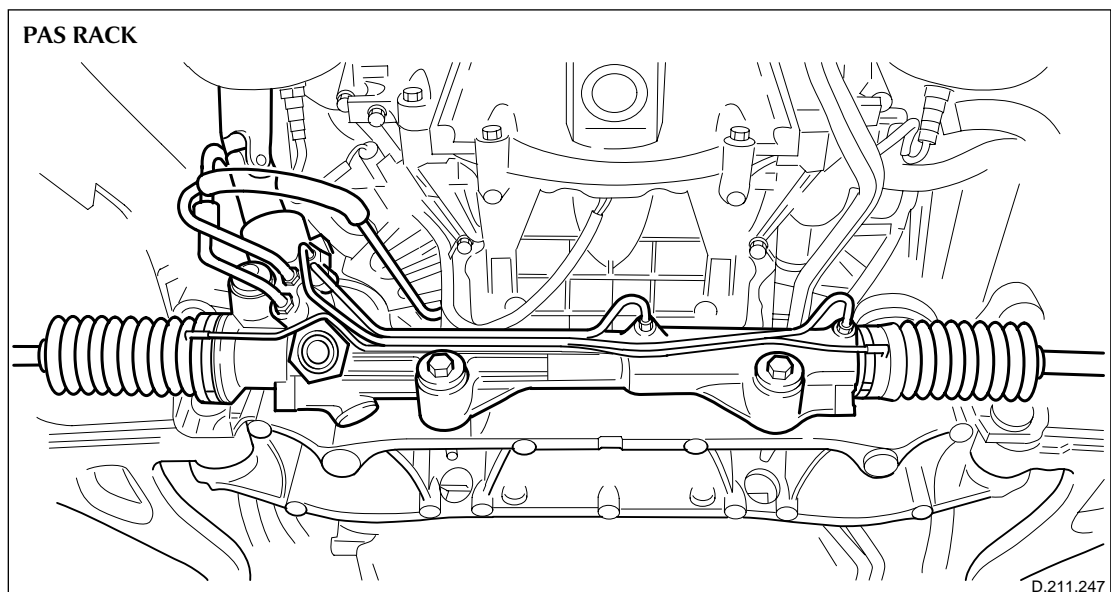
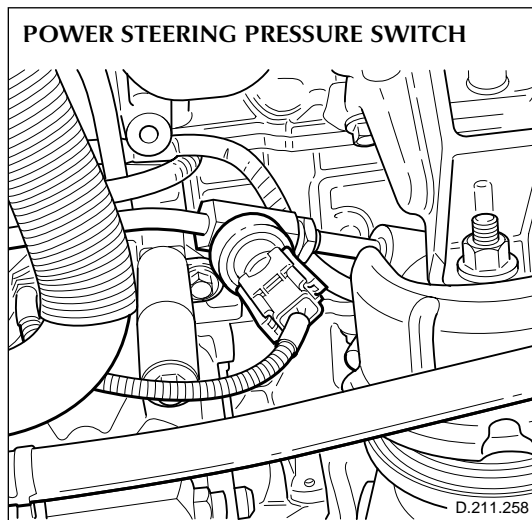
There are no carry over parts from XK or XJ Series vehicles.

The rack is mounted to the rear of cross member Number 2. The PAS pump is belt driven. A PAS cooler matrix is located within the radiator package.

Low PAS pump speeds problems are prevented by increasing engine speed. A power steering pressure (PSP) switch senses the demand on the pump at low engine speeds and increases the speed to a pre-set minimum.

Hose connections to the pump and the steering gear are quickfit connectors. The quick connect tube must be pushed into the existing tube nut port, along the centreline. The assembly is complete when the tube end bottoms out in the port with an audible click/snap. Correct assembly should be verified by pulling the quickfit tube end. Servicing of the PAS line involves removal of the quickfit nut. Replacement PAS lines are supplied complete with quickfit nut and sealing washer. If the joint is disturbed it is compulsory to replace the PTFE sealing ring otherwise leaks are inevitable. Replacement sealing washers may be installed with the use of Service tool D90P-3517-A.

Care must be taken when removing the quickfit nut from the V6 engine pump as the pulley is PHENOLIC and is susceptible to damage. The V8 pump installation provides a short jumper tube from the pump to improve accessibility to the high-pressure hose connection. The PAS pulley



requires a Service tool to assist removal. Low-pressure hose connections are made using Constant Tension (CT) clamps. Pinion hydraulic connections are orientated with the bottom connector low pressure with the longer nut, as current vehicles.

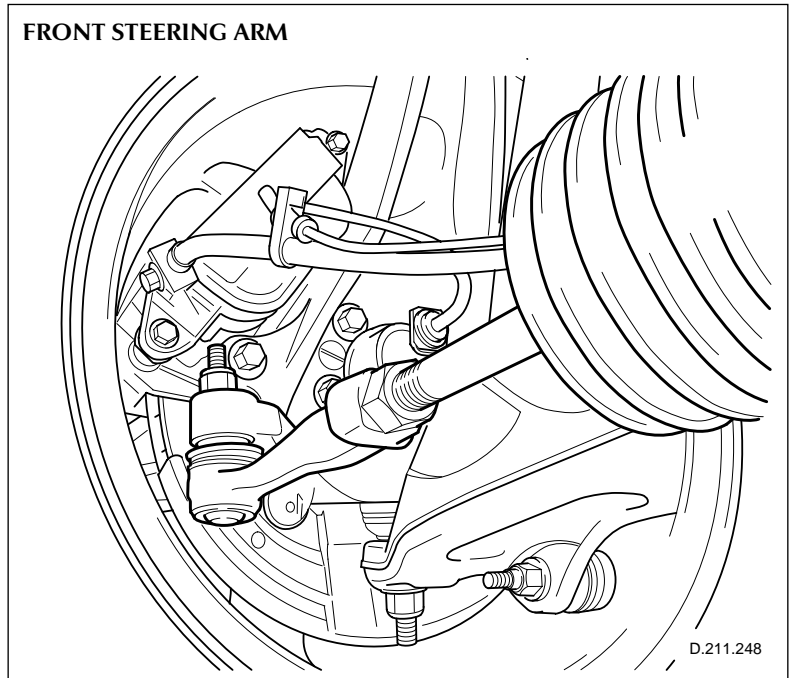
The PAS fluid is for PAS only; it is not to be used for transmissions. After manual filling, the system must be bled using a vacuum pump to remove all the air from the system to prevent system noises. Fluid level is checked through a sight window on the reservoir.

Components replaceable are complete pump, steering rack, reservoir or hose assembly.

A non-serviceable 10-micron filter is located within the reservoir to maintain fluid cleanliness throughout the life of the vehicle. It is essential as with all Jaguars that the system does not become contaminated. Cap all ports on disassembly to prevent contamination ingress. As with current vehicles, the fluid and reservoir must be renewed if any major component is replaced i.e. Rack, pump or cooler.

The road wheels should be set straight ahead and the steering wheel locked (using service tool F7LC-3F732-BF) when removal and assembly of the steering gear or intermediate shaft is required. This is necessary to prevent damage to the air bag clock spring within the steering upper column assembly. The intermediate shaft can only be assembled to its mating components in one location. Steering wheel alignment can only be achieved by adjustment at the tie-rods. A dimensional check of the steering rack position may be necessary to verify rack centre.

FRONT STEERING ARM



## Steering Column

The steering column assembly is completely new and uses no parts from previous Jaguar assemblies:

- Construction of the upper column assembly is based on the use of aluminium extrusions and castings.
- A two shaft lower column assembly is used.
- The electronically controlled steering lock, the steering column lock module (SCLM), is a physically separate component from the ignition switch which is fascia mounted.
- The dynamic stability control (DSC) steering wheel position sensor is fitted to the upper column assembly.

## Steering Wheel

The steering wheel consists of a magnesium armature with a central steel insert. The steering column and wheel insert are splined with a flat so that the wheel can only be fitted in one position. Any misalignment of the steering wheel is corrected by adjusting the tie rods. The splined fitting also has a locking taper which requires the use of a 2 legged puller to remove the wheel.

The steering wheel incorporates the the airbag module, horn mechanism and the optional cruise control and audio/phone switches.



### Adjustable Column Assembly

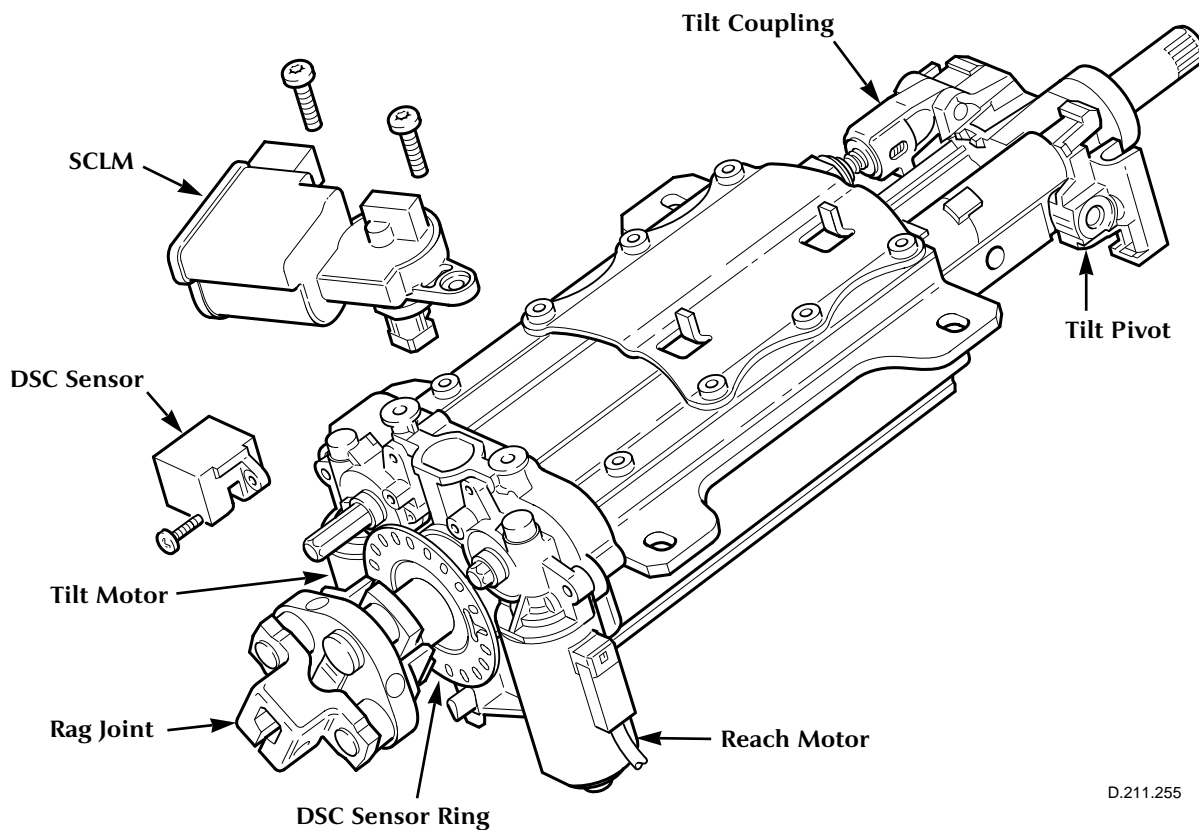
The electrically powered upper steering column assembly provides adjustment for 16° of steering wheel tilt and 50mm of reach (telescoping movement) and also features automatic wheel tilt on entry and exit. A combined joystick and on/off switch on the side of the column shroud controls the the tilt and reach movements (see page 106). Where fitted, the two position memory system stores settings for steering wheel tilt and reach together with seat and mirror positions.

The upper column assembly comprises the following :

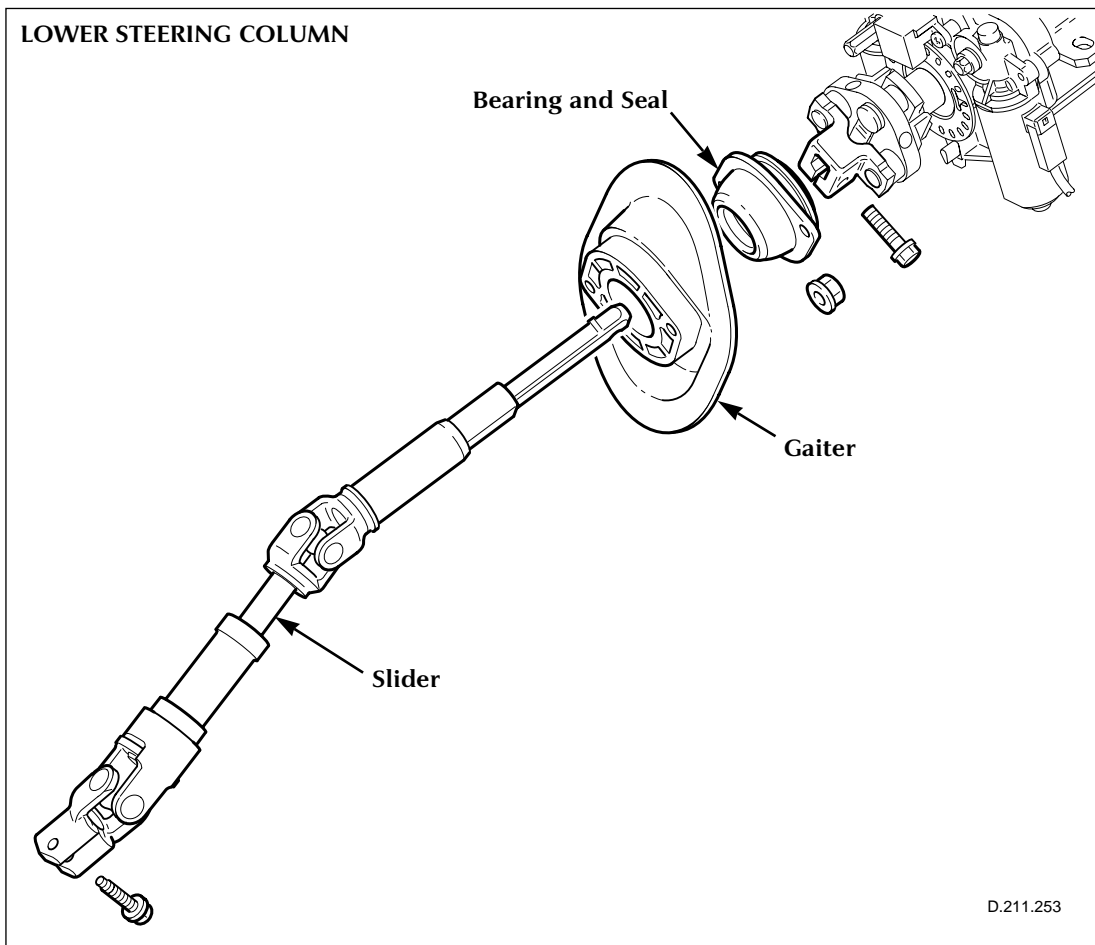
- The fixed sub-assembly forms a supporting outer enclosure for the column and consists of two aluminium extrusions and a steel stiffening plate bolted together with the lower extrusion bolted to a lower casting. The steering column runs in a bearing in the lower casting which also carries the tilt and reach drive motors. The complete column assembly is fixed to the car cross beam via four bolts to the lower extrusion.

- The moving section consists of an aluminium inner housing running on top and bottom ball bearings within the fixed enclosure and supporting the tilt head casting. The telescoping upper section of the steering column passes through this inner housing and connects to the steering wheel shaft via a universal joint located in the tilt head casting.
- The tilt and reach motors have integral gearboxes which directly drive screw actuators via flexible shafts.
- The tilt and reach position measuring potentiometers, for the driver memorised positions, are combined in a single component with linear sliders which are directly driven by the moving actuators.
- Connection to the lower steering column assembly is via a rag joint (rubber 'do-nut' type coupling).
- The dynamic stability control (DSC) sensor ring is located on the column with the sensor unit fixed to the drive motors (see section on DSC).

ELECTRICALLY ADJUSTABLE STEERING COLUMN



D.211.255



- Steering column lock module (SCLM) with splined locking collar on the column.
- The retractor box, mounted on the underside of the lower extrusion, houses the column wiring harness and connectors with sufficient cable to allow for column telescopic movement.

### **Lower Steering Column Assembly**

The adjustable column assembly is connected to the steering rack via a lower assembly consisting of two shafts linked by a universal joint. The lower shaft incorporates a sliding section which is secured by a pinch bolt on installation. To stabilise the shaft to shaft joint, the upper of the two shafts is supported by a bearing assembly where it passes through the bulkhead.

## Steering Column Lock (where fitted)

### Lock Operation

The steering column lock module (SCLM) and ignition key switch are separate assemblies and activation of the lock is remotely controlled by the instrument pack, GECM and RECM. The column is unlocked on insertion of the ignition key and is locked when the key is withdrawn.

The SCLM is mounted on top of the lower casting, on the upper column assembly, by two shear bolts. A locking bolt projects down from the SCLM through a hole in the lower casting to engage into a splined collar on the steering column. The SCLM is an integrated non-serviceable assembly, housing

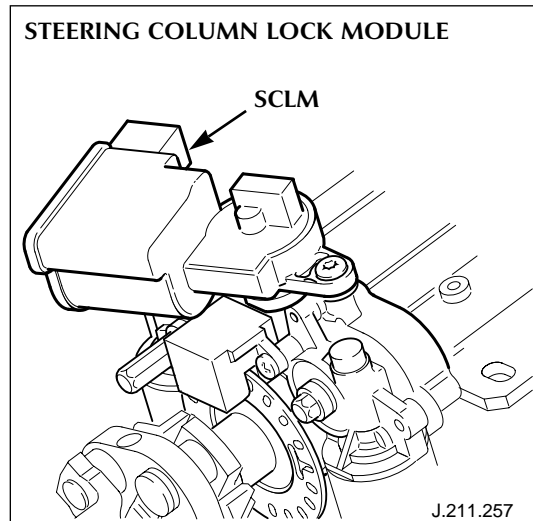
a motor and worm drive for the locking bolt and also an electronic printed circuit board. When activated, the locking bolt is driven positively in both the lock (down) and unlock (up) directions and has a spring to help locate it into the trough of the splined collar. When disengaging, the locking bolt is driven upwards until it operates a microswitch (within the SCLM) which causes the motor to stop and also signals via the SCP bus that the steering lock is off. To engage the lock, the motor is energised for 350ms to lower the bolt.

### System Control

The lock motor is powered by a switched 12V line from the RECM and switched ground line from the GECM, with both supplies being applied only during lock operation. Initiation of motor drive and direction and power supply switching is controlled by the instrument pack via the SCP bus when ignition key insertion or withdrawal is detected. Identification is checked between the SCLM and the other modules and the system will not operate if, for example, a module has been replaced and not re-programmed. System diagnostics include defective modules and incorrect module identification and also certain SCLM faults, ie unconfirmed lock or unlock conditions and failed microswitch.

### Steering Column Shrouds

The upper part of the column assembly is enclosed by two plastic shrouds, upper and lower. The steering column adjust switch, controlling tilt and reach for the electrically powered steering column assembly, is mounted on the side of the lower shroud.



## System Overview

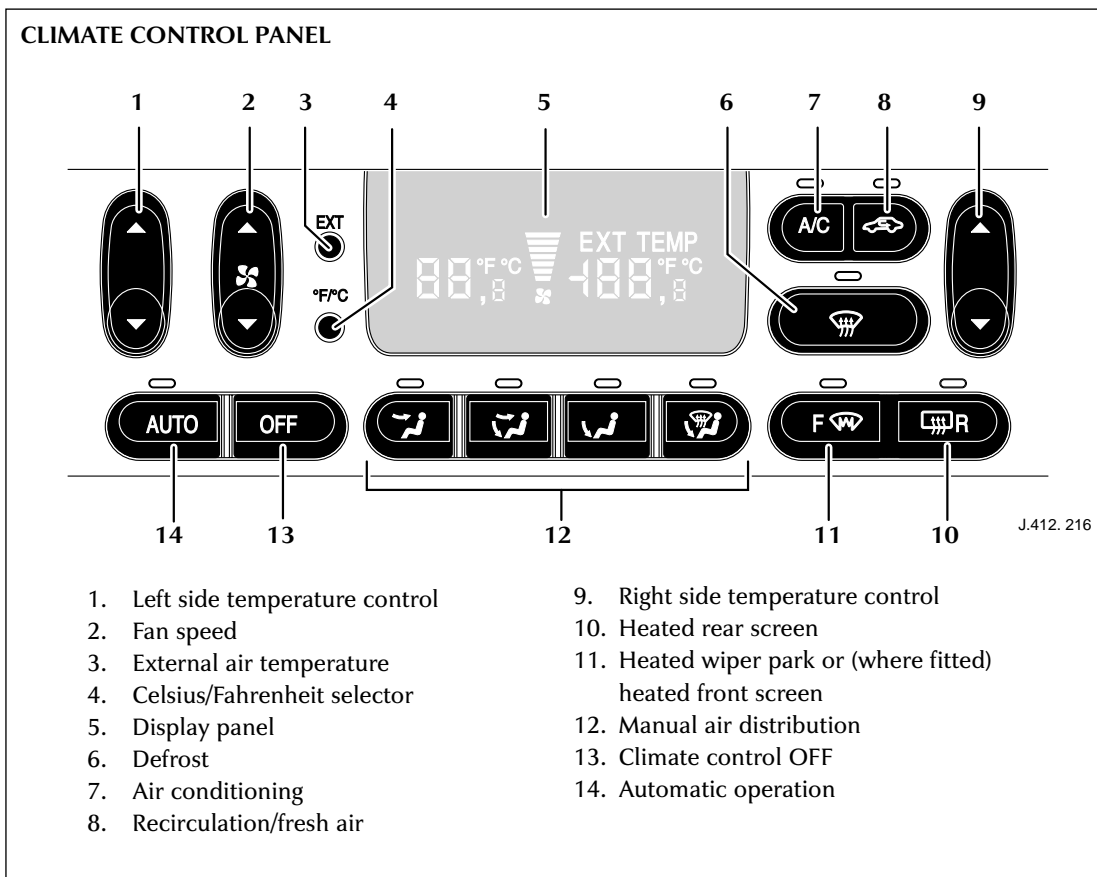
The climate control system provides filtered air to the cabin from a fully automatic, dual zone, temperature controlled system. Driver and front passenger have independent control of the temperature of the air for their individual comfort. The system regulates the volume of airflow from the vents of the instrument panel, rear seat panel, front and rear floor ducts, front screen defroster and side windows. It will automatically select between fresh and recirculated air to assist rapid cooling of the interior.

Operation of the heated front screen or heated wiper park area and rear window heater is controlled from the climate control panel. Door mirror heaters are automatically switched on when the heated rear window is switched on. As with current vehicles, the outside air temperature can be displayed in either Celsius or Fahrenheit.

The system can be switched ON by pressing any button, except OFF.

When 'AUTO' is selected, the driver's and front passenger's air temperature, fan speed and air distribution are automatically controlled to give

optimum comfort under most driving conditions. Manual controls are provided to allow the driver to override the automatic operation for air conditioning (A/C), fresh/recirculated air, fan speed (7 levels), and air distribution.



**Control Panel**

The control panel is a combined unit incorporating the air conditioning control module (A/CCM).

**Heater/Evaporator and Blower**

A single blower, heater and evaporator are fitted to the passenger side of the vehicle behind the fascia. Air intake is from the passenger side via leaf screen slots (see page 16). A particle filter is mounted forward of the bulkhead in a rain/water collector box. Mounting of the heater/evaporator unit and blower assembly is by three bulkhead fixings and one locator pin.

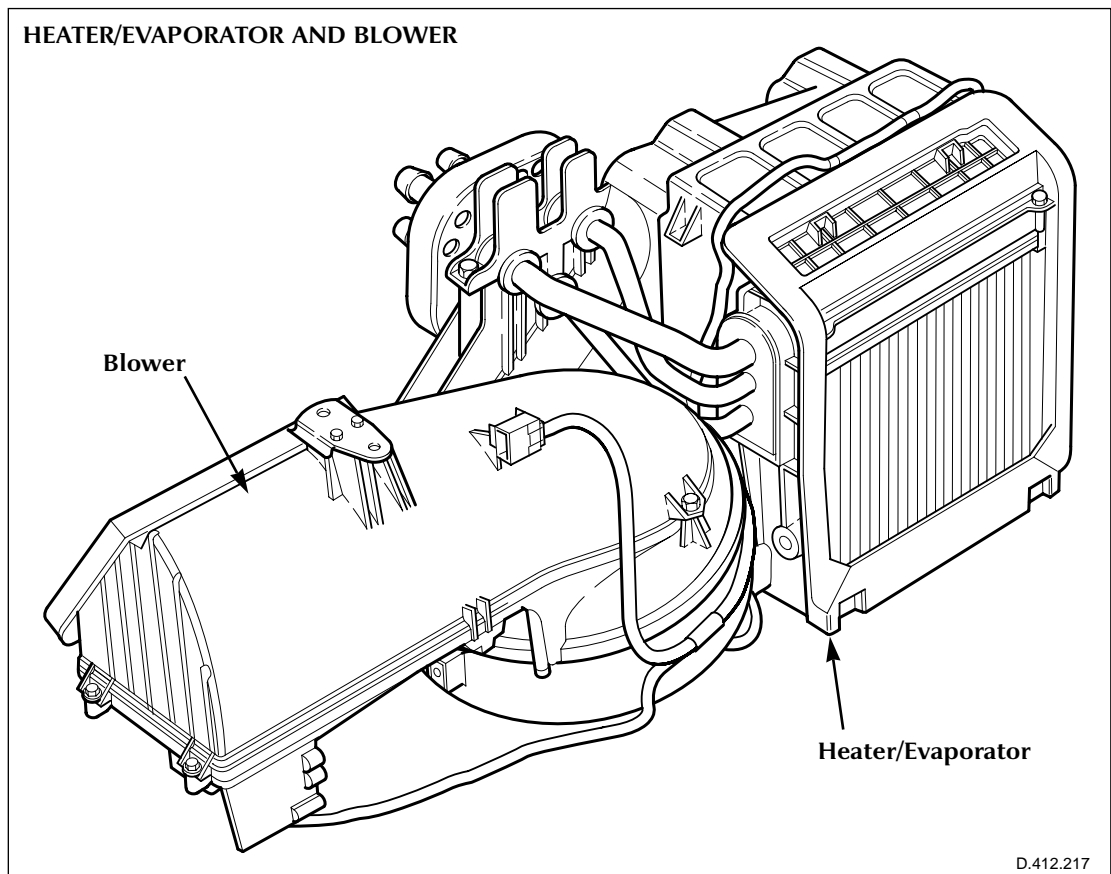
Condensate drainage is integral with the heater/evaporator unit and therefore has no separate drain tubes. The heater matrix is a dual heater unit with three heater pipes, two inlets of 16mm diameter and one outlet of 19mm diameter.

**Underbonnet Components**

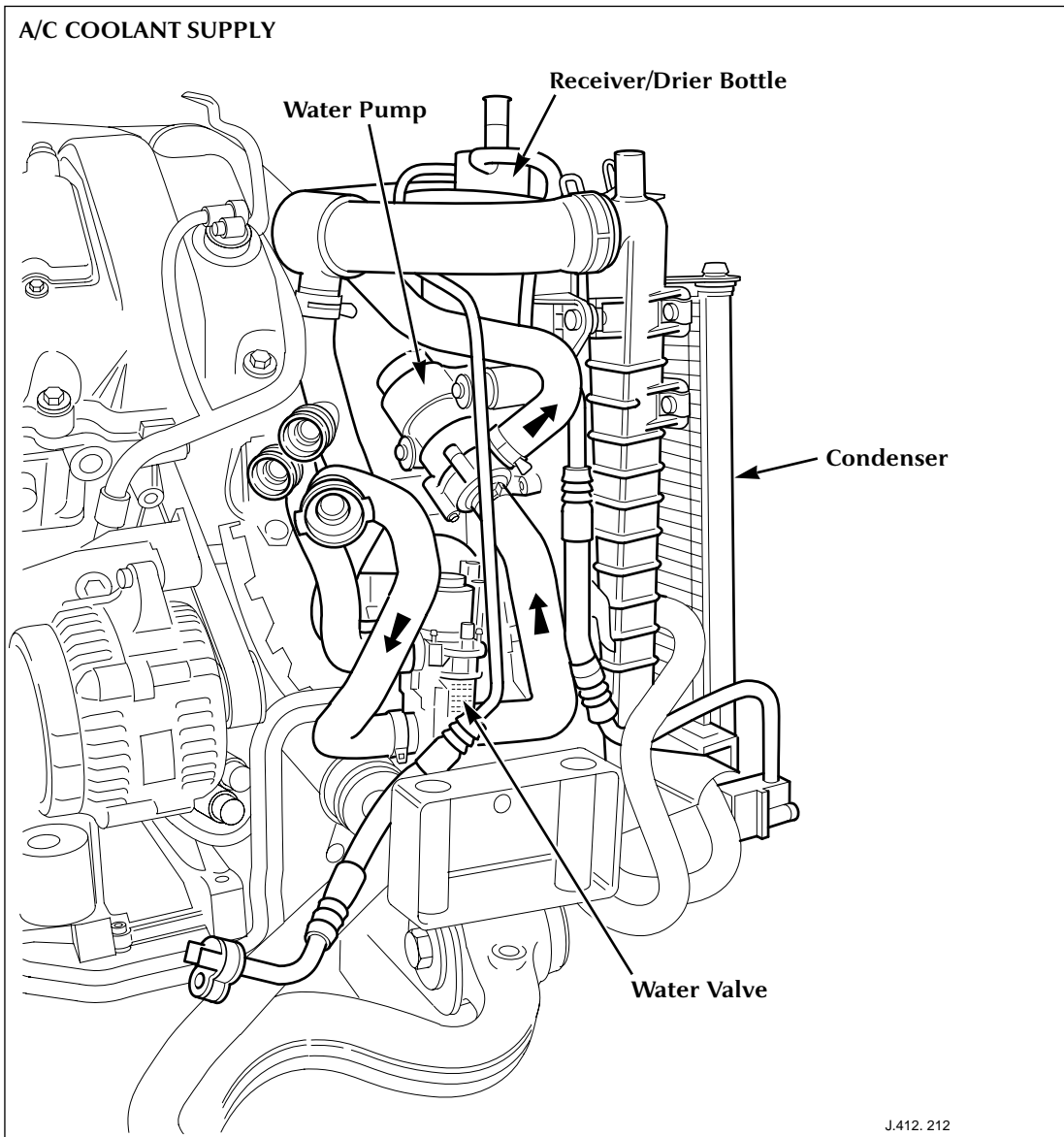
Both V6 and V8 engine configurations include a water valve controlled heating (dual) system and the valve is mounted behind the right-hand side headlamp. The V8 engine system, as with current cars, has a water pump to supplement idle water flow through the heater and this is mounted on the right-hand side of the cooling pack. The pump is held in a mounting rubber, which is pushed over two pillars on the rear of the fan shroud and held with two screws.

**Condenser**

The black-painted aluminium condenser is located to the front of the combi-cooler and mounts to its end tanks. The condenser end tubes push into two grommets, which are in turn held in two steel brackets, screwed to the radiator end tanks. The bottom of the condenser is screwed directly into the radiator tanks. A radiator cooling duct clips onto the condenser end tanks and also pushes onto the lower radiator channel. The duct ensures that all available airflow is directed through the cooling module.



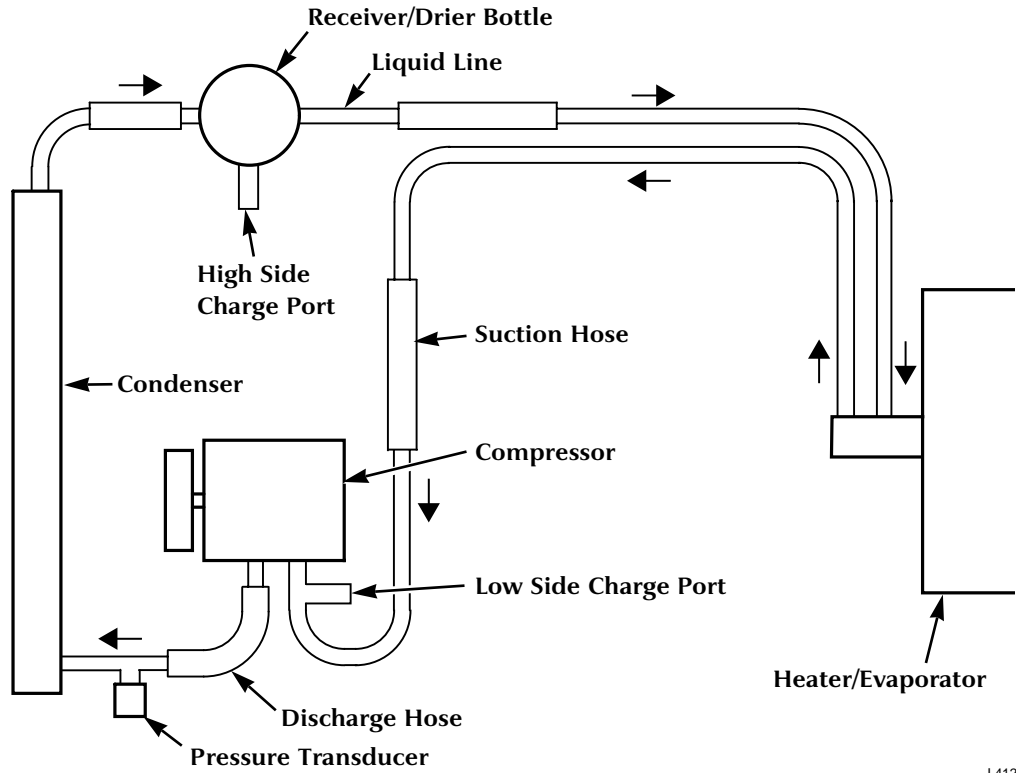
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**Receiver/Drier Bottle**

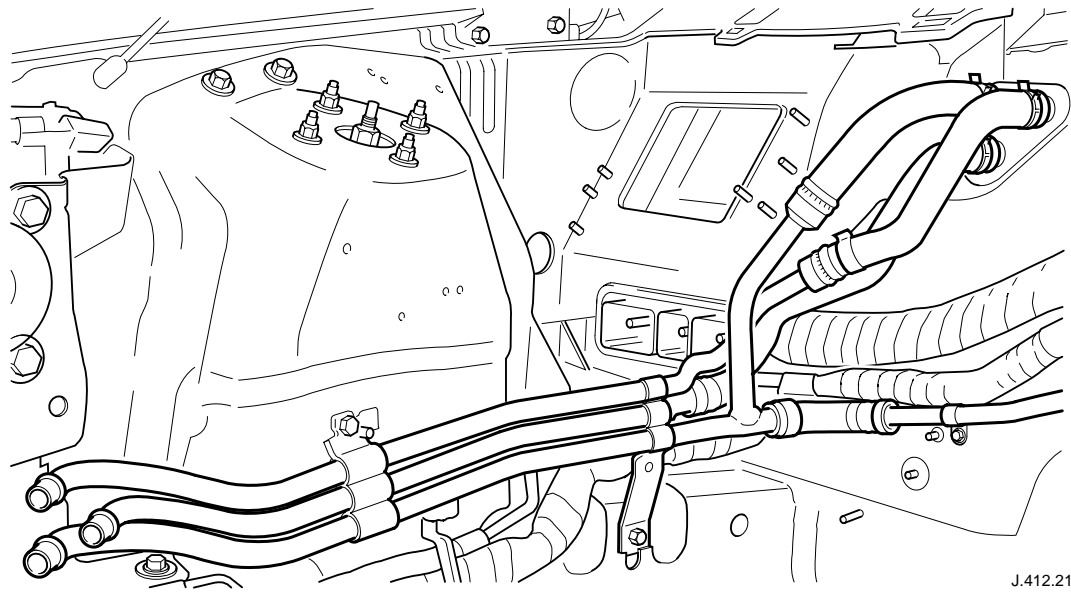
A receiver/drier bottle is mounted on the rear top of the fan shroud and held with a single clamp bracket and screw.

**REFRIGERANT COMPONENT LAYOUT**



J.412.218

**UNDERBONNET PIPEWORK**



J.412.213

## Pipework

The suction hose and liquid line are a one-piece assembly. A single screw connects them to the air conditioning unit manifold at the bulkhead. A further screw fixing and push-in clip secures them at the side of the engine bay. The liquid line fixed to the cooling module then joins with a block fitting and the suction hose connects with a quick connect fitting and routes across the underneath of the cooling module to the compressor. The compressor suction and discharge hoses are also a one piece assembly.

A pressure transducer is fitted to the discharge hose as it connects to the rear of the condenser. The high side charge port is situated on the manifold connecting to the receiver drier whilst the low side is adjacent to the compressor behind the LH front wheel.

The compressor is a 90cc scroll, which is variable from 100% to 30%. Compressor is standard specification to all vehicles although package makes them unique to V6 and V8.

## Air Distribution

Air distribution is as follows:

- Defrost duct integral with the fascia.
- Face vents, plenum, manifold, centre face duct, side face duct, side window demist duct are all sub-assembled into the fascia.
- Driver and front seat passenger foot ducts are installed in the fascia after it has been fitted to the vehicle.
- Rear foot ducts are fitted to the underframe.
- Rear face duct fitted to transmission tunnel.
- Rear face vent fitted to console.
- Extractor boxes fitted in rear quarter panels.

All flaps are electric servo controlled and comprise:

- Fresh/recirculation - heater/evaporator unit.
- Cold air bypass - heater/evaporator unit.
- Foot flap - mounted on plenum.
- Defrost flap - mounted on plenum.
- Face flap - mounted on plenum.

Sensors, for operation of the system, are:

- Ambient temperature sensor - located behind the lower front grille.
- Solar sensor - fitted to the top centre of the fascia at the defrost grille
- In-car sensor - aspirated from the plenum venturi sensor mounted inboard of the steering column.

- Two heater air outlet sensors
- One evaporator air outlet sensor

## Servicing

Routine servicing consists of particle filter replacement.

Replaceable items on the climate control system are:

- Servo complete with linkages
- Sensors
- Evaporator and seals
- Heater core and seals
- Blower motor
- Impeller/blower motor wheel
- Hoses
- Registers/vents
- Ducts, except the defrost
- Defrost and side window demist grilles
- Control unit
- Compressor
- Water pump
- Water valve
- Receiver/drier
- Condenser

There are no panel diagnostics but PDU facility is available with extensive capability, similar to current XJ and XK Series.

System refrigerant is R134a. Vehicle charge weight is 800 gms and charging is through the high side charge port only.

Oil type is WSH-MIC231-B and refill quantity is 180 cc -220 cc.

Special tools are hose clamp pliers and air-conditioning hoses spring lock de-coupler.

## General information

Ensure that the grille at the base of the windshield is kept clear of leaves, snow or other obstructions.

A solar sensor is mounted on top of the fascia, in the centre of the defrost grille, and this should not be covered.

The air conditioning system should be run briefly at least once each week with a cold setting to prevent the seals from drying out with subsequent refrigerant leaks.

When the engine and vehicle interior are cold the fan speed may be low until the engine has warmed up, this avoids excessively cold air being blown into the cabin.



Heated wiper park or (where optionally fitted) heated front screen.

With the engine running, due to the high current draw, press to switch on the heated wiper park to defrost the wiper park area, or where fitted, press to switch on the heated front screen for rapid defrost/demist.

Heated wiper park automatically operates in cold weather, and may stay on continuously. It is automatically switched on when 'DEFROST' is selected. If manually selected, the heated wiper park will automatically switch off after 10 minutes.

Heated front screen is automatically switched on when 'DEFROST' is selected. It will automatically switch off after 4 minutes. The heaters will switch off, or not operate, if low battery voltage is detected.

#### **Heated Rear Screen**

With the engine running due to the high current draw, press to switch on the heated rear screen for rapid defrost/demist. The rear screen heater will be automatically switched off after 10 minutes.

In cold conditions, the heated rear screen operates automatically. Selecting 'DEFROST' will also turn the heated rear screen ON. The heaters will switch off, or not operate, if low battery voltage is detected.

#### **Air Distribution**

Air distribution is automatically controlled when 'AUTO' is selected. Manual control can be achieved using the air distribution buttons.

#### **Heat at Rest Feature (V8 engine vehicles only)**

Interior heating may be continued after the engine has been switched off by turning the ignition to position 'II'. The climate control system will continue to provide heat to the vehicle interior until the engine cools down. Excessive use will cause a low battery voltage, which may prevent the vehicle from being started.

#### **Voice Activated Control**

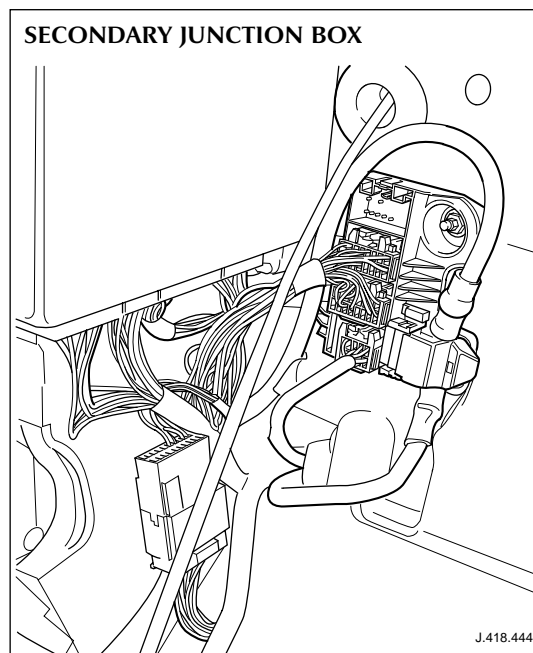
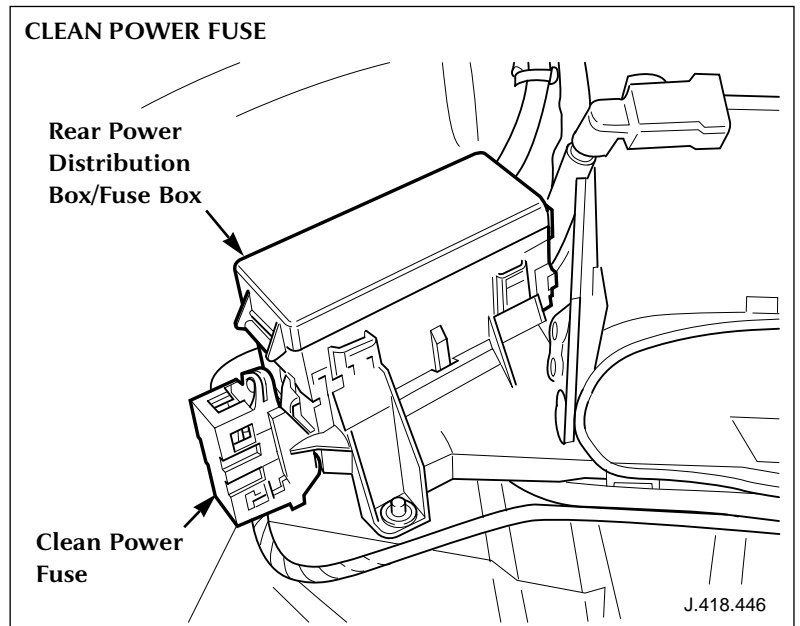
Some functions of the climate control system can be operated with the Voice Activation System (when fitted).

A full operating description is given in the Voice Activation Handbook included with the vehicle literature pack.

## Power Distribution

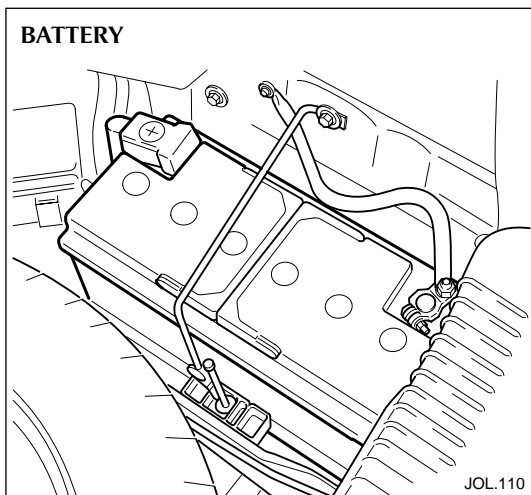
Distribution cables supply battery power through to the starter motor and to three power distribution/fuse boxes. Harnesses distribute battery, auxiliary and ignition power from the fuse boxes to all the user components. The front power distribution/fusebox clean power is fed via a clean power 175 ampere fuse (megafuse) which is located next to the rear power distribution box/fusebox.

The secondary junction box is located on the bulkhead in the LH side of the cabin near the 'A' post. It acts as a splice header to avoid having numerous splices in the harness.

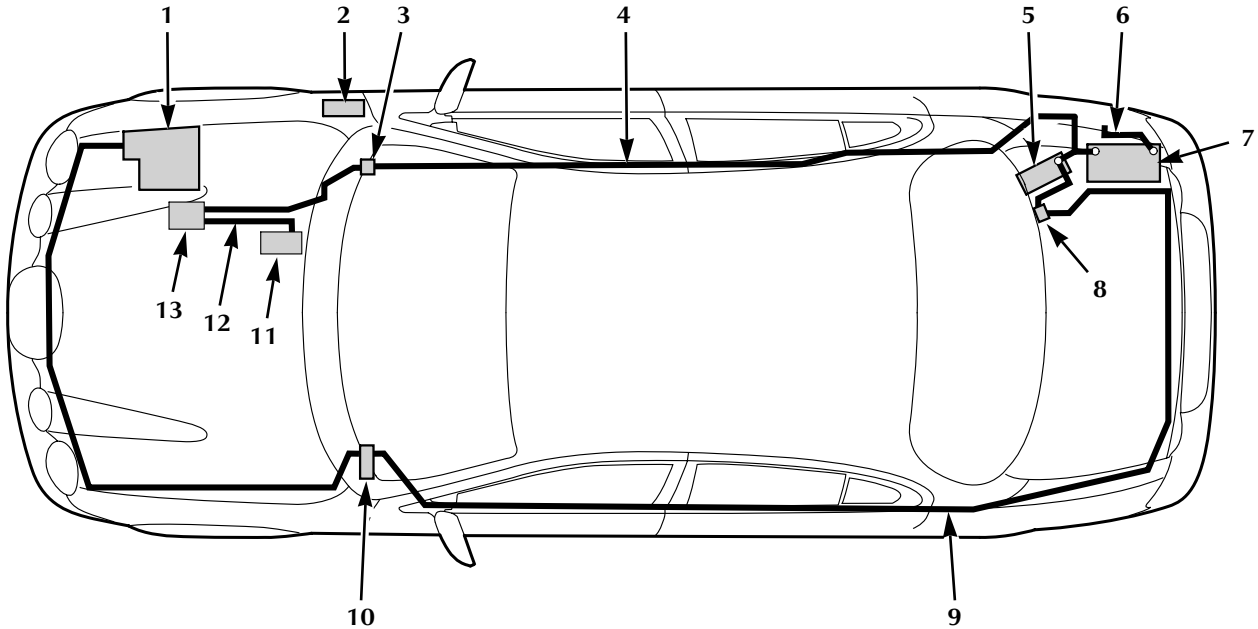


## Battery

The low maintenance DIN 88, 90 ampere hour battery is installed on the RH side of the luggage compartment floor below the trim.



**BATTERY AND FUSE BOX POWER DISTRIBUTION**



- |   |                                       |
|---|---------------------------------------|
| 1. Front power distribution box (fusebox) | 8. Clean power fuse (Megafuse)        |
| 2. Primary junction box (fusebox)         | 9. Clean power feed                   |
| 3. Power stud                             | 10. Secondary junction box.           |
| 4. Battery Positive cable                 | 11. Starter motor                     |
| 5. Rear power distribution box (fusebox)  | 12. Alternator/starter positive cable |
| 6. Battery Negative cable                 | 13. Alternator                        |
| 7. Battery                                |                                       |

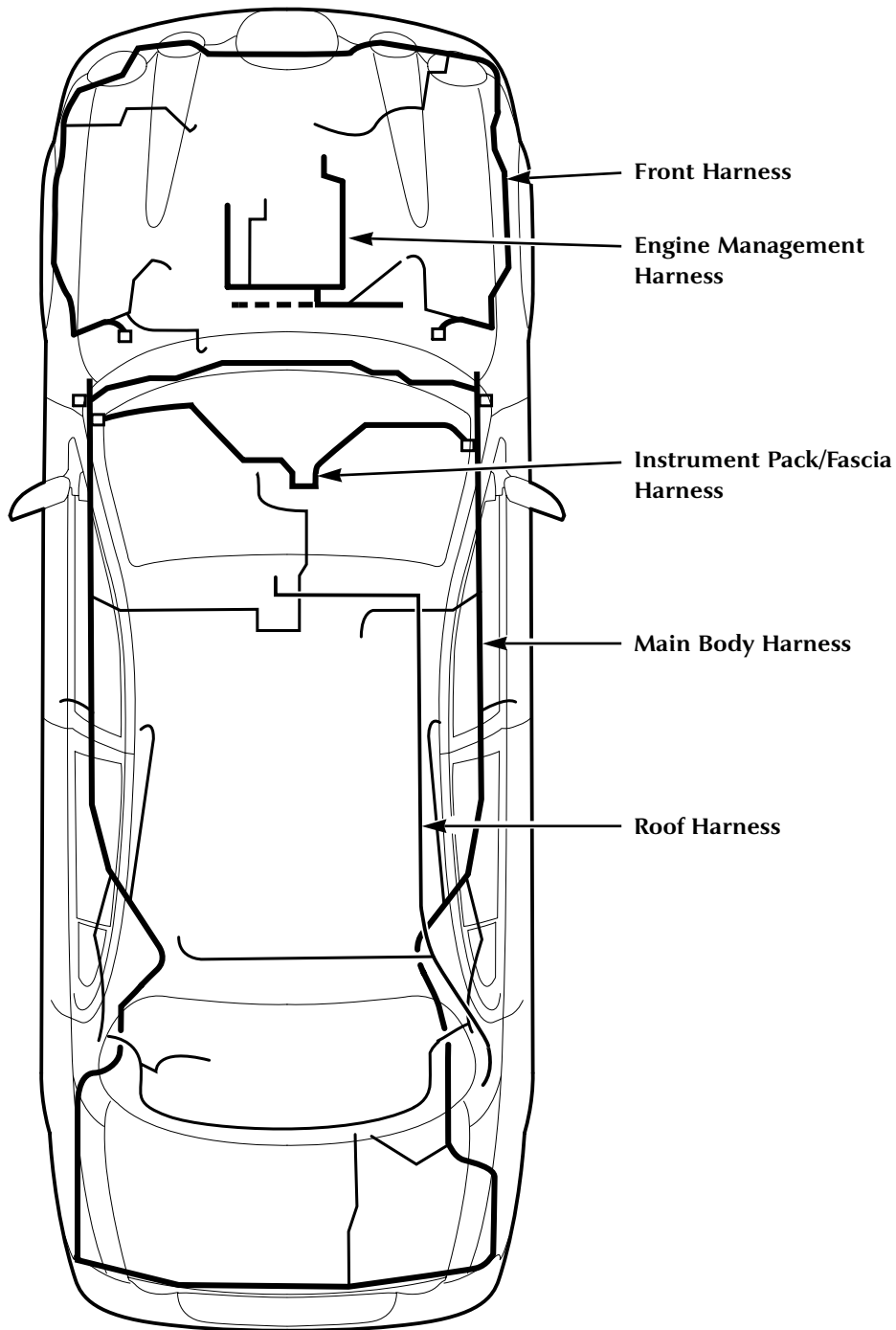
**Power Distribution Cables**

Heavy duty power distribution cables connect the battery to the body and to the engine starter and the vehicle fuse boxes. The distribution cable from the clean power fuse to the front fusebox is routed on the LH side of the vehicle and along part of the main body wiring harness.

**Harnesses**

The vehicle harnesses plug directly into components or component flying leads using locking connectors. The main harness layout is shown in the illustration on the following page.

HARNESS LAYOUT



J.418.426

**Module Communications Network**

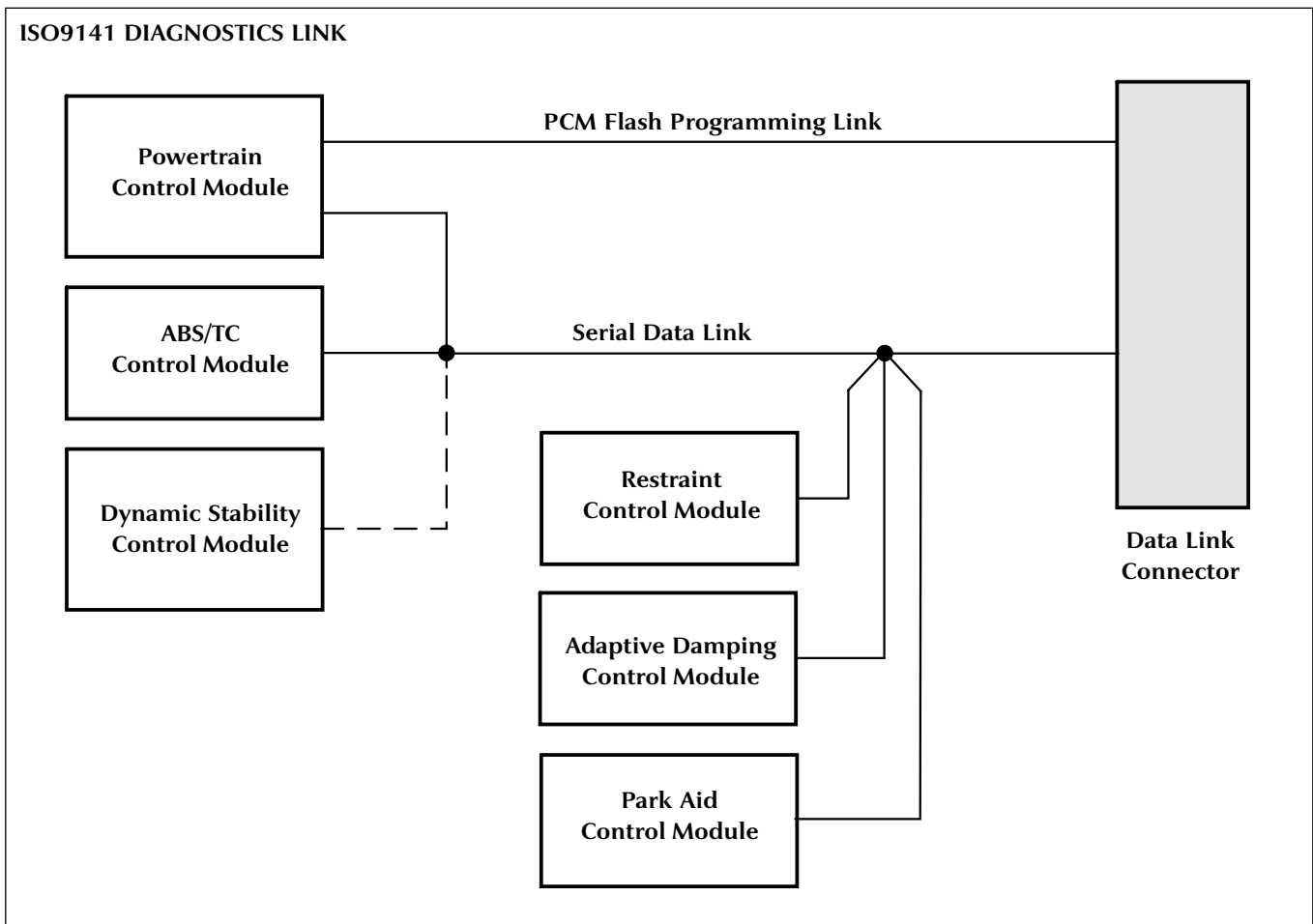
The multiplexed electrical architecture is used for the exchange of information between control modules, the instrument pack and the data link connector.

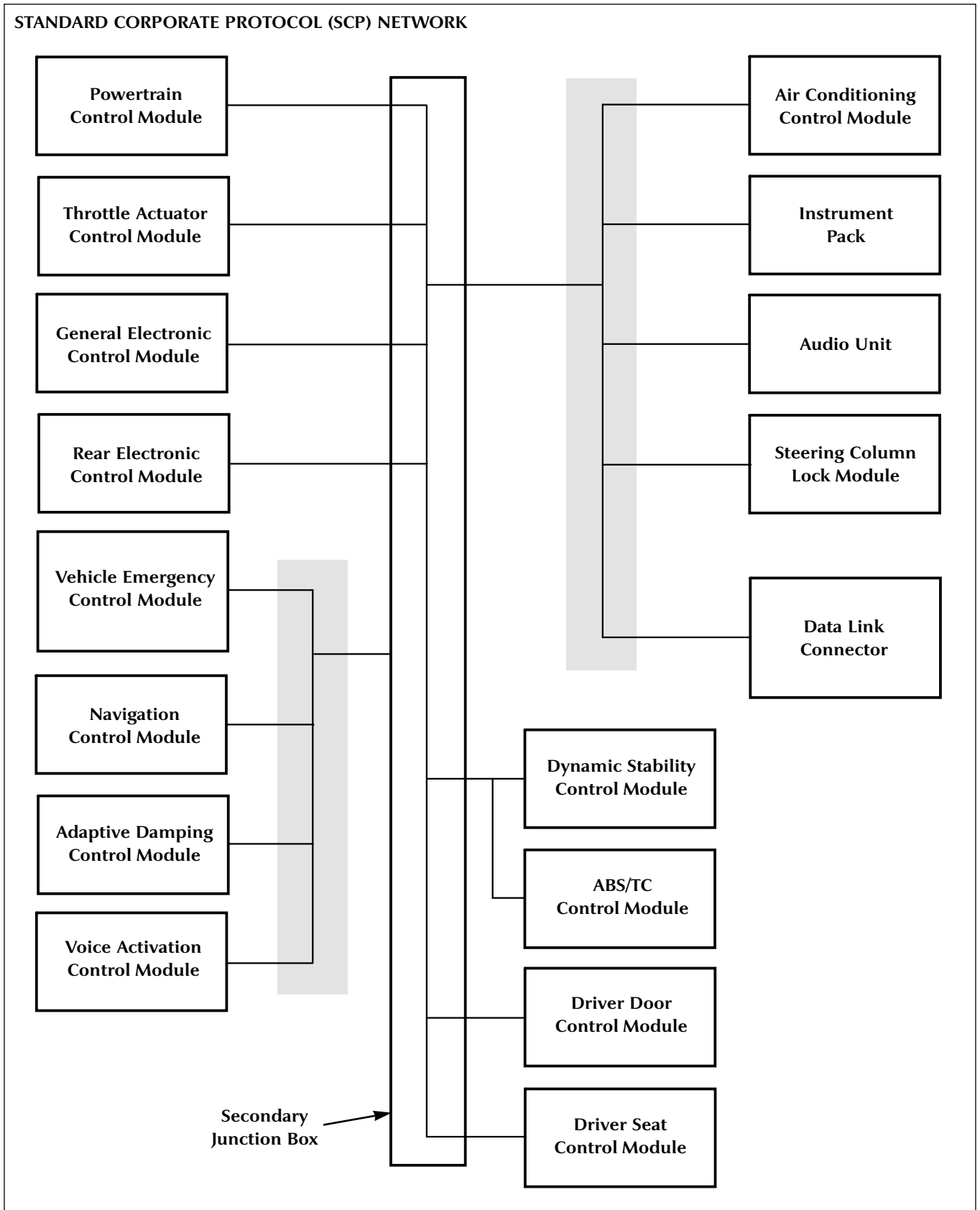
Multiplexing allows more than one piece of information to be carried along a wire. In this way, the electronic control modules can communicate with each other quickly and share information. With multiplexing, just two intertwined wires carry information to any control module on the network. On the SCP system hundreds of messages a second can be transmitted; the maximum waiting time is only a few hundred milliseconds. An additional benefit is that the modules ‘sleep’ when not in use, reducing battery drain.

**Principles of Operation**

The vehicle has two module communication networks. The first is the Standard Corporate Protocol (SCP - J1850 SAE standard)), which is an unshielded twisted pair cable: data bus plus and data bus minus. The second is the International Standard Organization (ISO) 9141 communication network, which is a single wire network. Both networks can be connected to the PDU tester by one connector: the data link connector. The data link connector is located under the instrument panel, between the steering column and the audio unit.

The ISO 9141 communications network does not permit inter-module communications. When the PDU tester communicates to modules on the ISO 9141 communication network , the PDU must ask for all information; the modules initiate communications.





The SCP communication network will remain operational even with severing of one of the bus wires. Communications will also continue if one of the bus wires is shorted to ground or battery positive voltage (B+), or if some , but not all, termination resistors are lost.

Unlike the SCP communication network, the ISO 9141 communication network will not function if the wire is shorted to ground or battery positive voltage (B+). Also, if one of the modules on the ISO 9141 network loses power or shorts internally, communication to that module will fail.

## Control Modules

The vehicle control module functions are described briefly below (for further information refer to the relevant sections throughout the Guide).

### Anti Lock Brake/Traction Control and Dynamic Stability Control, Control Modules

The anti-lock brake control module is connected to the SCP communication network. The module comes in two forms. The first type is the standard equipped anti-lock brake system (ABS) with traction control (TC). It controls the brake pressure to the four wheels to keep the vehicle under control while braking.

The second type of ABS is optional and is called dynamic stability control (DSC). This control module adds yaw sensors to the package to help in sensing a loss of vehicle control.

### Audio Control Unit

The audio control unit is connected to the SCP communication network and also to the audio control protocol (ACP) communication network. The audio control unit communicates with the compact disc and the cellular phone transceiver.

### Driver Door Control Module (DDCM)

DDCM is connected to the SCP communication network. The module controls many functions including power windows, driver mirror, power locks, and keyless remote entry.

### Driver Seat Control Module (DSCM)

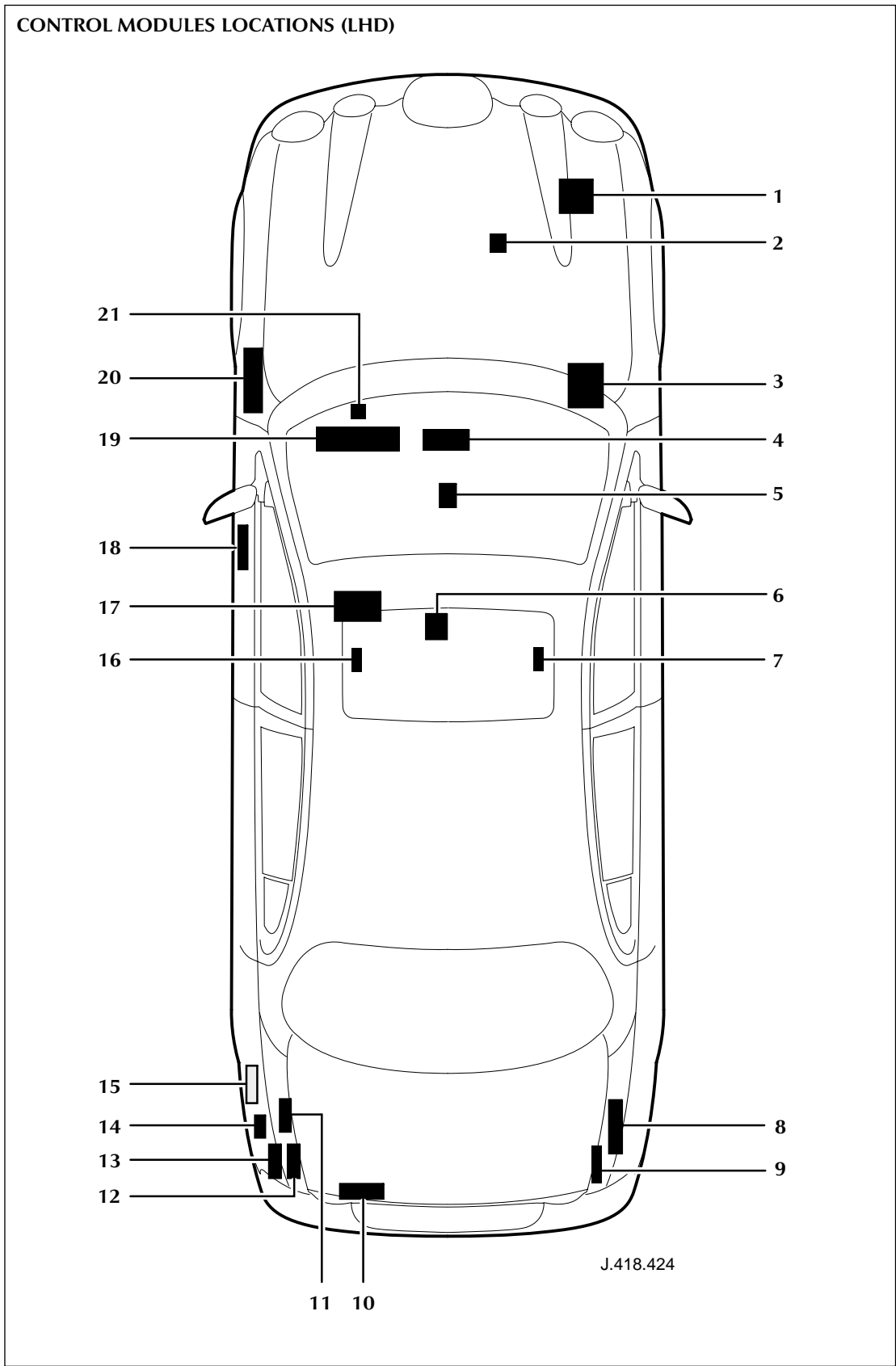
The DSCM is connected to the SCP communication network. The DSCM is located under the driver seat and controls the seat positions. The module also communicates with the DDCM to control the driver seat memory functions.

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## Control Module Locations

Key to illustration on following page:

1. Anti-lock brake system/Traction control system or Dynamic stability control (ABS/TCCM or DSCCM) (non-handed)
2. Throttle actuator control module (TACM) (non-handed)
3. Powertrain control module (PCM) (handed)
4. Air conditioning control module (A/CCM) (non-handed)
5. Restraint control module (RCM) (non-handed)
6. Sliding roof control module (SRCM) (non-handed)
7. Passenger seat heater control module (PSHCM) (non-handed)
8. Rear electronic control module (RECM) (non-handed)
9. Vehicle information control module (VICM) (Japan only)
10. Adaptive damping control module (ADCM) (non-handed)
11. Parking aid control module (PACM) (non-handed)
12. Navigation control module (NCM) (non-handed)
13. Vehicle emergency control module (VECM) (non-handed)
14. Voice-activated control module (VACM) (non-handed)
15. Cellular telephone control module (CTCM) (non-handed)
16. Driver seat heater control module (DSHCM) (non-handed)
17. Driver seat control module (DSCM) (handed)
18. Driver door control module (DDCM) (handed)
19. Instrument pack (handed)
20. General electronics control module (GECM) (non-handed)
21. Steering column lock module (SCLM) (handed)





**Air Conditioning Control Module (A/CCM)**

The A/CCM is connected to the SCP communication network. The A/CCM controls automatic climate functions that maintain the vehicle at a constant temperature setting.

**Instrument Pack**

The instrument pack is connected to the SCP communication network. The instrument pack displays information received on the SCP including speedometer, odometer, fuel, and message center warnings. The instrument pack also controls the passive anti-theft system (PATS).

**General Electronic Control Module (GECM)**

The GECM is connected to the SCP communication network. This module is located behind the LH 'A' post trim panel below the fascia. The GECM controls many of the body

systems, being directly linked to the interior lighting, wiper and security systems. It is a support module for other systems including exterior lighting, locking, remote entry, mirrors (passenger), seat/mirror/steering column memory recall and windows.

**Rear Electronic Control Module (RECM)**

The RECM is connected to the SCP communication network. This module is located in the passenger side luggage compartment behind the trim panel. The RECM controls the locking/unlocking of the front passenger and rear doors and provides power control of the fuel pump.

**Powertrain Control Module (PCM)**

The PCM is connected to the SCP communication network. For the location of this module see the S-TYPE Powertrain Technical Guide The PCM controls the engine performance, electronic ignition, emission controls, speed control, transmission and on board diagnostics.

**Steering Column Lock Module (SCLM)**

The SCLM is connected to the SCP communication network. The module is an integrated unit containing the steering column lock and lock drive and is controlled remotely from the separate ignition barrel.

**Restraints Control Module (RCM)**

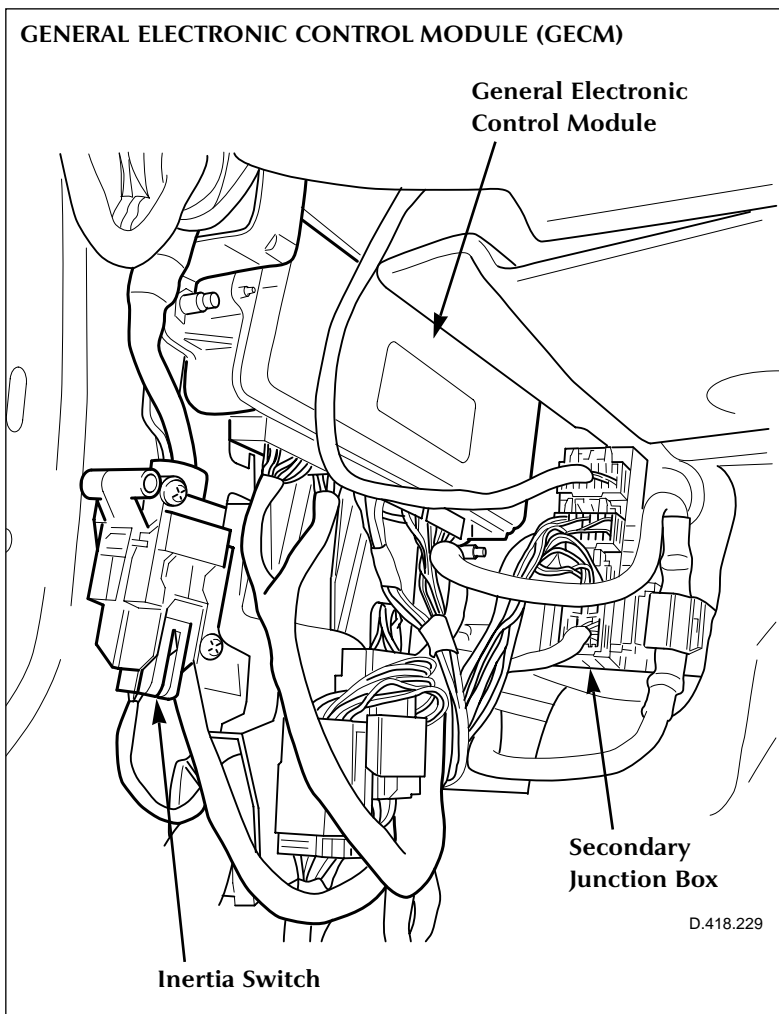
The RCM is connected to the ISO 9141 communication network. The RCM controls the deployment of the air bags based on sensor inputs.

**Vehicle Emergency Control Module (VECM)**

The VECM is connected to the SCP communication network. The module allows a user to request emergency assistance (police, ambulance, fire, wrecker) or directions to a desired location at the touch of a button. Also, if any of the vehicle's airbags are deployed while the VEMS system is powered ON, the system automatically issues a call for emergency assistance.

**Voice Activation Control Module (VACM)**

The VACM is connected to the SCP communication network. This module is located in the driver side luggage compartment behind the trim panel. The VACM controls and processes all



the voice commands given by the driver. It delivers this information to the audio unit, GSM or AMPS cellular phones and the A/CCM which then carry out these commands.

## Fuses and Relays

### Fuses

Fuse failure is identified by an inoperative circuit. Two types of fuses are fitted in the fuseboxes, a mini-type and a cartridge-type. A special tool for removing and replacing the mini-fuse is provided in the passenger compartment fusebox, together with spare fuses. If a spare fuse is used, replace it with a Jaguar approved fuse of the same amperage rating.

### Checking and Renewing a Blown Fuse

Make sure the new fuse is the correct rating (amperage). Fuses are colour coded according to the amperage and the rating is also marked on each fuse.

### WARNING:

**Do not fit a fuse of a different amperage from that removed. The electrical circuits may become overloaded with the subsequent possibility of a fire.**

**No attempt should be made to repair a fuse that has blown. This may cause a fire hazard or serious damage elsewhere in the electrical circuit.**

### Fuse Boxes

There are three separate fuse boxes fitted to the vehicle, each one containing fuses protecting a different group of circuits.

They are located in:

- The engine compartment (front power distribution box/fusebox)
- The passenger compartment (primary junction box/fusebox)
- The luggage compartment (rear power distribution box/fusebox)

### Engine Compartment Fusebox

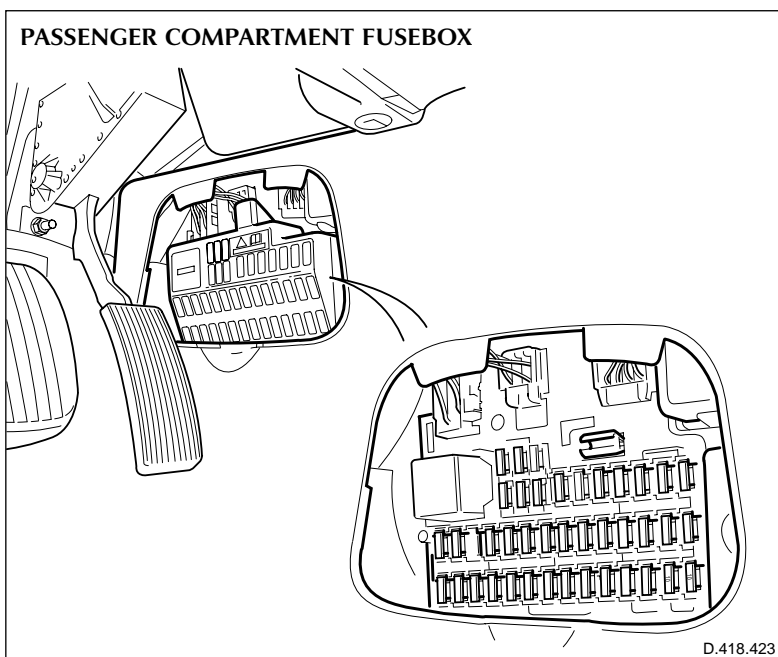
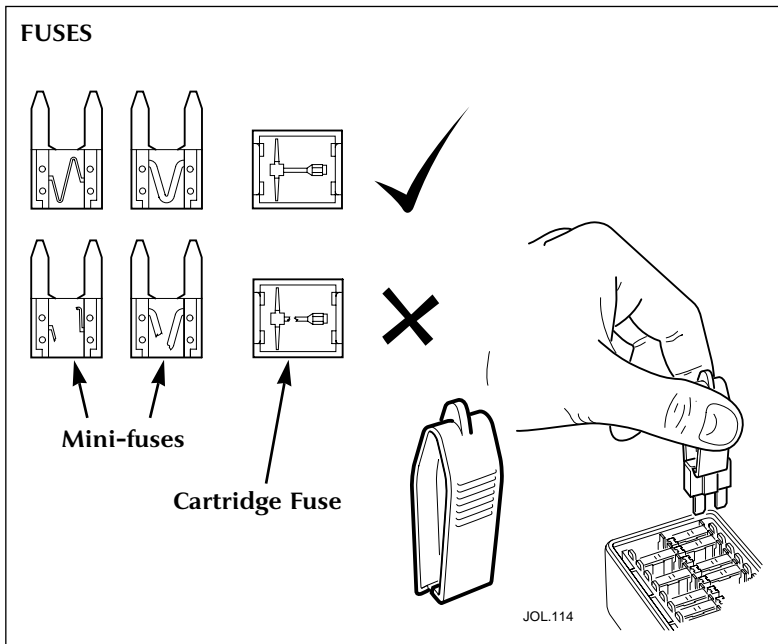
The fusebox is located in the engine compartment on the RH side adjacent to the windshield wash reservoir.

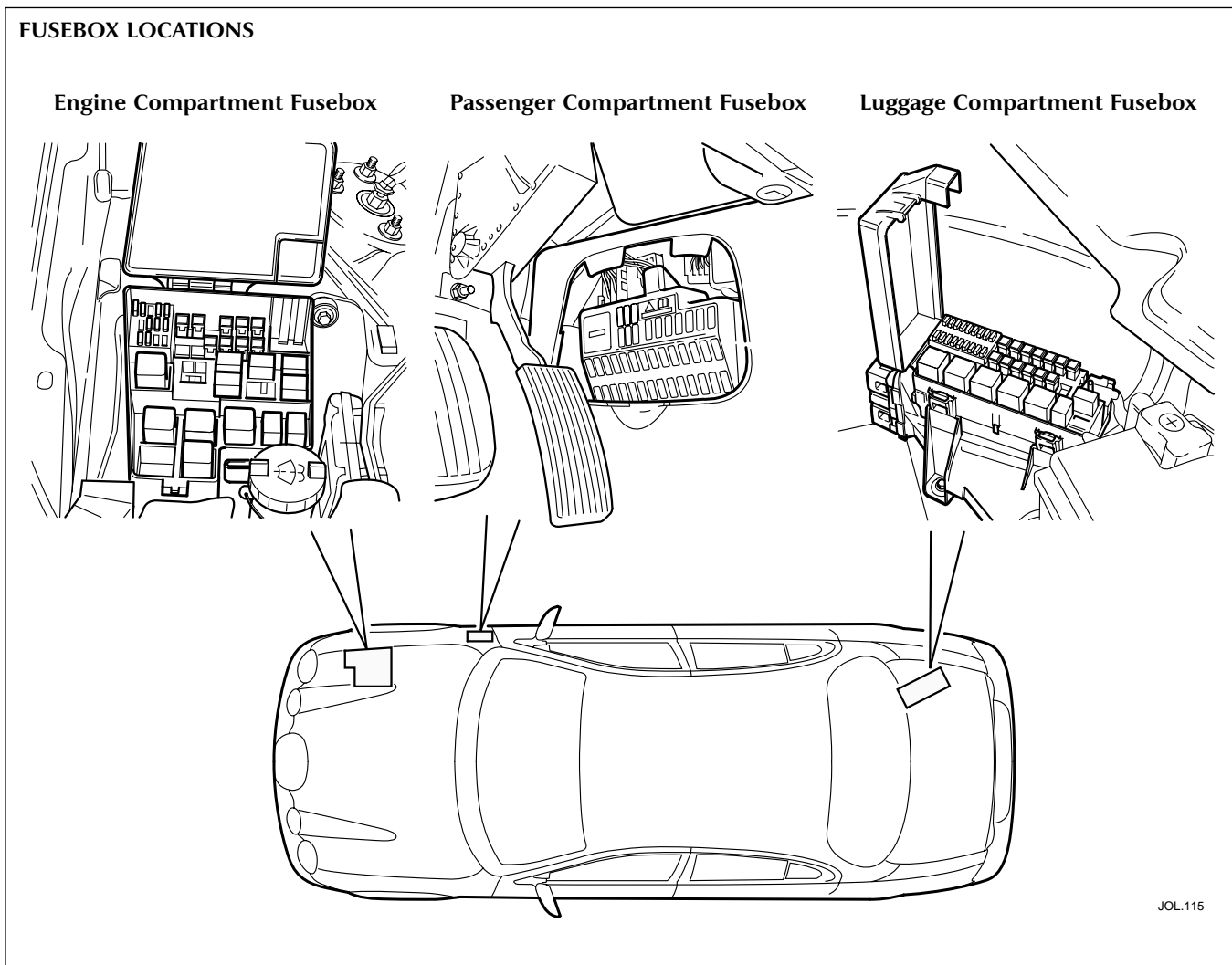
### Caution:

When a fusebox lid is removed, take care to protect the box from moisture, and refit the lid at the earliest opportunity.

Remove the fusebox lid by pressing the retaining lugs and lifting.

When refitting, press the fusebox lid in the area of the retaining lugs until the lid engages.





**Passenger Compartment Fusebox**

The passenger compartment fusebox is located on the right-hand side trim panel in the footwell.

Remove the fusebox lid by pressing the retaining lugs and lifting.

When refitting, press the fusebox lid in the area of the retaining lugs until the lid engages.

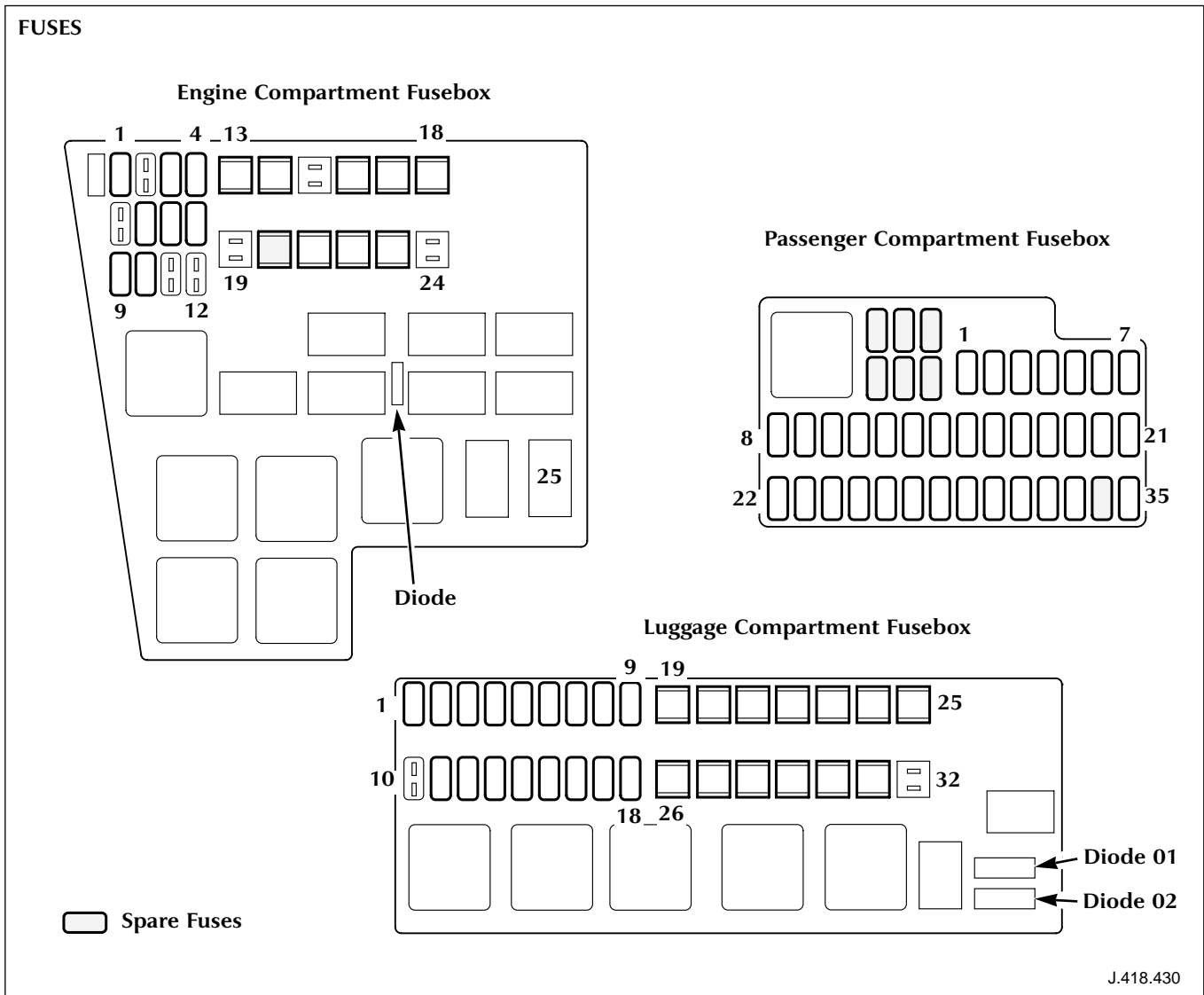
**Luggage Compartment Fusebox**

A fusebox is located in the luggage compartment, situated forward of the battery.

Fold the luggage compartment floor panel to gain access to the fusebox.

Remove the fusebox lid by pulling the retaining clips and pulling the lid upwards.

Reposition the lid and press down until the retaining clips engage.



**Fuse Locations and Details**

**Engine Compartment Fusebox**

No	Type	Rating (amps)	Colour	Circuit
1	mini	10	Red	Air conditioning clutch
2	mini	10	Red	Windshield washer pump
3	mini	15	Blue	Fog lamp
4	mini	15	Blue	Horns
5	mini	20	Yellow	Fuel Injector
6	mini	15	Blue	Transmission solenoid
7	-	-	-	Not used
8	-	-	-	Not used
9	-	-	-	Not used

No	Type	Rating (amps)	Colour	Circuit
10	-	-	-	Not used
11	mini	15	Blue	HO2 sensor (catalyst)
12	mini	10	Red	Coil on plug
13	cartridge	40 or 30	Green or Pink	RH heated windshield or heated wiper park (where fitted)
14	-	-	-	Not used
15	cartridge	40	Green	LH heated windshield
16	cartridge	30	Pink	Blower motor
17	-	-	-	Not used
18	cartridge	40	Green	Powertrain control module (PCM)
19	-	-	-	Not used
20	-	-	-	Not used
21	cartridge	30	Pink	Starter solenoid
22	cartridge	30	Pink	ABS motor
23	cartridge	20	Blue	Wiper motor
24	cartridge	30	Pink	Head lamp washer pump
25	cartridge	80	-	Cooling fan motor

Diode 1 PCM

#### Passenger Compartment Fusebox

No	Type	Rating (amps)	Colour	Circuit
1	mini	5	Brown	Starter relay coil via Park/Neutral switch
2	mini	5	Brown	Radio
3	mini	5	Brown	ABS/DSC module
4	mini	5	Brown	PCM relay coil, instrument pack, RECM, fuel pump relay, transit relay
5	mini	5	Brown	Autolamp sensor, heated seat module switch & overdrive cancel switch RSM, BSI
6	mini	10	Red	OBDII
7	mini	5	Brown	DDCM, DSCM, PCM, Anti-theft LED, security horn, power mirror
8	mini	5	Brown	Right-front direction indicators, side repeaters, side markers, park lights
9	mini	10	Red	Right-front low beam headlamp
10	mini	5	Brown	Left-front direction indicators side repeaters, side markers, park lamps
11	mini	10	Red	Left-front main beam lamp
12	mini	10	Red	Headlamp levelling, ABS/DSC module
13	mini	5	Brown	Instrument pack
14	mini	10	Red	RCM, Dual Automatic Temperature Control (DATC) module

No	Type	Rating (amps)	Colour	Circuit
15	mini	5	Brown	Adaptive damping module (ADRC)
16	mini	5	Brown	Heated seat switch module, electrochromic mirror, rain sensor
17	mini	5	Brown	RCM, Generator warning lamp
18	mini	20	Yellow	Radio, cellular phone, navigation unit
19	mini	15	Blue	Steering column motors
20	mini	10	Red	GECM, DATC, RECM, Instrument Pack, brake shift interlock
21	mini	10	Red	Power folding mirrors, electric sunblind
22	mini	10	Red	Driver's door mirror, driver's door lock motor
23	mini	10	Red	Right-front high beam
24	mini	5	Brown	Passive Anti-Theft System (PATS)
25	mini	10	Red	Left-front low beam headlamp
26	-	-	-	Not used
27	mini	10	Red	Navigation display, radio, phone, navigation module, Traffic Master
28	mini	5	Brown	Battery-backed security sounder
29	mini	5	Brown	Voice control, reversing aid, GECM, Trailer tow ignition sense, VEMS
30	mini	5	Brown	GECM
31	-	-	-	Not used
32	mini	20	Yellow	Accessory socket, cigar lighter
33	mini	10	Red	GECM illumination power
34	-	-	-	Not used
35	mini	5	Brown	Stop lamp switch

**Trunk Fusebox**

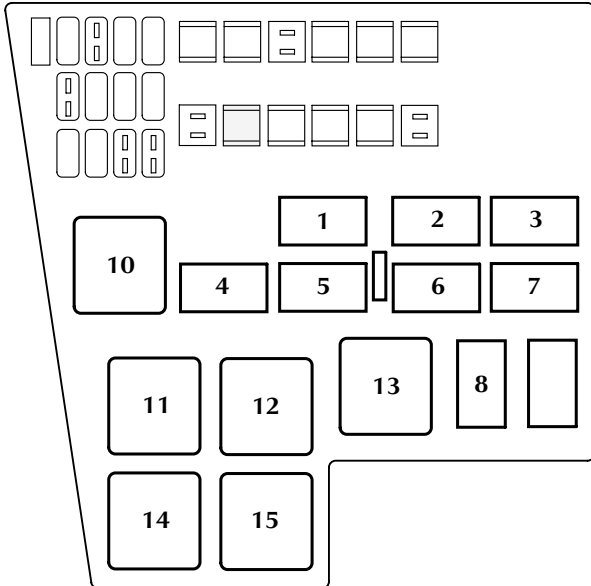
No	Type	Rating (amps)	Colour	Circuit
1	mini	15	Blue	Luggage compartment release solenoid
2	mini	10	Red	Right rear direction indicators, back up, fog lamps, side markers
3	mini	10	Red	Left stop lamp
4	mini	10	Red	Fuel door release solenoid
5	mini	10	Red	Courtesy and map lamps
6	mini	10	Red	Left rear direction indicators, back up, fog lamps, side markers
7	mini	10	Red	Right stop lamp
8	mini	10	Red	Center high mounted stop lamp
9	mini	5	Brown	Heated mirror
10	mini	5	Brown	Traffic Master
11	mini	15	Blue	Heated seats

No	Type	Rating (amps)	Colour	Circuit
12	mini	5	Brown	RECM - logic, Transit relay
13	mini	15	Blue	Adaptive damper ride control (ADRC)
14	mini	5	Brown	Phone, CD, Vehicle emergency message system (VEMS)
15	mini	5	Brown	Alternator sense
16	mini	20	Yellow	Sliding roof
17	mini	15	Blue	Fuel pump
18	mini	20	Yellow	Subwoofer amplifier
19	cartridge	20	Blue	RECM, left rear window
20	cartridge	30	Pink	Driver door module - Driver window
21	cartridge	30	Pink	Driver lumbar
22	cartridge	20	Blue	Ignition
23	cartridge	30	Pink	Switched system power 4
24	cartridge	30	Pink	Switched system power 3
25	cartridge	40	Green	Primary junction box
26	cartridge	30	Pink	GECM Passenger window (30amp early cars)
27	cartridge	30	Pink	RECM, right rear window
28	cartridge	30	Pink	Passenger lumbar
29	cartridge	30	Pink	Rear defroster
30	cartridge	20	Blue	Switched system power 1
31	cartridge	30	Pink	Switched system power 2
32	-	-	-	Unused
Diode 01				Unused
Diode 02		1		Fuel pump motor

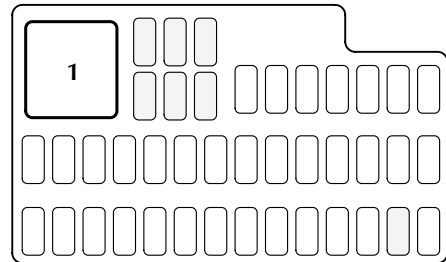


**RELAYS**

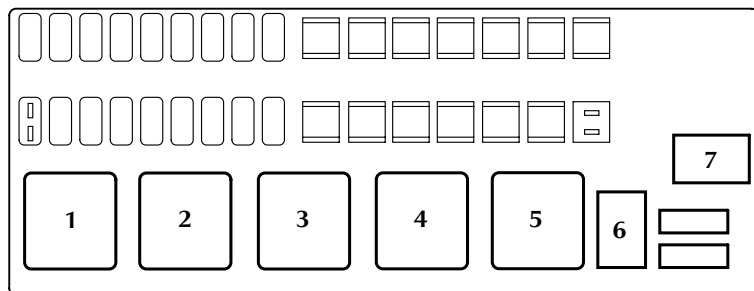
**Engine Compartment Fusebox**



**Passenger Compartment Fusebox**



**Luggage Compartment Fusebox**



J.418.431

**Relays**

The relays are located in the three fuse boxes. Some are a smaller: half the standard ISO size.

Key to illustration:

**Engine Compartment Fusebox**

- 1. Wiper fast/slow relay
- 2. Wiper park relay
- 3. Coils on plugs & HO2 sensor (catalyst) relay
- 4. Windshield washer relay
- 5. Auxiliary coolant pump relay (V8 only)
- 6. Horns relay
- 7. Fog lamp relay
- 8. Air conditioning clutch relay
- 9. Unused

- 10. Blower motor relay

- 11. LH heated windshield relay and heated wiper relay
- 12. RH heated windshield relay
- 13. Headlamp washer pump relay
- 14. Powertrain control module relay
- 15. Starter motor relay

**Passenger Compartment Fusebox**

- 1. Cigar lighter/Accessory socket

**Luggage Compartment Fusebox**

- 1. Switched system power 1 relay
- 2. Switched system power 2 relay
- 3. Rear defroster
- 4. Switched system power 3 relay

5. Switched system power 4 relay
6. Fuel pump relay
7. Brake shift interlock relay

### Transit Relay

The purpose of the Transit Relay is to prevent the battery from being discharged during transit and Dealer storage. It automatically isolates the battery following ignition off.

The transit relay is installed on the Negative line through a spur from the trunk lighting harness and is located on the battery Negative post.

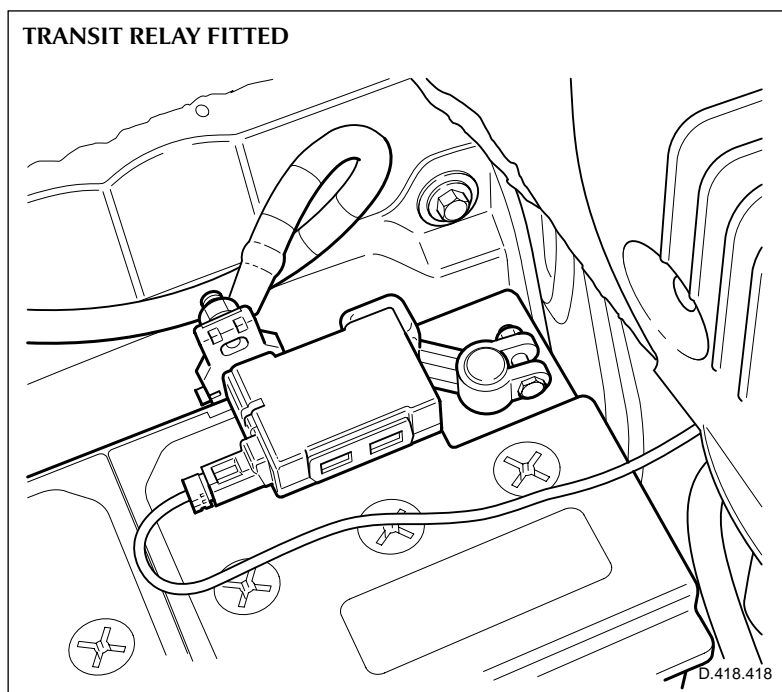
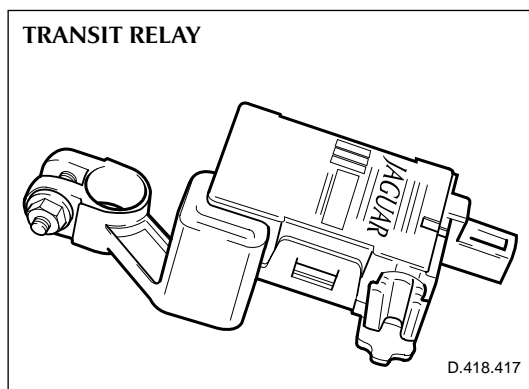
If the vehicle is to be handed over to a customer within a period of 24 hours of completion of the PDI, the Transit Relay **MUST** be removed.

If the vehicle is **NOT** to be handed over to a customer within a period of 24 hours of completion of the PDI, a Transit Relay Test Lead must be fitted to allow the PDI to proceed.

Under no circumstances should any means other than the test lead be used to bridge the Transit Relay.

The Transit Relay Test Lead **MUST** be removed after the completion of the PDI and stored for further use. Under no circumstances should the vehicle be transported with the Transit Relay Test Lead fitted.

The procedure to fit the Transit Relay Test Lead and remove the Transit Relay is given in the PDI Manual.



## Exterior Lighting

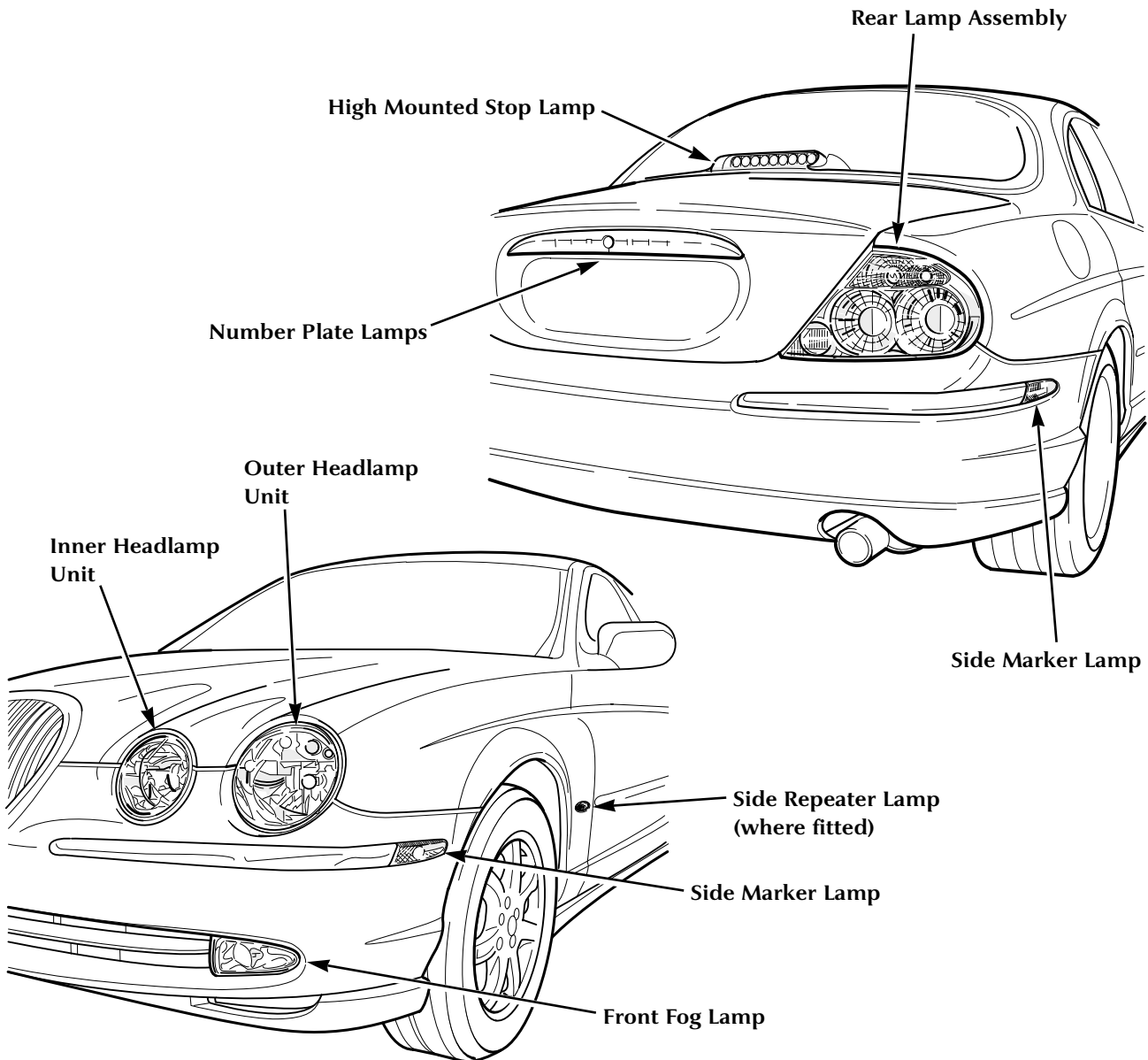
The exterior lighting switch located on the fascia, operates the headlamps, sidelights, fog lamps and the delay variable timer switch. Each headlamp assembly consists of two headlamp units, the main beam lamp unit is the inner and the dipped beam, front parking (side) lamp and the direction indicator lamp unit is the outer.

Fog lamps are located in recesses in the front bumper. The two retaining screws are located behind the anti-theft cover and splitter vane.

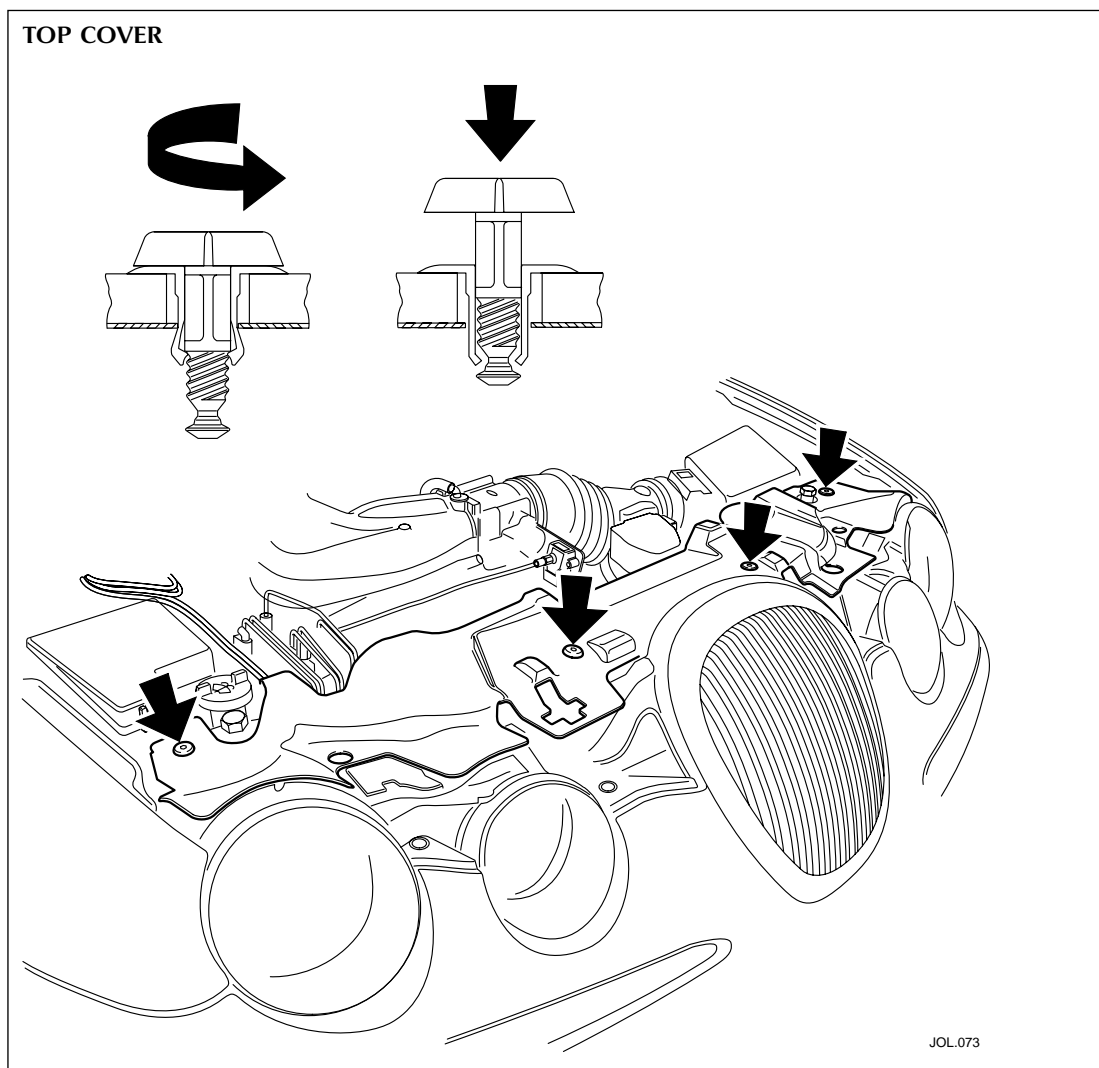
Each rear lamp assembly incorporates a tail/stop lamp and an auxiliary tail lamp, a fog lamp, a reversing lamp and a direction indicator lamp. Access for bulb replacement is from the luggage compartment. The high mounted stop lamp is powered via the stoplamp switch, it is clipped to the rear screen and is replaceable as a unit.

The side repeater lamps (where fitted) are located within the front fender. The sidemarker lamps are located with the rear and front bumper and are

### EXTERIOR LAMPS



J.418.441 & 442



supplied as part of a high level bumper assembly (the side markers are located in the bumper by tangs on one side of the unit and held in position by a spring clip on the other side).

### Bulb renewal

It is important that only Jaguar bulbs of the type specified are used when renewing bulbs. Before renewing bulbs, switch off the ignition and light switches.

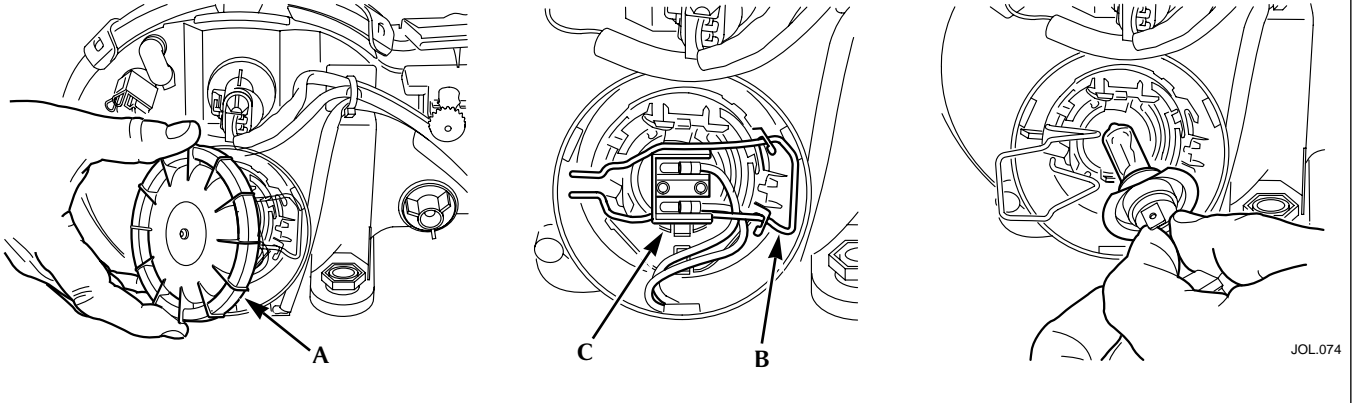
### Top cover

To gain access to the headlamp units, the top cover must be removed.

Turn the four fasteners a quarter turn anti-clockwise and then remove the top cover.

After changing the defective bulb, refit the cover and turn the fasteners clockwise to retain the cover.

**HEADLAMP - DIPPED BEAM**



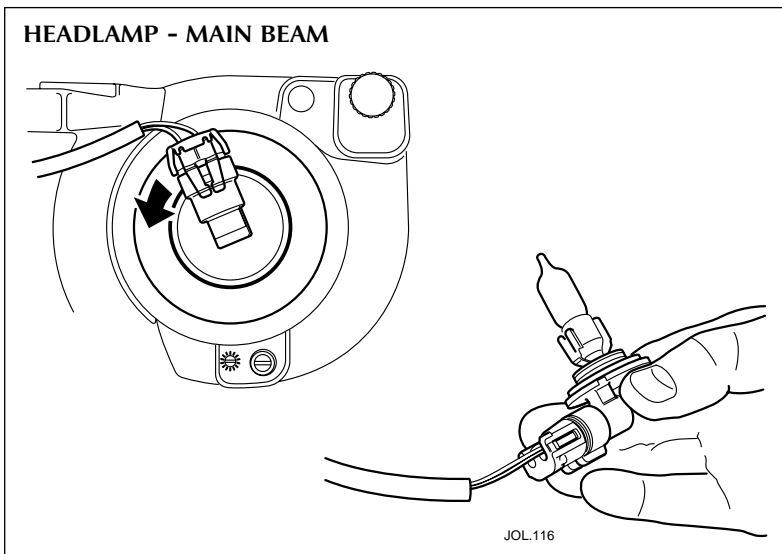
**Headlamp - Bulb Renewal**

The bulbs are halogen type and will be damaged if touched by hand or contaminated with oil or grease. It is important to use clean gloves or cloth when handling a bulb which is to be used again. A contaminated bulb may be cleaned with methylated spirit before refitting.

**Dipped Beam (outer) Headlamp**

Open the bonnet.  
 Remove the top cover.  
 Turn the circular cover (A) anti-clockwise and remove.  
 Press the spring clip (B) towards the bulb and downwards to release the bulb. Remove the bulb/connector (C) from the headlamp assembly. Pull the connector from the bulb.  
 Attach the connector to the new bulb, type H7 for dipped beam, and fit to the headlamp. The bulb will only correctly fit in one position.  
 Engage the spring clips to retain the bulb and then fit the circular cover.  
 Refit the top cover and close the bonnet.  
 Have the headlamp aim checked after bulb replacement.

**HEADLAMP - MAIN BEAM**



**Main Beam (inner) Headlamp**

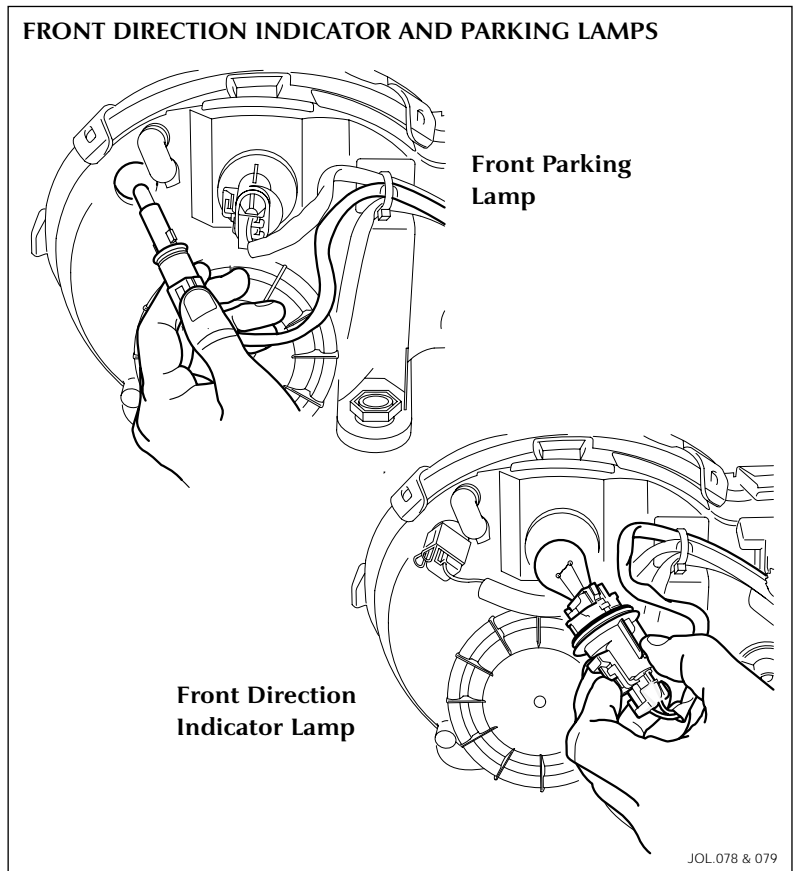
Open the bonnet.  
 Remove the top cover.  
 Turn the bulb holder a quarter turn anti-clockwise and remove the bulb and holder from the lamp unit.  
 Fit a new bulb to the holder, type HB3 for main beam.  
 Fit the holder to the lamp unit, the bulb will only correctly fit in one position.  
 Refit the top cover and close the bonnet.

**Front Direction Indicator - Bulb Renewal**

Remove the top cover.  
 The bulb is contained within the outer headlamp.  
 Turn the holder a quarter turn anti-clockwise and remove the bulb and holder.  
 Remove the bulb and fit a new one of the correct type, PY21W.  
 Fit the holder to the lamp unit, it will only fit in one position.  
 Refit the top cover and close the bonnet.

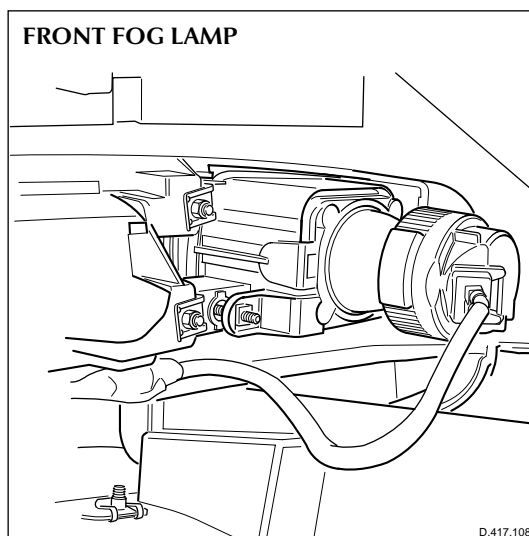
**Front Parking (side) Lamp - Bulb Renewal**

Open the bonnet.  
 Remove the top cover.  
 The front parking lamps are contained within the outer headlamp units.  
 Rotate the bulb holder anti-clockwise and remove from the headlamp.  
 Pull the capless bulb from the holder and fit a new one of the correct type, W5W.  
 Reposition the bulb holder in the headlamp unit and turn clockwise.  
 Refit the top cover and close the bonnet.

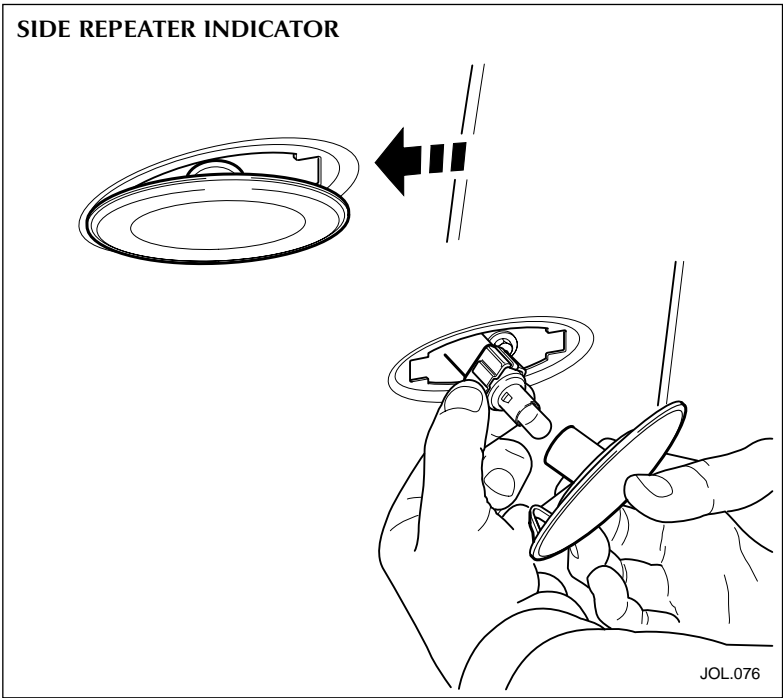


**Front Fog Lamp - Bulb Renewal**

Remove bumper splitter vane and blackout panel.  
 Unscrew fixing; remove lamp from front.  
 Twist/remove bulb carrier.  
 Remove the bulb and fit a new one of the correct type, H3.  
 Refit the bulb carrier, fixing, blackout panel and splitter vane.



**SIDE REPEATER INDICATOR**



JOL.076

**Side Repeater Indicator - Bulb Renewal**

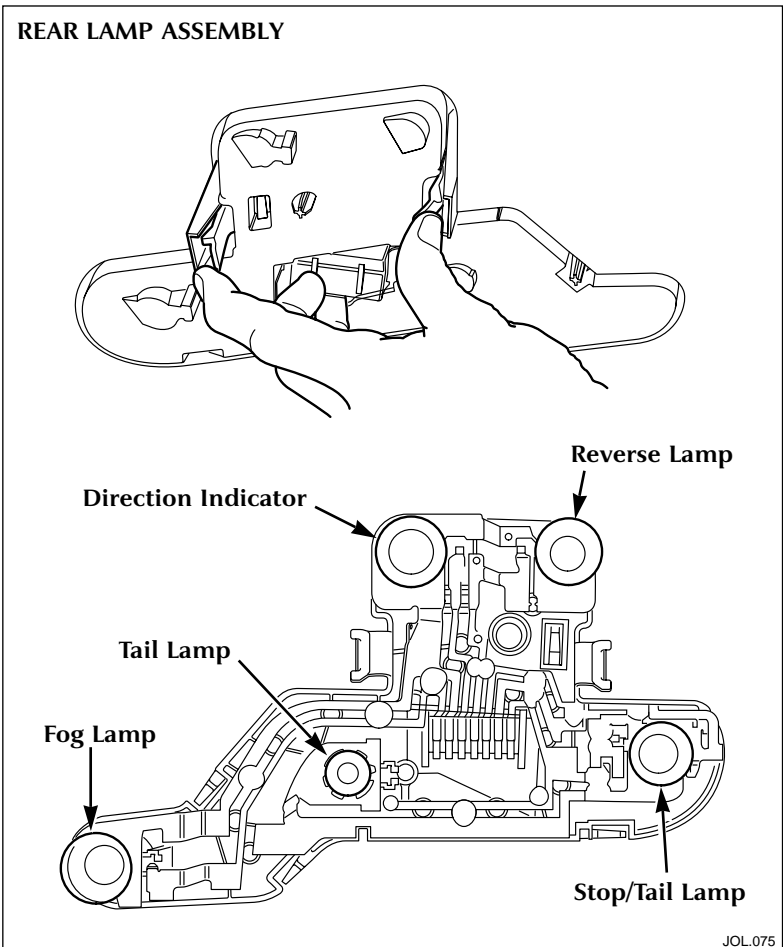
Remove the lamp unit from the front wing panel by pressing the unit forwards or rearwards to compress the spring clip and remove the complete unit.

Twist the bulb anti-clockwise and remove.

Fit a new bulb of the correct type, W5W.

Press the unit into the recess until it clicks into place.

**REAR LAMP ASSEMBLY**



JOL.075

**Rear Lamp Assembly - Bulb Renewal**

The rear lamp assembly has the following bulbs:

- Reverse lamp, type P21W.
- Stop/tail lamp, type P21/4W.
- Fog lamp, type P21W
- Tail lamp, type R5W.
- Direction indicator, type PY21W.

Ensure that the lamps and ignition switch are OFF before removing any bulbs.

Open the luggage compartment, loosen the side carpet and unclip the rear lamp bulb carrier.

Remove the faulty bulb and fit a new one of the correct type, as illustrated on the bulb holder. Fitment of the correct type is essential.

Refit the bulb carrier assembly, ensuring that the clips are correctly secured.

Refit the carpet.

**High Mounted Stop Lamp**

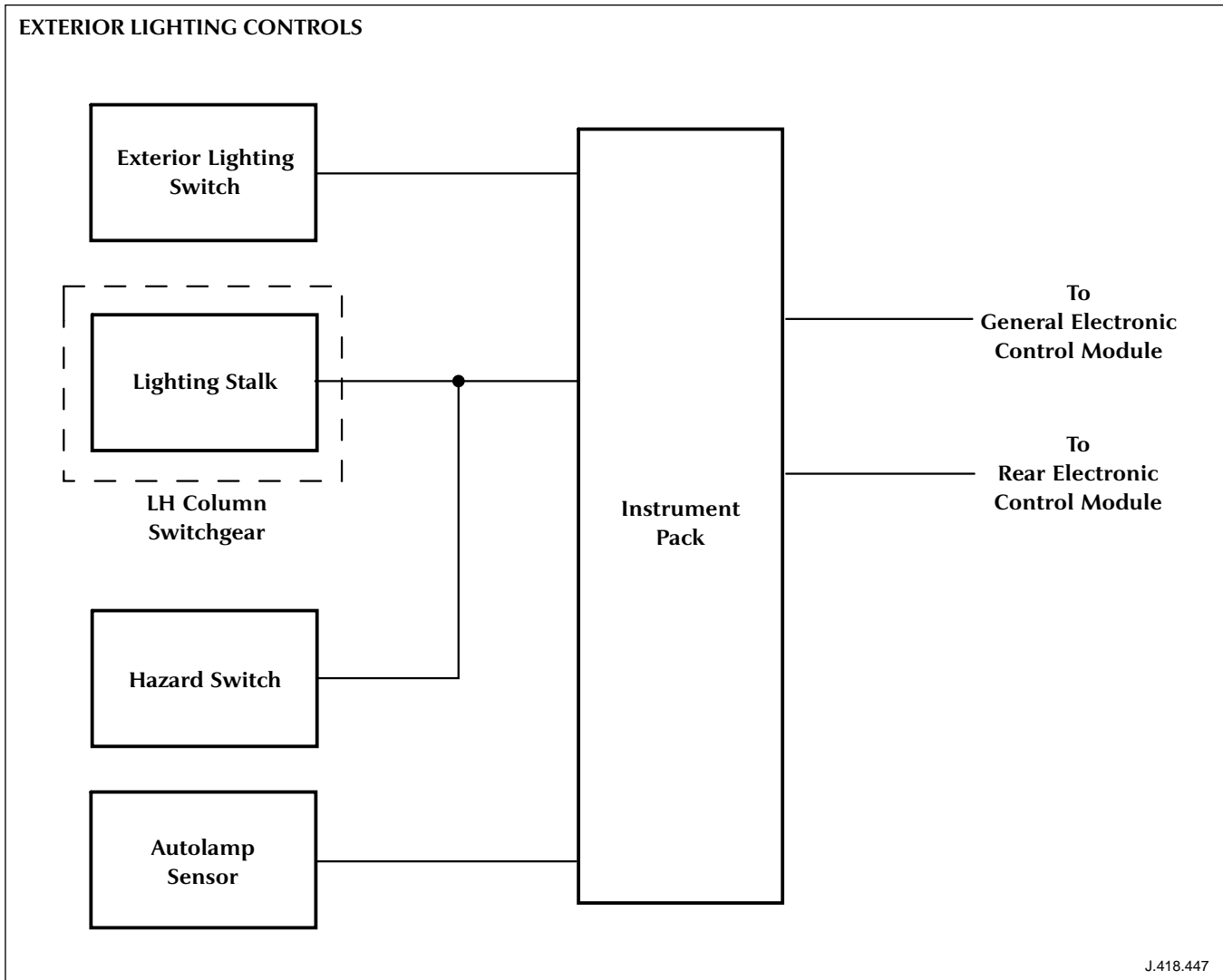
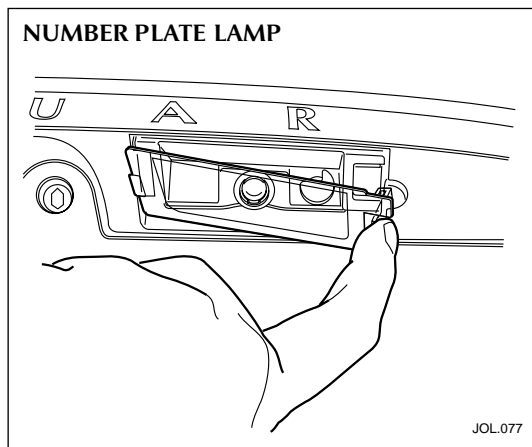
Remove the rear parcel tray trim panel.  
Depress clips to remove from pegs.

**Number Plate Lamp - Bulb Renewal**

Push the lens clip sideways and remove the lens from the vehicle.

Remove the bulb and fit a new one of the correct type, W5W.

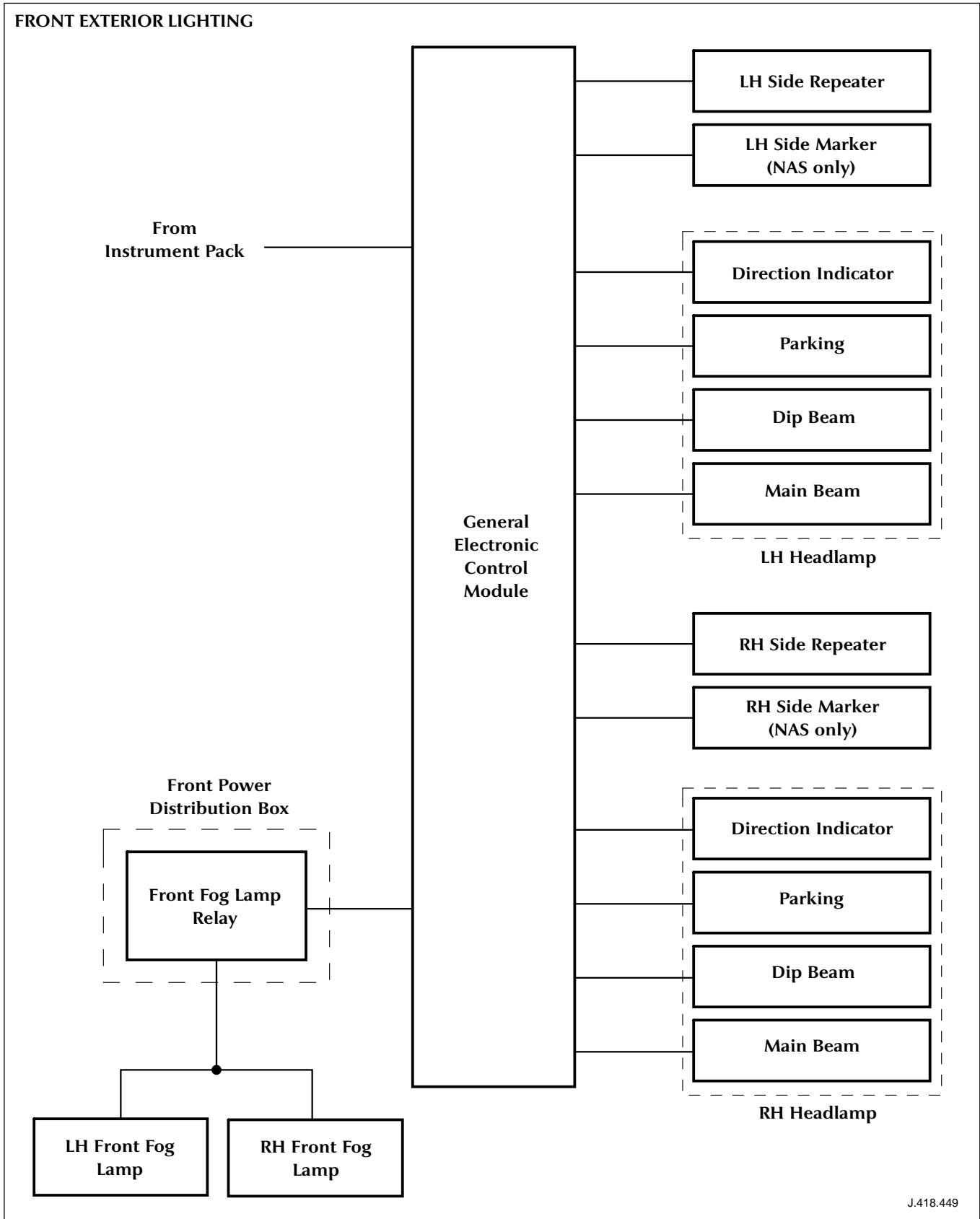
Refit the lens by pressing it firmly into the recess until it clicks into place.



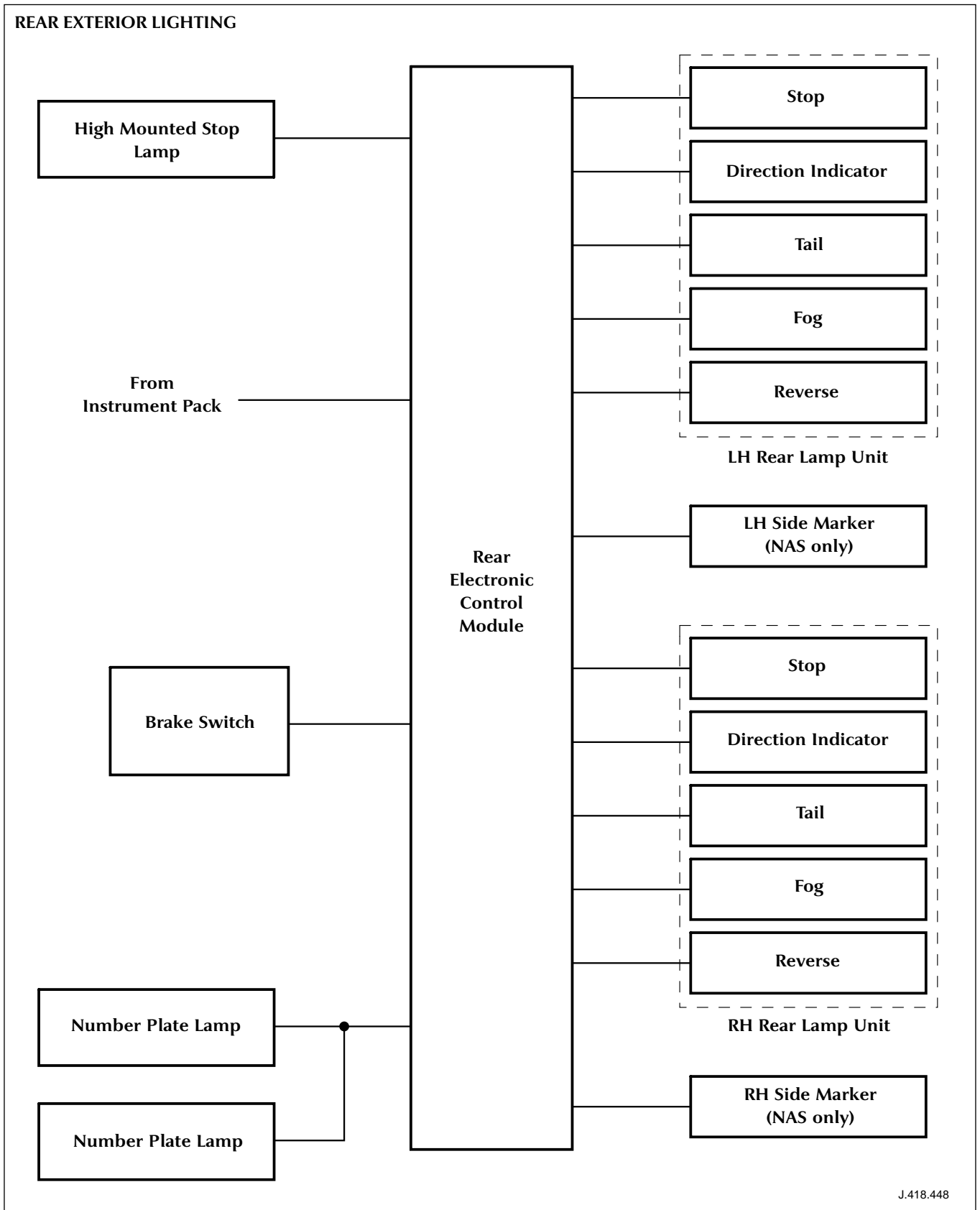
J.418.447



FRONT EXTERIOR LIGHTING



J.418.449



## Interior Lighting

The automatic operation of the interior lamps is controlled by the general electronics control module (GECM).

The interior lighting system consists of the following lamps:

- Two front interior lamps.
- Front footwell lamps
- Two rear interior lamps with integral reading lamps.
- Front door/puddle lamps
- Glove compartment lamp.
- Vanity mirror lamps.
- Two luggage compartment lamp.

### Front and Rear Interior Lamps

Two combined map/reading/courtesy lamps are fitted in the front overhead console. Operation is described in the 'Instrument and Controls' section. A map/reading/courtesy lamp is fitted above each rear passenger grab handle.

### Illuminated Entry/Exit

When the vehicle is unlocked, the courtesy lamps will gradually illuminate and remain on for 20 seconds.

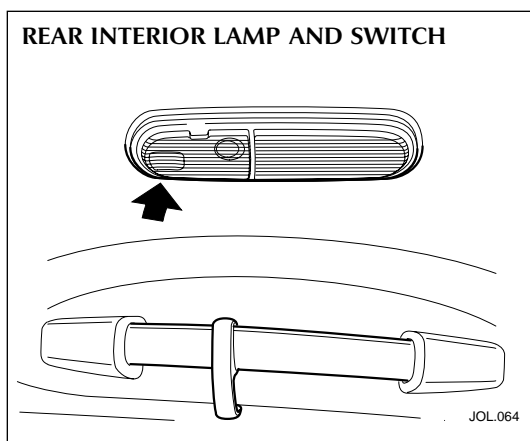
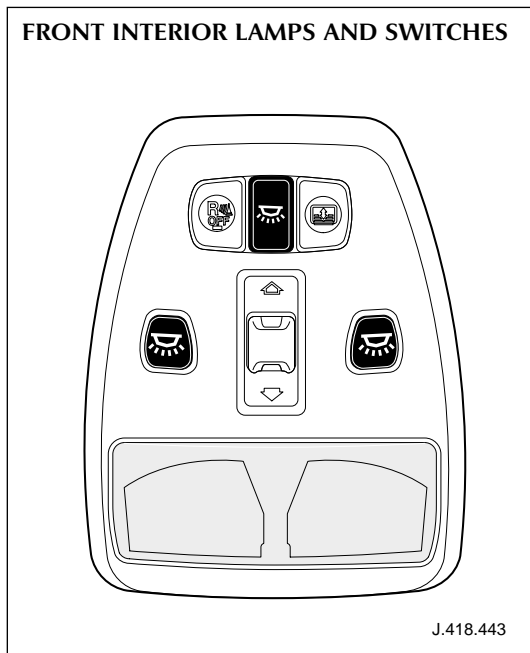
If the courtesy lamps are on they will fade off when the vehicle is locked with a key or a key-ring transmitter.

### Door Guard/Puddle Lamps

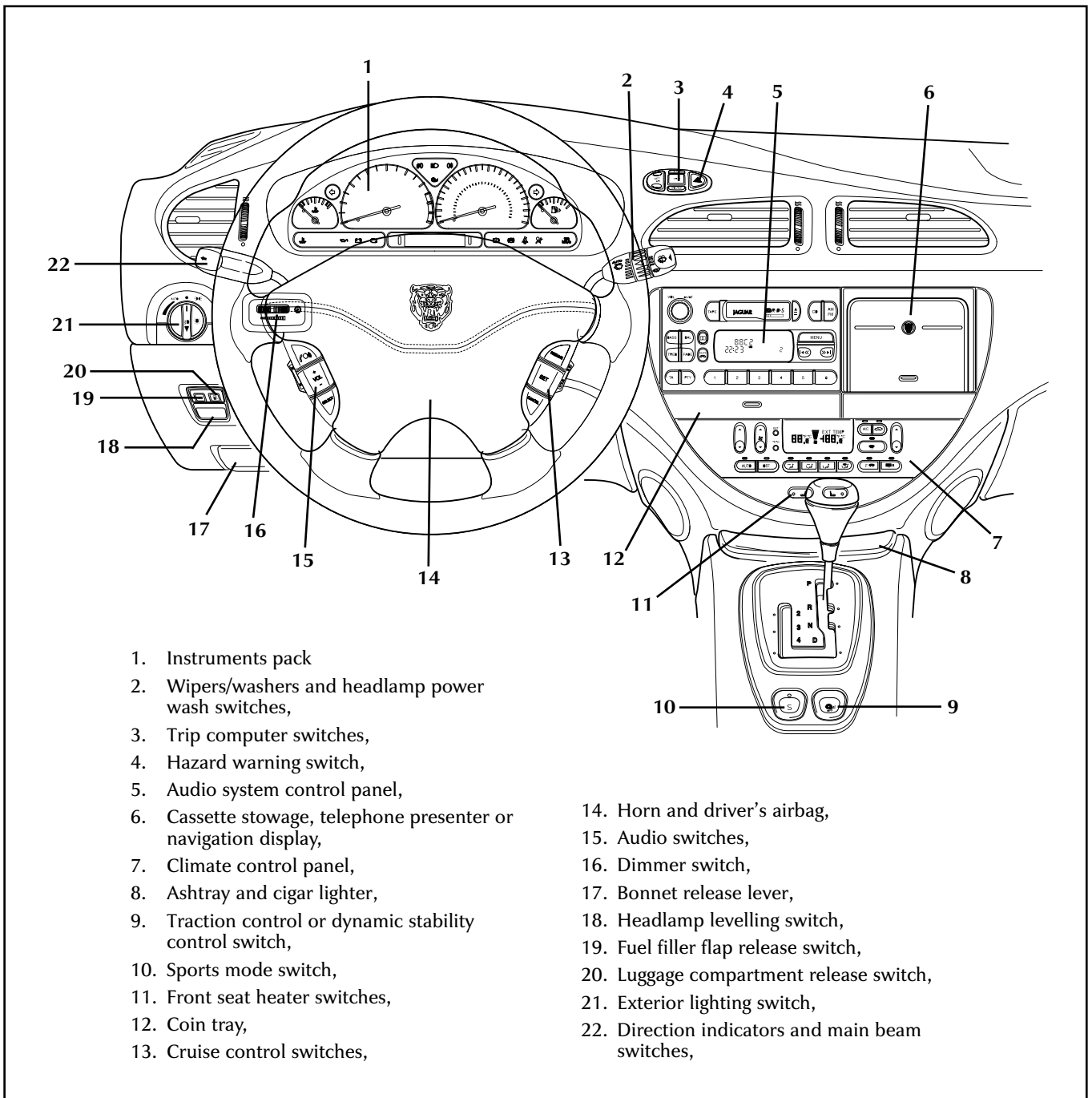
Door guard lamps are fitted to each front door to give warning of an open door to passing vehicles. The rear doors are fitted with reflectors. The puddle lamps illuminate the 'step out' area at night.

### Luggage Compartment, Glovebox and Vanity Mirrors

The luggage compartment, glovebox and vanity mirrors are illuminated when in use. These lamps will work for up to 40 minutes after the ignition has been switched off.



## Instrumentation and Controls



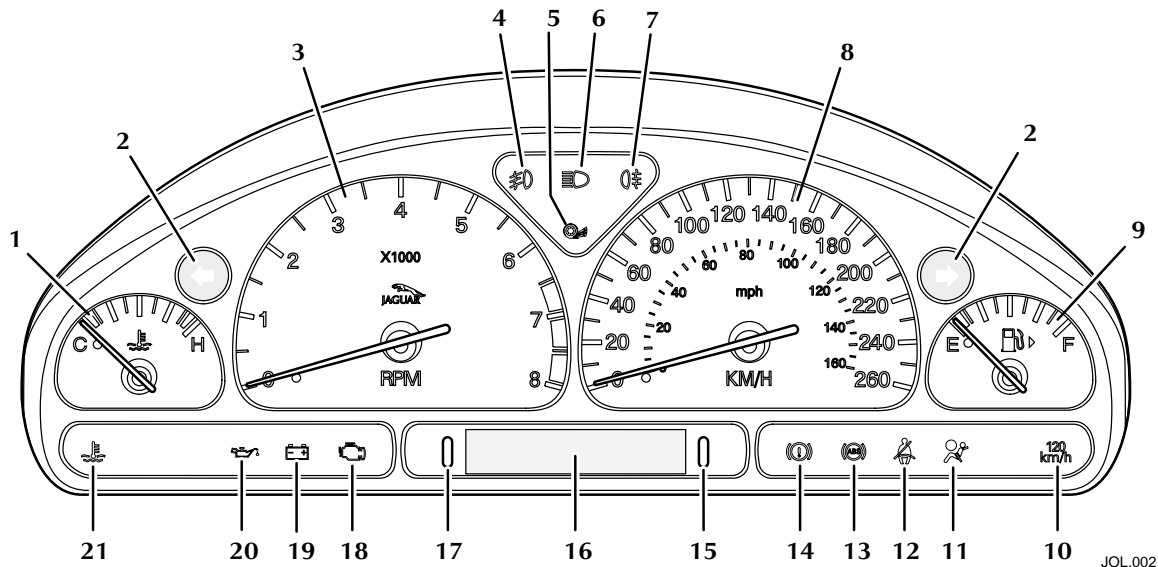
### Instrument Pack

Vehicle instrumentation is installed on the instrument pack on the fascia. The calibration of the odometer and speedometer, the language of the message center and the composition of the indicator lamps are tailored to suit the destination market. The instrument pack acts as a system monitor for the audible and visual warnings.

When the ignition switch is turned to position II, the following visual warnings (telltales) are illuminated for three seconds to provide a bulb prove out function:

- ABS telltale
- Airbag telltale (six seconds prove out)
- Catalyst over temperature telltale (Japan only)
- Charging system telltale

INSTRUMENT PACK



JOL.002

- |   |   |
|---|---|
| <ol style="list-style-type: none"> <li>1. Engine temperature gauge</li> <li>2. Direction indicators</li> <li>3. Tachometer</li> <li>4. Front fog lamps on</li> <li>5. Traction control/DSC warning light</li> <li>6. Main beam on</li> <li>7. Rear fog lamps on</li> <li>8. Speedometer</li> <li>9. Fuel gauge</li> <li>10. Overspeed Warning (Middle East markets only)</li> <li>11. Airbag system warning light</li> <li>12. Seat belt warning light - driver's seat belt not fastened</li> </ol> | <ol style="list-style-type: none"> <li>13. Anti-lock braking system warning light</li> <li>14. Brake warning light</li> <li>15. Message center warning light - primary warning</li> <li>16. Message center display - displays odometer, trip, status/warning messages</li> <li>17. Message center amber warning light - secondary warning</li> <li>18. Check engine warning light</li> <li>19. Charge indicator warning light - high or low battery voltage or faulty generator</li> <li>20. Low oil pressure warning light</li> <li>21. High engine temperature warning light</li> </ol> |
|---|---|

- Low brake fluid / Park brake telltale
- Fail safe cooling / Engine overtemperature telltale
- Check engine telltale

The driver warning chime provides the driver with an audible warning for the ignition on, key in ignition, all doors open and the headlamps on, hood open, trunk open, lamps on and safety belt not engaged. A chime will sound every one second when a fault in the air bag circuit is detected.

The driver is also provided with a visual message or warning displayed in the information message center.

### Message Center

Driver information, messages, and data are given on the message center panel which is a vacuum fluorescent dot matrix display.

Various languages can be selected for message display.

For the message center to operate the ignition must be switched ON (position 'II').

The message center displays:

The total distance covered by the vehicle.

Trip computer information.

Warning messages if system faults are detected.

Status messages to indicate changes in state of certain vehicle functions.

Audio system information when steering wheel switches are used (when fitted).

### Messages

Most messages, when displayed, have an associated warning light, red or amber, at the side of the display which will come on to indicate the message priority.

If more than one message is active, each is displayed in turn for two seconds in order of priority.

Messages take priority over the odometer reading or trip computer data and, if active, will be displayed when the ignition is switched ON.

The driver interacts with the message center through the buttons on the trip computer switchpack

### Ignition Switch

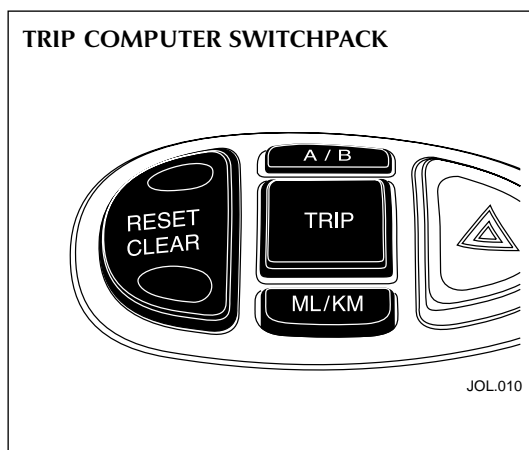
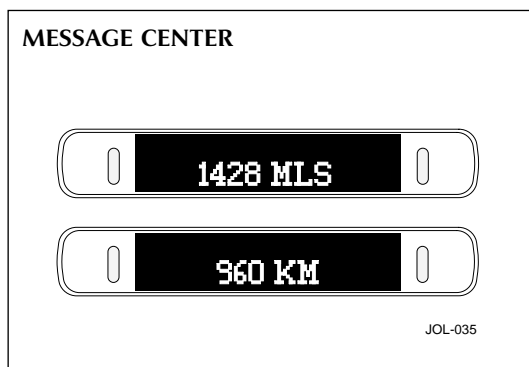
The ignition switch is described in the 'Security and Locking Systems' section.

### Trip Computer

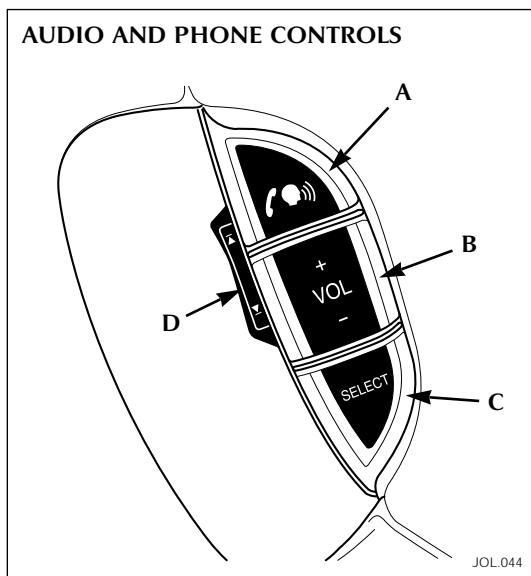
The trip computer switchpack is mounted on the instrument panel and messages are displayed on the instrument pack display. The fitment is by a clip fixing from the front. For removal it is necessary to remove the center vent and push the switchpack from the rear.

Trip computer functions are:

- Odometer
- Trip distance
- Range
- Average fuel consumption
- Current (INST) fuel usage
- Average speed



- Reset/Clear - Two position rocker switch. Sets the selected trip to zero. Clear can be used to cycle through: TRIP - ODOMETER - MESSAGES. Clear can hide messages on the message center.
- Mls/Km - Selects metric or imperial data. Also selects languages Those available are: English, US English, German, Spanish, Italian, French, Dutch, Finnish, Swedish, Brazilian/Portuguese and Japanese
- Trip/Cycle - Successive presses of the switch will display each of the trip data items and the odometer reading , in turn.
- A/B - Selects either A or B trip memory.



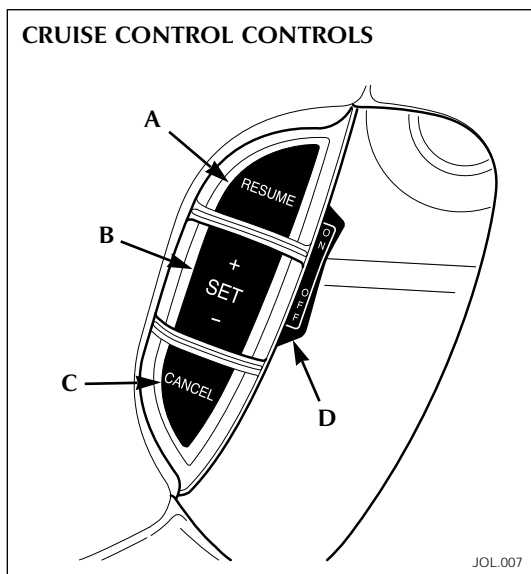
### Steering Wheel Switches

The multi-function controls on the steering wheel comprise audio, phone and cruise control switches.

#### Audio Controls

- A. Audio mute and voice activation
- B. Volume control
- C. Radio waveband, cassette tape player and CD tape player selection
- D. Tuning/seek control:  
Radio, steps through preset stations  
Cassette, seeks tracks  
CD, selects desired track

Note: Details on audio system usage is given in the In-Car 'Audio Systems Handbook'.



#### Phone Controls

- A. Phone mode/mute - Mute audio, answer a call, send/end a call and voice activation (where fitted)
- B. Volume control
- C. Select number
- D. Scrolling through memory

Note: Details on phone usage is given in the In-Car 'Telephone Handbook'.

#### Cruise Control

- A. Resume - To resume the set speed retained in the memory
- B. Set - Sets speed or increases/decreases speed if held when speed has been set
- C. Cancel - Cancels cruise control but retains set speed in memory
- D. On/Off Ready - Turns cruise control for use or turns cruise control off

## Steering Column Switchgear

### LH Side Stalk

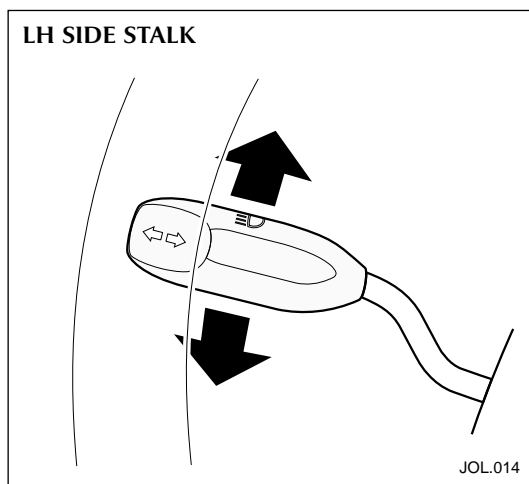
Direction indicator function:

Down indicates left, up indicates right.

Lamp function:

Main Beam - To select main beam when dipped headlamps have been selected from the master lighting switch, pull stalk backwards until a click is felt.

Flash - To flash the headlamps, pull the stalk back slightly.



### RH Side Stalk

Wiper functions:

Functions:

Position A: Flick wipe

Position B: Off

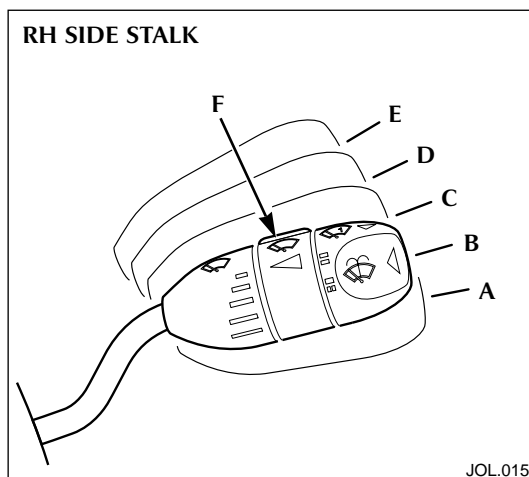
Position C: Intermittent wipe. The rotary collar F can be adjusted to vary the delay between wipes.

Position D: Slow wiper operation.

Position E: High speed wiper operation.

Rain sensitive wipers (where fitted):

Turn the rotary collar F to auto. The wipers will automatically operate when rain falls on the windshield, or when moisture is present.



## Trunk/Fuel Filler Flap Release and Headlamp Levelling Switchpack

The switchpack is located below the Main Headlamp Switch.

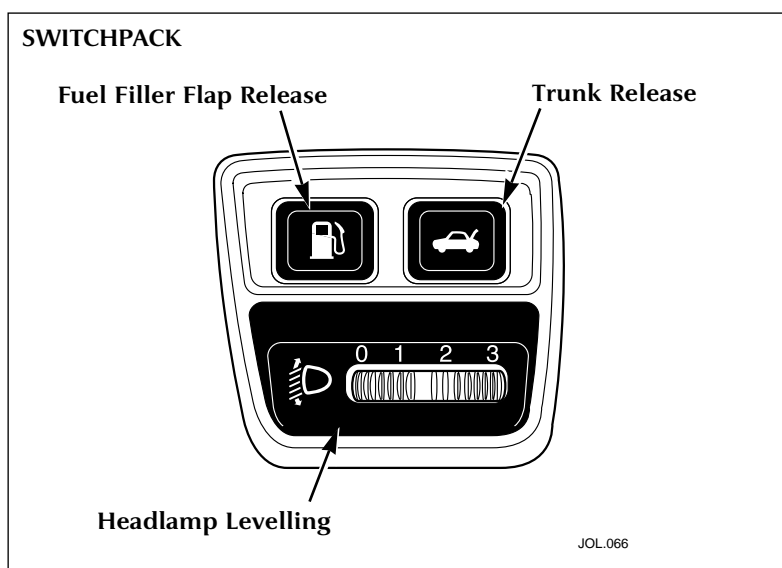
### Headlamp Levelling

'0' Normal setting - Driver only

'1' Driver and one front passenger

'2' All seats occupied and maximum luggage

'3' Fully loaded vehicle and towing a caravan or trailer





**Exterior Lighting Switch**

- A. Timer
- B. Auto
- C. Off
- D. Side (parking lamps)
- E. Headlamps
- F. Rear fog lamps
- G. Front fog lamps (where fitted)

**Autolamps Delayed Exit (A)**

This feature leaves the headlamps turned on after the ignition has been switched off, allowing the driver and passengers increased visibility on leaving the vehicle. The switch has seven positions and varies the time from three seconds up to three minutes. After adjustment, the newly set delay time will be displayed on the message center.

**Auto (B)**

A light sensor on top of the instrument panel, monitors exterior light levels and automatically switches the side lamps and dipped headlamps on or off. When light fades to the non-adjustable preset level, the sidelamps and headlamps switch on automatically. As light increases to the preset level, the sidelights and headlamps switch off automatically.

**Rear Fog Lamps (F)**

Turn the switch to headlamps on, pull the switch and then turn to position (F). Turning on the rear fog lamps will also turn on the front headlamps.

**Front Fog Lamps (G)**

Pull the switch in positions (A), (B), (D) or (E) to switch on the front fog lamps. Push to turn off. If the rotary switch is turned off (C) the switch will be retracted to its normal position and the fog lamps will be turned off.

**Daylight Running Lamps**

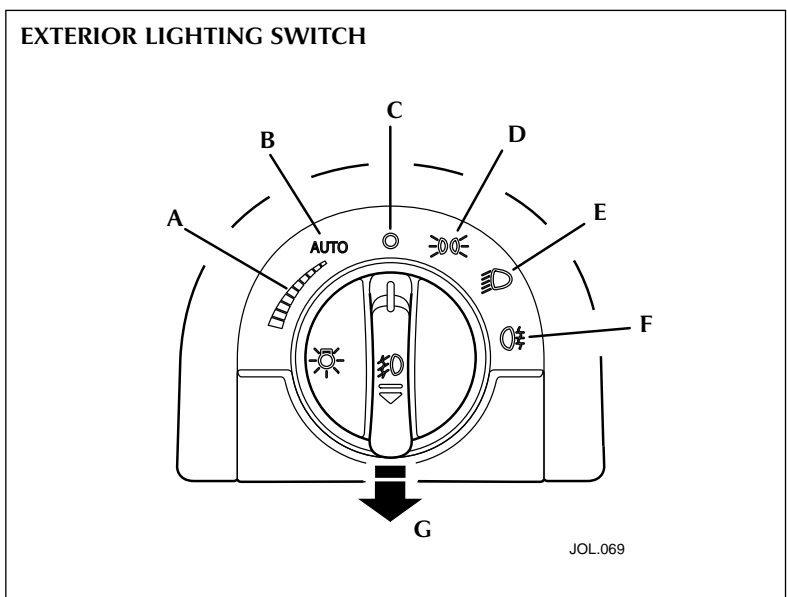
In certain countries it is a legal requirement for the lamps to be on during the hours of daylight. With the rotary switch in the off position (C), dipped headlamps, sidelights and tail and number plate lamps will switch on automatically when the ignition is turned to position II, the vehicle is out of park (automatic transmission only) and the parking brake is released.

**Battery Saver**

If the dipped or main beam headlamps are switched on and the ignition is turned to OFF or the key is removed, the lamps will automatically turn OFF after 10 minutes. The sidelights will remain ON.

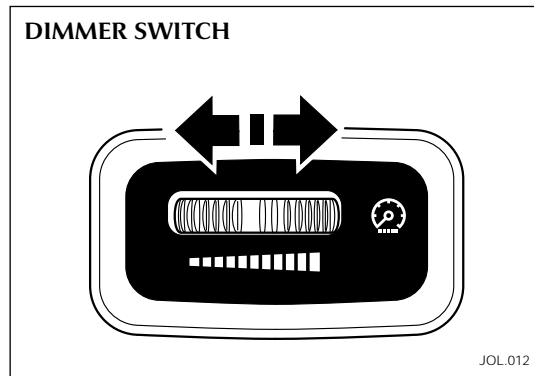
**Bulb Failure Monitoring**

The tail and brake lamp bulbs are monitored for failure and a corresponding message is shown in the message center, e.g 'LEFT TAIL LAMP FAILED'. There are two tail lamp bulbs in each tail lamp. The message that a tail lamp has failed indicates that both bulbs in that cluster have failed. The message will be shown, even after a bulb is replaced, until the next time the bulb is switched on.



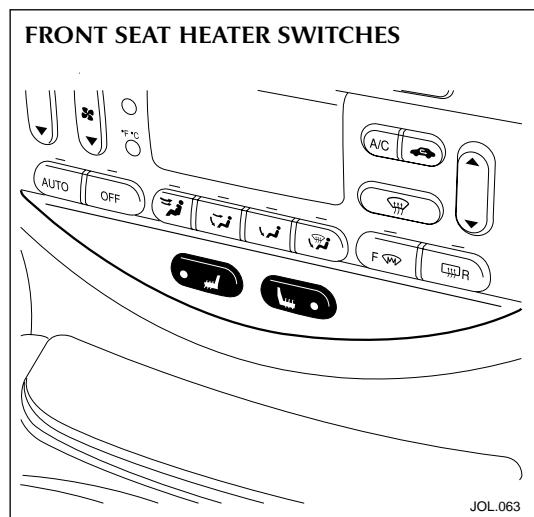
### Dimmer Switch

Rotate the knob to adjust the illumination of the instruments, door switch packs, audio system panel and the climate control panel.



### Front Seat Heater Switches

The driver and front passenger have a heater. The seat heater switches (when fitted) are located on the center console directly below the climate control unit. The heaters are in the seat squab and the seat cushion. The heater will automatically switch OFF after it has been on for 10 minutes. The heater will maintain a pre-set temperature while it is switched on. Storage of the vehicle in a heated garage, body heat, or warm ambient temperatures may prevent operation of the seat heater.



### Center Tunnel Switchpack

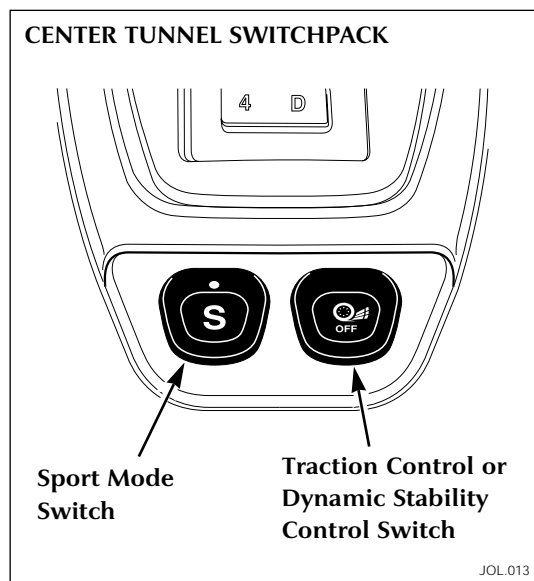
#### Sport Mode (automatic transmission only)

The switch marked 'S' on the 'J' gate surround enables the driver to select either normal or sport mode. To select sport, press the switch. The switch lights up to indicate that sport mode has been selected.

#### Traction Control

Traction control is fitted to all vehicles. Traction control is always switched on when the engine is started. If the system is operating, the warning light in the instrument pack will flash. The traction control (and direction stability control, when fitted) can be switched OFF by pressing the switch on the gear selector surround. The warning light in the instrument pack will remain on and a message will be shown to indicate that the system has been switched off. If the switch is pressed again, the system will switch on.

A system malfunction is indicated by a message:



TRACTION CONTROL FAULT. Warning light (adjacent to message) amber and the instrument pack warning light will be lit.

**Dynamic Stability Control (DSC)** (when fitted)  
DSC is operational whenever the engine is running, unless it has been switched off. The DSC system controls the anti-lock braking system, traction control and yaw control of the vehicle. Yaw control determines the vehicle's direction relative to the driver's inputs (sideslip and understeer/oversteer). It applies braking pressure to individual wheels if excessive variation is detected. This ensures that the vehicle follows the driver's intended direction of travel. The DSC can be switched OFF by pressing the switch on the gear selector surround. The warning light in the instrument pack will remain on and a message will be shown indicate that the system has been switched off. If the switch is pressed again, the system will switch on.

A system malfunction is indicated by a message: DSC SYSTEM FAULT. Warning light (adjacent to message) amber and the instrument pack warning light will be lit.

## Door Switchpacks, Front & Rear

### Door Mirrors

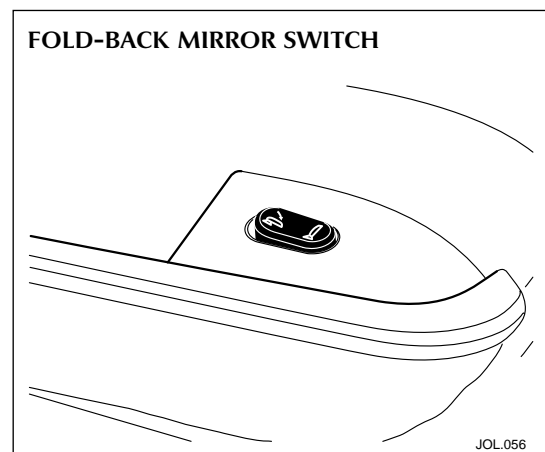
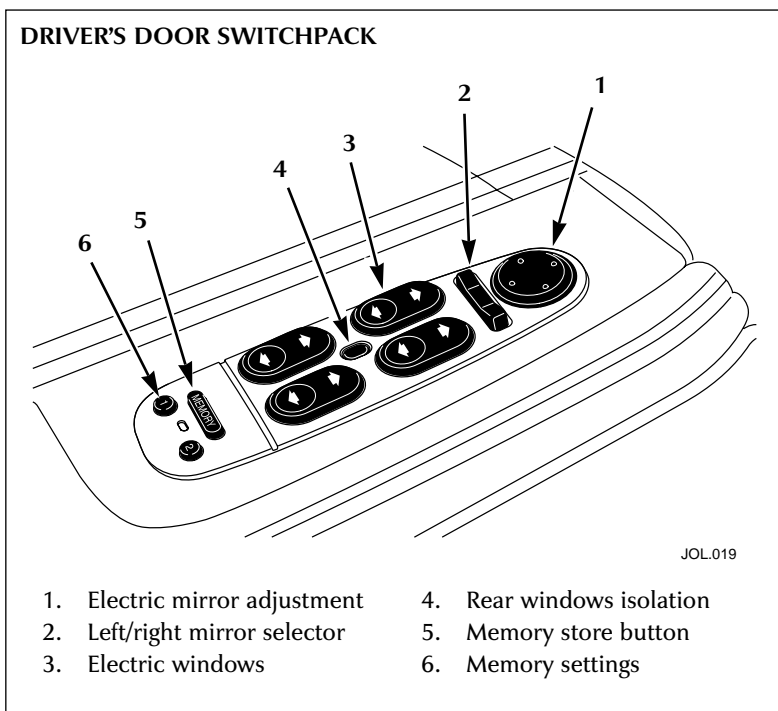
Both door mirrors are adjusted from the driver's switchpack. The four-way adjustment button moves the mirrors to the required position. The selector switch selects the mirror to be moved, left for the left side mirror and right for the right side mirror. When the selector is in the center position, adjustment to either mirror is inhibited. Where power fold-back mirrors are fitted, the switch is located in the driver's door map pocket.

**Note:** Do not attempt to reposition power fold-back mirrors manually. Always use the switch. Should a door mirror be knocked out of position the mirror head will be loose. To re-engage the mechanism, power the mirror to the fold-back position then outward to the driving position.

### Door Windows

These switches normally operate when the ignition switch is in position 'I' or 'II'. If the key is removed from the ignition switch and all doors remain closed, the windows can be operated for up to 10 minutes or until a front door is opened. The rear windows isolation button when pressed down immobilizes the rear door window switches. A second press allows the button to raise and the rear seat passengers can then operate the rear door windows.

The switch for the driver's window only has a 'one touch' operation facility enabling the driver to fully open the window in one quick movement. Press the rear of the switch fully downwards and release to open the window. Window travel can be stopped by pressing the switch again.



**Note:** If the switches are held for longer than six seconds, e.g. when attempting to overcome frozen or jammed windows, the window drive will be switched off for a few seconds to protect the window drive motors.

**Memory Setting** (where fitted)

The position of the driver’s seat, steering column and exterior rear view mirrors can be memorized and recalled. Two different driving position profiles can be entered in the memory. The switches for seat, mirror, steering column adjustment and memory setting can be operated with or without the key being in the ignition.

To store a driving position in the memory:

1. Adjust the seat, steering column and exterior rear view mirrors to the desired position.
2. Push the memory button and the light in the switch will illuminate
3. Within five seconds, push button ‘1’ or ‘2’ to memorize the configuration. The memory button light will go out and a chime will indicate that the setting procedure is complete. Additionally, if the ignition is on, the message center will display a message that the settings have been saved.

To recall a memorized position, the gear selector lever must be in ‘P’ or ‘N’ on automatic transmission vehicles and the park brake must be applied on manual transmission vehicles. Press and release the appropriate memory button (‘1’ or ‘2’). The seat, steering column and door mirrors will move automatically to the memorized position.

The key ring transmitter can also be set to memorize the position of the driver’s seat, steering column and exterior rear view mirrors.

**Memory Recall Using a Key-ring Transmitter**

The key-ring transmitter will recall a memory position when the unlock button is pressed when set as follows:

Adjust the seat, steering column and exterior rear view mirrors to the desired position.

Press ‘memory’ button.

Within five seconds, press any button on the key-ring transmitter.

Press button ‘1’ or ‘2’.

Repeat for the other transmitter, pressing the remaining memory button.

To cancel key-ring transmitter memory recall:

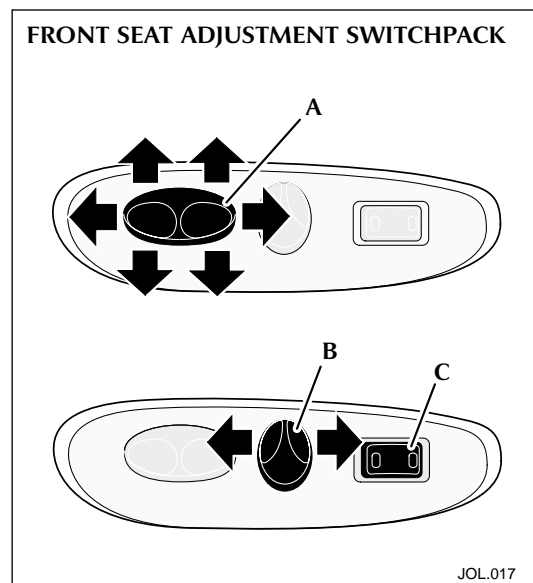
Press the ‘memory’ button.

While the memory set light is ON, press any button on the key-ring transmitter, (except the panic button, if fitted), then press the ‘memory’ button again.

**Front Seat Adjustment Switchpacks**

A key does not have to be in the ignition switch for seat adjustment

- A. Switch forward/rearward: moves seat cushion forward or rearward  
Switch up/down: raises/lowers front/rear of cushion
- B. Switch forward/rearward: raises/reclines angle of seat squab
- C. Switch front/rear: increases/reduces lumbar support.



## Overhead Console

### Interior Lighting Switches

Two combined map/reading/courtesy lamps are fitted in the front overhead console. A map/reading/courtesy lamp is fitted above each rear passenger grab handle. Press the master interior light switch in the overhead console, i.e. the center switch, to turn all interior lamps from automatic to on. When the switch is in the ON position, if any doors are open, none of the individual interior lamps can be turned OFF. In the automatic position, when the interior lamps have faded off, each lamp can be switched on or off by pressing the associated individual switch. Also in this position, if a door is open when the vehicle is driven, the interior lighting will fade off and then fade on again when the vehicle slows down. The message center will alert the driver that the door is open. When the ignition switch is at position '0' and the lamps are on, they will remain on for 40 minutes.

### Sliding Roof Switch

The ignition switch must be in position '1' or 'II'. The switch allows slide or tilt adjustment of the sliding roof.

### Reverse Park Control Switch (when fitted)

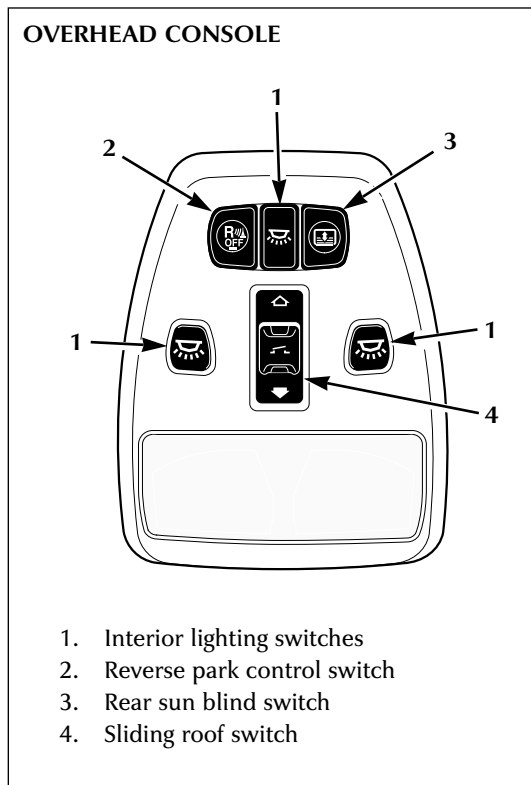
This parking aid, when reverse gear is selected and ignition is on, automatically provides an audible proximity warning when reversing the vehicle. If an object is detected by one of the four sensors in the rear bumper, a beep tone will be heard, which increases in rate as the vehicle approaches the object. At approximately 20 cm the beep will become continuous for three seconds and is then automatically turned off. If the object is not high enough or close enough to cause damage to the vehicle, the beep will not be heard.

Reverse park control can be switched off at any time by pressing the switch in the overhead console. A red indicator light in the switch illuminates when the system is switched off. The system will be reset every time the vehicle is started.

**Note:** The audio system volume will be reduced whilst reverse park control is sounding.

### Rear Sun Blind Switch (where fitted)

The rear sun blind is fitted to the rear parcel shelf. Push the switch to raise the sun blind. A second push will lower the sun blind.



**Interior Rear View Mirror**

There are five derivatives of interior rear view mirror.

1. Base, non-electric
2. Electrochromic
3. Electrochromic with rain sensing
4. Electrochromic with compass
5. Electrochromic with rain sensing and compass

**Electrochromic Interior Rear View Mirror - (where fitted)**

Push the switch in and the rear view mirror darkens automatically to prevent glare from the following vehicle's headlamps. The mirror clears when the light levels return to normal. The mirror also clears when reverse gear is selected. Where fitted, an LED is lit when mirror dimming is active. Push the switch again and the glare-reducing effect of the mirror is switched off so that a clear reflection is given.

**Electrochromic Interior Rear View Mirror with Rain Sensing - (where fitted)**

The moisture sensor for the wipers is fitted to the windshield and covered by the mirror pod.

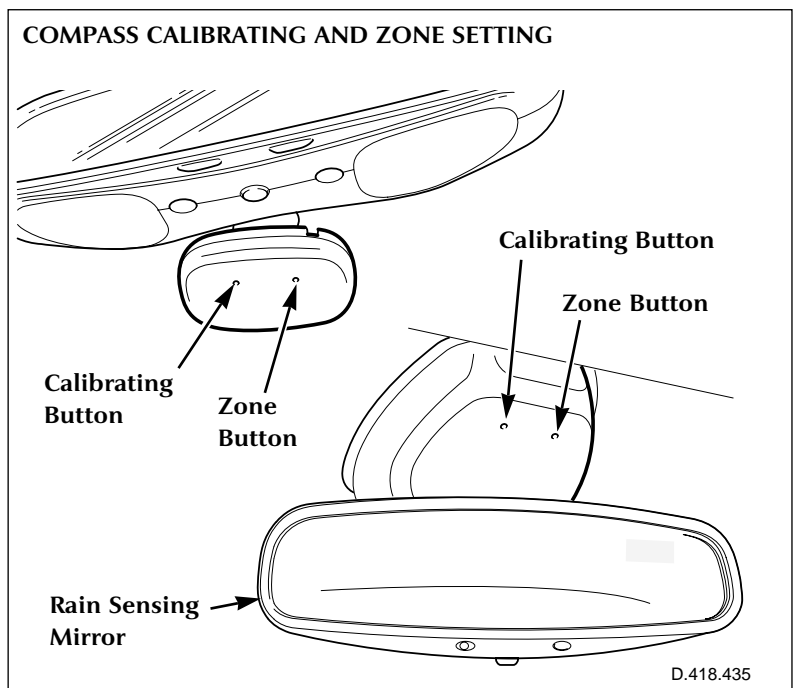
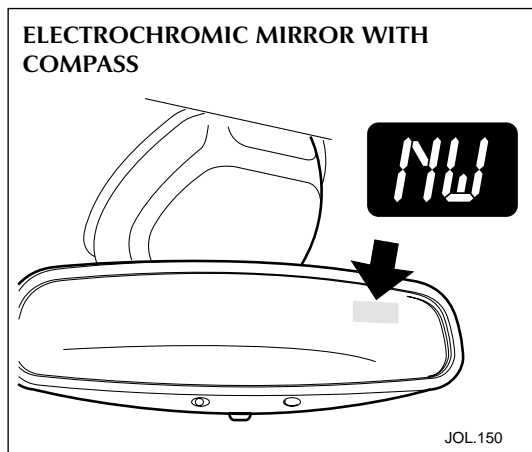
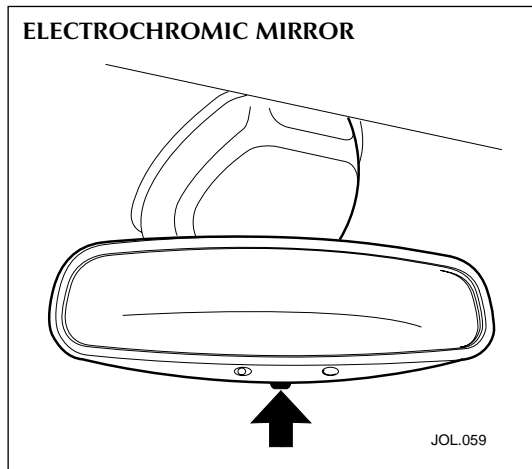
**Note:** The auto headlamp sensor is not fitted to the mirror as on the XJ8 but is fitted to the fascia for the S-TYPE.

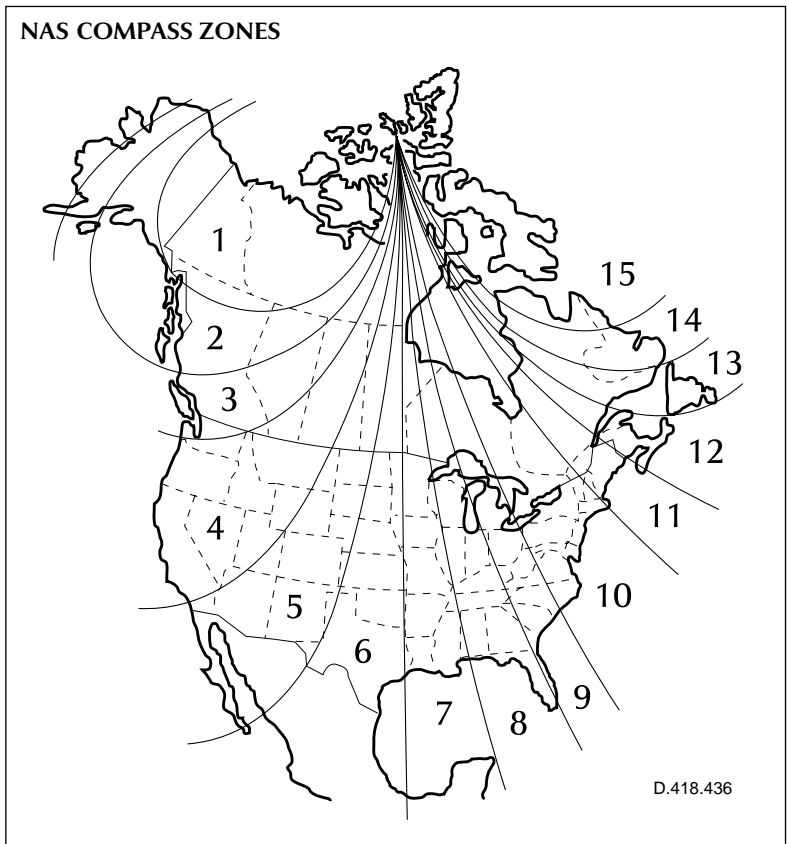
Ensure that the windshield in front of the mirror pod and the autoheadlamp sensor is kept clean since any dirt may affect the operation of these sensors.

**Electrochromic Interior Rear View Mirror with Compass (USA market only)**

The compass direction is given in a digital display (eight compass points) in the corner of the mirror. The brightness of the compass display dims as the ambient light level falls. The compass must be calibrated by the Dealer at PDI to compensate for the difference between magnetic north and true north in the part of the world where the car is driven. For best results, the calibration procedure should take place in an open area free from overhead power lines or large metal structures.

On the underside of the mirror pod there are two small holes. Insert a small screwdriver or other pointed tool into the RH hole. Press the button in

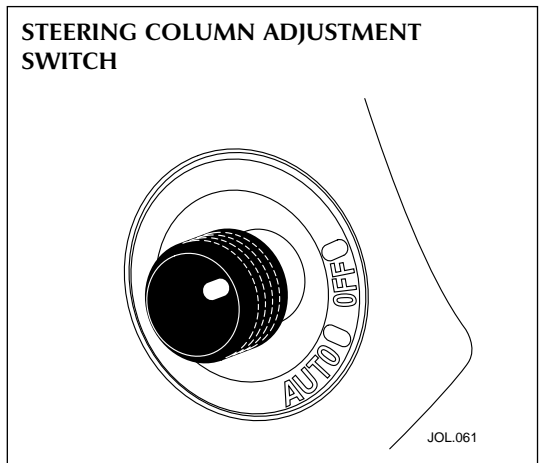




the hole until the word 'ZONE' appears in the display. Continue to press to select a number corresponding to the zone shown in the diagram for the area in the world where the vehicle is driven.

Press the button in the LH hole until the 'CAL' indicator appears in the display. Slowly drive the vehicle in a circle until the 'CAL' indicator disappears. This should happen after two to three revolutions. The compass is now adjusted to compensate for the vehicle's magnetic field.

**Note:** Using the vehicle in the vicinity of CB radios or an airport may cause the display to extinguish for a few seconds.



**Steering Column Adjustment Switch**

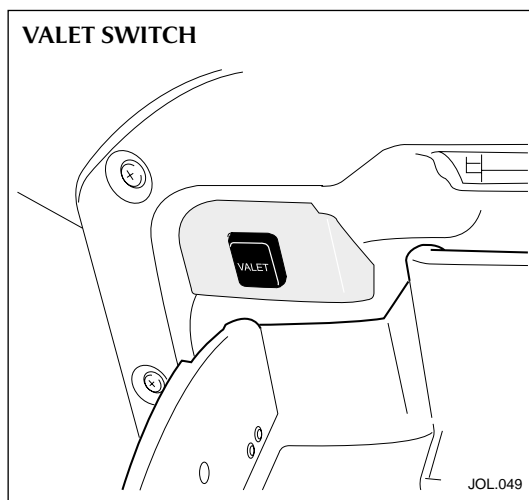
The steering column can be adjusted for tilt and reach by operating the four-way control switch on the steering column. Moving the switch forwards and backwards controls steering column reach. Moving the switch up and down controls tilt. The selected position is recorded by the memory feature (where fitted).

**Entry/Exit Mode (where fitted)**

Entry/exit mode is selected by setting the steering column adjustment switch to the 'Auto' position. When the key is removed from the ignition switch, the steering column will move to the tilt away position, which is its uppermost tilt and innermost reach position. The seat will move rearwards. This gives the driver maximum room entering and exiting the vehicle. The steering column position, before 'tilt away', is memorized. When the ignition key is next inserted in the ignition switch, the steering column and seat will move back to their programmed position.

**Valet Switch (NAS markets only)**

The valet switch is located in the glove box and the owner should lock the glove box with the black-headed key. The green-headed key should be handed to the parking attendant who can then lock the car after parking, but will be unable to open the glove box or the luggage compartment.

**Garage Door Opener (GDO) (NAS markets only)**

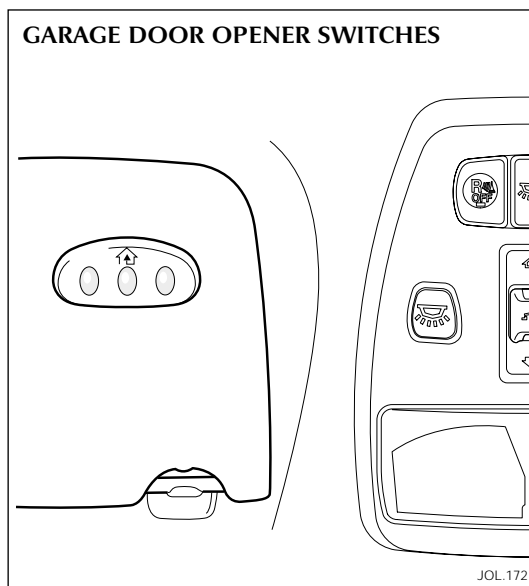
The garage door opening electronic module is fitted in the driver's sunvisor. This module can be programmed to transmit the radio frequencies of up to three of the owner's current hand-held transmitters, for the operation of garage doors, gates, lighting or security systems, and other radio frequency operated services.

**WARNING:**

1. This GDO must not be used with installations that do not have a sensor that will automatically 'stop' and 'reverse' a closing garage door if an object is detected in its path.
2. When programming a channel, the system that you are programming will be activated if it is within signal range, therefore, make sure that people or objects are clear of the garage doors or gates being opened or closed.

The procedure for programming the GDO is given in the Owner's Handbook.

To operate: Simply press the appropriate button on the sunvisor. The red light on the sunvisor comes on when the signal is being transmitted.





## Security and Locking Systems

### Introduction

The following security and locking features are available but vary by market or options:

- Key barrel on driver's side only
- Encrypted engine immobilization by ignition key transponder
- Radio frequency remote fob
- Central locking by key and remote fob
- Double locking (not in North America, Japan, Taiwan)
- Drive away door locking
- Mechanical child locks on rear doors
- Perimeter alarm of doors, bonnet, trunk
- Intrusion sensing, ultrasonically sensed (not in North America, Japan, Taiwan)
- Inclination (tilt) sensing (Dealer fit accessory)
- Panic alarm, fob operated (certain markets)
- Trunk lock isolate (valet lockout, see page 107) - North America only
- Electro/mechanical steering column lock

The following convenience features are included either as standard or optional features:

- Remote fob operated driver's seat, door mirrors and steering column memory recall (two memories)
- Remote fob operated trunk lid release
- Key operated global close (sliding roof and all windows)
- Key and fob remote-operated global open (sliding roof and all windows)
- Trunk lid and fuel flap interior release buttons
- Trunk release button in trunk plinth
- Emergency key lock barrel under trunk plinth.

### System Description

The security system is controlled by a driver door control module (DDCM). When activated unauthorized entry in to the vehicle is detected by the courtesy lamp switches. When the alarm is triggered, the system flashes the turn signal lamps and sounds the alarm system horns.

The passive anti-theft system (PATS) is a feature to prevent the vehicle being driven away by an unauthorized person. The PATS system consists of electronically coded keys, a transceiver and is controlled by the Instrument Pack. When the ignition is switched to position 'II', the transceiver energises the ignition key to read its electronic

code that is transmitted back. If the read code equals a stored code in the control module, the steering column is unlocked and the powertrain control module (PCM) will let the engine start. Otherwise, starting of the engine is disabled (through the starter disable relay and the PCM).

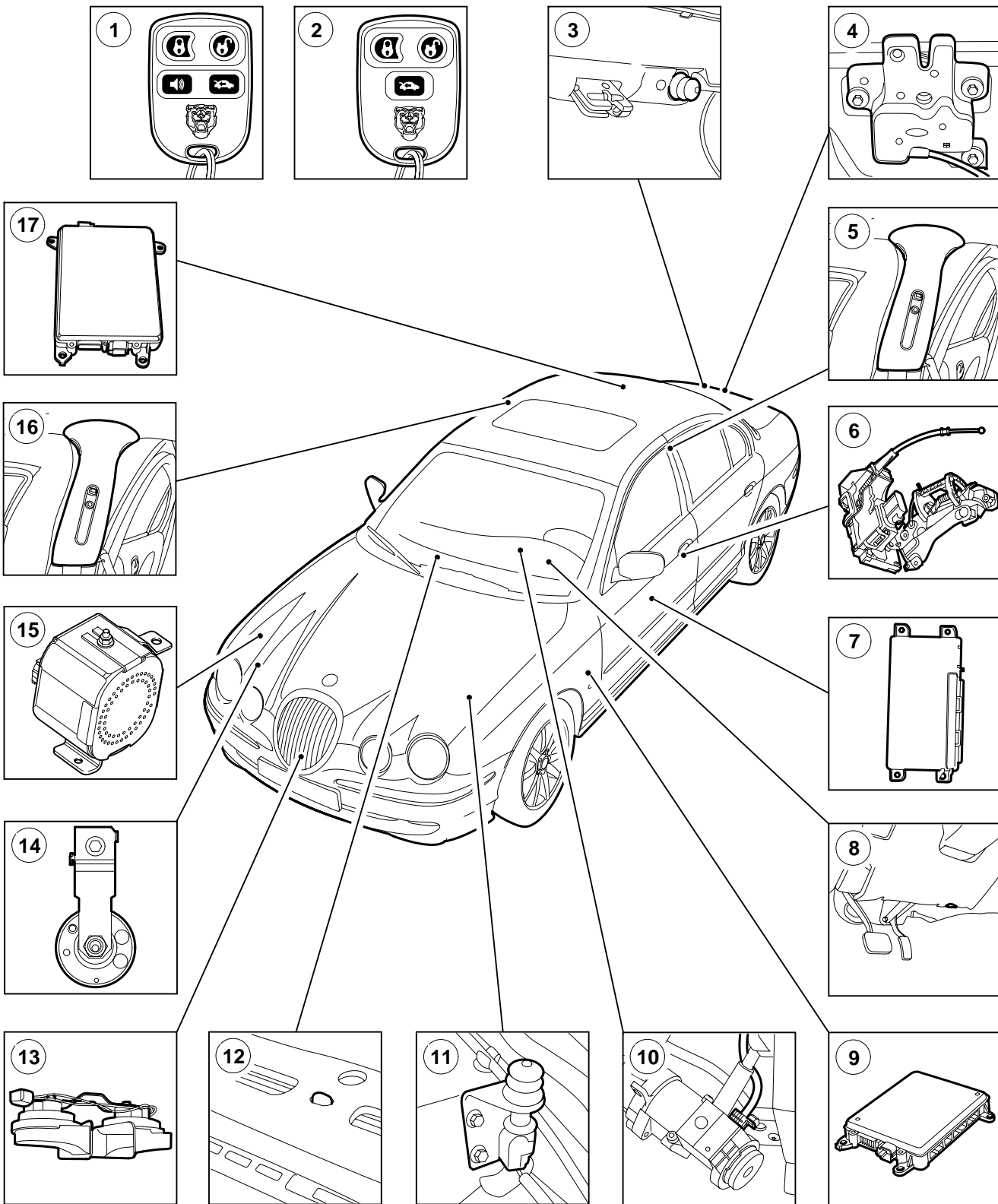
The security indicator LED provides the driver with the status of the PATS or security system. If the security system is armed the light will flash when the ignition is switched OFF. The PATS light will illuminate when the key is inserted into the ignition lock and turned to position 'II'. It will stay illuminated until the system has carried out its test on the key. If the system detects a fault, it will flash the LED for 1 minute, and then flash out the corresponding 2 digit fault code.

### Security System Operating Components

Key to illustration on the following page:

1. Four button transmitter (North America/Rest of the World)
2. Three button transmitter (Europe/Japan)
3. Trunk release switch
4. Trunk compartment actuator
5. Intrusion sensor
6. Door actuator
7. Driver door control module
8. Data link connector
9. General electronic control module
10. PATS transceiver module
11. Hood switch
12. Security LED
13. Horns
14. Security horn
15. Security sounder
16. Intrusion sensor
17. Rear electronic control module

SECURITY SYSTEM OPERATING COMPONENTS



J.418.453

## Vehicle Locking and Unlocking

### Door locks and handles

Only the driver's door has a key lock.  
All doors and the luggage compartment can be locked and unlocked using a key-ring transmitter.

### Keys

Two black-headed keys (and one green-headed key in the North American market) are supplied with the vehicle. The key number is recorded on a plastic tag which is attached to each key. Each black-headed key will operate the ignition switch and lock the doors, luggage compartment and the glove box. The green-headed key is a valet

key which will not unlock a locked glove box or locked trunk lid. The interior and exterior trunk switches will not unlock the trunk lid when the valet switch has been set.

An electronic device is fitted in the head of each key which is programmed to the vehicle electronics. When the key is placed in the ignition switch the vehicle electronics recognize the correct key and allow engine start. The engine cannot be started with a key not programmed to the vehicle electronic systems.

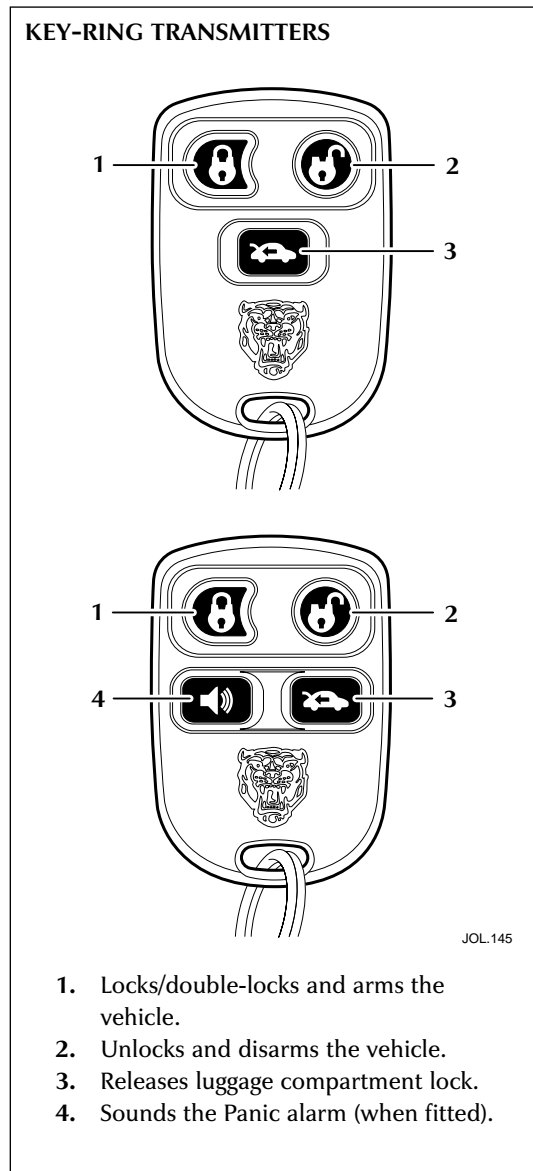
Up to eight keys can be used provided the Dealer programs them all to the vehicle.

### Key-ring transmitters

The security system is controlled remotely by a radio frequency, battery-operated transmitter. The transmitter is activated by pointing it towards the vehicle and pressing one of the operating buttons.

Key-ring transmitters will not operate if a key is in the ignition switch.

Two transmitters are supplied with the vehicle, but up to four can be used provided they are all programmed to the vehicle by the Dealer.



### Steering Column Lock

The steering column lock is remote from the ignition switch and controlled electronically. When the ignition key is removed from the ignition switch the steering column lock is engaged. The lock is disengaged when the key is placed in the ignition switch.

The lock can be clearly heard as it engages and disengages.

In rare circumstances it may be necessary to gently turn the steering wheel from side to side to release the steering column lock.

### Ignition Switch

The fascia-mounted ignition switch, on the right-hand side of the steering column, has four key positions:

- 0 Ignition OFF, and the only position in which the key can be inserted or removed. When the key is removed the steering lock is engaged.
- I Auxiliary position: this position allows use of some electrical circuits, for example, window operation.  
The airbag system is activated when the switch is turned to position 'I'.
- II Ignition ON: all electrical circuits except the starter motor are activated. The key remains in this position when driving.
- III Start position: the starter motor is operated for as long as the key is held in this position, against spring pressure.

### Smart Locking

This feature helps prevent locking the key in the vehicle.

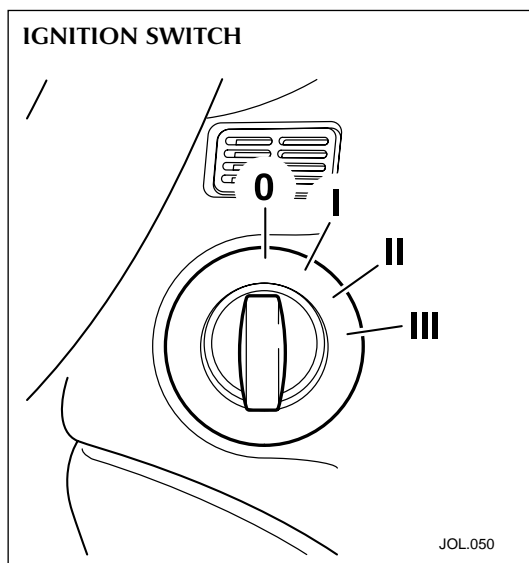
If the driver's door is open and an attempt is made to lock the doors using the driver's door interior locking lever, all doors will lock and the driver's door only, will then become unlocked.

If the front passenger door locking lever is used to lock the doors then all doors will become locked and then unlocked. The vehicle can then be locked using the key in the driver's door lock or a key-ring transmitter.

### Child Safety Locks

Child safety locks are fitted to the rear doors. The operating lever is fitted above the door lock mechanism.

To operate: Open the door and move the lever a quarter turn. This immobilises the interior handle.



The door can then only be opened using the exterior door handle.

Open the door and move the lever to its original position to remove the child lock feature.

**To Lock the Vehicle and Set Alarm**

Press the lock button on the key-ring transmitter, or put the key in the driver's door lock, turn the key towards the rear of the vehicle and release. The direction indicators will flash once, the security light on the top of the fascia will start flashing and, after twenty seconds, the alarm will be set.

**To Unlock the Vehicle and Disarm the Alarm System**

Press the unlock button on the key-ring transmitter, or put the key in the driver's door lock, turn the key towards the front of the vehicle and release. This unlocks all doors (and luggage compartment) and turns on the interior lamps for twenty seconds. The exterior direction indicators give two flashes as unlocking takes place.

**Global Closing**

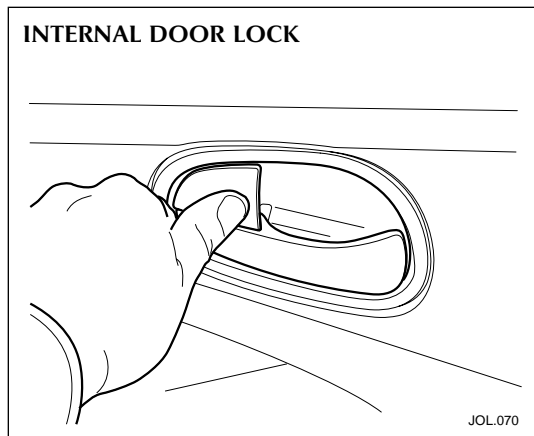
When using global closing, ensure that all occupants are kept clear of the windows and sliding roof aperture. Using the key in the driver's door, lock the vehicle and hold in this position to close all the windows (and sliding roof, if fitted).

**Global Opening**

Press and hold the key-ring transmitter unlock button, or use the key to unlock the vehicle and hold in this position to open all the windows (and sliding roof, if fitted).

**Internal Door Locking and Unlocking**

To centrally lock all doors, press the lever on the driver's or front passenger's door. To lock a rear door, press the lock lever.



To unlock any door, pull the release handle or the lever. The driver's or front passenger's door lock lever will unlock all doors.

**Double-Locking**

**WARNING:**

The door handles cannot be used to either unlock or open the doors if the vehicle has been double-locked. Therefore, double-locking should not be used when persons are inside the vehicle as they will not be able to vacate, or be released, from the vehicle if an emergency arises.

**Note:** It will not be possible to double-lock the vehicle if any door is open.

When the vehicle is double-locked the doors cannot be opened, either from inside or outside the vehicle. Breaking a window will not allow a thief access by opening a door. Only the correct key or key-ring transmitter can be used to unlock the doors.

With all doors closed, to double-lock the vehicle, place the key in the driver's door lock, turn the key towards the front of the vehicle and then towards the rear within three seconds. Alternatively, press the lock button on the key-ring transmitter twice within three seconds.

The exterior direction indicators will flash, once as locking takes place and a longer, second flash as double-locking takes place.

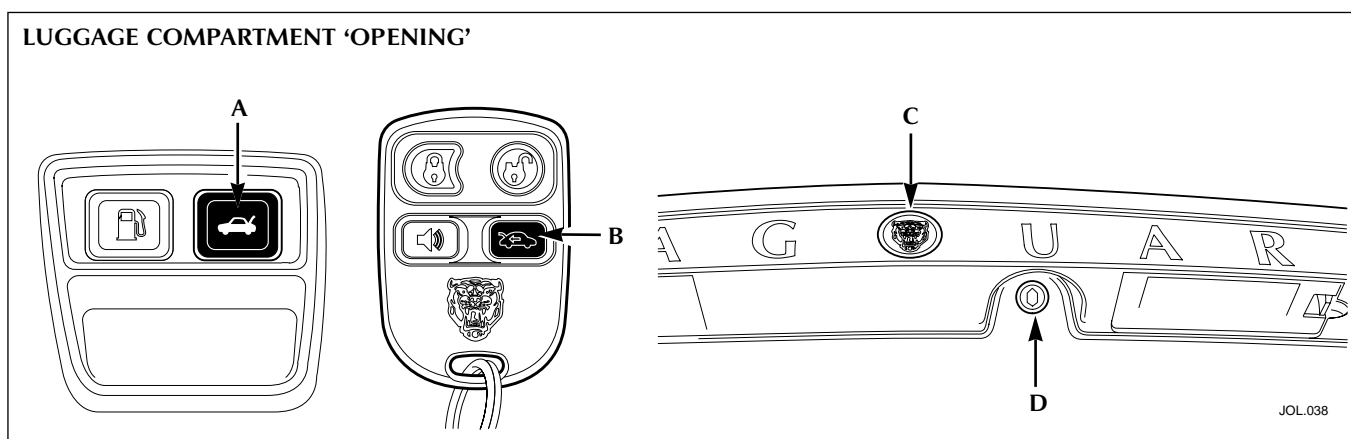
**Drive-Away Door Locking**

With the ignition ON, key at position 'II', and all doors closed, moving the automatic transmission gear selector lever from 'P' or 'N' will lock all doors.

For manual transmission vehicles, with the ignition ON and all doors closed, releasing the handbrake will lock all doors. Also, if the handbrake is OFF and a key is turned in the ignition switch to position 'II', all doors will lock.

If a door is opened during a journey, the doors will automatically lock again when the vehicle starts to move.

All vehicles have the drive-away door locking feature installed during manufacture. This feature can be disabled, or reinstated, by a Jaguar Dealer, if required.



### Glove Compartment

The glove compartment can be locked with an ignition key.

To open the glove compartment, lift the handle and allow the lid to drop down. The compartment will be illuminated when open.

**Note:** If the compartment is left open the lamp will extinguish 40 minutes after the ignition has been set to position '0'.

### Luggage Compartment

To open the luggage compartment:

press the luggage compartment lid release switch (A) on the fascia switchpack or, press the luggage compartment button (B) on the key-ring transmitter, or, with the vehicle unlocked, press the release button (D) on the compartment lid.

**Note:** An ignition key can be used to open the luggage compartment lid release lock (C), (turn clockwise to release), but opening with the key when the vehicle is armed will cause the alarm to sound.

Use a transmitter, or place the key in the ignition and turn to position 'II', to turn the alarm off if it sounds as a result of opening with a key.

If the vehicle alarm system is armed and the luggage compartment is opened using the key-ring transmitter the alarm will not sound. The system will be rearmed when the lid is closed, provided the vehicle has not been disarmed.

Neither the luggage compartment lid release switch on the fascia switchpack nor the lid release button will operate when the vehicle is armed. Four tie-down loops, to enable luggage or heavy goods to be secured, are provided in the luggage compartment.

## Alarms and Audible Signals

**Note:** In certain markets, legislation prohibits the use of audible confirmation signals. In such cases, the sound source has been removed from the system.

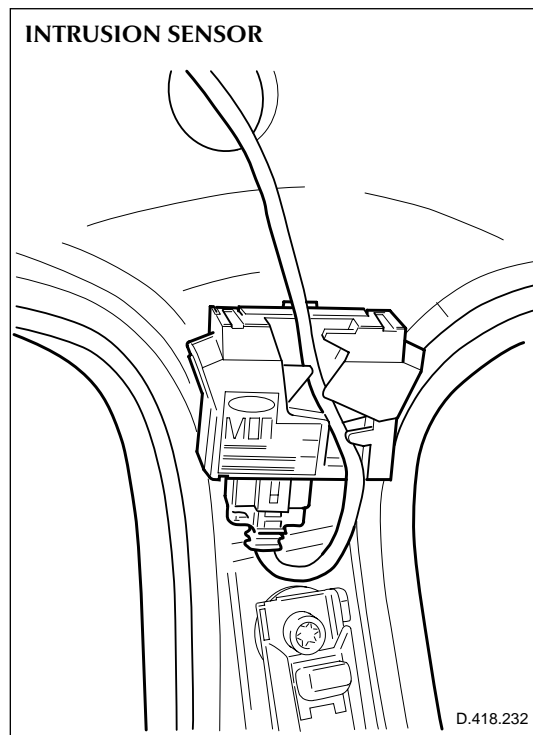
### Audible Signals

An audible signal will sound when a door is opened using a key if the vehicle has been armed (Europe only). This mode can be cancelled within 15 seconds of opening the door, by disarming the security system using the key-ring transmitter or by switching the ignition to position 'II'.

### Error Signal

The direction indicators will flash five times whenever one of the following conditions is present:

- If any door is open when an attempt to 'arm' the security system is made.
- The luggage compartment or the bonnet is not properly closed when an attempt to 'arm' the security system is made.
- If there is an electrical failure within the intrusion sensing system, if fitted, and an attempt to 'disarm' the security system is made.



### Full Alarm

Once armed, any of the following circumstances will create a full alarm state and sound the horns and flash the direction indicators:

- Opening a door, luggage compartment lid (except with transmitter) or bonnet.
- Movement in the passenger area (if intrusion sensors are fitted).
- Using a key in the ignition switch which is not programmed to the vehicle.
- If the driver's door is opened with a key (European markets only) after a 15 second delay.
- If the inclination sensor (if fitted) is activated.

### Intrusion Sensing (when fitted)

A further enhancement to the security system is the addition of intrusion sensing. When the vehicle is armed and double-locked, movement within the vehicle interior will activate the alarm. When the security system is disarmed the intrusion sensors are also disarmed.

### Panic Alarm (when fitted)

When in or near the vehicle, the alarm can be set off to deter a possible offender. For this feature to operate, the key must not be in the ignition switch.

Pressing the panic button on the key-ring transmitter will activate the 'Panic Alarm'.

The Panic Alarm will sound for the normal full alarm period. The alarm is stopped by putting the key into the ignition switch and turning to position 'II'.

The key-ring transmitter can be used to cancel the Panic Alarm by pressing either the panic button or the unlock button.

### Inclination (tilt) Sensing Protection (Dealer fit option)

This feature protects against unauthorized towing away or jacking up. When the vehicle is double-locked and armed, any tilting of the vehicle, such as jacking or lifting, will activate the alarm.

**Note:** If the vehicle is being transported by road, rail or sea, the vehicle should not be double-locked. This prevents the inclination system from being armed and sounding the alarm as the vehicle pitches and rolls.

When the security system is disarmed the inclination sensor is also disarmed.

**Battery Reconnection**

If the battery is disconnected, the alarm system will re-arm as the battery is re-connected.

Ensure that a key-ring transmitter or key is available to disarm the alarm system when reconnecting the battery.

**Battery Back-up Sounder**

In certain markets a separate, self-contained, battery back-up sounder is fitted. This device will sound the full alarm if the vehicle alarm is activated or if the vehicle battery or the sounder is disconnected when the security system is armed.



## Audio and Communications System

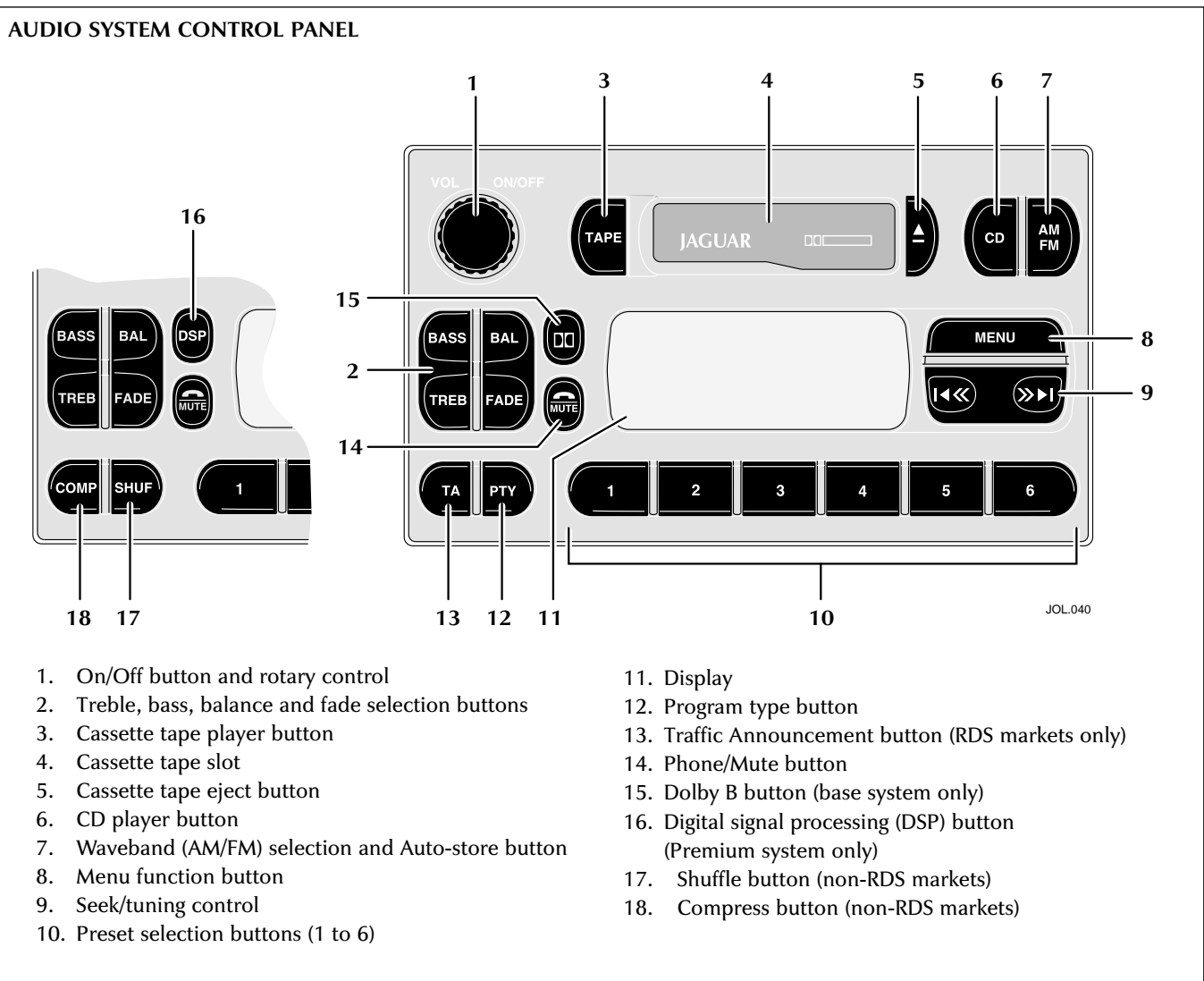
### General

The Jaguar sound system is available in two versions: the Base System and the Premium System. The audio head unit with integral amplifier is located in the center stack. The audio system has a phone interface to access stored numbers. The antenna module is located on the vertical panel under the rear parcel shelf (accessed from the LHS of the trunk), FM and AM antenna elements are in the rear screen. Four twin cone 5in x 7in (127mm x 178mm) door speakers are a modular cassette type for ease of assembly/disassembly. The assembly consists of a driver's door module (driver's door only), speaker, and wiring and is mounted to the inner door moulding. A special seal is kept under tension to avoid water ingress.

The system is operated by the controls on the fascia panel and the controls on the LH side of the multi-function steering wheel (where fitted).

The radio has an alpha-numeric display which shows information such as station frequency, program service name, tape & track, CD and track, phone mode and audio mute. Steering wheel switch commands however, (when the steering wheel switches are pressed) are shown on the Instrument Pack message center.

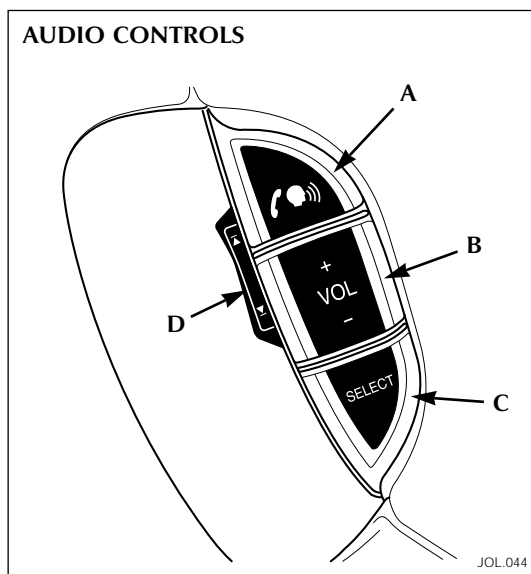
The radio incorporates communication links with Jaguar unique features: CD Autochanger, Cellular Phone, Voice Activation and Navigation system. Text messages relating to these features appear on the display.



The radio volume is muted to a low level when: the Reverse Park Control is enabled by engaging reverse gear, the Cellular phone in hands-free mode is used, the Navigation system delivers audible route guidance instructions or the Voice activation system requests listening or verbal feedback.

**Audio Steering Wheel Controls**

- A. Audio mute and voice activation
- B. Volume control
- C. Radio waveband, cassette tape player and CD tape player selection
- D. Tuning/seek control:  
Radio, steps through preset stations  
Cassette, seeks tracks  
CD, selects desired track



**Premium Sound System**

The Premium Sound System components differ to the base system as follows:

- The head unit has the additional feature of Digital Sound Processing (DSP) to enhance sound quality
- Four enclosed 5in x 7in (127mm x 178mm) two way door speakers, modular cassette type
- Two active center fill speakers (with amplifier)
- Active sub-woofer enclosure mounted under the rear parcel shelf containing two sub-woofers 5in x 7in (127mm x 178mm) and a sub-woofer amplifier
- CD Changer (six disc) in the glovebox (Dealer fit trunk position is optional).

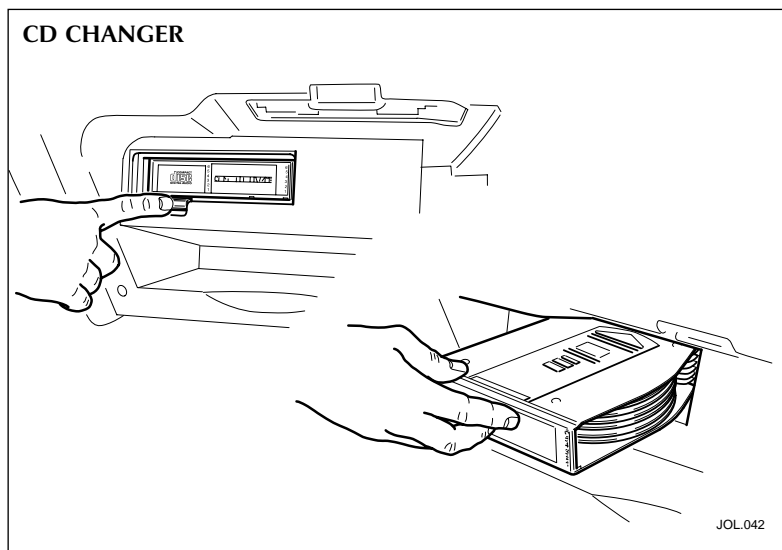
**Phone/Mute Button**

Where a Jaguar in-car phone is fitted, the phone/mute button enables the user to enter/exit the phone mode. The display shows 'PHONE' or 'NO PORTABLE' if the portable phone is not available. Where a Jaguar in-car phone is not fitted, the phone/mute button enables the user to mute the sound systems output.

**Digital Sound Processing (DSP Button)**

The digital sound processing button has two functions: change occupancy settings and select special audio effects. The occupancy setting feature provides optimum performance of the system according to the number of vehicle occupants.

The settings available are: Driver only, Front seats and All seats. The audio effects, which include Concert Hall and News Room, may be selected to



enhance the type of music or program being played.

**Compress Button**

During CD operation, selecting Compress compensates for ambient noise levels by compressing the audio dynamic range to boost quieter music and lower loud music. This can avoid frequent adjustment of the volume control.

**Shuffle Function**

When the shuffle function is selected, the tracks of the currently selected CD will be played in random order.

**Menu**

Press the menu button repeatedly to cycle through the first level menu functions; press the seek button to enable / adjust the selected item. The extended menu features can be accessed by depressing and holding the menu button for two seconds. Use the seek button to enable / adjust the selected item. Some functions in the menu structure require the use of the volume control.

**First Level Menu**

<b>Button Press</b>	<b>Radio</b>	<b>Tape</b>	<b>CD</b>
1.	MAN - manual tune	DOLBY ON / OFF	SHUF - shuffle
2.	AVC - automatic volume control	AVC	COMP - compress
3.	*NEWS ON / OFF	*NEWS ON / OFF	AVC
4.			*NEWS ON / OFF

\* The NEWS enable / disable function is only available in MENU when the radio is in FM mode.

**Second Level (Extended Menu)**

<b>Button Press</b>	<b>Function</b>
1	ADJUST CLOCK (hours) -adjust
2	ADJUST CLOCK (minutes) - adjust
3	12 / 24 HR CLOCK - adjust
4	TA LOCAL / TA DISTANT
5	ALT FREQ ON / OFF
6	RDS TIME ON / OFF
7	VOICETRAIN A (when fitted)
8	VOICETRAIN B (when fitted)
9	Vehicle identification number (VIN)

**Security Code**

The unit is protected by an anti-theft security code. Any power interruption will cause the display to indicate 'CODE'. At this point the unit will not operate until the correct security code has been entered. The four digit security code is listed on the two security cards supplied with the vehicle. After three unsuccessful attempts, the unit will not accept further entries until a delay of 30 minutes has elapsed. Up to seven further attempts may be made, with a delay of 30 minutes between each, after which the display will show 'LOCKED'.

If the security code is lost or the display shows 'LOCKED' the owner will need to return the vehicle to the Dealer. The Dealer must ask for proof of ownership and the serial number of the unit before supplying a security code given by contacting Jaguar Cars Ltd. To display the serial number, press and hold preset buttons two and six simultaneously.

The remaining controls are similar to those in previous Jaguar audio systems. For specific operation of all the controls refer to the owner's Audio Systems Handbook.

## In-Car Telephone

### Overview

For markets other than North America, the phone system uses the Motorola StarTAC 130 platform on the GSM cellular transmission network. The Motorola LCPC platform on the AMPS cellular transmission network is used for the North American market. The phone system is a cordless portable and a hands-free installation. The installation on the GSM cellular system is offered as a factory fit option or Dealer fit aftermarket accessory; on the AMPS cellular system it is Dealer fit only.

For hands-free operation, the phone handset is connected to the in-car installation. This provides a directional microphone located on the headlining (see page 124), an external aerial mounted on the rear screen and connection to the vehicle sound system.

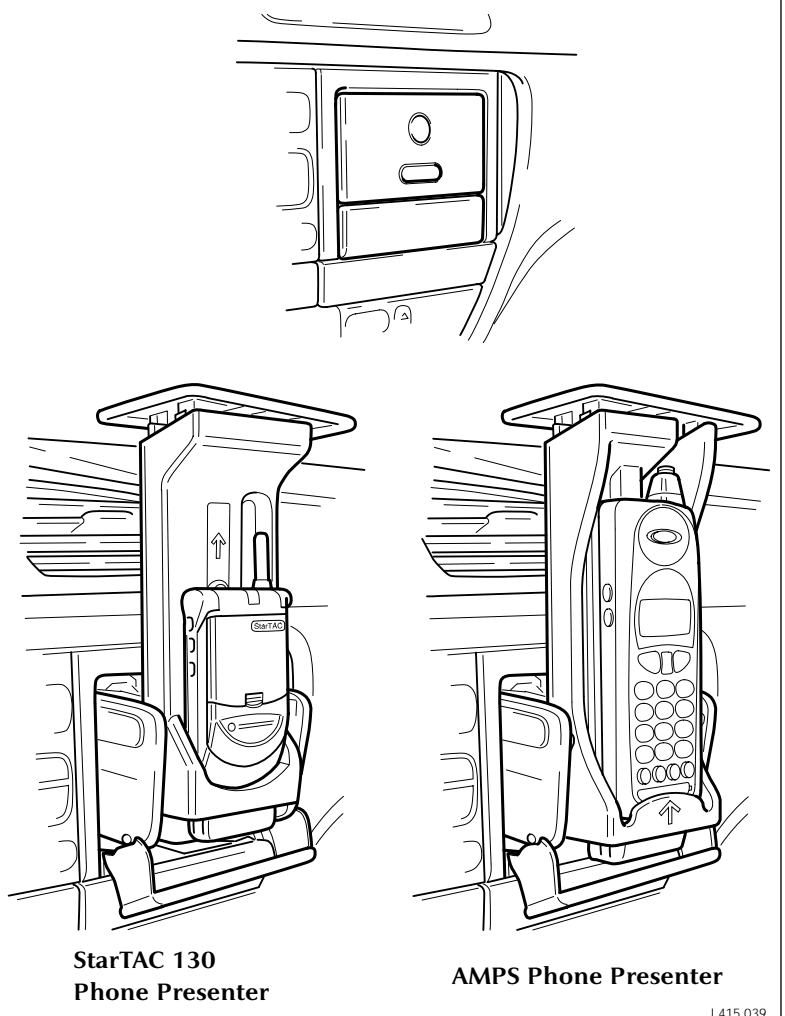
The phone is operated by audio head unit controls, the controls on the LH side of the steering wheel (where fitted) or the handset. The system includes an interface to the Voice activation Control, where fitted. Messages relating to the phone are shown on the sound system display when the phone system is active. The phone and ringer sound output can be adjusted using the sound system volume control. For specific operation of all the controls refer to the Owner's In-Car Telephone Handbook. Unless the vehicle is fitted with the Jaguar Navigation System, the portable is installed in the center console storage compartment.

There are two dedicated locations for the phone installation: in the Center Stack or the Center Console Cubby Box depending on the optional fitment of the Navigation System.

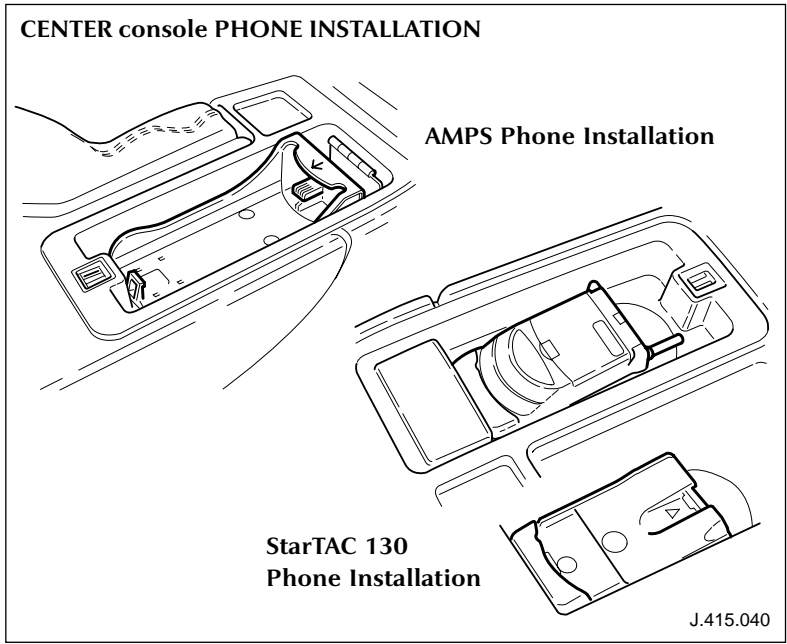
### Center Stack - Without Navigation

The cassette stowage compartment in the Center Stack is designed to be exchangeable with an integral pop-out telephone presenter. The presenter slides smoothly out and the phone holder flips to an upright position.

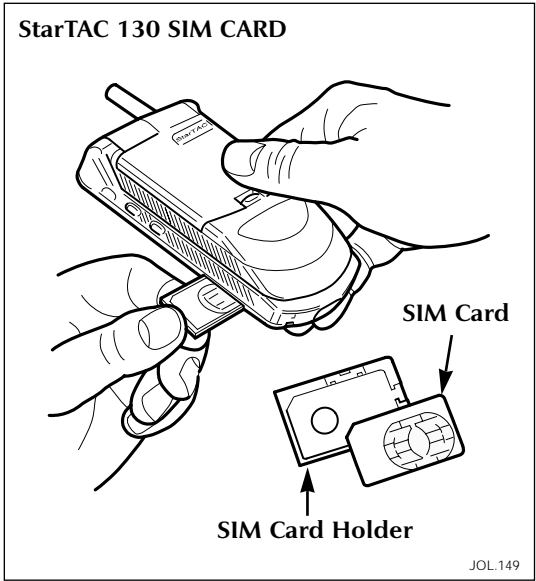
### CENTER STACK PHONE PRESENTER



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**Center Console Cubby Box - With Navigation**  
 Should the optional Navigation system be fitted in the Centre Stack to occupy the telephone presenter position, the phone installation location is made in the Center Console Cubby Box. A hang-up cup is mounted in the cubby box tray.



**SIM Card**  
 The GSM phone is supplied with a Subscriber Identity Module (SIM) card. A Personal Identity Number (PIN) needs to be entered to make the phone operable.

**Cellular Telephone Control Module (CTCM)**  
 The CTCM is mounted in the trunk and provides for hands-free audio processing and battery charging to the portable phone.

**Phone System Pre-wire Permutations**

	Factory Condition			
	Non-Navigation		Navigation	Nav Pre-wire
	N.America / Rest of World	Europe	All Markets	All Markets
<b>Build Condition</b>	Phone pre-wire to 'A' post	Phone pre-wire to Center Stack	Phone pre-wire to Center Console	Phone pre-wire to 'A' post
<b>Phone in Center Stack</b>	Dealer fit only using link lead from A post to Center Stack	Factory fit or Dealer fit harness present	Not available	Dealer fit only using link lead from A post to Center Stack
<b>Phone in Center Console</b>	Dealer fit only using overlay harness from CTCM to Center Console	Dealer fit only using overlay harness from CTCM to Center Console	Factory fit or Dealer fit harness present	Dealer fit only using overlay harness from CTCM to Center Console

## Navigation

### General

The Jaguar Navigation system assists the driver by providing a route to a selected destination. The Navigation head unit, comprising a 5 inch (130mm) full color screen and the control switch

assembly is designed as an integral unit of the center stack. The Navigation Control Unit/CD Map Loader is mounted in the rear LH side of the trunk and covered by a dedicated styled trim panel (see illustration on page 123). The GPS antenna is located above the rear parcel shelf but hidden underneath the interior trim.

Digital map information is held on a compact disk (CD) which is loaded into the Navigation Control Unit housed in the trunk.

The LCD provides full information for operating the system by means of menus, text prompts and map displays. Screen selections are made by the controls on the front panel.

### How the System Works

The system uses signals from the Global Positioning system (GPS) satellites, which enables the Navigation ECU to calculate, with the aid of CD ROM map data, ABS sensors' signals and Gyro sensor's signals, the exact position of the vehicle to within meters. After entering the desired destination, the driver is guided along by both voice and visual instructions. If the driver strays off the route, the system calculates a new route showing the easiest way back to the original destination.

### Voice Guidance

A chime and an audible instruction will be heard just before the vehicle reaches the next junction along the route where a turn has to be made.

### Screen Guidance

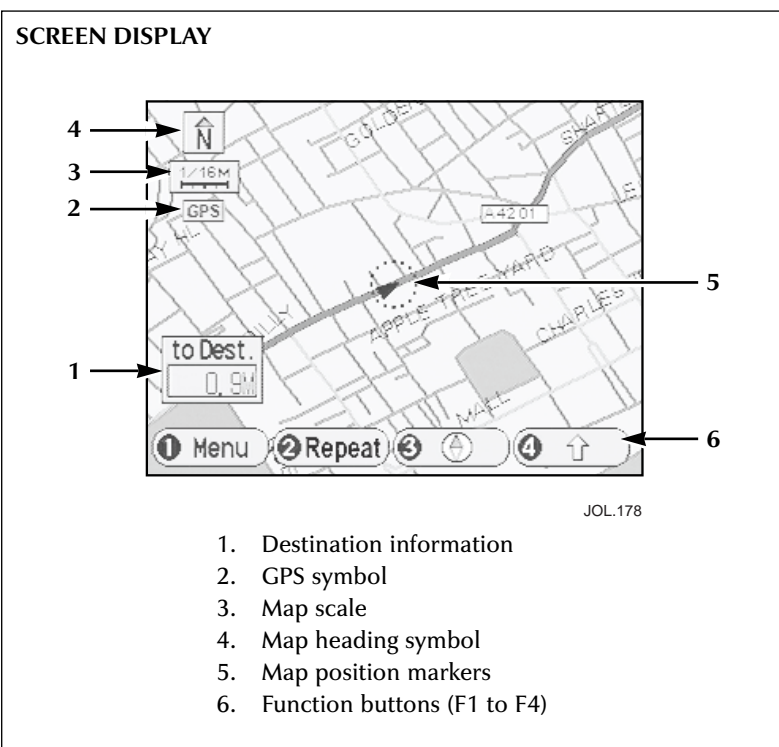
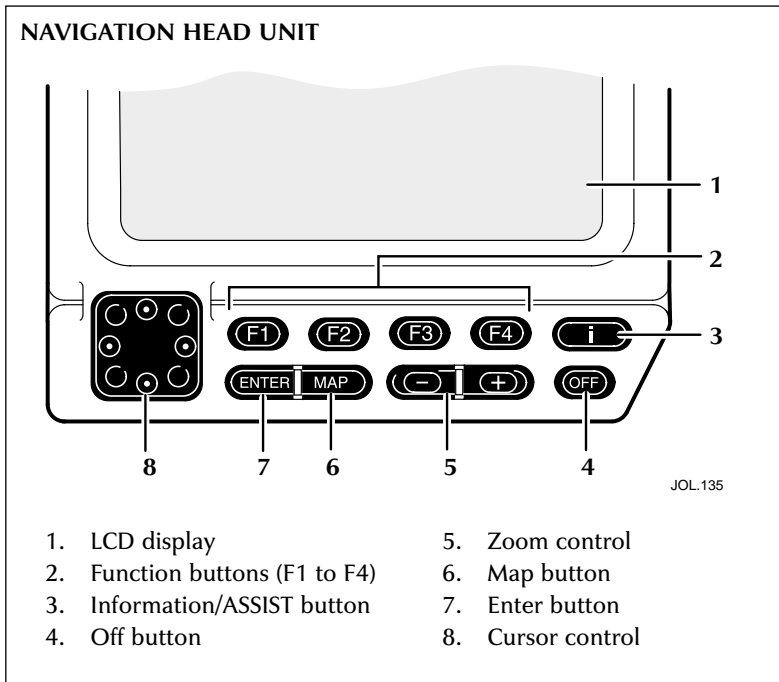
The screen shows the map display with the current vehicle position and route highlighted. Just before each turn, the screen automatically shows the next junction diagram (with turn information) overlaid on the map display. After the junction, the screen returns to full map display.

### Interfaces

The system also provides interfaces such as a TV (Japan only), Vehicle Emergency message system known as Jaguar ASSIST (North America only) and Real Time Traffic Information (limited to certain markets).

### TV (Japan only)

The TV is a Dealer fit item and is displayed on the Navigation screen. The sound is generated through the vehicle's audio system in mono only. TV



controls are incorporated into the Navigation Head Unit, there is no remote control. Antennas are integrated into the front and rear bumpers. Harnesses for the TV are incorporated in all Japanese vehicles.

**Jaguar Assist (North America only)**

Assist is an integrated vehicle emergency message system (VEMS) that uses the Jaguar security response center for emergency roadside assistance via the Jaguar in-car telephone installation. The global positioning system (GPS) is used to identify the position, direction of travel and speed of the vehicle. Access to the Assist feature is through the use of the Navigation system. The emergency assistance feature allows rapid access to the emergency services (police, fire or ambulance) and roadside assistance. Once assistance has been requested and the vehicle location confirmed, the appropriate services are contacted for assistance to be dispatched. In the unfortunate event of an airbag deployment, the system will automatically place an emergency call.

Access to the system is gained by pressing the information button on the Navigation front panel screen (the ignition must be in position 'I' or 'II'). While in use, a sequence of messages is displayed on the LCD.

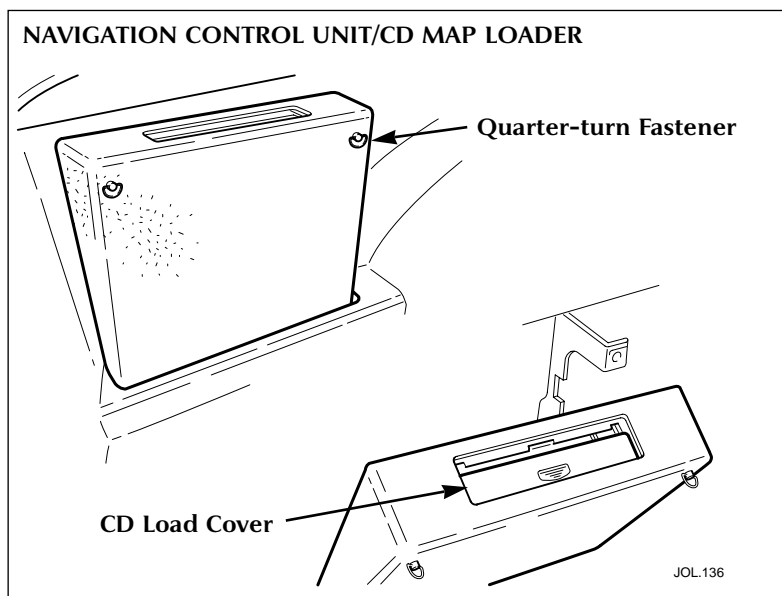
Note: If an Assist call is initiated and the operator cannot establish voice communication, police assistance will be dispatched to the vehicle.

The system can be used wherever a cellular phone service is available. The Jaguar phone must be connected to the vehicle, working correctly and registered with a cellular network. A roaming airtime agreement is required so that the system can be used in all areas.

**Diagnostic Light**

A diagnostic light is integrated into the information (ASSIST) button. The diagnostic light flashes throughout an activation but stays on continuously when a failure is detected. A message is given on the display: 'ASSIST FAILURE'. There are four potential failure modes:

1. No VEMS menu is displayed when the information ASSIST button is pressed
2. No activation is performed when the enter button is pressed to make a selection



3. VEMS is unable to compute the location of the vehicle's current position
4. The Navigation system is unable to display any VEMS messages or would display the wrong VEMS messages.

**Real Time Traffic Information (RTTI)**

In the UK the provider for RTTI is 'Trafficmaster'. Information is collected from their own unique network of infra-red road sensors which monitor the average speed of traffic. This information is sent by radio data link to Trafficmaster's operational headquarters. After processing and editing the information, it is transmitted in real time, in words and graphics to Trafficmaster control modules installed in vehicles. RTTI will not be available on early vehicles but could be Dealer fitted retrospectively.

Other markets will use different traffic congestion information services which will depend on market infrastructure and service provider support. Japan will use the 'Vehicle Information and Communications System' (VICS).



## Voice Activation

### General

Voice Activation, currently available in a limited number of markets, provides a convenient way of controlling the following vehicle systems (where fitted):

- Sound System (radio, cassette tape player and CD player)
- In-car Telephone
- Climate Control System.

The system is controlled by the Voice button on the left-hand side of the steering wheel. Voice commands are picked up by a directional microphone mounted on the headlining between the overhead console and the sunvisor. The microphone is also used for the in-car telephone. When giving a command, audible feedback will be heard through the sound system speakers and messages will be shown on the message center display. Audible feedback can be turned off if required. The system is capable of storing unique nametags for 20 radio stations and 40 phone numbers. Verbal playback of nametag directories is provided by issuing the proper voice command (RADIO DIRECTORY or PHONE DIRECTORY).

Personal directories of nametags for phone dialing and radio station presets can be created and spoken command help is provided.

### Language and Accent

Commands are given in English in a natural speaking voice, without having to pause between words. Most United Kingdom accents (for vehicles equipped with a UK Voice Module) or North American accents (for vehicles equipped with a US Voice Module) are understood without difficulty but the system also provides for voice training, if required. Voice feedback is given in UK English (for vehicles equipped with a UK Voice Module) or US English (for vehicles equipped with a US Voice Module).

### Voice Commands

Voice commands are generally in the form of:

- System, e.g. Radio
- Function, e.g. Tune
- Action Required, e.g. 99.7 (to select the frequency).

### Note:

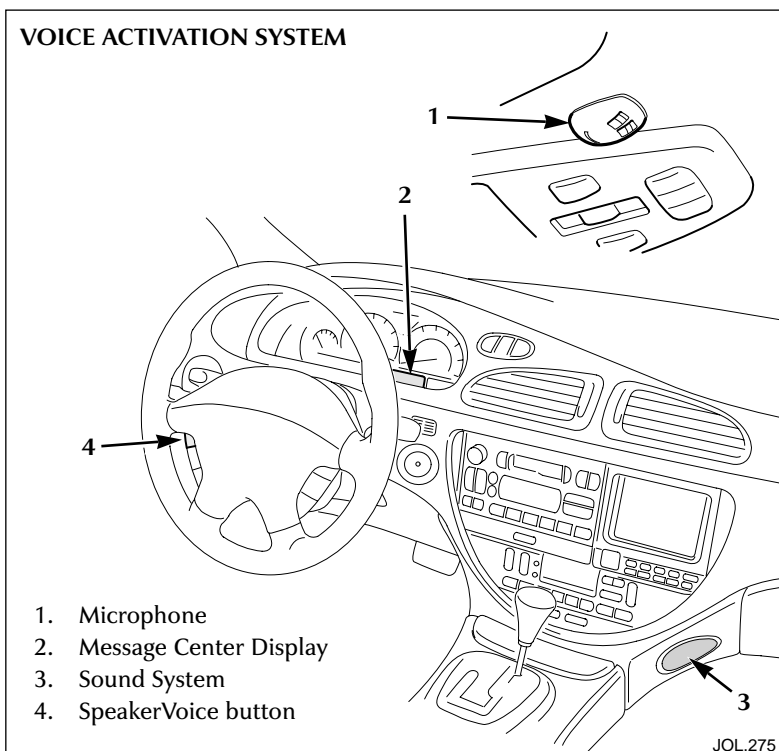
1. Voice commands cannot be given while a phone call is in progress.
2. While a voice command is being processed, the command can be canceled by pressing the Voice button again.
3. Audible feedback can be interrupted by pressing the Voice button during the verbal playback. In this case the command is not canceled.

### Command Help

There are commands available which give spoken/visual help for the voice commands. This provides a useful reminder of the commands available while driving.

The commands are:

VOICE HELP; RADIO HELP; TAPE HELP; CD HELP; PHONE HELP AND CLIMATE CONTROL HELP.



## Using the System

### Initialization

When the ignition switch is turned to position 'II', the initialization of the system is carried out, which takes a few seconds. When complete, the system is ready to accept voice commands. If the voice button is pressed before initialization is complete, the message center display will show 'VOICE NOT READY'.

### Audible Feedback, Confirmation & Prompts

For most voice commands, audible feedback of the command, as understood by the system, is available. Audible feedback may be turned on or off by giving the VOICE FEEDBACK command.

For the phone dial commands, confirmation of the number, before it is dialed, may be turned on or off by giving the PHONE FEEDBACK command. During some commands for voice training, the user is prompted by the system to give the next item of information.

For specific operation of all the controls, refer to the Owner's Voice Activation Handbook.

### Voice Training

The Voice Activation System is able to interpret most English speakers without difficulty. If, however, it is found that commands are sometimes not being recognized, the voice training procedure can be carried out.

### Voice Memories

The system has two memories (A and B) for storing the trained voices. The Voice Memory Directory command provides an indication of the availability of the two voice memories (Full or Available).

### Giving Commands after Training

After Voice training the system will automatically recognize a speaker whose voice is held in voice memory. The system can still be used by other speakers with no loss of response.

### Error Messages

In addition to the voice command prompts given by the system, the following error messages may be encountered. The messages are shown on the message center with voice confirmation (error tone or voice playback).

Message	Explanation
NO SPEECH DETECTED	The system did not detect any speech when the voice button was pressed
NAME TAG TOO LONG	A nametag must not take longer than three seconds to say
NAME TAG NOT UNIQUE	The nametag (or similar sounding name) has already been used
COMMAND NOT RECOGNIZED	The command was not recognized from the list of voice commands
HANDBRAKE MUST BE ENGAGED	The handbrake must be applied for voice training
RADIO MUST BE IN TUNER MODE	The sound system must be in radio mode before giving the Radio Store command
VOICE NOT READY	The voice button was pressed while the voice system was still initializing
TOO MANY DIGITS	The phone number in a Phone Enter command was too long

## Reverse Park Control

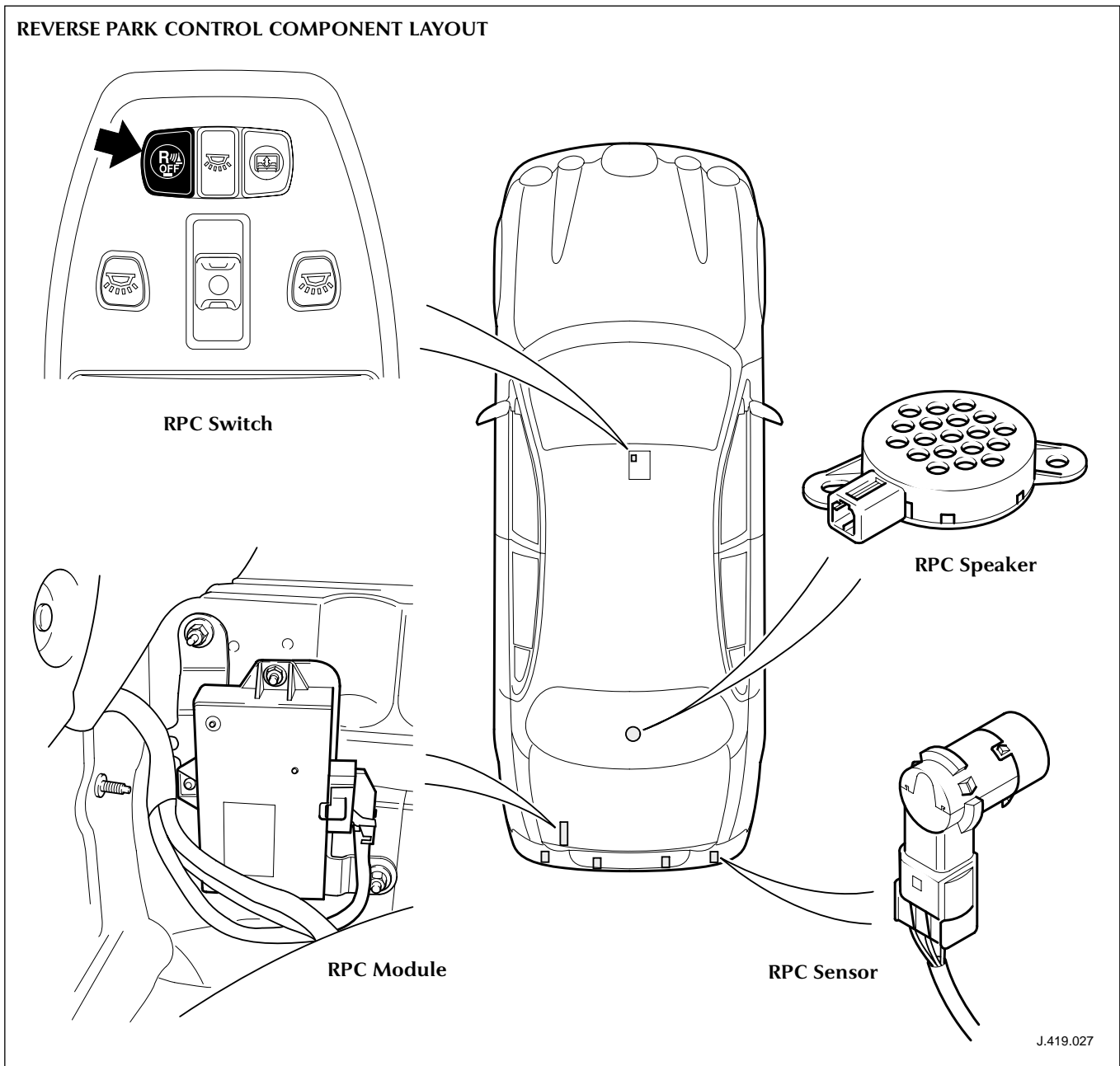
### General

The function of the Reverse Park Control (RPC) is to provide an audible warning to the driver of the distance to obstacles near the rear bumper of the vehicle when reversing. The system operates through four ultrasonic sensors that send out beams covering the area behind the vehicle. These beams are reflected by obstructions behind the vehicle and re-enter the sensors. The reflected beam information is processed by the reverse park control module (RPCM) to calculate the

distance of the obstruction. The sounder is then activated and gives the appropriate warning signal starting from an intermittent beep (at approximately 0.8 meters) up to the continuous 'stop' tone (at approximately 0.2 meters).

The sensors are fitted, equally spaced, across the rear bumper. The system is activated when the gear selector is moved to the reverse position whilst the engine is running. It can be switched off by pressing the switch in the overhead console. A

REVERSE PARK CONTROL COMPONENT LAYOUT



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red indicator light in the switch illuminates when the system is switched off. It is reset every time the ignition is cycled.

Should there be a failure in the system, the red indicator light in the switch is constantly illuminated and a fault code is logged in the PACM.

The reversing aid comprises the following components:

- Harness
- PACM located on the LH side of the spare wheel well
- Speaker located under the trim on the rear parcel shelf
- Four sensors located in the bumpers (see page 13)
- Sensor holders located in the bumpers

