



Technical Guide



X-TYPE

2004 Model Year Update



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



Technical Guide

X-TYPE

2004 Model Year Update

Published by Technical Support and Communications, **Jaguar Cars Limited**
Publication Part No. JJM 18 15 20/50, September 2003

Preface

The Jaguar Technical Guide is intended to provide an overview only and must not be used as a reference source for servicing procedures. All servicing must be carried out in accordance with the appropriate JTIS disc.

While every effort is made to ensure accuracy, design changes to the vehicle may be made in the period between the completion of this publication and the introduction of vehicles. Details of changes can be obtained from Service Bulletins and revisions to the JTIS disc.

All rights reserved. No part of this publication may be reproduced, stored in a retrieval system or transmitted, in any form: electronic, mechanical, including photocopying, recording or other means without prior written permission from the Service Division of Jaguar Cars Limited.

Subject	Page
Glossary	
Abbreviations and Acronyms	VI
Introduction	1
Chassis	
Driveline System	2
Driveshaft (AWD variants)	2
Powertrain	
Fuel Tank and Lines	3
Fuel Tank and Lines (AWD variants)	3
Electrical	
Instrumentation and Warning Systems	6
Instrument Cluster (AWD variants)	6
Parking Aid	7
Entertainment System	9
Premium Sound System Features	9
Remote Amplifier	9
Speakers	10
Electrical Distribution	11
Junction Boxes	11
Multimedia Modules	12
Body	
Body System	13
Front End Body Panels	13
Body Construction	14
Exterior Trim and Ornamentation	16
Bumpers	17

Glossary

The following abbreviations and acronyms are used in this publication:

Abbreviation / Acronym	Description
ac	alternating current
AM	amplitude modulation
AWD	all-wheel drive
BJB	battery junction box
CD	compact disc
CJB	central junction box
cm	centimeter
D2B	digital data bus
dc	direct current
DTC	diagnostic trouble code
DVD	digital versatile disc
FM	frequency modulation
IC	instrument cluster
in	inch
ISO	International Standards Organization
JTIS	Jaguar technical information system
kbps	kilobits per second
km/h	kilometers per hour
kV	kilovolt
LED	light emitting diode
LH	left-hand
LHD	left-hand drive
MHz	megahertz
MIL	malfunction indicator lamp
mile/h	miles per hour
mm	millimeter
ms	millisecond
MY	model year
N	newton
NAS	North American specification
NOx	nitrogen oxides
OBD	on-board diagnostics
pcb	printed circuit board
RF	radio frequency
RH	right-hand
RHD	right-hand drive
SRS	supplementary restraints system
TG	technical guide
VEMS	vehicle emergency messaging system
VIN	vehicle identification number
W	watt
WDS	worldwide diagnostic system

Technical changes to the X-TYPE model year update, may not be self-evident, however, significant modifications have been made to the body shell, door and underbody.

Additional changes to the Body area include:

- A bolt-on front-end that: provides a weight reduction; improves repairability and service access.
- A new front bumper to accommodate the bolt-on front-end and front parking aid (where applicable).
- A new trunk-lid finisher.
- A new stack-bracket mounted to the left-hand side of the trunk to accommodate the multimedia modules.

Changes to the Chassis area include:

- A new driveshaft (AWD vehicles only) with sliding spline and sealed CV joints.

Changes to the Powertrain area include:

- The redesign of the fuel system to meet USA Federal LEV 2 emissions requirements:
 - New fuel tank.
 - New carbon canister (NAS markets only).
 - Deletion of the fuel rail 'schraeder' valve.
 - New filler pipe assembly and cap.

Changes to the Electrical area include:

- The battery junction box, which interfaces to the wiring harness via eight connectors instead of being hard-wired.
- Optional front parking aid.
- Minor modifications to the instrument cluster.
- Refinements to the Entertainment System which, where applicable includes the introduction of a remote power amplifier and new speaker configurations.

Driveline System

Driveshaft (AWD variants)

The principal change to the AWD driveshaft is a new sliding spline, which provides a crash collapsible feature. The second notable change is to the center bearing. This driveshaft is a backward compatible fitment to earlier vehicles.

Front Tube Sliding Spline

The forward section of the front tube has a sliding formed steel spline, which locates within an aluminum splined sleeve muff (box coupling) on the front tube rear section. This replaces the current "swaged" tube design.

Sealed CV Joints

The previous driveshaft had open CV joints. The new driveshaft has sealed joints at both ends (steel can shaped fabrication). The steel can has two roles:

- To compress the sealing gasket between the CV joint and the steel can.
- To retain grease in the CV joint.

Center Bearing

Minor changes are confined to the internal bearing geometry and grease.

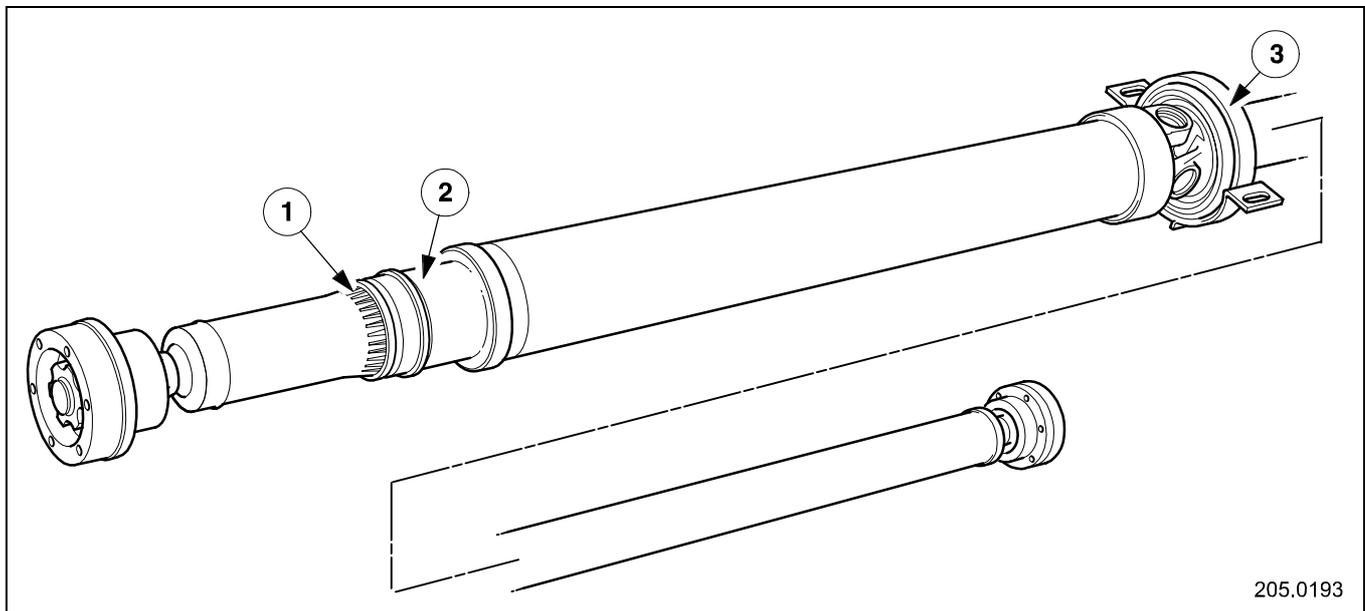


Fig. 1 Driveshaft

1. Sliding spline
2. Aluminum splined sleeve muff
3. Center bearing

Fuel Tank and Lines

Fuel Tank and Lines (AWD variants)

Introduction

The vehicle has a new fuel system designed to meet USA Federal LEV 2 emissions requirements. Parts affected are:

- Under floor fuel lines.
- Fuel tank assembly.
- Fuel filler pipe.
- Carbon canister.
- Fuel filler cap.

Service Port

In order to further reduce emissions, the fuel rail 'schraeder' valve is deleted. Should a service port be needed, a new service special tool will be available to fit between the fuel rail and the fuel feed line connection.

Fuel Filler Pipe and Cap

There is a new filler pipe assembly where:

- The material is changed to stainless steel.
- Hose material is changed.
- The plastic insert is deleted at the nozzle end of the pipe.
- The steel part of the filler pipe cup has a new tread and curl design of thread form.
- A plastic sleeve is fitted to the outside of the filler pipe to fill the gap in the filler bowl housing.

Changes to the cap comprise:

- A new main seal.
- Revised relief valve springs for increased relief pressure.

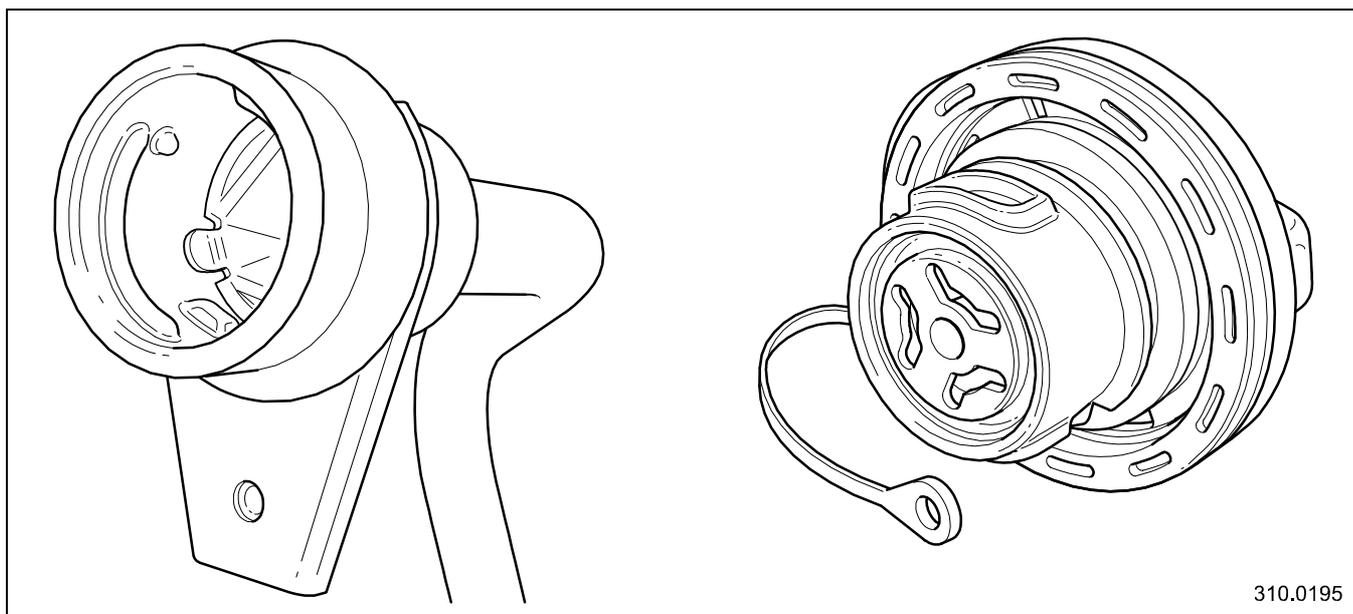


Fig. 2 Fuel filler pipe and cap

Powertrain

Fuel Tank

Differences from the previous tank:

- Fuel delivery shut-off valve and roll-over valves are mounted internally.
- Change to the fuel delivery module and Jet pump module.
- The fuel delivery module and jet pump module internal cross-over lines have had their connections reversed.
- The pressure transducer is replaced by one from another supplier. It was mounted on the tank but is now mounted in the vapor line.
- The inlet check valve is changed.

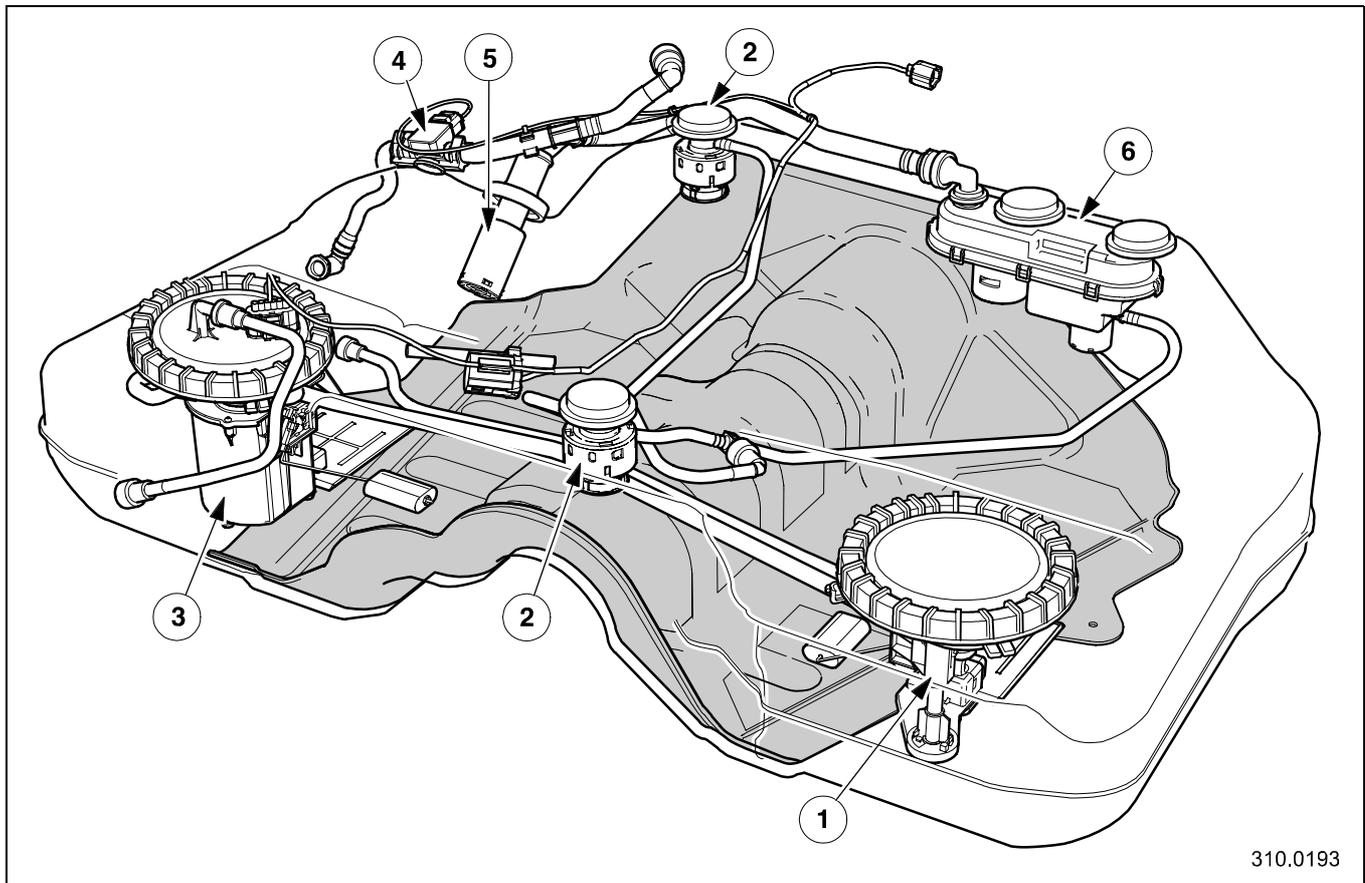


Fig. 3 Fuel tank

- | | |
|------------------------------------|---------------------------------|
| 1. Sender and fuel transfer module | 4. Pressure transducer |
| 2. Roll-over valve | 5. Inlet check valve |
| 3. Sender and pump assembly | 6. Fuel delivery shut-off valve |

Carbon Canister (NAS only)

A new design of carbon canister is fitted:

- A bleed can is added to reduce bleed emissions. The bleed can is basically an additional carbon canister used to catch bleed/break away hydrocarbons that occur in hot climate conditions. It is not serviceable and is supplied as part of the carbon can assembly.
- An extra fixing is added to secure the canister assembly.
- A reverse connection of the port to the fuel tank is made to improve access to the vapor hose.

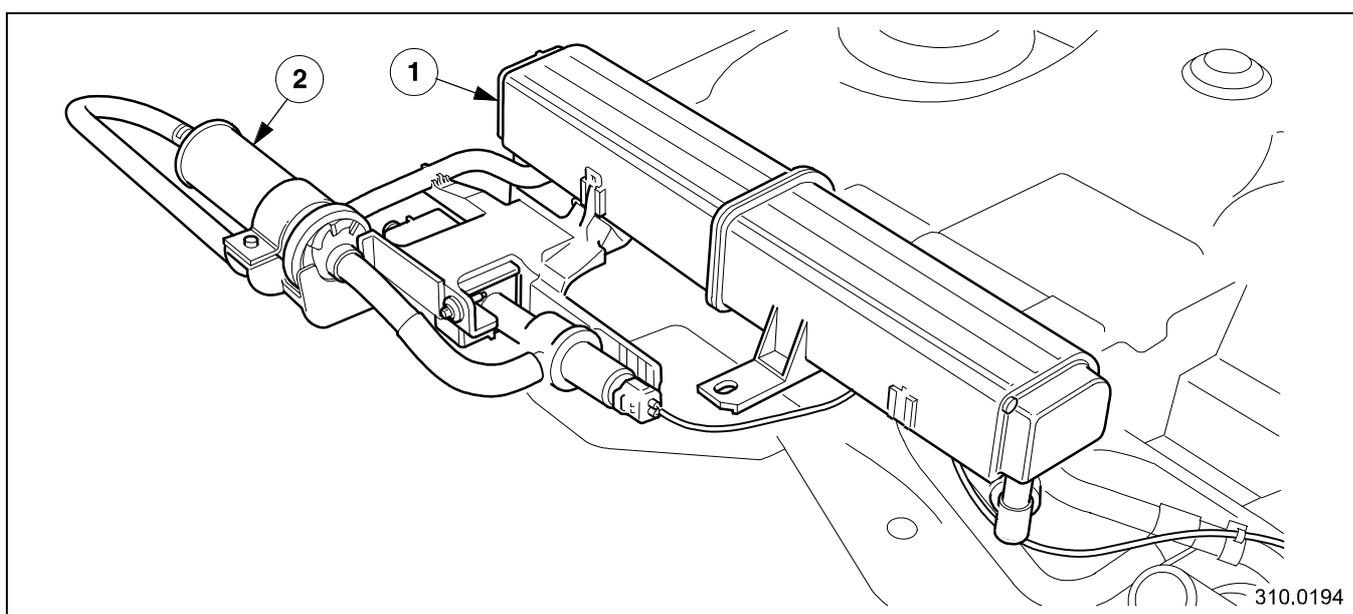


Fig. 4 Carbon canister

1. Carbon canister
2. Bleed can

Instrumentation and Warning Systems

Instrument Cluster (AWD variants)

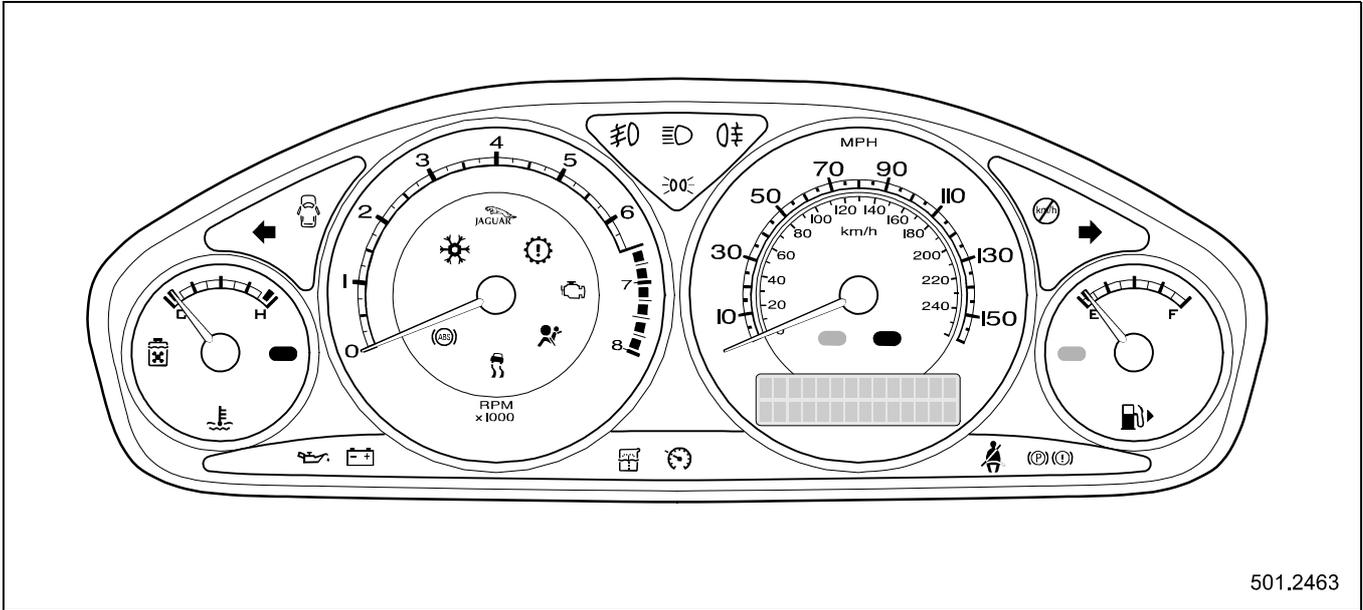


Fig. 5 Instrument Cluster (AWD variants)

AWD variants

The instrument cluster (IC) has undergone some minor revisions:

- a new 'all black' appliqué has been introduced;
- new text messages support memory seats (where applicable).

NOTE: There are no additional service or repair considerations.

All models

Low outside temperature

A dedicated warning lamp (snowflake symbol) has been introduced, which replaces the text message to indicate 'low ambient temperature'. The lamp illuminates to indicate that temperatures have fallen low enough for frost or ice to form on road surfaces. The lamp will remain illuminated until the ambient temperature rises to a safer level.

Parking Aid

The installation of the parking aid option, features a new configurable module to support either:

- front and reverse parking maneuvers or
- reverse parking maneuvers only.

The module is located to the left-hand side of the spare-wheel well.

The reverse parking sensors and speaker are identical to those installed for the introduction of X-TYPE.

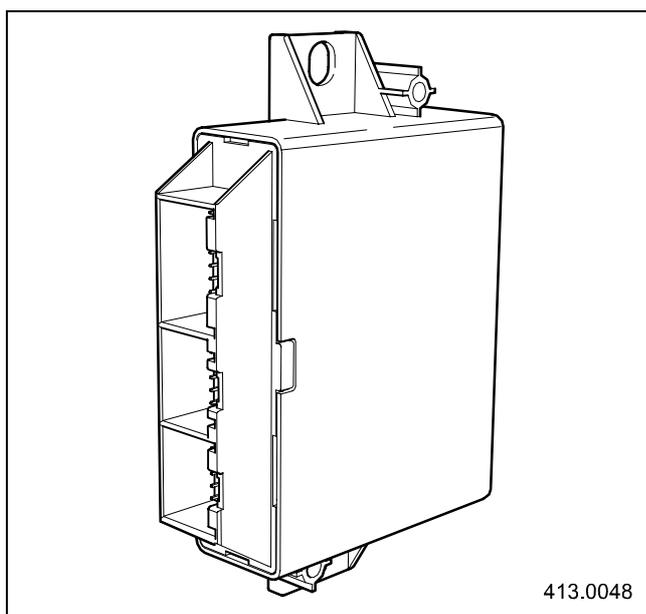


Fig. 6 Parking aid module

The front parking aid system, is installed as an option, requires a differently configured parking aid module to that installed for the reverse parking aid system and comprises:

- Parking aid module.
- Audible warning speaker.
- Ultrasonic sensors.
- Deactivation switch.

The deactivation switch, located in the overhead console, provides the driver with the option to deactivate the system.

NOTE: Deactivation applies to both the front and reverse parking aid systems.

A warning lamp, integral to the switch, illuminates to confirm the systems have been deactivated.

NOTE: Should a malfunction be detected, the system will be automatically deactivated and the warning lamp illuminated.

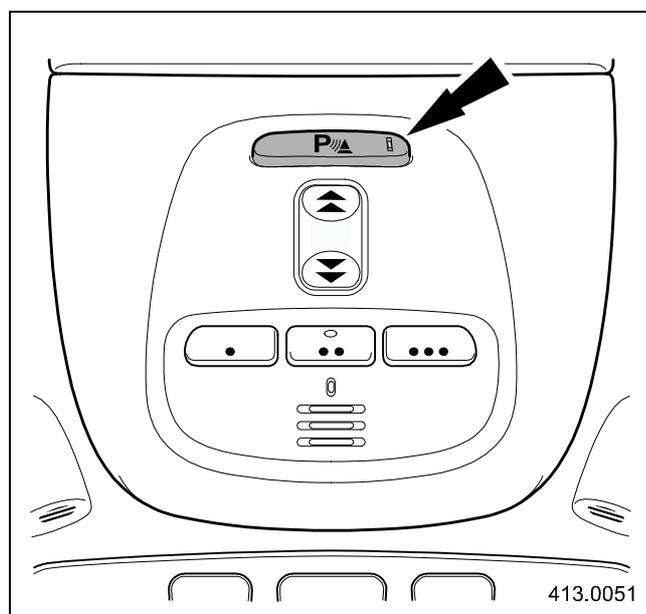


Fig. 7 Parking aid deactivation switch

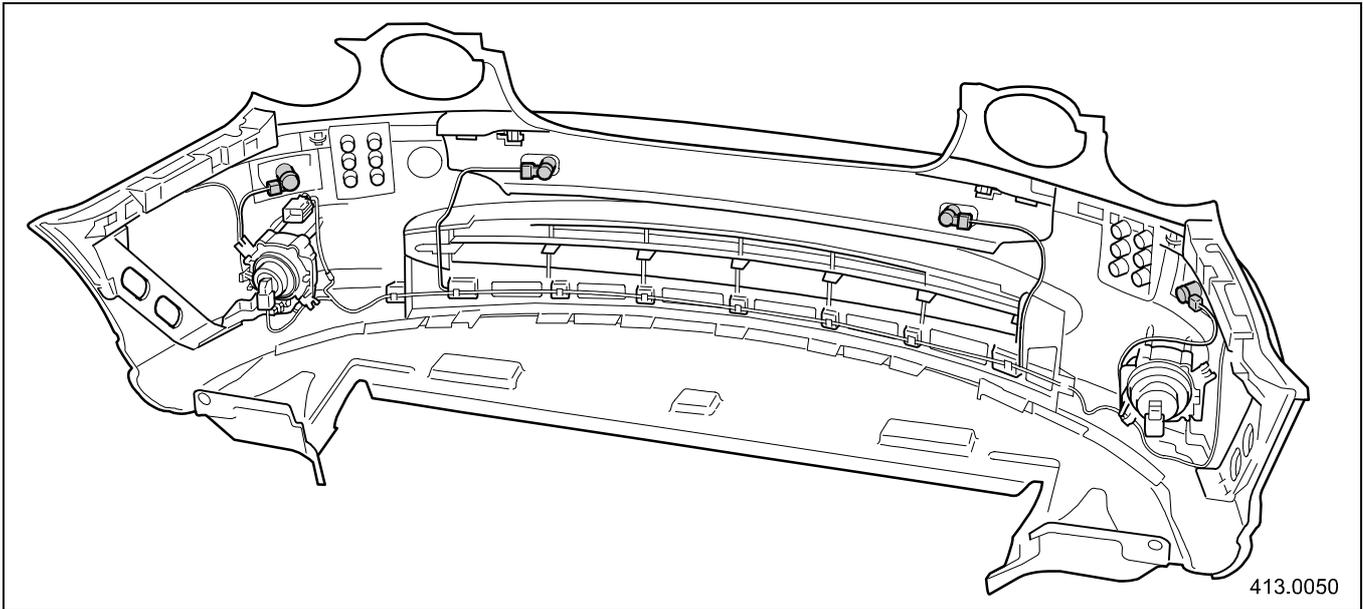


Fig. 8 Front parking aid sensors

The ultrasonic sensors are designed to detect the presence of obstacles as the vehicle is being parked. Should an object be detected within the sensor range of 0.8m (31 ins) from the front of the vehicle, the speaker should emit an intermittent audible warning. As the vehicle moves closer to the object, at a distance of 0.25m (10 inches), the intermittent audible warning should change to a continuous audible warning.

NOTE: The front sensors are not active at speeds above 15 km/h (9 mile/h) and do not re-activate until below 10 km/h (6 mile/h).

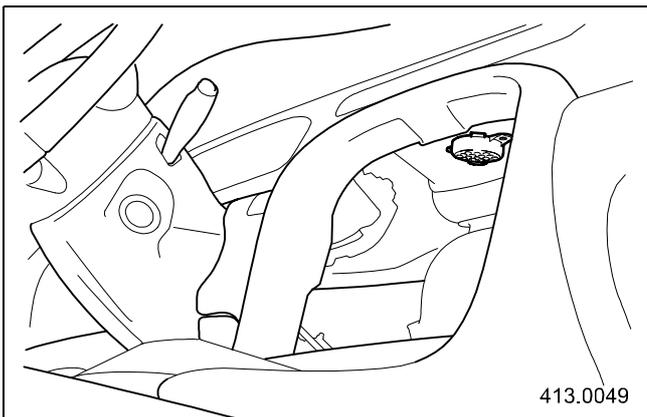


Fig. 9 Location of front parking aid speaker

System Malfunctions

Retrieval of the DTC and subsequent diagnosis of the system should be undertaken using WDS.

NOTE: For reliable operation, all sensors should be kept free from ice and grime. Cleaning the sensors using a high-pressure spray should only be undertaken briefly and not from a distance of less than 200 mm (8 inches).

Reverse Parking Aid Only

When reverse gear is engaged, any system malfunction will cause a continuous audible warning to be emitted for 3 seconds (only once per ignition cycle) and a DTC will be stored.

Front And Reverse Parking Aid

When a system malfunction is detected, once per ignition cycle:

- a continuous audible warning will be emitted for 3 seconds;
- the deactivation switch LED will illuminate;
- the system will be deactivated; a DTC will be stored.

Entertainment System

Minor refinements have been made to the Entertainment System including the introduction of a remote power amplifier and new speaker arrangements. In addition, the CD-changer is mounted to a new stack-bracket; refer to **Multimedia Modules**.

Premium Sound System Features

Customer Adjusted

- Sub-woofer gain.
- Digital signal processing (DSP), which facilitates optimization of sound for specific seating positions.

Automatically Adjusted

- Dedicated equalization tuned for the car.
- Auto-loudness changes with latest audio unit software.

Remote Amplifier

The remote amplifier (where installed) is:

- located in the luggage compartment to the left-hand side above the stack-bracket;
- capable of delivering 8 x 40W output;
- part of the D2B network.

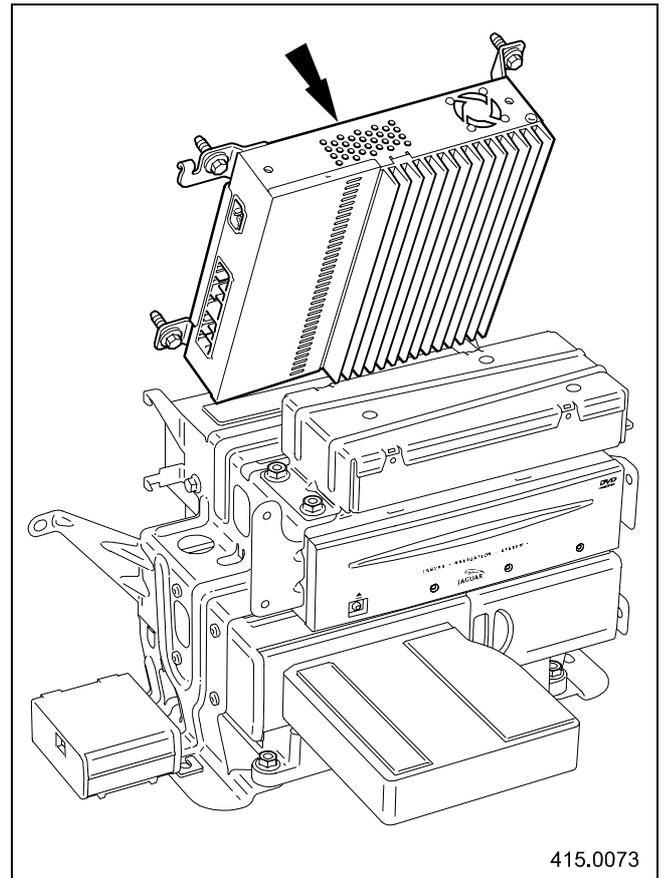


Fig. 10 Remote amplifier

Speakers

Premium Audio Sound System

The premium audio sound system comprises:

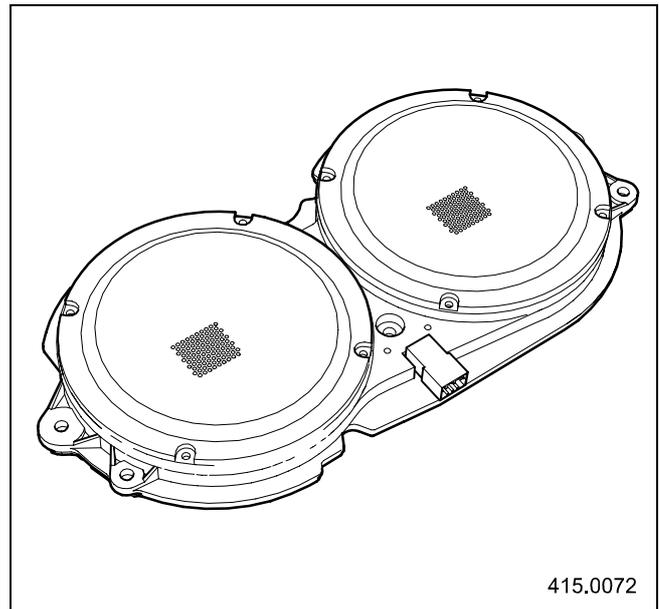
- Four lightweight mid-bass door speakers.
- Four door-mounted tweeters.
- Two sub-woofers.

NOTE: The sub-woofers are no longer installed within an enclosure.

Standard Audio Sound System

The standard audio sound system comprises:

- Two lightweight mid-bass door speakers (front).
- Two door-mounted tweeters (front).
- Two full-range speakers (rear)



415.0072

Fig. 11 Sub-woofers

Electrical Distribution

Junction Boxes

The junction boxes are new and different but located in similar positions to those installed for the introduction of X-TYPE.

Battery Junction Box

- The battery junction box (BJB) interfaces to the wiring harness via eight connectors instead of being hard-wired.

NOTE: A ninth connector (Fig. 12, item 2) is only used for diesel derivatives.

- The mega-fuse and midi-fuses can be accessed after removal of the cover fitted underneath the junction box.
- Spare fuses and the fuse-puller are located in the body rather than the lid.
- Some relays are the pcb-mounted type; refer to **X-Type 2004.25 Model Year Electrical Guide** for detailed information.

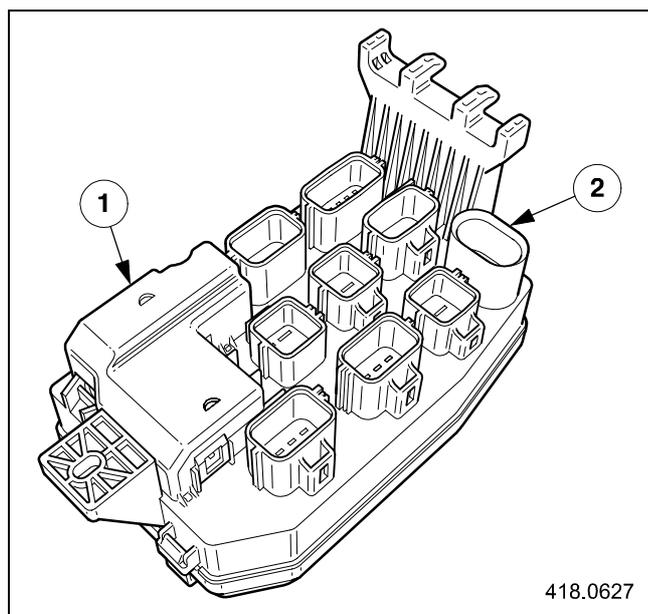


Fig. 12 Battery junction box

1. Mega-fuse cover
2. Diesel only connector

Central Junction Box

The central junction box (CJB) contains some pcb-mounted type relays; refer to **X-Type 2004.25 Model Year Electrical Guide** for detailed information.

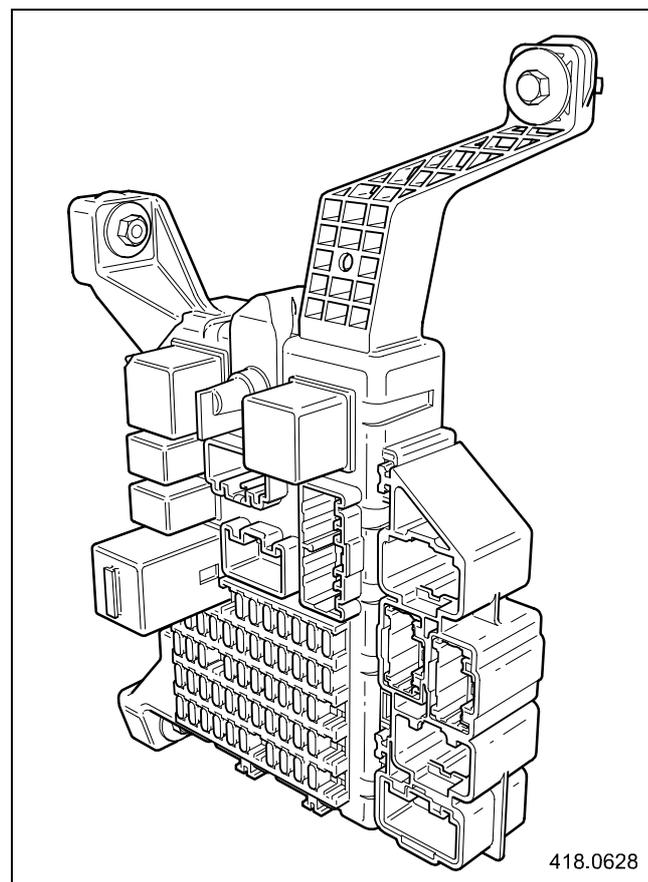


Fig. 13 Central junction box

Multimedia Modules

The rear stack-bracket is a new design intended to accommodate the following multimedia modules (where applicable):

- CD changer.
- Cellular phone control module.
- Voice activation module.
- Navigation control module.

NOTE: Where applicable the inclination sensor is also mounted to the bracket.

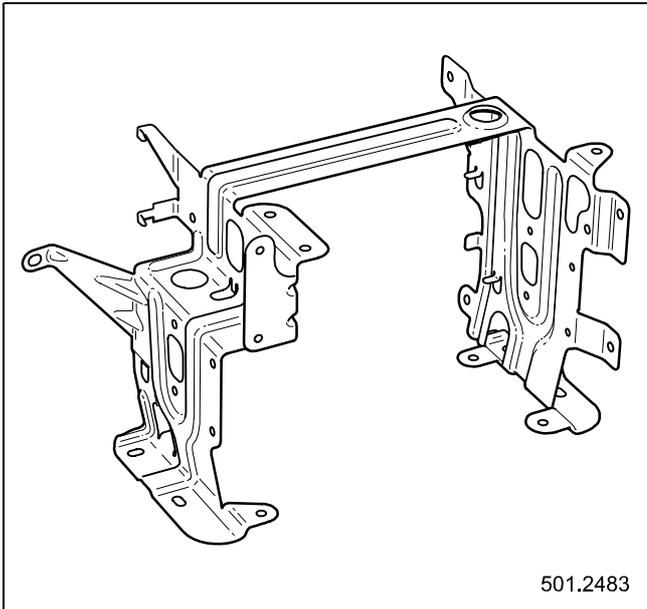


Fig. 14 Stack-bracket

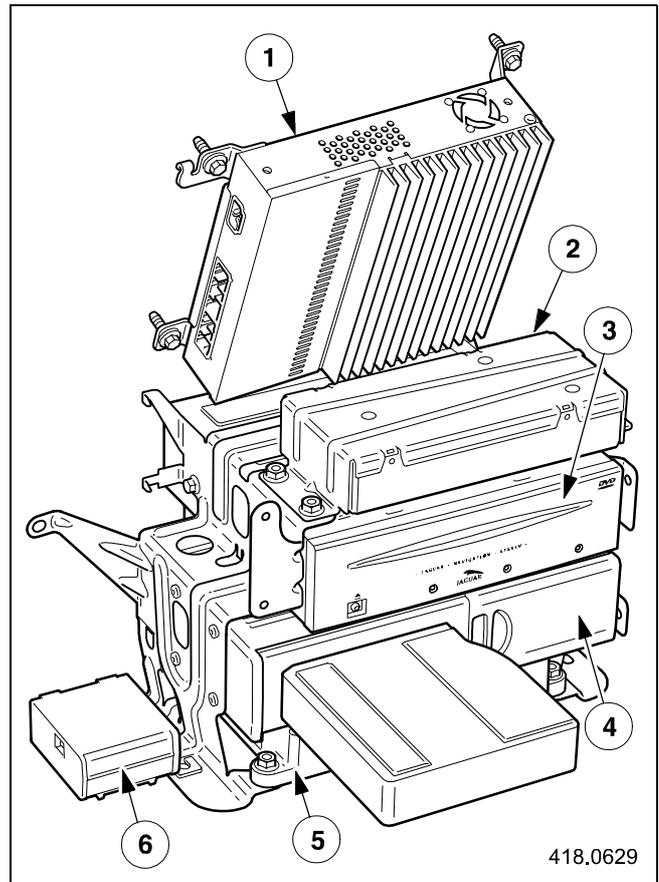


Fig. 15 Module location

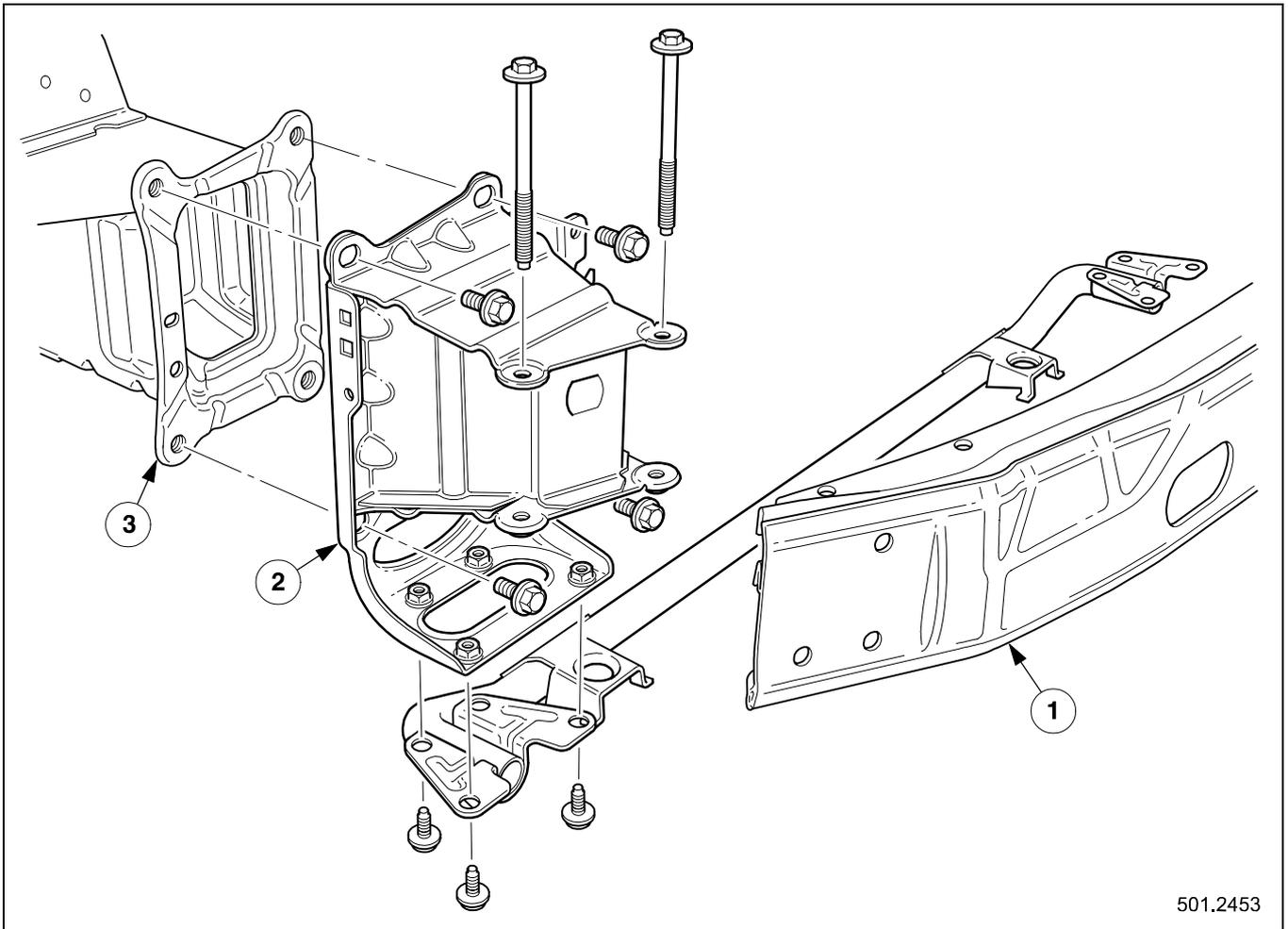
1. Remote amplifier
2. Voice activation module
3. Navigation control module
4. CD changer
5. Cellular phone control module
6. Inclination sensor

Body System

Front End Body Panels

The bolt-on front end provides a weight reduction and improves service reparability and service access. The bumper beam, formally welded to the crush cans, can now be withdrawn after removing four securing bolts.

Additionally, the crush can assemblies can be unbolted from the longitudinals. The longitudinals are modified to include an adaptor plate to accommodate the crush can assemblies. As a result of these changes, it has been necessary to move the position of the towing eye (not shown, LHS only).



501.2453

Fig. 16 Bolt-on front end

1. Bumper beam
2. Crush can
3. Longitudinal adaptor plate

Body Construction

Many of the modifications only apply to all-wheel-drive (AWD) derivatives. Therefore, should a pre-2004.25 MY require a re-shell, a 2004.25 MY two-wheel-drive derivative shell cannot be retro-fitted. However, a 2004.25 MY front door assembly can be used to replace a pre-2004.25 MY door.

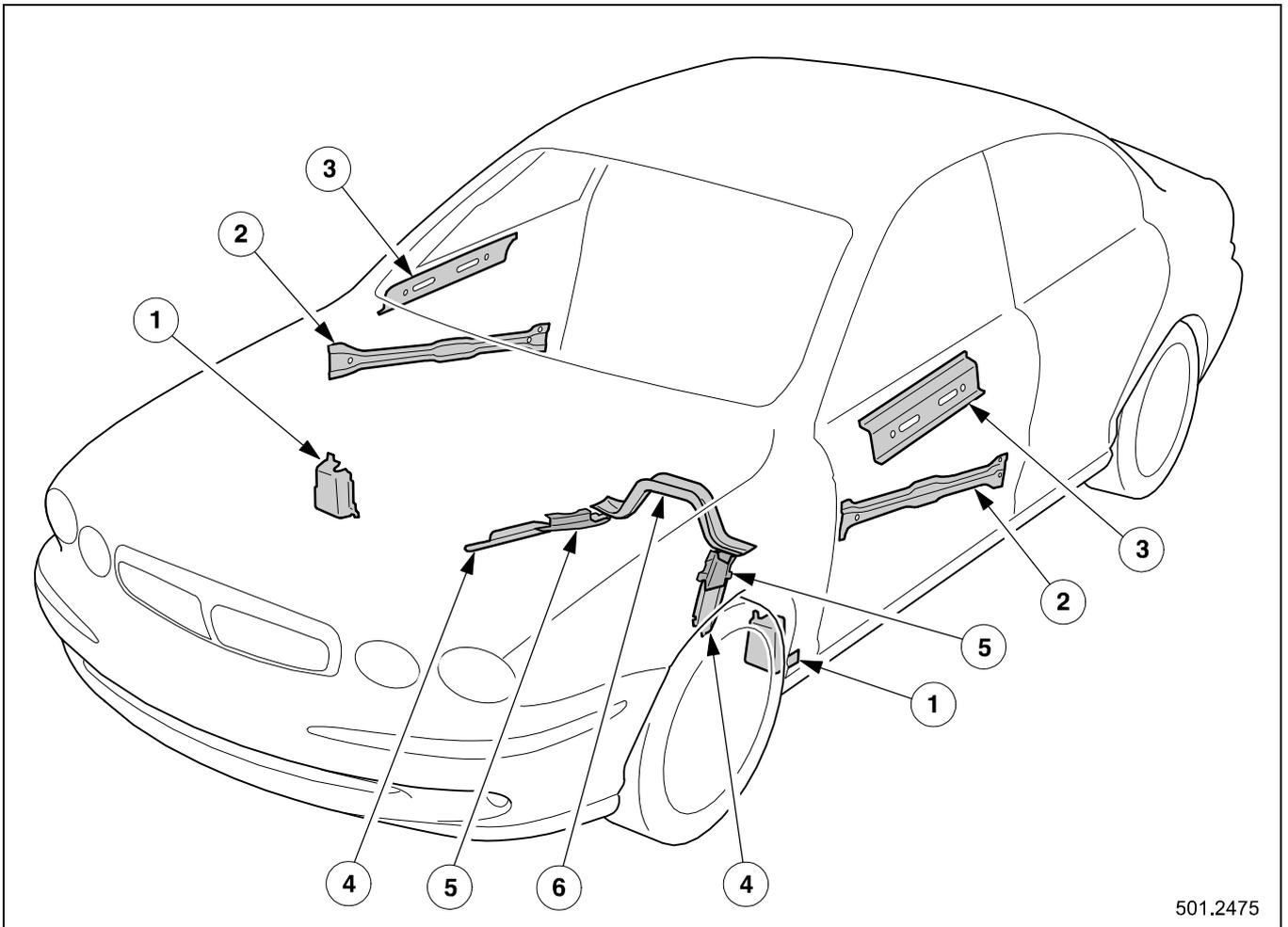
The following give some of the modifications but it is not an exhaustive list:

Bodyshell and Door Modifications

- Additional welded front door waist reinforcement.
- Up-gauge to front door inner strainer panel.
- Additional bolt-on wheel catcher (AWD vehicles).
- Several minor modifications to the body superstructure and hood.

Underbody Modifications

- Lower front cross-member holes for bolt-on front end assembly.
- For bolt-on front end assembly: headlamp mounting panel; corner panel and front fender upper outer reinforcement apron.
- Dash panel holes for the diesel supplementary heater, floor mounted throttle and diesel fuel fired heater.
- Rear floor fixings for trunk carpet.
- Rear tow eye (smaller reinforcement only to reduce weight).
- Spare wheel well stud changes.
- Bolt-on floor reinforcements (AWD vehicles).
- Longitudinal reinforcement panels: hole added for fixings for bolt-on floor reinforcements.
- Additional 'S' brace reinforcement fixings for bolt-on wheel catcher.
- Down-gauged battery tray and new fuse box mounting on battery tray.



501.2475

Fig. 17 Main body-in-white modifications

- | | |
|--|--------------------------------------|
| 1. Bolt-on wheel catcher | 4. Bolt-on floor reinforcement panel |
| 2. Up-gauged front door inner strainer panel | 5. Welded floor reinforcement panel |
| 3. Welded front door waist reinforcement | 6. Front floor cross center member |

Exterior Trim and Ornamentation

Trunk Finisher

Whereas the trunk release button was formally on the outer face of the new trunk finisher, the new position is on the underside. The new release button has a grained profile but no longer bears the Jaguar logo. The number plate lamps and lenses are new and are not interchangeable with pre-2004.25 model year vehicles. Bulb access is gained by unclipping the lens. Note the lenses are left and right-handed.

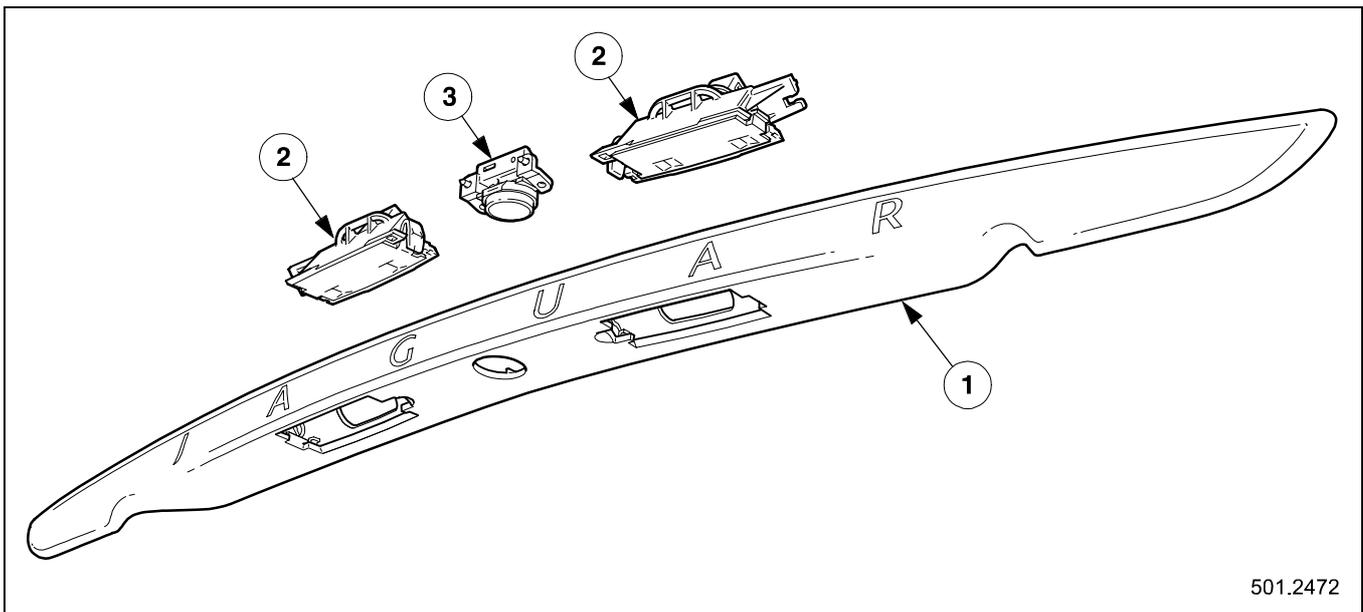
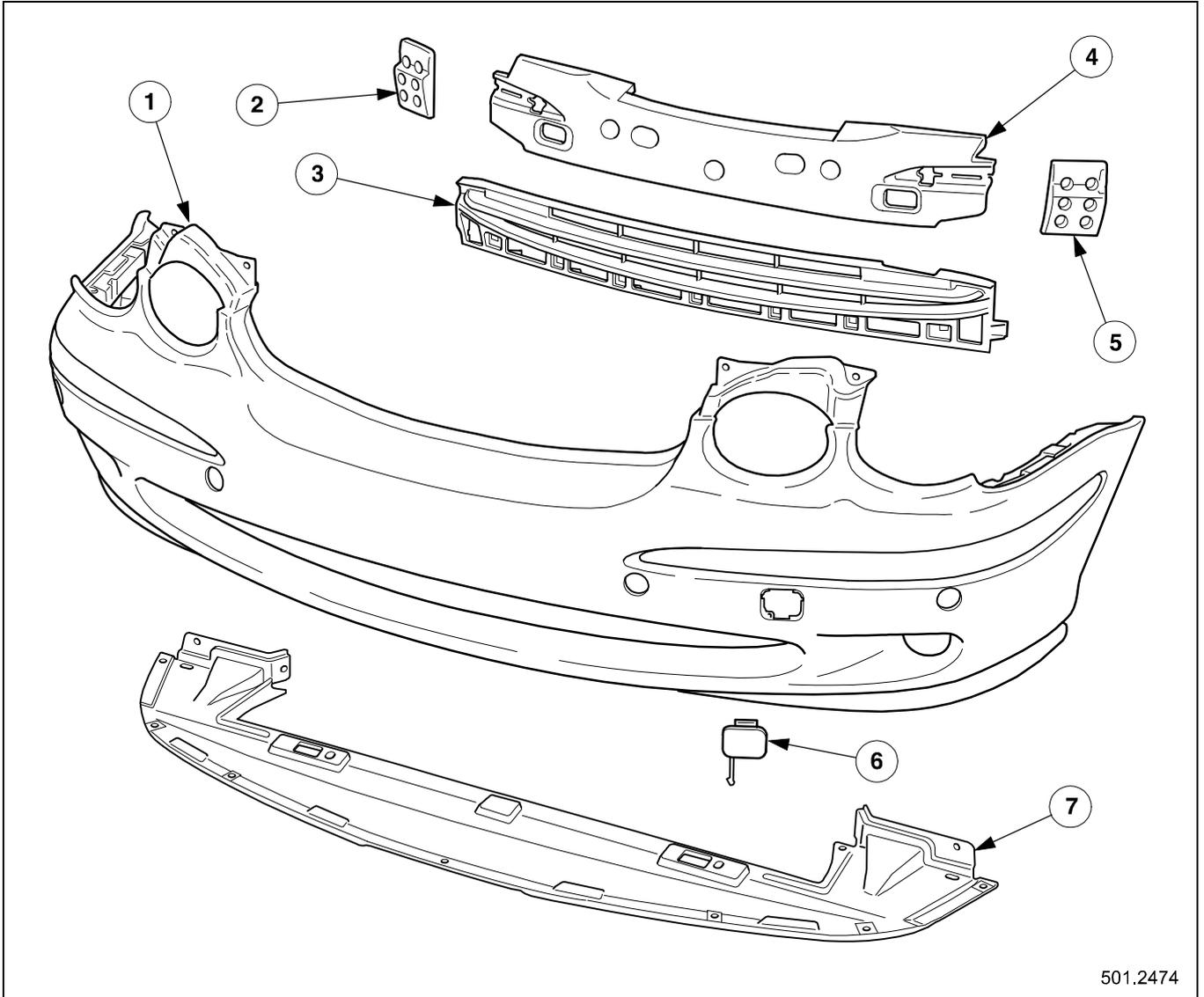


Fig. 18 New trunk finisher, release button and number plate lamp

1. Trunk finisher
2. Number plate lamps
3. Trunk release button

Bumpers

Front bumper



501.2474

Fig. 19 Bumper cover and components

- | | |
|---|----------------------------------|
| 1. Bumper cover | 5. Bumper isolator |
| 2. Bumper isolator | 6. Tow eye cover |
| 3. Bumper opening cover and splitter vane | 7. Bumper valance with rear flip |
| 4. Bumper foam insert | |

Modifications for Bolt-on Front End

Design changes required to suit the introduction of the bolt-on front end include:

- A new tow eye aperture cover in the front face of the bumper cover, as a consequence of repositioning the tow eye. An advantage of this is there is no longer the need to remove the splitter vane, to fit the tow eye.
- New foams and bumper isolators on the bumper cover to suit the new bumper beam profile.

Other Modifications

- The front bumper opening cover and splitter vane is reduced from four pieces to a one-piece moulding.
- The bumper washer bottle is changed from having a screen wash only and a combined power and screen wash derivative to one common bottle.
- New fog lamp and fog lamp bracket. The new and old style lamp and bracket are not interchangeable due to a new style connector and harness.
- Introduction of front bumper parking aid ultrasonic sensors (for more detail refer to; **Parking Aid**).

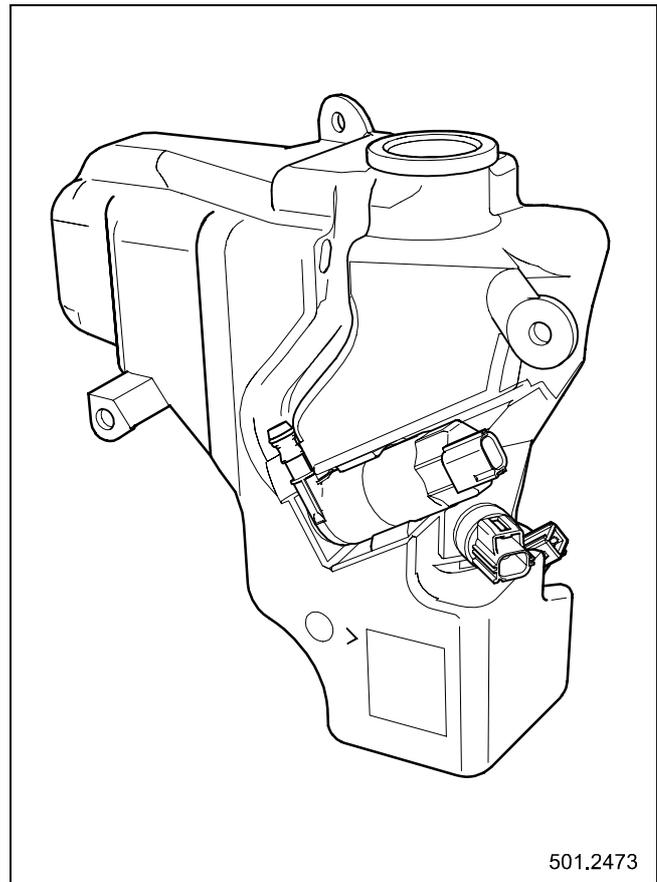


Fig. 20 Screenwash bottle

