DB9

Workshop Manual

Issue 2

ASTON MARTIN

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DB9 Workshop Manual

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Introduction

Contents

Introduction

Welcome

This Workshop Manual is part of a suite of technical manuals provided for DB9. Other technical manuals include:

- Parts manual
- OBDII Diagnostic manual
- Man hour schedules

Chapters

The DB9 suite of manuals incorporate a new chapter structure.

Each chapter in this workshop manual is associated with a 4 digit number, i.e. Transmission (07.00). Each chapter is then further broken into sections, i.e. Automatic Transmission (07.01).

Chapter Navigation

Example 1:

Previous workshop manuals would have Steering and Suspension together in one chapter. The new structure now places Steering and Suspension into their own chapters. Road wheels are also now included in Suspension.

Example 2:

Fuel, emissions and exhaust is now in three different chapters. Fuel has its own chapter and includes all fuel aspects up to the fuel rails (Fuel rails and fuel injection now come under Engine System). Exhaust, not including manifolds, has its own chapter and Emissions now come under the Engine system.

When required references are made out to other chapters.

Numbering

	03.	02.
System, i.e. Engine system		
Subsystem, i.e. Engine lubrication system		

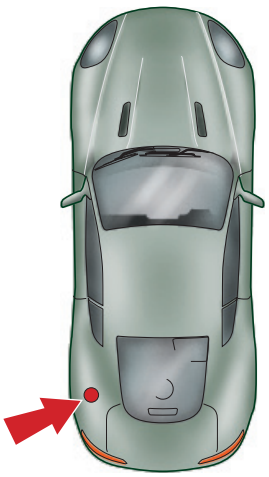
Chapters and sections within chapters are numbered using the system detailed above. All technical manuals for this vehicle use the same numbering system. When carrying out a procedure, the relevant parts illustration and spare parts list can be found using the same numbering system.

To avoid excessive repetition, each procedure is fully detailed once in its appropriate chapter. In any other location where this procedure is required, it is referenced by its title and chapter / page number.

Special Tools

Where special service tools are required to perform an operation, the tool number is recorded at the point of use within the procedure. Where the operation of a special service tool is complicated or not obvious, refer to the Appendix and Glossary for detailed operation procedures. A pictorial list of special service tools available for this vehicle can also be found in the Appendix and Glossary.

Location References



References to left, right, front or rear of the vehicle or of a component are referenced from sitting in the drivers seat facing forward. Any such references to assemblies removed from the vehicle are to the normal orientation of the assembly when installed in the vehicle.

Warnings, Cautions and Notes

The following Warnings, Cautions and Notes are used within this workshop manual to call your attention to specific types of information.

Warnings

⚠ *Warning* ⚠
Identifies procedures which must be followed precisely to help avoid the risk of personal injury.

Cautions

Caution
Provided to indicate procedures which must be followed precisely to reduce the possibility of damage to the vehicle.

Notes

Provided to indicate procedures which will help to avoid difficulties in the operation of the vehicle.

Repairs and Replacements

Where replacement parts are required, it is essential that only genuine Aston Martin parts are used. Your attention is drawn to the following points concerning repairs and the fitting of genuine Aston Martin parts and accessories:

- Safety features embodied in the vehicle may be impaired if other than genuine Aston Martin parts are installed. In certain territories, legislation prohibits the installation of parts which are not produced to the manufacturers specification
- Adhere to torque wrench settings given in this manual
- Locking devices, where specified, must be installed. If the efficiency of a locking device is impaired during removal, it must be renewed
- The vehicle warranty may be invalidated by the installation of other than genuine Aston Martin parts

Safety Precautions

All service workshops are a source of potential danger and repair work should only be performed by technically trained staff following procedures detailed in this manual. A safety conscious approach to the performance of all service procedures must be observed at all times. Statutory requirements governing all aspects of health and safety at work including directives for the proper use of materials and equipment must be implemented.

The following headings highlight particular safety precautions which should be observed (The list is not intended to be exhaustive).

Battery Disconnection

Where a procedure requires the vehicle battery to be physically disconnected (disconnect the vehicle battery earth (Negative) lead), the following items will have to be reset or re-learnt on connection:

- Seats memory
- Radio pre-sets
- DTCs will be lost

Air Conditioning (A/C) System

Do not break into the A/C refrigeration system until the refrigerant has been evacuated using the procedure detailed in this manual. Do not disconnect any A/C refrigerant system pipes unless trained and instructed to do so. The refrigerant used can cause blindness if allowed to contact your eyes.

Chemical Handling and Storage

⚠ Warning ⚠
Strictly adhere to handling and safety information found on containers and labels.

⚠ Warning ⚠
Do not store chemicals in unlabelled or incorrectly labelled containers.

⚠ Warning ⚠
Containers used for storing chemicals should not be left open; there is a risk of spilling, or evaporation of fumes which may be inflammable or toxic.

⚠ Warning ⚠
Do not mix chemicals unless instructed to do so, following manufacturers guidelines.

⚠ Warning ⚠
Do not inhale chemical materials to determine identity, they may be toxic.

⚠ Warning ⚠
Do not use petrol, kerosene, diesel fuel, gas oil, thinners or solvents for washing skin.

⚠ Warning ⚠
Chemicals based on solvents such as paint should not be sprayed in a confined space; work areas used for such operations should be well ventilated and fume extraction equipment should be utilised.

⚠ Warning ⚠
Containers whose capacity is over 25 litres (5 gallons) require a bund wall in order to contain spillages.

⚠ Warning ⚠
Avoid splashing the skin, eyes and clothing.

⚠ Warning ⚠
Ensure that adequate ventilation is provided when volatile de-greasing agents are being used.

⚠ Warning ⚠
Clean chemicals from the skin and clothing as soon as possible after soiling.

⚠ Warning ⚠
Wear protective clothing such as goggles, non porous gloves and apron when handling battery acid and other corrosive and toxic substances.

⚠ Warning ⚠
Do not smoke in the vicinity of volatile de-greasing agents.

⚠ Warning ⚠
Fume extraction equipment must be in operation when solvents are used e.g. trichloroethane, white spirit, SBP3, methylene chloride, perchloroethylene.

Chemicals used in the servicing of motor vehicles include acids, adhesives, antifreeze, brake fluids, coolants, grease, oil, paint, resin and solvents. Exposure to certain chemicals through direct contact or inhalation can be fatal.

Potential hazards may also be present through the incorrect use, storage and handling of chemicals causing a fire risk.

Electrical Equipment

⚠ Warning ⚠
Ensure that electrical equipment is in safe working order before use.

⚠ Warning ⚠
Inspect power leads of all mains electrical equipment for damage and security, and check that it is properly earthed.

⚠ Warning ⚠
Ensure that electrical equipment is protected by a fuse of the correct current rating.

⚠ Warning ⚠
Disconnect the battery before commencing repair operations to the electrical system, fuel system and engine or when working beneath the vehicle.

Exhaust Fumes

⚠ Warning ⚠
Do not breathe exhaust fumes. Exhaust fumes contain carbon monoxide. Carbon monoxide is a dangerous gas, which is colourless and odourless and can cause unconsciousness and may be fatal. Never start or leave the engine running in an enclosed, unventilated area.

⚠ Warning ⚠
Avoid skin contact with all exhaust system and engine components, engine fluids and escaping steam. They may be hot and will burn you.

Engines must only be run where there is fume extraction equipment in operation or where there is adequate ventilation.

Fire Precautions

⚠ Warning ⚠
Ensure that a suitable form of fire extinguisher is conveniently located near the work area.

⚠ Warning ⚠
Keep oils, solvents and combustible materials away from naked flames and other sources of ignition.

⚠ Warning ⚠
Ensure that NO SMOKING signs are posted around areas where combustible materials and vapour may be present and ensure that the warnings are strictly observed.

⚠ Warning ⚠
Ensure that dry sand is available to soak up any spillage of fuel or other flammable solutions.

⚠ Warning ⚠
Fume extraction equipment must be available and in full working order to remove combustible and toxic vapours.

⚠ Warning ⚠
All personnel should be aware of the fire drill procedures and precautions.

Tools and Equipment

⚠ Warning ⚠
Do not leave tools, equipment, spilt oil, etc. around or on the work area.

⚠ Warning ⚠
Ensure that tools and equipment used are in good condition; do not use damaged or defective tools or equipment.

Caution
Do not apply heat in an attempt to free stiff nuts or fittings; as well as causing damage to protective coatings, the stray heat may damage electronic equipment, harnesses and brake lines.

Use the recommended service tool where instructed to do so.

Used Engine Oil

⚠ Warning ⚠
Prolonged and repeated contact with used engine oils can cause serious skin disorders, including dermatitis and cancer. Avoid excessive contact, wash thoroughly after contact.
In addition, observe all laws regarding the disposal of waste oil and toxic fluids.

Adequate means of skin protection and washing facilities should be provided.

Health Protection Precautions

⚠ Warning ⚠
Prolonged and repeated contact with used engine oils can cause serious skin disorders, including dermatitis and cancer. Avoid excessive contact, wash thoroughly after contact.

- Wear protective clothing, including impervious gloves where practicable.
- Do not put oily rags in pockets.
- Avoid contaminating clothes with oil.
- Overalls must be cleaned regularly. Discard un-washable clothes and oil impregnated footwear.
- First aid treatment should be obtained immediately for open cuts or wounds.
- Use barrier creams, apply before each work period to help the removal of oil from the skin.
- Wash with soap and water to ensure all oil is removed. Preparations containing lanolin replace the natural skin oils which have been removed.
- Do not use petrol, kerosene, diesel fuel, gas oil, thinners or solvents for washing skin.
- If skin disorders develop, obtain medical advice.
- Where practicable, degrease components prior to handling.
- Where there is a risk of eye contact, eye protection should be worn. In addition, an eye wash facility should be provided.

Environmental Protection

It is illegal to pour used oil on the ground, down sewers or drains, or into water courses. The burning of used engine oil in small space heaters or boilers is not recommended unless emission control equipment is installed; in case of doubt, contact the Local Authority for advice on disposal facilities.

Lifting and Jacking

Safety

> ⚠ *Warning* ⚠
> ***Recommended procedures for lifting, jacking and towing must be strictly observed to ensure personal safety.***

> ⚠ *Warning* ⚠
> ***Always use a vehicle hoist, ramp or pit for working beneath the vehicle in preference to jacking.***

> ⚠ *Warning* ⚠
> ***Never rely on a jack to support a car independently, use axle stands or blocks carefully placed at jacking points to provide rigid support.***

> ⚠ *Warning* ⚠
> ***When working beneath a vehicle, chock wheels as well as applying handbrake.***

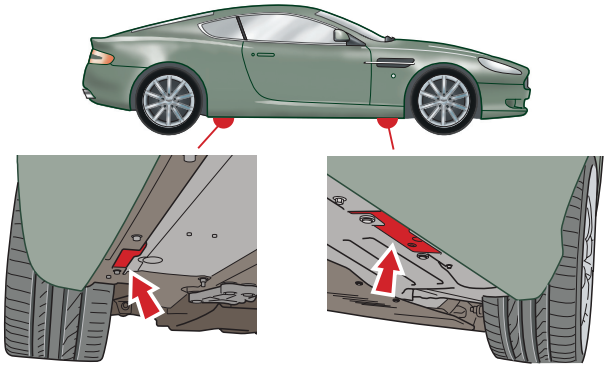
> ⚠ *Warning* ⚠
> ***Ensure vehicle is standing on firm, level ground before jacking or lifting.***

> ⚠ *Warning* ⚠
> ***Check lifting equipment has adequate capacity for load being lifted and is in full working order.***

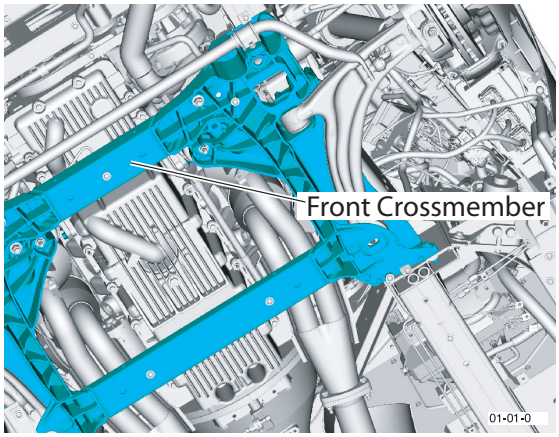
Jacking Points

> **Caution**
> **Do not jack the vehicle on the lower suspension arms (front or rear).**

This vehicle jacking points are at positions shown.



The vehicle may also be jacked with the jack placed on the front subframe, front crossmember.



Always use a jack with a rubber contact pad. Avoid the use of jacks with sharp contact pads which could damage the vehicle floor pan Always chock the opposite road wheels as well as applying the handbrake when using a hydraulic jack.

To prevent body distortion, avoid single point or one side jacking with the tunnel shear panel removed.

To avoid any danger of bodywork damage when using a hydraulic jack, the vehicle must only be lifted at the jacking points.

Stands

When carrying out work (other than a wheel change) which requires a wheel to be raised, a stand must be used, located at the jacking point, to provide a secure support for the vehicle.

Workshop Hoist

Use of a workshop hoist is recommended for all operations where vehicles must be raised. Follow manufacturers instructions. If using an adjustable arm type, ensure lifting pads are correctly positioned at the four jacking points before lifting.

Vehicle Recovery

General

The preferred method of vehicle recovery is by a flat bed, covered, transporter.

The towing eye is primarily for emergency use when towing for short distances, e.g. removing vehicle if it is causing an obstruction or winching vehicle onto a flatbed transporter.

If moving this vehicle in such a situation, install the towing eye to the bracket, which is located behind the registration number plate.

Caution

Take care to protect the paint work when installing the towing eye. Ensure the towing eye is tight.

Transporting

If vehicle is to be transported on a trailer or flat bed transporter the handbrake must be applied and the road wheels must be chocked.

Suspended Towing

Caution

Do not tow with 'sling' type equipment, damage to bodywork will result.

Take care when using 'spectacle frame' type towing equipment that the towing device is well clear of front or rear apron. Body damage may occur if vehicle passes over uneven road surfaces.

Ensure the recovery team follow the following towing instructions:

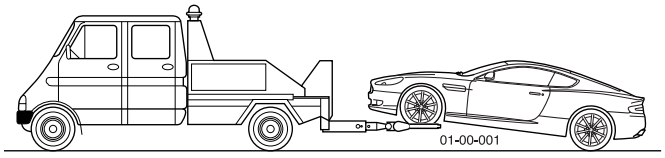
Front Suspended Tow

Automatic Transmission Only

1. Switch the ignition 'On'.
2. Pull back twice on both paddles, simultaneously, to force the gearbox into 'Neutral'.
   Switch the ignition 'Off' within three seconds.

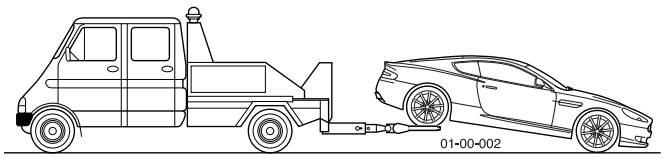
Manual and Automatic Transmissions

3. Remove the ignition key from the ignition.
4. Raise the vehicle using a 'spectacle frame' type lifting device with a cradle positioned under each front wheel as indicated below.



Rear Suspended Tow

1. Set the steering in the 'straight ahead' position.
2. Remove the ignition key from the ignition. Ensure the steering is locked in the straight ahead position.
3. Raise the vehicle using a 'spectacle frame' style lifting device where a cradle is positioned under each rear wheel as indicated below.



Towing an Automatic Vehicle

Caution

This vehicle installed with an automatic transmission can be towed on its driven wheels at not more than 70 km/h road speed and for a maximum distance of 500 km.

The selector lever must be in Neutral (N).

If the above speed and distance limits are exceeded, the automatic transmission will be severely damaged.

Towing Regulations

In certain countries the registration number plate of the towing vehicle and an 'ON TOW' sign or warning triangle must be displayed in a prominent position at the rear of vehicle being towed.

Towing by Another Vehicle

⚠ Ward the brake booster will become ineffective after a few applications of the brakes. Be prepared for relatively heavy steering and the need for greatly increased brake pedal pressure.

This vehicle may be towed short distances by another vehicle provided that a speed of 48 km/h (30 mph) is not exceeded. Ensure that the towed vehicle gear selection is in 'Neutral' (manual) or position 'N' (automatic), the ignition key turned to position 'II' (to release steering lock and to render the horn, indicators and brake lights operational).

Push-start

Vehicle's installed with automatic transmissions cannot be started by push-starting.

Identification Numbers

Vehicle Identification Number (VIN)

The Vehicle Identification Number (VIN) is a 17 character number which uniquely identifies the vehicle and gives fundamental data on the build site, date and initial configuration of the vehicle.

S	C	F	A	C	1	3	A	4	1	G	A	0	0	0	0	1

- Code for AML
- Restraint System
- Transmission and Steering
- Body Type
- Engine Type
- Calculated Check Digit
- Model Year
- Manufacturing Plant
- Series Identifier
- Sequential Chassis Number

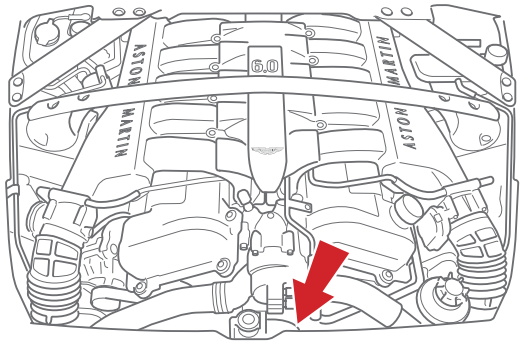
VIN Number Location

The VIN number is stamped / plated in the following locations:

Under the lower edge of the windscreen.

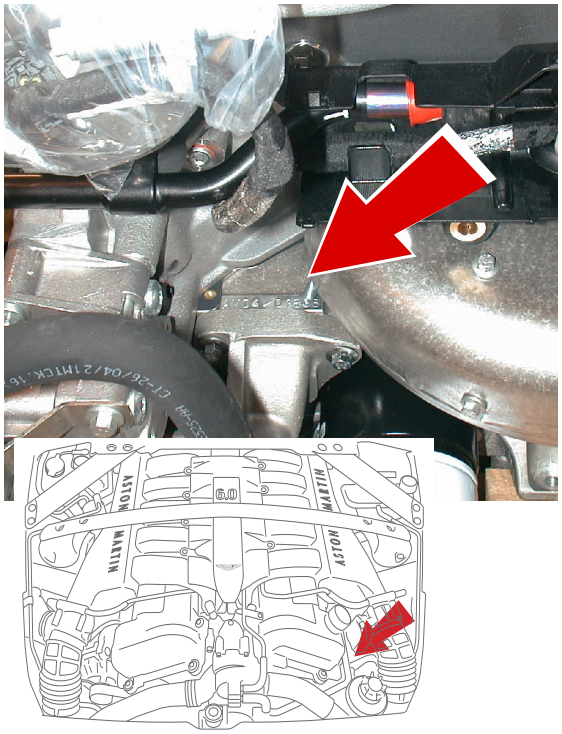
Stamped on the floorpan in the RH front footwell.

Front of the engine bay.



Engine Number

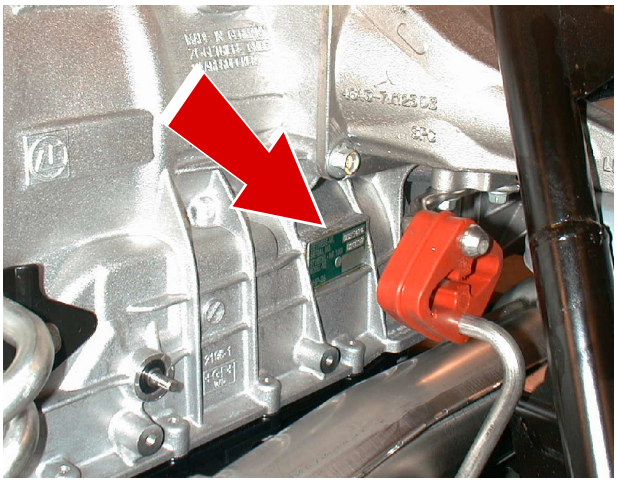
The engine number is stamped on the LH side of the engine block.



Gearbox Number

Automatic Gearbox

The automatic gearbox number plate is located on the LH side of the gearbox.



Manual Gearbox

To follow.

Image to Follow

Body System (01.00)

Contents

Body System (01.00)

Body Structure (01.01)

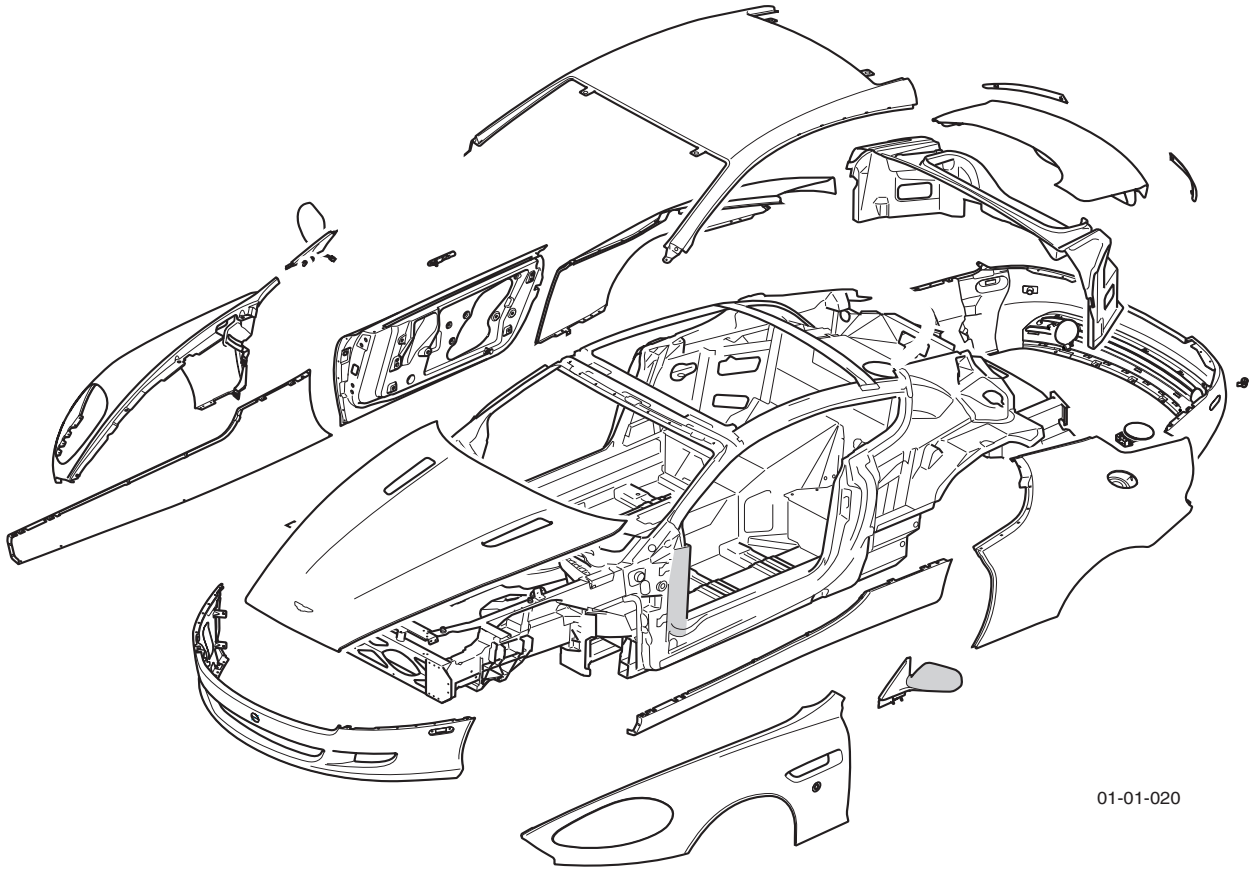
Overview

The all aluminium body underframe is bonded using an immensely strong hot-cured XD4600 red adhesive.

The rear quarter panels, roof and side mouldings are bonded to the structure using cold-cured 2810 MV adhesive. The curing cycle is improved by using a hot air impingement system. In addition, the roof panel is connected to the rear quarter panels through ultrasonic welds.

The composite front wings are bolted to the structure.

At no time should the body structure be subjected to temperatures in excess of 120°C (248°F).



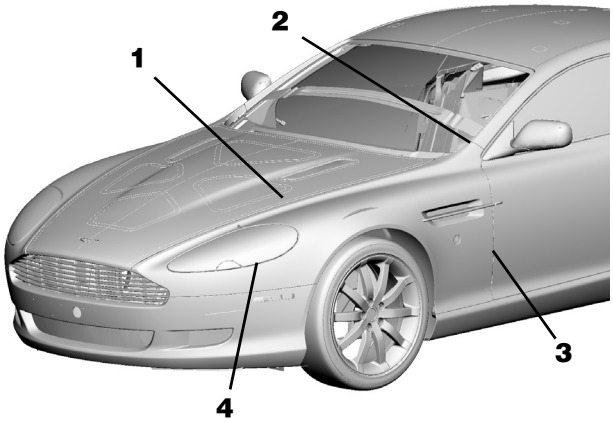
01-01-020

Body System (01.00)

Front End (01.02)

Front Wings

Specifications



Wing Standard (mm)				
Item	1	2	3	4
Nominal gap	3.5	2.0	3.75	3.0
Tolerance	±0.75	+0.5 / -0.0	± 0.75	±0.5
Flush	-0.0	0.0	0.0	-0.5
Tolerance	±1.5	+0.0 / -0.5	±1.5	±0.5
Taper	N/A			
Symmetry	N/A			

Torque Figures		
Description	Nm.	lbs / ft.
Wing Top	8	6
Wing Top Single nut	Tight with 'Threadlock'	
Lower Rear	8	6
Slam panel	8	6
PCM Bracket	10	7
Bonnet Damper	25	18

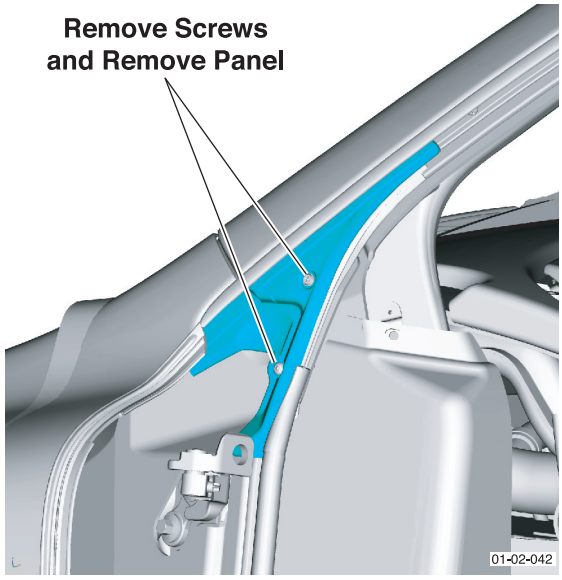
Maintenance

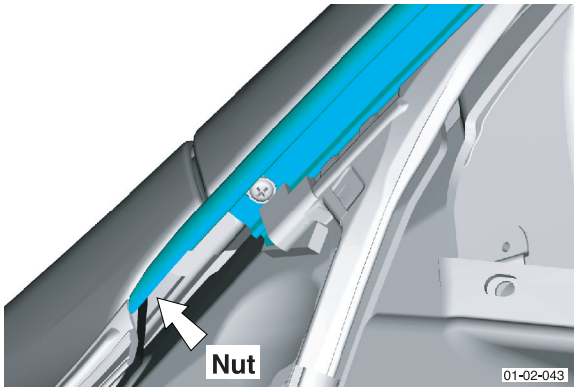
Front Wing

Repair Operation Time (ROT)		
Item		**Code**
Front Wing Renew	(LH)	**01.02.KB**
	(RH)	**01.02.LB**

Removal

1. Disconnect the vehicle battery.
2. Remove the wing top nut.

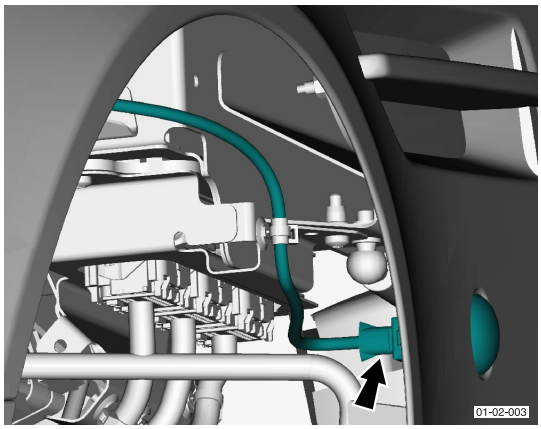




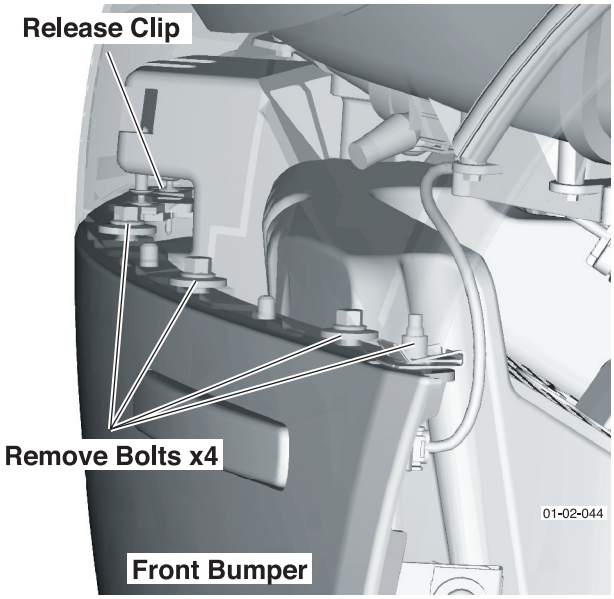
If using a two post vehicle lift, remove the screws that secure the rear section of the road wheel arch liner. Hold back the rear section of the road wheel arch liner to allow the foot of the vehicle lift to be positioned correctly. (Refer to 'Jacking Points', page I-I-IX)

3. Remove the front road wheel and road wheel arch liner.

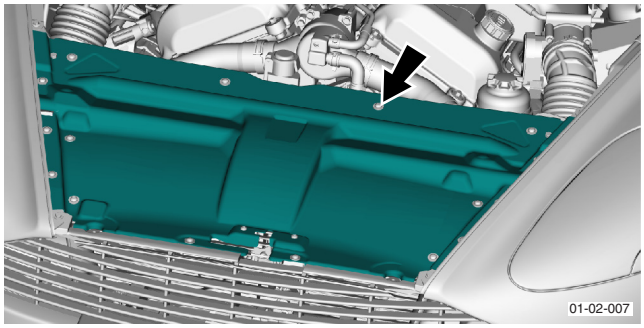
4. Disconnect the side repeater lamp wiring harness plug.



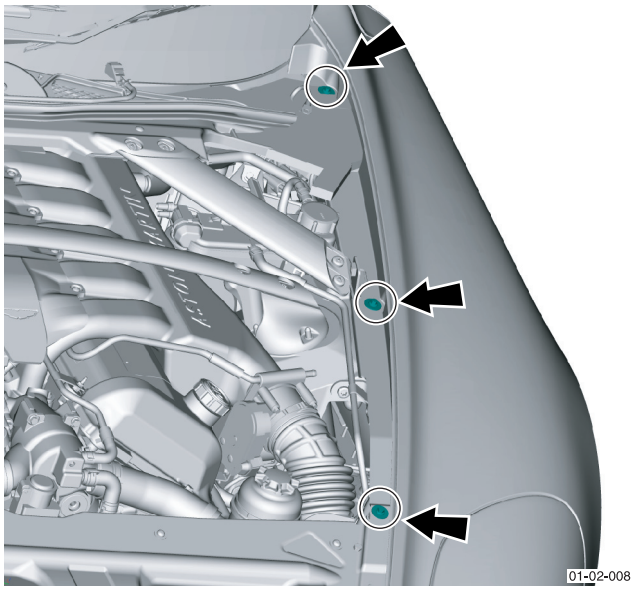
5. Disconnect the wing from the bumper (Refer to 'Front Bumper', page 1-13-1).



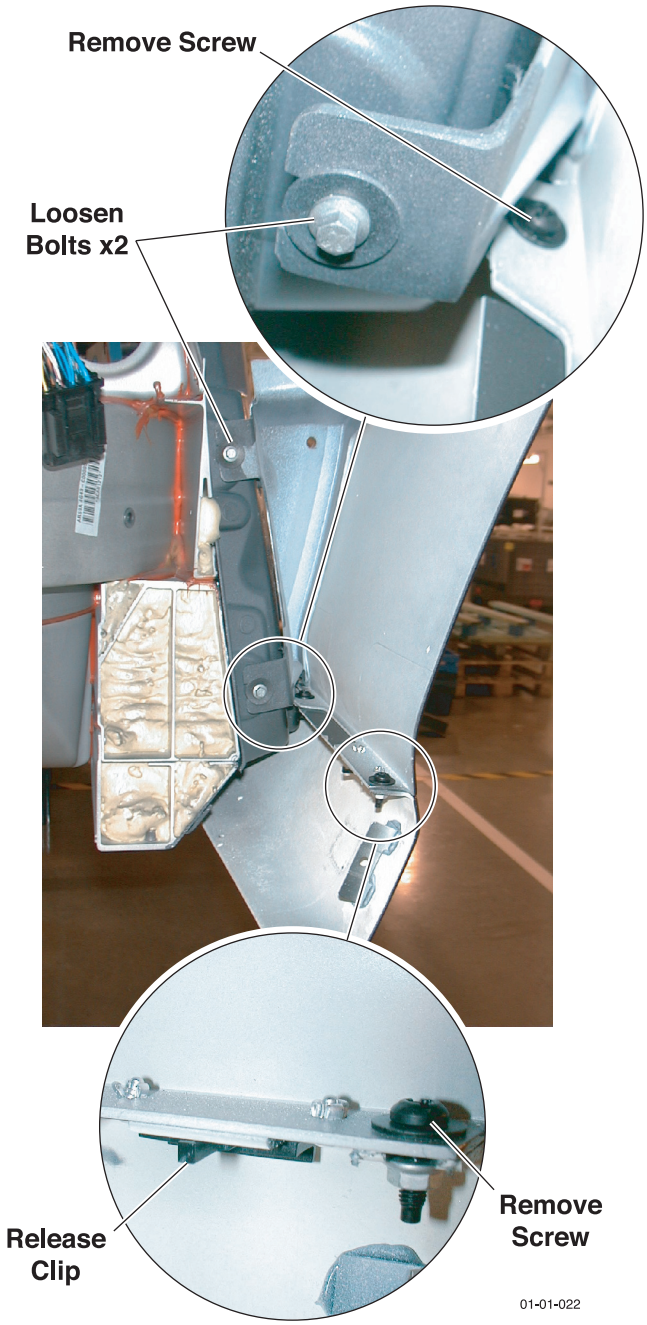
6. Remove the slam panel (bolts x12). Remove the front grill bolt (x2).



7. Remove bolts (x3).



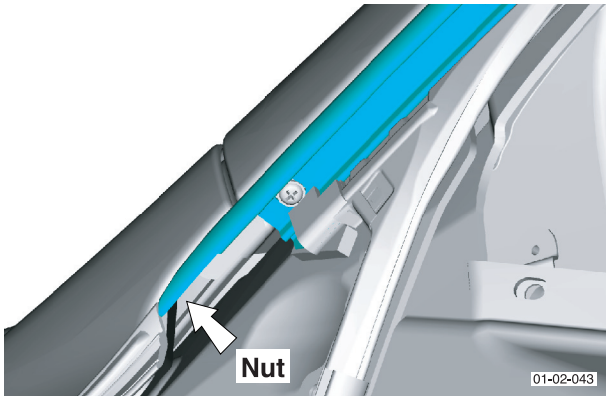
8. Loosen bolts (x2).



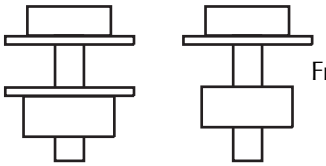
9. Lift from the rear lower edge to disengage the wing from the two loosened bolts. Pull the wing from the body.

Installation

1. Place the wing to the body.
2. Locate:
   - The wing top stud

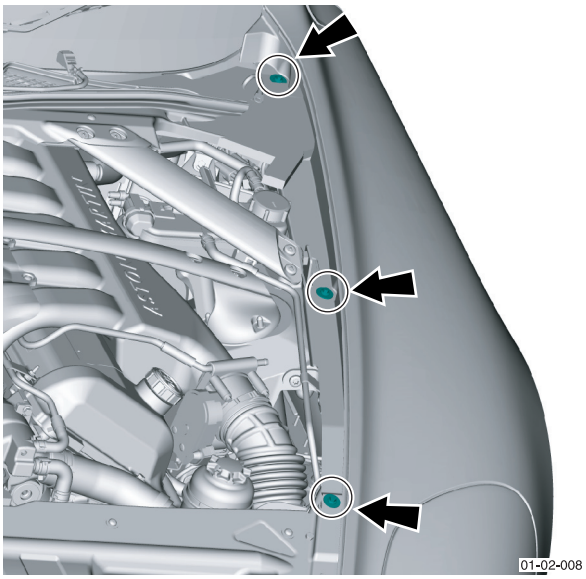


   - The rear lower wing to the loosened bolts
3. Install the wing lower edge clips and bolt.
4. Connect the wing to the bumper.
5. Install bolts to the wing top edge. Do not tighten.

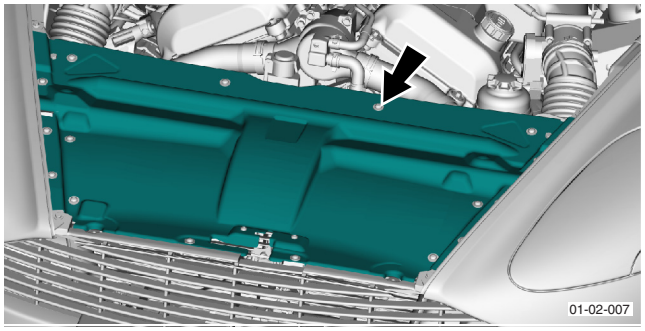


Front bolt on each wing

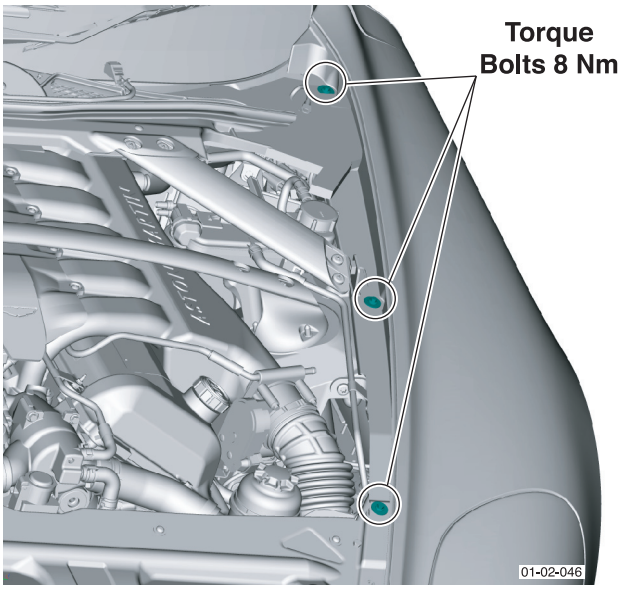
The two lower rear wing bolts have the same bolt / washer arrangement.

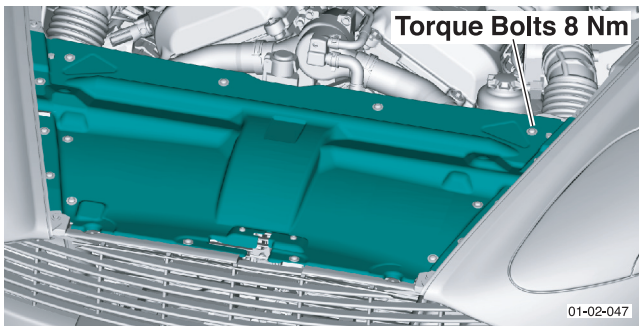


6. Install the slam panel.



7. Check wing alignment. Refer to specifications. Adjust if required.
8. Torque all wing fixings.





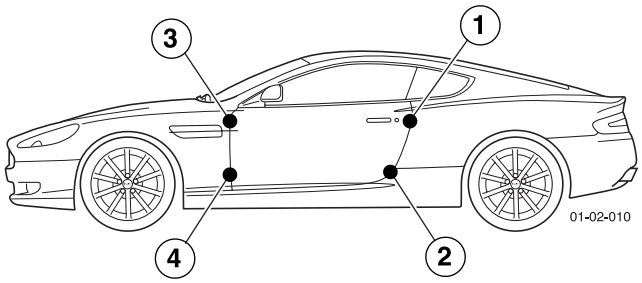
9. Connect the side repeater lamp wiring harness plug.
10. Install the road wheel and road wheel arch liner (Refer to 'Road Wheel Nut Torque Tightening', page 4-5-7).
11. Connect the vehicle battery.

Body System (01.00)

Body Closures (01.03)

Specifications

Doors

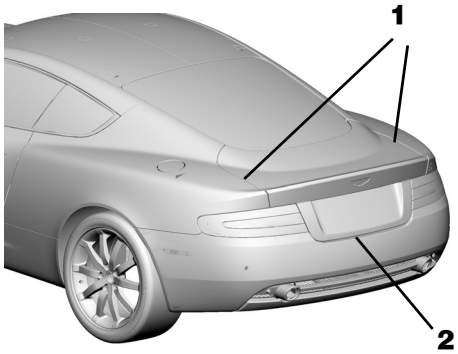


Door Standard (mm)				
Item	1	*2	3	4
Nominal gap	3.5	3.00	3.00	3.75
Tolerance	±0.75	±1.0	±1.0	± 0.75
Flush	0.0	-1.0	-1.0	0.0
Tolerance	±1.5 / 0.0	+0.0 / -1.0	±1.0	±1.5
Taper	N/A			
Symmetry	N/A			

* Flushness blends to 0.0 at the rear quarter
* Gap blends to 3.5 at rear quarter

Torque Figures		
Description	Nm.	lb. / ft.
Hinge to Door	47.5	33.5
Hinge to Body	36	26.5
Door Striker plate		

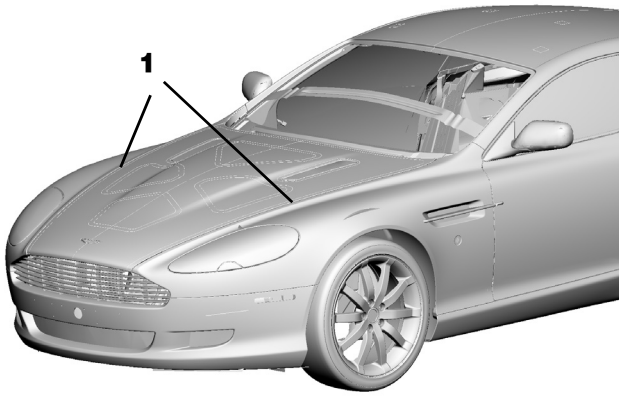
Boot Lid



Boot Standard (mm)		
Item	1	2
Nominal gap	3.5	3.5
Tolerance	±0.75	±1.0
Flush	-0.5	N/A
Tolerance	+0.5 / -1.0	N/A
Taper	1 mm Max. across the length	
Symmetry	1 mm Max. difference LH to RH	

Torque Figures		
Description	Nm	lb. / ft.
Hinge to Body	25	18

Bonnet



Bonnet Standard (mm)	
Item	1
Nominal gap	3.5
Tolerance	±0.75
Flush	-0.0
Tolerance	±1.5
Taper	N/A
Symmetry	N/A

Torque Figures		
Description	Nm	lb. / ft.
Hinge to Body	25	18

Maintenance

Doors

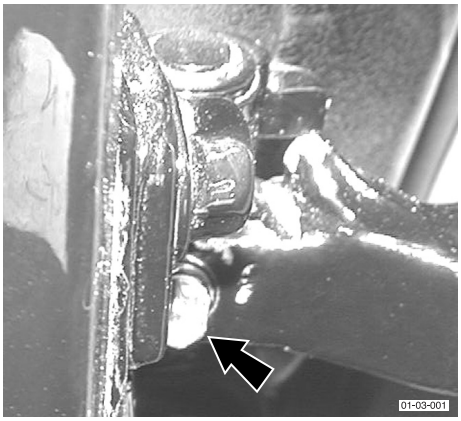
Repair Operation Time (ROT)		
Item		**Code**
Remove and reinstall	LH	**01.03.EA**
	RH	**01.03.FA**

Removal

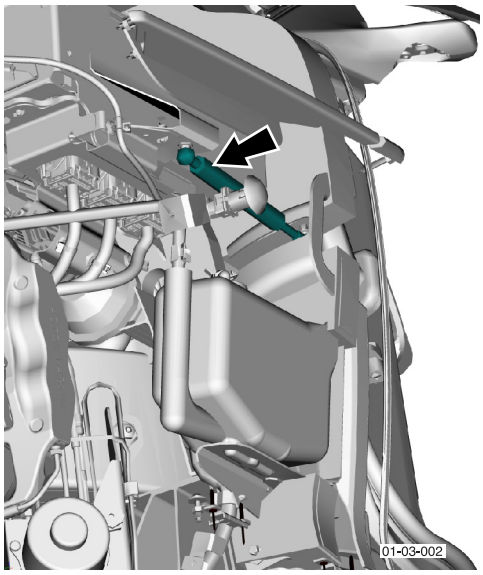
⚠ Warning ⚠
The doors are heavy. Removal is a two person operation.

Caution
Before removing the door ensure that the vehicle body work is sufficiently protected from possible damage.

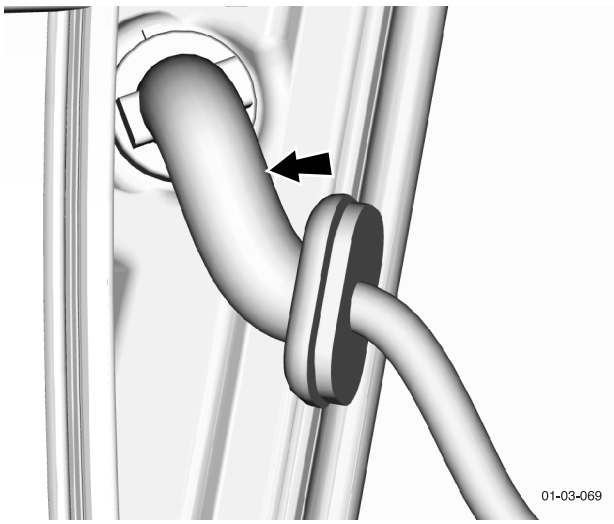
1. Disconnect the vehicle battery.
2. Open the vehicle door.
3. Slightly loosen the door hinge lock screws (x2).



4. Remove part of the roadwheel arch liner to gain access to the door check rod. Disconnect the door check rod.



5. Lift the door off the support studs and withdraw the door enough to gain access to the door wiring harness plug. Disconnect the wiring harness plug.



6. Withdraw the door from the vehicle and install on service tool (Refer to '501-F111 (Door Service Trolley)', page 20-1-8).

Installation

⚠ Warning ⚠
The doors are heavy. Replacement is a two person operation.

Caution
Before installing the door ensure that the vehicle body work is sufficiently protected from possible damage.

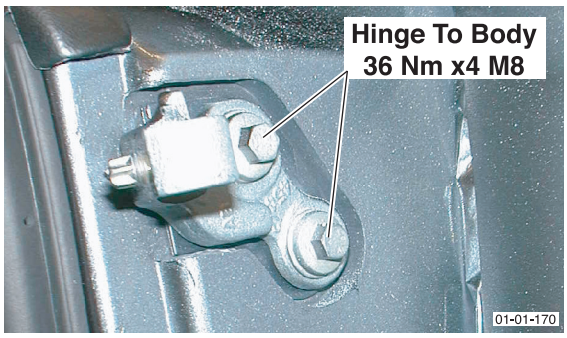
1. Place the door to the vehicle. Connect the door wiring harness plug.
2. Align the door to the upper and lower hinges. Install the door onto the hinges.

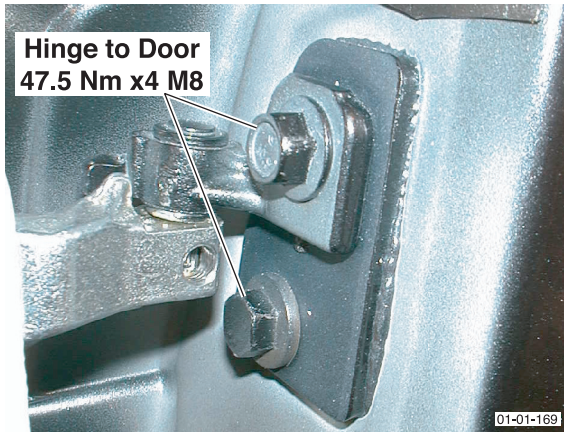
3. Connect the door check rod. Install the roadwheel arch liner.
4. Align the door. Manoeuvre the door to achieve correct gaps and flush (add / remove shims as required). Tighten the bolts. Do not torque.

5. Connect the vehicle battery.

> ⚠ ***Warning*** ⚠
> ***Never touch the door lock linkage with electrical power available to the door. The window mechanism can move and trap hands, arms, etc. in door frame.***

6. Check door alignment and closure of the door catch. Adjust striker plate if required.
7. When satisfied with the door install - torque the hinge bolts.
   - Hinge to Body - **36 Nm**.
   - Hinge to Door - **47.5 Nm**.



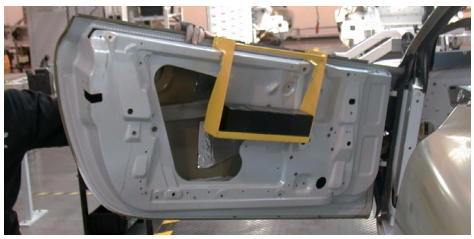


8. Check for:
   - Correct operation of all door lock functions.
   - Correct operation and sealing of the door window.

New Door Assembly

Repair Operation Time (ROT)		
Item		**Code**
Remove and install	LH	**01.03.CB**
	RH	**01.03.DB**

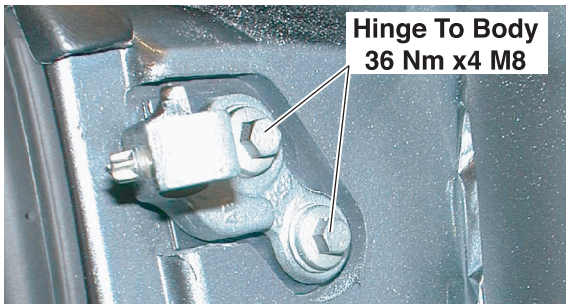
Preliminary Hinge Setup

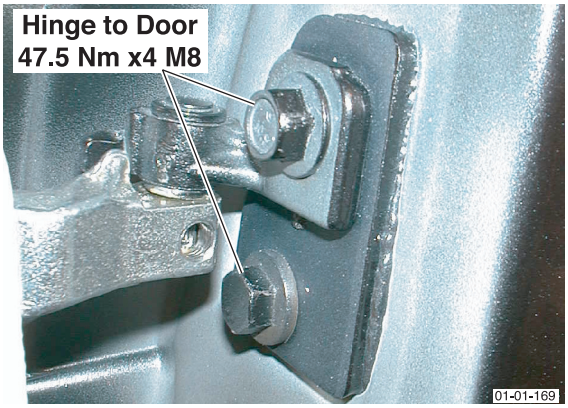


1. Install the door onto the hinges.
2. Place a weight of 16 kg (to compensate for weight of door windows, locks etc.) hanging from inner door skin as shown.

> *Weight and position are critical to accurately simulate weight and distribution of door furniture. Adjustment is difficult on a fully installed door.*

3. If removed, install the front wing (Refer to 'Front Wing', page 1-2-1).
4. Gently close the door. Check for an acceptable initial install.
5. Align the door. Manoeuvre the door to achieve correct gaps and flush (add / remove shims as required). Tighten the bolts. Do not torque.
6. Open the door and torque all hinge bolts. Remove the door weight.
   - Hinge to Body - **36 Nm**.
   - Hinge to Door - **47.5 Nm**.





7. Release the hinge locking screws and remove the door for installation of window, locks etc.

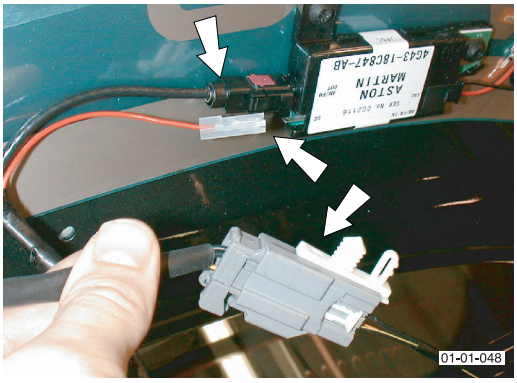
Boot Lid

Repair Operation Time (ROT)	
Item	**Code**
Remove and reinstall	**01.03.BB**

Removal

> ⚠ ***Warning*** ⚠
> ***The boot lid is heavy. Removal / replacement is a two person operation.***

1. Open the boot lid.
2. Remove the boot lid trim panel (Fir trees).
3. Disconnect the boot lid harness.

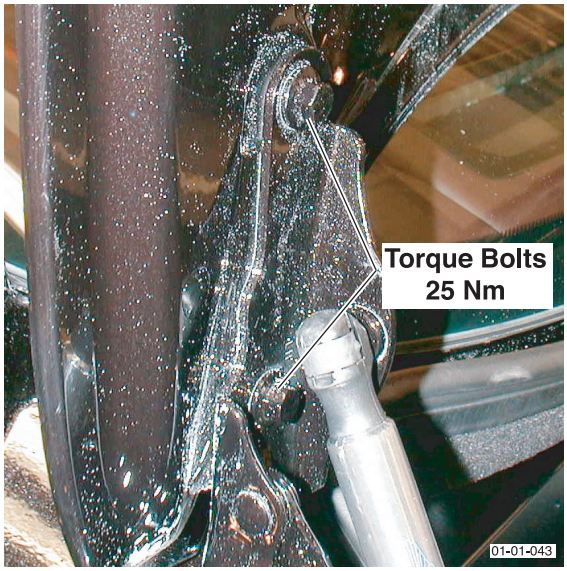


4. Slightly loosen the bolts (x4) that secure the boot lid to the boot lid hinges.
5. Support the boot lid. Remove the hinge bolts.
6. Withdraw the boot lid from the vehicle.

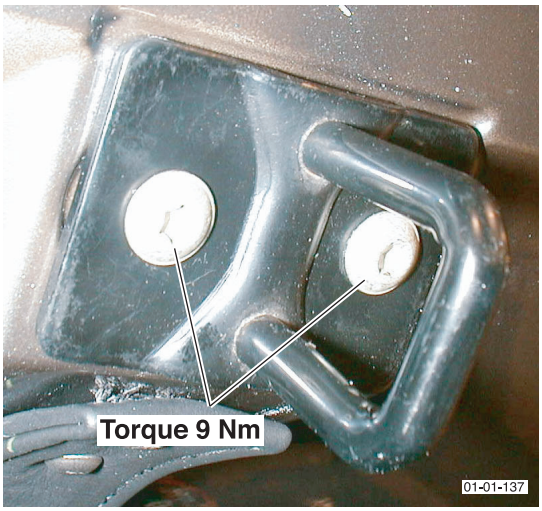
Installation

1. Align the boot lid to it's hinges. Install bolts (x4) sufficiently to manoeuvre the boot lid on it's hinges. Gently lower the boot lid rear edge, ensure the front corners do not touch the rear wings.
2. Align the boot lid front edge centrally in the boot aperture. Manoeuvre as required to achieve correct gaps.
3. Partially raise the boot lid and 'nip' up the hinge bolts.

4. Lower the boot lid. Check for correct alignment and readjust if required.
5. Fully raise the boot lid. Torque the hinge bolts to 2**5 Nm**.



6. Gently close the boot lid. Check for correct engagement of the boot latch.
   Adjust the boot latch if required. Torque the boot latch bolts, to **9 Nm**.



7. Connect the boot lid wiring harness plugs.
8. Fully close the boot lid.
   Check for correct operation of the boot release switch and remote transmitter boot lid enable.
9. Install the boot lid trim.

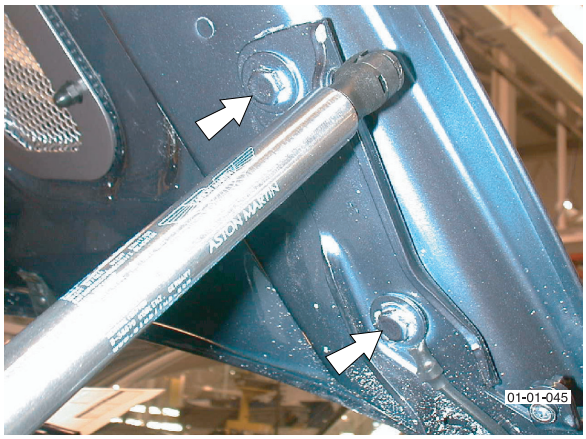
Bonnet

Repair Operation Time (ROT)	
Item	**Code**
Remove and reinstall	**01.03.AB**

Removal

⚠ Warning ⚠
The bonnet is heavy. Removal is a two person operation.

1. Open the bonnet.
2. Disconnect the windscreen wash pipe.
3. Slightly loosen the bolts (x4) that secure the bonnet to the hinge.
4. With the bonnet supported, disconnect the gas struts and remove the hinge bolts (x4).

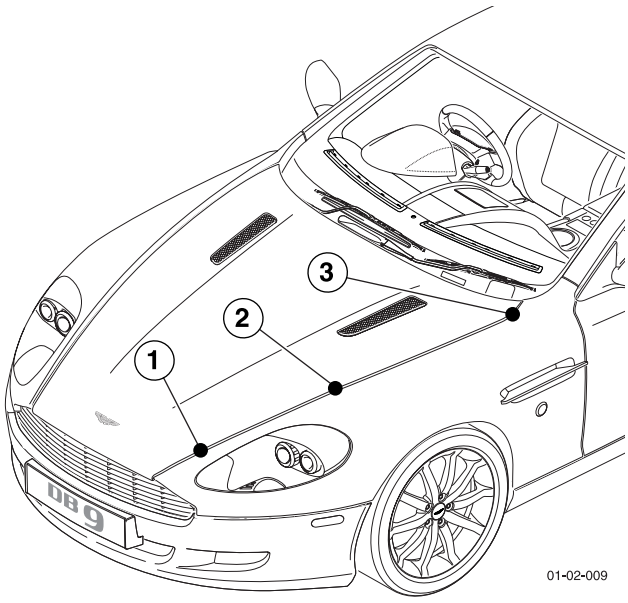


5. Withdraw the bonnet from the vehicle.

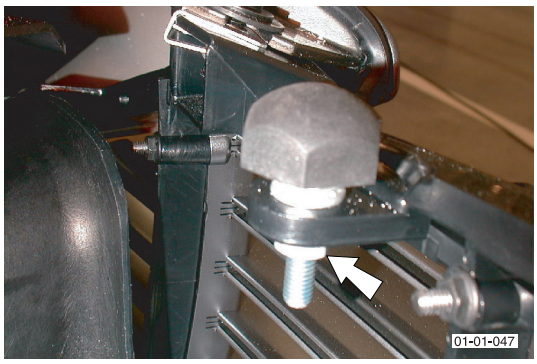
Installation / Realignment

⚠ Warning ⚠
The bonnet is heavy. Replacement is a two person operation.

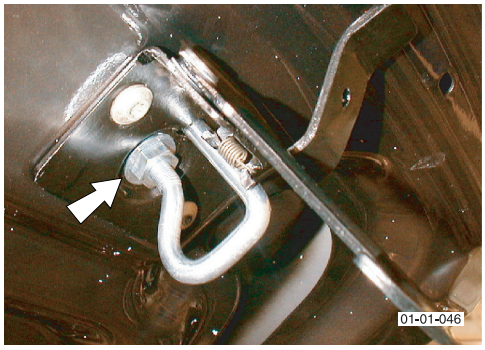
1. Align the bonnet to it's hinges. Install bolts (x4) sufficiently to manoeuvre the bonnet on it's hinges. Gently lower the bonnet. Adjust so that the corners do not touch the wings at the front and rear. Align the bonnet front edge centrally in the aperture.



2. Partially raise the bonnet. 'Nip' up one hinge bolt either side.
3. Lower the bonnet. Check for correct alignment. Readjust if required.



4. Fully raise the bonnet. Torque all hinge bolts to **25 Nm**.
5. Install the bonnet gas struts.
6. Gently close the bonnet. Check for correct engagement of the bonnet latch. Adjust if required to achieve the flush specification.
   - Turn the nut anti-clockwise to raise or clockwise to lower the bonnet catch until the bonnet is flush with the wings when closed.



7. Fully close the bonnet. Check for correct operation of the bonnet release lever.

Body System (01.00)

Interior Trim (01.05)

This section covers removal and installation of the interior mouldings and trim panels. In many instances, one component overlaps another component. If this condition is found, it will be necessary to loosen or remove the overlapping component before removal, to prevent damage to either component.

Specifications

Torque Figures

Description	Nm	lb. / ft.
Door Handle	9	6.5
Seat Belt Mounts	35	26

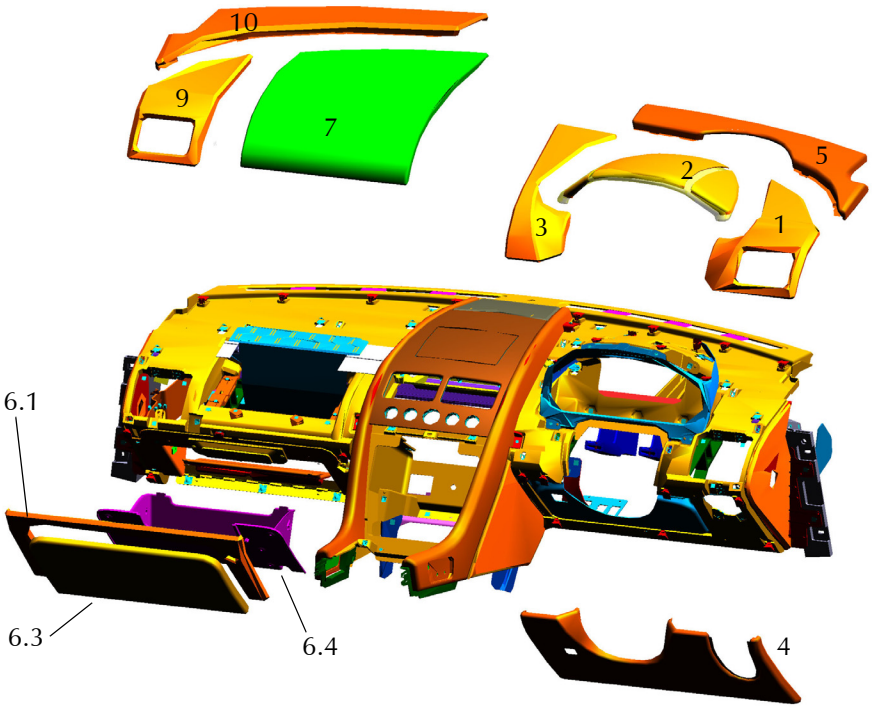
Maintenance

IP Trim

If required, removal of the IP trim can be achieved while the IP is in the vehicle.

Remove

1. Panel (1)- Pull off.
2. Hood (2) - Pull off.
3. Panel (3) - Pull off.
4. Panel (4) - Pull off. Disconnect the air temperature pipe.
5. Panel (5) - Front, screws (x3)
6. Glove box.
   - 6.1 Pull of the outer trim panel. Disconnect the glovebox release switch wiring harness plug.
   - 6.2 Release the damper cord.
   - 6.3 Remove screws (x3) from the glovebox door hinge. Remove door.
   - 6.4 Remove screws (x4) from the sight shield. Remove the sight shield and glovebox.



7. Panel, Airbag (7).

Caution
Withdraw the airbag panel carefully. The airbag panel can crease if forced out.

   - 7.1 Remove screws (x3).
   - 7.2 Lift from the front edge. Withdraw out of clips (x3).
8. Remove the airbag.

⚠ Warning ⚠
When removed, place the airbag in a sercure container to prevent personal injuries if the airbag activates.

   - 8.1 Disconnect the wiring harness plugs (x2).
   - 8.2 Remove bolts (x4). Withdraw the airbag.
9. Panel (9) - Screws (x2), then pull off.
10. Panel (10) - Screws (x4).
11. If required, remove the center stack.
    - 11.1 Pull off the veneer panel (Service tool No. TBA). Disconnect the wiring harness plugs.
    - 11.2 Remove the speaker grill - Screws (x2).
    - 11.3 Remove the center panel (Radio etc.) - Screws (x4)
    - 11.4 Remove the center stack - Screws (x6).
    - 11.5 Remove the media player - Screws (x2). Disconnect the wiring harness plugs.

Installation Notes

The panels, etc., are best replaced in the order they were removed. Note the following:

1. When installing the glovebox shield ensure that the tab in the top centre locates into the slot in the substrate.

Roof Trim

Removal

1. Remove (pull away) the cant rail.

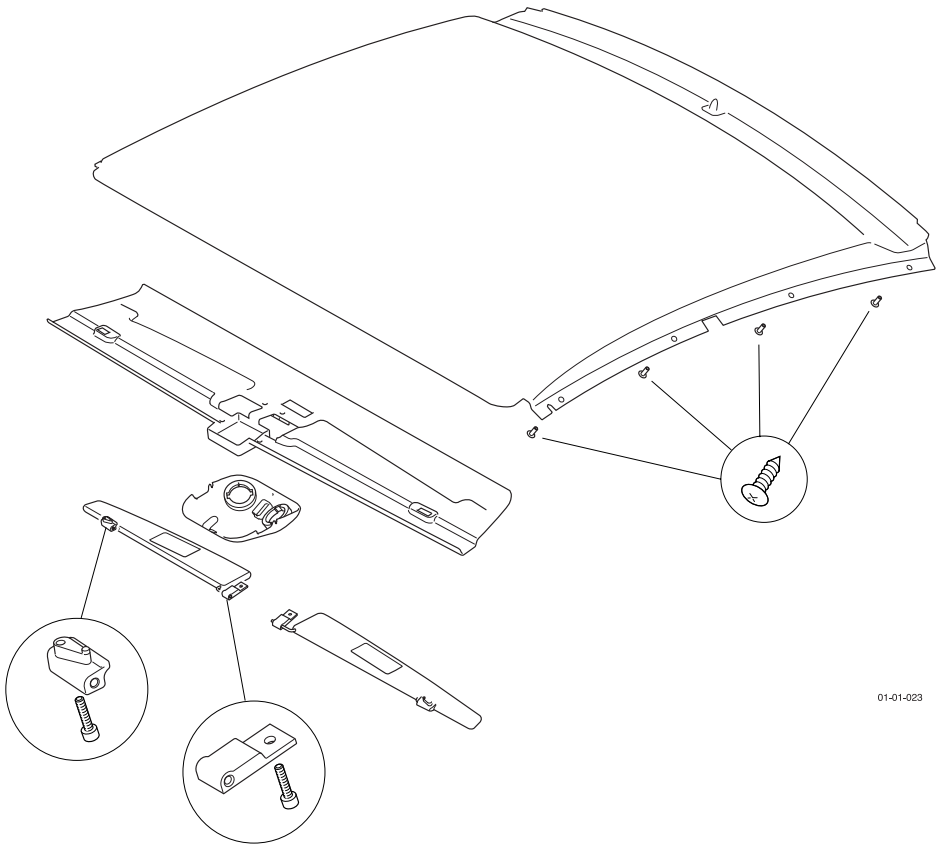
The cant rail is held in by 'FirTrees'.
The front of the cant rail is held in place by the 'IP'. Pull the cant rail away from the back first then pull the front out from the 'IP'.

2. Remove the interior mirror (screw x1).
3. Remove the reading lamp pod (clips x2, screw x1, wiring harness plugs x2)
4. Remove the sun visors (screws x2 (x2).

The front headlining will fall away.

5. Remove the headlining.

Held in place with 'FirTrees' and two velcro panels at the rear.



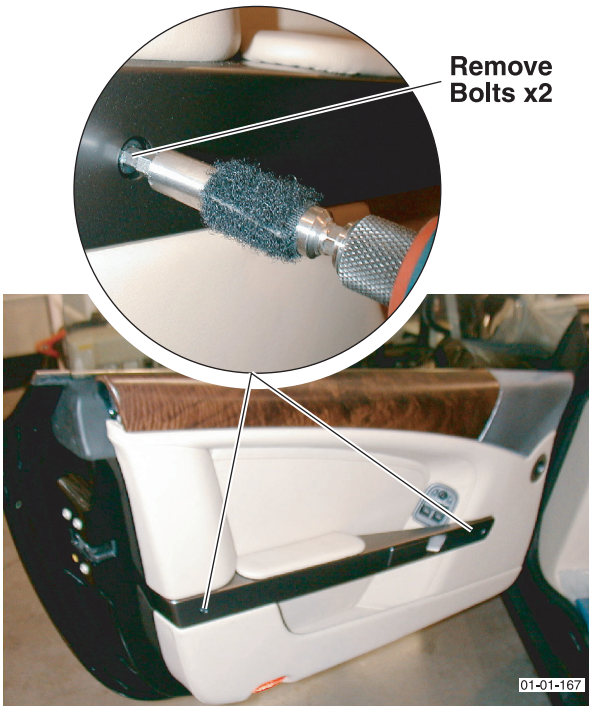
Installation

1. Install the roof lining.
2. Install the front headling.
   While holding the front headling in place install the sun visors.
3. Install the interior mirror.
4. Install the cant rails.
   Place the front of the cant rail into location at the IP, and work towards the rear, locating the 'FirTrees'.

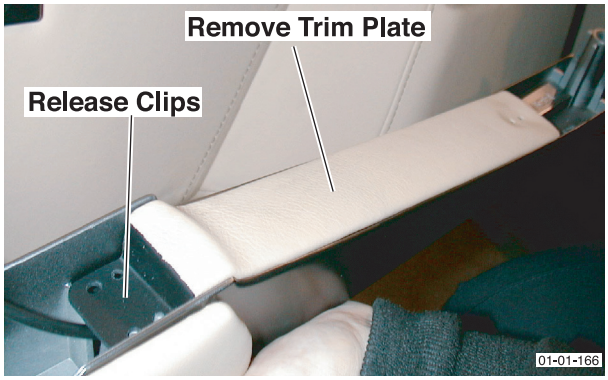
Door Trim

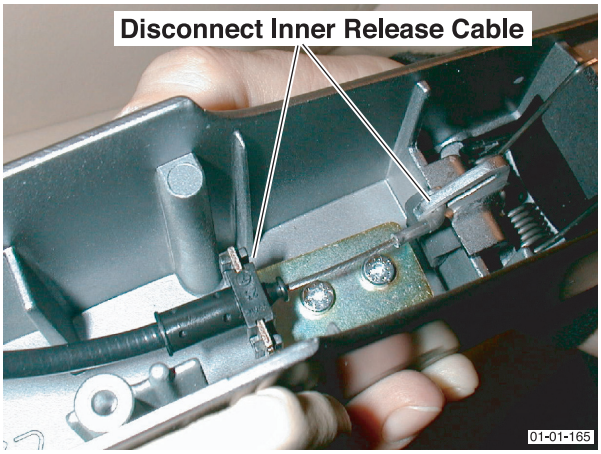
Removal

1. Lower the door glass fully.
2. Disconnect vehicle battery.
3. Release the door handle (Bolts x2).

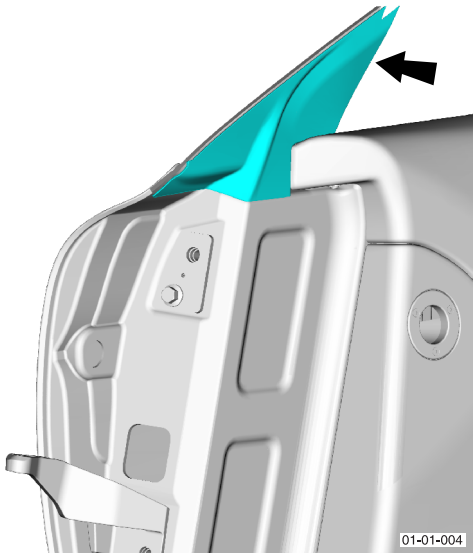


4. Remove the door handle trim plate and disconnect the release cable.

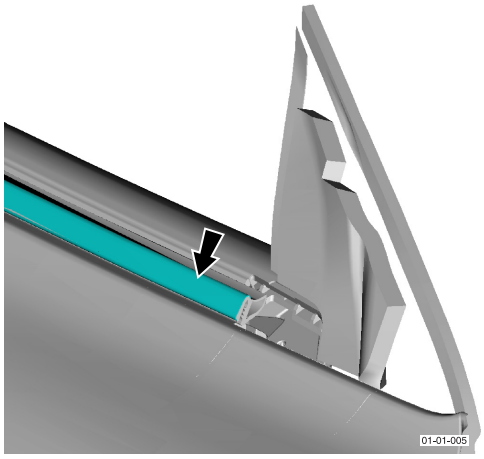




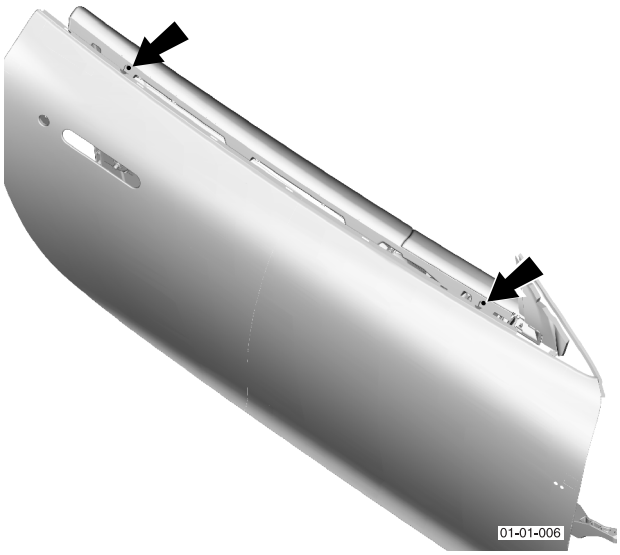
5. Remove the door mirror cheater panel.



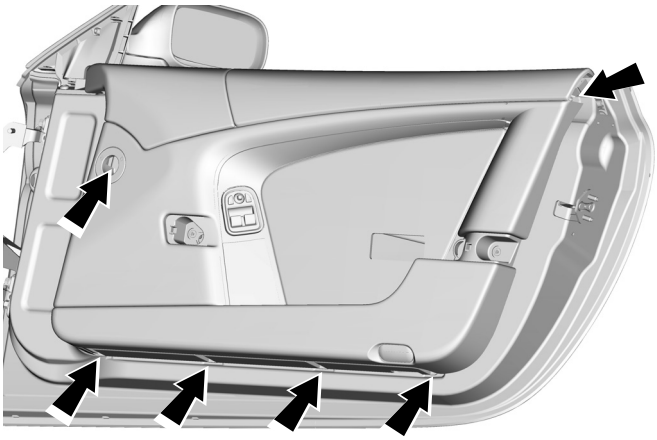
6. Remove outer chrome waist rail trim.



7. From the outside remove screws (x2).

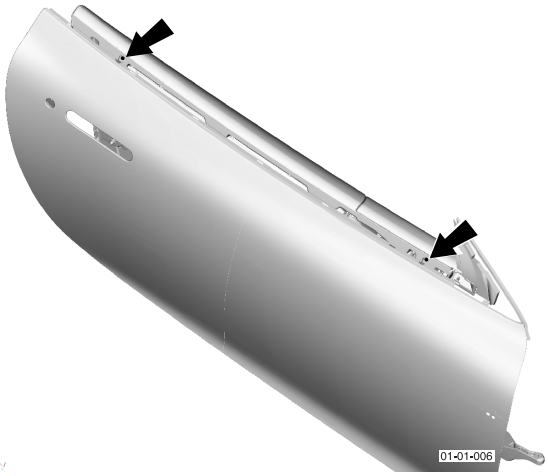


8. Remove the door trim panel screws (x6). Withdraw the door trim panel to gain access to the window and mirror switches. Disconnect the switches.

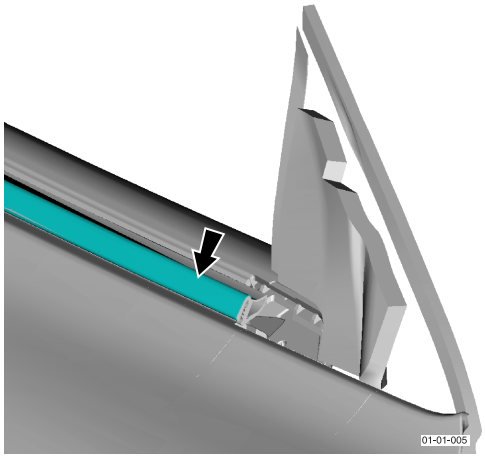


Installation

1. Place the door trim panel to the door and connect the wiring harness plugs.
2. Install the door trim panel screws (x6).
3. Install screws (x2).



4. Install the outer weather seal strip.



5. Install the door mirror cheater panel.
6. Install the door pull
   - 6.1 Connect the door inner release cable.
   - 6.2 Install the door pull trim plate.
   - 6.3 Install the door handle. Torque to **9 Nm**.
7. Connect the vehicle battery.