

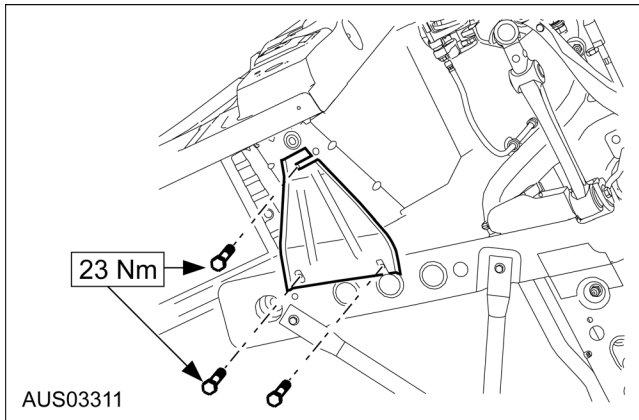
REMOVAL AND INSTALLATION (Continued)

9. Torque all bolts and nuts to specification. Refer diagram above.

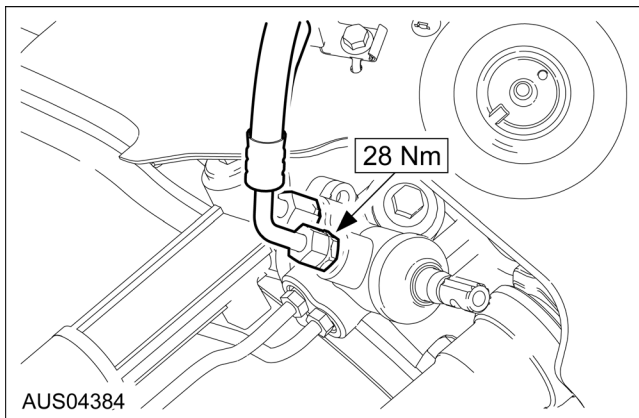
NOTE: All torques must be accurately applied.

10. Install LHS and RHS NVH brace (torque box brace) and torque bolts to specification.

⚠ CAUTION: When installing the NVH brace bolts to subframe, make sure the bolts are properly located in the weld nuts. **DO NOT FORCE** the bolts into cross threading the weld nuts or the entire subframe will need to be replaced.



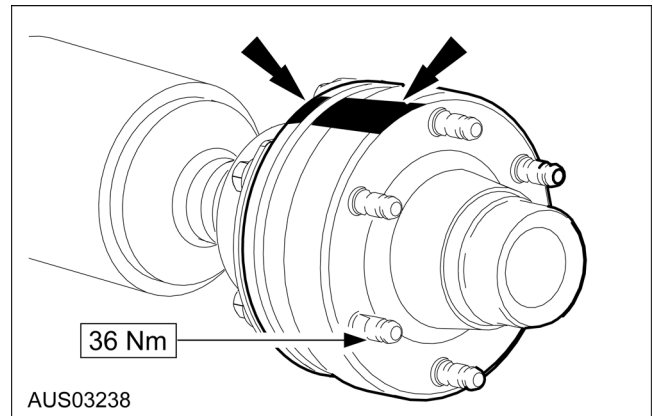
11. Reconnect the transmission cooling line bracket to the LHS subframe.
12. Attach the power steering line connector and torque to specification. Refer to Section 211-02.



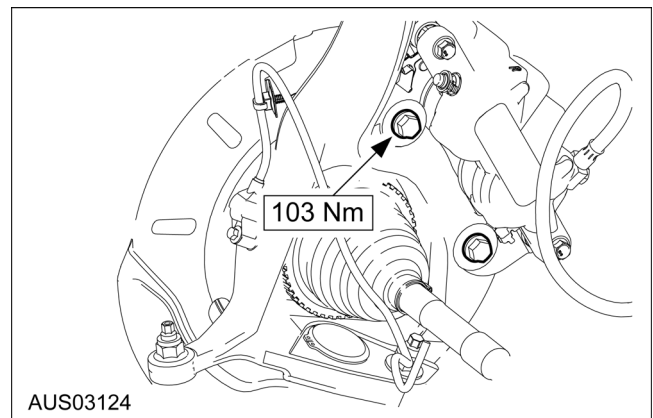
13. Reconnect differential breather hose to the engine mount (AWD only).
14. Install LHS and RHS spring/shocker assembly (clevis) to RLCA bolts and torque to specification. Refer Specifications, this Section.
15. Reconnect engine earth strap.
16. Install lower air deflector.

17. Reconnect front drive shaft to differential flange (AWD Only), lining up the previously marked positions and torque to specification. Refer to Section 205-01.

NOTE: Ensure that any balance weights previously removed are reinstalled in their correct position.



18. Lower jack and remove Special Tool 502-008.
19. Fit LHS and RHS UCA ball joint to knuckle and torque to specification. Refer Specifications, this Section.
20. Remove the knuckle support hook.
21. Reconnect ABS sensor cables. Refer to Section 206-03.
22. Install LHS and RHS brake calipers and torque the caliper to knuckle bolts to specification. Refer to Section 206-03.



23. Reinstall front wheels.
24. Lower the vehicle.
25. Remove engine support bracket.

SPECIFICATIONS

General Specifications

Description	Specification
Brake Pads	
Lining wear limit (above backing plate)	1.5 mm
Brake Fluid	
High performance SUPER DOT 4 brake fluid	ESZ-M6C55-A
Master Cylinder	
Main bore diameter	23.8 mm
Fast fill bore diameter	31.75 mm
Min. Total stroke	32.52 mm
Caliper(Front)	
Type	Twin piston caliper
Bore diameter	42.0 mm
Caliper(Rear)	
Type	Single piston caliper
Bore diameter	45.0 mm
Brake Disc (Front)	
Type	Cast iron - ventilated
Diameter	322 mm
Thickness (new)	28 mm
Max. Runout (brake disc only)	0.025mm
Max. Runout (installed on the vehicle)	0.050mm
Max. Thickness variation	0.009 mm
Min. Thickness resurfaced (overall)	26.0 mm
Min. Thickness resurfaced (individual sides of rotor)	6.5 mm
Brake face surface finish (Ra)	3.2 microns maximum
Brake Disc (Rear)	
Type	Cast iron - ventilated
Diameter	328mm
Thickness (new)	26 mm
Max. Runout (brake disc only)	0.035mm
Max. Runout (installed on the vehicle)	0.050 mm
Max. Thickness variation	0.009 mm
Min. Thickness resurfaced (overall)	24 mm
Min. Thickness resurfaced (individual sides of rotor)	5.8 mm
Brake face surface finish (Ra)	3.2 microns maximum
Park brake drum bore surface finish (Ra)	3.2 microns maximum
Max. Park brake drum diameter	190.4 mm
TCS/DSC System	
System and motor dropout threshold	TCS 9.4V DSC 9.5V
Fuse	TCS One Fuse 50A DSC Two Fuses 40A & 25A
Warning lamp	1.2W
Current draw - motor (under load)	TCS 50A DSC 39A
Front wheel sensor resistance	1.65 kOhm \pm 0.2 kOhm
Rear wheel sensor resistance	1.65 kOhm \pm 0.2 kOhm

DIAGNOSIS AND TESTING (Continued)

forced forward into their seatbelts. The driver may also perceive that the vehicle is moving about on the road. However, steering control is maintained to counter any sideways movement of the vehicle.

The nature of Traction Control systems also means that a certain level of vibration and harshness will be felt during traction assisted acceleration. The severity of vibration is very much dependent on the traction between the road surface and tyres. Typical instances are

- **Engine Power Reduction** - ignition and fuel injection cut-out will occur during TCS operation. The driver may hear a change in engine sound as the engine runs on a reduced number of cylinders
- **Vehicle Surging** - Engine torque is being increased and decreased independently of the accelerator pedal during TCS operation, and is dependent upon drive wheel adhesion. Under some circumstances, this surging may be felt by the driver and passengers as the TCS attempts to make the best use of the traction available.

Spongy Brake Pedal

This symptom should be treated in exactly the same way as it is for non-ABS vehicles. Check the brake fluid condition and level and bleed the brake system (including ABS Modulator if necessary).

Brake Bleeding

Bleed the brake system as normal through the calliper bleed screws. **Refer to section 206-00.**

Replacement modulators are filled with brake fluid and should normally only require a conventional bleed procedure to be conducted. However, if a spongy pedal is present and air in the modulator is suspected, a Service bleed using the WDS tester should be carried out.

Diagnostic Trouble Code (DTC) Chart

DTC	Description	Possible Cause/Action
B1342	ECU Fault. There may be an internal fault in the ECU.	Go to Pin Point Test E.
C1145	Right Front Wheel Speed Sensor Continuity Fault	The sensor circuit may be open circuit. The fault could be in the sensor, the wiring, or the ECU. Go to Pin Point Test A.
C1165	Right Rear Wheel Speed Sensor Continuity Fault	
C1155	Left Front Wheel Speed Sensor Continuity Fault	
C1175	Left Rear Wheel Speed Sensor Continuity Fault	
C1148	Right Front Wheel Speed Sensor Output Fault	The sensor signal is wrong for the current vehicle conditions. The fault could be in the sensor, the wiring, or the ECU; the tone wheel may be missing, damaged or the wrong one fitted; sensor may have fallen out. Go to Pin Point Test B.
C1168	Right Rear Wheel Speed Sensor Output Fault	
C1158	Left Front Wheel Speed Sensor Output Fault	
C1178	Left Rear Wheel Speed Sensor Output Fault	
C1095	Pump Motor Fault	The ECU recorded a possible fault in the pump motor circuit. (Pump runs all the time or does not start.) Go to Pin Point Test E.
C1266	Valve Relay/Valve Relay Power Supply Fault.	There may be a fault in the power supply, modulator or ECU. Go to Pin Point Test E.
B1318	Low Voltage Failure	The ECU has detected a low supply voltage. The cause could be alternator or battery, wiring or the ECU. Go to Pin Point Test C.
C1222	Wheel Speed Sensor Frequency Fault	The signal from one of the sensors is wrong for the current vehicle conditions. Go to Pin Point Test B.
P1571	Brake Light Switch Failure NOTE: Does not cause the ABS to shut down.	There may be a fault in the brake light switch circuit. The fault could be in the switch, switch wiring, tail light wiring or bulb. Go to Pin Point Test D.

DIAGNOSIS AND TESTING

Engine

Inspection and Verification

Since diagnosis and testing actually begins when repairs are taken on, the following procedure is recommended.

1. Verify the customer concern by operating the system.
2. Visually inspect for obvious signs of mechanical damage or electrical damage. If the concern cannot be reproduced, carry out a road test and/or visual check with the aid of the following table.

Visual Inspection Chart

Mechanical
<ul style="list-style-type: none"> • Coolant leaks • Oil Leaks or leaks in the fuel system • Visibly damaged or worn parts • Loose or missing nuts or bolts

3. If an obvious cause for an observed or reported concern is found, correct the cause (if possible) before proceeding to the next step.
4. If the concern is not visually evident, verify the symptom and refer to the Symptom Chart.

Symptom Chart

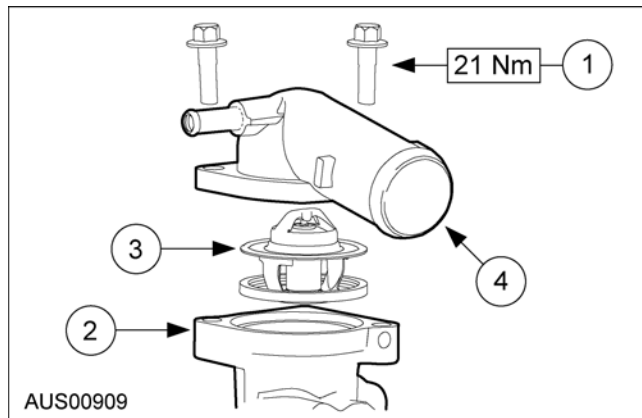
Condition	Source	Action
<ul style="list-style-type: none"> • Engine will not crank 	<ul style="list-style-type: none"> • Faulty Starter System 	<ul style="list-style-type: none"> • Refer to Section 303-05.
	<ul style="list-style-type: none"> • Transmission lever not in P or N. 	<ul style="list-style-type: none"> • Place in P.
	<ul style="list-style-type: none"> • Seized engine 	<ul style="list-style-type: none"> • Replace engine
	<ul style="list-style-type: none"> • Coolant in cylinders 	<ul style="list-style-type: none"> • Replace engine
	<ul style="list-style-type: none"> • Ignition system inoperative 	<ul style="list-style-type: none"> • Refer to appropriate Section in group 303.
	<ul style="list-style-type: none"> • Fuel system inoperative 	<ul style="list-style-type: none"> • Refer Section 310-00.
<ul style="list-style-type: none"> • Engine slow/difficult to start 	<ul style="list-style-type: none"> • Variable Cam Timing (VCT) unit lock pin not engaged at start. 	<ul style="list-style-type: none"> • Refer to appropriate Section in group 303.
	<ul style="list-style-type: none"> • VCT unit Oil Control Valve jammed. 	<ul style="list-style-type: none"> • Clean Oil Control Valve. Refer to appropriate Section in group 303.
<ul style="list-style-type: none"> • Engine misfires 	<ul style="list-style-type: none"> • Fail Safe Cooling in operation 	<ul style="list-style-type: none"> • Repair coolant system
	<ul style="list-style-type: none"> • Ignition system faulty 	<ul style="list-style-type: none"> • Refer to appropriate Section in group 303.
	<ul style="list-style-type: none"> • Fuel system faulty 	<ul style="list-style-type: none"> • Refer Section 310-00.
	<ul style="list-style-type: none"> • Restricted exhaust system 	<ul style="list-style-type: none"> • Inspect Exhaust system
	<ul style="list-style-type: none"> • Intake vacuum leak 	<ul style="list-style-type: none"> • Carry out Intake Manifold Vacuum test in this section
	<ul style="list-style-type: none"> • Burned valve/poor seating 	<ul style="list-style-type: none"> • Perform a compression check
	<ul style="list-style-type: none"> • Broken valve spring 	<ul style="list-style-type: none"> • Inspect valve springs
	<ul style="list-style-type: none"> • Head gasket leakage 	<ul style="list-style-type: none"> • Inspect head gasket
	<ul style="list-style-type: none"> • Piston damage 	<ul style="list-style-type: none"> • Perform cylinder compression check

REMOVAL AND INSTALLATION

Thermostat

Removal and Installation

1. Partially drain the engine coolant so that the coolant level is below the thermostat. For additional information refer to **Cooling System Draining Filling and Bleeding** in this section.
2. Remove the two bolts and separate the water outlet adapter from the thermostat housing and slide (with hoses attached) to one side.



Item	Description
1	Bolt
2	Housing
3	Thermostat
4	Conn water outlet

3. Remove the thermostat and the O-ring seal.
4. Clean and inspect the sealing surfaces.
5. To install reverse the removal procedure.
6. Refill and bleed the cooling system as previously described in this section.

NOTE: On thermostats that have a bleeder valve, the thermostat should be positioned with bleeder valve at the 12 o'clock position as viewed from front of engine.

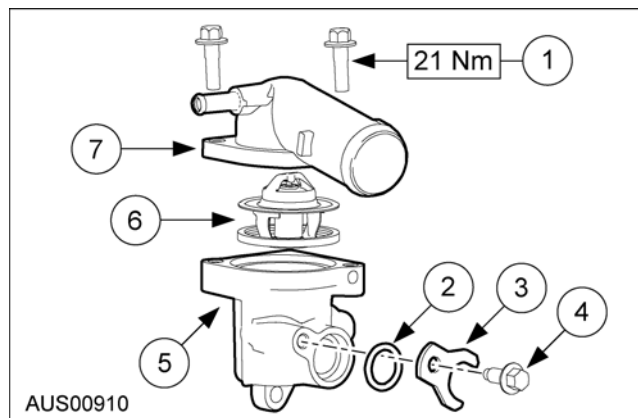
NOTE: All hardware must be correctly installed and torqued to specification.

Thermostat Housing

Removal and Installation

1. Remove the thermostat. For additional information, refer to **Thermostat** in this section.
2. Remove the bolt and clamp that holds the heater tube to the housing. Remove the bolt holding the heater tube on the inlet manifold. Withdraw the heater tube from the thermostat housing.

3. Remove the two bolts and separate the thermostat housing from the cylinder head.



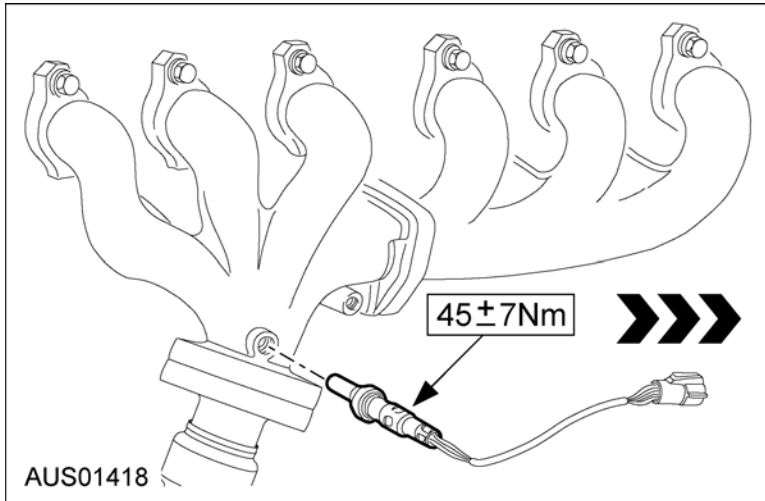
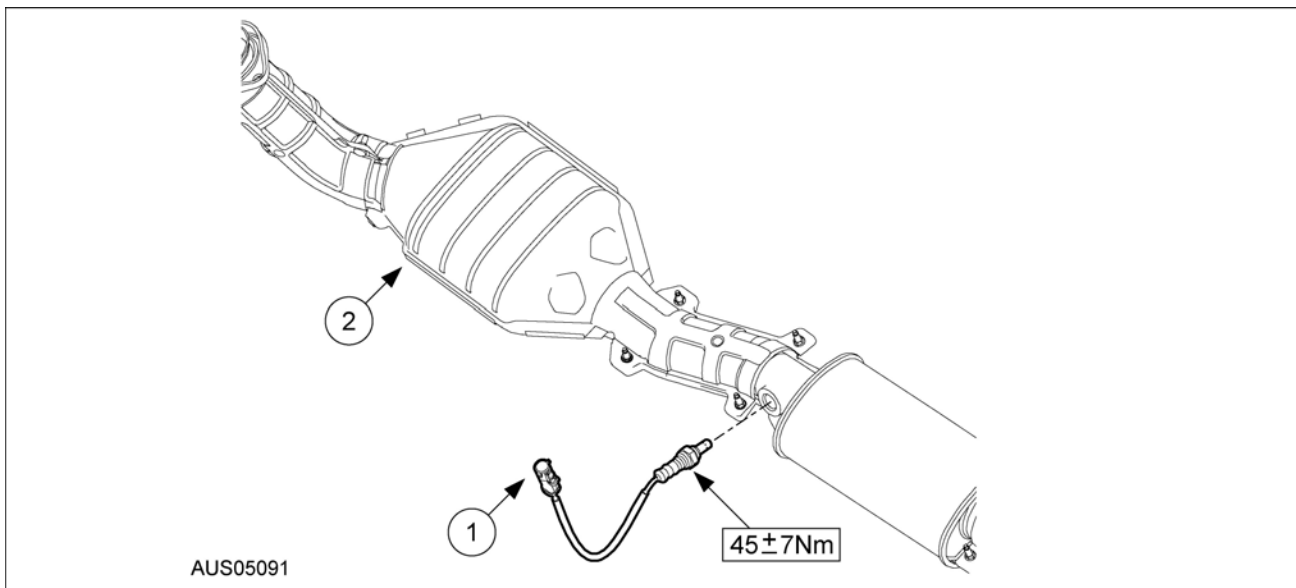
Item	Description
1	Bolt
2	O-ring
3	Clamp
4	Bolt
5	Housing
6	Thermostat
7	Conn Water outlet

4. Clean and inspect the sealing surfaces after removing all traces of gasket material.
5. Fit a new gasket and O-ring.
6. To install, reverse the removal instructions.
7. Refill and bleed the cooling system as previously described in this section.

Water Pump

Special Tool(s)

<p>SST416-D001</p>	Installer Power Steering Pump Pulley 416-D001 (A7005)
<p>SST888-000</p>	Remover Power Steering Pump Pulley 888-000 (A7185)

DESCRIPTION AND OPERATION (Continued)**HEGO11 Sensor, I6 Engines****HEGO12 I6 (Not Applicable for the South African Market)**

Item	Description
1	HEGO Sensor
2	Catalytic Converter

GENERAL PROCEDURES

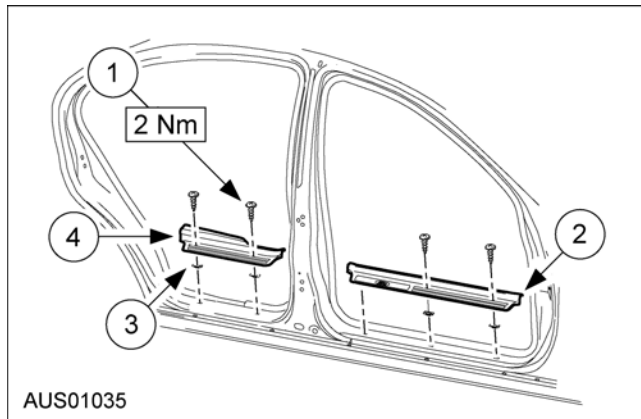
Powertrain Control Module

Accessing vehicle speed signal for installation of taximeters

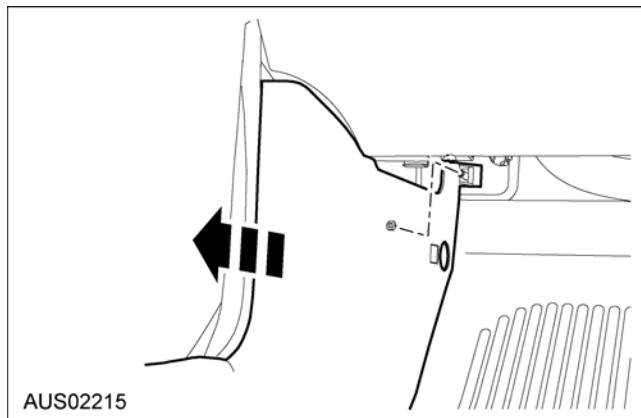
⚠ CAUTION: Vehicle speed signal must **NOT** be accessed via the ABS system as this may compromise system integrity.

NOTE: The Power Control Module (PCM) generates the vehicle speed signal which can be accessed by taximeters. The B36VSOUT is a pulsed 12V signal of approximately 5000 pulses/km which is used by SATNAV (Refer to chapter 419-07 for further SATNAV information) to measure speed. This outputted signal should be accessed by taximeters to monitor vehicle speed.

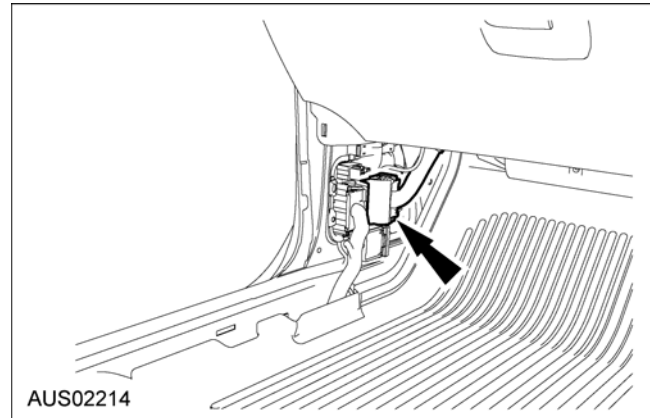
1. Remove outer front LHS scuff plate.



2. Remove inner front LHS scuff plate. This will expose the B36VSOUT wiring which includes the 565B-W wire and C-119 connector.



3. Locate 565B-W (Black wire with white stripe) and splice the wire at the back of connector C-119. Refer to Connector Views chapter 700-07-00.



4. Check integrity of taximeter. Taximeters to be used with the PCM should have an input resistance to ground of between 4.7kOhm and 15kOhm
5. Re-install scuff plates.

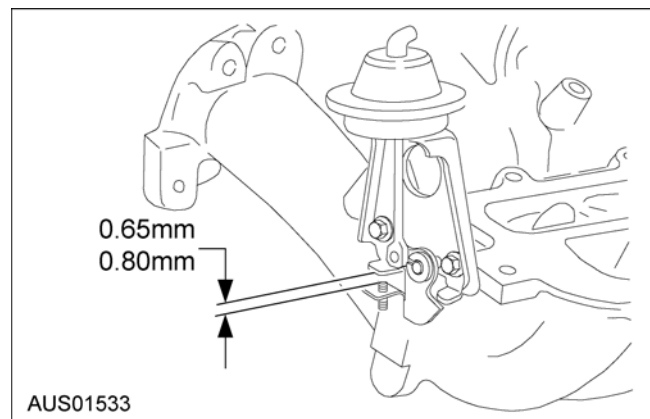
Intake Manifold Charge Control

Adjustment

1. Using a suitable vacuum pump and gauge, apply a 40kPa vacuum to IMCC actuator.
2. Adjust IMCC set screw to achieve the specified clearance between the set screw and the actuator arm.

IMCC Clearance Specification

3. 0.65 - 0.80 mm

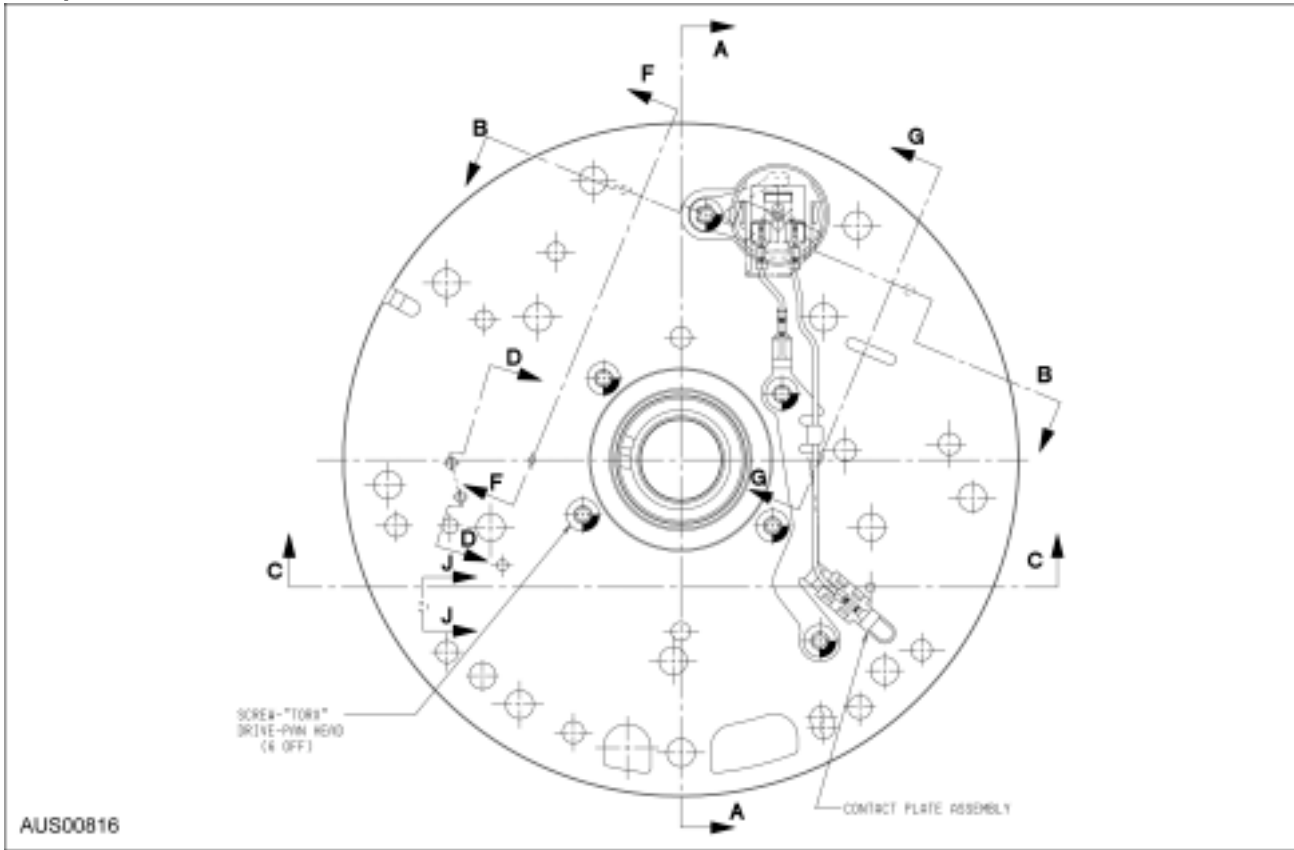


ASSEMBLY (Continued)

Pump Cover & Converter Support

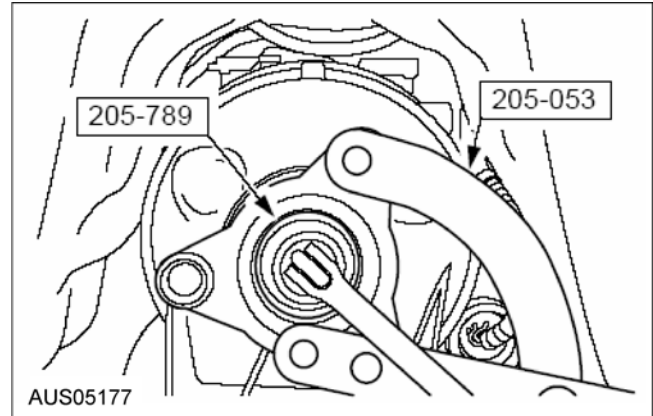
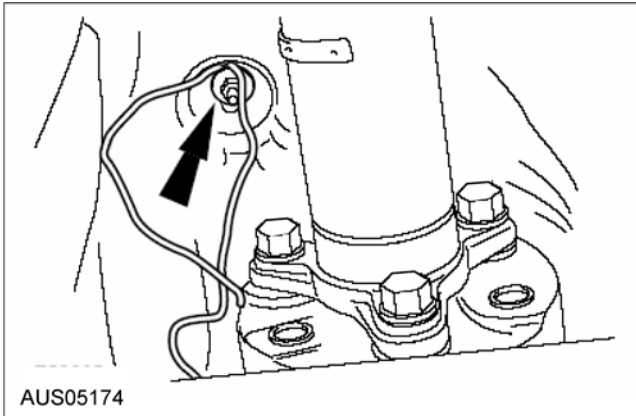
Special Tool(s)	
	Pump Aligner

Assembly Pump Cover

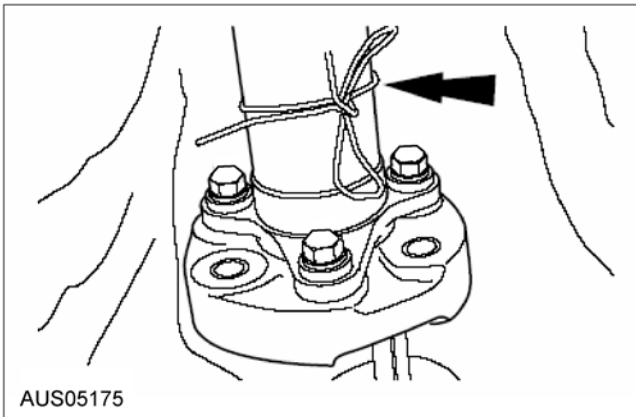


REMOVAL AND INSTALLATION (Continued)

5. Install suitable cord to the heat shield retaining nut stud.
9. Using the special tools, remove and discard the output flange retaining nut



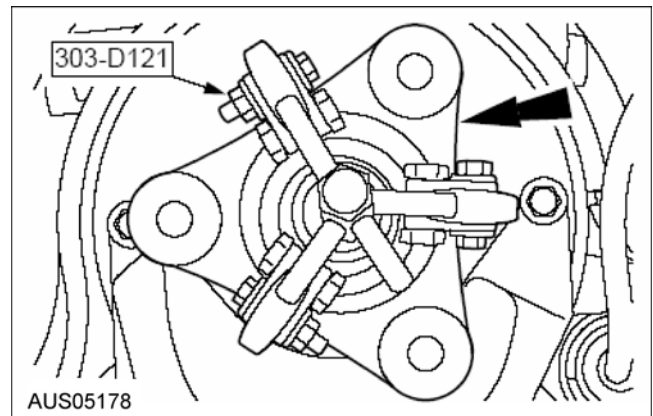
6. Reposition the driveshaft



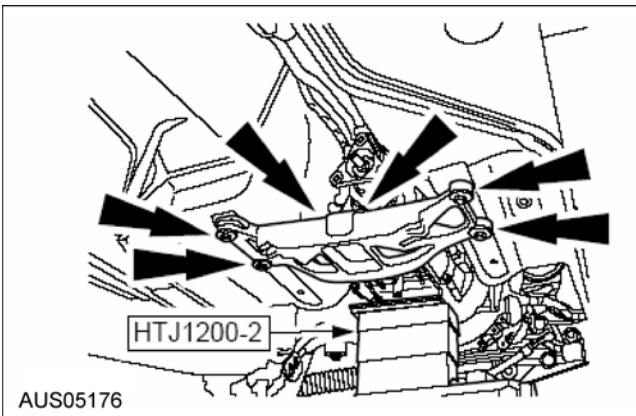
10. Using the special tool, remove the output shaft flange

11. Remove the output shaft flange spacing shim

⚠ CAUTION: Make sure the transmission housing seal face is not damaged when removing the extension housing seal. Failure to follow this instruction may result in damage to the vehicle.



7. Using the special tool, remove the transmission support.
8. Lower the transmission to a suitable working height



REMOVAL AND INSTALLATION

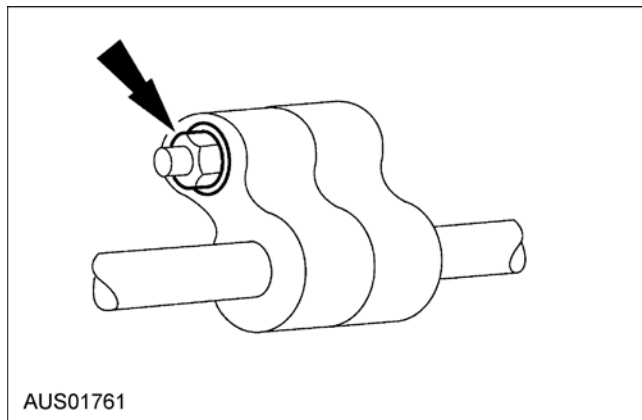
A/C Hose/Tube Pad Fitting

⚠ CAUTION: All refrigerant must be recovered from the A/C system.

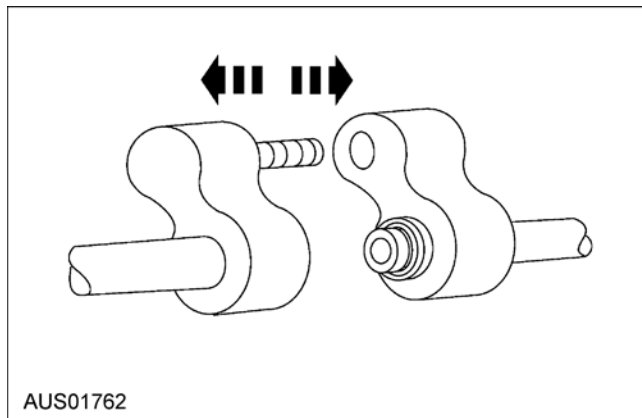
Removal

1. Recover the refrigerant. Refer to *A/C Discharging and Recovery* in this section.
2. Remove the bolt from the air conditioning line (pad) fitting.

⚠ CAUTION: Support the female fitting with a wrench to prevent the tubes from twisting.

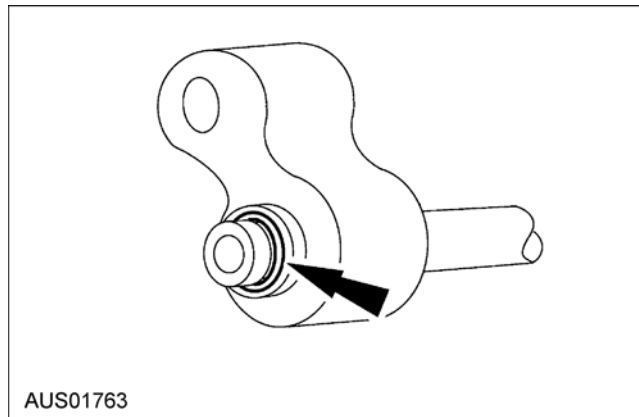


3. Pull the air conditioning line (pad) fitting apart.



4. If damaged remove the O-ring seal with a non-metallic tool.

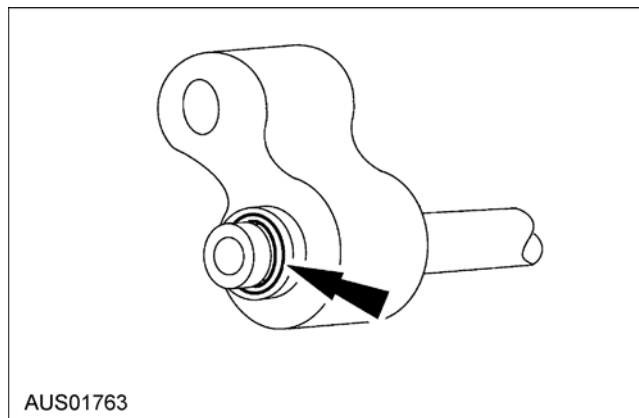
⚠ CAUTION: Do not use metal tools to remove the O-ring seal. They can cause axial scratches across the O-ring seal groove resulting in refrigerant leaks.



Installation

1. Clean all dirt or foreign material from the fittings.
2. If removed, install a new O-ring seal.

⚠ CAUTION: Use only new genuine Ford black refrigerant O-ring seals which are compatible with refrigerant R-134a and refrigerant oil ND-Oil8. The use of any O-ring seals other than specified may result in intermittent leakage during vehicle operation.

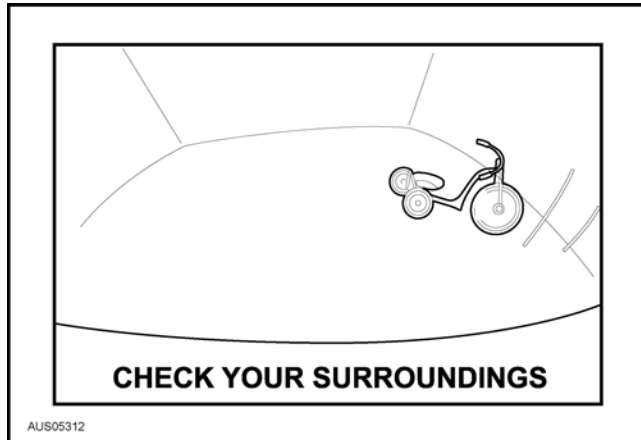


3. Lubricate the O-ring seals with PAG Refrigerant Compressor Oil ND-Oil 8.

DESCRIPTION AND OPERATION

The system consists of a wide angle camera mounted under the appliqué above the rear license plate and a controller which interfaces with the Interior Command Centre (ICC) screen. When reversing, the system uses the ICC screen to display a real-time image of the area immediately to the rear of the vehicle.

The rear camera is connected via a Display Interface Module (DIM) to the Ford Territory Interior Command Centre (ICC) so that the camera image is displayed on the TFT screen located in the ICC when the reverse gear is selected.



When navigation is selected (resulting in the VSel (Video Select) circuit from the Navigation module being switched to ground) the DIM passes the navigation RGB (Red Green Blue) signal through to the ICC unless reverse gear has been selected.

When the reverse gear is selected the camera itself is powered immediately by the DIM. After a further delay of approximately 1.0 second, the DIM switches the RGB (Red Green Blue) input of the ICC to the rear camera image which overrides any image currently displayed. This is the only method of displaying the rear camera on the ICC TFT screen.

Along with the Camera image the DIM overlays warning text at the bottom of the ICC screen of "WARNING" followed 2 seconds latter by "CHECK YOUR SURROUNDINGS" for 2 seconds. This sequence is repeated 3 times. Following this initial flashing of the warning the "CHECK YOUR SURROUNDINGS" text is permanently displayed whilst the camera image is shown.

Once the reverse gear is deselected the display interface module switches the RGB (Red Green Blue) input of the camera on the ICC back to the previous input signal, i.e. if the navigation was previously displayed, the DIM continues to pass the navigation RGB signal through to the ICC, or otherwise it deactivates the Vsel signal - resulting in the vehicle information ICC screen being displayed.

The DIM includes a composite (for the rear camera video signal) to NTSC RGB (for the ICC TFT video input) video converter.

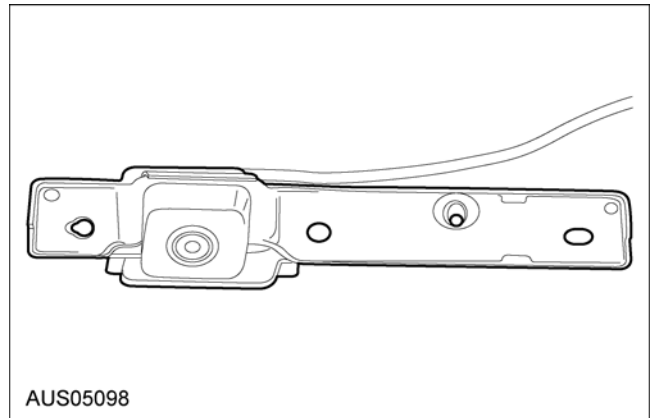
The DIM provides a 6V regulated power supply to the camera that is only enabled when the reverse gear is selected.

Camera Connectors Pin Out

Please refer to Wiring Diagrams, Chapter 100-700

Removal and Installation of Camera

The rear camera location is under the rear licence lamp bezel at a suitable angle so as to permit the rear bumper to be seen at the bottom edge of the TFT screen.

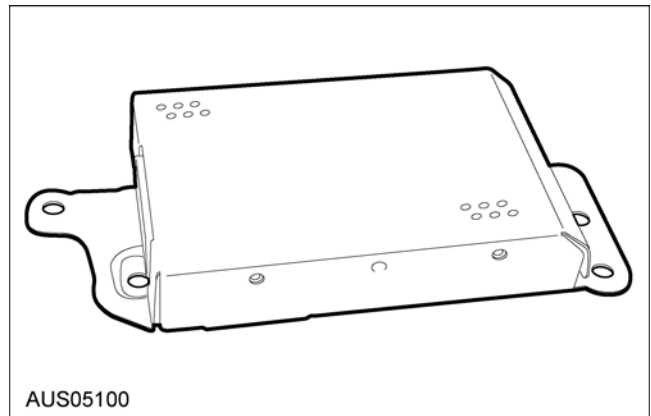


For removal of the camera for service please refer to [Section 501 -08](#) under removal of appliqué.

NOTE: Take special care not to damage camera once appliqué is removed as camera is secured by appliqué bolts.

Removal and Installation of DIM

The DIM is located in the IP on the steering column "H" brace.



1. Remove two M6 bolts (8- 11 Nm) from metal IP brace inside driver's foot well.
2. Remove the DIM from brace
3. Remove two connectors from the DIM
4. Remove two harness clips
5. Reverse sequence for installation.

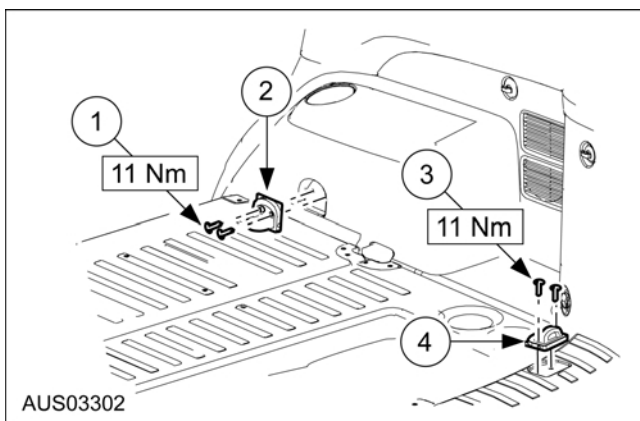
REMOVAL AND INSTALLATION (Continued)

Cargo Tie-down Anchorages

Removal

1. Open the D-Ring until it locks in the hold-open position at 90°.

NOTE: Cargo tie down anchorage points are located on quarter panel low trim (RH and LH) and luggage compartment cover plate. Only RH side shown.



Item	Description
1	Torx head Quarter plate x2
2	Cargo Tie down anchorage
3	Torx head Cover plate x2
4	Cargo Tie down anchorage

2. Remove the 2 Torx head screws.
3. Slide the anchorage out from the trim panel.

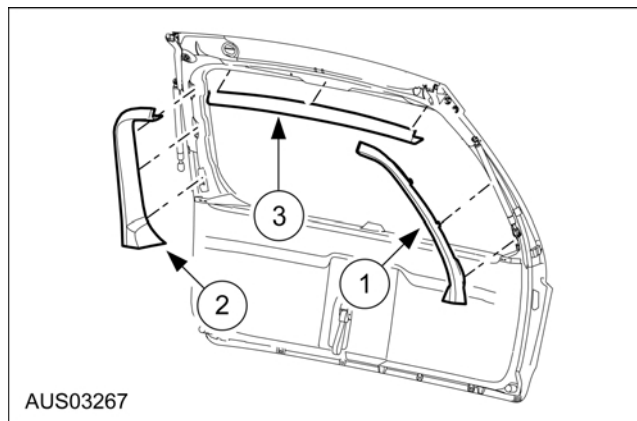
Installation

1. Reverse the removal procedure.

Liftgate Upper Trim Panel

Removal

1. To remove the liftgate upper trim disengage all retainers and remove trim.



Item	Description
1	Liftgate upper trim LH
2	Liftgate upper trim RH
3	Liftgate upper trim centre

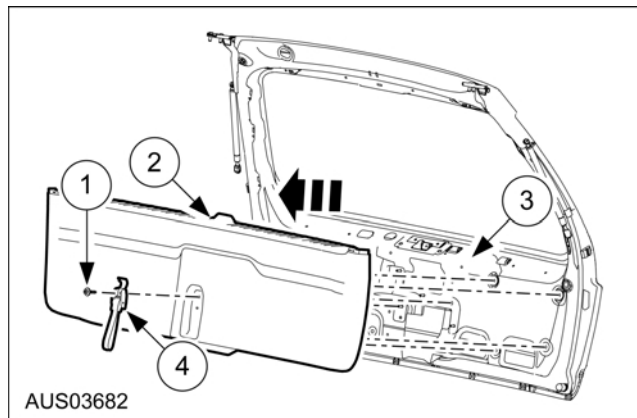
Installation

1. Reverse removal procedure.

Liftgate Lower Trim Panel

Removal

1. Unclip the liftgate strap cover and hinge upwards.



2. Remove the M6 nut and washer and remove the pull strap.
3. Gently prize the liftgate trim away from the liftgate at the lower latch and work around the trim until all 9 clips are disengaged.

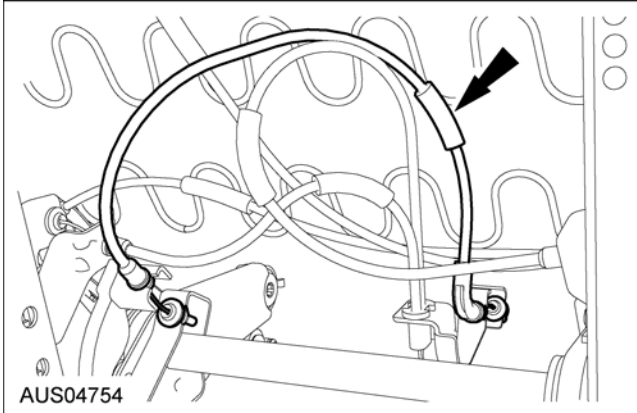
NOTE: The clips are a 2 piece design. The black half will remain fixed to the sheet metal.

NOTE: Do not remove the weatherstrip as this will require part replacement to ensure sealing integrity

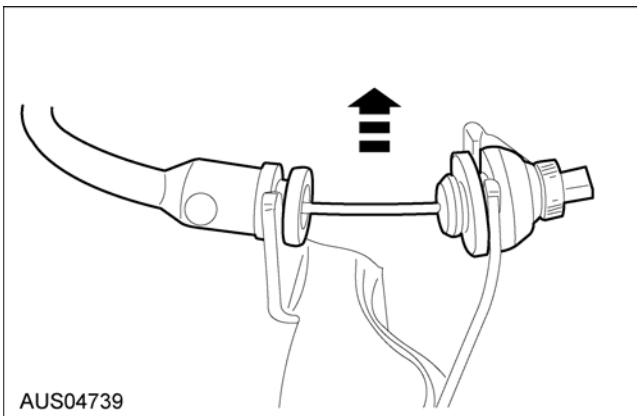
DISASSEMBLY AND ASSEMBLY

Easy Entry Cable Replacement (7 Seat Vehicles Only)

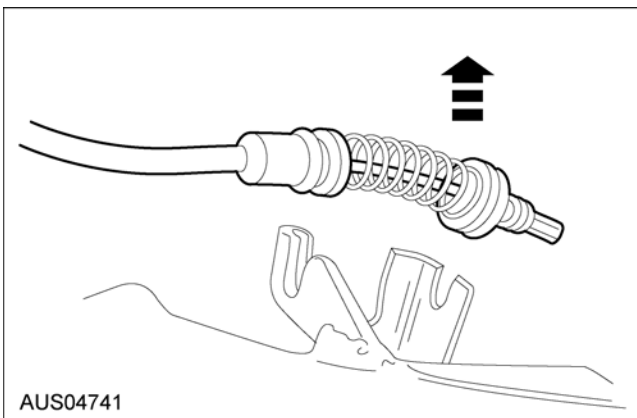
1. Relax the easy Entry cable adjuster.



2. Remove cable end from Easy entry, cam cable retainer.

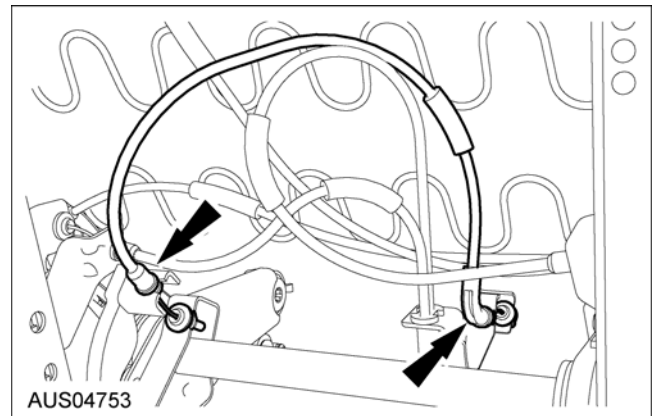
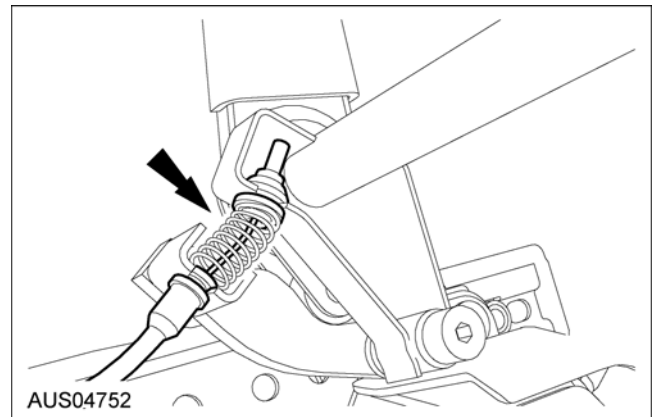


3. Remove cable end from towel bar connection and discard cable.



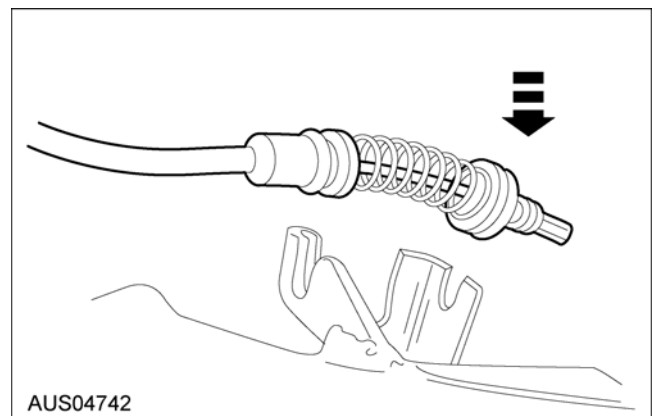
Fit new Easy Entry release cable

1. Attach the cable end that has the angle fitting and the spring to the towel bar cable brackets. The elbow is attached to the fixed bracket and the cable inner or wire is attached to the towel bar bracket.



2. Attach the other end of the cable to the Easy Entry cable brackets.

NOTE: The cable outer is attached to the Cam Lever arm (Silver in colour) and the cable inner wire is attached to the fixed bracket.



REMOVAL AND INSTALLATION (Continued)

⚠ WARNING: Never probe the connectors on the airbag module. Doing so can result in airbag deployment, which can result in personal injury.

⚠ WARNING: Airbag modules with discolored or damaged trim covers must be replaced, not repainted.

⚠ WARNING: To avoid accidental deployment and possible personal injury, the backup power supply must be depleted before repairing or replacing any front or side airbag supplemental restraint system (SRS) components and before servicing, replacing, adjusting or striking components near the front or side airbag sensors, such as doors, instrument panel, console, door latches, strikers, seats and hood latches.

The side impact sensors (if equipped) are located in the B-pillars and C-pillars.

To deplete the backup power supply energy, disconnect the battery ground cable and wait at least one minute. Be sure to disconnect auxiliary batteries and power supplies (if equipped).

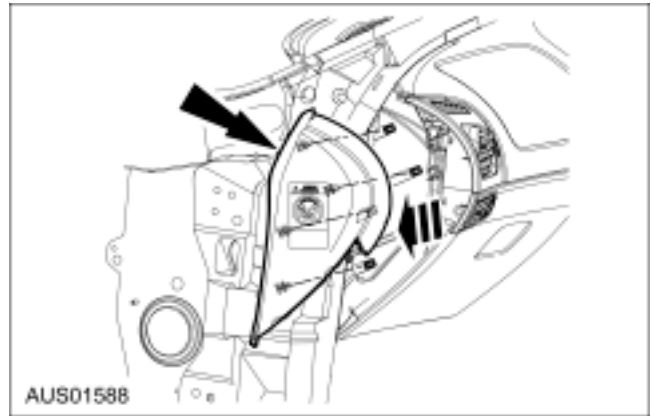
NOTE: Repair is made by installing a new part only. If the new part does not correct the condition, install the original part and perform the diagnostic procedure again.

1. Disconnect the battery ground cable (14301) and wait at least one minute. For additional information, refer to [Section 414-01](#).

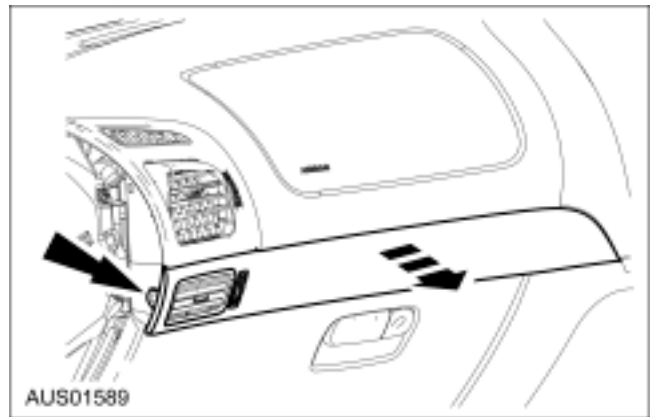
⚠ WARNING: To reduce the risk of serious personal injury, read and follow all warnings, notes, and instructions in the supplemental restraint system (SRS) deactivation/reactivation procedure.

2. Deactivate the supplemental restraint system (SRS). For additional information, refer to [Supplemental Restraint System \(SRS\) Deactivation and Reactivation](#) in the General Procedures portion of this section.

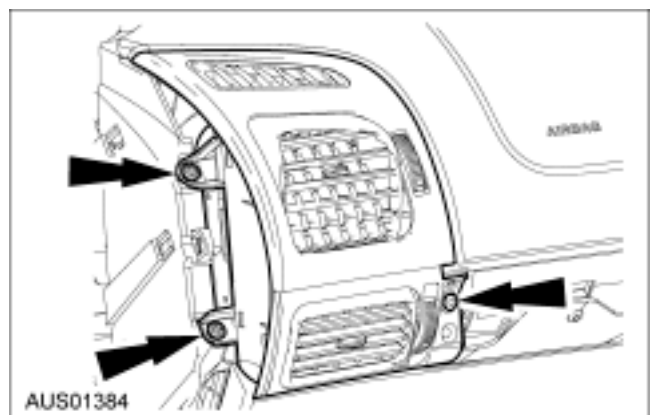
3. Remove passenger side door seal and remove instrument panel end cover.



4. Remove instrument panel lower trim.

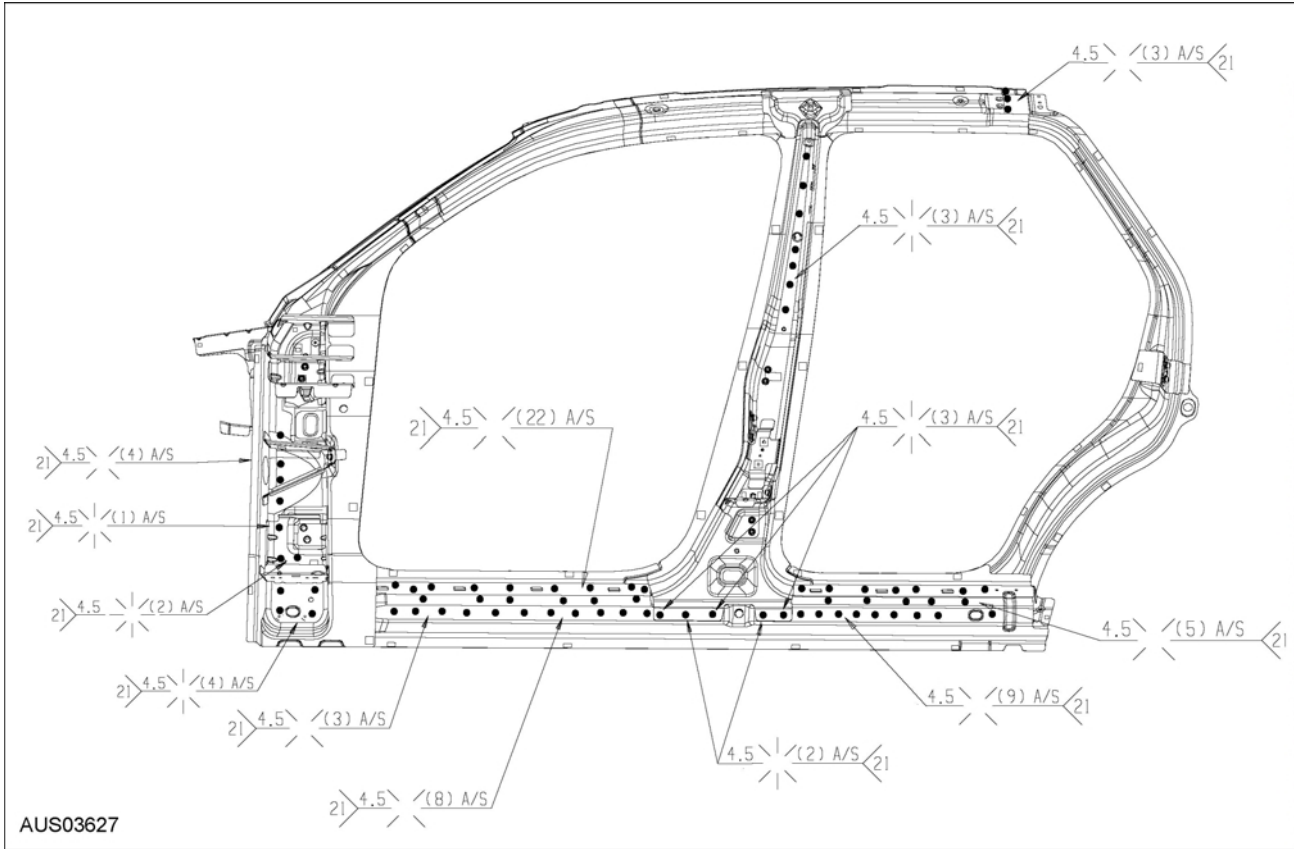


5. Remove 3 retaining screws from air register as shown.

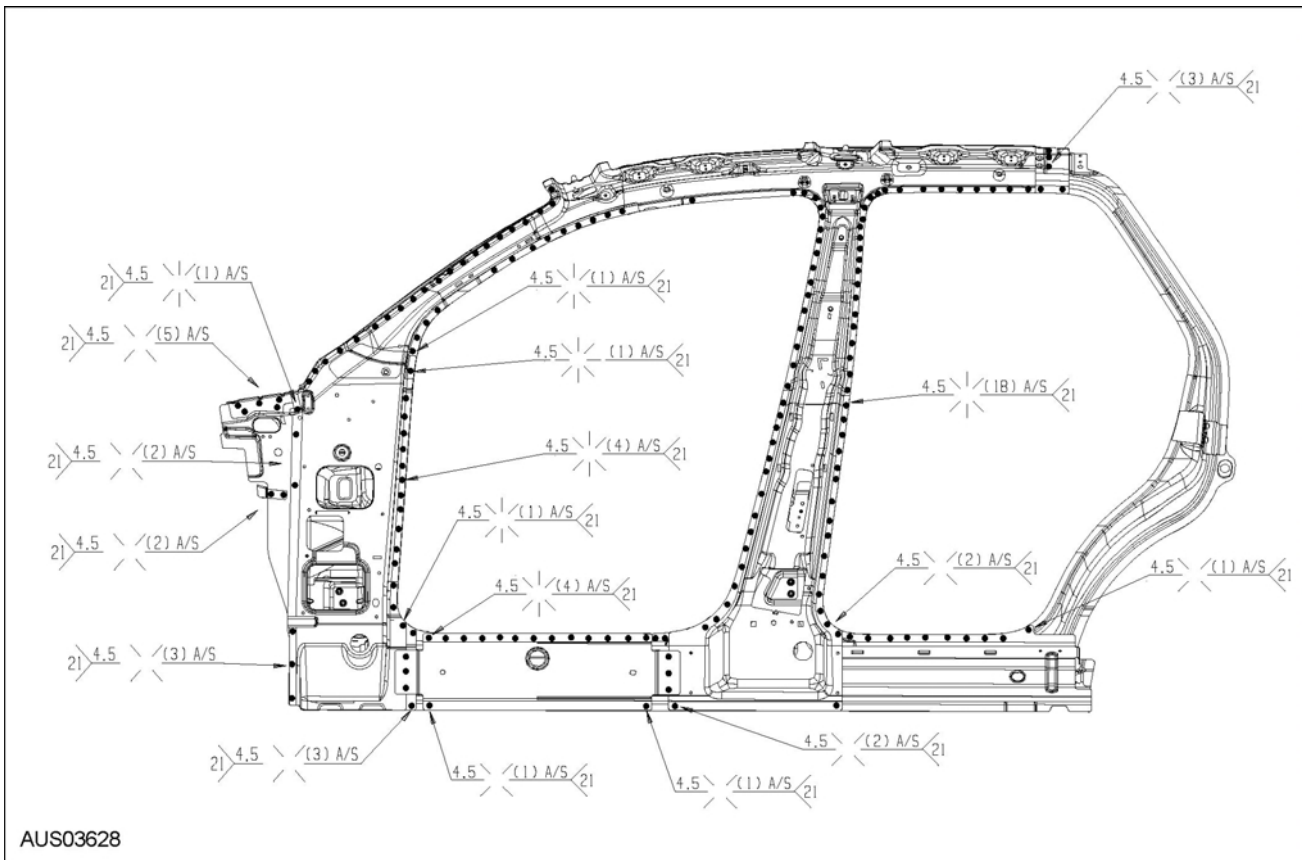


6. Remove air register.

REMOVAL AND INSTALLATION (Continued)



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