

DESCRIPTION AND OPERATION

Identification Codes

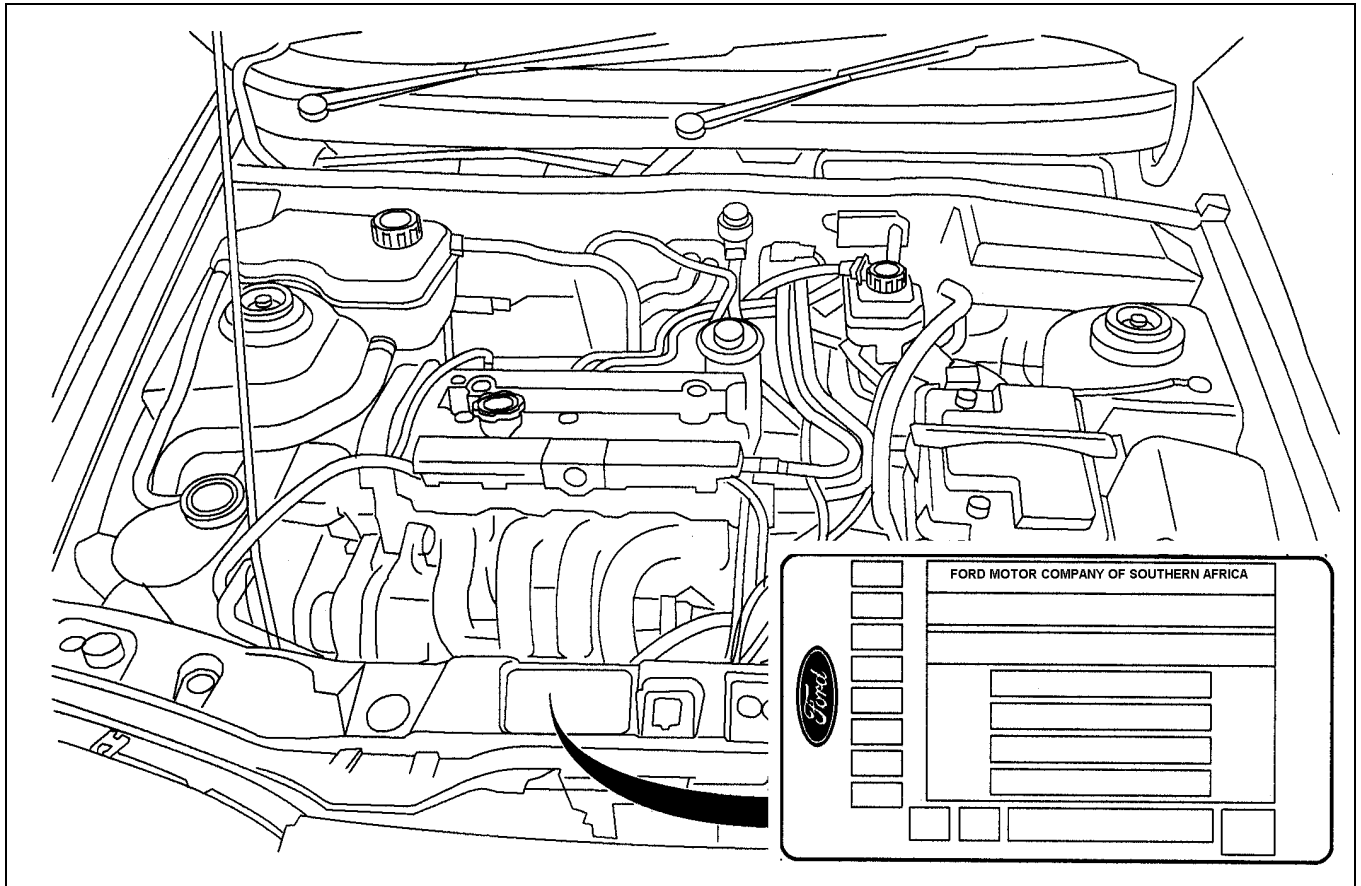
Vehicle Identification Number (VIN)

NOTE: The vehicle identification number (VIN) can be identified by an asterisk at its start and finish.

The vehicle identification plate is located in the engine compartment on the front body crossmember.

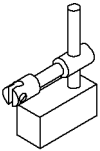
The codes stamped on the plate during production enable precise details of the vehicle build specification to be established.

The Vehicle Identification Number (VIN) may also be checked through the windshield.



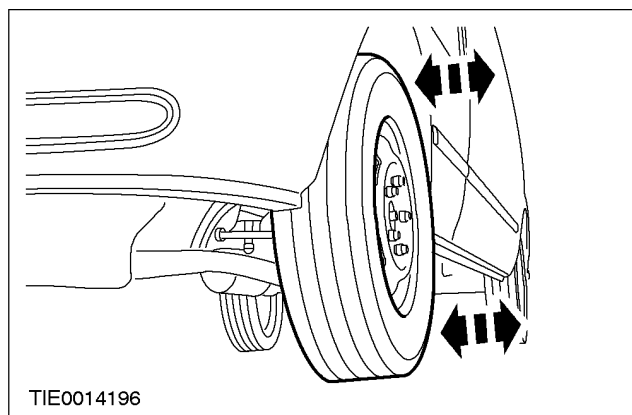
GENERAL PROCEDURES

Wheel Bearing Inspection (14 117 0)

Special Tool(s)	
	Holding Fixture, Dial Indicator Gauge 205-044 (15-008)

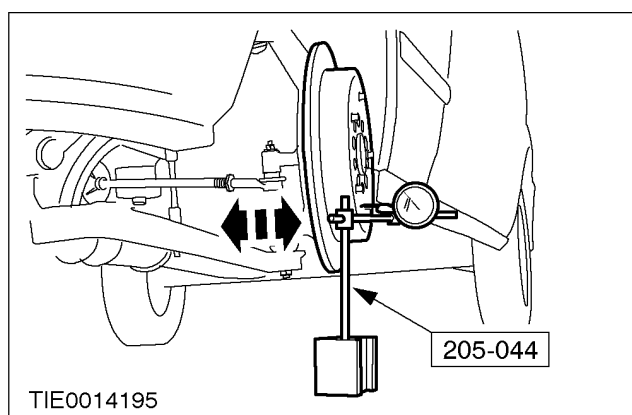
General Equipment

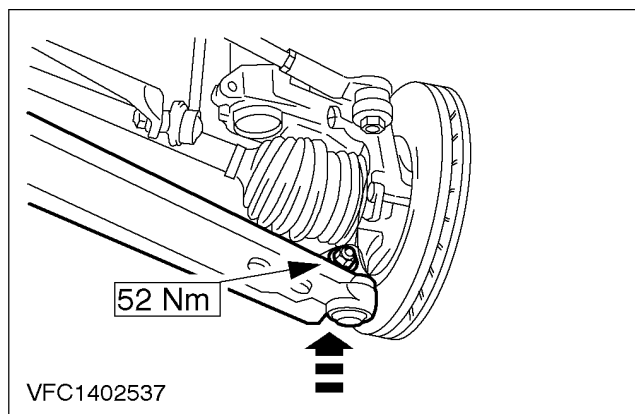
Dial indicator gauge



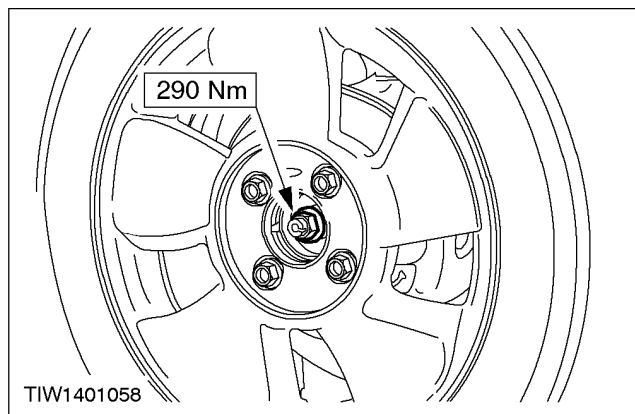
Check

- NOTE:** Do not to confuse lower arm ball joint looseness with bearing looseness.
Raise and support the front of the vehicle.
For additional information, refer to [Section 100-02](#).
- Check for loose front wheel bearings by rocking the wheels at the top and bottom.
- Spin the wheel quickly by hand and make sure the wheel turns smoothly without noise from the wheel bearings.
- Remove the front brake caliper and anchor plate. For additional information, refer to [Section 206-03](#).
- Position a suitable Dial indicator gauge fixture or equivalent, against the wheel hub, then push and pull the wheel hub. Measure the endplay of the wheel hub and front wheel bearing assembly. There should be no endplay. If endplay exists, install new wheel bearings.



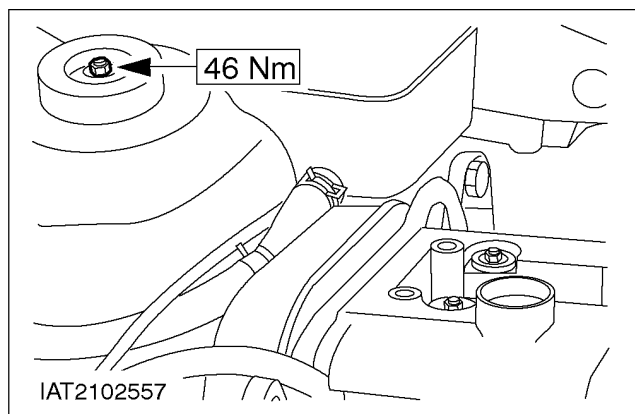
REMOVAL AND INSTALLATION (CONTINUED)

5. Attach the lower suspension arms to the spindle carriers.



6. Install the front wheel. For additional information, refer to [Section 204-03](#).

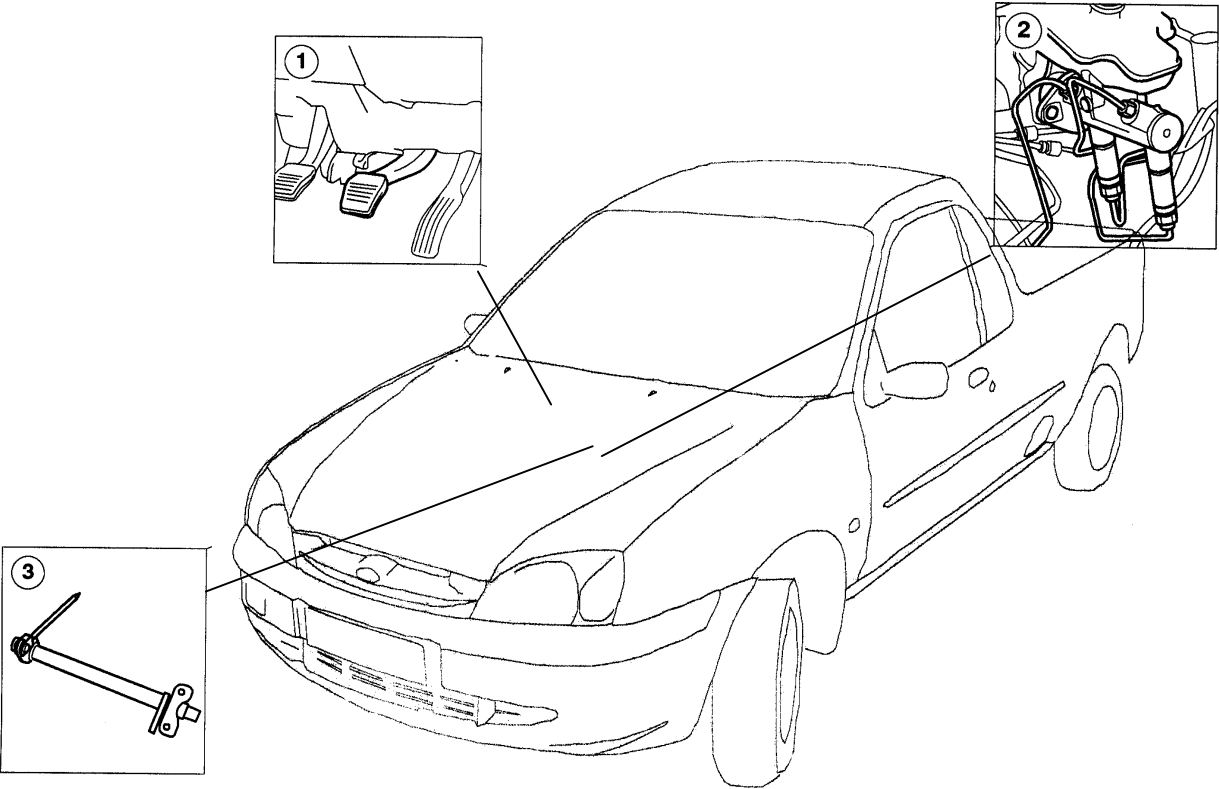
7. Tighten the axle stub nut.



8. **NOTE:** Use an Allen key to stop the piston rod from turning.
Tighten the suspension strut top nut.

DESCRIPTION AND OPERATION


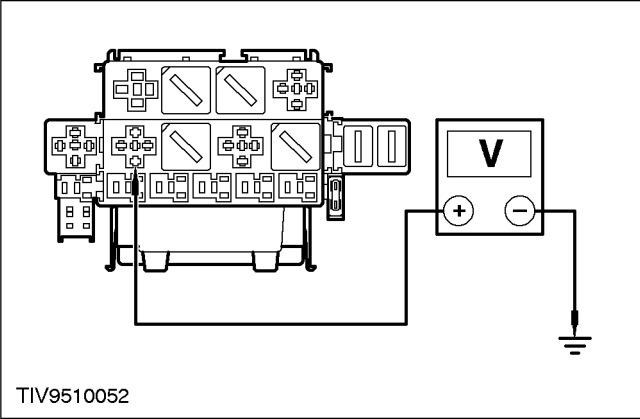
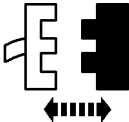

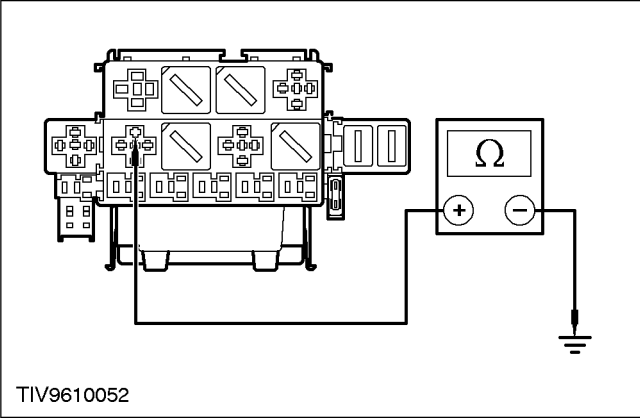

Hydraulic Brake Actuation

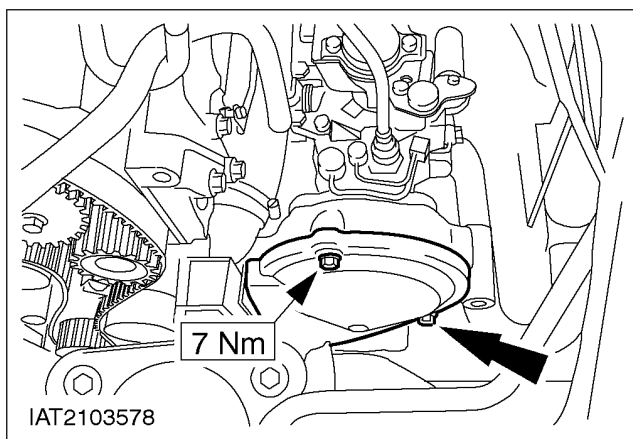


Item	Description
1	Brake pedal
2	Brake master cylinder and fluid reservoir

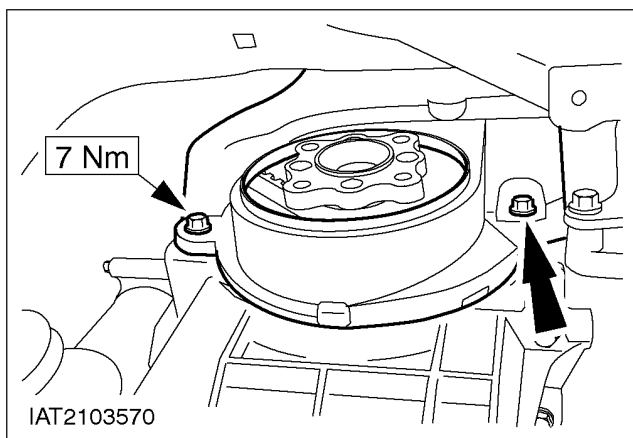
Item	Description
3	Brake pedal cross-shaft

DIAGNOSIS AND TESTING (CONTINUED)

CONDITIONS	DETAILS/RESULTS/ACTIONS
C4: CHECK FOR OPEN ON CIRCUITS 15 (GN) AND 15 (GN/BU)	
<div><div>1</div><div><p>Ignition switch</p></div><div><p>TIV9510052</p></div></div>	<div><div>2</div><div>Measure the voltage between ignition relay C47 pin 1, circuit 15 (GN) and 15 (GN/BU) and ground</div><div><div>• Is the voltage greater than 10 volts?</div><div><div>Yes</div><div>GO TO C5</div></div><div><div>No</div><div>Repair circuit 15 (GN) or 15 (GN/BU). TEST the system for normal operation.</div></div></div></div>
C5: CHECK THE IGNITION RELAY GROUND	
<div><div>1</div><div><p>Interior light relay</p></div><div><div>2</div><div><p>Ignition switch</p></div></div><div><p>TIV9610052</p></div></div>	<div><div>3</div><div>Measure the resistance between the ignition relay C47 pin 2, circuit 31 (BK) and ground.</div><div><div>• Is the resistance less than 5 ohms?</div><div><div>Yes</div><div>GO TO C6</div></div><div><div>No</div><div>Repair circuit 31 (BK). TEST the system for normal operation.</div></div></div></div>
C6: CHECK THE IGNITION RELAY POWER FEED	
<div><div>1</div><div><p>Interior light relay</p></div></div>	

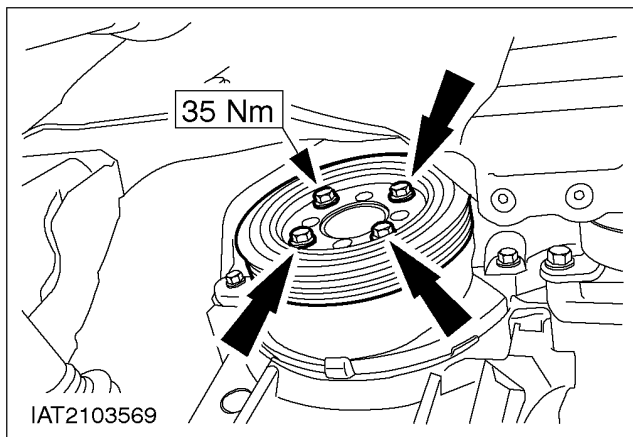
IN-VEHICLE REPAIR (CONTINUED)

13. Fit the injection pump timing belt cover.

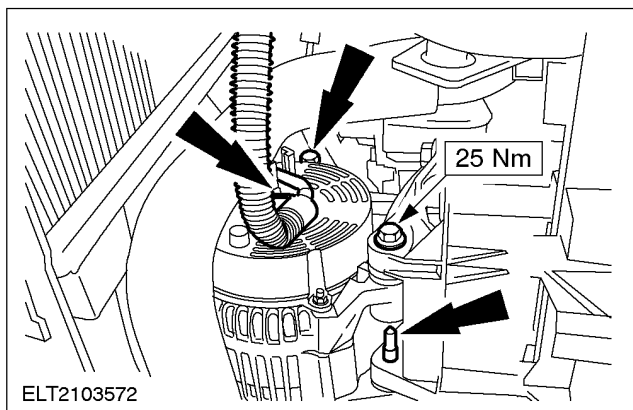


14. Raise the vehicle.

15. Screw in the lower bolts of the lower timing belt cover.

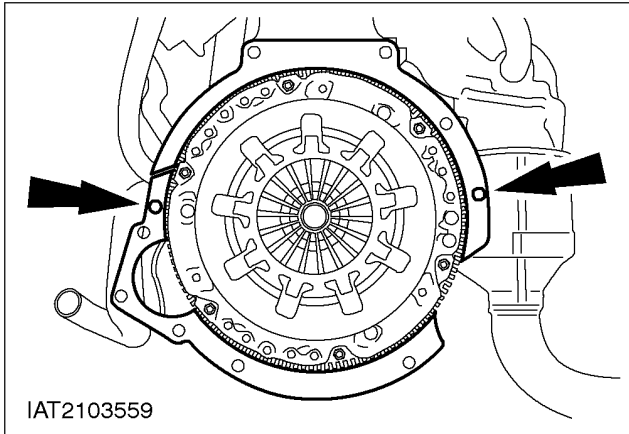


16. Fit the crankshaft pulley/vibration damper.

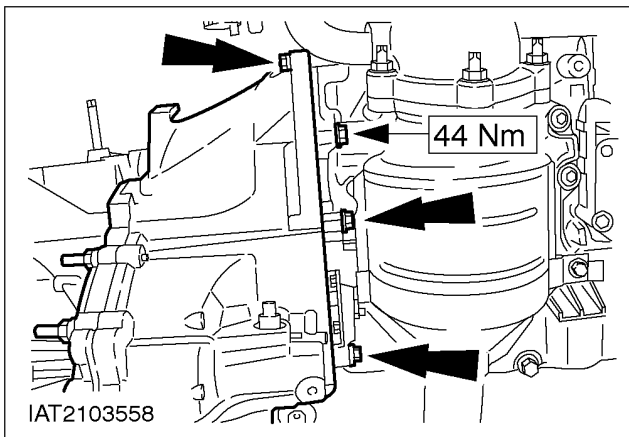


17. **⚠ CAUTION:** Position the generator and screw in the bolts finger tight. First tighten the bolt on the pulley side, then the rear upper long bolt and finally the rear lower short bolt.

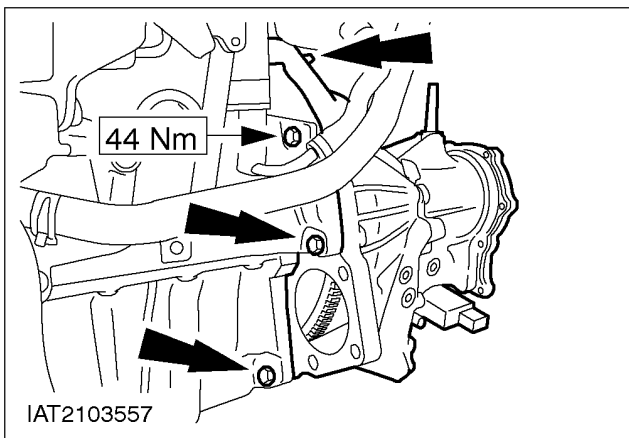
Install the alternator and connect it.

INSTALLATION (CONTINUED)

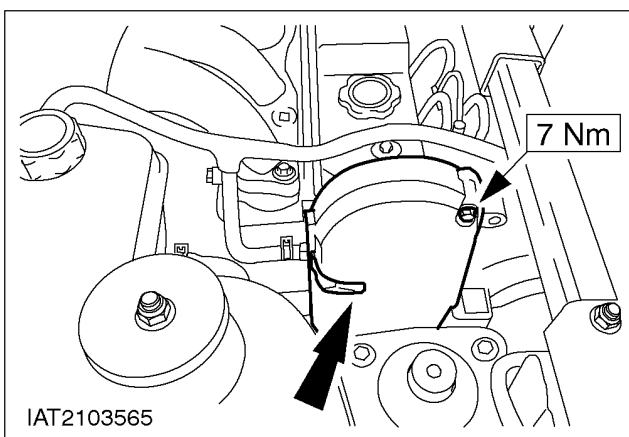
- 2. NOTE:** Make sure the guide sleeves are correctly seated.
Align the adapter plate on the two guide sleeves on the cylinder block.
- Fix the adapter plate with a small amount of high-temperature grease (ESD-M1C220-A).



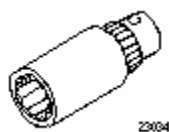
- 3. NOTE:** The transmission is centered with two guide sleeves on the engine.
Locate the transmission in position and tighten the rear flange bolts.



4. Tighten the front flange bolts.



- 5. NOTE:** Fit the bracket for the cable tie for the starter motor wiring.
Install the starter motor.

REMOVAL AND INSTALLATION (CONTINUED)**Fuel Injectors****Special Tool(s)**

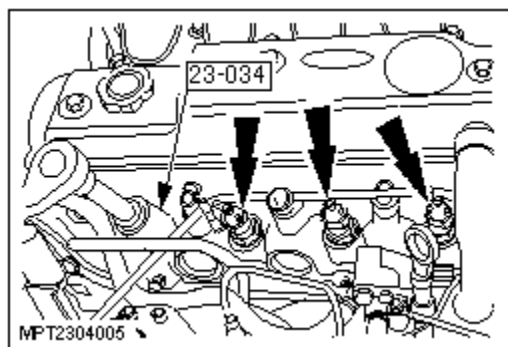
Socket SW 27, injectors
23 - 034

WARNING: This procedure involves fuel handling. Be prepared for fuel spillage at all times and always observe fuel handling precautions.

CAUTION: Diesel fuel injection equipment is manufactured to very precise tolerances and fine clearances. It is therefore essential that absolute cleanliness be observed when working with these components. Always fit blanking plugs to any open orifices or pipes.

Removal

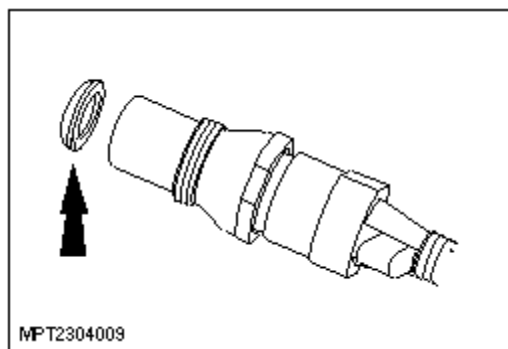
1. Disconnect the battery ground cable.
2. Remove the fuel injector delivery pipes
(refer to procedure contained in this section).

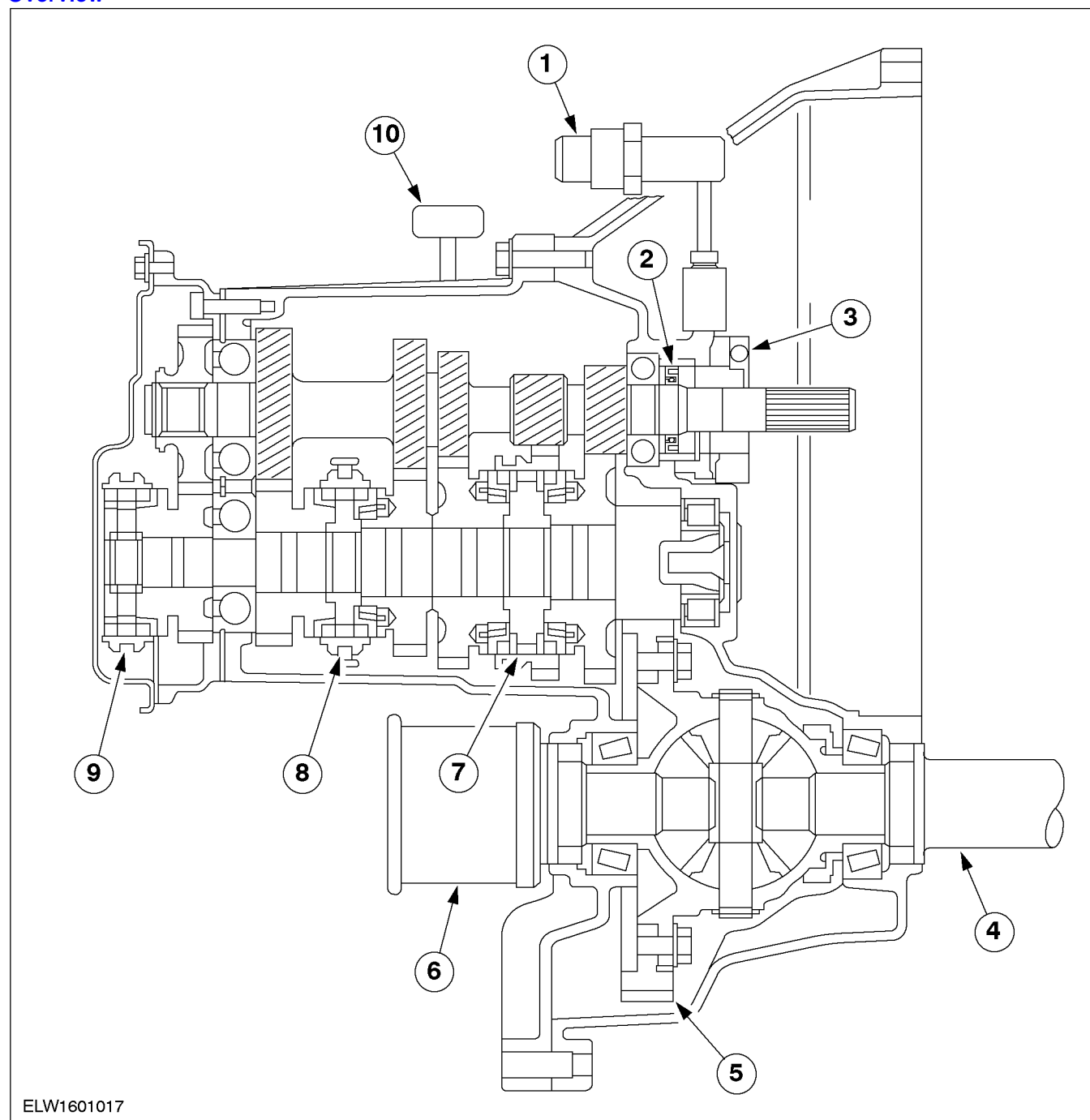


3. **NOTE:** It is normal for the fuel injectors to be very stiff in the threads and considerable effort may be required to remove them.
Remove the fuel injectors.

Installation

1. Refit the components in reverse order.
 - Install new fuel injector copper sealing washers.



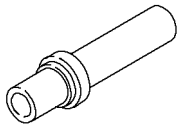
DESCRIPTION AND OPERATION (CONTINUED)**Components of the iB5 Manual Transmission****Overview**

Item	Description
1	Pre-load valve (1 bar) (vehicles built up to build month 08/1999)
2	Oil seal (accessible from the outside)
3	Clutch release bearing (separately renewable)
4	Front drive halfshaft intermediate shaft

Item	Description
5	Crown wheel
6	Tripod housing
7	First/second gear synchronizer clutch
8	Third/fourth gear synchronizer clutch
9	Fifth gear synchronizer clutch
10	Transmission vent

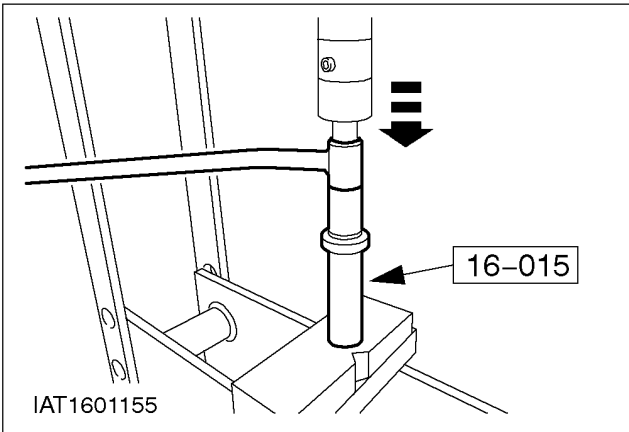
REMOVAL AND INSTALLATION

Gearshift Stabilizer Bar Bushing (16 589 4)

Special Tool(s)	
 16015	Installer
	308-045 (16-015)

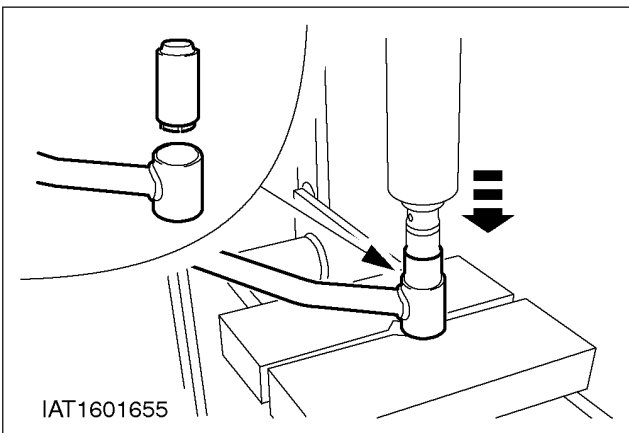
Removal

1. Remove the gearshift mechanism and detach the gearshift stabiliser. For additional information, [refer to Section 308-06](#).
2. Press out the stabiliser bush using a suitable thrust element.



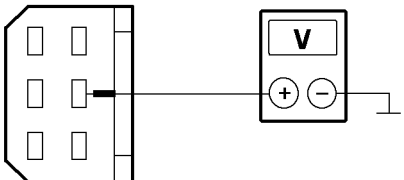

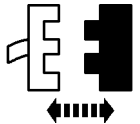
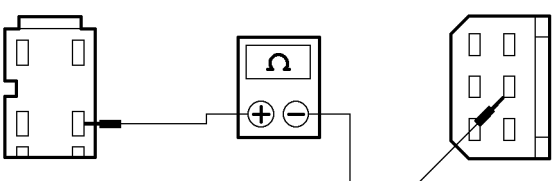
Installation

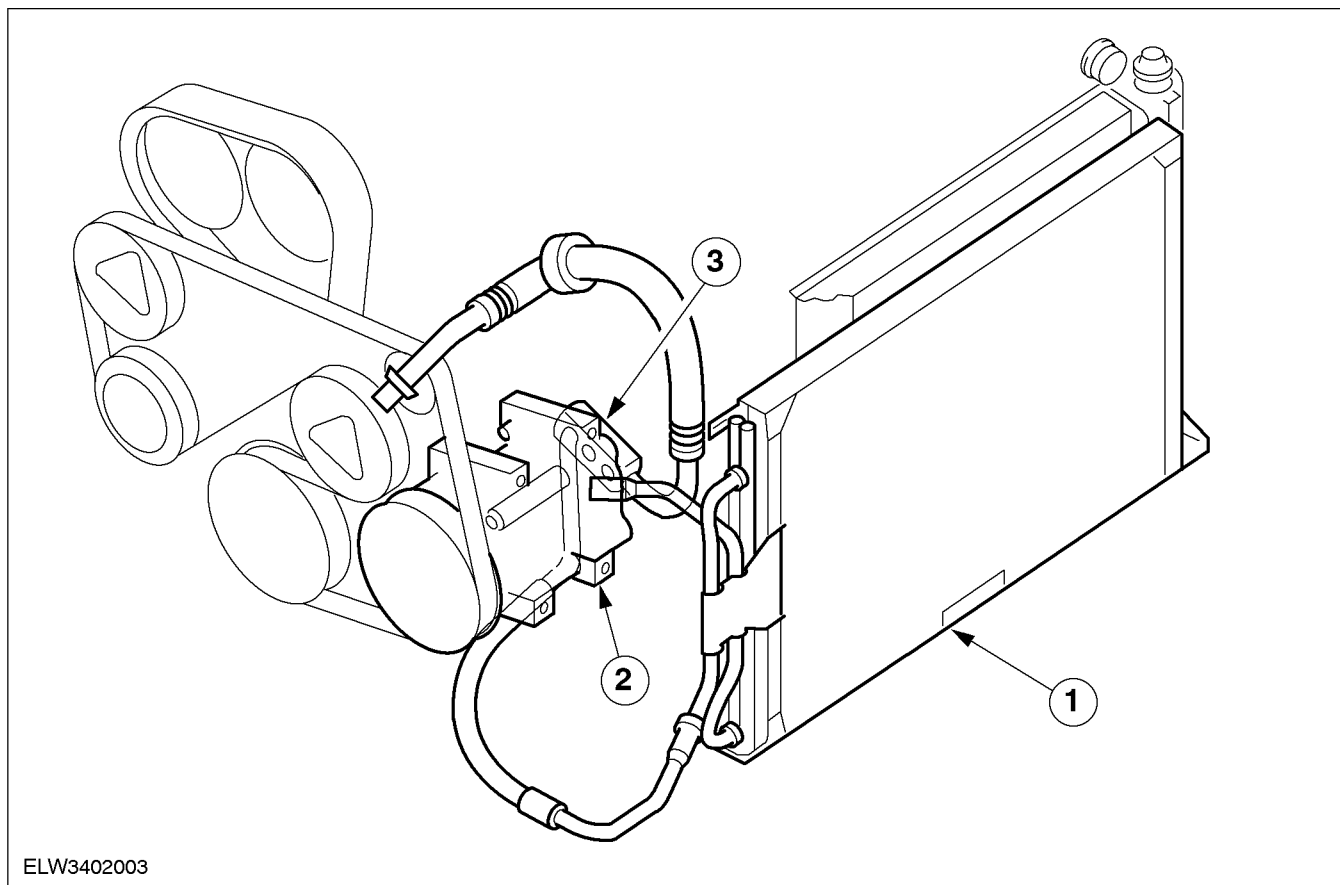
1. **NOTE:** The bush is tapered and can only be inserted from one side.
Press in the stabiliser bush.



2. Fit the gearshift stabiliser and install the gearshift mechanism. For additional information, [refer to Section 308-06](#).

DIAGNOSIS AND TESTING (CONTINUED)

CONDITIONS	DETAILS/RESULTS/ACTIONS
<p>C12: CHECK THE CIRCUIT FOR HEATER BLOWER, LOW SPEED</p>  <p>VFE0023420</p>	<p>1 Measure the voltage between heater blower switch, connector C72, pin 2, circuit 31S-CA31 (BK/YE), harness side and ground.</p> <ul style="list-style-type: none"> • Is battery voltage indicated? <input type="checkbox"/> Yes GO TO C14 <input type="checkbox"/> No GO TO C13
<p>C13: CHECK THE CIRCUIT FOR HEATER BLOWER, LOW SPEED</p> <div style="display: flex; justify-content: space-around; align-items: center;"> <div style="text-align: center;"> <p>1</p>  </div> <div style="text-align: center;"> <p>2</p>  </div> </div> <p style="text-align: center;">Heater blower series resistor C90</p>  <p>ELW3201170</p>	<p>3 Measure the resistance between heater blower series resistor, connector C90, pin 2, circuit 31S-CA31 (BK/YE), harness side and heater blower switch, connector C72, pin 2, circuit 31S-CA31 (BK/YE), harness side.</p> <ul style="list-style-type: none"> • Is the resistance less than 2 ohms? <input type="checkbox"/> Yes CHECK the heater blower series resistor; INSTALL a new one if necessary. TEST the system for normal operation. <input type="checkbox"/> No REPAIR the open circuit(s) between heater blower series resistor and heater blower switch by using the wiring diagrams. TEST the system for normal operation.

DESCRIPTION AND OPERATION (CONTINUED)**Air Conditioning System Components**

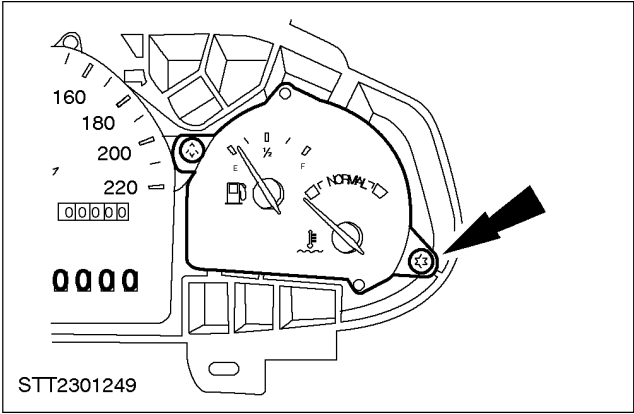
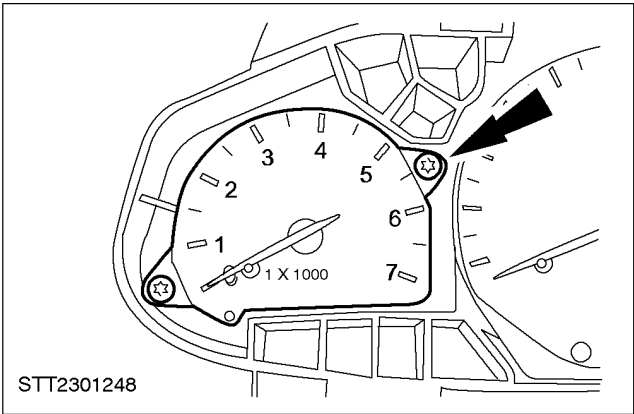
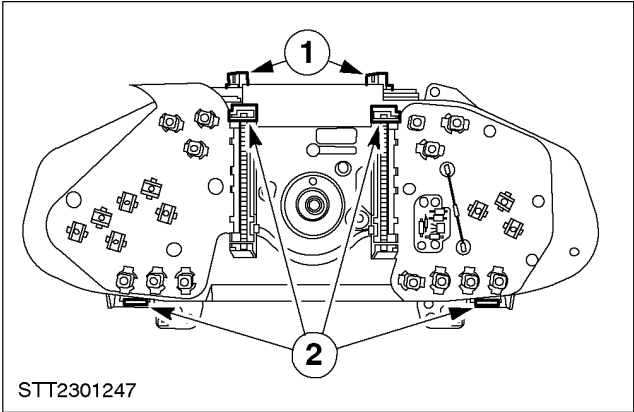
Item	Description
1	Condenser
2	Compressor
3	Compressor line connection

REMOVAL AND INSTALLATION

Instrument Cluster Printed Circuit (33 224 4)

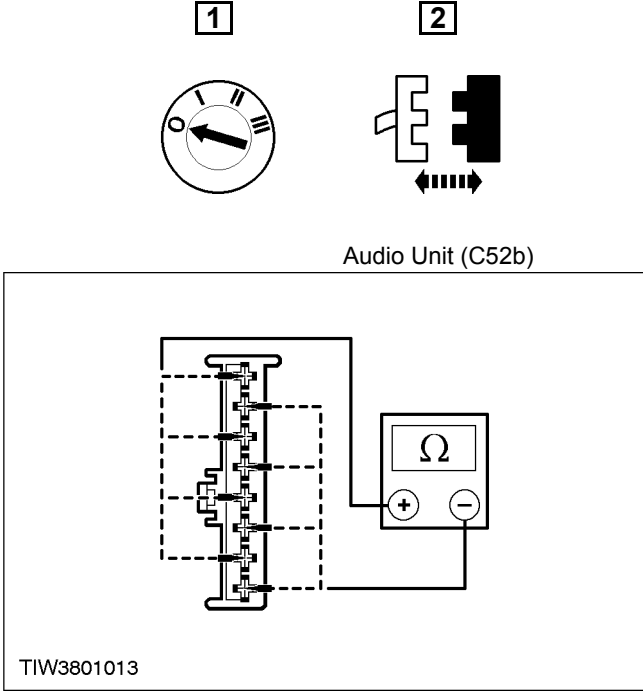
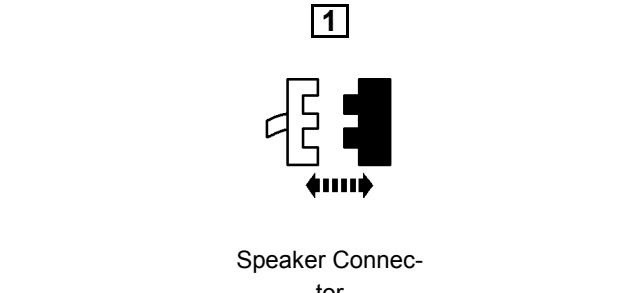
Removal

- 1. Remove the instrument cluster.
Refer to the procedure in this section.
- 2. Remove the lens.
 - 1. Remove the two bulbs.
 - 2. Release the retaining lugs and remove the lens.
- 3. Remove the tachometer.
- 4. Remove the fuel / temperature gauge.

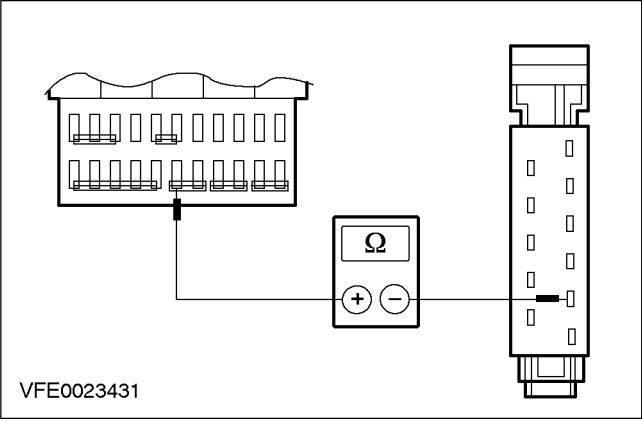


CONTINUED

DIAGNOSIS AND TESTING (CONTINUED)

CONDITIONS	DETAILS/RESULTS/ACTIONS
	<p>3 With the concern evident, use fade/balance control to pinpoint which speaker(s) is affected.</p> <ul style="list-style-type: none"> • Is distortion present only at high volume? <ul style="list-style-type: none"> <input type="checkbox"/> Yes Make sure the customer understands the operation. Use the Audio Guide, supplied with the vehicle. <input type="checkbox"/> No GO TO C2
C2: CHECK THE SPEAKER CIRCUIT RESISTANCE	
<p>1 2</p>  <p>Audio Unit (C52b)</p> <p>TIW3801013</p>	<p>3 Using a digital multimeter, measure the resistance at the audio unit C52b between pins for the appropriate speaker(s).</p> <ul style="list-style-type: none"> - Pin 1; circuit 33-MD10 (YE/BK) and pin 2, circuit 32-MD10 (WH/BK). (LHF) - Pin 3; circuit 33 MD11 (YE/VT) and pin 4, circuit 32-MD11 (WH/VT). (LHR) - Pin 5; circuit 33-MD17 (YE/RD) and pin 6, circuit 32-MD17 (WH/RD). (RHF) - Pin 7; circuit 33-MD18 (YE) and pin 8, circuit 32-MD18 (WH). (RHR) <ul style="list-style-type: none"> • Is the resistance 4.5 ohms (Rated speaker resistance ± 0.5) ? <ul style="list-style-type: none"> <input type="checkbox"/> Yes GO TO C4 <input type="checkbox"/> No If the resistance is higher than 4.5 Ohms, GO TO C3
C3: CHECK THE RESISTANCE OF THE SPEAKER	
<p>1</p>  <p>Speaker Connector</p>	

DIAGNOSIS AND TESTING (CONTINUED)

CONDITIONS	DETAILS/RESULTS/ACTIONS
	<div>2</div> Measure the voltage between fuse F15 (5 A) and ground. <ul style="list-style-type: none">Is battery voltage indicated?<div>YesREPAIR the open circuit(s) between fuse F15 and multifunction switch, by using the wiring diagrams. TEST the system for normal operation.</div><div>NoREPAIR the power supply of fuse F15, by using the wiring diagrams. TEST the system for normal operation.</div>
P4: CHECK THE POWER SUPPLY OF FUSE (S) F6 AND F7	
<div><p>VFE0023431</p></div>	<div>1</div> Measure the resistance between multifunction switch, connector C15a, pin 7, circuit 29S-DB7 (OG/YE), harness side and fuse F6 (5 A) or fuse F7 (5A). <ul style="list-style-type: none">Is the resistance less than 2 ohms?<div>YesCHECK the multifunction switch, according to Component Testing attached to the wiring diagrams. If necessary INSTALL a new one. TEST the system for normal operation.</div><div>NoREPAIR the open circuit(s) between multifunction switch and fuse(s) F6 and F7, by using the wiring diagrams. TEST the system for normal operation.</div>

CONTINUED