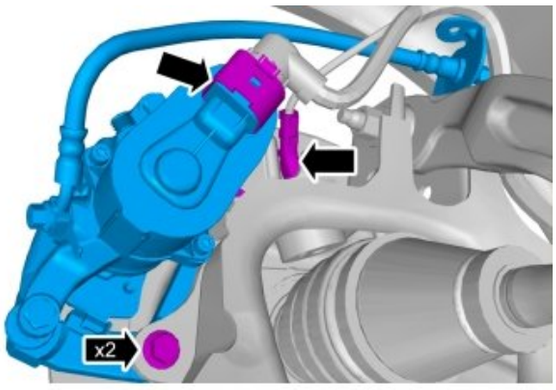
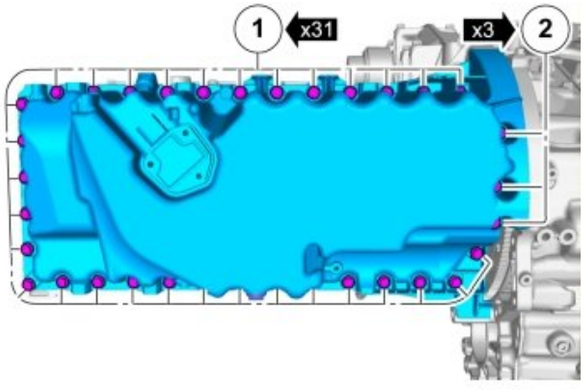
Types of arrows

Identification arrows

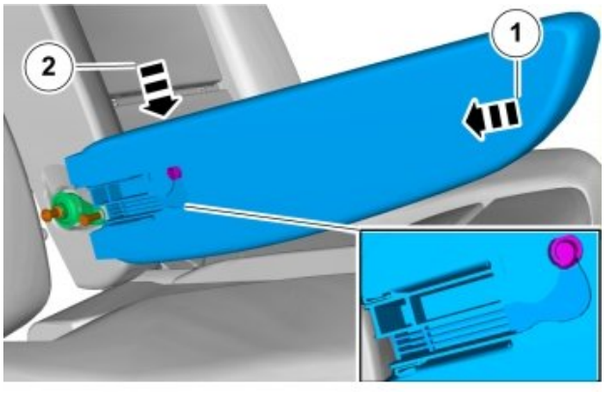


Arrows that identify parts to be removed.
The numbered arrow denotes that they are two screws to be removed to release the brake caliper.



The numbered arrow denotes the number of retaining elements to be removed
All retaining elements embraced by a numbered arrow are of the same type and size.

Movement arrows

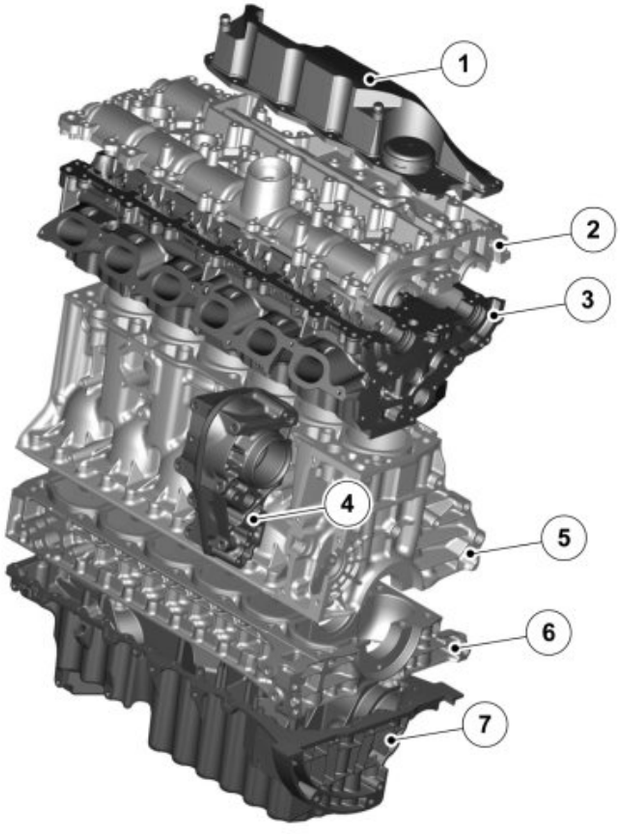


Movement arrows indicate pushing or pulling in the direction of the arrow.
In this instance the movement arrows are numbered to denote the order in which you should push or pull the component.

Engine: Description and Operation
Design and Function

Design and function

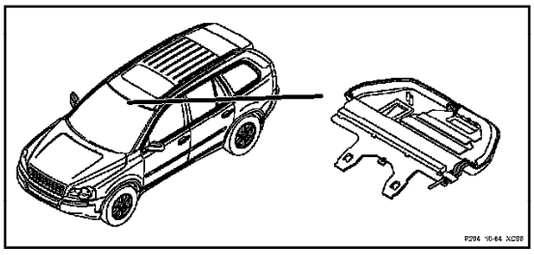
Engine block



Number	Designation	Number	Designation
1	Oil separator	5	Cylinder block
2	Camshaft cover	6	Intermediate section
3	Cylinder head	7	Oil pan
4	Gear housing		

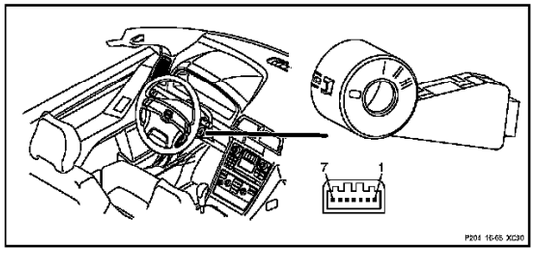
Cylinder head, camshaft bearing housing

16/64 Cellular phone antenna XC90



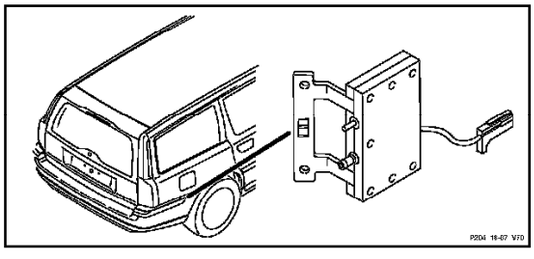
16/64 Cellular Phone Antenna

16/65 Antenna ring/ignition switch lighting XC90



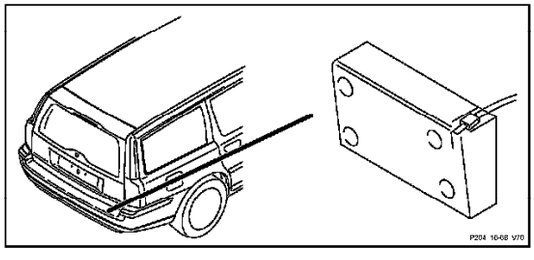
16/65 Antenna Ring/Ignition Switch Lighting

16/67 Amplifier antenna, bumper



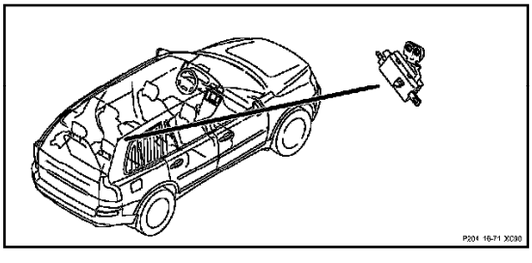
16/67 Amplifier Antenna, Bumper

16/68 Antenna, bumper

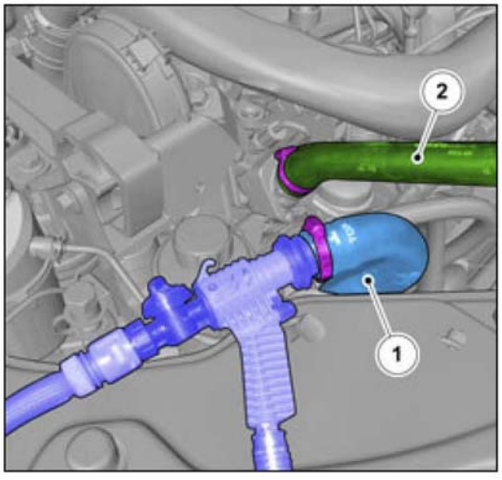


16/68 Antenna, Bumper

16/71 Window antenna amplifier 1, right XC90



16/71 Window Antenna Amplifier 1, Right



11. Connect the cleaning gun to hose (1). Connect the water hose and compressed air to the cleaning gun.
Connect a long hose (2) to the thermostat housing, which extends outside the engine compartment.
Suggestion: use radiator hose 30776224 and 30761633.

    Hot water is recommended. Use skin protection to prevent burns.

    Note! When flushing, the first 20 litres (5.25 gallons) must be flushed out into a container because the fluid contains coolant that must not be flushed out into the drainage network. Flushing can then occur over a flush plate with oil separation.

    Flush the cooling system for at least 10 minutes if hot water is used. If hot water is not available, extend the time to 20 minutes.

12. After flushing, the thermostat, all rubber radiator hoses and the expansion tank with cover must be replaced.

    For thermostat replacement, see VIDA:
    INFORMATION
    REPAIR
    Removal, replacement and installation Engine with mountings and equipment Cooling system Thermostat/temperature sensor coolant, replacement

    To replace radiator hoses and expansion tank, see the spare parts catalogue for the relevant model and engine. There is no method to be followed for the replacement of radiator hoses and expansion tank.

WARRANTY CLAIM INFORMATION

LABOR OP	LABOR DESCRIPTION	LABOR TIME
99703-2	Cooling system, flushing	
	XC90 B6294T	2.6 hrs
	XC90 B5254T2 and 2002 - S60/V70/S80 B52X4T	2.2 hrs
	S80 B6284T/B6294S/B6304S	2.1 hrs
	XC60/V70/XC70/S80 B6324SX and XC90 B6324S	2.0 hrs
	C30/S40/V50/C70 B5254TX, XC60/V70/XC70/S80 B6304T2, and S80 B6294T	1.9 hrs
	C30/S40/V50/C70 B5244S	1.8 hrs
	XC90 B8444S	1.7 hrs
	2003 - S60/V70 B5244S	1.6 hrs
	S60/V70/S80 exc B5244S and B52X4T	1.5 hrs
	S80 B8444S	1.4 hrs

-Claims may be submitted under the new car warranty when there is a documented customer complaint using claim type: 01
-Labor times are valid at the time of release and are subject to change.

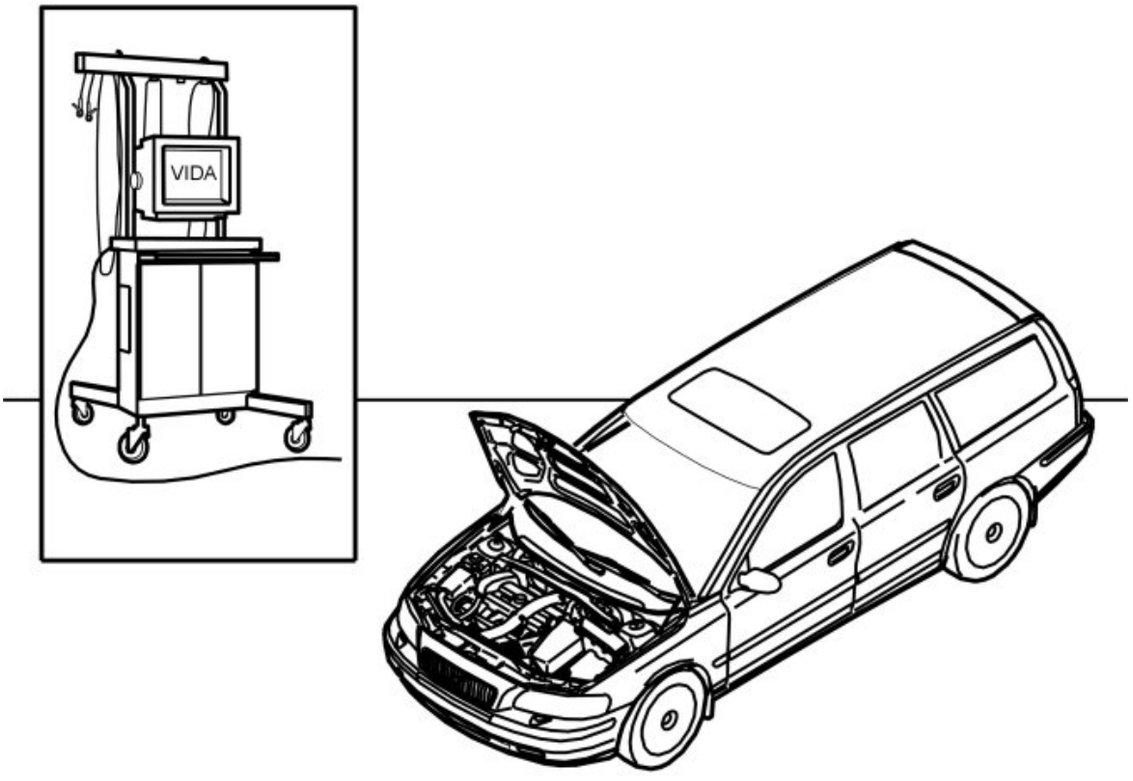
WARRANTY CLAIM INFORMATION Technical Service Bulletin # **TJ21333** Date: **100315**

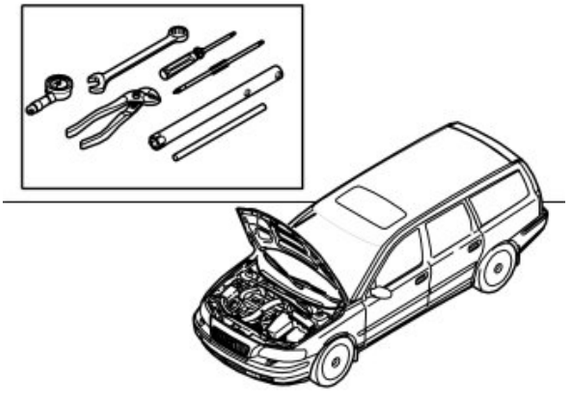
Suspension - Rear Shock Absorber Leakage (Canada)

Retailer Technical Journal 21333
Rear shock absorber,
Leakage at low temperatures
CANADA ONLY!

Date 03-15-2010

Reference: VIDA, VSTG





Continue - Fault-tracing information

Fault-tracing information

Information

Fault-tracing information

In case of this defect, troubleshooting is not followed by verification.
The information can be displayed again or the fault-tracing for this fault can be interrupted.

Do you want to view the information again?

Yes - Attempt New Test

No - Exit Fault-Tracing

Attempt New Test - Fault-tracing information

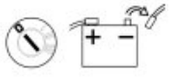
- Fault in the communication circuit in one or more control modules
- Internal fault in a control module on the CAN network that results in the control module transmitting faulty messages on the CAN network.

In the event of a diagnostic trouble code (DTC) for a communication fault in the relevant control module, any diagnostic trouble codes (DTCs) in the central electronic module (CEM) must also be checked. The central electronic module (CEM) monitors the voltage level in the CAN cables. The central electronic module (CEM) is the only control module that can directly store a diagnostic trouble code (DTC) for a short-circuit in one of the cables for ground or supply voltage. Do not replace the central electronic module (CEM) in the event of a CAN fault unless fault-tracing has indicated that the central electronic module (CEM) has an internal fault.
In order to check the control area network (CAN) cables, the resistance in the network must be measured.

Other information

Continue - Taking reading on cable in the CAN network (HS-CAN)

Taking reading on cable in the CAN network (HS-CAN)



- Disconnect the battery negative lead.
- Connect the breakout box with the engine control module (ECM) connected.

Hint: Where a breakout box cannot be used, take readings from the rear of the affected connectors if possible. This prevents terminal pins and socket housings being damaged.

Hint: Use the wiring diagram to provide support when taking readings.

Take resistance readings across the following terminals. Various readings will be obtained due to the structure of the network. Twist the cable harness and work the connectors at accessible points along the cable harness in order to check whether the resistance changes during each measurement. This method can be used to detect intermittent short-circuits or open-circuits.

Note! The following resistance readings only measure the main arteries in the high speed network, not the junctions that exist for some control modules. See the wiring diagram for the relevant car model. If an open-circuit is suspected in a cable, or a short-circuit is suspected in one of its junctions, the connector at the control module for this junction must be disconnected and the reading taken from there.

Take the following readings

- Measure the resistance between the terminals for HS CAN on the Engine control module (ECM). Resistance must be approximately 60 ohms. Permitted values are approximately 55 - 65 ohms.

  Note! If there is a short-circuit somewhere in the CAN-net (either main circuit or other branching) the resistance will be 0 ohms.

- Also measure the resistance between each terminal and supply voltage and ground. The resistance shall be very high (more than 1 MOhms).

Hint: Any short-circuit detected on the CAN-net may be on the main circuit or on any branching running out to some control modules. If a fault is found, try to disconnect the junction with the fault at a point further forward. Try to locate the fault in this way.

Remedy as necessary.

Other information

- Battery, disconnecting See: Starting and Charging/Battery/Service and Repair/Procedures/Battery, Disconnecting
- Connecting the breakout box, B6324S See: Powertrain Management/Computers and Control Systems/Testing and Inspection/Pinout Values and Diagnostic Parameters/Connecting the Breakout Box
- Signal specification, B6324S See: Powertrain Management/Computers and Control Systems/Testing and Inspection/Pinout Values and Diagnostic Parameters/Signal Specification
- Checking wiring and terminals See: Testing and Inspection/Component Tests and General Diagnostics/Checking Wiring and Terminals

Was a fault detected?

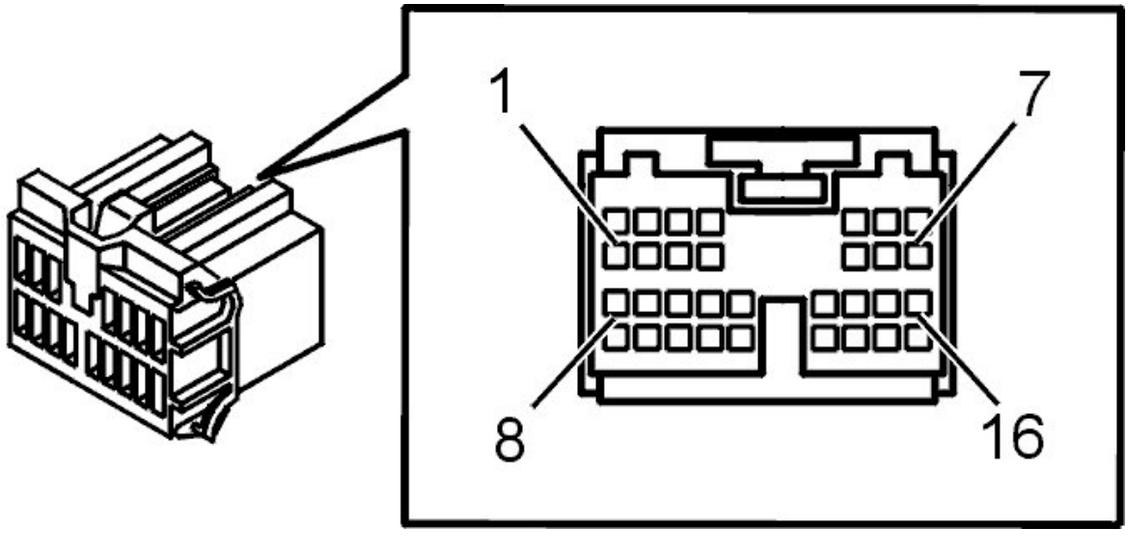
Yes - Verification

No - Checking the traffic load on the CAN cables

Checking the traffic load on the CAN cables

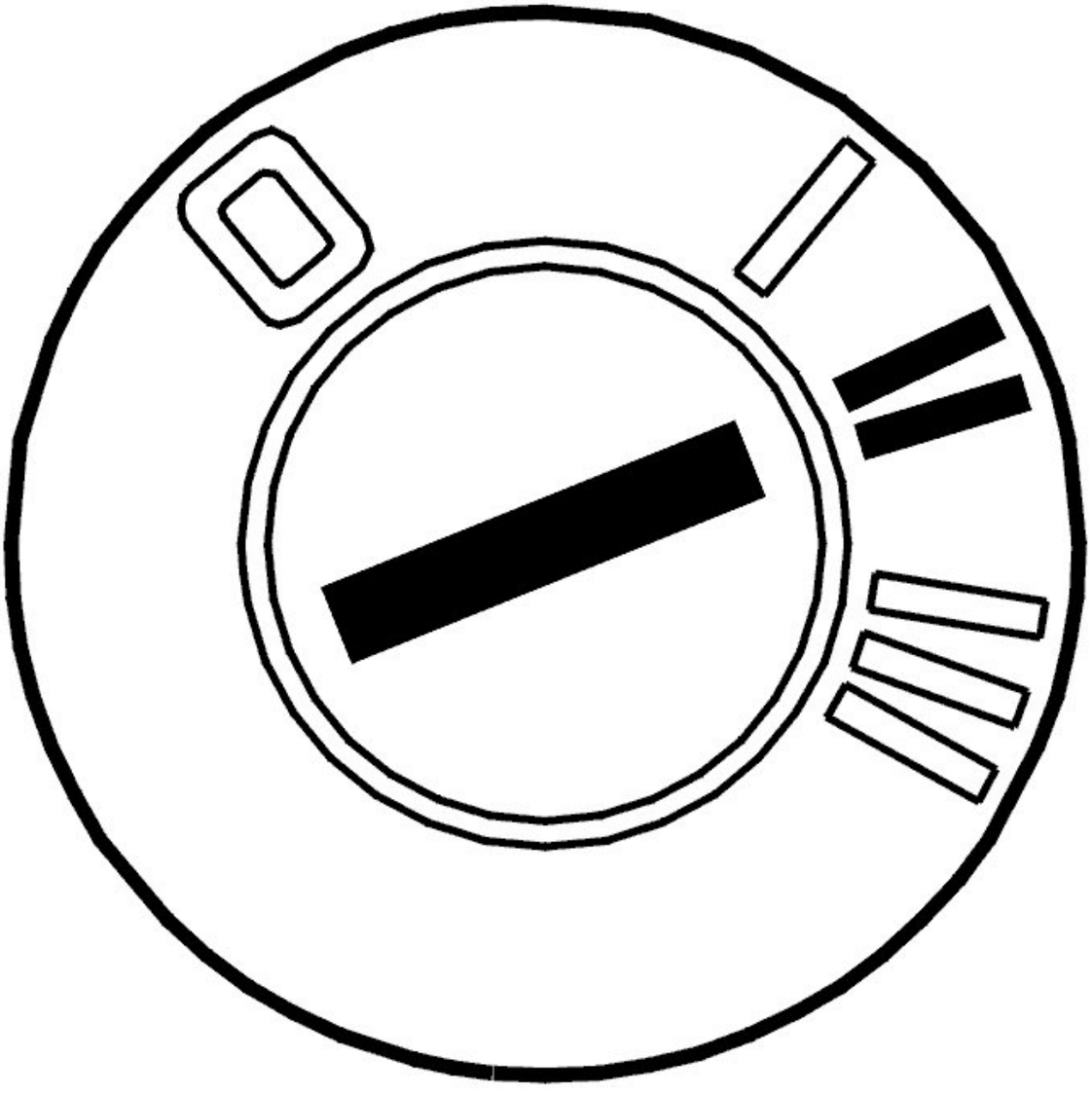
Other information:

- For further information about the connectors, fuses and relays, see the wiring diagram
- To connect the breakout box to the climate control module (CCM), see: Connecting the breakout box See: Heating and Air Conditioning/Testing and Inspection/Pinout Values and Diagnostic Parameters/Connecting the Breakout Box, Climate Control Module (CCM)
- To connect the breakout box, central electronic module (CEM), see: Connecting the breakout box See: Body and Frame/Body Control Systems/Testing and Inspection/Pinout Values and Diagnostic Parameters/Connecting the Breakout Box/Connecting the Breakout Box, Central Electronic Module (CEM)
- Climate control, location of components See: Heating and Air Conditioning/Locations/Climate Control System, Component Location
- Climate control module (CCM), replacing See: Heating and Air Conditioning/Control Module HVAC/Service and Repair
- Central electronic module (CEM), replacing See: Body and Frame/Body Control Systems/Body Control Module/Service and Repair
- Checking wiring and terminals See: Testing and Inspection/Component Tests and General Diagnostics/Checking Wiring and Terminals



Continue - Verification

Checking LIN bus 1 and connector



- Ignition off.

Check the combustion preheater module (CPM) connectors. Check for contact resistance and oxidation. Remedy if necessary.

- Reinstall the components, reconnect the connectors etc.
- Ignition on
- Read off the engine coolant temperature.

Check that the engine coolant temperature (ECT) reading is correct. Compare with the actual coolant temperature of the engine.
If the temperature reading is now OK, the fault was probably caused by poor contact in the connector.

Other information

- To access the control module, see: Connecting the breakout box See: Heating and Air Conditioning/Auxiliary Cabin Heater/Testing and Inspection/Pinout Values and Diagnostic Parameters
- Checking wiring and terminals See: Testing and Inspection/Component Tests and General Diagnostics/Checking Wiring and Terminals



Is the temperature reading OK?

Yes - Verification

No - Checking components and wiring

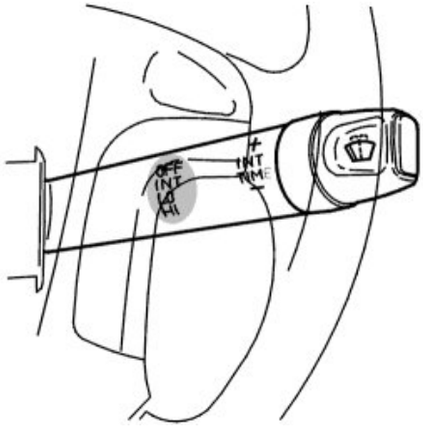
Verification

Attempt New Test - Replacing the windshield wiper switch

Diagnostic Trouble Code (DTC) Information

Diagnostic trouble code (DTC) information CEM-8F41

Condition



The central electronic module (CEM) checks the windshield wipers.
The diagnostic trouble code (DTC) is stored if the central electronic module (CEM) registers that the signal from the relay circuit for the rear washer motor is too high.
The diagnostic trouble code (DTC) can be diagnosed when the ignition is switched on.

Substitute value
- None.

Possible source
- Short-circuit to supply voltage in the relay circuit for the rear washer motor.
- Damaged fuse.

Fault symptom[s]
- Rear windshield washing does not work
- The rear windshield washer motor does not operate.

Signal Too High

Signal too high

Checking the wiring

If the fault is intermittent, it has been registered previously but is no longer present. Intermittent faults can be caused by interference at start up or can be a different type of fault which occurs on different occasions. The fault is evaluated depending on how it occurs.
Check the fuse for the washer motor, replace if necessary.
For further information about the fuses and relays, see the Wiring Diagram
Check the cable between the central electronic module (CEM) and the washer motor. Check for a short-circuit to supply voltage.
Take readings between:
- Central electronic module (CEM) terminal #B29 (#29) and washer motor terminal #2.

Replace the central electronic module (CEM) if no fault is found.

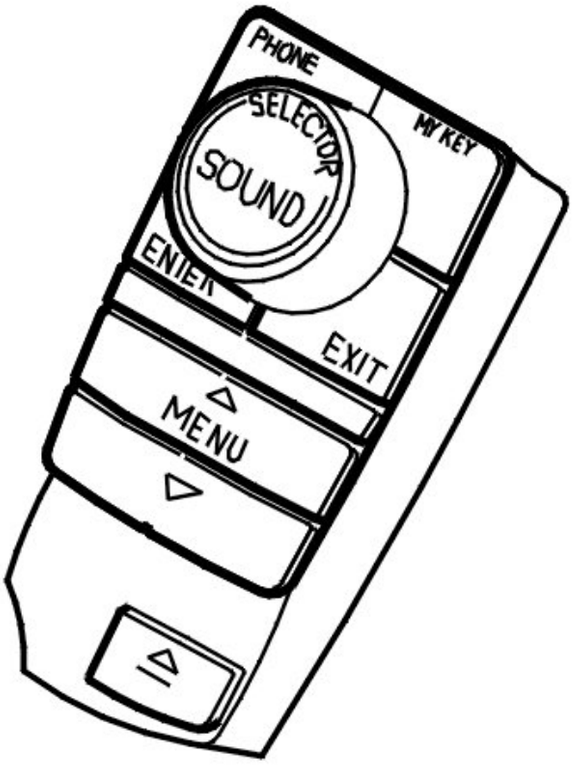
Other information:
- Connecting the breakout box See: Body and Frame/Body Control Systems/Testing and Inspection/Pinout Values and Diagnostic Parameters/Connecting the Breakout Box/Connecting the Breakout Box, Central Electronic Module (CEM)
- Signal specification See: Body and Frame/Body Control Systems/Testing and Inspection/Pinout Values and Diagnostic Parameters/Signal Specification
- Central electronic module (CEM), replacing See: Body and Frame/Body Control Systems/Body Control Module/Service and Repair
- Checking wiring and terminals See: Testing and Inspection/Component Tests and General Diagnostics/Checking Wiring and Terminals

Continue - Verification

Check for loose connections. Check for damage in particular.
Visually check the cable between the keypad and the control module for damage.
If no faults were found, try a new keypad.
Remedy as necessary.

Other information:

- To replace the right-hand keypad, see Infotainment control module (ICM), replacing See: Accessories and Optional Equipment/Entertainment Systems/Entertainment System Control Module/Service and Repair/Infotainment Control Module (ICM), Replacing



Continue - Verification

Verification

Verification

Hint: After carrying out the repair, check that the fault has been remedied.

Fault-tracing information

The fault should have been detected and remedied. As this is not the case fault-tracing has failed.
Exit fault-tracing for this diagnostic trouble code (DTC) or make another attempt.

Do you want to exit fault-tracing?

Yes - Exit Fault-tracing

No - Attempt New Test

Attempt New Test - Checking the component

Diagnostic Trouble Code Information

SRS-0010 Diagnostic trouble code information

Condition



If the control unit registers that the voltage in the circuit is high for more than 10 seconds, diagnostic trouble code SRS-0010 is displayed.

Substitute value
- Nothing.

Possible source
- Short circuit to voltage supply in igniter wire or connectors between the air bag and the supplemental restraint system (SRS) control unit
- Short circuit to voltage supply in air bag
- Short circuit to voltage supply in contact reel.

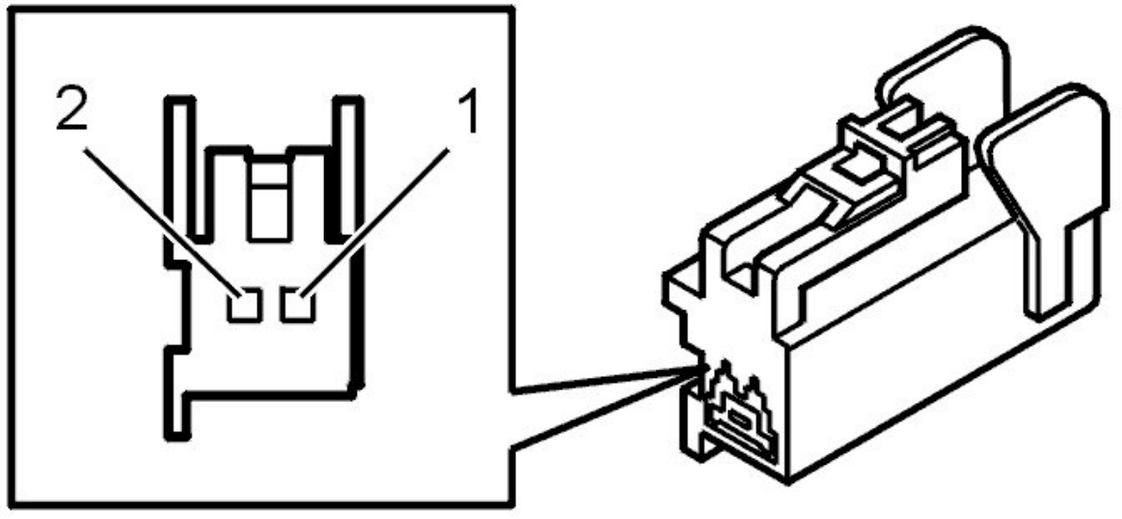
Fault symptom[s]
- SRS warning lamp on.

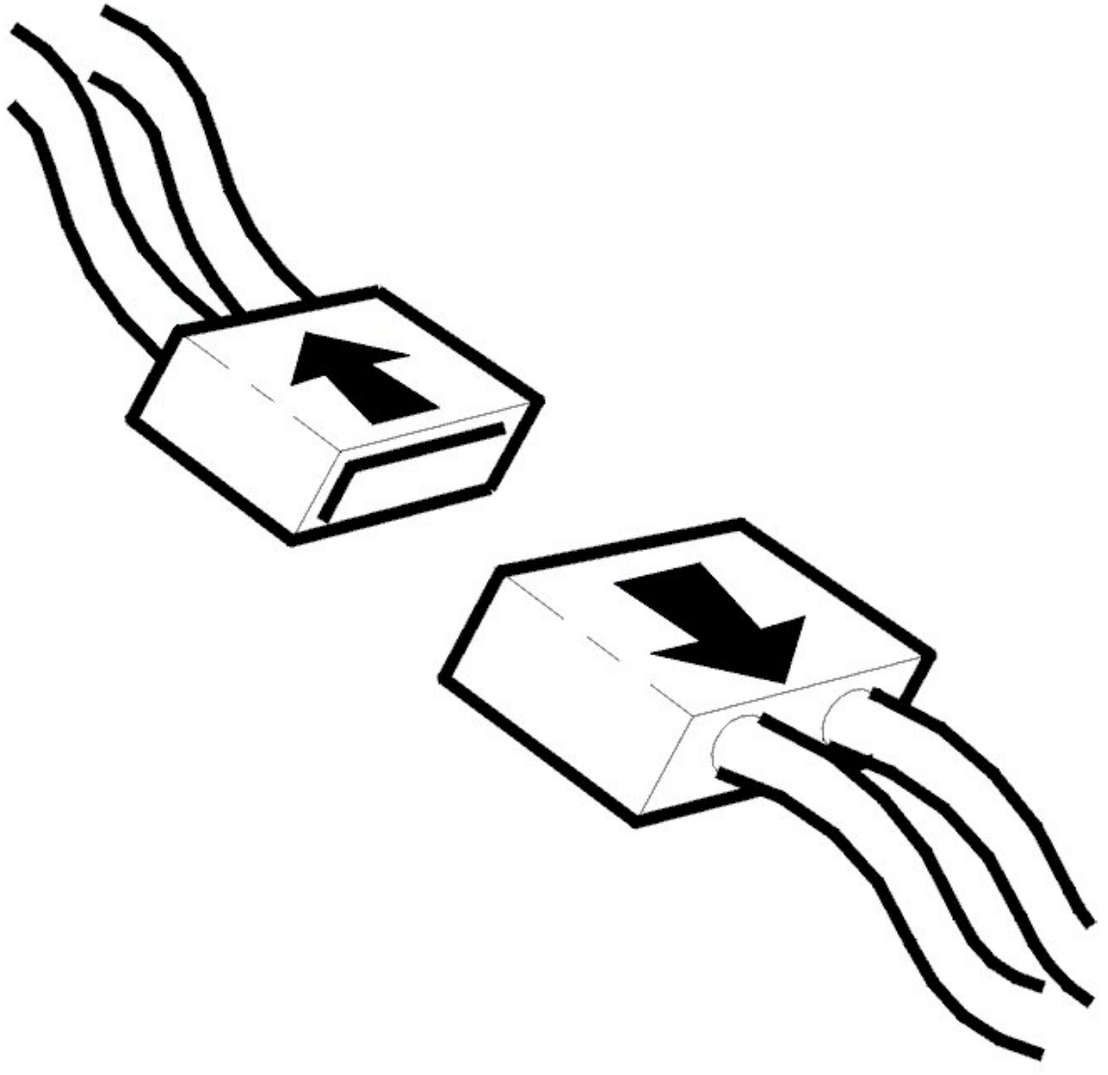
Signal Too High

Check the cable between SRS control module terminal #4C (60) and the 2-pin connector terminal #1 for an intermittent short-circuit to ground according to Checking wiring and terminals. Intermittent faults See: Related Tests, Information and Procedures/Checking Wiring and Terminals.
Check the cable between SRS control module terminal #3C (59) and the 2-pin connector terminal #2. Check for an intermittent short-circuit to ground according to Checking wiring and terminals. Intermittent faults See: Related Tests, Information and Procedures/Checking Wiring and Terminals.
Remedy as necessary.

Other information:

- To access and replace the SRS control module and the connector, see Control module SRS (supplemental restraint system), replacing See: Relays and Modules/Relays and Modules - Restraints and Safety Systems/Air Bag Control Module/Service and Repair
- To connect the breakout box, see Connecting the breakout box See: Restraints and Safety Systems/Air Bag Systems/Testing and Inspection/Pinout Values and Diagnostic Parameters/Connecting the Breakout Box, Supplemental Restraint System Module (SRS)
- With the ignition off and the 2-pin connector disconnected, the resistance between terminals #1 and #2 on the 2-pin connector (SRS control module side) and ground should be infinite
- With the ignition off and the 2-pin connector disconnected, the resistance between terminals #1 and #2 on the 2-pin connector (SRS control module side) should be approximately 22 kOhms.
- For information about the repair of SRS wiring, see Cable harness SRS system, repair See: Restraints and Safety Systems/Air Bag Systems/Air Bag/Air Bag Harness/Service and Repair/Procedures
- For other values, see Signal specification See: Restraints and Safety Systems/Air Bag Systems/Testing and Inspection/Pinout Values and Diagnostic Parameters/Signal Specification.





- Ignition off
- Disconnect the connector from the seat belt tensioner
- Connect special tool 951 1506 Test dummy See: Tools and Equipment/951 1506 Test Dummy to the connector for the seat belt tensioner

Warning! Under no circumstances use an ohmmeter or other live measuring instrument to take readings on a disconnected, non-deployed, pyrotechnical seat belt tensioner. This could deploy the seat belt tensioner!

Note! The special tool must be checked and fault-free. If the tool is defective, the diagnosis readings will be incorrect. This will make fault-tracing harder.

- Switch on the ignition. Wait 10 seconds.

Read off diagnostic trouble codes (DTCs).
Try a new seat belt tensioner if the diagnostic trouble code (DTC) changes status from a permanent to an intermittent fault.

Other information:

- To replace the seat belt tensioner, see Seat belts, replacing See: Restraints and Safety Systems/Seat Belt Systems/Seat Belt/Service and Repair .
- To check the special tool, see Calibration See: Restraints and Safety Systems/Service and Repair/Calibrating the Special Tool.



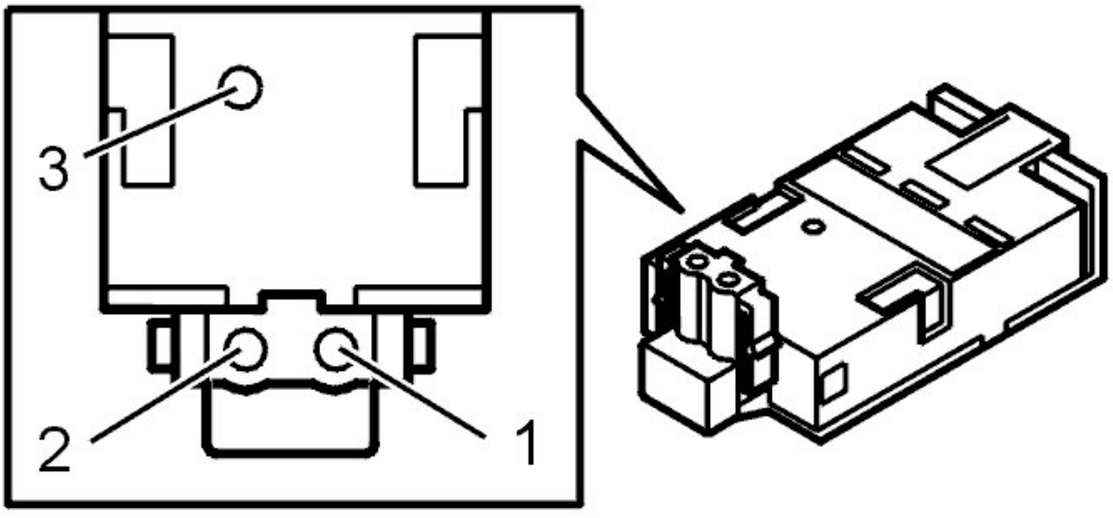
Does the status of the diagnostic trouble code (DTC) change?

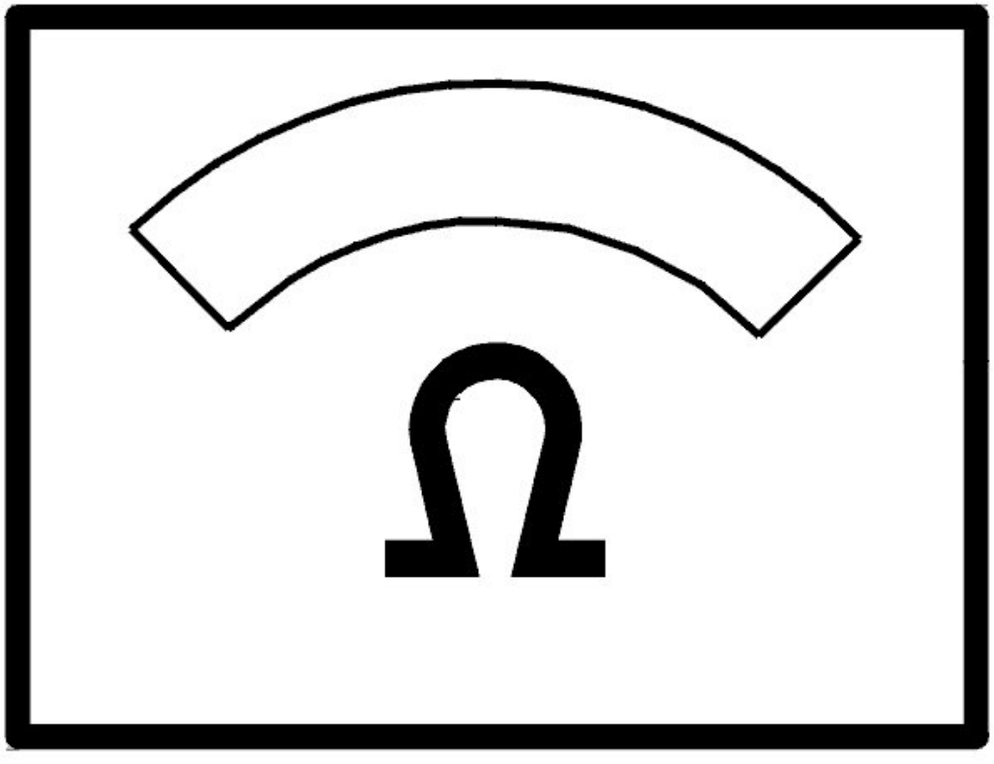
Yes - Verification

No - Checking components and wiring

should be infinite

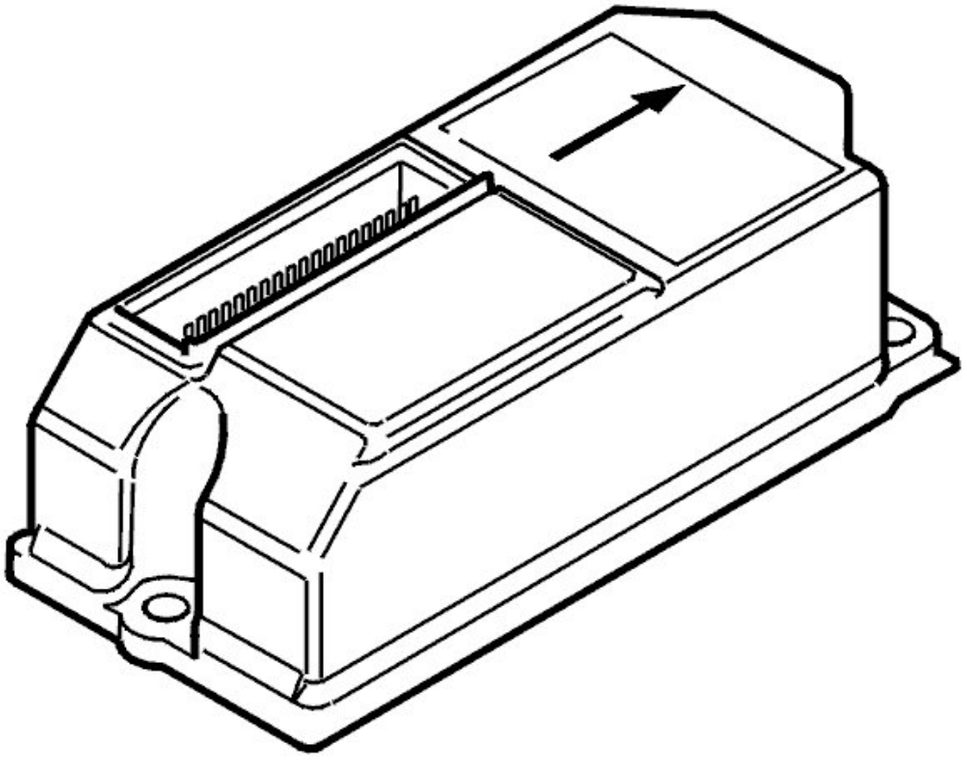
- For information about the repair of SRS wiring, see Cable harness SRS system, repair See: Restraints and Safety Systems/Air Bag Systems/Air Bag/Air Bag Harness/Service and Repair/Procedures
- For information about signals, see Signal specification See: Restraints and Safety Systems/Air Bag Systems/Testing and Inspection/Pinout Values and Diagnostic Parameters/Signal Specification/Signal Specification, Supplemental Restraint System Module (SRS)
- Checking wiring and terminals See: Testing and Inspection/Component Tests and General Diagnostics/Checking Wiring and Terminals.





Select "Continue" when the fault has been remedied.

Continue - Verification



If the self-diagnosis registers a fault in one of the internal functions of the control unit, diagnostic trouble code SRS-011B is displayed.

Possible source
- Internal fault in the supplemental restraint system (SRS).

Fault symptom[s]
- SRS warning lamp on.

Warning! There is a risk that the supplemental restraint system (SRS) will not function if this diagnostic trouble code occurs.

Note! If there is an internal fault the diagnostic trouble code should not be erased but the supplemental restraint system (SRS) control unit should be returned to Volvo.

Internal Fault

Internal fault

Replacing and programming the SRS control module