Your Vehicle: 2010 Audi Q7 Quattro (4LB) V6-3.0L DSL Turbo (CATA)

Engine Coolant Temperature Sensor, Checking

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Observe all safety precautions: => [Safety Precautions] See: Powertrain Management\Computers and Control Systems\Service Precautions\Safety Precautions

View clean working conditions: => [Clean Working Conditions] See: Powertrain Management\Computers and Control Systems\Service Precautions\Clean Working Conditions

Prior to repair work, perform a preliminary check to verify the condition. Refer to => [Preliminary Check] See: Powertrain Management\Computers and Control Systems\Testing and Inspection\Scan Tool Testing and Procedures\Preliminary Check.

Use only gold-plated terminals when servicing any component with gold-plated electrical harness connector terminals.

For wiring diagrams, component locations, and connector views, Refer to the applicable wiring diagram.

Special tools, testers and auxiliary items required

- Generic scan tool
- Multimeter
- Wiring diagram

Test requirements

- The Motronic Engine Control Module (ECM) (J623) fuses OK.
- Battery voltage at least 12.5 volts.
- All electrical consumers such as, lights and rear window defroster, switched off.

- ¤ Vehicles with automatic transmission, shift selector lever into position "P" or "N".
- ¤ A/C switched off.
- ¤ Ground (GND) connections between engine/transmission/chassis OK.
- ¤ Ignition switched off.
- ¤ Engine cold.

Test procedure

Start diagnosis

- Connect the scan tool.
- Switch the ignition on.
- Using the scan tool, check the coolant temperature:

Diagnostic text	Specified value
Coolant temperature	Approx. coolant temperature

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If the specified value is not obtained:

- Continue test according to the following table:

Indicated	Cause	Test
approx. - 40.0° C	Open circuit or short circuit to (B+)	⇒ [Testing if display is approx. - 40.0° C]
approx. 140.0° C	Short circuit to Ground (GND)	⇒ [Testing if display approx. 140.0° C]

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If the specified value was obtained:

- Start the engine and let it run at idle.

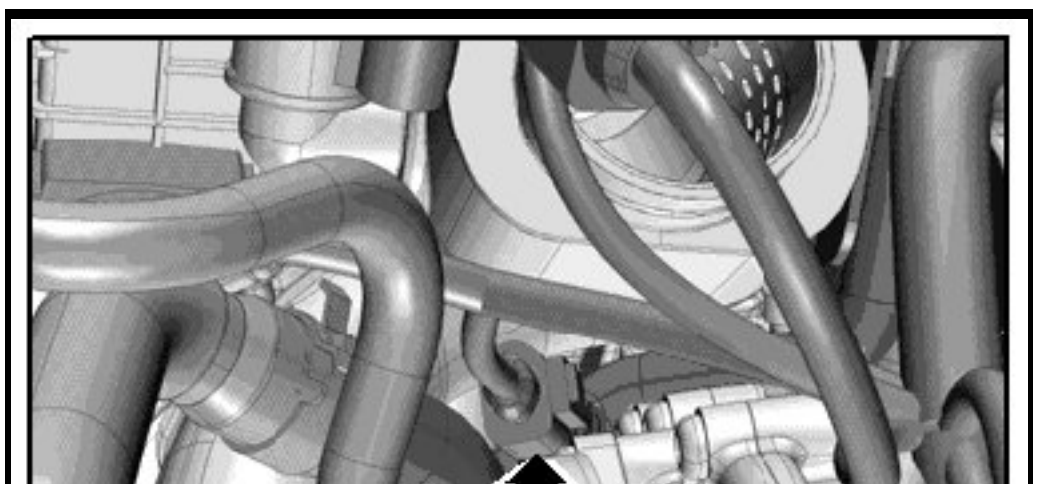
The temperature value must increase uniformly in increments of 1.0°C.

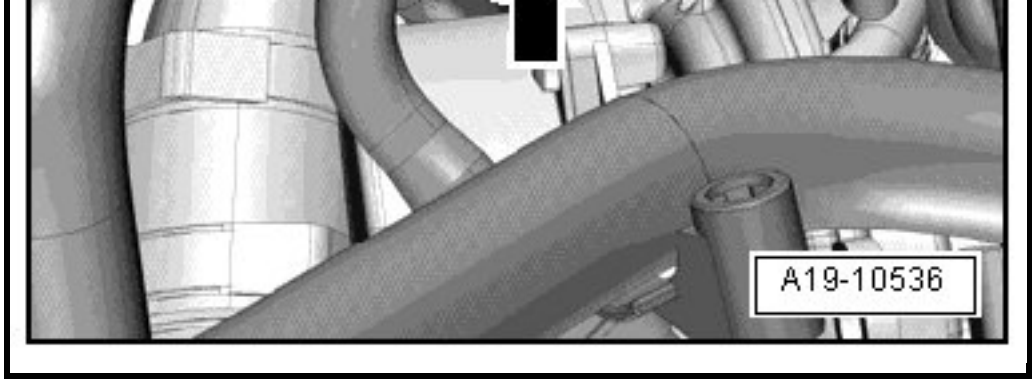
If the engine shows problems in certain temperature ranges and if the temperature does not climb uniformly, the temperature signal is intermittent.

- Replace the the Engine Coolant Temperature (ECT) Sensor (G62). Refer to the appropriate service manual

Checking internal resistance

- Disconnect the Engine Coolant Temperature (ECT) Sensor (G62) electrical harness connector - **arrow** -.





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- Using a multimeter, check the Engine Coolant Temperature (ECT) Sensor (G62) terminals 1 to 2 for resistance.

Use the chart below for the specified values:

Specified values:

ECT Temperature vs Resistance		
Temp (C)	min value ohms	max value ohms
- 40	36816	43714
- 35	28840	33978
- 25	17680	20530
- 15	10940	12534
- 5	6897	7804
0	5535	6226
5	4443	4970
15	2923	3235
25	1978	2167
35	1369	1486

45	965	1039
55	692	738
65	503	533
75	372	392
85	279	292
95	213	223
105	164	172
115	127	134
125	99	106
135	78	84

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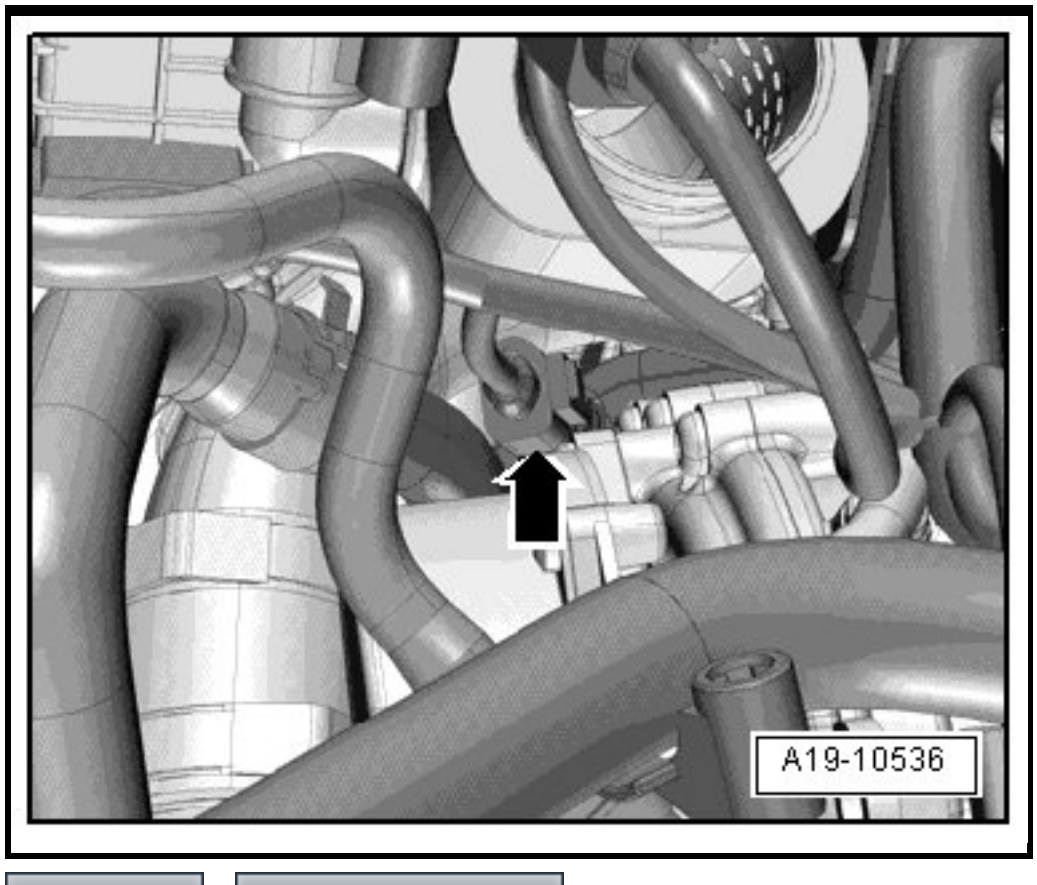
If any of the specified values was not obtained:

- Replace the Engine Coolant Temperature (ECT) Sensor (G62). Refer to appropriate service manual.

°Testing if display is approx. - 40.0 C

- Disconnect the Engine Coolant Temperature (ECT) Sensor (G62) electrical harness connector - **arrow** -.



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- Using a jumper wire, connect the Engine Coolant Temperature (ECT) Sensor (G62) electrical harness connector terminals 1 to 2.
- Check the value indicated on the scan tool display.

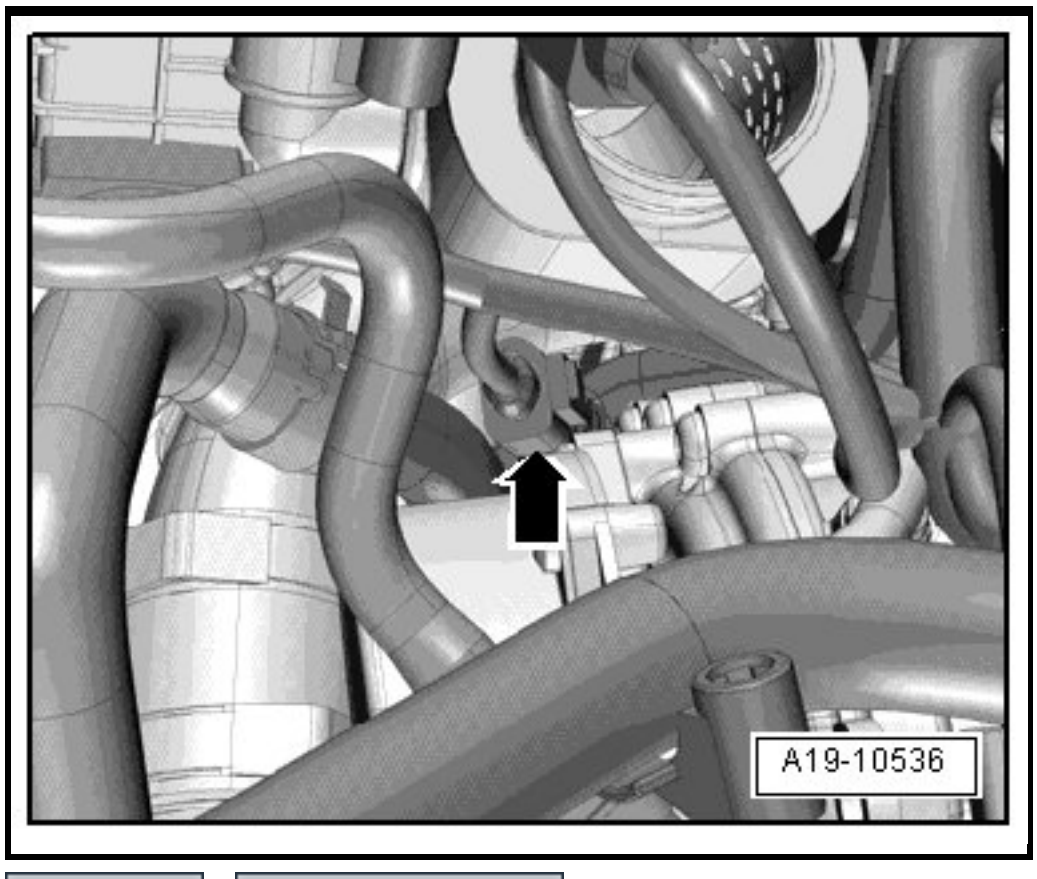
If the value jumps to approx. 140.0°C

- End diagnosis and switch the ignition off.
- Replace the Engine Coolant Temperature (ECT) Sensor (G62). Refer to appropriate service manual.

If indication remains at approx. -40.0°C:

°Testing if display approx. 140.0 C

- Disconnect the Engine Coolant Temperature (ECT) Sensor (G62) electrical harness connector - **arrow** -.



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If indication jumps to approx. -40.0°C:

- End diagnosis and switch ignition off.
- Replace the Engine Coolant Temperature (ECT) Sensor (G62). Refer to appropriate service manual.

If indication remains at approx. 140.0°C:

Checking wiring

If the manufacturers test box is being used, perform the following step.

- Install the test box.

If the manufacturers test box is not being used, perform the following step.

- Remove the Motronic Engine Control Module (ECM) (J623). Refer to appropriate service manual.
- Using a multimeter, check the Engine Coolant Temperature (ECT) Sensor (G62) electrical harness connector terminals to the Motronic Engine Control Module (ECM) (J623) electrical harness connector T105 terminals for an open circuit according to the wiring diagram.

Engine Coolant Temperature (ECT) Sensor (G62) electrical harness connector terminals	Motronic Engine Control Module (ECM) (J623) electrical connector T60 terminals or test box socket
1	14
2	10

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Specified value: 1.5 ohms Max.

If the specification was not obtained:

- Check the wiring for a short circuit to Battery (+), or an open circuit.
- Check the electrical harness connector for damage, corrosion, loose or broken terminals.
- If necessary, repair the faulty wiring connection.

If no malfunction is detected in the wiring:

- Replace the Motronic Engine Control Module (ECM) (J623). Refer to appropriate service manual.

Final procedures

After the repair work, the following work steps must be performed in the following sequence:

1. Check the DTC memory. Refer to => [Diagnostic Mode 03 - Read DTC Memory] See: Powertrain Management\Computers and Control Systems\Testing and Inspection\Scan Tool Testing and Procedures\Diagnostic Modes 01 - 09.
2. If necessary, erase the DTC memory. Refer to => [Diagnostic Mode 04 - Erase DTC Memory] See: Powertrain Management\Computers and Control Systems\Testing and Inspection\Scan Tool Testing and Procedures\Diagnostic Modes 01 - 09.
3. If the DTC memory was erased, generate readiness code. Refer to => [Readiness Code] See: Powertrain Management\Computers and Control Systems\Testing and Inspection\Monitors, Trips, Drive Cycles and Readiness Codes.