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





## Engine Coolant Temperature Sensor on Radiator, Checking

**Engine Coolant Temperature Sensor on Radiator, Checking**

¤ **Cooling system is under pressure.**

¤ **Danger of scalding when opening!**

¤ Use only gold-plated terminals when servicing terminals in the electrical harness connector of Engine Coolant Temperature (ECT) Sensor (on Radiator) (G83).

**Special tools, testers and auxiliary items required**

¤ 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.

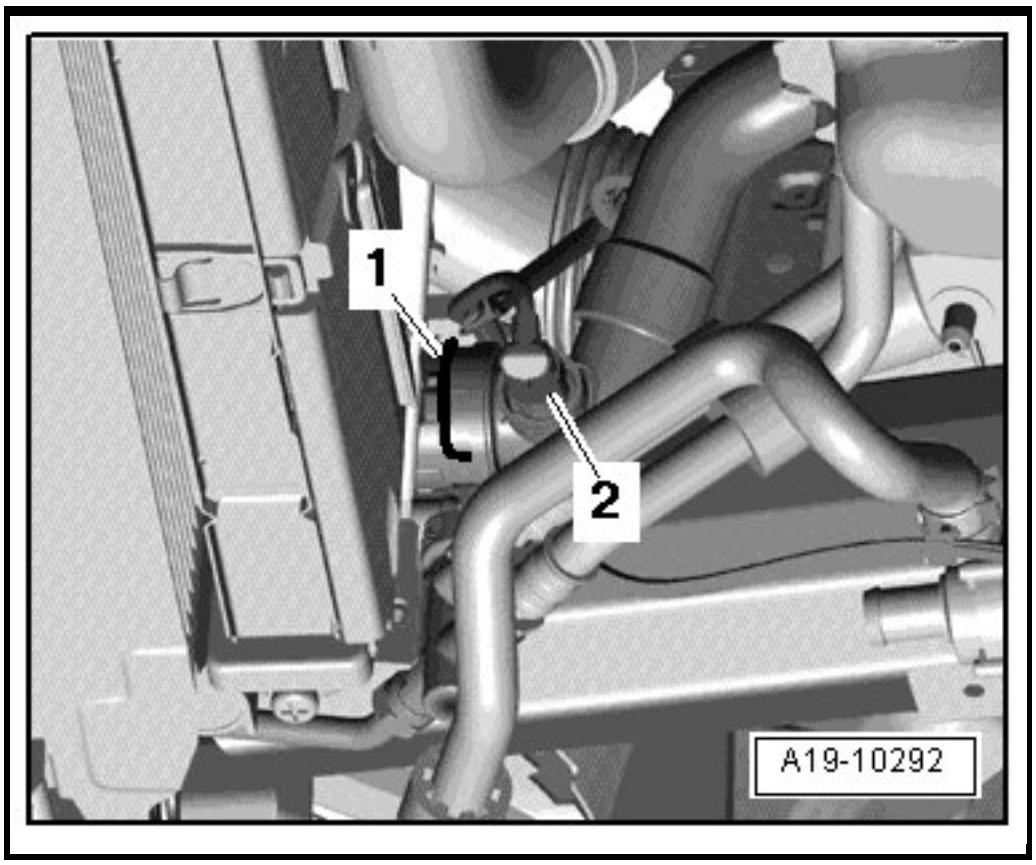
Test procedure

- Perform a preliminary check to verify the customers complaint. Refer to => [ Preliminary Check ] See: Powertrain Management\Computers and Control Systems\Testing and Inspection\Scan Tool Testing and Procedures\Preliminary Check.

Start diagnosis

Checking internal resistance

- Disconnect the Engine Coolant Temperature (ECT) Sensor (on Radiator) (G83) electrical harness connector - ***2*** -.

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- Using a multimeter , check the Engine Coolant Temperature (ECT) Sensor (on Radiator) (G83) 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 (on Radiator) (G83). Refer to the appropriate service manual.

If any of the specified values was obtained:

Checking wiring

If the manufacturers test box is being used. Perform the following step.

- Install the test box. Refer to the appropriate service manual.

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

- Remove the Motronic Engine Control Module (ECM) (J623). Refer to the appropriate service manual.
- Using a Multimeter , check the Engine Coolant Temperature (ECT) Sensor (on Radiator) (G83) 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 (on Radiator) (G83) electrical harness connector terminals | Motronic Engine Control Module (ECM) (J623) electrical connector T105 terminals or test box socket |
|---|---|
| 1 | 30 |
| 2 | 9 |

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Specified value: 1.5 ohms Max.

If the specification was not obtained:

- Check the wiring for a short circuit to each other, Battery (+), and Ground (GND).
- 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 the appropriate service manual.

Final procedures

After 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.