

Audi > C5 > 1998-2005

**2.8 Liter V6 5V Generic Scan Tool, Engine Code(s): AHA, ATQ
24 - Components, Checking**

Engine Coolant Temperature Sensor, Checking

Engine Coolant Temperature Sensor, Engine Code ATQ

CAUTION!

- ◆ **Cooling system is under pressure.**
- ◆ **Danger of scalding when opening!**

Note:

- ◆ *Use only gold-plated terminals when servicing terminals in the electrical harness connector of Engine Coolant Temperature (ECT) Sensor G62 .*

Special tools, testers and auxiliary items required

- ◆ Multimeter .
- ◆ jumper wire .
- ◆ Wiring diagram.

Test requirements

- ◆ The Engine Control Module (ECM) J220 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](#)

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

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+)	
approx. 140.0 °C	Short circuit to Ground (GND)	

If the specified value was obtained:

- Start the engine and let it run at idle.

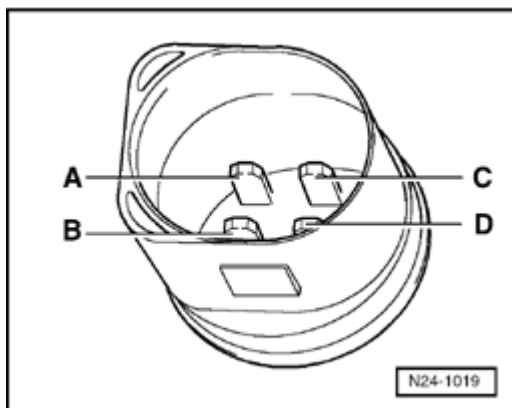
The temperature value must increase uniformly in increments of 1.0 degree C.

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 .

Checking internal resistance

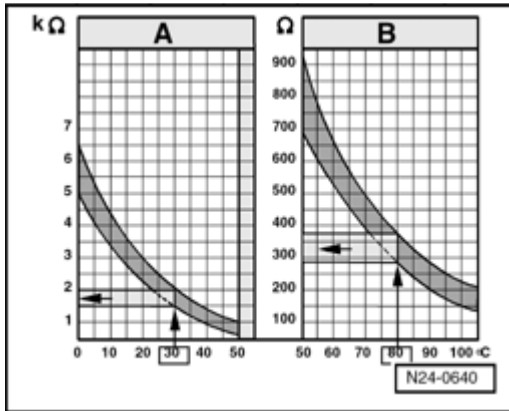
- Disconnect the Engine Coolant Temperature (ECT) Sensor G62 electrical harness connector.



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

Use the chart below for the specified values:

- * Area A: Resistance values 0 to 50 degree C.
- * Area B: Resistance values 50 to 100 degree C.



Specified values:

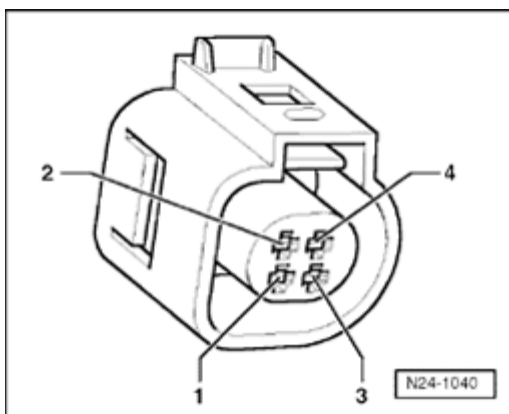
- * Range A, 30 degree C equals a resistance of 1.5 to 2.0 kΩ
- * Range B, 80 degree C equals a resistance of 275 to 375Ω

If any of the specified values was not obtained:

- Replace the Engine Coolant Temperature (ECT) Sensor G62 .

Testing if display is approx. - 40.0 degree C:

- Disconnect the Engine Coolant Temperature (ECT) Sensor G62 electrical harness connector .
- 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 degree C

- End diagnosis and switch the ignition off.
- Replace the Engine Coolant Temperature (ECT) Sensor G62 .

If indication remains at approx. -40.0 degree C:

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Testing if display approx. 140.0 degree C:

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

If indication jumps to approx. -40.0 degree C:

- End diagnosis and switch ignition off.
- Replace the Engine Coolant Temperature (ECT) Sensor G62 .

If indication remains at approx. 140.0 degree C:

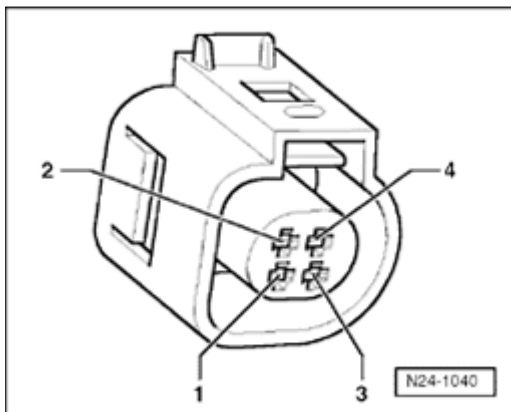
Checking wiring

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

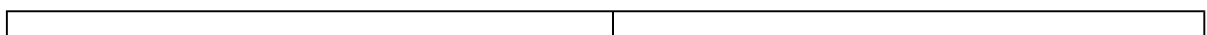
- Install the Test Box 105 Pin VAG1598/31 (Engine Code ATQ) Test Box 80 Pin VAG1598/22 (Engine Code AHA). Refer to ⇒ Fuel Injection and Ignition - Repair Group 01 .

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

- Remove the Engine Control Module (ECM) J220 . Refer to ⇒ [Engine Control Module, Replacing](#) .



- Using a Multimeter , check the Engine Coolant Temperature (ECT) Sensor G62 electrical harness connector terminals to the Engine Control Module (ECM) J220 electrical harness connector T121 terminals for resistance.



Engine Coolant Temperature (ECT) Sensor G62 electrical harness connector terminals	Engine Control Module (ECM) J220 electrical connector 121 terminals or test box socket
3	108
4	93

Specified value: 1.5 Ω 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:

- Erase the DTC memory. Refer to [⇒ Diagnostic Mode 04 - Erase DTC Memory](#)
- Perform a road test to verify repair.

If the DTC does not return:

Repair complete, Generate readiness code. Refer to [⇒ Readiness Code](#) .

- End diagnosis.

If the DTC does return and no malfunction is detected in the wiring and the voltage supply was OK:

- Replace the Engine Control Module (ECM) J220 . Refer to [⇒ Engine Control Module, Replacing](#) .
- Assembly is performed in the reverse of the removal.

Final procedures

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

1. Check the DTC memory. Refer to .
2. If necessary, erase the DTC memory. Refer to .
3. If the DTC memory was erased, generate readiness code. Refer to .

End of diagnosis.

Engine Coolant Temperature Sensor, Engine Code AHA

CAUTION!

- ◆ **Cooling system is under pressure.**
- ◆ **Danger of scalding when opening!**

Note:

- ◆ *Use only gold-plated terminals when servicing terminals in the electrical harness connector of Engine Coolant Temperature (ECT) Sensor G62 .*

Special tools, testers and auxiliary items required

- ◆ Multimeter .
- ◆ jumper wire .
- ◆ Wiring diagram.

Test requirements

- ◆ The Engine Control Module (ECM) J220 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](#)

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

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+)	
approx. 140.0 °C	Short circuit to Ground (GND)	

If the specified value was obtained:

– Start the engine and let it run at idle.

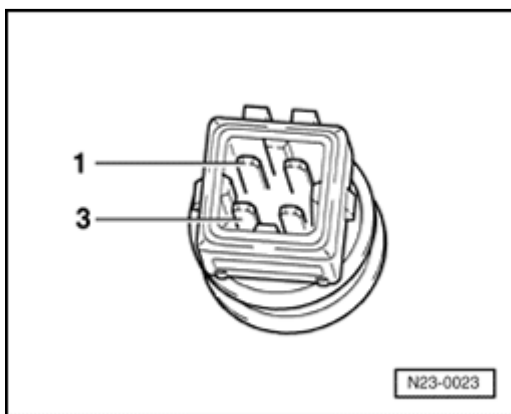
The temperature value must increase uniformly in increments of 1.0 degree C.

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 .

Checking internal resistance

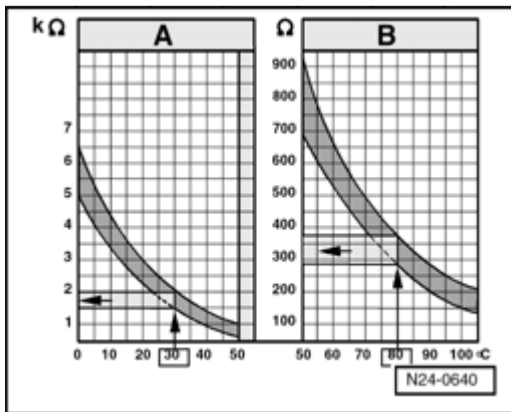
– Disconnect the Engine Coolant Temperature (ECT) Sensor G62 electrical harness connector.



– Using a multimeter , check the Engine Coolant Temperature (ECT) Sensor G62 terminals 1 to 3 for resistance.

Use the chart below for the specified values:

- ◆ Area A: Resistance values 0 to 50 degree C.
- ◆ Area B: Resistance values 50 to 100 degree C.



Specified values:

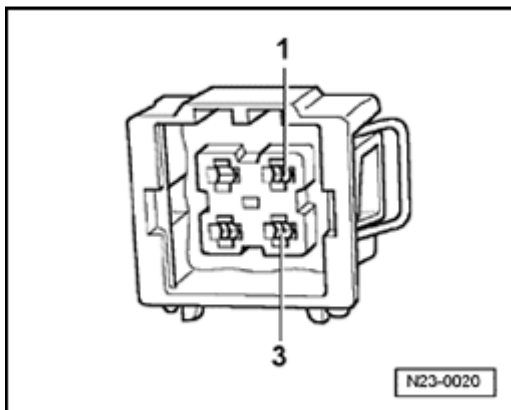
- ◆ Range A, 30 degree C equals a resistance of 1.5 to 2.0 $k\Omega$
- ◆ Range B, 80 degree C equals a resistance of 275 to 375 Ω

If any of the specified values was not obtained:

- Replace the Engine Coolant Temperature (ECT) Sensor G62 .

Testing if display is approx. - 40.0 degree C:

- Disconnect the Engine Coolant Temperature (ECT) Sensor G62 electrical harness connector.
- Using a jumper wire , connect the Engine Coolant Temperature (ECT) Sensor G62 electrical harness connector terminals 1 to 3.



- Check the value indicated on the scan tool display.

If the value jumps to approx. 140.0 degree C

- End diagnosis and switch the ignition off.
- Replace the Engine Coolant Temperature (ECT) Sensor G62 .

If indication remains at approx. -40.0 degree C:

Testing if display approx. 140.0 degree C:

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

If indication jumps to approx. -40.0 degree C:

- End diagnosis and switch ignition off.
- Replace the Engine Coolant Temperature (ECT) Sensor G62 .

If indication remains at approx. 140.0 degree C:

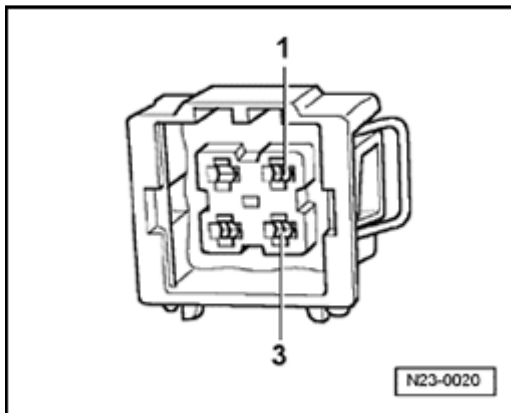
Checking wiring

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

- Install the Test Box 105 Pin VAG1598/31 (Engine Code ATQ) Test Box 80 Pin VAG1598/22 (Engine Code AHA). Refer to ⇒ Fuel Injection and Ignition - Repair Group 01 .

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

- Remove the Engine Control Module (ECM) J220 . Refer to ⇒ [Engine Control Module, Replacing](#) .



- Using a Multimeter , check the Engine Coolant Temperature (ECT) Sensor G62 electrical harness connector terminals to the Engine Control Module (ECM) J220 electrical harness connector T80 terminals for resistance.

Engine Coolant Temperature (ECT) Sensor G62 electrical harness connector terminals	Engine Control Module (ECM) J220 electrical connector 80 terminals or test box socket
1	53
3	67

Specified value: 1.5 Ω 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:

- Erase the DTC memory. Refer to ⇒ [Diagnostic Mode 04 - Erase DTC Memory](#)
- Perform a road test to verify repair.

If the DTC does not return:

Repair complete, Generate readiness code. Refer to ⇒ [Readiness Code](#) .

- End diagnosis.

If the DTC does return and no malfunction is detected in the wiring and the voltage supply was OK:

- Replace the Engine Control Module (ECM) J220 . Refer to ⇒ [Engine Control Module, Replacing](#) .
- Assembly is performed in the reverse of the removal.

Final procedures

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End of diagnosis.