

Thermostat: Testing and Inspection

Electrical Test

CAUTION: Always vent the exhaust to the outside when performing this test.

NOTE: The electrical thermostat test is most accurate if performed indoors at less than 37.8°C (100°F) ambient air. This test may be performed with or without the hood open and with the engine warm or cold.

1. Check the engine coolant level. Fill as needed.
2. With the ignition OFF, remove the Engine Coolant Temperature (ECT) sensor harness connector and attach ECT Sensor "T" Cable as a jumper between the Powertrain Control Module (PCM) and the ECT Sensor. Attach the 73 Digital Multimeter to the ECT Sensor "T" Cable. Voltage values (0-5 V) may now be monitored while the sensor retains its connection to the wiring harness.

New Generation Star (NGS) Tester or the Service Bay Diagnostic System (SBDS) may be used to monitor the ECT on vehicles equipped with Data Link Connector (DLC). The SBDS sequence to use for the screen is:

Toolbox-Electronic Engine Control and DCL-Item.

3. Place the transmission in PARK (P) or NEUTRAL (N)

NOTE: Running this test with the vehicle in gear or with the A/C compressor clutch engaged (running) will cause improper diagnosis.

4. Start the engine and allow the engine to idle throughout this test. Allow the engine to run for 2 minutes, then record the ECT voltage. Record the ECT voltage every 60 seconds. When the ECT voltage trend changes direction or only changes slightly (0.03 voltage or less) from the previous reading, record this as the thermostat opening voltage. Use the voltage and corresponding coolant temperature chart listed below.

Coolant Temperature °C (°F)	ECT (Volts)
22 (71)	3.00
43 (109)	2.01
71 (159)	1.01
82 (180)	0.75
91 (195)	0.059
97 (206)	0.050
105 (221)	0.040

5. If the thermostat opening voltage is greater than **0.75 volts** and less than **82°C (180°F)**, replace the water thermostat.
6. If the thermostat opening voltage is less than **0.75 volts** and greater than **82°C (180°F)**, the water thermostat is good and should not be replaced.