

GENERIC · POWERTRAIN

P0598

OBD-II TROUBLE CODE

P0598

Thermostat Heater Control Circuit Low

P0598 indicates that the powertrain control module (PCM) has detected a low-voltage condition on the control circuit for the thermostat heater, which is a small heating element built into the thermostat housing on many modern vehicles. The PCM commands the heater on to speed engine warm-up and improve emissions, but the circuit is showing voltage below the expected threshold, so the heater may not be functioning.

SYSTEM	CODE TYPE	SEVERITY	FIX DIFFICULTY	AREA
Powertrain	Generic (all makes)	Low	Intermediate	Vehicle speed, idle control and auxiliary inputs

Symptoms you may notice

- Illumination of the check engine light, often with no other noticeable symptoms
- Longer than normal engine warm-up time, especially in cold weather
- Engine coolant temperature gauge may rise more slowly than usual
- Possible decrease in fuel economy due to extended cold-start enrichment
- In rare cases, the engine may not reach full operating temperature, affecting heater performance

Common causes, most likely first

- 1 Open or high-resistance wiring in the thermostat heater control circuit, such as a broken wire or corroded connector
- 2 Failed thermostat heater element (open circuit inside the thermostat housing)
- 3 Poor electrical connection at the thermostat heater connector, including loose pins or water intrusion
- 4 Short to ground in the control circuit, causing low voltage at the PCM
- 5 Faulty powertrain control module (PCM) driver for the thermostat heater circuit, though this is less common
- 6 Blown fuse or relay supplying power to the thermostat heater circuit (if applicable to the vehicle design)



How to diagnose and fix it

- 1 Use a scan tool to verify the code and check for any related codes in the powertrain system
- 2 Visually inspect the thermostat heater connector and wiring for damage, corrosion, or loose pins
- 3 Measure resistance of the thermostat heater element with a multimeter and compare to the manufacturer's specification
- 4 Check for voltage on the control circuit at the thermostat heater connector with the key on and the PCM commanding the heater on
- 5 Perform a voltage drop test on the ground circuit and power supply to the thermostat heater
- 6 If the circuit and heater test good, diagnose the PCM driver circuit or substitute a known-good PCM for testing
- 7 Replace the faulty thermostat heater assembly or repair the wiring as needed, then clear the code and verify the repair

What a Low Thermostat Heater Circuit Really Means

- A low-voltage code on the thermostat heater circuit often results from a poor ground connection rather than a failed heater element, so always check ground points before condemning parts.
- Some vehicles use the thermostat heater to control coolant flow and engine temperature, so a failure can cause the engine to run cooler than intended, increasing wear and emissions.
- The thermostat heater is sometimes integrated into the thermostat housing and not sold separately, making the repair more costly than expected.
- A code P0598 can be set by a momentary glitch in the circuit, so always check for intermittent connections and review freeze-frame data before replacing components.
- Do not confuse this code with P0597 (thermostat heater control circuit open) or P0599 (high voltage); each points to a different electrical fault in the same circuit.

Can I keep driving with P0598?

The vehicle is safe to drive with this code because the thermostat heater only affects warm-up speed and emissions, not immediate engine operation. Avoid extended idling in cold weather and have the circuit inspected soon to prevent potential long-term effects on fuel economy and emissions.

Tools that help

- OBD-II scan tool
- Digital multimeter
- Wire probe set
- Service manual with wiring diagrams
- Basic hand tools (sockets, ratchets, screwdrivers)



Reading P0598

- P** Powertrain: engine, transmission and emissions.
- 0** Generic (SAE) code: it means the same thing on every OBD-II vehicle.
- 5** Vehicle speed, idle control and auxiliary inputs.
- 98** The exact fault within that area.

Often seen with

P0116 Engine Coolant Temperature Circuit Range/Performance · **P0128** Coolant Thermostat (Coolant Temperature Below Thermostat Reg · **P0597** Thermostat Heater Control Circuit/Open · **P0599** Thermostat Heater Control Circuit High · **P2181** Cooling System Performance

See it working

Watch the animated explainer [Engine Cooling System Trainer: How Engines Stay Cool](#) on Auto Veteran to see the parts involved moving.

Full guide, related articles and animations: <https://www.autoveteran.tech/dtc-codes/p0598/>

