

GENERIC · POWERTRAIN

P0197

OBD-II DIAGNOSTIC TROUBLE CODE (DTC)

P0197

Engine Oil Temperature Sensor Low

P0197 means the engine control module (ECM) has detected a voltage signal from the engine oil temperature (EOT) sensor that is lower than the expected range for the current operating conditions. The ECM interprets this low voltage as an excessively high oil temperature or an open/shorted sensor circuit, and it sets the code to alert the driver while substituting a default oil temperature value for strategy calculations.

SYSTEM

Powertrain

CODE TYPE

Generic (all makes)

SEVERITY

Low

FIX DIFFICULTY

Intermediate

AREA

Fuel and air metering

Symptoms you may notice

- Illumination of the check engine light (MIL) on the dashboard.
- Often no symptoms besides the warning light, especially if the sensor fails gradually.
- Oil temperature gauge or display may read abnormally high or stay pegged at the low end, depending on the vehicle's gauge strategy.
- Possible reduced engine performance or altered shift quality if the ECM uses oil temperature for protection strategies.
- In rare cases, a message on the driver information center indicating an oil temperature sensor fault.
- No noticeable change in oil pressure or engine noise, since the sensor only reports temperature and does not control oil flow.

Common causes, most likely first

- 1 Faulty engine oil temperature sensor giving an incorrect low-voltage signal.
- 2 Damaged or corroded wiring harness or connector at the sensor, including chafed wires or pushed-out terminals.
- 3 Open circuit in the signal wire between the sensor and the ECM, often due to a broken wire or poor splice.
- 4 Short to ground on the signal circuit, which pulls the voltage below the expected range.
- 5 Contaminated or degraded sensor tip from old oil or sludge, causing inaccurate readings.
- 6 ECM internal fault or corrupted software, though this is less common than sensor or wiring issues.
- 7 Poor electrical ground for the sensor return circuit, leading to a voltage offset.



How to diagnose and fix it

- 1 Use an OBD-II scan tool to read the engine oil temperature sensor voltage and compare it with a known-good value or a infrared thermometer reading at the oil pan.
- 2 Visually inspect the sensor connector and wiring for corrosion, loose pins, or physical damage, and repair as needed.
- 3 Measure resistance across the sensor terminals and compare with the manufacturer's temperature-resistance chart to confirm sensor accuracy.
- 4 Check for continuity and short-to-ground on the signal wire from the sensor to the ECM, repairing any open or shorted sections.
- 5 Verify the sensor return circuit has a good ground, cleaning or tightening grounds as necessary.
- 6 If the sensor and wiring test good, substitute a known-good sensor or use a resistor box to simulate the correct signal and see if the code clears.
- 7 Clear the code and perform a road test to confirm the repair, monitoring live oil temperature data for normal behavior.

Oil temperature sensor low voltage traps

- A low-voltage code often results from an open circuit rather than a failed sensor, so technicians who replace the sensor without checking wiring frequently see the code return.
- Oil temperature sensors share design and failure modes with coolant temperature sensors, but their location in the oil pan or block makes them vulnerable to sludge and debris that can skew readings.
- The ECM may use oil temperature to enable or disable certain functions such as variable valve timing or cylinder deactivation, so a faulty signal can cause drivability issues that seem unrelated to oil temperature.
- On some vehicles, the oil temperature sensor is integrated into the oil level sensor or oil pressure sensor, so a low oil temperature code may actually point to a fault in a combined unit.
- A poor engine ground can cause a low-voltage signal on the sensor return circuit, mimicking a sensor failure and leading to misdiagnosis if grounds are not checked.

Can I keep driving with P0197?

You can generally continue driving with P0197 because the ECM substitutes a default oil temperature value and the engine remains protected by other sensors. Avoid heavy towing or sustained high-speed driving until the fault is repaired, as the ECM may not accurately monitor oil temperature for extreme conditions.

Tools that help

- OBD-II scan tool with live data capability
- Digital multimeter
- Infrared thermometer
- Wiring diagram for the specific vehicle
- Basic hand tools for connector and sensor access



Reading P0197

- P** Powertrain: engine, transmission and emissions.
- 0** Generic (SAE) code: it means the same thing on every OBD-II vehicle.
- 1** Fuel and air metering.
- 97** The exact fault within that area.

Often seen with

P0117 Engine Coolant Temperature Circuit Low Input · **P0195** Engine Oil Temperature Sensor Malfunction · **P0196** Engine Oil Temperature Sensor Range/Performance · **P0198** Engine Oil Temperature Sensor High · **P0199** Engine Oil Temperature Sensor Intermittent

See it working

Watch the animated explainer [Excavator Simulator: Hydraulics You Can Operate](#) on Auto Veteran to see the parts involved moving.

Full guide, related articles and animations: <https://www.autoveteran.tech/dtc-codes/p0197/>

