

GM · POWERTRAIN

P1186

OBD-II DIAGNOSTIC TROUBLE CODE (DTC)

P1186 · GM

Engine Oil Temperature Circuit Performance

P1186 on GM vehicles means the powertrain control module (PCM) has detected that the engine oil temperature (EOT) sensor circuit is not performing as expected, typically because the signal is out of range or inconsistent with other temperature inputs. The PCM compares the EOT signal to a model based on coolant temperature, run time, and load, and sets this code when the oil temperature reading does not rise or respond within the expected window.

SYSTEM	CODE TYPE	SEVERITY	FIX DIFFICULTY	AREA
Powertrain	GM specific	Low	Intermediate	Fuel and air metering

Symptoms you may notice

- Illumination of the check engine light, often with no other noticeable symptoms
- Oil temperature gauge reading abnormally low or high, or fluctuating erratically
- Slightly rough running or reduced fuel economy if the PCM substitutes a default oil temperature
- Extended crank or hard starting in cold weather if the sensor reads incorrectly during warm-up
- In rare cases, the engine cooling fan may run constantly because the PCM misinterprets oil temperature as a proxy for engine load

Common causes, most likely first

- 1 Faulty engine oil temperature sensor, especially internal resistance drift from age and heat cycling
- 2 Damaged or corroded wiring harness at the sensor connector or along the engine valley
- 3 Open or shorted signal circuit between the EOT sensor and the PCM
- 4 Poor ground connection for the sensor return circuit at the engine block
- 5 PCM software calibration issue or internal driver fault, more common on higher-mileage units
- 6 Low oil level or severely degraded oil causing the sensor to read outside the expected range
- 7 Aftermarket sensor installed with incorrect resistance curve for the application



How to diagnose and fix it

- 1 Verify oil level and condition first, then inspect the EOT sensor connector for corrosion, pushed pins, or oil intrusion
- 2 Measure sensor resistance with a multimeter and compare to the GM specification for the current oil temperature
- 3 Backprobe the signal wire at the PCM and check voltage with the key on, engine off, looking for a value that tracks sensor resistance
- 4 Perform a wiggle test on the harness while watching live oil temperature data on a scan tool to catch intermittent opens
- 5 Check the sensor ground circuit for excessive voltage drop, repairing any corroded ground points on the engine block
- 6 Replace the EOT sensor only after electrical tests confirm the sensor is out of specification, then clear the code and verify the temperature reading rises smoothly during a road test
- 7 If all circuits and the sensor test good, check for a PCM calibration update or diagnose the PCM driver circuit before condemning the module

Why the oil temperature sensor fools good technicians

- A common misdiagnosis is replacing the coolant temperature sensor because the EOT code appears alongside coolant-related codes, but P1186 specifically flags the oil temperature circuit and the two sensors use different resistance curves.
- The PCM often sets P1186 based on a rationality check rather than a hard circuit failure, so the sensor can pass a simple resistance test at room temperature yet still fail when hot due to a non-linear drift.
- Oil sludge or a restricted oil cooler can cause the oil temperature to rise slower than the PCM model expects, triggering P1186 even when the sensor and wiring are perfectly functional.
- On some GM engines the EOT sensor shares a five-volt reference with other sensors, so a shorted sensor on the same reference circuit can pull down the oil temperature signal and set P1186 as a secondary code.
- Intermittent P1186 codes that appear only in cold weather often trace to a harness connector that contracts and loses contact, not to a failed sensor, so a wiggle test with live data is more reliable than a static ohm check.

Can I keep driving with P1186?

P1186 is a low-severity code and the vehicle remains safe to drive because the PCM substitutes a default oil temperature strategy, but avoid heavy towing or sustained high-load driving until the circuit is repaired. Prolonged driving with a faulty oil temperature signal can mask an actual overheating condition, so monitor the coolant gauge and address the code promptly.



Tools that help

- Scan tool with live data capability
- Digital multimeter
- Backprobe pins or breakout harness
- GM service information for sensor resistance specifications
- Socket set and torque wrench for sensor replacement

Reading P1186

P Powertrain: engine, transmission and emissions.

1 Manufacturer-specific code (GM): its meaning depends on the make.

1 Fuel and air metering.

86 The exact fault within that area.

Often seen with

P1185 Linear Oxygen Sensor Common Ground Wire Short To Ground · **P1185** O2 Sensor Heater Circuit Open, Hardware Fault · **P1185** Engine Temperature Sensor Circuit · **P1185** FTS High Fuel Pump Temperature Sensor High · **P1185** Engine Oil Temperature Circuit · **P0117** Engine Coolant Temperature Circuit Low Input · **P0118** Engine Coolant Temperature Circuit High Input · **P0196** Engine Oil Temperature Sensor Range/Performance · **P0197** Engine Oil Temperature Sensor Low

See it working

Watch the animated explainer [How a Knock Sensor Works: Spark Timing and Octane](#) on Auto Veteran to see the parts involved moving.

Full guide, related articles and animations: <https://www.autoveteran.tech/dtc-codes/gm-p1186/>

