



P2C21

Engine Oil Temperature Sensor A/B Correlation

P2C21 indicates that the powertrain control module (PCM) has detected a correlation error between two engine oil temperature sensor signals, typically Sensor A and Sensor B, which may be two separate sensors or redundant elements within one sensor. The PCM compares the two readings and sets this code when they deviate beyond a calibrated threshold for a specified time, indicating a fault in the sensing circuit or sensor itself.

SYSTEM	CODE TYPE	SEVERITY	FIX DIFFICULTY	AREA
Powertrain	Generic (all makes)	Medium	Intermediate	Hybrid propulsion

Symptoms you may notice

- Illumination of the check engine light (malfunction indicator lamp).
- Often no symptoms besides the warning light, especially if the correlation error is minor.
- Erratic or inaccurate engine oil temperature gauge readings on vehicles so equipped.
- Possible reduced engine performance or fuel economy if the PCM enters a limp-home strategy.
- In rare cases, the engine may be hard to start or stall when cold if the PCM relies on oil temperature for fuel scheduling.
- A stored freeze-frame data showing oil temperature outside expected range at the time of fault.

Common causes, most likely first

- 1 Faulty engine oil temperature sensor A or B, including internal short or open circuits.
- 2 Damaged or corroded wiring harness or connectors between the sensors and the PCM.
- 3 Poor electrical connection at the sensor or PCM, such as loose pins or water intrusion.
- 4 Contaminated or degraded engine oil affecting sensor response (less common).
- 5 PCM software calibration issue or internal PCM fault (rare).
- 6 Aftermarket or incorrect sensor installed that does not match OEM specifications.
- 7 Mechanical issue such as low oil level or oil aeration causing inconsistent temperature readings.



How to diagnose and fix it

- 1 Verify the code with a scan tool and check for any related pending or history codes in the PCM.
- 2 Inspect the engine oil level and condition; top off or change oil if contaminated or low.
- 3 Visually inspect the engine oil temperature sensor(s) and wiring for damage, corrosion, or loose connections.
- 4 Perform a resistance test on each sensor and compare to manufacturer specifications; replace if out of range.
- 5 Check reference voltage and ground circuits at the sensor connectors using a multimeter; repair wiring as needed.
- 6 If wiring and sensors test good, consult service information for pinpoint tests specific to the vehicle and consider PCM reprogramming or replacement.
- 7 Clear codes and road test to confirm the repair; monitor live data for oil temperature correlation.

Oil temperature correlation code pitfalls

- A correlation code can be set by a single faulty sensor even when the other sensor is accurate, so testing both sensors individually is essential.
Engine oil temperature sensors often share a reference voltage or ground with other sensors; a fault in a shared circuit can trigger multiple codes including P2C21.
- On some vehicles, the oil temperature sensor is integrated into the oil level sensor or oil pressure sensor, making diagnosis more complex and requiring component-level testing.
- The PCM may use oil temperature for fuel injection timing and variable valve timing; ignoring the code can lead to poor driveability and increased emissions over time.
After an oil change, air pockets or debris can temporarily affect sensor readings; verify the code does not return after a short drive cycle before replacing parts.

Can I keep driving with P2C21?

The vehicle is generally safe to drive with P2C21 as long as the engine oil level is correct and there are no other severe symptoms like knocking or overheating. Avoid heavy load or aggressive driving until the fault is repaired, and address the code promptly to prevent potential long-term engine management issues.

Tools that help

- OBD-II scan tool with live data capability
- Digital multimeter
- Vehicle service information (for wiring diagrams and sensor specs)
- Socket set and basic hand tools
- Infrared thermometer (optional for verifying oil temperature)



Reading P2C21

- P** Powertrain: engine, transmission and emissions.
- 2** Generic (SAE) code: it means the same thing on every OBD-II vehicle.
- C** Hybrid propulsion.
- 21** The exact fault within that area.

Often seen with

P0196 Engine Oil Temperature Sensor Range/Performance · **P0197** Engine Oil Temperature Sensor Low · **P0198** Engine Oil Temperature Sensor High · **P2C20** Cold Start Fuel Pressure Regulator A Exceeded Control Limits · **P2C22** Exhaust Heat Exchanger Exhaust Bypass Valve A Position Senso

See it working

Watch the animated explainer [Helicopter Simulator: Take Off, Hover and Land](#) on Auto Veteran to see the parts involved moving.

Full guide, related articles and animations: <https://www.autoveteran.tech/dtc-codes/p2c21/>

