

GENERIC · POWERTRAIN

P2EBD

OBD-II DIAGNOSTIC TROUBLE CODE (DTC)

P2EBD

Crankcase Temperature Sensor Circuit High

P2EBD means the engine control module has detected an abnormally high voltage on the crankcase temperature sensor circuit, which usually indicates an open circuit, a short to voltage, or a sensor that has failed high. The computer expects a voltage within a calibrated range that corresponds to a plausible crankcase temperature, and a reading above that range sets this code.

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

Symptoms you may notice

- Illumination of the check engine light, often with no other noticeable symptoms.
- A crankcase temperature reading on a scan tool that is stuck at a very high value or pegged at the maximum.
- Possible activation of a related powertrain protection strategy that reduces engine power in extreme cases.
- In some vehicles, a message on the driver information center about a temperature sensor fault or service required.
- No drivability complaints in most cases because the crankcase temperature sensor is primarily used for monitoring and strategy correction.
- If the sensor is used for oil life or active thermal management, the vehicle may default to a conservative operating mode.

Common causes, most likely first

- 1 A failed crankcase temperature sensor that internally reads high or has an open thermistor element.
- 2 An open circuit in the signal wire between the sensor and the engine control module.
- 3 A short to voltage on the signal wire, often from chafing against a hot or moving component.
- 4 Corroded, loose, or damaged connector terminals at the sensor or at the engine control module.
- 5 A poor ground connection for the sensor return circuit, causing a reference shift.
- 6 Rarely, an internal fault in the engine control module driver circuit.



How to diagnose and fix it

- 1 Connect a scan tool and record the crankcase temperature sensor voltage and temperature readings with the key on and engine off, then compare them to ambient temperature.
- 2 Inspect the sensor connector and the harness for corrosion, pushed-out terminals, chafing, or signs of overheating, and repair as needed.
- 3 Disconnect the sensor and measure resistance across its terminals, then compare the reading to the manufacturer's temperature-resistance chart for the current ambient temperature.
- 4 With the sensor disconnected, check for reference voltage on the signal wire and verify the ground circuit with a voltage drop test while loading the circuit.
- 5 Perform a wiggle test on the harness while watching the scan tool data to catch an intermittent open or short.
- 6 If the wiring and connector pass all tests, replace the crankcase temperature sensor and clear the code.
- 7 After repair, clear the diagnostic trouble codes and verify the sensor reading tracks ambient and engine warm-up temperatures correctly during a road test.

Crankcase sensor faults that fool technicians

- A crankcase temperature sensor that reads high can be caused by a poor ground shared with other sensors, so checking the ground circuit before condemning the sensor saves unnecessary parts replacement.
- Some vehicles use the crankcase temperature sensor as part of an oil life monitoring algorithm, and a high reading can cause the oil life indicator to drop prematurely even when the engine runs normally.
- The code can set intermittently from a harness that rubs against the engine block only during certain load or temperature conditions, so a static resistance check may pass while the fault is still present.
- A short to voltage on the signal wire is often caused by a nearby component that was recently serviced, such as an alternator or starter cable routed incorrectly during a repair.
- Do not assume the sensor is bad just because the code says high; an open signal wire produces the same high-voltage reading at the module as a failed sensor.

Can I keep driving with P2EBD?

This code is safe to drive with in most cases because it rarely affects engine operation, but avoid ignoring it if the vehicle enters a reduced-power mode or if the check engine light flashes. Have the circuit inspected soon to prevent a misdiagnosis from turning into an unnecessary sensor replacement.

Tools that help

- OBD-II scan tool with live data capability
- Digital multimeter with resistance and voltage measurement
- Back probe pins or breakout leads
- Manufacturer service information for temperature-resistance charts and wiring diagrams
- Basic hand tools for connector and sensor access



Reading P2EBD

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

Often seen with

P0116 Engine Coolant Temperature Circuit Range/Performance · **P0117** Engine Coolant Temperature Circuit Low Input · **P0118** Engine Coolant Temperature Circuit High Input · **P2EBC** Crankcase Temperature Sensor Circuit Range/Performance · **P2EBE** Crankcase Temperature Sensor Circuit Low

See it working

Watch the animated explainer [How Coil-on-Plug Ignition Works: Coil and Spark Plug](#) on Auto Veteran to see the parts involved moving.

Full guide, related articles and animations: <https://www.autoveteran.tech/dtc-codes/p2ebd/>

