

GENERIC · POWERTRAIN

P2232

OBD-II DIAGNOSTIC TROUBLE CODE (DTC)

P2232

O2 Sensor Signal Circuit Shorted to Heater Circuit (Bank 1 Sensor 2)

P2232 means the engine computer has detected an abnormal electrical connection between the signal circuit and the heater circuit inside the downstream oxygen sensor on Bank 1. The sensor's signal wire is shorted to the heater wire, so the computer cannot trust the exhaust oxygen reading and sets this code.

SYSTEM	CODE TYPE	SEVERITY	FIX DIFFICULTY	AREA
Powertrain	Generic (all makes)	Medium	Intermediate	Fuel and air metering (injector circuits)

Symptoms you may notice

- Illuminated check engine light, often with no other noticeable symptoms
- Slightly rough idle or hesitation when the engine is cold
- Poor fuel economy as the computer defaults to a rich fuel mixture
- Failed emissions test due to incorrect oxygen sensor readings
- In rare cases, a brief stumble or surge during light acceleration

Common causes, most likely first

- 1 Internal short inside the downstream oxygen sensor between the signal and heater elements
- 2 Chafed or melted wiring harness where the sensor pigtail rubs against the exhaust or chassis
- 3 Corroded or contaminated connector pins at the sensor or harness side
- 4 Aftermarket sensor with incorrect internal wiring or poor quality control
- 5 Liquid intrusion into the connector causing a conductive path between pins
- 6 Rodent damage to the sensor wiring loom near the exhaust

How to diagnose and fix it

- 1 Inspect the downstream oxygen sensor wiring and connector for chafing, melting, or corrosion
- 2 Disconnect the sensor and check for continuity or resistance between the signal and heater pins on the sensor side
- 3 Check the harness side of the connector for shorts between the signal and heater circuits with a multimeter
- 4 Replace the downstream oxygen sensor if the internal short is confirmed
- 5 Repair any damaged wiring with proper solder and heat-shrink, then clear the code and test-drive
- 6 Verify live data for the downstream oxygen sensor switches normally after repair



What most technicians miss on P2232

- A shorted heater circuit inside the sensor can still allow the heater to function, so the sensor may appear to work during a quick scan even though the signal is corrupted.
- Aftermarket oxygen sensors are a common cause because their internal pinout or insulation can differ from the original part, creating a short that the computer detects.
- The code can set intermittently when the engine bay is wet, pointing to liquid intrusion at the connector rather than a failed sensor.
- A short between signal and heater circuits can also be caused by a pinched harness behind the engine block, which is easy to miss if you only inspect the sensor itself.
- Clearing the code without repairing the short will often cause it to return within one or two drive cycles, so always verify the repair with a test drive.

Can I keep driving with P2232?

You can usually drive the car short distances to a repair shop, but avoid heavy acceleration or long trips because the engine is running on a default fuel mixture. Prolonged driving with this code can damage the catalytic converter and increase emissions.

Tools that help

- OBD-II scan tool with live data capability
- Digital multimeter
- Wiring diagram for the oxygen sensor circuit
- Heat-shrink tubing and soldering iron
- Jack and jack stands or ramps

Reading P2232

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

Often seen with

P0135 O2 Sensor Heater Circuit Malfunction (Bank 1 Sensor 1) · **P0136** O2 Sensor Circuit Malfunction (Bank 1 Sensor 2) · **P0141** O2 Sensor Heater Circuit Malfunction (Bank 1 Sensor 2) · **P2231** O2 Sensor Signal Circuit Shorted to Heater Circuit (Bank 1 S · **P2233** O2 Sensor Signal Circuit Shorted to Heater Circuit (Bank 1 S



See it working

Watch the animated explainer [Master the Four-Stroke Engine Cycle](#) on Auto Veteran to see the parts involved moving.

Full guide, related articles and animations: <https://www.autoveteran.tech/dtc-codes/p2232/>

