

GENERIC · POWERTRAIN

P2243

OBD-II DIAGNOSTIC TROUBLE CODE (DTC)

P2243

O2 Sensor Reference Voltage Circuit/Open (Bank 1 Sensor 1)

P2243 indicates that the powertrain control module (PCM) has detected an open or abnormal condition in the reference voltage circuit for the upstream oxygen sensor on bank 1, sensor 1. This sensor, located before the catalytic converter, relies on a stable reference voltage from the PCM to generate an accurate signal; when that voltage is missing or out of range, the PCM sets this code and may default to a fixed fueling strategy.

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

Symptoms you may notice

- Illumination of the check engine light, often with no other noticeable symptoms
- Rough idle or stumbling during acceleration due to incorrect air-fuel mixture
- Reduced fuel economy as the PCM substitutes a default fueling value
- Failed emissions test because the oxygen sensor monitor does not complete
- Intermittent engine surging or hesitation if the circuit fault is temperature-related
- Possible extended crank time or hard starting in severe cases

Common causes, most likely first

- 1 Open or damaged wire in the reference voltage circuit between the PCM and the oxygen sensor
- 2 Corroded, loose, or water-intruded connector at the oxygen sensor or PCM
- 3 Failed oxygen sensor with an internal open circuit on the reference voltage pin
- 4 Blown fuse or faulty relay supplying power to the oxygen sensor heater circuit, which can affect reference voltage
- 5 PCM internal fault causing loss of reference voltage output
- 6 Aftermarket or incorrect oxygen sensor installed that does not match the vehicle's reference voltage specification



How to diagnose and fix it

- 1 Connect a scan tool and record all stored and pending codes, then clear codes and test-drive to see if P2243 returns immediately.
- 2 Visually inspect the oxygen sensor wiring and connector for chafing, corrosion, or loose pins, and repair any obvious damage.
- 3 Use a digital multimeter to measure reference voltage at the sensor connector with the key on and engine off, comparing to the manufacturer's specification.
- 4 Check for continuity and resistance in the reference voltage wire between the sensor and PCM, looking for an open circuit or excessive resistance.
- 5 Verify that the oxygen sensor heater circuit fuse is intact and that power and ground are present at the heater pins.
- 6 If the circuit tests good, substitute a known-good oxygen sensor and recheck; if the code persists, suspect a faulty PCM.
- 7 After repairs, clear codes and complete a drive cycle to confirm the oxygen sensor monitor passes and no codes return.

Reference voltage faults that fool technicians

- A common misdiagnosis is replacing the oxygen sensor when the real problem is a corroded connector pin that interrupts the reference voltage only when the engine bay is hot.
- The reference voltage circuit is shared with other sensors on some vehicles, so a short in a different sensor can pull down the voltage and set P2243 without any fault in the oxygen sensor itself.
- A failing heater circuit can cause the PCM to shut down the reference voltage as a protective measure, so always check heater resistance and supply voltage before condemning the sensor.
- Aftermarket oxygen sensors with incorrect internal resistance can mimic an open reference circuit, so use OEM-quality parts to avoid repeat failures.
- P2243 can be set by a momentary glitch during low-voltage cranking, so check battery and charging system health before chasing wiring.

Can I keep driving with P2243?

You can usually drive with P2243, but expect higher fuel consumption and possible rough running because the PCM is not getting accurate oxygen feedback. Avoid heavy acceleration or towing until the fault is repaired, and do not ignore the code if the engine begins to misfire or stall.



Tools that help

- OBD-II scan tool with live data capability
- Digital multimeter
- Wiring diagram for the specific vehicle
- Back probe pins or breakout box
- Soldering iron and heat shrink tubing for wire repairs

Reading P2243

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

Often seen with

P0130 O2 Sensor Circuit Malfunction (Bank 1 Sensor 1) · **P0131** O2 Sensor Circuit Low Voltage (Bank 1 Sensor 1) · **P0132** O2 Sensor Circuit High Voltage (Bank 1 Sensor 1) · **P0133** O2 Sensor Circuit Slow Response (Bank 1 Sensor 1) · **P2244** O2 Sensor Reference Voltage Performance (Bank 1 Sensor 1)

See it working

Watch the animated explainer [How a Car Clutch Works: Diaphragm Clutch Cutaway](#) on Auto Veteran to see the parts involved moving.

Full guide, related articles and animations: <https://www.autoveteran.tech/dtc-codes/p2243/>

