

GENERIC · POWERTRAIN

P0139

OBD-II DIAGNOSTIC TROUBLE CODE (DTC)

P0139

O2 Sensor Circuit Slow Response (Bank 1 Sensor 2)

P0139 means the downstream oxygen sensor on bank 1 is responding too slowly to changes in exhaust oxygen content. The engine computer commands a rich-to-lean swing and expects the sensor voltage to switch within a set time, but the signal lags or fails to cross the threshold, so the computer flags the circuit as slow.

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

Symptoms you may notice

- Illumination of the check engine light, often with no other noticeable symptoms.
- A slight decrease in fuel economy as the computer struggles to trim fuel accurately.
- Occasional rough idle or hesitation during light acceleration.
- A faint sulfur or rotten egg smell from the exhaust if the sensor is sluggish and the mixture runs rich.
- In rare cases, a stored pending code that clears itself after a few drive cycles before returning.

Common causes, most likely first

- 1 A worn or contaminated downstream oxygen sensor that has lost its switching speed.
- 2 Exhaust leaks between the sensor and the atmosphere, allowing outside air to dilute the sample.
- 3 A failing catalytic converter that is not storing and releasing oxygen as designed, which slows the downstream signal.
- 4 Oil or coolant contamination from an internal engine leak coating the sensor element.
- 5 Wiring damage or corroded connector pins in the sensor circuit adding resistance.
- 6 A restricted or leaking exhaust system upstream of the sensor altering gas flow.
- 7 An engine misfire or rich-running condition that overloads the sensor with unburned fuel.



How to diagnose and fix it

- 1 Scan all stored and pending codes and record freeze-frame data to confirm P0139 is the primary fault.
- 2 Inspect the downstream oxygen sensor wiring and connector for chafing, corrosion, or loose pins.
- 3 Perform a visual and smoke test of the exhaust system for leaks near the sensor and converter.
- 4 Use a scan tool to watch the downstream sensor voltage switching rate; a good sensor should cross 450 mV several times per second.
- 5 Check for engine misfire or fuel trim problems that could contaminate or overload the sensor before condemning it.
- 6 Replace the downstream oxygen sensor only after electrical and exhaust integrity checks pass.
- 7 Clear codes and complete a drive cycle to verify the repair and confirm the monitor runs to completion.

Why a slow sensor is not always the sensor

- A lazy downstream oxygen sensor often mimics a failing catalytic converter, so technicians who replace the converter first may find the code returns because the sensor was the real culprit.
Exhaust leaks downstream of the converter can pull in outside air and make a healthy sensor look slow, especially at idle, so a smoke test is essential before parts replacement.
- Oil or coolant contamination from a head gasket or valve guide issue can coat the sensor element and slow its response without setting a misfire code.
- The downstream sensor's job is to monitor converter efficiency, so a converter that is beginning to degrade can slow the sensor signal enough to set P0139 before a dedicated catalyst efficiency code appears.
Some vehicles require a specific drive pattern to run the downstream oxygen sensor monitor, and a code can remain pending for multiple trips before the check engine light illuminates.

Can I keep driving with P0139?

You can usually continue driving with P0139 because the fault mainly affects emissions and fuel trim, not immediate safety. Avoid ignoring it for months, as a rich-running condition or unresolved misfire can damage the catalytic converter and increase repair costs.

Tools that help

- OBD-II scan tool with live data and graphing capability
- Digital multimeter for circuit resistance and voltage checks
- Smoke machine for exhaust leak detection
- Oxygen sensor socket and ratchet
- Wiring diagram for the bank 1 sensor 2 circuit



Reading P0139

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

Often seen with

P0130 O2 Sensor Circuit Malfunction (Bank 1 Sensor 1) · **P0138** O2 Sensor Circuit High Voltage (Bank 1 Sensor 2) · **P0140** O2 Sensor Circuit No Activity (Bank 1 Sensor 2) · **P0171** System Too Lean (Bank 1) · **P0420** Catalyst System Efficiency Below Threshold (Bank 1)

See it working

Watch the animated explainer [How a Jet Engine Works: Two-Spool Turbofan](#) on Auto Veteran to see the parts involved moving.

Full guide, related articles and animations: <https://www.autoveteran.tech/dtc-codes/p0139/>

