

GM · POWERTRAIN

P1161

OBD-II DIAGNOSTIC TROUBLE CODE (DTC)

P1161 · GM

HO2S Heater Power Stage Circuit Bank 2 Sensor 2

P1161 on a GM vehicle indicates that the powertrain control module has detected a fault in the heater power stage circuit for the downstream oxygen sensor on bank 2, which is the side of the engine that does not contain cylinder number one. The heater element inside the sensor is not receiving the commanded current or voltage, so the sensor cannot reach operating temperature quickly enough for accurate exhaust monitoring.

SYSTEM	CODE TYPE	SEVERITY	FIX DIFFICULTY	AREA
Powertrain	GM specific	Low	Intermediate	Fuel and air metering

Symptoms you may notice

- Illumination of the check engine light, often with no other noticeable symptoms.
- A slight increase in fuel consumption because the sensor stays in open-loop longer than normal.
- Occasional rough idle or hesitation during cold starts while the engine warms up.
- Failed emissions test due to the oxygen sensor heater monitor not completing.
- In rare cases, a stored pending code that reappears after clearing without any drivability change.

Common causes, most likely first

- 1 Open or shorted heater element inside the bank 2 sensor 2 oxygen sensor.
- 2 Damaged or corroded wiring harness between the sensor and the powertrain control module.
- 3 Blown fuse that supplies power to the oxygen sensor heater circuit.
- 4 Failed heater relay or power stage driver inside the powertrain control module.
- 5 Poor ground connection at the sensor body or engine block.
- 6 Aftermarket sensor with incorrect heater resistance for the application.



How to diagnose and fix it

- 1 Inspect the oxygen sensor heater fuse and replace it if blown, then recheck for the code.
- 2 Disconnect the bank 2 sensor 2 connector and measure heater resistance with a multimeter, comparing to the specification for your engine.
- 3 Check for battery voltage at the heater power supply wire with the key on and engine off.
- 4 Inspect the wiring harness for chafing, corrosion, or loose pins between the sensor and the powertrain control module.
- 5 Perform a voltage drop test on the heater ground circuit to confirm a clean ground path.
- 6 Replace the bank 2 sensor 2 oxygen sensor if the heater element is open or shorted.
- 7 If all external circuits test good, diagnose the powertrain control module heater driver circuit before replacing the module.

Why the heater circuit fails before the sensor

- A blown fuse for the oxygen sensor heater is often overlooked because the same fuse may power other circuits that still work, so always check it first.
- The heater element inside the sensor can fail open while the sensor signal still reads normally, so a live data scan showing plausible voltage does not rule out this code.
- Corrosion inside the connector pins at the sensor is a common cause on older GM trucks, and simply cleaning the terminals often resolves the fault without parts.
- The powertrain control module heater driver can be damaged by a shorted sensor, so replacing the sensor without checking the driver risks repeating the failure.
- This code does not always mean the sensor is bad; a poor engine ground can raise the heater circuit resistance enough to set P1161.

Can I keep driving with P1161?

You can continue driving with P1161 because the engine will still run and the only immediate effect is slightly higher emissions during warm-up. Avoid long periods of idling from cold and have the circuit checked soon, especially if you need to pass an emissions inspection.

Tools that help

- OBD-II scan tool with live data capability
- Digital multimeter
- Fuse puller or test light
- Wiring diagram for your specific GM vehicle
- Socket set and oxygen sensor wrench



Reading P1161

- P** Powertrain: engine, transmission and emissions.
- 1** Manufacturer-specific code (GM): its meaning depends on the make.
- 1** Fuel and air metering.
- 61** The exact fault within that area.

Often seen with

P1160 Manifold Temperature Sensor Circuit Short To Ground · **P1160** Fuel Trim Adaptation Additive Bank 2 Low · **P0135** O2 Sensor Heater Circuit Malfunction (Bank 1 Sensor 1) · **P0141** O2 Sensor Heater Circuit Malfunction (Bank 1 Sensor 2) · **P0155** O2 Sensor Heater Circuit Malfunction (Bank 2 Sensor 1) · **P0161** O2 Sensor Heater Circuit Malfunction (Bank 2 Sensor 2)

See it working

Watch the animated explainer [How Crank and Cam Position Sensors Work](#) on Auto Veteran to see the parts involved moving.

Full guide, related articles and animations: <https://www.autoveteran.tech/dtc-codes/gm-p1161/>

