

GENERIC · POWERTRAIN

P0042

OBD-II DIAGNOSTIC TROUBLE CODE (DTC)

P0042

HO2S Heater Control Circuit (Bank 1 Sensor 3)

P0042 indicates that the powertrain control module has detected a fault in the heater control circuit for the third oxygen sensor on bank 1, which is typically the downstream sensor after the catalytic converter. The computer monitors the heater circuit for expected voltage and current changes when the heater is commanded on, and it sets this code when the circuit does not respond as designed.

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

Symptoms you may notice

- Illumination of the check engine light, often with no other noticeable symptoms
- Slightly higher fuel consumption because the sensor takes longer to reach operating temperature
- A pending or stored code that may cause the vehicle to fail an emissions inspection
- In rare cases, a rough idle or hesitation during cold starts if the sensor heater fault affects closed-loop fueling
- No driveability complaints in most instances, as the heater circuit primarily affects emissions during warm-up

Common causes, most likely first

- 1 Failed oxygen sensor heater element inside the bank 1 sensor 3 assembly
- 2 Damaged or corroded wiring or connector at the sensor or along the heater circuit
- 3 Blown fuse that supplies power to the oxygen sensor heater circuit
- 4 Open or shorted heater control wire between the sensor and the powertrain control module
- 5 Faulty powertrain control module driver for the heater circuit, though this is uncommon
- 6 Poor ground connection for the heater circuit, leading to excessive voltage drop



How to diagnose and fix it

- 1 Check the fuse that protects the oxygen sensor heater circuit and replace it if blown, then verify the new fuse does not blow immediately
- 2 Inspect the sensor connector and wiring for corrosion, chafing, or loose pins, and repair any damage found
- 3 Measure the resistance of the heater element at the sensor connector with a multimeter and compare it to the manufacturer's specification
- 4 Check for power and ground at the sensor connector with the key on and the heater commanded on, using a test light or multimeter
- 5 If the circuit tests good but the heater resistance is out of specification, replace the bank 1 sensor 3 oxygen sensor
- 6 Clear the code and perform a road test to verify the repair, ensuring the monitor runs and the code does not return
- 7 If the code persists after all circuit and sensor checks, diagnose the powertrain control module driver circuit as a last resort

What the heater circuit code really means

- A P0042 code does not always mean the oxygen sensor itself has failed, as a blown fuse or a corroded connector can produce identical symptoms and is far cheaper to fix.
- Many technicians replace the sensor without first checking the heater circuit fuse, which is often located in a fuse box under the hood and is shared with other components.
- The bank 1 sensor 3 heater circuit is often powered through a relay or a fused circuit that can fail intermittently, so a wiggle test of the harness while monitoring live data can reveal a loose connection.
- On some vehicles, the heater circuit is controlled by a pulse-width-modulated ground from the powertrain control module, so a simple test light may not confirm proper operation without a scope or a duty-cycle-capable meter.
- A P0042 code can be stored alongside other oxygen sensor heater codes if a common power or ground circuit feeds multiple sensors, so always check for related codes before condemning a single sensor.

Can I keep driving with P0042?

The vehicle remains safe to drive because the heater circuit only affects emissions during warm-up, but you should avoid extended idling and schedule a diagnosis soon to prevent the check engine light from masking a more serious fault. If the check engine light starts flashing or you notice rough running, stop driving and seek service immediately.



Tools that help

- OBD-II scan tool with live data capability
- Digital multimeter
- Test light
- Fuse puller or needle-nose pliers
- Wiring diagram for the specific vehicle
- Socket set and oxygen sensor wrench

Reading P0042

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

Often seen with

P0030 HO2S Heater Control Circuit (Bank 1 Sensor 1) · **P0031** HO2S Heater Control Circuit Low (Bank 1 Sensor 1) · **P0032** HO2S Heater Control Circuit High (Bank 1 Sensor 1) · **P0053** HO2S Heater Resistance (Bank 1 Sensor 1) · **P0054** HO2S Heater Resistance (Bank 1 Sensor 2)

See it working

Watch the animated explainer [Helicopter Simulator: Take Off, Hover and Land](#) on Auto Veteran to see the parts involved moving.

Full guide, related articles and animations: <https://www.autoveteran.tech/dtc-codes/p0042/>

