

GENERIC · POWERTRAIN

P0030

OBD-II DIAGNOSTIC TROUBLE CODE (DTC)

P0030

HO2S Heater Control Circuit (Bank 1 Sensor 1)

P0030 means the engine computer has detected a problem with the electrical circuit that controls the heater inside the upstream oxygen sensor on bank 1, which is the sensor mounted before the catalytic converter. The computer monitors the heater circuit for expected voltage and current behavior, and it sets this code when the circuit does not respond as designed, often because the heater element or its wiring has failed.

SYSTEM

Powertrain

CODE TYPE

Generic (all makes)

SEVERITY

Medium

FIX DIFFICULTY

Intermediate

AREA

Fuel and air metering and auxiliary emission controls

Symptoms you may notice

- Illumination of the check engine light, often with no other noticeable symptoms
- A slight decrease in fuel economy because the oxygen sensor takes longer to reach operating temperature
- Increased emissions during cold starts while the sensor heater is not functioning
- In some cases, a rough idle or hesitation when the engine is cold
- Possible failure to enter closed-loop fuel control quickly, leading to a richer mixture on cold starts

Common causes, most likely first

- 1 Failed heater element inside the bank 1 sensor 1 oxygen sensor
- 2 Open or shorted wiring in the heater circuit between the sensor and the engine computer
- 3 Corroded or damaged electrical connector at the oxygen sensor
- 4 Blown fuse that supplies power to the oxygen sensor heater circuit
- 5 Faulty oxygen sensor heater relay in vehicles that use a dedicated relay
- 6 Engine computer driver circuit failure for the heater control, though this is less common



How to diagnose and fix it

- 1 Check the fuse that protects the oxygen sensor heater circuit and replace it if blown, then recheck for the code
- 2 Inspect the oxygen sensor connector and wiring for corrosion, chafing, or loose pins, and repair as needed
- 3 Measure resistance across the heater element at the sensor connector and compare to the manufacturer's specification
- 4 With the key on, check for battery voltage at the heater power supply wire and verify the ground or control wire has continuity
- 5 If the circuit tests good but the code persists, replace the bank 1 sensor 1 oxygen sensor with a quality direct-fit unit
- 6 Clear the code and perform a road test to confirm the heater circuit operates correctly and the code does not return

Heater Circuit Checks Before Sensor Replacement

- A blown fuse for the oxygen sensor heater is often overlooked because the same fuse may power other circuits that appear to work fine, so always verify power at the sensor connector first.
- The heater element can fail intermittently when cold, so a resistance check on a warm engine may pass even though the sensor is faulty; test resistance when the engine is at ambient temperature.
- Universal oxygen sensors that require wire splicing are a common source of P0030 because poor crimps or incorrect wire matching create resistance or open circuits in the heater path.
- On some vehicles, the engine computer monitors heater current and will set P0030 if the current is too high or too low, so a shorted heater element can also trigger this code without a blown fuse.
- A failed heater does not always cause driveability symptoms, so technicians who replace the sensor based only on the code without testing the circuit may miss a wiring fault that will destroy the new sensor.

Can I keep driving with P0030?

You can usually continue driving with P0030 because the engine will still run, but the oxygen sensor will take longer to warm up, which increases cold-start emissions and may slightly reduce fuel economy. Avoid long periods of idling from a cold start and have the fault diagnosed soon to prevent catalytic converter damage over time.

Tools that help

- OBD-II scan tool
- Digital multimeter
- Fuse puller or test light
- Wire repair kit with crimpers and heat shrink
- Oxygen sensor socket



Reading P0030

- 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.
- 30** The exact fault within that area.

Often seen with

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) · **P0135** O2 Sensor Heater Circuit Malfunction (Bank 1 Sensor 1) · **P0141** O2 Sensor Heater Circuit Malfunction (Bank 1 Sensor 2)

See it working

Watch the animated explainer [How a Padlock Works: Pin Tumbler Lock in X-Ray](#) on Auto Veteran to see the parts involved moving.

Full guide, related articles and animations: <https://www.autoveteran.tech/dtc-codes/p0030/>

