

HONDA · POWERTRAIN

P1166

OBD-II DIAGNOSTIC TROUBLE CODE (DTC)

P1166 · Honda

HO2S11 Heater Circuit Fault Bank 1 Sensor 1

P1166 on Honda vehicles means the powertrain control module has detected a fault in the heater circuit of the upstream primary heated oxygen sensor, identified as HO2S11 (Heated Oxygen Sensor Bank 1 Sensor 1). The sensor's internal heating element is not drawing the current the computer expects, so the sensor cannot reach operating temperature quickly and the engine may stay in open-loop fuel control longer than normal.

SYSTEM	CODE TYPE	SEVERITY	FIX DIFFICULTY	AREA
Powertrain	Honda specific	Medium	Intermediate	Fuel and air metering

Symptoms you may notice

- Illumination of the check engine light, often with no other noticeable symptoms
- Slightly rough idle or hesitation when the engine is cold
- Reduced fuel economy during short trips because the sensor stays cold longer
- A pending or stored P1166 code that returns after clearing
- In rare cases, a slight rich-running condition or black smoke from extended open-loop operation

Common causes, most likely first

- 1 Failed heater element inside the HO2S11 sensor itself
- 2 Open or shorted heater circuit wiring between the sensor and the PCM
- 3 Corroded or loose connector pins at the oxygen sensor or PCM
- 4 Blown fuse that supplies power to the oxygen sensor heater circuit
- 5 PCM driver circuit fault for the heater control
- 6 Aftermarket or incorrect oxygen sensor with the wrong heater resistance



How to diagnose and fix it

- 1 Scan all modules and record freeze-frame data to confirm P1166 is the only heater-related code
- 2 Inspect the HO2S11 connector and wiring for corrosion, chafing, or loose pins
- 3 Check the oxygen sensor heater fuse and verify battery voltage at the heater supply wire
- 4 Measure the heater element resistance across the sensor's heater terminals and compare to Honda specifications
- 5 Test the heater control wire from the sensor connector to the PCM for continuity and short-to-ground
- 6 Replace the HO2S11 sensor with a Honda-compatible unit if the heater resistance is out of range
- 7 Clear codes and verify the heater circuit operates correctly with a scan tool live data heater status

Honda HO2S11 heater circuit diagnosis traps

- A P1166 can be set by a heater circuit that is electrically intact but slow to warm up, so always check heater current ramp with a lab scope rather than only resistance.
- Honda PCMs often set this code when the heater fuse is blown by a shorted sensor, so replacing the sensor without checking the fuse and wiring can repeat the failure.
- Aftermarket oxygen sensors with incorrect heater resistance are a common cause of repeat P1166 codes on Hondas, even when the sensor is new.
- The HO2S11 heater shares power with other circuits on some Honda models, so a fault elsewhere can cause this code without any problem in the sensor itself.
- A P1166 does not always mean the sensor is dead; the PCM may set it if the heater circuit draws too much current, which points to a shorted sensor or wiring.

Can I keep driving with P1166?

You can usually drive the vehicle with P1166, but expect slightly higher fuel consumption and a possible rough idle until the sensor warms up. Avoid long periods of idling or heavy load, and have the circuit checked soon to prevent catalytic converter damage from prolonged rich operation.

Tools that help

- OBD-II scan tool with live data
- Digital multimeter
- Lab scope for heater current waveform
- Back probe pins and wiring diagram
- Fuse puller and test light



Reading P1166

- P** Powertrain: engine, transmission and emissions.
- 1** Manufacturer-specific code (Honda): its meaning depends on the make.
- 1** Fuel and air metering.
- 66** 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) · **P0135** O2 Sensor Heater Circuit Malfunction (Bank 1 Sensor 1) · **P0141** O2 Sensor Heater Circuit Malfunction (Bank 1 Sensor 2) · **P0171** System Too Lean (Bank 1)

See it working

Watch the animated explainer [Excavator Simulator: Hydraulics You Can Operate](#) on Auto Veteran to see the parts involved moving.

Full guide, related articles and animations: <https://www.autoveteran.tech/dtc-codes/honda-p1166/>

