

VOLKSWAGEN · POWERTRAIN

P1197

OBD-II DIAGNOSTIC TROUBLE CODE (DTC)

P1197 · Volkswagen

Oxygen Sensor Heater Circuit Bank 2 Sensor 1 Electrical Malfunction

P1197 on Volkswagen vehicles means the engine control module has detected an electrical fault in the heater circuit for the pre-catalytic oxygen sensor on bank 2, sensor 1. The computer monitors the heater element's current draw and expects a specific resistance range when the heater is commanded on; this code sets when the circuit is open, shorted, or drawing current outside that expected window.

SYSTEM

Powertrain

CODE TYPE

**Volkswagen
specific**

SEVERITY

Medium

FIX DIFFICULTY

Intermediate

AREA

**Fuel and air
metering**

Symptoms you may notice

- Illuminated check engine light, often with no other symptoms besides the warning light
- Slightly longer time for the engine to enter closed-loop fuel control after a cold start
- A brief rich-running condition during warm-up that may cause rough idle or hesitation
- Occasional poor fuel economy if the sensor stays cold and the system remains in open-loop longer than normal
- In rare cases, a stored pending code that reappears after clearing without any noticeable driveability change

Common causes, most likely first

- 1 Failed oxygen sensor heater element inside bank 2 sensor 1 (open circuit or excessive resistance)
- 2 Damaged or corroded wiring harness between the sensor and the engine control module, often near the exhaust manifold
- 3 Blown fuse or faulty relay that supplies power to the oxygen sensor heater circuit
- 4 Loose, backed-out, or contaminated sensor connector pins causing intermittent heater current
- 5 Engine control module internal driver failure for the heater circuit (less common but possible)
- 6 Exhaust leak or physical damage to the sensor body that compromises the internal heater element



How to diagnose and fix it

- 1 Scan all modules and record freeze-frame data to confirm P1197 is active and not a ghost code from a previous repair
- 2 Inspect the bank 2 sensor 1 connector and harness for chafing, corrosion, or loose pins, and check the heater circuit fuse and relay
- 3 Measure the heater element resistance at the sensor connector with a multimeter and compare to the manufacturer's specification
- 4 Check for battery voltage and ground at the heater circuit terminals with the key on and the engine off to verify supply and return paths
- 5 If the circuit tests good but the code persists, perform a voltage-drop test on the heater feed and ground wires under load
- 6 Replace the bank 2 sensor 1 oxygen sensor with a quality direct-fit part if the heater element is open or out of specification
- 7 Clear the code, run a cold-start drive cycle, and verify the heater circuit monitor completes without resetting P1197

Heater circuit faults that fool technicians

- A heater circuit code does not always mean the sensor is dead; a corroded ground or a failing fuse can mimic an open heater element and lead to an unnecessary sensor replacement.
- Volkswagen oxygen sensor heaters draw a significant current spike at cold start, so a marginal connection that passes a static resistance test can still set P1197 under real load.
- Bank 2 sensor 1 on many VW engines sits close to the exhaust manifold and is exposed to heat and road splash, making harness chafing and connector contamination more common than on the downstream sensors.
- A failed heater circuit can keep the sensor from reaching operating temperature, which may cause the engine control module to stay in open-loop longer and set related mixture codes that distract from the real fault.
- After replacing the sensor, the heater circuit monitor may not run until the engine completes a specific cold-soak period, so a code that appears to return immediately may actually be a stored history code that was not cleared properly.

Can I keep driving with P1197?

You can usually drive the vehicle with P1197 set, but avoid long periods of idling from a cold start and do not ignore the light for weeks, because a cold oxygen sensor can increase emissions and fuel consumption. Have the circuit checked soon, especially if the engine runs rough after startup or the check engine light flashes.



Tools that help

- OBD-II scan tool with live data and freeze-frame capability
- Digital multimeter with resistance and voltage-drop functions
- Wiring diagram for the specific Volkswagen engine and chassis
- Basic hand tools for connector and sensor access
- Fuse puller and test light for circuit supply checks

Reading P1197

P Powertrain: engine, transmission and emissions.

1 Manufacturer-specific code (Volkswagen): its meaning depends on the make.

1 Fuel and air metering.

97 The exact fault within that area.

Often seen with

P1196 Oxygen Sensor Heater Circuit Bank 1 Sensor 1 Electrical Malf · **P1198** Oxygen Sensor Heater Circuit Bank 1 Sensor 2 Electrical Malf · **P1196** Ignition Switch Start Circuit · **P1196** Ignition Switch Start Circuit Fault · **P1196** O2 Sensor Heater Circuit Low Resistance Fault 2 · **P1198** Fuel Level Input Circuit High · **P1196** O2 Sensor 2/1 (Bank 2 Sensor 1) Slow During Catalyst Monitor · **P1198** Radiator Temperature Sensor Voltage Too High · **P1196** Key Off Voltage High · **P1198** Pump Rotor Control Underfueling · **P1196** O2 Sensor 2/1 (Bank 2 Sensor 1) Slow During Catalyst Monitor · **P1198** Radiator Temperature Sensor Voltage Too High · **P0130** O2 Sensor Circuit Malfunction (Bank 1 Sensor 1) · **P0135** O2 Sensor Heater Circuit Malfunction (Bank 1 Sensor 1) · **P0155** O2 Sensor Heater Circuit Malfunction (Bank 2 Sensor 1)

See it working

Watch the animated explainer [Inline-Four Engine X-Ray: Firing Order 1-3-4-2](#) on Auto Veteran to see the parts involved moving.

Full guide, related articles and animations: <https://www.autoveteran.tech/dtc-codes/volkswagen-p1197/>

