

VOLKSWAGEN · POWERTRAIN

P1178

OBD-II DIAGNOSTIC TROUBLE CODE (DTC)

P1178 · Volkswagen

Linear Oxygen Sensor Pump Current Open

P1178 on Volkswagen vehicles means the engine control module has detected an open circuit in the pump current circuit of the linear oxygen sensor, which is the wideband air-fuel ratio sensor. The sensor's internal heater and pump cell rely on a dedicated current path, and an open in that wiring or connector prevents the controller from commanding the pump cell, so the module flags the circuit as open.

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 noticeable symptoms
- Rough idle or unstable engine speed when the sensor feedback is lost
- Poor fuel economy or rich-running behavior as the module defaults to open-loop fueling
- Hesitation or stumble during acceleration
- Elevated emissions or a failed emissions inspection
- In rare cases, a no-start or stall condition if the fault is combined with other sensor circuit failures

Common causes, most likely first

- 1 Broken, chafed, or corroded wire in the linear oxygen sensor pump current circuit
- 2 Loose or contaminated electrical connector at the oxygen sensor or at the engine control module
- 3 Failed linear oxygen sensor with an open pump cell or internal heater circuit
- 4 Open circuit inside the engine wiring harness due to heat damage or rodent damage
- 5 Poor ground connection for the oxygen sensor heater or sensor return circuit
- 6 Faulty engine control module driver for the pump current circuit, though this is less common



How to diagnose and fix it

- 1 Scan all modules and record freeze-frame data to confirm P1178 is the primary fault and not a secondary code
- 2 Visually inspect the linear oxygen sensor connector and wiring for damage, corrosion, or loose pins
- 3 Measure resistance of the sensor pump cell and heater circuit at the sensor connector and compare to factory specifications
- 4 Check continuity and voltage drop on the pump current circuit from the sensor connector to the engine control module
- 5 Verify the sensor ground circuit and heater supply are intact under load
- 6 If wiring and connectors pass, replace the linear oxygen sensor with a quality OEM or equivalent unit
- 7 Clear codes, perform a road test, and verify the oxygen sensor readiness monitor completes without resetting the fault

What the pump current circuit really tests

- The linear oxygen sensor pump current circuit is separate from the heater circuit, so a sensor that heats up and reads plausibly can still set P1178 if the pump cell current path is open.
- A common misdiagnosis is replacing the sensor when the real fault is a backed-out terminal or green corrosion inside the connector, which mimics an open circuit perfectly.
- Volkswagen linear oxygen sensors are sensitive to contamination from silicone or lead, and a contaminated sensor can develop an open pump cell without any visible wiring damage.
- This code can be set by a poor engine ground that affects the sensor return circuit, so always check ground straps and battery negative connections before condemning the sensor.
- After replacing the sensor, some Volkswagen models require a basic setting or adaptation reset for the oxygen sensor monitor to relearn, otherwise the code may return temporarily.

Can I keep driving with P1178?

You can usually drive the vehicle short distances to a repair shop, but avoid heavy acceleration, towing, or long trips because the engine may run rich and damage the catalytic converter over time. If the engine runs poorly or stalls, stop driving and arrange a tow.

Tools that help

- OBD-II scan tool with manufacturer-specific software
- Digital multimeter with back-probing pins
- Wiring diagram for the specific Volkswagen model
- Sensor socket or oxygen sensor wrench
- Contact cleaner and dielectric grease



Reading P1178

- P** Powertrain: engine, transmission and emissions.
- 1** Manufacturer-specific code (Volkswagen): its meaning depends on the make.
- 1** Fuel and air metering.
- 78** 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) · **P0132** O2 Sensor Circuit High Voltage (Bank 1 Sensor 1) · **P0133** O2 Sensor Circuit Slow Response (Bank 1 Sensor 1) · **P0171** System Too Lean (Bank 1)

See it working

Watch the animated explainer [How Variable Valve Timing Works: Cam Phaser and VVT Solenoid](#) on Auto Veteran to see the parts involved moving.

Full guide, related articles and animations: <https://www.autoveteran.tech/dtc-codes/volkswagen-p1178/>

