

VOLKSWAGEN · POWERTRAIN

P1112

OBD-II DIAGNOSTIC TROUBLE CODE (DTC)

P1112 · Volkswagen

Oxygen Sensor Control Bank 1 System Too Rich

P1112 on Volkswagen vehicles indicates that the engine control module has detected a rich fuel mixture condition on bank 1, meaning the oxygen sensor feedback is showing more fuel than the computer commanded. The code is set when the long-term fuel trim has reached its rich limit, typically because the sensor is reporting a consistently rich exhaust stream that the system cannot correct.

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
- Decreased fuel economy as the engine runs richer than necessary
- Rough idle or engine stumbling due to excessive fuel
- Black, sooty exhaust smoke or a strong fuel odor from the tailpipe
- Failed emissions test due to high carbon monoxide or hydrocarbon levels
- In rare cases, engine misfire or hesitation under acceleration

Common causes, most likely first

- 1 Faulty upstream oxygen sensor (bank 1 sensor 1) sending a false rich signal
- 2 Leaking or stuck-open fuel injector on bank 1
- 3 High fuel pressure from a failed fuel pressure regulator or restricted return line
- 4 Contaminated mass airflow sensor (MAF) over-reporting air intake, causing excess fuel delivery
- 5 Vacuum leak after the MAF sensor that is unmetered, but often causes lean, not rich; however, a stuck-open purge valve can cause rich
- 6 Leaking EVAP purge valve allowing fuel vapor to enter the intake continuously
- 7 Wiring or connector issues at the oxygen sensor or engine control module



How to diagnose and fix it

- 1 Scan all modules for stored codes and freeze-frame data to confirm P1112 and check fuel trim values
- 2 Inspect the upstream oxygen sensor wiring and connector for damage or corrosion, and verify sensor operation with a scan tool graphing live data
- 3 Check fuel pressure with a gauge and compare to Volkswagen specifications; inspect fuel pressure regulator and injectors for leaks
- 4 Perform a smoke test to check for intake leaks and test the EVAP purge valve for sticking open
- 5 Clean or replace the mass airflow sensor if contamination is suspected, and verify its readings against expected values
- 6 Replace the upstream oxygen sensor if its signal is biased rich and all other causes are ruled out
- 7 Clear codes and perform a road test to verify fuel trims return to normal and the code does not reset

Don't overlook these P1112 triggers

- A stuck-open EVAP purge valve is a common cause of rich codes on Volkswagen engines because fuel vapor is continuously drawn into the intake, and it often sets P1112 without any EVAP-specific code.
- The oxygen sensor itself may be reporting accurately; a leaking injector or high fuel pressure can create a genuine rich condition that the sensor correctly detects, so replacing the sensor first is a frequent misdiagnosis.
- Volkswagen's long-term fuel trim can max out at -25% or more before P1112 sets, meaning the rich condition may have existed for a long time without triggering a light.
- A contaminated mass airflow sensor can skew readings rich without setting a MAF code, so always compare measured airflow to expected values under load.
- After repairs, the engine control module may need a adaptation reset or a drive cycle to relearn fuel trims, otherwise the code may reappear temporarily.

Can I keep driving with P1112?

You can usually drive the vehicle short distances to a repair shop, but avoid sustained high-speed driving or heavy loads because the rich mixture can overheat and damage the catalytic converter. If the check engine light begins flashing or you notice misfiring, stop driving and seek immediate service.

Tools that help

- OBD-II scan tool with live data and graphing capability
- Fuel pressure gauge
- Smoke machine for intake and EVAP leak testing
- Digital multimeter for sensor and wiring checks
- Basic hand tools for sensor and injector access



Reading P1112

- P** Powertrain: engine, transmission and emissions.
- 1** Manufacturer-specific code (Volkswagen): its meaning depends on the make.
- 1** Fuel and air metering.
- 12** The exact fault within that area.

Often seen with

P0133 O2 Sensor Circuit Slow Response (Bank 1 Sensor 1) · **P0172** System Too Rich (Bank 1) · **P0175** System Too Rich (Bank 2) · **P0442** EVAP System Leak Detected (Small) · **P0455** EVAP System Leak Detected (Large)

See it working

Watch the animated explainer [Helicopter Flight Simulator: Learn the Three Controls](#) on Auto Veteran to see the parts involved moving.

Full guide, related articles and animations: <https://www.autoveteran.tech/dtc-codes/volkswagen-p1112/>

