

VOLKSWAGEN · POWERTRAIN

P1123

OBD-II DIAGNOSTIC TROUBLE CODE (DTC)

P1123 · Volkswagen

Long Term Fuel Trim Add Air Bank 1 System Too Rich

P1123 on Volkswagen vehicles means the engine control module has detected that the long-term fuel trim on bank 1 has reached its rich limit while adding air, indicating the engine is running too rich and the computer cannot lean it out further. The fault is stored when the additive long-term trim value exceeds the calibrated threshold for a set time, typically because unmetered fuel or a false air signal is skewing the mixture.

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
- Slightly rough idle or idle surge when the engine is cold or under light load
- Black sooty exhaust smoke or a strong fuel smell at idle
- Reduced fuel economy and frequent refuelling
- Hesitation or stumble on acceleration from a stop
- Elevated hydrocarbon emissions that may fail an emissions test

Common causes, most likely first

- 1 Leaking or dripping fuel injector on bank 1, allowing extra fuel into the cylinder
- 2 High fuel pressure from a faulty fuel pressure regulator or restricted return line
- 3 Contaminated mass air flow sensor reporting less air than actually enters the engine
- 4 Evaporative emissions purge valve stuck open, drawing fuel vapour into the intake
- 5 Worn spark plugs or ignition misfire causing unburned fuel to reach the oxygen sensor
- 6 Leaking intake manifold gasket or vacuum line admitting unmetered air past the sensor
- 7 Faulty upstream oxygen sensor biased rich, causing the ECU to overcorrect



How to diagnose and fix it

- 1 Connect a scan tool and record live data: long-term fuel trim, mass air flow, oxygen sensor voltage, and fuel pressure if available
- 2 Inspect the air intake tract and vacuum lines for cracks, loose clamps, or disconnected hoses that admit unmetered air
- 3 Check fuel pressure with a gauge and compare to Volkswagen specification; inspect the pressure regulator and return line
- 4 Test the evaporative emissions purge valve for sticking open by commanding it closed and watching fuel trim
- 5 Perform a cylinder balance or injector flow test to identify a leaking or dripping injector on bank 1
- 6 Inspect spark plugs and ignition coils for wear or misfire, and repair any ignition fault before retesting
- 7 Clear the fault, road test under the conditions that set it, and verify long-term fuel trim returns to a normal range

What a rich bank 1 trim really tells you

- A stuck-open evap purge valve is one of the most commonly missed causes because it feeds fuel vapour into the intake without any visible leak or fuel pressure change.
- P1123 does not automatically mean the oxygen sensor is bad; a biased sensor can cause the ECU to overcorrect, but replacing it without checking fuel trim first often leaves the code returning.
- Volkswagen long-term additive trim is learned at idle and low load, so a vacuum leak that leans the mixture at idle can paradoxically drive the additive trim rich as the ECU compensates elsewhere.
- A misfiring cylinder on bank 1 dumps unburned fuel into the exhaust, which the oxygen sensor reads as rich and the ECU tries to lean out, setting P1123 even though the root cause is ignition.
- After any repair, the long-term trim must be cleared and relearned through a full drive cycle; simply clearing the code and idling the engine will not confirm the fix.

Can I keep driving with P1123?

You can drive the vehicle short distances to a workshop, but avoid hard acceleration and prolonged idling because the rich mixture can overheat and damage the catalytic converter. Have the fault diagnosed promptly, especially if you notice black smoke or a strong fuel smell.

Tools that help

- OBD-II scan tool with live data and fuel trim graphing
- Fuel pressure gauge
- Vacuum gauge
- Smoke machine for intake leak detection
- Digital multimeter
- Basic hand tools and Torx bit set



Reading P1123

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

Often seen with

P1122 Oxygen Sensor Heater Circuit Bank 2 Sensor 2 Open · **P1121** Oxygen Sensor Heater Circuit Bank 2 Sensor 2 Short To Ground · **P1121** Accelerator Pedal Position Sensor Range Performance Problem · **P1121** Neutral Position Switch Circuit Low Input AT Vehicles · **P1122** Pressure Sources Switching Valve Circuit High Input · **P1122** Throttle Position Higher Than Expected · **P1121** Throttle Position Lower Than Expected · **P1121** Throttle Position Sensor Signal Not Consistent With Mass Air · **P1122** Throttle Position Stuck Closed · **P1121** Pedal Position Sensor A Circuit Range Performance · **P1122** Pedal Position Sensor A Circuit Low Input · **P1121** Throttle Position Lower Than Expected · **P1122** Throttle Position Higher Than Expected · **P1121** Throttle Position Sensor Out of Range · **P1122** Throttle Position Sensor Out of Range · **P1121** Throttle Position Sensor Inconsistent with Mass Air Flow Sen · **P1122** Throttle Position TP Sensor Circuit Intermittent Low Voltage · **P1121** TP Sensor Circuit Intermittent High Voltage · **P1122** TP Sensor Circuit Intermittent Low Voltage · **P1122** Pedal Position Sensor 1 Low Input · **P1121** Pedal Position Sensor 1 Range Performance Problem · **P0175** System Too Rich (Bank 2) · **P0300** Random/Multiple Cylinder Misfire Detected · **P0172** System Too Rich (Bank 1)

See it working

Watch the animated explainer [How ABS Works: Anti-Lock Brakes in X-Ray](#) on Auto Veteran to see the parts involved moving.

Full guide, related articles and animations: <https://www.autoveteran.tech/dtc-codes/volkswagen-p1123/>

