

VOLKSWAGEN · POWERTRAIN

P1127

OBD-II DIAGNOSTIC TROUBLE CODE (DTC)

P1127 · Volkswagen

Long Term Fuel Trim Bank 1 System Too Rich

P1127 on a Volkswagen indicates that the engine control module has detected a long-term fuel trim value on bank 1 that is excessively rich, meaning the engine is running with too much fuel for the amount of air it is receiving. The computer has learned over time that it must remove a large amount of fuel to keep the air-fuel ratio correct, and this stored code is set when that learned correction exceeds a calibrated threshold.

SYSTEM

Powertrain

CODE TYPE

**Volkswagen
specific**

SEVERITY

Medium

FIX DIFFICULTY

Intermediate

AREA

**Fuel and air
metering**

Symptoms you may notice

- Often no symptoms besides the warning light, especially in early stages
- Noticeably reduced fuel economy compared to normal driving
- Black sooty exhaust smoke or a strong fuel odor from the tailpipe
- Rough idle or engine stumbling when coming to a stop
- Spark plugs fouling prematurely with black carbon deposits
- Failed emissions test due to high carbon monoxide or hydrocarbon readings

Common causes, most likely first

- 1 Leaking or stuck-open fuel injector on bank 1
- 2 Faulty mass air flow sensor over-reporting airflow, causing excess fuel delivery
- 3 Leaking evaporative emissions purge valve allowing fuel vapor into the intake
- 4 High fuel pressure from a failed fuel pressure regulator or restricted return line
- 5 Contaminated engine oil with fuel dilution affecting crankcase ventilation
- 6 Worn or incorrectly gapped spark plugs causing incomplete combustion
- 7 Faulty oxygen sensor giving a false lean reading, prompting the ECU to add fuel



How to diagnose and fix it

- 1 Connect a scan tool and record long-term fuel trim values at idle and at 2500 rpm to confirm the rich condition on bank 1
- 2 Inspect the air intake system for restrictions or leaks between the mass air flow sensor and throttle body
- 3 Check fuel pressure with a gauge and compare to Volkswagen specifications for your engine code
- 4 Test the evaporative emissions purge valve for sticking open by commanding it closed with the scan tool and observing fuel trim changes
- 5 Perform an injector balance test or remove injectors for bench testing to identify a leaking unit
- 6 Inspect spark plugs for fouling and replace if black or wet with fuel
- 7 Recheck long-term fuel trim after repairs and clear the code to verify the fix

What Most Techs Miss on Rich Fuel Trim

- A leaking purge valve is one of the most commonly overlooked causes of a rich condition on Volkswagen engines because it allows fuel vapor to enter the intake continuously, even when the engine is warm and the valve should be closed.
- A mass air flow sensor that over-reports airflow will cause the ECU to inject more fuel than needed, and this often sets P1127 without any driveability complaint until the trim reaches its limit.
- Fuel dilution in the engine oil from repeated short trips or a leaking injector can raise crankcase vapor fuel content and skew fuel trim, so always check oil level and smell for fuel when diagnosing this code.
- Do not replace the catalytic converter based on this code alone; a rich condition can damage the converter over time, but the converter is rarely the root cause of P1127.
- On some Volkswagen engines, a faulty coolant temperature sensor that reads cold will keep the ECU in enrichment mode, causing a rich long-term trim that sets P1127.

Can I keep driving with P1127?

You can 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. Have the fault diagnosed promptly to prevent further component damage.

Tools that help

- OBD-II scan tool with live data and fuel trim capability
- Fuel pressure gauge
- Vacuum gauge
- Digital multimeter
- Basic hand tools for intake and injector access



Reading P1127

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

Often seen with

P1128 Long Term Fuel Trim Bank 1 System Too Lean · **P1128** Throttle Control Motor Lock · **P1128** MAP Lower Than Expected · **P1128** HO2S Bank 1 Sensor 1 Signals Swapped In Key On Engine Runnin · **P1128** Long Term Fuel Trim Multiplicative Air System High · **P1128** MAP Lower Than Expected · **P1128** Upstream Heated Oxygen Sensor Signals Reversed · **P0172** System Too Rich (Bank 1) · **P0175** System Too Rich (Bank 2) · **P2188** System Too Rich at Idle (Bank 1) · **P2196** O2 Sensor Signal Stuck Rich (Bank 1 Sensor 1)

See it working

Watch the animated explainer [How Drive-by-Wire Works: Electronic Throttle Body](#) on Auto Veteran to see the parts involved moving.

Full guide, related articles and animations: <https://www.autoveteran.tech/dtc-codes/volkswagen-p1127/>

