

VOLKSWAGEN · POWERTRAIN

P1151

OBD-II DIAGNOSTIC TROUBLE CODE (DTC)

P1151 · Volkswagen

Bank 1 Long Term Fuel Trim Range 1 Lower Lean Limit Exceeded

P1151 on Volkswagen vehicles means the engine computer has detected that the long-term fuel trim for Bank 1 has reached its maximum lean correction limit, so the engine is running too lean and the computer can no longer add enough fuel to compensate. The fault is stored when the long-term fuel trim value exceeds the lean threshold for a calibrated time, indicating a persistent lean condition 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
- Rough idle or stumbling when the engine is cold or under load
- Hesitation or lack of power during acceleration
- Occasional misfire or surging at steady speeds
- Poor fuel economy despite the lean condition
- Hard starting or stalling after startup in some cases

Common causes, most likely first

- 1 Vacuum leak from cracked or disconnected intake hoses, intake manifold gaskets, or PCV (positive crankcase ventilation) lines
- 2 Faulty mass air flow (MAF) sensor sending an inaccurate low air reading
- 3 Weak or failing fuel pump delivering insufficient fuel volume
- 4 Clogged fuel filter or restricted fuel line
- 5 Leaking intake manifold gasket or worn throttle body seal
- 6 Dirty or failing fuel injectors causing uneven fuel delivery
- 7 Exhaust leak before the oxygen sensor allowing false lean readings



How to diagnose and fix it

- 1 Perform a visual inspection of all intake and vacuum hoses for cracks, loose clamps, or disconnected lines
- 2 Use a scan tool to check live fuel trim data and confirm the long-term trim is pegged positive (lean)
- 3 Smoke test the intake system to pinpoint vacuum leaks that are not visible
- 4 Clean or replace the mass air flow sensor if its readings are inconsistent with actual airflow
- 5 Check fuel pressure and volume at the rail; replace the fuel filter if restricted and test the pump if pressure is low
- 6 Inspect fuel injectors for clogging or leaks; clean or replace as needed
- 7 Check for exhaust leaks upstream of the oxygen sensor and repair any found

What most technicians miss on P1151

- A dirty mass air flow sensor often under-reports airflow, causing the computer to add fuel until the long-term trim hits its lean limit, yet the sensor may not set a separate MAF code.
- Small vacuum leaks that only appear when the engine is cold or at certain RPMs can be missed by a static visual inspection; a smoke test with the engine off is far more reliable.
- A weak fuel pump may still deliver enough pressure at idle but fail to maintain volume under load, so fuel pressure must be tested under driving conditions or with a volume test.
- Exhaust leaks before the oxygen sensor draw in outside air and trick the sensor into reporting a lean condition, even when the engine is actually running rich.
- On some Volkswagen engines, a failing PCV valve or diaphragm can cause a large unmetered air leak that sets P1151 without any obvious hissing noise.

Can I keep driving with P1151?

You can drive the vehicle short distances to a repair shop, but avoid hard acceleration, heavy loads, and sustained high speeds because the lean condition can overheat the catalytic converter and cause misfires. If the check engine light begins flashing, stop driving immediately and have the vehicle towed.

Tools that help

- OBD-II scan tool with live data capability
- Smoke machine for intake leak detection
- Fuel pressure gauge
- Digital multimeter
- Hand tools for hose and sensor removal



Reading P1151

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

Often seen with

P1150 Oxygen Sensor Control Bank 2 Out Of Range · **P1152** Bank 1 Long Term Fuel Trim Range 2 Lower Lean Limit Exceeded · **P1150** Air/Fuel Sensor Circuit Range Performance Bank 1 Sensor 2 · **P1150** Front Oxygen Sensor Heater Circuit High Input · **P1150** HO2S Bank 2 Sensor 1 Not Switching Fuel Control Limit Reached · **P1152** HO2S Bank 2 Sensor 1 Signal Above 0.45v AF Ratio Too Rich · **P1150** Lack of Upstream Heated Oxygen Sensor Switch Adaptive Fuel L · **P1152** Lack of Upstream Heated Oxygen Sensor Switch Sensor Indicate · **P1152** O2 Sensor Heater Circuit Low Voltage Bank 2 Sensor 1 · **P0101** Mass/Volume Air Flow Circuit Range/Performance · **P0171** System Too Lean (Bank 1) · **P0174** System Too Lean (Bank 2)

See it working

Watch the animated explainer [How an Elevator Works: Traction Lift 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-p1151/>

