

VOLKSWAGEN · POWERTRAIN

P1138

OBD-II DIAGNOSTIC TROUBLE CODE (DTC)

P1138 · Volkswagen

Long Term Fuel Trim Add Fuel Bank 2 System Too Lean

P1138 on Volkswagen vehicles means the engine control module has detected an excessively lean condition on bank 2, based on long-term fuel trim adding more fuel than the calibration allows. The computer commands extra fuel to compensate for a perceived air leak or fuel delivery shortfall, but the correction has hit its limit and the mixture remains too lean.

SYSTEM

Powertrain

CODE TYPE

Volkswagen specific

SEVERITY

Medium

FIX DIFFICULTY

Professional

AREA

Fuel and air metering

Symptoms you may notice

- Illuminated check engine light, often with no other symptoms noticed by the driver
- Rough idle or misfire on the bank 2 cylinder head, especially when cold
- Hesitation or stumble during acceleration under load
- Reduced fuel economy as the engine control module adds fuel to compensate
- Occasional lean misfire codes or a flashing check engine light under heavy load
- Hard starting or stalling when the mixture is severely lean

Common causes, most likely first

- 1 Vacuum or intake air leak on the bank 2 side, such as a cracked intake manifold gasket or deteriorated vacuum hose
- 2 Faulty or contaminated mass airflow sensor reporting less air than actually enters the engine
- 3 Weak or failing fuel pump delivering insufficient volume to the bank 2 fuel rail
- 4 Clogged or restricted fuel injectors on bank 2, reducing fuel delivery
- 5 Leaking intake manifold runner flap or swirl flap seals common on Volkswagen direct-injection engines
- 6 Exhaust leak upstream of the bank 2 oxygen sensor drawing in outside air and skewing the reading
- 7 Low fuel pressure caused by a restricted fuel filter or a failing fuel pressure regulator



How to diagnose and fix it

- 1 Connect a scan tool and record freeze-frame data and long-term fuel trim values for both banks to confirm the lean condition is isolated to bank 2
- 2 Perform a visual inspection of all intake and vacuum lines on the bank 2 side, looking for cracks, loose clamps, and deteriorated rubber
- 3 Smoke test the intake system to pinpoint any unmetered air leaks that the mass airflow sensor cannot account for
- 4 Check fuel pressure and volume at the rail, comparing bank 2 delivery against specification and inspecting for a restricted filter
- 5 Test the bank 2 oxygen sensor response and inspect for exhaust leaks upstream of the sensor that could dilute the sample
- 6 Clean or flow-test the bank 2 fuel injectors, replacing any that are restricted or have poor spray patterns
- 7 After repairs, clear the fault memory and verify long-term fuel trim returns to within a few percent of zero during a road test

What a lean bank 2 code really means

- A P1138 does not automatically mean the bank 2 oxygen sensor is faulty; the sensor is often reporting a real lean condition caused by unmetered air or low fuel delivery.
- Volkswagen direct-injection engines frequently develop carbon buildup on the intake valves, which can disturb airflow enough to set a lean code on one bank without any obvious drivability complaint.
- A failing mass airflow sensor can skew fuel trim on both banks, but bank 2 may hit the lean limit first due to slight differences in intake runner flow or injector condition.
- An exhaust leak before the bank 2 oxygen sensor pulls outside air into the exhaust stream, making the sensor report a false lean condition that fuel trim then tries to correct.
- Fuel trim codes on Volkswagen engines can be set by a weak low-pressure fuel pump even when high-pressure rail pressure looks normal at idle, so a road-test pressure check under load is essential.

Can I keep driving with P1138?

You can usually drive the vehicle to a workshop, but avoid heavy acceleration and sustained high-speed driving because the lean condition can raise combustion temperatures and damage the catalytic converter or exhaust valves. If the check engine light flashes or the engine misfires noticeably, stop driving and arrange a tow.



Tools that help

- OBD-II scan tool with live data and fuel trim capability
- Smoke machine for intake leak detection
- Fuel pressure gauge and volume test kit
- Vacuum gauge
- Infrared thermometer or exhaust leak detection tool

Reading P1138

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

Often seen with

P1137 Long Term Fuel Trim Add Fuel Bank 1 System Too Rich · **P1137** Front Oxygen AF Sensor Circuit Range Performance Problem · **P1137** HO2S Bank 1 Sensor 2 Not Switching Fuel Control Limit Reached · **P1137** Lack Of HO2S12 Switches Sensor Indicates Lean · **P1137** O2 Sensor Low Voltage During Power Enrichment (Bank 1 Sensor · **P1137** Lack of Downstream Heated Oxygen Sensor Switch Sensor Indica · **P1137** HO2S Bank 1 Sensor 2 Lean Or Low Voltage · **P1137** O2 Sensor Heater Circuit Signal Intermittent Bank 1 Sensor 2 · **P0171** System Too Lean (Bank 1) · **P0174** System Too Lean (Bank 2) · **P0300** Random/Multiple Cylinder Misfire Detected · **P0302** Cylinder 2 Misfire Detected

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-p1138/>

