

VOLKSWAGEN · POWERTRAIN

P1150

OBD-II DIAGNOSTIC TROUBLE CODE (DTC)

P1150 · Volkswagen

Oxygen Sensor Control Bank 2 Out Of Range

P1150 on Volkswagen vehicles means the engine control module (ECM) has detected that the oxygen sensor control for bank 2 is outside its expected operating range. The computer is telling you that the fuel mixture correction on the bank of cylinders opposite cylinder one has gone too far rich or too far lean, and the sensor feedback is not responding as it should.

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 hesitation when accelerating
- Poor fuel economy or a rich-running smell from the exhaust
- Black sooty exhaust smoke or fouled spark plugs
- Intermittent misfire or surging at steady speed
- Failed emissions test due to high carbon monoxide or hydrocarbons

Common causes, most likely first

- 1 Faulty bank 2 oxygen sensor (slow response or contaminated element)
- 2 Vacuum leak on the bank 2 intake side, such as a cracked intake gasket or split hose
- 3 Leaking fuel injector on bank 2 causing an overly rich condition
- 4 Exhaust leak before the bank 2 oxygen sensor letting in outside air
- 5 Wiring damage or corroded connector at the bank 2 oxygen sensor
- 6 Low fuel pressure or a weak fuel pump affecting bank 2 mixture
- 7 Faulty mass airflow sensor (MAF) sending skewed readings that affect both banks



How to diagnose and fix it

- 1 Scan all stored codes and freeze-frame data to confirm P1150 is active and not a ghost code
- 2 Inspect bank 2 intake hoses and gaskets for vacuum leaks using a smoke machine or carb cleaner
- 3 Check the bank 2 oxygen sensor wiring and connector for corrosion, chafing, or loose pins
- 4 Measure fuel pressure and compare to specification, then test for leaking injectors on bank 2
- 5 Use a scan tool to watch bank 2 oxygen sensor voltage and short-term fuel trim; a lazy sensor that stays near 0.45 V or switches slowly points to replacement
- 6 Perform a propane enrichment test at the intake to confirm whether the mixture is genuinely rich or lean before replacing parts
- 7 Replace the bank 2 oxygen sensor only after confirming the sensor is the cause, then clear codes and verify fuel trims return to normal

Bank 2 oxygen sensor traps to avoid

- A P1150 can be set by a lazy oxygen sensor that still switches but too slowly, so a simple voltage check may look normal while the ECM sees out-of-range control.
- Many technicians replace the bank 2 sensor only to find a leaking injector or intake gasket was the real cause, so always check fuel trims on both banks before buying parts.
- Volkswagen engines often share a single mass airflow sensor across both banks, so a skewed MAF reading can set P1150 on bank 2 while bank 1 stays within range.
- An exhaust leak upstream of the bank 2 sensor pulls in outside oxygen and makes the ECM command a rich mixture, mimicking a failed sensor.
- After replacing the sensor, the ECM may need a drive cycle or adaptation reset before P1150 clears permanently, so do not assume the repair failed if the light stays on briefly.

Can I keep driving with P1150?

You can usually drive short distances to a repair shop, but avoid heavy acceleration or long trips because a persistent rich or lean condition can damage the catalytic converter and spark plugs. If the check engine light starts flashing, stop driving and have the vehicle towed.

Tools that help

- OBD-II scan tool with live data and fuel trim capability
- Smoke machine for vacuum leak detection
- Fuel pressure gauge
- Digital multimeter for sensor wiring checks
- Propane enrichment tool or carb cleaner for intake leak testing
- Oxygen sensor socket and ratchet



Reading P1150

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

Often seen with

P1151 Bank 1 Long Term Fuel Trim Range 1 Lower Lean Limit Exceeded · **P1152** Bank 1 Long Term Fuel Trim Range 2 Lower Lean Limit Exceeded · **P1151** Rear Oxygen Sensor Heater Circuit High Input · **P1151** HO2S Bank 2 Sensor 1 Signal Below 0.45v AF Ratio Too Lean · **P1152** HO2S Bank 2 Sensor 1 Signal Above 0.45v AF Ratio Too Rich · **P1151** Lack of Upstream Heated Oxygen Sensor Switch Sensor Indicate · **P1152** Lack of Upstream Heated Oxygen Sensor Switch Sensor Indicate · **P1151** O2 Sensor Heater Circuit Signal Intermittent Bank 2 Sensor 1 · **P1152** O2 Sensor Heater Circuit Low Voltage Bank 2 Sensor 1 · **P0130** O2 Sensor Circuit Malfunction (Bank 1 Sensor 1) · **P0171** System Too Lean (Bank 1) · **P0172** System Too Rich (Bank 1)

See it working

Watch the animated explainer [How a Radiator Fan Relay Circuit Works](#) on Auto Veteran to see the parts involved moving.

Full guide, related articles and animations: <https://www.autoveteran.tech/dtc-codes/volkswagen-p1150/>

