

JAGUAR · POWERTRAIN

P1176

OBD-II DIAGNOSTIC TROUBLE CODE (DTC)

P1176 · Jaguar

Long Term Fuel Trim Too Lean Banks 1 And 2 (FMFR)

P1176 on Jaguar vehicles means the engine control module (ECM) has detected that the long-term fuel trim on both banks has reached its lean correction limit, indicating the engine is running too lean and the ECM can no longer add enough fuel to compensate. The code is stored when the fuel trim values stay beyond the calibrated threshold for a set period, often described as FMFR or fuel mixture failure rich-to-lean.

SYSTEM

Powertrain

CODE TYPE

Jaguar 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 intermittent misfire, especially when the engine is cold
- Hesitation or stumble during acceleration
- Reduced fuel economy despite the lean condition
- Occasional surging or uneven power delivery
- Hard starting or extended cranking in some cases

Common causes, most likely first

- 1 Vacuum leaks from cracked or disconnected intake hoses, intake manifold gaskets, or PCV hoses
- 2 Faulty mass air flow (MAF) sensor reading lower than actual airflow
- 3 Contaminated or failing upstream oxygen sensors causing inaccurate fuel trim feedback
- 4 Weak fuel pump or restricted fuel filter reducing fuel delivery
- 5 Leaking or stuck-open fuel injectors on one or both banks
- 6 Exhaust leaks upstream of the oxygen sensors drawing in outside air
- 7 Mechanical issues such as low compression or incorrect valve timing



How to diagnose and fix it

- 1 Perform a visual inspection of all intake and vacuum lines for cracks, loose clamps, or disconnected hoses
- 2 Use a scan tool to check live fuel trim data and compare short-term and long-term trims on both banks
- 3 Smoke-test the intake system to pinpoint vacuum leaks that are not visible
- 4 Clean or replace the MAF sensor if its readings are inconsistent with expected airflow
- 5 Check fuel pressure and volume against Jaguar specifications, replacing the filter or pump if weak
- 6 Inspect upstream oxygen sensor operation and replace if switching is sluggish or biased lean
- 7 Verify injector operation and check for exhaust leaks before the sensors, repairing as needed

What most technicians overlook on P1176

- A dirty MAF sensor is a very common cause on Jaguars, and cleaning it with the correct spray can restore normal fuel trim without any parts replacement.
- The code can be set by a vacuum leak that only appears when the engine is cold, so a smoke test performed on a warm engine may miss it.
- Long-term fuel trim hitting its lean limit does not always mean a failed component; a weak fuel pump can cause lean trims on both banks without setting a low fuel pressure code.
- After repairing the root cause, the ECM may need several drive cycles before the long-term fuel trim relearns and the light clears, so do not assume the repair failed if the code returns immediately.
- Exhaust leaks upstream of the oxygen sensors are often overlooked and can mimic a lean condition by allowing outside air to reach the sensor.

Can I keep driving with P1176?

You can usually drive the vehicle short distances to a repair shop, but avoid heavy acceleration, towing, or sustained high-speed driving because a prolonged lean condition can overheat and damage catalytic converters and spark plugs.

Tools that help

- OBD-II scan tool with live data capability
- Smoke machine for intake leak detection
- Fuel pressure gauge
- Digital multimeter
- MAF sensor cleaner
- Basic hand tools and socket set



Reading P1176

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

Often seen with

P1171 Throttle Actuation Potentiometer Signal 2 Range Performance · **P1174** Fuel Trim Bank 1 Different Injection Times · **P1171** System Too Lean Banks 1 And 2 (Lean Fuel Fault) · **P1174** System Too Lean Banks 1 And 2 (Suspect HO2S) · **P1171** Fuel System Lean During Acceleration · **P1171** Rotor Sensor Fault · **P1174** Cam Sensor Fault · **P1171** Fuel System Lean During Acceleration · **P1174** Fuel Trim Adaptation Additive Bank 1 Malfunction · **P0171** System Too Lean (Bank 1) · **P0174** System Too Lean (Bank 2) · **P0300** Random/Multiple Cylinder Misfire Detected

See it working

Watch the animated explainer [How a Refrigerator Works: The Cooling Cycle](#) on Auto Veteran to see the parts involved moving.

Full guide, related articles and animations: <https://www.autoveteran.tech/dtc-codes/jaguar-p1176/>

