



P1177 · Jaguar

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

P1177 on a Jaguar means the engine control module has detected that the long-term fuel trim on both banks has gone too rich, so the computer is pulling fuel out beyond its normal correction range. The engine is receiving more fuel than the oxygen sensors report is needed, and the module has stored this code because the rich condition persists on both cylinder banks.

SYSTEM	CODE TYPE	SEVERITY	FIX DIFFICULTY	AREA
Powertrain	Jaguar specific	Medium	Professional	Fuel and air metering

Symptoms you may notice

- Often no symptoms besides the warning light, especially if the rich condition is mild and the engine still runs smoothly.
- A strong fuel smell from the exhaust or around the engine bay, particularly after idling or at a standstill.
- Black sooty smoke from the tailpipe under acceleration, indicating unburned fuel.
- Poor fuel economy that the driver notices as more frequent fill-ups without a change in driving habits.
- Rough idle or a stumble on acceleration when the rich mixture fouls spark plugs or contaminates the oxygen sensors.
- A flashing or illuminated check engine light accompanied by reduced power if the rich condition is severe enough to affect combustion.

Common causes, most likely first

- 1 A leaking or stuck-open fuel injector on one or both banks, delivering excess fuel that the long-term trim cannot compensate for.
- 2 Excessive fuel pressure from a failing fuel pressure regulator or a restricted fuel return line, forcing more fuel through the injectors than the module commands.
- 3 A faulty mass airflow sensor that over-reports airflow, causing the module to inject more fuel than the actual air mass requires.
- 4 Contaminated or degraded engine oil from repeated short trips, which introduces fuel vapour into the intake through the crankcase ventilation system and skews the mixture rich.
- 5 A leaking evaporative emissions purge valve that allows fuel vapour to be drawn into the intake continuously, especially at idle.
- 6 A restricted air intake or a dirty air filter that reduces actual airflow while the mass airflow sensor still reports a higher value, creating a rich mismatch.
- 7 A failing oxygen sensor on one or both banks that reports a lean condition when the mixture is actually correct, driving the module to add fuel until the long-term trim saturates rich.



How to diagnose and fix it

- 1 Connect a scan tool and record live data for long-term fuel trim on both banks, mass airflow, oxygen sensor voltages, and fuel pressure to confirm the rich condition and see whether both banks are affected equally.
- 2 Inspect the air intake tract and air filter for restrictions or unmetered air leaks, and verify that the mass airflow sensor reading is plausible for the engine speed and load.
- 3 Check fuel pressure with a gauge against the Jaguar specification for the engine, looking for excessive pressure that would force extra fuel through the injectors.
- 4 Test the evaporative emissions purge valve for sticking open by commanding it closed with the scan tool and watching fuel trim response, or by disconnecting and plugging its vacuum line during a trim reading.
- 5 Perform an injector balance test or remove the injectors for bench testing to identify a leaking or stuck-open injector on either bank.
- 6 Inspect the oxygen sensors for contamination or slow response, and compare their switching patterns against the fuel trim corrections to rule out a false lean report driving the rich trim.
- 7 After repairing the root cause, clear the adaptive fuel trim memory with the scan tool and road-test the vehicle through several drive cycles to confirm that long-term fuel trim returns within normal limits and P1177 does not reset.

Why both banks go rich on Jaguars

- A P1177 on a Jaguar almost always points to a cause that affects both banks equally, such as fuel pressure, mass airflow reporting, or crankcase ventilation, rather than a single failed injector or oxygen sensor.
- Technicians often replace oxygen sensors first because the code mentions fuel trim, but a rich long-term trim on both banks is more commonly driven by excessive fuel delivery or a mass airflow sensor that over-reports airflow.
- Fuel dilution of the engine oil from repeated short journeys is a frequent and overlooked cause on Jaguars, because fuel vapour drawn through the crankcase ventilation system enriches the mixture and pushes long-term trim rich on both banks.
- A sticking evaporative emissions purge valve can set P1177 without any evap-related code, because the continuous fuel vapour flow is treated by the module as a rich mixture rather than a leak.
- The code does not always mean the engine is running dangerously rich at that moment; it means the long-term adaptive correction has reached its rich limit, so the actual mixture may only be marginally rich under most operating conditions.

Can I keep driving with P1177?

You can usually drive the vehicle to a workshop, but avoid hard acceleration and long idling because a persistent rich condition can foul spark plugs, contaminate oxygen sensors, and damage the catalytic converters over time. If the check engine light is flashing or the engine runs rough, stop driving and arrange a diagnostic inspection promptly.



Tools that help

- OBD-II scan tool with live data and bidirectional control capability
- Fuel pressure gauge
- Vacuum gauge
- Digital multimeter
- Injector balance tester or bench injector testing equipment
- Smoke machine for intake and evap leak testing

Reading P1177

P	Powertrain: engine, transmission and emissions.
1	Manufacturer-specific code (Jaguar): its meaning depends on the make.
1	Fuel and air metering.
77	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 · **P1170** HO2S Bank 1 Sensor 1 Circuit Fixed Bank 1 Sensor 1 · **P1170** HO2S11 Circuit Voltage Stuck At Mid-Range · **P1171** System Too Lean Banks 1 And 2 (Lean Fuel Fault) · **P1174** System Too Lean Banks 1 And 2 (Suspect HO2S) · **P1170** Bank to Bank Fuel Trim Offset · **P1171** Fuel System Lean During Acceleration · **P1170** ESO Engine Shut Off Solenoid Fault · **P1171** Rotor Sensor Fault · **P1174** Cam Sensor Fault · **P1170** Bank To Bank Fuel Trim Offset · **P1171** Fuel System Lean During Acceleration · **P1174** Fuel Trim Adaptation Additive Bank 1 Malfunction · **P0172** System Too Rich (Bank 1) · **P0175** System Too Rich (Bank 2)

See it working

Watch the animated explainer [How a Manual Transmission Works: Four-Speed Cutaway](#) on Auto Veteran to see the parts involved moving.

Full guide, related articles and animations: <https://www.autoveteran.tech/dtc-codes/jaguar-p1177/>

