

BMW · POWERTRAIN

P1085

OBD-II DIAGNOSTIC TROUBLE CODE (DTC)

P1085 · BMW

Fuel Control Mixture Lean Bank 2 Sensor 1

P1085 on a BMW means the engine computer has detected a lean fuel mixture on Bank 2, which is the cylinder bank that does not contain cylinder number one, as reported by the upstream oxygen sensor before the catalytic converter. The computer commands a richer mixture and watches the sensor response, and when the sensor stays lean beyond a calibrated limit for a set time, it stores this code.

SYSTEM	CODE TYPE	SEVERITY	FIX DIFFICULTY	AREA
Powertrain	BMW specific	Medium	Professional	Fuel and air metering and auxiliary emission controls

Symptoms you may notice

- Illuminated check engine light, often with no other noticeable symptoms.
- Slight hesitation or stumble during light acceleration from a stop.
- Rough idle quality, especially when the engine is cold.
- Reduced fuel economy over several tanks of fuel.
- Occasional lean misfire codes or a flashing check engine light under load in severe cases.

Common causes, most likely first

- 1 A vacuum leak on the Bank 2 intake side, such as a cracked intake boot, failed intake manifold gasket, or leaking valve cover gasket.
- 2 A faulty or contaminated upstream oxygen sensor on Bank 2 that under-reports the actual fuel mixture.
- 3 A sticking or clogged fuel injector on one or more Bank 2 cylinders, restricting fuel delivery.
- 4 Low fuel pressure from a weak fuel pump, a clogged fuel filter, or a failing fuel pressure regulator.
- 5 A small exhaust leak ahead of the Bank 2 upstream oxygen sensor, allowing outside air to be read as a lean condition.
- 6 A mass air flow sensor that is dirty or failing and under-reporting incoming air, causing a lean command across both banks but setting the code on Bank 2 first.
- 7 A crankcase ventilation system diaphragm that has ruptured, allowing unmetered air into the intake.



How to diagnose and fix it

- 1 Connect a scan tool and record freeze-frame data and fuel trim values for both banks to confirm the lean condition is isolated to Bank 2.
- 2 Perform a visual inspection of the Bank 2 intake tract, vacuum hoses, and crankcase ventilation components for cracks or loose connections.
- 3 Smoke-test the intake system to locate any vacuum leaks that are not visible during a visual inspection.
- 4 Check fuel pressure and volume against BMW specifications, and inspect the fuel filter for restriction if pressure is low.
- 5 Swap the Bank 2 upstream oxygen sensor with the Bank 1 sensor, or use a known-good sensor, to see if the lean code follows the sensor.
- 6 Inspect the Bank 2 exhaust manifold and downpipe for leaks ahead of the upstream oxygen sensor.
- 7 If fuel delivery and air leaks are ruled out, flow-test the Bank 2 injectors and clean or replace as needed.

What a lean Bank 2 code really tells you

- A lean code on only one bank almost always points to a bank-specific air leak or fuel delivery problem, not a global issue like a failing mass air flow sensor, which would typically set codes on both banks.
- A dirty mass air flow sensor can under-report airflow and cause a lean condition that shows up on Bank 2 first because that bank often runs slightly leaner due to intake manifold design.
- A ruptured crankcase ventilation diaphragm on many BMW engines acts as a large vacuum leak and is frequently overlooked because it is hidden under the engine cover.
- An exhaust leak upstream of the oxygen sensor pulls in outside air on the exhaust pulse and makes the sensor read lean even when the engine is actually running at the correct mixture.
- Replacing the oxygen sensor without checking fuel trims and looking for vacuum leaks is a common misdiagnosis that leads to a repeat repair.

Can I keep driving with P1085?

You can usually drive the car short distances at moderate speeds, but avoid hard acceleration and sustained high-speed driving because a lean mixture on Bank 2 raises combustion temperatures and can damage valves or the catalytic converter. Have the fault diagnosed promptly, especially if the check engine light flashes or the engine runs rough.

Tools that help

- OBD-II scan tool with live data and fuel trim capability
- Smoke machine for intake leak detection
- Fuel pressure gauge
- Digital multimeter for sensor and wiring checks
- Mechanic's stethoscope or vacuum gauge



Reading P1085

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

Often seen with

P1083 Fuel Control Mixture Lean Bank 1 Sensor 1 · **P1084** Fuel Control Mixture Rich Bank 1 Sensor 1 · **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 Coil-on-Plug Ignition Works: Coil and Spark Plug](#) on Auto Veteran to see the parts involved moving.

Full guide, related articles and animations: <https://www.autoveteran.tech/dtc-codes/bmw-p1085/>

