

MAZDA · POWERTRAIN

P1134

OBD-II DIAGNOSTIC TROUBLE CODE (DTC)

P1134 · Mazda

Bank 1 Fuel Control Shifted Rich

P1134 on a Mazda means the powertrain control module has detected that the bank 1 fuel control system has shifted rich beyond its calibrated limit, meaning the engine is receiving more fuel than the computer can compensate for. The computer monitors the long-term fuel trim on bank 1 and sets this code when the correction value moves too far in the rich direction, indicating a persistent rich condition rather than a momentary glitch.

SYSTEM	CODE TYPE	SEVERITY	FIX DIFFICULTY	AREA
Powertrain	Mazda specific	Medium	Intermediate	Fuel and air metering

Symptoms you may notice

- Often no symptoms besides the warning light, especially if the rich shift is mild
- A noticeable drop in fuel economy compared with normal driving
- Black sooty exhaust smoke or a strong fuel smell from the tailpipe
- Rough idle or engine stumbling when the mixture becomes excessively rich
- Hesitation or poor throttle response under acceleration
- Failed emissions test due to high carbon monoxide or hydrocarbon readings

Common causes, most likely first

- Leaking or stuck-open fuel injector on bank 1 delivering excess fuel
- Faulty mass airflow sensor over-reporting incoming air, causing the computer to add too much fuel
- Contaminated or failed oxygen sensor on bank 1 sending a false lean signal
- Fuel pressure regulator failure or restricted fuel return line raising rail pressure
- Evaporative emissions purge valve stuck open, allowing fuel vapor to enter the intake continuously
- Worn spark plugs or ignition misfire causing unburned fuel to reach the oxygen sensor
- Leaking intake manifold gasket or vacuum line admitting unmetered air that the computer misinterprets



How to diagnose and fix it

- 1 Connect a scan tool and record freeze-frame data and long-term fuel trim values on bank 1 to confirm the rich shift
- 2 Inspect the air intake tract and mass airflow sensor for contamination, loose clamps, or a poorly fitting air filter
- 3 Check fuel pressure with a gauge and compare against Mazda specifications to rule out a regulator or return-line fault
- 4 Test each fuel injector on bank 1 for leakage or abnormal spray pattern, using a balance test or injector tester
- 5 Perform a propane enrichment test or smoke test on the intake system to find vacuum leaks that skew fuel trim
- 6 Monitor the bank 1 oxygen sensor signal with a scan tool or oscilloscope to verify it switches correctly and is not biased lean
- 7 Inspect the evaporative emissions purge valve for sticking open and command it closed with the scan tool while watching fuel trim

What a rich shift on bank 1 really tells you

- A mass airflow sensor that over-reports air is one of the most common causes of a rich shift on Mazda engines, and it often sets no other code because the computer believes the airflow signal is correct.
- A lazy or contaminated oxygen sensor can report a false lean condition, causing the computer to add fuel until the long-term trim hits the rich limit and triggers P1134 even though the actual mixture is near stoichiometric.
- A stuck-open evaporative purge valve is easily overlooked because it introduces fuel vapor only under certain conditions, so the rich shift may appear intermittently and not during a quick idle check.
- This code does not automatically mean the catalytic converter is failing; a rich condition can damage the converter over time, but replacing it before fixing the fuel trim will lead to a repeat failure.
- On some Mazda models, a leaking injector O-ring or a cracked injector body can cause a rich shift on a single cylinder that the oxygen sensor averages into the bank 1 reading, making the fault look like a sensor problem.

Can I keep driving with P1134?

You can usually drive the car to a workshop, but avoid hard acceleration and long trips because a persistent rich condition can overheat and damage the catalytic converter and dilute the engine oil. If the check engine light starts flashing or the engine runs rough, stop driving and have the vehicle towed.

Tools that help

- OBD-II scan tool with live data and freeze-frame capability
- Fuel pressure gauge
- Vacuum gauge or smoke machine for intake leak testing
- Digital multimeter for sensor and wiring checks
- Injector balance tester or oscilloscope for injector analysis



Reading P1134

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

Often seen with

P1133 Oxygen Sensor Heating Circuit Bank 1 + 2 Sensor 1 Electrical · **P1133** Air/Fuel Sensor Circuit Response Bank 1 Sensor 1 · **P1133** Bank 1 Fuel Control Shifted Lean · **P1133** O2 Sensor Insufficient Switching (Bank 1 Sensor 1) · **P1133** Bank 1 Fuel Control Shifted Lean · **P1133** HO2S Insufficient Switching · **P1133** O2 Sensor Heater Control Circuit Bank 2 Sensor 1 · **P0102** Mass/Volume Air Flow Circuit Low Input · **P0132** O2 Sensor Circuit High Voltage (Bank 1 Sensor 1) · **P0172** System Too Rich (Bank 1) · **P0175** System Too Rich (Bank 2)

See it working

Watch the animated explainer [How an Automatic Transmission Works, Gear by Gear](#) on Auto Veteran to see the parts involved moving.

Full guide, related articles and animations: <https://www.autoveteran.tech/dtc-codes/mazda-p1134/>

