



P1153 · Mazda

Bank 2 Fuel Control Shifted Lean FAOSC

P1153 on Mazda vehicles means the powertrain control module has detected that the bank 2 fuel control system has shifted lean beyond its calibrated limit, as reported by the front air-fuel sensor's feedback. The code is stored when the long-term fuel trim for bank 2 exceeds a predetermined threshold, indicating the engine is receiving too much air or too little fuel on that cylinder bank.

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

Symptoms you may notice

- Illumination of the check engine light, often with no other noticeable symptoms
- Slightly rough idle or hesitation when accelerating from a stop
- Reduced fuel economy as the engine compensates for the lean condition
- Occasional engine misfire or stumble under light load
- A faint fuel odor or exhaust smell in some cases
- Poor throttle response or surging during steady-speed driving

Common causes, most likely first

- 1 Vacuum leak on the bank 2 intake manifold, such as a cracked hose or failed gasket
- 2 Faulty or contaminated bank 2 front air-fuel ratio sensor (also called an oxygen sensor)
- 3 Leaking bank 2 fuel injector O-ring or a clogged injector reducing fuel delivery
- 4 Exhaust leak upstream of the bank 2 front sensor allowing outside air into the exhaust stream
- 5 Low fuel pressure from a weak fuel pump or restricted fuel filter affecting both banks but more pronounced on bank 2
- 6 Malfunctioning mass air flow sensor providing an inaccurate air measurement that the PCM cannot fully correct
- 7 Wiring or connector issue at the bank 2 front air-fuel sensor or its circuit



How to diagnose and fix it

- 1 Use a scan tool to read live fuel trim data and confirm bank 2 long-term fuel trim is positive beyond the threshold, then compare with bank 1 to isolate the fault
- 2 Visually inspect all bank 2 intake hoses, gaskets, and vacuum lines for cracks or loose connections, and perform a smoke test to locate any vacuum leak
- 3 Check the bank 2 front air-fuel sensor for contamination or damage, and verify its wiring and connector are secure and free of corrosion
- 4 Inspect the bank 2 exhaust system upstream of the front sensor for leaks at the manifold, gaskets, and pipe joints
- 5 Measure fuel pressure at the rail and compare with the manufacturer's specification to rule out a weak pump or restricted filter
- 6 Swap the bank 2 front air-fuel sensor with a known-good unit or perform a response test to confirm whether the sensor is lazy or biased
- 7 If all external causes are ruled out, perform a cylinder balance test and inspect bank 2 injectors for clogging or faulty spray patterns

Bank 2 lean codes often misdiagnosed

- A vacuum leak at the intake manifold gasket on the bank 2 side is frequently overlooked because the leak may only occur when the engine is cold or under specific load conditions, so a smoke test performed while the engine is warm can miss it.
- The bank 2 front air-fuel sensor on Mazda engines is often replaced unnecessarily when the real problem is a dirty mass air flow sensor that is under-reporting airflow, causing the PCM to add fuel globally but setting the lean code on bank 2 first due to its slightly different fuel trim learning.
- Exhaust leaks upstream of the front sensor can draw in outside oxygen and cause a false lean reading, yet many technicians skip the exhaust inspection and go straight to sensor replacement.
- A clogged or failing bank 2 fuel injector can cause a lean shift that only appears at higher fuel demand, so the code may not set during idle and a static fuel pressure test will not reveal the issue.
- On some Mazda models, a software calibration update for the PCM is required to correct overly sensitive fuel trim thresholds that trigger P1153 even when no mechanical fault exists.

Can I keep driving with P1153?

You can usually continue driving to a workshop, but avoid heavy acceleration and sustained high-speed driving because a persistent lean condition can raise combustion temperatures and damage the catalytic converter over time. If the check engine light begins flashing, stop driving and have the vehicle towed.



Tools that help

- OBD-II scan tool with live data and fuel trim graphing capability
- Smoke machine for vacuum leak detection
- Fuel pressure gauge
- Digital multimeter for sensor circuit testing
- Mechanic's stethoscope or cylinder balance tester
- Basic hand tools and socket set

Reading P1153

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

Often seen with

P1154 Manifold Switch Over Malfunction · **P1154** Bank 2 Fuel Control Shifted Rich FAOSC · **P1154** O2 Sensor Low Transition Time (Bank 2 Sensor 1) · **P1154** Bank 2 Fuel Control Shifted Rich · **P1154** HO2S Transition Time Ratio · **P0171** System Too Lean (Bank 1) · **P0174** System Too Lean (Bank 2) · **P2195** O2 Sensor Signal Stuck Lean (Bank 1 Sensor 1) · **P2197** O2 Sensor Signal Stuck Lean (Bank 2 Sensor 1)

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-p1153/>

