

GENERIC · POWERTRAIN

P2C55

OBD-II DIAGNOSTIC TROUBLE CODE (DTC)

P2C55

Cylinder 2 Fuel Injector B Offset Learning At Max Limit

P2C55 indicates that the engine control module (ECM) has learned a fuel injector offset correction for cylinder 2 that has reached its maximum allowable limit, meaning the injector is flowing outside the range the ECM can compensate for. The ECM detects this when the short-term fuel trim or injector pulse-width adaptation for that cylinder cannot bring the air-fuel ratio back to target.

SYSTEM	CODE TYPE	SEVERITY	FIX DIFFICULTY	AREA
Powertrain	Generic (all makes)	Medium	Intermediate	Hybrid propulsion

Symptoms you may notice

- Illuminated check engine light, often with no other noticeable symptoms
- Rough idle or misfire sensation, especially when the engine is cold
- Slight hesitation or stumble during acceleration
- Decreased fuel economy over time
- Elevated hydrocarbon emissions or a fuel smell from the exhaust
- In rare cases, a noticeable loss of power under load

Common causes, most likely first

- 1 Clogged, restricted, or failing fuel injector on cylinder 2
- 2 Intake manifold vacuum leak near cylinder 2 runner
- 3 Faulty or contaminated fuel injector connector or wiring harness
- 4 Low fuel pressure or volume from a weak fuel pump or restricted filter
- 5 Mechanical issue such as low compression or valve sealing on cylinder 2
- 6 ECM software calibration issue or internal driver fault (less common)



How to diagnose and fix it

- 1 Connect a scan tool and record freeze-frame data and fuel trim values for cylinder 2 to confirm the offset is at its limit.
- 2 Perform a visual inspection of the cylinder 2 injector connector, wiring, and intake seals for damage or vacuum leaks.
- 3 Measure fuel pressure and volume at the rail to rule out a supply problem before condemning the injector.
- 4 Run a cylinder contribution or power-balance test to compare cylinder 2 against the others.
- 5 Swap the cylinder 2 injector with a known-good injector from another cylinder and recheck the offset learning value.
- 6 If the offset follows the injector, replace the faulty injector and clear the adaptive learning; if it stays with the cylinder, perform a compression and leak-down test.
- 7 After repair, drive the vehicle through the manufacturer's relearn procedure and verify fuel trims return to normal.

What the offset limit really tells you

- A maxed-out offset does not automatically mean the injector is bad; a vacuum leak or low fuel pressure can force the ECM to max out correction on a perfectly healthy injector.
- Many technicians replace the injector without checking fuel pressure first, only to find the code returns because the pump was weak all along.
- The offset learning value is stored in adaptive memory, so clearing codes without fixing the root cause will let the code return after a few drive cycles.
- A mechanical fault such as a burnt valve or worn cam lobe on cylinder 2 can mimic an injector offset problem because the ECM tries to compensate for poor airflow.
- On some vehicles, this code sets only after a specific number of cold-start cycles, so a test drive alone may not immediately reproduce it.

Can I keep driving with P2C55?

You can usually continue driving short distances at moderate speeds, but avoid heavy acceleration or towing until the fault is diagnosed. Prolonged driving with a maxed-out injector offset can damage the catalytic converter and worsen fuel dilution in the oil.

Tools that help

- OBD-II scan tool with live data and fuel trim capability
- Fuel pressure gauge
- Digital multimeter
- Mechanic's stethoscope or cylinder contribution tester
- Compression tester
- Basic hand tools and injector removal tools



Reading P2C55

- P** Powertrain: engine, transmission and emissions.
- 2** Generic (SAE) code: it means the same thing on every OBD-II vehicle.
- C** Hybrid propulsion.
- 55** The exact fault within that area.

Often seen with

P0171 System Too Lean (Bank 1) · **P0172** System Too Rich (Bank 1) · **P0302** Cylinder 2 Misfire Detected · **P2C54** Cylinder 2 Fuel Injector B Offset Learning At Min Limit · **P2C56** Cylinder 3 Fuel Injector B Offset Learning At Min Limit

See it working

Watch the animated explainer [How ABS Works: Anti-Lock Brakes in X-Ray](#) on Auto Veteran to see the parts involved moving.

Full guide, related articles and animations: <https://www.autoveteran.tech/dtc-codes/p2c55/>

