



P2E5C

Cylinder 4 Alternative Fuel Misfire Detected

P2E5C indicates that the engine control module has detected a misfire on cylinder 4 while the engine is running on an alternative fuel such as compressed natural gas, propane, or E85. The computer monitors crankshaft speed fluctuations and identifies that cylinder 4 is not contributing power evenly, specifically when the alternative fuel system is active.

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

Symptoms you may notice

- Illuminated check engine light, often flashing if the misfire is severe
- Noticeable engine shaking or rough idle, especially after switching to the alternative fuel
- Reduced power and sluggish acceleration when running on the alternative fuel
- Poor fuel economy or increased consumption of the alternative fuel
- Often no symptoms besides the warning light during light-load driving
- A sulfur or rotten egg smell from the exhaust if unburned fuel reaches the catalytic converter

Common causes, most likely first

- 1 Worn or fouled spark plug specific to cylinder 4, often due to the different burn characteristics of alternative fuels
- 2 Faulty ignition coil or spark plug wire on cylinder 4 that breaks down under the higher voltage demand of alternative fuels
- 3 Clogged or leaking alternative fuel injector on cylinder 4, causing an incorrect air-fuel mixture
- 4 Vacuum leak at the intake manifold runner for cylinder 4, leaning out the mixture only on the alternative fuel map
- 5 Low compression on cylinder 4 from worn rings, valves, or a head gasket issue that becomes apparent under alternative fuel operation
- 6 Contaminated alternative fuel or a failing fuel pressure regulator affecting delivery to cylinder 4
- 7 Engine control module software calibration issue or faulty wiring to the cylinder 4 injector or coil



How to diagnose and fix it

- 1 Scan all stored and pending codes, then check freeze-frame data to confirm the misfire occurs only when the alternative fuel system is active
- 2 Inspect the spark plug on cylinder 4 for wear, fouling, or incorrect gap, and replace it if questionable
- 3 Swap the ignition coil from cylinder 4 with a known-good cylinder and see if the misfire moves, confirming a coil fault
- 4 Perform a cylinder balance test or misfire counter check with a scan tool to verify which cylinder is actually misfiring under alternative fuel operation
- 5 Check for vacuum leaks at the intake manifold and inspect the alternative fuel injector on cylinder 4 for clogs or leaks
- 6 Run a compression test and, if low, a leak-down test on cylinder 4 to rule out mechanical faults
- 7 Verify fuel pressure and alternative fuel quality, then reprogram the engine control module if a known calibration update applies

Alternative fuel misfires that fool technicians

- A misfire that appears only on the alternative fuel map often points to a marginal ignition component that works fine on gasoline but fails under the higher demand of alternative fuels.
- Technicians sometimes replace all spark plugs and coils without realizing the alternative fuel injector on cylinder 4 is partially clogged, leaving the misfire unresolved.
- The code can be set by a vacuum leak that affects only one intake runner, so a smoke test of the intake is more useful than replacing ignition parts blindly.
- Low compression on cylinder 4 may not trigger a misfire on gasoline but becomes obvious on alternative fuel because of different combustion pressures and flame speeds.
- A flashing check engine light with this code means the misfire is severe enough to damage the catalytic converter, so diagnosis should not be delayed.

Can I keep driving with P2E5C?

You can drive cautiously to a repair shop if the check engine light is steady and the engine runs smoothly, but avoid heavy acceleration or towing. If the light flashes or the engine shakes badly, stop driving and have the vehicle towed to prevent catalytic converter damage.

Tools that help

- OBD-II scan tool with misfire counter and freeze-frame capability
- Spark plug socket and gap gauge
- Ignition coil tester or known-good coil for swapping
- Vacuum gauge or smoke machine for intake leak detection
- Compression tester and leak-down tester
- Digital multimeter for checking injector wiring and coil resistance



Reading P2E5C

- P** Powertrain: engine, transmission and emissions.
- 2** Generic (SAE) code: it means the same thing on every OBD-II vehicle.
- E** Hybrid propulsion.
- 5C** The exact fault within that area.

Often seen with

P0171 System Too Lean (Bank 1) · **P0300** Random/Multiple Cylinder Misfire Detected · **P0304** Cylinder 4 Misfire Detected · **P2E5B** Cylinder 3 Alternative Fuel Misfire Detected · **P2E5D** Cylinder 5 Alternative Fuel Misfire Detected

See it working

Watch the animated explainer [Four-Stroke Engine Cutaway: Intake to Exhaust](#) on Auto Veteran to see the parts involved moving.

Full guide, related articles and animations: <https://www.autoveteran.tech/dtc-codes/p2e5c/>

