

GENERIC · POWERTRAIN

P2E5A

OBD-II DIAGNOSTIC TROUBLE CODE (DTC)

P2E5A

Cylinder 2 Alternative Fuel Misfire Detected

P2E5A indicates that the engine control module has detected a misfire on cylinder 2 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 2 is not contributing power evenly, which can damage the catalytic converter if ignored.

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

Symptoms you may notice

- Illuminated check engine light, often flashing if the misfire is severe
- Rough idle or shaking that is more noticeable when the engine is cold or under light load
- Hesitation or stumble during acceleration, especially when switching to alternative fuel
- Reduced fuel economy and a noticeable loss of power
- Often no symptoms besides the warning light when the misfire is intermittent
- 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 2, often due to alternative fuel deposits
- 2 Faulty ignition coil or plug wire on cylinder 2 that breaks down under alternative fuel load
- 3 Leaking or clogged alternative fuel injector on cylinder 2, causing an incorrect air-fuel mixture
- 4 Vacuum leak near cylinder 2 intake runner that leans out the mixture only on the alternative fuel map
- 5 Low compression on cylinder 2 from worn rings, valves, or a head gasket issue
- 6 Contaminated alternative fuel or a fuel pressure problem affecting the entire rail but most noticeable on one cylinder
- 7 Engine control module software or calibration issue that misinterprets crankshaft signals during alternative fuel operation



How to diagnose and fix it

- 1 Scan all stored and pending codes, then check freeze-frame data for engine speed, load, and fuel trims when the misfire was set
- 2 Perform a cylinder balance test or misfire counter check with a scan tool to confirm cylinder 2 is the only affected cylinder
- 3 Inspect the spark plug, ignition coil, and plug wire on cylinder 2, replacing any component that shows wear, carbon tracking, or incorrect gap
- 4 Check for vacuum leaks at the intake manifold and around cylinder 2 using a smoke machine or propane enrichment test
- 5 Measure fuel trim and injector pulse width on cylinder 2 compared to other cylinders, then test the alternative fuel injector for flow and spray pattern
- 6 Run a compression test and, if low, a cylinder leak-down test to rule out mechanical faults before replacing ignition or fuel parts
- 7 After repairs, clear codes and drive the vehicle under the same conditions that originally set the code to verify the misfire is gone

Alternative fuel misfires that fool technicians

- Alternative fuels such as E85 and propane burn cooler and can foul spark plugs differently than gasoline, so a plug that looks fine may still misfire under alternative fuel operation.
- A misfire code for only one cylinder on an alternative fuel vehicle often traces to a single injector or coil, but a vacuum leak at the intake runner for that cylinder can mimic the same symptom.
- The engine control module may set P2E5A only when the vehicle is running on the alternative fuel map, so a misfire that disappears on gasoline can still be a real ignition or fuel delivery fault.
- Technicians sometimes replace all coils or plugs when only cylinder 2 is affected, but the misfire counter and freeze-frame data usually point to the exact cylinder and operating condition.
- 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 even if the vehicle seems to run acceptably.

Can I keep driving with P2E5A?

If the check engine light is flashing, stop driving as soon as it is safe because raw fuel is entering the exhaust and can destroy the catalytic converter. With a steady light and mild symptoms, keep driving to a minimum and avoid heavy acceleration or towing until the misfire is repaired.



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 smoke machine or propane enrichment kit
- Compression gauge and cylinder leak-down tester
- Fuel pressure gauge and injector flow tester

Reading P2E5A

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

Often seen with

P0171 System Too Lean (Bank 1) · **P0300** Random/Multiple Cylinder Misfire Detected · **P0302** Cylinder 2 Misfire Detected · **P2E58** Alternative Fuel Random/Multiple Cylinder Misfire Detected · **P2E5B** Cylinder 3 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/p2e5a/>

