

GENERIC · POWERTRAIN

P2E61

OBD-II DIAGNOSTIC TROUBLE CODE (DTC)

P2E61

Alternative Fuel Misfire Detected With Low Fuel

P2E61 indicates the engine control module has detected a misfire in an engine running on an alternative fuel such as compressed natural gas, propane, or E85, and the fuel level is simultaneously low. The computer monitors crankshaft speed fluctuations to identify which cylinder is misfiring and cross-references the fuel level sensor to confirm the low-fuel condition.

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

Symptoms you may notice

- Illuminated or flashing check engine light, with flashing indicating a severe misfire that can damage the catalytic converter
- Rough idle, hesitation, or stumbling acceleration, especially when the alternative fuel tank is below a quarter full
- Noticeable loss of power or sluggish response when demanding throttle under load
- Shaking or vibration felt through the steering wheel and floorboard that worsens as fuel level drops
- Often no symptoms besides the warning light when the misfire is intermittent and occurs only at low fuel levels
- Reduced fuel economy or a strong raw fuel smell from the exhaust if the misfire is consistent

Common causes, most likely first

- 1 Low alternative fuel pressure at the injectors because the tank is nearly empty or the fuel pump is weak, causing lean misfire
- 2 Contaminated or degraded alternative fuel, particularly ethanol blends that have absorbed moisture or propane with excessive oil residue
- 3 Worn or fouled spark plugs and ignition coils that struggle to ignite alternative fuels under low-fuel lean conditions
- 4 Clogged or sticking alternative fuel injectors due to deposits that are more common with gaseous or high-ethanol fuels
- 5 Faulty fuel level sensor or sending unit providing an inaccurate low-fuel signal to the control module
- 6 Vacuum leaks or intake manifold gasket failures that lean out the mixture further when fuel pressure is already marginal
- 7 Engine control module calibration issues or software that misinterprets crankshaft signal noise as a misfire during low-fuel operation



How to diagnose and fix it

- 1 Verify the actual fuel level in the alternative fuel tank with a manual gauge or by adding fuel, then clear the code and retest to see if the misfire disappears
- 2 Perform a visual inspection of the alternative fuel system for leaks, damaged lines, and loose electrical connectors at the injectors and pressure sensor
- 3 Use a scan tool to read live misfire counters per cylinder and fuel trim data to identify whether the misfire is isolated to one cylinder or affects the whole bank
- 4 Check spark plug condition and gap, and test ignition coils with a spark tester or by swapping coils between cylinders to see if the misfire follows
- 5 Measure alternative fuel pressure at the rail with a gauge and compare to the manufacturer's specification, replacing the fuel filter or pump if pressure is low
- 6 Clean or flow-test the alternative fuel injectors, and replace any that show poor spray pattern or restricted flow
- 7 Inspect the fuel level sensor signal with a multimeter or scan tool to confirm it accurately reports tank level, and replace the sending unit if resistance is out of range

Low fuel misfire traps to avoid

- A misfire that appears only when the alternative fuel tank is below a quarter full often points to a weak in-tank fuel pump rather than ignition components, because the pump struggles to maintain pressure as the fuel level drops and the motor heats up.
- Technicians frequently replace spark plugs and coils without checking alternative fuel pressure first, only to find the code returns because the root cause was low fuel pressure or a restricted filter.
- Ethanol and propane fuels attract moisture and leave deposits that can partially clog injectors, so a misfire that develops gradually over months of low-fuel driving may be a fuel quality issue rather than a failed component.
- The fuel level sensor on alternative fuel vehicles can drift out of calibration and report low fuel when the tank is actually half full, causing the control module to set P2E61 even though the misfire is unrelated to fuel starvation.
- A flashing check engine light with this code means the misfire is severe enough to dump raw fuel into the catalytic converter, and continuing to drive can melt the substrate within minutes, turning a moderate repair into an expensive one.

Can I keep driving with P2E61?

Do not continue driving if the check engine light is flashing, because a severe misfire can destroy the catalytic converter within minutes. If the light is steady and the vehicle runs smoothly, refuel the alternative fuel tank immediately and drive gently to a repair shop, avoiding heavy acceleration or towing.



Tools that help

- OBD-II scan tool with live misfire counter and fuel trim display
- Fuel pressure gauge rated for the alternative fuel system
- Spark tester and multimeter for ignition and sensor testing
- Hand tools for spark plug and coil removal
- Injector flow bench or cleaning kit for alternative fuel injectors

Reading P2E61

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

Often seen with

P0087 Fuel Rail/System Pressure - Too Low · **P0171** System Too Lean (Bank 1) · **P0300** Random/Multiple Cylinder Misfire Detected · **P0301** Cylinder 1 Misfire Detected · **P2E60** Cylinder 8 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/p2e61/>

