

GENERIC · POWERTRAIN

P027E

OBD-II DIAGNOSTIC TROUBLE CODE (DTC)

P027E

Cold Start Fuel Injection Quantity A Lower Than Expected

P027E indicates that during a cold start, the engine control module detected that the fuel injector for a specific cylinder delivered less fuel than the expected quantity. This is a generic code that applies to all OBD-II vehicles, and the ECM sets it when the calculated fuel mass for that cylinder falls below a calibrated threshold during the cold-start enrichment phase.

SYSTEM

Powertrain

CODE TYPE

Generic (all makes)

SEVERITY

Medium

FIX DIFFICULTY

Professional

AREA

Fuel and air metering (injector circuits)

Symptoms you may notice

- Illumination of the check engine light, often with no other noticeable symptoms
- Rough idle or misfire immediately after a cold start, improving as the engine warms
- Hesitation or stumble during the first few seconds of acceleration from a cold start
- Slightly elevated fuel consumption due to the ECM compensating with longer injector pulse widths
- In severe cases, a noticeable loss of power or a flashing check engine light if the misfire becomes severe

Common causes, most likely first

- 1 Clogged or partially restricted fuel injector on the affected cylinder
- 2 Weak or failing fuel pump that cannot maintain pressure during cold-start demand
- 3 Restricted fuel filter or kinked fuel line reducing flow to the injector
- 4 Faulty fuel pressure sensor or fuel rail pressure sensor sending inaccurate data to the ECM
- 5 Intake manifold carbon buildup or a vacuum leak causing uneven air distribution to the cylinder
- 6 Wiring issue or poor electrical connection at the fuel injector harness
- 7 ECM software calibration error or internal fault in the injector driver circuit



How to diagnose and fix it

- 1 Perform a visual inspection of the fuel injector harness and connectors for corrosion or damage
- 2 Check fuel pressure with a gauge during cold start and compare to manufacturer specifications
- 3 Use a scan tool to monitor fuel trim and injector pulse width data during cold start to confirm the affected cylinder
- 4 Run a fuel injector balance test or perform a cylinder contribution test to isolate the weak injector
- 5 Clean or replace the suspect fuel injector if flow testing shows it is restricted
- 6 Inspect and clean the intake manifold and throttle body for carbon buildup if air distribution is suspect
- 7 Verify ECM calibration and update software if a known calibration issue exists for the vehicle

Cold-start fuel delivery faults often misdiagnosed

- A clogged injector may flow adequately at operating temperature but fail to deliver enough fuel during the cold-start enrichment phase, so a standard injector balance test on a warm engine can miss the problem.
- Fuel pressure that is within specification at idle can still drop excessively during the first few seconds of cranking, so a static pressure check is not sufficient to rule out a weak pump.
- Intake valve carbon deposits can absorb fuel during cold start, causing a lean condition that the ECM interprets as low injector quantity, leading to unnecessary injector replacement.
- The code can be set by a faulty fuel pressure sensor even when actual fuel delivery is correct, so always compare sensor readings with a mechanical gauge before replacing injectors.
- Vehicles with direct injection are particularly sensitive to injector coking, and a cold-start misfire that clears quickly is a classic sign of a partially restricted direct injector.

Can I keep driving with P027E?

You can generally drive the vehicle, but avoid heavy acceleration and prolonged idling until the fault is repaired, as continued driving with a lean cold-start condition can lead to misfire and potential catalytic converter damage. If the check engine light flashes or the engine runs very rough, stop driving and seek professional diagnosis.

Tools that help

- OBD-II scan tool with live data and bidirectional control capabilities
- Fuel pressure gauge
- Injector balance tester or cylinder contribution tester
- Digital multimeter for electrical checks
- Mechanic's stethoscope or listening device for injector operation



Reading P027E

- P** Powertrain: engine, transmission and emissions.
- 0** Generic (SAE) code: it means the same thing on every OBD-II vehicle.
- 2** Fuel and air metering (injector circuits).
- 7E** The exact fault within that area.

Often seen with

P0171 System Too Lean (Bank 1) · **P027D** Fuel Pump Module B Control Circuit High · **P027F** Cold Start Fuel Injection Quantity A Higher Than Expected · **P0300** Random/Multiple Cylinder Misfire Detected · **P0301** Cylinder 1 Misfire Detected

See it working

Watch the animated explainer [How a Knock Sensor Works: Spark Timing and Octane](#) on Auto Veteran to see the parts involved moving.

Full guide, related articles and animations: <https://www.autoveteran.tech/dtc-codes/p027e/>

