

GENERIC · POWERTRAIN

P027F

OBD-II DIAGNOSTIC TROUBLE CODE (DTC)

P027F

Cold Start Fuel Injection Quantity A Higher Than Expected

P027F is a generic powertrain code indicating that the engine control module (ECM) has detected a cold-start fuel injection quantity for a specific cylinder that is higher than the expected value. The ECM calculates the expected injection amount based on coolant temperature, intake air temperature, and other sensor inputs, and when the actual commanded quantity exceeds this by a calibrated threshold during a cold start, it stores this code.

SYSTEM

Powertrain

CODE TYPE

Generic (all makes)

SEVERITY

Medium

FIX DIFFICULTY

Intermediate

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, especially in low ambient temperatures.
- Excessive fuel smell from the exhaust during cold start due to over-fuelling.
- Slightly elevated fuel consumption over time if the fault persists.
- Occasional hesitation or stumble when accelerating from a cold start.
- In severe cases, black smoke from the tailpipe during warm-up.

Common causes, most likely first

- 1 Faulty or contaminated fuel injector for the affected cylinder, causing poor atomization and requiring increased injection quantity.
- 2 Leaking injector or high return flow, leading to lower actual fuel delivery and compensatory increase in commanded quantity.
- 3 Carbon buildup on intake valves or injector tips, restricting fuel flow and prompting higher injection commands.
- 4 Weak or failing fuel pump or clogged fuel filter, reducing fuel pressure and causing the ECM to increase injection duration.
- 5 Faulty engine coolant temperature (ECT) sensor or intake air temperature (IAT) sensor providing incorrect cold-start data to the ECM.
- 6 Wiring or connector issues at the injector or sensor circuits, causing intermittent high resistance and skewed feedback.
- 7 ECM software calibration issue or internal fault, though this is less common and usually requires dealer-level reprogramming.



How to diagnose and fix it

- 1 Verify the code with a scan tool and check for any related pending or stored codes, especially misfire or fuel trim codes.
- 2 Inspect the affected cylinder's fuel injector connector and wiring for corrosion, loose pins, or damage; repair as needed.
- 3 Perform a fuel pressure test and compare to manufacturer specifications; replace the fuel filter if pressure is low.
- 4 Use a noid light or injector pulse tester to confirm the injector is receiving a command signal from the ECM.
- 5 Remove and inspect the suspect injector for clogging or leaks; clean or replace it if necessary.
- 6 Check the ECT and IAT sensors with a multimeter and compare readings to ambient temperature; replace if out of spec.
- 7 Clear the code and perform a cold-start relearn or drive cycle to confirm the repair, monitoring fuel trim and injection quantity data.

Cold-start fuel quantity code traps

- A dirty mass airflow (MAF) sensor can skew the ECM's calculated air charge, leading to incorrect fuel injection quantity commands and setting P027F even when the injectors are healthy.
- Exhaust leaks upstream of the oxygen sensor can introduce false air, causing the ECM to add fuel and potentially trigger this code during cold start.
- Low fuel level or a weak fuel pump may not always set a pressure code but can cause lean conditions that the ECM tries to compensate for by increasing injection quantity.
- The code often sets only during the first cold start after a long soak, so a technician must replicate the exact conditions to confirm the fault.
- Replacing an injector without checking fuel pressure and sensor data first can lead to a misdiagnosis and unnecessary parts replacement.

Can I keep driving with P027F?

You can generally drive the vehicle with this code, but avoid aggressive acceleration and prolonged idling until it is diagnosed. If you notice rough running, strong fuel smells, or misfire symptoms, have it checked promptly to prevent catalytic converter damage.

Tools that help

- OBD-II scan tool with live data capability
- Fuel pressure gauge
- Multimeter
- Noid light or injector pulse tester
- Basic hand tools (sockets, wrenches, screwdrivers)



Reading P027F

- 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).
- 7F** The exact fault within that area.

Often seen with

P0113 Intake Air Temperature Circuit High Input · **P0172** System Too Rich (Bank 1) · **P0201** Injector Circuit Malfunction - Cylinder 1 · **P0261** Cylinder 1 Injector Circuit Low · **P0300** Random/Multiple Cylinder Misfire Detected

See it working

Watch the animated explainer [How an Automatic Transmission Works, Gear by Gear](#) on Auto Veteran to see the parts involved moving.

Full guide, related articles and animations: <https://www.autoveteran.tech/dtc-codes/p027f/>

