

GENERIC · POWERTRAIN

P02F7

OBD-II DIAGNOSTIC TROUBLE CODE (DTC)

P02F7

Cylinder 10 Injector Circuit Range/Performance

P02F7 indicates that the powertrain control module has detected an out-of-range or performance fault in the electrical circuit for the fuel injector on cylinder 10. The computer monitors the injector command and the resulting current or voltage feedback, and it sets this code when the circuit does not behave as expected during operation.

SYSTEM	CODE TYPE	SEVERITY	FIX DIFFICULTY	AREA
Powertrain	Generic (all makes)	Medium	Intermediate	Fuel and air metering (injector circuits)

Symptoms you may notice

- Illuminated check engine light, often with no other noticeable symptoms
- Rough idle or misfire that may feel like a shake or stumble, especially at low speeds
- Noticeable loss of power or hesitation during acceleration
- Increased fuel consumption due to improper fuel delivery on cylinder 10
- Possible fuel odor or black smoke from the exhaust if the injector is stuck open
- In some cases, the engine may enter limp mode or flash the check engine light under load

Common causes, most likely first

- 1 Faulty fuel injector on cylinder 10 (internal coil or mechanical failure)
- 2 Damaged or corroded electrical connector at the cylinder 10 injector
- 3 Open or shorted wiring in the injector control circuit
- 4 Poor connection or corrosion at the powertrain control module connector
- 5 Failed driver circuit inside the powertrain control module (less common)
- 6 Contamination or clogging of the injector affecting its performance
- 7 Aftermarket or incorrect injector installed that does not match the engine's requirements



How to diagnose and fix it

- 1 Perform a visual inspection of the cylinder 10 injector connector and wiring for damage, corrosion, or loose pins
- 2 Use a scan tool to check for related misfire codes and freeze-frame data to confirm the fault conditions
- 3 Measure the resistance of the cylinder 10 injector with a multimeter and compare it to the manufacturer's specification
- 4 Check for power and ground signals at the injector connector with a noid light or oscilloscope while cranking the engine
- 5 Inspect the injector circuit wiring for continuity and shorts to ground or power using a wiring diagram
- 6 If electrical checks pass, remove and inspect the injector for clogging or damage, and consider swapping it with a known-good injector from another cylinder to see if the code moves
- 7 If the injector and wiring are confirmed good, test the powertrain control module driver circuit or consult a professional for advanced diagnostics

Don't overlook the injector connector

- A loose or corroded connector at the cylinder 10 injector is a frequent cause of this code, especially on engines with high mileage or exposure to road salt.
- The code can be set by a marginal injector that still flows fuel but has incorrect electrical characteristics, so resistance testing alone may not always catch it.
- Swapping the cylinder 10 injector with another cylinder is a quick way to see if the code follows the injector, which helps isolate the fault.
- Wiring harness damage from heat, vibration, or rodent chewing is often missed during visual inspections and requires careful continuity testing.
- A failing powertrain control module is rare, but it should be considered only after all other electrical and injector tests have passed.

Can I keep driving with P02F7?

Driving with P02F7 is generally acceptable for short distances if the engine runs smoothly, but avoid heavy acceleration or towing because a misfire can overheat the catalytic converter. If the check engine light flashes or the engine runs very rough, stop driving and seek repair immediately.

Tools that help

- OBD-II scan tool
- Digital multimeter
- Noid light or oscilloscope
- Wiring diagram for the vehicle
- Basic hand tools (socket set, screwdrivers)
- Injector removal tools if needed



Reading P02F7

- 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).
- F7** The exact fault within that area.

Often seen with

P0200 Injector Circuit Malfunction · **P0263** Cylinder 1 Contribution/Balance · **P02F6** Cylinder 9 Injector Circuit Range/Performance · **P0300** Random/Multiple Cylinder Misfire Detected · **P0308** Cylinder 8 Misfire Detected

See it working

Watch the animated explainer [Four-Stroke Engine Notebook: The Otto Cycle Explained](#) on Auto Veteran to see the parts involved moving.

Full guide, related articles and animations: <https://www.autoveteran.tech/dtc-codes/p02f7/>

