

GENERIC · POWERTRAIN

P01CF

OBD-II DIAGNOSTIC TROUBLE CODE (DTC)

P01CF

Cylinder 3 Injection Timing Performance - Over Retarded

P01CF indicates that the engine control module has detected the fuel injection timing for cylinder 3 is more retarded than the manufacturer's specified limit during operation. The computer monitors the injection event timing and sets this code when the actual timing falls outside the acceptable window for too long.

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

Symptoms you may notice

- Illuminated check engine light, often with no other noticeable symptoms
- Rough idle or misfire sensation, especially when the engine is cold
- Reduced engine performance or hesitation during acceleration
- Increased fuel consumption due to inefficient combustion
- Occasional engine stumble or surge at steady speeds

Common causes, most likely first

- 1 Faulty fuel injector for cylinder 3, such as a sticking or clogged nozzle
- 2 Wiring harness damage or poor electrical connection at the cylinder 3 injector
- 3 Failed injection timing control solenoid or actuator (if equipped)
- 4 Engine control module software calibration issue or internal fault
- 5 Low fuel pressure or contaminated fuel affecting injector response
- 6 Mechanical wear in the injection pump or timing components (on engines with mechanical injection)

How to diagnose and fix it

- 1 Connect a scan tool and verify P01CF is current, then check for related codes and freeze-frame data
- 2 Inspect the cylinder 3 injector electrical connector and harness for corrosion, chafing, or loose pins
- 3 Perform a fuel injector balance test or cylinder contribution test to compare cylinder 3 with others
- 4 Check fuel pressure and quality; test for restrictions or contamination in the fuel system
- 5 Swap the cylinder 3 injector with a known-good injector from another cylinder to see if the code follows
- 6 If the code persists, test the injection timing control circuit and actuator with a multimeter or oscilloscope
- 7 Reflash or replace the engine control module only after all other possibilities are ruled out



When cylinder 3 timing is not the real culprit

- A dirty or failing fuel injector on cylinder 3 is the most common cause, but technicians often overlook a weak fuel pump or clogged filter that affects all cylinders and triggers the code on the weakest one first.
- The code can be set by a momentary electrical glitch in the injector circuit that does not repeat during a test drive, so always check for intermittent connection issues before replacing parts.
- On some engines, a worn timing chain or belt can cause injection timing to retard, and the code may appear alongside camshaft or crankshaft correlation codes.
- Replacing the injector without checking the injection timing control solenoid or actuator can lead to a repeat repair if the actuator is the actual fault.
- A software calibration issue in the engine control module can cause false P01CF settings, so check for technical service bulletins before condemning hardware.

Can I keep driving with P01CF?

You can usually drive the vehicle with P01CF, but avoid heavy acceleration or towing until the fault is diagnosed, as prolonged driving with incorrect injection timing can damage the catalytic converter or cause engine misfire.

Tools that help

- OBD-II scan tool with live data and injector balance test capability
- Digital multimeter
- Oscilloscope for injector pulse and timing signals
- Fuel pressure gauge
- Mechanic's stethoscope or listening device for injector operation

Reading P01CF

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

Often seen with

P01CE Cylinder 2 Injection Timing Performance - Over Advanced · **P01D0** Cylinder 3 Injection Timing Performance - Over Advanced · **P0203** Injector Circuit Malfunction - Cylinder 3 · **P0219** Engine Overspeed Condition · **P0303** Cylinder 3 Misfire Detected



See it working

Watch the animated explainer [How a Six-Speed Manual Gearbox Works](#) on Auto Veteran to see the parts involved moving.

Full guide, related articles and animations: <https://www.autoveteran.tech/dtc-codes/p01cf/>

