

GENERIC · POWERTRAIN

P01CD

OBD-II DIAGNOSTIC TROUBLE CODE (DTC)

P01CD

Cylinder 2 Injection Timing Performance - Over Retarded

P01CD indicates that the engine control module has detected the fuel injection timing for cylinder 2 is more retarded than the commanded value during operation. The computer compares the actual injection event timing to the desired timing and sets this code when the deviation exceeds a calibrated threshold, typically due to a mechanical or electrical fault in the injector circuit or fuel system.

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

Symptoms you may notice

- Illumination of the check engine light, often with no other noticeable symptoms
- Rough idle or misfire sensation, especially when the engine is cold
- Reduced engine power or hesitation during acceleration
- Increased fuel consumption due to inefficient combustion
- Exhaust smoke or strong fuel odor from unburned fuel
- In rare cases, engine knocking or pinging under load

Common causes, most likely first

- 1 Faulty fuel injector for cylinder 2, such as a sticking nozzle or internal wear
- 2 Wiring harness damage or poor connection at the cylinder 2 injector connector
- 3 Contaminated or degraded engine oil affecting variable valve timing or injection timing components
- 4 Failed injection timing control solenoid or spool valve in the high-pressure fuel pump
- 5 Engine control module software calibration issue or internal fault
- 6 Low fuel pressure or restricted fuel supply affecting injection timing
- 7 Mechanical wear in the camshaft or timing chain affecting injection timing reference



How to diagnose and fix it

- 1 Verify the code with a scan tool and check for any related pending or stored codes in other modules
- 2 Inspect the cylinder 2 injector connector and wiring for corrosion, chafing, or loose pins
- 3 Perform a resistance and continuity test on the cylinder 2 injector circuit
- 4 Check fuel pressure and quality, including for contamination or air in the system
- 5 Swap the cylinder 2 injector with a known-good injector from another cylinder to see if the code follows
- 6 Use a scan tool to monitor injection timing deviation and compare cylinder 2 to other cylinders
- 7 If all electrical and fuel checks pass, reprogram the engine control module or replace the faulty injector

Before you replace the cylinder 2 injector

- A clogged or degraded oil filter can restrict oil flow to the variable valve timing phaser, causing injection timing to retard and setting this code without any injector fault.
- The code can be set by a faulty camshaft position sensor or crank sensor signal interference, so always check sensor signals before condemning the injector.
- Some vehicles use injection timing strategies that retard timing during regeneration or cold start, and a software calibration update may be required to prevent false setting of P01CD.
- A loose or damaged engine ground can cause voltage drops that affect injector operation and timing, so inspect ground straps and battery terminals.
- Do not overlook the possibility of a mechanical issue such as a worn timing chain or stretched belt that shifts cam timing and affects injection timing reference.

Can I keep driving with P01CD?

You can usually drive the vehicle short distances to a repair shop, but avoid heavy acceleration or towing loads because prolonged driving with retarded injection timing can lead to increased emissions, fuel dilution of the oil, and potential catalytic converter damage.

Tools that help

- OBD-II scan tool with live data and graphing capabilities
- Digital multimeter for circuit testing
- Fuel pressure gauge
- Noid light or injector pulse tester
- Mechanic's stethoscope for listening to injector operation
- Factory service information for timing and torque specifications



Reading P01CD

- 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.
- CD** The exact fault within that area.

Often seen with

P01C9 Fuel Rail/System Pressure - Too High Bank 2 · **P01CA** Fuel Rail Pressure Too Low - Engine Cranking Bank 2 · **P01CB** Cylinder 1 Injection Timing Performance - Over Retarded · **P01CC** Cylinder 1 Injection Timing Performance - Over Advanced · **P01CE** Cylinder 2 Injection Timing Performance - Over Advanced

See it working

Watch the animated explainer [How Coil-on-Plug Ignition Works: Coil and Spark Plug](#) on Auto Veteran to see the parts involved moving.

Full guide, related articles and animations: <https://www.autoveteran.tech/dtc-codes/p01cd/>

