

GENERIC · POWERTRAIN

P01CB

OBD-II DIAGNOSTIC TROUBLE CODE (DTC)

P01CB

Cylinder 1 Injection Timing Performance - Over Retarded

P01CB indicates that the engine control module (ECM) has detected the fuel injection timing for cylinder 1 is more retarded than the commanded value during operation. The ECM compares the actual injection event timing, often via crankshaft speed fluctuations or injector current feedback, against the desired timing and sets this code when the deviation exceeds a calibrated threshold.

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 power or sluggish acceleration
- Increased fuel consumption due to inefficient combustion
- Occasional hard starting or extended crank time
- Exhaust smoke or unusual odor from unburned fuel

Common causes, most likely first

- 1 Faulty or sticking fuel injector for cylinder 1
- 2 Wiring harness damage or poor electrical connection at the cylinder 1 injector
- 3 Contaminated or degraded engine oil affecting variable valve timing (VVT) operation
- 4 Failed VVT solenoid or phaser for the bank containing cylinder 1
- 5 Camshaft or crankshaft position sensor signal interference or failure
- 6 ECM software calibration issue or internal fault



How to diagnose and fix it

- 1 Verify battery voltage and inspect the engine oil level and condition, as low or dirty oil can affect VVT and injection timing
- 2 Perform a visual inspection of the cylinder 1 injector connector and wiring for chafing, corrosion, or loose pins
- 3 Use a scan tool to check for related camshaft and crankshaft position sensor codes and freeze-frame data
- 4 Test the cylinder 1 injector resistance and compare it to the manufacturer's specification
- 5 Check the VVT solenoid operation and oil control valve for the bank containing cylinder 1
- 6 Perform a compression test and cylinder leak-down test to rule out mechanical issues
- 7 If all electrical and mechanical checks pass, reprogram the ECM with the latest calibration or replace it if faulty

Don't overlook oil quality and VVT

- A clogged oil control valve or sludged oil passages can retard injection timing without setting a VVT-specific code, so oil maintenance history is critical.
- The code may be set by a marginal camshaft position sensor that still produces a signal but with incorrect timing, which many technicians miss.
- Injector balance rates or cylinder contribution tests can reveal a weak injector even when resistance checks pass.
- On some engines, a stretched timing chain can cause this code by altering the relationship between the cam and crank sensors.
- After repairs, the ECM may require a relearn procedure or a drive cycle to clear the code and verify the fix.

Can I keep driving with P01CB?

You can drive the vehicle short distances to a repair shop, but avoid heavy acceleration or towing. Prolonged driving with this code may cause catalytic converter damage or worsen engine performance.

Tools that help

- OBD-II scan tool with live data and freeze-frame capability
- Digital multimeter for electrical tests
- Fuel injector tester and noid light
- Compression gauge and cylinder leak-down tester
- Oscilloscope for sensor signal analysis
- Oil pressure gauge



Reading P01CB

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

Often seen with

P0011 'A' Camshaft Position - Timing Over-Advanced or System Perfo · **P0016** Crankshaft/Camshaft Position Correlation (Bank 1 Sensor A) · **P01CC** Cylinder 1 Injection Timing Performance - Over Advanced · **P01CD** Cylinder 2 Injection Timing Performance - Over Retarded · **P0301** Cylinder 1 Misfire Detected

See it working

Watch the animated explainer [How a Supercharger Works: Roots Blower in X-Ray](#) on Auto Veteran to see the parts involved moving.

Full guide, related articles and animations: <https://www.autoveteran.tech/dtc-codes/p01cb/>

