

GENERIC · POWERTRAIN

P05CD

OBD-II DIAGNOSTIC TROUBLE CODE (DTC)

P05CD

Cold Start A Camshaft Position Timing Performance Bank 2

P05CD indicates that the engine computer detected a performance problem with the bank 2 camshaft timing during a cold start, where the actual camshaft position did not match the commanded value within a specified time. The powertrain control module (PCM) monitors the camshaft position sensor signal and compares it to the desired timing, setting this code when the correlation is off during the cold-start phase.

SYSTEM	CODE TYPE	SEVERITY	FIX DIFFICULTY	AREA
Powertrain	Generic (all makes)	Medium	Professional	Vehicle speed, idle control and auxiliary inputs

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
- Extended cranking time before the engine starts when cold
- Reduced engine performance or hesitation during warm-up
- In rare cases, a rattling noise from the timing chain area on cold start

Common causes, most likely first

- 1 Sluggish or sticking camshaft timing phaser (VVT actuator) on bank 2
- 2 Contaminated or low engine oil, or incorrect oil viscosity affecting phaser operation
- 3 Faulty bank 2 camshaft position sensor or damaged wiring/connector
- 4 Restricted oil passage or clogged oil control valve (OCV) screen for the bank 2 camshaft
- 5 Worn timing chain, tensioner, or guides causing incorrect camshaft timing
- 6 Engine control module (ECM) software calibration issue or faulty ECM



How to diagnose and fix it

- 1 Verify engine oil level and condition; change oil and filter if contaminated or incorrect viscosity
- 2 Perform a visual inspection of the bank 2 camshaft position sensor and its wiring for damage or corrosion
- 3 Use a scan tool to check for related codes and monitor camshaft timing data during a cold start
- 4 Test the bank 2 oil control valve (OCV) for proper operation and clean or replace if restricted
- 5 Inspect the timing chain and tensioner for wear or slack; replace components as needed
- 6 Check for updated ECM calibration and reprogram if applicable
- 7 If all else fails, perform a pinpoint test for the camshaft position sensor circuit and replace the sensor or ECM as required

Cold Start Timing Faults Often Misdiagnosed

- A dirty or restricted oil control valve screen is a frequent culprit that is often overlooked because it does not always set a separate code.
- The code may be triggered by low oil pressure at cold start due to a failing oil pump or a clogged pickup tube, so oil pressure should be verified.
- Incorrect oil viscosity or extended oil change intervals can cause the camshaft phaser to respond slowly, mimicking a sensor failure.
- A worn timing chain can cause this code without any rattling noise, especially on engines with variable valve timing that compensates until the chain stretches beyond limits.
- Some vehicles require a cold-start relearn procedure after battery replacement or ECM reprogramming, and skipping it can set this code falsely.

Can I keep driving with P05CD?

You can generally drive the vehicle with this code, but avoid aggressive acceleration and heavy loads until diagnosed, as prolonged driving with timing issues can lead to poor fuel economy or catalytic converter damage. If the engine runs rough or stalls, seek service immediately.

Tools that help

- OBD-II scan tool with live data capability
- Digital multimeter
- Oil pressure gauge
- Timing light or oscilloscope
- Basic hand tools (wrenches, sockets, screwdrivers)



Reading P05CD

- P** Powertrain: engine, transmission and emissions.
- 0** Generic (SAE) code: it means the same thing on every OBD-II vehicle.
- 5** Vehicle speed, idle control and auxiliary inputs.
- CD** 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) · **P0021** 'A' Camshaft Position - Timing Over-Advanced or System Perfo · **P05CE** Cold Start B Camshaft Position Timing Performance Bank 1 · **P05CF** Cold Start B Camshaft Position Timing Performance Bank 2

See it working

Watch the animated explainer [Four-Stroke Engine Cutaway: Intake to Exhaust](#) on Auto Veteran to see the parts involved moving.

Full guide, related articles and animations: <https://www.autoveteran.tech/dtc-codes/p05cd/>

