

GENERIC · POWERTRAIN

P052C

OBD-II TROUBLE CODE

P052C

Cold Start A Camshaft Position Timing Over-Advanced Bank 2

P052C indicates that during a cold start, the engine computer detected the bank 2 camshaft timing is more advanced than the commanded target, based on the camshaft position sensor signal. This means the camshaft phaser or its control system is not achieving the correct retard position when the engine is cold, which can affect emissions and performance.

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

Symptoms you may notice

- Illuminated check engine light, often with no other noticeable symptoms
- Rough idle or misfire during the first few minutes after a cold start
- Reduced engine performance or hesitation when accelerating while cold
- Poor fuel economy or increased emissions during warm-up
- In some cases, a rattling noise from the timing chain area on cold start

Common causes, most likely first

- 1 Sticking or faulty oil control valve (OCV) for the bank 2 camshaft phaser
- 2 Sludge or debris clogging the oil passages to the camshaft phaser
- 3 Worn or damaged camshaft phaser (timing gear) internal components
- 4 Low engine oil level or degraded oil that affects phaser operation
- 5 Faulty camshaft position sensor or wiring for bank 2
- 6 Engine control module (ECM) software issue or calibration error
- 7 Mechanical timing chain issues, such as a stretched chain or faulty tensioner



How to diagnose and fix it

- 1 Check engine oil level and condition; top off or change oil if contaminated or low
- 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 command the camshaft phaser and observe if it responds; compare commanded vs. actual timing
- 4 Remove and inspect the bank 2 oil control valve for sludge or debris; clean or replace if necessary
- 5 Check oil pressure to ensure it meets specifications for phaser operation
- 6 If oil control valve and sensor are good, inspect the camshaft phaser and timing chain for wear or damage
- 7 Reprogram the ECM with the latest calibration if no mechanical issues are found

Cold Start Timing Codes and Oil Quality

- A cold start over-advanced condition is often caused by oil that is too thick or contaminated, preventing the phaser from retarding quickly enough when the engine is first started.
- The oil control valve may test fine electrically but still stick mechanically due to varnish buildup, so a resistance check alone is not sufficient.
- Some vehicles use a single oil control valve for both banks, so a fault on bank 2 could be influenced by a shared oil supply issue.
- A stretched timing chain can cause the camshaft to be advanced relative to the crankshaft, setting this code even if the phaser is functioning correctly.
- After repairs, the ECM may require a relearn procedure or several cold start cycles before the code clears and monitors run.

Can I keep driving with P052C?

You can generally drive the vehicle, but avoid heavy acceleration or high loads until the fault is repaired, as prolonged over-advanced timing can lead to engine damage or increased emissions. Have the vehicle diagnosed promptly to prevent worsening performance or potential mechanical failure.

Tools that help

- OBD-II scan tool with live data and bidirectional control
- Digital multimeter
- Oil pressure gauge
- Basic hand tools (wrenches, sockets, screwdrivers)
- Service information for timing specifications and procedures



Reading P052C

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.
2C	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) · **P0017** Crankshaft/Camshaft Position Correlation (Bank 1 Sensor B) · **P052B** Cold Start A Camshaft Position Timing Over-Retarded Bank 1 · **P052D** Cold Start A Camshaft Position Timing Over-Retarded 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/p052c/>

