

GENERIC · POWERTRAIN

P0018

OBD-II DIAGNOSTIC TROUBLE CODE (DTC)

P0018

Crankshaft Position - Camshaft Position Correlation (Bank 2 Sensor A)

P0018 means the engine computer has detected a mismatch between the crankshaft position sensor and the bank 2 camshaft position sensor 'A' signal, so the two are not staying in the mechanical timing relationship the computer expects. The computer compares these signals continuously and sets the code when the correlation error exceeds its calibrated limit for a set number of driving cycles.

SYSTEM

Powertrain

CODE TYPE

Generic (all makes)

SEVERITY

Medium

FIX DIFFICULTY

Professional

AREA

Fuel and air metering and auxiliary emission controls

Symptoms you may notice

- Illuminated check engine light, often with no other symptoms besides the warning light
- Rough idle or intermittent misfire, especially when the engine is cold
- Reduced engine power or limp mode as the computer limits variable valve timing operation
- Poor fuel economy or increased emissions due to incorrect valve timing
- Hard starting or extended cranking before the engine fires
- Rattle or ticking noise from the timing chain area on engines with chain-driven camshafts

Common causes, most likely first

- 1 Stretched or worn timing chain, belt, or tensioner causing the camshaft to lag the crankshaft
- 2 Failed or sticking variable valve timing (VVT) solenoid on bank 2
- 3 Contaminated or clogged VVT oil control valve or oil passages from sludge or low oil pressure
- 4 Faulty bank 2 camshaft position sensor or damaged sensor wiring and connector
- 5 Incorrectly installed timing components after a prior repair, such as a chain off by one tooth
- 6 Engine oil level low or oil viscosity incorrect for the conditions, affecting VVT phaser response
- 7 Rarely, a failed camshaft phaser or damaged tone ring on the camshaft or crankshaft



How to diagnose and fix it

- 1 Check engine oil level and condition first, then verify oil pressure with a mechanical gauge if the level is correct
- 2 Scan all modules for stored and pending codes, and record freeze-frame data for P0018 and any companion codes
- 3 Inspect the bank 2 camshaft position sensor connector and wiring for corrosion, chafing, or loose pins
- 4 Command the bank 2 VVT solenoid with a scan tool and watch camshaft timing response to confirm the phaser is moving
- 5 Remove and inspect the bank 2 VVT oil control valve and solenoid screen for sludge or metal debris
- 6 Verify base engine timing marks mechanically if the electrical and oil checks pass, especially after recent timing work
- 7 Replace the failed component, clear codes, and complete a drive cycle to confirm the correlation error stays within specification

What the correlation code really tells you

- A P0018 is a relationship fault, not a sensor failure code, so replacing the bank 2 camshaft sensor first is a common and expensive misdiagnosis when the real problem is a stretched chain or sludged VVT solenoid.
- Low oil pressure or a restricted oil passage can set P0018 without any mechanical timing wear, because the camshaft phaser cannot return to its commanded position quickly enough for the computer's correlation check.
- On many engines the same correlation error will also set a bank 2 VVT performance code or a crankshaft/camshaft rationality code, so reading all stored codes together points to whether the fault is electrical or mechanical.
- A timing chain that is only slightly stretched may pass a cold visual inspection and only fail the correlation test once the engine is hot and oil viscosity drops, so the freeze-frame data matters more than a static look at the chain.
- After any timing component repair, the computer may need a relearn or several complete drive cycles before P0018 stops returning, and clearing the code without completing the monitor can make a correct repair look unsuccessful.

Can I keep driving with P0018?

You can usually drive the vehicle to a repair shop at moderate speed, but avoid hard acceleration, heavy load, and long trips because incorrect camshaft timing can cause misfires, overheating, and catalytic converter damage. If the engine runs rough, rattles loudly, or enters limp mode, stop driving and have it towed.



Tools that help

- OBD-II scan tool with live data and bidirectional VVT control
- Mechanical oil pressure gauge
- Digital multimeter for sensor and wiring checks
- Timing light or oscilloscope for crankshaft and camshaft signal comparison
- Basic hand tools and torque wrench for sensor and valve cover access

Reading P0018

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

Often seen with

P000A A Camshaft Position Slow Response Bank 1 · **P0016** Crankshaft/Camshaft Position Correlation (Bank 1 Sensor A) · **P0017** Crankshaft/Camshaft Position Correlation (Bank 1 Sensor B) · **P0019** Crankshaft Position - Camshaft Position Correlation (Bank 2 · **P0021** 'A' Camshaft Position - Timing Over-Advanced or System Perfo

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/p0018/>

