

GENERIC · POWERTRAIN

P0017

OBD-II DIAGNOSTIC TROUBLE CODE (DTC)

P0017

Crankshaft/Camshaft Position Correlation (Bank 1 Sensor B)

P0017 means the engine computer has compared the crankshaft position signal with the bank 1 sensor B camshaft position signal and found they do not stay in the expected mechanical relationship. The powertrain control module (PCM) sets this code when the correlation error exceeds its calibrated threshold, which points to a timing chain, belt, or variable valve timing fault rather than a simple sensor glitch.

SYSTEM	CODE TYPE	SEVERITY	FIX DIFFICULTY	AREA
Powertrain	Generic (all makes)	High	Professional	Fuel and air metering and auxiliary emission controls

Symptoms you may notice

- Illumination of the check engine light, often with no other noticeable symptoms at first
- Rough idle or engine misfire that may feel like a shake at stoplights
- Reduced engine power or a limp-home mode triggered by the PCM
- Hard starting or a crank that sounds different from normal
- Poor fuel economy or increased exhaust emissions noticed over time
- A rattle or ticking noise from the front of the engine on cold starts

Common causes, most likely first

- 1 Worn or stretched timing chain, timing belt, or tensioner allowing the camshaft to lag the crankshaft
- 2 Failed variable valve timing (VVT) solenoid or dirty oil control valve on bank 1
- 3 Sludge or debris blocking the VVT oil passages, often from neglected oil changes
- 4 A jumped tooth on the timing chain or belt due to a failed tensioner or guide
- 5 Faulty bank 1 sensor B camshaft position sensor or damaged wiring to it
- 6 A crankshaft position sensor or reluctor wheel problem affecting the reference signal
- 7 Low engine oil pressure or the wrong oil viscosity preventing proper VVT phaser operation



How to diagnose and fix it

- 1 Check engine oil level and condition, 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 P0017 and any companion codes
- 3 Inspect the bank 1 sensor B camshaft position sensor and its wiring for damage, corrosion, or loose connectors
- 4 Command the VVT solenoid with a scan tool and listen for activation, then remove and clean or test the solenoid
- 5 Verify mechanical timing by aligning the crankshaft and camshaft timing marks per the manufacturer's procedure
- 6 Perform a compression test and cylinder leak-down test to rule out mechanical damage before teardown
- 7 Replace the timing chain, belt, tensioner, and guides as a set if timing verification shows a jump or stretch

What the correlation code really tells you

- A stretched timing chain on many engines sets P0017 long before the driver hears any rattle, so the code is often the first warning of a mechanical problem.
- Technicians who replace the camshaft sensor first usually see the code return because the sensor is reporting a real mechanical misalignment, not a false signal.
- Dirty oil or a clogged VVT solenoid screen can mimic a worn chain, so always verify oil condition and solenoid operation before condemning internal engine parts.
- On some engines, a weak battery or voltage drop during cranking can corrupt the cam-crank correlation learning and set P0017 without any mechanical fault.
- P0017 is bank 1 sensor B specific, so on V6 and V8 engines the same fault on the other bank will set a different code and should not be diagnosed with this one.

Can I keep driving with P0017?

Limit driving to a short distance to a repair shop because a jumped or stretched timing chain can cause valve-to-piston contact and catastrophic engine damage. Avoid hard acceleration and high RPM until the fault is diagnosed.

Tools that help

- OBD-II scan tool with live data and bidirectional control
- Mechanical oil pressure gauge
- Digital multimeter for sensor and wiring checks
- Timing light or scan tool capable of reading cam-crank correlation
- Compression tester and cylinder leak-down tester
- Basic hand tools and timing mark alignment tools



Reading P0017

- 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.
- 17** 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) · **P0018** Crankshaft Position - Camshaft Position Correlation (Bank 2 · **P0300** Random/Multiple Cylinder Misfire Detected · **P0340** Camshaft Position Sensor A Circuit Malfunction (Bank 1)

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/p0017/>

