

GENERIC · POWERTRAIN

P0020

OBD-II DIAGNOSTIC TROUBLE CODE (DTC)

P0020

'A' Camshaft Position Actuator Circuit (Bank 2)

P0020 indicates that the powertrain control module has detected an electrical fault in the circuit that controls the bank 2 camshaft position actuator, which is the solenoid that adjusts cam timing on the cylinder head opposite cylinder number one. The computer monitors the actuator circuit for expected voltage or current and sets this code when the signal falls outside the normal range, often due to an open, short, or excessive resistance in the wiring or solenoid.

SYSTEM

Powertrain

CODE TYPE

Generic (all makes)

SEVERITY

Medium

FIX DIFFICULTY

Intermediate

AREA

Fuel and air metering and auxiliary emission controls

Symptoms you may notice

- Illumination of the check engine light, often with no other noticeable symptoms
- Rough idle or intermittent misfire, especially when the engine is cold
- Reduced engine power or sluggish acceleration due to incorrect cam timing
- Poor fuel economy because the engine management system cannot optimize valve timing
- In some cases, a rattling or ticking noise from the bank 2 cylinder head area if the actuator is stuck

Common causes, most likely first

- 1 Faulty bank 2 camshaft position actuator solenoid, such as a burned coil or stuck plunger
- 2 Damaged or corroded wiring harness or connector at the actuator solenoid
- 3 Open or short circuit in the actuator control wire between the PCM and the solenoid
- 4 Poor electrical connection at the powertrain control module (PCM) connector
- 5 Low engine oil level or sludge blocking oil passages to the actuator, causing mechanical binding
- 6 Failed PCM driver for the actuator circuit, though this is rare



How to diagnose and fix it

- 1 Check engine oil level and condition; top off or change oil if it is low or dirty, as oil pressure affects actuator operation
- 2 Inspect the bank 2 camshaft position actuator solenoid connector and wiring for damage, corrosion, or loose pins
- 3 Measure resistance of the actuator solenoid with a multimeter and compare to the manufacturer's specification
- 4 Test the control circuit for continuity and shorts to ground or power using a wiring diagram and multimeter
- 5 Swap the bank 2 actuator solenoid with a known-good unit from bank 1 (if accessible) to see if the code moves
- 6 If wiring and solenoid test good, check for PCM software updates or perform a relearn procedure as required
- 7 Replace the bank 2 camshaft position actuator solenoid if faulty, clear the code, and verify the repair with a test drive

What most technicians overlook on P0020

- A dirty or sludged engine oil system can cause the actuator to stick mechanically even when the electrical circuit tests perfectly, so always verify oil condition before condemning the solenoid.
- The code can be set by a poor connection at the PCM itself, not just at the solenoid, so wiggle-test the PCM connectors while monitoring live data.
- Some vehicles use the same part number for bank 1 and bank 2 actuators, allowing a quick swap to confirm a faulty solenoid without buying a new part.
- P0020 is often accompanied by other camshaft or crankshaft correlation codes, which can mislead diagnosis if the root cause is a shared power or ground circuit.
- After replacing the actuator, a camshaft position relearn may be required on some models to prevent a repeat code or rough running.

Can I keep driving with P0020?

You can usually drive the vehicle short distances to a repair shop, but avoid heavy acceleration or towing because incorrect cam timing can cause misfires and increased exhaust emissions. If the engine runs very rough or stalls, stop driving and have it towed to prevent catalytic converter damage.

Tools that help

- OBD-II scan tool with live data capability
- Digital multimeter
- Wiring diagram for the specific vehicle
- Basic hand tools (socket set, screwdrivers)
- Oil filler funnel and appropriate engine oil



Reading P0020

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

Often seen with

P0010 'A' Camshaft Position Actuator Circuit (Bank 1) · **P0011** 'A' Camshaft Position - Timing Over-Advanced or System Perfo · **P0021** 'A' Camshaft Position - Timing Over-Advanced or System Perfo · **P0022** 'A' Camshaft Position - Timing Over-Retarded (Bank 2) · **P0345** Camshaft Position Sensor A Circuit (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/p0020/>

