

GENERIC · POWERTRAIN

P0013

OBD-II DIAGNOSTIC TROUBLE CODE (DTC)

P0013

'B' Camshaft Position - Actuator Circuit (Bank 1)

P0013 indicates that the engine computer has detected an electrical fault in the circuit that controls the bank 1 'B' camshaft position actuator, which is the solenoid valve responsible for adjusting camshaft timing on that bank. The computer monitors the actuator circuit for expected voltage or current and sets this code when the signal falls outside the normal range, pointing to a problem with the wiring, connector, or the actuator itself rather than with the mechanical timing components.

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 engine misfire, especially when the engine is cold
- Reduced engine performance and poor fuel economy due to incorrect camshaft timing
- A noticeable hesitation or stumble during acceleration
- In some cases, the engine may enter limp mode or exhibit hard starting

Common causes, most likely first

- 1 Faulty bank 1 camshaft position actuator solenoid
- 2 Damaged or corroded electrical connector at the actuator
- 3 Open or short circuit in the wiring harness between the actuator and the engine control module
- 4 Contaminated or clogged oil passage feeding the actuator, causing mechanical binding
- 5 Engine control module software or internal driver fault (less common)
- 6 Low engine oil level or degraded oil affecting actuator operation



How to diagnose and fix it

- 1 Check for any related technical service bulletins (TSBs) or software updates for the vehicle
- 2 Inspect the actuator electrical connector and wiring for damage, corrosion, or loose pins
- 3 Measure the resistance of the actuator solenoid and compare to the manufacturer's specification
- 4 Check for battery voltage and ground signals at the actuator connector with the key on
- 5 Perform a visual inspection of the engine oil condition and level, and change oil if contaminated
- 6 Test the actuator by applying power and ground directly to confirm it clicks or moves freely
- 7 If all electrical checks pass, replace the camshaft position actuator solenoid and clear the code

Don't overlook oil quality and wiring

- A dirty or sludged oil system can cause the actuator to stick, setting P0013 even when the solenoid tests good electrically.
- The code often appears after an oil change if the wrong viscosity or a low-quality filter is used, restricting oil flow to the actuator.
- A poor connection at the actuator connector can mimic a failed solenoid, so always wiggle-test the harness while monitoring live data.
- P0013 is an electrical circuit code, not a performance code, so it rarely indicates a jumped timing chain or mechanical timing failure.
- Some vehicles require a relearn procedure after replacing the actuator, and skipping it can cause the code to return.

Can I keep driving with P0013?

You can usually drive the vehicle short distances to a repair shop, but avoid aggressive acceleration or heavy loads because incorrect camshaft timing can cause poor performance and increased emissions. If the engine runs very rough or stalls, stop driving and have it towed to prevent further damage.

Tools that help

- OBD-II scan tool with live data capability
- Digital multimeter
- Socket and ratchet set
- Test light
- Vehicle service manual or online repair database



Reading P0013

- 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.
- 13** 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 · **P0012** 'A' Camshaft Position - Timing Over-Retarded (Bank 1) · **P0014** Exhaust Camshaft Position - Over-Advanced (Bank 1) · **P0023** 'B' Camshaft Position - Actuator 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/p0013/>

