

GENERIC · POWERTRAIN

P2094

OBD-II TROUBLE CODE

P2094

'B' Camshaft Position Actuator Control Circuit Low (Bank 2)

P2094 means the powertrain control module (PCM) has detected an abnormally low voltage or current on the control circuit for the bank 2 'B' camshaft position actuator, which is the solenoid that adjusts camshaft timing on that cylinder bank. The PCM commands the actuator to move, but the electrical feedback on the control wire stays below the expected threshold, so the computer flags the circuit as low.

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

Symptoms you may notice

- Illumination of the check engine light, often with no other symptoms besides the warning light
- Rough idle or unstable engine operation, especially when cold
- Reduced engine power or sluggish acceleration because cam timing stays in a default position
- Poor fuel economy or increased emissions due to incorrect valve timing
- Intermittent stumbling or hesitation that may come and go with wiring movement
- In some vehicles, a limp-home mode or reduced RPM limit

Common causes, most likely first

- 1 Open or high-resistance wire in the actuator control circuit, such as a broken conductor or corroded connector terminal
- 2 Failed camshaft position actuator solenoid with an open internal coil
- 3 Poor ground connection at the actuator or at the engine block ground point
- 4 Damaged or shorted wiring harness caused by chafing, heat, or rodent damage
- 5 Faulty powertrain control module driver circuit, though this is less common
- 6 Low engine oil level or severely degraded oil that prevents the actuator from moving freely, which can indirectly affect circuit feedback on some designs



How to diagnose and fix it

- 1 Verify battery voltage and inspect the actuator solenoid connector for corrosion, loose pins, or pushed-back terminals
- 2 Check the control circuit for continuity and resistance from the PCM connector to the actuator connector, comparing to the manufacturer's specification
- 3 Measure the resistance of the camshaft position actuator solenoid coil and compare it to the specified range
- 4 Inspect the wiring harness for chafing, heat damage, or rodent chew marks along the route to the actuator
- 5 Test the ground circuit at the actuator with a loaded test light to confirm a solid ground path
- 6 If the circuit and solenoid test good, check for a faulty PCM driver by back-probing the control wire while commanding the actuator with a scan tool
- 7 Replace the failed component, clear the code, and verify the repair with a road test and live data review of camshaft timing

What the low circuit code really means

- A low circuit code does not automatically mean the solenoid is bad; a poor ground or a high-resistance wire on the ground side can produce the same low-voltage reading at the PCM.
- Some vehicles set P2094 when the actuator solenoid is mechanically stuck and the PCM sees unexpected current feedback, so always check oil condition and actuator movement before replacing electrical parts.
- Intermittent P2094 codes often trace to a harness that rubs against a bracket or heatshield, so wiggle-test the wiring while watching live data before condemning any component.
- The bank 2 'B' actuator is often the exhaust camshaft actuator on V6 and V8 engines, so confirm which camshaft the 'B' designation refers to on the specific vehicle before ordering parts.
- A weak battery or charging system can cause false low-circuit codes on some PCMs, so always verify stable voltage before chasing the actuator circuit.

Can I keep driving with P2094?

You can usually drive the vehicle to a repair shop, but avoid heavy acceleration and sustained high speeds because incorrect cam timing can cause poor performance and increased emissions. If the engine runs rough or enters limp mode, keep driving to a minimum and have it diagnosed promptly.

Tools that help

- OBD-II scan tool with live data and bidirectional control capability
- Digital multimeter
- Test light
- Wire piercing probes or back-probe kit
- Service information for wiring diagrams and resistance specifications



Reading P2094

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

Often seen with

P0011 'A' Camshaft Position - Timing Over-Advanced or System Perfo · **P0021** 'A' Camshaft Position - Timing Over-Advanced or System Perfo · **P2092** 'A' Camshaft Position Actuator Control Circuit Low (Bank 2) · **P2093** 'A' Camshaft Position Actuator Control Circuit High (Bank 2) · **P2095** 'B' Camshaft Position Actuator Control Circuit High (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/p2094/>

