

GENERIC · POWERTRAIN

P2B3B

OBD-II DIAGNOSTIC TROUBLE CODE (DTC)

P2B3B

B Camshaft Profile Actuator B Control Circuit High Bank 1

P2B3B indicates that the powertrain control module has detected an abnormally high voltage on the control circuit for the Bank 1 'B' camshaft profile actuator, which is the component that changes valve lift or duration. The circuit is commanding the actuator, but the feedback or driver voltage is outside the expected range, so the module sets this code and may disable the variable valve timing or lift system.

SYSTEM

Powertrain

CODE TYPE

Generic (all makes)

SEVERITY

Medium

FIX DIFFICULTY

Intermediate

AREA

Hybrid propulsion

Symptoms you may notice

- Illumination of the check engine light, often with no other noticeable symptoms
- Reduced engine power or a limp-home mode when the actuator is disabled
- Rough idle or unstable engine operation at low speeds
- Poor fuel economy or increased emissions
- A noticeable lack of power at higher engine speeds where the profile change should occur
- In some cases, a slight hesitation or stumble during light acceleration

Common causes, most likely first

- 1 A short to voltage on the actuator control wire, often from chafed insulation or a pinched harness
- 2 A failed camshaft profile actuator solenoid with an internal short to power
- 3 Corroded, loose, or damaged electrical connector pins at the actuator or PCM
- 4 A faulty powertrain control module driver circuit for that actuator
- 5 Oil sludge or debris blocking the actuator, causing it to draw excessive current and set a high-voltage fault
- 6 An open ground circuit for the actuator, which can cause the control circuit to read high voltage



How to diagnose and fix it

- 1 Use a scan tool to verify the code and check for any related camshaft or variable valve timing codes before proceeding
- 2 Inspect the actuator electrical connector and the harness for damage, corrosion, or loose pins, and repair as needed
- 3 Measure the control circuit voltage with a multimeter to confirm the high-voltage condition and check for a short to power
- 4 Test the actuator solenoid resistance and compare it to the manufacturer's specification to rule out an internal short
- 5 Check the actuator ground circuit for continuity and repair any open or high-resistance ground
- 6 If the circuit and actuator test good, perform a bidirectional test of the actuator with a scan tool to confirm PCM driver operation
- 7 Replace the camshaft profile actuator if it fails electrical or functional testing, then clear the code and verify the repair

High voltage does not always mean a bad actuator

- A shorted or chafed control wire is more common than a failed actuator, so always inspect the harness along its full length before condemning the solenoid.
- Oil sludge or debris can cause the actuator to stick and draw excessive current, which sets a high-voltage code even though the electrical circuit is intact.
- A poor ground connection at the actuator or engine block can cause the control circuit to read high voltage, mimicking a short to power.
- This code can be set by a faulty PCM driver, but that is rare; rule out wiring and actuator faults first to avoid an unnecessary PCM replacement.
- On some engines, the 'B' camshaft profile actuator is part of a multi-stage system, and a fault in one stage can affect the others, so check for related codes before replacing parts.

Can I keep driving with P2B3B?

You can usually drive the vehicle with this code, but avoid heavy acceleration and sustained high speeds because the variable valve lift system may be disabled, reducing performance and fuel economy. Have the fault diagnosed soon to prevent potential damage to the actuator or related components.

Tools that help

- OBD-II scan tool with bidirectional control capability
- Digital multimeter
- Wiring diagram for the specific vehicle
- Basic hand tools for connector and component access
- Test light or power probe



Reading P2B3B

- P** Powertrain: engine, transmission and emissions.
- 2** Generic (SAE) code: it means the same thing on every OBD-II vehicle.
- B** Hybrid propulsion.
- 3B** 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) · **P2B3A** B Camshaft Profile Actuator B Control Circuit Low Bank 1 · **P2B3C** B Camshaft Profile Actuator B Control Circuit/Open 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/p2b3b/>

