

GENERIC · POWERTRAIN

P2B35

OBD-II DIAGNOSTIC TROUBLE CODE (DTC)

P2B35

A Camshaft Profile Actuator B Control Circuit High Bank 1

P2B35 is a generic powertrain code indicating that the engine control module (ECM) has detected an abnormally high voltage on the control circuit for the Bank 1 camshaft profile actuator B. This actuator is part of a variable valve timing or variable valve lift system that changes camshaft profile to optimize engine performance and efficiency. The high voltage condition suggests a short to power, an open circuit, or a faulty actuator, and the ECM may limit the system's operation to protect the engine.

SYSTEM	CODE TYPE	SEVERITY	FIX DIFFICULTY	AREA
Powertrain	Generic (all makes)	Medium	Intermediate	Hybrid propulsion

Symptoms you may notice

- Illumination of the check engine light (malfunction indicator lamp) on the dashboard.
- Often no noticeable symptoms besides the warning light, especially if the system defaults to a safe mode.
- Reduced engine performance, such as sluggish acceleration or poor fuel economy, due to the actuator not functioning.
- Rough idle or engine misfire if the camshaft profile remains in an unfavorable position.
- In some cases, the engine may enter limp mode, limiting speed and power.

Common causes, most likely first

- 1 Faulty camshaft profile actuator B (solenoid or motor) with an internal short to power.
- 2 Damaged or shorted wiring in the control circuit, including chafed insulation or pinched wires.
- 3 Corroded or loose electrical connectors at the actuator or ECM, causing high resistance or intermittent shorts.
- 4 Failed ECM driver circuit for the actuator, though this is less common.
- 5 Oil contamination or sludge buildup affecting the actuator's internal components, leading to electrical faults.
- 6 Aftermarket or incorrect actuator installation that does not meet specifications.



How to diagnose and fix it

- 1 Perform a visual inspection of the actuator and its wiring harness for obvious damage, corrosion, or loose connections.
- 2 Use a scan tool to check for related codes and freeze-frame data, and to command the actuator on and off to observe circuit behavior.
- 3 Measure the resistance of the actuator with a multimeter and compare to the manufacturer's specification to check for an open or shorted coil.
- 4 Backprobe the control circuit at the actuator and ECM to measure voltage with the key on and engine off; a high voltage with the actuator disconnected indicates a short to power in the harness.
- 5 Inspect the wiring harness along its routing for signs of rubbing, heat damage, or contact with moving components, and repair as needed.
- 6 If the circuit tests normal, substitute a known-good actuator of the same part number to see if the code clears and the system operates correctly.
- 7 Clear the codes and perform a road test to verify the repair; if the code returns, further diagnose the ECM and its software with factory service information.

High Voltage Doesn't Always Mean a Bad Actuator

- A common misdiagnosis is replacing the camshaft profile actuator when the real problem is a shorted wire in the harness, often caused by rubbing against a sharp bracket or heat source.
- The ECM may set this code if the actuator circuit is open, not just shorted high, because the driver circuit can detect an unexpected voltage when the actuator is disconnected.
- Oil sludge or debris can cause the actuator to stick and draw excessive current, which the ECM may interpret as a high voltage condition, so checking oil maintenance history is valuable.
- On some vehicles, a weak battery or charging system issue can cause erratic voltages that trigger this code, so always verify battery and ground integrity before condemning the actuator.
- This code is specific to Bank 1, which is the bank containing cylinder 1; on V6 or V8 engines, ensure you are working on the correct bank to avoid unnecessary parts swapping.

Can I keep driving with P2B35?

You can generally drive the vehicle with this code, but avoid aggressive acceleration or heavy loads because the camshaft profile system may be disabled, reducing performance and potentially increasing emissions. If the engine runs rough or enters limp mode, seek service promptly to prevent further damage.



Tools that help

- OBD-II scan tool with bidirectional control capability
- Digital multimeter
- Backprobe pins or breakout box
- Factory service information for wiring diagrams and specifications
- Basic hand tools for connector and component access

Reading P2B35

- P** Powertrain: engine, transmission and emissions.
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- 2** Generic (SAE) code: it means the same thing on every OBD-II vehicle.
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- B** Hybrid propulsion.
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- 35** 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) · **P2B34** A Camshaft Profile Actuator B Control Circuit Low Bank 1 · **P2B36** A 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/p2b35/>

