

GENERIC · POWERTRAIN

P2B45

OBD-II DIAGNOSTIC TROUBLE CODE (DTC)

P2B45

A Camshaft Position Actuator Position Sensor B Circuit Low Bank 2

P2B45 indicates that the powertrain control module has detected a low-voltage condition on the signal circuit for the Bank 2 camshaft position actuator position sensor B. This sensor reports the actual position of the camshaft phaser to the computer, and a low signal means the circuit is shorted to ground, open, or the sensor is failing.

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, often with no other noticeable symptoms
- Rough idle or engine misfire, especially when cold
- Reduced engine power or limp mode under acceleration
- Poor fuel economy due to incorrect camshaft timing
- Intermittent stalling or hesitation during low-speed driving

Common causes, most likely first

- 1 Faulty camshaft position actuator position sensor B on Bank 2
- 2 Damaged or corroded wiring harness to the sensor, causing a short to ground
- 3 Loose or contaminated electrical connector at the sensor
- 4 Failed camshaft phaser or actuator mechanism binding, which can damage the sensor
- 5 Engine oil sludge or debris obstructing the sensor or phaser oil passages
- 6 PCM internal fault or corrupted software affecting the sensor signal circuit



How to diagnose and fix it

- 1 Scan all modules for stored and pending codes, and record freeze-frame data to confirm the fault conditions
- 2 Visually inspect the sensor, connector, and wiring for damage, corrosion, or oil contamination, and repair as needed
- 3 Measure resistance and voltage on the sensor signal circuit with a digital multimeter to check for shorts to ground or opens
- 4 Test the sensor with a known-good unit or oscilloscope to verify signal output across the camshaft phaser range
- 5 Check engine oil condition and level, and inspect the phaser and oil control valve for sludge or mechanical binding
- 6 Replace the camshaft position actuator position sensor B if testing confirms it is faulty, then clear codes and verify the repair
- 7 If the code persists, perform a relearn or reprogram the PCM, and check for intermittent wiring faults under load

Why this code often misleads

- A low signal code is frequently caused by a chafed wire grounding against the engine block rather than a failed sensor, so always inspect the harness routing before replacing parts.
- Oil sludge or a sticking phaser can cause the sensor to read out of range and set this code, so a sensor replacement alone may not fix the underlying issue.
- The sensor may test good with a multimeter but still drop out intermittently when hot or vibrating, so a wiggle test and oscilloscope capture are more reliable than a static resistance check.
- This code can be set by a low battery or charging system fault that causes a momentary voltage drop on the sensor reference circuit, so check system voltage first.
- After replacing the sensor or phaser, some vehicles require a camshaft position relearn procedure, and skipping it can leave the code stored or cause poor driveability.

Can I keep driving with P2B45?

You can usually drive the vehicle short distances to a repair shop, but avoid heavy acceleration or towing because incorrect camshaft timing can cause misfires and potential engine damage. If the engine runs rough or stalls, stop driving and have it towed.



Tools that help

- OBD-II scan tool with live data and freeze-frame capability
- Digital multimeter
- Oscilloscope for signal waveform analysis
- Basic hand tools and socket set
- Wiring diagram for the specific vehicle
- Oil pressure gauge or mechanical oil pressure test kit

Reading P2B45

P	Powertrain: engine, transmission and emissions.
2	Generic (SAE) code: it means the same thing on every OBD-II vehicle.
B	Hybrid propulsion.
45	The exact fault within that area.

Often seen with

P0011 'A' Camshaft Position - Timing Over-Advanced or System Perfo · **P0014** Exhaust Camshaft Position - Over-Advanced (Bank 1) · **P0021** 'A' Camshaft Position - Timing Over-Advanced or System Perfo · **P2B44** A Camshaft Position Actuator Position Sensor B Range/Perform · **P2B46** A Camshaft Position Actuator Position Sensor B Circuit High

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/p2b45/>

