

GENERIC · POWERTRAIN

P03ED

OBD-II DIAGNOSTIC TROUBLE CODE (DTC)

P03ED

A Camshaft Profile Actuator C Control Circuit Low Bank 1

P03ED indicates that the powertrain control module has detected a low-voltage condition on the control circuit for the camshaft profile actuator on bank 1, cylinder group C. This actuator changes valve lift or duration to optimize engine performance, and a low circuit signal means the PCM cannot reliably command the actuator, potentially affecting engine breathing and emissions.

SYSTEM	CODE TYPE	SEVERITY	FIX DIFFICULTY	AREA
Powertrain	Generic (all makes)	Medium	Intermediate	Ignition system and misfire

Symptoms you may notice

- Illumination of the check engine light, often with no other noticeable symptoms.
- Rough idle or engine misfire, especially at low speeds.
- Reduced engine power or sluggish acceleration due to improper valve timing.
- Poor fuel economy as the engine operates with non-optimal valve lift.
- Intermittent stalling or hesitation during acceleration.
- Failed emissions test due to increased exhaust emissions.

Common causes, most likely first

- 1 Damaged or chafed wiring in the actuator control circuit, causing a short to ground.
- 2 Corroded or loose electrical connector at the camshaft profile actuator.
- 3 Faulty camshaft profile actuator solenoid with an internal short.
- 4 Failed powertrain control module driver for the actuator circuit.
- 5 Oil sludge or debris blocking the actuator, leading to abnormal current draw.
- 6 Aftermarket electrical accessories improperly tapped into the circuit.



How to diagnose and fix it

- 1 Perform a visual inspection of the actuator wiring and connector for damage, corrosion, or looseness.
- 2 Use a digital multimeter to check for continuity and short to ground on the control circuit between the PCM and actuator.
- 3 Test the actuator solenoid resistance and compare to manufacturer specifications; replace if out of range.
- 4 Check for technical service bulletins or software updates for the PCM that may address false setting of this code.
- 5 Inspect oil condition and actuator screen for sludge; clean or replace as needed.
- 6 If wiring and actuator are good, test the PCM output with a lab scope or bidirectional scanner; replace PCM if driver failure is confirmed.
- 7 Clear codes and perform a road test to verify the repair and ensure the code does not return.

Diagnosing P03ED Without Throwing Parts

- A low circuit code often results from a short to ground in the wiring harness where it rubs against sharp engine components, so a thorough wiggle test of the harness is essential.
- The camshaft profile actuator may be misdiagnosed as a failed unit when the real issue is oil sludge blocking the actuator screen, causing excessive current draw and a low voltage code.
- Some vehicles use a shared ground for multiple actuators; a fault in one can set codes for others, so check for additional codes that may point to a common ground issue.
- Aftermarket remote start or alarm systems improperly spliced into the actuator circuit can introduce resistance and trigger this code, so always check for non-factory wiring.
- A low battery or charging system fault can cause momentary low voltage on actuator circuits, setting this code without any actual circuit defect.

Can I keep driving with P03ED?

You can usually drive the vehicle with this code, but avoid aggressive acceleration and heavy loads until it is repaired, as the engine may enter a limp mode that reduces power. Prolonged driving with a low circuit fault could lead to catalytic converter damage from rich operation, so schedule diagnosis soon.

Tools that help

- OBD-II scanner with bidirectional control capability
- Digital multimeter
- Lab scope for waveform analysis
- Wiring diagram for the specific vehicle
- Socket set and trim removal tools



Reading P03ED

- P** Powertrain: engine, transmission and emissions.
- 0** Generic (SAE) code: it means the same thing on every OBD-II vehicle.
- 3** Ignition system and misfire.
- ED** 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 · **P03EC** A Camshaft Profile Actuator C Control Circuit/Open Bank 1 · **P03EE** A Camshaft Profile Actuator C Control Circuit High Bank 1 · **P03EF** A Camshaft Profile Actuator C Control Performance/Stuck Off

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/p03ed/>

