

GENERIC · POWERTRAIN

P03F2

OBD-II DIAGNOSTIC TROUBLE CODE (DTC)

P03F2

B Camshaft Profile Actuator C Control Circuit Low Bank 1

P03F2 indicates that the powertrain control module has detected a low-voltage condition on the control circuit for the Bank 1 C camshaft profile actuator, which is the component that changes valve lift or duration for that camshaft. The circuit is electrically below the expected threshold, so the actuator may not respond to commands, potentially degrading engine performance and efficiency.

SYSTEM

Powertrain

CODE TYPE

Generic (all makes)

SEVERITY

Medium

FIX DIFFICULTY

Intermediate

AREA

Ignition system and misfire

Symptoms you may notice

- Illumination of the check engine light, often with no other noticeable symptoms
- Reduced engine power or sluggish acceleration, especially at higher RPM
- Rough idle or misfire-like shuddering when the engine is cold or under light load
- Decreased fuel economy due to improper valve timing
- In rare cases, the engine may enter limp mode or stall when coming to a stop

Common causes, most likely first

- 1 Damaged or chafed wiring in the actuator control circuit, such as a short to ground or an open circuit
- 2 Corroded or loose electrical connector at the camshaft profile actuator
- 3 Failed camshaft profile actuator solenoid (the actuator itself)
- 4 Faulty powertrain control module driver for that circuit (less common)
- 5 Oil sludge or debris blocking the actuator's oil passages, causing mechanical binding that stresses the circuit
- 6 Aftermarket electrical accessories improperly tapped into the circuit



How to diagnose and fix it

- 1 Perform a visual inspection of the actuator connector and wiring for damage, corrosion, or loose pins
- 2 Use a digital multimeter to check for battery voltage at the actuator connector with the key on and engine off, then check for a good ground
- 3 Measure the resistance of the actuator solenoid and compare it to the manufacturer's specification to rule out an open or shorted coil
- 4 Check for continuity and short-to-ground on the control wire between the actuator and the PCM
- 5 If the circuit and actuator test good, verify the PCM is commanding the actuator correctly using a scan tool with bidirectional controls
- 6 Replace the camshaft profile actuator if it fails electrical or mechanical testing
- 7 Clear the code and perform a road test to confirm the repair, monitoring live data for the actuator command and actual camshaft position

What the low circuit code really means

- A low circuit code often results from a short to ground in the wiring harness where it rubs against a bracket or heat shield, so inspect the entire run of the circuit, not just the connector.
- The actuator may still be mechanically functional even when the electrical circuit is faulty, so replacing the actuator without testing the wiring can be an expensive misdiagnosis.
- Oil condition plays a role: sludge can clog the actuator's internal oil passages, causing it to draw excessive current and set a low circuit code, so check oil maintenance history.
- This code can be set intermittently by a poor connection at the PCM connector, especially if the vehicle has been in a collision or had recent engine work.
- Do not confuse this with a mechanical camshaft phaser issue; the code specifically points to the electrical control circuit, so electrical tests must come first.

Can I keep driving with P03F2?

You can usually drive the vehicle with this code, but avoid heavy acceleration and towing until it is repaired, as the engine may lack power and fuel economy will suffer. If the check engine light starts flashing or the engine runs very poorly, stop driving and seek professional diagnosis.

Tools that help

- OBD-II scan tool with bidirectional control capability
- Digital multimeter
- Wiring diagram for the specific vehicle
- Socket set and trim removal tools
- Electrical contact cleaner and dielectric grease



Reading P03F2

- 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.
- F2** 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 · **P0020** 'A' Camshaft Position Actuator Circuit (Bank 2) · **P03F1** B Camshaft Profile Actuator C Control Circuit/Open Bank 1 · **P03F3** B Camshaft Profile Actuator C Control Circuit High Bank 1

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/p03f2/>

