

GENERIC · POWERTRAIN

P03EF

OBD-II DIAGNOSTIC TROUBLE CODE (DTC)

P03EF

A Camshaft Profile Actuator C Control Performance/Stuck Off Bank 1

P03EF is a generic powertrain code indicating that the engine control module has detected a performance problem or a stuck-off condition in the camshaft profile actuator for 'C' control on bank 1. The actuator is commanded to change valve lift or duration, but the ECM does not see the expected change in camshaft position or engine response within the calibrated time window.

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
- Reduced engine power or a limp-home mode when the actuator is stuck off
- Rough idle or misfire-like shuddering at low engine speeds
- Poor fuel economy and increased emissions due to incorrect valve timing
- Hesitation or stumble during acceleration when the profile change is requested
- In some cases, a noticeable ticking or rattle from the valvetrain area if the actuator is mechanically stuck

Common causes, most likely first

- 1 Faulty camshaft profile actuator solenoid or its internal seal, causing it to stick in the off position
- 2 Oil sludge or debris blocking the actuator oil passages, preventing proper hydraulic response
- 3 Low engine oil level or incorrect oil viscosity affecting actuator operation
- 4 Wiring damage, corrosion, or loose connector pins at the actuator or ECM
- 5 Failed camshaft position sensor or crankshaft position sensor providing erratic timing signals
- 6 Mechanical wear in the camshaft phaser or profile mechanism itself
- 7 ECM software calibration issue or internal driver fault for the actuator circuit



How to diagnose and fix it

- 1 Verify engine oil level and condition; top off or change oil if contaminated or incorrect viscosity
- 2 Perform a visual inspection of the actuator connector, wiring harness, and pins for damage or corrosion
- 3 Use a scan tool to command the actuator on and off while monitoring camshaft position and engine response
- 4 Check for stored or pending codes in other systems, especially camshaft and crankshaft position sensors
- 5 Measure resistance and voltage at the actuator solenoid according to manufacturer specifications
- 6 Remove and inspect the actuator for sludge or mechanical binding; clean or replace as needed
- 7 If electrical and hydraulic checks pass, perform a manufacturer-specific actuator learn or calibration procedure

Oil quality and actuator sticking traps

- A common oversight is assuming the actuator itself is defective when the real cause is degraded engine oil that has clogged the fine oil passages feeding the profile actuator.
- The code can set intermittently due to a poor electrical connection that only acts up under vibration or temperature changes, so wiggle-testing the harness while monitoring live data is essential.
- Technicians sometimes replace the actuator without checking the camshaft position sensor signal, but a lazy sensor can mimic an actuator performance fault by reporting incorrect timing.
- On some engines, the profile actuator shares an oil circuit with the variable valve timing phaser, so a problem in one area can trigger codes for both systems.
- A stuck-off actuator may not produce any driveability complaint, leading owners to ignore the light, but prolonged driving can increase emissions and eventually damage the catalytic converter.

Can I keep driving with P03EF?

You can usually continue driving to a repair shop, but avoid heavy acceleration and prolonged idling because the engine may enter limp mode or run inefficiently. If the check engine light begins flashing or you notice severe power loss, stop driving and seek immediate service.

Tools that help

- OBD-II scan tool with live data and bidirectional control capability
- Digital multimeter for circuit and solenoid testing
- Oil pressure gauge or mechanical oil pressure test kit
- Basic hand tools including socket set and torque wrench
- Manufacturer service information for actuator testing and calibration



Reading P03EF

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.
EF	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) · **P03EC** A Camshaft Profile Actuator C Control Circuit/Open Bank 1 · **P03ED** A Camshaft Profile Actuator C Control Circuit Low Bank 1 · **P03EE** A 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/p03ef/>

