

GENERIC · POWERTRAIN

P003F

OBD-II DIAGNOSTIC TROUBLE CODE (DTC)

P003F

A Camshaft Profile Actuator A Control Stuck On Bank 2

P003F indicates that the powertrain control module has commanded the bank 2 camshaft profile actuator to change valve lift or timing, but the actuator circuit remains energized or stuck in the commanded position. The computer detects this by comparing the commanded actuator state to the actual feedback signal from the actuator or camshaft position sensor, and it sets the code when the actuator does not return to its default state within a calibrated time.

SYSTEM

Powertrain

CODE TYPE

Generic (all makes)

SEVERITY

Medium

FIX DIFFICULTY

Intermediate

AREA

Fuel and air metering and auxiliary emission controls

Symptoms you may notice

- Illumination of the check engine light, often with no other noticeable symptoms
- Rough idle or unstable engine operation, especially when cold
- Reduced engine power or limp mode under certain driving conditions
- Poor fuel economy or increased emissions
- Audible ticking or clicking from the bank 2 valve cover area
- Difficulty starting or stalling when coming to a stop

Common causes, most likely first

- 1 Failed camshaft profile actuator solenoid or its internal seal
- 2 Wiring harness damage such as chafed wires, corroded connectors, or open circuits in the actuator control circuit
- 3 Sticking or mechanically bound actuator mechanism due to sludge or debris
- 4 Faulty camshaft position sensor or its signal circuit affecting feedback
- 5 Powertrain control module software calibration issue or internal driver fault
- 6 Low engine oil pressure or incorrect oil viscosity preventing proper actuator operation



How to diagnose and fix it

- 1 Connect a scan tool and verify the code is current, then check for related codes and freeze-frame data
- 2 Inspect the actuator electrical connector and wiring for corrosion, damage, or loose pins
- 3 Measure the resistance of the camshaft profile actuator solenoid and compare to manufacturer specifications
- 4 Command the actuator on and off with a bidirectional scan tool while listening for an audible click and monitoring feedback
- 5 Check engine oil level and condition, and verify oil pressure meets specification
- 6 Remove and inspect the actuator for mechanical binding or debris, cleaning or replacing as needed
- 7 If electrical and mechanical checks pass, reprogram the powertrain control module or replace it as a last resort

What a stuck profile actuator really means

- A stuck-on actuator often does not prevent the engine from running because the default position is usually safe, but it can cause poor fuel economy and elevated emissions that go unnoticed by the driver.
- Many technicians replace the actuator only to find the real fault is a corroded connector pin or a chafed wire in the harness near the bank 2 valve cover, so always perform a voltage drop test under load.
- The code can be set by a camshaft position sensor that is slow to respond rather than by the actuator itself, so compare commanded and actual cam timing with a scan tool before condemning parts.
- Engine oil sludge or the wrong oil viscosity can cause the actuator to stick, so a fresh oil change with the correct specification may resolve the issue without any parts replacement.
- On some engines, a failing bank 2 catalytic converter or exhaust restriction can alter cam phasing feedback and trigger this code indirectly, so check for exhaust backpressure if the actuator tests good.

Can I keep driving with P003F?

You can usually drive the vehicle short distances to a repair shop, but avoid heavy acceleration or towing because the stuck actuator may cause poor performance and increased emissions. If the engine runs rough or enters limp mode, stop driving and have it towed to prevent further damage.

Tools that help

- OBD-II scan tool with bidirectional control and live data
- Digital multimeter for circuit and resistance testing
- Test light or jumper wires for actuator activation
- Socket set and torque wrench for actuator removal
- Oil pressure gauge for verifying lubrication system health



Reading P003F

- P** Powertrain: engine, transmission and emissions.
- 0** Generic (SAE) code: it means the same thing on every OBD-II vehicle.
- 0** Fuel and air metering and auxiliary emission controls.
- 3F** The exact fault within that area.

Often seen with

P0011 'A' Camshaft Position - Timing Over-Advanced or System Perfo · **P0021** 'A' Camshaft Position - Timing Over-Advanced or System Perfo · **P003E** A Camshaft Profile Actuator A Control Performance/Stuck Off · **P0040** O2 Sensor Signals Swapped Bank 1 Sensor 1/ Bank 2 Sensor 1 · **P0345** Camshaft Position Sensor A Circuit (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/p003f/>

