

GENERIC · POWERTRAIN

P003D

OBD-II DIAGNOSTIC TROUBLE CODE (DTC)

P003D

A Camshaft Profile Actuator A Control Stuck On Bank 1

P003D indicates that the engine computer has commanded the bank 1 camshaft profile actuator to a specific position, but the actuator's feedback signal shows it is stuck in the commanded-on state and not following the command. This typically affects variable valve timing or variable valve lift systems, where the actuator controls oil flow to change camshaft profile or timing.

SYSTEM	CODE TYPE	SEVERITY	FIX DIFFICULTY	AREA
Powertrain	Generic (all makes)	Medium	Intermediate	Fuel and air metering and auxiliary emission controls

Symptoms you may notice

- Illumination of the check engine light, often with no other symptoms besides the warning light
- Rough idle or unstable engine speed, especially when cold
- Reduced engine power or sluggish acceleration due to incorrect camshaft profile
- Poor fuel economy or increased emissions
- Engine may enter limp mode or have difficulty starting in extreme cases
- Audible ticking or knocking from the valve cover area if the actuator is mechanically stuck

Common causes, most likely first

- 1 Faulty camshaft profile actuator solenoid or its internal seal
- 2 Contaminated engine oil or sludge blocking the actuator oil passages
- 3 Wiring harness damage or corroded connector at the actuator
- 4 Failed camshaft profile sensor providing incorrect feedback
- 5 Engine control module (ECM) software issue or internal driver fault
- 6 Mechanical binding in the variable valve timing phaser or rocker arm assembly



How to diagnose and fix it

- 1 Check for technical service bulletins (TSBs) and confirm the code with a scan tool that can read live actuator command and feedback data
- 2 Inspect the actuator electrical connector and wiring for corrosion, chafing, or loose pins
- 3 Measure actuator solenoid resistance and compare to manufacturer specification
- 4 Perform an oil change with the correct viscosity and inspect for sludge or debris in the oil galleries
- 5 Remove and clean or replace the camshaft profile actuator solenoid, then clear the code and retest
- 6 Verify camshaft profile sensor operation and signal integrity with an oscilloscope if the code persists
- 7 If all electrical and hydraulic checks pass, inspect the variable valve timing phaser and mechanical components for binding or wear

Before you replace the actuator solenoid

- A stuck-on actuator code is often caused by dirty engine oil rather than a failed solenoid, so a fresh oil change and a drive cycle may resolve it without parts replacement.
The feedback signal for camshaft profile position can be skewed by a failing camshaft position sensor, leading to a false actuator stuck code.
- On some engines, the actuator shares an oil circuit with the variable valve timing phaser, so a clogged oil control valve elsewhere can trigger P003D.
- A low battery or charging system fault can cause the ECM to misreport actuator status, so always check system voltage before condemning the actuator.
After replacing the actuator, a relearn or adaptation reset with a scan tool is often required to prevent the code from returning immediately.

Can I keep driving with P003D?

You can usually drive the vehicle short distances to a repair shop, but avoid aggressive acceleration or heavy loads because incorrect camshaft profile can cause poor performance and increased emissions. If the engine runs roughly or stalls, stop driving and seek professional diagnosis.

Tools that help

- OBD-II scan tool with live data and bidirectional control
- Digital multimeter
- Oil pressure gauge
- Socket and wrench set
- Oscilloscope (for signal analysis)



Reading P003D

- 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.
- 3D** 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 · **P0016** Crankshaft/Camshaft Position Correlation (Bank 1 Sensor A) · **P003C** A Camshaft Profile Actuator A Control Performance/Stuck Off · **P003E** A Camshaft Profile Actuator A 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/p003d/>

