

GENERIC · POWERTRAIN

P005A

OBD-II DIAGNOSTIC TROUBLE CODE (DTC)

P005A

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

P005A means the engine computer commanded the Bank 1 'B' camshaft profile actuator to change valve lift or timing and the actuator did not respond as expected, or it is stuck in the off position. The computer compares commanded actuator position against actual camshaft response and sets this code when performance falls outside the calibrated window.

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 symptoms besides the warning light
- Reduced engine power or a limp-home mode on some vehicles
- Rough idle, misfire, or unstable engine operation at low speed
- Poor fuel economy or sluggish acceleration
- Audible ticking or mechanical noise from the valve cover area on some engines
- Failed emissions test or a pending code that returns after clearing

Common causes, most likely first

- 1 Dirty or contaminated engine oil blocking the actuator oil passages
- 2 Faulty camshaft profile actuator solenoid or its internal seal
- 3 Wiring damage, corrosion, or loose connector at the actuator solenoid
- 4 Sticking or mechanically binding variable valve lift mechanism
- 5 Low oil pressure or restricted oil feed to the actuator
- 6 Engine control module (ECM) calibration issue or faulty driver circuit
- 7 Sludge buildup in the actuator gallery from extended oil change intervals



How to diagnose and fix it

- 1 Verify oil level and condition, then change oil and filter if overdue or contaminated
- 2 Inspect the actuator solenoid connector and wiring for corrosion, chafing, or loose pins
- 3 Command the actuator with a scan tool and watch for a change in camshaft position or lift response
- 4 Measure solenoid resistance and compare to the manufacturer's specification
- 5 Remove and clean or replace the actuator solenoid if it is sticking or electrically out of spec
- 6 Check oil pressure at the actuator feed port and inspect for sludge or restricted passages
- 7 If the actuator and oil system check out, diagnose the variable valve lift mechanism and ECM driver circuit

What most technicians miss on P005A

- A dirty oil system is the most common root cause, so replacing the actuator without addressing oil condition often leads to a repeat failure.
- The code can set from a mechanical bind in the variable valve lift mechanism even when the solenoid tests good electrically.
- Some vehicles set P005A only after a cold start or during a specific self-test, so a simple key-on scan may not reproduce the fault.
- A loose or corroded ground at the engine block can mimic an actuator circuit failure and send diagnostics down the wrong path.
- Clearing the code without checking oil pressure and actuator response can hide an intermittent fault that returns under load.

Can I keep driving with P005A?

You can usually drive to a repair shop, but avoid hard acceleration and sustained high load until the fault is diagnosed. If the engine runs rough, misfires, or enters limp mode, stop driving and arrange a tow to prevent further mechanical damage.

Tools that help

- OBD-II scan tool with bidirectional actuator control
- Digital multimeter
- Oil pressure gauge
- Basic hand tools and socket set
- Wiring diagram for the actuator circuit
- Oil filter wrench and drain pan



Reading P005A

- 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.
- 5A** 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 · **P0021** 'A' Camshaft Position - Timing Over-Advanced or System Perfo · **P005B** B Camshaft Profile Actuator A Control Stuck On Bank 1 · **P005C** B 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/p005a/>

