

GENERIC · POWERTRAIN

P001E

OBD-II DIAGNOSTIC TROUBLE CODE (DTC)

P001E

A Camshaft Profile Actuator A Control Circuit Low Bank 2

P001E indicates that the powertrain control module (PCM) has detected an abnormally low voltage on the control circuit for the bank 2 camshaft profile actuator, which is the solenoid that moves the camshaft to change valve lift or timing. The PCM commands a specific current to the actuator and monitors the circuit; when the voltage stays below the expected threshold, it sets this code because the actuator cannot be controlled properly.

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 engine misfire, especially when the engine is cold
- Reduced engine power or sluggish acceleration due to incorrect valve timing
- Poor fuel economy because the engine is not running at its optimal valve lift profile
- In rare cases, a no-start condition if the actuator fails in a position that prevents normal combustion

Common causes, most likely first

- 1 Open or shorted wiring in the control circuit between the PCM and the actuator, often due to chafing or corrosion
- 2 Failed camshaft profile actuator solenoid, such as a burned-out coil or stuck plunger
- 3 Poor electrical connection at the actuator or PCM connector, including loose pins or water intrusion
- 4 Low oil pressure or sludge buildup preventing the actuator from moving freely, which can indirectly affect circuit feedback
- 5 Faulty PCM driver for that circuit, though this is less common than wiring or actuator failure



How to diagnose and fix it

- 1 Perform a visual inspection of the actuator and its wiring harness for obvious damage, corrosion, or loose connectors
- 2 Use a scan tool to command the actuator on and off while watching live data to confirm the circuit responds as expected
- 3 Measure resistance and voltage on the control circuit at the actuator connector and compare with manufacturer specifications
- 4 Check for continuity and short-to-ground on the signal wire between the PCM and actuator, repairing any damaged sections
- 5 Swap the bank 2 actuator with a known-good unit from bank 1 (if accessible) to see if the code follows the actuator
- 6 Verify oil condition and pressure, as contaminated oil can cause actuator sticking that mimics an electrical fault
- 7 If all wiring and the actuator test good, diagnose the PCM driver circuit or replace the PCM as a last resort

Don't overlook oil condition and wiring chafe

- A low-voltage code for a camshaft profile actuator is often caused by a simple wiring chafe where the harness rubs against a bracket or heat shield, not by a failed actuator.
- Sludged or incorrect-viscosity oil can make the actuator mechanically sticky, which may cause the PCM to see unexpected current draw and set a circuit code even though the electrical parts are fine.
- Technicians sometimes replace the actuator only to find the connector pins are pushed back or corroded, so always perform a pin drag test and inspect the terminals closely.
- This code does not always mean the actuator is defective; a weak battery or charging system issue can cause low voltage on the control circuit during cranking or low-rpm operation.
- On some engines, the bank 2 actuator is difficult to access, and a misdiagnosed wiring repair can be caused by a damaged harness section hidden behind the intake manifold.

Can I keep driving with P001E?

You can usually drive the vehicle short distances to a repair shop, but avoid aggressive acceleration or heavy loads because incorrect valve timing can cause misfires and potential engine damage. If the engine runs very rough or stalls, stop driving and have it towed to prevent further problems.

Tools that help

- OBD-II scan tool with live data and bidirectional control
- Digital multimeter for voltage, resistance, and continuity checks
- Wiring diagram for the specific vehicle to trace the control circuit
- Basic hand tools for accessing the actuator and connectors
- Test light or jumper wires for circuit testing



Reading P001E

- 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.
- 1E** The exact fault within that area.

Often seen with

P0010 'A' Camshaft Position Actuator Circuit (Bank 1) · **P001C** A Camshaft Profile Actuator A Control Circuit High Bank 1 · **P001D** A Camshaft Profile Actuator A Control Circuit/Open Bank 2 · **P001F** A Camshaft Profile Actuator A Control Circuit High Bank 2 · **P0020** 'A' Camshaft Position Actuator 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/p001e/>

