

GENERIC · POWERTRAIN

**P002C**

OBD-II DIAGNOSTIC TROUBLE CODE (DTC)

## P002C

### B Camshaft Profile Actuator A Control Circuit High Bank 1

P002C indicates that the powertrain control module has detected a high-voltage condition on the control circuit for the bank 1 'B' camshaft profile actuator, which is the solenoid or motor that changes valve lift or duration. The circuit is reading above the expected voltage, meaning the actuator is not being commanded correctly or the feedback signal is out of range.

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 the profile actuator should be changing lift.
- Reduced engine power or a limp-home mode triggered by the control module.
- Poor fuel economy or increased emissions due to incorrect valve timing.
- In rare cases, a no-start condition if the actuator fails in a position that prevents normal combustion.

### Common causes, most likely first

- 1 A short to voltage on the control circuit wiring between the actuator and the PCM.
- 2 A faulty camshaft profile actuator solenoid or motor with an internal short.
- 3 Corroded, loose, or damaged electrical connectors at the actuator or PCM.
- 4 A failed powertrain control module driver for that circuit, though this is less common.
- 5 Aftermarket or incorrect electrical accessories tapped into the circuit causing voltage interference.



## How to diagnose and fix it

- 1 Connect a scan tool and verify P002C is current, then check for related codes and freeze-frame data.
- 2 Inspect the actuator connector and wiring for chafing, corrosion, or signs of voltage backfeeding.
- 3 Disconnect the actuator and measure voltage on the control circuit with the key on; compare to manufacturer specifications.
- 4 Test the actuator resistance and compare to the factory value to rule out an internal short.
- 5 Perform a wiggle test on the harness while monitoring the circuit voltage to catch intermittent faults.
- 6 If wiring and actuator test good, check the PCM connector and circuit integrity to the PCM; repair or replace as needed.
- 7 Clear codes and perform a road test to confirm the repair and ensure the monitor runs to completion.

## What a high circuit code really means

- A high-voltage code often results from a short to voltage rather than an open circuit, so technicians who only check for opens miss the real problem.  
The profile actuator may be mechanically stuck, causing the solenoid to draw abnormal current and set a high-voltage code even though the electrical circuit is intact.
- Oil sludge or debris can clog the actuator's oil passages, leading to a mechanical bind that mimics an electrical fault and sets P002C.
- Some vehicles use a shared power supply for multiple actuators; a fault in another actuator on the same circuit can backfeed voltage and trigger P002C.  
The PCM may set P002C as a consequence of a low-voltage event, such as a weak battery or poor ground, so always check charging system health first.

## Can I keep driving with P002C?

You can usually drive the vehicle with P002C, but avoid heavy acceleration or sustained high speeds because the engine may enter limp mode or suffer poor performance. Have the fault diagnosed soon to prevent potential catalytic converter damage from incorrect valve timing.

## Tools that help

- OBD-II scan tool with live data capability
- Digital multimeter
- Wiring diagram for the specific vehicle
- Test light or power probe
- Basic hand tools for connector and component access



## Reading P002C

- 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.
- 2C** 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 · **P002A** B Camshaft Profile Actuator A Control Circuit/Open Bank 1 · **P002B** B Camshaft Profile Actuator A Control Circuit Low Bank 1 · **P002D** B Camshaft Profile Actuator A Control Circuit/Open 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/p002c/>

