

GENERIC · POWERTRAIN

P002F

OBD-II DIAGNOSTIC TROUBLE CODE (DTC)

P002F

B Camshaft Profile Actuator A Control Circuit High Bank 2

P002F indicates that the powertrain control module (PCM) has detected an abnormally high voltage on the control circuit for the Bank 2 'A' camshaft profile actuator, which is the solenoid or motor that changes valve lift or duration. The PCM commands a specific actuator position, but the circuit feedback stays above the expected threshold, so the computer flags a high-side electrical fault.

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 a limp-home mode under acceleration.
- Poor fuel economy or increased emissions.
- In rare cases, a no-start condition if the actuator circuit fails completely.
- Audible ticking or unusual engine noise from the affected bank.

Common causes, most likely first

- 1 Faulty camshaft profile actuator solenoid or its internal coil.
- 2 Damaged or chafed wiring harness between the PCM and the actuator.
- 3 Corroded or loose electrical connector at the actuator or PCM.
- 4 Short to voltage on the control circuit, often from a pinched wire.
- 5 Failed PCM driver for the actuator control circuit.
- 6 Oil sludge or debris blocking the actuator, causing excessive current draw.
- 7 Aftermarket electrical accessories improperly tapped into the circuit.



How to diagnose and fix it

- 1 Verify the code with a scan tool and check for any related camshaft or crankshaft correlation codes.
- 2 Inspect the actuator connector and wiring for corrosion, chafing, or loose pins.
- 3 Measure resistance of the actuator solenoid and compare to manufacturer specifications.
- 4 Backprobe the control circuit at the PCM to check for a short to voltage with the key on.
- 5 Check oil condition and level, as contaminated oil can affect actuator operation.
- 6 Replace the camshaft profile actuator if electrical tests indicate an internal fault.
- 7 Clear the code and perform a road test to confirm the repair, reprogramming the PCM if required.

High Voltage Does Not Always Mean a Bad Actuator

- A short to voltage on the control wire is often caused by a harness rubbing against a sharp bracket, so inspect the entire run, not just the connector.
- The PCM may set P002F if the actuator is mechanically stuck and draws excessive current, so electrical tests alone can miss a sludged actuator.
- On some engines, a failing oil control valve for the variable valve timing system can trigger this code indirectly by altering camshaft phasing and actuator load.
- Aftermarket remote starters or alarm systems tapped into the wrong wire can backfeed voltage and set this code without any actuator fault.
- Always check for technical service bulletins (TSBs) for the specific vehicle, as some PCM calibrations are overly sensitive to normal voltage spikes.

Can I keep driving with P002F?

You can usually drive the vehicle short distances to a repair shop, but avoid heavy acceleration or sustained high speeds because the engine may enter limp mode or suffer reduced performance. If the check engine light flashes or the engine runs very poorly, stop driving and have it towed.

Tools that help

- OBD-II scan tool with live data capability
- Digital multimeter
- Test light
- Wire repair kit with heat shrink and soldering iron
- Socket set and torque wrench
- Manufacturer service information for circuit diagrams and specifications



Reading P002F

- 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.
- 2F** 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 · **P002E** B Camshaft Profile Actuator A Control Circuit Low Bank 2 · **P0030** HO2S Heater Control Circuit (Bank 1 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/p002f/>

