

GENERIC · POWERTRAIN

P2C16

OBD-II DIAGNOSTIC TROUBLE CODE (DTC)

P2C16

B Camshaft Profile Actuator Position Sensor B Circuit Bank 1

P2C16 indicates that the engine control module has detected an electrical fault in the circuit for the bank 1 'B' camshaft profile actuator position sensor, which monitors the movement of a variable valve timing component. The computer compares the sensor signal against expected values and sets this code when the voltage or signal pattern falls outside the normal range.

SYSTEM	CODE TYPE	SEVERITY	FIX DIFFICULTY	AREA
Powertrain	Generic (all makes)	Medium	Intermediate	Hybrid propulsion

Symptoms you may notice

- Illumination of the check engine light, often with no other noticeable symptoms
- Rough idle or unstable engine speed, especially when cold
- Reduced engine power or sluggish acceleration due to incorrect camshaft timing
- Poor fuel economy or increased emissions
- In rare cases, a no-start condition or stalling if the actuator fails in a retarded position

Common causes, most likely first

- 1 Faulty camshaft profile actuator position sensor
- 2 Damaged or corroded wiring harness or connector at the sensor
- 3 Open or short circuit in the sensor signal or reference voltage circuit
- 4 Failed camshaft profile actuator solenoid or mechanical binding in the actuator
- 5 Contaminated engine oil or sludge obstructing the actuator oil passages
- 6 Engine control module software issue or internal fault (less common)

How to diagnose and fix it

- 1 Perform a visual inspection of the sensor, connector, and wiring for damage or corrosion
- 2 Check for technical service bulletins or software updates related to the code
- 3 Measure sensor resistance and compare to factory specifications
- 4 Backprobe the sensor connector to verify reference voltage (typically 5V) and ground integrity
- 5 Test the actuator solenoid for proper resistance and operation with a scan tool bidirectional control
- 6 Inspect engine oil condition and change oil and filter if contaminated
- 7 Replace the faulty sensor or actuator as indicated by test results, then clear codes and verify repair



Oil quality and wiring often overlooked

- Degraded or incorrect viscosity engine oil is a frequent cause because it affects the hydraulic pressure that moves the camshaft profile actuator, leading to sensor signal errors.
- The sensor circuit can be intermittently affected by heat or vibration, so wiggle-testing the harness while monitoring live data is essential before condemning the sensor.
- A mechanical failure inside the actuator, such as a stuck spool valve, can mimic a sensor fault and set this code even when the sensor itself is good.
- Some vehicles require a relearn procedure for the camshaft profile actuator after replacement, and skipping it can cause the code to return immediately.
- This code is often misdiagnosed as a simple sensor failure when the root cause is a clogged oil passage or a failing solenoid, so always verify oil pressure and flow to the actuator.

Can I keep driving with P2C16?

You can usually drive the vehicle with this code, but avoid heavy acceleration or towing because incorrect camshaft timing can reduce power and increase emissions. If the engine runs rough or stalls, have it inspected promptly to prevent further damage.

Tools that help

- OBD-II scan tool with live data and bidirectional control
- Digital multimeter
- Test light
- Basic hand tools (socket set, screwdrivers)
- Feeler gauges or feeler gauge set
- Oil pressure gauge

Reading P2C16

P	Powertrain: engine, transmission and emissions.
2	Generic (SAE) code: it means the same thing on every OBD-II vehicle.
C	Hybrid propulsion.
16	The exact fault within that area.

Often seen with

P0011 'A' Camshaft Position - Timing Over-Advanced or System Perfo · **P0012** 'A' Camshaft Position - Timing Over-Retarded (Bank 1) · **P0016** Crankshaft/Camshaft Position Correlation (Bank 1 Sensor A) · **P2C15** B Camshaft Profile Actuator Position Sensor A Circuit High B · **P2C17** B Camshaft Profile Actuator Position Sensor B Range/Performa



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/p2c16/>

