

GENERIC · POWERTRAIN

P3416

OBD-II DIAGNOSTIC TROUBLE CODE (DTC)

P3416

Cylinder 2 Exhaust Valve Control Circuit High

P3416 is a generic powertrain code indicating that the engine control module (ECM) has detected an abnormally high voltage on the control circuit for the cylinder 2 exhaust valve. This typically means the circuit is open, shorted to power, or the valve actuator solenoid has failed, preventing the ECM from properly commanding the exhaust valve.

SYSTEM

Powertrain

CODE TYPE

Generic (all makes)

SEVERITY

Medium

FIX DIFFICULTY

Intermediate

AREA

Auxiliary emission controls

Symptoms you may notice

- Illumination of the check engine light (malfunction indicator lamp).
- Rough idle or misfire, especially noticeable at low speeds.
- Reduced engine performance and power output.
- Increased fuel consumption due to inefficient combustion.
- Possible engine vibration or shaking during acceleration.
- Often no symptoms besides the warning light, especially if the valve remains in a default position.

Common causes, most likely first

- 1 Faulty exhaust valve control solenoid or actuator.
- 2 Open or shorted wiring in the control circuit (e.g., broken wire, chafed insulation).
- 3 Corroded or loose electrical connectors at the solenoid or ECM.
- 4 Failed engine control module (ECM) driver circuit.
- 5 Internal mechanical failure of the exhaust valve or variable valve timing component.

How to diagnose and fix it

- 1 Use a scan tool to verify the code and check for related freeze-frame data.
- 2 Visually inspect the wiring harness and connectors for damage, corrosion, or loose pins.
- 3 Measure resistance of the exhaust valve control solenoid and compare to manufacturer specifications.
- 4 Check for voltage on the control circuit with the key on and engine off to detect a short to power.
- 5 Perform a continuity test on the ground circuit and repair any open or high-resistance faults.
- 6 If the circuit and solenoid test good, suspect the ECM and perform pinpoint diagnostics before replacement.



Don't overlook the wiring harness

- A common oversight is assuming the solenoid is at fault when the real issue is a chafed wire grounding against the engine block.
- The code can be set by a poor connection at the ECM connector, which is often missed during visual inspections.
- On some vehicles, this code may be triggered by a failing variable valve timing (VVT) solenoid that shares the same circuit.
- Replacing the ECM without first verifying the control circuit can lead to repeat failures and unnecessary expense.
- Intermittent faults may only appear when the engine is cold or under specific load conditions, so a wiggle test of the harness is essential.

Can I keep driving with P3416?

Driving with this code is generally not recommended because it can cause engine misfires and reduced performance, potentially leading to catalytic converter damage. Avoid heavy acceleration and have the vehicle diagnosed promptly.

Tools that help

- OBD-II scan tool
- Digital multimeter
- Wiring diagram for the specific vehicle
- Basic hand tools (screwdrivers, socket set)
- Electrical contact cleaner

Reading P3416

- P** Powertrain: engine, transmission and emissions.
- 3** Generic (SAE) code: it means the same thing on every OBD-II vehicle.
- 4** Auxiliary emission controls.
- 16** 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 · **P0302** Cylinder 2 Misfire Detected · **P3415** Cylinder 2 Exhaust Valve Control Circuit Low · **P3417** Cylinder 3 Deactivation/Intake Valve Control Circuit/Open



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/p3416/>

