

GENERIC · POWERTRAIN

P3423

OBD-II DIAGNOSTIC TROUBLE CODE (DTC)

P3423

Cylinder 3 Exhaust Valve Control Circuit Low

P3423 indicates that the powertrain control module has detected a low-voltage condition on the control circuit for the exhaust valve actuator on cylinder 3. This circuit is part of a variable valve timing or cylinder deactivation system that alters exhaust valve lift or timing to improve efficiency, and the low signal suggests a short to ground, an open circuit, or a faulty actuator.

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, often with no other noticeable symptoms
- Rough idle or misfire that may feel like a slight shake at stoplights
- Reduced engine power or sluggish acceleration under load
- Decreased fuel economy as the engine reverts to a default valve strategy
- Occasional stalling when coming to a stop, though this is less common
- A faint ticking or tapping noise from the valve cover area on the affected bank

Common causes, most likely first

- 1 Damaged or chafed wiring in the exhaust valve control circuit, often near the cylinder head or exhaust manifold where heat and vibration are severe
- 2 Failed exhaust valve actuator solenoid or the integrated valve lifter mechanism on cylinder 3
- 3 Corroded or loose electrical connector at the actuator or at the powertrain control module
- 4 Internal short to ground within the actuator coil
- 5 Faulty powertrain control module driver for that circuit, though this is rare
- 6 Oil sludge or debris blocking the actuator oil passage, causing the solenoid to draw excessive current and set a low-voltage code



How to diagnose and fix it

- 1 Perform a visual inspection of the actuator connector and wiring harness for chafing, corrosion, or heat damage, and repair as needed
- 2 Use a digital multimeter to check for battery voltage at the actuator connector with the key on and engine off, confirming power and ground integrity
- 3 Measure the resistance of the exhaust valve actuator solenoid and compare it to the manufacturer's specification to rule out an open or shorted coil
- 4 Check the control circuit for a short to ground by disconnecting the powertrain control module and testing continuity from the actuator signal wire to chassis ground
- 5 If the circuit tests good, command the actuator with a scan tool to verify operation and listen for clicking or observe live data for valve timing changes
- 6 Replace the exhaust valve actuator or solenoid if it fails electrical or functional testing, then clear the code and verify the repair with a road test
- 7 If the code persists after actuator replacement, inspect the powertrain control module connector and consider internal driver failure as a last resort

Why cylinder 3 exhaust valve circuits fail

- Heat from the exhaust manifold is a primary killer of these actuators, so always inspect the wiring loom for brittle insulation and melted connectors before condemning the actuator itself.
- A low-voltage code can be set by a poor ground connection at the engine block, which raises the reference voltage and makes the control circuit appear low to the module.
- Oil sludge from infrequent oil changes can clog the actuator's internal passages, causing the solenoid to bind and draw high current, which the module interprets as a low signal.
- The code does not always mean the actuator is dead; a chafed wire that only shorts when the engine is hot or vibrating can set an intermittent P3423 that is hard to reproduce in the bay.
- Replacing the actuator without checking the circuit resistance and ground integrity often leads to a repeat failure, so electrical testing must come first.

Can I keep driving with P3423?

You can usually drive the vehicle with this code, but avoid heavy acceleration and towing until it is repaired because the engine may be running in a reduced-efficiency mode. If the check engine light starts flashing or you feel a pronounced misfire, stop driving and have the vehicle towed to prevent catalytic converter damage.



Tools that help

- OBD-II scan tool with live data and bidirectional control capability
- Digital multimeter with back-probing pins
- Wiring diagram for the specific vehicle
- Socket set and torque wrench for actuator removal
- Heat-resistant wire loom and electrical tape for repairs

Reading P3423

- P** Powertrain: engine, transmission and emissions.
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- 3** Generic (SAE) code: it means the same thing on every OBD-II vehicle.
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- 4** Auxiliary emission controls.
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- 23** 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 · **P0303** Cylinder 3 Misfire Detected · **P3422** Cylinder 3 Exhaust Valve Control Performance · **P3424** Cylinder 3 Exhaust Valve Control Circuit High

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/p3423/>

