

GENERIC · POWERTRAIN

P3404

OBD-II DIAGNOSTIC TROUBLE CODE (DTC)

P3404

Cylinder 1 Deactivation/Intake Valve Control Circuit High

P3404 is a generic powertrain code indicating that the engine control module has detected an abnormally high voltage on the control circuit for the cylinder 1 deactivation or intake valve control solenoid. This circuit is used on engines with cylinder deactivation or variable valve timing to switch off or adjust the intake valve, and a high voltage reading means the control wire is likely shorted to power or the solenoid has failed internally.

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 or uneven engine idle, especially when the engine tries to enter cylinder deactivation mode.
- Reduced fuel economy because the engine may stay in full-cylinder operation.
- A slight hesitation or stumble during light-throttle cruising when deactivation is commanded.
- In some cases, a noticeable loss of power or a vibration felt through the vehicle.
- The engine may default to a limp mode that disables cylinder deactivation entirely.

Common causes, most likely first

- 1 A short to voltage on the control wire between the engine control module and the cylinder 1 deactivation solenoid.
- 2 A failed cylinder 1 deactivation or intake valve control solenoid with an internal short to power.
- 3 Corroded, loose, or damaged electrical connector pins at the solenoid or the engine control module.
- 4 A wiring harness that has rubbed through and is contacting a power source or another high-voltage circuit.
- 5 A faulty engine control module driver circuit that is stuck high, though this is less common.
- 6 In rare cases, a poor ground connection for the solenoid circuit causing a reference voltage shift.



How to diagnose and fix it

- 1 Use a scan tool to verify P3404 is active and check for any related codes that might indicate a different root cause.
- 2 Visually inspect the solenoid connector and the wiring harness for signs of chafing, corrosion, or loose pins.
- 3 Disconnect the solenoid and measure the control circuit voltage with the key on; it should be near zero volts, not battery voltage.
- 4 Check the solenoid resistance with a multimeter and compare it to the manufacturer's specification to rule out an internal short.
- 5 If the circuit shows a short to voltage, trace the wire from the solenoid to the engine control module and repair any damaged sections.
- 6 If the solenoid fails the resistance test or does not click when commanded, replace the solenoid and clear the code.
- 7 After repairs, clear the code and perform a road test to confirm the cylinder deactivation system operates correctly and the code does not return.

What Most Techs Miss on P3404

- A short to voltage on the control wire can be intermittent, so wiggle-testing the harness while watching live data is often more revealing than a static multimeter check.
- The code can set even when the solenoid itself is good, because a chafed wire in the harness may only short when the engine moves under load.
- Some vehicles use a single control wire for multiple cylinders, so a short on one circuit can affect deactivation on other cylinders and set additional codes.
- Replacing the solenoid without checking the control wire for a short to power often leads to a repeat failure and a returned code.
- A weak battery or charging system can cause erratic solenoid operation and set this code, so always verify battery voltage and ground integrity first.

Can I keep driving with P3404?

You can usually drive the vehicle with P3404, but avoid heavy acceleration and towing until the fault is repaired, because the engine may not manage cylinder deactivation correctly and could run rough or lose power. If the check engine light starts flashing or the engine runs very poorly, stop driving and seek service immediately.



Tools that help

- OBD-II scan tool with live data and bidirectional control capability
- Digital multimeter with voltage and resistance measurement
- Wiring diagram for the specific vehicle
- Test light or jumper wires for circuit testing
- Basic hand tools for connector and solenoid access

Reading P3404

- 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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- 04** The exact fault within that area.

Often seen with

P3400 Cylinder Deactivation System (Bank 1) · **P3402** Cylinder 1 Deactivation/Intake Valve Control Performance · **P3403** Cylinder 1 Deactivation/Intake Valve Control Circuit Low · **P3405** Cylinder 1 Exhaust Valve Control Circuit/Open · **P3406** Cylinder 1 Exhaust Valve Control Performance

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/p3404/>

