

GENERIC · POWERTRAIN

P3427

OBD-II DIAGNOSTIC TROUBLE CODE (DTC)

P3427

Cylinder 4 Deactivation/Intake Valve Control Circuit Low

P3427 indicates that the powertrain control module (PCM) has detected a low-voltage condition on the control circuit for the cylinder 4 deactivation/intake valve, which is part of a variable valve timing or cylinder deactivation system. The circuit is expected to carry a specific voltage when the valve is commanded, and a low reading means the PCM sees a short to ground, an open circuit, or excessive resistance in the wiring or solenoid.

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-like shuddering, especially when the engine transitions between full and reduced displacement
- Reduced engine power or a limp-home mode if the fault triggers protective strategies
- Poor fuel economy because the cylinder deactivation system may be disabled
- Audible ticking or tapping from the valve cover area if the solenoid is stuck or the circuit is intermittently shorted

Common causes, most likely first

- 1 Faulty cylinder 4 deactivation/intake valve solenoid with an internal short to ground
- 2 Damaged or chafed wiring harness between the PCM and the solenoid, often near hot or moving components
- 3 Corroded or loose electrical connector at the solenoid or PCM
- 4 Open circuit in the control wire due to a broken strand or poor terminal tension
- 5 PCM driver circuit failure, though this is less common than wiring or solenoid issues
- 6 Oil sludge or debris blocking the solenoid screen, causing excessive current draw and a low-voltage code



How to diagnose and fix it

- 1 Connect a scan tool and verify P3427 is current, then check for related codes in other modules to rule out a system-wide issue
- 2 Inspect the solenoid connector and wiring for corrosion, chafing, or loose pins, and repair as needed
- 3 Measure resistance of the cylinder 4 deactivation solenoid and compare it to the manufacturer's specification
- 4 Back-probe the control circuit at the PCM and check for a short to ground or an open with a multimeter while wiggling the harness
- 5 Test the solenoid with a known-good signal or a bidirectional scan tool to confirm it actuates properly
- 6 If the solenoid fails electrical tests, replace it and clear the code, then verify the repair with a test drive
- 7 If the circuit tests good but the code persists, diagnose the PCM driver circuit or reprogram/replace the PCM as a last resort

What a low circuit code really means

- A low-voltage code does not automatically mean the solenoid is bad; a short to ground anywhere in the harness will set the same code, so always inspect the wiring before replacing parts.
- Cylinder deactivation solenoids are often fed oil through a screen that can clog with sludge, causing high current draw and a low-voltage fault even when the electrical circuit is intact.
- Intermittent P3427 codes that appear only when the engine is hot often point to a harness that rubs against a hot component or a solenoid that fails only at operating temperature.
- Some vehicles will disable the entire cylinder deactivation system when one solenoid circuit faults, leading to a noticeable drop in fuel economy without any misfire symptom.
- A failed PCM driver is rare, but it should be suspected only after the solenoid, connector, and all wiring have been thoroughly tested and ruled out.

Can I keep driving with P3427?

You can usually drive the vehicle with P3427 set, but the cylinder deactivation system may be disabled and fuel economy will suffer. Avoid heavy acceleration or towing until the fault is repaired, and address the code promptly to prevent potential catalytic converter damage from unburned fuel if the cylinder remains deactivated.

Tools that help

- OBD-II scan tool with bidirectional control capability
- Digital multimeter
- Test light
- Wiring diagram for the specific vehicle
- Socket set and trim removal tools



Reading P3427

- P** Powertrain: engine, transmission and emissions.
- 3** Generic (SAE) code: it means the same thing on every OBD-II vehicle.
- 4** Auxiliary emission controls.
- 27** The exact fault within that area.

Often seen with

P3400 Cylinder Deactivation System (Bank 1) · **P3425** Cylinder 4 Deactivation/Intake Valve Control Circuit/Open · **P3426** Cylinder 4 Deactivation/Intake Valve Control Performance · **P3428** Cylinder 4 Deactivation/Intake Valve Control Circuit High · **P3497** Cylinder Deactivation System (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/p3427/>

