

GENERIC · POWERTRAIN

P0027

OBD-II TROUBLE CODE

P0027

Exhaust Valve Control Solenoid Circuit Range/Performance (Bank 1)

P0027 indicates that the powertrain control module has detected an out-of-range condition in the electrical circuit for the exhaust valve control solenoid on bank 1, which is the side of the engine containing cylinder one. The computer monitors the solenoid's command signal and expected feedback, and it sets this code when the circuit's performance does not match the commanded state within the calibrated time and voltage windows.

SYSTEM Powertrain	CODE TYPE Generic (all makes)	SEVERITY Medium	FIX DIFFICULTY Intermediate	AREA Fuel and air metering and auxiliary emission controls
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Symptoms you may notice

- Illumination of the check engine light, often with no other noticeable symptoms
- Rough idle or slight misfire when the exhaust valve timing is not being controlled correctly
- Reduced engine performance or poor fuel economy due to incorrect exhaust valve phasing
- An audible change in exhaust note or increased engine noise under certain operating conditions
- Intermittent stumbling or hesitation during acceleration if the solenoid circuit is erratic

Common causes, most likely first

- 1 Faulty exhaust valve control solenoid, such as a stuck plunger, worn internal seal, or open coil winding
- 2 Damaged or corroded wiring harness and connector pins at the solenoid or along the circuit path
- 3 Oil sludge or debris blocking the solenoid's hydraulic passages, preventing proper valve actuation
- 4 Low engine oil level or degraded oil that cannot build the pressure needed for the variable valve timing system
- 5 Failed or failing powertrain control module driver for the solenoid circuit, though this is less common
- 6 A mechanical issue with the exhaust camshaft phaser or timing components that overloads the solenoid



How to diagnose and fix it

- 1 Verify battery voltage and inspect the solenoid connector and wiring for corrosion, chafing, or loose pins
- 2 Check engine oil level and condition, then perform an oil and filter change if the oil is dirty or low
- 3 Use a scan tool to command the exhaust valve control solenoid on and off while listening for a click and watching for a change in engine behavior
- 4 Measure the solenoid's resistance with a multimeter and compare it to the manufacturer's specification for that engine
- 5 Backprobe the solenoid control circuit to confirm the powertrain control module is providing the correct command signal and ground
- 6 Remove and inspect the solenoid for sludge or metal debris, clean the mounting bore, and replace the solenoid if it fails electrical or mechanical checks
- 7 Clear the code and perform a road test with live data to confirm the circuit performance now stays within range

What the P0027 code does not always mean

- A P0027 code frequently appears after an oil change interval has been stretched too far, because degraded oil cannot pressurize the exhaust valve control solenoid quickly enough to satisfy the monitor.
- Technicians sometimes replace the solenoid only to find the connector pigtail has a broken wire hidden under the insulation, so a wiggle test of the harness while watching live data is a worthwhile step.
- The code can be set by a mechanical problem in the exhaust cam phaser that causes the solenoid to draw abnormal current, meaning the solenoid itself may test good on the bench.
- On engines with variable valve timing on both camshafts, a bank 1 exhaust solenoid fault can be misdiagnosed as a bank 1 intake solenoid fault if the technician does not confirm which solenoid the scan tool is commanding.
- A weak or failing engine ground can cause the solenoid circuit to report a performance error even though the solenoid and its wiring are intact, so ground integrity should be verified before parts are replaced.

Can I keep driving with P0027?

You can usually drive the vehicle short distances to a repair shop, but avoid heavy acceleration and sustained high-speed driving because incorrect exhaust valve timing can lead to poor combustion and potential damage over time. If the engine runs roughly or stalls, stop driving and arrange a tow.

Tools that help

- OBD-II scan tool with live data and bidirectional control capability
- Digital multimeter for resistance and voltage measurements
- Basic hand tools such as a ratchet set and screwdrivers
- Wiring diagram or service information for the specific engine
- Oil filter wrench and drain pan for an oil change



Reading P0027

- P** Powertrain: engine, transmission and emissions.
- 0** Generic (SAE) code: it means the same thing on every OBD-II vehicle.
- 0** Fuel and air metering and auxiliary emission controls.
- 27** 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) · **P0026** Intake Valve Control Solenoid Circuit Range/Performance (Ban · **P0028** Intake Valve Control Solenoid Circuit Range/Performance (Ban

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/p0027/>

