

GENERIC · POWERTRAIN

**P0419**

OBD-II DIAGNOSTIC TROUBLE CODE (DTC)

**P0419**

## Secondary Air Injection System Control 'B' Circuit

P0419 means the powertrain control module (PCM) has detected an electrical fault on the control circuit for the secondary air injection (AIR) system's 'B' control circuit, which is typically the circuit that commands the AIR pump or a second air valve. The PCM monitors the voltage or current on this control wire and sets the code when the signal falls outside the expected range during a commanded self-test or normal operation.

SYSTEM

**Powertrain**

CODE TYPE

**Generic (all makes)**

SEVERITY

**Low**

FIX DIFFICULTY

**Intermediate**

AREA

**Auxiliary emission controls**

### Symptoms you may notice

- Illumination of the check engine light, often with no other noticeable symptoms.
- A brief, audible whine or hum from the engine bay during cold start may be missing if the AIR pump does not run.
- Rough idle or a slight stumble immediately after a cold start in some vehicles.
- A pending or stored P0419 code may be accompanied by a P0410 or P0418 code in the same system.
- In rare cases, a slight exhaust smell or elevated cold-start emissions may be noticed.
- No drivability complaints once the engine reaches operating temperature.

### Common causes, most likely first

- 1 Failed secondary air injection pump or air valve solenoid that the 'B' circuit controls.
- 2 Open or shorted wiring in the 'B' control circuit, often due to corrosion or chafing.
- 3 A faulty relay or fuse that supplies power to the 'B' circuit component.
- 4 Poor electrical connection at the pump, valve, or PCM connector.
- 5 A failed PCM driver for the 'B' control circuit, though this is uncommon.
- 6 Water intrusion or debris in the AIR pump or valve connector causing intermittent faults.
- 7 A stuck or seized secondary air valve that overloads the control circuit.



## How to diagnose and fix it

- 1 Scan all modules for stored and pending codes, and record freeze-frame data to understand when P0419 set.
- 2 Inspect the AIR pump and valve connectors for corrosion, water intrusion, or loose pins, and clean or repair as needed.
- 3 Check the fuse and relay that supply power to the 'B' circuit component, testing the relay for proper operation.
- 4 Measure resistance and voltage on the 'B' control wire from the PCM to the component, looking for opens, shorts, or excessive resistance.
- 5 Command the AIR pump and valve on with a scan tool and listen for operation, and verify the control circuit signal with a multimeter or oscilloscope.
- 6 If the circuit and component test good, substitute a known-good relay or component to isolate an intermittent fault.
- 7 Clear codes and perform a cold-start drive cycle to confirm the repair, then recheck for pending codes.

## What the 'B' circuit really controls

- The 'B' circuit often controls a second air valve or a specific relay coil, not the main pump, so replacing the pump first can be a costly mistake.
- A P0419 can set intermittently from a relay that sticks only when cold, which is why a cold-start test is essential before condemning parts.
- Corroded ground connections near the AIR pump or valve are a frequent hidden cause that mimics a failed component.
- Some vehicles use the AIR system only for the first 20 to 30 seconds after a cold start, so the fault may not appear during a warm-engine inspection.
- A failing battery or charging system can cause low voltage that triggers control circuit codes like P0419 without any actual circuit defect.

## Can I keep driving with P0419?

The vehicle is safe to drive with P0419 because the secondary air injection system only affects cold-start emissions and does not impair engine performance. Avoid extended idling from a cold start and have the circuit inspected soon to prevent a more expensive pump or valve failure.

## Tools that help

- OBD-II scan tool with bidirectional controls
- Digital multimeter
- Test light
- Wiring diagram for the secondary air injection system
- Socket and ratchet set
- Oscilloscope (optional for signal analysis)



## Reading P0419

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

## Often seen with

**P0410** Secondary Air Injection System Malfunction · **P0411** Secondary Air Injection System Incorrect Flow · **P0412** Secondary Air Injection System Switching Valve 'A' Circuit · **P0413** Secondary Air Injection System Switching Valve 'A' Circuit O · **P0418** Secondary Air Injection System Control 'A' Circuit

## See it working

Watch the animated explainer [Four-Stroke Engine Notebook: The Otto Cycle Explained](#) on Auto Veteran to see the parts involved moving.

Full guide, related articles and animations: <https://www.autoveteran.tech/dtc-codes/p0419/>

