

GENERIC · POWERTRAIN

P0414

OBD-II DIAGNOSTIC TROUBLE CODE (DTC)

P0414

Secondary Air Injection System Switching Valve 'A' Circuit Shorted

P0414 indicates that the powertrain control module has detected a short circuit on the electrical path for the secondary air injection system's switching valve 'A'. The computer monitors the valve's control circuit and flags this code when the voltage or current falls outside the expected range for a shorted condition, which can prevent the valve from opening or closing on command.

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
- A slight hesitation or stumble during the first minute after a cold start
- A brief rich exhaust smell immediately after starting the engine
- Failed emissions test due to the check engine light being on
- In rare cases, a rough idle or misfire during the cold-start phase if the valve sticks open

Common causes, most likely first

- 1 Damaged or chafed wiring in the switching valve control circuit shorting to ground or power
- 2 Failed secondary air injection switching valve solenoid with an internal short
- 3 Corroded or loose electrical connector at the switching valve
- 4 Water intrusion into the valve or connector causing a short
- 5 Faulty powertrain control module driver circuit (less common)
- 6 Aftermarket or improperly installed electrical accessories tapping into the circuit



How to diagnose and fix it

- 1 Inspect the switching valve connector and wiring for visible damage, corrosion, or chafing, and repair as needed
- 2 Disconnect the valve and use a multimeter to check for a short to ground or power on the control wire from the PCM
- 3 Measure the resistance of the switching valve solenoid and compare it to the manufacturer's specification
- 4 Check for water intrusion or debris inside the valve and connector, and clean or replace components as required
- 5 If the circuit and valve test good, perform a functional test of the valve with a scan tool to confirm it responds to commands
- 6 Repair or replace the faulty switching valve or the affected section of wiring harness
- 7 Clear the code and verify the repair with a road test that includes a cold start and monitor readiness

What a shorted air valve really means

- A short in the switching valve circuit can be intermittent and only set the code during cold, damp weather when condensation bridges a corroded connector.
- The switching valve is often confused with the air pump, but P0414 specifically targets the valve's electrical circuit, not the pump motor or airflow performance.
- A shorted valve solenoid can back-feed voltage into the PCM driver, so always check for a short to power before replacing the PCM.
- Some vehicles use a relay to power the switching valve, and a shorted relay coil can mimic a valve circuit short, so test the relay as part of the circuit.
- The code may set without any drivability complaint because the secondary air system only operates for a short period after a cold start.

Can I keep driving with P0414?

The vehicle is generally safe to drive with P0414 because the secondary air system only affects emissions during cold starts, but avoid prolonged idling and schedule a diagnosis soon to prevent potential catalytic converter damage from an uncorrected rich condition.

Tools that help

- OBD-II scan tool with bidirectional control
- Digital multimeter
- Wiring diagram for the specific vehicle
- Basic hand tools for connector and component access
- Vacuum pump or smoke machine for testing related air lines



Reading P0414

- P** Powertrain: engine, transmission and emissions.
- 0** Generic (SAE) code: it means the same thing on every OBD-II vehicle.
- 4** Auxiliary emission controls.
- 14** 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 · **P0415** Secondary Air Injection System Switching Valve 'B' Circuit

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/p0414/>

