

CHRYSLER · POWERTRAIN

P1421

OBD-II DIAGNOSTIC TROUBLE CODE (DTC)

P1421 · Chrysler

Intake Air Low Pressure Switch Circuit High Voltage

P1421 on Chrysler vehicles means the powertrain control module (PCM) has detected a high-voltage condition on the intake air low-pressure switch circuit, which is part of the secondary air injection system used during cold starts. The PCM expects the switch to signal low pressure when the air pump is off and high pressure when the pump runs, but a voltage above the normal threshold tells the PCM the circuit is open, shorted to voltage, or the switch has failed.

SYSTEM

Powertrain

CODE TYPE

Chrysler specific

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.
- Slight hesitation or stumble during the first few seconds after a cold start.
- A brief, faint hissing or whining noise from the engine bay during cold-start air injection.
- Failed emissions test due to the check engine light being on.
- In rare cases, a rough idle or lean condition if the switch fault masks a stuck-open air valve.

Common causes, most likely first

- 1 Failed intake air low-pressure switch (internal open circuit or diaphragm rupture).
- 2 Damaged or disconnected electrical connector at the pressure switch.
- 3 Open or shorted wire in the signal circuit between the switch and the PCM.
- 4 Corroded or loose ground connection for the switch circuit.
- 5 Faulty secondary air injection pump or blocked air supply line causing abnormal pressure readings.
- 6 PCM internal fault (rare, but possible after all other causes are ruled out).



How to diagnose and fix it

- 1 Inspect the pressure switch connector and wiring for corrosion, looseness, or physical damage; clean and reseal as needed.
- 2 Check the switch ground circuit for continuity to chassis ground using a multimeter.
- 3 Measure the signal voltage at the switch connector with the key on and engine off; compare to Chrysler specifications for the high-voltage threshold.
- 4 Test the pressure switch operation by applying vacuum or pressure (per service manual) and monitoring signal voltage change.
- 5 Verify the secondary air pump runs during cold start and that the air supply hose is not cracked or blocked.
- 6 If the switch fails the operational test, replace the intake air low-pressure switch and clear the code.
- 7 If wiring and switch test good, check for an open or short in the signal circuit between the switch and PCM; repair as necessary.

What the low-pressure switch really monitors

- The intake air low-pressure switch is often confused with the secondary air injection pump itself, but it only monitors air pressure in the injection system; a failed pump can set this code without the switch being faulty.
- A common misdiagnosis is replacing the pressure switch when the real problem is a corroded connector pin that creates high resistance and a false high-voltage signal.
- Chrysler's secondary air injection system only runs during cold starts, so the code may not reappear immediately after clearing if the engine is warm; a proper diagnosis requires a cold-start test.
- The PCM may set P1421 in conjunction with other secondary air injection codes, so always check for related codes before condemning the switch circuit.
- High voltage on this circuit can also be caused by a short to voltage in the wiring harness where it rubs against the engine block or exhaust manifold.

Can I keep driving with P1421?

The vehicle is safe to drive with P1421 because the fault only affects cold-start emissions and does not compromise engine reliability. Avoid extended idling from a cold start and schedule diagnosis soon to prevent a failed emissions test.

Tools that help

- OBD-II scan tool
- Digital multimeter
- Vacuum pump with gauge
- Service manual for Chrysler vehicle
- Basic hand tools (screwdrivers, socket set)



Reading P1421

- P** Powertrain: engine, transmission and emissions.
- 1** Manufacturer-specific code (Chrysler): its meaning depends on the make.
- 4** Auxiliary emission controls.
- 21** The exact fault within that area.

Often seen with

P1420 Secondary Air Injection Control Module Electrical Malfunction · **P1420** Fuel Tank Pressure Control Solenoid High Input · **P1420** Intake Air Low Pressure Switch Circuit Low Voltage · **P1420** Intake Air Low Pressure Switch Circuit Low Voltage · **P1420** Secondary Air Valve Control Circuit Electrical · **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 · **P0414** Secondary Air Injection System Switching Valve 'A' Circuit S

See it working

Watch the animated explainer [How Misfire Detection Works: Crankshaft Speed](#) on Auto Veteran to see the parts involved moving.

Full guide, related articles and animations: <https://www.autoveteran.tech/dtc-codes/chrysler-p1421/>

