

MAZDA · POWERTRAIN

P1418

OBD-II DIAGNOSTIC TROUBLE CODE (DTC)

P1418 · Mazda

Split Air 1 Circuit

P1418 on a Mazda indicates that the powertrain control module (PCM) has detected an electrical fault in the split air injection circuit, which typically controls the air pump or air control valve used to divert secondary air into the exhaust during cold starts. The PCM monitors the circuit for expected voltage or current and sets this code when the signal falls outside the programmed range, often due to an open, short, or excessive resistance in the wiring or the component itself.

SYSTEM

Powertrain

CODE TYPE

Mazda specific

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 rough idle or hesitation during the first few minutes after a cold start
- A brief hissing or rushing air noise from the engine bay during cold-start air injection
- Occasional stumble or lean condition if the split air valve sticks open
- Failed emissions test due to incomplete or failed oxygen sensor monitor
- In rare cases, a sulfur or rich exhaust smell during cold start if air flow is incorrect

Common causes, most likely first

- 1 Failed split air control solenoid or vacuum switching valve
- 2 Open or shorted wiring in the split air circuit, including damaged connectors or chafed harness
- 3 Corroded or loose electrical terminals at the split air valve or PCM connector
- 4 Faulty split air valve (air control valve) with a stuck or burned internal coil
- 5 Blown fuse or relay supplying power to the split air circuit
- 6 Vacuum line leak or blockage affecting the split air valve operation
- 7 PCM internal driver failure (rare, but possible after other causes are ruled out)



How to diagnose and fix it

- 1 Connect a scan tool and record all stored codes and freeze-frame data, then clear codes and test-drive to confirm P1418 returns.
- 2 Inspect the split air circuit wiring and connectors for damage, corrosion, or loose pins, and repair as needed.
- 3 Check the fuse and relay that supply power to the split air solenoid or valve, and replace any failed components.
- 4 Measure resistance of the split air solenoid or valve coil and compare to the manufacturer's specification; replace if out of range.
- 5 Test the vacuum supply and operation of the split air valve using a hand vacuum pump, and replace the valve if it does not hold or actuate.
- 6 Back-probe the PCM connector to verify the control signal is present and correct; if the signal is missing, diagnose the PCM driver or wiring.
- 7 After repairs, clear codes and perform a cold-start drive cycle to verify the monitor runs and the code does not reset.

Split air circuit faults often misdiagnosed

- A split air circuit code is frequently set by a simple vacuum leak or a stuck valve rather than a failed solenoid, so always test vacuum operation before replacing electrical parts.
- The PCM may set P1418 only during a cold-start air injection test, so the code can appear intermittent and not return on a warm engine; a proper cold soak is needed to reproduce it.
- Wiring harness damage near the exhaust manifold or air pump is common on older Mazdas, and a visual inspection often reveals chafed or melted insulation that a resistance test alone might miss.
- Replacing the split air valve without checking the fuse and relay can lead to a repeat failure if the original fault was a power supply issue.
- This code does not always mean the air pump itself has failed; the split air circuit may share components with the secondary air system, and a fault in the control side can mimic a pump failure.

Can I keep driving with P1418?

You can generally continue driving with P1418, but avoid long periods of idling or repeated cold starts until the fault is repaired, as incorrect air injection can affect emissions and eventually damage the catalytic converter. If the check engine light begins flashing or you notice a significant loss of power, stop driving and have the vehicle inspected promptly.



Tools that help

- OBD-II scan tool with live data and freeze-frame capability
- Digital multimeter for voltage, resistance, and continuity checks
- Hand vacuum pump with gauge for testing vacuum-operated valves
- Basic hand tools (screwdrivers, socket set, pliers) for connector and component access
- Wiring diagram or service information for the specific Mazda model

Reading P1418

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

Often seen with

P1410 Tank Ventilation Valve Circuit Short To B+ · **P1410** EGR Valve Position Sensor Circuit Malfunction · **P1410** Fuel Tank Pressure Control Solenoid Circuit Fault · **P1410** EGR Boost Solenoid Valve Stuck · **P1410** EVAP Purge Control Solenoid Circuit High Voltage · **P1410** Fuel Tank Pressure System · **P1410** EGR Barometric Pressure Sensor VREF Voltage · **P1410** Fuel Tank Pressure System · **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

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/mazda-p1418/>

