

VOLKSWAGEN · POWERTRAIN

P1450

OBD-II DIAGNOSTIC TROUBLE CODE (DTC)

P1450 · Volkswagen

Secondary Air Injection System Circuit Short To B+

P1450 on a Volkswagen means the engine control module has detected a short to battery voltage on the secondary air injection system circuit, which is the pump and combi-valve circuit used to add air into the exhaust during cold starts. The computer monitors the control wire for expected voltage changes and sees battery voltage present when the circuit should be grounded or floating, so it flags the circuit as shorted to B+.

SYSTEM

Powertrain

CODE TYPE

Volkswagen specific

SEVERITY

Medium

FIX DIFFICULTY

Intermediate

AREA

Auxiliary emission controls

Symptoms you may notice

- Often no symptoms besides the warning light, because the fault is electrical and may not disable the pump during normal driving.
- A brief rough idle or stumble during the first minute after a cold start if the secondary air pump runs when it should not.
- A secondary air injection system monitor that will not complete, causing an emissions test failure.
- Possible faint humming or running noise from the secondary air pump after the engine is warm, indicating the pump is being powered when it should be off.
- In some cases a stored P1450 is accompanied by a P0411 or P0491/P0492 if the extra air flow is not detected.
- No noticeable performance loss during normal driving because the system only operates during cold-start warm-up.

Common causes, most likely first

- 1 Chafed or pinched secondary air pump control wire shorted to a battery positive wire in the engine harness.
- 2 Failed secondary air injection pump relay with internally bridged contacts feeding B+ to the control circuit.
- 3 Water or corrosion intrusion into the secondary air pump connector or relay socket causing a short to B+.
- 4 Faulty secondary air injection pump with an internal short to its power feed.
- 5 Damaged engine control module driver circuit for the secondary air pump, though this is less common than harness or relay faults.
- 6 Aftermarket alarm or remote start wiring tapped into the secondary air circuit and shorting to battery voltage.
- 7 A misrouted harness after engine or transmission service that has rubbed through against a hot or sharp component.



How to diagnose and fix it

- 1 Clear the code and verify it returns, then check freeze-frame data to confirm the fault occurred during the secondary air pump test.
- 2 Inspect the secondary air pump connector and relay socket for corrosion, water intrusion, or pushed-out terminals before replacing any parts.
- 3 Disconnect the secondary air pump and relay, then measure the control wire for battery voltage with the key on and the relay removed to isolate whether the short is in the harness or the relay.
- 4 Wiggle-test the engine harness along the secondary air pump circuit while watching a multimeter or scan tool voltage reading to find an intermittent short.
- 5 Check the secondary air injection pump relay by swapping it with a known-good identical relay and rechecking the code.
- 6 Repair any chafed wire with proper solder and heat-shrink, route the harness away from heat and moving parts, and replace damaged connectors or terminals.
- 7 After repair, clear codes and run the secondary air injection monitor to completion with a scan tool to confirm the circuit is no longer shorted to B+.

What a short to B+ really means here

- A short to B+ does not mean the secondary air pump is bad; the code is set because the control wire is seeing battery voltage when the engine control module expects to control the ground side, so the fault is usually in the harness or relay.
- Volkswagen secondary air pump relays are a common failure point and can bridge internally, feeding battery voltage back up the control wire even when the engine control module has commanded the pump off.
- Water ingress into the secondary air pump connector or the relay box is a frequent cause on models where the pump sits low in the engine bay, and the corrosion can create a short that only appears in damp weather.
- A P1450 can be set by a completely unrelated aftermarket accessory tapped into the secondary air circuit, so always check for non-factory wiring before condemning the engine control module.
- Do not replace the engine control module based on P1450 alone; the module driver is rarely the cause, and a proper voltage drop and continuity test of the control circuit will usually find the short elsewhere.

Can I keep driving with P1450?

You can usually drive the vehicle with P1450 because the secondary air system only operates during cold-start warm-up, but avoid long periods of idling from cold and do not ignore the light if your area requires an emissions test. Have the circuit inspected soon, since a short to B+ can eventually damage the secondary air pump or the engine control module driver if left unrepaired.



Tools that help

- OBD-II scan tool with Volkswagen-specific software or a capable generic scan tool
- Digital multimeter with back-probe pins
- Test light
- Wiring diagram for the secondary air injection circuit
- Relay puller and terminal pick set
- Heat-shrink tubing and soldering iron for harness repair

Reading P1450

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

Often seen with

P0410 Secondary Air Injection System Malfunction · **P0411** Secondary Air Injection System Incorrect Flow · **P0413** Secondary Air Injection System Switching Valve 'A' Circuit O · **P0491** Secondary Air Injection System Insufficient Flow (Bank 1) · **P0492** Secondary Air Injection System Insufficient Flow (Bank 2)

See it working

Watch the animated explainer [Manual Car Driving Simulator: Learn Clutch Control](#) on Auto Veteran to see the parts involved moving.

Full guide, related articles and animations: <https://www.autoveteran.tech/dtc-codes/volkswagen-p1450/>

