

GENERIC · POWERTRAIN

P0508

OBD-II DIAGNOSTIC TROUBLE CODE (DTC)

P0508

Idle Air Control System Circuit Low

P0508 means the engine computer has detected a low-voltage condition on the idle air control (IAC) circuit, which typically indicates a short to ground or an open circuit in the wiring or the IAC valve itself. The computer expects a certain voltage range when commanding the IAC valve to move, and a reading below the threshold triggers this code.

SYSTEM

Powertrain

CODE TYPE

Generic (all makes)

SEVERITY

Medium

FIX DIFFICULTY

Intermediate

AREA

Vehicle speed, idle control and auxiliary inputs

Symptoms you may notice

- Check engine light illuminated, often with no other noticeable symptoms
- Rough or erratic idle, sometimes stalling when coming to a stop
- Idle speed that is too low or fluctuates up and down
- Engine may hesitate or stumble during acceleration from a stop
- In cold weather, the engine may idle poorly or stall until warmed up

Common causes, most likely first

- 1 Faulty idle air control valve (IAC) with an internal short or open coil
- 2 Damaged or corroded wiring harness connector at the IAC valve
- 3 Broken, chafed, or shorted wire in the IAC circuit (often near the throttle body or exhaust)
- 4 Poor electrical connection at the engine computer (PCM) connector
- 5 Failed engine computer driver for the IAC circuit (rare but possible)
- 6 Carbon buildup or mechanical binding of the IAC valve pintle, causing abnormal current draw



How to diagnose and fix it

- 1 Inspect the IAC valve connector and wiring for corrosion, looseness, or damage; clean and repair as needed
- 2 Measure resistance across the IAC valve terminals and compare to manufacturer specifications to check for an open or shorted coil
- 3 Check for continuity and short-to-ground on each wire from the IAC valve connector to the PCM, repairing any faults
- 4 Clean the IAC valve passage and pintle with throttle body cleaner to remove carbon deposits that can cause binding
- 5 Substitute a known-good IAC valve and clear the code to see if it returns
- 6 If wiring and valve are good, test the PCM driver circuit with a noid light or oscilloscope; replace PCM only as a last resort
- 7 After repairs, clear codes and perform an idle relearn procedure if required by the manufacturer

What the IAC low-voltage code really means

- A low-voltage code on the IAC circuit often results from a short to ground in the wiring, not a failed valve, so always inspect the harness before replacing parts.
- Carbon buildup can cause the IAC valve to bind, drawing higher current and setting a low-voltage code even though the valve is electrically sound.
- Some vehicles use a stepper motor IAC that does not have a simple resistance specification; in those cases, a scan tool with bidirectional control is needed to test operation.
- A failing throttle position sensor or a vacuum leak can mimic IAC symptoms, but they will not set P0508 because the code is specific to the IAC circuit's electrical behavior.
- After replacing an IAC valve or repairing wiring, the PCM may need an idle relearn procedure to restore proper idle quality and prevent false repeat codes.

Can I keep driving with P0508?

You can usually drive the vehicle with P0508, but expect a rough or stalling idle that may worsen in cold weather or when coming to a stop. Avoid extended idling and have the fault diagnosed soon to prevent stalling in traffic.

Tools that help

- OBD-II scan tool with live data and bidirectional control
- Digital multimeter
- Socket and ratchet set
- Throttle body cleaner
- Wire repair kit (solder, heat shrink, electrical tape)



Reading P0508

- P** Powertrain: engine, transmission and emissions.
- 0** Generic (SAE) code: it means the same thing on every OBD-II vehicle.
- 5** Vehicle speed, idle control and auxiliary inputs.
- 08** The exact fault within that area.

Often seen with

P0505 Idle Control System Malfunction · **P0506** Idle Control System RPM Lower Than Expected · **P0507** Idle Control System RPM Higher Than Expected · **P0509** Idle Air Control System Circuit High · **P0511** Idle Air Control Circuit

See it working

Watch the animated explainer [How a Fuel Injector Works: Pulse Width and Spray](#) on Auto Veteran to see the parts involved moving.

Full guide, related articles and animations: <https://www.autoveteran.tech/dtc-codes/p0508/>

