

GENERIC · CHASSIS

C052F

OBD-II DIAGNOSTIC TROUBLE CODE (DTC)

C052F

ABS Pump Motor Supply Voltage Circuit/Open

The anti-lock braking system (ABS) control module has detected a fault in the voltage supply circuit that feeds the ABS pump motor, either an open circuit or a voltage reading outside the expected range. The module monitors the supply line to the pump motor and sets this code when the voltage it sees does not match what the pump requires to run during a self-test or ABS event.

SYSTEM

Chassis

CODE TYPE

Generic (all makes)

SEVERITY

Medium

FIX DIFFICULTY

Intermediate

AREA

Brakes, steering and suspension

Symptoms you may notice

- ABS warning light illuminated on the dashboard, often accompanied by the traction control and stability control lights
- The ABS system is disabled, so the wheels can lock under hard braking and the pedal may feel different
- A whirring or humming noise from the ABS pump motor may be absent during the key-on self-test
- Intermittent warning light that comes and goes, especially over bumps or in wet weather
- Often no symptoms besides the warning light, with normal braking performance in everyday driving

Common causes, most likely first

- 1 Corroded, loose, or damaged electrical connector at the ABS pump motor or control module
- 2 Broken or chafed wire in the pump motor supply circuit, often near a flex point or exposed harness section
- 3 Blown high-current fuse or failed relay that feeds the ABS pump motor
- 4 Failed ABS pump motor, such as worn brushes or an internal open winding
- 5 Internal fault in the ABS control module affecting its ability to supply or monitor pump motor voltage
- 6 Poor ground connection for the ABS pump motor or control module
- 7 Low battery voltage or a weak charging system that drops below the pump motor's operating threshold



How to diagnose and fix it

- 1 Scan all modules for codes and record freeze-frame data to confirm C052F is current and not a historical glitch
- 2 Inspect the ABS pump motor connector and the control module connector for corrosion, pushed pins, or loose terminals
- 3 Check the pump motor supply fuse and relay, testing the relay operation and fuse continuity under load
- 4 Measure voltage at the pump motor supply wire during a commanded pump test, looking for a drop compared to battery voltage
- 5 Perform a voltage drop test on the ground circuit and the positive supply circuit to locate excessive resistance
- 6 If voltage is present at the motor but it does not run, command the pump with a scan tool and test the motor directly
- 7 Repair or replace the faulty wiring, connector, fuse, relay, pump motor, or control module as indicated by the test results

What the pump motor voltage code hides

- A pump motor that runs fine during a scan-tool command but sets C052F intermittently often has a wiring issue that only appears under vibration or heat, so wiggle-testing the harness while monitoring live data is essential.
- The ABS control module may set this code when the pump motor draws excessive current due to a failing motor, not just when the supply circuit is open, so checking current draw is as important as checking voltage.
- A weak battery or a charging system that dips below 10 volts during cranking can trigger this code on some vehicles because the module sees low voltage on the pump supply during its power-up self-test.
- Corrosion inside the pump motor connector is a common hidden cause, especially on vehicles driven in salt-belt regions, and it can look fine until the connector is separated and inspected closely.
- Replacing the ABS control module without first verifying the pump motor and its wiring is a costly misdiagnosis, because the module is rarely the root cause of a supply voltage fault.

Can I keep driving with C052F?

The vehicle remains safe to drive under normal conditions because the base brakes still work, but the ABS and stability control systems are disabled, so avoid hard braking or slippery surfaces until the fault is repaired. Do not tow a trailer or drive aggressively, and have the system diagnosed promptly to restore full safety functionality.

Tools that help

- OBD-II scan tool with ABS and bidirectional control capability
- Digital multimeter with voltage drop and current measurement functions
- Wiring diagram for the ABS pump motor supply circuit
- Test light or load tester for fuse and relay testing
- Socket set and trim removal tools for accessing the ABS module and pump



Reading C052F

- C** Chassis: brakes, steering and suspension.
- 0** Generic (SAE) code: it means the same thing on every OBD-II vehicle.
- 5** Brakes, steering and suspension.
- 2F** The exact fault within that area.

Often seen with

C0110 ABS Pump Motor Circuit Malfunction · **C0121** Valve Relay Circuit Malfunction · **C052C** ABS Pump Motor Control Circuit/Open · **C052D** ABS Pump Motor Control Circuit High · **C0530** Motor Control A Range/Performance

See it working

Watch the animated explainer [How ABS Works: Anti-Lock Brakes in X-Ray](#) on Auto Veteran to see the parts involved moving.

Full guide, related articles and animations: <https://www.autoveteran.tech/dtc-codes/c052f/>

