

GENERIC · CHASSIS

C0021

OBD-II TROUBLE CODE

C0021

ABS Pump Motor Circuit Range/Performance

C0021 indicates that the anti-lock braking system (ABS) control module has detected an abnormal condition in the ABS pump motor circuit, where the motor's electrical current or voltage falls outside the expected range during self-test or operation. The module monitors the pump motor for open circuits, short circuits, or excessive current draw, and sets this code when the circuit's performance does not meet the programmed specifications.

SYSTEM

Chassis

CODE TYPE

Generic (all makes)

SEVERITY

Medium

FIX DIFFICULTY

Intermediate

AREA

Brakes, steering and suspension

Symptoms you may notice

- The ABS warning light illuminates on the dashboard and may stay on continuously.
- The traction control system (TCS) or stability control (ESC) warning light may also turn on, as these systems rely on the ABS pump.
- The ABS pump may run continuously or not at all, which can be heard as an unusual noise or silence during the key-on self-test.
- The brake pedal may feel different, such as a harder or softer pedal, or may pulsate unexpectedly during normal braking.
- In some cases, the ABS system is disabled, and the driver may notice reduced braking performance in slippery conditions.
- Often no symptoms besides the warning light, as the base braking system remains functional.

Common causes, most likely first

- 1 A faulty ABS pump motor, such as worn brushes or internal electrical failure.
- 2 Damaged or corroded wiring and connectors between the ABS control module and the pump motor.
- 3 A blown fuse or faulty relay that supplies power to the ABS pump motor.
- 4 A failing ABS control module that incorrectly interprets the pump motor circuit signals.
- 5 Poor ground connection for the ABS pump motor circuit, leading to voltage drops.
- 6 Contamination or debris in the pump motor, causing increased resistance or binding.



How to diagnose and fix it

- 1 Verify the code with a scan tool and check for any related codes in the ABS system.
- 2 Inspect the ABS pump motor fuse and relay, and replace them if blown or faulty.
- 3 Visually inspect the wiring harness and connectors at the ABS pump motor for damage, corrosion, or loose pins; repair as needed.
- 4 Measure the resistance of the pump motor circuit and compare to specifications; check for open or short circuits.
- 5 Test the pump motor by applying power directly (if accessible) to see if it operates; if not, the motor may be faulty.
- 6 Check the ABS control module for proper power and ground, and inspect for any signs of damage or water intrusion.
- 7 If all electrical checks pass, the ABS control module may require reprogramming or replacement, followed by a system bleed and calibration.

What the ABS pump motor code hides

- A weak battery or charging system can cause voltage drops that trigger C0021, so always check battery health and charging voltage before condemning the pump motor.
- The ABS pump motor often shares a ground with other components; a corroded ground point can cause this code without any fault in the motor itself.
- Some vehicles require a scan tool to activate the ABS pump for proper brake bleeding after repairs, and skipping this step can lead to a soft pedal and recurring codes.
- C0021 can be set intermittently by a sticking pump motor relay, which may test fine when cold but fail when hot; a relay swap is a quick diagnostic step.
- The code does not always mean the pump motor is failing; wiring harness chafing near the ABS module is a common hidden cause, especially on vehicles with age-related insulation cracks.

Can I keep driving with C0021?

You can generally drive with C0021 as long as the brake pedal feels normal and the red brake warning light is not on, but the ABS system may be disabled, so avoid hard braking or slippery conditions. Have the vehicle diagnosed promptly to restore full ABS function and prevent potential brake system issues.

Tools that help

- OBD-II scan tool with ABS capabilities
- Digital multimeter
- Test light
- Socket set and wire crimpers
- Vehicle-specific service information for wiring diagrams



Reading C0021

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

Often seen with

C0020 ABS Pump Motor Circuit · **C0022** ABS Pump Motor Circuit Low · **C0035** Left Front Wheel Speed Sensor Circuit Range/Performance · **C0040** Left Rear Wheel Speed Sensor Circuit · **C0110** ABS Pump Motor Circuit Malfunction

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/c0021/>

