

GENERIC · CHASSIS

C05A9

OBD-II DIAGNOSTIC TROUBLE CODE (DTC)

C05A9

ABS Pump Motor Supply Voltage Circuit A/B Correlation

This code means the anti-lock braking system (ABS) module has detected a mismatch between the voltage supplied to the ABS pump motor through two separate feed circuits, typically labelled A and B. The module compares the voltage on each circuit during self-tests and while the pump runs, and it sets C05A9 when the two readings do not agree within the expected tolerance.

SYSTEM

Chassis

CODE TYPE

Generic (all makes)

SEVERITY

Medium

FIX DIFFICULTY

Professional

AREA

Brakes, steering and suspension

Symptoms you may notice

- The ABS warning light is illuminated on the dashboard, often accompanied by the traction control and stability control lights.
- The ABS pump motor may run continuously or not at all, which can be heard as a humming noise from the engine bay after the key is turned on.
- A pulsing or dragging sensation through the brake pedal during normal braking if the pump is unexpectedly active.
- Reduced or disabled anti-lock braking function, leading to wheel lockup during hard stops on slippery surfaces.
- Often no symptoms besides the warning light, because the base braking system still functions normally.
- In some vehicles, the speedometer or cruise control may become inoperative if the ABS module shares wheel speed data.

Common causes, most likely first

- 1 A weak or failing ABS pump motor that draws excessive current, causing a voltage drop that differs between the A and B circuits.
- 2 Corroded, loose, or damaged wiring and connectors on one of the pump motor supply circuits, creating resistance that skews the voltage reading.
- 3 A blown or partially failed fuse or relay that feeds only one side of the pump motor circuit, leaving the other side at full voltage.
- 4 Internal failure in the ABS control module, such as a faulty voltage comparator or driver circuit, causing it to misread the supply voltages.
- 5 A poor ground connection for the ABS pump motor or module, which can affect one circuit more than the other and trigger the correlation fault.
- 6 Battery or charging system problems that cause low system voltage, making the two circuit readings fall outside the expected correlation window.



How to diagnose and fix it

- 1 Verify battery voltage and charging system output, then clear the code and test-drive to see if it returns before replacing any parts.
- 2 Inspect the ABS pump motor fuses and relays, swapping identical relays where possible to rule out a faulty relay before moving to wiring checks.
- 3 Disconnect the ABS module connector and the pump motor connector, then check for corrosion, loose pins, and damaged wire insulation on both supply circuits.
- 4 Measure resistance and voltage drop on each pump motor supply wire from the module to the motor, comparing circuit A against circuit B to find the outlier.
- 5 Command the ABS pump motor on with a scan tool while monitoring the two supply voltages live to see which circuit deviates under load.
- 6 If wiring and relays are good, test the pump motor directly with a known-good power source and measure its current draw to confirm whether the motor is failing.
- 7 Replace the ABS control module only after all external circuits, relays, and the pump motor have been ruled out, and perform any required coding or calibration afterward.

What the A/B correlation really tests

- The code does not automatically mean the ABS module is bad; a tired pump motor drawing high current is a very common cause that gets missed when technicians jump straight to module replacement.
- A voltage difference between circuit A and circuit B can be created by something as simple as a corroded fuse box terminal, so always load-test the circuits rather than just checking for continuity.
- Some vehicles set this code after a low-voltage event such as a jump start or a weak battery, and it may not return once the charging system is repaired and the code is cleared.
- The ABS pump motor only runs briefly during self-test, so an intermittent fault may not appear unless you command the pump on with a scan tool while watching live voltage data.
- Related codes for pump motor relay or motor circuit faults often accompany C05A9, and diagnosing those first can save you from chasing the correlation code itself.

Can I keep driving with C05A9?

The vehicle remains driveable with normal brakes in most cases, but anti-lock braking and stability control are disabled, so avoid hard stops and slippery conditions until the fault is repaired. If the brake pedal feels abnormal or the pump runs continuously, park the vehicle and have it towed.



Tools that help

- Scan tool with ABS live data and bidirectional pump motor control
- Digital multimeter with voltage drop and current measuring capability
- Wiring diagram for the ABS pump motor supply circuits
- Fuse puller and relay puller
- Test light or load tester for circuit integrity checks

Reading C05A9

- C** Chassis: brakes, steering and suspension.
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- 0** Generic (SAE) code: it means the same thing on every OBD-II vehicle.
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- 5** Brakes, steering and suspension.
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- A9** The exact fault within that area.

Often seen with

C0110 ABS Pump Motor Circuit Malfunction · **C0121** Valve Relay Circuit Malfunction · **C0161** ABS/TCS Brake Switch Circuit · **C05A8** ABS Pump Motor Supply Voltage B Circuit Range/Performance · **C05AA** ABS Pump Motor Temperature Too High

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/c05a9/>

