

GENERIC · CHASSIS

C05CA

OBD-II DIAGNOSTIC TROUBLE CODE (DTC)

C05CA

Brake Master Cylinder Piston Position Sensor A Circuit Voltage High

The anti-lock brake system (ABS) module has detected that the voltage signal from the brake master cylinder piston position sensor A circuit is higher than the expected range for the current operating conditions. This sensor reports the travel position of the master cylinder piston, and an abnormally high voltage indicates a short to power, an open ground, or a faulty sensor.

SYSTEM	CODE TYPE	SEVERITY	FIX DIFFICULTY	AREA
Chassis	Generic (all makes)	Medium	Intermediate	Brakes, steering and suspension

Symptoms you may notice

- The anti-lock brake system (ABS) warning light and/or red brake warning light is illuminated on the dashboard.
- The traction control system (TCS) and electronic stability control (ESC) may be disabled, with their warning lights also on.
- A diagnostic trouble code is stored in the ABS module, but the vehicle often has no other noticeable symptoms besides the warning light.
- In some cases, the brake pedal may feel slightly different or the ABS may not activate during hard braking.
- Cruise control may become inoperative if it relies on brake pedal position data.
- The driver may notice a message on the information display indicating a brake system fault or reduced braking assistance.

Common causes, most likely first

- A faulty brake master cylinder piston position sensor, internally shorted or failing to produce the correct voltage.
- Damaged or chafed wiring in the sensor circuit, causing a short to battery voltage or a short to another power source.
- Corroded, loose, or disconnected electrical connector at the sensor or at the ABS module.
- An open or high-resistance ground connection for the sensor circuit, which can cause the signal voltage to read high.
- A malfunctioning ABS control module, though this is less common and should be diagnosed last.
- Contamination or debris on the sensor or its magnetic target, if the sensor is of a magnetic type, altering the signal.
- A mechanical issue with the master cylinder piston or brake pedal linkage that holds the piston in a position that produces an out-of-range high voltage signal.



How to diagnose and fix it

- 1 Connect a scan tool and retrieve all stored codes from the ABS module, then clear the codes and test-drive the vehicle to see if the code returns.
- 2 Visually inspect the sensor and its wiring harness for obvious damage, corrosion, or loose connections, and repair as needed.
- 3 Use a digital multimeter to check the sensor reference voltage and ground at the sensor connector with the key on, engine off, comparing to manufacturer specifications.
- 4 Backprobe the sensor signal wire at the ABS module connector and monitor the voltage while slowly pressing and releasing the brake pedal to verify the sensor output is within range and changes smoothly.
- 5 If the signal voltage is stuck high or erratic, disconnect the sensor and check for a short to power on the signal wire; repair the harness if a short is found.
- 6 If the wiring and connections are good, replace the brake master cylinder piston position sensor and clear the codes.
- 7 After replacement, perform a calibration or relearn procedure if required by the manufacturer, then verify the code does not return and the warning lights are off.

What the piston position sensor really does

- The brake master cylinder piston position sensor is often used to detect driver braking intent for the electronic stability control and hill-start assist systems, so a fault can disable those features even if base braking feels normal.
- A common misdiagnosis is replacing the ABS module when the actual problem is a simple chafed wire in the sensor circuit, so always check the harness continuity and voltage before condemning the module.
- On some vehicles, the sensor is integrated into the master cylinder and cannot be replaced separately, requiring master cylinder replacement, which is a more involved and costly repair.
- A weak or failing battery or charging system can cause erratic sensor voltages and set this code, so verify battery voltage and ground integrity before diving into sensor diagnostics.
- The code can be set by a momentary voltage spike during engine cranking if the battery is weak, so check for a low battery or poor ground connection at the engine block.

Can I keep driving with C05CA?

The vehicle remains safe to drive under normal conditions because the base hydraulic brakes are unaffected, but the anti-lock and stability control systems may be disabled, so avoid hard braking or emergency maneuvers until the fault is repaired. Do not ignore the warning lights, as the loss of ABS could increase stopping distance on slippery surfaces.



Tools that help

- OBD-II scan tool with ABS module capability
- Digital multimeter
- Backprobe pins or breakout box
- Wire repair kit (solder, heat shrink, electrical tape)
- Socket set and wrenches for sensor removal
- Vehicle service information for wiring diagrams and specifications

Reading C05CA

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.
CA	The exact fault within that area.

Often seen with

C0035 Left Front Wheel Speed Sensor Circuit Range/Performance · **C0040** Left Rear Wheel Speed Sensor Circuit · **C0110** ABS Pump Motor Circuit Malfunction · **C05C9** Brake Pressure Sensor Supply Circuit · **C05CB** Brake Master Cylinder Piston Position Sensor A Circuit Volta

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/c05ca/>

