

GENERIC · CHASSIS

C0646

OBD-II DIAGNOSTIC TROUBLE CODE (DTC)

C0646

Brake Pressure Sensor L Circuit High

C0646 means the antilock braking system (ABS) module sees the brake pressure sensor on the 'L' circuit reporting a voltage higher than the expected range for the current brake pedal position. The computer compares this signal against other pressure sensors and the brake switch, and it flags the circuit as high when the voltage stays above the plausible limit.

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 steadily on the dashboard
- Traction control and stability control warning lights may also come on because those systems share the brake pressure signal
- A harder or less assisted brake pedal feel if the fault affects the hydraulic pressure signal used for brake assist
- The ABS may disable itself, leaving normal braking but no antilock function during a panic stop
- Often no symptoms besides the warning light, with brakes feeling completely normal in everyday driving

Common causes, most likely first

- 1 A short to voltage on the signal wire between the brake pressure sensor and the ABS module
- 2 A faulty brake pressure sensor internally shorted and outputting an abnormally high voltage
- 3 Corroded, pushed-back, or water-intruded pins at the sensor connector or ABS module connector
- 4 A damaged wire harness rubbed through against a metal bracket or exposed to heat near the master cylinder
- 5 A failed ABS control module with an internal fault on the sensor input circuit
- 6 Low brake fluid or air trapped in the hydraulic system skewing the pressure reading beyond the expected range
- 7 A poor ground connection at the ABS module or chassis, causing a reference voltage offset



How to diagnose and fix it

- 1 Scan all modules for stored and pending codes, then record freeze-frame data for C0646 to see the voltage and brake pressure at the moment of failure
- 2 Inspect the brake pressure sensor connector and the ABS module connector for corrosion, bent pins, or water intrusion, and clean or repair as needed
- 3 Check brake fluid level and bleed the system if air is suspected, since low fluid or trapped air can push the pressure signal out of range
- 4 Back-probe the sensor signal wire at the ABS module and compare live voltage with the scan tool reading to confirm whether the fault is in the wiring or the sensor
- 5 Measure resistance and voltage on the sensor reference and ground circuits to rule out a short to voltage or a bad ground before condemning the sensor
- 6 Replace the brake pressure sensor if the wiring checks out and the sensor output stays high with the key on and engine off
- 7 If the sensor and wiring are good, test the ABS module input circuit and replace the module only after confirming the module is misreading a correct sensor signal

What a high brake pressure signal really means

- A short to voltage on the signal wire is more common than a failed sensor, so always check the harness where it passes near the master cylinder and battery before replacing parts.
- Some vehicles use the brake pressure sensor signal for hill-start assist and stability control, so a high reading can disable those features even when the ABS light is the only warning.
- A low brake fluid level or air in the hydraulic system can make the pressure sensor report a voltage outside the expected range, mimicking an electrical fault.
- Water intrusion into the sensor connector after engine bay washing or a coolant leak is a frequent cause that a visual inspection will reveal.
- Do not assume the ABS module is bad just because the code persists after sensor replacement; a chafed signal wire shorting to a 12-volt source will set the same code.

Can I keep driving with C0646?

The vehicle remains safe to drive under normal conditions because base braking still works, but the ABS and stability control are disabled, so avoid panic stops and slippery surfaces until the fault is repaired. Do not tow a trailer or drive aggressively while the warning light is on.



Tools that help

- OBD-II scan tool with ABS live data and freeze-frame capability
- Digital multimeter with back-probe pins
- Brake pressure gauge set
- Wiring diagram for the ABS circuit
- Socket set and trim removal tools

Reading C0646

- 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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- 6** Brakes, steering and suspension.
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- 46** The exact fault within that area.

Often seen with

C0040 Left Rear Wheel Speed Sensor Circuit · **C0050** Right Rear Wheel Speed Sensor Circuit Malfunction · **C0110** ABS Pump Motor Circuit Malfunction · **C0645** Brake Pressure Sensor L Circuit/Open · **C0647** Brake Pressure Sensor L Circuit Low

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/c0646/>

