



C0513

Right Rear Wheel Speed Sensor A Range/Performance

C0513 means the anti-lock brake system (ABS) module has detected an abnormal signal from the right rear wheel speed sensor, specifically a range or performance fault rather than a total loss of signal. The computer compares that sensor's pulses against the other three wheels and flags the code when the right rear signal is erratic, intermittent, or outside the expected speed range.

SYSTEM	CODE TYPE	SEVERITY	FIX DIFFICULTY	AREA
Chassis	Generic (all makes)	Medium	Intermediate	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
- Often no symptoms besides the warning light, with normal brake pedal feel and stopping performance
- ABS may deactivate, causing wheel lockup during hard braking on slippery surfaces
- Traction control or stability control may stop intervening, allowing wheelspin or loss of directional control
- Intermittent activation of the ABS pump or pulsing brake pedal at low speeds without a true loss of traction
- Speedometer or cruise control may behave erratically if the affected sensor also feeds those systems

Common causes, most likely first

- 1 Damaged or corroded wheel speed sensor wiring harness near the right rear wheel, often from road debris or flexing
- 2 Debris, metal shavings, or rust buildup on the sensor tip or the tone ring, disrupting the magnetic signal
- 3 Worn, cracked, or missing teeth on the right rear tone ring or reluctor ring
- 4 Excessive wheel bearing play or a failing hub assembly that changes the air gap between sensor and tone ring
- 5 Water intrusion or corrosion at the sensor connector, causing intermittent high resistance
- 6 Faulty right rear wheel speed sensor itself, producing a weak or erratic output
- 7 Rarely, an internal ABS module fault misreading a good sensor signal



How to diagnose and fix it

- 1 Inspect the right rear sensor, connector, and wiring for physical damage, corrosion, or loose mounting, and clean any metal debris from the sensor tip
- 2 Check the tone ring for cracks, missing teeth, or heavy rust, and verify the air gap is within specification
- 3 Measure the sensor's resistance and compare it to the manufacturer's specification, then wiggle the harness while watching for changes
- 4 Use a scan tool to view live wheel speed data from all four wheels while driving, looking for dropouts or spikes on the right rear
- 5 Perform a voltage drop test on the sensor circuit and check for shorts to ground or power if the signal is erratic
- 6 Replace the right rear wheel speed sensor if resistance or live data confirms it is faulty, then clear the code and verify
- 7 If the sensor and wiring test good, check for excessive wheel bearing play and inspect the ABS module connectors before condemning the module

What a wheel speed code hides

- A range/performance code often means the sensor is producing a signal but it is inconsistent, so a simple resistance check can pass while the sensor still fails intermittently on the road
- Metal debris stuck to the sensor magnet or tone ring is a common cause that mimics a failed sensor and costs nothing to fix
- A worn wheel bearing can set this code without any obvious bearing noise, because the play changes the sensor air gap as the wheel rotates
- Corrosion inside the connector pins often causes this code after a wet season, and cleaning the terminals may resolve it without parts replacement
- The ABS module may set this code from a single erratic event, so a test drive with live data is more reliable than a static inspection

Can I keep driving with C0513?

You can usually drive the vehicle, but the ABS and traction control systems may be disabled, so leave extra stopping distance and avoid hard braking or slippery conditions. Have the fault diagnosed soon, because a wheel speed sensor that fails completely can also affect speedometer and stability control operation.

Tools that help

- OBD-II scan tool with live wheel speed data capability
- Digital multimeter for resistance and voltage checks
- Jack and jack stands or a lift for wheel-off inspection
- Feeler gauge for checking sensor air gap
- Wire brush and electrical contact cleaner for cleaning sensor and tone ring



Reading C0513

- 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.
- 13** 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 · **C0050** Right Rear Wheel Speed Sensor Circuit Malfunction · **C0512** Right Rear Wheel Speed Sensor A Circuit/Open · **C0514** Right Rear Wheel Speed Sensor A 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/c0513/>

