



C00A0

4WD/AWD Rear Differential Unit Actuator B Position Sensor Correlation

C00A0 indicates that the all-wheel-drive (AWD) or four-wheel-drive (4WD) control module has detected a correlation error between the position signals from the rear differential actuator's sensor B and the expected actuator position. The module compares the sensor B voltage or signal against other position sensors or commanded position and sets this code when the values do not agree within a calibrated range.

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

Symptoms you may notice

- The AWD or 4WD warning light illuminates steadily on the dashboard.
- The vehicle may default to two-wheel drive, reducing traction in slippery conditions.
- A message such as 'AWD system disabled' or 'Service 4WD' may appear in the driver information center.
- The rear differential may make unusual noises or clunking during engagement or disengagement.
- In some cases, there are no noticeable symptoms besides the warning light.
- The vehicle may exhibit hesitation or binding during low-speed turns if the actuator is stuck.

Common causes, most likely first

- 1 A faulty rear differential actuator position sensor B, which may be integral to the actuator assembly.
- 2 Wiring damage or corrosion in the circuit between sensor B and the AWD/4WD control module, including chafed wires or poor connector pins.
- 3 A mechanical binding or obstruction in the rear differential actuator mechanism, preventing it from reaching the commanded position.
- 4 Low or contaminated rear differential fluid, causing increased resistance and incorrect actuator feedback.
- 5 A software calibration issue or outdated control module firmware that misinterprets sensor signals.
- 6 A failing AWD/4WD control module, though this is less common and should be confirmed after other checks.



How to diagnose and fix it

- 1 Use a scan tool to retrieve all stored codes and freeze-frame data, then clear the code and test-drive to see if it returns.
- 2 Visually inspect the rear differential actuator, sensor B, and associated wiring for damage, corrosion, or loose connectors.
- 3 Measure the resistance and voltage signals from sensor B according to the manufacturer's specifications and compare with sensor A if applicable.
- 4 Check the rear differential fluid level and condition, and inspect for leaks or contamination that could affect actuator operation.
- 5 Command the actuator through its full range with a bidirectional scan tool and observe sensor B readings for smooth correlation and no dropouts.
- 6 If the sensor or actuator is faulty, replace the affected component and perform any required calibration or relearn procedure.
- 7 Verify repair by clearing codes, completing a test drive that engages the AWD/4WD system, and confirming no codes return.

Before replacing the rear differential actuator

- A correlation code often results from a simple wiring issue or connector corrosion rather than a failed actuator, so always perform a thorough circuit test before condemning parts.
- The rear differential actuator may share power or ground circuits with other systems, and a fault elsewhere can cause voltage drops that mimic a sensor B failure.
- On some vehicles, the actuator position sensor is not serviceable separately and requires replacement of the entire actuator assembly, which can be costly if misdiagnosed.
- A binding actuator caused by low fluid or mechanical wear can produce a correlation code even when the sensor itself is functioning correctly.
- After replacing the actuator or sensor, a calibration or relearn procedure is often necessary; skipping this step can cause the code to reset immediately.

Can I keep driving with C00A0?

You can generally continue driving with this code, but the AWD/4WD system may be disabled, reducing traction in adverse conditions. Avoid driving on slippery surfaces or towing heavy loads until the fault is repaired, and have the vehicle inspected promptly to prevent further damage.



Tools that help

- OBD-II scan tool with bidirectional control and live data capability
- Digital multimeter for circuit and signal testing
- Manufacturer-specific service information for wiring diagrams and specifications
- Basic hand tools for inspection and component removal
- Fluid pump or syringe for differential fluid service

Reading C00A0

- 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.
- A0** The exact fault within that area.

Often seen with

P1860 Kick Down Switch Error Message From Engine Control · **P1860** TCC PWM Solenoid Circuit Electrical · **C00A1** Driveline Control Module · **C00A2** Driveline Control Module Power Transfer Unit Control Circuit · **C0410** Adaptive Cruise Control Sensor Circuit Malfunction

See it working

Watch the animated explainer [How an Automatic Transmission Works, Gear by Gear](#) on Auto Veteran to see the parts involved moving.

Full guide, related articles and animations: <https://www.autoveteran.tech/dtc-codes/c00a0/>

