

GENERIC · CHASSIS

C05F5

OBD-II DIAGNOSTIC TROUBLE CODE (DTC)

C05F5

4WD/AWD Range Actuator Control Circuit/Open

This code means the four-wheel-drive or all-wheel-drive control module has detected an open circuit in the wiring that powers or controls the range actuator, which is the motor that shifts the transfer case between high and low range. The computer commands the actuator and then checks the circuit for expected voltage or current, and it sets C05F5 when that electrical path is broken or missing.

SYSTEM

Chassis

CODE TYPE

Generic (all makes)

SEVERITY

Medium

FIX DIFFICULTY

Intermediate

AREA

Brakes, steering and suspension

Symptoms you may notice

- The four-wheel-drive or all-wheel-drive warning light is illuminated on the dashboard.
- The transfer case will not shift into or out of low range when you press the selector button.
- The vehicle may stay stuck in the range it was in when the fault occurred, often high range.
- A grinding or clicking noise may be heard from the transfer case area when a shift is attempted.
- Often no symptoms besides the warning light, because the vehicle still drives normally in its current range.

Common causes, most likely first

- 1 A broken, corroded, or disconnected wire in the actuator control circuit, especially at the connector or where the harness flexes near the transfer case.
- 2 A failed range actuator motor or its internal position sensor, which can read as an open circuit to the module.
- 3 A blown fuse or failed relay that supplies power to the actuator circuit.
- 4 A poor ground connection for the actuator or the control module, causing the circuit to test open.
- 5 A faulty four-wheel-drive control module that is not sending or receiving the expected signal.
- 6 Water intrusion or road debris damage to the actuator connector or harness, common on vehicles that see off-road use.



How to diagnose and fix it

- 1 Scan all modules for stored and pending codes, and record freeze-frame data to see the conditions when C05F5 set.
- 2 Inspect the actuator connector and harness visually for corrosion, chafing, or a loose plug, and check the related fuse and relay.
- 3 Disconnect the actuator and measure resistance across its motor and sensor terminals to compare against the manufacturer's specification.
- 4 Backprobe the control circuit at the module and at the actuator to check for voltage and ground with the key on and during a commanded shift.
- 5 Perform a wiggle test on the harness while watching live data or a multimeter to catch an intermittent open circuit.
- 6 If the circuit tests good, command the actuator with a scan tool to confirm it moves, and replace the actuator if it does not respond.
- 7 Clear the code and verify the repair by cycling the transfer case through all ranges and confirming the light stays off.

What an open actuator circuit really means

- An open circuit does not always mean a broken wire; a failed actuator motor winding or a corroded connector pin can present the same open reading to the module.
- Many vehicles set this code simply because the transfer case shift motor is seized from lack of use, so exercising the system regularly prevents repeat failures.
- A weak or failing battery can cause the module to drop the actuator command and log an open circuit, so check charging system health before replacing parts.
- The code can be stored by a module that lost communication during a low-voltage event, and it may not return after clearing if the battery was the root cause.
- Aftermarket wiring repairs that use crimp connectors instead of soldered and sealed joints often reintroduce this code months later due to corrosion.

Can I keep driving with C05F5?

You can usually drive the vehicle in its current range, but do not rely on four-wheel-drive engagement and avoid situations where you need low range until the fault is repaired. If the vehicle is stuck in low range, keep speeds low and have it serviced promptly.



Tools that help

- OBD-II scan tool with four-wheel-drive module capability
- Digital multimeter
- Wiring diagram for the actuator circuit
- Test light or power probe
- Basic hand tools and terminal pick set

Reading C05F5

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.
F5	The exact fault within that area.

Often seen with

C05F4 Rear Drive Shaft Speed Sensor Circuit Range/Performance · **C05F6** 4WD/AWD Range Actuator Control Circuit Performance · **C05F7** 4WD/AWD Range Actuator Control Circuit Low · **P0562** System Voltage Low · **U0102** Lost Communication with Transfer Case Control Module

See it working

Watch the animated explainer [How a Turbocharger Works, Step by Step](#) on Auto Veteran to see the parts involved moving.

Full guide, related articles and animations: <https://www.autoveteran.tech/dtc-codes/c05f5/>

