

GENERIC · CHASSIS

C05FE

OBD-II DIAGNOSTIC TROUBLE CODE (DTC)

C05FE

4WD/AWD Range Actuator Position Sensor Circuit High

The C05FE code indicates that the four-wheel-drive or all-wheel-drive range actuator position sensor circuit is reporting a voltage higher than the manufacturer's expected range for the current conditions. The control module that monitors the actuator position has detected an abnormally high signal on the sensor's circuit, which can prevent the system from correctly engaging or disengaging the selected drive range.

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

Symptoms you may notice

- The 4WD or AWD warning light illuminates steadily on the dashboard.
- The vehicle may remain stuck in two-wheel drive and refuse to engage four-wheel drive.
- The drive mode selector may flash or fail to respond when you turn the knob or press the button.
- A message such as '4WD system fault' or 'Service 4WD' appears in the driver information center.
- The transfer case may make unusual noises or hesitate when you attempt to shift ranges.
- Often no symptoms besides the warning light, especially if the fault is intermittent.

Common causes, most likely first

- A damaged or corroded range actuator position sensor connector or wiring harness, causing an open or high-resistance circuit.
- A faulty range actuator position sensor that internally shorts to voltage or has a worn resistive track.
- A binding or mechanically stuck range actuator motor that prevents the sensor from reaching its expected position.
- A poor ground connection for the actuator or sensor circuit, which can skew the signal voltage high.
- A transfer case control module (TCCM) with water intrusion or internal circuit faults that misread the sensor signal.
- A low or unstable battery voltage that causes the actuator to stall and the sensor to report an out-of-range high signal.



How to diagnose and fix it

- 1 Scan all modules for stored and pending codes, then record freeze-frame data for C05FE to see the sensor voltage at the time of failure.
- 2 Visually inspect the range actuator position sensor connector and wiring for corrosion, chafing, or loose pins, and repair as needed.
- 3 Measure the sensor reference voltage and ground at the connector with a digital multimeter; compare to the manufacturer's specification.
- 4 Back-probe the sensor signal wire and monitor voltage while a helper operates the drive mode selector to see if the signal changes smoothly.
- 5 Check the range actuator motor for binding or debris, and verify that the actuator moves freely through its full range when commanded.
- 6 If the sensor signal is stuck high with good wiring and grounds, replace the range actuator position sensor or the actuator assembly as required.
- 7 Clear the codes and perform a relearn or calibration procedure for the transfer case control module, then test-drive the vehicle in all drive modes.

What the high signal really tells you

- A high signal code often results from a simple open circuit or unplugged connector rather than a failed sensor, so always check continuity before condemning parts.
- The range actuator position sensor shares its reference voltage with other sensors on some vehicles, so a short in a neighbouring circuit can pull the signal high and set this code.
- Intermittent C05FE codes that appear only in cold or wet weather frequently trace to water intrusion in the transfer case control module connector.
- A binding actuator motor can mimic a sensor fault because the sensor never reaches the expected position, causing the control module to see a high signal at the end of travel.
- After replacing the sensor or actuator, many vehicles require a calibration or relearn procedure; skipping it will set the code again immediately.

Can I keep driving with C05FE?

You can usually continue driving in two-wheel drive, but avoid relying on four-wheel drive or all-wheel drive until the fault is repaired. Do not attempt heavy towing or off-road driving, as the system may not engage when needed.



Tools that help

- OBD-II scan tool with manufacturer-specific software for transfer case module access
- Digital multimeter with back-probe pins
- Wire terminal pick and connector release tools
- Service information for wiring diagrams and voltage specifications
- Basic hand tools for removing actuator fasteners

Reading C05FE

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.

FE The exact fault within that area.

Often seen with

P1870 Transmission Component Slipping · **C05FD** 4WD/AWD Range Actuator Position Sensor Circuit Low · **C05FF** 4WD/AWD Range Actuator Position Not Learned · **C0600** Active Yaw Control System Failure · **U0102** Lost Communication with Transfer Case Control Module

See it working

Watch the animated explainer [How a Car Thermostat Works: Wax Pellet and Cooling Fan](#) on Auto Veteran to see the parts involved moving.

Full guide, related articles and animations: <https://www.autoveteran.tech/dtc-codes/c05fe/>

