

FORD · POWERTRAIN

P1820

OBD-II DIAGNOSTIC TROUBLE CODE (DTC)

P1820 · Ford

Transmission Transfer Case Clockwise Shift Relay Coil Circuit Failure

P1820 on Ford vehicles means the transmission control module has detected a failure in the electrical circuit for the transfer case clockwise shift relay coil. This relay is what allows the control module to command the shift motor to move the transfer case into the clockwise position, typically engaging four-wheel drive or low range, so the code sets when the circuit shows an open, short, or unexpected voltage.

SYSTEM

Powertrain

CODE TYPE

Ford specific

SEVERITY

Medium

FIX DIFFICULTY

Intermediate

AREA

Transmission

Symptoms you may notice

- The four-wheel-drive or low-range indicator may flash or fail to illuminate when selected
- The transfer case may not engage or may stay stuck in its current mode
- A noticeable clunk or no response when turning the dash switch
- The warning light is often the only symptom, with no drivability change
- In some cases the vehicle may default to two-wheel drive and disable four-wheel-drive modes

Common causes, most likely first

- 1 Failed clockwise shift relay coil inside the transfer case shift relay assembly
- 2 Corroded, loose, or damaged wiring or connector pins at the relay or transfer case
- 3 Blown fuse or poor ground connection serving the relay coil circuit
- 4 Faulty transfer case shift motor or encoder preventing relay feedback
- 5 Water intrusion or road salt damage in the relay connector
- 6 Transmission control module software or internal driver fault (less common)

How to diagnose and fix it

- 1 Verify battery voltage and inspect the fuse and ground for the transfer case relay circuit
- 2 Disconnect the relay connector and check for corrosion, pushed pins, or chafed wires
- 3 Measure resistance across the clockwise relay coil and compare to specification
- 4 Command the relay on with a scan tool and listen for an audible click while checking voltage at the coil
- 5 Check the shift motor and encoder operation with a bidirectional scan tool
- 6 Repair or replace the faulty relay, wiring pigtail, or shift motor as indicated
- 7 Clear the code and perform a transfer case shift relearn or road test to confirm the repair



What the relay circuit test really shows

- A relay coil that tests good on a bench can still fail intermittently when hot, so a resistance check alone may miss the fault.
- Corrosion inside the relay connector often mimics a failed relay, and replacing the relay without cleaning the pins leads to a repeat code.
- The transfer case shift motor encoder can set this code indirectly if the control module never sees the expected clockwise position feedback.
- A weak battery or charging system fault can cause the control module to log this code without any actual relay problem.
- Some Ford models require a scan-tool relearn after relay replacement, and skipping it leaves the code stored even after a correct repair.

Can I keep driving with P1820?

You can usually drive the vehicle in its current mode, but avoid relying on four-wheel drive or low range until the circuit is repaired. If the transfer case is stuck in low range or the vehicle behaves unpredictably, stop driving and have it diagnosed.

Tools that help

- OBD-II scan tool with bidirectional control
- Digital multimeter
- Test light
- Wire terminal pick and electrical contact cleaner
- Factory service information for relay location and pinout

Reading P1820

P	Powertrain: engine, transmission and emissions.
1	Manufacturer-specific code (Ford): its meaning depends on the make.
8	Transmission.
20	The exact fault within that area.

Often seen with

P1815 Pressure Control Solenoid 1 Short To B+ · **P1824** Pressure Control Solenoid 3 Open Short To Ground · **P1815** Transmission Range Switch Start In Wrong Range · **P1822** Internal Mode Switch Circuit B High · **P1870** Transmission Component Slipping · **P1815** Transmission 4-Wheel Drive Mode Select Short Circuit To Grou · **P1822** Transmission Transfer Case Clockwise Shift Relay Coil Short · **P1824** Transmission 4-Wheel Drive Clutch Relay Circuit Failure · **P1867** Transmission Transfer Case Contact Plate General Circuit Fai



See it working

Watch the animated explainer **Four-Stroke Engine Cutaway: Intake to Exhaust** on Auto Veteran to see the parts involved moving.

Full guide, related articles and animations: <https://www.autoveteran.tech/dtc-codes/ford-p1820/>

