

MAZDA · POWERTRAIN

P1729

OBD-II DIAGNOSTIC TROUBLE CODE (DTC)

P1729 · Mazda

Transmission 4x4 Low Switch Error

P1729 on a Mazda indicates that the transmission control module has detected an implausible signal from the 4x4 low range switch, which is the sensor that tells the computer whether the transfer case is engaged in low-range four-wheel drive. The computer expects a specific voltage state when low range is selected, and it flags this code when the switch circuit does not match the commanded or expected state.

SYSTEM	CODE TYPE	SEVERITY	FIX DIFFICULTY	AREA
Powertrain	Mazda specific	Medium	Intermediate	Transmission

Symptoms you may notice

- The four-wheel-drive low range indicator light may flash or fail to illuminate when you move the selector
- The vehicle may stay in two-wheel drive or default to a higher gear range, refusing to engage low range
- The transmission may shift harshly or hold gears longer than normal because the control module is confused about the drive range
- A four-wheel-drive system warning light or service message may appear on the dashboard
- Often no symptoms besides the warning light, especially if the switch fails intermittently

Common causes, most likely first

- Failed or contaminated 4x4 low range switch on the transfer case
- Damaged, corroded, or disconnected wiring or connector at the switch or transfer case
- Water intrusion into the switch connector causing intermittent shorts or high resistance
- Faulty transfer case control module or transmission control module software issue
- Mechanical binding or incorrect adjustment of the transfer case shift linkage preventing the switch from actuating
- Poor ground connection for the switch circuit or the control module



How to diagnose and fix it

- 1 Scan all modules for stored and pending codes, and record freeze-frame data to see when the fault occurred
- 2 Visually inspect the 4x4 low range switch, its connector, and the wiring harness for damage, corrosion, or water intrusion
- 3 Test the switch with a multimeter for continuity or voltage change when the transfer case is shifted between high and low range
- 4 Check the switch circuit for shorts to ground or power, and verify the ground circuit integrity
- 5 If the switch tests good, check the transfer case shift linkage for binding or misadjustment that prevents the switch from changing state
- 6 Verify power and ground at the transfer case control module, and check for any applicable technical service bulletins
- 7 Replace the faulty switch or repair the wiring as needed, then clear the code and perform a road test to confirm the repair

What the 4x4 low switch really does

- Many technicians replace the transfer case control module when the real problem is a simple chafed wire behind the transfer case, so always load-test the circuit before condemning a module.
- The 4x4 low range switch is a simple mechanical plunger switch that often gets coated in mud or road debris, causing it to stick and set a false code.
- On some Mazda models, the switch shares a ground with other sensors, so a bad ground can set P1729 along with other unrelated codes.
- A low battery or poor charging system can cause the control module to misread the switch signal, so check battery voltage and grounds before deep diagnosis.
- The code can be set by simply driving in low range for too long at high speed, which the computer interprets as an implausible switch state.

Can I keep driving with P1729?

You can usually continue driving in two-wheel drive, but avoid using four-wheel-drive low range until the fault is repaired because the system may not engage or may disengage unexpectedly. If the transmission shifts erratically or the vehicle enters limp mode, have it checked promptly.

Tools that help

- OBD-II scan tool with Mazda-specific software
- Digital multimeter
- Wire probe and jumper wires
- Service manual with wiring diagrams
- Basic hand tools for trim and connector access



Reading P1729

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

Often seen with

P1728 Different Wheel Speed Signals Range Performance · **P1875** 4WD Low Switch Circuit Malfunction · **P1730** Gear Control Malfunction 2 3 5 · **P1731** Inconsistent Gear Ratio · **P1875** 4WD Low Switch Circuit · **P1728** Transmission Slip Error · **P1731** 1-2 Shift Malfunction · **P0700** Transmission Control System 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/mazda-p1729/>

