

FORD · POWERTRAIN

P1713

OBD-II DIAGNOSTIC TROUBLE CODE (DTC)

P1713 · Ford

TFT Sensor In Range Failure Low Value

P1713 on Ford vehicles means the transmission control module has detected that the transmission fluid temperature sensor signal is stuck at an abnormally low value, below the expected range for current operating conditions. The computer compares the sensor voltage against a calibrated model and flags the circuit when the reading stays too low for too long, indicating a short to ground, a failed sensor, or a wiring fault.

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

Symptoms you may notice

- Often no symptoms besides the warning light, especially if the fault is intermittent
- Harsh or delayed shifts when the transmission is cold because the module substitutes a default fluid temperature
- Torque converter clutch may not engage or may engage abruptly until the fault clears
- Poor fuel economy from the transmission holding lower gears longer than normal
- In rare cases the transmission may enter limp mode with reduced power and limited gear selection
- A transmission fluid temperature gauge, if equipped, may read abnormally low or not move off the bottom

Common causes, most likely first

- Transmission fluid temperature sensor internally shorted, pulling the signal voltage low
- Chafed or pinched sensor signal wire shorted to ground along the transmission harness
- Corroded or fluid-contaminated connector pins at the sensor or the transmission case pass-through
- Failed transmission control module driver circuit holding the signal reference low
- Aftermarket or incorrect sensor installed during a previous repair with the wrong resistance curve
- Internal transmission damage or debris that has damaged the sensor or its wiring inside the pan



How to diagnose and fix it

- 1 Connect a scan tool and read the transmission fluid temperature PID in live data to confirm the signal is stuck low and compare it to actual fluid temperature after a road test
- 2 Inspect the sensor connector and the transmission harness for corrosion, fluid intrusion, chafing, and pin tension, repairing any damaged terminals or wire
- 3 Disconnect the sensor and measure its resistance at room temperature, then warm the fluid and recheck to see whether the sensor responds or stays at a fixed low value
- 4 Check the sensor signal circuit for a short to ground with a multimeter with the sensor and module disconnected, repairing any shorted wire
- 5 If the circuit and sensor test good, verify the reference voltage and ground at the module connector before condemning the transmission control module
- 6 Replace the transmission fluid temperature sensor, clear the code, and perform a road test with live data monitoring to confirm the temperature reading tracks correctly
- 7 If the code returns with a verified good sensor and harness, diagnose the transmission control module and its internal driver circuit

Why a low TFT code often is not the sensor

- A shorted signal wire inside the transmission pan is more common than a failed sensor on high-mileage Ford units, so inspect the harness before replacing parts
- The code can set from a connector that has been contaminated by transmission fluid weeping through the case pass-through, which a visual inspection of the pins will reveal
- A sensor that reads low only when cold but correct when hot will not always set the code during a short test drive, so monitor live data through a full warm-up cycle
- Replacing the sensor without clearing adaptive shift learning can leave the transmission shifting poorly and lead a technician to chase a second fault that is not there
- The transmission control module uses the fluid temperature signal for line pressure and shift scheduling, so a low reading can cause drivability complaints that mimic a mechanical transmission failure

Can I keep driving with P1713?

You can usually drive the vehicle to a repair shop, but avoid heavy towing or aggressive driving because the transmission may shift harshly and hold gears longer with the default temperature value. If the transmission enters limp mode or the warning light flashes, stop driving and have it diagnosed promptly.



Tools that help

- OBD-II scan tool with live data and transmission PID capability
- Digital multimeter with resistance and voltage measurement
- Ford-specific wiring diagram for the transmission harness
- Basic hand tools for connector and pan access
- Transmission fluid drain pan and fluid for top-off after sensor replacement

Reading P1713

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

Often seen with

P1744 Tiptronic Switch Recognition Circuit Short To Ground · **P1712** Engine Torque Control Signal 2 Circuit Malfunction · **P1744** Torque Converter Clutch Solenoid Mechanical Fault · **P1712** Trans Torque Reduction Request Signal Malfunction · **P1744** Torque Converter Clutch System Stuck in Off Position · **P1744** Pressure Control Solenoid A Electrical · **P0711** Transmission Fluid Temperature Sensor 'A' Circuit Range/Perf · **P0712** Transmission Fluid Temperature Sensor 'A' Circuit Low · **P0713** Transmission Fluid Temperature Sensor 'A' Circuit High

See it working

Watch the animated explainer [How Hydraulic Brakes Work: Pedal to Caliper](#) on Auto Veteran to see the parts involved moving.

Full guide, related articles and animations: <https://www.autoveteran.tech/dtc-codes/ford-p1713/>

