

GENERIC · POWERTRAIN

P0713

OBD-II DIAGNOSTIC TROUBLE CODE (DTC)

P0713

Transmission Fluid Temperature Sensor 'A' Circuit High

P0713 means the transmission control module (TCM) sees an abnormally high voltage on the signal circuit from transmission fluid temperature sensor 'A', which usually indicates an open circuit or a sensor that has failed high. The TCM uses this sensor to protect the transmission during cold starts and extreme heat, so a high reading can alter shift scheduling and torque converter lockup.

SYSTEM

Powertrain

CODE TYPE

Generic (all makes)

SEVERITY

Medium

FIX DIFFICULTY

Intermediate

AREA

Transmission

Symptoms you may notice

- Illuminated check engine light or transmission warning light, often with no other symptoms
- Harsh or delayed shifting when the transmission is cold, because the TCM substitutes a default fluid temperature
- Torque converter clutch may fail to lock up or may lock up abruptly
- In some vehicles, the transmission may enter limp mode or default to a fixed shift schedule
- A transmission fluid temperature gauge, if equipped, may read abnormally high or not move at all
- Poor fuel economy on vehicles that use fluid temperature to schedule shifts

Common causes, most likely first

- 1 Open or damaged signal wire between the transmission fluid temperature sensor and the TCM
- 2 Failed transmission fluid temperature sensor reading high resistance or open internally
- 3 Corroded, loose, or pushed-back terminal at the sensor connector or TCM connector
- 4 Chafed or broken wire in the harness near the transmission, especially at flex points
- 5 Failed TCM or a poor ground to the TCM causing a reference voltage offset
- 6 Sensor signal circuit shorted to voltage, though this is less common than an open circuit



How to diagnose and fix it

- 1 Scan all modules and record freeze-frame data for P0713, then clear the code and verify whether it returns immediately or only after a cold start
- 2 Inspect the transmission fluid temperature sensor connector and the TCM connector for corrosion, loose pins, or pushed-back terminals
- 3 Measure the sensor resistance with a multimeter at the sensor connector and compare it to the manufacturer's temperature-resistance chart
- 4 Check continuity and resistance of the signal and ground wires from the sensor to the TCM while wiggling the harness to reveal intermittent opens
- 5 If the wiring checks good, replace the transmission fluid temperature sensor, which on many vehicles is part of the internal wiring harness or valve body assembly
- 6 After repair, clear codes and perform a road test that includes a cold start and full warm-up to confirm the temperature reading rises smoothly and the code does not reset
- 7 If the code persists with good wiring and a known-good sensor, diagnose the TCM power, ground, and internal fault before replacing it

What a high reading really tells you

- A high voltage on the signal circuit almost always means an open circuit, not a genuinely hot transmission, so chasing an overheating condition first wastes time and money.
- Many vehicles share the transmission fluid temperature sensor signal with the internal wiring harness, so a failed sensor often requires replacing the entire harness inside the pan rather than a standalone sensor.
- The TCM often substitutes a default fluid temperature when the sensor signal is lost, which can mask the fault and make the vehicle drive almost normally until the next cold start.
- Intermittent P0713 codes that set only on cold mornings frequently trace to a hairline crack in the sensor or a terminal that loses contact as the transmission case expands with heat.
- A poor ground at the TCM or engine block can offset the sensor reference voltage and set P0713 even when the sensor and signal wire test good.

Can I keep driving with P0713?

You can usually drive the vehicle with P0713 because the TCM defaults to a safe fluid temperature, but avoid heavy towing or aggressive driving until it is repaired. If the transmission enters limp mode or shifts harshly, have it diagnosed promptly to prevent clutch wear.



Tools that help

- OBD-II scan tool with live data and freeze-frame capability
- Digital multimeter with resistance and continuity functions
- Manufacturer or equivalent temperature-resistance chart for the sensor
- Wire terminal pick and connector cleaning tools
- Vehicle service information for wiring diagrams and TCM pinouts

Reading P0713

- P** Powertrain: engine, transmission and emissions.
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- 0** Generic (SAE) code: it means the same thing on every OBD-II vehicle.
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- 7** Transmission.
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- 13** The exact fault within that area.

Often seen with

P0710 Transmission Fluid Temperature Sensor Circuit Malfunction · **P0711** Transmission Fluid Temperature Sensor 'A' Circuit Range/Perf · **P0712** Transmission Fluid Temperature Sensor 'A' Circuit Low · **P0714** Transmission Fluid Temperature Sensor 'A' Circuit Intermittent · **P0715** Input/Turbine Speed Sensor Circuit 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/p0713/>

