

NISSAN · POWERTRAIN

P1681

OBD-II DIAGNOSTIC TROUBLE CODE (DTC)

P1681 · Nissan

A/T FI Signal A Low Input

P1681 on Nissan vehicles means the Transmission Control Module (TCM) has detected a low input voltage on the Automatic Transmission (A/T) Fuel Injection (FI) signal circuit, which is the communication line carrying fuel injection data between the engine control module and the transmission control module. The computer sets this code when the signal voltage falls below the expected threshold for a calibrated amount of time, indicating a possible open circuit, short to ground, or faulty module.

SYSTEM

Powertrain

CODE TYPE

Nissan specific

SEVERITY

Medium

FIX DIFFICULTY

Professional

AREA

Computer and output circuits

Symptoms you may notice

- The Service Engine Soon or Check Engine light is illuminated on the dashboard.
- Often no symptoms besides the warning light, especially if the signal is intermittent.
- Harsh or delayed transmission shifts as the TCM loses fuel injection data used for shift scheduling.
- Reduced engine performance or poor fuel economy due to incorrect load signal interpretation.
- In some cases, the transmission may enter limp mode or fail to shift out of a single gear.
- A stored code may be accompanied by other communication or transmission-related codes.

Common causes, most likely first

- 1 Damaged, corroded, or loose wiring in the A/T FI signal circuit between the ECM and TCM.
- 2 Poor electrical connection at the TCM or ECM harness connectors, often due to water intrusion or pin tension loss.
- 3 Failed TCM internal circuitry causing it to misread the signal voltage.
- 4 Failed ECM not outputting the correct fuel injection signal to the TCM.
- 5 Short to ground in the signal wire, often from chafed insulation against the chassis or engine components.
- 6 Aftermarket electrical accessories improperly tapped into the signal circuit, causing voltage drop.



How to diagnose and fix it

- 1 Connect a scan tool and verify P1681 is current, then check for any related communication codes in the TCM and ECM.
- 2 Inspect the TCM and ECM harness connectors for corrosion, loose pins, or water intrusion, and clean or repair as needed.
- 3 Perform a voltage drop test on the A/T FI signal wire from the ECM to the TCM to check for excessive resistance or an open circuit.
- 4 Check the signal wire for a short to ground by disconnecting both modules and measuring resistance to chassis ground.
- 5 If wiring and connectors are good, substitute a known-good TCM and retest to see if the code returns.
- 6 If the TCM substitution does not resolve the code, test or substitute the ECM as the signal source.
- 7 After repairs, clear the code and perform a road test with the scan tool monitoring the A/T FI signal to confirm the fix.

Why this code often misleads Nissan owners

- A loose or corroded ground connection at the transmission bellhousing can cause a low signal voltage that mimics a failed TCM, so always check grounds before replacing modules.
- The A/T FI signal is a shared data line on many Nissan models, so a fault in the engine harness near the battery or fuse box can set P1681 even when the transmission itself is fine.
- Some aftermarket remote starters or alarm systems tap into the fuel injection signal wire, introducing resistance that triggers P1681 only when the accessory is active.
- P1681 can be stored intermittently by a momentary voltage dip during engine cranking, so a battery that is weak or has a bad cell may be the root cause rather than a hard wiring fault.
- Do not replace the TCM based solely on this code; a simple pin drag test on the TCM connector often reveals a loose terminal that costs far less to fix.

Can I keep driving with P1681?

You can usually drive the vehicle short distances to a repair shop, but avoid sustained highway speeds or heavy towing because the transmission may shift harshly or enter limp mode without warning. If the transmission is already stuck in one gear or the engine runs poorly, stop driving and have the vehicle towed to prevent further damage.

Tools that help

- OBD-II scan tool with Nissan-specific software
- Digital multimeter with back-probing pins
- Wiring diagram for the specific Nissan model and year
- Terminal pick and electrical contact cleaner
- Breakout box or test harness for TCM/ECM connectors



Reading P1681

- P** Powertrain: engine, transmission and emissions.
- 1** Manufacturer-specific code (Nissan): its meaning depends on the make.
- 6** Computer and output circuits.
- 81** The exact fault within that area.

Often seen with

P1682 A/T FI Signal A High Input · **P1682** Metering Oil Pump Failure · **P1683** Metering Oil Pump Temperature Sensor Circuit · **P1682** A/T FI Signal A High Input · **P1682** Ignition 1 Switch Circuit 2 · **P1683** Driver 5 Line 3 · **P1682** Charging System Voltage Too Low · **P1683** Speed Control Power Relay Or Speed Control 12 Volt Driver Ci · **P0600** Serial Communication Link Malfunction · **P0700** Transmission Control System Malfunction · **U0100** Lost Communication With ECM/PCM A

See it working

Watch the animated explainer [Car Won't Start? Step-by-Step No-Start Diagnosis](#) on Auto Veteran to see the parts involved moving.

Full guide, related articles and animations: <https://www.autoveteran.tech/dtc-codes/nissan-p1681/>

