

NISSAN · POWERTRAIN

P1690

OBD-II DIAGNOSTIC TROUBLE CODE (DTC)

P1690 · Nissan

Traction Control System STB Line Failure

P1690 on Nissan vehicles means the traction control system (TCS) has detected a failure on the STB signal line, which is a dedicated communication circuit between the ABS actuator and the engine control module (ECM). The ECM monitors this line for expected voltage or pulse activity and sets the code when the signal is missing, out of range, or implausible, which disables traction control and often illuminates the TCS and ABS warning lights.

SYSTEM

Powertrain

CODE TYPE

Nissan specific

SEVERITY

Medium

FIX DIFFICULTY

Professional

AREA

Computer and output circuits

Symptoms you may notice

- Traction control system (TCS) warning light illuminated steadily on the dashboard
- ABS warning light often on at the same time because the two systems share the same actuator and wheel speed sensors
- Traction control and stability control functions disabled, so the vehicle may spin or lose grip more easily on slippery surfaces
- Often no symptoms besides the warning light, with normal braking and engine performance otherwise unaffected
- In some cases a slight hesitation or reduced engine power if the ECM limits torque as part of its fail-safe strategy
- Intermittent warning light that comes and goes over bumps or in wet weather, pointing to a wiring or connector issue

Common causes, most likely first

- 1 Damaged, chafed, or corroded wiring in the STB signal circuit between the ABS actuator and the ECM
- 2 Loose, water-intruded, or terminal-fretted connector at the ABS actuator or ECM harness
- 3 Failed ABS actuator assembly, where the internal STB output driver or sensor circuit has failed
- 4 Faulty ECM not correctly reading or processing the STB signal, though this is less common than wiring faults
- 5 Poor ground connection at the ABS actuator or chassis ground point causing a reference voltage shift on the STB line
- 6 Aftermarket electrical accessories or alarm wiring tapped into the harness and disturbing the STB circuit
- 7 Battery or charging system weakness causing low voltage that the ABS module interprets as an STB line fault



How to diagnose and fix it

- 1 Verify battery voltage and charging system output, then clear the code and test-drive to see if P1690 returns before touching any wiring
- 2 Inspect the STB signal wire and its connector at both the ABS actuator and the ECM for corrosion, pushed-back pins, or chafing, and repair as needed
- 3 Check the ABS actuator ground strap and chassis ground points for tightness and resistance, cleaning and tightening as required
- 4 Back-probe the STB circuit with a multimeter or oscilloscope to confirm the expected signal is present at the ECM while the ABS actuator is powered
- 5 Perform a wiggle test on the harness while watching live data or the scope to catch intermittent STB line faults that only appear over bumps
- 6 If the STB signal is absent at the ECM but present at the actuator, repair the open or short in the harness between the two modules
- 7 If the STB signal is missing at the actuator output with good power and ground, replace the ABS actuator assembly and reinitialize the system

What the STB line actually does

- The STB line is not a generic communication bus; it is a dedicated signal the ABS actuator uses to tell the ECM how much torque reduction the traction control system is requesting, so a fault here can limit engine power even when the car feels normal.
- Many P1690 codes are caused by a corroded connector or chafed wire that a visual inspection misses, so a wiggle test and a scope on the STB circuit are far more reliable than simply replacing the ABS actuator.
- A weak battery or failing alternator can set P1690 because the ABS module misreads a low-voltage STB signal as a line failure, so always rule out charging system problems before condemning a module.
- Aftermarket alarms, remote starters, or stereo wiring tapped into the ABS or ECM harness are a common missed cause, especially on older Nissans where the harness runs near the kick panel.
- P1690 does not always mean the ABS actuator is bad; the same code can be stored by a poor ground at the actuator or by an ECM that is not processing the signal correctly, so test the circuit end to end before replacing parts.

Can I keep driving with P1690?

You can usually drive the vehicle with P1690 because normal braking and engine operation are unaffected, but traction control and stability control are disabled, so avoid slippery roads, hard acceleration, and towing until the fault is repaired. If the ABS light is also on, treat the car as having no anti-lock braking and leave extra stopping distance.



Tools that help

- OBD-II scan tool with Nissan-specific live data and ABS/TCS module access
- Digital multimeter with back-probe pins
- Oscilloscope for capturing the STB signal waveform
- Wiring diagram for the specific Nissan model and year
- Terminal pick and contact cleaner for connector repair
- Battery load tester and charging system tester

Reading P1690

P Powertrain: engine, transmission and emissions.

1 Manufacturer-specific code (Nissan): its meaning depends on the make.

6 Computer and output circuits.

90 The exact fault within that area.

Often seen with

P1691 MIL Open Circuit · **P1691** Turbo Pressure Control Solenoid Circuit · **P1691** Coolant Gauge Circuit Voltage Low · **P1691** Fuel Injection Pump Controller Calibration Failure · **P0500** Vehicle Speed Sensor 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/nissan-p1690/>

