

FORD · POWERTRAIN

P1657

OBD-II DIAGNOSTIC TROUBLE CODE (DTC)

P1657 · Ford

CAN Link Chip Malfunction

P1657 on Ford vehicles means the Controller Area Network (CAN) link chip inside a control module has reported an internal malfunction, so that module can no longer reliably communicate on the vehicle's high-speed data bus. The computer detected a fault in the CAN transceiver chip itself, not in the wiring or another module, which typically isolates the problem to the module that sets the code.

SYSTEM	CODE TYPE	SEVERITY	FIX DIFFICULTY	AREA
Powertrain	Ford specific	Medium	Professional	Computer and output circuits

Symptoms you may notice

- Often no symptoms besides the warning light, especially if the affected module is not critical to engine operation
 - Multiple warning lights on the dashboard, such as ABS, traction control, and airbag, because other modules lose communication
- Intermittent or complete failure of systems controlled by the affected module, such as power windows, climate control, or instrument cluster
- The engine may start and run normally, but the scan tool cannot communicate with one or more modules
- Random electrical gremlins, including flickering lights or false warnings, as the CAN bus becomes unstable
- A no-start condition if the affected module is the powertrain control module (PCM) or body control module (BCM)

Common causes, most likely first

- Internal failure of the CAN transceiver chip inside the module that sets the code, often due to heat, age, or voltage spikes
- Water intrusion or corrosion at the module connector, damaging the CAN pins or the chip itself
- A shorted or damaged CAN bus wire that stresses the transceiver chip over time
- Low battery voltage or a failing alternator causing voltage spikes that damage the CAN chip
- A faulty ground connection at the affected module, leading to internal communication errors
- Aftermarket electronic devices improperly tapped into the CAN bus, causing electrical noise that damages the chip
- A manufacturing defect or solder joint failure on the module circuit board, common on older Ford modules



How to diagnose and fix it

- 1 Use a scan tool to confirm which module sets P1657 and check for communication with all modules on the CAN bus
- 2 Inspect the affected module's connectors and wiring for corrosion, water damage, or loose pins, and clean or repair as needed
- 3 Perform a voltage drop test on the module's power and ground circuits to rule out supply issues before condemning the module
- 4 Check the CAN bus resistance (should be about 60 ohms across the two data lines) to identify bus wiring faults or missing termination
- 5 If wiring and power are good, replace or reflash the affected module, as the internal CAN chip is not serviceable separately
- 6 After replacement, perform module programming and configuration as required for the specific Ford vehicle
- 7 Clear codes and road test to verify the repair and ensure no other modules set communication codes

Why the CAN chip fails and what to check first

- A bad battery or alternator is a common root cause that gets overlooked; voltage spikes can damage the CAN transceiver chip, so always test the charging system before replacing an expensive module.
- P1657 does not always mean the module is dead; a corroded connector or chafed CAN wire can cause the same internal chip fault code, so inspect wiring before condemning the module.
- On many Ford vehicles, the CAN chip is inside the instrument cluster or body control module, and a failure there can cause a no-start or security light issue that mimics a PATS (Passive Anti-Theft System) fault.
- Aftermarket alarms, remote starters, or phone chargers plugged into the data link connector can introduce electrical noise that damages the CAN chip, so check for non-factory electronics.
- A module that sets P1657 may still communicate intermittently; do not assume the code is stored only when the module is completely dead, as the chip can fail only at certain temperatures.

Can I keep driving with P1657?

If the vehicle runs and drives normally, you can drive it to a repair shop, but avoid long trips and be prepared for the affected module to fail completely. If the engine stalls, will not start, or multiple safety systems are disabled, stop driving and have the vehicle towed.

Tools that help

- Ford-compatible scan tool with CAN bus diagnostics
- Digital multimeter with resistance and voltage drop capability
- Wiring diagram for the specific Ford model and year
- CAN bus breakout box or test leads
- Module programming device (if replacement is needed)



Reading P1657

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

Often seen with

P0562 System Voltage Low · **U0001** Loss of Bus Communication · **U0100** Lost Communication With ECM/PCM A · **U0140** Lost Communication With Instrument Panel Cluster · **U0155** Lost Communication With Body Control Module

See it working

Watch the animated explainer [How Variable Valve Timing Works: Cam Phaser and VVT Solenoid](#) on Auto Veteran to see the parts involved moving.

Full guide, related articles and animations: <https://www.autoveteran.tech/dtc-codes/ford-p1657/>

