

FORD · POWERTRAIN

P1660

OBD-II DIAGNOSTIC TROUBLE CODE (DTC)

P1660 · Ford

Output Circuit Check Signal High

P1660 on Ford vehicles means the powertrain control module (PCM) has detected an abnormally high voltage on the output circuit that controls a specific solenoid or actuator, indicating a short to power or an open circuit. The PCM monitors the command side of the circuit and sets this code when the feedback signal stays above the expected threshold for the commanded state.

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

Symptoms you may notice

- Illumination of the check engine light (malfunction indicator lamp) with no other obvious drivability complaint
- Harsh or delayed transmission shifts if the affected solenoid controls shift feel
- The engine may enter limp mode or exhibit reduced power if the circuit controls a critical actuator
- Intermittent operation of the affected system, such as a torque converter clutch that fails to engage
- Often no symptoms besides the warning light, especially when the fault is an open circuit on a non-critical output
- Possible electrical burning smell or blown fuse if the short to power is severe

Common causes, most likely first

- 1 Chafed or shorted wire in the output circuit harness, often against a metal bracket or heat source
- 2 Failed solenoid or actuator with an internal short to power
- 3 Corroded or loose connector pins at the solenoid or PCM, creating high resistance or intermittent contact
- 4 Open circuit in the ground side of the solenoid, causing the PCM to see high voltage on the control wire
- 5 Faulty PCM driver for that specific output, though this is less common than wiring issues
- 6 Aftermarket accessories or poor previous repairs tapping into the circuit and introducing a short



How to diagnose and fix it

- 1 Retrieve all stored codes and freeze-frame data with a scan tool to confirm P1660 is the primary fault and identify the affected circuit.
- 2 Inspect the wiring harness and connectors for the suspected solenoid or actuator, looking for chafing, corrosion, or loose pins.
- 3 Disconnect the solenoid and measure resistance across its terminals to check for an internal short or open winding.
- 4 With the solenoid disconnected and the PCM connector removed, measure resistance from the control wire to ground and to battery positive to detect a short.
- 5 Check for battery voltage on the control wire with the key on and the PCM disconnected; any voltage indicates a short to power in the harness.
- 6 If the harness and solenoid test good, substitute a known-good PCM or use a breakout box to verify the driver output.
- 7 Repair or replace the faulty wiring, connector, solenoid, or PCM as needed, then clear codes and verify the circuit operates correctly under load.

What P1660 really tells you about the circuit

- A high signal on an output circuit often means the PCM is not seeing the expected voltage drop across the load, which can be caused by an open ground rather than a short to power.
- Many technicians replace the solenoid first, but a corroded ground connection at the transmission case or chassis is a frequent hidden cause of this code.
- The code can be set by a momentary glitch during cranking if the battery is weak, so always check battery voltage and connections before condemning parts.
- Ford's output circuit monitoring is sensitive to aftermarket LED bulbs or accessories tapped into the same power feed, which can raise the reference voltage and trigger P1660.
- On some Ford models, this code is stored in the transmission control module (TCM) rather than the PCM, so verify which module reports it before diagnosing.

Can I keep driving with P1660?

You can usually drive the vehicle short distances to a repair shop, but avoid heavy acceleration or towing if the transmission is shifting harshly. If the engine enters limp mode or the check engine light flashes, stop driving and have the vehicle towed to prevent further damage.



Tools that help

- OBD-II scan tool with manufacturer-specific code reading capability
- Digital multimeter with back-probing pins
- Wiring diagram for the specific Ford model and circuit
- Breakout box or PCM pinout kit
- Hand tools for connector and harness access

Reading P1660

P Powertrain: engine, transmission and emissions.

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

6 Computer and output circuits.

60 The exact fault within that area.

Often seen with

P1740 Torque Converter Clutch Solenoid Mechanical Fault · **P1740** Torque Control/Management Request Circuit · **P1740** Transmission system problems · **P1740** TCC Or OD Solenoid Performance · **P0700** Transmission Control System Malfunction · **P0740** Torque Converter Clutch Circuit Malfunction · **P0750** Shift Solenoid 'A' · **P0755** Shift Solenoid 'B'

See it working

Watch the animated explainer [How an Oxygen Sensor Works: Live 3D Cutaway](#) on Auto Veteran to see the parts involved moving.

Full guide, related articles and animations: <https://www.autoveteran.tech/dtc-codes/ford-p1660/>

