

FORD · POWERTRAIN

P1904

OBD-II DIAGNOSTIC TROUBLE CODE (DTC)

P1904 · Ford

Kickdown Solenoid Circuit High Voltage

P1904 on a Ford vehicle means the powertrain control module (PCM) has detected an abnormally high voltage on the kickdown solenoid control circuit, which is the wire that commands a forced downshift when the accelerator is pressed past its normal travel. The PCM expects the circuit to pull to a specific voltage when the solenoid is energized, and a reading above the calibrated threshold for the current conditions sets this code.

SYSTEM	CODE TYPE	SEVERITY	FIX DIFFICULTY	AREA
Powertrain	Ford specific	Medium	Intermediate	Transmission

Symptoms you may notice

- The malfunction indicator lamp (MIL) illuminates on the instrument cluster, often with no other noticeable symptoms.
- The transmission may refuse to kick down when the accelerator is pressed firmly, leaving the vehicle in a higher gear than expected.
- Downshifts may feel harsh or delayed when climbing a grade or attempting a pass.
- The transmission may hold a gear too long or shift erratically during aggressive acceleration.
- In some cases the PCM enters a fail-safe mode that limits shift scheduling and reduces performance.
- No drivability complaint at all is common, especially if the fault is intermittent and the solenoid still functions.

Common causes, most likely first

- A chafed, pinched, or open kickdown solenoid feed wire shorted to voltage or disconnected at the transmission connector.
- Corrosion or water intrusion in the transmission range sensor or solenoid body connector causing high resistance or an intermittent open.
- A failed kickdown solenoid with an open internal coil or a shorted winding that reads high voltage at the PCM sense pin.
- A faulty transmission control module (TCM) or PCM driver circuit on the solenoid control side.
- A poor ground at the transmission case or engine block that raises the reference voltage seen by the PCM.
- Aftermarket wiring repairs or a remote starter installation that tapped into the kickdown circuit and introduced a high-voltage fault.



How to diagnose and fix it

- 1 Connect a scan tool and record the freeze-frame data and any stored pending codes to confirm P1904 is active and not a history code.
- 2 Visually inspect the kickdown solenoid connector and the transmission harness for chafing, corrosion, or pushed-back pins, then clean and reseal the connector.
- 3 Measure resistance across the kickdown solenoid at the transmission connector and compare it to the Ford service specification for the installed transmission.
- 4 Backprobe the solenoid control circuit at the PCM and check for voltage with the key on and the solenoid commanded off; a reading near battery voltage indicates a short to power.
- 5 Check the transmission case and engine block grounds with a voltage drop test while cranking and while the solenoid is commanded on.
- 6 If the harness and grounds test good, command the solenoid with a bidirectional scan tool and watch for a voltage change; no change points to a failed solenoid or PCM driver.
- 7 Replace the kickdown solenoid or the affected harness section only after the circuit tests confirm the fault, then clear the code and verify the repair with a road test that includes a forced downshift.

Kickdown solenoid high voltage traps

- A high-voltage code on a solenoid circuit is often caused by an open circuit rather than a short, because the PCM pull-up resistor drives the sense line high when the solenoid coil cannot complete the circuit.
- Technicians frequently replace the kickdown solenoid when the real fault is a corroded connector pin at the transmission case, so always load-test the circuit before condemning the solenoid.
- An aftermarket remote starter or alarm that tapped the kickdown wire can backfeed voltage onto the circuit and set P1904 even though the transmission itself is healthy.
- On some Ford transmissions the kickdown function is shared with the shift solenoid body, so a single failed solenoid can set P1904 alongside other shift solenoid codes that point to the same connector.
- A weak battery or charging system that drops voltage during cranking can cause the PCM to misread the solenoid sense line and store P1904 intermittently, so check system voltage before chasing the circuit.

Can I keep driving with P1904?

You can usually drive the vehicle with P1904 because the transmission remains in a default shift schedule, but avoid aggressive acceleration and towing until the fault is repaired. If the transmission begins slipping, holding gears, or entering limp mode, stop driving and have it diagnosed to prevent internal damage.



Tools that help

- OBD-II scan tool with bidirectional control and freeze-frame capability
- Digital multimeter with backprobe pins and a voltage drop function
- Ford service information or wiring diagram for the specific transmission
- Transmission jack and basic hand tools for solenoid body access
- Contact cleaner and dielectric grease for connector service

Reading P1904

P	Powertrain: engine, transmission and emissions.
1	Manufacturer-specific code (Ford): its meaning depends on the make.
9	Transmission.
04	The exact fault within that area.

Often seen with

P0750 Shift Solenoid 'A' · **P0755** Shift Solenoid 'B' · **P0760** Shift Solenoid 'C'

See it working

Watch the animated explainer [How a Knock Sensor Works: Spark Timing and Octane](#) on Auto Veteran to see the parts involved moving.

Full guide, related articles and animations: <https://www.autoveteran.tech/dtc-codes/ford-p1904/>

