

FORD · POWERTRAIN

P1903

OBD-II DIAGNOSTIC TROUBLE CODE (DTC)

P1903 · Ford

Kickdown Solenoid Circuit Low Voltage

P1903 on a Ford vehicle means the powertrain control module (PCM) has detected a low-voltage condition on the kickdown solenoid circuit, which is the wire path that commands a forced downshift when you press the accelerator past its normal travel. The PCM monitors the circuit and sets this code when the voltage on the solenoid control wire falls below the expected threshold, indicating a short to ground, an open circuit, or a failed solenoid coil.

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

Symptoms you may notice

- The check engine light or transmission warning light illuminates on the instrument cluster.
- The transmission may refuse to kick down when you press the accelerator firmly, leaving the vehicle in a higher gear than expected.
- Downshifts may feel harsh or delayed, or the transmission may hold a gear too long during passing maneuvers.
- In some cases the transmission enters limp mode and stays in a single gear to protect itself.
- Often no symptoms besides the warning light, especially if the fault is intermittent or only affects the kickdown command under specific throttle conditions.

Common causes, most likely first

- A short to ground in the kickdown solenoid control wire, often where the harness rubs against a sharp edge or passes near a hot exhaust component.
- An open circuit in the kickdown solenoid circuit, such as a broken wire inside the transmission harness or a corroded connector pin.
- A failed kickdown solenoid coil with low internal resistance or a shorted winding.
- A faulty transmission range sensor or manual lever position sensor that misreports gear selection and confuses the PCM's kickdown strategy.
- Poor electrical connections at the transmission bulkhead connector or the PCM connector, often caused by water intrusion or corrosion.
- A failing PCM driver circuit for the kickdown solenoid, though this is less common than wiring or solenoid faults.



How to diagnose and fix it

- 1 Connect a scan tool and record all stored and pending codes, then clear the code and test-drive the vehicle to see if P1903 returns immediately or only under specific conditions.
- 2 Inspect the transmission wiring harness and connectors for chafing, corrosion, or loose pins, paying close attention to the bulkhead connector and any areas near heat sources.
- 3 Measure the resistance of the kickdown solenoid at the transmission connector and compare it to the Ford service specification for your vehicle; an out-of-range reading points to a failed solenoid.
- 4 Check for a short to ground on the control wire by disconnecting both the PCM and solenoid connectors and measuring resistance from the wire to chassis ground.
- 5 Verify power and ground at the solenoid connector with the key on, using a test light or multimeter to confirm the circuit is complete and the PCM is commanding the solenoid correctly.
- 6 If the wiring and solenoid test good, perform a bidirectional test with a capable scan tool to command the kickdown solenoid on and off and listen for an audible click at the transmission.
- 7 Replace the kickdown solenoid or repair the faulty wiring as needed, clear the codes, and verify the repair with a road test that includes several forced downshift events.

What Ford techs check before replacing the solenoid

- A corroded or water-filled transmission bulkhead connector is a frequent culprit on older Ford vehicles, and it can mimic a failed solenoid even when the solenoid itself tests good.
- The kickdown solenoid shares a ground path with other transmission solenoids on many Ford units, so a bad ground can set P1903 alongside other solenoid codes and lead you to replace the wrong part.
- Intermittent P1903 codes that appear only on hot days or after long drives often trace to a wire that expands and shorts against a hot exhaust shield, so inspect the harness routing when the engine is at operating temperature.
- A low battery or charging system fault can cause the PCM to misread solenoid circuit voltage, so always verify battery voltage and ground quality before condemning the transmission wiring.
- Some Ford models use a kickdown solenoid that is not serviceable separately from the valve body, so confirm the parts breakdown for your exact transmission before quoting a repair.

Can I keep driving with P1903?

You can usually drive the vehicle with P1903 set, but avoid heavy throttle and forced downshifts until the fault is repaired, because the transmission may not respond as expected during passing or merging. If the transmission enters limp mode or shifts erratically, stop driving and have it diagnosed to prevent further damage.



Tools that help

- OBD-II scan tool with bidirectional control capability
- Digital multimeter
- Test light
- Ford service information or wiring diagrams for your vehicle
- Socket set and trim removal tools for accessing the transmission connector

Reading P1903

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

Often seen with

P1902 Kickdown Solenoid Relay Control Circuit · **P1904** Kickdown Solenoid Circuit High Voltage · **P0700** Transmission Control System Malfunction · **P0750** Shift Solenoid 'A' · **P0755** Shift Solenoid 'B'

See it working

Watch the animated explainer [How Drive-by-Wire Works: Electronic Throttle Body](#) on Auto Veteran to see the parts involved moving.

Full guide, related articles and animations: <https://www.autoveteran.tech/dtc-codes/ford-p1903/>

