

GENERIC · POWERTRAIN

P253C

OBD-II DIAGNOSTIC TROUBLE CODE (DTC)

P253C

PTO Sense Circuit Low

P253C indicates that the powertrain control module has detected a low-voltage condition on the power take-off (PTO) sense circuit, which is used to tell the computer whether the PTO system is engaged or active. The circuit is typically a switch-to-ground input, and a low reading means the PCM sees the circuit pulled to ground when it should be at battery voltage, or sees an abnormally low signal on a variable-voltage PTO sense input.

SYSTEM	CODE TYPE	SEVERITY	FIX DIFFICULTY	AREA
Powertrain	Generic (all makes)	Medium	Intermediate	Vehicle speed, idle control and auxiliary inputs

Symptoms you may notice

- Illumination of the check engine light or service soon light, often with no other noticeable symptoms
- The PTO system fails to engage or disengage when the operator uses the control switch
- The engine may idle at an elevated or incorrect speed because the PCM cannot confirm PTO status
- Auxiliary equipment driven by the PTO may not operate or may operate unexpectedly
- The PTO indicator lamp on the dash may stay on, flash, or fail to illuminate when the PTO is engaged
- On vehicles with safety interlocks, the transmission may not allow certain gear selections or the engine may not start

Common causes, most likely first

- 1 A short to ground in the PTO sense circuit wiring, often where the harness rubs against a bracket or passes through a bulkhead
- 2 A faulty PTO engagement switch that is stuck closed or has internal contamination causing it to ground the sense line
- 3 Corrosion or water intrusion at the PTO switch connector or at the PCM connector, creating a low-resistance path to ground
- 4 A misadjusted or damaged PTO linkage that holds the switch in the engaged position when the PTO is actually off
- 5 An internal short to ground inside the PCM on the PTO sense input, though this is less common than wiring or switch faults
- 6 Aftermarket accessories or wiring spliced into the PTO circuit that inadvertently ground the sense line



How to diagnose and fix it

- 1 Inspect the PTO switch and its connector for corrosion, water intrusion, or a switch stuck in the closed position, and compare live data PTO status with the actual switch position
- 2 Disconnect the PTO switch and check whether the code changes to a high-voltage or open-circuit code, which confirms the switch or its ground path is the problem
- 3 Measure resistance from the PTO sense wire to chassis ground with the switch disconnected; a reading near zero ohms indicates a short to ground in the harness
- 4 Visually trace the PTO sense circuit from the switch to the PCM, looking for rubbed insulation, pinched wires, or aftermarket splices that could contact ground
- 5 Check the PTO linkage and switch adjustment to ensure the switch is not being held engaged when the PTO lever is in the off position
- 6 If the harness and switch test good, back-probe the PCM connector and verify the sense circuit voltage with the switch commanded on and off; an incorrect voltage at the PCM with a known-good input points to a PCM fault
- 7 Clear the code and perform a road test or PTO operation cycle to confirm the repair, and verify that no related codes return

PTO sense faults that mimic switch failures

- A PTO sense circuit low code is frequently set by a chafed harness behind the cab or near the transmission, not by the switch itself, so a thorough visual inspection of the wire routing often finds the fault before any parts are replaced.

On many vehicles the PTO sense input is a simple ground-switch circuit, but some applications use a variable-voltage signal; a low code on those systems can mean a shorted sensor reference or a failed PTO position sensor rather than a simple switch.

- Aftermarket equipment such as salt spreaders, winches, or hydraulic pumps wired into the PTO circuit can back-feed a ground and set this code even when the factory PTO system is functioning correctly.
- A PTO switch that tests good on the bench can still set this code if the switch ground path is shared with another circuit that has a bad ground, causing the sense line to be pulled low through the shared connection.
- Technicians sometimes replace the PCM when the real problem is a pinched wire in the harness near the PCM connector, so always verify the circuit with a load test before condemning the module.

Can I keep driving with P253C?

The vehicle is generally safe to drive if the only symptom is the warning light and the PTO is not needed, but avoid using the PTO system until the fault is repaired because unexpected engagement or failure to engage can damage equipment or create a safety hazard. If the engine idle is affected or the transmission interlocks are active, have the vehicle inspected promptly.



Tools that help

- Digital multimeter
- Back-probe kit
- Wiring diagram for the PTO circuit
- Scan tool with live data capability
- Test light
- Wire terminal removal tools

Reading P253C

P	Powertrain: engine, transmission and emissions.
2	Generic (SAE) code: it means the same thing on every OBD-II vehicle.
5	Vehicle speed, idle control and auxiliary inputs.
3C	The exact fault within that area.

Often seen with

P0642 Sensor Reference Voltage 'A' Circuit Low · **P0643** Sensor Reference Voltage 'A' Circuit High · **P253D** PTO Sense Circuit High · **P253E** PTO Sense Circuit Intermittent/Erratic · **P253F** Engine Oil Deteriorated

See it working

Watch the animated explainer [How a CVT Works: Belt and Pulley Transmission](#) on Auto Veteran to see the parts involved moving.

Full guide, related articles and animations: <https://www.autoveteran.tech/dtc-codes/p253c/>

