

GM · POWERTRAIN

P1682

OBD-II DIAGNOSTIC TROUBLE CODE (DTC)

P1682 · GM

Ignition 1 Switch Circuit 2

P1682 on GM vehicles means the engine control module (ECM) has detected a voltage mismatch between two separate ignition 1 voltage inputs that should always read nearly the same when the key is on. The ECM compares these two feeds as a plausibility check, and when one circuit reads low or missing while the other is present, it stores this code and may command reduced power mode.

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

Symptoms you may notice

- The security or anti-theft warning light may illuminate or flash on the instrument cluster
- The engine may crank but fail to start, or start and then stall immediately
- Intermittent no-crank or dead instrument cluster conditions, especially in cold or damp weather
- Reduced engine power message or limp-home mode on some models
- Often no symptoms besides the warning light, with the vehicle driving normally
- Other modules may show communication codes or flickering interior lights

Common causes, most likely first

- Failed or sticking ignition switch assembly, particularly the ignition 1 contact inside the switch
- Blown or partially melted fuse in the ignition 1 feed circuit, often in the underhood fuse block
- Corroded, loose, or backed-out terminal at the ignition switch connector or ECM connector
- Chafed or broken wire in the ignition 1 circuit between the switch, fuse block, and ECM
- Poor ground connection at the engine block or chassis that skews the ECM voltage reference
- Aftermarket alarm or remote start wiring spliced into the ignition 1 circuit
- Internal ECM fault on one of the ignition voltage input pins, though this is the least common cause



How to diagnose and fix it

- 1 Scan all modules for codes and record freeze-frame data to confirm P1682 is current and not history
- 2 Inspect the ignition 1 fuses in the underhood and body fuse blocks, replacing any that are blown or show heat damage
- 3 Measure voltage on both ignition 1 inputs at the ECM connector with the key on and compare readings; a difference of more than about half a volt points to the fault
- 4 Back-probe the ignition switch connector and check for voltage drop across the switch contacts while wiggling the key
- 5 Perform a voltage drop test on the ground circuits from the ECM case to the battery negative post
- 6 Inspect and repair any chafed wiring or corroded terminals in the ignition 1 circuit, then clear codes and verify the mismatch is gone
- 7 If all circuits test good and the mismatch persists, substitute a known-good ignition switch before condemning the ECM

Why the ignition switch is usually the culprit

- The ECM does not monitor the ignition switch directly; it watches two separate voltage feeds, so a fault in either the switch or the wiring to the ECM will set this code identically.
- A common misdiagnosis is replacing the ECM when the real problem is a worn ignition switch contact that only drops voltage when the key is jiggled or the cabin is hot.
- Aftermarket remote starters and alarm systems frequently back-probe or splice the ignition 1 wire, creating a high-resistance connection that sets P1682 intermittently.
- This code can appear alongside communication codes because other modules share the same ignition 1 feed, so always check whether multiple modules lost power at the same time.
- A battery that is weak or has a bad cell can cause voltage sags on the ignition 1 circuit during cranking that trigger P1682 without any wiring fault at all.

Can I keep driving with P1682?

If the engine starts and runs normally, you can drive to a shop for diagnosis, but avoid relying on the vehicle for long trips because the fault can cause an unexpected no-start or stall. If the engine cranks but will not start or stalls while driving, stop and have the vehicle towed rather than risk a loss of power in traffic.

Tools that help

- OBD-II scan tool with GM manufacturer-specific code capability
- Digital multimeter with back-probe pins
- Test light or load-probe
- Wiring diagram for the specific GM model
- Fuse puller and terminal pick set



Reading P1682

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

Often seen with

P1683 Metering Oil Pump Temperature Sensor Circuit · **P1683** Driver 5 Line 3 · **P1683** Speed Control Power Relay Or Speed Control 12 Volt Driver Ci · **P0510** Closed Throttle Position Switch Malfunction · **P0562** System Voltage Low · **U0100** Lost Communication With ECM/PCM A

See it working

Watch the animated explainer [Four-Stroke Engine Cutaway: Intake to Exhaust](#) on Auto Veteran to see the parts involved moving.

Full guide, related articles and animations: <https://www.autoveteran.tech/dtc-codes/gm-p1682/>

