

GENERIC · POWERTRAIN

P0686

OBD-II DIAGNOSTIC TROUBLE CODE (DTC)

P0686

ECM/PCM Power Relay Control Circuit Low

P0686 means the engine control module (ECM) or powertrain control module (PCM) has detected a low-voltage condition on the control circuit for its own power relay. The computer is not getting the expected voltage feedback from the relay that supplies its main power, which can interrupt engine management and cause a no-start or stall.

SYSTEM

Powertrain

CODE TYPE

Generic (all makes)

SEVERITY

Medium

FIX DIFFICULTY

Intermediate

AREA

Computer and output circuits

Symptoms you may notice

- Engine cranks but does not start, or starts and immediately stalls
- Intermittent no-start condition that may be temperature or vibration sensitive
- Illuminated check engine light with P0686 stored
- Other electrical systems (dash lights, radio, accessories) may flicker or behave erratically
- Often no symptoms besides the warning light if the fault is intermittent

Common causes, most likely first

- 1 Faulty ECM/PCM power relay (main relay) with burned or pitted contacts
- 2 Blown fuse or fusible link in the relay power feed circuit
- 3 Corroded, loose, or damaged wiring or connector at the relay, fuse box, or ECM/PCM
- 4 Poor ground connection for the relay coil or ECM/PCM
- 5 Failed ECM/PCM driver circuit for the relay control
- 6 Aftermarket alarm or remote start installation tapping into the relay circuit
- 7 Water intrusion or corrosion in the underhood fuse/relay box

How to diagnose and fix it

- 1 Verify battery voltage and condition; a weak battery can set this code
- 2 Check all fuses and fusible links related to the ECM/PCM power relay and replace as needed
- 3 Inspect the relay, its socket, and associated wiring for corrosion, looseness, or damage
- 4 Swap the ECM/PCM power relay with an identical known-good relay and clear the code to see if it returns
- 5 Test the relay control circuit with a multimeter or test light: check for power at the relay coil and ground side, and inspect the ECM/PCM ground connections
- 6 If the control circuit is intact, check for voltage drop on the power feed and ground circuits under load
- 7 If all external circuits test good, diagnose the ECM/PCM driver circuit or replace the ECM/PCM as a last resort



Relay circuit checks that prevent misdiagnosis

- A weak or failing battery is a common cause of P0686 because the ECM/PCM may not see the expected voltage during cranking, so always load-test the battery first.
- The ECM/PCM power relay is often shared with other circuits, so a failure can cause multiple unrelated codes; focus on the relay circuit before replacing sensors.
- Aftermarket accessories wired into the fuse box can backfeed or load the relay control circuit, causing intermittent P0686 without any factory component being faulty.
- A relay that clicks does not guarantee good contacts; voltage drop testing under load is the only reliable way to confirm the relay is passing full power.
- Corrosion inside the underhood fuse box from a leaking windshield cowl or car wash is a hidden cause that visual inspection of the relay alone will miss.

Can I keep driving with P0686?

If the engine starts and runs normally, you can drive to a repair shop, but avoid long trips or high-load conditions because the fault may cause an unexpected stall. If the engine cranks but does not start or stalls repeatedly, do not drive; have the vehicle towed to prevent a safety hazard.

Tools that help

- Digital multimeter
- Test light
- Fuse puller
- Relay puller
- Battery load tester
- Wiring diagram for the vehicle

Reading P0686

P	Powertrain: engine, transmission and emissions.
0	Generic (SAE) code: it means the same thing on every OBD-II vehicle.
6	Computer and output circuits.
86	The exact fault within that area.

Often seen with

P0562 System Voltage Low · **P0563** System Voltage High · **P0685** ECM/PCM Power Relay Control Circuit Open · **P0687** ECM/PCM Power Relay Control Circuit High · **P0688** ECM/PCM Power Relay Sense Circuit /Open



See it working

Watch the animated explainer [Car Relay Test Bench: Test 4-Pin and 5-Pin Relays](#) on Auto Veteran to see the parts involved moving.

Full guide, related articles and animations: <https://www.autoveteran.tech/dtc-codes/p0686/>

