

GENERIC · POWERTRAIN

P06F0

OBD-II DIAGNOSTIC TROUBLE CODE (DTC)

P06F0

Reductant Control Module Internal Temperature Sensor Circuit

P06F0 indicates that the reductant control module has detected an abnormal internal temperature sensor circuit reading, typically an out-of-range voltage or implausible signal from the sensor that monitors the module's own internal temperature. The engine control module (ECM) sets this code when the reductant control module reports that its internal temperature sensor circuit is open, shorted, or reading outside the expected range for the current operating conditions.

SYSTEM

Powertrain

CODE TYPE

Generic (all makes)

SEVERITY

Medium

FIX DIFFICULTY

Professional

AREA

Computer and output circuits

Symptoms you may notice

- Illumination of the malfunction indicator lamp (MIL) with no other noticeable symptoms
- Reductant system warning message displayed on the dashboard, often indicating a fault with the diesel exhaust fluid (DEF) system
- Possible reduction in engine power or activation of limp mode if the module derates the system due to the fault
- Inability to clear the code or reset the DEF system, leading to a persistent warning
- In some cases, the vehicle may enter a countdown to a no-start condition if the fault is not addressed
- No noticeable change in engine performance or exhaust fluid consumption in many instances

Common causes, most likely first

- 1 Faulty internal temperature sensor inside the reductant control module
- 2 Damaged or corroded wiring harness or connector at the reductant control module
- 3 Open or short circuit in the sensor wiring between the sensor and the module's internal circuitry
- 4 Water intrusion or contamination inside the reductant control module causing sensor circuit damage
- 5 Failed reductant control module due to internal electronic failure
- 6 Loose or poor ground connection for the reductant control module
- 7 Extreme heat or vibration damage to the sensor or its wiring



How to diagnose and fix it

- 1 Use a scan tool to verify the code and check for any related codes in the reductant control module; record freeze-frame data if available.
- 2 Visually inspect the reductant control module and its connectors for signs of damage, corrosion, or water intrusion; repair or replace damaged connectors as needed.
- 3 Check the resistance and continuity of the internal temperature sensor circuit according to the manufacturer's service information; compare readings to specifications.
- 4 Perform a voltage drop test on the ground and power supply circuits to the reductant control module to rule out wiring issues.
- 5 If the sensor circuit tests within specification, substitute a known-good reductant control module to see if the code changes; if the code disappears, replace the module and reprogram it as required.
- 6 After repairs, clear the codes and perform a road test to verify the fix; ensure the reductant system completes its self-tests without resetting the code.
- 7 If the code persists after all checks, consult the manufacturer's diagnostic flow chart for further steps, which may include internal module diagnostics or software updates.

When the sensor is not the real culprit

- A common misdiagnosis is to replace the internal temperature sensor when the actual problem is a corroded connector or chafed wire in the harness near the reductant control module.
- The code can be set by a low battery or charging system issue that causes the module to log an implausible sensor reading during engine cranking, so always check battery health first.
- Some vehicles use the internal temperature sensor to calculate DEF dosing; a faulty reading can cause incorrect DEF injection and lead to other codes, but P06F0 itself may not affect driveability.
- The reductant control module often shares a ground with other sensors; a poor ground can cause multiple codes, so inspect all ground points in the area.
- After replacing the reductant control module, reprogramming and initialization with a factory scan tool is usually required, and skipping this step can cause the code to return.

Can I keep driving with P06F0?

The vehicle is generally safe to drive with P06F0 alone, but if the code triggers a countdown to a no-start or limp mode, avoid long trips and schedule service promptly. Do not ignore the warning, as continued driving may lead to a derate condition that limits speed and eventually prevents the engine from starting.



Tools that help

- OBD-II scan tool with manufacturer-specific software
- Digital multimeter
- Wiring diagram and service information
- Breakout box or terminal test kit
- Factory scan tool for module programming

Reading P06F0

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.
F0	The exact fault within that area.

Often seen with

P06F1 Reductant Control Module Internal Temperature Sensor Range/P · **P06F2** Reductant Control Module Internal Temperature Sensor Circuit · **P06F3** Reductant Control Module Internal Temperature Sensor Circuit · **P20B9** Reductant Heater A Control Circuit/Open · **P20BA** Reductant Heater A Control Performance

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/p06f0/>

