

GENERIC · POWERTRAIN

P05F3

OBD-II DIAGNOSTIC TROUBLE CODE (DTC)

P05F3

Exhaust Aftertreatment Power Relay Control Circuit/Open

P05F3 indicates that the powertrain control module (PCM) has detected an open circuit or excessive resistance in the control circuit for the exhaust aftertreatment power relay, which supplies power to the exhaust aftertreatment system. The PCM monitors the relay control circuit and sets this code when the expected voltage or current is not present, indicating a wiring fault, a failed relay, or a faulty PCM driver.

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 (malfunction indicator lamp) with no other noticeable symptoms.
- The exhaust aftertreatment system may not activate, leading to reduced efficiency of the diesel particulate filter (DPF) regeneration or selective catalytic reduction (SCR) system.
- Possible limp mode or reduced engine power if the aftertreatment system is disabled.
- In some cases, a message on the dashboard indicating exhaust system service required.
- Rough running or poor fuel economy if the aftertreatment system affects engine management.
- Often no symptoms besides the warning light, especially if the relay is only intermittently faulty.

Common causes, most likely first

- 1 Open or damaged wiring in the relay control circuit, such as a broken wire or corroded connector.
- 2 Failed exhaust aftertreatment power relay (open coil or stuck contacts).
- 3 Blown fuse or fusible link supplying power to the relay or control circuit.
- 4 Poor ground connection for the relay or the aftertreatment system.
- 5 Faulty powertrain control module (PCM) driver for the relay control circuit.
- 6 Corrosion or water intrusion in the relay socket or wiring harness.
- 7 Aftermarket accessories or improper wiring repairs that interfere with the circuit.



How to diagnose and fix it

- 1 Verify the code with a scan tool and check for any related codes in other modules.
- 2 Inspect the fuse and relay for the exhaust aftertreatment power circuit; replace if blown or faulty.
- 3 Perform a visual inspection of the wiring harness and connectors for damage, corrosion, or loose pins.
- 4 Use a multimeter to check for continuity and voltage on the relay control circuit between the PCM and relay.
- 5 Test the relay by applying power and ground to the coil and checking for continuity across the contacts.
- 6 If the circuit and relay are good, check the PCM driver output with a test light or oscilloscope; repair or replace PCM if faulty.
- 7 Clear codes and road test to verify the repair, ensuring the aftertreatment system operates correctly.

Relay circuit faults often misdiagnosed

- A common oversight is assuming the relay itself is always at fault, but the control circuit wiring or PCM driver is frequently the culprit.
- The code can set intermittently due to a loose connector or chafed wire that only loses contact under certain conditions, such as vibration or temperature changes.
- Some vehicles use a solid-state relay or a module integrated into the aftertreatment system, so the 'relay' may not be a traditional plug-in component.
- A weak battery or charging system issue can cause the PCM to misreport a relay control fault, so always check battery voltage and grounds first.
- This code does not always mean the aftertreatment system is completely disabled; it may still function but with reduced performance, so don't jump to replacing expensive components.

Can I keep driving with P05F3?

You can generally continue driving with this code, but avoid long trips or heavy loads that rely on the aftertreatment system until it is repaired. If the vehicle enters limp mode or you notice reduced power, have it diagnosed promptly to prevent further damage.

Tools that help

- OBD-II scan tool
- Digital multimeter
- Test light
- Wire probe or back-probe kit
- Relay puller or small screwdriver
- Electrical contact cleaner



Reading P05F3

P	Powertrain: engine, transmission and emissions.
0	Generic (SAE) code: it means the same thing on every OBD-II vehicle.
5	Vehicle speed, idle control and auxiliary inputs.
F3	The exact fault within that area.

Often seen with

P05F4 Exhaust Aftertreatment Power Relay Control Circuit Low · **P05F5** Exhaust Aftertreatment Power Relay Control Circuit High · **P05F6** Exhaust Aftertreatment Power Relay Control Circuit Stuck On · **P207F** Reductant Quality Performance · **P20EE** NOx Catalyst Efficiency Below Threshold (Bank 1)

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/p05f3/>

