

GENERIC · POWERTRAIN

P20F0

OBD-II DIAGNOSTIC TROUBLE CODE (DTC)

P20F0

SCR NOx Catalyst Over Temperature (Bank 2)

P20F0 indicates that the powertrain control module has detected an excessively high temperature in the selective catalytic reduction (SCR) nitrogen oxide (NOx) catalyst on bank 2, which is the exhaust bank that does not contain cylinder number one. The computer compares the bank 2 SCR catalyst temperature sensor reading against a calibrated threshold and sets this code when the catalyst temperature exceeds that limit for a calibrated time, typically because of a fault in the dosing, temperature sensing, or exhaust flow control system.

SYSTEM

Powertrain

CODE TYPE

Generic (all makes)

SEVERITY

High

FIX DIFFICULTY

Professional

AREA

Fuel and air metering and auxiliary emission controls

Symptoms you may notice

- Illumination of the check engine light, often with no other noticeable symptoms
- Reduced engine power or limp mode triggered by the powertrain control module to protect the catalyst
- A pungent ammonia or diesel exhaust fluid odor from the tailpipe
- Visible white or bluish exhaust smoke under load
- Increased diesel exhaust fluid consumption
- Rough running or misfire if the over-temperature is caused by unburned fuel reaching the catalyst

Common causes, most likely first

- 1 Faulty bank 2 SCR catalyst temperature sensor reading high or out of range
- 2 Excessive diesel exhaust fluid injection from a sticking or leaking dosing injector
- 3 Failed or restricted diesel exhaust fluid dosing injector allowing continuous flow
- 4 Exhaust gas recirculation valve stuck closed or restricted, raising exhaust temperatures
- 5 Engine over-fueling or misfire sending unburned hydrocarbons into the SCR catalyst
- 6 Restricted exhaust or damaged SCR catalyst substrate causing hot spots
- 7 Wiring or connector damage in the bank 2 SCR temperature sensor circuit



How to diagnose and fix it

- 1 Scan all modules for stored and pending codes and record freeze-frame data for P20F0
- 2 Inspect the bank 2 SCR temperature sensor wiring and connector for chafing, corrosion, or loose pins
- 3 Compare the bank 2 SCR temperature sensor reading with a known-good reference or infrared thermometer at key-on and during a road test
- 4 Command the diesel exhaust fluid dosing injector with a scan tool and verify it does not leak or remain open when de-energized
- 5 Check exhaust gas recirculation operation and inspect for carbon restriction that could raise exhaust temperatures
- 6 Verify engine fuel delivery and misfire status with cylinder balance and fuel trim data
- 7 Replace the faulty sensor, dosing injector, or restricted component and clear codes, then complete a drive cycle to confirm the repair

What technicians miss on P20F0

- A sticking diesel exhaust fluid dosing injector is a frequent cause of this code because it keeps injecting fluid after the command ends, and the extra ammonia burns hot in the SCR catalyst.
- The bank 2 SCR temperature sensor can read high because of a poor ground or reference voltage fault rather than a real over-temperature event, so always verify the circuit before condemning the catalyst.
- An exhaust gas recirculation valve that is stuck closed raises combustion temperatures and exhaust heat, which can overheat the SCR catalyst without any dosing fault present.
- This code does not automatically mean the SCR catalyst is damaged; the catalyst may be fine once the root cause of the excess heat is corrected.
- A misfiring cylinder or leaking injector can send unburned fuel into the exhaust, and that fuel burns in the SCR catalyst and drives temperatures above the threshold.

Can I keep driving with P20F0?

Do not continue driving with P20F0 active because sustained over-temperature can destroy the SCR catalyst and lead to a costly repair. If the vehicle must be moved, keep the engine load low and avoid sustained high-speed or heavy-throttle operation, and have the fault diagnosed as soon as possible.

Tools that help

- OBD-II scan tool with bidirectional control and live data
- Infrared thermometer
- Digital multimeter
- Wiring diagram for the bank 2 SCR temperature sensor circuit
- Exhaust gas recirculation valve tester or scan tool function



Reading P20F0

- P** Powertrain: engine, transmission and emissions.
- 2** Generic (SAE) code: it means the same thing on every OBD-II vehicle.
- 0** Fuel and air metering and auxiliary emission controls.
- F0** The exact fault within that area.

Often seen with

P0401 EGR Flow Insufficient Detected · **P207F** Reductant Quality Performance · **P20B9** Reductant Heater A Control Circuit/Open · **P20E8** Reductant Pressure Too Low · **P20EE** NOx Catalyst Efficiency Below Threshold (Bank 1)

See it working

Watch the animated explainer [How a Car Clutch Works: Diaphragm Clutch Cutaway](#) on Auto Veteran to see the parts involved moving.

Full guide, related articles and animations: <https://www.autoveteran.tech/dtc-codes/p20f0/>

