

GENERIC · POWERTRAIN

P2054

OBD-II DIAGNOSTIC TROUBLE CODE (DTC)

P2054

Reductant Injector Circuit Low (Bank 1 Unit 2)

P2054 indicates that the powertrain control module (PCM) has detected an abnormally low voltage or current draw on the reductant injector circuit for bank 1 unit 2, which is the second injector in the diesel exhaust fluid (DEF) injection system on that bank. The PCM expects a specific current profile when the injector is commanded on, and a low reading means the circuit is either shorted to ground, has excessive resistance, or the injector itself has failed.

SYSTEM

Powertrain

CODE TYPE

Generic (all makes)

SEVERITY

Medium

FIX DIFFICULTY

Intermediate

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 PCM to protect the emissions system
- A message on the dash indicating low DEF level or a DEF system fault
- Rough running or misfire if the reductant injector is stuck open or leaking
- Increased diesel exhaust fluid consumption or a strong ammonia smell from the exhaust
- Failure to complete a regeneration cycle, leading to a derate condition over time

Common causes, most likely first

- 1 Faulty reductant injector (bank 1 unit 2) with an internal short or open coil
- 2 Damaged or corroded wiring harness connector at the injector
- 3 Chafed or broken wire in the injector circuit between the PCM and the injector
- 4 High resistance in the ground circuit for the reductant injector
- 5 Contaminated or crystallized DEF causing the injector to seize or draw excessive current
- 6 PCM driver circuit failure for the reductant injector (less common)



How to diagnose and fix it

- 1 Inspect the reductant injector connector and wiring for corrosion, chafing, or loose pins, and repair as needed
- 2 Measure the resistance of the reductant injector with a multimeter and compare to the manufacturer's specification
- 3 Check for battery voltage and ground at the injector connector with the key on and engine off, using a test light or multimeter
- 4 Perform a voltage drop test on both the power and ground sides of the injector circuit to identify excessive resistance
- 5 Remove and inspect the reductant injector for crystallization or blockage, and clean or replace it if contaminated
- 6 If the injector and wiring test good, check the PCM driver circuit with an oscilloscope or by substituting a known-good injector
- 7 Clear the diagnostic trouble codes (DTCs) and perform a reductant system test or drive cycle to verify the repair

What a low reductant injector code really means

- A low current reading does not always mean the injector is bad; a poor ground connection at the chassis can cause the same code by reducing the current flow the PCM expects to see.
- Crystallized DEF from a vehicle that sat unused for months is a frequent cause of injector seizure that mimics an electrical failure, so always inspect the injector tip before condemning it.
- The PCM may set P2054 intermittently if the injector coil is failing only when hot, so a cold resistance check can pass while the fault is still present.
- Some vehicles use a shared power supply for multiple reductant injectors, and a short in one injector can drag down the voltage for the entire circuit, setting codes for multiple units.
- Replacing the injector without checking the DEF quality or the tank heater can lead to a repeat failure if contaminated fluid or a cold tank is the root cause.

Can I keep driving with P2054?

You can usually drive the vehicle short distances to a repair shop, but avoid heavy loads or long trips because the PCM may derate engine power or limit vehicle speed once the fault is confirmed. Continued driving with a failed reductant injector can lead to increased emissions and potential damage to the selective catalytic reduction (SCR) system.



Tools that help

- OBD-II scan tool with live data capability
- Digital multimeter
- Test light
- Oscilloscope (optional for PCM driver testing)
- Socket set and torx bits for injector removal
- DEF refractometer or quality tester

Reading P2054

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.
54	The exact fault within that area.

Often seen with

P2053 Reductant Injector Circuit/Open (Bank 1 Unit 2) · **P2055** Reductant Injector Circuit High (Bank 1 Unit 2) · **P2056** Reductant Injector Circuit/Open (Bank 2 Unit 2) · **P20B9** Reductant Heater A Control Circuit/Open · **P20BA** Reductant Heater A Control Performance

See it working

Watch the animated explainer [How Variable Valve Timing Works: Cam Phaser and VVT Solenoid](#) on Auto Veteran to see the parts involved moving.

Full guide, related articles and animations: <https://www.autoveteran.tech/dtc-codes/p2054/>

