

***INJECTOR RETURN FLOW TEST**

1. ENGINE RUNS

NOTE: Review Warranty bulletin D-05-24.

NOTE: Battery charger may be utilized if cranking speed is below 170 RPM's.

Does the engine run?

Yes >> Go To 2

No >> Go To 3

2. * INJECTOR RETURN FLOW TEST @ 1200 RPM AND 1400 BAR RAIL PRESSURE

1. Operate the engine until the coolant temperature is above 180° F.
2. Remove the banjo connector from the fuel drain tube at the rear of the fuel filter housing.
3. Install fuel system test fitting 9012 in place of the banjo connector.
4. Remove the vehicle fuel return line from the engine fuel drain tube.
5. Install a piece of fuel line onto the test fitting and into a fuel container or into the fuel tank.
6. Install one end of a test hose onto the fuel drain tube. Place the other end of the test hose into a graduated cylinder.
7. Start engine and allow to idle for 30 sec. This step allows the flows to stabilize. Gather appropriate measuring device to measure collected return fuel.
8. Using the scan tool, navigate to ECM view -> PCM Cummins -> More Options-> System Tests -> Fuel Pressure override test. Select Start, then press Next.
9. Press the Run button on the screen. As you press the Run button to start the overpressure test, please move the injector return hose from the bucket and insert into the appropriate measuring device. The engine speed will elevate rapidly to 1200 rpm and the rail pressure will increase to 20000 psi (1400 bar).
10. While the test is running, please record the FCA duty cycle % and actual rail pressure record the readings on the Cummins Diesel Diagnostic Worksheet located under e-files, service, Star center in dealerconnect.
11. Measure and Record the amount of fuel collected.
12. If the flow is less than 160 ml/30 secs, the test has successfully passed, and the condition has been fixed
13. If the flow is greater than 250 ml/30 seconds, refer to step 20.
14. If the flow is greater than 160 ml/30 secs after step 11, shut off the engine and remove all 6 high pressure fuel lines. Re-torque the high-pressure connector nut. Inspect for damage, repair/replace as necessary. Reinstall high pressure fuel lines.
15. Start the engine and perform steps 7 through 10.
16. Measure the amount of fuel in the graduated cylinder.
17. If the amount of fuel is greater than 160 ml/30 sec, shut off the engine and remove the #1 high pressure fuel line. Cap the #1 fuel port using tool 9011 on the fuel rail and repeat steps 7 through 10.
18. Measure the amount of fuel in the graduated cylinder. If the amount is less than 160 ml.30 sec, remove and replace the #1 injector and #1 High pressure connector.
19. If the amount of fuel is not less than 160-ml/30 secs, repeat steps 17-18 for cylinders 2-6.
20. If the amount of fuel is greater than 250 ml/30 secs it is recommended that all 6 injectors be replaced.
21. Install all high-pressure connectors, fuel injectors, and fuel injector supply lines. Repeat steps 1-12 to confirm repair.

SPECIFICATION: Less than 160 ml/ 30 seconds total fuel returns flow

Repair

Test Complete.