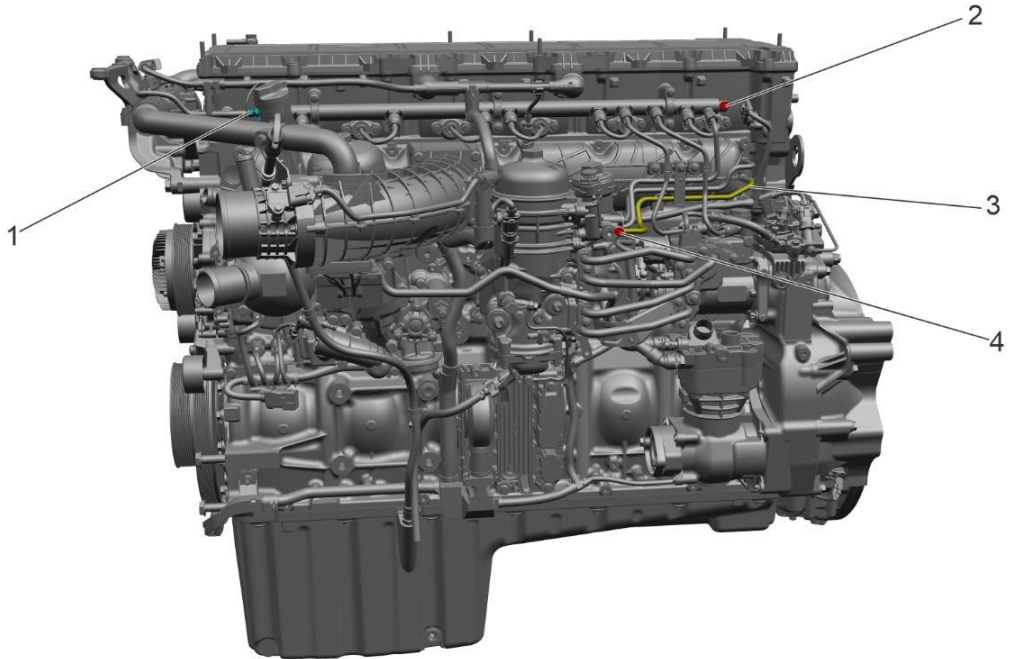


Cleaning Gen 5 Engine Fuel Injectors

Clean as follows:

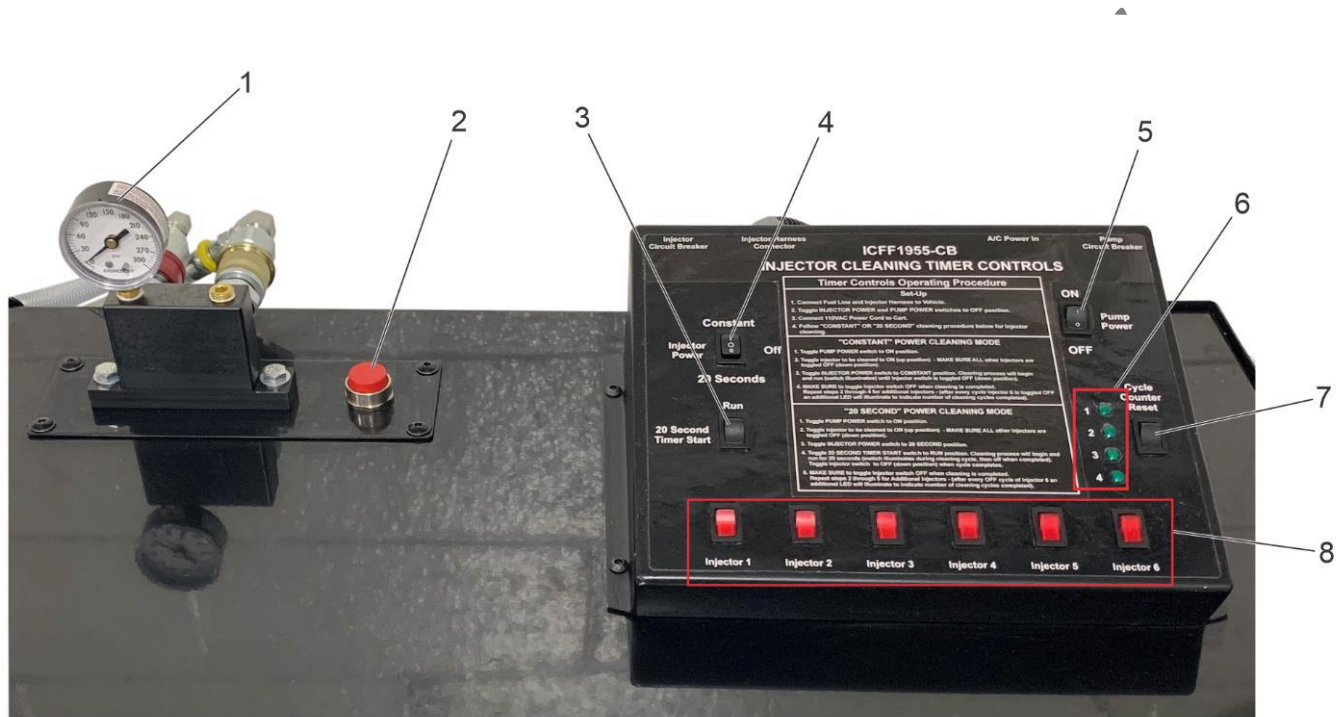
1. Turn ignition OFF, apply parking brake, chock wheels, and perform any other applicable safety steps.
2. Open the hood
3. Remove the bumper. Refer to Original Equipment Manufacturer (OEM) procedures
4. For DD13 applications, remove the left inner fender. Refer to Original Equipment Manufacturer (OEM) procedures



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5. Remove the triple-clip bolt and outer half of the triple clip securing the return lines to the air intake manifold.
6. Remove the bolt retaining the amplifier and needle return line to the cylinder head (3) and disconnect the line.
7. Remove the bolt retaining the needle return line (4) to the fuel filter module and disconnect the line from the module. Install the FICM return line fitting. Torque the fitting to 10 N·m (7 lb·ft).
8. Re-install the needle and amplifier return lines onto the cylinder head. Torque to 30 N·m (22 lb·ft)
9. Remove the fuel rail pressure sensor (1) (see above graphic) and install the FICM fuel rail supply fitting onto the fuel rail pressure sensor connection point at the fuel rail (1) (see above graphic), Torque to 40 N·m (30 lb·ft).
10. Disconnect the engine wiring harness from the fuel injector wiring harness connectors at the camshaft housing and connect the FICM wiring harness.
11. Connect the supply line from the FICM to the fuel rail, supply fitting (1) (see above graphic).

12. Connect the return line from the FICM to the fuel return fitting (4) (see above graphic).
13. Stir the injector cleaning fluid and then fill the FICM supply tank with at least one gallon of injector cleaning fluid. Injector cleaning fluid can turn yellow after being opened and this is a normal condition).
14. Turn Injector Power (4) and Pump Power (5) switches to the OFF position (see below graphic).



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15. Complete the FICM priming procedure (located on page 18 of [18SP747Rev2](#))
16. Turn the Pump Power switch (5) to the ON position (see above graphic). Gauge pressure (1) will increase to 200 psi and pump will stop.
17. Starting with injector number 1 (8), press switch to the up position. All other injectors should be turned off.
18. Turn the Injector Power (4) switch to the 20 Second position (see above graphic).
19. Turn the 20 Second Timer Start (3) switch to the RUN position (see above graphic).
20. The injector switch light will illuminate during the 20 second run cycle. Once the injector #1 light goes out, turn the injector switch (8) off (see above graphic)
21. Repeat steps 19 - 23 for the remaining injectors to complete the first cleaning cycle. The Cycle Counter (6) will track the number of cleaning cycles. Repeat this process until all the fuel injectors have been cleaned four times. Reset the cycle counter (7) (see above graphic).
22. Turn the Pump Power switch (5) to the OFF position (see above graphic).

23. Push and hold the round red button (2) (see above graphic) until pressure gauge (1) releases all pressure.
24. Disconnect the FICM supply line from the fuel rail supply fitting. Using the fuel primer adapter, connect a Detroit™ approved fuel primer to the fuel rail supply fitting at the fuel rail.
25. Using the fuel primer, pressurize the fuel rail to 655 kPa (95psi).
26. Starting with injector number 1 (8), press switch to the up position (see above graphic). All other injectors should be turned off.
NOTE this will flush the fuel injectors with diesel fuel.
27. Turn the 20 Second Timer Start (3) switch to the RUN position (see above graphic).
28. Once the injector #1 light goes out turn the injector switch (8) off (see above graphic)
29. Repeat steps 31 - 34 for the remaining injectors to complete the first flushing cycle. The Cycle Counter (6) will track the number of flush cycles. Repeat this process until all the fuel injectors have been flushed two times.
30. Turn the fuel priming tool off.
31. Disconnect the FICM wiring harness from the fuel injector wiring harness connectors and connect the engine wiring harness to the fuel injector wiring harness connectors.
32. Disconnect the Detroit™ approved fuel primer from the fuel rail supply fitting and the FICM return line from the needle return line.
33. Remove the bolt retaining the amplifier and needle return line to the cylinder head (3).
34. Remove the FICM fuel return fitting from the needle return line.
35. Install the needle and amplifier return lines onto the fuel filter module and cylinder head with new O-rings. Torque bolts to 30 N·m (22 lb·ft).
36. Remove the FICM fuel rail supply fitting from the fuel rail. Lubricate the fuel rail pressure sensor seal ring and threads. Install the fuel rail pressure sensor. Torque to 65 N·m (48 lb·ft).
37. Install the triple-clip bolt retaining the needle, amplifier and pressure limiting valve lines. Torque to 14 N·m (11 lb·ft).
38. Using a suitable catch container, drain the fuel filter module at the water drain bowl.
39. Steam clean the area of repair to remove any residual fluids.
40. Using a Detroit™ approved fuel primer, prime the fuel system. Refer to workshop manual section "Priming The Fuel System".
41. Use DiagnosticLink® to perform the FICM Routine (or run the engine at 1200 RPM for 10 minutes).
42. Install the front bumper. Refer to OEM procedures.
43. Close the hood.