

Cummins 6.7L 2500/3500

BG DIESEL EGR SYSTEM SERVICE INSTRUCTIONS



Wear safety goggles to protect your eyes.



Wear Nitrile,[®] Neoprene[®] or PVC gloves to protect your hands.



Wear a long-sleeved shirt to protect your arms.

IMPORTANT! Read product Safety Data Sheet before handling any BG product.

Adaptors required:



BG EF571 EGR 1.60" ID hose intake adaptor
PN E101-1655



BG EF572 EGR round 2.0" exhaust adaptor
PN E101-1656



BG EF385 EGR manual opener adaptor
PN E101-1651



BG EF399 EGR manifold
PN E101-1645

Tool required:

- BG 64 Diesel VIA[®] supply tool, PN E101-1642
- Scan tool

continued



Cummins 6.7L 2500/3500 *continued*

EGR system consists of:

- Cold side EGR valve (after EGR cooler) which allows for proper emissions control of NO_x gases
- EGR cooler (controls temperature of exhaust gases to the air intake to the engine)
- EGR cooler bypass valve (controls exhaust flow temperature to the air intake from the exhaust through the EGR cooler) (model year 2008–present)
- EGR temperature sensor (measures EGR cooler exhaust temperature and efficiency)

These components are critical for proper emissions management control and must be cleaned on a regular basis for optimum efficiency.

Location of EGR system components

EGR cooler bypass valve and actuator

EGR cooler outlet pipe

EGR valve



continued



EGR inspection

Before starting the EGR cleaning service, inspect the EGR components for severe deposits or clogging. Manual cleaning may be required (by scraping, sucking, wiping, etc.) before performing the service.

Service procedure

1. Add BG 245 Premium Diesel Fuel System Cleaner, PN 245, to vehicle's fuel tank.
2. Remove plastic engine cover.
3. Loosen the clamp on the EGR cooler outlet pipe. Remove the clamp at the inlet to the EGR valve. Remove the gasket and set aside. Rotate the EGR cooler outlet pipe downwards (Figures 1 & 2).



Figure 1



Figure 2

4. Install the BG EF571 intake and the BG EF572 exhaust adaptors. Reinstall the EGR cooler outlet pipe valve clamp and tighten at both ends (Figures 3 & 4).



Figure 3



Figure 4

5. Turn the thumbscrew on the BG EF385 manual opener adaptor fully counterclockwise but do not remove it from the adaptor.
6. Remove the EGR valve solenoid (four screws) and set it aside. Install the BG EF385 manual opener adaptor in its place using only two of the screws.

continued



7. Disconnect the EGR valve solenoid electrical connector. Rotate the thumbscrew on the BG EF385 manual opener adaptor fully clockwise. The EGR valve is now open (Figure 5).



Figure 5

Note: Alternatively, a scan tool can be used to command the EGR valve solenoid open. In this case, removal of the EGR valve solenoid is not required and the electrical connector must be connected.

8. Attach the BG EF399 manifold to the BG EF571 intake and BG EF572 exhaust adaptors. Attach the BG 64 Diesel VIA[®] supply tool to the BG EF399 manifold. Ensure that the air valve and fluid valve on the supply tool are closed (see supply tool instructions).
9. If the engine is hot, the EGR cooler must be cooled before treatment can start. Open the supply tool air valve, keeping the fluid valve closed. Turn the BG EF399 manifold to “EXHAUST” and flush the EGR cooler with air for two minutes.
10. Unscrew fill cap and fill supply tool with 64 oz. (1.8 L) of BG Diesel EGR System Cleaner, PN PD10.
11. Reinstall the fill cap and hang supply tool from the hood latch. Connect shop air. Set air pressure on the tool to 40–50 psi.
12. Start the vehicle engine.
13. For model year 2008–present, disconnect the EGR cooler bypass valve actuator electrical connector. This will close the EGR cooler bypass valve (Figure 6). If the vehicle does not have an EGR cooler bypass valve, skip this step and step 18.



Figure 6

continued



Cummins 6.7L 2500/3500 *continued*

14. Ensure the BG EF399 manifold is set to “EXHAUST.”
15. Open the air valve on the supply tool. Adjust the regulator to maintain the initial pressure of 40–50 psi. Then open the supply tool fluid valve.
16. After $\frac{1}{4}$ of the fluid has been dispensed, close the fluid valve and let the air flow for an additional two minutes to flush deposits into the exhaust stream.
17. Repeat steps 15 and 16. If the vehicle has an EGR cooler bypass valve, disconnect and reconnect the EGR cooler bypass valve actuator electrical connector several times throughout this step. If the engine is too hot to do this, manually cycle (counterclockwise) the EGR cooler bypass valve (Figure 7). The EGR cooler bypass valve actuator electrical connector must stay disconnected if manually cycling the bypass valve. Alternatively, a scan tool can be used to cycle the EGR cooler bypass valve during this step.



Figure 7

18. Reconnect the EGR cooler bypass valve actuator electrical connector. This will allow cleaning of the EGR cooler bypass port.
19. Turn the BG EF399 manifold to “INTAKE” (Figure 8). Open supply tool fluid valve and continue service until the supply tool is empty.

NOTE: If at any time during the intake service you hear a diesel knock sound, turn the BG EF399 manifold to “OFF” for two minutes. After two minutes, turn the BG EF399 manifold to “INTAKE” and continue service.



Figure 8



Cummins 6.7L 2500/3500 *continued*

20. When supply tool is empty, let the vehicle operate for an additional five minutes and rev the engine several times to clear all residual fluid.
21. Repeat steps 10–20 using 32 oz. (946 mL) of BG Diesel EGR System Rinse, PN PD11.
22. Turn the fluid and air valves on the supply tool to the closed position. Turn the vehicle off. Detach shop air line and depressurize the supply tool by rotating the regulator knob counterclockwise.
23. Remove adaptors and reassemble vehicle components in the reverse order of removal.
24. After service, reset any engine codes. The vehicle should then be set to run a manual regeneration cycle. If that is not possible, the vehicle should be driven at highway speeds (or in the case of non-highway equipment operated under a load) for approximately 30 minutes. This is necessary to remove all of the residual fluid from the passages and cooler(s) and to combust any material that has reached the diesel oxidation catalyst (DOC) and diesel particulate filter (DPF). **This should be done as soon as possible after the service.**

