

# Cummins ISC 8.3L

## BG DIESEL EGR SYSTEM SERVICE INSTRUCTIONS



Wear safety goggles to protect your eyes.



Wear Nitrile,<sup>®</sup> Neoprene<sup>®</sup> 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 EF576 EGR flange 2.64" bolt center intake adaptor  
PN E101-1657



BG EF577 EGR flange 2.64" bolt center exhaust adaptor  
PN E101-1658



BG EF385 EGR manual opener adaptor  
PN E101-16581



EGR Cummins ISC 8.3L fastener set  
PN E101-1703



BG EF399 EGR manifold  
PN E101-1645

### Tool required:

- BG 64 Diesel VIA<sup>®</sup> supply tool, PN E101-1642

*continued*



## Cummins ISC 8.3L *continued*

### **EGR system consists of:**

- Cold side EGR valve (after EGR cooler), which allows for proper emissions control of NO<sub>x</sub> gases
- EGR cooler (controls temperature of exhaust gases to the air intake to the engine)
- 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

EGR temperature sensor

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 and foam insulator.
3. Remove both bolts on the EGR cooler outlet pipe where it connects at the EGR valve. Loosen the clamp on the EGR cooler outlet pipe and rotate the pipe 90° or 180° towards the front of the engine bay (Figure 1).



Figure 1

4. Turn the thumbscrew on the BG EF385 manual opener adaptor fully counterclockwise but do not remove it from the adaptor.
5. 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. NOTE: For easier installation of the BG EF385 manual opener adaptor, remove the EGR valve assembly first (four bolts). Install the BG EF385 manual opener adaptor and then reinstall the EGR valve assembly.
6. 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 2).



Figure 2

*continued*



## Cummins ISC 8.3L *continued*

- Using the existing bolts, install the BG EF576 intake adaptor at the EGR valve. Using the two nuts and bolts in the BG EGR Cummins ISC 8.3L fastener set, install the BG EF577 exhaust adaptor on the EGR cooler outlet pipe. Tighten EGR cooler outlet pipe clamp (Figure 3).



**Figure 3**

- Attach the BG EF399 manifold to the BG EF576 intake and BG EF577 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).
  - 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.
  - Unscrew fill cap and fill supply tool with 64 oz. (1.8 L) of BG Diesel EGR System Cleaner, PN PD10.
  - 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.
  - Start the vehicle engine. Ensure the BG EF399 manifold is set to “EXHAUST.”
  - 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.
  - After ¼ 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.
  - Repeat steps 13 and 14.
  - Turn the BG EF399 manifold to “INTAKE.” 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.**
- 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.

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**Cummins ISC 8.3L** *continued*

18. Repeat steps 10–17 using 32 oz. (946 mL) of BG Diesel EGR System Rinse, PN PD11.

**NOTE: For severe coking, it may be necessary to perform the service a second time to achieve desired results.**

19. 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.

20. Remove adaptors and reassemble vehicle components in the reverse order of removal.

21. 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.**

