

# Mercedes Sprinter 2.1L (2014-2015)

## 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:

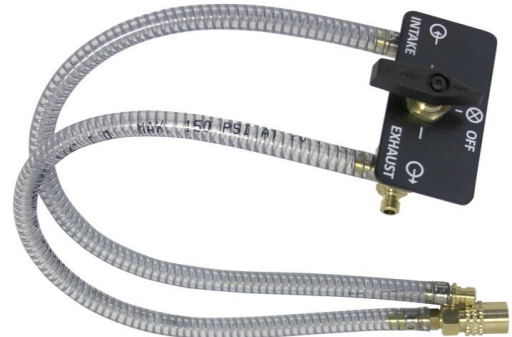
- BG EF531 EGR Flange 2.84" bolt center intake adaptor, PN E101-1693
- BG EF532 EGR Flange 2.06" bolt center exhaust adaptor, PN E101-1694
- BG EF399 EGR manifold, PN E101-1645



BG EF531 EGR intake adaptor,  
PN E101-1693



BG EF532 EGR exhaust adaptor,  
PN E101-1694



BG EF399 EGR manifold,  
PN E101-1645

### Tools required:

- BG 64 Diesel VIA® supply tool, PN E101-1642
- Scan tool to operate EGR valve and EGR cooler bypass valve

### EGR System Consists of:

- Hot side EGR valve (before EGR cooler) which allows for proper emissions control of No<sub>x</sub> gases
- EGR pre-cooler (controls temperature of exhaust gases to the EGR valve)
- EGR cooler (controls temperature of exhaust gases to the air intake to the engine)
- EGR cooler bypass valve located pre EGR cooler (controls cold exhaust gases to bypass EGR cooler)
- Exhaust back pressure sensor (measures exhaust pressure pre EGR valve)
- EGR temperature sensor (measures EGR cooler exhaust temperature and efficiency)

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

### Locations of EGR components:

- EGR cooler (Figure 1)
- EGR valve underneath EGR cooler (not visible)
- EGR cooler bypass valve (not visible)
- EGR cooler outlet pipe (Figure 1)



## EGR Inspection Procedure

**NOTE:** 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

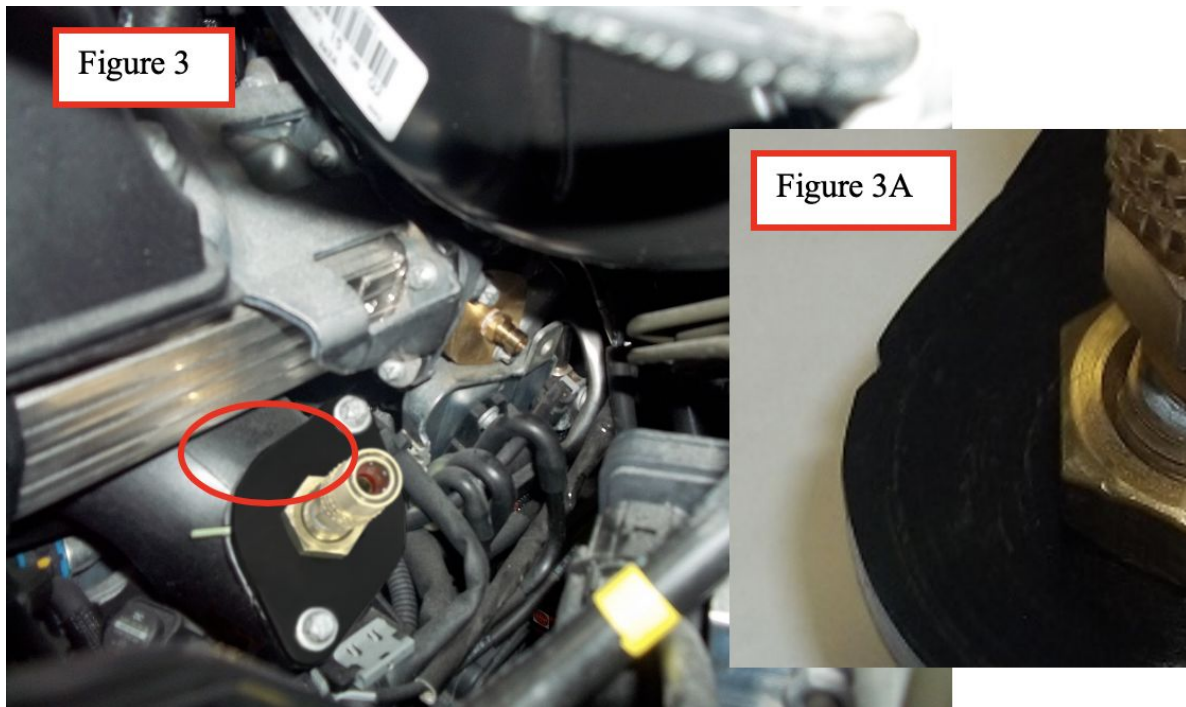
1. Add BG 245 Premium Diesel Fuel System Cleaner, PN 245, to vehicle's fuel tank.
2. Remove plastic engine cover.
3. Remove the EGR cooler outlet pipe by removing four bolts (Figure 2).



**Quick Tip:** Place the EGR cooler outlet pipe into a container and fill the container with BG Diesel EGR System Cleaner, PN PD10, until submerged. This will aid in the dislodging of soot from the pipe while the EGR cleaning procedure is performed.



- Using the four bolts, install the BG EF531 intake and the BG EF532 exhaust adaptors in place of the EGR cooler outlet pipe (Figure 3). The notch on the BG EF531 intake adaptor must be facing towards the engine for proper alignment and function (Figure 3A).



- Attach the BG EF399 manifold to the BG EF531 intake and BG EF532 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. Ignition must be on and, using a scan tool, command the EGR open. Open the supply tool air valve, keeping the fluid valve closed. Turn the BG EF399 manifold to exhaust and flush EGR cooler and pre-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. Using the scan tool, command the EGR valve open (80% max). The EGR valve will operate normally for 30 seconds. Command the EGR valve to open repeatedly throughout steps 10–12.
- Ensure the BG EF399 manifold is set to exhaust (Figure 4).
- 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.



12. 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.
13. Open supply tool fluid valve. Using the scan tool command the EGR cooler bypass actuator closed (0%). The EGR cooler bypass will operate normally after 30 seconds. Command the EGR cooler bypass actuator to close repeatedly throughout this step. 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.

14. Turn the BG EF399 manifold to intake (Figure 5).  
Continue service until the supply tool is empty.

**Note: If at any time during the intake service you hear a diesel knock sound, close the air and fluid valves on the supply tool for two minutes. After two minutes, open the air and fluid valves and continue service.**



15. 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.
16. Repeat steps 7–14 using 32 oz. (946 mL) of BG Diesel EGR System Rinse, PN PD11.
17. 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.
18. After the EGR cooler outlet pipe has soaked for 15 minutes, clean the pipe using the BG Diesel EGR System Cleaner. Fluid can be saved for use on other EGR components if required.
19. Remove adaptors and reassemble vehicle components in the reverse order of removal.
20. 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.**