

# Volkswagen/Audi 1.9L TDI 2004-2006

Engine Code BEW

## BG DIESEL EGR SYSTEM SERVICE INSTRUCTIONS



Wear safety goggles to protect your eyes.



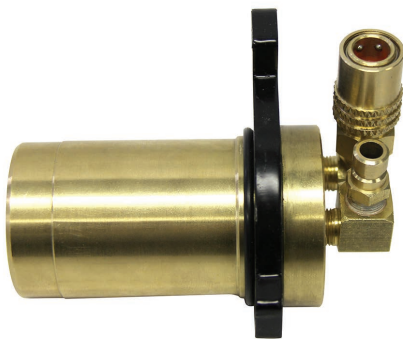
Wear Nitrile,<sup>®</sup> Neoprene<sup>®</sup> or PVC gloves to protect your hands.



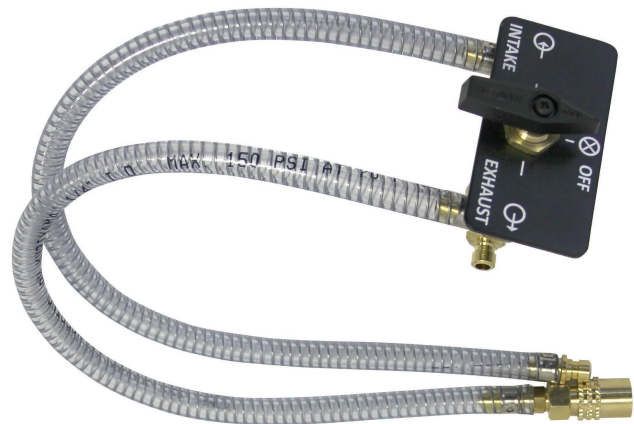
Wear a long-sleeved shirt to protect your arms.

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

### Adaptors required:



BG EF519 EGR 1.71" D  
valve adaptor  
PN E101-1690



BG EF399 EGR manifold  
PN E101-1645

### Tool required:

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

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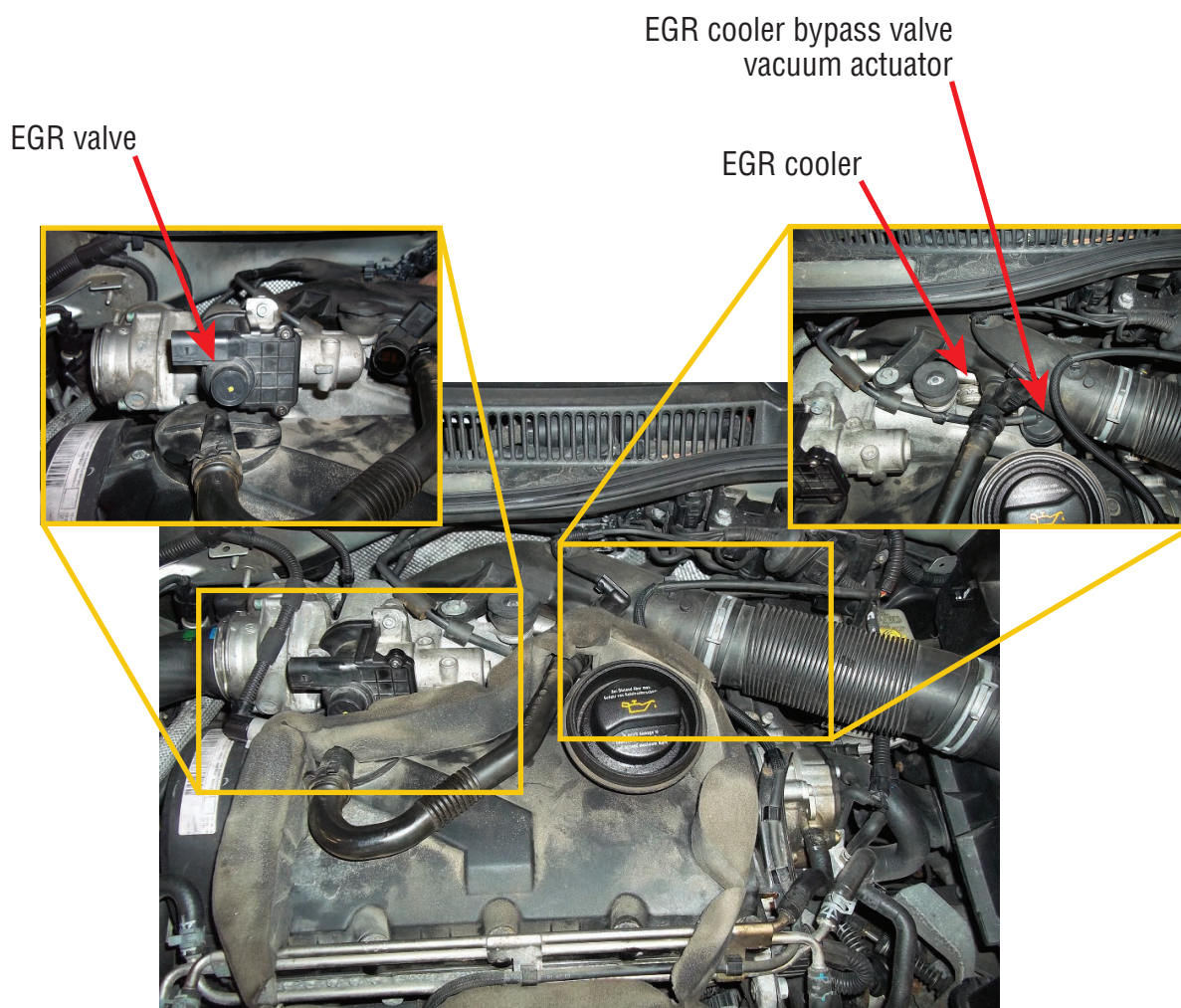


**EGR system consists of:**

- 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 cooler bypass valve (controls exhaust flow temperature to the air intake from the exhaust through the EGR cooler)
- 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**



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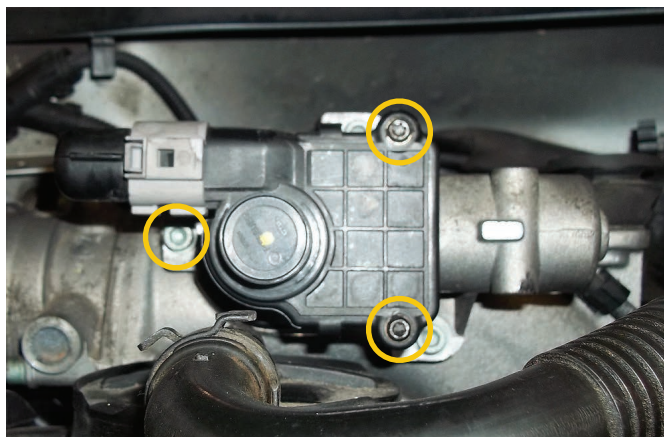


### EGR inspection

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.

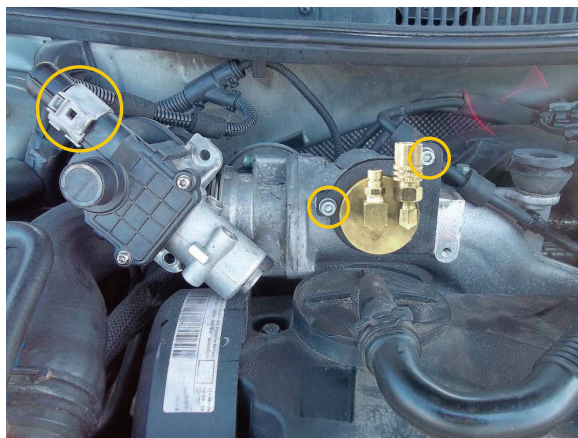
### Service procedure

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 the three EGR valve bolts (Figure 1).



**Figure 1**

4. Remove EGR valve and set on top of engine with the electrical connector attached. Install BG EF519 adaptor in its place using two of the three bolts and tighten hand tight to secure the adaptor (Figure 2).



**Figure 2**

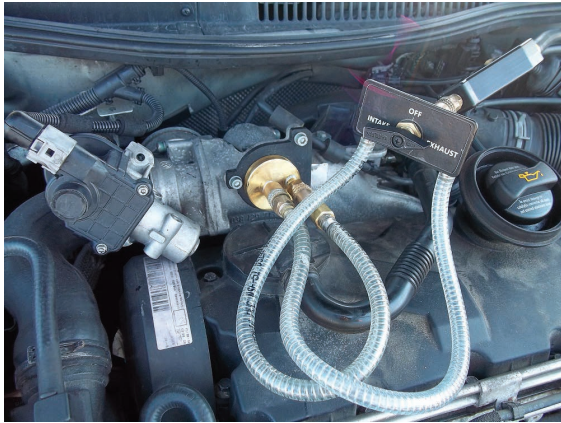
5. Attach the BG EF399 manifold to the BG EF519 adaptor. Attach the BG 64 Diesel VIA® supply tool to the BG EF399 manifold. Ensure that the air valve and fluid valve on the supply tool are closed (see supply tool instructions).

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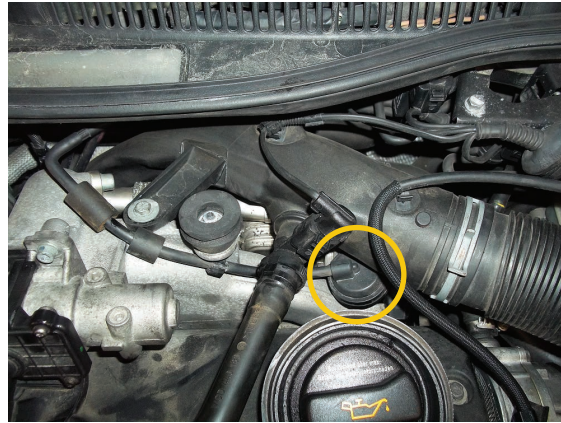




6. If engine is hot, the EGR system must be cooled before treatment can start. Ignition must be off for the EGR system to be cooled. Connect the hand vacuum pump tool to the EGR cooler bypass vacuum actuator (Figure 4). Draw a vacuum as this will close the EGR cooler bypass valve thus allowing cooling of the EGR cooler. Open the supply tool air valve, keeping the fluid valve closed. Turn valve on the BG EF399 manifold to “EXHAUST” and flush the EGR cooler with air for two minutes.
7. Unscrew fill cap and fill supply tool with 64 oz. (1.8 L) of BG Diesel EGR System Cleaner, PN PD10.
8. 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.
9. Start vehicle engine. Set the BG EF399 manifold to “EXHAUST” (Figure 3). Disconnect EGR cooler bypass valve vacuum actuator hose (Figure 4). Attach the hand vacuum pump tool and draw a vacuum. This will close the EGR cooler bypass valve and allow cleaning of the EGR cooler.



**Figure 3**



**Figure 4**

10. 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.
11. 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.
12. Rev the engine to 1,200 rpm. Turn the BG EF399 manifold to “INTAKE” (Figure 5). Open supply tool fluid valve and continue service, dispensing another  $\frac{1}{4}$  of the fluid.



**Figure 5**

*continued*



**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.**

13. Close supply tool fluid valve and turn the BG EF399 manifold to “EXHAUST.” Let the air flow for an additional two minutes to flush deposits into the exhaust stream.
14. Open supply tool fluid valve and continue service, dispensing another ¼ of the fluid. During this step, cycle the EGR cooler bypass valve several times by releasing the vacuum on the hand vacuum pump tool and drawing a vacuum. This will allow cleaning of the EGR cooler bypass port.
15. Turn the BG EF399 manifold to “INTAKE.” Open supply tool fluid valve and continue service until the 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.**

16. When the supply tool is empty, let the vehicle operate for an additional five minutes and rev the engine several times to clear all residual fluid.
17. Repeat steps 7–16 using 32 oz. (946 mL) of BG Diesel EGR System Rinse, PN PD11.
18. 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 counter-clockwise.
19. Disconnect the EGR valve electrical connector and clean the EGR valve with BG Diesel EGR System Cleaner.
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.**

