INSTALLATION MANUAL

BULLET PROOF VK688-300
Oil Cooler Kit
2003-2007
F-SERIES

NEAL TECHNOLOGIES, INC.
U.S. PATENT 8, 887, 688. OTHER PATENTS PENDING
UPDATED 1/2/2018
Read BEFORE You Begin Installation

These are the parts included in your kit. Please locate and identify each part prior to starting the installation process. There are some drawings in the back of this manual that can aid you in identifying the proper pieces.

<table>
<thead>
<tr>
<th>Part Number</th>
<th>Description</th>
<th>Quantity</th>
</tr>
</thead>
<tbody>
<tr>
<td>90201121</td>
<td>BPD Oil Transfer Block Assembly</td>
<td>1</td>
</tr>
<tr>
<td>90201123</td>
<td>6.0 Oil Cooler Relocation Plate Assembly</td>
<td>1</td>
</tr>
<tr>
<td>90201124</td>
<td>VK688 Hose Prepack</td>
<td>1</td>
</tr>
<tr>
<td>90100093</td>
<td>Hardware Prepack</td>
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</tr>
<tr>
<td>6502235</td>
<td>6.0 Oil Cooler Relocation Bracket</td>
<td>1</td>
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</tbody>
</table>

**NOTE: You will need to acquire the following parts for this kit:**

<table>
<thead>
<tr>
<th>Part Number</th>
<th>Description</th>
<th>Quantity</th>
</tr>
</thead>
<tbody>
<tr>
<td>6000006</td>
<td>Ford OEM Oil Cooler and Gasket Set</td>
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</tr>
<tr>
<td>6000092</td>
<td>Intake Gasket set</td>
<td>1</td>
</tr>
<tr>
<td>47076</td>
<td>Dorman Vacuum Ball Reservoir (optional)</td>
<td>1</td>
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</table>
Read BEFORE You Begin Installation

Installation Overview

Installing the Bullet Proof Diesel Oil Cooler Relocation Kit is no more difficult than replacing the OEM oil cooler. That being said, it is important to remember that this is major surgery. Cleanliness and taking the time to do the job correctly are essential for a perfect installation.

Extra Help: Step-By-Step Instructions for Removal of the Intake Manifold

Detailed installation and removal instructions for the EGR Cooler and Engine Oil Cooler can be purchased online. Please go to BulletProofDiesel.com. Click on “Questions? We have answers”. Click on “Do-It-Yourself” and find the link to purchase the information from eAutoRepair.net for your particular make and model. Once purchased, please proceed to the section:

Repair → Type “INTAKE MANIFOLD” → Search
Engine → Click on “MECHANICAL”
Click on “ENGINE – 6.0 DIESEL” —F250-F550 PICKUPS’
Click on “HEADINGS”

Search for the “IN-VEHICLE REPAIR” category, which includes removal and replacement instructions for the intake manifold.

**Please note:** A 2003-2004 truck with a ROUND EGR cooler will need to remove the 45° fitting that comes installed in the oil transfer block and replace it with the straight fitting in the hardware pack.

1. Bullet Proof Diesel Oil Transfer Block with 45° Fitting  
2. Bullet Proof Diesel Oil Transfer Block with Straight Fitting
Installation Stage 1: The Oil Transfer Block

1. Follow the OE oil cooler removal procedures (which include the removal of the intake manifold and turbo charger).

   **NOTE:** THERE ARE NUMEROUS UPGRADES AND UPDATES THAT CAN AND SHOULD BE INSTALLED DURING THIS PHASE. YOU CAN PURCHASE THE APPROPRIATE UPDATE KIT FROM BULLETPROOFDIESEL.COM SEARCH KEYWORD: “PROFESSIONAL”

2. Install the oil cooler gasket into the Bullet Proof Diesel (BPD) Oil Transfer Block.

3. Remove the OE Oil Filter Base from the OE Oil Cooler block and remove the used seals from the base.

   **OE Filter Base Seal**

4. Clean the seal groove of the OE Oil Filter Base and install the replacement seal.
5. Using the three (3) provided M6 x 12mm socket head cap screws and the remaining five (5) OE Torx hardware, re-install the OE Oil Filter Base to the BPD Oil Transfer Block.

6. Be sure to remove all of the oil and debris from the HPOP reservoir.

7. Remove and discard the OE HPOP filter. The BPD Oil Transfer Block has an integral HPOP screen, made from stainless steel, which operates in place of the OE HPOP filter.
8. Use the OE bolts and torque specifications to install the BPD Oil Transfer Block. Replace the OE Filter Housing Seal on the filter base. Do not reinstall the OE Filter housing and Oil Filter at this time, as it will be completed after the oil transfer hoses and intake manifold are installed.

9. Discard the OE silicone coolant hose. This is replaced by the 90° molded heater hose and spring clamps supplied in the kit. We recommend using the spring clamps over regular hose clamps due to the location and the difficulty involved with tightening regular hose clamps after the installation is complete. Spring clamps, by design, will tighten as the rubber relaxes.

10. Following the OE procedure, install the intake manifold. Do not install the OE Oil/Fuel Filter Housing or charge air tubes.
NOTE: With the elimination of the blue silicone hose, you will need to secure the 90° molded heater hose to the EGR cooler in a different manner. It is recommended to use the provided spring clamps to properly secure the hose. It is important to note the routing of the hose over the EGR cooler and intake manifold as shown, as well as the position of the clamps.

2 spring clamps.

Please note: Be sure there is no interference between the clamp and the turbo pedestal.
11. Remove the Oil Filter Stand Pipe. This will make your hose routing and turbo installation easier.
**Installation Stage 2: Oil Hose Installation and Routing**

1. Install Coolant Hose #1 (90° Molded Coolant Hose) from EGR cooler towards the passenger side, over the EGR cooler and intake manifold as shown. Make sure to route the hose over the heater hose.

2. Secure Oil Hose #1 (21.75”) to the Oil In port on the oil transfer block. Route this hose following the same path of the previously installed coolant hose.
3. Following the OE procedure, install the turbo. Do not install the OE Oil/Fuel Filter Housing, Oil Standpipe or charge air tube yet.

4. Install Coolant Hose #2 from transfer block Coolant In port towards the passenger side, following the previously installed hoses. Make sure to route over the heater hose.

NOTE: Take caution when routing hoses and make sure they are not pinched or against any sharp edges. Pay special attention to hose routing around the alternator.
Installation Stage 3: The Oil Cooler Bracket, Oil Cooler, and Oil Cooler Relocation Plate

1. Disconnect and remove passenger side battery and battery tray.

2. Vacuum reservoir removal is necessary for this installation; remove it and set it aside. Reservoir relocation is suggested for proper functionality of your four wheel drive and A/C venting.
3. Install the three (3) vibration isolators using the three (3) M6 x 1.0 x12 nuts and three (3) M6 washers to the oil cooler relocation bracket.

4. Place the Bullet Proof Diesel oil cooler relocation bracket in the battery area on the passenger side.

5. Place the battery tray on top of the bracket. Using the OEM existing hardware, bolt the tray into place.
6. Place one (1) each of two (2) small rubber gaskets (not supplied in this kit) on the bottom of the oil cooler relocation plate on the oil ports. Next, place one (1) each of two (2) small rubber gaskets on the top oil cooler coolant ports. Carefully and properly line up the relocation plate and oil cooler and firmly press together.

7. Using the OEM oil cooler hardware from the oil cooler removed earlier, bolt the new oil cooler to the relocation plate.
8. Place the assembled oil cooler relocation plate and oil cooler into the bracket.

9. Secure using the three (3) M6 x 1.0 x12 nuts and three (3) M6 washers provided.
10. Carefully secure each coolant and oil hose to the proper 90° fittings on the Bullet Proof Diesel oil cooler relocation plate.

**NOTE:** The coolant hose from the oil transfer block connects to the “Coolant In” port on the remote adapter plate. The coolant hose that connects to the “Coolant Out” port should connect to the EGR cooler.

11. Reinstall your battery. Leave your battery ground cable disconnected until the completion of your installation.
Installation Stage 4:

1. Once the hose fittings are installed and tightened, install the OE Filter Oil Standpipe and OE Filter Housing per the OE installation instructions.
2. Reinstall the oil filter and cover. Continue the OE assembly instructions to complete the installation.
This shows the complete installation before the new vacuum reservoir installation, which is sold separately. For vacuum reservoir installation instructions, please see separate installation manual.