

DETROIT DIESEL



Installation Instructions

18SP606* – Series 60[®] Tube-and-Shell Cooler Replacement for Engines with Bellows Hot Pipe

* Revision – 5/10/05

KIT DESCRIPTION

Pneumatic EGR Valve Kit (P/N: 23535286) and Hydraulic EGR Valve Kit (P/N: 23535287) contain the necessary parts for replacement of a Series 60 tube-and-shell EGR cooler (P/N: 23533179) on engines that have been previously updated with a bellows hot pipe using kit P/N: 23534871, 23534872, 23534873, or 23534874.

KIT CONTENTS

The replacement kits contain the following parts listed in Table 1:

Part Number	Description	Kit P/N: 23535286 Pneumatic EGR Valve (Quantity)	Kit P/N: 23535287 Hydraulic EGR Valve (Quantity)
23527385	Elbow-to-Water Pump Seal Ring	1	1
23529735	EGR Valve Actuator Shield	—	1
23535180	EGR Cooler	1	1
23533220	Bellows	1	1
23533534	EGR Cooler Gasket	1	1
23533538	EGR Valve Body	—	1
23533705	EGR Valve Assembly Pneumatic	1	—
23533707	Stud, M8 x 1.25 Nimonic	3	3
23534003	V-Band Clamp	2	2
23534432	M8 Nut	3	3
18SP606	Instruction Sheet	1	1

Table 1 Description of Kit Parts

NOTES:

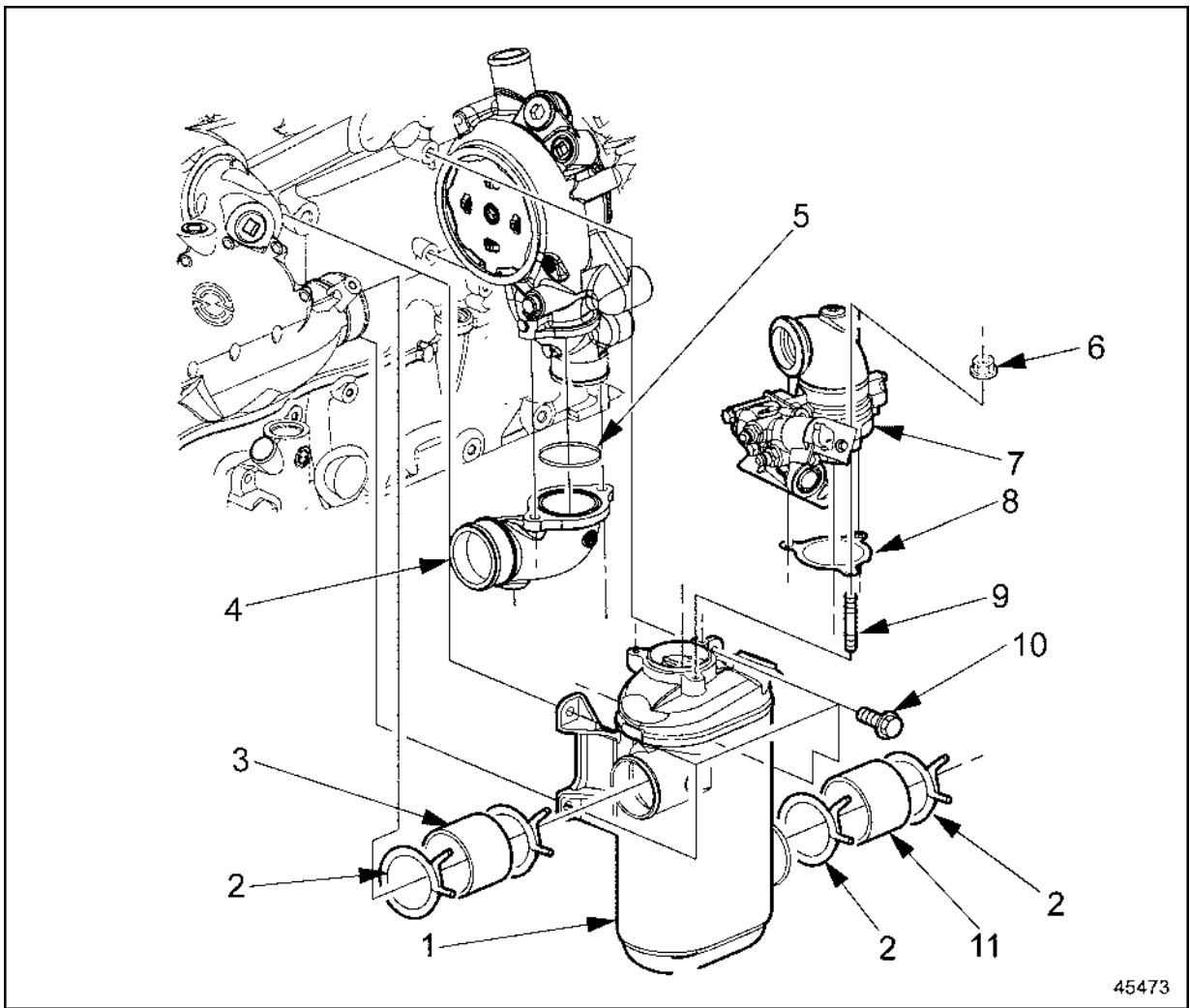
- The bellows assembly is a one-time use component. Once removed, the bellows must be replaced.
- The new service kits should be installed **only** on engines with a tube-and-shell EGR cooler (P/N: 23533179).
- The new service kits should be installed only on engines that have been updated with the bellows hot pipe kit P/N: 23534871, 23534872, 23534873, or 23534874.

INSTALLATION PROCEDURE

EGR COOLER INSTALLATION

Install the EGR cooler as follows (see Figure 1):

1. Install three M8 studs into the EGR cooler. Torque to 20-24 N·m (15-18 lb·ft).
2. Insert the EGR cooler water outlet into hose on oil cooler inlet.
3. Align the EGR cooler mounting plate holes with the four bosses on the cylinder block.
4. Thread the four M10 bolts through the mounting plate of cooler and into the cylinder block. Torque bolts to 46-52 N·m (34-38 lb·ft).
5. Install hose and clamps onto the EGR cooler water inlet.
6. Insert water pump outlet elbow into the hose on EGR cooler water inlet.
7. Install the seal ring and water pump elbow on the water pump using two M10 bolts. Torque bolts to 58-73 N·m (43-54 lb·ft).



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| 1. EGR Cooler | 7. EGR Valve |
| 2. Spring Wire Clamp (Re-use from engine) | 8. EGR Cooler Gasket |
| 3. EGR Cooler-to-Oil Cooler Hose (Re-use from engine) | 9. M8 Stud (3) |
| 4. Water Pump Elbow (Re-use from engine) | 10. M10 Bolt (Re-use from engine) |
| 5. Elbow-to-Water Pump Seal Ring | 11. EGR Cooler-to-Water Pump Hose (Re-use from engine) |
| 6. M8 Nut (3) | |

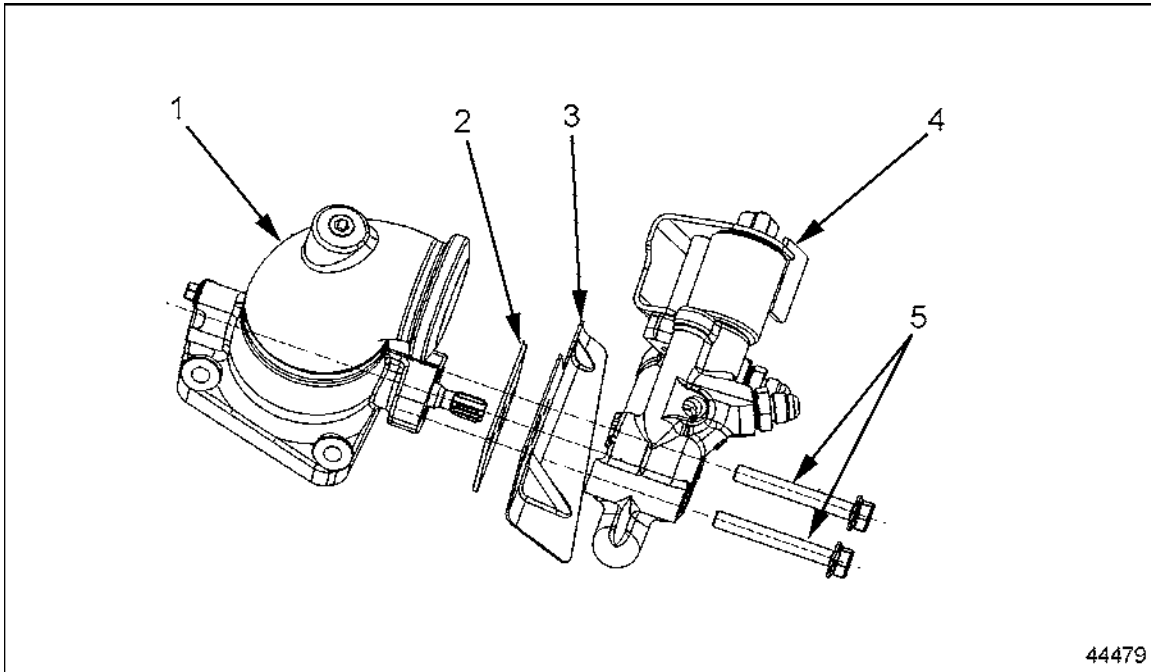
Figure 1 EGR Cooler Installation

EGR VALVE INSTALLATION

Install the EGR valve as follows:

NOTE:

If you are installing a pneumatic EGR valve on a DDEC IV engine, skip steps 1 through 4 and start at step 5. If you are installing a hydraulic EGR valve on a DDEC IV engine, start at step 1 and refer to Figure 2.

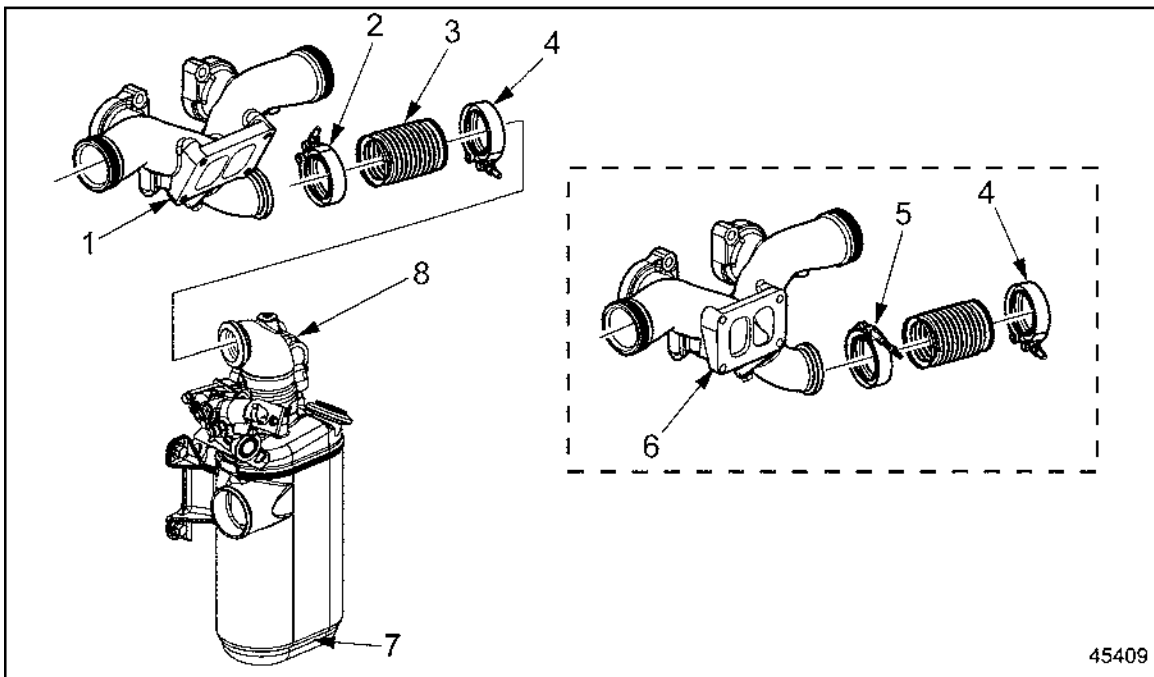


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| 1. EGR Valve Assembly | 4. Hydraulic Actuator Assembly |
| 2. Insulator Shield | 5. Bolts |
| 3. Heat Shield | |

Figure 2 Hydraulic Actuator EGR Valve Assembly

1. Remove the old hydraulic EGR valve assembly from the engine.
2. Remove and reuse the hydraulic actuator (P/N: 23533139) from the old EGR valve by removing the two bolts (P/N: 11509515) that attach it to the valve body.
3. Remove insulator and heat shields and discard insulator shield (P/N: 23529735).
4. Attach the hydraulic actuator to the new EGR valve body (P/N: 23533538) using new insulator shield (P/N: 23529735) with two bolts. Torque bolts to 30-35 N·m (22-26 lb·ft).



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| 1. Exhaust Manifold Mid-Setback Center Section with Upper Hot Pipe | 5. Upper Hot Pipe-to-Bellows Clamp Orientation for a High-Mount Center Section |
| 2. Upper Hot Pipe-to-Bellows Clamp Orientation for a Mid-Setback Center Section | 6. Exhaust Manifold High-Mount Center Section with Upper Hot Pipe |
| 3. Bellows | 7. EGR Cooler |
| 4. EGR Valve-to-Bellows Clamp Orientation for all Engines | 8. EGR Valve Assembly |

Figure 3 Exhaust Manifold Bellows Clamp Orientation

5. Loosely install bellows to EGR valve assembly using a V-band clamp. Refer to Figure 3.
6. Slip the remaining V-band clamp over the flange of the upper hot pipe.
7. Install EGR cooler gasket onto the three EGR cooler studs.
8. Align the bellows with the upper hot pipe and while pressing against the upper hot pipe, lower the EGR valve assembly over the EGR cooler studs.
9. Install three EGR cooler nuts and torque to 22-26 N·m (16-19 lb·ft).
10. Turn the V-band clamps by hand to ensure the bellows end flanges are not damaged after installation.
11. Position the V-band clamps as indicated in Figure 3 and tighten to 12 N·m (106 lb·in.).

DETROIT DIESEL



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