



Installation Instructions

SAFETY VALVE KIT for 360cc and 720cc (DLU) compressors (International Maxxforce™ 11 and 13 Big Bore Engines)

Many vehicles permit the replacement of the safety valve without the need to remove the compressor. In these cases, it is only necessary to perform the steps with the ♦ (diamond symbol) below. The full set of instructions is only used where the replacement requires the removal of the compressor. In all cases, follow all standard safety practices including, but not limited to, those found on page two of this document.

These instructions are general and are intended to be a guide. In some cases additional preparations and precautions are necessary. In all cases follow the instructions contained in the vehicle maintenance manual in lieu of the instructions, precautions and procedures presented in this document.

VEHICLE PREPARATION

For vehicles where the compressor must be removed, follow the full set of instructions below.

- ♦ 1. Block the wheels of the vehicle and drain the air pressure from all the reservoirs in the system.
2. Drain the engine cooling system and the cylinder head of the compressor. Identify and disconnect all air, water and oil lines leading to the compressor.
3. Remove as much road dirt and grease from the exterior of the compressor as possible.
4. Remove the discharge fitting, if applicable, and note their position on the compressor to aid in reassembly.
5. Remove any supporting bracketing attached to the compressor and note their positions on the compressor to aid in reassembly.
6. **Note the position of the six mounting bolts. Two of the six bolts are shorter and must be installed in the same locations during re-assembly. Mark the bolts and locations to ensure they are returned to their original locations.** Remove the six mounting bolts that retain the compressor to the side of the engine block. Remove the compressor from the vehicle.
7. Inspect drive gear and associated drive parts for visible wear or damage. If the compressor drive gear is worn or damaged, the compressor must be replaced. Refer the Engine Manufacturers service manual to address the associated engine drive parts.

PREPARATION FOR DISASSEMBLY

Place a clean shop rag over the openings that expose the gear and crankshaft/connecting rod assembly (refer to Figure 1). No contamination is permitted in these areas.

- ♦ Remove the balance of road dirt and grease from the exterior of the compressor with a cleaning solvent.

Prior to disassembly make certain that the appropriate kits are available. Refer to Figure 1 during the entire disassembly and assembly procedure.

SAFETY VALVE

- ♦ Remove the washer and discharge safety valve from the cylinder head.

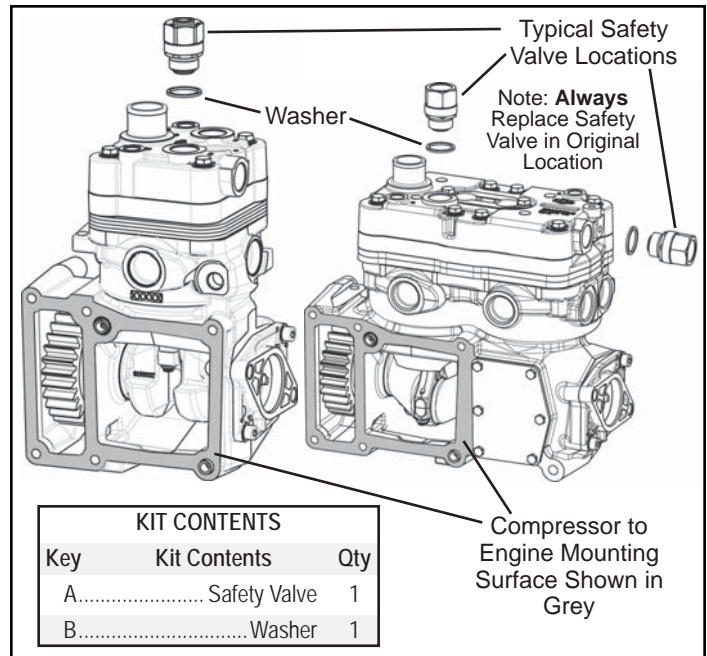


FIGURE 1 – COMPRESSOR EXPLODED VIEWS

CLEANING OF PARTS

GENERAL

All parts should be cleaned in a good commercial grade of solvent and dried prior to inspection.

CRANKCASE

Follow the instructions contained in the vehicle maintenance manual in lieu of the instructions and procedures presented in this manual. Carefully remove all sealant gasket material adhering to the machined face of the crankcase. See Figure 1. Make certain not to scratch or mar the mounting surface. Note: Keep the crankcase opening covered to prevent any of the sealant material removed during this step from entering the crankcase. Repeat this process on the engine mounting face as well.

ASSEMBLY

General Note: All torques specified in this manual are assembly torques and typically can be expected to fall off after assembly is accomplished. Do not re-torque after initial assembly torques fall, unless instructed otherwise. See *Torque Specifications* below.

SAFETY VALVE

- ♦ Install the washer and safety valve into the same location in the cylinder head as originally installed. Torque the safety valve to the value shown in the *Torque Specifications* below.

TORQUE SPECIFICATIONS

Assembly Torques

- Cylinder Head Bolts (M8x1.25-6g) 265-292 in. lbs.
(30-33 N•m)
- End Cover Bolts (M10x1.5) 195-212 in. lbs.
(22-24 N•m)
- ♦ Safety Valve (M26x1.5) 59 - 66 ft. lbs. max.
(80 - 90 N•m) max.
- Discharge Port Fittings (M26x1.5) 66 ft. lbs. max.
(90 N•m) max.
- Water Port Fittings (M16 x 1.5-6H) 33 ft. lbs. max.
(45 N•m) max.

IMPORTANT! PLEASE READ AND FOLLOW THESE INSTRUCTIONS TO AVOID PERSONAL INJURY OR DEATH:

When working on or around a vehicle, the following general precautions should be observed at all times:

1. Park the vehicle on a level surface, apply the parking brakes, and always block the wheels. Always wear safety glasses. Where specifically directed, the parking brakes may have to be released, and/or spring brakes caged, and this will require that the vehicle be prevented from moving by other means for the duration of these tests/procedures.
2. Stop the engine and remove ignition key when working under or around the vehicle. When working in the engine compartment, the engine should be shut off and the ignition key should be removed. Where circumstances require that the engine be in operation, EXTREME CAUTION should be used to prevent personal injury resulting from contact with moving, rotating, leaking, heated or electrically charged components.
3. Do not attempt to install, remove, disassemble or assemble a component until you have read and thoroughly understand the recommended procedures. Use only the proper tools and observe all precautions pertaining to use of those tools.
4. If the work is being performed on the vehicle's air brake system, or any auxiliary pressurized air systems, make certain to drain the air pressure from all reservoirs before beginning ANY work on the vehicle. If the vehicle is equipped with an AD-IS® air dryer system or a dryer reservoir module, be sure to drain the purge reservoir.
5. Following the vehicle manufacturer's recommended procedures, deactivate the electrical system in a manner that safely removes all electrical power from the vehicle.
6. Never exceed manufacturer's recommended pressures.
7. Never connect or disconnect a hose or line containing pressure; it may whip. Never remove a component or plug unless you are certain all system pressure has been depleted.
8. Use only genuine Bendix® replacement parts, components and kits. Replacement hardware, tubing, hose, fittings, etc. must be of equivalent size, type and strength as original equipment and be designed specifically for such applications and systems.
9. Components with stripped threads or damaged parts should be replaced rather than repaired. Do not attempt repairs requiring machining or welding unless specifically stated and approved by the vehicle and component manufacturer.
10. Prior to returning the vehicle to service, make certain all components and systems are restored to their proper operating condition.
11. For vehicles with Antilock Traction Control (ATC), the ATC function must be disabled (ATC indicator lamp should be ON) prior to performing any vehicle maintenance where one or more wheels on a drive axle are lifted off the ground and moving.

INSTALLING THE COMPRESSOR

(For vehicles where the compressor has been removed.)

1. Apply a liquid gasket sealant to the compressor / engine mounting interface (Refer to Figure 1 for compressor mounting face). Follow the "Engine or Vehicle Manufacturers guidelines for the proper liquid gasket sealant material and application procedure.
2. Align the locating pins on the compressor onto the mating holes on the engine mounting surface. Secure the compressor to the engine using the 6 mounting bolts. NOTE: There are 2 short bolts and 4 long bolts. Be sure the use the proper length bolt for the crankcase bolt holes. Run each of the bolts down finger tight, making sure not to smear the liquid gasket material on the sealing surface. Once the bolts are all finger tight; tighten the mounting bolts per Engine Manufacturers recommended torquing sequence and torque requirements.
3. Install any supporting brackets on the compressor in the same position(s) noted and marked during removal.
4. Inspect all air and coolant lines and fittings before reconnecting them to the compressor. Make certain o-ring seals are in good or new condition, the threads are clean and the fittings are free of corrosion. Replace as necessary.
5. Install the discharge and coolant fittings, if applicable, in the same position on the compressor noted and marked during disassembly. See the Torque Specifications for various fitting sizes and types of thread at the rear of this manual. Tighten all hose clamps.
6. Before returning the vehicle to service, perform the *Operation and Leakage Tests* specified in this manual. Pay particular attention to all lines and hoses disconnected during the maintenance and check for air, oil, and coolant leaks at compressor connections and the compressor engine interface. Also check for noisy operation.

◆ OPERATION & LEAKAGE TESTS

Note: The 360cc or 720cc (DLU) compressor does not contain components to unload the compressor. Therefore, the compressor pumps continuously. In most systems that use an air dryer, the governor and DLU-style air dryer are used to unload the system (i.e. air is not being delivered to the brake system reservoirs). When system unloading occurs, air from the compressor will typically flow out the exhaust port of the air dryer.

- ◆ 1. Start the engine and note that the air system steadily builds pressure.
- ◆ 2. With system air pressure increasing check for cylinder head gasket air leakage. Apply a soap solution around the cylinder head. Check the gaskets between the cylinder head, cooling plate and valve plate assembly for air leakage. No leakage is permitted. If leakage is detected, try draining all air pressure and then re-torquing the head bolts. Replace the compressor if replacing the head gasket has not resolved the leakage problem.
- ◆ 3. Allow air system pressure to build and note that the unloading system unloads properly at the specified governor cutout pressure. Repeat this test 3 times noting that the compressor unloads at approximately the same pressure each time. If the compressor fails to unload by at least 150 psi system pressure, check all air lines to and from the governor. Make certain each line is clear (unobstructed) and not kinked, or leaking. Repair or replace the governor as needed.
4. More complete compressor performance tests are provided in the Bendix Service Data Sheet.
- ◆ All Service Data sheets are available for free download from www.bendix.com. You may also order paper copies from the Literature Center at www.bendix.com or by calling 1-800-247-2725.

