

The BVV2CYL & BVV4CYL use a pressure-less crank system to prevent solvents from encountering bearing lubrication used in the unit. The isolation of the bearing lubrication is required to meet FDA rules on food handling. With the piston seal being the primary seal, daily inspections for leaks are recommended.

The presence of residual resins in the solvent can collect in the compressor. The use of a molecular sieve or coalescent oil separator is required to prevent resin/oil from contaminating the compressor and potentially damaging to the piston seals.

The use of this equipment with ASHRAE Class A3 flammable gases make this a hazardous application. Proper training of personnel handling Class A3 refrigerants is required. Proper ventilation and continuous monitoring of the work area where the unit is located is required.

The BVV-3 kit contains:

- 2 Piston Top Plates with Seals pre-installed
- 2 Piston Wear Bands
- Piston Top Installation Tool
- Two BVV-3 will be required for BVV4CY installation.

Additional Tools and Supplies required for the installation:

- 3/16" Allen Hex Wrench
- #2 Phillips Screwdriver
- 5/8" Socket and Ratchet Wrench
- Torque Wrench
- 242 Loctite
- Vise Grips



Install BVV-3 replacement seals as follows:

1. Remove the six sheet metal screws and four hex bolts for the feet to remove the unit cover.



Fig. 1

2. Remove the eight 3/16" socket head bolts to remove the compressor head.

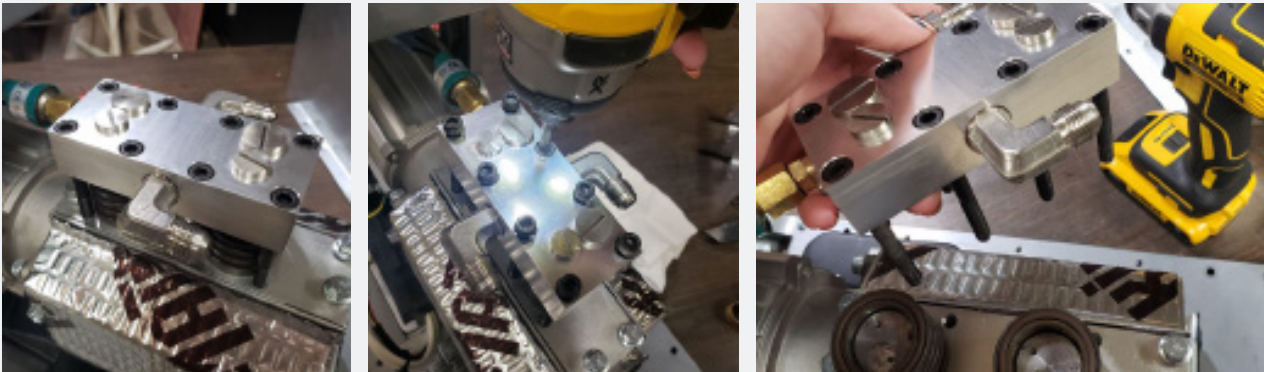


Fig. 2

(If you have a 4-cylinder unit, keep tubes attached and release both heads evenly to keep from bending)



Fig. 3

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3. Remove both cylinders and inspect cylinder walls for scoring, blemishes, and harden resin. [Fig. 4] If there is any resin residue, clean cylinders with 100% alcohol. **IMPORTANT: IF THE CYLINDERS ARE NOT ULTRA SMOOTH, THE NEW PISTON SEAL WILL WEAR OUT PREMATURELY.** If the cylinders are damaged, replace. If reusing the cylinders save the metal shims underneath each cylinder [Fig. 5] as they are set for a certain clearance that needs to be maintained when reassembling. If the shims are accidentally mixed up, follow the Top Dead Center Clearance procedure. Mark each cylinder and set aside the corresponding shims so they can be put back in the same order. Some shims are not all the same thickness so using this method will aid in not mixing them up. The shims we use are either .002" or .004" thick. During manufacturing of the pump we use the shims to set the depth of the piston head for best performance.



Fig. 4

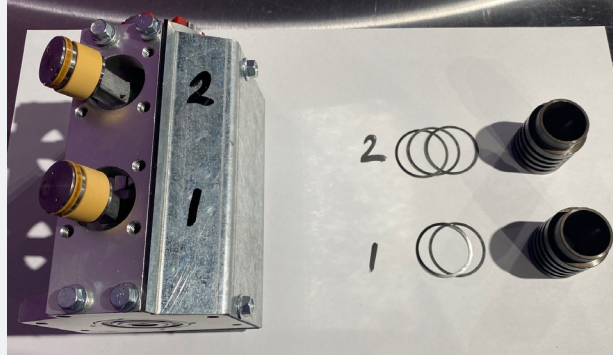


Fig. 5

4. Remove and discard Wear Bands. Use Vice Grips to remove Piston Top/Seal assembly. [Fig. 6] Once the Top Piston assembly has been removed, inspect exposed threads on Piston Base. Clean off any loose dried Loctite from the threads. Wipe the area around the openings clean. [Fig. 7]



Fig. 6



Fig. 7

5. Check the connecting rod for smooth movement and bearing wear. (If bearing wear is excessive, it will be necessary to purchase and install a new connecting rod replacement kit, p/n BVV-1.)

6. Retrieve new seals from BVV-3 kit. [Fig. 8] In the kit is a Piston Wrench. Insert Piston Wrench Tool into 5/8" Socket. [Fig. 9]



Fig. 8



Fig. 9

7. Apply one small drop of Loctite 242 onto exposed threads on the piston base. Install the new Piston Top assembly hand tight onto new Piston Base. Use Piston Wrench to complete tightening with a torque of 2-3 ft.-lbs. Repeat for remaining piston(s).



Fig. 10



Fig. 11



Fig. 12

8. Install new Piston Wear Bands on each piston.



Fig. 13



9. Install the matched cylinders and shims over the pistons. The cylinder and shims must go back in the same location. **(IMPORTANT: Make sure cylinder walls are free of blemishes and hard resin formations)** The piston seals are new and will be very tight when installing the cylinders. Work the cylinder back and forth around the piston top until you can push the cylinders down all the way to the top plate. [Fig. 14]

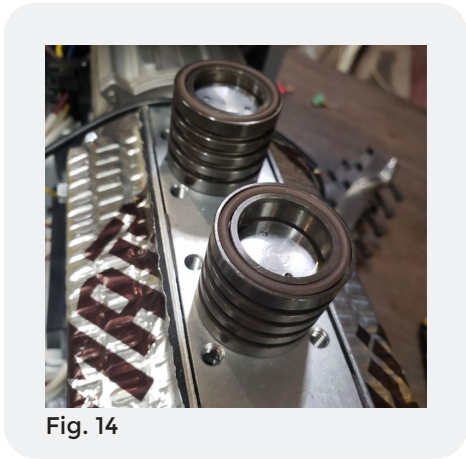


Fig. 14

10. Re-install the compressor head onto the top of the cylinders. Hand tighten the compressor head bolts to ensure the head is level. Use a torque wrench to 10 ft-lbf to complete the installation. [Fig. 15]

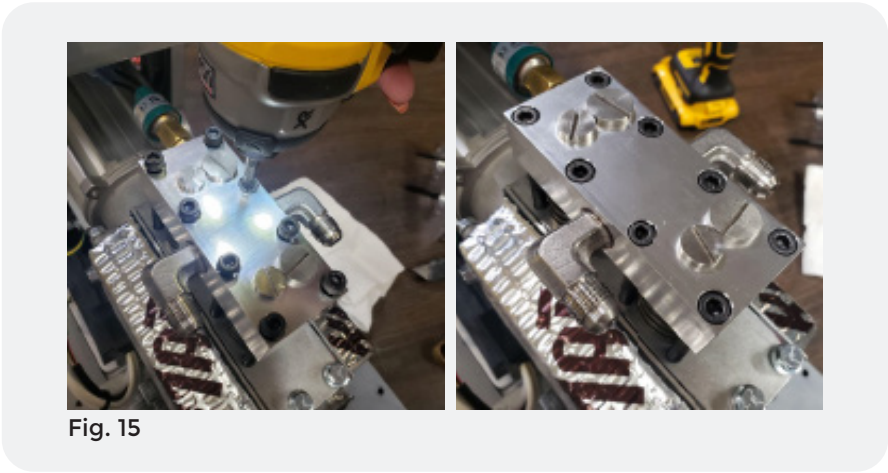


Fig. 15

11. Re-install Cowling [Fig. 16] and Rubber feet onto unit. [Fig. 17]

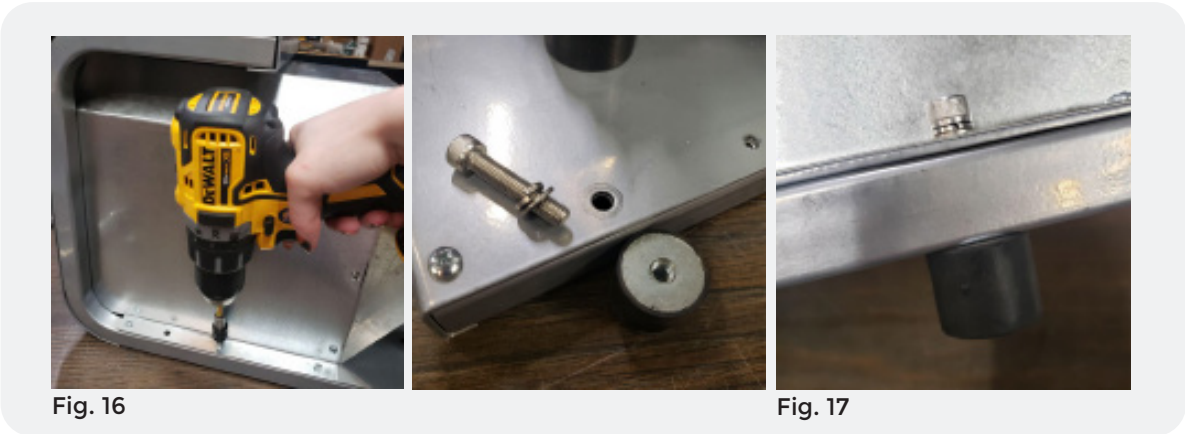


Fig. 16

Fig. 17

Test the compressor assembly for operation and performance. With a manifold gauge set up can quickly check the pressure differential or compression ratio of the compressor. Build up a 300 PSIG head pressure then close off the suction port. The suction pressure should drop to at least 15" hg vacuum. Also pressurize both sides of the head and check for leakage.

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