



Dia-Vac® Pump Operating Instructions
Double Diaphragm Supplemental Instructions

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General Operating Conditions

The double diaphragm pump utilizes a two diaphragm system for each head. The primary diaphragm is in constant contact with the process gas. The secondary diaphragm is separated from the primary by a spacer. The two diaphragms together with the spacer form a leak detection chamber. This chamber can be monitored for ingress of process gas or variations in pressure that would indicate a primary diaphragm failure.

It is best to monitor the leak detection chamber for ingress of process gas. When the process gas is detected in this chamber, the primary diaphragm should be inspected for failure. There are times when it is not possible to monitor the chamber for process gas. In these instances, the chamber can be monitored for variations in pressure. Generally a one PSI change in the pressure or vacuum level inside the chamber is a good indication of a primary diaphragm failure. When this occurs, the pump should be shut down and the primary diaphragm should be inspected for failure.

Safety

The double diaphragm option is designed to prevent hazardous gasses from leaking even after the rupturing of the primary diaphragm. It is imperative to stop the pump and change both diaphragms once it has been determined that the primary diaphragm has failed. Failure to do so could result in the gas escaping from the pump.

Servicing

Listed below is the predominant type of maintenance typical for Dia-Vac® pumps, the servicing of the consumable parts (diaphragm, valves, gasket, and Teflon® washer). For video instructions on servicing the head and diaphragm visit <http://www.airdimensions.com/service/videos/>.

Disassembly of Head Section and Diaphragm

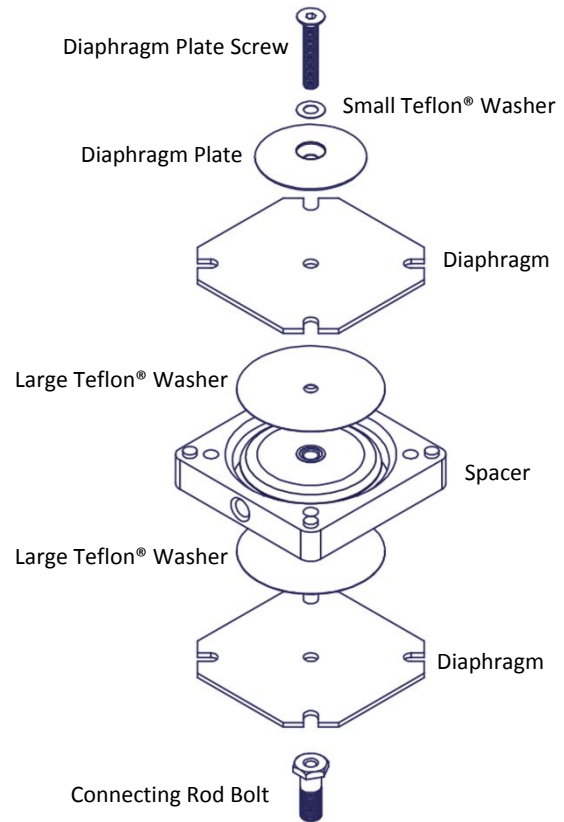
Remove head section by unscrewing the four large bolts. A flat-bladed screw driver may be needed to gently pry the head free of the service diaphragm. **If the heads have Teflon® coating use caution not to scratch the surface.

The valve body can then be removed by unscrewing the two smaller screws (also accessible on the top of the head section). This part may be freed by gently tapping on these two screws after they have been loosened about three or four turns. When the valve body is removed, check all internal surfaces for any accumulation of dirt. The two valve discs can be wiped clean and replaced as long as they appear unaffected by usage. The valve gasket can be easily removed and should be inspected. As a matter of good practice, the valve discs and valve gasket should be replaced during any routine maintenance check of the head section. A once a year routine procedure is recommended.

The primary diaphragm is secured by the single screw in its center. Remove this screw with an Allen wrench. The diaphragm and its clamping plate should easily lift off the pump. Some slight adherence to the metal may occur if the diaphragm has been in use for a long period. Remove the spacer and the two large Teflon® washers to reach the secondary diaphragm. The secondary diaphragm can also be easily lifted off of the pump.

To reattach the diaphragm follow these steps:

1. Insert the diaphragm plate screw through the small Teflon® washer
2. Insert the diaphragm plate screw through the diaphragm plate
3. Insert the diaphragm plate screw through the primary diaphragm
4. Insert the diaphragm plate screw through one of the large Teflon® washers.
5. Insert the diaphragm plate screw through the interior portion of the spacer with the larger diameter side of the part in contact with the primary diaphragm.
6. Place the exterior part of the spacer around the interior part
7. Insert the diaphragm plate screw through the second large Teflon® washer
8. Insert the diaphragm plate screw through the secondary diaphragm.
9. Apply a drop of a screw adhesive such as Loctite 242 to the diaphragm plate screw.
10. Insert the diaphragm plate screw into the connecting rod bolt and tighten.



Note: To ensure proper alignment of the diaphragms partially screw two head bolts into place before the diaphragm screw is fully tightened.

Due to the sensitive nature of the pump to any small changes in the head or diaphragm assembly, it is recommended that the instructions illustrated in the video and listed above are followed verbatim.

If a problem occurs, the pump may require inspection at the ADI facility. To have your pump inspected and repaired at the ADI facility please follow the instructions on the ADI website at <http://www.airdimensions.com/service/rma/>.