

# Double Head High Vac DIA-VAC®

## MAINTENANCE AND DISASSEMBLY INSTRUCTIONS

### A. General Operations Characteristics

1. The Dia-Vac normally runs at 130 to 150 degrees F. It is not an indication of trouble if the outer surfaces of the Dia-Vac Pump or motor are hot to the touch. Normal running amps for the motor will be 3.0 for 115V and 1.5 amps for 230V operation.

2. To check pumping efficiency, employ suitably damped gauges connected so as to dead-end either pressure or vacuum.

NOTE: The intake port must be open during this test. Use 0-30 inch hg. vacuum gauge, (or mercury manometer). Minimum vacuum should be 29.0 inches hg.

3. The Dia-Vac normally runs quietly, especially when both pressure and vacuum ports are connected into a closed system. An obvious knock or rattle could indicate a problem. Check through "Disassembly and Inspection Procedures" with particular attention to the tightness of all screw fasteners.

4. All internal bolts and screws should have one drop of Loctite Removable 242 thread locker on threads before tightening. However, no Loctite thread locker should be applied to the valve screws.

### B. Maintenance Procedures

1. No oiling or other lubrication additional is necessary at all with the Dia-Vac pumps. Please note the Air driven Dia-Vac motor does require SAE 10 oil lubrication for proper operation.

2. Diaphragm Replacement (See also Maintenance Procedure Below)

a. Teflon coated EPDM (part A04012).

b. All Teflon (part A04013)

The degree of usage and condition of operating temperatures or pressure will determine the rate of replacement of part. The corrosive content of the gas media being pumped can effect the recommended inspection and replacement cycle or the diaphragm. Diaphragms require close precision tolerance, therefore **only** ADI diaphragms should be used as replacements.

## **C. Disassembly of Head Section and Service Diaphragm**

1. Remove head section by unscrewing the four large bolts. A flat-bladed screwdriver may be needed to gently pry the head free of the service diaphragm.
2. 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, inspect all internal surfaces for any accumulation of dirt and clean as necessary. The two valves can be removed and wiped clean as well as the valve seats. The valves are very delicate and must be handled with care. When they are replaced, tighten the screws approximately 12 in lbs (hand tight). Make sure the valves are lying flat on the valve seat. If they are not, then remove and flip the valve over and reinstall.

The valve gasket can be easily removed and should be inspected. As a matter of good practice, the valve gasket should be replaced during any routine maintenance check of the head section. A once a year routine procedure is recommended.

3. The service diaphragm is secured by the single screw in its center. Remove this screw with a 5/32" Allen wrench. The diaphragm and its clamping plate should be easily lifted off. Some slight adherence to the metal may occur if the diaphragm has been in use for a long period. Before inserting the diaphragm cap screw (A19007) apply a small amount of Teflon paste or a Teflon Washer seal (A23001), (do not use Teflon tape), then tighten the cap screw.

NOTE: When replacing the service diaphragm, be sure the four projecting studs of the base casting are properly located in the four outer holes provided in the diaphragm before the part is clamped in place. Be sure the diaphragm plate is firmly replaced with its center screw.

## **D. Disassembly of the Connecting Rod**

1. Remove head section and service diaphragm as described in (C) above.
2. Remove the front plate from the face of the base casting by removing the four retaining screws.
3. Using a hex socket wrench, remove the hex head bolt on the connecting rod top surface. This will release the connecting rod cap (A03001), which may then be lifted off.
4. The connecting rod assembly on single head units, including the counterweight, is held in place by the counterweight screw. This can be loosened by a 3/16" Allen wrench. The connecting rod assembly may then be slid off the motor shaft. On the dual and quad head units the assembly is held in place by the set screw. This can be loosened by a 1/8" Allen wrench and the assembly may then be slid off the motor shaft.

## **E. Replacement of the Connecting Rod**

1. Replace the connecting rod assembly on the motor shaft, taking care to align setscrew or counterweight screw as squarely as possible on the flat of the motor shaft.
2. Replace the connecting rod cap and connecting rod bolt. Tighten this assembly firmly with the hex socket wrench.
3. Put a new Service Diaphragm in place taking care to locate it over the four projecting studs on the top face of the base casting.

## **F. Related Torque Values**

1. Head bolts - 110 inch pounds.
2. Valve body screws and Diaphragm plate screws - 70 inch pounds.
3. Connecting rod bolt - 250 inch pounds.

Teflon® is a Registered Trademarks of E.I. Du Pont

Dia-Vac® is a Registered Trademark of Air Dimensions Inc.