

High-Vacuum Pump



Important

**This unit has been drained of oil for shipment
Do not attempt to operate without adding oil**

In order to make the best use of your investment. Familiarize yourself with the features and operating instructions before starting pump. With just routine care your high vacuum pump will give you years of reliable service by following proper maintenance guidelines.

Important: Use oil specifically refined for high vacuum pumps. For best results, use the following vacuum pump oil available from Humboldt:

1 quart— H-1766.2

1 gallon— H-1766.3

5 gallon— H-1766.4

1 quart (case of 12)— H-1766.5

1 gallon (case of 6)— H-1766.6

Use of oil not refined for high vacuum pumps and or operating your pump with contaminated oil will void your warranty.

Adding Oil

Oil Capacity: LA V-3 26.4 oz. (780cc)

Remove brass oil fill plug on pump and insert spout into fill port.

Slowly add oil until oil rises to top of OIL LEVEL line. Replace oil fill plug.

Checking oil level. Start with vacuum pump intake (top of hose barb) capped. After running, oil should be even with OIL LEVEL line.

Operating Your High Vacuum Pump

It is important that solids and liquid contaminants are kept from entering your vacuum pump. Clearances within your pump are less than .001 inch and solids of any size could close block and jam your vacuum pump. Operate the pump on a clean system or provide an intake filter to prevent solids from entering.

Moisture and corrosive chemicals can also damage your vacuum pump. To prevent these from entering, frequently cold traps or molecular sieves are used. Most important however is to change the oil whenever your vacuum pump has been contaminated, Left sitting in the pump, contaminated oil will form sludge, rust, and erode the internal surfaces Shortening your pump's life.

Note: Your vacuum pump is designed to operate at high vacuum continuously. Operating the pump at or near atmospheric pressures for a prolonged period of time will result in excessive smoke to emanate from the pump exhaust (through the handle) and can cause overheating. Further, since these type of pumps are oil sealed, prolonged use and especially frequent cycling or operation at high pressures will cause oil to coalesce around the exhaust port. This is not a sign of a defective pump. There are exhaust smoke eliminators available which can eliminate this problem. Consult Humboldt.

Gas Ballast Valve

The gas ballast valve, located next to the intake fitting is designed to help purge moisture (water vapor) from the pump oil by permitting a controlled amount of atmospheric air to enter the exhaust stage of the pump. Whenever you evacuate a system containing moisture it is recommended to open the valve a 1/4 turn. When a vacuum of 1 000 to 2000 microns has been reached, close the valve and continue to evacuate. Note: One cannot attain the ultimate vacuum with the gas ballast valve open.

Pump Motor

Pump and oil must be above 30 F. Line voltage must be equal to motor nameplate+/. 1 0%. Normal operating temperature is approximately 160 F, which is hot to the touch. Line voltage ambient condition and operating pressures will affect this somewhat. The motor has automatic resetting

pump after shut off: it may have opened the thermal protection. Disconnect the pump from the system, wait about 15 minutes for the motor to cool and start it again.

Cleaning Your Vacuum Pump

One of the easiest ways to spot if your pump is in need of a good cleaning is to look at the sight glass. If the oil looks milky or rusty or is full of debris (Fig. 1) clean then the inside is in worst shape.

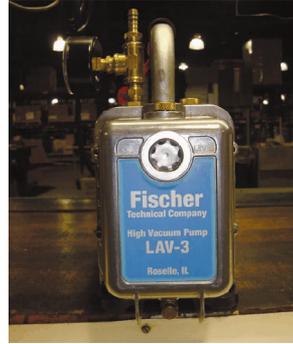


Fig. 1

Start the vacuum pump to be cleaned and allow it to run about 15 minutes to warm up the oil.

Have it someplace where you are able to drain oil safely and capture it. After oil has stop dripping tilt pump forward to get out excess oil (Fig. 2).



Fig. 2

Then stand on nose of cover (Fig. 3) to allow any trapped oil in wells and stators to drain, let sit for a couple of minutes and return to normal running position and repeat tilting forward. Close drain valve.

Return to Figure 3 position and remove either the 2 rubber feet from bottom of pump or remove base depending on age of pump.



Fig. 3

Then turn pump up on the motor end (Fig. 4)

and remove (6) socket-head cover screws holding cover in place (Fig. 5). Remove cover from pump and wipe the inside surface with a dry rag.

Sight glass is harder to clean, some solvent can be poured in and a pipe cleaner tried. If air is available try blowing out sight glass.

Next remove oil deflector held in place with a socket head screw (Fig. 6) and wipe with rag. If needed a wire brush can be used to clean, any discolor to metal parts won't effect pump's performance once cleaning is completed.

Then remove cover seal and clean seal (Fig. 7). Wipe cartridge's outside surfaces with a rag and a wire brush can be used on all surfaces including exhaust valve and intake relief valve. If they are just discolored they will still perform ok.

Do not disturb the 4 cartridge bolts or the 2 smaller hex head screws, (Fig. 8), these are the setting screws.



Fig. 4



Fig. 5



Fig. 6



Fig. 7



Fig. 8

If the intake relief valve set or the exhaust valve set are damaged and need replacing, they can be ordered through Humboldt. Best to replace after completing the cleaning of the cartridge.

Pay attention to the order in which they are assembled for reinstalling correctly. Reassemble oil deflector, Fig 6.

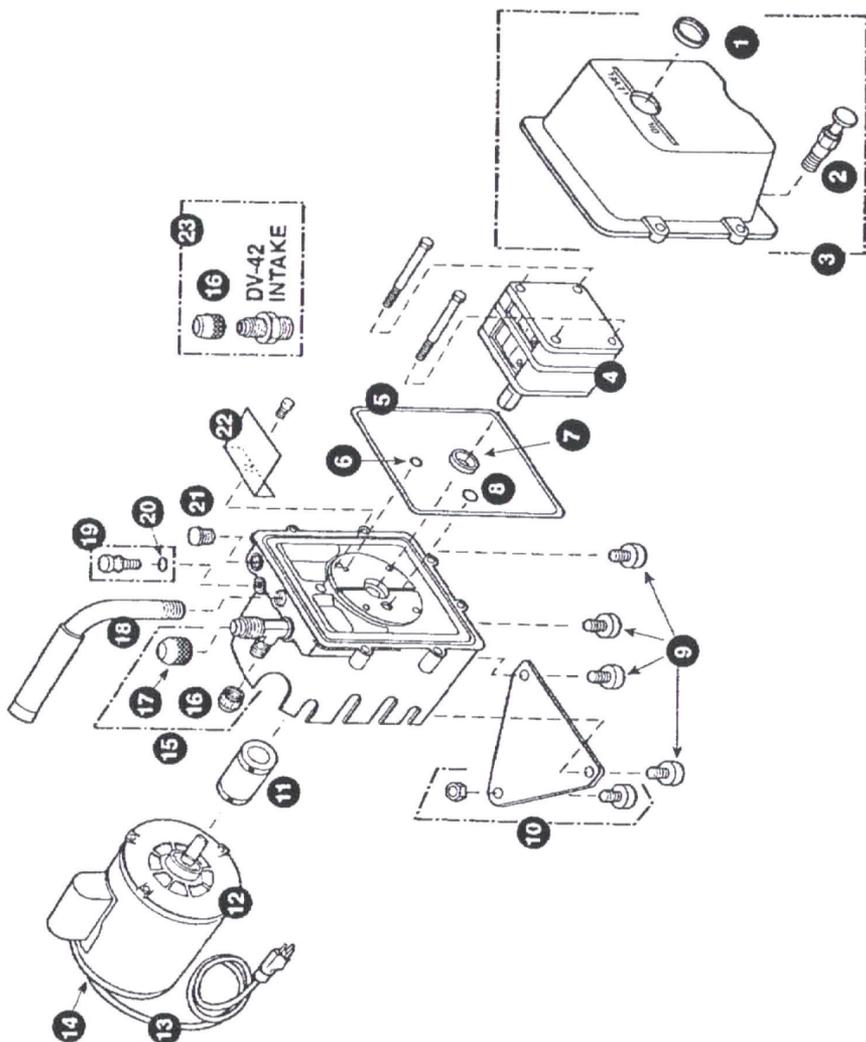
Clean out channel for cover seal with rag and smear some grease in channel, this will help hold cover seal in place for reinstalling cover. If cover seal seems a little tight, just stretch it a little and retry.

All the seals in the vacuum pumps are designed to be reused. Reset cover in place and replace cover screws and tighten in a criss-cross pattern.



Fig. 6

Parts Drawing



Part Numbers for Drawing

1.	PR-1	Sight Glass (DV-85C & DV-42)
2.	PR-2	Drain Valve
3.	PR-9	Cover Assy. (DV-85C & DV-42) Includes Sight Glass and Drain Valve
4.	D10043 D10086	Cartridge (DV-42) Complete w/O-Rings and Cover Seal Cartridge (DV-85C) Complete w/O-Rings and Cover Seal
5.	PR-11	Cover Seal
6.	PR-12	O-Ring
7.	PR-3	Shaft Seal
8.	P90015	O-Ring
9.	PR-4	Rubber Foot & Screw Assy. (1 per pkg.)
10.	PR-13	Foot Mtg. Bracket Assy. w/Rear Mounting Foot. Nylon Screw and Nut
11.	PR-6	Flexible Coupler
12.	PR-43 PR-41	1/2 HP, 115/230V, 50/60 Cycle Motor w/Line Cord & Switch 1/3 H.P. Motor w/Line Cord & Switch
13.	PR-31 PR-33	Black Line Cord, 10 Ft. for Motors w/ toggle Switch Located At Top Of Back Plate Yellow Line Cord, 10 Ft. for Motors w/Switch on Side of Back Plate
14.	PR-14 PR-30	Motor Switch-Toggle Motor Switch-Rocker
15.	PR-5	DV-85C Intake Tee with Caps
16.	NFT5-4	1/4" O-Ring Cap
17.	NFT5-6	3/8" O-Ring Cap
18.	NPR-23	DV-42 New Style Handle and Comfort Grip Complete, 3/8 Nipple
19.	PR-7	Gas Ballast w/O-Ring Assy.
20.	P90009	O-Ring, Gas Ballast
21.	PR-17 PR-22	Oil Fill Plug Oil Fill Plug for Newer Style DV-42
22.	PR-39	DV-42 and DV-85C Baffle with Screw



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