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OPERATING MANUAL

INTRODUCTION

Each vacuum pump has been factory tested to guarantee 100 microns (25,400 Microns = 1 Inch of Hg) or better. The serial number has been recorded.

NOTE: Vacuum pumps are not to be used on Ammonia or Lithium Bromide (salt water) systems. Pump maintenance is the responsibility of the owner.

MOTOR SPECIFICATIONS

Pump must be above 30°F. Line voltage must be equal to motor nameplate $\pm 10\%$. Normal operating temperature is approximately 130°F, which is hot to the touch. Line voltage and ambient conditions can slightly affect this. Motor has automatic resetting thermal overload protection.

The pump is designed for continuous duty and will run for extended periods without overheating.

HARVEST RIGHT OIL FREE SCROLL VACUUM PUMP	
Voltage*	Standard 115V, 60 Hz, 220V 50/60Hz
Plug*	US 110V, US 220V, Euro 220V
Intake Port	3/4" JIC flare
Dimensions	13 1/2" W x 22 1/4" L x 15 1/4" H
Weight	53lbs

*Refer to identification plate to verify model.



SAFETY PRECAUTIONS

Do not pump toxic, explosive, flammable or other corrosive substances using your vacuum pump. Harvest Right is not liable for improper use of the equipment and the warranty may be voided.

Vacuum pump runs hot. When in operation do not touch the motor or pump head. Your vacuum pump may exceed 130°F and improper touching could result in injury. When performing any maintenance on your vacuum pump, make sure it is unplugged and that it has been off for at least 2 hours.

UNPACKING AND INSPECTION

When unpacking your vacuum pump, inspect for damage that may have occurred in shipping. Assure that the vacuum pump is in good condition free of dents or any type of damage. If damage is apparent, call Harvest Right immediately. Do not attempt to operate a damaged vacuum pump.

Once the box is opened, carefully remove the vacuum pump. Place your pump right side up and lift from the base. Do not lift from the top or fittings on the side. Place your pump on a firm, level surface

OPERATING ENVIRONMENT

Your vacuum pump is designed to operate in a range of temperatures. The operating range is 30 – 104 degrees Fahrenheit. Humidity should be less than 85%. Assure that there is good air flow in and around your vacuum pump. Do not put your pump in an enclosed area without venting. Assure that the temperature does not exceed the recommendation above.

OPERATING PRECAUTIONS

When used for an extended period of time, it may take a longer time to achieve at ultimate pressure due to wear of the scroll seals. Replace as necessary to achieve desired ultimate pressure. Harvest Right can replace the scroll (tip) seals for you. If you choose to do that, the pump will be cleaned and the bearings replaced, too.

For optimum performance of your vacuum pump DO NOT reduce the freeze time or by-pass the freezing cycle of your freeze dryer! For shorter freezing cycles you may pre-freeze the products until they are frozen solid before placing them in the freeze dryer but STILL DO NOT by-pass the freezing cycle of your freeze dryer! Freeze drying products that have even a little non-solid moisture in them will reduce the performance and possibly the life of the vacuum pump.

DO NOT overload the trays in the freeze dryer. Too much product will produce too much evaporated moisture which may exceed the ice-capacity inside the vacuum chamber and allow the vacuum pump to suck in the excess moisture which may affect the performance and possibly shorten the life of the vacuum pump.

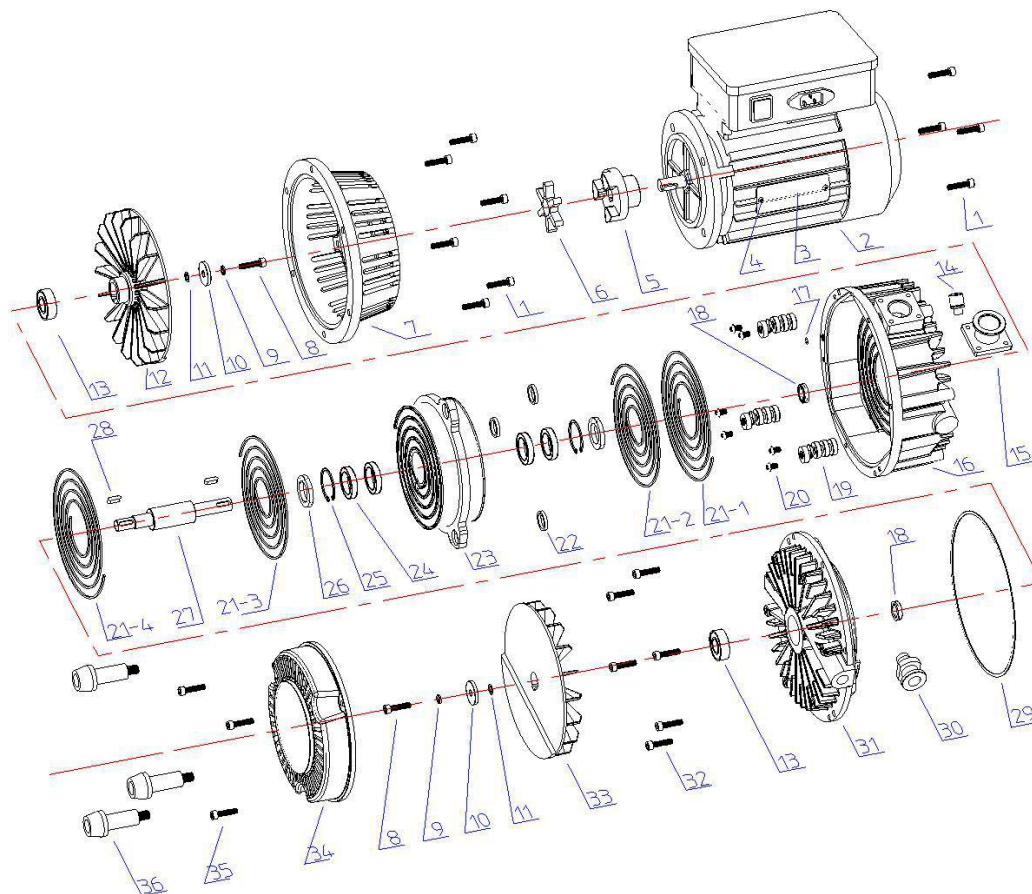
For questions call 1-800-865-5584.

ATTACHING YOUR PUMP

Connect the large hose to the vacuum pump and to the freeze dryer, and tighten. Do not add any additional Teflon tape, or any type of adhesive, when installing the vacuum hose. Doing this almost always creates a vacuum leak.

Plug the vacuum pump power cord into the vacuum pump and the receptacle on the back of the freeze dryer.

Make sure the power switch on the vacuum pump is switched on.



HARVEST RIGHT 7 CFM REPLACEMENT PARTS

Ref. No.	QTY	Description
1	10	Internal Six Angle Screws
2	1	Motor
3	1	Name Plate
4	2	Rivet
5	1	Coupling
6	1	Elastic Coupling
7	1	Bracket
8	2	Internal Six Angle Screws
9	3	Spring Retaining Ring
10	2	Retaining Ring
11	2	Washer
12	1	Fan Impeller (convex)
13	2	Bearing
14	1	Air Flush Valve Assembly
15	1	Inlet Assembly
16	1	Fix Scroll Inside
17	1	O Ring
18	2	Shaft Seal

HARVEST RIGHT 7 CFM REPLACEMENT PARTS

Ref. No.	QTY	Description
19	3	Crank Pin Assembly
20	6	Slotted Pan Head Screws
21	1	Tip Seal
22	3	Spring Ring for Crank Pin Hole
23	1	Orbiting Scroll
24	4	Bearing
25	2	Clamp
26	2	Shaft Seal
27	1	Main Shaft
28	2	Key
29	1	O Ring
30	1	Exhaust Valve Assembly
31	1	Fix Scroll Outside
32	6	Internal Six Angle Screws
33	1	Fan Impeller (flat)
34	1	Fan Cover
35	3	Internal Six Angle Screws
36	3	Anchor

TROUBLESHOOTING

SYMPTOM	POSSIBLE CAUSE(S)	CORRECTIVE ACTION
Pump won't start	1. Power cord not plugged in securely 2. Motor switch not on 3. Pump temperature below 30°F 4. Inconsistent line voltage - no electrical power to pump	1. Plug power cord in securely 2. Turn motor switch to ON position 3. Warm up pump to 30°F and turn motor switch on 4. Line voltage must be within 10% of 115v 5. Check electrical breaker
Pump won't pull deep vacuum	1. Air leak in system being evacuated 2. Isolation valve open 3. Shaft seal is broken 4. Water and particulates in your pump 5. Vacuum pump is aging and doesn't pull as low of a vacuum	1. Locate and repair 2. Tighten isolation valve. Assure it is hand tight 3. Change oil 4. Replace vacuum pump
Pump shuts down and will not start	Thermal overload may be open	1. Disconnect pump from system 2. Wait approximately 15 minutes for motor to cool 3. Turn pump on 4. If it cycles off again, call Customer Support

RETURN FOR REPAIR

In order to assure safe return of product, you must keep pump's original packaging for warranty and shipping purposes. If the original packaging is lost, you will incur additional charges for the proper packaging of the returned pump.

In the event your pump requires repair, please contact Harvest Right Customer Service Department to obtain a Return Goods Authorization (RGA) number. Ensure that all returned products are packed to avoid any damage in shipment. Paperwork should be placed in a separate plastic bag and should include Harvest Right's assigned RGA number, a description of the problem and any customer assigned repair or purchase order number, if applicable

Contact Customer Service for RGA number:

800.865.5584 Toll Free

Harvest Right

RGA# _____

2320 N. 2200 W.

Salt Lake City, Utah 84116

WARRANTY

Harvest Right scroll (oil-less) vacuum pumps are warrantied against defects in materials and workmanship for one year. Products are guaranteed when used in accordance with our guidelines and recommendations. Warranty is limited to the repair, replacement, or credit at invoice price, (our option) of products which in our opinion are defective due to workmanship and/or materials. In no case will we allow charges for labor, expense or consequential damage. Repairs performed by Harvest Right on items out of warranty will be invoiced on a nominal basis; contact Harvest Right for details.