



OWNER/OPERATOR MANUAL

MASPORT VACUUM/PRESSURE PUMP

**MODELS:
HXL75V, HXL75WV
HXL15V, HXL15WV
HXL400WV**

MASPORT INCORPORATED

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MASPORT INCORPORATED LIMITED WARRANTY

Masport Incorporated warrants against defects in workmanship, materials or parts for a period of twelve months from the date of sale. This limited warranty is restricted to repair or replacement of parts or pumps at the manufacturer's discretion. Masport Incorporated neither assumes, nor authorizes any person to assume any other obligation or liability in connection with Masport Incorporated's products, parts or services sold or delivered. Masport Incorporated shall not be liable for injury or damage to property other than the products or parts themselves, nor for incidental, consequential or special damages.

PURCHASER - KEEP FOR YOUR RECORDS

DATE PURCHASED: _____

SERIAL NUMBER: _____

12 MONTH LIMITED WARRANTY TERMS AND CONDITIONS

1. This warranty is not transferable and shall extend only to the original purchaser.
2. The product must be returned to Masport Incorporated by the purchaser. The limited warranty does not cover the cost of shipping or return.
3. This warranty will not apply to any malfunction, defect or damage of any product resulting from repair or alteration by anyone other than Masport Incorporated.
4. This warranty excludes the following:
Damage during shipment, damage from other than normal or intended use, normal wear, any defects arising from installation or operation of the product other than in accordance with operating instructions provided or any product which has been subject to misuse, neglect, or accident.
5. Any claim under this limited warranty must be made in writing and received within twelve months from the date of sale. Claims should be addressed to:

MASPORT INCORPORATED
6801 Cornhusker Hwy.
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INTENDED USE

Masport Vacuum / Pressure Pumps are intended to be used for loading and unloading of liquid material. These pumps are commonly used for liquid waste transport, septic tank cleaning, oil field service work, car wash or grease trap cleaning and many other industrial applications.

WARNING!

Masport pumps must not be used to move flammable or highly caustic material. Use of this pump for moving hazardous material may result in machinery failure, bodily injury or even death.

SETUP

The 4-way valve on the pump is used to change the pump operation from vacuum to pressure or pressure to vacuum by rotating the handle 90 degrees. Either side of the valve can be plumbed as the intake or exhaust port. Depending on how it is plumbed, the vacuum or pressure indicators on the top of the valve may be reversed.

When designing the system in which this Masport pump will be installed it is important to make sure all of the components and plumbing are of adequate size.

NOTE!

Using components or plumbing with a smaller I.D. than recommended for a particular pump will result in poor system performance and may damage the pump.

The HXL75 model pumps are designed with 2 1/2" NPT ports. Any components, hose or fittings with a smaller I.D. will restrict air flow and may damage the pump.

The HXL15 and HXL400 model pumps are designed with 3" NPT ports. Any components, hose or fittings with a smaller I.D. will restrict air flow and may damage the pump.

NOTE!

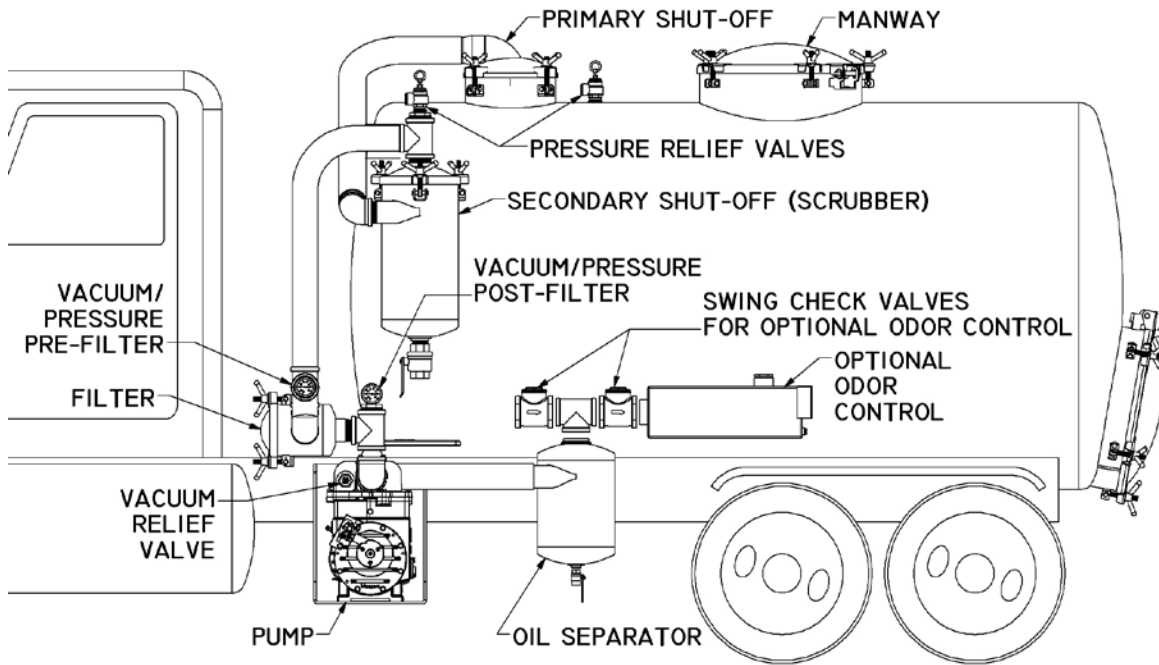
Before assembling the system, make sure the inside surfaces of all pipes, hose and fittings are clean and free of any kind of dirt or debris. Any solid particles ingested by the pump may result in higher operating noise, loss of performance or irreparable pump damage.

Some form of pipe sealant should be used on all thread connections to prevent leaks.

HOSE

Any hose used in your system should be rated for at least 28" hg vacuum and 25 PSIG pressure. It will also need to withstand an oil/air mixture at temperatures up to 300° F. "Hot Tar and Asphalt" hose is designed for use in this type of environment.

RECOMMENDED SYSTEM COMPONENTS



PRIMARY SHUT-OFF: Prevents liquid in the tank from overflowing into the system and entering the pump. Liquid entering the pump can damage or destroy the pump.

SECONDARY MOISTURE TRAP (SCRUBBER): Removes liquid still in the air stream after passing through the primary shut-off. The Scrubber should be drained after every load.

VACUUM/PRESSURE GAUGE: Required to properly monitor the performance of the system. It should be located between the Scrubber and the Pump (the clean side of the pump) to prevent gauge failure due to foreign material.

VACUUM RELIEF VALVE: Governs the operating vacuum level. It should be installed at the pump so that if a liquid level trap is activated or a hose collapses the pump is not allowed to deadhead which can result in overheating and pump failure.

PRESSURE RELIEF VALVE: Regulates the amount of pressure in the system. It should be located between the Scrubber and the Pump (the clean side of the pump).

CAUTION!

Operating your system without a properly installed pressure relief valve in good working order could lead to equipment damage or catastrophic failure resulting in severe injury.

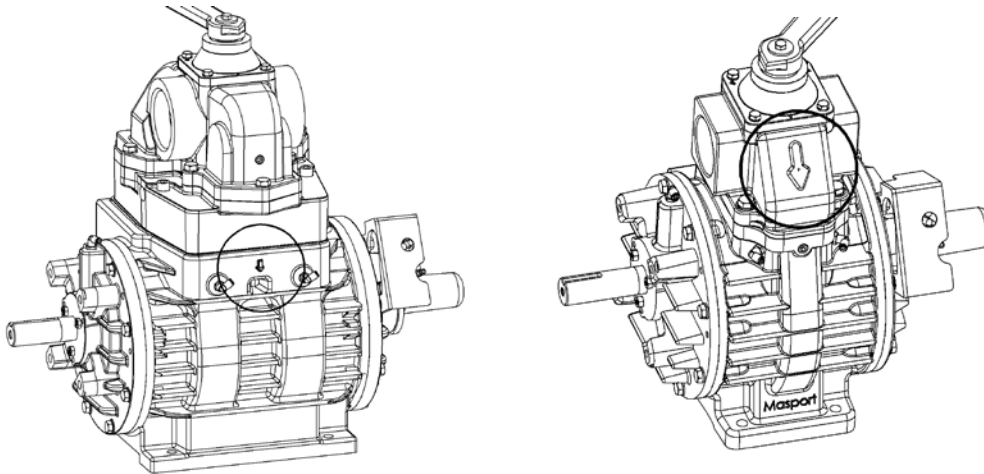
INLET FILTER: Prevents small particulate matter from entering the pump. This filter should be checked and cleaned or replaced regularly.

OIL SEPARATOR (OIL CATCH MUFFLER): Removes oil from the pump exhaust. It is equipped with a ball valve at the bottom and should be drained at least once a day.

OPTIONAL ODOR CONTROL (MASPORT PUMPER SCENT): Reduces objectionable odor from the exhaust air.

PUMP DRIVE

The pump can be driven from either of the two shafts to accommodate a clockwise or a counterclockwise drive system. There is an arrow cast into the pump housing and/or the valve housing indicating proper pump rotation. The pump must always rotate in the direction of the arrow.



NOTE!

The pump should never be run backwards. Operating the pump in the opposite direction will cause damage.

RECOMMENDED PUMP SPEED

The recommended pump speed for best operation and pump life is 1100 RPM.

HORSE POWER REQUIREMENTS FOR OPTIMAL PERFORMANCE AND DURABILITY

	VACUUM ("Hg)					PRESSURE (PSIG)				
	5	10	15	20	27	5	10	15	20	25
HXL75 @1100 RPM Horse Power Req.	6.9	8.1	8.3	9.3	10.5	9.4	12.1	15.0	18.8	21.0
HXL15 @1100 RPM Horse Power Req.	10.0	11.8	12.5	13.7	15.4	13.5	17.4	22.2	26.5	30.8
HXL400 @ 1100 RPM Horse Power Req.			15.0	16.5	17.0	20.0	24.0	28.0	32.0	35.0

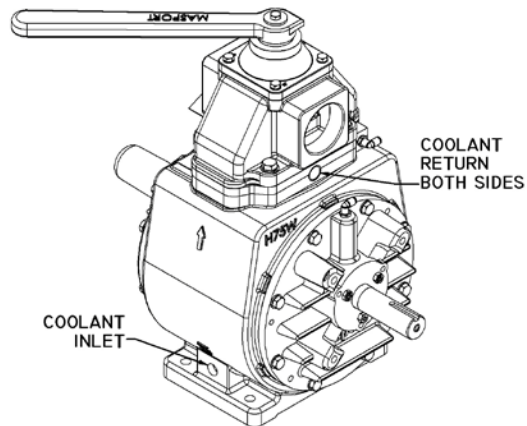
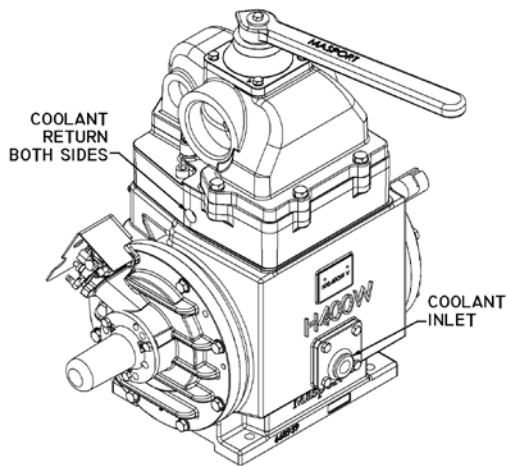
LIQUID COOLED MODELS

Liquid cooled models have a water jacket built into the cylinder to cool the pump. The coolant inlet is in the cylinder housing near the base and there are two coolant return ports, one on either side of the valve housing above the cylinder.

A temperature gauge kit is supplied with liquid cooled pumps and should be installed at or near the coolant return port to accurately register pump temperature. If the pump is connected to the cooling system of a truck engine, the gauges of the truck and the pump should show similar temperatures.

NOTE!

If the two temperature gauges show significantly different temperatures, coolant is not flowing properly to the pump. Check for proper installation and possible obstruction of the coolant hoses.



PUMP LUBRICATION

Rotary Vane Vacuum Pumps require a high quality non-detergent Rotary Compressor Oil or Rotary Turbine Oil. Oil specifically formulated for Masport pumps is available from your local Masport representative or by contacting Masport Inc. It can be ordered in one gallon jugs or six gallon cases and is available in both summer and winter grades.

NOTE!

NEVER use automotive motor oil, it can break down and leave deposits in the pump that will affect pump life or performance.

Other oils and fluids that should never be used in Masport vacuum pumps are:

USED OIL

TRANSMISSION FLUID

POWER STEERING FLUID

BRAKE FLUID

HYDRAULIC FLUID

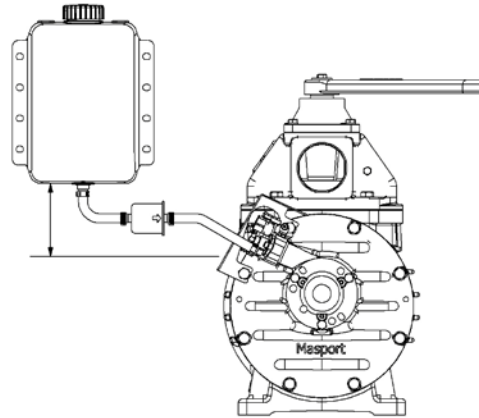
GEAR OIL

VEGETABLE OIL

All Masport HXL pumps are equipped with automatic gear-driven oil pumps that are preset at the factory and require no adjustment or maintenance.

OIL RESERVOIR MOUNTING

The oil reservoir tank must be mounted higher than the oil feed connection on the oil pump so that oil will be fed by gravity to the oil pump.



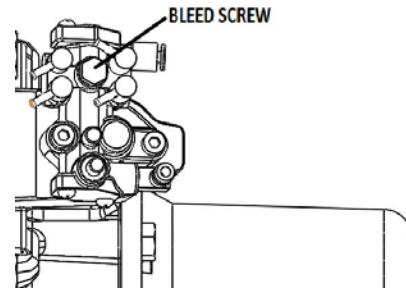
PRIOR TO START-UP

Before running the pump for the first time (and any time after pump teardown or if it has been out of service for some time) bleed the oil feed line from the reservoir and prime the oil pump.

Pour 1 to 2 oz. (30 to 60 ml) of pump oil into the vacuum pump inlet and rotate the pump BY HAND several times to coat the cylinder with a fresh film of oil. After start-up, observe the transparent oil lines coming from the oil pump to confirm that oil is flowing from the oil pump to the cylinder ports.

BLEED THE OIL PUMP

Make sure there is adequate pump oil in the reservoir. Loosen but do not remove the bleed screw on the oil pump. When oil starts to drip from the bleed screw, retighten it.



VACUUM RELIEF VALVE

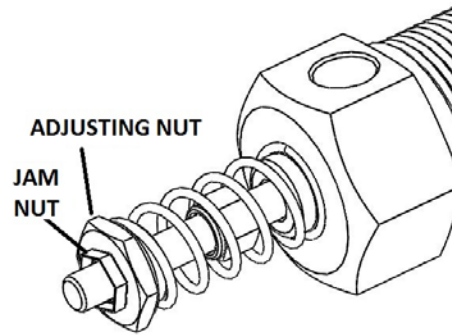
NOTE!

The Vacuum Relief Valve is not set at the factory.

A working vacuum of 22" Hg at sea level is recommended for optimum pump life and performance. Working vacuum level should be decreased by 1" Hg for every 1000 ft of elevation. The vacuum relief valve setting should be verified using a quality liquid filled vacuum gauge.

To adjust the vacuum relief valve

Loosen the Jam Nut and adjust vacuum level by increasing or decreasing spring tension with the Adjusting Nut. When vacuum level is set retighten the Jam Nut.



PUMP OPERATING TIPS

- Frequently check the oil level in the oil pump reservoir. NEVER run the pump without oil.
- Maintain pump speed within the acceptable range (optimal is 1100 ± 100 RPM). Running the pump too fast or too slow may cause damage.
- Engage the pump drive at engine idle. NEVER engage at high RPM.
- Always bleed the tank to atmosphere before switching from vacuum to pressure or from pressure to vacuum.
- Always disengage the pump when driving to or between job sites.
- Monitor vacuum and temperature gauges to detect any irregularities or problems.
- When using pressure to offload, a pressure relief valve and gauge must be installed. Avoid over pressurizing the system.
- Drain the scrubber after each load. DO NOT open the ball valve while the tank still holds vacuum, this may allow debris to enter the pump. If nothing comes out of the scrubber, never assume it is empty, check for blockage in the valve.
- Drain the oil separator daily. Do not reuse the oil, take it to an appropriate recycling site.
- Check and clean the pre-filter element regularly.
- Flush the pump daily - refer to the Pump Maintenance section in this manual.
- Never run a liquid cooled pump without circulating coolant.

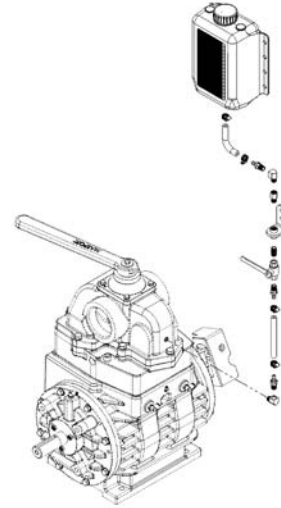
PUMP MAINTENANCE

Masport vacuum pumps require little regular maintenance except for flushing the pump daily or any time liquid or solids have been allowed to enter the pump.

FLUSHING PROCEDURE

Masport flushing fluid is available from you local Masport dealer or from Masport Inc.

1. Start the vacuum pump and bring it to 15" Hg.
2. Open the ball valve on the reservoir to begin flushing fluid flow.
3. Run the pump until the fluid level in the tank drops one gradation on the tank label (7 fluid oz. or approximately 200 ml).
4. Close the ball valve but continue to run the pump for one additional minute to ensure that all of the fluid is purged from the pump.
5. Stop the pump.
6. Drain the oil separator. Do not reuse the flushing fluid, take it to an appropriate recycling site.



FLUSHING KIT

STORAGE

If the pump is likely to remain idle for an extended period make sure to flush the pump as described in the Flushing Procedure and run for a minute or two to make sure the pump is sufficiently lubricated. The pump should be run for a few minutes once a month to distribute fresh oil to the bearings, seals, and cylinder.

PUMP SERVICE

NOTE!

Any service or repair work on your pump should be performed by a qualified mechanic with the proper tools and experience working with vacuum pumps. Contact Masport Inc. if you have questions or for help finding a certified Masport service facility.

CAUTION!

Disconnect the pump drive to ensure the pump cannot be accidentally started during service and to allow the shaft to be rotated by hand.

REPLACEMENT PARTS KITS

Replacement parts kits are available from your local Masport representative or by contacting Masport Inc. Parts Kits include Vanes, Bearings, Bearing spacers, Oil Seals, End Cover Shims, Endcover O-rings, Valve Gasket(s), Flange Gaskets, and as required Flap Assembly(s).

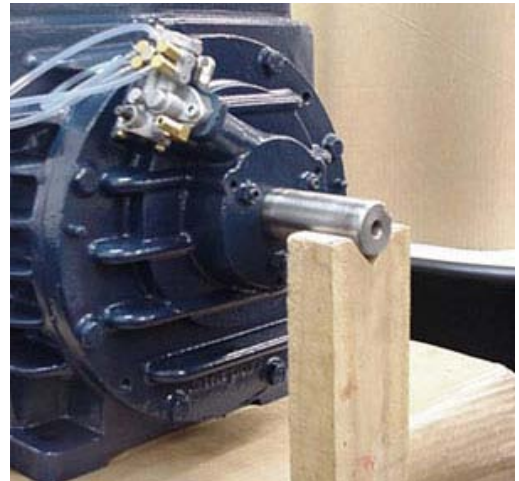
PUMP MODEL	KIT NUMBER
H75V, HXL75V	14604
H75WV, HXL75WV	14605
HXL15V	14608
H15WV, HXL15WV	14606
HXL15WF	14623
HXL400WV	14630

END COVER REMOVAL

Before removing the cylinder end covers, clean the outside of the pump to prevent dirt and debris from getting into the cylinder.

Remove the shaft guard and support the end of the shaft so that the rotor will not drop when the end cover is pulled from the bearing. A notched piece of wood can be used to support it from below, or a long nipple can be screwed into the valve above the shaft and a strap can be hung from the nipple to support the shaft.

If you are working from the oil pump end of the cylinder, start by removing the oil pump guard. The guard bolts are longer than the other end cover bolts so their location should be noted.



Disconnect the oil line to the fitting in the end cover and remove the oil pump. The oil pump mounting screws are different lengths, so note their locations as they are being removed.

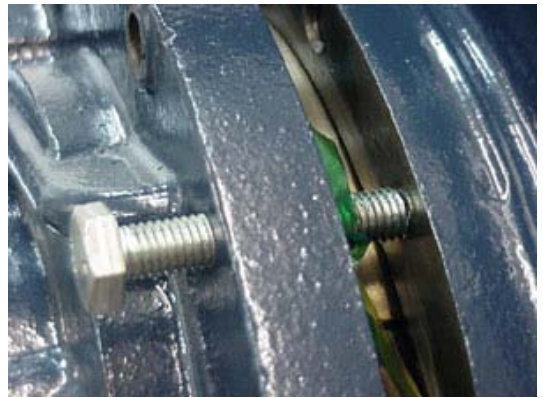


Remove the oil pump drive assembly.

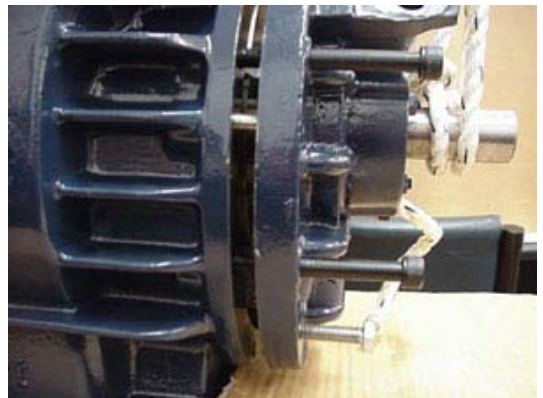


Remove all of the end cover bolts.

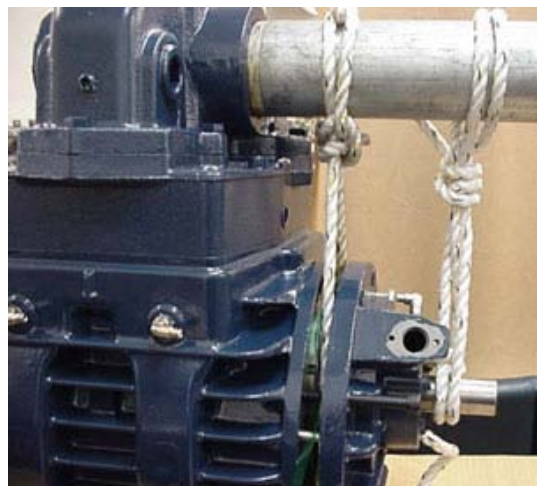
Thread two M10 x 50mm bolts into the jacking screw holes in the end cover. Turn the bolts one or two turns at a time alternating between the two to back the end cover away from the cylinder.



Extra M10 X 100mm bolts can be used in the other end cover holes for guidance and support.

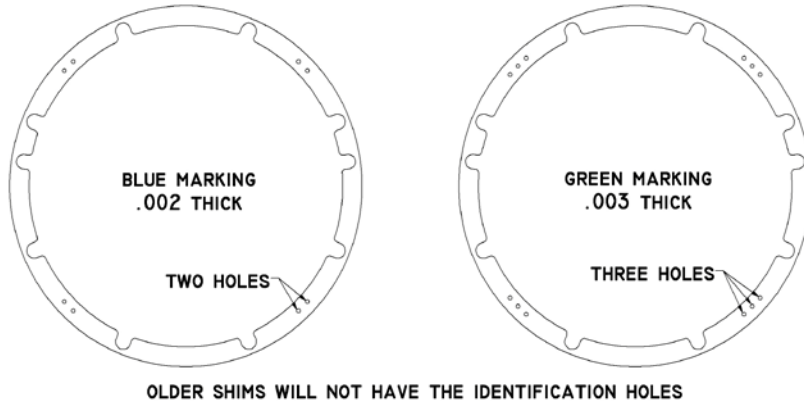


Move the rotor support to the inside so that the end cover can be removed.



NOTE!

There may be Mylar shims between the end cover and the cylinder. They must be replaced with shims of the same quantity and thickness. Blue color marking indicates .002 thick shim, Green marking indicates .003 thickness.



OLDER SHIMS WILL NOT HAVE THE IDENTIFICATION HOLES

CYLINDER INSPECTION

With the end cover removed inspect the cylinder for damage or corrugation.

Gouges or scoring around the circumference of the cylinder indicates dirt or debris contamination. If the scoring is less than .005" deep the cylinder can still be used as is.

Corrugation across the length of the cylinder indicates that either the vanes are sticking in the rotor slots or improper operation of the pump and should be investigated before re-assembling the pump. If the corrugation can be seen but not felt, the cylinder can still be used as is.

NOTE!

If cylinder scoring is deeper than .005" or if corrugation can be felt the cylinder should be bored, honed and the seal gap reset.

VANES

Remove the vane at the bottom of the rotor. Insert the new one by sliding the vane along the cylinder wall. Rotate each vane to the bottom of the rotor to replace them.

NOTE!

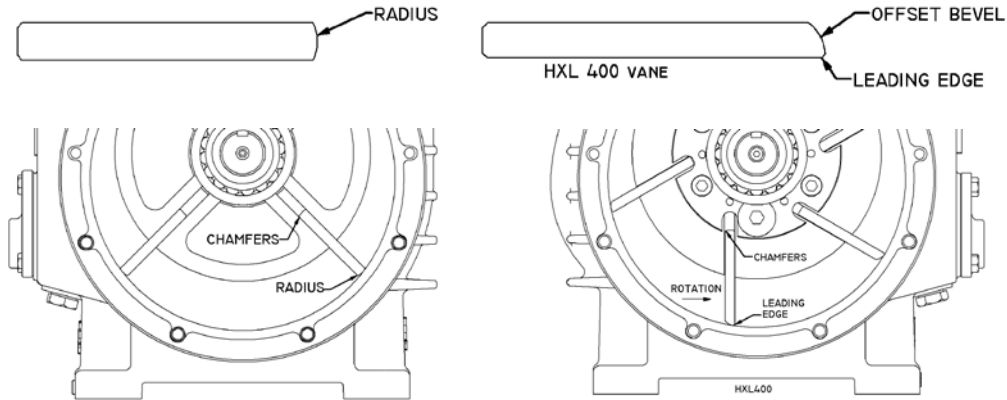
Inspect the vanes being removed (especially the ends) for scratches or gouges that would indicate foreign material caught alongside the vane. If there is evidence of inadequate filtration or other improper operation, correct the condition before putting the pump back into service.

Install the new vanes in the proper orientation:

Vaness for the 15 and 75 model pumps have a radiused edge. Install them with the radius in contact the cylinder wall.

HXL400 vanes have an offset bevel. Install these vanes with the beveled edge in contact with the cylinder wall and the leading edge facing in the direction of rotation.

Be sure the vanes slide freely in the Rotor



NOTE!

Make sure the vane is oriented correctly. The chamfered edges of the vane must be inserted into the rotor. On the HXL400 pump the leading edge of the beveled side must face toward the rotation.

BEARING INSPECTION

It is difficult to visually determine the condition of a bearing. If there is obvious damage such as discoloration (bluing) of the bearing or the race, there is definite damage and the bearing and spacer should be replaced. If there is no discoloration and minimal amounts of carbon or oil sludge build-up on the bearing cage, it can probably be cleaned in solvent, blown out with an air hose, oiled and reused.

NOTE!

There is no guarantee that the bearings are not damaged and with the pump disassembled to this point, it is advisable to replace them.

BEARING SPACER INSPECTION

(HXL400 pumps do not have bearing spacers)

The outer circumference of the bearing spacer should be inspected for signs of contact with the bore of the endcover bearing housing. If there has been contact, it could be a sign that the bearing is worn and is allowing contact. The spacer and bearing should be replaced.

BEARING AND BEARING SPACER REMOVAL

Check the shaft for burrs caused by pulley set screws or any other damage from the pump drive. Remove the burrs with a flat file or smooth the shaft with 400 grit wet/dry sandpaper.

Loosen the set screw in the worm gear for the oil pump drive and remove the worm gear from the shaft.

Models with bearing spacers:

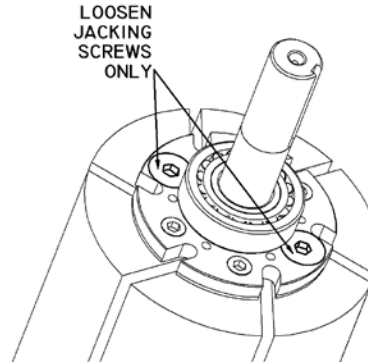
Remove the bearing and spacer with a bearing puller.

NOTE!

The bearing spacers are not reusable and must be replaced when removed.

HXL400 Pumps:

Use the jacking screws in the rotor shaft flange to lift the bearing away from the flange. Turn the screws counterclockwise one half turn at a time to evenly lift the bearing. If the jacking screws do not loosen the bearing entirely, use a bearing puller to remove it from the shaft. Screw the jacking screws all the way back in after bearings have been removed.

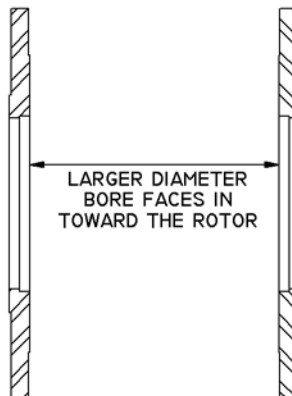


DO NOT loosen the socket head screws that secure the flange to the rotor.

BEARING AND BEARING SPACER INSTALLATION

NOTE!

The bearing spacers MUST be installed in the correct orientation. Look carefully at the spacer, note that the hole bored for the shaft is larger in diameter on one side than the other. The spacer must be installed on the rotor shaft with the larger bore diameter toward the rotor. Incorrect installation of the spacer will cause bearing failure and damage to the pump.



Press the bearing and bearing spacer onto the shaft at the same time or separately. Apply pressure only to the inner race of the bearing. Pressure on the outer race will cause damage to the bearing. If a bearing press is not available, a 6" long pipe nipple just big enough to fit over the shaft and cap can be used to drive the bearing onto the

shaft by placing the pipe over the shaft and against the inner race of the bearing. If this method is used, make sure any dirt or pipe scale is removed from the nipple before use to prevent contaminating the bearing.

RE-ASSEMBLY

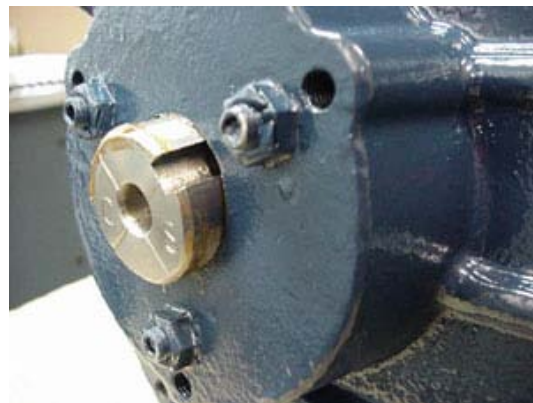
Replace any shims that were present when the end cover was removed. Align the shim(s) with the pins on the cylinder. Two or three small dabs of grease around the cylinder face will help hold the shim in position.

Check the endcover o-ring and grease seal for damage and replace them if necessary.

Install the o-ring in the end cover groove. Small dabs of grease will help retain the o-ring in the groove.



Apply a small amount of grease to the lip of the oil seal and fit the end cover over the end of the shaft. Use caution when installing the end cover to ensure the seal is not damaged by the shaft keyway.



Move the rotor shaft support back to the end of the shaft.

Slide the end cover onto the shaft bearing and the locator pins. Tap the end cover into position with a rubber mallet.

Reinstall the end cover bolts and tighten progressively in a crisscross pattern until all bolts are torqued to 28 ft-lbs.

Rotate the shaft by hand to confirm the vanes don't jam and the rotor turns smoothly.



If the oil pump was removed, reinstall the drive assembly. Align the hole in the drive assembly with the oil inlet elbow and push the assembly in until it bottoms out.



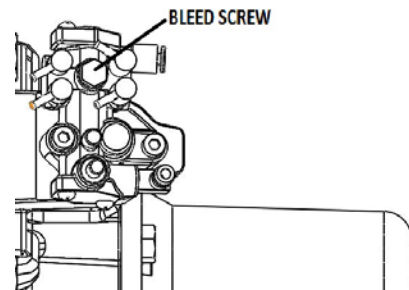
Engage the drive tang of the oil pump with the slot in the drive assembly and reinstall the oil pump.

Reconnect the lines from the oil pump to the inlet fittings.

Turn the rotor shaft by hand to make sure it rotates freely.

Connect the oil reservoir hose to the oil pump and bleed the line.

To bleed the line, loosen but do not remove the bleed screw on the oil pump. When oil starts to drip from the bleed screw, retighten it.



Pour 1 oz. (30 ml) of pump oil into the intake of the pump valve or into the cylinder oiling fittings and rotate by hand to distribute the oil.



Reinstall the shaft cover and reconnect the pump drive.

Start the pump and bring it to operating speed. Check for normal operation and that oil is flowing from the oil pump to the fittings

OILS RECOMMENDED FOR USE IN MASPORT VACUUM / PRESSURE PUMPS

These oils have been approved for use in Masport Vacuum/Pressure Pumps. Use of these oils will extend the life of the vacuum pump and ensure proper performance and lubrication.

NOTE!

Oils numbered 32 & 46 are for winter use (check pour point to determine minimum temperature). Oils numbered 68 & 100 are for summer use.

MASPORT VACUUM PUMP OIL

Masport Incorporated – Lincoln, NE

800-228-4510

SHELL TURBO T OIL 32, 46, 68, 100

Shell Oil Company – Houston, TX

800-231-6950

MONOLEC COMPRESSOR OIL*

Lubrication Engineers – Fort Worth, TX

817-834-6321

MOBIL SHC 525 (Synthesized Hydrocarbon)

Mobil Oil Company – Fairfax, VA

800-662-4525

ANDEROL 497

Anderol Inc – East Hanover, NJ

888-263-3765

CHEVRON GST 32, 46, 68, 100

ChevronTexaco Corporation – San Ramon, CA

800-822-5823

REGAL OIL R & O 32, 68, 100

ChevronTexaco Corporation – San Ramon, CA

800-822-5823

* Monolec Compressor Oil is colored red and should not be confused with transmission fluid.

MASPORT INCORPORATED

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Lincoln, NE 68507

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OILS OR FLUIDS THAT SHOULD NOT BE USED IN MASPORT VACUUM PUMPS

TRANSMISSION FLUID

AUTOMOTIVE MOTOR OIL

POWER STEERING FLUID

USED OIL

VEGETABLE OIL

BRAKE FLUID

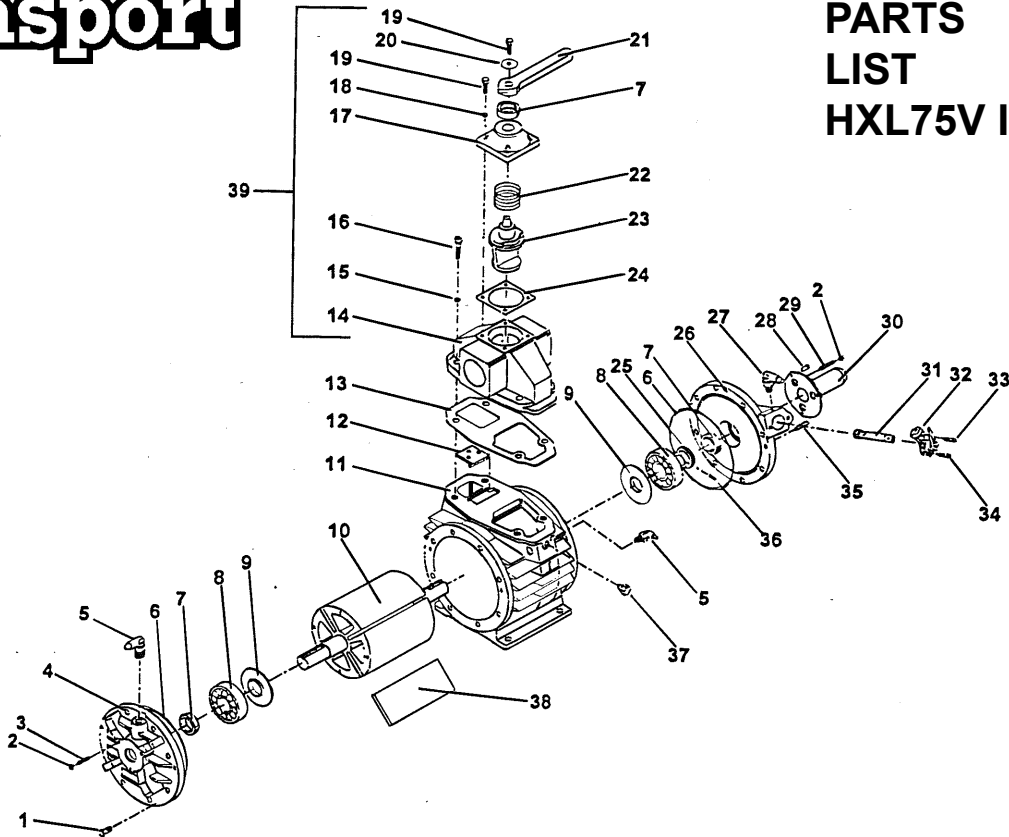
HYDRAULIC FLUID

GEAR OIL

SCENTED OIL



PARTS LIST HXL75V II



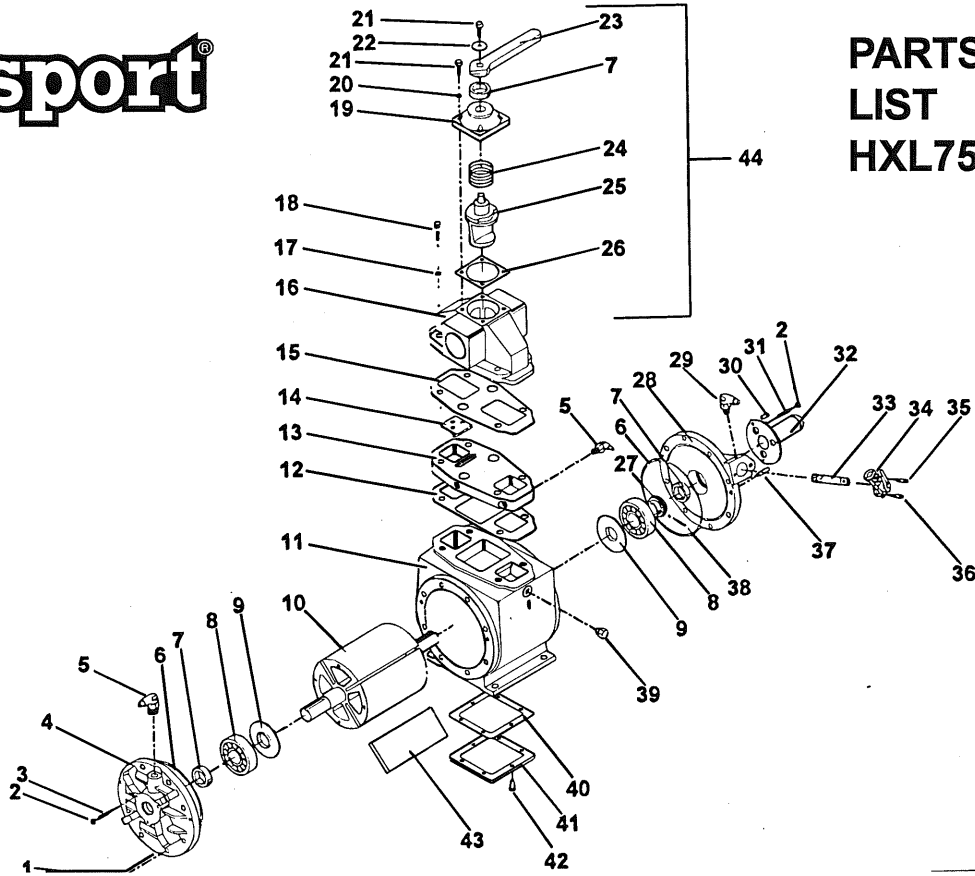
HXL75V SERIES II AIR COOLED PRESSURE / VACUUM PUMP PARTS LIST (968675)

Ref	Description	Part No.	Qty.	Ref	Description	Part No.	Qty.
1	Bolt	501569	16	24	Gasket	568044	1
2	Nut	504278	6	25	Gear	568158	1
3	Set Screw	504276	3	26	Endcover	968854	1
4	Endcover	968843	1	27	Swivel Elbow *	568085	1
5	Swivel Elbow *	568086	3	28	Bolt	501571	3
6	O-Ring	501677	2	29	Set Screw	504277	3
7	Oil Seal	501015	3	30	Shaft Guard	568622	1
8	Bearing	503098	2	31	Drive Shaft Assembly	968045	1
9	Bearing Spacer	968611	2	32	Oil Pump	575437	1
10	Rotor Assembly (Incl. 8, 9)	968614	1	33	Cap Screw	504262	1
11	Cylinder	968401	1	34	Cap Screw	504261	1
12	Flap Assembly	968026	1	35	Dowel Pin	503258	4
13	Gasket	568610	1	36	Set Screw	504264	1
14	Valve Body	968010	1	37	Plug	27300	1
15	Washer	500203	4	38	Vane Pack (4)	975539	1
16	Bolt	501666	4	39	Integral Valve Assembly	968003	1
17	Cap	968035	1		(Incl. 7, 14, 17, 18, 19, 20, 21, 22, 23, 24)		
18	Washer	501610	4	40	Endcover Shim Gasket **		
19	Bolt	501617	5		.002" Thickness	542011	***
20	Washer	501550	1		.003" Thickness	542012	***
21	Handle	968037	1	41	Oil Line (ft.) **	600293	***
22	Spring	568038	1				
23	Spool	968094	1				

** NOT SHOWN.

*** QUANTITY VARIES.

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PARTS LIST HXL75WV II

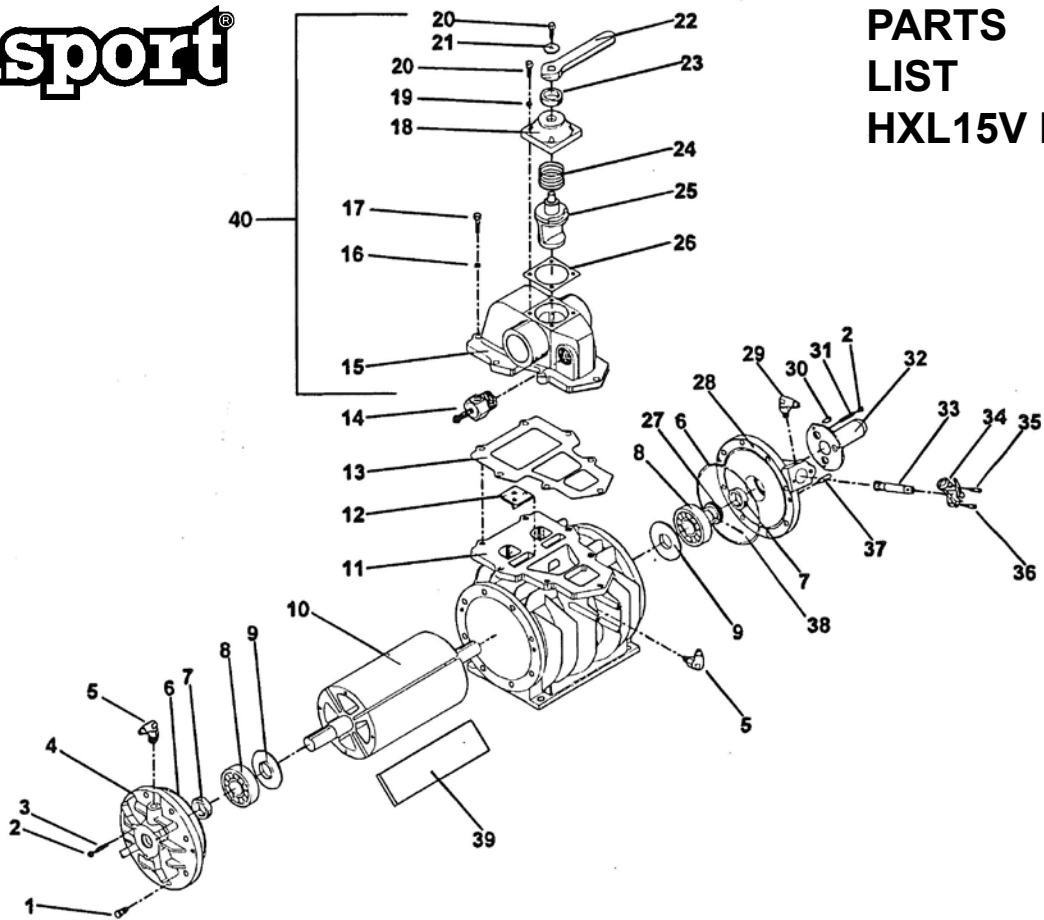
HXL75WV SERIES II LIQUID COOLED PRESSURE / VACUUM PUMP PARTS LIST (968670)

Ref	Description	Part No.	Qty.	Ref	Description	Part No.	Qty.
1	Bolt	501569	16	26	Gasket	568044	1
2	Nut	504278	6	27	Gear	568158	1
3	Set Screw	504276	3	28	Endcover	968854	1
4	Endcover	968843	1	29	Swivel Elbow *	568085	1
5	Swivel Elbow *	568086	3	30	Bolt	501571	3
6	O-Ring	501677	2	31	Set Screw	504277	3
7	Oil Seal	501015	3	32	Shaft Guard	568622	1
8	Bearing	503098	2	33	Drive Shaft Assembly	968045	1
9	Bearing Spacer	968611	2	34	Oil Pump	575437	1
10	Rotor Assembly (Incl. 8, 9)	968614	1	35	Cap Screw	504262	1
11	Cylinder	968712	1	36	Cap Screw	504261	1
12	Gasket	568703	1	37	Dowel Pin	503258	4
13	Adaptor Plate	968011	1	38	Set Screw	504264	1
14	Flap Assembly	968026	1	39	Plug	27300	1
15	Gasket	568653	1	40	Gasket	568708	1
16	Valve Body	968010	1	41	Inspection Plate	968707	1
17	Washer	500203	4	42	Bolt (Inspection Plate)	501571	6
18	Bolt	502024	4	43	Vane Pack (4)	975539	1
19	Cap	968035	1	44	Integral Valve Assembly	968003	1
20	Washer	501610	4		(Incl. 7, 16, 19, 20, 21, 22, 23, 24, 25, 26)		
21	Bolt	501617	5	45	Endcover Shim Gasket **		
22	Washer	501550	1		.002" Thickness	542011	***
23	Handle	968037	1		.003" Thickness	542012	***
24	Spring	568038	1	46	Oil Line (ft.) **	600293	***
25	Spool	968094	1				

* NOTE: #5 and #29 CHECK VALVES USED ON EARLIER MODELS ONLY. ** NOT SHOWN. *** QUANTITY VARIES.

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PARTS LIST HXL15V II



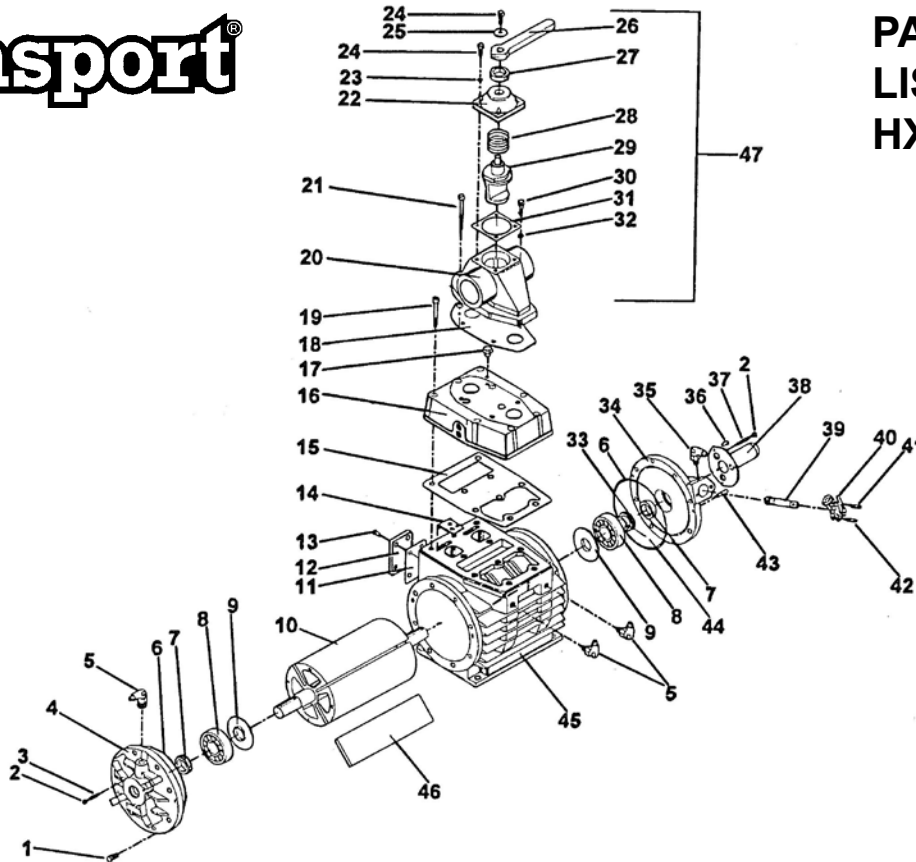
HXL15V SERIES II AIR COOLED PRESSURE / VACUUM PUMP PARTS LIST (968880)

Ref	Description	Part No.	Qty.	Ref	Description	Part No.	Qty.
1	Bolt	501569	16	24	Spring	568038	1
2	Nut	504278	6	25	Spool	968804	1
3	Set Screw	504276	3	26	Gasket	568044	1
4	Endcover	968843	1	27	Gear	568158	1
5	Swivel Elbow	568086	3	28	Endcover	968854	1
6	O-Ring	501677	2	29	Swivel Elbow	568085	1
7	Oil Seal	501015	2	30	Bolt	501571	3
8	Bearing	503098	2	31	Set Screw	504277	3
9	Bearing Spacer	968611	2	32	Shaft Guard	568622	1
10	Rotor Assembly (Incl. 8, 9)	968848	1	33	Drive Shaft Assembly	968045	1
11	Cylinder	968881	1	34	Oil Pump	568437	1
12	Flap Assembly	968026	2	35	Cap Screw	504262	1
13	Gasket	568884	1	36	Cap Screw	504261	1
14	Vacuum Relief Valve	25056	1	37	Dowel Pin	503258	4
15	Valve Body	968883	1	38	Set Screw	504264	1
16	Washer	500203	7	39	Vane Pack (4)	968218	1
17	Bolt	501666	7	40	Integral Valve Assembly	968887	1
18	Cap	968035	1		(Incl. 15,18,19,20,21, 22, 23, 24, 25, 26)		
19	Washer	501610	4	41	Endcover Shim Gasket *		
20	Bolt	501617	5		.002" Thickness	542011	**
21	Washer	501550	1		.003" Thickness	542012	**
22	Handle	968037	1	42	Oil Line (ft.) *	600293	**
23	Oil Seal	501674	1				

* NOT SHOWN. ** QUANTITY VARIES.



PARTS LIST HXL15WV II



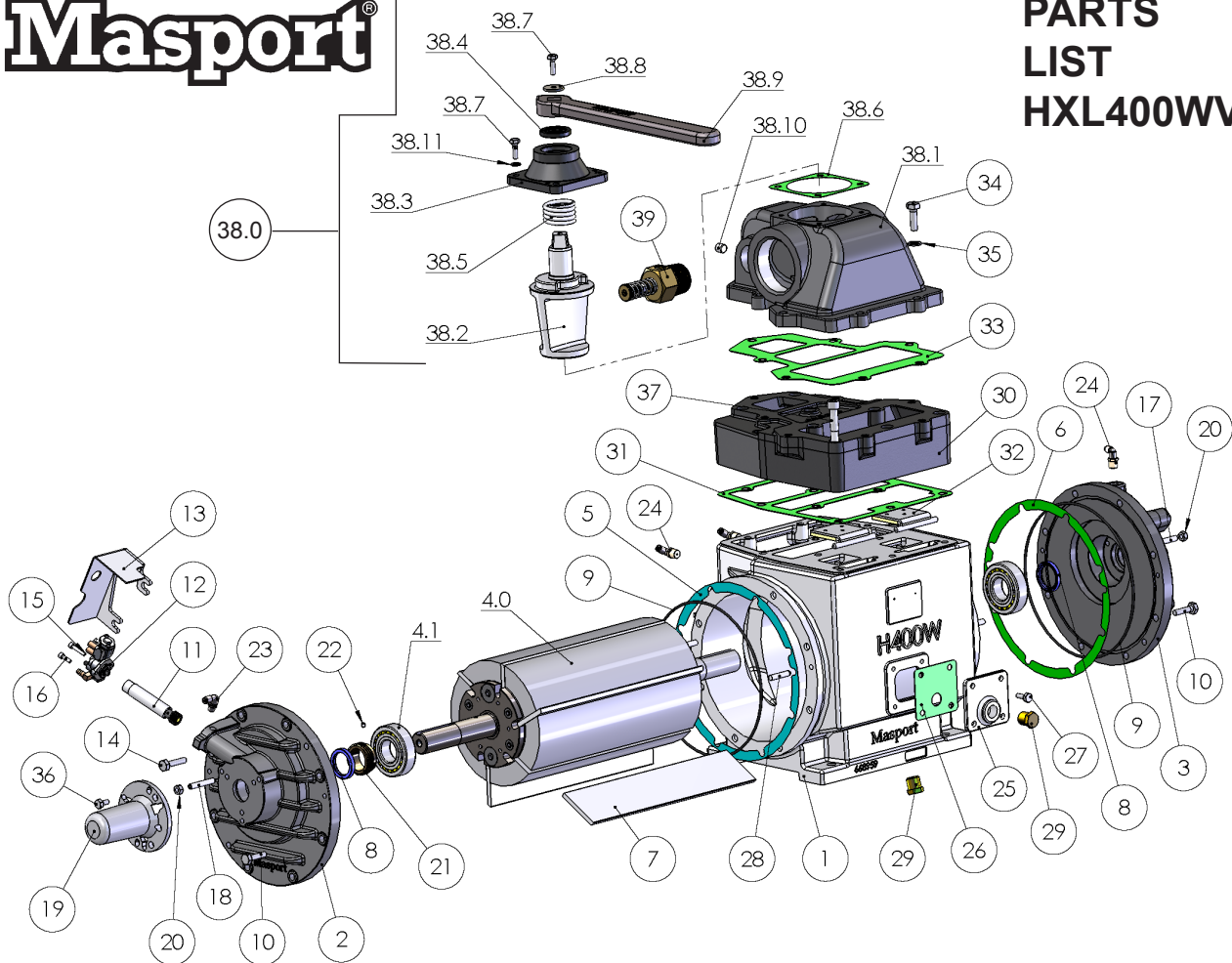
HXL15WV SERIES II LIQUID COOLED PRESSURE / VACUUM PUMP PARTS LIST (968840)

<u>Ref</u>	<u>Description</u>	<u>Part No.</u>	<u>Qty.</u>	<u>Ref</u>	<u>Description</u>	<u>Part No.</u>	<u>Qty.</u>
1	Bolt	501569	16	28	Spring	568038	1
2	Nut	504278	6	29	Spool	968804	1
3	Set Screw	504276	3	30	Bolt	501666	4
4	Endcover	968843	1	31	Gasket	568044	1
5	Swivel Elbow	568086	3	32	Washer	500203	5
6	O-Ring	501677	2	33	Gear	568158	1
7	Oil Seal	501015	2	34	Endcover	968854	1
8	Bearing	503098	2	35	Swivel Elbow	568085	1
9	Bearing Spacer	968611	2	36	Bolt	501571	3
10	Rotor Assembly (Incl. 8, 9)	968848	1	37	Set Screw	504277	3
11	Gasket	568232	1	38	Shaft Guard	568622	1
12	Side Plate	968231	1	39	Drive Shaft Assembly	968045	1
13	Bolt	501597	4	40	Oil Pump	568437	1
14	Flap Assembly	968026	2	41	Cap Screw	504262	1
15	Gasket	568805	1	42	Cap Screw	504261	1
16	Manifold	968802	1	43	Dowel Pin	503258	4
17	Plug	27300	1	44	Set Screw	504264	1
18	Gasket	568806	1	45	Cylinder	968801	1
19	Cap Screw	501965	10	46	Vane Pack (4)	968218	1
20	Valve Body	968012	1	47	Integral Valve Assembly (Incl. 20,21,22,23,24,25, 26,27,28,29,30,31,32)	968006	1
21	Bolt	502061	1	48	Endcover Shim Gasket **		
22	Cap	968035	1		.002" Thickness	542011	***
23	Washer	501610	4		.003" Thickness	542012	***
24	Bolt	501617	5	49	Oil Line (ft.) **	600293	***
25	Washer	501550	1				
26	Handle	968037	1				
27	Oil Seal	501674	1				

** NOT SHOWN *** QUANTITY VARIES

Masport®

PARTS LIST HXL400WV



HXL400WV LIQUID COOLED PRESSURE / VACUUM PUMP PARTS LIST (968980)

Ref.	Description	Part No.	Qty.	Ref.	Description	Part No.	Qty.
1.	Cylinder	968959	1	26.	Gasket Side Plate	568232	1
2.	Endcover - Oil Pump End	968976	1	27.	Screw Set Hex M8 x 20	501848	4
3.	Endcover - Hyd. Drive End	968971	1	28.	Dowel Pin	503261	4
4.0	Rotor Assembly w/ bearings	968967	1	29.	Plug 1/2" BSPT Brass	147621	2
4.1	Bearing	503098	2	30.	Manifold	968846	1
5 & 6	Shim - Endcover			31.	Gasket Manifold	568805	1
	.002" Blue (quantity varies)	542011	**	32.	Flap Assembly	968026	2
	.003" Green (quantity varies)	542012	**	33.	Valve Gasket	568884	1
7.	Vane Pack (6)	968918	1	34.	Set Screw Hex M12 x 35	501666	7
8.	Seal	501015	2	35.	Washer Spring	500203	7
9.	End Cover O-Ring	501677	2	36.	Set Screw Hex M8 x 16	501571	3
10.	Set Screw Hex M10 x 35	501878	14	37.	Screw Cap M12 x 80 HT	501965	10
11.	Drive Shaft Assembly	968045	1	38.0	Integral Valve Assembly	968887	1
12.	Pump - Oil	568437	1	38.1	Body Valve 3" NPT	968883	1
13.	Oil Pump Guard	568903	1	38.2	Spool Valve	968804	1
14.	Screw Set Hex M10 x 40	501584	2	38.3	Valve Cap	968035	1
15.	Screw Cap M5 x 25 HT	504261	1	38.4	Seal	501674	1
16.	Screw Cap M5 x 16 HT	504262	1	38.5	Spring Valve	568038	1
17.	Screw Grub M8 x 35	504276	3	38.6	Gasket Cap	568044	1
18.	Screw Grub M8 x 50	504287	3	38.7	Set Screw Hex M8 x 25	501598S	5
19.	Shaft Cap	568622	1	38.8	Washer 5/16" x 1 1/4" x 1/8"	501550	1
20.	Nut M8 Hex Binx Zp	504278	6	38.9	Handle Valve Long	968037	1
21.	Worm Gear	568158	1	38.10	Plug - 1/4"	27300	1
22.	Screw Grub M5 x 6	504264	1	38.11	Washer Spring	501610	4
23.	Elbow Swivel 1/8"	568085	1	39	1 1/2" Relief Valve	25056	1
24.	Elbow Swivel 1/4"	568086	3	*	Oil Line Tube	600293	**
25.	Side Plate	968231	1				

* NOT SHOWN ** QUANTITY VARIES

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