SERVICE & OPERATING MANUAL
Original Instructions

ALEMITE®

Models 8322-A & 8322-D

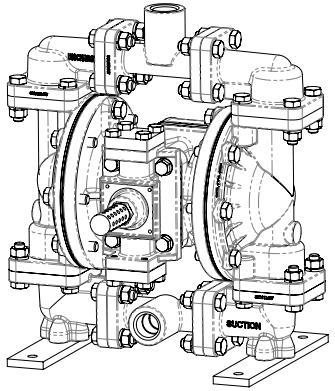

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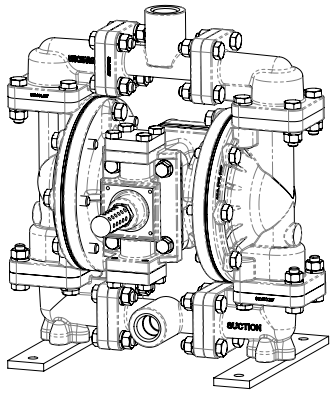
Table of Contents

Engineering Data and Temperature Limitations 1
Performance Curve 2
Dimensions 3
Metric Dimensions 4
Principle of Pump Operation 5
Installation and Start-up 5
Air Supply 5
Air Valve Lubrication 5
Air Line Moisture 5
Air Inlet and Priming 5
Between Uses 5
Installation Guide 6
Troubleshooting 7
Recycling 8
Important Safety Information 8
Composite Repair Parts Drawing 9
Composite Repair Parts List & Available Service and Conversion Kits 9
Air Distribution Valve Assembly Drawing and Parts List 10
Air Distribution Valve Servicing 11
Diaphragm Service Drawing, Non-Overlay 12
Diaphragm Service Drawing, with Overlay 12
Diaphragm Service Drawing 12
Diaphragm Servicing 13
Overlay Diaphragm Servicing 13
Pilot Valve Servicing, Assembly Drawing & Parts List 14
Intermediate Assembly Drawing and Parts List 15
Intermediate Assembly and Actuator Plunger Servicing 15
Check Valve Servicing 16
Check Valve Drawing 16
Pumping Hazardous Liquids 17
Converting the Pump For Piping the Exhaust Air 17
Exhaust Conversion Drawing 17
Converted Exhaust Illustration 17
CE Declaration of Conformity Machinery 18



Models 8322-A & 8322-D Ball Valve

Air-Operated Double Diaphragm Pump

ENGINEERING, PERFORMANCE & CONSTRUCTION DATA

INTAKE/DISCHARGE PIPE SIZE	CAPACITY	AIR VALVE	SOLIDS-HANDLING	HEADS UP TO	DISPLACEMENT/STROKE
½" NPT	0 to 15 gallons per minute (0 to 56 liters per minute)	No-lube, no-stall design	Up to .125 in. (3mm)	125 psi or 289 ft. of water (8.6 bar or 86 meters)	.026 Gallon / .098 liter

CAUTION! ***Operating temperature limitations are as follows:***

Materials		Operating Temperatures Maximum	Operating Temperatures Minimum
Nitrile	General purpose, oil-resistant. Shows good solvent, oil, water and hydraulic fluid resistance. Should not be used with highly polar solvents like acetone and MEK, ozone, chlorinated hydrocarbons and nitro hydrocarbons.	190°F 88°C	-10°F -23°C
Santoprene®	Injection molded thermoplastic elastomer with no fabric layer. Long mechanical flex life. Excellent abrasion resistance.	275°F 135°C	-40°F -40°C
Virgin PTFE	Chemically inert, virtually impervious. Very few chemicals are known to react chemically with PTFE: molten alkali metals, turbulent liquid or gases fluorine and a few fluoro-chemicals such as chlorine trifluoride or oxygen difluoride which readily liberate free fluorine at elevated temperatures.	220°F 104°C	-35°F -37°C
UHMW Polyethylene		180°F 82°C	-40°F -40°C

CAUTION!

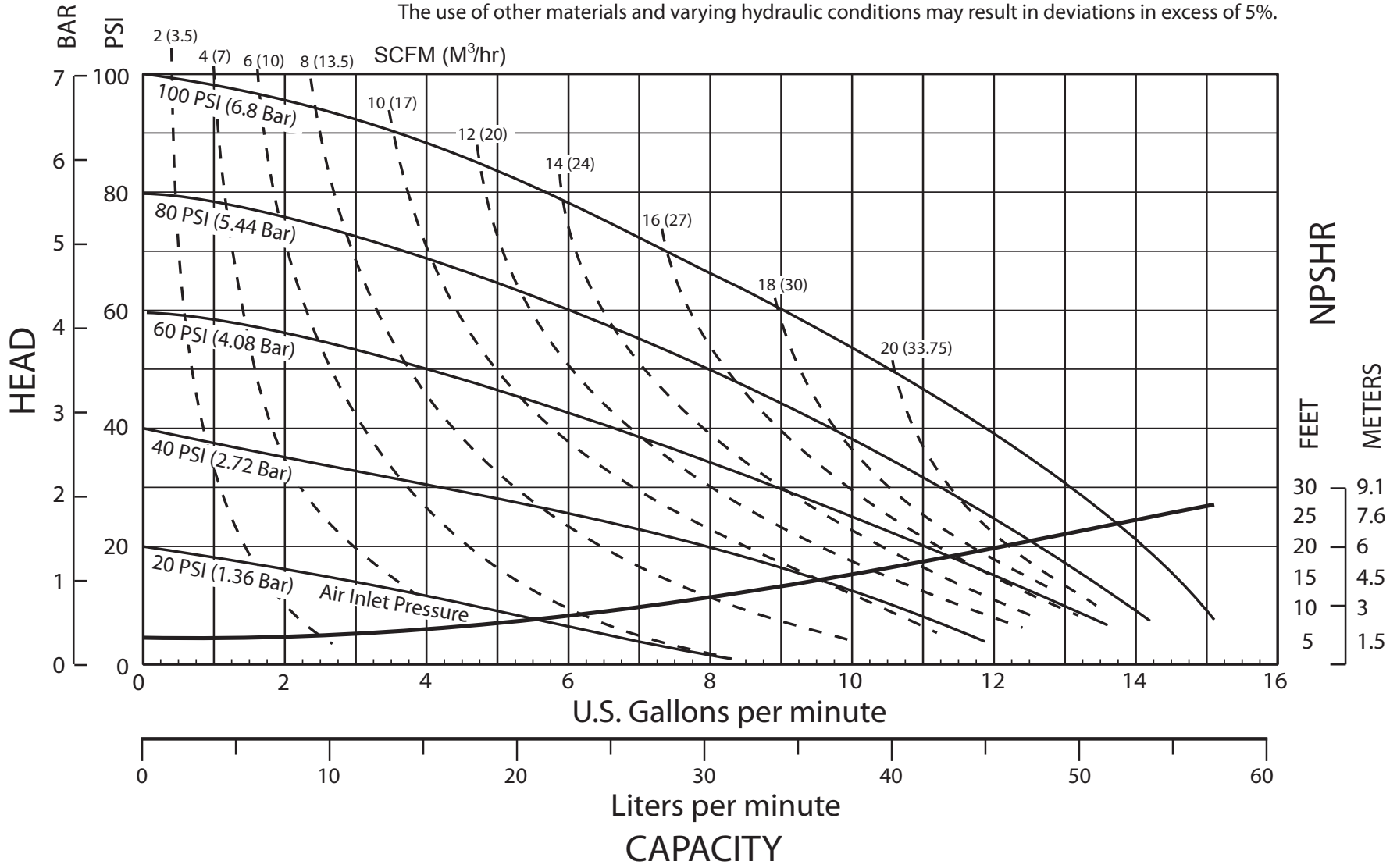
Exposure of the pump to excessive heat (such as the sun) may cause extreme expansion of fluid in lines on the delivery side of the pump. This may result in the check valve ball being extruded through the seat. To avoid this damage to the pump, it is HIGHLY recommended that Pressure Relief Kit 343200 be installed on the delivery side of the pump.

Pump **WARRANTY WILL BE VOIDED** by any damage to the pump due to failure to install a Pressure Relief Kit with the pump.

Alemite pumps are designed to be powered only by compressed air.

Performance Curve

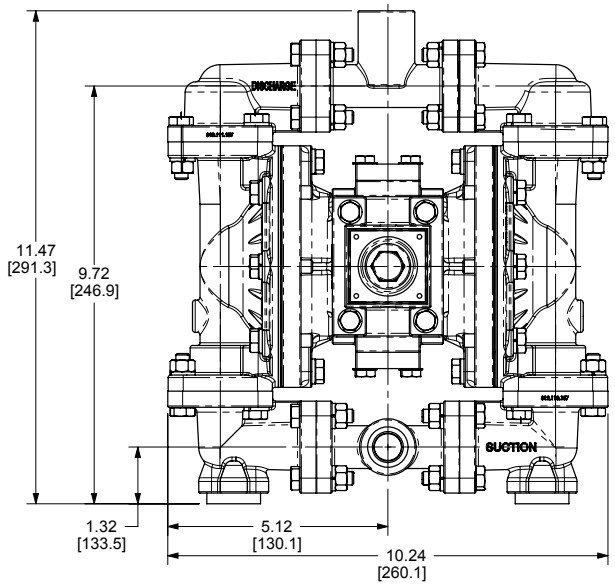
Performance based on the following: elastomer fitted pump, flooded suction, water at ambient conditions.
The use of other materials and varying hydraulic conditions may result in deviations in excess of 5%.



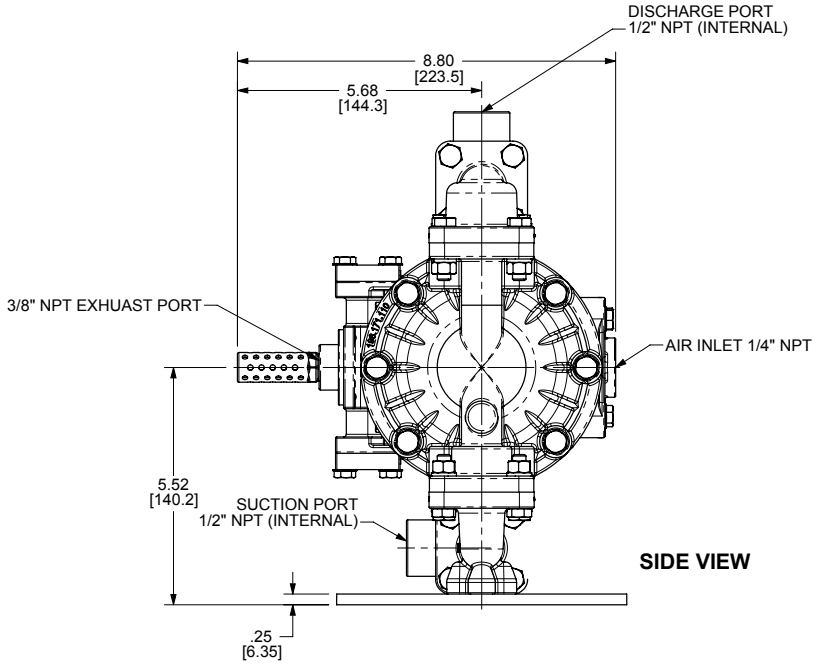
Dimensions

Dimensions in Inches | Metric in Brackets
Dimensional tolerance: ±1/8"

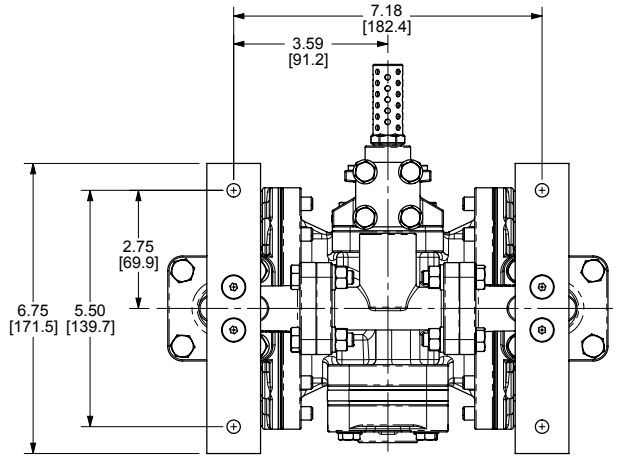
inch
[mm]



FRONT VIEW



SIDE VIEW



BOTTOM VIEW

PRINCIPLE OF PUMP OPERATION

This ball type check valve pump is powered by compressed air and is a 1:1 ratio design. The inner side of one diaphragm chamber is alternately pressurized while simultaneously exhausting the other inner chamber. This causes the diaphragms, which are connected by a common rod secured by plates to the centers of the diaphragms, to move in a reciprocating action. (As one diaphragm performs the discharge stroke the other diaphragm is pulled to perform the suction stroke in the opposite chamber.) Air pressure is applied over the entire inner surface of the diaphragm while liquid is discharged from the opposite side of the diaphragm. The diaphragm operates in a balanced condition during the discharge stroke which allows the pump to be operated at discharge heads over 200 feet (61 meters) of water.

For maximum diaphragm life, keep the pump as close to the liquid being pumped as possible. Positive suction head in excess of 10 feet of liquid (3.048 meters) may require a back pressure regulating device to maximize diaphragm life.

Alternate pressurizing and exhausting of the diaphragm chamber is performed by an externally mounted, pilot operated, four way spool type air distribution valve. When the spool shifts to one end of the valve body, inlet pressure is applied to one diaphragm chamber and the other diaphragm chamber exhausts. When the spool shifts to the opposite end of the valve body, the pressure to the chambers is reversed. The air distribution valve spool is moved by a internal pilot valve which alternately pressurizes one end of the air distribution valve spool while exhausting the other end. The pilot valve is shifted at each end of the diaphragm stroke when a actuator plunger is contacted by the diaphragm plate. This actuator plunger then pushes the end of the pilot valve spool into position to activate the air distribution valve.

The chambers are connected with manifolds with a suction and discharge check valve for each chamber, maintaining flow in one direction through the pump.

INSTALLATION AND START-UP

Locate the pump as close to the product being pumped as possible. Keep the suction line length and number of fittings to a minimum. Do not reduce the suction line diameter.

For installations of rigid piping, short sections of flexible hose should be installed between the pump and the piping. The flexible hose reduces vibration and strain to the pumping system. A Surge Dampener is recommended to further reduce pulsation in flow.

AIR SUPPLY

Air supply pressure cannot exceed 125 psi (8.6 bar). Connect the pump air inlet to an air supply of sufficient capacity and pressure required for desired performance. When the air supply line is solid piping, use a short length of flexible hose not less than 1/2" (13mm) in diameter between the pump and the piping to reduce strain to the piping. The weight of the air supply line, regulators and filters must be supported by some means other than the air inlet cap. Failure to provide support for the piping may result in damage to the pump. A pressure regulating valve should be installed to insure air supply pressure does not exceed recommended limits.

AIR VALVE LUBRICATION

The air distribution valve and the pilot valve are designed to operate WITHOUT lubrication. This is the preferred mode of operation. There may be instances of personal preference or poor quality air supplies when lubrication of the compressed air supply is required. The pump air system will operate with properly lubricated compressed air supply. Proper lubrication requires the use of an air line lubricator set to deliver one drop of SAE 10 non-detergent oil for every 20 SCFM (9.4 liters/sec.) of air the pump consumes at the point of operation. Consult the pump's published Performance Curve to determine this.

AIR LINE MOISTURE

Water in the compressed air supply can create problems such as icing or freezing of the exhaust air, causing the pump to cycle erratically or stop operating. Water in the air supply can be reduced by using a point-of-use air dryer to supplement the user's air drying equipment. This device removes water from the compressed air supply and alleviates the icing or freezing problems.

AIR INLET AND PRIMING

To start the pump, open the air valve approximately 1/2" to 3/4" turn. After the pump primes, the air valve can be opened to increase air flow as desired. If opening the valve increases cycling rate, but does not increase the rate of flow, cavitation has occurred. The valve should be closed slightly to obtain the most efficient air flow to pump flow ratio.

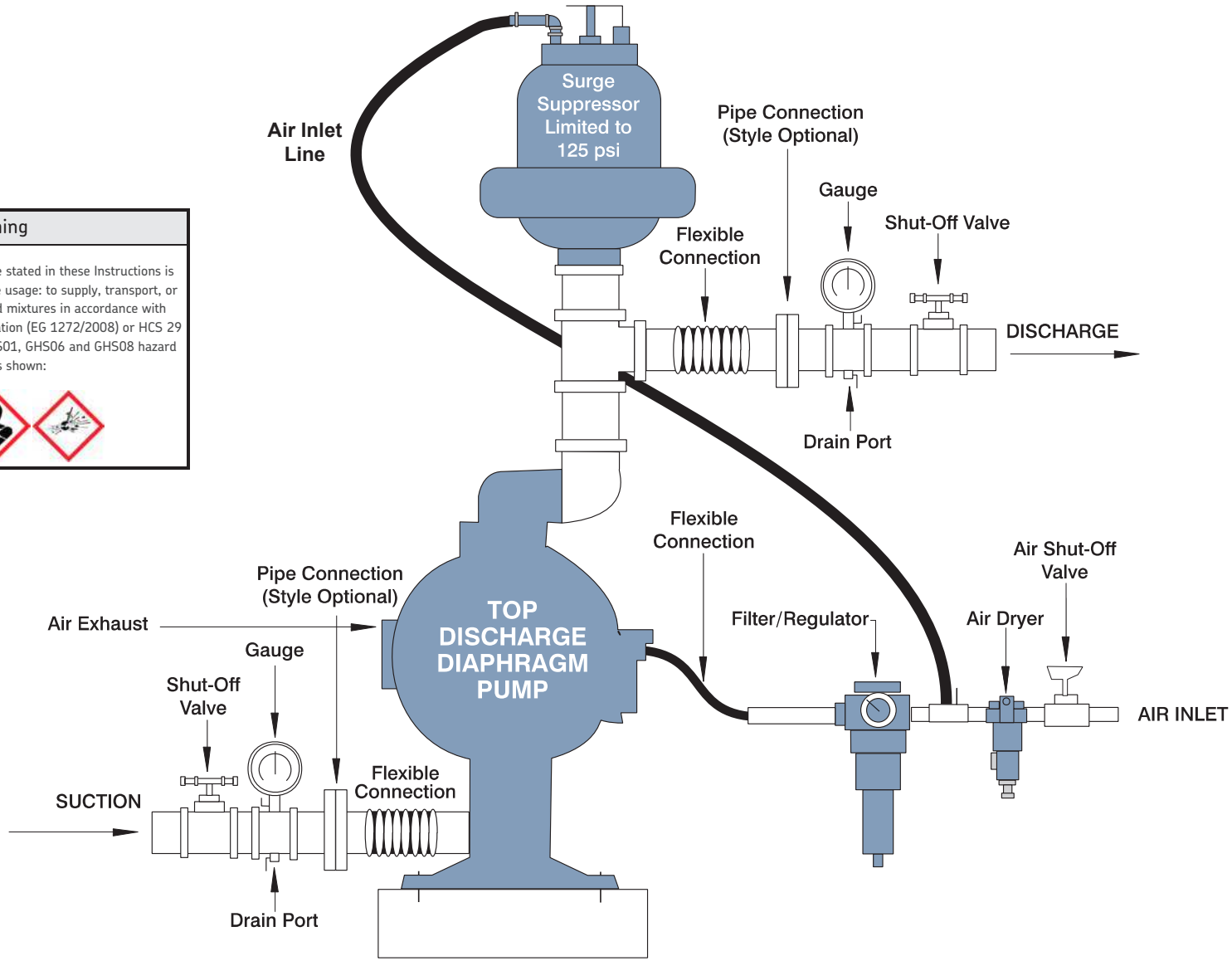
BETWEEN USES

When the pump is used for materials that tend to settle out or solidify when not in motion, the pump should be flushed after each use to prevent damage. (Product remaining in the pump between uses could dry out or settle out. This could cause problems with the diaphragms and check valves at restart.) In freezing temperatures the pump must be completely drained between uses in all cases.

TYPICAL INSTALLATION GUIDE

Warning

Any usage that is outside the one stated in these Instructions is strictly prohibited, particularly the usage: to supply, transport, or store hazardous substances and mixtures in accordance with annex I part 2-5 of the CLP regulation (EG 1272/2008) or HCS 29 CFR 1910.1200 marked with GHS01, GHS06 and GHS08 hazard pictograms shown:



TROUBLESHOOTING

Possible Symptoms:

- Pump will not cycle.
- Pump cycles, but produces no flow.
- Pump cycles, but flow rate is unsatisfactory.
- Pump cycle seems unbalanced.
- Pump cycle seems to produce excessive vibration.

What to Check: Excessive suction lift in system.
Corrective Action: For lifts exceeding 20 feet (6 meters), filling the pumping chambers with liquid will prime the pump in most cases.

What to Check: Excessive flooded suction in system.
Corrective Action: For flooded conditions exceeding 10 feet (3 meters) of liquid, install a back pressure device.

What to Check: System head exceeds air supply pressure.
Corrective Action: Increase the inlet air pressure to the pump. Most diaphragm pumps are designed for 1:1 pressure ratio at zero flow.

What to Check: Air supply pressure or volume exceeds system head.
Corrective Action: Decrease inlet air pressure and volume to the pump as calculated on the published PERFORMANCE CURVE. Pump is cavitating the fluid by fast cycling.

What to Check: Undersized suction line.
Corrective Action: Meet or exceed pump connection recommendations shown on the DIMENSIONAL DRAWING.

What to Check: Restricted or undersized air line.
Corrective Action: Install a larger air line and connection. Refer to air inlet recommendations shown in your pump's SERVICE MANUAL.

What to Check: Check the Externally Serviceable Air Distribution System of the pump.
Corrective Action: Disassemble and inspect the main air distribution valve, pilot valve and pilot valve actuators. Refer to the parts drawing and air valve section of the SERVICE MANUAL. Check for clogged discharge or closed valve before reassembly.

What to Check: Rigid pipe connections to pump.
Corrective Action: Install flexible connectors and a surge dampener.

What to Check: Blocked air exhaust muffler.
Corrective Action: Remove muffler screen, clean or de-ice and reinstall. Refer to the Air Exhaust section of your pump SERVICE MANUAL.

What to Check: Pumped fluid in air exhaust muffler.
Corrective Action: Disassemble pump chambers. Inspect for diaphragm rupture or loose diaphragm plate assembly. Refer to the Diaphragm Replacement section of your pump SERVICE MANUAL.

What to Check: Suction side air leakage or air in product.
Corrective Action: Visually inspect all suction side gaskets and pipe connections.

What to Check: Obstructed check valve.
Corrective Action: Disassemble the wet end of the pump and manually dislodge obstruction in the check valve pocket. Refer to the Check Valve section of the pump SERVICE MANUAL for disassembly instructions.

What to Check: Worn or misaligned check valve or check valve seat.
Corrective Action: Inspect check valves and seats for wear and proper seating. Replace if necessary. Refer to Check Valve section of the pump SERVICE MANUAL for disassembly instructions.

What to Check: Blocked suction line.
Corrective Action: Remove or flush obstruction. Check and clear all suction screens and strainers.

What to Check: Blocked discharge line.
Corrective Action: Check for obstruction or closed discharge line valves.

What to Check: Blocked pumping chamber.
Corrective Action: Disassemble and inspect the wetted chambers of the pump. Remove or flush any obstructions. Refer to the pump SERVICE MANUAL for disassembly instructions.

What to Check: Entrained air or vapor lock in one or both pumping chambers.
Corrective Action: Purge chambers through tapped chamber vent plugs. PURGING THE CHAMBERS OF AIR CAN BE DANGEROUS! Contact Technical Services before performing this procedure. A model with top-ported discharge will reduce or eliminate problems with entrained air.

If your pump continues to perform below your expectations, contact your local Technical Services for a service evaluation.

RECYCLING

Many components of Alemite AODD pumps are made of recyclable materials. We encourage pump users to recycle worn out parts and pumps whenever possible, after any hazardous pumped fluids are thoroughly flushed.

IMPORTANT SAFETY INFORMATION

Warning Signs

Symbol	Warning
 Warning – High pressure	This pump is pressurized internally with air pressure during operation. Take caution when maintance or repair is required.
 Warning – Toxic Fluids	When used for toxic or aggressive fluids, the pump should always be flushed clean prior to disassembly.
 Warning – Advoid Exhaust	The air exhaust should be piped to an area for safe disposition of the media being pumped, in the event of a diaphragm failure.
 Waring-Inspect Before Use	Tighten all fluid connections securely before operation to prevent any high-pressure leaks.

Caution Signs

Symbol	Caution
 Follow instructions	The manual should be read and understood before operation of the system to avoid any issues.
 Protective Glasses	The proper Eye wear- should be worn when close to the pump / hoist to avoid media which may come out.
 Protective Safety Shoes	Due to the possibility of media / Lubricant on the floor, proper nonslip safety shoes should be worn to avoid any hazards.
 Protective Gloves	The proper nonslip gloves should be worn when operating or servicing the system.
 Protective Clothing (Media)	Wearing the proper clothing to protect yourself from any media that may Drip or splash on you.

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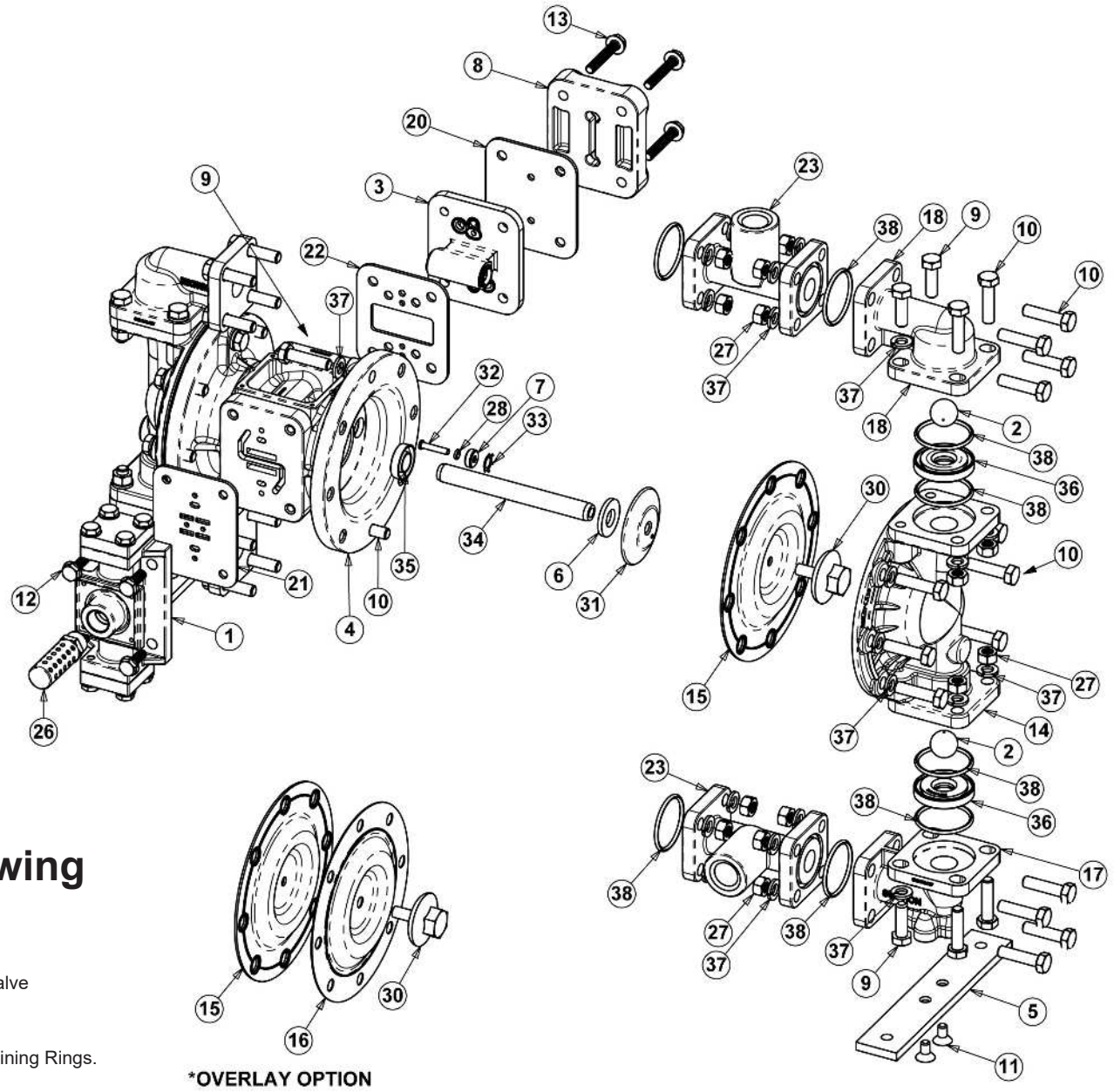
Composite Repair Parts List

ITEM		DESCRIPTION	QTY
1	■	Air Valve Assembly	1
2	⬬	**Ball, Check	4
	▲	*Ball, Check	4
3	■	Pilot Valve Assembly	1
4		Bracket, Intermediate	1
5		Bracket, Mounting	2
6	◆ ■	Bumper, Diaphragm	2
7	◆ ■	Bushing, Plunger	2
8		Cap, Air Inlet	1
9		Capscrew, Hex 5/16-18 X 1.00	12
10		Capscrew, Hex 5/16-18 X 1.25	40
11		Capscrew, Flat Socket Head 1/4-20 x .50	4
12		Capscrew, Flanged 1/4-20 x 75	4
13		Capscrew, Flanged 1/4-20 x 1.50	4
14		Chamber, Outer	2
15	⬬	**Diaphragm	2
	▲	*Diaphragm	2
16	⬬	**Diaphragm, Overlay	2
17		Elbow, Suction	2
18		Elbow, Discharge	2
20	◆ ■	Gasket, Air Inlet	1
21	◆ ■	Gasket, Air Valve	1
22	◆ ■	Gasket, Pilot Valve	1
23		Manifold (see item 29)	2
26		Muffler	1
27		Nut, Hex 5/16-18	24
28	◆ ■	O-ring	2
29	▲	*O-ring	4
	⬬	**Seal	4
30		Plate, Outer Diaphragm	2
31		Plate, Inner Diaphragm	2
32	■	Plunger, Actuator	2
33	◆ ■	Ring, Retainer	1
34		Rod, Diaphragm	2
35	◆ ■	Seal, U-Cup Shaft	4
36	▲	*Seat, Check Valve	4
		*Seat, Check Valve	4
37		5/16 Lock Washer	48
38	⬬	**FEP-Encapsulated Silicone O-ring	8

* Used on Model 8322-A

** Used on Model 8322-D

Composite Repair Parts Drawing



Available Service and Conversion Kits

PART NO. **DESCRIPTION**

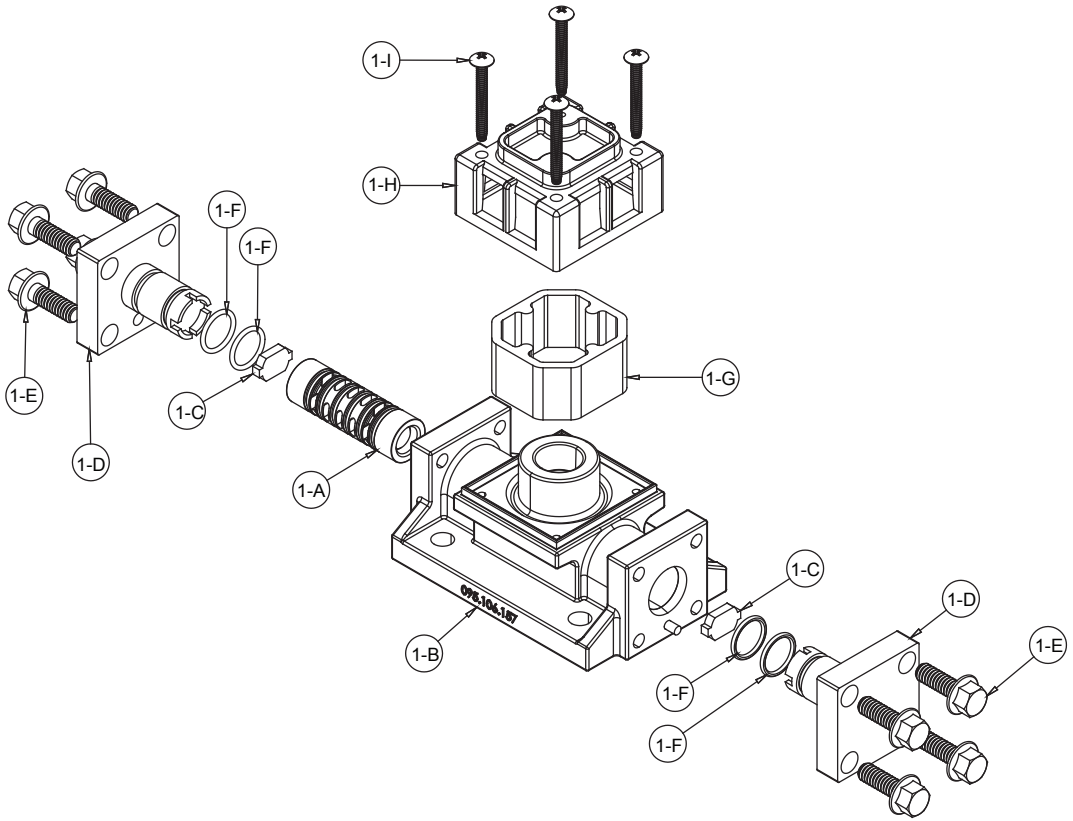
393801-15 ■ **AIR END KIT**
Seals, O-rings, Gaskets, Bumpers, Retainers, Air Valve Assembly and Pilot Valve Assembly.

393801-21 ◆ **SEAL KIT**
O-Rings, Gaskets, Seals, Bumpers, Bushings, Retaining Rings.

393801-2 ▲ **WETTED END KIT** used for Model 8322-A
Nitrile Diaphragm, Nitrile Check Balls, Nitrile O-Rings, UHMW Seats.

393801-5 ⬬ **WETTED END KIT** used for Model 8322-D
Santoprene Diaphragm, PTFE Overlay Diaphragm, PTFE Check Balls, FEP-Encapsulated Silicone O-rings.

Distribution Valve Assembly Drawing



MAIN AIR VALVE ASSEMBLY PARTS LIST

	ITEM	DESCRIPTION	QTY
■	**1**	**Valve Assembly**	**1**
	1-A	Sleeve and Spool Set	1
	1-B	Valve Body	1
◆	1-C	Bumper	2
	1-D	End Cap	2
	1-E	Hex Flange Capscrew 1/4-20 x .75	8
◆	1-F	O-ring	4
	1-G	Muffler	1
	1-H	Muffler Cap	1
	1-I	Machine Screw	4

AIR DISTRIBUTION VALVE SERVICING

To service the air valve first shut off the compressed air, bleed pressure from the pump, and disconnect the air supply line from the pump.

Step #1: See COMPOSITE REPAIR PARTS DRAWING.

Using a 3/8" wrench or socket, remove the four hex capscrews (items 12). Remove the air valve assembly from the pump.

Remove and inspect gasket (item 21) for cracks or damage. Replace gasket if needed.

Step #2: Disassembly of the air valve.

Using a 3/8" wrench or socket, remove the eight hex capscrews (items 1-E) that fasten the end caps to the valve body. Next remove the two end caps (items 1-D). Inspect the two o-rings (items 1-F) on each end cap for damage or wear. Replace the o-rings as needed.

Remove the bumpers (items 1-C). Inspect the bumpers for damage or wear. Replace the bumpers as needed.

Remove the spool (part of item 1-A) from the sleeve. Be careful not to scratch or damage the outer diameter of the spool. Wipe spool with a soft cloth and inspect for scratches or wear.

Inspect the inner diameter of the sleeve (part of item 1-A) for dirt, scratches, or other contaminants. Remove the sleeve if needed and replace with a new sleeve and spool set (item 1-A).

Step #3: Reassembly of the air valve.

Install one bumper (item 1-C) and one end cap (item 1-D), with two o-rings (items 1-F), and fasten with four hex capscrews (items 1-E) to the valve body (item 1-B). Align hole in end cap with roll pin on valve body.

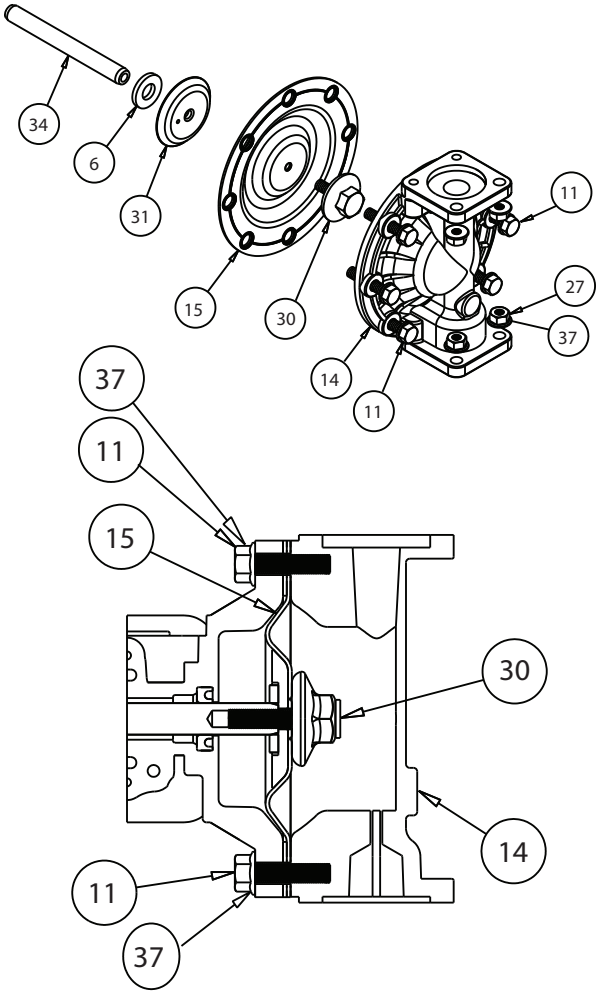
Remove the new sleeve an spool set (item 1-A) from the plastic bag. Carefully remove the spool from the sleeve. Install the six o-rings (item 1-F) into the six grooves on the sleeve. Apply a light coating of grease to the o-rings before installing the sleeve into the valve body (item 1-B), align the slots in the sleeve with the slots in the valve body. Insert the spool into the sleeve. Be careful not to scratch or damage the spool during installation. Install the remaining bumper and end cap (with o-rings), and fasten with the remaining hex capscrews. Align hole in end cap with roll pin on valve body.

Fasten the air valve assembly (item 1) and gasket to the pump. Connect the compressed air line to the pump. The pump is now ready for operation.

⚠ IMPORTANT

Read these instructions completely, before installation and start-up. It is the responsibility of the purchaser to retain this manual for reference. Failure to comply with the recommendations stated in this manual will damage the pump, and void factory warranty.

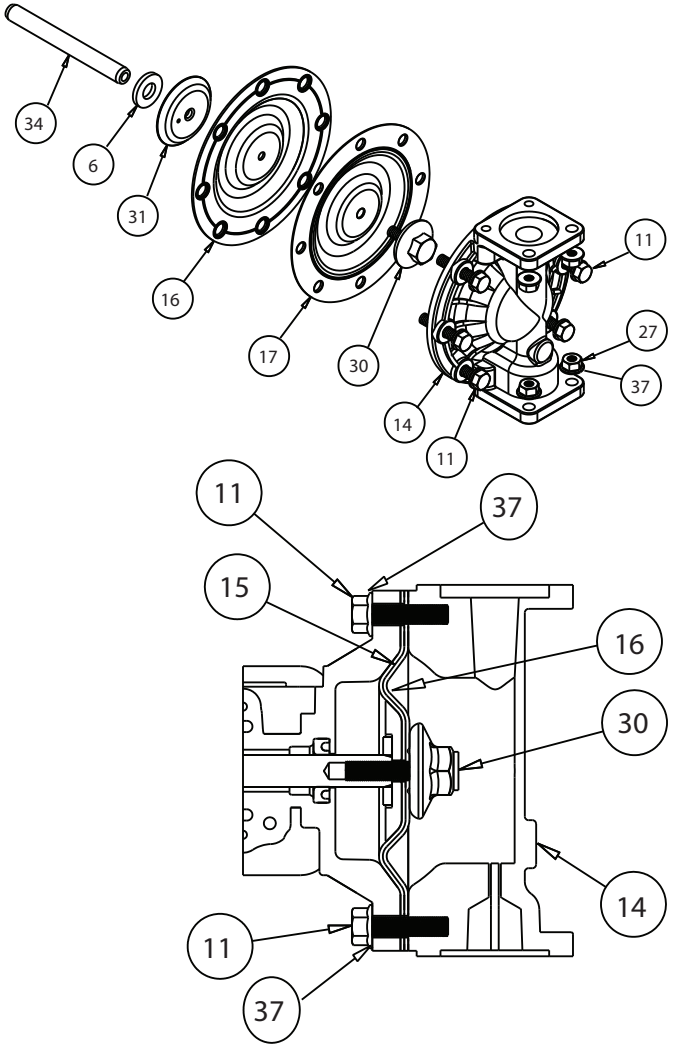
Diaphragm Service Drawing Model 8322-A



Diaphragm Orientation

Install diaphragm as shown above.

Diaphragm Service Drawing, with Overlay Model 8322-D



Diaphragm Orientation

Install diaphragm and overlay as shown above.

DIAPHRAGM SERVICING

To service the diaphragm first shut off the suction, then shut off the discharge lines to the pump. Shut off the compressed air supply, bleed the pressure from the pump, and disconnect the air supply line from the pump. Drain any remaining liquid from the pump.

Step #1: See the pump composite repair parts drawing, and the diaphragm servicing illustration.

Using a 1/2" wrench or socket, remove 8 capscrews (items 9 & 10), washers and nuts that fasten the discharge elbows (item 18) or the discharge manifold (item 25). Remove the elbows and manifold assembly (items 18 & 23) or manifold (item 25). Use the same procedure to remove the suction elbows (item 17) or suction manifold (item 24).

Step #2: Removing the outer chambers. Using a 1/2" wrench or socket, remove the 16 capsrews (item 10), washers that fasten the outer chambers (item 14), diaphragms (items 15 & 16) and intermediate bracket (item 4) together.

Step #3: Removing the diaphragm assemblies.

Use a 3/4" (19mm) wrench or six pointed socket to remove the diaphragm assemblies (outer plate, diaphragm, and inner plate) from the diaphragm rod (item 34) by turning counterclockwise.

Insert a 6-32 set screw into the smaller tapped hole in the inner diaphragm plate (item 31). Insert the protruding stud and the 6-32 fastener loosely into a vise. Use a 3/4" wrench or socket to remove the outer diaphragm plate (item 30) by turning counterclockwise. Inspect the diaphragm (item 15 & 16) for cuts, punctures, abrasive wear or chemical attack. Replace the diaphragms if necessary.

Step #4: Installing the diaphragms.

Push the threaded stud of the outer diaphragm plate through the center hole of the diaphragm. Thread the inner plate clockwise onto the stud. Insert the loose assembly with the above 6-32 fastener back into the vise. Use a torque wrench to tighten the diaphragm assembly together to 7.5 ft. Lbs. (10.17 Newton meters). Allow a minimum of 15 minutes to elapse after torquing, then re-torque the assembly to compensate for stress relaxation in the clamped assembly.

Step #5: Installing the diaphragm assemblies to the pump.

Make sure the bumper (item 6) is installed over the diaphragm rod.

Thread the stud of the one diaphragm assembly clockwise into the tapped hole at the end of the diaphragm rod (item 34) until the inner diaphragm plate is flush to the end of the rod. Insert rod into pump.

Align the bolt holes in the diaphragm with the bolt pattern in the intermediate (item 4).

Fasten the outer chamber (item 14) to the pump, using the capscrews (item 10) washers.

On the opposite side of the pump, pull the diaphragm rod out as far as possible. Make sure the bumper (item 6) is installed over the diaphragm rod.

Thread the stud of the remaining diaphragm assembly clockwise into the tapped hole at the end of the diaphragm rod (item 34) as far as possible and still allow for alignment of the bolt holes in the diaphragm with the bolt pattern in the inner chamber. Install diaphragms with convolutions facing towards center of pump. See sectional view on previous page.

Fasten the remaining outer chamber (item 14) to the pump, using the capscrews (item 10) and washers.

Step #6: Re-install the elbow/ manifold assemblies to the pump, using the capscrews (items 9 and 10) washers and nuts.

The pump is now ready to be re-installed, connected and returned to operation.

OVERLAY DIAPHRAGM SERVICING

The overlay diaphragm (item 16) is designed to fit snugly over the exterior of the standard TPE diaphragm (item 15).

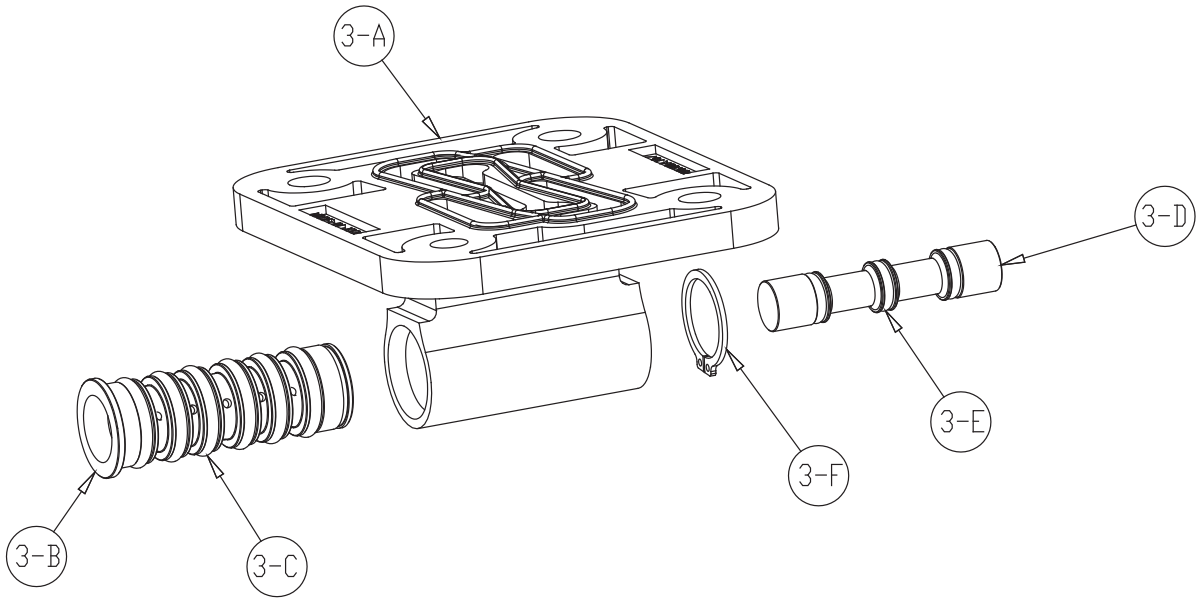
⚠ IMPORTANT

Read these instructions completely, before installation and start-up. It is the responsibility of the purchaser to retain this manual for reference. Failure to comply with the recommendations stated in this manual will damage the pump, and void factory warranty.

Pilot Valve Servicing, Assembly Drawing & Parts List

PILOT VALVE ASSEMBLY PARTS LIST

	ITEM	DESCRIPTION	QTY
■	3	Pilot Valve Assembly	1
	3-A	Valve Body	1
	3-B	Sleeve (With O-rings)	1
◆	3-C	O-ring (Sleeve)	6
	3-D	Spool (With O-rings)	1
◆	3-E	O-ring (Spool)	3
	3-F	Retaining Ring	1



PILOT VALVE SERVICING

To service the pilot valve first shut off the compressed air supply, bleed the pressure from the pump, and disconnect the air supply line from the pump.

STEP #1: See pump assembly drawing.

Using a 7/16" wrench or socket, remove the four capscrews (item 13). Remove the air inlet cap (item 8) and air inlet gasket (item 20). The pilot valve assembly (item 3) can now be removed for inspection and service.

STEP #2: Disassembly of the pilot valve.

Remove the pilot valve spool (item 3-D). Wipe clean and inspect spool and o-rings for dirt, cuts or wear. Replace the o-rings and spool if necessary.

Remove the retaining ring (item 3-F) from the end of the sleeve (item 3-B) and remove the sleeve from the valve body (item 3-A). Wipe clean and inspect sleeve and o-rings for dirt, cuts or wear. Replace the o-rings and sleeve if necessary.

STEP #3: Re-assembly of the pilot valve.

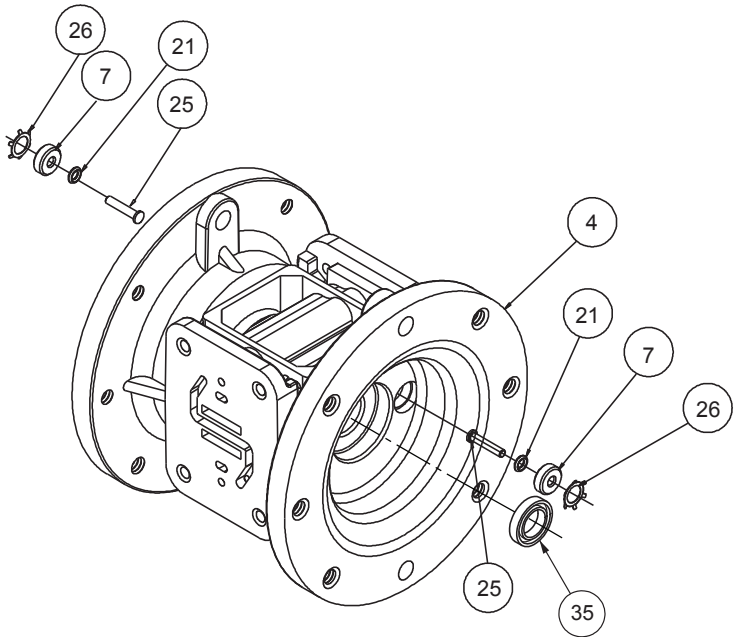
Generously lubricate outside diameter of the sleeve and o-rings. Then carefully insert sleeve into valve body. Take CAUTION when inserting sleeve, not to shear any o-rings. Install retaining ring to sleeve. Generously lubricate outside diameter of spool and o-rings. Then carefully insert spool into sleeve. Take CAUTION when inserting spool, not to shear any o-rings. Use BP-LS-EP-2 multipurpose grease, or equivalent.

STEP #4: Re-install the pilot valve assembly into the intermediate.

Be careful to align the ends of the pilot valve stem between the plunger pins when inserting the pilot valve into the cavity of the intermediate.

Re-install the gasket, air inlet cap and capscrews. Connect the air supply to the pump. The pump is now ready for operation.

Intermediate Assembly Drawing



INTERMEDIATE REPAIR PARTS LIST

	ITEM	DESCRIPTION	QTY
	4	Bracket, Intermediate	1
◆	7	Bushing, Plunger	2
◆■	28	O-Ring	2
	32	Plunger, Actuator	2
◆	33	Ring, Retaining*	2

***NOTE:** It is recommended that when plunger components are serviced, new retaining rings be installed.

Intermediate Assembly Servicing

ACTUATOR PLUNGER SERVICING

To service the actuator plunger first shut off the compressed air supply, bleed the pressure from the pump, and disconnect the air supply line from the pump.

Step #1: See PUMP ASSEMBLY DRAWING.

Using a 3/8" wrench or socket, remove the four capscrews (items 12). Remove the air inlet cap (item 8) and air inlet gasket (item 20). The pilot valve assembly (item 3) can now be removed.

Step #2: Servicing the actuator plungers.

See PUMP ASSEMBLY DRAWING.

The actuator plungers (items 32) can be reached through the stem cavity of the pilot valve in the intermediate bracket (item 4). To service bushings, o-rings and retaining rings, see Intermediate Drawing.

Remove the plungers (items 32) from the bushings (item 7) in each end of the intermediate cavity. Inspect for wear or damage. Replace plunger as needed. Apply a light coating of grease to each o-ring and re-install the plungers in to the bushings. Push the plungers in as far as they will go.

Step #3: Re-install the pilot valve assembly into the intermediate assembly.

Be careful to align the ends of the stem between the plungers when inserting the stem of the pilot valve into the cavity of the intermediate.

Re-install the gasket (item 20), air inlet cap (item 8) and capscrews (items 12).

Connect the air supply to the pump. The pump is now ready for operation.

PLUNGER BUSHING, O-RING, AND RETAINING RING SERVICING

To service the plunger bushing components first remove the two retaining rings (items 33) using a small flat screwdriver. ***Note:** It is recommended that new retaining rings be installed.

Next remove the two plunger bushings (items 7). Inspect the bushings for wear or scratches. Replace the bushings as necessary.

Inspect the two o-rings (28) for cuts and/or wear.

⚠ IMPORTANT

Read these instructions completely, before installation and start-up. It is the responsibility of the purchaser to retain this manual for reference. Failure to comply with the recommendations stated in this manual will damage the pump, and void factory warranty.

CHECK VALVE SERVICING

Before servicing the check valve components, first shut off the suction line and then the discharge line to the pump. Next, shut off the compressed air supply, bleed air pressure from the pump, and disconnect the air supply line from the pump. Drain any remaining fluid from the pump. The pump can now be removed for service.

To access the check valve components, remove the manifold/ manifold assembly. Use a 1/2" wrench or socket to remove the fasteners. Once the manifold is removed, the check valve components can be seen.

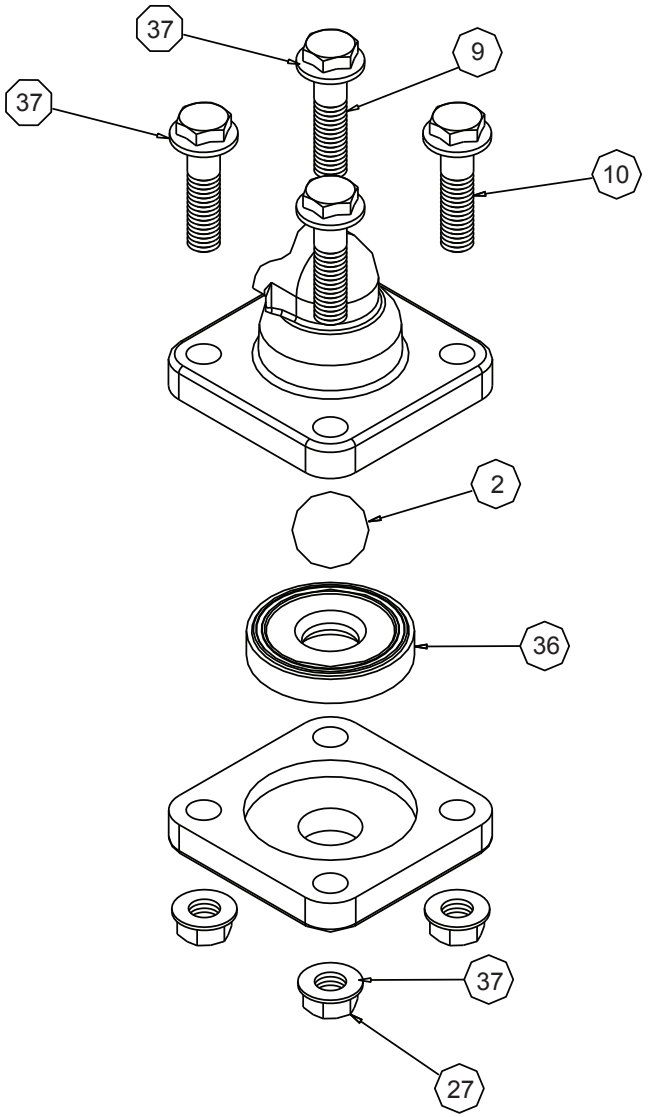
For Model 8322-A: Inspect the check balls (items 2) for wear, abrasion, or cuts on the spherical surface. The check valve seats (item 36) should be inspected for cuts, abrasive wear, or embedded material on the surfaces of both the external and internal chambers. The spherical surface of the check balls must seat flush to the surface of the check valve seats for the pump to operate to peak efficiency. Replace any worn or damaged parts as necessary.

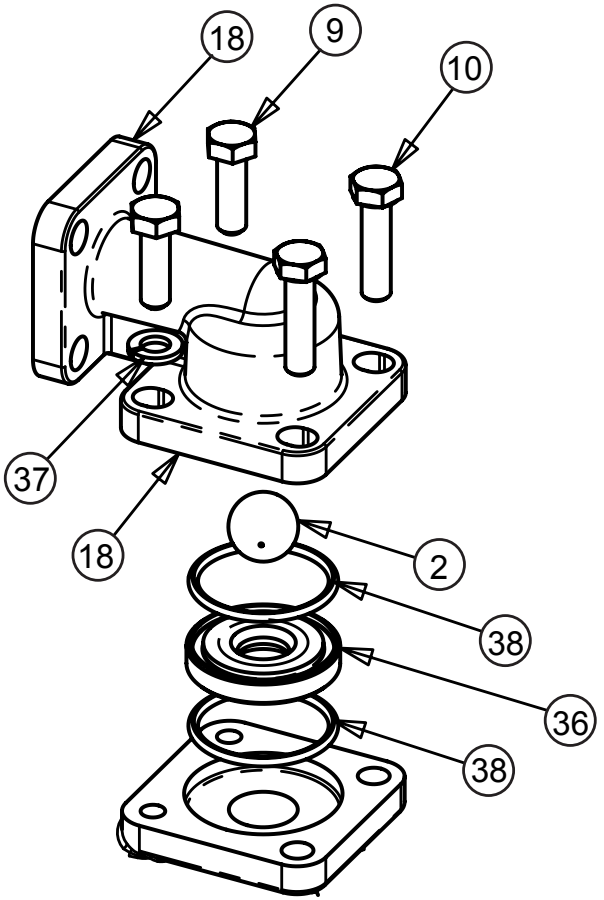
Re-assemble the check valve components. The seat should fit into the counter bore of the outer chamber.

The pump can now be reassembled, reconnected and returned to operation.

For Model 8322-D: Inspect the check balls (items 2) for wear, abrasion, or cuts on the spherical surface. The check valve seats (item 36) and FEP-Encapsulated o-rings (item 38) should be inspected for cuts, abrasive wear, or damage. Replace any worn or damaged parts as necessary.

Check Valve Drawing





Used on Model 8322-D

PUMPING HAZARDOUS LIQUIDS

When a diaphragm fails, the pumped liquid or fumes enter the air end of the pump. Fumes are exhausted into the surrounding environment. When pumping hazardous or toxic materials, the exhaust air must be piped to an appropriate area for safe disposal. See illustration #1 at right.

This pump can be submerged if the pump materials of construction are compatible with the liquid being pumped. The air exhaust must be piped above the liquid level. See illustration #2 at right. Piping used for the air exhaust must not be smaller than 1/2" (1.27 cm) diameter. Reducing the pipe size will restrict air flow and reduce pump performance. When the pumped product source is at a higher level than the pump (flooded suction condition), pipe the exhaust higher than the product source to prevent siphoning spills. See illustration #3 at right.

CONVERTING THE PUMP FOR PIPING THE EXHAUST AIR

The following steps are necessary to convert the pump to pipe the exhaust air away from the pump.

Use a Phillips screwdriver to remove the four self-tapping screws (item 1-H).

Remove the muffler cap and muffler (items 1-G and 1-F). The 3/8" NPT molded threads in the air distribution valve body (item 1-A).

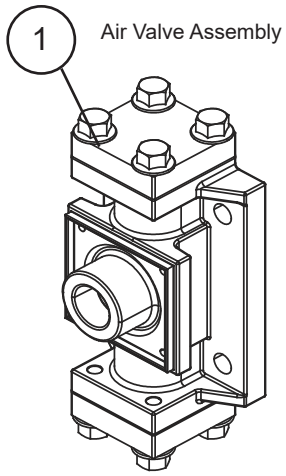
Piping or hose may now be installed.

IMPORTANT INSTALLATION NOTE:

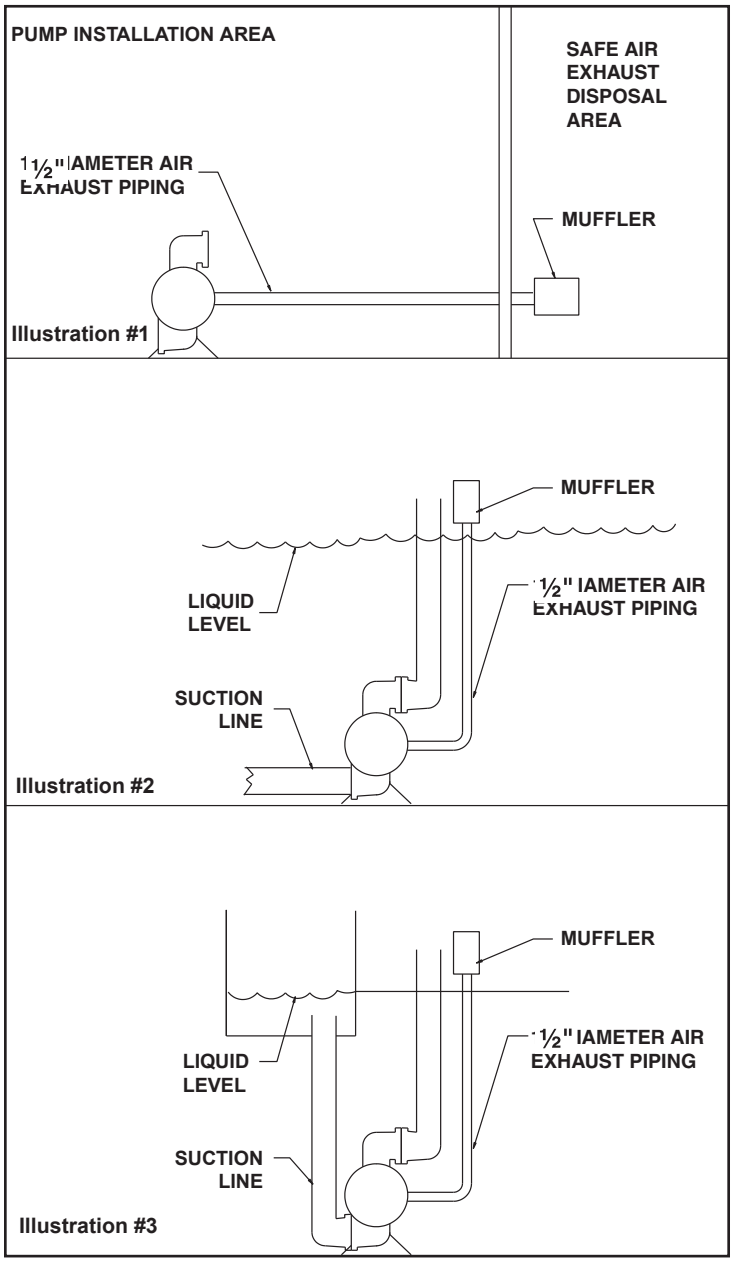
The manufacturer recommends installing a conductive flexible hose or connection between the pump and any rigid plumbing. This reduces stresses on the molded plastic threads of the air exhaust port. Failure to do so may result in damage to the air distribution valve body.

Any piping or hose connected to the pump's air exhaust port must be conductive and physically supported. Failure to support these connections could also result in damage to the air distribution valve body.

Exhaust Conversion Drawing



CONVERTED EXHAUST ILLUSTRATION



ALEMITE®

Service Guide

343200
343201

Pressure Relief Kits

Description

Pressure relief kits provide over-pressure protection from thermal expansion of fluid in a system. The pressure relief kit mainly consists of pressure relief valve installed at pump outlet with fluid return line and fittings.

Over-Pressure Protection Planning

The protection planning involves the following: pressure relief valve pressure setting, valve location and routing. It is imperative that the pressure ratings of components in the system be higher than the pressure setting of relief valve.

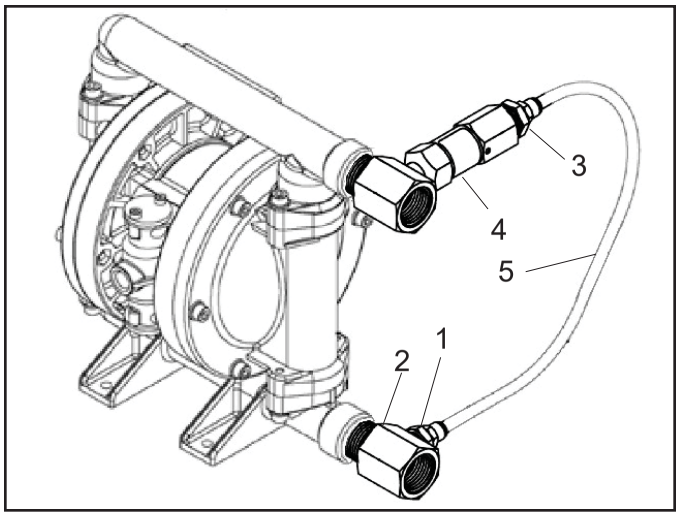


Figure 1 *Pressure Relief Kit for 1/2" Air Operated Diaphragm pump*

Table 1 *Parts List of Kit 343200*

ITEM No.	PART No.	DESCRIPTION	Qty.
1	45120	Bushing, 1/4" X 1/8" npt	1
2	339282	Tee, Reducing Branch	2
3	339760	Fitting, Push-to-Connect	2
4	343203	Valve, Pressure Relief	1
5	343204	Tubing, Nylon	1

Pressure relief valve should be installed close the pump outlet to gain routing efficiency and proper protection. The pressure relief kits listed here are based on Alemite oil pumps. No check valve should exist after the pressure relief valve.

Pressure Relief Valve 343203 is rated to open at 160 PSI.

Pressure Relief Kit With Diaphragm Pumps

Two pressure relief kits are configured to fit two sizes of diaphragm pumps: one is for pump of ½" outlet, the other is for a 1" outlet. Figure 1 shows kit 343200 with the outlet and inlet of diaphragm pump at one side. The picture is for reference only.

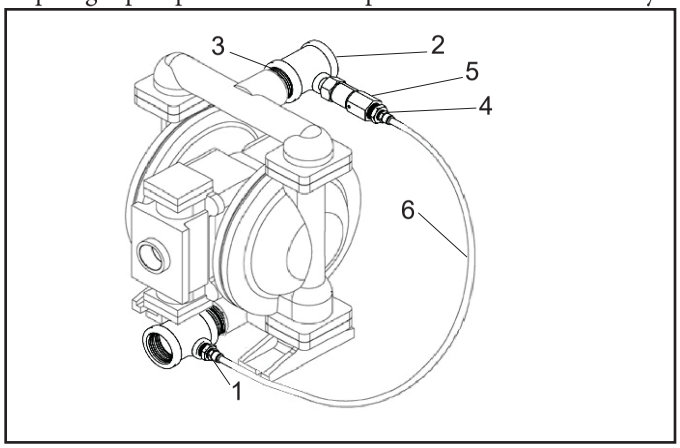


Figure 2 *Pressure Relief Kit for 1" Air Operated Diaphragm Pump*

Note: It is possible that the outlet tee might be in the vertical position. In such case, the tee branch at fluid inlet should be in horizontal position and pointing to the same direction of branch of outlet tee. Figure 3 shows such arrangement.

Table 2 *Parts List of Kit 343201*

ITEM No.	PART No.	DESCRIPTION	Qty.
1	45120	Bushing, 1/4" X 1/8" npt	1
2	171949	Tee, 1" X 1" X 1/4" npt	2
3	172265-1	Nipple, Closed 1"	2
4	339760	Fitting, Push-to-Connect	2
5	343203	Valve, Pressure Relief	1
6	343204	Tubing, Nylon	1

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167 Roweland Drive, Johnson City, Tennessee 37601
www.alemite.com

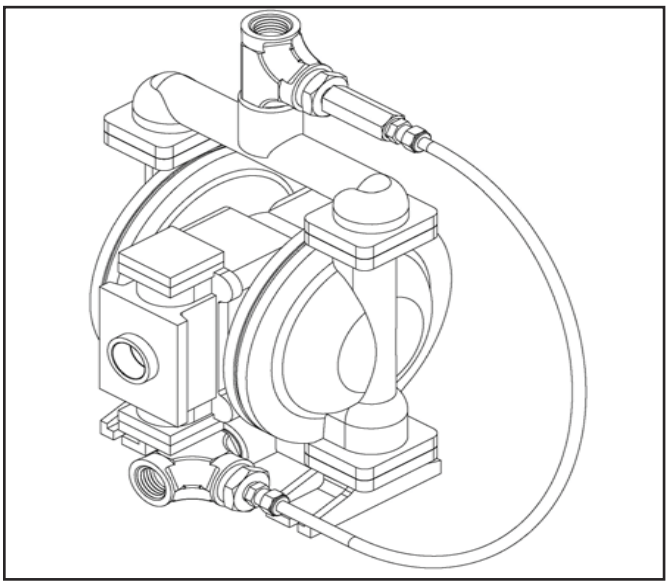

Figure 3 *Pressure Relief Kit Arrangements with Upward Outlet*

Installation Procedures of Pressure Kit 343200:

1. Turn off pump and disconnect air line for safety. Relieve the pressure in system.
2. Disconnect the fluid inlet line and fluid outlet line at the pump.
3. Thread one reducing branch tee (2) to pump outlet and the other to pump inlet.
4. Thread bushing (1) onto the branch of the tee (2) at the inlet.
5. Thread pressure relief valve (4) onto the branch of the tee (2) at the pump outlet.
6. Thread one push-to-connect fitting (3) onto the bushing (1) and the second to the pressure relief valve (4).
7. Install nylon tube between these two fittings (3).
8. Connect inlet line to the inlet tee, and the outlet line to the outlet tee.

Installation Procedures of Pressure Kit 343201:

1. Turn off pump and disconnect air line for safety. Relieve the pressure in system.
2. Disconnect the fluid inlet line and fluid outlet line at the pump.
3. Thread one tee (2) to closed nipple (3). Thread nipple and tee to pump inlet. Repeat these steps for outlet.
4. Thread bushing (1) onto the branch of the tee (2) at the inlet.
5. Thread pressure relief valve (5) onto the branch of the tee (2) at the pump outlet.
6. Thread one push-to-connect fitting (4) onto the bushing (1) and the second to the pressure relief valve (5).
7. Install nylon tube between these two connectors.
8. Connect inlet line to the inlet tee, and the outlet line to the outlet tee.

Tandem Installation Specifications

When installing Pressure Relief Kits in tandem with Evacuation Kits, the following specifications are recommended for the different pump configurations:

Pump Model	Pump Size	Kit	
		Pressure Relief	Evacuation
8322	1/2	343200	Not Recommended
8322-A	1/2	343200	8595-C
8322-B	1/2	343200	Not-Recommended
8322-C	1/2	343200	Not-Recommended
8322-D	1/2	343200	8595-C
8323	1”	343201	8595-A
8323-A	1”	343201	8595-A
8325	1”	343201	8595-A
8327	1”	343201	8595-A

Tandem Installation Procedure for Pump Model 8322-A, 8322-D

1. Turn off pump and disconnect air line for safety. Relieve the pressure in system.
2. Disconnect the fluid inlet and fluid outlet line at the pump.
3. Thread one Reducing Pipe Tee (2) from Kit 343201 to pump inlet and the other to the pump outlet.
4. Thread one Closed Nipple (3) to Tee (2) on pump outlet only. Discard second closed Nipple.
5. Follow steps 4-5 for “Installation Procedures of Pressure Kit 343201” above.
6. Install 8595-C Evacuation Kit per SER 671044 directly to the Pipe Tee on the pump inlet and the closed nipple on the pump outlet.

SKF	UK Declaration of Conformity	DOCUMENT NO. UK670983CA

Manufacturer Name/ Address:
Lincoln Industrial Corp.
5148 N. Hanley Road
St. Louis, MO U.S.A.

Authorized to Compile the Technical File:
SKF (U.K.) Limited
2 Canada Close
Banbury, Oxfordshire, OX16 2RT, GBR

TEL: +1 314-679-4200 / FAX: +1 314-679-4367
EMAIL: robert.collins@skf.com / WEBSITE: www.skf.com

The manufacturer Lincoln Industrial hereby declares under sole responsibility that the machinery equipment described below:

Name: Air-Operated Double Diaphragm Pump
Model Number(s): 8322-A and 8322-D
Description: Ball Valve
Year of CE: 2023

in its intended use, is in conformity with the relevant legislations and designated Standards shown:

Standard	Name
EN ISO 12100: 2010	SAFETY OF MACHINERY. GENERAL PRINCIPLES FOR DESIGN. RISK ASSESSMENT AND RISK REDUCTION
EN ISO 809:1998+A1:2009	PUMPS AND PUMP UNITS FOR LIQUIDS - COMMON SAFETY REQUIREMENTS

and the following Directive(s) were also applied with the above legislation:

- Supply of Machinery (Safety) Regulations 2008 (S.I. 2008:1597)

The manufacturer maintains a technical construction file containing test reports and product documentation:

Technical File Summary Sheet No.: RA670983

I, the undersigned, of SKF do hereby declare that the equipment specified above, in its intended use, conforms with all requirements of the UK legislation Supply of Machinery (Safety) Regulations 2008 No. 1597 at the time of placing the above product on the market.

Date: 2023/09/20
Place: St. Louis Mo, USA

Signature:
Technical Compliance Manager – Robert Collins

SKF	Declaration of Conformity	DOCUMENT NO. SER670983.DoC

Manufacturer Name/ Address:
Lincoln Industrial Corp.
5148 N. Hanley Road
St Louis, MO U.S.A.

Authorized to Compile the Technical File:
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Heinrich-Hertz-Straße 2-8
69190 Walldorf, Germany

TEL: +1 314-679-4200 / FAX: +1 314-679-4367
EMAIL: robert.collins@skf.com / WEBSITE: www.skf.com

CE

The manufacturer Lincoln Industrial hereby declares under sole responsibility that the machinery equipment described below:

Name: Air-Operated Double Diaphragm Pump
Model Number(s): 8322-A and 8322-D
Description: Ball Valve
Year of CE: 2023

in its intended use, is in conformity with the relevant Union harmonization legislation:

Machinery Directive 2006/42/EU (ANNEX VIII)

and conforms to the following Harmonized Standards:

Standard	Name
EN ISO 12100: 2010	SAFETY OF MACHINERY. GENERAL PRINCIPLES FOR DESIGN. RISK ASSESSMENT AND RISK REDUCTION
EN ISO 809:1998+A1:2009	PUMPS AND PUMP UNITS FOR LIQUIDS - COMMON SAFETY REQUIREMENTS

The manufacturer maintains a technical construction file containing test reports and product documentation:

Technical File Summary Sheet No.: RA670983

I, the undersigned, of SKF do hereby declare that the equipment specified above, in its intended use, conforms to the requirements of the above Directives and Harmonized Standards at the time of placing the above product on the market.

Date: 2023/09/20
Place: St. Louis Mo, USA

Signature:
Technical Compliance Manager – Robert Collins