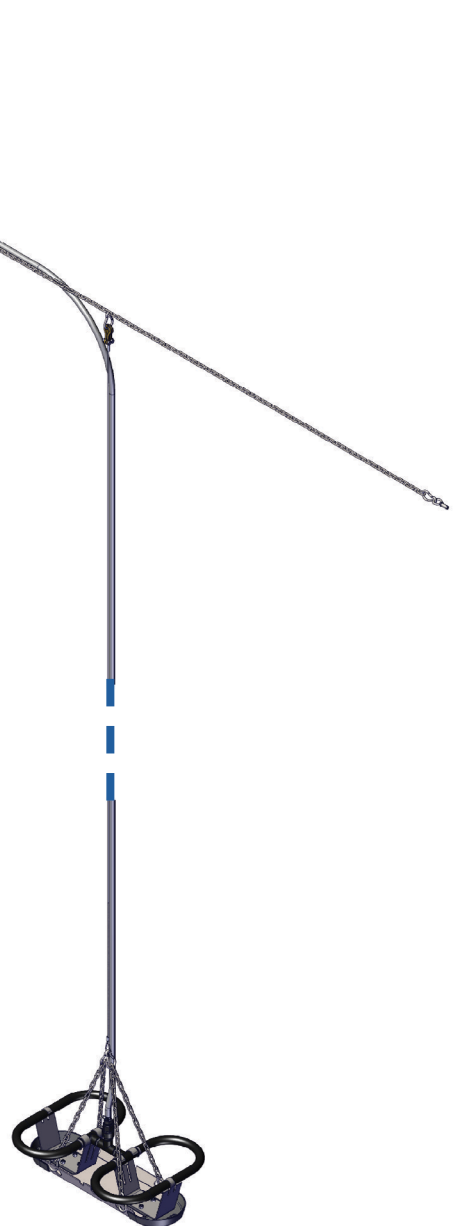




# LIFT STATION AGITATOR

## Installation & Operation Manual



Document number 884190  
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# TABLE OF CONTENTS

Safety First .....	2
Unit Specifications .....	2
Parts Included List .....	3
Parts Included Illustration .....	4
Post Mount Cabinet Installation .....	5
No-Cabinet Installation .....	6
Hatch Chain Installation .....	9
Assembly Instructions.....	10
Winter Operation.....	15
Maintenance.....	15
Troubleshooting.....	15
Warranty .....	16
Other Repairs .....	17
Repair Contact Form .....	18

## QUESTIONS?



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# SAFETY FIRST

**IMPORTANT: PLEASE READ THIS MANUAL AND SAVE FOR FUTURE REFERENCE**

## WARNINGS:



**Electrical Shock Hazard**

- Use caution when dealing with any electrical equipment.
- Consult a qualified electrician for electrical installation.

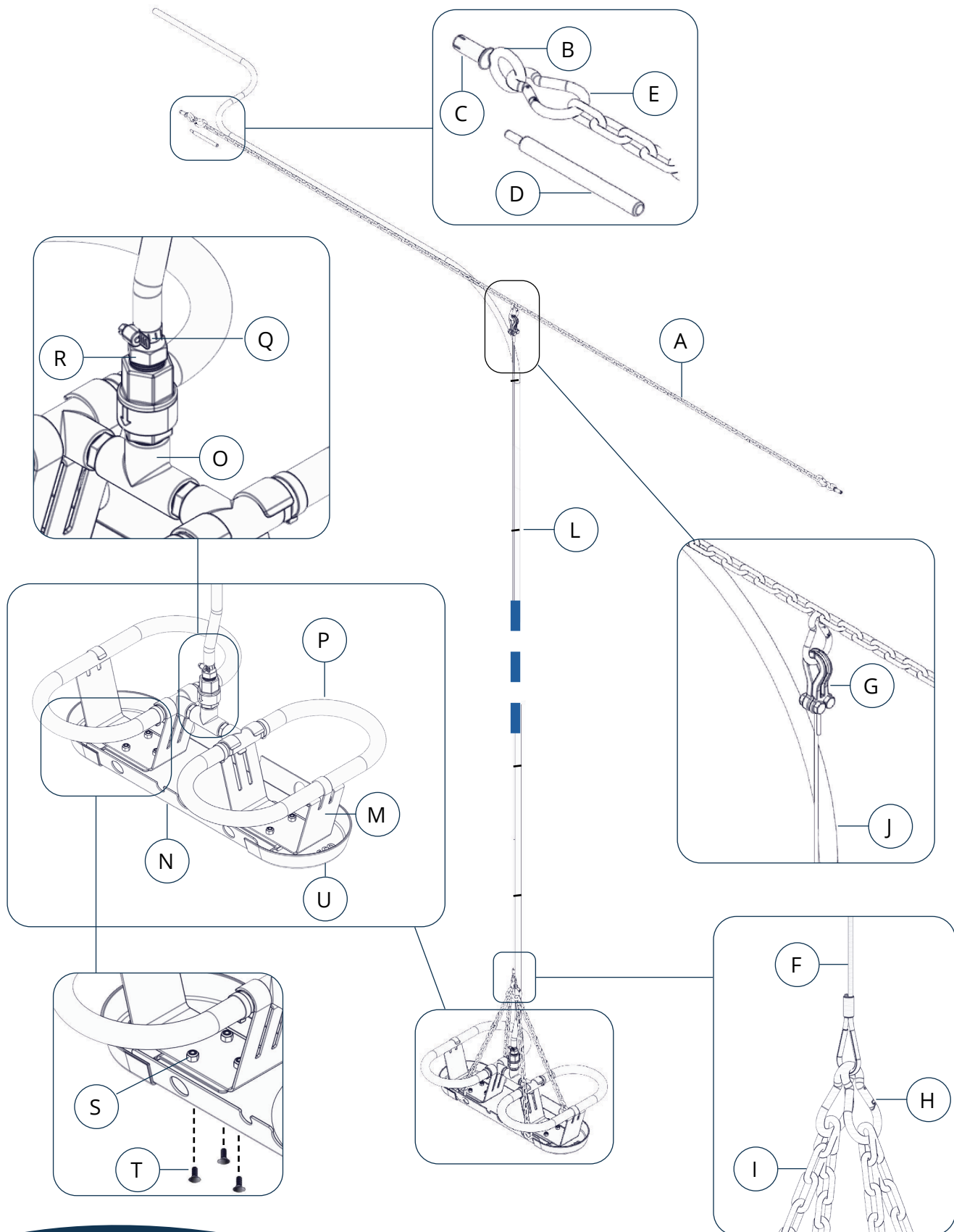
## UNIT SPECIFICATIONS

Model Number	Number of diffusers	Voltage	Phase	Compressor HP	Amps	Number of 50-ft. rolls of 3/8" tubing included
LS-100	1	120V	1	1/4	2.5	1
LS-150	1	120V	1	1/2	3.5	1
LS-200	2	120V	1	1/2	3.5	2
LS-300	3	120V	1	1/2	3.5	3
LS-100-NC	1	120V	1	1/4	2.5	1
LS-150-NC	1	120V	1	1/2	3.5	1
LS-200-NC	2	120V	1	1/2	3.5	2
LS-300-NC	3	120V	1	1/2	3.5	3

# PARTS INCLUDED LIST

				LS-100(-NC)	LS-150(-NC)	LS-200(-NC)	LS-300(-NC)
Assembly	Item	Description	Part No.	Qty.			
Hatch Chain Installation Kit (PN: 636395)	A	Chain - 10 ft.	636347	1			
	B	Eyebolt	566222	2			
	C	Concrete anchor	566220	2			
	D	Anchor installation tool	566221	1			
	E	Snap hook	636346	2			
Diffuser Tubing and Suspension Kit (PN: 636396)	F	Cable - 25 ft.	636390	1	1	2	3
	G	Cable adjuster	636391	1	1	2	3
	H	Snap hook	636346	7	7	14	21
	I	Chain - 18 in.	636348	4	4	8	12
	J	SureSink tubing - 50 ft.	773375	1	1	2	3
	K	Tube fitting kit	773300	1	1	2	3
	L	Cable tie	415038	9	9	18	27
Diffuser Kit (PN: 636392)	M	Diffuser substrate	772030	2	2	4	6
	N	Diffuser substrate connector	772031	1	1	2	3
	O	Inlet check valve assembly	772033	1	1	2	3
	P	Diffuser loop (set of 2)	772040	1	1	2	3
	Q	Hose clamp	773008	1	1	2	3
	R	Hose barb	773012	1	1	2	3
	S	1/4" nylon locknut	451100	6	6	12	18
	T	1/4" bolt	772034	6	6	12	18
	U	Edge guard	772032	2	2	4	6
Compressed Air Supply	V	1/4HP compressor w/ cabinet	636393	1			
	W	1/2HP compressor w/ cabinet	636398		1	1	1
	X	1/4HP compressor w/o cabinet	636394	1			
	Y	1/2HP compressor w/o cabinet	636399		1	1	1

# PARTS INCLUDED ILLUSTRATION



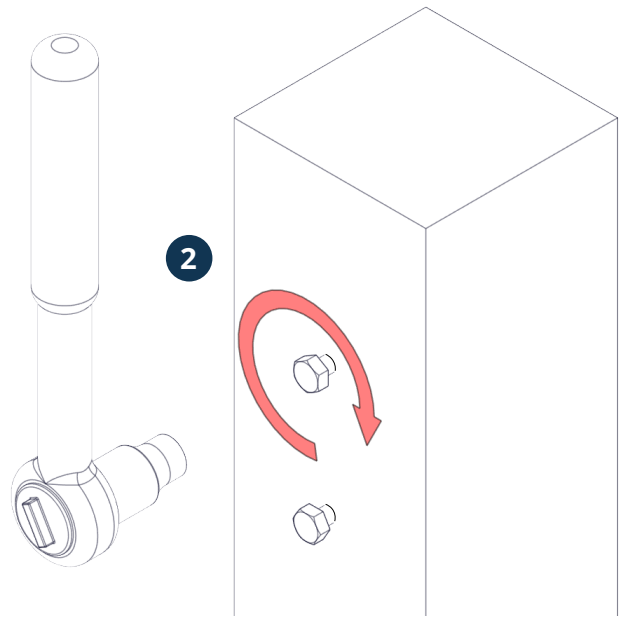
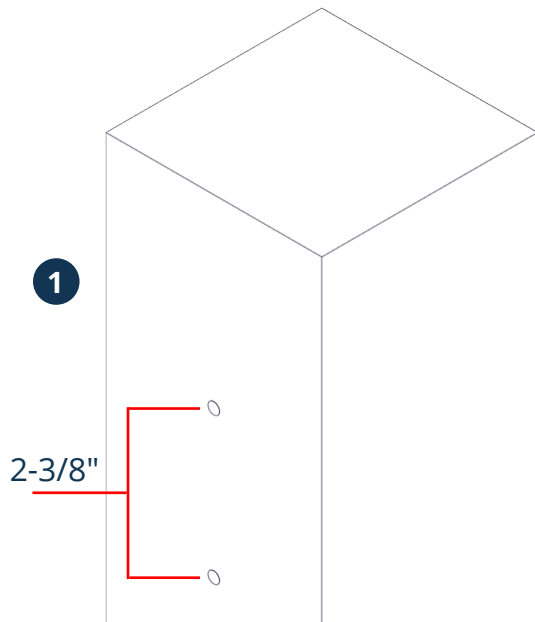
# POST MOUNT CABINET INSTALLATION

Attach the Post Mount cabinet to a post or vertical wall (shed) with electrical service. Use the two provided lag screws to mount the cabinet to the wall or post.

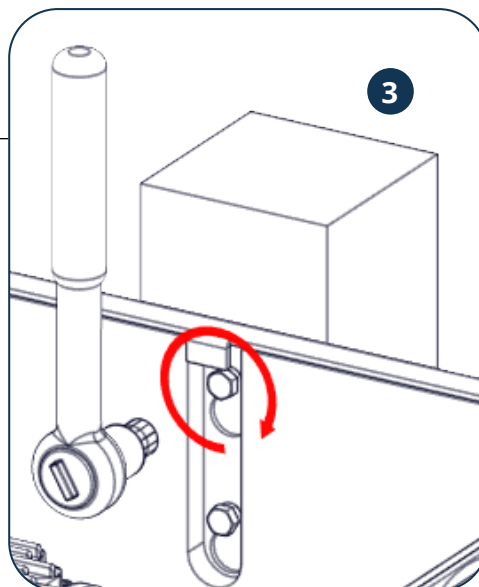
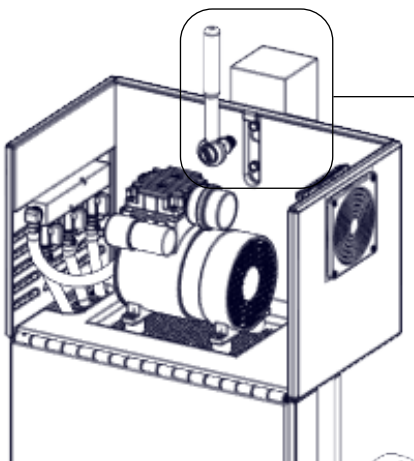


**NOTE** No key is required to open cabinet. Simply use a flat-head screwdriver.

1. Drill two 3/16" holes vertically spaced 2-3/8" apart.
2. Using a standard 7/16" socket wrench, install both lag screws into the wall or post, leaving the hex head out about 1/4".



3. Hang the cabinet from these screws using the keyhole slots on the backside of the cabinet. Tighten both lag screws.



# NO-CABINET INSTALLATION

## Suggested Tools & Supplies

- Phillips-head screwdriver
- Flat-head screwdriver
- 5/16" socket or nut driver
- 1/4" socket or nut driver
- 9/32" socket or nut driver
- 3/8" socket or nut driver (#10 nuts)
- 7/16" socket or nut driver (1/4" nuts)
- Thread sealant (Teflon tape)

## Installation Conditions & Clearances

- Install compressor in a clean, dry location.
- Protect the compressor from dirt, moisture, and any harmful elements of the outdoor environment.
- Ambient air temperature must not exceed 104 °F (40 °C).
- Adequate ventilation and cooling air (airflow across the compressor) is essential to prevent damage to the compressor from overheating. A fan is included for this purpose.
- Easily mount the unit to a wall, floor, or bench with the included bracket.
- Packages containing 120V compressors have a NEMA 5-15 plug.

For your protection, Kasco recommends that the site service providing system power is equipped with a human-rated ground fault circuit interrupter outlet (120V). Contact a licensed electrician to install either 120V single-phase power at the compressor location with appropriate human-rated ground fault protection.

### Wiring Connections

Brown	————→	Black
Blue	————→	White
Green w/ stripe	————→	Green



NOTE Electrical wiring color codes may vary by country/region. Check local codes before making connections.

# NO-CABINET INSTALLATION (CONT.)

## Parts Lists

LS-100-NC Parts Included	Qty.
Diffuser Assembly	1
3/8" x 50' SureSink™ Tubing w/fitting kit	1
Single head compressor	1
1/4" NPT x 3/8" barb brass elbow	2
Compressor vibration isolation feet	4
1/4" flat washer	4
1/4" locknut	4
Cooling fan assembly (115V with plug)	1
#10 x 3/4" bolt	4
#10 split washer	4
#10 nut	4
3' length of 3/8" hose	1
Hose clamp	3
Intake hose	1
Intake block	1
Filter minder	1
Air filter	1

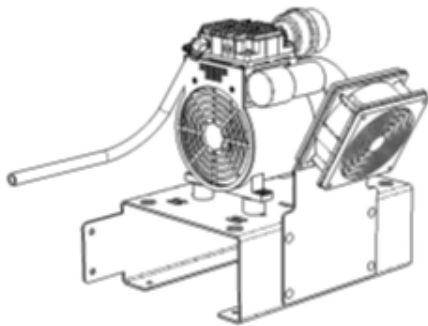
LS-150-NC Parts Included	Qty.
Diffuser Assembly	1
3/8" x 50' SureSink™ Tubing w/fitting kit	1
Double head compressor	1
1/4" NPT x 3/8" barb brass elbow	2
Compressor vibration isolation feet	4
1/4" flat washer	4
1/4" locknut	4
Cooling fan assembly (115V with plug)	1
#10 x 3/4" bolt	4
#10 split washer	4
#10 nut	4
3' length of 3/8" hose	1
Hose clamp	3
Intake hose	1
Intake block	1
Filter minder	1
Air filter	1
Three station manifold assembly	1
Manifold mounting screw	2

LS-200-NC Parts Included	Qty.
Diffuser Assembly	2
3/8" x 50' SureSink™ Tubing w/fitting kit	2
Double head compressor	1
1/4" NPT x 3/8" barb brass elbow	3
Compressor vibration isolation feet	4
1/4" flat washer	4
1/4" locknut	4
Cooling fan assembly (115V with plug)	1
#10 x 3/4" bolt	4
#10 split washer	4
#10 nut	4
Hose clamp	3
Intake hose	1
Intake block	1
Filter minder	1
Air filter	1
Three station manifold assembly	1
Manifold mounting screw	2

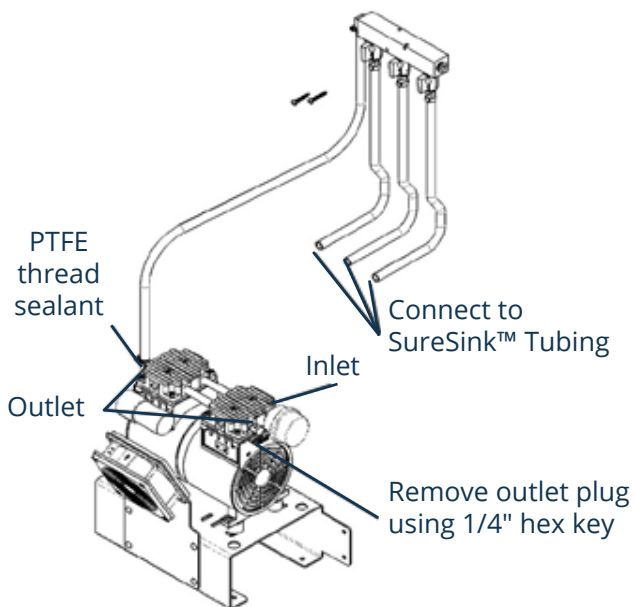
LS-300-NC Parts Included	Qty.
Diffuser Assembly	3
3/8" x 50' SureSink™ Tubing w/fitting kit	3
Double head compressor	1
1/4" NPT x 3/8" barb brass elbow	3
Compressor vibration isolation feet	4
1/4" flat washer	4
1/4" locknut	4
Cooling fan assembly (115V with plug)	1
#10 x 3/4" bolt	4
#10 split washer	4
#10 nut	4
Hose clamp	3
Intake hose	1
Intake block	1
Filter minder	1
Air filter	1
Three station manifold assembly	1
Manifold mounting screw	2



# NO-CABINET INSTALLATION (CONT.)



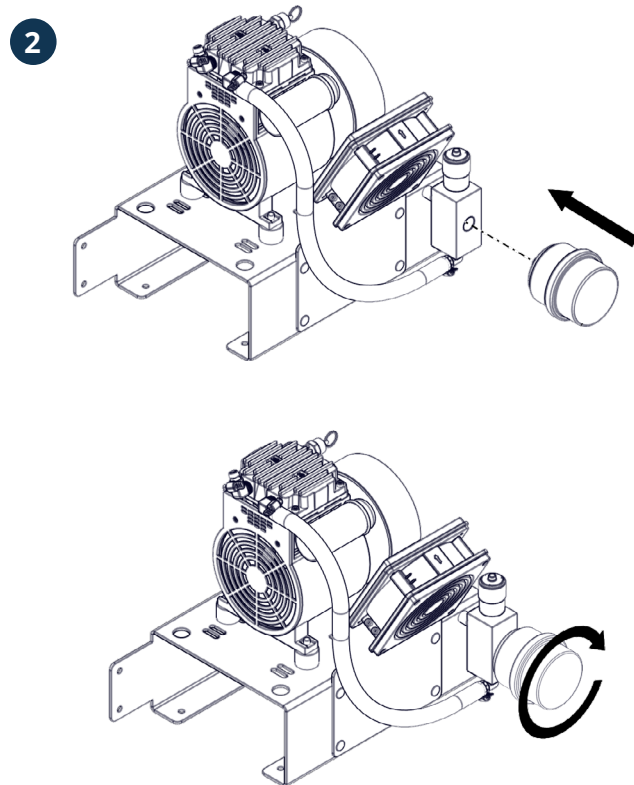
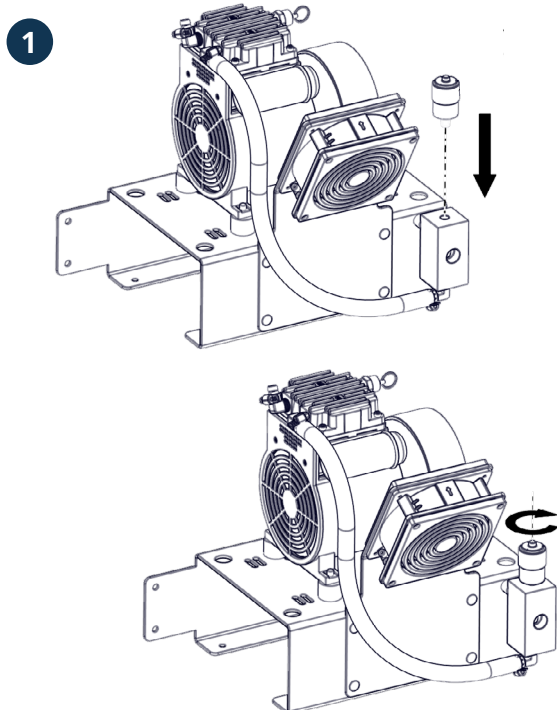
**LS-100-NC**



**LS-150-NC, LS-200-NC, LS-300-NC**

No-cabinet systems arrive assembled. To prepare for installation:

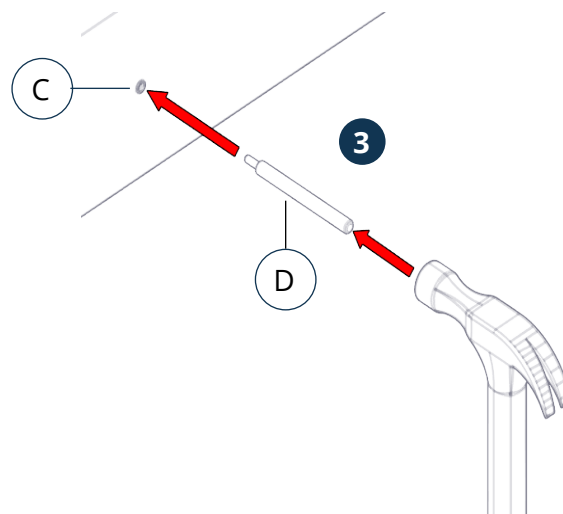
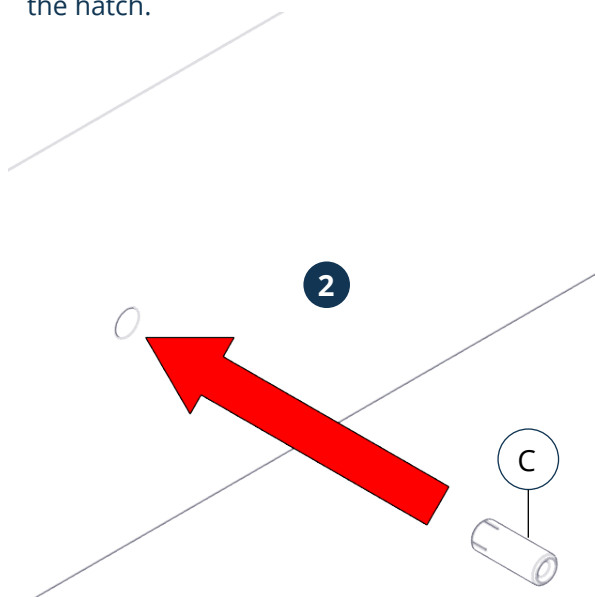
1. Thread the filter maintenance indicator into the top port of the intake manifold block. Hand-tighten and **DO NOT OVER-TIGHTEN**. The fitting is made from corrosion-resistant plastic and can be damaged from excessive force. Thread until snug.
2. Thread the air filter into the front port of the intake manifold block. Hand-tightening is sufficient.



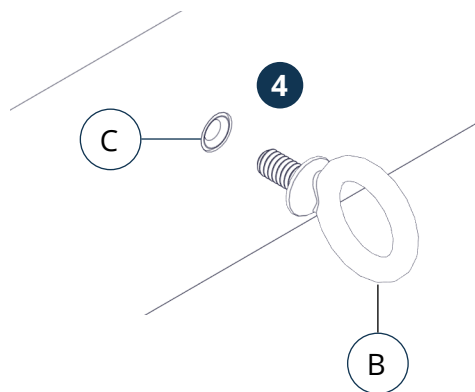
# HATCH CHAIN INSTALLATION

A hatch chain kit has been included to provide a suspension and retrieval point for the diffuser(s). The included chain is intended to span across the access hatch. If there are no existing provisions for securing each end of the chain, use the following steps to install the provided anchors.

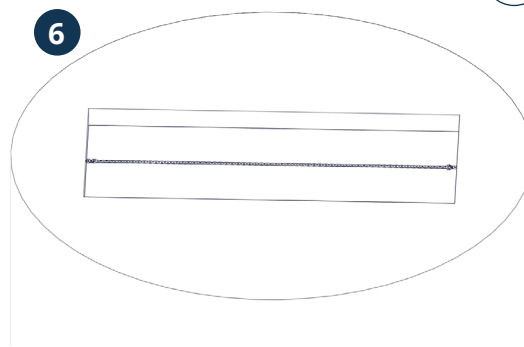
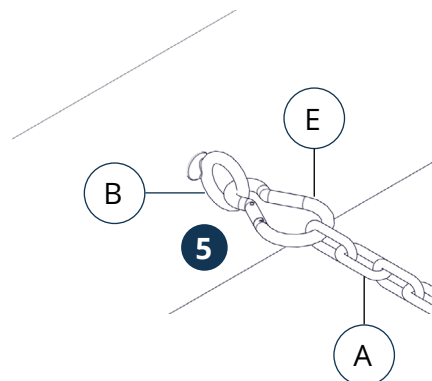
1. Using a 3/8" masonry drill bit, drill a hole that is at least 1" deep at each end of the hatch.
2. Place one concrete anchor (C) in each hole with the female thread facing toward the center of the hatch.
3. Insert installation tool (D) in anchor (C) and drive with a hammer until the thicker portion of the tool makes contact with the anchor. When properly installed, anchors should sit flush with the surface.



4. Insert one eyebolt (B) into each anchor (C) and tighten.

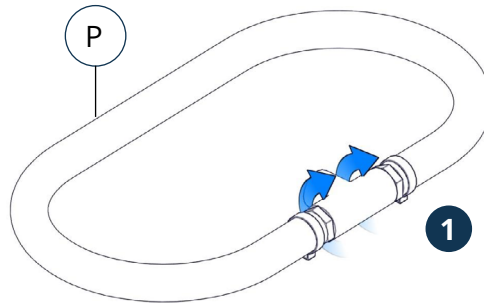


5. Attach each end of the chain (A) to the eyebolts (B) with snap hooks (E).
6. Eliminate as much slack as possible.



# ASSEMBLY INSTRUCTIONS

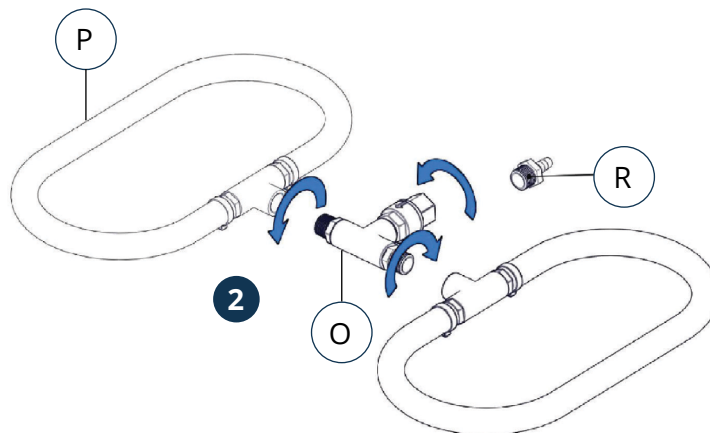
1. After unpacking your box, the tubing assembly tee's open end will be turned towards the center of the loop. Twist the tee fitting so the open end faces away from the center of the diffuser loop (P).



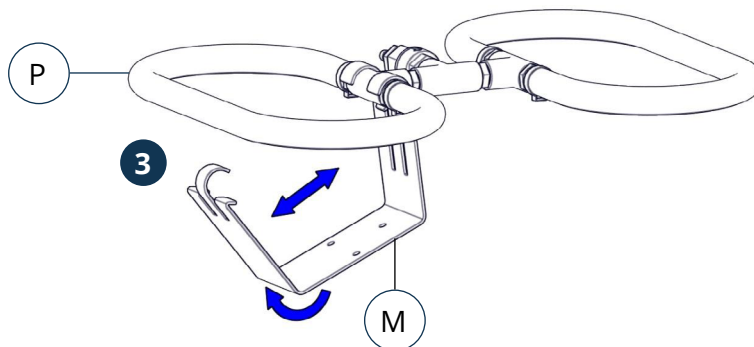
2. Assemble both diffuser loops (P) to the inlet check valve assembly (O).

Tighten until snug, making sure the blue lines on both diffuser loops (P) face the same direction and are parallel with the inlet check valve assembly (O).

Using an adjustable wrench, tighten the hose barb (R) into the inlet check valve assembly (O).

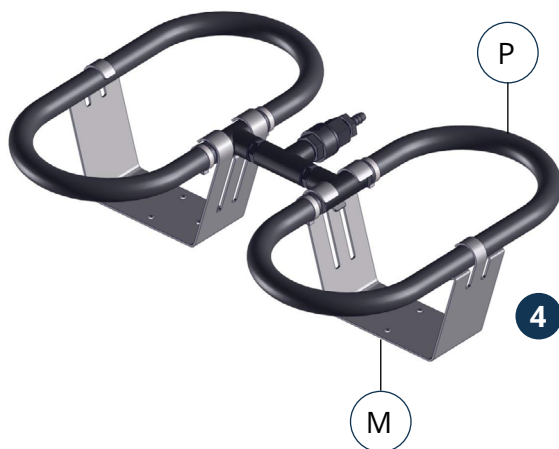


3. With the blue line on the diffuser loops (P) facing down, attach the double-pronged end of the substrate (M) around the tee fitting. Rotate up and secure the single-pronged end of the substrate to the opposite side of the diffuser loop (P).



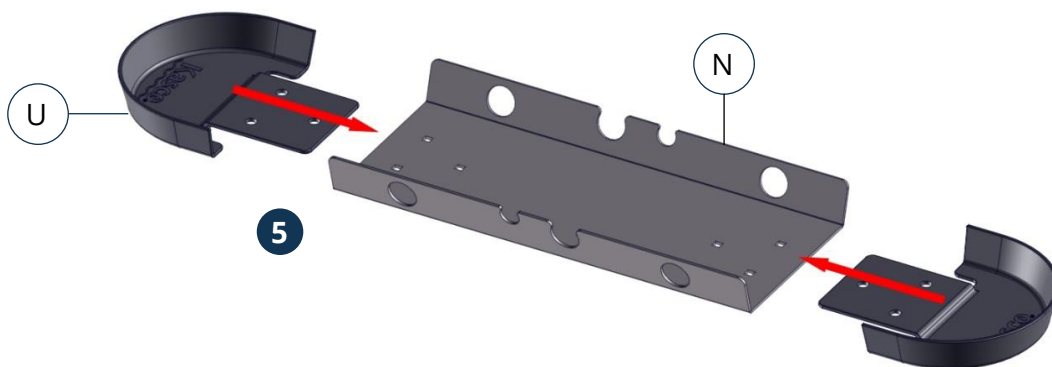
## ASSEMBLY INSTRUCTIONS (CONT.)

- Repeat step 3 to attach the other substrate (M) to the other diffuser loop (P).



**NOTE** For best performance, keep an equal amount of tubing on either side of substrates.

- Slide the edge guards (U) onto the substrate connector plate (N) as shown.

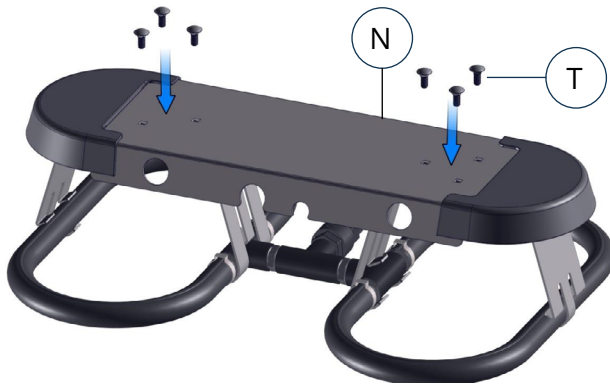


- Rotate the entire assembly and set the diffuser loops (P) on a flat surface. Place the substrate connector plate (N) on the substrates (M).

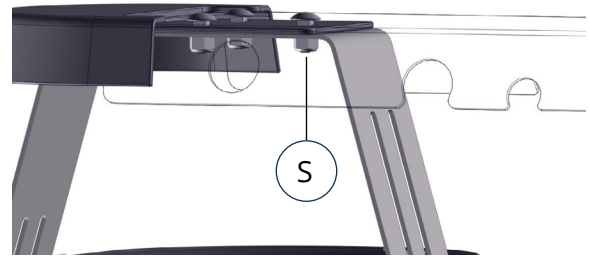


## ASSEMBLY INSTRUCTIONS (CONT.)

7. Insert the six provided bolts (T) into the holes on the substrate connector plate (N) and loosely tighten them with the six provided lock nuts (S) to temporarily hold them in place.



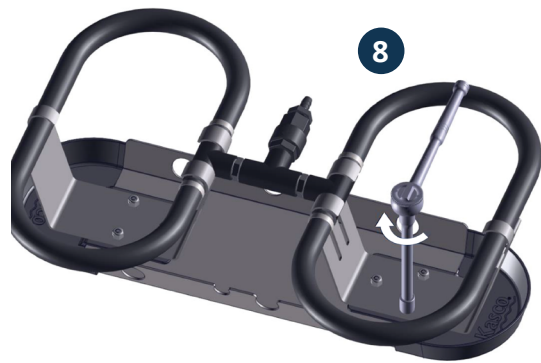
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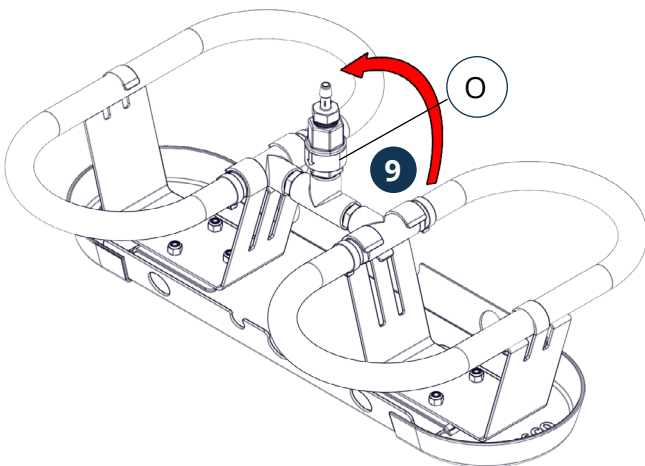
8. Flip the diffuser assembly back over and tighten down each lock nut (S) until snug with a socket wrench or a 7/16" nut driver. Kasco recommends using an extender for the socket wrench.



8

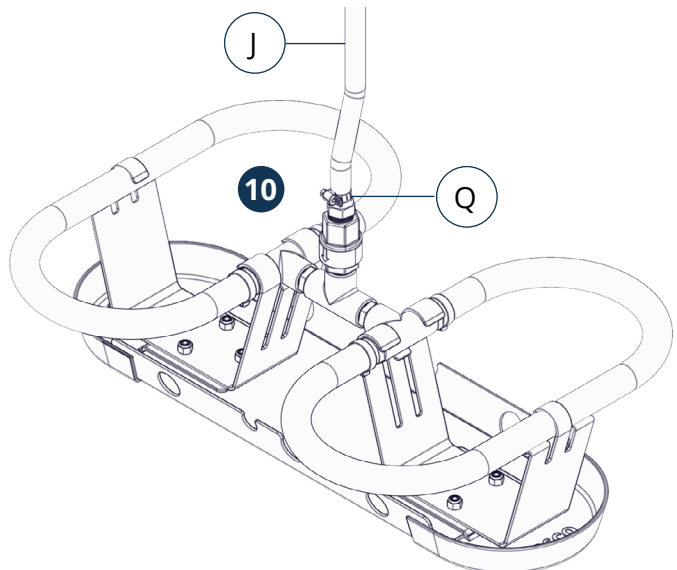


9. Adjust inlet check valve assembly (O) to point upward.



9

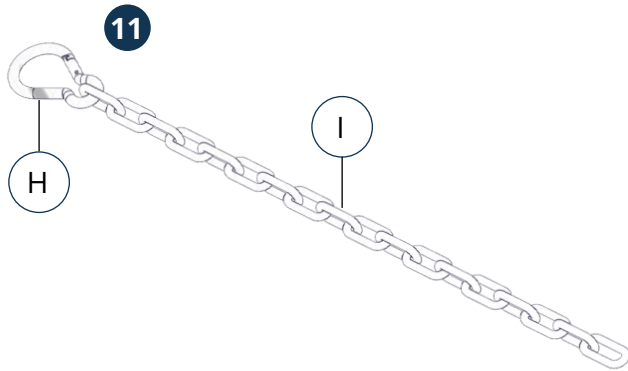
10. Connect SureSink tubing (J) with hose clamp (Q).



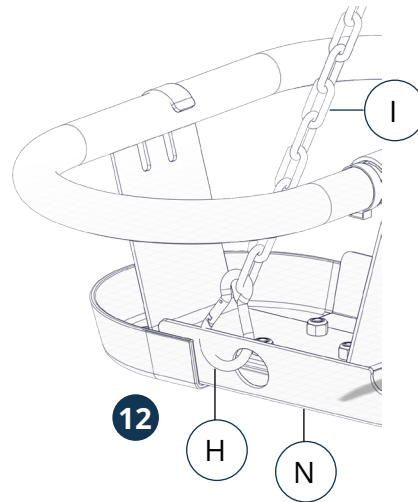
10

# ASSEMBLY INSTRUCTIONS (CONT.)

11. Attach one snap hook (H) to one end of each 18" chain (I).

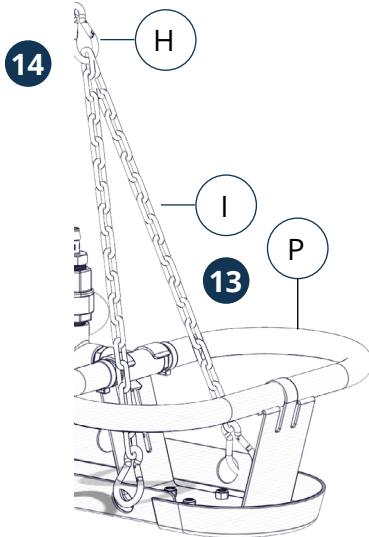


12. Secure each snap hook (H) with chain (I) to each of the four retrieval holes on the diffuser substrate connector (N).

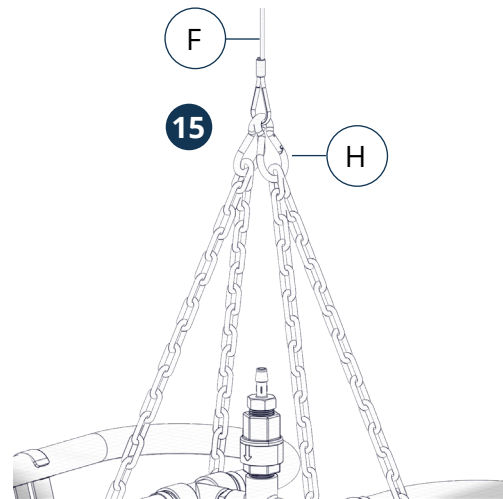


13. Thread the two chains (I) on one end of the diffuser base through the middle of the diffuser loop (P).

14. Attach the free end of both chains (I) to one snap hook (H). Repeat for chains on other end.



15. Secure the two snaphooks (H) with chains to the loop in the cable (F).



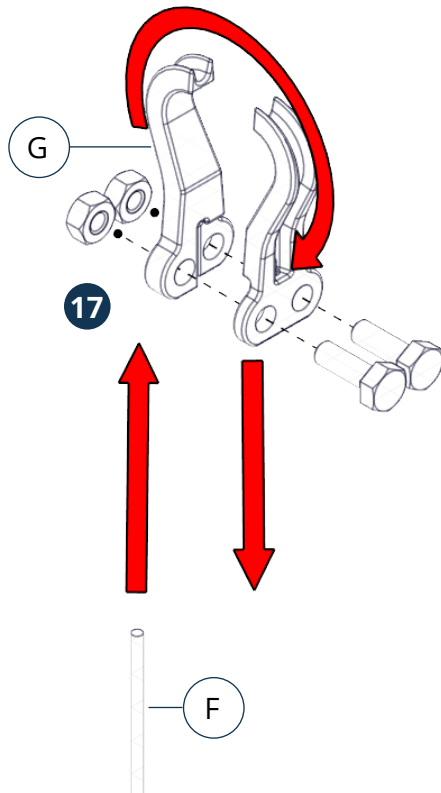
16. Determine the length of cable (F) needed to submerge diffuser assembly in lift station. For optimal performance, the diffuser should be submerged 3-4'.

**NOTE** It is important that airflow from the diffuser does not enter a running pump. If start/stop controls are in place, the diffuser can be placed at the bottom of the lift station. Ensure the compressors are turned off when the pumps are running and turned back on when the pumps are off. If no controls exist, submerge diffuser head above the pump inlet to avoid cavitation in the pump. Water levels may need to be increased for proper mixing and operation.

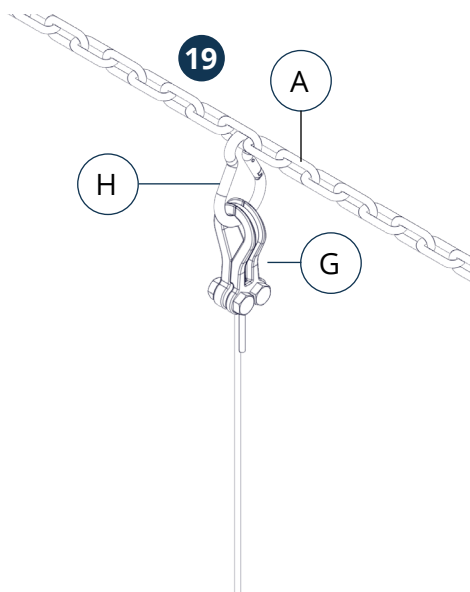


# ASSEMBLY INSTRUCTIONS (CONT.)

17. Feed the free end of the cable (F) through the cable adjuster (G) and clamp securely in place.

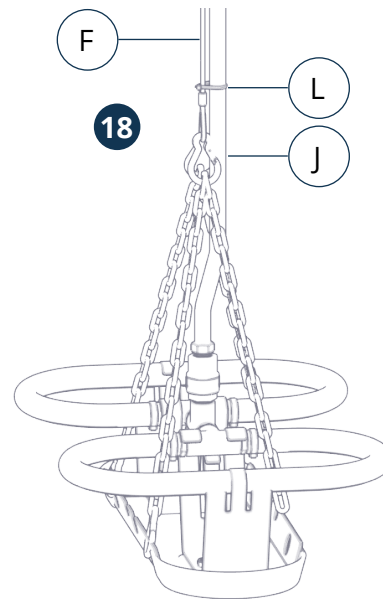


19. Connect cable adjuster (G) to the hatch chain (A) with the remaining snap hook (H) to position the diffuser within the wet well to the desired location.



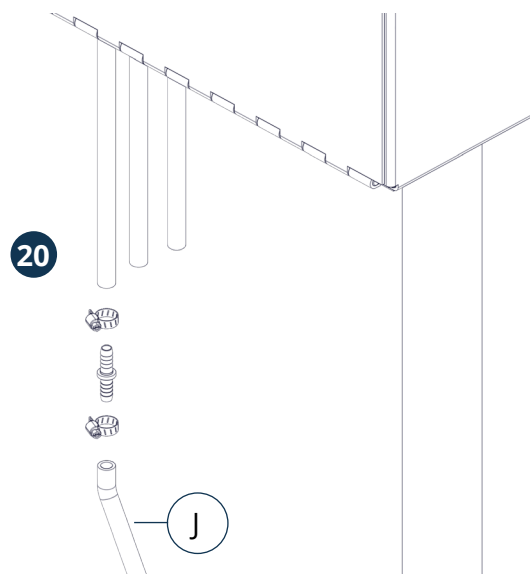
18. Secure SureSink tubing (J) to the suspension cable (F) every 3 ft. with the provided cable ties (L).

**NOTE** To ensure the diffuser is raised and lowered with the cable and not the tubing, allow for some slack in the tubing just above the diffuser.



20. Connect the free end of SureSink tubing (J) to the outlet lead hose on the compressor. Secure with hose barb and hose clamps from tube fitting kit (K).

**NOTE** SureSink tubing will need provisions to pass through, or around, the hatch and back to the compressor. Tubing OD is 0.68".



# WINTER OPERATION



**NOTE** The system owner assumes all risks of operating the HydraForce Lift Station Agitator during winter months.

In climates where temperatures fall below freezing, Kasco recommends insulating the air lines from the compressor cabinet to a minimum of 3 feet into the water (use low water level for reference). Prevent ice buildup in the lines by using closed cell polyurethane foam to insulate. Ice buildup can block the flow of air to your diffuser and cause damage to your compressor.

## MAINTENANCE

**Warning!** Product surfaces become very hot during operation. Allow compressor to cool before servicing. Disconnect electrical power before performing maintenance.

- Check filter monthly.
- Clean or replace intake filter when filter minder shows a red band.
- Reset by pushing the small button on the minder top.
- Failure to maintain clean air filter will lead to excessive heat and premature failure of the compressor.
- Replacement air filter element part number: 771018



Clean filter



Dirty filter

## TROUBLESHOOTING

“Compressor and fan are not running.”

- Ensure the power cord is connected. Check if the user supplied GFCI circuit is tripped. Reset as necessary

“The fan is running but the compressor is not”

- Inspect the compressor and capacitor wiring and connections.

“The compressor and fan are running, but there are no bubbles coming out of any diffusers”

- Check for leaks in line connections and at the compressor. Check connections for tightness.

“The compressor and fan are running. There are bubbles coming out of some diffusers, but not all of them.”

- The valves in the cabinet may need to be balanced. There may be a clogged diffuser that needs to be cleared. The compressor may be due for a rebuild.

“The compressor stops and restarts”

- Ensure the fan is working properly. Capacitor may need replacement.

Please contact Kasco or your distributor if any problems persist.



# WARRANTY

## Warranty Period

Warranty period: LS-100(-NC), LS-150(-NC), LS-200(-NC), LS-300(-NC) = 2 years

Kasco® Marine, Inc. warrants this system to be free from defects in material or workmanship under normal use and service. The Kasco Marine, Inc. obligation under this warranty is limited to replacing any component or repairing compressors within the warranty period free of charge. The customer shall pay shipping charges for returning the compressor to Kasco or an Authorized Repair Center.

THIS WARRANTY IS IN LIEU OF ANY OTHER WARRANTIES, EXPRESSED OR IMPLIED, AND ANY OTHER OBLIGATION OR LIABILITY WHATEVER ON THE PART OF KASCO MARINE, INC. AND IN NO EVENT SHALL KASCO MARINE, INC. BE LIABLE FOR ANY SPECIAL OR CONSEQUENTIAL DAMAGES.

Warranty is void if:

- The system is not maintained properly according to the maintenance recommendations supplied in this manual.
- The system is damaged by unauthorized tampering.

## Warranty Claim Procedure

The best method for establishing warranty period is via the original receipt. Also, register the unit online at: [www.kascomarine.com](http://www.kascomarine.com). Once the warranty coverage has been established, the compressor may be sent to any Kasco Authorized Repair Center for evaluation and repair. Please call Kasco at 715-262-4488 prior to shipping to receive any updated information and/or Repair Form, or call to locate your nearest Authorized Repair Center. You can also email Kasco at [sales@kascomarine.com](mailto:sales@kascomarine.com).

Please include the repair form received from Kasco or your local distributor with the shipment. If no repair form is available, include your name and physical address for return delivery of the repaired compressor and a daytime phone number and/or email address for correspondence regarding the warranty claim. Any expedited shipping method for the return of the compressor is at the customer's expense. Kasco will return compressors repaired under warranty at our expense via ground freight within the continental United States.

Most failed equipment can be repaired at substantially lower costs than replacement with new equipment. Please ship according to the instructions provided.

Kasco does estimates on repairs at the request of the customer. The request for an estimate should be included in the letter that accompanies the returned compressor and must include a daytime phone number and/or email address. Estimate options are as follows:



Please attach a repair form with the shipment. The repair form must include a name, physical address (for return delivery of the repaired unit), daytime phone number, and an e-mail address for correspondence regarding the warranty claim.

Any expedited shipping method for the return of the compressor is at the customer's expense. Kasco will return compressors repaired under warranty at our expense via ground freight within the continental United States.

## OTHER REPAIRS

- We will contact the customer with a total estimated cost for repairs after we have evaluated the compressor but before we perform the work.
- We will repair the unit only if repair costs are under a dollar amount stated by the customer. Example: "Please repair if total is under \$150.00 before shipping charges."

All estimates that are rejected for repair will be destroyed unless otherwise directed by the customer. If the customer would like the compressor returned, we will restore the compressor as closely as possible to the condition in which we found it and ship at the customer's expense (including shipping and handling charges).

Billing: Kasco accepts Visa and MasterCard credit card payments. Kasco will call for credit card information upon completion of the estimate at the customer's request. All other warranty and repair inquiries should be directed to Kasco at 715-262-4488 or [repairs@kascomarine.com](mailto:repairs@kascomarine.com)

## CONTACT US



Kasco Marine  
800 Deere Road  
Prescott, WI 54021



715.262.4488



[kascomarine.com](http://kascomarine.com) | [sales@kascomarine.com](mailto:sales@kascomarine.com)

# REPAIR CONTACT FORM

- Kasco requires that all equipment sent for repair MUST be accompanied by this form and marked to Repairs attention.
- Unit should be cleaned before shipping.
- Kasco is NOT responsible for shipping damage accrued in return shipment.
- It is the responsibility of the customer to ship and pay freight to Kasco.

Kasco Marine  
800 Deere Road  
Prescott, WI 54021  
Attn: Repairs

Note: Contact information should be that of the person or company to contact for repair information.

Company name			
Contact name	First name	Last name	
Address	Street		
	City		
	State		
	ZIP code		
Phone number	Primary	Alternate	
Email address			
Preferred method of contact (circle one)	Phone	Email	
Purchase order number			
Additional product information	Serial Number	Cord Length	
<b>Information for Repair Technician</b>			
Was this unit used in a chemical treatment or wastewater application? (circle one)		Yes	No
Additional notes			