

DATE RELEASED	03/12/2018	PAGE 1 OF 4
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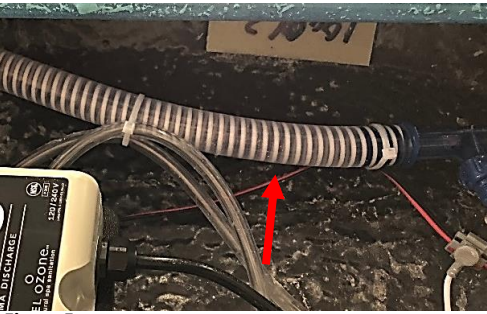
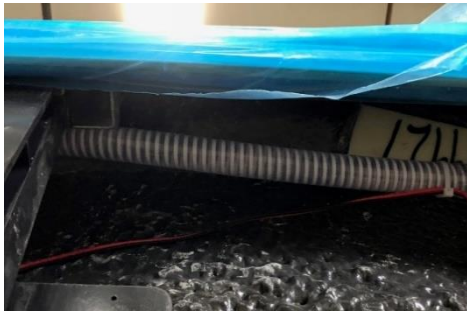


PUMP AIR LOCK IMPROVEMENT

Effective Date	Revision Level	Document Change Description
3/12/2018	REV A	Initial document created

Equipment/Parts Needed	Objective	Definitions
Pliers Cutters Zip Ties ¾" Tees with ¼" barb ½" Hose clamps Glue Primer 70" X ¼" Braided hose New ozone bulkhead part without barb	The objective is to get rid of possible air locks in the wet end of the pump and to improve the design of the ozone bulkhead. Bleeder lines should come out of the wet end of the pump and go upward towards a jet or ozone hose. This should allow any trapped air to escape so that normal pump operation can continue.	Air lock – When a pump has trapped air in its wet end and cannot purge the air out to start the jets.



NEW OZONE BULKHEAD SETUP

<ol style="list-style-type: none"> 1. Cut ozone hose right next to ozone bulkhead part and remove old part and any old silicone. (Figure 1) 2. Locate new ozone bulkhead without barb and place into hole. (Figure 2) 3. Apply silicone to part and gasket and then tighten nut. 	  <p>Figure 1</p> <p>Figure 2</p>
<ol style="list-style-type: none"> 4. Apply primer to end of new ozone bulkhead part and ozone hose then apply glue to only the ozone bulkhead. Connect the two together. Replace lights. 5. Locate plastic $\frac{3}{4}$" tees with $\frac{1}{4}$" barb. (Figure 3) 6. Locate a jet hose that is closest to the wet end and as high as possible. (Figure 4) 	  <p>Figure 3</p> <p>Figure 4</p>
<ol style="list-style-type: none"> 7. If there are no jets next to any pumps then locate a high place in the ozone hose and before the venturi (if the spa has ozone) to place the tee. (Figure 5) If the spa has no ozone then find a place as high as possible. (Figure 6) 	  <p>Figure 5</p> <p>Figure 6</p>
<ol style="list-style-type: none"> 8. If spa is filled with water, drain spa or crimp the hose in two places about 12" away from each other. (Figure 7) 9. Cut hose and allow room for the tee to be glued. Apply primer to inside of hose and outside of tee. Apply glue only to the tee. (Figure 8) 	  <p>Figure 7</p> <p>Figure 8</p>

10. Connect the tee into hose. Also, dip end of bleeder hose in primer and connect to tee. (Figure 9)
11. Attach clamp to bleeder hose once it is primed and pressed onto tee barb. Place other end of bleeder hose onto pump barb and secure with clamp. (Figure 10)
12. Repeat for other pumps.

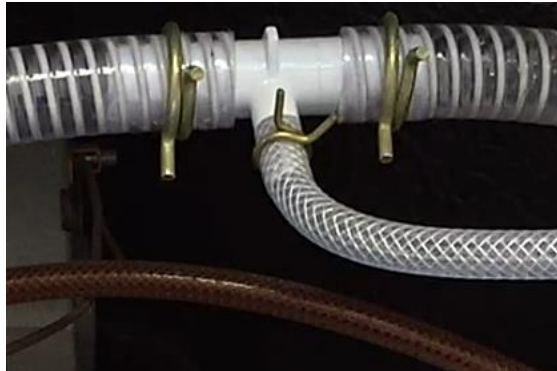


Figure 9



Figure 10

OLD OZONE BULKHEAD SETUP (If ozone bulkhead is not accessible)

1. Locate ozone bulkhead bleeder hose. (Figure 1)
2. Cut bleeder line hose so you have at least 10" of length.
3. Glue, cap, and/or crimp bleeder line hose. (Figure 2) **NOTE:** You want to stop any water from coming out of this hose. A zip tie is included in the kit to help.



Figure 1



4. Locate plastic 3/4" tees with 1/4" barb. (Figure 3)
5. Locate a jet hose that is closest to the wet end and as high as possible. (Figure 4)



Figure 3



Figure 4

6. If there are no jets next to the equipment compartment then locate a place in the ozone hose as high as you can and before the venturi (if the spa has ozone) to place the tee. (Figure 5) If the spa has no ozone then find a place as high as possible. (Figure 6)

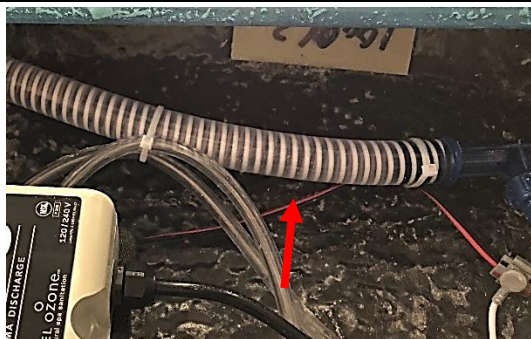


Figure 5



Figure 6

7. If spa is filled with water, drain spa or crimp the hose in two places about 12" away from each other. (Figure 7)
8. Cut hose and allow room for the tee to be glued. Apply primer to inside of hose and outside of tee. Apply glue only to the tee. (Figure 8)



Figure 7



Figure 8

9. Connect the tee into hose. Also, dip end of bleeder hose in primer and connect to tee. (Figure 9)
10. Attach clamp to bleeder hose once it is primed and pressed onto tee barb. Place other end of bleeder hose onto pump barb and secure with clamp. (Figure 10)
11. Repeat for other pumps.



Figure 9



Figure 10