SpectraPure®
INNOVATORS IN WATER TECHNOLOGY

# Booster Pump Kits

## INSTALLATION MANUAL

**WARNING**

**Please read carefully before proceeding with installation. Failure to follow any attached instructions or operating parameter may lead to the product's failure and possible damage to property.**

10-03-2019

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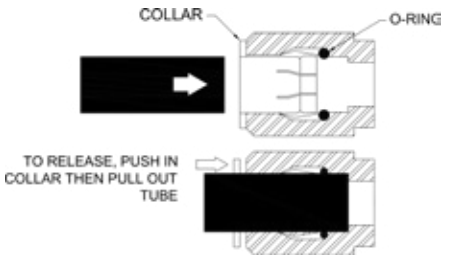
## INSTALLATION INSTRUCTIONS FOR PUSH FITTINGS

Remove the tubing from its push fitting as follows:

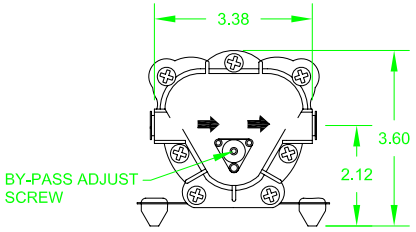
1. Firmly depress and hold the push fitting collar down with your thumbnail.
2. While the push fitting collar is depressed, pull the tubing straight out of the push fitting. Once the tubing is removed, release the collar.

NOTE: If the system is still under pressure, you will not be able to depress the collar to remove tubing.



CAUTION:

1. Aquatec's Booster Pump is equipped with an adjustable bypass screw which controls maximum operating pressure. Never allow pressures above to exceed above 125 PSI.
2. DO NOT operate booster pump in harsh environment. (Motor brush and switch may cause electrical arcing)
3. The booster pump will not stop forward flowing water, as long as there is feed water pressure. Even if the motor is turned off! (Be sure that the Pump has a positive means of shutting off water supply).
4. Operate pump on systems that are equipped with a pressure gauge. Install a pressure gauge kit if needed.

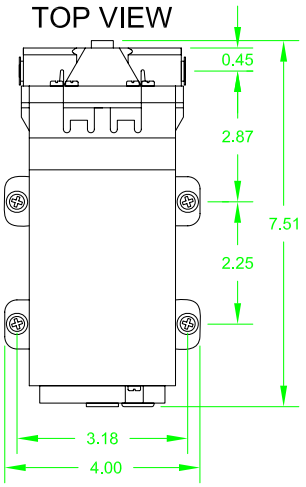



END VIEW

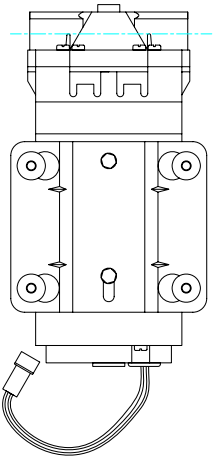
Pump may be mounted in any position. (If ceiling mounted, however, with the pump head upside down, air entrapment may reduce operational performance by up to 15%.

(Contact Aquatec for ceiling mount solutions.)

TOP VIEW




BOTTOM VIEW



# INSTALLATION INSTRUCTIONS FOR BPLF & BPHF
## (Booster Pump Kit for Manual Use Only)

1. Refer to Figure 1.

2. The pump should be installed on the input line to the RO Membrane at any convenient location, and may be mounted in any direction (horizontal or vertical). The distance between the input of the pump and the water supply connection should be limited to 20 feet, if the water source is less than 30 psi. For greater distances or lower pressure, increase the tubing diameter from the water source.

NOTE: **The water supply plumbing fitting should be a minimum of 1/4". Do not use a piercing valve for this connection.**

3. Locate the pump and note the flow direction arrow on the front of the pump head. When making the plumbing connections to the pump head be sure that the water flow corresponds with this arrow.

4. Mount the pump in relation to the RO System as indicated in figure 1. Cut the black tube where convenient. Use the pump to reconnect the two cut ends.

5. Check all the fittings and turn water supply on.

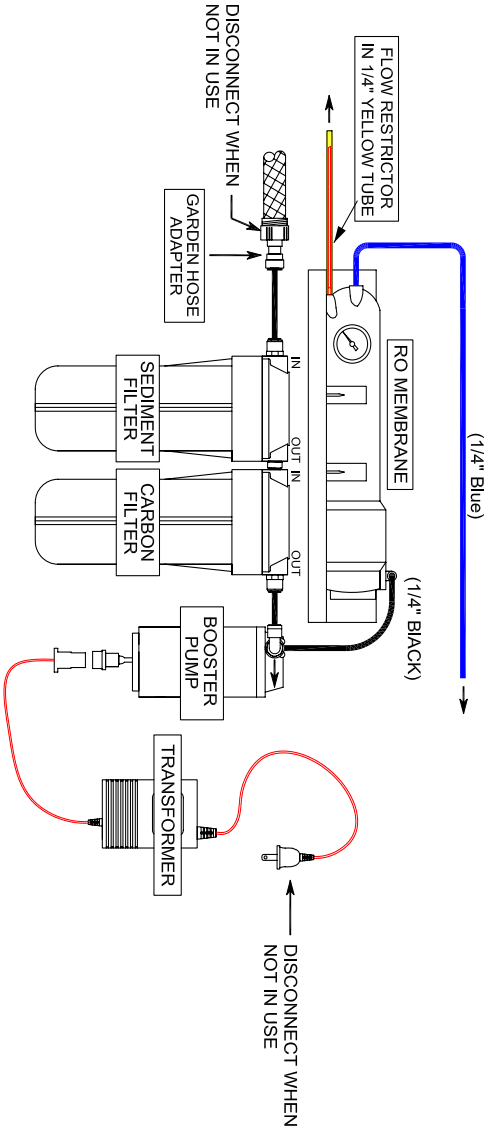
6. Locate the male connector on the power cord of the booster pump and plug it into the female connector on the transformer. Plug the transformer into your AC receptacle.

7. The recommended operating pressure is 80 psi. If the pressure is over 80 psi, adjust the pump by inserting a 1/16" Allen head wrench into the set screw on the front of the pump head. Turn it clockwise to increase the pressure or counterclockwise to decrease the pressure. The pump pressure will change in accordance with variations in incoming water pressure.

**THIS COMPLETES THE INSTALLATION.**

**NOTE: The input and output tubing attached to the booster pump will vibrate, this is considered normal.**

## FIGURE 1: MANUALLY OPERATED BOOSTER PUMP INSTALLATION



## INSTALLATION INSTRUCTIONS FOR BPLF-LLC & BPHF-LLC
## (Booster Pump Kit with LLC-S-115 Controller)

1. Refer to Figure 2. Locate the tubing connected between the carbon filter housing (under the bracket) and the input of the RO membrane housing (above the bracket). The LLC Box will be installed on this tubing.
2. Position the LLC Box on top of the bracket with the straight inlet port over the hole which is near the left side as you look at the front of the system. Position the body of the LLC Box towards the right.
3. Locate the tubing attached to the elbow on back of the carbon housing. Estimate length of tubing required to attach this tubing to the straight fitting (port marked IN) of the LLC Box. Cut the tubing and attach it.
4. Locate the tubing which is attached to the input of the RO membrane housing. Estimate the length of tubing required to attach to the output elbow on the LLC Box, cut the tubing and attach it to the fitting. Insert the transformer connection into the female connector on the LLC Box.
5. Locate the sensor tube with clear air line tubing attached to it and connect the loose end of the tubing to the 1/8" nipple on the back of the LLC Box.

   **Warning:** Airline tubing MUST be connected to the 1/8" nipple on the back of the LLC Box *BEFORE* immersing the sensor probe in water.

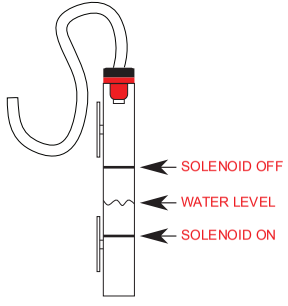
6. Submerge Sensor Tube into water until you hear a "click" in the LLC Box. Mark that spot with a permanent marker. Slowly pull the tube out of the water until it clicks again. This is the turn off point. (Refer to Fig 2). The water will cover approximately half of the sensor tube when shutoff occurs.
7. Mount the sensor tube with the suction cups provided by whatever means you prefer. A small dab of aquarium silicone sealant on each suction cup will prevent them from detaching.
8. Puncture a 9/16" hole in your reservoir. Install float on the hole and connect the 1/4" blue product water tubing to the backup safety float (REFER TO PAGE 8). The float should not touch the water.

   **NOTE:** Turn on the water supply to the RO System before plugging in the transformer. The recommended operating pressure is 80 psi. If the pressure is over 80 psi, adjust the pump by inserting a 1/16 inch Allen head wrench into the set screw on the front of the pump head.

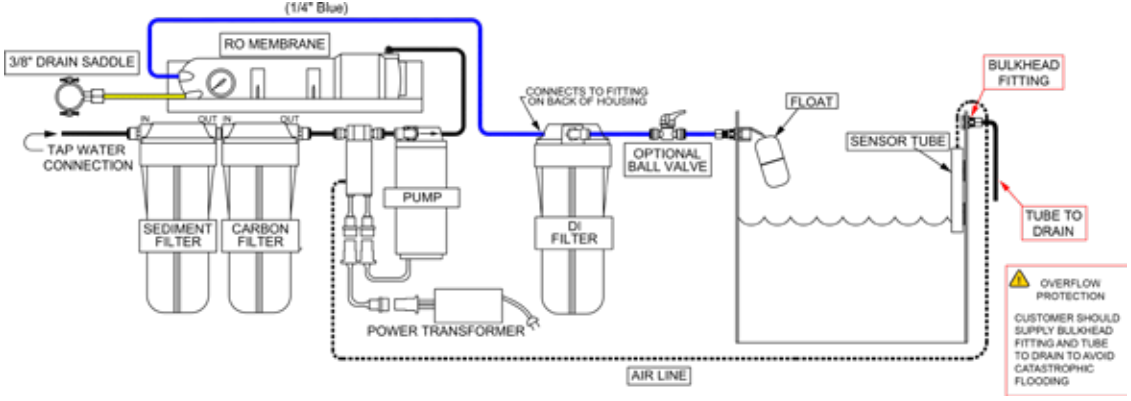
## FIGURE 2: LIQUID LEVEL CONTROLLED (LLC-S-115) PUMP KIT INSTALLATION

(Be sure that you do not exceed the length of the power cord between the pump and the electrical connection on the liquid level control)

*Note the direction of the arrow on the end of the pump.




THE DISTANCE BETWEEN THE MARKS WILL BE APPROX. 1"

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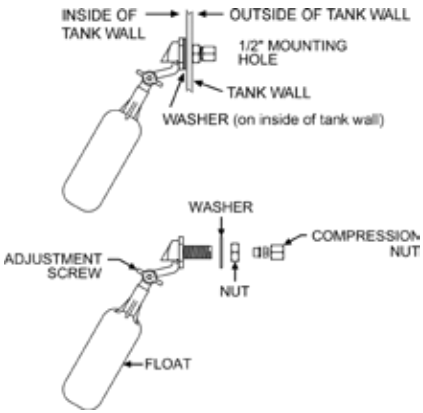
## INSTALLATION INSTRUCTIONS FOR FLOAT

1. Drill a 1/2" hole into your sump or reservoir: If the thickness of the sump is too thick for the Float to install properly, you need to counterbore the hole.

NOTE: If you are installing the Backup Safety Float onto an acrylic tank we recommend using a new Fostner Bit to reduce the chance of cracking the acrylic.

2. (REFER TO DIAG) Remove the Compression Nut from the float body.
3. Insert the 1/4" Blue Tubing into the 1/2" Compression Nut with the threads towards the end of the tube.
4. Unscrew the Nut from the float body.
5. Insert the float body and washer into the 1/2" hole and tighten the Nut, which securely tightens the float to the tank wall.
6. Push the Compression Nut towards the end of the tubing and screw the Compression Nut back onto the float body.
7. To tighten, use one 1/2" wrench on the flats of the plastic threads and another 1/2" wrench on the compression nut. 1/2" wrench on the compression nut.




ADJUSTABLE FLOAT

# INSTALLATION INSTRUCTIONS FOR BPLF-PS & BPHF-PS
## (Booster Pump Kit with Pressure Switch Control)

This installation is most often used with systems that already contain the Auto ShutOff Valve (ASO), or some other device that turns the system on and off. *If your system has an ASO valve, replace it with the solenoid and pressure switch (As shown in figure 3 on next page).*

1. Locate the tubing that connects to the RO membrane housing input.
2. The Solenoid will be installed in this line along with the pump.
3. Cut this line as it leaves the Carbon Prefilter. Attach the "IN" port of the solenoid to the line coming from the Carbon Filter.
4. Mount the Booster Pump nearby. Run a length of 1/4" tubing from the output side of the solenoid to the input side of the Booster Pump. (Note the arrow on the pumps head for proper orientation. The arrow should point "downstream").
5. Run another length of 1/4" tubing from the output of the Booster Pump to the input of the membrane housing.
6. The wiring assembly that is attached to the pressure switch has male (pins) and female (holes) connectors. Connect the power supply to the male connector. Then, connect the female connector to the "Y" adapter.
7. The "Y" adapter will then connect the Solenoid and the Booster Pump together.
8. **Check for leaks.**

The recommended operating pressure is 80 psi. If the pressure is over 80 psi, adjust the pump by inserting a 1/16 inch Allen head wrench into the setscrew on the front of the pump head. Reduce the pressure by slowly turning the setscrew counterclockwise while observing the pressure gauge.

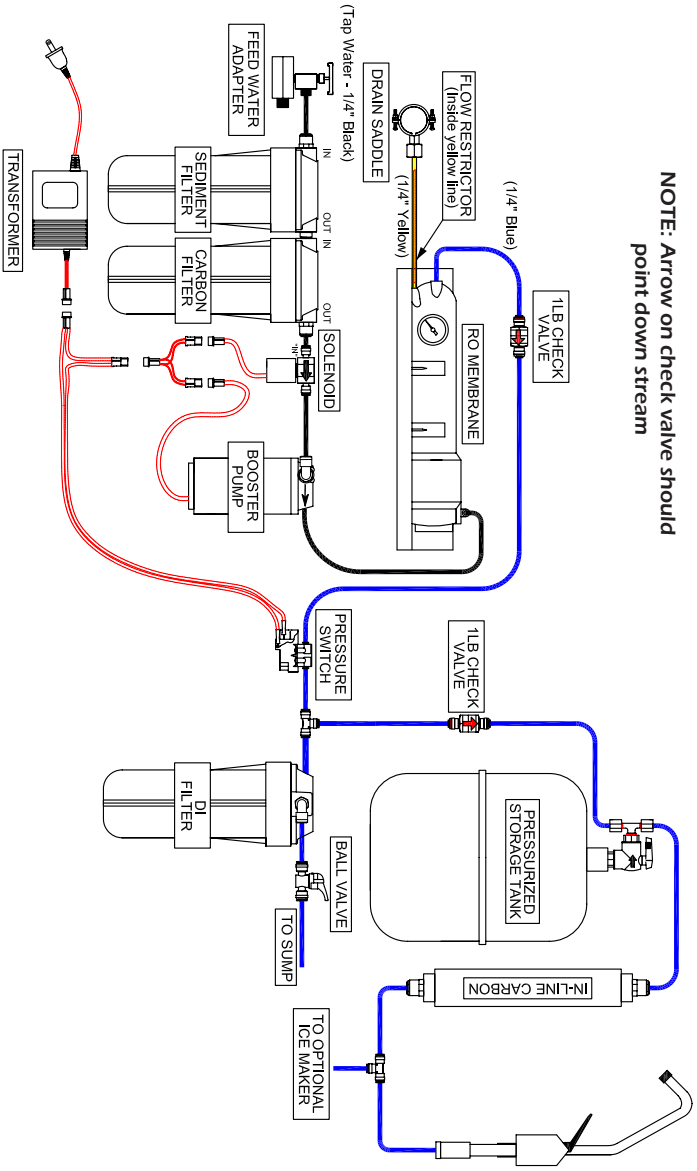



**FIGURE 3: PRESSURE OPERATED BOOSTER PUMP INSTALLATION FOR AN RO/DI SYSTEM**

**NOTE: Pressure Switch is normally in the "OPEN" position**

**NOTE: Arrow on check valve should point down stream**

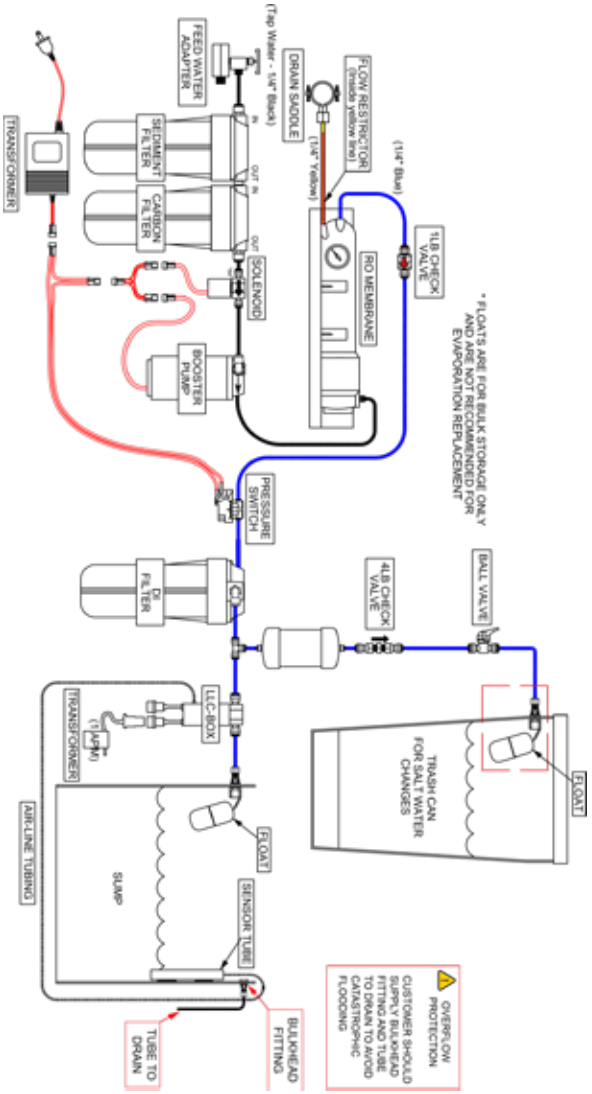



**FIGURE 4: PRESSURE OPERATED BOOSTER PUMP INSTALLATION FOR LLC-M-115**

NOTE: Arrow on check valve should point downstream.

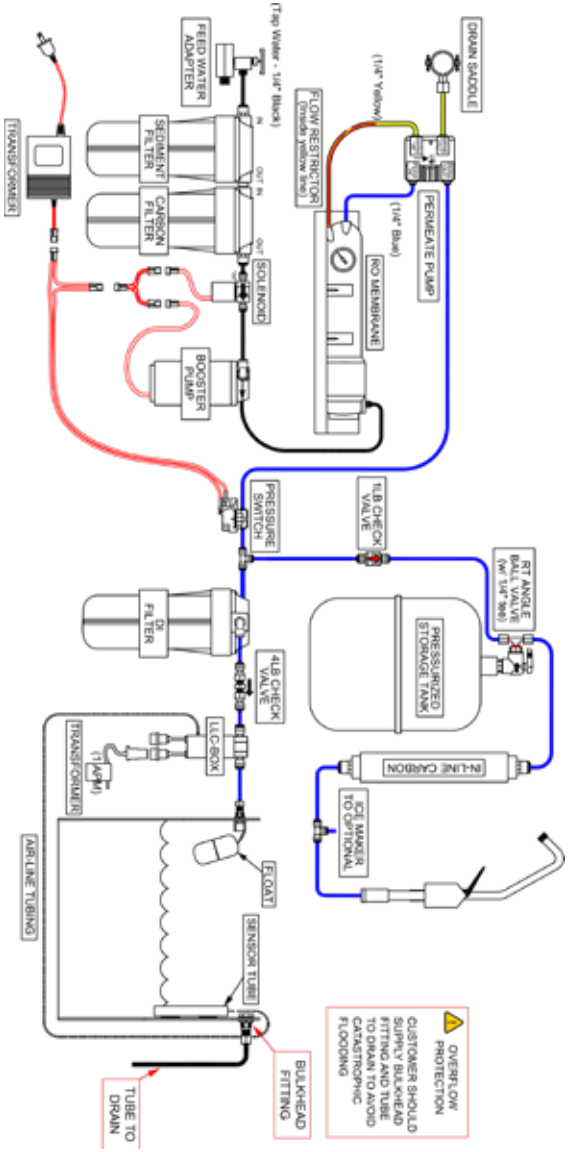



**FIGURE 5: PRESSURE OPERATED BOOSTER PUMP INSTALLATION WITH PERMEATE PUMP, DRINKING WATER KIT AND LEVEL CONTROLLERS FOR AN RO/DI SYSTEM**

## MOUNTING:

1. Mount pump in a dry place and away from any source heat. If an enclosure is used, provisions for cooling the motor may be necessary. Contact Aquatec.
2. DO NOT subject pump to extreme temperatures. Operating ambient temperature range is 32F-115F.
3. Avoid any sharp bends in tubing that is leading to or from the pump. This may cause crimps and restrict flow. Use elbow fittings if necessary.
4. To prevent foreign debris from damaging the pump, use of an inline sediment filter upstream of the pump's inlet port is recommended.

## *TROUBLESHOOTING GUIDE:*

1. LLC not working:

| | |
|---|---|
| a. Defective pressure switch | i. Replace it |
| b. Water in the clear airline tubing | ii. Disconnect the tubing and blow air through it to get the water out. |
| c. Defective solenoid valve | iii. Replace it |

2. Pump will not run.:

| | |
|---|---|
| a. Start at the source to determine where the electrical current flow has been interrupted. Use a multi-meter to check the line voltage, and the transformer output. If the transformer is not functioning properly its current capacity may have been exceeded. Please consult Aquatec. | i. If the pump now runs, the pressure switch is faulty, and needs to be adjusted or replaced. |
| b. If the transformer is properly sized, and is delivering the correct voltage to the system, remove the holding tank pressure switch (P.S.) from the system by disengaging both connectors, and connecting the pump directly to the transformer. | ii. If the pump still fails to run, the electrical path has been interrupted within the motor, and should be returned to Aquatec for repair. |

3. The pump operation is too noisy:

| | |
|---|---|
| a. Entrapped air (which will eventually dissipate). | i. Make sure air is not being drawn into the pump. |
| b. Water may have damaged the bearings, or other motor components. | ii. Check for internal leaks, as well as water entering the motor from an external source. |
| c. Squeaking may be associated with the bypass mechanism; brush contact with the commutator surface; or inadequate lubrication in the rear bearing. | iii. Contact Aquatec |

4. The flow and/or pressure is too low:

| | |
|---|---|
| a. Is the pump properly sized to handle the production rate of the membrane, plus the brine flow allowed by the restrictor (usually 4 or 5 times the permeate production)? | i. Purchase the correct Booster Pump size: Aquatec 6800 or Aquatec 8800. |
| b. Is the system receiving adequate feed water? | ii. The pump's inlet chamber must be flooded to prevent performance-robbing air ingestion into the compression chambers. |
| c. Debris entering the pump, such as residue from granulated carbon filter improperly located on the inlet side of the pump, may restrict the pumping operation. | iii. Consult Aquatec for valve cleaning instructions and install a sediment pre-filter before the pump. |

## ONE YEAR LIMITED WARRANTY:

SpectraPure, Inc.® warrants the product to the original owner only to be free of defects in material and workmanship for a period of one year from the date of receipt. SpectraPure's liability under this warranty shall be limited to repairing or replacing at SpectraPure's option, without charge, F.O.B. SpectraPure's factory, any product of SpectraPure's manufacture. SpectraPure will not be liable for any cost of removal, installation, transportation or any other charges which may arise in connection with a warranty claim. Products which are sold but not manufactured by SpectraPure are subject to the warranty provided by the manufacturer of said products and not by SpectraPure's warranty. SpectraPure will not be liable for damage or wear to products caused by abnormal operating conditions, accident, abuse, misuse, unauthorized alteration or repair or, if the product was not installed in accordance with SpectraPure's or other manufacture's printed installation and operating conditions, or damage caused by hot water, freezing, flood, fire or acts of God.

SpectraPure will not be responsible for any consequential damages arising from installation or use of the product, including any water or mold damage due to flooding which may occur due to malfunction or faulty installation, including, but not limited to failure by installer to over- or under-tighten fittings, housings, and/or push-style fittings, or improper installation of push-style fittings. Consumable items such as prefilters and membranes are not covered under the one year warranty.

To obtain service under this warranty, the defective system or components must be returned to SpectraPure with proof of purchase, installation date, failure date and supporting installation data. Any defective product to be returned to the factory must be sent freight prepaid. Documentation supporting the warranty claim and a Return Merchandise Authorization (RMA) number must be included. SpectraPure will not be liable for shipping damages due to the improper packaging of the returned equipment and all returned goods must also have adequate insurance coverage and a tracking number.

SpectraPure will not pay for loss or damage caused directly or indirectly by the presence, growth, proliferation, spread or any activity of "fungus", wet or dry rot or bacteria. Such loss or damage is excluded regardless of any other cause or event that contributes concurrently or in any sequence to the loss. We will not pay for loss or damage caused by or resulting from continuous or repeated seepage or leakage of water, or the presence or condensation of humidity, moisture or vapor, that occurs over a period of 14 days or more. "Fungus" and "fungi" mean any type or form of fungus or Mycota or any byproduct or type of infestation produced by such fungus or Mycota, including but not limited to, mold, mildew, mycotoxins, spores, scents or any biogenic aerosols.

SpectraPure will not be liable for any incidental or consequential damages, losses or expenses arising from installation, use, or any other causes. There are no expressed or implied warranties, including merchantability or fitness for a particular purpose, which extend beyond those warranties described or referred to above.

* **The one year limited warranty does not apply to consumable items, including but not limited to, filters and cartridges unless specifically stated above.**

## TERMS AND CONDITIONS:

1. Shipping charges on units or parts submitted to our facility for repair or replacement must be borne by the registered purchaser. After repair or replacement, the factory will return the unit or part freight prepaid to the customer.
2. We assume no warranty liability in connection with our equipment other than as herein specified.
3. This warranty is in lieu of all other warranties expressed or implied, including warranties of fitness for a particular purpose.
4. We do not authorize any person or representative to assume for us any other obligation on the sale of our equipment. This is the exclusive remedy and liability for consequential damages under any and all warranties which are excluded to the extent exclusion is permitted by law.
5. Proof of original purchase date must accompany all warranty claims.
6. SpectraPure, Inc. Reserves the right to change prices without notice when necessary. All prices in the catalog are quoted in US dollars.
7. Claims for error in quantity or condition must be made within 10 days of receipt of material. SpectraPure, Inc. will not be responsible for any claimed shortages not reported within 10 days. Returns other than warranty claims may be subject to 20% restocking fee.
8. SpectraPure, Inc. cannot be held liable for damage or loss to a shipment by a freight carrier. Check shipment for damage before acceptance or note on freight bill subject to inspection for concealed damage. Consignee must file claim. SpectraPure, Inc. will offer as much assistance as possible.
9. A complete credit check is required prior to shipping on a Net 30 basis. In the interim period during which credit references are being evaluated, all orders must be prepaid until approved.
10. All returned checks (due to insufficient funds or closed accounts) will be subjected to a **$35 penalty charge.**
11. Invoices on Net 30 accounts not paid within 30 days of shipment will be considered delinquent and will accrue Finance charges at the rate of 1.5% per month (18% per annum).

## Replacement Parts

| Model | Replacement Part |
|---|---|
| E-TRN-115V-24VAC/2A | 24VAC, 2 amp Transformer (for High Flow Booster Pumps) |
| EA-TRN-115V-24VAC/1A | 24VAC, 1 amp Transformer (for Low Flow Booster Pumps) |
| V-FLOAT-4-PP | Backup Float |
| LLC-SENSORTUBE | Air Line Sensor Tube for Level Controllers. (Comes in 5ft length) |
| V-CK-IL-1LB-4JG | 1 Lb Check Valve |
| VA-CK-IL-4 | 4 Lb Check Valve |
| DM-35-4-6 | Adaptor for HFBP |
| DM-35-4-4 | Adaptor for LFBP |

## SPECIFICATIONS:

| | |
|---|---|
| MOTOR: | |
| Type: | 24VAC, Permanent Magnet, Totally Enclosed, Non-Ventilated |
| Leads: | 20 AWG, 6" LONG |
| TEMP. LIMITS: | This motor is not equipped with thermal protection. For user safety, optimal performance and maximum motor life, the motor's surface temperature should not exceed 150˚ F. |
| PUMP DESIGN: | 3 chamber diaphragm pump, Self-priming, Capable of being run dry. |
| PUMP CERT: | NSF Standard 58 |