



## Liquid Replenisher System for multiple tanks

(LLC-M-115)



## INSTALLATION MANUAL

**SpectraPure® Inc.** assumes no responsibility for water damage due to leaks. It is the user's responsibility to determine that the system is leak-free by monitoring installation for 72 hrs..

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## LLC-M-115 COMPONENTS

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"T" FITTING



BACKUP SAFETY FLOAT (x2)



ASO VALVE



MINI BLADDER TANK



SENSOR TUBE



24VAC TRANSFORMER



LLC CONTROL MODULE



BALL VALVE



1 LB CHECK VALVE



4 LB CHECK VALVE



1/4" BLACK TUBING (2 FT)



1/4" BLUE TUBING (2 FT)

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## LIQUID LEVEL CONTROLLER FOR MULTIPLE TANKS (LLC-M-115)

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The **Multiple Tank Liquid Replenishment Systems** are the most advanced means of controlling liquid levels on single or multiple reservoirs and are ideal for replenishing evaporated water in aquariums or liquids in other constant level containers. A sensitive air pressure switch opens a solenoid valve when the liquid level drops approximately 1" and closes it when the liquid level rises back to its original level.

Research shows that the Multiple Tank Liquid Replenisher provides a significant advantage over conventional float and backpressure activated automatic shutoff valves by maximizing the duration of membrane operation. This minimizes the build up of impurities due to TDS creep (the small amount of impure water that is a characteristic of the membrane at the onset of pure water production).

All wetted components are constructed of inert and saltwater safe materials. Power is provided by a plug-in 24VAC (UL listed and CSA approved) transformer.

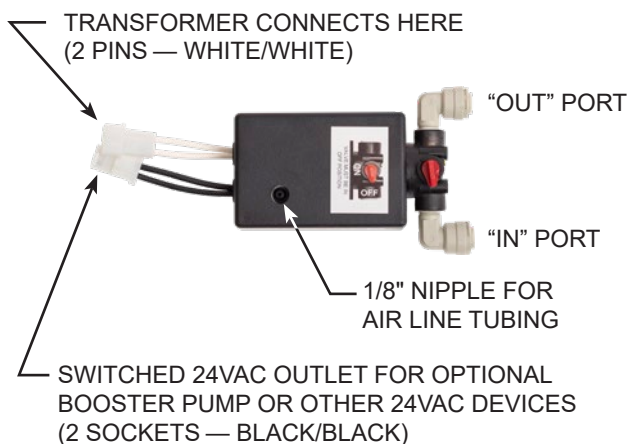
The multiple reservoir model comes with a unit which includes a switched 24VAC outlet for controlling a booster pump or other 24VAC operated devices, compression fittings, 5 feet of tubing for remote mounting of the sensor, a Mini Bladder Tank, auto shutoff (ASO) valve, ball valve, check valves and fittings, and one float valve for an additional reservoir. If you choose to use a booster pump, replace this transformer with the transformer that is supplied with the booster pump.

The system may be expanded to include more reservoirs by adding the optional Float Kit (SPFK). For additional overflow protection, a secondary mechanical float is also included with every Multiple Tank Liquid Replenisher.

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### LLC CONTROLLER CONNECTIONS

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## INSTALLATION INSTRUCTIONS FOR FLOATS

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.

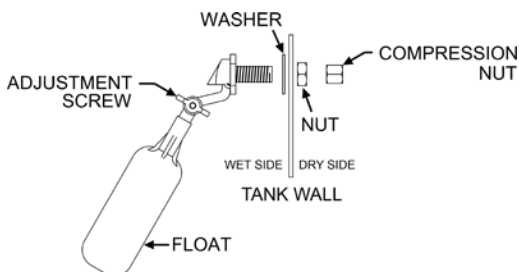
NOTE: If you are installing the Backup Safety Float onto an acrylic tank we recommend using a new Forstner Bit to reduce the chance of cracking the acrylic.



2. (Refer to diagram below.) 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.

### FLOAT ASSEMBLY

**THE SAFETY BACKUP FLOAT MUST BE INSTALLED. FAILURE TO DO SO WILL VOID ANY WARRANTY AND POSSIBLY CAUSE PROPERTY DAMAGE.**



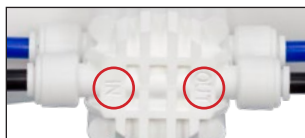
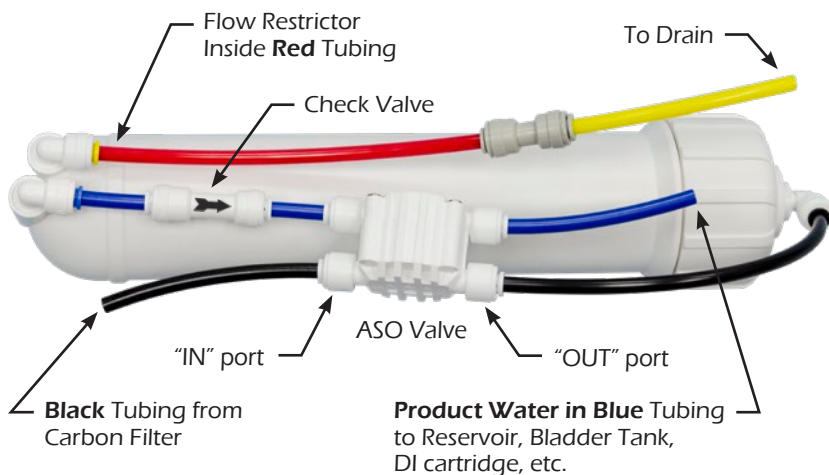
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## INSTALLATION INSTRUCTIONS FOR RO AND RO/DI SYSTEMS

### INSTALLATION OF THE AUTOMATIC SHUTOFF VALVE

1. Locate the Black Tube between the Carbon Filter and the Membrane and cut in half.
2. Insert the cut end from the Carbon Filter into the IN Port of the ASO Valve.
3. Insert the cut end from the RO Membrane Housing into the OUT Port of the ASO Valve.
4. Locate the Blue Tube (product water) that leaves the RO Membrane Housing.
5. Cut the Blue Tube 3" from the membrane housing.
6. Using the 1 lb Check Valve, reconnect the two cut ends with the arrow pointing away from the membrane.
7. Position the Blue Tube alongside the ASO Valve to determine where the blue tube needs to be cut. Then cut the blue tube and reconnect the two cut ends with the two remaining ports of the ASO Valve.

(continued on next page)



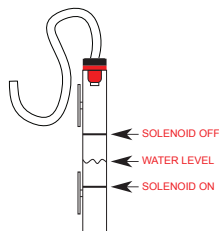
Note: In and Out ports are marked on ASO and must be aligned correctly for proper operation

## INSTALLATION INSTRUCTIONS FOR LLC-M ON RO AND RO/DI SYSTEMS

(continued)

8. Locate product line leaving the ASO Valve (for RO/DI system you will locate the line leaving the DI cartridge). Place a Tee on that line. (Refer to Page 8 for RO systems or Page 9 for RO/DI systems.)
9. Measure the lengths of blue tubing required to go to each reservoir and install them on each side of the Tee fitting.
10. Cut the line going to the secondary reservoir about one foot after the Tee fitting. Connect both ends of the tubing to the mini bladder tank.
11. Cut the blue tubing about 3" after the mini bladder tank and install the 4 lb. check valve with the arrow pointing towards the reservoir.
12. Connect the loose end of the blue tubing to the float valve on the secondary reservoir. (See Page 5 for float installation.)
13. Cut the blue tubing near the end that will connect to your sump. Attach the end of the tubing to the "In" port on the LLC box. Attach the smaller piece of tubing from the "Out" port of the LLC box to the Float Valve on the sump. (See "LLC Controller Connections" on Page 4.)
14. Locate the sensor tube with the 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.
15. Turn on the RO or RO/DI system.
16. Insert the male connector of the transformer into the female connector on the LLC box and plug the transformer into a wall outlet.
17. Submerge the Sensor Tube into the 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 turnoff point.

**WARNING:** Air line tubing **MUST** be connected to the 1/8" nipple on the back of the LLC Box **BEFORE** immersing the sensor probe in water. (See "LLC Controller Connections" on Page 4.)



18. Mount the sensor tube with the suction cups provided or by whatever means you prefer. The water level should be halfway between the two marks you just made. NOTE: A small dab of aquarium silicone sealant on each suction cup will prevent them from detaching. Make sure the wall of the sump or reservoir is clean and dry before applying the silicone adhesive.
19. Refer back to page 7 for the installation of Backup Safety Floats. **Failure to install backup float will void any warranty and may cause property damage.**

**WARNING:** Floats are for bulk storage only and are not recommended for evaporation replacement.

DIAGRAM: INSTALLATION OF LLC-M ON RO SYSTEMS

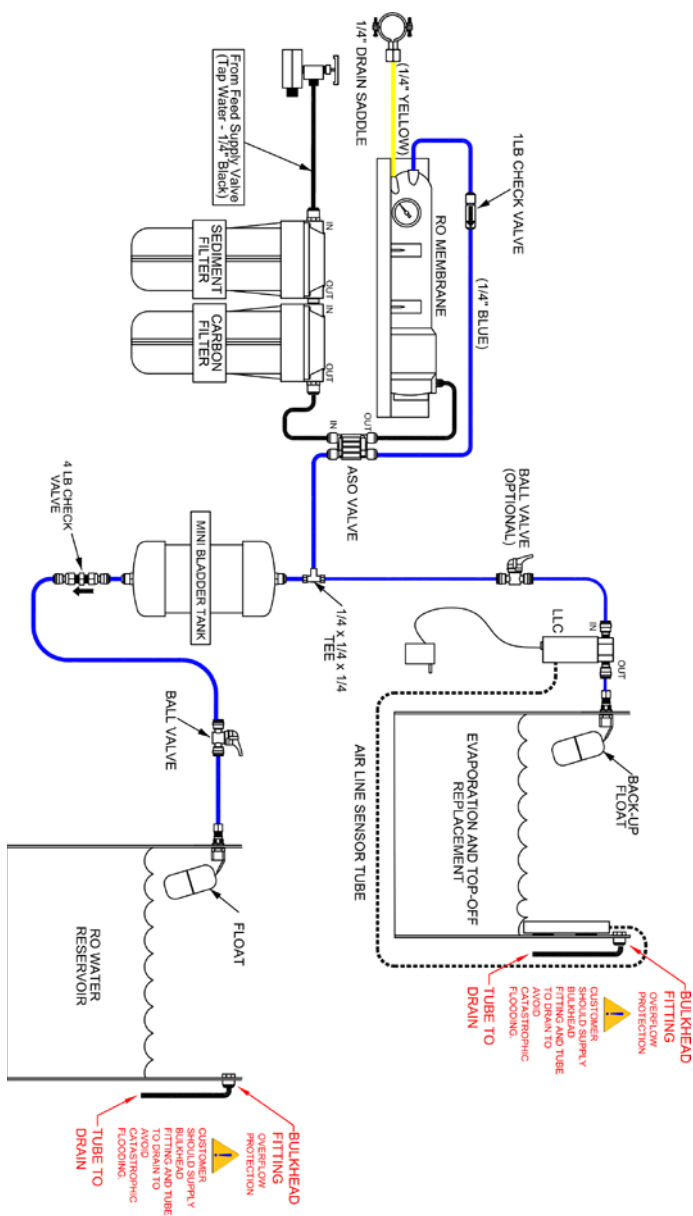
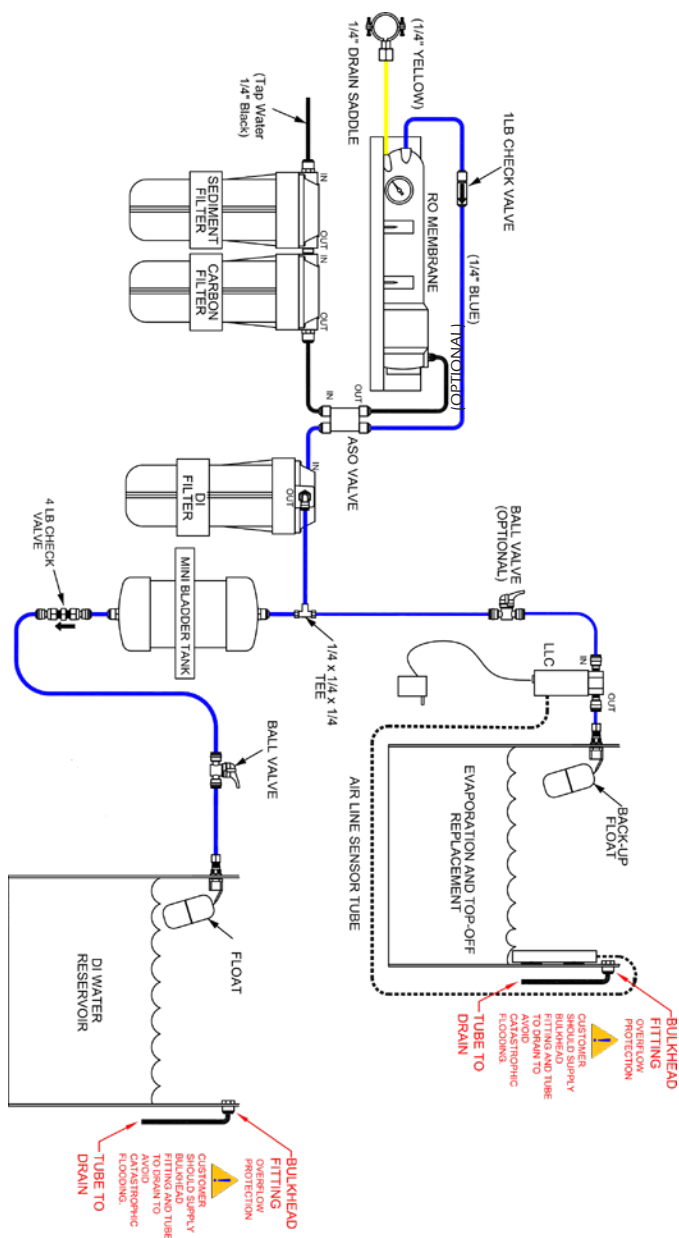




DIAGRAM: INSTALLATION OF LLC-M ON RO/DI SYSTEMS



## TROUBLESHOOTING GUIDE

### Problems, Causes and Corrective Actions

1. LLC System not working (overflow, system not shutting off, etc.)
  - a. Defective pressure switch
    - i. Replace it.
  - b. Water in the clear air line tubing
    - ii. Disconnect the tubing and blow air through it to get the water out.
  - c. Defective solenoid valve
    - iii. Replace it.
  - d. Dirt or corrosion on solenoid valve.
    - iv. Clean or replace valve.
2. Solenoid will not turn on.
  - a. Water pressure above 80 psi.
    - i. Reduce pressure with pressure regulator.
  - b. No power.
    - ii. Check power outlet and transformer.

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## ONE-YEAR LIMITED WARRANTY:

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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 manufacturer'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:

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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).