

OWNER'S MANUAL & INSTALLATION GUIDE



Professional Series Water Softeners and Ion Exchange Filter Systems

APPLICABLE MODELS:

WS-8-HP / WS-10-HP / WS-FM-HP / WS-SST-HP Series Water Softeners

WS-EMP-HP / WS-EMC-HP Series Ecomix Systems

T-HP Series Tannin & Organics Filters

**PLEASE READ THIS MANUAL CAREFULLY BEFORE
ATTEMPTING INSTALLATION. FAILURE TO FOLLOW THESE
INSTRUCTIONS MAY AFFECT THE PERFORMANCE OF YOUR
SYSTEM, VOID YOUR WARRANTY, AND RESULT IN
PROPERTY DAMAGE.**

Congratulations on the purchase of your HydraPlus™ Professional Series water treatment system.

We have searched the world for the very best components and incorporated them into our HydraPlus™ Professional Series water treatment systems. Combining the most advanced and versatile control valve technology with media and components from the industry's most respected manufacturers has enabled us to create systems focused on reliable operation, salt-efficiency, long service life, and unsurpassed value.

Your HydraPlus™ water treatment system is designed for reliable low maintenance operation. The control valve will perform regular backwash and regeneration functions automatically. For your convenience, your system has been pre-programmed for you at our factory. You may customize programming to suit your specific application, however, we strongly recommend that programming changes be made in consultation with your water treatment dealer to obtain the best treatment results and prevent operational problems. Changing the default settings may adversely affect the performance and life of your water treatment system.

This manual is designed to provide owners, installers, and service technicians with detailed information about the installation, start-up, operation, and maintenance of your new water treatment system.

IMPORTANT SAFETY SYMBOLS



Hazards or unsafe practices that may result in personal injury and/or severe property damage.



Hazards or unsafe practices that may cause operational problems with your water treatment system.

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GENERAL WARNINGS



If you are using this water filter system to remove a contaminant that is deemed by the U.S. EPA and/or Health Canada to be harmful to health, it is critical that follow-up water testing be done after installation, and on an ongoing and frequent basis thereafter, to monitor the performance of your water filter system. A water treatment professional can help you determine an appropriate testing schedule for your application.

Do not allow children or pets to play on or around the water treatment system.

Do not install or store this filter system where it will be exposed to freezing temperatures.

Do not tamper with controls.

Do not repair, replace, or attempt to service any part of the system unless you have the understanding, tools, and skills necessary to carry out the procedure. We recommend that a qualified water treatment professional perform all service work on the control valve.

Packing materials can be dangerous to children. Keep all packing material (plastic bags, polystyrene, boxes, etc.) well out of the reach of children.

Individual components of this water treatment system and the installed system are heavy. Precautions should be taken to prevent personal injury or strain. Do not move heavy components without assistance if you are not physically capable of safely carrying out the procedure.

If the water treatment system is to be left unattended for an extended period of time (vacation, etc.), we strongly recommend that you turn off the water supply to the system, or the whole house, while you are away.

If your water pipes are metal (galvanized or copper), they may be used to ground electrical systems, appliances, or your phone line. If this is the case, be sure to install regulation ground clamps to the metal pipe on each side of the control valve and connect a jumper wire between the 2 clamps (consult your local electrical code for wire type/gauge recommendations). Consult a certified electrician or plumber if you are unsure.

Additional Warnings Related to the Control Valve

The control valve, fittings and/or bypass are designed to accommodate minor plumbing misalignments but are not designed to support the weight of a system or the plumbing. Do not use Vaseline, oils, other hydrocarbon lubricants or spray silicone anywhere. A food grade silicon lubricant may be used on black o-rings but is not necessary. **Avoid any type of lubricants, including silicone, on red or clear seals.**

The nuts and caps are designed to be unscrewed or tightened by hand or with a special plastic service wrench (Clack part #V3193-02). If necessary, pliers can be used to unscrew the nut or cap. Do not use a pipe wrench to tighten or loosen nuts or caps. Do not place screwdriver in slots on caps and tap with a hammer.

Do not use pipe dope or other liquid sealants on threads. Teflon tape must be used on the threads of the 1" NPT connectors that join the bypass to your water lines and on the threads for the drain line connection. Do not use any thread sealants on the threads that connect the control valve to the media tank.

Soldered joints near the drain must be done prior to connecting the drain line flow control fitting. Leave at least 6 inches between the drain line control fitting and soldered joints when soldering pipes that are connected on the drain line control fitting. Failure to do this could cause internal damage to the drain line flow control fitting and/or control valve.

When assembling the installation fitting package (inlet and outlet), connect the fitting to the plumbing system first and then attach the nut, split ring and o-ring. Heat from soldering or solvent cements may damage the nut, split ring or o-ring. Soldered joints should be cool and solvent cements should be set before installing the nut, split ring and o-ring. Avoid getting primer and solvent cement on any part of the o-rings, split rings, bypass valve or control valve.

Plug into a 110v electrical outlet only. Note: All electrical connections must be connected according to local codes. Be certain the outlet is uninterrupted and not controlled by a switch.

OPERATING CONDITIONS

The following chart provides guidance on the conditions required for successful operation of your HydraPlus™ water treatment system.



USE OF THIS EQUIPMENT OUTSIDE OF THESE OPERATING CONDITIONS MAY ADVERSELY AFFECT THE PERFORMANCE OF YOUR SYSTEM, RESULT IN SYSTEM DAMAGE INCLUDING WATER LEAKS AND CORRESPONDING PROPERTY DAMAGE, AND MAY VOID YOUR WARRANTY.

Minimum Water Pressure	20 PSI
Maximum Water Pressure	90 PSI*
Recommended Water Pressure	40 to 70 PSI
Water Temperature	40F to 100F (4C to 38C)**
Minimum Air Temperature	38°F (4°C)**
pH Range	5*** to 10

* While the filter system is designed to withstand pressures exceeding 90 PSI, if your water pressure is greater than 70 PSI, we strongly recommend that a pressure reducing valve be installed ahead of the HydraPlus™ system.

** The system must not be subjected to freezing conditions or severe damage to the system and your property could occur.

*** pH correction is strongly recommended where pH level is less than 7.0 to prevent long-term corrosion damage to your plumbing system, and to prevent leaching of metals from copper and brass plumbing components and solder in your home. Contact your dealer for recommendations.

For best contaminant removal, the optimal service flow rate specified for your model should not be exceeded. Satisfactory to good filtration can generally be achieved up to the recommended maximum service flow rate as long as this level of flow rate is not sustained continuously. See charts on the following pages system and model-specific operating condition recommendations and requirements.

Maximum Recommended Contaminant Levels by Series for Water Softeners

Series	Hardness	Iron	Manganese	Chlorine	Chloramine
WS-8-HP	45 grains per gallon / 770 ppm (mg/l)*	3 ppm (mg/l)	1 ppm (mg/l)	1 ppm (mg/l)	none
WS-10-HP		3 ppm (mg/l)	1 ppm (mg/l)	2 ppm (mg/l)	1 ppm (mg/l)
WS-FM-HP		5 ppm (mg/l)	1.5 ppm (mg/l)	1 ppm (mg/l)	none
WS-SST-HP		10 ppm (mg/l)	3 ppm (mg/l)	1 ppm (mg/l)	none

* treatment of hardness levels exceeding this level is possible, however, significantly greater salt efficiency can be achieved by selecting a twin-alternating model and is therefore recommended.

Exceeding the iron and manganese levels noted above will result in pre-mature resin fouling and reduced resin life.

Exceeding the chlorine and chloramine levels noted above will result in resin damage and significantly reduced resin life.

Water Softener, Specifications Flow Rates & Backwash Requirements:

Model Suffix	8-44	9-48	10-54	12-52	13-54	14-65
Capacity at Salt Dose of 15 pounds / Cubic Foot:	24,750 grains	33,000 grains	49,500 grains	66,000 grains	82,500 grains	99,000 Grains
Capacity at Salt Dose of 9 pounds / Cubic Foot:	20,250 grains	27,000 grains	40,500 grains	54,000 grains	67,500 grains	81,000 Grains
Capacity at Salt Dose of 6 Pounds / Cubic Foot (Factory Default):	16,500 grains	22,000 grains	33,000 grains	44,000 grains	55,000 grains	66,000 grains
Lbs of Salt Per Regeneration @ dose of 6 lbs/CF:	4.5	6	9	12	15	18
Resin Volume (Cubic Feet):	0.75	1	1.5	2	2.5	3
Optimal Service Flow Rate (GPM)	3.7	5.0	7.5	10	12.5	15
Maximum Service Flow Rate (GPM)	5.6	7.5	11.2	15	18.7	22.5
Backwash Flow Rate at 40F Water Temp (GPM)	1.7	2.2	2.7	4.2	5.3	6.5
Backwash Flow Rate at 70F Water Temp (GPM)	2.2	2.7	3.2	4.2	6.5	7.5

Maximum Recommended Contaminant Levels by Series for Ecomix Filters

Series	Hardness	Iron	Manganese	Chlorine	Chloramine
WS-EMP-HP	45 grains per gallon / 770 ppm (mg/l)*	7 ppm (mg/l)	2 ppm (mg/l)	1 ppm (mg/l)	none
WS-EMC-HP		3 ppm (mg/l)	1 ppm (mg/l)	1 ppm (mg/l)	none

Series	Tannin	Total Organic Carbon (TOC)
WS-EMP-HP	0.1 ppm (mg/l)	3 ppm (mg/l)
WS-EMC-HP	0.5 ppm (mg/l)	5 ppm (mg/l)

* treatment of hardness levels exceeding this level is possible, however, significantly greater salt efficiency can be achieved by selecting a twin-alternating model and is therefore recommended.

Exceeding the iron and manganese levels noted above may result in premature resin fouling, poor performance, and reduced resin life.

Exceeding the chlorine and chloramine levels noted above will result in resin damage and significantly reduced resin life.

Model Suffix	9-48	10-54	12-52	13-54	14-65
Capacity at Salt Dose of 6.3 Pounds / Cubic Foot	11,500 grains	17,000 grains	23,000 grains	28,500 grains	34,500 grains
Lbs of Salt Per Regeneration @ dose of 6 lbs/CF:	5.5	8.3	11.1	13.9	16.6
Resin Volume (Cubic Feet):	0.88	1.32	1.76	2.20	2.64
Optimal Service Flow Rate (GPM)	3.5	4.4	6.3	7.4	8.6
Maximum Service Flow Rate (GPM)	4.4	5.5	7.9	9.2	10.7
Backwash Flow Rate at 40F Water Temp (GPM)	2.2	2.7	3.2	4.2	5.3
Backwash Flow Rate at 70F Water Temp (GPM)	2.7	3.2	5.3	5.3	6.5

Maximum Recommended Contaminant Levels for Tannin and Organics Filters

Series	Tannin	TOC*	Iron	Manganese	Chlorine	Chloramine
T- HP	5 ppm (mg/l)	15 ppm (mg/l)	0.3 ppm (mg/l)	0.05 ppm (mg/l)	1 ppm (mg/l)	none

* Total Organic Carbon

Exceeding the iron and manganese levels noted above may result in premature resin fouling, poor performance, and reduced resin life.

Exceeding the chlorine and chloramine levels noted above will result in resin damage and significantly reduced resin life.

Model Suffix	9-48	10-54	12-52	13-54	14-65
Lbs of Salt Per Regeneration @ dose of 6 lbs/CF:	6	9	12	15	18
Resin Volume (Cubic Feet):	0.75	1.25	1.5	2	2.5
Neutralizing Media Volume (Cubic Feet):	0.25	0.25	0.5	0.5	0.5
Total Media Volume (Cubic Feet):	1	1.5	2	2.5	3
Optimal Service Flow Rate (GPM)	2.5	4.5	5.5	7	9
Maximum Service Flow Rate (GPM)	4	6.5	7.5	10	12.5
Backwash Flow Rate at 40F Water Temp (GPM)	1.7	1.7	2.2	2.7	2.7
Backwash Flow Rate at 70F Water Temp (GPM)	1.7	1.7	2.2	3.2	3.2



WARNING



CAUTION

CONFIRM THAT YOUR WATER CONDITIONS, SERVICE FLOW RATE NEEDS, AND AVAILABLE BACKWASH FLOW RATES MEET THE ABOVE SPECIFICATIONS FOR THE MODEL YOU ARE INSTALLING BEFORE COMMENCING THE INSTALLATION PROCESS. IF IN DOUBT, CALL YOUR DEALER FOR ADVICE.

INSTALLATION



WE RECOMMEND THAT YOU READ THIS ENTIRE MANUAL BEFORE STARTING THE ACTUAL INSTALLATION. WE STRONGLY RECOMMEND THAT A WATER TREATMENT PROFESSIONAL OR LICENSED PLUMBER PERFORM ALL INSTALLATION WORK. IN ALL CASES, IT IS CRITICAL THAT THE INSTALLATION BE DONE IN ACCORDANCE WITH THESE INSTRUCTIONS AND ALL APPLICABLE PLUMBING AND ELECTRICAL CODES. BE SURE TO OBTAIN ALL REQUIRED PERMITS. IF THESE INSTRUCTIONS AND THE APPLICABLE CODES ARE IN CONFLICT, THE RELEVANT PLUMBING/ELECTRICAL CODE SHOULD BE FOLLOWED. EQUIPMENT FAILURE, PERSONAL INJURY, OR PROPERTY DAMAGE CAN RESULT IF THIS EQUIPMENT IS NOT INSTALLED PROPERLY.

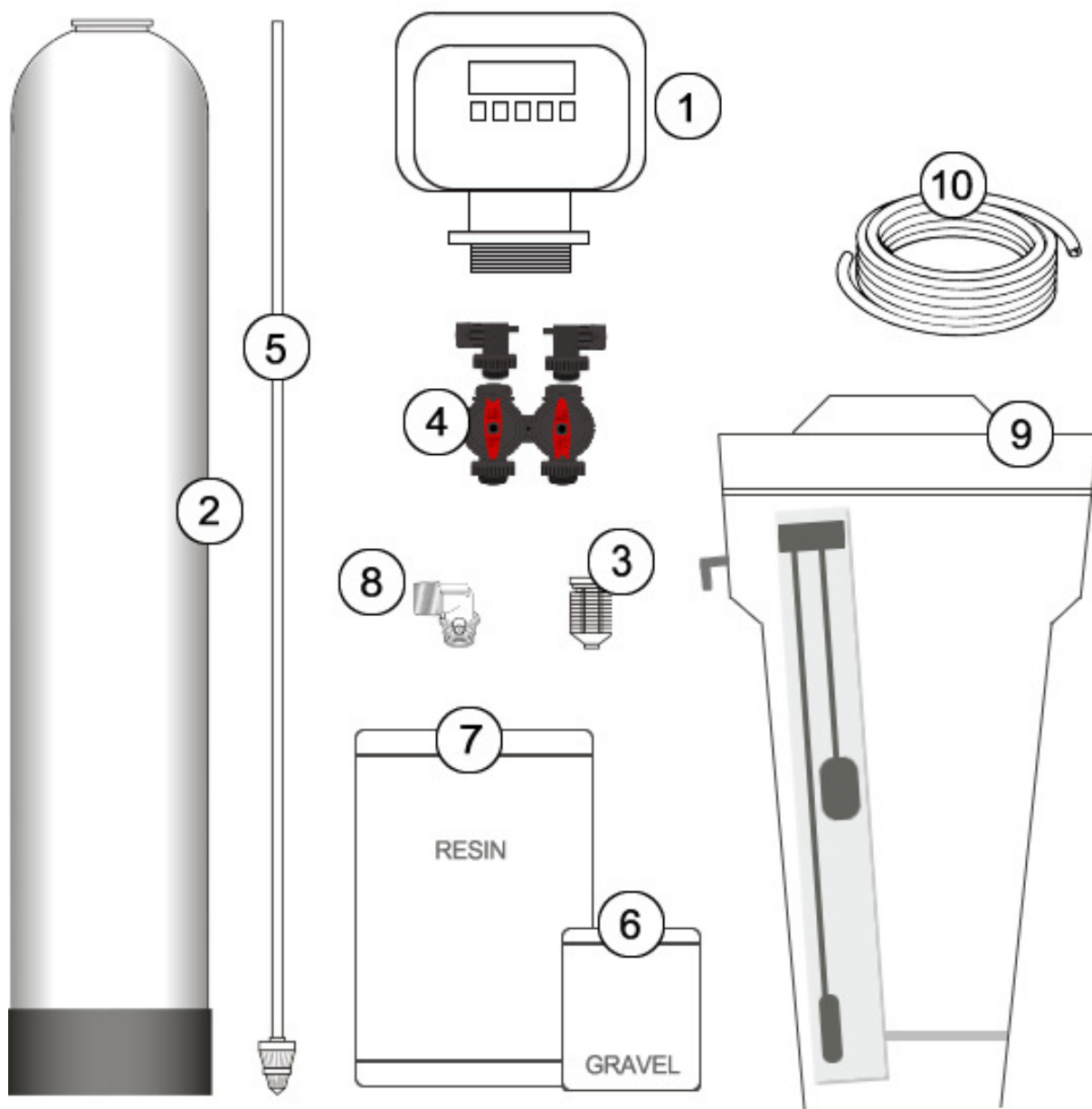
Step 1. – Pre-Installation Inspection

Inspect all of the components that you received with your unit. You should have received the following:

1. HydraPlus™ Control Valve
2. Media Tank
3. Upper Screen
4. Bypass Assembly w/ 1" NPT Elbow Connectors
5. Riser Tube and Lower Distributor
6. Bag or Box of Gravel
7. Bag(s) or Box(es) of Filter Media/Resin
8. Drain Line Flow Control - DLFC (attached to #1)
9. Brine Tank with Brine Well, Brine Valve Assembly, Salt Grid, and Overflow Elbow
10. Brine Tubing (10 feet)

You may have also received the following, however, it is generally expected that these items will be supplied by the installer:

11. Food-Grade Silicone Lubricant - not pictured
12. Media Funnel - not pictured



Step 2. – Selecting an Installation Location

While exterior installation in warm climate areas is possible, we strongly recommend interior installation only. The system must not be allowed to freeze or severe system damage could occur. The system should not be exposed to rain and it should not be installed in direct sunlight, as long-term exposure to UV light could damage the system. Furthermore, direct sunlight could also raise the water temperature in the treatment tank, reducing backwash effectiveness.

The system should be located AFTER your water pump and pressure tank(s). Discuss the location of this equipment in relation to other water treatment equipment with your dealer.



IF YOU HAVE OTHER WATER TREATMENT EQUIPMENT, YOU SHOULD DISCUSS THE ORDER OF YOUR TREATMENT EQUIPMENT WITH YOUR DEALER PRIOR TO INSTALLATION.

Select a location for installation of your water filter that is within close proximity to the main incoming water line to the building. The location should have a firm, level surface with enough space for the unit itself including the brine tank and sufficient space surrounding the unit to facilitate maintenance. We recommend that the brine tank be located immediately beside your treatment tank and control valve (it can be beside or in front). Frequent access to the brine tank is necessary to add salt so it should be located in a readily accessible location. Although not ideal, if it is necessary, the brine tank can be located up to about 10 feet away from the treatment tank and control valve (max. tubing length).



WHILE WATER LEAKS ARE VERY RARE AND UNEXPECTED, YOUR WATER FILTER SYSTEM SHOULD BE LOCATED NEXT TO A FLOOR DRAIN OR PROTECTED BY A WATER LEAK DETECTION SYSTEM WITH AUTOMATIC SHUT-OFF VALVE TO PREVENT WATER DAMAGE TO YOUR PROPERTY IN THE UNLIKELY EVENT OF A WATER LEAK. RECOMMENDED WATER LEAK DETECTION SYSTEMS INCLUDE H2O SOS, FLO BY MOEN, AND STREAMLABS.

You will also require a suitable drain to discharge waste water from the backwash cycle. A drain standpipe for a washing machine, floor drain, or sump pump are excellent drain options. We recommend that the drain line be connected to a minimum 1 1/2" drain standpipe or floor drain located ideally below the top of the control valve of your water filter system. If possible, the drain should be no farther than 20 feet from the system.



NOTE: NEVER CONNECT THE DRAIN LINE DIRECTLY INTO A DRAIN PIPE. ALLOW AN AIR GAP BETWEEN THE DRAIN TUBING AND WASTE LINE TO PREVENT THE POSSIBILITY OF BACK-SIPHONING. WE DO NOT RECOMMEND USE OF A CHECK VALVE AS IT MAY

BECOME CLOGGED WITH CONTAMINANTS EJECTED FROM THE SYSTEM DURING BACKWASH.

You will also need access to a standard, non-switched, grounded 120 volt (60 Hz) electrical outlet. An extension cord may be used to reach a suitable electrical outlet. If this option is used, ensure that the extension cord is UL/CSA certified and of an appropriate wire gauge for the application.

Step 3. – Prepare Treatment Tank

At least 2 types of media are supplied with your filter system: gravel which forms the base layer (underbedding) in your treatment tank, and a water treatment media specific to your application (there are 2 media provided for T-HP tannin and organics filters). Note, gravel is not provided for Ecomix systems as the gravel underbedding is already included inside the Ecomix media.

Place the tank in the location where it will sit when the installation is complete. Note that the black base of your tank is not permanently attached to the rest of the tank. If your tank appears to be crooked, the base has likely been knocked out of alignment during shipping. This can be corrected by picking the tank up and tapping it on a hard surface while holding it perpendicular to the floor. A few light taps will generally straighten it out.

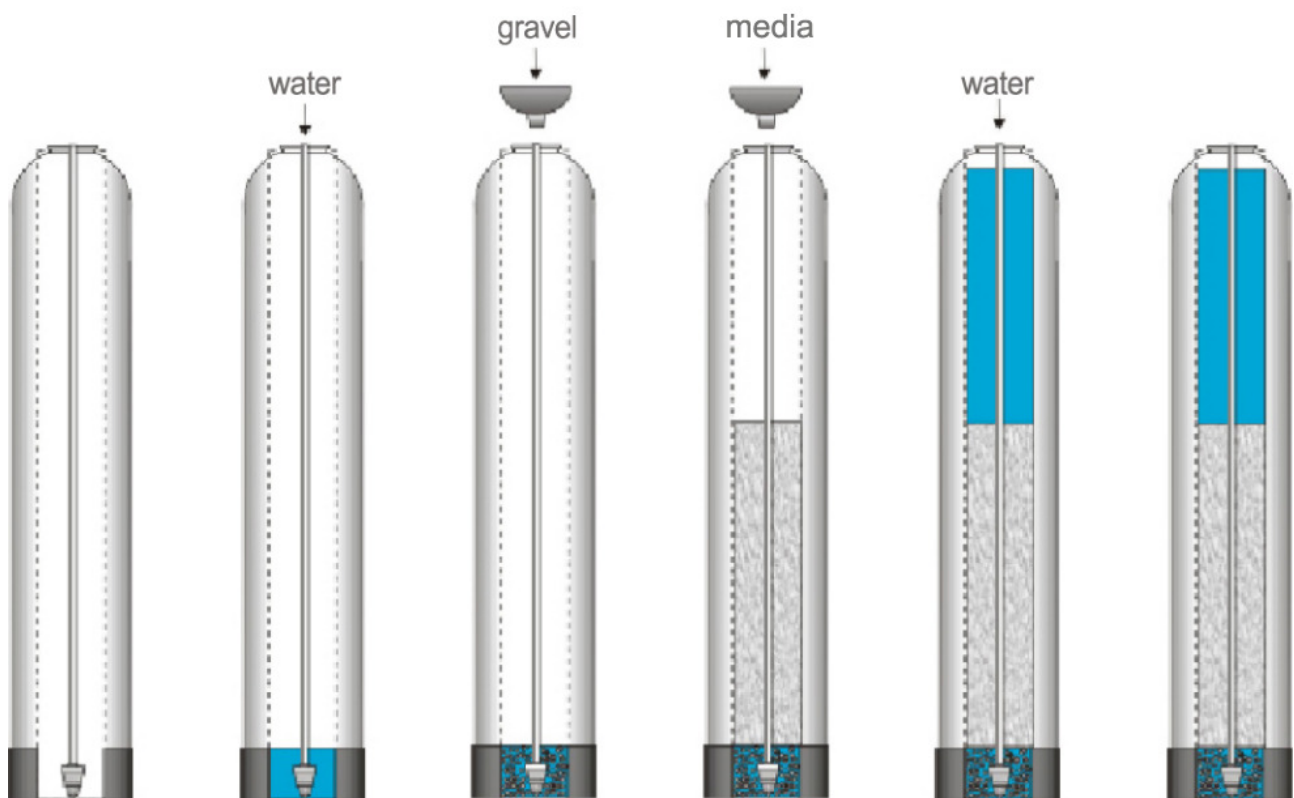
Temporarily remove the distributor and riser tube assembly from the treatment tank. Hand tighten the HydraPlus™ control valve on the tank and mark where the front of the tank will be. Turn the tank so that the front of the tank is where you want it when it is installed – once it is full of media and water, it is very heavy and difficult to move!

Remove the control valve and re-insert the distributor and riser tube assembly into the tank. The distributor, which looks like a cone-shaped plastic screen, is pre-connected to the end of the long plastic riser tube which extends from the bottom of the tank to the top of the tank where the control valve is attached. At the bottom of the tank, there is a recess in the center of the tank to accept the distributor to keep it properly aligned. The riser tube has been pre-cut to the correct height. When the distributor is correctly positioned, the top of the riser tube will be approximately flush to the top of the tank. If the tube is protruding above the top of the tank, the distributor tube is not nested correctly in the recess at the bottom of the tank.

Add enough water to the tank to cover the lower distributor with a minimum of 6 inches of water. This will prevent damage to the lower distributor as gravel is loaded. Place tape over

the open end of the riser tube. This will prevent gravel or media from accidentally going down the tube during the following steps. We recommend that you use a media funnel to load the media. In some cases, one may have been supplied with your system, but this is normally supplied by the installer.

For the following steps, we recommend that you wear a dust mask. Take the bag/box of gravel and, using a small scoop, add the gravel to the tank through the funnel to completely cover the lower distributor. As noted above, this step is not applicable to Ecomix systems. Use all of the gravel provided. Be sure to provide some downward pressure on the riser tube while adding the gravel to ensure that the distributor does not shift out of its recess or rise up. Ensure that you create an even layer of gravel across the bottom of the tank. A rigid piece of thin wall tubing (conduit, copper pipe, etc.), approximately 1" longer than the tank height works well as a leveling tool if you need it. Ensure that the riser tube remains centered in the opening at the top of the tank.



Once this is complete, add the resin/filter media in the same manner. Use all of the media provided. For T-HP tannins and organics filters, add the white granular media first, then the white resin which looks like wet plastic beads. Depending on the capacity of the system, there will only be enough media to fill the tank to about 1/2 to 3/4 full. This is normal. The

media tank should never be filled to the top of the tank as the remaining space, known as the “freeboard,” is necessary for the media to have room to expand during the backwash cycle.

Once you have finished adding the media to the tank, remove the tape from the riser tube. Be careful not to pull upwards on the riser tube while doing this as it is important that the distributor remain in its recess at the bottom of the tank.

Fill the media tank with water up to within a couple of inches of the top of the tank. This will allow the media to pre-soak, thereby preventing media loss during the initial backwash.



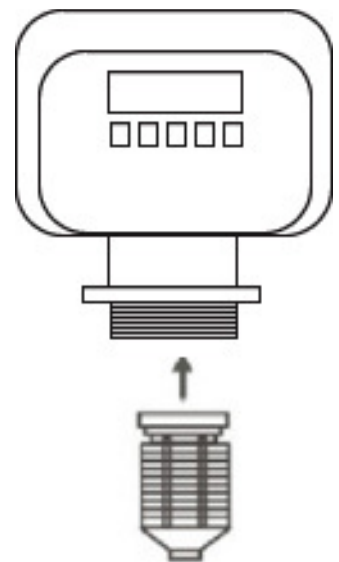
DO NOT INITIATE A REGENERATION OF THIS SYSTEM FOR A MINIMUM OF 2 HOURS AFTER ADDING THE WATER TO ALLOW ADEQUATE PRE-SOAKING. BACKWASHING BEFORE THE MEDIA IS SATURATED MAY CAUSE A LOSS OF MEDIA AND POTENTIAL DAMAGE TO THE CONTROL VALVE.

Attach the upper screen to the underside of the control valve. Be sure to twist clockwise and lock it into place.

Apply a small amount of food-grade silicone lubricant to the top inch of the outside of the riser tube and to the tank o-ring seal.

Note: Only use food-grade silicone lubricant. Do NOT use petroleum jelly.

The control valve can now be secured to the top of the tank. Before attaching the valve, check to make sure that there is no debris such as gravel or media in the tank threads. Screw the control valve onto the tank – make sure that the riser tube inserts into the center hole in the upper screen and the control valve as you screw down the valve. The control valve should be hand-tightened (clockwise). Do NOT use the control valve's cover or control board assembly for leverage and do not use tools. A firm grasp with both hands at the base of the valve or valve body will work. Do NOT use pipe cement (“pipe dope”) or Teflon® tape on the threads.



Step 4. – Turn off the Water & Electric Water Heaters



FAILURE TO FOLLOW THIS PROCEDURE COULD RESULT IN SERIOUS, PERMANENT DAMAGE TO THE HEATING ELEMENTS IN YOUR WATER HEATER.

If you have a conventional electric water heater or an on-demand (tankless) electric water heater, we highly recommend that you turn off the power to the heater while installing any water treatment equipment. Turn off power to your water heater now.

Turn off the household main water shutoff valve. Open several plumbing fixtures inside the home as well as the outside faucets to drain as much water out of the plumbing system as possible.

Following completion of the entire installation, restore the water flow by turning on the household main water valve and allow all air to be purged from the plumbing system before turning the power back on to your water heater.

Step 5. – Prepare and Install Inlet and Outlet Plumbing Connections



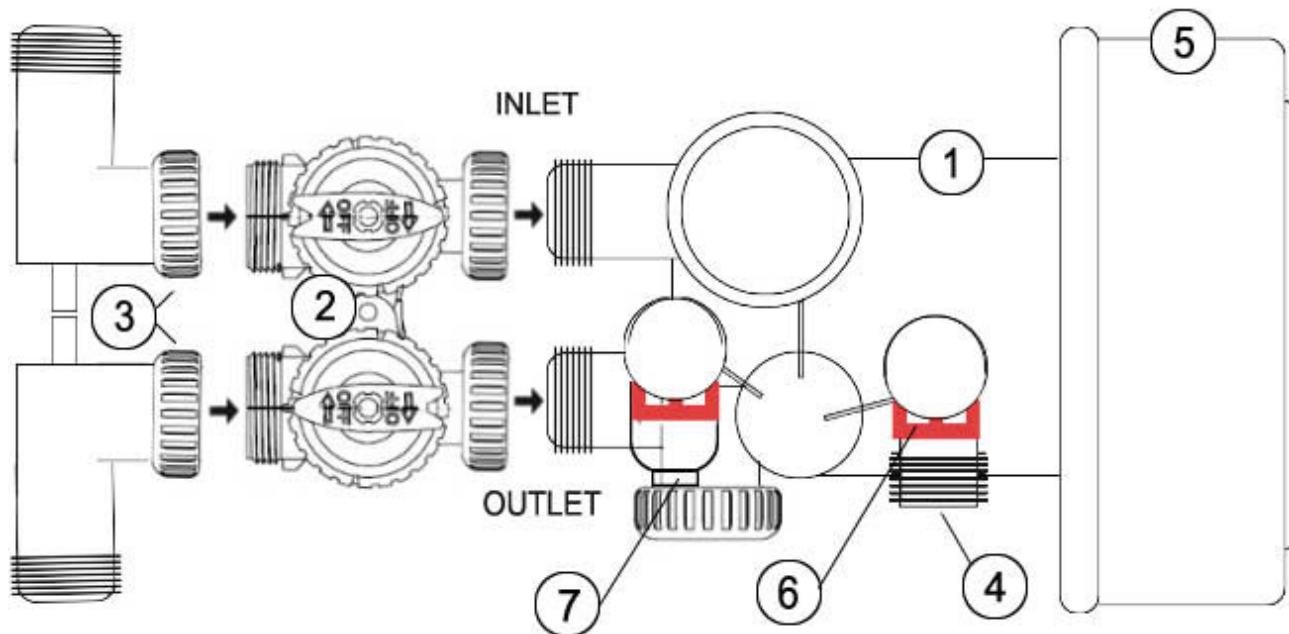
TEFLON® TAPE IS THE ONLY SEALANT TO BE USED ON THE 1" NPT CONNECTORS AND DRAIN FITTINGS.



IF YOU WISH TO USE COPPER PIPING FOR YOUR INSTALLATION AND WILL BE SOLDERING THE JOINTS, DO NOT APPLY HEAT NEAR YOUR CONTROL VALVE, BYPASS ASSEMBLY, 1" NPT CONNECTORS, OR THE DRAIN FITTINGS; OTHERWISE SERIOUS DAMAGE TO THESE PARTS COULD OCCUR. ALWAYS SOLDER JOINTS WITH THESE COMPONENTS DETACHED. IF YOU ARE USING COPPER ADAPTERS TO CONNECT TO THE 1" NPT CONNECTORS, IT IS RECOMMENDED THAT YOU SOLDER A 6" PIECE OF COPPER PIPE INTO EACH OF THE CONNECTION ADAPTERS AWAY FROM THE VALVE, THEN LET THEM COOL OFF BEFORE THREADING THEM ONTO THE 1" NPT CONNECTORS.

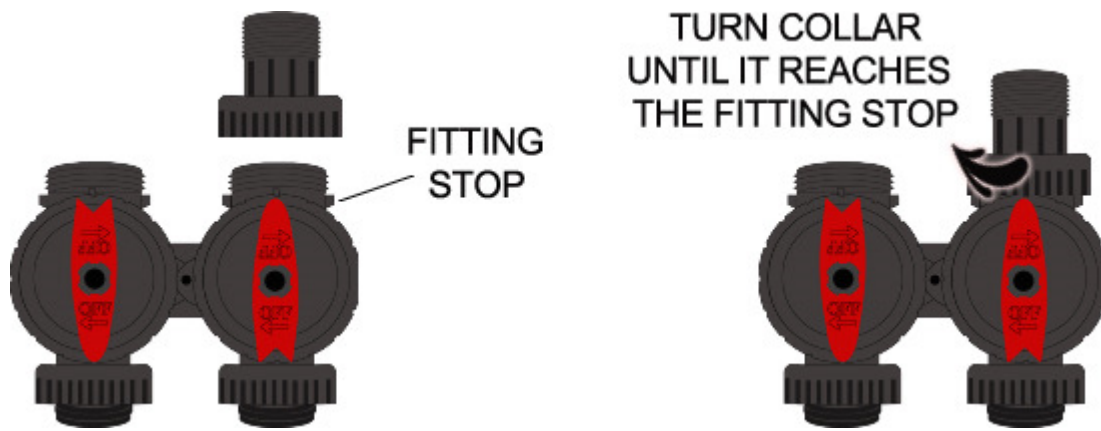
Key Control Valve Components:

1. Control Valve Body
2. Bypass Valve
3. 1" NPT (Male) Elbow Connectors
4. Drain Line Flow Control (DLFC)
5. Valve Cover
6. DLFC Retention Clip
7. Brine Port

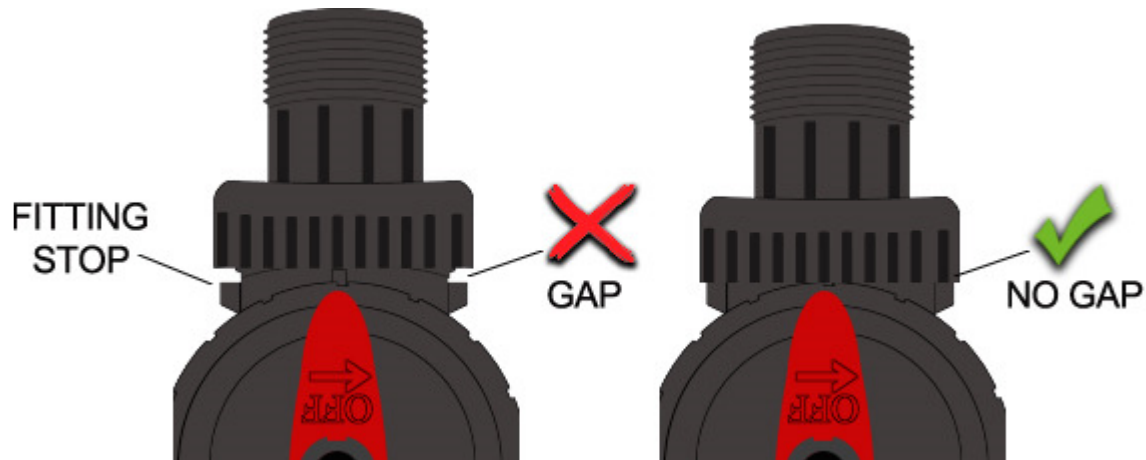


The system's control valve is connected to your incoming and outgoing water lines by way of a bypass assembly composed of the bypass valve itself and two 1" NPT elbow connectors. You will need to purchase the appropriate NPT threaded fittings to connect your incoming and outgoing waterlines to the connectors. The elbows can be installed and rotated to allow for your plumbing connections to come from the side, above, or below the control valve depending on the configuration of your water lines.

Thread the connectors on to the bypass assembly as shown below. For illustration purposes only, the elbow connectors are shown below as straight connectors rather than elbows. Note the position of the fitting stop. The threaded collar of the connector should thread right up to the fitting stop.



If there is a gap between the outlet adapter's collar and the fitting stop, it is not threaded on far enough. Excessive force is not required to obtain a good seal. Do not over-tighten.



Thread the bypass valve on to the back of the HydraPlus™ control valve in the same manner. The threaded collars of the bypass assembly should thread right up to the fitting stops with no gap. Excessive force is not required to obtain a good seal. Do not overtighten - it is normal for some “play” to exist when the bypass valve is properly seated. This allows for minor misalignment of the piping connections and relieves stress on the valve. The bypass valve should be mounted with the red handles facing up.

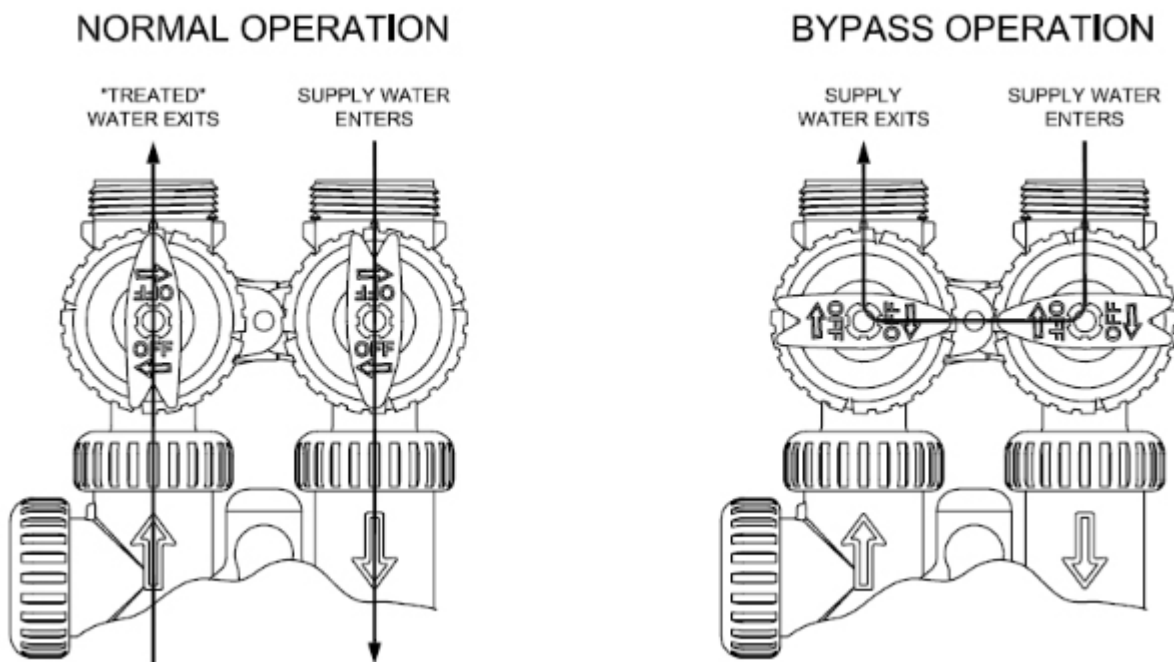
Locate the inlet and outlet ports on the back of the control valve. Note that the inlet and outlet are marked with arrows indicating the correct direction of water flow.



BE VERY CAREFUL TO MAKE SURE YOU PLUMB THE SYSTEM IN THE RIGHT DIRECTION.

Plumb your main incoming and outgoing water lines using suitable pipe, fittings, elbows, etc. as necessary to create a tidy, secure installation up to the back of the bypass assembly (including the correct adapters to mate with the threaded fittings on the connectors). Teflon tape is the only sealant that should be applied to the threaded connectors to mate with your plumbing adapters. Be sure to follow all local plumbing codes. You can temporarily remove the connectors and/or bypass valve to make connections if you prefer (recommended).

Place the bypass in the “bypass operation” position as pictured:



Step 6. – Drain Line Installation

WARNING

NOTE: NEVER CONNECT THE DRAIN LINE DIRECTLY INTO A DRAIN. ALLOW AN AIR-GAP OF A MINIMUM OF 1 INCH (CHECK LOCAL CODES) BETWEEN THE DRAIN LINE AND WASTE LINE TO PREVENT THE POSSIBILITY OF BACK-SIPHONING. ALWAYS FOLLOW LOCAL CODES. THE DRAIN LINE SHOULD NOT BE EXPOSED TO FREEZING TEMPERATURES.

During the backwash cycle, your system will send captured sediments, waste water, and waste brine out the drain port. This port needs to be connected to a suitable drain, ideally within 20 feet of your media tank. A nearby floor drain, sump pump, or a standpipe for a

washing machine is an excellent option. We recommend that the drain line be connected to a minimum 1 1/2 inch drain standpipe or floor drain located ideally below the top of the control valve of your water filter.

Locate the drain port on the back of your control valve. The drain line flow control assembly (DLFC) is pre-attached to the control valve. The DLFC is an elbow shaped black plastic fitting with 3/4 inch male NPT threads. This fitting contains a flow control washer that limits the backwash flow rate. You will need to purchase suitable pipe or tubing for the drain line, not less than 1/2 inch in diameter (3/4 inch recommended).

Polyethylene tubing, PEX, PVC, CPVC, or copper pipe and polyethylene tube are all acceptable material choices for the drain line. If you are using flexible tubing, be sure that there are no "kinks" in the tubing after installation that may cause a flow restriction. If used, overhead drain lines are not to exceed a height of 5 feet above the control valve and should be not more than 50 feet in length. Should an overhead drain line be utilized, it is recommended that the drain line be increased in size (diameter - not less than 3/4 inch), and that it not be fastened flush to the bottom of a floor joist to minimize noise transfer to the upstairs of the building during regeneration.

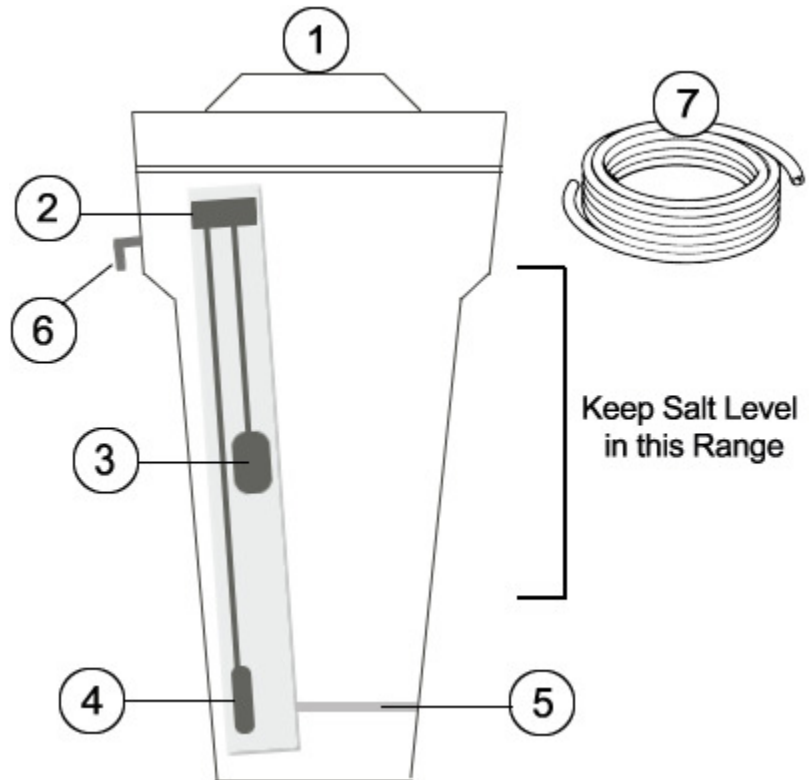
Using an appropriate fitting, connect the drain line flow control to your drain line tubing/pipe. The DLFC can be removed from the control valve to facilitate easier plumbing if desired. To remove the drain line flow control, pull on the red retaining clip to remove it and then grasp the drain line flow control and pull outward (up). You may wish to dry-fit the fitting first to make sure you line up the drain line properly with the drain port on the control valve if you are using rigid pipe. Teflon tape is the only sealant that should be used on the connection between the DLFC adapter and your drain line plumbing adapter.

Re-insert the DLFC into the control valve and securely lock into place with the retaining clip when done.

Ensure that the drain line is thoroughly secured along its route to the drain. The drain line will be under pressure when the backwash cycle is working. If not adequately secured, the drain line could vibrate during backwash causing excessive noise. If this is experienced, use additional fixtures to better secure the drain line.

Step 7. – Brine Tank Connections

1. Brine Tank Lid
2. Brine Valve
3. Safety Float
4. Air Check Valve
5. Salt Grid
6. Brine Overflow Elbow
7. Brine Tubing



We recommend that the brine tank be located as close as possible to the treatment tank and control valve, however, it can be up to 10 feet away if necessary.

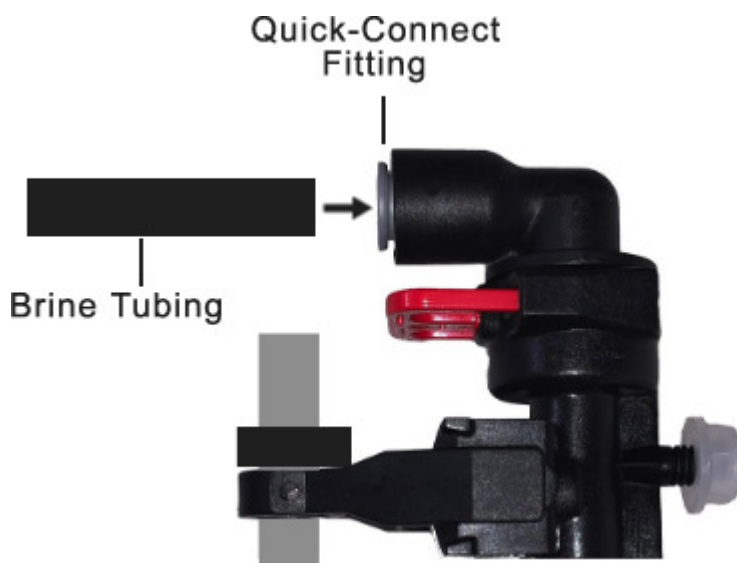
Locate the brine port on the left side of your control valve (when facing the front of the control valve). See #7 on the diagram on page 17.

1. Make sure that the end of the brine tubing is cut clean and square and that the tubing coating is smooth, unmarred, and undamaged. Remove any burrs or debris from the cut.
2. Push the end of the tube firmly into the brine port. This is a quick connect style connection. You should feel when the tubing bottoms out in the fitting. Pull out on the fitting to make sure that it has made a good connection. The quick connect fitting contains “teeth” that grip the tube to prevent it from being pulled out, and an o-ring which creates a water-tight seal.

Should you ever need to disconnect the brine tubing from the brine port, simply push the grey collar on the brine port fitting in towards the control valve while you pull out on the tubing.

Remove the lid off the top of the brine tank. Look inside your brine tank and you will see a vertical white tube called the brine well. Remove the cap from the top of the brine well. Inside the brine well, you will find the brine valve with air check and safety float. The other end of the brine tubing connects to the top of the brine valve. The brine tank includes quick connect fitting similar to the one on the brine port of the control valve.

There is a small hole drilled in the brine tank and brine well that you insert the brine tube through to connect it to the brine valve. Feed a small length of brine line through this hole and connect it to the brine valve assembly in the same manner that you connected to the control valve.



If you have an excessive length of brine line, you should trim it to a more appropriate length first. The brine tubing should be as short and straight as possible. Make sure that the end of the brine tubing is cut square and that the tubing coating is smooth, unmarred, and undamaged. Confirm that there are no kinks in the brine line.

Step 8. – Connect the Brine Tank Overflow to Drain

Locate the plastic overflow elbow on the side of your brine tank. This is a safety overflow that will allow water to be safely carried to a drain in the event that the system attempts to overfill the brine tank AND the brine tank safety float fails. It should be connected to a suitable drain if an overflow would not immediately and safely run down a floor drain on its own.

You may use the same material as was used to plumb your drain line connection from the control valve or other suitable material. 1/2 inch I.D. vinyl tubing is a popular option, but you need to ensure that this material cannot become kinked or crimped.

This overflow drain line will not be under pressure, so it must be directed to a drain that is physically lower than it is. DO NOT connect this drain line into the pressurized drain line coming from the control valve. It must be run separately to the drain. Be sure to leave a 1" air gap at the drain to prevent back-siphoning. This is only a safety overflow drain and will not be in use under normal operation. Depending on your installation, running the drain tubing to an open basement floor drain is often possible. Secure the drain tubing to the elbow with a suitable fitting or hose clamp.

Step 9. – Control Valve Set-up

During cold weather, the installer should warm the control valve to room temperature before operating. Note: All electrical connections must be done according to local codes.

Plug the control valve into a standard, grounded 120 volt (60 Hz) electrical outlet. Be certain that the outlet is uninterrupted and not controlled by a switch. An extension cord may be used to reach a suitable electrical outlet. Ensure that the extension cord is UL/CSA certified and of an appropriate wire gauge for the application.

BUTTON FUNCTIONS:

Before proceeding, you should familiarize yourself with the functions of each of the buttons on the control valve.

CLOCK



This button is used to access the clock to set the time of day.

NEXT



Pressing this button will advance the screen to the next display.

UP

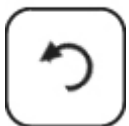


DOWN



The UP and DOWN buttons are used to change the variable being displayed on the screen during most of the programming steps.

REGEN



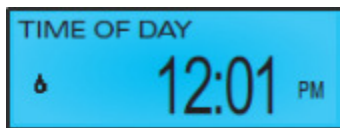
Press once to schedule a regeneration to take place the next time that the actual time matches the programmed regeneration time. Press again to cancel a

scheduled regeneration. Press and hold for 3 seconds to start an immediate regeneration. Pressing this button while the system is in regeneration will advance the valve to the next regeneration cycle. During programming, using this button allows you to go back to the previous screen/display.

Once plugged in, the digital display on the control valve will illuminate. The control valve may need to reset to the home position when it is powered up. If it does, the motor will run for a few seconds.

USER DISPLAYS:

When the system is operating, one of five displays may be shown. Pressing **NEXT** will alternate between the user screen displays shown below.



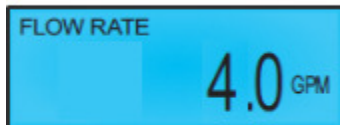
User Display 1 - This is the main user display. Shows time of day and droplet of water indicates water is currently flowing.



User Display 2 - Shows volume remaining to next regeneration. This screen will not be viewable if the control is set for time-clock operation.



User Display 3 - Displays number of days to next regeneration. Not shown when day override set to off.



User Display 4 - Flow Rate. Displays the current flow rate of treated water through the valve in U.S. gallons per minute.



User Display 5 - Displays dealer contact name and number for service and support (when programmed in the Installer Level Settings Mode below).

SETTING THE TIME:

We will first set the time of day to the correct time following the instructions below.

Time of day should only need to be set after power outages lasting more than 8 hours, if the battery has been depleted and a power outage occurs, or when daylight savings time begins

or ends. If a power outage lasting more than 8 hours occurs, the time of day on User Display 1 will flash on and off to indicate the time of day should be reset. If a power outage lasts less than 8 hours and the time of day flashes on and off, the time of day should be reset AND the battery replaced.

Press and hold the **CLOCK** button until TIME HOUR is displayed and the Hour and AM/PM flash.



Press **UP** or **DOWN** to adjust the hours until the correct hour and AM/PM are displayed.

Then press **NEXT**. The Minutes will flash.



Press **UP** or **DOWN** until the correct minute is displayed.

Press **NEXT** to save the changes you have made and to return to main user display screen (Time of Day).

INSTALLER LEVEL SETTINGS:

At any time as you work through the installer settings, you can select **REGEN** to return to the previous step.

If the screen is not illuminated, press any button to activate the display. Press **NEXT** and **UP** simultaneously for 3 seconds and release. If the screen does not display WATER HARDNESS, the valve will need to be unlocked before you can enter the Installer Level Settings. To unlock the valve, press **DOWN**, **NEXT**, **UP**, and **CLOCK** in sequence.

WATER HARDNESS



This setting is a key factor that determines how often your water treatment system needs to regenerate. How you determine this setting will depend on the type of system you have, as follows:

For WS-8-HP / WS-10-HP / WS-FM-HP / WS-SST-HP Water Softeners:

The water hardness level should be set at the level of the raw (untreated) hardness from the most recent water test, in grains per gallon (GPG), adjusted for iron and manganese content. We recommend that this setting be determined as follows:

If the hardness level is expressed in ppm or mg/l, first divide by 17.1 to convert to hardness expressed in grains per gallon (GPG).

Then, calculate the Iron Adjustment Factor as follows:

$$(\text{iron level in ppm or mg/l} + \text{manganese level in ppm or mg/l}) \times 4$$

The recommended feed water hardness setting is equal to:

$$\text{Hardness in GPG} + \text{Iron Adjustment Factor}$$

For WS-EMP-HP / WS-EMC-HP Ecomix Systems

This water hardness level should be set at the level of the raw (untreated) hardness from the most recent water test, in grains per gallon (GPG). No adjustment for iron or manganese is required. If the hardness level is expressed in ppm or mg/l, first divide by 17.1 to convert to hardness expressed in grains per gallon (GPG).

For T-HP Tannin & Organics Filters

For tannin and organics filters the “water hardness” level that we program will not actually be the water hardness from the water but rather, this setting will be based on the amount of organics in the source water. The “water hardness” level should be set at 10 times the level of Total Organic Carbon (TOC) in mg/l or ppm on the most recent water test. Eg. if your TOC level is 5 mg/l (ppm), you should set your “water hardness” at 50.

Press **UP** or **DOWN** until the correct “water hardness” level is displayed. Then, press **NEXT** to advance to the next parameter.

DAY OVERRIDE

This is the setting that determines the minimum frequency of regeneration (measured in days). For systems used on city water supplies, this parameter is normally set at 14 days. For systems operated on a private well or surface water supply, especially where iron or manganese are present, this setting is usually set at 7 days. Adjust according to the setting applicable to your application.



Press **UP** or **DOWN** until the correct day override is displayed. Then, press **NEXT** to advance to the next parameter.

REGENERATION TIME

This is the setting that determines the time of day that the automatic regeneration will start. It is strongly recommended that regeneration be set to occur at night when water will not be in use. If you have other water treatment equipment that regenerates or backwashes (such as an iron filter or carbon filter), make sure that this system is not set to regenerate at the same time. Be sure to take into account the complete regeneration duration of the other equipment, not just the start time when considering this. The factory default is 2:00 AM. You can select a different time if desired.



Press **UP** or **DOWN** until the desired regeneration hour (including AM/PM) is displayed. Then, press **NEXT**.



Press **UP** or **DOWN** until the desired regeneration minutes are displayed. Then, press **NEXT** to advance to the next parameter.

SCREEN LIGHTING

This setting will determine if the blue backlit display screen is always illuminated. Select YES if you always want the display illuminated. Select NO (recommended) if you want the illumination to automatically turn off when the valve control panel is not in use. The display will automatically turn back on when any button is pressed.



Press **UP** or **DOWN** until the desired choice is displayed. Do **NOT** press **NEXT** yet!

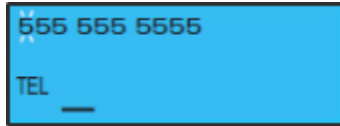
DEALER CONTACT INFORMATION

The HydraPlus™ control valve allows you to program the name and phone number of the installer/dealer into the control valve. This information will be displayed to the user in the

user menu, if any service alarm is triggered, or in the event of a valve error code so the user knows who to call for assistance and service. This is optional.

If you do NOT want to program this information, press **NEXT** to exit Installer Level Settings.

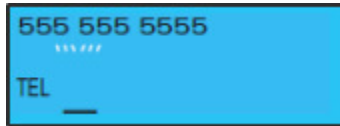
If you do want to program this information, press **CLOCK** and **UP** simultaneously for 3 seconds and release.



You will be first prompted to enter the phone number of the installer/dealer. Press **UP** or **DOWN** to adjust the first digit of the number. When correct, press **NEXT** to go to the next digit position.

Repeat until the entire dealer phone number is complete.

Continue to press **NEXT** until the screen advances to the Dealer Name.



Press **UP** or **DOWN** to change the first character in the name (note that capital and lower case letters and some symbols are available in the menu). Press **NEXT** to go to the next digit position.

Repeat until the dealer name is complete.

Continue to press **NEXT** until the system returns to the User Display 1 - Main user display (Time of Day). The Installer Level Settings are now complete.

SERVICE REMINDER ALARM (OPTIONAL)

The HydraPlus™ valve allows for a service alarm based on either time, gallons of water treated, or both, to be set to notify user to when valve servicing (eg. piston/seal replacement) or media replacement is required. When the pre-set amount of time or volume of water treated is reached, an alarm will occur and the user will be presented with a screen with the dealer's name and phone number to call for service. By default, the service alarm is set to OFF. To enable and set-up the service alarm interval(s), following the instruction below:

Press **NEXT** and **DOWN** simultaneously for 3 seconds. TYPE-SOFTENER/DOWNFLOW should appear on the screen. Note: you have entered the Configuration Settings mode and will be given options to adjust other parameters. We do not generally recommend that you adjust these settings. They have been optimally configured at the factory for this model. Press **NEXT** repeatedly to skip over these other settings parameters until SERVICE ALARM appears on the screen. Press **UP** or **DOWN** to select one of the follow options:

Off: No service reminder alarm. This is the default setting.

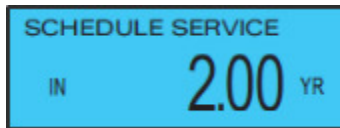
Time: If this is selected, the user will receive a service reminder alarm when the pre-selected amount of time elapses. You select a time interval in years (decimals permitted).



Press **NEXT** and the following screen will appear:



Press **UP** or **DOWN** to select the desired time interval for the service reminder alarm. Once you have reached the desired setting, press **NEXT** and you will get a confirmation screen indicating when the next service reminder alarm will occur:



Press **NEXT** to exit the service reminder alarm programming.

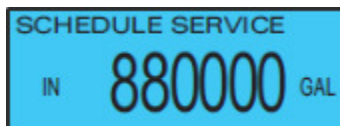
Gallons: If this is selected, the user will receive a service reminder alarm when the pre-selected number of gallons treated is reached.



Press **NEXT** and the following screen will appear:



Press **UP** or **DOWN** to select the desired volume interval for the service reminder alarm. Once you have reached the desired setting, press **NEXT** and you will get a confirmation screen indicating when the next service reminder alarm will occur:



Press **NEXT** to exit the service reminder alarm programming.

Both: If this is selected, service reminder alarms will be triggered when either the time or gallons thresholds are reached.



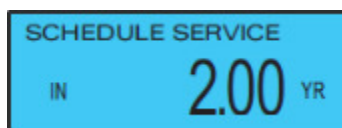
Press **NEXT** and the following screen will appear:



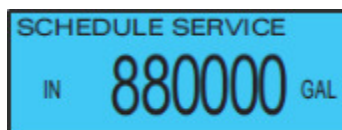
Press **UP** or **DOWN** to select the desired time interval for the service reminder alarm. Once you have reached the desired setting, press **NEXT**.



Press **UP** or **DOWN** to select the desired volume interval for the service reminder alarm. Once you have reached the desired setting, press **NEXT** and you will get a confirmation screen indicating when the next time-based service reminder alarm will occur:



Press **NEXT** and you will get a confirmation screen indicating when the next volume-based service reminder alarm will occur:



Press **NEXT** to exit the service reminder alarm programming.

Step 10. – Initial Start-up and Leak Testing

Make sure the white salt grid is correctly positioned at the bottom of the brine tank.

Once you add salt, the brine tank will be difficult to move, so it is important that it be located in the desired location now. Do not add salt yet! Position the brine tank in its permanent location and add water to it until the water level is roughly 4 inches above the top of the salt grid. This will not be the permanent water level in your brine tank. The control valve will determine the proper amount of water to put into the brine tank. We are adding water to the tank at this time for initial testing purposes only.

Add 3 tablespoons of standard 5 to 6% unscented household bleach (sodium hypochlorite) to the water in the brine tank. This will be used to disinfect your system as part of the start-up process.

Ensure that the bypass valve is in the bypass position (see Figure on Page 19). Open a nearby cold water faucet. A faucet without an aerator screen is best. Slowly turn on the main water supply valve to your home and allow the water to run for a few minutes or until the system is free of foreign material and air that may have resulted from the installation.

Once the water is running clear and free of air, slowly open the bypass valve to let water run through the treatment tank. Run the water for several minutes until all air is purged from the system, then close the water faucet.



CAREFULLY INSPECT YOUR PLUMBING CONNECTIONS AND CONTROL VALVE FOR LEAKS AND REPAIR ANY LEAKS FOUND BEFORE PROCEEDING.

Press the **REGEN** button and hold it down for about 3 seconds to engage a full regeneration cycle. Allow the backwash to complete its whole cycle.

After the backwash cycle, the valve piston will automatically re-position and the valve will begin the brine draw/slow rinse cycle. During this cycle, check the brine tubing connections at the control valve and brine valve for leaks. Tighten fittings if necessary. Inspect the water level in the brine tank and observe whether the water level is declining, indicating that the control valve is drawing brine as it should. If the system is not drawing water from the brine tank, check all connections for air leaks and check the brine tubing for kinks that may be blocking brine flow. If this does not resolve the problem, call us for assistance. Allow the cycle to run for at least 15 minutes.

Once you have confirmed that you have a proper brine draw and you have waited at least 15 minutes, press the **REGEN** button to advance to the second backwash cycle. Once the countdown begins and you no longer hear the motor running, press the **REGEN** button again to advance to the rinse cycle. Allow this cycle to run for its full duration.

When the rinse cycle is complete, the control valve will enter the brine fill cycle. During this cycle, the control valve sends a very specific amount of water to the brine tank to make brine solution for the next regeneration. This volume of water plays a very important role in the salt efficiency of your system. Check to make sure that the water level in your brine tank is now slowly rising. If not, contact us for assistance. When this cycle is complete, your control valve will return to normal service mode.



INSPECT ALL OF YOUR PLUMBING CONNECTIONS AND REPAIR ANY LEAKS IMMEDIATELY BEFORE PROCEEDING. IF THE DRAIN PIPE RATTLED OR VIBRATED

DURING THE REGENERATION PROCESS CAUSING EXCESSIVE NOISE, USE ADDITIONAL FASTENERS TO BETTER SECURE THE DRAIN LINE.

You can now add salt to your brine tank. The salt is not included with your system but can be purchased from most major department stores, grocery stores, home stores, and hardware stores as needed. See "Salt" below.

Open a nearby cold water tap (after the water treatment system) and let the water run for 5 to 10 minutes until the water is running clear. Repeat for other faucets in the building starting at the highest elevation and working down to the lowest point until all air is purged. The initial flow of water may be slightly discolored. This is normal and will go away quickly.

It is now safe to turn the electricity back on to your water heater.

Congratulations!
The system is now ready to provide treated water!

Keep in mind that the hot water heater may be full of untreated water so it may take a couple of days before all water used in the building is fully treated.

REGENERATION

Water softeners and other ion exchange filters (Ecomix / tannin and organics filters) remove problem contaminants through a process called **ion exchange**. The ion exchange media/resin attracts oppositely charged ions. These contaminants cling to the resin and are removed from the water stream. As the resin becomes saturated with contaminants over time, the system is designed to perform an automatic self-cleaning process called regeneration on a periodic basis. Water softeners and Ecomix-P filters use sodium ions from common salt to eject contaminants off of the resin - the sodium ions are "exchanged" for the contaminants and the sodium ions cling to the media instead. The contaminants and excess salt brine are backwashed / rinsed down the drain. A tannin and organics filter works the same way except it uses the chloride ions from the salt to regenerate. Ecomix-C filters use both.

The salt used to regenerate the media is stored in a brine tank which sits beside the system. All you have to do is add salt to the brine tank periodically (only once or twice per month for most systems). Forgetting to keep salt in the brine tank is the most common cause of poor

system performance and resin fouling. If you feel you will not remember to keep your salt level topped up when required, ask your dealer about WIFI-enabled salt level warning devices. They are not very expensive (generally under \$200) and by ensuring you are notified when your salt level is low, they can help prevent system failure and long-term damage to your resin, thereby extending service life.

The regeneration process is automatically engaged and controlled by your control valve based on your water demand.

There are 5 steps to the regeneration process:

Step 1: Backwash: factory pre-set for 8 minutes

Step 2: Draw: factory pre-set for about 60 minutes

Step 3: Second Backwash: factory pre-set for 3 minutes

Step 4: Rinse: factory pre-set for 5 minutes

Step 5: Fill: factory pre-set for 14 to 23 minutes depending on the size of your system and salt efficiency setting

Each time the system regenerates, salt water (brine) is needed to recondition the resin in the water tank. The brine is pulled from the brine tank at a controlled rate. If the salt tank does not contain enough salt, the brine will be weak and the media will not be fully reconditioned, and untreated water will pass through.

See "Salt" Below.

Note, unless otherwise stated, all of our water softeners and Ecomix filters are factory pre-set to operate at high salt efficiency with capacity and all regeneration settings based on a salt dose of 6 lbs per cubic foot of resin. Tannin filters are also pre-set at a salt-dose of 6 lbs per cubic foot. Additional capacity can be achieved at higher dose settings if desired. Please consult your dealer for advice if you would like to re-configure your system at a higher capacity and salt dose. Be aware that such changes will result in a less efficient system and higher salt consumption.

During each step of regeneration, the digital display on the control valve will indicate the cycle currently underway and the amount of time remaining in that cycle.

Unless directed by a water treatment professional familiar with this system, we do not generally recommend that you alter the duration of any of the cycles. Consult a water treatment professional if you would like to make such changes.

If your feed water conditions change, you should adjust the hardness level setting. See “Installer Level Settings” above.

MANUAL REGENERATION:

If desired, you can choose to initiate a manual regeneration either immediately, or the next time the backwash time of day is reached:

To initiate a manual regeneration the next time the backwash time of day is reached:

Press the **REGEN** button once. An arrow will appear to indicate that a regeneration is scheduled to happen the next time the regeneration time of day is reached.

To cancel a queued regeneration, press the **REGEN** button.

To initiate an immediate manual regeneration:

Press the **REGEN** button and hold it down for several seconds until the regeneration process begins.

SKIP THROUGH THE REGENERATION STEPS:

There may be times that it may be desirable to skip through regeneration steps without allowing them to fully complete. This would be most typical during servicing. When a cycle engages, always wait until the motor has stopped before skipping to the next cycle. You can hear the valve motor while it is repositioning the valve at the beginning of each cycle. During the regeneration process, you can advance to the next step by pressing the **REGEN** button.

The control valve will continue to keep time and the passage of days for a minimum of 8 hours in the event of power failure.

SALT

You must keep salt in the brine tank. If you run out of salt, your system will stop working properly, and permanent media damage could result if left without salt for an extended period of time. Check the salt level every 2-3 weeks. WIFI enabled salt-monitors are available from your supplier. These systems will send an alert to your smart phone when your salt level is low. They are highly recommended.



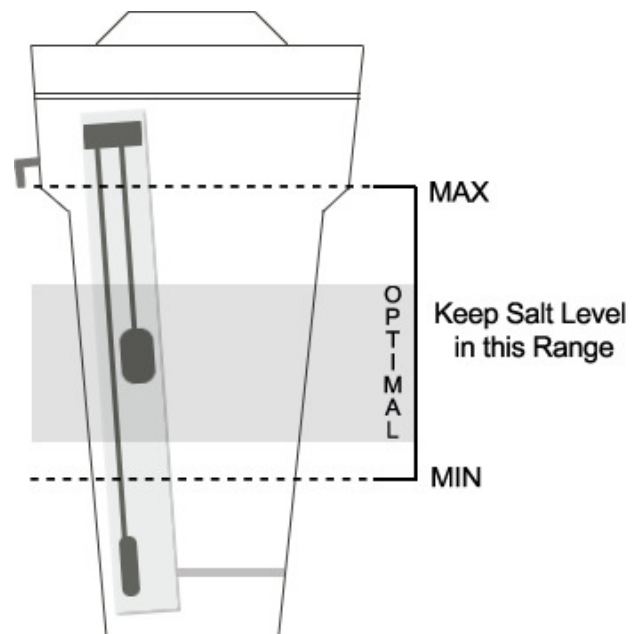
THE BRINE TANK SHOULD BE KEPT TOPPED UP WITH SALT AT ALL TIMES. THE MINIMUM RECOMMENDED SALT LEVEL IS 6 INCHES ABOVE THE SALT GRID AND THE MAXIMUM RECOMMENDED LEVEL IS 1 INCH BELOW THE BRINE OVERFLOW ELBOW.

You should only use sodium chloride or potassium chloride pellet salt specifically designed for use in water softeners. Other types of salt (rock or snow melting salt for instance) will contain dirt and chemicals that will affect your water softener. If you choose to use potassium chloride salt, consult with your dealer as programming adjustments will be required due to the lower regeneration efficiency of potassium vs. sodium-based salt.

Keep the brine tank covered, and empty and clean the brine tank annually.

If you have more than 0.3 ppm (mg/l) of iron, and/or more than 0.05 ppm (mg/l) of manganese in your water, we recommend that you use salt with a cleaning additive except in the case of Ecomix models where salt without any cleaning additives is recommended.

Most pellet shaped salts have such an additive. Alternatively, you can add a 4 oz pouch of Pro Products Rust Out (#RO24S) to your brine tank each time you add a bag of salt. This will protect your resin from iron and manganese fouling.



SALT BRIDGING

It is sometimes possible for the salt pellets to wedge against each other and fail to fall into the water at the bottom of the brine tank. This is called bridging and it will prevent the formation of an effective brine solution. The softener will try to regenerate but will not properly recondition the resin. A salt bridge can be broken up using a broom handle or similar rod. Carefully pound it into the salt to cause the salt bridge collapse. After loosening the salt pellets, wait 4 hours, then start a manual regeneration. A second regeneration may be needed to fully recondition the media. If bridging happens frequently, reduce the amount of salt that you add to the brine tank when you re-fill it - approximately half full is often best to prevent this problem

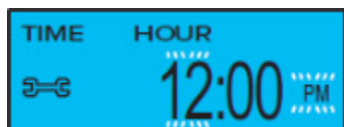
SODIUM

All water softeners and Ecomix filters will add some sodium or potassium (depending on which type of salt is used) to the treated water. Tannin and organics filters and Ecomix-C filters will add some chloride to the water. We recommend the use of a point-of-use drinking water filter featuring reverse osmosis technology to remove the sodium/potassium/chloride from the drinking and cooking water. This is particularly important for individuals requiring a low sodium diet for health reasons such as high blood pressure or heart disease. These systems are relatively inexpensive and provide exceptional quality drinking water. More info can be obtained from your dealer.

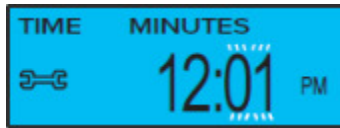
CHANGING TIME OF DAY

Time of day should only need to be set after power outages lasting more than 8 hours, if the battery has been depleted and a power outage occurs, or when daylight savings time begins or ends. If a power outage lasting more than 8 hours occurs, the time of day will flash on and off which indicates the time of day should be reset. If a power outage lasts less than 8 hours and the time of day flashes on and off, the time of day should be reset and the battery replaced.

Press the **CLOCK** button until TIME HOUR is displayed and the Hour and AM/PM flash.



Press **UP** or **DOWN** to adjust the hours until the correct hour is displayed and AM/PM is displayed correctly. Then press **NEXT**. The Minutes will begin to flash.



Press **UP** or **DOWN** until the correct minute is displayed.

Press **NEXT** to save the changes you have made and to return to main user display screen (Time of Day).

ADVANCED SETTINGS

The HydraPlus™ system has two additional programming levels that are available to dealers and water treatment professionals to customize how the system operates: All of the settings for these levels are pre-configured at the factory. We recommend that they only be altered by those with significant knowledge of the implications of the settings changes. Please refer to the “*HydraPlus™ Master Programming Guide*” for instructions on how to enter these advanced settings levels, and make modifications to the default settings.

Configuration Level

In the Configuration Level programming, you can set up the operation of accessories such as MAV valves and differential pressure sensors. You can also set up the type and order of the regen cycles (ex. Program a pause part way through the regeneration to allow the well to re-charge, etc.)

Set-Up Level

In this level, you establish the type of system (softener, filter, AIO, etc), the duration of cycles, system capacity, operation of the 2 relays, and service reminder thresholds.

OPERATION DURING A POWER FAILURE

The HydraPlus™ valve/controller includes integral power backup. In the event of power failure, the controller shifts into a power-saving mode. The display and motor shut down, but it continues to keep track of the time and day for a minimum of 8 hours.

If power fails while the unit is in backwash, the control will save the current valve position before it shuts down. When power is restored, the control will resume the regeneration cycle

from the point where power failed. Note that if power fails during a regeneration cycle, the valve will remain in its current position until power is restored.



THE DRAIN LINE PLUMBING CONFIGURATION SHOULD INCLUDE ALL REQUIRED SAFETY COMPONENTS TO PREVENT OVERFLOWS RESULTING FROM A POWER FAILURE DURING BACKWASH.

The controller will not start a new regeneration cycle without power. If the valve misses a scheduled regeneration due to a power failure, it will queue a regeneration. Once power is restored, the controller will initiate a regeneration cycle the next time that the time of day equals the programmed regeneration time. Typically, this means that the valve will regenerate one day after it was originally scheduled.

MAINTENANCE, TROUBLESHOOTING & DIAGNOSTICS



THE CONTROLLER MUST BE DEPRESSURIZED BEFORE SERVICING. THE EASIEST WAY TO DO THIS IS TO SET THE BYPASS VALVE TO THE BYPASS POSITION AND THEN START A MANUAL REGENERATION. THIS WILL OPEN THE DRAIN AND ALLOW THE PRESSURE TO BE RELEASED.

After completing any valve maintenance involving the drive assembly or the drive cap assembly and pistons, unplug power source jack from the printed circuit board (black wire) and plug back in. This resets the electronics and establishes the service piston position.

Maintenance Recommendations

The HydraPlus™ valve is built for long term operation with limited maintenance. The seals and spacers and piston assembly require periodic servicing or replacement, generally every 2 to 5 years.

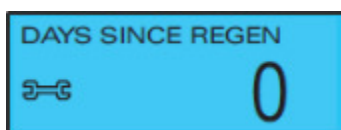
Replacement Piston: Part #V3011 - Clack WS1 Piston Assembly - Downflow
Preplacement Seal & Spacer Stack: Part #V3005-02 - Clack WS1 Spacer Stack Assembly

Please refer to the “HydraPlus™ Master Programming Guide” for part diagrams.

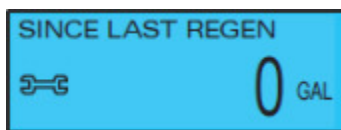
The resin/filter media should be replaced on the schedule recommended by your water treatment professional.

DIAGNOSTIC MODE:

Press any button to activate the display. Press **UP** and **DOWN** simultaneously for 3 seconds and release. If the SINCE LAST REGEN screen shown below does not appear, the lock on the valve is activated. Unlock the valve first by using the button sequence: **DOWN, NEXT, UP**, and **CLOCK**.



Displays the days since the last regeneration cycle.
Press **NEXT** to go to the next parameter.



Displays the gallons treated since the last regeneration cycle.
Press **NEXT** to go to the next parameter.

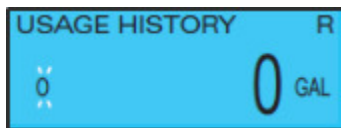


Displays the Reserve History. Use the **UP** or **DOWN** buttons to review past reserve capacities.

- “0” = Basic Reserve for the current day based on that days usage for the prior 4-6 weeks;
- “1” = Reserve for yesterday (1 day ago);
- “6” = Reserve for 6 days ago;

Display viewed only when the reserve capacity is determined by the controller.

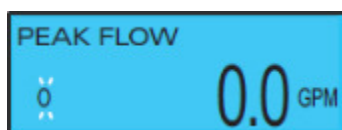
Press **NEXT** to go to the next parameter.



Displays the Usage History for up to the last 63 days. Use the **UP** or **DOWN** buttons to review past usage.

- “0” = Today;
- “1” = Yesterday (1 day ago);
- “63” = 63 days ago (max);
- “R” = Is shown for the 24 hour time period in which regeneration occurred

Press **NEXT** to go to the next parameter.



Displays the Maximum Flow Rate History for the past 7 days. Use the **UP** or **DOWN** buttons to select the day. Reset by pushing both the **UP** and **DOWN** buttons simultaneously for 3 seconds.

Press **NEXT** to Exit Diagnostics Mode.

CONTROLLER HISTORY MODE:

You can access controller history information for diagnostic purposes as follows:

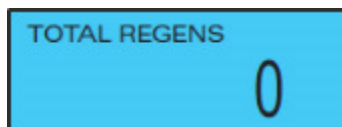
Press any button to activate display. Press **UP** and **DOWN** simultaneously for 3 seconds and release. Press **UP** and **DOWN** simultaneously for 3 seconds again and release. If the SOFTWARE VERSION screen shown below does not appear, the lock on the valve is activated. Unlock the valve first by using the button sequence: **DOWN, NEXT, UP**, and **CLOCK**.



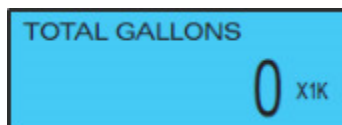
Displays the current software version installed.
Press **NEXT** to go to the next parameter.



Displays the total days since valve start-up. Time accumulates only when unit is plugged in. Press **NEXT** to go to the next parameter.



Displays the total number of regeneration cycles since valve start-up. Press **NEXT** to go to the next parameter.



Displays the total gallons used since valve start-up.
Press **NEXT** to go to the next parameter.



Displays the Error Log. Use the **UP** or **DOWN** buttons to review the last 10 logged error codes. With logged drive errors, motor position at the time of error detection is recorded in the top line of this display. Press **NEXT** to exit Controller History.

ERROR CODES AND TROUBLESHOOTING

Please refer to the “*HydraPlus™ Master Programming Guide*” for detailed description of error codes and troubleshooting procedures.

WARRANTY INFORMATION

HydraPlus™ systems are backed by a comprehensive warranty program.

The HydraPlus™ control valve is subject to a 5 year Limited Warranty.

The media tank is manufactured by Pentair LLC and is subject to Pentair LLC’s 5 to 10 year Limited Warranty as noted below based on tank size.

Control valve: 5 Years*

Media tanks up to 13” in Diameter: 10 Years

Media tanks 14” and Greater in Diameter: 5 Years

*Note: Pistons and the seal & spacer stack are considered wear and tear items and require regularly scheduled maintenance and replacement.

To report a warranty problem with your system or request warranty assistance, please call HomePlus Products Inc. Toll free: 1-866-376-2690

Subject to the limitations noted below, all other components of the HomePlus™ system are warranted by HomePlus Products Inc. to be free of defects in material and workmanship for a period of 1 year except as noted.**

**Note: Due to the wide variety of potential feed water conditions, there is no warranty on the filter media / resin or underbed gravel.

The term of these warranties begins on the date of delivery of the product to the customer and continues until the earlier of:

- the end of the warranty term noted above; or
- the date in which the product(s) is/are removed from the original location of installation; or

- the date in which the original purchaser sells or otherwise transfers ownership of the home in which the product(s) was/were originally installed.

Only products purchased from an Authorized Dealer or HomePlus Products Inc. directly are eligible for this warranty. The products must have been installed and operated in accordance with the instructions and operating conditions stated in the Owner's Manual.

This warranty applies only in Canada and the United States of America.

In the event that a part is deemed defective, the user must immediately inform HomePlus Products Inc. who will furnish a replacement part at no cost to the user. HomePlus' obligation to the customer shall be limited to the replacement of the defective part by prepaid standard freight to the original point of installation. Expedited shipping is available at the discretion and cost of the customer. When required, the return of defective parts to HomePlus is the responsibility of the customer.

This warranty does not cover any labour costs including labour costs related to troubleshooting, repair, installation, replacement, or maintenance.

This warranty does not apply to the following situations: misuse; normal wear and tear; neglect; unauthorized repair or damage caused through installation, adaptation, or modification; non-factory programming, use in an improper manner or manner inconsistent with the manufacturer's installation, operating, and maintenance instructions; misapplication; wear or deterioration due to environmental conditions; damage occurring during transit; mishandling; improper storage; incorrect supply of water; tampering or alteration; fire, freezing; act of God; or any cause beyond the control of HomePlus Products Inc.

The original warranty period does not change in the event of part replacement by HomePlus Products Inc.

This warranty is issued exclusively to the original consumer purchaser of record so long as the product remains installed in the original location of installation, and is not transferable.

The provisions of the foregoing warranties are in lieu of any other warranty, whether expressed or implied, written or oral (including any warranty of merchantability or fitness for a particular purpose). HomePlus Product Inc.'s liability arising out of the manufacture, sale, or supplying of the products or their use or disposition, whether based upon warranty, contract, tort, or otherwise, shall not exceed the actual purchase price paid by the authorized dealer or consumer for the product. In no event shall HomePlus Products Inc. be liable to the

distributor or any other person or entity for special, incidental, consequential or punitive damages (including, but not limited to, property damage or loss, loss of incomes, or loss of use damages) arising out of the manufacture, sale, or supplying of the products, even if HomePlus Products Inc. has been advised of the possibility of such damages or losses. These warranties are governed by the laws of the Province of British Columbia, Canada, and may change without notice.

To report a warranty problem with your system or request warranty assistance, please call HomePlus Products Inc. Toll free: 1-866-376-2690

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