

OWNER'S MANUAL & INSTALLATION GUIDE



Professional Series Media Filters

APPLICABLE MODELS:

GAC-HP Activated Carbon Filters
CENTAUR-HP Catalytic Carbon Filters
NS-HP NextSand Filters
MS-HP MetSorb Filters
BC-HP Bone Char Filters
N-HP Neutralizer Filters
F-HP Filox 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, 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.

Table of Contents:

GENERAL WARNINGS	4
OPERATING CONDITIONS	6
INSTALLATION	9
Step 1 – Pre-Installation Inspection	9
Step 2 – Selecting an Installation Location	10
Step 3 – Prepare Treatment Tank	12
Step 4 – Turn off the Water & Electric Water Heaters	14
Step 5 – Prepare and Install Inlet and Outlet Plumbing Connection	15
Step 6 – Drain Line Installation	18
Step 7 – Control Valve Set-up	19
Step 8 – Initial Start-up and Leak Testing	26
REGENERATION	27
CHANGING TIME OF DAY	28
ADVANCED SETTINGS	29
OPERATION DURING A POWER FAILURE	29
MAINTENANCE, TROUBLESHOOTING & DIAGNOSTIC	30
WARRANTY INFORMATION	32

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	40-70 PSI
Water Temperature	40F to 100F (4 to 38C)**
Minimum Air Temperature	38°F (4°C)**
pH Range	7.0 to 8.5***

* 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 cannot be exposed to freezing conditions or severe damage to the system and your property could occur.

*** If the pH level is less than 7.0, pH correction is strongly recommended 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 plumbing system. This specification does not apply to neutralizing filters which are designed to raise pH (N-HP models).

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 for your system as well as model-specific operating condition recommendations and requirements.

HydraPlus™ Professional Series Service Flow Rates & Backwash Requirements:

Model	Optimal Service Flow Rate (GPM)	Maximum Service Flow Rate (GPM)	Backwash Flow Rate at 40F Water Temp (GPM)	Backwash Flow Rate at 70F Water Temp (GPM)
Activated Carbon Filters				
GAC-HP-8-44	3.5	5.2	3.2	4.2
GAC-HP-9-48	4.4	6.6	4.2	5.3
GAC-HP-10-54	5.5	8.2	5.3	6.5
GAC-HP-12-52	7.9	11.8	7.5	9
GAC-HP-13-54	9.2	13.8	9	10
GAC-HP-14-65	10.7	16.0	10	13
Catalytic Carbon Filters				
CENTAUR-HP-8-44	2.5	3.5	3.2	4.2
CENTAUR-HP-9-48	3.5	4.5	4.2	5.3
CENTAUR-HP-10-54	4.0	5.5	5.3	6.5
CENTAUR-HP-12-52	5.5	8.0	7.5	9
CENTAUR-HP-13-54	6.5	9.0	9	10
CENTAUR-HP-14-65	7.5	10.0	10	13
NextSand Filters				
NS-HP-8-44	4.2	7.0	4.2	7.5
NS-HP-9-48	5.3	8.8	6.5	9
NS-HP-10-54	6.5	10.9	7.5	10
NS-HP-12-52	9.4	15.7	10	15
NS-HP-13-54	11.1	18.4	13	17
NS-HP-14-65	12.8	21.4	15	20
MetSorb Filters				
Maximum pH level: 8.3				
Maximum iron level: 0.3 ppm (mg/l)				
Maximum manganese level: 0.05 ppm (mg/l)				
IF YOUR TOTAL ARSENIC LEVEL IS GREATER THAN 60 PARTS PER BILLION (0.060 MG/L), PLEASE CONTACT YOUR DEALER FOR SIZING ASSISTANCE. A LEAD/LAG CONFIGURATION OR LARGER MEDIA VOLUME MAY BE REQUIRED.				
MS-HP-8-44	1.7	3.5	2.7	3.2
MS-HP-9-48	2.2	4.4	3.2	4.2
MS-HP-10-54	2.7	5.5	4.2	6.5
MS-HP-12-52	3.9	7.9	7.5	8
MS-HP-13-54	4.6	9.2	8	10
MS-HP-14-65	5.3	10.7	9	12

Model	Optimal Service Flow Rate (GPM)	Maximum Service Flow Rate (GPM)	Backwash Flow Rate at 40F Water Temp (GPM)	Backwash Flow Rate at 70F Water Temp (GPM)
Bone Char Filters				
Maximum pH level: 8.3				
BC-HP-8-44	3	4	3.2	4.2
BC-HP-9-48	4	5	4.2	5.3
BC-HP-10-54	6	7.5	5.3	6.5
BC-HP-12-52	8	10	7.5	9
BC-HP-13-54	10	12.5	9	10
BC-HP-14-65	12	15	10	13
Acid Neutralizer Filters				
Flow rate capabilities are highly dependent upon Calcite/Corosex blend used, pH correction needed, and local water conditions. You can blend any ratio of Corosex up to a maximum of 50%. Discuss with your dealer if your hardness exceeds 5 grains per gallon (85 mg/l or ppm) if Corosex is to be used.				
N-HP-10-54	See Above Note		6.5	6.5
N-HP-13-54			9	10
Filox Filters				
Maximum iron level: 5 ppm (mg/l)				
Maximum manganese level: 1.5 ppm (mg/l)				
Maximum hydrogen sulfide level: 2 ppm (mg/l)				
Maximum total organic carbon (TOC) level: 3 ppm (mg/l)				
Minimum ORP: negative 170 millivolts				
F-HP-8-44	4	5	4.2	6.5
F-HP-9-48	6	7.5	6.5	7.5
F-HP-10-54	8	10	7.5	9
F-HP-12-52	12	15	10	13
F-HP-13-54	16	20	13	15
F-HP-14-65	20	25	15	20



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.

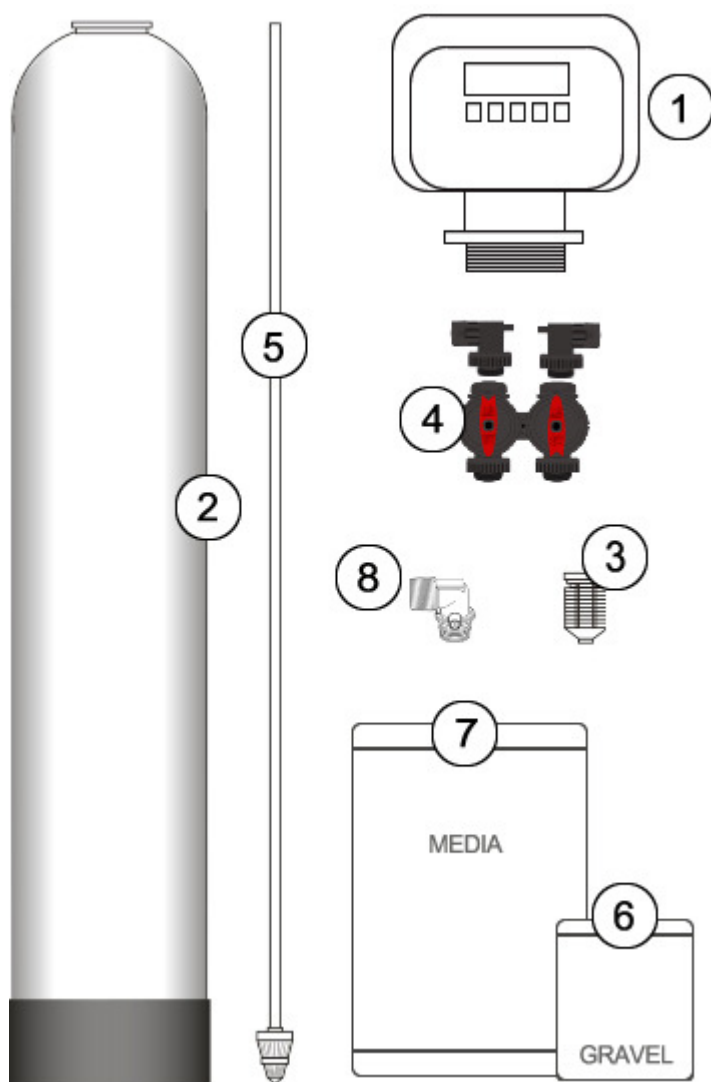
Step 1. – Pre-Installation Inspection

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
8. Drain Line Flow Control - DLFC (attached to #1) - might be straight instead of elbow as pictured

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

9. Food-Grade Silicone Lubricant - not pictured
10. 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 to facilitate maintenance.



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

Two types of media are supplied with your filter system: gravel which forms the base layer (underbedding) in your treatment tank, and a special treatment media which will depend on the filter series you purchased..

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.

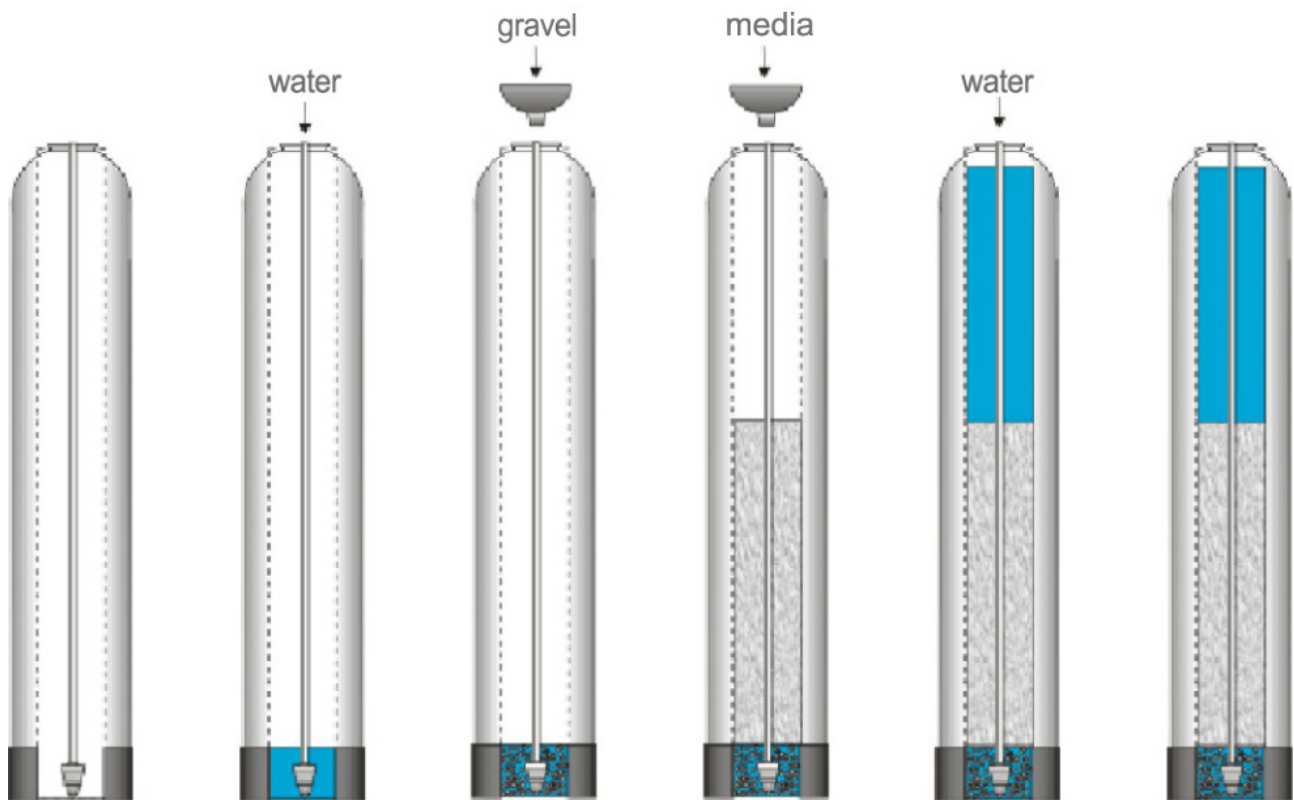
Temporarily remove the distributor and riser tube assembly from the treatment tank. Hand tighten the HydraPlus™ control valve on the tank and mark where the front of the tank will be. Turn the tank so that the front of the tank is where you want it when it is installed – once it is full of media and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



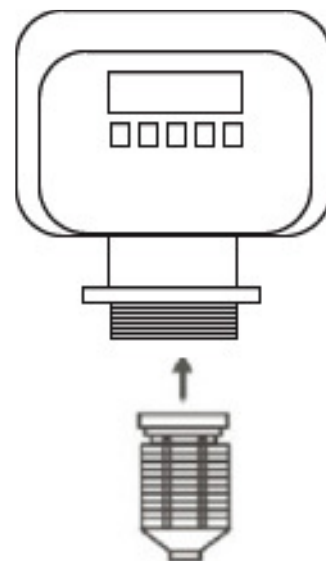
DO NOT INITIATE A REGENERATION OF THIS SYSTEM FOR A MINIMUM OF 12 HOURS AFTER ADDING THE WATER TO ALLOW ADEQUATE PRE-SOAKING. BACKWASHING BEFORE THE MEDIA IS SATURATED MAY CAUSE A LOSS OF MEDIA AND POTENTIAL DAMAGE TO THE CONTROL VALVE.

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.

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

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



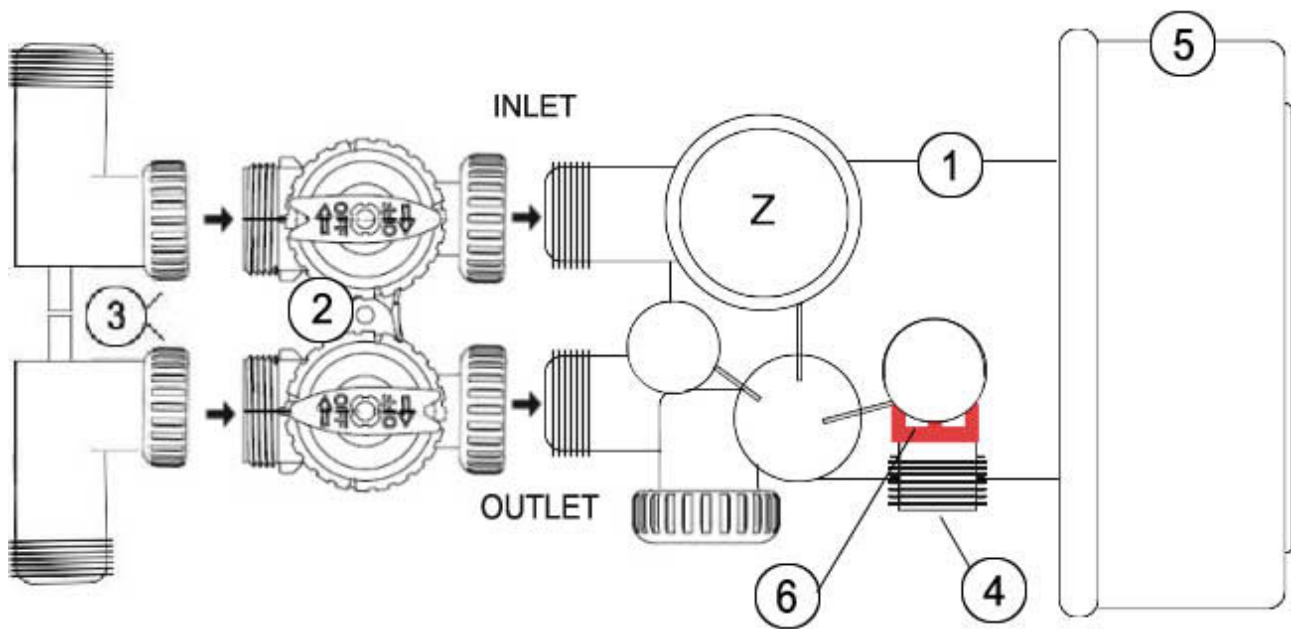
TEFLON® TAPE IS THE ONLY SEALANT TO BE USED ON THE 1" NPT CONNECTORS AND DRAIN FITTINGS.



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.

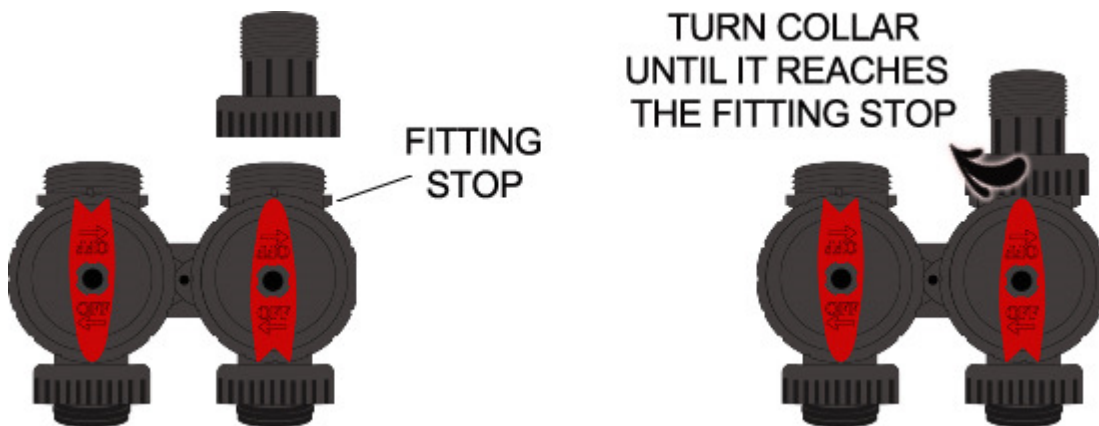
Key Control Valve Components:

1. Control Valve Body
2. Bypass Valve
3. 1" NPT (Male) Elbow Connectors
4. Drain Line Flow Control (DLFC) - this can be either an elbow or straight fitting
5. Valve Cover
6. DLFC Retention Clip

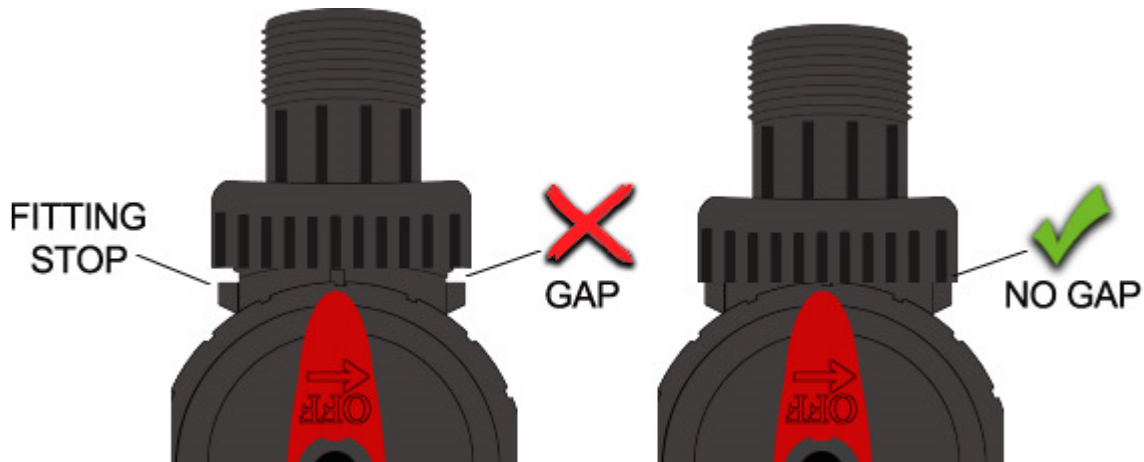


The system's control valve is connected to your incoming and outgoing water lines by way of a bypass assembly composed of the bypass valve itself and two 1" NPT elbow connectors. You will need to purchase the appropriate NPT threaded fittings to connect the incoming and outgoing water lines to the connectors. 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.

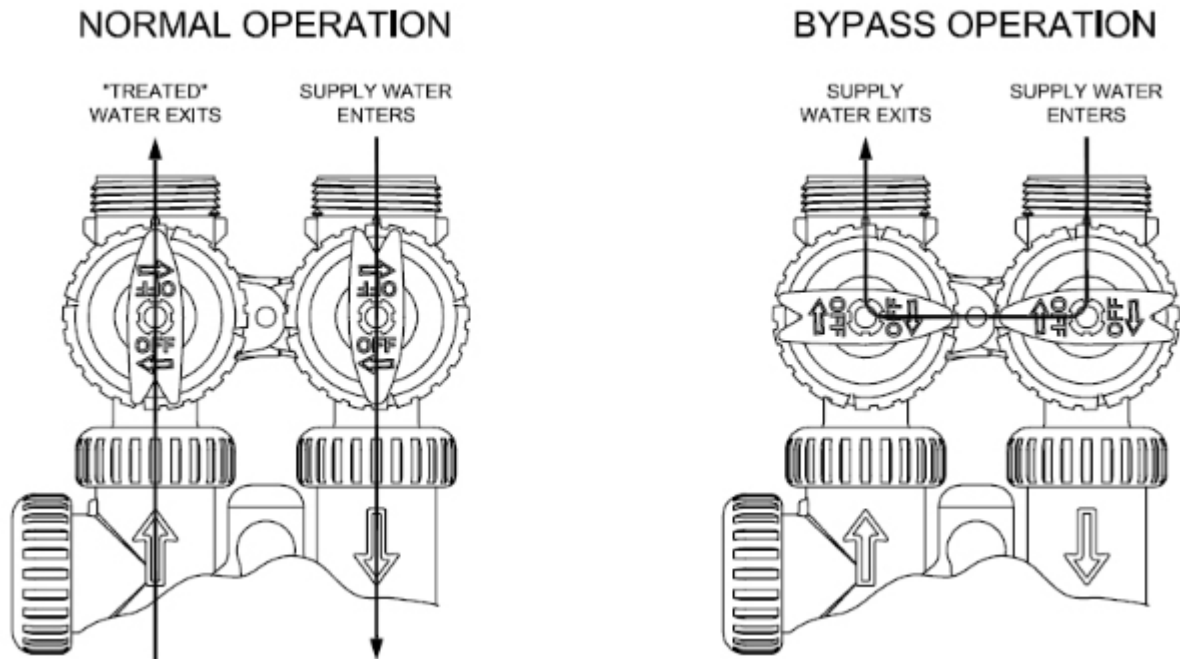
Locate the inlet and outlet ports on the back of the control valve. Note that the inlet and outlet are marked with arrows indicating the correct direction of water flow.



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 contaminants and waste water 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. For backwash flow rates of 10 GPM or less, the DLFC will be a black plastic housing (elbow shape) with 3/4 inch male NPT threads. For backwash flow rates of 11 GPM or more, the DLFC will be a black plastic housing (straight)

with 1 inch male NPT threads. This housing contains a flow control washer that limits the backwash flow rate.

You will need to purchase suitable pipe or tubing for the drain line, either 3/4 or 1 inch diameter. Match the drain line size to the threads of the DLFC assembly.

Polyethylene tubing, PEX, PVC, CPVC, or copper pipe are all acceptable material choices for the drain line. If you are using flexible tubing, be sure that there are no “kinks” or “crimps” 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), 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 retaining clip to remove it and then grasp the drain line flow control and pull outward. 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 it 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. – 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

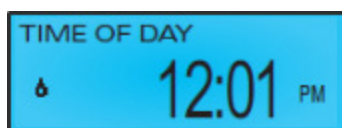


Press once to schedule a regeneration to take place the next time that the actual time matches the programmed regeneration time. Press again to cancel a scheduled regeneration. Press and hold for 3 seconds to start an immediate regeneration. Pressing this button while the system is in regeneration will 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.

DAY OVERRIDE

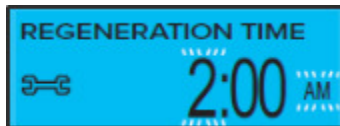
This is the setting that determines the minimum frequency of regeneration (measured in days). This parameter is normally set at 7 days except for MetSorb media filters which have default setting of 20.



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 backwash 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.



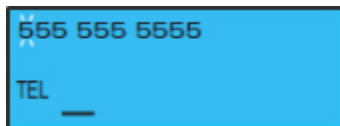
Press **UP** or **DOWN** until the desired choice is displayed.
Do **NOT** press **NEXT** yet!

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.

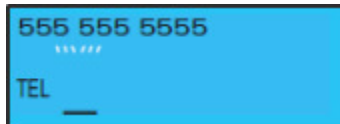
If you do want to program this information, press **CLOCK** and **UP** simultaneously for 3 seconds and release.



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-FILTER 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).

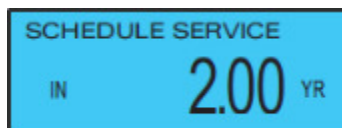


Press **NEXT** and the following screen will appear:



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.



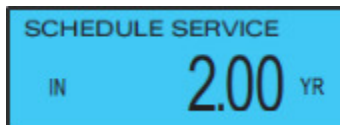
Press **NEXT** and the following screen will appear:



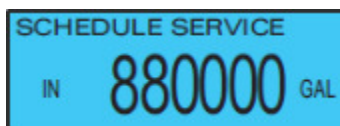
Press **UP** or **DOWN** to select the desired time interval for the service reminder alarm. Once you have reached the desired setting, press **NEXT**.



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 8. – Initial Start-up and Leak Testing



DO NOT INITIATE A REGENERATION OF THIS SYSTEM FOR A MINIMUM OF 12 HOURS AFTER ADDING THE WATER TO THE MEDIA TANK TO ALLOW ADEQUATE PRE-SOAKING. BACKWASHING BEFORE THE MEDIA IS SATURATED MAY CAUSE A LOSS OF MEDIA AND POTENTIAL DAMAGE TO THE CONTROL VALVE.

Ensure that the bypass valve is in the bypass position (see Figure on Page 18). Open a nearby cold water faucet. A faucet without an aerator screen is best. Slowly turn on the main water supply valve 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, and after allowing adequate time for the media to pre-soak as noted above, 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. The initial flow of water will be discolored. This is normal.



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 and rinse cycles to run their full programmed times.

When both cycles are 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.

Press the **REGEN** button and hold it down for about 3 seconds to engage another full regeneration cycle. Allow the backwash and rinse cycles to run their full programmed times.

When both cycles are complete, your control valve will return to normal service mode.

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. If the discoloration does not go away quickly, perform another regeneration cycle.

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

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

There are 2 steps to the regeneration process:

Step 1: Backwash:

Step 2: Rinse

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.

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.

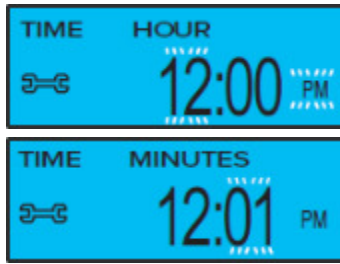
During the regeneration process, you can advance to the next step by pressing the **REGEN** button.

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.

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 engineered 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 depending on the severity of the operating conditions.

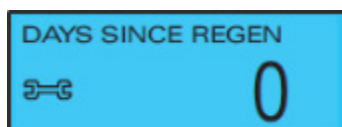
Replacement Piston: Part #V3011 - Clack WS1 Piston Assembly - Downflow
Preplacement Seal & Spacer Stack: Part #V3005-02 - Clack WS1 Spacer Stack Assembly

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

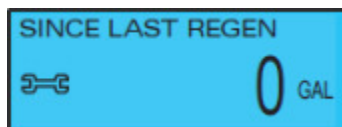
The resin/filter media should be replaced on the schedule recommended by your water treatment professional.

DIAGNOSTIC MODE:

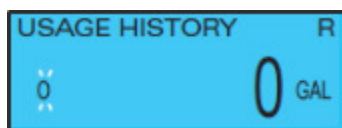
Press any button to activate the display. Press **UP** and **DOWN** simultaneously for 3 seconds and release. If the SINCE LAST REGEN screen shown below does not appear, the lock on the valve is activated. Unlock the valve first by using the button sequence: **DOWN, NEXT, UP**, and **CLOCK**.



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

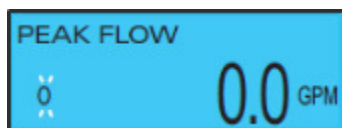
- “0” = Today;

- “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:

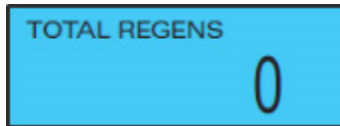
Press any button to activate display. Press **UP** and **DOWN** simultaneously for 3 seconds and release. Press **UP** and **DOWN** simultaneously for 3 seconds again and release. If the SOFTWARE VERSION screen shown below does not appear, the lock on the valve is activated. Unlock the valve first by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



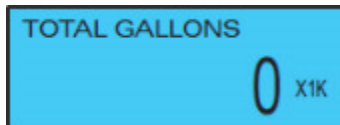
Displays the current software version installed.
Press **NEXT** to go to the next parameter.



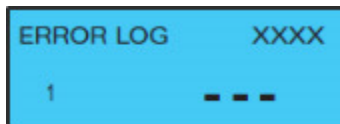
Displays the total days since valve start-up. Time accumulates only when unit is plugged in. Press **NEXT** to go to the next parameter.



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 tanks are manufactured by either Pentair LLC or Clack Corporation and are subject to their 5 to 10 year Limited Warranties 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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