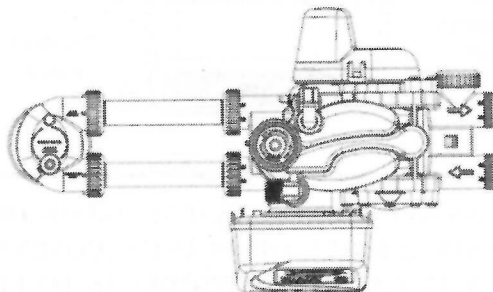
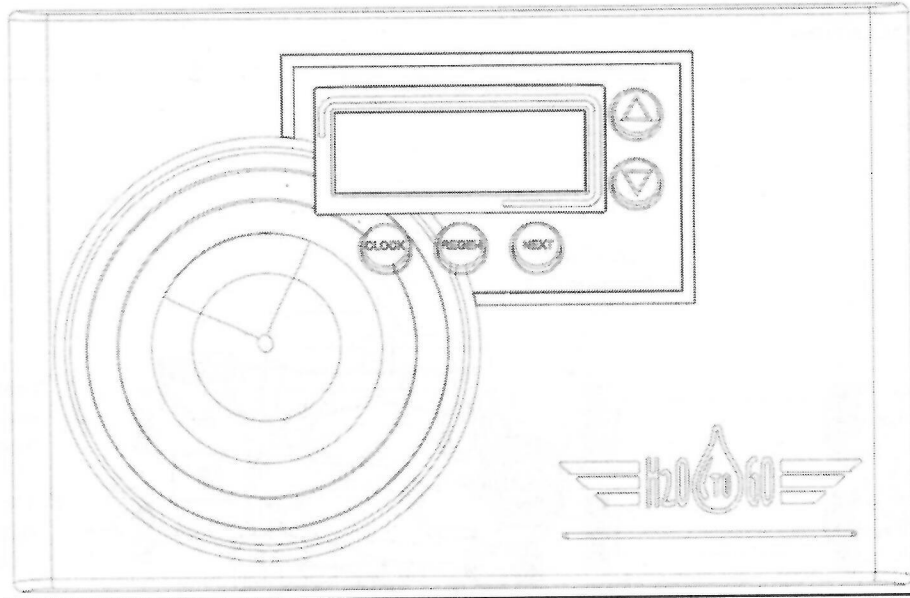


H2O to GO



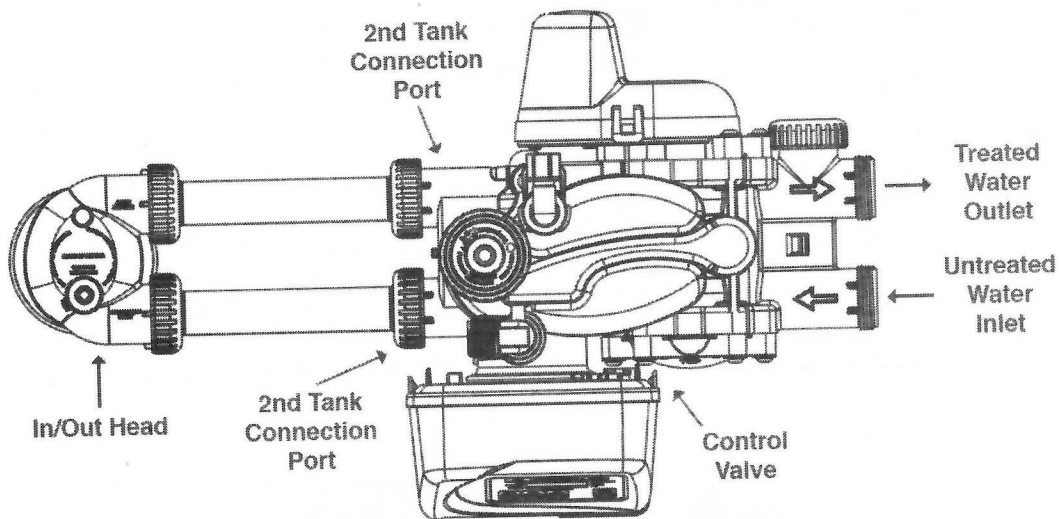
CUSTOM 4000

Installation Instructions and Owners Manual



702-367-2100

BASIC INSTALLATION



HYDROCARBONS SUCH AS KEROSENE, BENZENE, GASOLINE, ETC., MAY DAMAGE PRODUCTS THAT CONTAIN O-RINGS OR PLASTIC COMPONENTS. EXPOSURE TO SUCH HYDROCARBONS MAY CAUSE THE PRODUCTS TO LEAK. DO NOT USE THE PRODUCT(S) CONTAINED IN THIS DOCUMENT ON WATER SUPPLIES THAT CONTAIN HYDROCARBONS SUCH AS KEROSENE, BENZENE, GASOLINE, ETC.

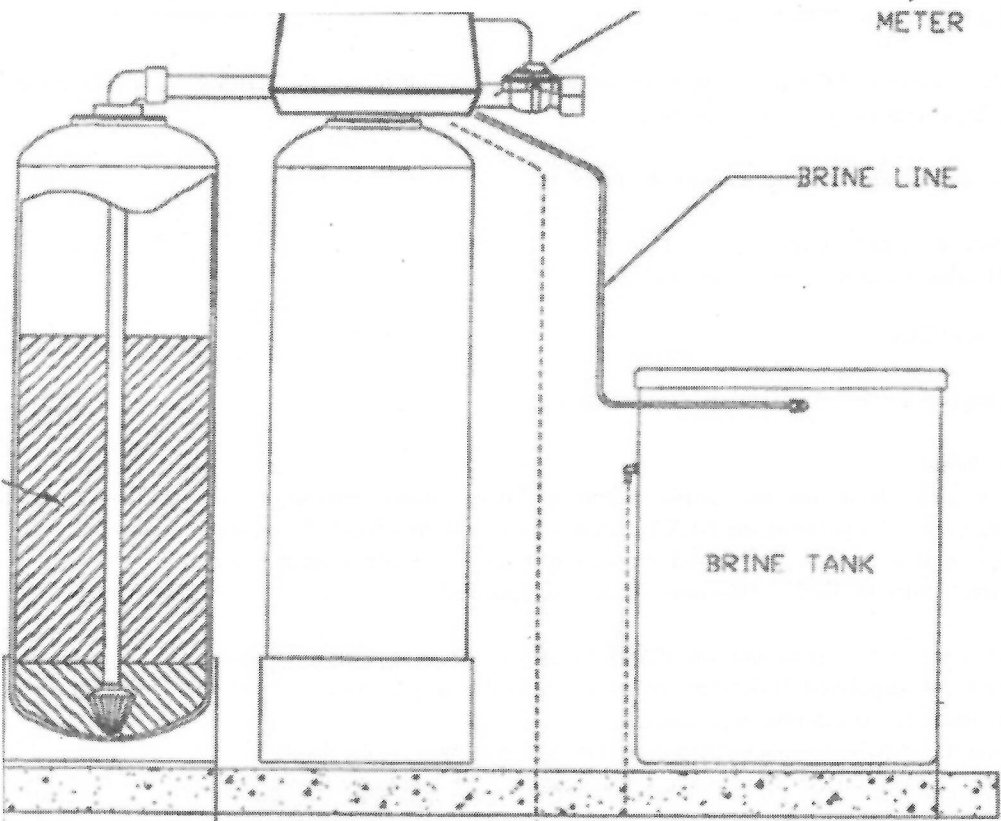
Twin Valve Installation Tips:

We have had a number of instances where customers have incorrectly installed the in/out head to the untreated water inlet/treated water outlet of the control valve, rather than to the 2nd tank connection ports.

Below are a number of situations that will occur when the in/out head is incorrectly installed to the untreated water inlet/treated water outlet of the control valve.

- 1) When "A" is in the draw cycle it will not draw brine and will put water into the salt tank. The "B" tank will draw properly.
- 2) When "B" is in the backwash cycle, "A" will have no flow to service.
- 3) The transfer disc seals may be forced out of their cavities on the back/motor side of the transfer discs, and it is possible that one of the seals could get pushed up into the valve and get stuck in the top of tank port of the spacer stack assembly.

Basic Drawing



Installed By: _____
Company Name: _____
Install Date: _____
Serial #: _____
Model #: _____

Your Water Test:

Hardness _____ gpg
Iron _____ ppm
pH _____ number
Manganese _____ ppm
Sulphur _____ yes/no
Total Dissolved Solids (TDS) _____

Pre-Installation Instructions

The manufacturer has preset the water treatment unit's cycle times, salt dose, exchange capacity and the salt dose refill time.

The dealer should read this page and guide the installer through setting the Hardness, Days Override, and Time of Regeneration prior to installation.

For the installer the following settings should be used:

1. Program Installer Settings
Hardness (set to local conditions)
2. Set Time of Day

For the homeowner, please read user display settings.

Water Softeners:

During operation, the normal user display is time of day or volume remaining. Other displays are available and can be viewed by pressing the NEXT button to scroll through them. When stepping through any programming, if no buttons are pressed within 5 minutes, the display returns to a normal user display. Any changes made prior to the 5 minute time out are incorporated.

To quickly exit any Programming, Installer Settings, etc., press the CLOCK button. Any changes made prior to the exit are incorporated. If desired, two regenerations within 24 hours are possible with a return to the preset program. To do a double regeneration:

1. Press the REGEN button once. "REGEN TODAY" will flash on the display.
2. Press and hold the REGEN button for three seconds until the regeneration begins.

Once the control valve has completed the immediate regeneration it will do another one at the next scheduled regeneration time.

****NOTE: You must protect this system from High water pressure. Water pressures over 90 PSI will VOID warranty.**

****You Must protect this system from Hot water back feed. An expansion tank must be used on the water heater, between the water softener & water heater. 15' feet of pipe must be installed between the outlet of the water softener & the inlet of the water heater.**

****Protect the system from vacuum.**

GENERAL INSTALLATION & SERVICE WARNINGS

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 silicon lubricant may be used on black o-rings but is not necessary. **Avoid any type of lubricants, including silicone, on red or clear lip seals.**

Do not use pipe dope or other sealants on threads. Teflon tape must be used on the threads of the 1" NPT elbow or the 1/4" NPT connection and on the threads for the drain line connection. Teflon tape is not necessary on the nut connections or caps because o-ring seals are used. The nuts and caps are designed to be unscrewed or tightened by hand or with the special plastic Service Wrench, CV-P-V3193-02. If necessary a 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/or tap with a hammer.**

SITE REQUIREMENTS:

- Water pressure, 40-90 psi
- Water temperature, 40° - 100° F
- The tanks should be on a firm, level surface
- Electrical: Use a 115/120v, 60Hz uninterrupted outlet
- Current draw is 0.25 amperes
- A 15-foot power cord is furnished
- The plug-in transformer is for dry locations only
- Batteries are not used

1. The distance between the drain and the water conditioner should be as short as possible. All plumbing should be done in accordance with local plumbing codes.

2. Since salt must be periodically added to the brine tank, it should be located where it is easily accessible.

3. Do not install any water conditioner with less than 10 feet of piping between its outlet and the inlet of a water heater.

4. Do not locate unit where it or its connections (including the drain and overflow lines) will ever be subjected to room temperatures under 34° F.

5. The use of resin cleaners in an unvented enclosure is not recommended.

6. **INLET/OUTLET PLUMBING:** Connect to a supply line downstream of outdoor spigots. Install an inlet shutoff valve and plumb to the unit's bypass valve inlet located at the right rear as you face the unit. There are a variety of installation fittings available. They are listed under **Installation Fitting Assemblies**. 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. Solder joints should be cool and solvent cements should be set before installing the nut, split ring and o-ring. Avoid getting solder flux, primer, and solvent cement on any part of the o-rings, split rings, bypass valve or control valve. If the building's electrical system is grounded to the plumbing, install a copper grounding strap from the inlet to the outlet pipe. **Plumbing must be done in accordance with all applicable local codes.**

7. **DRAIN LINE:** First, be sure that the drain can handle the backwash rate of the system. Solder joints near the drain must be done prior to connecting the drain line flow control fitting. Leave at least 6" between the drain line flow control fitting and solder joints. Failure to do this could cause interior damage to the flow control. Install a 1/2" I.D. flexible plastic tube to the Drain Line Barb Assembly or discard the barbed fitting and use the 1/2" NPT fitting for rigid pipe. Where the drain line is elevated but empties into a drain below the level of the control valve, form a 7" loop at the discharge end of the line so that the bottom of the loop is level with the drain connection on the control valve. This will provide an adequate antisiphon trap. Where the drain empties into an overhead sewer line, a sink-type trap must be used. Run drain tube to its discharge point in accordance with plumbing codes. Pay special attention to codes for air gaps and anti-siphon devices. See page 5 for air gap diagram.

8. **BRINE TANK CONNECTION:** Install a 3/8" O.D. polyethylene tube from the Refill Elbow to the Brine Valve in the brine tank.

9. OVERFLOW LINE CONNECTION:

AN OVERFLOW DRAIN LINE IS RECOMMENDED WHERE A BRINE OVERFLOW COULD DAMAGE FURNISHINGS OR THE BUILDING STRUCTURE.

Your softener may be equipped with a brine tank safety float which greatly reduces the chance of an accidental brine overflow. In the event of a malfunction, however, an OVERFLOW LINE CONNECTION will direct the "overflow" to the drain instead of spilling on the floor where it could cause considerable damage. This fitting should be on the side of the cabinet or the brine tank. Attach a length of 1/2" I.D. tubing (not supplied) to fitting and run to drain. Do not elevate overflow line higher than 3" below bottom of overflow fitting. Do not "tie" this tube into the drain line of the control valve. Overflow line must be a direct, separate line from overflow fitting to drain, sewer, or tub. Allow an air gap as per the drain line instructions. See page 5 for air gap diagram.

IMPORTANT: Never insert a drain line directly into a drain, sewer line, or trap. Always allow an air gap between the drain line and the wastewater to prevent the possibility of sewage being back-siphoned into the conditioner.

10. **SERIAL NUMBER:** Record the serial number on the installer's and customer's records.

Bypass Valve The bypass valve is typically used to isolate the control valve from the plumbing system's water pressure in order to perform control valve repairs or maintenance.

Bypass Valve

The bypass valve is particularly unique in the water treatment industry due to its versatility and state of the art design features. The 1" full flow bypass valve incorporates four positions including a diagnostic position that allows service personal to work on a pressurized system while still providing untreated bypass water to the facility or residence. Its completely non-metallic, all plastic design allows for easy access and serviceability without the need for tools.

The bypass body and rotors are glass filled Noryl and the nuts and caps are glass filled polypropylene. All seals are self-lubricating EPDM to help prevent valve seizing after long periods of non-use. Internal o-rings can easily be replaced if service is required.

The bypass consists of two interchangeable plug valves that are operated independently by red arrow shaped handles. The handles identify the flow direction of the water. The plug valves enable the bypass valve to operate in four positions.

1. Normal Operation Position: The inlet and outlet handles point in the direction of flow indicated by the engraved arrows on the control valve. Water flows through the control valve during normal operation and this position also allows the control valve to isolate the media bed during the regeneration cycle. (See Figure 1)

2. Bypass Position: The inlet and outlet handles point to the center of the bypass, the control valve is isolated from the water pressure contained in the plumbing system. Untreated water is supplied to the plumbing system. (See Figure 2)

BYPASS VALVE OPERATION

Figure 1

NORMAL OPERATION

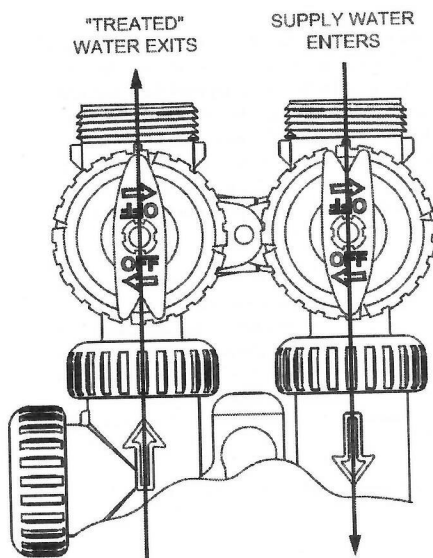
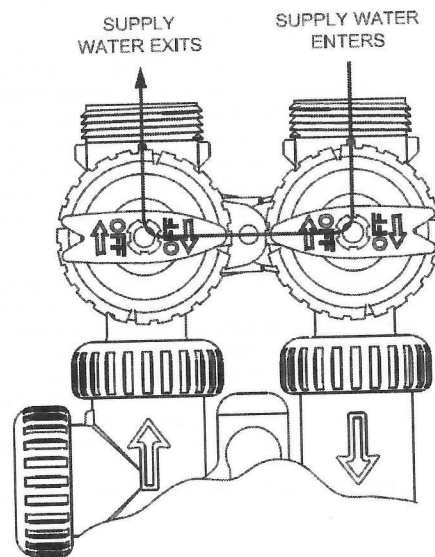


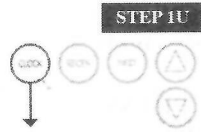
Figure 2

BYPASS OPERATION



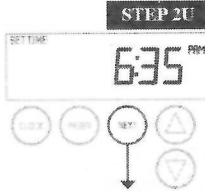
START UP

Set Time of Day



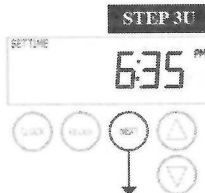
STEP 1U

STEP 1U – Press CLOCK.



STEP 2U

STEP 2U - Current Time (hour): Set the hour of the day using ▼ or ▲ buttons. AM/PM toggles after 12. Press NEXT to go to step 3U.



STEP 3U

STEP 3U - Current Time (minutes): Set the minutes of the day using ▼ or ▲ buttons. Press NEXT to exit Set Clock. Press REGEN to return to previous step.

RETURN TO NORMAL MODE

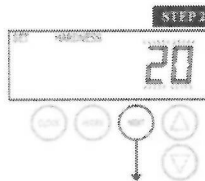
Set Hardness of Water:

Installer Display Settings



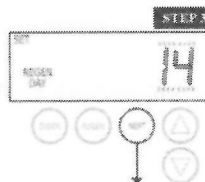
STEP 2I

STEP 2I - Press NEXT and ▲ simultaneously for 3 seconds.



STEP 2J

STEP 2J – Hardness: Set the amount of hardness in grains of hardness as calcium carbonate per gallon using ▼ or ▲. The default is 20 with value ranges from 1 to 150 in 1 grain increments. Note: The grains per gallon can be increased if soluble iron needs to be reduced. This display will not appear when the system is set up for a filter or if "AUTO" is not selected in Step 14S. Press NEXT to go to step 3I. Press REGEN to exit Installer Display Settings.

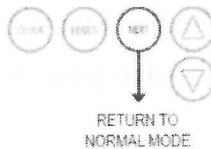


STEP 3I

STEP 3I – Day Override: When gallon capacity is set to off, sets the number of days between regenerations. When gallon capacity is set to AUTO or to a number, sets the maximum number of days between regenerations. If value set to "off" regeneration initiation is based solely on gallons used. If value is set as a number (allowable range from 1 to 28) a regeneration initiation will be called for on that day even if sufficient number of gallons were not used to call for a regeneration. Set Day Override using ▼ or ▲.

- number of days between regeneration (1 to 28), or
- "off".

See Setting Options Table for more detail on system setup. Press NEXT to go to step 4I. Press REGEN to return to previous step.



RETURN TO
NORMAL MODE

- 1- Leave Bypass valves closed. Check water pressure before installation. High water pressure will damage your system & void the warranty. The warranty states a MAX of 90-psi. If your water pressure is any higher than 80-psi we recommend installing a new PRV valve (pressure reducing valve) to protect your equipment. Check plumbing to make sure the Softener has not been plumbed in BACKWARDS. When facing the softener, the Inlet/raw water is on the RIGHT, Out-let/Soft water is on the LEFT. See arrows on valve body.
- 2- Plug power cord into power outlet. The time of day will be flashing. PRESS the CLOCK button, Use the UP & DOWN arrow buttons & the NEXT button to set the correct TIME OF DAY. Once time of day is set correctly, press the NEXT Button.
- 3- PRESS & HOLD the NEXT button & the UP arrow button at the SAME TIME until the "Hardness" setting is showing, then release the buttons. We Pre-Set the HARDNESS setting at "20" Grains Hard. Use the UP & DOWN arrow buttons to set the proper incoming water Hardness, then press the NEXT button. If you do not know the incoming water hardness then test it with a hardness test kit or have it tested for you. ((NOTE: It is VERY important to set the hardness setting correct for what the incoming water hardness is, failure to do so will result in improper softening capacity)). Once Proper HARDNESS is set, press the Next Button. Here you can set the Calendar Override & Regeneration time. (We pre-set the Calendar Override

to 0, meaning it is inactivated.

Make any changes then press the NEXT button until Time of Day is showing.

- 4- Start the Softener into a Manual Regeneration to flush the resin and relieve the air out of the tank. Press & HOLD the REGEN button for 3 seconds until the valves starts into "BACKWASH" & release the button. Open the In-coming, red handled bypass knob ½ of the way open (right knob). Once you see water running to the Drain, OPEN the red handled knob fully open. Let the Softener flush in this cycle for 6 minutes, then press the REGEN button again and release. The control will say "BRINE 60 minutes", press the REGEN button again, the control will say "2 BACKWASH", press the REGEN button again, the control will say "RINSE", leave in this position for 2 minutes then press the REGEN button again, the control will say "FILL". Leave the Softener in the FILL position & open up the OUT-LET red handled bypass knob (left knob) fully open.

Allow the softener to fill the brine tank on its own. When it is complete, the control will go back to the service position on its own.

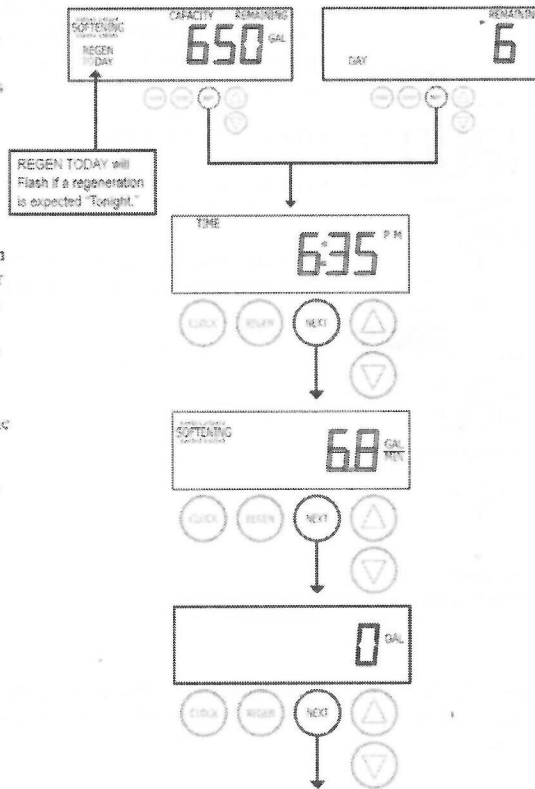
*****Repeat Step # 4 to flush the 2 tank. Do not allow the 2nd tank to refill into the brine tank. Once the control shows "FILL", press the "REGEN" button on time & release to advance to the service positon. Start -up is now complete.**

User Display Settings

General Operation

When the system is operating, one of seven displays may be shown. Pressing NEXT will alternate between the displays. One of the displays is always the current time of day. The second display is days remaining. Days remaining is the number of days left before the system goes through a regeneration cycle. The third display is Capacity Remaining. Capacity Remaining is the gallons that will be treated before the system goes through a regeneration cycle. The fourth display shows the current treated water flow rate through the system. The fifth display shows the total amount of treated water from 1 to 9999x1000 gallons. This is resettable by simultaneously pressing the clock and regen buttons for 3 seconds. The sixth display will show either "dP" or "Hold" if the dP switch is closed. The seventh display indicates the user should call for service. The seventh display will not appear if OFF is selected in Step 21S of OEM System Setup. To clear the Service Call reminder, press ▲ and ▼ simultaneously while CALL is displayed. If the system has called for a regeneration that will occur at the preset time of regeneration, the words REGEN TODAY will appear on the display.

If a water meter is installed, the word "Softening" or "Filtering" flashes on the display when water is being treated (i.e. water is flowing through the system).



In Alternator Systems when a unit is waiting to initiate the first cycle step of regeneration, "REGEN PndG" is displayed.

PndG

"STBY" is displayed in Alternator Systems when a valve is in Standby state.

STBY

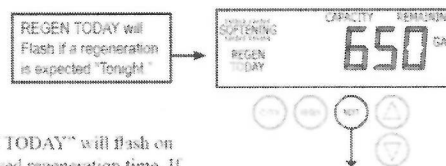
"REGEN PndG FILL RINSE" is displayed whenever a zero-capacity tank has transferred to an off-line state and is currently waiting to initiate the second portion of a regeneration cycle. Viewed only when Delayed Rinse and Fill is set to ON.

REGEN PndG FILL RINSE

Manual Regeneration

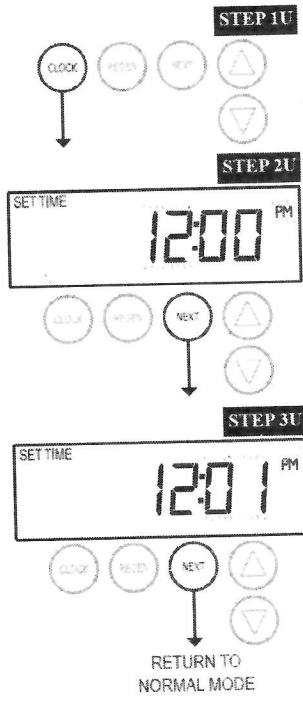
Sometimes there is a need to regenerate the system sooner than when the system calls for it, usually referred to as manual regeneration. There may be a period of heavy water usage because of guests or a heavy laundry day.

To initiate a manual regeneration at the preset delayed regeneration time, when the regeneration time option is set to "NORMAL" or "NORMAL + on 0", press and release "REGEN". The words "REGEN TODAY" will flash on the display to indicate that the system will regenerate at the preset delayed regeneration time. If you pressed the "REGEN" button in error, pressing the button again will cancel the request. Note: If the regeneration time option is set to "on 0" there is no set delayed regeneration time so "REGEN TODAY" will not activate if "REGEN" button is pressed.



To initiate a manual regeneration immediately, press and hold the "REGEN" button for three seconds. The system will begin to regenerate immediately. The request cannot be cancelled.

Note: For softeners, if brine tank does not contain salt, fill with salt and wait at least two hours before regenerating.



Set Time of Day

The user can also set the time of day. Time of day should only need to be set if the battery has been depleted because of extended power outages or when daylight saving time begins or ends. If an extended power outage occurs, the time of day will flash on and off which indicates the time of day should be reset. The non-rechargeable battery should also be replaced.

STEP 1U - Press **CLOCK**.

STEP 2U - Current Time (hour): Set the hour of the day using ▼ or ▲ buttons. AM/PM toggles after 12. Press **NEXT** to go to step 3U.

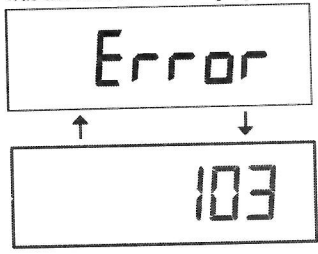
STEP 3U - Current Time (minutes): Set the minutes of the day using ▼ or ▲ buttons. Press **NEXT** to exit Set Time of Day. Press **REGEN** to return to previous step.

Power Loss

If the power goes out, the system will keep time until the battery is depleted. If an extended power outage occurs, the time of day will flash on and off which indicates the time of day should be reset and the non rechargeable battery replaced. The system will remember the rest.

Error Message

If the word "ERROR" and a number are alternately flashing on the display contact the OEM for help. This indicates that the valve was not able to function properly.



Drawing No.	Order No.	Description	Quantity
1	V3371-01	WSIMR FRONT COVER ASSEMBLY	1
2	V3107-01	WSI MOTOR	1
3	V3106-01	WSI DRIVE BRACKET & SPRING CLIP	1
4	V3377MR-04BOARD	WSI THRU 2L 2 MR PC BRD XMI-GA REPLACE	1
5	V3110	WSI DRIVE REDUCING GEAR 12X36	3
6	V3109	WSI DRIVE GEAR COVER	1
NOT SHOWN	V3186	WSI AC ADAPTER 120V-12V	1
	V3186EU	WSI AC ADAPTER 220-240V-12V EU	
	V3186UK	WSI AC ADAPTER 220-240V-12V UK	
	V3186-01	WSI AC ADAPTER CORD ONLY	
NOT SHOWN	V3372	WSIMR DRIVE BACK PLATE	1
NOT SHOWN	V3463	WSIMR QUARTER TURN FASTENERS	2
NOT SHOWN	V3466	O-RING 008	2

For software revs 5403.3 and lower

Relay Specifications: To insure proper fit and correct operation use either of the Idec relay socket combinations or the exact equivalents.

	Manufacturer	Option 1	Option 2
Relay Socket	Idec	SR3P-05C	SY4S-05C
Relay	Idec	RR2KF-UAC 12V / RR2KF-UC AC12V	RY2KS-UAC 12V

The relay supplies 2 sets of dry contacts for user applications.
The wiring of these contacts is application specific.

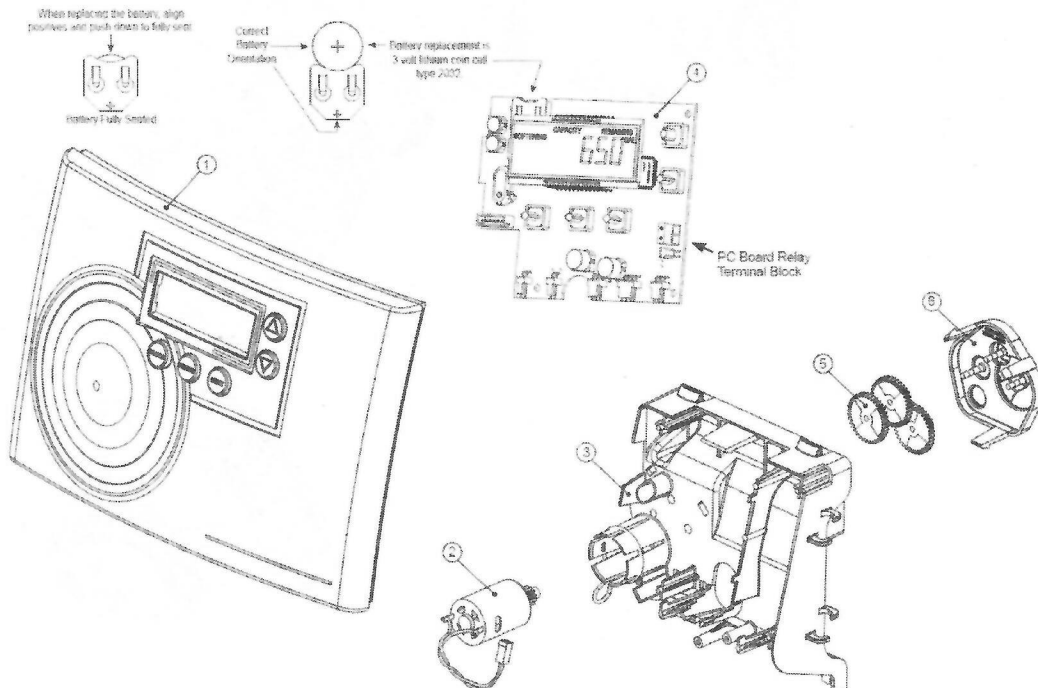
PC Board Relay Terminal Block	Relay Socket Model	
	SR3P-05C	SY4S-05C
SET	#2	#13
COM	#6 and #10	#12 and #14
RES	#3	#9

For software revs 5404.5 and higher

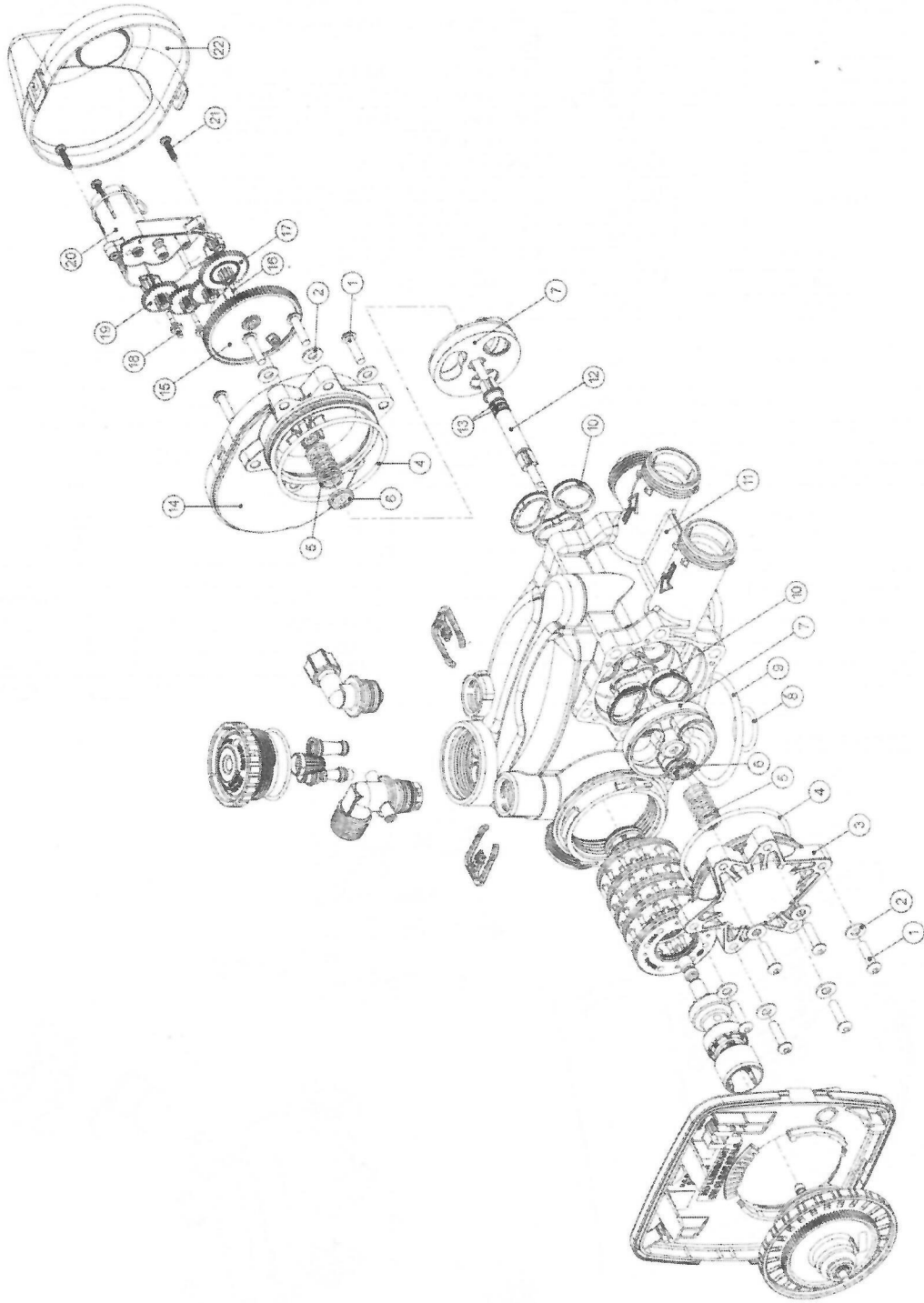
Relay Specifications: 12V DC Relay with a coil resistance not less than 80 ohms. If mounting the relay under the cover check for proper mounting location dimensions on the backplate.

Wiring For Correct On/Off Operation	
PC Board Relay Terminal Block	Relay
RY1	Coil -
COM	Coil +

AC Adapter	U.S.	International
Supply Voltage	120 V AC	230V AC
Supply Frequency	60 Hz	50 Hz
Output Voltage	12 V AC	12 V AC
Output Current	500 mA	500 mA



Twin Transfer



Twin Transfer

Drawing No.	Order No.	Description	Quantity
1	V3470	SCREW BHC 1/4-20 X 1 SS	12
2	V3724	WASHER FLAT SS 1/4	12
3	V4005-01	T1 TRANSFER CAP ASY	1
4	V4029	O-RING 236	2
5	V4015	T1 TRANSFER SPRING	2
6	V4014	T1 TRANSFER SPRING SUPPORT	2
7	V4036	T1 ROTOR DISK ASY	2
8	V3105	O-RING 215 (DISTRIBUTOR TUBE)	1
9	V3180	O-RING 337	1
10	V4016	T1 TRANSFER SEAL	6
11	V3031	T1 BODY SFT WTR REGEN	1
12	V4023	T1 TRANSFER DRIVE SHAFT ASY	1
13	V3287	O-RING 110	2
14	V4006-01	T1 TRANSFER DRIVE CAP ASY	1
15	V4011-01	T1 TRANSFER DRIVE GEAR ASY	1
16	V4012	T1 TRANSFER DRIVE GEAR AXLE	1
17	V4013	T1 TRANSFER REDUCTION GEAR	1
18	V3264	WS2H BYPASS REDUCTION GEAR AXLE	3
19	V3110	WS1 DRIVE REDUCING GEAR 12X36	3
20	V3262-01	WS1.5&2ALT/2BY REDUCGEARCVASY	1
21	V3592	SCREW #8-1 PHPN T-25 SS	3
22	V4049	T1 COVER ASSEMBLY	1
NOT SHOWN	V4043	T1 TRANSFER MOTOR ASY	1
NOT SHOWN	V3151	WS1 NUT 1 QC	1
NOT SHOWN	V4055*	TWIN TANK METER ASY	1
NOT SHOWN	V4017-01	T1 INTERCONNECT FITTING ASY	1
NOT SHOWN	D1400	1191 IN/OUT HEAD	1

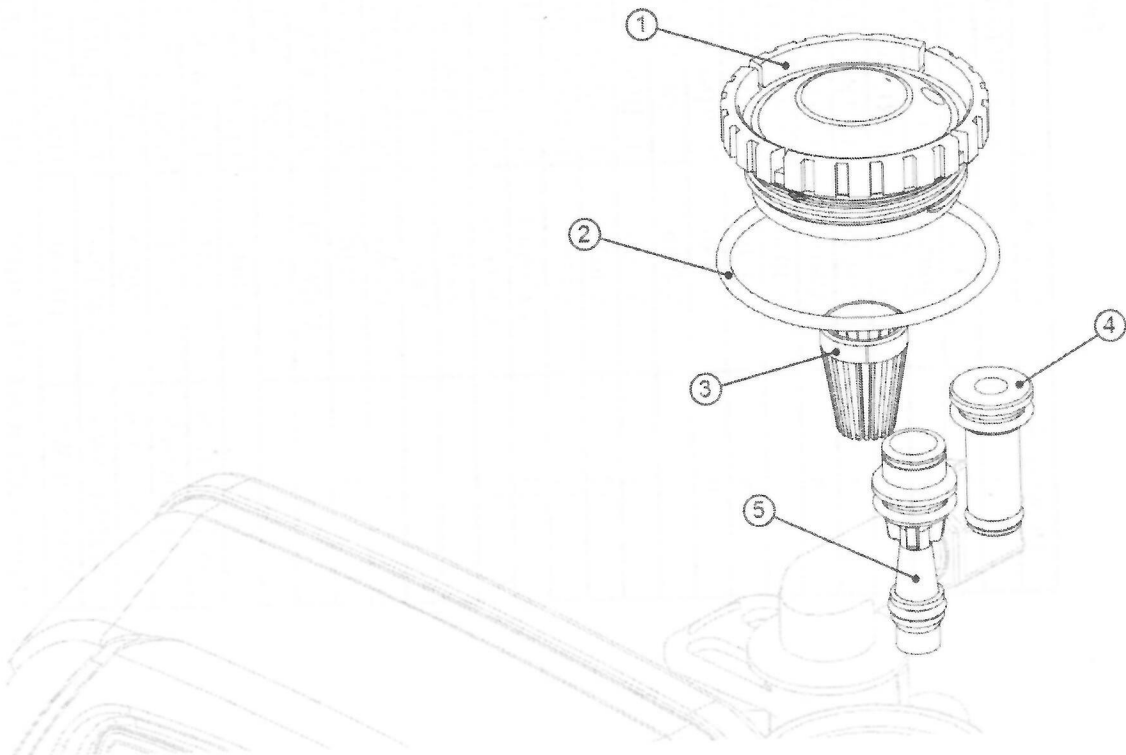
***THIS WATER METER SHOULD NOT BE USED AS THE PRIMARY MONITORING DEVICE FOR CRITICAL OR HEALTH EFFECT APPLICATIONS.**

Injector Cap, Injector Screen, Injector, Plug and O-Ring

Drawing No.	Order No.	Description	Quantity
1	V3176	INJECTOR CAP	1
2	V3152	O-RING 135	1
3	V3177-01	INJECTOR SCREEN CAGE	1
4	V3010-1Z	WS1 INJECTOR ASY Z PLUG	1
5	V3010-1A	WS1 INJECTOR ASY A BLACK	1
	V3010-1B	WS1 INJECTOR ASY B BROWN	
	V3010-1C	WS1 INJECTOR ASY C VIOLET	
	V3010-1D	WS1 INJECTOR ASY D RED	
	V3010-1E	WS1 INJECTOR ASY E WHITE	
	V3010-1F	WS1 INJECTOR ASY F BLUE	
	V3010-1G	WS1 INJECTOR ASY G YELLOW	
	V3010-1H	WS1 INJECTOR ASY H GREEN	
	V3010-1I	WS1 INJECTOR ASY I ORANGE	
	V3010-1J	WS1 INJECTOR ASY J LIGHT BLUE	
V3010-1K	WS1 INJECTOR ASY K LIGHT GREEN		
Not Shown	V3170	O-RING 011	*
Not Shown	V3171	O-RING 013	*

* The injector plug and the injector each contain one 011 (lower) and 013 (upper) o-ring.

Note: For upflow position, injector is located in the up hole and injector plug is in the other hole. Upflow option is not applicable to EA, FE or EI control valves.
For a filter that only backwashes, injector plugs are located in both holes.



Injector Order Information

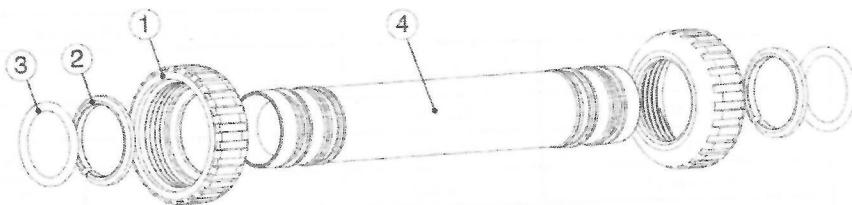
Injector Order Number	Injector Color	Typical Tank Diameter	
		Down <small>WS1 & WS1 25</small>	Up*
V3010-1A	Black	6"	8"
V3010-1B	Brown	7"	9"
V3010-1C	Violet	8"	10"
V3010-1D	Red	9"	12"
V3010-1E	White	10"	13"
V3010-1F	Blue	12"	14"
V3010-1G	Yellow	13"	16"
V3010-1H	Green	14"	18"
V3010-1I	Orange	16"	21"
V3010-1J	Light Blue	18"	
V3010-1K	Light Green	21"	

Actual tank size used may vary depending on the design and application of the system. Tank diameter is an approximation for the following:

1. downflow softener using standard mesh synthetic cation exchange media regenerating with sodium chloride.

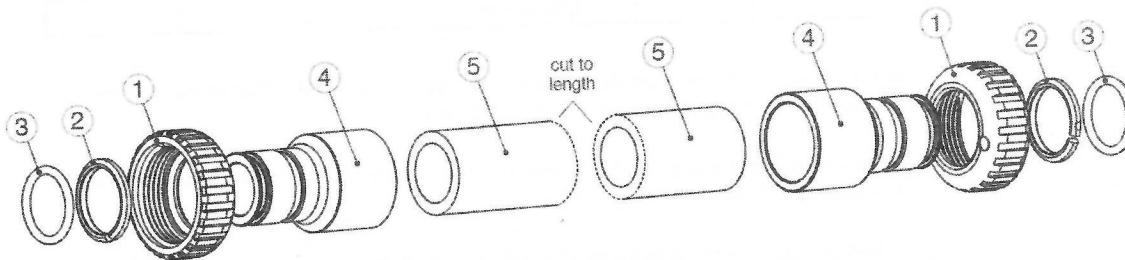
2. upflow softener using standard mesh synthetic cation exchange media regenerating with sodium chloride, an inlet water pressure of 30 to 50 psi (2.1 to 3.4 bar) and water temperature of 60°F (15.6°C) water or warmer. Higher pressures or lower temperatures would need smaller injectors to avoid lifting the bed.

V4017-01 TT Interconnect Fitting Assembly up to 10" tanks



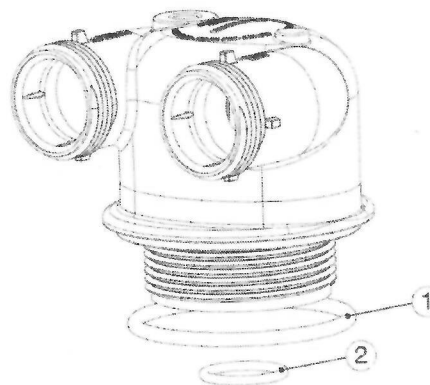
Drawing No.	Order No.	Description	Quantity
1	V3151	WSI NUT 1" QUICK CONNECT	4
2	V3150	WSI SPLIT RING	4
3	V3105	O-RING 215	4
4	V4017	TT INTERCONNECT FITTING	2

V4052-01 TT Interconnect Fitting Assembly for 12" to 21" Tanks



Drawing No.	Order No.	Description	Quantity
1	V3151	WSI NUT 1" QUICK CONNECT	4
2	V3150	WSI SPLIT RING	4
3	V3105	O-RING 215	4
4	V3352	WSI FITTING 1 1/4" & 1 1/2" PVC SOLVENT	4
5	V4052	PIPE PVC SCH 80 1 1/4" X 2"	2

D1400 1191 In/Out Head



Drawing No.	Order No.	Description	Quantity
1	V3180	O-RING 337	1
2	V3105	O-RING 215 (DISTRIBUTOR TUBE)	1

Fitting Installation Instructions:

- Installation fittings are designed to accommodate minor plumbing misalignments, but are not designed to support the weight of a system or the plumbing.
- Slide nut on first, then the split ring and o-ring.
- Hand tighten the nut only.

The V4017-01 twin tank control valve interconnect kit can be used on tanks up to 10" in diameter and is packed in with control valve. If using 12" diameter tanks or larger order optional kit number V4052-01 twin tank control valve interconnect kit for 12" thru 21" diameter tanks.

Introduction

This manual is about a control valve to be used on water softeners or water filters. The manual is designed to aid water treatment equipment manufacturers in the selection of the various control valve options. Information in this manual is different than what is needed for installation and servicing of a particular water treatment system. This manual is not intended to be used as a manual for a complete water softener or filter.

General Warnings

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.

HYDROCARBONS SUCH AS KEROSENE, BENZENE, GASOLINE, ETC., MAY DAMAGE PRODUCTS THAT CONTAIN O-RINGS OR PLASTIC COMPONENTS. EXPOSURE TO SUCH HYDROCARBONS MAY CAUSE THE PRODUCTS TO LEAK. DO NOT USE THE PRODUCT(S) CONTAINED IN THIS DOCUMENT ON WATER SUPPLIES THAT CONTAIN HYDROCARBONS SUCH AS KEROSENE, BENZENE, GASOLINE, ETC.

THIS WATER METER SHOULD NOT BE USED AS THE PRIMARY MONITORING DEVICE FOR CRITICAL OR HEALTH EFFECT APPLICATIONS

Do not use Vaseline, oils, other hydrocarbon lubricants or spray silicone anywhere. A silicone lubricant may be used on black o-rings but is not necessary.

The nuts and caps are designed to be unscrewed or tightened by hand or with the special plastic wrench. 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 a screwdriver in the slots on caps and/or tap with a hammer.

Do not use pipe dope or other sealants on threads. Use Teflon tape on the threaded inlet, outlet and drain fittings. Teflon tape is not necessary on the nut connection or caps because of o-ring seals.

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 or press and hold NEXT and REGEN buttons for 3 seconds. This resets the electronics and establishes the service piston position. The display should flash all wording, then flash the software version and then reset the valve to the service position.

All plumbing should be done in accordance with local plumbing codes. The pipe size for the drain line should be a minimum of $\frac{1}{2}$ ". Backwash flow rates in excess of 7 gpm (26.5 lpm) or length in excess of 20' (6.1m) require $\frac{3}{4}$ " drain line.

Solder joints near the drain must be done prior to connecting the drain line flow control fitting. Leave at least 6" between the drain line control fitting and solder joints when soldering pipes that are connected on the drain line control fitting. Failure to do this could cause interior damage to the drain line flow control fitting.

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. Solder 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 an electrical outlet. Note: All electrical connections must be connected according to local codes. (Be certain the outlet is uninterrupted.)

Install grounding strap on metal pipes.

This glass filled Noryl[®] (or equivalent) fully automatic control valve is designed as the primary control center to direct and regulate all cycles of a water softener or filter.

The control valve is compatible with a variety of regenerants and resin cleaners. The control valve is capable of routing the flow of water in the necessary paths to regenerate or backwash water treatment systems. The injector regulates the flow of brine or other regenerants. The control valve regulates the flow rates for backwashing, rinsing, and the replenishing of treated water into a regenerant tank, when applicable.

Control valve installation is made easy because the distributor tube can be cut $\frac{1}{2}$ " above to $\frac{1}{2}$ " below the top of tank thread. The distributor tube is held in place by an o-ring seal and the control valve also has a bayonet lock feature for upper distributor baskets.

The power adapter comes with a 15 foot power cord and is designed for use with the control valve. The power adapter is for dry location use only. The control valve remembers all settings until the battery power is depleted if the power goes out. After the battery power is depleted, the only item that needs to be reset is the time of day; other values are permanently stored in the nonvolatile memory. The control valve battery is not rechargeable but is replaceable.

No user serviceable parts are on the PC board, the motor or the power adapter. The means of disconnection from the main power supply is by unplugging the power adapter from the wall.

Quick Reference Specifications

Service flow rate 1"	28 gpm (106 lpm, 6.36 m ³ /h) @ 15 psig (103 kPa) drop
Backwash flow rate 1"	15 gpm (57 lpm, 3.4 m ³ /h) @ 25 psig (172 kPa) drop
Minimum Maximum Operating Pressures	20 psi (138 kPa or 1.4 bar) -125 psi (862 kPa or 8.6 bar)
Minimum Maximum Operating Temperatures	40°F (4°C) - 110°F (43°C)
Power Adapter: Supply Voltage Supply Frequency Output Voltage Output Current	See Programming and Cover Drawing Manual page 4
Regenerant Refill Rate	0.5 gpm (1.9 lpm)
Injectors	See pages 9-13
Drain Line Flow Controls	See pages 15-16
Distributor Tube Opening WSITT Valve	1.05" outside diameter (3/4" NPS)
Tank Thread	2 1/2" - 8 NPSM
Control Valve Weight	16 lbs. 7.25 kg
PC Board Memory	Nonvolatile EEPROM (electrically erasable programmable read only memory)
Compatible with regenerants/chemicals	Sodium chloride, potassium chloride, potassium permanganate, sodium bisulfite, chlorine and chloramines