

# HOMEOWNER'S MANUAL

## PURONICS® WATER CONDITIONER Model DEFENDER™ iGen™ With SilverShield® Protection

THE NEW FACE OF WATER TREATMENT®

# PURONICS®

Pure Water Solutions



The DEFENDER iGen 30B and DEFENDER iGen 45B systems have been Tested and Certified by WQA according to NSF/ANSI 44 for the reduction of hardness minerals, barium, radium and NSF/ANSI 372 for low lead compliance as verified and substantiated by test.

Manufactured by:  
Puronic Water Systems, Inc.  
5775 Las Positas Road  
Livermore, CA 94551  
(800) 339-8780  
[www.puronic.com](http://www.puronic.com)

## IMPORTANT

*This booklet contains your Owner Limited Warranty Card. Make sure this Warranty Card is filled out by your Dealer and returned to Puronics Water Systems, Inc. within two weeks of installation to assure proper warranty registration.*

*Questions about your warranty registration may be answered by writing to:*

*Warranty Registration Dept.  
c/o Puronics Water Systems, Inc.  
5775 Las Positas Road  
Livermore, CA 94551*

Your Puronics® Dealer is ...

# *Congratulations*

Puronics® welcomes you to a new, carefree way of life with Clearly Refreshing™ conditioned water. You can take pride and satisfaction knowing that you own the very best.

We are proud that you have selected the Puronics® deluxe quality Water Conditioner for your home. Your sound judgment is supported by the wide acceptance received for these units throughout the world. More and more quality conscious homeowners are purchasing Puronics® Water Conditioning equipment because of its superior performance and its premium quality workmanship.

The following pages of this booklet will introduce you to your new Puronics® Water Conditioner by explaining operation, care and maintenance. In addition, the booklet provides recommendations for getting the very best performance from your unit as well as answers to commonly asked questions.

At Puronics®, we not only care for your water...we care for your family.

**Puronics Water Systems, Inc.**

# PURONICS®

## General Information

Your Puronics® Water Conditioner is completely automatic. It will provide an abundance of conditioned water with just an occasional addition of salt to the back flush tank when the salt reaches the "add salt" level. Your unit was thoroughly tested at the factory before shipping, and again at the time of installation.

The automatic timer is set to "regenerate" your water conditioner at night while you are sleeping. From experience, this is the best time because your water demand is the lowest then and regeneration will not interfere with baths, washing clothes, etc. However, unconditioned water is available from all faucets during the regeneration cycle. With the Puronics® Water Conditioner you are never without water.

It is a good idea to wipe the unit occasionally and then apply a good coat of wax. This procedure will keep your water conditioner looking bright and clean for a lifetime.

In case some problem should arise, you can manually by-pass the unit by throwing the two by-pass levers. Then call your authorized Puronics® dealer. He has been trained in all phases of maintenance and repair work and will have the unit back in operation quickly. If there is not a Puronics® dealer in your vicinity, then contact another reliable water conditioning firm. Failing that, please write directly to the factory: Puronics Water Systems, Inc., 5775 Las Positas Road, Livermore, CA 94551 Attention: Service Department.

## Regeneration

Your Puronics® Water Conditioning unit consists of a tank filled with a premeasured amount of a special mineral called S-759, formulated especially for Puronics® equipment. On top of the tank is the control valve/timer, which works on the same principle as an electric clock. Along side the unit is a storage tank which holds the salt and brine for the regeneration cycle.

Regeneration means recharging or recleaning the special S-759 mineral. It is important to know that the entire cycle is automatic and you will have nothing to do with it. The following steps are for your own enlightenment and to demonstrate the thoroughness of the automatic cycle: 1. Backwashing, which reverses the action of the water, throws off the sediment (called turbidity) that has been filtered out of the water, and flushes it down the drain. 2. Salt, as brine, is injected into the unit to clean and revitalize the S-759 mineral. (The amount of salt used is controlled by a float valve, which operates the same as the float in the water tank of your toilet.) 3. Slow rinse. 4. Fast rinse. 5. Valve automatically returns to the service position to again supply you with good, conditioned water.

## What Salt To Use

Salt is your water conditioner's fuel. Using the right fuel is as important here as it is to get the best performance from your car. It is strongly recommended to use only nugget or pellet type salt in your water conditioner. This type of salt is pure and free of undesirable insolubles. Nugget or pellet type water conditioner salt is available from your Puronics® dealer.

NOTE: Common rock salt is NOT recommended because much of it contains insolubles. The continued use of common rock salt will necessitate more frequent cleaning of the back flush tank, or worse, it may cause a malfunction of the valving. However, specially processed water conditioner rock salt, as handled by your local dealer, may be used.

## When To Add Salt

The back flush tank has a capacity up to 150 lbs. of nugget or pellet salt. You can add salt whenever it is most convenient for you, but it is important to replenish the supply before the pellets are down to the half way point of the salt storage tank.

## Bridging Or Caking

When your water seems to be hard, check the salt in the storage tank. If it appears to be bridging or caking, break it up with a short wooden stick. In doing so, be careful not to probe the full depth of the back flush tank because you may damage the tank.

**DO NOT USE WITH WATER THAT IS MICROBIOLOGICALLY UNSAFE OR OF UNKNOWN QUALITY WITHOUT ADEQUATE DISINFECTION BEFORE OR AFTER THE SYSTEM.**

## LIFE EXPECTANCY OF SILVERSHIELD® MEDIA (Not Performance Tested or Certified by WQA)

| Tank Diameter | SilverShield Content | Gallons | Media Life Family of 4 |
|---------------|----------------------|---------|------------------------|
| 10"           | 3lb.                 | 112,500 | 18 months              |

NOTE: CHLORINE LEVELS IN EXCESS OF 1 PPM MAY REDUCE LIFETIME OF MEDIA.

The Model DEFENDER iGen 30B/45B control valve will measure the water volume usage and when the life expectancy of the SilverShield® HYgene® bacteriostatic media is reached, it will flash a screen message of CALL FOR SERVICE and the phone number to call for service to have the SilverShield® HYgene® bacteriostatic media replaced.

## DEFENDER™ iGen 30B/45B Special Features

### Directions For Use

For use on cold water only.

### Energy Efficient Control

This fully automatic six-cycle valve with timer schedules regenerations at preset intervals. The day and the hour for regeneration, as well as the salt dosage, have been set at the time of installation by the installer. These settings have been carefully calculated according to your family needs and to get the maximum recovery of the resin while minimizing water usage. **Do Not Change These Settings Without First Consulting Your Dealer.**

## Vacation Periods

Why allow your water conditioner to continue regenerating while you are on vacation? It would be a waste of salt to recharge an already charged mineral bed. With your Energy Efficient Puronics® DEFENDER™ iGen 30B/45B Water Conditioner, vacation time has been taken into account. Simply move the two by-pass valve levers until the handles point toward each other. By doing so, the unit will continue to go through the preset regeneration cycles, but actually it will not regenerate. When you return home, move the by-pass valve levers back to the "service" position and you will again have conditioned water as before.

## 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. This 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 personnel to work on a pressurized system while still providing untreated bypass water to the facility or residence. It's 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 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 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 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)
3. **Diagnostic Position:** The inlet handle points in the direction of flow and the outlet handle points to the center of the bypass valve, system water pressure is allowed to the control valve and the plumbing system while not allowing water to exit from the control valve to the plumbing. (See Figure 3)
4. **Shut off Position:** The inlet handle points to the center of the bypass valve and the outlet handle points in the direction of flow, the water is shut off to the plumbing system. If water is available on the outlet side of the softener, it is an indication of water bypass around the system (i.e. a plumbing connection somewhere in the building bypasses the system). (See Figure 4)

# BYPASS VALVE OPERATION

Figure 1

## NORMAL OPERATION

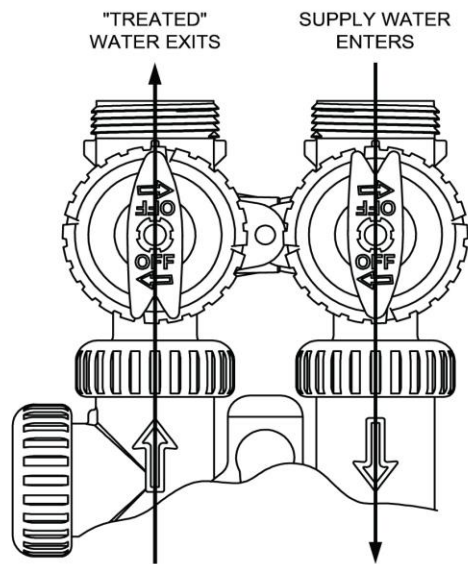


Figure 2

## BYPASS OPERATION

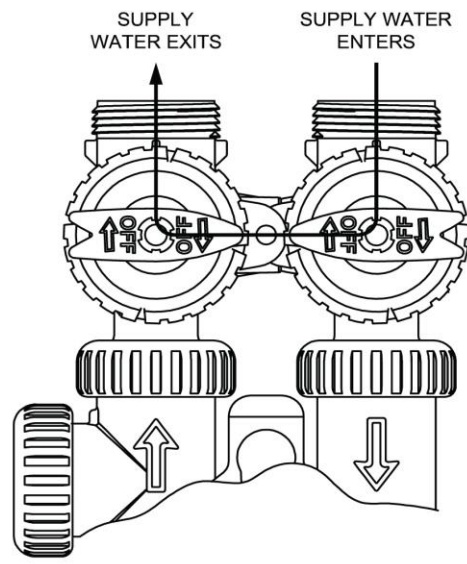


Figure 3

## DIAGNOSTIC MODE

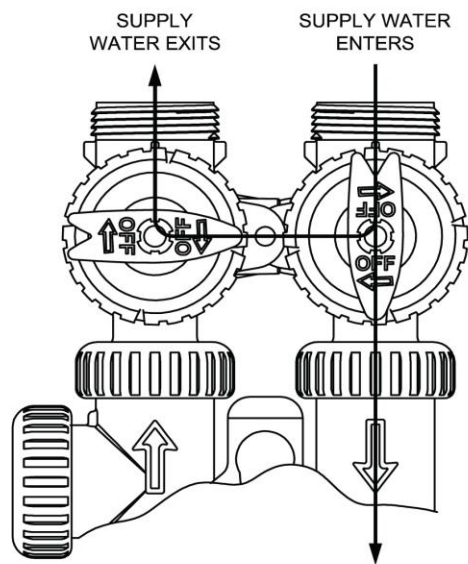
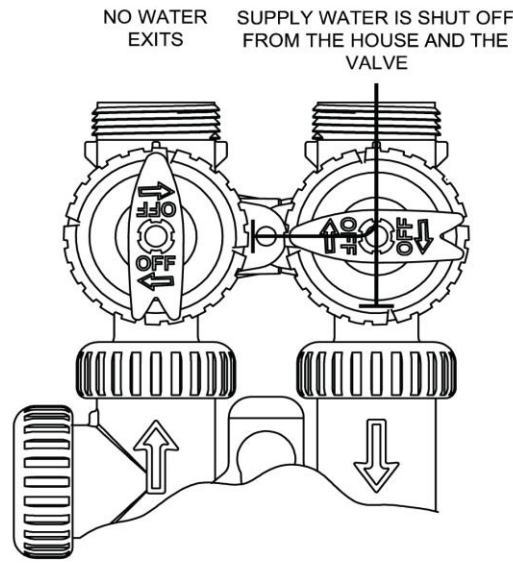


Figure 4

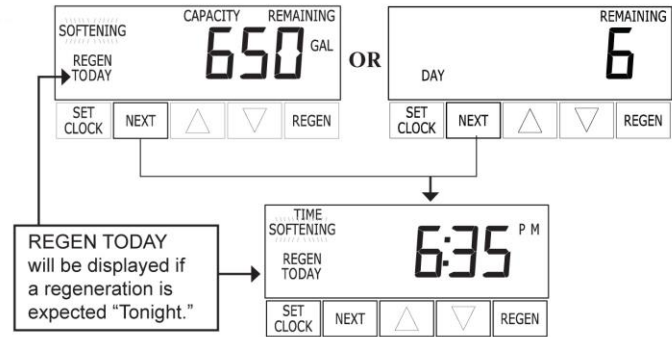
## SHUT OFF MODE



## User Displays/Settings

### General Operation

When the system is operating one of two displays will be shown. Pressing NEXT will alternate between the displays. One of the displays is always the current time of day. The second display is one of the following: days remaining or gallons remaining. Days remaining is the number of days left before the system goes through a regeneration cycle. Capacity remaining is the number of gallons that will be treated before the system goes through a regeneration cycle. The user can scroll between the displays as desired.



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.

When water is being treated (i.e. water is flowing through the system) the word "Softening" flashes on the display.

### Regeneration Mode

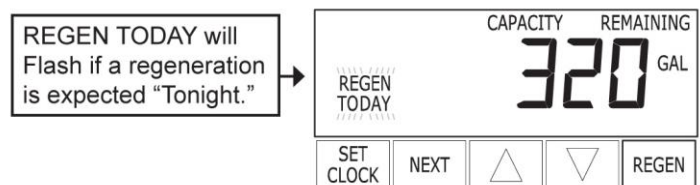
Typically a system is set to regenerate at a time of low water usage. An example of a time with low water usage is when a household is asleep. If there is a demand for water when the system is regenerating, untreated water will be used.



When the system begins to regenerate, the display will change to include information about the step of the regeneration process and the time remaining for the step to be completed. The system runs through the steps automatically and will reset to provide treated water when the regeneration has been completed.

### 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: If the back flush tank does not contain salt, fill with salt before initiating a manual regeneration.

### Set Time of Day

Time of day should only need to be set after 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.

STEP 1U - Press SET CLOCK

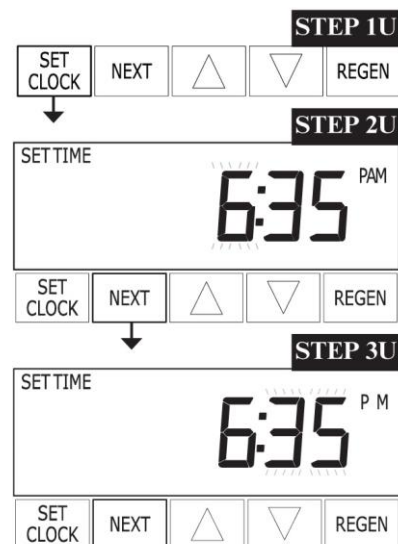
STEP 2U – Current Time (hour): Set the hour of the day using ▽ or ▲ buttons.

AM/PM toggles after 12.

Press NEXT to go to step 3U.

STEP 3U – Current Time (minutes): Set minutes of the day using ▽ or ▲ buttons.

Press NEXT to exit SET CLOCK. Press REGEN to return to previous step.

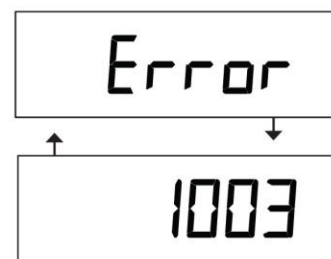


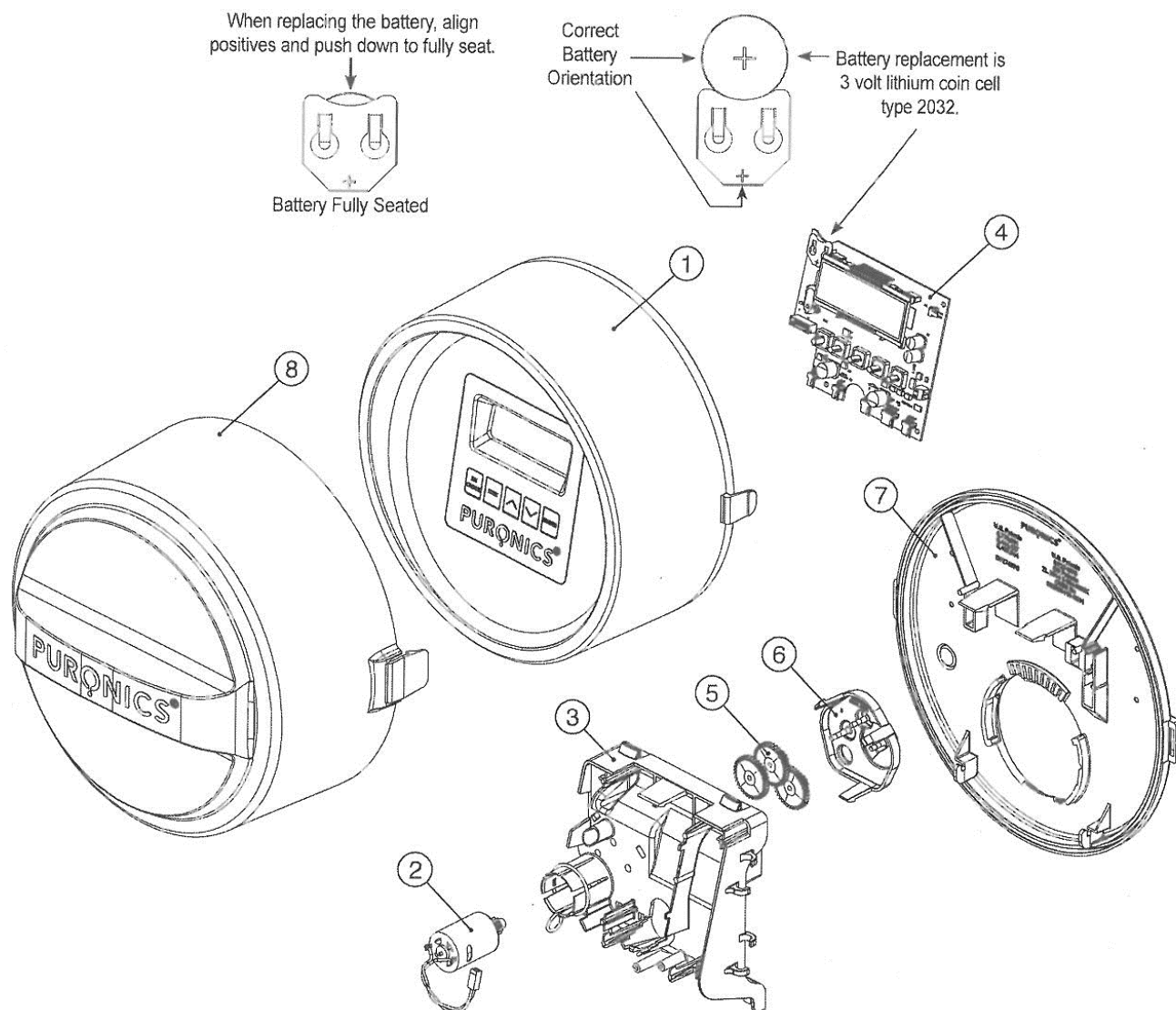
### Power Loss

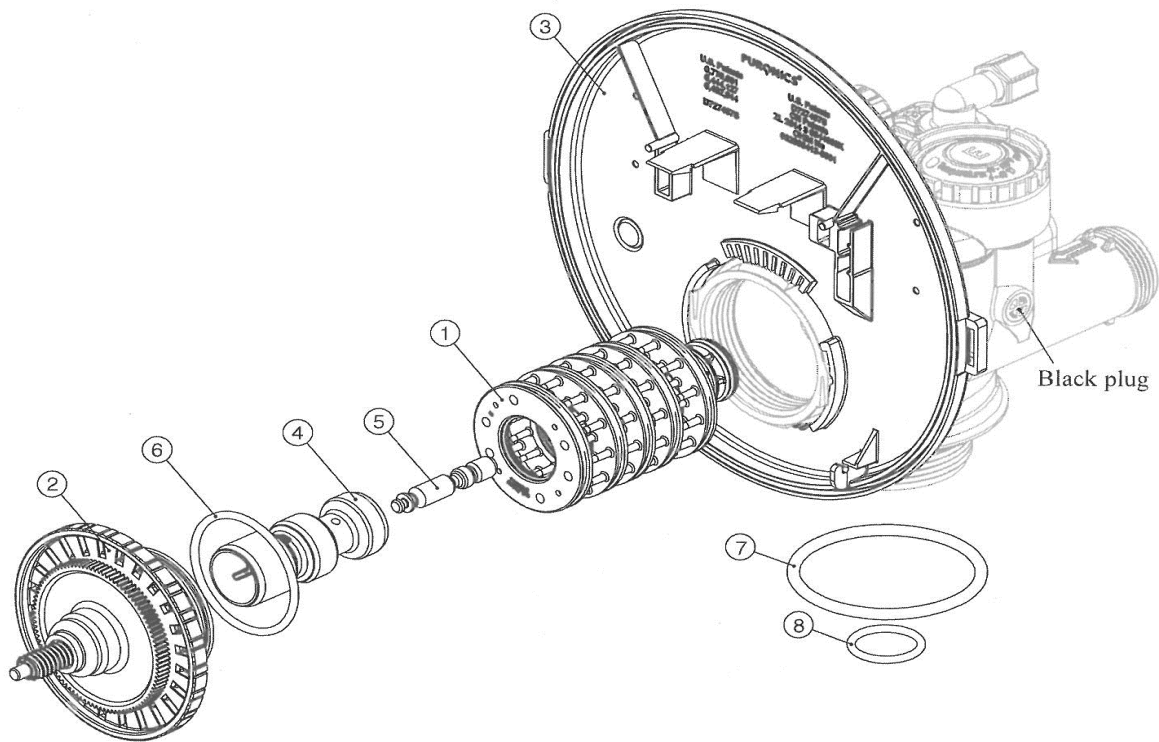
If the power goes out for less than two hours, the system will automatically reset itself. If an extended power outage occurs, the time of day will flash on and off which indicates the time of day should be reset. The system will remember the rest.

### Error Message

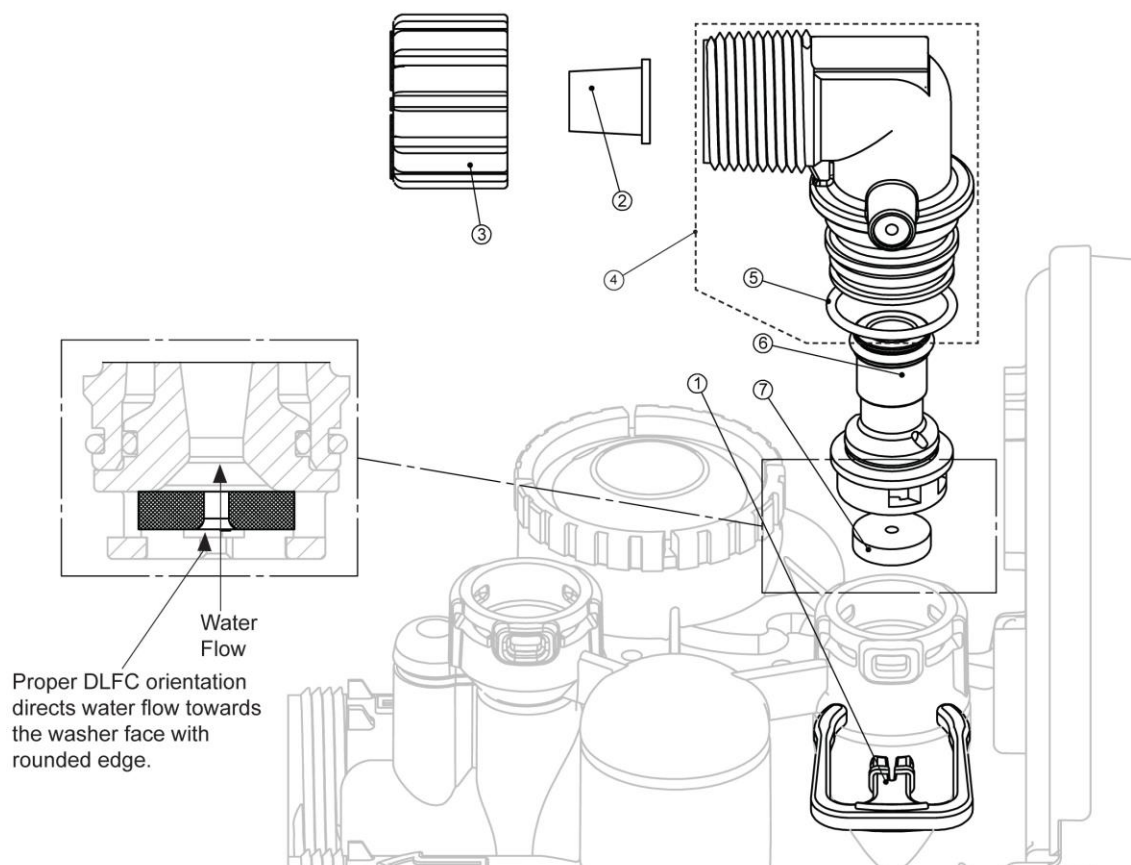
If the word ERROR and a number are alternately flashing on the display, contact your PURONICS dealer for help. This indicates that the valve was not able to function properly.



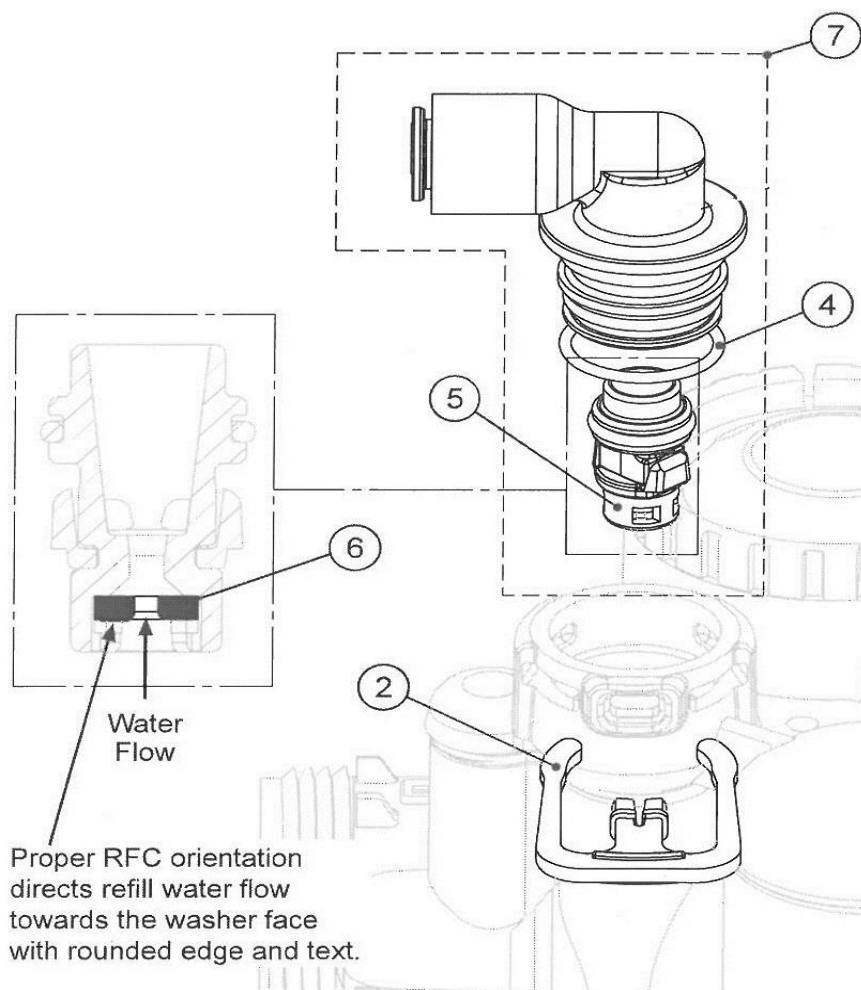




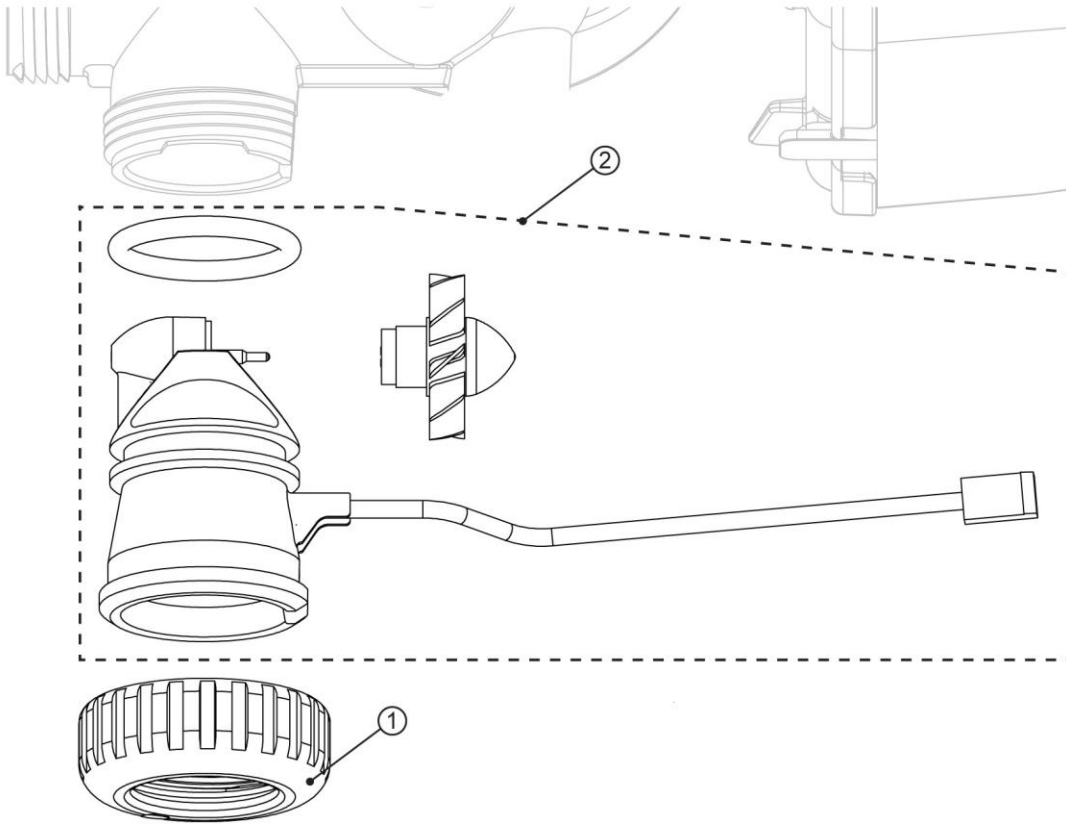
| DRAWING NUMBER | PART NUMBER | DESCRIPTION          |
|----------------|-------------|----------------------|
| 1              | W-CL-V3005  | SPACER STACK ASSY    |
| 2              | W-CL-V3004  | DRIVE CAP ASSY       |
| 3              | W-CL-V4166  | iGen BACK PLATE      |
| 4              | W-CL-V3011  | PISTON DOWNFLOW ASSY |
| 5              | W-CL-V3174  | REGEN PISTON         |
| 6              | W-CL-V3165  | O-RING 228           |
| 7              | W-CL-V3180  | O-RING 337           |
| 8              | W-CL-V3105  | O-RING 215           |



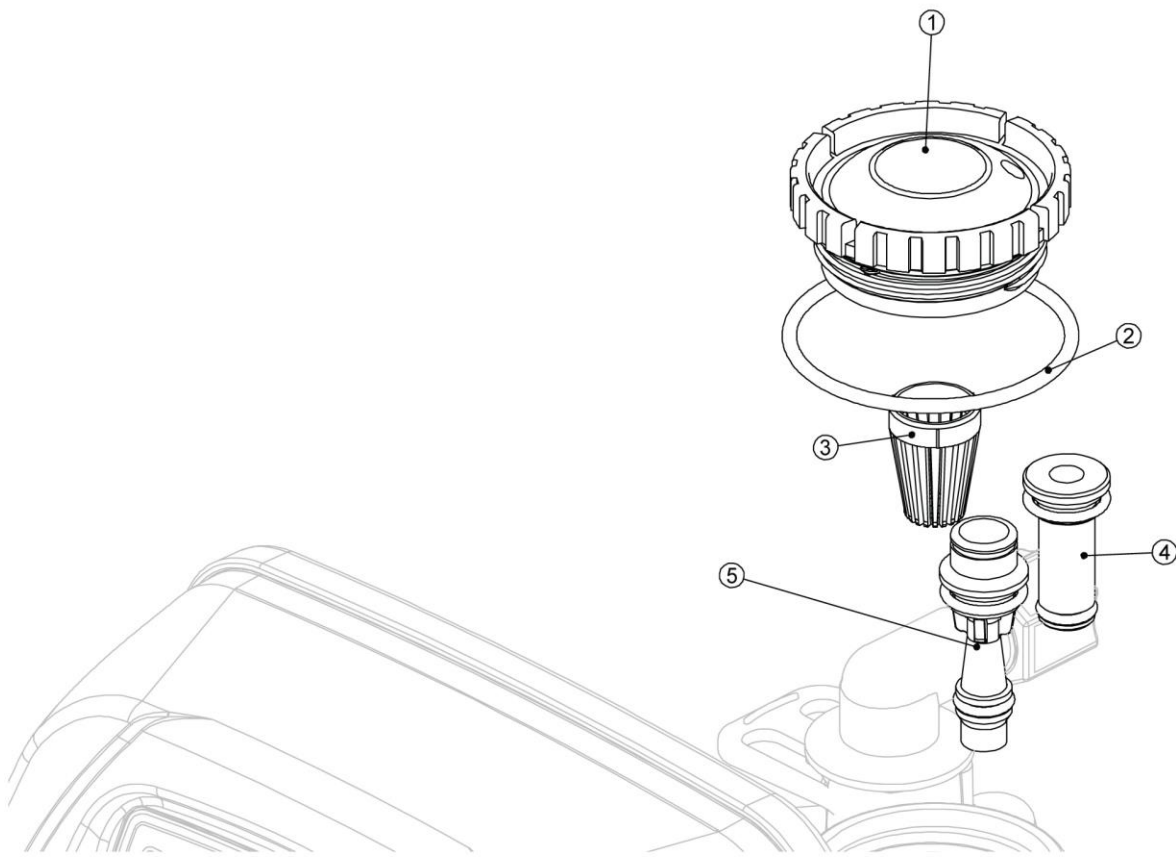
| DRAWING NUMBER | PART NUMBER        | DESCRIPTION            |
|----------------|--------------------|------------------------|
| 1              | W-CL-H4615         | ELBOW LOCKING CLIP     |
| 2 (OPTIONAL)   | W-CL-PKP10TS8-BULK | POLYTUBE INSERT 1/2 IN |
| 3 (OPTIONAL)   | W-CL-V3192         | NUT 3/4 DRAIN ELBOW    |
| 4              | W-CL-V3158-02      | DRAIN ELBOW 3/4 MALE   |
| 5              | W-CL-V3163         | O-RING 019             |
| 6              | W-CL-V3159-01      | DLFC RETAINER ASSY     |
| 7              | W-CL-V3162-017     | DLFC 1.7 GPM           |



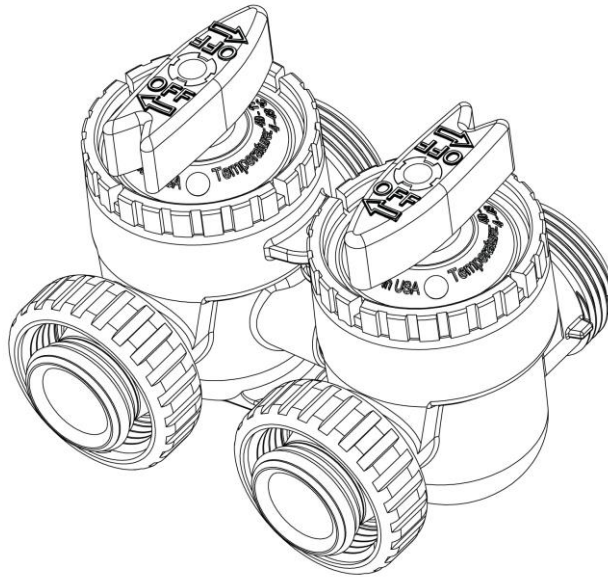
| DRAWING NUMBER | PART NUMBER   | DESCRIPTION        |
|----------------|---------------|--------------------|
| 2              | W-CL-H4615    | ELBOW LOCKING CLIP |
| 4              | W-CL-V3163    | O-RING 019         |
| 5              | W-CL-V3165-01 | RFC RETAINER       |
| 6              | W-CL-V3182    | RFC 0.5 GPM        |
| 7              | W-CL-V4144-01 | BRINE ELBOW ASSY   |



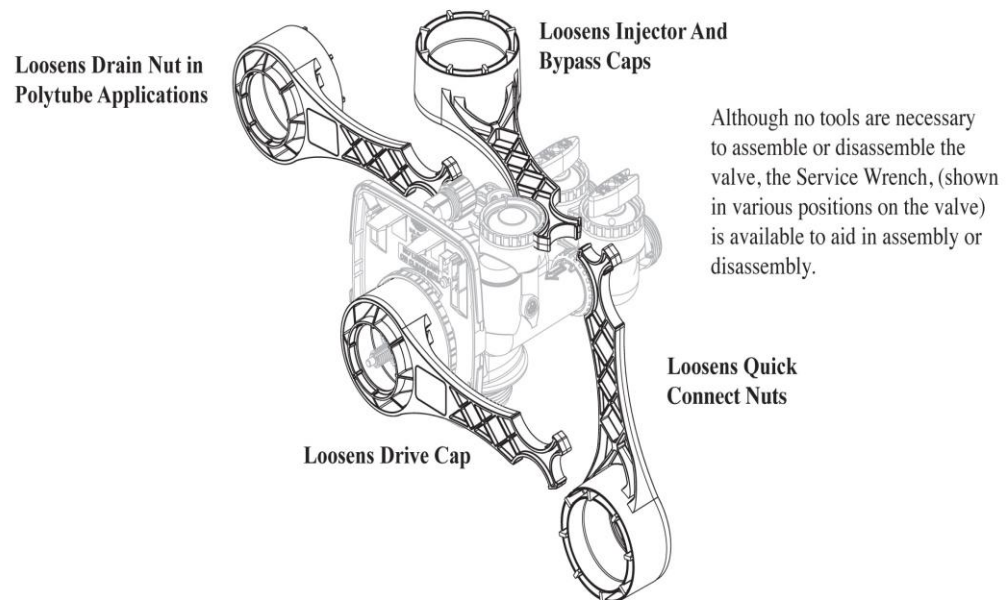
| DRAWING NUMBER | PART NUMBER | DESCRIPTION |
|----------------|-------------|-------------|
| 1              | W-CL-V3151  | NUT         |
| 2              | W-CL-V3003  | METER ASSY  |



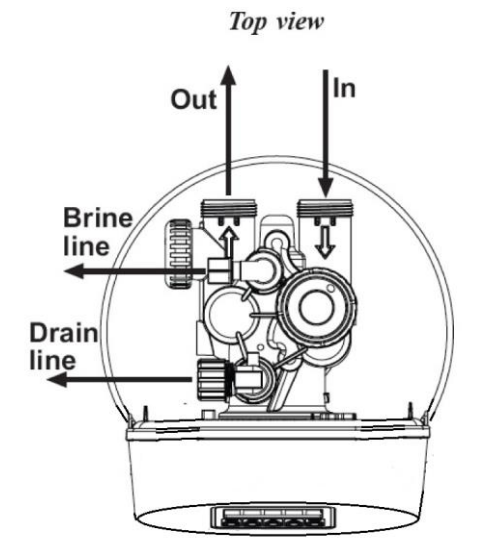
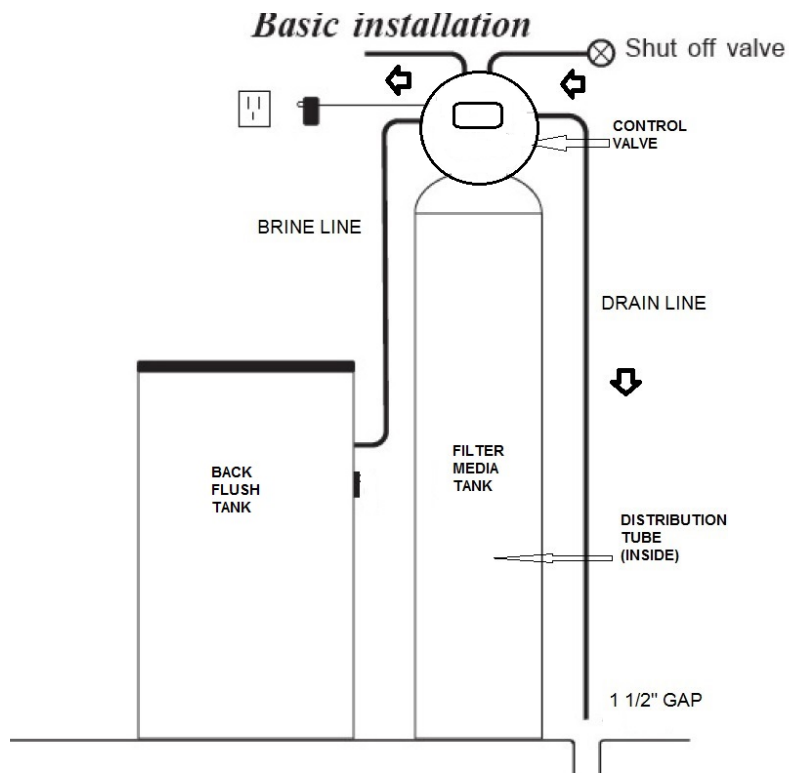
| DRAWING NUMBER | PART NUMBER   | DESCRIPTION          |
|----------------|---------------|----------------------|
| 1              | W-CL-V3176    | INJECTOR CAP         |
| 2              | W-CL-V3152    | O-RING 135           |
| 3              | W-CL-V3177-01 | INJECTOR SCREEN CAGE |
| 4              | W-CL-V3010-1Z | INJECTOR PLUG        |
| 5              | W-CL-V3010-1E | INJECTOR ASSY WHITE  |



| PART NUMBER | DESCRIPTION       |
|-------------|-------------------|
| W-CL-V3006  | BYPASS VALVE ASSY |



| PART NUMBER   | DESCRIPTION    |
|---------------|----------------|
| W-CL-V3193-02 | SERVICE WRENCH |



| PART NUMBER      | DESCRIPTION              |
|------------------|--------------------------|
| W-CL-V1PUDME     | IGEN CONTROL VALVE       |
| W-B-618          | FILTER MEDIA TANK        |
| W-MA-34310400018 | DISTRIBUTION TUBE        |
| W-A-865          | BACK FLUSH TANK ASSEMBLY |
| W-B-170-1BX      | RESIN 1 CF BOX           |
| C-F-130-2        | HYGENE 3# BAG            |
| W-B-145          | SILICA GRAVEL            |

## INSTALLATION INSTRUCTIONS FOR THE Model DEFENDER iGen 30B/45B

All water conditioners should be installed in accordance with applicable state and local plumbing and electrical codes.

These instructions supplement and do not supersede local codes.

Please read & understand the installation instructions completely before installing the water conditioner system.

### VALVE POSITIONS

1. Back Flush Tank Fill
2. Service Hold for Salt Meltdown
3. Backwash 1
4. Brine Rinse
5. Backwash 2
6. Fast Rinse
7. Service

The entire water conditioner has been factory tested to ensure proper performance and the customer's satisfaction.

### UNPACKING

This automatic water conditioner has been shipped complete in two cartons. These containers have been carefully designed to assure the customer of satisfactory arrival at the destination.

One carton contains the water conditioner mineral tank which is preloaded with permanent high capacity ion exchange resin. The control valve is mounted on top of this tank. The carton also contains the homeowners manual, bypass valve, connection adapters, and warranty card. Care should be executed in unpacking to prevent accidental loss of these components.

The second carton contains the salt storage back flush tank and its components. These consist of a brine valve inside the brine well and a three-foot section of polyethylene brine tubing.

Attach the bypass to the valve. Make sure you have moved the bypass levers so that the indicators points toward each other.

### INSTALLATION

Select a location that is convenient for drain facilities, electrical outlet, and for servicing and adding salt. System should be hooked up to cold water feed. System should be wrapped if there is potential for temperature dropping below freezing. If the system is located outside, a weather cover (part number W-CL-V4169) must be installed on the control valve. If necessary, the tank can be buried up to the top of the tank.

Turn main water supply off. Drain plumbing system by opening a cold water faucet as low as possible in the house and one as high as possible.

The connection point for the plumbing to the water conditioner should be in the main water line after any installed check valves and/or pressure regulators. The installation should also be cut in after any backflow prevention devices or sprinkler/irrigation systems. The cut-in must be before any Tee's in the main plumbing line that feeds any fixtures in the house.

Cut the main supply line and remove approximately 6 inches of existing plumbing. If existing plumbing is galvanized pipe, you will have to cut the pipe and thread or remove a section of pipe and replace with copper tubing or any code approved plumbing product.

Run the plumbing from the main shut off side or "street side" of the cut that was made in the plumbing to the inlet opening in the bypass valve marked "In" or with the "in arrow".

Use caution in soldering so that excessive heat is not applied in the vicinity of the valve for any extended time. Use wet towels or rags to conduct heat from the valve. The unit comes with two 1" MNPT plastic and plastic nuts with washers for the by-pass; additional adaptors are available by request for PVC and CPVC installations.

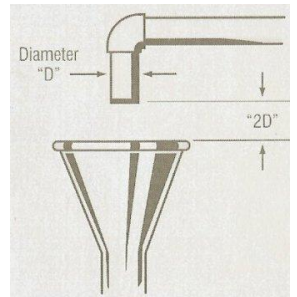
Run the outlet plumbing from the opening in the bypass valve marked "outlet" or with the "out arrow" to the return or "house" side of the cut that was made in the main plumbing.

Puronic recommends not reducing the size of the existing plumbing. If main service line is 3/4" then the system should be installed in 3/4" copper tubing or pipe.

When the connections are fully completed verify that the bypass handle is in the bypass position. Turn main water supply on. Check for leaks. Shut off the lower faucet that was turned on earlier and then turn off the upper faucet. Re-check to make sure there are no leaks in the plumbing.

### RUN & CONNECT THE DRAIN LINE

The Drain Adapter is the black elbow located on the top side of the main valve with the 3/4" MNPT fitting. If vertical drain is necessary, limit to a rise of 8 feet under average water pressure. Best plumbing practice and most plumbing codes require a 1-1/2" (or two times the size of the drain line) air gap between end (outlet) of the drain line and receiver (floor drain, utility sink, etc.).



Use caution when screwing a coupling onto the male threads. The male threads should have Teflon tape applied and only be hand tightened snugly. Over tightening can stress and crack the drain adapter.

The end (outlet) of the drain line must be secured in position to avoid movement from the set position.

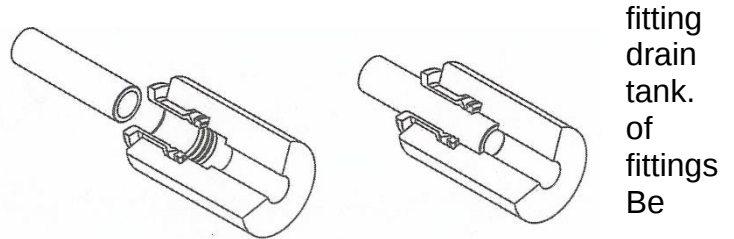
Never use any tubing smaller than 1/2 inside diameter for drain line.

## PLACEMENT OF THE BACK FLUSH TANK

Make sure that salt storage tank is level and on a smooth surface. If a rough or uneven floor is the only support available, set the salt storage tank on a piece of Masonite or plywood and level.

## SETTING UP THE BACK FLUSH TANK

Connect the 3/8 brine line to the black elbow on the top side of the system valve (near the line) and the brine valve inside the back flush. Trim the tubing to length. Be sure tubing is free debris, nicks or scratches which may cause to leak. Firmly insert the tubing into the fitting, certain tubing goes past the quad seal and properly bottoms in fitting (see diagram). The fitting will grab the tubing and hold and seal into place. To remove the tubing, push the collet around the tubing in and at the same time pull the tubing out.



The back flush tank is equipped with a float actuated shut-off valve to prevent overfilling therefore an overflow drain is not required.

DO NOT ADD WATER TO THE SALT TANK

## ELECTRIC HOOK-UP

Plug 110v to 12v transformer into electrical outlet. Many receptacles in present installations may not have provisions for the 3-prong plugs. If not, a parallel ground adapter must be used. If used, make certain that the grounding tab on this adapter is firmly attached to the screw on the receptacle box. Do not plug into ungrounded temporary power supplies. Verify that the receptacle used is "hot" all of the time & is not operated by a wall switch.

The transformer cable can be extended if necessary by cutting and splicing in additional wire (using proper 12 volt wire). Be sure to completely wire the connections before plugging in the transformer.

## SETTING UP THE SYSTEM

To set the system for regeneration the water hardness will have to be tested by a water professional or call the local municipality. The hardness must be set in Grains Per Gallon (gpg).

To set the system for the water hardness, push and hold the "NEXT" and  buttons simultaneously for 3 seconds. Doing this will change the display screen to read "SET HARDNESS". Use the  and  arrows to set the system to how hard the water supply is in the home. Once

the hardness is set, push the "NEXT" button to change the display to "SET REGEN DAY" this is an over-ride setting and will not effect the normal operation of the system. Set this setting to 20 by using the  and  arrows. Now push the "NEXT" button again to change the display to "SET TIME

REGEN". This is the time that the system will regenerate. The default time is 2:00AM. This time should not be changed unless a conflict with the normal regeneration time occurs. Use the  and  arrows to change the regeneration time hour. Now push the "NEXT" button and use the  and  arrows to change the regeneration minutes. One last push of the "NEXT" button will

return the display to the correct time of day. Push the "SET CLOCK" button to set the clock to the correct time of day using the  and  arrows.

### SYSTEM START-UP (FLUSHING)

With the control valve in SERVICE, open only the inlet bypass valve and allow the tank to fill . When you can no longer hear the water filling, **close the inlet bypass valve.**

Initiate a manual regeneration immediately, press and hold the REGEN button for three seconds. The system will begin to regenerate immediately. Advance through regeneration to the RINSE step by pressing the REGEN button. Wait until the motor stops and the rinse time begins to count down. Open the inlet bypass valve and let the system RINSE for 60 minutes or until the water runs clear, by unplugging the transformer. Return the system SERVICE by plugging the transformer back in and by pressing the REGEN button.

**CAUTION: Do not BACKWASH. If the water flows too rapidly, there will be a loss of media out of the drain**

Now add salt to the Back Flush Tank. The salt in the back flush tank can be maintained at any level between almost empty to completely full, as long as the back flush tank does not run out of salt, the system will perform properly.

Open both bypass valve handles and run all of the faucets in the house to clear all of the plumbing lines of air and water from the installation.

***If there is no water flow, check the installation. The system is equipped with a check valve in the inlet to prevent reverse flow and the system may be plumbed in backwards***

Fill out warranty card.

The installation is now complete

Double check the following items before leaving installation site:

- (1) Check plumbing for possible leaks.
- (2) Has warranty card been correctly and completely filled out?

This warranty card MUST be returned to validate your Factory Warranty.

- (3) Is **the** control valve transformer plugged in?
- (4) Is there salt in the storage tank?
- (5) Are bypass handles in service position?
- (6) Has air (caused by water being shut-off for installation) been released from all water lines in the house?
- (7) Have the proper regeneration settings been made?
- (8) Has correct time of day been set?

### SANITIZATION

This system left the factory clean and the materials used in its manufacture won't contaminate the water supply. However, bacteria could get into it during storage, installation and the initial setup. PURONICS recommends that the system be sanitized after installation and at any time that it may become contaminated. It can be sanitized using a variety of different solutions. Chlorine (sodium hypochlorite) in the form of (unscented) household bleach is the most common but Hydrogen Peroxide, Per acetic Acid, Iodine and Quaternary Ammonium can also be used but with caution. Puronics recommends Household Bleach; that is easy, safer and economical to use.

To sanitize the system add 3 to 4 ounces of household bleach to five (5) gallons of water to the back flush tank; then send the system through a manual regeneration. To initiate a manual regeneration immediately, press and hold the REGEN button for three seconds. The system will begin to regenerate immediately.

# General Residential Checklist & Troubleshooting

## Adding Salt

Ensure that the salt can always be seen in the back flush tank. Try to keep the salt at or above the halfway point in the tank..

## Water Pressure

Water pressure range of 20-125 psi is required for regeneration valve to operate effectively.

## Electrical Facilities

An uninterrupted alternating current (A/C) supply is required. Please make sure voltage supply is compatible with unit before installation.

## Existing Plumbing

Condition of existing plumbing should be free from lime and iron buildup. Replace piping that has heavy lime and/or iron build-up. If piping is clogged with iron, install a separate iron filter unit ahead of the water softener.

## Location of Softener, Drain & Back Flush Tank

Locate the softener close to a clean working drain and connect according to local plumbing codes. The back flush tank should be located within 20 feet of the water softener.

## Bypass Valve

If valve is leaking, turn bypass handles from In Service to the Bypass Position.

**NOTE: If the valve continues to leak after turning the bypass to bypass position, shut off the main water line and call your local service technician (preferably the one who installed the system) IMMEDIATELY.**

|                                                                                     |                                                                                                                                                                                                 |
|-------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
|  | <b>CAUTION</b> <ul style="list-style-type: none"><li>• Do Not Exceed Water Pressure of 125 psi.</li><li>• Do Not Exceed 100° F.</li><li>• Do Not Subject Unit to Freezing Conditions.</li></ul> |
|-------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|

| Problem                                | Solution                                                                                                                                                                |
|----------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Control valve fails to regenerate      | Check for power outage and verify unit is plugged in. If this does not work, contact your local water service technician (preferably the one who installed the system). |
| Water does not feel or appear soft     | Check salt level in back flush tank & maintain salt level above water level. If problem still exists, contact your local water service technician.                      |
| Unit uses too much salt                | Contact your local water service technician                                                                                                                             |
| Loss of water pressure                 |                                                                                                                                                                         |
| Iron in conditioned water              |                                                                                                                                                                         |
| Excessive water in back flush tank     |                                                                                                                                                                         |
| Other problems with the water softener | Reset the Time of Day in the event of a power outage/ failure. See “Setting the Time of Day” page.                                                                      |
| Power Outage                           |                                                                                                                                                                         |

## Questions And Answers

### **What is water conditioning?**

Water conditioning is that branch of engineering that determines the chemical characteristics of a tap water supply, as it enters your home, and treats these characteristics so as to provide water more suitable and economical for household use.

### **Why is it essential to improve water quality?**

Beyond being an absolute necessity of life, water is an outstanding cleaning agent. The trouble is that nature does a lot of things with water long before you have a chance to use it in your laundry or at your kitchen sink. You get it, as it were, second hand. Therefore, improving your water quality by water conditioning is just as essential as any other home appliance.

### **Does the conditioned water have a "different" taste?**

Taste is difficult to define as no two people have the same sense of taste. A water conditioner will remove certain minerals and turbidity from the water, giving you a cleaner, better tasting water.

### **Will conditioned water give a cleaner, brighter wash?**

Yes. For best results, you should use the proper amount of laundering agent. Keep in mind up to a 50% soap saving can be achieved with conditioned water. Learn to use less laundering agent because none of the cleansing compound will be wasted as in hard water cleaning. The amount of laundering agent you use depends on: (1) its effectiveness, (2) the volume and temperature of water, (3) the size of the wash load, and (4) the type and amount of dirt and grime.

### **What effect will conditioned water have on plumbing?**

Before the water was conditioned, the hard water caused a scale buildup in the hot water pipes and water heater. Scale acts as an insulating material. In the water heater, scale reduces heat transmission, wastes fuel and often causes heating coil and tube failure. The installation of a water conditioner not only prevents further scale formation but will gradually remove previously formed scale deposits. A recent study indicates that softened water offers a saving of 23% in energy cost in the operation of a hot water heater.

### **Are the minerals which a conditioner removes from hard water essential to health?**

No. The quantity of minerals found in hard water are not essential to good health.

### **Is the sodium in softened water harmful to people on restrictive diets?**

Much depends on the strictness of the diet itself. When the patient is on an extremely restrictive diet, he should drink neither hard nor softened water. Under these conditions he should have demineralized water, distilled water, or water known to be free of sodium for drinking and for the cooking of foods. Such patients are commonly hospitalized.

In establishing a salt-free diet for patients, physicians should not overlook the fact that even hard water may contain appreciable amounts of sodium. To determine the amount a complete analysis of the water is necessary.

### **How much sodium is added to softened water?**

Each grain per gallon (GPG) hardness removed adds 7.875 milligrams (mg) of sodium to a liter of water, which is approximately one quart. The average daily sodium intake of an adult individual is 3,000 to 4,000 milligrams and the average fluid intake is 1.6 to 2.0 liters per day. A liter is slightly more than four 8-ounce glasses of water. Two liters per day or 8.4 eight-ounce glasses of water

amounts to a total sodium intake from a source of softened 8 GPG water of 126.0 milligrams. This is approximately 3% of the average daily sodium intake.

There is another way to answer this question, and that depends on the hardness of your raw water. The following table shows the additional amount of sodium consumed by drinking ONE quart of softened water.

| <b>Initial Water Hardness</b> | <b>Sodium Added By Softening</b> |
|-------------------------------|----------------------------------|
| 5 Grains/Gallon               | 39.3 Milligrams/Quart            |
| 10 Grains/Gallon              | 78.7 Milligrams/Quart            |
| 20 Grains/Gallon              | 157.5 Milligrams/Quart           |
| 40 Grains/Gallon              | 315.0 Milligrams/Quart           |

### **How does this sodium content of conditioned water compare to sodium found in common foods?**

The data in the following table demonstrate the usual range of sodium in common foods.

| <b>Food</b>           | <b>Amount</b> | <b>Milligrams of Sodium</b> |
|-----------------------|---------------|-----------------------------|
| Milk                  | 2 Cups        | 226                         |
| Bread                 | 2 Slices      | 322                         |
| Corn Flakes           | 1 Ounce       | 260                         |
| Tomato Juice          | 4 Ounces      | 504                         |
| Chili                 | 1 Cup         | 1194                        |
| Tomato Soup           | 1 Cup         | 932                         |
| Beef Broth            | 1 Cup         | 1152                        |
| Frankfurter           | 1 Medium      | 610                         |
| Hamburger (Fast Food) | ¼ Pound       | 1510                        |
| Catsup                | 1 Tablespoon  | 204                         |
| Canned Baked Beans    | ¾ Cup         | 1130                        |
| Canned Asparagus      | ½ Cup         | 560                         |
| Frozen Peas           | ½ Cup         | 295                         |
| Cottage Cheese        | 4 Ounces      | 457                         |
| Parmesan Cheese       | 1 Ounce       | 528                         |
| Pretzels              | ¼ Pound       | 1925                        |

It is important to note that about 2/3 of the daily water intake of any individual is through food and only about 1/3 from water itself.

# PERFORMANCE DATA SHEET

PURONICS believes that the more informed our customers are about their water treatment systems, the more confident they will be regarding their water treatment system's capabilities and performance. In our commitment to better serve our customers to this end, PURONICS is pleased to provide this Performance Data Sheet to our valued customers for their review, consideration, and information.

## PURONICS MODEL DEFENDER iGen 30B WATER CONDITIONER



The Model DEFENDER iGen 30B was Tested and Certified by WQA against NSF/ANSI Standard 44 – “Residential Cation Exchange Water Softeners” for the reduction of Calcium and Magnesium (hardness), Barium, Radium and NSF/ANSI 372 for “lead free” compliance, as verified and substantiated by test data

### TESTING CONDITIONS

|                              |              |
|------------------------------|--------------|
| Total Hardness:              | 20 ± 2 gpg   |
| Iron:                        | < 0.1 mg/L   |
| pH:                          | 7.5 ± 0.5    |
| Temperature:                 | 65 ± 10 oF   |
| Total Dissolved Solids(TDS): | 400-600 mg/L |
| Turbidity:                   | < 1 NTU      |
| Sodium:                      | ≤ 5.0 gpg    |
| Pressure:                    | 35 ± 5 psig  |

### CERTIFIED TESTING RESULTS

|                         |                                                                                                                                                     |
|-------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------|
| Capacity:               | 12,027 grains @ 3.0 lbs. salt                                                                                                                       |
|                         | 16,775 grains @ 4.5 lbs. salt                                                                                                                       |
|                         | 22,352 grains @ 9.0 lbs. salt                                                                                                                       |
|                         | 26,513 grains @ 15.0 lbs. salt                                                                                                                      |
| Efficiency Rated Dosage |                                                                                                                                                     |
|                         | 4009 grains at 3.0 lbs. of salt at maximum service flow of 14.6 gpm (the efficiency is only valid at the stated salt dosage and service flow rate.) |

### MODEL DEFENDER iGen 30B WATER CONDITIONER SPECIFICATIONS:

|                                           |                 |
|-------------------------------------------|-----------------|
| • Tank Size:                              | 10" x 54"       |
| • Cation Exchange Resin Volume:           | 1.00 Cubic Feet |
| • SilverShield Media Quantity:            | 3 lbs.          |
| • Maximum Flow Rate:                      | 14.6 gpm        |
| • Pressure Drop at Maximum Flow Rate:     | 15 psi          |
| • Operating Temperature Range:            | 33 – 100 °F     |
| • Operating Pressure Range:               | 25 – 125 psi    |
| • Maximum Regeneration Drain Flow Rate:   | 1.7 gpm         |
| • Maximum Regeneration Time:              | 180 minutes     |
| • Maximum Regeneration Water Consumption: | 35 gallons      |
| • Electrical Requirements:                | 12 V/60 Hz      |

This water conditioner is Efficiency Rated. It has a Demand Initiated Regeneration (D.I.R.) feature which complies with specific performance specifications intended to minimize the amount of regenerant brine and water used during its operation. The water conditioner has a rated salt efficiency of not less than 3350 grains total hardness exchanged per pound of salt used (based upon NaCl equivalency), and shall not deliver more salt than its listed rating. The efficiency is measured by a laboratory test as described in NSF/ANSI Standard 44. This test represents the maximum possible efficiency that the systems can achieve given the properly installed optional items. Operational efficiency is the actual efficiency achieved after the system has been installed. Operational efficiency is typically less than Rated Efficiency due to individual application factors including source water hardness, water usage, and other contaminants within the source water that can foul the resin, and/or reduce the water conditioner's capacity.

PURONICS Water Conditioners are designed to work with any salt of good quality. However, it is recommended that you ask your local PURONICS Authorized Dealer for their suggestion on the best type and grade of salt to use with this Water Conditioner.

To avoid contamination from improper handling or installation, your systems should be installed and serviced by your local PURONICS Authorized Dealer. Performance will vary based upon local source water conditions. Contaminants reduced by this system are not necessarily within your local source water.

Please refer to this Homeowners Manual for further instruction and discussion on the proper installation, operation, and features of your new PURONICS Model DEFENDER iGen 30B Water Conditioner.

# PERFORMANCE DATA SHEET

PURONICS believes that the more informed our customers are about their water treatment systems, the more confident they will be regarding their water treatment system's capabilities and performance. In our commitment to better serve our customers to this end, PURONICS is pleased to provide this Performance Data Sheet to our valued customers for their review, consideration, and information.

## PURONICS MODEL DEFENDER iGen 45B WATER CONDITIONER



The Model DEFENDER iGen 45B was Tested and Certified by WQA against NSF/ANSI Standard 44 – “Residential Cation Exchange Water Softeners” for the reduction of Calcium and Magnesium (hardness), Barium, Radium and NSF/ANSI 372 for “lead free” compliance, as verified and substantiated by test data

### TESTING CONDITIONS

Total Hardness: 20 ± 2 gpg  
Iron: < 0.1 mg/L  
pH: 7.5 ± 0.5  
Temperature: 65 ± 10 oF  
Total Dissolved Solids(TDS): 400-600 mg/L  
Turbidity: < 1 NTU  
Sodium: ≤ 5.0 gpg  
Pressure: 35 ± 5 psig

### CERTIFIED TESTING RESULTS

Capacity: 15,033 grains @ 3.75 lbs. salt  
20,968 grains @ 5.62lbs. salt  
27,940 grains @ 11.25 lbs. salt  
33,141 grains @ 18.75 lbs. salt  
  
Efficiency Rated Dosage  
4009 grains at 3.75 lbs. of salt at maximum service flow of  
13.7 gpm (the efficiency is only valid at the stated salt  
dosage and service flow rate.)

### MODEL DEFENDER iGen 45B WATER CONDITIONER SPECIFICATIONS:

- Tank Size: ..... 10" x 54"
- Cation Exchange Resin Volume: ..... 1.25 Cubic Feet
- SilverShield Media Quantity..... 3 lbs.
- Maximum Flow Rate: ..... 13.7 gpm
- Pressure Drop at Maximum Flow Rate: ..... 15 psi
- Operating Temperature Range: ..... 33 – 100 °F
- Operating Pressure Range: ..... 25 – 125 psi
- Maximum Regeneration Drain Flow Rate: ..... 1.7 gpm
- Maximum Regeneration Time:..... 91 minutes
- Maximum Regeneration Water Consumption: ..... 47 gallons
- Electrical Requirements..... 12 V/60 Hz

This water conditioner is Efficiency Rated. It has a Demand Initiated Regeneration (D.I.R.) feature which complies with specific performance specifications intended to minimize the amount of regenerant brine and water used during its operation. The water conditioner has a rated salt efficiency of not less than 3350 grains total hardness exchanged per pound of salt used (based upon NaCl equivalency), and shall not deliver more salt than its listed rating. The efficiency is measured by a laboratory test as described in NSF/ANSI Standard 44. This test represents the maximum possible efficiency that the systems can achieve given the properly installed optional items. Operational efficiency is the actual efficiency achieved after the system has been installed. Operational efficiency is typically less than Rated Efficiency due to individual application factors including source water hardness, water usage, and other contaminants within the source water that can foul the resin, and/or reduce the water conditioner's capacity.

PURONICS Water Conditioners are designed to work with any salt of good quality. However, it is recommended that you ask your local PURONICS Authorized Dealer for their suggestion on the best type and grade of salt to use with this Water Conditioner.

To avoid contamination from improper handling or installation, your systems should be installed and serviced by your local PURONICS Authorized Dealer. Performance will vary based upon local source water conditions. Contaminants reduced by this system are not necessarily within your local source water.

Please refer to this Homeowners Manual for further instruction and discussion on the proper installation, operation, and features of your new PURONICS Model DEFENDER iGen 45B Water Conditioner.

## Water System Limited Lifetime Warranty

**THE ATTACHED WARRANTY REGISTRATION CARD MUST BE FILLED OUT COMPLETELY AND RETURNED TO PURONICS WATER SYSTEMS, INC. AT THE ADDRESS WHICH APPEARS BELOW, WITHIN 30 DAYS FROM THE DATE OF INSTALLATION TO VALIDATE WARRANTY.**

Puronics Water Systems, Inc., 5775 Las Positas Road, Livermore, CA 94551, warrants to the original purchaser only that the Puronics Water System to which this warranty applies shall be free of defects in materials and workmanship from the date of purchase for the lifetime of the product.

### **IMPORTANT**

**IT IS A VIOLATION OF FEDERAL LAW TO USE THIS PRODUCT IN A MANNER INCONSISTENT WITH ITS LABELING. IF YOUR SYSTEM INCLUDES BACTERIOSTATIC HYgene®, YOU MUST REPLACE THE HYgene® AT SCHEDULED INTERVALS WITH HYgene® MANUFACTURED AND SOLD BY PURONICS WATER SYSTEMS, INC. OR ANOTHER EPA-REGISTERED BACTERIOSTATIC 1.05% SILVER CARBON MEDIA THAT MEETS THE SAME TECHNICAL SPECIFICATIONS AS HYgene®. CONTACT PURONICS AT 1-800-339-8780 TO OBTAIN THE TECHNICAL SPECIFICATIONS OF HYgene®. DO NOT ACCEPT REPLACEMENT HYgene® UNLESS IT IS FACTORY-SEALED WITH THE LABEL READING "HYgene®" MANUFACTURED BY PURONICS WATER SYSTEMS, INC. OWNER MUST FOLLOW REPLACEMENT SCHEDULE AS OUTLINED IN THE HOMEOWNER'S MANUAL FOR WARRANTY TO REMAIN IN EFFECT. PURONICS WATER SYSTEMS, INC. WILL NOT BE RESPONSIBLE FOR ANY DEFECTS IN OR DAMAGE TO THE SYSTEM CAUSED BY OWNER'S FAILURE TO ABIDE BY THESE REQUIREMENTS**

This warranty is a **LIMITED WARRANTY**. The obligations of Puronics Water Systems, Inc. hereunder and the original purchaser's sole remedy shall be limited to the repair or the replacement of the product or part only, at the sole option of Puronics Water Systems, Inc.. **TO THE MAXIMUM EXTENT PERMITTED BY APPLICABLE LAW, PURONICS WATER SYSTEMS, INC. AND ITS OFFICERS, DIRECTORS, EMPLOYEES, AGENTS, AFFILIATES, SUPPLIERS AND LICENSORS SHALL NOT BE LIABLE OR RESPONSIBLE UNDER ANY CIRCUMSTANCES OR IN ANY AMOUNT FOR ANY DAMAGES WHATSOEVER ARISING OUT OF THE USE OF THE PRODUCT, INCLUDING, WITHOUT LIMITATION, FOR CONSEQUENTIAL OR INCIDENTAL DAMAGES OR FOR INJURY OR DAMAGES TO PERSONS OR PROPERTY USING OR USED IN CONNECTION WITH THE PRODUCT, OR FOR LOSS OF PROFITS OR OTHER COSTS OR EXPENSES OF ANY KIND OR CHARACTER. THIS LIMITATION WILL APPLY REGARDLESS OF THE FAILURE OF THE ESSENTIAL PURPOSE OF ANY LIMITED REMEDY.** Labor charges incidental to the repair and/or replacement of parts other than factory repairs are expressly excluded from this warranty. Transportation costs incurred in the receipt and installation of replacement parts covered by this warranty shall be paid by the owner. This warranty shall not apply to any system which has been damaged by accident, fire, flood, act of God, abuse, neglect, freezing, unusual physical or electrical stress, misuse, or alteration, or installation or operation not in accordance with Puronics Water Systems, Inc. instructions and applicable plumbing codes and ordinances. The Puronics Water System is subject to normal wear and tear during its usable service life. Wear and tear is not regarded as a defect and is not covered by this warranty. Cosmetic damage is not regarded as a defect and is not covered by this warranty. This warranty covers the original product only and does not cover replacement filters or media. This warranty must be presented at time of claim, and all claims must be presented within 30 days of occurrence.

**FOR RESIDENTIAL USE ONLY. THERE ARE NO WARRANTIES OR REPRESENTATIONS BY PURONICS WATER SYSTEMS, INC. OTHER THAN AS SET FORTH ABOVE, EITHER EXPRESSED OR IMPLIED, AND NO PERSON, FIRM, OR CORPORATION IS AUTHORIZED TO MAKE ANY REPRESENTATION OR INCUR ANY OBLIGATION IN THE NAME OF OR ON BEHALF OF PURONICS WATER SYSTEMS, INC. EXCEPT AS STATED ABOVE. ANY OTHER WARRANTIES OR GUARANTEES, ORAL OR WRITTEN, EXPRESSED OR IMPLIED, ARE NOT RECOGNIZED.**