INTERMOUNTAIN SOFT WATER

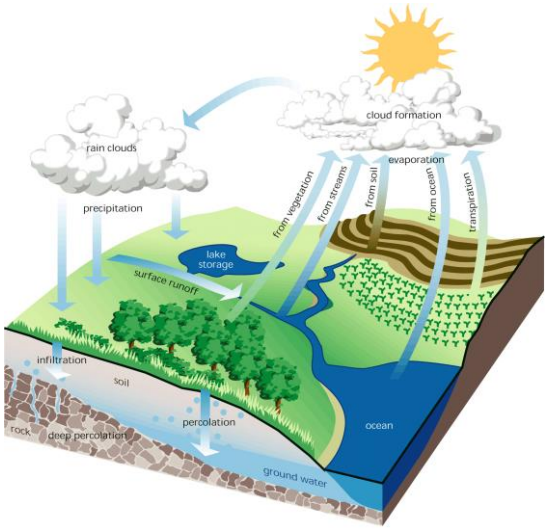
Patriot Pro SXTi

Service Manual

Revised 2019

Software Version 3.9a

Every day, thousands of billions of tons of water evaporate from the earth's surface.



As the heat of the sun evaporates the water and draws it from the earth's surface into the atmosphere, many impurities are left behind. The water vapor eventually cools to form clouds and then falls back to earth as precipitation.

On its way from the clouds to your faucet, soft rain water dissolves and absorbs a part of almost everything it touches.

Falling rain cleans the air as it falls. Unfortunately the impurities that were removed from the air have not left; they have just been relocated through the water onto the ground.

These gases and other airborne contaminants can cause undesirable tastes, colors and odors in water.

Rain falls onto the ground, collecting sediments like rust, sand and even algae. The water eventually finds its way to a surface water supply or percolates downward and collects in an aquifer. As it percolates through the earth, the water can absorb hardness minerals, iron, heavy metals, radioactivity, organic contaminants, and many other complex elements and compounds.

Water can also collect numerous harmful man-made chemical impurities during this cycle. These synthetic chemicals are generally odorless, colorless, and tasteless; and can sometimes be life-threatening. The statement, "my parents drank this water for 75 years and it never hurt them", is no longer a valid excuse to not be concerned with water quality. There has been a massive global increase in harmful chemical waste over the last 50 years.

The scientific and medical community has not had the time or budget to study the long-term health effects of the more than 70,000 harmful chemicals that can be found in use today.

Approximately 1,000 new synthetic chemical compounds are entering the industrial marketplace each and every year. Precipitation falls upon commercial and municipal dumpsites, toxic waste sites, industrial refuse depots, military test sites, leach fields, mining operations, farmer’s fields etc... Where it dissolves minute amounts of the toxic chemicals present and carries them along.

The United States Government estimated in 1986 that close to two percent of the nation's ground water supplies were moderately polluted by sources such as hazardous waste dumps and leaking landfills.

Industrial wastewater is also a major source of water contamination. When certain chemicals come in contact with others, they create new compounds. Chemicals that are considered generally acceptable in controlled amounts may react with other elements and/or chemicals to form new compounds that could be highly carcinogenic.

Chlorine is one of the best-publicized examples; it reacts with organic matter in water and forms deadly trihalomethanes.

Hard water is probably the single largest threat facing the American home in the 21st century. Hard water can coat your family, your home and your appliances with thousands of pounds of inorganic mineral rock-scale each and every year; hard water slowly destroys everything it touches. Left untreated, hard water costs you money, ruins your lifestyle and can even lower the value of your home.

No one needs to tell you that you're living with Hard Water though. Soap doesn't lather easily, glasses are cloudy after washing, a ring forms around the bathtub, faucets and shower heads are crusty, laundering results are poor and there are many other easily recognized signs.

There are several degrees of water hardness. Even moderately hard, can seriously damage the plumbing system in your home and, in time, cause inconvenient and expensive problems.

Hard water is a poor cleaner because it is loaded with a variety of impurities. These dissolved impurities react with certain chemicals found in soap to form a gummy, insoluble curd.

This soap curd clings stubbornly to everything it touches. The ring around your bathtub is curd. That same curd causes your hair to become dull and hard to manage.

Soap curd clogs skin pores and prevents your natural oils from moisturizing your skin. This dryness causes itching and also aggravates skin conditions like psoriasis, eczema and acne.

Soap curd is especially noticeable by the scummy film it forms on dishes, glassware, walls and floors. Hardness and other dissolved solids combine to form the residue you see as spots on glasses, crockery, cutlery and shower enclosures.

Hard water harms fabrics

Laundry washed in hard water takes on a gray color and wears out faster than expected. With hard water in your washing machine, it's almost impossible to wash clothes white - even when you use large amounts of detergent and bleach Minerals and insoluble particles in hard water trap dirt and soap curd in the fabric of your clothes and linens. These deposits give fabric a dull gray "washed-out" look and cause the clothing fibers to be brittle. Your clothes and linens then feel harsh and rough - they deteriorate faster.

Hard water harms foods

Some vegetables such as peas and beans become tough and unpalatable when cooked in hard water. Baking with hard water imparts an undesirable taste from the hardness minerals into your food. Tea, Coffee and other beverages prepared with hard water taste awful and often contain flakes of hardness.

Hard water affects your house plumbing

Perhaps the greatest damage done by hard water is the damage that you can't easily see. Water heaters, humidifiers, boilers and household pipes become lined with an increasingly thick layer of calcium and magnesium scale.

As this scale builds up, the water flow in your pipes diminishes to such a point that new piping is usually the only realistic option to remedy the situation.

Hard water scale inside a water heater forms an insulating layer that prevents the burners or heating elements from heating the water efficiently. Just 1/8" of scale inside the tank can require up to 30% more fuel to heat the water to the desired temperature.

How water hardness is measured

Water hardness is measured in imperial Grains per Gallon (gpg). A grain, in this case, is the weight of an average dry grain of wheat, approximately 1/7000th of a pound. The water treatment industry generally uses the following standards to classify water hardness.

Soft Water	0 - 0.5 gpg
Slightly Hard Water	.5 - 3.5 gpg
Moderately Hard Water	3.5 - 7 gpg
Very Hard Water	7 - 10.5 gpg
Extremely Hard Water	10.5 gpg and greater

THE CRIMES OF HARD WATER, METALS & CHLORINE

Increased Water Heating Costs

Damaged Clothing

Excessive Soap Consumption

Pipe Scaling

Faucet and Fixture Damage

Skin Problems

Unpalatable Food

Undesirable Tastes and Odors

Premature Appliance Failure

Unsatisfactory Laundry Results

Unpleasant Tastes & Odors in Water

Staining on Faucets, Fixtures & Appliances

System Features & Benefits

By purchasing a Patriot Pro, you can now enjoy a clean, clear, softened water in your home while minimizing salt, water and electrical consumption.

Efficient

Your Patriot Pro learns your lifestyle and adapts itself to meet your needs, delivering exceptional water quality while saving you salt, water and electricity. The multimedia filtration bed not only softens your water and removes metals, but also address chlorine tastes and odors.

Upgradeable

Designed for the future, your Patriot Pro is capable of being modularly upgraded, as new technologies are developed to accommodate for rapidly degrading water conditions. The Evertech control center can be updated with the latest software updates & upgrades as they become available.

Reliable

The mechanical subsystem in the Patriot Pro is revolutionary in its own right. The Patriot Pro is built around Open-platform ™ technology, building on a 40-year legacy of reliable design and using 21st century composite materials to ensure reliable and dependable performance.

Safe

Every Patriot Pro is handcrafted in the USA by skilled artisans in a world-class facility to provide you with a water treatment system that exceeds industry safety, manufacturing & quality control standards to give you peace of mind.

Simple

Advanced manufacturing methods and skillfully crafted computer hardware & software makes the Patriot Pro one of the easiest water softening systems to own and operate.

Fractional Brining

During normal regeneration cycles, your Patriot Pro only uses the exact amount of salt needed to match your water usage history.

Built Tough

Your Patriot Pro is built tough to ensure a long service life.

Your responsibilities as an equipment owner

Your Patriot Pro is manufactured to be efficient and reliable. To ensure continued performance while keeping your system operating within manufacturer's specifications, the following operating conditions must be ensured by you, the equipment owner/operator:

Water Pressure Regulator

The influent water pressure into this water system must be regulated by a code-compliant pressure-regulating device not to exceed 75psi.

Power Protection

Power to this system must be supplied by an unswitched 110VAC supply. Surge protection is mandatory and is to be supplied by you, the equipment owner. The use of a UPS (Uninterruptible Power Supply) is encouraged.

Salt

This water system uses either sodium or potassium salt to clean itself. The brine tank must be filled with a high quality pellet or cubed salt to ensure system operation. Rock salt is usually not suitable for this system, as it can contain higher levels of impurities that can require more frequent disinfection and can possibly even compromise system functionality. Consult with your local water professional to decide on the best salt for your application.

Pur-Gard

The Pur-Gard injection feeder should be kept full to ensure proper system operation and maximum efficiency. Check the level of your Pur-Gard feeder each time you fill your brine tank with salt.

Annual Cleaning and Disinfection

Bacteria can colonize water softeners through safe city water, salt, or even ambient air. While weekly antibacterial rinses and supplementation with Pur-Gard help to minimize bacterial growth, your system should be cleaned and disinfected on a regular schedule to ensure peak performance and protect the safety of you family. We can perform the cleaning and disinfection service for you or you can purchase a comprehensive cleaning and disinfection kit to perform this task yourself.

Periodic replacement of media

While built to the highest standards, certain media in your Patriot Pro will need to be replaced periodically. Replacement intervals vary depending on your water chemistry and water consumption habits. Consult with your water specialist during your annual inspection/tune-up service to ensure that you enjoy the very best water quality.

Pur-Gard

The Pur-Gard™ system incorporated into every Patriot Pro ensures that you have the best water quality all year long. This simple injection system is specially engineered to work in all climates to easily introduce Pur-Gard into your brine tank while the system is waiting to clean itself.

Your Patriot Pro will use varying amounts of Pur-Gard, depending on your water consumption habits; always maximizing efficiency and performance while providing you with the water quality that you deserve.

Pur-Gard is designed to:-

- Clean ion-exchange resin without damaging structured matrix media
- Create an inert protective coating on metallic moving parts
- Clean and lubricate all moving components
- Create an unhealthy environment for bacteria in the system
- Activate Purafeel™ technology on compatible systems
- Enhance self-sanitization process on compatible systems

Always keep your Pur-Gard reservoir full to ensure proper system performance, longevity & efficiency.

Cleaning and Disinfection

Your Patriot Pro is probably the hardest working appliance in your home, processing millions of gallons of water over its service life and in turn protecting you from countless amounts of inorganic calcium, magnesium, lead, copper, zinc, iron, manganese, and other contaminants that could be in your water.

In addition to capturing inorganic contaminants, your softener also accumulates sediment bacteria, algae, mold, and fungus that can enter the system through safe city water, salt, or even from the air. These additional contaminants slowly accumulate in your softener and can even colonize it with a biofilm of Heterotrophic Plate Count bacteria (HPC). These bacteria are usually benign, but they can create a food base as safe refuge for potentially harmful pathogens and seriously compromise the longevity and performance of your system.

Your system should be periodically cleaned and disinfected according to established protocol to ensure that it is working to the best of its ability and to protect the safety of your family.

Recommended Cleaning & Disinfection Interval (months)

Water Hardness (gpg) \ Gallons Per Day	50	75	100	125	150	175	200	225	250	275	300	325	350	375	400
1	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12
3	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12
5	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12
7	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12
10	12	12	12	12	12	12	12	12	12	12	12	11	11	10	9
14	12	12	12	12	12	12	12	12	12	11	10	9	9	8	8
18	12	12	12	12	12	12	12	11	10	9	9	8	7	7	6
23	12	12	12	12	12	12	11	10	9	8	7	7	6	6	6
27	12	12	12	12	12	11	10	9	8	7	7	6	6	5	5
32	12	12	12	12	11	10	8	7	7	6	6	5	5	4	4
35	12	12	12	12	10	8	7	6	6	5	5	4	4	4	4

System Installation & Start-up Guidelines

Clear the installation area and carefully sweep the floor where the system will be installed.

Test home water pressure and make sure it is 30 – 75 psi static. A code-compliant pressure regulator must be installed to protect the system on all municipal water installations.

Check to confirm that the water heater has adequate heat expansion protection to protect the system from hot water damage.

Install the system, drain and brine tank overflow according to prevailing local code.

Bypass System.

Run bathtub cold to purge piping of debris and chemical residue from installation,

This will take approx. 5 minutes at 3gpm.

Leave bathtub running and slowly open the inlet valve to the system.

Slowly open the outlet valve from the system.

Observe flow of water from the bathtub. Water will become a dark brown/black color. This color is caused by the system disinfectant/preservative as well as dust from shipping & handling. Allow water to run until clear. Observe water for particles. If resin particles are found in the water, bypass the system and call tech-support. - Leave the bathtub running.

Program the system according to the programming instructions in this manual.

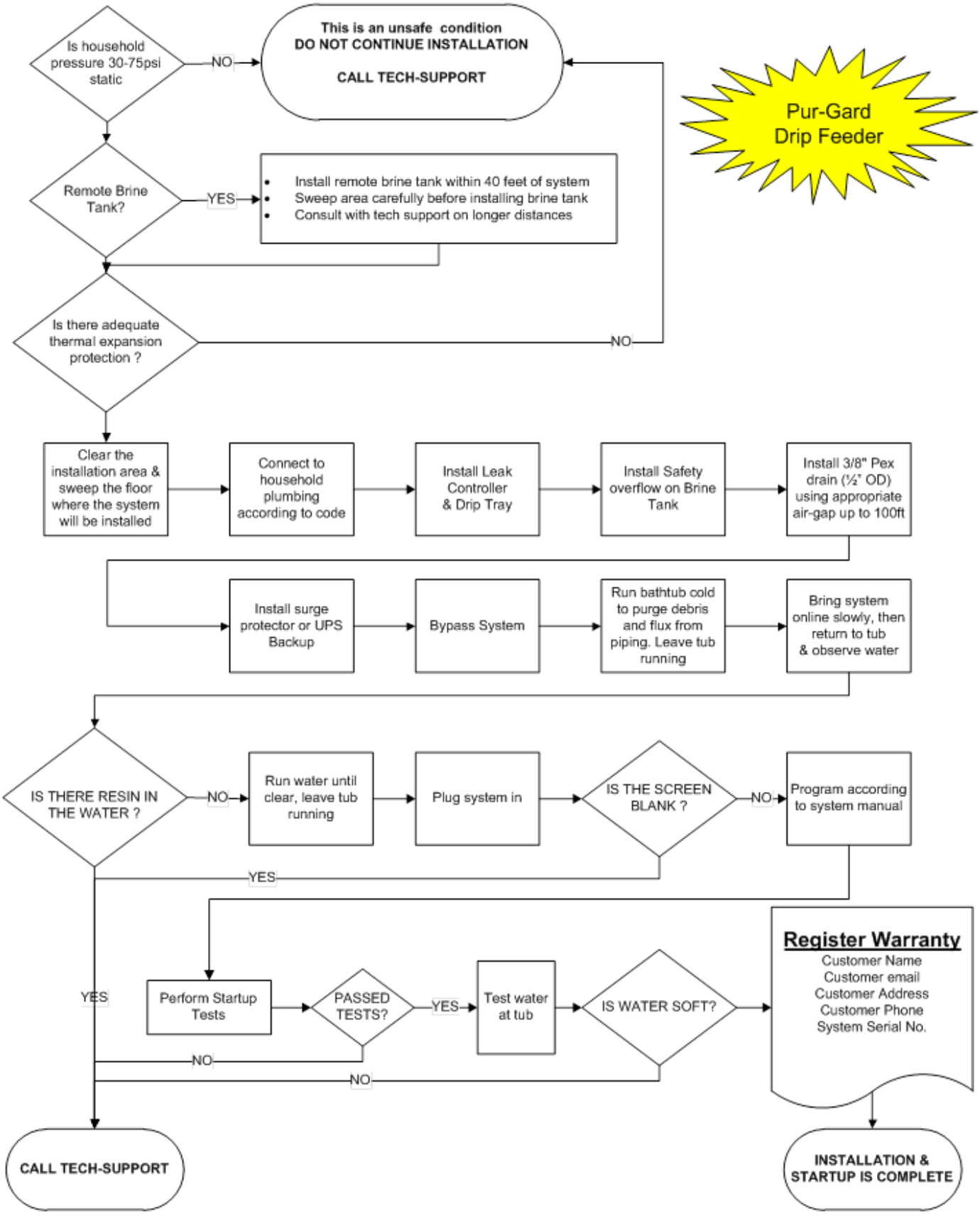
Begin a cleaning cycle by holding the recycle button for 3 seconds.

Advance the system through each cycle step by pressing the recycle button. Observe the system during each cycle and then progressively advance to the next until the regeneration terminates.

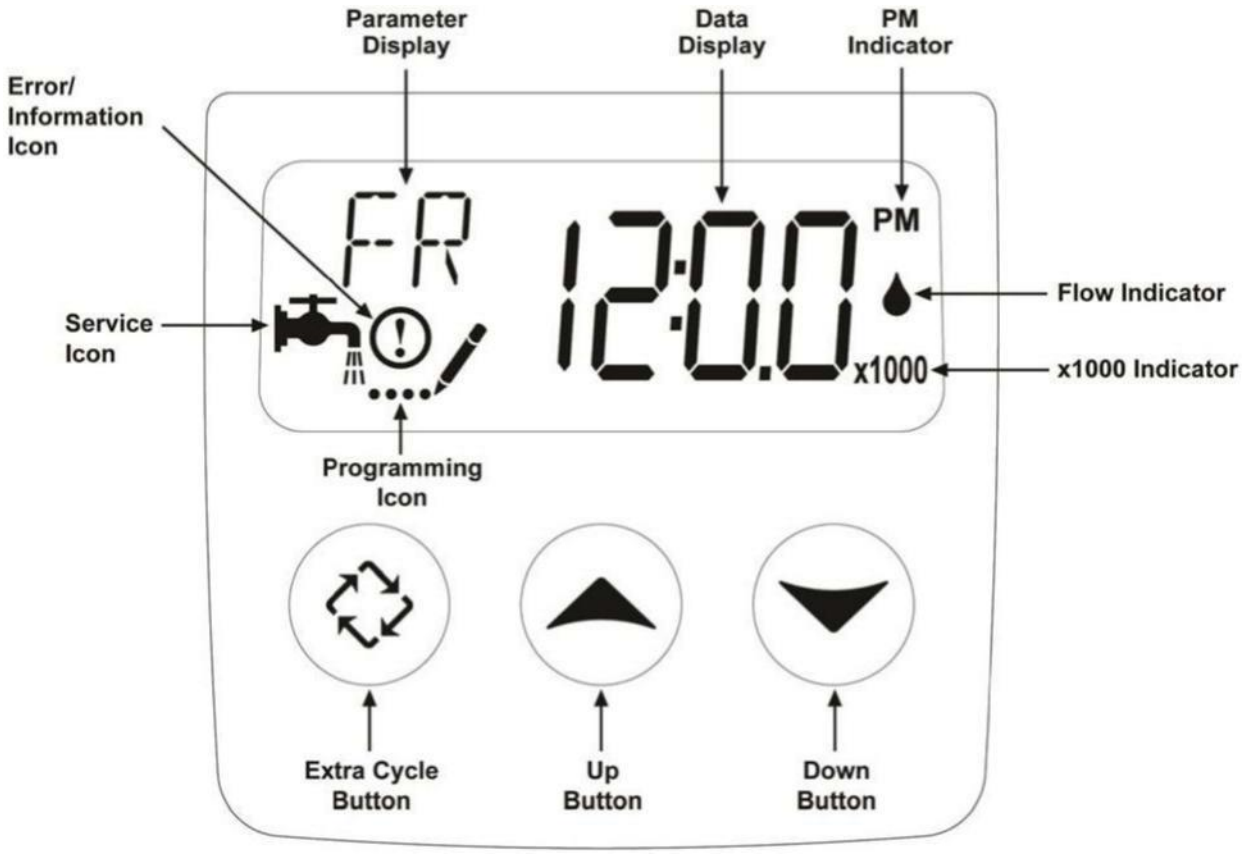
Once the system has been advanced to normal operating mode, observe the flow of water from the bathtub again for disinfectant and resin. Allow water to run clear – Turn off bathtub.

Test water at any softened faucet to confirm acceptable soft water production from the system.

Installation And Startup Checklist



Understanding Your Controller



Service Icon	Lit when the system is **IN SERVICE** and working normally FLASHES when the system is going to clean at the designated regeneration time
Programming Icon	Lit when the system is being programmed
Information Icon	Contact your local authorized service agent if this icon appears
Parameter Display	Displays current cycle step during regeneration
Data Display	During Service Mode—Displays Time of Day and capacity remaining During cleaning mode—Counts remaining cycle time
PM Indicator	Lit when time being displayed is after noon and before midnight
Flow Indicator	Flashes when flow is detected in real-time Rate of flash is proportional to rate of flow
X1000 Indicator	Lit when the data displayed must be multiplied by 1000
Extra Cycle Button	Press once to schedule a delayed cleaning Press and hold to clean immediately
Up Button	Used to adjust settings
Down Button	Used to adjust settings

System Control & Operation

Your Patriot Pro SXTI System incorporates a highly sophisticated microprocessor control system, making it efficient and reliable. All system settings are pre-programmed at the factory and then carefully calibrated by your installer for your specific application. Your Patriot Pro SXTI System incorporates flash EEPROM memory and an innovative power backup system, which means that your system programming should never have to be reset, even in the event of an extended power outage.

Normal Operating Mode

In **normal operating mode**, the display shows the time of day and the capacity remaining. The system observes your water usage through the on-board flow meter and makes intelligent decisions on when and how to clean based on its based programming profile and observations of your water usage habits.

Cleaning mode

In **cleaning mode** the display shows the current cleaning cycle step and the remaining time for that cycle to execute.

Flow meter

In **service mode** the display will show the time of day and remaining capacity; the remaining capacity
counter counts backwards in gallons. By opening a faucet downstream of the system, the correct functioning of the flow meter can be checked by means of this counter.

Diagnostic Mode

In diagnostic mode the system will display various operational statistics and diagnostic data.

Power-Failure Handling

In the event of a power failure, your system's integrated Snapshot memory system will retain all programmed data for an indefinite period of time. The system will maintain the correct time of day during a period of several hours. In the case of a prolonged power failure, the time of day might not be maintained; if this happens, the time of day indication will, when the power supply is re-established, be **flashing**, indicating that the time of day needs to be reset. All other programming is unaffected.

Critical Software/Hardware failure

In the event of a critical software failure, the system display will be completely blank: Call your local service provider for help.

Programming

End-user programming is generally not necessary. If you ever need to change programming, the following procedure should be used:

Programming instructions at the End-User

level Setting the Clock

Make sure that the system is in **service** mode Push and hold the **UP** or **DOWN** button until the **PROGRAMMING ICON** is lit Use the **UP** or **DOWN** button to set the correct time of day
Press the **EXTRA CYCLE** button to save and exit

Accessing the End-User Programming level:

Make sure that the system is in the service mode.
Push and hold the **UP and DOWN** buttons for 5 seconds
Use the **EXTRA CYCLE** button to cycle through settings
Use the **UP** and **DOWN** arrows to make changes within individual settings.
Use the **EXTRA CYCLE** button to exit and return to service mode

Available programming parameters:

DO	Set the anti-bacterial day override setting—The system will cycle at least once during the time interval set here. If you don't use any water, the system will not use any salt.
RT	The time at which the system will start its cycle on a designated cleaning day. **NOTE:** This system fills the brine tank with soft water and then percolates for 3 hours. You can use water normally during the tank fill and percolation times.
H	Set the compensated hardness level. A compensated hardness level is the amount of actual calcium hardness AND the amount of other reactive ions in the water. Adjusting this setting will affect system capacity.
SF	This setting specifies what percentage of the system capacity will be held as a reserve. Since this value is expressed as a percentage, any change to the unit capacity or feedwater hardness that changes the calculated system capacity will result in a corresponding change to the reserve volume. Default is set at 20.

Diagnostics Mode

Diagnostics mode is accessed as follows:

Press the **UP** and **EXTRA CYCLE** buttons together and hold them in for at least 5 seconds Press the **UP** button to scroll through the data Press the **RECYCLE** button to exit **diagnostics** mode

The following diagnostic data is available for viewing:

FR	FLOW RATE	Displays the current real-time flow rate through the system
PF	PEAK FLOW RATE	Displays the highest flow observed by the system since the last regeneration
HR	HOURS IN SERVICE	Displays the total number of hours that the system has been in service
VU	VOLUME USED	Displays the total volume of water treated by the system
RC	RESERVE CAPACITY	Displays the system's current reserve capacity
SV	SOFTWARE VERSION	System Software/Firmware version This can be upgraded by your local authorized service agent

Understanding how your system operates

Water Softening Process

The smallest units that make up chemical compounds and still retain the properties of those compounds are called molecules. Molecules are made up of atoms or groups of atoms. Electrically charged atoms are called ions. The charge of a single ion can be either positive or negative - Ions of metals and of hydrogen are usually positively charged and are called cations. Ions such as chlorine, nitrate, phosphate, fluoride and sulfates are negatively charged and called anions.

Certain insoluble materials are made up of large ions forming a skeletal structure containing oppositely charged ions. These ions can be exchanged with other similar ions in an ion exchange.

The first commercial application of ion exchange was water softening in 1905. Since then, ion exchange has been the most reliable method of softening and conditioning water in homes and industry.

The Softening of water by ion exchange relies on the replacement of the calcium and magnesium ions in the water by an equivalent number of sodium ions.

The Softening process may be illustrated by the following equation:

R2. Na +	$Ca(HCO3)2$ =	R2. Ca +	$2NaHCO3$
Sodium Ion Exchange Resin	Calcium Bicarbonate in water	Calcium Ion Exchange Resin	Sodium Bicarbonate in Water

Obviously, the system can only exchange a certain amount of hardness and other contaminants before becoming exhausted. This is referred to as the capacity of the resin. The capacity of the resin is referred to as grains of calcium carbonate hardness removed per cubic foot of resin or Milliequivalents per liter. When the capacity has been exhausted, the resin needs to be regenerated with a solution of sodium chloride (brine) as follows:

Your Patriot Pro SXTI System can be regenerated with Potassium Chloride if desired.

R2.Ca +	2NaCl =	2 R.Na +	$CaCl2$
Calcium Ion Exchange Resin	Sodium Chloride Brine	Sodium Ion Exchange Resin	Calcium Chloride Waste

Over the years the composition of ion exchange media has advanced, reflecting sophisticated global technological advances.

Ion exchange resins used in your Patriot Pro SXTI System are made in the USA, without harmful toxic solvents.

Your system is designed to address certain impurities in your water through the processes of ion exchange and physical filtration. Your system should only be installed on water that is microbiologically safe. For optimum performance, and to ensure complete warranty protection the Patriot Pro SXTI System should only be installed when the following criteria are met:

	Minimum	Maximum
Water Temperature	40 F	75 F
Water Pressure	30psi	80psi
Influent Water Hardness	0gpg	100gpg
Influent pH	6.7	8.7
Influent TDS	10 ppm	1000 ppm
Pathogenic Bacteria	0 CFU	0 CFU
Chlorine	0 ppm	1 ppm
Chloramine	0 ppm	1 ppm
Ambient Temperature	40 F	90 F

Evertech controller

Your Patriot Pro SXTI System is smart as a result of the exclusive Evertech control platform. This advanced microprocessor control system incorporates the latest hardware and software to ensure that your water is the very best that it can be. Your system can also be upgraded with the latest software and hardware as they become available. See your authorized dealer for more information.

During Service

The control center constantly monitors water usage in your home, learning your lifestyle and adapting itself to ensure that you have a consistent supply of softened water.

The control center makes daily decisions about how and when it should clean itself using the latest algorithms that consider your water usage habits, water hardness, and other programmed parameters.

Your system will periodically perform an antibacterial deep cleaning. This cleaning cycle will occur after a designated period of time (we recommend at least every once a week). This cleaning cycle will inject Pur-Gard into your system and possibly even use salt to clean itself, depending on your water usage. If you haven't used any water during that interval, the system will not use any salt during the antibacterial cleaning cycle.

During a Cleaning Cycle

Once your system determines that it needs to be cleaned, it will initiate a cleaning cycle. The cleaning cycle is controlled by the Evertech control center and cycle times will vary depending on your water usage habits, the system operational history, and other programmed parameters. You should try to avoid using softened water during this time, particularly after the percolation cycle.

The cleaning sequence is as follows:

Once your system determines that it needs to perform a cleaning, it will initiate a cleaning cycle at the preprogramed cleaning time (Normally 11pm). The cleaning cycle is controlled by the Evertech control center and exact cycle times will vary depending on your water usage habits.

At the completion of this sequence, the system will bring itself online & return to normal operating mode.

Backwash	Your system rapidly discharges water upwards through the resin media bed and to the drain. This backwash step ensures that trapped sediment and broken resin beads are flushed out of the system to minimize pressure loss and channelling. You should not use water in the home during this cycle step.
Brine and Slow Rinse	Your system will extract brine water from the brine tank and apply it to the ion exchange media. Once the brine supply is exhausted, your system will begin slowly rinsing contaminants through the media bed and out of the tank to drain. You should not use water in the home during this cycle step.
Second Backwash	Your system rapidly discharges water upwards through the resin media bed and to the drain. You should not use water in the home during this cycle step.
Rapid Rinse	Your system now reverses the flow of rinse water and rapidly flows water downwards through the resin bed, eliminating stray hardness or regenerate ions, and filling the tank with softened water. You should not use water in the home during this cycle step.
Tank Fill	Your system will add a calculated amount of soft water to the salt tank, based upon your water usage history. It is safe to use water in the home during this time.

Troubleshooting

These troubleshooting guidelines are not intended to be all-inclusive or to substitute the expert diagnosis of your local Intermountain certified water professional.

Hard (untreated) water to service

Cause	Solution
Open or defective bypass	Close or verify bypass
Loss of resin	Refer to problem “Loss of resin”
System fails to regenerate	Refer to problem “System fails to clean”
Valve fails to draw brine	Refer to problem “Valve fails to draw brine”
Decreasing exchange capacity of resin	Clean, augment, or replace resin bed
No salt in brine tank	Add salt
Leak at riser tube	Verify that riser tube is seated correctly and is not damaged by heat or high water pressure
Pur-Gard supply exhausted	Refill Pur-Gard feeder

System fails to clean

Cause	Solution
Faulty electrical supply	Verify electrical service – Confirm unswitched power outlet
Obstructed flow meter	Clean and/or replace flow meter
Damaged PCB	Replace PCB
Damaged drain motor	Replace drain motor

Softener fails to draw brine

Cause	Solution
Low operating pressure	Verify operating pressure; must exceed 30 psi static
Plugged injector	Clean injector
Plugged injector screen	Clean injector screen
Piston stuck in incorrect position	Inspect drivetrain and perform remedial action
Restricted/Obstructed drain line	Check drain line for kinks, restrictions or obstructions
Restricted/Obstructed brine line	Check brine line for kinks, restrictions or obstructions
Leak in brine line	Verify brine line and connections for air leakage
Insufficient water in brine tank	Refer to problem “Valve fails to refill brine tank”

Excessive water in brine tank

Cause	Solution
Valve fails to draw brine	Refer to problem “Softener fails to draw brine”
Improper brine refill time setting	Verify that brine refill time corresponds to the proper salt level and amount of hydrolyte resin
Missing brine refill flow control	Verify that flow control is installed and properly sized
Leak from valve to brine tank	Clean or replace brine valve
Brine Valve damaged	Replace Brine Valve

Valve fails to refill brine tank

Cause	Solution
Improper brine refill time setting	Verify that refill time corresponds to salt level and amount of resin
Plugged refill flow control	Clean flow control

System uses too much salt

Cause	Solution
Excessive water in brine tank	Refer to problem “Excessive water in brine tank”
Unit regenerates too frequently	Check household for excessive or unexpected water usage—leaky toilet fill valves, T&P Relief drainage, Reverse Osmosis processors, humidifiers, plumbing leaks etc...

Salty water to service

Cause	Solution
Excessive water in brine tank	Refer to problem “Excessive water in brine tank”
Injector undersized	Verify injector selection
Improper brine/slow rinse time setting	Verify that brine/slow rinse time corresponds to the proper salt level and amount of resin
Improper fast rinse time setting	Verify that fast rinse time corresponds to the proper salt level and amount of resin

Loss of resin through drain line

Cause	Solution
Lower and/or upper distributor damaged	Replace distributor(s)
Leak between riser tube and upper distributor	Verify that riser tube is seated correctly and is not cracked
Heat and/or Pressure Damage	Inspect pressure regulating valve and hot water backup protection devices. Perform appropriate remedial action.

Loss of water pressure

Cause	Solution
Mineral or iron build-up in resin tank	Clean resin bed and control valve; increase regeneration frequency. Increase Pur-Gard dosage rate
Plugged lower and/or upper distributor	Verify that distributors are free of debris
Crushed lower and/or upper distributor	Replace distributor(s)
Resin damaged due to natural attrition or chlorine/chloramine oxidation	Replace Resin

Drain flows continuously

Cause	Solution
Piston stuck in brine/rinse or backwash position	Inspect drivetrain and perform remedial action
Damaged Seals/Spacers	Inspect Seals/Spacers and perform remedial action
Damaged Piston	Inspect drivetrain and perform remedial action

STATEMENT OF LIMITED PRODUCT WARRANTY

1st year of ownership
This residential water system is warranted as to workmanship and material for a period of one year from date of original installation at the original installation site, if properly installed by an Intermountain Soft Water Certified Installer. Should any component in your system prove defective in the first year, it will be repaired, rebuilt or replaced at our option, provided it is returned directly to us.
After the 1st year of ownership, should any component in your system prove defective, it will be repaired, rebuilt or replaced at our option for a maximum charge of $50.00, provided it is returned directly to us. Labor, transportation, shipping or other charges incurred in the diagnosis, replacement or repair of defective components are not covered by this warranty. If you choose not to send a defective component back to us, repairs to your system can be conducted in your home by a factory authorized service technician if your home is within the operating radius of an Intermountain authorized repair center. This warranty does not cover transportation, shipping, diagnosis, replacement and repair charges resulting from your in-home repair request. Intermountain Soft Water or its subsidiaries will not be held responsible for loss or damage caused by any defective component.

Conditions
This warranty must be presented at time of claim and all claims must be presented within 30 days of occurrence. This warranty is void if your water system is not installed in compliance with prevailing plumbing codes, according to Intermountain Soft Water's installation protocol, or if the influent water temperature is hotter than 90oF or where the static water pressure is less than 40psi, or more than 80psi. Intentional/malicious damage, misuse, neglect, unauthorized modifications or accidental damage to the system is not covered by this warranty. This warranty does not cover damage caused by pressure surges, water hammer, power surges or sags, lightning, fire, flood, freezing, earthquake, acts of God or other casualty.

Wear and Tear
Your water system is subject to normal wear and tear during its usable service life. Wear and tear is not regarded as a product defect and is not covered by this warranty.

No Liability for Consequential Damages
Unless otherwise required by applicable law, Intermountain Soft Water shall not be liable for any damages whatsoever (including without limitation, loss time, inconvenience, expenses such as telephone calls, labor or material charges incurred in connection with the removal or replacement of the part(s) or product(s), special, incidental, consequential, or indirect damages for personal injury, loss of business profits, business interruption, loss of business information, or any other pecuniary loss) arising out of the use of or inability to use the defective part(s) or product(s), even if Intermountain Soft Water has been advised of the possibility of such damages. Intermountain Soft Water's entire liability under any provision of this Limited Warranty shall be limited to the amount actually paid for the part(s) or product(s).

No Other Warranties:
Intermountain Soft Water specifically disclaims all other warranties, either express or implied, including, but not limited to implied warranties of merchantability and fitness for a particular purpose, with regard to the part(s), product(s) and/or any accompanying written materials. This limited warranty gives you specific legal rights. You may have other rights that vary from state/jurisdiction to state/jurisdiction.

PurGard
Your water system includes a Pur-gard/Pur-Gard Plus dispensing system. The Pur-gard/Pur-Gard Plus performance-enhancing additive is essential to proper functioning of your system. If Pur-gard is not added to the dispensing system at the prescribed interval in your owner's manual, this warranty will be void.

Periodic replacement of media
While built to the highest standards, certain media in your Water System will need to be replaced periodically by your local authorized service agent. Replacement intervals vary depending on your water chemistry and water consumption habits. Consult with your water specialist during your annual cleaning and disinfection service to ensure that you enjoy the very best water quality. Media replacement is not covered under this warranty.
In order for this limited lifetime warranty to be valid, you must:
Be the original consumer purchaser, and have purchased the water equipment directly from Intermountain Soft Water, and Provide a copy of the original purchase receipt with proof of date and purchase price

This limited lifetime warranty is only valid if registered within 10 days of installation. If unregistered, this warranty is only valid for 1 year from the date of original manufacture.
Toll-free customer service: 1-800-454-3429