



 **IRON CURTAIN[®] JR**
SYSTEM

Filter Manual

Owner's Filter Manual

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Hellenbrand[®]

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This owner's manual is designed to assist owners and installers with the operation, maintenance and installation of your new water filter. It is our sincere hope that this manual is clear, concise and helpful. Detailed instructions on general operating conditions, pre-installation and installation instructions, start-up, and meter programming are included. We have included a troubleshooting guide, service instructions and parts diagrams to assist future needs.

In the event that you need professional assistance for servicing your water filter, please contact the dealer who installed this system.

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Dealer Name _____ Phone _____

Address _____ Email _____

JOB SPECIFICATION SHEET

MODEL NO. _____

*WATER TEST AT TIME OF INSTALLATION

_____ Iron (ppm)	_____ Hydrogen Sulfide	_____ Manganese
_____ pH	_____ Chlorine	_____ Other _____
_____ TDS	_____ Tannins	_____ Other _____

*SIZING INFORMATION

All Water is Filtered Except:

_____ Rear Hose Bib _____ Front Hose Bib _____ Kitchen Cold _____ Toilets _____ All Cold
_____ Other _____

*INSTALLATION DATE _____

*SERIAL NUMBER _____

NOTES _____

GENERAL SPECIFICATIONS

OPERATING PRESSURES

Minimum/Maximum 30 psi-120 psi

OPERATING TEMPERATURES

Minimum/Maximum 40° - 110° F

METER

Accuracy ±5%
Flow Rate Range 0.25 - 27 GPM
Gallon Range 20 - 50,000

DIMENSIONS

Drain Line 3/4" or 1" NPT
Regenerant Line 3/8" Poly Tube
Electrical Current Draw and Voltage 0.5A 110v

Compatible with the following regenerants or chemicals: Sodium chloride, potassium permanganate, sodium bisulfite, sodium hydroxide, hydroxide, hydrochloric acid, chlorine and chloramines.

PRE-INSTALLATION CHECK LIST

(All electrical & plumbing should be done in accordance to all local codes)

Water Pressure: A minimum of 30 pounds of water pressure (psi) is required for regeneration. Maximum pressure 120 psi.

Water Quality: On rural water supplies there is often a problem with sand or sediment in the water. (This problem occasionally occurs in public water supplies.) Sand and sediment may plug the filter, restricting the flow through the media bed. **Note:** Well and/or pump problems affecting the operation of the filter and repairs are not covered under the warranty.

Electrical: A continuous 110 volt/60 cycle current supply is required. Make certain the current supply is uninterrupted and cannot be turned off with another switch. All electrical connections must be connected per local codes. **Surge protection is recommended with all electrical controls.**

Existing Plumbing: Condition of existing plumbing must be free from lime and iron build-up. Piping that is built-up heavily

with lime and/or iron must be replaced. If piping is blocked with iron, additional equipment may be needed ahead of the filter to correct the problem.

Drain Line: The filter should be located close to a drain. Avoid overhead drain lines if possible to prevent back pressure. Overhead drains are not to exceed 8 feet above the floor and no more than 20 feet in length. The pipe size for the drain line should be a minimum of 3/4". Backwash flow rates in excess of 10 gpm or length in excess of 20' require 1" drain line.

Bypass Valves: Always provide for the installation of a bypass valve.

Caution: Water temperature is not to exceed 110°F; the filter cannot be subject to freezing conditions, or to a vacuum due to loss of pressure (such as a water main break).

BYPASS VALVE OPERATION

NORMAL OPERATION Softening - Filtering

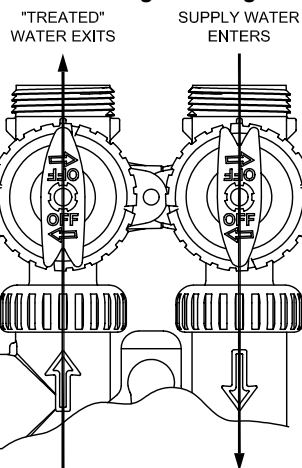


Figure 1

BYPASS OPERATION

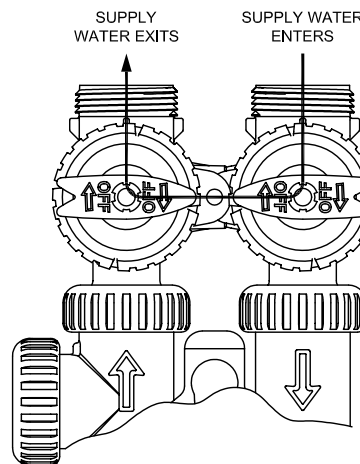


Figure 2

DIAGNOSTIC MODE

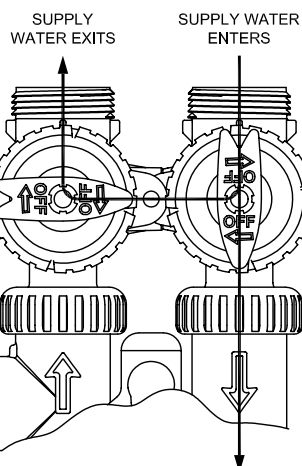


Figure 3

SHUT OFF MODE

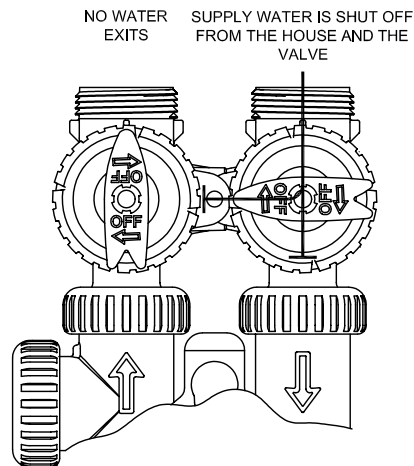


Figure 4

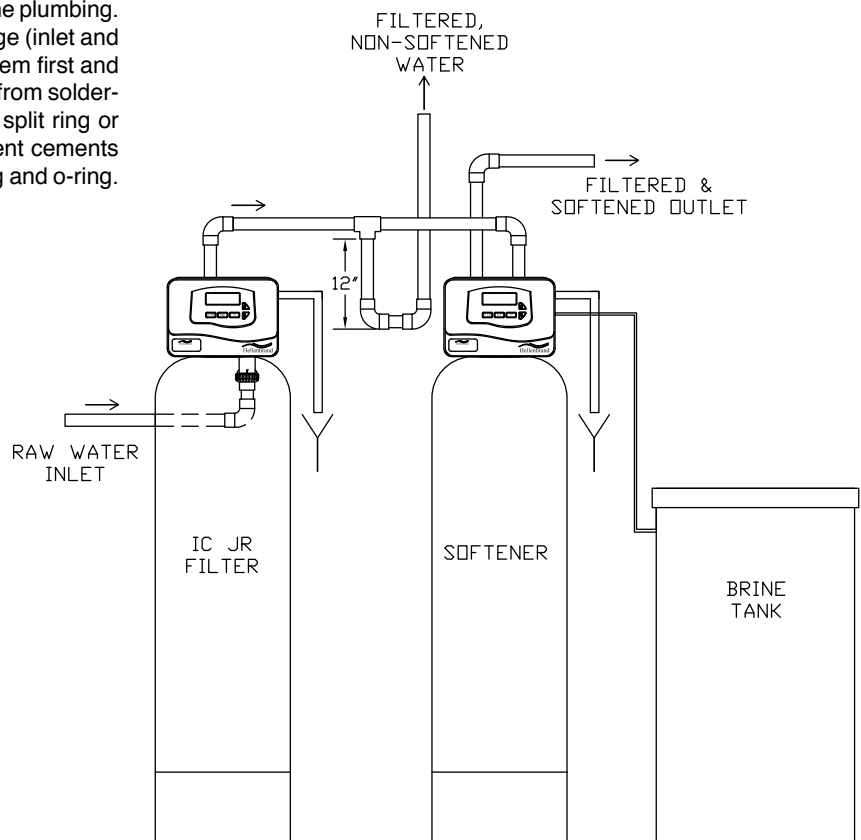
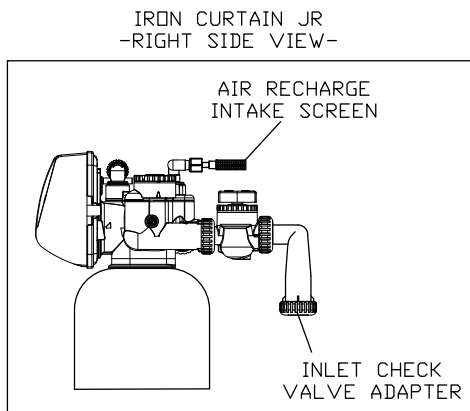
INSTALLATION INSTRUCTIONS

(All electrical & plumbing should be done in accordance to all local codes)

Your new Iron Curtain® Junior allows for simple installation and start up. Installation diagrams are provided to assist you. Use of these diagrams and the following procedures will ensure that the system is properly installed.

Follow all state and local plumbing and electrical codes!

- 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. Only teflon tape may be used on threads. Teflon tape is not necessary on the nut connection or caps because of radial o-ring seals.
 - **The pipe size for the drain line should be a minimum of 3/4". Backwash flow rates in excess of 10 gpm or length in excess of 20' require 1" drain line.**
1. Place the filter where you want to install it, making sure it is on a clean, level and firm base.
 2. Do all necessary plumbing (Install check valve on inlet to filter, inlet to inlet, outlet to outlet and drain line to drain). 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.
 3. 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.

4. **A jumper ground wire should be installed between the inlet and outlet pipe whenever the metallic continuity of a water distribution piping system is interrupted. Install grounding strap on metal pipes.**
5. The drain connection may be made using either 5/8" poly-tube with nut & insert (see page 19, figure 17) or a 3/4" female adapter. If soldering, 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.
6. When installing a filter system it is common to provide filtered water to some fixtures such as the kitchen cold faucet. This is typically done as a matter of personal preference. In rare occasions it has been noted that the customer may experience some air in the filtered water line on the morning after regeneration. It has proven to be beneficial to plumb the line for filtered-only water fixture in a downward direction before the inlet to the softener (12 inches recommended), then make a reverse turn and go upward toward the fixture. Understanding that air always rises to the highest point in a water system, and it cannot naturally flow downward. Connect inlet of filter to water system supply lines.

When installing an Iron Curtain Filter system it is common to provide filtered only water to some fixtures such as the kitchen cold faucet. This is typically done as a matter of personal preference. On rare occasions, the customer may experience some air in the filtered water line the morning after regeneration. It has proven beneficial to plumb the line for the filtered-only water fixture in a downward direction from the inlet of the softener (12 inches recommended), then make a reverse turn and go upward toward the fixture. Any accumulated air always rises to the highest point in a water system and cannot naturally flow downward.

Iron Curtain Junior Start Up Instructions

1. Complete all plumbing connections; inlet, outlet and drain line.
2. Place bypass valve in bypass position (see page 4). Turn on main water supply and open a cold filtered faucet to flush piping of any air and/or foreign material. Run until water is clear.
3. Open inlet valve slowly until it is in fully open position. Plug unit into 120V outlet and remove cover and plug transformer connection into 4-prong connection on circuit board labeled power.
4. Initiate backwash by holding "REGEN" button down until piston movement is heard. Backwash until water at drain is clear.
5. Let regeneration proceed automatically to fast rinse and air recharge.
6. Push "Set Clock" and use UP and DN arrows to set correct time of day.

Operating Conditions

pH — The pH level of the influent water must be 7.0 or higher for iron oxidation reaction to proceed per the engineering specifications.*

Iron — This system is rated for a maximum of 3.0 ppm of ferrous (clear water) and/or ferric (red water) iron.*

Iron Bacteria — If iron bacteria are present; more frequent service may result, life of the Iron Curtain Junior system may be limited and the system may be unable to properly remove iron. **By properly controlling the iron bacteria with chlorine or other approved methods for bacterial reduction, the Iron Curtain Junior System will function properly. In some instances, continuous chlorination of the water supply may be needed.**

Hydrogen Sulfide — Sometimes referred to as "rotten egg" odor. This system is rated for a maximum of 1.0 ppm hydrogen sulfide. Hydrogen sulfide levels vary depending on barometric pressure.*

Manganese — Limit 1.0 ppm; amounts present over 1.0 ppm may gradually prevent iron removal. Note: For optimum manganese reduction, pH should be greater than 8.5.*

Organic Matter (Tannins) — The presence of organic matter such as tannins will prevent the oxidation process of converting the dissolved element, such as iron or manganese, to a

nonsoluble precipitate or solid substance. In other words, organics can tie up the iron preventing filtration. **The presence of organics such as tannins above 0.5 ppm voids any claims for this system to perform as stated above. In some applications, tannin levels below 0.5 ppm or the presence of other organics may hinder the operation of this system.***

Chlorine — The presence of chlorine in the raw water supply ahead of this system should be limited to a maximum of 1.0 ppm free chlorine residual and 0.5 ppm free chlorine or less when fed continuously.

Total Dissolved Solids (TDS) — While TDS does not directly affect iron removal, it is a good indicator of potential interference. Most waters have TDS less than 500 and generally present no problems to iron reduction. If any ion becomes excessive, it may cause failure of iron removal.

A TDS more than 500 ppm voids any claims for this system to perform as stated above.*

***For application parameters outside the specified operation conditions or additional information regarding the listed items, contact your dealer.**

Specifications

Iron Curtain Junior Models	Filter Tank Size	Media Cu. Ft	Inlet/Outlet	Max. Service Flow GPM	(1) Backwash Rate GPM
Iron Curtain JR-10	10"x54"	1.5	1"	4.0	5.3
Iron Curtain JR-12	12"x52"	2.0	1"	6.0	7.5

(1) Water temps above 60° F will require a higher backwash rate. Consult factory.

PROGRAMMING

General Information

The control valve is the "brain" of your water filter. It consists of the valve body and powerhead with solid state microprocessor.

The display panel (see Figure 6) consists of the LED display, power light, and five push buttons which are used in displaying and programming the water filter settings.

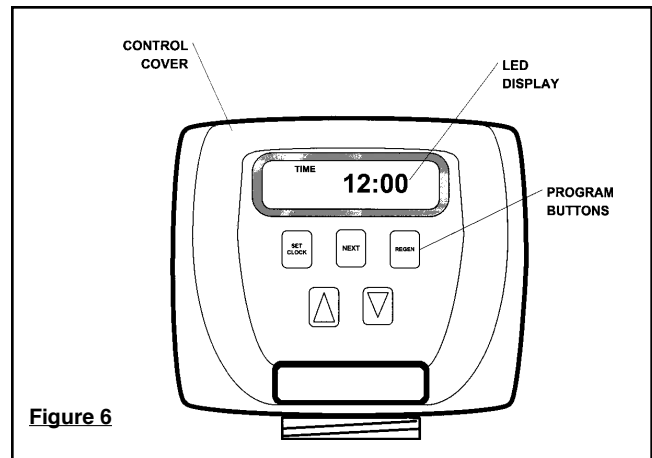


Figure 6

USER DISPLAYS/SETTINGS

General Operation

When the system is operating one of three displays may be shown. Pressing NEXT will alternate between the displays. One of the displays is always the current time of day. Another display is days remaining. A third display is current flow rate. The user can scroll between the displays as desired.

If filter is set as a time clock system, the number of days remaining until the next regeneration will be displayed instead of gallons remaining.

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

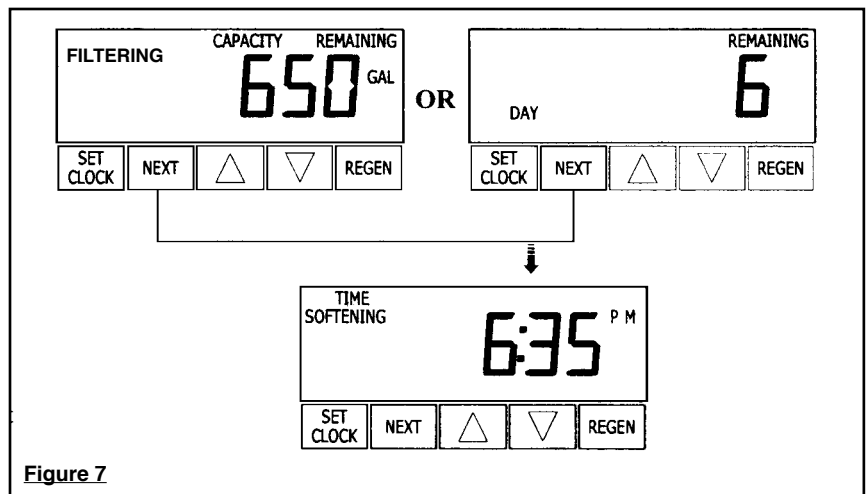


Figure 7

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 the household is asleep. If there is a demand for water when the system is regenerating, untreated water will be supplied.

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 that step to be completed. The system runs through the steps automatically and will reset itself to provide treated water when the regeneration has been completed.

Regeneration Step #2
(shows time remaining in "Backwash" is 8:22)



Figure 11

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 heavy laundry day.

To initiate a manual regeneration at the preset delayed regeneration time, 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.

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. You must cycle all the way through the cycles to make it stop. PLEASE NOTE: This will reset the meter.

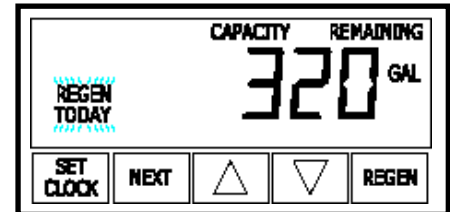


Figure 12

TABLE 4 - FILTERING REGENERATION CYCLES

No Regeneration Chemical Used	Factory Set
1st Cycle: Backwash	12 minutes
2nd Cycle: Rinse	6 minutes
3rd Cycle: Air Recharge	5 minutes - 10" 8 minutes - 12"

WATER FILTER DISINFECTION

The materials of construction of your water filter will not support bacterial growth nor will these materials contaminate a water supply. However, the normal conditions existing during shipping, storage, and installation indicate the advisability of disinfecting a filter after installation, before the equipment is used to treat potable water. In addition, during normal use a filter may become fouled with organic matter or in some cases, with bacteria from the water supply.

Every water filter should be disinfected after installation, some will require periodic disinfection during their normal life. **Disinfection:** Disinfection methods kill most of harmful bacteria found in water which may cause illness. Disinfection methods may vary depending on what media is contained in the filter. Contact your dealer for specific instructions.

SET TIME OF DAY

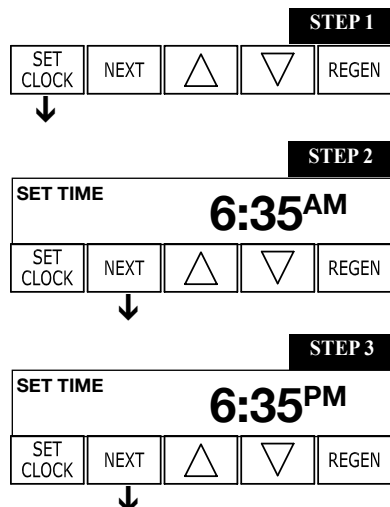


Figure 8

Step 1 - Press SET CLOCK.

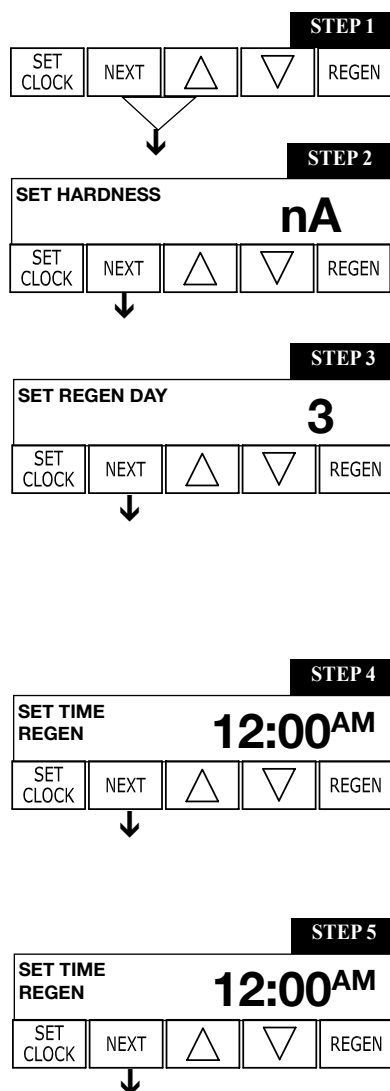
Step 2 - Current Time (hour): Set the hour of the day using ▲ or ▼ buttons. AM/PM toggles after 12. Press NEXT to go to step 3.

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

Power Loss - Lithium battery on circuit board provides up to 24 hours of time-clock backup during power outages. After 24 hours, only the time of day needs to be reset, all other values are stored in non-volatile memory. If a power loss last less than 24 hours and time of day is flashing, replace coin type 2032 battery.

Do not forget to reset for daylight savings time.

INSTALLER DISPLAYS/SETTINGS



Step 1 - Press NEXT and ▲ simultaneously for 3 seconds.

Step 2 - Hardness: nA, press NEXT to go to Step 3.

Step 3 - Day Override: This sets the 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 ▼ buttons:

- number of days between regeneration (1 to 28); or
- "oFF"

NOTE: If filter is set up as a time clock system (ie: not meter initiated) this value will be the days between regenerations.

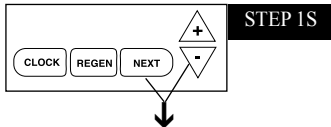
Step 4 - Next Regeneration Time (hour): Set the hour of day for regeneration using ▲ or ▼ buttons. AM/PM toggles after 12. The manufacturer default time is 2:00 a.m. This display will show "REGEN" on 0 GAL if system is set for immediate regeneration. Press NEXT to go to step 5. Press REGEN to return to previous step. **Factory setting is 12:00 midnight to reduce interference with softener regeneration.**

Step 5 - Next Regeneration Time (minutes): Set the minutes of day for regeneration using ▲ or ▼ buttons. This display will not be shown if system is set for immediate regeneration. Press NEXT to exit Installer Displays/Settings. Press REGEN to return to previous step.

RETURN TO USER DISPLAYS

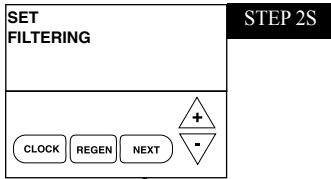
Figure 9

FILTER SETUP

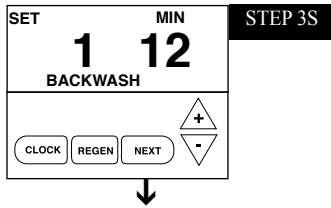


▲ = ▲ Up Arrow ▼ = ▼ Down Arrow

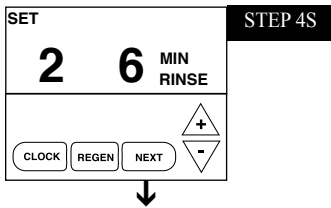
STEP 1S – Press NEXT and ▼ simultaneously for 3 seconds. If screen in Step 2S does not appear in 5 seconds the lock on the valve is activated.



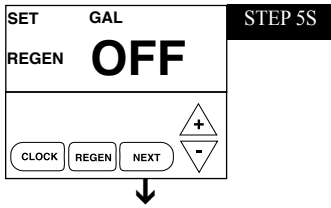
STEP 2S – Select between softening or filtering. A flashing "SOFTENING" or "FILTERING" will appear. Choose FILTERING using ▼ or ▲ button. **Factory setting is Filtering.** Press NEXT to go to Step 3S. Press REGEN to exit Filter System Setup.



STEP 3S – Select the time for the first cycle (which in this example is BACKWASH) using the ▼ or ▲ button. Press NEXT to go to Step 4S. Press REGEN to return to previous step.



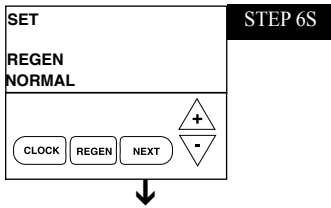
STEP 4 S – Select the time for the second cycle (which in this example is RINSE) using ▼ or ▲ button. Press NEXT to go to Step 5S. Press REGEN to return to the previous step.



STEP 5 S – Set Gallons Capacity using ▼ or ▲ button. If value is set to:

- "oFF" regeneration will be based solely on the day override set (see Installer Display/Settings Fig 7, page 7) or
- as a number of gallons (allowable range 20 to 250,000) regeneration will be based on the value specified.

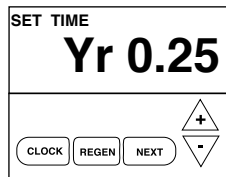
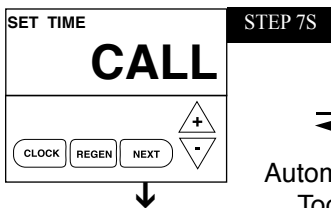
Increment increase is 20 for the range 20 to 2000, 100 for the range of 2000 to 10,000 and 500 for the range of 10,000 to 50,000 and 2000 for range of 50,000 to 250,000. Press NEXT to go to Step 6S. Press REGEN to return to previous step.



STEP 6 S – Set Regeneration Time Options using the ▼ or ▲ button. If value is set to:

- "NORMAL" means regeneration will occur at the preset time;
- "on O" means regeneration will occur immediately when the gallons capacity reaches 0 (zero); or
- "NORMAL + on 0" means regeneration will occur at one of the following:
 - the preset time when the gallons capacity falls below the reserve or the specified number of days between regenerations is reached, whichever comes first; and
 - immediately after 10 minutes of no water usage when the gallon capacity reaches 0 (zero).

Factory Setting is Normal. Press NEXT to go to Step 7S. Press REGEN to return to previous step.



Automatically Toggles




STEP 7 S – Set duration between scheduled service calls.

Use UP & DOWN arrows to select in 1/4 year increments from 1/4 to 9.75 years or OFF. Factory Setting = OFF.

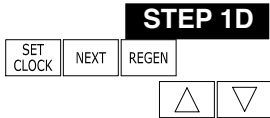
Figure 12a

DIAGNOSTICS

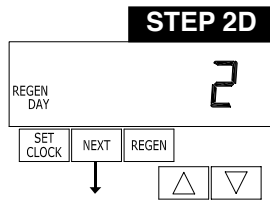
▲ = ▲ Up Arrow ▼ = ▼ Down Arrow

Reset Diagnostic Values: Hold   NEXT/DOWN buttons for 3 seconds, then hold  UP/DOWN buttons for 3 seconds.

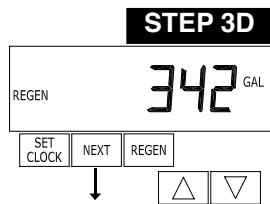
The following shows how to access stored information to assist with the troubleshooting of application.



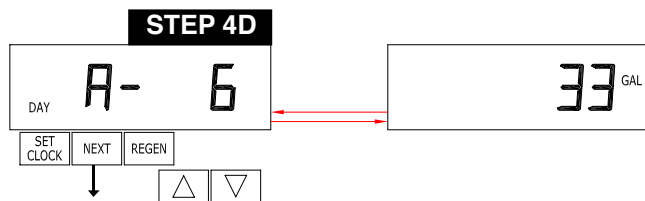
STEP 1D – Press ▲ and ▼ simultaneously for 3 seconds. If screen in step 2D does not appear in 5 seconds the lock on the valve is activated. To unlock press ▼, NEXT, ▲, and SET CLOCK in sequence.



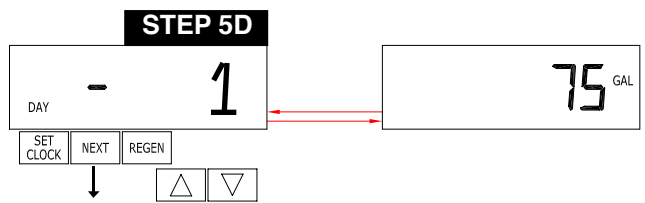
STEP 2D – Days since last regeneration: This display shows the days since the last regeneration occurred. Press the NEXT button to go to Step 3D. Press REGEN to exit diagnostics.



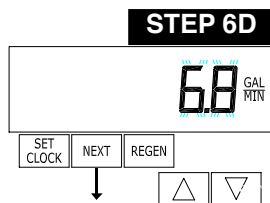
STEP 3D – Gallons, since last regeneration: This display shows the number of gallons that have been treated since the last regeneration. This display will equal zero if a water meter is not installed. Press the NEXT button to go to Step 4D. Press REGEN to return to previous step.



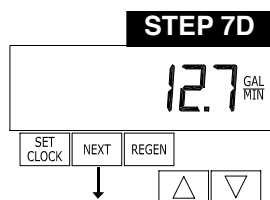
STEP 4D – Gallons, reserve capacity used for last 7 days: This display shows 0 day (for today) and flashes the reserve capacity. Pressing the ▲ button will show day 1 (which would be yesterday) and flashes the reserve capacity used. Pressing the ▲ button again will show day 2 (the day before yesterday) and the reserve capacity. Keep pressing the ▲ button to show the gallons for days 3,4,5 and 6. The ▼ button can be pressed to move backwards in the day series. This display will flash dashes if a water meter is not installed. Press the NEXT button at any time to go to Step 5D. Press REGEN to return to the previous step.



STEP 5D – Gallons, 63 day usage history: This display shows day 1 (for yesterday) and flashes the number of gallons treated yesterday. Pressing the ▲ button will show day 2 (which would be the day before yesterday) and flashes the number of gallons treated on that day. Continue to press the ▲ button to show the maximum number of gallons treated for the last 63 days. This display will show dashes if a water meter is not installed. Press the NEXT button at any time to go to Step 6D. Press REGEN to return to previous step.



STEP 6D – Flow rate, current: Turn the water on at one or more taps in the building. The flow rate in gallons per minute will flash. If flow stops, the valve will fall to zero in a few seconds. This display will equal zero if a water meter is not installed. Press the NEXT button to go to Step 7D. Press REGEN to return to previous step.



STEP 7D – Flow rate, maximum last seven days: The maximum flow rate in gallons per minute that occurred in the last seven days will be displayed. This display will equal zero if a water meter is not installed. Press the NEXT button to go to Step 8D. Press REGEN to return to previous step.

RETURN TO USER DISPLAYS

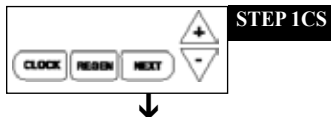
CYCLE SEQUENCE

Cycle Sequence instructions allows the operator to set the order of the cycle. The Softener System Setup allows the operator to set how long the cycles will last. The operator may choose up to 9 cycles in any order.

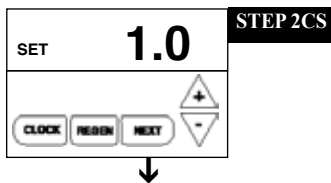
END must be used as the last cycle option. The SOFTENING cycle should only be used in brine prefill applications to allow salt to dissolve.

Cycle Options		
BACKWASH	DN BRINE	FILL
RINSE	SOFTENING	END

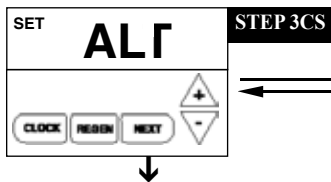
The following is an example of how to set a valve so that when regeneration is initiated, BACKWASH occurs first, dn BRINE occurs second, RINSE occurs third, and FILL occurs fourth.



STEP 1 CS – Press NEXT and ▼ simultaneously for three seconds and release. Then press NEXT and ▼ simultaneously and release. If screen in step 2CS does not appear in 5 seconds the lock on the valve is activated.



STEP 2 CS – **Meter Size.** Use the ▲ or ▼ to select 1 for 1" ProMate-5.0 valve. Press NEXT to go to Step 3CS. Press REGEN to exit cycle sequence.



STEP 3 CS – Select Auxiliary Valve function – Use ▼ or ▲ buttons to select one of the following:

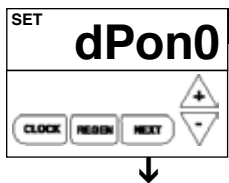
- Twin Alternating (ALTA or ALTb)
- No Hard Water Bypass (nHbP)
- Separate Source (SepS)
- **Factory setting is Off**

STEP 3 CS – Twin Alternating System – Allows automatic alternation between two units to provide softened water 24 hours a day. Use ▼ or ▲ buttons to select **ALT A** on control valve that has 2-pin connector labeled DRIVE connected to the motorized alternator valve (MAV). Select **ALT b** for control valve connected only by interconnect cable. MAV drive cable or interconnect cable must be connected or Error Code 1006 will result.

Program Regeneration Time Option as "on 0" and select number of days between regeneration (or calendar day override) as "OFF". For additional programming information, refer to MAV manual.

STEP 3 CS – No Hard Water Bypass – Use ▼ or ▲ buttons to select **nHbP** to enable no hard water bypass valve. Selection requires that a connection be made to a motorized alternator valve (MAV) is made to the two-pin connector labeled "Alternator Drive" located on circuit board. The MAV will be driven closed before the first regeneration cycle that is NOT fill or softening & be driven open after last regeneration cycle that is not fill.

STEP 3CS – Separate Source Operation - Select Separate Source Enabled for control operation. For separate source operation, the three wire connector is not used. Selection requires that a connection to a MAV is made to the two pin connector labeled ALTERNATOR MAV DRIVE located on the printed circuit board. The C port of the MAV must be connected to the valve inlet and the A port connected to the separate source used during regeneration. The B port must be connected to the feed water supply. When set to Separate Source Enabled the MAV will be driven closed before the first regeneration cycle, and be driven to open after the last regeneration cycle.



STEP 4CS

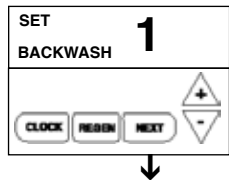
STEP 4 CS – Select differential pressure switch to trigger REGEN. Selection only matters if a connection is made to the two pin connector labeled DP SWITCH located on the printed circuit board. Use ▲ or ▼ arrows to select. Following is an example of the options:

dPon0 - If the dP switch is closed for an accumulative time of 2 minutes, a regeneration will occur immediately. Factory Setting is dPon0.

dPdEL - If the dP switch is closed for an accumulative time of 2 minutes, a regeneration will occur at the scheduled regeneration time.

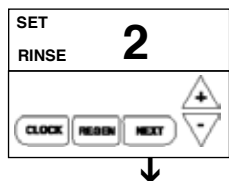
HoLd - If the dP switch is closed, a regeneration will be prevented from occurring. Press NEXT to go to Step 5CS. Press REGEN to return to previous step.

Factory setting is dPoff.



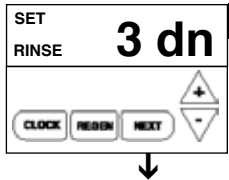
STEP 5CS

STEP 5CS – First Regeneration Cycle. Press ▼ or ▲ buttons to select, in this example it is back-wash. Press NEXT to go to Step 6CS. Press REGEN to return to previous step.



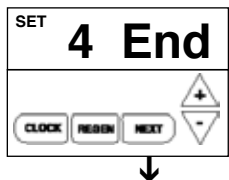
STEP 6CS

STEP 6CS – Second Regeneration Cycle. Press ▼ or ▲ buttons to select, in this example it is Rinse. Press NEXT to go to Step 7CS. Press REGEN to return to previous step.



STEP 7CS

STEP 7CS – Third Regeneration Cycle. Press ▼ or ▲ buttons to select, in this example it is Down Brine. Press NEXT to go to Step 8CS. Press REGEN to return to previous step.



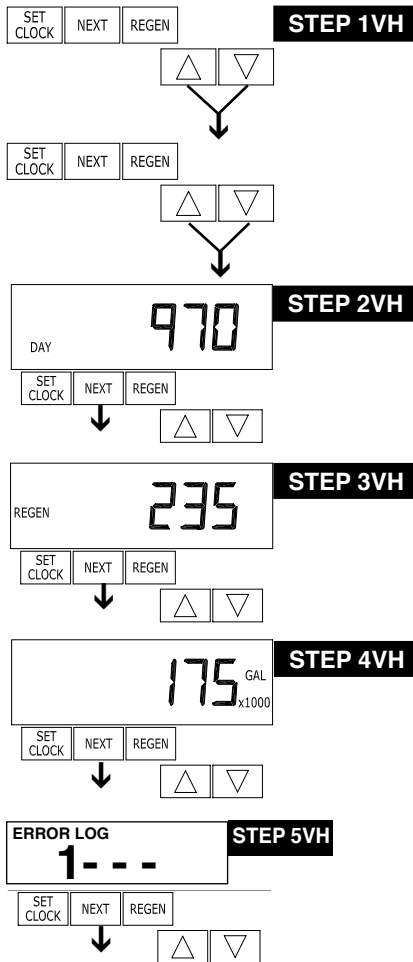
STEP 8CS

STEP 8CS – Programmer can select up to 9 regeneration cycles. After all cycles have been programmed, an END cycle must be added. Press ▼ or ▲ buttons until END appears. Press NEXT to exit Cycle Sequence. Press REGEN to return to previous step.

RETURN TO NORMAL MODE

VALVE HISTORY

(Cannot be reset)



RETURN TO USER DISPLAYS

STEP 1VH – Press ▲ and ▼ simultaneously for three seconds and release. Then press ▲ and ▼ simultaneously and release. If screen in step 2VH does not appear in 5 seconds the lock on the valve is activated. To unlock press ▼, NEXT, ▲, and SET CLOCK in sequence, then press ▲ and ▼ simultaneously for 3 seconds and release. Then press ▲ and ▼ simultaneously and release.

STEP 2VH – Days, total since start-up: This display shows the total days since start-up. Press the NEXT button to go to Step 3VH. Press REGEN to return to previous step.

STEP 3VH – Regenerations, total number since start-up: This display shows the total number of regenerations that have occurred since startup. Press the NEXT button to go to Step 4VH. Press REGEN to return to previous step.

STEP 4VH – Gallons, total used since start-up: This display shows the total gallons treated since start-up. This display will equal zero if a water meter is not installed. Press the NEXT button to exit Valve History. Press REGEN to return to previous step.

STEP 5VH – Error Log history: up to 10 errors. If no errors have occurred " - - - - " is displayed.

TROUBLE SHOOTING

PROBLEM	CAUSE	CORRECTION
After servicing valve or resolving the cause of any error code, press NEXT & REGEN simultaneously for 5 seconds or disconnect power supply for 5 seconds at PC board and reconnect to resynchronize software with piston position.		
VALVE ERROR CODES Error Code 1001 - Unable to recognize start of regeneration	A1. Control not reading piston position	A1. Resynchronize software with piston position by pressing start of regeneration NEXT and REGEN buttons simultaneously for 5 seconds, until screen changes. Initiate regeneration to verify function by pressing and holding REGEN button until regeneration initiates, step through regeneration modes by pushing REGEN button each time motor stops. A2. Verify motor connection to PC board; motor wires intact and motor fully inserted to engage pinion. A3. Verify correct assembly; PC board snapped onto drive bracket and wires are in backplate guides and drive bracket snapped onto backplate. Verify three drive gears are in place on drive bracket.
Error Code 1002 - Unexpected stall	B1. Mechanical Binding	B1a. Check for any foreign material in stack assembly impeding piston movement and remove; verify seals intact and in place, if not, replace stack assembly and piston. B1b. Check for incorrect assembly, drive bracket not snapped into place, motor pushed inside of barrel of drive bracket (black gear on motor end should be flush with end of shaft). B1c. Drive gears unable to rotate freely - replace gear(s) if not rotating freely.

TROUBLE SHOOTING

PROBLEM	CAUSE	CORRECTION
Error Code 1002 - Continued	B2. Buildup on piston B3. Improper voltage being delivered to board	B2. Clean with soft cloth and vinegar, or replace piston B3. Motor unable to move piston, check voltage is present on 12V DC motor at start of regeneration modes. Transformer should provide 12 volts when plugged into outlet and not attached to board - if not replace transformer
Error Code 1003 - Motor ran too long, timed out trying to reach next position	C1. High drive forces on piston	C1. Loosen drive cap gear 1/4 turn C2. Address high drive forces C3. Motor failure during regeneration-replace motor
Error Code 1004 - Motor ran too long, timed out trying to reach home position	D1. Piston unable to reach home position	D1. Incorrect assembly; check drive bracket is correctly seated and snapped into place on backplate, wires outside of guides on backplate can impede drive bracket from correct position. D2. Check PC board is seated on posts and snapped into place on drive bracket D3. Drive gear labels dirty or missing, missing or broken gear, replace as needed

MAV ERROR CODES

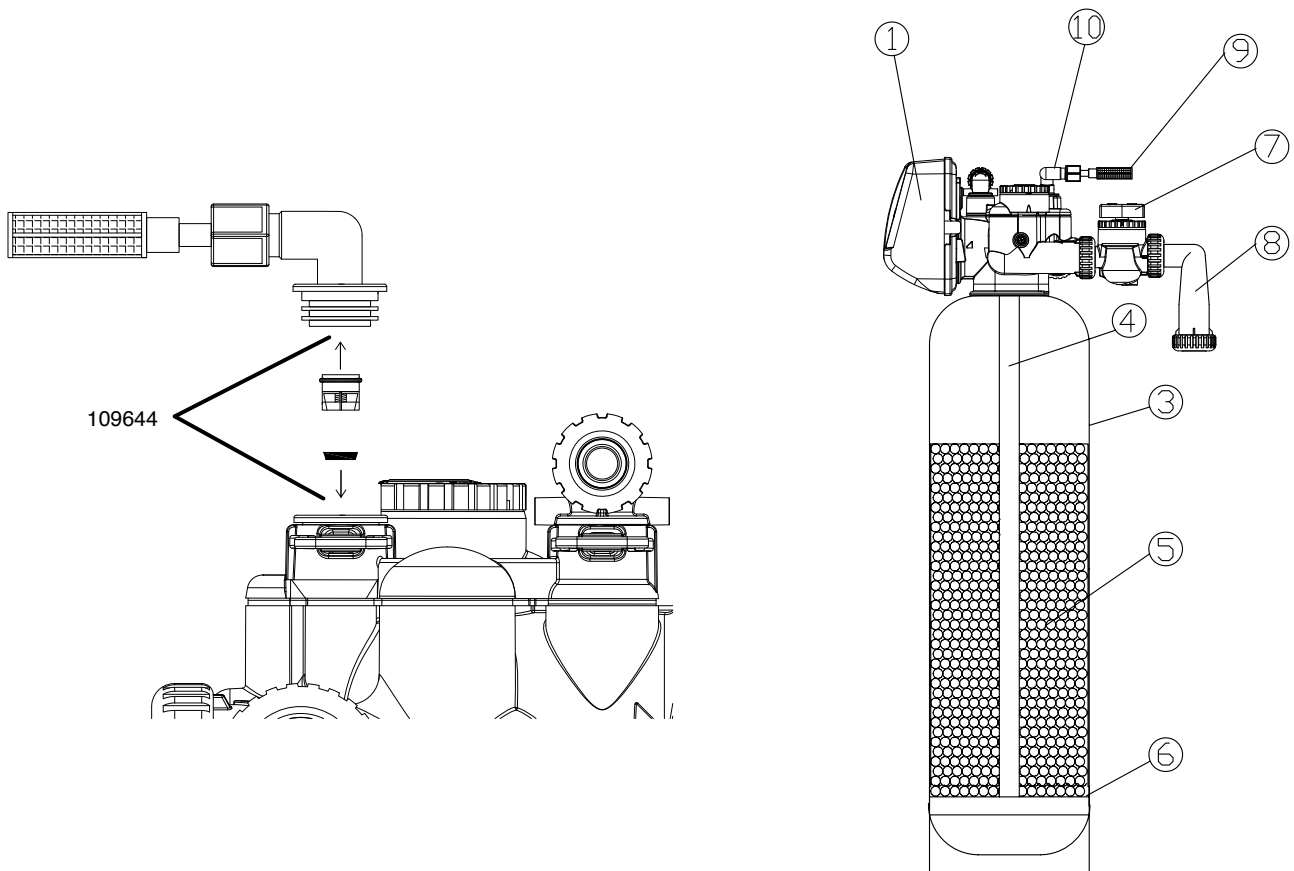
After resolving any MAV error or servicing MAV, resynchronize software with piston positioning by pressing NEXT and REGEN buttons simultaneously for 5 seconds or disconnecting power from PC board for 5 seconds and reconnecting.

ALTERNATING MAV DRIVE - ERROR CODES 1006 & 1007

Error Code 1006 - Alternating MAV ran too long		A1. Control valve is programmed for alternating or as NHWB without having MAV connected to board. Reprogram valve to proper setting or connect MAV to alternating MAV drive on PC board A2. MAV motor not fully engaged with gears
Error Code 1007 - Alternating MAV stalled	B. Mechanical Binding	B1. Open MAV and check for foreign material on stack assembly, remove if present, verify seals intact and in place. If not, replace stack assembly B2. Drive gear should spin freely-replace if necessary
1. Control valve stalled in regeneration	A. Motor not operating B. No electric power at outlet C. Defective transformer D. Defective PC board E. Broken drive gear or drive cap assembly F. Broken piston retainer G. Broken main or regenerant piston	A. Replace Motor B. Repair outlet or use working outlet C. Should provide 12 volts when plugged into outlet, if not, replace transformer D. Replace PC board E. Replace drive gear or drive cap assembly F. Replace drive cap assembly G. Replace main or regenerant piston
2. Blank or incomplete LED display	A. Transformer unplugged B. No electric power at outlet C. Defective transformer D. Short in meter E. Check battery, should be greater than 3 volts F. Defective PC board	A. Connect to power B. Repair outlet or use working outlet C. Should provide 12 volts when plugged into outlet, if not, replace transformer D. Unplug meter from PC board, if LED lights appropriately, replace meter assembly. E. Replace battery if less than 3 volts F. Replace PC board
3. Control does not display correct time of day	A. Power outage < 2 years, time of day flashing, battery depleted	A. Reset time of day, replace lithium coin type battery on circuit board
4. No "filtering" display when water is flowing	A. Bypass valve in bypass position B. Meter connection disconnected C. Restricted/stalled meter turbine D. Defective meter E. Defective PC board	A. Put bypass valve in service position B. Connect meter to PC board C. Remove meter and check for rotation, clean foreign material D. Replace meter E. Replace PC board
5. Control valve regenerates at wrong time of day	A. Power outages B. Time of day not set correctly C. Time of regeneration incorrect D. Control valve set at "on 0" (immediate regeneration) E. Control valve set at NORMAL + on 0	A. Reset control valve to correct time of day B. Reset to correct time of day C. Reset regeneration time D. Check control valve set-up procedure regeneration time option E. Check control valve set-up procedure regeneration time option

IRON CURTAIN JUNIOR

Item	Description	Qty	Part #
1	Metered Control	1	104244 – 5.3 DLFC 104245 – 7.5 DLFC
3&4	Mineral Tank Assembly		Item 3 only Item 4 only
	IC-JR 1054 Filter Tank	1	104554 102241, 101173
	IC-JR 1252 Filter Tank	1	104561 102239, 101173
5	Filter Media	1	109285 IC JR-10 Rebed 109286 IC JR-12 Rebed
6	Plate Distributor - (Part of Vortech Tank)		
7	Bypass Valve	1	101325
8	Inline Check Valve Kit	1	104174 (includes 90° vertical adapter & inline check valve)
9	Air Recharge Intake Screen	1	109038
10	Internal Check Valve Kit	1	109644 (includes spacer & air recharge check valve)



Compatible with the following regenerants or chemicals: Sodium chloride, potassium permanganate, sodium bisulfite, sodium hydroxide, hydrochloric acid, chlorine and chloramines. For specific regeneration systems, contact factory.

FRONT COVER AND DRIVE ASSEMBLY

ITEM NO.	ORDER NO.	DESCRIPTION	QTY.
1	103461	Front Cover Assy w/Label	1
2-6	15-V3002CC	Drive Assembly-CC	*
2	102096	Motor	1
3	101262	Drive Bracket & Spring Clip	1
4	101234	PC Board-CC	1
5	101746	Drive Gear 12x36	3
6	101459	Drive Gear Cover	1
Not Shown	102653	Transformer 110V-12V	1

After completing any valve maintenance involving the drive assembly or the drive cap assembly and pistons, press and hold NEXT and REGEN buttons for 3 seconds or unplug power source jack from the printed circuit board (black wire) and plug back in. This resets the electronics and establishes the service piston position. The display should flash all wording, then flash the software version (ex: 154) and then reset the valve to the service position.

When replacing the battery, align positives and push down to fully seat.

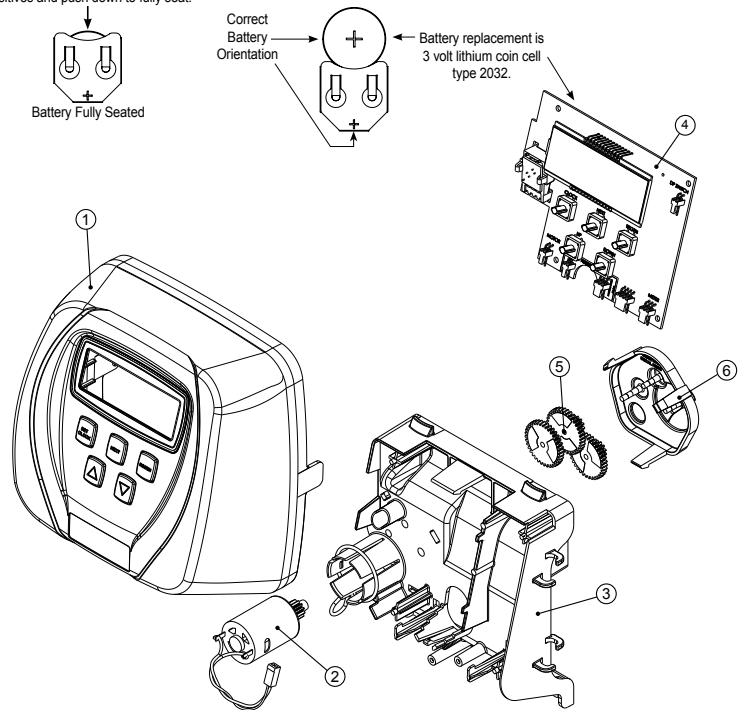


Figure 13

DRIVE CAP ASSEMBLY, DOWNFLOW PISTON, REGENERANT PISTON AND SPACER STACK ASSEMBLY

ITEM NO.	ORDER NO.	DESCRIPTION	QTY.
1	102548	Spacer Stack Assy	1
2	101613	Drive Cap Assy.	1
3	102167	O-Ring 228	1
4a	102292*	Piston Downflow Assy.	1**
5	102296	Regenerant Piston (Optional)	1
6	102192	O-ring 337-tank	1
7	102165	O-ring - Distributor Tube	1

*102292 is labeled with DN and 102297 is labeled with UP.
 Note: The regenerant piston is not used in backwash only applications.
 **Standard Option.

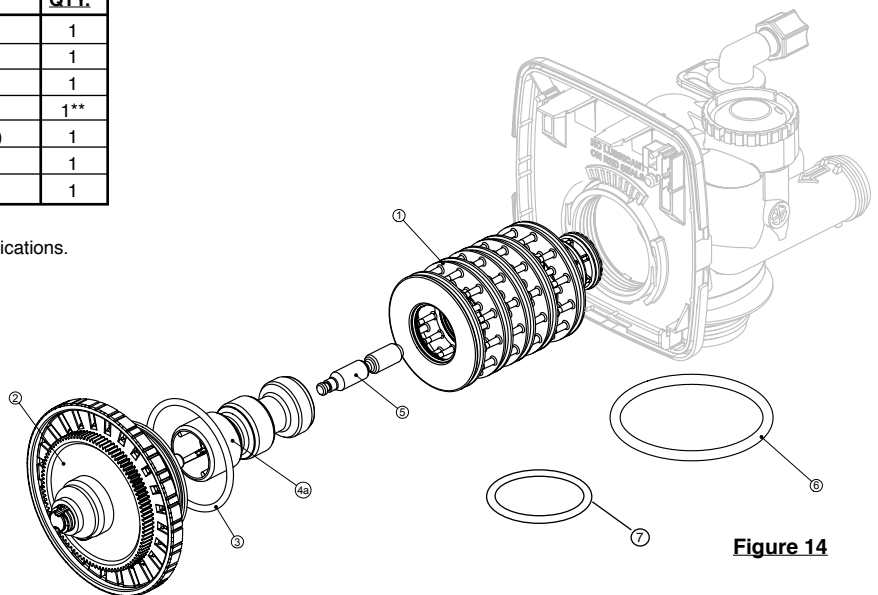


Figure 14

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.**

After completing any valve maintenance involving the drive assembly or the drive cap assembly and pistons, press and hold NEXT and REGEN buttons for 3 seconds or unplug power source jack from the printed circuit board (black wire) and plug back in. This resets the electronics and establishes the service piston position. The display should flash all wording, then flash the software version (ex: 154) and then reset the valve to the service position.

INJECTOR CAP, INJECTOR SCREEN, INJECTOR, PLUG AND O-RING

ITEM NO.	ORDER NO.	DESCRIPTION	QTY.
1	101375	Injector Cap	1
2	102159	O-ring 135	1
3	102457	Injector Screen	1
4	102319	Z-Plug Filter	
5	101835	Injector Assy K Light Green	
Not Shown	106767	O-ring 011 - Lower Injector	*
Not Shown	106768	O-ring 013 - Upper Injector	*

For a filter that only backwashes injector plugs are located in both holes.

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

The nuts and caps are designed to be unscrewed or tightened by hand or with the special plastic wrench. 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.

Do not use pipe dope or other sealants on threads. Teflon tape must be used on threads of the 1" NPT connection and on the threads for the drain line connection. Teflon tape is not necessary on the nut connection nor caps because of o-ring seals.

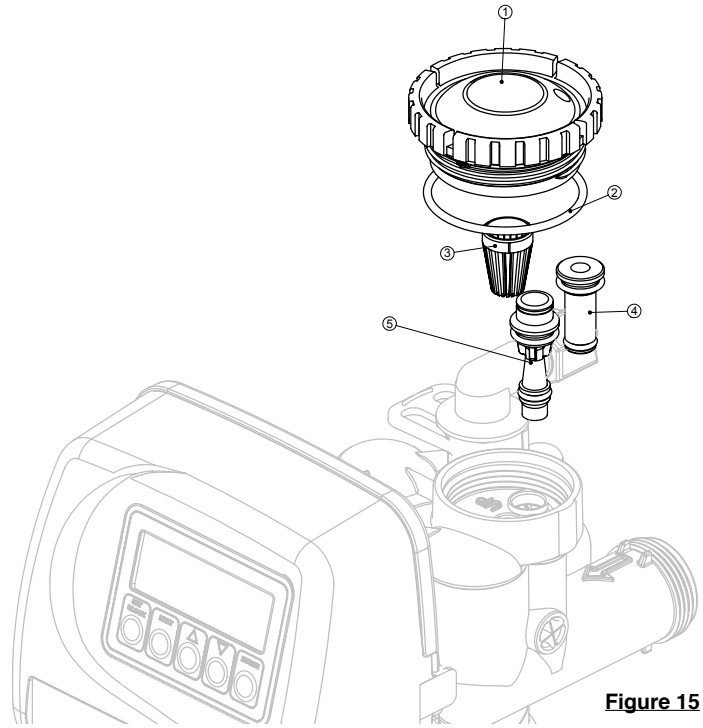
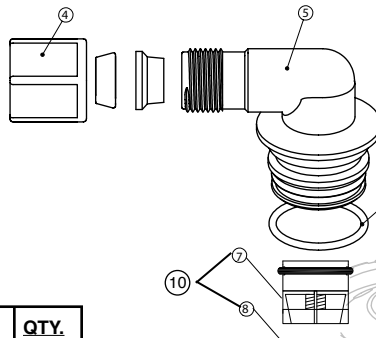
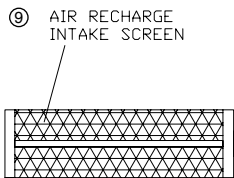


Figure 15

REFILL AND REFILL PORT PLUG



****This part is required for backwash only systems.**

ITEM NO.	ORDER NO.	DESCRIPTION	QTY.
1	102322	Refill Port Plug Assy.**	1
2	101414	Elbow Locking Clip	1
4	102130	Nut 3/8	1
5	101620	Elbow Cap 3/8	1
6	102153	O-ring 019	1
7	109588	Check Valve	1
8	102525	Spacer	1
9	109038	Intake Screen	1
10	109644	Kit, Includes 7 & 8	

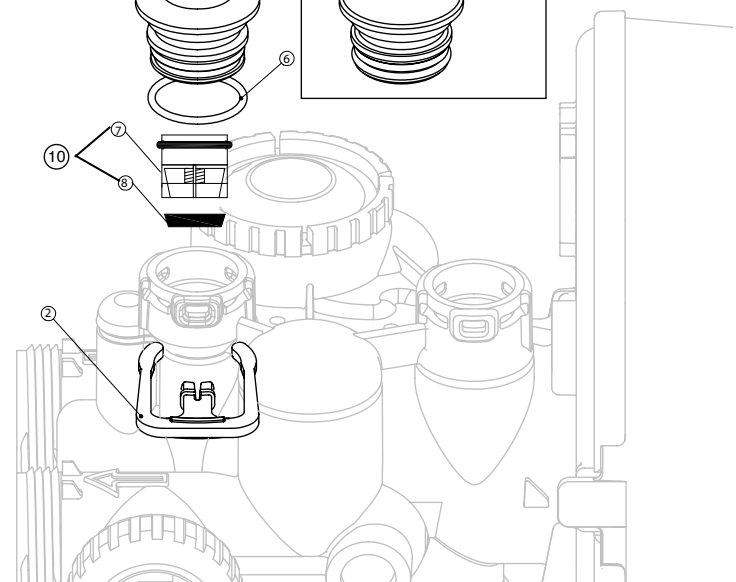


Figure 16

DRAIN LINE - 3/4"

ITEM NO.	ORDER NO.	DESCRIPTION	QTY.
1	101414	Elbow Locking Clip	1
2	101871	Polytube Insert, 5/8"	Optional
3	102131	Nut, 3/4" Drain Elbow	Optional
4-5	101619	Drain Elbow 3/4" Male Asy-No Vent	1
5	102153	O-Ring 019	1
6	102406	DLFC Retainer Assy.	1
7	101591	DLFC 5.3 gpm for 3/4"	1
	101595	DLFC 7.5 gpm for 3/4"	
	101598	DLFC 9.0 gpm for 3/4"	
	101561	DLFC 10.0 gpm for 3/4"	
One DLFC must be used if 3/4 fitting is used			

Systems are shipped without 3/4" nut for drain elbow (polytube installation only) and 5/8" polytube insert (polytube installation only).

Option: 101618 – 3/4" Drain Elbow with Silencer Vent.

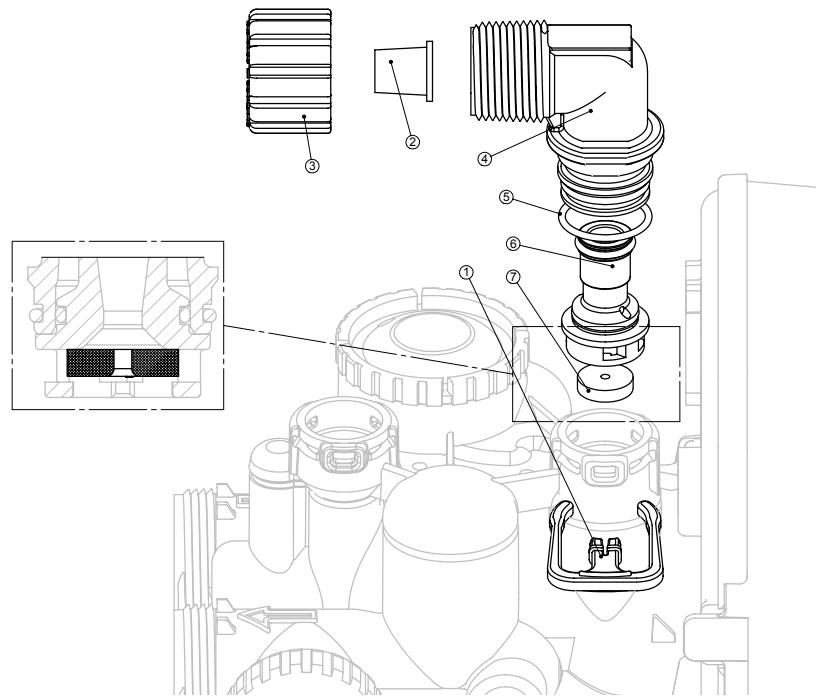


Figure 17

WATER METER AND METER PLUG

ITEM NO.	ORDER NO.	DESCRIPTION	QTY.
1	102141	Nut 1" QC	1
2-4	102051*	Meter Assy.	1
3	102687	Turbine Assy.	1
4	102165	O-ring 215	1
5	102321	Meter Plug Assy.**	1

*Order number 102051 includes 102687 and 102165, which are item numbers 3 & 4.

**Only used if metering is not to be done (time clock units)

The nuts and caps are designed to be unscrewed or tightened by hand or with the special plastic wrench. 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.

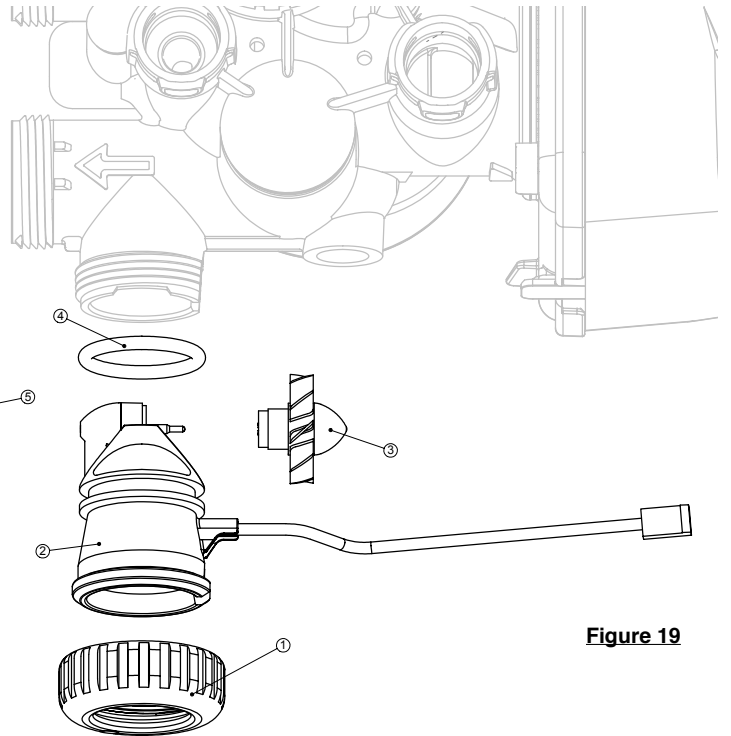
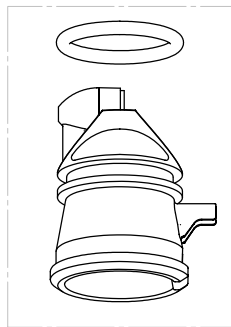


Figure 19

BYPASS VALVE

Bypass Valve

ITEM NO.	ORDER NO.	DESCRIPTION	QTY
1	102141	Nut 1" Quick Connect	2
2	102437	Split Ring	2
3	102165	O'Ring 215	2
4	102450	Bypass 1" Rotor	2
5	V3146	Bypass Cap	2
6	V3147	Bypass Handle	2
7	109479	Bypass Rotor Seal Retainer	2
8	102159	O-Ring 135	2
9	102161	O-Ring 112	2
10	102160	O-Ring 214	2

(Not Shown) Bypass Vertical Adapter Assembly

ORDER NO.	DESCRIPTION	QTY
102141	Nut 1" Quick Connect	2
102437	Split Ring	2
102165	O'Ring 215	2
106858	Bypass Vertical Adapter	2

The nuts and caps are designed to be unscrewed or tightened by hand or with the special plastic wrench. 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.

Do not use pipe dope or other sealants on threads. Teflon tape must be used on threads of the 1" NPT connection and on the threads for the drain line connection. Teflon tape is not necessary on the nut connection nor caps because of o-ring seals.

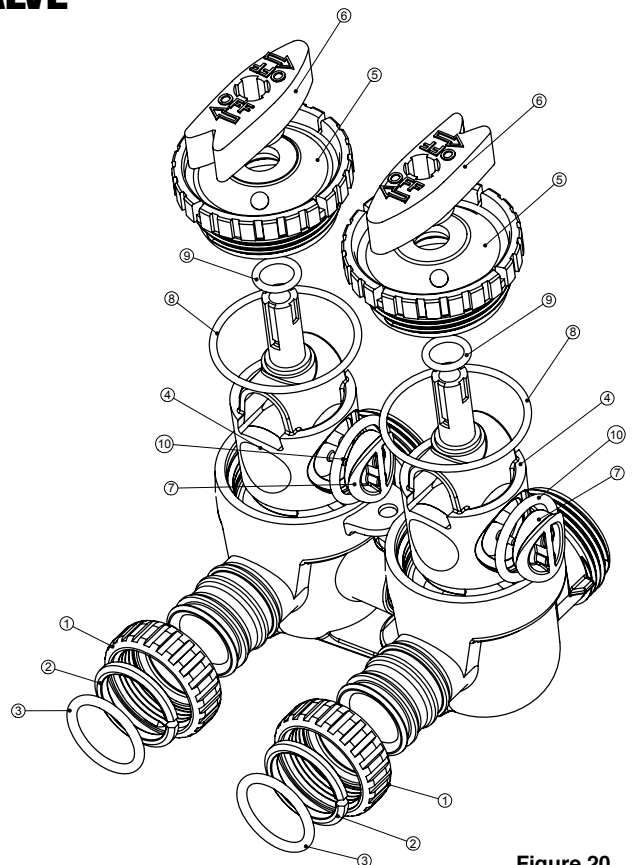
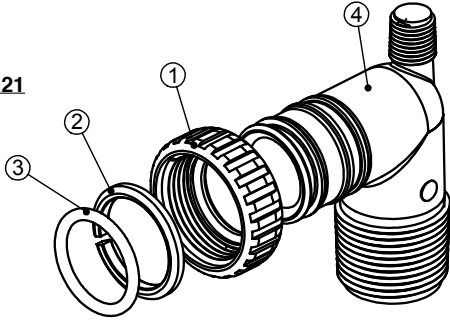


Figure 20

INSTALLATION FITTING ASSEMBLIES

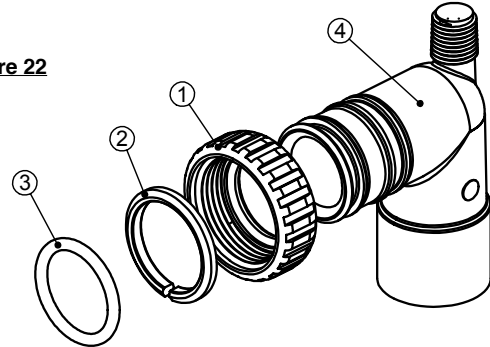
ITEM NO.	ORDER NO.	DESCRIPTION	QTY.
1	102141	Nut 1" Quick Connect	2
2	102437	Split Ring	2
3	102165	O-Ring 215	2
4	106761	Fitting 1" PVC Male NPT Elbow	2
1-4	101639	Ftg 1" PVC Male NPT Assy (Set of 2)	1

Figure 21



ITEM NO.	ORDER NO.	DESCRIPTION	QTY.
1	102141	Nut 1" Quick Connect	2
2	102437	Split Ring	2
3	102165	O-Ring 215	2
4	106762	Fitting 3/4" & 1" PVC Solv. 90	2
1-4	101640	Ftg 3/4" & 1" PVC Solv 90 (Set of 2)	1

Figure 22

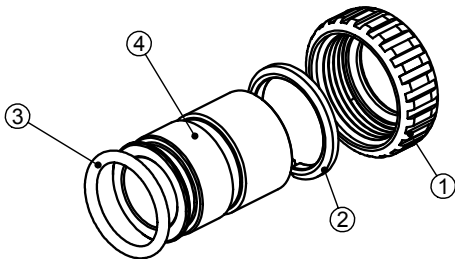


The nuts and caps are designed to be unscrewed or tightened by hand or with the special plastic wrench. If necessary a pliers can be used to unscrew the nut or cap. Do not use a pipe wrench to tighten or loosen nuts or caps. Do not place screwdriver in slots on caps and/or tap with a hammer.

Do not use pipe dope or other sealants on threads. Teflon tape must be used on threads of the 1" NPT connection and on the threads for the drain line connection. Teflon tape is not necessary on the nut connection nor caps because of o-rings seals.

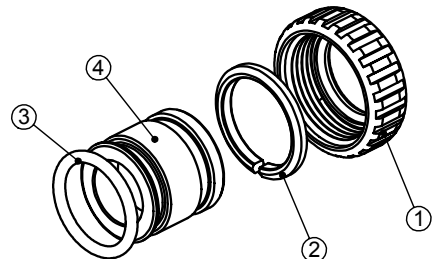
ITEM NO.	ORDER NO.	DESCRIPTION	QTY.
1	102141	Nut 1" Quick Connect	2
2	102437	Split Ring	2
3	102165	O-Ring 215	2
4	106763	Fitting 1" Brass Sweat	2
1-4	108618	Ftg 1" Brass Sweat Assy (Set of 2)	1

Figure 23



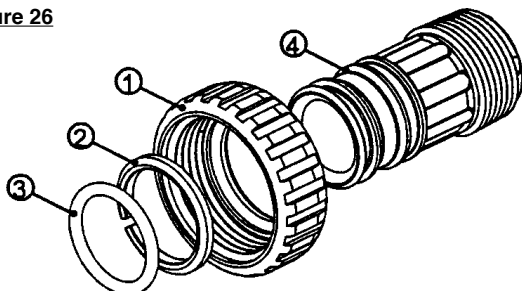
ITEM NO.	ORDER NO.	DESCRIPTION	QTY.
1	102141	Nut 1" Quick Connect	2
2	102437	Split Ring	2
3	102165	O-Ring 215	2
4	106764	Fitting 3/4" Brass Sweat	2
1-4	108617	Ftg 3/4" Brass Sweat Assy (Set of 2)	1

Figure 24



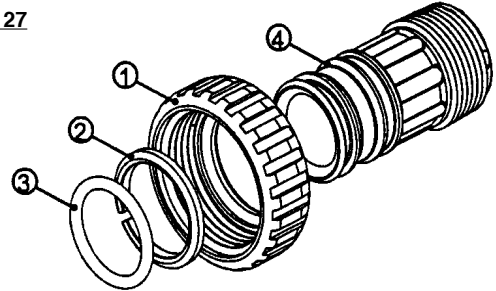
ITEM NO.	ORDER NO.	DESCRIPTION	QTY.
1	102141	Nut 1" Quick Connect	2
2	102437	Split Ring	2
3	102165	O-Ring 215	2
4	106765	Fitting 1" Plastic Male NPT	2
1-4	101643	Fitting 1" Male NPT Assy (Set of 2)	1

Figure 26



ITEM NO.	ORDER NO.	DESCRIPTION	QTY.
1	102141	Nut 1" Quick Connect	2
2	102437	Split Ring	2
3	102165	O-Ring 215	2
4	106766	Fitting 1-1/4" Plastic Male NPT	2
1-4	101644	Fitting 1-1/4" Male NPT (Set of 2)	1

Figure 27

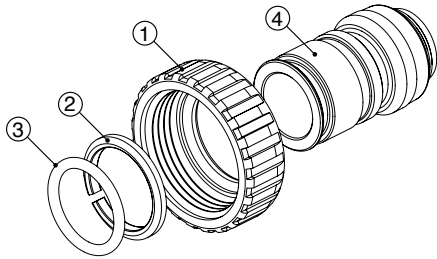


INSTALLATION FITTING ASSEMBLIES CONTINUED

Order No: **106062**

Description: **IC 2.0 Fitting 3/4" Brass SharkBite Assembly**

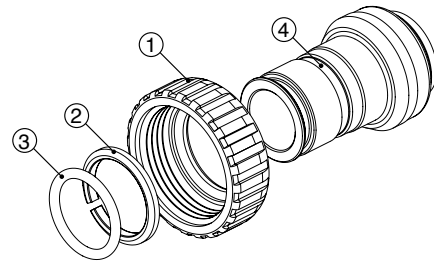
ITEM NO.	ORDER NO.	DESCRIPTION	QTY.
1	102141	Nut 1" Quick Connect	2
2	102437	Split Ring	2
3	102165	O-Ring 215	2
4	106769	Fitting 3/4" Brass Sharkbite	2
1-4	106062	Fitting 3/4" Brass Sharkbite Asy.(Set of 2)	1



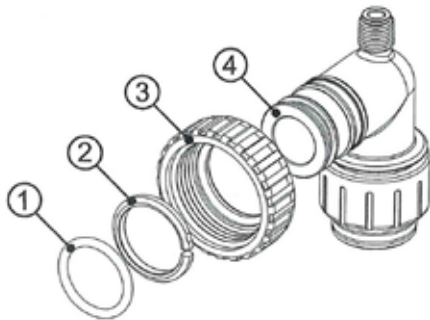
Order No: **106063**

Description: **IC 2.0 Fitting 1" Brass SharkBite Assembly**

ITEM NO.	ORDER NO.	DESCRIPTION	QTY.
1	102141	Nut 1" Quick Connect	2
2	102437	Split Ring	2
3	102165	O-Ring 215	2
4	106770	Fitting 1" Brass Sharkbite	2
1-4	106063	Fitting 1" Brass Sharkbite Asy. (Set of 2)	1



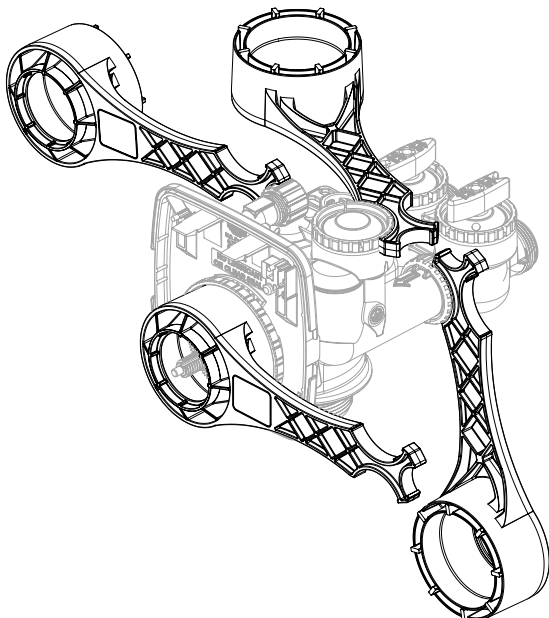
ITEM NO.	ORDER NO.	DESCRIPTION	QTY.
1	102141	Nut 1" Quick Connect	2
2	102437	Split Ring	2
3	102165	O-Ring 215	2
4	V3790	Fitting 3/4" John Guest	2
1-4	108478	Fitting 3/4" JG QC Assy (Set of 2)	1



WRENCH

Although no tools are necessary to assemble or disassemble the valve, the wrench (shown in various positions on the valve) may be purchased to aid in assembly or disassembly.

Wrench part number is 102892.



NOTES:

IRON CURTAIN® JUNIOR FILTER SYSTEMS LIMITED WARRANTY

Hellenbrand, Inc., warrants to the original consumer purchaser that the Iron Curtain® Junior Filter Systems and the parts listed below will be free from defects in material and/or workmanship from the date of the original installation for the following time periods:

For a Period of FIVE YEARS: The filter control valve electrical parts including the motor and board, control valve body, excluding internal parts.

For a Period of TEN YEARS: The fiberglass aeration or mineral tanks, 6" Diameter – 13" Diameter.

For a Period of FIVE YEARS: The fiberglass aeration or mineral tanks, 14" Diameter – Up.

For a Period of ONE YEAR: The entire unit.

Any parts used for replacement are warranted for the remainder of the original warranty period applicable to the part.

THIS WARRANTY IS EFFECTIVE TO THE ORIGINAL CONSUMER PURCHASER ONLY, AND ONLY AS LONG AS THE IRON CURTAIN™ JUNIOR FILTER SYSTEMS REMAIN AT THE ORIGINAL INSTALLATION SITE.

No sales representative, distributor, agent, dealer, reseller or any other person is authorized to make any other warranty on behalf of Hellenbrand, Inc. Upon expiration of the applicable warranty period(s), Hellenbrand, Inc., shall have no further liability related to the products/parts to which the warranty period(s) apply, except with respect to valid warranty claims asserted during the appropriate warranty period(s).

If a part described above becomes defective within the specified warranty period, you should notify your Iron Curtain® Junior Filter Systems sales representative and arrange a time during normal business hours for the inspection of the water conditioner at the original installation site. Any part found defective within the terms of this warranty will, at Hellenbrand, Inc.'s option, be repaired or replaced. You are responsible for freight from our factory and local service charges. This paragraph sets forth the exclusive remedy for any valid warranty claims against Hellenbrand, Inc.

THIS WARRANTY DOES NOT COVER defects caused by sand, sediment or bacteria fouling, accident, fire, flood, Act of God, misuse, misapplication, neglect, alteration, installation or operation contrary to Hellenbrand, Inc.'s printed instructions, or installation, repair or service by anyone other than Hellenbrand, Inc., or an authorized Hellenbrand reseller.

As a manufacturer, we do not know the characteristics of your water supply or the purpose for which you are purchasing this water conditioner. Please understand that the quality of water supplies may vary seasonally or over a period of time, and that your water usage rate may vary as well. Water characteristics can also change considerably if your water conditioner is moved to a new location. For these reasons, we assume no liability for the determination of the proper equipment necessary to meet your requirements and we do not authorize others to assume such obligations for us.

REMEDIES FOR DEFECTS OR FAILURES, TO THE EXTENT PERMITTED BY APPLICABLE LAW, ARE LIMITED TO THE REMEDIES PROVIDED IN THIS WARRANTY. ANY EXPRESS WARRANTY NOT PROVIDED HEREIN AND ANY WARRANTY WHICH MIGHT ARISE BY IMPLICATION OR OPERATION OF LAW, WHETHER FROM THE SELLER AND/OR MANUFACTURER OF THIS PRODUCT, IS HEREBY EXCLUDED AND DISCLAIMED, TO THE EXTENT ENFORCEABLE UNDER APPLICABLE LAW, INCLUDING WITHOUT LIMITATION IMPLIED WARRANTIES OF MERCHANTABILITY, FITNESS FOR ANY PARTICULAR PURPOSE OR NON-INFRINGEMENT, OR ANY WARRANTIES ARISING FROM COURSE OF PERFORMANCE, COURSE OF DEALING, OR FROM USAGES OF TRADE.

UNDER NO CIRCUMSTANCES SHALL HELLENBRAND, INC., BE LIABLE TO THE ORIGINAL CONSUMER PURCHASER OR TO ANY OTHER PERSON FOR ANY INCIDENTAL, SPECIAL OR CONSEQUENTIAL DAMAGES OR FOR ANY OTHER LOSS, DAMAGE, OR EXPENSE OF ANY KIND, INCLUDING LOSS OF PROFITS, WHETHER ARISING OUT OF BREACH OF WARRANTY, BREACH OF CONTRACT, IN TORT OR OTHERWISE, AND REGARDLESS OF WHETHER HELLENBRAND, INC., WAS AWARE OF THE POSSIBILITY OF SUCH LOSS. THESE LIMITATIONS WILL APPLY REGARDLESS OF ANY FAILURE OF ESSENTIAL PURPOSE OF ANY LIMITED REMEDY.

Some states do not allow limitations on how long an implied warranty lasts or exclusions or limitations of incidental or consequential damages, so the above limitations or exclusions may not apply to you. This warranty gives you specific legal rights, and you may also have other rights which vary from state to state.

Warranty Updated 6/12