Hellenbrand®

STORM

ProMate-6.0 Iron Curtain Storm Series

Owner's Filter Manual

p/n 111255 Rev. E
Updated 10/30/17

Manufactured by:
HELLENBRAND, INC.
404 Moravian Valley Road
Waunakee, Wisconsin 53597
Web: www.hellenbrand.com • Email: info@hellenbrand.com

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.

TABLE OF CONTENTS

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	Minimum 25 psi Optimum Range 40-65 psi Maximum 100 psi

OPERATING TEMPERATURES

Minimum/Maximum	40º - 110º F

METER

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

DIMENSIONS

Drain Line	3/4” or 1” NPT
Ozone Check Valve	3/8” Poly Tube

ELECTRICAL CURRENT DRAW AND VOLTAGE 2.0A/120V

NOTE: Operating outside of the optimum pressure range may affect system function. Contact your Hellenbrand support team for information.

PRE-INSTALLATION CHECK LIST

(All electrical & plumbing should be done in accordance to all local codes)
Storm is limited to indoor installations

Water Pressure: A minimum of 25 pounds of water pressure (psi) is required for regeneration. Maximum pressure 100 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

Softening - Filtering

NORMAL OPERATION

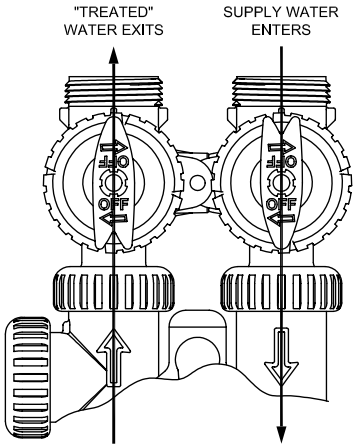


Figure 1

BYPASS OPERATION

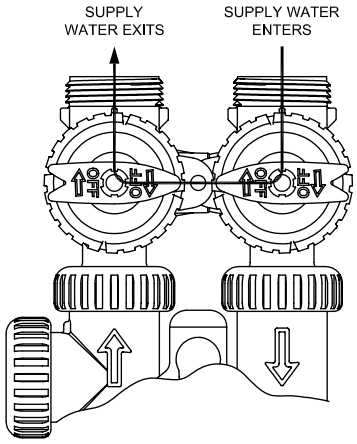


Figure 2

DIAGNOSTIC MODE

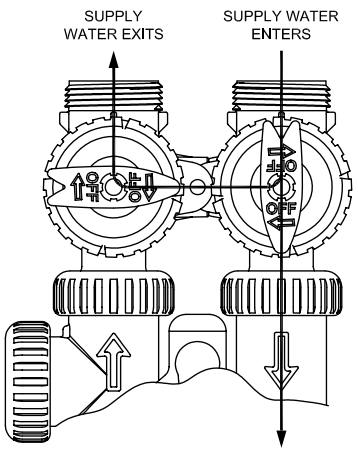


Figure 3

SHUT OFF MODE

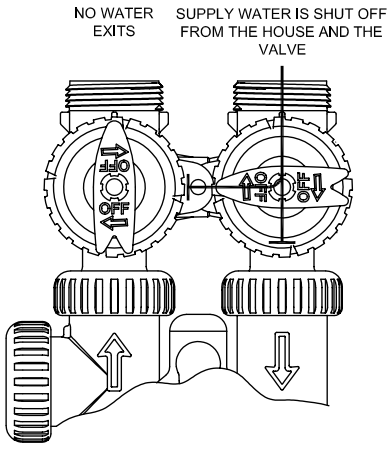


Figure 4

INSTALLATION INSTRUCTIONS

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

Your new Storm System 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 anywhere. A silicon lubricant may be used on black o-rings but is not necessary.

- Do not use paste 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 10 gpm or greater or length in excess of 20' require 1" drain line.**

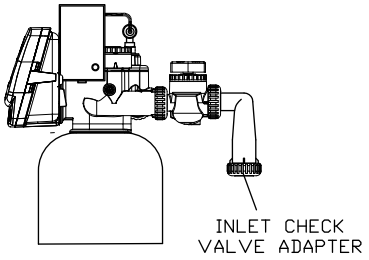
1. Place the filter where you want to install it, making sure it is on a clean, level and firm base.
2. Do all necessary plumbing (Install check valve on inlet to filter, inlet to inlet, outlet to outlet and drain line to drain). The control valve, fittings and/or bypass are designed to accommodate minor 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 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.

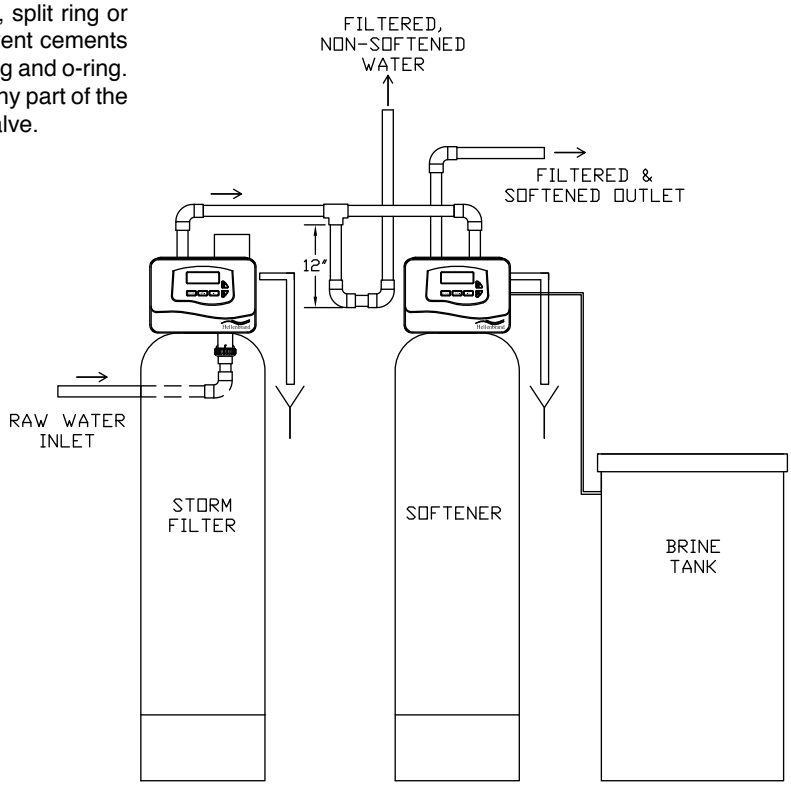
This unit is not intended to aid in the mitigation of microorganisms and is not duly registered as a pesticidal device.

The Storm ozone filter must not be used on bacteriologically unsafe water supplies, such as those with with positive Coliform or E Coli bacteria tests.

The Storm Filter does not sanitize piping upstream or downstream of the filter. It is recommended to sanitize piping and water supply prior to installation.

Fasten drain line securly as head of ozone is discharged under water pressure at beginning of regeneration.





When installing a Storm 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.

Start Up Instructions

For optimal results, allow the filter media to soak for a minimum of 12 hours prior to install. This helps to maintain the manufacturer's specified filtration properties.

1. Complete all plumbing connections; inlet, outlet and drain line.
2. Place bypass valve in bypass position. 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 on bypass until it is in fully open service position. Let water run to drain until clear. Plug unit into 120V outlet and remove cover and plug transformer connection into 4-prong connection on circuit board labeled power. Valve will return to service position once this connection is made.
4. Let media soak for 15 minutes before proceeding.
5. Initiate backwash by holding "REGEN" button down until piston movement is heard.
6. Let backwash continue until cycle is done. When "RINSE" is displayed, push the REGEN button again to move into the SERVICE position. Let the system settle for 5 minutes.
7. Repeat the backwash and settle steps (5&6) for a total of three times.

NOTE: It takes several backwash cycles before all the media fines are removed. Elimination of the 12 hour soak procedure may result in more backwash cycles required to remove the media fines.

Failure to follow proper start-up may result in equipment malfunction not covered by warranty.

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 6.0 ppm of ferrous (clear water) and/or ferric (red water) iron.*

Hydrogen Sulfide — Sometimes referred to as "rotten egg" odor. This system is rated for 5.0 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.***

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.**

Do not install on chlorinated water supplies - harmful by-products may be formed with ozone.

This unit is not intended to aid in the mitigation of microorganisms and is not duly registered as a pesticidal device.

The Storm ozone filter must not be used on bacteriologically unsafe water supplies, such as those with with positive Coliform or E Coli bacteria tests.

Small amounts of hardness (0.5-2 gpg) may occur initially when filters installed on soft water.

Specifications

Iron Storm Models	Filter Tank Size	Media Cu. Ft	Inlet/ Outlet	Max. Service Flow GPM	(1) Backwash Rate GPM
Iron Storm-10	**10"x54"**	**1.0**	**1"**	**4**	**5.3**
Iron Storm-12	**12"x52"**	**1.6**	**1"**	**6**	**7.5**
Iron Storm-13	**13"x54"**	**1.9**	**1"**	**7**	**10**

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

Backwash Frequency

Iron Applications

0.3 - 2.0 ppm Iron - Every 3rd Day

2.0 - 4.0 ppm Iron - Every Other Day

4.0 - 6.0 ppm Iron - Every Day

Ozone Recharge Frequency

Hydrogen Sulfide Applications

0.1 - 1.0 ppm Hydrogen Sulfide - 100 Gallon

1.0 - 5.0 ppm Hydrogen Sulfide - 50 Gallon

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 7) consists of the LCD display and five push buttons which are used in displaying and programming the water filter settings.

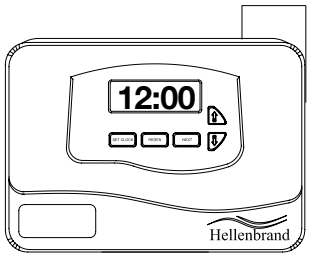


Figure 7

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 the current time of day. The second display is one of the following: days to a regen or gallons remaining. Days To A Regen is the number of days left before the system goes through a regeneration cycle. Capacity remaining is the number of gallons that will be treated before the system goes through a regeneration cycle. The third display is current flow in gal/min. The user can scroll between the displays as desired by pushing NEXT or display will scroll automatically.

When water is being treated (i.e. water is flowing through the system) the word "GPM" flashes on left side of display when other than flow rate is displayed.

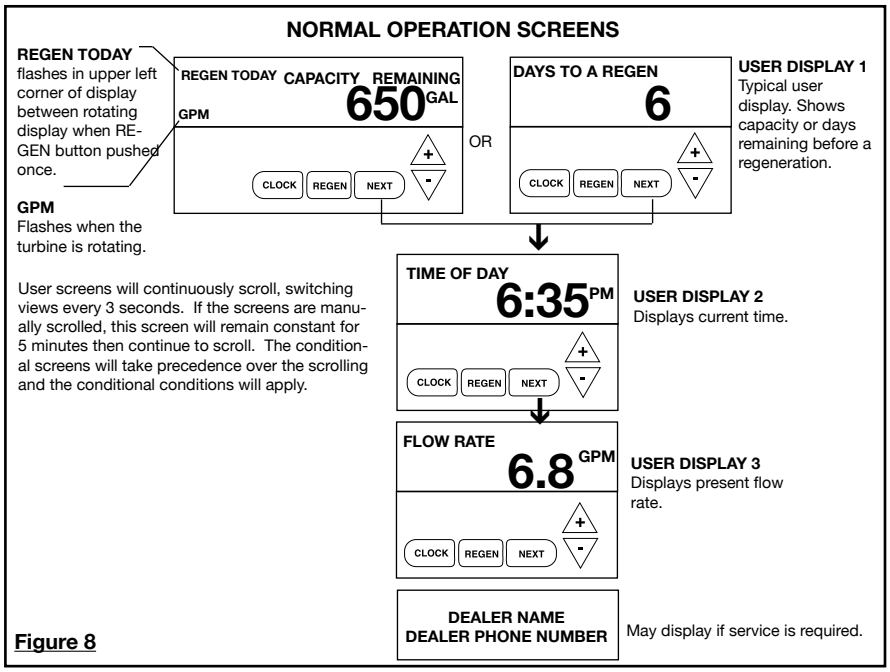


Figure 8

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. If water is being used when regeneration starts, there may be a momentary delay in flow as old head of air is being expelled from the system.

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. This is usually due to period of heavy water usage.

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.

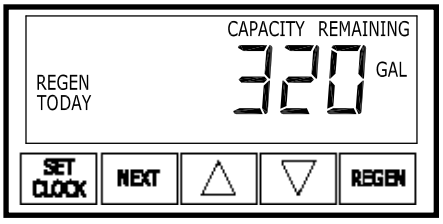


Figure 12

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.

FILTERING REGENERATION CYCLES

Cycle duration programming – see page 10.
Relay programming – see page 11.

	10" STORM Filter Tank	12" STORM Filter	13" STORM Filter
Press next and down buttons together until the following displayed:			
Set TYPE	AIR REGEN FILTER-DLY	AIR REGEN FILTER-DLY	AIR REGEN FILTER-DLY
Press NEXT and DOWN buttons together again to see the following:			
Use next button to advance through the screens:			
Valve Type	1.0 IN	1.0 IN	1.0 IN
Auxiliary Input	OFF	OFF	OFF

Press NEXT and DOWN buttons together to see the following:
Use next button to advance through the screens:

Set TYPE	AIR REGEN FILTER-DLY	AIR REGEN FILTER-DLY	AIR REGEN FILTER-DLY
BW Time #1	0:10	0:10	0:10
Set DRAW DN TIME	DRAW DN - 8 Minutes	DRAW DN - 12 Minutes	DRAW DN - 12 Minutes
Gallons Capacity	100	100	100
Set BW TIME #2	12 MINUTES	12 MINUTES	12 MINUTES
Set RINSE TIME #2	6 MINUTES	6 MINUTES	6 MINUTES
Set DRAW DN TIME # 2	8 MINUTES	12 MINUTES	12 MINUTES
Set Days Betwn Regens #2	3 DAYS	3 DAYS	3 DAYS
Set RELAY1 - #1	TIME	TIME	TIME
SetPoint Relay 1 - #1	1 MINUTE	1 MINUTE	1 MINUTE
Set Relay1 Duration - #1	6 MINUTES	10 MINUTES	10 MINUTES
Set Relay 1 - #2	TIME	TIME	TIME
SetPoint Relay 1 - #2	19 MINUTES	19 MINUTES	19 MINUTES
Set Relay1 Duration - #2	6 MINUTES	10 MINUTES	10 MINUTES
Set Relay2 - #1	OFF	OFF	OFF
Set Relay2 - #2	OFF	OFF	OFF
Service Alarm	OFF	OFF	OFF

Press NEXT and UP arrow to see the following
Use next button to advance through the screens:

Regeneration Time	12:30AM	12:30 AM	12:30AM

Verify that Storm regeneration is offset if there are multiple filters and from softener

Drain Line FC	5.3	7.5	10

Draw Cycle begins one minute before relay is activated and lasts one minute longer than relay activation.

Air recharge times are approximate. Air recharge cycle should be long enough for head of air to reach top of media bed. Adjust cycle times and relay duration if needed.

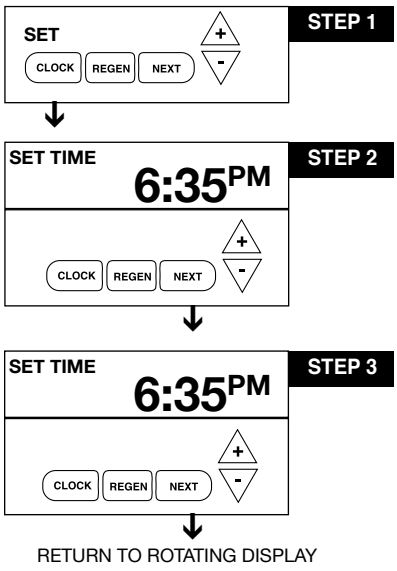
Systems manufactured between 4/2014 and 8/2015 will have different draw cycle & relay times.

Water supplies have varying pressures and draw times may vary, it is recommended to run draw cycle to top of filter media to determine draw time for specific application when installing the filter.

Press NEXT and DOWN buttons together until display changes. Press NEXT until Draw DN #2 time displayed. Change time to longer setting than anticipated to draw to top of filter. Press NEXT and then press SET CLOCK button to exit. Push REGEN button until regeneration starts, once motor stops running and backwash is displayed, push REGEN to step through to Draw Cycle. Watch how long it take for head of air/ozone to reach filter bed. Remember this time. Push REGEN button to exit. Reprogram both #1 & #2 draw sequences for length of time to draw to top of bed at application. Remember to program each Relay Duration 2 minutes less than Draw Time.

If water is being used when regeneration starts, there may be a momentary delay in flow as old head of air is being expelled from the system.

SET TIME OF DAY



(+) = ▲ Up Arrow (-) = ▼ Down Arrow

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.

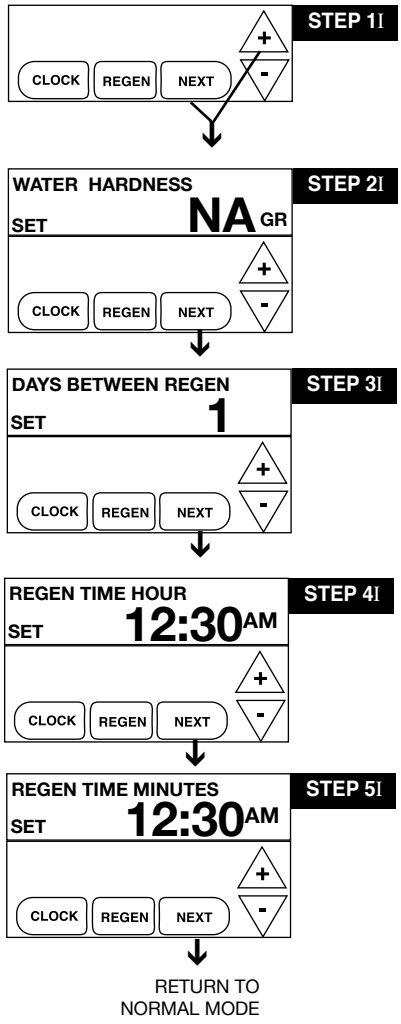
Step 3 - Current Time **(minutes)**: Set the minutes of day using ▲ or ▼ buttons. Press NEXT to exit Set Clock. Press REGEN to return to previous step.

Power Loss - Lithium battery on circuit board provides up to 2 years of time clock backup during power outages. If the power is out when battery is depleted, only time of day needs to be reset, all other values are stored in non-volatile memory. When time of day is flashing, replace lithium coin type 2032 battery.

Battery back-up feature will be activated after 24 hours of power.

Do not forget to reset for daylight savings time.

INSTALLER PROGRAMMING



(+) = ▲ Up Arrow (-) = ▼ Down Arrow

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

This display may not appear on standard filtering mode.

Step 2I - **Hardness*:*** Not Applicable (nA) Press NEXT to go to Step 3.

Step 3I - Day Override: Day Override for Storm programming is in Filter Setup. 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"

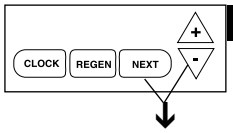
Step 4I - Regeneration Time (hour): WHEN AIR REGEN FILTER-DLY IS SELECTED, THIS SCREEN APPEARS FIRST. Set the hour of day for regeneration using ▲ or ▼ buttons. AM/PM toggles after 12. **The factory setting time is 12:30 a.m.** This display will show REGEN IMMEDIATE ON ZERO GAL if system is set for immediate regeneration. Press NEXT to go to step 5I. Press REGEN to return to previous step.

Note: When installing this unit as part of a multi unit parallel system the regen time of day must be adjusted to prevent multiple units from regenerating at the same time/verify regeneration time is off set from water softener.

Step 5I - 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.

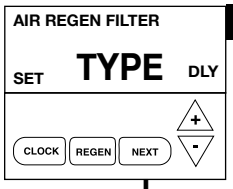
FILTER SETUP

▲ = ▲ Up Arrow ▼ = ▼ Down Arrow



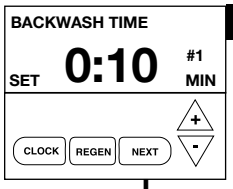
STEP 1S

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.



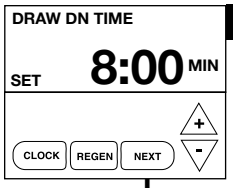
STEP 2S

STEP 2S – Select AIR REGEN FILTER-DLY. Other options include Softening, Filtering or Air Regen Fiter IMM. Choose by using ▼ or ▲ button. If Immediate (IMM) is chosen, this option will allow regeneration immediately and raw water will bypass to service.
Factory setting is AIR REGEN FILTER-DLY. Press NEXT to go to Step 3S. Press REGEN to exit Filter System Setup.



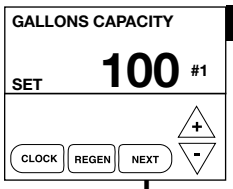
STEP 3S

STEP 3S – First cycle is BACKWASH for 10 seconds. This can not be modified.
Press NEXT to go to Step 4S. Press REGEN to return to previous step.



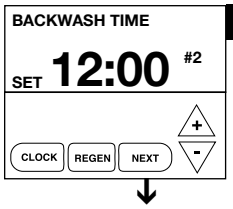
STEP 4S

STEP 4S – Select the time for the DRAW cycle for #1 sequence (DRAW Sequence) using ▼ or ▲ button. Press NEXT to go to Step 5S. Press REGEN to return to the previous step.



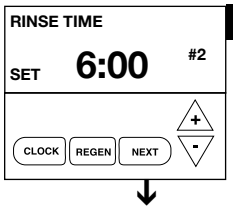
STEP 5S

STEP 5S – Select the GALLON SETTING between 1st ozone recharge sequence using ▼ or ▲ button. Press NEXT to go to Step 6S. Press REGEN to return to the previous step.
Factory Setting is 100 Gallons.



STEP 6S

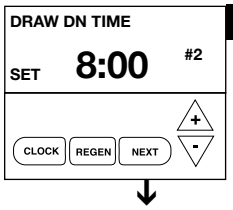
STEP 6S – Set Backwash Time for #2 sequence using ▼ or ▲ button.
Factory Setting is 12:00 minutes.



STEP 7S

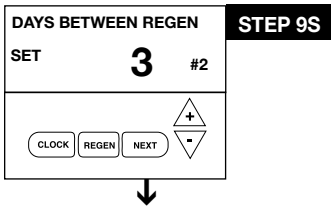
STEP 7S – Set Rinse Time for #2 sequence using the ▼ or ▲ button. If value is set to:

Factory Setting is 6:00 minutes. Press NEXT to go to Step 8S. Press REGEN to return to previous step.



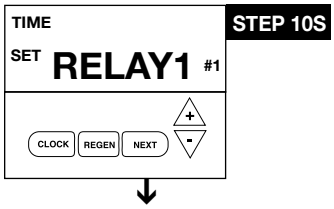
STEP 8S

STEP 8S – Set Draw Time for #2 sequence using the ▼ or ▲ button.



STEP 9S – Set Days Between for #2 Regeneration sequence using the ▼ or ▲ button.

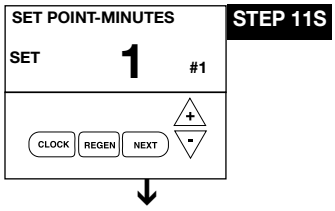
Factory Setting is 3 and it is not advised to increase this without factory input. Press NEXT to go to Step 10S. Press REGEN to return to previous step.



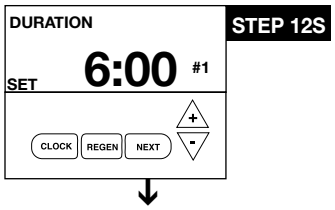
STEP 10S – Set Relay to activate by Time, Gallons, Regen Gallons, Lockout, Off or Service Alarm by using ▼ or ▲ buttons. Relay is used to operate the ozone generator for sequence #1. The choices are:

- **Relay Triggered on Time - Relay activates after set number of minutes after start of regeneration. Start of regeneration is defined by first backwash cycle, dn brine or up brine, whichever is first. Relay deactivates after set time. Press NEXT for programming. THIS IS THE CORRECT SETTING FOR THE STORM FILTER!**
- **Relay Triggered on Gallons** - Relay activates every set number of gallons while in service and deactivates after set time.
- **Relay Triggered on Regen Gallons** - Relay activates after set number of gallons in service **or** gallons used during regeneration and de-activates after set time or when meter stops registering flow, whichever comes first.
- **Service Alarm** - Relay activates on service alarm setting: gallons, time or both, see step 17S.
- **Relay Triggered for Lockout** - Relay closes at set number of minutes before or after start of regeneration. Start of regeneration is referenced by 1st backwash or draw mode. Negative start time delays regeneration by that amount. Relay remains active during error, after power loss and after manual advance. Selection of energizing relay for complete regeneration cycle is available by selecting REGEN for time setting, see step 18S.
- **Off** - If off is selected, Steps 11S to 18S will not be shown.

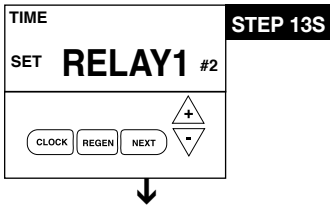
Press NEXT to go to step 11S or other selection screens for relay settings.



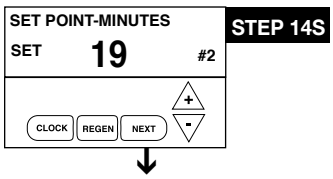
STEP 11S – Time chosen to Activate Relay, use up and down arrows to set # of minutes AFTER START OF REGEN to activate relay. Start of regeneration is defined as first Backwash or Regenerant Draw mode. Time Range = 1 – 500 minutes.



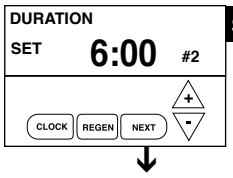
STEP 12S – Use Up and Down arrows to set duration of relay activation in minutes. Time Range is 0:01 (1 second) to 500:00 (500 minutes) Press NEXT to go to Step 13S. Press REGEN to return to previous step.



STEP 13S – Set Relay #1 for #2 sequence (Backwash Sequence). Select TIME to engergize ozone generator. Press NEXT to Go to Step 14S.

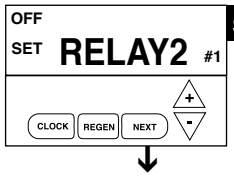


STEP 14S – Select Setpoint for Relay Activation for #2 sequence using the ▼ or ▲ button. **Factory setting is 19 minutes.**



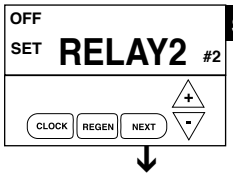
STEP 15S

STEP 15S – Set Duration of Relay Activation for #2 sequence using the ▼ or ▲ button.
Factory setting is 6 minutes.



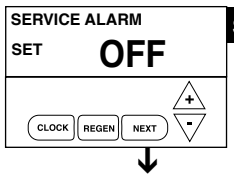
STEP 16S

STEP 16S – Set RELAY2 to activate for #1 sequence.
Factory setting is OFF.
Other options are available for RELAY2; time, gallon, regen gallons, lockout, service alarm error.
Selections for each option will be displayed if selected.



STEP 17S

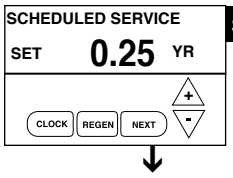
STEP 17S – Set RELAY2 to activate for #2 sequence.
Factory setting is OFF.
Other options are available for RELAY2; time, lockout and off



STEP 18S

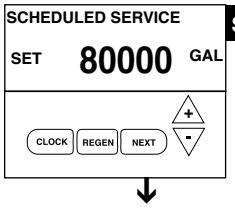
STEP 18S – Set scheduled service display using the ▼ or ▲ button.
Other available options are time, gallons or both.
Selecting OFF disables this feature.
When selecting time, gallons or both. Press NEXT to select values.

SERVICE REMINDER



STEP 19S

STEP 19S – Service alarm for TIME ranges from 0.25 to 9.75 years. Press ▲ and ▼ buttons together until "set" appears to select value. Press NEXT to either exit System Setup or if BOTH was selected go to Step 20S. Press REGEN to return to the previous step.



STEP 20S

STEP 20S – Service alarm for ON GAL ranges from 100 to 9,999,900 gallons. Press ▲ and ▼ buttons together until "set" appears, use arrows to select value. When time selected and number of days remaining drops below 1 year, next display will show "scheduled service in XXX days" after screen where service reminder is programmed. Service technician can reset if desired. Press NEXT to exit System Setup. Press REGEN to return to the previous step.

Reset service reminder by holding down up and down arrows together when reminder is displayed.

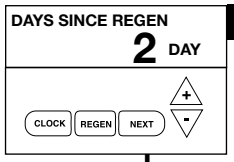
RETURN TO NORMAL MODE

DIAGNOSTICS

To reset diagnostic data push "Next" & ▼ button until TYPE appears in window, then press "▲ & ▼" button simultaneously for 3 seconds until screens return to rotating display.

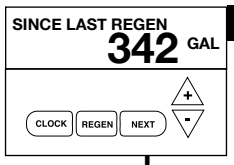
STEP 1D

STEP 1D – Press ▼ or ▲ simultaneously for three seconds. If screen in step 2D does not appear in 5 seconds the lock on the valve is activated.



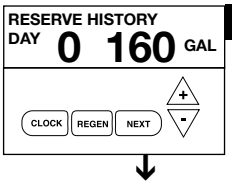
STEP 2D

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.



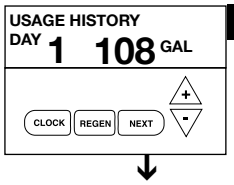
STEP 3D

STEP 3D – **Volume, since last regeneration:** This display shows gallons of water that has 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.



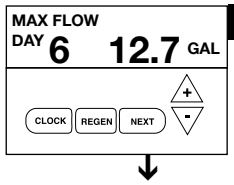
STEP 4D

STEP 4D – Volume of reserve capacity used for last 7 days: If the unit is set up as a softener, a meter is installed and Set Volume Capacity is set to "Auto", this display shows 0 day (for today) and the reserve capacity. Pressing the ▲ button will show day 1 (which would be yesterday) and displays the reserve capacity. Pressing the ▲ button again will show day 2 (the day before yesterday) and the reserve capacity. Keep pressing the ▲ button to show the capacity for days 3, 4, 5 and 6. The ▼ button can be pressed to move backwards in the day series. Press NEXT button at any time to go to Step 5D. Press REGEN to return to previous step.



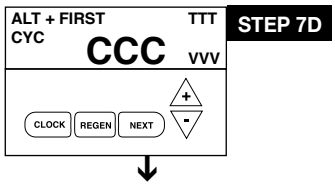
STEP 5D

STEP 5D – Volume of water used, 63-day usage history: This display shows day 0 (for today) and 1 (for yesterday) will show day 2 (which would be the day before yesterday) and flashes the volume of water treated on that day. Continue to press the ▲ button to show the volume of water treated for the last 63 days. If a regeneration occurred on the day the "letter R" will also be displayed. This display will show dashes if a water meter is not installed. Press the NEXT button at any time to go to Step 6 D. Press REGEN to return to the previous step.



STEP 6D

STEP 6D – **Flow rate,** maximum of each of last seven days: The maximum flow rate in gallons per minute that occurred in each of the last seven days will be displayed. Press ▲ arrow to display maximum flow rate today = 0, yesterday = 1. This display will equal zero if a water meter is not installed. Press the NEXT button to exit Diagnostics. Press REGEN to return to the previous step.



STEP 7D

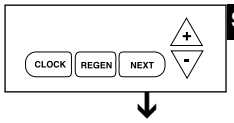
STEP 7D – MAV Drive History – Not displayed if MAV set to off.

- First - Average of 1st three drive times of MAV in that direction
- Last - Last drive time measured for that MAV in that direction
- Ave - Average drive time measured for MAV in that direction
- TTT - Drive time (1425 = 14.25 seconds)
- CCC - Total number of cycles for that MAV
- VVV - Relative drive voltage

MAV drives piston "in" is designated by (-) sign.
MAV drives piston "out" is designated by (+) sign.

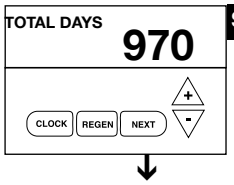
RETURN TO NORMAL MODE

VALVE HISTORY
(Can not be reset)



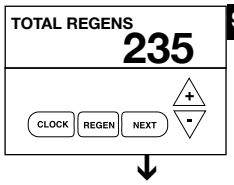
STEP 1VH

STEP 1VH – Press ▼ and ▲ simultaneously for three seconds and release, then press ▼ and ▲ simultaneously until software version is displayed, then release. If screen in step 2VH does not appear in 5 seconds the lock on the valve is activated.



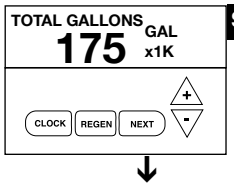
STEP 2VH

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



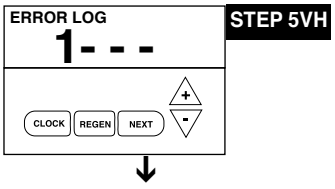
STEP 3VH

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

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



STEP 5VH

STEP 5VH – **Error Log history:** up to 10 errors. With STALL ERRORS 102, 106, 107, 116, 117, right upper corner of display indicates piston position at time of stall. If no errors have occurred " _ _ _ _" will be displayed. Press NEXT to exit valve history.

RETURN TO NORMAL MODE

CYCLE SEQUENCE

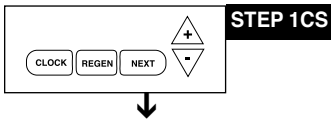
Anytime cycle sequence is modified, filter set-up will revert to manufacturer setting and must be reprogrammed as desired.

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

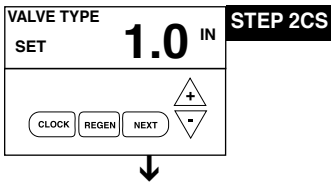
END must be used as the last cycle option. The FILTERING cycle should only be used in regenerant prefill applications.

Cycle Options		
BACKWASH	REGENERANT DRAW	
RINSE	FILTERING	END

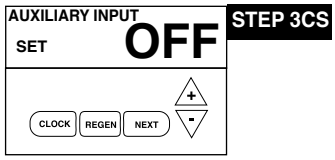
The following is an example of how to set a valve so that when regeneration is initiated, BACKWASH occurs first, REGENERANT DRAW DN occurs second, RINSE occurs third, and FILL occurs fourth.



STEP 1CS – Press NEXT and ▼ simultaneously until **TYPE & AIR REGEN FILTER** appear on screen and release. Then press NEXT and ▼ simultaneously again for 3 seconds and release. If screen in step 2CS does not appear in 5 seconds the lock on the valve is activated.



STEP 2CS – **Valve Type.** Use the ▲ or ▼ to select from 1.0", 1.25", 1.50", 2.0L", 2.0" valve. **ProMate-6.0 Storm is a 1.0" meter.** Press NEXT to go to Step 3CS.



STEP 3CS – This display will be available to select the use of an outside signal to control the initiation of a regeneration. Selection only matters if a connection is made to the two pin connector labeled DP SWITCH located on the printed circuit board. Following is an explanation of the options:
• IMMED REGEN – If the dP switch is closed for an accumulative time of 2 minutes, a regeneration will occur immediately.
• DELAY REGEN – If the dP switch is closed for an accumulative time of 2 minutes, a regeneration will occur at the schedule regeneration time.
• HOLD REGEN – If the dP switch is closed a regeneration will be prevented from occurring.
• **OFF - Factory setting is off**
Press NEXT to go to Step 14CS. Press REGEN to return to previous step.

TROUBLE SHOOTING

PROBLEM	CAUSE	CORRECTION

After resolving the cause of any error code or any service valve, 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 101 - 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 102 - 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.
	B2. Buildup on piston	B2. Clean with soft cloth and vinegar, or replace piston
	B3. Improper voltage being delivered to board	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 103 - 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 104 - 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

TROUBLE SHOOTING

PROBLEM	CAUSE	CORRECTION
1. Control valve stalled in regeneration	A. Motor not operating	A. Replace Motor
	B. No electric power at outlet	B. Repair outlet or use working outlet
	C. Defective transformer	C. Should provide 12 volts when plugged into outlet, if not, replace transformer
	D. Defective PC board	D. Replace PC board
	E. Broken drive gear or drive cap assembly	E. Replace drive gear or drive cap assembly
	F. Broken piston retainer	F. Replace drive cap assembly
	G. Broken main or regenerant piston	G. Replace main or regenerant piston
2. Blank or incomplete LCD display	A. Transformer unplugged	A. Connect to power
	B. No electric power at outlet	B. Repair outlet or use working outlet
	C. Defective transformer	C. Should provide 12 volts when plugged into outlet, if not, replace transformer
	D. Short in meter	D. Unplug meter from PC board, if LED lights appropriately, replace meter assembly.
	E. Check battery, should be greater than 3 volts	E. Replace battery if less than 3 volts
	F. Defective PC board	F. Replace PC board
3. Control does not display correct	A. Power outage > 2 years time of day	A. Reset time of day, replace lithium coin type battery on circuit board
	B. Power outage < 2 years, time of day flashing, battery depleted	B. 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	A. Put bypass valve in service position
	B. Meter connection disconnected	B. Connect meter to PC board
	C. Restricted/stalled meter turbine	C. Remove meter & check for rotation, clean foreign material
	D. Defective meter	D. Replace meter
	E. Defective PC board	E. Replace PC board
5. Control valve regenerates at wrong time of day	A. Power outages	A. Reset control valve to correct time of day
	B. Time of day not set correctly	B. Reset to correct time of day
	C. Time of regeneration incorrect	C. Reset regeneration time
	D. Control valve set at “on 0” (immediate regeneration)	D. Check control valve set-up procedure regeneration time option
	E. Control valve set at NORMAL + on 0	E. Check control valve set-up procedure regeneration time option
6. Odor bleedthrough	A. Test for Hydrogen Sulfide (H_2S) on site.	A. Hydrogen Sulfide bleedthrough 1. Increase frequency of ozone recharge 2. Exceeding flow rate specification - see page 6 3. No ozone present - see Ozone Generator troublshooting B. No Hydrogen Sulfide after unit Bacteria is source of odor rather than H2S, chlorinate distribution plumbing and flush completely
7. Momentary reduction of water pressure at the start of regeneration	A. Head of air being expelled to drain	A. Reprogram regeneration to a time when water is not being used

OZONE GENERATOR TROUBLESHOOTING GUIDE

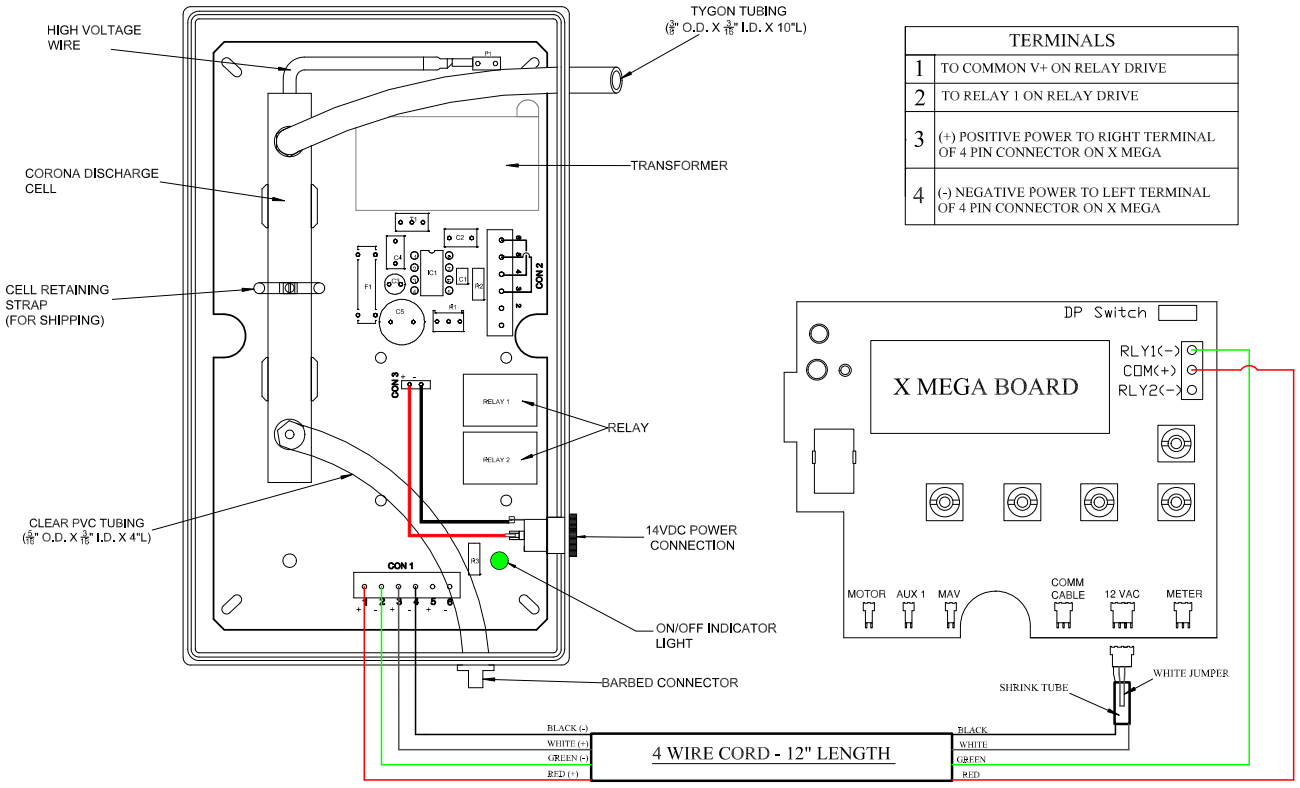
SYMPTOM	POSSIBLE CAUSE	CORRECTION
1. Ozone unit does not turn on	A. Unit not wired correctly to relay	A. See wiring diagram on page 18
	B. Unit not programmed correctly	B. See program on page 11. Relay should be programmed on Time. Usually set to 19 minutes. Duration should be programmed for 2 minutes less than length of time to draw ozone to top of filter bed.
	C. Blown fuse	C. Replace fuse with equally rated fuse, see page 18
2. Unit keeps blowing fuses	A. Electrical short in unit	A. Visually inspect unit, and check for loose connections. Inspect printed circuit board for burn marks. Inspect high voltage wire from printed circuit board to ozone cell for disconnection or burn marks. Repair any and all problems prior to placing unit in service or contact factory for service information
	B. Incorrect fuse value and type are being used	B. Replace with appropriate size/type fuse. Refer to Spare/Replacement parts for replacement part information on page 18
	C. Unit is connected to improper power source	C. Refer to ozone generator manual for correct voltage requirements
3. Unit turns on, but no ozone output	A. Cell is plugged with a build-up of nitrous byproducts and particulate matter. Usually caused by the lack of proper air preparation	A. Rinse cells with warm water and dry completely before replacing
	B. Water has been allowed to back up into cell	B. Replace cell/check valve
	C. Frequency driver high voltage lead(s) is not connected to ozone cell(s)	C. Connect lead(s) to Corona Discharge Cell(s)
	D. Frequency driver is defective	D. Replace circuit board driver

RELAY TROUBLESHOOTING

PROBLEM	CAUSE	CORRECTION
1. Relay does not energize		
	A. Programmed incorrectly	A. Check programming See table on page 8
	B. Defective relay, See figure below	B. Replace generator circuit board
	C. Defective PC Board	C. Replace PC Board
	D. Faulty wire connections between PC board and relay	D. Check and repair wire connections

Relay operation while in error modes

1. Relays should turn off immediately whenever a Valve Error occurs.



Ozone Generator Spare/Replacement Parts

(*) Denotes recommended spare maintenance parts. Followed by quantity, per unit, recommended for one year's scheduled maintenance. Remove Corona discharge cell annually and flush with warm soft water to remove accumulated nitrogen compounds. Dry completely before reinstalling.

Qty	Part #	Description
(1)	111060	Corona Chamber RPL with Check Valve Elbow Assembly and Injector
(1)	110409	Wall Transformer, 115 VAC to 14 VDC Regulated, 2 Amp (Domestic Customers Only)
(1)	110393	Harness, Wire IC Ozone Generator - 14 VAC
(1)	110822	Check Valve Elbow

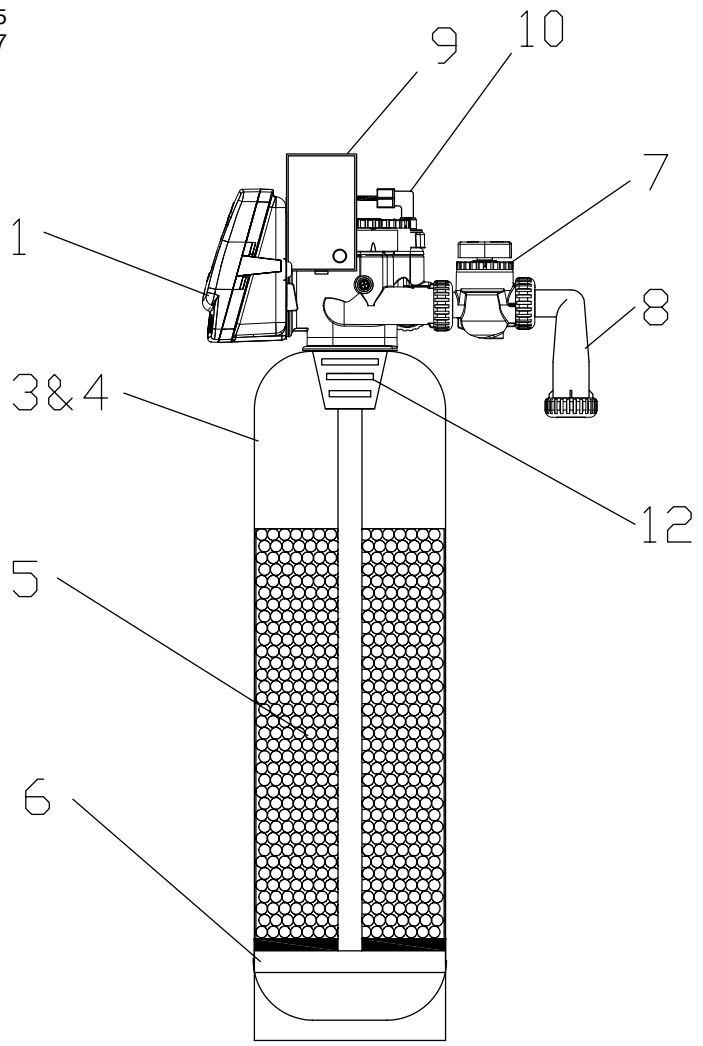
Fusing

There is only one fuse connected to the 14 VDC source. It is located on the component side of the frequency driver board. Fuse size and value is listed below.

Qty	Part #	Fuse Size	Fuse Value
(1)	110277	Type IEC 127	.800 amp, fast blow

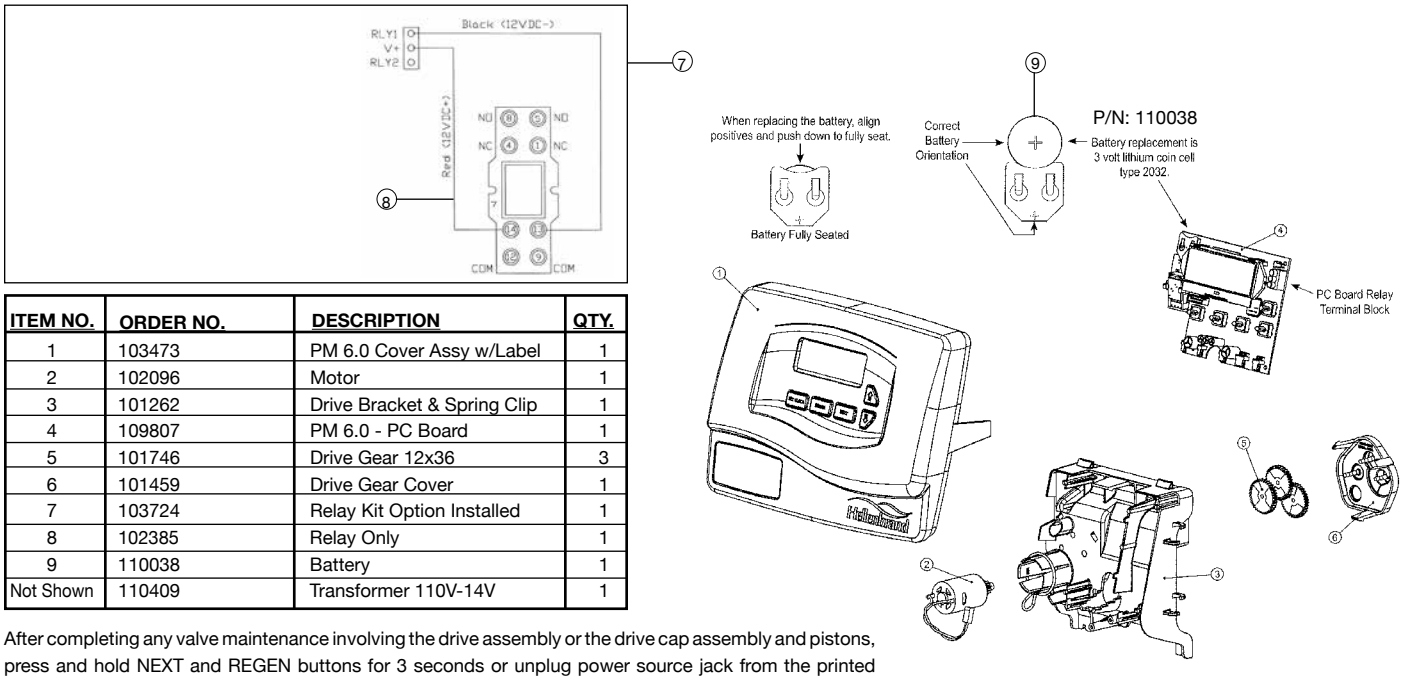
PM6 IC STORM

Item	Description	Qty	Part #
1	Metered Control	1	110270, specify flow control
3&4	Mineral Tank Assembly		
	IC-Storm 1054 Filter Tank	1	104022 Tank & Distributor Tube Only
	IC-Storm 1252 Filter Tank	1	108294 Tank & Distributor Tube Only
	IC-Storm 1354 Filter Tank	1	108295 Tank & Distributor Tube Only
	Replacement Tank with Media	1	110541 IC Storm 10 Tank, Natural, Vortech Standard with Media
			110542 IC Storm 12 Tank, Natural, Vortech Standard with Media
			110543 IC Storm 13 Tank, Natural, Vortech Standard with Media
5	Filter Media		110544 IC Storm 10 Rebed
			110545 IC Storm 12 Rebed
			110546 IC Storm 13 Rebed
6	Plate Distributor - (Part of Vortech Tank)		
7	Bypass Valve	1	101325
8	In-line Check Valve Kit	1	104174 (includes 90º vertical adapter & in-line check valve)
9	Ozone Generator	1	110547
10	Check Valve/Elbow	1	110822
11	Tank Jackets - 10"	1	106745
12	Disperser Assy.	1	101547



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

FRONT COVER AND DRIVE ASSEMBLY



ITEM NO.	ORDER NO.	DESCRIPTION	QTY.
1	103473	PM 6.0 Cover Assy w/Label	1
2	102096	Motor	1
3	101262	Drive Bracket & Spring Clip	1
4	109807	PM 6.0 - PC Board	1
5	101746	Drive Gear 12x36	3
6	101459	Drive Gear Cover	1
7	103724	Relay Kit Option Installed	1
8	102385	Relay Only	1
9	110038	Battery	1
Not Shown	110409	Transformer 110V-14V	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: 214) and then reset the valve to the service position.

Figure 14

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 -Drive Cap Assy.	1
4a	102292	Piston Downflow Assy.	1**
4b	102297	Piston Upflow Assy.	1
5	102296	Regenerant Piston	1
6	102192	O-ring 337-tank	1
7	102165	O-ring - Distributor Tube	1
8	101189	PM 6.0 Back Plate	1
9	102892	Service Wrench - Not Shown	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.

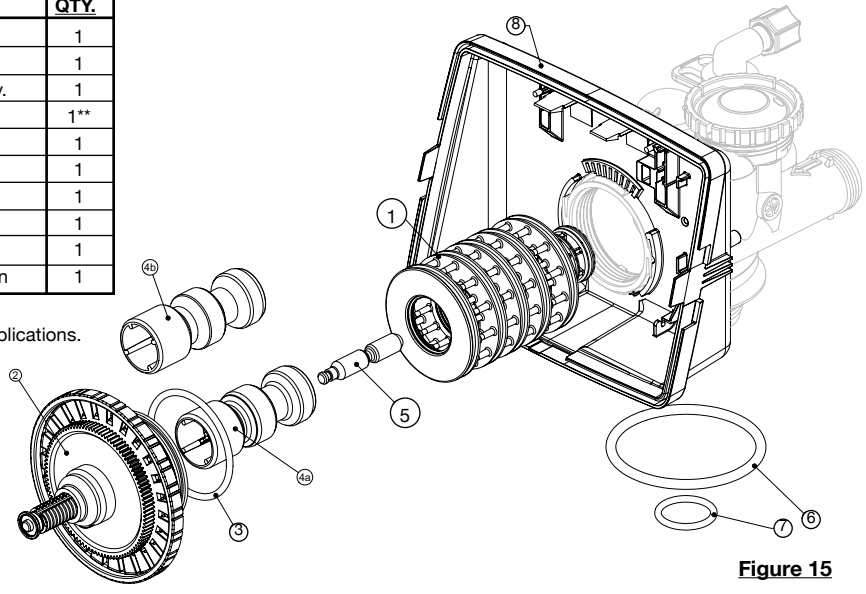


Figure 15

Do not use vaseline, oils, other hydrocarbon lubricants or spray silicone anywhere. A silicone lubricant may be used on black o-rings but is not necessary. **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: 214) 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	Injector Assy. Z Plug-Filter	1
5	101825	Injector Assy. A Black	1
	101826	Injector Assy. B Brown	
	101827	Injector Assy. C Violet	
	101828	Injector Assy. D Red	
	101829	Injector Assy. E White	
	101830	Injector Assy. F Blue	
	101831	Injector Assy. G Yellow	
	101832	**Injector Assy. H Green**	
	101833	Injector Assy. I Orange	
	101834	Injector Assy. J Light Blue	
	101835	Injector Assy K Light Green	
Not Shown	106767	O-ring 011	*
Not Shown	106768	O-ring 013	*

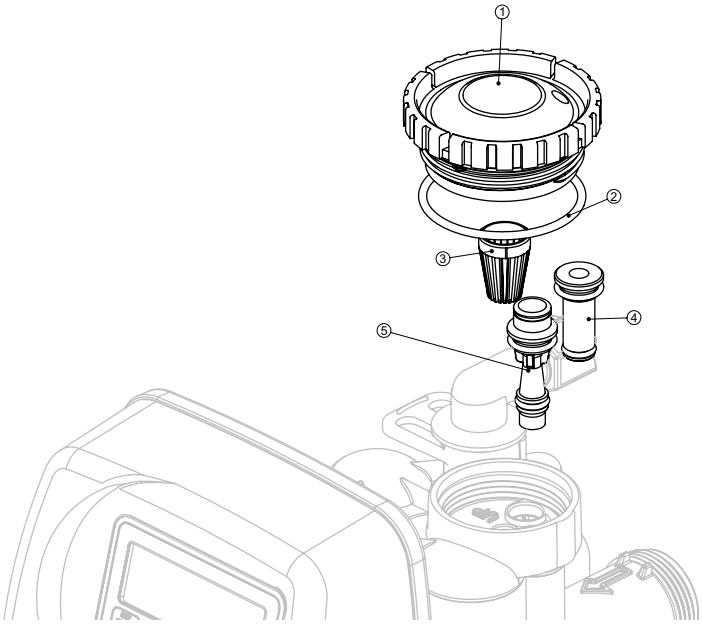


Figure 15

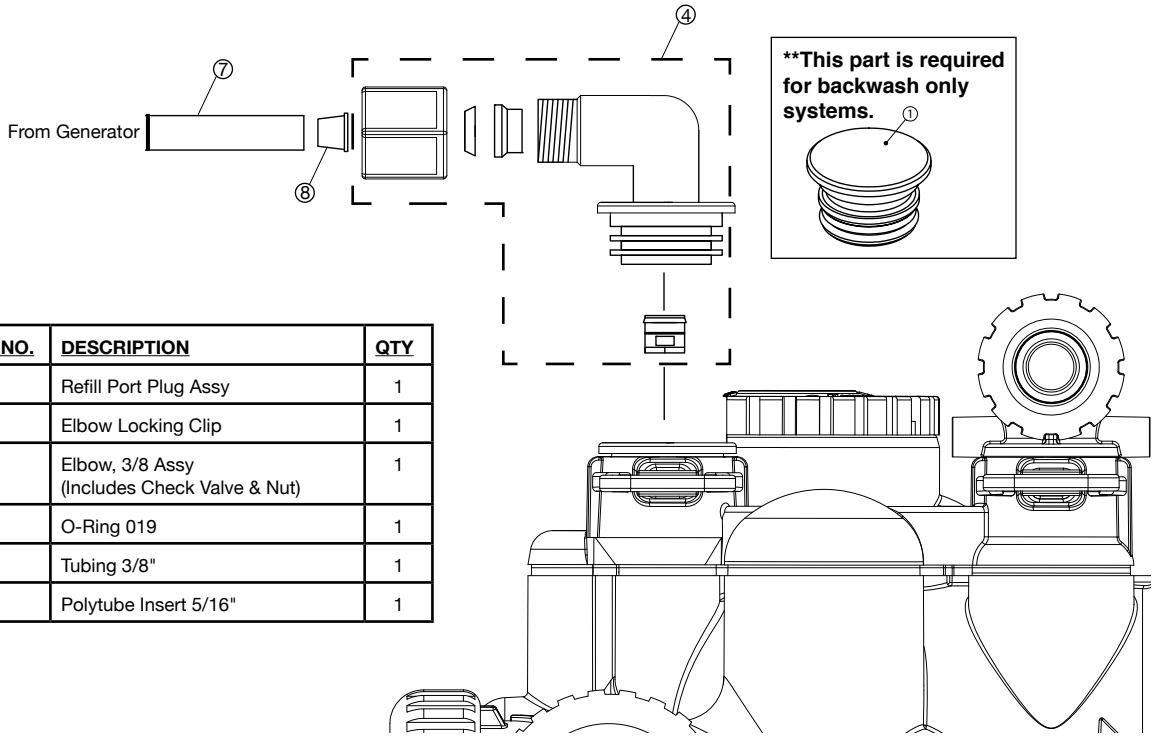
* The injector plug and the injector each contain one 011 (lower) and 013 (upper) o-ring.

Note: For upflow position, injector is located in the up hole and injector plug in the down hole. For a filter that only backwashes injector plugs are located in both holes.

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.

REFILL AND REFILL PORT PLUG



ITEM NO.	ORDER NO.	DESCRIPTION	QTY
1	102322	Refill Port Plug Assy	1
2	101414	Elbow Locking Clip	1
4	110822	Elbow, 3/8 Assy (Includes Check Valve & Nut)	1
5	102153	O-Ring 019	1
7	111004	Tubing 3/8"	1
8	111006	Polytube Insert 5/16"	1

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.

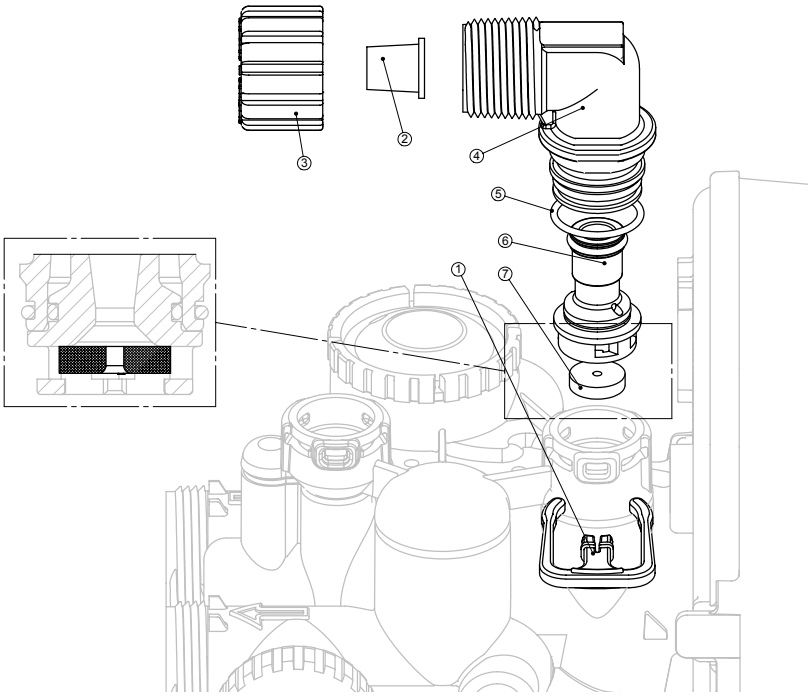


Figure 17

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.

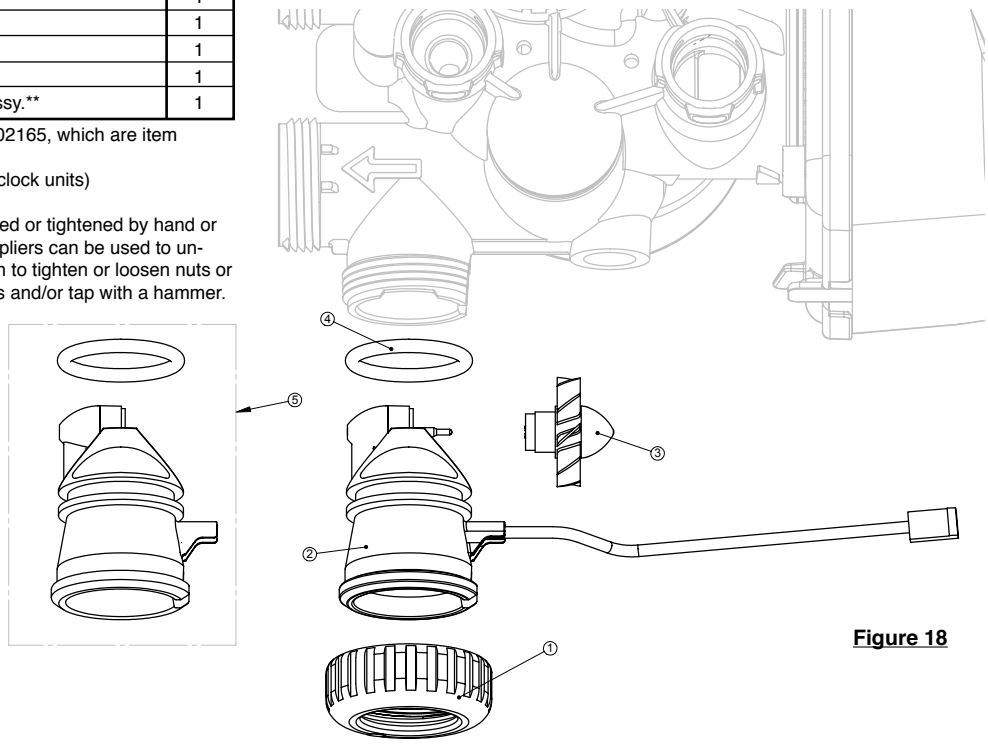


Figure 18

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	110997	Bypass Cap	2
6	110998	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 Verticle 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.

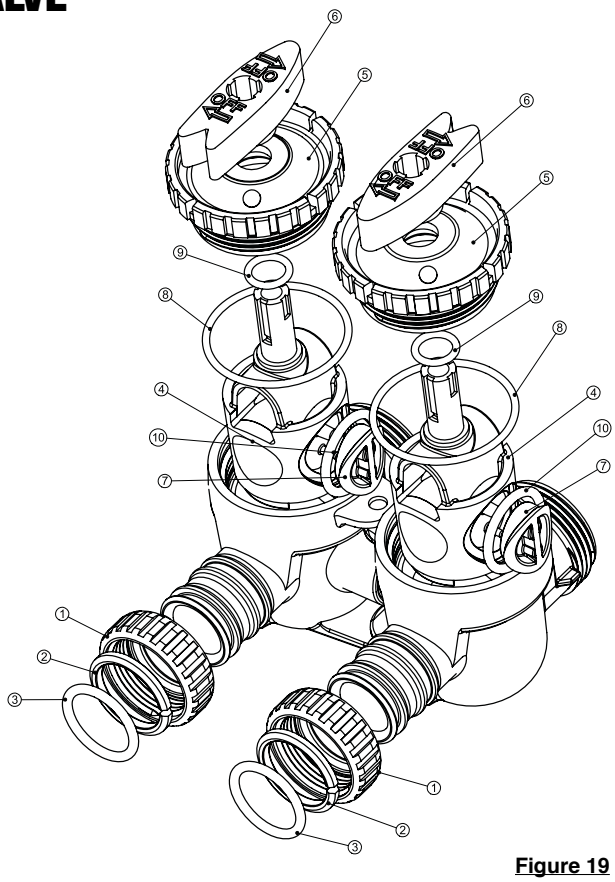
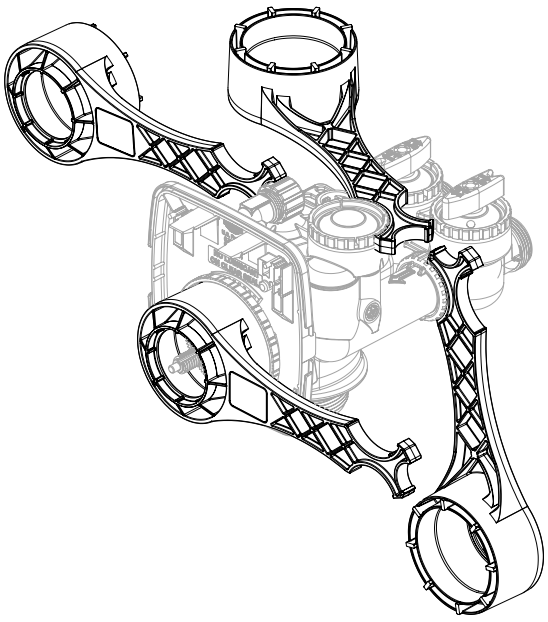


Figure 19

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.

102892 - Wrench

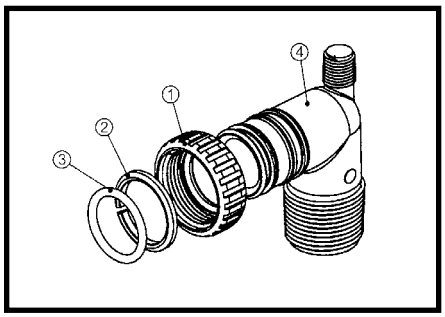


RECOMMENDED ANNUAL MAINTENANCE

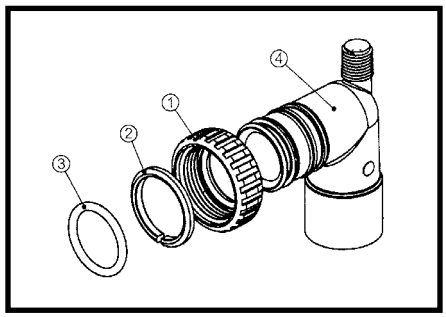
Annually

- Test raw water, assure filter settings are appropriate for the application. Note and record any changes.
- Verify injector is clean and functioning. (stock code 101832)
- View head of air and determine need for cleaning inlet diffuser by running at service flow and then note difference when bypass open. If significantly different, disconnect valve from tank and clean inlet diffuser. If IRB slime or iron build-up is present, ozone level may not be adequate, check settings, check ozone production.
- Clean / change CD cell. Flush CD cells completely by pushing warm RO or soft water through CD cells to dissolve build-up inside. This can be done using a bulb syringe or large 60cc syringe. Flush until the water coming out is clear, usually takes 2-3 times. CD cell must be dry completely before it can be reinstalled or cell will not produce ozone. Verify ozone production prior to changing CD cell to understand need for cleaning frequency at each application. Initiate regeneration, attach tubing to CD cell inlet and disconnect brine elbow during draw cycle and blow on tubing to detect ozone odor. Check that indicator light is working.
- Check back wash flow is proper and water supply is maintained for the duration of the backwash cycle.
- Change ozone check valve (at brine elbow, stock code 110822)
- Change injector & clean screen.
- Confirm draw time setting draws air to top of bed.
- Check filter valve settings.
- Check diagnostic information to review any errors, address errors if present.
- Note and record any changes.
- Anticipated life of stack & piston is 5-7 years with standard ferrous and ferric applications. Iron bacteria may require more frequent maintenance.
- It is recommended to change the battery (CR2032), stock code 110038, on the control valve circuit board if it is more than two years old. This maintains time of day in the event of power loss.

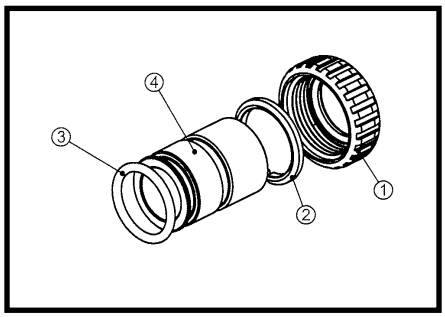
INSTALLATION FITTING ASSEMBLIES



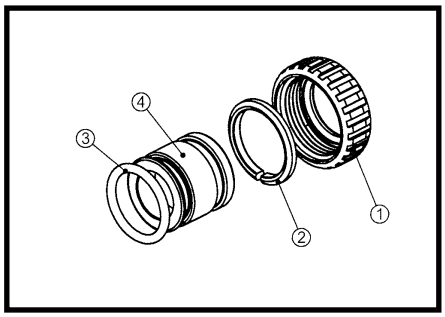
101639 - Fitting 1” PVC Male NPT



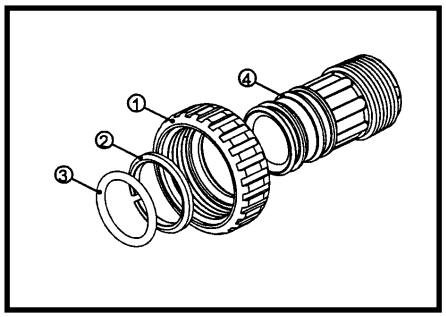
101640 - Fitting 3/4” & 1” PVC Solv 90



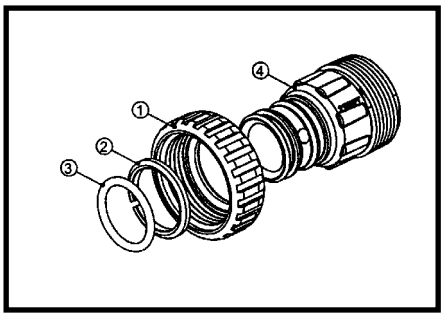
108618 - Fitting 1” Lead Free Brass Sweat



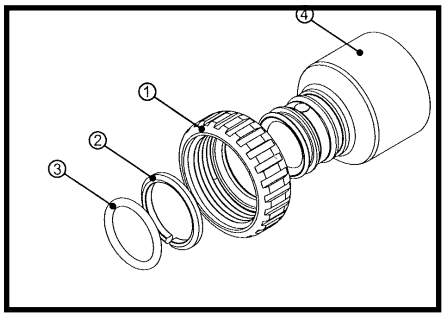
108617 - Fitting 1” Lead Free Brass Sweat



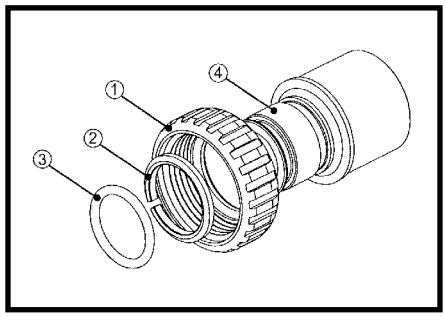
101643 - Fitting 1” Male NPT



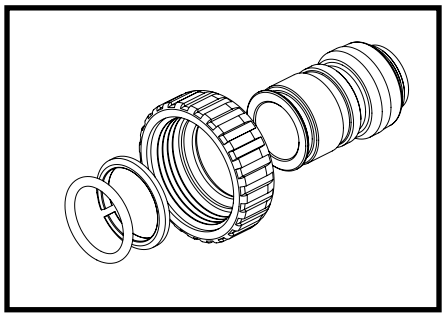
101644 - Fitting 1-1/4” Male NPT



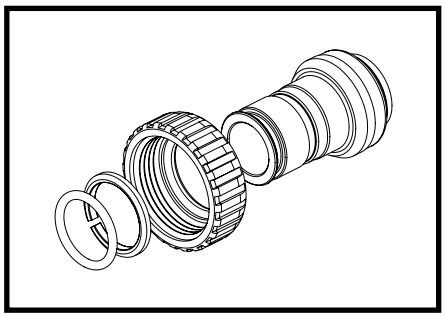
101648 - Fitting 1-1/4” & 1-1/2” Brass Sweat



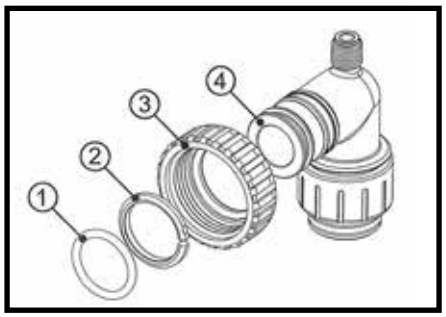
101646 - Fitting 1-1/4” &1-1/2” PVC Solvent



110135 - Fitting 3/4” Brass Sharkbite



110136 - Fitting 1” Brass Sharkbite



108478 - Fitting 3/4” John Guest QC

1	102144	Nut 1" QC
2	102437	Split Ring
3	102165	O-Ring #215

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.

PROMATE 6 IC STORM WITH AIR REGEN SPECIFICATIONS

MODEL	PM6 IC Storm 10	PM6 IC Storm 12	PM6 IC Storm 13
FACTORY PRESET MINUTES			
Backwash # 1 : Seconds	0:10	0:10	0:10
Draw DN # 1 : Minutes	8	12	12
***Water Usage (Gallons) sequence # 1**	6.5	9.8	10.2
BACKWASH # 2 : MINUTES	12	12	12
RINSE # 2 : MINUTES	6	6	6
DRAW DN # 2 : MINUTES	8	12	12
***Water Usage (Gallons) sequence # 2**	100	142	187

Maximum Service Flow Rate	4.0	6.0	7.0
Media, Cubic Feet	1	1.6	1.9
Mineral Tank Dimension	10x54	12x52	13x54
Drain Line Flow Control- GPM	5.3	7.5	10
Injector	Dk. Green	Dk. Green	Dk. Green
Max. Iron Concentration	6.0	6.0	6.0
Max. Hydrogen Sulfide Concentration	5.0	5.0	5.0
Max. Manganese Concentration	1.0	1.0	1.0

* Based upon 50 psi water pressure

**** Do not use Storm filter on chlorinated water supplies.**

***For levels higher than the maxium concentrations listed, contact manufacturer. Local water conditions may require different application parameters.

Note: Manual regeneration follow sequence # 2

This unit is not intended to aid in the mitigation of microorganisms and is not duly registered as a pesticidal device.

The Storm ozone filter must not be used on bacteriologically unsafe water supplies, such as those with with positive Coliform or E Coli bacteria tests.

NOTES

FILTER WARRANTY

INCLUDES – Iron Curtain® 2.0, Iron Curtain® Jr. and Storm Filter Systems

Hellenbrand, Inc., warrants to the original consumer purchaser that the system 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 FIVE YEARS: The IC-2.0 Aeration Macromatic Timer.

For a Period of FIVE YEARS: The IC-2.0 aeration control body, excluding its internal parts, solenoid and air pump assemblies.

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 Ozone Generator.

For a Period of ONE YEAR: The entire unit system ("System").

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

THIS WARRANTY IS EFFECTIVE TO THE ORIGINAL CONSUMER PURCHASER ONLY, AND ONLY FOR AS LONG AS THE SYSTEM REMAINS AT THE ORIGINAL INSTALLATION SITE. COVERAGE TERMINATES IF YOU SELL OR OTHERWISE TRANSFER THE SYSTEM OR IF THE SYSTEM IS MOVED FROM THE ORIGINAL INSTALLATION SITE.

No sales representative, distributor, agent, dealer, reseller, authorized seller or any other person or entity is authorized to make any other warranty, or modify or expand the warranty provided herein on behalf of Hellenbrand. Upon expiration of the applicable warranty period, Hellenbrand shall have no further liability related to the System/parts to which the warranty period applies, except with respect to valid warranty claims asserted during the appropriate warranty period.

If the System or any part described above becomes defective within the specified warranty period, you should notify your local authorized seller of Hellenbrand products, and arrange a time during normal business hours for the inspection of the System at the original installation site. You may also contact Hellenbrand and we will provide you with the contact information for your local authorized seller of Hellenbrand products. Hellenbrand, at its option, will repair or replace the System or any part found defective within the terms of this warranty. You are responsible for freight from our factory and any service fees charged by the local authorized seller of Hellenbrand products for installation, repair, removal, replacement, service, etc., of any System or parts. This warranty does not include any labor charges. This paragraph sets forth the exclusive remedy for any valid warranty claims against Hellenbrand.

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's printed instructions, or installation, repair or service by anyone other than Hellenbrand or an authorized seller of Hellenbrand products.

IN ADDITION, THIS WARRANTY DOES NOT COVER UNPROTECTED OUTDOOR INSTALLATIONS. This System, including all of the electrical components, must be protected against windblown dust, falling and windblown rain, freezing temperatures and the formation of ice, with an appropriate enclosure consisting of a floor, roof, walls, ventilation and heat.

As a manufacturer, we do not know the characteristics of your water supply or the purpose for which you are purchasing this system. You should be aware 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 may change considerably if this System is moved to a new location. For these reasons, Hellenbrand assumes no liability for the determination of the proper equipment necessary to meet your needs; and Hellenbrand does not authorize others to assume such obligations for Hellenbrand.

TO THE EXTENT PERMITTED BY APPLICABLE LAW, REMEDIES FOR DEFECTS OR FAILURES ARE LIMITED TO THE REMEDIES PROVIDED IN THIS WARRANTY. THERE ARE NO EXPRESS WARRANTIES OTHER THAN THOSE SET FORTH HEREIN. ANY IMPLIED WARRANTIES, INCLUDING WITHOUT LIMITATION WARRANTIES OF MERCHANTABILITY, FITNESS FOR PARTICULAR PURPOSE, NON-INFRINGEMENT, OR ANY WARRANTIES ARISING FROM COURSE OF PERFORMANCE, COURSE OF DEALING, OR FROM USAGES OF TRADE, ARE LIMITED IN DURATION TO THE APPLICABLE WARRANTY PERIOD SET FORTH ABOVE.

UNDER NO CIRCUMSTANCES SHALL HELLENBRAND BE LIABLE TO THE ORIGINAL CONSUMER PURCHASER OR TO ANY OTHER PERSON FOR ANY INCIDENTAL, INDIRECT, 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 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, so the above limitations may not apply to you. Similarly, some states do not allow the exclusion or limitation of incidental or consequential damages, so the above limitation or exclusion 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.