



Dealkalizers

Fleck Model 2850 SXT Series

Operation and Service Manual

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1.0 INTRODUCTION & WARNINGS

Congratulations on your decision to use AmeriWater Healthcare Water Purification Equipment! Federal law restricts this device to sale by or on the order of a physician for use as a water purification device for hemodialysis.

Your Water Purification Equipment was thoroughly tested and in excellent condition when it was shipped to you. However, because damage during shipment is possible, please unpack and carefully inspect as soon as you receive it. Please notify AmeriWater immediately if any problems or shipping damage are identified.

Please read the Operations Manual before using the system. Contact AmeriWater Customer Service with any questions at 1-800-535-5585 Monday through Friday 8:00 a.m. to 5:00 p.m. eastern standard time. For after hours emergencies call 1-800-535-5585 and follow the instructions on the recorded message. Our on-call technician will return your call as soon as possible.

NOTE: This entire Operations Manual should be read before operating or servicing the device. This Operations Manual should then be kept near the device and used as a reference and troubleshooting guide.

WARNING: The selection of water treatment equipment for dialysis and the maintenance of the equipment following its installation is the responsibility of the dialysis physician. The product water should be tested periodically to verify that all equipment is operating within specifications.

WARNING: *DO NOT* operate the water purification system without properly functioning carbon filtration! Suspend dialysis treatments immediately if chlorine or chloramines level after the polisher tank exceeds 0.1 mg/L!

WARNING: Dealkalizers are intended to be used as pretreatment for reverse osmosis or deionization; and are not meant to be used as the primary means of water purification.

NOTE: Dealkalizer tanks that are less than 18" in diameter are loaded with media at the factory. Tanks that have a diameter of 18" and larger must be loaded onsite during installation. Reference Section 8.0 for loading diagrams.

WARNING: No person should attempt to operate or service the system without prior authorization, instruction, and training from AmeriWater and/or your medical facility director!

2.0 Fleck 2850 SXT System Specifications

2.1 Series 2850 SXT Dealkalizer

Series 2850 SXT Fleck Dealkalizer

Features:

- A full flow 1-1/2" valve with flow rates up to 49 GPM
- The control valve utilizes the time proven piston-seal-spacer technology for durable, maintenance free service.
- All plastic construction will not corrode.
- Programmable electronic controller is flexible for all conditions. All times can be set to the minute.
- Single tank design regenerates at off hours to prevent pressure loss caused by dual metered systems regenerating during dialysis treatment.
- Included with the dealkalizer is a reverse osmosis lock-out switch.
- Choose either a 1" or 1¼" header that includes a three true union ball valve by-pass, stainless steel liquid filled outlet pressure gauge and sample port. The header comes pre-assembled and can be installed using PVC schedule 80 piping. The header can be oriented from left to right flow or right to left flow.

SERIES 2850 SXT FLECK DEALKALIZER							
Model Number	Grain** Capacity	Max* Flow Rate	Resin Tank Size in Inches	Brine Tank Size in Inches	Brine Tank Capacity in Lbs.	Shipping Weight in Lbs.	Media Installed
0095047	31,500	14	14 x 65	18 x 40	388	289	Yes
0095048	40,500	18	16 x 65	24 x 50	835	388	Yes
0095049	49,500	22	18 x 65	24 x 50	835	452	No
0095050	67,500	30	21 x 62	24 x 50	835	565	No
0095051	85,500	38	24 x 65	24 x 50	835	731	No
0095052	94,500	42	24 x 72	24 x 50	835	731	No

* Max flow based on 4 GPM per cubic foot.
 ** Capacity depends on water analysis. Contact AmeriWater.

HEADERS	
Part Number	Description
009591	1" Header By-Pass Assy.
009592	1 1/4" Header By-Pass Assy.
009593	3/4" Header By-Pass Assy.



3.0 Series 7000 SXT Dealkalizer Operation Summary

3.1 DESCRIPTION

The Dealkalizer reduces the alkalinity in the feed water present as bicarbonate, carbonate, or hydroxide to prevent high pH water from interfering with the performance of the carbon filtration and the reverse osmosis system.

3.2 HOW IT WORKS:

Dealkalizers are basically anion water softeners (standard softeners use cation resin rather than anion resin). The Dealkalizer reduces the alkalinity of the water through an ion exchange process. The water passes over resin beads charged with chloride ions. The resin beads attract the bicarbonate, carbonate, and hydroxide ions in the water and exchange them with chloride ions. The supply of chloride ions is progressively depleted until reaching a state of exhaustion. Regeneration of the dealkalizer replenishes the supply of chloride ions and eliminates the previously removed bicarbonate, carbonate, and hydroxide ions.

3.3 MONITORING:

1. Verify at the beginning of each day that the control head timer is set to the correct time of day and record that this verification was done. This prevents inadvertent regeneration during clinical operation, which would cause the RO to shut down via the interlock mechanism.
2. Test and record the pH level of the water at the dealkalizer inlet and outlet to ensure that the pH level is lower at outlet. This testing must be done at least once per day at the end of the treatment day.
3. Monitor the brine tank daily to ensure that the salt level fills at least half of the tank. Salt added to the brine tank must be clean pellet type, cube, or solar salt only. Do not use rock salt.
4. High pH results at the dealkalizer outlet may indicate a lack of salt in the brine tank resulting in insufficient regeneration, dealkalizer not going into or exiting regeneration, a degeneration in the chemical properties of the resin, or an open bypass valve. Notify the medical director if high pH results are obtained at the dealkalizer outlet.

4.0 Fleck 2850 SXT System Installation

4.1 Installation Requirements

Water Pressure

A minimum 20 pounds per square inch of inlet water pressure, is required for the regeneration valve to effectively operate .

Electrical Facilities

An uninterrupted alternating current(A/C) supply is required. Make sure:


- Voltage supply is compatible with unit before installation.
- Current supply is always hot and cannot be turned off with another switch.

Location of Dealkalizer

Locate the Dealkalizer close to a clean working drain after the water softener and prior to carbon tanks. Then, connect according to the local plumbing codes.

Bypass Valves

Always provide for installation of a bypass valve, if unit is not equipped with one.

	<p>CAUTION</p> <ul style="list-style-type: none">• Minimum water pressure 20 psig.• Maximum water pressure 125 psig.• Minimum water temperature 34° F.• Maximum water temperature 110° F.• Ambient temperature 34° to 122° F (1° to 50° C)• Disconnect all power sources before servicing.• Always operate with cover in place.
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Note: This product should be installed by qualified personnel.
Comply with all plumbing codes when installing this product.
Comply with all electrical codes when installing this product.

4.2 Installation Instructions

1. Place the tank where you want to install the unit. Verify that the tank is level and on a firm base, and that the tank label and control face are visible.
 - a) Always install devices as shown on the AmeriWater Piping and Instrumentation Drawing (P&ID) provided with the water purification system. Failure to do so may adulterate the marketing clearance on the device and void all AmeriWater warranties.
2. Connect all plumbing in accordance to your local plumbing codes. The dealkalizer should be installed using the appropriate AmeriWater Bypass Header. This allows the device to be bypassed for service. **The dealkalizer must be installed prior to the carbon filters.**

HEADERS	
Part Number	Description
009591	1" Header, By-Pass Assembly
009592	1¼" Header, By-Pass Assembly
009593	¾" Header, By-Pass Assembly

3. Place in the header in the BYPASS position.
 - a) Turn on the main water supply.
 - b) Open a sample port downstream and let the water run a few minutes or until the system is free of foreign material resulting from installation. Close the water tap when the water runs clean.
4. Make plumbing connections to the Fleck 2850 SXT valve.
5. Plug the Fleck 2850 SXT control valve into a 120-volt GFI receptacle.
6. Place the header in the SERVICE position and cycle the valve to the BACKWASH position. Let the water flow slowly into the mineral tank until the air is purged from the system.
7. Add water to the brine tank until the top of the air check is covered. Manually step the valve to the BRINE DRAW position, and allow the valve to draw water from the brine tank until it stops.

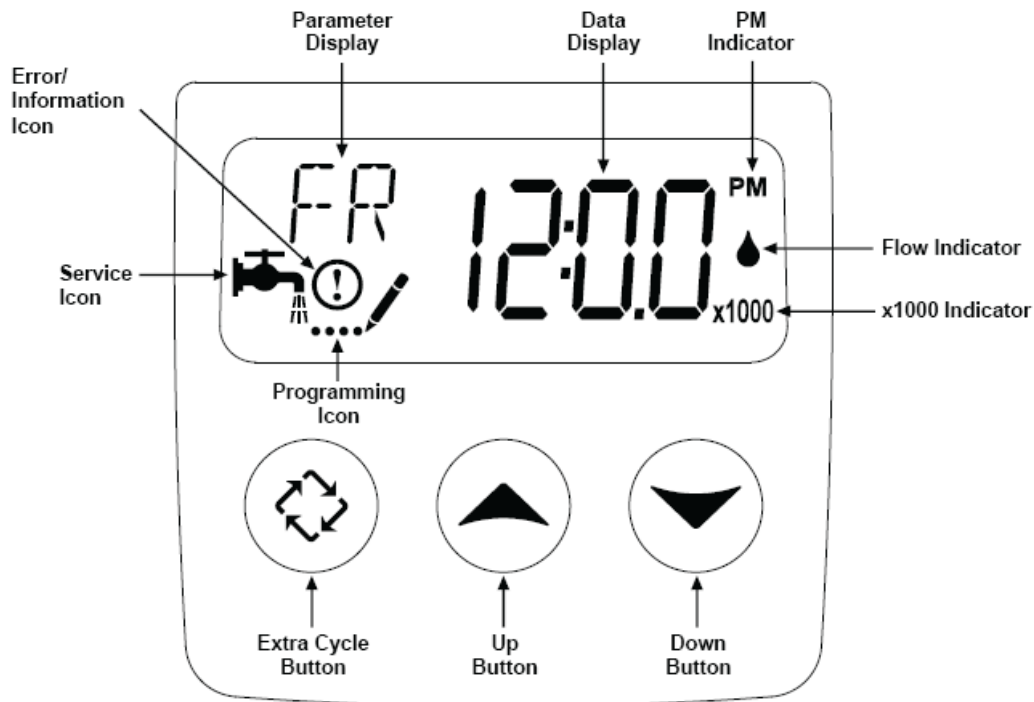
NOTE: The air check will check at approximately the midpoint of the screened intake area.

- a) Manually step the valve to the BRINE REFILL position, and allow the valve to return to SERVICE automatically.
- b) With the valve in SERVICE, check that there is at least 1" of water above the grid in the brine tank, if used.
- c) Fill the brine tank with salt. Allow the control to run automatically. Setup is now complete.

8. Pre-Treatment lock-out must be set-up as shown in drawing on page 32.

5.0 Fleck 2850 SXT Operation and Programming

5.1 Fleck 2850 SXT Operation



Features of the SXT:

- Power backup that continues to keep time and the passage of days for a minimum of 48 hours in the event of a power failure. During a power outage, the control goes into a power saving mode. It does not monitor water usage during a power failure, but it does store the volume remaining at the time of power failure.
- Settings for both valve (basic system) and control type (method used to trigger a regeneration).
- Day-of-the Week controls.
- While in service, the display alternates between time of day, volume remaining or days to regeneration.
- The service Icon flashes, if a regeneration cycle has been queued.
- A regeneration can be triggered immediately by pressing the Extra Cycle button for five seconds. During regeneration, the user can force the control to advance to the next step immediately by pressing the Extra Cycle button. Do not press the Extra Cycle button until it has entered the next cycle.
- The parameter display shows the current Cycle Step (BW,BF,RR,etc) during regeneration, and the data display counts down the time remaining for that cycle step. While the valve is transferring to a new cycle step, the display will flash.

5.2 Master Programming Options

Master Programming Options			
Abbreviation	Parameter	Option Abbreviation	Options
DF	Display Format	GAL	Gallons
		Ltr	Liters
		Cu	Cubic Meters
VT	Valve Type	St1b	Standard Downflow/Upflow Single Backwash (Not Used)
		St2b	Standard Downflow/Upflow Double Backwash (7000 Default)
		Fltr	Filter (7000 Default)
		UFbF	Upflow Brine First (Not Used)
		8500	TwinFlo100SXT (Not Used)
		Othr	Other (Not Used)
		dFFF	Downflow Fill First (Fixed Fill)
		IF	Air Injected Oxidizer, AIO Valve Only.
CT	Control Type	Fd	Meter (Flow) Delayed
		FI	Meter (Flow) Immediate
		tc	Time Clock
		dAY	Day of Week
NT	Number of Tanks	1	Single Tank System
		2	Two Tank System (Not Used)
TS	Tank in Service	U1	Tank 1 in Service
		U2	Tank 2 in Service (Not Shown)
C	Unit Capacity		Unit Capacity (Grains)
H	Feedwater Hardness		Hardness of Inlet Water
RS	Reserve Selection	SF	Percentage Safety Factor
		rc	Fixed Reserve Capacity
SF	Safety Factor		Percentage of the system capacity to be used as a reserve
RC	Fixed Reserve Capacity		Fixed volume to be used as a reserve
DO	Day Override		The system's day override setting
RT	Regen Time		The time of day the system will regenerate
BW, BD, RR, BF	Regen Cycle Step Times		The time duration for each regeneration step. Adjustable from OFF and 0-199 minutes. NOTE: If "Othr" is chosen under "Valve Type", then R1, R2, R3, etc, will be displayed instead

Master Programming Options			
CD	Current Day		The Current day of the week
FM	Flow Meter Type	t0.7	3/4" Turbine Meter
		P0.7	3/4" Paddle Wheel Meter
		t1.0	1" Turbine Meter
		P1.0	1" Paddle Wheel Meter
		t1.5	1.5" Turbine Meter (7000 Default)
		P1.5	1.5" Paddle Wheel Meter
		Gen	Generic or Other Meter
K	Meter Pulse Setting		Meter pulses per gallon for generic/other flow meter

CAUTION: Before entering Master Programming, please contact AmeriWater customer service.

5.3 Fleck 2850 SXT Master Programming

Fleck 2850 SXT Master Programming Mode

When the Master Programming Mode is entered, all available option setting displays may be viewed and set as needed. Depending on current option settings, some parameters cannot be viewed or set.

Setting the Time of Day

1. Press and hold either the Up or Down buttons until the programming icon replaces the service icon and the parameter display reads TD.
2. Adjust the displayed time with the Up and Down buttons.
3. When the desired time is set, press the Extra Cycle button to resume normal operation. The unit will also return to normal operation.



Entering Master Programming Mode

Set the Time of Day display to 12:01PM. Press the Extra Cycle button (to exit setting Time of Day mode). Then press and hold the Up and Down buttons together until the programming icon replaces the service icon and the Display Format screen appears.

Exiting Master Programming Mode

Press the Extra Cycle button to accept the displayed settings and cycle to the next parameter. Press the Extra Cycle button at the last parameter to save all settings and return to normal operation. The control will automatically disregard any programming changes and return to normal operation, if it is left in Master Programming mode for 5 minutes without any keypad input.

Queuing a Regeneration

1. Press the Extra Cycle button. The service icon will flash to indicate that a regeneration is Queued.
2. To cancel a queued regeneration, press the Extra Cycle button.

Regenerating Immediately

Press and hold the Extra Cycle button for five seconds.

Day of the Week Control

This control regenerates the system on a weekly schedule. The schedule is defined in Master Programming by setting each day to either “off” or “on”. The control will initiate a regeneration cycle on days that have been set to “on” at the specified time.

Control Operation During Regeneration

During regeneration, the control displays a special regeneration display. In this display, the Control shows the current step number the valve is advancing to, or has reached, and the time remaining in that step. The step number that displays, flashes until the valve completes driving to this regeneration step position. Once all regeneration steps are complete, the valve returns to service and resumes normal operation.

Pressing the Extra Cycle button during a regeneration cycle, immediately advances the valve to the next cycle step position and resumes normal step timing.

Control Operation During Programming

The control only enters the Programming Mode when valve is in service. While in Program Mode, the control continues to operate normally, keeping all displays up to date. Control programming is stored in memory permanently, eliminating the need for battery backup power.

Control Operation During A Power Failure

The SXT includes integral backup. In the event of a power failure, the control shifts into a power-saving mode. The display and motor shut down, but it continues to keep track of time and day for a minimum of 48 hours.

The system configuration settings are stored in a non-volatile memory and are stored indefinitely with or without line power. The Time of Day flashes when there has been a power failure. Press any button to stop the Time of Day from flashing.

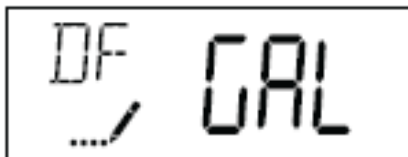
If power fails while the unit is in regeneration, the control will save the current valve position before it shuts down. When power is restored, the control will resume the regeneration cycle from the point where power failed. Note that if power fails during a regeneration cycle, the valve will remain in its current position until power is restored.

The control will not start a new regeneration cycle without line power. If the valve misses a scheduled regeneration due to a power failure, it will queue a regeneration. Once power is restored, the control will initiate a regeneration cycle the next time that the Time of Day equals the programmed regeneration time. Typically, this means that the valve will regenerate one day after it was originally scheduled. If the treated water output is important and power interruptions are expected, the system should be setup with a sufficient reserve capacity to compensate for regeneration delays.

1. Display Format(Display Code DF)

This is the first screen that appears when entering Master Programming Mode. The Display Format setting specifies the unit of measure that will be used for volume and how the control will display the Time of Day. This option setting is identified by “DF” in the Upper left hand corner of the screen. There are three possible settings:

Display Format Setting	Unit of Volume	Time Display
GAL	U.S. Gallons	12-Hour AM/PM
Ltr	Liters	24-Hour
Cu	Cubic Meters	24-Hour



2. Valve Type(Display Code VT)

Press the Extra Cycle button. Use this display to set the Valve Type. The Valve Type setting specifies the type of cycle that the valve follows during regeneration. Note that some valve types require that the valve be built with specific subcomponents. Ensure the valve is configured properly before changing the Valve Type setting. This option setting is identified by “VT” in the upper left hand corner of the screen. There are 5 possible settings:

Abbreviation	Parameter
St1b	Standard Downflow/Upflow, Single Backwash
St2b	Standard Downflow/Upflow, Double Backwash
Filtr	Filter
UFbF	Upflow Brine First
8500	TwinFlo 100
Othr	Other



3. Control Type(Display Code CT)

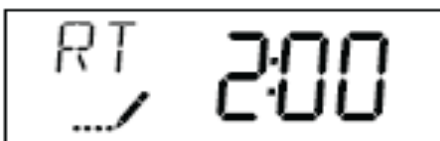
Press the Extra Cycle button. Use this display to set the Control Type. This specifies how the control determines when to trigger a regeneration. This option setting is identified by “CT” in the upper left hand corner of the screen. There are four possible settings:

Meter Delayed:	Fd
Meter Immediate:	FI
Time Clock:	tc
Day of Week:	dAY



4. Regeneration Time(Display Code RT)

Press the Extra Cycle button. Use this display to set the Regeneration Time. This setting specifies the time of day the control will initiate a delayed, manually queued, or day override triggered regeneration. This option setting is identified by “RT” in the upper left hand corner of the screen. Use the Up and Down buttons to adjust the value as needed.



5. Regeneration Cycle Step Times

Press the Extra Cycle button. Use this display to set the Regeneration Cycle Step Times. The different regeneration cycles are listed in sequence based on the valve type selected for the system, and are identified by an abbreviation in the upper left hand corner of the screen. The abbreviations used are listed below. Each cycle step time can be set from 0 to 199 minutes, or “OFF”. Setting a cycle step to “OFF” will disable all of the following steps. Setting a cycle step to 0 will cause the control to skip that step during regeneration, but keeps the following steps available. Use the Up and Down buttons to adjust the value as needed. Press the Extra Cycle button to accept the current setting and move to next parameter.

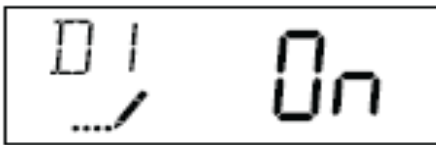
Cycle Step	Abbreviation
BD	Brine Draw
BF	Brine Fill
BW	Backwash
RR	Rapid Rinse
SV	Service



Range: 0-199 minutes

6. Day of Week Settings

Press the Extra Cycle button. Use this display to set the regeneration schedule for a system configured as a Day of Week control. The different days of the week are identified as D1, D2, D3, D4, D5, D6, and D7 in the upper left hand corner of the display. Set the value to "ON" to schedule a regeneration or "OFF" to skip regeneration for each day. Use the Up and Down buttons to adjust the setting as needed. Press the Extra Cycle button to accept the setting and move to next day. Note that the control requires at least one day to be set to "ON". If all 7 days are set to "OFF", the unit will return to Day One until one or more days are set to "ON".



7. Current Day(Display Code CD)

Press the Extra Cycle button. Use this display to set the current day on systems configured as Day of Week controls. This setting is identified by "CD" in the upper left hand corner of the screen. Use the Up and Down button to select from Day 1 through Day 7.



8. Day Override (Display Code DO)

Press the Extra Cycle button. Use this display to set the Day Override. This setting specifies the maximum number of days between regeneration cycles. If the system is set to a timer-type control, the day override setting determines how often the system will regenerate. A metered system will regenerate regardless of usage if the days since last regeneration cycle equal the day override setting. Setting the day override value to "OFF" disables this function. This option setting is identified by "DO" in the upper left hand corner of the screen. Use the Up and Down buttons to adjust the value as needed.



Range: Off-99 days

5.4 AmeriWater Programming Tables For Fleck 2850 SXT

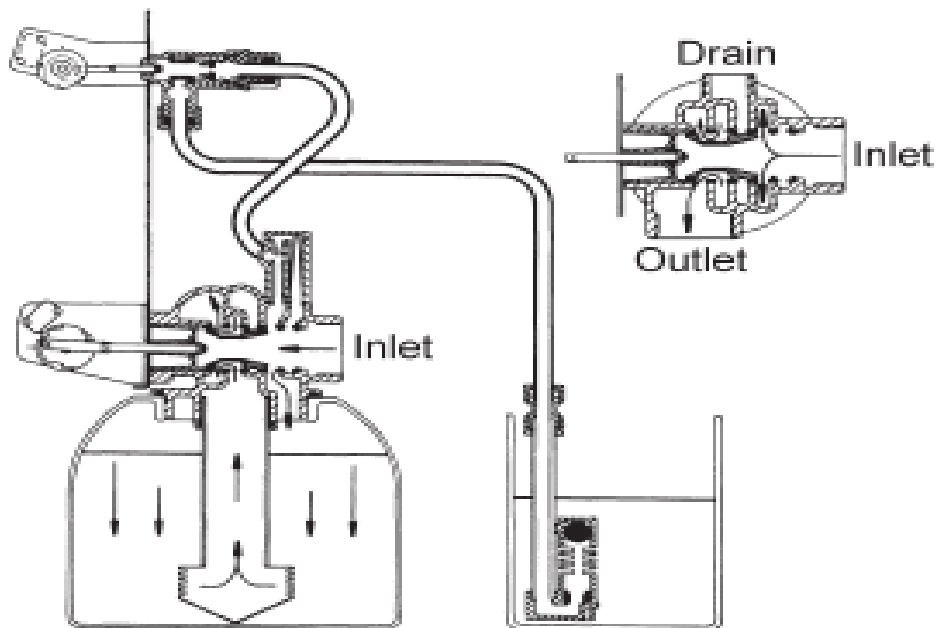
Table 5.4.1 Dealkalizers Fleck 2850 SXT

Model Number	0095047	0095048	0095049	0095050	0095051	0095052
Tank Size (Dia x Height)	14 x 65	16 x 65	18 x 65	21 x 62	24 x 65	24 x 72
Cubic Feet Resin	3.5	4.5	5.5	7.5	9.5	10.5
Injector Size	#3	#3	#4	#4	#5	#5
Refill Flow Control	0.25	0.25	0.50	0.50	1	1
Backwash Flow Control	2.4	3.5	4.5	6.0	8.0	8.0
Programming						
Step	Description					
1	US / Metric	GAL	GAL	GAL	GAL	GAL
2	Down Flow	St2B	St2B	St2B	St2B	St2B
3	Days of Week	dAY	dAY	dAY	dAY	dAY
4	Regen Time	Set	Set	Set	Set	Set
5	Current Day of Week	D2,D4,D6-ON	D2,D4,D6-ON	D2,D4,D6-ON	D2,D4,D6-ON	D2,D4,D6-ON
6	Regen Cycles					
	1 Backwash	10MIN	10MIN	10MIN	10MIN	10MIN
	2 BrineDraw	60MIN	60MIN	60MIN	60MIN	60MIN
	3 2 nd Backwash	5MIN	5MIN	5MIN	5MIN	5MIN
	4 Fast Rinse	10MIN	10MIN	10MIN	10MIN	10MIN
	5 Brine Refill*	23MIN	30MIN	18MIN	25MIN	18MIN
7	**Regen Days of Week					
<p>**Regen Days of Week, Set to Desired Days: D1 = Sun, D2 = Mon, D3 = Tue, D4 = Wed, D5 = Thurs, D6 = Fri, D7= Sat</p> <p>D1 = ON or OFF, D2 = ON or OFF, D3, D4, D5, D6, D7 – Set which days you want to regenerate, see note **</p> <p>Example: Tues Backwash = D3-ON</p>						
8	Electrical Frequency	LF 60	LF 60	LF 60	LF 60	LF 60
* 5 Lbs. per Cubic Foot.						

****IMPORTANT NOTE:** AmeriWater’s current day of week settings are factory set to Monday, Wednesday and Friday. If you are regenerating every 7 days, you will need to enter the master programming to set up for 7-day regeneration. Once in master programming mode, select “tc” – time clock. This puts controller into the time clock mode. Press the extra cycle button to accept “tc”. Scroll through programming mode till you reach “DO”- Day Override appears. Press the Extra Cycle button. Use this display to set the Day Override. This setting specifies the maximum number of days between regeneration cycles. If the system is set to a timer-type control, the day override setting determines how often the system will regenerate. Select number of days between regeneration that you need in day override screen, this will tell the control how many days between regeneration cycles. Accept change by pressing the extra cycle button, and exit Master programming mode.

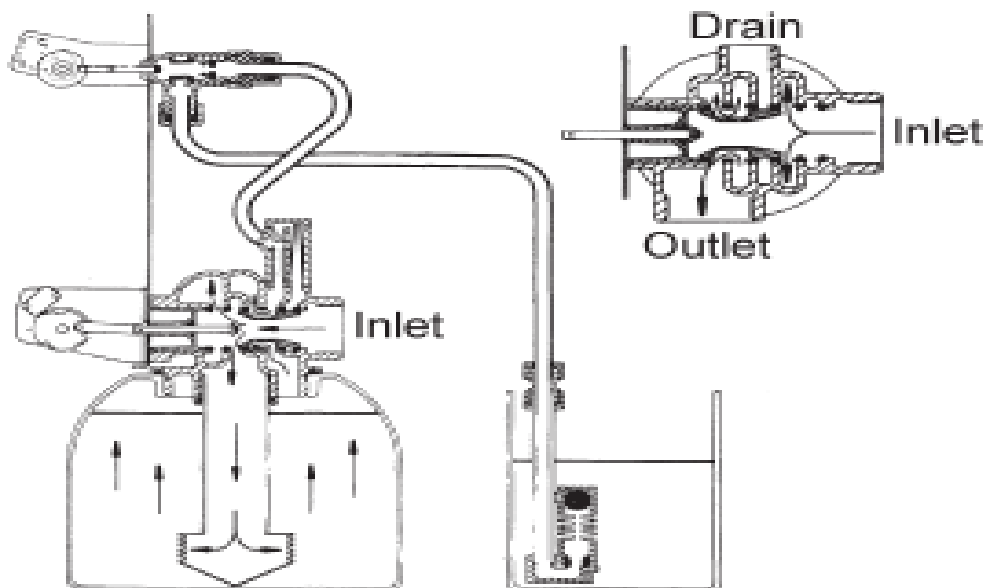
6.0 Fleck 2850 Flow Diagrams

1 Service Position



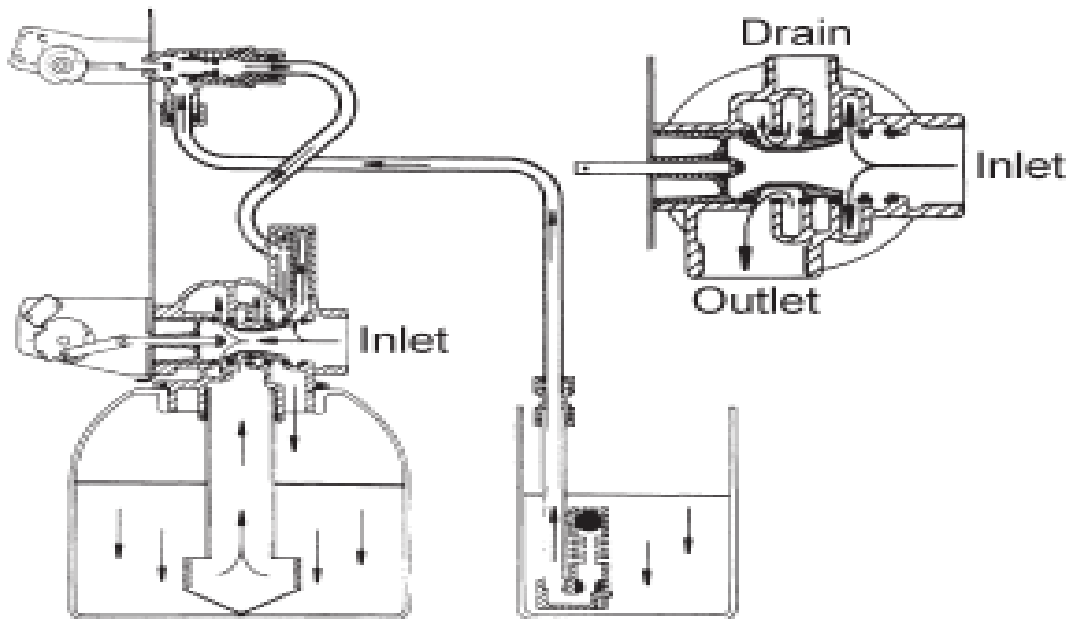
Hard water enters unit at valve inlet and flows down through the mineral in the mineral tank. Conditioned water enters center tube through the bottom distributor, then flows up through the center tube, around the piston, and out the outlet of the valve.

Figure 4.1 In Service Position



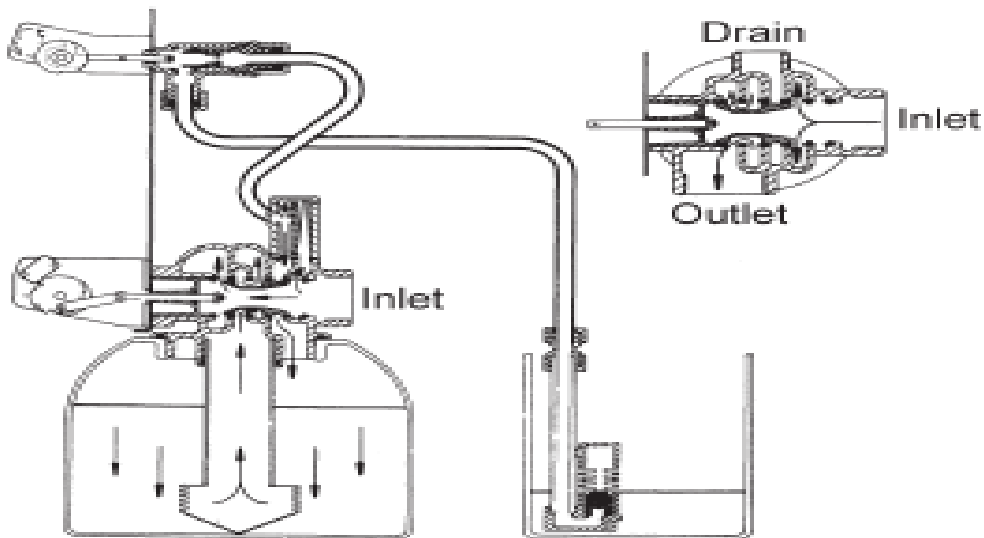
Hard water enters unit at valve inlet, flows through piston, down center tube, through bottom distributor, and up through the mineral, around the piston and out the drain line.

Figure 4.2 Backwash Position



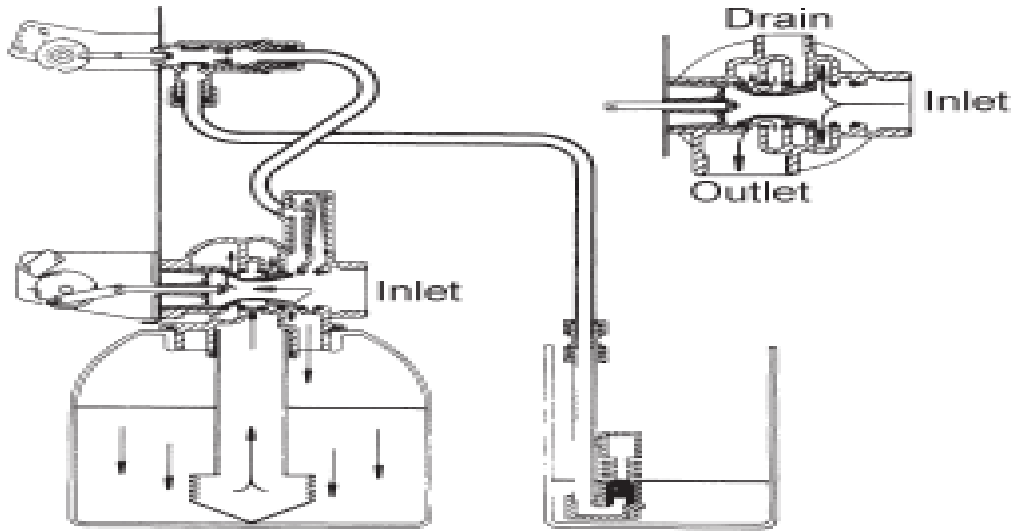
Hard water enters unit at valve inlet, flows up into injector housing and down through nozzle and throat to draw brine from the brine tank, brine flows down through mineral and enters the center tube through bottom distributor and out through the drain line.

Figure 4.3 Brine Position



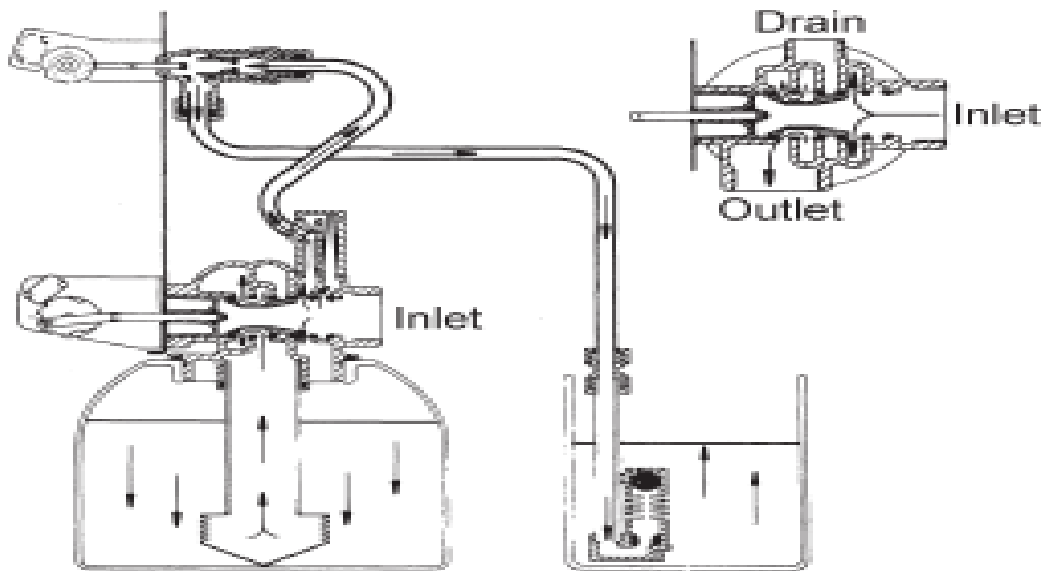
Hard water enters unit at valve inlet, flows up into injector housing and down through nozzle and throat, around the piston, down through mineral, enters center tube through bottom distributor, flows up through center tube, around piston and out through drain line.

Figure 4.4 Slow Rinse Position



Hard water enters unit at valve inlet, flows directly from inlet down through mineral into center tube bottom distributor and up through center tube, around piston and out through the drain line.

Figure 4.5 Rapid Rinse Position



Hard water enters unit at valve inlet, flows up through the injector housing, through the brine valve to refill the brine tank.

Figure 4.6 Brine Tank Refill Position

7.0 Troubleshooting

Problem	Cause	Correction
1. Water conditioner fails to regenerate.	A. Electrical service to unit has been interrupted.	A. Check fuse, plug, pull chain, or switch.
	B. Timer is defective	B. Replace timer
	C. Power failure	C. Reset time of day
2. Hard Water	A. By-pass valve is open.	A. Close by-pass valve.
	B. No salt is in brine tank.	B. Add salt to brine tank and maintain salt level above water level.
	C. Injector screen plugged.	C. Clean injector screen.
	D. Insufficient water flowing into brine tank.	D. Check brine tank fill time and clean brine line flow control, if plugged
	E. Hot water tank hardness.	E. Repeated flushings of the hot water tank is required.
	F. Leak at distributor tube.	F. Make sure distributor tube is not cracked. Check O-ring and tube pilot.
	G. Internal valve leak.	G. Replace seals and spacers and/or piston.
3. Unit used too much salt.	A. Improper salt setting.	A. Check salt usage and salt setting.
	B. Excessive water in brine tank.	B. See problem 7.
4. Loss of water pressure.	A. Iron buildup in line to water conditioner.	A. Clean line to water conditioner.
	B. Iron buildup in water conditioner.	B. Clean control and add mineral cleaner to mineral bed. Increase frequency of regeneration.
	C. Inlet of control plugged due to foreign material broken loose from pipes by recent work done on plumbing system.	C. Remove piston and clean control.
5. Loss of mineral through drain line.	A. Air in water system	A. Check for dry well condition.
	B. Improperly sized drain line flow control.	B. Check for proper drain rate.

Problem	Cause	Correction
6. Iron in conditioned water.	A. Fouled mineral bed.	A. Check backwash, brine draw, and brine tank fill. Increase frequency of regeneration. Increase backwash time.
7. Excessive water in brine tank.	A. Plugged drain line flow control.	A. Check flow control.
	B. Plugged injector system.	B. Clean injector and screen.
	C. Timer not cycling.	C. Replace timer.
	D. Foreign material in brine valve.	D. Replace brine valve seat and clean valve.
	E. Foreign material in brine line flow control.	E. Clean brine line flow control.
8. Softener fails to draw brine.	A. Drain line flow control is plugged.	A. Clean drain line flow control.
	B. Injector is plugged.	B. Clean injector.
	C. Injector screen plugged.	C. Clean screen.
	D. Line pressure is too low.	D. Increase line pressure to 20psi.
	E. Internal control leak.	E. Change seals, spacers, and piston assembly.
	F. Service adapter did not cycle.	F. Check drive motor and switches.
9. Control cycles continuously.	A. Misadjusted, broken, or shorted switch.	A. Determine if switch or timer is faulty and replace it, or replace complete power head.
10. Drain flow continuously.	A. Valve is not programming correctly.	A. Check timer program and positioning of control. Replace power head assembly, if not positioning properly.
	B. Foreign material in control.	B. Remove power head assembly and inspect bore. Remove foreign material and check control in various regeneration positions.
	C. Internal control leak.	C. Replace seals and piston assembly.

Note: Error codes appear on the In Service Display.

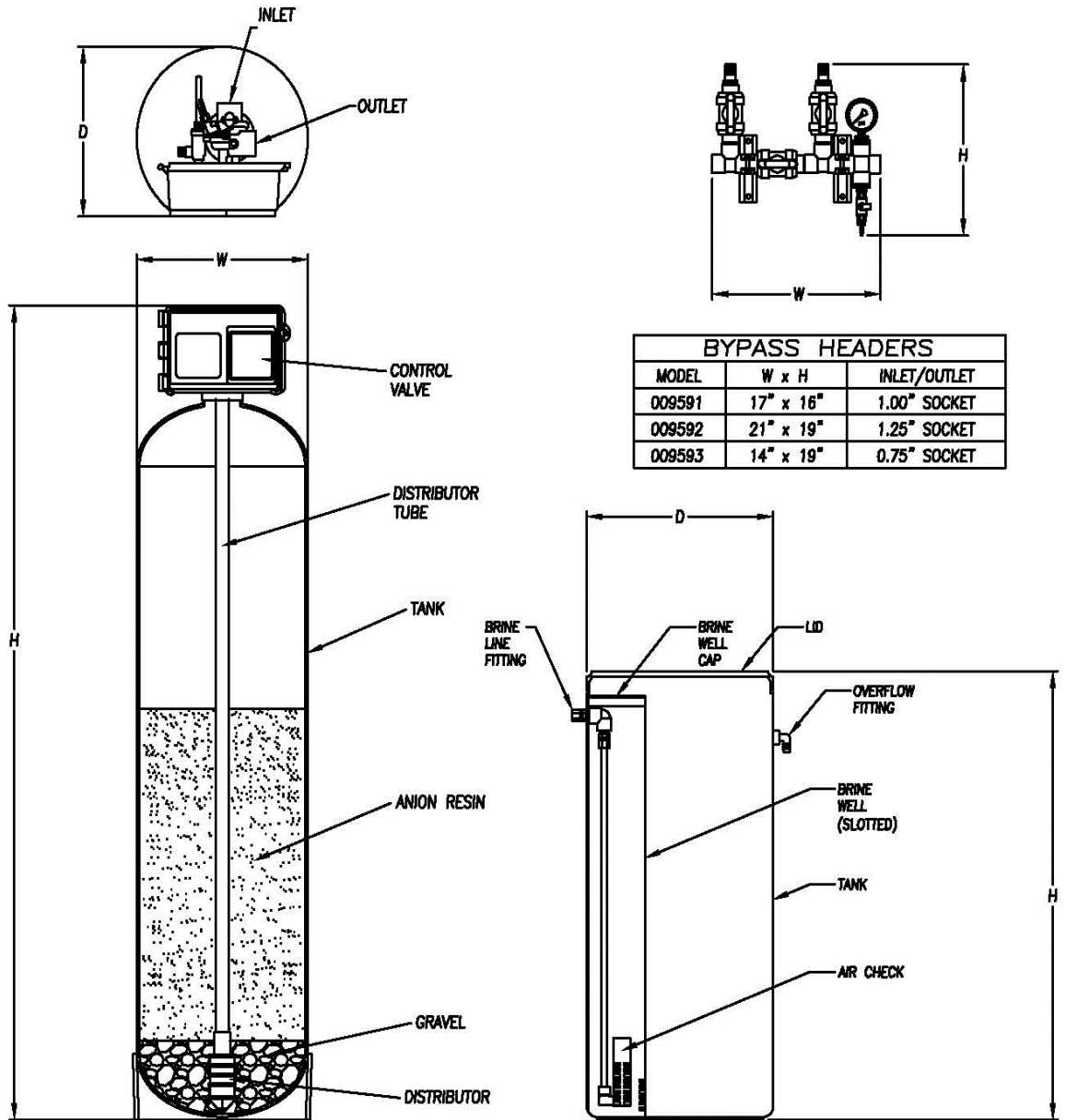
Error Code	Error Type	Cause	Reset and Recovery
0	Cam Sense Error	The valve drive took longer than 6 minutes to advance to next regeneration position.	Unplug the unit and examine the powerhead. Verify that all cams switches are connected to the circuit board and functioning properly. Verify that the motor and drive train components are in good condition and assembled properly. Check the valve and verify that the piston travels freely. Replace/reassemble the various components as necessary. Plug the unit back in and observe it's behavior. The unit should cycle to the next valve position and stop. If the error re-occurs, unplug the unit and contact technical support.
1	Cycle Step Error	The control experienced an unexpected cycle input.	Unplug the unit and examine the powerhead. Verify that all cams switches are connected to the circuit board and functioning properly. Enter Master Programming mode and verify that the valve type and system type are set correctly with regard to the unit itself. Step through a manual regeneration and verify that it functions correctly. If the error re-occurs, unplug the unit and contact technical support.
2	Regen Failure	The system has not regenerated for more than 99 days(or 7 days, if the Control Type has been set to Day-of-Week).	Perform a Manual Regeneration to reset the error code. Check that at least one day is set "ON" for regeneration.
3	Memory Error	Control board memory failure.	Perform a Master Reset and reconfigure the system via Master Programming mode. After reconfiguring the system, set the valve through a manual regeneration. If the error re-occurs, unplug the unit and contact technical support.

8.0 LOADING DIAGRAMS, PARTS LIST, AND REPAIR DIAGRAMS

8.1 Loading Diagrams

Note: Contact AmeriWater for loading diagrams for tanks with a diameter smaller than 18"

FLECK CONTROL POWER REQUIREMENT 115V 1PHASE <5AMP



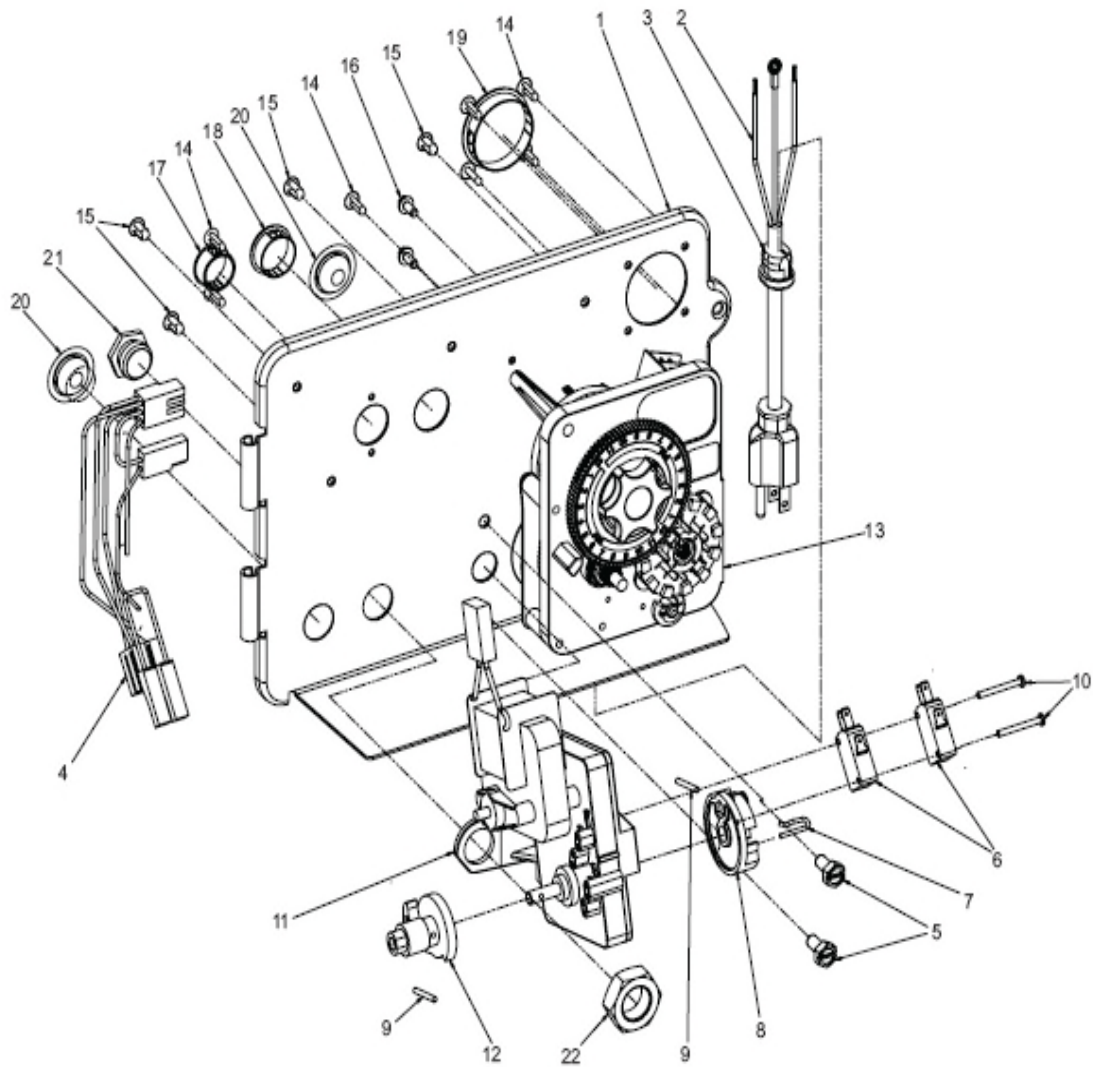
BYPASS HEADERS		
MODEL	W x H	INLET/OUTLET
009591	17" x 16"	1.00" SOCKET
009592	21" x 19"	1.25" SOCKET
009593	14" x 19"	0.75" SOCKET

NOTE:
18" DIAMETER TANKS AND LARGER ARE FIELD LOADED.

TANK LOADING		
MODEL	ANION RESIN	GRAVEL 1/2"x1/4"
0095047	3.5 CU.FT.	.75 CU.FT.
0095048	4.5 CU.FT.	1 CU.FT.
0095049	5.5 CU.FT.	1.25 CU.FT.
0095050	7.5 CU.FT.	1.50 CU.FT.
0095051	9.5 CU.FT.	2 CU.FT.
0095052	10.5 CU.FT.	2 CU.FT.

FLECK 2850SXT DEALKALIZERS		
MODEL	W x D x H	BRINE TANK D x H
0095047	14" x 14" x 76"	18" x 40"
0095048	16" x 16" x 76"	24" x 50"
0095049	18" x 18" x 76"	24" x 50"
0095050	21" x 21" x 73"	24" x 50"
0095051	24" x 24" x 73"	24" x 50"
0095052	24" x 24" x 80"	24" x 50"

8.2 Power Head Assembly

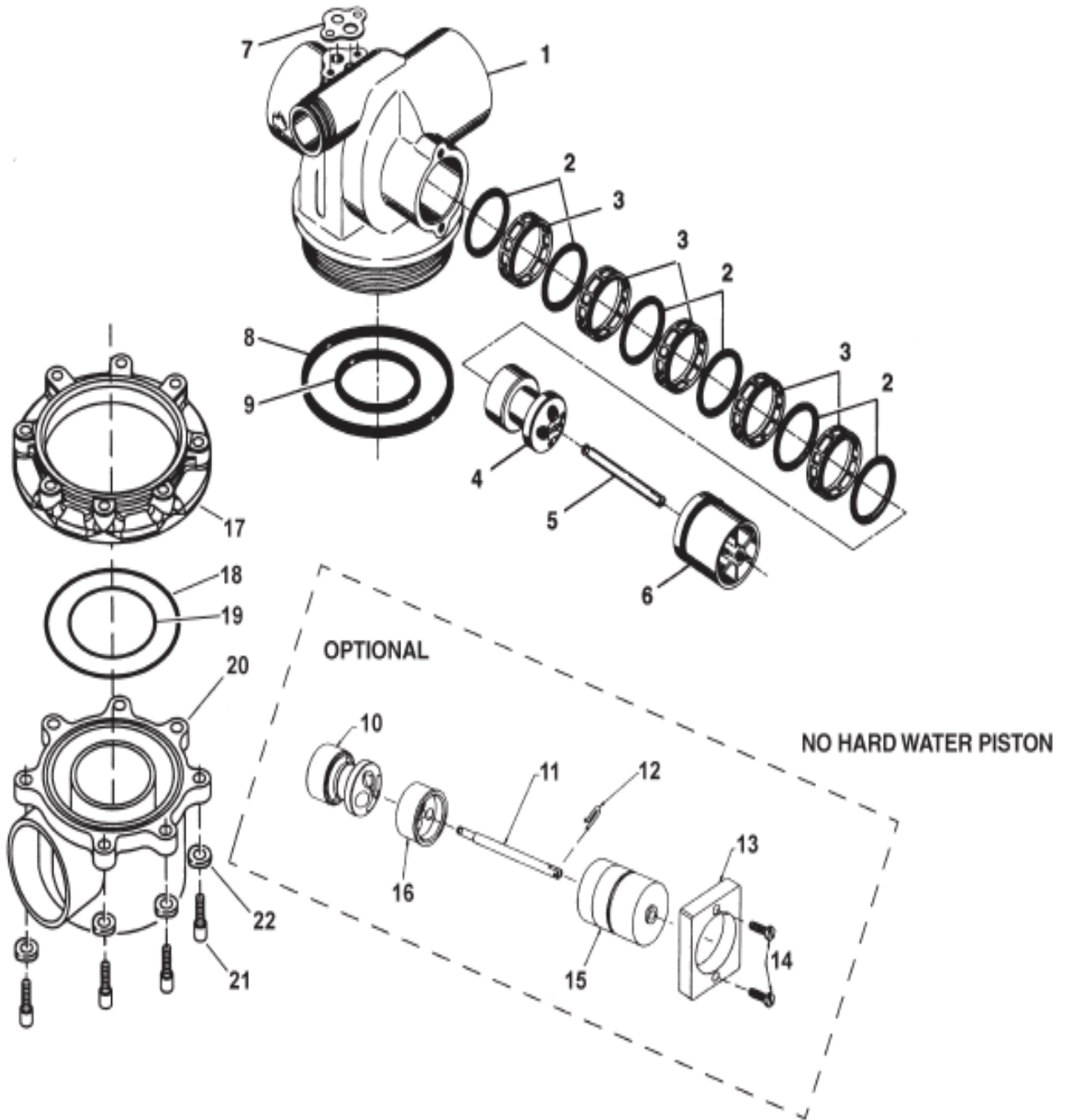


61501-2850 REV B

Power Head Assembly Parts List

Item No.	Quantity	Part No.	Description
1	1	18697-13	Backplate, Hinged
2	1	11838	Power Cord, 6' Fleck
3	1	13547	Strain Relief, Cord
4	1	40400	Harness, Drive,
Designer/Environmental			
5	2	10231	Scrw, Slot Hex, 1/4-20 x 1/2
6	2	10218	Switch, Micro
7	1	10909	Pin, Connecting Rod Spring
8	1	60160-15	Drive Cam Assy, STF, Blue, 2900
9	2	10338	Pin, Roll, 3/32 x 7/8
10	2	14923	Screw, Pan HD Mach, 4-40 x 1
11	1	41543	Motor, Drive, 115V/60HZ
12	1	12777	Cam, Shut-off Valve
13	1	61502-3200	Timer Assy, 3200 Clock(NOT WITH SXT CONTROLLER!) See Section 10.4 for SXT parts list.
14	7	19800	Plug (Hole Size: Dia .140)
15	4	19801	Plug, Dia .190
16	2	10300	Screw, Hx Wash Head, 8 x 3/8
17	1	15806	Hole Plug, Heyco
18	1	16493	Plug, Hole, Heyco, .88 Dia
19	1	40306	Plug, 1.50 Hole, Dome, Heyco
20	2	19691	Plug, .750 Dia. Hole, Flush
21	1	10712	Fitting, Brine Valve
22	1	10269	Nut, Jam, 3/4-16

8.3 Valve Assembly



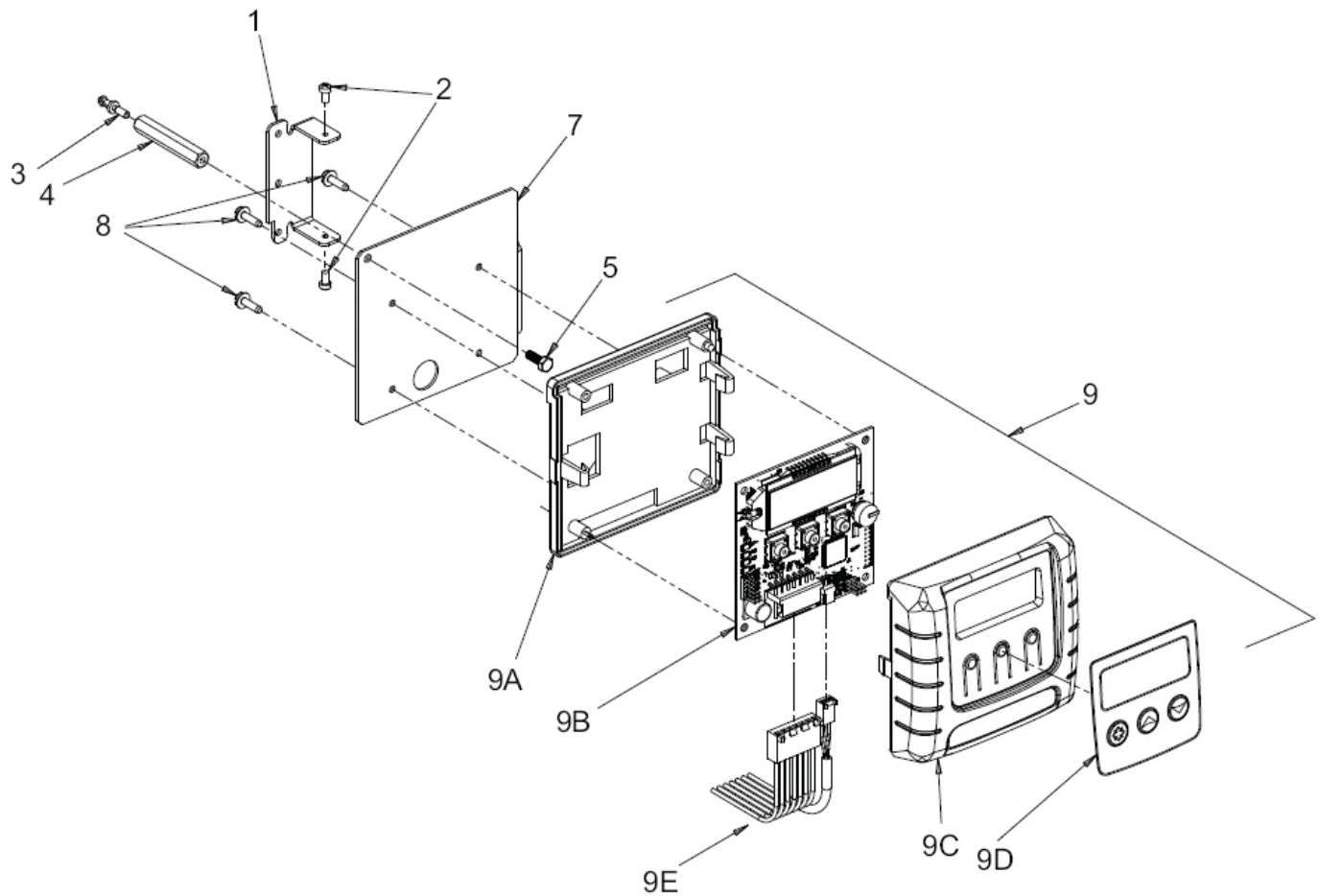
61500-2850_REVB

Valve Assembly Parts List

Item No.	Quantity	Part No.	Description
1	1	16250-01	Valve Body, 2850, Machd
2	6	16101	Seal, 2850
3	5	16638	Spacer, 9500/2850
4	1	16092	Piston, 2850
5	1	16436	Piston, 2850
6	1	16395	End Plug Assy, 2850
16395-01			End Plug Assy, 2850, Hot Water
7	1	14805	Gasket, Injector Body, 1600/1700
8	1	16455	O-ring, -347
*9	1	13577	O-ring, -226
10	1	19606	Piston, 2850, NHWBP
11	1	19300	Rod, Piston, 2850
12	1	10909	Pin, Link
13	1	19339	Spacer, 2850, NHWBP
14	2	13386	Screw, Hex Hd Mach, 1/4 - 20x1
15	1	16395-02	End Plug Assy/2850, NHWBP
16	1	19298-01	Piston Assy, 2850, NHWBP, O-ring
Not Shown ...	1	60366-xx	DLFC 1" NPT (not shown) - specify size
Not Shown ...	1	17996	Disperser, Air, Injector
Not Shown ...	1	19608-15	Disperser, Commercial 1 1/2" 2850/2900/9500
Optional Side Mount:			
17	1	40316	Adapter, Sidemount
18	1	40368	O-ring, -160, Sidemount, Flange
19	1	40372	O-ring, -142
20	1	40310	Base, 2850/2900/3930, Rotating
21	7	19768	Screw, Hex Hd, 3/8-16x1, Cap 18-8
22	7	40375	Washer, Flat, 3/8, Type A, N-SERS

* Do not use O-ring if control is side mounted.

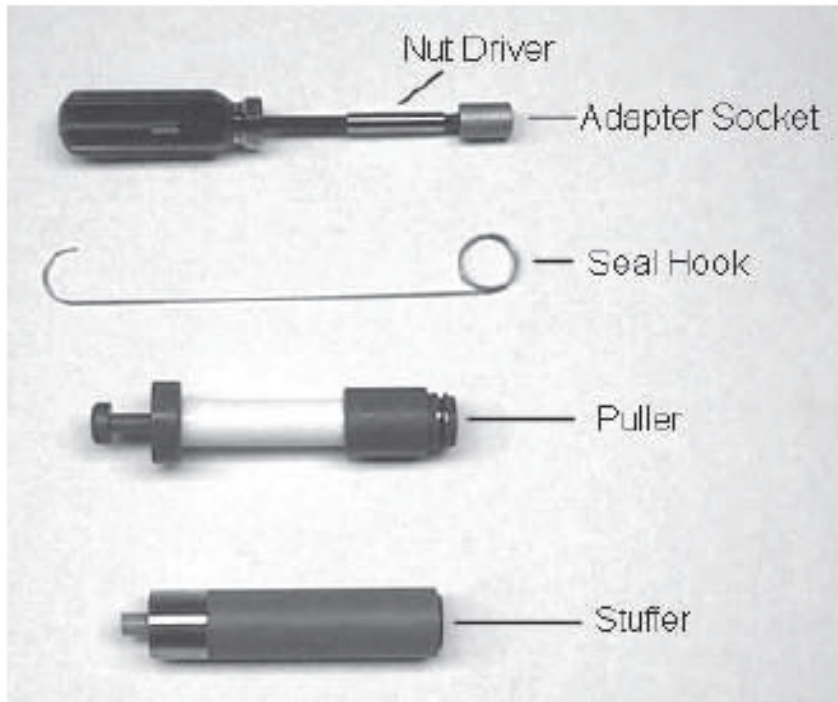
8.4 2850SXT Timer Assembly



2850SXT Timer Assembly Parts List

Item No.	Quantity	Part No.	Description
1	1	13881	Bracket, Hinge Timer
3	1	14265	Clip, Spring
4	1	27172	Stand-off, Timer, 2510SXT, 2750SXT
5	1	21363	Screw, Hex HD, M4 X 12 MM
7	1	27168	Bracket, Timer, 2510SE/2750SXT
8	3	13296	Screw, Hex Washer, 6-20 X 1/2
9	1	42778	Timer, SXT, 2510/2750, DF
9A	1	19889	Housing, Circuit Board
9B	1	42196	Circuit Board, SXT
9C	1	42635-01	Cover, Front, SXT, Square
9D	1	42637	Label, Display, SXT
9E	1	42864	Wire Harness, SXT

8.5 Seal & Spacer Tools & Replacement Parts



Tools Used in the Seal and Spacer Replacement

Seal & Spacer Tools & Replacement Parts List

Description Part No.

Nut Driver	12664
Socket Adapter	16906
Socket 7/16"	12665
Seal Hook	12874
Puller	13061, 1500/2510/5600/4650
.....	17623, 2850/9500
.....	12682, 2900/3180
Stuffer	11098, 1500/2510/2750
.....	12763, 5600/9000/9100/4650
.....	12683, 2100/3150
.....	16516, 2850/9500

8.6 Seal & Spacer Replacement

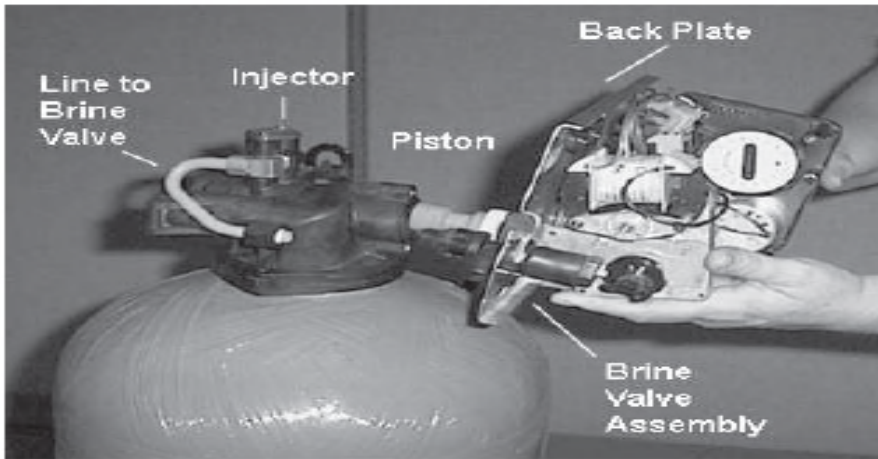


Figure 5

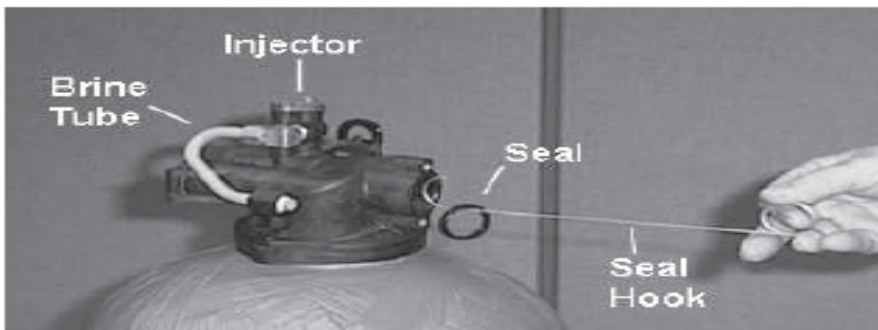


Figure 6

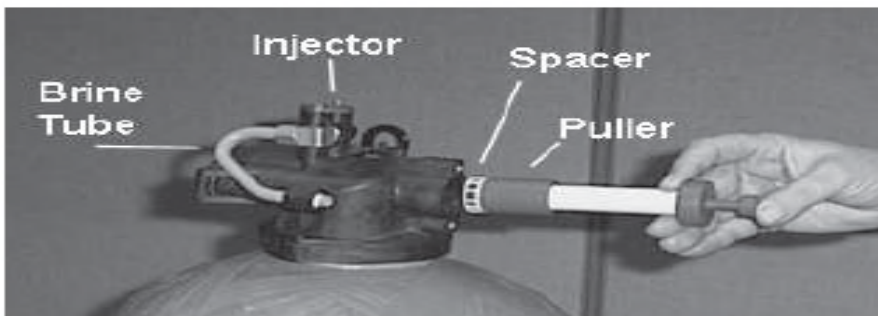


Figure 7

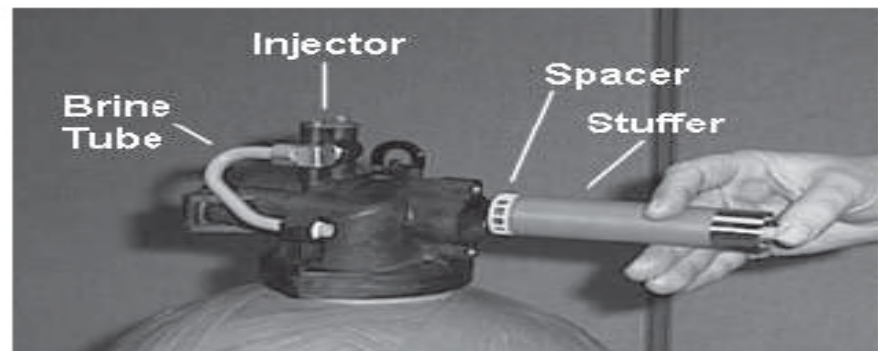


Figure 8

NOTE: Photos shown are for reference only for replacing the seal and spacer. Actual valve may be different.

1. Turn off water supply to valve. Next, cycle valve to backwash position, then to service. Now remove electrical plug from outlet.
2. Remove control box cover.
3. Disconnect the brine line from the injector housing to the brine valve (if your unit has timed brine tank fill).
4. Remove the two capscrews that hold the back plate to the valve.
5. Grasp the back plate on both sides and slowly pull end plug and piston assembly out of the valve body (see Figure 5) and lay aside.
6. Remove the seal first using the wire hook with the finger loop (see Figure 6).
7. The spacer tool (use only for removing the spacers) has three retractable pins, retained by a rubber ring, at one end. They are retracted or pushed out by pulling or pushing the center button the opposite end.
8. Insert the pin end of the spacer tool into the valve body with the pins retracted (button pulled back). Push the tool tight against the spacer and push the button in, (see Figure 7). When the button is pushed in, the pins are pushed out to engage the 1/4 dia. holes in the spacer. Remove the tool from the valve body. The spacer will be on the end. Pull the center button back, the pins will be retracted and the spacer can be removed from the spacer tool.
9. Alternately remove the remaining seals and spacers in accordance with steps No. 6 and 8.
10. The last or end spacer does not have any holes for the pins of the spacer tool to engage, therefore if the end spacer does not come out on the first try, try again using the wire hook with the finger loop.
11. To replace seals, spacers and end ring, use special tool with the brass sleeve on one end. This is a double-purpose tool (see Figure 8). The male end acts as a pilot to hold the spacers as they are pushed into the valve body and the brass female end is used to insert the seals into the valve body.
12. To restuff a valve body, first take the end ring (the plastic or brass ring without holes), then with your thumb press the button on the brass sleeve end. The large dia. inner portion is now exposed (see Figure 8). Place the end ring on this pilot with the lip on the end ring facing the tool. Push the tool into the valve body bore until it bottoms. While the tool is in the valve body, take a seal and press it into the inside diameter of the exposed brass female end.

13. Remove the tool, turn it end for end and insert it into the valve body bore. While holding the large dia. of the tool, slide it all the way into the valve body bore until it bottoms. Then push the center button to push the seal of the tool and leave it in place in the valve body.

14. Remove the tool from the valve body and push the center on the brass female end to expose the pilot on the opposite end. Place a spacer on this end and insert the spacer and tool into the valve.

