

W110 LXT Downflow Softeners and SXT Filters

Installation, Operation and Maintenance Manual




W110 SXT Filter



W110 LXT Softener

⚠ WARNING



Read this Manual BEFORE using this equipment. Failure to read and follow all safety and use information can result in death, serious personal injury, property damage, or damage to the equipment. Keep this Manual for future reference.

THINK SAFETY FIRST

⚠ WARNING

You are required to consult the local building and plumbing codes prior to installation. If the information in this manual is not consistent with local building or plumbing codes, the local codes should be followed. Inquire with governing authorities for additional local requirements.

⚠ WARNING

Need for Periodic Inspection/Maintenance: This product must be tested periodically in compliance with local codes, but at least once per year or more as service conditions warrant. All products must be retested once maintenance has been performed. Corrosive water conditions, and/or unauthorized adjustments or repair could render the product ineffective for the service intended. Regular checking and cleaning of the product's internal components helps assure maximum life and proper product function.

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System Specification Tables

NOTE: All softeners use LXT timers and all filters use SXT timers. Maximum or peak flow rates are not to be interpreted as continuous flow capabilities.

CHART 1: W110 Series Metered Water Softeners Water With LXT Timers

MODEL NO.	CAPACITY (MAX.)	PIPE SIZE (IN.)	MINERAL TANK		BRINE TANK		FLOW RATE & PRESSURE			SHIP WT. (LBS.)
			TANK SIZE	RESIN FT ³	TANK SIZE	SALT FILL	SERVICE (GPM)	DROP (PSI)	BKW (GPM)	
M3011-W110	30,000	1	9 x 48	1	18 x 40	400	12	15	2	110
M3013-W110	45,000	1	10 x 54	1.5	18 x 40	400	12	15	2.4	130
M3015-W110	60,000	1	12 x 52	2	18 x 40	400	13	15	3.5	190
M3017-W110	90,000	1	14 x 65	3	18 x 40	400	14	15	5	230
M3019-W110	120,000	1	16 x 65	4	18 x 40	400	15	15	7	310

NOTE: Brine tanks come with safety float valve.

CHART 2: W110 Series Backwashing Micro Z Filters With SXT Timers

MODEL NO.	VALVE	PIPE SIZE (IN.)	TANK SIZE	MEDIA (CU. FT.)	PEAK SERVICE FLOW (GPM)	BACKWASH (GPM)	FLOOR SPACE (L x W x H).	SHIP WT. (LBS.)
NM09-W110	W110	1	9 x 48	1	9	7	16 x 10 x 55	110
NM10-W110	W110	1	10 x 54	1.5	10	7	16 x 11 x 62	140
NM12-W110	W110	1	12 x 52	2	15	12	17 x 13 x 60	200
NM14-W110	W110	1	14 x 65	3	21	15	18 x 15 x 74	310

CHART 3: W110 Series Backwashing Filox Filters With SXT Timers

MODEL NO.	VALVE	PIPE SIZE (IN.)	TANK SIZE	MEDIA (CU. FT.)	PEAK SERVICE FLOW (GPM)	BACKWASH (GPM)	FLOOR SPACE (L x W x H).	SHIP WT. (LBS.)
NF09-W110	W110	1	9 x 48	1	6	7	16 x 10 x 55	167
NF10-W110	W110	1	10 x 54	1.5	9	7	16 x 11 x 62	235
NF12-W110	W110	1	12 x 52	2	12	12	17 x 13 x 60	318
NF14-W110	W110	1	14 x 65	3	18	15	18 x 15 x 74	460

System Specification Tables (continued)

CHART 4: W110 Series Backwashing Greensand Plus Filters With SXT Timers

MODEL NO.	VALVE	PIPE SIZE (IN.)	TANK SIZE	MEDIA (CU. FT.)	PEAK SERVICE FLOW (GPM)	BACKWASH (GPM)	FLOOR SPACE (L x W x H).	SHIP WT. (LBS.)
NGP09-W110	W110	1	9 x 48	1	3	5	16 x 21 x 55	137
NGP10-W110	W110	1	10 x 54	1.5	4	7	16 x 22 x 62	190
NGP12-W110	W110	1	12 x 52	2	5	10	17 x 24 x 60	258
NGP14-W110	W110	1	14 x 65	3	6	12	18 x 33 x 74	370

CHART 5: W110 Series Backwashing Carbon Filters With SXT Timers

MODEL NO.	VALVE	PIPE SIZE (IN.)	TANK SIZE	MEDIA (CU. FT.)	PEAK SERVICE FLOW (GPM)	BACKWASH (GPM)	FLOOR SPACE (L x W x H).	SHIP WT. (LBS.)
NC09-W110	W110	1	9 x 48	1	4	4	16 x 10 x 55	80
NC10-W110	W110	1	10 x 54	1.5	6	5	16 x 11 x 62	105
NC12-W110	W110	1	12 x 52	2	8	7	17 x 13 x 60	145
NC14-W110	W110	1	14 x 65	3	11	10	18 x 15 x 74	200
NC16-W110	W110	1	16 x 65	4	14	12	20 x 17 x 74	265

CHART 6: W110 Series Backwashing Empty Filters With SXT Timers

MODEL NO.	VALVE	PIPE SIZE (IN.)	TANK SIZE	MEDIA (CU. FT.)	PEAK SERVICE FLOW (GPM)	BACKWASH (GPM)	FLOOR SPACE (L x W x H).	SHIP WT. (LBS.)
NX09-W110	W110	1	9 x 48	1	10	5	16 x 10 x 55	53
NX10-W110	W110	1	10 x 54	1.5	10	7	16 x 11 x 62	64
NX12-W110	W110	1	12 x 52	2	20	10	17 x 13 x 60	90
NX14-W110	W110	1	14 x 65	3	40	12	18 x 15 x 74	118
NX16-W110	W110	1	16 x 65	4	50	20	20 x 17 x 74	155

Safety Information

This water conditioner's control valve conforms to UL/CE Standards. Generic valves were tested and certified for compliance as verified by the agency listing.

- Please review the entire Installation and Operation Manual before installing the water conditioning system.
- As with all plumbing projects, it is recommended that a trained professional water treatment dealer install the water conditioning system. Please follow all local plumbing codes for installing this water conditioning system.
- This system will not make microbiologically unsafe water safe. Water that is unsafe must be treated separately from this conditioner.
- This water conditioning system is to be used only for potable water.
- Inspect the water conditioning system for carrier shortage or shipping damage before beginning installation.
- Use only lead-free solder and flux, as required by federal and state codes, when installing soldered copper plumbing.
- Use caution when installing soldered metal piping near the water conditioning system. Heat can adversely affect the plastic control valve and bypass valve.
- All plastic connections should be hand tightened. Teflon® tape may be used on connections that do not use an O-ring seal. Do not use pipe dope type sealants on the valve body. **Do not use pliers or pipe wrenches.**
- Do not use petroleum-based lubricants such as Vaseline, oils or hydrocarbon-based lubricants. Use only 100% silicone lubricants.
- Use only the power transformer supplied with this water conditioning system.
- All electrical connections must be completed according to local codes.
- The power outlet must be grounded.
- Install an appropriate grounding strap across the inlet and outlet piping of the water conditioning system to ensure that a proper ground is maintained.
- To disconnect power, unplug the AC adapter from its power source.
- Observe drain line requirements.
- Do not support the weight of the system on the control valve fittings, plumbing, or the bypass.
- Do not allow this water conditioning system to freeze. Damage from freezing will void this water conditioning system's warranty.
- Operating ambient temperature: 34° to 120°F (1° to 49°C).
- Operating water temperature: 34° to 100°F (1° to 38°C).
- Operating water pressure range : 25 to 120 psi (1.38 to 8.27 bar).
- Observe all warnings that appear in this manual.
- Keep the media tank in the upright position. Do not turn upside down or drop. Turning the tank upside down or laying the tank on its side can cause media to enter the valve.
- Use only regenerants designed for water conditioning. Do not use ice melting salt, block salt or rock salt. During cold weather it is recommended that the installer warm the valve to room temperature before operating. Teflon® is a trademark of E.I. duPont de Nemours.

How To Use This Manual

This installation manual is designed to guide the installer through the process of installing and starting up water conditioning systems featuring the ProSense controller.

This manual is a reference and will not include every system installation situation. The person installing this equipment should have:

- Training on the control valve.
- Knowledge of water conditioning and how to determine proper control settings.
- Adequate plumbing skills.

Pre-Installation Considerations

A. Water Pressure

A minimum of 25 pounds of water pressure is required for regeneration valve to operate effectively.

B. Electrical Facilities

A continuous 115 volt, 60 Hertz current supply is required. Make certain the current supply is always hot and cannot be turned off with another switch.

C. Existing Plumbing

Condition of existing plumbing should be free from lime and iron buildup. Piping that is built up heavily with lime and/or iron should be replaced. If piping is clogged with iron, a separate iron filter unit should be installed ahead of the water softener.

D. Location Of Softener And Drain

The softener should be located close to a drain.

E. Bypass Valves

Always provide for the installation of a bypass valve.

F. Valve to Tank Installation Instructions

1. Spin the valve onto the tank, ensuring the threads are not cross-threaded.

NOTICE

The main control valve and tank adaptor have right-hand threads, or clockwise, to install

2. Rotate the valve freely without using force until it comes to a stop (this position is considered zero).
3. Rotate the valve clockwise from zero, between ¼ turn and ½ turn to fully tighten. No tools are needed. Hand tight is enough. Overtightening may cause valve or tank damage.

NOTICE

If lubricant is required, a silicone compound is strongly recommended. Dow Corning® Silicone Compound (available from Watts), is recommended for best possible results. Dow Corning® 7 Release Compound is used in the manufacture of this control valve. The use of other types of lubricants may attack the control's plastic or rubber components. Petroleum-based lubricants can cause swelling in rubber parts, including O-rings and seals.

Pre-Installation Considerations (continued)

G. Pre Installation and Loading of Media

Systems that are 13" in diameter and larger are not loaded with media. These systems must be loaded with media before placing into service. To load a system follow the below steps.

1. Cap the top open end of the distributor tube with tape and plastic sheeting to keep foreign debris from entering the distributor tube. This cap must be secure and not come off during media loading.
2. Place the distributor tube, screen end down, into the mineral tank and center it in the bottom. The top of the distributor tube should be flush with the top of the tank.
3. Make sure the plastic and tape cap is secure to the top of the distributor tube, place a funnel on the top of the tank and load first the gravel (if different sizes of gravel are used load the largest gravel first, then the smaller gravel) then the filter media/softening resin into the tank. The cap must not come off of the distributor tube during the loading of the media.
4. Remove the plastic cap from the distributor tube. **DO NOT PULL UP ON THE DISTRIBUTOR TUBE** when removing the cap. The distributor tube top must remain flush with the top of the tank.
5. Clean any media from the threads and top of the mineral tank.
6. Lubricate the O-rings on the bottom of the control valve (distributor pilot O-ring and top of tank O-ring). Use non-petroleum based silicone lubricant only.
7. Place the control valve on top of the tank. When doing this step, seat the top of the distributor tube inside the centered O-ring sealed port on the bottom of the valve first then press the valve down until the tank threads come in contact with the valve threads. This ensures that the distributor tube is properly seated into the bottom of the control valve. Thread the valve on to the tank clockwise. Be careful not to cross thread the valve or over tighten it. A hand tight snug fit is appropriate for the control valve torque. A wrench is not necessary. Do not use thread sealant or PTFE tape on the valve base threads.
8. The system is now ready for installation. Follow the Installation Section in the Installation, Operation and Maintenance Manual.

⚠ WARNING

Do not exceed water pressure of 125psi (8.6 bar). Do not exceed 110°F (43.3°C). Do not subject unit to freezing conditions.

General Installation Instructions

1. Turn off water heater(s).
2. Turn off the main water supply to the home and open an inside faucet (cold and hot) to relieve any pressure within the plumbing system.
3. Place the system in the desired installation location. Make sure that the location is level and sturdy enough to support the weight of the system once it is in operation.
4. Place the bypass valve in the bypass position.
5. Connect the cold water supply to the inlet of the water conditioning system. While constructing the supply line, install a master supply valve (user supplied) in the supply line and close it.
6. Connect the feed water line to the home to the outlet of the system.
7. Plumb the drain line to an appropriate drain abiding by all local, city, and state codes. Use a 3/4" drain line for backwash flow rates that exceed 7 gpm or length that exceeds 20' (6 m).
8. For softening systems, connect the brine tank to the water softener control valve brine inlet port using the factory supplied fittings and tubing. Add enough water to the brine tank so that water covers the top of the air check. **DO NOT ADD SALT AT THIS TIME.**
9. Open the user supplied feed water valve. Check for leaks and repair as needed.
10. Allow the inside hot and cold faucet to remain open until all air has been purged from the plumbing system. Then close the faucet.
11. Locate Manual Regeneration Options in this manual and follow the steps to initiate an Immediate Manual Regeneration. Once you have read that section place the system in backwash and unplug the system from its electrical outlet once it has cycled into the backwash position. This will stall the unit in backwash so air can be purged from the tank.
12. Adjust the user supplied feed water valve to 1/4 open and place the bypass valve into the service position.
13. Air will come out of the drain line until the backwashing tank is completely purged of air. Then water will flow to drain. Allow water to flow to drain for 15 minutes or until the water to drain is clear of resin color throw.
14. Plug the system back into the electrical outlet and manually cycle it through the remaining regeneration steps until it arrives in the service position.
15. Check for leaks and repair as needed.
16. Installation is now complete and the system is ready for programming and one cycle of brine tank refill so that the correct amount of water is in the brine tank for the first regeneration cycle. The brine tank refill must be done after programming the system.

System Configuration

The chart below is for dealer use only. Use this information to configure the system to suit the application. The W110 LXT timer will use the settings to calculate cycle times.

Tank Diameter	Resin Volume		Injector Size	BLFC Size
	US (FT ³)	Metric (Liters)		
8	0.75	20	#000	0.125
9		25	#000	0.125
9	1.00	30	#000	0.125
10	1.25	35	#00	0.125
10	1.50	40	#00	0.125
12		45	#00	0.125
12	1.75	50	#00	0.125
12	2.00	55	#0	0.25
13		60	#0	0.25
13	2.25	65	#0	0.25
14	2.50	70	#1	0.25
14		75	#1	0.25
14	2.75	80	#1	0.25
14	3.00	85	#1	0.25
14	3.25	90	#2	0.50
14		95	#2	0.50
14	3.50	100	#2	0.50
16	3.75	105	#3	0.50
16		110	#3	0.50
16	4.00	115	#3	0.50

Start-Up Instructions LXT

The water softener should be installed with the inlet, outlet, and drain connections made in accordance with the manufacturer's recommendations, and to meet applicable plumbing codes.

1. Program the valve control according to instructions shown in this manual.
2. Start an immediate regeneration by holding the Extra Cycle button for 5 seconds. Position the valve to backwash. Ensure the drain line flow remains steady for 10 minutes or until the water runs clear.
3. Position the valve to the brine / slow rinse position. Ensure the unit is drawing water from the brine tank (this step may need to be repeated).
4. Position the valve to the rapid rinse position. Check the drain line flow, and run for 5 minutes or until the water runs clear.
5. Position the valve to the start of the brine tank fill cycle. Ensure water goes into the brine tank at the desired rate. The brine valve drive cam will hold the valve in this position to fill the brine tank for the first regeneration.
6. Replace control cover.
7. Put salt in the brine tank.

NOTICE

Do not use granulated or rock salt.

Timer Features LXT

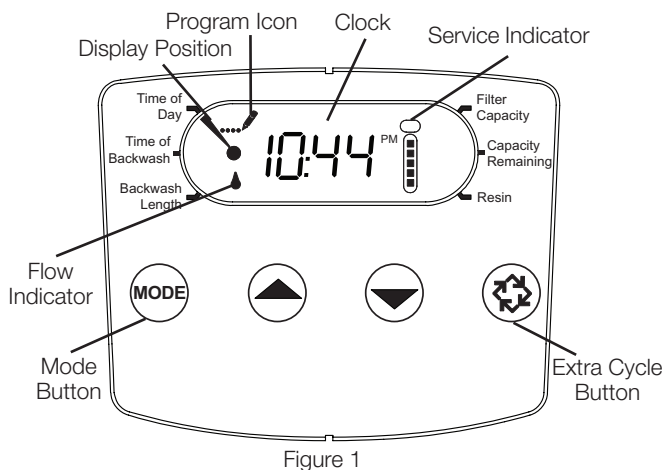


Figure 1

A. Features of the LXT

- Power backup that continues to keep time and the passage of days for a minimum of 12 hours in the event of 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.
- Day of the week reserve calculates a reserve for each day based on the past 4 weeks.
- The Flow Indicator flashes when outlet flow is detected.
- 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 a regeneration, the display will show the cycle number followed by the time remaining in that cycle
- During regeneration, the user can force the control to advance to the next cycle step immediately by pressing the extra cycle button.

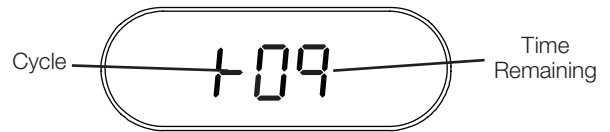


Figure 2

B. Setting the Time of Day

1. Press and hold either the Up or Down buttons until the Time of Day icon appears.
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 after 5 seconds if no buttons are pressed.



Figure 3

C. Queueing 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.

D. Regenerating Immediately

Press and hold the Extra Cycle button for five seconds.

Timer Operation LXT

A. Meter Delayed Control

A Meter Delayed Control measures water usage. The system regenerates at the programmed regeneration time after the calculated system capacity is depleted. The control calculates the system capacity by dividing the unit capacity by the feedwater hardness and subtracting the reserve. The reserve should be set to insure that the system delivers treated water between the time the system capacity is depleted and the actual regeneration time. A Meter Delayed control will also start a regeneration cycle at the programmed regeneration time if a number of days equal to the regeneration day override pass before water usage depletes the calculated system capacity.

B. Control Operation During Regeneration

During regeneration, the control displays a special regeneration display. In this display, the control shows the current regeneration 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.

The meter and time clock controls will use and display cycles:

1. Backwash
2. Brine/Slow Rinse
3. Rapid Rinse
4. Brine Tank Refill

The filter controls will use and display cycles:

1. Backwash
2. Rapid Rinse

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

C. Control Operation During Programming

The control only enters the Program Mode with the valve in service. While in the Program Mode, the control continues to operate normally monitoring water usage and keeping all displays up to date. Control programming is stored in memory permanently, and does not rely on battery backup power.

D. Manually Initiating a Regeneration

1. When timer is in service, press the Extra Cycle button for 5 seconds on the main screen.
2. The timer advances to Regeneration Cycle Step #1 (backwash), and begins programmed time count down.
3. Press the Extra Cycle button once to advance valve to Regeneration Cycle Step #2 (brine draw & slow rinse).
4. Press the Extra Cycle button once to advance valve to Regeneration Cycle Step #3 (rapid rinse).
5. Press the Extra Cycle button once to advance valve to Regeneration Cycle Step #4 (brine refill).
6. Press the Extra Cycle button once more to advance the valve back to in service.

NOTE: If the unit is a filter or upflow, the cycle step order may change.

NOTICE

A queued regeneration can be initiated by pressing the Extra Cycle button. To clear a queued regeneration, press the Extra Cycle button again to cancel. If regeneration occurs for any reason prior to the delayed regeneration time, the manual regeneration request will be cleared.

E. Control Operation During A Power Failure

The LXT includes integral power backup. In the event of power failure, the control shifts into a power-saving mode. The control stops monitoring water usage. The display and motor shut down, but it continues to keep track of the time and day for a minimum of 12 hours.

The system configuration settings are stored in a non-volatile memory and are stored indefinitely with or without line power.

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.

CAUTION

If power fails during a regeneration cycle, the valve will remain in its current position until power is restored. The valve system should include all required safety components to prevent overflows resulting from a power failure during regeneration.

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.

Start-Up Instructions SXT

The water conditioner should be installed with the inlet, outlet, and drain connections made in accordance with the manufacturer's recommendations, and to meet applicable plumbing codes.

1. Program the valve control according to instructions shown in this manual.
2. Start an immediate regeneration by holding the Extra Cycle button for 5 seconds. Position the valve to backwash. Ensure the drain line flow remains steady for 10 minutes or until the water runs clear.
3. Position the valve to the brine / slow rinse position. Ensure the unit is drawing water from the brine tank (this step may need to be repeated). Not used on SXT filter systems.
4. Position the valve to the rapid rinse position. Check the drain line flow, and run for 5 minutes or until the water runs clear.
5. Position the valve to the start of the brine tank fill cycle. Ensure water goes into the brine tank at the desired rate. The brine valve drive cam will hold the valve in this position to fill the brine tank for the first regeneration. Not used on SXT filter systems.
6. Replace control cover.
7. Put salt in the brine tank. Not used on SXT filter systems.

NOTICE

Do not use granulated or rock salt.

Timer Features SXT

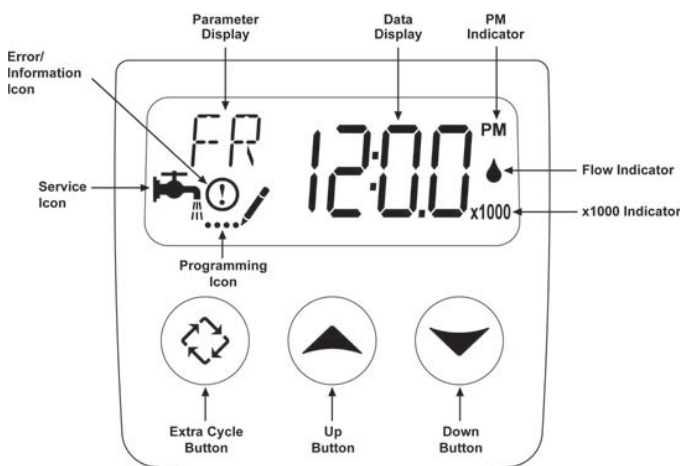


Figure 4

A. 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 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 Flow Indicator flashes when outlet flow is detected.
- The Service Icon flashes if a regeneration cycle has been queued.

NOTICE

Meter, volume, and capacity values are not displayed on SXT filter systems.

- A Regeneration can be triggered immediately by pressing the Extra Cycle button for five seconds.
- The Parameter Display displays 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. The parameter display will identify the destination cycle step (BW, BF, RR, etc) and the data display will read "-----". Once the valve reaches the cycle step, the display will stop flashing and the data display will change to the time remaining. During regeneration, the user can force the control to advance to the next cycle step immediately by pressing the extra cycle button.

B. 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 after 5 seconds if no buttons are pressed.



Figure 5

C. Queueing 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.

D. Regenerating Immediately

Press and hold the Extra Cycle button for five seconds.

Timer Operation SXT

A. Meter Immediate Control

(Not used on SXT filter systems.)

A Meter Immediate control measures water usage and regenerates the system as soon as the calculated system capacity is depleted. The control calculates the system capacity by dividing the unit capacity (typically expressed in grains/unit volume) by the feedwater hardness and subtracting the reserve. Meter Immediate systems generally do not use a reserve volume. The control will also start a regeneration cycle at the programmed regeneration time if a number of days equal to the regeneration day override pass before water usage depletes the calculated system capacity.

B. Meter Delayed Control

(Not used on SXT filter systems.)

A Meter Delayed Control measures water usage. The system regenerates at the programmed regeneration time after the calculated system capacity is depleted. As with Meter Immediate systems, the control calculates the system capacity by dividing the unit capacity by the feedwater hardness and subtracting the reserve. The reserve should be set to insure that the system delivers treated water between the time the system capacity is depleted and the actual regeneration time. A Meter Delayed control will also start a regeneration cycle at the programmed regeneration time if a number of days equal to the regeneration day override pass before water usage depletes the calculated system capacity.

C. Time Clock Delayed Control

A Time Clock Delayed Control regenerates the system on a timed interval. The control will initiate a regeneration cycle at the programmed regeneration time when the number of days since the last regeneration equals the regeneration day override value.

D. 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 regeneration time.

E. Control Operation During Regeneration

During regeneration, the control displays a special regeneration display. In this display, the control shows the current regeneration 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.

F. Control Operation During Programming

The control only enters the Program Mode with the valve in service. While in the Program Mode, the control continues to operate normally monitoring water usage and keeping all displays up to date. Control programming is stored in memory permanently.

G. Manually Initiating a Regeneration

1. When timer is in service, press the Extra Cycle button for 5 seconds on the main screen.
2. The timer advances to Regeneration Cycle Step #1 (backwash), and begins programmed time count down.
3. Press the Extra Cycle button once to advance valve to Regeneration Cycle Step #2 (brine draw & slow rinse). Not used on SXT filter systems).
4. Press the Extra Cycle button once to advance valve to Regeneration Cycle Step #3 (rapid rinse).
5. Press the Extra Cycle button once to advance valve to Regeneration Cycle Step #4 (brine refill). Not used on SXT filter systems.
6. Press the Extra Cycle button once more to advance the valve back to in service.

NOTE: If the unit is a filter or upflow, the cycle step order may change.

NOTICE

A queued regeneration can be initiated by pressing the Extra Cycle button. To clear a queued regeneration, press the Extra Cycle button again to cancel. If regeneration occurs for any reason prior to the delayed regeneration time, the manual regeneration request will be cleared.

H. Control Operation During a Power Failure

The SXT includes integral power backup. In the event of power failure, the control shifts into a power-saving mode. The control stops monitoring water usage. The display and motor shut down, but it continues to keep track of the time and day for a minimum of 12 hours.

The system configuration settings are stored in a non-volatile memory and are stored indefinitely with or without 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.

CAUTION

If power fails during a regeneration cycle, the valve will remain in its current position until power is restored. The valve system should include all required safety components to prevent overflows resulting from a power failure during regeneration.

The control will not start a new regeneration cycle without 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.

Master Programming Mode LXT

CAUTION

Before entering Master Programming, please contact your local professional water dealer.

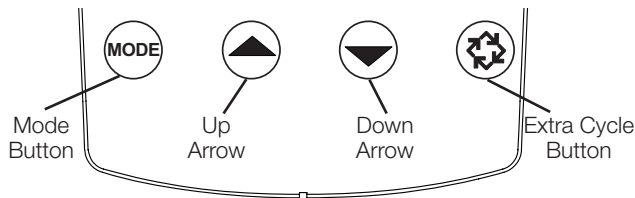


Figure 6

Press Mode button to cycle through programming options.

When timer is powered up, the display position will point to Time of Day. Set time of day by holding the Up or Down arrow. Hold the Extra Cycle button until the Program icon disappears to save the current time.

A. W110 Meter Downflow/Upflow

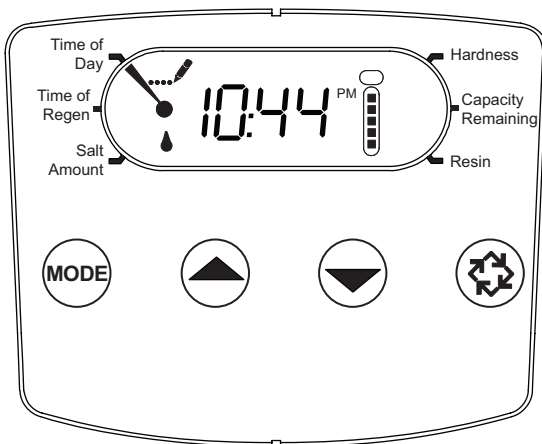


Figure 7

1. Press the Mode button to advance to Time of Regen. Push the Up or Down arrow to adjust the time of regeneration.
2. Press the Mode button again to advance to Salt Amount. Press the Up or Down arrow to adjust your salt dosage. English timer range is 3-18 lbs. Metric timer range is 50-290 grams per liter.
3. Press the Mode button again to advance to Hardness. Press the Up or Down arrow to adjust the setting to your hardness. English timer range is 3 to 200 gpg. Metric timer range is 30-200 mg/l.
4. Press the Mode button again to advance to Capacity Remaining. This is the amount of gallons the unit can treat. This is not adjustable.
5. Press the Mode button again to advance to Resin. Use the Up or Down arrow to adjust the amount of CuFt resin in your tank. English timer range is 0.25-3.0 CuFt. Metric timer range is 5-100 liters.
6. Hold the Extra Cycle button until the Program icon disappears to save your programming.
7. If you are just changing one program step, hold the Extra Cycle button until the Program icon disappears to save your changes. If you do not hold the Extra Cycle button until the Program icon disappears your changes will not be saved.

NOTICE

This unit has a day of the week reserve. It calculates a reserve for each day of the week based on the past 4 weeks.

B. W110 Time Clock Downflow/Upflow

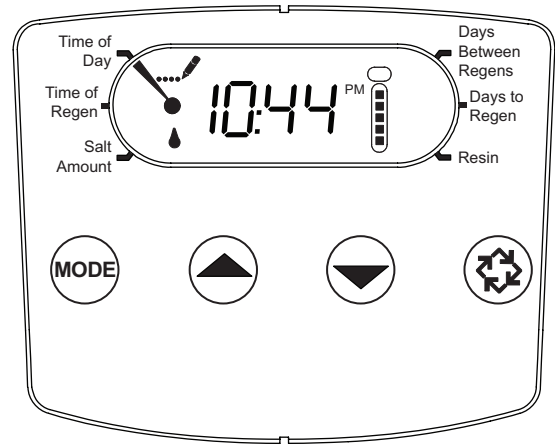


Figure 8

1. Press the Mode button to advance to Time of Regen. Push the Up or Down arrow to adjust the time of regeneration.
2. Press the Mode button again to advance to Salt Amount. Press the Up or Down arrow to adjust your salt dosage. English timer range is 3-18 lbs. Metric timer range is 50-290 grams per liter.
3. Press the Mode button again to advance to Days Between Regens. Range is 1 to 30 days.
4. Press the Mode button again to advance to Days to Regen. This is not adjustable.
5. Press the Mode button again to advance to Resin. Use the Up or Down arrow to adjust the amount of CuFt resin in your tank. English timer range is 0.25-3.0 CuFt. Metric timer range is 5-100 liters.
6. Hold the Extra Cycle button until the Program icon disappears to save your programming.
7. If you are just changing one program step, hold the Extra Cycle button until the Program icon disappears to save your changes. If you do not hold the Extra Cycle button until the Program icon disappears your changes will not be saved.

Master Programming Mode LXT (continued)

C. W110 Filter Meter

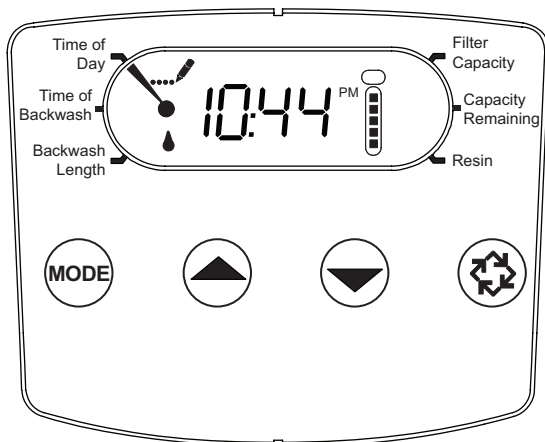


Figure 9

1. Press the Mode button to advance to Time of Backwash. Push the Up or Down arrow to adjust the time of backwash.
2. Press the Mode button again to advance to Backwash Length. Press the Up or Down arrow to adjust your backwash length. Range is 1-30 minutes.
3. Press the Mode button again to advance to Filter Capacity. Press the Up or Down arrow to adjust the setting for filter capacity. English timer range is 100-90,000 gallons. Metric timer range is 1-900 cubic meters.
4. Press the Mode button again to advance to Capacity Remaining. This is not adjustable.
5. Press the Mode button again to advance to Resin. Use the Up or Down arrow to adjust the amount of CuFt resin in your tank. English timer range is 0.25-3.0 CuFt. Metric timer range is 5-100 liters.
6. Hold the Extra Cycle button until the Program icon disappears to save your programming.
7. If you are just changing one program step, hold the Extra Cycle button until the Program icon disappears to save your changes. If you do not hold the Extra Cycle button until the Program icon disappears your changes will not be saved.

NOTICE

This unit has a day of the week reserve. It calculates a reserve for each day of the week based on the past 4 weeks.

D. W110 Filter Time Clock

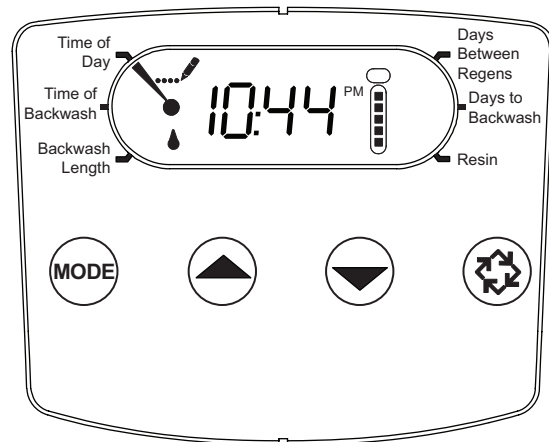


Figure 10

1. Press the Mode button to advance to Time of Backwash. Push the Up or Down arrow to adjust the time of backwash.
2. Press the Mode button again to advance to Backwash Length. Press the Up or Down arrow to adjust your backwash length. Range is 1-30 minutes.
3. Press the Mode button again to advance to Days Between Regens. Range is 1 to 30 days.
4. Press the Mode button again to advance to Days to Backwash. This is not adjustable.
5. Press the Mode button again to advance to Resin. Use the Up or Down arrow to adjust the amount of CuFt resin in your tank. English timer range is 0.25-3.0 CuFt. Metric timer range is 5-100 liters.
6. Hold the Extra Cycle button until the Program icon disappears to save your programming.
7. If you are just changing one program step, hold the Extra Cycle button until the Program icon disappears to save your changes. If you do not hold the Extra Cycle button until the Program icon disappears your changes will not be saved.

Diagnostic Programming Mode LXT

Demand - US Units	
Diagnostic Code	Description
H1	Displays the days since last regeneration, 0-30.
H2	Displays the current flow rate, gallons per minute.
H3	Displays the current day of week, 1-7.
H4	Displays the total volume of water treated by the unit for the current day in gallons.
H5	Displays the total volume of water used since the last regeneration in gallons.
H6	Displays the software version. Version number of software. D = Downflow U = Upflow
A1	Displays the average water usage for day 1, in gallons.
A2	Displays the average water usage for day 2, in gallons.
A3	Displays the average water usage for day 3, in gallons.
A4	Displays the average water usage for day 4, in gallons.
A5	Displays the average water usage for day 5, in gallons.
A6	Displays the average water usage for day 6, in gallons.
A7	Displays the average water usage for day 7, in gallons.

Demand - Metric Units	
Diagnostic Code	Description
H1	Displays the days since last regeneration, 0-30.
H2	Displays the current flow rate, liters per minute.
H3	Displays the current day of week.
H4	Displays the total volume of water treated by the unit for the current day, in cubic meters.
H5	Displays the total volume of water used since the last regeneration, in cubic meters.
H6	Displays the software version. Version number of software. D = Downflow U = Upflow
A1	Displays the average water usage for day 1, in cubic meters.
A2	Displays the average water usage for day 2, in cubic meters.
A3	Displays the average water usage for day 3, in cubic meters.
A4	Displays the average water usage for day 4, in cubic meters.
A5	Displays the average water usage for day 5, in cubic meters.
A6	Displays the average water usage for day 6, in cubic meters.
A7	Displays the average water usage for day 7, in cubic meters.

Time Clock	
Diagnostic Code	Description
H1	Displays the days since last regeneration, 1-7.
H6	Displays the software version. Version number of software. D = Downflow U = Upflow

NOTE: The English timer will be in gallons. The Metric timer will be in liters for all flow rates.

A. Diagnostic Programming Mode Steps

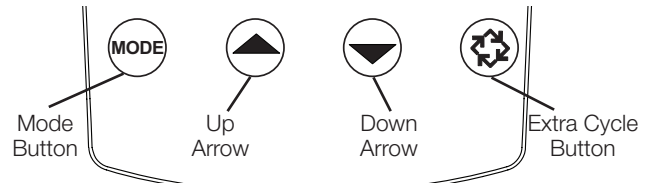


Figure 11

1. To enter the Diagnostic Programming Mode, press and hold the Mode button and the Up arrow.
2. The display will show the first diagnostic. Press the Up arrow to view the value.
3. Press the Mode button twice to move to the next diagnostic.
4. Press the Up arrow to view the value. Continue in this manner until you have viewed all the diagnostics. The table above shows all the diagnostics.
5. To exit Diagnostic Programming Mode, hold the Extra Cycle button for one minute. It will also exit after 30 seconds if no button is pushed.

Master Programming Mode Chart SXT

⚠ CAUTION

Before entering Master Programming, please contact your local professional water dealer.

Master Programming Options			
Abbreviation	Parameter	Option Abbreviation	Options
DF	Display Format	GAL	Gallons
		Ltr	Liters
VT	Valve Type	5800	W110 Control Valve
RF	Regenerant Flow	dF1b	Standard Downflow Single Backwash
		dF2b	Standard Downflow Double Backwash
		Fitr	Filter
		AIO	Air Injection Oxidizer
		dFFF	Downflow Fill First
		UFbd	Upflow Brine First
		UFFF	Upflow Fill First
		Othr	Other
CT	Control Type	Fd	Meter (Flow) Delayed
		FI	Meter (Flow) Immediate
		tc	Time Clock
		dAY	Day of Week
C	Unit Capacity		Unit Capacity (Grains)
H	Feedwater Hardness		Hardness of Inlet Water (Grains)
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 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 C1, C2, ..., C20 will be displayed along with available cycle steps RR, BD, SR, BW, RF, SP. LC denotes the Last Cycle.
D1, D2, D3, D4, D5, D6, & D7	Day of Week Settings		Regeneration setting (On or Off) for each day of the week on day-of-week systems.
CD	Current Day		The Current day of the week
FM	Flow Meter Type	P0.7	3/4" Paddle Wheel Meter
		t0.7	3/4" Turbine Meter
		P1.0	1" Paddle Wheel Meter
		t1.0	1" Turbine Meter
		P1.5	1.5" Paddle Wheel Meter
		t1.5	1.5" Turbine Meter
		P2.0	2" Paddle Wheel Meter
		Gen	Generic or Other non-Fleck Meter
K	Meter Pulse Setting		Meter pulses per gallon for generic/other flow meter

Some items may not be shown depending on timer configuration. The timer will discard any changes and exit Master Programming Mode if any button is not pressed for 5 minutes.

Master Programming Mode SXT

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. For example, when programming the control valve as a time clock filter, capacity, water hardness, and other questions will not be asked by the timer.

A. 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 after 5 seconds if no buttons are pressed.



Figure 12

B. Entering Master Programming Mode

Set the Time of Day display to 12:01 P. M. 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.

C. 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.

D. Resets

• Soft Reset

Press and hold the Extra Cycle and Down buttons for 25 seconds while in normal Service mode. This resets all parameters to the system default values. Not reset are the volume remaining in meter immediate or meter delayed systems and days since regeneration in the time clock system.

• Master Reset

Hold the Extra Cycle button while powering up the unit. This resets all of the parameters in the unit. Check and verify the choices selected in Master Programming Mode.

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 two possible settings.

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



Figure 13

2. Valve Type (Display Code VT)

Press the Extra Cycle button. Use the display to set the Valve Type. 5800 is the only currently available valve type.

3. Regenerant Flow (Display Code RF)

Press the Extra Cycle button. The Regenerant Flow Setting specifies the type of cycle that the valve follows during regeneration. Note that some valve types require 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 "RF" in the upper left hand corner of the screen. There are 8 possible settings.

Abbreviation	Parameter
dF1b	Standard Downflow Single Backwash
dF2b	Standard Downflow Double Backwash
Fitr	Filter
AIO	Air Injection Oxidizer
dFFF	Downflow Fill First
UFbd	Upflow Brine First
UFFF	Upflow Fill First
Othr	Other

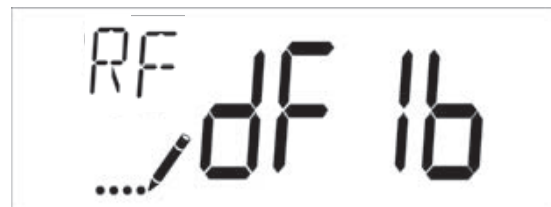


Figure 14

Master Programming Mode SXT (continued)

4. 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. For details on how the various options function, refer to the "Timer Operation SXT" section of this service manual. This option setting is identified by "CT" in the upper left hand corner of the screen. There are four possible settings.

Abbreviation	Parameter
Fd	Meter (Flow) Delayed
FI	Meter (Flow) Immediate
tc	Time Clock
dAY	Day of Week

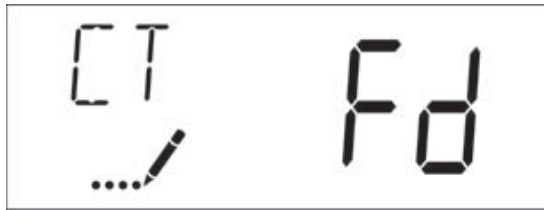


Figure 15

5. Unit Capacity (Display Code C)

Press the Extra Cycle button. Use this display to set the Unit Capacity. This setting specifies the treatment capacity of the system media. Enter the capacity of the media bed in grains of hardness when configuring a softener system, or desired volume capacity when configuring a filter system. This option setting is identified by "C" in the upper left hand corner of the screen (or by "V" if volume capacity for a filter). The Unit Capacity parameter is only available if the control type has been set to one of the metered options. Use the Up and Down buttons to adjust the value as needed.



Figure 16

Range: 1-9,999,000 grains/gallon (1-9,999,000 mg)

6. Feedwater Hardness (Display Code H)

Press the Extra Cycle button. Use this display to set the Feedwater Hardness. Enter the feedwater hardness in grains per unit volume for softener systems, or 1 for filter systems. This option setting is identified by "H" in the upper left hand corner of the screen. The feedwater hardness parameter is only available if the control type has been set to one of the metered options. Use the Up and Down buttons to adjust the value as needed.



Figure 17

Range: 1-199 grains (mg/l)

7. Reserve Selection (Display Code RS)

Press the Extra Cycle button. Use this display to set the Safety Factor and to select the type of reserve to be used in your system. This setting is identified by "RS" in the upper left-hand corner of the screen. The reserve selection parameter is only available if the control type has been set to one of the metered options. There are two possible settings.

Abbreviation	Parameter
SF	Safety Factor
rc	Fixed Reserve Capacity

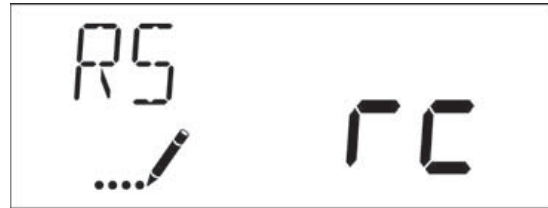


Figure 18

8. Safety Factor (Display Code SF)

Press the Extra Cycle button. Use this display to set the Safety Factor. This setting specifies what percentage of the system capacity will be held as a reserve. Since this value is expressed as a percentage, any change to the unit capacity or feedwater hardness that changes the calculated system capacity will result in a corresponding change to the reserve volume. This option setting is identified by "SF" in the upper left hand corner of the screen. Use the UP and Down buttons to adjust the value from 0 to 50% as needed.



Figure 19

Range: 0-50%

9. Fixed Reserve Capacity (Display Code RC)

Press the Extra Cycle button. Use this display to set the Reserve Capacity. This setting specifies a fixed volume that will be held as a reserve. The reserve capacity cannot be set to a value greater than one-half of the calculated system capacity. The reserve capacity is a fixed volume and does not change if the unit capacity or feedwater hardness are changed. This option setting is identified by "RC" in the upper left-hand corner of the screen. Use the Up and Down buttons to adjust the value as needed.

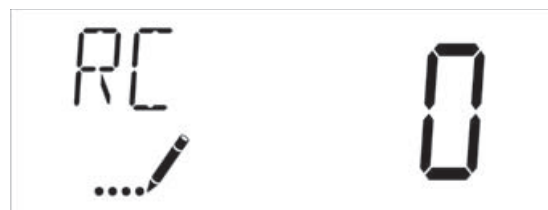


Figure 20

Range: 0-half of the calculated

Master Programming Mode SXT (continued)

10. 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. Specifically, Filox filters need to be set to a DO of 1.



Figure 21

Range: Off-99 days

11. Regeneration Time

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 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. Make sure that filters and softeners are set to regenerate 2 hours apart to avoid both units regenerating simultaneously.

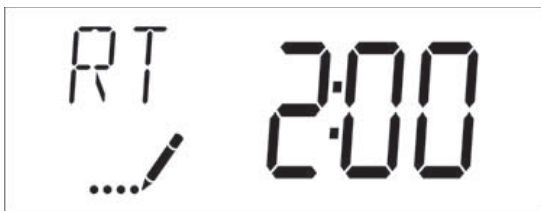


Figure 22

12. 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.

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

If the system has been configured with the "Other" valve type, the regeneration cycles will be identified as C1, C2, ..., C20. Cycle steps can be programmed in any order using the Up or Down buttons with the following selections. Up to 20 individual cycles can be set. Time for each cycle can be set from 0 to 199 minutes. Setting a cycle step time 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 the next parameter. Program the last cycle step as LC which forces the valve back to the service position.

Abbreviation	Cycle Step
RR	Rapid Rinse
BD	Brine Draw
SR	Slow Rinse
BW	Backwash
RF	Refill
SP	Service Position
LC	Last Cycle



Figure 23

Range: 0-199 minutes

13. Day of Week Settings

Press the Extra Cycle button. Use this display to set the regeneration schedule for a system configured as 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 the 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 1 until one or more days are set to "ON".



Figure 24

Master Programming Mode SXT (continued)

14. Current Day (Display Code CD)

Press the Extra Cycle button. Use this display to set the current day on systems that have been 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 buttons to select from Day 1 through Day 7.



Figure 25

15. Flow Meter Type (Display Code FM)

Press the Extra Cycle button. Use this display to set the type of flow meter connected to the control. This option setting is identified by "FM" in the upper left-hand corner of the screen. Use the Up and Down buttons to select one of the 8 available settings.

Abbreviation	Description
P0.7	3/4" Paddle Wheel Meter
t0.7	3/4" Turbine Meter
P1.0	1" Paddle Wheel Meter
t1.0	1" Turbine Meter
P1.5	1.5" Paddle Wheel Meter
t1.5	1.5" Turbine Meter
P2.0	2" Paddle Wheel Meter
Gen	Generic or Other non-Fleck Meter



Figure 26

16. Meter Pulse Setting (Display Code K)

Press the Extra Cycle button. Use this display to specify the meter pulse setting for a non-standard flow meter. This option setting is identified by "K" in the upper left-hand corner of the screen. Use the Up and Down buttons to enter the meter constant in pulses per unit volume.



Figure 27

17. End of Master Programming Mode

Press the Extra Cycle button to save all settings and exit Master Programming Mode.

User Programming Mode SXT

Abbreviation	Parameter	Description
DO	Day Override	The timer's day override setting.
RT	Regeneration Time	The time of the day that the system will regenerate (meter delayed, timeclock, and day-of-week systems)
H	Feed Water Hardness	The hardness of the inlet water - used to calculate system capacity for metered systems.
RC or SF	Reserve Capacity	The fixed reserve capacity.
CD	Current Day	The current day of week.

NOTE: Some items may not be shown depending on timer configuration. The timer will discard any changes and exit User Programming Mode if a button is not pressed for 60 seconds.

A. User Programming Mode Steps

1. Press the Up and Down buttons for five seconds while in service, and the time of day is NOT set to 12:01 PM.
2. Use this display to adjust the Day Override. This option setting is identified by "DO" in the upper left hand corner of the screen.



Figure 28

3. Press the Extra Cycle button. Use this display to adjust the Regeneration Time. This option setting is identified by "RT" in the upper left hand corner of the screen.



Figure 29

4. Press the Extra Cycle button. Use this display to adjust the Feed Water Hardness. This option setting is identified by "H" in the upper left hand corner of the screen.



Figure 30

Range: 1-199 hardness

5. Press the Extra Cycle button. Use this display to adjust the Fixed Reserve Capacity. This option setting is identified by "RC" or "SF" in the upper left-hand corner of the screen.

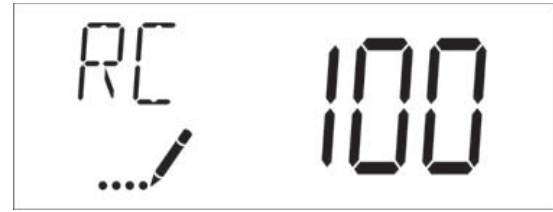


Figure 31

6. Press the Extra Cycle button. Use this display to set the Current Day of the Week. This option setting is identified by "CD" in the upper left hand corner of the screen.



Figure 32

7. Press the Extra Cycle button to end User Programming Mode.

Diagnostic Programming Mode SXT

Abbreviation	Parameter	Description
FR	Flow Rate	Displays the current outlet flow rate.
PF	Peak Flow Rate	Displays the highest flow rate measured since last regeneration.
HR	Hours in Service	Displays the total hours that the unit has been in service.
VU	Volume Used	Displays the total volume of water treated by the unit.
RC	Reserve Capacity	Displays the system's reserve capacity calculated from the system capacity, feedwater hardness, and safety factor.
SV	Software Version	Displays the software version installed on the controller.

NOTE: Some items may not be shown depending on timer configuration. The timer will discard any changes and exit User Programming Mode if a button is not pressed for 60 seconds.

A. Diagnostic Programming Mode Steps

1. Press the Up and Down buttons for five seconds while in service.
2. Use this display to view the current Flow Rate. This option setting is identified by "FR" in the upper left hand corner of the screen.



Figure 33

3. Press the Up button. Use this display to view the Peak Flow Rate since the last regeneration cycle. This option setting is identified by "PF" in the upper left hand corner of the screen.



Figure 34

4. Press the Up button. Use this display to view the Hours in Service since the last regeneration cycle. This option setting is identified by "HR" in the upper left hand corner of the screen.



Figure 35

5. Press the Up button. Use this display to view the Volume Used since the last regeneration cycle. This option setting is identified by "VU" in the upper left-hand corner of the screen.



Figure 36

6. Press the Up button. Use this display to view the Reserve Capacity. This option setting is identified by "RC" in the upper left hand corner of the screen.



Figure 37

7. Press the Up button. Use this display to view the Software Version. This option setting is identified by "SV" in the upper left hand corner of the screen.

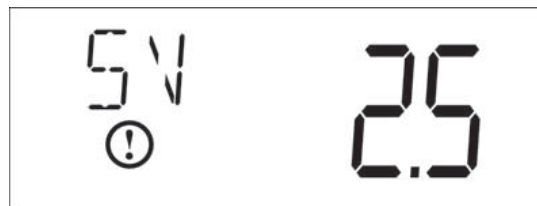
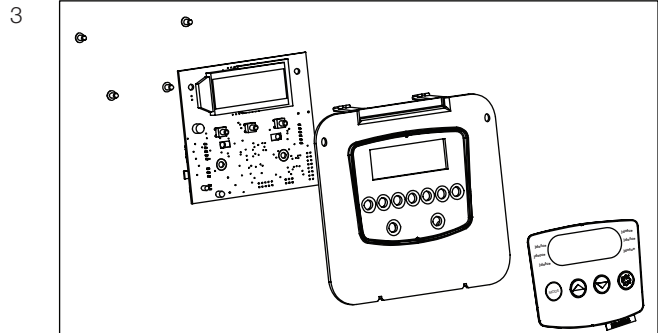
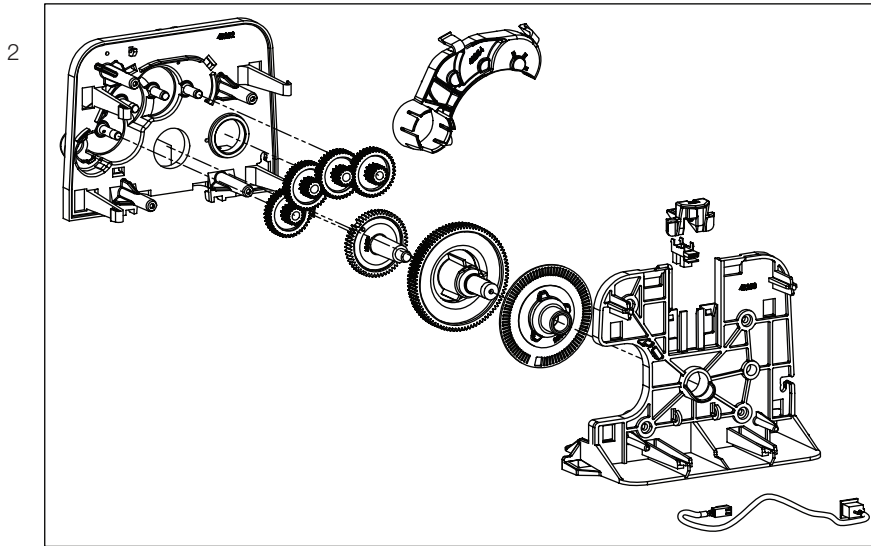
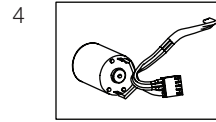
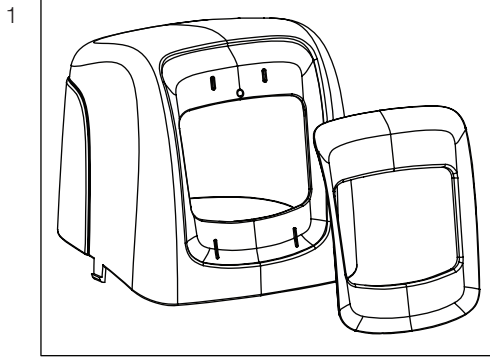


Figure 38

8. Press the Extra Cycle button to end Diagnostic Programming Mode.

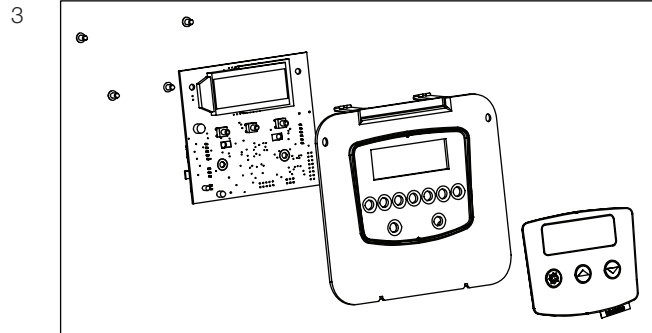
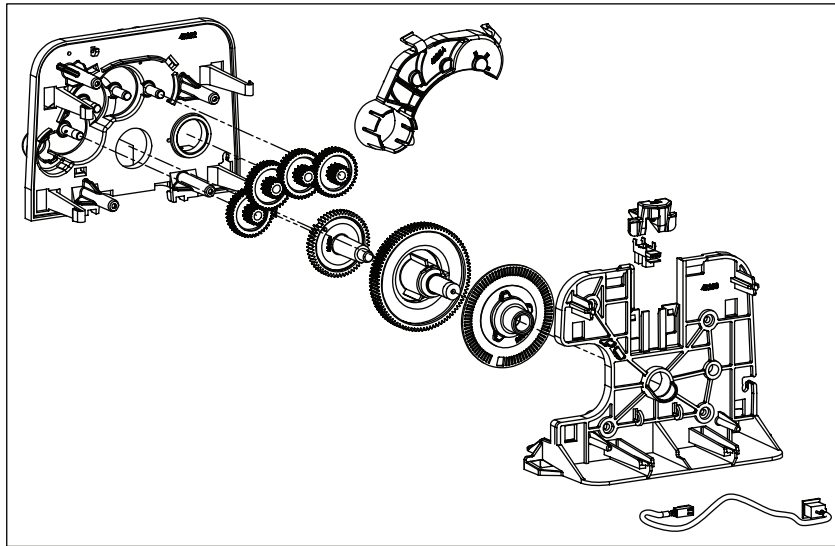
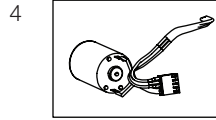
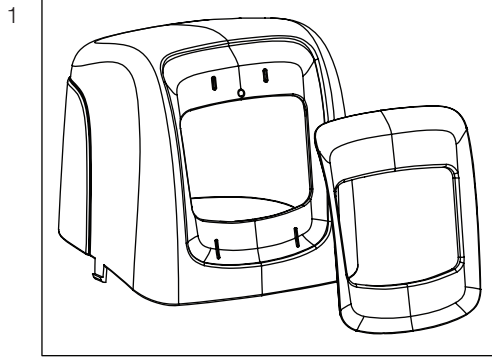
Powerhead Assembly LXT



Item No.	QTY	Part No.	Description
1.....	1	61832-00	Cover Assembly, Black/Blue
2.....	1	61836.....	Panel Gear Assembly, Downflow/ Upflow
3.....	1	*.....	E Timer
4.....	1	61835.....	Motor Assembly

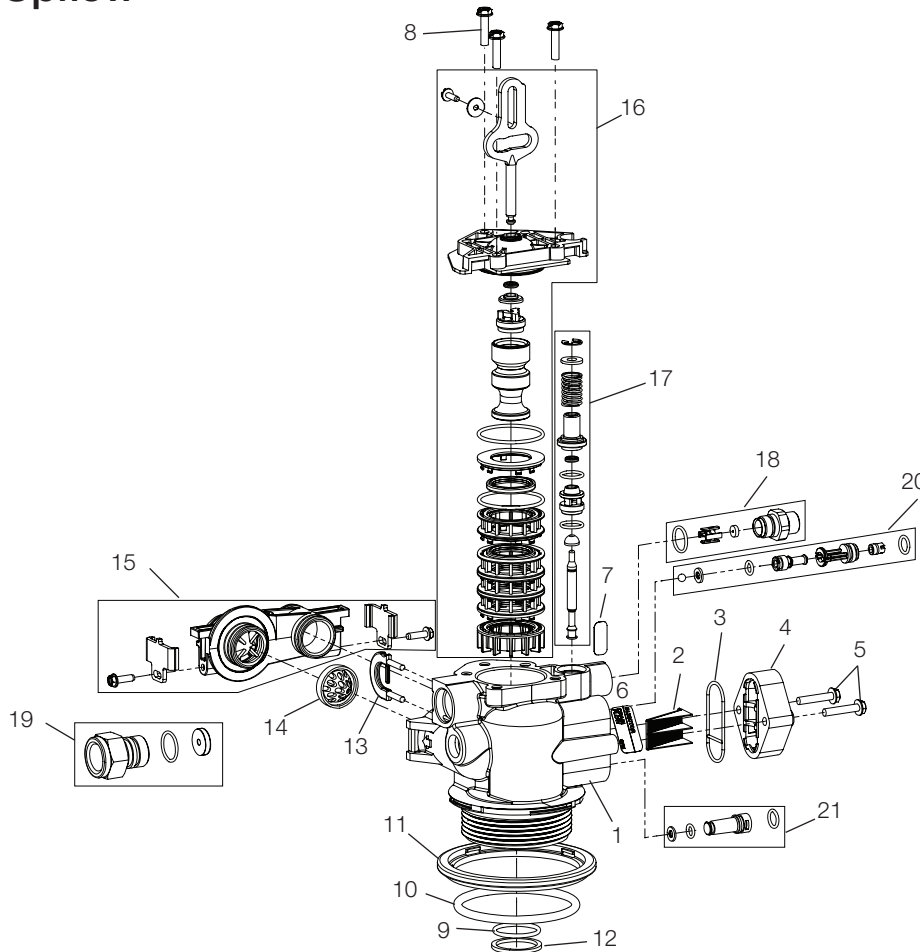
*Call your distributor for part number.

Powerhead Assembly SXT



Item No.	QTY	Part No.	Description
1.....	1	61832-00	Cover Assembly, Black/Blue
2.....	1	61836.....	Panel Gear Assembly, Downflow/ Upflow
3.....	1	61834.....	Timer Assembly, SXT
4.....	1	61835.....	Motor Assembly

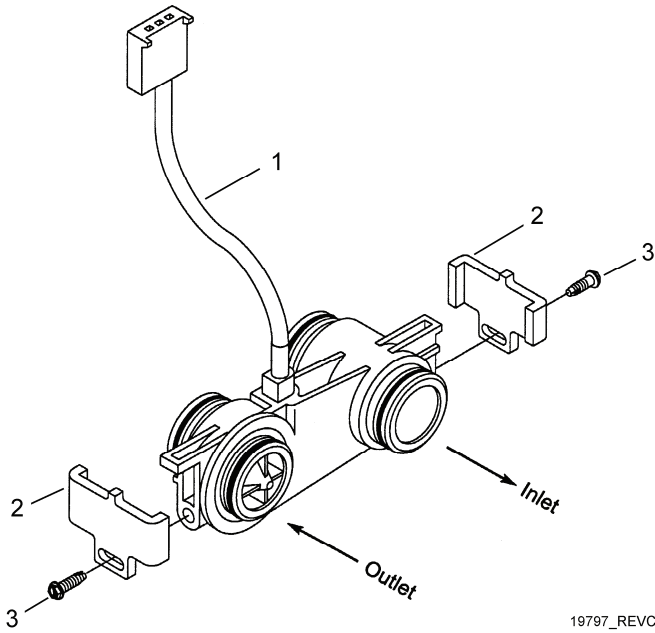
W110 Control Valve Assembly Downflow/Upflow



Item No.	QTY	Part No.	Description	Item No.	QTY	Part No.	Description
1	1	61857-20	Valve Body Assy, Mixing, Downflow/Upflow (Includes Items 9, 10, 11 and 12)	.....60705-08	1	DLFC, Plastic, 0.80 gpm
2	1	18271	Screen Injector, 5000	.....60705-10	1	DLFC, Plastic, 1.0 gpm
3	1	40064	Seal Injector	.....60705-12	1	DLFC, Plastic, 1.2 gpm
4	1	18277	Cap Injector	.....60705-13	1	DLFC, Plastic, 1.3 gpm
		18278-20	Injector Cap Assy, 1610 Regulated, 5000, 20 psi, Black, Upflow	.....60705-15	1	DLFC, Plastic, 1.5 gpm
		18278-30	Injector Cap Assy, 1610 Regulated, 5000, 30 psi, Black, Upflow	.....60705-17	1	DLFC, Plastic, 1.7 gpm
5	2	18262	Screw, Hex Washer Head, #10-24 x 1.00	.....60705-20	1	DLFC, Plastic, 2.0 gpm
6	1	10759	Label, 0.5 gpm 1.5 lbs Salt/Min	.....60705-24	1	DLFC, Plastic, 2.4 gpm
7	1	13333	Label, Injector, Blank	.....60705-30	1	DLFC, Plastic, 3.0 gpm
8	3	18261	Screw, Hex Washer Head, #10-24 0.81	.....60705-35	1	DLFC, Plastic, 3.5 gpm
9	1	13304	O-ring, -121	.....60705-40	1	DLFC, Plastic, 4.0 gpm
10	1	18303-01	O-ring, -336, 560CD	.....60705-45	1	DLFC, Plastic, 4.5 gpm
11	1	18589	Retainer, Tank Seal	.....60705-50	1	DLFC, Plastic, 5.0 gpm
12	1	13030	Retainer, Distributor Tube O-ring	.....60705-60	1	DLFC, Plastic, 6.0 gpm
13	1	18312	Retaining Cup	.....60705-70	1	DLFC, Plastic, 7.0 gpm
14	1	14613	Flow Straightener	.....60706-10	1	DLFC, AC x 3/4"F, 10 gpm
15	1	60628	Meter Assy, Turbine, Electronic	.....60706-12	1	DLFC, AC x 3/4"F, 12 gpm
16		61837	Piston and Seal Kit Assy, Downflow, W110	.....60706-15	1	DLFC, AC x 3/4"F, 15 gpm
		61838	Piston and Seal Kit Assy, Upflow, W110	20		18272-000	Injector Assy, 1610, #000, Brown
17	1	60032	Brine Valve, 4600/5600			18272-00	Injector Assy, 1610, #00, Violet
18		60022-25	BLFC, 0.25 gpm, 5000/5600/9000			18272-0	Injector Assy, 1610, #0, Red
		60022-50	BLFC, 0.50 gpm, 5000/5600/9000			18272-1	Injector Assy, 1610, #1, White
		60022-100	BLFC, 1.0 gpm, 5000/5600/9000			18272-2	Injector Assy, 1610, #2, Blue
19		60705-00	DLFC, Plastic, Blank			18272-3	Injector Assy, 1610, #3, Yellow
		60705-06	DLFC, Plastic, 0.60 gpm	21		18276-01	Injector Assy, Plug, w/O-rings
				Not Shown:			
						40947-01	Plug, Brine Valve, w/O-ring, 560CD
						13918-01	BLFC Module Plug Assy, w/O-ring

**NOTE: In upflow units, the Injector Plug and Injector Assy are put in the reverse holes.
In filter units, both injector holes are plugged with 18276-01.**

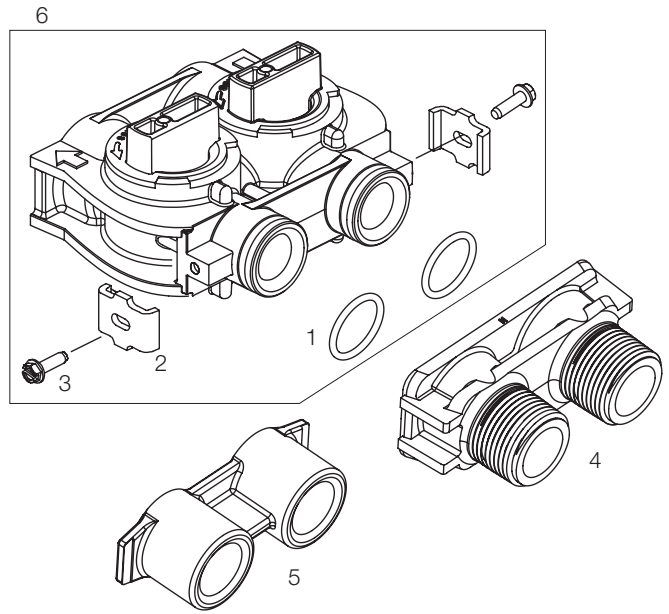
3/4" Plastic Turbine Meter Assembly



19797_REVC

Item No.	QTY	Part No.	Description
1.....	1	19791-01	Meter Cable Assy, Turbine/SXT
2.....	2	19569	Clip, Flow Meter
3.....	2	13314	Screw, Slot Ind Hex, 8-18 x 0.60

Bypass Valve Assembly (Plastic)

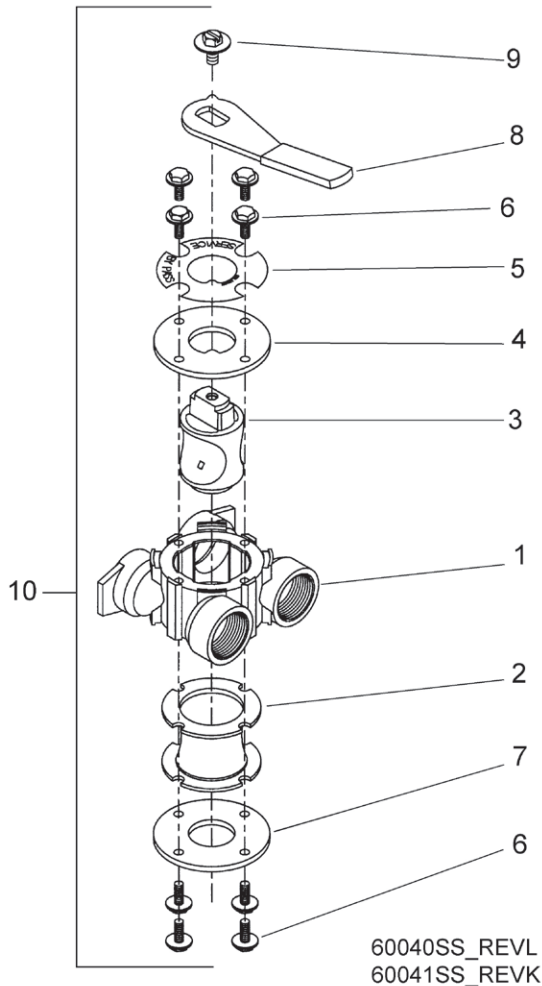


Item No.	QTY	Part No.	Description
1.....	2	13305	O-ring, -119
2.....	2	13255	Clip, Mounting
3.....	2	13314	Screw, Slot Ind Hex, 8-18 x 0.60
4.....	1	18706	Yoke, 1", NPT, Plastic
		18706-02	Yoke, 3/4", NPT, Plastic
5.....	1	13708-40	Yoke, 1", Sweat
		13708-45	Yoke, 3/4", Sweat
		19275	Yoke, Angle 90 Deg, 3/4", NPT
		19275-45	Yoke, Angle 90 Deg, 3/4", Sweat
		19620-01	Yoke, Assy, 3/4", R/Angle 90 Deg, w/O-rings, Clips & Screws
		40636	Yoke, 1-1/4", NPT
		40636-49	Yoke, 1-1/4", Sweat
		41027-01	Yoke, 3/4", NPT, Cast, Machined
		41026-01	Yoke, 1", NPT, Cast, Machined, SS
		41026-02	Yoke, 1", BSP, Cast, Machined, SS
		18706-10	Yoke, 1", BSP, Plastic
		41027-02	Yoke, 3/4", BSP, Cast, Machined
		18706-12	Yoke, 3/4", BSP, Plastic
		19620-01	Yoke Assy, 3/4", R/Angle, 90 Deg
6.....	1	60049	Bypass Plastic

Not Shown:

2	19228-01	Adapter Assy, Coupling, w/O-rings
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Bypass Valve Assembly (Stainless Steel)

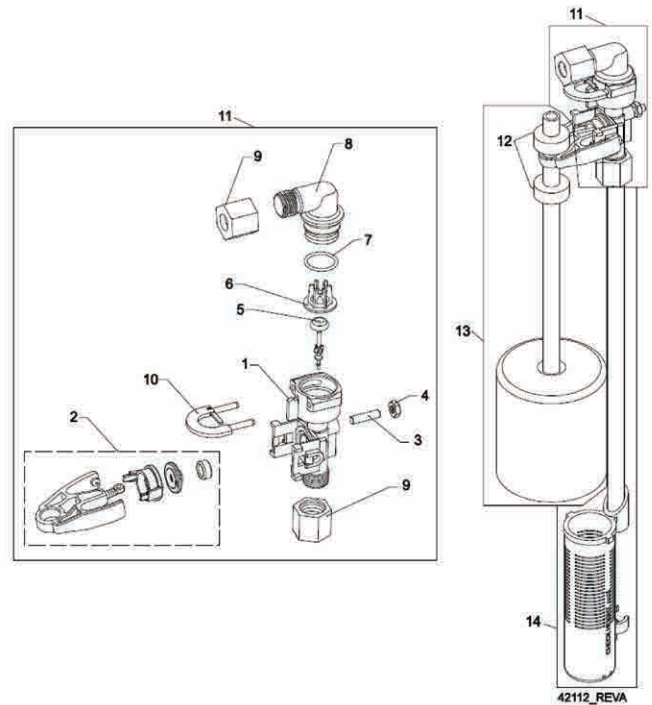


Item No.	QTY	Part No.	Description
1	1	40614	Bypass Body, 3/4"
		40634	Bypass Body, 1", SS
2	1	14105	Seal, Bypass, 560CD
3	1	11972	Plug, Bypass
4	1	11978	Side Cover
5	1	13604-01	Label
6	8	15727	Screw, 10-24 x 0.5"
7	1	11986	Side Cover
8	1	11979	Lever, Bypass
9	1	11989	Screw, Hex Head, 1/4-14 x 1.5"
10	1	60040SS	Bypass Valve, 5600, 3/4" NPT Black Grip Lever, SS
		60041SS	Bypass Valve, 5600, 1" NPT Black Grip Lever, Stainless Steel

Not Shown:

2	1	19228-01	Adapter Assy, Coupling, w/O-rings
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2310 Safety Brine Valve

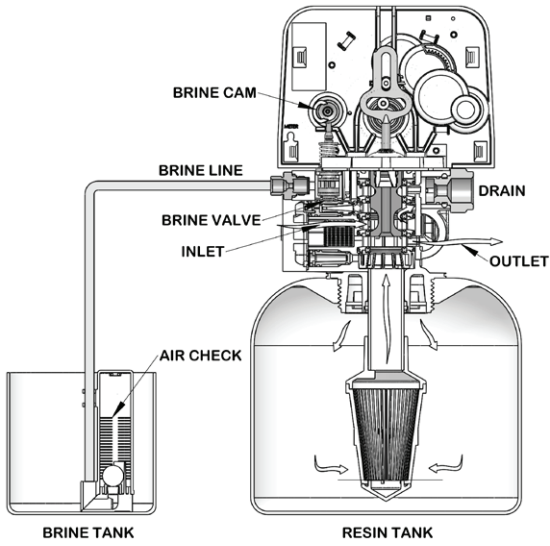


Item No.	QTY	Part No.	Description
1	1	19645	Body, Safety Brine Valve, 2310
2	1	19803	Safety Brine Valve Assy
3	1	19804	Screw, Sckt Hd, Set, 10-24 x 0.75
4	1	19805	Nut, Hex, 10-24, Nylon Black
5	1	19652-01	Poppet Assy, SBV w/O-ring
6	1	19649	Flow Dispenser
7	1	11183	O-ring, -017
8	1	19647	Elbow, Safety Brine Valve
9	2	19625	Nut Assy, 3/8" Plastic
10	1	18312	Retainer, Drain
11	1	60014	Safety Brine Valve Assy, 2310
12	2	10150	Grommet, 0.30 Dia
13	1	60068-8.06	Float Assy, 2310, w/8.06" Rod
		60068-10.5	Float Assy, 2310, w/10.5" Rod
		60068-11.5	Float Assy, 2310, w/11.5" Rod
		60068-20	Float Assy, 2310, w/20" Rod
		60068-30	Float Assy, 2310, w/30" Rod
14	1	60002-10	Air Check, #500, American Hydro
		60002-11.38	Air Check, #500, 11.38" Long
		60002-24	Air Check, #500, 24" Long
		60002-27	Air Check, #500, 27" Long
		60002-32	Air Check, #500, 32" Long
		60002-34	Air Check, #500, 34" Long
		60002-36	Air Check, #500, 36" Long
		60002-48	Air Check, #500, 48" Long
		60002-26.25	Air Check, #500, 26.25" Long
		60002-33.25	Air Check, #500, 33.25" Long

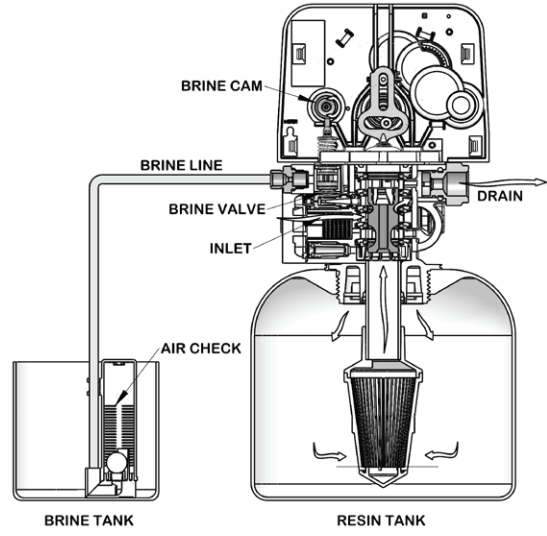
Water Conditioner Flow Diagrams

A. Downflow

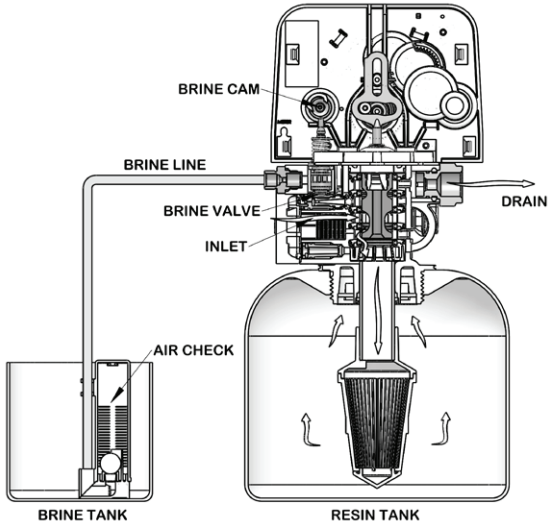
1. Service Position



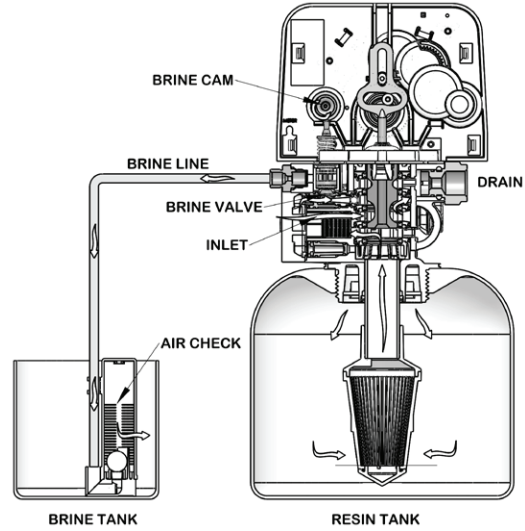
4. Rapid Rinse Position



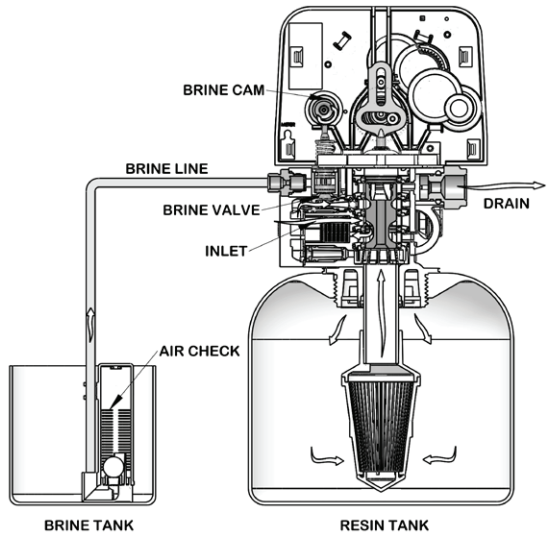
2. Backwash Position



5. Brine Tank Refill Position



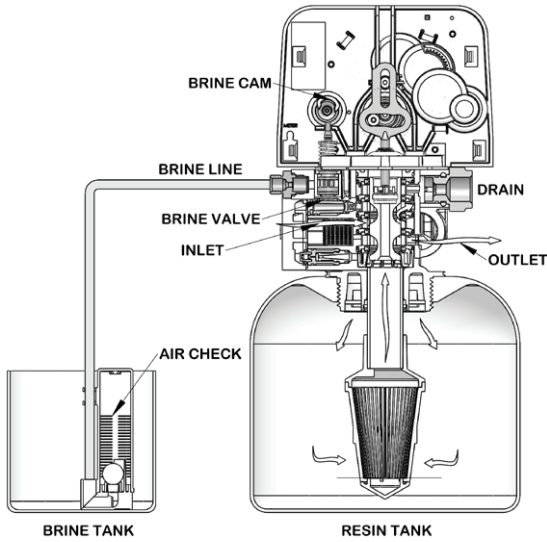
3. Brine/Slow Rinse Position



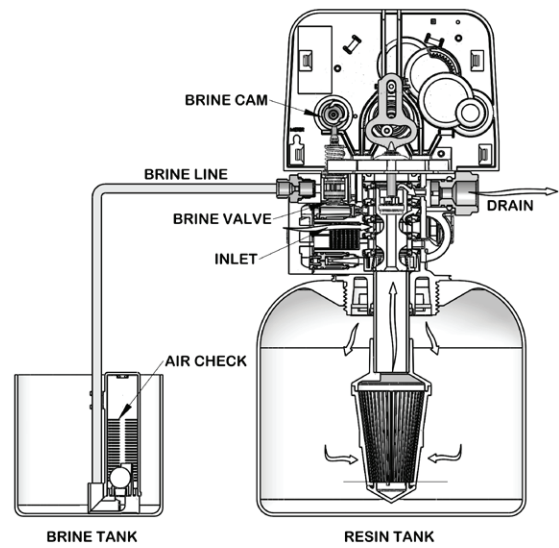
Water Conditioner Flow Diagrams (continued)

B. Upflow

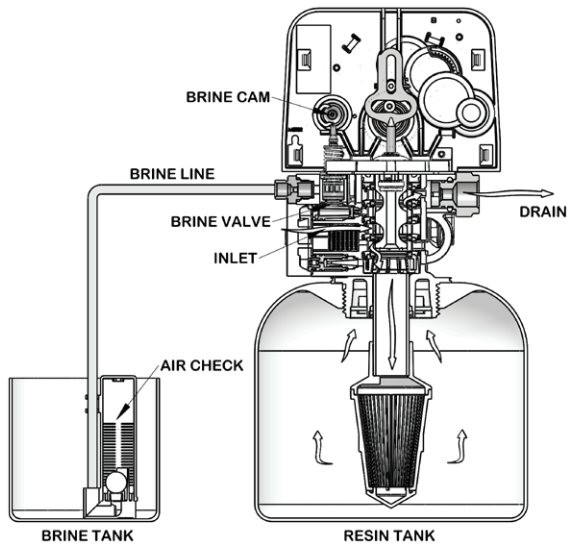
1. Service Position



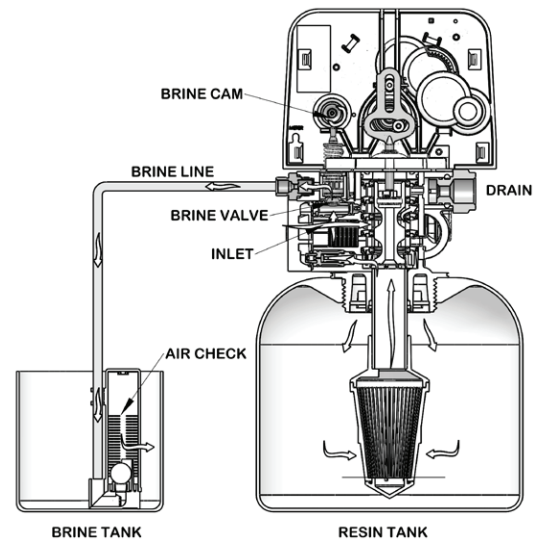
4. Rapid Rinse Position



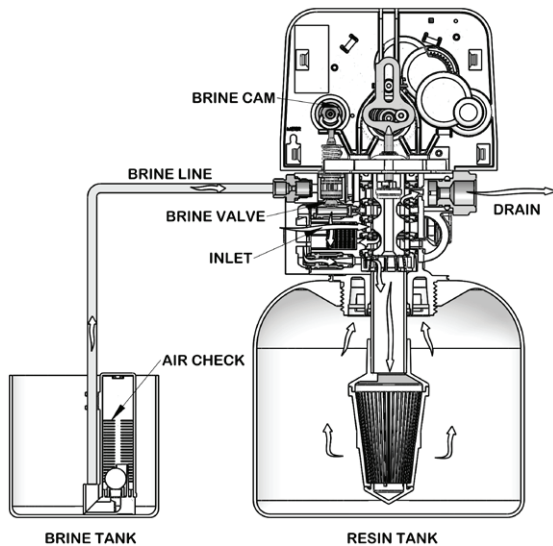
2. Backwash Position



5. Brine Tank Refill Position



3. Brine/Slow Rinse Position



Troubleshooting LXT

Error Codes

NOTE: Error codes appear on the In Service display.

Error Code	Error Type	Cause	Reset and Recovery
0	Motor Stall /Cam Sense Error	No state changes in the optical sensor are detected for 6 seconds.	<p>Unplug the unit and plug it back in. Allow the control to attempt to find position again.</p> <p>Verify the optical sensor is in place with the wires connected to the circuit board. Verify 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.</p> <p>Plug the unit back in and observe its behavior. If the error reoccurs, unplug the unit, put it into bypass and contact technical support.</p>
1	Motor Run-On Error / Cycle Sense Error	An undesired optical sensor state change occurred.	Non-critical error. Extra optical sensor pulse detected. Press any button to clear the error. Press extra cycle button to advance motor to clear error.
2	Regen Failure	The system has not regenerated in 30 days.	<p>Perform a Manual Regeneration to reset the error code.</p> <p>If the system is metered, verify that it is measuring flow by running service water and watching for the flow indicator on the display. If the unit does not measure flow, verify that the meter cable is connected properly and that the meter is functioning properly.</p> <p>Enter Master Programming Mode and verify that the unit is configured as appropriate for the valve configuration. Check that the correct system capacity and meter size has been selected.</p>
4	Fail Safe Error	Valve has failed to find position in one minute.	Unplug the unit and plug it back in. If error continues, call technical support.

Troubleshooting SXT

Error Codes

NOTE: Error codes appear on the In Service display.

Error Code	Error Type	Cause	Reset and Recovery
0	Motor Stall /Cam Sense Error	No state changes in the optical sensor are detected for 6 seconds.	<p>Unplug the unit and plug back in. Allow the control to attempt to find position again.</p> <p>Verify the optical sensor is in place with the wires connected to the circuit board. Verify 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.</p> <p>Plug the unit back in and observe its behavior. If the error reoccurs, unplug the unit, put it into bypass and contact technical support.</p>
1	Motor Run-On Error / Cycle Sense Error	An undesired optical sensor state change occurred.	Non-critical error. Extra optical sensor pulse detected. Press any button to clear the error. Press extra cycle button to advance motor to clear error.
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).	<p>Perform a Manual Regeneration to reset the error code.</p> <p>If the system is metered, verify that it is measuring flow by running service water and watching for the flow indicator on the display. If the unit does not measure flow, verify that the meter cable is connected properly and that the meter is functioning properly.</p> <p>Enter Master Programming Mode and verify that the unit is configured properly. For the valve configuration. Check that the correct system capacity has been selected, that the day override is set properly, and that meter is identified correctly. If the unit is configured as a Day-of-Week system, verify that at least one day is set ON. Correct the setting as necessary.</p>
3	Memory Error	Control board memory failure.	Perform a Master Reset and reconfigure the system via Master Programming Mode. After reconfiguring the system, step the valve through a manual regeneration. If error continues, call technical support.
4	Fail Safe Error	Valve has failed to find position in one minute.	Unplug the unit and plug it back in. If error continues, call technical support.

Job Specification Sheet

Job Number:

Model Number:

Water Hardness: ppm or gpg

Capacity Per Unit:

Mineral Tank Size: Diameter: Height:

Salt Setting per Regeneration:

Regenerant Flow: Upflow Downflow

1. Meter Size:

- A. 3/4" Paddle Wheel (Not Used)
- B. 3/4" Turbine
- C. 1" Paddle Wheel (Not Used)
- D. 1" Turbine (Not Used)
- E. 1-1/2" Electronic Inline Plastic Turbine (Not Used)
- F. 1-1/2" Paddle Wheel (Not Used)
- G. 2" Paddle Wheel (Not Used)
- H. Generic _____ Pulse Count _____ Meter Size _____

2. System Type:

- A. System #4: 1 Tank, 1 Meter, Immediate, or Delayed Regeneration
- B. System #4: Time Clock

3. Timer Program Settings:

- A. Backwash: _____ Minutes
- B. Brine and Slow Rinse: _____ Minutes
- C. Rapid Rinse: _____ Minutes
- D. Brine Tank Refill: _____ Minutes
- E. Pause Time: _____ Minutes
- F. Second Backwash: _____ Minutes

4. Drain Line Flow Control: _____ gpm

5. Brine Line Flow Control: _____ gpm

6. Injector Size#: _____

NOTES

WARNING: This product contains chemicals known to the State of California to cause cancer and birth defects or other reproductive harm.
For more information: www.watts.com/prop65

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