

MGT 30M–300M

SYSTEM 4 – SINGLE METERED

1" NXT2 SERIES



Standard Image
Equipment appearance may differ.

COMMERCIAL WATER CONDITIONER

INSTALLATION, OPERATION, AND MAINTENANCE MANUAL

COMPLETE FOR FUTURE REFERENCE:

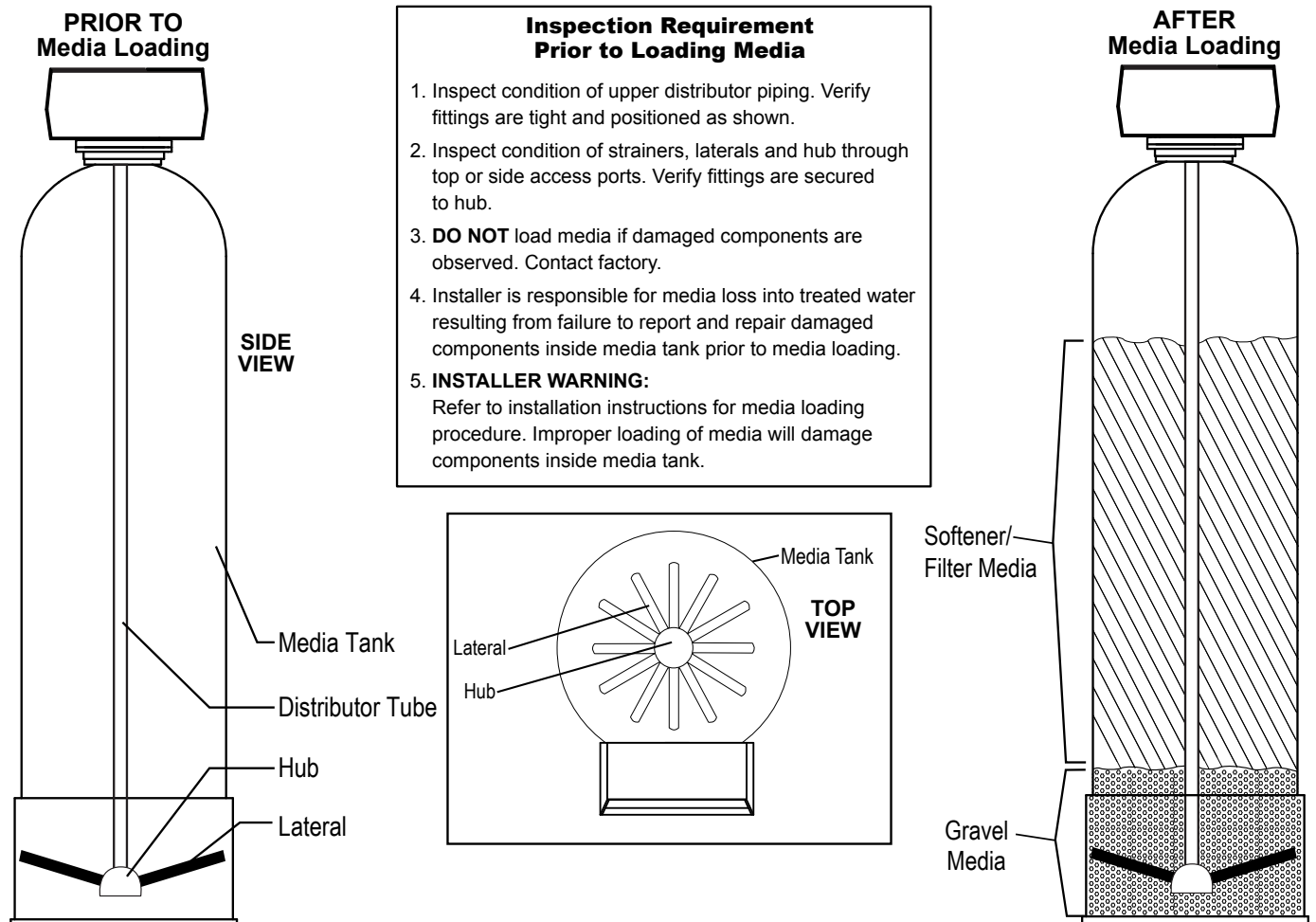
MODEL NO:

SERIAL NO:

DATE INSTALLED:

DEALER:

INSTALLATION WARNING



IMPORTANT PLEASE READ:

- **Warranty of this product extends to manufacturing defects.**
- **The information, specifications and illustrations in this manual are based on the latest information available at the time of printing. The manufacturer reserves the right to make changes at any time without notice.**
- **This product should be installed by a plumbing professional on potable water systems only.**
- **This product must be installed in compliance with all local and state and municipal plumbing and electrical codes. Permits may be required at the time of installation.**

MGT 30M–300M NXT2 1” SINGLE

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MGT 30M–300M NXT2 1” SINGLE SYSTEM INFORMATION

COMMERCIAL AND INDUSTRIAL PRODUCT WARRANTY

Manufacturer warrants all water treatment products manufactured and/or distributed by it to be free from defects in materials and workmanship for a period of one (1) year from installation or 18 months from the date of shipment whichever comes first. Fiberglass pressure vessels are warranted against defects in materials and workmanship for a period of five (5) years from the date of shipment.

If during that period any products shall be proven to the Manufacturer's satisfaction to be defective, those products will be replaced FOB factory or the price refunded at the Manufacturer's option.

Manufacturer's obligations for non-performance, defects, or any damage caused by its products or their use, and buyer's exclusive remedy therefore, shall be limited to product replacement or refund and shall be conditioned upon Manufacturer's receiving written notice together with a demand for such replacement or refund.

The foregoing warranty is exclusive and in lieu of all other expressed or implied warranty (except of title) including but not limited to implied warranty of merchantability and fitness for particular purpose.

Manufacturer will not be subject to and disclaims the following:

1. Any other obligations or liabilities arising out of breach of contract or out of warranty.
2. Any obligations whatsoever arising from tort claims (including negligence and strict liability) or arising under other theories of law with respect to products sold or services rendered by Manufacturer or any undertakings, acts, or omissions relating thereto.
3. All consequential, incidental, and contingent damages.

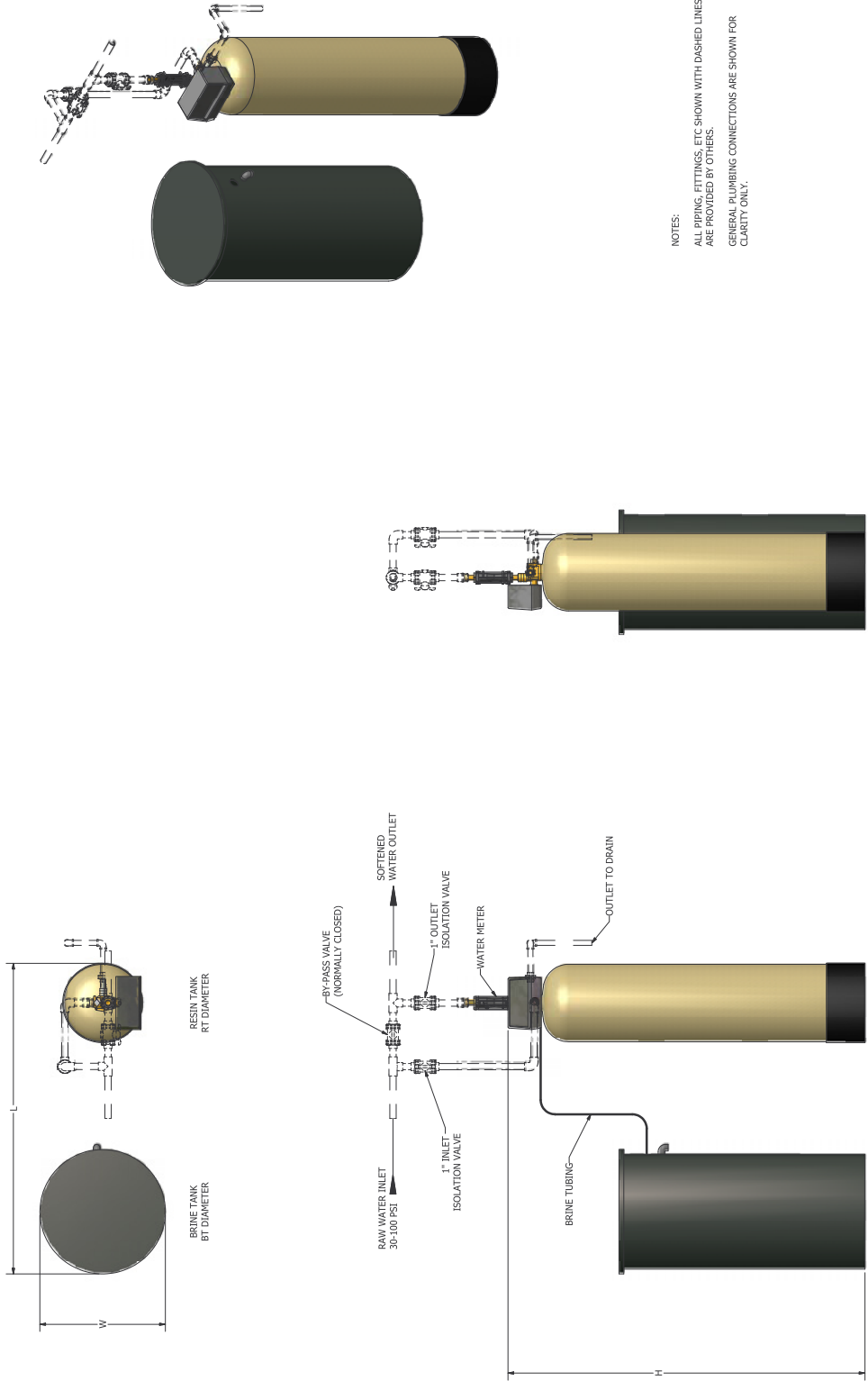
Labor charges, charge backs or handling charges are excluded from Manufacturer's warranty provisions.

COMMERCIAL AND INDUSTRIAL WATER SOFTENER GUARANTEE

Under normal operating conditions:

1. The softener effluent shall be zero soft as determined by a soap test.
2. The loss of softening resin through attrition during the first three (3) years shall not exceed 3% per year.
3. The softening resin shall not be washed out of the system during backwash.
4. The color and turbidity of the softener effluent shall not be greater than the incoming water.

MGT 30M-300M NXT2 1" SINGLE SYSTEM INFORMATION



NOTES:
ALL PIPING, FITTINGS, ETC SHOWN WITH DASHED LINES
ARE PROVIDED BY OTHERS.
GENERAL PLUMBING CONNECTIONS ARE SHOWN FOR
CLARITY ONLY.

FRAC. ±		DEC. ±		FILE ID.		SHEET		OF		REV.	
		MBC		MGT 2750 SINGLE		1		1		0	
APPD.		DATE		DRAWING N		SCALE		NTS		REV.	
		5-9-03								0	

2750 SINGLE SOFTENER GENERAL ARRANGEMENT	
CONTROL VALVE SOFTENER STANDARD	

NO.	DATE	BY	REMARKS

MGT 30M–300M NXT2 1” SINGLE

SYSTEM INFORMATION

DIMENSION CHART

MODEL	INLET SIZE (Inches)	TANK SIZE		LENGTH (Inches)	WIDTH (Inches)	HEIGHT* (Inches)
		SOFTENER (Inches)	BRINE (Inches)			
30	1	9x48	18x33	33	18	48
45	1	10x54	18x40	34	18	62
60	1	12x52	18x40	36	18	60
90	1	14x65	18x40	38	18	73
120	1	16x65	24x40	46	24	73
150	1	18x65	24x50	48	24	74
180	1	21x62	24x50	51	24	71
210	1	21x62	24x50	51	24	71
240	1	24x72	24x50	54	24	81
270	1	24x72	24x50	54	24	81
300	1	24x72	24x50	54	24	81

*Leave a minimum 24 inch clearance to the height of the unit for loading media.
Dimensions are for general arrangement use only.

MGT 30M–300M NXT2 1” SINGLE SYSTEM INFORMATION

SPECIFICATION CHART

SYSTEM SIZE	MODEL	30	45	60	90	120	150	210	240	270	300		
	VALVE SIZE (IN)	1	1	1	1	1	1	1	1	1	1	1	
	MAX CAPACITY (KILOGRAINS)	30	45	60	90	120	150	210	240	270	300		
	MIN CAPACITY (KILOGRAINS)	20	30	40	60	80	100	140	160	180	200		
FLOWRATE (GPM)	CONTINUOUS FLOWRATE (GPM)	14	15	16	17	18	18	18	22	20	18		
	PEAK FLOWRATE (GPM)	19	20	21	22	23	23	23	30	28	26		
	BACKWASH & FAST FLUSH (GPM)	2	3	3.5	5	6	8	12	15	15	15		
	BRINE DRAW & RINSE (GPM)	0.5	1	1	1	1.5	1.5	2.6	3.2	3.2	3.2		
	BRINE TANK REFILL (GPM)	0.5	1	1	1	1	2	2	2.2	2.2	2.2		
TIMER SETTINGS	BACKWASH & FAST FLUSH (MIN)	10	10	10	10	10	10	10	10	10	10		
	BRINE DRAW & RINSE (MIN)	60	60	60	60	60	60	60	60	60	60		
	FAST FLUSH (MIN)	10	10	10	10	10	10	10	10	10	10		
	BRINE TANK REFILL (MIN)	10	8	10	15	20	13	18	20	22	26		
SOFTENER TANK	SIZE (IN)	9x48	10x54	12x52	14x65	16x65	18x65	21x62	24x72	24x72	24x72		
	GRAVEL (LBS)	0	0	0	30	35	40	80	120	120	120		
	RESIN (FT ³)	1	1-1/2	2	3	4	5	7	8	9	10		
	FREEBOARD (IN)	25	25	16	21	21	24	18	30	25	21		
BRINE SYSTEMS	EQUIPMENT	TANK SIZE	18x33	18x40	18x40	18x40	24x40	24x50	24x50	24x50	24x50	24x50	
		MAX SALT STORAGE (LBS)	280	320	320	270	550	630	600	550	500	450	
		INJECTOR CODE	1	3	3	3	4	3C	4C	5C	5C	5C	
		INJECTOR COLOR	WHT	YEL	YEL	YEL	GRN	YEL	GRN	WHT	WHT	WHT	
	MAX	SALT DOSAGE- MAX (LBS)	15	22.5	30	45	60	75	105	120	135	150	
		REFILL TIME - MAX (MIN)	10	8	10	15	20	13	18	20	22	26	
		MIN	SALT DOSAGE- MIN (LBS)	6	12	12	18	24	30	42	48	54	60
			REFILL TIME - MIN (MIN)	4	3	4	6	8	5	7	8	10	10
REGENERATION WASTE VOLUME (GAL)	116	116	126	156	188	228	366	520	536	544			

NOTES:

1. FLOW RATES

Continuous: pressure loss does not exceed 15 psig.

Peak: pressure loss does not exceed 25 psig

Backwash & Flush: maximum flow to drain

Brine & Rinse: Injector flow to drain

Brine Tank Refill: flow to refill Brine Tank

2. SOFTENER TANK

Freeboard: distance in inches from surface of resin to top sealing flange of tank

3. SALT DOSAGE

Maximum 15 lbs./cu.ft. - regeneration efficiency: 2,000 grains/pound of salt (factory setting)

Maximum 6 lbs./cu.ft. - regeneration efficiency: 3,000 grains/pound of salt

4. REGENERATION WASTE VOLUME - Total gallons water discharged per regeneration

5. OPERATING LIMITS:

Minimum operating pressure is 30 psi.

Maximum operating pressure is 120 psi.

Standard units are designed to soften unheated water within the range of 35-100°F.

6. POWER

Power requirements are 120 Volt, 60 Hertz, Single Phase, 2 amps noninterrupted.

7. SALT

Salt specifications are pelletized or solar salt, 99% pure, containing less than 1% insolubles (see Brine Tank Installation on page 8)

MGT 30M–300M NXT2 1” SINGLE INSTALLATION

INSTALLATION INSTRUCTIONS WATER SOFTENERS

GENERAL INFORMATION

1. Operating pressure range is 25-100 psi. If pressures over 100 psi are encountered, a regulator must be installed.

Note: The control valve will not operate correctly if feeding into an atmospheric tank. A pressure control device must be added to the outlet to maintain the minimum pressure.

2. Power requirements are shown on inside cover of the control valve.

3. Standard units are designed to soften unheated water not to exceed 100F. Special valve assemblies are available to handle heated water supplies exceeding 100 F. Consult factory if applicable.

4. Each softener tank is shipped with distributor manifold and control valve preassembled. Take care when uncrating and erecting so that no items are damaged.

5. The distributor assembly has been shipped inside the fiberglass mineral tank. Check to make sure that there is no damage to the riser pipe, baskets, laterals or hub (if applicable).

Note: A prefilter should be used on installations in which free solids are present

LOCATE SOFTENER

1. Select a location that is accessible and near a floor drain that has adequate carrying capacity to handle the softener backwash flow (see specification table).

2. Erect the softener tank(s) on a concrete or other firm foundation and level.

3. Position the brine tank according to the illustration and supplementary brine tank information. Keep the brine tank as close as possible to the softener tank(s).

Note: The distance between the softener and brine tanks will affect the brine injector performance, as the distance increases the injector performance decreases. This may cause an inadequate regeneration. Maximum recommended distance is 5 ft.

4. A grounded electric receptacle is required for the control valves.

MGT 30M-300M NXT2 1" SINGLE INSTALLATION

BRINE TANK INSTALLATION

The brine tank should be installed on a smooth level surface. If none is available, the tank should be placed on a smooth piece of exterior plywood and leveled by placing shims underneath the plywood. Make sure that the salt shelf inside the tank is level and that the brine well is near to vertical as possible. The brine valve float is used as a safety overflow and should be high on the float rod. It is not used to stop the refill. If the float is near the salt shelf, move the float up near the top of the valve.

Note: Brine valve assembly will not sit on bottom of brine tank.

Using the tubing supplied in the brine tank, connect one end to the brine valve in the brine tank ("A") to the brine injector port on the valve ("B"). There should be an insert and enough brine tubing to reach from the brine valve to the control valve. For systems that use a 1600 brine valve, the tubing will be 3/8" OD. For systems that use the 1700 brine valve, the tubing will be 1/2" OD. 18 feet of tubing is included with the system.

After connecting the tubing on both ends, verify that the brine line tubing is not kinked or restricted.

Run flexible tubing (not provided) from the brine tanks over flow fitting to an appropriate, non-elevated, open drain.

Using a bucket or hose, fill brine tank with water to about 2" above salt platform. Do not add salt at this time.

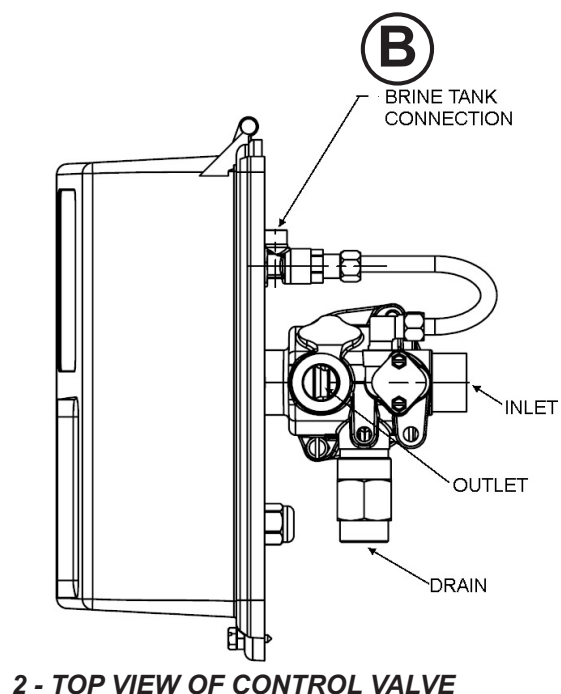
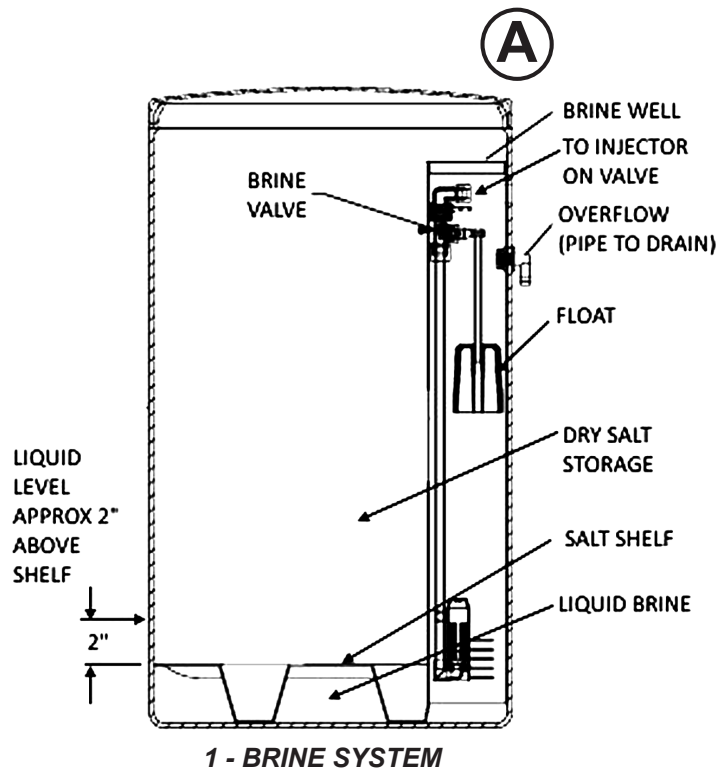
Note:: In the process of making brine for the first regeneration, the solution volume will increase (one gallon of water will be 1.2 gallons of brine). The final level of the liquid will be several inches above the platform.

RECOMMENDED TYPES OF SALT

Only purified salt should be used in the brining system. Palletized salt ("Button", "Nugget", and "Pellet") or block salt (free binders) is recommended. Do not use granulated salt, as it will fall through the platform screen.

Rock salt is not normally recommended. Most rock salt contains sludge-forming insoluble that collect on the platform and prevents proper salt-water contact.

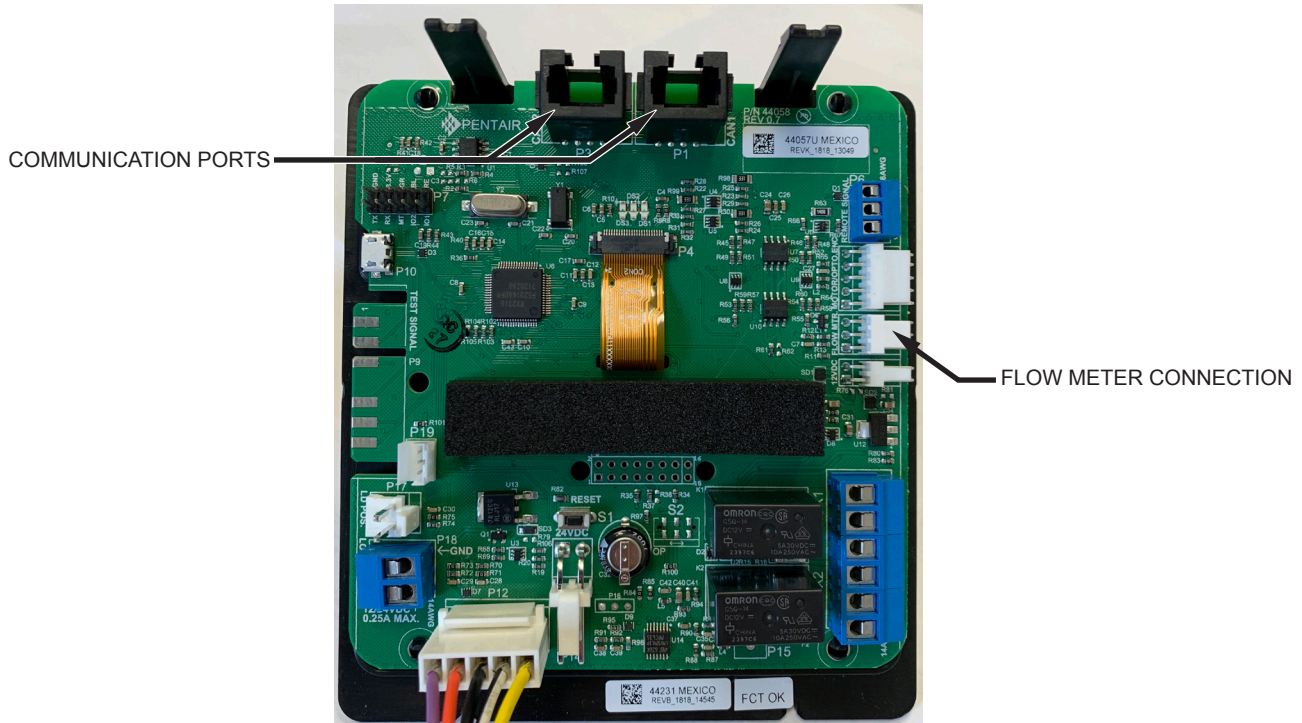
Only salt containing 0.5% or less of insolubles will provide continued satisfactory operation. If salt with more insolubles is used, the brine maker will require periodic cleaning.



MGT 30M-300M NXT2 1" SINGLE INSTALLATION

MOUNTING WATER METER ASSEMBLY (IF UNIT IS NOT SKID MOUNTED)

1. Locate the meter. The meter may or many not have the cable attached. If not, locate the cable as well.
2. The meter must be installed in the outlet of the water softener. Refer to the General Arrangement drawing on page two (2). The water meter has a flow arrow stamped on it. The flow arrow on the meter should be pointing away from the softeners.
3. After installing the meter, insert the meter end of the cable into the meter dome if necessary. Then run the meter cable along the piping back to the unit 1 control valve.
4. Run the cable through a cable grip and into the back of the control and into the controller. Connect the meter cable to the circuit board in the lower right as shown.



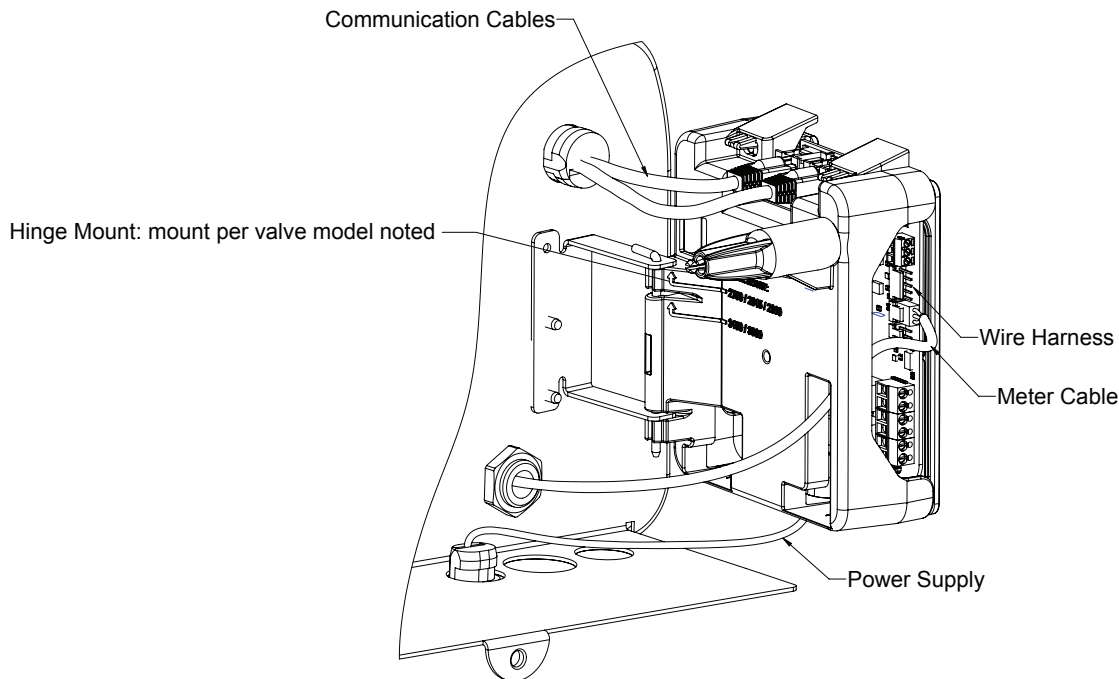
MGT 30M–300M NXT2 1” SINGLE INSTALLATION

POWER SUPPLY INSTALLATION

NOTE: POWER SUPPLY INCLUDES A HARNESS WITH 2 BLACK WIRES THAT CONNECT TO THE CIRCUIT BOARD.

1. Insert black and black transformer wires into 24VDC input of control.

2510/2750/2815/2850/2900 Valves:



INSTALLATION OF CONNECTION PIPING

NOTE:

- Use thread sealing tape on all threaded piping connections.
- Install the piping conforming to federal, provincial, and local codes.
- Union or flanges are recommended at the control valve's inlet, outlet, and drain connections
- To enhance the monitoring of the system's performance sample valves and pressure gauges can be installed at the inlet and outlet piping to each control valve.

Caution: All piping must be properly supported. The tank and valve assemblies are not meant to support the connecting piping.

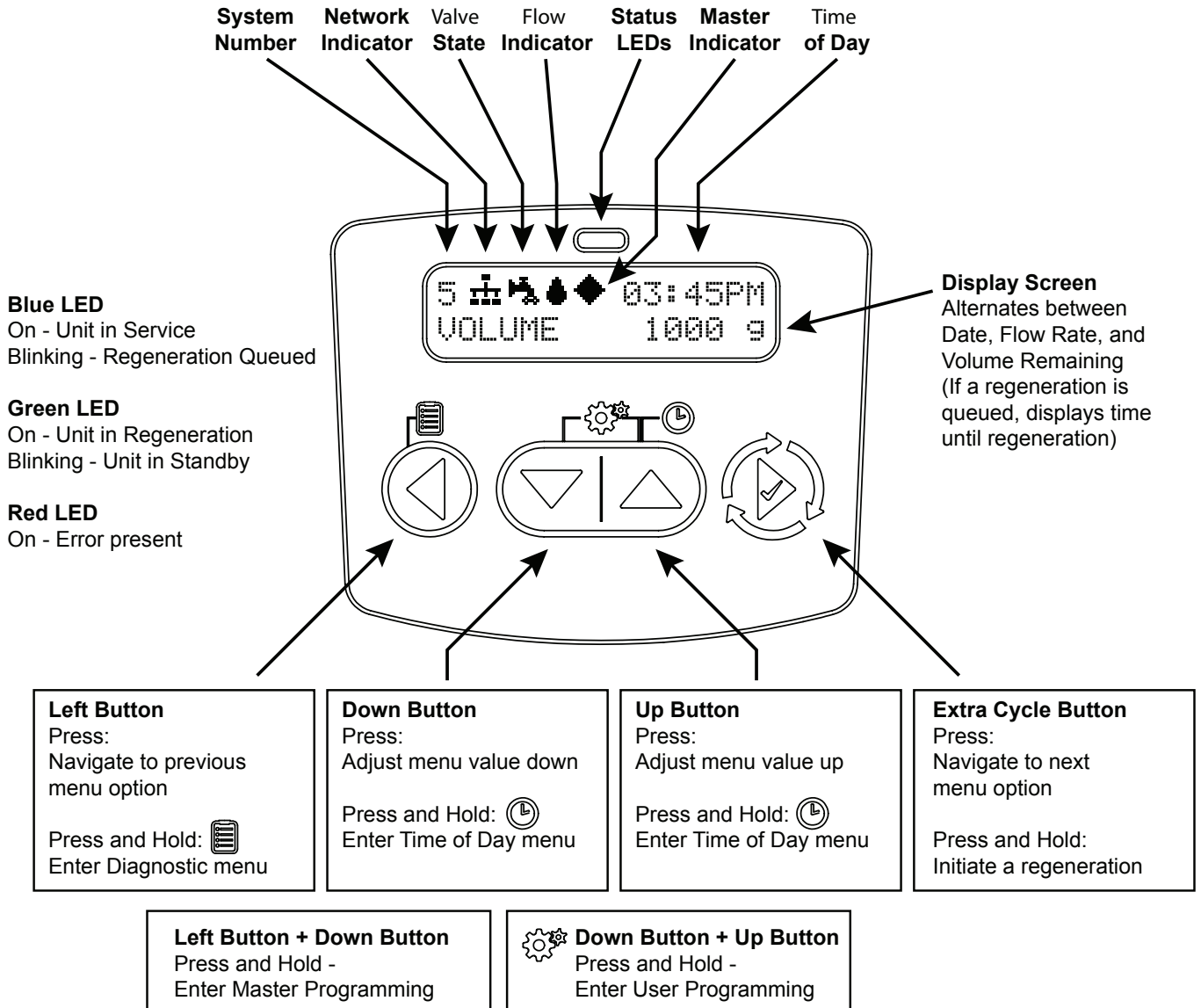
1. Install piping as shown on installation diagram. It is recommended that unions be installed on inlet and outlet connections to facilitate service of unit. Be sure piping is free of thread chips and other foreign matter. The connecting piping should be the same size or larger than the service inlet and outlet of the control valve. On multiple units that are both in service at the same time the common service inlet and outlet headers should be up-sized to accommodate the total flow
2. Verify that the flow arrow stamped on the brass flow controller is pointing away from the control valve. See installation diagram or valve manual for the location. Install a drain line from backwash control assembly to an appropriate drain using a minimum of elbows. Install a union near the backwash control to facilitate cleaning. Do not install a valve on the drain line.

NOTE:

- If distance of drain line is over a 10 ft. vertical or 25 ft. horizontal run, increase drain line one pipe size over that provided on the control valve.
- Do not make a direct connection to the drain. Provide an air gap of at least four times the diameter of the pipe to conform to sanitation codes and to permit observation of the flow.
- It is not recommended that an overhead or a long horizontal drain run be used. The increase of backpressure will cause problems when drawing brine.

MGT 30M-300M NXT2 1" SINGLE OPERATION

TIMER DISPLAY FEATURES



Display Icons

- | | | | |
|--|----------------------------------|--|-------------------------|
| | Valve State: Service | | Lock Window |
| | Valve State: Standby | | Initializing |
| | Flow Indicator (flashing) | | Upper Drive Movement |
| | Regeneration | | Lower Drive Movement |
| | Master Unit (auto-assigned) | | Remote Regeneration |
| | Network Indicator - Connected | | Master Programming |
| | Network Indicator - Disconnected | | User Programming |
| | Network Indicator - Unit Missing | | Diagnostics |
| | USB Connected (Field Programmer) | | Time of Day Programming |
| | Error Condition Present | | |
| | Remote Lock | | |

MGT 30M–300M NXT2 1” SINGLE OPERATION

SYSTEM OPERATION

System 4 Single Unit

Single Tank configuration

Time Clock: No Meter

Immediate: One Meter

Delayed: One Meter

Remote Signal Start

TIMER OPERATION

TIMER OPERATION DURING PROGRAMMING

The timer enters the Program Mode in standby or service mode as long as it is not in regeneration. While in the Program Mode the timer continues to operate normally monitoring water usage. Timer programming is stored in memory permanently.

TIMER OPERATION DURING A POWER FAILURE

All program settings are stored in permanent memory. Current valve position, cycle step time elapsed, and time of day are stored during a power failure, and will be restored upon power re-application. Time is kept during a power failure, and time of day is adjusted upon power up (as long as power is restored within 12 hours).

NOTE:

The time of day on the main display screen will flash for 5 minutes when there has been a power outage. The flashing of the time of day can be stopped by pressing any button on the display.

REMOTE LOCKOUT

The timer does not allow the unit/system to go into Regeneration until the Regeneration Lockout Input signal to the unit is cleared. This requires a contact closure to activate the unit. The recommended gauge wire is 16 AWG with a maximum wire length run of 50 feet.

REGENERATION DAY OVERRIDE FEATURE

If the Day Override option is turned on and the valve reaches the set Regeneration Day Override value, the Regeneration Cycle starts if no other unit is in Regeneration. If other units are in regeneration, it is added to a regeneration queue. This occurs regardless of the remaining volume available.

FLOW METER EQUIPPED TIMER

As treated water is used, the Volume Remaining display counts down from the calculated system capacity to zero. When zero is reached, a Regeneration Cycle begins if no other units are in regeneration.

MGT 30M-300M NXT2 1" SINGLE OPERATION

TIMER OPERATION

SETTING THE TIME OF DAY

NOTE: Set Time of Day on any unit and the rest of the units in the system will update the Time of Day automatically.

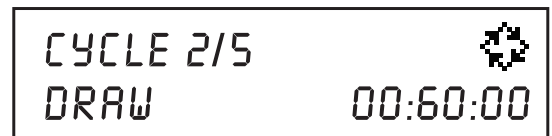
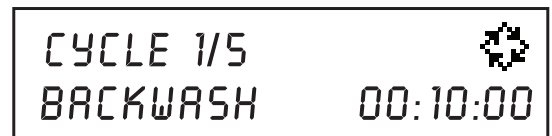
1. Press and hold the Up button for 2 seconds. The "Time" value is displayed. Press the Up or Down buttons to adjust as desired.
2. Press the Extra Cycle button to advance to the "Year" field. Press the Up or Down buttons to adjust as desired.
3. Press the Extra Cycle button to advance to the "Month" field. Press the Up or Down buttons to adjust as desired.
4. Press the Extra Cycle button to advance to the "Calendar Day" field. Press the Up or Down buttons to adjust as desired.
5. Press the Extra Cycle button to return to the normal display screen.

NOTE: Press and hold the Left button to exit without saving.

MANUALLY INITIATING A REGENERATION

1. When timer is In Service or Standby, press and hold the Extra Cycle button on the main screen.
2. The timer advances to Regeneration Cycle Step #1, and begins programmed time count down.
3. Press the Extra Cycle button once to advance valve to Regeneration Cycle Step #2 (if active).
4. Press the Extra Cycle button once to advance valve to Regeneration Cycle Step #3 (if active).
5. Press the Extra Cycle button once to advance valve to Regeneration Cycle Step #4 (if active).
6. Press the Extra Cycle button once to advance valve to Regeneration Cycle Step #5 (if active).
7. Press the Extra Cycle button once more to advance the valve back to In Service.

NOTE: A manually initiated or queued regeneration can be cleared by pressing and holding the Back button. A system queued regeneration can only be cleared by stepping through a manual regeneration. If regeneration occurs for any reason prior to the delayed regeneration time, the manual regeneration request shall be cleared. Pressing the Extra Cycle button while in regeneration will cause the upper drive to advance to the next step immediately.



In the Regeneration Cycle step display, the timer shows the current regeneration cycle name the valve is in, or has reached, and the time remaining in that step. Once all regeneration steps are complete, the timer returns to In Service and resumes normal operation.



Press the Extra Cycle button during a system queued Regeneration Cycle to immediately advance the valve to the next cycle step position and resume normal step timing.

LOCK SETTINGS (ACCESS TO MASTER PROGRAMMING)

Lock Settings prevents the user from accessing Master Programming. In Master Programming, select the desired Lock Settings option (Off, Time Based, Delayed, or Enter Code).

Time Based - User must set clock to 12:01 pm to unlock

Delayed - User must press and hold the Left and Down buttons for 60 continuous seconds to unlock

Enter Code - User must input code "1201" to unlock

SETTINGS REVIEW

To prevent unintentional changes to Master Programming, enable Settings Review to view and navigate through Master Programming settings without the ability to edit.

MGT 30M–300M NXT2 1” SINGLE OPERATION

START-UP PROCEDURES

Again, make sure all plumbing is complete and tight, including drain line and brine line. Make sure all electrical components, including the communication cables (multi tank systems only) are properly installed and connected.

1. Using a bucket or hose, fill brine tank with water to 2” above salt platform. Do not add salt at this time.
2. Make sure inlet and outlet isolation valves are closed, and then turn on power to the system.

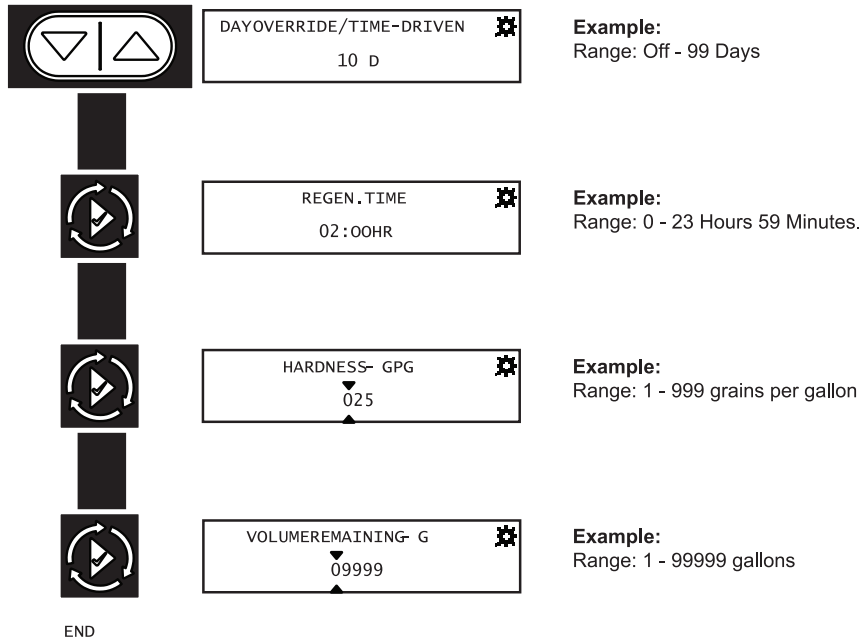
Note: Start up only one (1) tank at a time.

3. Open the manual bypass valve. The manual inlet and outlet valves are to remain closed.
4. Connect electrical power to the control valve by plugging in the valve. Once the valve is powered it will drive to the service position. The LED light should be blue.
5. Program the NXT2 controller. The water hardness, day override, time of regeneration, and time of day will need to be set on site to the desired settings. (Refer to the User Mode Programming section of the manual.) The softener settings are pre-programmed at the factory. Instructions for changing these settings are in the Master Programming Guide section.
6. Manually initiate a regeneration by pressing and holding the Extra Cycle button on the NXT2 controller.
7. The LED light on the NXT2 timer should change from Blue indicating the unit is In Service color to Green indicating the unit is in Regeneration.
8. Slowly open the manual inlet supply valve of the unit that is in backwash. Do not open the valve fully. Water will enter from the bottom of the mineral tank as air is expelled from the top to the drain. Full flow of water could cause loss of mineral. Continue to fill slowly until all air is expelled and only water flows to the drain.
9. When only water flows to the drain, open the inlet valve fully and backwash the unit until the water looks clean when caught in a container.
10. Press the Extra Cycle push button to advance the valve to the Brine/Rinse position.
11. While the unit is in the brine/rinse position, check the level in the brine tank. The level should be dropping at a slow rate (approximately 2” per minute). Allow the level to drop until the air check valve closes.
12. Press the Extra Cycle push button to advance the valve to the Fast Flush position. Allow the water to flow to the drain until clear.
13. Press the Extra Cycle push button to advance the valve to the Brine Tank Refill position. Allow the brine tank to fill with water for the duration of the step. The water level should be 1”-2” inches above the salt platform.
14. Press the Extra Cycle push button to advance the valve to the Service/Standby position.
15. If applicable repeat steps 3 - 13 for the other unit(s).
16. Fill the brine tank with the proper amount and type of salt recommended for use with the system.
17. Close the manual bypass valve and open all outlet valves fully. The system is now in service.

MGT 30M-300M NXT2 1" SINGLE OPERATION

USER MODE PROGRAMMING FLOW CHART

1. To navigate, press the Extra Cycle button to advance to the next value. Press the Left button to retreat to the previous value.
2. Where applicable, use the Up and Down buttons to adjust a value as desired.
3. After progressing through all available values, the timer will return to Normal operation.
4. Depending on the current controller programming, certain values may not be able to be viewed or set.
5. The timer will display local information, not system information.



1. Enter User Mode

Press and hold the Up and Down buttons for 3 seconds.

2. Set Regeneration Day Override/Time Driven

To turn on and set the days, press the Up or Down button. Range is OFF to 99 days. Press the Extra Cycle button to proceed to the next step.

3. Set Regeneration Time

Press the Up and Down buttons to change the time value. Holding a button down will speed through the setting. Press the Extra Cycle button to proceed to the next step.

4. Set Feed Water Hardness

Press the Up and Down buttons to change the value of the numbers. Press the Extra Cycle button to proceed to the next number. Range is 0-999 gpg. After the third number is entered, pressing the Extra Cycle button will continue to the next step.

NOTE: Only displayed when a metered option is chosen under System Type.

5. Set Volume Remaining

Press the Up and Down buttons to change the value of the numbers. Press the Extra Cycle button to proceed to the next number. Range is 0-99,999 gallons. After the last number is entered, pressing the Extra Cycle button will end User Mode.

To exit user mode, progress through all available values, or press and hold the Left button at anytime, or after 5 minutes of inactivity the timer will return to normal operation automatically.

6. End of User Programming Mode

MGT 30M–300M NXT2 1” SINGLE OPERATION

BATCH SIZE CALCULATION

Batch size is the term used for the amount of water being softened by the water softener between regenerations. The NXT2 controller calculates this value automatically based on the values in the program. This is a simple calculation provided two pieces of information are known:

Capacity of the water softener in grains (gr.)
(i.e. MGT-300 has 300,000 grains capacity per tank).
Hardness of the raw water being treated by the water softener.

BATCH SIZE EQUATION:

$$\text{Batch Size} = \frac{\text{Grain Capacity of Softener}}{\text{Hardness of Water (grains per gallon)}}$$

SAMPLE CALCULATION

Assume:

Unit is a model MGT-300 softener
The hardness of the water was measured to be 20 grains per gallon

Using our equation take $300,000 \div 20 = 15,000$ gallons.
10% Safety factor - reserve capacity = 1,500 gallons.
 $15,000 \text{ gallons} - 1,500 \text{ gallons} = 13,500 \text{ gallons (batch size)}$

For immediate regeneration type meter control the meter setting would be at 15,000 gallons. Commonly this value is adjusted to 90 percent of the actual value (in this example 13,500 gallons) to assure not over-running the softener.

NOTE:

For meter delayed options, the batch size is determined as in our example, except an additional amount of gallons must be accounted for and deducted from the total to allow soft water to be available until the softener regenerates at the selected delay time of day or night. This compensation is necessary since the meter will indicate regeneration required time prior to the set delay time. This can be accomplished on the NXT2 timer by increasing the safety factor in the **Master Programming** mode.

MGT 30M-300M NXT2 1" SINGLE OPERATION

DIAGNOSTIC MODE FLOW CHART

Entering Diagnostic Mode:

1. Press and hold the Left button to enter Diagnostic Programming mode.
2. To navigate, press the Extra Cycle button to advance to the next value. Press the Left button to retreat to the previous value.
3. To reset/clear a value (such as Totalizer or Error Log), while on the value, press and hold the Up and Down buttons simultaneously.
5. After progressing through all available values, the timer will return to Normal operation.
6. To exit diagnostic mode, press and hold the Left button at anytime or after 5 minutes of inactivity the timer will return to normal operation automatically.
7. Depending on the current controller programming, certain values may not be able to be viewed or set.
8. The timer will display local information, not system information.
9. In the event of a regeneration occurring while displaying diagnostics, the regeneration step and time remaining will be displayed. When regeneration has been completed, the display will return to the main screen.



MGT 30M-300M NXT2 1" SINGLE OPERATION

MASTER PROGRAMMING MODE FLOW CHART

NOTE: Depending on current option settings, some displays cannot be viewed or set.

Master Programming Mode:

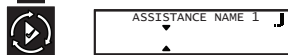
1. Press and hold the Left and Down buttons simultaneously for 3 seconds to enter Master Programming mode.
2. To navigate, press the Extra Cycle button to advance to the next value. Press the Left button to retreat to the previous value.
3. Where applicable, use the Down and Up buttons to adjust a value as desired. When entering data into text fields (such as Assistance Name) or numerical fields (such as Hardness), press the Extra Cycle button to advance to the next character/digit and press the Left button to retreat to the previous character/digit. Proceed through all available characters/digits to advance to the next value.
4. To reset/clear a value (such as Assistance Name), while on the value, press and hold the Down and Up buttons simultaneously for 5 seconds.
5. To exit master programming mode, progress through all available values or after 5 minutes of inactivity the timer will exit automatically. To exit master programming without saving changes, press the Left button until you return to the service screen.
6. Depending on the current controller programming, certain values may not be able to be viewed or set.
7. The timer will display local information, not system information.
8. In the event of a regeneration occurring while displaying master programming, the regeneration step and time remaining will be displayed. When regeneration has been completed, the display will return to the main screen.
9. If any values are changed, make sure Push Settings is set to ON so the values are pushed to the other unit(s).



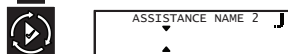
Example:
On: View settings without the ability to alter settings.
Off: User has ability to alter settings.



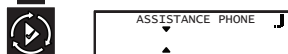
Example:
English, Francais, Duetsch, Italiano, Espanol, Nederlandse, Portugues



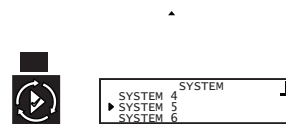
Example:
12 characters maximum.



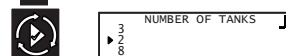
Example:
12 characters maximum.



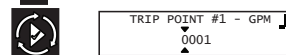
Example:
14 characters maximum.



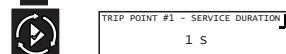
Example:
4, 5, 6, 7, 8, 9, 14



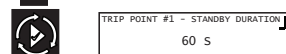
Example:
2, 3, 4, 5, 6, 7, 8



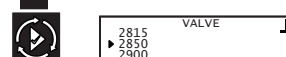
Example:
Trip Points only available/visible when System Type 14 is selected.



Example:
Range: 1-90 seconds



Example:
Range: 60-300 seconds



Example:
2510, 2750, 2815, 2900, 3150, 3900



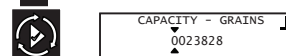
Example:
Upflow
Downflow
Filter



Example:
Softener Meter Delayed
Softener Meter Immediate
Time Clock
Day of the Week.



Example:
Metric
US



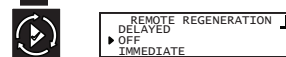
Example:
Range: 0-9,999,999 grains



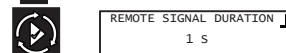
Example:
Range: 0-199 GPG



Example:
Fixed Volume
Weekly Reserve
Variable Reserve
Fixed %



Example:
Off, Immediate, Delayed



Example:
Range:
1-90 seconds (Service)
60-300 seconds (Standby)



Example:
Range: Off - 99 Days



Example:
Range: 0 - 23 Hours 59 Minutes.

MGT 30M-300M NXT2 1" SINGLE OPERATION

MASTER PROGRAMMING MODE FLOW CHART

	LOCK WINDOW #1 ON OFF	Example: Start Lock Window End Lock Window
	BACKWASH 10 M	Example: Range: 0 - 240 M
	DRAW 60 M	Example: Range: 0 - 240 M
	RAPID RINSE 10 M	Example: Range: 0 - 240 M
	TANK REFILL 12 M	Example: Range: 0 - 240 M
	PAUSE 0 M	Example: Range: 0 - 240 M
	METER TYPE 0.75" TURBINE 1.00" PADDLE 1.00" TURBINE	Example: Paddle (0.75", 1", 1.5", 2", 3") Turbine (0.75", 1.25", 1.5") Generic
	CONTINUOUS FLOW DETECT ON OFF	Example: Range: 0.1 to 999.9 gpm/Lpm
	AUXILIARY 1 STANDBY OFF ALARM BASED	Example: Off, Alarm Based, Cycle Based, Time Based, Volume Based, Standby
	AUXILIARY 2 STANDBY OFF ALARM BASED	Example: Off, Alarm Based, Cycle Based, Time Based, Volume Based, Standby
	PUSH SETTINGS OFF ON	
	SAVE AS NON-FACTORY ON OFF	
	LOCK SETTINGS TIME BASED OFF DELAYED	Example: Off, Delayed, Enter Code, Time Based

END

K-FACTOR TABLE - SIGNET 2536
(Pulses per Gallon)

PIPE SIZE (inches)	GENERIC FLOW METER SETTINGS		
	TEE GALVANIZED	TEE PVC	SADDLE IRON
1	213	352	
1-1/4	128	177	
1-1/2	94	118	
2	59	67	54
2-1/2		43	38
3		27	23

AUTO TURBINE METER

METER SIZE	K-FACTOR
1	65
2	15

CLACK METER

METER SIZE	K-FACTOR
1-1/2	37
2	20
3	8

MGT 30M–300M NXT2 1” SINGLE OPERATION

MASTER PROGRAMMING - SINGLE (SYSTEM 4)

STEP	FACTORY SETTING	RANGE
SETTINGS REVIEW	OFF	On-Off
LANGUAGE	ENGLISH	English, Francais, Deutsch, Italiano, Espanol, Nederlands, Portugues
ASSISTANCE NAME 1	ENTERED BY DEALER	
ASSISTANCE NAME 2	ENTERED BY DEALER	
ASSISTANCE PHONE	ENTERED BY DEALER	
SYSTEM	System 4 (Single Unit)	System 4 (Single Unit) System 5 (2-8 Units) Parallel Interlock System 6 (2-8 Units) Parallel Series Regeneration System 7 (2 Units) Alternating (I) System 8 (2 Units) Alternating (D) System 9 (2-8 Units) Alternating with Stanby Uni System 14 (2-8 Units) Demand Recall
VALVE	2750	2815, 2510, 2750, 2850, 2900, 3150, 3900
REGEN. FLOW	Downflow	Filter Downflow
UNITS	US	US, Metric
CAPACITY - GRAINS*	see data table*	0-9,999,999 Grains
HARDNESS - GPG	ENTERED BY DEALER	0-199 gpg
REMOTE REGENERATION	Off	Off Delayed Immediate
DAY OVERRIDE/TIME DRIVEN	7	Off - 99 Days
REGEN. TIME	02:00AM	Any Time
LOCK WINDOW #1	Off	Off, On
LOCK WINDOW #2	Off	Off, On
BACKWASH	10 M	0-240 Mins
DRAW	60 M	0-240 Mins
RAPID RINSE	10 M	0-240 Mins
REFILL*	see data table*	0-240 Mins
PAUSE	0 M	0-240 Mins
METER TYPE*	see data table*	Generic Paddle (0.75", 1.00", 1.50", 2.00", 3.00") Turbine (0.75", 1.00", 1.25", 1.50")
CONTINUOUS FLOW DETECT	Off	On, Off
AUXILIARY 1	Off	Standby, Off, Alarm Based, Cycle Based, Time Based, Volume Based
AUXILIARY 2	Off	Standby, Off, Alarm Based, Cycle Based, Time Based, Volume Based
PUSH SETTINGS ¹	Off	On, Off
SAVE AS NON-FACTORY ²	On	On, Off
LOCK SETTINGS	Off	Time Based, Off, Delayed, Enter Code

* For settings with an asterisk, consult the data table on page 5.

¹ Used only on multi-tank systems

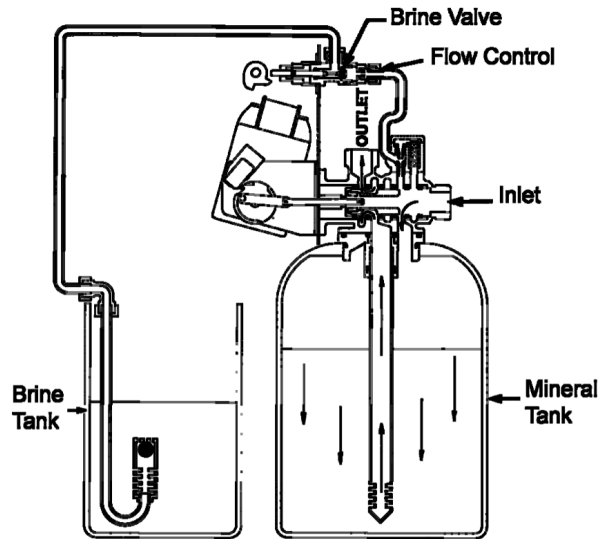
² Use "SAVE AS NON-FACTORY" to save all the programmed settings. When resetting the board, you can choose to reset to factory default settings or the non-factory settings.

MGT 30M-300M NXT2 1" SINGLE OPERATION

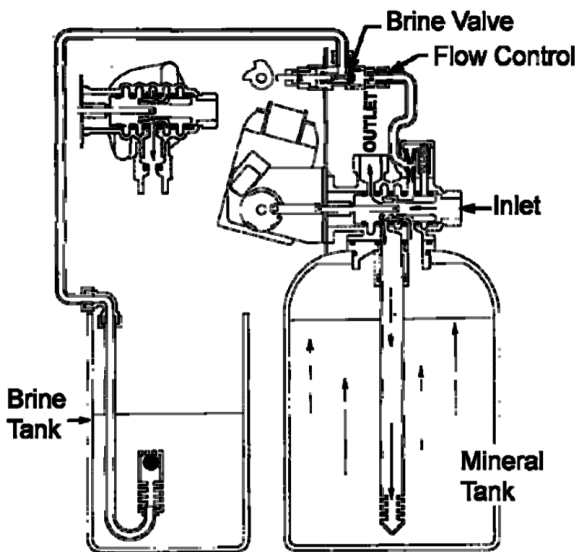
FLOW DIAGRAMS

1. SERVICE POSITION

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

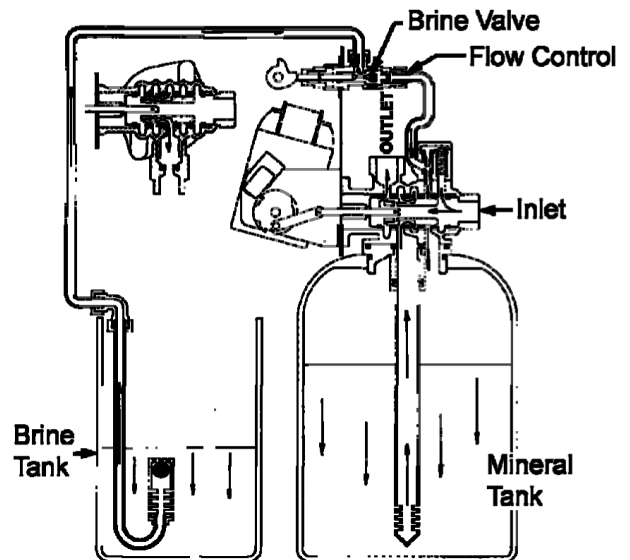


2. BACKWASH POSITION



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.

3. BRINE POSITION



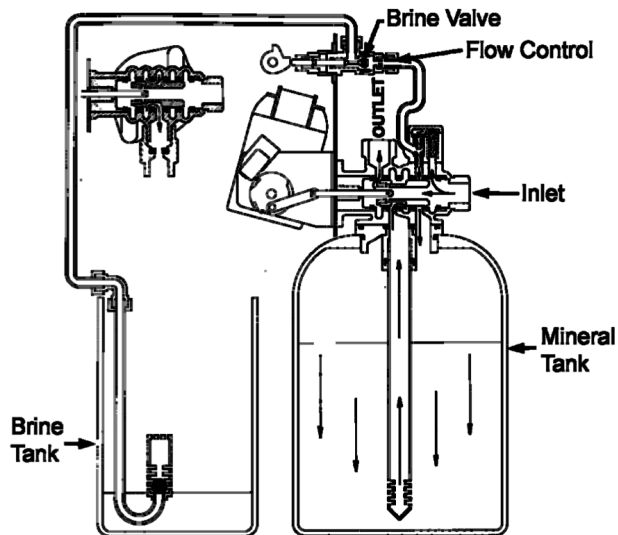
Hard water enters unit at valve inlet, flows up into injector housing and down through nozzle and throat to draw brine from the brine tank, brine flows down through mineral and enters the center tube through bottom distributor and out through the drain line.

MGT 30M-300M NXT2 1" SINGLE OPERATION

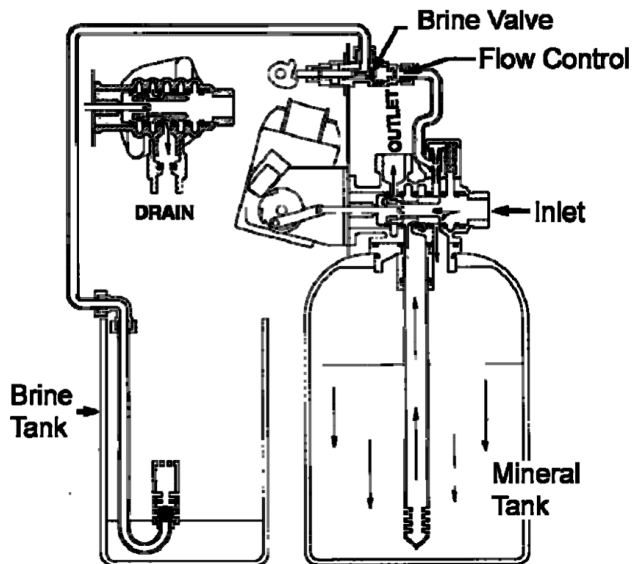
FLOW DIAGRAMS

4. SLOW RINSE 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.

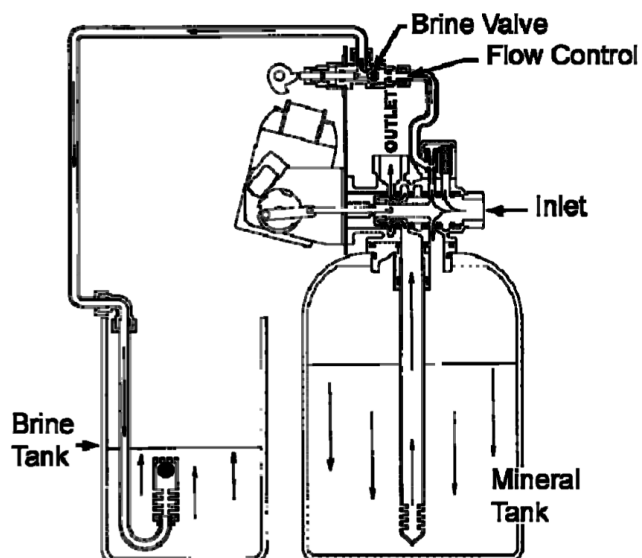


5. RAPID RINSE POSITION



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.

6. BRINE TANK FILL POSITION



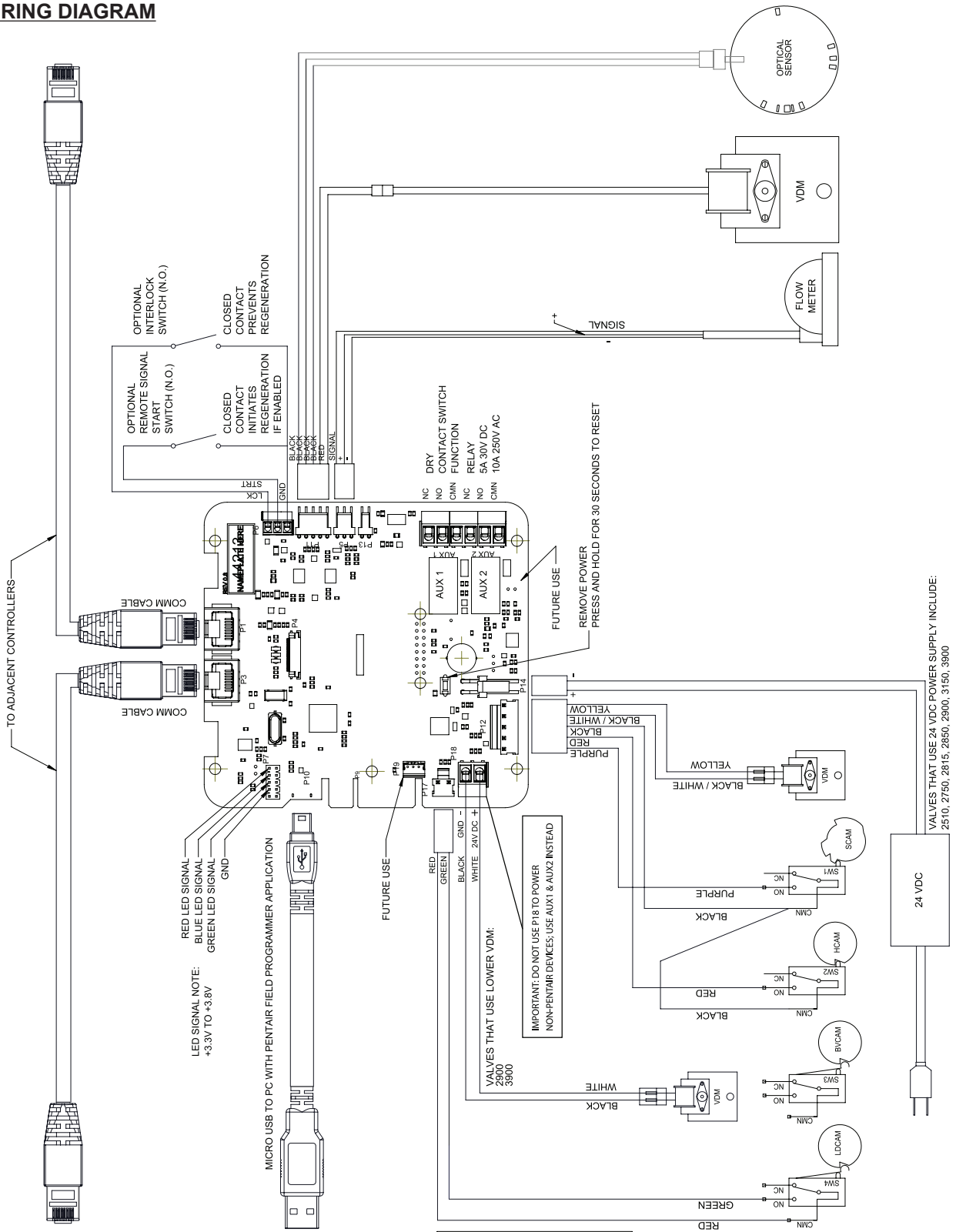
Hard water enters unit at valve inlet, flows up through the injector housing, through the brine valve to refill the brine tank.

MGT 30M-300M NXT2 1" SINGLE MAINTENANCE

NXT2 WIRING DIAGRAM

*WIRING DIAGRAMS ARE REFERENCE ONLY. ALL WIRING SHOULD BE DONE BY A CERTIFIED ELECTRICIAN AND MEET ALL ELECTRICAL CODES.

	FLOW METER (FM) WIRING		
	GROUND (-)	POWER (+)	SIGNAL
FLECK	BLACK	RED	GREEN
SIGNET	SHIELD	BLACK	RED
CLACK	BLACK	RED	WHITE
AUTOTROL	CLEAR	RED	BLACK



- 1/CAM- BRINE VALVE CAM
- M1- COMMON
- ND- GROUND
- CAM- VALVE HOMING CAM
- 2/CAM- LOWER DRIVE CAM
- 3/CAM- LOWER DRIVE LOCK
- 2/R- REMOTE REGEN LOCK
- C- NORMALLY CLOSED
- O- NORMALLY OPEN
- CAMF- VALVE STEP CAM
- TR1- REMOTE REGEN START
- W1- VALVE HOMING SWITCH
- W2- VALVE STEP SWITCH
- W3- BRINE CAM SWITCH
- W4- LOWER DRIVE SWITCH
- DM- VALVE DRIVE MOTOR

IMPORTANT: DO NOT USE P18 TO POWER NON-PENTAIR DEVICES; USE AUX1 & AUX2 INSTEAD

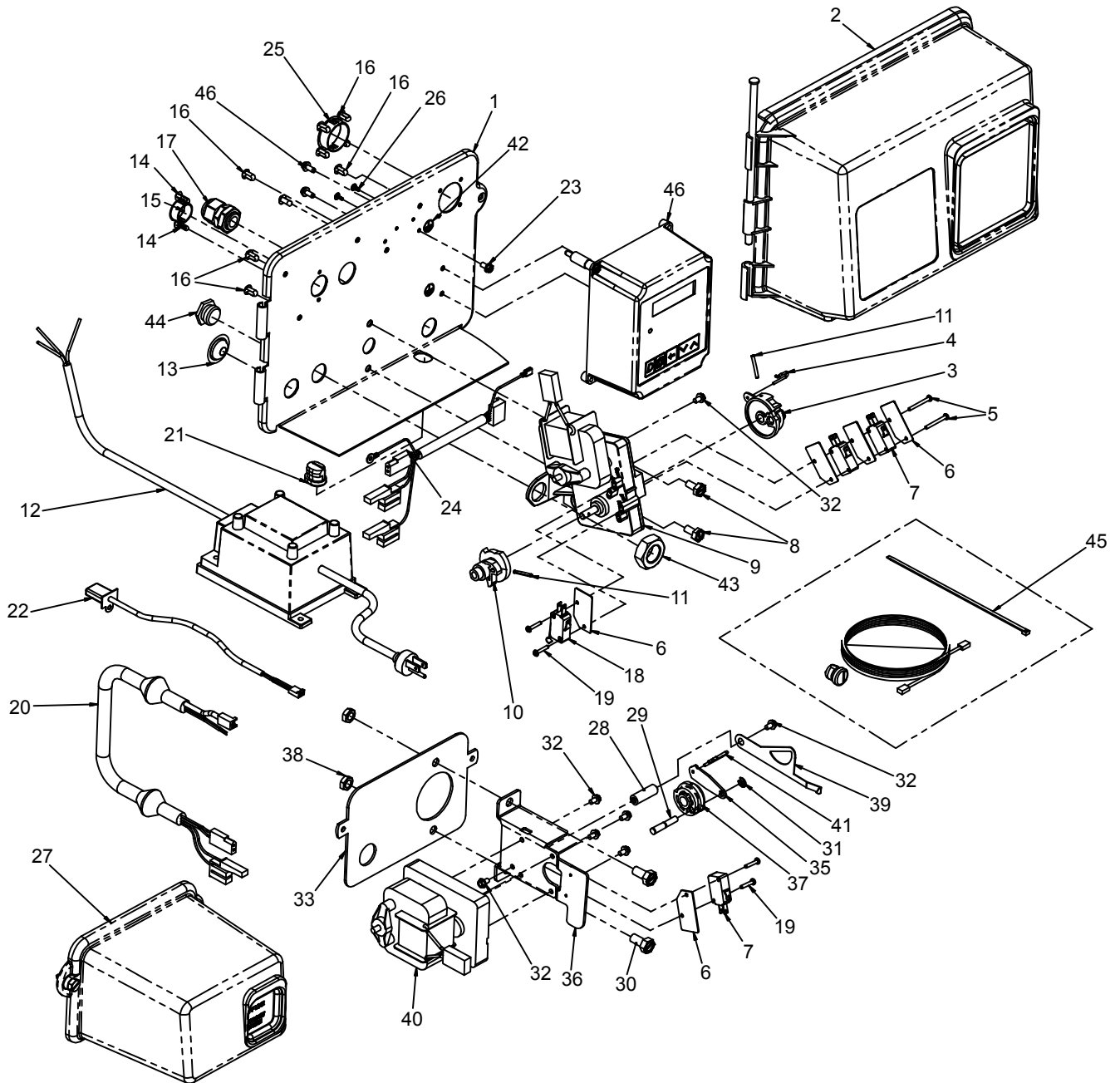
VALVES THAT USE LOWER VDM: 2900, 3900

FUTURE USE REMOVE POWER PRESS AND HOLD FOR 30 SECONDS TO RESET

VALVES THAT USE 24 VDC POWER SUPPLY INCLUDE: 2510, 2750, 2815, 2850, 2900, 3150, 3900

MGT 30M-300M NXT2 1" SINGLE MAINTENANCE

2750 POWERHEAD ASSEMBLY



MGT 30M-300M NXT2 1" SINGLE MAINTENANCE

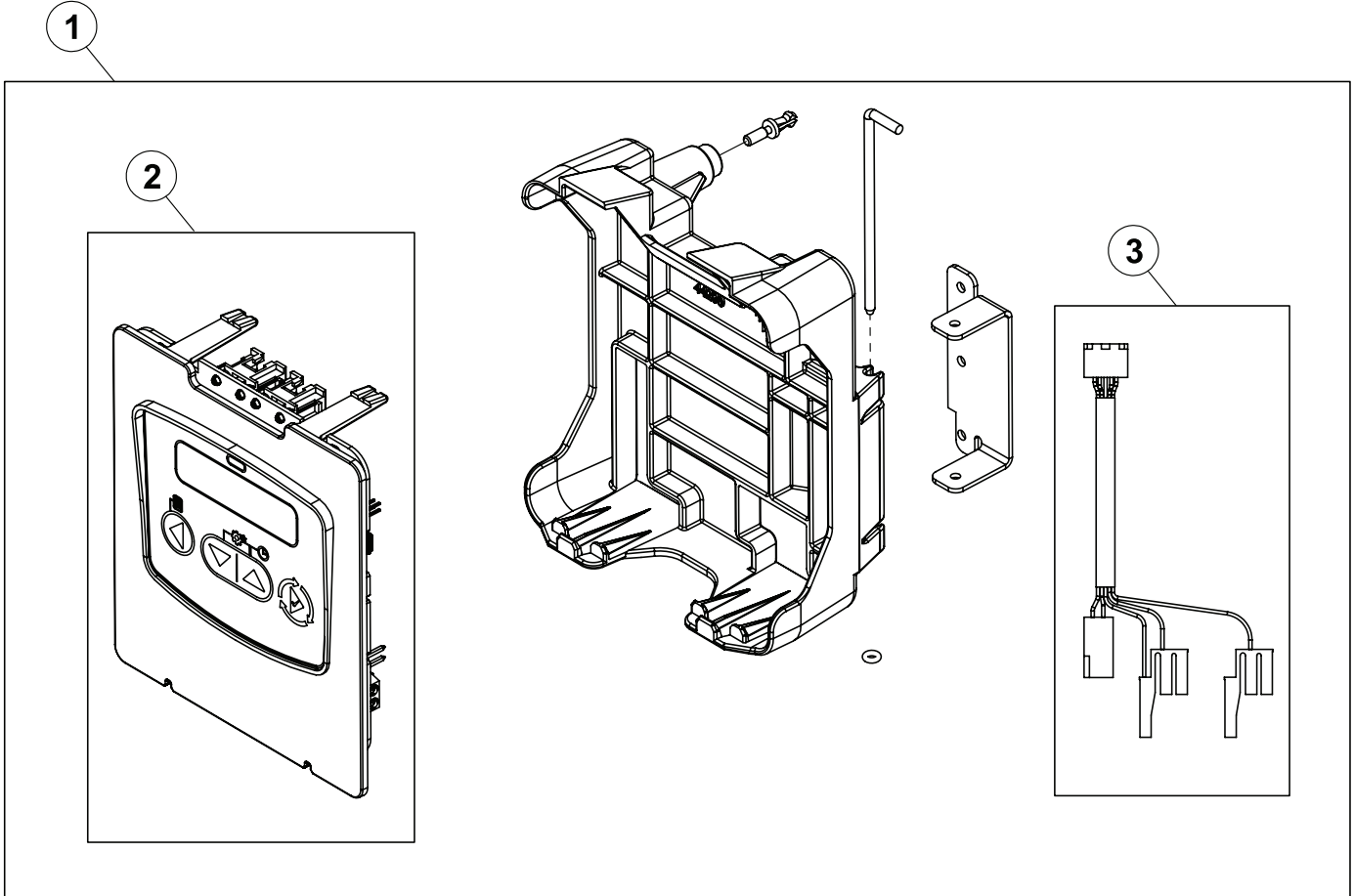
2750 POWERHEAD PARTS LIST

Item No.	Quantity	Part No.	Description
1	1	18697-15	backplate, hinged
2	1	60219-02	cover assy, environmental, black
3	1	60160-10	drive cam assy, stf, black
4	1	10909	pin, link
5	2	14923	screw, pan hd mach, 4-40 x 1
6	5	10302	insulator, limit switch
7	3	10218	switch, micro
8	2	10231	screw, slot hex, 1/4 - 20 x 1/2
9	1	41544	motor, drive, 24V, 50/60 Hz
10	1	12777	cam, shut-off valve
11	2	10338	pin, roll, 3/32 x 7/8
12	1	41034	transformer, US, 120V, 24V, 108VA
		41049	transformer, euro, 230V/24V 108VA
		41050	transformer, aust, 230V/24V, 108VA
13	1	19691	plug, .750 dia, recessed, black
14	2	19800	plug, .140 dia, white
15	1	15806	plug, hole, heyco #2693
16	9	19801	plug, .190 dia, white, heyco #0307
17	1	17967	fitting assy, liquid tight, blk
18	1	10896	switch, micro
19	4	11805	screw, rd hd, 4-40 x 5/8 type 1
20	1	40943	wire harness, lower drive, w/molded strain relief
21	1	13547	strain relief, flat cord, heyco #30-1
22	1	19121	meter cable assy, 3200NT
		19121-08	meter cable assy, NT, 35" w/connector
		19121-09	meter cable assy, NT, 99.5" w/connector
		19121-10	meter cable assy, NT, 303.5" w/connector
23	1	14202-01	screw, hex wsh mach, 8-32 x 5/16
24	1	40941	wire harness, upper drive
25	1	17421	plug, 1.20 hole, heyco #2733
26	2	41581	plug, hole, .125 dia, white
27	1	60217-02	cover assy, 2900, lower, black, environmental
28	1	18626	spacer, indicator
29	1	18746	bearing, connecting rod
30	2	11224	screw, hex hd 5/16 - 18 x 5/8, SS
31	1	10250	ring, retaining
32	7	10872	screw, hex wsh, 8-32 x 17/64
33	1	18709	backplate, lower
34	1	11381	pin, roll, 2900/3900
35	1	14759	link, piston rod
36	1	14769	bracket, motor, 2900
37	1	14775	cam, drive, 2900
38	2	16346	nut, hex, jam, 5/16-18, 18-8-SS
39	1	18725	indicator, service/standby
40	1	40388	motor, drive, 24V, 50/60Hz, SP
41	1	14813	pin, spring, connecting rod
42	1	41102	label, 3200NT, ground
43	1	10269	nut, jam, 3/4 - 16
44	1	10712	fitting, brine valve
45	1	41047	kit, communication cable
46	1	62115	timer assy, NXT2, right hand

NOTE: For all other service part numbers, see the Service Manual that accompanies the control valve.

MGT 30M-300M NXT2 1" SINGLE MAINTENANCE

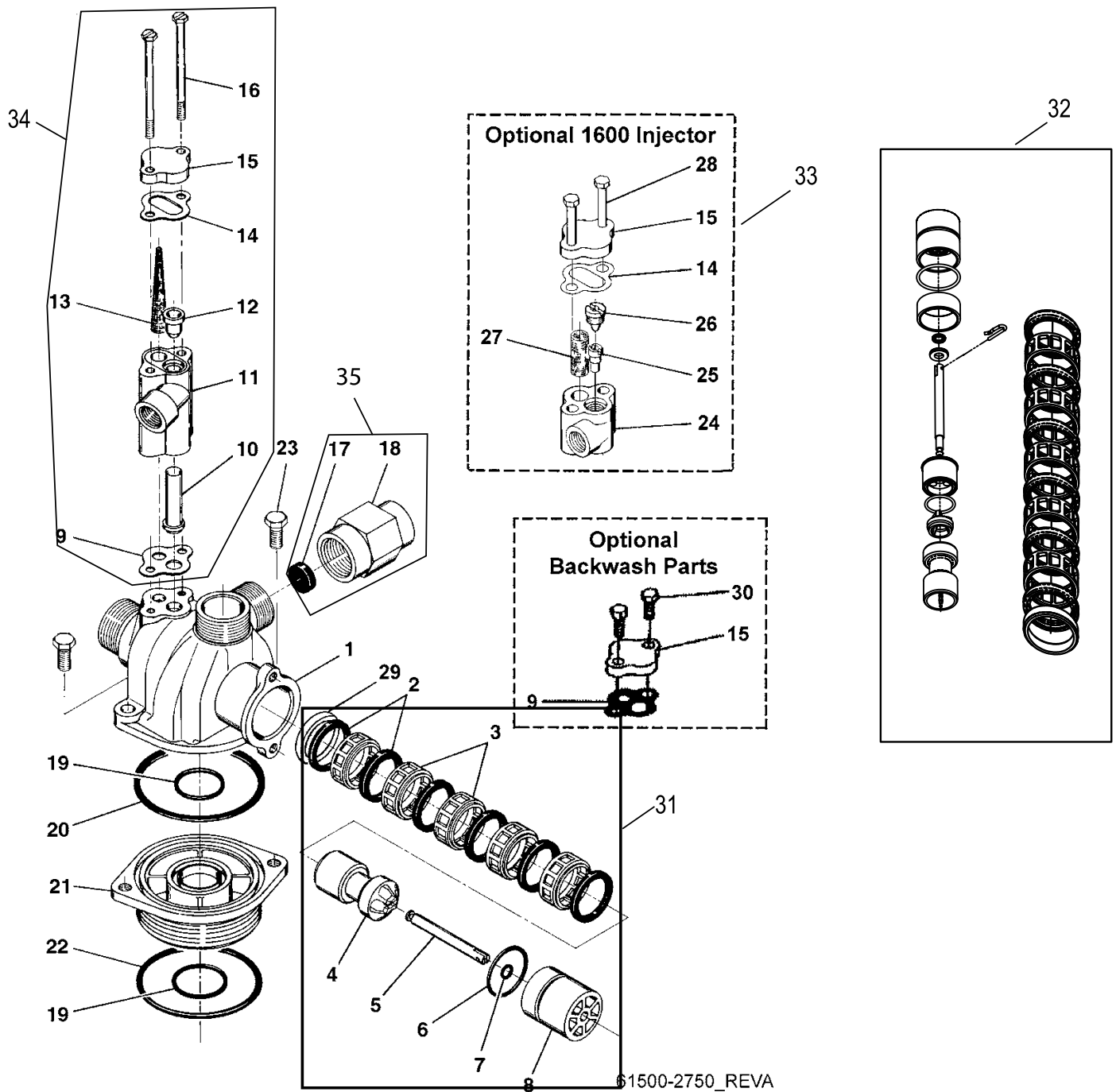
NXT2 TIMER ASSEMBLY (2510, 2750, 2850, 2900, 3150 & 3900 VALVES)



Item No.	QTY	Part No.	Description
1	1	62115	Timer Assy, NXT2 Service Assemblies
2	1	62120	Control Panel Assy, NXT2, Programmed
3	1	40941	Wire Harness, Upper Drive

MGT 30M-300M NXT2 1" SINGLE MAINTENANCE

CONTROL VALVE WITH 1700 INJECTOR ASSEMBLY



MGT 30M-300M NXT2 1" SINGLE MAINTENANCE

CONTROL VALVE WITH 1700 INJECTOR ASSEMBLY PARTS LIST

Item No.	QTY	Part No.	Description	Item No.	QTY	Part No.	Description	
1	1	14749	Valve Body, 2750			10914-1	Throat, Injector, #1, White	
2	6	10545	Seal, Piston			10914-2	Throat, Injector, #2, Blue	
3	5	11451	Spacer, 12 Hole			10914-3	Throat, Injector, #3, Yellow	
		16589	Spacer, HW			10914-4	Throat, Injector, #4, Green	
4	1	14451	Piston, 2750			12974-0	Throat, Injector, #0, PVC, Grey	
5	1	14452	Rod, Piston			12974-1	Throat, Injector, #1, PVC, Grey	
6	1	10234-01	O-Ring, -024, 560CD			12974-2	Throat, Injector, #2, PVC, Grey	
7	1	10209	Quad Ring, -010			12974-3	Throat, Injector, #3, PVC, Grey	
8	1	10598	End Plug Assembly			12974-4	Throat, Injector, #4, PVC, Grey	
		10598-01	End Plug Assembly, Hot Water			10226-0	Throat, Injector, #0, Stainless Steel	
9	1	14805	Gasket, Injector Body, 1600/1700			10226-1	Throat, Injector, #1, Stainless Steel	
10		14802-03C	Throat, Injector, #3C, Yellow			10226-2	Throat, Injector, #2, Stainless Steel	
		14802-04C	Throat, Injector, #4C, Green			10226-3	Throat, Injector, #3, Stainless Steel	
		14802-05C	Throat, Injector, #5C, White			10226-4	Throat, Injector, #4, Stainless Steel	
		14802-06C	Throat, Injector, #6C, Red			26	10913-000	Nozzle, Injector #000, Brown
11	1	17777	Body, Injector, 1700				10913-00	Nozzle, Injector #00, Violet
12		14801-03C	Nozzle, Injector, #3C, Yellow				10913-0	Nozzle, Injector #0, Red
		14801-04C	Nozzle, Injector, #4C, Green				10913-1	Nozzle, Injector #1, White
		14801-05C	Nozzle, Injector, #5C, White				10913-2	Nozzle, Injector #2, Blue
		14801-06C	Nozzle, Injector, #6C, Red				10913-3	Nozzle, Injector #3, Yellow
13	1	14803	Screen, Injector				10913-4	Nozzle, Injector #4, Green
14	1	10229	Gasket, Injector Cap, 1600				12973-0	Nozzle, Injector #0, PVC, Grey
15	1	11893	Cap, Injector, Stainless Steel				12973-1	Nozzle, Injector #1, PVC, Grey
		10228	Cap, Injector, Brass				12973-2	Nozzle, Injector #2, PVC, Grey
16	2	14804	Screw, Hex Hd Mach, 10-24 x 2-3/4				12973-3	Nozzle, Injector #3, PVC, Grey
17	1		Washer - Flow Control (specify size)				12973-4	Nozzle, Injector #4, PVC, Grey
18	1	60365-00	Housing, DLFC, 1/2-inch F x 3/4-inch F, Blank				10225-0	Nozzle, Injector #0, Stainless Steel
19	2	11710	O-ring, -215				10225-1	Nozzle, Injector #1, Stainless Steel
20	1	11208	O-ring, -232				10225-2	Nozzle, Injector #2, Stainless Steel
21	1	12461-01	Adapter Base, 1-inch 2-1/2 inch - 8 Quick Connect				10225-3	Nozzle, Injector #3, Stainless Steel
22	1	10381	O-ring, -231				10225-4	Nozzle, Injector #4, Stainless Steel
23	2	11224	Screw, Hex Hd, 5/16 - 18 x 5/8					
24	1	17776	Body, Injector					
25		10914-000	Throat, Injector #000, Brown					
		10914-00	Throat, Injector, #00, Violet					
		10914-0	Throat, Injector, #0, Red					

MGT 30M-300M NXT2 1" SINGLE MAINTENANCE

CONTROL VALVE WITH 1700 INJECTOR ASSEMBLY PARTS LIST (continued)

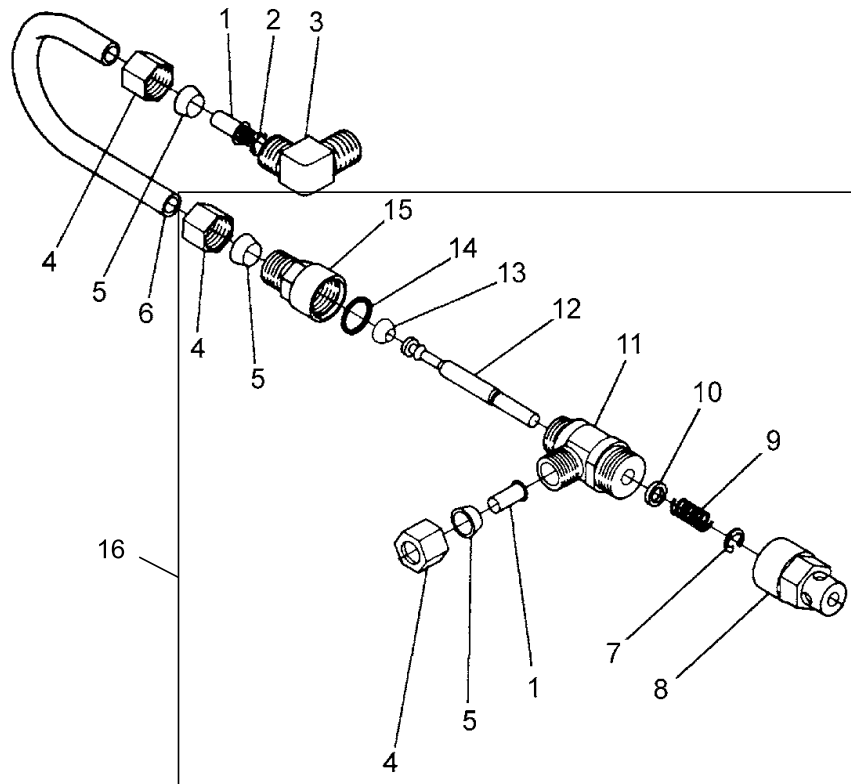
Item No.	QTY	Part No.	Description	Item No.	QTY	Part No.	Description
28	2	10692	Screw, Slot Hex Hd, 10-24 x 18-8 Stainless Steel	..... 60365-24	.....	DLFC, 3/4-inch F x 1/2-inch F, NPT 2.4 gpm
29	1	10757	Spacer, End	..... 60365-30	.....	DLFC, 3/4-inch F x 1/2-inch F, NPT 3.0 gpm
		10757B	Spacer, End, Brass	..... 60365-35	.....	DLFC, 3/4-inch F x 1/2-inch F, NPT 3.5 gpm
30	1	15137	Screw, Hex Wsh Mach, 10- 24 x 3/8	..... 60365-40	.....	DLFC, 3/4-inch F x 1/2-inch F, NPT 4.0 gpm
31	1	61670-01	Piston Kit, 2510/2750	..... 60365-45	.....	DLFC, 3/4-inch F x 1/2-inch F, NPT 4.5 gpm
		62044	Piston Kit, 2750, Hot Water	..... 60365-50	.....	DLFC, 3/4-inch F x 1/2-inch F, NPT 5.0 gpm
32	1	61670-02	Piston Kit, 2510/2750, NHWPB	..... 60365-60	.....	DLFC, 3/4-inch F x 1/2-inch F, NPT 6.0 gpm
33	1	60480-000	Injector Assy, 1600 #00, Plastic	..... 60365-70	.....	DLFC, 3/4-inch F x 1/2-inch F, NPT 7.0 gpm
		60480-00	Injector Assy, 1600 #0, Plastic	..... 60700-00	.....	DLFC, 3/4-inch F x 3/4-inch F, NPT Blank
		60480-01	Injector Assy, 1600 #1, Plastic	..... 60700-8.0	.....	DLFC, 3/4-inch F x 3/4-inch F, NPT 8.0 gpm
		60480-02	Injector Assy, 1600 #2, Plastic	..... 60700-9.0	.....	DLFC, 3/4-inch F x 3/4-inch F, NPT 9.0 gpm
		60480-03	Injector Assy, 1600 #3, Plastic	..... 60700-10	.....	DLFC, 3/4-inch F x 3/4-inch F, NPT 10.0 gpm
		60480-04	Injector Assy, 1600 #4, Plastic	..... 60700-12	.....	DLFC, 3/4-inch F x 3/4-inch F, NPT 12.0 gpm
		60481-21	Injector Assy, 1600, #1, S.S. Complete, Brass	..... 60700-15	.....	DLFC, 3/4-inch F x 3/4-inch F, NPT 15.0 gpm
		60481-22	Injector Assy, 1600, #2, S.S. Complete, Brass	..... 60700-20	.....	DLFC, 3/4-inch F x 3/4-inch F, NPT 20.0 gpm
		60481-23	Injector Assy, 1600, #3, S.S. Complete, Brass	..... 60700-25	.....	DLFC, 3/4-inch F x 3/4-inch F, NPT 25.0 gpm
		60080-11	Injector Assy, 1600, #1, PVC				
		60080-12	Injector Assy, 1600, #2, PVC				
		60080-14	Injector Assy, 1600, #4, PVC				
34	1	60381-03	Injector Assy, 1700, 3C				
		60381-04	Injector Assy, 1700, 4C				
		60381-05	Injector Assy, 1700, 5C				
		60381-06	Injector Assy, 1700, 6C				
35	1	60365-06	DLFC, 3/4-inch F x 1/2-inch F, NPT 0.6 gpm				
		60365-08	DLFC, 3/4-inch F x 1/2-inch F, NPT 0.8 gpm				
		60365-10	DLFC, 3/4-inch F x 1/2-inch F, NPT 1.0 gpm				
		60365-12	DLFC, 3/4-inch F x 1/2-inch F, NPT 1.2 gpm				
		60365-13	DLFC, 3/4-inch F x 1/2-inch F, NPT 1.3 gpm				
		60365-15	DLFC, 3/4-inch F x 1/2-inch F, NPT 1.5 gpm				
		60365-17	DLFC, 3/4-inch F x 1/2-inch F, NPT 1.7 gpm				
		60365-20	DLFC, 3/4-inch F x 1/2-inch F, NPT 2.0 gpm				

Not Shown

.....1	.....	16221	Disperser, Air, 1600
.....1	.....	17996	Disperser, Air, 1700

MGT 30M-300M NXT2 1" SINGLE MAINTENANCE

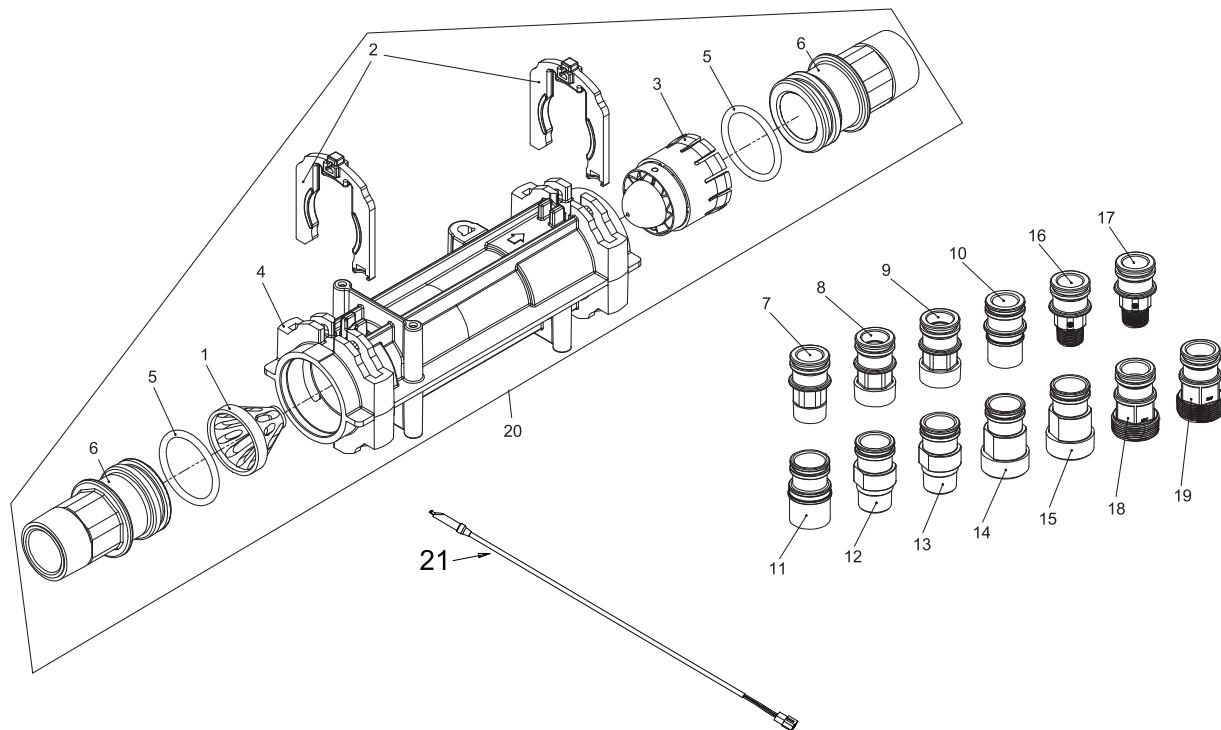
1600 BRINE SYSTEM ASSEMBLY



Item No.	QTY	Part No.	Description	Item No.	QTY	Part No.	Description
1	2	10332	Fitting, Insert, 3/8	14	1	11982	O-ring, -016
2	1	12767	Screen, Brine	15	1	60020-25	BLFC, .25 GPM, 1600
3	1	10328	Fitting, Elbow, 90 Deg. 1/4-inch NPT x 3/8 Tube			60020-50	BLFC, .50 GPM, 1600
4	3	10329	Fitting, Tube, 3/8 Nut, Brass			60020-100	BLFC, 1.0 GPM, 1600
5	3	10330	Fitting, Sleeve, 3/8 Celcon	16	1	60029-010	Brine Valve, 1600 Short Ster 0.25 gpm
6	1	16508-01	Tube, Brine Valve, 2850/2900s			60029-020	Brine Valve, 1600 Short Ster 0.50 gpm
		12774	Tube, Brine Valve, 1500			60029-030	Brine Valve, 1600 Short Ster 1.00 gpm
		40027	Tube, Brine Valve, 2510, HWBP				
		14228	Tube, Brine Valve, 2510, NHWBP				
		15221-01	Tube, Brine Valve, 2750/2900				
		42184	Tube, Brine Valve, 2850s				
		41683	Tube, Brine Valve, UF, 2900S 1600/1650				
7	1	10250	Ring, Retaining				
8	1	11749	Guide, Brine Valve Stem				
9	1	10249	Spring, Brine Valve				
10	1	12550	Quad Ring, -009				
11	1	12748	Brine Valve Body Assy, 1600 w/Quad Ring				
12	1	12552-02	Brine Valve Stem, 1600, with Seat				
13	1	12626	Seat, Brine Valve				

MGT 30M-300M NXT2 1" SINGLE MAINTENANCE

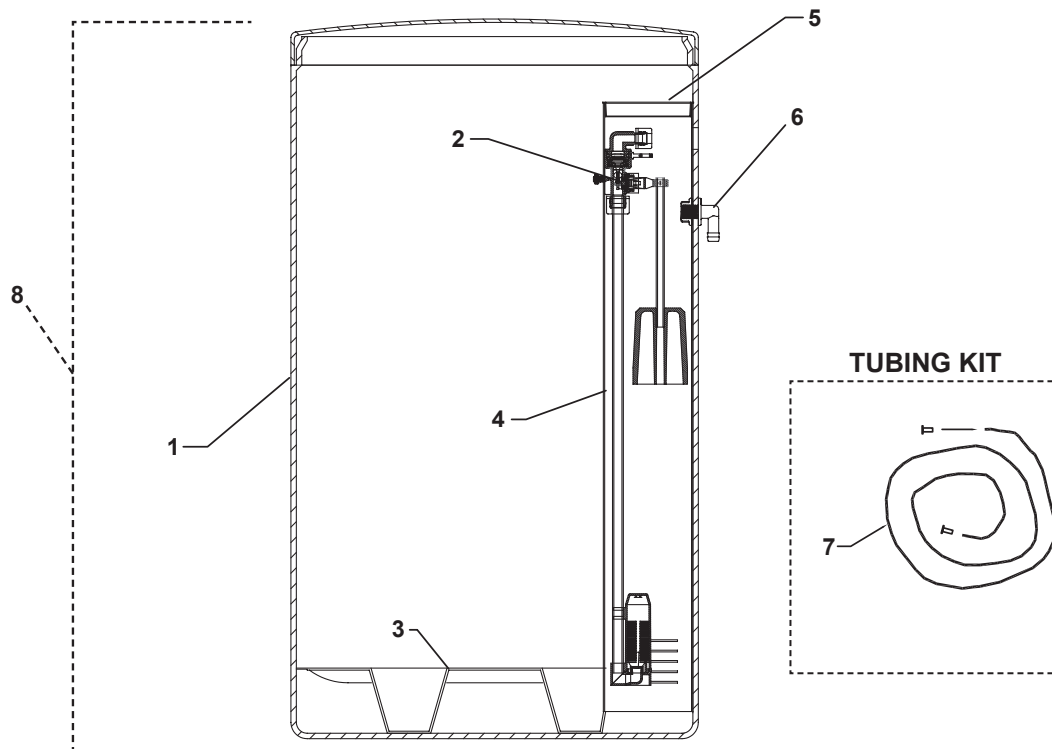
1" & 1-1/2" PLASTIC INLINE METER



Item No.	QTY	Part No.	Description	Item No.	QTY	Part No.	Description
1	1	17542	Flow Straightener, 1-1/2"	20	1	61560	Meter Assy, 1-1/2" INLN, ELEC, PLAS, w/o Nipples, TURB
2	2	40576	Clip, H, Plastic, 7000	.....	1	61560-01	Meter Assy, 1", INLN, NPT, ELEC, PLAS, PLAS Nipples, TURB
3	1	40577	Turbine Meter Assy, 7000	.....	1	61560-02	Meter Assy, 1", INLN, BSP, ELEC, PLAS, PLAS Nipples, TURB
4	1	41555	Body, Inline Meter	.....	1	61560-03	Meter Assy, 1-1/4" INLN, NPT, ELEC, PLAS, PLAS Nipples, TURB
5	2	40951	O-ring, -220	.....	1	61560-04	Meter Assy, 1-1/4" INLN, BSP, ELEC, PLAS, PLAS Nipples, TURB
6	2	40563-01	Connector Assy, 1" NPT, Plastic, w/O-ring	.....	1	61560-05	Meter Assy, 1" & 1-1/4", INLN, SWT, ELEC, PLAS, SWT Nipples, TURB
7	2	40563-11	Connector Assy, 1" BSP, Plastic, w/O-ring	.....	1	61560-06	Meter Assy, 1-1/4" & 1-1/2", INLN, SWT, ELEC, PLAS, SWT Nipples, TURB
8	2	40565-01	Connector Assy, 1-1/4" NPT, Plastic, w/O-ring	.....	1	61560-07	Meter Assy, 1" INLN, NPT, ELEC, PLAS, BRS Nipples, TURB
9	2	40565-11	Connector Assy, 1-1/4" BSP, Plastic, w/O-ring	.....	1	61560-08	Meter Assy, 1" INLN, BSP, ELEC, PLAS, BRS Nipples, TURB
10	2	41242-01	Connector Assy, 1" & 1-1/4", Sweat, w/O-ring	.....	1	61560-09	Meter Assy, 1-1/2" INLN, NPT, ELEC, PLAS, BRS Nipples, TURB
11	2	41243	Connector, 1-1/4" & 1-1/2" Sweat, 7000	.....	1	61560-10	Meter Assy, 1-1/2" INLN, BSP, ELEC, PLAS, BRS Nipples, TURB
		41243-01	Connector Assy, 1-1/4" & 1-1/2", Sweat, w/O-ring	.....	1	61560-11	Meter Assy, 3/4" INLN, NPT, ELEC, PLAS, PLAS Nipples, TURB
12	2	61561	Connector Assy, 1" NPT, Brass, w/O-ring	.....	1	61560-12	Meter Assy, 3/4" INLN, BSP, ELEC, PLAS, PLAS Nipples, TURB
13	2	61561-10	Connector Assy, 1" BSP, Brass, w/O-ring	.....	1	61560-13	Meter Assy, 1-1/2", INLN, NPT, ELEC, PLAS, PLAS Nipples, TURB
14	2	61562	Connector Assy, 1-1/2" NPT, Brass, w/O-ring	.....	1	61560-14	Meter Assy, 1-1/2" INLN, BSP, ELEC, PLAS, PLAS Nipples, TURB
15	2	61562-10	Connector Assy, 1-1/2" BSP, Brass, w/O-ring	21	1	19791	Meter Cable Assembly,
16	2	42414-01	Connector 3/4" NPT, Plastic, w/O-ring	.....	1	19791-02	Meter Cable Assembly, 28 inch long with connector
17	2	42414-11	Connector, Assy, 3/4" BSP, Plastic, w/O-ring	.....	1	19791-04	Meter Cable Assembly, 100 inch long with connector
18	3	42241-01	Connector Assy, 1-1/2" NPT, Plastic, w/O-ring	.....	1	19791-05	Meter Cable Assembly 304 inch long with connector
19	3	42241-11	Connector Assy, 1-1/2" BSP, Plastic, w/O-Ring				

MGT 30M-300M NXT2 1" SINGLE MAINTENANCE

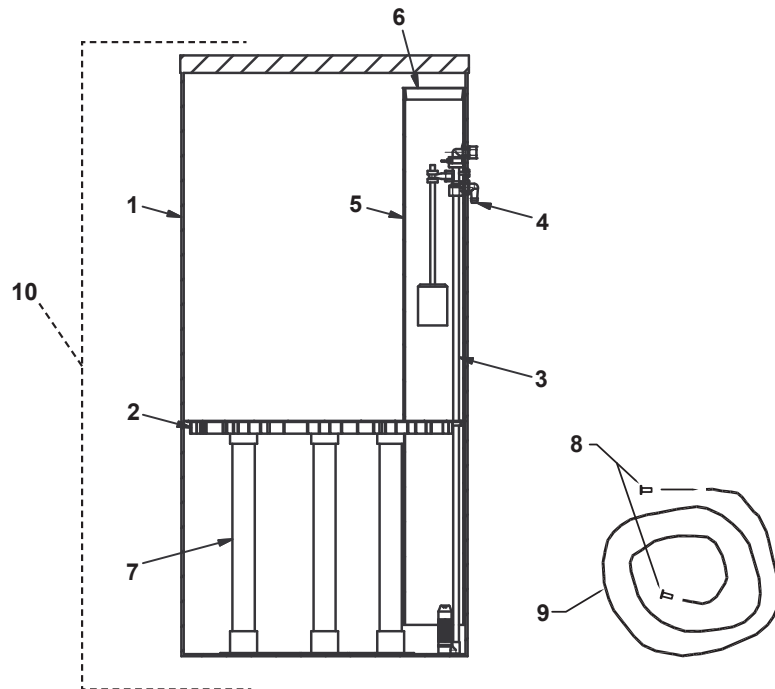
BRINE SYSTEM FOR MGT 15M-90M



Item Number	Description	Part Number
1	Brine Tank 18" x 33" / Black Molded Cover - MGT 30M	A2042020
	Brine Tank 18"x40"/Black Molded Cover - MGT 45M-90M	A2042028
2	Brine Safety Valve Assembly 3/8"	B1179005
3	3" Grid Plate - Plastic - MGT 30M	A2284017
	5" Grid Plate - Plastic - MGT 45M-90M	A2284002
	6" Leg Extension MGT 45M-90M (Not shown)	A2215007
4	Slotted Brine Well - 4" x 28" - MGT 30M	A2071005
	Slotted Brine Well - 4" x 36" - MGT 45M-90M	A2071003
5	4" Brine Well Cap	A2072003
6	1/2" Overflow Elbow w/ Nut	A2250003
7	3/8" x 1/4" Tubing Kit	B1020001
8	Complete Brine Tank Assembly for MGT 30M	A2042062
	Complete Brine Tank Assembly for MGT 45M	B1300023
	Complete Brine Tank Assembly for MGT 60M-90M	A2042064

MGT 30M-300M NXT2 1" SINGLE MAINTENANCE

BRINE SYSTEM FOR MGT 120M-300M



Item Number	Description	Part Number
1	Brine Tank 24" x 41" w/ Holes - MAT 120M	B1002039
	Brine Tank 24"x50" w/ Holes - MAT 150M-300M	B1002016
2	24" Diameter 5BW Plastic Grid Plate	A2284007
3	Brine Valve (474) for MGT 120	B1180014
	Brine Valve (474) for MGT 150	B1180015
	Brine Valve (474) for MGT 180	B1180016
	Brine Valve (474) for MGT 210	B1180017
	Brine Valve (474) for MGT 240	B1180018
	Brine Valve (474) for MGT 270	B1180019
	Brine Valve (474) for MGT 300	B1180020
4	1/2" Overflow Elbow w/ Nut	A2250003
5	5" x 46" Drilled Brine Well	B1015008
6	5" Red Cap plug	A2072001
7	1-1/2" SDR or SCH40 DWV Pipe	A2275007
8	1/2" Poly Insert	A2476001
9	1/2" x 3/8" Black Poly Tubing	A2165002
10	Complete Brine Tank Assembly for MGT 120M (10" Shelf Height)	B1295015
	Complete Brine Tank Assembly for MGT 150M (13" Shelf Height)	B1295016
	Complete Brine Tank Assembly for MGT 180M (15" Shelf Height)	B1295017
	Complete Brine Tank Assembly for MGT 210M (18" Shelf Height)	B1295018
	Complete Brine Tank Assembly for MGT 240M (20" Shelf Height)	B1295019
	Complete Brine Tank Assembly for MGT 270M (23" Shelf Height)	B1295020
	Complete Brine Tank Assembly for MGT 300M (26" Shelf Height)	B1295021

MGT 30M-300M NXT2 1" SINGLE MAINTENANCE

SERVICE ASSEMBLIES

BRINE LINE FLOW CONTROLS

A2389002 0.5 GPM FOR 1600 (30! (60020-50)
A2389002 1.0 GPM FOR 1600 (45-120) (60020-100)
A2505008 2.0 GPM FOR 1700 (150-210) (12087)
A2505009 2.4 GPM FOR 1700 (240-300) (12088)

BRINE VALVES

A2005108 Model 1600 brine valve assy. - 0.5 gpm (60029-020)
B1042012 Model 1600 brine valve assy. - 1 GPM (60029&60020-100)
A2254002 Model 1700 brine valve assy. - 2 GPM (60034-20)
A2254014 Model 1700 brine valve assy. - 2.4 GPM (60034-24)

CAM ASSEMBLY

A2300002 Separate time fill drive cam (Black) (60160-10)

COVERS

A2103095 Environmental Cover (60219-02)

DRAIN LINE FLOW CONTROLS

A2253027 DLFC 3/4"FNPT x 1/2" FNPT 2.0 GPM (30) (60365-20)
A2253026 DLFC 3/4"FNPT x 1/2" FNPT 3.0 GPM (45) (60365-30)
A2253002 DLFC 3/4" FNPT x 1/2" FNPT 3.5 GPM (60) (60365-35)
A2253003 DLFC 3/4" FNPT x 1/2" FNPT 5.0 GPM (90) (60365-50)
A2138122 DLFC 1.0" MNPT 6 GPM (120)
A2138011 DLFC 1" MNPT 8.0 GPM (150)
A2138013 DLFC 1" MNPT 12.0 GPM (180&210)
A2138014 DLFC 1" MNPT 15.0 GPM (240&300)

METER ASSEMBLIES

A2360073 Fleck 1" Plastic Meter Assy - Brass Ftgs (61560-07)
A2360081 Fleck 1" Stainless Steel Meter (61932-10)

METER CABLES (FOR FLECK VALVES)

A2352092 Cable 30 inches (19791-02)

O-RINGS

A2077034 Valve Base O-Ring (10381)
A2077032 Distributor O-Ring (11710)

PISTON ASSEMBLIES

A2309002 Piston Assembly - Standard HWB (60090-HF)
A2309025 Piston Assembly - No Hard Water Bypass (60101-01)

POWER SUPPLIES

A2242160 Power Supply US 120V, 24VDC (44164)
A2242161 Power Supply EU 220V, 24VDC (44415)

SEAL & SPACER KITS

A2435025 Upper kit (60121)

SERVICE EQUIPMENT

A2475001 Seal & Spacer stuffer tool upper (11098)
A2474001 Spacer puller tool upper (13061)
A2423002 Silicone, 2.4 oz. Tube (16174)

TIMER ASSEMBLIES - NXT2

A2084089 NXT2 Timer & Bracket Assy (62115)
A2084088 NXT to NXT2 Conversion Kit (62121-01)

MGT 30M–300M NXT2 1” SINGLE MAINTENANCE

TROUBLESHOOTING

DETECTED ERRORS

NOTE: It can take up to 30 seconds for an error to be detected and displayed. All errors on each timer in the system must be displayed before the errors can be corrected.

If a communication error is detected, an Error Screen will appear.

- All units In Service remain in the In Service position.
- All units in Standby go to In Service.
- Any unit in Regeneration when the error occurs completes Regeneration and goes to In Service.
- No units are allowed to start a Regeneration Cycle while the error condition exists, unless they are manually forced into Regeneration.
- When an error is corrected and the error no longer displays (it may take several seconds for all of the units in a system to stop displaying the error message), the system returns to normal operation.

NOTE: During the error condition the control continues to monitor the flow meter and update the volume remaining. Once the error condition is corrected all units return to the operating status they were in prior to the error. Regeneration queue is rebuilt according to the normal system operation. Or, if more than one unit has been queued for regeneration, then the queue is rebuilt according to which one communicates first.

Message Displayed	Cause For Error	Correction
"Error Valve Count Mismatch"	Number of NXT2 detected does not match selected system type in Master Programming	"Push correct valve settings in Master Settings"
"Motor Stall No Changes Detected in the Optical Sensor for 6 Seconds"	The motor is on but no encoder pulses are detected within a given duration while homing.	Check the P11 connection and trigger a manual regeneration.
"Motor Run-On No CAM Switch Change Detected"	The motor is on but no encoder pulses are detected or CAM Switches change state within a given duration.	Verify correct valve type is chosen. Trigger a manual regeneration.
Optical Sensor Undesired change detected by the Optical Sensor	The motor is off but additional encoder pulses are detected.	Trigger a manual regeneration.
"Over-Current Motor Over-Current is Detected"	Motor current exceeds thresholds.	Trigger a manual regeneration.
"Flow Meter Error Continuous Flow Detected"	Flow exceeded specified threshold for a specific duration.	Trigger a manual regeneration.
"Error Send/Receive Failure"	During a setting push, a packet was missing.	Reconnect communication cables and push setting in Master Settings.
"Error System Type Mismatch on Network"	The system type among connected units does not match.	"Push correct system settings in Master Settings."
Microcontroller Error	Calibration or manufacturing test was not performed	Contact your Pentair representative.
100 Days Without Regen	100 Days have expired without a regeneration	Trigger a manual regeneration

MGT 30M-300M NXT2 1" SINGLE MAINTENANCE

TROUBLESHOOTING 2900 VALVE

PROBLEM	CAUSE	CORRECTION
1. Softener Fails To Regenerate.	<ul style="list-style-type: none"> A. Electrical Service To Unit Has Been Interrupted. B. Timer Is Defective. C. Power Failure. 	<ul style="list-style-type: none"> A. Assure Permanent Electrical Service (Check Fuse, Plug, Pull Chain or Switch). B. Replace Timer. C. Reset Time of Day.
2. Hard Water.	<ul style="list-style-type: none"> A. By-Pass Valve is Open. B. No Salt in Brine Tank C. Injector Screen Plugged. D. Insufficient Water Flowing Into Brine Tank E. Hot Water Tank Hardness. F. Leak At Distributor Tube. G. Internal Valve Leak H. Service Adapter Did Not Return To Service. 	<ul style="list-style-type: none"> A. Close By-Pass Valve. B. Add Salt To Brine Tank and Maintain Salt Level Above Water Level. C. Clean Injector Screen. D. Check Brine Tank Fill Time And Clean Brine Line Flow Control If Plugged. E. Repeated Flushings Of The Hot Water Tank is Required. F. Make Sure Distributor Tube Is Not Cracked. Check O-Ring And Tube Pilot. G. Replace Seals and Spacers And/ Or Piston. H. Check Drive Motor And Switch.
3. Unit Used Too Much Salt	<ul style="list-style-type: none"> A. Improper Salt Setting. B. Excessive Water in Brine Tank 	<ul style="list-style-type: none"> A. Check Salt Usage and Salt Setting. B. See Problem No. 7.
4. Loss Of Water Pressure.	<ul style="list-style-type: none"> A. Iron Buildup In Line To Water Conditioner. B. Iron Buildup in Water Conditioner. C. Inlet of Control Plugged Due to Foreign Material Broken Loose From Pipes By Recent Work Done On Plumbing System. 	<ul style="list-style-type: none"> A. Clean Line To Water Conditioner. B. Clean Control and Add Mineral Cleaner to Mineral Bed. Increased Frequency of Regeneration. C. Remove Piston and Clean Control.
5. Loss of Mineral Through Drain Line.	<ul style="list-style-type: none"> A. Air In Water System. B. Improperly Sized Drain Line Flow Control. 	<ul style="list-style-type: none"> A. Assure That Well System Has Proper Air Eliminator Control. Check For Dry Well Condition. B. Check For Proper Drain Rate.
6. Iron In Conditioned Water.	<ul style="list-style-type: none"> A. Fouled Mineral Bed. 	<ul style="list-style-type: none"> A. Check Backwash, Brine Draw And Brine Tank Fill. Increase Frequency of Regeneration. Increase Backwash Time.

MGT 30M–300M NXT2 1” SINGLE MAINTENANCE

TROUBLESHOOTING 2900 VALVE (CONTINUED)

PROBLEM	CAUSE	CORRECTION
7. Excessive Water In Brine Tank.	<ul style="list-style-type: none"> A. Plugged Drain Line Flow Control. B. Plugged Injector System. C. Timer Not Cycling. D. Foreign Material In Brine Valve. E. Foreign Material In Brine Line Flow Control. 	<ul style="list-style-type: none"> A. Clean Flow Control. B. Clean Injector and Screen. C. Replace Timer. D. Replace Brine Valve Seat And Clean Valve. E. Clean Brine Line Flow Control.
8. Softener Fails To Draw Brine.	<ul style="list-style-type: none"> A. Drain Line Flow Control Is Plugged. B. Injector Is Plugged. C. Injector Screen Plugged. D. Line Pressure Is Too Low. E. Internal Control Leak F. Service Adapter Did Not Cycle. 	<ul style="list-style-type: none"> A. Clean Drain Line Flow Control. B. Clean Injector. C. Clean Screen. D. Increase Line Pressure To 20 P.S.I. E. Change Seals, Spacers and Piston Assembly. F. Check Drive Motor And Switches.
9. Control Cycles Continuously.	<ul style="list-style-type: none"> A. Misadjusted, Broken or Shorted Switch. 	<ul style="list-style-type: none"> A. Determine If Switch or Timer Is Faulty and Replace It or Replace Complete Power Head.
10. Drain Flows Continuously.	<ul style="list-style-type: none"> A. Valve Is Not Programming Correctly. B. Foreign Material In Control. C. Internal Control Leak 	<ul style="list-style-type: none"> A. Check Timer Program and Positioning of Control. Replace Power Head Assembly If Not Positioning Properly. B. Remove Power Head Assembly And Inspect Bore. Remove Foreign Material and Check Control In Various Regeneration Positions. C. Replace Seals and Piston Assembly.

General Service Hints For Meter Control

Problem: Softener Delivers Hard Water.

Cause could be that . . . Reserve Capacity Has Been Exceeded.

Correction: Check salt dosage requirements and reset program to provide additional reserve.

Cause could be that . . . Meter Is Not Measuring Flow.

Correction: Check meter with meter checker.

NOTES

