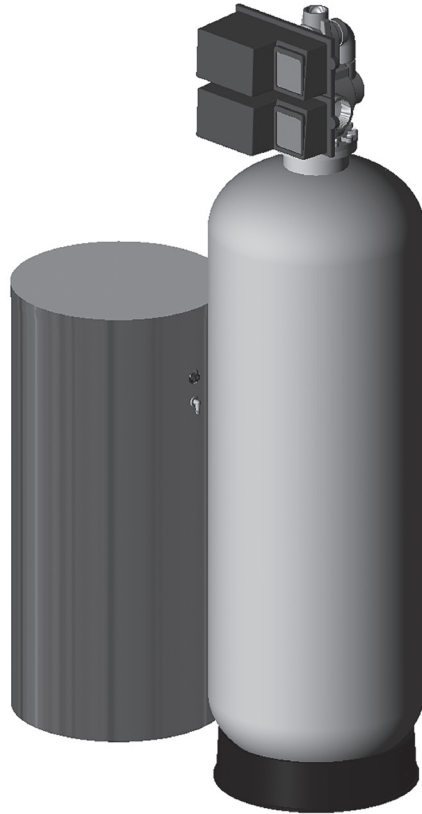


MGT 240M–1200M

SYSTEM 4 – SINGLE METERED 3” NXT2 SERIES



Standard Image
Equipment appearance may differ.

COMMERCIAL WATER CONDITIONER INSTALLATION, OPERATION, AND MAINTENANCE MANUAL

COMPLETE FOR FUTURE REFERENCE:

MODEL NO:

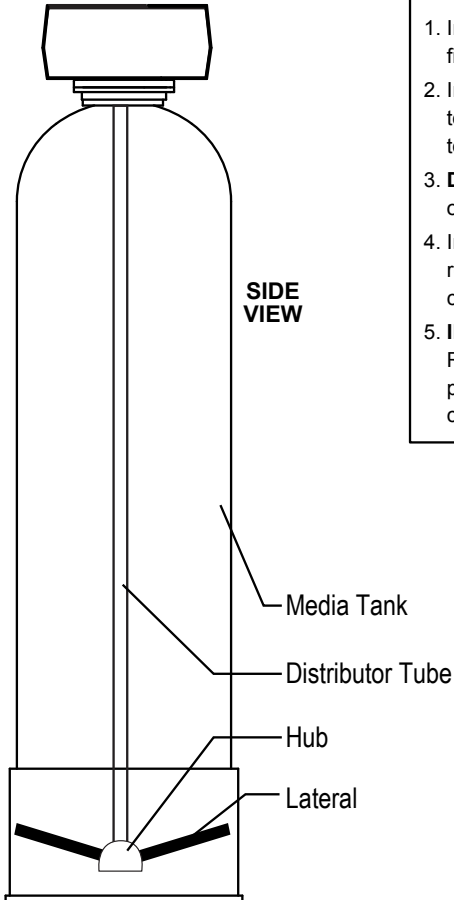
SERIAL NO:

DATE INSTALLED:

DEALER:

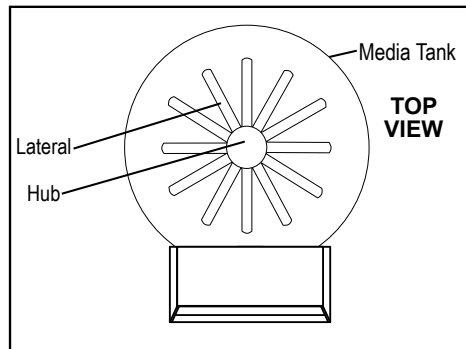
INSTALLATION WARNING

PRIOR TO
Media Loading

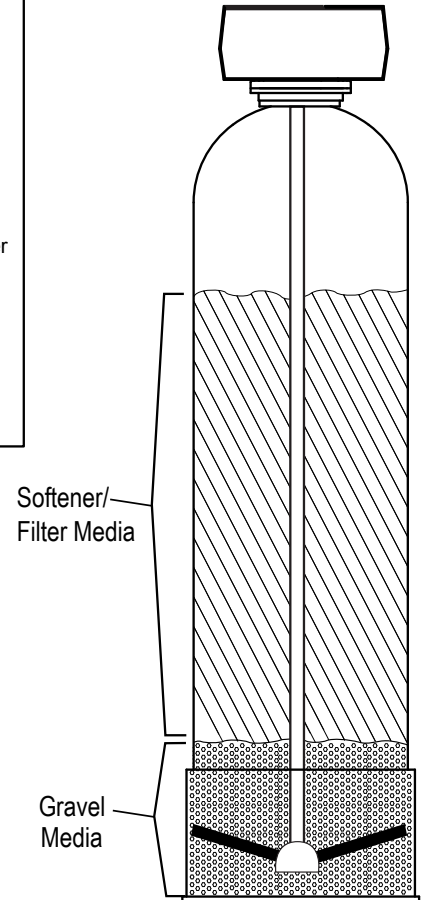


Inspection Requirement Prior to Loading Media

1. Inspect condition of upper distributor piping. Verify fittings are tight and positioned as shown.
2. Inspect condition of strainers, laterals and hub through top or side access ports. Verify fittings are secured to hub.
3. **DO NOT** load media if damaged components are observed. Contact factory.
4. Installer is responsible for media loss into treated water resulting from failure to report and repair damaged components inside media tank prior to media loading.
5. **INSTALLER WARNING:**
Refer to installation instructions for media loading procedure. Improper loading of media will damage components inside media tank.



AFTER
Media Loading



MGT 240M–1200M 3” SINGLE NXT2

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MGT 240M–1200M 3” SINGLE NXT2

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 240M–1200M 3” SINGLE NXT2

SYSTEM INFORMATION

DIMENSION CHART

MODEL	INLET SIZE (Inches)	TANK SIZE		LENGTH (Inches)	WIDTH (Inches)	HEIGHT* (Inches)
		SOFTENER (Inches)	BRINE (Inches)			
240	3	24x72	24x50	54	24	91
300	3	24x72	24x50	54	24	91
450	3	30x72	30x50	66	30	91
600	3	36x72	39x60	81	39	91
750	3	42x72	39x60	87	42	110
900	3	42x72	42x60	90	42	110
1050	3	48x72	42x60	96	48	110
1200	3	48x72	42x60	96	48	110

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

MGT 240M–1200M 3” SINGLE NXT2

SYSTEM INFORMATION

SPECIFICATION CHART

SYSTEM SIZE	MODEL	240	300	450	600	750	900	1200	
	VALVE SIZE (IN)	3	3	3	3	3	3	3	
	MAX CAPACITY (KILOGRAINS)	240	300	450	600	750	900	1,200	
	MIN CAPACITY (KILOGRAINS)	160	200	300	400	500	600	800	
FLOWRATE (GPM)	CONTINUOUS FLOWRATE (GPM)	120	114	160	185	200	165	205	
	PEAK FLOWRATE (GPM)	170	150	213	250	268	225	275	
	BACKWASH & FAST FLUSH (GPM)	15	15	25	30	35	35	35	
	BRINE DRAW & RINSE (GPM)	3.2	3.2	3.5	4.5	6.5	6.5	10	
	BRINE TANK REFILL (GPM)	2	2	5	5	10	10	10	
TIMER SETTINGS	BACKWASH & FAST FLUSH (MIN)	10	10	10	10	10	10	10	
	BRINE DRAW & RINSE (MIN)	60	60	80	80	80	90	90	
	FAST FLUSH (MIN)	10	10	10	10	10	10	10	
	BRINE TANK REFILL (MIN)	20	25	15	20	13	15	20	
SOFTENER TANK	SIZE (IN)	24x72	24x72	30x72	36x72	42x72	42x72	48x72	
	GRAVEL (LBS)	120	120	225	400	400	650	1000	
	RESIN (FT ³)	8	10	15	20	20	30	40	
	FREEBOARD (IN)	30	21	22	23	23	15	15	
BRINE SYSTEMS	EQUIPMENT	TANK SIZE	24x50	24x50	30x50	39x60	39x60	42x60	42x60
		MAX SALT STORAGE (LBS)	550	450	640	1700	1700	2000	1700
		INJECTOR CODE	4	4	5	6	7	7	8
		INJECTOR COLOR	GRN	GRN	RED	WHT	BLU	BLU	YEL
	MAX	SALT DOSAGE- MAX (LBS)	120	150	225	300	375	450	600
		REFILL TIME - MAX (MIN)	20	25	15	20	13	15	20
	MIN	SALT DOSAGE- MIN (LBS)	48	60	90	120	150	180	240
		REFILL TIME - MIN (MIN)	8	10	6	8	5	6	8
REGENERATION WASTE VOLUME (GAL)		520	544	860	1020	1210	1315	2100	

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 240M–1200M 3” SINGLE NXT2 INSTALLATION

INSTALLATION INSTRUCTIONS WATER SOFTENERS

GENERAL INFORMATION

1. Operating pressure range is 30-100 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. You can also tell by wire color on the motor. Black wires are 115 volt. Yellow wires are 220 volt. Blue wires are 24 volt.
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 for flow rate). Allow a minimum of 24” above the tank for loading media.
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 240M–1200M 3” SINGLE NXT2 INSTALLATION

LOAD SOFTENER TANK

IMPORTANT: Be sure to visually inspect the lower laterals prior to loading the media. Check to make sure each lateral is firmly threaded into the hub

1. Fill tank(s) approximately 1/3 full of water using a hose, bucket, etc. Plug the PVC distributor manifold pipe using a plastic cap, cork, rag, etc. NO gravel or resin should go into this distributor manifold pipe.
2. Verify the distributor manifold is center in the tank with the distributor resting on the bottom of the tank. Verify the riser pipe is still plugged.

NOTE: Reference the specification table in the front of this manual for the correct quantities of gravel and resin. Note that these quantities are for each tank. Make sure you have the required amounts on site before you begin.

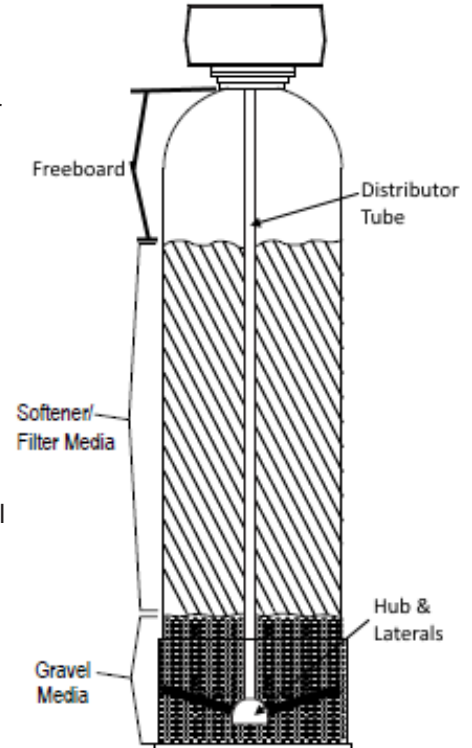
3. With care not to damage any lateral, pour in the gravel provided for each tank through the top opening in the tank and level out evenly. This will cover the distributor assembly.

NOTE: Wetting the gravel in the bags before loading will eliminate the normal amount of dust.

4. When gravel is loaded and leveling is completed, proceed as follows:
5. With the distributor riser pipe still plugged, add the proper amount of resin supplied for each tank through the top opening in the tank.

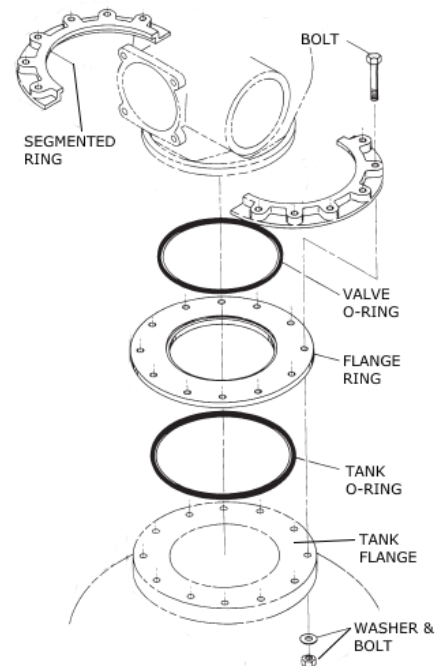
Caution: The softener resin is very slippery. Take care when stepping on any piled resin. Remove spilled resin from standing immediately.

6. When loading is complete, remove plastic cap, cork, or rag that was used to plug the distributor riser pipe. Be careful not to let any foreign debris fall into the pipe. The result could be damage to system.
7. Repeat instruction steps 1-6 for each softener tank (if applicable).



MOUNT CONTROL VALVE ASSEMBLY

1. Verify that the distributor riser pipe is not plugged.
2. Lubricate the distributor o-ring on the bottom of the control valve with silicone.
3. Insert disperser into base of control valve. The base has a groove machined into the inside of the flanged part of the base to allow for the installation of this disperser.
4. Place the tank o-ring and flange ring on the top of the tank. Line up the bolt holes. Then place the valve o-ring on the flange ring.
5. Place the control valve onto the flange ring making sure the distributor riser pipe slides easily through the distributor o-ring. Care must be taken not to “nick” this o-ring as hard water leakage could result. Turn the control to align it with the front of the tank.
6. Align the segmented rings with the holes in the flange ring and tank and use the included bolts, washers, and nuts to secure the valve to the tank. Tighten down the control valve to ensure positive o’ring seal at top of tank.
7. Repeat instruction steps 1-5 for each softener tank (if applicable)



MGT 240M–1200M 3” SINGLE NXT2 INSTALLATION

INSTALLATION INSTRUCTIONS

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.

The 3900 Valve has a 1” 1800 brine valve. For the MGT-240 to MGT-600, it is reduced to ½”. Connect the supplied ½” tubing from the brine valve in the brine tank to the brine tank connection on the valve. Use the supplied tubing tee to provide a connection to both brine tanks.

For the MGT-900 & MGT-1200 the brine line is ¾”. Using the tubing supplied with the system, refer to the diagram on the next page to connect the tubing.

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

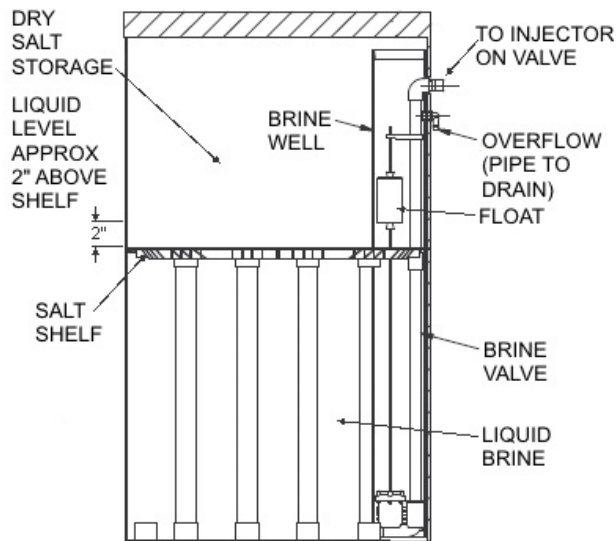
Run flexible tubing (not provided) from the brine tanks over flow fitting to an appropriate, nonelevated, open drain.

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

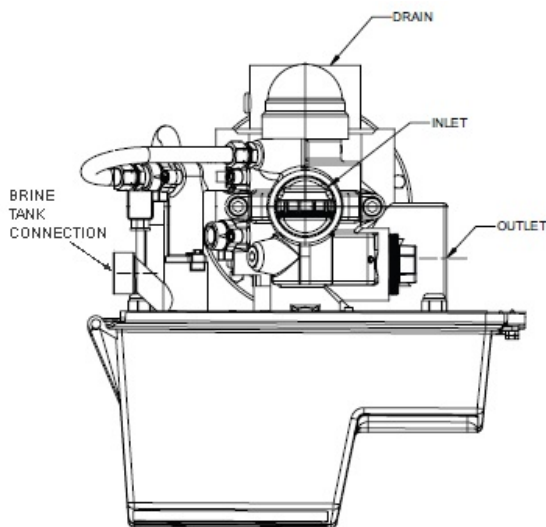
Note: In the process of making brine for the first regeneration, the solution volume will increase (one gallon of water will be 1.2 gallons of brine). The final level of the liquid will be several inches above the platform.

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 granular 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 insoluble will provide continued satisfactory operation. If salt with more insolubles is used, the brine maker will require periodic cleaning.



1 – BRINE SYSTEM

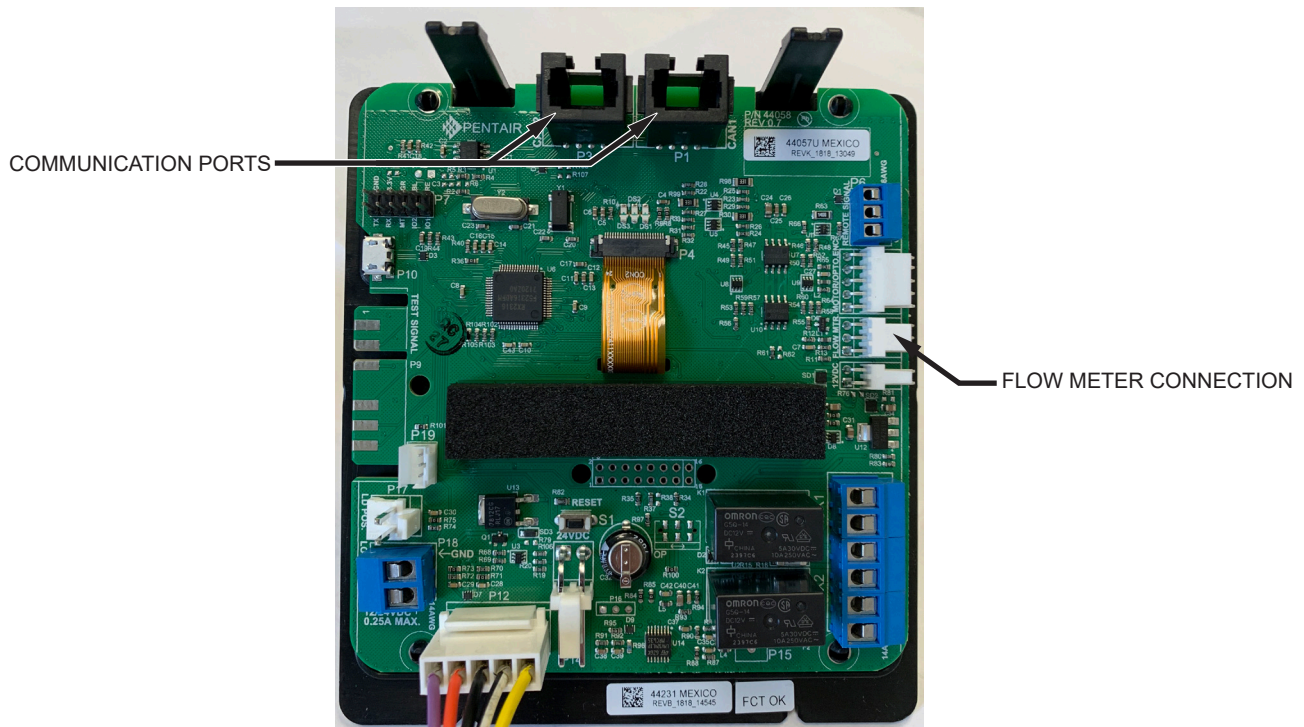


2 – TOP VIEW OF
CONTROL VALVE

MGT 240M–1200M 3” SINGLE NXT2 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. For a twin alternating system, the meter must be installed in the common outlet of the softeners. 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.

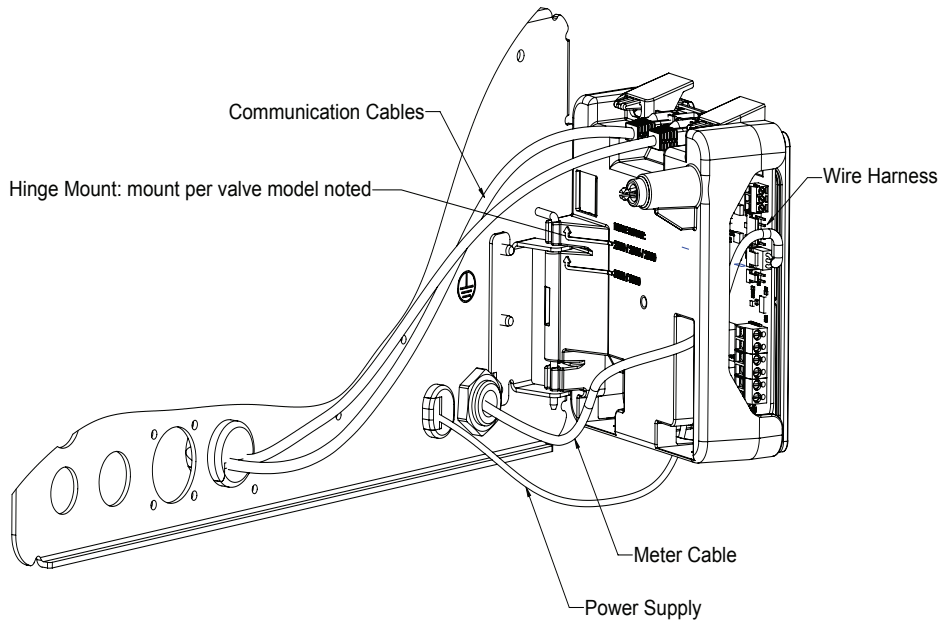


MGT 240M–1200M 3” SINGLE NXT2 INSTALLATION

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.



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.

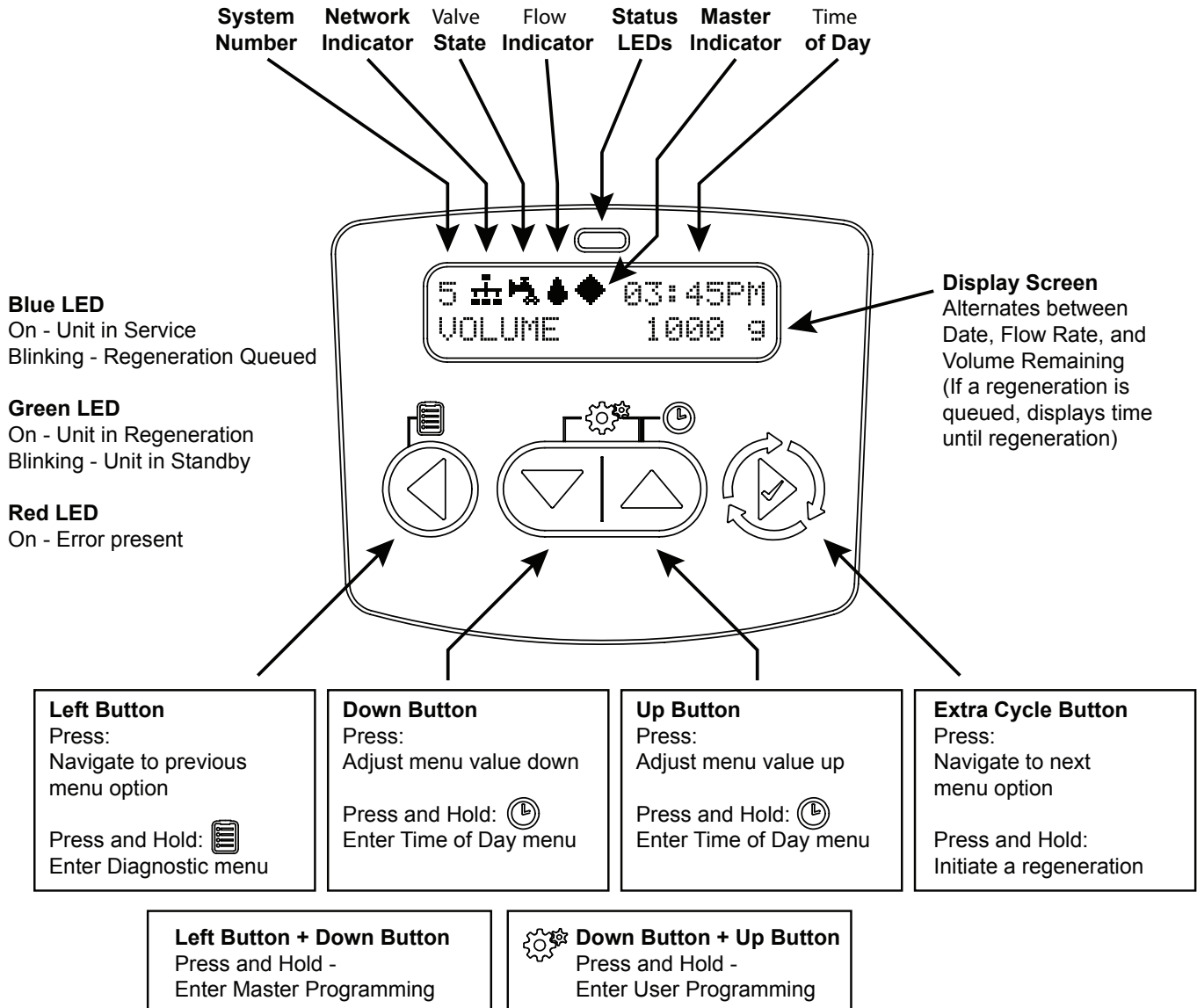
NOTE:

- 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.
3. Connect the brine line tubing to the softener(s) and to the brine tank. Verify that the brine line tubing is not kinked or restricted.
 4. Run flexible tubing from the brine tank over flow fitting to an appropriate, non-elevated, open drain.

MGT 240M-1200M 3" SINGLE NXT2

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 240M–1200M 3” SINGLE NXT2 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 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 240M–1200M 3” SINGLE NXT2

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.

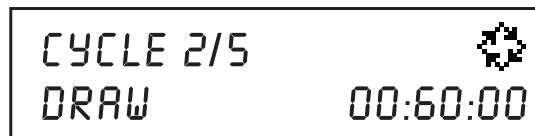
1. Press and hold the Up button for 2 seconds. The “Time” value is displayed. Press the Up or Down buttons to adjust as desired.
2. Press the Extra Cycle button to advance to the “Year” field. Press the Up or Down buttons to adjust as desired.
3. Press the Extra Cycle button to advance to the “Month” 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 240M–1200M 3” SINGLE NXT2 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.

Program Notes:

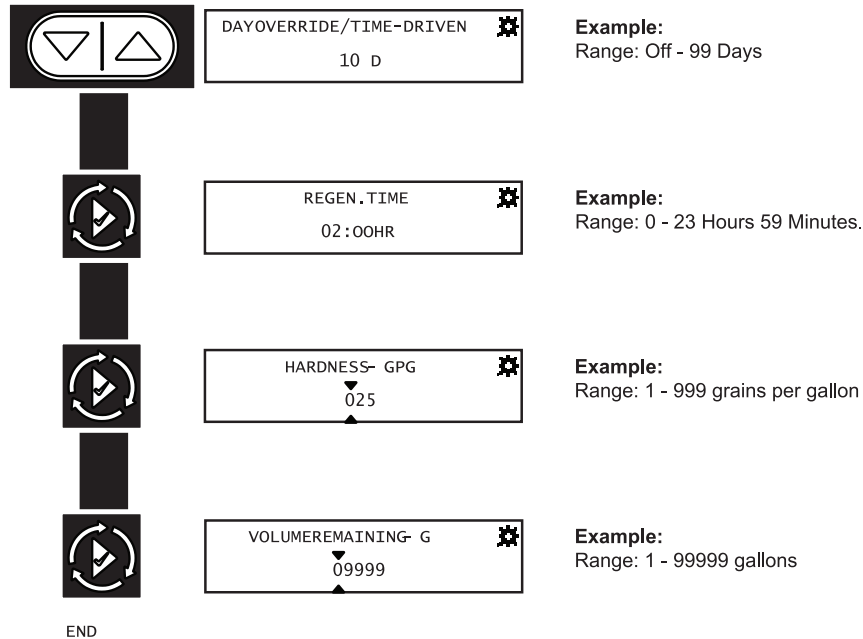
- The valve programmed as initially will be the Lead unit.
- The Meter must be connected to the Lead unit.- Unit 1

MGT 240M-1200M 3" SINGLE NXT2

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 240M–1200M 3” SINGLE NXT2 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 240M-1200M 3" SINGLE NXT2 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.



END

MGT 240M-1200M 3" SINGLE NXT2 OPERATION

MASTER PROGRAMMING MODE FLOW CHART

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

Master Programming Mode:

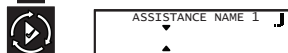
1. Press and hold the Left and Down buttons simultaneously for 3 seconds to enter Master Programming mode.
2. To navigate, press the Extra Cycle button to advance to the next value. Press the Left button to retreat to the previous value.
3. Where applicable, use the Down and Up buttons to adjust a value 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.



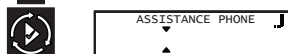
Example:
English, Francais, Duetsch, Italiano, Espanol, Nederlandse, Portugues



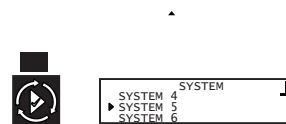
Example:
12 characters maximum.



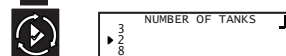
Example:
12 characters maximum.



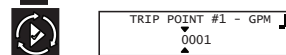
Example:
14 characters maximum.



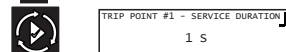
Example:
4, 5, 6, 7, 8, 9, 14



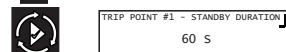
Example:
2, 3, 4, 5, 6, 7, 8



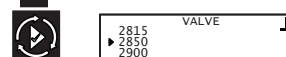
Example:
Trip Points only available/visible when System Type 14 is selected.



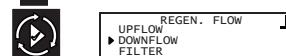
Example:
Range: 1-90 seconds



Example:
Range: 60-300 seconds



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



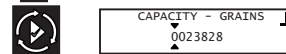
Example:
Upflow
Downflow
Filter



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



Example:
Metric
US



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



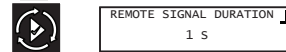
Example:
Range: 0-199 GPG



Example:
Fixed Volume
Weekly Reserve
Variable Reserve
Fixed %



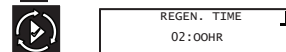
Example:
Off, Immediate, Delayed



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




Example:
Range: Off - 99 Days




Example:
Range: 0 - 23 Hours 59 Minutes.

MGT 240M-1200M 3" SINGLE NXT2 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 240M–1200M 3” SINGLE NXT2 OPERATION

MASTER PROGRAMMING STEPS - 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	3900	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

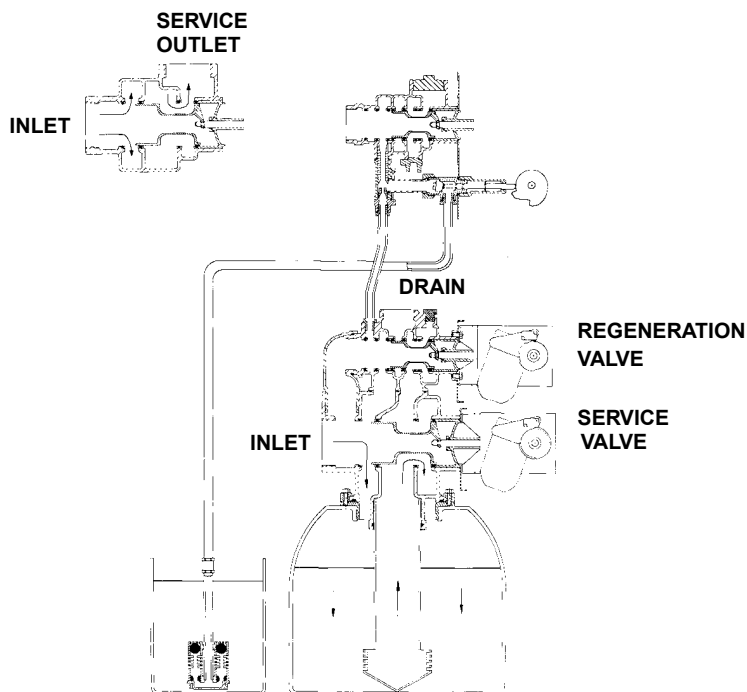
* For settings with an asterisk, consult the data table on page 5.

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 240M-1200M 3" SINGLE NXT2 OPERATION

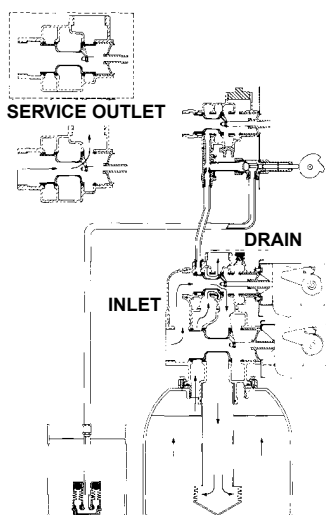
1 SERVICE POSITION



Hard water enters at valve inlet and flows down thru mineral to the bottom distributor. Conditioned water flows up thru the distributor tube, around the piston and out the outlet.

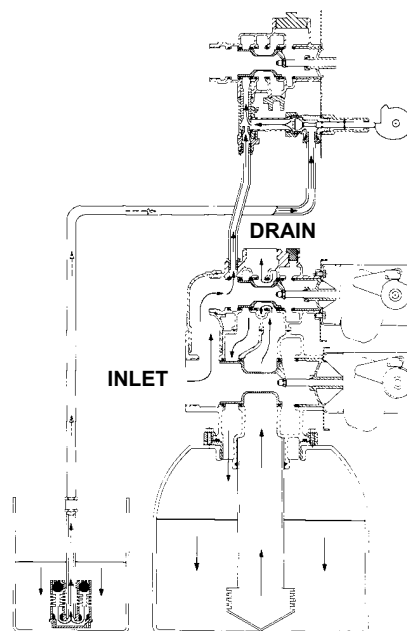
2 BACKWASH POSITION

NO HARD WATER BY-PASS



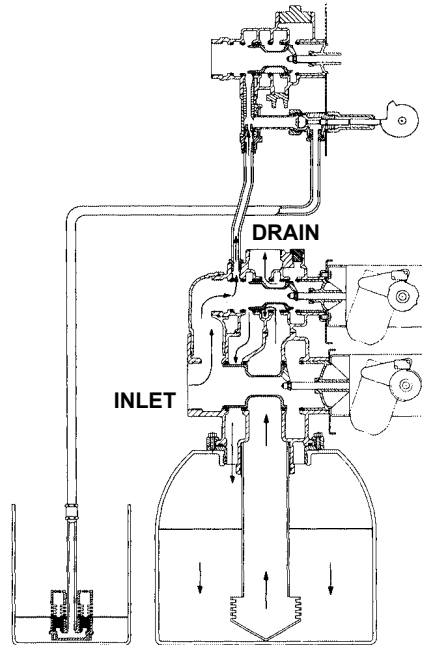
Hard water enters at valve inlet — flows thru service adapter piston for by-pass, and up thru coupling to regeneration valve inlet. Flow continues thru the regeneration valve piston — down the distributor tube — thru the bottom distributor and up thru the mineral — around the piston and out the drain. If optional no hard water by-pass piston is used, water flow to service outlet is prevented by an extension on the service outlet until the end of the rapid rinse cycle or brine tank refill cycle, depending on options chosen.

3 BRINE POSITION



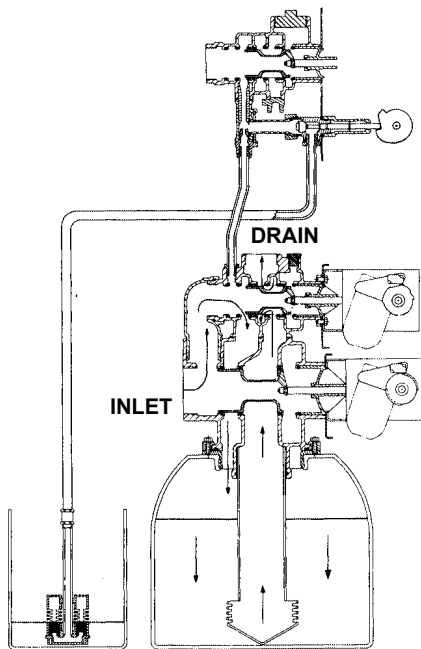
Hard water enters at valve inlet — flows thru injector nozzle and throat to draw brine from the brine tank. Brine flows down thru the mineral — into the bottom distributor — up the distributor tube — around the piston and out the drain.

4 SLOW RINSE POSITION



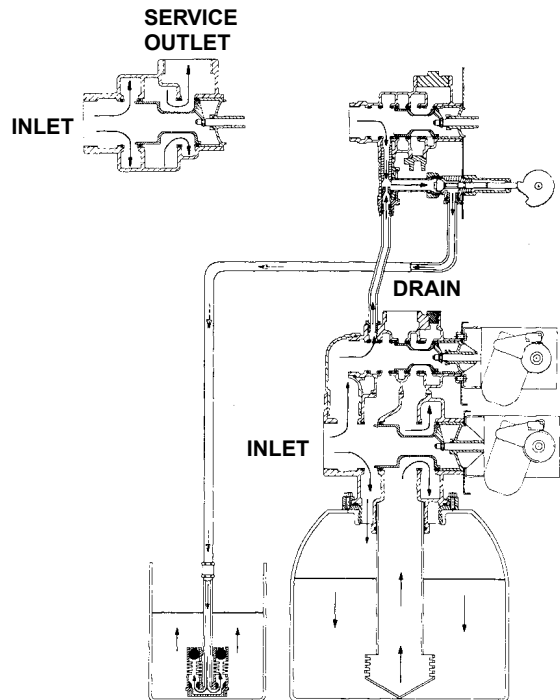
Hard water enters at valve inlet — flows thru injector nozzle and throat — down thru the mineral — into the bottom distributor — up the distributor tube — around the piston and out the drain..

5 RAPID RINSE POSITION



Hard water enters at valve inlet — flows thru the regeneration valve directly down thru the mineral — into the bottom distributor — up the distributor tube — around the piston and out the drain.

6 BRINE TANK REFILL POSITION

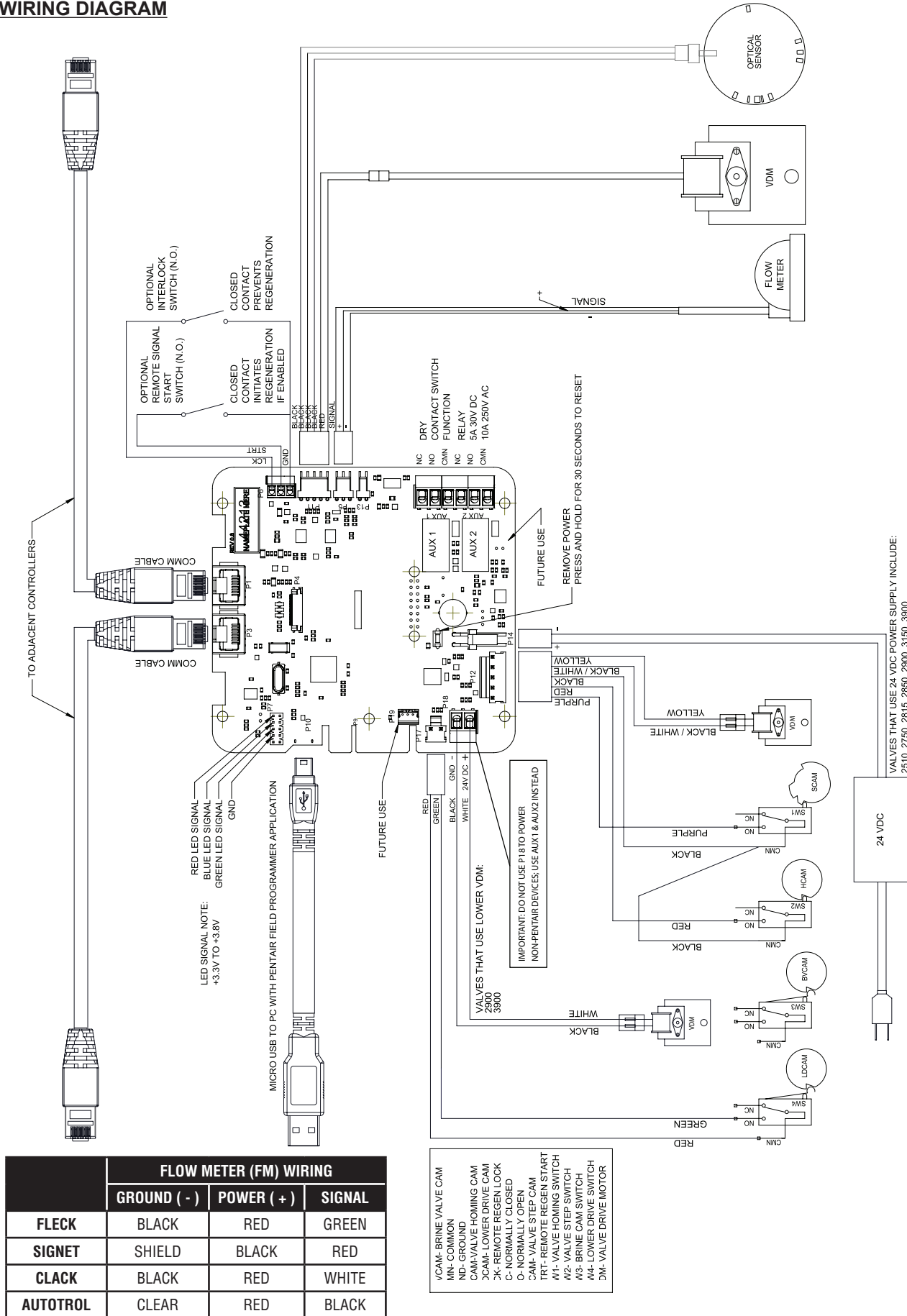


Hard water enters at valve inlet — flows thru nozzle and thru throat to brine valve to refill the brine tank. Inlet flow also continues down thru mineral to the bottom distributor. Conditioned water flows up thru the distributor tube, around the piston and out the outlet. Note: An option is available to keep service valve in by-pass position until the end of brine tank refill cycle.

MGT 240M-1200M 3" SINGLE NXT2 MAINTENANCE

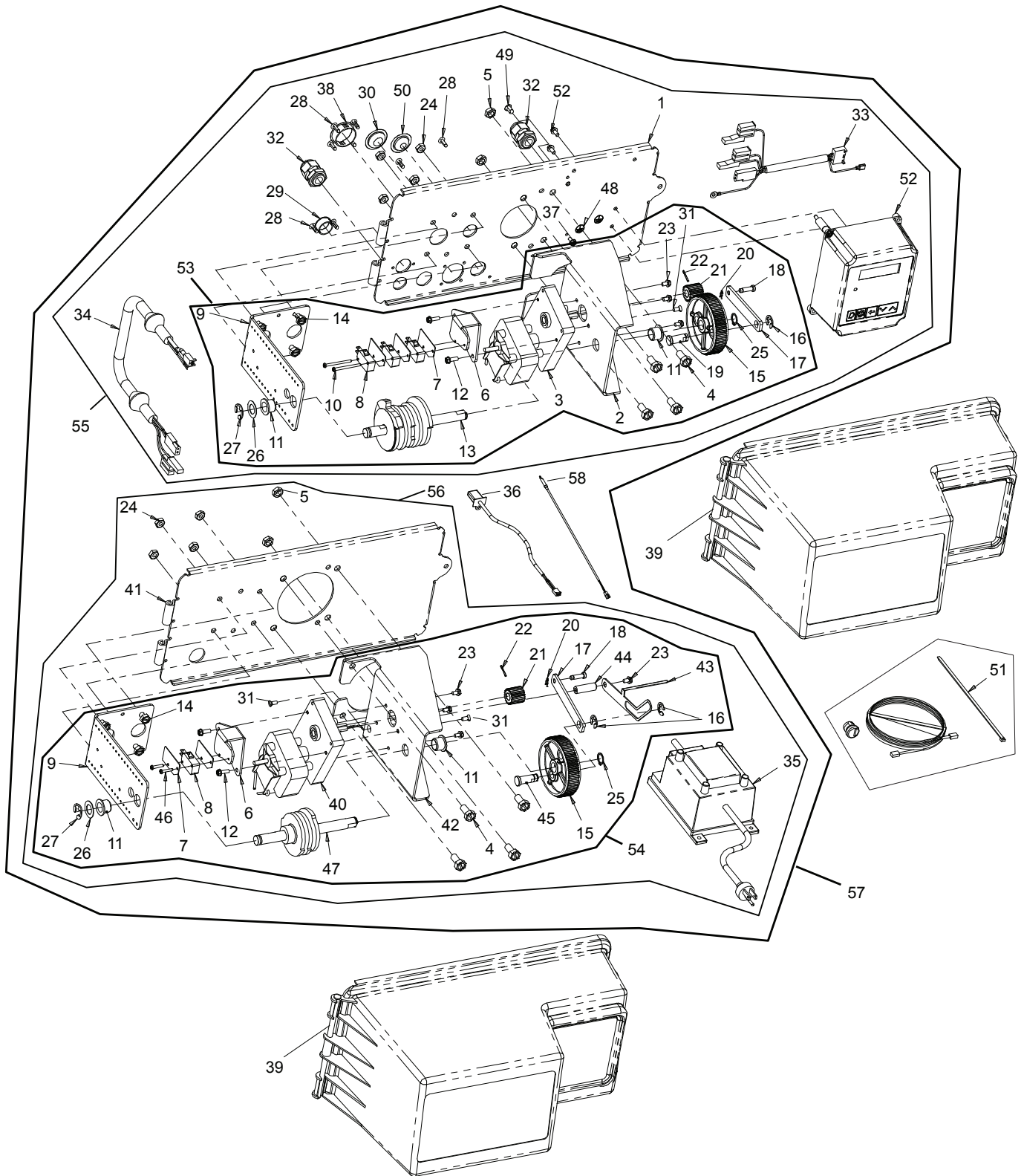
NXT2 WIRING DIAGRAM

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



MGT 240M-1200M 3" SINGLE NXT2 MAINTENANCE

3150/3900 POWERHEAD ASSEMBLY



MGT 240M-1200M 3" SINGLE NXT2 MAINTENANCE

3150/3900 POWERHEAD PARTS LIST

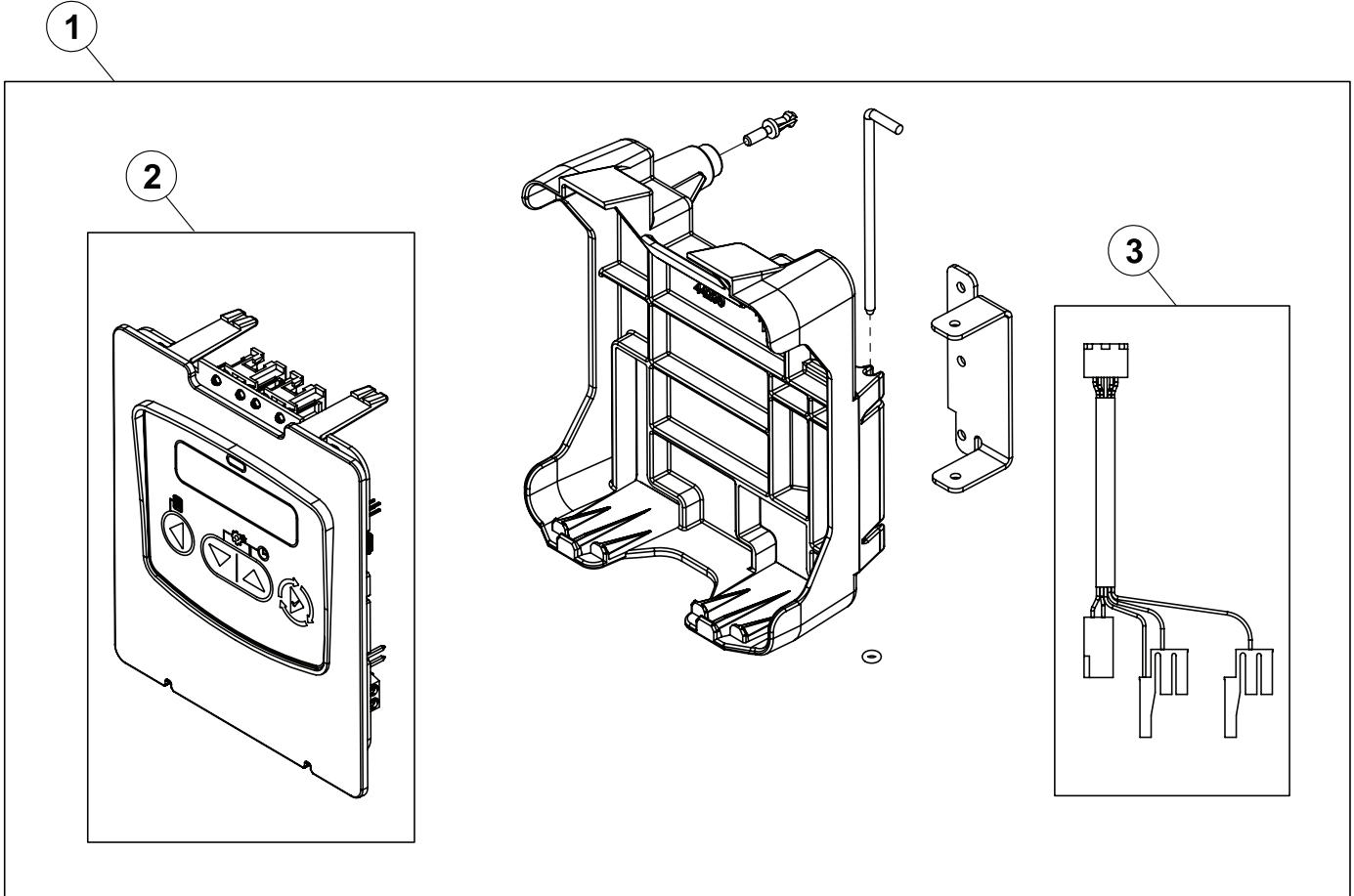
Item No.	QTY	Part No.	Description	Item No.	QTY	Part No.	Description
1	1	19304-04	Backplate, 3150/3900	37	1	14202-01	Screw, Hex Wsh, 8-32 X 5/16
2	1	15120	Bracket, Motor MTG 3150/3900	38	1	17421	Plug, 1.20 Hole
3	1	42581	Motor, Drive, 24V, 50/60 HzSP	39	2	60240-02	Cover Assy, 3150/3900, Env, Black
4	8	11224	Screw, HexHD, 5/16 - 18 X 5/8, SS	40	1	42581	Motor, Drive, 115V, 50/60HzSP
5	4	16346	Nut, Hex, Jam, 5/16 - 18, 18-8-SS	41	1	19305	Backplate, 3900, Lower, Env
6	2	17797	Bracket, Switch, Mounting, 3150/3900	42	1	16086	Bracket, Motor Mounting
7	5	10302	Insulator, Limit Swit ch	43	1	19315	Indicator, Service/Standby, 3900
8	4	10218	Switch, Micro	44	1	18726	Spacer, Indicator
9	2	16053	Bracket, Brine Side	45	1	16048	Bearing, Drive Link
10	2	12624	Screw, Phil Pan, 40 X 1 1/2	46	2	11805	Screw, RD HD, 4-40 X 5/8, Type 1
11	4	16052	Bushin, 3150/3900	47	1	16495	Cam Assy 3900, Lower
12	4	17567	Screw, Hex, WshHD, 8 X 1/2	48	1	41102	Label, 3200NT, Ground
13	1	16494	Cam Assy 3150/3900	49	1	19801	Plug, .190 Dia, White
14	8	10231	Screw, Slot Hex, 1/4 - 20 X 1/2 18-8 SS	50	1	19691	Plug, .750 Dia, Recessed, Black
15	2	16046	Gear, Drive	51	1	61763	Kit, Can Communication Cable
16	3	11774	Ring, Retaining	52	1	62115	Timer Assy NXT2
17	2	16047	Link, Drive	53		60057-03	Drive Assy, 3150, 3900 Upper, 24V 50/60 Hz
18	2	11709	Pin, Drive Link	54		60058-03	Lower Drive Assy, 3900, 24V 50/60 Hz
19	1	16048	Bearing, Drive Link	55	*		Powerhead Assy, 3150, 3900 Upper
20	2	11898	Clip, 3150/3900	56	*		Powerhead Assy, 3900 Lower
21	2	16045	Pinion, Drive	57	*		Powerhead Assy, 3900 Upper & Lower
22	2	11381	Pin, Roll, 2900/3900	58	1	19791	Meter Cable Assembly
23	7	10872	Screw, Hex Wsh, 8-32 X 17/64			19791-02	Meter Cable Assembly, 28 inch long with connector
24	8	11235	Nut, Hex, 1/4 - 20			19791-04	Meter Cable Assembly, 100 inch long with connector
25	2	16050	Ring, Retaining			19791-05	Meter Cable Assembly, 304 inch long with connector
26	2	16059	Washer, SS, .88, 3150/3900				
27	2	16051	Ring, Retaining, Bowed				
28	8	19800	Plug, .140, White				
29	1	15806	Plug, Hole, Heyco, #2693				
30	1	19591	Plug, .8750 Hole, Recessed, Black				
31	3	11080	Screw, FLT HD Mach, 8-32 X 3/8				
32	2	17967	Fitting Assy, Liquid Tight, Blk				
33	1	40941	Wire Harness, Upper Drive				
34	1	40943	Wire Harness, Lower Drive W/ Molded Strain Relief				
35	1		Power Supplies.....See Service Assemblies on Page 50.				
			.....Power Supplies.....See Service Assemblies on Page 50.				
			.....Power Supplies.....See Service Assemblies on Page 50.				
36	1	19121	Meter Cable Assembly				
		19121-08	Meter Cable Assembly, 35 inch long with connector				
		19121-09	Meter Cable Assembly, 100 inch long with connector				
		19121-10	Meter Cable Assembly, 304 inch long with connector				

* Call your distributor for Part Number

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

**MGT 240M-1200M 3" SINGLE NXT2
MAINTENANCE**

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



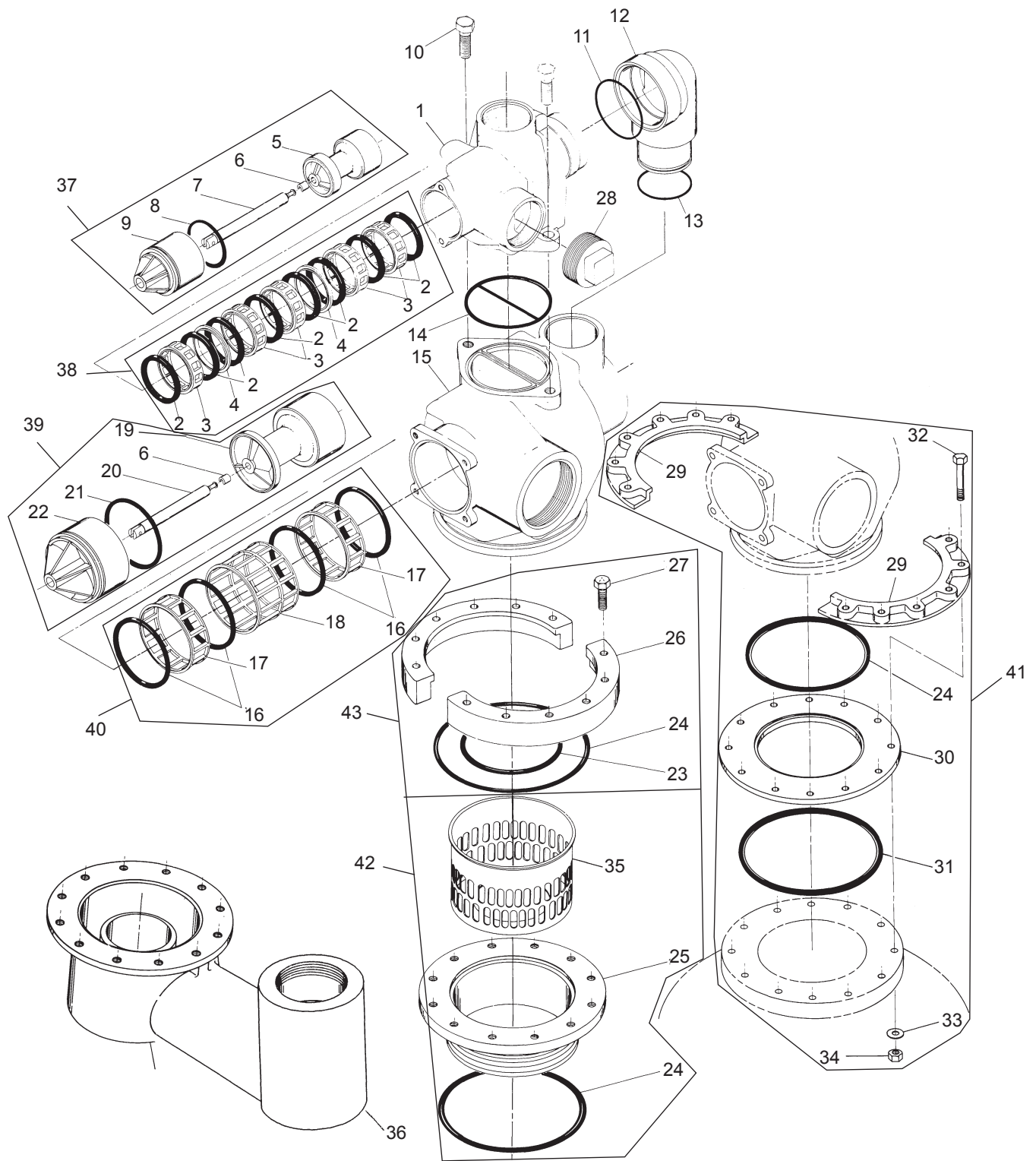
Item No.	QTY	Part No.	Description
1	1	62115	Timer Assy, NXT2

Service Assemblies

2	1	62120	Control Panel Assy, NXT2, Programmed
3	1	40941	Wire Harness, Upper Drive

MGT 240M-1200M 3" SINGLE NXT2 MAINTENANCE

3900 CONTROL VALVE BODY



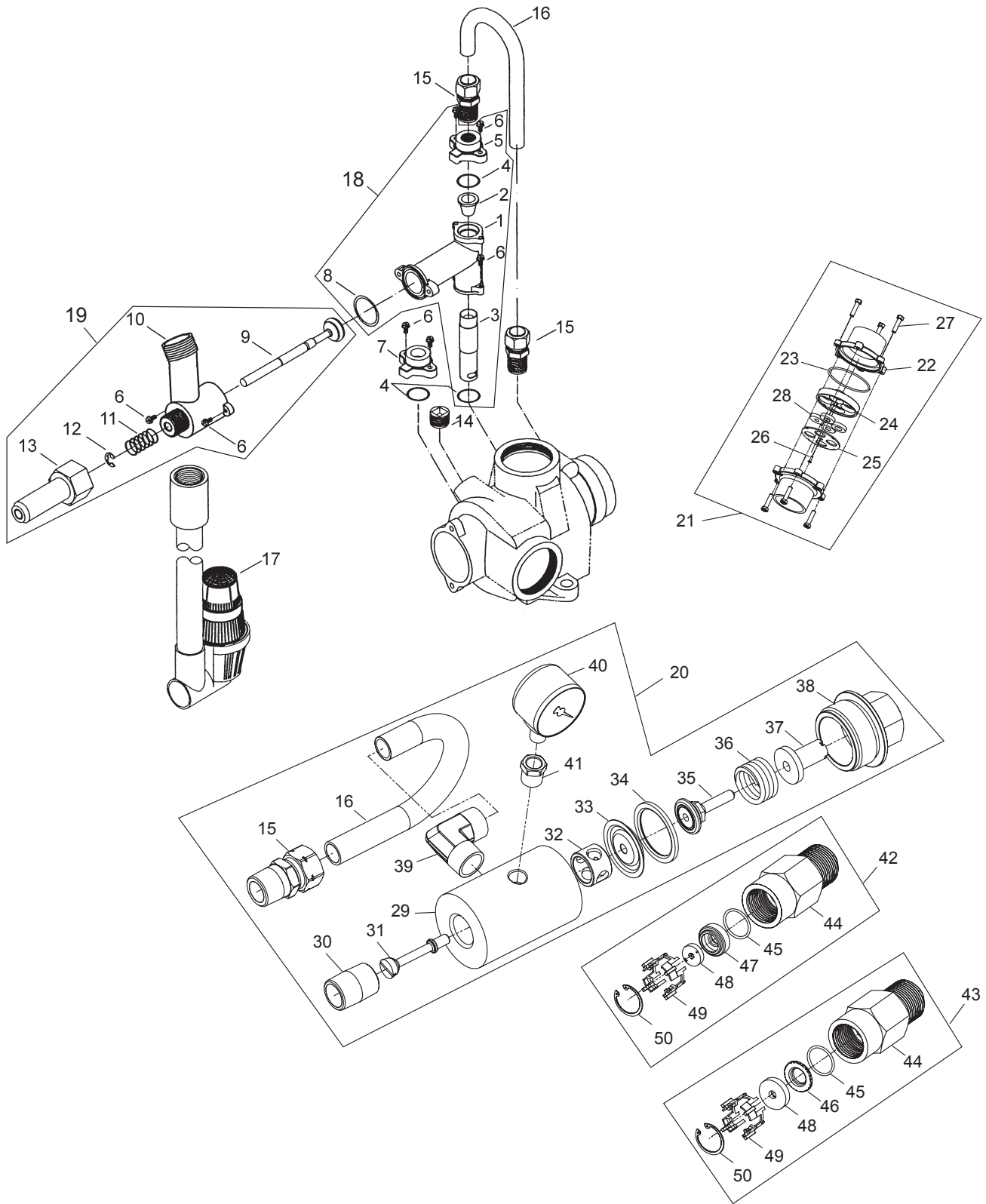
MGT 240M-1200M 3" SINGLE NXT2 MAINTENANCE

3900 CONTROL VALVE PARTS LIST

Item No.	QTY	Part No.	Description	Item No.	QTY	Part No.	Description
1	1	15114	Valve Body			60107-10	Piston Assy, 3900, NHWBP, Lower
2	8	11720	Seal	40		60132	Seal & Spacer Kit, 3900, Lower
		11720-02	Seal, Silicone			60132-10	Seal & Spacer Kit, 3900, 558BP Chemical Resistent, Lower
3	5	10369	Spacer - Port	41		60190	Flange Kit, Park & Structural, 09/05 and After
4	2	10368	Spacer			60191	Flange Kit, Park, 08/05 and Prior
5	1	16130	Piston	42		60193	Flange Kit, 6-inch Thread
6	2	14818	Clip - Piston Rod	43		60192	Flange Kit, Welded
7	1	15125	Piston Rod	Options			
8	1	14922	O-ring -035	29	2	16482	Flange Segment
9	1	16398-01	End Plug Assembly	30	1	16483	Flange Ring
10	2	40118	Screw - Hex Head	31	1	16484	O-Ring -442
11	1	16078	O-ring - 149	32	12	16517	Screw, Park Tank
12	1	16074	Coupling			19592	Screw, Structural Tank
13	1	16077	O-ring - 140	33	12	18619	Washer
14	1	15112	Seal	34	12	16346	Nut
15	1	16067-02	3-inch Adapter Body	36	1	18584	Adapter, Side Mount
16	4	16068	Seal				
		41534	Seal, 3900, 558 BP				
17	2	16069	Spacer - Narrow				
18	1	16070	Spacer - Wide				
19	1	16071	Piston				
		16082	Piston - No Hard Water Bypass				
20	1	16072	Piston Rod				
21	1	16076	O-ring - 042				
22	1	16399-01	End Plug Assy - White				
		16399-11	End Plug Assy - Black, NHWB-P				
23	1	16800	O-ring - 238				
24	2	16345	O-ring - 362				
25	1	16255	Tank Adapter - 6-inch -8				
26	2	16257	Flange Segment				
27	12	11238	Screw - Hex Head				
28	1	16088	Pipe Plug - 2-inch NPT				
35	1	16258	Flow Dispenser				
37		60106-00	Piston Assy, 3900/3150 STD				
		60106-10	Piston Assy, 3150, Upflow				
38		60131	Seal & Spacer Kit, 3900 Upper, 3150				
		60131-10	Seal & Spacer Kit, Silicone, Chemical Resistent, 3900 Upper, 3150				
39		60107-00	Piston Assy, 3900, HWBP, Lower				

MGT 240M-1200M 3" SINGLE NXT2 MAINTENANCE

1800 BRINE SYSTEM



MGT 240M–1200M 3” SINGLE NXT2 MAINTENANCE

1800 BRINE SYSTEM PARTS LIST

Item No.	QTY	Part No.	Description	Item No.	QTY	Part No.	Description
1	1	16340	Body, Injector, 1800 D/F	15	2	18702	Fitting, Tube, 1/2 NPT 5/8
		16340-20	Body, Injector, 1800, Downflow, Metric	16	1	18703	Tube, Brine, 5/8 OD Annealed
		16340-01	Body, Injector, 1800 Upflow			18703-01	Tube, Brine, 5/8 OD, Short, Upflow
		16340-21	Body, Injector, 1800, Upflow, Metric	17	1	60009-00	Air Check, #900, Commercial Less Fittings
2	1	15128-xx	Injector Nozzle			60009-01	Air Check, #900, Commercial, HW Less Fittings
		15128-04	#4 Green	18		60277-04	Injector Assy, 1800, #4, Downflow
		15128-05	#5 Red			60272-04	Injectory Assy, 1800, #4, Upflow
		15128-06	#6 White			60277-05	Injectory Assy, 1800 #5, Downflow
		15128-07	#7 Blue			60272-05	Injector Assy, 1800, #5, Upflow
		15128-08	#8 Yellow			60277-06	Injector Assy, 1800, #6, Downflow
		15128-09	#9 Violet			60277-07	Injector Assy, 1800, #7, Downflow
		15128-10	#10 Black				
3	1	15127-xx	Injector Throat				
		15127-04	#4 Green				
		15127-05	#5 Red				
		15127-06	#6 White				
		15127-07	#7 Blue				
		15127-08	#8 Yellow				
		15127-09	#9 Violet				
		15127-10	#10 Black				
4	3	15246	O-ring, -116				
5	1	16341-01	Cap, Injector, 1800				
6	8	12473	Screw, Hex Wsh, 10-24 x 5/8				
7	1	16341-02	Plug, Injector, 1800				
8	1	19054	O-ring, -021, 560CD				
9	1	16497-01	Stem Assy, 1800, Brine Valve				
10	1	18713	Brine Valve Body, 1800				
11	1	11772	Spring, 3150 Brine Valve				
12	1	11774	Ring, Retaining				
13	1	16498-01	Stem Guide Assy, Brine				
14	1	16387	Plug, Pipe, 1/2-inch NPT				

MGT 240M–1200M 3” SINGLE NXT2 MAINTENANCE

1800 BRINE SYSTEM PARTS LIST (continued)

Item No.	QTY	Part No.	Description	Item No.	QTY	Part No.	Description
		..... 60272-07.....	Injector Assy, 1800, #7, Upflow				70 gpm
		..... 60277-08.....	Injector Assy, 1800, #8, Downflow	..... 60812-75.....			DLFC, 2-inch BSP/Metric, 75 gpm
		..... 60277-09.....	Injectory Assy, 1800 #9, Downflow	..... 60812-80.....			DLFC, 2-inch BSP/Metric, 80 gpm
		..... 60277-10.....	Injectory Assy, 1800 #10, Downflow	..... 60812-90.....			DLFC, 2-inch BSP/Metric, 90 gpm
19.....		..... 60036-02.....	Brine Valve, 1800, Design 3	..... 60812-95.....			DLFC, 2-inch BSP/Metric, 95 gpm
		..... 60276-01.....	Brine Valve, 1800, Retrofit Kit, Downflow 1800 Injector and Brine Valve, Update to Design 3	..... 60812-100.....			DLFC, 2-inch BSP/Metric, 100 gpm
20.....		..... 60734.....	Regulator, 3150/3900, Pressure, Upflow	22.....	2	..... 27913-21.....	Housing, Flow Control, 2-inch BSP
21.....		..... 60711-000.....	DLFC, 2-inch NPT, Less BTTNS, w/4 HLS	23.....		..... 16804.....	O-ring, -150
		..... 60711-00.....	DLFC, 2-inch NPT, Less BTTNS, W/2 HLS	24.....	1	..... 16649.....	Holder, DLFC Button
		..... 60711-01.....	DLFC, 2-inch NPT, Less BTTNS, W/1 HLS	25.....	1	..... 16650.....	Cover Plate DLFC
		..... 60711-20.....	DLFC, 2-inch NPT, 20 gpm	26.....	1	..... 13898.....	Screw, Flat HD, Phil, Steel
		..... 60711-25.....	DLFC, 2-inch NPT, 25 gpm	27.....	6	..... 13386.....	Screw, Hex HD MACH, 1/4-20 x 1 OR Slot Hex Cap Screw 18-8 S.S.
		..... 60711-30.....	DLFC, 2-inch NPT, 30 gpm			..... 17976.....	Screw, Hex HD, M6 x 25 mm
		..... 60711-35.....	DLFC, 2-inch NPT, 35 gpm	28.....		..... 16529.....	Washer, Flow, 10.0 gpm
		..... 60711-40.....	DLFC, 2-inch NPT, 40 gpm			..... 16736.....	Washer, Flow, 15.0 gpm
		..... 60711-45.....	DLFC, 2-inch NPT, 45 gpm			..... 16528.....	Washer, Flow, 20.0 gpm
		..... 60711-50.....	DLFC, 2-inch NPT, 50 gpm			..... 16737.....	Washer, Flow, 25.0 gpm
		..... 60711-55.....	DLFC, 2-inch NPT, 55 gpm	29.....	1	..... 19089.....	Body Regulator 3150
		..... 60711-60.....	DLFC, 2-inch NPT, 60 gpm	30.....	1	..... 10242.....	Fitting, Nipple, 1/2-inch, Close
		..... 60711-65.....	DLFC, 2-inch NPT, 65 gpm	31.....	1	..... 19091.....	Pin, Regulator 3150
		..... 60711-70.....	DLFC, 2-inch NPT, 70 gpm	32.....	1	..... 19093.....	Stand-Off Regulator 3150
		..... 60711-75.....	DLFC, 2-inch NPT, 75 gpm	33.....	1	..... 19095.....	Diaphragm, Regulator 3150
		..... 60711-80.....	DLFC, 2-inch NPT, 80 gpm	34.....	1	..... 19094.....	Washer, Regulator 3150
		..... 60711-85.....	DLFC, 2-inch NPT, 85 gpm	35.....	1	..... 19092.....	Retainer, Regulator 3150
		..... 60711-90.....	DLFC, 2-inch NPT, 90 gpm	36.....	1	..... 19101.....	Spring, Regulator 3150
		..... 60711-95.....	DLFC, 2-inch NPT, 95 gpm	37.....	1	..... 19399.....	Washer, Calibration 3150
		..... 60711-100.....	DLFC, 2-inch NPT, 100 gpm	38.....	1	..... 19090.....	Cap, Regulator 3150
		..... 60812-30.....	DLFC, 2-inch BSP/Metric, 30 gpm	39.....	1	..... 19278.....	Fitting, Tube, 90 Deg
		..... 60812-35.....	DLFC, 2-inch BSP/Metric, 35 gpm	40.....	1	..... 19693.....	Pressure Gauge
		..... 60812-45.....	DLFC, 2-inch BSP/Metric, 45 gpm	41.....	1	..... 41232.....	Bushing Reducer 1/4 x 1/8
		..... 60812-50.....	DLFC, 2-inch BSP/Metric, 50 gpm	42.....		..... 60710-1.2.....	BLFC, 1-inch F x 1-inch M, NPT, 1.2 gpm
		..... 60812-55.....	DLFC, 2-inch BSP/Metric, 55 gpm			..... 60710-2.0.....	BLFC, 1-inch F x 1-inch M, NPT, 2.0 gpm
		..... 60812-70.....	DLFC, 2-inch BSP/Metric,			..... 60710-2.4.....	BLFC, 1-inch F x 1-inch M, NPT, 2.4 gpm
						..... 60710-3.0.....	BLFC, 1-inch F x 1-inch M, NPT, 3.0 gpm
						..... 60710-3.5.....	BLFC, 1-inch F x 1-inch M,

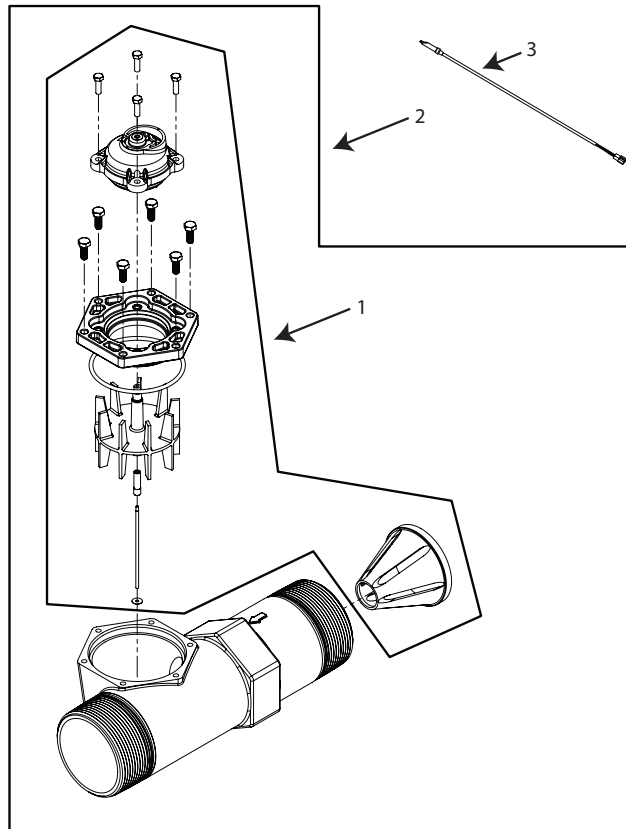
MGT 240M-1200M 3" SINGLE NXT2 MAINTENANCE

1800 BRINE SYSTEM PARTS LIST (continued)

Item No.	QTY	Part No.	Description
			NPT, 3.5 gpm
		..... 60710-4.0.....	BLFC, 1-inch F x 1-inch M, NPT, 4.0 gpm
		..... 60710-5.0.....	BLFC, 1-inch F x 1-inch M, NPT, 5.0 gpm
		..... 60710-7.0.....	BLFC, 1-inch F x 1-inch M, NPT, 7.0 gpm
43.....		..... 60710-9.0.....	BLFC, 1-inch F x 1-inch M, NPT, 9.0 gpm
		..... 60710-10.....	BLFC, 1-inch F x 1-inch M, NPT, 10 gpm
		..... 60710-12.....	BLFC, 1-inch F x 1-inch M, NPT, 12 gpm
		..... 60710-15.....	BLFC, 1-inch F x 1-inch M, NPT, 15 gpm
		..... 60710-20.....	BLFC, 1-inch F x 1-inch M, NPT, 20 gpm
		..... 60710-25.....	BLFC, 1-inch F x 1-inch M, NPT, 25 gpm
44.....		..... 16530.....	Housing, BLFC, 1"M x 1"F
45.....		..... 19292.....	O-ring, -020
46.....		..... 19279.....	Retainer, Flow Control, Flow 9.0 - 25 gpm
47.....		..... 19053.....	Retainer, Flow Control, Flow 2.0 - 7.0 gpm
48.....		..... 12085.....	Washer, Flow, 1.2 gpm
		..... 12087.....	Washer, Flow, 2.0 gpm
		..... 12088.....	Washer, Flow, 2.4 gpm
		..... 12089.....	Washer, Flow, 3.0 gpm
		..... 12090.....	Washer, Flow, 3.5 gpm
		..... 12091.....	Washer, Flow, 4.0 gpm
		..... 12092.....	Washer, Flow, 5.0 gpm
		..... 12408.....	Washer, Fow, 7.0 gpm
		..... 17944.....	Washer, Flow, 9.0 gpm
		..... 16529.....	Washer, Flow, 10.0 gpm
		..... 16735.....	Washer, Flow, 12.0 gpm
		..... 16736.....	Washer, Flow, 15.0 gpm
		..... 16528.....	Washer, Flow, 20.0 gpm
		..... 16737.....	Washer, Flow, 25.0 gpm
49.....		..... 16738.....	Retainer,Flow Control
50.....		..... 16805.....	Ring, Retaining
Not Shown - Option Without Brine Valve			
	1	..... 16605.....	Retainer Plate
	1	..... 19860.....	Fitting, Brine Valve, 1800

MGT 240M-1200M 3" SINGLE NXT2 MAINTENANCE

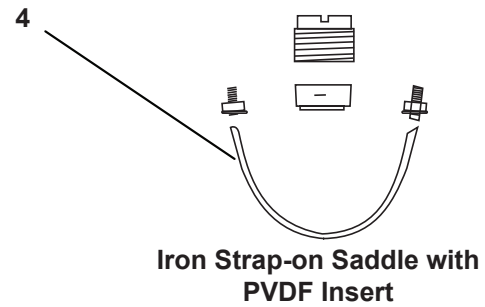
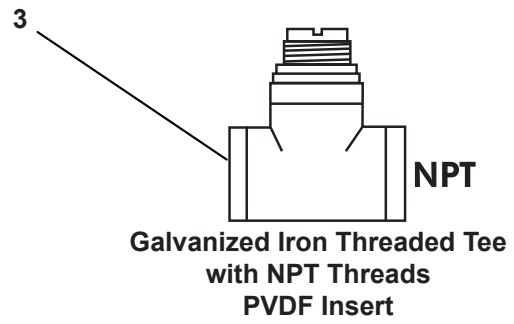
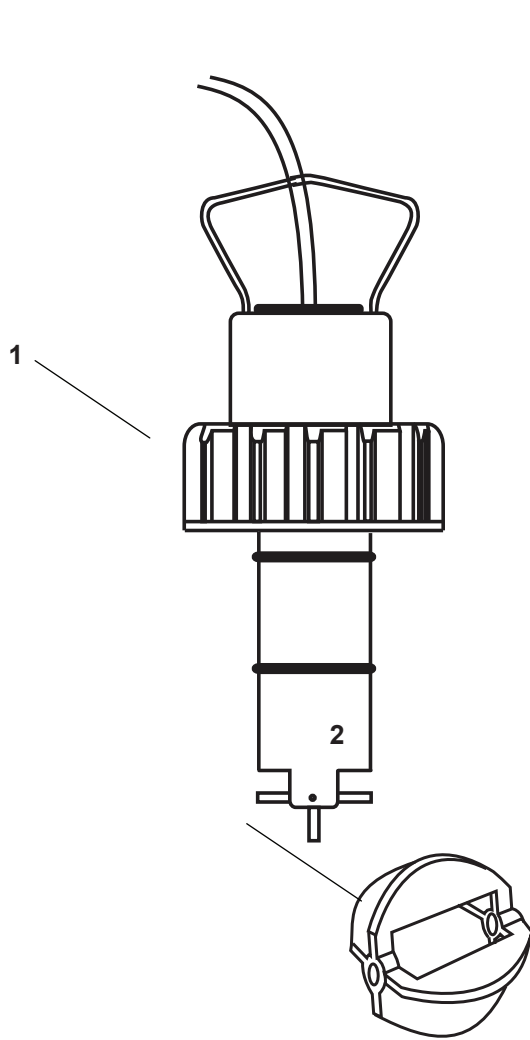
3" STAINLESS STEEL METER ASSEMBLY



Item No.	QTY	Part No.	Description
1	1	62078-01	Service Kit, 3 Inch Meter, Standard Range
	1	62078-02	Service Kit, 3 Inch Meter, Extended Range
2	1	61935-10	Meter Assy, 3 Inch, Inline, Stainless Steel, NPT, Standard Range
		61935-11	Meter Assy, 3 Inch, Inline, Stainless Steel, NPT, Extended Range
		61935-20	Meter Assy, 3 Inch, Inline, Stainless Steel, BSP, Standard Range
		61935-21	Meter Assy, 3 Inch, Inline, Stainless Steel, BSP, Extended Range
3	1	19791	Meter Cable Assembly,
		19791-02	Meter Cable Assembly, 28 inch long with connector
		19791-04	Meter Cable Assembly, 100 inch long with connector
		19791-05	Meter Cable Assembly 304 inch long with connector

**MGT 240M-1200M 3" SINGLE NXT2
MAINTENANCE**

2536 STANDARD MOUNT SENSOR



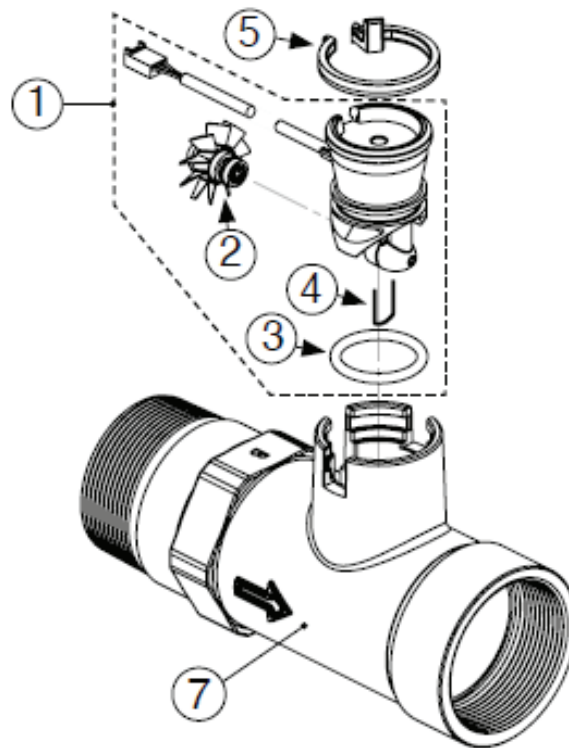
K-FACTOR TABLE - SIGNET 2536
(Pulses per Gallon)

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

ITEM NUMBER	PART NUMBER	DESCRIPTION
1	A2296001	Flow Sensor
2	A2456004	Rotor/Paddle
3	A2294012	Tee Install 1 Galv
	A2294002	Tee Install 1-1/4 Galv
	A2294003	Tee Install 1-1/2 Galv
	A2294004	Tee Install 2 Galv
4	A2295001	Saddle 2-1/2 Iron
	A2295002	Saddle 3 Iron

MGT 240M-1200M 3" SINGLE NXT2 MAINTENANCE

CLACK STAINLESS STEEL TURBINE METER ASSEMBLIES



K-FACTOR TABLE
(pulses per gallon)

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

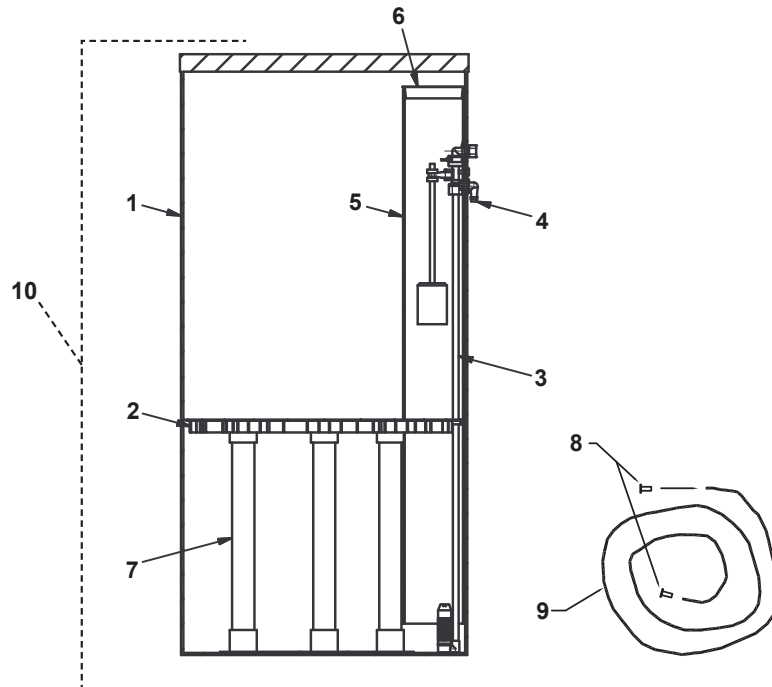
ITEM NUMBER	PART NUMBER	DESCRIPTION	CLACK NO
	A2360069	1-1/2" METER COMPLETE, 15' CABLE	V3040-15
	A2426203	2" METER COMPLETE, 15' CABLE	V3094-15
	A2360072	3" METER COMPLETE, 15' CABLE	V3095-15
1	A2360061	REMOTE METER ASSY 15' CORD (incl. 2, 3 & 4)	V3221
2	A2100029	TURBINE ASSEMBLY	V3118-03
3	A2077178	O-RING -215	V3105
4		TURBINE CLIP	V3501
5	A2411021	METER RETAINING CLIP	V3632
7		WS1.5 METER HOUSING NPT	V3401-04
7		WS2 METER HOUSING NPT	V3754-01
7		WS3 METER HOUSING NPT	V3844-01
Not Shown	A2503006	WS1.5 FLOW STRAIGHTENER	V3437
Not Shown		WS2 FLOW STRAIGHTENER	V3488
Not Shown		WS3 FLOW STRAIGHTENER	V3602

NOTES:

- 1) When installing the meter, make sure the arrow on the meter body is going in the same direction as the water flow.
- 2) This water meter should not be used as the primary monitoring device for critical or health effect applications.
- 3) Operating Pressures: 20-125 psi. Operating Temperatures: 40-110°F.
- 4) Meter can be installed in either horizontal or vertical applications.

MGT 240M-1200M 3" SINGLE NXT2 MAINTENANCE

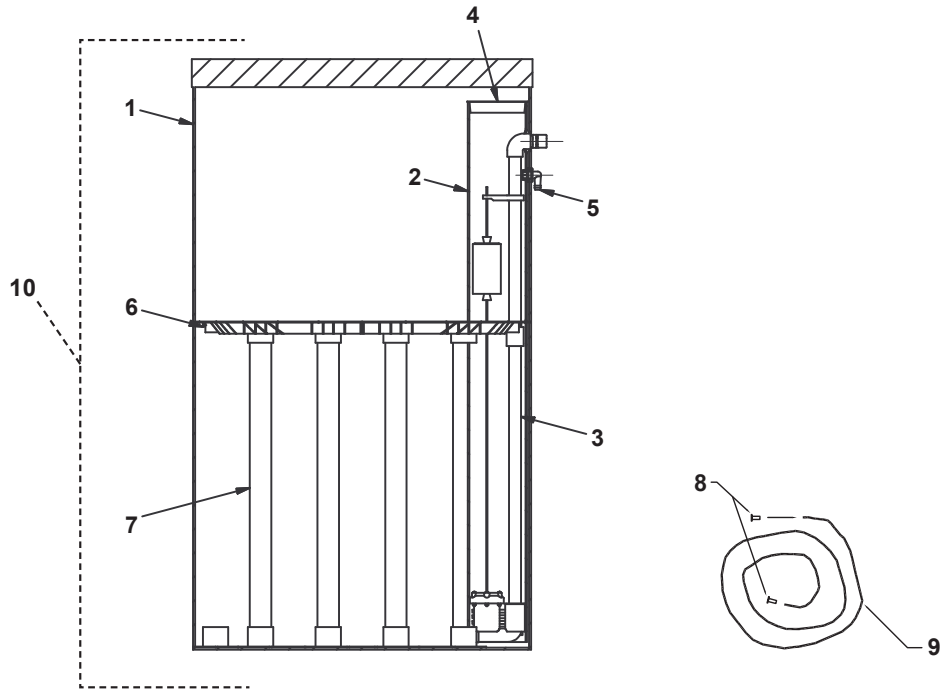
BRINE SYSTEM - MGT 240M-300M



Item Number	Description	Part Number
1	Brine Tank 24"x50" w/ Holes - MGT 240M-300M	B1002016
2	24" Diameter 5BW Plastic Grid Plate	A2284007
3	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 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 240M–1200M 3” SINGLE NXT2 MAINTENANCE

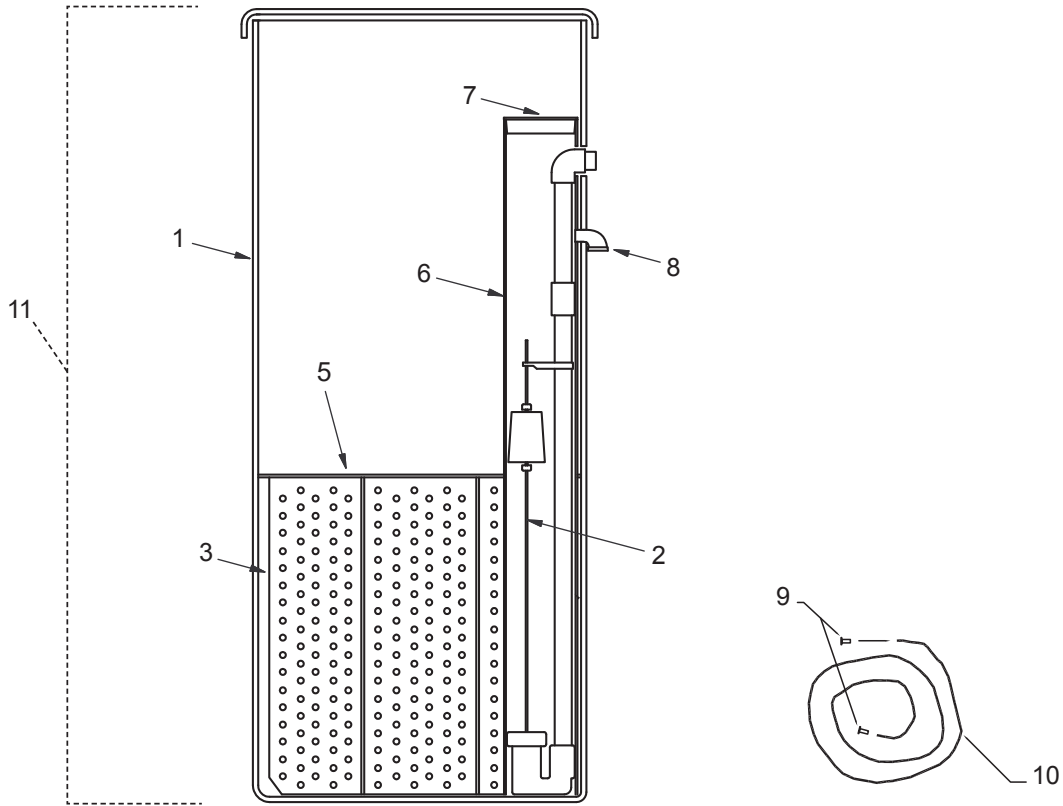
BRINE SYSTEM - MGT 450M



Item Number	Description	Part Number
1	Brine Tank 30" x 50" w/ Holes - MGT 450M	B1002041
2	5" x 48" Drilled Brine Well	B1015005
3	Brine Valve Assembly 16-1/4" x 24"	B1042007
4	5" Red Cap plug	A2072001
5	1/2" Overflow Elbow w/ Nut	A2250003
6	30" Plastic Top/Bottom Grid Plate	A2284010
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 450M	B1141009

MGT 240M-1200M 3" SINGLE NXT2 MAINTENANCE

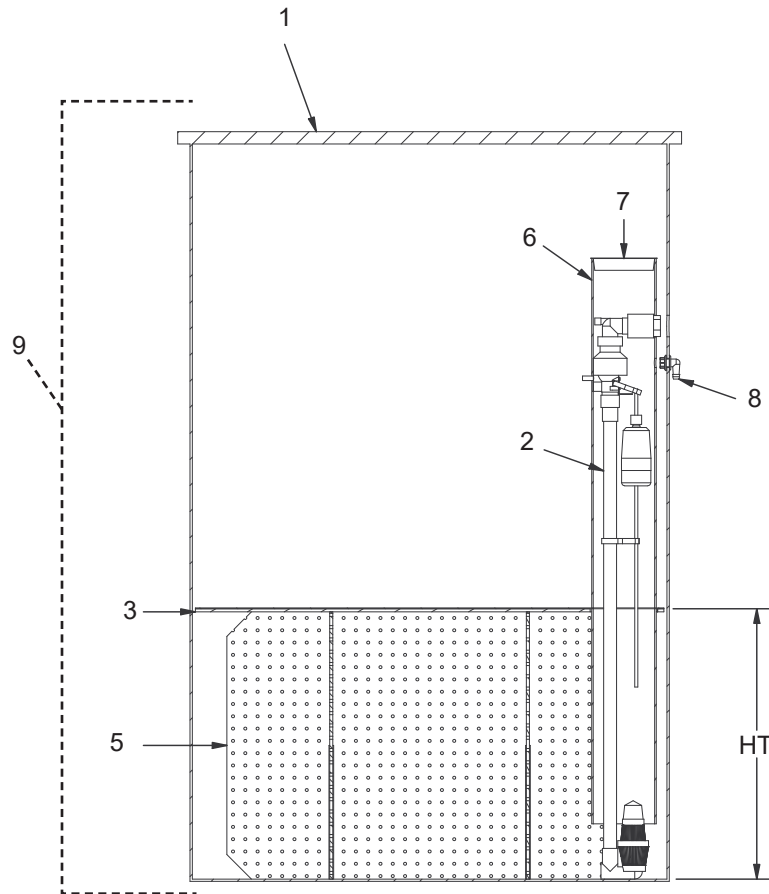
BRINE SYSTEM - MGT 600M



Item Number	Description	Part Number
1	Tank Brine 39 X 60 Black Mld Cvr	B1002010
2	Brine Valve Assy 10-1/4 X 30	B1042006
3	Grid Support Set 39 Dia 22"	A2800039
5	Salt Screen 39 Dia.	B1040003
6	Brine Well 5 X 48 Slotted	B1015005
7	Cap Brine Well Red 5 Inch	A2072001
8	Brine Tank Overflow Assembly	B1233003
9	Insert 1/2 Poly (P8TS6)	A2476001
10	Tubing 1/2x3/8 Black Poly (H1041)	A2165002
11	MGT 600M Brine Tank Assembly	B1141005

MGT 240M-1200M 3" SINGLE NXT2 MAINTENANCE

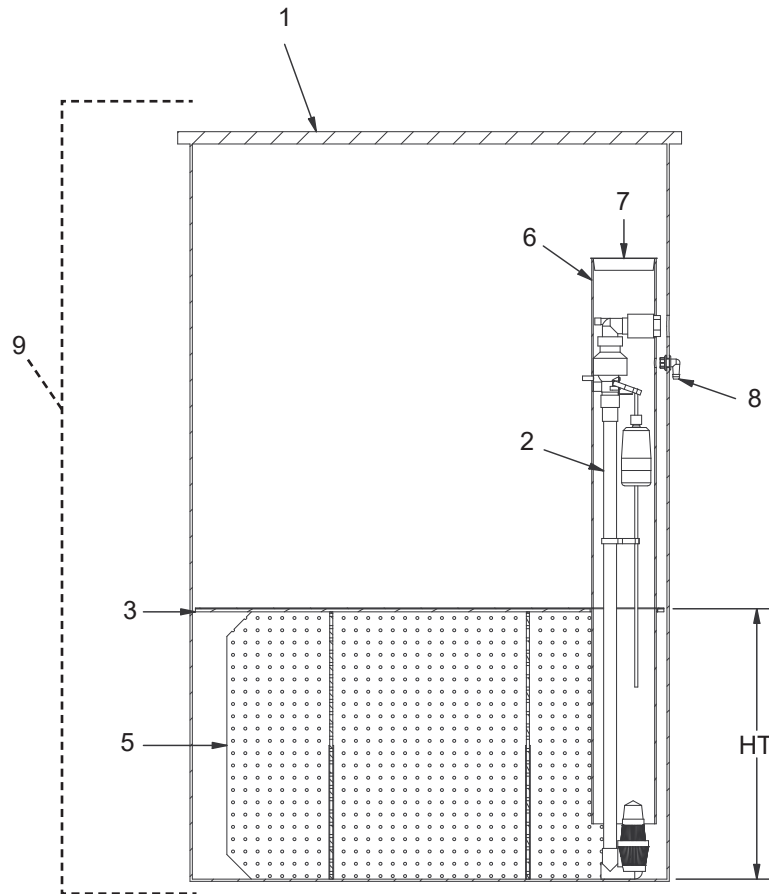
BRINE SYSTEM - MGT 750M-900M



Item Number	Description	Part Number
1	Brine Tank w/Holes & Cover - 39x60 - MGT 750	B1002019
	Brine Tank w/Holes & Cover - 42 X 60 - MGT 900	B1002020
2	Brine Valve Assembly 494 - MGT 750-MGT 1050	B1042015
3	SALT SCREEN 39" DIA. - MGT 750	B1040003
	SALT SCREEN 42" DIA. - MGT 900-MGT 1200	B1041004
5	GRID SUPPORT SET - 39" HT - MGT 750	A2800042
	GRID SUPPORT SET - 24" HT - MGT 900	A2800040
	GRID SUPPORT SET - 29" HT - MGT 1050	A2800043
6	BRINE WELL 5x46 DRILLED	B1015008
7	CAPPLUG RED 5 INCH	A2072001
8	ELBOW OVERFLOW 1/2 W/NUT 2PC SET	A2250003
9	MGT 750M Brine Tank Assembly	B1141010
	MGT 900M Brine Tank Assembly	B1141011
	MGT 1050M Brine Tank Assembly	B1141012

MGT 240M-1200M 3" SINGLE NXT2 MAINTENANCE

BRINE SYSTEM - MGT 1200M



Item Number	Description	Part Number
1	Brine Tank w/Holes & Cover - 50 x 60 - MGT 1200	B1002012
2	BRINE VALVE ASSY 494 - MGT 1200	B1042015
3	SALT SCREEN 50" DIA. - MGT 1200	B1040005
5	GRID SUPPORT SET 24" HT - MGT-1200	A2800041
6	BRINE WELL 5x46 DRILLED	B1015008
7	CAPPLUG RED 5 INCH	A2072001
8	ELBOW OVERFLOW 1/2 W/NUT 2PC SET	A2250003
9	MGT 1200M Brine Tank Assembly	B1141016

MGT 240M–1200M 3” SINGLE NXT2 MAINTENANCE

SERVICE ASSEMBLIES

AUXILIARY MICRO SWITCH

A2203010 3200 Series Timer (60320-02)
A2203108 Lower Drive (2nd Switch) (60320-11)

BRINE VALVES

A2005027 Model 1800 brine valve assy (60036-02)

COVERS

A2103018 Environmental Cover Upper & Lower (60240-02)

DRAIN LINE FLOW CONTROLS

A2138014 1" Drain Line Fitting (15 gpm)
A2138023 1-1/2" Drain Line Fitting (25 gpm)
A2138024 1-1/2" Drain Line Fitting (30 gpm)
A2138027 2" Drain Line Fitting (35 gpm)

CAM

A2082052 Upper (16494-03)
Lower (16495)

PISTON ASSEMBLIES

A2309008 Upper Piston (60106-00)
A2309045 Lower piston, Hard Water By-Pass (60107-00)
A2309011 Lower Piston, No By-Pass (60107-10)

TRANSFORMERS

A2242160 Power Supply US 120V, 24VDC
A2242161 Power Supply EU 220V, 24VDC

SEAL & SPACER KITS

A2297002 Upper kit (60131)
A2435048 Lower kit (60132)

SERVICE EQUIPMENT

A2475003 Seal & Spacer stuffer tool upper (11098)
A2474003 Spacer puller tool upper (12682)
A2423002 Silicone, 2.4 oz. Tube

BRINE LINE FLOW CONTROLS

A2355006 1" Brine Line Fitting (2 gpm) (60710-2.0)
A2355011 1" Brine Line Fitting (5 gpm) (60710-5.0)
A2355017 1" Brine Line Fitting (10 gpm) (60710-10)

METER ASSEMBLIES

A2360085 Fleck 3" Stainless Steel Meter Assy (61935-10)
A2360072 Clack 3" Stainless Steel Meter w/15' Cable
A2296001 Signet Paddlewheel Flow Sensor w/Cable

METER CABLES (FOR FLECK VALVES)

A2352067 Cable 35 inches (for 2" Plastic Mtr)
A2352062 Cable 99.5 inches (for 2" Plastic Mtr)
A2315021 Cable 25 foot (for 2" Plastic Mtr)
A2352092 Cable 30 inches (for 2" SS Mtr)
A2352154 Cable 100 inches (for 2" SS Mtr)
A2352093 Cable 25 foot (for 2" SS Mtr)

O-RINGS

A2077131 Distributor O-Ring (16800)
A2077038 Valve Base O-Ring (16345)
A2077039 Tank O-Ring (16484)

SIDE MOUNT ADAPTER

A2089301 Sidemount Adapter Assembly (61417)

TIMER ASSEMBLY - NXT2

A2084089 NXT2 Timer & Bracket Assy
A2084088 NXT to NXT2 Conversion Kit

MGT 240M–1200M 3” SINGLE NXT2 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 alternate with the main (time of day) screen every few seconds.

- 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 240M–1200M 3” SINGLE NXT2 MAINTENANCE

TROUBLESHOOTING 2900 VALVE

PROBLEM	CAUSE	CORRECTION
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.
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.
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.
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.
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.
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 240M–1200M 3” SINGLE NXT2 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.

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

Correction: Check meter with meter checker.

