

**MGT 15 – 30**  
**3/4” SINGLE TIMECLOCK**  
**COMMERCIAL WATER CONDITIONER**  
**MODELS FROM JULY 2014**

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**INSTALLATION, OPERATION,  
AND MAINTENANCE MANUAL**

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COMPLETE FOR FUTURE REFERENCE:

MODEL NO:

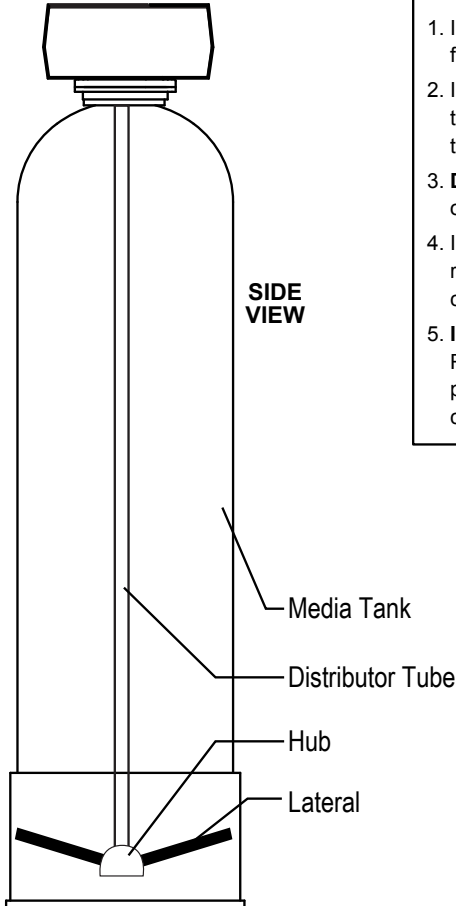
SERIAL NO:

DATE INSTALLED:

DEALER:

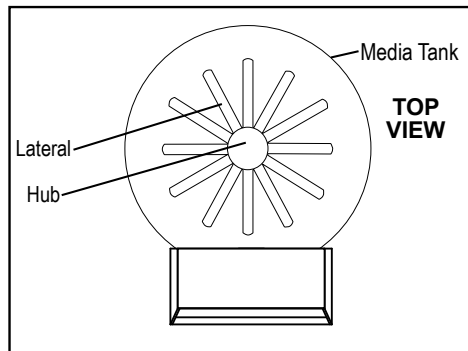
# INSTALLATION WARNING

PRIOR TO  
Media Loading

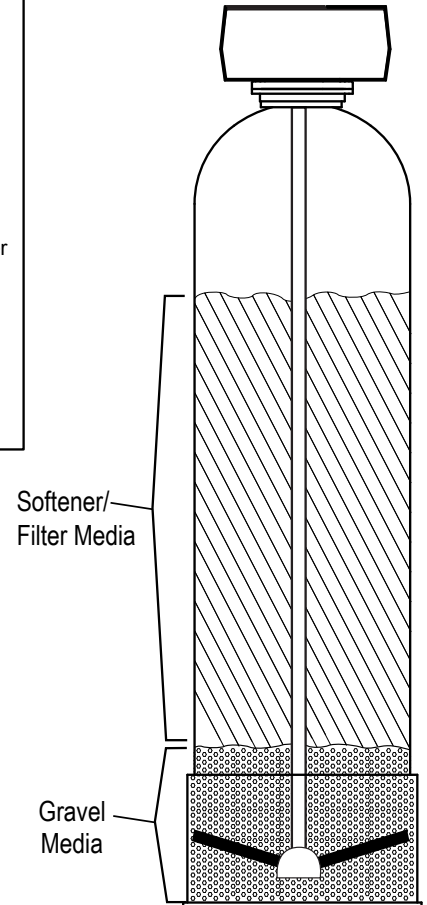


### Inspection Requirement Prior to Loading Media

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 15 – 30 3/4” SINGLE TIMECLOCK**

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# MGT 15 – 30 3/4” SINGLE TIMECLOCK TERMS & CONDITIONS

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## Ordering:

Orders may be phoned, faxed, or emailed to Manufacturer Purchase orders must include Manufacturer part numbers and pricing. Purchase orders must also state if partial shipments are allowed. If you do not have the correct part numbers, pricing, or case quantities, please contact our customer service department.

## Order Confirmations:

All purchase orders will be confirmed by phone, fax, or email. Any discrepancies in part numbers, pricing, descriptions, or case quantities will be listed in the order confirmation. It is the customer's responsibility to review the order confirmations and advise if any changes are to be made. If we do not hear from the customer regarding the confirmation within 24 hours, we will assume everything is correct and will invoice and ship accordingly.

## Quotes & Prices:

Quotations are valid for a period of up to 45 days or for the term stated on the quote, whichever term is shortest. We make every effort to notify customers with price change information. However, prices are subject to change or correction without notice. Shipping weights, dimensions and anticipated ship dates are all approximate and subject to change.

## Minimum Orders:

Minimum order accepted is \$25.00, not including freight or taxes.

## Taxes:

Taxes are not included. Quoted prices are exclusive of all taxes. Purchaser shall be responsible for payment of all applicable state/local taxes. Orders shipped within Wisconsin are subject to applicable state tax rates unless a completed resellers card or exempt certificate is on file.

## Freight:

All shipments are F.O.B. Manufacturer Racine, Wisconsin, unless otherwise specified.

## Shipment:

The shipment method should be specified by the customer on the purchase order; otherwise, Manufacturer will choose the best method of shipment.

## Packaging:

Pricing includes packaging that is satisfactory for air, truck, or containerized shipment at no additional cost, unless otherwise stated. Ocean export crating will require an additional charge.

## Terms - Domestic Customers:

Terms of payment on open accounts are net 30 days from the date of invoice, unless otherwise stated and mutually agreed upon by both parties. This agreement is subject to credit approval. Terms will only be issued to companies which reside in the United States of America. Orders will not be shipped if any account is past due and/or until payment by check has cleared.

Orders in excess of \$60,000 will require partial payments prior to shipment. A specific progress payment schedule will be stated in the quotation. Partial payments may also be required for orders involving special engineering or custom ordered items regardless of order amount.

Interest will be charged on past due accounts. Interest charges will be calculated on the unpaid balance at 1.5% per month. All questions regarding invoices and terms must be addressed with our accounting department before invoices become due.

Unless specifically included as a separate item, prices quoted do not include any city, county, state or federal taxes, or transportation of merchandise.

## Terms - International Customers:

All payments due are in U.S. dollars and must be made in advance by check (must clear before shipment), money orders, wire transfer, or credit card. Credit cards that are accepted are Visa, MasterCard, and American Express. Irrevocable Letters of Credit are accepted with a minimum order of \$25,000.00 U.S. dollars, per order. Unless specifically included as a separate item, prices quoted do not include any city, county, state or federal taxes, or transportation of merchandise. A deposit may be required for special or custom ordered items.

## Freight Claims:

Any damage, discrepancies and/or freight claims must be made immediately and directly, in writing within ten (10) days to Manufacturer. Manufacturer will help as much as possible in settling claims. However, Manufacturer will not be held responsible for breakage or shortage after products are accepted by common carrier. All shipments must be inspected for damages and counted for shortages at the time of delivery.

## Order Changes:

Additions to an order may be made at no charge prior to the processing of an order. Processing of an order typically begins within one hour of receipt of a purchase order and is typically accomplished within one working day.

Orders cancelled after the order has been processed and sent to shipping or engineering, will be subject to a minimum 10% cancellation fee, assuming manufacturing has not commenced, and no detailed engineering or special parts have been ordered. Additional fees may be charged depending on the level of completion of detailed engineering, manufacturing, and/or if any special parts have been ordered.

## Returns & Restocking:

A Return Goods Authorization (RGA) number must be obtained from Manufacturer before any product returns can be accepted and/or replacements shipped. All returns for warranty consideration are to be shipped prepaid and must be returned within ten (10) business days from the RGA issuance. Returns determined to be in warranty will be replaced or repaired and will be returned to Buyer prepaid. Products returned, other than valid warranty claims, may be subject to a restocking charge of up to 25%. Orders shipped incorrectly by Manufacturer are not subject to restocking charges and correct items will be shipped to Buyer prepaid.

## Excusable Delays:

Manufacturer shall not be in default for failure to deliver or delay in delivery arising out of causes beyond its control and without its negligence, including but not limited to Acts of God or the public enemy; acts of the Government in either its sovereign or contractual capacity; fires; floods; epidemics; quarantine restrictions; strikes; shortages of materials or supplies; labor disputes; freight embargoes; delays in transit; consignments lost or damaged by freight agent(s); and unusually severe weather.

## Warranty:

Manufacturer warrants its products to be free from defects in design, material, or workmanship for a period of 18 months from shipment date or 12 months from installation, whichever occurs first, when said products are installed and operated in accordance with the written instructions provided. The fiberglass reinforced polyester (FRP) resin/media tanks used in certain products alone have an extended warranty period of five (5) years from the shipment date. If within that period any products shall be proven to Manufacturer, Inc.'s satisfaction to be defective, those products will be replaced, or the price refunded at Manufacturer's option. Manufacturer's obligations or nonperformance, defective, 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 implied warranty (except of title) including but not limited to implied warranty of merchantability and fitness for particular purpose.

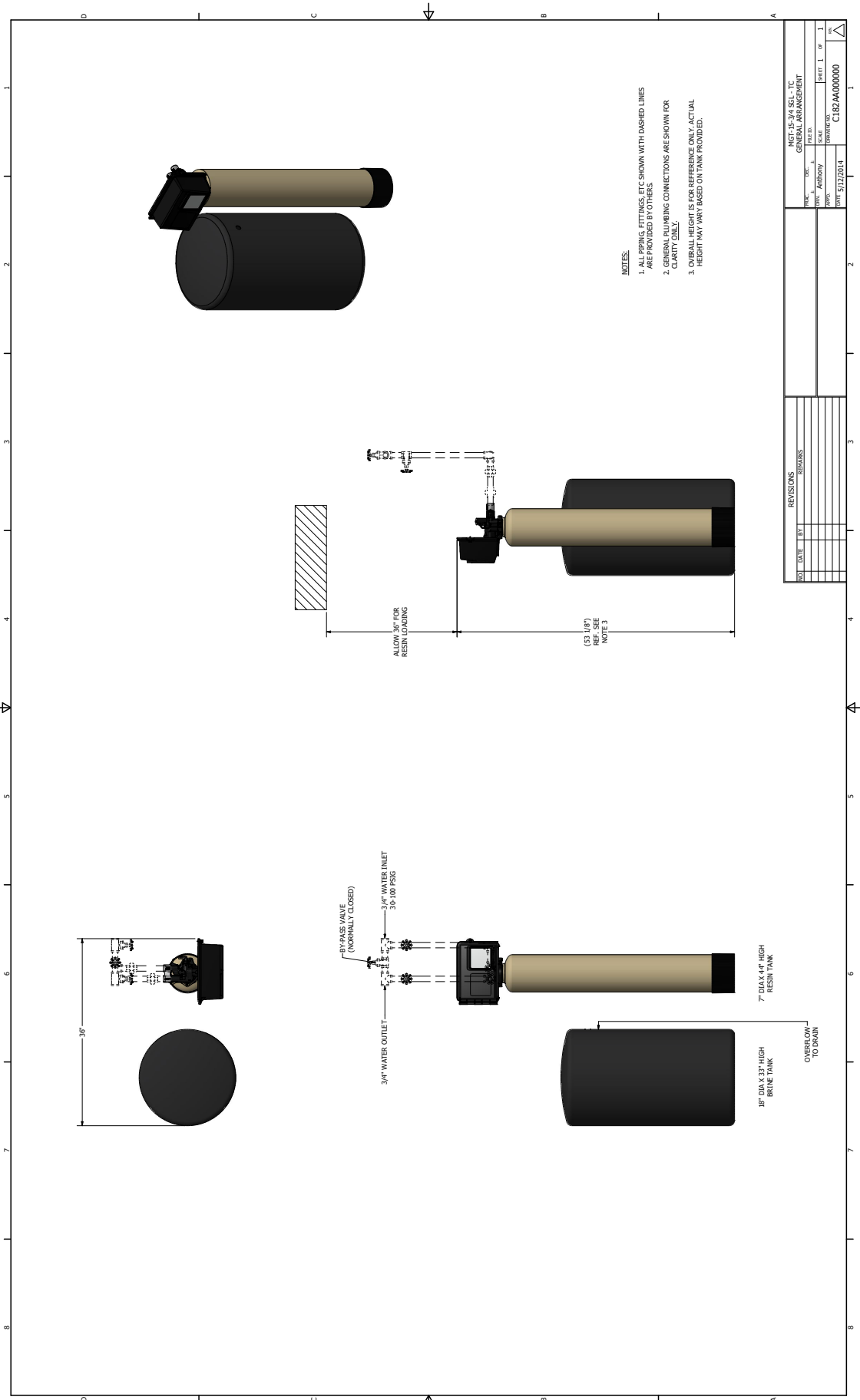
Manufacturer will not be subject to and disclaims the following:

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 including labor charges, back charges or handling charges are excluded from Manufacturer's warranty provisions.

## Policy:

These terms and conditions may be superseded by specific provisions provided by Manufacturer. However, should any of these terms and conditions be contrary to or inconsistent with any terms and conditions contained in any purchase order form or other document between Manufacturer and the buyer, which is prepared by the buyer and whenever executed, the provisions hereof shall be controlling and shall supersede the conflicting terms and conditions which are contained in such other document. No changes shall be made to our terms and conditions unless prior written authorization by Manufacturer

# MGT 15 – 30 3/4" SINGLE TIMECLOCK SYSTEM INFORMATION





# MGT 15 – 30 3/4” SINGLE TIMECLOCK

## SYSTEM INFORMATION

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### DIMENSION CHART

MODEL	INLET SIZE (Inches)	TANK SIZE		LENGTH (Inches)	WIDTH (Inches)	HEIGHT* (Inches)
		SOFTENER (Inches)	BRINE (Inches)			
15	3/4	7x44	18x33	31	18	53
30	3/4	9x48	18x33	33	18	57
45	3/4	10x54	18x40	34	18	144
60	3/4	12x52	18x40	36	18	178
90	3/4	14x65	18x40	38	18	287

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

# MGT 15 – 30 3/4” SINGLE TIMECLOCK

## SYSTEM INFORMATION

### SPECIFICATION CHART

SYSTEM SIZE	MODEL	15	30	45	60	90	
	VALVE SIZE (IN)	3/4	3/4	3/4	3/4	3/4	
	MAX CAPACITY (KILOGRAINS)	15	30	45	60	90	
	MIN CAPACITY (KILOGRAINS)	10	20	30	40	60	
FLOWRATE (GPM)	CONTINUOUS FLOWRATE (GPM)	7	10	13	15	15	
	PEAK FLOWRATE (GPM)	10	14	18	19	20	
	BACKWASH & FAST FLUSH (GPM)	1.2	2	3	3.5	5	
	BRINE DRAW & RINSE (GPM)	0.4	.51	0.5	0.9	1.5	
	BRINE TANK REFILL (GPM)	.25	.5	0.5	1	1	
TIMER SETTINGS	BACKWASH & FAST FLUSH (MIN)	10	10	10	10	10	
	PINS	5	5	5	5	5	
	BRINE DRAW & RINSE (MIN)	60	60	60	60	60	
	SPACES	30	30	30	30	30	
	FAST FLUSH (MIN)	10	10	10	10	10	
	PINS	5	5	5	5	5	
	BRINE TANK REFILL (MIN)	10	10	15	10	15	
	SPACES	5	5	8	5	8	
	RETURN TO SERVICE	4	4	4	4	4	
	PINS	2	2	2	2	2	
SOFTENER TANK	SIZE (IN)	7x44	9x48	10x54	12x52	14x65	
	GRAVEL (LBS)	0	0	0	0	30	
	RESIN (FT <sup>3</sup> )	0.5	1	1.5	2	3	
	FREEBOARD (IN)	17	25	25	16	21	
BRINE SYSTEMS	EQUIPMENT	TANK SIZE	18x33	18x33	18x40	18x40	18x40
		MAX SALT STORAGE (LBS)	280	280	320	320	270
		INJECTOR CODE	0	1	1	2	4
		INJECTOR COLOR	RED	WHT	WHT	BLU	GRN
	MAX	SALT DOSAGE- MAX (LBS)	7.5	15	22.5	30	45
		REFILL TIME - MAX (MIN)	10	10	15	10	15
	MIN	SALT DOSAGE- MIN (LBS)	3	6	9	12	18
		REFILL TIME - MIN (MIN)	4	4	6	4	6
REGENERATION WASTE VOLUME (GAL)		40	116	116	126	156	

#### 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

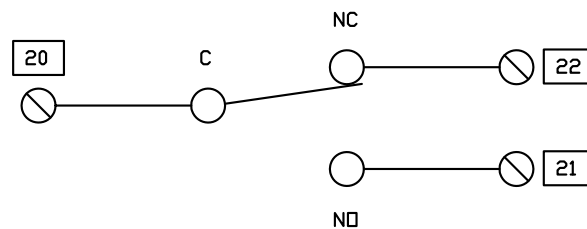
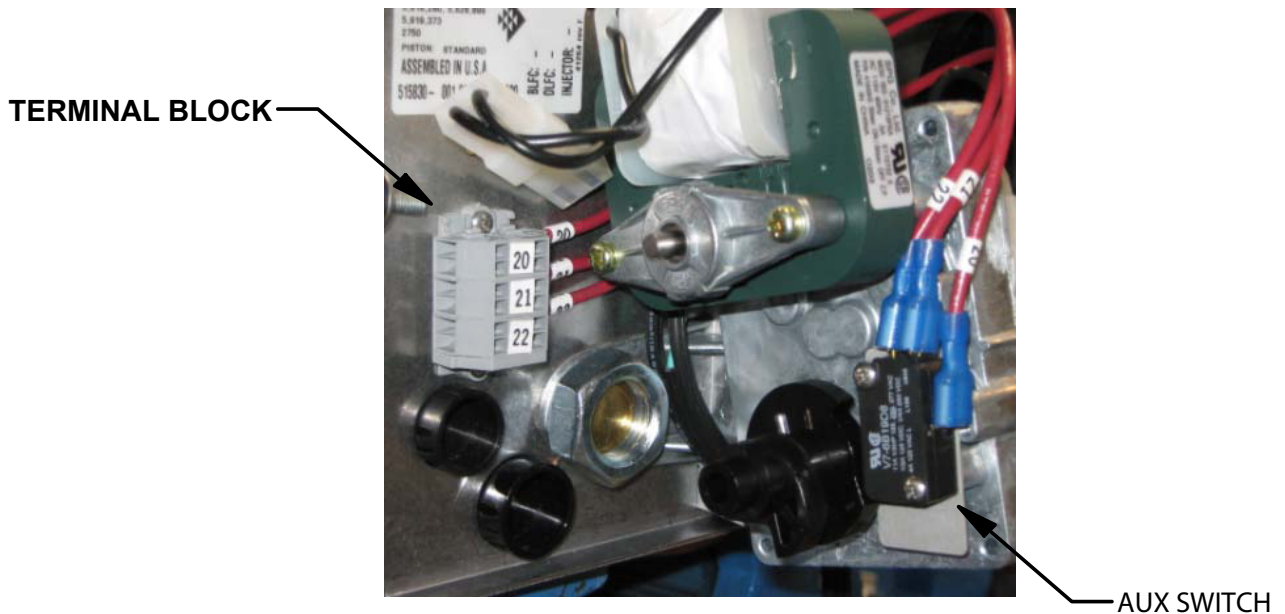


# MGT 15 – 30 3/4” SINGLE TIMECLOCK SYSTEM INFORMATION

## AUX SWITCH (OPTIONAL)

The Aux Switch Option provides an extra switch on the brine valve cam assembly that ties to the terminal strip located on the back-plate of the valve. The switch provides a dry contact circuit that changes status dependent on filter valve step. It is most commonly used to lockout an RO activate a pump, or activate separate source inlet valves.

The switch is normally closed during service and normally open during regeneration.



STEP	DRY CONTACT STATUS	
	OPEN	CLOSED
SERVICE	20-21	20-22
BACKWASH/ / REGENERATION	20-22	20-21

Contact Rating: 220 VAC Max. / 2.0 AMP Max.

# MGT 15 – 30 3/4” SINGLE TIMECLOCK SYSTEM INFORMATION

## AUX SWITCH (OPTIONAL)

PN	QTY	DESCRIPTION
MICROSWITCH ASSEMBLY		
A2154001	1	MICROSWITCH VALVE / STAGER RD LOCKOUT
A2083027	2	SCREW 4-40 X 1/2 SELF TAP PHIL MACH
A2490014	1	CAM SHUTOFF VALVE (12777)
A2098012	1	ROLL PIN .09375 X .875 (10338)
A2158001	1	INSULATOR LIMIT SWITCH (10302)
TERMINAL STRIP ASSEMBLY		
A2445043	1	END STOP W / FIXING FLANGE
A2307015	3	TERMINAL BLOCK GRAY 15A 300V
A2457003	2	SCREW 6-32 X 3/8 MACH RD HD SS
A2095048	2	6-32 NUTS SS
A2486021	2	WASHER LOCK #6 SPLIT SS
A2173009	3 FT	WIRE 16 RED

**CONSTRUCTION NOTES:**

1. INSTALL MICROSWITCH ASSEMBLY NEXT TO BRINE VALVE CAM ASSEMBLY ON VALVE.
2. INSTALL THE 3 TERMINALS AND LABEL THE TERMINALS NUMBERS 20, 21, 22.
3. WIRE THE MICROSWITCH USING 16 AWG RED WIRE.
4. WIRE AS FOLLOWS:

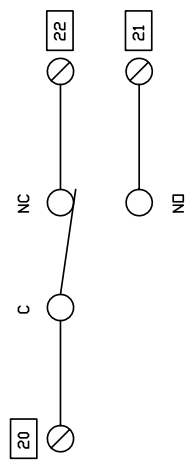
COMMON TO 20  
 NORMALLY OPEN TO 21  
 NORMALLY CLOSED TO 22

**LOCKOUT SWITCH NOTES:**

2900 AND 3900 VALVE ALREADY USES THIS SWITCH FOR ITS OPERATION.  
 3150 VALVE SYSTEM 4 THIS SWITCH IS ALREADY INSTALLED ON THE VALVE  
 AND IS AVAILABLE FOR RD LOCKOUT USE.

**WIRING DIAGRAM OF AUXILIARY SWITCH (5 AMP MAXIMUM)**

SWITCH ON NORMALLY CLOSED SIDE DURING SERVICE. NORMALLY OPEN DURING REGENERATION.



REVISIONS		BRINE VALVE CAM SWITCH ADDITION TO TOP MOUNT MULTIPORT VALVE			
NO.	DATE	BY	REMARKS	FRAC.#	REC.#
				FILE NO.	B1055006
				DRAWN	JEC
				SCALE	N.T.S.
				SHEET	1 OF 1
				APPROV.	
				DATE	2-3-04
				DRAWING NO.	B1055006

# MGT 15 – 30 3/4” SINGLE TIMECLOCK INSTALLATION

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## INSTALLATION INSTRUCTIONS

### GENERAL INFORMATION

1. Operating pressure range is 30-100 psi. If pressures over 100 psi are encountered, a regulator must be installed.
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).

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

# MGT 15 – 30 3/4” SINGLE TIMECLOCK INSTALLATION

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## **LOADING TANK**

1. On Model MGT - 15, 30, 45 and 60 the softening media has been pre-loaded at the factory. Skip this section and go to “Mount Control Valve Assembly”.
2. 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.
3. 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.

4. 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.

5. When gravel is loaded and leveling is completed, proceed as follows:
6. 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 spilled resin. Remove spilled resin from standing surface immediately.

7. 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.
8. Repeat instruction steps 1-7 for each softener tank (if applicable).

# **MGT 15 – 30 3/4” SINGLE TIMECLOCK INSTALLATION**

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## **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 in threaded base of control valve. The threaded base has a groove machined into the inside of the threaded part of the base to allow for the installation of this disperser.
4. Screw control valve into top opening of tank 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.
5. Tighten down the control valve to ensure positive o-ring seal at top of tank.
6. Repeat instruction steps 1-5 for each softener tank (if applicable).

## **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.
- 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.

**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 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 15 – 30 3/4” SINGLE TIMECLOCK

## OPERATION

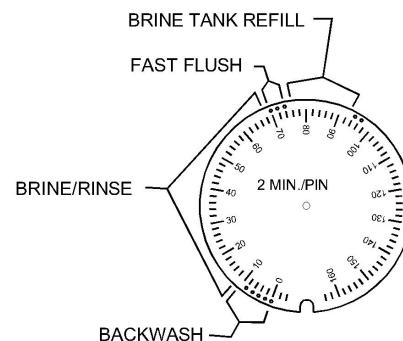
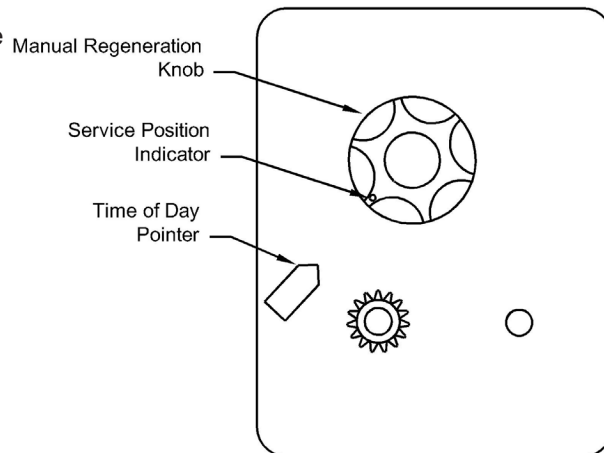
### START-UP

1. Again, make sure all plumbing is complete and tight including drain line and brine line. Make sure all electrical connections are complete per wiring diagrams provided.
2. Using a bucket or hose, fill brine tank with water to 2” above salt platform. Do not add salt at this time.
3. Make sure inlet and outlet isolation valves are closed. Align the Service Position Indicator with the Time of Day pointer (see Fig 2). Turn on power to the system.

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

4. Remove the black plastic cover from the control valve. The regeneration cycle timer is secured to the backplate of the control valve. The timer is hinged on the right side. Grab the upper left corner of the timer and pull towards you. The timer will swing out to the right. The backside of the timer has a program wheel with holes and pins in it. Each hole or pin represents two (2) minutes. The holes and pins control the regeneration cycle times as follows:

- |                                    |                       |
|------------------------------------|-----------------------|
| · Step 1 (Backwash)                | First group of pins   |
| · Step 2 ( Brine Draw/ Slow Rinse) | First group of holes  |
| · Step 3 (Fast Rinse)              | Second group of pins  |
| · Step 4 (Brine Tank Refill)       | Second group of holes |
| · Return to Service                | Third group of pins   |



**Note:** Brine Draw / Slow Rinse step is actually two events. The brine is suctioned from the brine tank until the level falls to the bottom of the brine valve. An air check in the valve will close once the brine is to low. This is the end for the Brine Draw step and should last about twenty (20) minutes. The rest of the time in Step 2 is Slow Rinse.

5. Locate the manual regeneration knob on the front side of the timer. Slightly turn the knob clockwise. The soft ener control valve will advance to backwash position. Be patient this will take several minutes.
6. Remove electrical power from unit, and then slowly open inlet water valve approximately half open. Water will begin to fill through bottom distributor into tank. When tank is full, water will begin to flow out of drain line. Slowly open inlet valve until full open. Allow water to flow from drain line for approximately 15 minutes.

**Warning:** Monitor this drain water flow carefully. There is a problem if you see softener resin in the drain water. Turn off inlet water immediately and then consult factory.

7. Restore electrical power to unit. Advance the control valve to brine/rinse position, using the same method as step 5. Make sure unit draws water from brine tank. There should also be reduced flow at the drain line.
8. Advance the control valve to the fast rinse position. Remove electrical power to the unit. Let water run to drain position for approximately 5 minutes or until water runs clear.
9. Restore electrical power to unit. Advance the control valve to brine refill cycle. Water should begin to refill brine tank. Allow the brine tank to refill until water in salt tank is again 2” above the salt platform. There should be no flow to drain in this valve position.
10. Advance control valve to service position. Brine tank refill should stop. Open outlet valve and run water at the nearest cold water faucet to the water softener system for approximately 5 minutes.
11. Repeat instruction steps 1-10 for each softener tank.
12. Determine the gallons of soft water your softener can produce reference page 9.

# **MGT 15 – 30 3/4” SINGLE TIMECLOCK OPERATION**

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## **START-UP (continued)**

13. Set the Time / Day Clock on your softener, reference page 10.
14. On units with a water meter, set the gallonage determined in step 12, reference page 13.
15. Consult the specification table, and then add salt to the brine tank. Use pelletized or solid salt, 99.0 – 99.8% pure salt containing less than 0.5% insoluble.
16. Use the test kit provided to check water for softness. Check the water hardness daily the first week in order to establish how often the softener should be regenerated.

## **HOW TO CALCULATE SOFTENERS CAPACITY**

“Batch size” is the term used for the amount of water passing through and being softened by the water softener between regenerations. This is a simple calculation provided two pieces of information are known:

- Size of the water softener in grains (gr.) (i.e. MGT-60 has 60,000 grains capacity per tank).
- Hardness of the raw water being treated by the water softener.

## **BATCH SIZE EQUATION**

Grain capacity of softener divided by the grains of hardness equals batch size.

## **SAMPLE CALCULATION**

Assume: unit is a MGT-60

Assume: the hardness of the water was measured to be 20 grains

Using our equation take  $60,000 \div 20 = 3,000$  gallons.

10% reserve capacity = 300 gallons.

$3,000$  gallons – 300 gallons = 2,700 gallons (batch size)

For immediate regeneration type meter control the meter setting would be at 3,000 gallons. Commonly this value is adjusted to 90 percent of the actual value (in this example 2,700 gallons) to assure not over-running the softener.

For time delay type meters the amount of gallons is determined as in our example except an additional amount of gallons must be deducted from the actual gallons 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.

On Time Clock controllers make sure the softener regenerations before the Batch Size number of gallons pass through the softener.

## **SETTING THE TIME / DAY CLOCK**

Rotate the skipper wheel until the number “1” is at the red pointer. Set the day that regeneration is to occur by sliding tabs on the skipper wheel outward to expose trip fingers. Each tab is one day. Finger at red pointer is tonight. Moving clockwise from the red pointer, extend or retract fingers to obtain the desired regeneration schedule.

### **How to set the time of day:**

1. Press and hold the red button in to disengage the drive gear.
2. Turn the large gear until the actual time is at the time of day pointer.
3. Release the red button to again engage the drive gear.

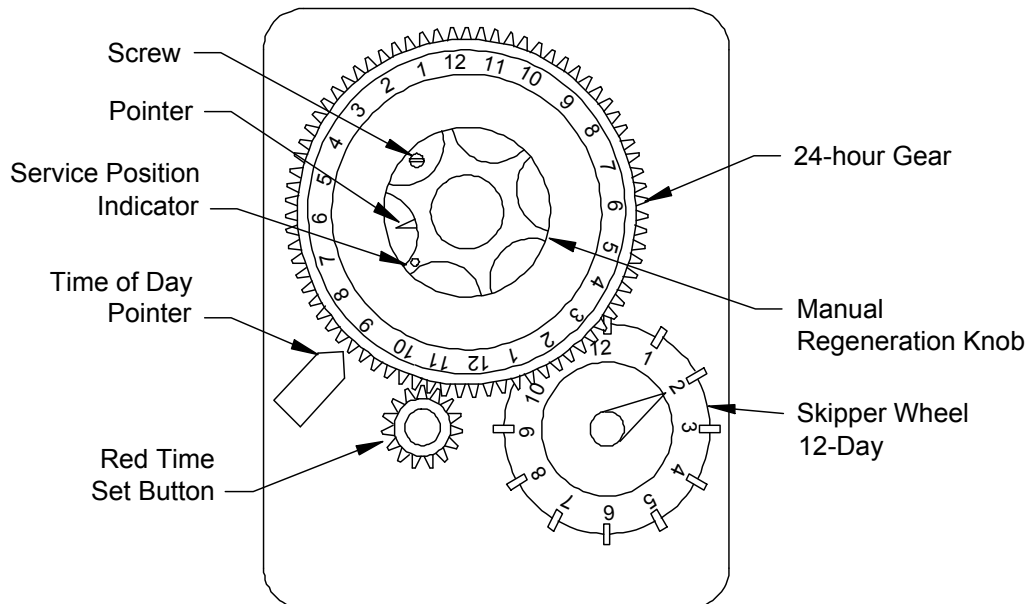
# MGT 15 – 30 3/4” SINGLE TIMECLOCK OPERATION

## SETTING THE TIME / DAY CLOCK (continued)

### How to manually regenerate your Water Conditioner at any time:

Turn the manual regeneration knob clockwise. This slight movement of the manual regeneration knob engages the program wheel and starts the regeneration program. The manual regeneration knob will make one revolution in approximately three hours and stop in the position shown in the drawing. Even though it takes three hours for this center knob to complete one revolution, the regeneration cycle of your unit might be set only half of this time. In any event, conditioned water may be drawn after rinse water stops flowing from the water conditioner drain line.

**Note:** On twin or triple unit softeners with time clock controls, each unit should be set to regenerate on different days or different times to avoid simultaneous regenerations. A minimum of 4-6 hours between regenerations is required for brine make-up.



### How to adjust Regeneration Time:

1. Disconnect the power source.
2. Locate the three screws behind the manual regeneration knob by pushing the red button in and rotating the 24-hour dial until each screw appears in the cut out portion of the manual regeneration knob.
3. Loosen each screw slightly to release the pressure on the time plate from the 24-hour gear.
4. Locate the regeneration time pointer on the inside of the 24-hour dial in the cutout. The pointer is hard to see.
5. Turn the time plate so the pointer on the desired regeneration time aligns next to the raised arrow.
6. Push the red button in and rotate the 24-hour dial. Tighten each to the three screws.
7. Push the red button and locate the pointer one more time to ensure the desired regeneration time is correct.
8. Reset the time of day and restore power to the unit.

**Note:** On twin or triple unit softeners with time clock controls, each unit should be set to regenerate on different days or different times to avoid simultaneous regenerations. A minimum of 4-6 hours between regenerations is required for brine make-up.

**Note:** The screw and pointer are shown for reference only. There is only one cutout in the knob



# MGT 15 – 30 3/4” SINGLE TIMECLOCK OPERATION

## SETTING THE TIME CLOCK AND GALLONAGE (For softener with the water meter option)

Set the gallons required by lifting the gallon dial and rotating it so that the number of gallons required is aligned with the white dot on the program wheel gear. Release the gallon dial and check for firm engagement with the gear.

**Note:** To set meter capacity at the initial start-up, either:

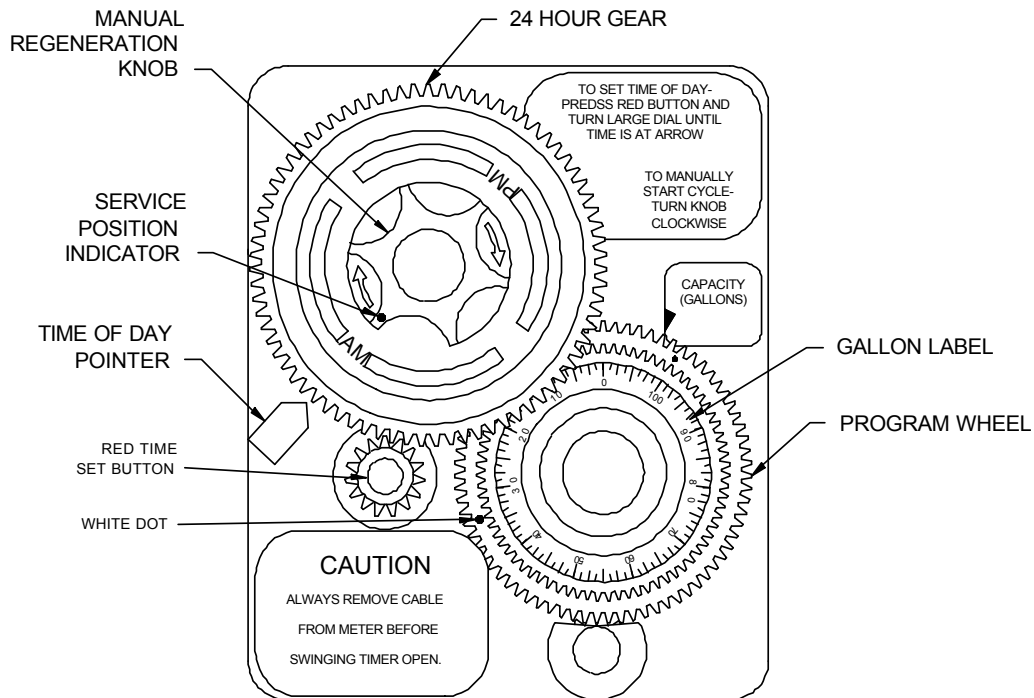
- Rotate the manual regeneration knob one full revolution.
- Rotate the program wheel manually clockwise and align the white dot with the capacity arrow.

### How to set the time of day:

1. Press and hold the red button in to disengage the drive gear.
2. Turn the large gear until the actual time is at the time of day pointer.
3. Release the red button to again engage the drive gear.

### How to manually regenerate your Water Conditioner at any time:

Turn the manual regeneration knob clockwise. This slight movement of the manual regeneration knob engages the program wheel and starts the regeneration program. The manual regeneration knob will make one revolution in approximately three hours and stop in the position shown in the drawing. Even though it takes three hours for this center knob to complete one revolution, the regeneration cycle of your unit might be set only half of this time. In any event, conditioned water may be drawn after rinse water stops flowing from the water conditioner drain line.

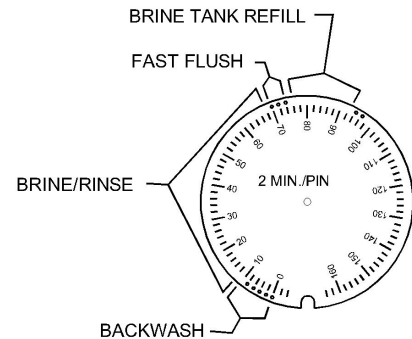


# MGT 15 – 30 3/4” SINGLE TIMECLOCK OPERATION

## SETTING THE REGENERATION CYCLE PROGRAM TIMER

The regeneration cycle program on your water softener has been factory set. However, portions of the cycle program may be lengthened or shortened in time to suit local conditions. The regeneration cycle timer is secured to the back-plate of the control valve. The timer is hinged on the right side. Grab the upper left corner of the timer and pull towards you. The timer will swing out to the right. The backside of the timer has a program wheel with holes and pins in it.

- |                                    |                       |
|------------------------------------|-----------------------|
| · Step 1 (Backwash)                | First group of pins   |
| · Step 2 ( Brine Draw/ Slow Rinse) | First group of holes  |
| · Step 3 (Fast Rinse)              | Second group of pins  |
| · Step 4 (Brine Tank Refill)       | Second group of holes |
| · Return to Service                | Third group of pins   |



To change the regeneration cycle program it is easier to remove the program wheel by pushing the two black tabs located in the center of the program wheel while pushing up on the program wheel.

As you look at the number side of the program wheel, starting at zero the number of the group of pins determines the length of time that your unit will be in Backwash. If there are six pins in this section, the time of backwash will be 12 minutes (2 minutes per pin). You must add or remove pins to change the length of this time. All the following groups of holes or pins must be adjusted to maintain their original time.

**Important:** Changing the time duration in any cycle will require a readjustment of all pins and holes for all the following steps.

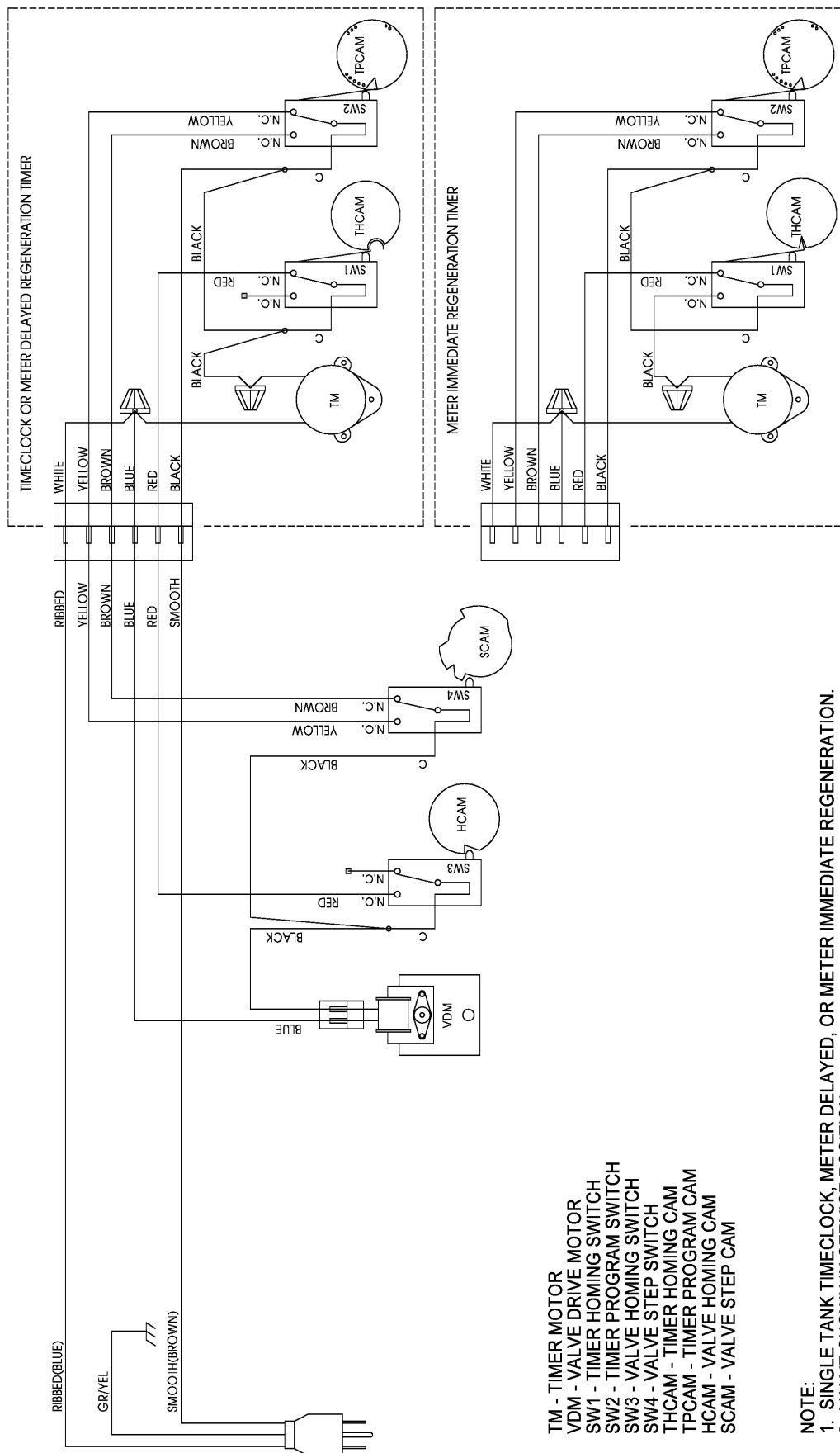
The number of the group of spaces determines the length of time that your unit will be in Brine Draw / Slow Rinse. You must add or remove to the number of holes to change the length of this time. All the following groups of pins or holes must be adjusted to maintain their original time. Use this method to adjust the time of the regeneration steps for your water softener.

## SETTING THE REGENERATION CYCLE PROGRAM TIMER

- Backwash: The cycle duration is factory set at 10 minutes for clean feed water applications. Increase time duration to 15 minutes when turbidity is present in the feed water.
- Brine Draw/Rinse: The cycle duration is factory is set at 60 minutes to assure the required amount of brine is introduced and rinsed from the resin. Increase time duration when the injector feed pressure is below 40 psi.
- Fast Flush: The cycle duration is factory set at 10 minutes to rinse chlorides from the resin prior to the softener is placed online. Increase time duration to 15 minutes if traces of chlorides are present in the service outlet water.
- Brine Tank Refill: The cycle duration is factory set at the maximum salt to achieve maximum softener capacity. The published minimum salt can be programmed to reduce salt consumption by 50% and reduced softening capacity by 30%.
- Cycle End: The cycle duration is factory set at 4 minutes. Its purpose is to identify the end of regeneration and advance the softener control valve to the standby cycle.

# MGT 15 – 30 3/4” SINGLE TIMECLOCK MAINTENANCE

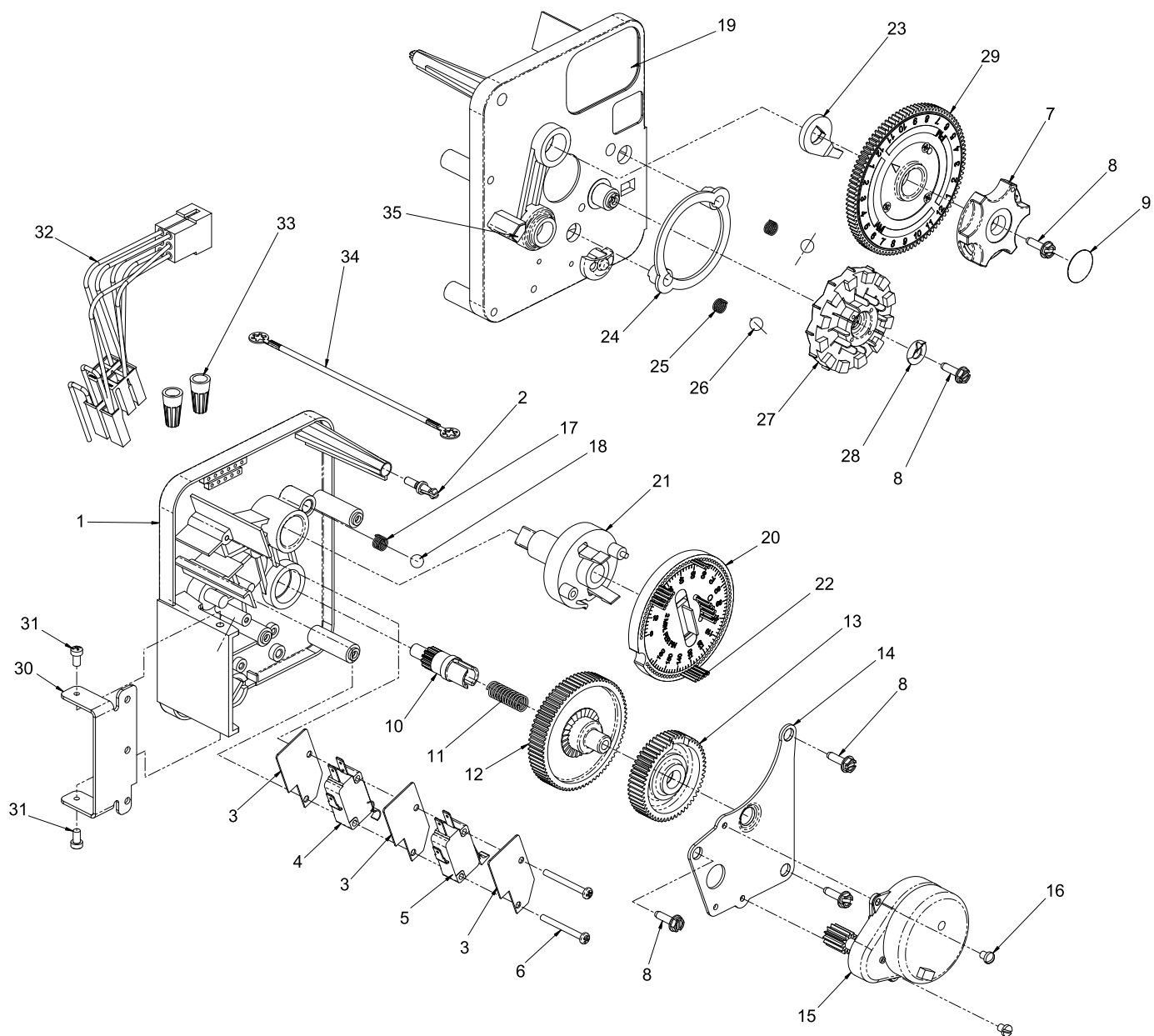
## INPUT & OUTPUT WIRING



**NOTE:**  
 1. SINGLE TANK TIMECLOCK, METER DELAYED, OR METER IMMEDIATE REGENERATION.  
 2. VALVE SHOWN IN SERVICE POSITION.

# MGT 15 – 30 3/4" SINGLE TIMECLOCK MAINTENANCE

## 3200 TIMER ASSEMBLY



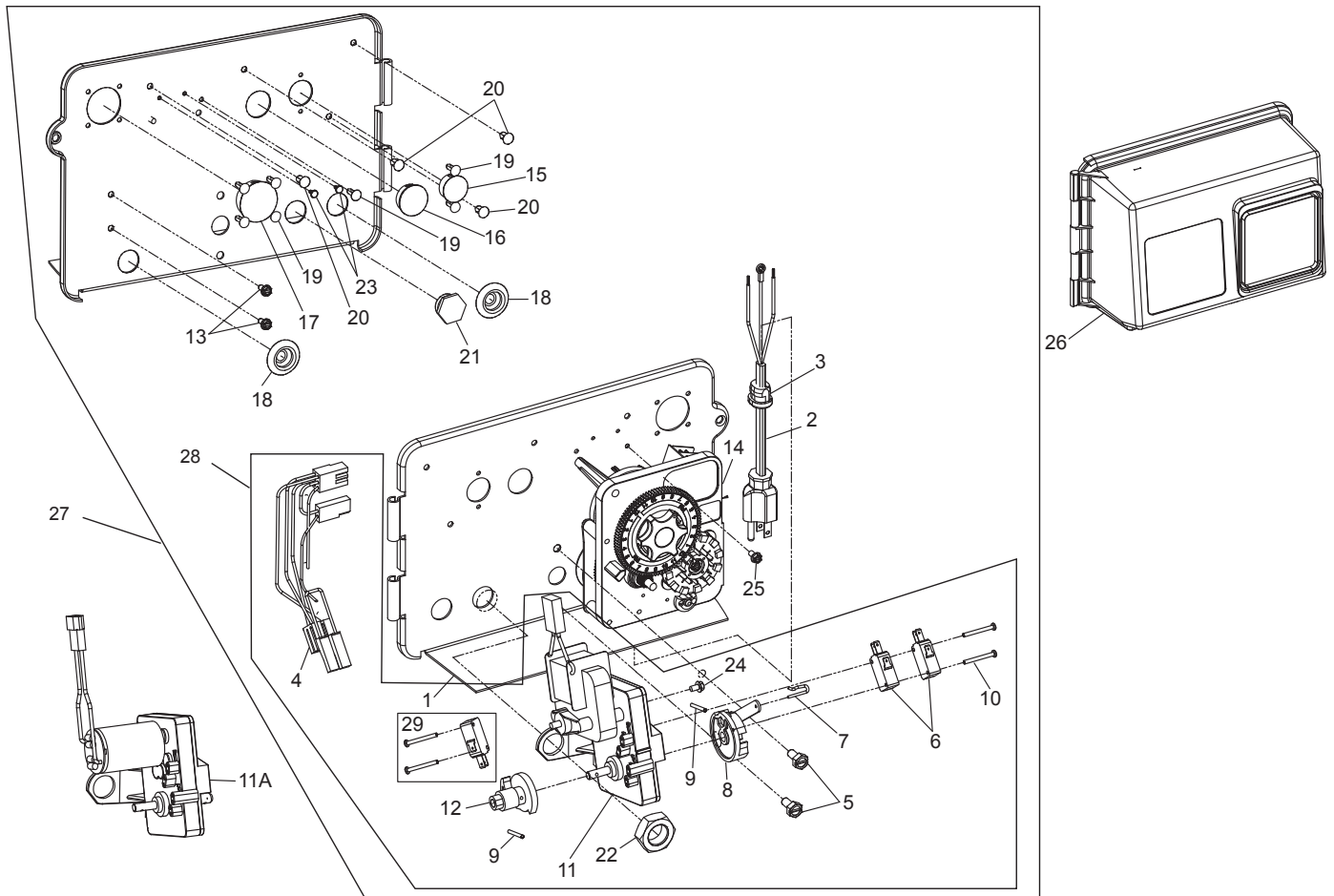
# MGT 15 – 30 3/4” SINGLE TIMECLOCK MAINTENANCE

## 3200 TIMER ASSEMBLY PARTS LIST

Item No.	Quantity	Part No.	Description
1	1	13870	Housing, Timer, 3200
2	1	14265	Clip, Spring
3	3	14087	Insulator
4	1	10896	Switch, Micro
5	1	15320	Switch, Micro, Timer
6	2	11413	Screw, Pan Hd Mach, 4-40 x 1-1/8
7	1	13886	Knob, 3200
8	5	13296	Screw, Hex Wsh, 6-20 x 1/2
9	1	11999	Label, Button
10	1	13018	Pinion, Idler
11	1	13312	Spring, Idler Shaft
12	1	13017	Gear, Idler
13	1	13164	Gear, Drive
14	1	13887	Plate, Motor Mounting
15	1	18743-1	Motor, 120V, 60Hz, 1/30 RPM, 5600
		19659-1	Motor, 24V, 60Hz, 1/30 RPM
16	2	13278	Screw, Sldd Fillister Hd 6-32 x .156
17	1	15424	Spring, Detent, Timer
18	1	15066	Ball, 1/4", Delrin
19	1	15465	Label, Caution
20	1	19210	Program Wheel Assy
21	1	13911	Gear, Main Drive, Timer
22	17	41754	Pin, Spring, 1/16 x 5/8 SS, Timer
23	1	13011	Arm, Cycle Actuator
24	1	13864	Ring, Skipper Wheel
25	2	13311	Spring, Detent, Timer
26	2	13300	Ball, 1/4", SS
27	1	14381	Skipper Wheel Assy, 12 Day
		14860	Skipper Wheel Assy, 7 Day
28	1	13014	Pointer, Regeneration
29	1	40096-24	Dial, 12 AM Regen Assy, Black
		40096-02	Dial, 2 AM Regen Assy, Black
30	1	13881	Bracket, Hinger Timer
31	2	11384	Screw, Phil, 6-32 x 1/4 Zinc
32	1	13902	Harness, 3200
33	2	40422	Nut, Wire, Tan
34	1	15354-01	Wire, Ground, 4"
35	1	14007	Label, Time of Day

# MGT 15 – 30 3/4” SINGLE TIMECLOCK MAINTENANCE

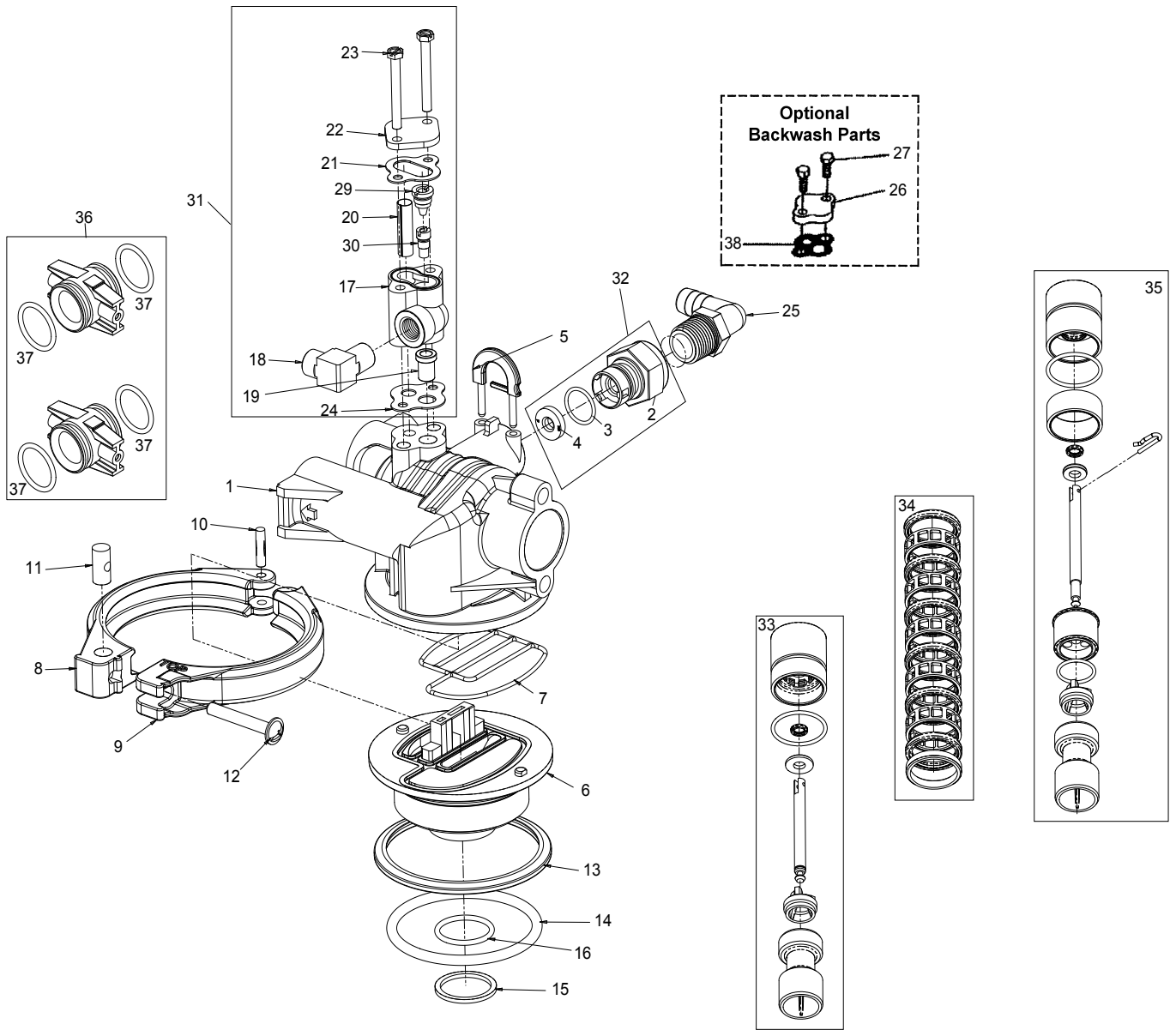
## 1500 POWERHEAD - ENVIRONMENTAL



Item No.	QTY	Part No.	Description	Item No.	QTY	Part No.	Description
1	1	18697-15	Backplate, Hinged	16	1	16493	Plug, Hole, HeyCo, .88 Dia
2	1	11838	Power Cord, 6', North American, Flat	17	1	17421	Plug, 1.20 Hole
3	1	13547	Strain Relief, Cord	18	2	19691	Plug, .750 Dia. Hole, Flush
4	1	40400	Harness, Drive Designr/Envirtml	19	7	19800	Plug (Hole Size: Dia .140)
5	2	10231	Screw, Slot Hex 1/4-20 x 1/2 35 IN-LBS ±20%	20	4	19801	Plug, Dia .190
6	2	10218	Switch, Micro	21	1	10712	Fitting, Brine Valve (Used on Filter Valves)
7	1	10909	Pin, Connecting Rod Spring	22	1	10269	Nut, Jam, 3/4-16 (Used on Filter Valves) Wrench Tighten
8	1	60160-15	Drive Cam Assy, STF, Blue, 2900	23	2	41581	Plug, Hole .125 Dia, White
9	2	10338	Pin, Roll, 3/32 x 7/8	24	1	10872	Screw, Hex WSH, 8-32 x 5/16 20 IN-LBS ±20%
10	2	14923	Screw, Pan Hd MACH, 4-40 x 1 5.0 IN-LBS ±10%	25	1	14202-01	Screw, Hex Washer #8-32 x 5/16 Hand Tighten
11	1	41543	Motor, Drive, 115V/60 Hz	26	1	60219-02	Cover Assy, Environmental, Black, Clear Window
		41545	Motor, Drive, 220V, 50-60Hz, SP, Fam 1	28	1	60050-21	Drive Motor Assy, 115V/60 Hz
12	1	12777	Cam, Shut-off Valve			60050-22	Drive Motor Assy, 220V, 50-60 Hz SP FAM1
13	2	10300	Screw, Hx Wash Head, 8 x 3/8 20 IN-LBS ±20%				
14	1	3200	Timer Assy, 3200 7 or 12 Day				
15	1	15806	Hole Plug, (HeyCo)				

# MGT 15 – 30 3/4" SINGLE TIMECLOCK MAINTENANCE

## 1500 CONTROL VALVE BODY



# MGT 15 – 30 3/4” SINGLE TIMECLOCK MAINTENANCE

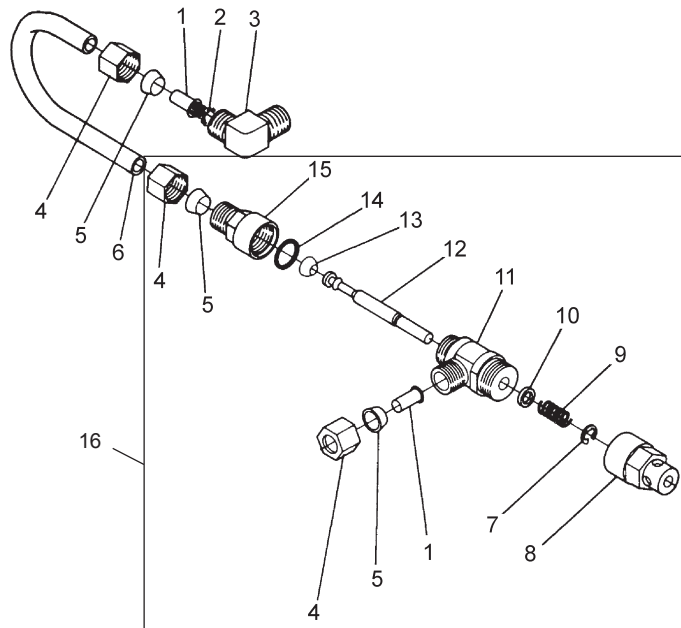
## 1500 CONTROL VALVE PARTS LIST

Item No.	QTY	Part No.	Description	Item No.	QTY	Part No.	Description
1.....	1	19328.....	Valve Body, 2510	31.....	1	60480-000.....	Injector Assy, 1600 #00, Plastic
2.....	1	11385-01.....	Housing, Flow Control, Plastic	.....		60480-00.....	Injector Assy, 1600 #0, Plastic
3.....	1	11183.....	O-ring, -017	.....		60480-01.....	Injector Assy, 1600 #1, Plastic
4.....	1	12408.....	Washer, Flow, 7.0 GPM	.....		60480-02.....	Injector Assy, 1600 #2, Plastic
5.....	1	18312.....	Retainer, Drain	.....		60480-03.....	Injector Assy, 1600 #3, Plastic
6.....	1	19322.....	Adapter Base, 2510	.....		60480-04.....	Injector Assy, 1600 #4, Plastic
7.....	1	19936.....	Seal, 2510, Base	32.....	1	60705-00.....	DLFC, Plastic Blank
8.....	1	19899.....	Clamp, Female, 2510	.....		60705-06.....	DLFC, Plastic 0.60 gpm
9.....	1	19900.....	Clamp, Male, 2510	.....		60705-08.....	DLFC, Plastic 0.80 gpm
10.....	1	40000.....	Pin, Hinge, Clamp	.....		60705-10.....	DLFC, Plastic 1.0 gpm
11.....	1	19998.....	Pivot, Clamp, 2510	.....		60705-12.....	DLFC, Plastic 1.2 gpm
12.....	1	40057.....	Screw, Comb Hd, 114-20, 2"	.....		60705-13.....	DLFC, Plastic 1.3 gpm
13.....	1	19197.....	Ring, Slip	.....		60705-15.....	DLFC, Plastic 1.5 gpm
14.....	1	18303.....	O-ring, -336	.....		60705-17.....	DLFC, Plastic 1.7 gpm
15.....	1	13030.....	Retainer, Dist Tube, O-ring	.....		60705-20.....	DLFC, Plastic 2.0 gpm
16.....	1	13304.....	O-ring, -121	.....		60705-24.....	DLFC, Plastic 2.4 gpm
17.....	1	17776.....	Body, Injector, 1600	.....		60705-30.....	DLFC, Plastic 3.0 gpm
18.....	1	10328.....	Fitting, Elbow, 90 Deg. 1/4" NPT x 3/8" Tube	.....		60705-35.....	DLFC, Plastic 3.5 gpm
19.....	1	16221.....	Dispenser, Air	.....		60705-40.....	DLFC, Plastic 4.0 gpm
20.....	1	10227.....	Screen, Injector	.....		60705-45.....	DLFC, Plastic 4.5 gpm
21.....	1	10229.....	Gasket, Injector Cap, 1600	.....		60705-50.....	DLFC, Plastic 5.0 gpm
22.....	1	11893.....	Cap, Injector, SS	.....		60705-60.....	DLFC, Plastic 6.0 gpm
23.....	2	10692.....	Screw, Slot Hex Hd, 10-24 x 1-5/8"	.....		60705-70.....	DLFC, Plastic 7.0 gpm
24.....	1	14805.....	Gasket, Injector Body, 1600/1700	.....		60706-8.0.....	DLFC, QC x 3/4"F, 8.0 gpm
25.....	1	12338.....	Fitting, Elbow, 90 Deg. 1/2" NPT x 1/2" Barb	.....		60706-9.0.....	DLFC, QC x 3/4"F, 9.0 gpm
26.....	1	11893.....	Cap, Injector, Stainless Steel	.....		60706-10.....	DLFC, QC x 3/4"F, 10 gpm
		10228.....	Cap, Injector, Brass	.....		60706-12.....	DLFC, QC x 3/4"F, 12 gpm
27.....	1	15137.....	Screw, Hex Wsh Mach, 10-24 x 3/8	.....		60706-15.....	DLFC, QC x 3/4"F, 15 gpm
28.....	1	10757.....	Spacer, End	.....		60706-20.....	DLFC, QC x 3/4"F, 20 gpm
29.....	1	12973-0.....	Nozzle, Injector, #0, PVC	33.....	1	60090.....	Piston Assy, 1500, 2510, 2750
		12973-1.....	Nozzle, Injector, #1, PVC	34.....	1	60121.....	Seal Kit, 1500, 2510, 2750
		12973-2.....	Nozzle, Injector, #2, PVC		1	60121-10.....	Seal and Spacer Kit, 2510, 2750, Silicone
		12973-3.....	Nozzle, Injector, #3, PVC	35.....	1	60101-01.....	Piston Assy, NHWPB
		12973-4.....	Nozzle, Injector, #4, PVC	36.....	2	19228-01.....	Adapter Assy, Coupling w/O-ring
		10913-000.....	Nozzle, Injector, #000 Brown	37.....	4	13305.....	O-ring, -119
		10913-00.....	Nozzle, Injector, #00 Violet	38.....	1	14805.....	Gasket, Injector Body, 1600/1700
		10913-0.....	Nozzle, Injector, #0 Red	<b>Not Shown</b>			
		10913-1.....	Nozzle, Injector, #1 White		1	11098.....	Stuffer Tool Assy, 2510/2750
		10913-2.....	Nozzle, Injector, #2 Blue		1	13061.....	Puller Assy, Port Ring 2510/2750
		10913-3.....	Nozzle, Injector, #3 Yellow		1	12874.....	Hook, Seal
		10913-4.....	Nozzle, Injector, #4 Green	<b>NOTE: For optimal seal life, the use of lubricants is not recommended.</b>			
30.....	1	12974-0.....	Throat, Injector, #0, PVC				
		12974-1.....	Throat, Injector, #1, PVC				
		12974-2.....	Throat, Injector, #2, PVC				
		12974-3.....	Throat, Injector, #3, PVC				
		12974-4.....	Throat, Injector, #4, PVC				
		10914-000.....	Throat, Injector, #000 Brown				
		10914-00.....	Throat, Injector, #00 Violet				
		10914-0.....	Throat, Injector, #0 Red				
		10914-1.....	Throat, Injector, #1 White				
		10914-2.....	Throat, Injector, #2 Blue				
		10914-3.....	Throat, Injector, #3 Yellow				
		10914-4.....	Throat, Injector, #4 Green				



# MGT 15 – 30 3/4” SINGLE TIMECLOCK MAINTENANCE

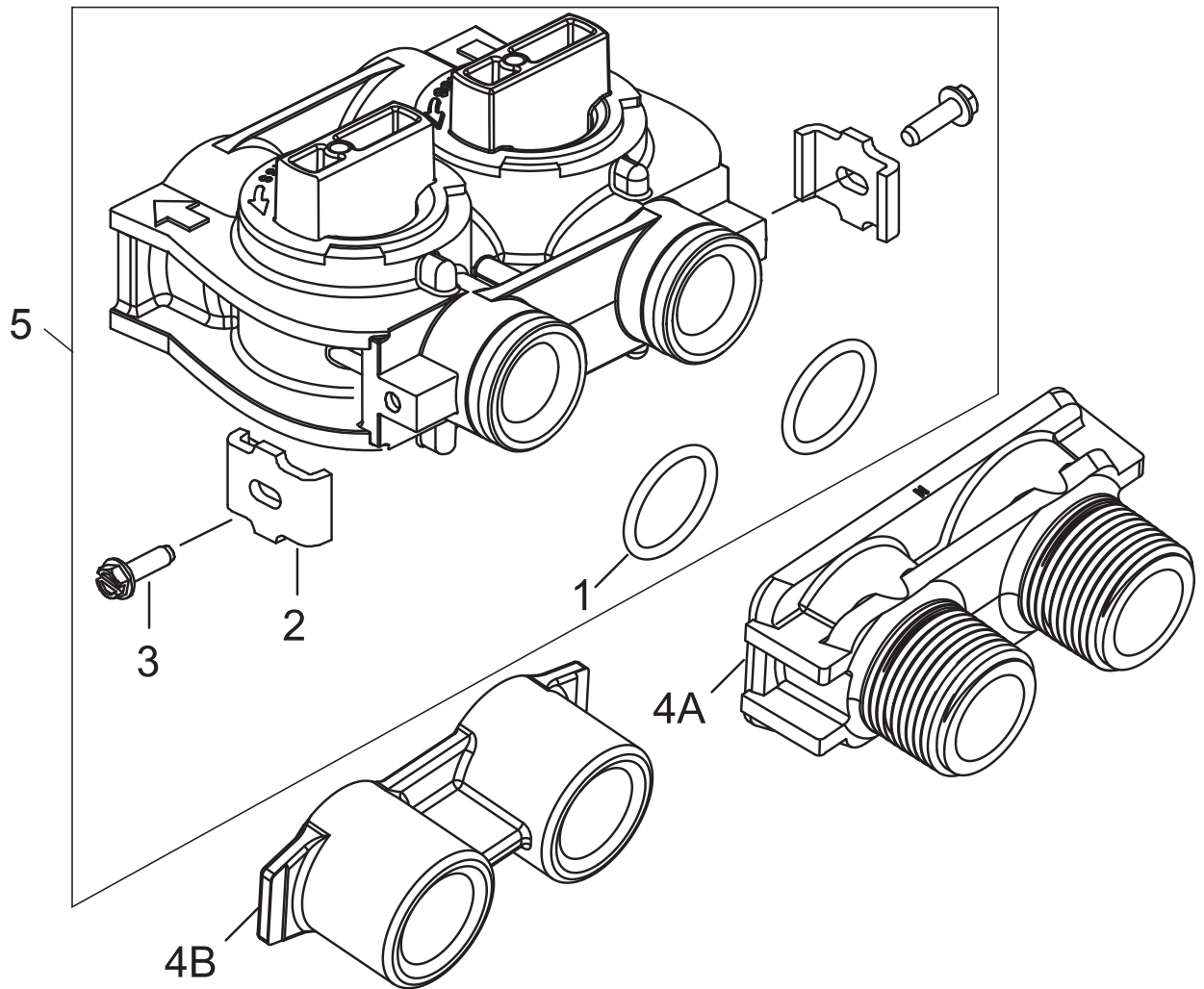
## 1600 BRINE SYSTEM



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

# MGT 15 – 30 3/4” SINGLE TIMECLOCK MAINTENANCE

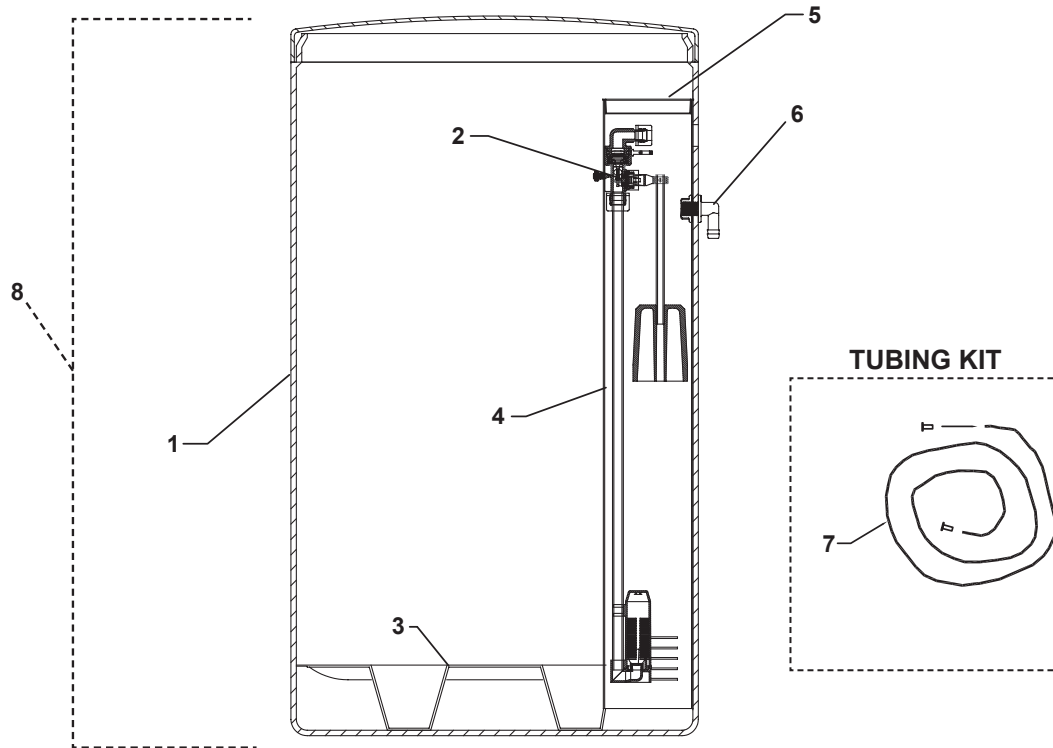
## BYPASS VALVE ASSEMBLY (PLASTIC)



Item No.	QTY	PartNo.	Description
1.....	2 .....	13305.....	O-ring, -119
2.....	2 .....	13255.....	Clip, Mounting
3.....	2 .....	13314.....	Screw, Slot Ind Hex, 8-18 x .60
4B .....	1.....	41027-01.....	Yoke, 3/4", NPT, Cast, Machined
5.....	1 .....	60049.....	Bypass Plastic - Optional (Not Included)

# MGT 15 – 30 3/4” SINGLE TIMECLOCK 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 15 – 30 3/4” SINGLE TIMECLOCK MAINTENANCE

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## **SERVICE ASSEMBLIES**

### **BRINE VALVES**

B1042011 Model 1600 brine valve assy. - 0.25 GPM  
B1042012 Model 1600 brine valve assy. - 1 GPM

### **BRINE LINE FLOW CONTROLS**

A2389001 BLFC .25 GPM  
A2389002 BLFC .50 GPM  
A2389004 BLFC 1.0 GPM

### **COVERS**

A2103095 Environmental Cover

### **CAM ASSEMBLY**

60160-15 Drive Cam Assy, STF, Blue

### **PISTON ASSEMBLIES**

60090 Piston Assy 1500,2510, 2750

### **SEAL & SPACER KITS**

A2435025 Seal and Spacer Kit

### **SERVICE EQUIPMENT**

A2475001 Seal & Spacer stuffer tool upper  
A2474001 Spacer puller tool upper  
A2423002 Silicone, 2 oz. Tube

### **SKIPPER WHEELS**

A2093010 Skipper Wheel Assy, 7 Day  
A2093009 Skipper Wheel Assy, 12 Day

# MGT 15 – 30 3/4” SINGLE TIMECLOCK MAINTENANCE

## TROUBLESHOOTING VALVE

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

# MGT 15 – 30 3/4” SINGLE TIMECLOCK MAINTENANCE

## TROUBLESHOOTING VALVE (CONTINUED)

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

### 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 wheel to provide additional reserve.

Cause could be that . . . Program Wheel Is Not Rotating With Meter Output

Correction: Pull cable out of meter cover and rotate manually. Program wheel must move without binding and clutch must give positive “clicks” when program wheel strikes regeneration stop. If it does not, replace timer.

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

Correction: Check meter with meter checker.

**MGT 15 – 30 3/4” SINGLE TIMECLOCK**

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